

APPENDIX 28

Geometric Elements For Circular Channel Sections

y	a	p	r	$ar^{2/3}$	y	a	p	r	$ar^{2/3}$
d_0	d_0^2	d_0	d_0	$d_0^{3/2}$	d_0	d_0^2	d_0	d_0	$d_0^{3/2}$
0.01	0.0013	0.2003	0.0066	0.0000	0.53	0.4227	1.6303	0.2591	0.1715
0.02	0.0037	0.2838	0.0132	0.0002	0.54	0.4327	1.6509	0.2620	0.1772
0.03	0.0069	0.3482	0.0197	0.0005	0.55	0.4426	1.6710	0.2649	0.1825
0.04	0.0105	0.4027	0.0262	0.0009	0.56	0.4526	1.6911	0.2676	0.1878
0.05	0.0147	0.4510	0.0326	0.0015	0.57	0.4625	1.7113	0.2703	0.1933
0.06	0.0192	0.4949	0.0389	0.0022	0.58	0.4723	1.7315	0.2728	0.1987
0.07	0.0242	0.5355	0.0451	0.0031	0.59	0.4822	1.7518	0.2753	0.2041
0.08	0.0294	0.5735	0.0513	0.0040	0.60	0.4920	1.7722	0.2776	0.2092
0.09	0.0350	0.6094	0.0574	0.0052	0.61	0.5018	1.7926	0.2797	0.2146
0.10	0.0409	0.6435	0.0635	0.0065	0.62	0.5115	1.8132	0.2818	0.2199
0.11	0.0470	0.6761	0.0695	0.0079	0.63	0.5212	1.8338	0.2839	0.2252
0.12	0.0534	0.7075	0.0754	0.0095	0.64	0.5308	1.8546	0.2860	0.2302
0.13	0.0600	0.7377	0.0813	0.0113	0.65	0.5404	1.8755	0.2881	0.2358
0.14	0.0668	0.7670	0.0871	0.0131	0.66	0.5499	1.8965	0.2899	0.2407
0.15	0.0739	0.7954	0.0929	0.0152	0.67	0.5594	1.9177	0.2917	0.2460
0.16	0.0811	0.8230	0.0986	0.0173	0.68	0.5687	1.9391	0.2935	0.2510
0.17	0.0885	0.8500	0.1042	0.0196	0.69	0.5780	1.9606	0.2950	0.2560
0.18	0.0961	0.8763	0.1097	0.0220	0.70	0.5872	1.9823	0.2962	0.2608
0.19	0.1039	0.9020	0.1152	0.0247	0.71	0.5964	2.0042	0.2973	0.2653
0.20	0.1118	0.9273	0.1206	0.0273	0.72	0.6054	2.0264	0.2984	0.2702
0.21	0.1199	0.9521	0.1259	0.0301	0.73	0.6143	2.0488	0.2995	0.2751
0.22	0.1281	0.9764	0.1312	0.0333	0.74	0.6231	2.0714	0.3006	0.2794
0.23	0.1365	1.0003	0.1364	0.0369	0.75	0.6318	2.0944	0.3017	0.2840
0.24	0.1449	1.0239	0.1416	0.0394	0.76	0.6404	2.1176	0.3025	0.2888
0.25	0.1535	1.0472	0.1466	0.0427	0.77	0.6489	2.1412	0.3032	0.2930
0.26	0.1623	1.0701	0.1516	0.0464	0.78	0.6573	2.1652	0.3037	0.2969
0.27	0.1711	1.0928	0.1566	0.0497	0.79	0.6655	2.1895	0.3040	0.3008
0.28	0.1800	1.1152	0.1614	0.0536	0.80	0.6736	2.2143	0.3042	0.3045
0.29	0.1890	1.1373	0.1662	0.0571	0.81	0.6815	2.2395	0.3044	0.3082
0.30	0.1982	1.1593	0.1709	0.0610	0.82	0.6893	2.2653	0.3043	0.3118
0.31	0.2074	1.1810	0.1755	0.0650	0.83	0.6969	2.2916	0.3041	0.3151
0.32	0.2167	1.2025	0.1801	0.0690	0.84	0.7043	2.3186	0.3038	0.3182
0.33	0.2260	1.2239	0.1848	0.0736	0.85	0.7115	2.3462	0.3033	0.3212
0.34	0.2355	1.2451	0.1891	0.0776	0.86	0.7186	2.3746	0.3028	0.3240
0.35	0.2450	1.2661	0.1935	0.0820	0.87	0.7254	2.4039	0.3017	0.3264
0.36	0.2546	1.2870	0.1978	0.0864	0.88	0.7320	2.4341	0.3008	0.3286
0.37	0.2642	1.3078	0.2020	0.0909	0.89	0.7380	2.4655	0.2996	0.3307
0.38	0.2739	1.3284	0.2061	0.0955	0.90	0.7445	2.4981	0.2980	0.3324
0.39	0.2836	1.3490	0.2102	0.1020	0.91	0.7504	2.5322	0.2963	0.3336
0.40	0.2934	1.3694	0.2142	0.1050	0.92	0.7560	2.5681	0.2944	0.3345
0.41	0.3032	1.3898	0.2181	0.1100	0.93	0.7612	2.6061	0.2922	0.3350
0.42	0.3132	1.4101	0.2220	0.1147	0.94	0.7662	2.6467	0.2896	0.3353
0.43	0.3229	1.4303	0.2257	0.1196	0.95	0.7707	2.6906	0.2864	0.3349
0.44	0.3328	1.4505	0.2294	0.1245	0.96	0.7749	2.7389	0.2830	0.3340
0.45	0.3428	1.4706	0.2331	0.1298	0.97	0.7785	2.7934	0.2787	0.3322
0.46	0.3527	1.4907	0.2366	0.1348	0.98	0.7816	2.8578	0.2735	0.3291
0.47	0.3627	1.5108	0.2400	0.1401	0.99	0.7841	2.9412	0.2665	0.3248
0.48	0.3727	1.5308	0.2434	0.1452	1.00	0.7854	3.1416	0.2500	0.3117
0.49	0.3827	1.5508	0.2467	0.1505					
0.50	0.3927	1.5708	0.2500	0.1558					
0.51	0.4027	1.5908	0.2531	0.1610					
0.52	0.4127	1.6108	0.2561	0.1664					

 d_0 = diameter y = depth of flow a = water area p = wetted perimeter r = Hydraulic radius.



ERRATA

S.No	Page	Article	Para	Line	Instead	Read As
1	8	1.6.2	1	3	3.1	Chapter 3
2	11	1.8.2.3-b	2	2	7.3.1	7.1.3
3	41	3.3.1.3	1	1	intensity duration	intensity and duration
4	46	3.4.2.1	-	3	$V = \frac{(1/n)(3.968}{3 \times 10^3} D^{5/2} S^{1/2}$	$V = \frac{(1/n)(3.968}{\times 10^3} D^{5/2} S^{1/2}$
5	49	3.4.2.5	Below Table 3.5	1	These pipe	* These pipe
6	61		--	1	the pipe	the first pipe
7	61		--	4	411	4111
8	66	3.5.4.1	1	4	intercepted high	intercepted, high
9	77	4.2.1.2	3	5	atleast	at least
10	95	6.3.2.1 (a)(i)	3	3	ratios	ratio
11	126	7.1.1.3	1	1	of	or
12	127	7.1.2	1	4	activity zones	activity zones,
13	128	7.1.2.2(b)	2	3	leads	loads
14	129	7.1.3.1	1	2	hunching	haunching
15	155	9.5.2.1	1	3	dru	dry
16	157	--	1	2	will	well
17	165	9.7.5.5	1	2,13	nett	net
18	165	--	--	20	Nett	Net
19	169	9.7.8	6	4	drawn	draw
20	170	9.7.9.4	1	1	consumable	consumables
21	175	9.7.10.2	j	4	accel	acceleration
22	176	9.7.10.3	c	3	pumps	pump
23	178	9.8.8	1	3	complied	complied
24	180	9.9.4	Table 9.5	Row 2/line 3, Col.4	--	IS 7098
25	181	9.11.1	1	1	consumable	consumables
26	188	10.5.4	1	2	putrescoble	putrescible
27	189	10.6	2	1	waste	wastes

ERRATA

S.No	Page	Article	Para	Line	Instead	Read As
28	191		Table 10.1	Row 4(a), Col.1	Biological Growth	Biological Growth
29	191		Table 10.1	Row 4(a) & 4(b) col.1	Biological	Biological
30	191		Table 10.1	Sl.5 col.2	'organic'	--
31	192	10.9.3	Equation 10.1	description of K	'that'	--
32	193		3	4.5 & 9	(θ_c)	θ_c
33	193		3	7	(θ)	θ
34	194	--	Table 10.2	Column 2 (heading)	concentration	concentration, S
35	194	--	Table 10.2	Row 1, col.3	$Y(S_0 - S)$	$Y(S_0 - S)$
36	199	10.10	Table 10.3	3(iii)b col.4	$\frac{1 + K_d}{1 + K_d} \theta$	$\frac{1 + K_d}{1 + K_d} \theta$
37	199	10.10	Table 10.3	3(iii)col.2	90-60	90-96
38	200	11.1.1	3	8	85-90	85-95
39	203	11.2.1	1	8	areas	area
40	206	--	--	2	nonputrescible	nonputrescible
41	208	11.2.5.2	4	1	10 degree	10 degrees C
42	209		--	1	velocity	velocities
43	226	13.3	1	3	particle	particles
44	237	Table 13.2 (Titles)	--	Column 5	nave	have
45	246	14.2.3.2	Eq.14.2		comparison	comparison
46	251	Table 14.2	Heading	--	BOD loading	BOD loading
47	254	14.3.1	3	4	PERCENT	PERCENT
48	259	15.3.2	Eq.15.3	--	suitable	suitably
49	259	15.3.2	4	2	$Le \frac{1}{1 + K_d}$	$Le \frac{1}{1 + K_d}$
50	266	16.2.3	heading	--	0.2	0.3
51	266	16.2.3	1	4	Fixed Films	Fixed film
52	270	17.1	1	2	for	or
53	270	17.1	2	4	setttable	setttable
54	270	17.1	2	6	aid	aim
					removed	removal

ERRATA

S.No	Page	Article	Para	Line	Instead	Read As
55	270	17.2.1	1	2	activate	activated
56	271	17.2.2	heading	---	floatation	floatation
57	271	17.2.2	1	1	floatation	floatation
58	271	17.2.2	2	1	floatation	floatation
59	273		2	3	drying	drying
60	285	17.4.1.5	Eq(17.4)		$-V_d T_2$	$+V_d T_2$
61	296	Chapter 18.1	1	1	different	different
62	298	18.3.3	2	3	startor	starter
63	300	18.7.3	1	4	sould	should
64	301		2	2	ot	to
65	305		Table 19.2	Column,9 heading	Colifomrs	Coliforms
66	307	19.5.1	Table 19.3	S.No.12	Langeller	Langliar
67	308		2	3	(F)	A to F
68	320	20.4	1	2	culture	culture
69	328	20.8.1.3	1	1	usually	usually
70	334		Table 21.2	Note,3 Line 2	of maintenance	for maintenance
71	337	21.2.4	4	2	Appendex 22.1	Appendix 21.1
72	338	21.2.4.3	1	3	nad	and
73	338	21.2.4.3	1	7	oder	odour
74	342		Table 21.5	S.No.3 Line 2	silly Silty	Silty
75	342		Table 21.5	S.No.4 Line 2	silly clay	clay
76	349	21.3.2.3	2	4	and	or
77	350	21.3.3.1	1	2	2M	2m
78	350	21.3.3.3	1	5	imperivous	impervious
79	351	21.4.1	2	2	elemenated	eliminated
80	352	21.4.5	1	10	floating	floating
81	352	21.4.6	2	1	odor	odour
82	352	21.4.6	2	2	mininum vent pipe	vent pipe
83	363	22.3.1	1	3	necessaray	necessary

ERRATA

S.No	Page	Article	Para	Line	Instead	Read As
84	364	22.3.4	1	2	areation	areation
85	365	22.3.8	1	2	chemical	chemical
86	365	Table 22.2	Col.2			--
87	366	22.3.9	1	3	protective	protective
88	368	23.2.1	2	2	thoroughly	thoroughly
89	369	23.2.3.2	1	3	characteristics	characteristics
90	370	23.2.4	1	3	through	through
91	371		1	1	stabilisation	stabilisation
92	371		1	4	thoroughly	thoroughly
93	371	23.2.4.5	1	1	contain	contains
94	372		1	5	interfers	interferes
95	372	23.2.5.1	4	1	opering	operating
96	374		5	1	lubricied	lubricated
97	376		6	4	voltile	volatile
98	377	23.3.2	6	2	opered	operated
99	377	23.3.2	8	1	manually	automatically
100	378		1	6	wherever necessary	(wherever necessary)
101	378		3	4	extinguishing	extinguishing
102	383	24.2.1.11	1	3	fumr	fume
103	383	24.2.1.15	1	2	andled	handled
104	383	24.2.1.15	1	3	efrigerators	refrigerators
105	383	24.2.1.16	1	4	easy	easy
106	385	24.3.1.1	1	1	concentrations	concentrations
107	386		1	2	detches	detaches
108	386	24.4.4	11	3	micorbial	microbial
109	388	24.5.3	1	1	precausions	precautions
110	424		--	10	vesses	vessels
111	430		--	8	Vented	Inverted
112	458					
113	487		--	1		

i.e $\Delta / =$ $\Delta L =$
 $\frac{73 \times 25}{1000} \times \frac{1}{1000} + \frac{73 \times 25}{1000} + \frac{73 \times 25}{1000}$

ERRATA

S.No	Page	Article	Para	Line	Instead	Read As
114	490		--		$Z_3 + d_3 = \frac{V^2}{2g} = Z_4$	$Z_3 + d_3 + \frac{V^2}{2g} = Z_4$
115	493			17	Assuming $\gamma = 75\%$	Assuming $\gamma = 0.75$
116	506		--	3	102.99m	102.99m
117	509		--	check for hydraulic loading	50.00x10x1 (1x1)	50.00x10x1 (1+1)
118	513		--	Average discharge per lateral	2866	2866
119	513		under drainage system	9	q $\frac{q}{d_o^2}$	a $\frac{a}{d_o^2}$ none
120	513	--	--	--	From Appendix 26	From Appendix 28
121	514		--	1	3	1.736 3
122	514				From Appendix 26	From Appendix 28
123	518		--	design of Exit channel	$r = (A/P)$ or $[r/(w+2d)] =$	$r = (A/P)$ or $r = [(wxd)/(w+2d)]$
124	520	Appendix 14.2	2	3	discs	disc
125	521	Appendix 15.1	pond size	para 2 line 1	$235/(1+0.003 \times 100)$	$235/(1+0.003 \times 1)$
126	521	Appendix 15.1	pond size	para 2 line 2	180 kg BOD/ha.d	234 Kg BOD/ha.d
127	543	Appendix 24.1	--	8th Row	Drying over	Drying oven
128	543	Appendix 24.1	--	18th Row	Muffle Furnace	Muffle Furnace
129	543	Appendix 24.1	--	24th Row	funnel	funnel

