

WWHM2012
PROJECT REPORT

General Model Information

Project Name: 5'SidewalkGravelTrench5'RunOn
Site Name:
Site Address:
City:
Report Date: 1/23/2018
Gage:
Data Start: 10/01/1901
Data End: 09/30/2059
Timestep: 15 Minute
Precip Scale: 1.000
Version Date: 2017/10/31
Version: 4.2.13

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre
C, Forest, Flat 0.104

Pervious Total 0.104

Impervious Land Use acre

Impervious Total 0

Basin Total 0.104

Element Flows To:		
Surface	Interflow	Groundwater

Mitigated Land Use

Lateral Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre
C, Lawn, Mod .064

Element Flows To:

Surface Interflow Groundwater

Gravel Trench Bed 1 Gravel Trench Bed 1

Lateral I Basin 1

Bypass:	No
Impervious Land Use	acre
SIDEWALKS MOD LAT	0.04
Element Flows To:	
Outlet 1	Outlet 2
Gravel Trench Bed 1	

Routing Elements

Predeveloped Routing

Mitigated Routing

Gravel Trench Bed 1

Bottom Length: 350.00 ft.
 Bottom Width: 5.00 ft.
 Trench bottom slope 1: 0 To 1
 Trench Left side slope 0: 1 To 1
 Trench right side slope 2: 1 To 1
 Material thickness of first layer: 0.5
 Pour Space of material for first layer: 0.2
 Material thickness of second layer: 0
 Pour Space of material for second layer: 0
 Material thickness of third layer: 0
 Pour Space of material for third layer: 0
 Infiltration On
 Infiltration rate: 0.2
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 27.173
 Total Volume Through Riser (ac-ft.): 0.009
 Total Volume Through Facility (ac-ft.): 27.182
 Percent Infiltrated: 99.97
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Discharge Structure
 Riser Height: 0.5 ft.
 Riser Diameter: 24 in.
 Element Flows To:
 Outlet 1 Outlet 2

Gravel Trench Bed Hydraulic Table

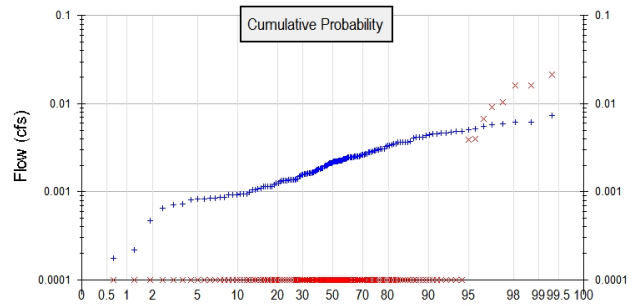
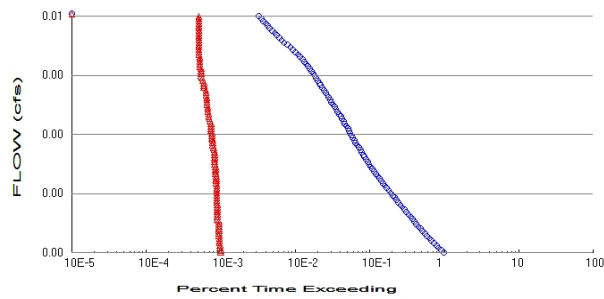
Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.040	0.000	0.000	0.000
0.0167	0.040	0.000	0.000	0.008
0.0333	0.040	0.000	0.000	0.008
0.0500	0.041	0.000	0.000	0.008
0.0667	0.041	0.000	0.000	0.008
0.0833	0.041	0.000	0.000	0.008
0.1000	0.041	0.000	0.000	0.008
0.1167	0.042	0.001	0.000	0.008
0.1333	0.042	0.001	0.000	0.008
0.1500	0.042	0.001	0.000	0.008
0.1667	0.042	0.001	0.000	0.008
0.1833	0.043	0.001	0.000	0.008
0.2000	0.043	0.001	0.000	0.008
0.2167	0.043	0.001	0.000	0.008
0.2333	0.043	0.002	0.000	0.008
0.2500	0.044	0.002	0.000	0.008
0.2667	0.044	0.002	0.000	0.008
0.2833	0.044	0.002	0.000	0.008
0.3000	0.045	0.002	0.000	0.008
0.3167	0.045	0.002	0.000	0.008
0.3333	0.045	0.002	0.000	0.008
0.3500	0.045	0.003	0.000	0.008
0.3667	0.046	0.003	0.000	0.008
0.3833	0.046	0.003	0.000	0.008

0.4000	0.046	0.003	0.000	0.008
0.4167	0.046	0.003	0.000	0.008
0.4333	0.047	0.003	0.000	0.008
0.4500	0.047	0.003	0.000	0.008
0.4667	0.047	0.004	0.000	0.008
0.4833	0.047	0.004	0.000	0.008
0.5000	0.048	0.004	0.000	0.008
0.5167	0.048	0.005	0.045	0.008
0.5333	0.048	0.006	0.129	0.008
0.5500	0.049	0.006	0.237	0.008
0.5667	0.049	0.007	0.365	0.008
0.5833	0.049	0.008	0.510	0.008
0.6000	0.049	0.009	0.670	0.008
0.6167	0.050	0.010	0.844	0.008
0.6333	0.050	0.011	1.030	0.008
0.6500	0.050	0.011	1.229	0.008
0.6667	0.050	0.012	1.438	0.008
0.6833	0.051	0.013	1.657	0.008
0.7000	0.051	0.014	1.886	0.008
0.7167	0.051	0.015	2.124	0.008
0.7333	0.052	0.016	2.369	0.008
0.7500	0.052	0.017	2.623	0.008
0.7667	0.052	0.017	2.883	0.008
0.7833	0.052	0.018	3.149	0.008
0.8000	0.053	0.019	3.421	0.008
0.8167	0.053	0.020	3.698	0.008
0.8333	0.053	0.021	3.979	0.008
0.8500	0.053	0.022	4.264	0.008
0.8667	0.054	0.023	4.552	0.008
0.8833	0.054	0.024	4.842	0.008
0.9000	0.054	0.025	5.134	0.008
0.9167	0.054	0.025	5.427	0.008
0.9333	0.055	0.026	5.721	0.008
0.9500	0.055	0.027	6.015	0.008
0.9667	0.055	0.028	6.307	0.008
0.9833	0.056	0.029	6.598	0.008
1.0000	0.056	0.030	6.887	0.008
1.0167	0.056	0.031	7.173	0.008
1.0333	0.056	0.032	7.456	0.008
1.0500	0.057	0.033	7.734	0.008
1.0667	0.057	0.034	8.008	0.008
1.0833	0.057	0.035	8.277	0.008
1.1000	0.057	0.036	8.540	0.008
1.1167	0.058	0.037	8.796	0.008
1.1333	0.058	0.038	9.046	0.008
1.1500	0.058	0.039	9.288	0.008
1.1667	0.058	0.040	9.523	0.008
1.1833	0.059	0.041	9.749	0.008
1.2000	0.059	0.042	9.967	0.008
1.2167	0.059	0.043	10.17	0.008
1.2333	0.060	0.044	10.37	0.008
1.2500	0.060	0.045	10.56	0.008
1.2667	0.060	0.046	10.75	0.008
1.2833	0.060	0.047	10.92	0.008
1.3000	0.061	0.048	11.08	0.008
1.3167	0.061	0.049	11.24	0.008
1.3333	0.061	0.050	11.38	0.008
1.3500	0.061	0.051	11.52	0.008

1.3667	0.062	0.052	11.65	0.008
1.3833	0.062	0.053	11.77	0.008
1.4000	0.062	0.054	11.88	0.008
1.4167	0.062	0.055	11.99	0.008
1.4333	0.063	0.056	12.09	0.008
1.4500	0.063	0.057	12.19	0.008
1.4667	0.063	0.058	12.28	0.008
1.4833	0.064	0.059	12.37	0.008
1.5000	0.064	0.060	12.46	0.008

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.104
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.064
Total Impervious Area: 0.04

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.002192
5 year	0.003409
10 year	0.004071
25 year	0.004745
50 year	0.005145
100 year	0.005474

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	0.002	0.000
1903	0.001	0.000
1904	0.002	0.000
1905	0.001	0.000
1906	0.000	0.000
1907	0.003	0.000
1908	0.002	0.000
1909	0.002	0.000
1910	0.003	0.000
1911	0.002	0.000

1912	0.007	0.007
1913	0.003	0.000
1914	0.001	0.000
1915	0.001	0.000
1916	0.002	0.000
1917	0.001	0.000
1918	0.002	0.000
1919	0.002	0.000
1920	0.002	0.000
1921	0.002	0.000
1922	0.003	0.000
1923	0.002	0.000
1924	0.001	0.000
1925	0.001	0.000
1926	0.002	0.000
1927	0.001	0.000
1928	0.002	0.000
1929	0.003	0.000
1930	0.002	0.000
1931	0.002	0.000
1932	0.002	0.000
1933	0.002	0.000
1934	0.005	0.000
1935	0.002	0.000
1936	0.002	0.000
1937	0.003	0.000
1938	0.002	0.000
1939	0.000	0.000
1940	0.002	0.000
1941	0.001	0.000
1942	0.003	0.000
1943	0.002	0.000
1944	0.003	0.000
1945	0.003	0.000
1946	0.001	0.000
1947	0.001	0.000
1948	0.005	0.000
1949	0.004	0.000
1950	0.001	0.000
1951	0.001	0.000
1952	0.006	0.016
1953	0.006	0.009
1954	0.002	0.000
1955	0.002	0.000
1956	0.001	0.000
1957	0.003	0.000
1958	0.006	0.000
1959	0.004	0.000
1960	0.001	0.000
1961	0.004	0.000
1962	0.002	0.000
1963	0.001	0.000
1964	0.001	0.000
1965	0.004	0.000
1966	0.001	0.000
1967	0.002	0.000
1968	0.002	0.000
1969	0.002	0.000

1970	0.003	0.000
1971	0.004	0.000
1972	0.003	0.004
1973	0.004	0.000
1974	0.002	0.000
1975	0.005	0.004
1976	0.002	0.000
1977	0.001	0.000
1978	0.004	0.000
1979	0.001	0.000
1980	0.002	0.000
1981	0.002	0.000
1982	0.001	0.000
1983	0.004	0.000
1984	0.002	0.000
1985	0.002	0.000
1986	0.002	0.000
1987	0.004	0.000
1988	0.003	0.000
1989	0.002	0.000
1990	0.003	0.000
1991	0.002	0.000
1992	0.003	0.000
1993	0.003	0.000
1994	0.004	0.000
1995	0.001	0.000
1996	0.005	0.000
1997	0.002	0.000
1998	0.002	0.000
1999	0.000	0.000
2000	0.002	0.000
2001	0.001	0.000
2002	0.003	0.000
2003	0.003	0.000
2004	0.002	0.000
2005	0.005	0.000
2006	0.001	0.000
2007	0.001	0.000
2008	0.002	0.000
2009	0.002	0.000
2010	0.001	0.000
2011	0.001	0.000
2012	0.002	0.000
2013	0.001	0.000
2014	0.001	0.000
2015	0.002	0.000
2016	0.001	0.000
2017	0.003	0.000
2018	0.006	0.000
2019	0.006	0.022
2020	0.002	0.000
2021	0.003	0.000
2022	0.001	0.000
2023	0.003	0.000
2024	0.005	0.016
2025	0.002	0.000
2026	0.004	0.000
2027	0.001	0.000

2028	0.001	0.000
2029	0.002	0.000
2030	0.005	0.000
2031	0.002	0.000
2032	0.001	0.000
2033	0.001	0.000
2034	0.001	0.000
2035	0.005	0.000
2036	0.003	0.000
2037	0.001	0.000
2038	0.002	0.000
2039	0.000	0.000
2040	0.001	0.000
2041	0.002	0.000
2042	0.005	0.010
2043	0.002	0.000
2044	0.003	0.000
2045	0.002	0.000
2046	0.003	0.000
2047	0.002	0.000
2048	0.003	0.000
2049	0.002	0.000
2050	0.002	0.000
2051	0.002	0.000
2052	0.001	0.000
2053	0.002	0.000
2054	0.003	0.000
2055	0.001	0.000
2056	0.001	0.000
2057	0.002	0.000
2058	0.002	0.000
2059	0.004	0.000

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0073	0.0216
2	0.0061	0.0161
3	0.0061	0.0160
4	0.0059	0.0105
5	0.0057	0.0091
6	0.0055	0.0068
7	0.0052	0.0040
8	0.0051	0.0039
9	0.0048	0.0000
10	0.0048	0.0000
11	0.0047	0.0000
12	0.0047	0.0000
13	0.0046	0.0000
14	0.0046	0.0000
15	0.0045	0.0000
16	0.0045	0.0000
17	0.0044	0.0000
18	0.0042	0.0000
19	0.0042	0.0000
20	0.0041	0.0000
21	0.0040	0.0000
22	0.0037	0.0000

23	0.0037	0.0000
24	0.0037	0.0000
25	0.0037	0.0000
26	0.0037	0.0000
27	0.0037	0.0000
28	0.0035	0.0000
29	0.0035	0.0000
30	0.0034	0.0000
31	0.0034	0.0000
32	0.0034	0.0000
33	0.0033	0.0000
34	0.0031	0.0000
35	0.0031	0.0000
36	0.0030	0.0000
37	0.0030	0.0000
38	0.0030	0.0000
39	0.0030	0.0000
40	0.0029	0.0000
41	0.0029	0.0000
42	0.0028	0.0000
43	0.0028	0.0000
44	0.0028	0.0000
45	0.0027	0.0000
46	0.0027	0.0000
47	0.0027	0.0000
48	0.0027	0.0000
49	0.0026	0.0000
50	0.0026	0.0000
51	0.0025	0.0000
52	0.0025	0.0000
53	0.0025	0.0000
54	0.0025	0.0000
55	0.0025	0.0000
56	0.0025	0.0000
57	0.0025	0.0000
58	0.0025	0.0000
59	0.0025	0.0000
60	0.0024	0.0000
61	0.0024	0.0000
62	0.0024	0.0000
63	0.0024	0.0000
64	0.0024	0.0000
65	0.0023	0.0000
66	0.0023	0.0000
67	0.0023	0.0000
68	0.0023	0.0000
69	0.0023	0.0000
70	0.0023	0.0000
71	0.0023	0.0000
72	0.0022	0.0000
73	0.0022	0.0000
74	0.0022	0.0000
75	0.0022	0.0000
76	0.0022	0.0000
77	0.0022	0.0000
78	0.0022	0.0000
79	0.0022	0.0000
80	0.0021	0.0000

81	0.0021	0.0000
82	0.0021	0.0000
83	0.0021	0.0000
84	0.0021	0.0000
85	0.0020	0.0000
86	0.0020	0.0000
87	0.0020	0.0000
88	0.0020	0.0000
89	0.0020	0.0000
90	0.0019	0.0000
91	0.0019	0.0000
92	0.0019	0.0000
93	0.0018	0.0000
94	0.0018	0.0000
95	0.0018	0.0000
96	0.0018	0.0000
97	0.0018	0.0000
98	0.0018	0.0000
99	0.0017	0.0000
100	0.0017	0.0000
101	0.0017	0.0000
102	0.0017	0.0000
103	0.0016	0.0000
104	0.0016	0.0000
105	0.0016	0.0000
106	0.0016	0.0000
107	0.0016	0.0000
108	0.0016	0.0000
109	0.0016	0.0000
110	0.0016	0.0000
111	0.0015	0.0000
112	0.0015	0.0000
113	0.0015	0.0000
114	0.0014	0.0000
115	0.0014	0.0000
116	0.0014	0.0000
117	0.0014	0.0000
118	0.0014	0.0000
119	0.0014	0.0000
120	0.0014	0.0000
121	0.0013	0.0000
122	0.0013	0.0000
123	0.0013	0.0000
124	0.0013	0.0000
125	0.0013	0.0000
126	0.0013	0.0000
127	0.0012	0.0000
128	0.0012	0.0000
129	0.0012	0.0000
130	0.0011	0.0000
131	0.0011	0.0000
132	0.0011	0.0000
133	0.0011	0.0000
134	0.0011	0.0000
135	0.0011	0.0000
136	0.0011	0.0000
137	0.0010	0.0000
138	0.0010	0.0000

139	0.0010	0.0000
140	0.0010	0.0000
141	0.0009	0.0000
142	0.0009	0.0000
143	0.0009	0.0000
144	0.0009	0.0000
145	0.0009	0.0000
146	0.0009	0.0000
147	0.0009	0.0000
148	0.0008	0.0000
149	0.0008	0.0000
150	0.0008	0.0000
151	0.0008	0.0000
152	0.0007	0.0000
153	0.0007	0.0000
154	0.0006	0.0000
155	0.0005	0.0000
156	0.0002	0.0000
157	0.0002	0.0000
158	0.0001	0.0000

Duration Flows

The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0011	54243	55	0	Pass
0.0011	50226	55	0	Pass
0.0012	46614	54	0	Pass
0.0012	43351	54	0	Pass
0.0013	40287	53	0	Pass
0.0013	37462	53	0	Pass
0.0013	34925	53	0	Pass
0.0014	32559	52	0	Pass
0.0014	30315	52	0	Pass
0.0015	28260	52	0	Pass
0.0015	26448	52	0	Pass
0.0015	24803	52	0	Pass
0.0016	23307	52	0	Pass
0.0016	21939	52	0	Pass
0.0017	20642	50	0	Pass
0.0017	19423	50	0	Pass
0.0018	18282	50	0	Pass
0.0018	17219	50	0	Pass
0.0018	16149	50	0	Pass
0.0019	15135	50	0	Pass
0.0019	14282	50	0	Pass
0.0020	13462	49	0	Pass
0.0020	12676	49	0	Pass
0.0020	11944	49	0	Pass
0.0021	11246	49	0	Pass
0.0021	10565	49	0	Pass
0.0022	9972	49	0	Pass
0.0022	9374	49	0	Pass
0.0022	8842	49	0	Pass
0.0023	8327	48	0	Pass
0.0023	7867	48	0	Pass
0.0024	7462	48	0	Pass
0.0024	7036	48	0	Pass
0.0024	6615	47	0	Pass
0.0025	6277	47	0	Pass
0.0025	5978	47	0	Pass
0.0026	5701	47	0	Pass
0.0026	5437	46	0	Pass
0.0027	5197	46	0	Pass
0.0027	4939	46	0	Pass
0.0027	4706	46	0	Pass
0.0028	4515	46	1	Pass
0.0028	4339	46	1	Pass
0.0029	4159	45	1	Pass
0.0029	3958	44	1	Pass
0.0029	3766	43	1	Pass
0.0030	3577	43	1	Pass
0.0030	3412	43	1	Pass
0.0031	3259	42	1	Pass
0.0031	3134	42	1	Pass
0.0031	3028	42	1	Pass
0.0032	2928	41	1	Pass
0.0032	2815	41	1	Pass

0.0033	2682	41	1	Pass
0.0033	2556	41	1	Pass
0.0033	2451	40	1	Pass
0.0034	2359	39	1	Pass
0.0034	2256	38	1	Pass
0.0035	2139	38	1	Pass
0.0035	2037	37	1	Pass
0.0035	1952	37	1	Pass
0.0036	1861	37	1	Pass
0.0036	1778	36	2	Pass
0.0037	1690	36	2	Pass
0.0037	1619	36	2	Pass
0.0038	1561	36	2	Pass
0.0038	1482	35	2	Pass
0.0038	1407	35	2	Pass
0.0039	1338	35	2	Pass
0.0039	1270	33	2	Pass
0.0040	1218	33	2	Pass
0.0040	1163	33	2	Pass
0.0040	1103	32	2	Pass
0.0041	1055	31	2	Pass
0.0041	1006	30	2	Pass
0.0042	964	30	3	Pass
0.0042	919	30	3	Pass
0.0042	872	30	3	Pass
0.0043	814	29	3	Pass
0.0043	772	29	3	Pass
0.0044	738	29	3	Pass
0.0044	695	29	4	Pass
0.0044	637	29	4	Pass
0.0045	601	28	4	Pass
0.0045	553	28	5	Pass
0.0046	517	28	5	Pass
0.0046	478	28	5	Pass
0.0047	433	28	6	Pass
0.0047	394	28	7	Pass
0.0047	363	28	7	Pass
0.0048	339	28	8	Pass
0.0048	310	28	9	Pass
0.0049	296	28	9	Pass
0.0049	273	28	10	Pass
0.0049	252	28	11	Pass
0.0050	237	28	11	Pass
0.0050	223	28	12	Pass
0.0051	206	28	13	Pass
0.0051	194	28	14	Pass
0.0051	179	28	15	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Gravel Trench Bed 1 POC	<input type="checkbox"/>	24.74			<input type="checkbox"/>	99.97			
Total Volume Infiltrated		24.74	0.00	0.00		99.97	0.00	0%	No Treat. Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix

Predeveloped Schematic



Basin 1
10.10ac

Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

```
WWMH4 model simulation
START      1901 10 01      END      2059 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1          UNIT SYSTEM      1
END GLOBAL
```

FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     5'SidewalkGravelTrench5'RunOn.wdm
MESSU    25     Pre5'SidewalkGravelTrench5'RunOn.MES
          27     Pre5'SidewalkGravelTrench5'RunOn.L61
          28     Pre5'SidewalkGravelTrench5'RunOn.L62
          30     POC5'SidewalkGravelTrench5'RunOn1.dat
```

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

```
PERLND    10
COPY      501
DISPLY     1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Basin 1          MAX          1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501    1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #          K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS      Unit-systems      Printer ***
# - #      User      t-series      Engl Metr ***
                        in out      ***
```

```
10      C, Forest, Flat      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL  PEST  NITR  PHOS  TRAC ***
10      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG  PQAL MSTL  PEST  NITR  PHOS  TRAC  *****
10      0      0      4      0      0      0      0      0      0      0      0      1      9
```

END PRINT-INFO


```

PWAT-PARM1
<PLS > PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
10 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2
<PLS > PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
10 0 4.5 0.08 400 0.05 0.5 0.996
END PWAT-PARM2

PWAT-PARM3
<PLS > PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
10 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4
<PLS > PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
10 0.2 0.5 0.35 6 0.5 0.7
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
10 0 0 0 0 2.5 1 0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***

END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
END IWAT-STATE1

```

END IMPLND

SCHEMATIC

<-Source->		<--Area-->		<-Target->	MBLK	***
<Name>	#	<-factor-->		<Name>	#	Tbl#
Basin	1***					
PERLND	10	0.104		COPY	501	12
PERLND	10	0.104		COPY	501	13

*****Routing*****

END SCHEMATIC

NETWORK

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	#
COPY	501	OUTPUT	MEAN	1	1	48.4	DISPLY	1
							INPUT	TIMSER
								1

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	#

END NETWORK

RCHRES

GEN-INFO

RCHRES	Name	Nexits	Unit Systems	Printer	***
# - #	<----->	<---->	User T-series	Engl Metr LKFG	***
			in out		***

END GEN-INFO

*** Section RCHRES***

ACTIVITY

<PLS > ***** Active Sections *****

# - #	HYFG	ADFG	CNFG	HTFG	SDFG	GQFG	OXFG	NUFG	PKFG	PHFG	***
-------	------	------	------	------	------	------	------	------	------	------	-----

END ACTIVITY

PRINT-INFO

<PLS > ***** Print-flags ***** PIVL PYR

# - #	HYDR	ADCA	CONS	HEAT	SED	GQL	OXRX	NUTR	PLNK	PHCB	PIVL	PYR	*****
-------	------	------	------	------	-----	-----	------	------	------	------	------	-----	-------

END PRINT-INFO

HYDR-PARM1

RCHRES	Flags for each HYDR Section	***	ODGTFG for each	FUNCT for each	***
# - #	VC A1 A2 A3	ODFVFG for each	***	ODGTFG for each	FUNCT for each
	FG FG FG FG	possible exit	***	possible exit	possible exit
	* * * *	* * * *		* * * *	***

END HYDR-PARM1

HYDR-PARM2

# - #	FTABNO	LEN	DELTH	STCOR	KS	DB50	***
<----->	<----->	<----->	<----->	<----->	<----->	<----->	***

END HYDR-PARM2

HYDR-INIT

RCHRES	Initial conditions for each HYDR section	***
# - #	*** VOL Initial value of COLIND Initial value of OUTDGT	
	*** ac-ft for each possible exit for each possible exit	
<----->	<----->	<---><---><---><---><---> *** <---><---><---><---><--->

END HYDR-INIT

END RCHRES

SPEC-ACTIONS

END SPEC-ACTIONS

FTABLES

END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap	<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem strg	<-factor-->	strg	<Name>	#
WDM	2	PREC	ENGL	1	PERLND	1	999	EXTNL
WDM	2	PREC	ENGL	1	IMPLND	1	999	EXTNL

WDM	1	EVAP	ENGL	1	PERLND	1	999	EXTNL	PETINP
WDM	1	EVAP	ENGL	1	IMPLND	1	999	EXTNL	PETINP

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name>	#	#<-factor->	strg	<Name>	#	<Name>	tem	strg strg***
COPY	501	OUTPUT	MEAN	1 1	48.4	WDM	501	FLOW	ENGL	REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>		<Name>	#	#<-factor->	<Name>		<Name> # #***
MASS-LINK		12					
PERLND	PWATER	SURO		0.083333	COPY	INPUT	MEAN
END MASS-LINK		12					

MASS-LINK		13					
PERLND	PWATER	IFWO		0.083333	COPY	INPUT	MEAN
END MASS-LINK		13					

END MASS-LINK

END RUN

Mitigated UCI File

RUN

GLOBAL

```
WWMH4 model simulation
START      1901 10 01      END      2059 09 30
RUN INTERP OUTPUT LEVEL    3      0
RESUME     0 RUN          1          UNIT SYSTEM      1
END GLOBAL
```

FILES

```
<File>  <Un#>  <-----File Name----->***
<-ID->                                     ***
WDM      26     5'SidewalkGravelTrench5'RunOn.wdm
MESSU    25     Mit5'SidewalkGravelTrench5'RunOn.MES
          27     Mit5'SidewalkGravelTrench5'RunOn.L61
          28     Mit5'SidewalkGravelTrench5'RunOn.L62
          30     POC5'SidewalkGravelTrench5'RunOn1.dat
```

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

```
PERLND    38
IMPLND    16
RCHRES     1
COPY       1
COPY      501
DISPLY     1
```

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

```
# - #<-----Title----->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
1      Gravel Trench Bed 1      MAX      1      2      30      9
```

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

```
# - # NPT NMN ***
1      1      1
501     1      1
```

END TIMESERIES

END COPY

GENER

OPCODE

```
#      # OPCD ***
```

END OPCODE

PARM

```
#      #      K ***
```

END PARM

END GENER

PERLND

GEN-INFO

```
<PLS ><-----Name----->NBLKS  Unit-systems  Printer ***
# - #      User  t-series  Engl Metr ***
```

```
38      C, Lawn, Mod      1      1      1      1      27      0
```

END GEN-INFO

*** Section PWATER***

ACTIVITY

```
<PLS > ***** Active Sections *****
# - # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
38      0      0      1      0      0      0      0      0      0      0      0
```

END ACTIVITY

PRINT-INFO

```
<PLS > ***** Print-flags ***** PIVL  PYR
# - # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *****
```

```

38      0      0      4      0      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

PWAT-PARM1
<PLS >  PWATER variable monthly parameter value flags ***
# - # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
38      0      0      0      0      0      0      0      0      0      0      0
END PWAT-PARM1

PWAT-PARM2
<PLS >  PWATER input info: Part 2 ***
# - # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
38      0      4.5      0.03      400      0.1      0.5      0.996
END PWAT-PARM2

PWAT-PARM3
<PLS >  PWATER input info: Part 3 ***
# - # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
38      0      0      2      2      0      0      0
END PWAT-PARM3
PWAT-PARM4
<PLS >  PWATER input info: Part 4 ***
# - # CEPSC UZSN NSUR INTFW IRC LZETP ***
38      0.1      0.25      0.25      6      0.5      0.25
END PWAT-PARM4

PWAT-STATE1
<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
# - # *** CEPS SURS UZS IFWS LZS AGWS GWVS
38      0      0      0      0      2.5      1      0
END PWAT-STATE1

END PERLND

IMPLND
GEN-INFO
<PLS ><-----Name-----> Unit-systems Printer ***
# - # User t-series Engl Metr ***
in out ***
16 SIDEWALKS/MOD LAT 1 1 1 27 0
END GEN-INFO
*** Section IWATER***

ACTIVITY
<PLS > ***** Active Sections *****
# - # ATMP SNOW IWAT SLD IWG IQAL ***
16      0      0      1      0      0      0
END ACTIVITY

PRINT-INFO
<ILS > ***** Print-flags ***** PIVL PYR
# - # ATMP SNOW IWAT SLD IWG IQAL *****
16      0      0      4      0      0      0      1      9
END PRINT-INFO

IWAT-PARM1
<PLS >  IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
16      0      0      0      0      0
END IWAT-PARM1

IWAT-PARM2
<PLS >  IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
16      400      0.05      0.1      0.08
END IWAT-PARM2

IWAT-PARM3
<PLS >  IWATER input info: Part 3 ***

```

```

# - # ***PETMAX      PETMIN
16      0      0
END IWAT-PARM3

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS      SURS
16      0      0
END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->          <--Area-->      <-Target->      MBLK      ***
<Name> #          <-factor->      <Name> #      Tbl#      ***
Lateral Basin 1***
PERLND 38          0.064      RCHRES 1      2
PERLND 38          0.064      RCHRES 1      3
Lateral I Basin 1***
IMPLND 16          0.04      RCHRES 1      5

*****Routing*****
PERLND 38          0.064      COPY 1      12
PERLND 38          0.064      COPY 1      13
IMPLND 16          0.04      COPY 1      15
RCHRES 1          1      COPY 501      17
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #      <Name> # #<-factor->strg <Name> # #      <Name> # #      ***
COPY 501 OUTPUT MEAN 1 1 48.4      DISPLY 1      INPUT TIMSER 1

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> #      <Name> # #<-factor->strg <Name> # #      <Name> # #      ***
END NETWORK

RCHRES
GEN-INFO
RCHRES      Name      Nexits      Unit Systems      Printer      ***
# - #<-----><----> User T-series Engl Metr LKFG      ***
in out
1      Gravel Trench Be-004      2      1      1      1      28      0      1
END GEN-INFO
*** Section RCHRES***

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
1      1      0      0      0      0      0      0      0      0
END ACTIVITY

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL PYR
# - # HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR *****
1      4      0      0      0      0      0      0      0      0      1      9
END PRINT-INFO

HYDR-PARM1
RCHRES      Flags for each HYDR Section      ***
# - # VC A1 A2 A3 ODFVFG for each *** ODGTFG for each      FUNCT for each
FG FG FG FG possible exit *** possible exit      possible exit
* * * * * * * * * *
1      0      1      0      0      4      5      0      0      0      0      0      0      2      2      2      2      2
END HYDR-PARM1

HYDR-PARM2
# - # FTABNO      LEN      DELTH      STCOR      KS      DB50      ***

```

```

<-----><-----><-----><-----><-----><-----><----->
1          1          0.07          0.0          0.0          0.5          0.0
END HYDR-PARM2
HYDR-INIT
  RCHRES Initial conditions for each HYDR section
  # - # *** VOL Initial value of COLIND Initial value of OUTDGT
  *** ac-ft for each possible exit for each possible exit
<-----><-----><-----><-----><-----><-----><----->
1          0          4.0  5.0  0.0  0.0  0.0          0.0  0.0  0.0  0.0  0.0
END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
  FTABLE 1
  92 5
    Depth Area Volume Outflow1 Outflow2 Velocity Travel Time***
    (ft) (acres) (acre-ft) (cfs) (cfs) (ft/sec) (Minutes)***
0.000000 0.040174 0.000000 0.000000 0.000000
0.016667 0.040442 0.000134 0.000000 0.008102
0.033333 0.040710 0.000270 0.000000 0.008102
0.050000 0.040978 0.000406 0.000000 0.008102
0.066667 0.041246 0.000543 0.000000 0.008102
0.083333 0.041514 0.000681 0.000000 0.008102
0.100000 0.041781 0.000820 0.000000 0.008102
0.116667 0.042049 0.000959 0.000000 0.008102
0.133333 0.042317 0.001100 0.000000 0.008102
0.150000 0.042585 0.001241 0.000000 0.008102
0.166667 0.042853 0.001384 0.000000 0.008102
0.183333 0.043121 0.001527 0.000000 0.008102
0.200000 0.043388 0.001671 0.000000 0.008102
0.216667 0.043656 0.001816 0.000000 0.008102
0.233333 0.043924 0.001962 0.000000 0.008102
0.250000 0.044192 0.002109 0.000000 0.008102
0.266667 0.044460 0.002257 0.000000 0.008102
0.283333 0.044728 0.002406 0.000000 0.008102
0.300000 0.044995 0.002555 0.000000 0.008102
0.316667 0.045263 0.002706 0.000000 0.008102
0.333333 0.045531 0.002857 0.000000 0.008102
0.350000 0.045799 0.003009 0.000000 0.008102
0.366667 0.046067 0.003162 0.000000 0.008102
0.383333 0.046335 0.003316 0.000000 0.008102
0.400000 0.046602 0.003471 0.000000 0.008102
0.416667 0.046870 0.003627 0.000000 0.008102
0.433333 0.047138 0.003784 0.000000 0.008102
0.450000 0.047406 0.003941 0.000000 0.008102
0.466667 0.047674 0.004100 0.000000 0.008102
0.483333 0.047942 0.004259 0.000000 0.008102
0.500000 0.048209 0.004419 0.000000 0.008102
0.516667 0.048477 0.005225 0.045687 0.008102
0.533333 0.048745 0.006035 0.129168 0.008102
0.550000 0.049013 0.006850 0.237213 0.008102
0.566667 0.049281 0.007669 0.365093 0.008102
0.583333 0.049549 0.008492 0.510062 0.008102
0.600000 0.049816 0.009320 0.670242 0.008102
0.616667 0.050084 0.010153 0.844221 0.008102
0.633333 0.050352 0.010990 1.030872 0.008102
0.650000 0.050620 0.011831 1.229240 0.008102
0.666667 0.050888 0.012677 1.438492 0.008102
0.683333 0.051155 0.013528 1.657872 0.008102
0.700000 0.051423 0.014382 1.886677 0.008102
0.716667 0.051691 0.015242 2.124240 0.008102
0.733333 0.051959 0.016105 2.369915 0.008102
0.750000 0.052227 0.016974 2.623072 0.008102
0.766667 0.052495 0.017846 2.883085 0.008102
0.783333 0.052762 0.018724 3.149332 0.008102
0.800000 0.053030 0.019605 3.421187 0.008102
0.816667 0.053298 0.020491 3.698025 0.008102
0.833333 0.053566 0.021382 3.979211 0.008102

```

0.850000	0.053834	0.022277	4.264108	0.008102
0.866667	0.054102	0.023176	4.552071	0.008102
0.883333	0.054369	0.024080	4.842450	0.008102
0.900000	0.054637	0.024989	5.134592	0.008102
0.916667	0.054905	0.025901	5.427837	0.008102
0.933333	0.055173	0.026819	5.721526	0.008102
0.950000	0.055441	0.027740	6.014997	0.008102
0.966667	0.055709	0.028667	6.307592	0.008102
0.983333	0.055976	0.029597	6.598653	0.008102
1.000000	0.056244	0.030533	6.887532	0.008102
1.016667	0.056512	0.031472	7.173586	0.008102
1.033333	0.056780	0.032416	7.456186	0.008102
1.050000	0.057048	0.033365	7.734715	0.008102
1.066667	0.057316	0.034318	8.008574	0.008102
1.083333	0.057583	0.035275	8.277186	0.008102
1.100000	0.057851	0.036237	8.539994	0.008102
1.116667	0.058119	0.037204	8.796472	0.008102
1.133333	0.058387	0.038175	9.046123	0.008102
1.150000	0.058655	0.039150	9.288484	0.008102
1.166667	0.058923	0.040130	9.523132	0.008102
1.183333	0.059190	0.041114	9.749685	0.008102
1.200000	0.059458	0.042103	9.967808	0.008102
1.216667	0.059726	0.043096	10.17721	0.008102
1.233333	0.059994	0.044094	10.37768	0.008102
1.250000	0.060262	0.045096	10.56902	0.008102
1.266667	0.060530	0.046102	10.75114	0.008102
1.283333	0.060797	0.047113	10.92400	0.008102
1.300000	0.061065	0.048129	11.08763	0.008102
1.316667	0.061333	0.049149	11.24214	0.008102
1.333333	0.061601	0.050173	11.38772	0.008102
1.350000	0.061869	0.051202	11.52466	0.008102
1.366667	0.062137	0.052236	11.65332	0.008102
1.383333	0.062404	0.053274	11.77418	0.008102
1.400000	0.062672	0.054316	11.88781	0.008102
1.416667	0.062940	0.055363	11.99489	0.008102
1.433333	0.063208	0.056414	12.09620	0.008102
1.450000	0.063476	0.057470	12.19266	0.008102
1.466667	0.063743	0.058530	12.28531	0.008102
1.483333	0.064011	0.059594	12.37530	0.008102
1.500000	0.064279	0.060663	12.46394	0.008102
1.516667	0.064547	0.061737	12.70307	0.008102

END FTABLE 1
END FTABLES

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***
<Name>	#	<Name>	#	tem strg<-factor-->	strg	<Name>	#
WDM	2	PREC	ENGL	1		PERLND	1 999
WDM	2	PREC	ENGL	1		IMPLND	1 999
WDM	1	EVAP	ENGL	1		PERLND	1 999
WDM	1	EVAP	ENGL	1		IMPLND	1 999

END EXT SOURCES

EXT TARGETS

<-Volume->	<-Grp>	<-Member->	<--Mult-->	Tran	<-Volume->	<Member>	Tsys	Tgap	Amd	***
<Name>	#	<Name>	#	#<-factor-->	strg	<Name>	#	<Name>	tem strg	strg***
RCHRES	1	HYDR	RO	1 1	1	WDM	1000	FLOW	ENGL	REPL
RCHRES	1	HYDR	O	1 1	1	WDM	1001	FLOW	ENGL	REPL
RCHRES	1	HYDR	O	2 1	1	WDM	1002	FLOW	ENGL	REPL
RCHRES	1	HYDR	STAGE	1 1	1	WDM	1003	STAG	ENGL	REPL
COPY	1	OUTPUT	MEAN	1 1	48.4	WDM	701	FLOW	ENGL	REPL
COPY	501	OUTPUT	MEAN	1 1	48.4	WDM	801	FLOW	ENGL	REPL

END EXT TARGETS

MASS-LINK

<Volume>	<-Grp>	<-Member->	<--Mult-->	<Target>	<-Grp>	<-Member->	***
<Name>		<Name>	#	#<-factor-->	<Name>	<Name>	#
MASS-LINK		2					
PERLND	PWATER	SURO		0.083333	RCHRES	INFLOW	IVOL


```

END MASS-LINK      2

MASS-LINK          3
PERLND      PWATER IFWO      0.083333      RCHRES      INFLOW IVOL
END MASS-LINK      3

MASS-LINK          5
IMPLND      IWATER SURO      0.083333      RCHRES      INFLOW IVOL
END MASS-LINK      5

MASS-LINK          12
PERLND      PWATER SURO      0.083333      COPY      INPUT  MEAN
END MASS-LINK      12

MASS-LINK          13
PERLND      PWATER IFWO      0.083333      COPY      INPUT  MEAN
END MASS-LINK      13

MASS-LINK          15
IMPLND      IWATER SURO      0.083333      COPY      INPUT  MEAN
END MASS-LINK      15

MASS-LINK          17
RCHRES      OFLOW  OVOL      1      COPY      INPUT  MEAN
END MASS-LINK      17

END MASS-LINK

END RUN

```

Predeveloped HSPF Message File

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2018; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com