

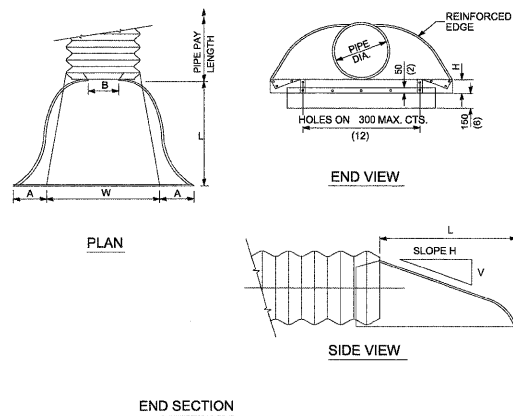
- NOTES:
1. ALL TRAILS SHALL MEET CURRENT ADA STANDARDS.
 2. 5% MAX. LONGITUDINAL SLOPE ON HMA TRAIL.
 3. 3% MAX. LONGITUDINAL SLOPE ON LIMESTONE SCREENING TRAIL.
 4. 2% MAX. CROSS SLOPE ON TRAIL.
 5. WATER SHALL NOT FLOW ACROSS ANY TRAIL WITHOUT OWNER'S APPROVAL.

3" DEPTH HMA SURFACE COURSE (SPECIAL) OR 3" LIMESTONE SCREENING SURFACE (NEW PATHS)
 AGGREGATE BASE COURSE, TYPE B 6" DEPTH
 COMPACTED SUBGRADE

1 TRAIL CROSS-SECTION

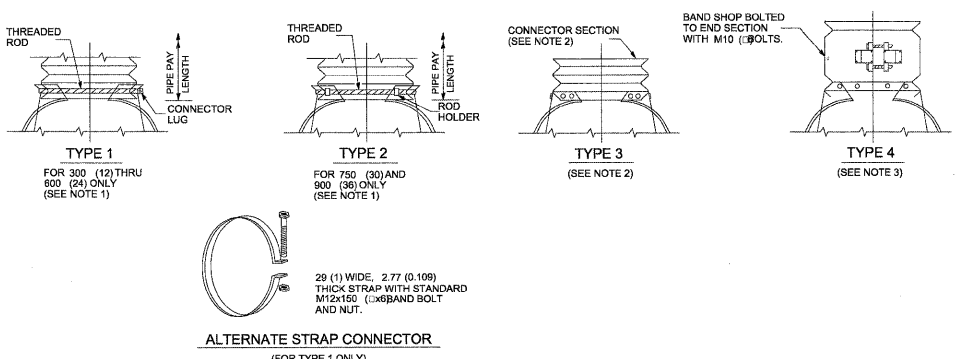
SCALE: 1/4" = 1'-0"

PIPE DIA.	THICKNESS	DIMENSIONS						SLOPE (Approx.) (V:H)	BODY
		A	B	H	L	W			
300	1.63 (0.064)	150 (6)	150 (6)	150 (6)	535 (21)	610 (24)	1:20	1 PC.	
375	1.63 (0.064)	190 (7)	190 (7)	190 (7)	665 (26)	760 (30)	1:20	1 PC.	
450	1.63 (0.064)	205 (8)	205 (8)	150 (6)	785 (31)	915 (36)	1:20	1 PC.	
525	1.63 (0.064)	230 (9)	230 (9)	150 (6)	915 (36)	1,065 (42)	1:20	1 PC.	
600	1.63 (0.064)	255 (10)	255 (10)	150 (6)	1,040 (41)	1,220 (48)	1:20	1 PC.	
675	2.01 (0.079)	305 (12)	305 (12)	205 (8)	1,295 (51)	1,525 (60)	1:20	1 PC.	
750	2.01 (0.079)	305 (12)	305 (12)	205 (8)	1,295 (51)	1,525 (60)	1:20	2 PC.	
825	2.01 (0.079)	345 (14)	345 (14)	205 (8)	1,525 (60)	1,775 (70)	1:20	2 PC.	
900	2.01 (0.079)	345 (14)	345 (14)	205 (8)	1,525 (60)	1,775 (70)	1:20	2 PC.	
975	2.77 (0.109)	405 (16)	405 (16)	280 (11)	1,750 (69)	2,135 (84)	1:20	2 PC.	
1050	2.77 (0.109)	405 (16)	405 (16)	280 (11)	1,750 (69)	2,135 (84)	1:20	2 PC.	
1125	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:20	2 PC.	
1200	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:2	2 PC.	
1275	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1350	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1425	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1500	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1575	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1650	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1725	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1800	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1875	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
1950	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
2025	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
2100	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
2175	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	
2250	2.77 (0.109)	465 (18)	465 (18)	305 (12)	1,965 (77)	2,385 (94)	1:10	3 PC.	



- NOTES
- FOR 1500 MM (60") THRU 2250 MM (90") SIZES, REINFORCED EDGES SHALL BE SUPPLEMENTED WITH STIFFENERS. THE ANGLES SHALL BE 51X51X6.4 MM (2X2X1/2") FOR 1500 MM (60") THRU 1800 MM (72") DIAMETER AND 63X63X4 MM (2X2X1/2") FOR 1800 MM (72") THRU 2250 MM (90") DIAMETER. THE ANGLES SHALL BE ATTACHED BY M10 (3/8") RIVETS OR BOLTS.

ALL SLOPE RATIOS ARE EXPRESSED AS UNITS OF VERTICAL DISPLACEMENT TO UNITS OF HORIZONTAL DISPLACEMENT (V:H).



- NOTES
1. TYPES 1 AND 2 FOR PIPES WITH ANNULAR ENDS ONLY.
 2. TYPE 3 CONNECTION CAN BE USED FOR ALL PIPE SIZES AND INCLUDES 300 MM (12") OF THE PIPE LENGTH. THE CONNECTOR SECTION SHALL BE ATTACHED TO THE END SECTION BY RIVETS OR BOLTS AND SHALL BE THE SAME METAL THICKNESS AS THE END SECTION. STUB SHALL BE EITHER 68 MM (2 3/4") PITCH X 13 MM (1/2") DEPTH OR 75 MM (3") PITCH X 25 MM (1") DEPTH ANNULAR CORRUGATED PIPE.
 3. TYPE 4 CONNECTION CAN BE USED FOR ALL PIPE SIZES. COUPLER SHALL BE 68 MM X 13 MM (2 3/4" X 1/2") DIMPLE, HUGGER, OR ANNULAR BAND OF 75 MM X 25 MM (3" X 1"). THE DIMPLE, HUGGER, OR ANNULAR BAND MAY BE USED WITH CORRUGATED METAL PIPES HAVING ANNULAR ENDS. FOR CORRUGATED METAL PIPES HAVING HELICAL ENDS, ONLY THE DIMPLE BAND WILL BE ALLOWED.
- ALL DIMENSIONS ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SHOWN.

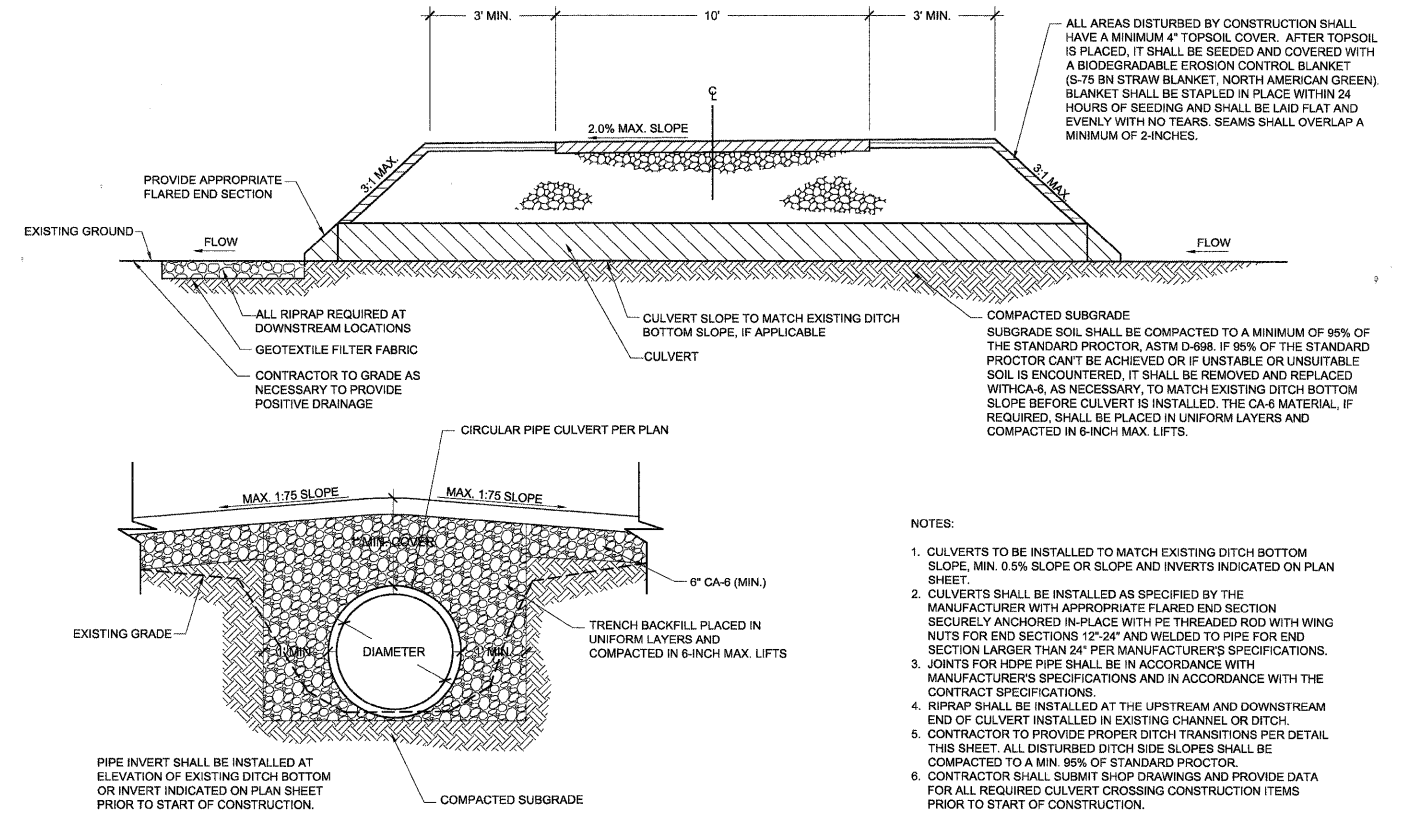
3 CULVERT - STEEL END SECTION DETAIL

FILE NAME =	DESIGNED - TL/WS	REVISED -
USER NAME =	DRAWN - TL/BD	REVISED -
PLOT DATE =	CHECKED - WS	REVISED -
	DATE - 10/24/2011	REVISED -

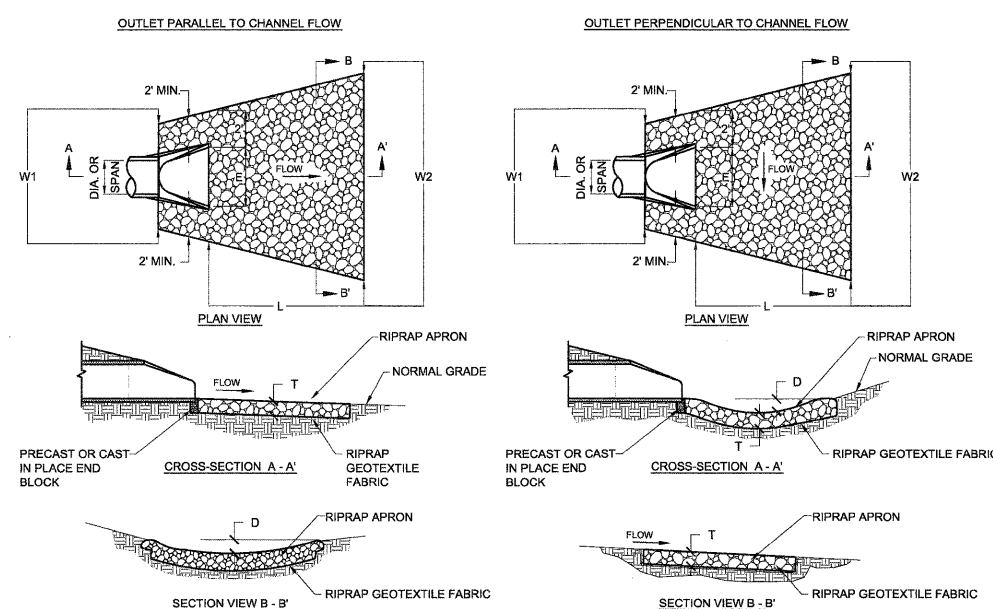


CITY OF ST. CHARLES

4 CULVERT OUTLET DETAIL



- NOTES:
1. CULVERTS TO BE INSTALLED TO MATCH EXISTING DITCH BOTTOM SLOPE, MIN. 0.5% SLOPE OR SLOPE AND INVERTS INDICATED ON PLAN SHEET.
 2. CULVERTS SHALL BE INSTALLED AS SPECIFIED BY THE MANUFACTURER WITH APPROPRIATE FLARED END SECTION SECURELY ANCHORED IN-PLACE WITH PE THREADED ROD WITH WING NUTS FOR END SECTIONS 12"-24" AND WELDED TO PIPE FOR END SECTION LARGER THAN 24" PER MANUFACTURER'S SPECIFICATIONS. JOINTS FOR HOPE PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
 3. RIPRAP SHALL BE INSTALLED AT THE UPSTREAM AND DOWNSTREAM END OF CULVERT INSTALLED IN EXISTING CHANNEL OR DITCH.
 4. CONTRACTOR TO PROVIDE PROPER DITCH TRANSITIONS PER DETAIL THIS SHEET. ALL DISTURBED DITCH SIDE SLOPES SHALL BE COMPACTED TO A MIN. 95% OF STANDARD PROCTOR.
 5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND PROVIDE DATA FOR ALL REQUIRED CULVERT CROSSING CONSTRUCTION ITEMS PRIOR TO START OF CONSTRUCTION.



DIA. OF ROUND INLET PIPE (in)	IDOT RIPRAP GRADATION (RR)	RIPRAP BED THICKNESS (ft)	APRON LENGTH (ft)	APRON WIDTH UPSTREAM (ft)	APRON WIDTH DOWNSTREAM (ft)	DEPTH BELOW NORMAL GRADE (ft)
		T	L	W1	W2	D
12	RR-3	15.0	12.0	5.0	11.0	6.0
15	RR-3	15.0	14.0	5.0	12.0	6.0
18	RR-3	15.0	16.0	5.5	13.5	7.0
24	RR-4	15.0	20.0	6.0	16.0	10.0
30	RR-4	20.0	22.0	6.0	17.0	11.0
36	RR-4	20.0	24.0	7.0	19.0	11.0

SCALE: VARIES	STA. TO STA.	F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
			04-00092-00-BR	KANE	440	81
					CONTRACT NO. 63650	
					ILLINOIS FED. AID PROJECT	