

Fiscal Year 2015 Kansas State Cost Estimate
for Practice Components

1. Corrugated Metal Pipe (CMP) Riser Dollars per linear foot (Does not include riser base, tees for principal spillway barrel or drawdown pipe, trash rack, or backfill)	Diameter (inches)	16 Gauge		14 Gauge	
		Plain Galvanized	Aluminized Steel	Plain Galvanized	Aluminized Steel
		12	\$38	\$43	
15	\$46	\$52			
18	\$49	\$55			
21	\$59	\$66			
24	\$68	\$76			
30	\$81	\$90			
36	\$96	\$108			
42			\$122	\$136	
48			\$139	\$156	
54			\$156	\$175	

2. Principal Spillway Tee Dollars per each (Includes 4 feet of pipe and fabrication--add these costs to the CMP riser to determine total riser cost)	Diameter (inches)	16 Gauge		14 Gauge	
		Plain Galvanized	Aluminized Steel	Plain Galvanized	Aluminized Steel
		8	\$243		
10	\$290				
12	\$345	\$386			
15	\$415	\$465			
18	\$487	\$545			
21	\$565	\$633			
24	\$635	\$711			
30	\$832	\$932			
36	\$1,013	\$1,135			
42			\$1,146	\$1,284	
48			\$1,486	\$1,664	

3. CMP Principal Spillway Barrel, Drawdown Pipe, or Underground Outlet Dollars per linear foot (Includes pipe and cost of laying--does not include 4 feet of pipe in principal spillway tee, 2 feet of pipe in drawdown pipe tee, hand-compacted backfill, or vertical pipe under floor of fish pond outlet structure)	Diameter (inches)	16 Gauge		14 Gauge	
		Plain Galvanized	Aluminized Steel	Plain Galvanized	Aluminized Steel
		6	\$11	\$12	
8	\$13	\$15			
10	\$15	\$17			
12	\$18	\$20			
15	\$20	\$23			
18	\$23	\$26			
21	\$29	\$33			
24	\$34	\$39			
30	\$38	\$43			
36	\$45	\$50			
42			\$61	\$68	
48			\$69	\$77	

4. Drawdown Pipe Tee Dollars per each (Includes 2 feet of pipe, cover plate and flange, one slotted flange attached, and fabrication--add these costs to the CMP riser to determine total riser cost)	Diameter (inches)	16 Gauge	
		Plain Galvanized	Aluminized Steel
		6	\$193
8	\$243	\$272	
10	\$290	\$325	
12	\$345	\$386	
15 ^{1/}	\$415	\$465	

^{1/} Slotted flanges not used--add corrugated metal (CM) connecting band

5. Connecting Bands	Diameter (inches)	16 Gauge		14 Gauge		
		Plain	Aluminized	Plain	Aluminized	
		Galvanized	Steel	Galvanized	Steel	
A. CM connecting bands--soil-tight Dollars per each (Includes connecting band, bolts, and gasket)	6	\$10	\$11			
	8	\$11	\$12			
	10	\$12	\$13			
	12	\$15	\$17			
	15	\$18	\$20			
	18	\$22	\$25			
	21	\$29	\$32			
	24	\$33	\$37			
	30	\$36	\$40			
	36	\$42	\$47			
	42			\$63	\$71	
	48			\$72	\$81	
	B. CM connecting bands--watertight Dollars per each (Includes band, 2 "O" ring gaskets, and connecting bolts)	6	\$12	\$13		
		8	\$16	\$18		
10		\$18	\$20			
12		\$23	\$25			
15		\$27	\$30			
18		\$33	\$37			
21		\$43	\$48			
24		\$50	\$55			
30		\$54	\$60			
36		\$63	\$71			
42				\$95	\$106	
48				\$108	\$121	

6. Metal Anti-Seep Collars	Diameter (inches)	Size (inches)	Two-Piece			
			16 Gauge		14 Gauge	
			Plain	Aluminized	Plain	Aluminized
Dollars per each (Includes materials and fabrication)	12	60	\$291	\$326		
	15	63	\$375	\$420		
	18	66	\$423	\$474		
	21	69	\$498	\$558		
	24	72	\$557	\$624		
	30	78	\$657	\$736		
	36	84	\$792	\$888		
	42	90			\$917	\$1,028
	48	96			\$1,053	\$1,179

	Unit	Pipe Diameter (inches)																	
		4	5	6	8	10	12	14	15	16	18	20	21	24	30	36	42	48	
7. Steel Base for CMP Riser	each						\$33		\$76			\$130		\$216	\$267	\$523	\$683		
8. Slotted Flanges for CMP ^{1/}	pair			\$182	\$185	\$189	\$193												
9. Trash Rack for CMP Riser	each				\$186	\$227	\$285		\$329		\$398		\$442	\$500	\$624	\$729			
10. Trash Rack for Canopy Inlet	each			\$143	\$183	\$224	\$280	\$309	\$324	\$347	\$392	\$364	\$436	\$492					
11. Guard Rail for CMP Riser	each															\$2,092	\$2,092	\$2,535	
12. CMP Pipe Support																			
A. 6 feet of length below pipe	each			\$83	\$102	\$117	\$141		\$164		\$197		\$238	\$271					
B. Each additional foot	lin. ft.			\$11	\$13	\$15	\$18		\$20		\$23		\$29	\$34					
13. Timber Pipe Support																			
A. 6 feet of length below pipe	each			\$208	\$208	\$208	\$208		\$258		\$258		\$258	\$292	\$292				
B. Each additional 2 feet	lin. ft.			\$8	\$8	\$8	\$8		\$12		\$12		\$12	\$22	\$22				
14. Fabrication of CMP Elbow																			
A. Plain galvanized	each			\$34	\$45	\$54	\$66		\$83		\$100		\$113	\$125	\$148	\$199			
B. Aluminized steel	each			\$35	\$46	\$56	\$69		\$87		\$104		\$119	\$131	\$155	\$210			
15. Fabrication of Canopy Inlet																			
A. Polyvinyl chloride (PVC) or plain galvanized	each			\$30	\$39	\$47	\$57		\$67		\$79		\$94	\$106	\$122	\$149			
B. Aluminized steel	each			\$33	\$43	\$53	\$64		\$75		\$88		\$105	\$118	\$137	\$166			
16. Manually Tamped Backfill																			
A. Riser for drop inlet spillways	lin. ft.						\$3		\$3		\$3	\$4	\$4	\$4	\$5	\$6	\$7	\$8	
B. CMP and plastic pipe barrels	lin. ft.			\$2	\$2	\$2	\$2	\$2	\$2	\$3	\$3	\$3	\$3	\$3	\$4	\$5	\$6	\$7	
C. Inlet, outlet, and culvert under embankment	lin. ft.	\$0.60	\$0.60	\$0.80	\$0.90	\$1.10	\$1.20	\$1.30	\$1.40	\$1.50	\$1.60	\$1.80	\$1.90	\$2.20	\$2.80	\$3.40	\$4.10	\$5.00	
17. Metal End Section (Flared End)	each			\$112	\$112	\$119	\$119		\$126		\$161		\$196	\$238	\$433	\$699	\$1,063	\$1,230	
18. Butyl Rubber Anti-Seep Collars																			
	Unit		1½	2	4	6	8	10	12	14	15	18	21	24					
A. 36" x 36"	each		\$97	\$97	\$97	\$97													
B. 48" x 48"	each		\$127	\$127	\$127	\$127	\$127	\$127											
C. 60" x 60"	each		\$203	\$203	\$203	\$203	\$203	\$203	\$203	\$203	\$203								
D. 72" x 72"	each		\$238	\$238	\$238	\$238	\$238	\$238	\$238	\$238	\$238	\$238	\$238	\$238					
19. Polyethylene (PE) Anti-Seep Collars																			
A. 24" x 24"	each		\$250	\$250															
B. 48" x 48"	each		\$320	\$320	\$300	\$300	\$314	\$324	\$337		\$351	\$364						\$374	
C. 60" x 60"	each		\$479	\$479	\$455	\$455	\$469	\$475	\$496		\$512	\$533						\$556	
D. 72" x 72"	each		\$380	\$380	\$380	\$387	\$391	\$407		\$416	\$429							\$445	
20. Rodent Guard for Terrace Outlet	each			\$29	\$31	\$33	\$43	\$57		\$89	\$124								
21. Inline Water Level Control Structure Components	Pipe Diameter (inches)																		
			Height (feet)												Add for Back Flap				
			2	3	4	5	6	8	10	12									
A. Inline water level control structure (To be placed in the embankment)	4	\$570	\$635	\$700	\$764	\$830	\$998	\$1,134	\$1,254	\$1,374	\$1,494	\$1,614	\$1,734	\$1,854	\$1,974	\$2,094	\$2,214	\$2,334	
	6	\$587	\$656	\$725	\$793	\$861	\$1,038	\$1,265	\$1,543	\$1,821	\$2,099	\$2,377	\$2,655	\$2,933	\$3,211	\$3,489	\$3,767	\$4,045	
	8	\$623	\$715	\$807	\$899	\$991	\$1,222	\$1,543	\$1,864	\$2,185	\$2,506	\$2,827	\$3,148	\$3,469	\$3,790	\$4,111	\$4,432	\$4,753	
	10	\$680	\$796	\$912	\$1,028	\$1,144	\$1,432	\$1,774	\$2,116	\$2,458	\$2,800	\$3,142	\$3,484	\$3,826	\$4,168	\$4,510	\$4,852	\$5,194	
	12	\$796	\$932	\$1,068	\$1,204	\$1,340	\$1,682	\$2,024	\$2,366	\$2,708	\$3,050	\$3,392	\$3,734	\$4,076	\$4,418	\$4,760	\$5,102	\$5,444	
	15	\$989	\$1,103	\$1,226	\$1,483	\$1,673	\$2,052	\$2,431	\$2,810	\$3,189	\$3,568	\$3,947	\$4,326	\$4,705	\$5,084	\$5,463	\$5,842	\$6,221	
	18	\$1,191	\$1,422	\$1,610	\$1,945	\$2,113	\$2,574	\$3,034	\$3,494	\$3,954	\$4,414	\$4,874	\$5,334	\$5,794	\$6,254	\$6,714	\$7,174	\$7,634	
	24		\$1,890	\$2,063	\$2,405	\$2,714	\$3,333	\$3,952										\$200	
			Pipe Diameter (inches)																
			3	4	6	8	10	12	15	18	24	30							
B. Check valve		\$63	\$69	\$129	\$180	\$250	\$319	\$557	\$644										
C. Bar guard or heavy duty bar guard		\$45	\$52	\$60	\$75	\$88	\$113	\$133	\$202	\$272									
22. Irrigation Pipe																			
	Unit		Pipe Diameter (inches)																
			6	8	10	12	15												
Buried Pipe for Irrigation or Waste Transfer																			
A. 50 pounds per square inch (psi) (Standard Dimension Ratio [SDR] 81)	lin. ft.	\$2.57	\$3.54	\$4.84	\$6.42	\$9.61													
B. 80 psi (SDR 51)	lin. ft.	\$3.03	\$4.32	\$6.03	\$8.15	\$12.43													
C. 100 psi (SDR 41)	lin. ft.	\$3.63	\$5.24	\$7.48	\$10.08	\$14.50													
Gated Pipe for Surface Irrigation and Wastewater Treatment Strip																			
A. PVC ^{2/}	lin. ft.	\$2.20	\$3.20	\$4.40	\$6.00														
B. Aluminum ^{2/}	lin. ft.	\$4.30	\$6.30	\$8.80	\$12.00														

^{1/} Includes a pair of flanges welded to the pipe, gasket, or mastic and cost of bolting together

^{2/} 30-foot lengths, 30-inch gate spacing (includes tee and end plugs)

23. Plastic Pipe	Unit	Pipe Diameter (inches)																
		4	5	6	8	10	12	14	15	16	18	20	21	24	30	36	42	
A. Principal spillway barrel ^{1/}																		
(1) SDR 17	lin. ft.			\$5.09	\$8.77	\$12.17	\$16.90											
(2) Schedule 80	lin. ft.			\$5.22	\$7.58	\$11.33	\$15.37											
(3) SDR 21	lin. ft.	\$2.48		\$4.35	\$6.80	\$10.20	\$14.11											
(4) Schedule 40	lin. ft.	\$2.18		\$3.25	\$4.62	\$6.22	\$8.16											
(5) SDR 26	lin. ft.			\$3.75	\$5.80	\$8.63	\$11.90											
(6) Dimension Ratio (DR) 25	lin. ft.			\$4.12	\$6.49	\$9.48	\$13.14	\$17.62		\$22.51	\$28.14	\$34.76		\$49.33	\$74.07	\$104.44		
(7) DR 18	lin. ft.			\$5.28	\$8.53	\$12.50	\$17.39	\$23.49		\$30.07	\$37.65	\$46.61		\$66.38				
(8) Corrugated PVC, smooth interior																		
(a) Pipe Stiffness (PS) 46	lin. ft.			\$4.02	\$5.76	\$8.43	\$11.76		\$17.43		\$23.11		\$30.00	\$33.49	\$46.08	\$59.69		
(b) PS 115	lin. ft.				\$6.66	\$10.83												
(9) Dual wall corrugated PE, smooth interior, with watertight couplings	lin. ft.			\$3.12	\$4.37	\$6.28	\$7.99		\$10.98		\$14.86			\$23.59	\$34.73	\$41.99	\$55.23	
B. Underground outlet main conduit ^{2/}																		
(1) Smooth PVC																		
(a) SDR 21	lin. ft.	\$2.78		\$4.77	\$7.31	\$10.79	\$14.79											
(b) SDR 26	lin. ft.	\$2.49		\$4.17	\$6.31	\$9.22	\$12.58											
(c) SDR 32.5	lin. ft.	\$2.29		\$3.74	\$5.52	\$8.02	\$10.88	\$15.15										
(d) SDR 35	lin. ft.	\$2.10		\$3.36	\$5.11	\$7.42	\$10.19	\$14.80	\$20		\$28	\$35	\$57	\$79	\$106	\$136.58		
(e) SDR 41	lin. ft.	\$2.08		\$3.28	\$4.75	\$6.80	\$9.18	\$12.86										
(2) Corrugated PVC, smooth interior																		
(a) PS 46	lin. ft.	\$3.32		\$4.44	\$6.27	\$9.02	\$12.44	\$18.27	\$24.12		\$31.19	\$34.88	\$47.91	\$62.02				
(b) PS 115	lin. ft.				\$7.17	\$11.42												
(3) Single wall corrugated PE	lin. ft.	\$1.21	\$1.45	\$1.83	\$1.69	\$3.25	\$4.15	\$10.00	\$14.82			\$26.58						
(4) Dual wall corrugated PE, smooth interior, with soil-tight couplings	lin. ft.	\$2.12		\$4.54	\$5.61	\$7.34	\$8.91	\$12.89	\$16.20			\$25.47	\$35.16	\$42.92	\$56.26	\$57.15		
(5) Dual wall corrugated PE, smooth interior, with watertight couplings	lin. ft.	\$2.15		\$3.54	\$4.88	\$6.87	\$9.58	\$13.87	\$17.47			\$27.51	\$36.56	\$44.32	\$58.11	\$59.43		
C. Underground outlet and connections ^{3/} (Underground outlet riser, tee, and fittings)																		
	Size (inches)	Prefabricated or PVC Riser Diameter (inches)																
		5	6	8	10	12	15											
	4	\$92	\$105	\$143	\$198	\$574	\$631											
	6	\$100	\$105	\$143	\$198	\$574	\$631											
	8	\$117	\$126	\$143	\$198	\$574	\$631											
	10	\$136	\$146	\$170	\$198	\$574	\$631											
	12	\$263	\$273	\$296	\$334	\$574	\$631											
	15	\$286	\$296	\$319	\$357	\$612	\$673											
	18	\$338	\$348	\$371	\$409	\$664	\$731											
	24	\$426	\$436	\$459	\$498	\$753	\$828											
D. Livestock water supply line																		
(1) SDR 21, PVC	lin. ft.	\$1.72	\$1.80	\$1.97	\$2.45	\$3.07												
(2) SDR 26, PVC	lin. ft.	\$1.68	\$1.73	\$1.87	\$2.29	\$2.78												
E. Water supply line under dam																		
(1) 100 feet, Schedule 40, PVC ^{4/}	each		\$289	\$305	\$354	\$449												
(2) Each additional foot of pipe	lin. ft.		\$1.41	\$1.52	\$1.96	\$2.36												
(3) 100 feet, SDR 21, PVC ^{4/}	each		\$288	\$310	\$363	\$479												
(4) Each additional foot of pipe	lin. ft.		\$1.39	\$1.57	\$2.05	\$2.66												
F. Siphon supply line over dam																		
(1) 120 feet, 125 psi, PE pipe ^{5/}	each	\$445	\$495	\$534														
(2) Each additional foot of pipe	lin. ft.	\$2.04	\$2.29	\$2.45														
(3) 120 feet, SDR 26, PVC pipe ^{5/}	each	\$381	\$408	\$444														
(4) Each additional foot of pipe	lin. ft.	\$1.51	\$1.56	\$1.70														
G. Slotted flume																		
(1) Fixed cost for 20 feet of flume	each					\$195	\$261	\$363	\$498									
(2) Additional cost per foot	lin. ft.					\$3.75	\$5.80	\$8.63	\$11.90									

^{1/} Does not include manually tamped backfill

^{2/} Includes trenching and machine-placed backfill

^{3/} When risers are used as "bubble up" structures, add 10 percent if gravel is used as backfill

^{4/} Complete with intake, valve, operating rod, valve box and lid, and manually tamped backfill

^{5/} Complete with intake, valves, valve box, filler pipe assembly, testing, excavation, and manually tamped backfill

24. Miscellaneous Structural Items	Unit		Materials Cost	Installation Cost	Total Installation Cost
	A. Concrete				
(1) Formed	cu. yd.		\$110	\$205	\$315
(2) Slab on grade	cu.yd.		\$110	\$110	\$220
B. Steel reinforcement	lbs.		\$0.85	\$1.15	\$2.00
C. Solar pump installations					
(1) 1/4 horsepower (HP) pumps (185 watts) w/controller	ea.		\$1,100.00	\$300.00	\$1,400.00
(2) 1/2 HP pumps (370 watts) w/controller	ea.		\$2,200.00	\$400.00	\$2,600.00
(3) 1 HP pumps w/controller	ea.		\$2,650.00	\$500.00	\$3,150.00
(4) Solar panels w/mounts < 100 watts	watt		\$7.65	\$7.50	\$15.15
(5) Solar panels w/mounts 100 - 185 watts	watt		\$6.20	\$2.30	\$8.50
(6) Solar panels w/mounts > 185 watts	watt		\$5.65	\$1.50	\$7.15
D. Wood picket fences					
(1) Pipe entrances	sq. ft.		\$6.25	\$11.25	\$17.50
(2) Concrete chutes/solid stacks	sq. ft.		\$7.50	\$11.25	\$18.75
E. Geotextiles	sq. yds.		\$1.10	\$2.25	\$3.35
F. Erosion control blankets ^{1/}	sq. yds.		\$1.05	\$1.15	\$2.20
G. Turf reinforcement mats ^{1/}					
(1) North American Green C-350	sq. yds.		\$2.80	\$4.00	\$6.80
(2) Propex Landlok 450	sq. yds.		\$9.75	\$4.00	\$13.75
(3) Pyramat	sq. yds.		\$16.00	\$4.00	\$20.00
H. High-density polyethylene (HDPE) flexible membranes	sq. ft.		\$0.80	\$0.65	\$1.45
I. Articulating concrete block materials	sq. ft.		\$9.00	\$2.50	\$11.50
J. Cellular confinement systems (geocell or geoweb)	sq. ft.		\$1.25	\$0.55	\$1.80
K. Sediment control installations					
(1) Silt fence	lin. ft.		\$0.20	\$2.75	\$2.95
(2) Bale barriers	lin. ft.		\$1.00	\$1.70	\$2.70
(3) Earthen dikes	lin. ft.		\$0.00	\$1.25	\$1.25
L. Gabion baskets	Unit	Gabion Cost	Rockfill Materials Cost (delivered)	Installation Cost	Total Installation Cost
M. Reno mattresses	cu. ft.	\$1.80	\$2.02	\$2.07	\$5.89
	cu. ft.	\$2.55	\$2.02	\$2.07	\$6.64
N. Graded rock riprap (50-mile delivery trip)	Unit	Material Cost	Delivery Cost @ \$0.36/ton-mile	Installation Cost	Total Installation Cost
O. Shot rock or concrete rubble (15-mile delivery trip)	tons	\$20	\$18.00	\$10	\$48.00
P. Graded crushed rock (50-mile delivery trip)	tons	\$8.00	\$5.40	\$10	\$23.40
Q. Fill sand (15-mile delivery trip)	tons	\$16	\$18.00	\$10	\$44.00
R. Drainfill (20-mile delivery trip)	cu.yd.	\$3.75	\$8.10	\$3.75	\$15.60
S. Concrete blocks (20-mile delivery trip)	cu.yd.	\$11	\$10.80	\$3.75	\$25.55
(1) 30" x 30" x 60"	each	\$90	\$16.90	\$21	\$127.90
(2) 24" x 24" x 48" or smaller	each	\$50	\$8.65	\$18	\$76.65
(3) 8" x 8" x 16" concrete masonry units (CMUs)	each	\$1.35	\$0.05	\$2.50	\$3.90

^{1/} Includes pins for staking