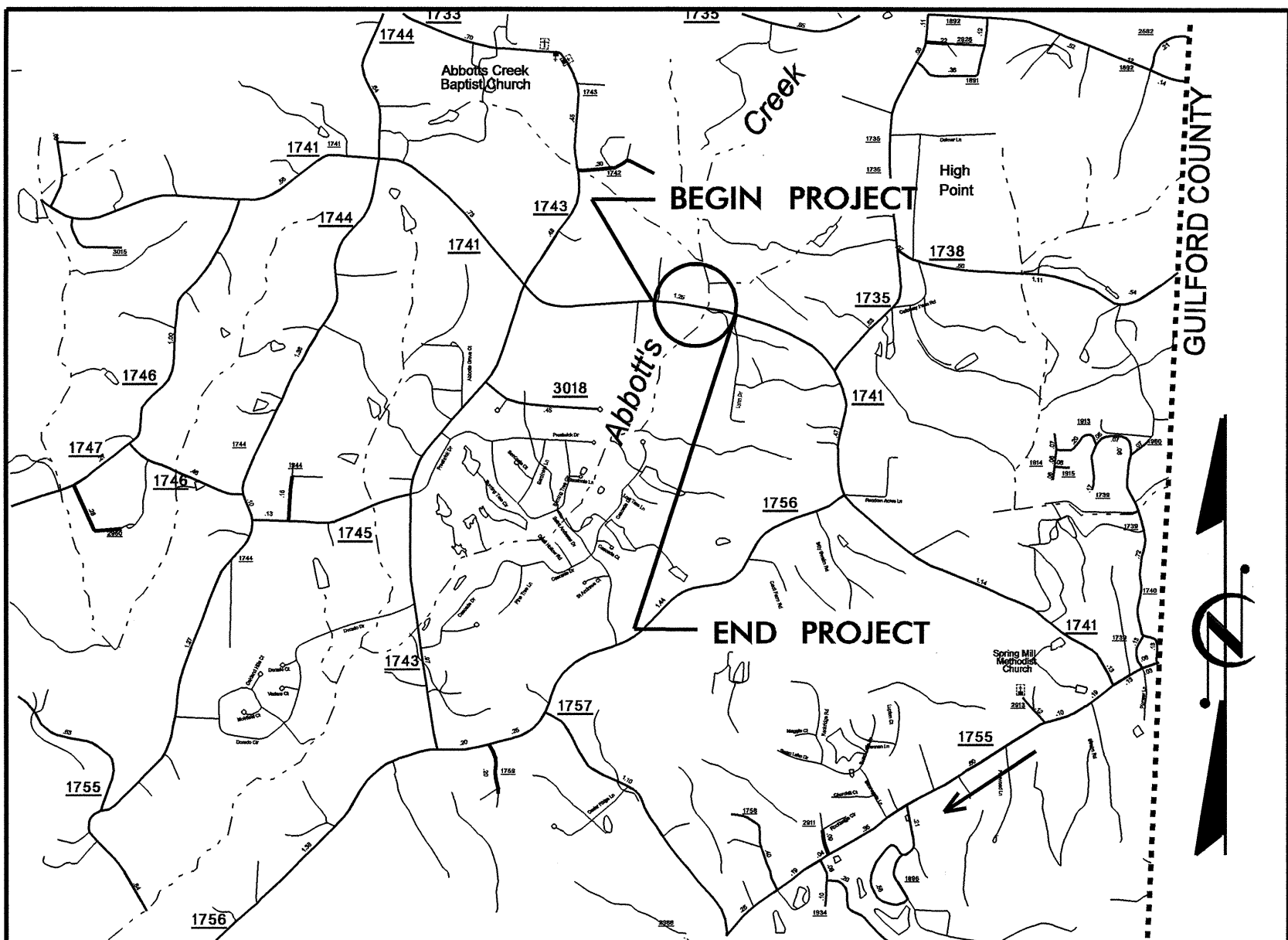


**CONTRACT: C201756 TIP PROJECT: B-4100**



**VICINITY MAP**

NEAREST SHIPPING POINT: HIGH POINT ON NORFOLK SOUTHERN RR  
APPROX. 6.0 MILES FROM PROJECT

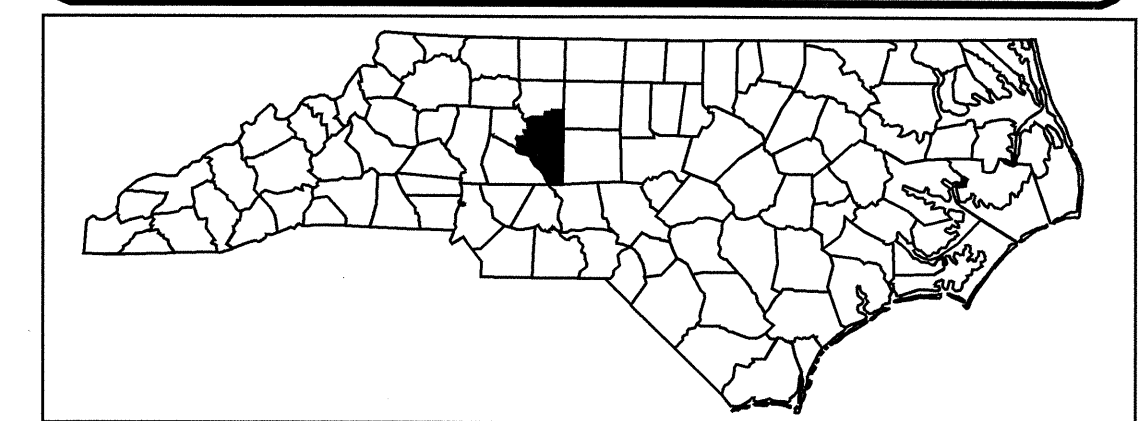
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# DAVIDSON COUNTY

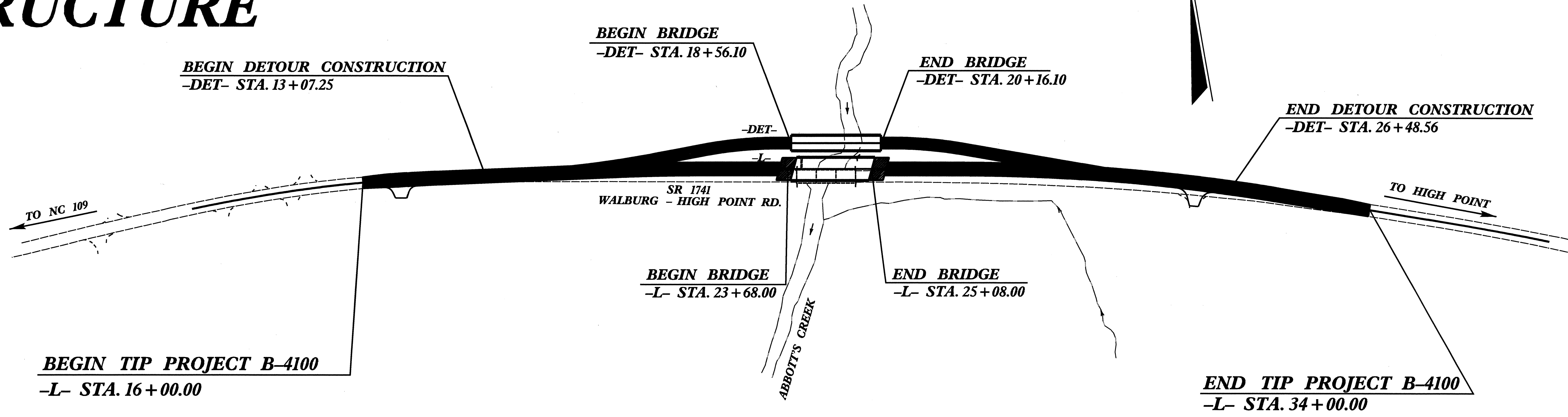
**LOCATION: BRIDGE NO. 142 OVER ABBOTT'S CREEK  
ON SR 1741 (WALBURG - HIGH POINT RD.)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING  
& STRUCTURES**

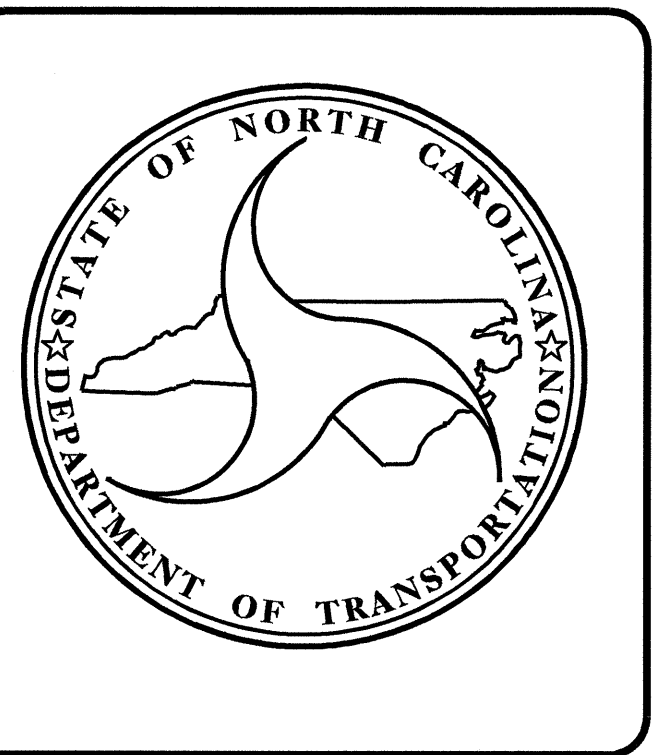
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4100		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33456.1.1	BRSTP-1741(2)	PE	
33456.2.1	BRSTP-1741(2)	RW, UTIL.	
33456.3.1	BRSTP-1741(2)	CONST.	



## STRUCTURE



\*\* DESIGN EXCEPTION REQUIRED FOR VERTICAL ALIGNMENT



**DESIGN DATA**

ADT 2007 =	4,440
ADT 2027 =	6,840
DHV =	10 %
D =	55 %
T =	4 % *
** V =	60 MPH
* TTST 1%	DUAL 3%

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT B-4100 =	0.314 MI.
LENGTH OF STRUCTURE TIP PROJECT B-4100 =	0.027 MI.
TOTAL LENGTH OF TIP PROJECT B-4101 =	0.341 MI.

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

---

2006 STANDARD SPECIFICATIONS

**LETTING DATE:**  
JANUARY 15, 2008

**N. N. BULLOCK, PE**  
PROJECT ENGINEER

**D. R. CALHOUN, 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

01-NOV-2007 15:11  
arr:structures\final\plans\14100.sd...fsh...01.dgn  
jmy2

-3.4862% Δ +0.3289% 23+50 24+00 24+50 25+00 25+50

PI = 20+55.00 -L-  
EL. = 784.64  
VC = 520'  
**GRADE DATA**

**NOTES :**

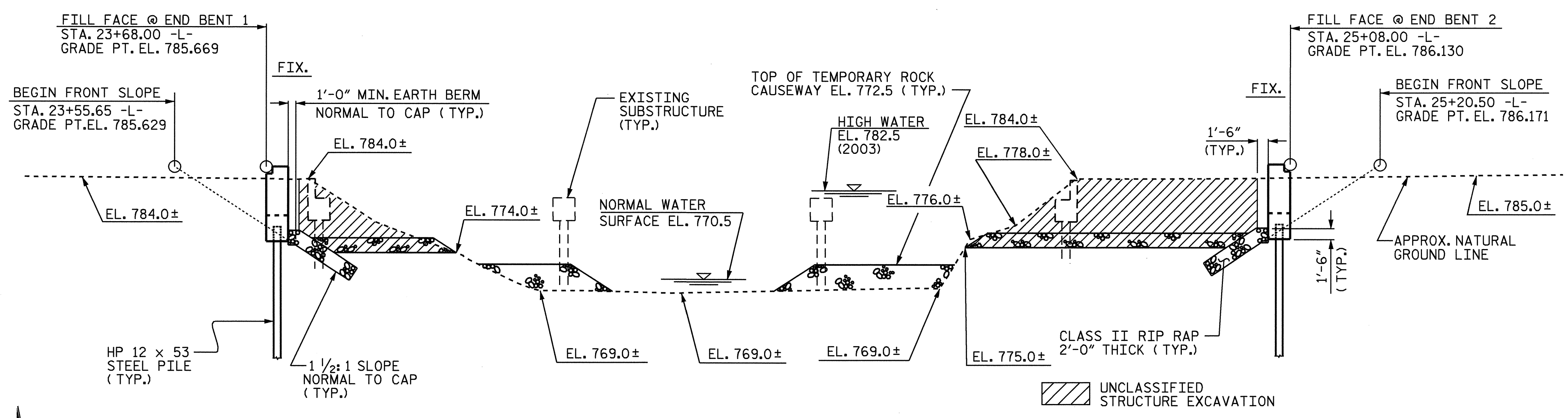
ASSUMED LIVE LOAD = HS 20 OR ALTERNATE LOADING, EXCEPT THAT THE GIRDERS HAVE BEEN DESIGNED FOR HS 25.  
FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.  
FOR EROSION CONTROL MEASURES SEE EROSION CONTROL PLANS.  
THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.  
THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.  
ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.  
REMOVABLE FORMS MAY BE USED IN LIEU OF METAL STAY-IN-PLACE FORMS IN ACCORDANCE WITH ARTICLE 420-3 OF THE STANDARD SPECIFICATIONS.  
THE EXISTING STRUCTURE CONSISTING OF THREE (1 @ 35'-3", 1 @ 35'-0" & 1 @ 35'-3") REINFORCED CONCRETE DECK SPANS ON STEEL I-BEAMS WITH A CLEAR ROADWAY WIDTH OF 24'-0" ON REINFORCED CONCRETE END BENTS AND BENTS ON TIMBER PILES AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY POSTED BELOW THE LEGAL LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY 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+38.00 -L-."

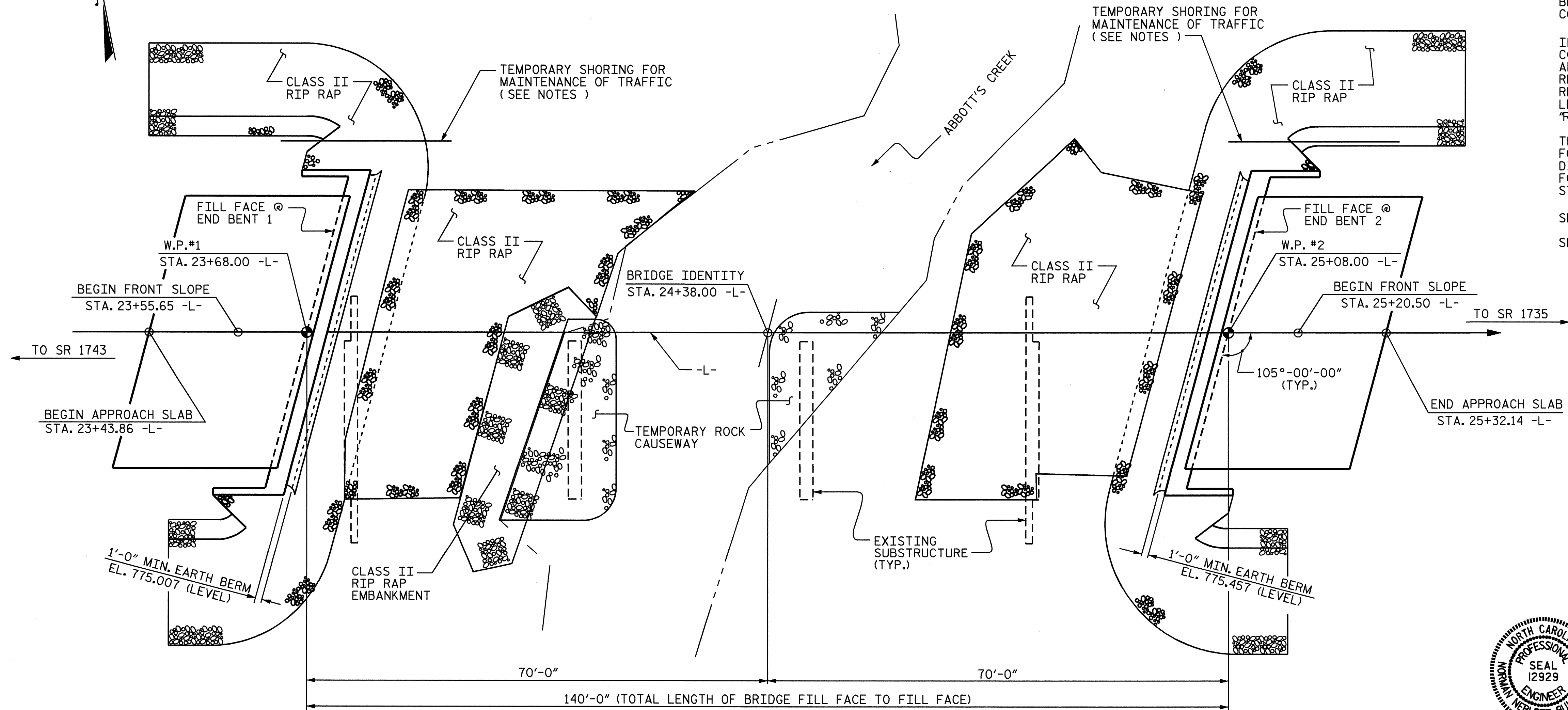
THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 30 FT. EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER CUBIC YARD FOR UNCLASSIFIED STRUCTURE EXCAVATION.

SEE SHEET 3 OF 3 FOR ADDITIONAL NOTES.  
SEE SHEET 2 OF 3 FOR FOUNDATION NOTES.



**SECTION ALONG -L-**

(SECTION THRU END BENTS ARE TAKEN AT RIGHT ANGLES)



**PLAN**

(PILES ARE NOT SHOWN FOR CLARITY)

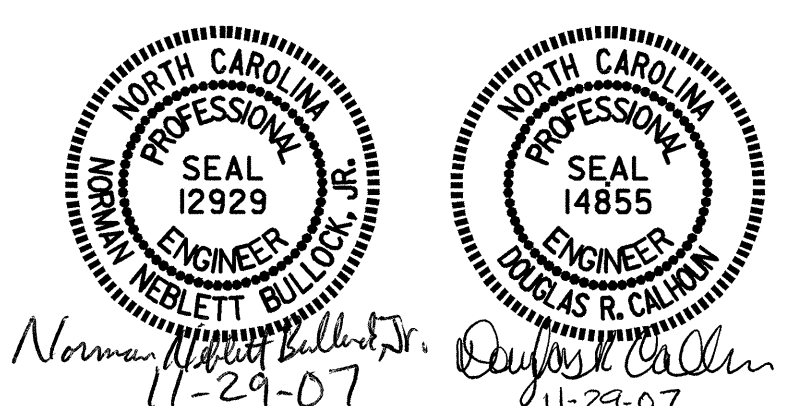
DRAWN BY : T.A.H. & E. G. A. DATE : 1/26/07  
CHECKED BY : A. K. PATEL DATE : 7/23/07

PROJECT NO. B-4100  
DAVIDSON COUNTY  
STATION: 24+38.00 -L-

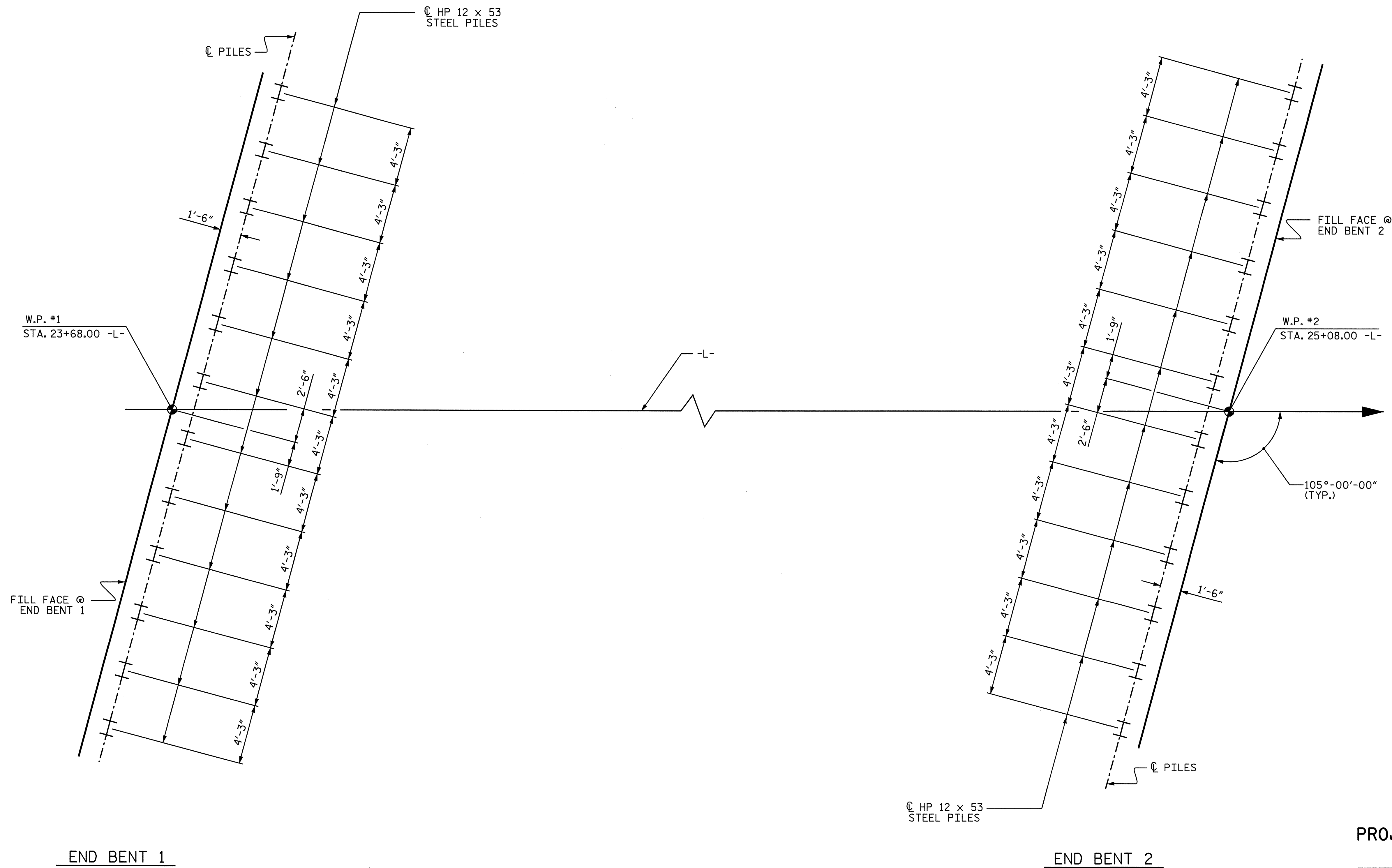
SHEET 1 OF 3 REPLACES BRIDGE No. 142

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**GENERAL DRAWING**  
FOR BRIDGE OVER  
ABBOTT'S CREEK ON  
SR 1741 BETWEEN  
SR 1743 AND SR 1735



REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	S-1
1			3			TOTALS
2			4			21



**FOUNDATION LAYOUT**

(DIMENSIONS LOCATING END BENT PILES ARE SHOWN TO CENTERLINE OF PILES )

**FOUNDATION NOTES :**

THE ALLOWABLE BEARING CAPACITY FOR PILES AT END BENT 1 AND 2 IS 50 TONS PER PILE.

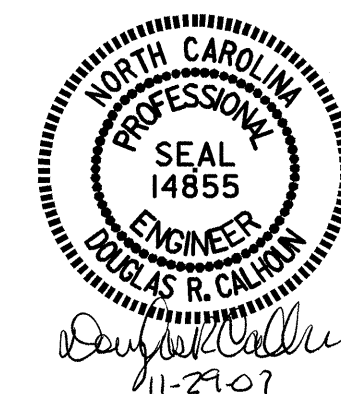
DRIVE PILES AT END BENT 1 AND 2 TO A REQUIRED BEARING CAPACITY OF 100 TONS PER PILE. THE REQUIRED BEARING CAPACITY IS EQUAL TO THE ALLOWABLE BEARING CAPACITY WITH A MINIMUM FACTOR OF SAFETY OF TWO.

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

GENERAL DRAWING  
 FOR BRIDGE OVER  
 ABBOTT'S CREEK ON  
 SR 1741 BETWEEN  
 SR 1743 AND SR 1735



DRAWN BY : E. G. ALLEN DATE : 1/29/07  
 CHECKED BY : A. K. PATEL DATE : 7/24/07

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 gallen

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

**TOTAL BILL OF MATERIAL**

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY STRUCTURE	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	REMOVAL OF EXISTING STRUCTURE	UNCLASSIFIED STRUCTURE EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	STRUCTURAL STEEL	HP 12 X 53 STEEL PILES	CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	EVAZOTE JOINT SEALS	
	LUMP SUM	LUMP SUM	LUMP SUM	CU. YDS.	SQ. FEET	SQ. FEET	CU. YDS.	LUMP SUM	LBS.	APPROX. LBS.	NO.	LIN. FT.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM
SUPERSTRUCTURE					6055	6918		LUMP SUM		192,200		276.55				LUMP SUM
END BENT 1				210			20.3		4128		12	300		333	370	
END BENT 2				640			20.3		4128		12	600		330	367	
<b>TOTAL</b>	<b>LUMP SUM</b>	<b>LUMP SUM</b>	<b>LUMP SUM</b>	<b>850</b>	<b>6055</b>	<b>6918</b>	<b>40.6</b>	<b>LUMP SUM</b>	<b>8256</b>	<b>192,200</b>	<b>24</b>	<b>900</b>	<b>276.55</b>	<b>663</b>	<b>737</b>	<b>LUMP SUM</b>

**NOTES ( CONT. ) :**

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.

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.

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

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT, MAINTAIN AND AFTERWARDS REMOVE A TEMPORARY STRUCTURE AT STATION 24+38.00 -L- FOR USE DURING CONSTRUCTION OF THE PROPOSED STRUCTURE. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY STRUCTURE.

AT THE CONTRACTOR'S OPTION, AND UPON REMOVAL OF THE CAUSEWAY, THE CLASS II RIP RAP USED IN THE CAUSEWAY MAY BE PLACED AS RIP RAP SLOPE PROTECTION. SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS AT STATION 24+38.00 -L-.

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT TEMPORARY BRACING WILL BE REQUIRED BETWEEN THE ENDS OF THE GIRDERS WHILE THE DECK IS BEING POURED TO PREVENT ROTATION OF THE GIRDER ENDS.

THIS BRIDGE IS CONSIDERED MORE THAN 105° ( DEGREES ) IN ACCORDANCE WITH ARTICLE 420-14(B) OF THE 2006 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

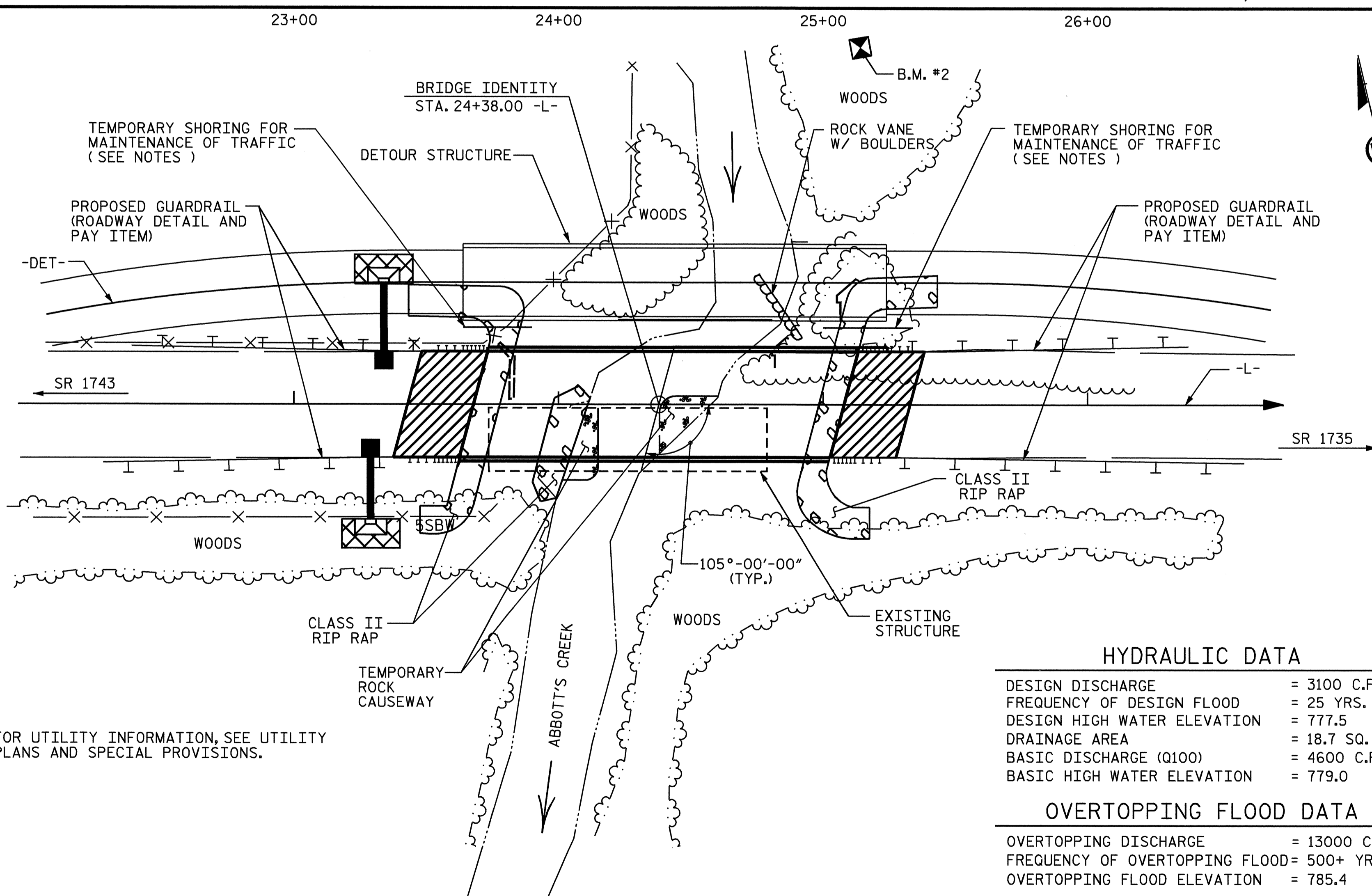
**GENERAL DRAWING**  
 FOR BRIDGE OVER  
 ABBOTT'S CREEK ON  
 SR 1741 BETWEEN  
 SR 1743 AND SR 1735



*Douglas R. Calhoun*  
 11-29-07

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

BM #2 : RAILROAD SPIKE IN THE BASE OF 10" CRACK WILLOW 135.05' LEFT OF STA. 25+14.06 -L-, EL. 776.58



**HYDRAULIC DATA**

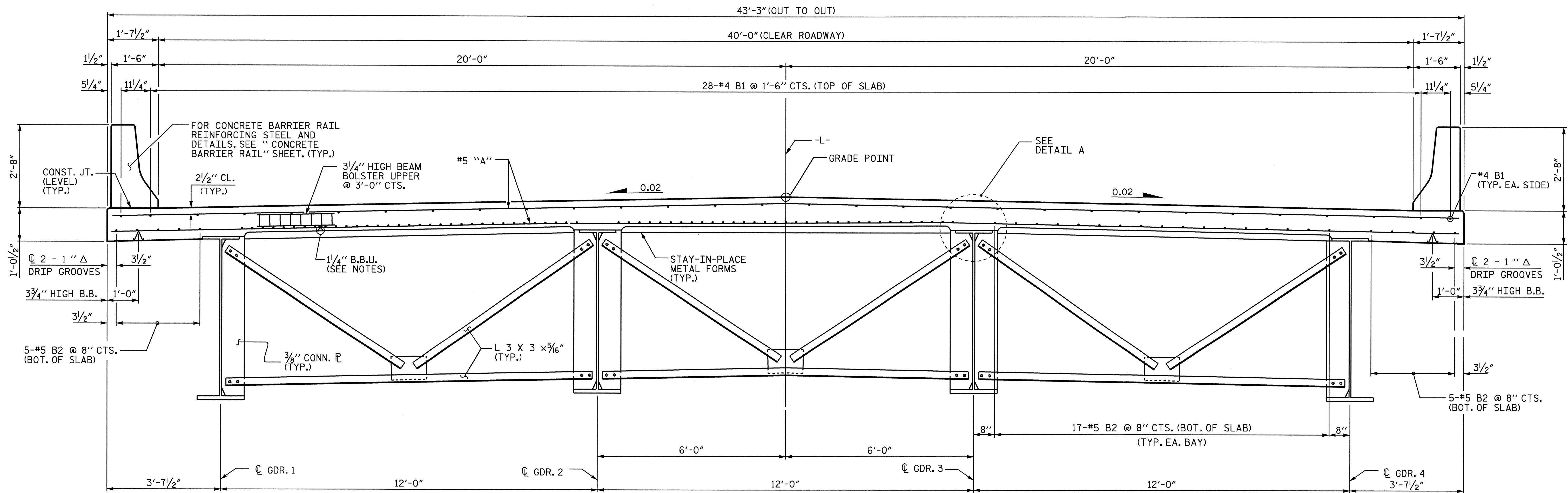
DESIGN DISCHARGE	= 3100 C.F.S.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.
DESIGN HIGH WATER ELEVATION	= 777.5
DRAINAGE AREA	= 18.7 SQ. MI.
BASIC DISCHARGE (Q100)	= 4600 C.F.S.
BASIC HIGH WATER ELEVATION	= 779.0

**OVERTOPPING FLOOD DATA**

OVERTOPPING DISCHARGE	= 13000 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD	= 500+ YRS.
OVERTOPPING FLOOD ELEVATION	= 785.4

**LOCATION SKETCH**

DRAWN BY : T.A.H. & E.G.A. DATE : 1/26/07  
 CHECKED BY : A.K. PATEL DATE : 7/24/07



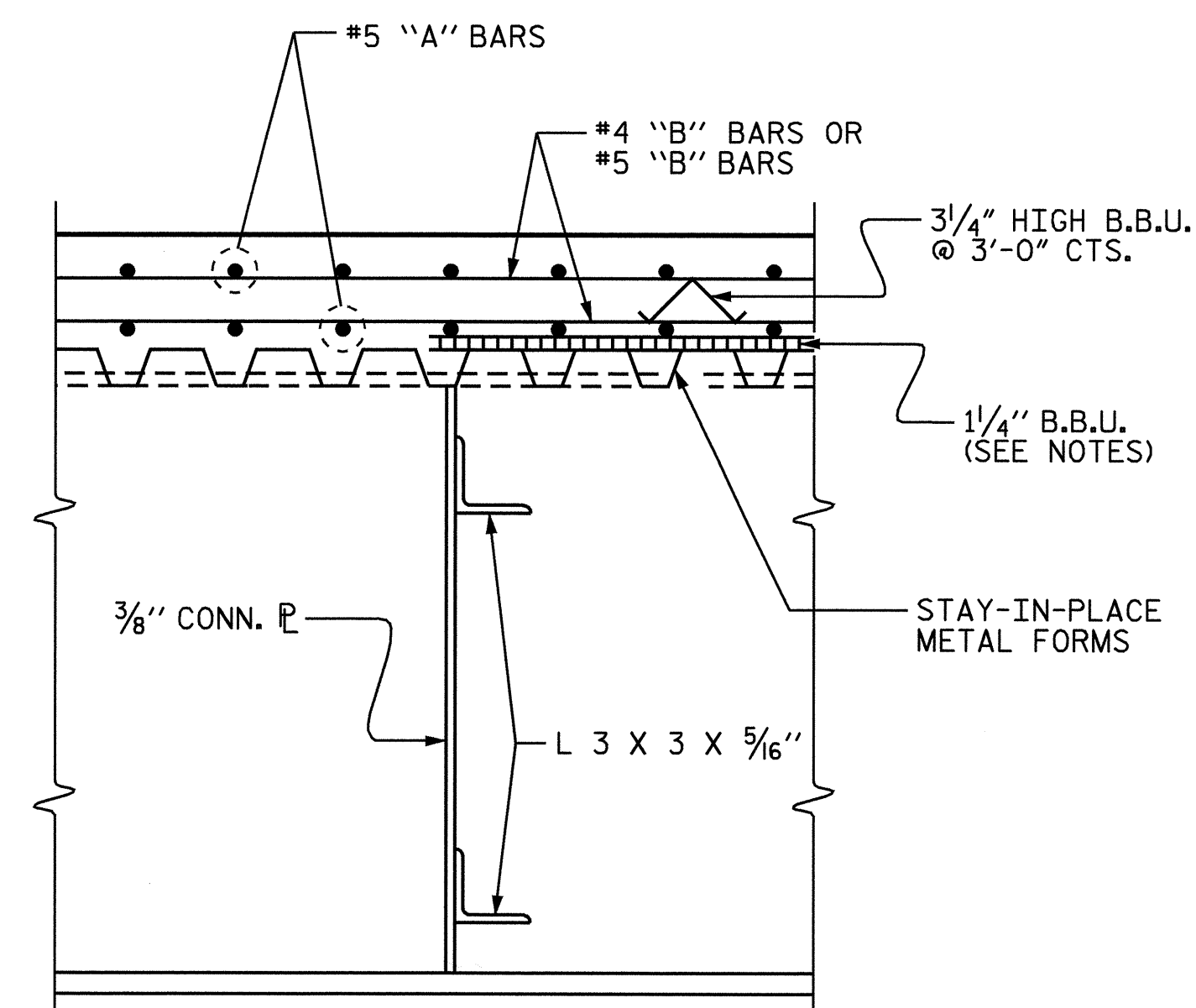
TYPICAL SECTION @ INTERMEDIATE DIAPHRAGMS

**NOTES**

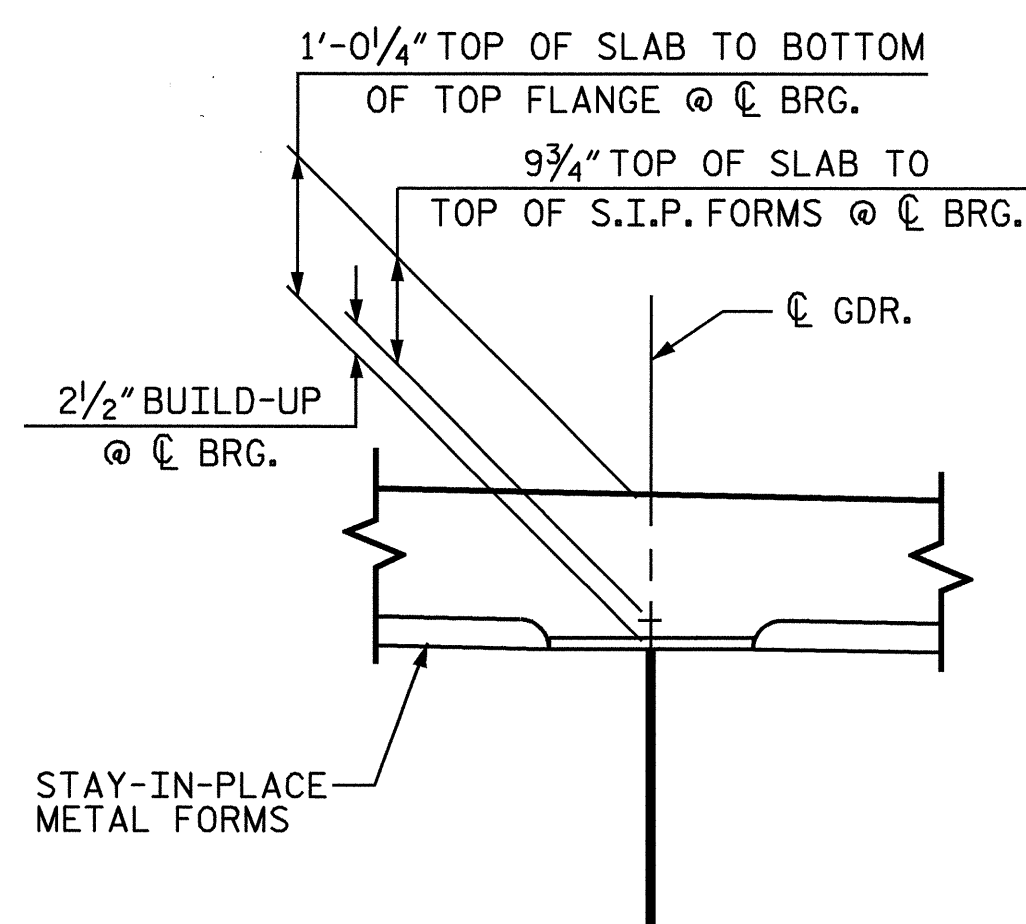
PROVIDE 1/4" HIGH BEAM BOLSTERS UPPER AT 4'-0" CTS. ATOP THE METAL STAY-IN-PLACE FORMS TO SUPPORT THE BOTTOM MAT OF 'A' BARS. WHEN USING REMOVABLE FORMS, PROVIDE CONTINUOUS HIGH CHAIRS FOR METAL DECK (C.H.C.M.) @ 4'-0" CTS. WITH A HEIGHT TO SUPPORT THE BOTTOM MAT OF 'A' BARS A CLEAR DISTANCE OF 2 1/2"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

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

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



SECTION THRU INTERMEDIATE DIAPHRAGM



DETAIL A

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

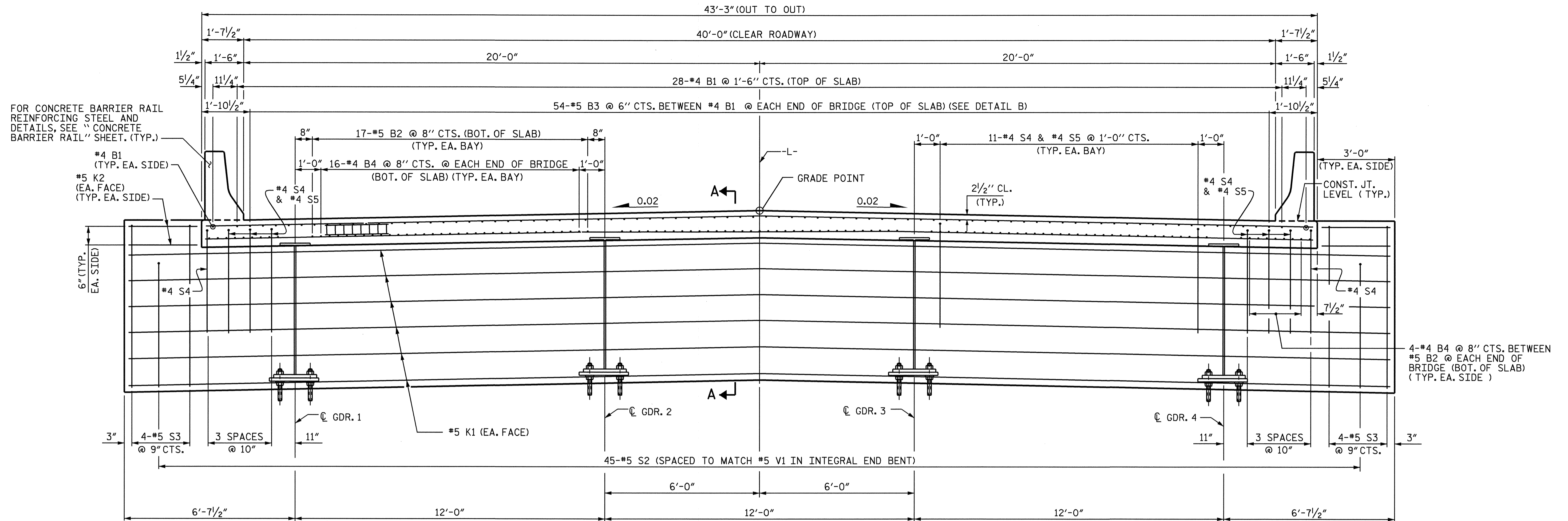
SUPERSTRUCTURE  
 TYPICAL SECTION



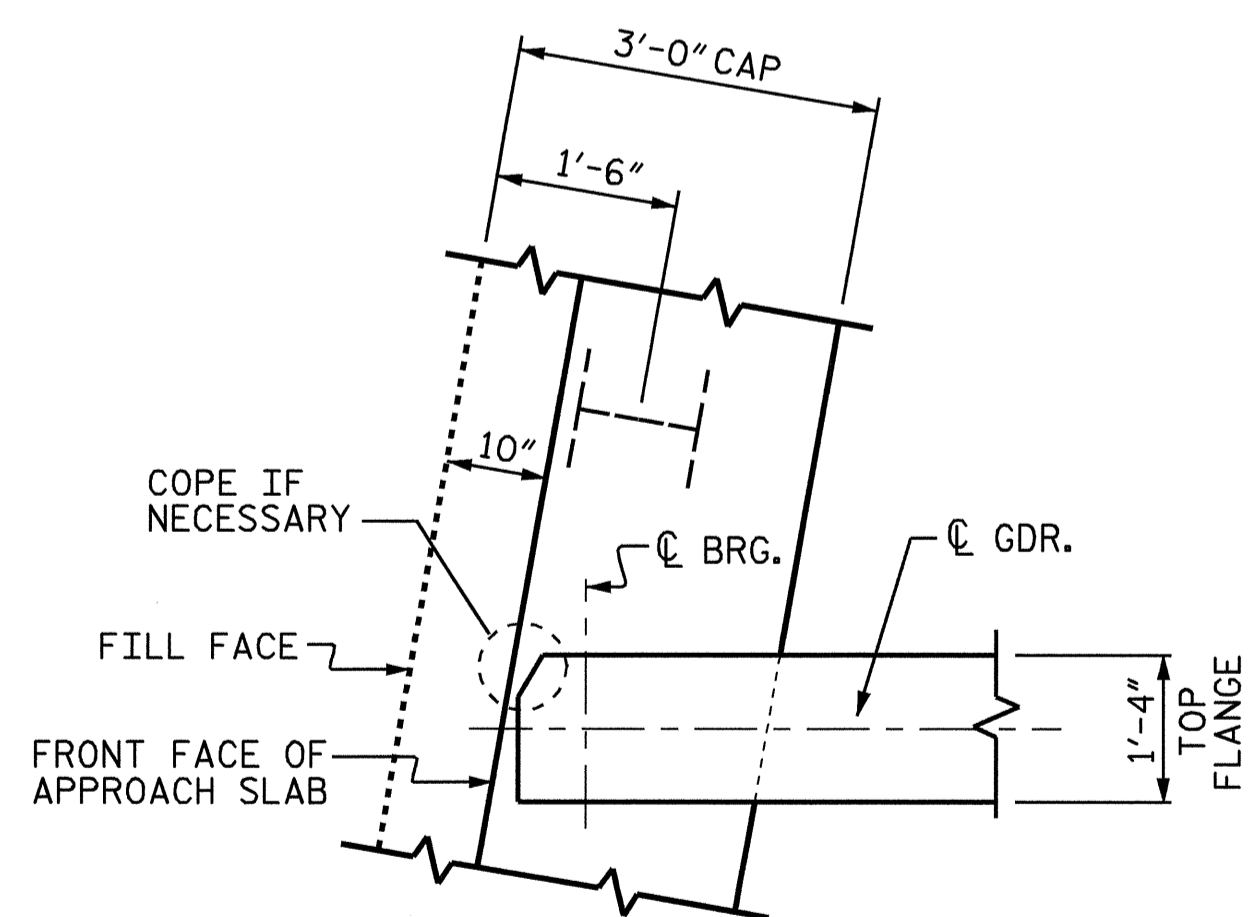
DRAWN BY: J. MYA/A. K. PATEL DATE: 3/16/06  
 CHECKED BY: J. B. WILSON DATE: 4/6/06

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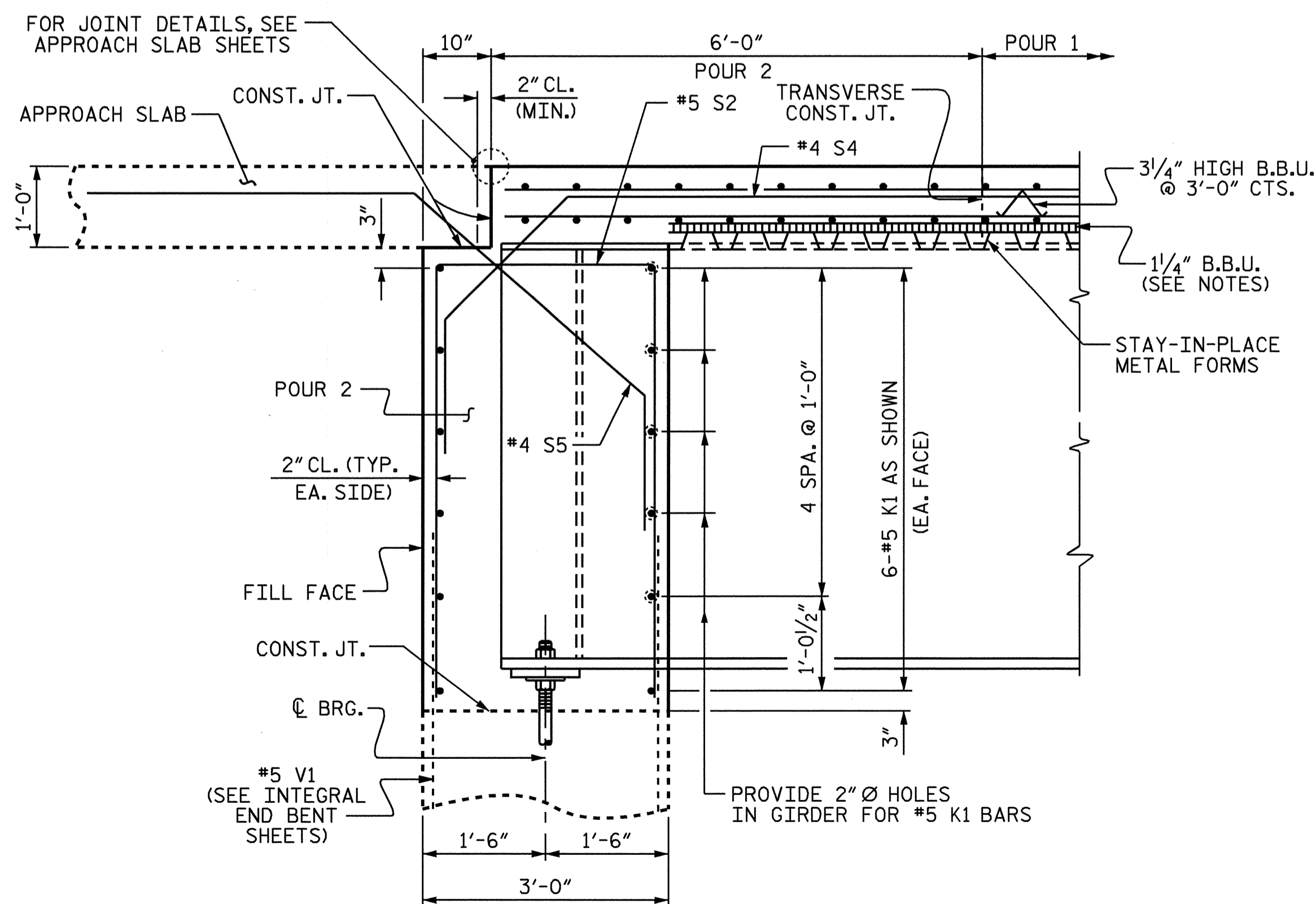
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-4
1			3			TOTAL SHEETS
2			4			21



TYPICAL SECTION @ INTEGRAL END BENT

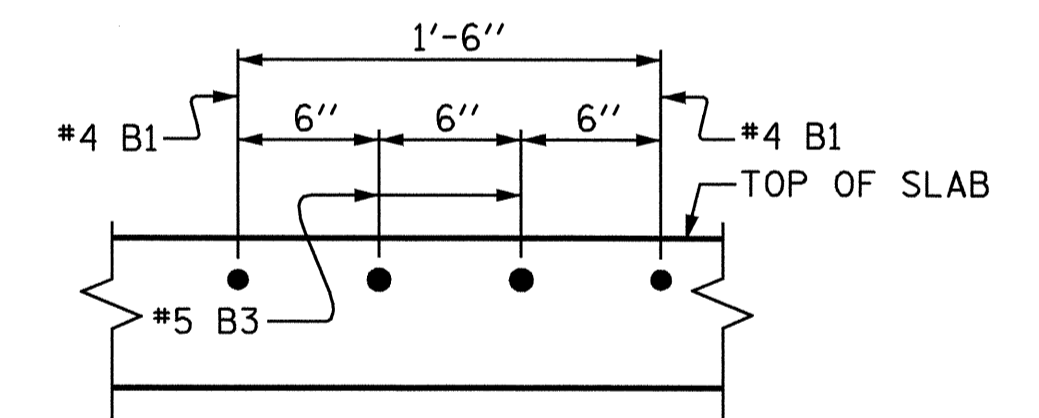


PLAN OF GIRDER AT INTEGRAL END BENT



SECTION A-A

(INTEGRAL END BENT DIAPHRAGM)



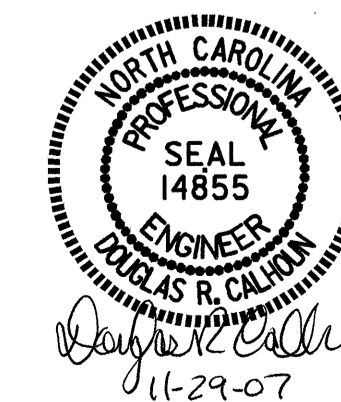
DETAIL B

PROJECT NO. B-4100  
 DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

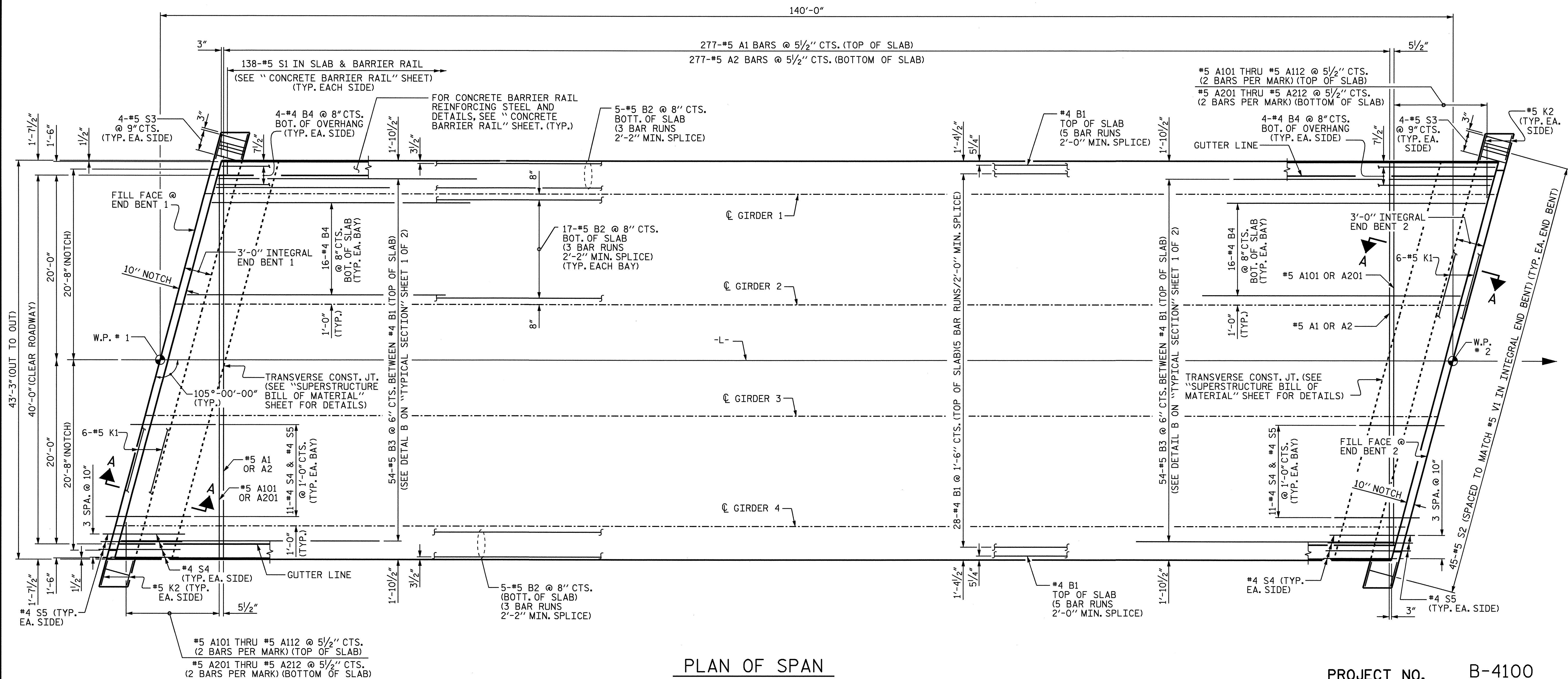
SUPERSTRUCTURE  
 TYPICAL SECTION



DRAWN BY : J. MYA/A. K. PATEL DATE : 3/16/06  
 CHECKED BY : J. B. WILSON DATE : 4/6/06

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



**PLAN OF SPAN**

FOR SECTION A-A AND REINFORCING STEEL IN INTEGRAL END BENT, SEE "TYPICAL SECTION", SHEET 2 OF 2

FOR LOCATION OF INTERMEDIATE DIAPHRAGMS, SEE "STRUCTURAL STEEL DETAILS" SHEET 1 OF 4.

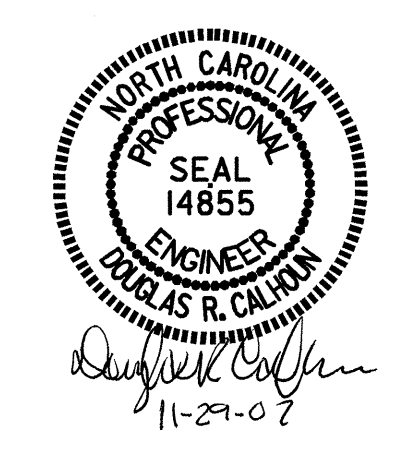
PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

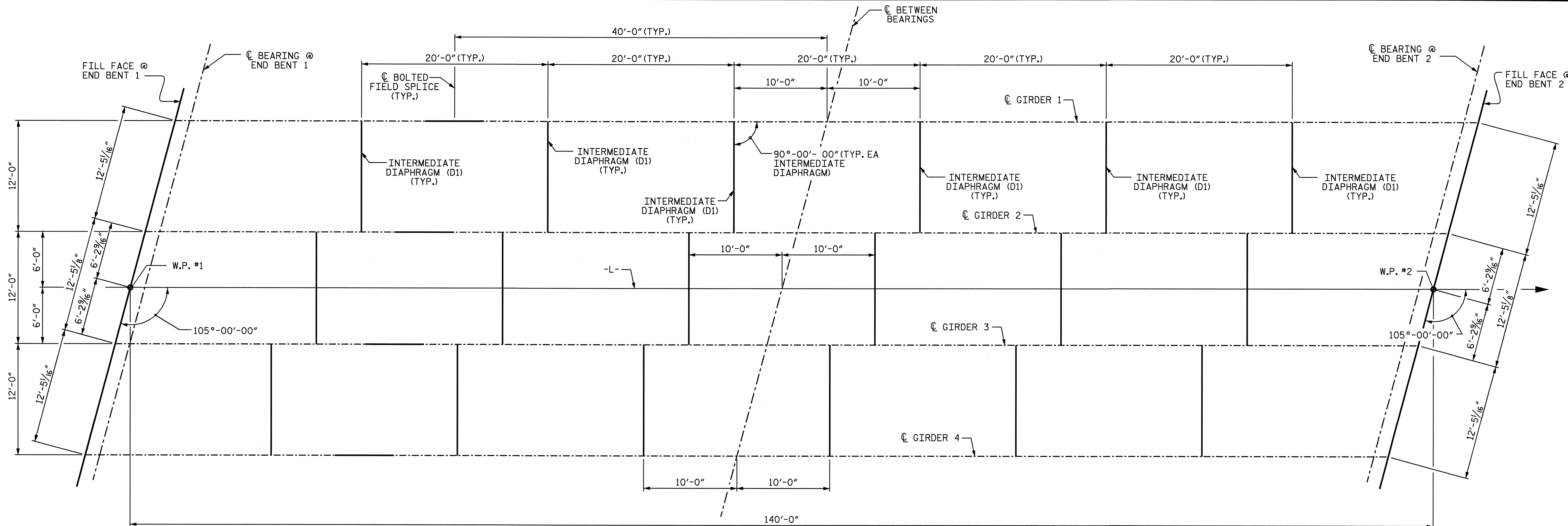
**SUPERSTRUCTURE  
 PLAN OF SPAN**

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

SHEET NO. **S-6**  
 TOTAL SHEETS **21**



DRAWN BY: J. MYA/A. K. PATEL DATE: 3/6/06  
 CHECKED BY: J. WILSON DATE: 4/6/06



FRAMING PLAN

FIX.

FIX.

DEAD LOAD DEFLECTION TABLE																					
GIRDER 1 & 4																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.019	0.038	0.055	0.070	0.083	0.093	0.102	0.108	0.112	0.113	0.112	0.108	0.102	0.093	0.083	0.070	0.055	0.038	0.019	0.000
* DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.074	0.161	0.241	0.311	0.370	0.420	0.460	0.518	0.507	0.513	0.507	0.518	0.460	0.420	0.370	0.311	0.241	0.161	0.074	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.006	0.012	0.017	0.022	0.026	0.030	0.033	0.035	0.036	0.036	0.036	0.035	0.033	0.030	0.026	0.022	0.017	0.012	0.006	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.100	0.211	0.313	0.403	0.479	0.543	0.594	0.661	0.655	0.662	0.655	0.661	0.594	0.543	0.479	0.403	0.313	0.211	0.100	0.000
REQUIRED CAMBER	0	1 3/16"	2 9/16"	3 3/4"	4 13/16"	5 3/4"	6 1/2"	7 1/8"	7 7/8"	7 7/8"	7 15/16"	7 7/8"	7 7/8"	7 7/8"	6 1/2"	5 3/4"	4 13/16"	3 3/4"	2 9/16"	1 3/16"	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																					
GIRDER 2 & 3																					
TWENTIETH POINTS	0	.05	.10	.15	.20	.25	.30	.35	.40	.45	.50	.55	.60	.65	.70	.75	.80	.85	.90	.95	0
DEFLECTION DUE TO WEIGHT OF GIRDER	0.000	0.019	0.038	0.055	0.070	0.083	0.093	0.102	0.108	0.112	0.113	0.112	0.108	0.102	0.093	0.083	0.070	0.055	0.038	0.019	0.000
* DEFLECTION DUE TO WEIGHT OF SLAB	0.000	0.074	0.160	0.239	0.308	0.367	0.416	0.456	0.514	0.503	0.508	0.503	0.514	0.456	0.416	0.367	0.308	0.239	0.160	0.074	0.000
DEFLECTION DUE TO WEIGHT OF BARRIER RAIL	0.000	0.006	0.011	0.017	0.021	0.025	0.029	0.031	0.033	0.034	0.035	0.034	0.033	0.031	0.029	0.025	0.021	0.017	0.011	0.006	0.000
TOTAL DEAD LOAD DEFLECTION	0.000	0.099	0.209	0.310	0.399	0.475	0.538	0.589	0.655	0.649	0.657	0.649	0.655	0.589	0.538	0.475	0.399	0.310	0.209	0.099	0.000
REQUIRED CAMBER	0	1 3/16"	2 1/2"	3 3/4"	4 13/16"	5 11/16"	6 7/16"	7 1/16"	7 13/16"	7 13/16"	7 7/8"	7 13/16"	7 13/16"	7 1/16"	6 1/16"	5 11/16"	4 13/16"	3 3/4"	2 1/2"	1 3/16"	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-4100  
DAVIDSON COUNTY  
STATION: 24+38.00 -L-

SHEET 1 OF 4

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

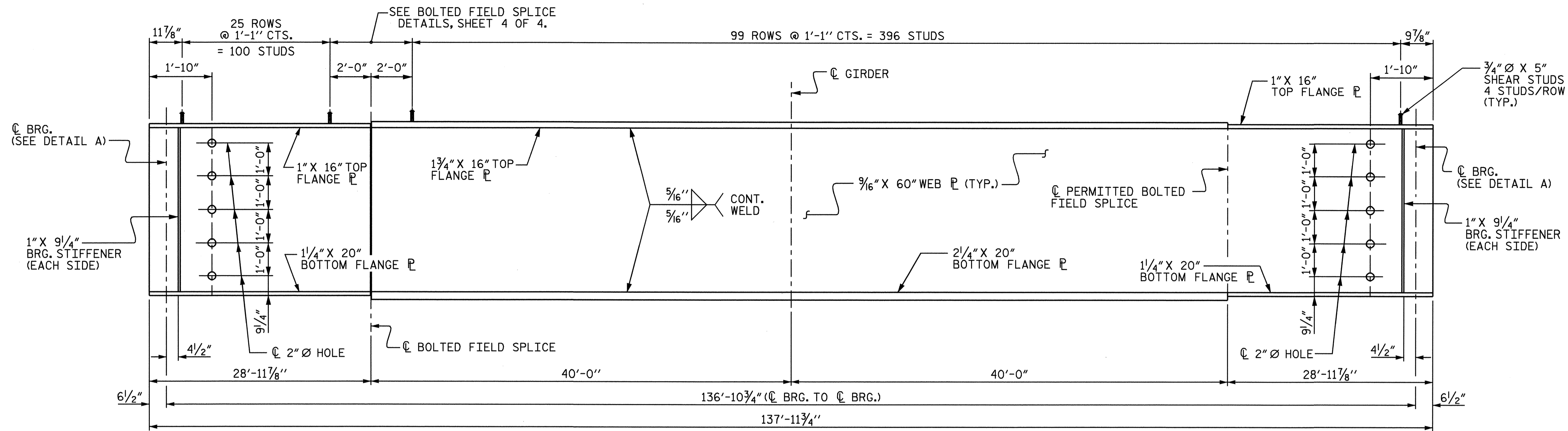
**SUPERSTRUCTURE  
STRUCTURAL STEEL  
DETAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-7
1			3			TOTAL SHEETS
2			4			21



DRAWN BY : J. MYA/A. K. PATEL DATE : 3/6/06  
CHECKED BY : J. B. WILSON DATE : 4/6/06

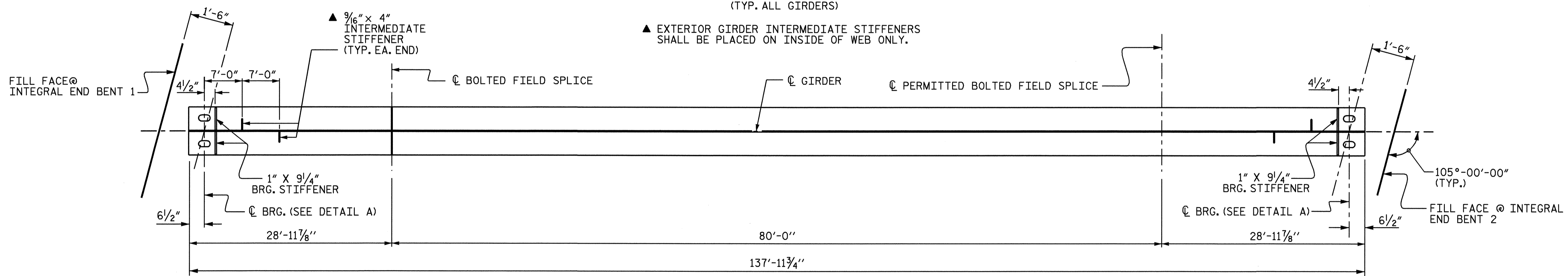




**PLATE GIRDER ELEVATION**

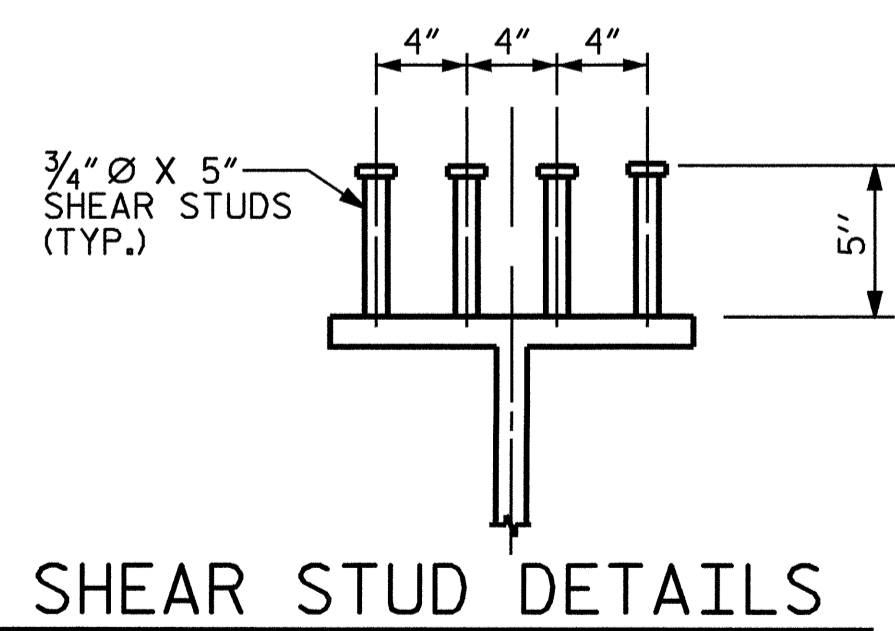
(TYP. ALL GIRDERS)

▲ EXTERIOR GIRDER INTERMEDIATE STIFFENERS SHALL BE PLACED ON INSIDE OF WEB ONLY.

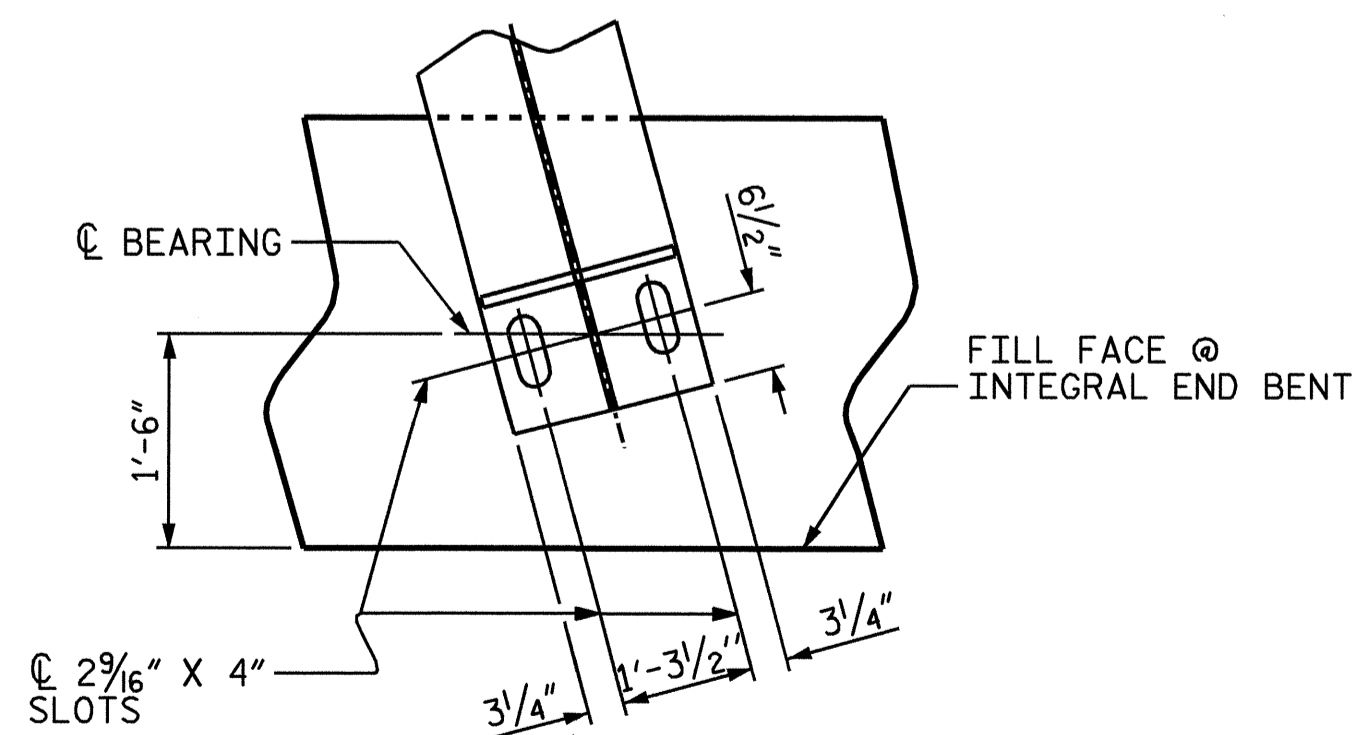


**BOTTOM FLANGE DETAIL**

(TYP. ALL GIRDERS)

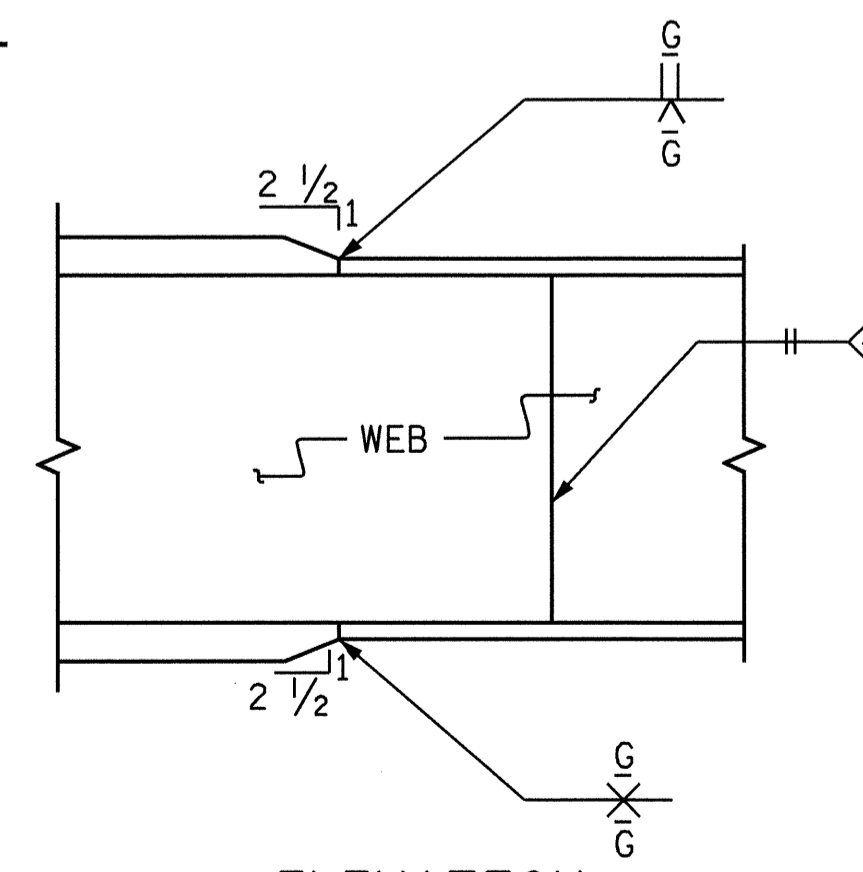


**SHEAR STUD DETAILS**



**DETAIL A**

(BOTTOM FLANGE OF GIRDER)



**ELEVATION**

**TYPICAL FLANGE AND WEB BUTT JOINT**

\* GRIND SMOOTH AND FLUSH ON OUTER FACE OF EXTERIOR GIRDERS

PROJECT NO. B-4100  
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 STATION: 24+38.00 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 DETAILS**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8	
1			3			TOTAL SHEETS	21
2			4				



DRAWN BY: J.MYA/A.K.PATEL DATE: 3/16/06  
 CHECKED BY: J.B.WILSON DATE: 4/16/06

NOTES

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 50W.

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

STIFFENER PLATES ARE NOT REQUIRED ON THE OUTSIDE OF EXTERIOR GIRDERS.

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

A CHARPY V-NOTCH TEST IS REQUIRED FOR WEB PLATES, BOTTOM FLANGE PLATES, BOTTOM FLANGE SPLICE PLATES, TOP FLANGE PLATES WITHIN 28'-0" OF ENDS OF GIRDERS AND WEB SPLICE PLATES 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 (NOR WITHIN 15 FEET OF INTERMEDIATE BEARINGS OF CONTINUOUS UNITS). KEEP 2 FEET MINIMUM BETWEEN WEB AND FLANGE SHOP SPLICES. KEEP 6" MINIMUM BETWEEN CONNECTOR PLATE OR TRANSVERSE STIFFENER WELDS AND WEB OR FLANGE SHOP SPLICES.

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

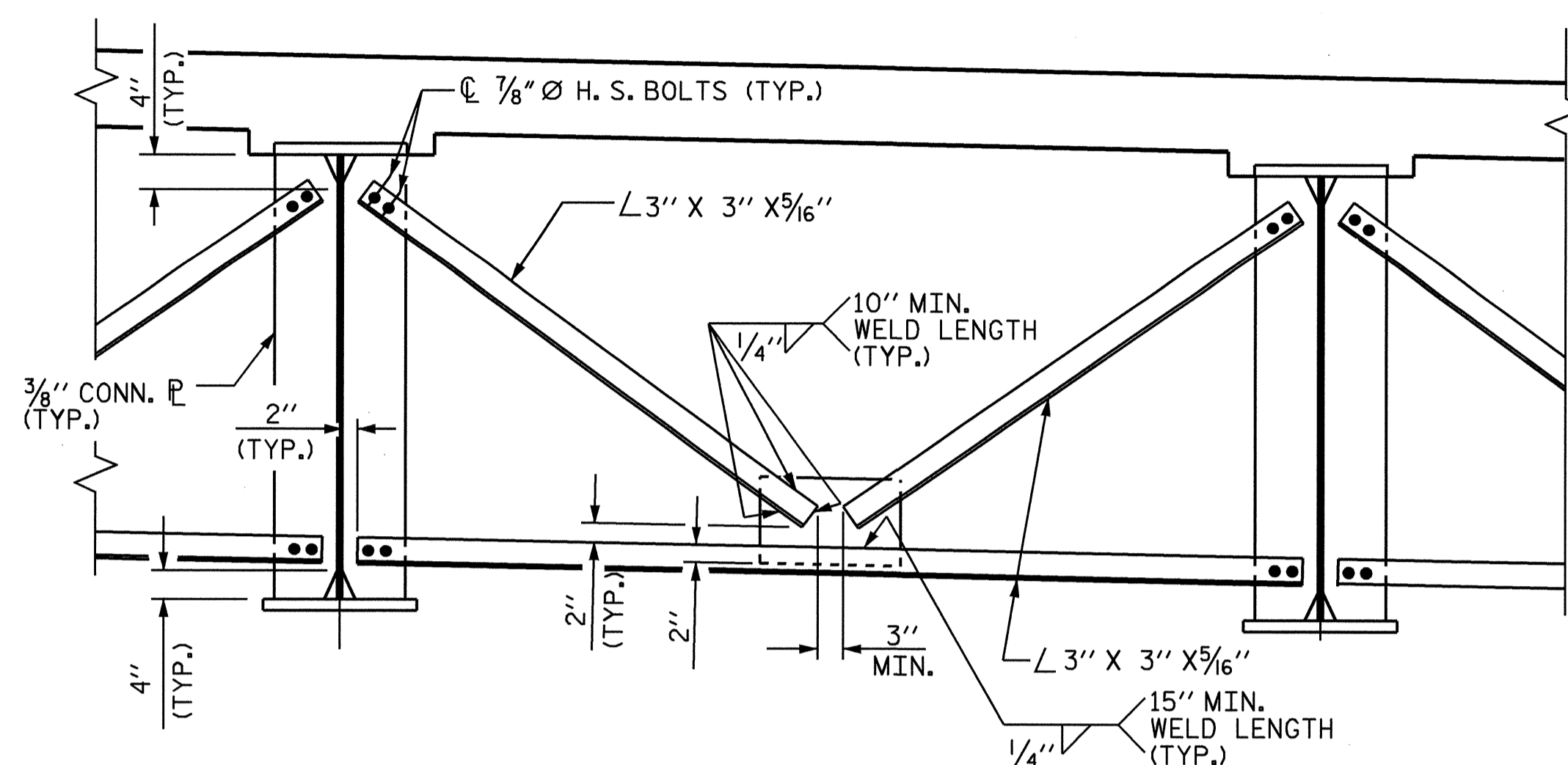
TENSION ON THE AASHTO M164 BOLTS SHALL BE CALIBRATED USING DIRECT TENSION INDICATOR WASHERS IN ACCORDANCE WITH ARTICLE 440-8 OF THE STANDARD SPECIFICATIONS.

END OF GIRDERS SHALL BE PLUMB

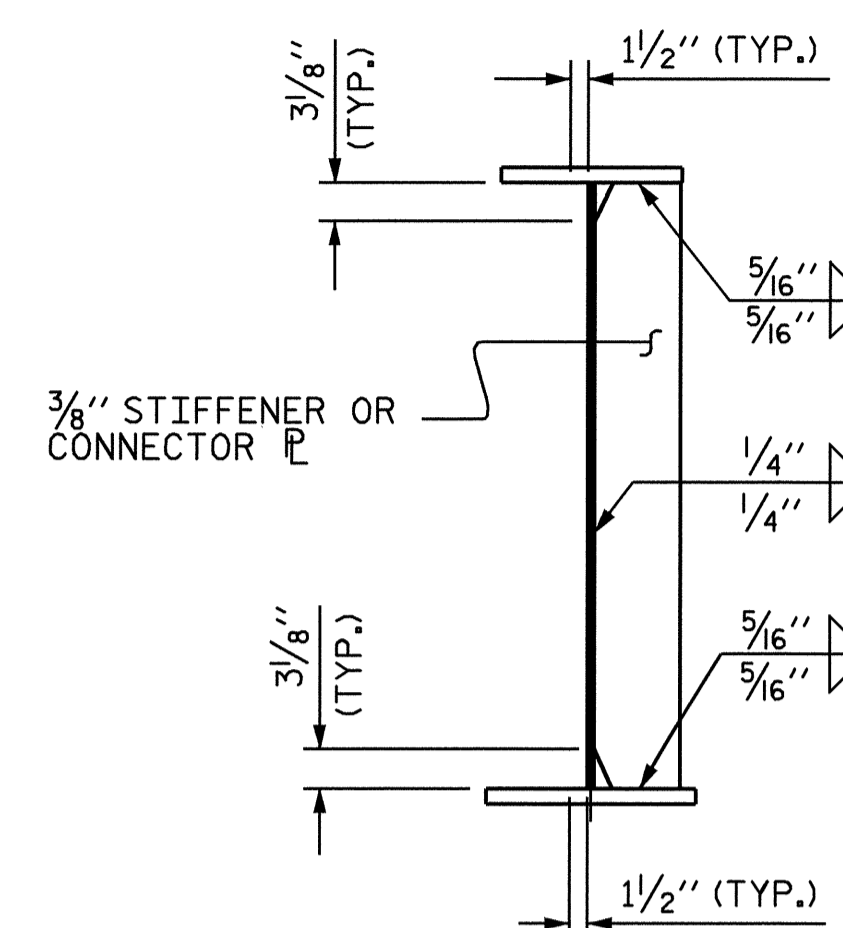
BEARING STIFFENERS ARE TO BE PLACED NORMAL TO THE WEB OF THE GIRDER AND SHALL BE PLUMB.

FOR HIGH STRENGTH BOLTS, SEE SPECIAL PROVISIONS.

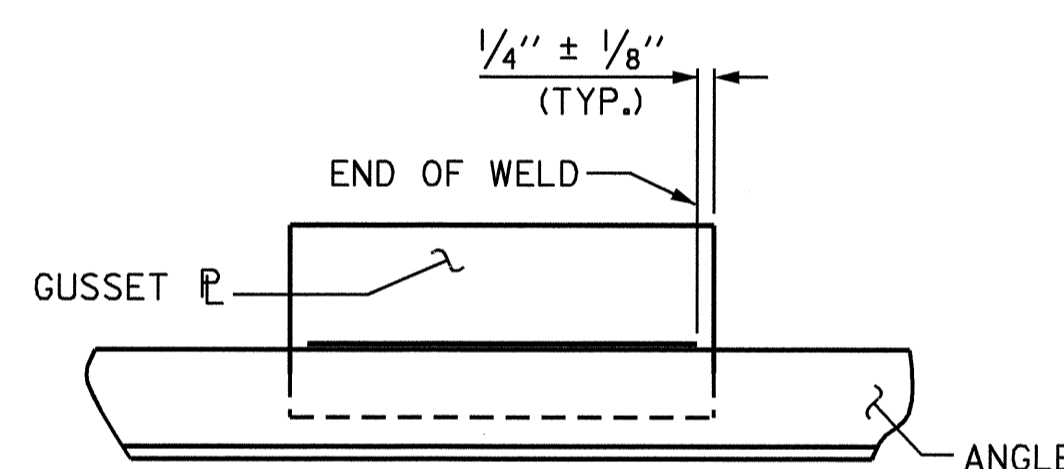
A PERMITTED BOLTED FIELD SPLICE WILL BE ALLOWED IN THE GIRDERS AT THE LOCATION SHOWN ON SHEET S-8. IF THE PERMITTED FIELD SPLICE IS USED, IT SHALL BE MADE ENTIRELY AT THE CONTRACTOR'S EXPENSE AND NO ADDITIONAL MEASUREMENT OR PAYMENT WILL BE MADE FOR THE ADDITIONAL MATERIALS REQUIRED. THE LOCATION, DETAILS AND SPLICE MATERIAL WILL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.



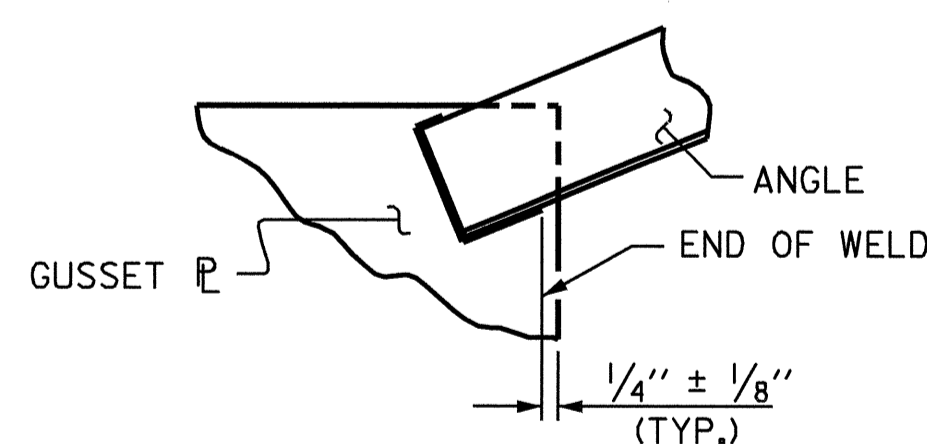
TYPICAL INTERMEDIATE DIAPHRAGM (D1)



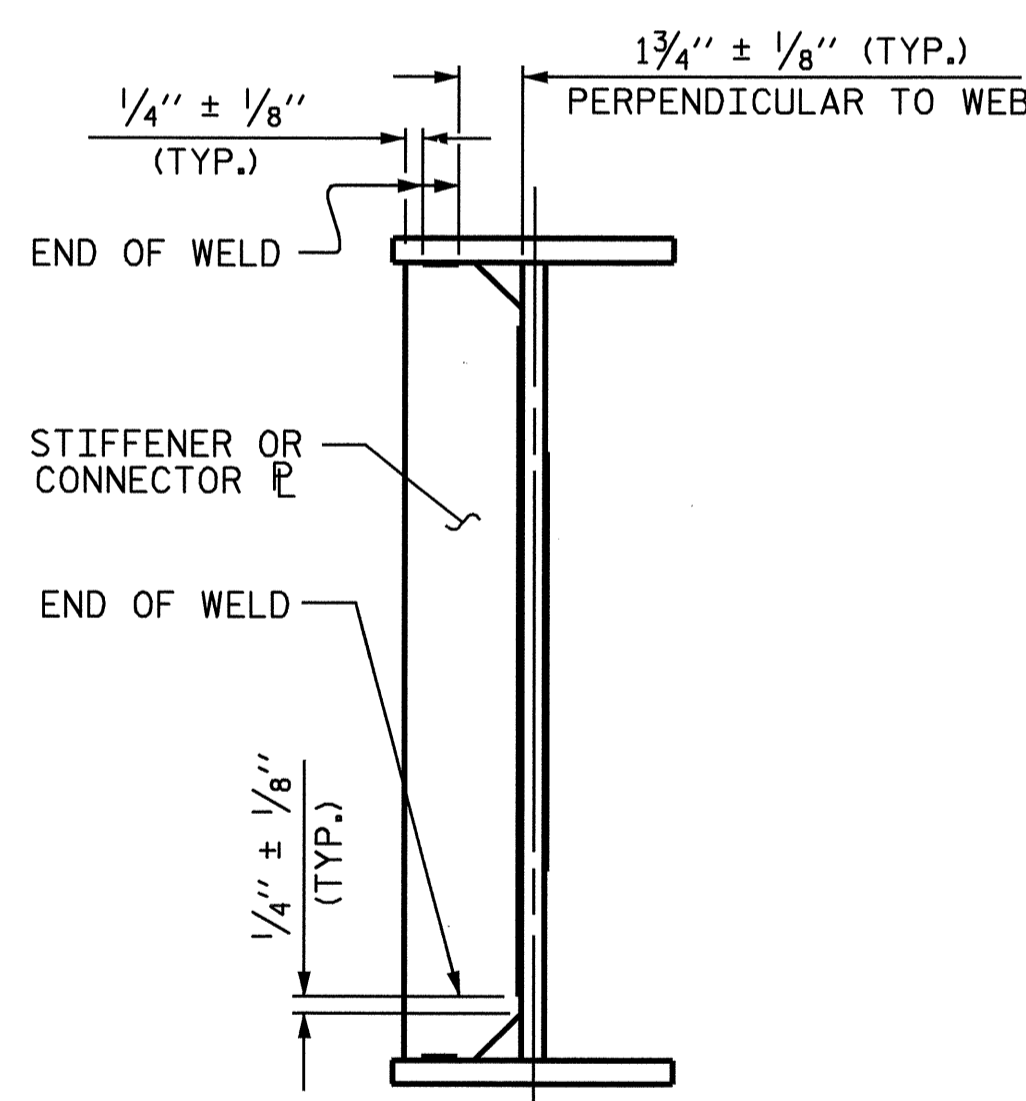
STIFFENER OR CONNECTOR PLATE



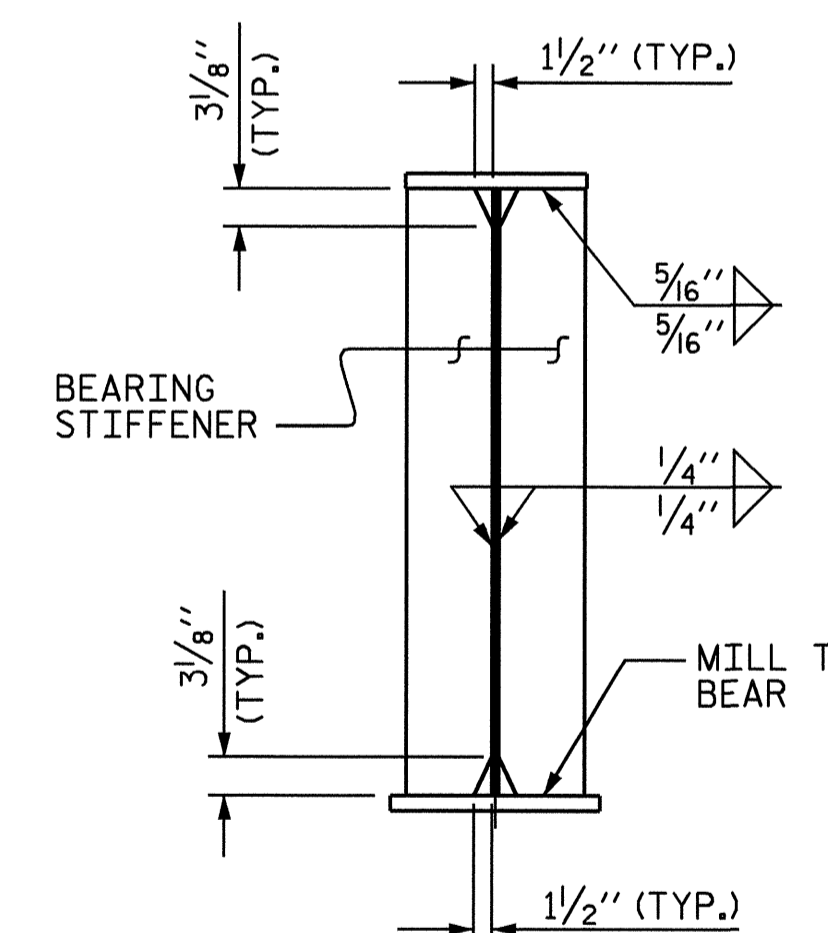
TYPICAL GUSSET PLATE CONNECTION



TYPICAL ANGLE TO GUSSET PLATE CONNECTION



TYPICAL STIFFENER OR CONNECTOR PLATE CONNECTIONS



BEARING STIFFENER

WELD TERMINATION DETAILS

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

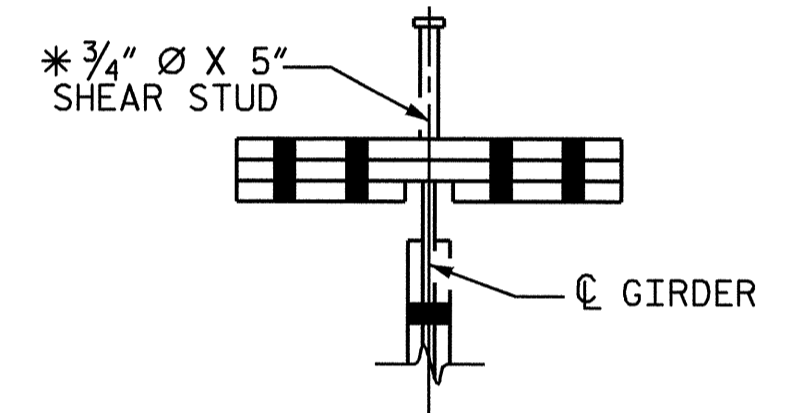
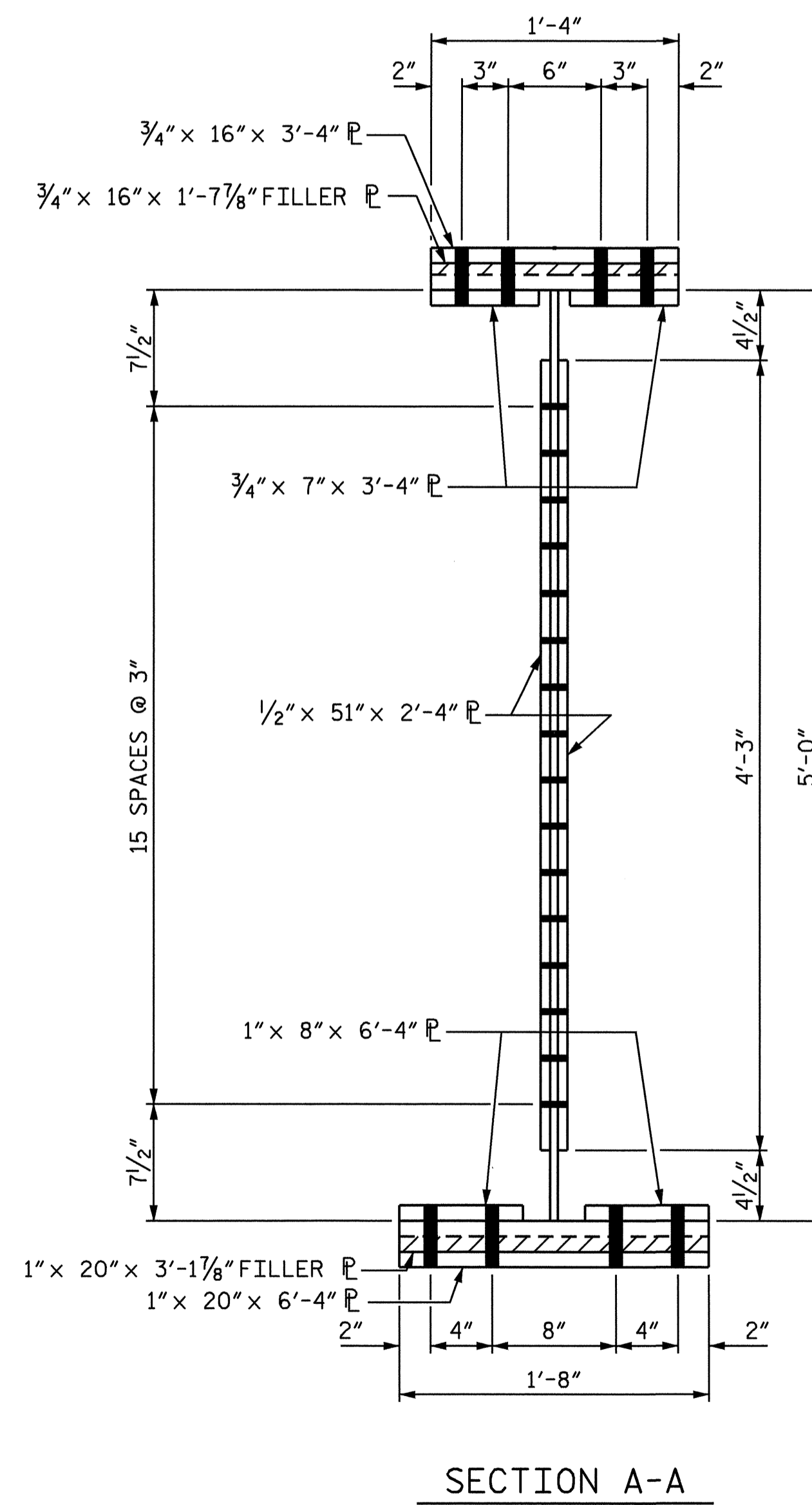
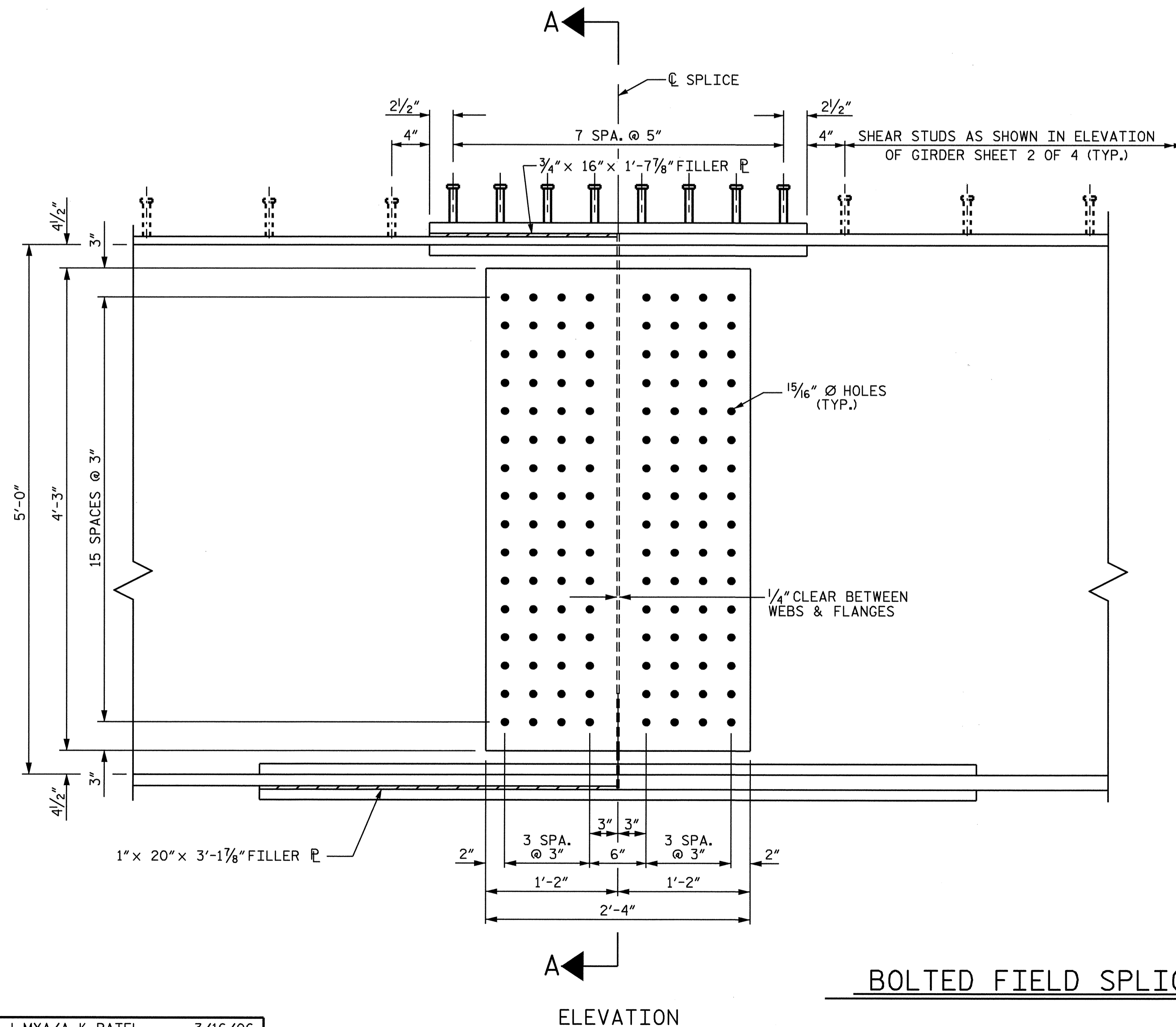
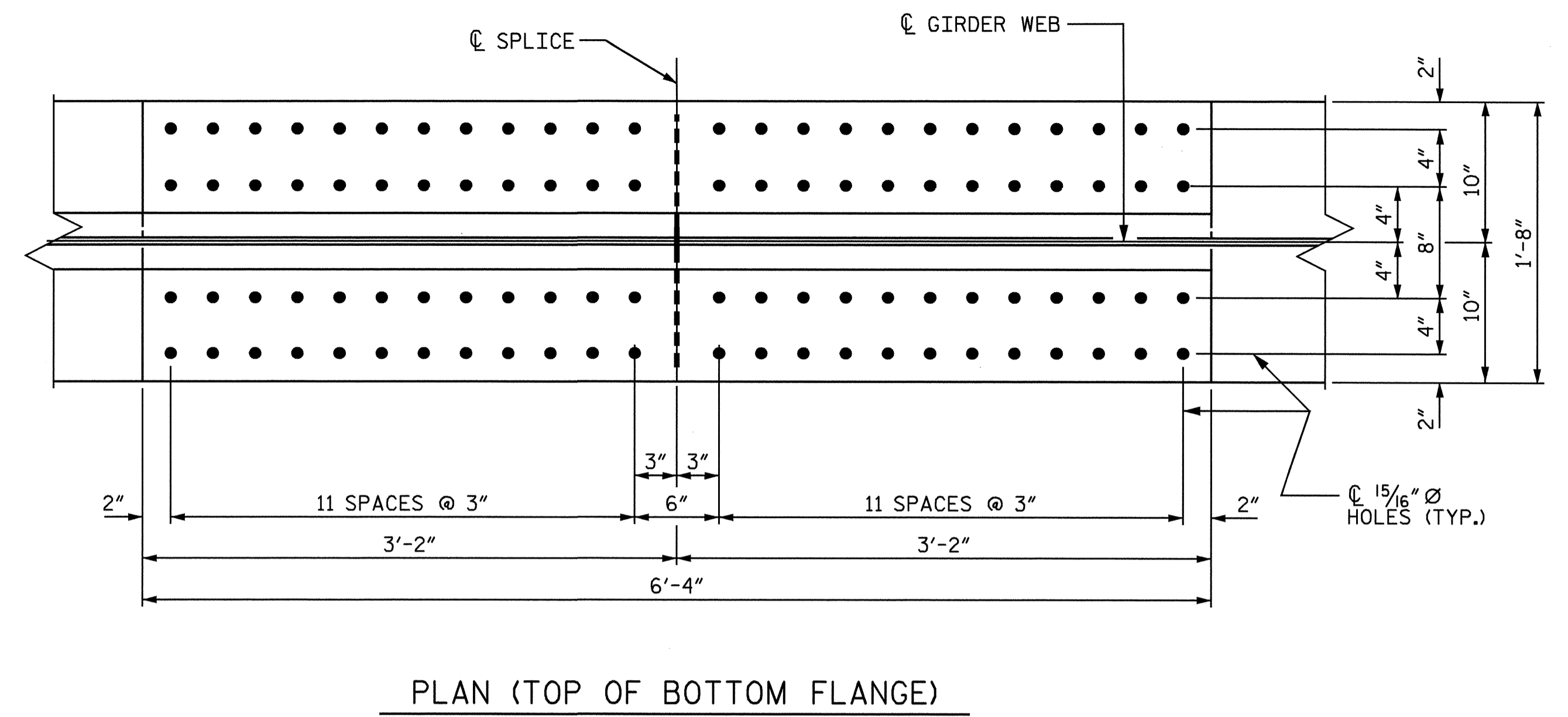
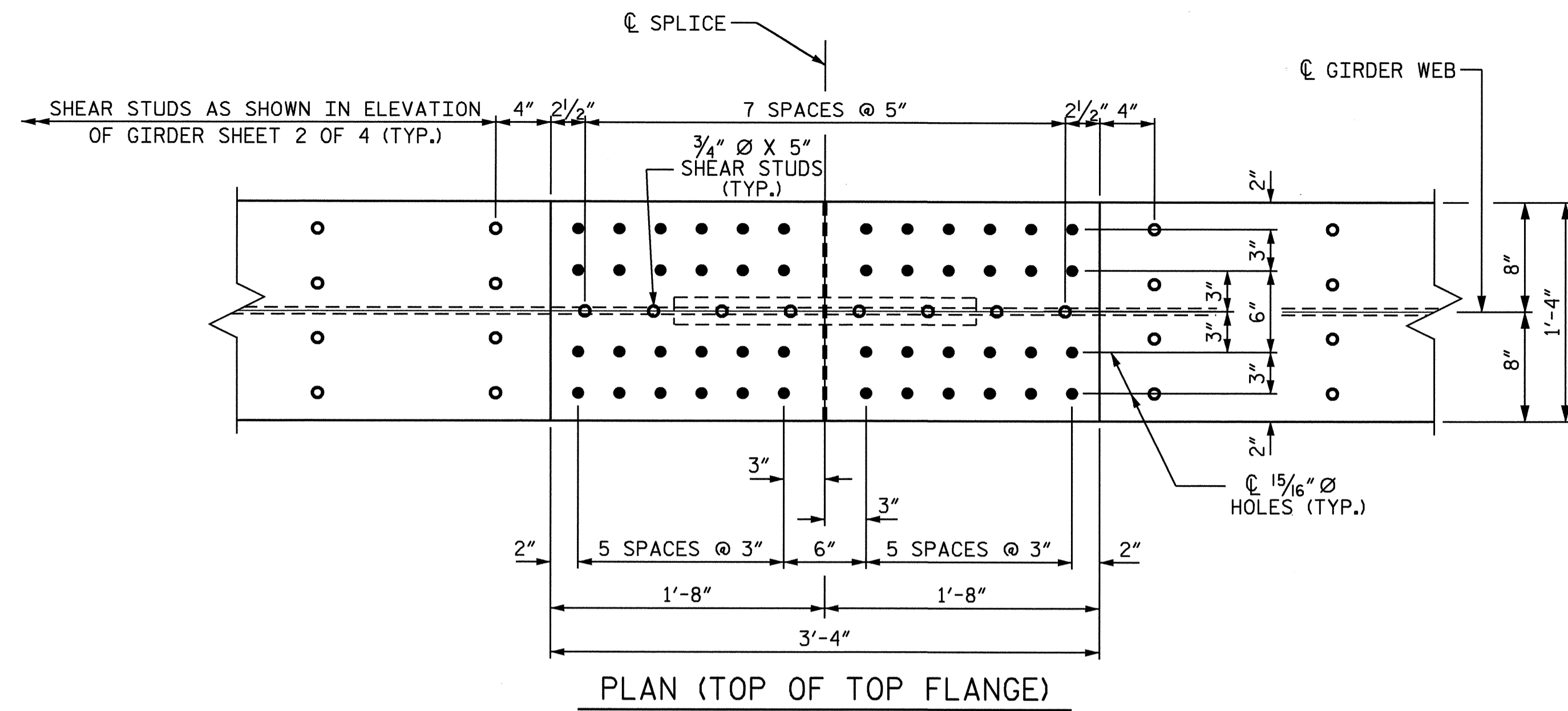
SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 DETAILS



DRAWN BY : J. MYA/A. K. PATEL DATE : 3/16/06  
 CHECKED BY : J.B. WILSON DATE : 4/16/06

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-9
1			3			TOTAL SHEETS
2			4			21



**SHEAR STUD DETAIL FOR TOP FLANGE SPLICE PLATE**

\* SHEAR STUDS ARE TO BE SHOP WELDED ON TOP OF PLATE BEFORE FIELD ASSEMBLY.

**BOLTED FIELD SPLICE DETAILS**

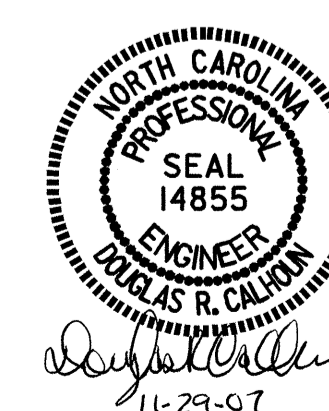
PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

**SUPERSTRUCTURE  
 STRUCTURAL STEEL  
 DETAILS**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-10	
1			3			TOTAL SHEETS	
2			4			21	



DRAWN BY : J. MYA/A. K. PATEL DATE : 3/16/06  
 CHECKED BY : J. B. WILSON DATE : 4/16/06

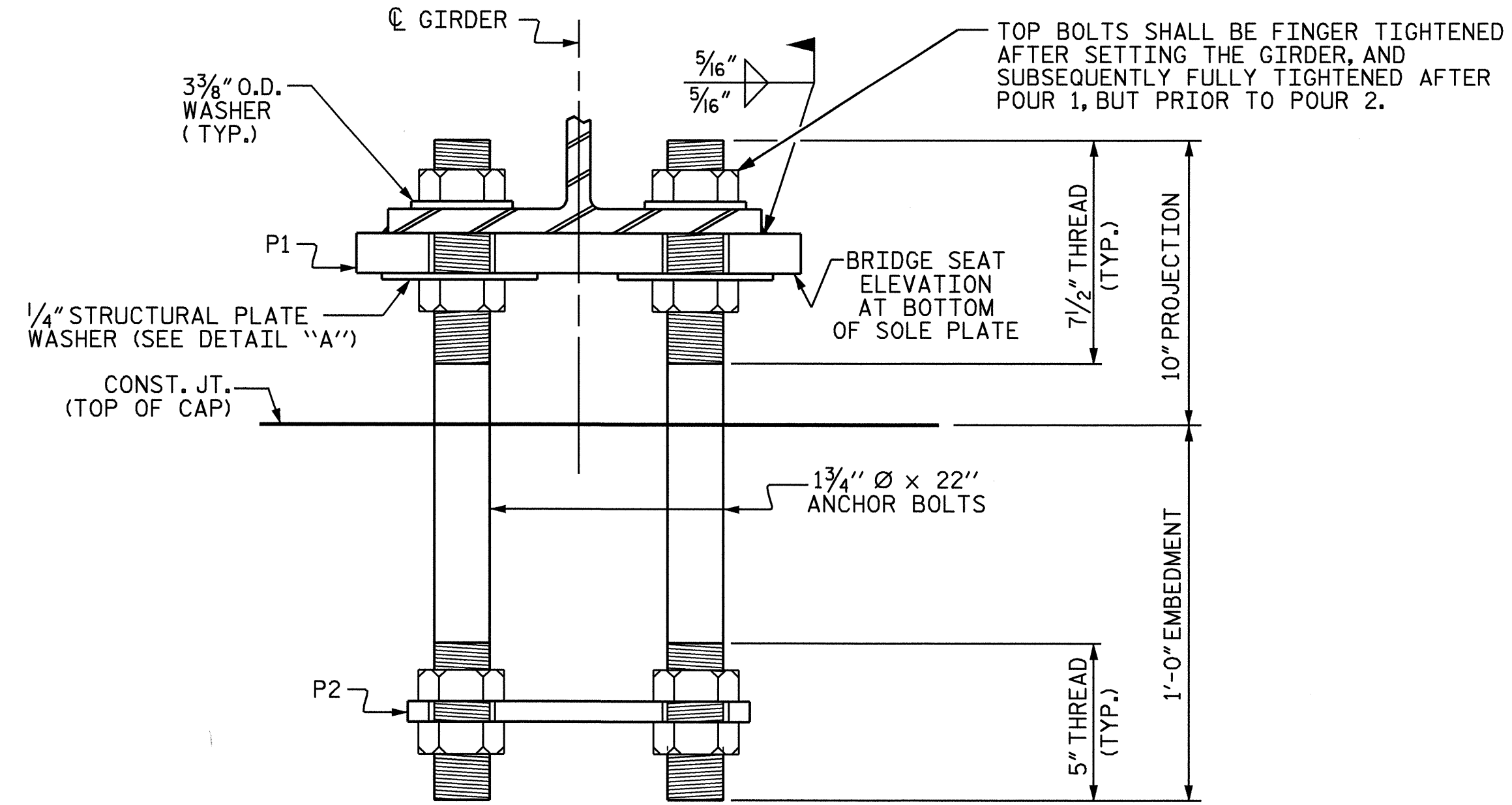
NOTES

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

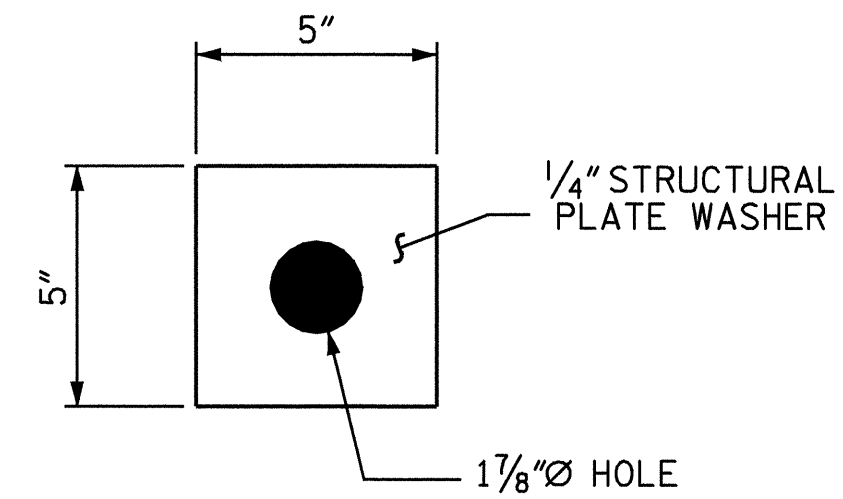
ANCHOR BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A449. NUTS SHALL MEET THE REQUIREMENTS OF AASHTO M291-DH OR AASHTO M292-2H. WASHERS SHALL MEET THE REQUIREMENTS OF AASHTO M293. SHOP DRAWINGS ARE NOT REQUIRED FOR ANCHOR BOLTS, NUTS AND WASHERS. SHOP INSPECTION IS REQUIRED.

ALL SURFACES OF SOLE PLATES SHALL BE SMOOTH AND STRAIGHT.

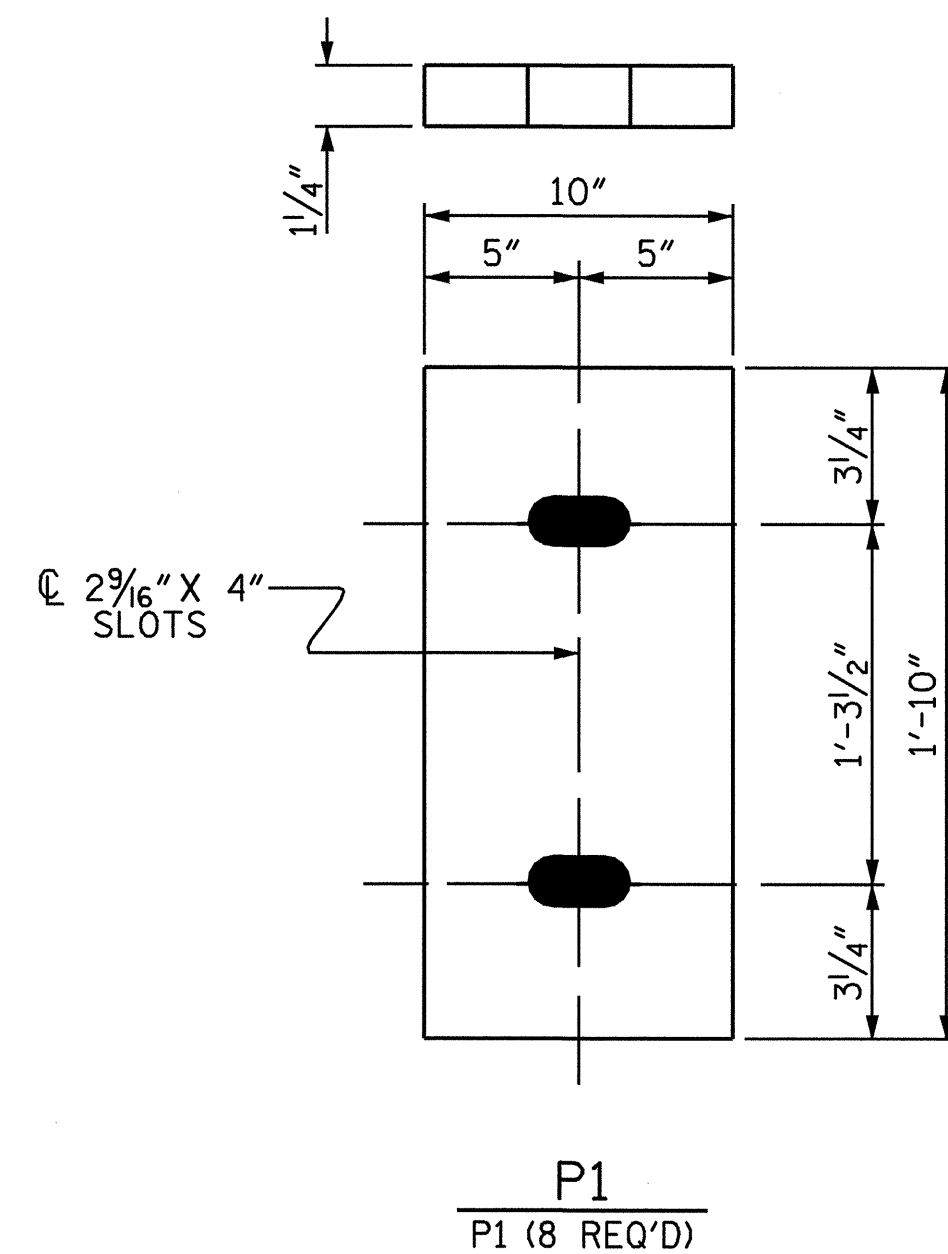
STRUCTURAL PLATE WASHERS SHALL BE AASHTO M270 GRADE 50W AND SHALL NOT BE GALVANIZED.



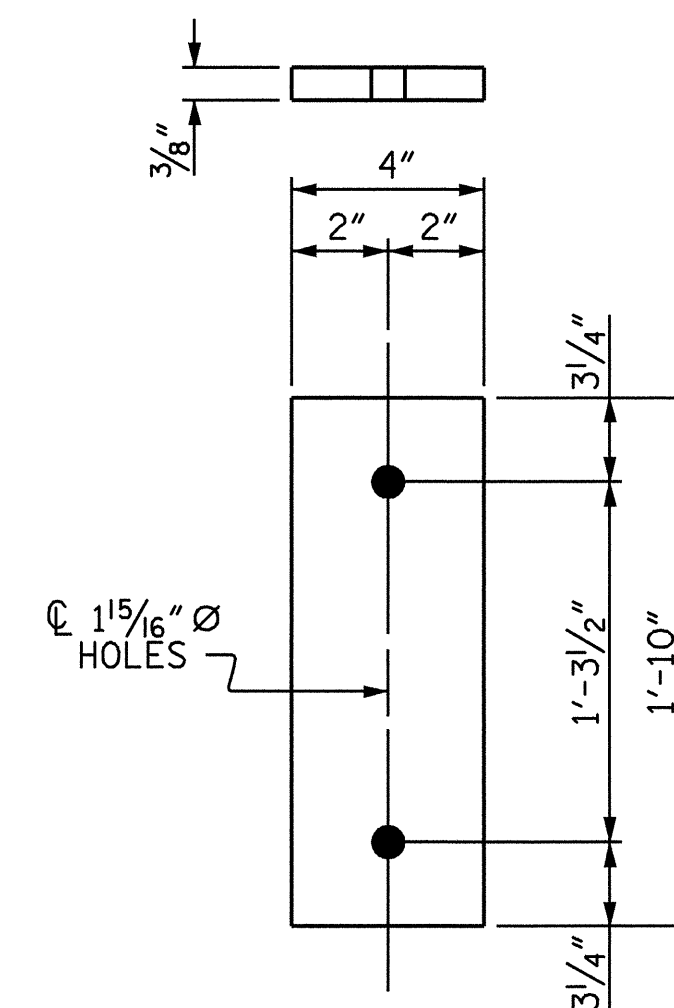
FIXED  
END VIEW



DETAIL "A"



P1  
P1 (8 REQ'D)  
SOLE PLATE DETAILS (P1)

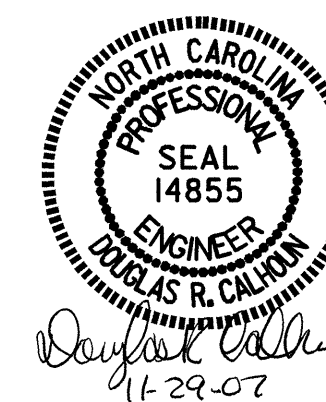


P2  
P2 (8 REQ'D)  
ANCHORAGE PLATE DETAILS (P2)

PROJECT NO. B-4100  
DAVIDSON COUNTY  
STATION: 24+38.00 -L-

STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

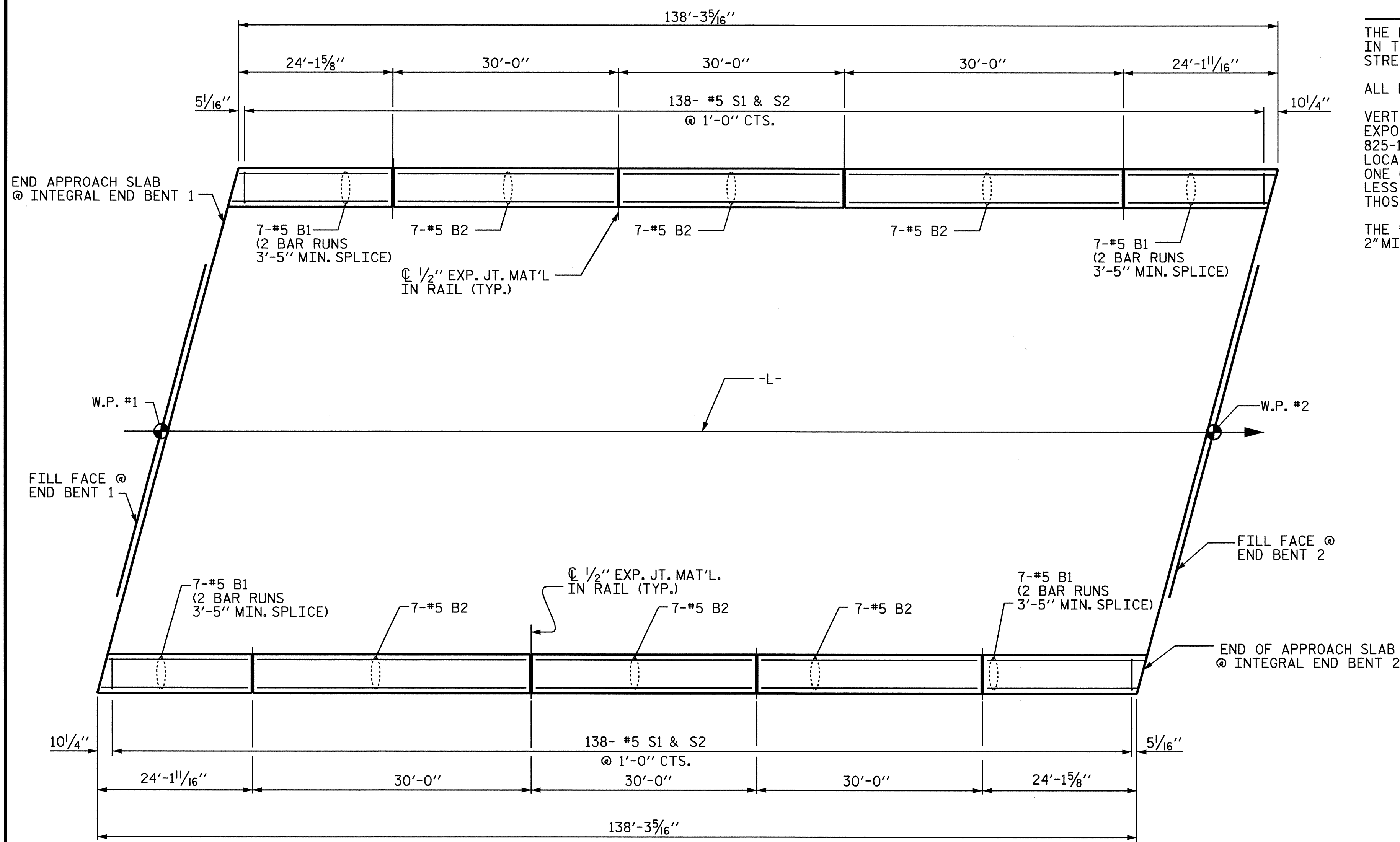
SOLE PLATE  
DETAILS



DRAWN BY : J. MYA/A. K. PATEL DATE : 1/30/07  
CHECKED BY : E. G. ALLEN DATE : 1/31/07

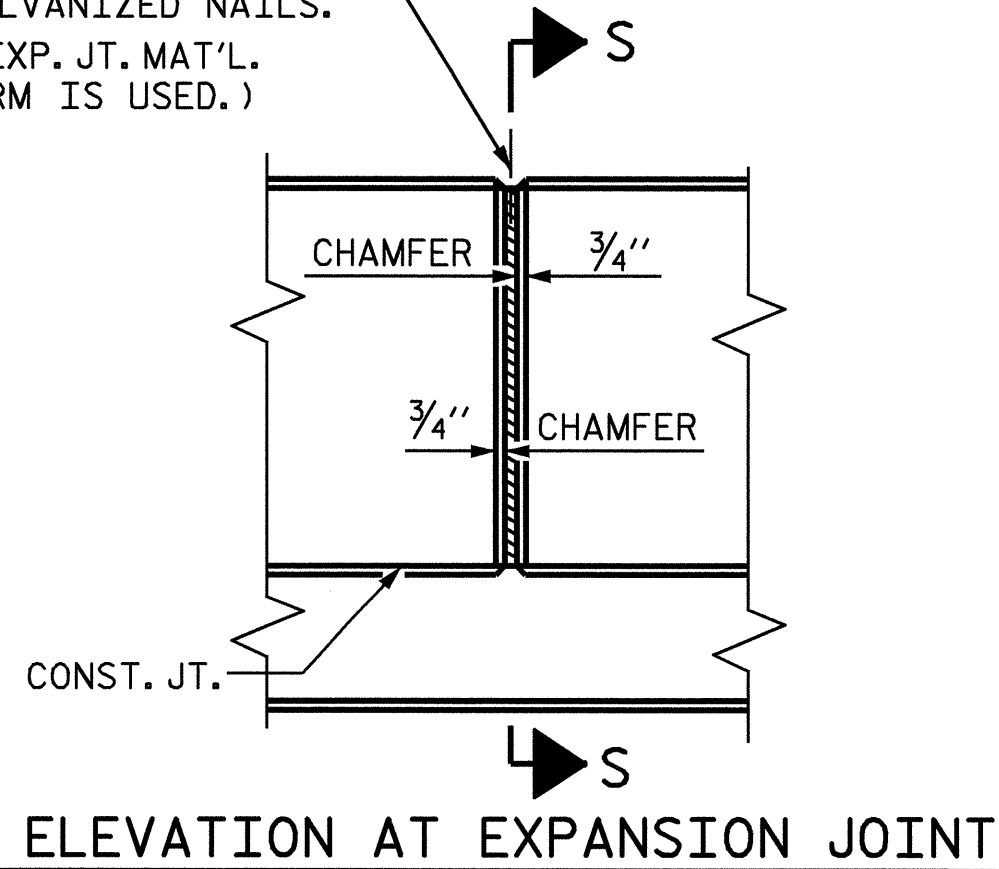
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			21
2			4			

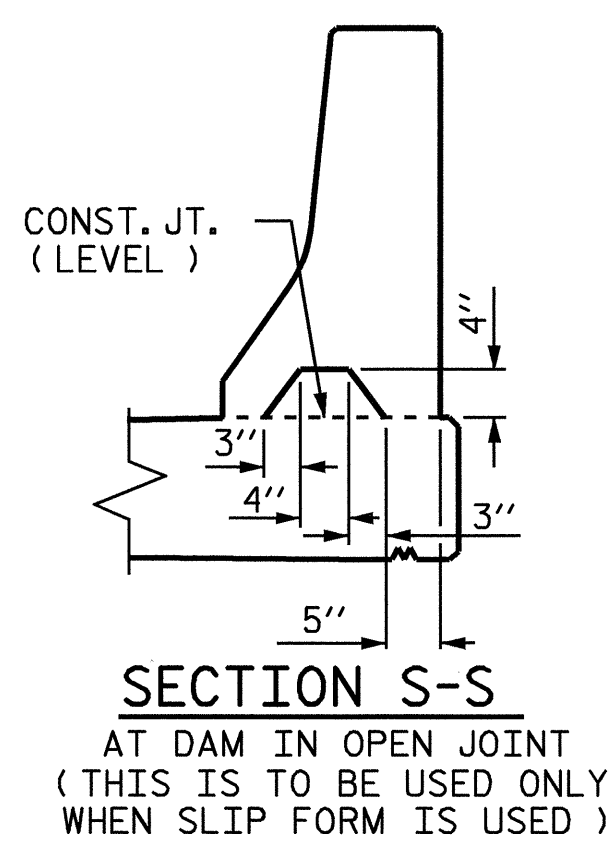


PLAN OF BARRIER RAIL

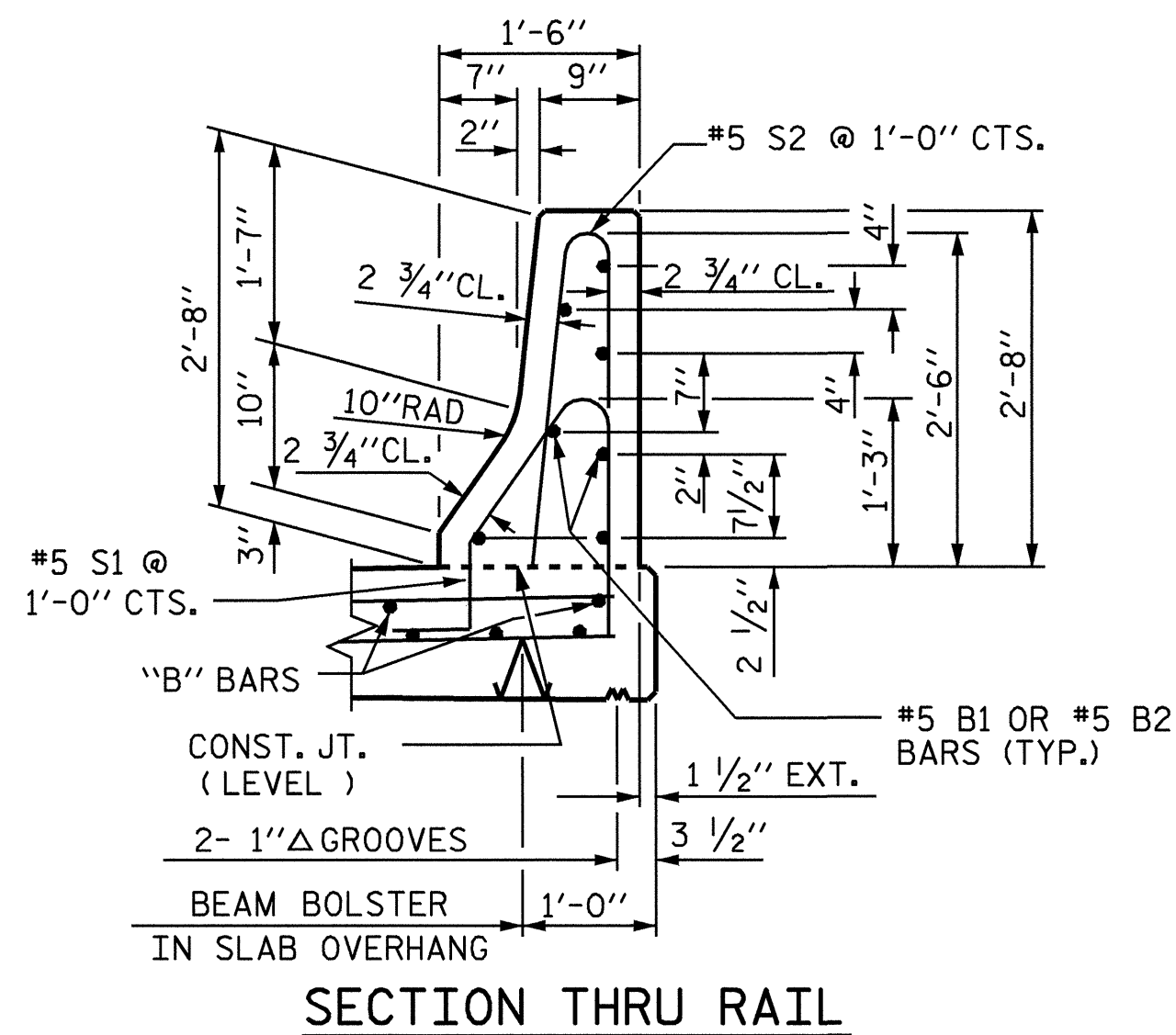
1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L. WHEN SLIP FORM IS USED.)



ELEVATION AT EXPANSION JOINT



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



SECTION THRU RAIL

NOTES

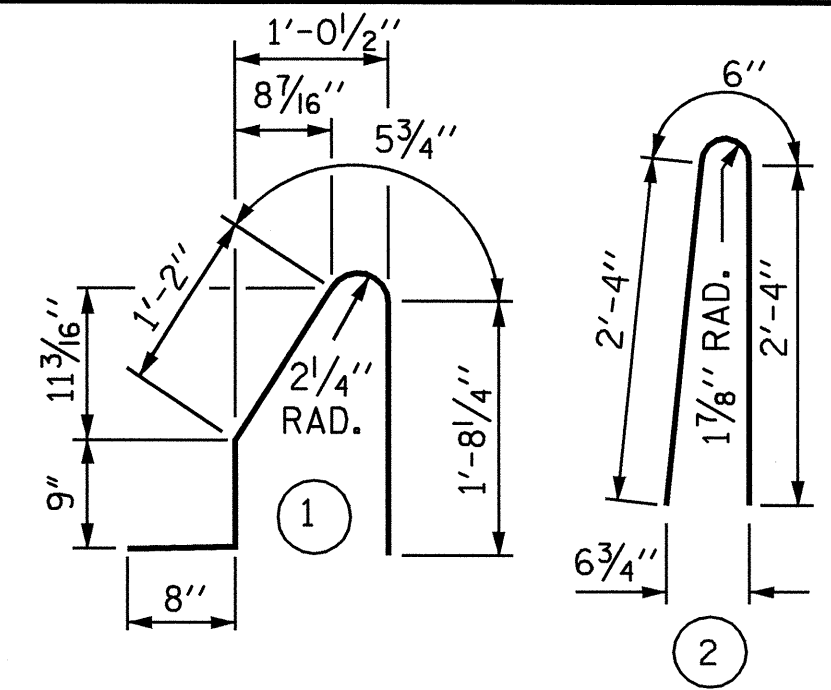
THE BARRIER RAIL IN THE SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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

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

BAR TYPES



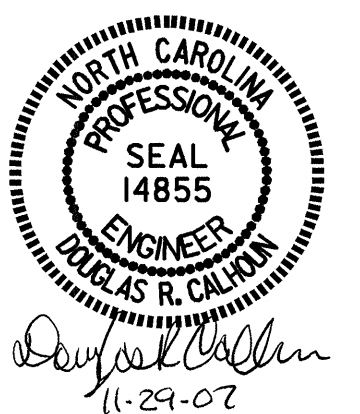
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

FOR CONCRETE BARRIER RAIL ONLY

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* B1	56	#5	STR	13'-9"	803
* B2	42	#5	STR	29'-7"	1296
* S1	276	#5	1	4'-9"	1367
* S2	276	#5	2	5'-2"	1487

\* EPOXY COATED REINFORCING STEEL 4953 LBS.  
 CLASS AA CONCRETE 27.7 CU. YDS.  
 CONCRETE BARRIER RAIL 276.55 LIN. FT.



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 DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 1 OF 2

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS 21
2			4			

ASSEMBLED BY : T. A. HARRIS	DATE : 3/1/05
CHECKED BY : T. L. CLELLAND	DATE : 3/7/05
DRAWN BY : ARB 5/87	REV. 10/17/00 RWW/LES
CHECKED BY : SJD 9/87	REV. 5/17/03R RWW/JTE
	REV. 5/1/06 TLA/GM

NOTES

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

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M11.

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.)

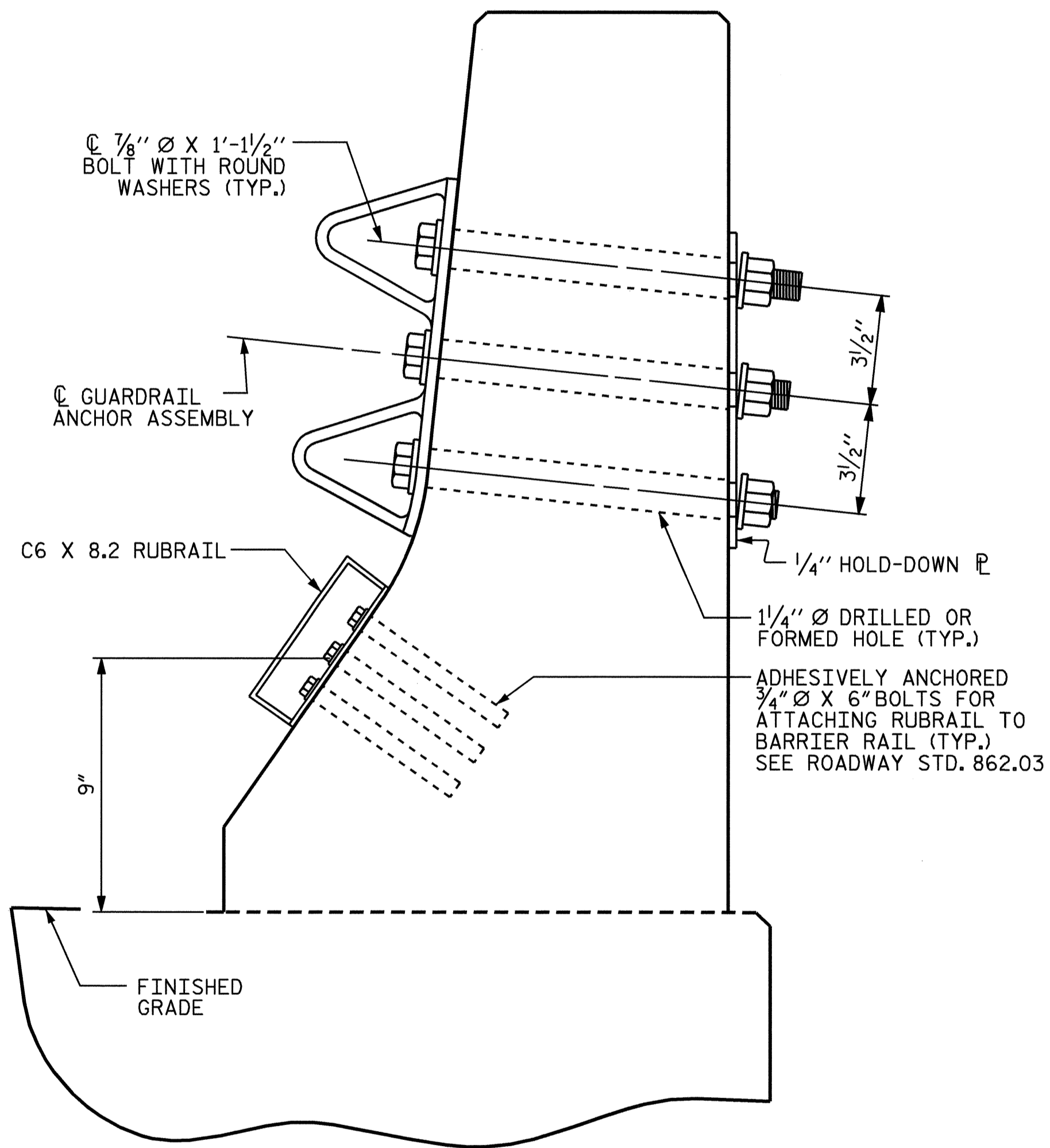
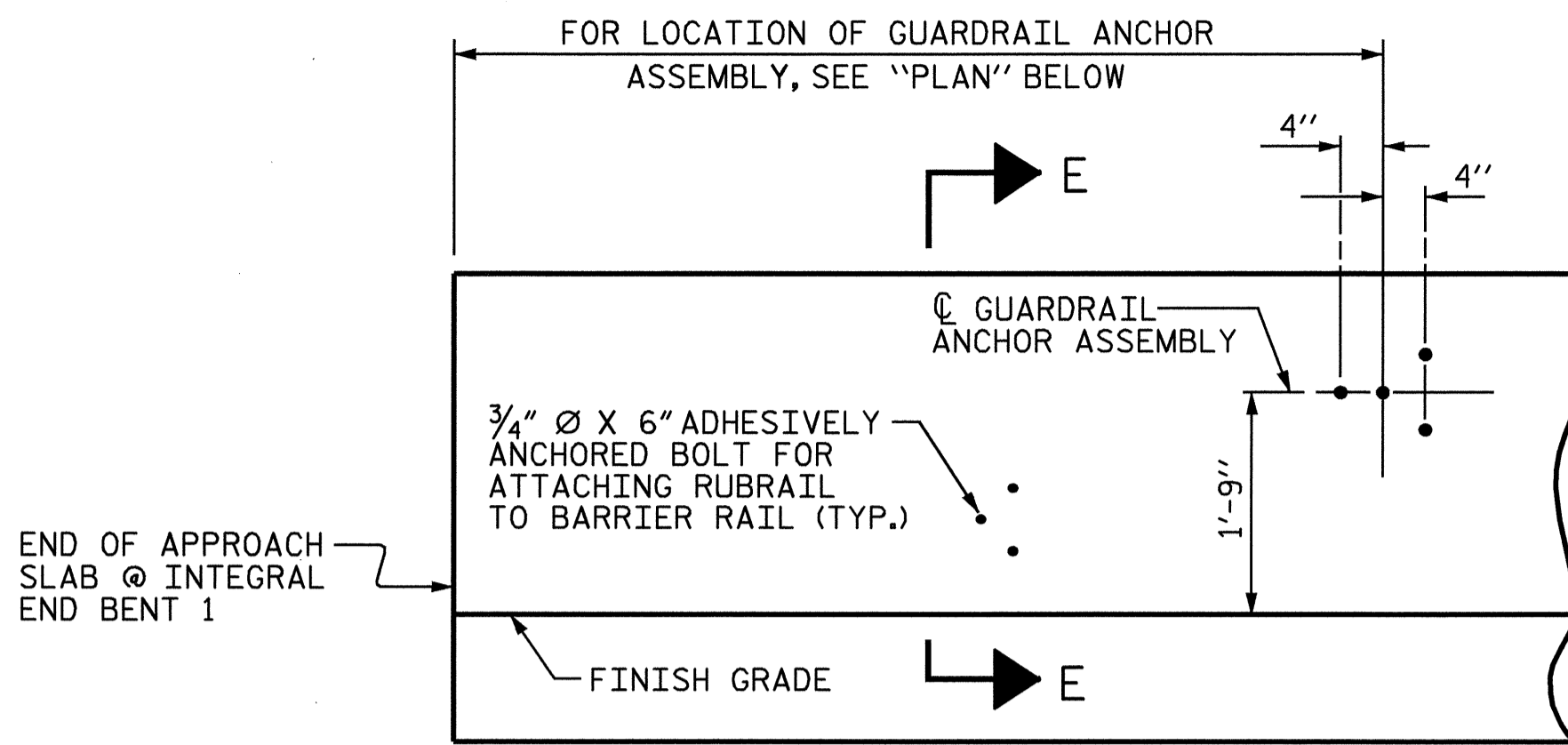
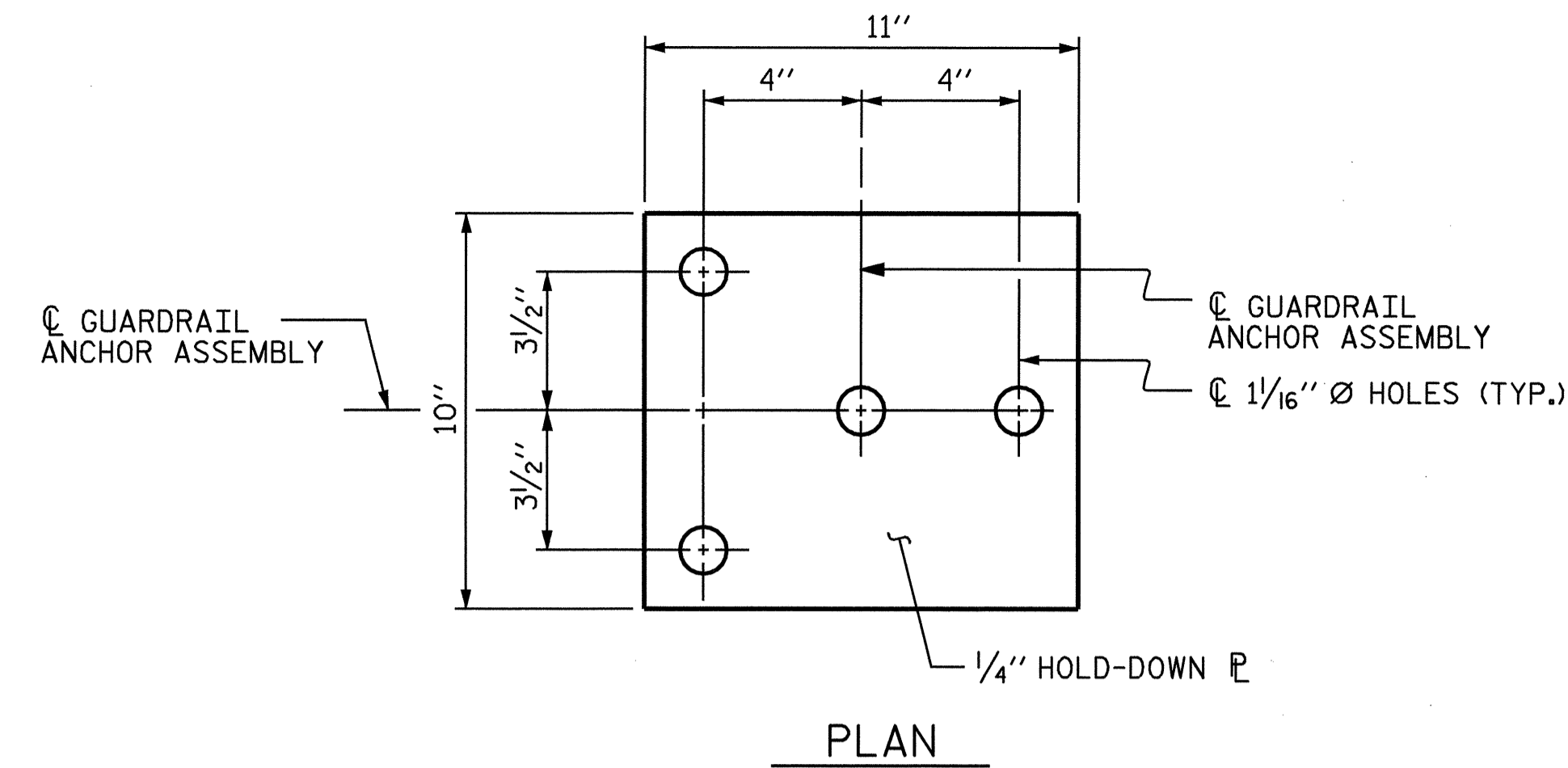
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

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

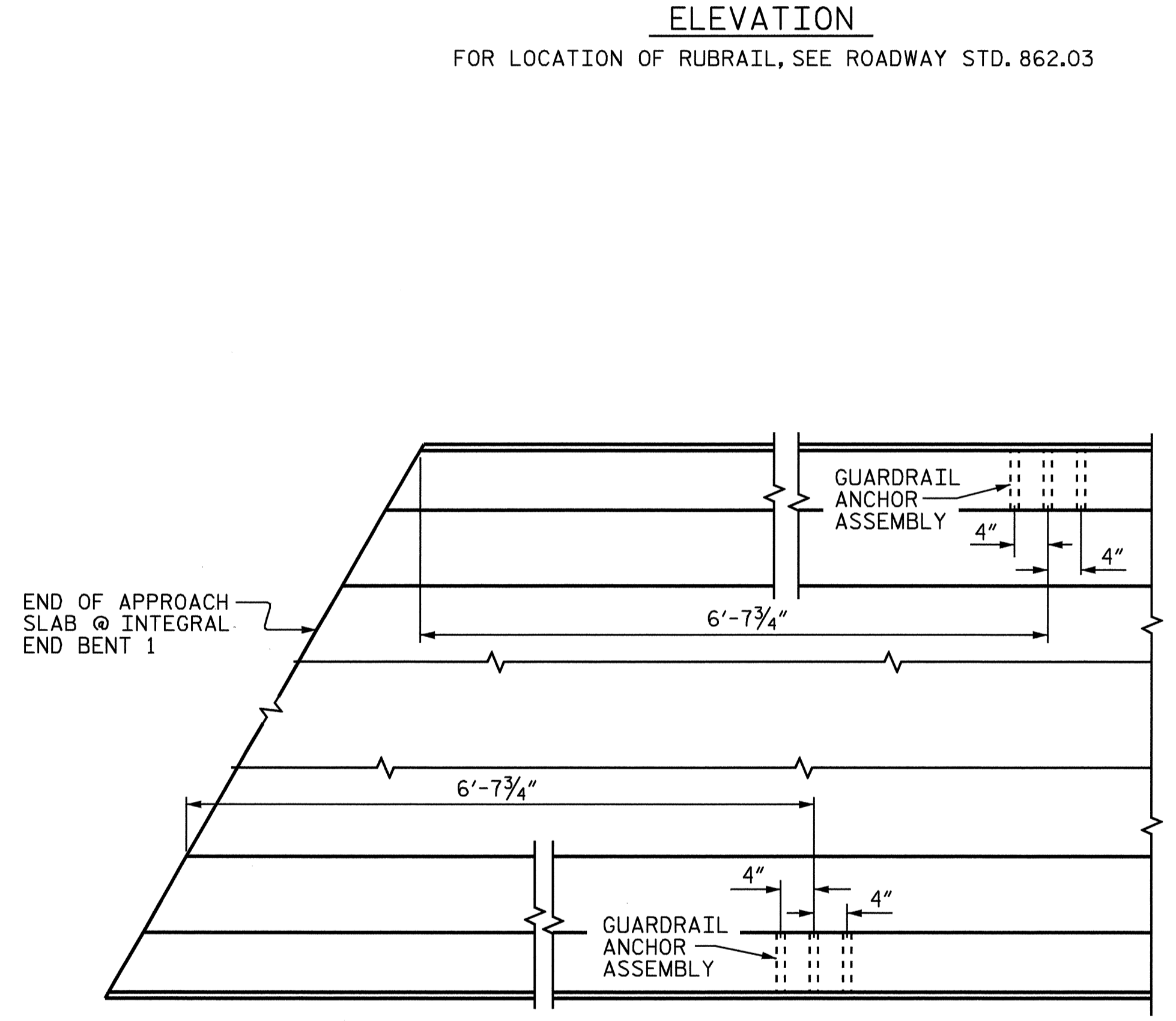
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CONCRETE BARRIER RAIL.

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.

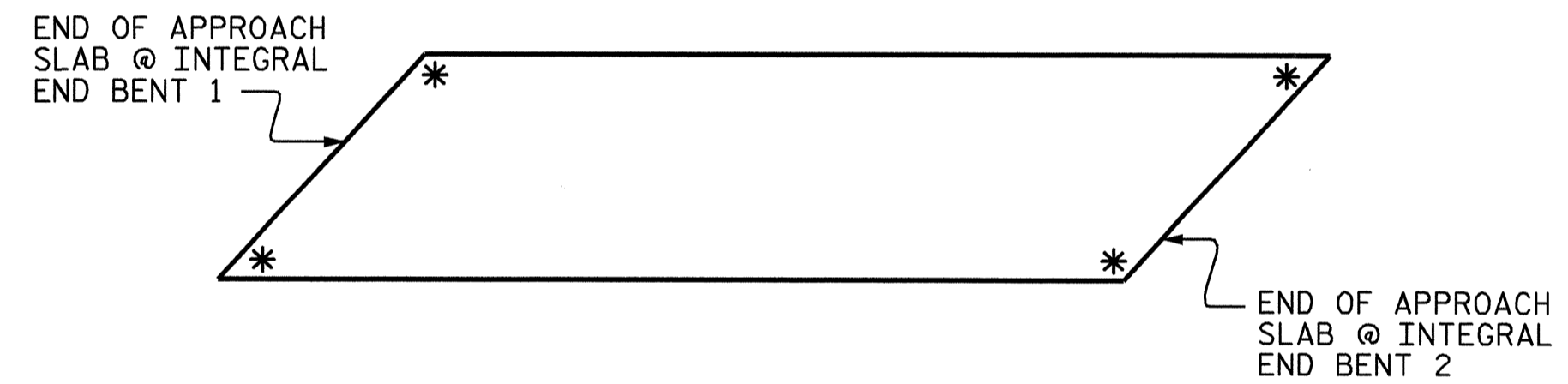


GUARDRAIL ANCHOR ASSEMBLY DETAILS



LOCATION OF ANCHORS FOR GUARDRAIL

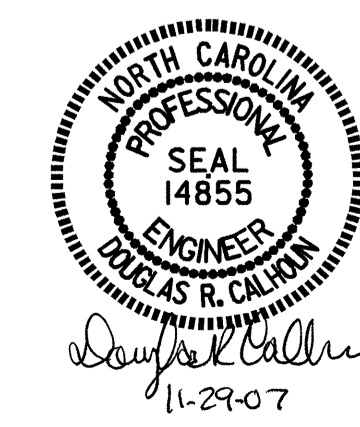
END BENT #1 SHOWN, END BENT #2 SIMILAR.



\* DENOTES GUARDRAIL ANCHOR ASSEMBLY

ASSEMBLED BY : J. MYA	DATE : 7/20/06
CHECKED BY : A. K. PATEL	DATE : 7/11/07
DRAWN BY : TLA 5/06	ADDED 5/1/06R KMM/GM
CHECKED BY : GM 5/06	

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PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

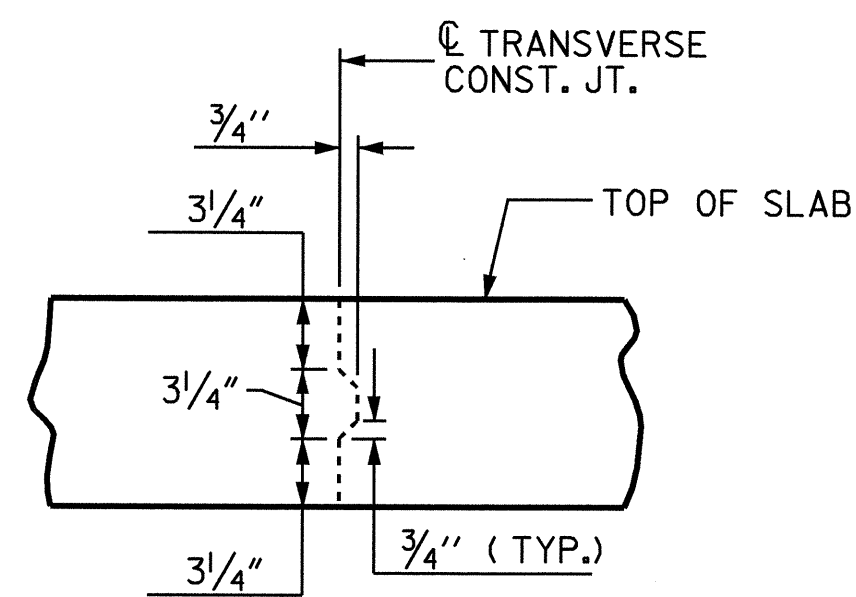
SHEET 2 OF 2

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		
SHEET NO. <b>S-13</b>					TOTAL SHEETS <b>21</b>

STD. NO. GRA2

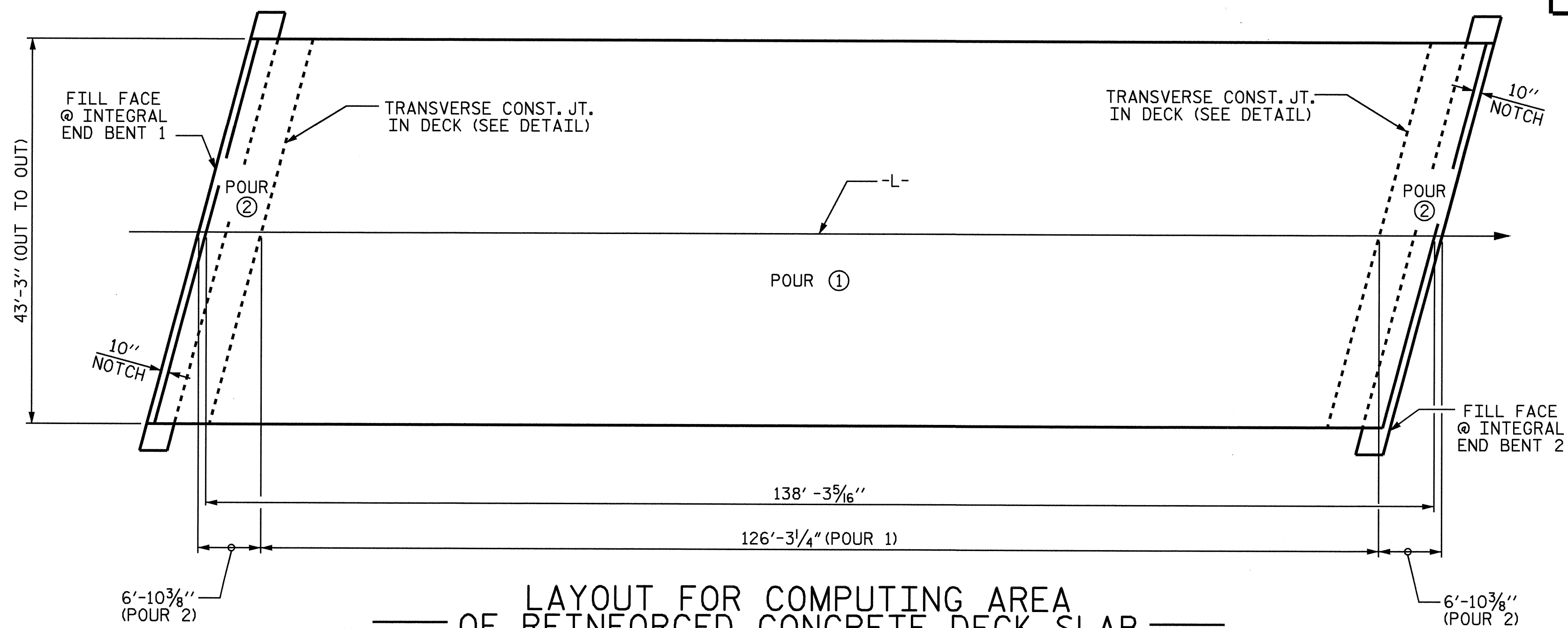
SUPERSTRUCTURE REINFORCING STEEL LENGTHS ARE BASED ON THE FOLLOWING MINIMUM SPLICE LENGTHS

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



**TRANSVERSE CONSTRUCTION JOINT DETAIL**

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



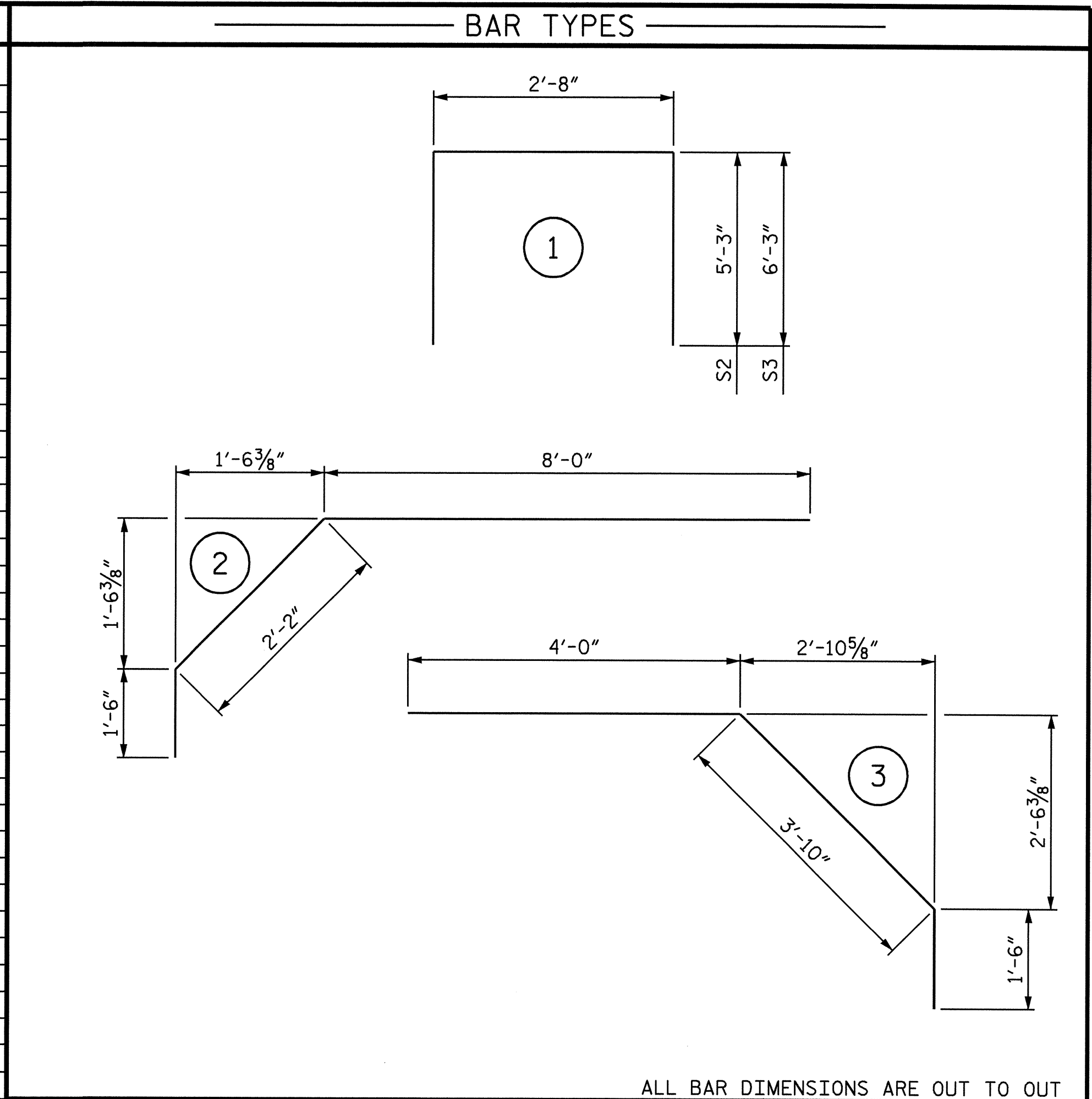
**LAYOUT FOR COMPUTING AREA OF REINFORCED CONCRETE DECK SLAB & CONCRETE POUR DETAIL**  
(SQ. FT. = 6055)

NOTE: POUR 2 INCLUDES PARTIAL DECK, END BENT DIAPHRAGMS AND UPPER WINGS OF END BENTS.

DRAWN BY: J. MYA/A. K. PATEL DATE: 3/6/06  
CHECKED BY: J. B. WILSON DATE: 4/16/06

**REINFORCING BAR SCHEDULE**

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	277	#5	STR	42'-11"	12399
A2	277	#5	STR	42'-11"	12399
* A101	4	#5	STR	39'-9"	166
* A102	4	#5	STR	36'-4"	152
* A103	4	#5	STR	32'-11"	137
* A104	4	#5	STR	29'-6"	123
* A105	4	#5	STR	26'-1"	109
* A106	4	#5	STR	22'-8"	95
* A107	4	#5	STR	19'-3"	80
* A108	4	#5	STR	15'-10"	66
* A109	4	#5	STR	12'-5"	52
* A110	4	#5	STR	9'-0"	38
* A111	4	#5	STR	5'-7"	23
* A112	4	#5	STR	2'-1"	9
A201	4	#5	STR	39'-9"	166
A202	4	#5	STR	36'-4"	152
A203	4	#5	STR	32'-11"	137
A204	4	#5	STR	29'-6"	123
A205	4	#5	STR	26'-1"	109
A206	4	#5	STR	22'-8"	95
A207	4	#5	STR	19'-3"	80
A208	4	#5	STR	15'-10"	66
A209	4	#5	STR	12'-5"	52
A210	4	#5	STT	9'-0"	38
A211	4	#5	STR	5'-7"	23
A212	4	#5	STR	2'-1"	9
* B1	150	#4	STR	29'-3"	2931
B2	183	#5	STR	47'-5"	9050
* B3	108	#5	STR	28'-0"	3154
B4	112	#4	STR	28'-0"	2095
K1	24	#5	STR	50'-7"	1266
K2	16	#5	STR	2'-9"	46
S2	90	#5	1	13'-2"	1236
S3	16	#5	1	15'-2"	253
* S4	82	#4	2	11'-8"	639
* S5	78	#4	3	9'-4"	486
REINFORCING STEEL				=	27395 LBS
EPOXY COATED REINF. STEEL				=	20659 LBS



ALL BAR DIMENSIONS ARE OUT TO OUT

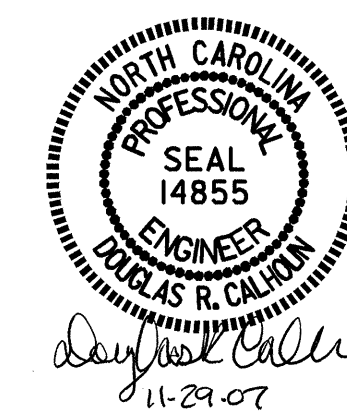
**SUPERSTRUCTURE BILL OF MATERIAL**

	CLASS AA CONCRETE	REINFORCING STEEL	EPOXY COATED REINFORCING STEEL
	(CU. YARDS)	(LBS.)	(LBS.)
POUR 1	190.9		
POUR 2	85.8		
TOTALS **	276.7	27395	20659

\*\* QUANTITIES FOR CONCRETE BARRIER RAIL ARE NOT INCLUDED.

GROOVING BRIDGE FLOORS	
APPROACH SLABS	1802 SQ. FT.
BRIDGE DECK	5116 SQ. FT.
TOTAL	6918 SQ. FT.

PROJECT NO. B-4100  
DAVIDSON COUNTY  
STATION: 24+38.00 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH

**SUPERSTRUCTURE BILL OF MATERIAL**

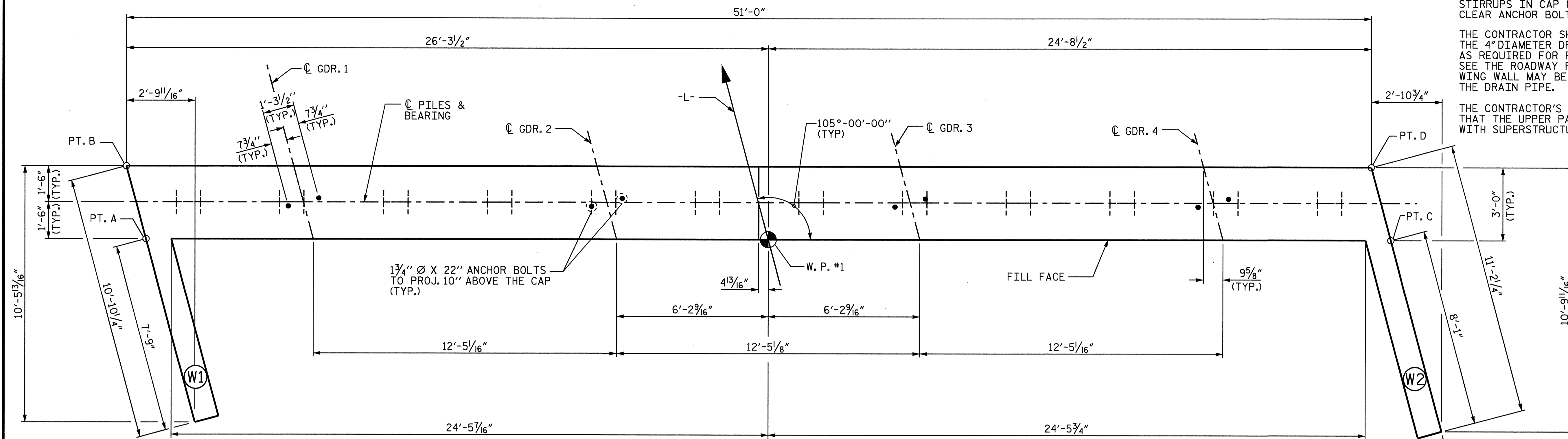
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NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS 21
2			4			

**NOTES**

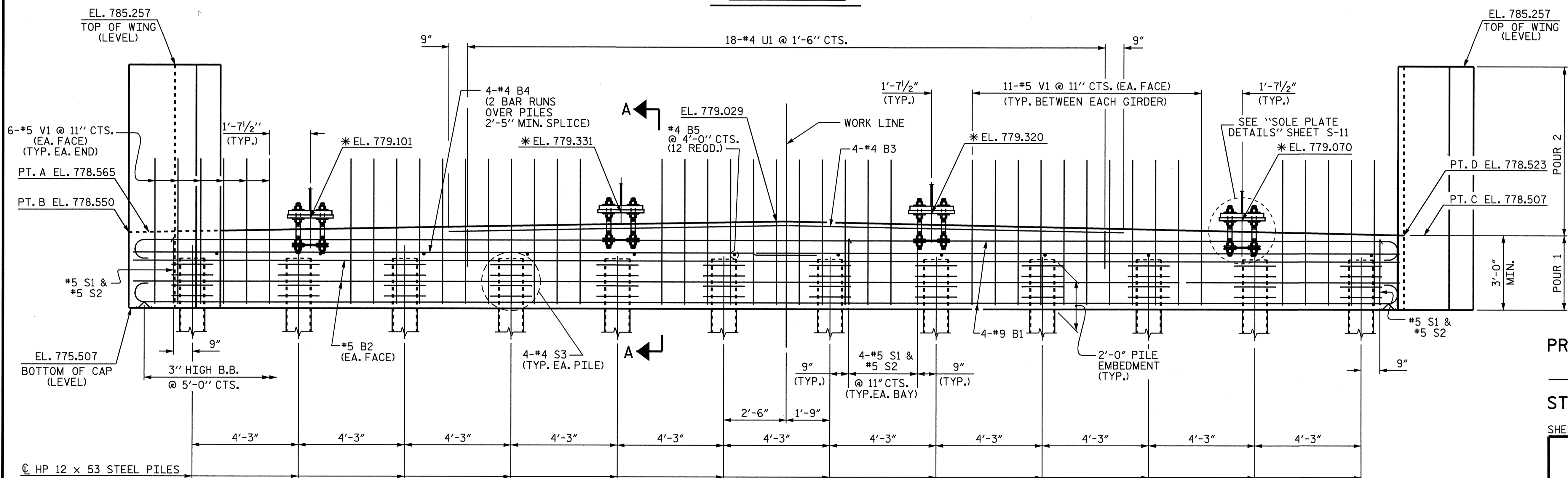
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF WINGS ARE TO BE POURED WITH SUPERSTRUCTURE.



**PLAN**



**ELEVATION**

\* BRIDGE SEAT ELEVATIONS ARE TAKEN AT BOTTOM OF SOLE PLATE

PROJECT NO. B-4100  
 DAVIDSON COUNTY  
 STATION: 24+38.00-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

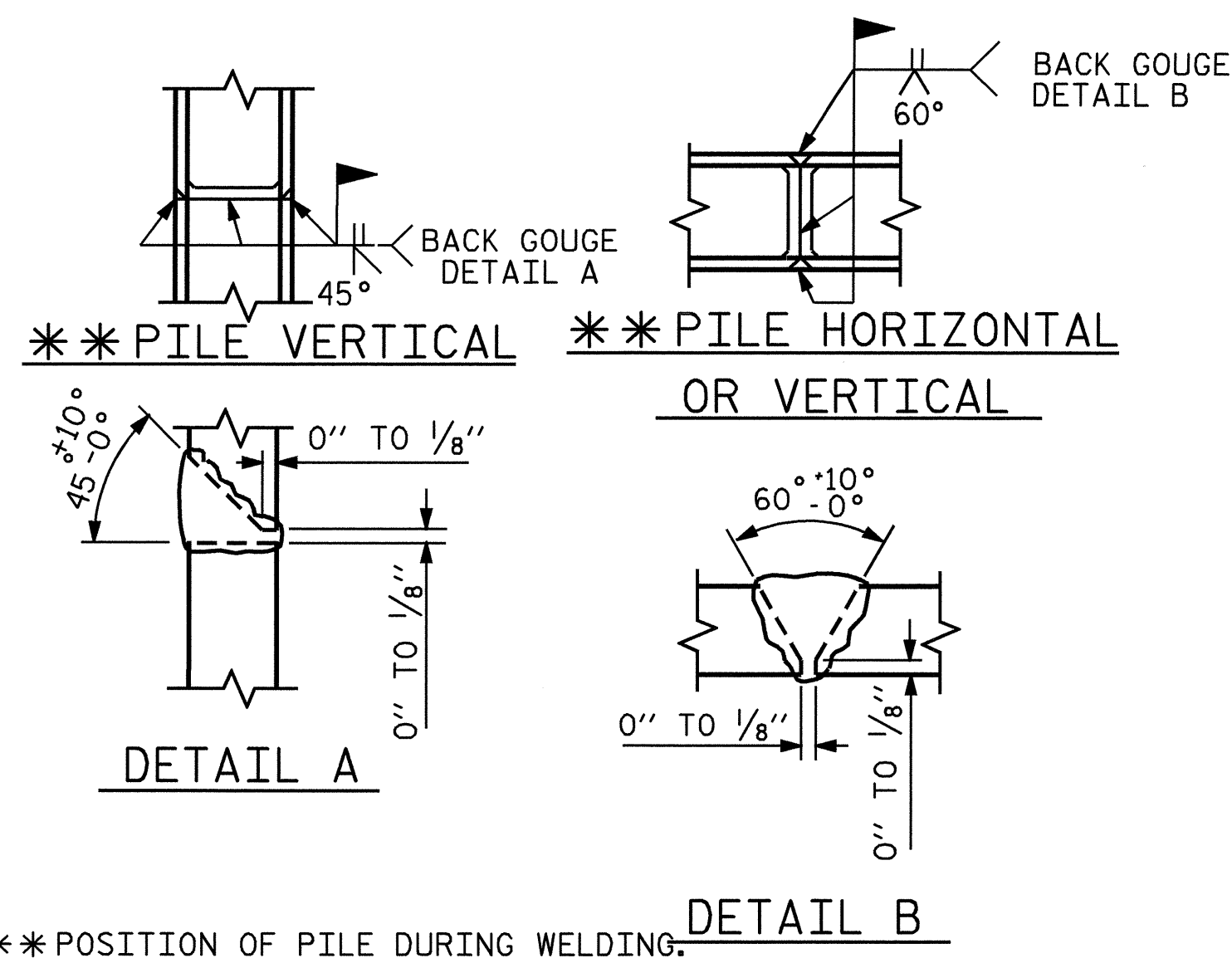
SUBSTRUCTURE  
 INTEGRAL END BENT 1



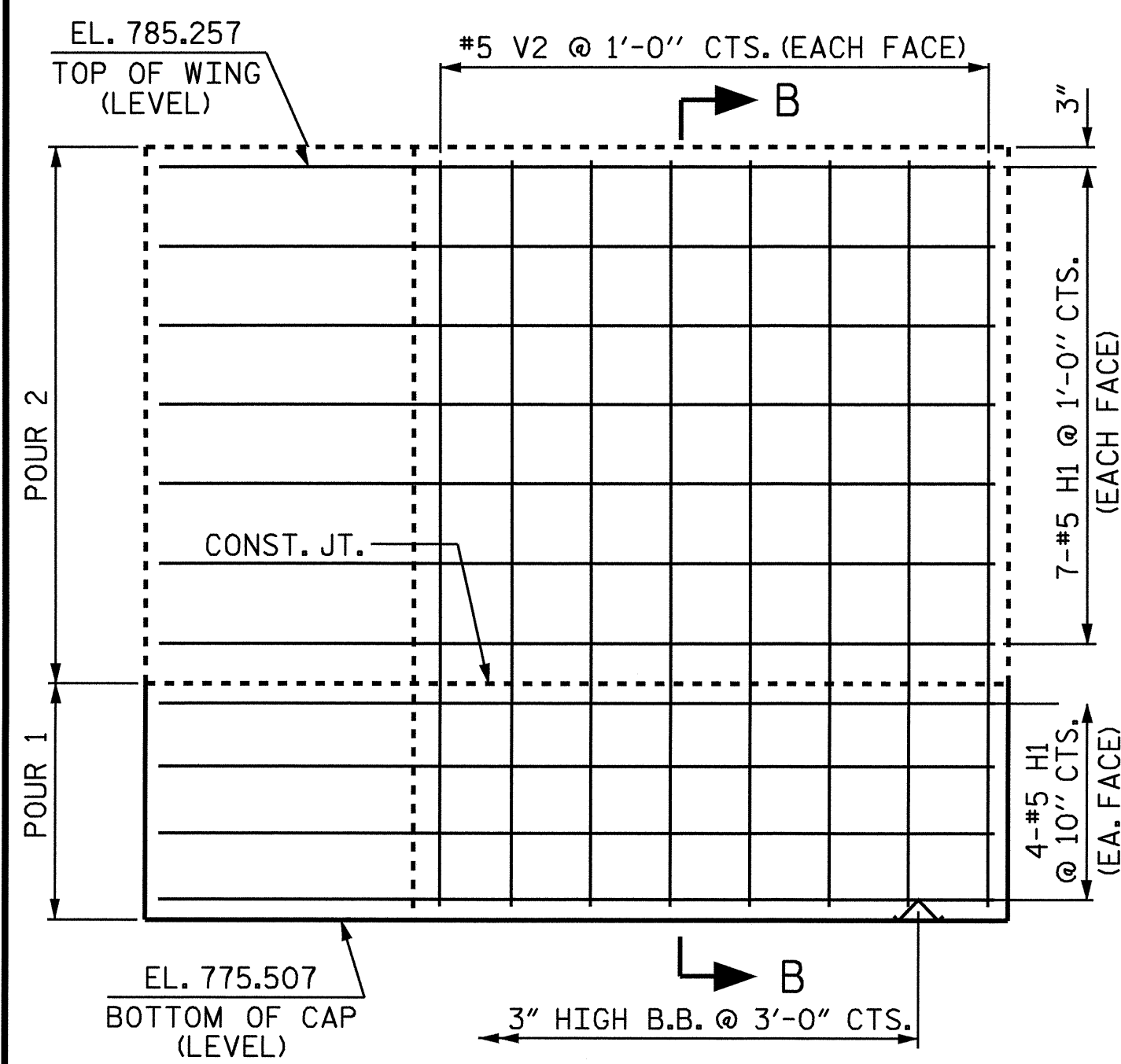
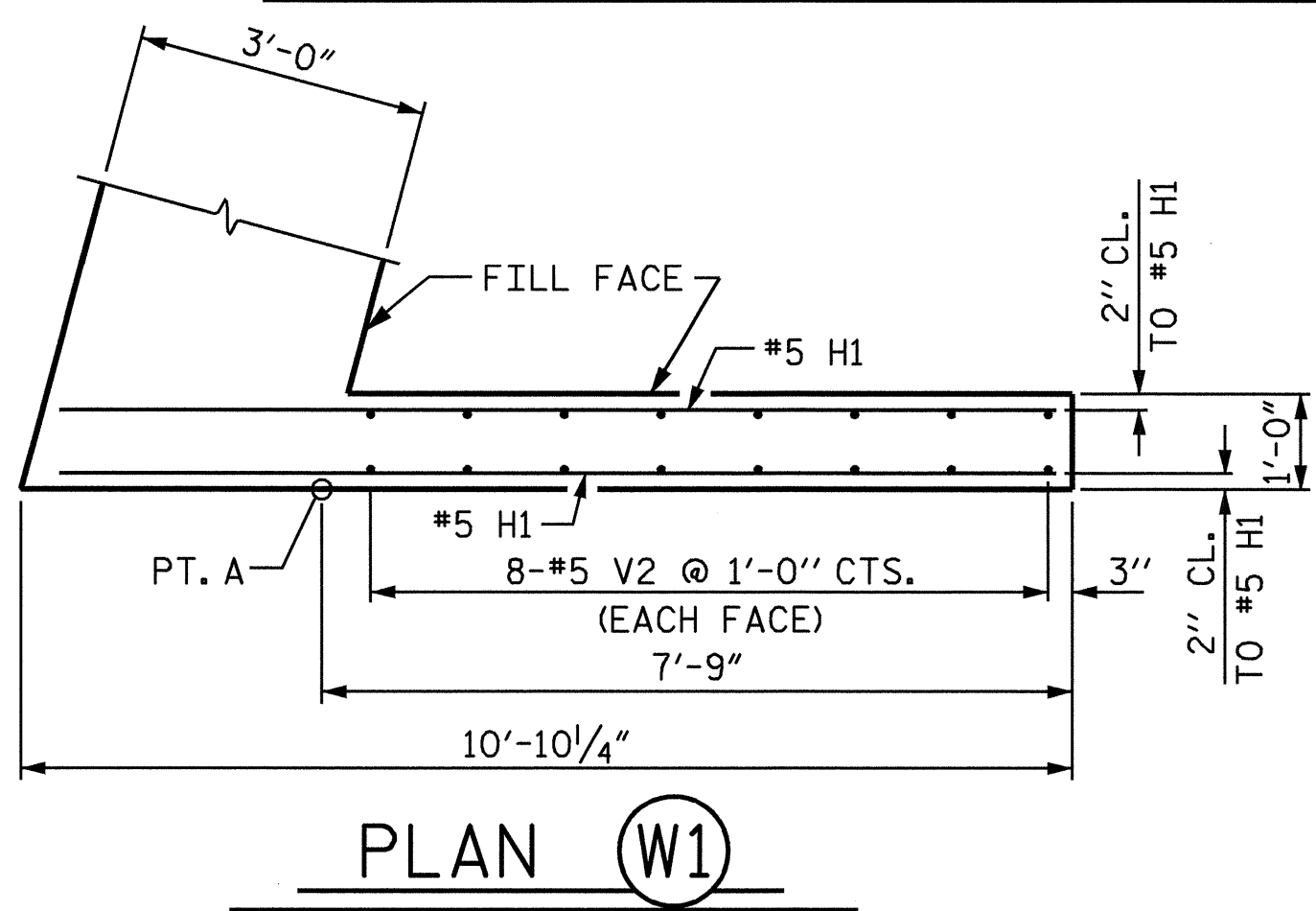
DRAWN BY : J. MYA/A. K. PATEL DATE : 4/13/06  
 CHECKED BY : J. B. WILSON DATE : 5/8/06

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





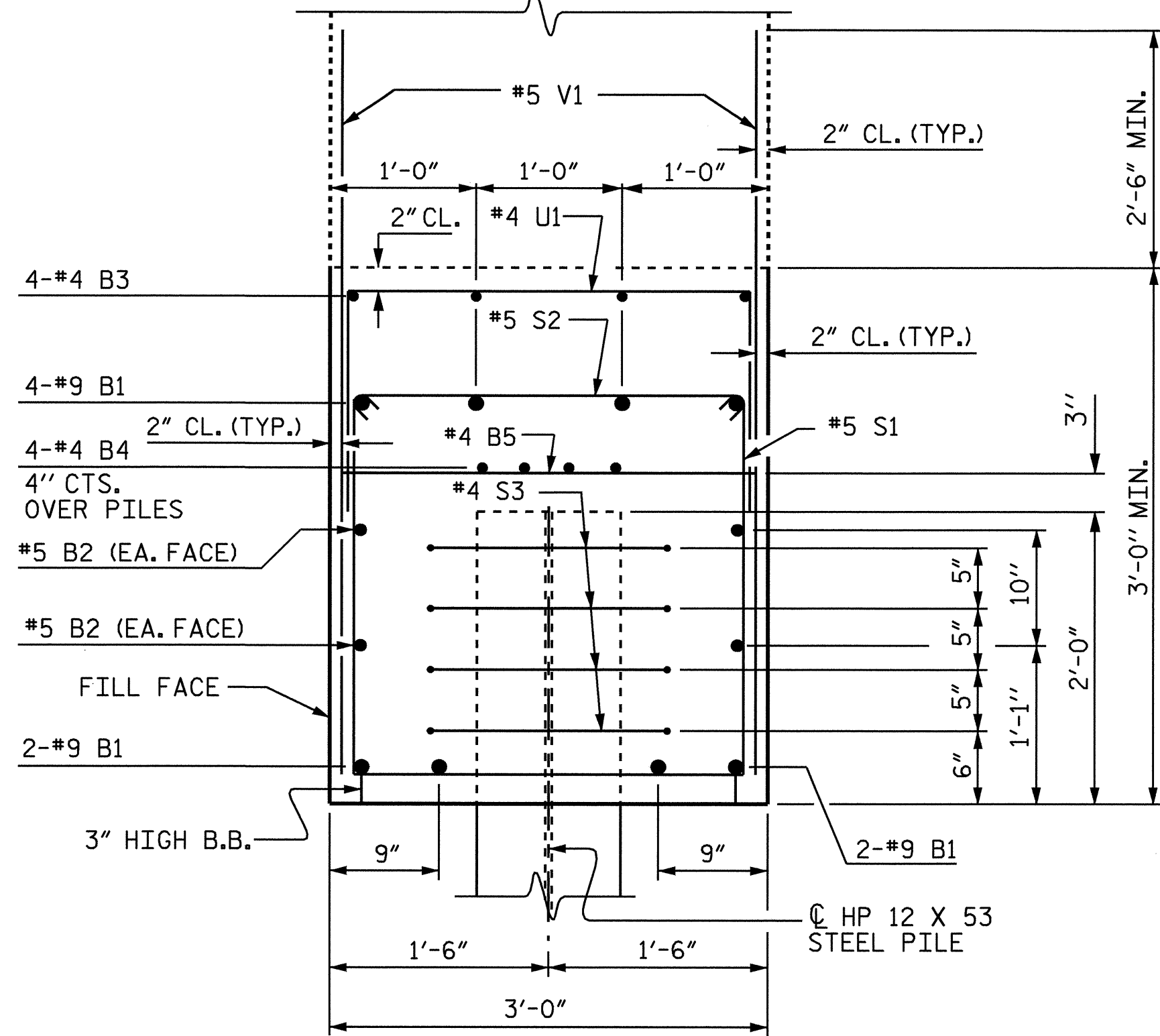
**PILE SPLICE DETAILS**



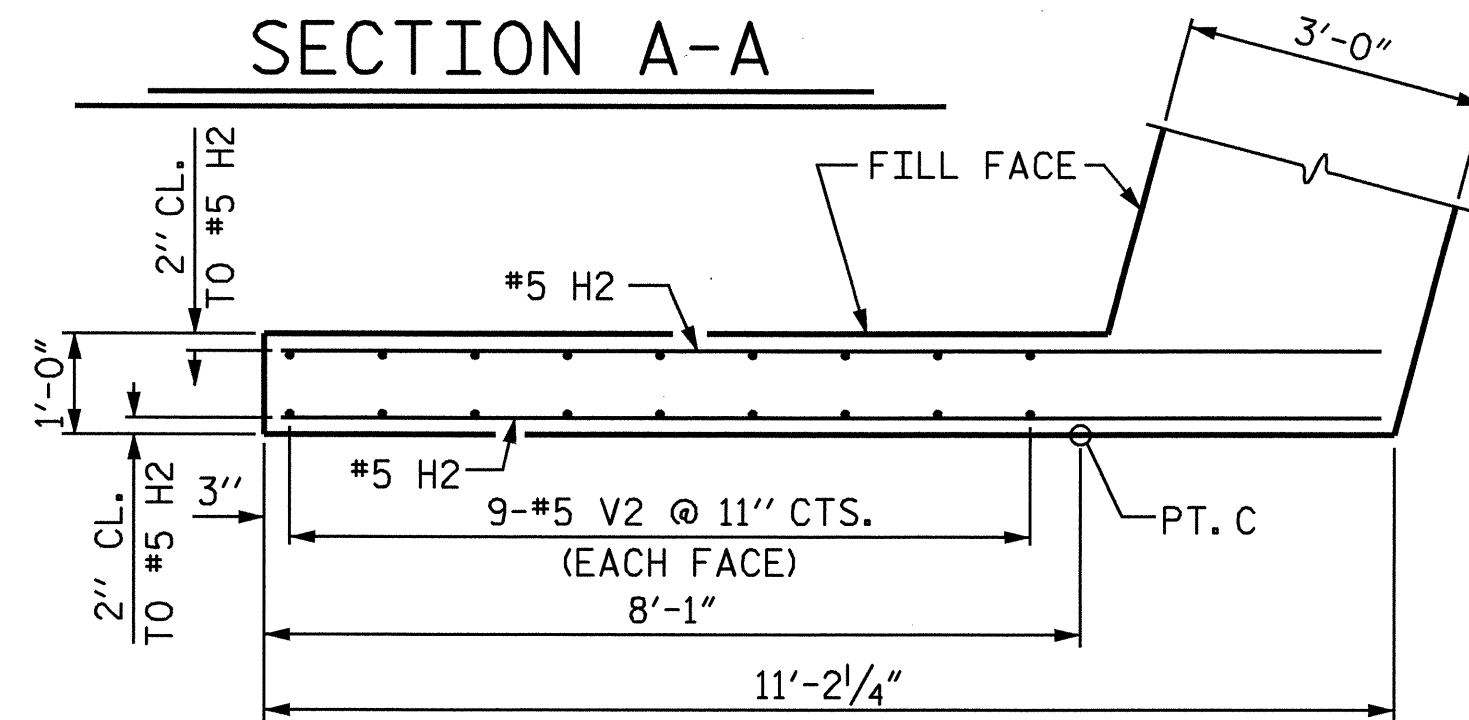
**ELEVATION (W1)**

DRAWN BY: J. MYA/A. K. PATEL     DATE: 4/13/06  
 CHECKED BY: J. W. WILSON     DATE: 5/8/06

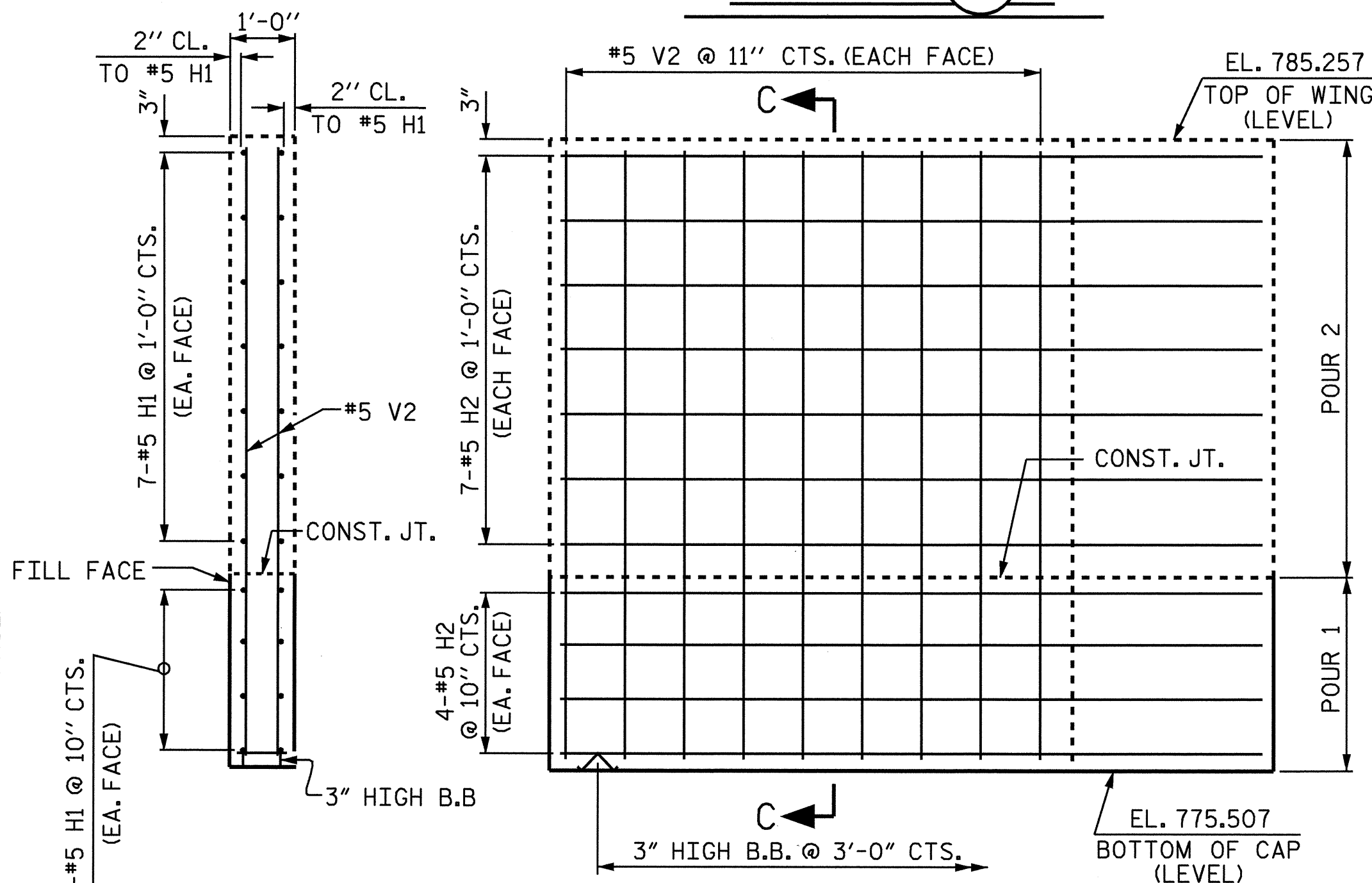
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**SECTION A-A**

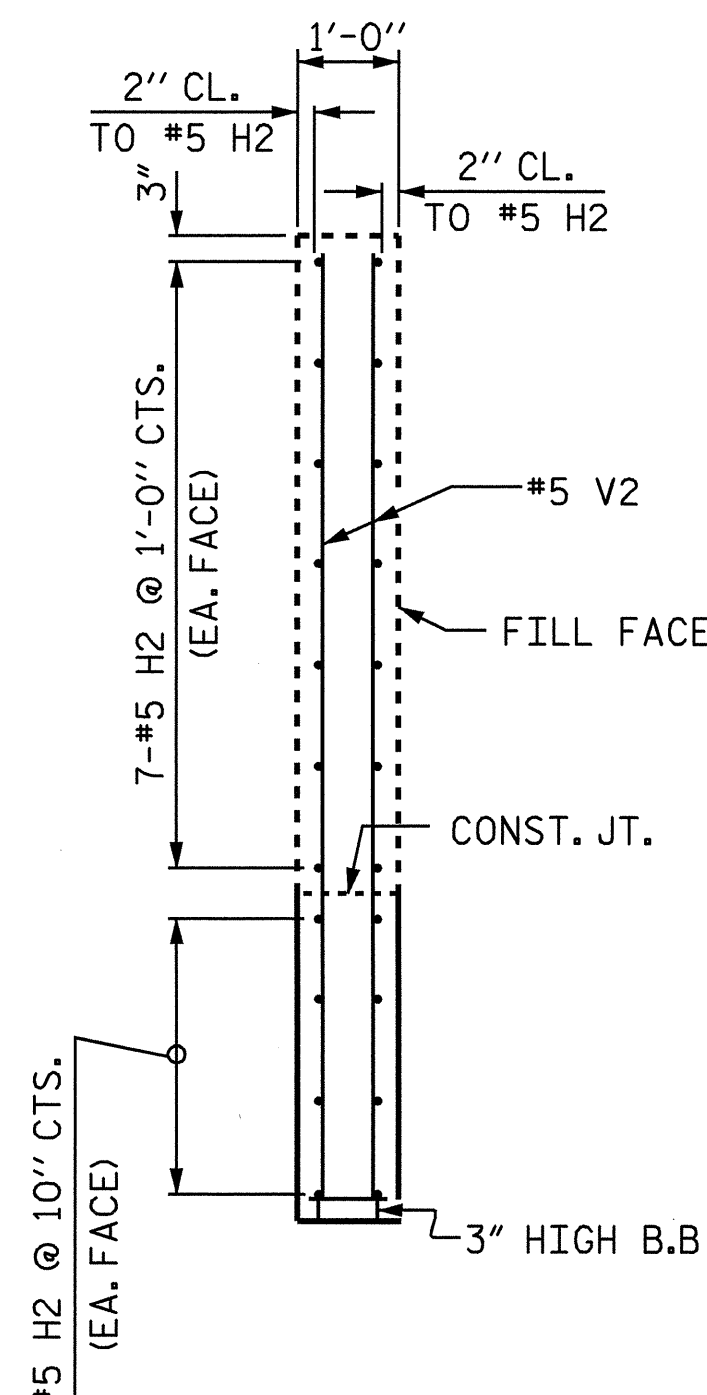


**PLAN (W2)**

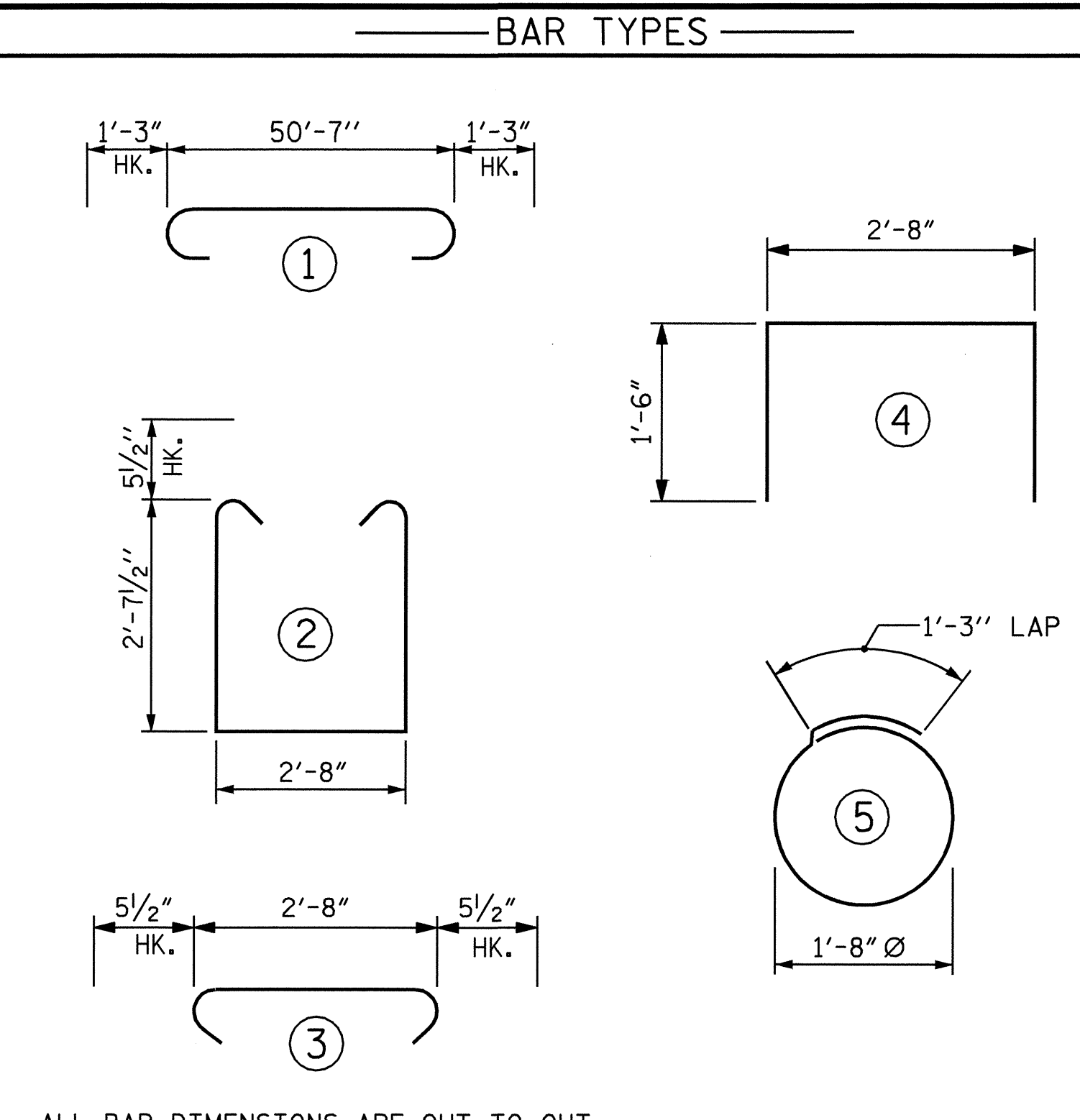


**SECTION B-B**

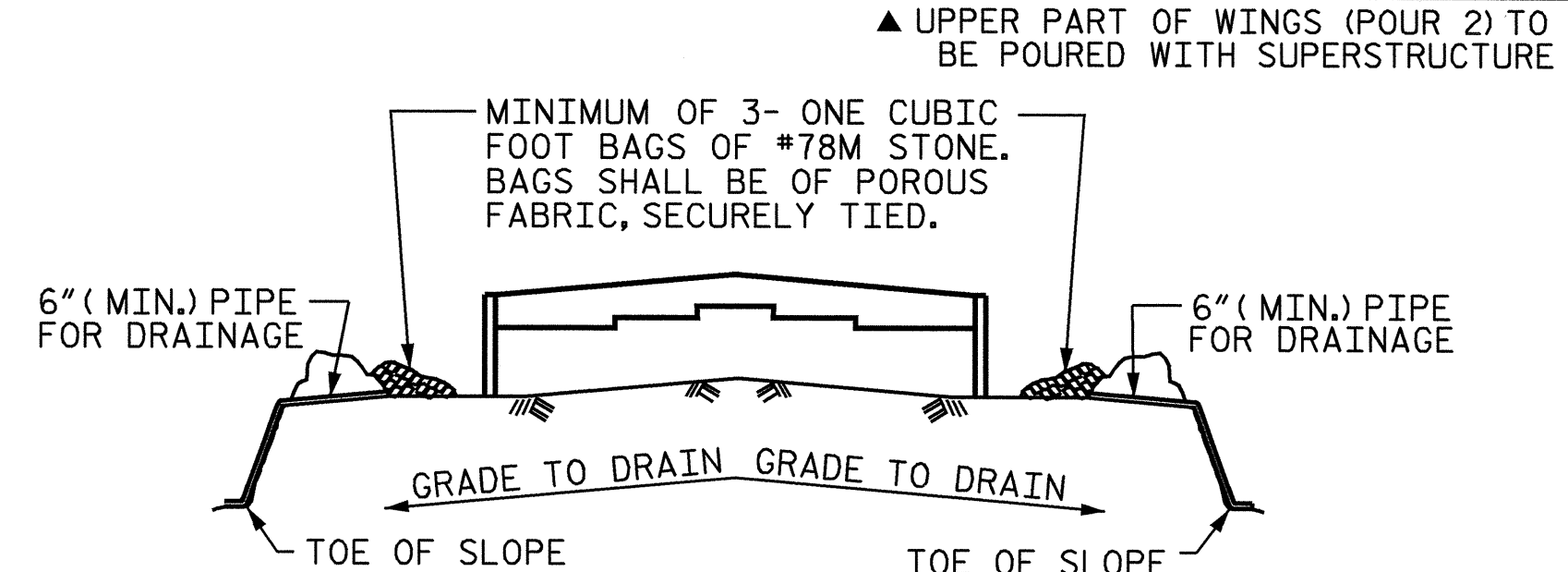
**ELEVATION (W2)**



**SECTION C-C**



BILL OF MATERIAL					
END BENT 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9		53'-1"	1444
B2	4	#5	STR	50'-8"	211
B3	4	#4	STR	27'-0"	72
B4	8	#4	STR	26'-7"	142
B5	12	#4	STR	2'-8"	21
H1	22	#5	STR	10'-3"	235
H2	22	#5	STR	10'-10"	249
S1	46	#5	2	8'-10"	424
S2	46	#5	3	3'-7"	172
S3	48	#4	5	6'-6"	208
U1	18	#4	4	5'-8"	68
V1	90	#5	STR	5'-10"	548
V2	34	#5	STR	9'-5"	334
REINFORCING STEEL					LBS 4128
CLASS A CONCRETE BREAKDOWN					
▲ POUR 1 (CAP & LOWER PART OF WINGS) C.Y.					20.3
TOTAL					C.Y. 20.3
HP 12 X 53 STEEL PILES NO. 12					300 FT.



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.

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 1					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		
					S-16
					TOTAL SHEETS 21

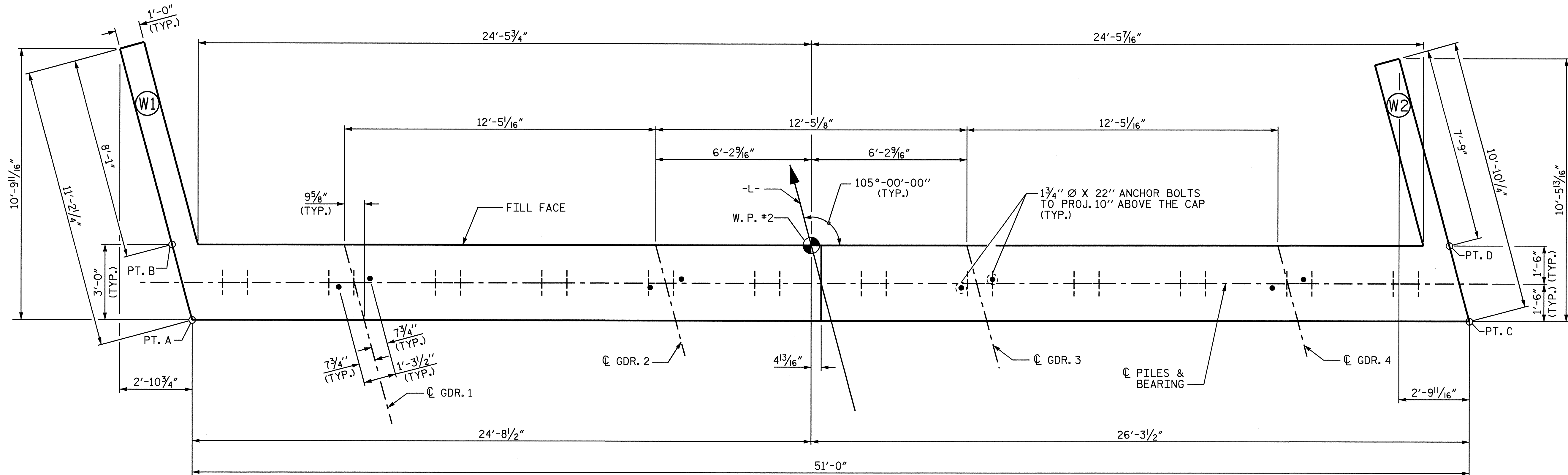
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**NOTES**

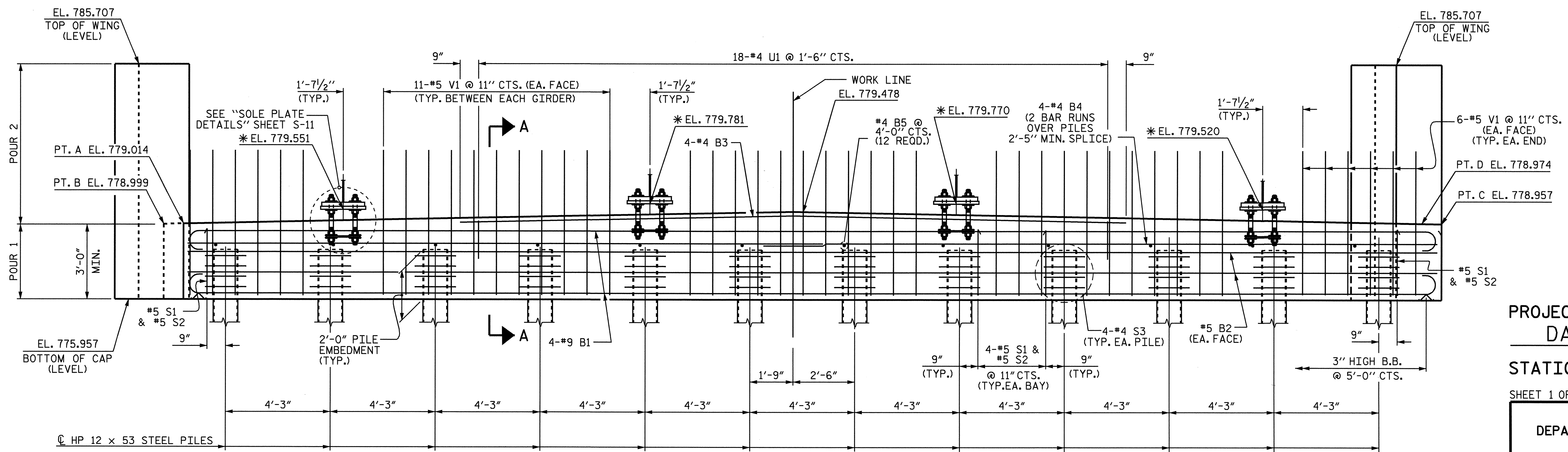
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHOR BOLTS.

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.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT THE UPPER PART OF WINGS ARE TO BE POURED WITH SUPERSTRUCTURE.



**PLAN**



**ELEVATION**

\* BRIDGE SEAT ELEVATIONS ARE TAKEN AT BOTTOM OF SOLE PLATE

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00-L-

SHEET 1 OF 2

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

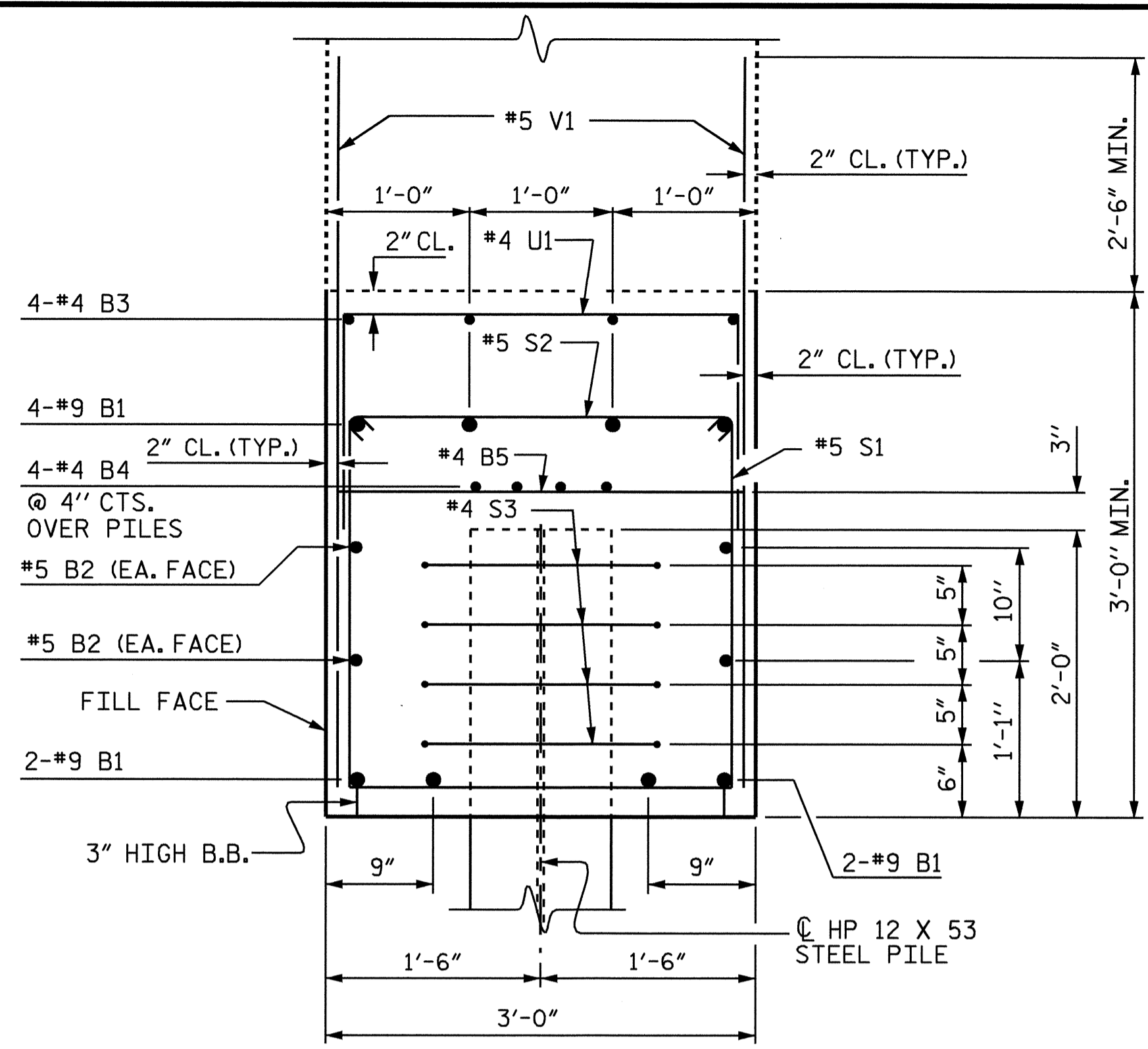
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 INTEGRAL END BENT 2



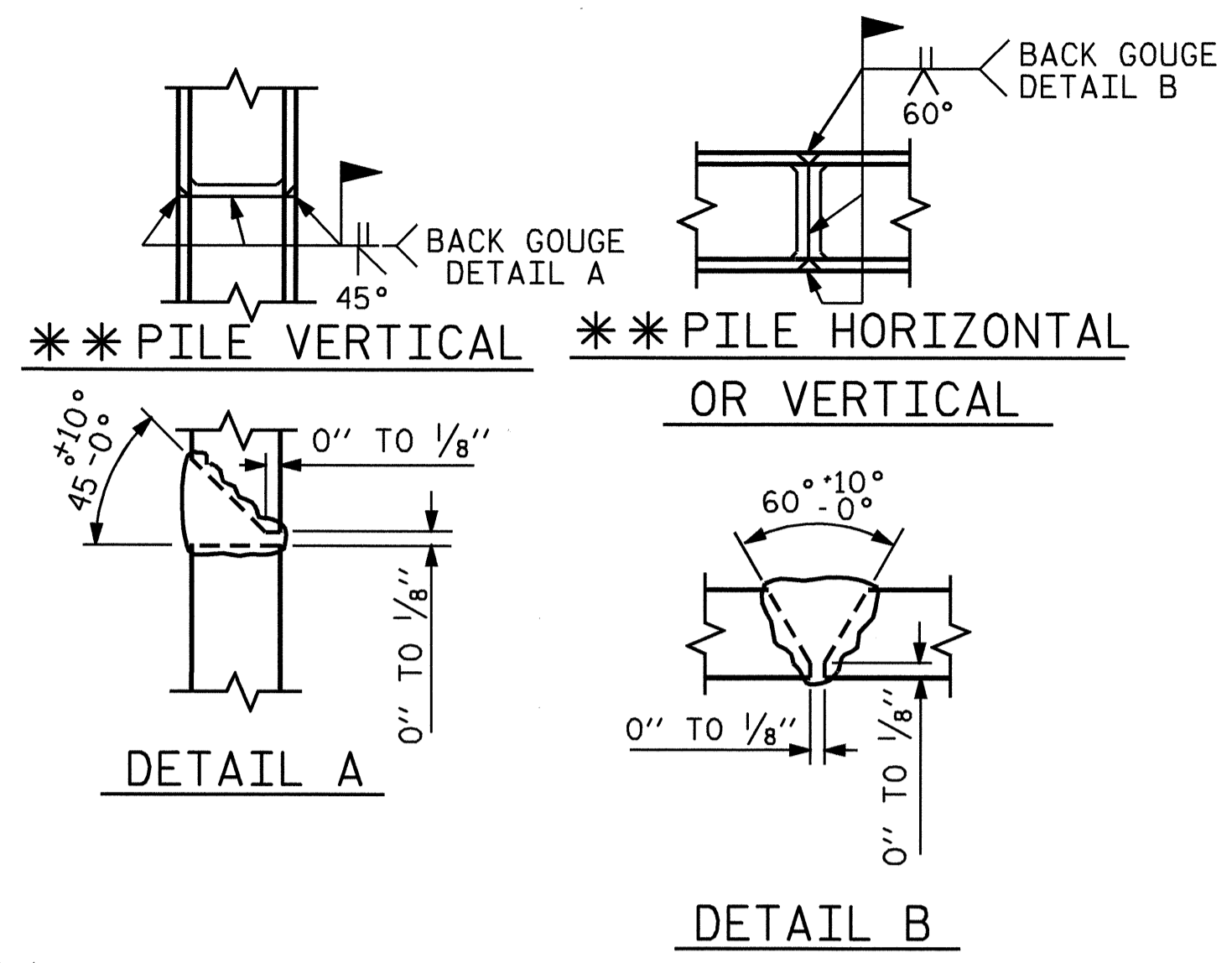
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 CHECKED BY : J. WILSON DATE : 5/8/06

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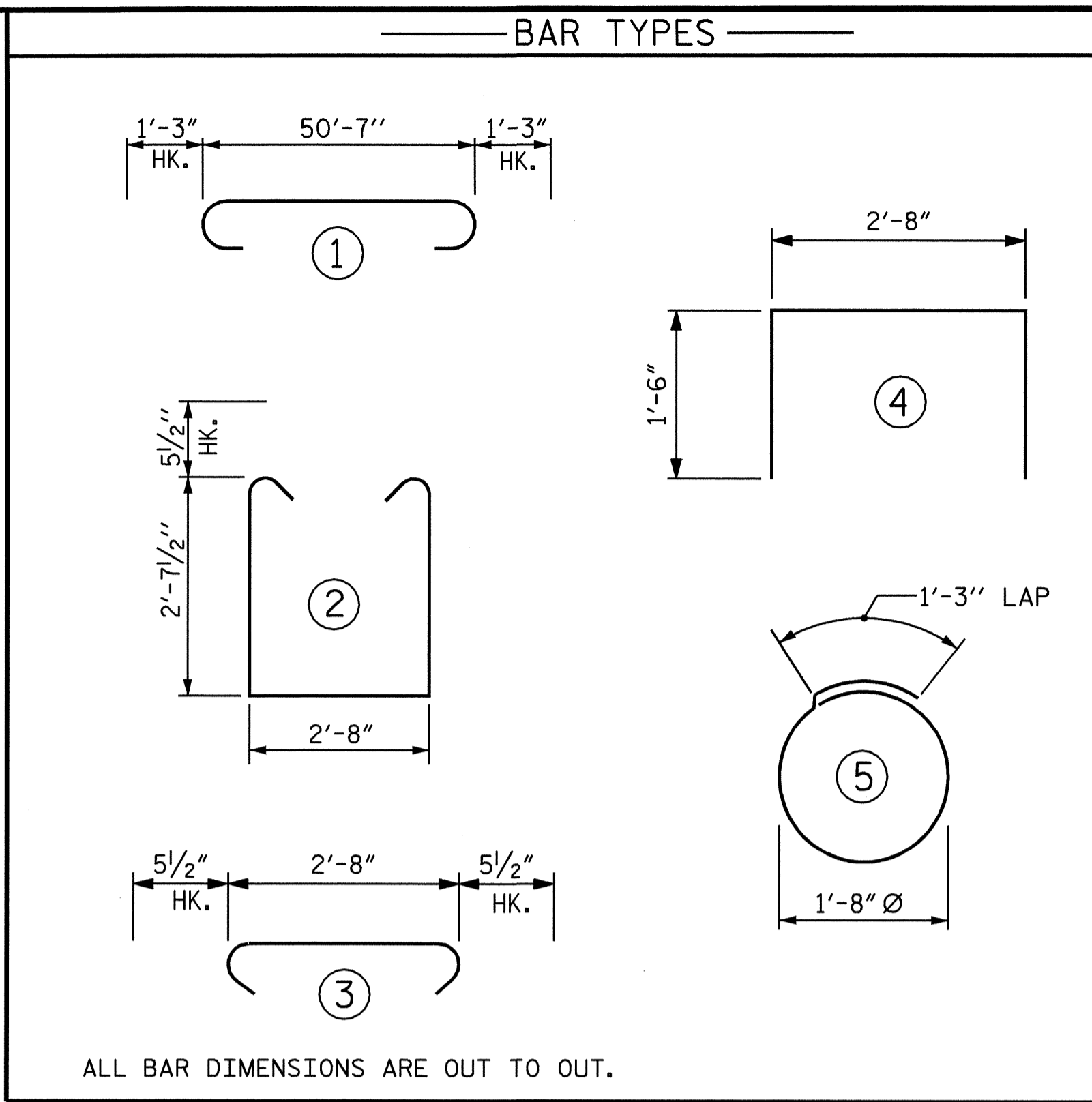
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2			4			21



SECTION A-A

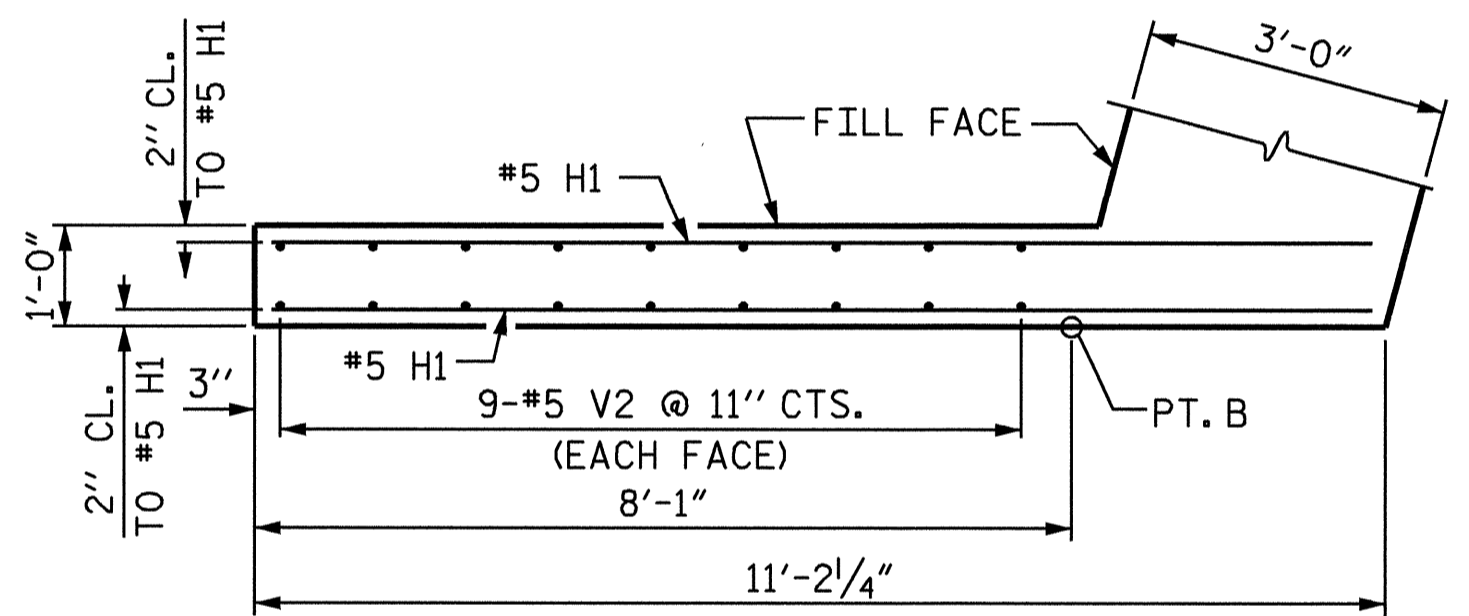


PILE SPLICE DETAILS

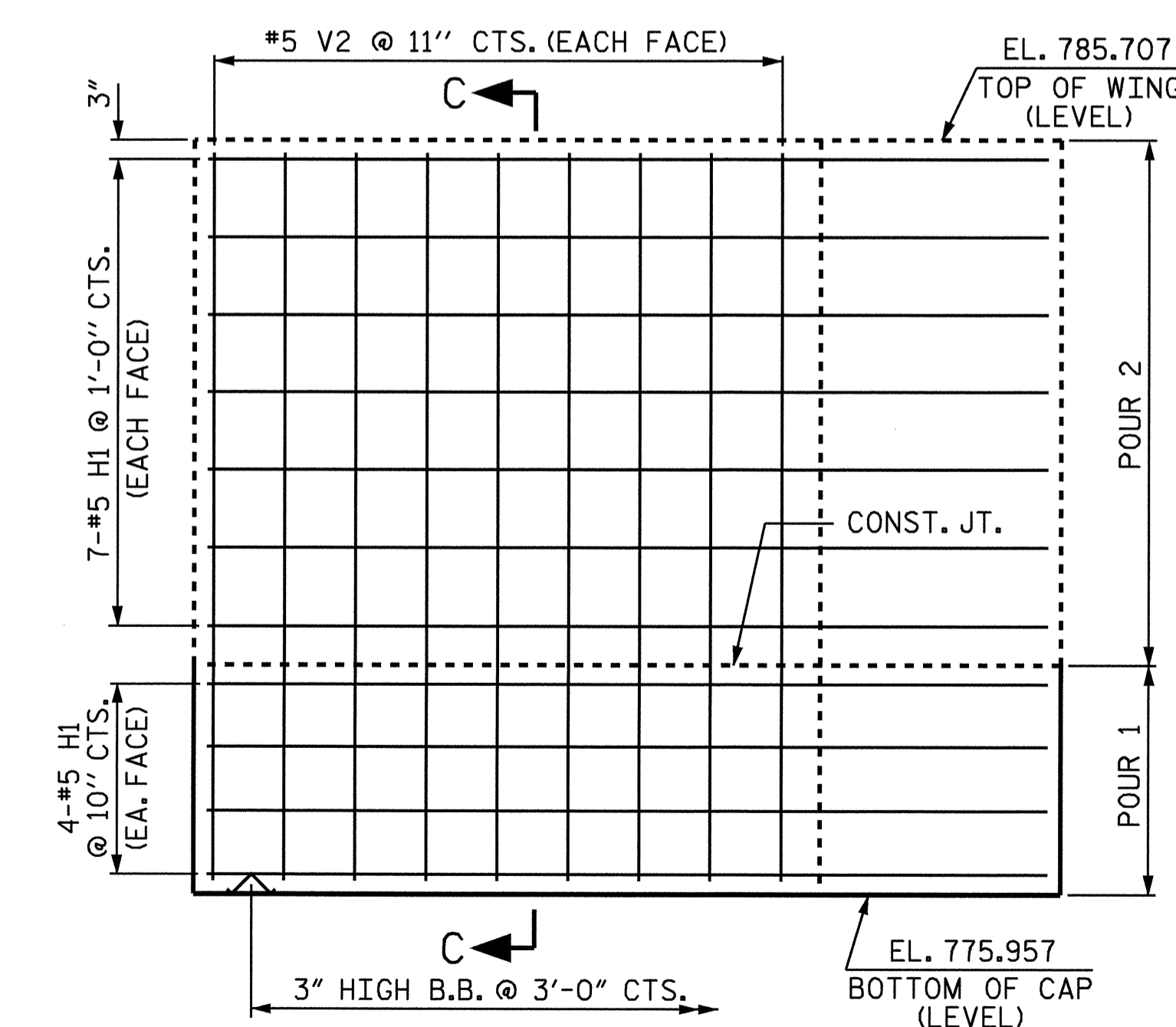


ALL BAR DIMENSIONS ARE OUT TO OUT.

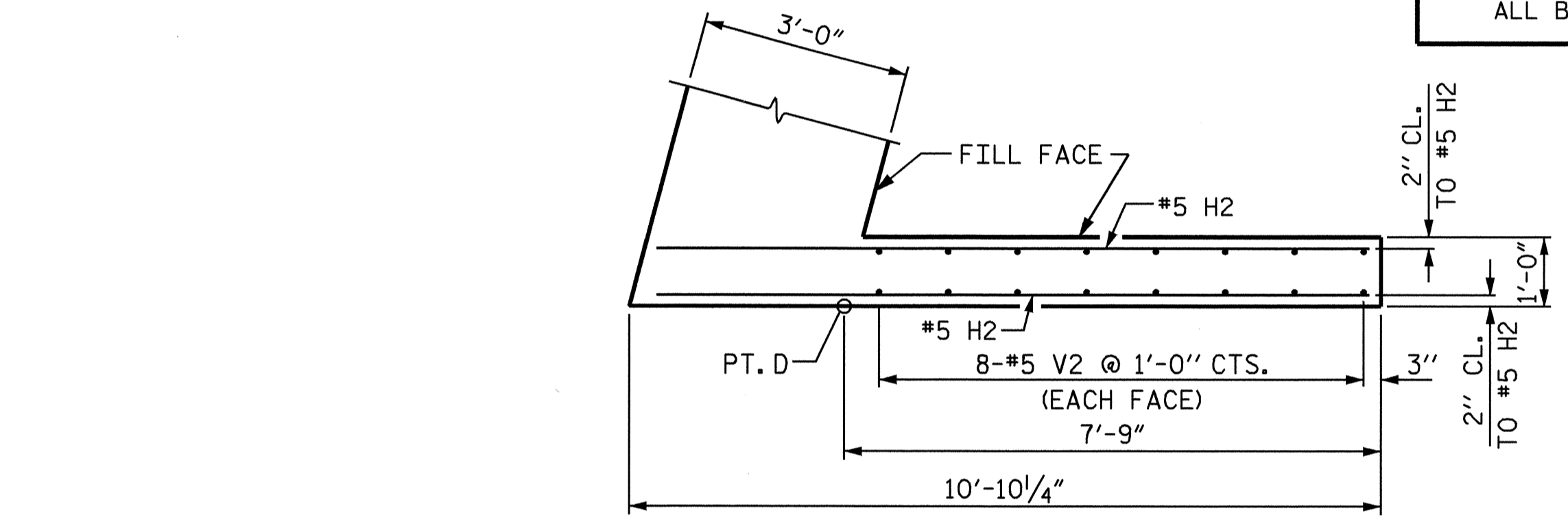
BILL OF MATERIAL					
END BENT 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	8	#9	1	53'-1"	1444
B2	4	#5	STR	50'-8"	211
B3	4	#4	STR	27'-0"	72
B4	8	#4	STR	26'-7"	142
B5	12	#4	STR	2'-8"	21
H1	22	#5	STR	10'-10"	249
H2	22	#5	STR	10'-3"	235
S1	46	#5	2	8'-10"	424
S2	46	#5	3	3'-7"	172
S3	48	#4	5	6'-6"	208
U1	18	#4	4	5'-8"	68
V1	90	#5	STR	5'-10"	548
V2	34	#5	STR	9'-5"	334
REINFORCING STEEL					LBS 4128
CLASS A CONCRETE BREAKDOWN					
▲ POUR 1 (CAP & LOWER PART OF WINGS) C.Y.					20.3
TOTAL					C.Y. 20.3
HP 12 X 53 STEEL PILES					600 FT.
NO. 12					



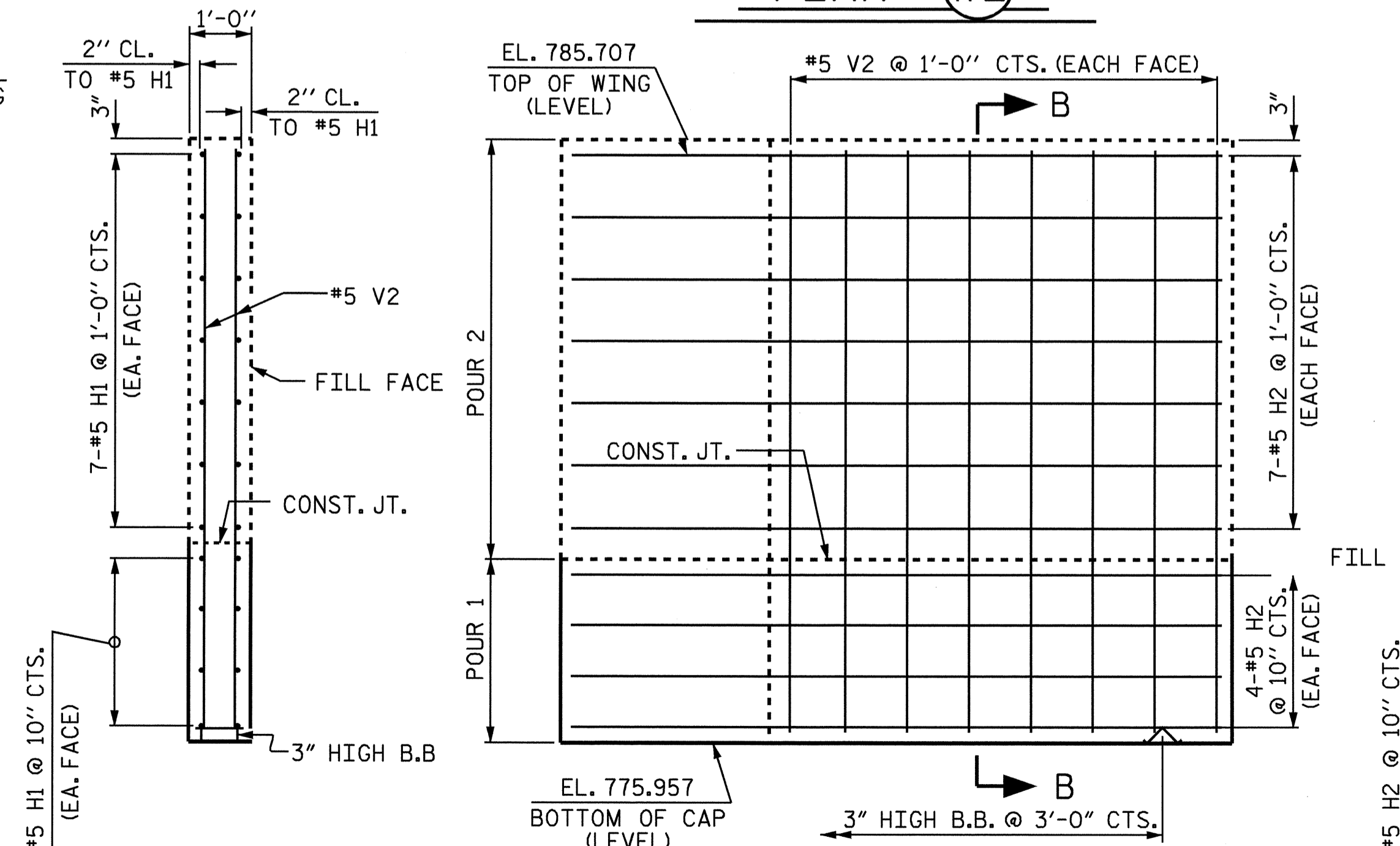
PLAN (W1)



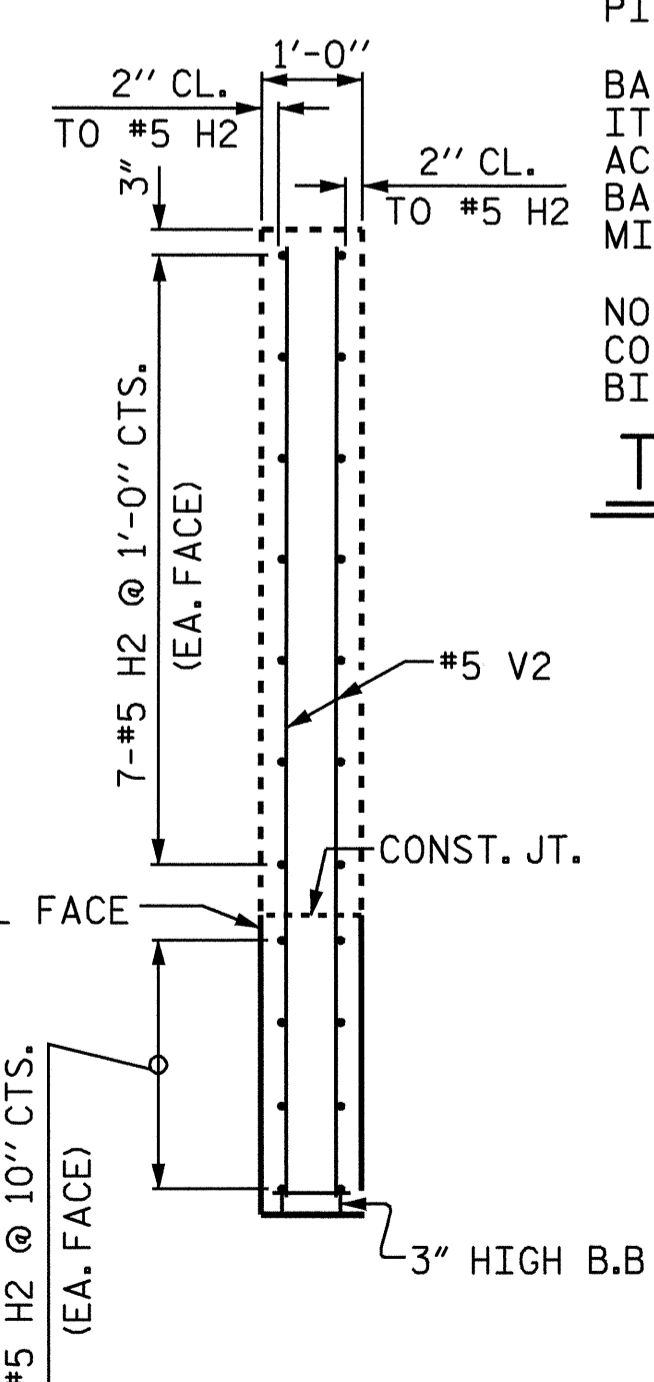
ELEVATION (W1)



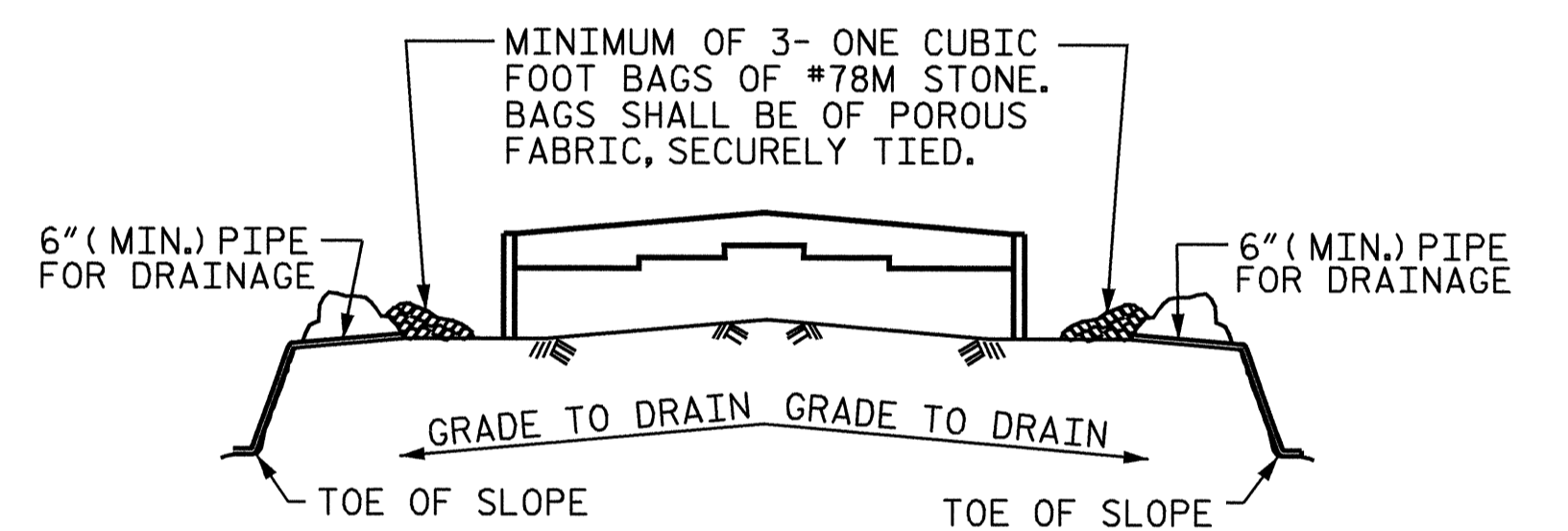
PLAN (W2)



SECTION C-C



SECTION B-B



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

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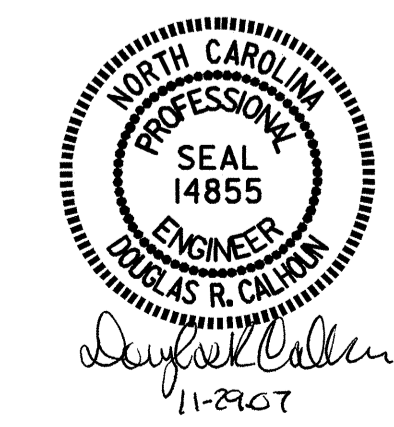
NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

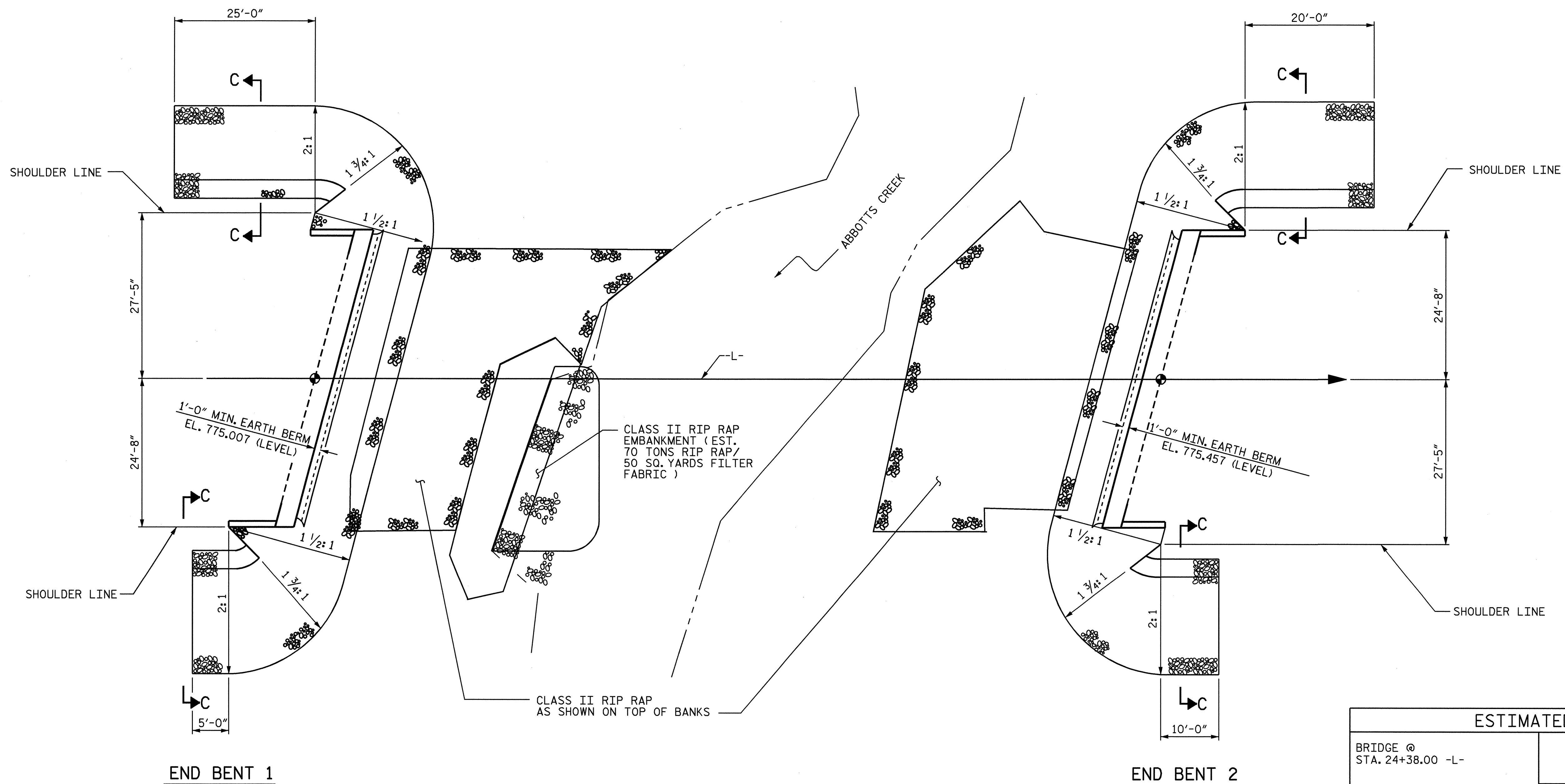
PROJECT NO. B-4100  
DAVIDSON COUNTY  
STATION: 24+38.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE INTEGRAL END BENT 2					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 21



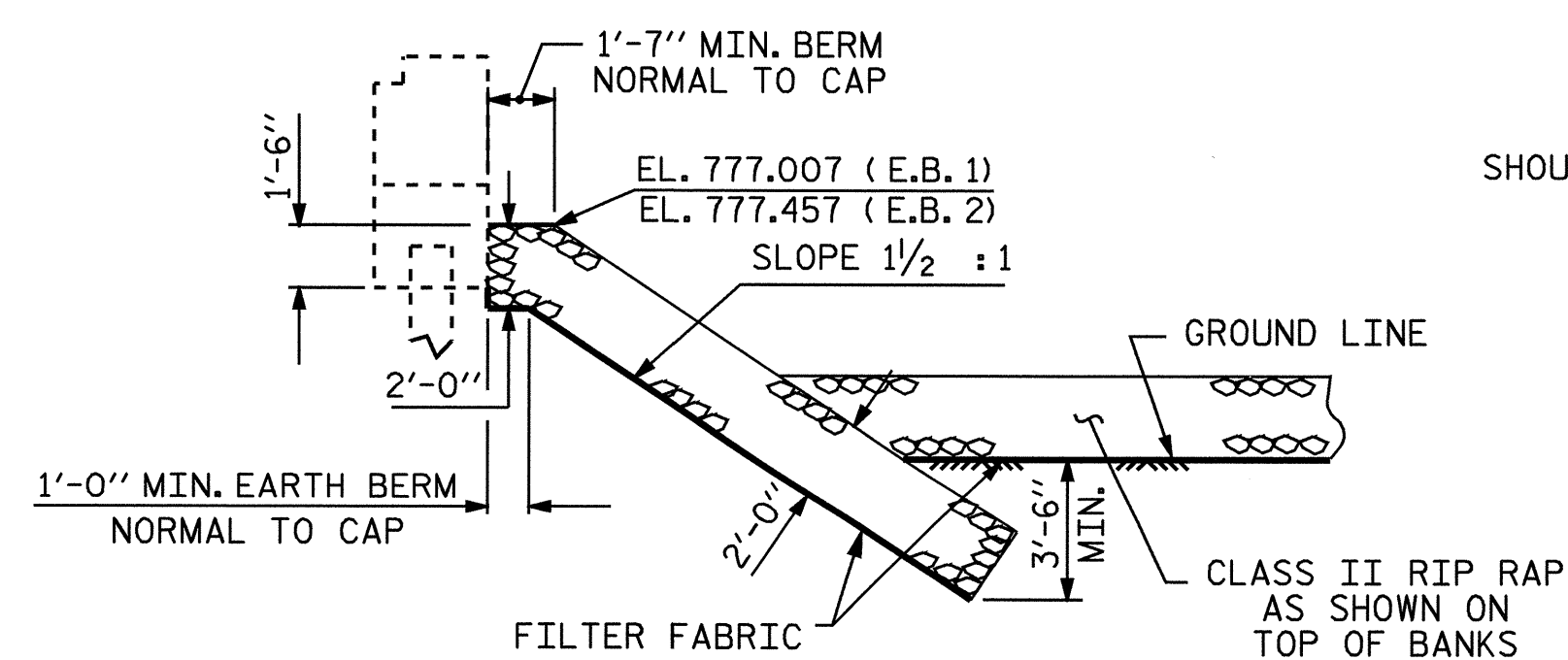
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CHECKED BY: J. W. WILSON DATE: 5/8/06



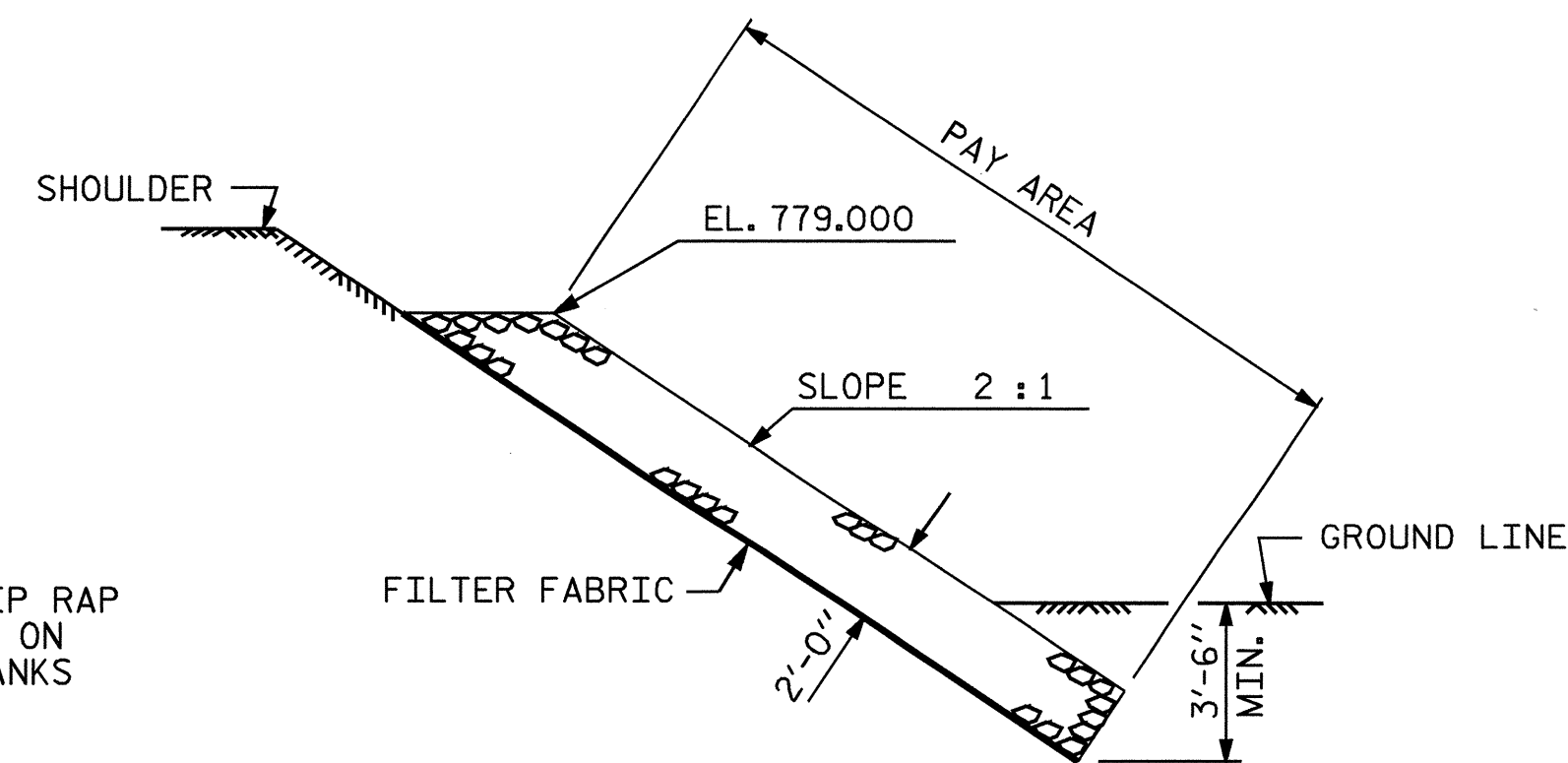
PLAN

ESTIMATED QUANTITIES		
BRIDGE @ STA. 24+38.00 -L-	RIP RAP CLASS II ( 2'-0" THICK )	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT 1	▲ 333	▲ 370
END BENT 2	330	367

▲ INCLUDES EMBANKMENT TO BE FILLED



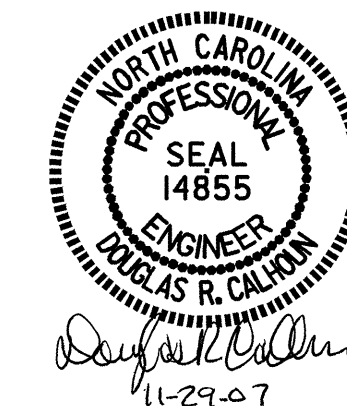
SECTION  
BERM RIP RAPPED



SECTION C-C

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

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

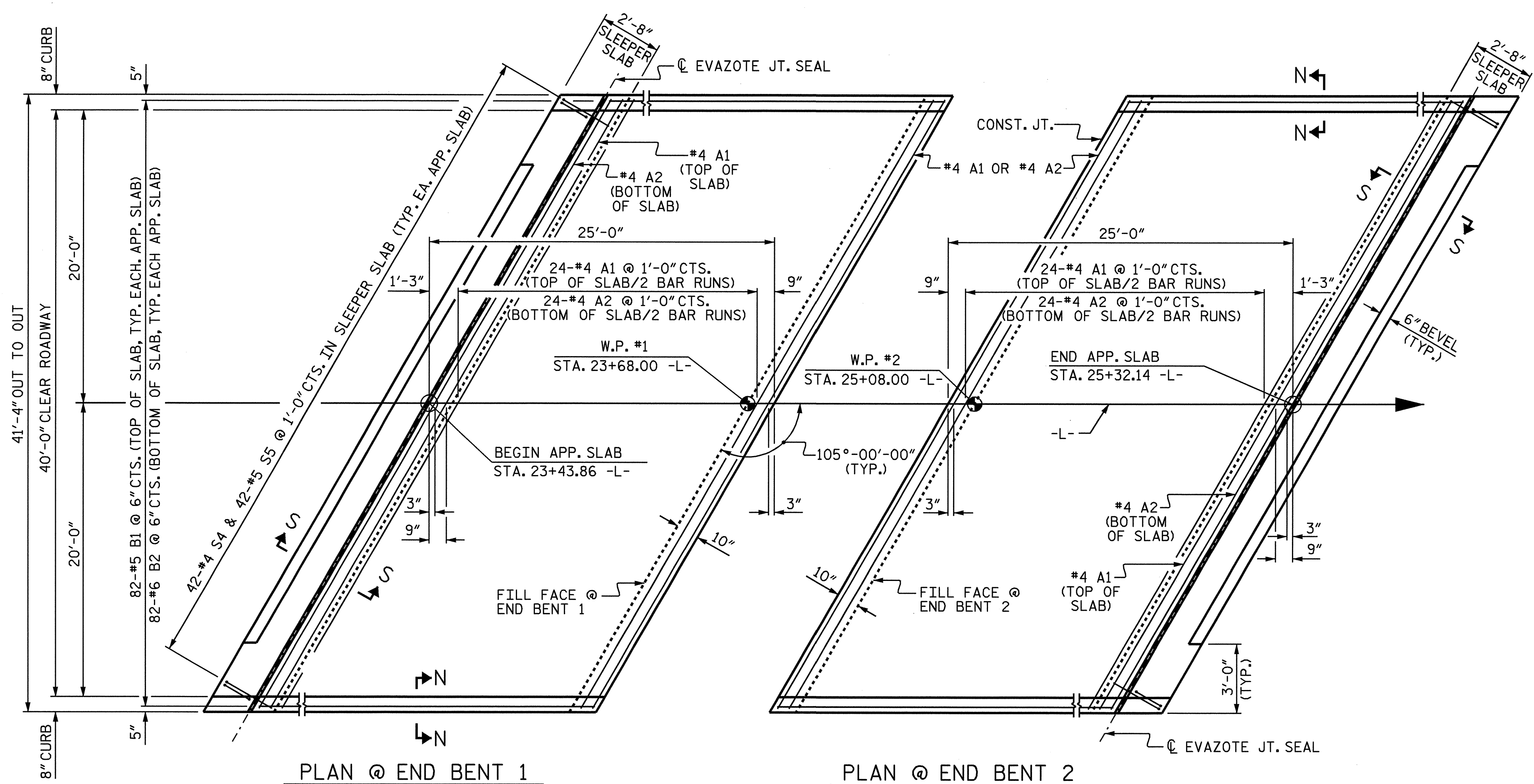


ASSEMBLED BY : E. G. ALLEN	DATE : 2/01/07
CHECKED BY : A. K. PATEL	DATE : 7/19/07
DRAWN BY : REK 1/84	REV. 8/16/99 RWW/LES
CHECKED BY : RDU 1/84	REV. 10/17/00 RWW/LES
	REV. 5/1/06 TLA/GM

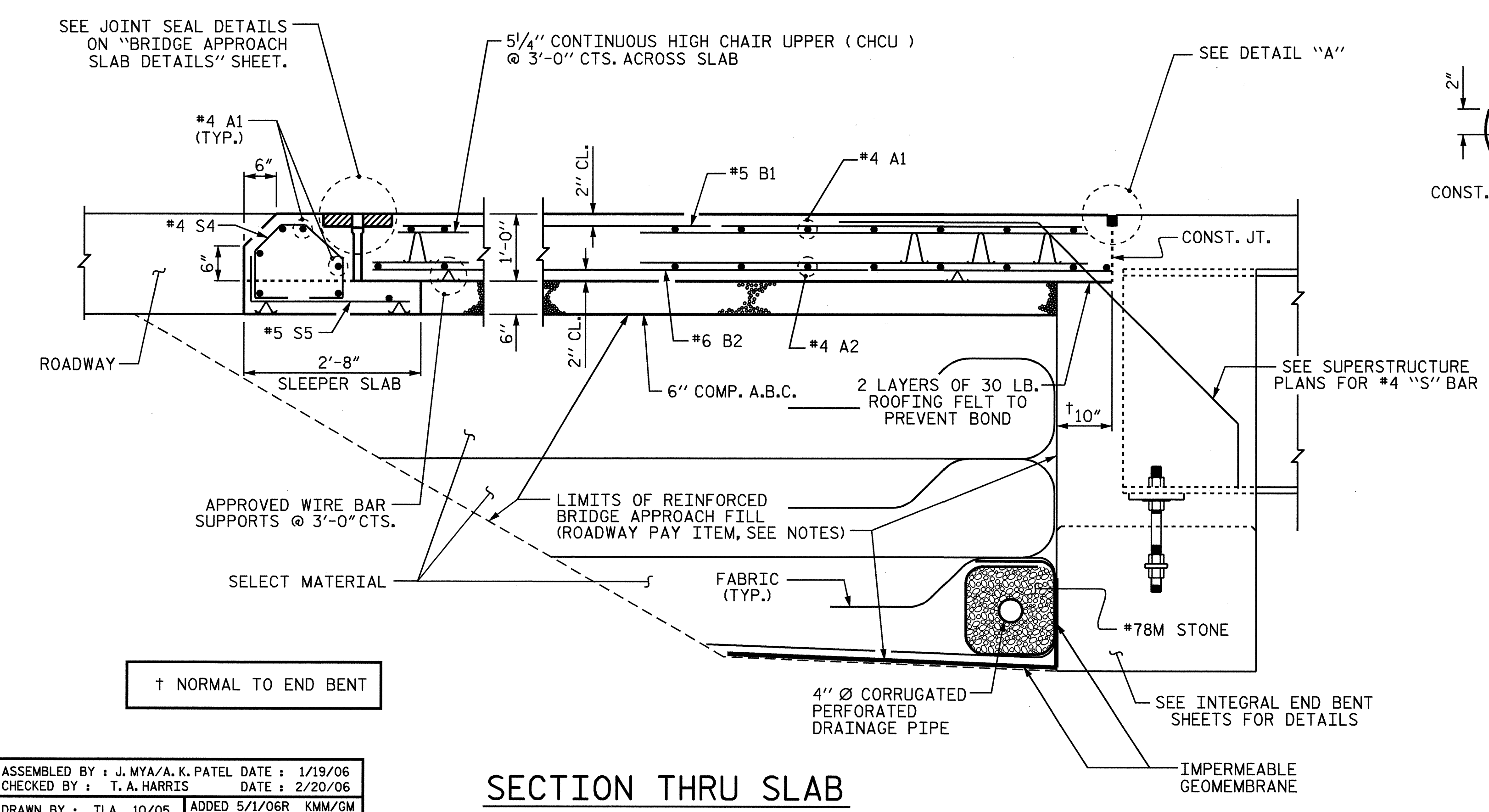
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			21
2			4			

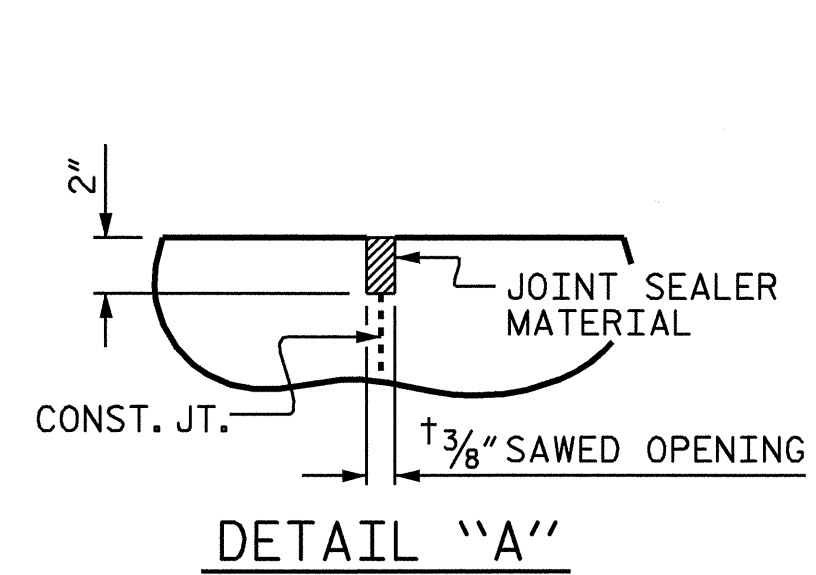
STD. NO. RR3



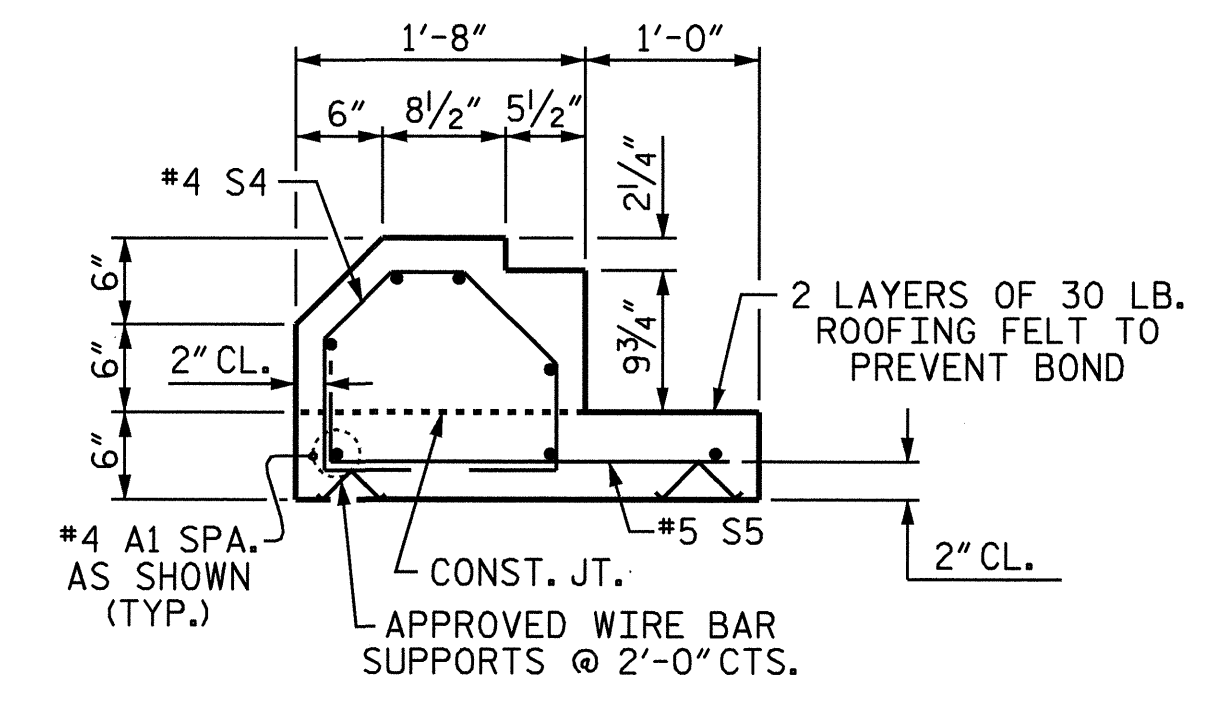
PLAN @ END BENT 1  
 PLAN @ END BENT 2  
 DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS. #4 A1 BARS IN SLEEPER SLAB NOT SHOWN FOR CLARITY.



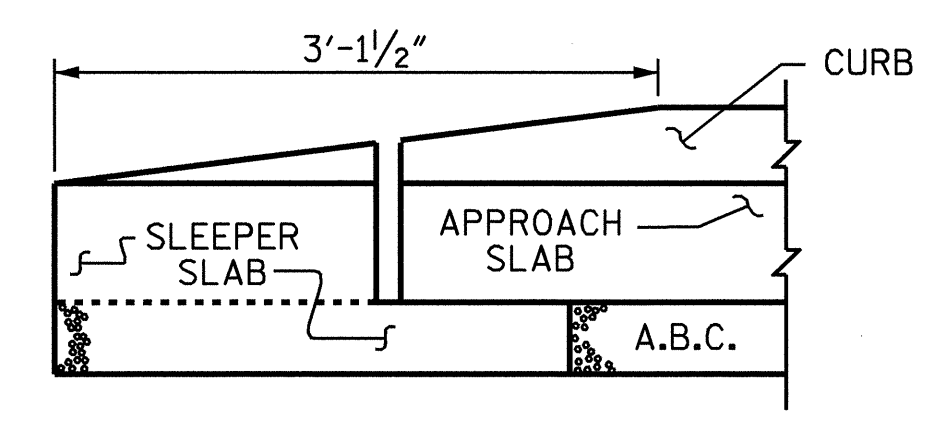
SECTION THRU SLAB



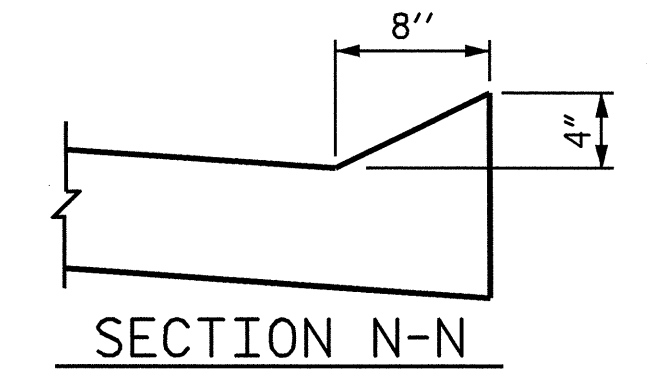
DETAIL "A"



SECTION S-S  
 SHOWING SLEEPER SLAB  
 (SLEEPER SLAB FOOTING TO BE  
 POURED WITH APPROACH SLAB)



END OF CURB WITHOUT  
 SHOULDER BERM GUTTER  
 (OMIT TAPER WHEN SHOULDER  
 BERM GUTTER IS REQUIRED)



SECTION N-N

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 OF EACH EDGE OF THE APPROACH SLAB.

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

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

FOR EVAZOTE JOINT SEALS, SEE SPECIAL PROVISIONS.

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

FOR ELASTOMERIC CONCRETE, SEE SPECIAL PROVISIONS.

BILL OF MATERIAL

FOR ONE APPROACH SLAB  
 (2 REQ'D)

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* A1	66	#4	STR	22'-3"	981
A2	52	#4	STR	22'-2"	770
* B1	82	#5	STR	24'-2"	2067
B2	82	#6	STR	24'-7"	3028
* S4	42	#4	1	4'-1"	115
S5	42	#5	2	3'-0"	131

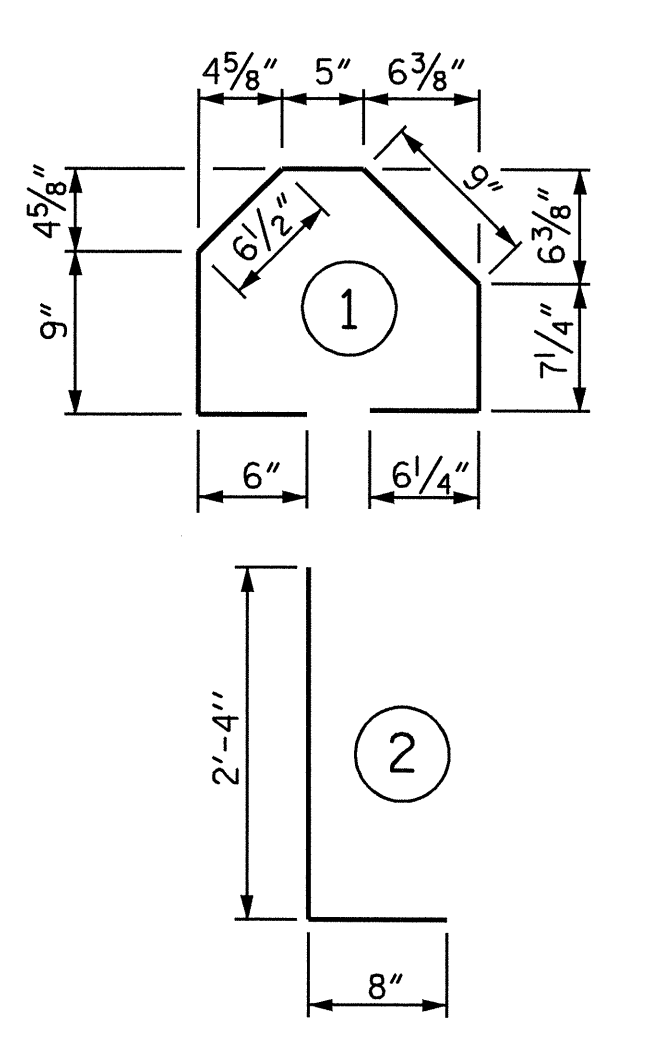
REINFORCING STEEL LBS. 3929  
 \* EPOXY COATED REINFORCING STEEL LBS. 3163

CLASS AA CONCRETE

POUR #1 - SLAB & CURB C.Y. 40.3  
 POUR #2 - SLEEPER SLAB C.Y. 2.3

TOTAL C.Y. 42.6

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

SPLICE LENGTH CHART

BAR	MIN. SPLICE
#4 A1	2'-0"
#4 A2	1'-9"

PROJECT NO. B-4100  
 DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 1 OF 2  
 STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH  
 STANDARD  
 BRIDGE APPROACH SLAB  
 FOR INTEGRAL ABUTMENT



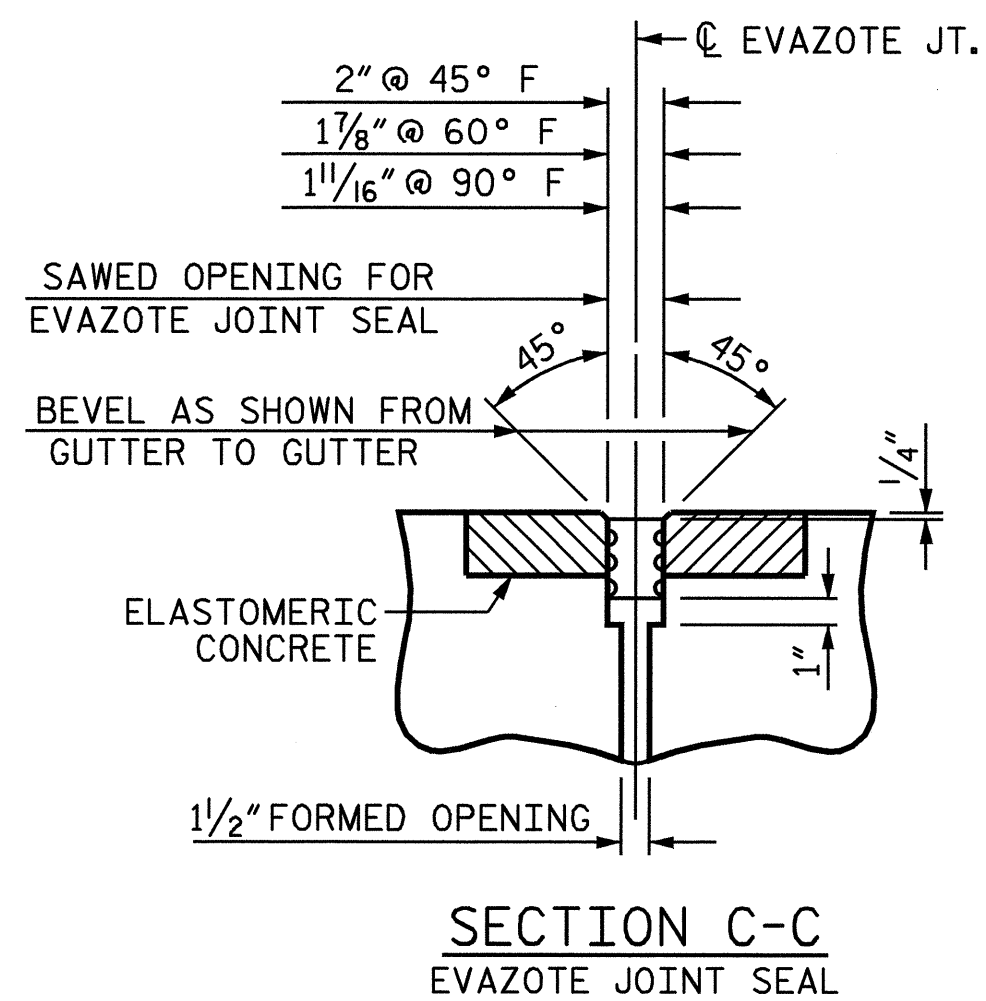
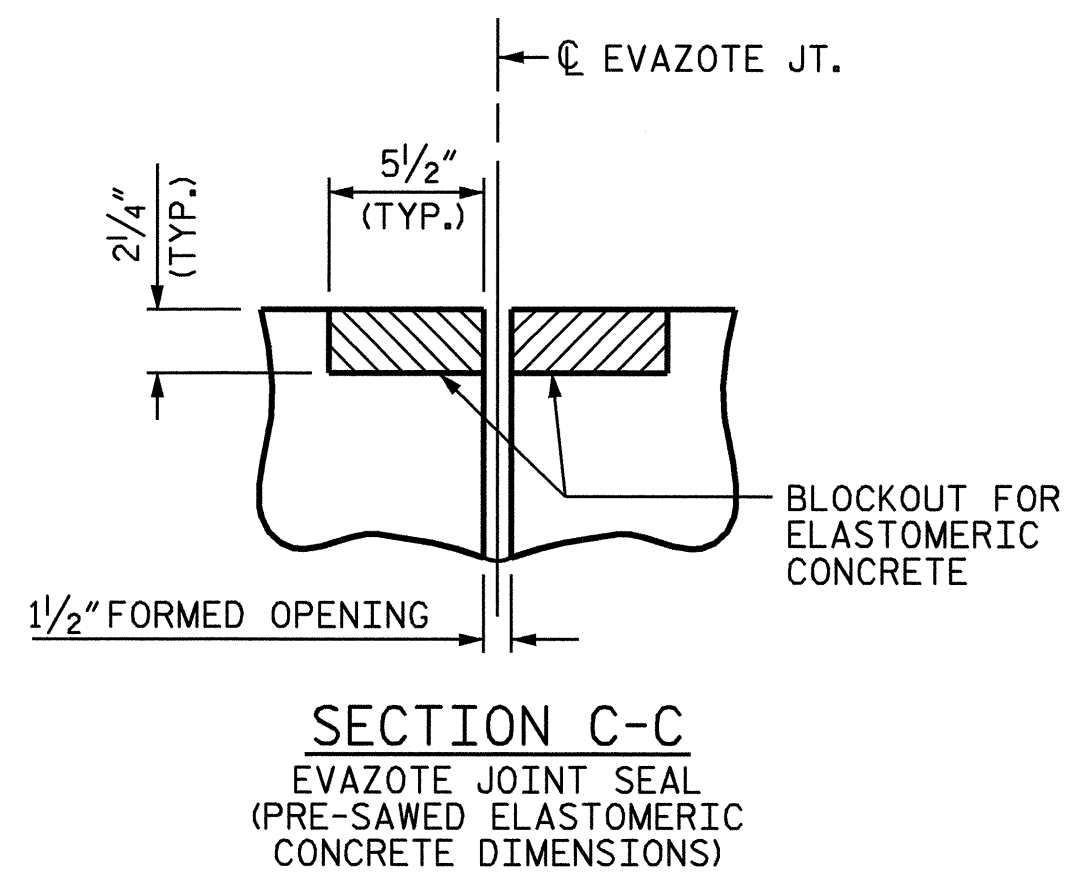
ASSEMBLED BY: J. MYA/A. K. PATEL DATE: 1/19/06  
 CHECKED BY: T. A. HARRIS DATE: 2/20/06  
 DRAWN BY: TLA 10/05  
 CHECKED BY: GM 5/06

SECTION THRU SLAB

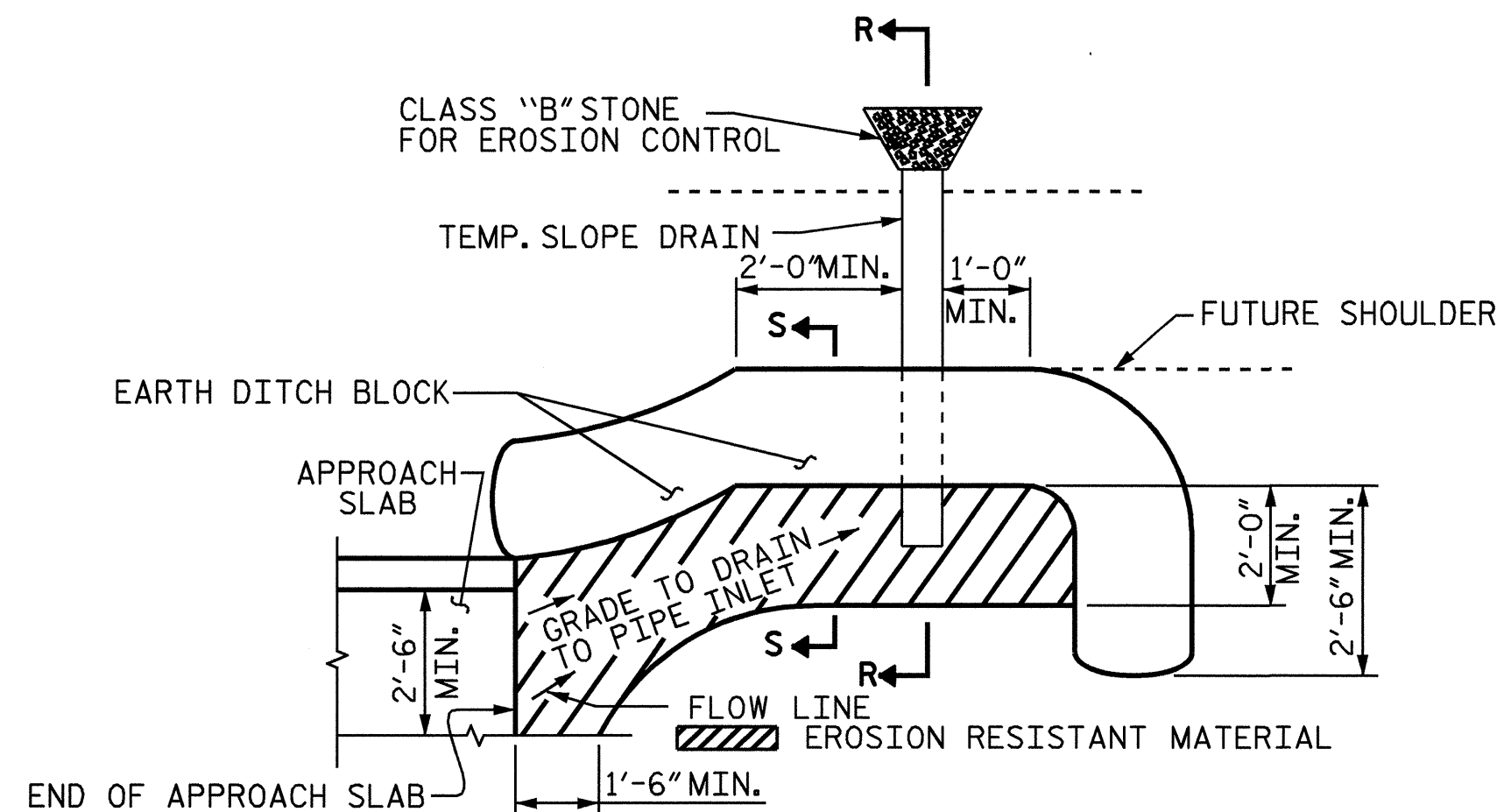
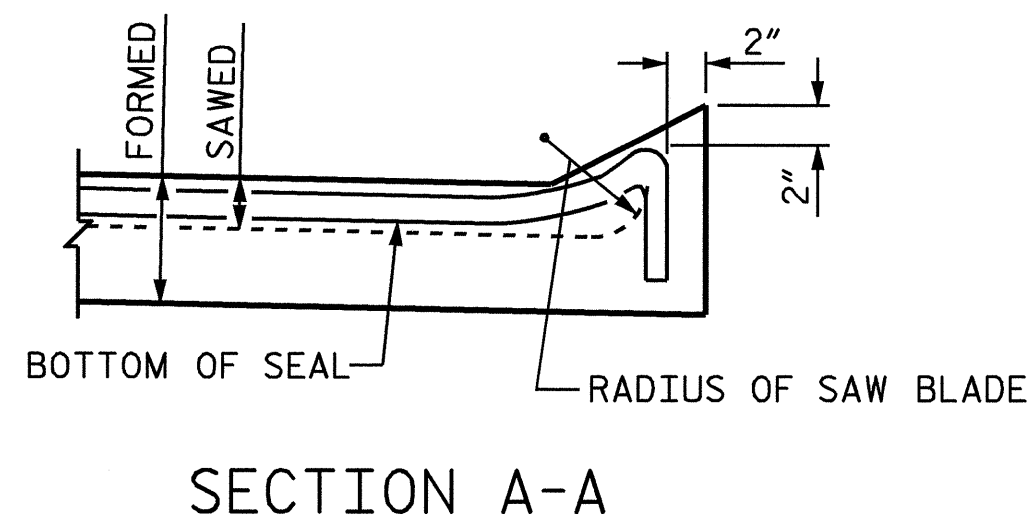
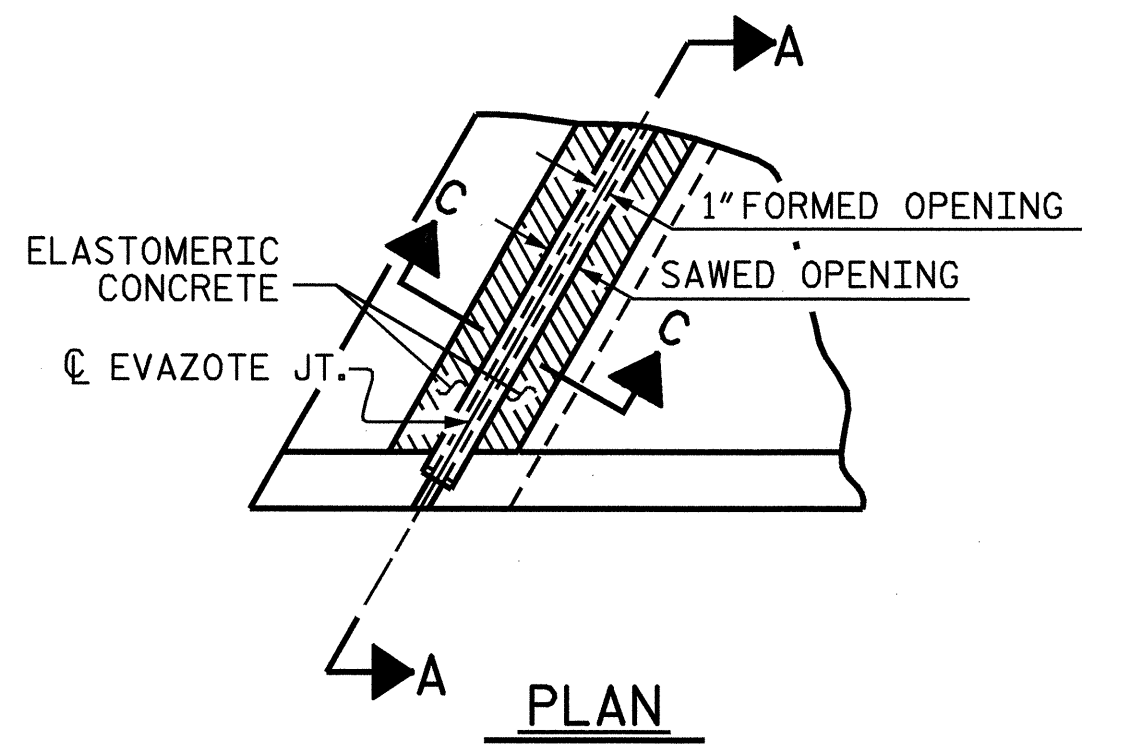
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 21
2			4			

ELASTOMERIC CONCRETE	
APPROACH SLAB NO.	ELASTOMERIC CONCRETE * (CU. FT.)
1	7.1
2	7.1
TOTAL	14.2

\* BASED ON THE MINIMUM BLOCKOUT SHOWN.

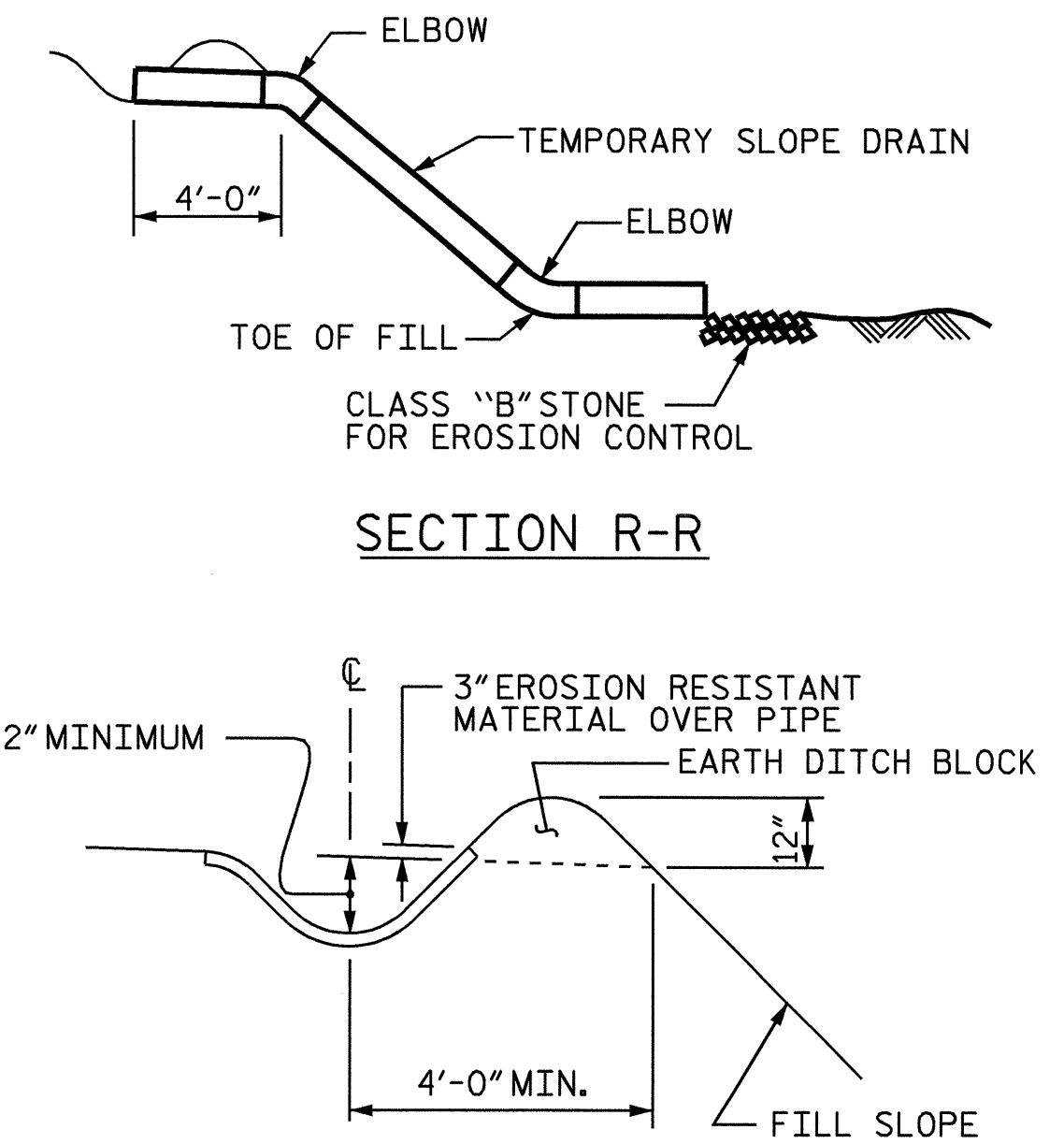


JOINT SEAL DETAILS @ SLEEPER SLAB



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.

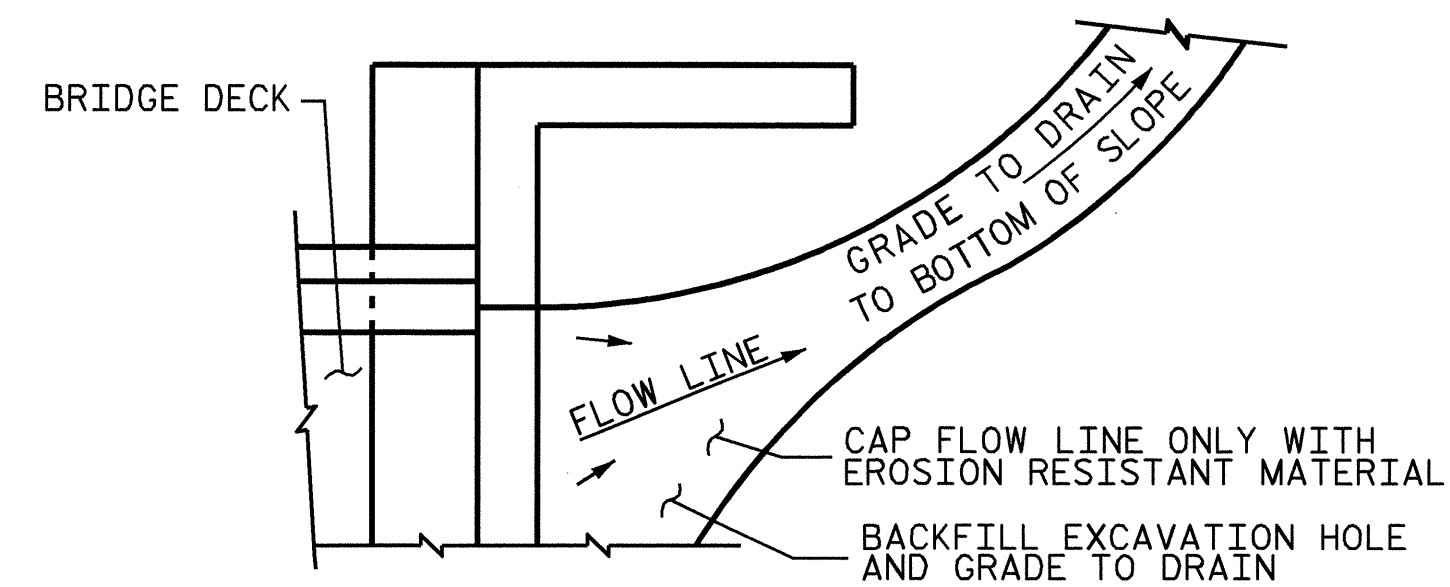
PLAN VIEW



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



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

TEMPORARY DRAINAGE DETAIL

PROJECT NO. B-4100  
DAVIDSON COUNTY  
 STATION: 24+38.00 -L-

SHEET 2 OF 2

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
STANDARD BRIDGE APPROACH SLAB DETAILS					
REVISIONS					1988
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. S-21
					TOTAL SHEETS 21



ASSEMBLED BY : J. MYA/A. K. PATEL	DATE : 1/19/06
CHECKED BY : T.A.HARRIS	DATE : 2/20/06
DRAWN BY : FCJ	11/88
CHECKED BY : ARB	11/88
REV. 10/17/00	RWW/LES
REV. 5/7/03	RWW/JTE
REV. 5/1/06R	MAA/KMM

## STANDARD NOTES

### DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	--	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

### MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2002 STANDARD SPECIFICATIONS "FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

### CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP; AND CLASS S SHALL BE USED FOR UNDERWATER FOOTING SEALS.

### CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

### DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

### ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

### REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED WITH THE EXCEPTION OF #2 BARS WHICH MAY BE FABRICATED FROM COLD DRAWN STEEL WIRE. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

### STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

PLACEMENT OF BEAM OR GIRDER MEMBERS ON TRUCKS FOR HAULING SHALL BE DONE IN COMPLIANCE WITH LIMITS SHOWN ON SKETCHES PROVIDED TO THE MATERIALS AND TEST UNIT APPROVED BY THE STRUCTURE DESIGN UNIT DATED MAY 8, 1991. THESE SKETCHES PRIMARILY LIMIT THE UNSUPPORTED CANTILEVER LENGTH OF MEMBERS. WHEN THE CONTRACTOR WISHES TO PLACE MEMBERS ON TRUCKS NOT IN ACCORDANCE WITH THESE LIMITS, TO SHIP BY RAIL, TO ATTACH SHIPPING RESTRAINTS TO THE MEMBERS OR TO INVERT MEMBERS, HE SHALL SUBMIT A SKETCH FOR APPROVAL PRIOR TO SHIPPING. SEE ALSO ARTICLE 1072-11.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16 INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

### HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

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

### SPECIAL NOTES:

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

# ENGLISH

JANUARY, 1990

STD. NO. SN