

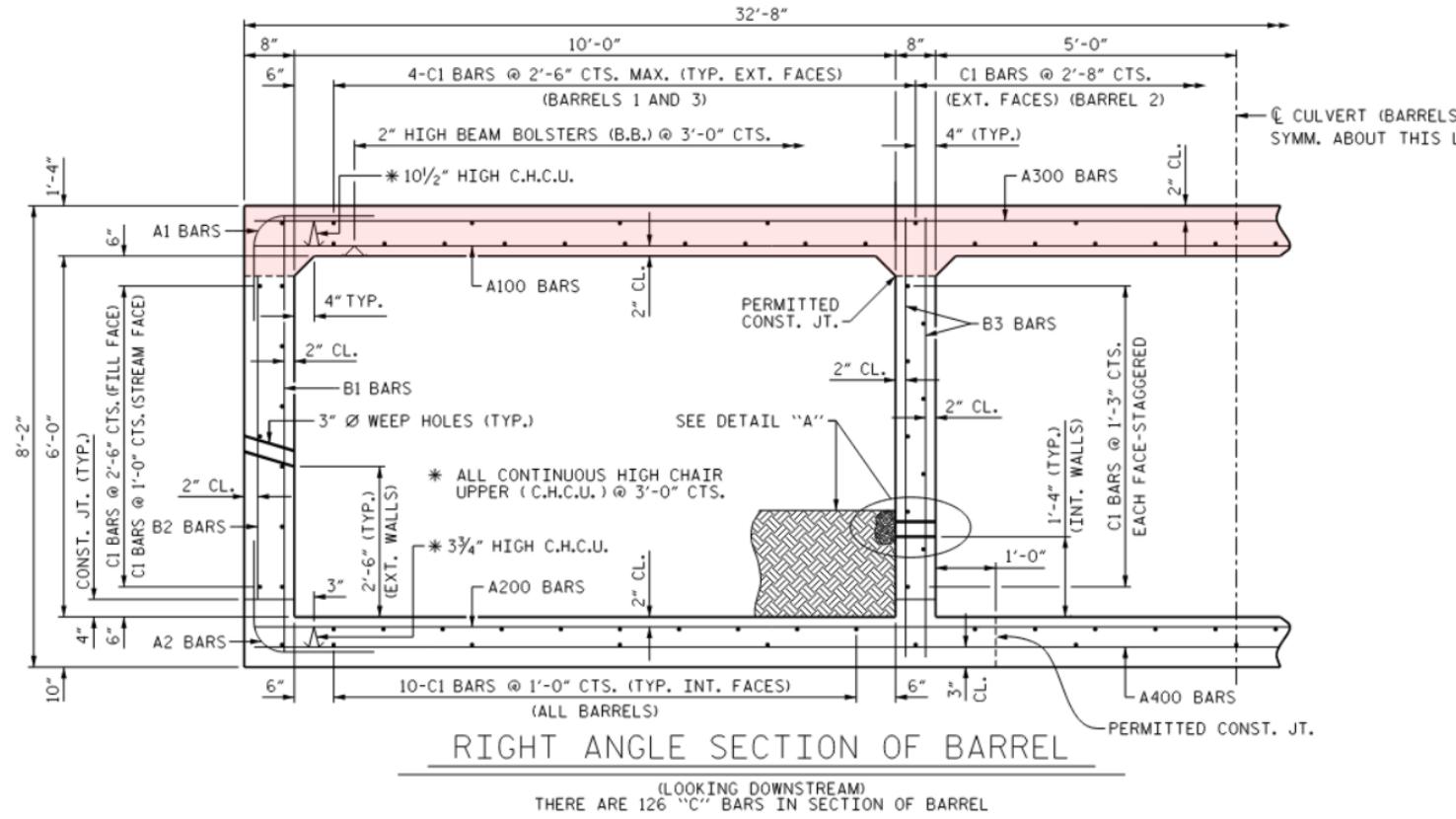
NOTES:

1. For the full plan set and additional structure information, see Br2-Concrete Culvert-NC DOT. pdf.

Unit Test Instruction for the Design-to-Construction Data Exchange		
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1	12/22/23	.
No.	Date	Issue / Revision Notes
Unit Test Description		
Level 1 Deck 02		
Drawn By	Reviewed By	
DHC	MJP	



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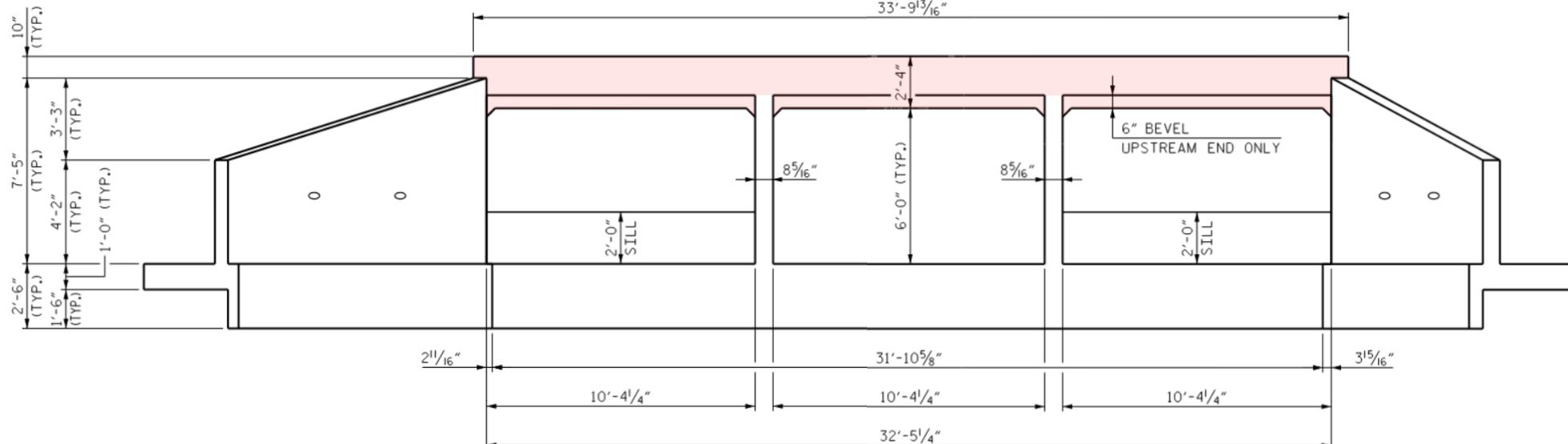


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L1-Br02-Deck02 / 02



DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	HL 93
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)

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. 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.

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; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " 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 $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

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 2012 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

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.

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BIM FOR BRIDGES AND STRUCTURES TFP-5(32)

HDR

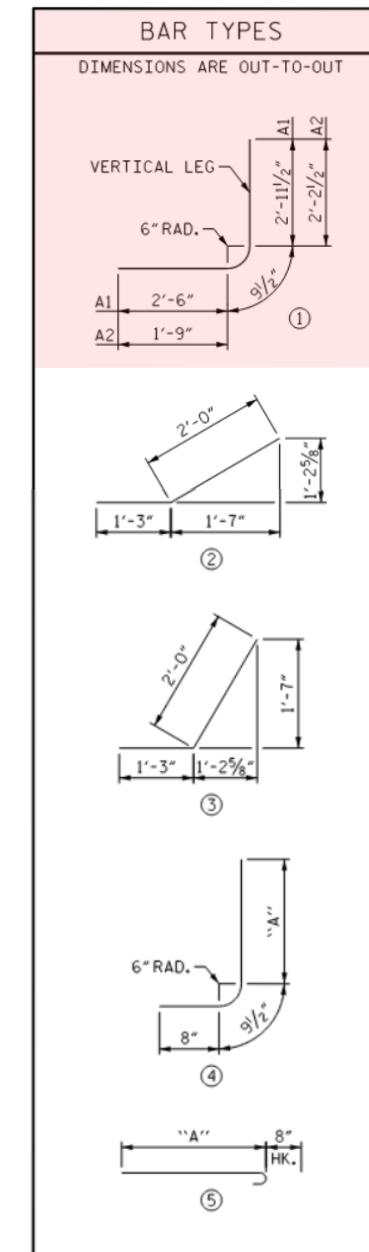
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CULVERT BARREL					
REINFORCING STEEL BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	166	#4	I	6'-3"	693
A2	166	#4	I	4'-9"	527
A100	66	#5	STR.	32'-4"	2,226
A101	2	#5	STR.	30'-9"	64
A102	2	#5	STR.	28'-11"	60
A103	2	#5	STR.	27'-1"	56
A104	2	#5	STR.	25'-2"	52
A105	2	#5	STR.	23'-4"	49
A106	2	#5	STR.	21'-5"	45
A107	2	#5	STR.	19'-7"	41
A108	2	#5	STR.	17'-9"	37
A109	2	#5	STR.	15'-10"	33
A110	2	#5	STR.	14'-0"	29
A111	2	#5	STR.	12'-1"	25
A112	2	#5	STR.	10'-3"	21
A113	2	#5	STR.	8'-5"	18
A114	2	#5	STR.	6'-6"	14
A115	2	#5	STR.	4'-8"	10
A116	2	#5	STR.	2'-9"	6
A200	132	#4	STR.	17'-1"	1,506
A201	4	#4	STR.	16'-4"	44
A202	2	#4	STR.	28'-11"	39
A203	2	#4	STR.	27'-1"	36
A204	2	#4	STR.	25'-2"	34
A205	2	#4	STR.	23'-4"	31
A206	2	#4	STR.	21'-5"	29
A207	2	#4	STR.	19'-7"	26
A208	2	#4	STR.	17'-9"	24
A209	2	#4	STR.	15'-10"	21
A210	2	#4	STR.	14'-0"	19
A211	2	#4	STR.	12'-1"	16
A212	2	#4	STR.	10'-3"	14
A213	2	#4	STR.	8'-5"	11
A214	2	#4	STR.	6'-6"	9
A215	2	#4	STR.	4'-8"	6
A216	2	#4	STR.	2'-9"	4

SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
A200	5	2'-2"
A400	5	2'-2"
C1	4	1'-9"

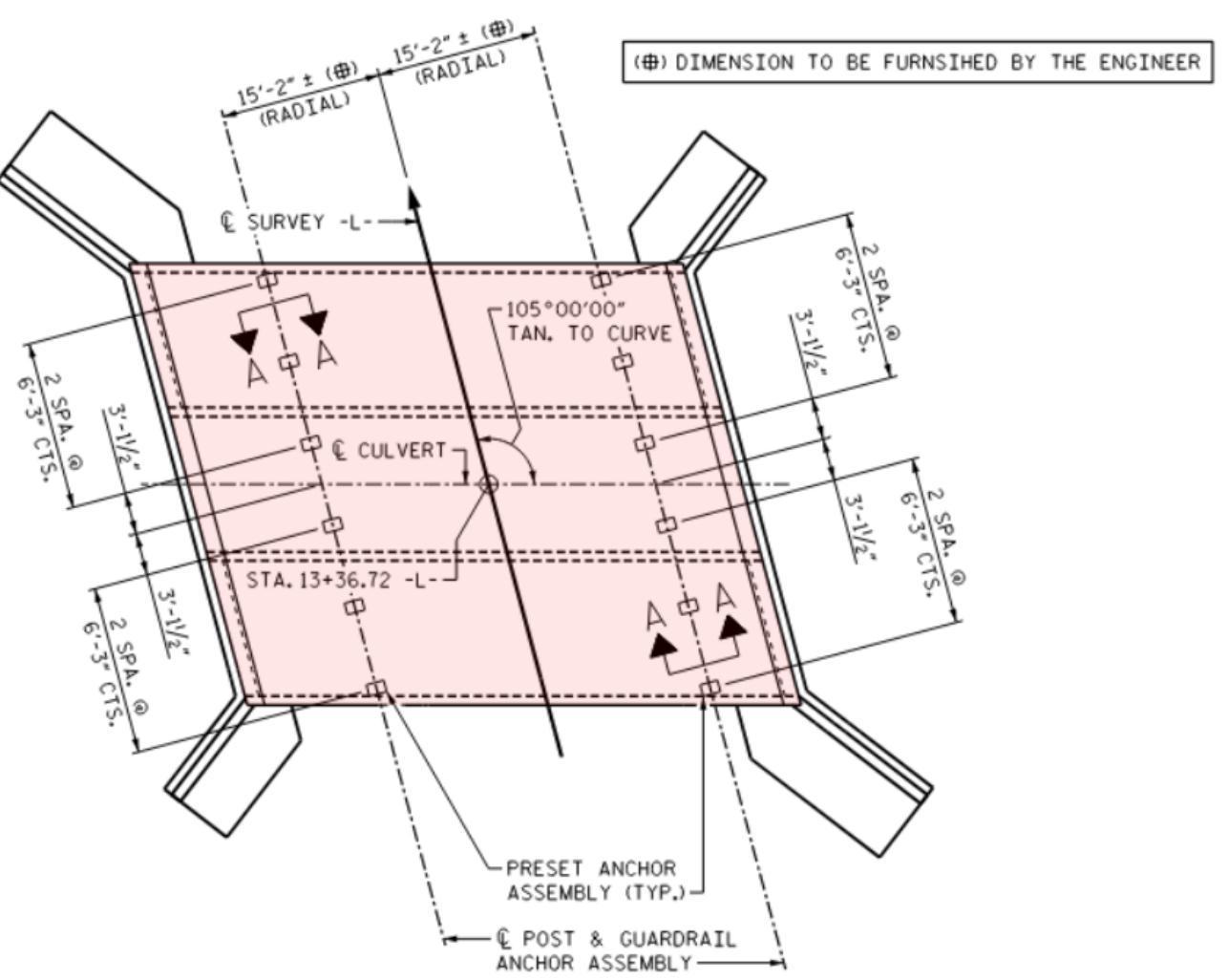
CULVERT BARREL					
REINFORCING STEEL BAR SCHEDULE					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A300	66	#5	STR.	32'-4"	2,226
A301	2	#5	STR.	30'-9"	64
A302	2	#5	STR.	28'-11"	60
A303	2	#5	STR.	27'-1"	56
A304	2	#5	STR.	25'-2"	52
A305	2	#5	STR.	23'-4"	49
A306	2	#5	STR.	21'-5"	45
A307	2	#5	STR.	19'-7"	41
A308	2	#5	STR.	17'-9"	37
A309	2	#5	STR.	15'-10"	33
A310	2	#5	STR.	14'-0"	29
A311	2	#5	STR.	12'-1"	25
A312	2	#5	STR.	10'-3"	21
A313	2	#5	STR.	8'-5"	18
A314	2	#5	STR.	6'-6"	14
A315	2	#5	STR.	4'-8"	10
A400	66	#5	STR.	32'-4"	2,226
A401	2	#5	STR.	30'-9"	64
A402	2	#5	STR.	28'-11"	60
A403	2	#5	STR.	27'-1"	56
A404	2	#5	STR.	25'-2"	52
A405	2	#5	STR.	23'-4"	49
A406	2	#5	STR.	21'-5"	45
A407	2	#5	STR.	19'-7"	41
A408	2	#5	STR.	17'-9"	37
A409	2	#5	STR.	15'-10"	33
A410	2	#5	STR.	14'-0"	29
A411	2	#5	STR.	12'-1"	25
A412	2	#5	STR.	10'-3"	21
A413	2	#5	STR.	8'-5"	18
A414	2	#5	STR.	6'-6"	14
A415	2	#5	STR.	4'-8"	10
B1	84	#4	STR.	7'-9"	435
B2	84	#4	STR.	5'-1"	285
B3	116	#4	STR.	7'-9"	601
C1	252	#4	STR.	21'-6"	3,619
D1	16	#6	STR.	2'-5"	58
G1	8	#5	STR.	33'-6"	280
S2	12	#8	STR.	33'-6"	1,073
REINFORCING STEEL				LBS.	17,786



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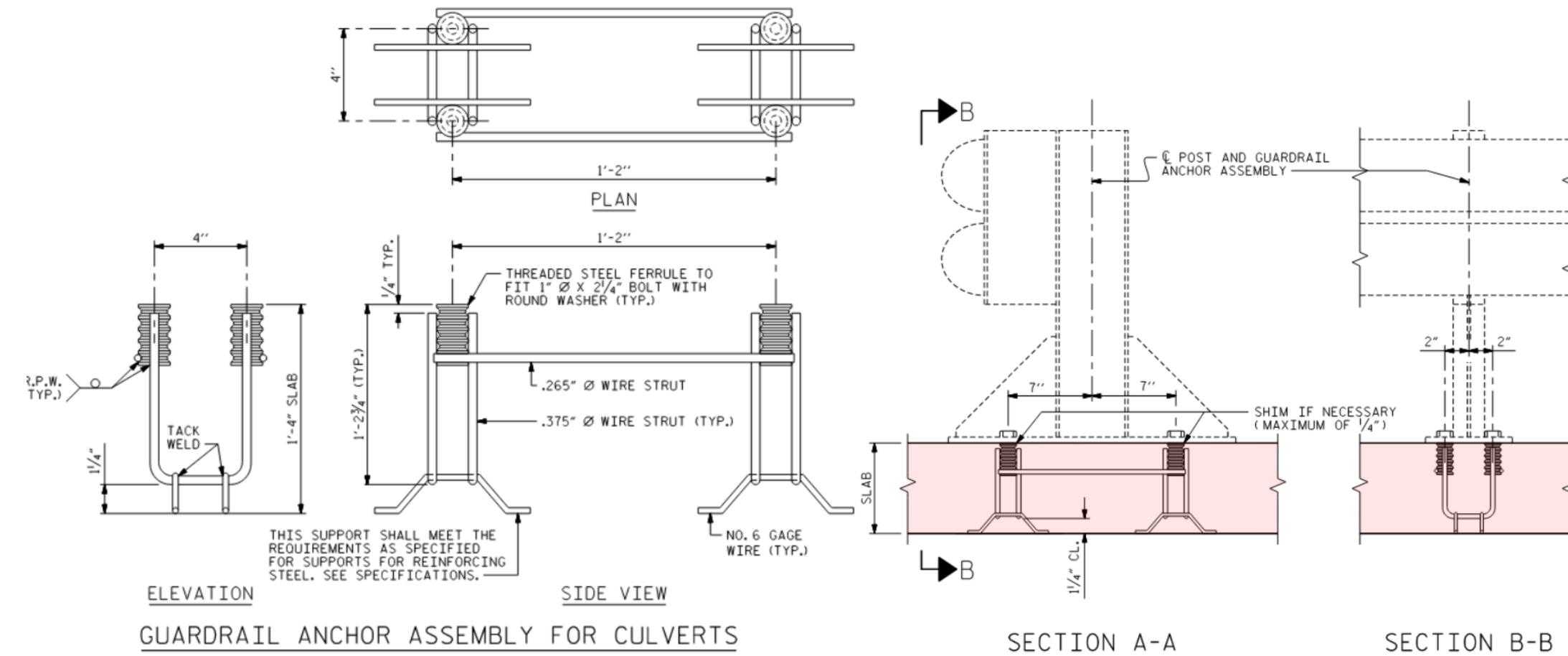


NOTES

THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :

- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO MI69, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2 1/2".
- B. 4 - 1" Ø X 2 1/4" BOLTS WITH WASHERS. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2 1/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 PSI AS AN OPTION. A 7/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

PLAN
SHOWING: GUARDRAIL ANCHOR ASSEMBLY SPACING.



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