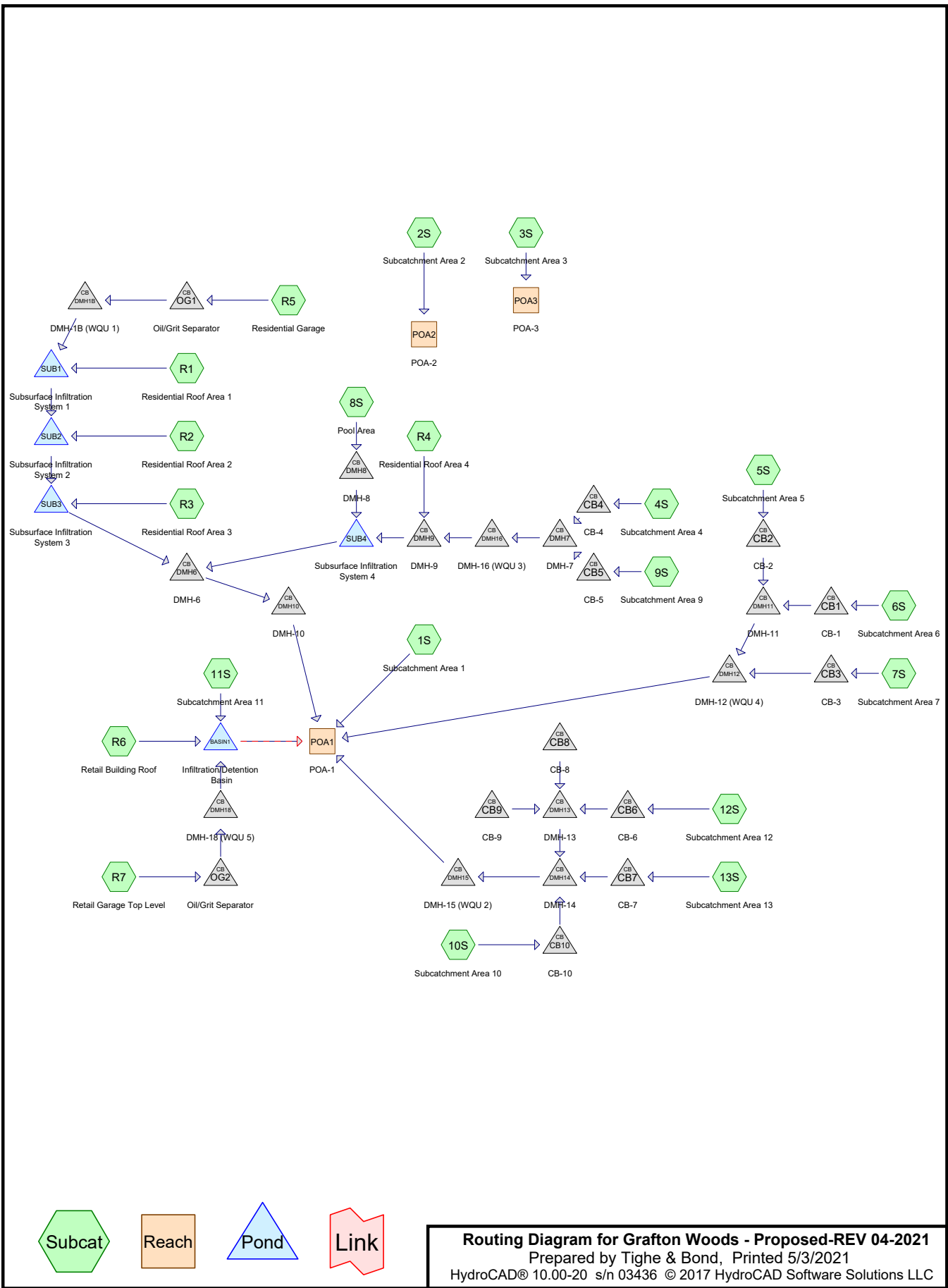


## **Attachment C**

### Revised Proposed Conditions Hydrologic Calculations



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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
2.673	74	>75% Grass cover, Good, HSG C (1S, 2S, 3S, 4S, 5S, 6S, 7S, 10S, 11S, R7)
2.224	98	Building (R1, R2, R3, R4, R6)
2.488	98	Paved (2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 12S, 13S, R5, R7)
0.663	98	Water Surface, HSG C (1S, 11S)
0.666	70	Woods, Good, HSG C (1S, 2S)
0.167	77	Woods, Good, HSG D (3S)
<b>8.882</b>	<b>88</b>	<b>TOTAL AREA</b>

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
4.002	HSG C	1S, 2S, 3S, 4S, 5S, 6S, 7S, 10S, 11S, R7
0.167	HSG D	3S
4.712	Other	2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 12S, 13S, R1, R2, R3, R4, R5, R6, R7
<b>8.882</b>		<b>TOTAL AREA</b>

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: SubcatchmentArea 1</b>	Runoff Area=79,040 sf 32.88% Impervious Runoff Depth>1.39" Tc=6.0 min CN=81 Runoff=3.11 cfs 0.210 af
<b>Subcatchment2S: SubcatchmentArea 2</b>	Runoff Area=14,438 sf 9.25% Impervious Runoff Depth>0.97" Tc=6.0 min CN=74 Runoff=0.39 cfs 0.027 af
<b>Subcatchment3S: SubcatchmentArea 3</b>	Runoff Area=19,398 sf 14.17% Impervious Runoff Depth>1.26" Tc=6.0 min CN=79 Runoff=0.69 cfs 0.047 af
<b>Subcatchment4S: SubcatchmentArea 4</b>	Runoff Area=60,923 sf 23.51% Impervious Runoff Depth>1.32" Flow Length=717' Tc=21.7 min CN=80 Runoff=1.51 cfs 0.153 af
<b>Subcatchment5S: SubcatchmentArea 5</b>	Runoff Area=5,871 sf 67.16% Impervious Runoff Depth>2.07" Tc=6.0 min CN=90 Runoff=0.34 cfs 0.023 af
<b>Subcatchment6S: SubcatchmentArea 6</b>	Runoff Area=5,153 sf 77.86% Impervious Runoff Depth>2.35" Tc=6.0 min CN=93 Runoff=0.33 cfs 0.023 af
<b>Subcatchment7S: SubcatchmentArea 7</b>	Runoff Area=12,508 sf 80.51% Impervious Runoff Depth>2.35" Tc=6.0 min CN=93 Runoff=0.79 cfs 0.056 af
<b>Subcatchment8S: Pool Area</b>	Runoff Area=8,443 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=0.60 cfs 0.046 af
<b>Subcatchment9S: SubcatchmentArea 9</b>	Runoff Area=2,484 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=0.18 cfs 0.014 af
<b>Subcatchment10S: SubcatchmentArea 10</b>	Runoff Area=18,790 sf 23.20% Impervious Runoff Depth>1.32" Tc=6.0 min CN=80 Runoff=0.70 cfs 0.048 af
<b>Subcatchment11S: SubcatchmentArea 11</b>	Runoff Area=5,635 sf 51.45% Impervious Runoff Depth>1.75" Tc=6.0 min CN=86 Runoff=0.28 cfs 0.019 af
<b>Subcatchment12S: SubcatchmentArea 12</b>	Runoff Area=526 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af
<b>Subcatchment13S: SubcatchmentArea 13</b>	Runoff Area=526 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=0.04 cfs 0.003 af
<b>SubcatchmentR1: ResidentialRoof Area</b>	Runoff Area=29,776 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=2.10 cfs 0.163 af
<b>SubcatchmentR2: ResidentialRoof Area</b>	Runoff Area=13,766 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=0.97 cfs 0.075 af
<b>SubcatchmentR3: ResidentialRoof Area</b>	Runoff Area=24,176 sf 100.00% Impervious Runoff Depth>2.87" Tc=6.0 min CN=98 Runoff=1.71 cfs 0.133 af

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**SubcatchmentR4: Residential Roof Area** Runoff Area=17,527 sf 100.00% Impervious Runoff Depth>2.87"  
Tc=6.0 min CN=98 Runoff=1.24 cfs 0.096 af

**SubcatchmentR5: Residential Garage** Runoff Area=30,070 sf 100.00% Impervious Runoff Depth>2.87"  
Tc=6.0 min CN=98 Runoff=2.12 cfs 0.165 af

**SubcatchmentR6: Retail Building Roof** Runoff Area=11,647 sf 100.00% Impervious Runoff Depth>2.87"  
Tc=6.0 min CN=98 Runoff=0.82 cfs 0.064 af

**SubcatchmentR7: Retail Garage Top Level** Runoff Area=26,205 sf 97.45% Impervious Runoff Depth>2.76"  
Tc=6.0 min CN=97 Runoff=1.82 cfs 0.138 af

**Reach POA1: POA-1** Inflow=5.33 cfs 0.441 af  
Outflow=5.33 cfs 0.441 af

**Reach POA2: POA-2** Inflow=0.39 cfs 0.027 af  
Outflow=0.39 cfs 0.027 af

**Reach POA3: POA-3** Inflow=0.69 cfs 0.047 af  
Outflow=0.69 cfs 0.047 af

**Pond BASIN1: Infiltration/Detention Basin** Peak Elev=409.19' Storage=4,849 cf Inflow=2.92 cfs 0.221 af  
Discarded=0.06 cfs 0.045 af Primary=1.31 cfs 0.075 af Secondary=0.00 cfs 0.000 af Outflow=1.37 cfs 0.121 af

**Pond CB1: CB-1** Peak Elev=428.99' Inflow=0.33 cfs 0.023 af  
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/ Outflow=0.33 cfs 0.023 af

**Pond CB10: CB-10** Peak Elev=409.28' Inflow=0.70 cfs 0.048 af  
12.0" Round Culvert n=0.013 L=56.0' S=0.0143 '/ Outflow=0.70 cfs 0.048 af

**Pond CB2: CB-2** Peak Elev=431.32' Inflow=0.34 cfs 0.023 af  
12.0" Round Culvert n=0.013 L=97.0' S=0.0247 '/ Outflow=0.34 cfs 0.023 af

**Pond CB3: CB-3** Peak Elev=423.52' Inflow=0.79 cfs 0.056 af  
12.0" Round Culvert n=0.013 L=8.0' S=0.0275 '/ Outflow=0.79 cfs 0.056 af

**Pond CB4: CB-4** Peak Elev=427.18' Inflow=1.51 cfs 0.153 af  
15.0" Round Culvert n=0.013 L=4.0' S=0.0500 '/ Outflow=1.51 cfs 0.153 af

**Pond CB5: CB-5** Peak Elev=426.63' Inflow=0.18 cfs 0.014 af  
12.0" Round Culvert n=0.013 L=21.0' S=0.0190 '/ Outflow=0.18 cfs 0.014 af

**Pond CB6: CB-6** Peak Elev=408.60' Inflow=0.04 cfs 0.003 af  
12.0" Round Culvert n=0.013 L=37.0' S=0.0135 '/ Outflow=0.04 cfs 0.003 af

**Pond CB7: CB-7** Peak Elev=407.40' Inflow=0.04 cfs 0.003 af  
12.0" Round Culvert n=0.013 L=7.0' S=0.0429 '/ Outflow=0.04 cfs 0.003 af

**Pond CB8: CB-8** Peak Elev=0.00'  
12.0" Round Culvert n=0.013 L=61.0' S=0.0211 '/ Primary=0.00 cfs 0.000 af

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<b>Pond CB9: CB-9</b>	12.0" Round Culvert n=0.013 L=54.0' S=0.0269 '/	Peak Elev=0.00'	Primary=0.00 cfs	0.000 af
<b>Pond DMH10: DMH-10</b>	30.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/	Peak Elev=425.50'	Inflow=0.00 cfs	0.000 af
<b>Pond DMH11: DMH-11</b>	12.0" Round Culvert n=0.013 L=187.0' S=0.0187 '/	Peak Elev=426.97'	Inflow=0.66 cfs	0.046 af
<b>Pond DMH12: DMH-12 (WQU 4)</b>	12.0" Round Culvert n=0.013 L=13.0' S=0.1154 '/	Peak Elev=421.74'	Inflow=1.45 cfs	0.103 af
<b>Pond DMH13: DMH-13</b>	12.0" Round Culvert n=0.013 L=50.0' S=0.0080 '/	Peak Elev=408.00'	Inflow=0.04 cfs	0.003 af
<b>Pond DMH14: DMH-14</b>	12.0" Round Culvert n=0.013 L=4.0' S=0.0250 '/	Peak Elev=407.43'	Inflow=0.78 cfs	0.053 af
<b>Pond DMH15: DMH-15 (WQU 2)</b>	12.0" Round Culvert n=0.013 L=42.0' S=0.0048 '/	Peak Elev=407.26'	Inflow=0.78 cfs	0.053 af
<b>Pond DMH16: DMH-16 (WQU 3)</b>	15.0" Round Culvert n=0.013 L=3.0' S=0.0167 '/	Peak Elev=426.52'	Inflow=1.58 cfs	0.167 af
<b>Pond DMH18: DMH-18 (WQU 5)</b>	15.0" Round Culvert n=0.013 L=26.0' S=0.0231 '/	Peak Elev=412.86'	Inflow=1.82 cfs	0.138 af
<b>Pond DMH1B: DMH-1B (WQU 1)</b>	15.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/	Peak Elev=430.78'	Inflow=2.12 cfs	0.165 af
<b>Pond DMH6: DMH-6</b>	30.0" Round Culvert n=0.013 L=128.0' S=0.0352 '/	Peak Elev=424.50'	Inflow=0.00 cfs	0.000 af
<b>Pond DMH7: DMH-7</b>	15.0" Round Culvert n=0.013 L=8.0' S=0.0187 '/	Peak Elev=426.61'	Inflow=1.58 cfs	0.167 af
<b>Pond DMH8: DMH-8</b>	12.0" Round Culvert n=0.013 L=5.0' S=0.0000 '/	Peak Elev=426.13'	Inflow=0.60 cfs	0.046 af
<b>Pond DMH9: DMH-9</b>	24.0" Round Culvert n=0.013 L=5.0' S=0.0100 '/	Peak Elev=421.49'	Inflow=2.20 cfs	0.263 af
<b>Pond OG1: Oil/Grit Separator</b>	15.0" Round Culvert n=0.013 L=110.0' S=0.0055 '/	Peak Elev=431.44'	Inflow=2.12 cfs	0.165 af
<b>Pond OG2: Oil/Grit Separator</b>	15.0" Round Culvert n=0.013 L=20.0' S=0.0400 '/	Peak Elev=413.06'	Inflow=1.82 cfs	0.138 af
<b>Pond SUB1: Subsurface Infiltration System 1</b>		Peak Elev=430.72'	Storage=7,813 cf	Inflow=4.22 cfs
		Discarded=0.06 cfs	0.061 af	Primary=1.37 cfs
			0.102 af	Outflow=1.44 cfs
				0.163 af

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**Pond SUB2: Subsurface Infiltration System 2** Peak Elev=428.96' Storage=6,315 cf Inflow=1.71 cfs 0.177 af  
Discarded=0.04 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.036 af

**Pond SUB3: Subsurface Infiltration System 3** Peak Elev=425.72' Storage=4,100 cf Inflow=1.71 cfs 0.133 af  
Discarded=0.04 cfs 0.042 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.042 af

**Pond SUB4: Subsurface Infiltration System** Peak Elev=425.65' Storage=11,074 cf Inflow=2.78 cfs 0.309 af  
Discarded=0.07 cfs 0.055 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.055 af

**Total Runoff Area = 8.882 ac Runoff Volume = 1.506 af Average Runoff Depth = 2.03"**  
**39.48% Pervious = 3.507 ac 60.52% Impervious = 5.375 ac**



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## Summary for Subcatchment 1S: Subcatchment Area 1

Runoff = 3.11 cfs @ 12.10 hrs, Volume= 0.210 af, Depth> 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
31,457	74	>75% Grass cover, Good, HSG C
25,991	98	Water Surface, HSG C
21,592	70	Woods, Good, HSG C
79,040	81	Weighted Average
53,049		67.12% Pervious Area
25,991		32.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min.

## Summary for Subcatchment 2S: Subcatchment Area 2

Runoff = 0.39 cfs @ 12.10 hrs, Volume= 0.027 af, Depth> 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
5,689	74	>75% Grass cover, Good, HSG C
7,413	70	Woods, Good, HSG C
* 1,336	98	Paved
14,438	74	Weighted Average
13,102		90.75% Pervious Area
1,336		9.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 3S: Subcatchment Area 3

Runoff = 0.69 cfs @ 12.10 hrs, Volume= 0.047 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

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Area (sf)	CN	Description
9,357	74	>75% Grass cover, Good, HSG C
* 2,748	98	Paved
7,293	77	Woods, Good, HSG D
19,398	79	Weighted Average
16,650		85.83% Pervious Area
2,748		14.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

## Summary for Subcatchment 4S: Subcatchment Area 4

Runoff = 1.51 cfs @ 12.31 hrs, Volume= 0.153 af, Depth> 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
46,603	74	>75% Grass cover, Good, HSG C
* 14,320	98	Paved
60,923	80	Weighted Average
46,603		76.49% Pervious Area
14,320		23.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
13.8	580	0.0100	0.70		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.5	87	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.7	717	Total			

## Summary for Subcatchment 5S: Subcatchment Area 5

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.023 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
* 3,943	98	Paved
1,928	74	>75% Grass cover, Good, HSG C
5,871	90	Weighted Average
1,928		32.84% Pervious Area
3,943		67.16% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 6S: Subcatchment Area 6**

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 0.023 af, Depth&gt; 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

	Area (sf)	CN	Description
*	4,012	98	Paved
	1,141	74	>75% Grass cover, Good, HSG C
	5,153	93	Weighted Average
	1,141		22.14% Pervious Area
	4,012		77.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 7S: Subcatchment Area 7**

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af, Depth&gt; 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

	Area (sf)	CN	Description
*	10,070	98	Paved
	2,438	74	>75% Grass cover, Good, HSG C
	12,508	93	Weighted Average
	2,438		19.49% Pervious Area
	10,070		80.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 8S: Pool Area**

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 0.046 af, Depth&gt; 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

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	Area (sf)	CN	Description
*	8,443	98	Paved
	8,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 9S: Subcatchment Area 9

Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

	Area (sf)	CN	Description
*	2,484	98	Paved
	2,484		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6

## Summary for Subcatchment 10S: Subcatchment Area 10

Runoff = 0.70 cfs @ 12.10 hrs, Volume= 0.048 af, Depth> 1.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

	Area (sf)	CN	Description
*	4,359	98	Paved
	14,431	74	>75% Grass cover, Good, HSG C
	18,790	80	Weighted Average
	14,431		76.80% Pervious Area
	4,359		23.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 11S: Subcatchment Area 11

Runoff = 0.28 cfs @ 12.09 hrs, Volume= 0.019 af, Depth> 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

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Area (sf)	CN	Description
2,899	98	Water Surface, HSG C
2,736	74	>75% Grass cover, Good, HSG C
5,635	86	Weighted Average
2,736		48.55% Pervious Area
2,899		51.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 12S: Subcatchment Area 12

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
* 526	98	Paved
526		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc=6mins

## Summary for Subcatchment 13S: Subcatchment Area 13

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
* 526	98	Paved
526		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 min

## Summary for Subcatchment R1: Residential Roof Area 1

Runoff = 2.10 cfs @ 12.09 hrs, Volume= 0.163 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

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Area (sf)	CN	Description
* 29,776	98	Building
29,776		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment R2: Residential Roof Area 2

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.075 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
* 13,766	98	Building
13,766		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment R3: Residential Roof Area 3

Runoff = 1.71 cfs @ 12.09 hrs, Volume= 0.133 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

Area (sf)	CN	Description
* 24,176	98	Building
24,176		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment R4: Residential Roof Area 4

Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.096 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

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	Area (sf)	CN	Description
*	17,527	98	Building
	17,527		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R5: Residential Garage

Runoff = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

	Area (sf)	CN	Description
*	30,070	98	Paved
	30,070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment R6: Retail Building Roof

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.064 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

	Area (sf)	CN	Description
*	11,647	98	Building
	11,647		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R7: Retail Garage Top Level

Runoff = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-Year Rainfall=3.24"

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Area (sf)	CN	Description
* 25,537	98	Paved
668	74	>75% Grass cover, Good, HSG C
26,205	97	Weighted Average
668		2.55% Pervious Area
25,537		97.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc=6mins

## Summary for Reach POA1: POA-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.105 ac, 65.16% Impervious, Inflow Depth > 0.65" for 2-Year event  
Inflow = 5.33 cfs @ 12.10 hrs, Volume= 0.441 af  
Outflow = 5.33 cfs @ 12.10 hrs, Volume= 0.441 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Reach POA2: POA-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.331 ac, 9.25% Impervious, Inflow Depth > 0.97" for 2-Year event  
Inflow = 0.39 cfs @ 12.10 hrs, Volume= 0.027 af  
Outflow = 0.39 cfs @ 12.10 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Reach POA3: POA-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.445 ac, 14.17% Impervious, Inflow Depth > 1.26" for 2-Year event  
Inflow = 0.69 cfs @ 12.10 hrs, Volume= 0.047 af  
Outflow = 0.69 cfs @ 12.10 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Pond BASIN1: Infiltration/Detention Basin

Inflow Area = 0.998 ac, 92.17% Impervious, Inflow Depth > 2.65" for 2-Year event  
Inflow = 2.92 cfs @ 12.09 hrs, Volume= 0.221 af  
Outflow = 1.37 cfs @ 12.27 hrs, Volume= 0.121 af, Atten= 53%, Lag= 10.9 min  
Discarded = 0.06 cfs @ 12.27 hrs, Volume= 0.045 af  
Primary = 1.31 cfs @ 12.27 hrs, Volume= 0.075 af  
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af



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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 409.19' @ 12.27 hrs Surf.Area= 2,372 sf Storage= 4,849 cf

Plug-Flow detention time= 171.5 min calculated for 0.120 af (54% of inflow)  
Center-of-Mass det. time= 82.5 min ( 821.7 - 739.2 )

Volume	Invert	Avail.Storage	Storage Description			
#1	406.00'	10,237 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
406.00	807	112.0	0	0	807	
407.00	1,209	139.0	1,001	1,001	1,361	
408.00	1,698	169.0	1,447	2,448	2,112	
409.00	2,260	195.2	1,972	4,420	2,893	
410.00	2,899	221.0	2,573	6,993	3,772	
411.00	3,602	242.0	3,244	10,237	4,580	

Device	Routing	Invert	Outlet Devices
#1	Discarded	406.00'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 405.50'
#2	Secondary	410.75'	<b>15.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Primary	405.00'	<b>15.0" Round Culvert</b> L= 60.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 405.00' / 401.00' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	409.00'	<b>15.0" x 15.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.06 cfs @ 12.27 hrs HW=409.18' (Free Discharge)  
↑1=Exfiltration ( Controls 0.06 cfs)

**Primary OutFlow** Max=1.27 cfs @ 12.27 hrs HW=409.18' (Free Discharge)  
↑3=Culvert (Passes 1.27 cfs of 9.83 cfs potential flow)  
↑4=Orifice/Grate (Weir Controls 1.27 cfs @ 1.40 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=406.00' (Free Discharge)  
↑2=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

**Summary for Pond CB1: CB-1**

Inflow Area = 0.118 ac, 77.86% Impervious, Inflow Depth > 2.35" for 2-Year event  
Inflow = 0.33 cfs @ 12.09 hrs, Volume= 0.023 af  
Outflow = 0.33 cfs @ 12.09 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.33 cfs @ 12.09 hrs, Volume= 0.023 af

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 428.99' @ 12.09 hrs

Flood Elev= 431.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	428.65'	<b>12.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 428.65' / 428.60' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.32 cfs @ 12.09 hrs HW=428.99' (Free Discharge)

↑1=Culvert (Barrel Controls 0.32 cfs @ 2.01 fps)

## Summary for Pond CB10: CB-10

Inflow Area = 0.431 ac, 23.20% Impervious, Inflow Depth > 1.32" for 2-Year event  
Inflow = 0.70 cfs @ 12.10 hrs, Volume= 0.048 af  
Outflow = 0.70 cfs @ 12.10 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.70 cfs @ 12.10 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 409.28' @ 12.10 hrs

Flood Elev= 411.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	408.80'	<b>12.0" Round Culvert</b> L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.80' / 408.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.70 cfs @ 12.10 hrs HW=409.28' (Free Discharge)

↑1=Culvert (Inlet Controls 0.70 cfs @ 1.86 fps)

## Summary for Pond CB2: CB-2

Inflow Area = 0.135 ac, 67.16% Impervious, Inflow Depth > 2.07" for 2-Year event  
Inflow = 0.34 cfs @ 12.09 hrs, Volume= 0.023 af  
Outflow = 0.34 cfs @ 12.09 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.34 cfs @ 12.09 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 431.32' @ 12.09 hrs

Flood Elev= 434.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	<b>12.0" Round Culvert</b> L= 97.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 431.00' / 428.60' S= 0.0247 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Primary OutFlow** Max=0.33 cfs @ 12.09 hrs HW=431.32' (Free Discharge)

↑1=Culvert (Inlet Controls 0.33 cfs @ 1.52 fps)

## Summary for Pond CB3: CB-3

Inflow Area = 0.287 ac, 80.51% Impervious, Inflow Depth > 2.35" for 2-Year event  
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af  
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 423.52' @ 12.09 hrs

Flood Elev= 426.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	423.00'	<b>12.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 423.00' / 422.78' S= 0.0275 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.77 cfs @ 12.09 hrs HW=423.51' (Free Discharge)

↑1=Culvert (Inlet Controls 0.77 cfs @ 1.92 fps)

## Summary for Pond CB4: CB-4

Inflow Area = 1.399 ac, 23.51% Impervious, Inflow Depth > 1.32" for 2-Year event  
Inflow = 1.51 cfs @ 12.31 hrs, Volume= 0.153 af  
Outflow = 1.51 cfs @ 12.31 hrs, Volume= 0.153 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.51 cfs @ 12.31 hrs, Volume= 0.153 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 427.18' @ 12.31 hrs

Flood Elev= 429.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.50'	<b>15.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.50' / 426.30' S= 0.0500 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.50 cfs @ 12.31 hrs HW=427.18' (Free Discharge)

↑1=Culvert (Inlet Controls 1.50 cfs @ 2.21 fps)

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### Summary for Pond CB5: CB-5

Inflow Area = 0.057 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af  
Outflow = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.18 cfs @ 12.09 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.63' @ 12.09 hrs

Flood Elev= 429.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.40'	<b>12.0" Round Culvert</b> L= 21.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.40' / 426.00' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.17 cfs @ 12.09 hrs HW=426.63' (Free Discharge)

↑1=Culvert (Inlet Controls 0.17 cfs @ 1.28 fps)

### Summary for Pond CB6: CB-6

Redundant CB - Covered by upper parking deck, minimal flow from parking area outside of covered area

Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af  
Outflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 408.60' @ 12.09 hrs

Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	408.50'	<b>12.0" Round Culvert</b> L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.50' / 408.00' S= 0.0135 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.04 cfs @ 12.09 hrs HW=408.60' (Free Discharge)

↑1=Culvert (Inlet Controls 0.04 cfs @ 0.85 fps)

### Summary for Pond CB7: CB-7

Redundant CB - Covered by upper parking deck, minimal flow from parking area outside of covered area

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Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af  
Outflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 407.40' @ 12.09 hrs  
Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	407.30'	<b>12.0" Round Culvert</b> L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 407.30' / 407.00' S= 0.0429 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.03 cfs @ 12.09 hrs HW=407.40' (Free Discharge)  
↑1=Culvert (Inlet Controls 0.03 cfs @ 0.85 fps)

## Summary for Pond CB8: CB-8

Redundant CB - Covered by upper parking deck, no flow anticipated

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	409.29'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 409.29' / 408.00' S= 0.0211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

## Summary for Pond CB9: CB-9

Redundant CB - Covered by upper parking deck, no flow anticipated

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	409.45'	<b>12.0" Round Culvert</b> L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 409.45' / 408.00' S= 0.0269 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

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## Summary for Pond DMH10: DMH-10

[81] Warning: Exceeded Pond DMH6 by 1.00' @ 0.00 hrs

Inflow Area = 4.297 ac, 75.10% Impervious, Inflow Depth = 0.00" for 2-Year event  
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 425.50' @ 0.00 hrs  
Flood Elev= 427.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.50'	<b>30.0" Round Culvert</b> L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.50' / 424.50' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=425.50' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

## Summary for Pond DMH11: DMH-11

Inflow Area = 0.253 ac, 72.16% Impervious, Inflow Depth > 2.20" for 2-Year event  
Inflow = 0.66 cfs @ 12.09 hrs, Volume= 0.046 af  
Outflow = 0.66 cfs @ 12.09 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.66 cfs @ 12.09 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 426.97' @ 12.09 hrs  
Flood Elev= 431.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.50'	<b>12.0" Round Culvert</b> L= 187.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.50' / 423.00' S= 0.0187 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.65 cfs @ 12.09 hrs HW=426.96' (Free Discharge)  
↑1=Culvert (Inlet Controls 0.65 cfs @ 1.83 fps)

## Summary for Pond DMH12: DMH-12 (WQU 4)

Inflow Area = 0.540 ac, 76.60% Impervious, Inflow Depth > 2.28" for 2-Year event  
Inflow = 1.45 cfs @ 12.09 hrs, Volume= 0.103 af  
Outflow = 1.45 cfs @ 12.09 hrs, Volume= 0.103 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.45 cfs @ 12.09 hrs, Volume= 0.103 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 421.74' @ 12.09 hrs

Flood Elev= 426.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	421.00'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 421.00' / 419.50' S= 0.1154 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.42 cfs @ 12.09 hrs HW=421.73' (Free Discharge)

↑1=Culvert (Inlet Controls 1.42 cfs @ 2.30 fps)

## Summary for Pond DMH13: DMH-13

Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af  
Outflow = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.04 cfs @ 12.09 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 408.00' @ 12.09 hrs

Flood Elev= 413.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	407.90'	<b>12.0" Round Culvert</b> L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 407.90' / 407.50' S= 0.0080 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.04 cfs @ 12.09 hrs HW=408.00' (Free Discharge)

↑1=Culvert (Inlet Controls 0.04 cfs @ 0.86 fps)

## Summary for Pond DMH14: DMH-14

[81] Warning: Exceeded Pond CB7 by 0.03' @ 12.10 hrs

Inflow Area = 0.456 ac, 27.27% Impervious, Inflow Depth > 1.41" for 2-Year event  
Inflow = 0.78 cfs @ 12.09 hrs, Volume= 0.053 af  
Outflow = 0.78 cfs @ 12.09 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.78 cfs @ 12.09 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 407.43' @ 12.09 hrs

Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	406.90'	<b>12.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 406.90' / 406.80' S= 0.0250 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Primary OutFlow** Max=0.77 cfs @ 12.09 hrs HW=407.42' (Free Discharge)

↑1=Culvert (Barrel Controls 0.77 cfs @ 2.69 fps)

## Summary for Pond DMH15: DMH-15 (WQU 2)

[79] Warning: Submerged Pond DMH14 Primary device # 1 INLET by 0.35'

Inflow Area = 0.456 ac, 27.27% Impervious, Inflow Depth > 1.41" for 2-Year event  
Inflow = 0.78 cfs @ 12.09 hrs, Volume= 0.053 af  
Outflow = 0.78 cfs @ 12.09 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.78 cfs @ 12.09 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 407.26' @ 12.09 hrs

Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	406.70'	<b>12.0" Round Culvert</b> L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 406.70' / 406.50' S= 0.0048 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.77 cfs @ 12.09 hrs HW=407.25' (Free Discharge)

↑1=Culvert (Barrel Controls 0.77 cfs @ 2.50 fps)

## Summary for Pond DMH16: DMH-16 (WQU 3)

[79] Warning: Submerged Pond DMH7 Primary device # 1 INLET by 0.62'

Inflow Area = 1.456 ac, 26.50% Impervious, Inflow Depth > 1.38" for 2-Year event  
Inflow = 1.58 cfs @ 12.31 hrs, Volume= 0.167 af  
Outflow = 1.58 cfs @ 12.31 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.58 cfs @ 12.31 hrs, Volume= 0.167 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.52' @ 12.31 hrs

Flood Elev= 430.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.75'	<b>15.0" Round Culvert</b> L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.75' / 425.70' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.57 cfs @ 12.31 hrs HW=426.52' (Free Discharge)

↑1=Culvert (Barrel Controls 1.57 cfs @ 2.82 fps)



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## Summary for Pond DMH18: DMH-18 (WQU 5)

[79] Warning: Submerged Pond OG2 Primary device # 1 INLET by 0.55'

Inflow Area = 0.602 ac, 97.45% Impervious, Inflow Depth > 2.76" for 2-Year event  
Inflow = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af  
Outflow = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 412.86' @ 12.09 hrs  
Flood Elev= 413.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	412.10'	<b>15.0" Round Culvert</b> L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 412.10' / 411.50' S= 0.0231 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.77 cfs @ 12.09 hrs HW=412.85' (Free Discharge)  
↑1=Culvert (Inlet Controls 1.77 cfs @ 2.32 fps)

## Summary for Pond DMH1B: DMH-1B (WQU 1)

[79] Warning: Submerged Pond OG1 Primary device # 1 INLET by 0.17'

Inflow Area = 0.690 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af  
Outflow = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 430.78' @ 12.09 hrs  
Flood Elev= 434.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	429.90'	<b>15.0" Round Culvert</b> L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 429.90' / 429.60' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=2.06 cfs @ 12.09 hrs HW=430.76' (Free Discharge)  
↑1=Culvert (Barrel Controls 2.06 cfs @ 3.22 fps)

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## Summary for Pond DMH6: DMH-6

[79] Warning: Submerged Pond SUB4 Primary device # 3 INLET by 0.50'

Inflow Area = 4.297 ac, 75.10% Impervious, Inflow Depth = 0.00" for 2-Year event  
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 424.50' @ 0.00 hrs  
 Flood Elev= 427.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	424.50'	<b>30.0" Round Culvert</b> L= 128.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 424.50' / 420.00' S= 0.0352 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=424.50' (Free Discharge)  
 ↑1=Culvert ( Controls 0.00 cfs)

## Summary for Pond DMH7: DMH-7

[79] Warning: Submerged Pond CB4 Primary device # 1 INLET by 0.11'  
 [81] Warning: Exceeded Pond CB5 by 0.07' @ 12.35 hrs

Inflow Area = 1.456 ac, 26.50% Impervious, Inflow Depth > 1.38" for 2-Year event  
 Inflow = 1.58 cfs @ 12.31 hrs, Volume= 0.167 af  
 Outflow = 1.58 cfs @ 12.31 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min  
 Primary = 1.58 cfs @ 12.31 hrs, Volume= 0.167 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 426.61' @ 12.31 hrs  
 Flood Elev= 429.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.90'	<b>15.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.90' / 425.75' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.57 cfs @ 12.31 hrs HW=426.61' (Free Discharge)  
 ↑1=Culvert ( Barrel Controls 1.57 cfs @ 3.16 fps)

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### Summary for Pond DMH8: DMH-8

Inflow Area = 0.194 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 0.60 cfs @ 12.09 hrs, Volume= 0.046 af  
Outflow = 0.60 cfs @ 12.09 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.60 cfs @ 12.09 hrs, Volume= 0.046 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.13' @ 12.09 hrs

Flood Elev= 431.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.60'	<b>12.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.60' / 425.60' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.58 cfs @ 12.09 hrs HW=426.13' (Free Discharge)

↑1=Culvert (Barrel Controls 0.58 cfs @ 2.01 fps)

### Summary for Pond DMH9: DMH-9

Inflow Area = 1.858 ac, 42.42% Impervious, Inflow Depth > 1.70" for 2-Year event  
Inflow = 2.20 cfs @ 12.12 hrs, Volume= 0.263 af  
Outflow = 2.20 cfs @ 12.12 hrs, Volume= 0.263 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.20 cfs @ 12.12 hrs, Volume= 0.263 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 421.49' @ 12.12 hrs

Flood Elev= 430.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	420.70'	<b>24.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 420.70' / 420.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=2.16 cfs @ 12.12 hrs HW=421.48' (Free Discharge)

↑1=Culvert (Barrel Controls 2.16 cfs @ 2.81 fps)

### Summary for Pond OG1: Oil/Grit Separator

Inflow Area = 0.690 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af  
Outflow = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.12 cfs @ 12.09 hrs, Volume= 0.165 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 431.44' @ 12.09 hrs

Flood Elev= 436.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	430.60'	<b>15.0" Round Culvert</b> L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 430.60' / 430.00' S= 0.0055 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=2.06 cfs @ 12.09 hrs HW=431.43' (Free Discharge)

↑1=Culvert (Barrel Controls 2.06 cfs @ 3.40 fps)

## Summary for Pond OG2: Oil/Grit Separator

[57] Hint: Peaked at 413.06' (Flood elevation advised)

Inflow Area = 0.602 ac, 97.45% Impervious, Inflow Depth > 2.76" for 2-Year event  
Inflow = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af  
Outflow = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.82 cfs @ 12.09 hrs, Volume= 0.138 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 413.06' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	412.30'	<b>15.0" Round Culvert</b> L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 412.30' / 411.50' S= 0.0400 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.77 cfs @ 12.09 hrs HW=413.05' (Free Discharge)

↑1=Culvert (Inlet Controls 1.77 cfs @ 2.32 fps)

## Summary for Pond SUB1: Subsurface Infiltration System 1

[81] Warning: Exceeded Pond DMH1B by 0.51' @ 19.95 hrs

Inflow Area = 1.374 ac, 100.00% Impervious, Inflow Depth > 2.87" for 2-Year event  
Inflow = 4.22 cfs @ 12.09 hrs, Volume= 0.328 af  
Outflow = 1.44 cfs @ 12.37 hrs, Volume= 0.163 af, Atten= 66%, Lag= 17.0 min  
Discarded = 0.06 cfs @ 12.37 hrs, Volume= 0.061 af  
Primary = 1.37 cfs @ 12.37 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 430.72' @ 12.37 hrs Surf.Area= 3,538 sf Storage= 7,813 cf

Flood Elev= 435.80' Surf.Area= 3,538 sf Storage= 15,250 cf

Plug-Flow detention time= 181.9 min calculated for 0.163 af (50% of inflow)

Center-of-Mass det. time= 78.9 min ( 807.5 - 728.5 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	427.65'	5,804 cf	<b>55.75'W x 63.47'L x 6.75'H Field A</b> 23,883 cf Overall - 9,374 cf Embedded = 14,510 cf x 40.0% Voids
#2A	428.40'	9,374 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 84 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Rows of 14 Chambers Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
#3	430.00'	73 cf	<b>4.00'D x 5.80'H DMH-1A</b> -Impervious
		15,250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	427.65'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 426.00'
#2	Primary	430.00'	<b>24.0" Round Culvert</b> L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 430.00' / 429.70' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	430.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.06 cfs @ 12.37 hrs HW=430.72' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.06 cfs)

**Primary OutFlow** Max=1.35 cfs @ 12.37 hrs HW=430.72' (Free Discharge)

↑**2=Culvert** (Passes 1.35 cfs of 2.18 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir**(Weir Controls 1.35 cfs @ 1.54 fps)

## Summary for Pond SUB2: Subsurface Infiltration System 2

Inflow Area = 1.690 ac, 100.00% Impervious, Inflow Depth > 1.26" for 2-Year event  
Inflow = 1.71 cfs @ 12.35 hrs, Volume= 0.177 af  
Outflow = 0.04 cfs @ 17.71 hrs, Volume= 0.036 af, Atten= 97%, Lag= 321.4 min  
Discarded = 0.04 cfs @ 17.71 hrs, Volume= 0.036 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 428.96' @ 17.71 hrs Surf.Area= 2,586 sf Storage= 6,315 cf  
Flood Elev= 433.80' Surf.Area= 2,586 sf Storage= 11,082 cf

Plug-Flow detention time= 233.9 min calculated for 0.036 af (20% of inflow)

Center-of-Mass det. time= 78.7 min ( 855.5 - 776.8 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	425.55'	4,284 cf	<b>46.67'W x 55.42'L x 6.75'H Field A</b> 17,456 cf Overall - 6,746 cf Embedded = 10,710 cf x 40.0% Voids
#2A	426.30'	6,746 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 60 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 5 Rows of 12 Chambers Cap Storage= +35.7 cf x 2 x 5 rows = 357.0 cf
#3	429.70'	52 cf	<b>4.00'D x 4.10'H DMH-3-Impervious</b>
		11,082 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	425.55'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 423.50'
#2	Primary	429.70'	<b>24.0" Round Culvert</b> L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 429.70' / 427.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	430.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.04 cfs @ 17.71 hrs HW=428.96' (Free Discharge)

↑1=Exfiltration ( Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=425.55' (Free Discharge)

↑2=Culvert ( Controls 0.00 cfs)

↑3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

## Summary for Pond SUB3: Subsurface Infiltration System 3

Inflow Area = 2.245 ac, 100.00% Impervious, Inflow Depth > 0.71" for 2-Year event  
Inflow = 1.71 cfs @ 12.09 hrs, Volume= 0.133 af  
Outflow = 0.04 cfs @ 16.67 hrs, Volume= 0.042 af, Atten= 98%, Lag= 275.3 min  
Discarded = 0.04 cfs @ 16.67 hrs, Volume= 0.042 af  
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 425.72' @ 16.67 hrs Surf.Area= 3,538 sf Storage= 4,100 cf  
Flood Elev= 431.40' Surf.Area= 3,538 sf Storage= 15,220 cf

Plug-Flow detention time= 233.7 min calculated for 0.042 af (31% of inflow)

Center-of-Mass det. time= 76.4 min ( 804.9 - 728.5 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	423.95'	5,804 cf	<b>55.75'W x 63.47'L x 6.75'H Field A</b> 23,883 cf Overall - 9,374 cf Embedded = 14,510 cf x 40.0% Voids
#2A	424.70'	9,374 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 84 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Rows of 14 Chambers Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
#3	428.00'	43 cf	<b>4.00'D x 3.40'H DMH-5</b> -Impervious
		15,220 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	423.95'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 421.95'
#2	Primary	427.00'	<b>24.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 427.00' / 426.00' S= 0.0164 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	429.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.04 cfs @ 16.67 hrs HW=425.72' (Free Discharge)

↑1=Exfiltration ( Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=423.95' (Free Discharge)

↑2=Culvert ( Controls 0.00 cfs)

↑3=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Summary for Pond SUB4: Subsurface Infiltration System 4**

[79] Warning: Submerged Pond DMH8 Primary device # 1 by 0.05'

[81] Warning: Exceeded Pond DMH9 by 4.83' @ 19.95 hrs

Inflow Area = 2.052 ac, 47.86% Impervious, Inflow Depth > 1.81" for 2-Year event  
 Inflow = 2.78 cfs @ 12.11 hrs, Volume= 0.309 af  
 Outflow = 0.07 cfs @ 20.00 hrs, Volume= 0.055 af, Atten= 97%, Lag= 473.6 min  
 Discarded = 0.07 cfs @ 20.00 hrs, Volume= 0.055 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 425.65' @ 20.00 hrs Surf.Area= 2,906 sf Storage= 11,074 cf  
 Flood Elev= 432.40' Surf.Area= 2,906 sf Storage= 12,384 cf

Plug-Flow detention time= 282.9 min calculated for 0.055 af (18% of inflow)  
 Center-of-Mass det. time= 92.7 min ( 864.2 - 771.6 )

# Grafton Woods - Proposed-REV 04-2021

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Volume	Invert	Avail.Storage	Storage Description
#1A	419.95'	4,892 cf	<b>73.92'W x 39.32'L x 6.75'H Field A</b> 19,617 cf Overall - 7,387 cf Embedded = 12,230 cf x 40.0% Voids
#2A	420.70'	7,387 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 64 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 8 Rows of 8 Chambers Cap Storage= +35.7 cf x 2 x 8 rows = 571.2 cf
#3	424.00'	106 cf	<b>4.00'D x 8.40'H DMH-17-Impervious</b>
		12,384 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	419.95'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 417.95'
#2	Device 3	425.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Primary	424.00'	<b>24.0" Round Culvert</b> L= 83.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 424.00' / 423.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

**Discarded OutFlow** Max=0.07 cfs @ 20.00 hrs HW=425.65' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.07 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=419.95' (Free Discharge)

↑**3=Culvert** ( Controls 0.00 cfs)

↑**2=Sharp-Crested Rectangular Weir**( Controls 0.00 cfs)



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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: SubcatchmentArea 1</b>	Runoff Area=79,040 sf 32.88% Impervious Runoff Depth>2.68" Tc=6.0 min CN=81 Runoff=5.98 cfs 0.406 af
<b>Subcatchment2S: SubcatchmentArea 2</b>	Runoff Area=14,438 sf 9.25% Impervious Runoff Depth>2.09" Tc=6.0 min CN=74 Runoff=0.86 cfs 0.058 af
<b>Subcatchment3S: SubcatchmentArea 3</b>	Runoff Area=19,398 sf 14.17% Impervious Runoff Depth>2.51" Tc=6.0 min CN=79 Runoff=1.38 cfs 0.093 af
<b>Subcatchment4S: SubcatchmentArea 4</b>	Runoff Area=60,923 sf 23.51% Impervious Runoff Depth>2.58" Flow Length=717' Tc=21.7 min CN=80 Runoff=2.96 cfs 0.301 af
<b>Subcatchment5S: SubcatchmentArea 5</b>	Runoff Area=5,871 sf 67.16% Impervious Runoff Depth>3.55" Tc=6.0 min CN=90 Runoff=0.56 cfs 0.040 af
<b>Subcatchment6S: SubcatchmentArea 6</b>	Runoff Area=5,153 sf 77.86% Impervious Runoff Depth>3.86" Tc=6.0 min CN=93 Runoff=0.52 cfs 0.038 af
<b>Subcatchment7S: SubcatchmentArea 7</b>	Runoff Area=12,508 sf 80.51% Impervious Runoff Depth>3.86" Tc=6.0 min CN=93 Runoff=1.26 cfs 0.092 af
<b>Subcatchment8S: Pool Area</b>	Runoff Area=8,443 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=0.90 cfs 0.071 af
<b>Subcatchment9S: SubcatchmentArea 9</b>	Runoff Area=2,484 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=0.27 cfs 0.021 af
<b>Subcatchment10S: SubcatchmentArea 10</b>	Runoff Area=18,790 sf 23.20% Impervious Runoff Depth>2.60" Tc=6.0 min CN=80 Runoff=1.38 cfs 0.093 af
<b>Subcatchment11S: SubcatchmentArea 11</b>	Runoff Area=5,635 sf 51.45% Impervious Runoff Depth>3.15" Tc=6.0 min CN=86 Runoff=0.49 cfs 0.034 af
<b>Subcatchment12S: SubcatchmentArea 12</b>	Runoff Area=526 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=0.06 cfs 0.004 af
<b>Subcatchment13S: SubcatchmentArea 13</b>	Runoff Area=526 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=0.06 cfs 0.004 af
<b>SubcatchmentR1: ResidentialRoof Area</b>	Runoff Area=29,776 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=3.18 cfs 0.252 af
<b>SubcatchmentR2: ResidentialRoof Area</b>	Runoff Area=13,766 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=1.47 cfs 0.116 af
<b>SubcatchmentR3: ResidentialRoof Area</b>	Runoff Area=24,176 sf 100.00% Impervious Runoff Depth>4.42" Tc=6.0 min CN=98 Runoff=2.58 cfs 0.204 af

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**SubcatchmentR4: Residential Roof Area** Runoff Area=17,527 sf 100.00% Impervious Runoff Depth>4.42"  
Tc=6.0 min CN=98 Runoff=1.87 cfs 0.148 af

**SubcatchmentR5: Residential Garage** Runoff Area=30,070 sf 100.00% Impervious Runoff Depth>4.42"  
Tc=6.0 min CN=98 Runoff=3.21 cfs 0.254 af

**SubcatchmentR6: Retail Building Roof** Runoff Area=11,647 sf 100.00% Impervious Runoff Depth>4.42"  
Tc=6.0 min CN=98 Runoff=1.24 cfs 0.098 af

**SubcatchmentR7: Retail Garage Top Level** Runoff Area=26,205 sf 97.45% Impervious Runoff Depth>4.30"  
Tc=6.0 min CN=97 Runoff=2.78 cfs 0.216 af

**Reach POA1: POA-1** Inflow=13.60 cfs 1.096 af  
Outflow=13.60 cfs 1.096 af

**Reach POA2: POA-2** Inflow=0.86 cfs 0.058 af  
Outflow=0.86 cfs 0.058 af

**Reach POA3: POA-3** Inflow=1.38 cfs 0.093 af  
Outflow=1.38 cfs 0.093 af

**Pond BASIN1: Infiltration/Detention Basin** Peak Elev=409.39' Storage=5,345 cf Inflow=4.51 cfs 0.348 af  
Discarded=0.06 cfs 0.051 af Primary=3.97 cfs 0.196 af Secondary=0.00 cfs 0.000 af Outflow=4.03 cfs 0.247 af

**Pond CB1: CB-1** Peak Elev=429.10' Inflow=0.52 cfs 0.038 af  
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 1/1' Outflow=0.52 cfs 0.038 af

**Pond CB10: CB-10** Peak Elev=409.52' Inflow=1.38 cfs 0.093 af  
12.0" Round Culvert n=0.013 L=56.0' S=0.0143 1/1' Outflow=1.38 cfs 0.093 af

**Pond CB2: CB-2** Peak Elev=431.43' Inflow=0.56 cfs 0.040 af  
12.0" Round Culvert n=0.013 L=97.0' S=0.0247 1/1' Outflow=0.56 cfs 0.040 af

**Pond CB3: CB-3** Peak Elev=423.68' Inflow=1.26 cfs 0.092 af  
12.0" Round Culvert n=0.013 L=8.0' S=0.0275 1/1' Outflow=1.26 cfs 0.092 af

**Pond CB4: CB-4** Peak Elev=427.53' Inflow=2.96 cfs 0.301 af  
15.0" Round Culvert n=0.013 L=4.0' S=0.0500 1/1' Outflow=2.96 cfs 0.301 af

**Pond CB5: CB-5** Peak Elev=426.69' Inflow=0.27 cfs 0.021 af  
12.0" Round Culvert n=0.013 L=21.0' S=0.0190 1/1' Outflow=0.27 cfs 0.021 af

**Pond CB6: CB-6** Peak Elev=408.63' Inflow=0.06 cfs 0.004 af  
12.0" Round Culvert n=0.013 L=37.0' S=0.0135 1/1' Outflow=0.06 cfs 0.004 af

**Pond CB7: CB-7** Peak Elev=407.43' Inflow=0.06 cfs 0.004 af  
12.0" Round Culvert n=0.013 L=7.0' S=0.0429 1/1' Outflow=0.06 cfs 0.004 af

**Pond CB8: CB-8** Peak Elev=0.00'  
12.0" Round Culvert n=0.013 L=61.0' S=0.0211 1/1' Primary=0.00 cfs 0.000 af

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<b>Pond CB9: CB-9</b>	12.0" Round Culvert n=0.013 L=54.0' S=0.0269 '/'	Primary=0.00 cfs 0.000 af	Peak Elev=0.00'
<b>Pond DMH10: DMH-10</b>	30.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/'	Outflow=3.24 cfs 0.222 af	Peak Elev=426.31' Inflow=3.24 cfs 0.222 af
<b>Pond DMH11: DMH-11</b>	12.0" Round Culvert n=0.013 L=187.0' S=0.0187 '/'	Outflow=1.08 cfs 0.078 af	Peak Elev=427.12' Inflow=1.08 cfs 0.078 af
<b>Pond DMH12: DMH-12 (WQU 4)</b>	12.0" Round Culvert n=0.013 L=13.0' S=0.1154 '/'	Outflow=2.34 cfs 0.170 af	Peak Elev=422.11' Inflow=2.34 cfs 0.170 af
<b>Pond DMH13: DMH-13</b>	12.0" Round Culvert n=0.013 L=50.0' S=0.0080 '/'	Outflow=0.06 cfs 0.004 af	Peak Elev=408.03' Inflow=0.06 cfs 0.004 af
<b>Pond DMH14: DMH-14</b>	12.0" Round Culvert n=0.013 L=4.0' S=0.0250 '/'	Outflow=1.49 cfs 0.102 af	Peak Elev=407.69' Inflow=1.49 cfs 0.102 af
<b>Pond DMH15: DMH-15 (WQU 2)</b>	12.0" Round Culvert n=0.013 L=42.0' S=0.0048 '/'	Outflow=1.49 cfs 0.102 af	Peak Elev=407.52' Inflow=1.49 cfs 0.102 af
<b>Pond DMH16: DMH-16 (WQU 3)</b>	15.0" Round Culvert n=0.013 L=3.0' S=0.0167 '/'	Outflow=3.07 cfs 0.322 af	Peak Elev=426.91' Inflow=3.07 cfs 0.322 af
<b>Pond DMH18: DMH-18 (WQU 5)</b>	15.0" Round Culvert n=0.013 L=26.0' S=0.0231 '/'	Outflow=2.78 cfs 0.216 af	Peak Elev=413.09' Inflow=2.78 cfs 0.216 af
<b>Pond DMH1B: DMH-1B (WQU 1)</b>	15.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/'	Outflow=3.21 cfs 0.254 af	Peak Elev=431.05' Inflow=3.21 cfs 0.254 af
<b>Pond DMH6: DMH-6</b>	30.0" Round Culvert n=0.013 L=128.0' S=0.0352 '/'	Outflow=3.24 cfs 0.222 af	Peak Elev=425.31' Inflow=3.24 cfs 0.222 af
<b>Pond DMH7: DMH-7</b>	15.0" Round Culvert n=0.013 L=8.0' S=0.0187 '/'	Outflow=3.07 cfs 0.322 af	Peak Elev=426.98' Inflow=3.07 cfs 0.322 af
<b>Pond DMH8: DMH-8</b>	12.0" Round Culvert n=0.013 L=5.0' S=0.0000 '/'	Outflow=0.90 cfs 0.071 af	Peak Elev=426.27' Inflow=0.90 cfs 0.071 af
<b>Pond DMH9: DMH-9</b>	24.0" Round Culvert n=0.013 L=5.0' S=0.0100 '/'	Outflow=3.87 cfs 0.470 af	Peak Elev=421.78' Inflow=3.87 cfs 0.470 af
<b>Pond OG1: Oil/Grit Separator</b>	15.0" Round Culvert n=0.013 L=110.0' S=0.0055 '/'	Outflow=3.21 cfs 0.254 af	Peak Elev=431.70' Inflow=3.21 cfs 0.254 af
<b>Pond OG2: Oil/Grit Separator</b>	15.0" Round Culvert n=0.013 L=20.0' S=0.0400 '/'	Outflow=2.78 cfs 0.216 af	Peak Elev=413.29' Inflow=2.78 cfs 0.216 af
<b>Pond SUB1: Subsurface Infiltration System 1</b>		Discarded=0.07 cfs 0.067 af Primary=4.82 cfs 0.273 af	Peak Elev=431.13' Storage=8,919 cf Inflow=6.39 cfs 0.506 af Outflow=4.89 cfs 0.340 af

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**Pond SUB2: Subsurface Infiltration System 2** Peak Elev=430.93' Storage=9,600 cf Inflow=5.97 cfs 0.390 af  
Discarded=0.06 cfs 0.050 af Primary=1.39 cfs 0.127 af Outflow=1.45 cfs 0.176 af

**Pond SUB3: Subsurface Infiltration System** Peak Elev=428.63' Storage=11,836 cf Inflow=2.58 cfs 0.331 af  
Discarded=0.07 cfs 0.063 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.063 af

**Pond SUB4: Subsurface Infiltration System** Peak Elev=426.08' Storage=11,582 cf Inflow=4.71 cfs 0.541 af  
Discarded=0.07 cfs 0.064 af Primary=3.24 cfs 0.222 af Outflow=3.32 cfs 0.285 af

**Total Runoff Area = 8.882 ac Runoff Volume = 2.546 af Average Runoff Depth = 3.44"**  
**39.48% Pervious = 3.507 ac 60.52% Impervious = 5.375 ac**

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## Summary for Subcatchment 1S: Subcatchment Area 1

Runoff = 5.98 cfs @ 12.09 hrs, Volume= 0.406 af, Depth> 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
31,457	74	>75% Grass cover, Good, HSG C
25,991	98	Water Surface, HSG C
21,592	70	Woods, Good, HSG C
79,040	81	Weighted Average
53,049		67.12% Pervious Area
25,991		32.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min.

## Summary for Subcatchment 2S: Subcatchment Area 2

Runoff = 0.86 cfs @ 12.10 hrs, Volume= 0.058 af, Depth> 2.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
5,689	74	>75% Grass cover, Good, HSG C
7,413	70	Woods, Good, HSG C
* 1,336	98	Paved
14,438	74	Weighted Average
13,102		90.75% Pervious Area
1,336		9.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 3S: Subcatchment Area 3

Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 2.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

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Area (sf)	CN	Description
9,357	74	>75% Grass cover, Good, HSG C
* 2,748	98	Paved
7,293	77	Woods, Good, HSG D
19,398	79	Weighted Average
16,650		85.83% Pervious Area
2,748		14.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

## Summary for Subcatchment 4S: Subcatchment Area 4

Runoff = 2.96 cfs @ 12.30 hrs, Volume= 0.301 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
46,603	74	>75% Grass cover, Good, HSG C
* 14,320	98	Paved
60,923	80	Weighted Average
46,603		76.49% Pervious Area
14,320		23.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
13.8	580	0.0100	0.70		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.5	87	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.7	717	Total			

## Summary for Subcatchment 5S: Subcatchment Area 5

Runoff = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
* 3,943	98	Paved
1,928	74	>75% Grass cover, Good, HSG C
5,871	90	Weighted Average
1,928		32.84% Pervious Area
3,943		67.16% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 6S: Subcatchment Area 6**

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.038 af, Depth&gt; 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

	Area (sf)	CN	Description
*	4,012	98	Paved
	1,141	74	>75% Grass cover, Good, HSG C
	5,153	93	Weighted Average
	1,141		22.14% Pervious Area
	4,012		77.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 7S: Subcatchment Area 7**

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.092 af, Depth&gt; 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

	Area (sf)	CN	Description
*	10,070	98	Paved
	2,438	74	>75% Grass cover, Good, HSG C
	12,508	93	Weighted Average
	2,438		19.49% Pervious Area
	10,070		80.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 8S: Pool Area**

Runoff = 0.90 cfs @ 12.09 hrs, Volume= 0.071 af, Depth&gt; 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

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	Area (sf)	CN	Description
*	8,443	98	Paved
	8,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 9S: Subcatchment Area 9

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 0.021 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

	Area (sf)	CN	Description
*	2,484	98	Paved
	2,484		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6

## Summary for Subcatchment 10S: Subcatchment Area 10

Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

	Area (sf)	CN	Description
*	4,359	98	Paved
	14,431	74	>75% Grass cover, Good, HSG C
	18,790	80	Weighted Average
	14,431		76.80% Pervious Area
	4,359		23.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 11S: Subcatchment Area 11

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.034 af, Depth> 3.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"



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Area (sf)	CN	Description
2,899	98	Water Surface, HSG C
2,736	74	>75% Grass cover, Good, HSG C
5,635	86	Weighted Average
2,736		48.55% Pervious Area
2,899		51.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 12S: Subcatchment Area 12

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
* 526	98	Paved
526		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc=6mins

## Summary for Subcatchment 13S: Subcatchment Area 13

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
* 526	98	Paved
526		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 min

## Summary for Subcatchment R1: Residential Roof Area 1

Runoff = 3.18 cfs @ 12.09 hrs, Volume= 0.252 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

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Area (sf)	CN	Description
* 29,776	98	Building
29,776		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R2: Residential Roof Area 2

Runoff = 1.47 cfs @ 12.09 hrs, Volume= 0.116 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
* 13,766	98	Building
13,766		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R3: Residential Roof Area 3

Runoff = 2.58 cfs @ 12.09 hrs, Volume= 0.204 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

Area (sf)	CN	Description
* 24,176	98	Building
24,176		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R4: Residential Roof Area 4

Runoff = 1.87 cfs @ 12.09 hrs, Volume= 0.148 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

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	Area (sf)	CN	Description
*	17,527	98	Building
	17,527		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment R5: Residential Garage

Runoff = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

	Area (sf)	CN	Description
*	30,070	98	Paved
	30,070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

## Summary for Subcatchment R6: Retail Building Roof

Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.098 af, Depth> 4.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

	Area (sf)	CN	Description
*	11,647	98	Building
	11,647		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

## Summary for Subcatchment R7: Retail Garage Top Level

Runoff = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af, Depth> 4.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-Year Rainfall=4.87"

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Area (sf)	CN	Description
* 25,537	98	Paved
668	74	>75% Grass cover, Good, HSG C
26,205	97	Weighted Average
668		2.55% Pervious Area
25,537		97.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc=6mins

## Summary for Reach POA1: POA-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.105 ac, 65.16% Impervious, Inflow Depth > 1.62" for 10-Year event  
Inflow = 13.60 cfs @ 12.10 hrs, Volume= 1.096 af  
Outflow = 13.60 cfs @ 12.10 hrs, Volume= 1.096 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Reach POA2: POA-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.331 ac, 9.25% Impervious, Inflow Depth > 2.09" for 10-Year event  
Inflow = 0.86 cfs @ 12.10 hrs, Volume= 0.058 af  
Outflow = 0.86 cfs @ 12.10 hrs, Volume= 0.058 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Reach POA3: POA-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.445 ac, 14.17% Impervious, Inflow Depth > 2.51" for 10-Year event  
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af  
Outflow = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Pond BASIN1: Infiltration/Detention Basin

Inflow Area = 0.998 ac, 92.17% Impervious, Inflow Depth > 4.19" for 10-Year event  
Inflow = 4.51 cfs @ 12.09 hrs, Volume= 0.348 af  
Outflow = 4.03 cfs @ 12.13 hrs, Volume= 0.247 af, Atten= 11%, Lag= 2.6 min  
Discarded = 0.06 cfs @ 12.13 hrs, Volume= 0.051 af  
Primary = 3.97 cfs @ 12.13 hrs, Volume= 0.196 af  
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 409.39' @ 12.13 hrs Surf.Area= 2,499 sf Storage= 5,345 cf

Plug-Flow detention time= 132.7 min calculated for 0.247 af (71% of inflow)  
 Center-of-Mass det. time= 62.7 min ( 793.6 - 730.9 )

Volume	Invert	Avail.Storage	Storage Description			
#1	406.00'	10,237 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
406.00	807	112.0	0	0	807	
407.00	1,209	139.0	1,001	1,001	1,361	
408.00	1,698	169.0	1,447	2,448	2,112	
409.00	2,260	195.2	1,972	4,420	2,893	
410.00	2,899	221.0	2,573	6,993	3,772	
411.00	3,602	242.0	3,244	10,237	4,580	

Device	Routing	Invert	Outlet Devices
#1	Discarded	406.00'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 405.50'
#2	Secondary	410.75'	<b>15.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Primary	405.00'	<b>15.0" Round Culvert</b> L= 60.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 405.00' / 401.00' S= 0.0667 ' / Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	409.00'	<b>15.0" x 15.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.06 cfs @ 12.13 hrs HW=409.38' (Free Discharge)

↑1=Exfiltration ( Controls 0.06 cfs)

**Primary OutFlow** Max=3.88 cfs @ 12.13 hrs HW=409.38' (Free Discharge)

↑3=Culvert (Passes 3.88 cfs of 10.11 cfs potential flow)

↑4=Orifice/Grate (Weir Controls 3.88 cfs @ 2.02 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=406.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

## Summary for Pond CB1: CB-1

Inflow Area = 0.118 ac, 77.86% Impervious, Inflow Depth > 3.86" for 10-Year event  
 Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.038 af  
 Outflow = 0.52 cfs @ 12.09 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.52 cfs @ 12.09 hrs, Volume= 0.038 af

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 429.10' @ 12.09 hrs

Flood Elev= 431.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	428.65'	<b>12.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 428.65' / 428.60' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.51 cfs @ 12.09 hrs HW=429.09' (Free Discharge)

←1=Culvert (Barrel Controls 0.51 cfs @ 2.22 fps)

## Summary for Pond CB10: CB-10

Inflow Area = 0.431 ac, 23.20% Impervious, Inflow Depth > 2.60" for 10-Year event  
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af  
Outflow = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.38 cfs @ 12.09 hrs, Volume= 0.093 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 409.52' @ 12.09 hrs

Flood Elev= 411.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	408.80'	<b>12.0" Round Culvert</b> L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.80' / 408.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.35 cfs @ 12.09 hrs HW=409.51' (Free Discharge)

←1=Culvert (Inlet Controls 1.35 cfs @ 2.27 fps)

## Summary for Pond CB2: CB-2

Inflow Area = 0.135 ac, 67.16% Impervious, Inflow Depth > 3.55" for 10-Year event  
Inflow = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af  
Outflow = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.56 cfs @ 12.09 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 431.43' @ 12.09 hrs

Flood Elev= 434.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	<b>12.0" Round Culvert</b> L= 97.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 431.00' / 428.60' S= 0.0247 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Primary OutFlow** Max=0.55 cfs @ 12.09 hrs HW=431.42' (Free Discharge)

↑1=Culvert (Inlet Controls 0.55 cfs @ 1.74 fps)

## Summary for Pond CB3: CB-3

Inflow Area = 0.287 ac, 80.51% Impervious, Inflow Depth > 3.86" for 10-Year event  
Inflow = 1.26 cfs @ 12.09 hrs, Volume= 0.092 af  
Outflow = 1.26 cfs @ 12.09 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.26 cfs @ 12.09 hrs, Volume= 0.092 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 423.68' @ 12.09 hrs

Flood Elev= 426.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	423.00'	<b>12.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 423.00' / 422.78' S= 0.0275 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.23 cfs @ 12.09 hrs HW=423.67' (Free Discharge)

↑1=Culvert (Inlet Controls 1.23 cfs @ 2.20 fps)

## Summary for Pond CB4: CB-4

Inflow Area = 1.399 ac, 23.51% Impervious, Inflow Depth > 2.58" for 10-Year event  
Inflow = 2.96 cfs @ 12.30 hrs, Volume= 0.301 af  
Outflow = 2.96 cfs @ 12.30 hrs, Volume= 0.301 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.96 cfs @ 12.30 hrs, Volume= 0.301 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 427.53' @ 12.30 hrs

Flood Elev= 429.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.50'	<b>15.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.50' / 426.30' S= 0.0500 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=2.96 cfs @ 12.30 hrs HW=427.53' (Free Discharge)

↑1=Culvert (Inlet Controls 2.96 cfs @ 2.73 fps)

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### Summary for Pond CB5: CB-5

Inflow Area = 0.057 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 0.27 cfs @ 12.09 hrs, Volume= 0.021 af  
Outflow = 0.27 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.27 cfs @ 12.09 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.69' @ 12.09 hrs

Flood Elev= 429.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.40'	<b>12.0" Round Culvert</b> L= 21.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.40' / 426.00' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.26 cfs @ 12.09 hrs HW=426.68' (Free Discharge)

↑1=Culvert (Inlet Controls 0.26 cfs @ 1.42 fps)

### Summary for Pond CB6: CB-6

Redundant CB - Covered by upper parking deck, minimal flow from parking area outside of covered area

Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af  
Outflow = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 408.63' @ 12.09 hrs

Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	408.50'	<b>12.0" Round Culvert</b> L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.50' / 408.00' S= 0.0135 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.05 cfs @ 12.09 hrs HW=408.63' (Free Discharge)

↑1=Culvert (Inlet Controls 0.05 cfs @ 0.95 fps)

### Summary for Pond CB7: CB-7

Redundant CB - Covered by upper parking deck, minimal flow from parking area outside of covered area



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Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af  
Outflow = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 407.43' @ 12.09 hrs  
Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	407.30'	<b>12.0" Round Culvert</b> L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 407.30' / 407.00' S= 0.0429 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.05 cfs @ 12.09 hrs HW=407.43' (Free Discharge)  
↑1=Culvert (Inlet Controls 0.05 cfs @ 0.95 fps)

## Summary for Pond CB8: CB-8

Redundant CB - Covered by upper parking deck, no flow anticipated

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	409.29'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 409.29' / 408.00' S= 0.0211 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

## Summary for Pond CB9: CB-9

Redundant CB - Covered by upper parking deck, no flow anticipated

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	409.45'	<b>12.0" Round Culvert</b> L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 409.45' / 408.00' S= 0.0269 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

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### Summary for Pond DMH10: DMH-10

[81] Warning: Exceeded Pond DMH6 by 1.00' @ 19.70 hrs

Inflow Area = 4.297 ac, 75.10% Impervious, Inflow Depth > 0.62" for 10-Year event  
Inflow = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af  
Outflow = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.31' @ 12.47 hrs

Flood Elev= 427.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.50'	<b>30.0" Round Culvert</b> L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.50' / 424.50' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=2.98 cfs @ 12.47 hrs HW=426.26' (Free Discharge)

↑**1=Culvert** (Inlet Controls 2.98 cfs @ 2.35 fps)

### Summary for Pond DMH11: DMH-11

Inflow Area = 0.253 ac, 72.16% Impervious, Inflow Depth > 3.69" for 10-Year event  
Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af  
Outflow = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.08 cfs @ 12.09 hrs, Volume= 0.078 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 427.12' @ 12.09 hrs

Flood Elev= 431.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.50'	<b>12.0" Round Culvert</b> L= 187.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.50' / 423.00' S= 0.0187 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.05 cfs @ 12.09 hrs HW=427.11' (Free Discharge)

↑**1=Culvert** (Inlet Controls 1.05 cfs @ 2.10 fps)

### Summary for Pond DMH12: DMH-12 (WQU 4)

Inflow Area = 0.540 ac, 76.60% Impervious, Inflow Depth > 3.78" for 10-Year event  
Inflow = 2.34 cfs @ 12.09 hrs, Volume= 0.170 af  
Outflow = 2.34 cfs @ 12.09 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.34 cfs @ 12.09 hrs, Volume= 0.170 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 422.11' @ 12.09 hrs

Flood Elev= 426.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	421.00'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 421.00' / 419.50' S= 0.1154 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.28 cfs @ 12.09 hrs HW=422.08' (Free Discharge)

↑1=Culvert (Inlet Controls 2.28 cfs @ 2.90 fps)

## Summary for Pond DMH13: DMH-13

[79] Warning: Submerged Pond CB6 Primary device # 1 OUTLET by 0.02'

[79] Warning: Submerged Pond CB8 Primary device # 1 OUTLET by 0.02'

[79] Warning: Submerged Pond CB9 Primary device # 1 OUTLET by 0.02'

Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af  
Outflow = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.06 cfs @ 12.09 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 408.03' @ 12.09 hrs

Flood Elev= 413.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	407.90'	<b>12.0" Round Culvert</b> L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 407.90' / 407.50' S= 0.0080 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.05 cfs @ 12.09 hrs HW=408.02' (Free Discharge)

↑1=Culvert (Inlet Controls 0.05 cfs @ 0.94 fps)

## Summary for Pond DMH14: DMH-14

[81] Warning: Exceeded Pond CB7 by 0.26' @ 12.10 hrs

[79] Warning: Submerged Pond DMH13 Primary device # 1 OUTLET by 0.19'

Inflow Area = 0.456 ac, 27.27% Impervious, Inflow Depth > 2.69" for 10-Year event  
Inflow = 1.49 cfs @ 12.09 hrs, Volume= 0.102 af  
Outflow = 1.49 cfs @ 12.09 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.49 cfs @ 12.09 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 407.69' @ 12.09 hrs

Flood Elev= 411.50'

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Device	Routing	Invert	Outlet Devices
#1	Primary	406.90'	<b>12.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 406.90' / 406.80' S= 0.0250 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.46 cfs @ 12.09 hrs HW=407.68' (Free Discharge)

↑1=Culvert (Barrel Controls 1.46 cfs @ 3.07 fps)

## Summary for Pond DMH15: DMH-15 (WQU 2)

[79] Warning: Submerged Pond DMH14 Primary device # 1 INLET by 0.62'

Inflow Area =	0.456 ac, 27.27% Impervious, Inflow Depth > 2.69" for 10-Year event
Inflow =	1.49 cfs @ 12.09 hrs, Volume= 0.102 af
Outflow =	1.49 cfs @ 12.09 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary =	1.49 cfs @ 12.09 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 407.52' @ 12.09 hrs

Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	406.70'	<b>12.0" Round Culvert</b> L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 406.70' / 406.50' S= 0.0048 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.46 cfs @ 12.09 hrs HW=407.51' (Free Discharge)

↑1=Culvert (Barrel Controls 1.46 cfs @ 2.92 fps)

## Summary for Pond DMH16: DMH-16 (WQU 3)

[79] Warning: Submerged Pond DMH7 Primary device # 1 INLET by 1.01'

Inflow Area =	1.456 ac, 26.50% Impervious, Inflow Depth > 2.65" for 10-Year event
Inflow =	3.07 cfs @ 12.30 hrs, Volume= 0.322 af
Outflow =	3.07 cfs @ 12.30 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min
Primary =	3.07 cfs @ 12.30 hrs, Volume= 0.322 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.91' @ 12.30 hrs

Flood Elev= 430.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.75'	<b>15.0" Round Culvert</b> L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.75' / 425.70' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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**Primary OutFlow** Max=3.07 cfs @ 12.30 hrs HW=426.91' (Free Discharge)

↑1=Culvert (Barrel Controls 3.07 cfs @ 3.35 fps)

**Summary for Pond DMH18: DMH-18 (WQU 5)**

[79] Warning: Submerged Pond OG2 Primary device # 1 INLET by 0.78'

Inflow Area = 0.602 ac, 97.45% Impervious, Inflow Depth > 4.30" for 10-Year event  
Inflow = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af  
Outflow = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 413.09' @ 12.09 hrs  
Flood Elev= 413.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	412.10'	<b>15.0" Round Culvert</b> L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 412.10' / 411.50' S= 0.0231 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=2.70 cfs @ 12.09 hrs HW=413.07' (Free Discharge)

↑1=Culvert (Inlet Controls 2.70 cfs @ 2.65 fps)

**Summary for Pond DMH1B: DMH-1B (WQU 1)**

[79] Warning: Submerged Pond OG1 Primary device # 1 INLET by 0.44'

Inflow Area = 0.690 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af  
Outflow = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 431.05' @ 12.09 hrs  
Flood Elev= 434.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	429.90'	<b>15.0" Round Culvert</b> L= 57.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 429.90' / 429.60' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=3.12 cfs @ 12.09 hrs HW=431.02' (Free Discharge)

↑1=Culvert (Barrel Controls 3.12 cfs @ 3.55 fps)

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## Summary for Pond DMH6: DMH-6

[79] Warning: Submerged Pond SUB4 Primary device # 3 INLET by 1.27'

Inflow Area = 4.297 ac, 75.10% Impervious, Inflow Depth > 0.62" for 10-Year event  
Inflow = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af  
Outflow = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 425.31' @ 12.47 hrs

Flood Elev= 427.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	424.50'	<b>30.0" Round Culvert</b> L= 128.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 424.50' / 420.00' S= 0.0352 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=2.98 cfs @ 12.47 hrs HW=425.26' (Free Discharge)

↑**1=Culvert** (Inlet Controls 2.98 cfs @ 2.35 fps)

## Summary for Pond DMH7: DMH-7

[79] Warning: Submerged Pond CB4 Primary device # 1 INLET by 0.48'

[81] Warning: Exceeded Pond CB5 by 0.41' @ 12.30 hrs

Inflow Area = 1.456 ac, 26.50% Impervious, Inflow Depth > 2.65" for 10-Year event  
Inflow = 3.07 cfs @ 12.30 hrs, Volume= 0.322 af  
Outflow = 3.07 cfs @ 12.30 hrs, Volume= 0.322 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.07 cfs @ 12.30 hrs, Volume= 0.322 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.98' @ 12.30 hrs

Flood Elev= 429.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.90'	<b>15.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.90' / 425.75' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=3.07 cfs @ 12.30 hrs HW=426.98' (Free Discharge)

↑**1=Culvert** (Barrel Controls 3.07 cfs @ 3.63 fps)

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## Summary for Pond DMH8: DMH-8

Inflow Area = 0.194 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 0.90 cfs @ 12.09 hrs, Volume= 0.071 af  
Outflow = 0.90 cfs @ 12.09 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.90 cfs @ 12.09 hrs, Volume= 0.071 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.27' @ 12.09 hrs

Flood Elev= 431.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.60'	<b>12.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.60' / 425.60' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.88 cfs @ 12.09 hrs HW=426.26' (Free Discharge)

↑1=Culvert (Barrel Controls 0.88 cfs @ 2.27 fps)

## Summary for Pond DMH9: DMH-9

Inflow Area = 1.858 ac, 42.42% Impervious, Inflow Depth > 3.04" for 10-Year event  
Inflow = 3.87 cfs @ 12.26 hrs, Volume= 0.470 af  
Outflow = 3.87 cfs @ 12.26 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.87 cfs @ 12.26 hrs, Volume= 0.470 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 421.78' @ 12.26 hrs

Flood Elev= 430.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	420.70'	<b>24.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 420.70' / 420.65' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=3.86 cfs @ 12.26 hrs HW=421.78' (Free Discharge)

↑1=Culvert (Barrel Controls 3.86 cfs @ 3.23 fps)

## Summary for Pond OG1: Oil/Grit Separator

Inflow Area = 0.690 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af  
Outflow = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.21 cfs @ 12.09 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 431.70' @ 12.09 hrs

Flood Elev= 436.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	430.60'	<b>15.0" Round Culvert</b> L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 430.60' / 430.00' S= 0.0055 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=3.13 cfs @ 12.09 hrs HW=431.68' (Free Discharge)

↑1=Culvert (Barrel Controls 3.13 cfs @ 3.73 fps)

### Summary for Pond OG2: Oil/Grit Separator

[57] Hint: Peaked at 413.29' (Flood elevation advised)

Inflow Area = 0.602 ac, 97.45% Impervious, Inflow Depth > 4.30" for 10-Year event  
Inflow = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af  
Outflow = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.78 cfs @ 12.09 hrs, Volume= 0.216 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 413.29' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	412.30'	<b>15.0" Round Culvert</b> L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 412.30' / 411.50' S= 0.0400 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=2.70 cfs @ 12.09 hrs HW=413.27' (Free Discharge)

↑1=Culvert (Inlet Controls 2.70 cfs @ 2.65 fps)

### Summary for Pond SUB1: Subsurface Infiltration System 1

[81] Warning: Exceeded Pond DMH1B by 0.50' @ 19.95 hrs

Inflow Area = 1.374 ac, 100.00% Impervious, Inflow Depth > 4.42" for 10-Year event  
Inflow = 6.39 cfs @ 12.09 hrs, Volume= 0.506 af  
Outflow = 4.89 cfs @ 12.16 hrs, Volume= 0.340 af, Atten= 23%, Lag= 4.4 min  
Discarded = 0.07 cfs @ 12.16 hrs, Volume= 0.067 af  
Primary = 4.82 cfs @ 12.16 hrs, Volume= 0.273 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 431.13' @ 12.16 hrs Surf.Area= 3,538 sf Storage= 8,919 cf

Flood Elev= 435.80' Surf.Area= 3,538 sf Storage= 15,250 cf

Plug-Flow detention time= 143.1 min calculated for 0.340 af (67% of inflow)

Center-of-Mass det. time= 66.3 min ( 787.4 - 721.1 )



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Volume	Invert	Avail.Storage	Storage Description
#1A	427.65'	5,804 cf	<b>55.75'W x 63.47'L x 6.75'H Field A</b> 23,883 cf Overall - 9,374 cf Embedded = 14,510 cf x 40.0% Voids
#2A	428.40'	9,374 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 84 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Rows of 14 Chambers Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
#3	430.00'	73 cf	<b>4.00'D x 5.80'H DMH-1A-Impervious</b>
		15,250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	427.65'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 426.00'
#2	Primary	430.00'	<b>24.0" Round Culvert</b> L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 430.00' / 429.70' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	430.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.07 cfs @ 12.16 hrs HW=431.13' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.07 cfs)

**Primary OutFlow** Max=4.76 cfs @ 12.16 hrs HW=431.13' (Free Discharge)

↑**2=Culvert** (Barrel Controls 4.76 cfs @ 3.78 fps)

↑**3=Sharp-Crested Rectangular Weir**(Passes 4.76 cfs of 6.28 cfs potential flow)

## Summary for Pond SUB2: Subsurface Infiltration System 2

[81] Warning: Exceeded Pond SUB1 by 0.23' @ 12.65 hrs

Inflow Area = 1.690 ac, 100.00% Impervious, Inflow Depth > 2.77" for 10-Year event  
 Inflow = 5.97 cfs @ 12.14 hrs, Volume= 0.390 af  
 Outflow = 1.45 cfs @ 12.62 hrs, Volume= 0.176 af, Atten= 76%, Lag= 28.8 min  
 Discarded = 0.06 cfs @ 12.62 hrs, Volume= 0.050 af  
 Primary = 1.39 cfs @ 12.62 hrs, Volume= 0.127 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 430.93' @ 12.62 hrs Surf.Area= 2,586 sf Storage= 9,600 cf  
 Flood Elev= 433.80' Surf.Area= 2,586 sf Storage= 11,082 cf

Plug-Flow detention time= 151.5 min calculated for 0.176 af (45% of inflow)

Center-of-Mass det. time= 72.3 min ( 843.5 - 771.2 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	425.55'	4,284 cf	<b>46.67'W x 55.42'L x 6.75'H Field A</b> 17,456 cf Overall - 6,746 cf Embedded = 10,710 cf x 40.0% Voids
#2A	426.30'	6,746 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 60 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 5 Rows of 12 Chambers Cap Storage= +35.7 cf x 2 x 5 rows = 357.0 cf
#3	429.70'	52 cf	<b>4.00'D x 4.10'H DMH-3</b> -Impervious
		11,082 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	425.55'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 423.50'
#2	Primary	429.70'	<b>24.0" Round Culvert</b> L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 429.70' / 427.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	430.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.06 cfs @ 12.62 hrs HW=430.92' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.06 cfs)

**Primary OutFlow** Max=1.32 cfs @ 12.62 hrs HW=430.92' (Free Discharge)

↑**2=Culvert** (Passes 1.32 cfs of 5.95 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir**(Weir Controls 1.32 cfs @ 1.53 fps)

## Summary for Pond SUB3: Subsurface Infiltration System 3

[79] Warning: Submerged Pond SUB2 Primary device # 2 OUTLET by 0.83'

Inflow Area =	2.245 ac, 100.00% Impervious, Inflow Depth > 1.77" for 10-Year event
Inflow =	2.58 cfs @ 12.09 hrs, Volume= 0.331 af
Outflow =	0.07 cfs @ 18.03 hrs, Volume= 0.063 af, Atten= 97%, Lag= 356.9 min
Discarded =	0.07 cfs @ 18.03 hrs, Volume= 0.063 af
Primary =	0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 428.63' @ 18.03 hrs Surf.Area= 3,538 sf Storage= 11,836 cf  
Flood Elev= 431.40' Surf.Area= 3,538 sf Storage= 15,220 cf

Plug-Flow detention time= 277.9 min calculated for 0.063 af (19% of inflow)

Center-of-Mass det. time= 60.5 min ( 828.2 - 767.7 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	423.95'	5,804 cf	<b>55.75'W x 63.47'L x 6.75'H Field A</b> 23,883 cf Overall - 9,374 cf Embedded = 14,510 cf x 40.0% Voids
#2A	424.70'	9,374 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 84 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Rows of 14 Chambers Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
#3	428.00'	43 cf	<b>4.00'D x 3.40'H DMH-5</b> -Impervious
		15,220 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	423.95'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 421.95'
#2	Primary	427.00'	<b>24.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 427.00' / 426.00' S= 0.0164 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	429.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.07 cfs @ 18.03 hrs HW=428.63' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.07 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=423.95' (Free Discharge)

↑**2=Culvert** ( Controls 0.00 cfs)

↑**3=Sharp-Crested Rectangular Weir**( Controls 0.00 cfs)

## Summary for Pond SUB4: Subsurface Infiltration System 4

[81] Warning: Exceeded Pond DMH8 by 0.18' @ 12.55 hrs

[81] Warning: Exceeded Pond DMH9 by 4.86' @ 19.95 hrs

Inflow Area = 2.052 ac, 47.86% Impervious, Inflow Depth > 3.17" for 10-Year event  
Inflow = 4.71 cfs @ 12.11 hrs, Volume= 0.541 af  
Outflow = 3.32 cfs @ 12.47 hrs, Volume= 0.285 af, Atten= 30%, Lag= 21.7 min  
Discarded = 0.07 cfs @ 12.45 hrs, Volume= 0.064 af  
Primary = 3.24 cfs @ 12.47 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 426.08' @ 12.45 hrs Surf.Area= 2,906 sf Storage= 11,582 cf  
Flood Elev= 432.40' Surf.Area= 2,906 sf Storage= 12,384 cf

Plug-Flow detention time= 166.4 min calculated for 0.285 af (53% of inflow)

Center-of-Mass det. time= 75.8 min ( 840.9 - 765.1 )

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Volume	Invert	Avail.Storage	Storage Description
#1A	419.95'	4,892 cf	<b>73.92'W x 39.32'L x 6.75'H Field A</b> 19,617 cf Overall - 7,387 cf Embedded = 12,230 cf x 40.0% Voids
#2A	420.70'	7,387 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 64 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 8 Rows of 8 Chambers Cap Storage= +35.7 cf x 2 x 8 rows = 571.2 cf
#3	424.00'	106 cf	<b>4.00'D x 8.40'H DMH-17-Impervious</b>
		12,384 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	419.95'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 417.95'
#2	Device 3	425.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Primary	424.00'	<b>24.0" Round Culvert</b> L= 83.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 424.00' / 423.00' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

**Discarded OutFlow** Max=0.07 cfs @ 12.45 hrs HW=426.08' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.07 cfs)

**Primary OutFlow** Max=2.96 cfs @ 12.47 hrs HW=426.08' (Free Discharge)

↑**3=Culvert** (Passes 2.96 cfs of 12.39 cfs potential flow)

↑**2=Sharp-Crested Rectangular Weir**(Weir Controls 2.96 cfs @ 2.01 fps)

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: SubcatchmentArea 1</b>	Runoff Area=79,040 sf 32.88% Impervious Runoff Depth>6.13" Tc=6.0 min CN=81 Runoff=13.19 cfs 0.927 af
<b>Subcatchment2S: SubcatchmentArea 2</b>	Runoff Area=14,438 sf 9.25% Impervious Runoff Depth>5.30" Tc=6.0 min CN=74 Runoff=2.14 cfs 0.146 af
<b>Subcatchment3S: SubcatchmentArea 3</b>	Runoff Area=19,398 sf 14.17% Impervious Runoff Depth>5.89" Tc=6.0 min CN=79 Runoff=3.14 cfs 0.219 af
<b>Subcatchment4S: SubcatchmentArea 4</b>	Runoff Area=60,923 sf 23.51% Impervious Runoff Depth>5.99" Flow Length=717' Tc=21.7 min CN=80 Runoff=6.69 cfs 0.698 af
<b>Subcatchment5S: SubcatchmentArea 5</b>	Runoff Area=5,871 sf 67.16% Impervious Runoff Depth>7.21" Tc=6.0 min CN=90 Runoff=1.09 cfs 0.081 af
<b>Subcatchment6S: SubcatchmentArea 6</b>	Runoff Area=5,153 sf 77.86% Impervious Runoff Depth>7.57" Tc=6.0 min CN=93 Runoff=0.98 cfs 0.075 af
<b>Subcatchment7S: SubcatchmentArea 7</b>	Runoff Area=12,508 sf 80.51% Impervious Runoff Depth>7.57" Tc=6.0 min CN=93 Runoff=2.37 cfs 0.181 af
<b>Subcatchment8S: Pool Area</b>	Runoff Area=8,443 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=1.64 cfs 0.132 af
<b>Subcatchment9S: SubcatchmentArea 9</b>	Runoff Area=2,484 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=0.48 cfs 0.039 af
<b>Subcatchment10S: SubcatchmentArea 10</b>	Runoff Area=18,790 sf 23.20% Impervious Runoff Depth>6.01" Tc=6.0 min CN=80 Runoff=3.09 cfs 0.216 af
<b>Subcatchment11S: SubcatchmentArea 11</b>	Runoff Area=5,635 sf 51.45% Impervious Runoff Depth>6.73" Tc=6.0 min CN=86 Runoff=1.00 cfs 0.073 af
<b>Subcatchment12S: SubcatchmentArea 12</b>	Runoff Area=526 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af
<b>Subcatchment13S: SubcatchmentArea 13</b>	Runoff Area=526 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=0.10 cfs 0.008 af
<b>SubcatchmentR1: ResidentialRoof Area</b>	Runoff Area=29,776 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=5.77 cfs 0.466 af
<b>SubcatchmentR2: ResidentialRoof Area</b>	Runoff Area=13,766 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=2.67 cfs 0.215 af
<b>SubcatchmentR3: ResidentialRoof Area</b>	Runoff Area=24,176 sf 100.00% Impervious Runoff Depth>8.17" Tc=6.0 min CN=98 Runoff=4.68 cfs 0.378 af

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**SubcatchmentR4: Residential Roof Area** Runoff Area=17,527 sf 100.00% Impervious Runoff Depth>8.17"  
Tc=6.0 min CN=98 Runoff=3.40 cfs 0.274 af

**SubcatchmentR5: Residential Garage** Runoff Area=30,070 sf 100.00% Impervious Runoff Depth>8.17"  
Tc=6.0 min CN=98 Runoff=5.83 cfs 0.470 af

**SubcatchmentR6: Retail Building Roof** Runoff Area=11,647 sf 100.00% Impervious Runoff Depth>8.17"  
Tc=6.0 min CN=98 Runoff=2.26 cfs 0.182 af

**SubcatchmentR7: Retail Garage Top Level** Runoff Area=26,205 sf 97.45% Impervious Runoff Depth>8.05"  
Tc=6.0 min CN=97 Runoff=5.06 cfs 0.404 af

**Reach POA1: POA-1** Inflow=37.73 cfs 3.421 af  
Outflow=37.73 cfs 3.421 af

**Reach POA2: POA-2** Inflow=2.14 cfs 0.146 af  
Outflow=2.14 cfs 0.146 af

**Reach POA3: POA-3** Inflow=3.14 cfs 0.219 af  
Outflow=3.14 cfs 0.219 af

**Pond BASIN1: Infiltration/Detention Basin** Peak Elev=409.74' Storage=6,249 cf Inflow=8.33 cfs 0.658 af  
Discarded=0.07 cfs 0.061 af Primary=6.45 cfs 0.495 af Secondary=0.00 cfs 0.000 af Outflow=6.52 cfs 0.556 af

**Pond CB1: CB-1** Peak Elev=429.30' Inflow=0.98 cfs 0.075 af  
12.0" Round Culvert n=0.013 L=4.0' S=0.0125 '/ Outflow=0.98 cfs 0.075 af

**Pond CB10: CB-10** Peak Elev=410.37' Inflow=3.09 cfs 0.216 af  
12.0" Round Culvert n=0.013 L=56.0' S=0.0143 '/ Outflow=3.09 cfs 0.216 af

**Pond CB2: CB-2** Peak Elev=431.62' Inflow=1.09 cfs 0.081 af  
12.0" Round Culvert n=0.013 L=97.0' S=0.0247 '/ Outflow=1.09 cfs 0.081 af

**Pond CB3: CB-3** Peak Elev=424.13' Inflow=2.37 cfs 0.181 af  
12.0" Round Culvert n=0.013 L=8.0' S=0.0275 '/ Outflow=2.37 cfs 0.181 af

**Pond CB4: CB-4** Peak Elev=429.18' Inflow=6.69 cfs 0.698 af  
15.0" Round Culvert n=0.013 L=4.0' S=0.0500 '/ Outflow=6.69 cfs 0.698 af

**Pond CB5: CB-5** Peak Elev=426.79' Inflow=0.48 cfs 0.039 af  
12.0" Round Culvert n=0.013 L=21.0' S=0.0190 '/ Outflow=0.48 cfs 0.039 af

**Pond CB6: CB-6** Peak Elev=408.67' Inflow=0.10 cfs 0.008 af  
12.0" Round Culvert n=0.013 L=37.0' S=0.0135 '/ Outflow=0.10 cfs 0.008 af

**Pond CB7: CB-7** Peak Elev=407.47' Inflow=0.10 cfs 0.008 af  
12.0" Round Culvert n=0.013 L=7.0' S=0.0429 '/ Outflow=0.10 cfs 0.008 af

**Pond CB8: CB-8** Peak Elev=0.00'  
12.0" Round Culvert n=0.013 L=61.0' S=0.0211 '/ Primary=0.00 cfs 0.000 af

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<b>Pond CB9: CB-9</b>	Peak Elev=0.00'
12.0" Round Culvert n=0.013 L=54.0' S=0.0269 '/'	Primary=0.00 cfs 0.000 af
<b>Pond DMH10: DMH-10</b>	Peak Elev=428.06' Inflow=21.34 cfs 1.429 af
30.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/'	Outflow=21.34 cfs 1.429 af
<b>Pond DMH11: DMH-11</b>	Peak Elev=427.47' Inflow=2.07 cfs 0.156 af
12.0" Round Culvert n=0.013 L=187.0' S=0.0187 '/'	Outflow=2.07 cfs 0.156 af
<b>Pond DMH12: DMH-12 (WQU 4)</b>	Peak Elev=423.70' Inflow=4.44 cfs 0.337 af
12.0" Round Culvert n=0.013 L=13.0' S=0.1154 '/'	Outflow=4.44 cfs 0.337 af
<b>Pond DMH13: DMH-13</b>	Peak Elev=408.07' Inflow=0.10 cfs 0.008 af
12.0" Round Culvert n=0.013 L=50.0' S=0.0080 '/'	Outflow=0.10 cfs 0.008 af
<b>Pond DMH14: DMH-14</b>	Peak Elev=408.61' Inflow=3.29 cfs 0.233 af
12.0" Round Culvert n=0.013 L=4.0' S=0.0250 '/'	Outflow=3.29 cfs 0.233 af
<b>Pond DMH15: DMH-15 (WQU 2)</b>	Peak Elev=408.41' Inflow=3.29 cfs 0.233 af
12.0" Round Culvert n=0.013 L=42.0' S=0.0048 '/'	Outflow=3.29 cfs 0.233 af
<b>Pond DMH16: DMH-16 (WQU 3)</b>	Peak Elev=428.55' Inflow=6.89 cfs 0.737 af
15.0" Round Culvert n=0.013 L=3.0' S=0.0167 '/'	Outflow=6.89 cfs 0.737 af
<b>Pond DMH18: DMH-18 (WQU 5)</b>	Peak Elev=413.90' Inflow=5.06 cfs 0.404 af
15.0" Round Culvert n=0.013 L=26.0' S=0.0231 '/'	Outflow=5.06 cfs 0.404 af
<b>Pond DMH1B: DMH-1B (WQU 1)</b>	Peak Elev=432.08' Inflow=5.83 cfs 0.470 af
15.0" Round Culvert n=0.013 L=57.0' S=0.0053 '/'	Outflow=5.83 cfs 0.470 af
<b>Pond DMH6: DMH-6</b>	Peak Elev=427.06' Inflow=21.34 cfs 1.429 af
30.0" Round Culvert n=0.013 L=128.0' S=0.0352 '/'	Outflow=21.34 cfs 1.429 af
<b>Pond DMH7: DMH-7</b>	Peak Elev=428.70' Inflow=6.89 cfs 0.737 af
15.0" Round Culvert n=0.013 L=8.0' S=0.0187 '/'	Outflow=6.89 cfs 0.737 af
<b>Pond DMH8: DMH-8</b>	Peak Elev=426.55' Inflow=1.64 cfs 0.132 af
12.0" Round Culvert n=0.013 L=5.0' S=0.0000 '/'	Outflow=1.64 cfs 0.132 af
<b>Pond DMH9: DMH-9</b>	Peak Elev=422.40' Inflow=8.36 cfs 1.011 af
24.0" Round Culvert n=0.013 L=5.0' S=0.0100 '/'	Outflow=8.36 cfs 1.011 af
<b>Pond OG1: Oil/Grit Separator</b>	Peak Elev=432.81' Inflow=5.83 cfs 0.470 af
15.0" Round Culvert n=0.013 L=110.0' S=0.0055 '/'	Outflow=5.83 cfs 0.470 af
<b>Pond OG2: Oil/Grit Separator</b>	Peak Elev=414.10' Inflow=5.06 cfs 0.404 af
15.0" Round Culvert n=0.013 L=20.0' S=0.0400 '/'	Outflow=5.06 cfs 0.404 af
<b>Pond SUB1: Subsurface Infiltration</b>	Peak Elev=431.71' Storage=10,395 cf Inflow=11.60 cfs 0.936 af
	Discarded=0.08 cfs 0.077 af Primary=9.36 cfs 0.692 af Outflow=9.43 cfs 0.769 af

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**Pond SUB2: Subsurface Infiltration** Peak Elev=431.65' Storage=10,378 cf Inflow=11.55 cfs 0.907 af  
Discarded=0.06 cfs 0.056 af Primary=11.46 cfs 0.637 af Outflow=11.52 cfs 0.693 af

**Pond SUB3: Subsurface Infiltration** Peak Elev=430.69' Storage=15,203 cf Inflow=15.44 cfs 1.015 af  
Discarded=0.10 cfs 0.082 af Primary=12.31 cfs 0.616 af Outflow=12.41 cfs 0.698 af

**Pond SUB4: Subsurface Infiltration System** Peak Elev=426.52' Storage=12,104 cf Inflow=9.58 cfs 1.143 af  
Discarded=0.08 cfs 0.073 af Primary=9.36 cfs 0.813 af Outflow=9.44 cfs 0.886 af

**Total Runoff Area = 8.882 ac Runoff Volume = 5.192 af Average Runoff Depth = 7.02"**  
**39.48% Pervious = 3.507 ac 60.52% Impervious = 5.375 ac**



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## Summary for Subcatchment 1S: Subcatchment Area 1

Runoff = 13.19 cfs @ 12.09 hrs, Volume= 0.927 af, Depth> 6.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
31,457	74	>75% Grass cover, Good, HSG C
25,991	98	Water Surface, HSG C
21,592	70	Woods, Good, HSG C
79,040	81	Weighted Average
53,049		67.12% Pervious Area
25,991		32.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Min.

## Summary for Subcatchment 2S: Subcatchment Area 2

Runoff = 2.14 cfs @ 12.09 hrs, Volume= 0.146 af, Depth> 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
5,689	74	>75% Grass cover, Good, HSG C
7,413	70	Woods, Good, HSG C
* 1,336	98	Paved
14,438	74	Weighted Average
13,102		90.75% Pervious Area
1,336		9.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 3S: Subcatchment Area 3

Runoff = 3.14 cfs @ 12.09 hrs, Volume= 0.219 af, Depth> 5.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

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Area (sf)	CN	Description
9,357	74	>75% Grass cover, Good, HSG C
* 2,748	98	Paved
7,293	77	Woods, Good, HSG D
19,398	79	Weighted Average
16,650		85.83% Pervious Area
2,748		14.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

## Summary for Subcatchment 4S: Subcatchment Area 4

Runoff = 6.69 cfs @ 12.29 hrs, Volume= 0.698 af, Depth> 5.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
46,603	74	>75% Grass cover, Good, HSG C
* 14,320	98	Paved
60,923	80	Weighted Average
46,603		76.49% Pervious Area
14,320		23.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	50	0.0100	0.11		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 3.26"
13.8	580	0.0100	0.70		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
0.5	87	0.0200	2.87		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
21.7	717	Total			

## Summary for Subcatchment 5S: Subcatchment Area 5

Runoff = 1.09 cfs @ 12.09 hrs, Volume= 0.081 af, Depth> 7.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
* 3,943	98	Paved
1,928	74	>75% Grass cover, Good, HSG C
5,871	90	Weighted Average
1,928		32.84% Pervious Area
3,943		67.16% Impervious Area

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 6S: Subcatchment Area 6**

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.075 af, Depth> 7.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	4,012	98	Paved
	1,141	74	>75% Grass cover, Good, HSG C
	5,153	93	Weighted Average
	1,141		22.14% Pervious Area
	4,012		77.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 7S: Subcatchment Area 7**

Runoff = 2.37 cfs @ 12.09 hrs, Volume= 0.181 af, Depth> 7.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	10,070	98	Paved
	2,438	74	>75% Grass cover, Good, HSG C
	12,508	93	Weighted Average
	2,438		19.49% Pervious Area
	10,070		80.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 8S: Pool Area**

Runoff = 1.64 cfs @ 12.09 hrs, Volume= 0.132 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

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	Area (sf)	CN	Description
*	8,443	98	Paved
	8,443		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 9S: Subcatchment Area 9

Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.039 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	2,484	98	Paved
	2,484		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6

## Summary for Subcatchment 10S: Subcatchment Area 10

Runoff = 3.09 cfs @ 12.09 hrs, Volume= 0.216 af, Depth> 6.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	4,359	98	Paved
	14,431	74	>75% Grass cover, Good, HSG C
	18,790	80	Weighted Average
	14,431		76.80% Pervious Area
	4,359		23.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment 11S: Subcatchment Area 11

Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.073 af, Depth> 6.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

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Area (sf)	CN	Description
2,899	98	Water Surface, HSG C
2,736	74	>75% Grass cover, Good, HSG C
5,635	86	Weighted Average
2,736		48.55% Pervious Area
2,899		51.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 mins</b>

**Summary for Subcatchment 12S: Subcatchment Area 12**

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
* 526	98	Paved
526		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc=6mins</b>

**Summary for Subcatchment 13S: Subcatchment Area 13**

Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
* 526	98	Paved
526		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry, Tc = 6 min</b>

**Summary for Subcatchment R1: Residential Roof Area 1**

Runoff = 5.77 cfs @ 12.09 hrs, Volume= 0.466 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

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Area (sf)	CN	Description
* 29,776	98	Building
29,776		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R2: Residential Roof Area 2

Runoff = 2.67 cfs @ 12.09 hrs, Volume= 0.215 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
* 13,766	98	Building
13,766		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R3: Residential Roof Area 3

Runoff = 4.68 cfs @ 12.09 hrs, Volume= 0.378 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

Area (sf)	CN	Description
* 24,176	98	Building
24,176		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R4: Residential Roof Area 4

Runoff = 3.40 cfs @ 12.09 hrs, Volume= 0.274 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

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	Area (sf)	CN	Description
*	17,527	98	Building
	17,527		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R5: Residential Garage

Runoff = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	30,070	98	Paved
	30,070		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc = 6 mins

## Summary for Subcatchment R6: Retail Building Roof

Runoff = 2.26 cfs @ 12.09 hrs, Volume= 0.182 af, Depth> 8.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

	Area (sf)	CN	Description
*	11,647	98	Building
	11,647		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Subcatchment R7: Retail Garage Top Level

Runoff = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af, Depth> 8.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-Year Rainfall=8.80"

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Area (sf)	CN	Description
* 25,537	98	Paved
668	74	>75% Grass cover, Good, HSG C
26,205	97	Weighted Average
668		2.55% Pervious Area
25,537		97.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry, Tc=6mins

## Summary for Reach POA1: POA-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.105 ac, 65.16% Impervious, Inflow Depth > 5.06" for 100-Year event  
 Inflow = 37.73 cfs @ 12.22 hrs, Volume= 3.421 af  
 Outflow = 37.73 cfs @ 12.22 hrs, Volume= 3.421 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Reach POA2: POA-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.331 ac, 9.25% Impervious, Inflow Depth > 5.30" for 100-Year event  
 Inflow = 2.14 cfs @ 12.09 hrs, Volume= 0.146 af  
 Outflow = 2.14 cfs @ 12.09 hrs, Volume= 0.146 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Reach POA3: POA-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.445 ac, 14.17% Impervious, Inflow Depth > 5.89" for 100-Year event  
 Inflow = 3.14 cfs @ 12.09 hrs, Volume= 0.219 af  
 Outflow = 3.14 cfs @ 12.09 hrs, Volume= 0.219 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

## Summary for Pond BASIN1: Infiltration/Detention Basin

Inflow Area = 0.998 ac, 92.17% Impervious, Inflow Depth > 7.91" for 100-Year event  
 Inflow = 8.33 cfs @ 12.09 hrs, Volume= 0.658 af  
 Outflow = 6.52 cfs @ 12.15 hrs, Volume= 0.556 af, Atten= 22%, Lag= 4.0 min  
 Discarded = 0.07 cfs @ 12.15 hrs, Volume= 0.061 af  
 Primary = 6.45 cfs @ 12.15 hrs, Volume= 0.495 af  
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af



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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 409.74' @ 12.15 hrs Surf.Area= 2,722 sf Storage= 6,249 cf

Plug-Flow detention time= 100.9 min calculated for 0.556 af (84% of inflow)  
Center-of-Mass det. time= 52.2 min ( 773.1 - 720.9 )

Volume	Invert	Avail.Storage	Storage Description			
#1	406.00'	10,237 cf	<b>Custom Stage Data (Irregular)</b> Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
406.00	807	112.0	0	0	807	
407.00	1,209	139.0	1,001	1,001	1,361	
408.00	1,698	169.0	1,447	2,448	2,112	
409.00	2,260	195.2	1,972	4,420	2,893	
410.00	2,899	221.0	2,573	6,993	3,772	
411.00	3,602	242.0	3,244	10,237	4,580	

Device	Routing	Invert	Outlet Devices
#1	Discarded	406.00'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 405.50'
#2	Secondary	410.75'	<b>15.0' long x 8.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#3	Primary	405.00'	<b>15.0" Round Culvert</b> L= 60.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 405.00' / 401.00' S= 0.0667 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#4	Device 3	409.00'	<b>15.0" x 15.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Discarded OutFlow** Max=0.07 cfs @ 12.15 hrs HW=409.73' (Free Discharge)

↑1=Exfiltration ( Controls 0.07 cfs)

**Primary OutFlow** Max=6.43 cfs @ 12.15 hrs HW=409.73' (Free Discharge)

↑3=Culvert (Passes 6.43 cfs of 10.57 cfs potential flow)

↑4=Orifice/Grate (Orifice Controls 6.43 cfs @ 4.12 fps)

**Secondary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=406.00' (Free Discharge)

↑2=Broad-Crested Rectangular Weir( Controls 0.00 cfs)

**Summary for Pond CB1: CB-1**

Inflow Area = 0.118 ac, 77.86% Impervious, Inflow Depth > 7.57" for 100-Year event  
Inflow = 0.98 cfs @ 12.09 hrs, Volume= 0.075 af  
Outflow = 0.98 cfs @ 12.09 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.98 cfs @ 12.09 hrs, Volume= 0.075 af

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 429.30' @ 12.09 hrs

Flood Elev= 431.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	428.65'	<b>12.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 428.65' / 428.60' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.95 cfs @ 12.09 hrs HW=429.29' (Free Discharge)

↑1=Culvert (Barrel Controls 0.95 cfs @ 2.57 fps)

## Summary for Pond CB10: CB-10

Inflow Area = 0.431 ac, 23.20% Impervious, Inflow Depth > 6.01" for 100-Year event  
Inflow = 3.09 cfs @ 12.09 hrs, Volume= 0.216 af  
Outflow = 3.09 cfs @ 12.09 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.09 cfs @ 12.09 hrs, Volume= 0.216 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 410.37' @ 12.09 hrs

Flood Elev= 411.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	408.80'	<b>12.0" Round Culvert</b> L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.80' / 408.00' S= 0.0143 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.02 cfs @ 12.09 hrs HW=410.32' (Free Discharge)

↑1=Culvert (Inlet Controls 3.02 cfs @ 3.84 fps)

## Summary for Pond CB2: CB-2

Inflow Area = 0.135 ac, 67.16% Impervious, Inflow Depth > 7.21" for 100-Year event  
Inflow = 1.09 cfs @ 12.09 hrs, Volume= 0.081 af  
Outflow = 1.09 cfs @ 12.09 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.09 cfs @ 12.09 hrs, Volume= 0.081 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 431.62' @ 12.09 hrs

Flood Elev= 434.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	431.00'	<b>12.0" Round Culvert</b> L= 97.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 431.00' / 428.60' S= 0.0247 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

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**Primary OutFlow** Max=1.06 cfs @ 12.09 hrs HW=431.61' (Free Discharge)

↑1=Culvert (Inlet Controls 1.06 cfs @ 2.10 fps)

## Summary for Pond CB3: CB-3

Inflow Area = 0.287 ac, 80.51% Impervious, Inflow Depth > 7.57" for 100-Year event  
Inflow = 2.37 cfs @ 12.09 hrs, Volume= 0.181 af  
Outflow = 2.37 cfs @ 12.09 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.37 cfs @ 12.09 hrs, Volume= 0.181 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 424.13' @ 12.09 hrs

Flood Elev= 426.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	423.00'	<b>12.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 423.00' / 422.78' S= 0.0275 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.31 cfs @ 12.09 hrs HW=424.10' (Free Discharge)

↑1=Culvert (Inlet Controls 2.31 cfs @ 2.94 fps)

## Summary for Pond CB4: CB-4

Inflow Area = 1.399 ac, 23.51% Impervious, Inflow Depth > 5.99" for 100-Year event  
Inflow = 6.69 cfs @ 12.29 hrs, Volume= 0.698 af  
Outflow = 6.69 cfs @ 12.29 hrs, Volume= 0.698 af, Atten= 0%, Lag= 0.0 min  
Primary = 6.69 cfs @ 12.29 hrs, Volume= 0.698 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 429.18' @ 12.29 hrs

Flood Elev= 429.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.50'	<b>15.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.50' / 426.30' S= 0.0500 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=6.66 cfs @ 12.29 hrs HW=429.17' (Free Discharge)

↑1=Culvert (Inlet Controls 6.66 cfs @ 5.43 fps)

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## Summary for Pond CB5: CB-5

Inflow Area = 0.057 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
 Inflow = 0.48 cfs @ 12.09 hrs, Volume= 0.039 af  
 Outflow = 0.48 cfs @ 12.09 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.48 cfs @ 12.09 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 426.79' @ 12.09 hrs  
 Flood Elev= 429.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.40'	<b>12.0" Round Culvert</b> L= 21.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.40' / 426.00' S= 0.0190 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.47 cfs @ 12.09 hrs HW=426.79' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 0.47 cfs @ 1.67 fps)

## Summary for Pond CB6: CB-6

Redundant CB - Covered by upper parking deck, minimal flow from parking area outside of covered area

Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
 Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af  
 Outflow = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min  
 Primary = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 408.67' @ 12.09 hrs  
 Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	408.50'	<b>12.0" Round Culvert</b> L= 37.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 408.50' / 408.00' S= 0.0135 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.10 cfs @ 12.09 hrs HW=408.67' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 0.10 cfs @ 1.11 fps)

## Summary for Pond CB7: CB-7

Redundant CB - Covered by upper parking deck, minimal flow from parking area outside of covered area

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Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af  
Outflow = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 407.47' @ 12.09 hrs  
Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	407.30'	<b>12.0" Round Culvert</b> L= 7.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 407.30' / 407.00' S= 0.0429 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.10 cfs @ 12.09 hrs HW=407.47' (Free Discharge)  
↑1=Culvert (Inlet Controls 0.10 cfs @ 1.11 fps)

## Summary for Pond CB8: CB-8

Redundant CB - Covered by upper parking deck, no flow anticipated

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	409.29'	<b>12.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 409.29' / 408.00' S= 0.0211 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

## Summary for Pond CB9: CB-9

Redundant CB - Covered by upper parking deck, no flow anticipated

[43] Hint: Has no inflow (Outflow=Zero)

Device	Routing	Invert	Outlet Devices
#1	Primary	409.45'	<b>12.0" Round Culvert</b> L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 409.45' / 408.00' S= 0.0269 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=0.00' (Free Discharge)  
↑1=Culvert ( Controls 0.00 cfs)

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### Summary for Pond DMH10: DMH-10

[58] Hint: Peaked 0.56' above defined flood level

[81] Warning: Exceeded Pond DMH6 by 1.00' @ 19.20 hrs

Inflow Area = 4.297 ac, 75.10% Impervious, Inflow Depth > 3.99" for 100-Year event  
Inflow = 21.34 cfs @ 12.25 hrs, Volume= 1.429 af  
Outflow = 21.34 cfs @ 12.25 hrs, Volume= 1.429 af, Atten= 0%, Lag= 0.0 min  
Primary = 21.34 cfs @ 12.25 hrs, Volume= 1.429 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 428.06' @ 12.25 hrs

Flood Elev= 427.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.50'	<b>30.0" Round Culvert</b> L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.50' / 424.50' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=21.21 cfs @ 12.25 hrs HW=428.04' (Free Discharge)

↑1=Culvert (Inlet Controls 21.21 cfs @ 4.32 fps)

### Summary for Pond DMH11: DMH-11

Inflow Area = 0.253 ac, 72.16% Impervious, Inflow Depth > 7.38" for 100-Year event  
Inflow = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af  
Outflow = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min  
Primary = 2.07 cfs @ 12.09 hrs, Volume= 0.156 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 427.47' @ 12.09 hrs

Flood Elev= 431.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	426.50'	<b>12.0" Round Culvert</b> L= 187.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 426.50' / 423.00' S= 0.0187 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=2.02 cfs @ 12.09 hrs HW=427.45' (Free Discharge)

↑1=Culvert (Inlet Controls 2.02 cfs @ 2.62 fps)

### Summary for Pond DMH12: DMH-12 (WQU 4)

[79] Warning: Submerged Pond CB3 Primary device # 1 INLET by 0.67'

[79] Warning: Submerged Pond DMH11 Primary device # 1 OUTLET by 0.67'

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Inflow Area = 0.540 ac, 76.60% Impervious, Inflow Depth > 7.48" for 100-Year event  
Inflow = 4.44 cfs @ 12.09 hrs, Volume= 0.337 af  
Outflow = 4.44 cfs @ 12.09 hrs, Volume= 0.337 af, Atten= 0%, Lag= 0.0 min  
Primary = 4.44 cfs @ 12.09 hrs, Volume= 0.337 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 423.70' @ 12.09 hrs  
Flood Elev= 426.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	421.00'	<b>12.0" Round Culvert</b> L= 13.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 421.00' / 419.50' S= 0.1154 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=4.32 cfs @ 12.09 hrs HW=423.60' (Free Discharge)  
←1=Culvert (Inlet Controls 4.32 cfs @ 5.50 fps)

## Summary for Pond DMH13: DMH-13

[79] Warning: Submerged Pond CB6 Primary device # 1 OUTLET by 0.07'  
[79] Warning: Submerged Pond CB8 Primary device # 1 OUTLET by 0.07'  
[79] Warning: Submerged Pond CB9 Primary device # 1 OUTLET by 0.07'

Inflow Area = 0.012 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af  
Outflow = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min  
Primary = 0.10 cfs @ 12.09 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 408.07' @ 12.09 hrs  
Flood Elev= 413.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	407.90'	<b>12.0" Round Culvert</b> L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 407.90' / 407.50' S= 0.0080 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.10 cfs @ 12.09 hrs HW=408.07' (Free Discharge)  
←1=Culvert (Inlet Controls 0.10 cfs @ 1.11 fps)

## Summary for Pond DMH14: DMH-14

[79] Warning: Submerged Pond CB10 Primary device # 1 OUTLET by 0.60'  
[81] Warning: Exceeded Pond CB7 by 1.13' @ 12.10 hrs  
[81] Warning: Exceeded Pond DMH13 by 0.53' @ 12.10 hrs

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Inflow Area = 0.456 ac, 27.27% Impervious, Inflow Depth > 6.13" for 100-Year event  
Inflow = 3.29 cfs @ 12.09 hrs, Volume= 0.233 af  
Outflow = 3.29 cfs @ 12.09 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.29 cfs @ 12.09 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 408.61' @ 12.09 hrs  
Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	406.90'	<b>12.0" Round Culvert</b> L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 406.90' / 406.80' S= 0.0250 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.22 cfs @ 12.09 hrs HW=408.56' (Free Discharge)  
↑1=Culvert (Inlet Controls 3.22 cfs @ 4.10 fps)

## Summary for Pond DMH15: DMH-15 (WQU 2)

[79] Warning: Submerged Pond DMH14 Primary device # 1 INLET by 1.50'

Inflow Area = 0.456 ac, 27.27% Impervious, Inflow Depth > 6.13" for 100-Year event  
Inflow = 3.29 cfs @ 12.09 hrs, Volume= 0.233 af  
Outflow = 3.29 cfs @ 12.09 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min  
Primary = 3.29 cfs @ 12.09 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 408.41' @ 12.09 hrs  
Flood Elev= 411.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	406.70'	<b>12.0" Round Culvert</b> L= 42.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 406.70' / 406.50' S= 0.0048 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.22 cfs @ 12.09 hrs HW=408.36' (Free Discharge)  
↑1=Culvert (Inlet Controls 3.22 cfs @ 4.10 fps)

## Summary for Pond DMH16: DMH-16 (WQU 3)

[79] Warning: Submerged Pond DMH7 Primary device # 1 INLET by 2.65'

Inflow Area = 1.456 ac, 26.50% Impervious, Inflow Depth > 6.07" for 100-Year event  
Inflow = 6.89 cfs @ 12.29 hrs, Volume= 0.737 af  
Outflow = 6.89 cfs @ 12.29 hrs, Volume= 0.737 af, Atten= 0%, Lag= 0.0 min  
Primary = 6.89 cfs @ 12.29 hrs, Volume= 0.737 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs



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Peak Elev= 428.55' @ 12.29 hrs

Flood Elev= 430.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.75'	<b>15.0" Round Culvert</b> L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.75' / 425.70' S= 0.0167 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=6.85 cfs @ 12.29 hrs HW=428.53' (Free Discharge)

↑**1=Culvert** (Inlet Controls 6.85 cfs @ 5.59 fps)

## Summary for Pond DMH18: DMH-18 (WQU 5)

[58] Hint: Peaked 0.20' above defined flood level

[79] Warning: Submerged Pond OG2 Primary device # 1 INLET by 1.58'

Inflow Area = 0.602 ac, 97.45% Impervious, Inflow Depth > 8.05" for 100-Year event  
Inflow = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af  
Outflow = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af, Atten= 0%, Lag= 0.0 min  
Primary = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 413.90' @ 12.09 hrs

Flood Elev= 413.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	412.10'	<b>15.0" Round Culvert</b> L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 412.10' / 411.50' S= 0.0231 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=4.93 cfs @ 12.09 hrs HW=413.84' (Free Discharge)

↑**1=Culvert** (Inlet Controls 4.93 cfs @ 4.02 fps)

## Summary for Pond DMH1B: DMH-1B (WQU 1)

[79] Warning: Submerged Pond OG1 Primary device # 1 INLET by 1.45'

Inflow Area = 0.690 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
Inflow = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af  
Outflow = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.0 min  
Primary = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 432.08' @ 12.09 hrs

Flood Elev= 434.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	429.90'	<b>15.0" Round Culvert</b>

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L= 57.0' CPP, projecting, no headwall, Ke= 0.900  
Inlet / Outlet Invert= 429.90' / 429.60' S= 0.0053 '/' Cc= 0.900  
n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=5.67 cfs @ 12.09 hrs HW=432.00' (Free Discharge)

↑1=Culvert (Inlet Controls 5.67 cfs @ 4.62 fps)

## Summary for Pond DMH6: DMH-6

[79] Warning: Submerged Pond SUB3 Primary device # 2 INLET by 0.06'

[81] Warning: Exceeded Pond SUB4 by 0.56' @ 12.25 hrs

Inflow Area = 4.297 ac, 75.10% Impervious, Inflow Depth > 3.99" for 100-Year event  
Inflow = 21.34 cfs @ 12.25 hrs, Volume= 1.429 af  
Outflow = 21.34 cfs @ 12.25 hrs, Volume= 1.429 af, Atten= 0%, Lag= 0.0 min  
Primary = 21.34 cfs @ 12.25 hrs, Volume= 1.429 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 427.06' @ 12.25 hrs

Flood Elev= 427.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	424.50'	<b>30.0" Round Culvert</b> L= 128.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 424.50' / 420.00' S= 0.0352 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=21.21 cfs @ 12.25 hrs HW=427.04' (Free Discharge)

↑1=Culvert (Inlet Controls 21.21 cfs @ 4.32 fps)

## Summary for Pond DMH7: DMH-7

[79] Warning: Submerged Pond CB4 Primary device # 1 INLET by 2.20'

[81] Warning: Exceeded Pond CB5 by 2.06' @ 12.30 hrs

Inflow Area = 1.456 ac, 26.50% Impervious, Inflow Depth > 6.07" for 100-Year event  
Inflow = 6.89 cfs @ 12.29 hrs, Volume= 0.737 af  
Outflow = 6.89 cfs @ 12.29 hrs, Volume= 0.737 af, Atten= 0%, Lag= 0.0 min  
Primary = 6.89 cfs @ 12.29 hrs, Volume= 0.737 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 428.70' @ 12.29 hrs

Flood Elev= 429.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.90'	<b>15.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.90' / 425.75' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

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**Primary OutFlow** Max=6.85 cfs @ 12.29 hrs HW=428.68' (Free Discharge)

↑1=Culvert (Inlet Controls 6.85 cfs @ 5.59 fps)

## Summary for Pond DMH8: DMH-8

Inflow Area = 0.194 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
Inflow = 1.64 cfs @ 12.09 hrs, Volume= 0.132 af  
Outflow = 1.64 cfs @ 12.09 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min  
Primary = 1.64 cfs @ 12.09 hrs, Volume= 0.132 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 426.55' @ 12.09 hrs

Flood Elev= 431.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	425.60'	<b>12.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 425.60' / 425.60' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.59 cfs @ 12.09 hrs HW=426.53' (Free Discharge)

↑1=Culvert (Barrel Controls 1.59 cfs @ 2.72 fps)

## Summary for Pond DMH9: DMH-9

Inflow Area = 1.858 ac, 42.42% Impervious, Inflow Depth > 6.53" for 100-Year event  
Inflow = 8.36 cfs @ 12.26 hrs, Volume= 1.011 af  
Outflow = 8.36 cfs @ 12.26 hrs, Volume= 1.011 af, Atten= 0%, Lag= 0.0 min  
Primary = 8.36 cfs @ 12.26 hrs, Volume= 1.011 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 422.40' @ 12.26 hrs

Flood Elev= 430.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	420.70'	<b>24.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 420.70' / 420.65' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=8.34 cfs @ 12.26 hrs HW=422.40' (Free Discharge)

↑1=Culvert (Barrel Controls 8.34 cfs @ 3.96 fps)

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## Summary for Pond OG1: Oil/Grit Separator

Inflow Area = 0.690 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
 Inflow = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af  
 Outflow = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.0 min  
 Primary = 5.83 cfs @ 12.09 hrs, Volume= 0.470 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 432.81' @ 12.09 hrs  
 Flood Elev= 436.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	430.60'	<b>15.0" Round Culvert</b> L= 110.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 430.60' / 430.00' S= 0.0055 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=5.67 cfs @ 12.09 hrs HW=432.73' (Free Discharge)  
 ↑1=Culvert (Barrel Controls 5.67 cfs @ 4.62 fps)

## Summary for Pond OG2: Oil/Grit Separator

[57] Hint: Peaked at 414.10' (Flood elevation advised)

Inflow Area = 0.602 ac, 97.45% Impervious, Inflow Depth > 8.05" for 100-Year event  
 Inflow = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af  
 Outflow = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af, Atten= 0%, Lag= 0.0 min  
 Primary = 5.06 cfs @ 12.09 hrs, Volume= 0.404 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 414.10' @ 12.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	412.30'	<b>15.0" Round Culvert</b> L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 412.30' / 411.50' S= 0.0400 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

**Primary OutFlow** Max=4.93 cfs @ 12.09 hrs HW=414.04' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 4.93 cfs @ 4.02 fps)

## Summary for Pond SUB1: Subsurface Infiltration System 1

[81] Warning: Exceeded Pond DMH1B by 0.55' @ 12.25 hrs

Inflow Area = 1.374 ac, 100.00% Impervious, Inflow Depth > 8.17" for 100-Year event  
 Inflow = 11.60 cfs @ 12.09 hrs, Volume= 0.936 af  
 Outflow = 9.43 cfs @ 12.15 hrs, Volume= 0.769 af, Atten= 19%, Lag= 3.8 min  
 Discarded = 0.08 cfs @ 12.15 hrs, Volume= 0.077 af  
 Primary = 9.36 cfs @ 12.15 hrs, Volume= 0.692 af

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Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 431.71' @ 12.15 hrs Surf.Area= 3,538 sf Storage= 10,395 cf  
Flood Elev= 435.80' Surf.Area= 3,538 sf Storage= 15,250 cf

Plug-Flow detention time= 112.6 min calculated for 0.767 af (82% of inflow)  
Center-of-Mass det. time= 58.9 min ( 771.8 - 712.9 )

Volume	Invert	Avail.Storage	Storage Description
#1A	427.65'	5,804 cf	<b>55.75'W x 63.47'L x 6.75'H Field A</b> 23,883 cf Overall - 9,374 cf Embedded = 14,510 cf x 40.0% Voids
#2A	428.40'	9,374 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 84 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Rows of 14 Chambers Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
#3	430.00'	73 cf	<b>4.00'D x 5.80'H DMH-1A</b> -Impervious
		15,250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	427.65'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 426.00'
#2	Primary	430.00'	<b>24.0" Round Culvert</b> L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 430.00' / 429.70' S= 0.0060 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	430.50'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.08 cfs @ 12.15 hrs HW=431.71' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.08 cfs)

**Primary OutFlow** Max=9.35 cfs @ 12.15 hrs HW=431.71' (Free Discharge)

↑**2=Culvert** (Barrel Controls 9.35 cfs @ 4.40 fps)

↑**3=Sharp-Crested Rectangular Weir**(Passes 9.35 cfs of 16.32 cfs potential flow)

## Summary for Pond SUB2: Subsurface Infiltration System 2

[81] Warning: Exceeded Pond SUB1 by 0.26' @ 12.60 hrs

Inflow Area = 1.690 ac, 100.00% Impervious, Inflow Depth > 6.44" for 100-Year event  
Inflow = 11.55 cfs @ 12.13 hrs, Volume= 0.907 af  
Outflow = 11.52 cfs @ 12.15 hrs, Volume= 0.693 af, Atten= 0%, Lag= 1.3 min  
Discarded = 0.06 cfs @ 12.15 hrs, Volume= 0.056 af  
Primary = 11.46 cfs @ 12.15 hrs, Volume= 0.637 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

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Peak Elev= 431.65' @ 12.15 hrs Surf.Area= 2,586 sf Storage= 10,378 cf

Flood Elev= 433.80' Surf.Area= 2,586 sf Storage= 11,082 cf

Plug-Flow detention time= 84.4 min calculated for 0.691 af (76% of inflow)

Center-of-Mass det. time= 32.8 min ( 794.6 - 761.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	425.55'	4,284 cf	<b>46.67'W x 55.42'L x 6.75'H Field A</b> 17,456 cf Overall - 6,746 cf Embedded = 10,710 cf x 40.0% Voids
#2A	426.30'	6,746 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 60 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 5 Rows of 12 Chambers Cap Storage= +35.7 cf x 2 x 5 rows = 357.0 cf
#3	429.70'	52 cf	<b>4.00'D x 4.10'H DMH-3-Impervious</b>
		11,082 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	425.55'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 423.50'
#2	Primary	429.70'	<b>24.0" Round Culvert</b> L= 125.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 429.70' / 427.80' S= 0.0152 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	430.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.06 cfs @ 12.15 hrs HW=431.64' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.06 cfs)

**Primary OutFlow** Max=11.44 cfs @ 12.15 hrs HW=431.64' (Free Discharge)

↑**2=Culvert** (Passes 11.44 cfs of 11.68 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir**(Weir Controls 11.44 cfs @ 3.18 fps)

## Summary for Pond SUB3: Subsurface Infiltration System 3

[79] Warning: Submerged Pond SUB2 Primary device # 2 INLET by 0.99'

Inflow Area = 2.245 ac, 100.00% Impervious, Inflow Depth > 5.42" for 100-Year event  
Inflow = 15.44 cfs @ 12.12 hrs, Volume= 1.015 af  
Outflow = 12.41 cfs @ 12.25 hrs, Volume= 0.698 af, Atten= 20%, Lag= 7.8 min  
Discarded = 0.10 cfs @ 12.25 hrs, Volume= 0.082 af  
Primary = 12.31 cfs @ 12.25 hrs, Volume= 0.616 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 430.69' @ 12.25 hrs Surf.Area= 3,538 sf Storage= 15,203 cf

Flood Elev= 431.40' Surf.Area= 3,538 sf Storage= 15,220 cf

Plug-Flow detention time= 106.5 min calculated for 0.696 af (69% of inflow)

# Grafton Woods - Proposed-REV 04-2021

Prepared by Tighe & Bond

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Proposed Conditions REVISED

Type III 24-hr 100-Year Rainfall=8.80"

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Center-of-Mass det. time= 44.2 min ( 807.9 - 763.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	423.95'	5,804 cf	<b>55.75'W x 63.47'L x 6.75'H Field A</b> 23,883 cf Overall - 9,374 cf Embedded = 14,510 cf x 40.0% Voids
#2A	424.70'	9,374 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 84 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 6 Rows of 14 Chambers Cap Storage= +35.7 cf x 2 x 6 rows = 428.4 cf
#3	428.00'	43 cf	<b>4.00'D x 3.40'H DMH-5</b> -Impervious
		15,220 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	423.95'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 421.95'
#2	Primary	427.00'	<b>24.0" Round Culvert</b> L= 61.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 427.00' / 426.00' S= 0.0164 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	429.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Discarded OutFlow** Max=0.10 cfs @ 12.25 hrs HW=430.68' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.10 cfs)

**Primary OutFlow** Max=12.14 cfs @ 12.25 hrs HW=430.68' (Free Discharge)

↑**2=Culvert** (Passes 12.14 cfs of 19.56 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir**(Weir Controls 12.14 cfs @ 3.24 fps)

## Summary for Pond SUB4: Subsurface Infiltration System 4

[81] Warning: Exceeded Pond DMH8 by 0.35' @ 12.35 hrs

[81] Warning: Exceeded Pond DMH9 by 4.82' @ 19.95 hrs

Inflow Area = 2.052 ac, 47.86% Impervious, Inflow Depth > 6.68" for 100-Year event  
Inflow = 9.58 cfs @ 12.12 hrs, Volume= 1.143 af  
Outflow = 9.44 cfs @ 12.16 hrs, Volume= 0.886 af, Atten= 1%, Lag= 2.2 min  
Discarded = 0.08 cfs @ 12.16 hrs, Volume= 0.073 af  
Primary = 9.36 cfs @ 12.16 hrs, Volume= 0.813 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 426.52' @ 12.16 hrs Surf.Area= 2,906 sf Storage= 12,104 cf  
Flood Elev= 432.40' Surf.Area= 2,906 sf Storage= 12,384 cf

Plug-Flow detention time= 105.7 min calculated for 0.884 af (77% of inflow)

Center-of-Mass det. time= 47.5 min ( 801.8 - 754.3 )

# Grafton Woods - Proposed-REV 04-2021

Prepared by Tighe & Bond

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Proposed Conditions REVISED  
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Volume	Invert	Avail.Storage	Storage Description
#1A	419.95'	4,892 cf	<b>73.92'W x 39.32'L x 6.75'H Field A</b> 19,617 cf Overall - 7,387 cf Embedded = 12,230 cf x 40.0% Voids
#2A	420.70'	7,387 cf	<b>ADS_StormTech MC-4500 +Cap</b> x 64 Inside #1 Effective Size= 90.4"W x 60.0"H => 26.46 sf x 4.03'L = 106.5 cf Overall Size= 100.0"W x 60.0"H x 4.33'L with 0.31' Overlap 8 Rows of 8 Chambers Cap Storage= +35.7 cf x 2 x 8 rows = 571.2 cf
#3	424.00'	106 cf	<b>4.00'D x 8.40'H DMH-17-Impervious</b>
		12,384 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	419.95'	<b>0.270 in/hr Exfiltration over Surface area</b> Conductivity to Groundwater Elevation = 417.95'
#2	Device 3	425.70'	<b>4.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#3	Primary	424.00'	<b>24.0" Round Culvert</b> L= 83.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 424.00' / 423.00' S= 0.0120 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

**Discarded OutFlow** Max=0.08 cfs @ 12.16 hrs HW=426.52' (Free Discharge)

↑**1=Exfiltration** ( Controls 0.08 cfs)

**Primary OutFlow** Max=9.32 cfs @ 12.16 hrs HW=426.52' (Free Discharge)

↑**3=Culvert** (Passes 9.32 cfs of 14.73 cfs potential flow)

↑**2=Sharp-Crested Rectangular Weir**(Weir Controls 9.32 cfs @ 2.96 fps)