STORM DRAINAGE REPORT

WHISPERING WOODS 3RD PLAT

LOTS 51-80

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

AUGUST 26, 2024

SNYDER & ASSOCIATES

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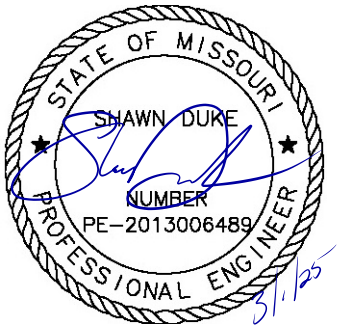
I HEREBY CERTIFY that this report was prepared by me or under my direct personal supervision and that I am a duly Registered Professional Engineer under the laws of the State of Missouri.



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MO Registration No. PE-2013006489

Table of Contents

1 Executive Summary 1
2 Existing Conditions 2
3 Proposed Conditions 5
4 Water Quality Storm 6
5 Conclusions & Recommendations 8

Figures

Figure 1 Vicinity Map 1
Figure 2 Soil Classification Map 4
Figure 3 Floodplain Map 5

Tables

Table 1 USDA Soil Classifications 4
Table 2 Water Quality Pond Routing Summary 5

Appendix

Water Quality Outlet Calculation

Bentley PondPack Report

1 EXECUTIVE SUMMARY

This report summarizes the Storm Water Management Plan for the proposed Whispering Woods Third Plat. Whispering Woods is generally located on the east side of SW Pryor Road, just north of Hawthorn Hill Elementary School, in Lee's Summit, Missouri. Whispering Woods Third Plat consists of 30 residential lots, and tracts reserved for open space, drainage ways, and a walking path. Whispering Woods Third Plat is located entirely within the western basin as was discussed in the January 3, 2017 "Preliminary Drainage Study" which was submitted along with the Preliminary Development Plan for the proposed subdivision.

Drainage and hydraulic calculations were performed as outlined by Kansas City Chapter of APWA Section 5600. More specifically, the following chart lists the methods used for the drainage and hydraulic calculations for this development.

Calculation	Method
Water Quality Routing Calculations	SCS Unit Hydrograph Method Bentley® PondPack® Software
Perforated Riser	MARC BMP Manual

Refer to Figure 1 below showing the project location on a vicinity map.

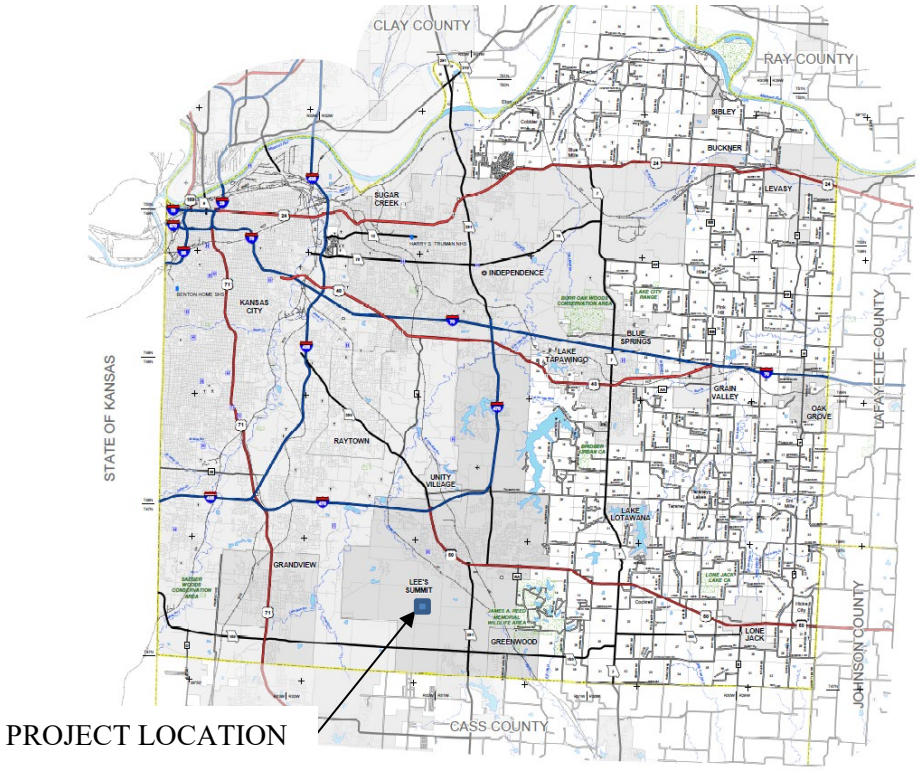

Figure 1 Vicinity Map

2 EXISTING CONDITIONS

Currently Whispering Woods Third Plat is undeveloped land. Mouse Creek flows generally from northeast to southwest across the property crossing Pryor Road via a triple cell, 13'x18' reinforced concrete box culvert. Mouse Creek is a recognized flooding source according to the Federal Emergency Management Agency (FEMA) and has been identified on the Flood Insurance Rate Map (FIRM) 29095C0531G and FIRM 29095C0418G, both with an effective date of January 20, 2017. Portions of the FIRM panels have been shown in the following figure with an overlay of the plat boundary.

Several of the proposed lots have portions that are currently subject to the 1% annual chance exceedance (100-yr) floodplain. During construction and grading, these areas will be filled using compacted earthen fill to an elevation greater than the 1% annual chance flood elevations as indicated on the aforementioned FIRM panels. Following the placement of compacted fill, an application for a Letter of Map Revision based on Fill (LOMR-F) will be prepared and submitted to FEMA requesting that the subject property be acknowledged to have been removed from the 100-yr floodplain. Only areas that are within the 'floodway fringe' will have fill material placed. By definition the floodway fringe is the area of the 100-yr floodplain that is outside of the regulatory floodway. Under FEMA regulations, the floodway fringe is an area that may be filled without impacting the conveyance of the stream.

Several different soil types, as classified by the USDA are found throughout the watershed of the Whispering Woods property. The following table lists these soils by USDA soil classification and the TR-55 Hydrologic Soil Group (HSG) classification for each soil type. A portion of the USDA soil survey map for this area is included below.

USDA Classification	USDA Description	TR-55 HSG
5B	Macksburg Silt Loam, 2 to 5 percent slopes	B
6B	Sharpsburg Silt Loam, 2 to 5 percent slopes	C
11C	Greenton Silty Clay Loam, 5 to 9 percent slopes	B
13B	Sampsel Silty Clay Loam, 2 to 5 percent slopes	B
13C	Sampsel Silty Clay Loam, 5 to 9 percent slopes	D

Table 1 USDA Soil Classifications

*On-site soils consist mostly of the Macksburg and Sampsel soils.

Figure 2 Soil Classification Map

Figure 3 Floodplain Map

3 PROPOSED CONDITIONS

The January 3, 2017 "Preliminary Drainage Study" discussed the methodology and philosophy of increasing runoff when placing detention facilities in close proximity to large flooding sources. Supporting calculations were included in that report that showed justification for the subsequently approved detention waiver that was granted on February 6, 2017 for project PL2016-219. Since detention was previously waived for the project area, detailed calculations comparing peak discharges for the pre-development and post-development conditions have not been performed.

A triple 8'x8' reinforced concrete box culvert is also included in the plans, providing a crossing of Mouse Creek. The culvert analysis is discussed in a subsequent report.

4 WATER QUALITY STORM

Although detention was waived for the development area of Whispering Woods Third Plat, water quality control was required to be installed. An extended wet detention facility has been designed based on the Mid-America Regional Council Manual of Best Management Practices for Stormwater Quality and is situated behind lots 53-55. The pond has been designed to have a normal pool depth of four feet. An additional one and a half feet have been provided for the water quality storm. The water quality storm will be released over a period of forty hours using a concrete structure retrofitted with a perforated steel orifice plate. The orifice plate is to contain one column of five 1-9/16" perforations, spaced four inches apart, protected by a stainless-steel screen. The outlet structure is located as far away from the water quality pond inflow pipes as practicable.

The outlet structure also contains a 4'x4' grate on top, which sits above the elevation of the water quality storm. This grate and a 30" outlet pipe will allow the 2, 10, and 100-year storm events to pass without overtopping the basin. The outlet structure is located on the downstream end of the basin as far away from inflow pipes as practicable.

Due to the configuration of the pond, the eastern bank will serve as an overflow weir section. Since the pond is located within the FEMA identified 100-year floodplain as well as the regulatory floodway an embankment is not being constructed for confinement of the larger localized runoff events. This design parameter is based on the FEMA requirement that no fill material be placed within the regulatory floodway without providing a no-rise certificate showing 0.00 feet of increase. Additionally, if an embankment were to be constructed, there would be the potential of scour along the creek side during major flooding events that could degrade the integrity of the embankment. Due to these two conditions, it was determined that allowing the natural grade to serve as a broad crested weir in its entirety along the eastern edge of the water quality pond would be the best option to prevent future maintenance concerns. Although the primary purpose of the outlet structure is to control the water quality runoff event, additional consideration was given to the 2, 10, and 100-year storm events. The structure has been designed to pass the flows of each of these events without overtopping the basin by utilizing a 4'x4' grate to discharge runoff that exceeds the volume of the water quality storm. Even though the basin would be inundated with flows from Mouse Creek during larger storm events, this ensures that smaller storm events could easily pass through without overtopping the basin.

Below is a summary table of the PondPack hydrologic routing of the water quality pond using the 24-hour duration across carious return periods. The supporting PondPack output is included in the appendices.

Rainfall Event	24-Hr Rainfall (In.)	Inflow (cfs)	Outflow (cfs)	Calculated Peak Stage (ft)	Mouse Creek Stage (ft)
WQ Rainfall	1.37	4.86	0.17	953.12	N/A
2-year	3.5	25.04	10.11	954.30	N/A
10-year	5.2	43.83	35.86	954.80	958.50
100-year	7.5	68.00	51.55	955.31	961.50

Table 2 Water Quality Pond Routing Summary

Based on PondPack modeling, the basin is able to pass the 2, 10, and 100-year storm events without overtopping. However, due to the confining elevation being established as the existing grade at 956.00, large events such as the 10 and 100-year floods in Mouse Creek will inundate the water quality pond, therefore, the controlling elevation will be that of the Mouse Creek Floodplain.

5 CONCLUSIONS & RECOMMENDATIONS

It is our conclusion that the proposed storm water drainage system which includes a water quality feature in the form of an extended wet detention basin, will adequately serve the complete development of Whispering Woods Third Plat. As previously noted, from the preliminary drainage study, changes in flow within Mouse Creek will not be significantly affected by the overall proposed development. Detailed sizing of ponds and control structures will be provided in the construction plans and documents.

This study is requesting approval of the storm water management plan to address storm water runoff for the proposed Whispering Woods Third Plat residential development.

Appendix

PondPack® Output Files

WHISPERING WOODS 3RD PLAT Design Procedure: Extended Wet Detention Basin

Main Worksheet

I. Basin Water Quality Storage Volume

Step 1) Tributary area to Basin, A_T (ac)	A_T (ac) =	**10.04**
Step 2) Water Quality Volume WQ_v from Pond Pack	WQ_v (ac-ft) =	**0.37**
Step 3) Add 20% to account for silt and sediment deposition in the basin	V_{design} (ac-ft) =	**0.45**

IIa. Water Quality Outlet Type

Step 1) Set water quality outlet type — Outlet type = **2**

Type 1 = single orifice
Type 2 = perforated riser or plate
Type 3 = v-notch weir

Step 2) Proceed to Step IIb, IIc, or Iid basded on water quality outlet type selected

IIb. Water Quality Outlet, Single Orifice

Step 1) Depth of water quality volume at outlet, Z_{WQ} (ft)	Z_{WQ} (ft) =	**1.35**
Step 2) Average head of water quality volume over invert of orifice, HWQ (ft) $H_{WQ} = 0.5 * Z_{WQ}$	H_{WQ} (ft) =	**0.675**
Step 3) Average water quality outflow rate, Q_{WQ} (cfs) $Q_{WQ} = (WQ_v * 43{,}560)/(40 * 3{,}600)$	Q_{WQ} (cfs) =	**0.14**
Step 4) Set value of orifice discharge coefficient, C_0 $C_0 = 0.66$ when thickness of riser/weir plate is ≤ orifice diameter $C_0 = 0.80$ when thickness of riser/weir plate is > orifice diameter	C_0 =	**0.66**
Step 5) Water quality outlet orifice diameter (minimum of 4 inches), D_0 (in) $D_0 = 12 * 2 * (Q_{WQ}/(C_0 * \pi * (2 * g * H)^{0.5}))^{0.5}$ (if orifice diameter < 4 inches, use outlet type 2 or 3)	D_0 (in) =	**2.04**

Step 6) To size outlet orifice for EDDB with an irregular stage-volume relationship, use the Single Orifice Worksheet

IIc. Water Quality Outlet, Perforated Riser

Step 1) Depth at outlet above lowest perforation, Z_{WQ} (ft)	Z_{WQ} (ft) =	**1.35**
Step 2) Recommended maximum outlet area per row, A_0 (in^2) $A_0 = (WQ_v)/(0.013 * Z_{WQ}^2 + 0.22 * Z_{WQ} - 0.10)$	A_0 (in^2)=	**2.04**
Step 3) Circular perforation diameter per row assuming a single column, D_1 (in)	D_1 (in) =	**1.61**
Step 4) Number of columns, n_c If $D_1 > 2$ inches $n_c > 1$	n_c =	**1**
Step 5) Design circular perforation diameter (should be between 1 and 2 inches), D_{perf} (in)	D_{perf} (in) =	**1.5625**
Step 6) Horizontal perforation column spacing when $n_c > 1$, center to center, S_c If $D_{perf} \geq 1.0$ inch, $S_c = 4$	S_c (in) =	**N/A**
Step 7) Number of rows (4" vertical spacing between perforations, center to center), n_r	n_r =	**5**

Project Summary	
Title	
Engineer	
Company	
Date	9/28/2017

Notes

Table of Contents

	User Notifications	2
	Master Network Summary	5
TR-55 (KC Metro)		
	Time-Depth Curve, 0 years (Water Quality Storm)	7
	Time-Depth Curve, 2 years (2 Year Post Developed)	9
	Time-Depth Curve, 10 years (10 Year Post Developed)	11
	Time-Depth Curve, 100 years (100 Year Post Developed)	13
Phase 3 - Detained		
	Time of Concentration Calculations, 0 years (Water Quality Storm)	15
	Time of Concentration Calculations, 2 years (2 Year Post Developed)	17
	Time of Concentration Calculations, 10 years (10 Year Post Developed)	19
	Time of Concentration Calculations, 100 years (100 Year Post Developed)	21
	Unit Hydrograph Equations	23
Phase 3 - Detained		
	Unit Hydrograph Summary, 0 years (Water Quality Storm)	25
	Unit Hydrograph (Hydrograph Table), 0 years (Water Quality Storm)	26
	Unit Hydrograph Summary, 2 years (2 Year Post Developed)	28
	Unit Hydrograph (Hydrograph Table), 2 years (2 Year Post Developed)	29
	Unit Hydrograph Summary, 10 years (10 Year Post Developed)	31
	Unit Hydrograph (Hydrograph Table), 10 years (10 Year Post Developed)	32
	Unit Hydrograph Summary, 100 years (100 Year Post Developed)	34
	Unit Hydrograph (Hydrograph Table), 100 years (100 Year Post Developed)	35
WQB1 (OUT)		
	Time vs. Elevation, 0 years (Water Quality Storm)	37
	Time vs. Elevation, 2 years (2 Year Post Developed)	40
	Time vs. Elevation, 10 years (10 Year Post Developed)	43
	Time vs. Elevation, 100 years (100 Year Post Developed)	46
WQB1		
	Time vs. Volume, 0 years (Water Quality Storm)	49
	Time vs. Volume, 2 years (2 Year Post Developed)	52
	Time vs. Volume, 10 years (10 Year Post Developed)	55
	Time vs. Volume, 100 years (100 Year Post Developed)	58
WQB1		
	Elevation-Area Volume Curve, 0 years (Water Quality Storm)	61

Table of Contents

	Volume Equations, 0 years (Water Quality Storm)	62
	Elevation-Area Volume Curve, 2 years (2 Year Post Developed)	63
	Volume Equations, 2 years (2 Year Post Developed)	64
	Elevation-Area Volume Curve, 10 years (10 Year Post Developed)	65
	Volume Equations, 10 years (10 Year Post Developed)	66
	Elevation-Area Volume Curve, 100 years (100 Year Post Developed)	67
	Volume Equations, 100 years (100 Year Post Developed)	68
Composite Outlet Structure - 1		
	Outlet Input Data, 0 years (Water Quality Storm)	69
	Individual Outlet Curves, 0 years (Water Quality Storm)	72
	Composite Rating Curve, 0 years (Water Quality Storm)	74
	Outlet Input Data, 2 years (2 Year Post Developed)	75
	Individual Outlet Curves, 2 years (2 Year Post Developed)	78
	Composite Rating Curve, 2 years (2 Year Post Developed)	80
	Outlet Input Data, 10 years (10 Year Post Developed)	81
	Individual Outlet Curves, 10 years (10 Year Post Developed)	84
	Composite Rating Curve, 10 years (10 Year Post Developed)	86
	Outlet Input Data, 100 years (100 Year Post Developed)	87
	Individual Outlet Curves, 100 years (100 Year Post Developed)	90
	Composite Rating Curve, 100 years (100 Year Post Developed)	92
WQB1		
	Elevation-Volume-Flow Table (Pond), 0 years (Water Quality Storm)	93
	Elevation-Volume-Flow Table (Pond), 2 years (2 Year Post Developed)	94
	Elevation-Volume-Flow Table (Pond), 10 years (10 Year Post Developed)	95
	Elevation-Volume-Flow Table (Pond), 100 years (100 Year Post Developed)	96
WQB1 (IN)		
	Level Pool Pond Routing Summary, 0 years (Water Quality Storm)	97
	Level Pool Pond Routing Summary, 2 years (2 Year Post Developed)	98
	Level Pool Pond Routing Summary, 10 years (10 Year Post Developed)	99
	Level Pool Pond Routing Summary, 100 years (100 Year Post Developed)	100
WQB1 (OUT)		
	Pond Routed Hydrograph (total out), 0 years (Water Quality Storm)	101
	Pond Routed Hydrograph (total out), 2 years (2 Year Post Developed)	102
	Pond Routed Hydrograph (total out), 10 years (10 Year Post Developed)	104

Table of Contents

Pond Routed Hydrograph (total out), 100 years (100 Year Post Developed) 106

WQB1 (IN)

Pond Inflow Summary, 0 years (Water Quality Storm) 108

Pond Inflow Summary, 2 years (2 Year Post Developed) 109

Pond Inflow Summary, 10 years (10 Year Post Developed) 110

Pond Inflow Summary, 100 years (100 Year Post Developed) 111

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Phase 3 - Detained	Water Quality Storm	0	0.372	12.050	4.86
Phase 3 - Detained	2 Year Post Developed	2	1.819	12.050	25.04
Phase 3 - Detained	10 Year Post Developed	10	3.243	12.050	43.83
Phase 3 - Detained	100 Year Post Developed	100	5.144	12.050	68.00
Undisturbed - Undetained	Water Quality Storm	0	0.036	12.200	0.29
Undisturbed - Undetained	2 Year Post Developed	2	0.279	12.100	3.27
Undisturbed - Undetained	10 Year Post Developed	10	0.552	12.100	6.57
Undisturbed - Undetained	100 Year Post Developed	100	0.935	12.100	11.05
Disturbed - Undetained	Water Quality Storm	0	0.334	12.250	2.99
Disturbed - Undetained	2 Year Post Developed	2	1.634	12.200	15.82
Disturbed - Undetained	10 Year Post Developed	10	2.914	12.200	27.88
Disturbed - Undetained	100 Year Post Developed	100	4.624	12.200	43.44

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Outfall 1	Water Quality Storm	0	0.370	12.200	3.27
Outfall 1	2 Year Post Developed	2	3.009	12.250	27.72
Outfall 1	10 Year Post Developed	10	5.983	12.150	69.29
Outfall 1	100 Year Post Developed	100	9.973	12.150	104.51

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
WQB1 (IN)	Water Quality Storm	0	0.372	12.050	4.86	(N/A)	(N/A)
WQB1 (OUT)	Water Quality Storm	0	0.000	0.000	0.00	953.12	0.371
WQB1 (IN)	2 Year Post Developed	2	1.819	12.050	25.04	(N/A)	(N/A)
WQB1 (OUT)	2 Year Post Developed	2	1.096	12.300	10.11	954.30	0.848

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
WQB1 (IN)	10 Year Post Developed	10	3.243	12.050	43.83	(N/A)	(N/A)
WQB1 (OUT)	10 Year Post Developed	10	2.516	12.150	35.86	954.80	1.082
WQB1 (IN)	100 Year Post Developed	100	5.144	12.050	68.00	(N/A)	(N/A)
WQB1 (OUT)	100 Year Post Developed	100	4.414	12.150	51.55	955.31	1.334

Subsection: Time-Depth Curve
Label: TR-55 (KC Metro)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time-Depth Curve: TypeII 24hr (1.37) - WQv	
Label	TypeII 24hr (1.37) - WQv
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	0 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0000	0.0014	0.0028	0.0042	0.0056
0.500	0.0070	0.0085	0.0099	0.0114	0.0129
1.000	0.0144	0.0159	0.0174	0.0190	0.0205
1.500	0.0221	0.0237	0.0253	0.0269	0.0285
2.000	0.0301	0.0318	0.0335	0.0351	0.0368
2.500	0.0385	0.0403	0.0420	0.0437	0.0455
3.000	0.0473	0.0491	0.0509	0.0527	0.0545
3.500	0.0563	0.0582	0.0601	0.0620	0.0639
4.000	0.0658	0.0677	0.0697	0.0716	0.0737
4.500	0.0757	0.0778	0.0799	0.0820	0.0841
5.000	0.0863	0.0885	0.0907	0.0930	0.0953
5.500	0.0976	0.1000	0.1023	0.1047	0.1071
6.000	0.1096	0.1121	0.1146	0.1171	0.1197
6.500	0.1223	0.1249	0.1275	0.1302	0.1329
7.000	0.1356	0.1384	0.1412	0.1440	0.1468
7.500	0.1497	0.1526	0.1555	0.1584	0.1614
8.000	0.1644	0.1675	0.1707	0.1741	0.1776
8.500	0.1812	0.1850	0.1889	0.1929	0.1971
9.000	0.2014	0.2058	0.2102	0.2145	0.2189
9.500	0.2233	0.2278	0.2325	0.2374	0.2426
10.000	0.2480	0.2536	0.2596	0.2659	0.2725
10.500	0.2795	0.2869	0.2948	0.3033	0.3124
11.000	0.3219	0.3325	0.3443	0.3575	0.3719
11.500	0.3877	0.4204	0.4855	0.5902	0.7780
12.000	0.9083	0.9343	0.9571	0.9769	0.9935
12.500	1.0070	1.0185	1.0294	1.0395	1.0489
13.000	1.0576	1.0658	1.0736	1.0810	1.0880
13.500	1.0946	1.1009	1.1070	1.1127	1.1182
14.000	1.1234	1.1284	1.1333	1.1382	1.1429
14.500	1.1476	1.1521	1.1565	1.1609	1.1651
15.000	1.1693	1.1734	1.1773	1.1812	1.1850
15.500	1.1887	1.1922	1.1957	1.1991	1.2024
16.000	1.2056	1.2087	1.2118	1.2149	1.2179
16.500	1.2209	1.2239	1.2268	1.2297	1.2326
17.000	1.2354	1.2382	1.2409	1.2437	1.2464
17.500	1.2490	1.2516	1.2542	1.2568	1.2593
18.000	1.2618	1.2642	1.2666	1.2690	1.2714
18.500	1.2737	1.2759	1.2782	1.2804	1.2826
19.000	1.2847	1.2868	1.2889	1.2909	1.2929

Subsection: Time-Depth Curve
Label: TR-55 (KC Metro)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
19.500	1.2949	1.2968	1.2987	1.3006	1.3024
20.000	1.3042	1.3060	1.3078	1.3096	1.3113
20.500	1.3131	1.3148	1.3165	1.3183	1.3200
21.000	1.3217	1.3234	1.3251	1.3268	1.3285
21.500	1.3302	1.3319	1.3335	1.3352	1.3368
22.000	1.3385	1.3401	1.3418	1.3434	1.3450
22.500	1.3466	1.3482	1.3498	1.3514	1.3530
23.000	1.3546	1.3562	1.3577	1.3593	1.3608
23.500	1.3624	1.3639	1.3655	1.3670	1.3685
24.000	1.3700	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: TR-55 (KC Metro)
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time-Depth Curve: TypeII 24hr (3.5 in)	
Label	TypeII 24hr (3.5 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0000	0.0035	0.0071	0.0107	0.0143
0.500	0.0180	0.0216	0.0254	0.0291	0.0329
1.000	0.0367	0.0406	0.0445	0.0485	0.0524
1.500	0.0565	0.0605	0.0646	0.0687	0.0728
2.000	0.0770	0.0812	0.0855	0.0898	0.0941
2.500	0.0985	0.1028	0.1073	0.1117	0.1162
3.000	0.1207	0.1253	0.1299	0.1346	0.1392
3.500	0.1440	0.1487	0.1535	0.1583	0.1631
4.000	0.1680	0.1729	0.1779	0.1830	0.1882
4.500	0.1934	0.1987	0.2040	0.2094	0.2149
5.000	0.2205	0.2261	0.2318	0.2376	0.2435
5.500	0.2494	0.2554	0.2614	0.2675	0.2737
6.000	0.2800	0.2863	0.2927	0.2992	0.3058
6.500	0.3124	0.3191	0.3258	0.3326	0.3395
7.000	0.3465	0.3535	0.3606	0.3678	0.3751
7.500	0.3824	0.3898	0.3972	0.4047	0.4123
8.000	0.4200	0.4279	0.4361	0.4447	0.4536
8.500	0.4629	0.4725	0.4825	0.4928	0.5035
9.000	0.5145	0.5257	0.5369	0.5481	0.5593
9.500	0.5705	0.5820	0.5940	0.6066	0.6198
10.000	0.6335	0.6479	0.6632	0.6793	0.6962
10.500	0.7140	0.7329	0.7532	0.7749	0.7980
11.000	0.8225	0.8494	0.8796	0.9132	0.9502
11.500	0.9905	1.0739	1.2403	1.5078	1.9875
12.000	2.3205	2.3869	2.4452	2.4956	2.5381
12.500	2.5725	2.6020	2.6298	2.6557	2.6797
13.000	2.7020	2.7229	2.7427	2.7616	2.7796
13.500	2.7965	2.8126	2.8280	2.8427	2.8567
14.000	2.8700	2.8828	2.8954	2.9078	2.9198
14.500	2.9317	2.9433	2.9547	2.9658	2.9766
15.000	2.9873	2.9976	3.0078	3.0177	3.0273
15.500	3.0367	3.0458	3.0548	3.0634	3.0718
16.000	3.0800	3.0880	3.0959	3.1038	3.1115
16.500	3.1192	3.1267	3.1342	3.1416	3.1489
17.000	3.1561	3.1633	3.1703	3.1773	3.1841
17.500	3.1909	3.1976	3.2042	3.2107	3.2172
18.000	3.2235	3.2298	3.2359	3.2420	3.2480
18.500	3.2539	3.2597	3.2655	3.2711	3.2767
19.000	3.2821	3.2875	3.2928	3.2980	3.3031

Subsection: Time-Depth Curve
Label: TR-55 (KC Metro)
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
19.500	3.3082	3.3131	3.3180	3.3227	3.3274
20.000	3.3320	3.3365	3.3411	3.3456	3.3501
20.500	3.3545	3.3590	3.3634	3.3678	3.3723
21.000	3.3766	3.3810	3.3853	3.3897	3.3940
21.500	3.3983	3.4026	3.4068	3.4111	3.4153
22.000	3.4195	3.4237	3.4279	3.4320	3.4362
22.500	3.4403	3.4444	3.4485	3.4525	3.4566
23.000	3.4606	3.4646	3.4686	3.4726	3.4766
23.500	3.4805	3.4845	3.4884	3.4923	3.4961
24.000	3.5000	(N/A)	(N/A)	(N/A)	(N/A)

Time-Depth Curve: TypeII 24hr (5.3 in)	
Label	TypeII 24hr (5.3 in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0000	0.0054	0.0108	0.0163	0.0218
0.500	0.0274	0.0330	0.0387	0.0444	0.0502
1.000	0.0561	0.0620	0.0679	0.0740	0.0800
1.500	0.0861	0.0923	0.0985	0.1048	0.1111
2.000	0.1175	0.1239	0.1304	0.1370	0.1435
2.500	0.1502	0.1569	0.1637	0.1705	0.1773
3.000	0.1842	0.1912	0.1982	0.2053	0.2124
3.500	0.2196	0.2268	0.2342	0.2415	0.2489
4.000	0.2563	0.2638	0.2715	0.2792	0.2871
4.500	0.2950	0.3031	0.3113	0.3195	0.3279
5.000	0.3364	0.3450	0.3537	0.3625	0.3715
5.500	0.3805	0.3896	0.3988	0.4082	0.4176
6.000	0.4272	0.4369	0.4466	0.4565	0.4665
6.500	0.4766	0.4868	0.4971	0.5075	0.5180
7.000	0.5287	0.5394	0.5502	0.5612	0.5722
7.500	0.5834	0.5947	0.6060	0.6175	0.6291
8.000	0.6408	0.6528	0.6654	0.6784	0.6921
8.500	0.7062	0.7209	0.7361	0.7519	0.7682
9.000	0.7850	0.8021	0.8192	0.8362	0.8533
9.500	0.8704	0.8879	0.9063	0.9255	0.9456
10.000	0.9665	0.9885	1.0118	1.0364	1.0622
10.500	1.0894	1.1182	1.1492	1.1823	1.2175
11.000	1.2549	1.2959	1.3420	1.3933	1.4497
11.500	1.5112	1.6385	1.8923	2.3004	3.0324
12.000	3.5404	3.6417	3.7307	3.8076	3.8724
12.500	3.9249	3.9700	4.0123	4.0518	4.0885
13.000	4.1225	4.1543	4.1846	4.2135	4.2408
13.500	4.2667	4.2912	4.3147	4.3371	4.3585
14.000	4.3788	4.3984	4.4176	4.4364	4.4548
14.500	4.4729	4.4906	4.5080	4.5249	4.5415
15.000	4.5577	4.5735	4.5890	4.6041	4.6188
15.500	4.6331	4.6471	4.6607	4.6739	4.6868
16.000	4.6992	4.7114	4.7235	4.7355	4.7473
16.500	4.7590	4.7705	4.7819	4.7932	4.8043
17.000	4.8153	4.8262	4.8370	4.8476	4.8581
17.500	4.8684	4.8786	4.8887	4.8986	4.9085
18.000	4.9181	4.9277	4.9371	4.9464	4.9555
18.500	4.9645	4.9734	4.9822	4.9908	4.9993
19.000	5.0076	5.0158	5.0239	5.0318	5.0396

Subsection: Time-Depth Curve
Label: TR-55 (KC Metro)
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
19.500	5.0473	5.0548	5.0623	5.0695	5.0767
20.000	5.0837	5.0906	5.0975	5.1044	5.1112
20.500	5.1181	5.1249	5.1316	5.1384	5.1451
21.000	5.1518	5.1584	5.1651	5.1717	5.1783
21.500	5.1848	5.1913	5.1978	5.2043	5.2108
22.000	5.2172	5.2236	5.2299	5.2363	5.2426
22.500	5.2489	5.2551	5.2614	5.2676	5.2738
23.000	5.2799	5.2861	5.2922	5.2982	5.3043
23.500	5.3103	5.3163	5.3223	5.3282	5.3341
24.000	5.3401	(N/A)	(N/A)	(N/A)	(N/A)

Time-Depth Curve: TypeII 24hr (7.7in)	
Label	TypeII 24hr (7.7in)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0000	0.0078	0.0156	0.0235	0.0315
0.500	0.0396	0.0476	0.0559	0.0641	0.0726
1.000	0.0810	0.0895	0.0981	0.1068	0.1155
1.500	0.1244	0.1332	0.1422	0.1513	0.1604
2.000	0.1696	0.1789	0.1883	0.1978	0.2072
2.500	0.2169	0.2265	0.2363	0.2461	0.2560
3.000	0.2660	0.2761	0.2862	0.2964	0.3067
3.500	0.3171	0.3275	0.3381	0.3486	0.3594
4.000	0.3701	0.3810	0.3920	0.4032	0.4145
4.500	0.4260	0.4376	0.4494	0.4614	0.4735
5.000	0.4857	0.4981	0.5107	0.5234	0.5363
5.500	0.5493	0.5625	0.5759	0.5894	0.6030
6.000	0.6168	0.6308	0.6449	0.6591	0.6735
6.500	0.6881	0.7028	0.7177	0.7328	0.7479
7.000	0.7633	0.7788	0.7944	0.8102	0.8262
7.500	0.8423	0.8586	0.8750	0.8916	0.9083
8.000	0.9252	0.9425	0.9607	0.9796	0.9992
8.500	1.0196	1.0409	1.0628	1.0856	1.1091
9.000	1.1334	1.1580	1.1827	1.2074	1.2321
9.500	1.2567	1.2820	1.3085	1.3363	1.3653
10.000	1.3955	1.4273	1.4609	1.4964	1.5337
10.500	1.5728	1.6145	1.6592	1.7070	1.7579
11.000	1.8118	1.8711	1.9377	2.0117	2.0931
11.500	2.1819	2.3657	2.7321	3.3214	4.3782
12.000	5.1117	5.2579	5.3865	5.4975	5.5910
12.500	5.6669	5.7319	5.7930	5.8500	5.9031
13.000	5.9521	5.9981	6.0419	6.0835	6.1230
13.500	6.1603	6.1958	6.2297	6.2621	6.2929
14.000	6.3222	6.3505	6.3782	6.4054	6.4320
14.500	6.4581	6.4836	6.5087	6.5331	6.5571
15.000	6.5805	6.6034	6.6257	6.6475	6.6687
15.500	6.6894	6.7096	6.7292	6.7483	6.7668
16.000	6.7848	6.8025	6.8199	6.8372	6.8542
16.500	6.8711	6.8877	6.9042	6.9205	6.9366
17.000	6.9525	6.9682	6.9837	6.9991	7.0142
17.500	7.0291	7.0439	7.0584	7.0728	7.0870
18.000	7.1009	7.1147	7.1283	7.1417	7.1549
18.500	7.1679	7.1807	7.1934	7.2058	7.2180
19.000	7.2301	7.2419	7.2536	7.2651	7.2763

Subsection: Time-Depth Curve
Label: TR-55 (KC Metro)
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
19.500	7.2874	7.2983	7.3090	7.3195	7.3298
20.000	7.3399	7.3499	7.3599	7.3698	7.3797
20.500	7.3896	7.3994	7.4092	7.4189	7.4286
21.000	7.4382	7.4479	7.4574	7.4670	7.4765
21.500	7.4859	7.4954	7.5048	7.5141	7.5234
22.000	7.5327	7.5419	7.5511	7.5603	7.5694
22.500	7.5785	7.5875	7.5965	7.6055	7.6144
23.000	7.6233	7.6321	7.6409	7.6497	7.6584
23.500	7.6671	7.6758	7.6844	7.6930	7.7015
24.000	7.7101	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: Phase 3 - Detained
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.035
Slope	0.026 ft/ft
2 Year 24 Hour Depth	3.4000 in
Average Velocity	0.78 ft/s
Segment Time of Concentration	0.107 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	240.00 ft
Is Paved?	False
Slope	0.017 ft/ft
Average Velocity	2.10 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Channel Flow	
Flow Area	3.1 ft²
Hydraulic Length	1,130.00 ft
Manning's n	0.012
Slope	0.010 ft/ft
Wetted Perimeter	6.28 ft
Average Velocity	7.82 ft/s
Segment Time of Concentration	0.040 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	605.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.104 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.283 hours

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.035
Slope	0.026 ft/ft
2 Year 24 Hour Depth	3.4000 in
Average Velocity	0.78 ft/s
Segment Time of Concentration	0.107 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	240.00 ft
Is Paved?	False
Slope	0.017 ft/ft
Average Velocity	2.10 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Channel Flow	
Flow Area	3.1 ft²
Hydraulic Length	1,130.00 ft
Manning's n	0.012
Slope	0.010 ft/ft
Wetted Perimeter	6.28 ft
Average Velocity	7.82 ft/s
Segment Time of Concentration	0.040 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	605.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.104 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.283 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Phase 3 - Detained
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.035
Slope	0.026 ft/ft
2 Year 24 Hour Depth	3.4000 in
Average Velocity	0.78 ft/s
Segment Time of Concentration	0.107 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	240.00 ft
Is Paved?	False
Slope	0.017 ft/ft
Average Velocity	2.10 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Channel Flow	
Flow Area	3.1 ft²
Hydraulic Length	1,130.00 ft
Manning's n	0.012
Slope	0.010 ft/ft
Wetted Perimeter	6.28 ft
Average Velocity	7.82 ft/s
Segment Time of Concentration	0.040 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	605.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.104 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.283 hours

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	300.00 ft
Manning's n	0.035
Slope	0.026 ft/ft
2 Year 24 Hour Depth	3.4000 in
Average Velocity	0.78 ft/s
Segment Time of Concentration	0.107 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	240.00 ft
Is Paved?	False
Slope	0.017 ft/ft
Average Velocity	2.10 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Channel Flow	
Flow Area	3.1 ft²
Hydraulic Length	1,130.00 ft
Manning's n	0.012
Slope	0.010 ft/ft
Wetted Perimeter	6.28 ft
Average Velocity	7.82 ft/s
Segment Time of Concentration	0.040 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	605.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.104 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.283 hours

==== SCS Channel Flow

Tc =	R = Qa / Wp
	V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n
	(Lf / V) / 3600
Where:	R= Hydraulic radius
	Aq= Flow area, square feet
	Wp= Wetted perimeter, feet
	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	n= Manning's n
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =	Unpaved surface:
	V = 16.1345 * (Sf**0.5)
	Paved Surface:
	V = 20.3282 * (Sf**0.5)
	(Lf / V) / 3600
Where:	V= Velocity, ft/sec
	Sf= Slope, ft/ft
	Tc= Time of concentration, hours
	Lf= Flow length, feet

==== SCS TR-55 Sheet Flow

Tc =	(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))
Where:	Tc= Time of concentration, hours
	n= Manning's n
	Lf= Flow length, feet
	P= 2yr, 24hr Rain depth, inches
	Sf= Slope, %

Unit Hydrograph Method (Computational Notes)
Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Storm Event	TypeII 24hr (1.37) - WQv
Return Event	0 years
Duration	24.000 hours
Depth	1.3700 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

Computational Time Increment	0.038 hours
Time to Peak (Computed)	12.084 hours
Flow (Peak, Computed)	4.97 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.050 hours
Flow (Peak Interpolated Output)	4.86 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	437,333.000 ft²
Maximum Retention (Pervious)	1.4943 in
Maximum Retention (Pervious, 20 percent)	0.2989 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.4473 in
Runoff Volume (Pervious)	0.374 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.372 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.283 hours
Computational Time Increment	0.038 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	40.17 ft³/s
Unit peak time, Tp	0.189 hours
Unit receding limb, Tr	0.755 hours
Total unit time, Tb	0.944 hours

Storm Event	TypeII 24hr (1.37) - WQv
Return Event	0 years
Duration	24.000 hours
Depth	1.3700 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.850	0.00	0.00	0.00	0.01	0.01
11.100	0.02	0.02	0.03	0.04	0.05
11.350	0.06	0.07	0.09	0.10	0.12
11.600	0.16	0.24	0.36	0.58	0.92
11.850	1.43	2.23	3.26	4.24	4.86
12.100	4.85	4.30	3.50	2.76	2.19
12.350	1.80	1.53	1.32	1.16	1.03
12.600	0.93	0.84	0.77	0.71	0.67
12.850	0.63	0.61	0.58	0.56	0.54
13.100	0.52	0.51	0.49	0.48	0.46
13.350	0.45	0.44	0.43	0.42	0.41
13.600	0.40	0.39	0.38	0.37	0.36
13.850	0.36	0.35	0.34	0.33	0.33
14.100	0.32	0.31	0.31	0.30	0.30
14.350	0.30	0.29	0.29	0.29	0.28
14.600	0.28	0.28	0.28	0.27	0.27
14.850	0.27	0.27	0.26	0.26	0.26
15.100	0.26	0.25	0.25	0.25	0.25
15.350	0.24	0.24	0.24	0.24	0.23
15.600	0.23	0.23	0.22	0.22	0.22
15.850	0.22	0.21	0.21	0.21	0.21
16.100	0.20	0.20	0.20	0.20	0.20
16.350	0.19	0.19	0.19	0.19	0.19
16.600	0.19	0.19	0.19	0.19	0.18
16.850	0.18	0.18	0.18	0.18	0.18
17.100	0.18	0.18	0.18	0.18	0.18
17.350	0.17	0.17	0.17	0.17	0.17
17.600	0.17	0.17	0.17	0.17	0.17
17.850	0.16	0.16	0.16	0.16	0.16
18.100	0.16	0.16	0.16	0.16	0.16
18.350	0.15	0.15	0.15	0.15	0.15
18.600	0.15	0.15	0.15	0.15	0.15
18.850	0.14	0.14	0.14	0.14	0.14
19.100	0.14	0.14	0.14	0.14	0.14
19.350	0.13	0.13	0.13	0.13	0.13
19.600	0.13	0.13	0.13	0.13	0.12
19.850	0.12	0.12	0.12	0.12	0.12
20.100	0.12	0.12	0.12	0.12	0.12

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 0 years
Label: Phase 3 - Detained Storm Event: TypeII 24hr (1.37) - WQv
Scenario: Water Quality Storm

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.350	0.12	0.12	0.12	0.11	0.11
20.600	0.11	0.11	0.11	0.11	0.11
20.850	0.11	0.11	0.11	0.11	0.11
21.100	0.11	0.11	0.11	0.11	0.11
21.350	0.11	0.11	0.11	0.11	0.11
21.600	0.11	0.11	0.11	0.11	0.11
21.850	0.11	0.11	0.11	0.11	0.11
22.100	0.11	0.11	0.11	0.11	0.11
22.350	0.11	0.11	0.11	0.11	0.11
22.600	0.11	0.11	0.11	0.11	0.11
22.850	0.11	0.11	0.11	0.11	0.11
23.100	0.11	0.11	0.10	0.10	0.10
23.350	0.10	0.10	0.10	0.10	0.10
23.600	0.10	0.10	0.10	0.10	0.10
23.850	0.10	0.10	0.10	0.10	(N/A)

Storm Event	TypeII 24hr (3.5 in)
Return Event	2 years
Duration	24.000 hours
Depth	3.5000 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

Computational Time Increment	0.038 hours
Time to Peak (Computed)	12.046 hours
Flow (Peak, Computed)	25.07 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.050 hours
Flow (Peak Interpolated Output)	25.04 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	437,333.000 ft²
Maximum Retention (Pervious)	1.4943 in
Maximum Retention (Pervious, 20 percent)	0.2989 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1825 in
Runoff Volume (Pervious)	1.826 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.819 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.283 hours
Computational Time Increment	0.038 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	40.17 ft³/s
Unit peak time, Tp	0.189 hours
Unit receding limb, Tr	0.755 hours
Total unit time, Tb	0.944 hours

Storm Event	TypeII 24hr (3.5 in)
Return Event	2 years
Duration	24.000 hours
Depth	3.5000 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.450	0.00	0.00	0.00	0.01	0.01
6.700	0.01	0.01	0.02	0.02	0.02
6.950	0.03	0.03	0.03	0.04	0.04
7.200	0.04	0.04	0.05	0.05	0.05
7.450	0.06	0.06	0.06	0.07	0.07
7.700	0.08	0.08	0.08	0.09	0.09
7.950	0.09	0.10	0.10	0.10	0.11
8.200	0.11	0.12	0.12	0.13	0.13
8.450	0.14	0.15	0.15	0.16	0.17
8.700	0.18	0.18	0.19	0.20	0.21
8.950	0.22	0.23	0.24	0.24	0.25
9.200	0.26	0.27	0.27	0.28	0.29
9.450	0.29	0.30	0.30	0.31	0.32
9.700	0.33	0.34	0.35	0.36	0.37
9.950	0.39	0.40	0.42	0.43	0.45
10.200	0.47	0.49	0.51	0.53	0.55
10.450	0.58	0.60	0.62	0.65	0.68
10.700	0.71	0.75	0.78	0.82	0.86
10.950	0.90	0.95	0.99	1.04	1.10
11.200	1.17	1.24	1.33	1.42	1.52
11.450	1.63	1.74	1.92	2.26	2.92
11.700	3.96	5.55	7.73	10.69	14.69
11.950	19.32	23.23	25.04	23.92	20.52
12.200	16.34	12.63	9.83	7.92	6.62
12.450	5.63	4.87	4.28	3.80	3.40
12.700	3.09	2.84	2.65	2.51	2.39
12.950	2.30	2.21	2.12	2.05	1.98
13.200	1.91	1.85	1.80	1.75	1.71
13.450	1.66	1.62	1.58	1.54	1.50
13.700	1.46	1.43	1.39	1.36	1.33
13.950	1.30	1.27	1.24	1.21	1.19
14.200	1.16	1.15	1.13	1.11	1.10
14.450	1.09	1.08	1.07	1.06	1.05
14.700	1.04	1.03	1.02	1.01	1.00
14.950	0.98	0.97	0.96	0.95	0.94
15.200	0.93	0.92	0.91	0.90	0.89
15.450	0.88	0.87	0.86	0.85	0.84
15.700	0.83	0.82	0.81	0.80	0.78

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: Phase 3 - Detained Storm Event: TypeII 24hr (3.5 in)
Scenario: 2 Year Post Developed

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.950	0.77	0.76	0.75	0.74	0.73
16.200	0.73	0.72	0.71	0.71	0.70
16.450	0.70	0.70	0.69	0.69	0.68
16.700	0.68	0.68	0.67	0.67	0.67
16.950	0.66	0.66	0.65	0.65	0.65
17.200	0.64	0.64	0.64	0.63	0.63
17.450	0.62	0.62	0.62	0.61	0.61
17.700	0.60	0.60	0.60	0.59	0.59
17.950	0.59	0.58	0.58	0.57	0.57
18.200	0.57	0.56	0.56	0.56	0.55
18.450	0.55	0.54	0.54	0.54	0.53
18.700	0.53	0.52	0.52	0.52	0.51
18.950	0.51	0.51	0.50	0.50	0.49
19.200	0.49	0.49	0.48	0.48	0.47
19.450	0.47	0.47	0.46	0.46	0.46
19.700	0.45	0.45	0.44	0.44	0.44
19.950	0.43	0.43	0.42	0.42	0.42
20.200	0.41	0.41	0.41	0.41	0.41
20.450	0.41	0.41	0.41	0.41	0.40
20.700	0.40	0.40	0.40	0.40	0.40
20.950	0.40	0.40	0.40	0.40	0.40
21.200	0.40	0.40	0.39	0.39	0.39
21.450	0.39	0.39	0.39	0.39	0.39
21.700	0.39	0.39	0.39	0.39	0.39
21.950	0.38	0.38	0.38	0.38	0.38
22.200	0.38	0.38	0.38	0.38	0.38
22.450	0.38	0.38	0.38	0.37	0.37
22.700	0.37	0.37	0.37	0.37	0.37
22.950	0.37	0.37	0.37	0.37	0.37
23.200	0.37	0.37	0.36	0.36	0.36
23.450	0.36	0.36	0.36	0.36	0.36
23.700	0.36	0.36	0.36	0.36	0.36
23.950	0.35	0.35	(N/A)	(N/A)	(N/A)

Storm Event	TypeII 24hr (5.3 in)
Return Event	10 years
Duration	24.000 hours
Depth	5.3401 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

Computational Time Increment	0.038 hours
Time to Peak (Computed)	12.046 hours
Flow (Peak, Computed)	43.92 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.050 hours
Flow (Peak Interpolated Output)	43.83 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	437,333.000 ft²
Maximum Retention (Pervious)	1.4943 in
Maximum Retention (Pervious, 20 percent)	0.2989 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.8886 in
Runoff Volume (Pervious)	3.253 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.243 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.283 hours
Computational Time Increment	0.038 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	40.17 ft³/s
Unit peak time, Tp	0.189 hours
Unit receding limb, Tr	0.755 hours
Total unit time, Tb	0.944 hours

Storm Event	TypeII 24hr (5.3 in)
Return Event	10 years
Duration	24.000 hours
Depth	5.3401 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.650	0.00	0.00	0.00	0.01	0.01
4.900	0.01	0.02	0.02	0.03	0.03
5.150	0.03	0.04	0.04	0.05	0.05
5.400	0.06	0.06	0.07	0.07	0.08
5.650	0.08	0.09	0.10	0.10	0.11
5.900	0.11	0.12	0.12	0.13	0.13
6.150	0.14	0.15	0.15	0.16	0.16
6.400	0.17	0.17	0.18	0.19	0.19
6.650	0.20	0.20	0.21	0.22	0.22
6.900	0.23	0.23	0.24	0.25	0.25
7.150	0.26	0.27	0.27	0.28	0.29
7.400	0.29	0.30	0.30	0.31	0.32
7.650	0.32	0.33	0.34	0.34	0.35
7.900	0.36	0.36	0.37	0.38	0.39
8.150	0.39	0.40	0.42	0.43	0.44
8.400	0.46	0.47	0.49	0.50	0.52
8.650	0.53	0.55	0.57	0.59	0.60
8.900	0.62	0.64	0.66	0.68	0.70
9.150	0.71	0.73	0.74	0.75	0.76
9.400	0.77	0.78	0.79	0.80	0.81
9.650	0.82	0.84	0.86	0.88	0.90
9.900	0.93	0.96	0.99	1.02	1.05
10.150	1.09	1.12	1.16	1.20	1.25
10.400	1.29	1.34	1.39	1.44	1.49
10.650	1.54	1.61	1.67	1.74	1.82
10.900	1.89	1.98	2.06	2.15	2.24
11.150	2.35	2.48	2.63	2.79	2.97
11.400	3.15	3.35	3.57	3.90	4.56
11.650	5.80	7.78	10.74	14.72	19.98
11.900	26.93	34.77	41.17	43.83	41.49
12.150	35.36	28.02	21.58	16.73	13.42
12.400	11.17	9.47	8.16	7.16	6.33
12.650	5.65	5.13	4.72	4.40	4.15
12.900	3.96	3.79	3.64	3.51	3.38
13.150	3.26	3.15	3.05	2.97	2.89
13.400	2.81	2.74	2.67	2.59	2.53
13.650	2.46	2.40	2.34	2.29	2.23
13.900	2.18	2.13	2.08	2.03	1.99

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: Phase 3 - Detained Storm Event: TypeII 24hr (5.3 in)
Scenario: 10 Year Post Developed

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.150	1.94	1.91	1.87	1.85	1.82
14.400	1.80	1.78	1.76	1.75	1.73
14.650	1.71	1.69	1.68	1.66	1.64
14.900	1.62	1.61	1.59	1.57	1.56
15.150	1.54	1.52	1.50	1.49	1.47
15.400	1.45	1.43	1.42	1.40	1.38
15.650	1.36	1.35	1.33	1.31	1.29
15.900	1.28	1.26	1.24	1.22	1.21
16.150	1.19	1.18	1.17	1.16	1.15
16.400	1.14	1.14	1.13	1.12	1.12
16.650	1.11	1.10	1.10	1.09	1.09
16.900	1.08	1.07	1.07	1.06	1.06
17.150	1.05	1.04	1.04	1.03	1.02
17.400	1.02	1.01	1.01	1.00	0.99
17.650	0.99	0.98	0.97	0.97	0.96
17.900	0.96	0.95	0.94	0.94	0.93
18.150	0.92	0.92	0.91	0.91	0.90
18.400	0.89	0.89	0.88	0.87	0.87
18.650	0.86	0.86	0.85	0.84	0.84
18.900	0.83	0.82	0.82	0.81	0.80
19.150	0.80	0.79	0.79	0.78	0.77
19.400	0.77	0.76	0.75	0.75	0.74
19.650	0.74	0.73	0.72	0.72	0.71
19.900	0.70	0.70	0.69	0.69	0.68
20.150	0.67	0.67	0.67	0.66	0.66
20.400	0.66	0.66	0.66	0.66	0.65
20.650	0.65	0.65	0.65	0.65	0.65
20.900	0.65	0.65	0.64	0.64	0.64
21.150	0.64	0.64	0.64	0.64	0.64
21.400	0.63	0.63	0.63	0.63	0.63
21.650	0.63	0.63	0.63	0.62	0.62
21.900	0.62	0.62	0.62	0.62	0.62
22.150	0.62	0.61	0.61	0.61	0.61
22.400	0.61	0.61	0.61	0.61	0.60
22.650	0.60	0.60	0.60	0.60	0.60
22.900	0.60	0.60	0.59	0.59	0.59
23.150	0.59	0.59	0.59	0.59	0.59
23.400	0.58	0.58	0.58	0.58	0.58
23.650	0.58	0.58	0.58	0.57	0.57
23.900	0.57	0.57	0.57	(N/A)	(N/A)

Storm Event	TypeII 24hr (7.7in)
Return Event	100 years
Duration	24.000 hours
Depth	7.7101 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

Computational Time Increment	0.038 hours
Time to Peak (Computed)	12.046 hours
Flow (Peak, Computed)	68.18 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.050 hours
Flow (Peak Interpolated Output)	68.00 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	437,333.000 ft²
Maximum Retention (Pervious)	1.4943 in
Maximum Retention (Pervious, 20 percent)	0.2989 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1677 in
Runoff Volume (Pervious)	5.160 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5.144 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.283 hours
Computational Time Increment	0.038 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	40.17 ft³/s
Unit peak time, Tp	0.189 hours
Unit receding limb, Tr	0.755 hours
Total unit time, Tb	0.944 hours

Storm Event	TypeII 24hr (7.7in)
Return Event	100 years
Duration	24.000 hours
Depth	7.7101 in
Time of Concentration (Composite)	0.283 hours
Area (User Defined)	437,333.000 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.400	0.00	0.00	0.00	0.01	0.01
3.650	0.02	0.02	0.03	0.04	0.04
3.900	0.05	0.06	0.06	0.07	0.08
4.150	0.09	0.09	0.10	0.11	0.12
4.400	0.12	0.13	0.14	0.15	0.16
4.650	0.16	0.17	0.18	0.19	0.20
4.900	0.21	0.21	0.22	0.23	0.24
5.150	0.25	0.26	0.27	0.28	0.28
5.400	0.29	0.30	0.31	0.32	0.33
5.650	0.34	0.35	0.36	0.37	0.38
5.900	0.39	0.40	0.41	0.42	0.43
6.150	0.44	0.45	0.45	0.46	0.47
6.400	0.48	0.49	0.50	0.51	0.52
6.650	0.53	0.54	0.55	0.57	0.58
6.900	0.59	0.60	0.61	0.62	0.63
7.150	0.64	0.65	0.66	0.67	0.68
7.400	0.69	0.70	0.71	0.72	0.73
7.650	0.74	0.75	0.76	0.77	0.78
7.900	0.80	0.81	0.82	0.83	0.84
8.150	0.85	0.87	0.89	0.91	0.94
8.400	0.96	0.99	1.02	1.05	1.08
8.650	1.11	1.13	1.17	1.20	1.23
8.900	1.26	1.29	1.32	1.35	1.38
9.150	1.41	1.44	1.46	1.47	1.49
9.400	1.50	1.51	1.52	1.54	1.55
9.650	1.57	1.59	1.63	1.67	1.71
9.900	1.75	1.80	1.85	1.90	1.96
10.150	2.01	2.07	2.14	2.21	2.28
10.400	2.36	2.44	2.51	2.59	2.68
10.650	2.77	2.87	2.98	3.10	3.22
10.900	3.35	3.48	3.61	3.75	3.91
11.150	4.09	4.29	4.53	4.80	5.09
11.400	5.39	5.70	6.05	6.58	7.66
11.650	9.69	12.90	17.66	23.96	32.20
11.900	42.90	54.80	64.32	68.00	64.04
12.150	54.36	42.96	33.01	25.53	20.44
12.400	16.97	14.36	12.36	10.81	9.56
12.650	8.52	7.73	7.10	6.61	6.24

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: Phase 3 - Detained Storm Event: TypeII 24hr (7.7in)
Scenario: 100 Year Post Developed

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.900	5.94	5.69	5.47	5.26	5.06
13.150	4.88	4.72	4.58	4.45	4.32
13.400	4.21	4.10	3.99	3.89	3.78
13.650	3.68	3.59	3.50	3.42	3.34
13.900	3.26	3.19	3.11	3.04	2.97
14.150	2.90	2.85	2.80	2.76	2.73
14.400	2.69	2.66	2.64	2.61	2.58
14.650	2.55	2.53	2.50	2.48	2.45
14.900	2.42	2.40	2.37	2.35	2.32
15.150	2.29	2.27	2.24	2.22	2.19
15.400	2.16	2.14	2.11	2.09	2.06
15.650	2.03	2.01	1.98	1.95	1.93
15.900	1.90	1.88	1.85	1.82	1.80
16.150	1.78	1.76	1.74	1.73	1.71
16.400	1.70	1.69	1.68	1.67	1.66
16.650	1.65	1.64	1.63	1.63	1.62
16.900	1.61	1.60	1.59	1.58	1.57
17.150	1.56	1.55	1.54	1.53	1.52
17.400	1.51	1.50	1.49	1.49	1.48
17.650	1.47	1.46	1.45	1.44	1.43
17.900	1.42	1.41	1.40	1.39	1.38
18.150	1.37	1.36	1.35	1.35	1.34
18.400	1.33	1.32	1.31	1.30	1.29
18.650	1.28	1.27	1.26	1.25	1.24
18.900	1.23	1.22	1.21	1.20	1.20
19.150	1.19	1.18	1.17	1.16	1.15
19.400	1.14	1.13	1.12	1.11	1.10
19.650	1.09	1.08	1.07	1.06	1.05
19.900	1.04	1.04	1.03	1.02	1.01
20.150	1.00	0.99	0.99	0.98	0.98
20.400	0.98	0.98	0.97	0.97	0.97
20.650	0.97	0.97	0.96	0.96	0.96
20.900	0.96	0.96	0.95	0.95	0.95
21.150	0.95	0.95	0.95	0.94	0.94
21.400	0.94	0.94	0.94	0.93	0.93
21.650	0.93	0.93	0.93	0.93	0.92
21.900	0.92	0.92	0.92	0.92	0.91
22.150	0.91	0.91	0.91	0.91	0.90
22.400	0.90	0.90	0.90	0.90	0.90
22.650	0.89	0.89	0.89	0.89	0.89
22.900	0.88	0.88	0.88	0.88	0.88
23.150	0.87	0.87	0.87	0.87	0.87
23.400	0.87	0.86	0.86	0.86	0.86
23.650	0.86	0.85	0.85	0.85	0.85
23.900	0.85	0.84	0.84	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	952.00	952.00	952.00	952.00	952.00
0.250	952.00	952.00	952.00	952.00	952.00
0.500	952.00	952.00	952.00	952.00	952.00
0.750	952.00	952.00	952.00	952.00	952.00
1.000	952.00	952.00	952.00	952.00	952.00
1.250	952.00	952.00	952.00	952.00	952.00
1.500	952.00	952.00	952.00	952.00	952.00
1.750	952.00	952.00	952.00	952.00	952.00
2.000	952.00	952.00	952.00	952.00	952.00
2.250	952.00	952.00	952.00	952.00	952.00
2.500	952.00	952.00	952.00	952.00	952.00
2.750	952.00	952.00	952.00	952.00	952.00
3.000	952.00	952.00	952.00	952.00	952.00
3.250	952.00	952.00	952.00	952.00	952.00
3.500	952.00	952.00	952.00	952.00	952.00
3.750	952.00	952.00	952.00	952.00	952.00
4.000	952.00	952.00	952.00	952.00	952.00
4.250	952.00	952.00	952.00	952.00	952.00
4.500	952.00	952.00	952.00	952.00	952.00
4.750	952.00	952.00	952.00	952.00	952.00
5.000	952.00	952.00	952.00	952.00	952.00
5.250	952.00	952.00	952.00	952.00	952.00
5.500	952.00	952.00	952.00	952.00	952.00
5.750	952.00	952.00	952.00	952.00	952.00
6.000	952.00	952.00	952.00	952.00	952.00
6.250	952.00	952.00	952.00	952.00	952.00
6.500	952.00	952.00	952.00	952.00	952.00
6.750	952.00	952.00	952.00	952.00	952.00
7.000	952.00	952.00	952.00	952.00	952.00
7.250	952.00	952.00	952.00	952.00	952.00
7.500	952.00	952.00	952.00	952.00	952.00
7.750	952.00	952.00	952.00	952.00	952.00
8.000	952.00	952.00	952.00	952.00	952.00
8.250	952.00	952.00	952.00	952.00	952.00
8.500	952.00	952.00	952.00	952.00	952.00
8.750	952.00	952.00	952.00	952.00	952.00
9.000	952.00	952.00	952.00	952.00	952.00
9.250	952.00	952.00	952.00	952.00	952.00
9.500	952.00	952.00	952.00	952.00	952.00
9.750	952.00	952.00	952.00	952.00	952.00
10.000	952.00	952.00	952.00	952.00	952.00
10.250	952.00	952.00	952.00	952.00	952.00
10.500	952.00	952.00	952.00	952.00	952.00
10.750	952.00	952.00	952.00	952.00	952.00
11.000	952.00	952.00	952.00	952.00	952.00
11.250	952.00	952.00	952.00	952.00	952.00

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.500	952.01	952.01	952.01	952.01	952.02
11.750	952.02	952.03	952.05	952.07	952.11
12.000	952.16	952.22	952.29	952.35	952.40
12.250	952.44	952.47	952.50	952.52	952.54
12.500	952.55	952.57	952.58	952.59	952.60
12.750	952.61	952.61	952.62	952.63	952.64
13.000	952.64	952.65	952.66	952.66	952.67
13.250	952.68	952.68	952.69	952.69	952.70
13.500	952.70	952.71	952.71	952.72	952.72
13.750	952.73	952.73	952.73	952.74	952.74
14.000	952.75	952.75	952.76	952.76	952.76
14.250	952.77	952.77	952.77	952.78	952.78
14.500	952.78	952.79	952.79	952.79	952.80
14.750	952.80	952.80	952.81	952.81	952.81
15.000	952.82	952.82	952.82	952.83	952.83
15.250	952.83	952.84	952.84	952.84	952.84
15.500	952.85	952.85	952.85	952.86	952.86
15.750	952.86	952.86	952.87	952.87	952.87
16.000	952.87	952.88	952.88	952.88	952.88
16.250	952.89	952.89	952.89	952.89	952.90
16.500	952.90	952.90	952.90	952.90	952.91
16.750	952.91	952.91	952.91	952.92	952.92
17.000	952.92	952.92	952.92	952.93	952.93
17.250	952.93	952.93	952.94	952.94	952.94
17.500	952.94	952.94	952.95	952.95	952.95
17.750	952.95	952.95	952.96	952.96	952.96
18.000	952.96	952.96	952.97	952.97	952.97
18.250	952.97	952.97	952.97	952.98	952.98
18.500	952.98	952.98	952.98	952.99	952.99
18.750	952.99	952.99	952.99	952.99	953.00
19.000	953.00	953.00	953.00	953.00	953.00
19.250	953.01	953.01	953.01	953.01	953.01
19.500	953.01	953.01	953.02	953.02	953.02
19.750	953.02	953.02	953.02	953.02	953.03
20.000	953.03	953.03	953.03	953.03	953.03
20.250	953.03	953.03	953.04	953.04	953.04
20.500	953.04	953.04	953.04	953.04	953.05
20.750	953.05	953.05	953.05	953.05	953.05
21.000	953.05	953.05	953.05	953.06	953.06
21.250	953.06	953.06	953.06	953.06	953.06
21.500	953.06	953.07	953.07	953.07	953.07
21.750	953.07	953.07	953.07	953.07	953.08
22.000	953.08	953.08	953.08	953.08	953.08
22.250	953.08	953.08	953.09	953.09	953.09
22.500	953.09	953.09	953.09	953.09	953.09
22.750	953.09	953.10	953.10	953.10	953.10

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.000	953.10	953.10	953.10	953.10	953.11
23.250	953.11	953.11	953.11	953.11	953.11
23.500	953.11	953.11	953.11	953.12	953.12
23.750	953.12	953.12	953.12	953.12	953.12
24.000	953.12	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	952.00	952.00	952.00	952.00	952.00
0.250	952.00	952.00	952.00	952.00	952.00
0.500	952.00	952.00	952.00	952.00	952.00
0.750	952.00	952.00	952.00	952.00	952.00
1.000	952.00	952.00	952.00	952.00	952.00
1.250	952.00	952.00	952.00	952.00	952.00
1.500	952.00	952.00	952.00	952.00	952.00
1.750	952.00	952.00	952.00	952.00	952.00
2.000	952.00	952.00	952.00	952.00	952.00
2.250	952.00	952.00	952.00	952.00	952.00
2.500	952.00	952.00	952.00	952.00	952.00
2.750	952.00	952.00	952.00	952.00	952.00
3.000	952.00	952.00	952.00	952.00	952.00
3.250	952.00	952.00	952.00	952.00	952.00
3.500	952.00	952.00	952.00	952.00	952.00
3.750	952.00	952.00	952.00	952.00	952.00
4.000	952.00	952.00	952.00	952.00	952.00
4.250	952.00	952.00	952.00	952.00	952.00
4.500	952.00	952.00	952.00	952.00	952.00
4.750	952.00	952.00	952.00	952.00	952.00
5.000	952.00	952.00	952.00	952.00	952.00
5.250	952.00	952.00	952.00	952.00	952.00
5.500	952.00	952.00	952.00	952.00	952.00
5.750	952.00	952.00	952.00	952.00	952.00
6.000	952.00	952.00	952.00	952.00	952.00
6.250	952.00	952.00	952.00	952.00	952.00
6.500	952.00	952.00	952.00	952.00	952.00
6.750	952.00	952.00	952.00	952.00	952.00
7.000	952.00	952.00	952.00	952.00	952.00
7.250	952.00	952.01	952.01	952.01	952.01
7.500	952.01	952.01	952.01	952.01	952.01
7.750	952.01	952.01	952.01	952.02	952.02
8.000	952.02	952.02	952.02	952.02	952.02
8.250	952.03	952.03	952.03	952.03	952.03
8.500	952.03	952.04	952.04	952.04	952.04
8.750	952.05	952.05	952.05	952.05	952.06
9.000	952.06	952.06	952.07	952.07	952.07
9.250	952.08	952.08	952.08	952.09	952.09
9.500	952.09	952.10	952.10	952.11	952.11
9.750	952.12	952.12	952.13	952.13	952.14
10.000	952.14	952.15	952.15	952.16	952.16
10.250	952.17	952.18	952.18	952.19	952.20
10.500	952.21	952.21	952.22	952.23	952.24
10.750	952.25	952.26	952.27	952.28	952.29
11.000	952.31	952.32	952.33	952.35	952.36
11.250	952.38	952.40	952.42	952.43	952.46

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.500	952.48	952.50	952.53	952.56	952.60
11.750	952.66	952.74	952.85	953.00	953.19
12.000	953.42	953.67	953.92	954.11	954.23
12.250	954.29	954.30	954.29	954.27	954.24
12.500	954.22	954.20	954.18	954.16	954.14
12.750	954.13	954.11	954.10	954.09	954.09
13.000	954.08	954.08	954.07	954.07	954.07
13.250	954.06	954.06	954.06	954.06	954.05
13.500	954.05	954.05	954.05	954.05	954.05
13.750	954.05	954.04	954.04	954.04	954.04
14.000	954.04	954.04	954.04	954.04	954.04
14.250	954.04	954.04	954.03	954.03	954.03
14.500	954.03	954.03	954.03	954.03	954.03
14.750	954.03	954.03	954.03	954.03	954.03
15.000	954.03	954.03	954.03	954.03	954.03
15.250	954.03	954.03	954.03	954.03	954.03
15.500	954.03	954.03	954.03	954.03	954.03
15.750	954.03	954.02	954.02	954.02	954.02
16.000	954.02	954.02	954.02	954.02	954.02
16.250	954.02	954.02	954.02	954.02	954.02
16.500	954.02	954.02	954.02	954.02	954.02
16.750	954.02	954.02	954.02	954.02	954.02
17.000	954.02	954.02	954.02	954.02	954.02
17.250	954.02	954.02	954.02	954.02	954.02
17.500	954.02	954.02	954.02	954.02	954.02
17.750	954.02	954.02	954.02	954.02	954.02
18.000	954.02	954.02	954.02	954.02	954.02
18.250	954.02	954.02	954.02	954.02	954.02
18.500	954.02	954.02	954.02	954.02	954.02
18.750	954.02	954.02	954.02	954.02	954.02
19.000	954.02	954.02	954.02	954.01	954.01
19.250	954.01	954.01	954.01	954.01	954.01
19.500	954.01	954.01	954.01	954.01	954.01
19.750	954.01	954.01	954.01	954.01	954.01
20.000	954.01	954.01	954.01	954.01	954.01
20.250	954.01	954.01	954.01	954.01	954.01
20.500	954.01	954.01	954.01	954.01	954.01
20.750	954.01	954.01	954.01	954.01	954.01
21.000	954.01	954.01	954.01	954.01	954.01
21.250	954.01	954.01	954.01	954.01	954.01
21.500	954.01	954.01	954.01	954.01	954.01
21.750	954.01	954.01	954.01	954.01	954.01
22.000	954.01	954.01	954.01	954.01	954.01
22.250	954.01	954.01	954.01	954.01	954.01
22.500	954.01	954.01	954.01	954.01	954.01
22.750	954.01	954.01	954.01	954.01	954.01

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.000	954.01	954.01	954.01	954.01	954.01
23.250	954.01	954.01	954.01	954.01	954.01
23.500	954.01	954.01	954.01	954.01	954.01
23.750	954.01	954.01	954.01	954.01	954.01
24.000	954.01	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	952.00	952.00	952.00	952.00	952.00
0.250	952.00	952.00	952.00	952.00	952.00
0.500	952.00	952.00	952.00	952.00	952.00
0.750	952.00	952.00	952.00	952.00	952.00
1.000	952.00	952.00	952.00	952.00	952.00
1.250	952.00	952.00	952.00	952.00	952.00
1.500	952.00	952.00	952.00	952.00	952.00
1.750	952.00	952.00	952.00	952.00	952.00
2.000	952.00	952.00	952.00	952.00	952.00
2.250	952.00	952.00	952.00	952.00	952.00
2.500	952.00	952.00	952.00	952.00	952.00
2.750	952.00	952.00	952.00	952.00	952.00
3.000	952.00	952.00	952.00	952.00	952.00
3.250	952.00	952.00	952.00	952.00	952.00
3.500	952.00	952.00	952.00	952.00	952.00
3.750	952.00	952.00	952.00	952.00	952.00
4.000	952.00	952.00	952.00	952.00	952.00
4.250	952.00	952.00	952.00	952.00	952.00
4.500	952.00	952.00	952.00	952.00	952.00
4.750	952.00	952.00	952.00	952.00	952.00
5.000	952.00	952.00	952.00	952.00	952.00
5.250	952.00	952.00	952.00	952.01	952.01
5.500	952.01	952.01	952.01	952.01	952.01
5.750	952.01	952.01	952.02	952.02	952.02
6.000	952.02	952.02	952.02	952.02	952.03
6.250	952.03	952.03	952.03	952.04	952.04
6.500	952.04	952.04	952.04	952.05	952.05
6.750	952.05	952.06	952.06	952.06	952.06
7.000	952.07	952.07	952.07	952.08	952.08
7.250	952.09	952.09	952.09	952.10	952.10
7.500	952.10	952.11	952.11	952.12	952.12
7.750	952.13	952.13	952.14	952.14	952.14
8.000	952.15	952.15	952.16	952.16	952.17
8.250	952.18	952.18	952.19	952.19	952.20
8.500	952.21	952.21	952.22	952.23	952.23
8.750	952.24	952.25	952.26	952.26	952.27
9.000	952.28	952.29	952.30	952.31	952.32
9.250	952.33	952.34	952.35	952.36	952.37
9.500	952.38	952.39	952.40	952.41	952.42
9.750	952.43	952.45	952.46	952.47	952.48
10.000	952.50	952.51	952.52	952.53	952.55
10.250	952.56	952.58	952.59	952.61	952.62
10.500	952.64	952.66	952.67	952.69	952.71
10.750	952.73	952.75	952.77	952.79	952.82
11.000	952.84	952.87	952.89	952.92	952.95
11.250	952.98	953.01	953.04	953.08	953.11

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.500	953.15	953.19	953.24	953.30	953.37
11.750	953.47	953.60	953.78	954.01	954.26
12.000	954.49	954.67	954.77	954.80	954.78
12.250	954.71	954.64	954.57	954.51	954.45
12.500	954.40	954.35	954.31	954.27	954.24
12.750	954.22	954.19	954.17	954.16	954.15
13.000	954.14	954.13	954.12	954.11	954.11
13.250	954.10	954.10	954.10	954.09	954.09
13.500	954.09	954.08	954.08	954.08	954.08
13.750	954.08	954.07	954.07	954.07	954.07
14.000	954.07	954.06	954.06	954.06	954.06
14.250	954.06	954.06	954.06	954.06	954.06
14.500	954.05	954.05	954.05	954.05	954.05
14.750	954.05	954.05	954.05	954.05	954.05
15.000	954.05	954.05	954.05	954.05	954.05
15.250	954.05	954.05	954.04	954.04	954.04
15.500	954.04	954.04	954.04	954.04	954.04
15.750	954.04	954.04	954.04	954.04	954.04
16.000	954.04	954.04	954.04	954.04	954.04
16.250	954.04	954.04	954.04	954.03	954.03
16.500	954.03	954.03	954.03	954.03	954.03
16.750	954.03	954.03	954.03	954.03	954.03
17.000	954.03	954.03	954.03	954.03	954.03
17.250	954.03	954.03	954.03	954.03	954.03
17.500	954.03	954.03	954.03	954.03	954.03
17.750	954.03	954.03	954.03	954.03	954.03
18.000	954.03	954.03	954.03	954.03	954.03
18.250	954.03	954.03	954.03	954.03	954.03
18.500	954.03	954.03	954.03	954.03	954.03
18.750	954.03	954.03	954.03	954.03	954.02
19.000	954.02	954.02	954.02	954.02	954.02
19.250	954.02	954.02	954.02	954.02	954.02
19.500	954.02	954.02	954.02	954.02	954.02
19.750	954.02	954.02	954.02	954.02	954.02
20.000	954.02	954.02	954.02	954.02	954.02
20.250	954.02	954.02	954.02	954.02	954.02
20.500	954.02	954.02	954.02	954.02	954.02
20.750	954.02	954.02	954.02	954.02	954.02
21.000	954.02	954.02	954.02	954.02	954.02
21.250	954.02	954.02	954.02	954.02	954.02
21.500	954.02	954.02	954.02	954.02	954.02
21.750	954.02	954.02	954.02	954.02	954.02
22.000	954.02	954.02	954.02	954.02	954.02
22.250	954.02	954.02	954.02	954.02	954.02
22.500	954.02	954.02	954.02	954.02	954.02
22.750	954.02	954.02	954.02	954.02	954.02

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.000	954.02	954.02	954.02	954.02	954.02
23.250	954.02	954.02	954.02	954.02	954.02
23.500	954.02	954.02	954.02	954.02	954.02
23.750	954.02	954.02	954.02	954.02	954.02
24.000	954.02	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	952.00	952.00	952.00	952.00	952.00
0.250	952.00	952.00	952.00	952.00	952.00
0.500	952.00	952.00	952.00	952.00	952.00
0.750	952.00	952.00	952.00	952.00	952.00
1.000	952.00	952.00	952.00	952.00	952.00
1.250	952.00	952.00	952.00	952.00	952.00
1.500	952.00	952.00	952.00	952.00	952.00
1.750	952.00	952.00	952.00	952.00	952.00
2.000	952.00	952.00	952.00	952.00	952.00
2.250	952.00	952.00	952.00	952.00	952.00
2.500	952.00	952.00	952.00	952.00	952.00
2.750	952.00	952.00	952.00	952.00	952.00
3.000	952.00	952.00	952.00	952.00	952.00
3.250	952.00	952.00	952.00	952.00	952.00
3.500	952.00	952.00	952.00	952.00	952.00
3.750	952.00	952.00	952.00	952.00	952.00
4.000	952.00	952.01	952.01	952.01	952.01
4.250	952.01	952.01	952.01	952.01	952.02
4.500	952.02	952.02	952.02	952.02	952.03
4.750	952.03	952.03	952.03	952.04	952.04
5.000	952.04	952.05	952.05	952.05	952.05
5.250	952.06	952.06	952.07	952.07	952.07
5.500	952.08	952.08	952.09	952.09	952.10
5.750	952.10	952.11	952.11	952.12	952.12
6.000	952.13	952.13	952.14	952.14	952.15
6.250	952.15	952.16	952.17	952.17	952.18
6.500	952.19	952.19	952.20	952.21	952.21
6.750	952.22	952.23	952.24	952.25	952.25
7.000	952.26	952.27	952.28	952.29	952.29
7.250	952.30	952.31	952.32	952.33	952.34
7.500	952.35	952.36	952.37	952.38	952.39
7.750	952.40	952.41	952.42	952.43	952.44
8.000	952.45	952.46	952.47	952.48	952.50
8.250	952.51	952.52	952.53	952.54	952.55
8.500	952.56	952.58	952.59	952.60	952.62
8.750	952.63	952.64	952.66	952.67	952.69
9.000	952.71	952.72	952.74	952.75	952.77
9.250	952.79	952.81	952.82	952.84	952.86
9.500	952.88	952.90	952.92	952.93	952.95
9.750	952.97	952.99	953.01	953.03	953.05
10.000	953.07	953.09	953.11	953.13	953.16
10.250	953.18	953.20	953.23	953.25	953.28
10.500	953.31	953.34	953.36	953.39	953.43
10.750	953.46	953.49	953.52	953.56	953.59
11.000	953.63	953.66	953.70	953.74	953.79
11.250	953.83	953.88	953.93	953.98	954.03

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
11.500	954.07	954.10	954.13	954.16	954.21
11.750	954.28	954.37	954.49	954.64	954.80
12.000	954.96	955.12	955.25	955.31	955.29
12.250	955.19	955.02	954.85	954.71	954.61
12.500	954.54	954.48	954.43	954.39	954.35
12.750	954.31	954.28	954.26	954.24	954.22
13.000	954.20	954.19	954.18	954.17	954.16
13.250	954.16	954.15	954.14	954.14	954.13
13.500	954.13	954.13	954.12	954.12	954.12
13.750	954.11	954.11	954.11	954.10	954.10
14.000	954.10	954.10	954.09	954.09	954.09
14.250	954.09	954.09	954.09	954.08	954.08
14.500	954.08	954.08	954.08	954.08	954.08
14.750	954.08	954.08	954.07	954.07	954.07
15.000	954.07	954.07	954.07	954.07	954.07
15.250	954.07	954.07	954.07	954.07	954.07
15.500	954.06	954.06	954.06	954.06	954.06
15.750	954.06	954.06	954.06	954.06	954.06
16.000	954.06	954.06	954.06	954.05	954.05
16.250	954.05	954.05	954.05	954.05	954.05
16.500	954.05	954.05	954.05	954.05	954.05
16.750	954.05	954.05	954.05	954.05	954.05
17.000	954.05	954.05	954.05	954.05	954.05
17.250	954.05	954.05	954.05	954.05	954.05
17.500	954.04	954.04	954.04	954.04	954.04
17.750	954.04	954.04	954.04	954.04	954.04
18.000	954.04	954.04	954.04	954.04	954.04
18.250	954.04	954.04	954.04	954.04	954.04
18.500	954.04	954.04	954.04	954.04	954.04
18.750	954.04	954.04	954.04	954.04	954.04
19.000	954.04	954.04	954.04	954.04	954.04
19.250	954.04	954.03	954.03	954.03	954.03
19.500	954.03	954.03	954.03	954.03	954.03
19.750	954.03	954.03	954.03	954.03	954.03
20.000	954.03	954.03	954.03	954.03	954.03
20.250	954.03	954.03	954.03	954.03	954.03
20.500	954.03	954.03	954.03	954.03	954.03
20.750	954.03	954.03	954.03	954.03	954.03
21.000	954.03	954.03	954.03	954.03	954.03
21.250	954.03	954.03	954.03	954.03	954.03
21.500	954.03	954.03	954.03	954.03	954.03
21.750	954.03	954.03	954.03	954.03	954.03
22.000	954.03	954.03	954.03	954.03	954.03
22.250	954.03	954.03	954.03	954.03	954.03
22.500	954.03	954.03	954.03	954.03	954.03
22.750	954.03	954.03	954.03	954.03	954.03

Subsection: Time vs. Elevation
Label: WQB1 (OUT)
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
23.000	954.03	954.03	954.03	954.03	954.03
23.250	954.03	954.03	954.03	954.03	954.03
23.500	954.03	954.03	954.03	954.03	954.03
23.750	954.03	954.03	954.03	954.03	954.03
24.000	954.03	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: WQB1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.000	0.000	0.000
4.000	0.000	0.000	0.000	0.000	0.000
4.250	0.000	0.000	0.000	0.000	0.000
4.500	0.000	0.000	0.000	0.000	0.000
4.750	0.000	0.000	0.000	0.000	0.000
5.000	0.000	0.000	0.000	0.000	0.000
5.250	0.000	0.000	0.000	0.000	0.000
5.500	0.000	0.000	0.000	0.000	0.000
5.750	0.000	0.000	0.000	0.000	0.000
6.000	0.000	0.000	0.000	0.000	0.000
6.250	0.000	0.000	0.000	0.000	0.000
6.500	0.000	0.000	0.000	0.000	0.000
6.750	0.000	0.000	0.000	0.000	0.000
7.000	0.000	0.000	0.000	0.000	0.000
7.250	0.000	0.000	0.000	0.000	0.000
7.500	0.000	0.000	0.000	0.000	0.000
7.750	0.000	0.000	0.000	0.000	0.000
8.000	0.000	0.000	0.000	0.000	0.000
8.250	0.000	0.000	0.000	0.000	0.000
8.500	0.000	0.000	0.000	0.000	0.000
8.750	0.000	0.000	0.000	0.000	0.000
9.000	0.000	0.000	0.000	0.000	0.000
9.250	0.000	0.000	0.000	0.000	0.000
9.500	0.000	0.000	0.000	0.000	0.000
9.750	0.000	0.000	0.000	0.000	0.000
10.000	0.000	0.000	0.000	0.000	0.000
10.250	0.000	0.000	0.000	0.000	0.000
10.500	0.000	0.000	0.000	0.000	0.000
10.750	0.000	0.000	0.000	0.000	0.000
11.000	0.000	0.000	0.000	0.000	0.000
11.250	0.000	0.001	0.001	0.001	0.001

Subsection: Time vs. Volume
Label: WQB1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
11.500	0.002	0.002	0.003	0.004	0.005
11.750	0.007	0.010	0.014	0.021	0.032
12.000	0.047	0.066	0.086	0.105	0.122
12.250	0.135	0.146	0.155	0.161	0.167
12.500	0.172	0.176	0.180	0.183	0.187
12.750	0.190	0.192	0.195	0.197	0.200
13.000	0.202	0.204	0.206	0.209	0.211
13.250	0.213	0.214	0.216	0.218	0.220
13.500	0.222	0.223	0.225	0.227	0.228
13.750	0.230	0.231	0.233	0.234	0.236
14.000	0.237	0.238	0.240	0.241	0.242
14.250	0.244	0.245	0.246	0.247	0.249
14.500	0.250	0.251	0.252	0.253	0.254
14.750	0.256	0.257	0.258	0.259	0.260
15.000	0.261	0.262	0.263	0.264	0.266
15.250	0.267	0.268	0.269	0.270	0.271
15.500	0.272	0.273	0.274	0.275	0.276
15.750	0.276	0.277	0.278	0.279	0.280
16.000	0.281	0.282	0.283	0.284	0.284
16.250	0.285	0.286	0.287	0.288	0.289
16.500	0.289	0.290	0.291	0.292	0.293
16.750	0.293	0.294	0.295	0.296	0.297
17.000	0.297	0.298	0.299	0.300	0.300
17.250	0.301	0.302	0.303	0.303	0.304
17.500	0.305	0.306	0.306	0.307	0.308
17.750	0.309	0.309	0.310	0.311	0.311
18.000	0.312	0.313	0.313	0.314	0.315
18.250	0.316	0.316	0.317	0.318	0.318
18.500	0.319	0.320	0.320	0.321	0.321
18.750	0.322	0.323	0.323	0.324	0.325
19.000	0.325	0.326	0.326	0.327	0.327
19.250	0.328	0.329	0.329	0.330	0.330
19.500	0.331	0.331	0.332	0.332	0.333
19.750	0.333	0.334	0.334	0.335	0.335
20.000	0.336	0.336	0.337	0.337	0.338
20.250	0.338	0.338	0.339	0.339	0.340
20.500	0.340	0.341	0.341	0.342	0.342
20.750	0.343	0.343	0.344	0.344	0.344
21.000	0.345	0.345	0.346	0.346	0.347
21.250	0.347	0.348	0.348	0.348	0.349
21.500	0.349	0.350	0.350	0.351	0.351
21.750	0.352	0.352	0.352	0.353	0.353
22.000	0.354	0.354	0.355	0.355	0.356
22.250	0.356	0.356	0.357	0.357	0.358
22.500	0.358	0.359	0.359	0.359	0.360
22.750	0.360	0.361	0.361	0.362	0.362

Subsection: Time vs. Volume
Label: WQB1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
23.000	0.362	0.363	0.363	0.364	0.364
23.250	0.365	0.365	0.365	0.366	0.366
23.500	0.367	0.367	0.367	0.368	0.368
23.750	0.369	0.369	0.370	0.370	0.370
24.000	0.371	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: WQB1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.000	0.000	0.000
4.000	0.000	0.000	0.000	0.000	0.000
4.250	0.000	0.000	0.000	0.000	0.000
4.500	0.000	0.000	0.000	0.000	0.000
4.750	0.000	0.000	0.000	0.000	0.000
5.000	0.000	0.000	0.000	0.000	0.000
5.250	0.000	0.000	0.000	0.000	0.000
5.500	0.000	0.000	0.000	0.000	0.000
5.750	0.000	0.000	0.000	0.000	0.000
6.000	0.000	0.000	0.000	0.000	0.000
6.250	0.000	0.000	0.000	0.000	0.000
6.500	0.000	0.000	0.000	0.000	0.000
6.750	0.000	0.000	0.000	0.000	0.000
7.000	0.001	0.001	0.001	0.001	0.001
7.250	0.001	0.001	0.002	0.002	0.002
7.500	0.002	0.003	0.003	0.003	0.003
7.750	0.004	0.004	0.004	0.005	0.005
8.000	0.005	0.006	0.006	0.007	0.007
8.250	0.008	0.008	0.008	0.009	0.010
8.500	0.010	0.011	0.011	0.012	0.013
8.750	0.013	0.014	0.015	0.016	0.017
9.000	0.017	0.018	0.019	0.020	0.021
9.250	0.022	0.023	0.025	0.026	0.027
9.500	0.028	0.029	0.030	0.032	0.033
9.750	0.034	0.036	0.037	0.039	0.040
10.000	0.042	0.043	0.045	0.047	0.049
10.250	0.051	0.053	0.055	0.057	0.059
10.500	0.062	0.064	0.067	0.070	0.072
10.750	0.075	0.079	0.082	0.085	0.089
11.000	0.093	0.097	0.101	0.106	0.111
11.250	0.116	0.121	0.127	0.133	0.140

Subsection: Time vs. Volume
Label: WQB1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
11.500	0.147	0.155	0.164	0.174	0.187
11.750	0.207	0.234	0.272	0.326	0.395
12.000	0.484	0.583	0.684	0.768	0.819
12.250	0.843	0.848	0.844	0.835	0.824
12.500	0.814	0.803	0.794	0.786	0.779
12.750	0.773	0.767	0.763	0.759	0.756
13.000	0.754	0.752	0.750	0.748	0.747
13.250	0.746	0.744	0.744	0.743	0.742
13.500	0.741	0.741	0.740	0.739	0.739
13.750	0.738	0.738	0.737	0.737	0.736
14.000	0.736	0.736	0.735	0.735	0.734
14.250	0.734	0.734	0.733	0.733	0.733
14.500	0.733	0.733	0.732	0.732	0.732
14.750	0.732	0.732	0.732	0.732	0.731
15.000	0.731	0.731	0.731	0.731	0.731
15.250	0.731	0.731	0.730	0.730	0.730
15.500	0.730	0.730	0.730	0.730	0.729
15.750	0.729	0.729	0.729	0.729	0.729
16.000	0.729	0.729	0.728	0.728	0.728
16.250	0.728	0.728	0.728	0.728	0.728
16.500	0.728	0.728	0.727	0.727	0.727
16.750	0.727	0.727	0.727	0.727	0.727
17.000	0.727	0.727	0.727	0.727	0.727
17.250	0.727	0.727	0.727	0.727	0.727
17.500	0.727	0.727	0.726	0.726	0.726
17.750	0.726	0.726	0.726	0.726	0.726
18.000	0.726	0.726	0.726	0.726	0.726
18.250	0.726	0.726	0.726	0.726	0.726
18.500	0.726	0.726	0.726	0.725	0.725
18.750	0.725	0.725	0.725	0.725	0.725
19.000	0.725	0.725	0.725	0.725	0.725
19.250	0.725	0.725	0.725	0.725	0.725
19.500	0.725	0.725	0.725	0.725	0.724
19.750	0.724	0.724	0.724	0.724	0.724
20.000	0.724	0.724	0.724	0.724	0.724
20.250	0.724	0.724	0.724	0.724	0.724
20.500	0.724	0.724	0.724	0.724	0.724
20.750	0.724	0.724	0.724	0.724	0.724
21.000	0.724	0.724	0.724	0.724	0.724
21.250	0.724	0.724	0.724	0.724	0.724
21.500	0.724	0.724	0.724	0.724	0.724
21.750	0.724	0.724	0.724	0.724	0.724
22.000	0.723	0.723	0.723	0.723	0.723
22.250	0.723	0.723	0.723	0.723	0.723
22.500	0.723	0.723	0.723	0.723	0.723
22.750	0.723	0.723	0.723	0.723	0.723

Subsection: Time vs. Volume
Label: WQB1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
23.000	0.723	0.723	0.723	0.723	0.723
23.250	0.723	0.723	0.723	0.723	0.723
23.500	0.723	0.723	0.723	0.723	0.723
23.750	0.723	0.723	0.723	0.723	0.723
24.000	0.723	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: WQB1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.000	0.000	0.000
4.000	0.000	0.000	0.000	0.000	0.000
4.250	0.000	0.000	0.000	0.000	0.000
4.500	0.000	0.000	0.000	0.000	0.000
4.750	0.000	0.000	0.000	0.000	0.000
5.000	0.000	0.000	0.000	0.001	0.001
5.250	0.001	0.001	0.001	0.001	0.002
5.500	0.002	0.002	0.003	0.003	0.003
5.750	0.004	0.004	0.004	0.005	0.005
6.000	0.006	0.006	0.007	0.007	0.008
6.250	0.008	0.009	0.010	0.010	0.011
6.500	0.012	0.012	0.013	0.014	0.015
6.750	0.016	0.016	0.017	0.018	0.019
7.000	0.020	0.021	0.022	0.023	0.024
7.250	0.025	0.026	0.027	0.028	0.030
7.500	0.031	0.032	0.033	0.035	0.036
7.750	0.037	0.039	0.040	0.042	0.043
8.000	0.044	0.046	0.048	0.049	0.051
8.250	0.052	0.054	0.056	0.058	0.060
8.500	0.062	0.064	0.066	0.068	0.070
8.750	0.072	0.075	0.077	0.080	0.082
9.000	0.085	0.088	0.091	0.094	0.097
9.250	0.100	0.103	0.106	0.109	0.113
9.500	0.116	0.119	0.123	0.126	0.130
9.750	0.133	0.137	0.141	0.145	0.149
10.000	0.153	0.157	0.161	0.166	0.170
10.250	0.175	0.179	0.184	0.189	0.195
10.500	0.200	0.206	0.212	0.218	0.224
10.750	0.231	0.238	0.245	0.253	0.261
11.000	0.270	0.279	0.288	0.298	0.308
11.250	0.319	0.330	0.342	0.354	0.367

Subsection: Time vs. Volume
Label: WQB1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
11.500	0.381	0.396	0.414	0.435	0.464
11.750	0.503	0.555	0.626	0.724	0.830
12.000	0.937	1.019	1.068	1.082	1.069
12.250	1.039	1.003	0.970	0.942	0.917
12.500	0.893	0.872	0.853	0.837	0.823
12.750	0.812	0.802	0.794	0.787	0.782
13.000	0.778	0.774	0.771	0.768	0.765
13.250	0.763	0.762	0.760	0.758	0.757
13.500	0.756	0.755	0.754	0.753	0.752
13.750	0.751	0.750	0.749	0.749	0.748
14.000	0.747	0.746	0.746	0.745	0.744
14.250	0.744	0.743	0.743	0.743	0.742
14.500	0.742	0.742	0.741	0.741	0.741
14.750	0.741	0.740	0.740	0.740	0.740
15.000	0.739	0.739	0.739	0.739	0.738
15.250	0.738	0.738	0.738	0.738	0.737
15.500	0.737	0.737	0.737	0.737	0.736
15.750	0.736	0.736	0.736	0.735	0.735
16.000	0.735	0.735	0.735	0.734	0.734
16.250	0.734	0.734	0.734	0.733	0.733
16.500	0.733	0.733	0.733	0.733	0.733
16.750	0.733	0.733	0.733	0.732	0.732
17.000	0.732	0.732	0.732	0.732	0.732
17.250	0.732	0.732	0.732	0.732	0.732
17.500	0.732	0.731	0.731	0.731	0.731
17.750	0.731	0.731	0.731	0.731	0.731
18.000	0.731	0.731	0.731	0.731	0.730
18.250	0.730	0.730	0.730	0.730	0.730
18.500	0.730	0.730	0.730	0.730	0.730
18.750	0.730	0.729	0.729	0.729	0.729
19.000	0.729	0.729	0.729	0.729	0.729
19.250	0.729	0.729	0.729	0.729	0.728
19.500	0.728	0.728	0.728	0.728	0.728
19.750	0.728	0.728	0.728	0.728	0.728
20.000	0.728	0.728	0.727	0.727	0.727
20.250	0.727	0.727	0.727	0.727	0.727
20.500	0.727	0.727	0.727	0.727	0.727
20.750	0.727	0.727	0.727	0.727	0.727
21.000	0.727	0.727	0.727	0.727	0.727
21.250	0.727	0.727	0.727	0.727	0.727
21.500	0.727	0.727	0.727	0.727	0.727
21.750	0.727	0.727	0.727	0.726	0.726
22.000	0.726	0.726	0.726	0.726	0.726
22.250	0.726	0.726	0.726	0.726	0.726
22.500	0.726	0.726	0.726	0.726	0.726
22.750	0.726	0.726	0.726	0.726	0.726

Subsection: Time vs. Volume
Label: WQB1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
23.000	0.726	0.726	0.726	0.726	0.726
23.250	0.726	0.726	0.726	0.726	0.726
23.500	0.726	0.726	0.726	0.726	0.726
23.750	0.726	0.726	0.726	0.726	0.726
24.000	0.726	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: WQB1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	0.000	0.000
1.500	0.000	0.000	0.000	0.000	0.000
1.750	0.000	0.000	0.000	0.000	0.000
2.000	0.000	0.000	0.000	0.000	0.000
2.250	0.000	0.000	0.000	0.000	0.000
2.500	0.000	0.000	0.000	0.000	0.000
2.750	0.000	0.000	0.000	0.000	0.000
3.000	0.000	0.000	0.000	0.000	0.000
3.250	0.000	0.000	0.000	0.000	0.000
3.500	0.000	0.000	0.000	0.000	0.000
3.750	0.000	0.000	0.001	0.001	0.001
4.000	0.001	0.002	0.002	0.002	0.002
4.250	0.003	0.003	0.004	0.004	0.005
4.500	0.005	0.006	0.006	0.007	0.008
4.750	0.008	0.009	0.010	0.011	0.012
5.000	0.012	0.013	0.014	0.015	0.016
5.250	0.017	0.018	0.019	0.021	0.022
5.500	0.023	0.024	0.026	0.027	0.028
5.750	0.030	0.031	0.033	0.034	0.036
6.000	0.037	0.039	0.041	0.042	0.044
6.250	0.046	0.048	0.050	0.052	0.054
6.500	0.056	0.058	0.060	0.062	0.064
6.750	0.067	0.069	0.071	0.074	0.076
7.000	0.079	0.081	0.084	0.086	0.089
7.250	0.092	0.094	0.097	0.100	0.103
7.500	0.106	0.109	0.112	0.115	0.118
7.750	0.122	0.125	0.128	0.132	0.135
8.000	0.139	0.142	0.146	0.149	0.153
8.250	0.157	0.160	0.164	0.168	0.172
8.500	0.176	0.180	0.184	0.188	0.193
8.750	0.197	0.202	0.207	0.212	0.217
9.000	0.223	0.228	0.234	0.240	0.245
9.250	0.251	0.258	0.264	0.270	0.276
9.500	0.283	0.289	0.296	0.303	0.309
9.750	0.316	0.323	0.330	0.337	0.344
10.000	0.352	0.359	0.367	0.375	0.383
10.250	0.392	0.401	0.410	0.420	0.429
10.500	0.440	0.450	0.462	0.473	0.485
10.750	0.498	0.511	0.523	0.537	0.550
11.000	0.565	0.579	0.595	0.612	0.629
11.250	0.647	0.667	0.688	0.710	0.731

Subsection: Time vs. Volume
Label: WQB1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
11.500	0.748	0.762	0.775	0.790	0.810
11.750	0.839	0.880	0.937	1.003	1.079
12.000	1.159	1.235	1.301	1.334	1.322
12.250	1.270	1.189	1.103	1.038	0.992
12.500	0.958	0.932	0.909	0.889	0.870
12.750	0.855	0.841	0.830	0.821	0.813
13.000	0.807	0.801	0.796	0.792	0.789
13.250	0.786	0.783	0.781	0.778	0.776
13.500	0.775	0.773	0.771	0.770	0.768
13.750	0.767	0.766	0.765	0.763	0.762
14.000	0.761	0.760	0.759	0.758	0.757
14.250	0.757	0.756	0.755	0.754	0.754
14.500	0.753	0.753	0.753	0.752	0.752
14.750	0.751	0.751	0.751	0.750	0.750
15.000	0.750	0.749	0.749	0.749	0.748
15.250	0.748	0.748	0.747	0.747	0.747
15.500	0.746	0.746	0.746	0.745	0.745
15.750	0.745	0.744	0.744	0.744	0.743
16.000	0.743	0.743	0.742	0.742	0.742
16.250	0.741	0.741	0.741	0.741	0.741
16.500	0.740	0.740	0.740	0.740	0.740
16.750	0.740	0.740	0.739	0.739	0.739
17.000	0.739	0.739	0.739	0.739	0.739
17.250	0.738	0.738	0.738	0.738	0.738
17.500	0.738	0.738	0.738	0.737	0.737
17.750	0.737	0.737	0.737	0.737	0.737
18.000	0.737	0.737	0.736	0.736	0.736
18.250	0.736	0.736	0.736	0.736	0.736
18.500	0.735	0.735	0.735	0.735	0.735
18.750	0.735	0.735	0.735	0.735	0.734
19.000	0.734	0.734	0.734	0.734	0.734
19.250	0.734	0.734	0.733	0.733	0.733
19.500	0.733	0.733	0.733	0.733	0.733
19.750	0.733	0.732	0.732	0.732	0.732
20.000	0.732	0.732	0.732	0.732	0.731
20.250	0.731	0.731	0.731	0.731	0.731
20.500	0.731	0.731	0.731	0.731	0.731
20.750	0.731	0.731	0.731	0.731	0.731
21.000	0.731	0.731	0.731	0.731	0.731
21.250	0.731	0.731	0.731	0.731	0.731
21.500	0.730	0.730	0.730	0.730	0.730
21.750	0.730	0.730	0.730	0.730	0.730
22.000	0.730	0.730	0.730	0.730	0.730
22.250	0.730	0.730	0.730	0.730	0.730
22.500	0.730	0.730	0.730	0.730	0.730
22.750	0.730	0.730	0.730	0.730	0.730

Subsection: Time vs. Volume
Label: WQB1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Time vs. Volume (ac-ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)	Volume (ac-ft)
23.000	0.730	0.730	0.730	0.730	0.730
23.250	0.730	0.730	0.730	0.730	0.730
23.500	0.730	0.730	0.729	0.729	0.729
23.750	0.729	0.729	0.729	0.729	0.729
24.000	0.729	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Elevation-Area Volume Curve
Label: WQB1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr(A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
952.00	0.0	12,734.980	0.000	0.000	0.000
953.00	0.0	15,705.870	42,583.478	0.326	0.326
954.00	0.0	18,552.400	51,328.173	0.393	0.719
955.00	0.0	21,455.470	59,959.072	0.459	1.177
956.00	0.0	24,415.090	68,758.051	0.526	1.704

Pond Volume Equations
* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Subsection: Elevation-Area Volume Curve
Label: WQB1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr(A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
952.00	0.0	12,734.980	0.000	0.000	0.000
953.00	0.0	15,705.870	42,583.478	0.326	0.326
954.00	0.0	18,552.400	51,328.173	0.393	0.719
955.00	0.0	21,455.470	59,959.072	0.459	1.177
956.00	0.0	24,415.090	68,758.051	0.526	1.704

Pond Volume Equations
*** Incremental volume computed by the Conic Method for Reservoir Volumes.**

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Subsection: Elevation-Area Volume Curve
Label: WQB1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr(A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
952.00	0.0	12,734.980	0.000	0.000	0.000
953.00	0.0	15,705.870	42,583.478	0.326	0.326
954.00	0.0	18,552.400	51,328.173	0.393	0.719
955.00	0.0	21,455.470	59,959.072	0.459	1.177
956.00	0.0	24,415.090	68,758.051	0.526	1.704

Pond Volume Equations
*** Incremental volume computed by the Conic Method for Reservoir Volumes.**

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Subsection: Elevation-Area Volume Curve
Label: WQB1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr(A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
952.00	0.0	12,734.980	0.000	0.000	0.000
953.00	0.0	15,705.870	42,583.478	0.326	0.326
954.00	0.0	18,552.400	51,328.173	0.393	0.719
955.00	0.0	21,455.470	59,959.072	0.459	1.177
956.00	0.0	24,415.090	68,758.051	0.526	1.704

Pond Volume Equations
*** Incremental volume computed by the Conic Method for Reservoir Volumes.**

Volume = (1/3) * (EL2 - El1) * (Area1 + Area2 + sqr(Area1 * Area2))

where:	EL1, EL2	Lower and upper elevations of the increment
	Area1, Area2	Areas computed for EL1, EL2, respectively
	Volume	Incremental volume between EL1 and EL2

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Requested Pond Water Surface Elevations	
Minimum (Headwater)	952.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	956.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser - 1	Forward	Culvert - west	954.00	956.00
Culvert-Circular	Culvert - west	Forward	TW	950.00	956.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Return Event: 0 years
Label: Composite Outlet Structure - 1
Storm Event: TypeII 24hr (1.37) - WQv
Scenario: Water Quality Storm

Structure ID: Culvert - west Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	30.0 in
Length	80.00 ft
Length (Computed Barrel)	80.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.012
Ke	0.200
Kb	0.008
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	952.72 ft	T1 Flow	27.16 ft³/s
T2 Elevation	952.97 ft	T2 Flow	31.05 ft³/s

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	954.00 ft
Orifice Area	16.0 ft²
Orifice Coefficient	0.600
Weir Length	16.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - west (Culvert-Circular)

Mannings open channel maximum capacity: 58.54 ft³/s
Upstream ID = Riser - 1 (Inlet Box)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
952.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
952.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.50	16.97	952.07	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .566ft Dcr= 1.393ft CRIT.DEPTH Hev= .00ft
955.00	47.99	954.74	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00	INLET CONTROL... Submerged: HW =4.74
955.50	53.70	955.50	Free Outfall	Free Outfall	0.00	34.48	(N/A)	0.00	INLET CONTROL... Submerged: HW =5.50
956.00	57.13	956.00	Free Outfall	Free Outfall	0.00	51.78	(N/A)	0.00	INLET CONTROL... Submerged: HW =6.00

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser - 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - west (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
952.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
952.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
953.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
953.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
954.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
954.50	16.97	954.50	Free Outfall	952.07	0.00	0.00	(N/A)
955.00	48.00	955.00	954.74	954.74	0.00	0.00	(N/A)
955.50	88.18	955.50	955.50	955.50	0.00	0.00	(N/A)
956.00	108.91	956.00	956.00	956.00	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	Weir: H =0.5ft
0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1ft
0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1.5ft
0.00	FULLY CHARGED RISER: Orifice Equation Control to Crest; H=2.00

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
952.00	0.00	(N/A)	0.00
952.50	0.00	(N/A)	0.00
953.00	0.00	(N/A)	0.00
953.50	0.00	(N/A)	0.00
954.00	0.00	(N/A)	0.00
954.50	16.97	(N/A)	0.00
955.00	47.99	(N/A)	0.00
955.50	53.70	(N/A)	0.00
956.00	57.13	(N/A)	0.00

Contributing Structures
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west

Requested Pond Water Surface Elevations	
Minimum (Headwater)	952.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	956.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser - 1	Forward	Culvert - west	954.00	956.00
Culvert-Circular	Culvert - west	Forward	TW	950.00	956.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - west Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	30.0 in
Length	80.00 ft
Length (Computed Barrel)	80.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.012
Ke	0.200
Kb	0.008
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	952.72 ft	T1 Flow	27.16 ft³/s
T2 Elevation	952.97 ft	T2 Flow	31.05 ft³/s

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	954.00 ft
Orifice Area	16.0 ft²
Orifice Coefficient	0.600
Weir Length	16.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - west (Culvert-Circular)

Mannings open channel maximum capacity: 58.54 ft³/s
Upstream ID = Riser - 1 (Inlet Box)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
952.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
952.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.50	16.97	952.07	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .566ft Dcr= 1.393ft CRIT.DEPTH Hev= .00ft
955.00	47.99	954.74	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00	INLET CONTROL... Submerged: HW =4.74
955.50	53.70	955.50	Free Outfall	Free Outfall	0.00	34.48	(N/A)	0.00	INLET CONTROL... Submerged: HW =5.50
956.00	57.13	956.00	Free Outfall	Free Outfall	0.00	51.78	(N/A)	0.00	INLET CONTROL... Submerged: HW =6.00

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser - 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - west (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
952.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
952.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
953.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
953.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
954.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
954.50	16.97	954.50	Free Outfall	952.07	0.00	0.00	(N/A)
955.00	48.00	955.00	954.74	954.74	0.00	0.00	(N/A)
955.50	88.18	955.50	955.50	955.50	0.00	0.00	(N/A)
956.00	108.91	956.00	956.00	956.00	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	Weir: H =0.5ft
0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1ft
0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1.5ft
0.00	FULLY CHARGED RISER: Orifice Equation Control to Crest; H=2.00

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
952.00	0.00	(N/A)	0.00
952.50	0.00	(N/A)	0.00
953.00	0.00	(N/A)	0.00
953.50	0.00	(N/A)	0.00
954.00	0.00	(N/A)	0.00
954.50	16.97	(N/A)	0.00
955.00	47.99	(N/A)	0.00
955.50	53.70	(N/A)	0.00
956.00	57.13	(N/A)	0.00

Contributing Structures
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west

Requested Pond Water Surface Elevations	
Minimum (Headwater)	952.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	956.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser - 1	Forward	Culvert - west	954.00	956.00
Culvert-Circular	Culvert - west	Forward	TW	950.00	956.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Composite Outlet Structure - 1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Structure ID: Culvert - west Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	30.0 in
Length	80.00 ft
Length (Computed Barrel)	80.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.012
Ke	0.200
Kb	0.008
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	952.72 ft	T1 Flow	27.16 ft³/s
T2 Elevation	952.97 ft	T2 Flow	31.05 ft³/s

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	954.00 ft
Orifice Area	16.0 ft²
Orifice Coefficient	0.600
Weir Length	16.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - west (Culvert-Circular)

Mannings open channel maximum capacity: 58.54 ft³/s
Upstream ID = Riser - 1 (Inlet Box)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
952.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
952.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.50	16.97	952.07	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .566ft Dcr= 1.393ft CRIT.DEPTH Hev= .00ft
955.00	47.99	954.74	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00	INLET CONTROL... Submerged: HW =4.74
955.50	53.70	955.50	Free Outfall	Free Outfall	0.00	34.48	(N/A)	0.00	INLET CONTROL... Submerged: HW =5.50
956.00	57.13	956.00	Free Outfall	Free Outfall	0.00	51.78	(N/A)	0.00	INLET CONTROL... Submerged: HW =6.00

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser - 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - west (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
952.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
952.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.50	16.97	954.50	Free Outfall	952.07	0.00	0.00	(N/A)	0.00	Weir: H =0.5ft
955.00	48.00	955.00	954.74	954.74	0.00	0.00	(N/A)	0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1ft
955.50	88.18	955.50	955.50	955.50	0.00	0.00	(N/A)	0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1.5ft
956.00	108.91	956.00	956.00	956.00	0.00	0.00	(N/A)	0.00	FULLY CHARGED RISER: Orifice Equation Control to Crest; H=2.00

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
952.00	0.00	(N/A)	0.00
952.50	0.00	(N/A)	0.00
953.00	0.00	(N/A)	0.00
953.50	0.00	(N/A)	0.00
954.00	0.00	(N/A)	0.00
954.50	16.97	(N/A)	0.00
955.00	47.99	(N/A)	0.00
955.50	53.70	(N/A)	0.00
956.00	57.13	(N/A)	0.00

Contributing Structures
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west

Requested Pond Water Surface Elevations	
Minimum (Headwater)	952.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	956.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser - 1	Forward	Culvert - west	954.00	956.00
Culvert-Circular	Culvert - west	Forward	TW	950.00	956.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - west Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	30.0 in
Length	80.00 ft
Length (Computed Barrel)	80.01 ft
Slope (Computed)	0.015 ft/ft

Outlet Control Data	
Manning's n	0.012
Ke	0.200
Kb	0.008
Kr	0.000
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.088
T2 ratio (HW/D)	1.190
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	952.72 ft	T1 Flow	27.16 ft³/s
T2 Elevation	952.97 ft	T2 Flow	31.05 ft³/s

Structure ID: Riser - 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	954.00 ft
Orifice Area	16.0 ft²
Orifice Coefficient	0.600
Weir Length	16.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	False

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - west (Culvert-Circular)

Mannings open channel maximum capacity: 58.54 ft³/s
Upstream ID = Riser - 1 (Inlet Box)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
952.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
952.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
953.50	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
954.50	16.97	952.07	Free Outfall	Free Outfall	0.00	0.00	(N/A)	0.00	CRIT.DEPTH CONTROL Vh= .566ft Dcr= 1.393ft CRIT.DEPTH Hev= .00ft
955.00	47.99	954.74	Free Outfall	Free Outfall	0.00	0.01	(N/A)	0.00	INLET CONTROL... Submerged: HW =4.74
955.50	53.70	955.50	Free Outfall	Free Outfall	0.00	34.48	(N/A)	0.00	INLET CONTROL... Submerged: HW =5.50
956.00	57.13	956.00	Free Outfall	Free Outfall	0.00	51.78	(N/A)	0.00	INLET CONTROL... Submerged: HW =6.00

Subsection: Individual Outlet Curves
Label: Composite Outlet Structure - 1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser - 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - west (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
952.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
952.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
953.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
953.50	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
954.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
954.50	16.97	954.50	Free Outfall	952.07	0.00	0.00	(N/A)
955.00	48.00	955.00	954.74	954.74	0.00	0.00	(N/A)
955.50	88.18	955.50	955.50	955.50	0.00	0.00	(N/A)
956.00	108.91	956.00	956.00	956.00	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	Weir: H =0.5ft
0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1ft
0.00	FULLY CHARGED RISER: ADJUSTED TO WEIR: H =1.5ft
0.00	FULLY CHARGED RISER: Orifice Equation Control to Crest; H=2.00

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
952.00	0.00	(N/A)	0.00
952.50	0.00	(N/A)	0.00
953.00	0.00	(N/A)	0.00
953.50	0.00	(N/A)	0.00
954.00	0.00	(N/A)	0.00
954.50	16.97	(N/A)	0.00
955.00	47.99	(N/A)	0.00
955.50	53.70	(N/A)	0.00
956.00	57.13	(N/A)	0.00

Contributing Structures
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
(no Q: Riser - 1,Culvert - west)
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west
Riser - 1,Culvert - west

Subsection: Elevation-Volume-Flow Table (Pond)
Label: WQB1
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
952.00	0.00	0.000	12,734.980	0.00	0.00	0.00
952.50	0.00	0.154	14,181.527	0.00	0.00	74.73
953.00	0.00	0.326	15,705.870	0.00	0.00	157.72
953.50	0.00	0.514	17,099.519	0.00	0.00	248.82
954.00	0.00	0.719	18,552.400	0.00	0.00	347.82
954.50	16.97	0.940	19,977.569	0.00	16.97	471.80
955.00	47.99	1.177	21,455.470	0.00	47.99	617.89
955.50	53.70	1.432	22,911.385	0.00	53.70	746.81
956.00	57.13	1.704	24,415.090	0.00	57.13	881.68

Subsection: Elevation-Volume-Flow Table (Pond)
Label: WQB1
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
952.00	0.00	0.000	12,734.980	0.00	0.00	0.00
952.50	0.00	0.154	14,181.527	0.00	0.00	74.73
953.00	0.00	0.326	15,705.870	0.00	0.00	157.72
953.50	0.00	0.514	17,099.519	0.00	0.00	248.82
954.00	0.00	0.719	18,552.400	0.00	0.00	347.82
954.50	16.97	0.940	19,977.569	0.00	16.97	471.80
955.00	47.99	1.177	21,455.470	0.00	47.99	617.89
955.50	53.70	1.432	22,911.385	0.00	53.70	746.81
956.00	57.13	1.704	24,415.090	0.00	57.13	881.68

Subsection: Elevation-Volume-Flow Table (Pond)
Label: WQB1
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
952.00	0.00	0.000	12,734.980	0.00	0.00	0.00
952.50	0.00	0.154	14,181.527	0.00	0.00	74.73
953.00	0.00	0.326	15,705.870	0.00	0.00	157.72
953.50	0.00	0.514	17,099.519	0.00	0.00	248.82
954.00	0.00	0.719	18,552.400	0.00	0.00	347.82
954.50	16.97	0.940	19,977.569	0.00	16.97	471.80
955.00	47.99	1.177	21,455.470	0.00	47.99	617.89
955.50	53.70	1.432	22,911.385	0.00	53.70	746.81
956.00	57.13	1.704	24,415.090	0.00	57.13	881.68

Subsection: Elevation-Volume-Flow Table (Pond)
Label: WQB1
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
952.00	0.00	0.000	12,734.980	0.00	0.00	0.00
952.50	0.00	0.154	14,181.527	0.00	0.00	74.73
953.00	0.00	0.326	15,705.870	0.00	0.00	157.72
953.50	0.00	0.514	17,099.519	0.00	0.00	248.82
954.00	0.00	0.719	18,552.400	0.00	0.00	347.82
954.50	16.97	0.940	19,977.569	0.00	16.97	471.80
955.00	47.99	1.177	21,455.470	0.00	47.99	617.89
955.50	53.70	1.432	22,911.385	0.00	53.70	746.81
956.00	57.13	1.704	24,415.090	0.00	57.13	881.68

Subsection: Level Pool Pond Routing Summary
Label: WQB1 (IN)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	4.86 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	0.00 ft³/s	Time to Peak (Flow, Outlet)	0.000 hours

Elevation (Water Surface, Peak)	953.12 ft
Volume (Peak)	0.371 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.372 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.000 ac-ft
Volume (Retained)	0.371 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.4 %

Subsection: Level Pool Pond Routing Summary
Label: WQB1 (IN)
Scenario: 2 Year Post Developed

Return Event: 2 years
Storm Event: TypeII 24hr (3.5 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	25.04 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	10.11 ft³/s	Time to Peak (Flow, Outlet)	12.300 hours

Elevation (Water Surface, Peak)	954.30 ft
Volume (Peak)	0.848 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.819 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.096 ac-ft
Volume (Retained)	0.722 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: WQB1 (IN)
Scenario: 10 Year Post Developed

Return Event: 10 years
Storm Event: TypeII 24hr (5.3 in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	43.83 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	35.86 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	954.80 ft
Volume (Peak)	1.082 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.243 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.516 ac-ft
Volume (Retained)	0.724 ac-ft
Volume (Unrouted)	-0.002 ac-ft
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: WQB1 (IN)
Scenario: 100 Year Post Developed

Return Event: 100 years
Storm Event: TypeII 24hr (7.7in)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	952.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	68.00 ft³/s	Time to Peak (Flow, In)	12.050 hours
Flow (Peak Outlet)	51.55 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	955.31 ft
Volume (Peak)	1.334 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	5.144 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.414 ac-ft
Volume (Retained)	0.726 ac-ft
Volume (Unrouted)	-0.003 ac-ft
Error (Mass Balance)	0.1 %

Subsection: Pond Routed Hydrograph (total out) Return Event: 0 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (1.37) - WQv
Scenario: Water Quality Storm

Peak Discharge	0.00 ft³/s
Time to Peak	8.000 hours
Hydrograph Volume	0.000 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.00	(N/A)	(N/A)	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (3.5 in)
Scenario: 2 Year Post Developed

Peak Discharge	10.11 ft³/s
Time to Peak	12.300 hours
Hydrograph Volume	1.096 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.100	0.00	3.89	7.87	9.68	10.11
12.350	9.77	9.09	8.28	7.45	6.66
12.600	5.94	5.30	4.74	4.25	3.84
12.850	3.50	3.21	2.97	2.78	2.61
13.100	2.47	2.34	2.23	2.14	2.05
13.350	1.98	1.91	1.85	1.79	1.74
13.600	1.69	1.64	1.60	1.56	1.52
13.850	1.48	1.44	1.41	1.37	1.34
14.100	1.31	1.28	1.25	1.22	1.20
14.350	1.18	1.16	1.14	1.13	1.11
14.600	1.10	1.09	1.07	1.06	1.05
14.850	1.04	1.03	1.02	1.01	1.00
15.100	0.99	0.98	0.97	0.96	0.94
15.350	0.93	0.92	0.91	0.90	0.89
15.600	0.88	0.87	0.86	0.85	0.84
15.850	0.83	0.82	0.81	0.80	0.79
16.100	0.78	0.77	0.76	0.75	0.74
16.350	0.73	0.72	0.72	0.71	0.71
16.600	0.70	0.70	0.69	0.69	0.69
16.850	0.68	0.68	0.67	0.67	0.67
17.100	0.66	0.66	0.65	0.65	0.65
17.350	0.64	0.64	0.64	0.63	0.63
17.600	0.62	0.62	0.62	0.61	0.61
17.850	0.61	0.60	0.60	0.59	0.59
18.100	0.59	0.58	0.58	0.57	0.57
18.350	0.57	0.56	0.56	0.56	0.55
18.600	0.55	0.54	0.54	0.54	0.53
18.850	0.53	0.53	0.52	0.52	0.51
19.100	0.51	0.51	0.50	0.50	0.49
19.350	0.49	0.49	0.48	0.48	0.48
19.600	0.47	0.47	0.46	0.46	0.46
19.850	0.45	0.45	0.44	0.44	0.44
20.100	0.43	0.43	0.43	0.42	0.42
20.350	0.42	0.41	0.41	0.41	0.41
20.600	0.41	0.41	0.41	0.41	0.40
20.850	0.40	0.40	0.40	0.40	0.40
21.100	0.40	0.40	0.40	0.40	0.40
21.350	0.40	0.40	0.39	0.39	0.39
21.600	0.39	0.39	0.39	0.39	0.39
21.850	0.39	0.39	0.39	0.39	0.39
22.100	0.38	0.38	0.38	0.38	0.38
22.350	0.38	0.38	0.38	0.38	0.38
22.600	0.38	0.38	0.38	0.38	0.37

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (3.5 in)
Scenario: 2 Year Post Developed

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.850	0.37	0.37	0.37	0.37	0.37
23.100	0.37	0.37	0.37	0.37	0.37
23.350	0.37	0.37	0.36	0.36	0.36
23.600	0.36	0.36	0.36	0.36	0.36
23.850	0.36	0.36	0.36	0.36	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (5.3 in)
Scenario: 10 Year Post Developed

Peak Discharge	35.86 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	2.516 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.850	0.00	0.40	8.74	16.74	27.55
12.100	33.97	35.86	34.09	30.14	25.48
12.350	21.06	17.34	15.29	13.52	11.91
12.600	10.50	9.26	8.20	7.31	6.55
12.850	5.93	5.42	4.99	4.64	4.35
13.100	4.10	3.89	3.70	3.54	3.39
13.350	3.26	3.15	3.05	2.95	2.86
13.600	2.78	2.70	2.63	2.56	2.49
13.850	2.43	2.37	2.31	2.25	2.20
14.100	2.15	2.10	2.05	2.01	1.97
14.350	1.93	1.90	1.87	1.84	1.82
14.600	1.80	1.78	1.76	1.74	1.72
14.850	1.70	1.68	1.66	1.65	1.63
15.100	1.61	1.59	1.58	1.56	1.54
15.350	1.52	1.51	1.49	1.47	1.45
15.600	1.44	1.42	1.40	1.38	1.37
15.850	1.35	1.33	1.31	1.30	1.28
16.100	1.26	1.25	1.23	1.21	1.20
16.350	1.19	1.18	1.17	1.16	1.15
16.600	1.14	1.13	1.13	1.12	1.11
16.850	1.11	1.10	1.09	1.09	1.08
17.100	1.07	1.07	1.06	1.06	1.05
17.350	1.04	1.04	1.03	1.03	1.02
17.600	1.01	1.01	1.00	0.99	0.99
17.850	0.98	0.98	0.97	0.96	0.96
18.100	0.95	0.94	0.94	0.93	0.93
18.350	0.92	0.91	0.91	0.90	0.89
18.600	0.89	0.88	0.88	0.87	0.86
18.850	0.86	0.85	0.84	0.84	0.83
19.100	0.82	0.82	0.81	0.81	0.80
19.350	0.79	0.79	0.78	0.77	0.77
19.600	0.76	0.76	0.75	0.74	0.74
19.850	0.73	0.72	0.72	0.71	0.71
20.100	0.70	0.69	0.69	0.68	0.68
20.350	0.67	0.67	0.67	0.66	0.66
20.600	0.66	0.66	0.66	0.65	0.65
20.850	0.65	0.65	0.65	0.65	0.65
21.100	0.65	0.64	0.64	0.64	0.64
21.350	0.64	0.64	0.64	0.64	0.63
21.600	0.63	0.63	0.63	0.63	0.63
21.850	0.63	0.63	0.62	0.62	0.62
22.100	0.62	0.62	0.62	0.62	0.62
22.350	0.61	0.61	0.61	0.61	0.61

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (5.3 in)
Scenario: 10 Year Post Developed

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.600	0.61	0.61	0.61	0.60	0.60
22.850	0.60	0.60	0.60	0.60	0.60
23.100	0.60	0.59	0.59	0.59	0.59
23.350	0.59	0.59	0.59	0.59	0.58
23.600	0.58	0.58	0.58	0.58	0.58
23.850	0.58	0.58	0.57	0.57	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (7.7in)
Scenario: 100 Year Post Developed

Peak Discharge	51.55 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	4.414 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.400	0.00	0.98	2.32	3.41	4.43
11.650	5.59	7.15	9.38	12.51	16.77
11.900	25.49	35.41	45.67	49.32	50.80
12.150	51.55	51.29	50.11	48.27	38.56
12.400	30.13	23.99	19.47	16.43	14.72
12.650	13.16	11.78	10.59	9.56	8.70
12.900	7.99	7.39	6.90	6.48	6.12
13.150	5.80	5.53	5.29	5.08	4.89
13.400	4.72	4.56	4.42	4.29	4.16
13.650	4.05	3.93	3.83	3.73	3.63
13.900	3.54	3.46	3.37	3.29	3.21
14.150	3.14	3.06	3.00	2.94	2.89
14.400	2.84	2.79	2.75	2.72	2.68
14.650	2.65	2.62	2.59	2.56	2.54
14.900	2.51	2.48	2.46	2.43	2.40
15.150	2.38	2.35	2.32	2.30	2.27
15.400	2.25	2.22	2.19	2.17	2.14
15.650	2.12	2.09	2.06	2.04	2.01
15.900	1.98	1.96	1.93	1.91	1.88
16.150	1.86	1.83	1.81	1.79	1.77
16.400	1.75	1.74	1.72	1.71	1.70
16.650	1.69	1.68	1.67	1.66	1.65
16.900	1.64	1.63	1.62	1.61	1.60
17.150	1.59	1.58	1.57	1.56	1.55
17.400	1.54	1.53	1.52	1.51	1.51
17.650	1.50	1.49	1.48	1.47	1.46
17.900	1.45	1.44	1.43	1.42	1.41
18.150	1.40	1.39	1.38	1.37	1.37
18.400	1.36	1.35	1.34	1.33	1.32
18.650	1.31	1.30	1.29	1.28	1.27
18.900	1.26	1.25	1.24	1.23	1.22
19.150	1.22	1.21	1.20	1.19	1.18
19.400	1.17	1.16	1.15	1.14	1.13
19.650	1.12	1.11	1.10	1.09	1.08
19.900	1.07	1.06	1.06	1.05	1.04
20.150	1.03	1.02	1.01	1.00	1.00
20.400	0.99	0.99	0.99	0.98	0.98
20.650	0.98	0.97	0.97	0.97	0.97
20.900	0.96	0.96	0.96	0.96	0.96
21.150	0.96	0.95	0.95	0.95	0.95
21.400	0.95	0.94	0.94	0.94	0.94
21.650	0.94	0.93	0.93	0.93	0.93
21.900	0.93	0.93	0.92	0.92	0.92

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: WQB1 (OUT) Storm Event: TypeII 24hr (7.7in)
Scenario: 100 Year Post Developed

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.150	0.92	0.92	0.91	0.91	0.91
22.400	0.91	0.91	0.90	0.90	0.90
22.650	0.90	0.90	0.90	0.89	0.89
22.900	0.89	0.89	0.89	0.88	0.88
23.150	0.88	0.88	0.88	0.87	0.87
23.400	0.87	0.87	0.87	0.87	0.86
23.650	0.86	0.86	0.86	0.86	0.85
23.900	0.85	0.85	0.85	(N/A)	(N/A)

Subsection: Pond Inflow Summary
Label: WQB1 (IN)
Scenario: Water Quality Storm

Return Event: 0 years
Storm Event: TypeII 24hr (1.37) - WQv

Summary for Hydrograph Addition at 'WQB1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Phase 3 - Detained

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Phase 3 - Detained	0.372	12.050	4.86
Flow (In)	WQB1	0.372	12.050	4.86

Summary for Hydrograph Addition at 'WQB1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Phase 3 - Detained

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Phase 3 - Detained	1.819	12.050	25.04
Flow (In)	WQB1	1.819	12.050	25.04

Summary for Hydrograph Addition at 'WQB1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Phase 3 - Detained

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Phase 3 - Detained	3.243	12.050	43.83
Flow (In)	WQB1	3.243	12.050	43.83

Summary for Hydrograph Addition at 'WQB1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	Phase 3 - Detained

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Phase 3 - Detained	5.144	12.050	68.00
Flow (In)	WQB1	5.144	12.050	68.00

Index

C

Composite Outlet Structure - 1 (Composite Rating Curve, 0 years (Water Quality Storm))...74
Composite Outlet Structure - 1 (Composite Rating Curve, 10 years (10 Year Post Developed))...86
Composite Outlet Structure - 1 (Composite Rating Curve, 100 years (100 Year Post Developed))...92
Composite Outlet Structure - 1 (Composite Rating Curve, 2 years (2 Year Post Developed))...80
Composite Outlet Structure - 1 (Individual Outlet Curves, 0 years (Water Quality Storm))...72, 73
Composite Outlet Structure - 1 (Individual Outlet Curves, 10 years (10 Year Post Developed))...84, 85
Composite Outlet Structure - 1 (Individual Outlet Curves, 100 years (100 Year Post Developed))...90, 91
Composite Outlet Structure - 1 (Individual Outlet Curves, 2 years (2 Year Post Developed))...78, 79
Composite Outlet Structure - 1 (Outlet Input Data, 0 years (Water Quality Storm))...69, 70, 71
Composite Outlet Structure - 1 (Outlet Input Data, 10 years (10 Year Post Developed))...81, 82, 83
Composite Outlet Structure - 1 (Outlet Input Data, 100 years (100 Year Post Developed))...87, 88, 89
Composite Outlet Structure - 1 (Outlet Input Data, 2 years (2 Year Post Developed))...75, 76, 77

M

Master Network Summary...5, 6

P

Phase 3 - Detained (Time of Concentration Calculations, 0 years (Water Quality Storm))...15, 16
Phase 3 - Detained (Time of Concentration Calculations, 10 years (10 Year Post Developed))...19, 20
Phase 3 - Detained (Time of Concentration Calculations, 100 years (100 Year Post Developed))...21, 22
Phase 3 - Detained (Time of Concentration Calculations, 2 years (2 Year Post Developed))...17, 18
Phase 3 - Detained (Unit Hydrograph (Hydrograph Table), 0 years (Water Quality Storm))...26, 27
Phase 3 - Detained (Unit Hydrograph (Hydrograph Table), 10 years (10 Year Post Developed))...32, 33
Phase 3 - Detained (Unit Hydrograph (Hydrograph Table), 100 years (100 Year Post Developed))...35, 36
Phase 3 - Detained (Unit Hydrograph (Hydrograph Table), 2 years (2 Year Post Developed))...29, 30
Phase 3 - Detained (Unit Hydrograph Summary, 0 years (Water Quality Storm))...25
Phase 3 - Detained (Unit Hydrograph Summary, 10 years (10 Year Post Developed))...31
Phase 3 - Detained (Unit Hydrograph Summary, 100 years (100 Year Post Developed))...34
Phase 3 - Detained (Unit Hydrograph Summary, 2 years (2 Year Post Developed))...28

T

TR-55 (KC Metro) (Time-Depth Curve, 0 years (Water Quality Storm))...7, 8
TR-55 (KC Metro) (Time-Depth Curve, 10 years (10 Year Post Developed))...11, 12

TR-55 (KC Metro) (Time-Depth Curve, 100 years (100 Year Post Developed))...13, 14

TR-55 (KC Metro) (Time-Depth Curve, 2 years (2 Year Post Developed))...9, 10

U

Unit Hydrograph Equations...23, 24

User Notifications...2, 3, 4

W

WQB1 (Elevation-Area Volume Curve, 0 years (Water Quality Storm))...61

WQB1 (Elevation-Area Volume Curve, 10 years (10 Year Post Developed))...65

WQB1 (Elevation-Area Volume Curve, 100 years (100 Year Post Developed))...67

WQB1 (Elevation-Area Volume Curve, 2 years (2 Year Post Developed))...63

WQB1 (Elevation-Volume-Flow Table (Pond), 0 years (Water Quality Storm))...93

WQB1 (Elevation-Volume-Flow Table (Pond), 10 years (10 Year Post Developed))...95

WQB1 (Elevation-Volume-Flow Table (Pond), 100 years (100 Year Post Developed))...96

WQB1 (Elevation-Volume-Flow Table (Pond), 2 years (2 Year Post Developed))...94

WQB1 (IN) (Level Pool Pond Routing Summary, 0 years (Water Quality Storm))...97

WQB1 (IN) (Level Pool Pond Routing Summary, 10 years (10 Year Post Developed))...99

WQB1 (IN) (Level Pool Pond Routing Summary, 100 years (100 Year Post Developed))...100

WQB1 (IN) (Level Pool Pond Routing Summary, 2 years (2 Year Post Developed))...98

WQB1 (IN) (Pond Inflow Summary, 0 years (Water Quality Storm))...108

WQB1 (IN) (Pond Inflow Summary, 10 years (10 Year Post Developed))...110

WQB1 (IN) (Pond Inflow Summary, 100 years (100 Year Post Developed))...111

WQB1 (IN) (Pond Inflow Summary, 2 years (2 Year Post Developed))...109

WQB1 (OUT) (Pond Routed Hydrograph (total out), 0 years (Water Quality Storm))...101

WQB1 (OUT) (Pond Routed Hydrograph (total out), 10 years (10 Year Post Developed))...104, 105

WQB1 (OUT) (Pond Routed Hydrograph (total out), 100 years (100 Year Post Developed))...106, 107

WQB1 (OUT) (Pond Routed Hydrograph (total out), 2 years (2 Year Post Developed))...102, 103

WQB1 (OUT) (Time vs. Elevation, 0 years (Water Quality Storm))...37, 38, 39

WQB1 (OUT) (Time vs. Elevation, 10 years (10 Year Post Developed))...43, 44, 45

WQB1 (OUT) (Time vs. Elevation, 100 years (100 Year Post Developed))...46, 47, 48

WQB1 (OUT) (Time vs. Elevation, 2 years (2 Year Post Developed))...40, 41, 42

WQB1 (Time vs. Volume, 0 years (Water Quality Storm))...49, 50, 51

WQB1 (Time vs. Volume, 10 years (10 Year Post Developed))...55, 56, 57

WQB1 (Time vs. Volume, 100 years (100 Year Post Developed))...58, 59, 60

WQB1 (Time vs. Volume, 2 years (2 Year Post Developed))...52, 53, 54

WQB1 (Volume Equations, 0 years (Water Quality Storm))...62

WQB1 (Volume Equations, 10 years (10 Year Post Developed))...66

WQB1 (Volume Equations, 100 years (100 Year Post Developed))...68

WQB1 (Volume Equations, 2 years (2 Year Post Developed))...64