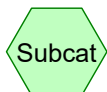


PEAK RATE SUMMARY FOR DESIGN POINT #2 (DP2)

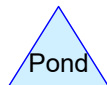
	Peak Flow Discharge in cubic feet per second (cfs)											
	2-year			10-year			25-year			100-year		
	Exist	Prop.	Delta	Exist	Prop.	Delta	Exist	Prop.	Delta	Exist	Prop.	Delta
DP2	0.00	0.00	0.00	1.50	1.40	-0.10	6.00	3.90	-2.10	20.90	19.90	-1.00



Subcat



Reach



Pond



Link

Routing Diagram for W211141-PR-Bldg2.3_rev5_2023-01-24

Prepared by Bohler Engineering, Printed 1/24/2023

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Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.772	39	>75% Grass cover, Good, HSG A (P2d, P2e, P2X, P3c)
0.560	61	>75% Grass cover, Good, HSG B (P2e, P2X, P3c)
0.347	80	>75% Grass cover, Good, HSG D (P3c)
0.677	30	Meadow, non-grazed, HSG A (P2e)
6.452	98	Paved parking, HSG A (P2d, P2e, P3c)
7.727	98	Roofs, HSG A (P2d, P3c)
21.535	79	TOTAL AREA

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
20.628	HSG A	P2d, P2e, P2X, P3c
0.560	HSG B	P2e, P2X, P3c
0.000	HSG C	
0.347	HSG D	P3c
0.000	Other	
21.535		TOTAL AREA

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.772	0.560	0.000	0.347	0.000	6.679	>75% Grass cover, Good	P2d, P2e, P2X, P3c
0.677	0.000	0.000	0.000	0.000	0.677	Meadow, non-grazed	P2e
6.452	0.000	0.000	0.000	0.000	6.452	Paved parking	P2d, P2e, P3c
7.727	0.000	0.000	0.000	0.000	7.727	Roofs	P2d, P3c
20.628	0.560	0.000	0.347	0.000	21.535	TOTAL AREA	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	379.00	378.40	59.6	0.0101	0.013	18.0	0.0	0.0
2	2P	375.00	374.10	75.3	0.0120	0.013	12.0	0.0	0.0
3	UG2d	371.75	369.61	142.0	0.0151	0.013	24.0	0.0	0.0

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P2d: E Side of Bldg 2	Runoff Area=7.312 ac 88.40% Impervious Runoff Depth=2.32" Tc=6.0 min CN=91 Runoff=19.1 cfs 1.416 af
Subcatchment P2e: S Side of Bldg 2	Runoff Area=4.769 ac 37.95% Impervious Runoff Depth=0.47" Tc=6.0 min CN=61 Runoff=1.7 cfs 0.188 af
Subcatchment P2X: Overland	Runoff Area=1.485 ac 0.00% Impervious Runoff Depth=0.03" Tc=6.0 min CN=43 Runoff=0.0 cfs 0.003 af
Subcatchment P3c: E Side of Bldg 3	Runoff Area=7.969 ac 74.10% Impervious Runoff Depth=1.82" Tc=6.0 min CN=85 Runoff=16.6 cfs 1.207 af
Reach DP2: Onsite Eastern Boundary / Brook	Inflow=0.0 cfs 0.004 af Outflow=0.0 cfs 0.004 af
Pond 1P: UG3C GEOSTORAGE ALT	Peak Elev=381.22' Storage=22,394 cf Inflow=16.6 cfs 1.207 af Discarded=1.2 cfs 1.208 af Primary=0.0 cfs 0.000 af Outflow=1.2 cfs 1.208 af
Pond 2P: UG2e GEOSTORAGE ALT	Peak Elev=375.46' Storage=1,502 cf Inflow=1.7 cfs 0.188 af Discarded=0.4 cfs 0.188 af Primary=0.0 cfs 0.000 af Outflow=0.4 cfs 0.188 af
Pond UG2d: UG Basin - Bldg2 East	Peak Elev=372.87' Storage=27,138 cf Inflow=19.1 cfs 1.416 af Discarded=1.2 cfs 1.417 af Primary=0.0 cfs 0.000 af Outflow=1.2 cfs 1.417 af

Total Runoff Area = 21.535 ac Runoff Volume = 2.814 af Average Runoff Depth = 1.57"
34.16% Pervious = 7.356 ac 65.84% Impervious = 14.179 ac

Summary for Subcatchment P2d: E Side of Bldg 2

Runoff = 19.1 cfs @ 12.09 hrs, Volume= 1.416 af, Depth= 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.27"

Area (ac)	CN	Description
3.890	98	Roofs, HSG A
2.574	98	Paved parking, HSG A
0.848	39	>75% Grass cover, Good, HSG A
7.312	91	Weighted Average
0.848		11.60% Pervious Area
6.464		88.40% Impervious Area

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

Summary for Subcatchment P2e: S Side of Bldg 2

Runoff = 1.7 cfs @ 12.12 hrs, Volume= 0.188 af, Depth= 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.27"

Area (ac)	CN	Description
2.039	39	>75% Grass cover, Good, HSG A
1.810	98	Paved parking, HSG A
0.677	30	Meadow, non-grazed, HSG A
0.243	61	>75% Grass cover, Good, HSG B
4.769	61	Weighted Average
2.959		62.05% Pervious Area
1.810		37.95% Impervious Area

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

Summary for Subcatchment P2X: Overland

Runoff = 0.0 cfs @ 16.87 hrs, Volume= 0.003 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.27"

Area (ac)	CN	Description
1.183	39	>75% Grass cover, Good, HSG A
0.302	61	>75% Grass cover, Good, HSG B
1.485	43	Weighted Average
1.485		100.00% Pervious Area

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

Summary for Subcatchment P3c: E Side of Bldg 3

Runoff = 16.6 cfs @ 12.09 hrs, Volume= 1.207 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.27"

Area (ac)	CN	Description
1.702	39	>75% Grass cover, Good, HSG A
0.347	80	>75% Grass cover, Good, HSG D
2.068	98	Paved parking, HSG A
3.837	98	Roofs, HSG A
0.015	61	>75% Grass cover, Good, HSG B
7.969	85	Weighted Average
2.064		25.90% Pervious Area
5.905		74.10% Impervious Area

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

Summary for Reach DP2: Onsite Eastern Boundary / Brook

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

Inflow Area = 21.535 ac, 65.84% Impervious, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.0 cfs @ 13.85 hrs, Volume= 0.004 af
Outflow = 0.0 cfs @ 13.85 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: UG3C GEOSTORAGE ALT

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=14)

Inflow Area = 7.969 ac, 74.10% Impervious, Inflow Depth = 1.82" for 2-YR event
Inflow = 16.6 cfs @ 12.09 hrs, Volume= 1.207 af
Outflow = 1.2 cfs @ 13.75 hrs, Volume= 1.208 af, Atten= 93%, Lag= 99.4 min
Discarded = 1.2 cfs @ 13.75 hrs, Volume= 1.208 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 381.22' @ 13.75 hrs Surf.Area= 21,726 sf Storage= 22,394 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 173.0 min (998.2 - 825.1)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	66,540 cf	90.25'W x 225.03'L x 8.25'H Field A Z=1.0 189,756 cf Overall - 23,405 cf Embedded = 166,351 cf x 40.0% Voids
#2	379.00'	23,405 cf	13.33'W x 212.83'L x 8.25'H Prismaoid Inside #1
		89,946 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	379.00'	18.0" Round Culvert L= 59.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 379.00' / 378.40' S= 0.0101 ' S= 0.0101 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	386.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.2 cfs @ 13.75 hrs HW=381.22' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 1.2 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=379.00' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Controls 0.0 cfs)

↑**3=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 2P: UG2e GEOSTORAGE ALT

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=85)

Inflow Area =	4.769 ac, 37.95% Impervious, Inflow Depth = 0.47" for 2-YR event
Inflow =	1.7 cfs @ 12.12 hrs, Volume= 0.188 af
Outflow =	0.4 cfs @ 12.82 hrs, Volume= 0.188 af, Atten= 75%, Lag= 41.7 min
Discarded =	0.4 cfs @ 12.82 hrs, Volume= 0.188 af
Primary =	0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 375.46' @ 12.82 hrs Surf.Area= 7,506 sf Storage= 1,502 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 24.1 min (936.2 - 912.0)

Volume	Invert	Avail.Storage	Storage Description
#1	375.00'	24,900 cf	57.50'W x 127.56'L x 7.50'H Field A Z=1.0 65,982 cf Overall - 3,732 cf Embedded = 62,250 cf x 40.0% Voids
#2	375.00'	3,732 cf	13.33'W x 37.33'L x 7.50'H Prismaoid Inside #1
		28,632 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	375.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	375.00'	12.0" Round Culvert L= 75.3' Ke= 0.900 Inlet / Outlet Invert= 375.00' / 374.10' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	379.30'	5.0" Vert. Orifice/Grate C= 0.600
#4	Device 2	381.90'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.4 cfs @ 12.82 hrs HW=375.46' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.4 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=375.00' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.0 cfs)

↑ **3=Orifice/Grate** (Controls 0.0 cfs)

↑ **4=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond UG2d: UG Basin - Bldg2 East

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=2)

Inflow Area =	7.312 ac, 88.40% Impervious, Inflow Depth = 2.32" for 2-YR event
Inflow =	19.1 cfs @ 12.09 hrs, Volume= 1.416 af
Outflow =	1.2 cfs @ 13.85 hrs, Volume= 1.417 af, Atten= 94%, Lag= 105.4 min
Discarded =	1.2 cfs @ 11.55 hrs, Volume= 1.417 af
Primary =	0.0 cfs @ 13.85 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 372.87' @ 13.85 hrs Surf.Area= 21,589 sf Storage= 27,138 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 199.4 min (1,001.0 - 801.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	371.00'	29,576 cf	65.75'W x 328.35'L x 5.50'H Field A 118,740 cf Overall - 44,799 cf Embedded = 73,941 cf x 40.0% Voids
#2A	371.75'	44,799 cf	ADS_StormTech MC-3500 d +Cap x 405 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 9 Rows of 45 Chambers Cap Storage= +14.9 cf x 2 x 9 rows = 268.2 cf
		74,375 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	371.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	371.75'	24.0" Round Culvert L= 142.0' Ke= 0.900 Inlet / Outlet Invert= 371.75' / 369.61' S= 0.0151 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	372.85'	12.0" W x 3.0" H Vert. Orifice/Grate C= 0.600
#4	Device 2	374.20'	12.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#5	Device 2	375.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.2 cfs @ 11.55 hrs HW=371.06' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.2 cfs)

Primary OutFlow Max=0.0 cfs @ 13.85 hrs HW=372.87' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 0.0 cfs of 5.1 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 0.0 cfs @ 0.43 fps)

↑ **4=Orifice/Grate** (Controls 0.0 cfs)

↑ **5=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P2d: E Side of Bldg 2	Runoff Area=7.312 ac 88.40% Impervious Runoff Depth=4.05" Tc=6.0 min CN=91 Runoff=32.5 cfs 2.468 af
Subcatchment P2e: S Side of Bldg 2	Runoff Area=4.769 ac 37.95% Impervious Runoff Depth=1.41" Tc=6.0 min CN=61 Runoff=7.1 cfs 0.561 af
Subcatchment P2X: Overland	Runoff Area=1.485 ac 0.00% Impervious Runoff Depth=0.37" Tc=6.0 min CN=43 Runoff=0.2 cfs 0.046 af
Subcatchment P3c: E Side of Bldg 3	Runoff Area=7.969 ac 74.10% Impervious Runoff Depth=3.43" Tc=6.0 min CN=85 Runoff=31.0 cfs 2.280 af
Reach DP2: Onsite Eastern Boundary / Brook	Inflow=1.4 cfs 0.590 af Outflow=1.4 cfs 0.590 af
Pond 1P: UG3C GEOSTORAGE ALT	Peak Elev=384.07' Storage=53,133 cf Inflow=31.0 cfs 2.280 af Discarded=1.3 cfs 2.282 af Primary=0.0 cfs 0.000 af Outflow=1.3 cfs 2.282 af
Pond 2P: UG2e GEOSTORAGE ALT	Peak Elev=378.21' Storage=11,147 cf Inflow=7.1 cfs 0.561 af Discarded=0.5 cfs 0.561 af Primary=0.0 cfs 0.000 af Outflow=0.5 cfs 0.561 af
Pond UG2d: UG Basin - Bldg2 East	Peak Elev=374.18' Storage=49,288 cf Inflow=32.5 cfs 2.468 af Discarded=1.2 cfs 1.926 af Primary=1.3 cfs 0.544 af Outflow=2.5 cfs 2.470 af

Total Runoff Area = 21.535 ac Runoff Volume = 5.355 af Average Runoff Depth = 2.98"
34.16% Pervious = 7.356 ac 65.84% Impervious = 14.179 ac

Summary for Subcatchment P2d: E Side of Bldg 2

Runoff = 32.5 cfs @ 12.09 hrs, Volume= 2.468 af, Depth= 4.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=5.07"

Area (ac)	CN	Description
3.890	98	Roofs, HSG A
2.574	98	Paved parking, HSG A
0.848	39	>75% Grass cover, Good, HSG A
7.312	91	Weighted Average
0.848		11.60% Pervious Area
6.464		88.40% Impervious Area

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

Summary for Subcatchment P2e: S Side of Bldg 2

Runoff = 7.1 cfs @ 12.10 hrs, Volume= 0.561 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=5.07"

Area (ac)	CN	Description
2.039	39	>75% Grass cover, Good, HSG A
1.810	98	Paved parking, HSG A
0.677	30	Meadow, non-grazed, HSG A
0.243	61	>75% Grass cover, Good, HSG B
4.769	61	Weighted Average
2.959		62.05% Pervious Area
1.810		37.95% Impervious Area

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

Summary for Subcatchment P2X: Overland

Runoff = 0.2 cfs @ 12.35 hrs, Volume= 0.046 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=5.07"

Area (ac)	CN	Description
1.183	39	>75% Grass cover, Good, HSG A
0.302	61	>75% Grass cover, Good, HSG B
1.485	43	Weighted Average
1.485		100.00% Pervious Area

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

Summary for Subcatchment P3c: E Side of Bldg 3

Runoff = 31.0 cfs @ 12.09 hrs, Volume= 2.280 af, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=5.07"

Area (ac)	CN	Description
1.702	39	>75% Grass cover, Good, HSG A
0.347	80	>75% Grass cover, Good, HSG D
2.068	98	Paved parking, HSG A
3.837	98	Roofs, HSG A
0.015	61	>75% Grass cover, Good, HSG B
7.969	85	Weighted Average
2.064		25.90% Pervious Area
5.905		74.10% Impervious Area

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

Summary for Reach DP2: Onsite Eastern Boundary / Brook

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

Inflow Area = 21.535 ac, 65.84% Impervious, Inflow Depth = 0.33" for 10-YR event
Inflow = 1.4 cfs @ 12.95 hrs, Volume= 0.590 af
Outflow = 1.4 cfs @ 12.95 hrs, Volume= 0.590 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: UG3C GEOSTORAGE ALT

Inflow Area = 7.969 ac, 74.10% Impervious, Inflow Depth = 3.43" for 10-YR event
Inflow = 31.0 cfs @ 12.09 hrs, Volume= 2.280 af
Outflow = 1.3 cfs @ 15.25 hrs, Volume= 2.282 af, Atten= 96%, Lag= 189.7 min
Discarded = 1.3 cfs @ 15.25 hrs, Volume= 2.282 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 384.07' @ 15.25 hrs Surf.Area= 23,609 sf Storage= 53,133 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 398.5 min (1,205.5 - 807.0)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	66,540 cf	90.25'W x 225.03'L x 8.25'H Field A Z=1.0 189,756 cf Overall - 23,405 cf Embedded = 166,351 cf x 40.0% Voids
#2	379.00'	23,405 cf	13.33'W x 212.83'L x 8.25'H Prismaoid Inside #1
		89,946 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	379.00'	18.0" Round Culvert L= 59.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 379.00' / 378.40' S= 0.0101 ' S= 0.0101 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	386.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.3 cfs @ 15.25 hrs HW=384.07' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=379.00' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.0 cfs)

↑ **3=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 2P: UG2e GEOSTORAGE ALT

Inflow Area =	4.769 ac, 37.95% Impervious, Inflow Depth = 1.41" for 10-YR event
Inflow =	7.1 cfs @ 12.10 hrs, Volume= 0.561 af
Outflow =	0.5 cfs @ 15.22 hrs, Volume= 0.561 af, Atten= 93%, Lag= 187.2 min
Discarded =	0.5 cfs @ 15.22 hrs, Volume= 0.561 af
Primary =	0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 378.21' @ 15.22 hrs Surf.Area= 8,563 sf Storage= 11,147 cf

Plug-Flow detention time= 261.1 min calculated for 0.561 af (100% of inflow)

Center-of-Mass det. time= 261.5 min (1,132.8 - 871.3)

Volume	Invert	Avail.Storage	Storage Description
#1	375.00'	24,900 cf	57.50'W x 127.56'L x 7.50'H Field A Z=1.0 65,982 cf Overall - 3,732 cf Embedded = 62,250 cf x 40.0% Voids
#2	375.00'	3,732 cf	13.33'W x 37.33'L x 7.50'H Prismaoid Inside #1
		28,632 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	375.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	375.00'	12.0" Round Culvert L= 75.3' Ke= 0.900 Inlet / Outlet Invert= 375.00' / 374.10' S= 0.0120 ' S= 0.0120 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#3 Device 2 379.30' **5.0" Vert. Orifice/Grate** C= 0.600
 #4 Device 2 381.90' **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.5 cfs @ 15.22 hrs HW=378.21' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.5 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=375.00' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Controls 0.0 cfs)

↑ **3=Orifice/Grate** (Controls 0.0 cfs)

↑ **4=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond UG2d: UG Basin - Bldg2 East

Inflow Area = 7.312 ac, 88.40% Impervious, Inflow Depth = 4.05" for 10-YR event
 Inflow = 32.5 cfs @ 12.09 hrs, Volume= 2.468 af
 Outflow = 2.5 cfs @ 13.19 hrs, Volume= 2.470 af, Atten= 92%, Lag= 66.1 min
 Discarded = 1.2 cfs @ 10.65 hrs, Volume= 1.926 af
 Primary = 1.3 cfs @ 13.19 hrs, Volume= 0.544 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 374.18' @ 13.19 hrs Surf.Area= 21,589 sf Storage= 49,288 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 238.9 min (1,025.3 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	371.00'	29,576 cf	65.75'W x 328.35'L x 5.50'H Field A 118,740 cf Overall - 44,799 cf Embedded = 73,941 cf x 40.0% Voids
#2A	371.75'	44,799 cf	ADS_StormTech MC-3500 d +Cap x 405 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 9 Rows of 45 Chambers Cap Storage= +14.9 cf x 2 x 9 rows = 268.2 cf
		74,375 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	371.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	371.75'	24.0" Round Culvert L= 142.0' Ke= 0.900 Inlet / Outlet Invert= 371.75' / 369.61' S= 0.0151 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	372.85'	12.0" W x 3.0" H Vert. Orifice/Grate C= 0.600
#4	Device 2	374.20'	12.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#5	Device 2	375.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.2 cfs @ 10.65 hrs HW=371.06' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.2 cfs)

Primary OutFlow Max=1.3 cfs @ 13.19 hrs HW=374.18' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 1.3 cfs of 14.3 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 1.3 cfs @ 5.28 fps)

↑ **4=Orifice/Grate** (Controls 0.0 cfs)

↑ **5=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P2d: E Side of Bldg 2	Runoff Area=7.312 ac 88.40% Impervious Runoff Depth=5.14" Tc=6.0 min CN=91 Runoff=40.7 cfs 3.134 af
Subcatchment P2e: S Side of Bldg 2	Runoff Area=4.769 ac 37.95% Impervious Runoff Depth=2.13" Tc=6.0 min CN=61 Runoff=11.3 cfs 0.848 af
Subcatchment P2X: Overland	Runoff Area=1.485 ac 0.00% Impervious Runoff Depth=0.75" Tc=6.0 min CN=43 Runoff=0.7 cfs 0.092 af
Subcatchment P3c: E Side of Bldg 3	Runoff Area=7.969 ac 74.10% Impervious Runoff Depth=4.48" Tc=6.0 min CN=85 Runoff=40.1 cfs 2.976 af
Reach DP2: Onsite Eastern Boundary / Brook	Inflow=3.9 cfs 1.214 af Outflow=3.9 cfs 1.214 af
Pond 1P: UG3C GEOSTORAGE ALT	Peak Elev=386.00' Storage=75,142 cf Inflow=40.1 cfs 2.976 af Discarded=1.4 cfs 2.979 af Primary=0.0 cfs 0.000 af Outflow=1.4 cfs 2.979 af
Pond 2P: UG2e GEOSTORAGE ALT	Peak Elev=379.83' Storage=17,415 cf Inflow=11.3 cfs 0.848 af Discarded=0.5 cfs 0.755 af Primary=0.4 cfs 0.093 af Outflow=0.9 cfs 0.849 af
Pond UG2d: UG Basin - Bldg2 East	Peak Elev=375.07' Storage=61,597 cf Inflow=40.7 cfs 3.134 af Discarded=1.2 cfs 2.107 af Primary=3.6 cfs 1.029 af Outflow=4.8 cfs 3.136 af

Total Runoff Area = 21.535 ac Runoff Volume = 7.051 af Average Runoff Depth = 3.93"
34.16% Pervious = 7.356 ac 65.84% Impervious = 14.179 ac

Summary for Subcatchment P2d: E Side of Bldg 2

Runoff = 40.7 cfs @ 12.09 hrs, Volume= 3.134 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=6.19"

Area (ac)	CN	Description
3.890	98	Roofs, HSG A
2.574	98	Paved parking, HSG A
0.848	39	>75% Grass cover, Good, HSG A
7.312	91	Weighted Average
0.848		11.60% Pervious Area
6.464		88.40% Impervious Area

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

Summary for Subcatchment P2e: S Side of Bldg 2

Runoff = 11.3 cfs @ 12.10 hrs, Volume= 0.848 af, Depth= 2.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=6.19"

Area (ac)	CN	Description
2.039	39	>75% Grass cover, Good, HSG A
1.810	98	Paved parking, HSG A
0.677	30	Meadow, non-grazed, HSG A
0.243	61	>75% Grass cover, Good, HSG B
4.769	61	Weighted Average
2.959		62.05% Pervious Area
1.810		37.95% Impervious Area

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

Summary for Subcatchment P2X: Overland

Runoff = 0.7 cfs @ 12.15 hrs, Volume= 0.092 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=6.19"

Area (ac)	CN	Description
1.183	39	>75% Grass cover, Good, HSG A
0.302	61	>75% Grass cover, Good, HSG B
1.485	43	Weighted Average
1.485		100.00% Pervious Area

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

Summary for Subcatchment P3c: E Side of Bldg 3

Runoff = 40.1 cfs @ 12.09 hrs, Volume= 2.976 af, Depth= 4.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=6.19"

Area (ac)	CN	Description
1.702	39	>75% Grass cover, Good, HSG A
0.347	80	>75% Grass cover, Good, HSG D
2.068	98	Paved parking, HSG A
3.837	98	Roofs, HSG A
0.015	61	>75% Grass cover, Good, HSG B
7.969	85	Weighted Average
2.064		25.90% Pervious Area
5.905		74.10% Impervious Area

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

Summary for Reach DP2: Onsite Eastern Boundary / Brook

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

Inflow Area = 21.535 ac, 65.84% Impervious, Inflow Depth = 0.68" for 25-YR event
Inflow = 3.9 cfs @ 12.94 hrs, Volume= 1.214 af
Outflow = 3.9 cfs @ 12.94 hrs, Volume= 1.214 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: UG3C GEOSTORAGE ALT

Inflow Area = 7.969 ac, 74.10% Impervious, Inflow Depth = 4.48" for 25-YR event
Inflow = 40.1 cfs @ 12.09 hrs, Volume= 2.976 af
Outflow = 1.4 cfs @ 15.75 hrs, Volume= 2.979 af, Atten= 97%, Lag= 219.6 min
Discarded = 1.4 cfs @ 15.75 hrs, Volume= 2.979 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 386.00' @ 15.75 hrs Surf.Area= 24,919 sf Storage= 75,142 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 534.7 min (1,334.2 - 799.5)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	66,540 cf	90.25'W x 225.03'L x 8.25'H Field A Z=1.0 189,756 cf Overall - 23,405 cf Embedded = 166,351 cf x 40.0% Voids
#2	379.00'	23,405 cf	13.33'W x 212.83'L x 8.25'H Prismaoid Inside #1
		89,946 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	379.00'	18.0" Round Culvert L= 59.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 379.00' / 378.40' S= 0.0101 ' S= 0.0101 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	386.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.4 cfs @ 15.75 hrs HW=386.00' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 1.4 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=379.00' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Controls 0.0 cfs)

↑**3=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 2P: UG2e GEOSTORAGE ALT

Inflow Area =	4.769 ac, 37.95% Impervious, Inflow Depth = 2.13" for 25-YR event
Inflow =	11.3 cfs @ 12.10 hrs, Volume= 0.848 af
Outflow =	0.9 cfs @ 14.07 hrs, Volume= 0.849 af, Atten= 92%, Lag= 118.4 min
Discarded =	0.5 cfs @ 14.07 hrs, Volume= 0.755 af
Primary =	0.4 cfs @ 14.07 hrs, Volume= 0.093 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 379.83' @ 14.07 hrs Surf.Area= 9,217 sf Storage= 17,415 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 332.0 min (1,190.3 - 858.3)

Volume	Invert	Avail.Storage	Storage Description
#1	375.00'	24,900 cf	57.50'W x 127.56'L x 7.50'H Field A Z=1.0 65,982 cf Overall - 3,732 cf Embedded = 62,250 cf x 40.0% Voids
#2	375.00'	3,732 cf	13.33'W x 37.33'L x 7.50'H Prismaoid Inside #1
		28,632 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	375.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	375.00'	12.0" Round Culvert L= 75.3' Ke= 0.900 Inlet / Outlet Invert= 375.00' / 374.10' S= 0.0120 ' S= 0.0120 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#3 Device 2 379.30' **5.0" Vert. Orifice/Grate** C= 0.600
 #4 Device 2 381.90' **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.5 cfs @ 14.07 hrs HW=379.83' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.5 cfs)

Primary OutFlow Max=0.4 cfs @ 14.07 hrs HW=379.83' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 0.4 cfs of 6.2 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 0.4 cfs @ 2.75 fps)

↑ **4=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond UG2d: UG Basin - Bldg2 East

Inflow Area = 7.312 ac, 88.40% Impervious, Inflow Depth = 5.14" for 25-YR event
 Inflow = 40.7 cfs @ 12.09 hrs, Volume= 3.134 af
 Outflow = 4.8 cfs @ 12.71 hrs, Volume= 3.136 af, Atten= 88%, Lag= 37.1 min
 Discarded = 1.2 cfs @ 9.95 hrs, Volume= 2.107 af
 Primary = 3.6 cfs @ 12.71 hrs, Volume= 1.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 375.07' @ 12.71 hrs Surf.Area= 21,589 sf Storage= 61,597 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 230.3 min (1,010.4 - 780.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	371.00'	29,576 cf	65.75'W x 328.35'L x 5.50'H Field A 118,740 cf Overall - 44,799 cf Embedded = 73,941 cf x 40.0% Voids
#2A	371.75'	44,799 cf	ADS_StormTech MC-3500 d +Cap x 405 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 9 Rows of 45 Chambers Cap Storage= +14.9 cf x 2 x 9 rows = 268.2 cf
		74,375 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	371.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	371.75'	24.0" Round Culvert L= 142.0' Ke= 0.900 Inlet / Outlet Invert= 371.75' / 369.61' S= 0.0151 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	372.85'	12.0" W x 3.0" H Vert. Orifice/Grate C= 0.600
#4	Device 2	374.20'	12.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#5	Device 2	375.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.2 cfs @ 9.95 hrs HW=371.06' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 1.2 cfs)

Primary OutFlow Max=3.6 cfs @ 12.71 hrs HW=375.07' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 3.6 cfs of 18.2 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 1.7 cfs @ 6.97 fps)

↑ **4=Orifice/Grate** (Orifice Controls 1.9 cfs @ 3.77 fps)

↑ **5=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P2d: E Side of Bldg 2	Runoff Area=7.312 ac 88.40% Impervious Runoff Depth=6.85" Tc=6.0 min CN=91 Runoff=53.2 cfs 4.171 af
Subcatchment P2e: S Side of Bldg 2	Runoff Area=4.769 ac 37.95% Impervious Runoff Depth=3.38" Tc=6.0 min CN=61 Runoff=18.3 cfs 1.345 af
Subcatchment P2X: Overland	Runoff Area=1.485 ac 0.00% Impervious Runoff Depth=1.50" Tc=6.0 min CN=43 Runoff=2.0 cfs 0.185 af
Subcatchment P3c: E Side of Bldg 3	Runoff Area=7.969 ac 74.10% Impervious Runoff Depth=6.14" Tc=6.0 min CN=85 Runoff=54.1 cfs 4.075 af
Reach DP2: Onsite Eastern Boundary / Brook	Inflow=19.9 cfs 3.239 af Outflow=19.9 cfs 3.239 af
Pond 1P: UG3C GEOSTORAGE ALT	Peak Elev=387.07' Storage=87,774 cf Inflow=54.1 cfs 4.075 af Discarded=1.4 cfs 3.364 af Primary=5.5 cfs 0.711 af Outflow=6.9 cfs 4.076 af
Pond 2P: UG2e GEOSTORAGE ALT	Peak Elev=381.97' Storage=26,324 cf Inflow=18.3 cfs 1.345 af Discarded=0.6 cfs 0.880 af Primary=1.3 cfs 0.465 af Outflow=1.9 cfs 1.346 af
Pond UG2d: UG Basin - Bldg2 East	Peak Elev=376.41' Storage=73,570 cf Inflow=53.2 cfs 4.171 af Discarded=1.2 cfs 2.295 af Primary=16.4 cfs 1.877 af Outflow=17.6 cfs 4.172 af

Total Runoff Area = 21.535 ac Runoff Volume = 9.776 af Average Runoff Depth = 5.45"
34.16% Pervious = 7.356 ac 65.84% Impervious = 14.179 ac

Summary for Subcatchment P2d: E Side of Bldg 2

Runoff = 53.2 cfs @ 12.09 hrs, Volume= 4.171 af, Depth= 6.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.92"

Area (ac)	CN	Description
3.890	98	Roofs, HSG A
2.574	98	Paved parking, HSG A
0.848	39	>75% Grass cover, Good, HSG A
7.312	91	Weighted Average
0.848		11.60% Pervious Area
6.464		88.40% Impervious Area

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

Summary for Subcatchment P2e: S Side of Bldg 2

Runoff = 18.3 cfs @ 12.10 hrs, Volume= 1.345 af, Depth= 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.92"

Area (ac)	CN	Description
2.039	39	>75% Grass cover, Good, HSG A
1.810	98	Paved parking, HSG A
0.677	30	Meadow, non-grazed, HSG A
0.243	61	>75% Grass cover, Good, HSG B
4.769	61	Weighted Average
2.959		62.05% Pervious Area
1.810		37.95% Impervious Area

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

Summary for Subcatchment P2X: Overland

Runoff = 2.0 cfs @ 12.11 hrs, Volume= 0.185 af, Depth= 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.92"

Area (ac)	CN	Description
1.183	39	>75% Grass cover, Good, HSG A
0.302	61	>75% Grass cover, Good, HSG B
1.485	43	Weighted Average
1.485		100.00% Pervious Area

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

Summary for Subcatchment P3c: E Side of Bldg 3

Runoff = 54.1 cfs @ 12.09 hrs, Volume= 4.075 af, Depth= 6.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=7.92"

Area (ac)	CN	Description
1.702	39	>75% Grass cover, Good, HSG A
0.347	80	>75% Grass cover, Good, HSG D
2.068	98	Paved parking, HSG A
3.837	98	Roofs, HSG A
0.015	61	>75% Grass cover, Good, HSG B
7.969	85	Weighted Average
2.064		25.90% Pervious Area
5.905		74.10% Impervious Area

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

Summary for Reach DP2: Onsite Eastern Boundary / Brook

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

Inflow Area = 21.535 ac, 65.84% Impervious, Inflow Depth = 1.80" for 100-YR event
Inflow = 19.9 cfs @ 12.48 hrs, Volume= 3.239 af
Outflow = 19.9 cfs @ 12.48 hrs, Volume= 3.239 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: UG3C GEOSTORAGE ALT

Inflow Area = 7.969 ac, 74.10% Impervious, Inflow Depth = 6.14" for 100-YR event
Inflow = 54.1 cfs @ 12.09 hrs, Volume= 4.075 af
Outflow = 6.9 cfs @ 12.67 hrs, Volume= 4.076 af, Atten= 87%, Lag= 34.7 min
Discarded = 1.4 cfs @ 12.67 hrs, Volume= 3.364 af
Primary = 5.5 cfs @ 12.67 hrs, Volume= 0.711 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 387.07' @ 12.67 hrs Surf.Area= 25,657 sf Storage= 87,774 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 486.6 min (1,277.4 - 790.8)

Volume	Invert	Avail.Storage	Storage Description
#1	379.00'	66,540 cf	90.25'W x 225.03'L x 8.25'H Field A Z=1.0 189,756 cf Overall - 23,405 cf Embedded = 166,351 cf x 40.0% Voids
#2	379.00'	23,405 cf	13.33'W x 212.83'L x 8.25'H Prismaoid Inside #1
		89,946 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	379.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	379.00'	18.0" Round Culvert L= 59.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 379.00' / 378.40' S= 0.0101 ' S= 0.0101 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	386.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.4 cfs @ 12.67 hrs HW=387.07' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 1.4 cfs)

Primary OutFlow Max=5.4 cfs @ 12.67 hrs HW=387.07' TW=0.00' (Dynamic Tailwater)

↑**2=Culvert** (Passes 5.4 cfs of 23.0 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 5.4 cfs @ 2.46 fps)

Summary for Pond 2P: UG2e GEOSTORAGE ALT

Inflow Area =	4.769 ac, 37.95% Impervious, Inflow Depth = 3.38" for 100-YR event
Inflow =	18.3 cfs @ 12.10 hrs, Volume= 1.345 af
Outflow =	1.9 cfs @ 13.12 hrs, Volume= 1.346 af, Atten= 90%, Lag= 61.5 min
Discarded =	0.6 cfs @ 13.12 hrs, Volume= 0.880 af
Primary =	1.3 cfs @ 13.12 hrs, Volume= 0.465 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 381.97' @ 13.12 hrs Surf.Area= 10,110 sf Storage= 26,324 cf

Plug-Flow detention time= 289.7 min calculated for 1.345 af (100% of inflow)

Center-of-Mass det. time= 290.2 min (1,134.6 - 844.5)

Volume	Invert	Avail.Storage	Storage Description
#1	375.00'	24,900 cf	57.50'W x 127.56'L x 7.50'H Field A Z=1.0 65,982 cf Overall - 3,732 cf Embedded = 62,250 cf x 40.0% Voids
#2	375.00'	3,732 cf	13.33'W x 37.33'L x 7.50'H Prismaoid Inside #1
		28,632 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	375.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	375.00'	12.0" Round Culvert L= 75.3' Ke= 0.900 Inlet / Outlet Invert= 375.00' / 374.10' S= 0.0120 ' S= 0.0120 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

#3 Device 2 379.30' **5.0" Vert. Orifice/Grate** C= 0.600
 #4 Device 2 381.90' **4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.6 cfs @ 13.12 hrs HW=381.97' (Free Discharge)

↑ **1=Exfiltration** (Exfiltration Controls 0.6 cfs)

Primary OutFlow Max=1.3 cfs @ 13.12 hrs HW=381.97' TW=0.00' (Dynamic Tailwater)

↑ **2=Culvert** (Passes 1.3 cfs of 7.6 cfs potential flow)

↑ **3=Orifice/Grate** (Orifice Controls 1.0 cfs @ 7.56 fps)

↑ **4=Sharp-Crested Rectangular Weir** (Weir Controls 0.3 cfs @ 0.89 fps)

Summary for Pond UG2d: UG Basin - Bldg2 East

Inflow Area = 7.312 ac, 88.40% Impervious, Inflow Depth = 6.85" for 100-YR event
 Inflow = 53.2 cfs @ 12.09 hrs, Volume= 4.171 af
 Outflow = 17.6 cfs @ 12.38 hrs, Volume= 4.172 af, Atten= 67%, Lag= 17.6 min
 Discarded = 1.2 cfs @ 9.10 hrs, Volume= 2.295 af
 Primary = 16.4 cfs @ 12.38 hrs, Volume= 1.877 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Peak Elev= 376.41' @ 12.38 hrs Surf.Area= 21,589 sf Storage= 73,570 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 201.9 min (974.7 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	371.00'	29,576 cf	65.75'W x 328.35'L x 5.50'H Field A 118,740 cf Overall - 44,799 cf Embedded = 73,941 cf x 40.0% Voids
#2A	371.75'	44,799 cf	ADS_StormTech MC-3500 d +Cap x 405 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 9 Rows of 45 Chambers Cap Storage= +14.9 cf x 2 x 9 rows = 268.2 cf
		74,375 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	371.00'	2.410 in/hr Exfiltration over Surface area
#2	Primary	371.75'	24.0" Round Culvert L= 142.0' Ke= 0.900 Inlet / Outlet Invert= 371.75' / 369.61' S= 0.0151 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#3	Device 2	372.85'	12.0" W x 3.0" H Vert. Orifice/Grate C= 0.600
#4	Device 2	374.20'	12.0" W x 6.0" H Vert. Orifice/Grate C= 0.600
#5	Device 2	375.50'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=1.2 cfs @ 9.10 hrs HW=371.06' (Free Discharge)

└─**1=Exfiltration** (Exfiltration Controls 1.2 cfs)

Primary OutFlow Max=16.3 cfs @ 12.38 hrs HW=376.40' TW=0.00' (Dynamic Tailwater)

└─**2=Culvert** (Passes 16.3 cfs of 22.8 cfs potential flow)

└─**3=Orifice/Grate** (Orifice Controls 2.2 cfs @ 8.91 fps)

└─**4=Orifice/Grate** (Orifice Controls 3.4 cfs @ 6.72 fps)

└─**5=Sharp-Crested Rectangular Weir** (Weir Controls 10.7 cfs @ 3.10 fps)