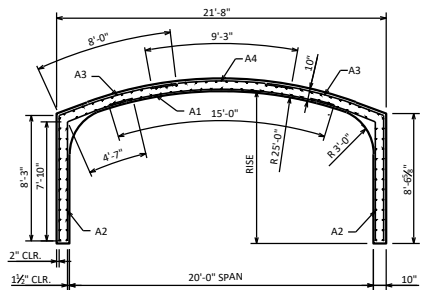
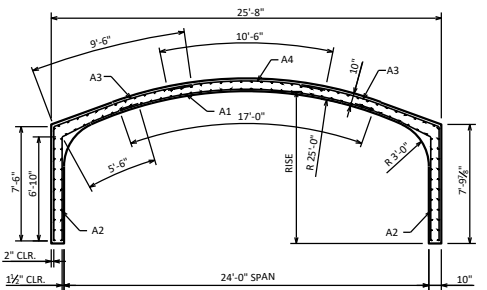


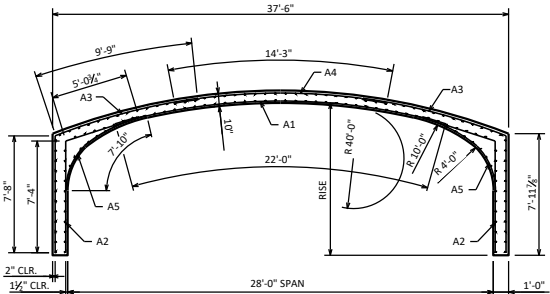
**14'-0" SPAN**  
RISE = 10'-0" \*\*SEE NOTE



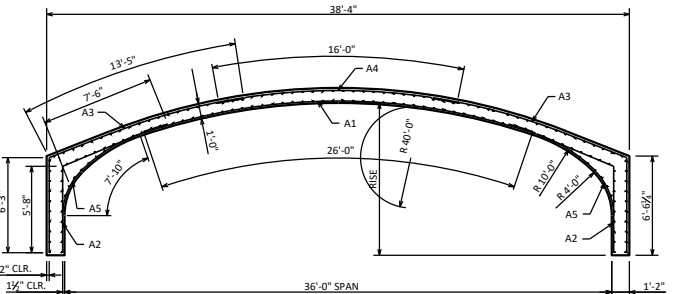
**20'-0" SPAN**  
RISE = 10'-0" \*\*SEE NOTE



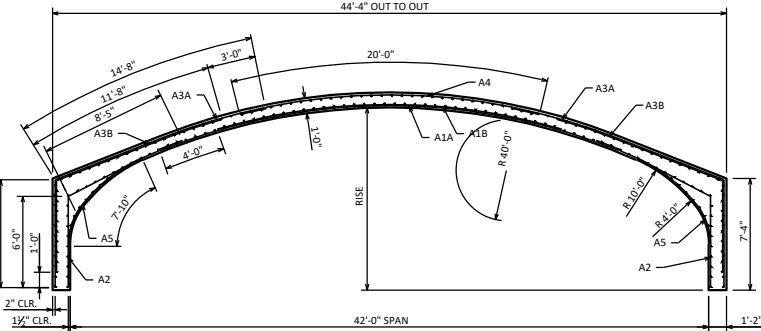
**24'-0" SPAN**  
RISE = 10'-0" \*\*SEE NOTE



**28'-0" SPAN**  
RISE = 10'-0"



**36'-0" SPAN**  
RISE = 10'-0"



**42'-0" SPAN**  
RISE = 12'-0"

**NOTES:**

- SEE ARCH UNIT PRIMARY REINFORCING CHART ON STANDARD 36.15 FOR MORE INFORMATION.
- ALL REINFORCING DIMENSIONS SHOWN ARE FOR 10'-0" RISE. A2 AND A3 STEEL LENGTHS SHALL BE REVISED ACCORDINGLY FOR RISES OTHER THAN 10'-0".
- THESE STEEL AREAS, STEEL LENGTHS AND ARCH THICKNESS ARE SHOWN FOR COVER OF 12'-0" OR LESS.
- THREE-SIDED PRECAST CONCRETE STRUCTURES SHALL BE DESIGNED FOR COVER GREATER THAN 12'-0", AND CAN BE DESIGNED FOR UP TO THE LIMITS OF COVER SHOWN IN THE TABLE BELOW.
- THE COVER OF CONCRETE OVER THE OUTSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 2 INCHES MINIMUM.
- THE COVER OF CONCRETE OVER THE INSIDE CIRCUMFERENTIAL REINFORCEMENT SHALL BE 1 1/2 INCHES MINIMUM.
- THE CLEAR DISTANCE OF THE END CIRCUMFERENTIAL WIRES SHALL NOT BE LESS THAN 1" NOR MORE THAN 2" FROM THE ENDS OF EACH SECTION.
- AN ALTERNATE EQUIVALENT OF WELDED WIRE FABRIC (WWW) ASTM A497 MAY BE SUBSTITUTED FOR THE REINFORCEMENT SHOWN, UPON APPROVAL OF THE STRUCTURES DEVELOPMENT SECTION.
- MINIMUM COVER FOR WILDED WIRE FABRIC: 1-INCH

**DESIGN DATA:**


f<sub>c</sub> = 5,000 PSI MINIMUM FOR CONCRETE  
 f<sub>y</sub> = 60,000 PSI FOR STEEL REINFORCING BARS  
 f<sub>y</sub> = 65,000 PSI FOR WELDED WIRE FABRIC (IN FLAT SHEET)

SPAN FT	APPROX. MAX. COVER
14'	50'
20' - 24'	30'
28' - 36'	20'
42'	15'

ARCH UNIT LONGITUDINAL REINFORCEMENT (MINIMUM)							
14'-0" SPAN			20'-0" SPAN			24'-0" SPAN	
CIRCUMF. AREA REQ'D SQ. IN/FT	LONGITUDINAL AREA REQ'D SQ. IN/FT	LENGTH FT	CIRCUMF. AREA REQ'D SQ. IN/FT	LONGITUDINAL AREA REQ'D SQ. IN/FT	LENGTH FT	CIRCUMF. AREA REQ'D SQ. IN/FT	LONGITUDINAL AREA REQ'D SQ. IN/FT
A1 = **	0.13	10'-6"	A1 = **	0.13	15'-0"	A1 = **	0.13
A2 = 0.24	0.13	12'-3"	A2 = 0.24	0.13	12'-5"	A2 = 0.24	0.13
A3 = **	0.13	15'-4"	A3 = **	0.13	16'-3"	A3 = **	0.13
A4 = 0.24	0.13	5'-9"	A4 = 0.24	0.13	9'-3"	A4 = 0.24	0.13

28'-0" SPAN			36'-0" SPAN			42'-0" SPAN		
CIRCUMF. AREA REQ'D SQ. IN/FT	LONGITUDINAL AREA REQ'D SQ. IN/FT	LENGTH FT	CIRCUMF. AREA REQ'D SQ. IN/FT	LONGITUDINAL AREA REQ'D SQ. IN/FT	LENGTH FT	CIRCUMF. AREA REQ'D SQ. IN/FT	LONGITUDINAL AREA REQ'D SQ. IN/FT	LENGTH FT
A1A = **	0.13	22'-0"	A1A = **	0.13	26'-0"	A1A = **	0.13	31'-0"
A1B = **	NOT REQ'D	16'-0"	A1B = **	NOT REQ'D	18'-0"	A1B = **	NOT REQ'D	23'-0"
A2 = 0.36	0.13	12'-6"	A2 = 0.36	0.13	13'-2"	A2 = 0.48	0.13	14'-4"
A3A = **	0.13	17'-6"	A3A = **	0.13	19'-8"	A3A = **	0.13	21'-9"
A3B = **	NOT REQ'D	13'-6"	A3B = **	NOT REQ'D	15'-8"	A3B = **	NOT REQ'D	17'-9"
A4 = 0.36	0.13	14'-3"	A4 = 0.36	0.13	16'-0"	A4 = 0.48	0.13	20'-0"
A5 = 0.24	0.13	7'-10"	A5 = 0.24	0.13	7'-10"	A5 = 0.24	0.13	7'-10"

**PRECAST THREE-SIDED BOX  
CULVERT REINFORCEMENT**



**BUREAU OF  
STRUCTURES**

APPROVED: *Laura Shadewald*      DATE: 7-14