

# ENGINEERING SOLUTIONS

—ENGINEERING & SURVEYING—  
50 SE 30TH STREET  
LEIS SUMMIT, MO 64082  
P:(816) 623-9888 F:(816) 623-9849

10 YEAR INLET																				
D.S. Line	U.S. Line	Area (ac)	InletTime (min)	Int. (in/hr)	RunoffCoeff. (C)	Q=CIA (cfs)	Q.Carry-over (cfs)	QCaptured (cfs)	QBypassed (cfs)	JunctType	CurbHeight (in)	CurbLength (ft)	GutterSlope (ft/ft)	GutterWidth (ft)	CrossSlope, Sw (ft/ft)	CrossSlope, Sx (ft/ft)	InletDepth (ft)	GutterDepth (ft)	GutterSpread (ft)	BypassLine No.
5-5	5-6	0.87	6.2	6.94	0.51	3.08	0	3.08	0	Dp-Curb	10	12	Sag	....	0.02	0.02	0.19	0.19	9.7	Sag
S-6	M4 5-1	0.86	7.5	6.63	0.51	2.91	0	2.91	0	Dp-Curb	10	12	Sag	....	0.02	0.02	0.19	0.19	9.33	Sag
M4 5-1	M4 5-2	0.77	6.9	6.77	0.51	2.66	0	2.66	0	Dp-Curb	10	12	Sag	....	0.02	0.02	0.18	0.18	8.79	Sag
M4 1-1	M4 1-2	0.37	7.6	6.6	0.51	1.25	0.67	0.56	1.36	Curb	10	5	0.011	2	0.02	0.02	0.17	0.17	8.37	16
M4 1-2	M4 1-3	0.27	7.1	6.72	0.51	0.93	0.86	0.77	1.01	Curb	10	5	0.011	2	0.05	0.02	0.21	0.21	7.5	17
M4 1-3	M4 1-4	0.47	8.4	6.42	0.51	1.54	0	1.54	0	Dp-Curb	10	12	Sag	....	0.02	0.02	0.12	0.12	6.11	Sag
M4 1-4	M4 1-5	1.01	8.5	6.4	0.51	3.3	0.82	4.12	0	Curb	10	5	Sag	2	0.05	0.02	0.42	0.42	18.11	Sag
M4 1-5	M4 2-1	0.67	6.4	6.89	0.51	2.36	0	2.36	0	Dp-Curb	10	12	Sag	....	0.02	0.02	0.16	0.16	8.11	Sag
M4 2-1	M4 2-2	0.29	7.4	6.65	0.51	0.98	0	0.98	0	Dp-Curb	10	12	Sag	....	0.02	0.02	0.09	0.09	4.53	Sag
M4 2-2	M4 2-3	0.33	8.2	6.47	0.51	1.09	0.15	0.64	0.6	Curb	10	5	0.01	2	0.05	0.02	0.19	0.19	6.51	34
M4 2-3	M4 2-4	0.05	5.2	7.21	0.51	0.18	0.35	0.39	0.15	Curb	10	5	0.01	2	0.05	0.02	0.15	0.15	4.27	37
M4 2-4	R4 1-1	0.21	6.3	6.92	0.51	0.74	0	0.39	0.35	Curb	10	5	0.026	2	0.05	0.02	0.14	0.14	3.92	38
R4 1-1	R4 1-2	0.65	8.3	6.44	0.51	2.14	0	0.7	1.44	Curb	10	5	0.026	2	0.05	0.02	0.19	0.19	6.73	Offsite
R4 1-2	R4 1-3	0.35	6.7	6.82	0.51	1.22	0	0.46	0.76	Curb	10	5	0.042	2	0.05	0.02	0.15	0.15	4.52	Offsite
R4 1-3	R4 1-4	0.26	6.5	6.87	0.51	0.91	0	0.42	0.49	Curb	10	5	0.032	2	0.05	0.02	0.14	0.14	4.15	Offsite
R4 1-4	M4 3-1	0.39	6.9	6.77	0.51	1.35	0	0.49	0.86	Curb	10	5	0.041	2	0.05	0.02	0.16	0.16	4.8	32
M4 3-1	M4 3-2	0.32	6.7	6.82	0.51	1.11	0	0.44	0.67	Curb	10	5	0.041	2	0.05	0.02	0.15	0.15	4.33	31
M4 3-2	M4 4-1	0.19	6.6	6.84	0.51	0.66	0	0.44	0.22	Curb	10	5	0.01	2	0.05	0.02	0.16	0.16	4.79	34

10 YEAR STORM PIPE																						
U.S. Line	D.S. Line	LineLength (ft)	Incr.Area (ac)	TotalArea (ac)	RunoffCoeff. (C)	IncrCx A	TotalCx A	InletTime (min)	TimeConc (min)	Rnfalnt (in/hr)	TotalRunoff (cfs)	TotalFlow (cfs)	CapacFull (cfs)	Veloc (ft/s)	PipeSize (in)	PipeSlope (%)	Inv ElevDn (ft)	Inv ElevUp (ft)	HGLdn (ft)	HGLup (ft)	Grnd/RimDn (ft)	Grnd/RimUp (ft)
5-5	5-6	115.83	0.87	2.5	0.51	0.44	1.28	6.2	8	6.5	8.29	8.29	51.85	4.98	36	0.6	1005.95	1006.65	1006.76	1007.56	1011	1011.1
S-6	M4 5-1	204.74	0.86	1.63	0.51	0.44	0.83	7.5	7.5	6.6	5.51	5.51	14.31	6.26	18	1.86	1007.2	1011	1008.02	1012.12	1011.1	1016.9
M4 5-1	M4 5-2	148.03	0.77	0.77	0.51	0.39	0.39	6.9	6.9	6.8	2.66	2.66	8.8	4.09	15	1.86	1011.25	1014	1011.5	1014.65	1016.9	1019.8
M4 1-1	M4 1-2	147.73	0.37	5.83	0.51	0.19	2.97	7.6	10.7	6	17.7	17.7	6.72	6.89	36	1.02	1006.5	1006.05	1007.85	1008	1015.57	
M4 1-2	M4 1-3	34	0.27	5.46	0.51	0.14	2.78	7.1	10.6	6	16.63	16.63	57.19	6.33	36	0.74	1006.75	1007	1007.86	1008.3	1015.57	1015.58
M4 1-3	M4 1-4	128.29	0.47	5.19	0.51	0.24	2.65	8.4	10.3	6	15.97	15.97	6.4	3.6	2.92	1007.25	1011	1008.3	1012.28	1015.58	1015.58	
M4 1-4	M4 1-5	136.19	1.01	1.01	0.51	0.52	8.5	8.5	6.4	3.3	3.3	10.72	6.05	15	2.75	1012.25	1016	1012.73	1016.73	1017	1023.3	
M4 1-5	M4 2-1	115.57	0.67	3.71	0.51	0.34	1.89	6.4	10	6.1	11.52	11.52	46.72	6.59	30	1.3	1011.5	1013	1012.35	1014.14	1017	1020
M4 2-1	M4 2-2	179.97	0.29	2.33	0.51	0.15	1.19	7.4	9.4	6.2	7.38	7.38	35.52	5.17	30	0.75	1013.5	1014.85	1014.27	1015.75	1020	1026.5
M4 2-2	M4 2-3	151.57	0.33	2.04	0.51	0.17	1.04	8.2	8.9	6.3	6.56	6.56	19.7	5.19	24	0.76	1015.35	1016.5	1016.15	1017.41	1026.5	1024.8
M4 2-3	M4 2-4	139.12	0.05	1.52	0.51	0.03	0.78	5.2	8.5	6.4	4.96	4.96	23.49	5.13	24	1.08	1017.1	1018.5	1017.63	1019.28	1024.8	1026.2
M4 2-4	R4 1-1	43.15	0.21	1.47	0.51	0.11	0.75	6.3	8.4	6.4	4.82	4.82	48.69	7.09	24	4.63	1019.1	1021	1019.43	1021.77	1026.2	1028.03
R4 1-1	R4 1-2	33.95	0.65	1.26	0.51	0.33																