

Note to Designer: The information presented in this Standard Drawing has been prepared in accordance with recognized engineering principles and is for general use. It should not be used for specific application without competent professional examination and verification of its suitability and applicability by a licensed professional engineer. Contents within the inner border line shall not be altered.

PRIOR DISTRIBUTION DATE 02/23

TABLE I NOTE:

Welded wire reinforcement areas provided in Table I represent the largest reinforcement areas for each precast culvert span "S" and the corresponding vertical rise "R" for fill height of 2 feet to less than 10 feet.

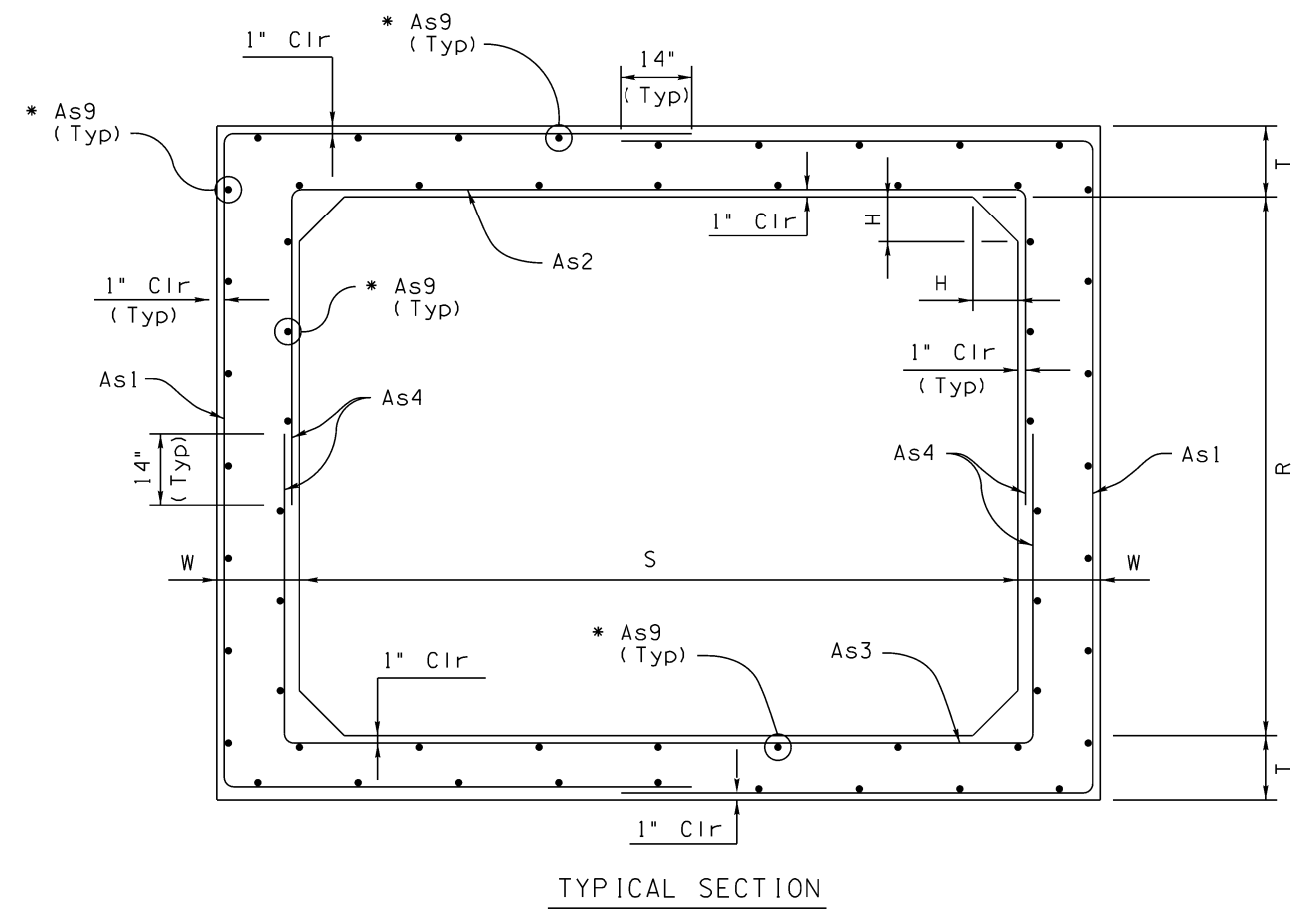
TABLE II NOTE:

Welded wire reinforcement areas provided in Table II represent the largest reinforcement areas for each precast culvert span "S" and the corresponding vertical rise "R" for fill height of 10 feet to no more than 20 feet.

TABLE NO. I 2' TO LESS THAN 10' FILL HEIGHT									
Span "S"	Rise "R"	Slab "T"	Walls "W"	Haunch "H" **	Welded Wire Reinforcement Circumferential Areas Square inch / Foot				
					As1	As2	As3	As4	
6'	3'	7"	7"	7"	0.21	0.24	0.19	0.17	
	4'	7"	7"		0.19	0.27	0.21	0.17	
	5'	7"	7"		0.17	0.30	0.24	0.17	
	6'	7"	7"		0.17	0.32	0.26	0.17	
8'	3'	8"	8"	8"	0.35	0.29	0.28	0.19	
	4'	8"	8"		0.31	0.34	0.32	0.19	
	5'	8"	8"		0.28	0.37	0.35	0.19	
	6'	8"	8"		0.25	0.40	0.38	0.19	
	7'	8"	8"		0.23	0.43	0.41	0.19	
	8'	8"	8"		0.21	0.45	0.44	0.19	
10'	3'	10"	10"	10"	0.42	0.31	0.27	0.24	
	4'	10"	10"		0.38	0.35	0.30	0.24	
	5'	10"	10"		0.35	0.39	0.34	0.24	
	6'	10"	10"		0.32	0.42	0.37	0.24	
	7'	10"	10"		0.30	0.45	0.40	0.24	
	8'	10"	10"		0.27	0.47	0.43	0.24	
	9'	10"	10"		0.26	0.50	0.46	0.24	
	10'	10"	10"		0.25	0.52	0.48	0.24	
12'	8'	12"	12"	12"	0.33	0.49	0.42	0.29	
	9'	12"	12"		0.30	0.51	0.45	0.29	
	10'	12"	12"		0.29	0.54	0.48	0.29	
	11'	12"	12"		0.29	0.56	0.51	0.29	
	12'	12"	12"		0.29	0.59	0.53	0.29	

TABLE NO. II 10' TO NO MORE THAN 20' FILL HEIGHT									
Span "S"	Rise "R"	Slab "T"	Walls "W"	Haunch "H" **	Welded Wire Reinforcement Circumferential Areas Square inch / Foot				
					As1	As2	As3	As4	
6'	3'	7"	7"	7"	0.28	0.31	0.31	0.17	
	4'	7"	7"		0.24	0.34	0.35	0.17	
	5'	7"	7"		0.20	0.37	0.38	0.17	
	6'	7"	7"		0.18	0.38	0.39	0.17	
	3'	8"	8"		8"	0.51	0.43	0.44	0.19
4'	8"	8"	0.44	0.48		0.49	0.19		
5'	8"	8"	0.39	0.52		0.54	0.19		
6'	8"	8"	0.36	0.55		0.57	0.19		
7'	8"	8"	0.33	0.57		0.60	0.19		
8'	8"	8"	0.31	0.59	0.62	0.19			
10'	3'	10"	10"	10"	0.68	0.48	0.49	0.24	
	4'	10"	10"		0.61	0.54	0.55	0.24	
	5'	10"	10"		0.55	0.59	0.61	0.24	
	6'	10"	10"		0.50	0.63	0.65	0.24	
	7'	10"	10"		0.46	0.67	0.69	0.24	
	8'	10"	10"		0.43	0.69	0.72	0.24	
	9'	10"	10"		0.40	0.71	0.75	0.24	
	10'	10"	10"		0.38	0.73	0.77	0.24	
12'	8'	12"	12"	12"	0.57	0.78	0.81	0.29	
	9'	12"	12"		0.53	0.81	0.85	0.29	
	10'	12"	12"		0.51	0.84	0.88	0.29	
	11'	12"	12"		0.48	0.84	0.91	0.29	
	12'	12"	12"		0.46	0.87	0.93	0.29	

** In lieu of performing a special design, for the specific case where the actual haunch dimensions are larger than the standard dimensions and vertical and horizontal haunch dimensions are equal, the As1 steel area shall be increased by 1 percent for every 5 percent increase in the haunch dimension over that specified in Tables I and II.



* See General Notes for As9 spacing

TYPICAL SECTION

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, latest Edition.

Design Specifications - AASHTO LRFD Bridge Design Specifications, 8th Edition 2017.

Precast reinforced concrete box culverts sections shown conform to ASTM C1577-20.

Sections shown in tables 1 and 2 were designed for combined earth, dead load, and HL-93 live load without Lane Load as permitted by the AASHTO LRFD Bridge Design Specifications, using either the design Truck or the design Tandem and taking the controlling case.

All Concrete shall be Class "S" (f'c = 5,000 psi).

All reinforcing steel shall consist of welded wire reinforcement conforming to ASTM A1064/A1064M (AASHTO M 336).

Circumferential reinforcement area shown in Tables I and II are based solely on the use of welded wire reinforcement with 4 inch spacing of the circumferential wires.

Longitudinal distribution reinforcement As9 is based on a D4.0 welded wire reinforcement with a 8" center to center spacing, and a minimum cross-sectional area of 0.06 in²/ft.

All circumferential reinforcing steel shall have a 1 inch clear cover unless noted otherwise.

Compact backfill for footing and wall base minimum 100 percent of ASTM D698 maximum dry density.

See Project Plans for wall layout, top of footing and finished grade elevations, footing step and wall joint locations. Construction Joints shall match the locations of weakened plane joints.

Shop Drawings shall be provided for Precast box culverts showing dimensions and details of each box section type, joint ends, seals, lifting devices, full layout plan, box section numbering, and placement sequence.

See Special Provisions for additional requirements for leveling course material, installation, structural excavation and structure backfill.

Pay item measure of linear foot of precast concrete culvert shall be along the central axis of the culvert per barrel, and shall include the length of joints and connections.

Dimensions shall not be scaled from drawings.

STANDARDS ENGINEER B. SINGH RECOMMENDED FOR APPROVAL GROUP MANAGER	ARIZONA DEPARTMENT OF TRANSPORTATION INFRASTRUCTURE DELIVERY AND OPERATIONS DIVISION BRIDGE GROUP STANDARD DRAWING	
APPROVED D. BENTON STANDARDS COMMITTEE APPROVED FOR DISTRIBUTION	PRECAST REINFORCED CONCRETE BOX CULVERTS SINGLE BARREL NOTES & DIMENSIONS	DRAWING NO. SD 6.20 (1 of 5)
10/24 DATE		