

RALPH HALL DEFLECTION POOND

MODIFIED RATIONAL METHOD DEFLECTION VOLUME CALCULATIONS										
Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
5	0.380	20	5.00	0.35	0.67	0.80	10	7.10	0.90	2.4
Return Period	5									
Q _{allow} ³	0.67									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage	Example (40 min)			
10	7.1	0.342	2.43	1437	399	1038	Inflow Volume = T _e * Q _p * 60			
20	5.0	0.342	1.71	2052	599	1454	= 40min * 1.6cfs * 60sec/min			
30	4.0	0.342	1.37	2462	798	1664	= 2.791 ft ³			
40	3.4	0.342	1.16	2791	998	1792	Outflow Volume = 0.35 * (T _e - T ₀) * Q _{allow} * 60			
50	2.9	0.342	0.99	2975	1197	1778	= 0.5 * (40 + 10) min * 0.67 cfs * 60 sec/min			
60	2.6	0.342	0.82	3201	1397	1805	= 998 ft ³			
70	2.4	0.342	0.82	3447	1596	1851	Storage Vol. = Inflow Volume - Outflow Volume			
80	2.2	0.342	0.75	3612	1796	1816	= 2.791 ft ³ - 998 ft ³			
90	2.0	0.342	0.68	3694	1995	1699	= 1.793 ft ³			

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Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
10	0.380	20	5.79	0.35	0.77	0.380	10	7.28	0.90	2.5
Return Period	10									
Q _{allow} ³	0.77									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	7.28	0.342	2.49	1494	462	1032				
20	5.79	0.342	1.98	2376	693	1683				
30	4.76	0.342	1.65	2950	924	2006				
40	4	0.342	1.37	3283	1155	2128				
50	3.45	0.342	1.18	3540	1386	2154				
60	3.04	0.342	1.04	3743	1617	2126				
70	2.73	0.342	0.95	3921	1848	2075				
80	2.46	0.342	0.84	4038	2079	1959				
90	2.27	0.342	0.78	4192	2310	1882				

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Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
25	0.380	20	6.64	0.35	0.88	0.380	10	8.28	0.90	2.83
Return Period	25									
Q _{allow} ³	0.88									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	8.28	0.342	2.83	1699	530	1169				
20	6.64	0.342	2.27	2725	795	1930				
30	5.48	0.342	1.87	3373	1060	2314				
40	4.63	0.342	1.58	3800	1325	2476				
50	4	0.342	1.37	4104	1590	2514				
60	3.54	0.342	1.21	4338	1855	2504				
70	3.18	0.342	1.09	4568	2119	2448				
80	2.88	0.342	0.98	4728	2384	2343				
90	2.65	0.342	0.91	4894	2649	2245				

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Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
100	0.380	20	8.30	0.35	1.10	0.38	10	9.80	0.90	3.35
Return Period	100									
Q _{allow} ³	1.10									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	9.8	0.342	3.35	2011	662	1349				
20	8.3	0.342	2.84	3406	994	2413				
30	6.9	0.342	2.36	4248	1323	3195				
40	5.8	0.342	1.98	4761	1656	3103				
50	5	0.342	1.71	5130	1987	3143				
60	4.5	0.342	1.54	5340	2318	3222				
70	4	0.342	1.37	5746	2649	3096				
80	3.7	0.342	1.27	6074	2981	3093				
90	3.5	0.342	1.20	6464	3312	3152				
100	3.4	0.342	1.16	6977	3643	3344				
110	3.2	0.342	1.09	7223	3974	3249				

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Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
100	0.380	20	8.30	0.35	1.10	0.38	10	9.80	0.90	3.35
Return Period	100									
Q _{allow} ³	1.10									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	9.8	0.342	3.35	2011	662	1349				
20	8.3	0.342	2.84	3406	994	2413				
30	6.9	0.342	2.36	4248	1323	3195				
40	5.8	0.342	1.98	4761	1656	3103				
50	5	0.342	1.71	5130	1987	3143				
60	4.5	0.342	1.54	5340	2318	3222				
70	4	0.342	1.37	5746	2649	3096				
80	3.7	0.342	1.27	6074	2981	3093				
90	3.5	0.342	1.20	6464	3312	3152				
100	3.4	0.342	1.16	6977	3643	3344				
110	3.2	0.342	1.09	7223	3974	3249				

MARKEE CENTER DEFLECTION POOND

MODIFIED RATIONAL METHOD DEFLECTION VOLUME CALCULATIONS										
Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
5	0.590	20	5.00	0.35	1.03	0.590	10	7.10	0.90	3.8
Return Period	5									
Q _{allow} ³	1.03									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	7.1	0.531	3.77	2262	620	1643				
20	5.0	0.531	2.66	3186	929	2257				
30	4.0	0.531	2.12	3823	1239	2584				
40	3.4	0.531	1.81	4333	1549	2784				
50	2.9	0.531	1.54	4620	1859	2761				
60	2.6	0.531	1.38	4970	2168	2802				
70	2.4	0.531	1.27	5352	2478	2874				
80	2.2	0.531	1.17	5607	2788	2820				
90	2.0	0.531	1.06	5735	3098	2637				

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Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
10	0.590	20	5.79	0.35	1.20	0.590	10	7.28	0.90	3.9
Return Period	10									
Q _{allow} ³	1.20									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	7.28	0.531	3.87	2319	717	1602				
20	5.79	0.531	3.07	3689	1076	2613				
30	4.76	0.531	2.53	4550	1455	3104				
40	4	0.531	2.12	5098	1795	3304				
50	3.45	0.531	1.83	5496	2152	3344				
60	3.04	0.531	1.61	5811	2511	3300				
70	2.73	0.531	1.45	6088	2870	3219				
80	2.46	0.531	1.31	6270	3228	3042				
90	2.27	0.531	1.21	6509	3587	2922				

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Return Period	Existing Area	T _e	Existing			Proposed			Q _p	
			i	e	Q _{ave}	i	e	Q _{ave}		
25	0.590	20	6.64	0.35	1.37	0.590	10	8.28	0.90	4.40
Return Period	25									
Q _{allow} ³	1.37									
T _e (prop) (min)	10									
Total Storage										
T _e (min)	1 (in/hr)	CA	Q _p (cfs)	Vol _{in} (ft ³)	Vol _{out} (ft ³)	Storage				
10	8.28	0.531	4.40	2638	823	1815				
20	6.64	0.531	3.53	4231	1254	2997				
30	5.48	0.531	2.91	5238	1645	3392				
40	4.65	0.531	2.46	5900	2057	3544				
50	4	0.531	2.12	6372	2468	3604				
60	3.54	0.531	1.88	6762	2879	3580				
70	3.18	0.531	1.69	7092	3291	3501				