

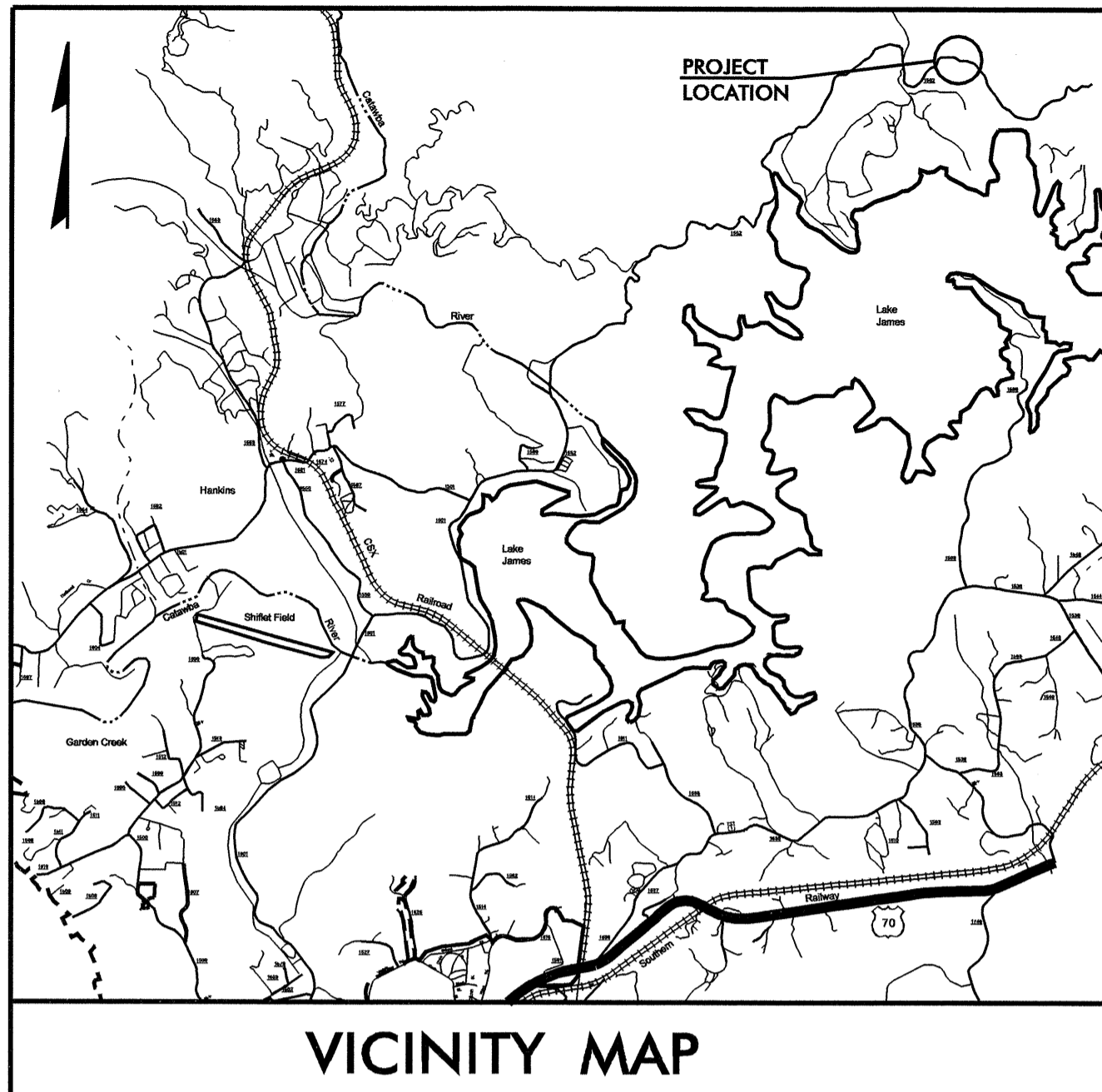
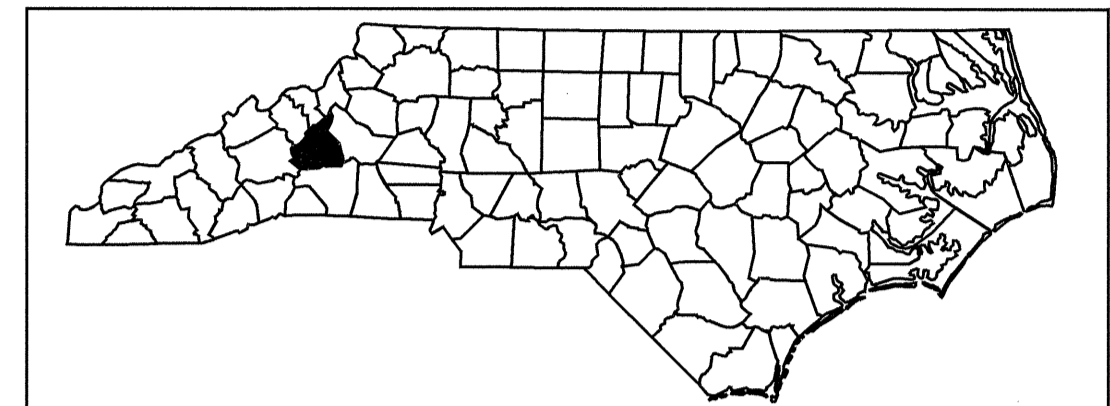
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

McDOWELL COUNTY

LOCATION: BRIDGE NO. 73 OVER DALES CREEK ON SR 1552 (LAKE JAMES RD.)

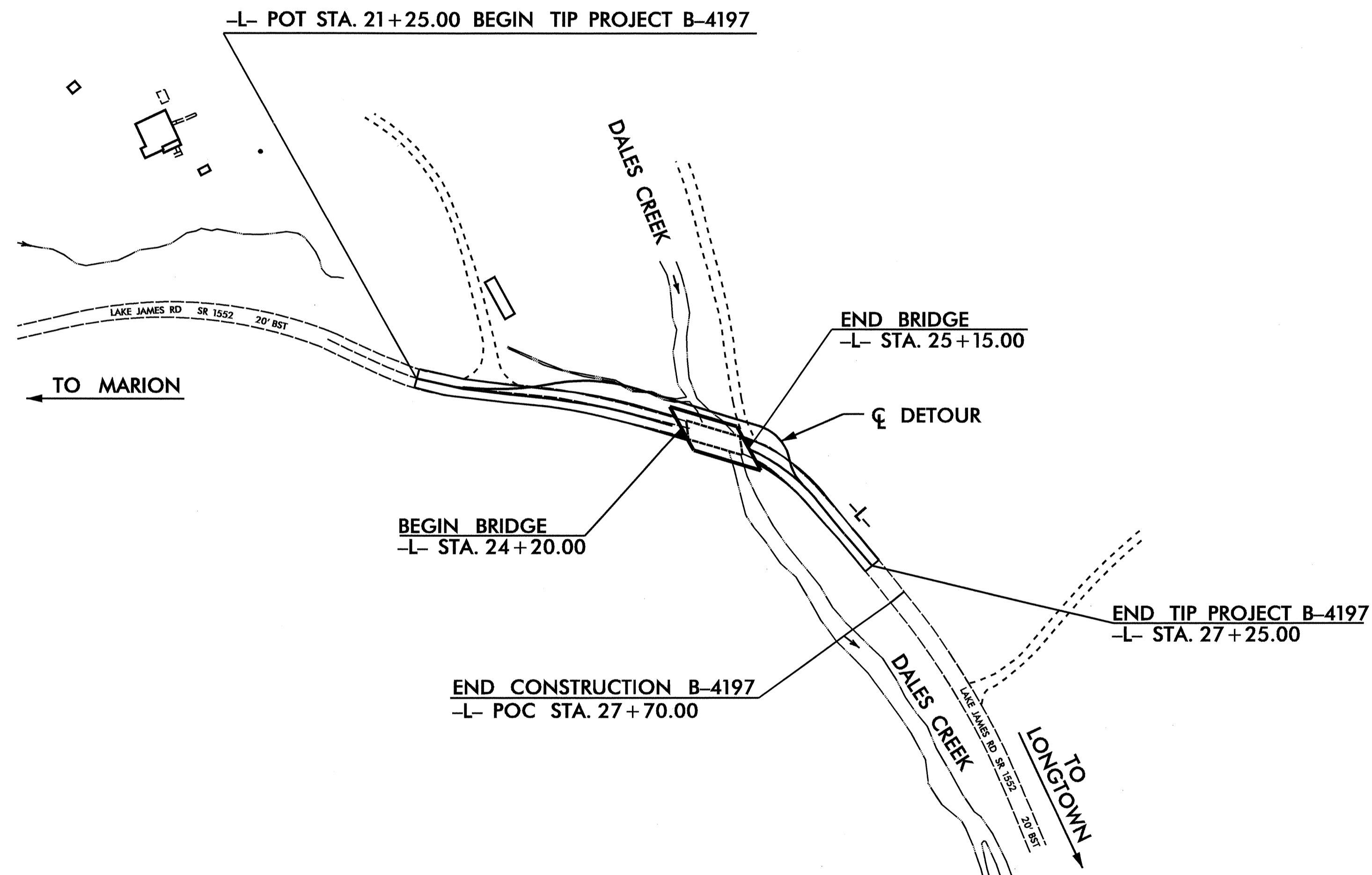
TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4197		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33544.1.1	BRZ-1552(9)	P.E.	
33544.2.2	BRZ-1552(9)	RW & UTIL.	
33544.3.1	BRZ-1552(9)	CONST.	



VICINITY MAP

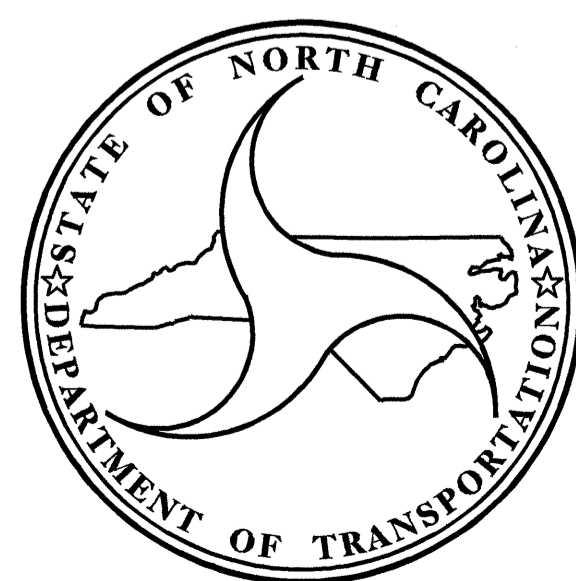
NEAREST SHIPPING POINT : MARION ON SOUTHERN R.R. APPROX. 10.8 MILES FROM PROJECT



CONTRACT: C201806 TIP PROJECT: B-4197

STRUCTURE

** DESIGN EXCEPTION FOR DESIGN SPEED



DESIGN DATA	
ADT 2008 =	258
ADT 2028 =	425
DHV =	10%
D =	60%
T =	3% *
** V =	60 MPH
* TTST 1%	DUAL 2%

PROJECT LENGTH	
LENGTH ROADWAY TIP PROJECT B-4197 =	0.096 MI
LENGTH STRUCTURE TIP PROJECT B-4197 =	0.018 MI
TOTAL LENGTH OF TIP PROJECT B-4197 =	0.114 MI

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 BIRCH RIDGE DR. RALEIGH, NC 27610

2006 STANDARD SPECIFICATIONS

LETTING DATE:
JULY 15, 2008

N. N. BULLOCK, PE
PROJECT ENGINEER

A. K. PASCHAL, PE
PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

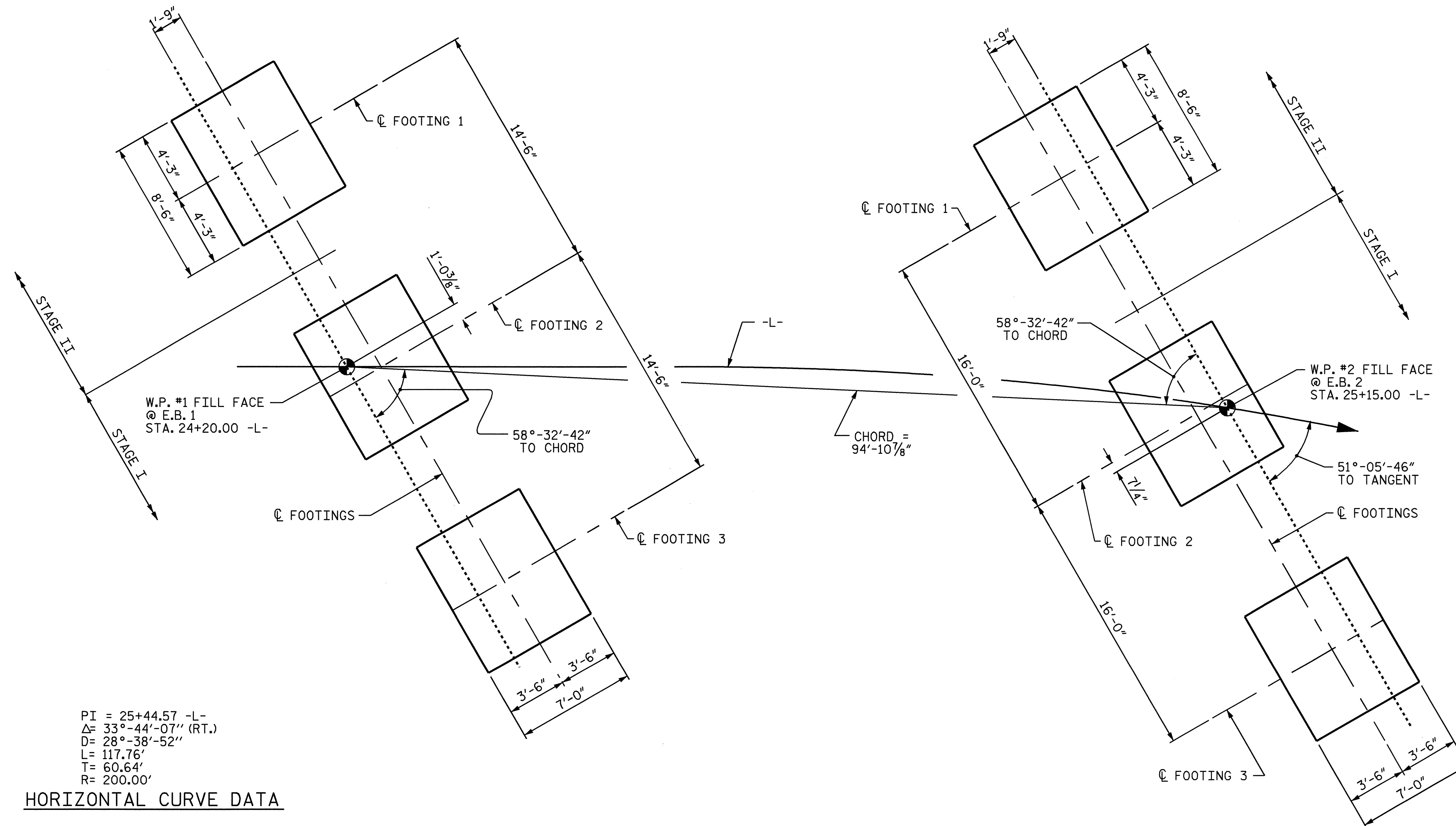
STATE DESIGN ENGINEER *P.E.*

**DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION**

APPROVED *DATE*

DIVISION ADMINISTRATOR

30-APR-2008 07:02
Re: Structure es: B4197, Final Plans B4197, es: TSH.dgn
bng:cdy



PI = 25+44.57 -L-
 Δ = 33°-44'-07" (RT.)
 D = 28°-38'-52"
 L = 117.76'
 T = 60.64'
 R = 200.00'

HORIZONTAL CURVE DATA

FOUNDATION & CHORD LAYOUT

DIMENSIONS ARE TYPICAL FOR EACH FOOTING
 END BENTS ARE PARALLEL

FOUNDATION NOTES

THE SCOUR CRITICAL ELEVATION FOR END BENT 1 AND END BENT 2 IS THE BOTTOM OF FOOTING ELEVATION. BRIDGE MAINTENANCE USES THE SCOUR CRITICAL ELEVATIONS TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE REQUIRED BEARING CAPACITY FOR THE SPREAD FOOTINGS AT END BENT 1 AND END BENT 2 IS 15 TSF. CHECK FIELD CONDITIONS FOR THE REQUIRED END BEARING CAPACITY JUST PRIOR TO PLACING CONCRETE.

TO PROVIDE PROTECTION FROM POSSIBLE SCOUR, DO NOT CONSTRUCT SPREAD FOOTINGS AT END BENT 1 AND END BENT 2 AT ELEVATIONS HIGHER THAN SHOWN ON THE PLANS.

FOR BLASTING ADJACENT TO HIGHWAY STRUCTURES, SEE ARTICLE 410-11 OF THE STANDARD SPECIFICATIONS.

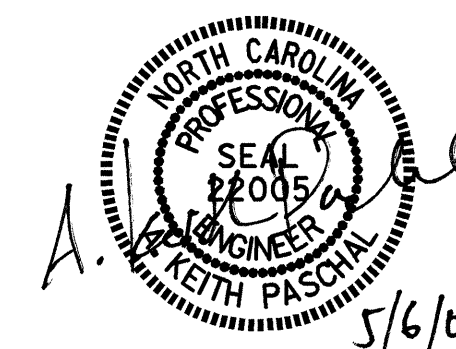
DUE TO SLOPING ROCKLINE AT END BENT 2, THE BOTTOM OF FOOTING ELEVATION MAY BE LOWERED TO ACHIEVE THE REQUIRED BEARING CAPACITY.

PROJECT NO. B-4197
MCDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

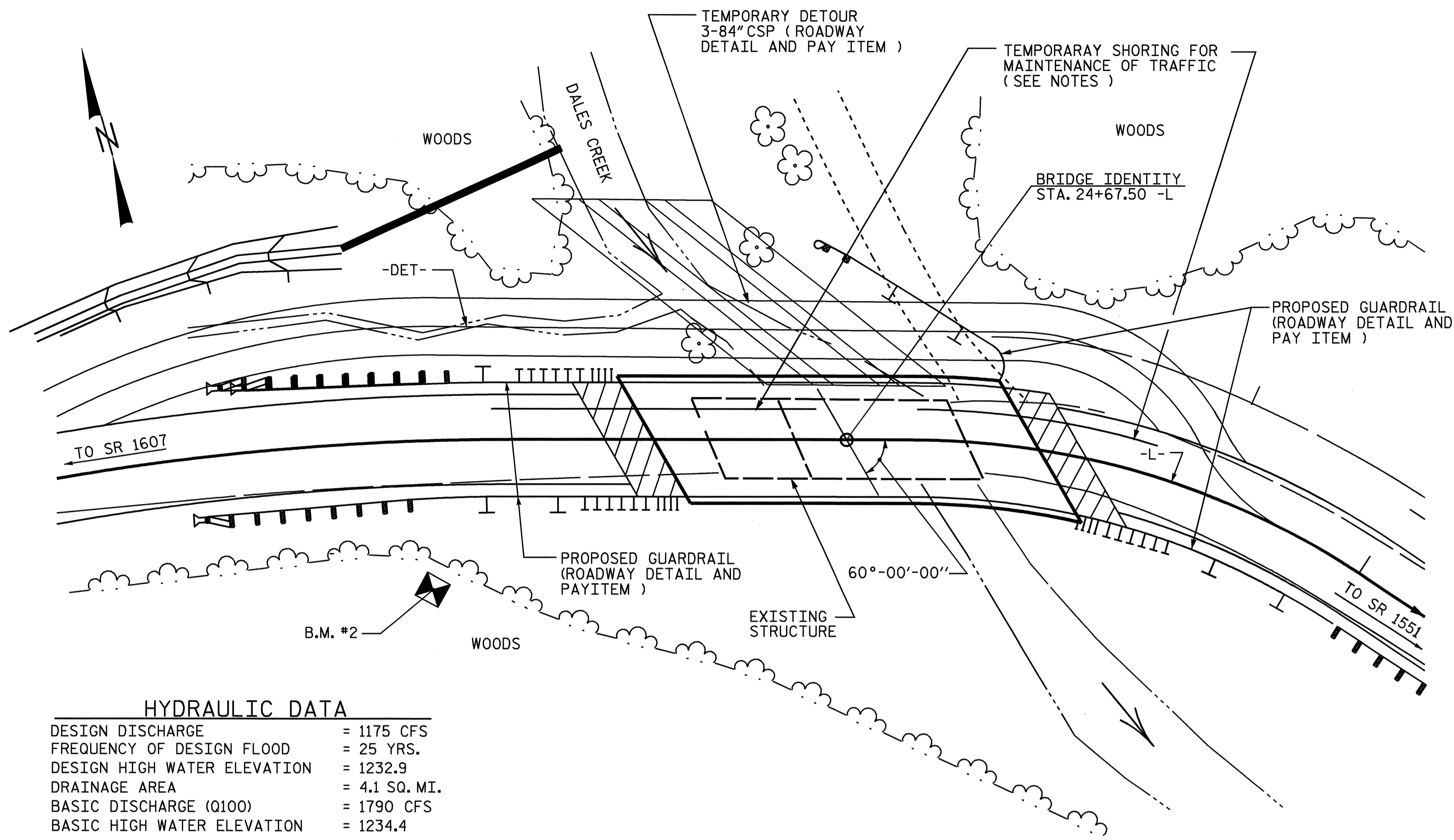
GENERAL DRAWING
 FOR BRIDGE OVER DALES CREEK
 ON SR 1552 BETWEEN
 SR 1607 & SR 1551



DRAWN BY: B.N. GRADY DATE: 1/3/08
 CHECKED BY: E. G. ALLEN DATE: 1/17/08

30-APR-2008 07:13
 R:\Structures\B4197\Final Plans\B4197.sd.GD_01.dgn
 bngrady

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



HYDRAULIC DATA

DESIGN DISCHARGE	= 1175 CFS
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 1232.9
DRAINAGE AREA	= 4.1 SQ. MI.
BASIC DISCHARGE (Q100)	= 1790 CFS
BASIC HIGH WATER ELEVATION	= 1234.4

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= 2710 CFS
FREQUENCY OF OVERTOPPING FLOOD	= 500 YRS.
OVERTOPPING FLOOD ELEVATION	= 1237.8

LOCATION SKETCH

FOR UTILITY INFORMATION SEE
UTILITY PLANS AND SPECIAL PROVISIONS.

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 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 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 3 (2 @ 11'-6 1/2" CONT. AND 1 @ 41'-8") TIMBER FLOOR SPANS ON I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 18'-4" ON REINFORCED CONCRETE ABUTMENTS WITH A TIMBER CAP CRUTCH BENT AND A REINFORCED CONCRETE PIER BENT 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.

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

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

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 24+67.50 -L-."

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 B.

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

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 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 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.

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 STRUCTURAL STEEL MEMBERS, SEE SPECIAL PROVISIONS.

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

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	FOUNDATION EXCAVATION FOR END BENT	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	LUMP SUM	LUMP SUM	SQ.FT.	SQ.FT.	CU.YDS.	LUMP SUM	LBS.	APPROX. LBS.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	LUMP SUM
SUPERSTRUCTURE				2,893	3,012		LUMP SUM		96,900	185.55			LUMP SUM	LUMP SUM
END BENT 1		LUMP SUM				52.4		5,757			154	172		
END BENT 2		LUMP SUM				55.5		6,121			69	77		
TOTAL	LUMP SUM	LUMP SUM	LUMP SUM	2,893	3,012	107.9	LUMP SUM	11,878	96,900	185.55	223	249	LUMP SUM	LUMP SUM

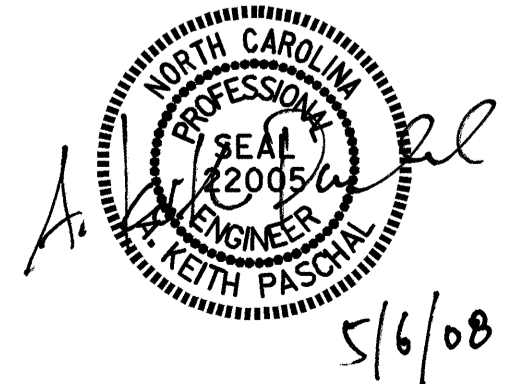
PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 3 OF 3

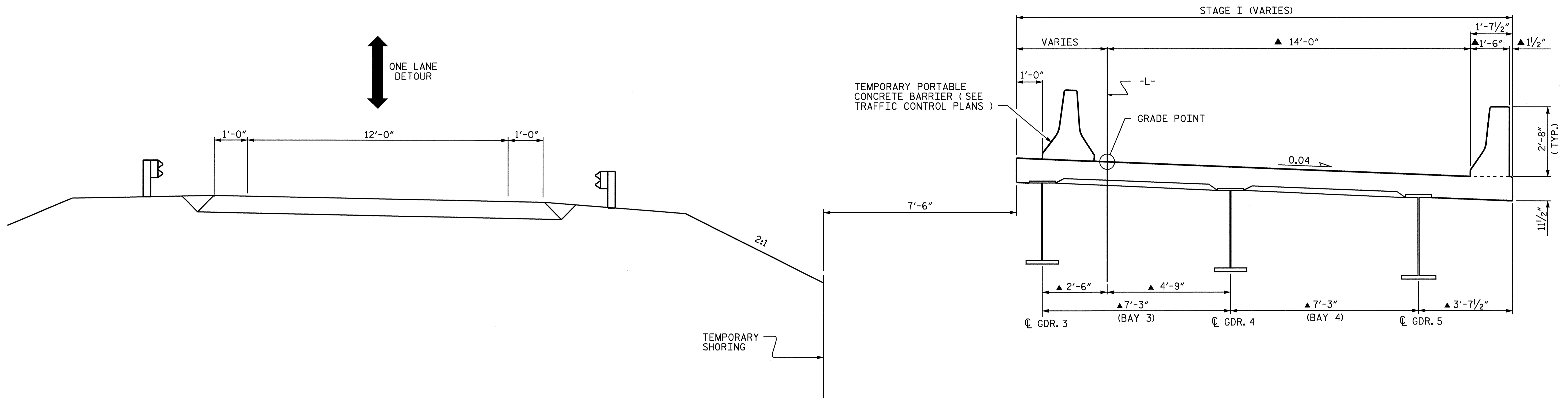
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE OVER DALES CREEK
 ON SR 1552 BETWEEN
 SR 1607 & SR 1551

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



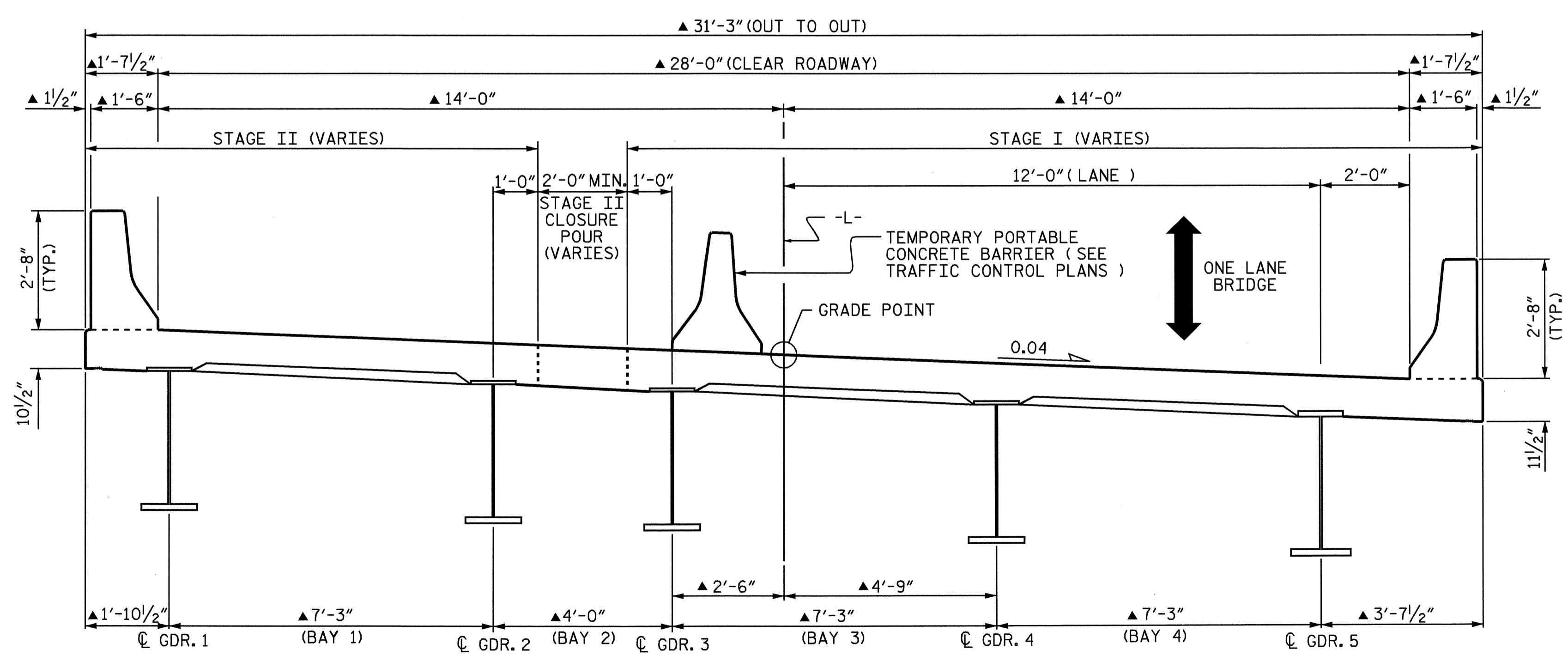
DRAWN BY : B.N. GRADY DATE : 1/3/08
 CHECKED BY : E.G. ALLEN DATE : 1/17/08



STAGE I TRAFFIC
(DETOUR)

STAGE I CONSTRUCTION
REMOVE EXISTING STRUCTURE
▲ MEASURED PERPENDICULAR TO -L- THRU WORKPOINT

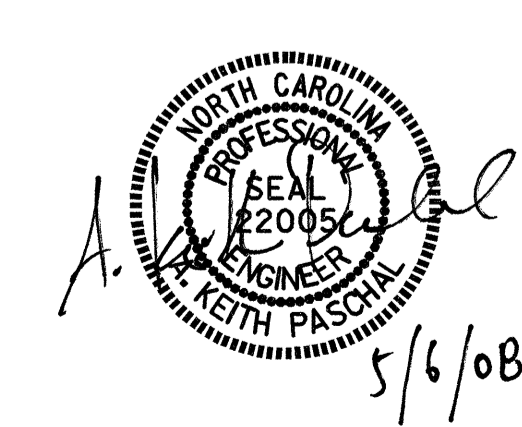
NOTES:
SEE TRAFFIC CONTROL PLANS FOR LOCATION AND PAY LIMITS OF THE TEMPORARY CONCRETE BARRIERS.



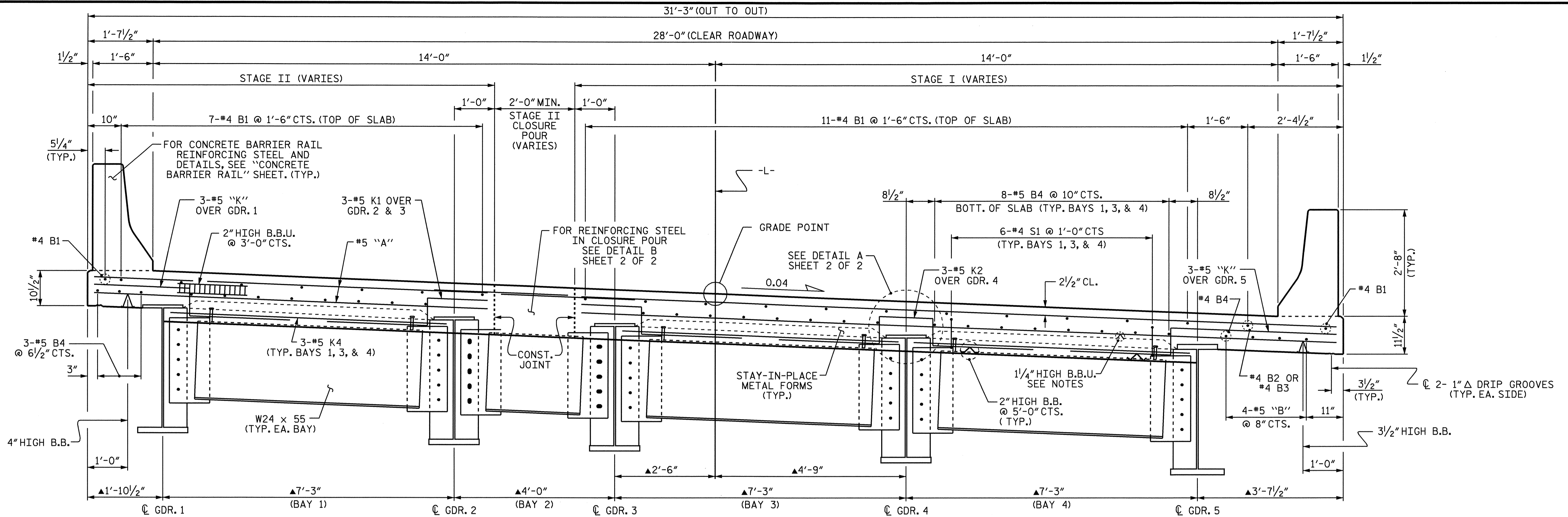
STAGE II CONSTRUCTION AND TRAFFIC
REMOVE DETOUR, CONSTRUCT STAGE II CONSTRUCTION.

PROJECT NO. B-4197
MCDOWELL COUNTY
STATION: 24+67.50 -L-

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
CONSTRUCTION SEQUENCE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-4
					TOTAL SHEETS 28



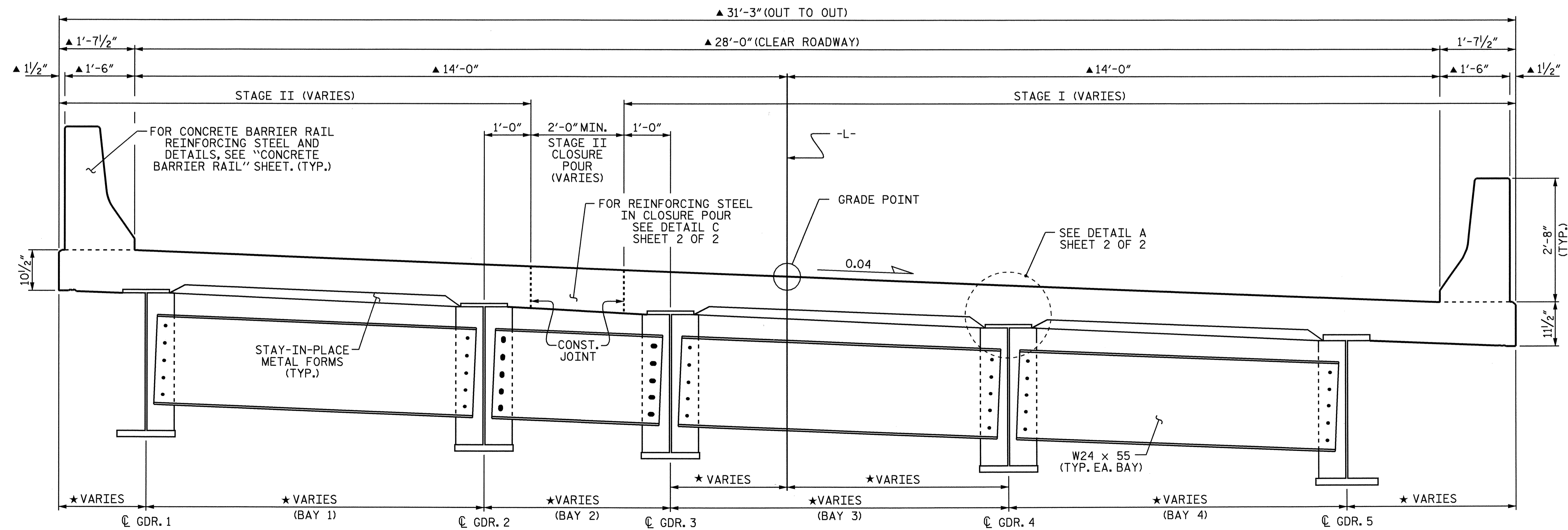
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CHECKED BY: A.K. PASCHAL DATE: 3/12/08



TYPICAL SECTION @ END BENT DIAPHRAGMS

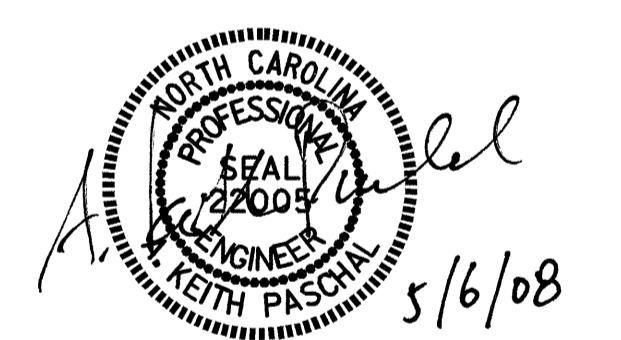
FOR END BENT DIAPHRAGM LOCATIONS AND TYPES, SEE "FRAMING PLAN" SHEETS.
FOR DIAPHRAGM DETAILS, SEE "STRUCTURAL STEEL DETAILS" SHEETS.

ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS OTHERWISE NOTED.
▲ DIMENSIONS ARE RADIAL @ END BENT FILL FACES.



TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS

FOR INTERMEDIATE DIAPHRAGM LOCATIONS AND TYPES, SEE "FRAMING PLAN" SHEETS.
FOR DIAPHRAGM DETAILS, SEE "STRUCTURAL STEEL DETAILS" SHEETS.



PROJECT NO. B-4197
McDOWELL COUNTY
STATION: 24+67.50 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**SUPERSTRUCTURE
TYPICAL SECTION**

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

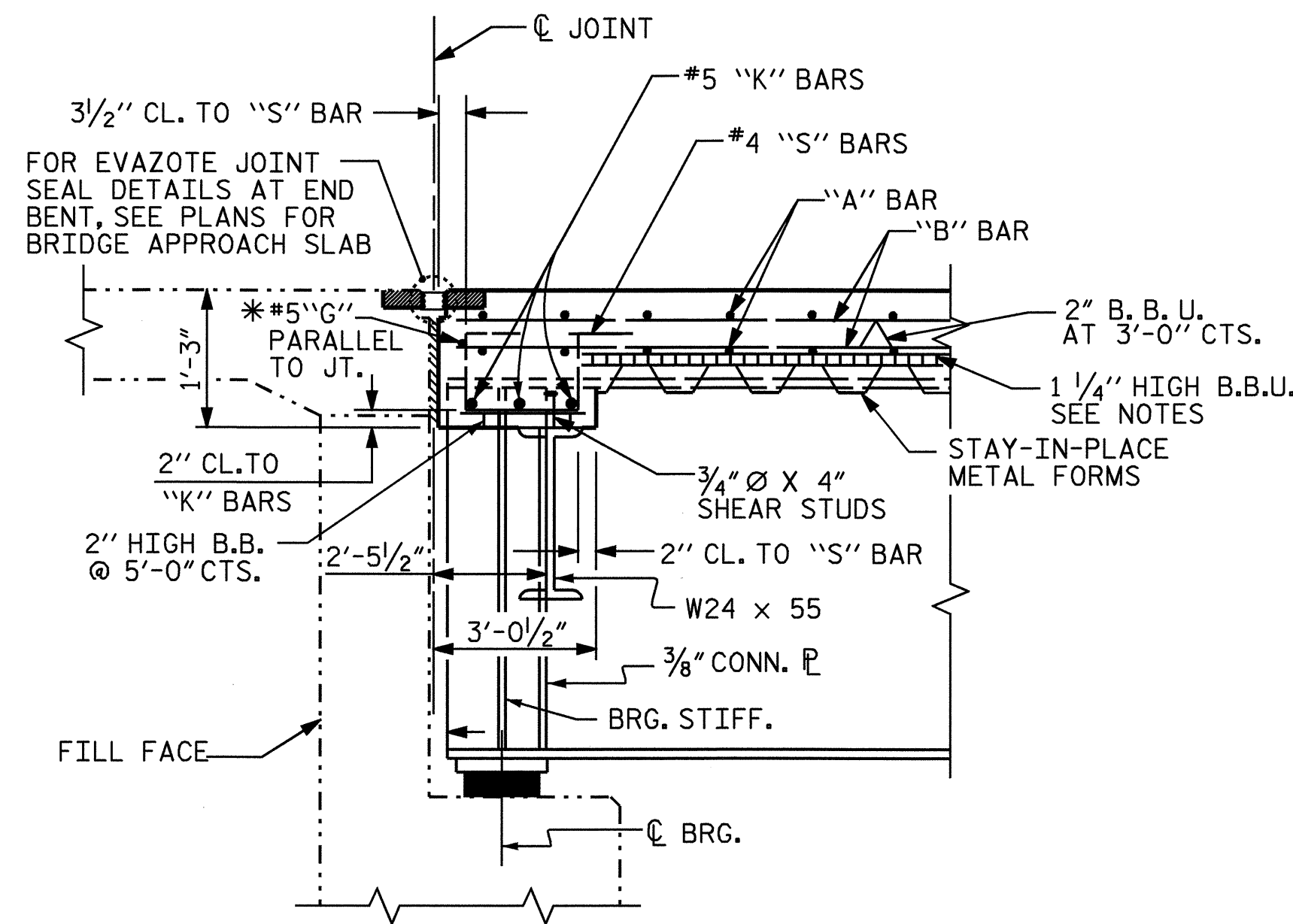
DRAWN BY : B.N. GRADY DATE : 10/17/07
CHECKED BY : J.G. KHARVA DATE : 12/10/07

NOTES

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

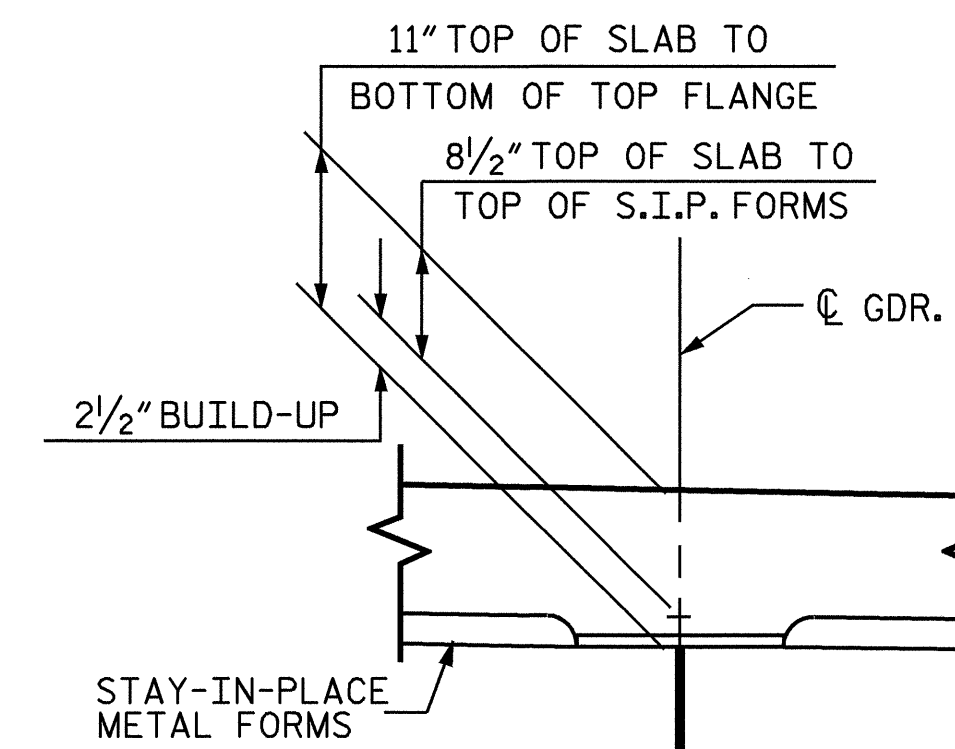
THE CONTRACTOR MAY, WHEN NECESSARY, PROPOSE A SCHEME FOR AVOIDING INTERFERENCE BETWEEN METAL STAY-IN-PLACE FORM SUPPORTS OR FORMS AND GIRDER STIFFENERS OR CONNECTOR PLATES. THE PROPOSAL SHALL BE INDICATED, AS APPROPRIATE, ON EITHER THE STEEL WORKING DRAWINGS OR THE METAL STAY-IN-PLACE FORM WORKING DRAWINGS.

PREVIOUSLY CAST CONCRETE IN THE SLAB SHALL HAVE ATTAINED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI BEFORE ADDITIONAL CONCRETE IS CAST IN THE SLAB.

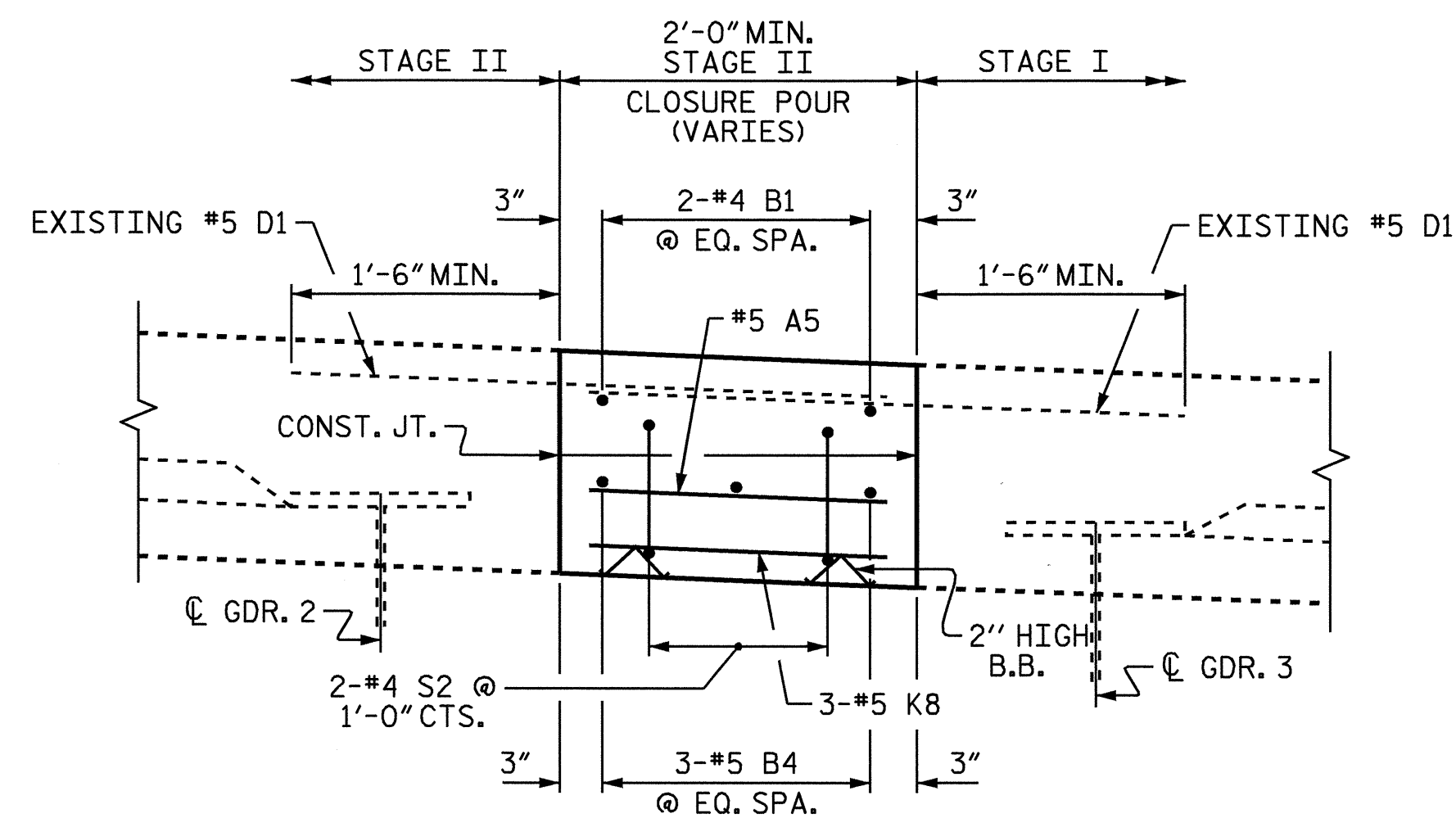


SECTION THRU END BENT DIAPHRAGM

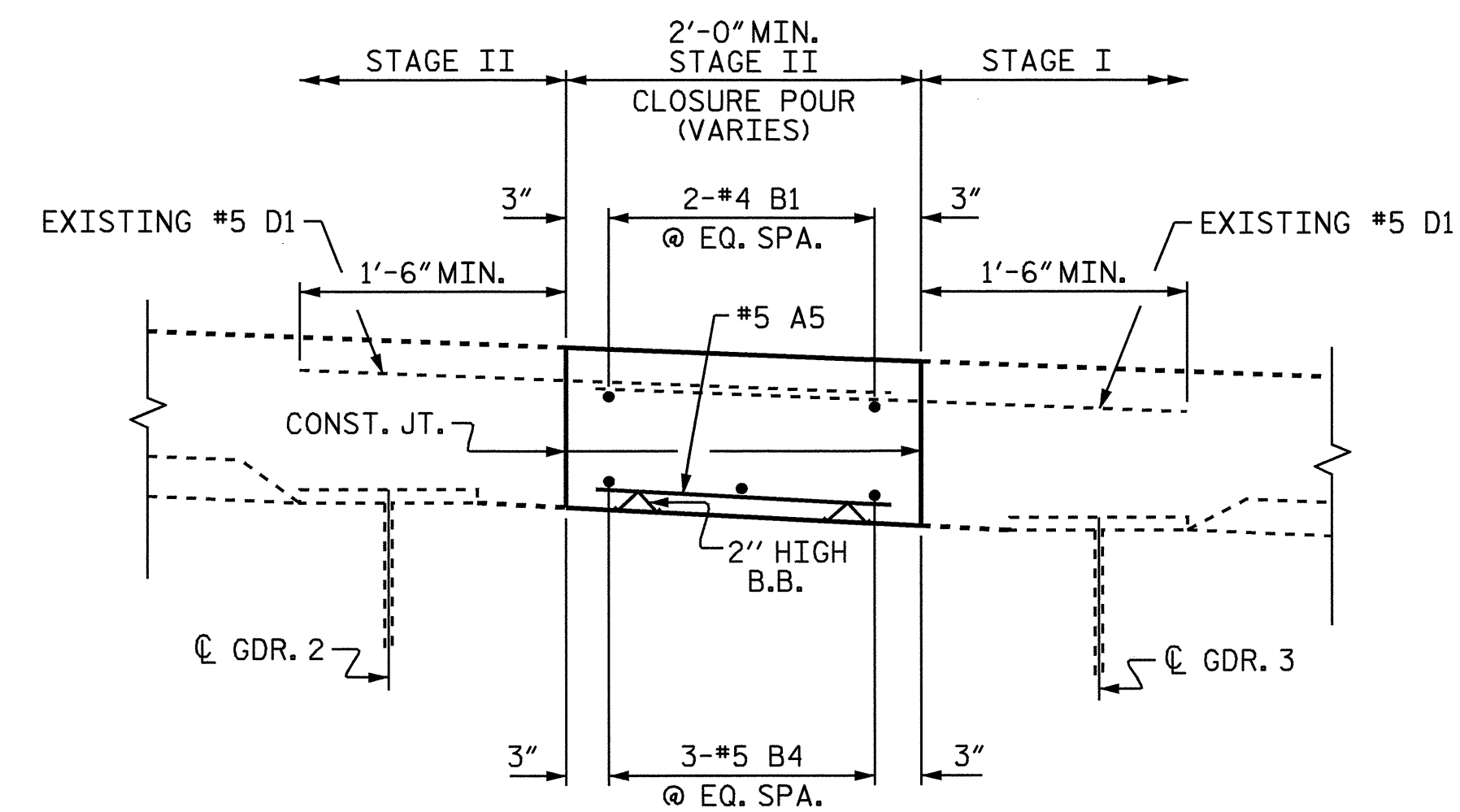
*5 "G" BAR MAY BE SHIFTED SLIGHTLY, AS NECESSARY, TO CLEAR REINFORCING STEEL & STIRRUPS



DETAIL A



DETAIL B



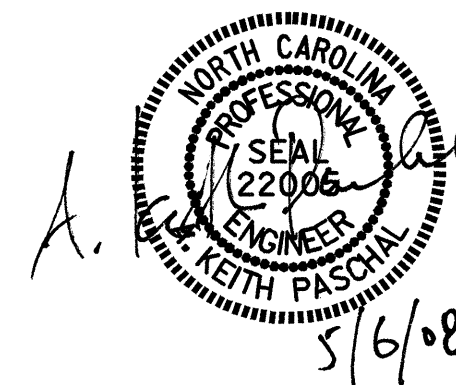
DETAIL C

PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

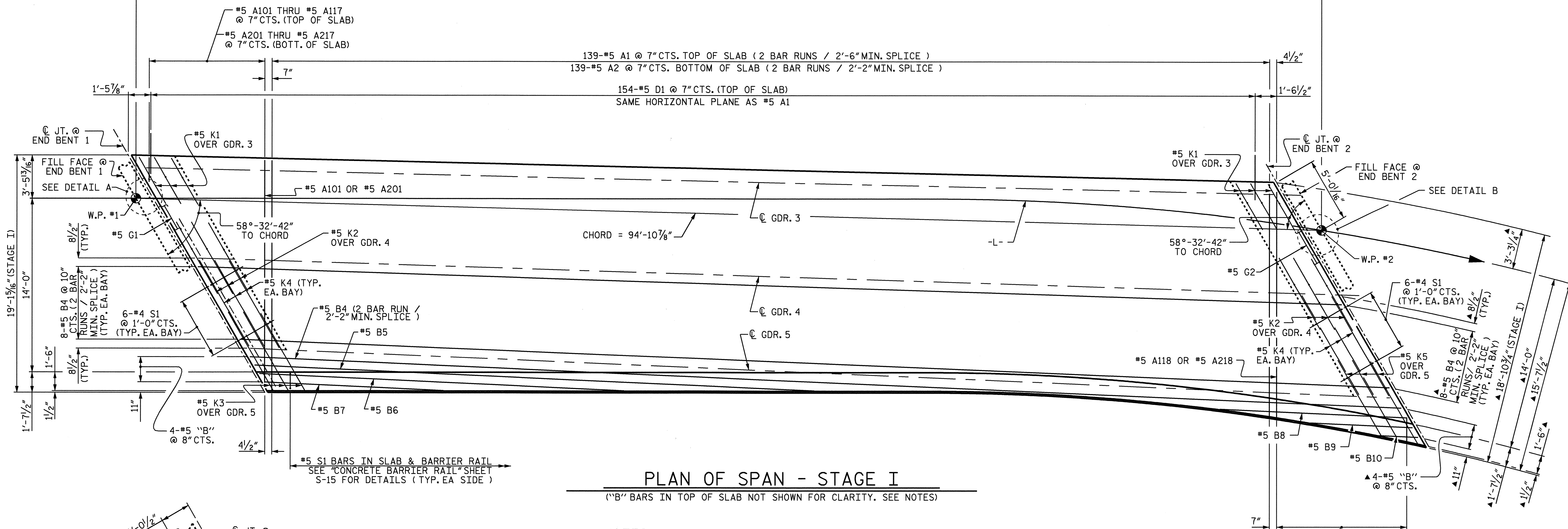
SUPERSTRUCTURE
 TYPICAL SECTION



DRAWN BY : B.N. GRADY DATE : 10/17/07
 CHECKED BY : J.G. KHARVA DATE : 12/10/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			28

95'-0" ALONG -L- (W.P. #1 TO W.P. #2)



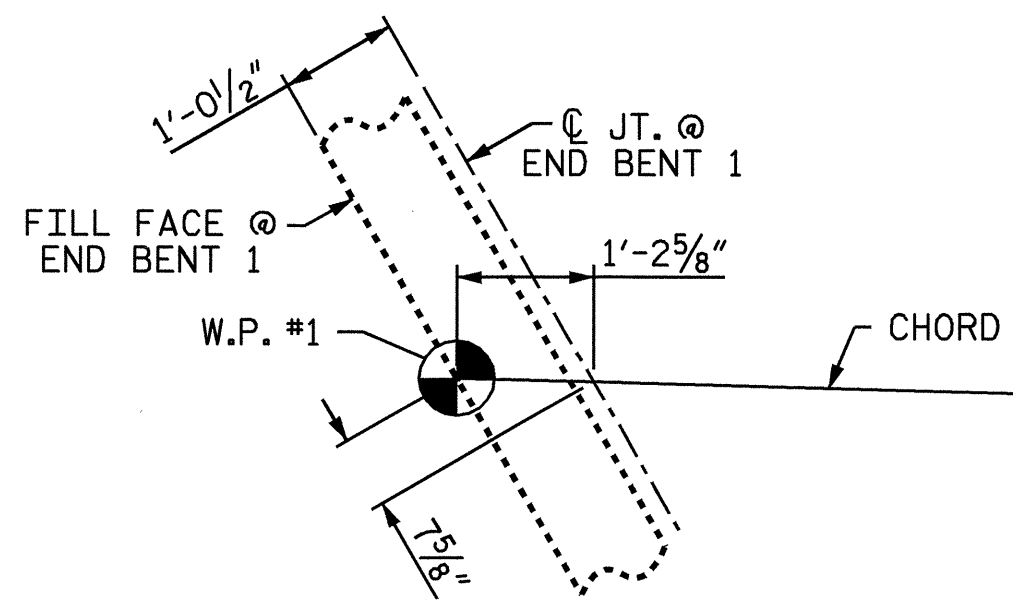
PLAN OF SPAN - STAGE I

("B" BARS IN TOP OF SLAB NOT SHOWN FOR CLARITY. SEE NOTES)

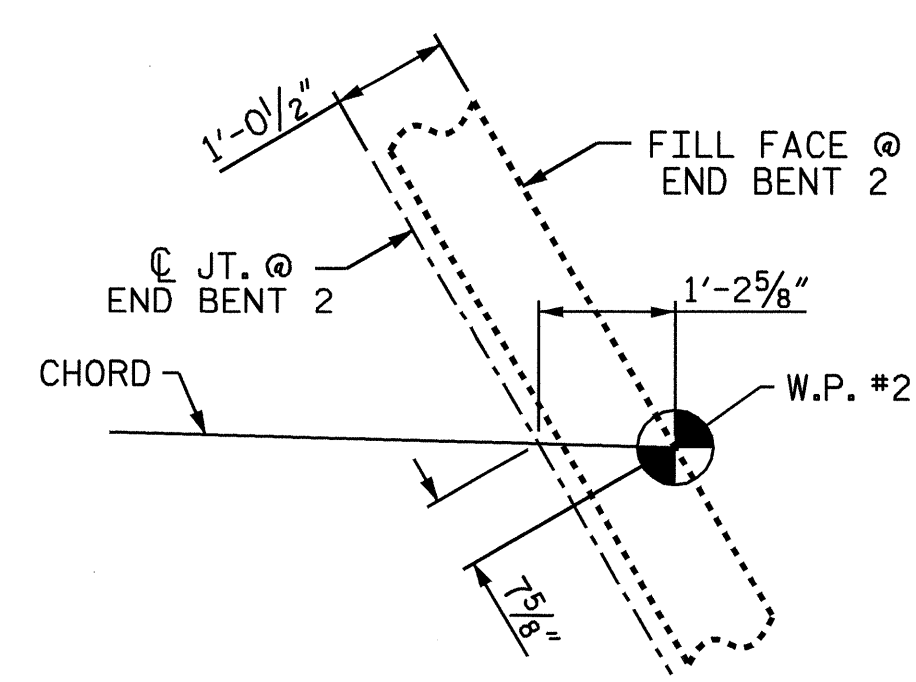
NOTES

"B" BARS SHOWN ARE IN BOTTOM OF SLAB, FOR "B" BARS IN TOP OF SLAB, SEE "TOP OF SLAB "B" BAR REINFORCEMENT" SHEET 3 OF 3.
 "B" BARS SHALL BE PLACED ALONG THE CHORD OF CONCENTRIC ARCS NOT INCLUDING "B" BARS IN CLOSURE POUR.
 DOWELS SHALL BE PLACED IN THE SAME HORIZONTAL PLANE AS THE TOP SLAB REINFORCING STEEL.

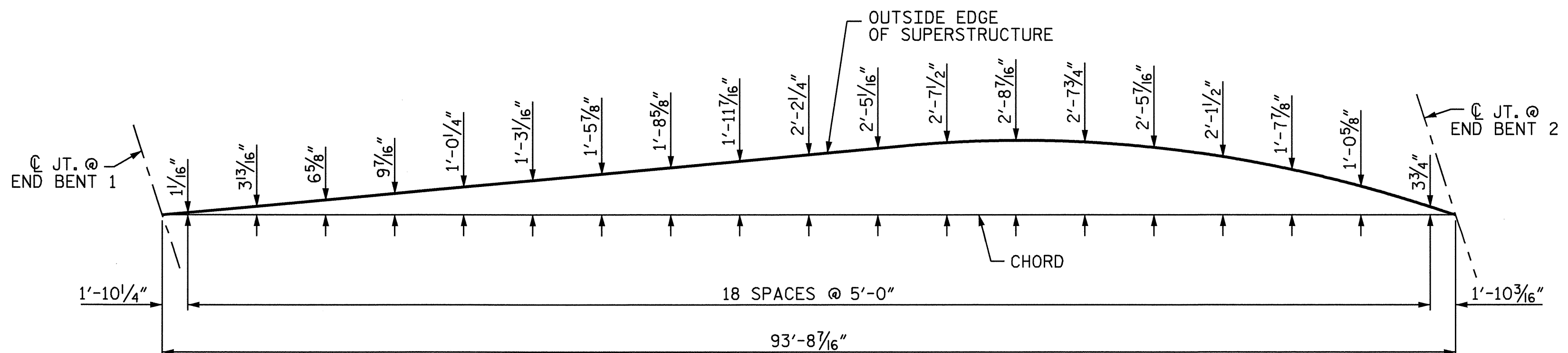
ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS OTHERWISE NOTED.
 ▲ DIMENSIONS ARE RADIAL @ END BENT FILL FACES.



DETAIL A



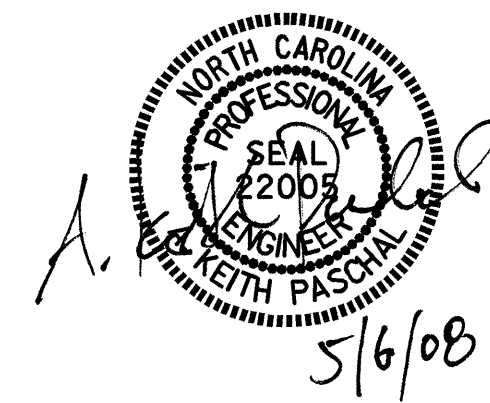
DETAIL B



RIGHT SIDE
ARC OFFSETS

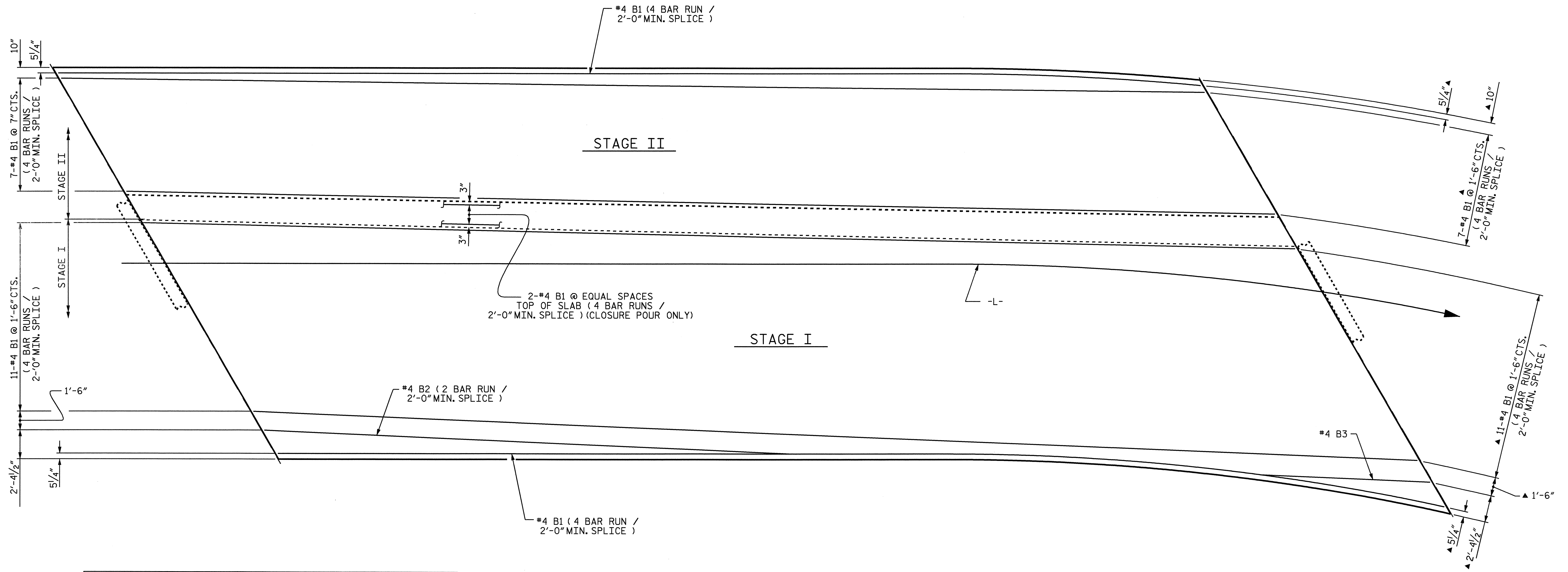
PROJECT NO. B-4197
 McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 1 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 (STAGE I)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			28

DRAWN BY : B.N. GRADY DATE : 10/17/07
 CHECKED BY : J.G. KHARVA DATE : 12/10/07



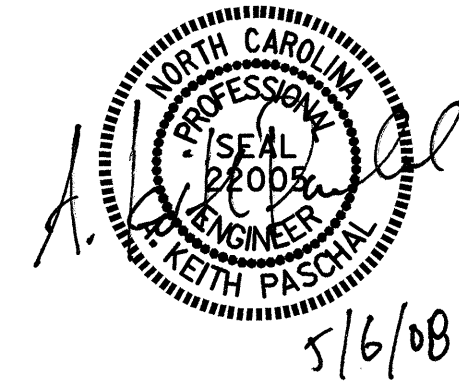
ALL HORIZONTAL DIMENSIONS ARE RADIAL UNLESS OTHERWISE NOTED.
 ▲ DIMENSIONS ARE RADIAL @ END BENT FILL FACES.

TOP OF SLAB
 "B" BAR REINFORCEMENT

NOTES
 "B" BARS SHALL BE PLACED ALONG THE CHORD OF CONCENTRIC ARCS.

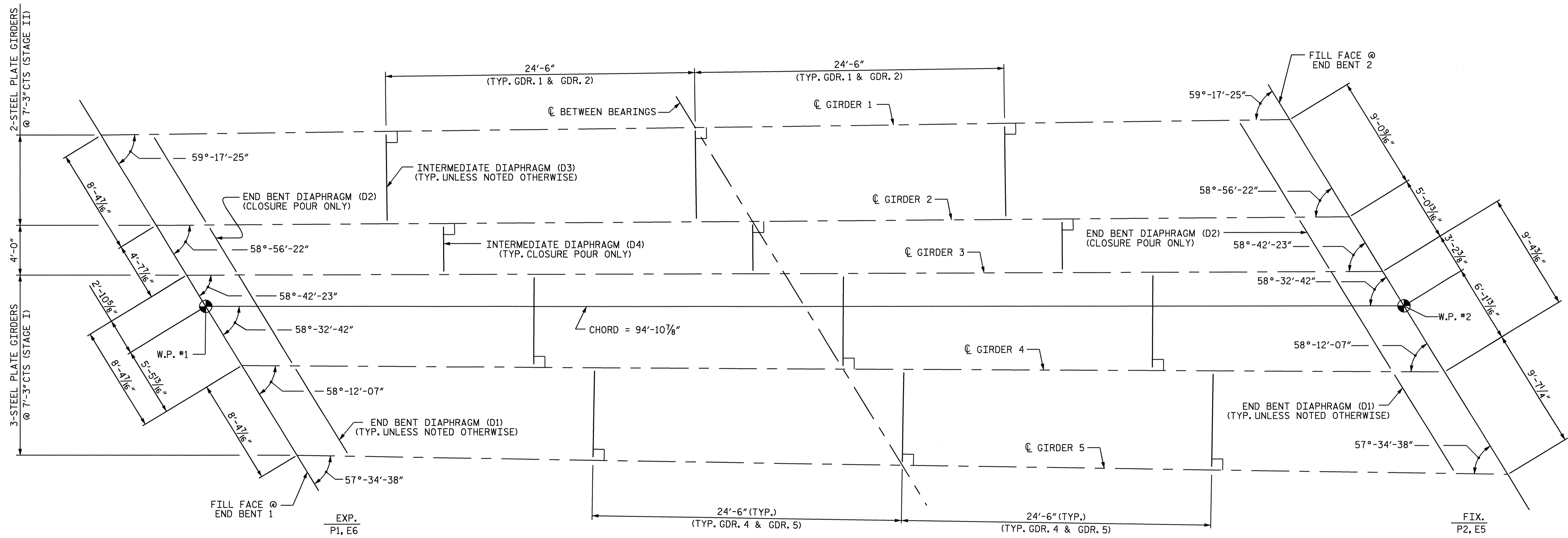
PROJECT NO. B-4197
MCDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 3 OF 3
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 PLAN OF SPAN
 (STAGE I & II)



DRAWN BY : B.N. GRADY DATE : 10/17/07
 CHECKED BY : J.G. KHARVA DATE : 12/10/07

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.
1			3			S-9
2			4			TOTAL SHEETS 28



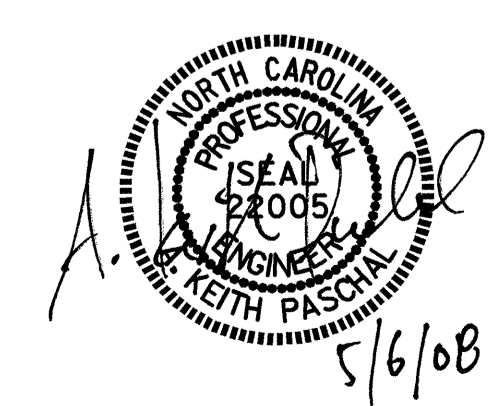
FRAMING PLAN

PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUPERSTRUCTURE
 FRAMING PLAN**



REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	28
2			4				

DRAWN BY: B.N. GRADY DATE: 10/23/07
 CHECKED BY: J.G. KHARVA DATE: 12/11/07

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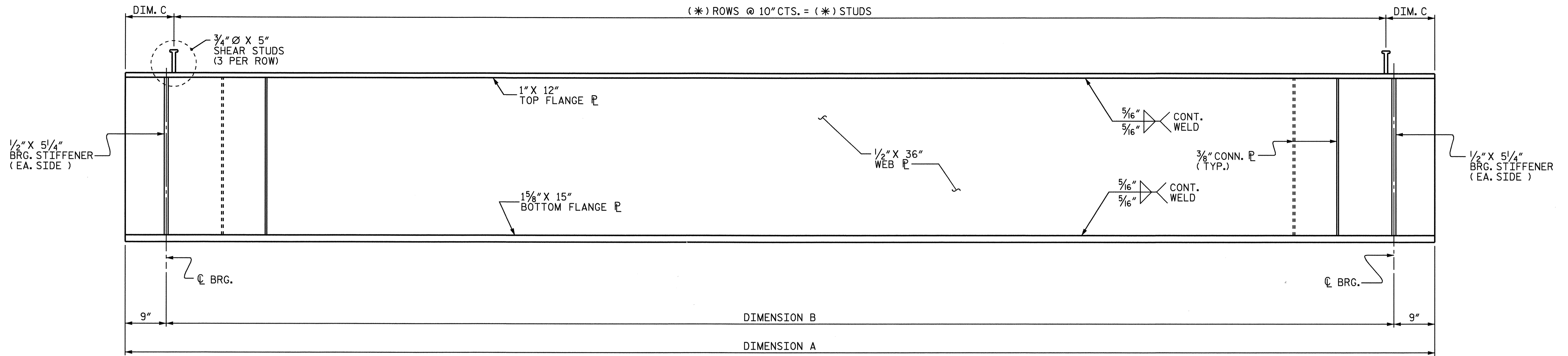
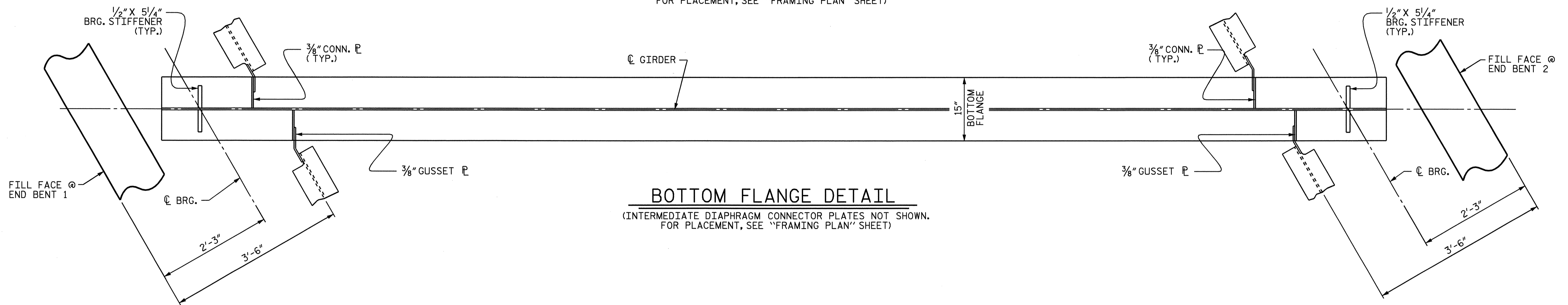


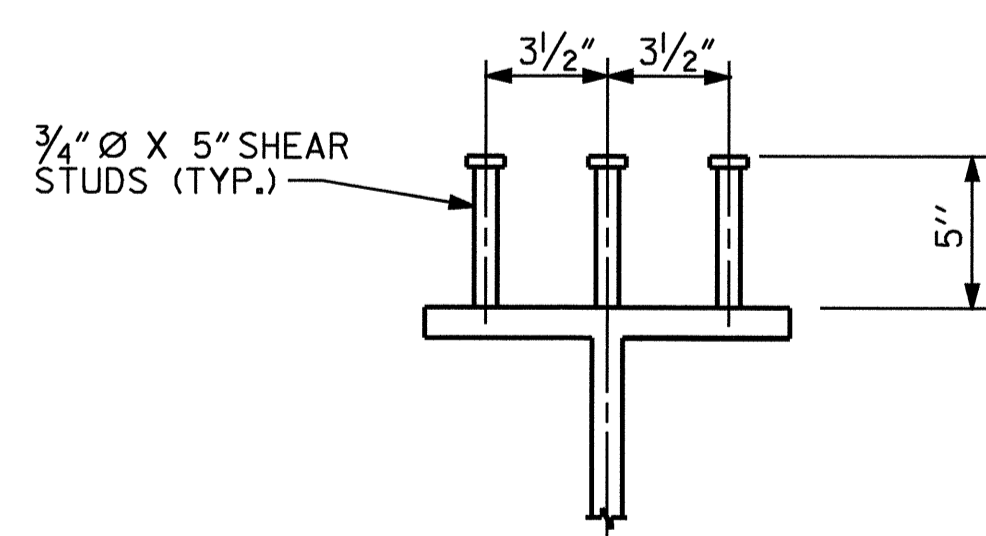
PLATE GIRDER ELEVATION

(INTERMEDIATE DIAPHRAGM CONNECTOR PLATES NOT SHOWN. FOR PLACEMENT, SEE "FRAMING PLAN" SHEET)



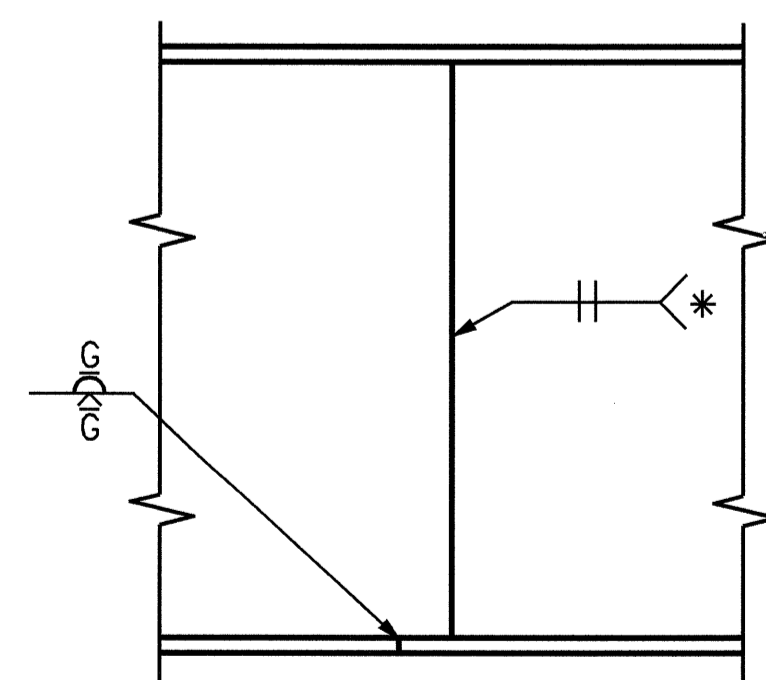
BOTTOM FLANGE DETAIL

(INTERMEDIATE DIAPHRAGM CONNECTOR PLATES NOT SHOWN. FOR PLACEMENT, SEE "FRAMING PLAN" SHEET)



SHEAR STUD DETAIL

(TYPICAL EACH GIRDER)



PERMISSIBLE SHOP WEB SPLICE

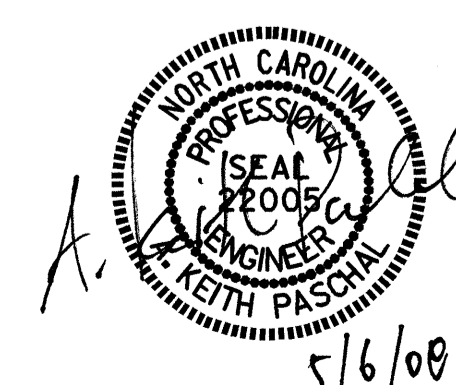
* GRIND SMOOTH AND FLUSH ON OUTSIDE OF EXTERIOR GIRDERS

GIRDER DIMENSIONS					
GIRDER	DIMENSION A	DIMENSION B	DIMENSION C	(*) ROWS	(*) STUDS
1	90'-5 3/16"	88'-11 3/16"	1'-0 5/8"	107	321
2	90'-9 1/16"	89'-3 1/16"	9 1/2"	108	324
3	90'-11 3/4"	89'-5 3/4"	10 7/8"	108	324
4	91'-5 9/16"	89'-11 9/16"	1'-1 3/4"	108	324
5	92'-0 15/16"	90'-6 15/16"	1'-0 1/2"	109	327

PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 2 OF 4

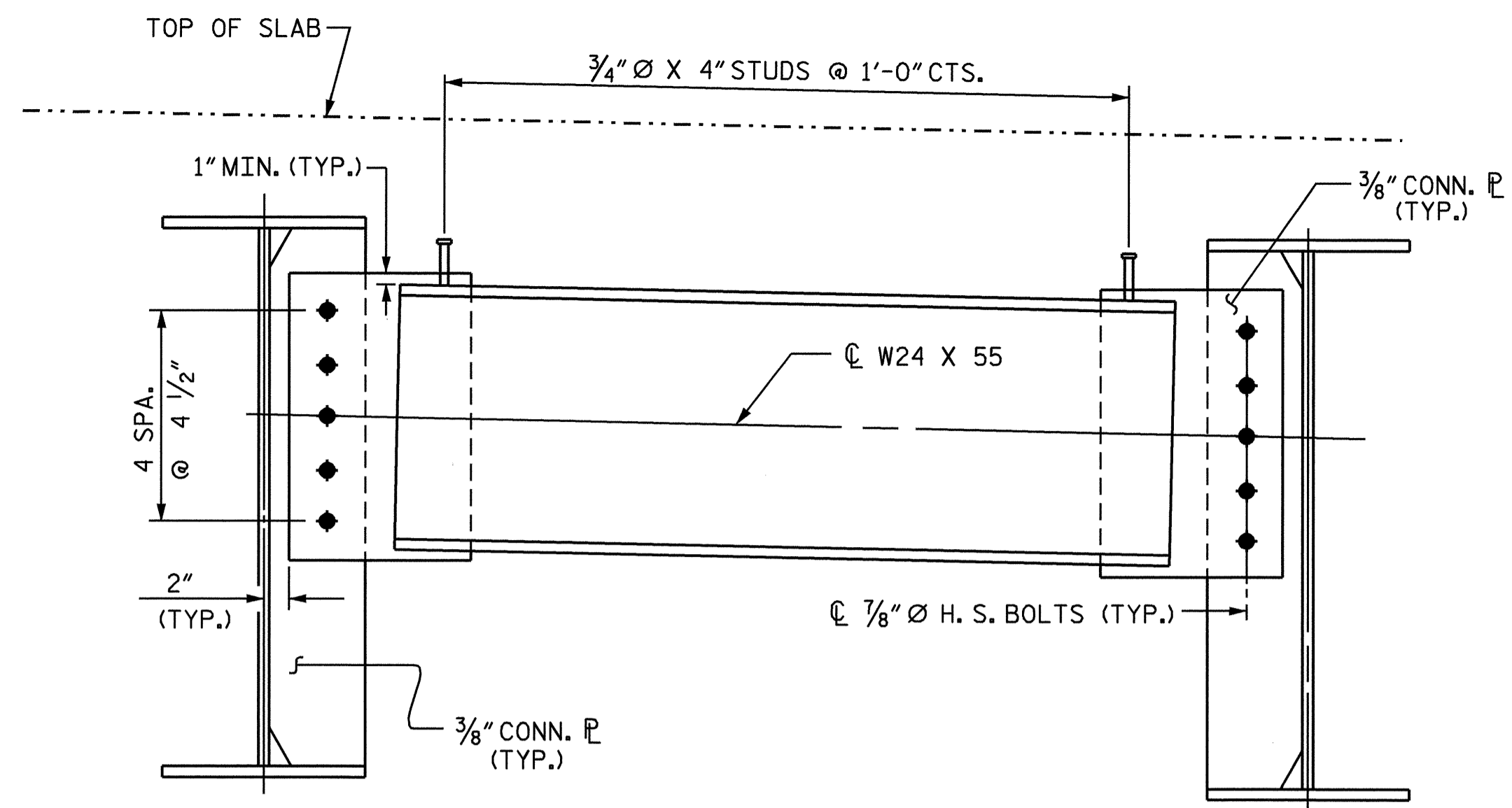
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUPERSTRUCTURE
 STRUCTURAL STEEL
 DETAILS



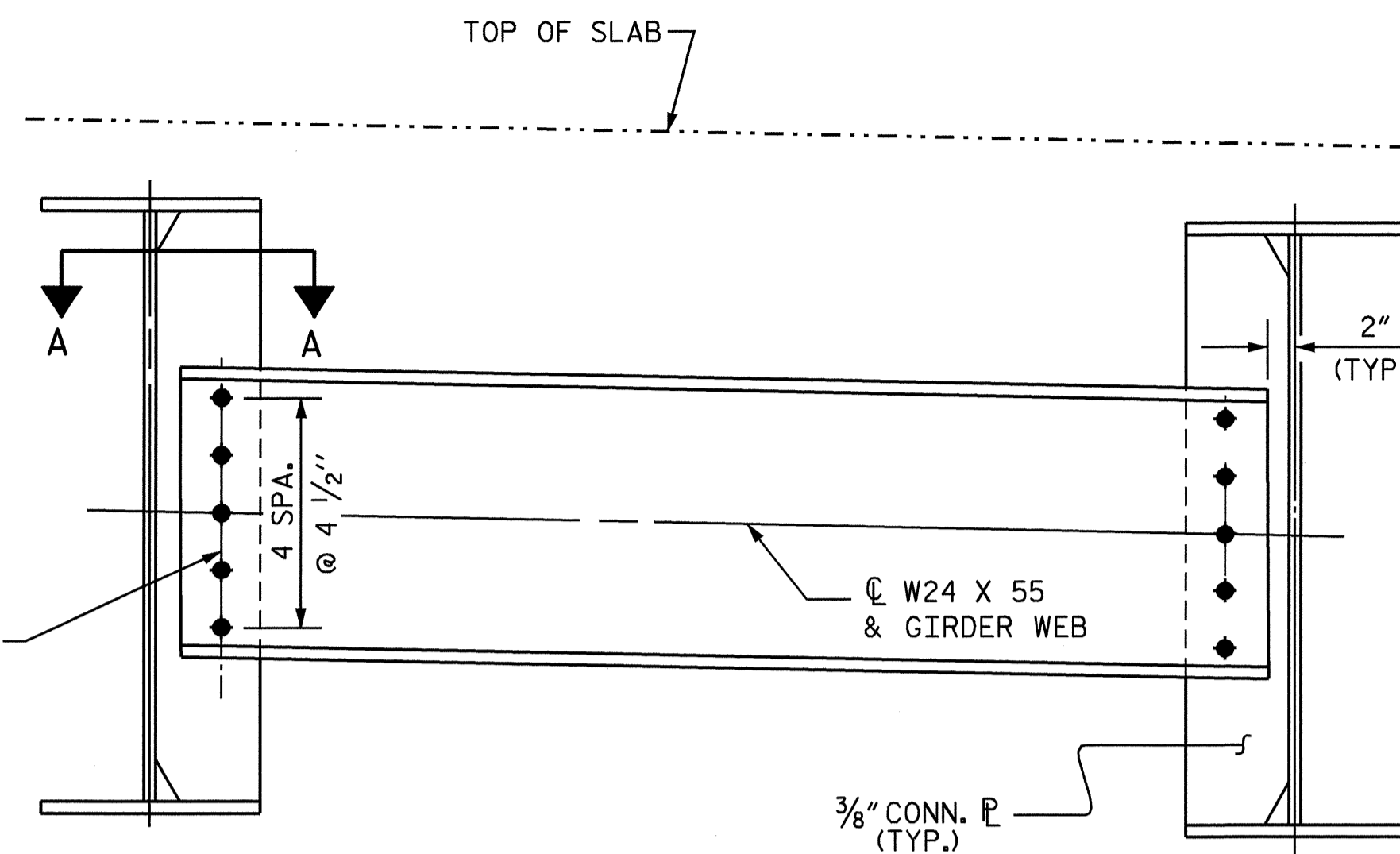
DRAWN BY : B.N. GRADY DATE : 10/24/07
 CHECKED BY : J.G. KHARVA DATE : 12/14/07

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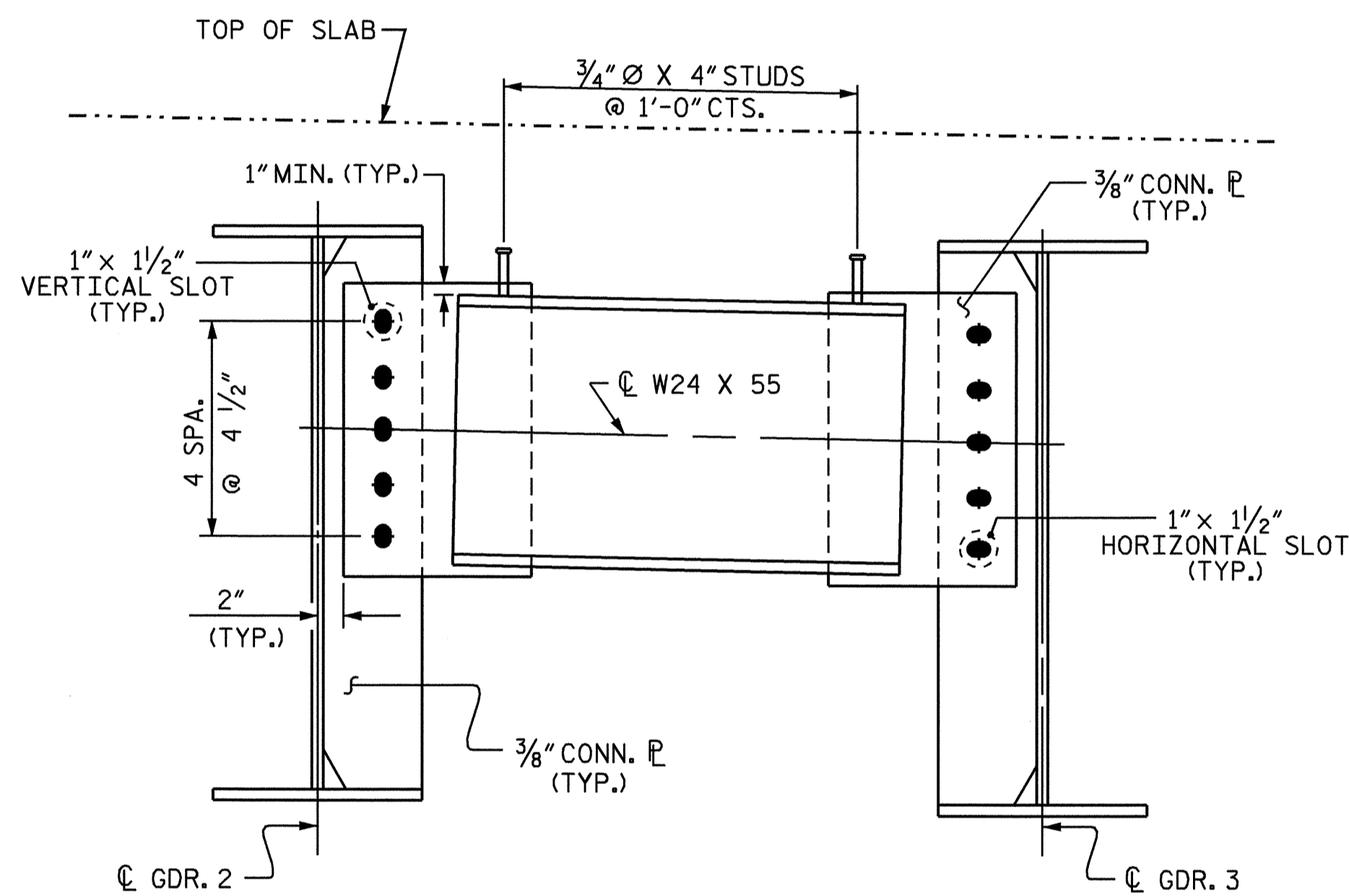
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			28



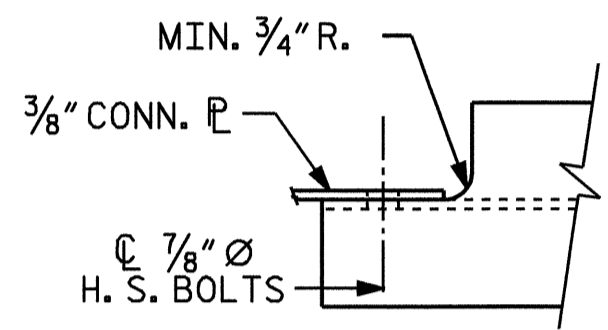
END BENT DIAPHRAGM (D1)



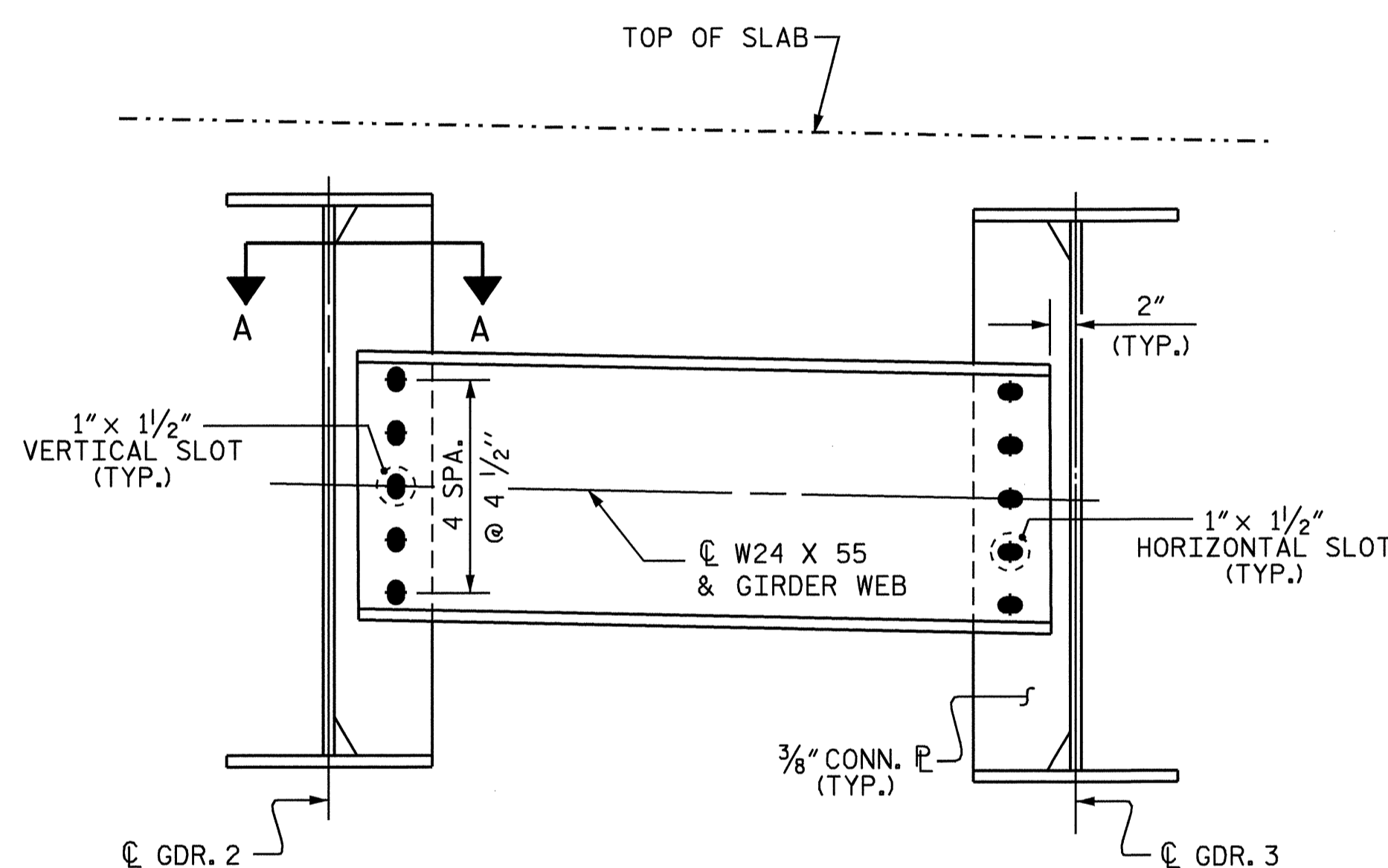
INTERMEDIATE DIAPHRAGM (D3)



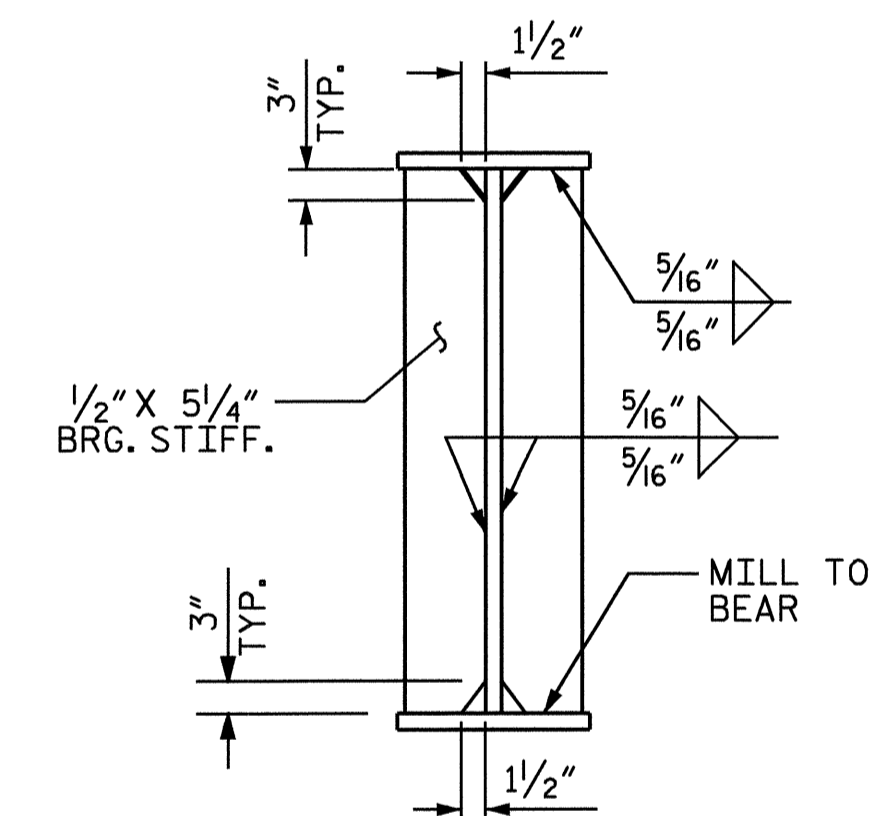
END BENT DIAPHRAGM (D2)



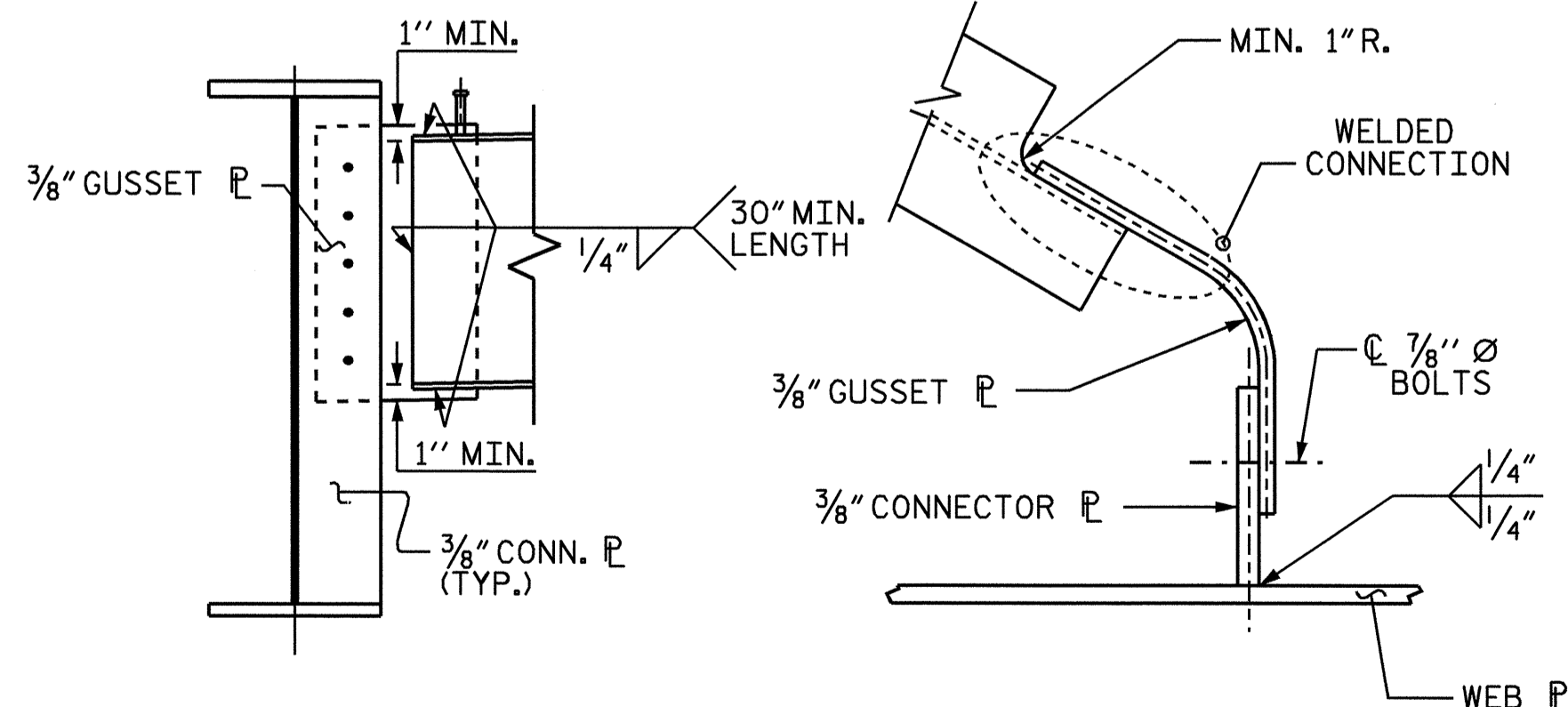
SECTION A-A



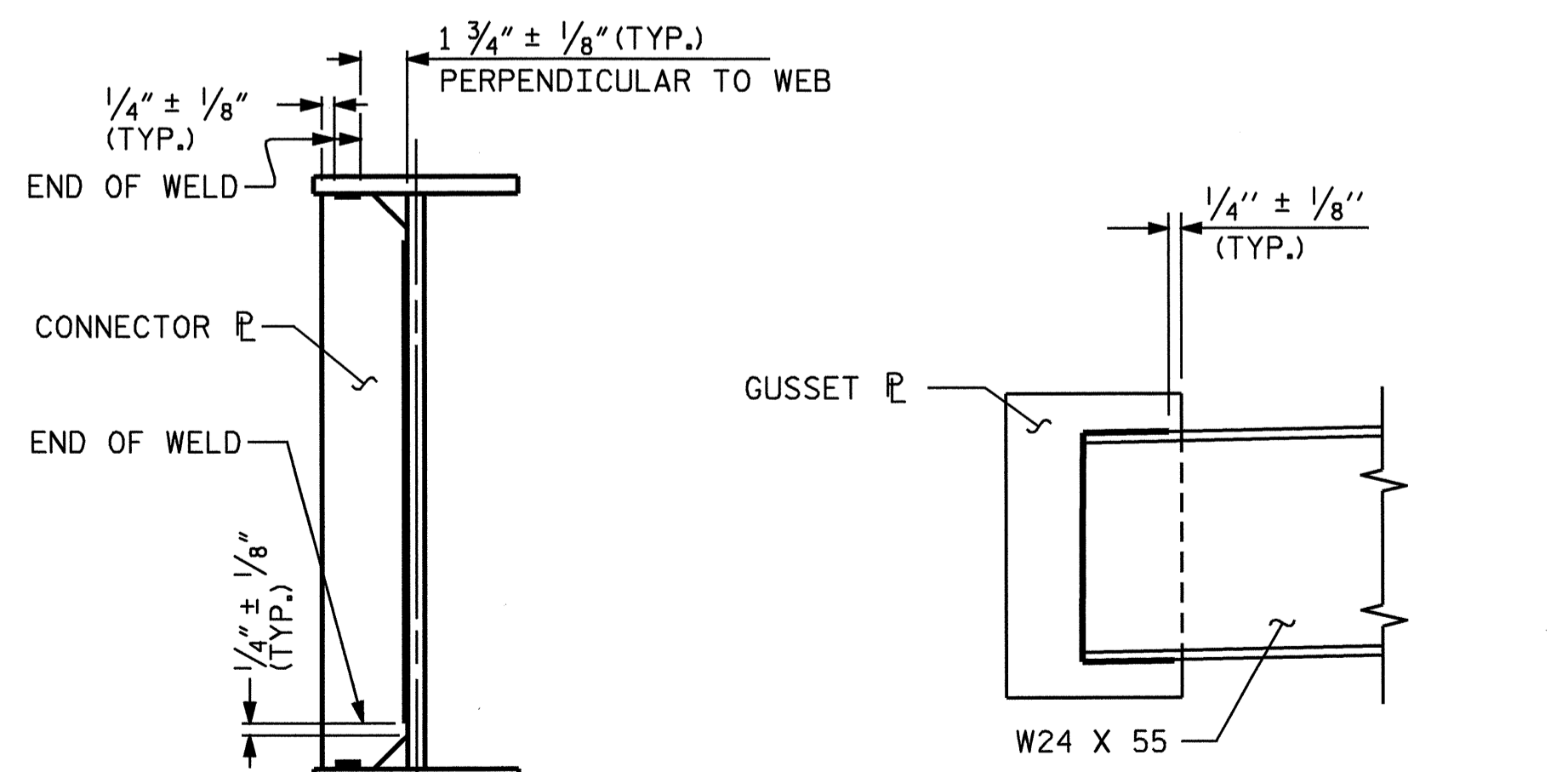
INTERMEDIATE DIAPHRAGM (D4)



BEARING STIFFENER

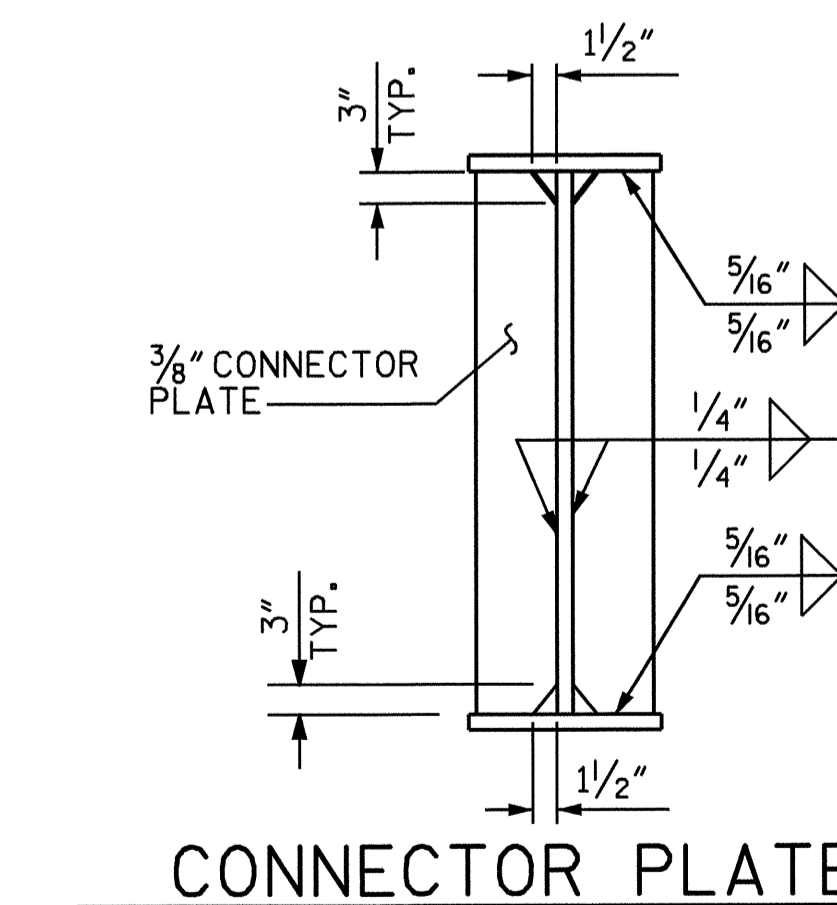


PART SECTION @ END BENT
PART PLAN @ END BENT
CONNECTOR PLATE WELD DETAILS

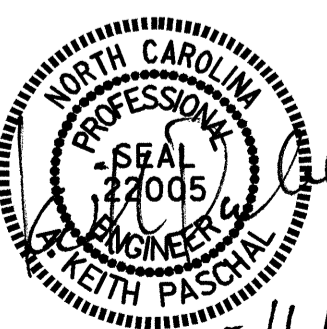


TYPICAL STIFFENER AND CONNECTOR PLATE CONNECTIONS
TYPICAL W-SECTION TO GUSSET PLATE CONNECTION

WELD TERMINATION DETAILS



CONNECTOR PLATE



NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50 AND PAINTED IN ACCORDANCE WITH SYSTEM 1 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.

A CHARTY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES AND WEB SPLICE PLATES (IF USED) FOR ALL GIRDERS AND IN ACCORDANCE WITH ARTICLE 1072-9 OF THE STANDARD SPECIFICATIONS.

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.

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

ENDS OF GIRDERS SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

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

PROJECT NO. B-4197
McDOWELL COUNTY
STATION: 24+67.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
STRUCTURAL STEEL
DETAILS

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	28
1			3			
2			4			

DRAWN BY : B.N. GRADY DATE : 10/24/07
CHECKED BY : J.G. KHARVA DATE : 12/14/07

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DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																	
TENTH POINTS	SPAN A																																
	GIRDER 1											GIRDER 2											GIRDER 3										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0	0.020	0.037	0.051	0.060	0.063	0.060	0.051	0.037	0.020	0	0	0.020	0.038	0.052	0.061	0.064	0.061	0.052	0.038	0.020	0	0	0.020	0.038	0.053	0.062	0.065	0.062	0.053	0.038	0.020	0
DEFLECTION DUE TO WEIGHT OF SLAB ↓	0	0.074	0.140	0.192	0.225	0.236	0.225	0.192	0.140	0.074	0	0	0.056	0.105	0.144	0.169	0.177	0.169	0.144	0.105	0.056	0	0	0.057	0.109	0.149	0.174	0.183	0.175	0.149	0.109	0.058	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL ↓	0	0.013	0.024	0.033	0.038	0.040	0.038	0.033	0.024	0.013	0	0	0.012	0.023	0.030	0.035	0.037	0.035	0.030	0.023	0.012	0	0	0.008	0.015	0.020	0.024	0.025	0.024	0.020	0.015	0.008	0
TOTAL DEAD LOAD DEFLECTION ↓	0	0.106	0.201	0.276	0.323	0.339	0.323	0.276	0.201	0.106	0	0	0.088	0.165	0.226	0.265	0.278	0.265	0.226	0.165	0.088	0	0	0.085	0.162	0.222	0.260	0.273	0.260	0.222	0.162	0.086	0
VERTICAL CURVE ORDINATE ↑	0	-0.055	-0.095	-0.121	-0.133	-0.130	-0.113	-0.086	-0.059	-0.029	0	0	-0.052	-0.090	-0.113	-0.121	-0.116	-0.096	-0.073	-0.049	-0.025	0	0	-0.050	-0.086	-0.107	-0.114	-0.107	-0.087	-0.065	-0.044	-0.022	0
ORDINATE DUE TO SUPERELEVATION ↑	0	-0.004	-0.007	-0.011	-0.015	-0.018	-0.022	-0.026	-0.029	-0.022	0	0	-0.006	-0.011	-0.017	-0.023	-0.029	-0.034	-0.040	-0.042	-0.029	0	0	-0.007	-0.014	-0.021	-0.028	-0.036	-0.043	-0.050	-0.049	-0.032	0
REQUIRED CAMBER ↑	0	3/16"	13/16"	13/4"	21/8"	25/16"	21/4"	15/16"	13/8"	11/16"	0	0	3/8"	3/4"	11/8"	17/16"	15/8"	15/8"	13/8"	7/8"	7/16"	0	0	5/16"	3/4"	11/8"	13/8"	19/16"	19/16"	15/16"	13/16"	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).

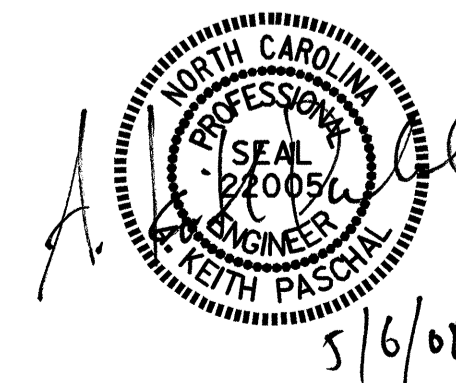
DEAD LOAD DEFLECTION TABLE FOR GIRDERS																																	
TENTH POINTS	SPAN A																																
	GIRDER 4											GIRDER 5																					
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
DEFLECTION DUE TO WEIGHT OF GIRDER ↓	0	.0210	0.039	0.054	0.063	0.066	0.063	0.054	0.039	0.021	0	0	0.021	0.040	0.055	0.065	0.068	0.065	0.055	0.040	0.021	0	0	0.021	0.040	0.055	0.065	0.068	0.065	0.055	0.040	0.021	0
DEFLECTION DUE TO WEIGHT OF SLAB ↓	0	0.092	0.174	0.238	0.280	0.294	0.280	0.240	0.175	0.092	0	0	0.075	0.142	0.193	0.225	0.236	0.224	0.191	0.139	0.074	0	0	0.075	0.142	0.193	0.225	0.236	0.224	0.191	0.139	0.074	0
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL ↓	0	0.008	0.015	0.021	0.024	0.025	0.024	0.021	0.015	0.008	0	0	0.009	0.017	0.023	0.027	0.029	0.027	0.023	0.017	0.009	0	0	0.009	0.017	0.023	0.027	0.029	0.027	0.023	0.017	0.009	0
TOTAL DEAD LOAD DEFLECTION ↓	0	0.121	0.228	0.313	0.367	0.385	0.367	0.315	0.229	0.121	0	0	0.105	0.199	0.271	0.317	0.333	0.316	0.269	0.196	0.104	0	0	0.105	0.199	0.271	0.317	0.333	0.316	0.269	0.196	0.104	0
VERTICAL CURVE ORDINATE ↑	0	-0.047	-0.079	-0.097	-0.100	-0.088	-0.070	-0.052	-0.035	-0.018	0	0	-0.043	-0.071	-0.084	-0.083	-0.069	-0.053	-0.040	-0.027	-0.014	0	0	-0.043	-0.071	-0.084	-0.083	-0.069	-0.053	-0.040	-0.027	-0.014	0
ORDINATE DUE TO SUPERELEVATION ↑	0	-0.010	-0.020	-0.031	-0.041	-0.051	-0.061	-0.069	-0.063	-0.040	0	0	-0.014	-0.028	-0.042	-0.056	-0.069	-0.068	-0.067	-0.066	-0.047	0	0	-0.014	-0.028	-0.042	-0.056	-0.069	-0.068	-0.067	-0.066	-0.047	0
REQUIRED CAMBER ↑	0	3/4"	19/16"	21/4"	211/16"	215/16"	213/16"	25/16"	19/16"	3/4"	0	0	9/16"	13/16"	13/4"	21/8"	25/16"	25/16"	15/16"	1/4"	1/2"	0	0	9/16"	13/16"	13/4"	21/8"	25/16"	25/16"	15/16"	1/4"	1/2"	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-4197
McDOWELL COUNTY
STATION: 24+67.50 -L-

SHEET 4 OF 4

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



DRAWN BY : B.N. GRADY DATE : 12/27/07
CHECKED BY : J.G. KHARVA DATE : _____

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			28

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.

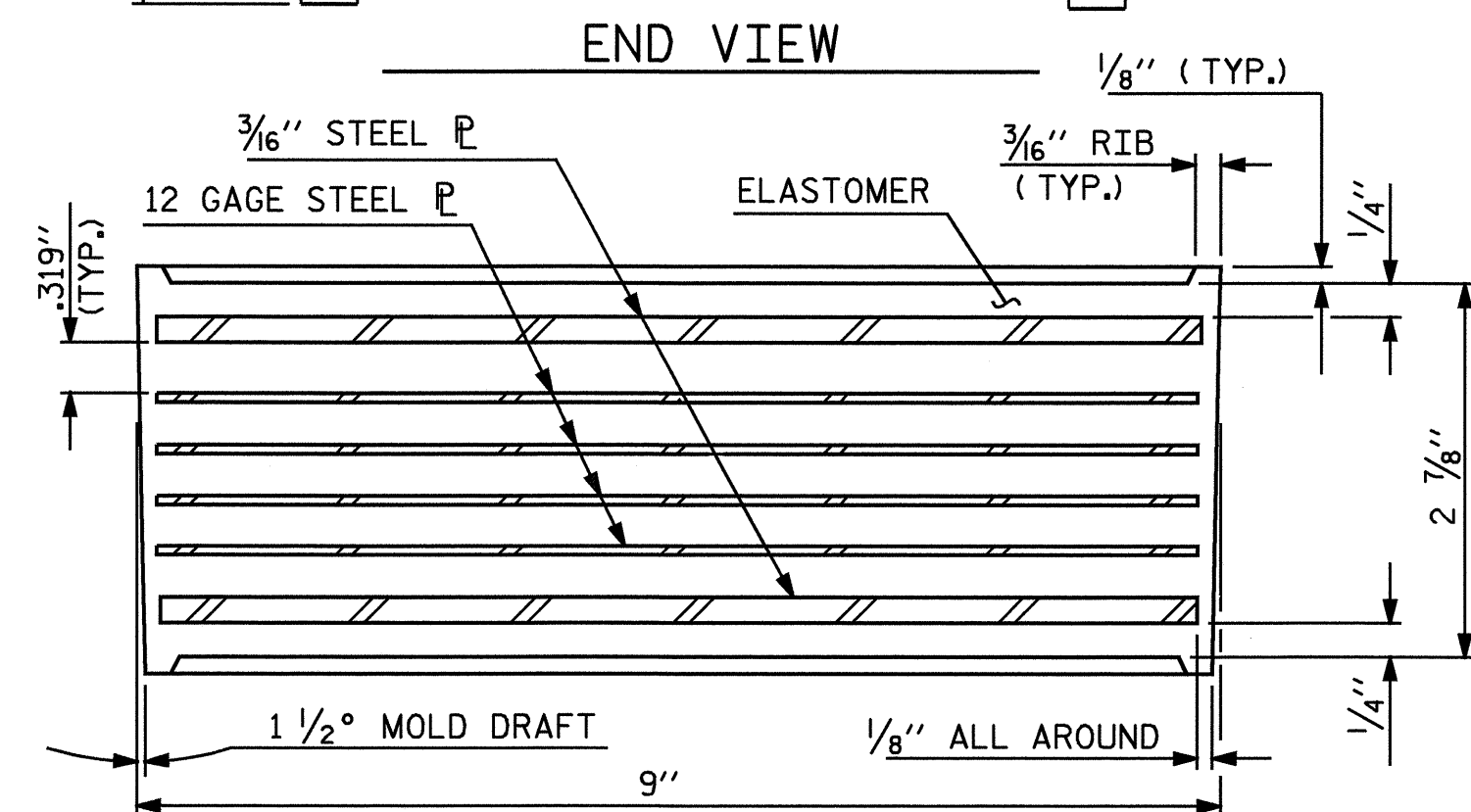
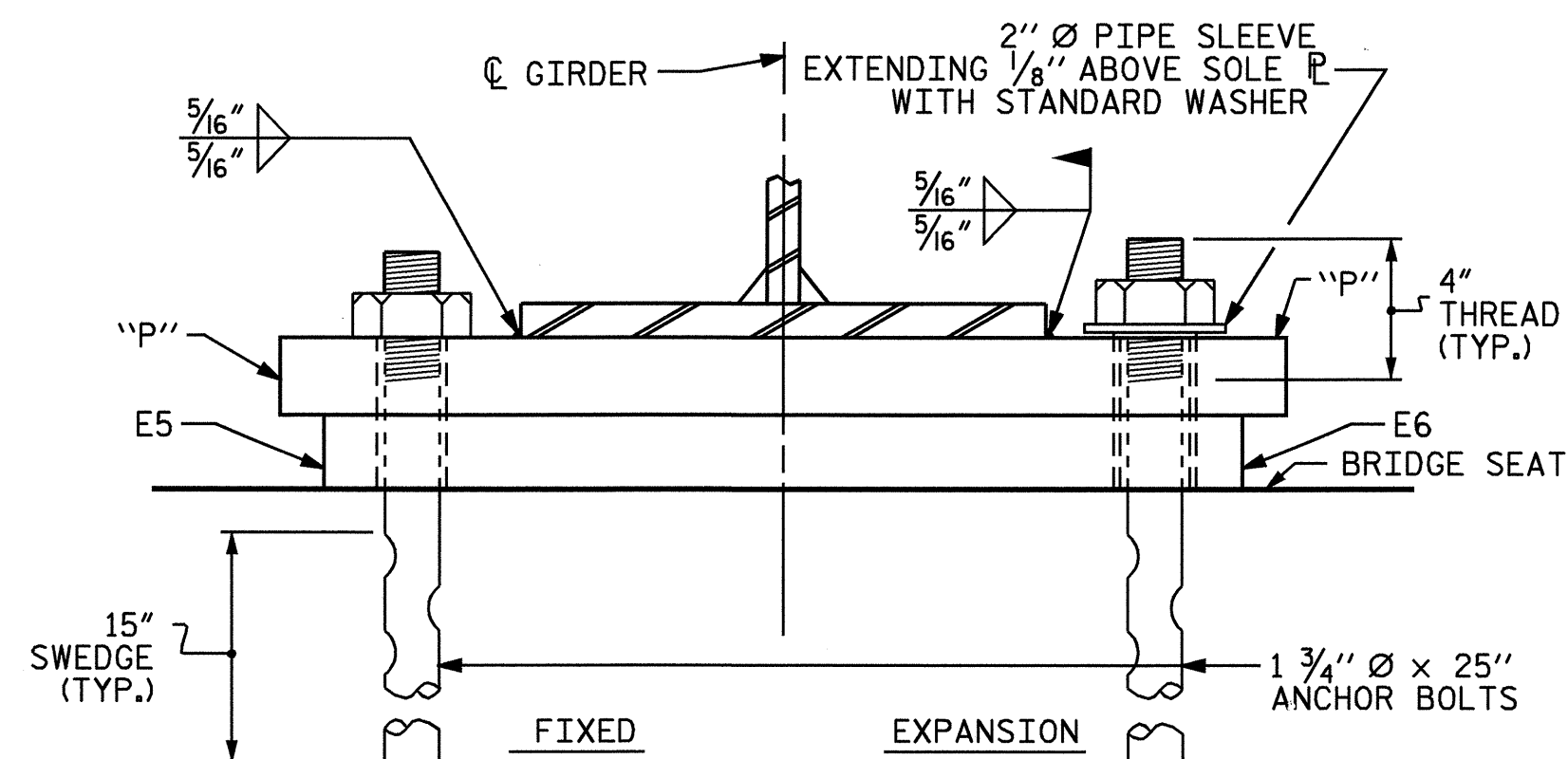
THE PAYMENT FOR THE PIPE SLEEVES SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS.

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.

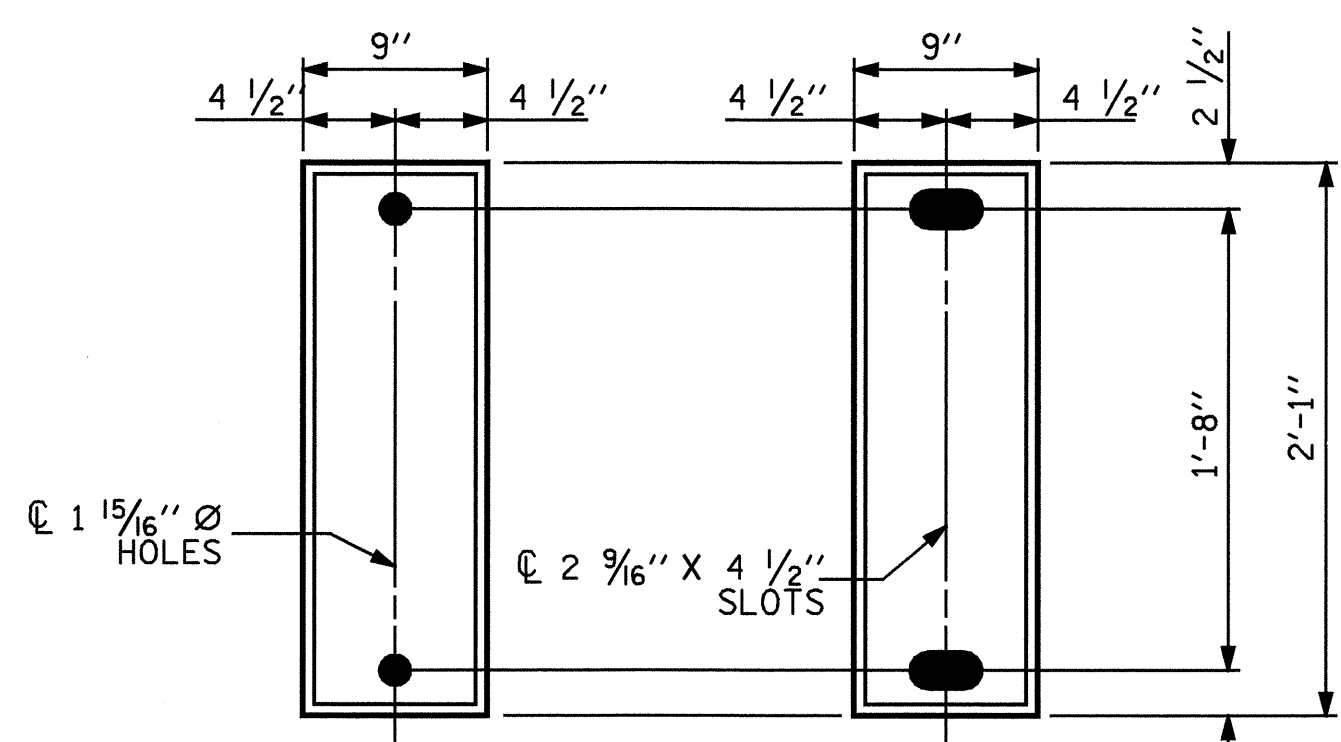
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

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.

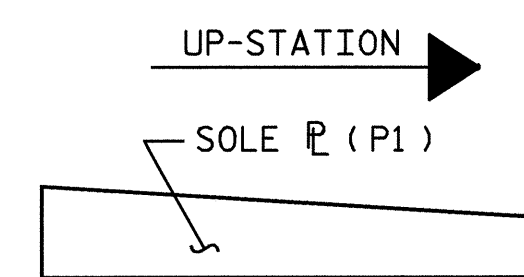


TYPICAL SECTION OF ELASTOMERIC BEARINGS

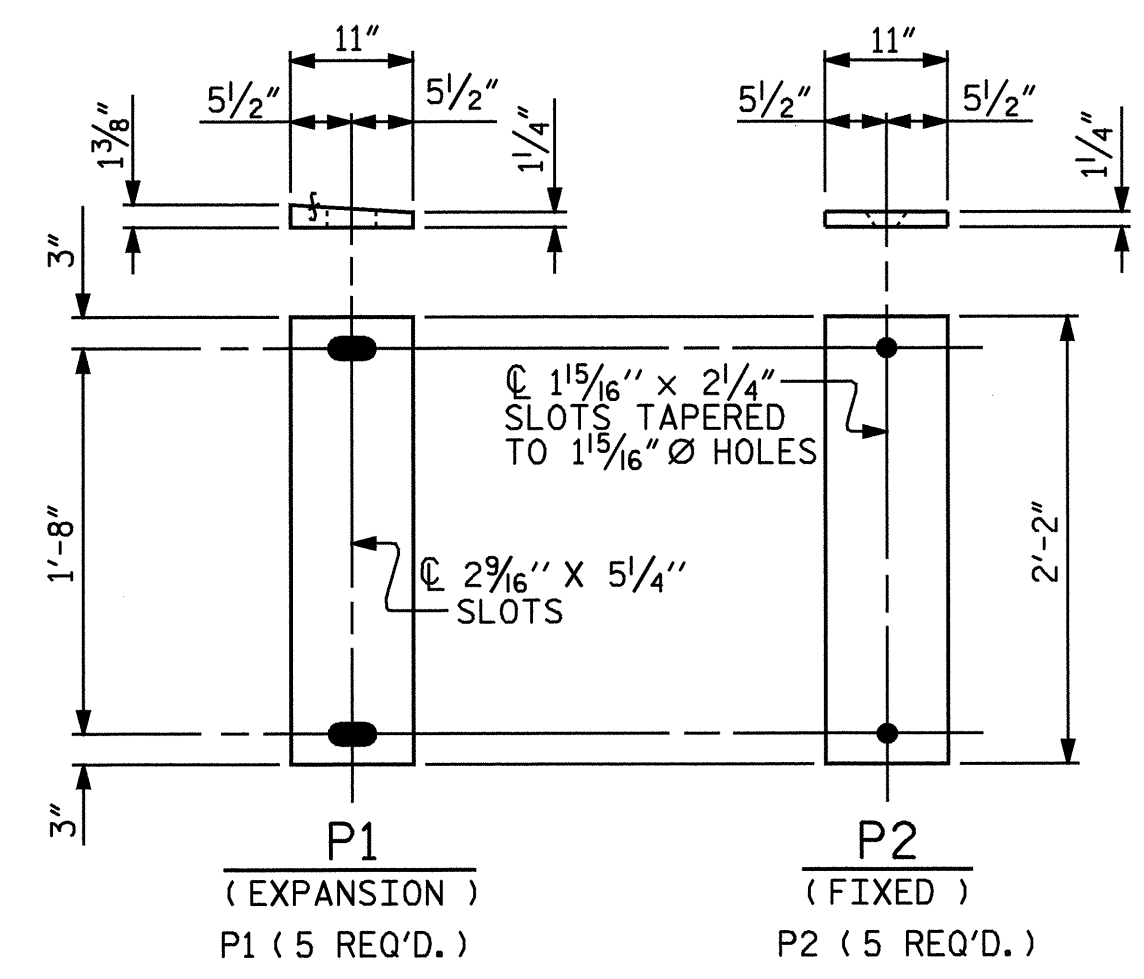


E5 (5 REQ'D) E6 (5 REQ'D)
PLAN VIEW OF ELASTOMERIC BEARING

TYPE III



SOLE PLATE (P1) PLACEMENT DETAIL

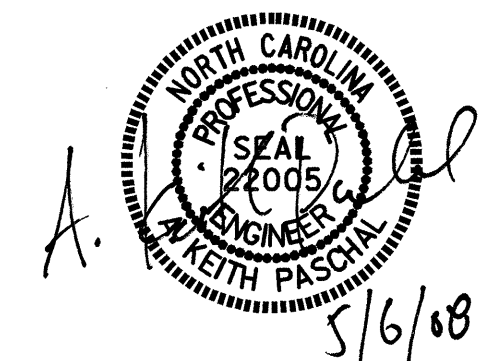


SOLE PLATE DETAILS ("P")

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

PROJECT NO. B-4197
MCDOWELL COUNTY
STATION: 24+67.50 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ELASTOMERIC BEARING
DETAILS
(STEEL SUPERSTRUCTURE)



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			28

ASSEMBLED BY : B.N. GRADY	DATE : 10/24/07
CHECKED BY : J.G. KHARVA	DATE : 12/14/07
DRAWN BY : JMB 11/87	REV. 8/16/99 MAB/LES
CHECKED BY : ARB 11/87	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

NOTES

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

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

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

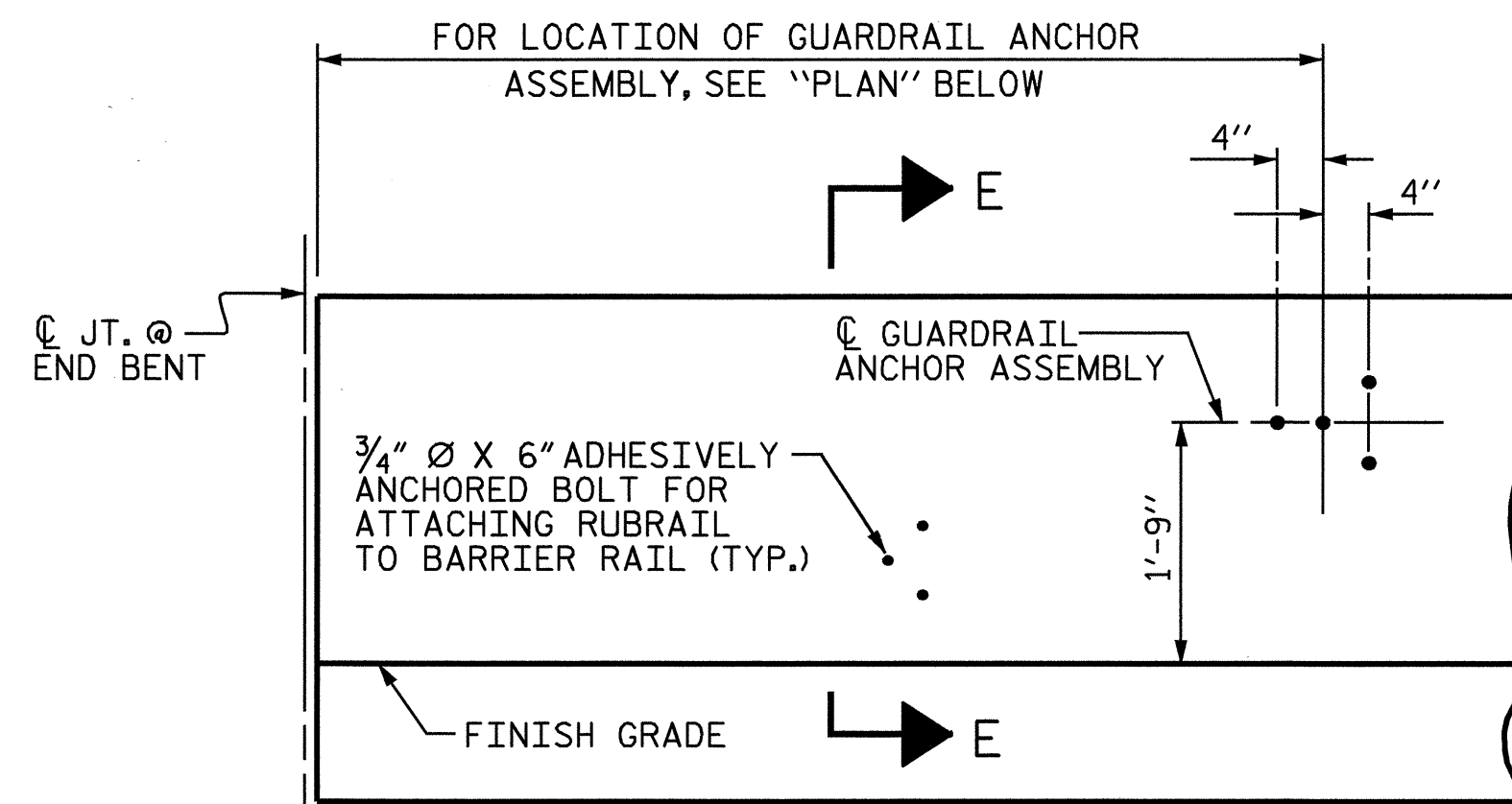
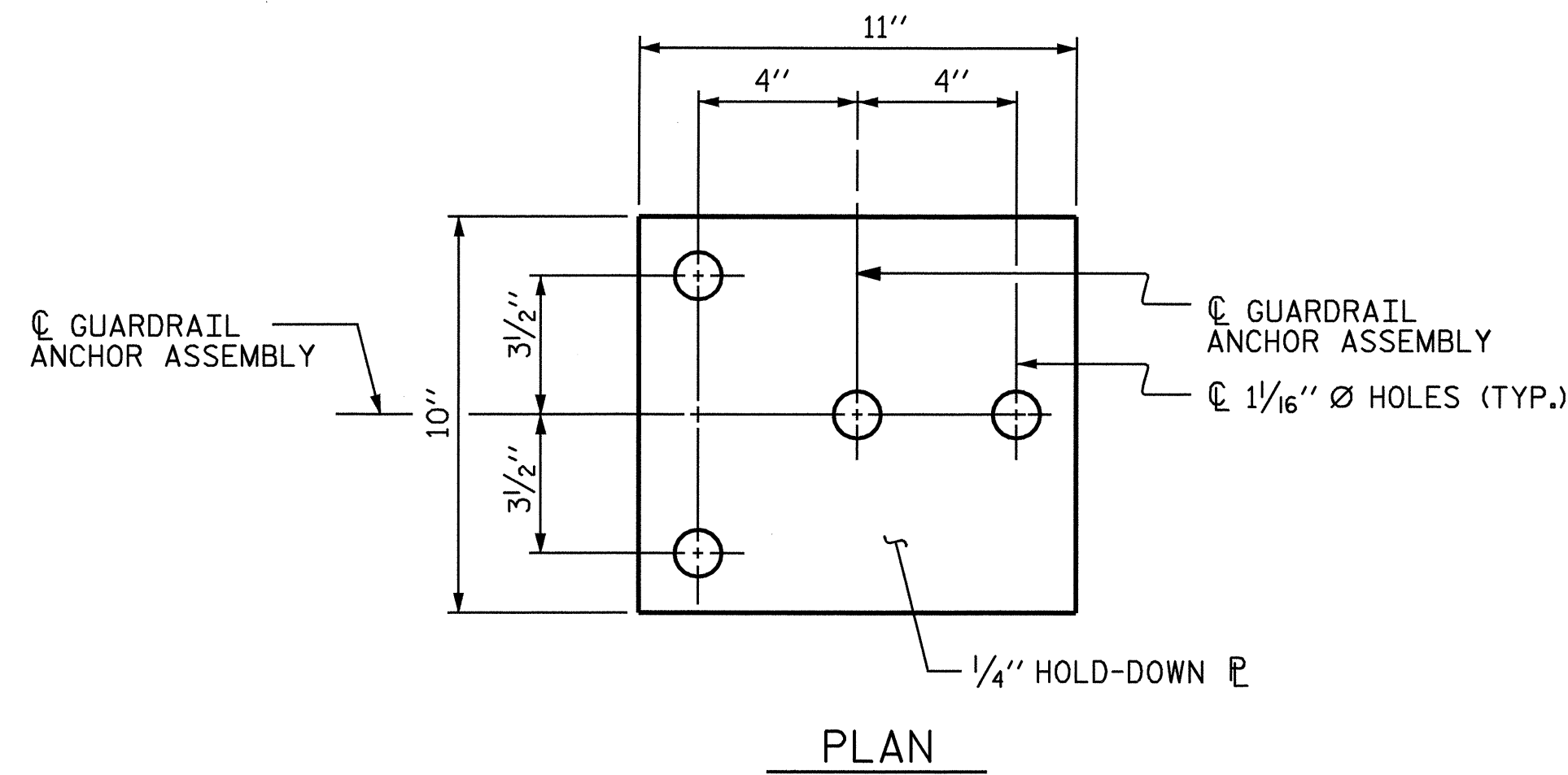
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

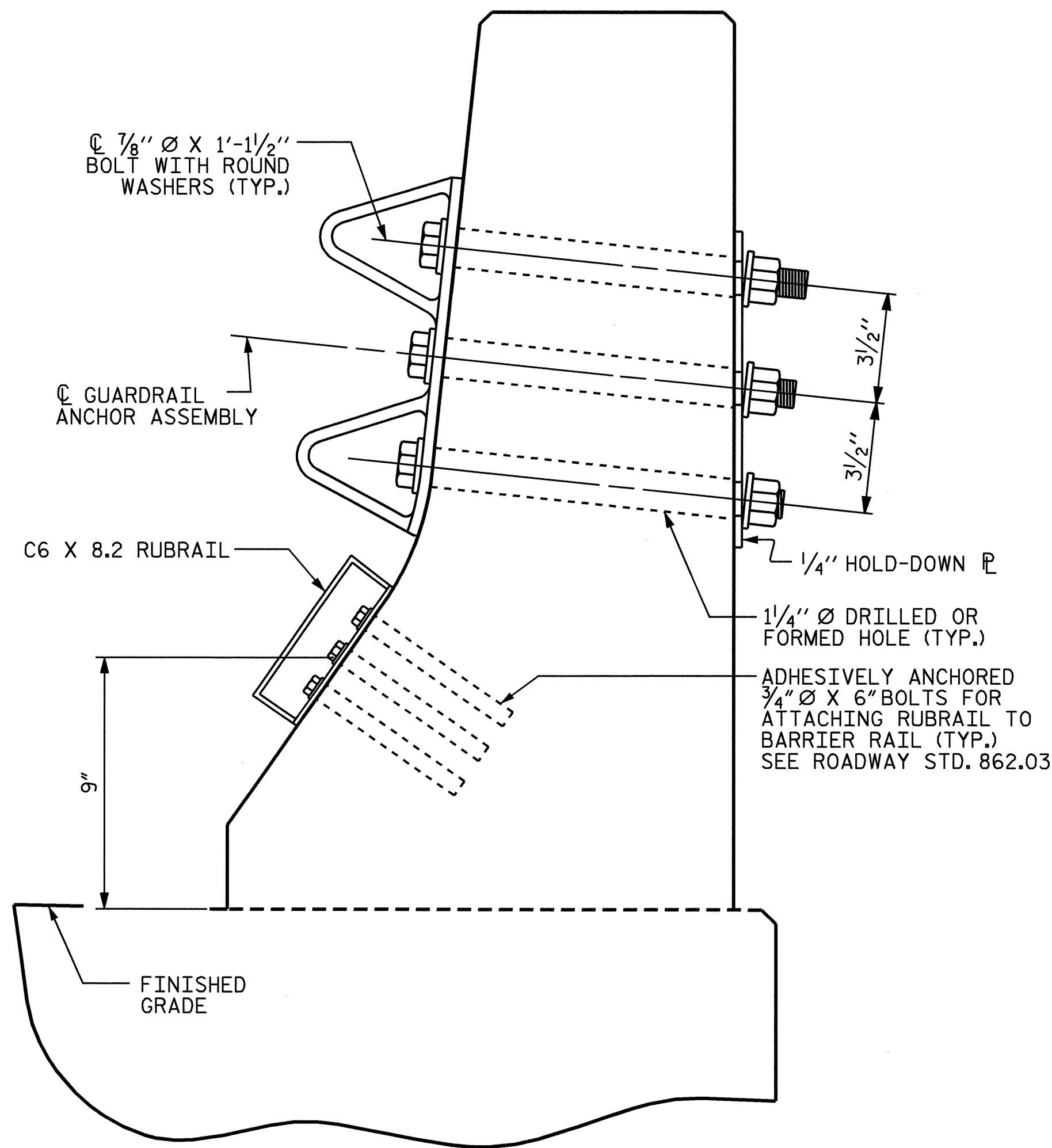
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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

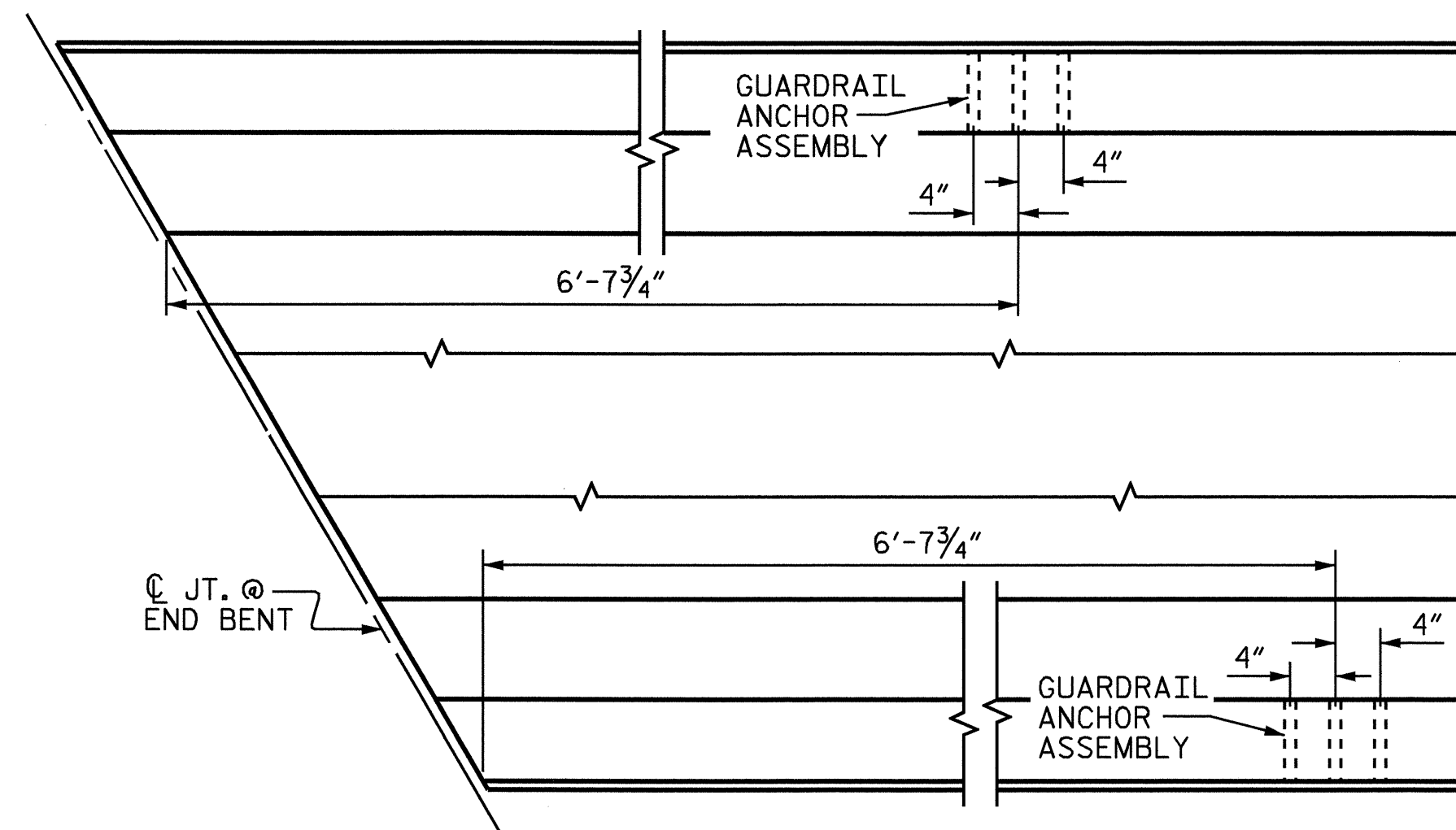
THE C6 X 8.2 RUBRAIL IS TO BE ADHESIVELY ANCHORED TO THE RAIL USING THREE 3/4" Ø X 6" BOLTS WITH WASHERS. LEVEL ONE FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 3/4" Ø BOLT IS 12 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE SPECIAL PROVISIONS. SEE ROADWAY STANDARD 862.03 FOR DETAILS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



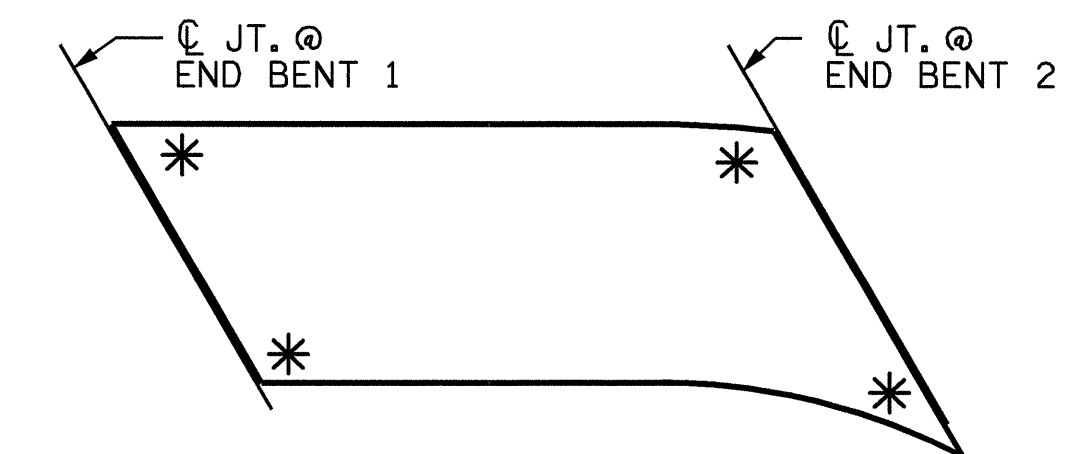
ELEVATION
FOR LOCATION OF RUBRAIL, SEE ROADWAY STD. 862.03



SECTION E-E
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN
LOCATION OF ANCHORS FOR GUARDRAIL
END BENT 1 SHOWN, END BENT 2 SIMILAR.

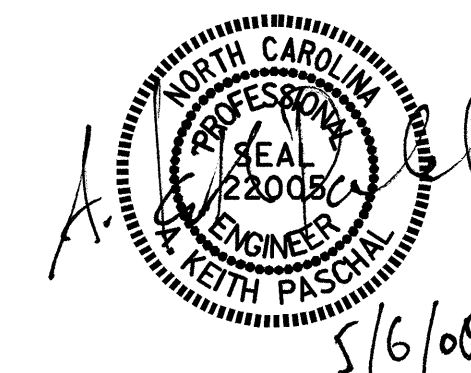


SKETCH SHOWING POINTS OF ATTACHMENTS
* DENOTES GUARDRAIL ANCHOR ASSEMBLY

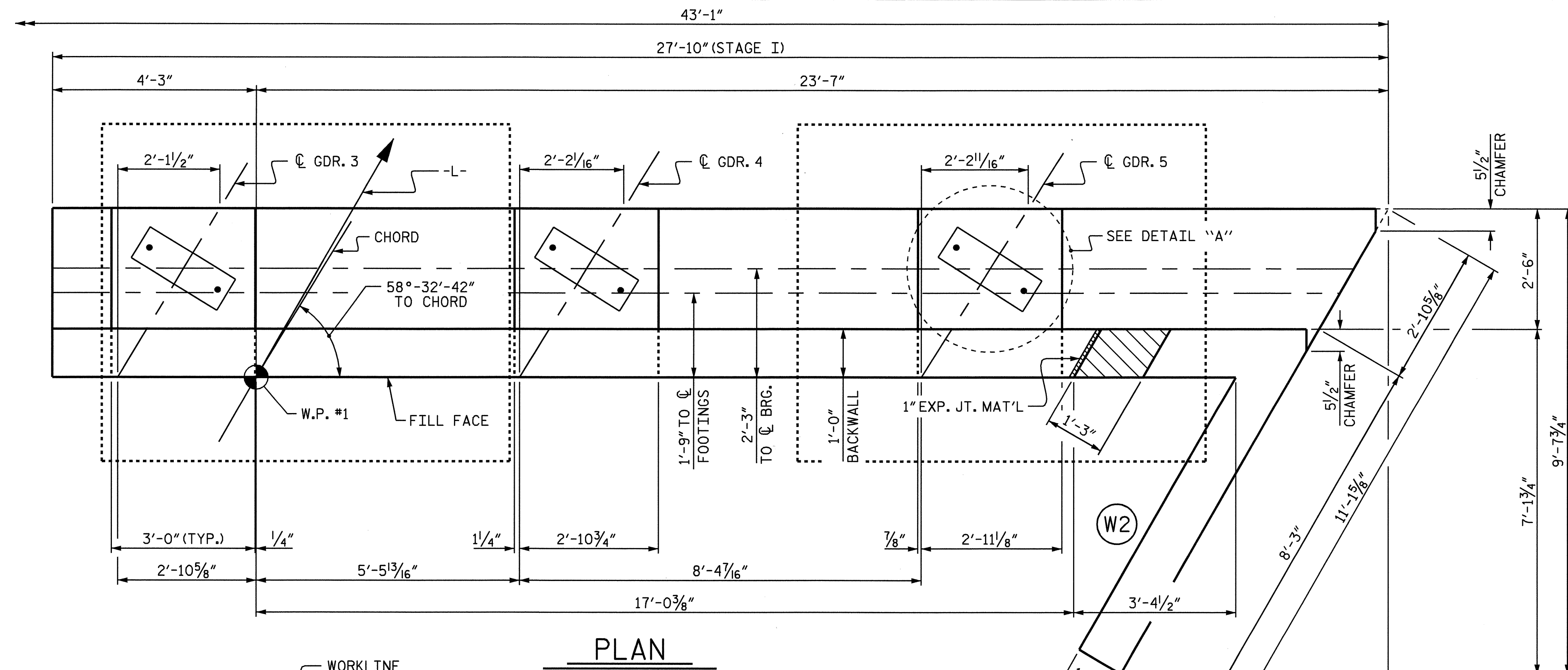
PROJECT NO. B-4197
McDOWELL COUNTY
STATION: 24+67.50 -L-

SHEET 2 OF 2

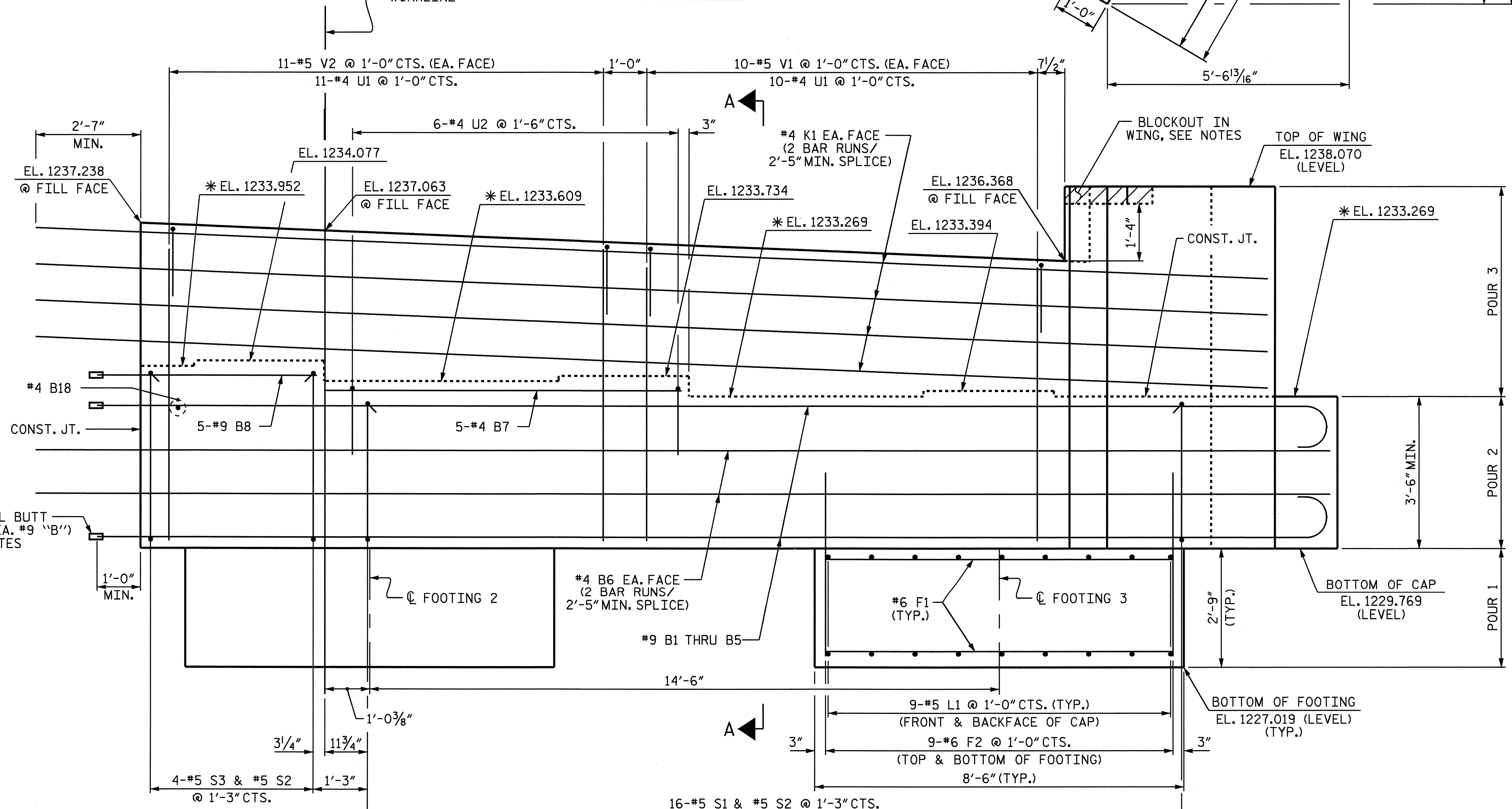
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD GUARDRAIL ANCHORAGE FOR BARRIER RAIL					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					28



ASSEMBLED BY : B.N. GRADY	DATE : 10/24/07
CHECKED BY : J.G. KHARVA	DATE : 12/15/07
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	



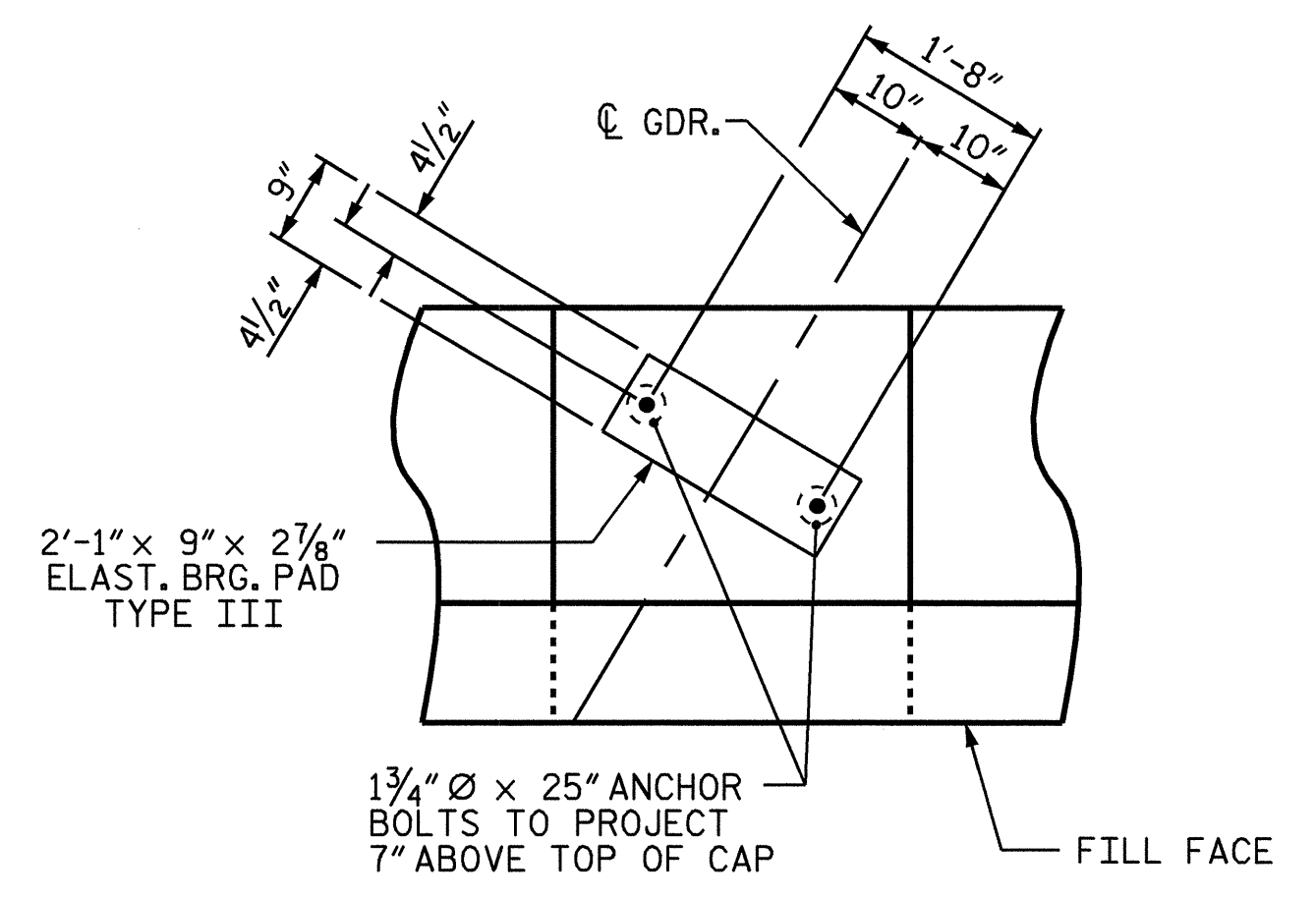
PLAN



ELEVATION

NOTES

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



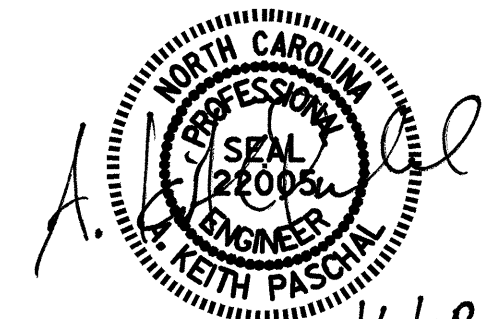
DETAIL "A"
(TYPICAL EACH BEARING)

PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 (STAGE I)

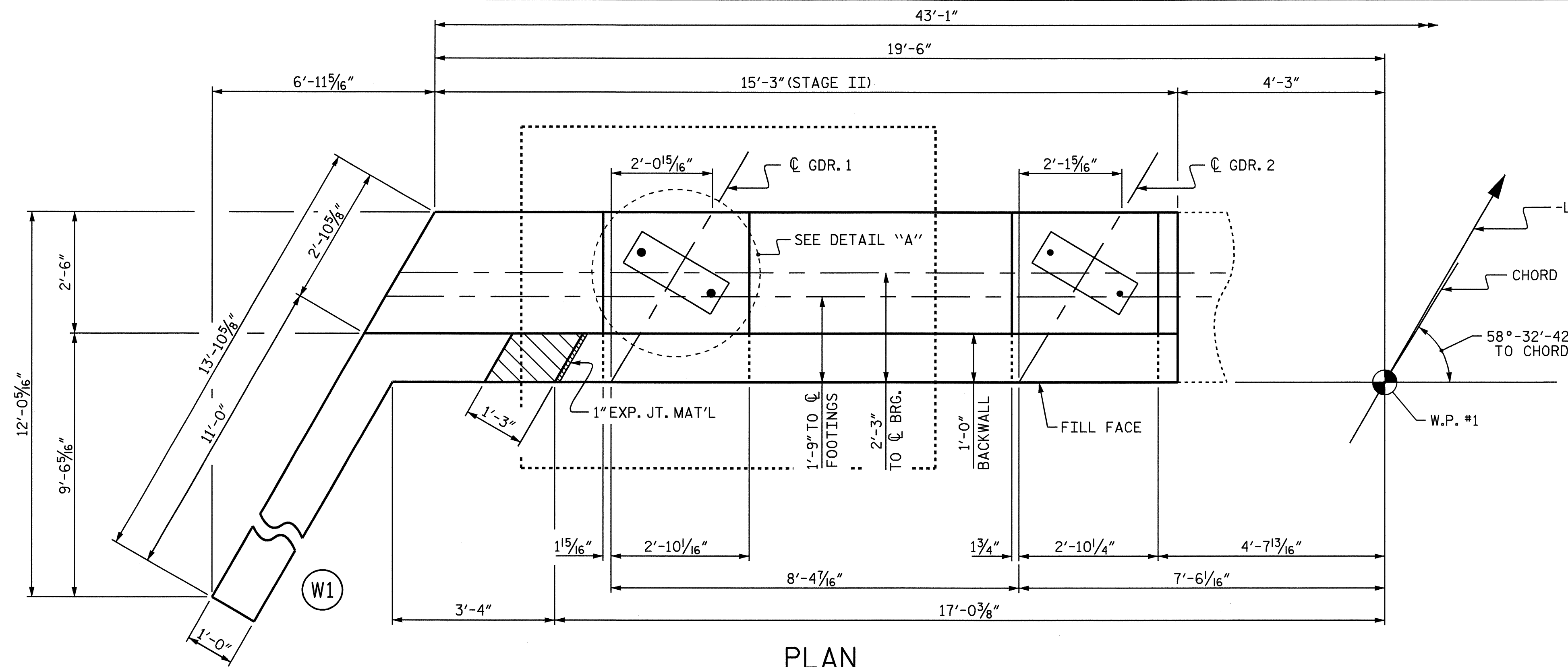


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-18	
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2			4				

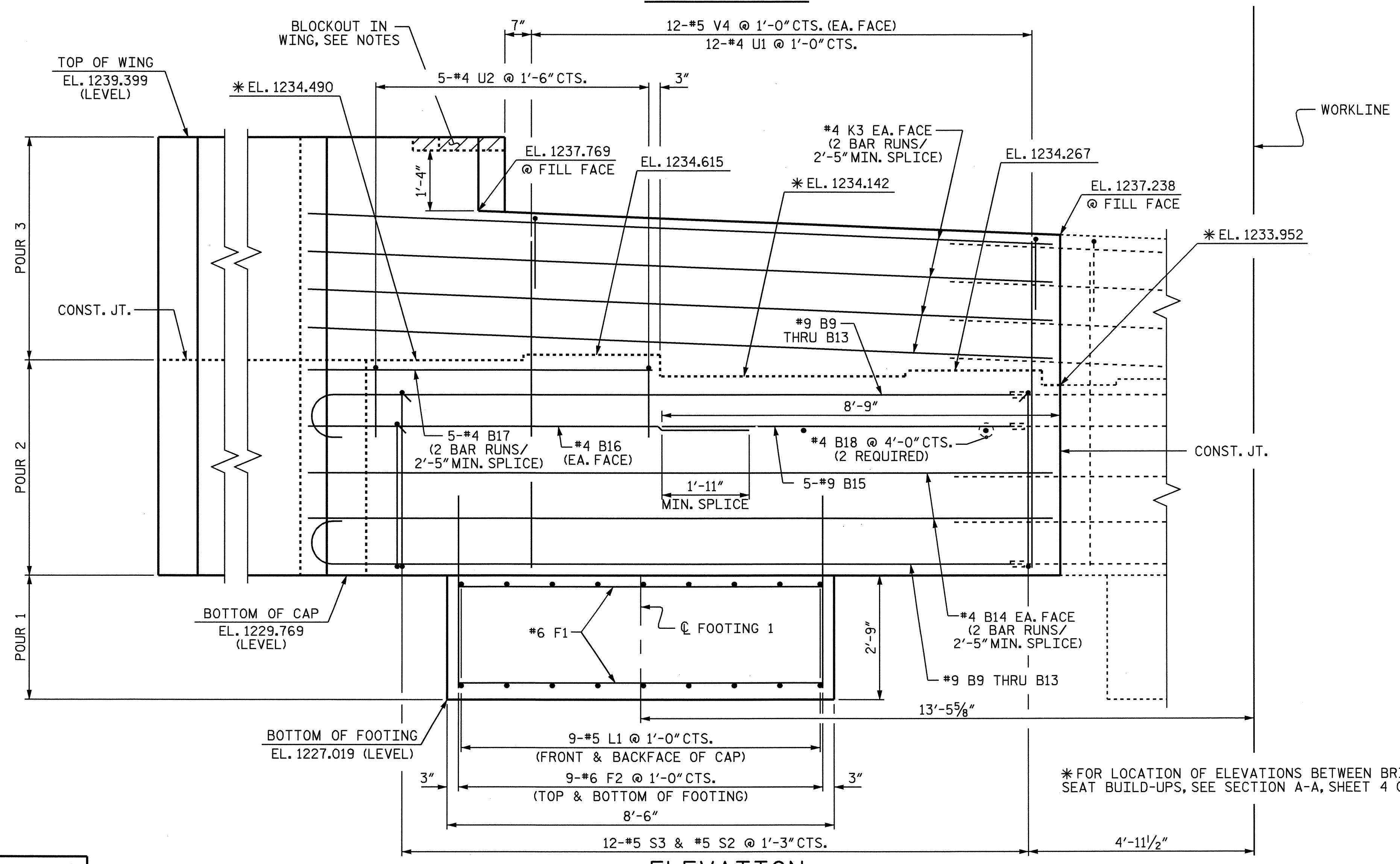
DRAWN BY: B.N. GRADY DATE: 11/9/07
 CHECKED BY: J.D. HAWK DATE: 1/5/08

06-MAY-2008 14:54
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 bngurdy

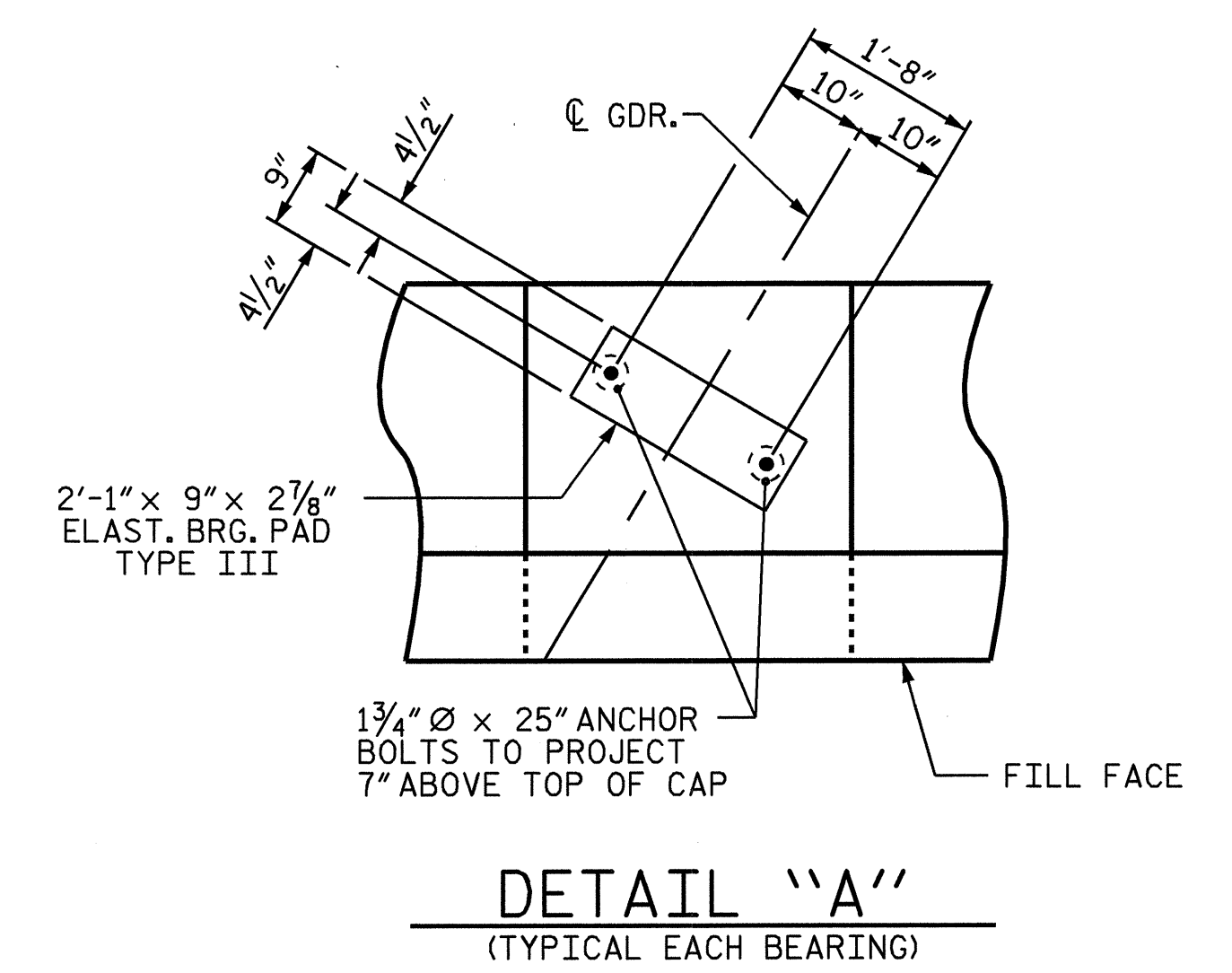
* FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A, SHEET 4 OF 4



PLAN



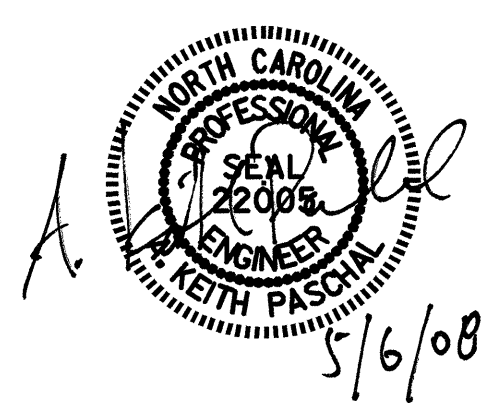
ELEVATION



DETAIL "A"
(TYPICAL EACH BEARING)

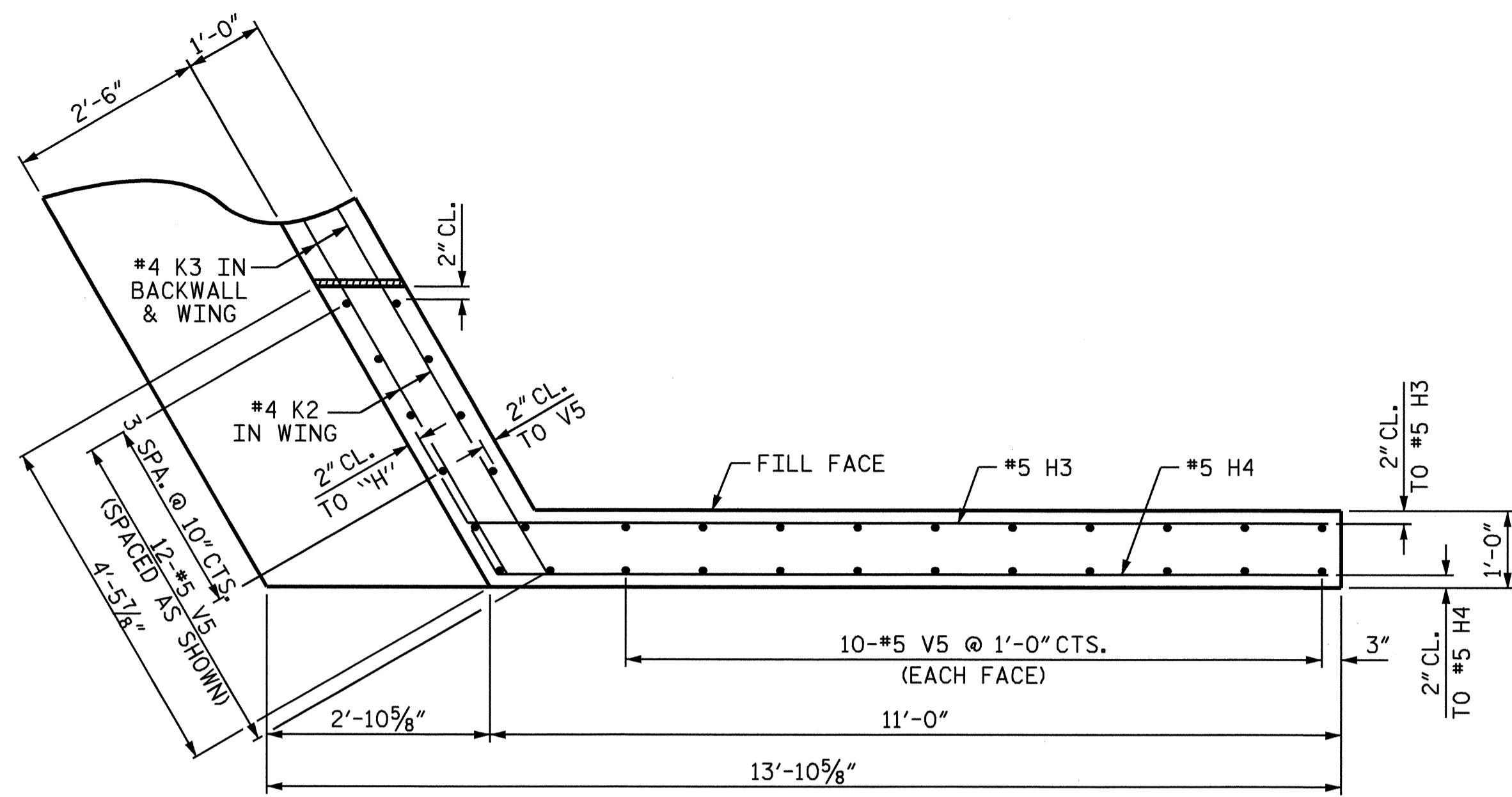
PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-
 SHEET 2 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT 1 (STAGE II)					
SHEET NO. S-19					
TOTAL SHEETS 28					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

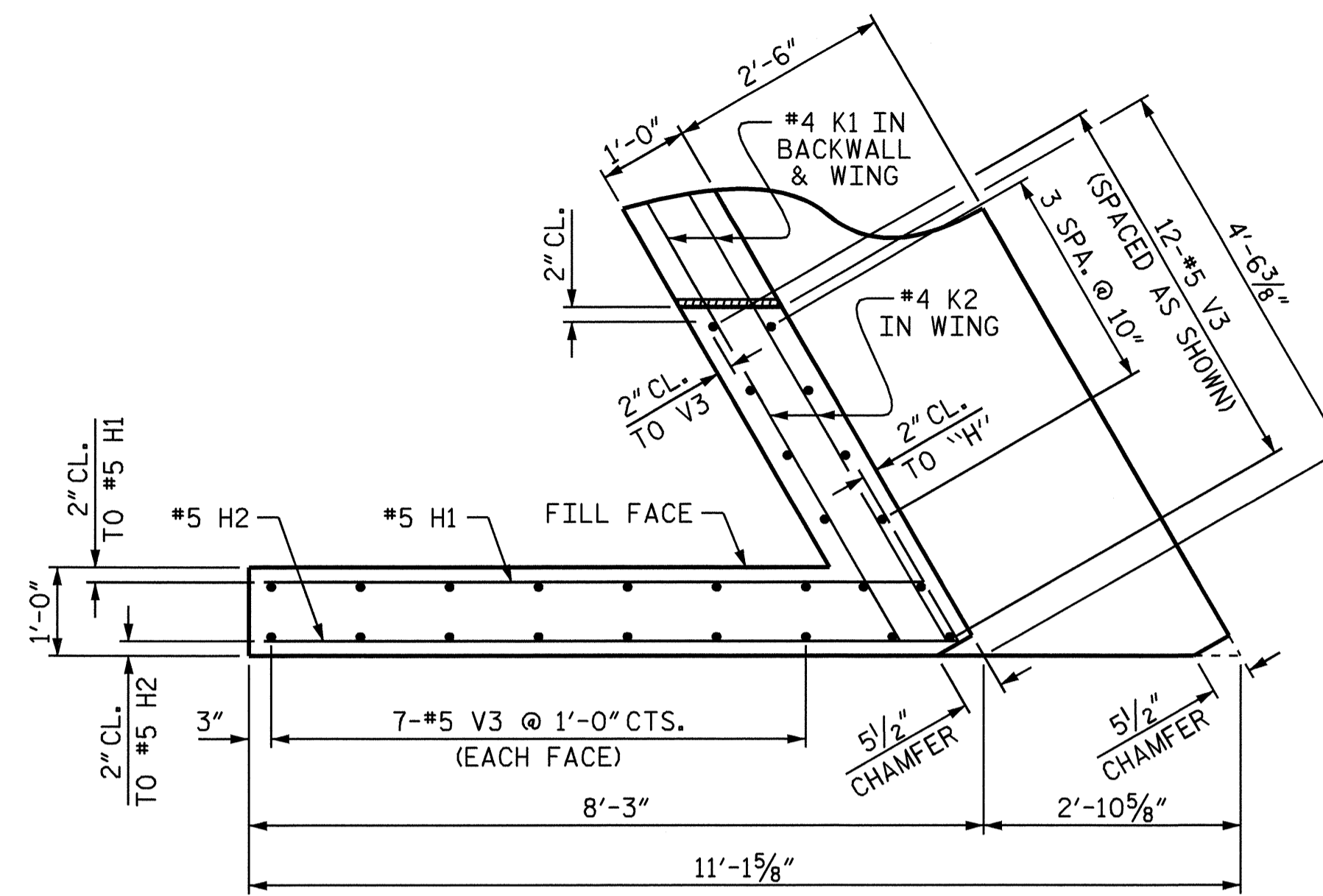


DRAWN BY : B.N. GRADY DATE : 11/9/07
 CHECKED BY : J.D. HAWK DATE : 1/5/08

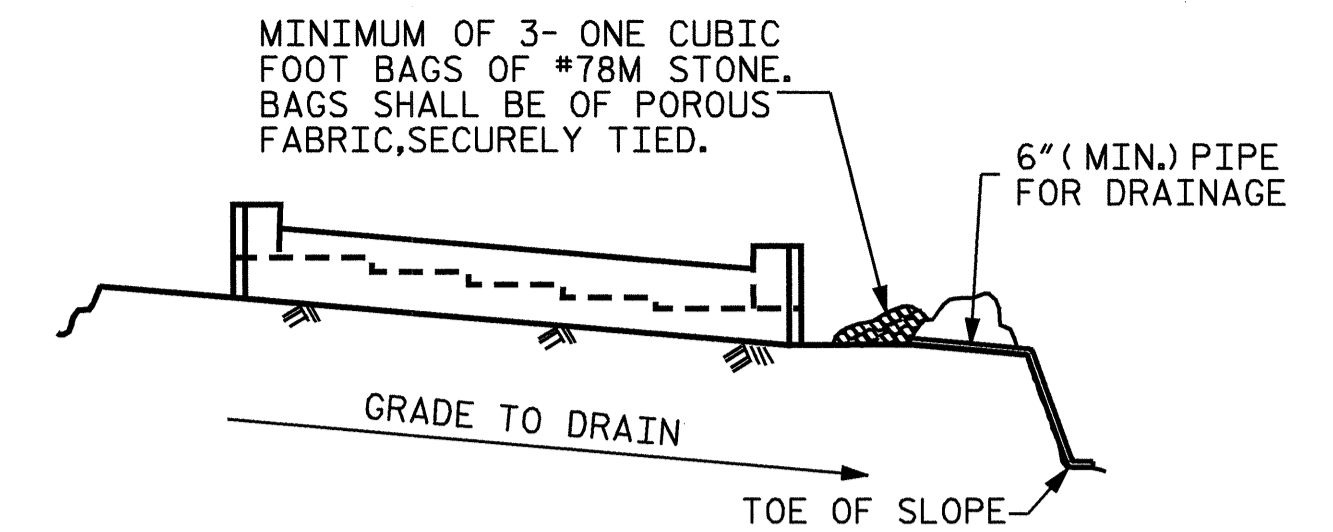
*FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A, SHEET 4 OF 4



PLAN OF WING (W1)
STAGE II



PLAN OF WING (W2)
STAGE I

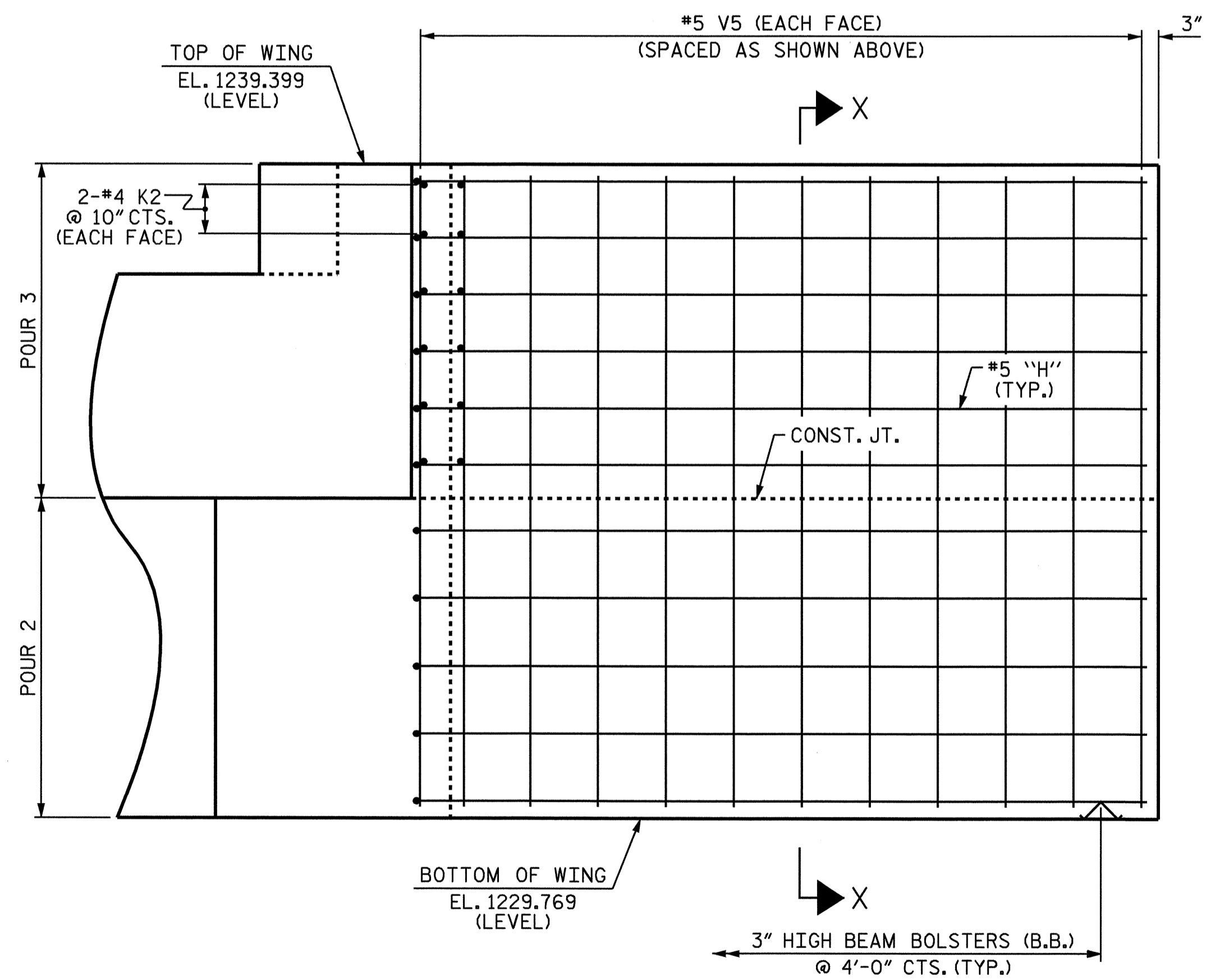


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

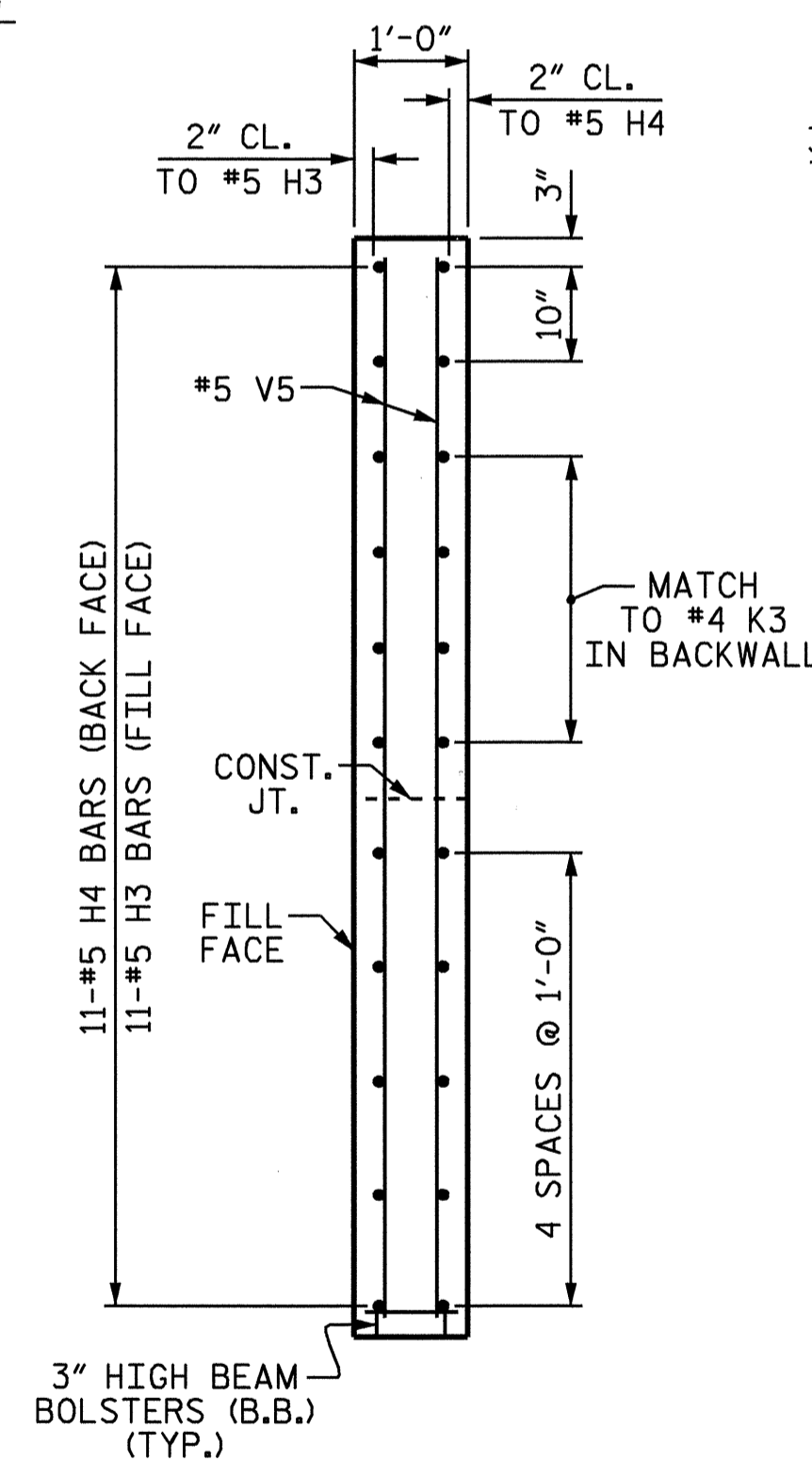
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

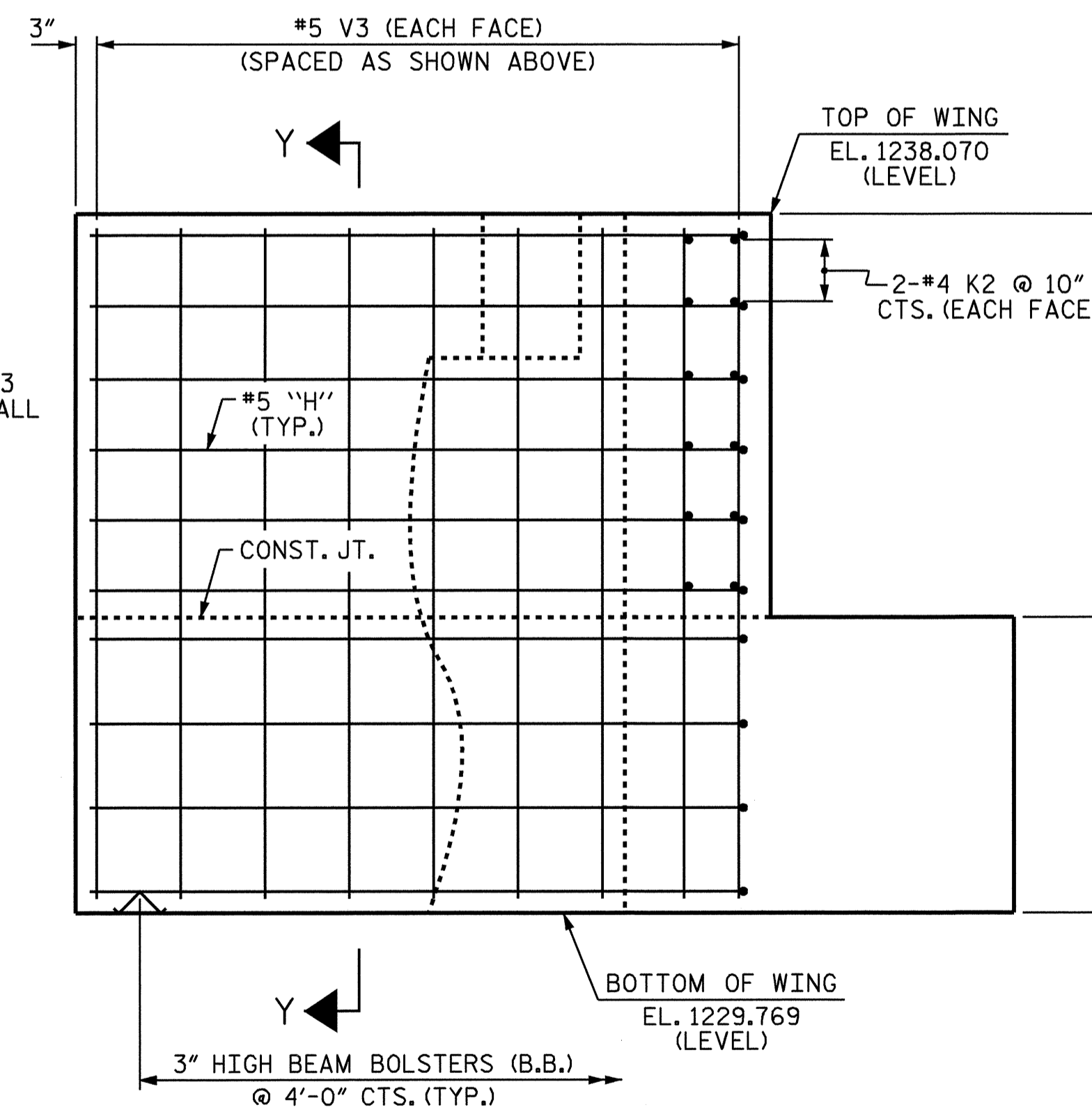
TEMPORARY DRAINAGE AT END BENT



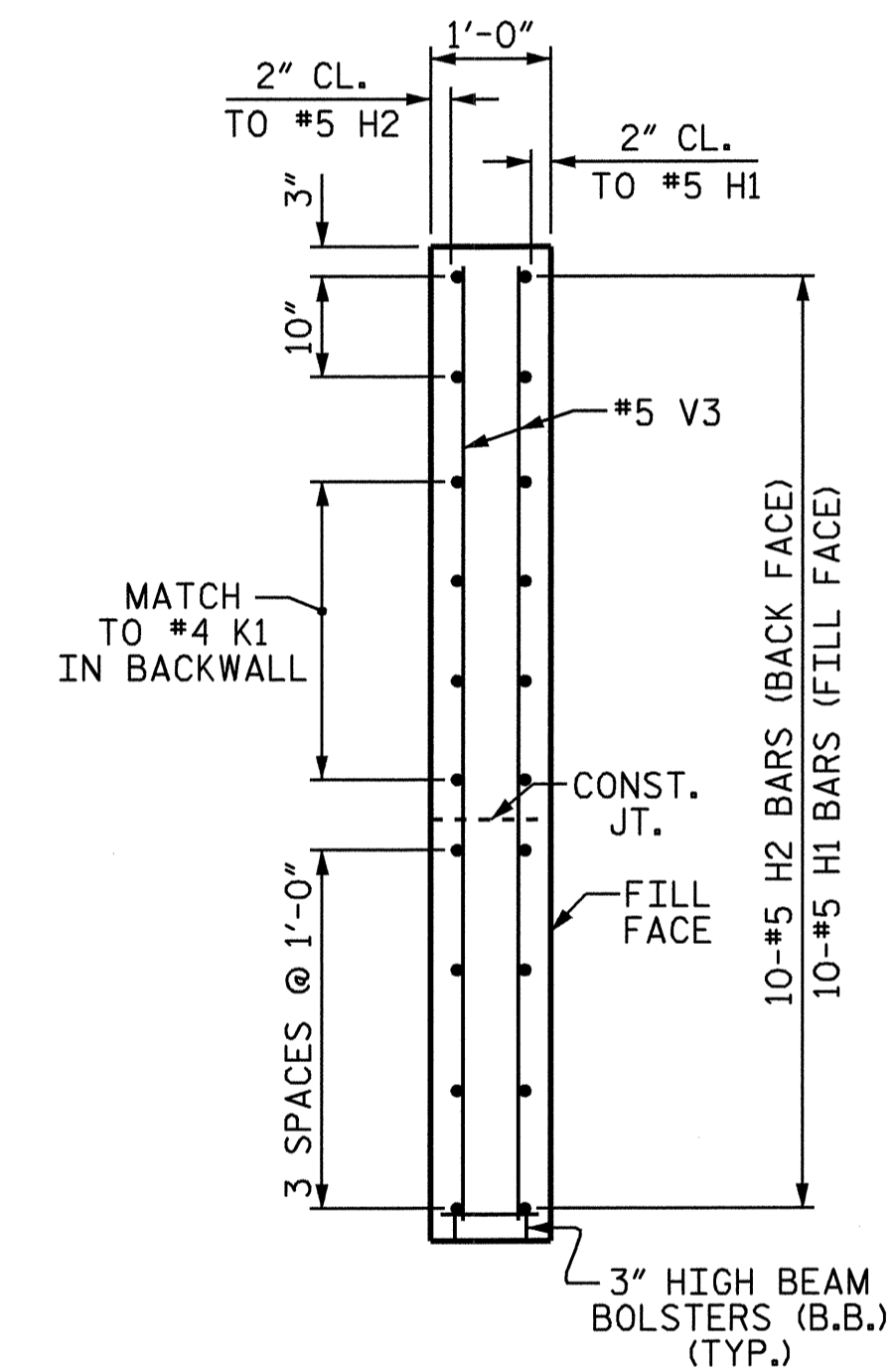
ELEVATION OF WING (W1)
STAGE II



SECTION X-X



ELEVATION OF WING (W2)
STAGE I



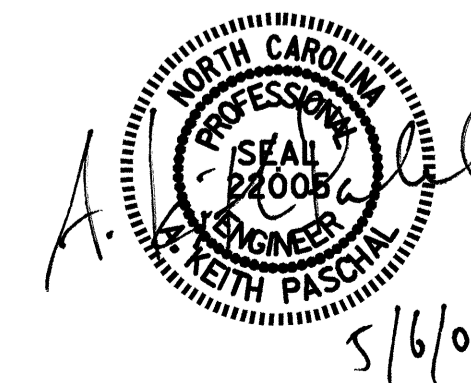
SECTION Y-Y

PROJECT NO. B-4197
McDOWELL COUNTY
STATION: 24+67.50 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

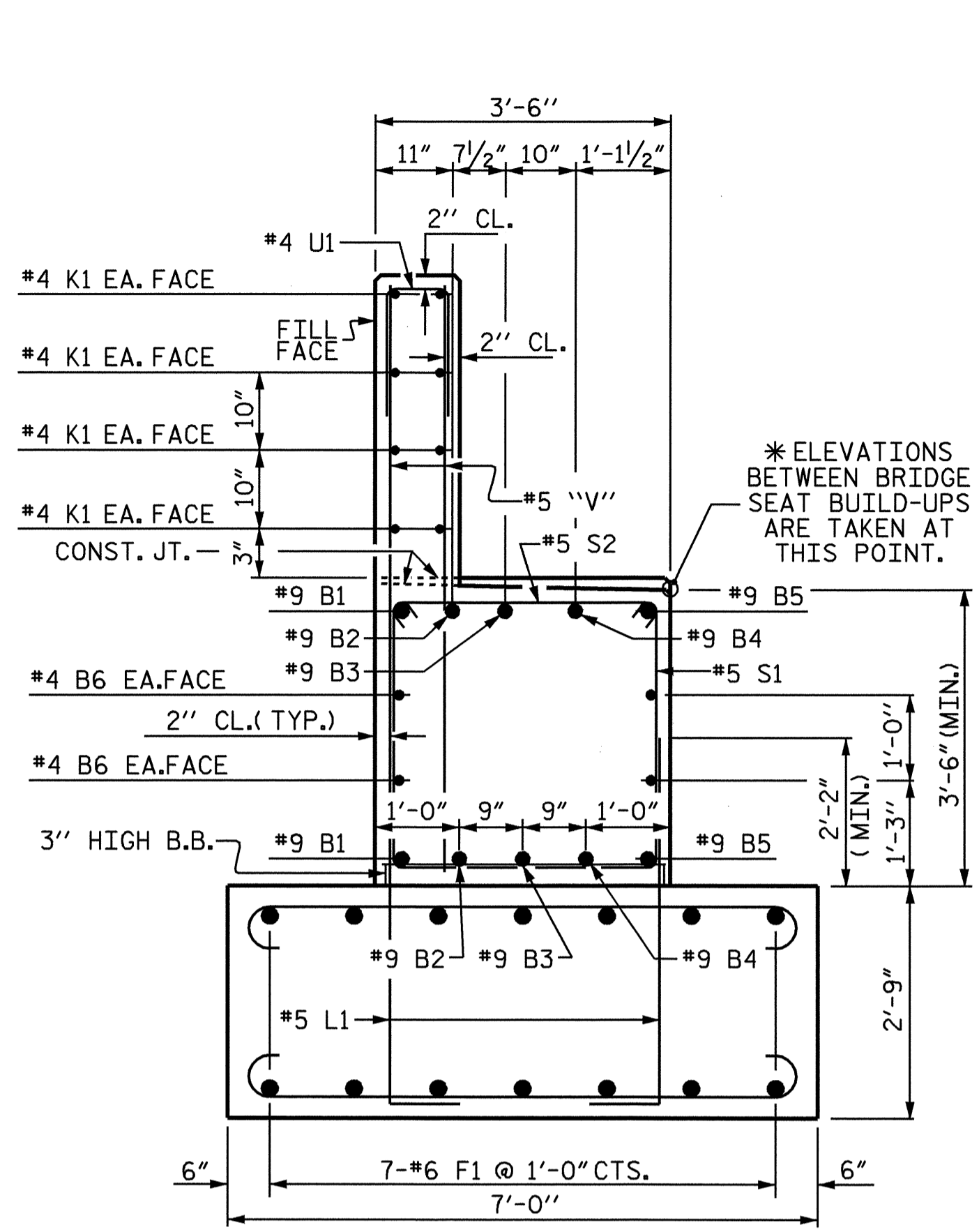
SUBSTRUCTURE
END BENT 1
(STAGE I & II)



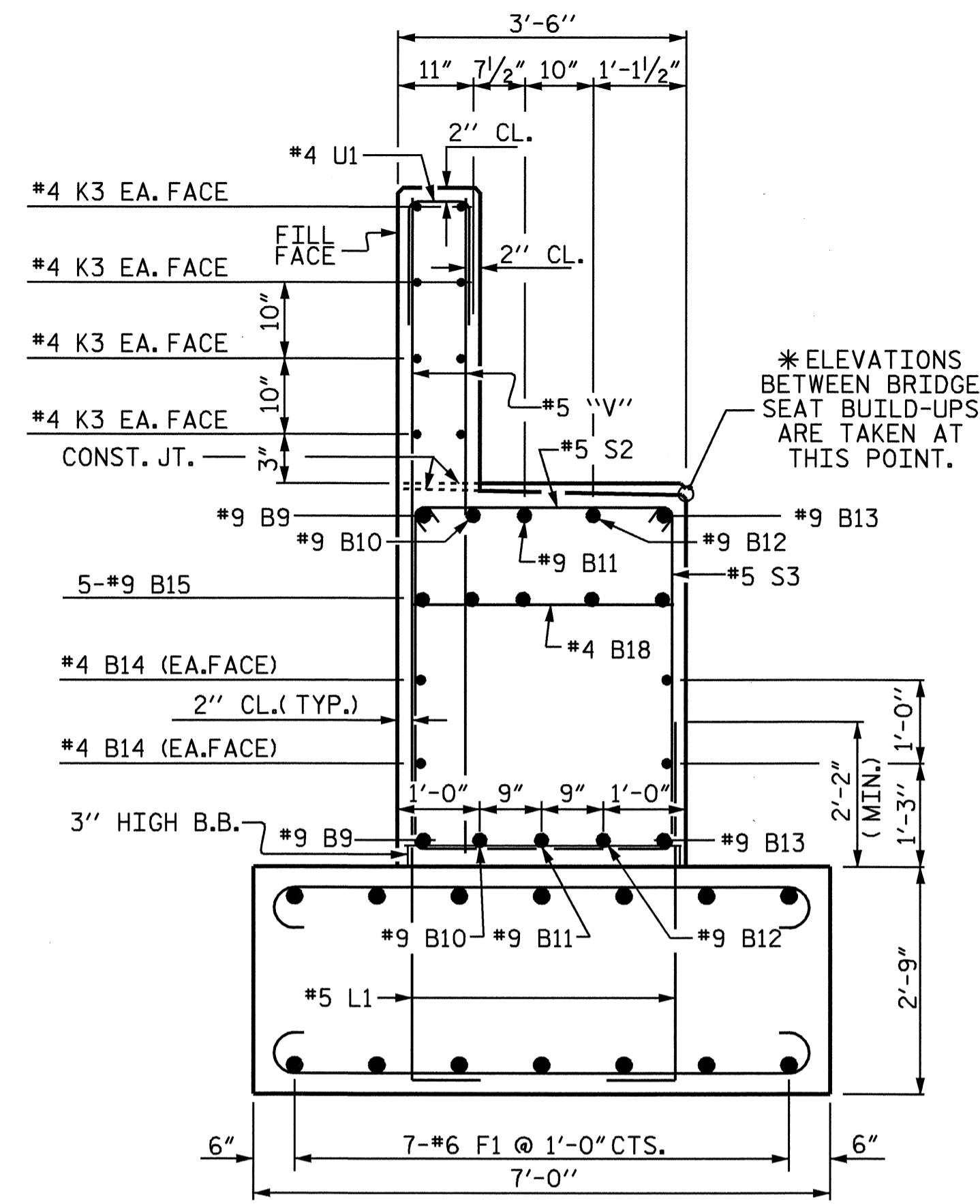
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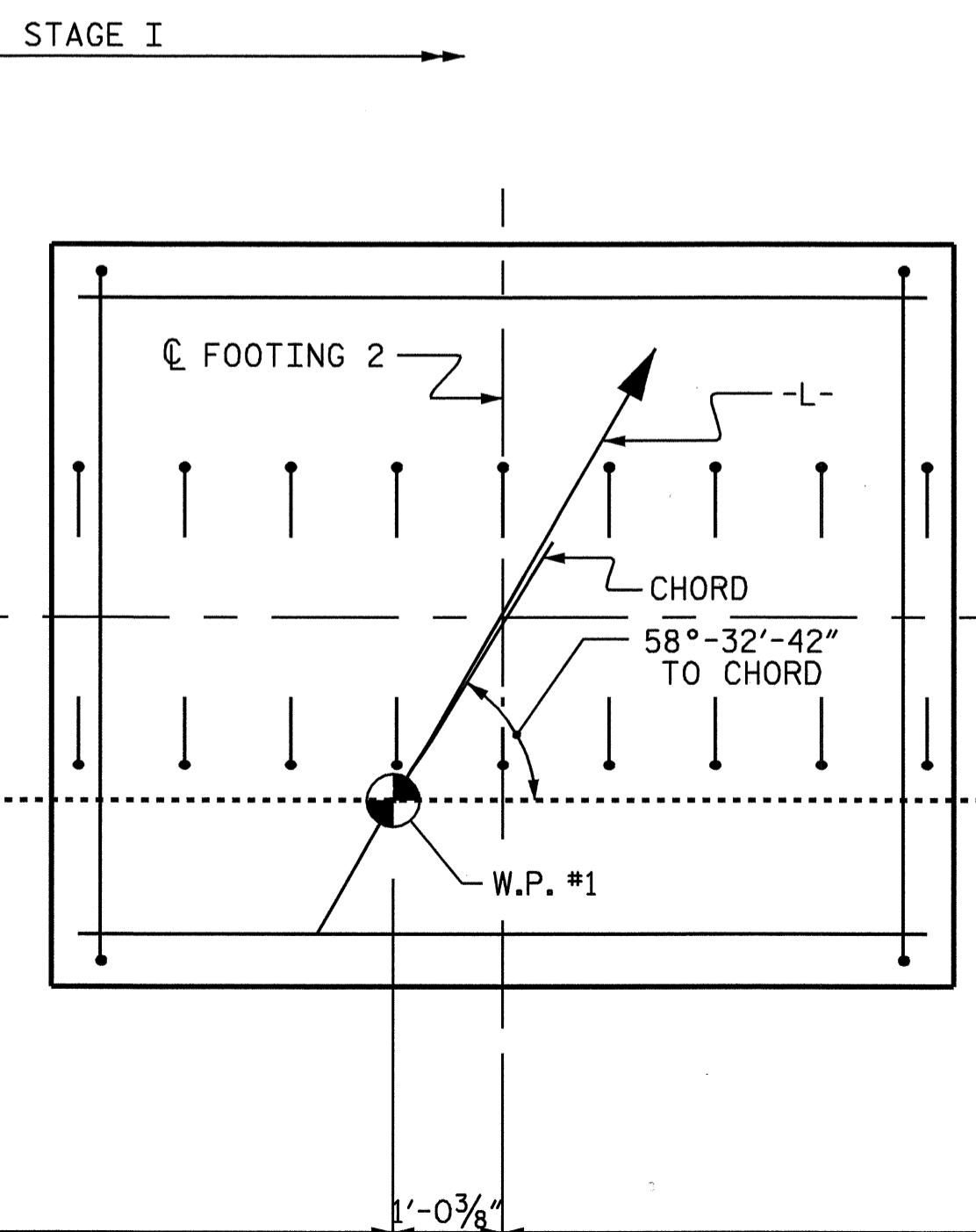
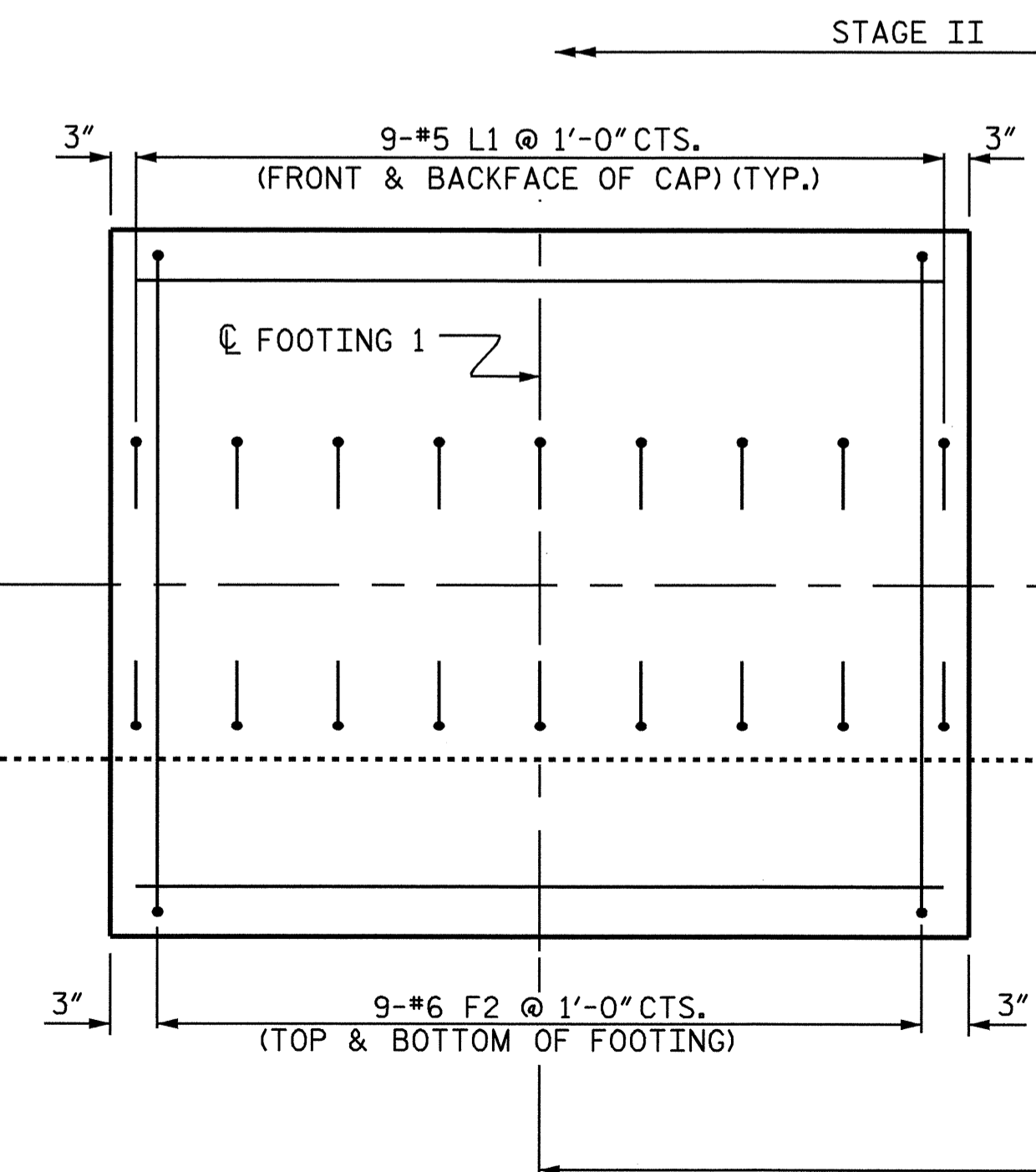
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS
2			4			28



SECTION A-A

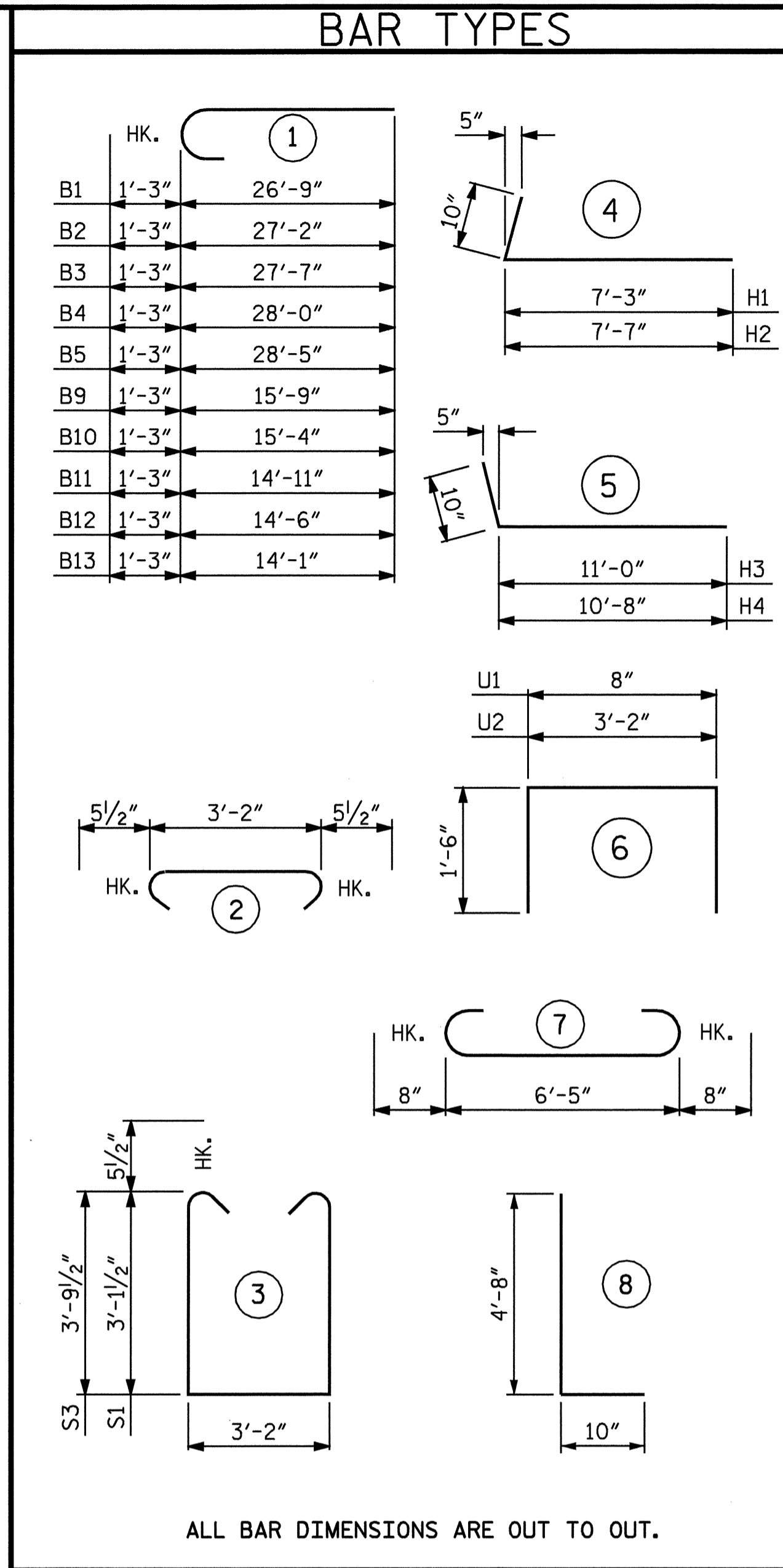


SECTION B-B



PLAN OF FOOTINGS

REINFORCING STEEL AND DIMENSIONS ARE TYPICAL FOR ALL FOOTINGS



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL - END BENT 1											
STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	28'-0"	190	B9	2	#9	1	17'-0"	116
B2	2	#9	1	28'-5"	193	B10	2	#9	1	16'-7"	113
B3	2	#9	1	28'-10"	196	B11	2	#9	1	16'-2"	110
B4	2	#9	1	29'-3"	199	B12	2	#9	1	15'-9"	107
B5	2	#9	1	29'-8"	202	B13	2	#9	1	15'-4"	104
B6	8	#4	STR	16'-4"	87	B14	8	#4	STR	9'-9"	52
B7	5	#4	STR	8'-2"	27	B15	5	#9	STR	7'-9"	132
B8	5	#9	STR	5'-1"	87	B16	2	#4	STR	10'-0"	13
B18	1	#4	STR	3'-2"	2	B17	10	#4	STR	5'-4"	36
						B18	2	#4	STR	3'-2"	4
F1	28	#6	STR	8'-0"	336	F1	14	#6	STR	8'-0"	168
F2	36	#6	7	7'-9"	419	F2	18	#6	7	7'-9"	210
H1	10	#5	4	8'-1"	83	H3	11	#5	5	11'-10"	136
H2	10	#5	4	8'-5"	88	H4	11	#5	5	11'-6"	132
K1	16	#4	STR	15'-6"	166						
K2	4	#4	STR	4'-1"	11	K2	4	#4	STR	4'-1"	11
L1	36	#5	8	5'-6"	207	K3	16	#4	STR	9'-9"	104
S1	16	#5	3	10'-4"	172	L1	18	#5	8	5'-6"	103
S2	20	#5	2	4'-1"	85	S1	16	#5	3	10'-4"	172
S3	4	#5	3	11'-8"	49	S2	12	#5	2	4'-1"	51
						S3	12	#5	3	11'-8"	146
U1	21	#4	6	3'-8"	51	U1	12	#4	6	3'-8"	29
U2	6	#4	6	6'-2"	25	U2	5	#4	6	6'-2"	21
V1	20	#5	STR	6'-3"	130	V1	20	#5	STR	6'-3"	130
V2	22	#5	STR	6'-8"	153	V2	22	#5	STR	6'-8"	153
V3	26	#5	STR	7'-11"	215	V3	26	#5	STR	7'-11"	215

REINFORCING STEEL = 3373 LBS		REINFORCING STEEL = 2384 LBS	
CLASS A CONCRETE BREAKDOWN		CLASS A CONCRETE BREAKDOWN	
POUR 1 (FOOTINGS)	12.1 C.Y.	POUR 1 (FOOTING)	6.1 C.Y.
POUR 2 (CAP & LOWER PART OF WING)	13.9 C.Y.	POUR 2 (CAP & LOWER PART OF WING)	11.4 C.Y.
POUR 3 (BACKWALL & UPPER PART OF WING)	4.6 C.Y.	POUR 3 (BACKWALL & UPPER PART OF WING)	4.3 C.Y.
CLASS A CONCRETE TOTAL	30.6 C.Y.	CLASS A CONCRETE TOTAL	21.8 C.Y.

TOTAL BILL OF MATERIAL

REINFORCING STEEL	5757 LBS
CLASS A CONCRETE TOTAL	52.4 C.Y.

PROJECT NO. B-4197
 McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 4 OF 4

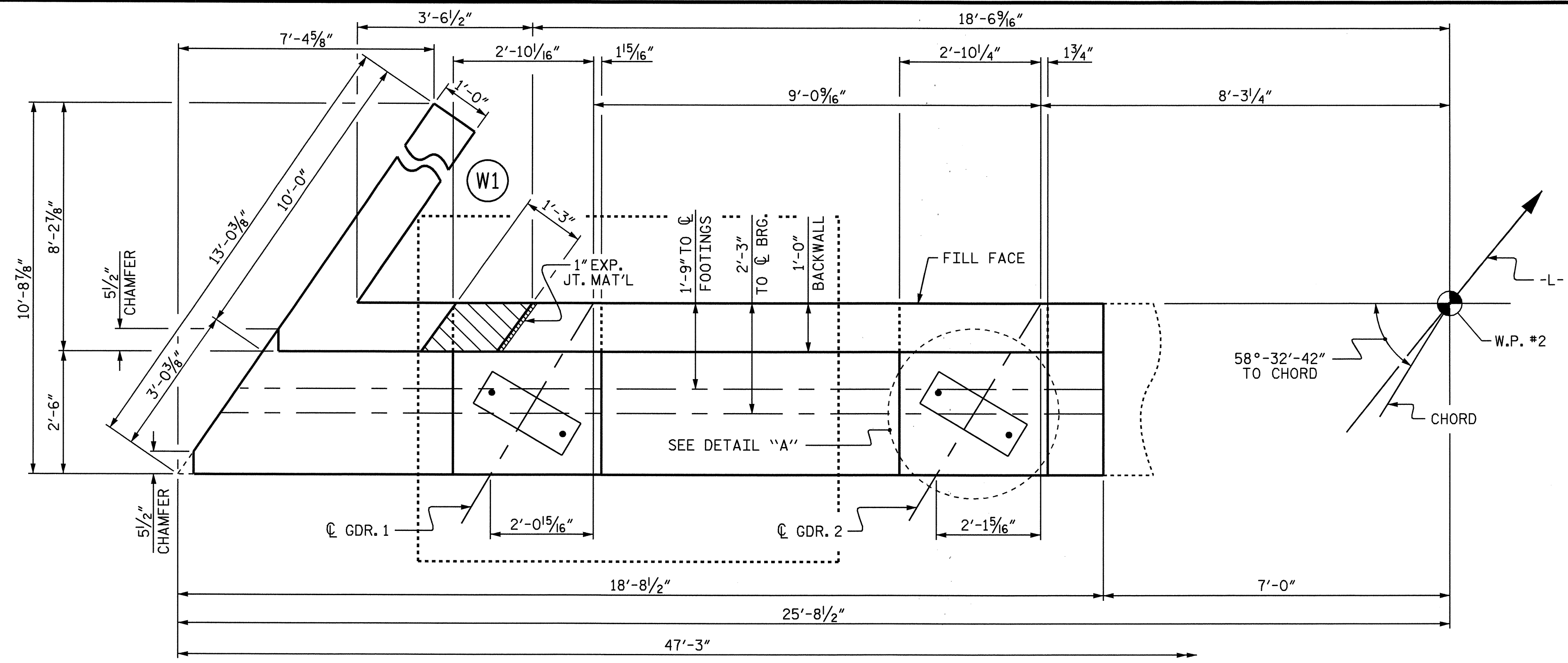
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT 1
 (STAGE I & II)

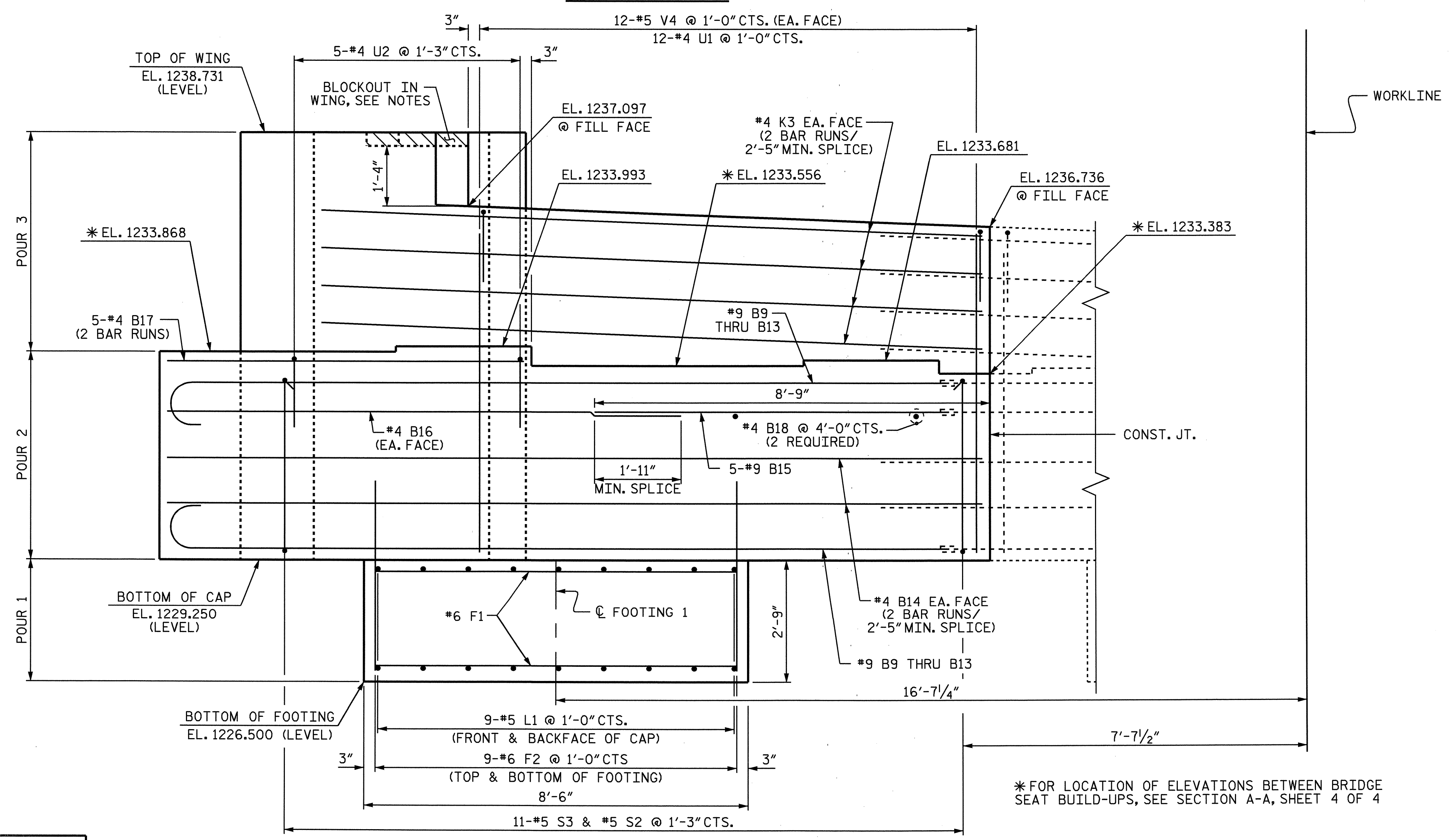
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DRAWN BY: B.N. GRADY DATE: 11/9/07
 CHECKED BY: J.D. HAWK DATE: 1/5/08

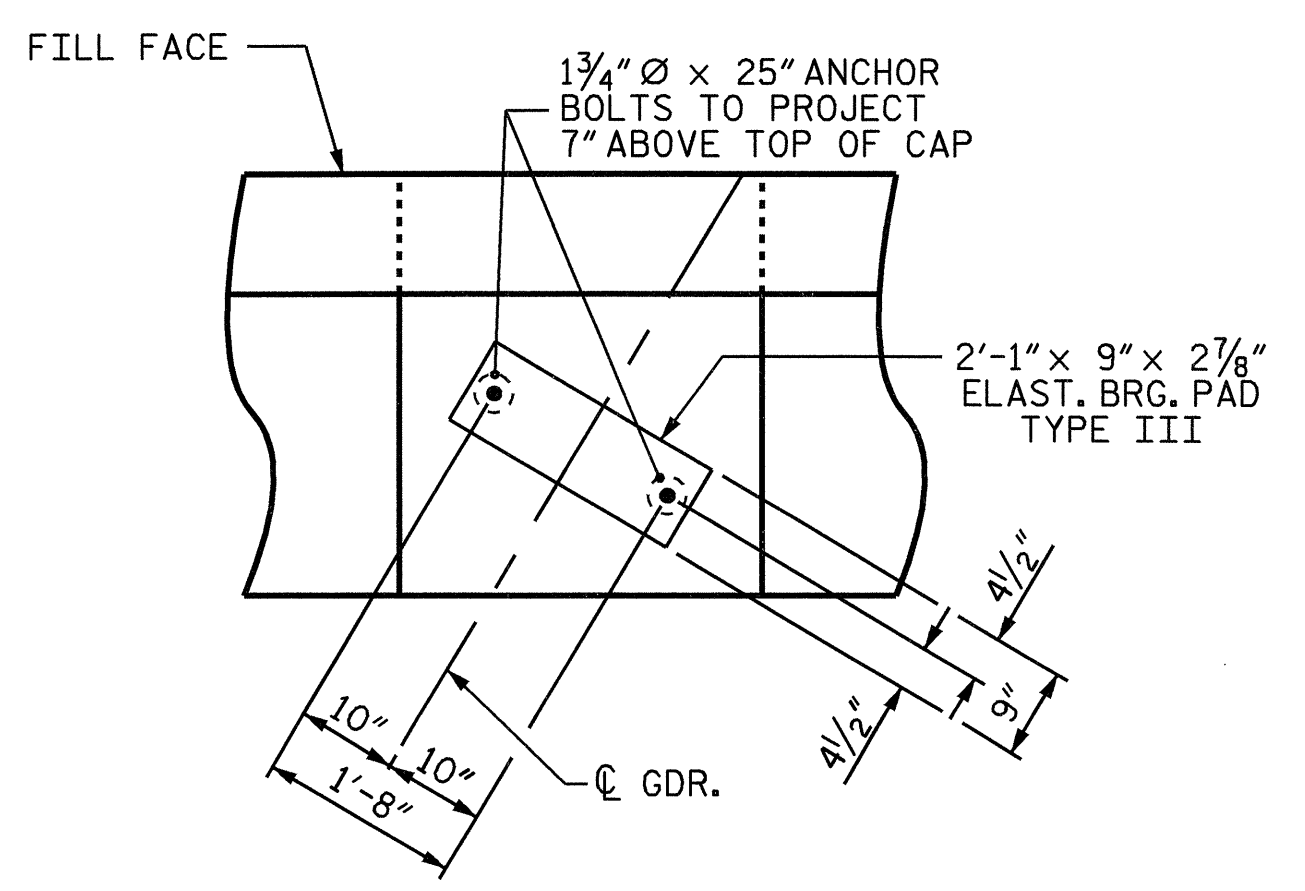
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PLAN



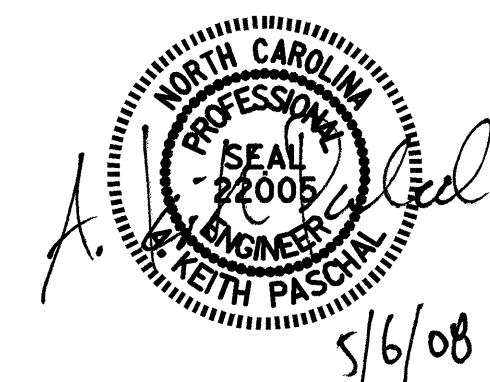
ELEVATION



DETAIL "A"
(TYPICAL EACH BEARING)

PROJECT NO. B-4197
 McDOWELL COUNTY
 STATION: 24+67.50 -L-

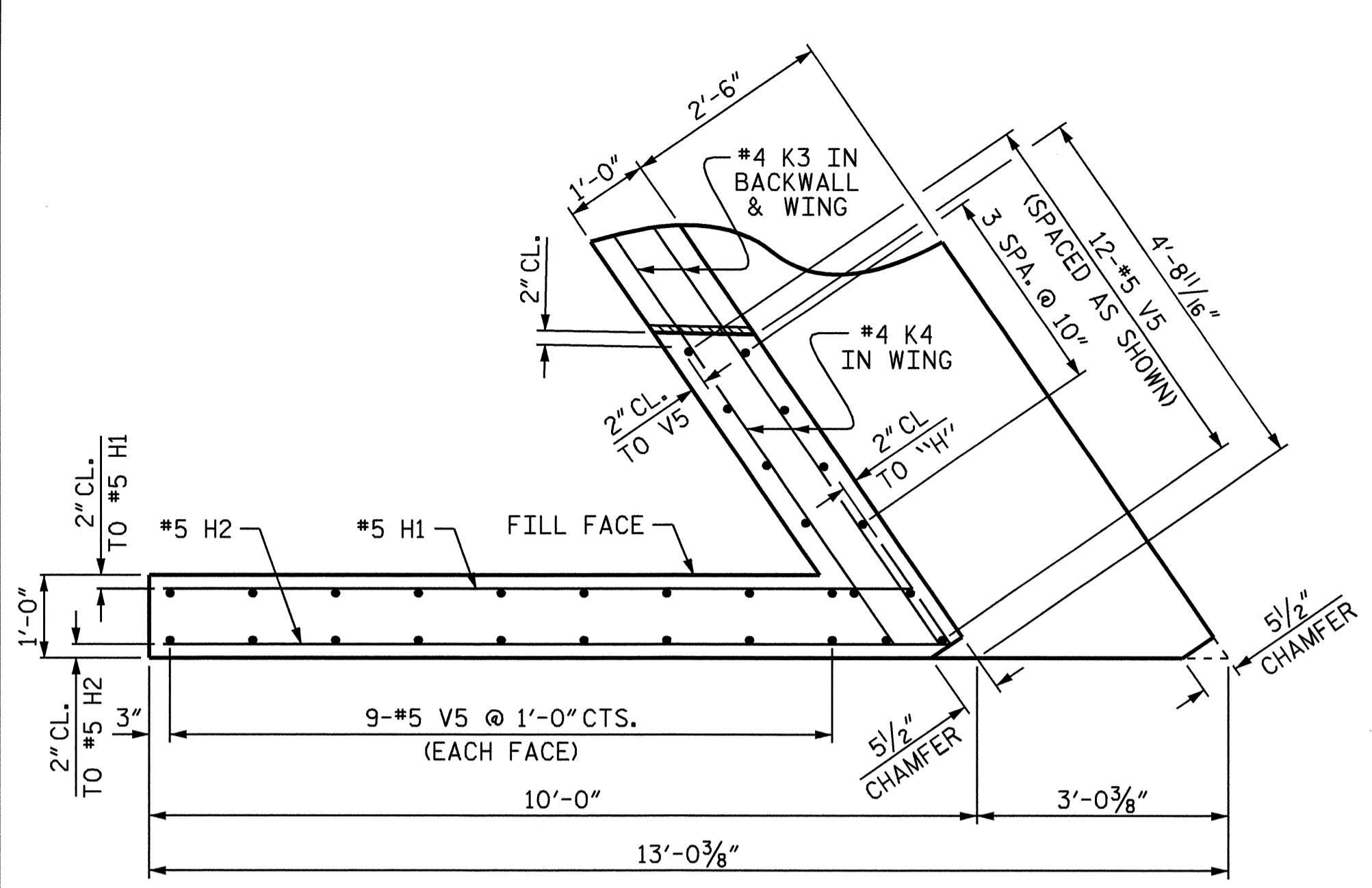
SHEET 2 OF 4
 STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 (STAGE II)



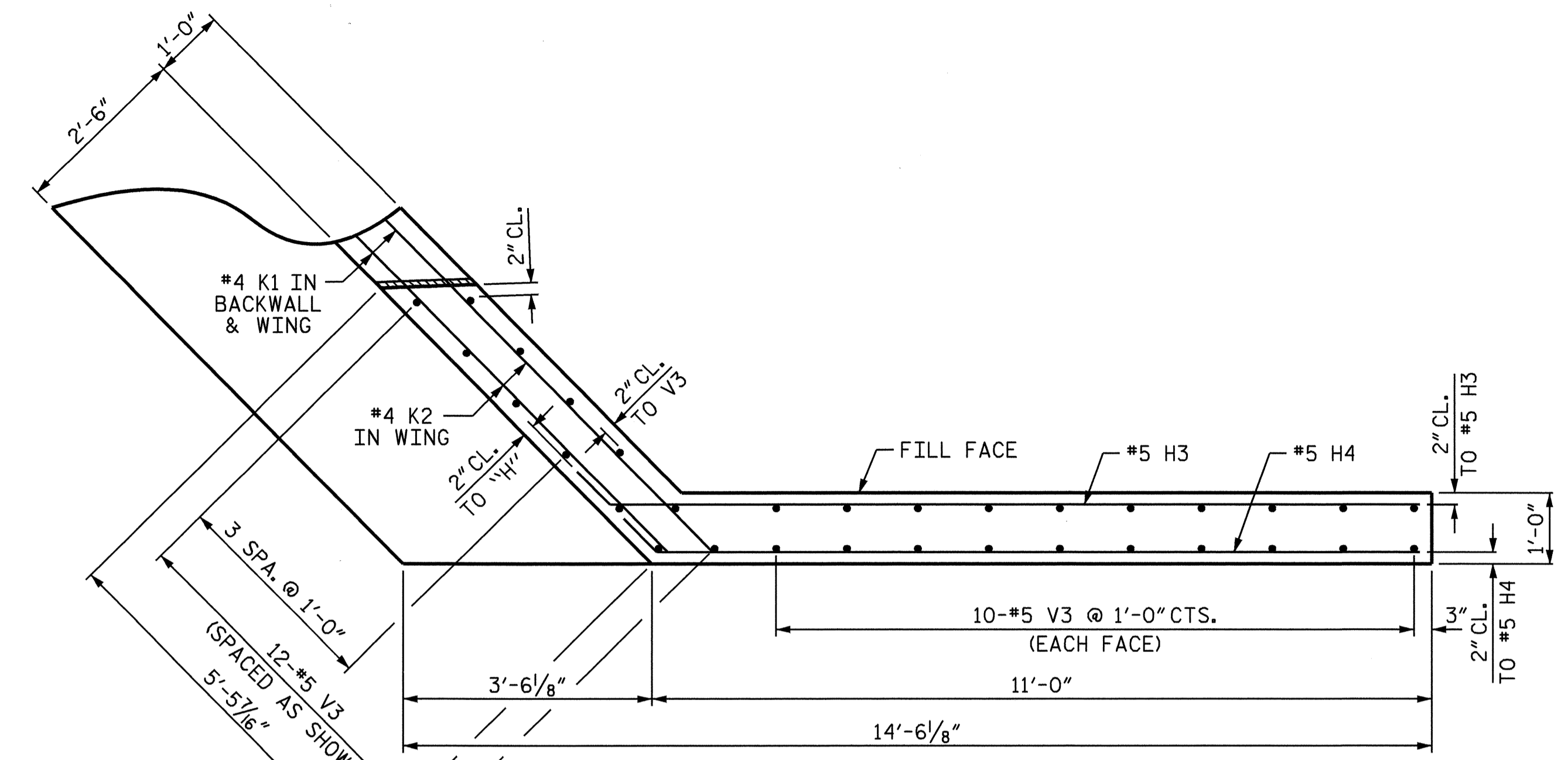
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			28
2			4			

DRAWN BY: B.N. GRADY DATE: 11/9/07
 CHECKED BY: J.D. HAWK DATE: 1/5/08

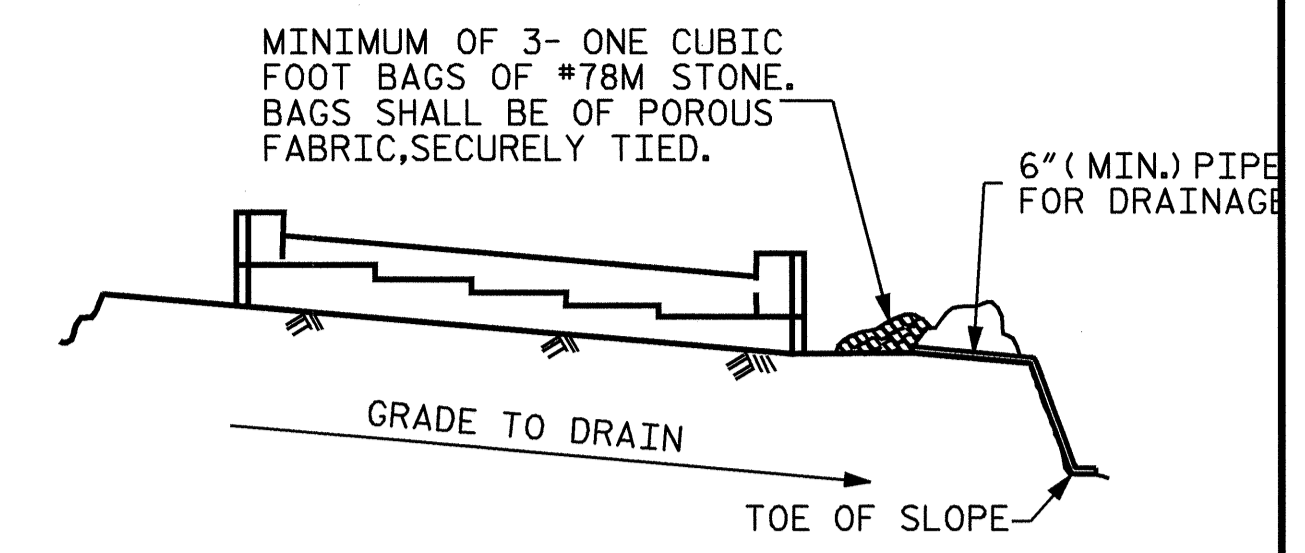
*FOR LOCATION OF ELEVATIONS BETWEEN BRIDGE SEAT BUILD-UPS, SEE SECTION A-A, SHEET 4 OF 4



PLAN OF WING (W1)
STAGE II



PLAN OF WING (W2)
STAGE I



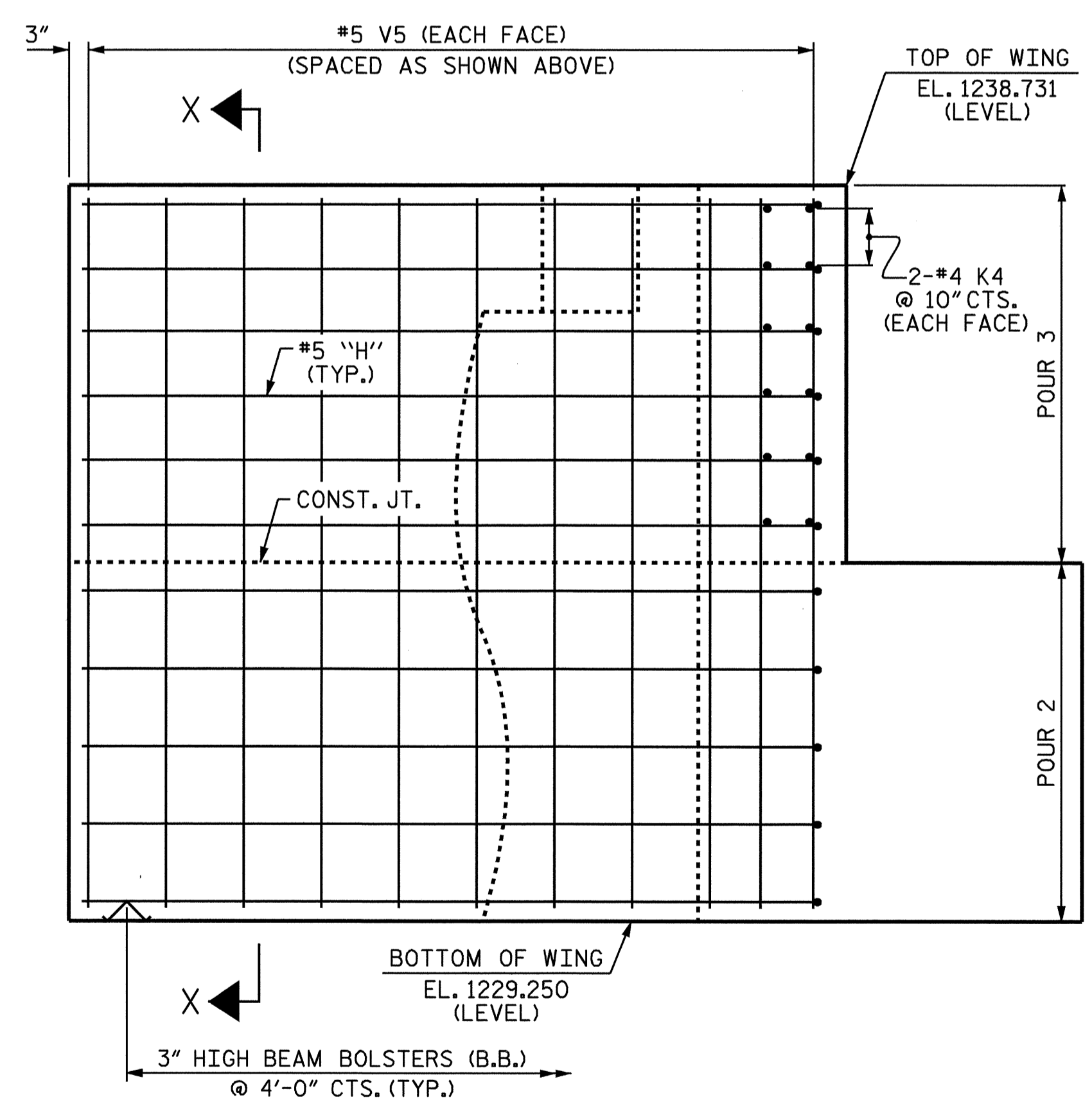
MINIMUM OF 3- ONE CUBIC FOOT BAGS OF #78M STONE. BAGS SHALL BE OF POROUS FABRIC, SECURELY TIED.

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

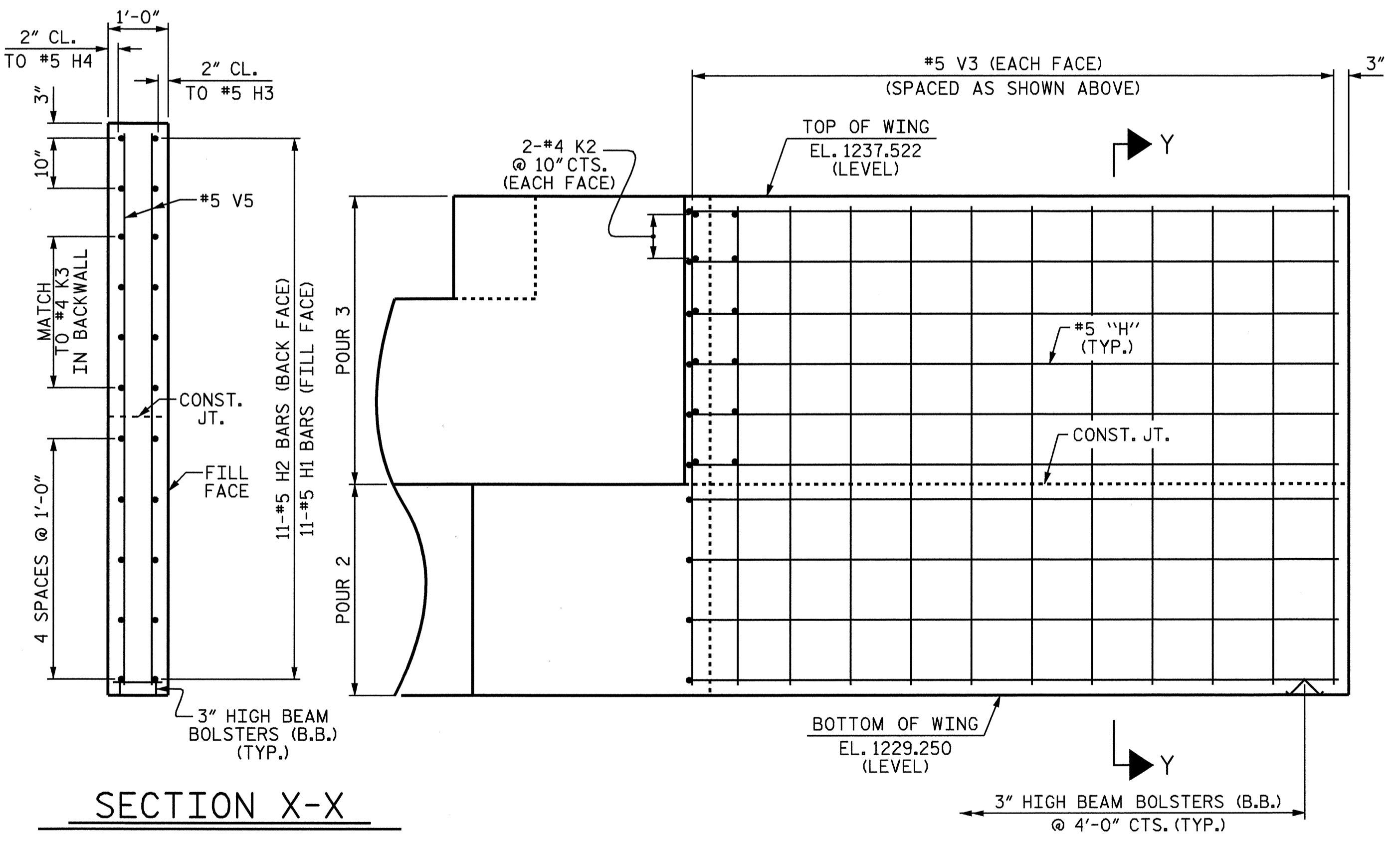
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR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

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

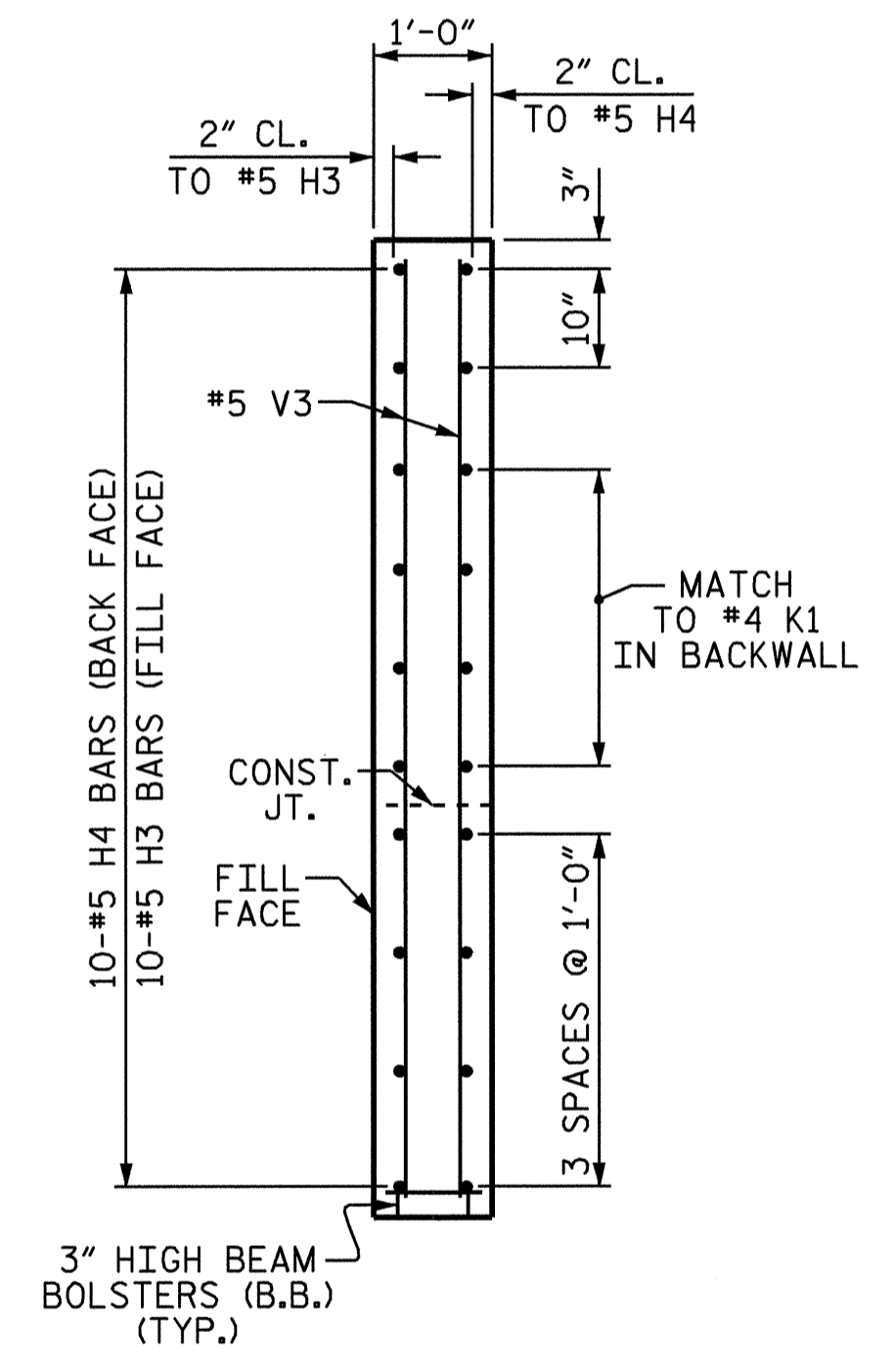
TEMPORARY DRAINAGE AT END BENT



ELEVATION OF WING (W1)
STAGE II



ELEVATION OF WING (W2)
STAGE I



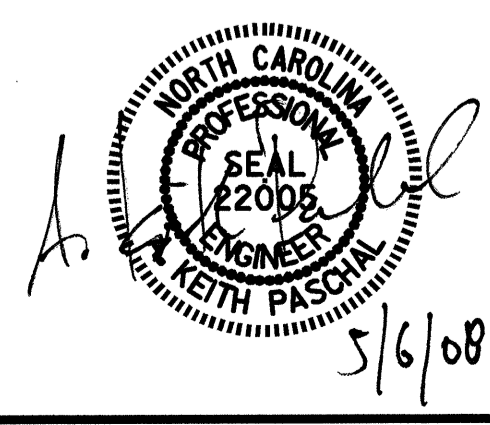
SECTION Y-Y

PROJECT NO. B-4197
MCDOWELL COUNTY
STATION: 24+67.50 -L-

SHEET 3 OF 4

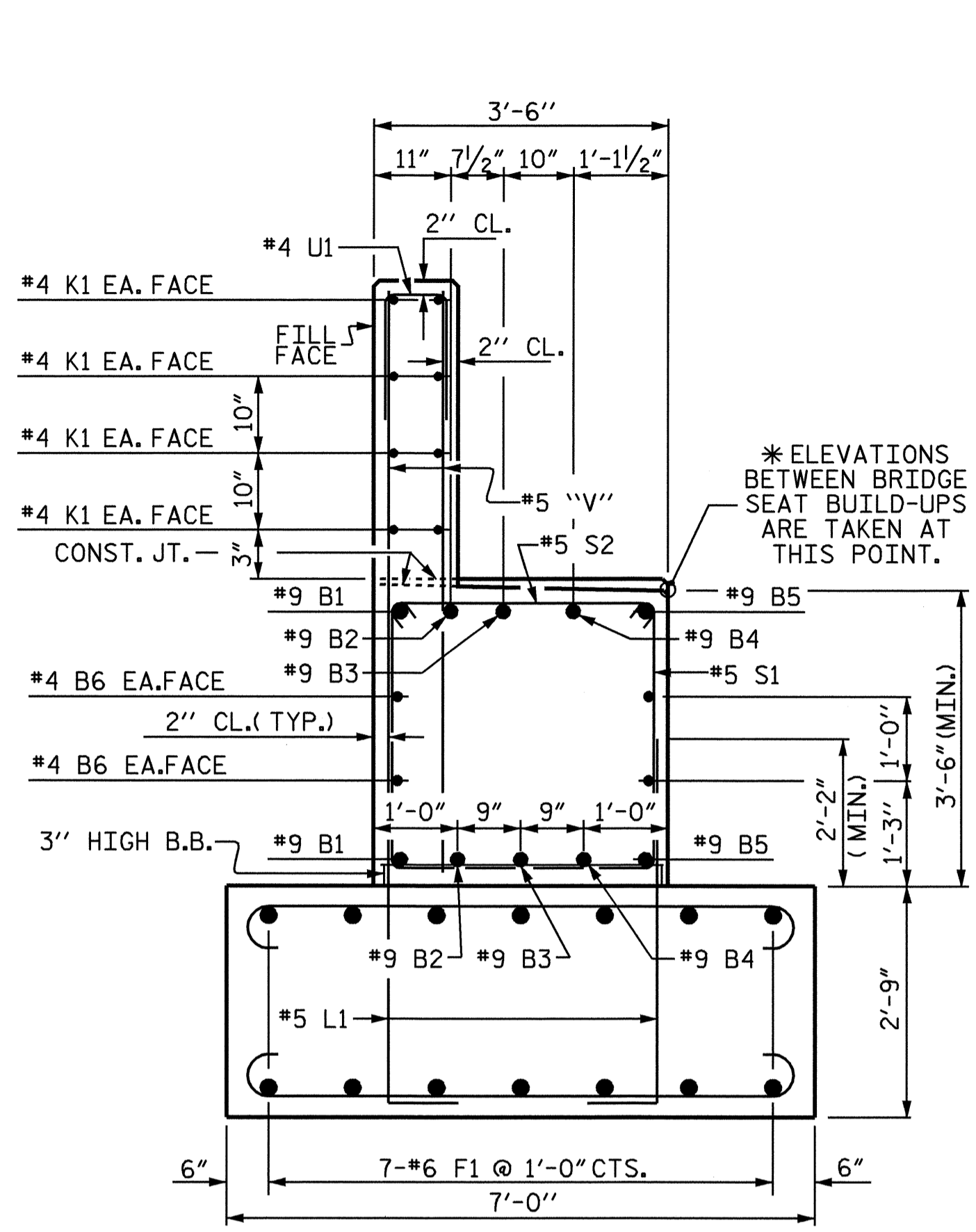
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 2
(STAGE I & II)

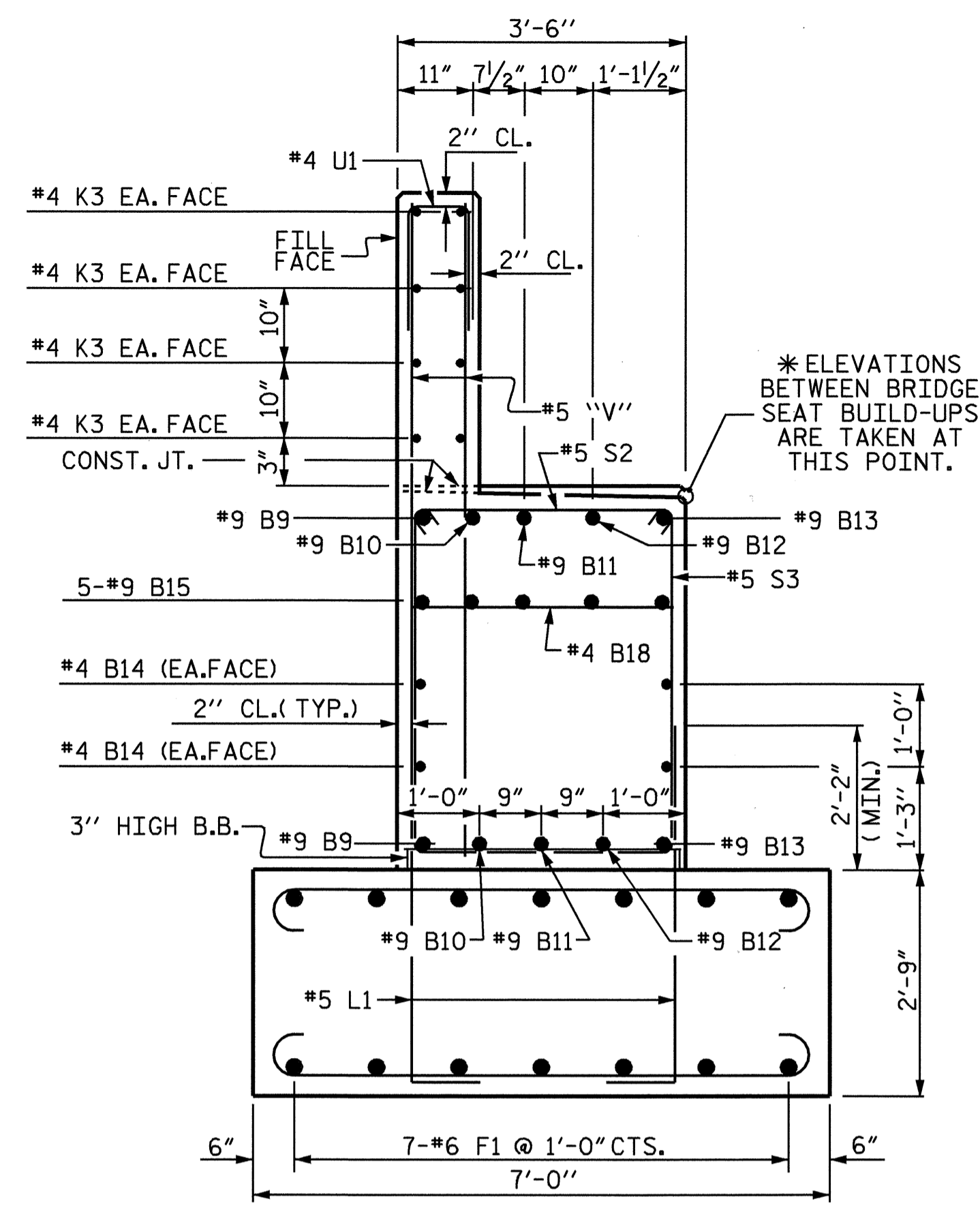


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1			3			TOTAL SHEETS	28
2			4				

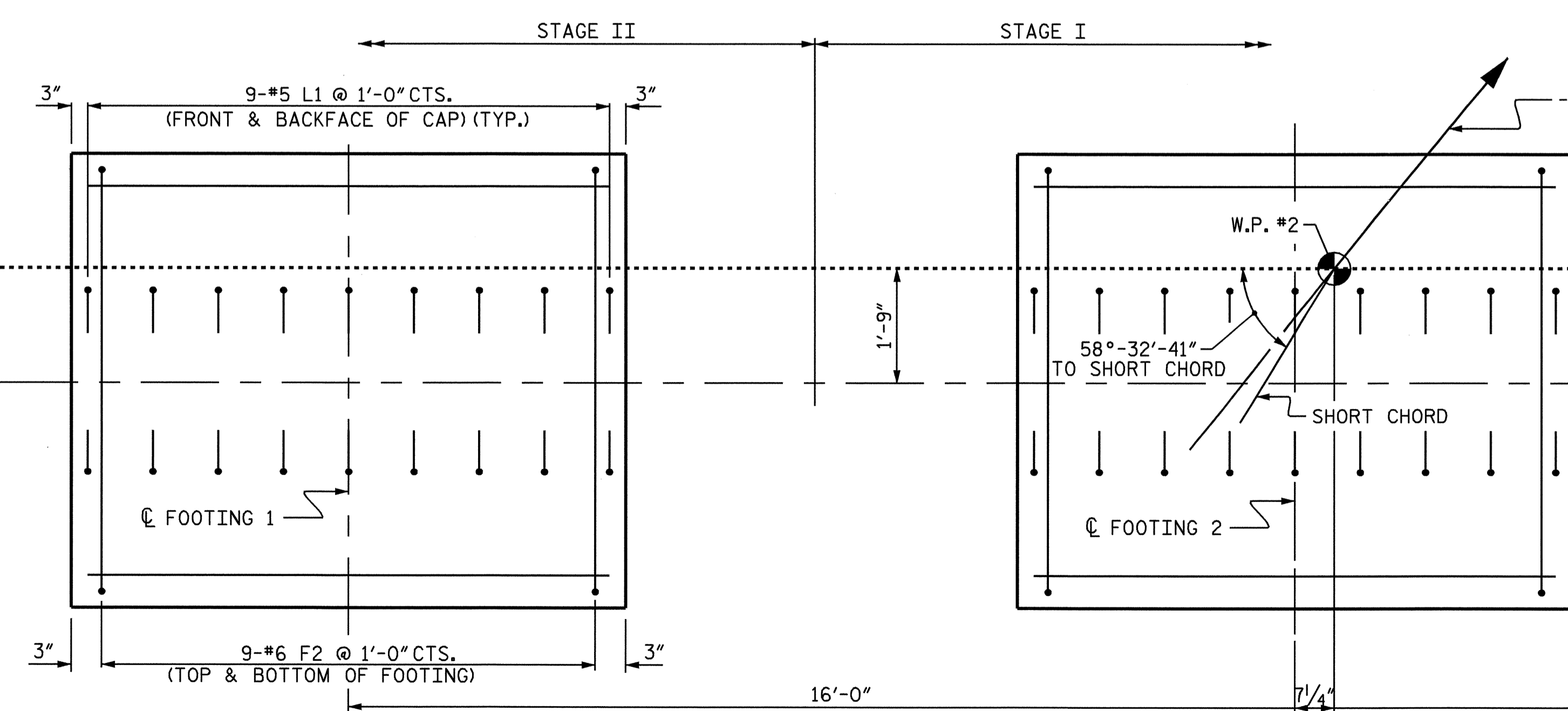
DRAWN BY : B.N. GRADY DATE : 11/9/07
CHECKED BY : J.D. HAWK DATE : 1/5/08



SECTION A-A



SECTION B-B

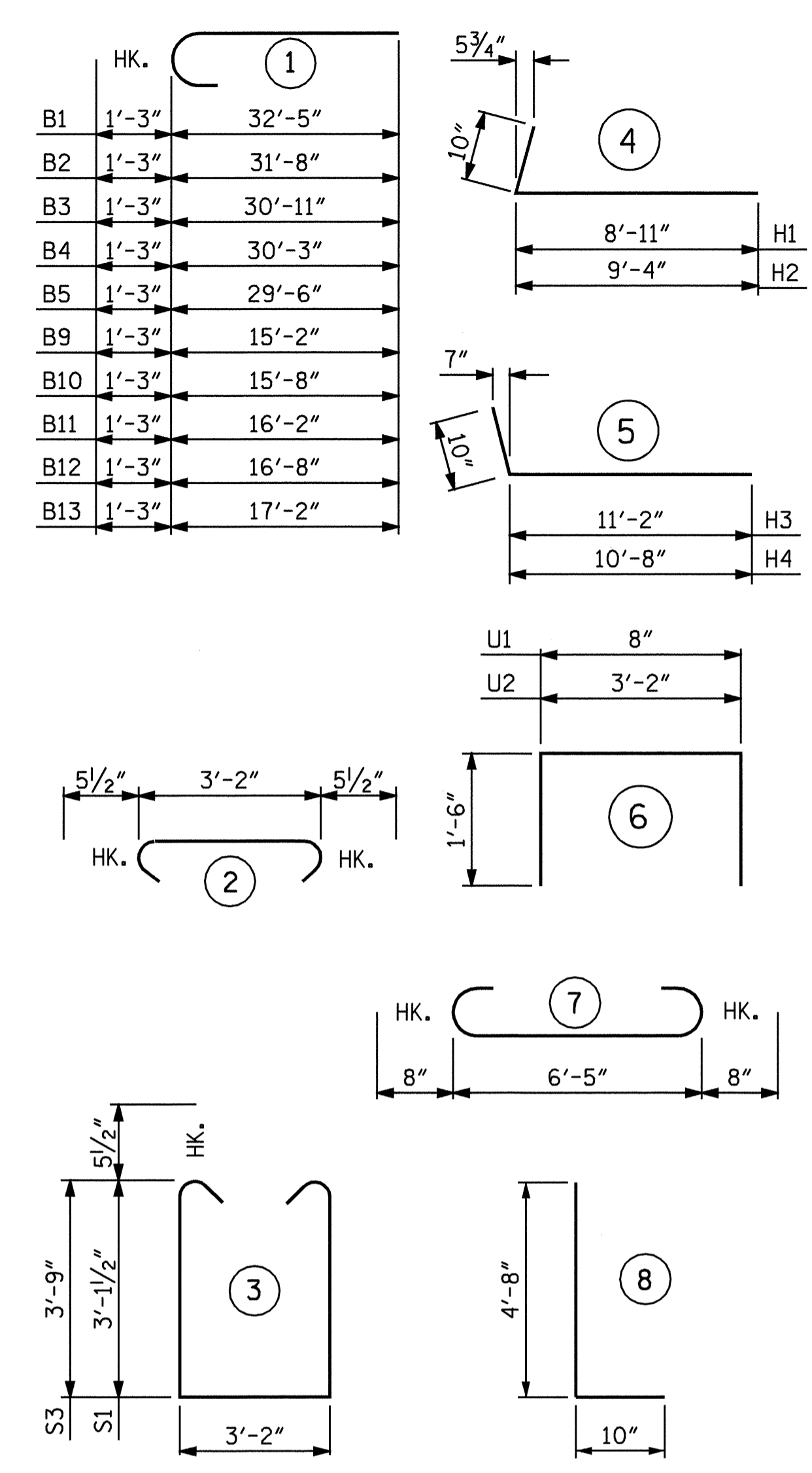


PLAN OF FOOTINGS

DRAWN BY : B.N. GRADY DATE : 11/9/07
 CHECKED BY : J.D. HAWK DATE : 1/5/08

06-MAY-2008 14:55
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BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL - END BENT 2

STAGE I						STAGE II					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	33'-8"	229	B9	2	#9	1	16'-5"	112
B2	2	#9	1	32'-11"	224	B10	2	#9	1	16'-11"	115
B3	2	#9	1	32'-2"	219	B11	2	#9	1	17'-5"	118
B4	2	#9	1	31'-6"	214	B12	2	#9	1	17'-11"	122
B5	2	#9	1	30'-9"	209	B13	2	#9	1	18'-5"	125
B6	8	#4	STR	18'-3"	98	B14	8	#4	STR	10'-2"	54
B7	5	#4	STR	9'-1"	30	B15	5	#9	STR	7'-9"	132
B8	5	#9	STR	4'-10"	82	B16	2	#4	STR	11'-5"	15
B18	1	#4	STR	3'-2"	2	B17	10	#4	STR	5'-3"	35
						B18	2	#4	STR	3'-2"	4
F1	28	#6	STR	8'-0"	336	F1	14	#6	STR	8'-0"	168
F2	36	#6	7	7'-9"	419	F2	18	#6	7	7'-9"	210
H3	10	#5	5	12'-0"	125	H1	11	#5	4	9'-9"	112
H4	10	#5	5	11'-6"	120	H2	11	#5	4	10'-2"	117
K1	16	#4	STR	18'-3"	195	K3	16	#4	STR	9'-5"	101
K2	4	#4	STR	5'-0"	13	K4	4	#4	STR	4'-4"	12
L1	36	#5	8	5'-6"	207	L1	18	#5	8	5'-6"	103
S1	20	#5	3	10'-4"	216						
S2	23	#5	2	4'-1"	98	S2	11	#5	2	4'-1"	47
S3	3	#5	3	11'-7"	36	S3	11	#5	3	11'-7"	133
U1	26	#4	6	3'-8"	64	U1	12	#4	6	3'-8"	29
U2	7	#4	6	6'-2"	29	U2	5	#4	6	6'-2"	21
V1	26	#5	STR	6'-3"	169	V4	24	#5	STR	7'-0"	175
V2	26	#5	STR	6'-7"	179	V5	30	#5	STR	9'-1"	284
V3	32	#5	STR	7'-11"	264						

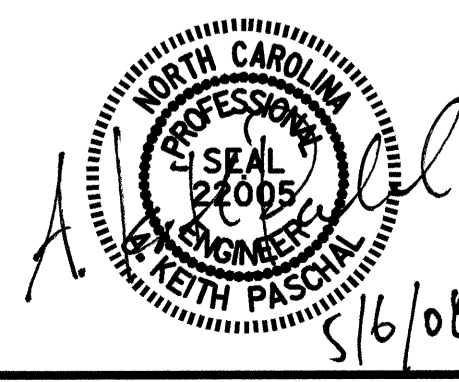
REINFORCING STEEL = 3777 LBS		REINFORCING STEEL = 2344 LBS	
CLASS A CONCRETE BREAKDOWN		CLASS A CONCRETE BREAKDOWN	
POUR 1 (FOOTINGS)	12.1 C.Y.	POUR 1 (FOOTING)	6.1 C.Y.
POUR 2 (CAP & LOWER PART OF WING)	15.9 C.Y.	POUR 2 (CAP & LOWER PART OF WING)	11.6 C.Y.
POUR 3 (BACKWALL & UPPER PART OF WING)	6.1 C.Y.	POUR 3 (BACKWALL & UPPER PART OF WING)	3.7 C.Y.
CLASS A CONCRETE TOTAL	34.1 C.Y.	CLASS A CONCRETE TOTAL	21.4 C.Y.

TOTAL BILL OF MATERIAL

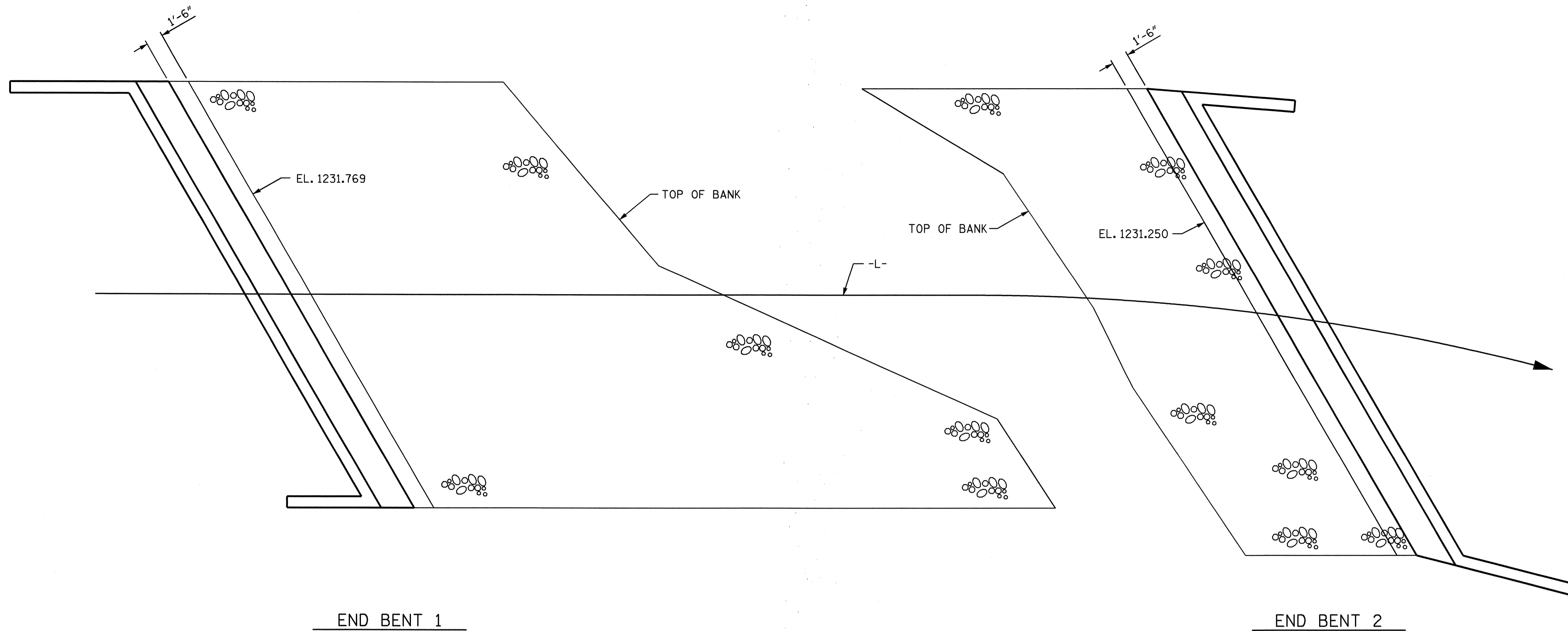
REINFORCING STEEL	6121 LBS
CLASS A CONCRETE TOTAL	55.5 C.Y.

PROJECT NO. B-4197
 McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 4 OF 4
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 SUBSTRUCTURE
 END BENT 2
 (STAGE I & II)

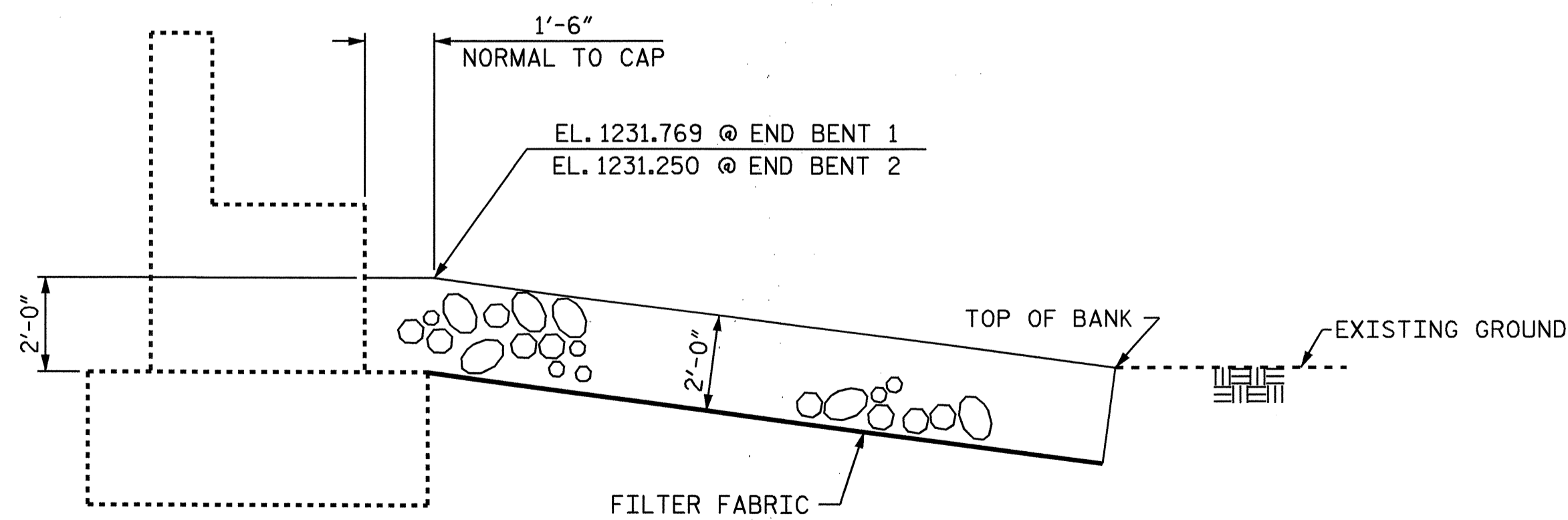


REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-25	
1			3			TOTAL SHEETS	28
2			4				



PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 24+67.50 -L-	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	154	172
END BENT 2	69	77

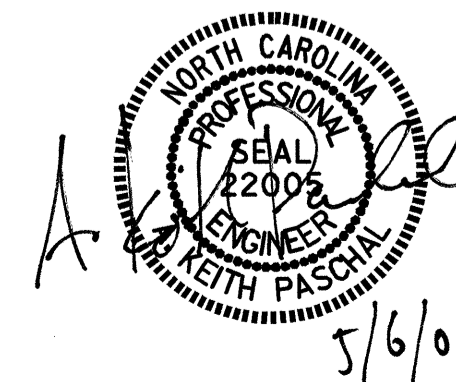


C SECTION BERM RIP RAPPED

PROJECT NO. B-4197
MCDOWELL COUNTY
 STATION: 24+67.50 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

—RIP RAP DETAILS—



ASSEMBLED BY : B.N. GRADY DATE : 1/8/08
 CHECKED BY : J.D. HAWK DATE : 1/10/08

30-APR-2008 06:56
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 bngrady

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

BILL OF MATERIAL

APPROACH SLAB AT EB 1					APPROACH SLAB AT EB 2								
STAGE I					STAGE I								
BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	15	#4	STR	23'-0"	230	*A5	30	#4	STR	14'-7"	292		
A2	16	#4	STR	20'-7"	220	A6	32	#4	STR	13'-3"	283		
*B1	36	#5	STR	14'-1"	529	*B3	72	#5	STR	8'-8"	650		
B2	36	#6	STR	14'-7"	789	B4	72	#6	STR	9'-1"	982		
REINFORCING STEEL					LBS.	1009	REINFORCING STEEL					LBS.	1265
*EPOXY COATED REINFORCING STEEL					LBS.	759	*EPOXY COATED REINFORCING STEEL					LBS.	942
CLASS AA CONCRETE					C. Y.	10.4	CLASS AA CONCRETE					C. Y.	10.6
STAGE II					STAGE II								
*A3	15	#4	STR	12'-6"	125	*A7	30	#4	STR	8'-4"	167		
A4	16	#4	STR	12'-6"	134	A8	32	#4	STR	8'-2"	175		
*B1	22	#5	STR	14'-1"	323	*B5	46	#5	STR	8'-1"	388		
B2	22	#6	STR	14'-7"	482	B6	46	#6	STR	8'-6"	587		
REINFORCING STEEL					LBS.	616	REINFORCING STEEL					LBS.	762
*EPOXY COATED REINFORCING STEEL					LBS.	448	*EPOXY COATED REINFORCING STEEL					LBS.	555
CLASS AA CONCRETE					C. Y.	6.4	CLASS AA CONCRETE					C. Y.	6.4

NOTES

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

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

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

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

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

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

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

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

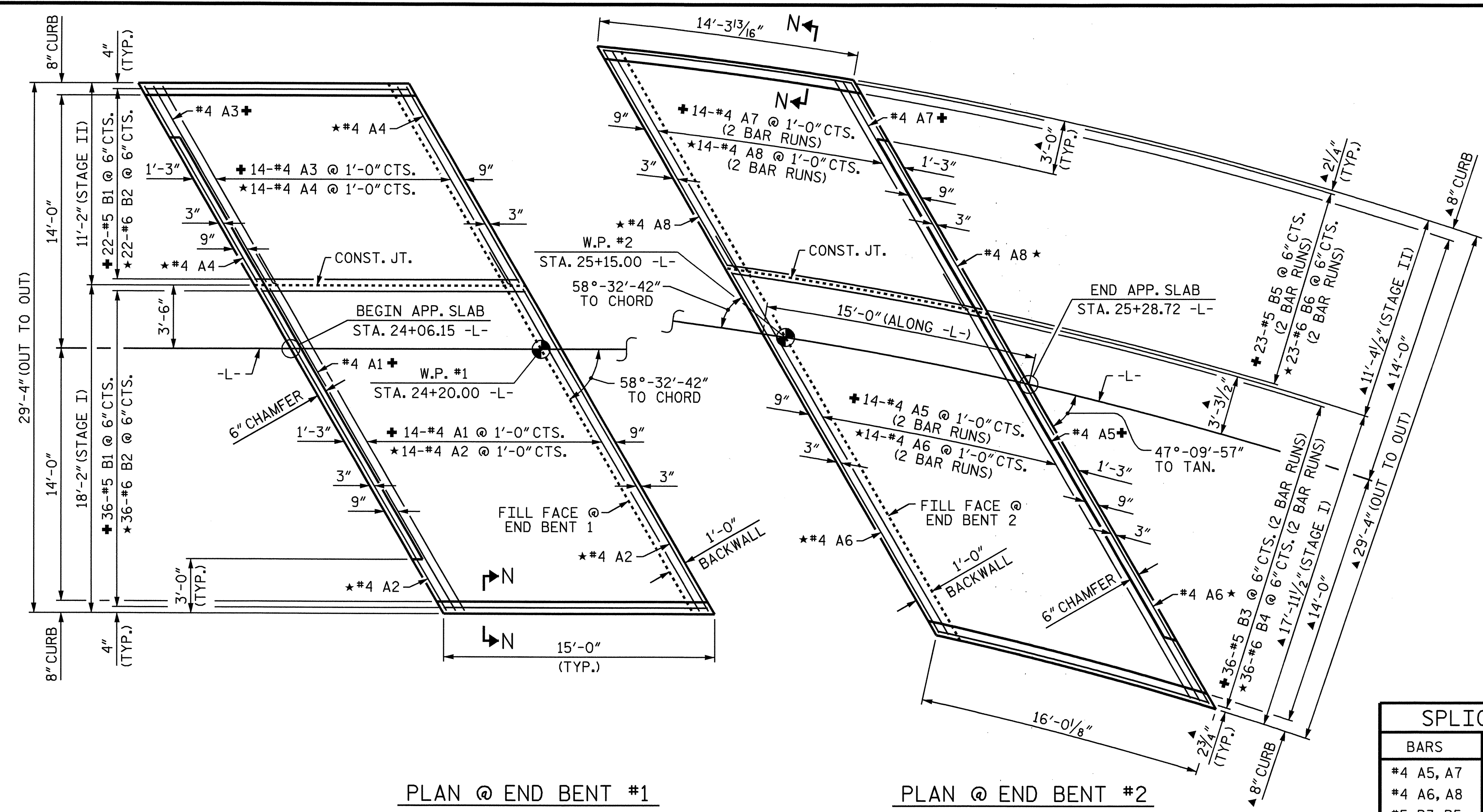
THE NOMINAL UNCOMPRESSED SEAL WIDTH OF THE EVAZOTE JOINT SEAL SHALL BE 2 1/2".

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4197
McDOWELL COUNTY
 STATION: 24+67.50 -L-

SHEET 1 OF 2
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 BRIDGE APPROACH SLAB
 FOR FLEXIBLE PAVEMENT

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-27
1			3			TOTAL SHEETS
2			4			28

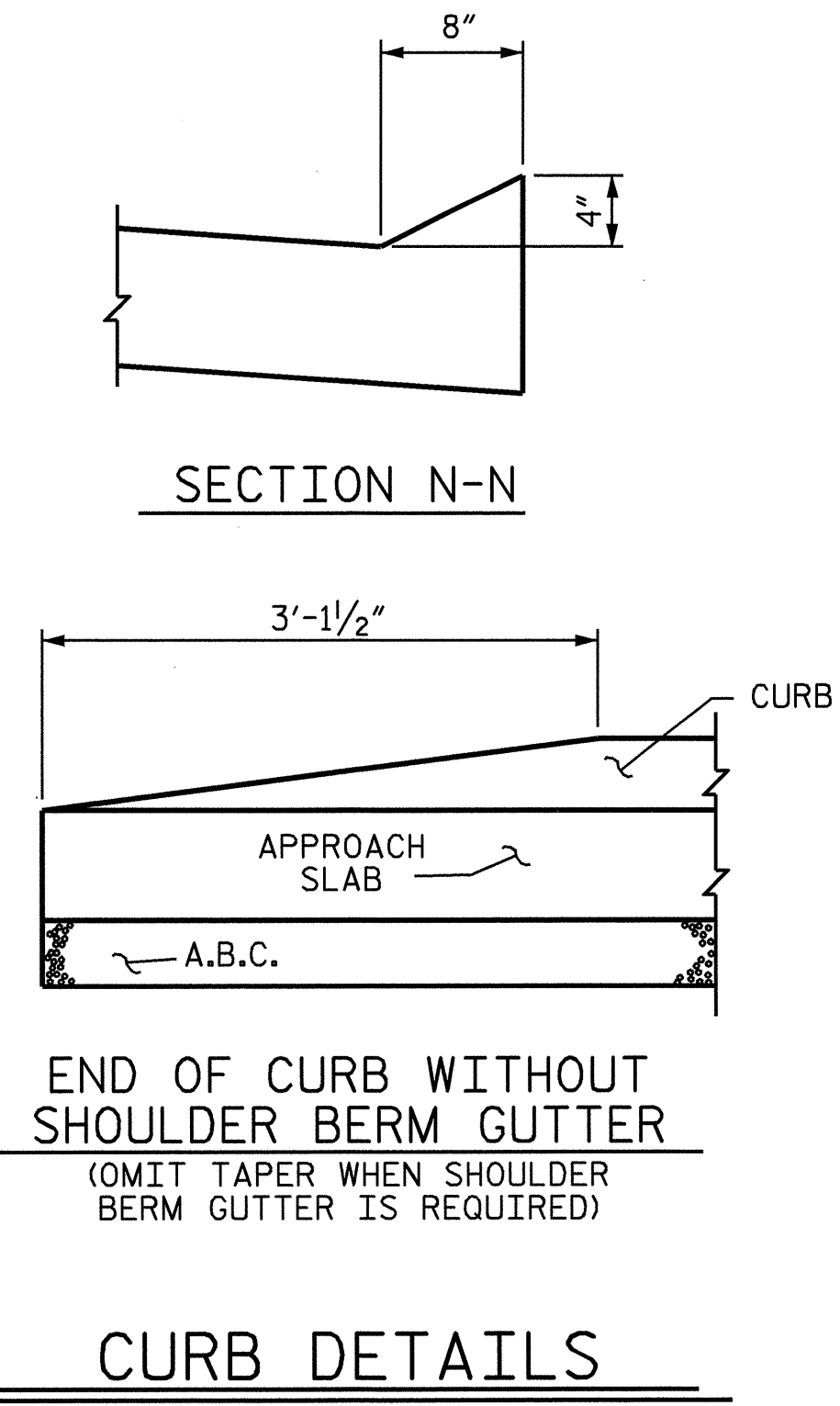
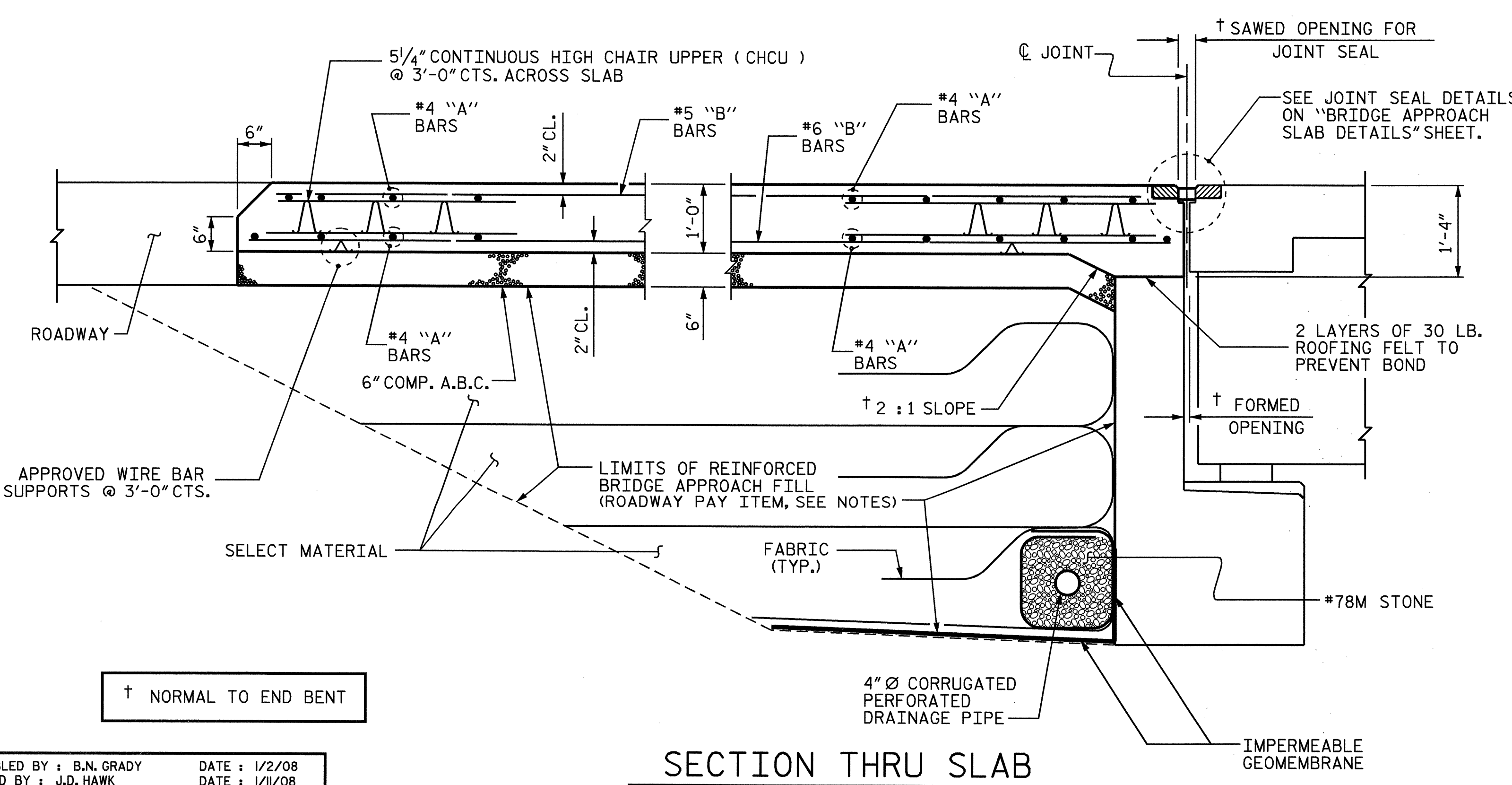


SPLICE CHART

BAR	SPLICE LENGTH
#4 A5, A7	2'-0"
#4 A6, A8	1'-9"
#5 B3, B5	2'-6"
#6 B4, B6	2'-7"

PLAN @ END BENT #1 PLAN @ END BENT #2

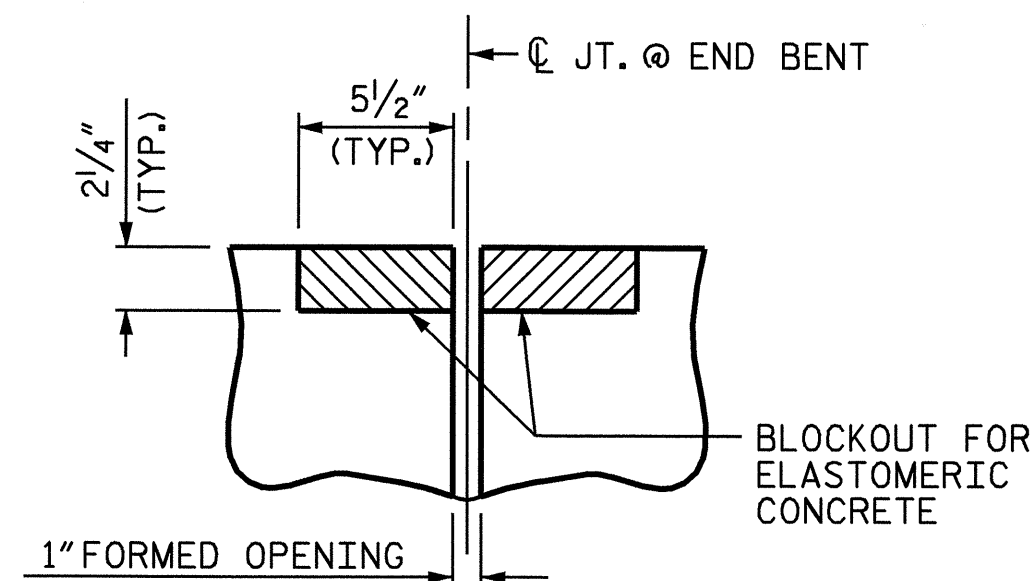
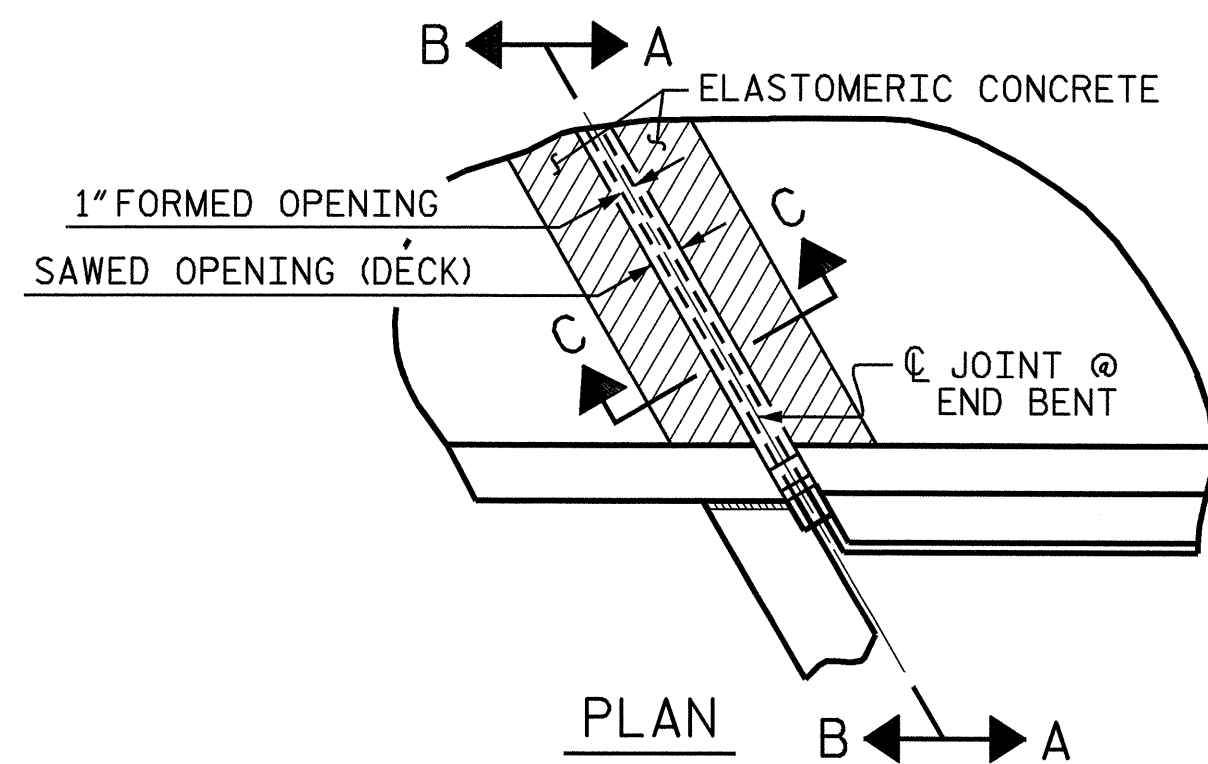
- ▲ DIMENSIONS ARE RADIAL @ END BENT FILL FACE
- ◆ TOP OF SLAB (#4 A1 & A5 WITH 2'-2" EMBEDMENT INTO STAGE II)
- * BOTTOM OF SLAB



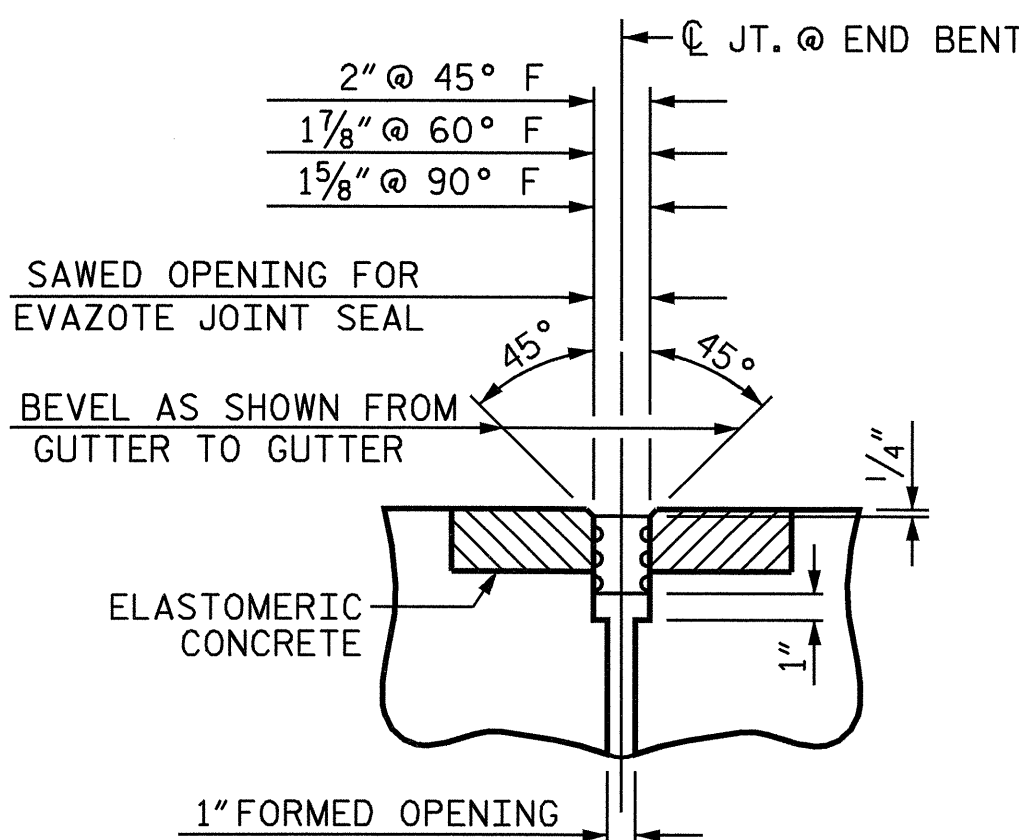
SECTION THRU SLAB

CURB DETAILS

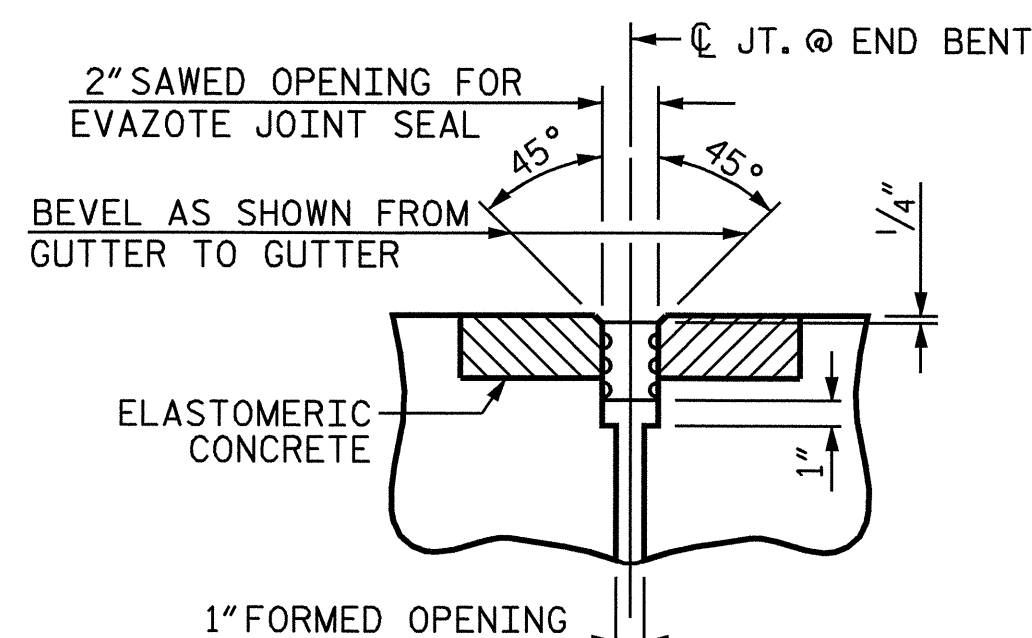
ASSEMBLED BY: B.N. GRADY DATE: 1/2/08
 CHECKED BY: J.D. HAWK DATE: 1/11/08
 DRAWN BY: EEM 3/95 LES/RDR
 CHECKED BY: VAP 3/95 REV. 5/7/03R RWW/JTE
 REV. 5/1/06R KMM/GM



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



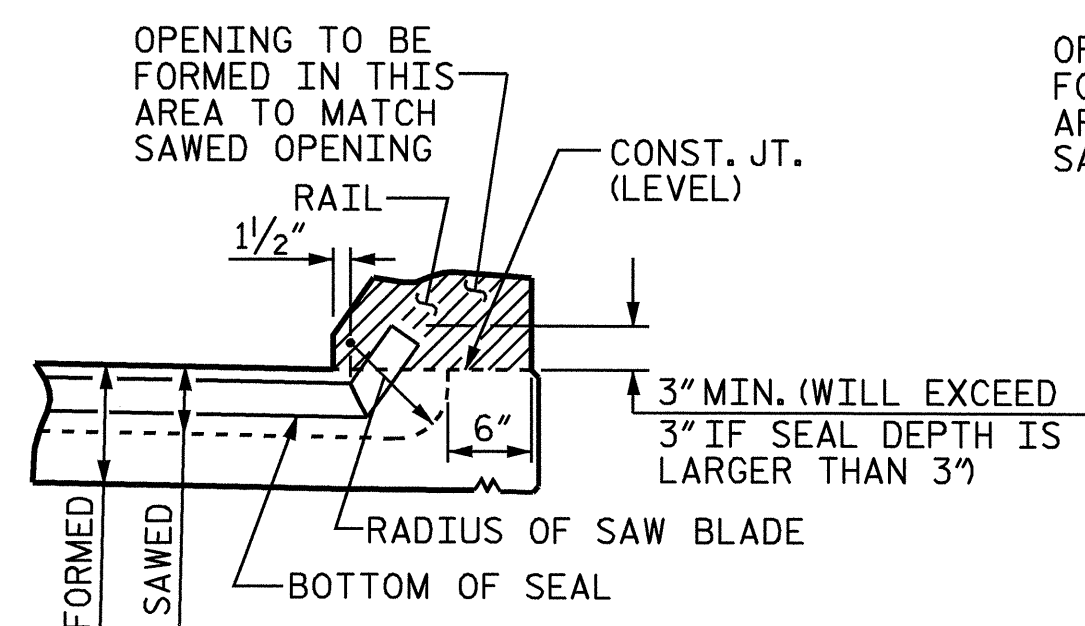
SECTION C-C
EVAZOTE JOINT SEAL
(EXPANSION)



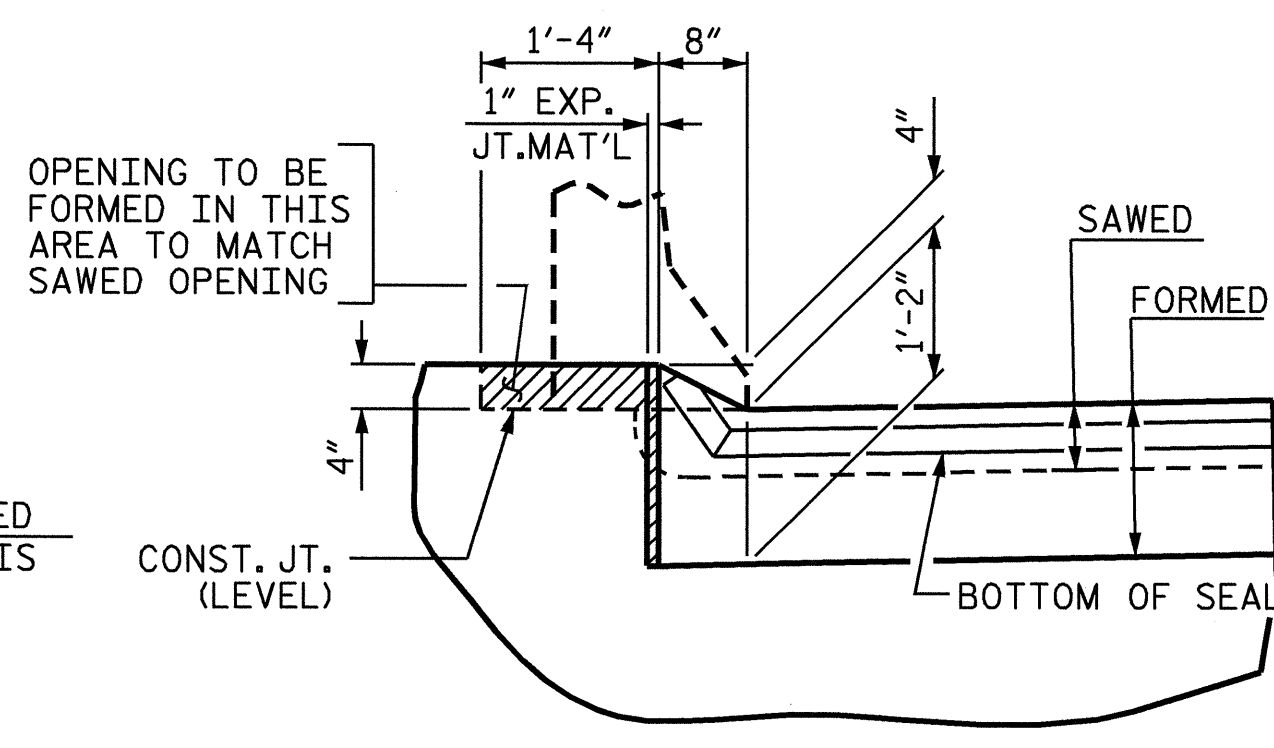
SECTION C-C
EVAZOTE JOINT SEAL
(FIXED)

ELASTOMERIC CONCRETE	
END BENT NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	5.6
2	6.2
TOTAL	11.8

* BASED ON THE MINIMUM BLOCKOUT SHOWN.

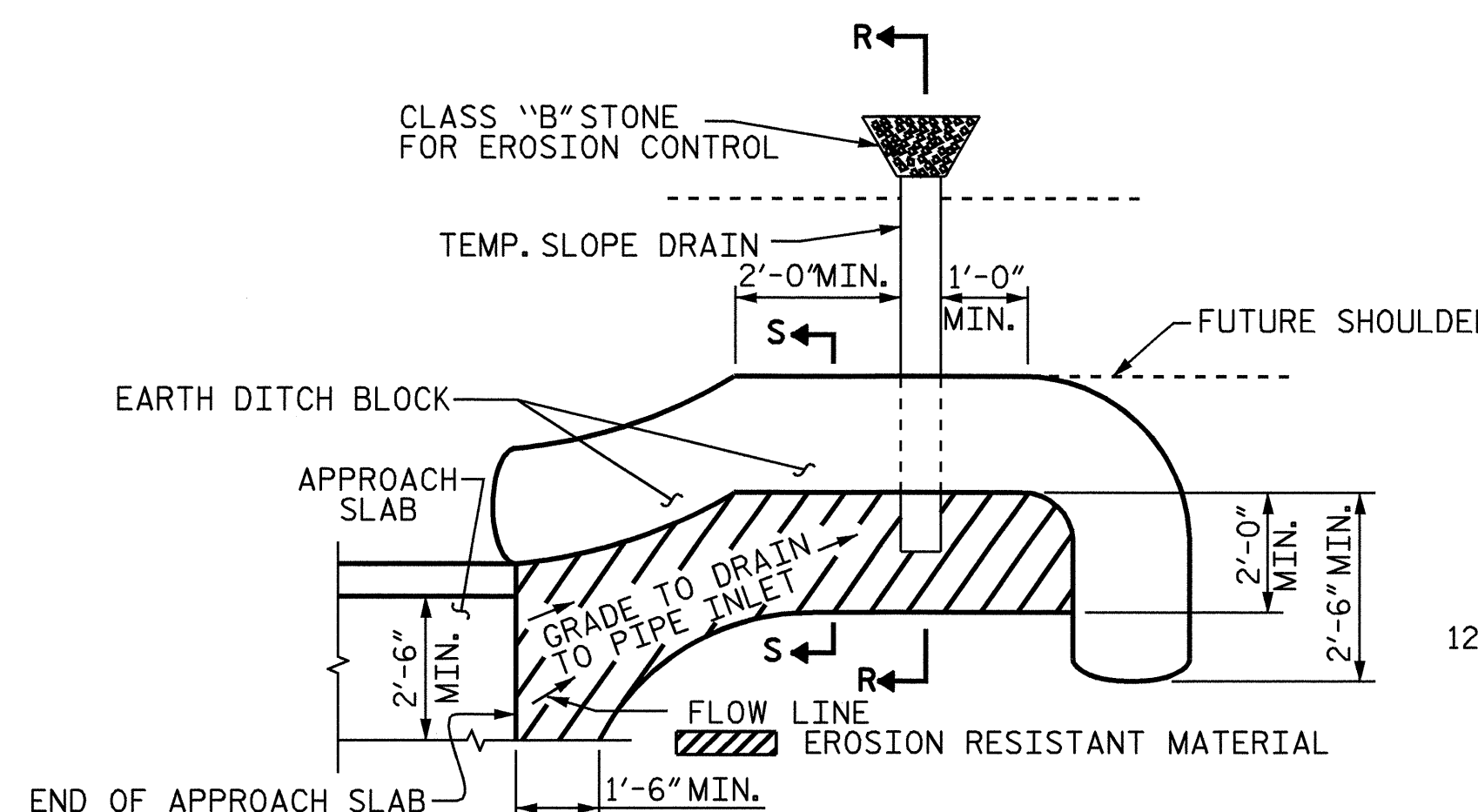


SECTION A-A



SECTION B-B

JOINT SEAL DETAILS @ END BENT

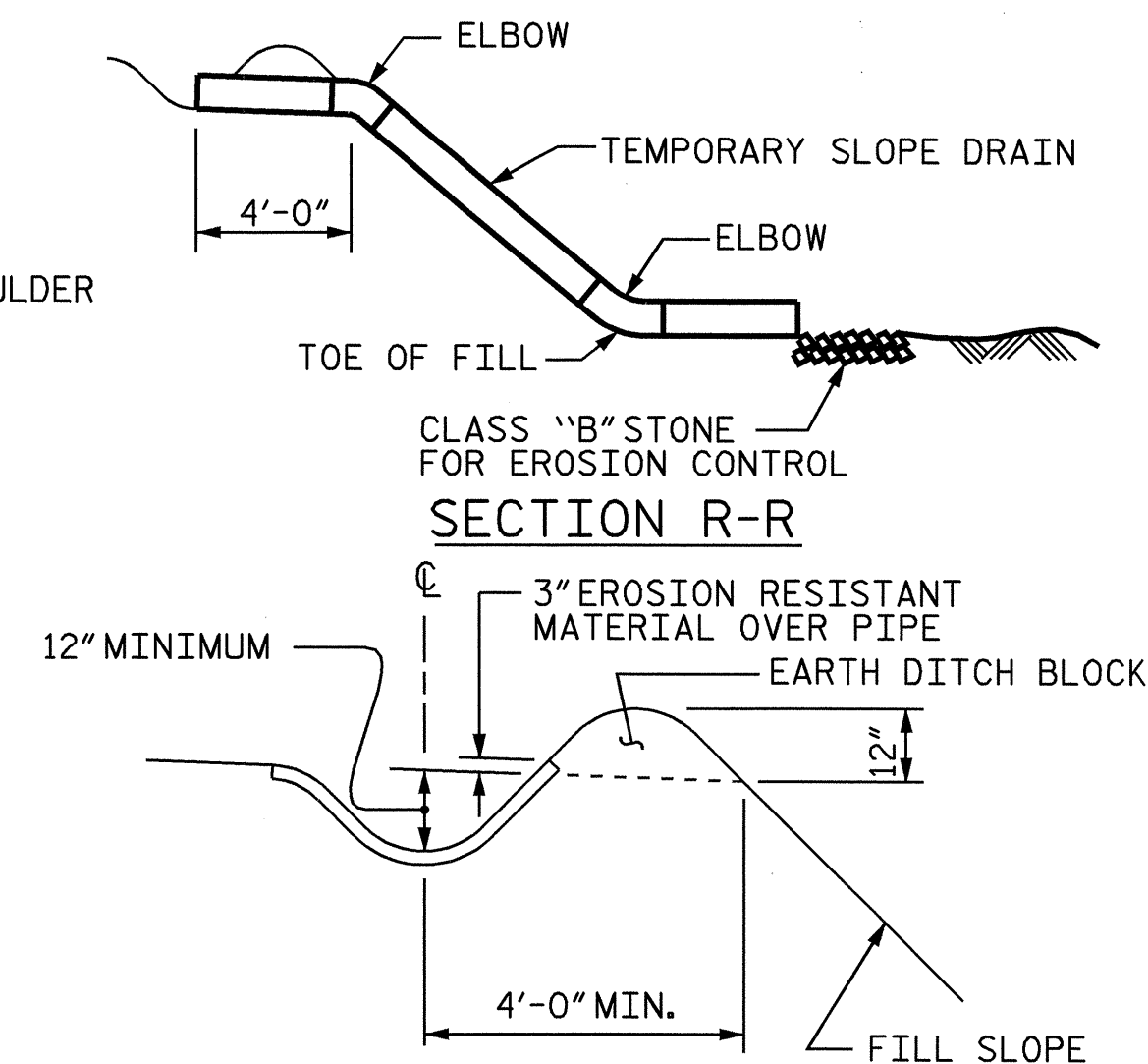


PLAN VIEW

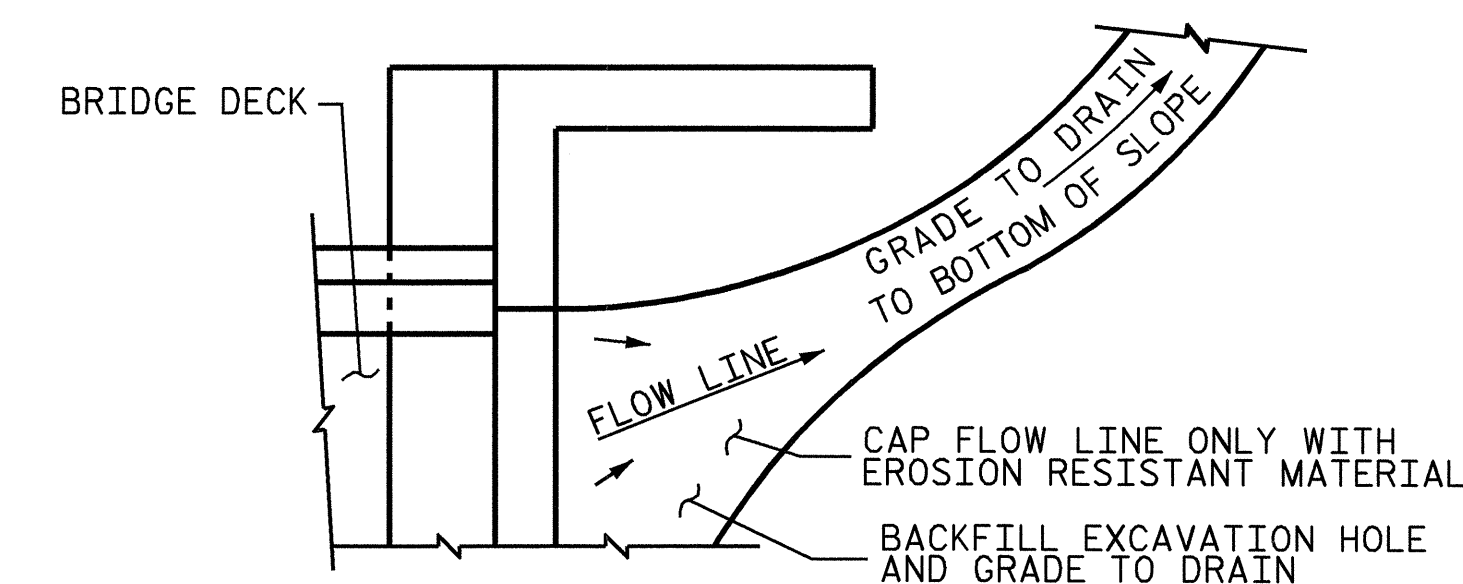
NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)

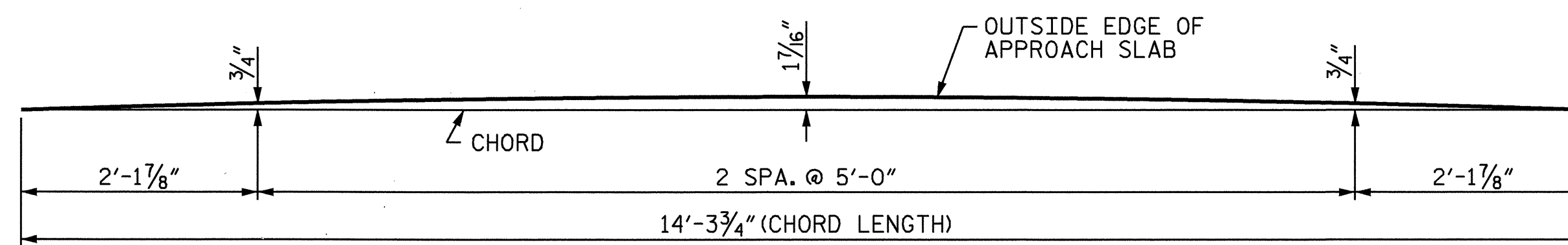


SECTION S-S

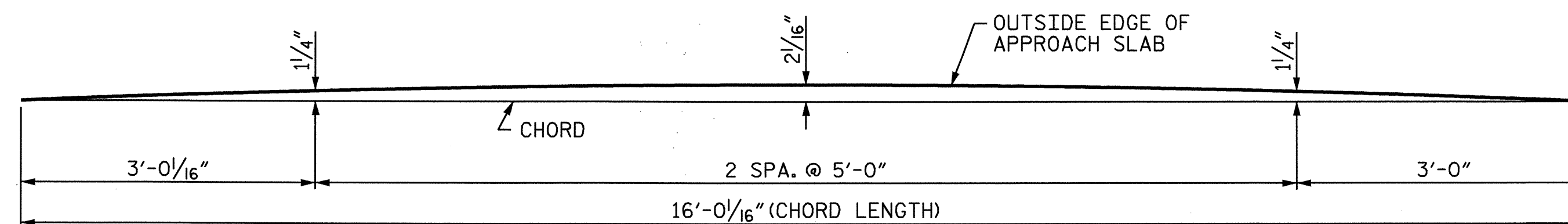


NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT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

TEMPORARY DRAINAGE DETAIL



LEFT SIDE



RIGHT SIDE

ARC OFFSETS @ END BENT 2

ASSEMBLED BY : B.N. GRADY	DATE : 1/3/08
CHECKED BY : J.D. HAWK	DATE : 1/11/08
DRAWN BY : FCJ 11/88	REV. 10/17/00 RWW/LES
CHECKED BY : ARB 11/88	REV. 5/7/03 RWW/JTE
	REV. 5/1/06R MAA/KMM

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PROFESSIONAL SEAL
2005
ALEXANDER
ALEXANDER
5/6/08

PROJECT NO. B-4197
McDOWELL COUNTY
STATION: 24+67.50 -L-
SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH				
STANDARD				
BRIDGE APPROACH SLAB DETAILS				
REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	DATE:
1			3	
2			4	
TOTAL SHEETS				28

STD. NO. BAS10 (SHT 4)

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

SPECIAL NOTES:

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

ENGLISH

JANUARY, 1990

STD. NO. SN