

15-YEAR, 20-MIN. HYDRAULIC CALCULATIONS:

LineNo.	LineID	LineSize	FlowRate	InvertDn	InvertUp	LineLength	LineSlope	Vel/Ave	Grnd/RimElev Dn	Grnd/RimElev Up	HGLDn	HGLUp	Rim-Hw	CriticalDepth	EGLDn	EGLUp	EnergyLoss	CapacityFull	n-value	Pipe
		(in)	(cfs)	(ft)	(ft)	(ft)	(%)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)		
1	212-213	30	25.72	518.00	518.28	27.59	1.02	5.36	520.88	528.00	520.50	520.56	7.37	1.73	520.93	521.03	0.10	41.32	0.013	
2	213-215	24	25.72	522.50	527.06	23.37	19.51	17.68	528.00	535.00	523.19	528.84	6.16	1.78	524.37	530.02	0.00	99.92	0.013	
3	215-227	24	19.62	527.88	530.00	211.97	1.00	7.71	535.00	543.10	529.32	531.59	11.51	1.59	530.15	532.42	0.00	22.62	0.013	
4	227-228	21	15.37	538.03	543.00	98.95	5.02	10.72	543.10	547.92	538.84	544.45	3.47	1.45	539.65	545.26	0.00	35.50	0.013	
5	228-229	21	13.70	543.20	547.30	134.98	3.04	7.11	547.92	554.15	544.45	548.68	5.47	1.38	545.16	549.38	0.00	27.61	0.013	
6	229-231	21	11.31	547.50	555.41	132.50	5.97	6.36	554.15	563.90	548.68	556.66	7.24	1.25	549.26	557.25	0.00	38.70	0.013	
7	231-232	21	9.28	555.61	555.96	35.00	1.00	5.89	563.90	563.90	556.66	557.09	6.81	1.13	557.16	557.59	0.00	15.84	0.013	
8	232-233	18	6.27	556.16	557.23	105.86	1.01	5.32	563.90	566.20	557.09	558.20	8.00	0.97	557.51	558.62	0.00	10.56	0.013	
9	233-234	15	5.24	560.93	564.03	104.40	2.97	7.15	566.20	570.30	561.53	564.96	5.34	0.93	561.98	565.41	0.00	11.13	0.013	
10	234-235	15	3.79	564.49	566.81	104.40	2.22	6.02	570.30	574.70	565.04	567.60	7.10	0.79	565.37	567.93	0.00	9.63	0.013	
11	235-236	15	2.86	567.01	568.08	107.40	1.00	4.63	574.70	576.35	567.60	568.76	7.59	0.68	567.87	569.03	0.00	6.45	0.013	
12	236-237	12	1.50	568.29	568.50	17.50	1.20	3.90	576.35	575.80	568.76	569.02	6.78	0.52	568.97	569.23	0.00	3.90	0.013	
13	237-238	12	0.69	570.45	570.80	35.00	1.00	3.18	575.80	575.80	570.75	571.15	4.65	0.35	570.88	571.27	0.00	3.56	0.013	
14	236-247	12	1.36	570.04	570.93	89.30	1.00	3.88	576.35	575.30	570.47	571.42	3.88	0.49	570.66	571.62	0.00	3.56	0.013	
15	215-216	15	6.10	530.00	539.21	47.25	19.49	12.15	535.00	548.00	530.39	540.21	7.79	1.00	530.92	540.73	0.00	28.51	0.013	
16	216-217	15	5.21	542.00	548.70	137.79	4.86	8.02	548.00	557.26	542.52	549.62	7.64	0.92	542.97	550.07	0.00	14.24	0.013	
17	217-218	15	4.59	548.90	557.70	119.86	7.34	5.64	557.26	564.60	549.62	558.57	6.03	0.87	550.02	558.96	0.00	17.50	0.013	
18	218-219	15	3.99	557.90	560.79	104.73	2.76	5.37	564.60	571.50	558.57	561.60	9.90	0.81	558.92	561.95	0.00	10.73	0.013	
19	219-220	15	3.24	560.99	562.41	141.88	1.00	4.83	571.50	574.75	561.62	563.13	11.62	0.72	561.92	563.43	0.00	6.46	0.013	
20	220-221	15	2.89	562.61	564.44	182.74	1.00	4.67	574.75	572.77	563.20	565.12	7.65	0.68	563.47	565.40	0.00	6.46	0.013	
21	221-222	12	1.81	564.64	565.45	80.89	1.00	4.22	572.77	571.75	565.14	566.02	5.73	0.57	565.38	566.26	0.00	3.56	0.013	
22	222-223	12	1.55	565.65	566.70	105.11	1.00	4.03	571.75	573.75	566.11	567.23	6.52	0.53	566.32	567.44	0.00	3.56	0.013	
23	223-224	12	0.66	568.90	569.25	35.00	1.00	3.14	573.75	573.75	569.19	569.59	4.16	0.34	569.32	569.71	0.00	3.56	0.013	
24	235-246	12	0.93	568.00	569.94	93.75	1.00	3.47	574.70	573.15	568.35	569.34	3.81	0.40	568.50	569.50	0.00	3.57	0.013	
25	234-245	12	1.45	564.23	565.04	81.00	1.00	2.99	570.30	570.00	564.96	565.55	4.45	0.51	565.16	565.75	0.00	3.56	0.013	
26	233-244	12	1.03	559.99	560.80	80.83	1.00	3.58	566.20	566.90	560.36	561.23	4.57	0.43	560.52	561.39	0.00	3.56	0.013	
27	227-239	15	4.25	538.03	541.51	17.85	19.49	10.78	543.10	552.00	538.36	542.34	9.66	0.83	538.73	542.72	0.00	28.51	0.013	
28	239-240	15	3.75	547.00	550.00	51.61	5.81	7.54	552.00	559.40	547.42	550.78	8.62	0.78	547.75	551.12	0.00	15.57	0.013	
29	240-241	15	3.75	552.54	553.00	45.79	1.00	5.05	559.40	560.20	553.22	553.78	6.42	0.78	553.56	554.12	0.00	6.47	0.013	
30	229-248	12	0.99	547.50	556.13	137.45	6.28	2.22	554.15	561.33	548.68	556.55	4.78	0.42	548.70	556.71	0.45	8.92	0.013	
31	248-248A	12	0.50	556.33	561.10	52.90	9.02	3.29	561.33	566.10	556.55	561.39	4.71	0.29	556.65	561.50	0.00	10.69	0.013	
32	232-243	12	0.62	556.16	557.92	102.50	1.72	1.79	563.90	562.10	557.09	558.25	3.85	0.33	557.21	558.37	0.00	4.67	0.013	
33	301-302	15	3.79	542.00	542.54	53.98	1.00	3.84	543.52	555.90	543.25	543.94	12.10	0.79	543.40	543.66	0.27	6.46	0.013	
34	302-303	12	2.73	546.49	555.62	85.45	10.69	8.35	555.50	562.80	546.82	556.33	6.47	0.71	547.15	556.66	0.00	11.64	0.013	
35	303-305	12	2.73	555.96	556.49	22.75	2.33	5.76	562.80	562.35	556.46	557.20	5.15	0.71	556.79	557.53	0.00	5.44	0.013	
36	305-306	12	1.50	555.85	556.20	35.00	1.00	1.91	562.35	562.35	557.20	557.26	5.03	0.52	557.25	557.32	0.06	3.56	0.013	
37	200-201	36	48.09	512.50	512.91	41.47	0.99	6.97	515.92	522.55	515.50	515.63	6.13	2.26	516.22	516.42	0.20	66.31	0.013	
38	201-203	24	11.64	513.11	515.54	45.29	5.37	4.74	522.55	523.80	516.42	516.76	7.04	1.22	516.64	517.28	0.19	52.39	0.013	
39	203-204	21	11.64	515.74	518.56	163.02	1.73	7.09	523.80	526.23	516.76	519.83	6.40	1.27	517.37	520.43	0.00	20.83	0.013	
40	204-205	21	11.64	518.76	535.46	103.81	16.09	6.89	526.23	546.10	519.83	536.73	9.37	1.27	520.43	537.33	0.00	63.54	0.013	
41	205-206	18	7.20	537.71	542.10	56.02	7.84	9.63	546.10	547.00	538.22	543.14	3.86	1.04	538.69	543.61	0.00	29.40	0.013	
42	206-207	18	7.20	542.30	543.36	105.76	1.00	5.96	547.00	550.00	543.21	544.40	5.60	1.04	543.68	544.87	0.00	10.51	0.013	
43	207-208	18	7.20	545.25	546.60	54.72	2.47	7.26	550.00	554.11	545.94	547.64	6.47	1.04	546.42	548.11	0.00	16.49	0.013	
44	208-209	18	7.20	546.80	547.80	100.00	1.00	5.96	554.11	564.58	547.71	548.84	15.74	1.04	548.19	549.31	0.00	10.50	0.013	
45	209-210	18	7.20	548.00	551.07	157.24	1.95	6.30	564.58	562.00	548.84	552.11	9.89	1.04	549.31	552.58	0.00	14.67	0.013	
46	210-211	18	7.20	551.27	551.50	22.94	1.00	5.96	562.00	553.29	552.18	552.54	0.75	1.04	552.65	553.01	0.00	10.51	0.013	
47	205-300	15	4.44	539.60	539.80	13.05	1.53	5.83	546.10	545.12	540.27	540.65	4.47	0.85	540.65	541.04	0.00	8.00	0.013	
48	201-202	30	36.45	513.11	513.29	17.59	1.02	7.43	522.55	521.22	516.42	516.56	3.80	2.04	517.28	517.42	0.14	41.49	0.013	
49	100-101	21	4.14	494.42	494.22	22.02	1.00	1.79	495.79	500.50	495.75	495.76	4.72	0.74	495.80	495.81	0.01	15.83	0.013	
50	101-103	18	4.14	494.42	499.51	31.74	16.04	3.46	500.50	509.20	495.78	500.29	8.91	0.78	496.09	500.60	0.00	42.05	0.013	
51	103-104	18	4.14	503.17	514.72	58.34	19.80	10.39	509.20	520.50	503.47	515.50	5.00	0.78	503.78	515.81	0.00	46.72	0.013	
52	104-104A	15	3.78	514.92	530.59	85.75	18.27	5.73	520.50	539.60	515.50	531.38	8.22	0.79	515.84	531.71	0.00	27.61	0.013	
53	104A-105	15	3.78	532.05	532.55	47.87	1.04	5.11	539.60	540.45	532.73	533.34	7.11	0.79	533.07	533.67	0.00	6.60	0.013	
54	250-251	12	1.35	517.00	517.19	19.49	0.97	1.72	0.00	523.25	519.64	519.67	3.57	0.49	519.69	519.71	0.03	3.52	0.013	
55	251-252	12	1.35	518.00	539.30	157.66	13.51	2.62	523.25	544.00	519.68	539.79	4.21	0.49	519.73	539.98	0.60	13.09	0.013	
56	252-253	12	1.35	539.50	553.00	156.01	8.65	5.32	544.00	557.50	539.79	553.49	4.01	0.49	539.98	553.68	0.00	10.48	0.013	

Notes: j-Line contains hyd. jump

15-YEAR, 20-MIN. HYDRAULIC CALCULATIONS-100 YEAR LOW FLOW BLOCKED STARTING HGL OR TOP OF PIPE, WHICHEVER IS GREATER

LineNo.	LineID	LineSize	FlowRate	InvertDn	InvertUp	LineLength	LineSlope	Vel/Ave	Grnd/RimElev Dn	Grnd/RimElev Up	HGLDn	HGLUp	Rim-Hw	CriticalDepth	EGLDn	EGLUp
---------	--------	----------	----------	----------	----------	------------	-----------	---------	-----------------	-----------------	-------	-------	--------	---------------	-------	-------