Drainage Computations – Moodus Food Stop – 416 East Haddam – Moodus Road
Date:12/3/25
Prepared by: Nemergut Consulting

Description:

The subject property is a 1.52 +/- acre parcel located at intersection for East Haddam – Moodus Road and Moodus Leesville Road. The site is currently an abandoned gas station & convenience store. The project area slopes gently up from East Haddam – Leesville Road to the south (in the area of proposed construction/improvements) and then slopes moderately up to the southern property line.

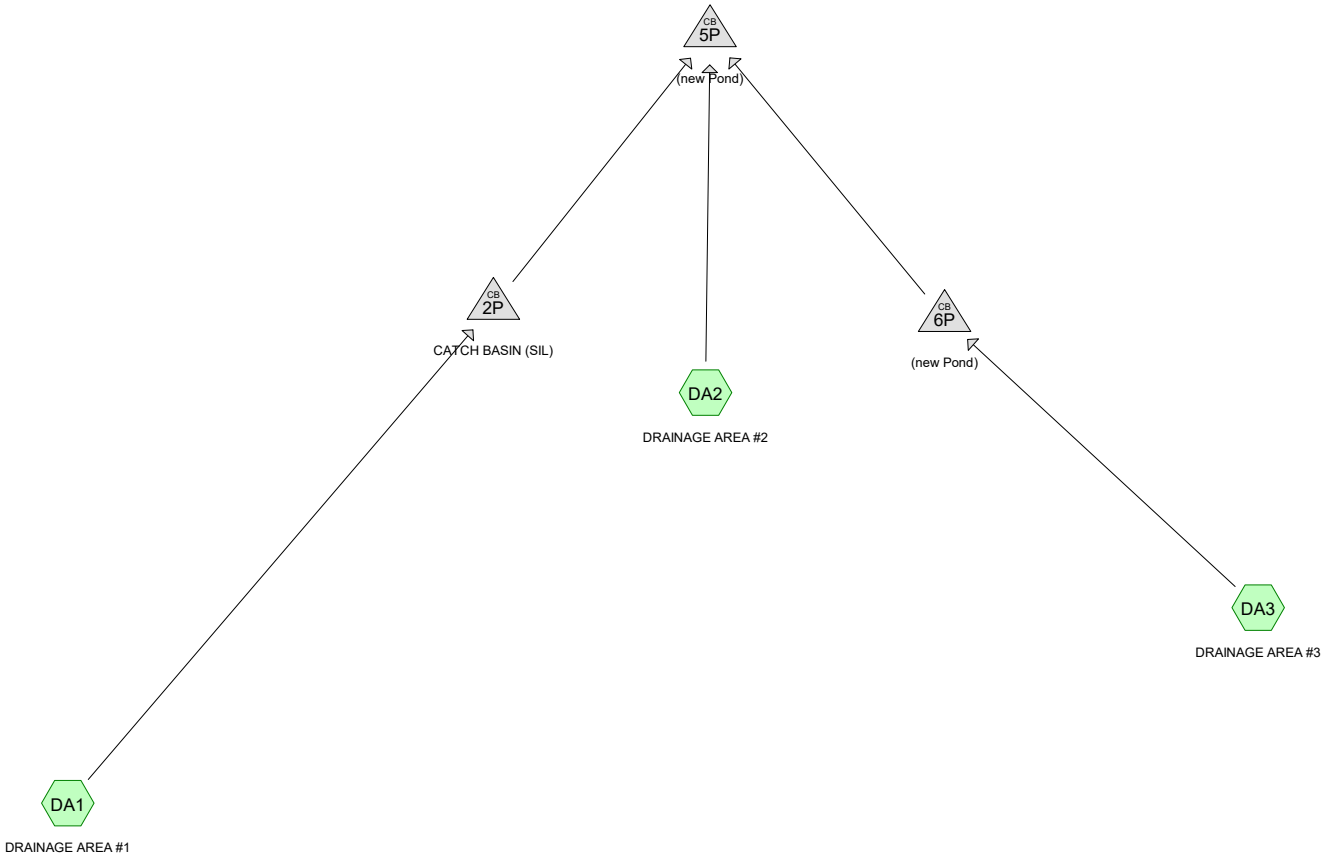
The proposed improvements will result in an increase in impervious area of approximately 2,300 S.F.

Due to the topography of the lot, stormwater detention will be achieved by directing most of the undeveloped portion of the property to a detention basing & forebay. It is also common practice to direct the runoff from the canopy into the tank farm where there will be additional stormwater detention. We do not have test hole data in the tank farm area, so we did not include it in our computations.

The following storms were analyzed using HydroCAD stormwater modeling software and the results are as follows. (See attached for more detailed analysis)

Storm	Existing (cfs)	Proposed w/detention (cfs)
2	1.94	1.95
5	3.11	2.83
10	4.15	3.57
25	5.56	4.62
50	6.80	5.53
100	8.05	6.48

The run-off from the site will maintain it's current path into the Conn. DOT drainage system in East Haddam – Moodus Road. The final catch basin will be equipped with a 4' sump and a SNOUT outlet device to prevent debris from entering the state drainage system.



Subcat Reach Pond Link

Routing Diagram for Moodius Food Stop EXISTING 12-3-25
Prepared by NEMERGUT CONSULTING
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Summary for Subcatchment DA1: DRAINAGE AREA #1

Runoff = 1.05 cfs @ 12.06 hrs, Volume= 0.059 af, Depth> 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
8,680	98	Paved parking, HSG B
24,300	60	Woods, Fair, HSG B
2,210	69	50-75% Grass cover, Fair, HSG B
35,190	70	Weighted Average
26,510		75.33% Pervious Area
8,680		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	100	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	276	Total			

Summary for Subcatchment DA2: DRAINAGE AREA #2

Runoff = 0.76 cfs @ 11.96 hrs, Volume= 0.037 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
6,450	98	Paved parking, HSG B
950	69	50-75% Grass cover, Fair, HSG B
7,400	94	Weighted Average
950		12.84% Pervious Area
6,450		87.16% Impervious Area

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

Summary for Subcatchment DA3: DRAINAGE AREA #3

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 0.019 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
2,610	98	Paved parking, HSG B
5,373	65	Woods/grass comb., Fair, HSG B
7,983	76	Weighted Average
5,373		67.31% Pervious Area
2,610		32.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.808 ac, 24.67% Impervious, Inflow Depth > 0.88" for 2 YEAR event
Inflow = 1.05 cfs @ 12.06 hrs, Volume= 0.059 af
Outflow = 1.05 cfs @ 12.06 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min
Primary = 1.05 cfs @ 12.06 hrs, Volume= 0.059 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.93' @ 12.06 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 82.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0122 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 12.06 hrs HW=118.93' (Free Discharge)
1=Culvert (Inlet Controls 1.03 cfs @ 2.47 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.161 ac, 35.08% Impervious, Inflow Depth > 1.19" for 2 YEAR event
Inflow = 1.94 cfs @ 12.01 hrs, Volume= 0.115 af
Outflow = 1.94 cfs @ 12.01 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min
Primary = 1.94 cfs @ 12.01 hrs, Volume= 0.115 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.04' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**18.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.80' S= 0.0571 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=1.90 cfs @ 12.01 hrs HW=118.03' (Free Discharge)
1=Culvert (Inlet Controls 1.90 cfs @ 2.70 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 32.69% Impervious, Inflow Depth > 1.21" for 2 YEAR event
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 0.019 af
Outflow = 0.36 cfs @ 12.03 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.03 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.69' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 51.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0196 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=0.35 cfs @ 12.03 hrs HW=118.69' (Free Discharge)
1=Culvert (Inlet Controls 0.35 cfs @ 1.83 fps)

Summary for Subcatchment DA1: DRAINAGE AREA #1

Runoff = 1.83 cfs @ 12.05 hrs, Volume= 0.101 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
8,680	98	Paved parking, HSG B
24,300	60	Woods, Fair, HSG B
2,210	69	50-75% Grass cover, Fair, HSG B
35,190	70	Weighted Average
26,510		75.33% Pervious Area
8,680		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	100	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	276	Total			

Summary for Subcatchment DA2: DRAINAGE AREA #2

Runoff = 1.00 cfs @ 11.96 hrs, Volume= 0.051 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
6,450	98	Paved parking, HSG B
950	69	50-75% Grass cover, Fair, HSG B
7,400	94	Weighted Average
950		12.84% Pervious Area
6,450		87.16% Impervious Area

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

Summary for Subcatchment DA3: DRAINAGE AREA #3

Runoff = 0.57 cfs @ 12.03 hrs, Volume= 0.029 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
2,610	98	Paved parking, HSG B
5,373	65	Woods/grass comb., Fair, HSG B
7,983	76	Weighted Average
5,373		67.31% Pervious Area
2,610		32.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.808 ac, 24.67% Impervious, Inflow Depth > 1.50" for 5 Year event
Inflow = 1.83 cfs @ 12.05 hrs, Volume= 0.101 af
Outflow = 1.83 cfs @ 12.05 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min
Primary = 1.83 cfs @ 12.05 hrs, Volume= 0.101 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.14' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 82.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0122 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=1.82 cfs @ 12.05 hrs HW=119.14' (Free Discharge)
1=Culvert (Inlet Controls 1.82 cfs @ 2.93 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.161 ac, 35.08% Impervious, Inflow Depth > 1.87" for 5 Year event
Inflow = 3.11 cfs @ 12.02 hrs, Volume= 0.181 af
Outflow = 3.11 cfs @ 12.02 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min
Primary = 3.11 cfs @ 12.02 hrs, Volume= 0.181 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.23' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**18.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.80' S= 0.0571 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.04 cfs @ 12.02 hrs HW=118.22' (Free Discharge)
1=Culvert (Inlet Controls 3.04 cfs @ 3.08 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 32.69% Impervious, Inflow Depth > 1.93" for 5 Year event
Inflow = 0.57 cfs @ 12.03 hrs, Volume= 0.029 af
Outflow = 0.57 cfs @ 12.03 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.03 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.78' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 51.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0196 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.03 hrs HW=118.77' (Free Discharge)
1=Culvert (Inlet Controls 0.55 cfs @ 2.07 fps)

Summary for Subcatchment DA1: DRAINAGE AREA #1

Runoff = 2.54 cfs @ 12.05 hrs, Volume= 0.139 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
8,680	98	Paved parking, HSG B
24,300	60	Woods, Fair, HSG B
2,210	69	50-75% Grass cover, Fair, HSG B
35,190	70	Weighted Average
26,510		75.33% Pervious Area
8,680		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	100	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	276	Total			

Summary for Subcatchment DA2: DRAINAGE AREA #2

Runoff = 1.21 cfs @ 11.96 hrs, Volume= 0.062 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
6,450	98	Paved parking, HSG B
950	69	50-75% Grass cover, Fair, HSG B
7,400	94	Weighted Average
950		12.84% Pervious Area
6,450		87.16% Impervious Area

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

Summary for Subcatchment DA3: DRAINAGE AREA #3

Runoff = 0.75 cfs @ 12.03 hrs, Volume= 0.039 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
2,610	98	Paved parking, HSG B
5,373	65	Woods/grass comb., Fair, HSG B
7,983	76	Weighted Average
5,373		67.31% Pervious Area
2,610		32.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.808 ac, 24.67% Impervious, Inflow Depth > 2.07" for 10 YEAR event
Inflow = 2.54 cfs @ 12.05 hrs, Volume= 0.139 af
Outflow = 2.54 cfs @ 12.05 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 2.54 cfs @ 12.05 hrs, Volume= 0.139 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.34' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 82.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0122 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=2.54 cfs @ 12.05 hrs HW=119.34' (Free Discharge)
1=Culvert (Inlet Controls 2.54 cfs @ 3.31 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.161 ac, 35.08% Impervious, Inflow Depth > 2.48" for 10 YEAR event
Inflow = 4.15 cfs @ 12.02 hrs, Volume= 0.240 af
Outflow = 4.15 cfs @ 12.02 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min
Primary = 4.15 cfs @ 12.02 hrs, Volume= 0.240 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.38' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**18.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.80' S= 0.0571 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.07 cfs @ 12.02 hrs HW=118.37' (Free Discharge)
1=Culvert (Inlet Controls 4.07 cfs @ 3.36 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 32.69% Impervious, Inflow Depth > 2.57" for 10 YEAR event
Inflow = 0.75 cfs @ 12.03 hrs, Volume= 0.039 af
Outflow = 0.75 cfs @ 12.03 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 12.03 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.84' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 51.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0196 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=0.73 cfs @ 12.03 hrs HW=118.83' (Free Discharge)
1=Culvert (Inlet Controls 0.73 cfs @ 2.24 fps)

Summary for Subcatchment DA1: DRAINAGE AREA #1

Runoff = 3.57 cfs @ 12.05 hrs, Volume= 0.196 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
8,680	98	Paved parking, HSG B
24,300	60	Woods, Fair, HSG B
2,210	69	50-75% Grass cover, Fair, HSG B
35,190	70	Weighted Average
26,510		75.33% Pervious Area
8,680		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	100	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	276	Total			

Summary for Subcatchment DA2: DRAINAGE AREA #2

Runoff = 1.49 cfs @ 11.96 hrs, Volume= 0.077 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
6,450	98	Paved parking, HSG B
950	69	50-75% Grass cover, Fair, HSG B
7,400	94	Weighted Average
950		12.84% Pervious Area
6,450		87.16% Impervious Area

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

Summary for Subcatchment DA3: DRAINAGE AREA #3

Runoff = 1.01 cfs @ 12.03 hrs, Volume= 0.053 af, Depth> 3.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
2,610	98	Paved parking, HSG B
5,373	65	Woods/grass comb., Fair, HSG B
7,983	76	Weighted Average
5,373		67.31% Pervious Area
2,610		32.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.808 ac, 24.67% Impervious, Inflow Depth > 2.91" for 25 Year event
Inflow = 3.57 cfs @ 12.05 hrs, Volume= 0.196 af
Outflow = 3.57 cfs @ 12.05 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.0 min
Primary = 3.57 cfs @ 12.05 hrs, Volume= 0.196 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.79' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 82.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0122 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=3.55 cfs @ 12.05 hrs HW=119.78' (Free Discharge)
1=Culvert (Inlet Controls 3.55 cfs @ 4.52 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.161 ac, 35.08% Impervious, Inflow Depth > 3.38" for 25 Year event
Inflow = 5.65 cfs @ 12.02 hrs, Volume= 0.327 af
Outflow = 5.65 cfs @ 12.02 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min
Primary = 5.65 cfs @ 12.02 hrs, Volume= 0.327 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.60' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**18.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.80' S= 0.0571 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.53 cfs @ 12.02 hrs HW=118.58' (Free Discharge)
1=Culvert (Inlet Controls 5.53 cfs @ 3.70 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 32.69% Impervious, Inflow Depth > 3.50" for 25 Year event
Inflow = 1.01 cfs @ 12.03 hrs, Volume= 0.053 af
Outflow = 1.01 cfs @ 12.03 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.03 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.92' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 51.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0196 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=0.98 cfs @ 12.03 hrs HW=118.91' (Free Discharge)
1=Culvert (Inlet Controls 0.98 cfs @ 2.43 fps)

Summary for Subcatchment DA1: DRAINAGE AREA #1

Runoff = 4.37 cfs @ 12.05 hrs, Volume= 0.241 af, Depth> 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
8,680	98	Paved parking, HSG B
24,300	60	Woods, Fair, HSG B
2,210	69	50-75% Grass cover, Fair, HSG B
35,190	70	Weighted Average
26,510		75.33% Pervious Area
8,680		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	100	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	276	Total			

Summary for Subcatchment DA2: DRAINAGE AREA #2

Runoff = 1.69 cfs @ 11.96 hrs, Volume= 0.088 af, Depth> 6.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
6,450	98	Paved parking, HSG B
950	69	50-75% Grass cover, Fair, HSG B
7,400	94	Weighted Average
950		12.84% Pervious Area
6,450		87.16% Impervious Area

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

Summary for Subcatchment DA3: DRAINAGE AREA #3

Runoff = 1.21 cfs @ 12.03 hrs, Volume= 0.064 af, Depth> 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
2,610	98	Paved parking, HSG B
5,373	65	Woods/grass comb., Fair, HSG B
7,983	76	Weighted Average
5,373		67.31% Pervious Area
2,610		32.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.808 ac, 24.67% Impervious, Inflow Depth > 3.58" for 50 Year event
Inflow = 4.37 cfs @ 12.05 hrs, Volume= 0.241 af
Outflow = 4.37 cfs @ 12.05 hrs, Volume= 0.241 af, Atten= 0%, Lag= 0.0 min
Primary = 4.37 cfs @ 12.05 hrs, Volume= 0.241 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 120.23' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 82.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0122 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=4.34 cfs @ 12.05 hrs HW=120.22' (Free Discharge)
1=Culvert (Inlet Controls 4.34 cfs @ 5.52 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.161 ac, 35.08% Impervious, Inflow Depth > 4.07" for 50 Year event
Inflow = 6.80 cfs @ 12.02 hrs, Volume= 0.394 af
Outflow = 6.80 cfs @ 12.02 hrs, Volume= 0.394 af, Atten= 0%, Lag= 0.0 min
Primary = 6.80 cfs @ 12.02 hrs, Volume= 0.394 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.78' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**18.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.80' S= 0.0571 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.66 cfs @ 12.02 hrs HW=118.75' (Free Discharge)
1=Culvert (Inlet Controls 6.66 cfs @ 3.96 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 32.69% Impervious, Inflow Depth > 4.22" for 50 Year event
Inflow = 1.21 cfs @ 12.03 hrs, Volume= 0.064 af
Outflow = 1.21 cfs @ 12.03 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.03 hrs, Volume= 0.064 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.98' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 51.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0196 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=1.17 cfs @ 12.03 hrs HW=118.97' (Free Discharge)
1=Culvert (Inlet Controls 1.17 cfs @ 2.56 fps)

Summary for Subcatchment DA1: DRAINAGE AREA #1

Runoff = 5.24 cfs @ 12.04 hrs, Volume= 0.290 af, Depth> 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
8,680	98	Paved parking, HSG B
24,300	60	Woods, Fair, HSG B
2,210	69	50-75% Grass cover, Fair, HSG B
35,190	70	Weighted Average
26,510		75.33% Pervious Area
8,680		24.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	100	0.1300	1.80		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	76	0.0260	3.27		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.6	276	Total			

Summary for Subcatchment DA2: DRAINAGE AREA #2

Runoff = 1.91 cfs @ 11.96 hrs, Volume= 0.101 af, Depth> 7.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
6,450	98	Paved parking, HSG B
950	69	50-75% Grass cover, Fair, HSG B
7,400	94	Weighted Average
950		12.84% Pervious Area
6,450		87.16% Impervious Area

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

Summary for Subcatchment DA3: DRAINAGE AREA #3

Runoff = 1.42 cfs @ 12.02 hrs, Volume= 0.076 af, Depth> 5.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
2,610	98	Paved parking, HSG B
5,373	65	Woods/grass comb., Fair, HSG B
7,983	76	Weighted Average
5,373		67.31% Pervious Area
2,610		32.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.808 ac, 24.67% Impervious, Inflow Depth > 4.32" for 100 Year event
Inflow = 5.24 cfs @ 12.04 hrs, Volume= 0.290 af
Outflow = 5.24 cfs @ 12.04 hrs, Volume= 0.290 af, Atten= 0%, Lag= 0.0 min
Primary = 5.24 cfs @ 12.04 hrs, Volume= 0.290 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 120.82' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 82.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0122 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=5.19 cfs @ 12.04 hrs HW=120.79' (Free Discharge)
1=Culvert (Inlet Controls 5.19 cfs @ 6.61 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.161 ac, 35.08% Impervious, Inflow Depth > 4.83" for 100 Year event
Inflow = 8.05 cfs @ 12.02 hrs, Volume= 0.468 af
Outflow = 8.05 cfs @ 12.02 hrs, Volume= 0.468 af, Atten= 0%, Lag= 0.0 min
Primary = 8.05 cfs @ 12.02 hrs, Volume= 0.468 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.04' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**18.0" Round Culvert** L= 28.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.80' S= 0.0571 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=7.88 cfs @ 12.02 hrs HW=119.01' (Free Discharge)
1=Culvert (Inlet Controls 7.88 cfs @ 4.46 fps)

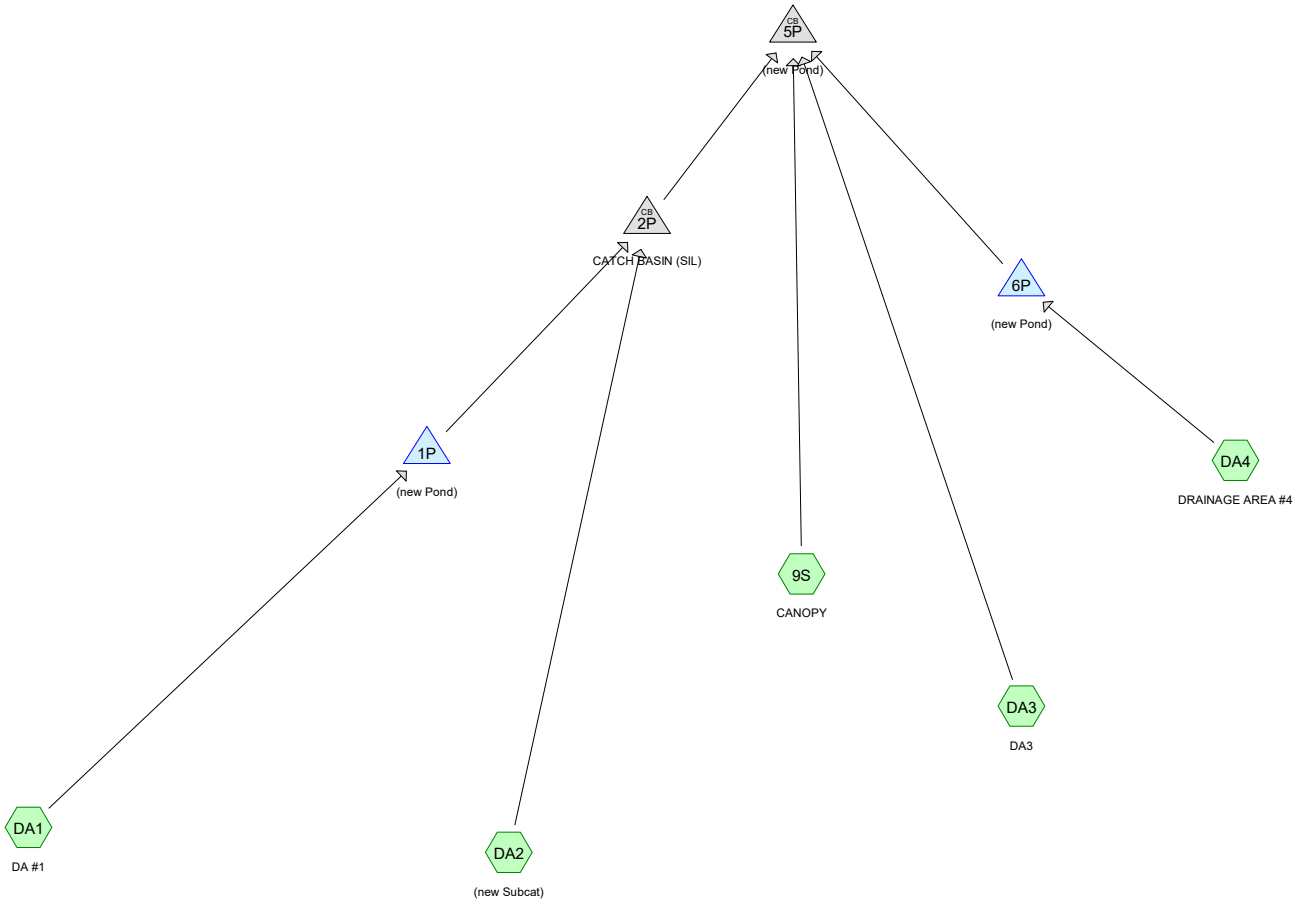
Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 32.69% Impervious, Inflow Depth > 5.00" for 100 Year event
Inflow = 1.42 cfs @ 12.02 hrs, Volume= 0.076 af
Outflow = 1.42 cfs @ 12.02 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.02 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 2.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.03' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.40'	**12.0" Round Culvert** L= 51.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.40' / 117.40' S= 0.0196 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf

Primary OutFlow Max=1.38 cfs @ 12.02 hrs HW=119.02' (Free Discharge)
1=Culvert (Inlet Controls 1.38 cfs @ 2.69 fps)



Subcat Reach Pond Link

Routing Diagram for Moodius Food Stop DESIGN
Prepared by NEMERGUT CONSULTING
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Summary for Subcatchment 9S: CANOPY

Runoff = 0.20 cfs @ 11.95 hrs, Volume= 0.010 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
1,745	98	Paved parking, HSG B
1,745		100.00% Impervious Area

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

Summary for Subcatchment DA1: DA #1

Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.016 af, Depth> 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
19,450	60	Woods, Fair, HSG B
19,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.2	120	0.1160	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	220	Total			

Summary for Subcatchment DA2: (new Subcat)

Runoff = 1.01 cfs @ 12.04 hrs, Volume= 0.054 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
3,030	60	Woods, Fair, HSG B
3,513	61	>75% Grass cover, Good, HSG B
10,357	98	Paved parking, HSG B
16,900	83	Weighted Average
6,543		38.72% Pervious Area
10,357		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	103	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	203	Total			

Summary for Subcatchment DA3: DA3

Runoff = 0.46 cfs @ 11.95 hrs, Volume= 0.020 af, Depth> 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
3,700	98	Paved parking, HSG B
1,360	61	>75% Grass cover, Good, HSG B
5,060	88	Weighted Average
1,360		26.88% Pervious Area
3,700		73.12% Impervious Area

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

Summary for Subcatchment DA4: DRAINAGE AREA #4

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 0.025 af, Depth> 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2 YEAR Rainfall=3.46"

Area (sf)	CN	Description
4,180	98	Paved parking, HSG B
3,800	65	Woods/grass comb., Fair, HSG B
7,980	82	Weighted Average
3,800		47.62% Pervious Area
4,180		52.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 1P: (new Pond)

Inflow Area = 0.447 ac, 0.00% Impervious, Inflow Depth > 0.44" for 2 YEAR event
Inflow = 0.23 cfs @ 12.09 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 13.07 hrs, Volume= 0.016 af, Atten= 86%, Lag= 58.9 min
Discarded = 0.03 cfs @ 13.07 hrs, Volume= 0.016 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 121.30' @ 13.07 hrs Surf.Area= 776 sf Storage= 225 cf

Plug-Flow detention time= 73.6 min calculated for 0.016 af (99% of inflow)
Center-of-Mass det. time= 69.8 min (918.4 - 848.6)

Volume	Invert	Avail.Storage	Storage Description
#1	121.00'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
121.00	700	0	0
122.00	950	825	825
123.00	1,250	1,100	1,925
124.00	1,550	1,400	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	121.50'	**5.0" Round 120** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 121.50' / 118.00' S= 0.0292 '/' Cc= 0.900 n= 0.011, Flow Area= 0.14 sf
#2	Primary	123.20'	**3.0" x 1.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	121.00'	**1.490 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 119.50'

Discarded OutFlow Max=0.03 cfs @ 13.07 hrs HW=121.30' (Free Discharge)
└**3=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=121.00' (Free Discharge)
├**1=120** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.834 ac, 28.49% Impervious, Inflow Depth > 0.78" for 2 YEAR event
Inflow = 1.01 cfs @ 12.04 hrs, Volume= 0.054 af
Outflow = 1.01 cfs @ 12.04 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min
Primary = 1.01 cfs @ 12.04 hrs, Volume= 0.054 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.97' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.45'	**12.0" Round Culvert**
			L= 80.0' RCP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 118.45' / 117.40' S= 0.0131 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.04 hrs HW=118.96' (Free Discharge)
1=Culvert (Inlet Controls 0.99 cfs @ 2.44 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.174 ac, 39.08% Impervious, Inflow Depth > 1.11" for 2 YEAR event
Inflow = 1.95 cfs @ 12.00 hrs, Volume= 0.109 af
Outflow = 1.95 cfs @ 12.00 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min
Primary = 1.95 cfs @ 12.00 hrs, Volume= 0.109 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.09' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**15.0" Round Culvert**
			L= 26.0' RCP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 117.40' / 115.60' S= 0.0692 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=1.94 cfs @ 12.00 hrs HW=118.09' (Free Discharge)
1=Culvert (Inlet Controls 1.94 cfs @ 2.82 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 52.38% Impervious, Inflow Depth > 1.61" for 2 YEAR event
Inflow = 0.47 cfs @ 12.03 hrs, Volume= 0.025 af
Primary = 0.47 cfs @ 12.03 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 9S: CANOPY

Runoff = 0.26 cfs @ 11.95 hrs, Volume= 0.013 af, Depth> 3.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
1,745	98	Paved parking, HSG B
1,745		100.00% Impervious Area

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

Summary for Subcatchment DA1: DA #1

Runoff = 0.54 cfs @ 12.07 hrs, Volume= 0.033 af, Depth> 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
19,450	60	Woods, Fair, HSG B
19,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.2	120	0.1160	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	220	Total			

Summary for Subcatchment DA2: (new Subcat)

Runoff = 1.48 cfs @ 12.04 hrs, Volume= 0.081 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
3,030	60	Woods, Fair, HSG B
3,513	61	>75% Grass cover, Good, HSG B
10,357	98	Paved parking, HSG B
16,900	83	Weighted Average
6,543		38.72% Pervious Area
10,357		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	103	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	203	Total			

Summary for Subcatchment DA3: DA3

Runoff = 0.63 cfs @ 11.95 hrs, Volume= 0.029 af, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
3,700	98	Paved parking, HSG B
1,360	61	>75% Grass cover, Good, HSG B
5,060	88	Weighted Average
1,360		26.88% Pervious Area
3,700		73.12% Impervious Area

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

Summary for Subcatchment DA4: DRAINAGE AREA #4

Runoff = 0.70 cfs @ 12.03 hrs, Volume= 0.037 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5 Year Rainfall=4.47"

Area (sf)	CN	Description
4,180	98	Paved parking, HSG B
3,800	65	Woods/grass comb., Fair, HSG B
7,980	82	Weighted Average
3,800		47.62% Pervious Area
4,180		52.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 1P: (new Pond)

Inflow Area = 0.447 ac, 0.00% Impervious, Inflow Depth > 0.88" for 5 Year event
Inflow = 0.54 cfs @ 12.07 hrs, Volume= 0.033 af
Outflow = 0.10 cfs @ 12.56 hrs, Volume= 0.029 af, Atten= 82%, Lag= 29.1 min
Discarded = 0.04 cfs @ 12.56 hrs, Volume= 0.024 af
Primary = 0.06 cfs @ 12.56 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 121.67' @ 12.56 hrs Surf.Area= 867 sf Storage= 524 cf

Plug-Flow detention time= 120.3 min calculated for 0.029 af (89% of inflow)
Center-of-Mass det. time= 85.8 min (915.6 - 829.8)

Volume	Invert	Avail.Storage	Storage Description
#1	121.00'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
121.00	700	0	0
122.00	950	825	825
123.00	1,250	1,100	1,925
124.00	1,550	1,400	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	121.50'	**5.0" Round 120** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 121.50' / 118.00' S= 0.0292 '/' Cc= 0.900 n= 0.011, Flow Area= 0.14 sf
#2	Primary	123.20'	**3.0" x 1.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	121.00'	**1.490 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 119.50'

Discarded OutFlow Max=0.04 cfs @ 12.56 hrs HW=121.67' (Free Discharge)
└**3=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.06 cfs @ 12.56 hrs HW=121.67' (Free Discharge)
├**1=120** (Inlet Controls 0.06 cfs @ 1.10 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.834 ac, 28.49% Impervious, Inflow Depth > 1.24" for 5 Year event
Inflow = 1.48 cfs @ 12.04 hrs, Volume= 0.086 af
Outflow = 1.48 cfs @ 12.04 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 1.48 cfs @ 12.04 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.10' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.45'	**12.0" Round Culvert** L= 80.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.45' / 117.40' S= 0.0131 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.45 cfs @ 12.04 hrs HW=119.09' (Free Discharge)
1=Culvert (Inlet Controls 1.45 cfs @ 2.73 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.174 ac, 39.08% Impervious, Inflow Depth > 1.68" for 5 Year event
Inflow = 2.83 cfs @ 12.00 hrs, Volume= 0.165 af
Outflow = 2.83 cfs @ 12.00 hrs, Volume= 0.165 af, Atten= 0%, Lag= 0.0 min
Primary = 2.83 cfs @ 12.00 hrs, Volume= 0.165 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.26' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**15.0" Round Culvert** L= 26.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.60' S= 0.0692 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=2.82 cfs @ 12.00 hrs HW=118.26' (Free Discharge)
1=Culvert (Inlet Controls 2.82 cfs @ 3.15 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 52.38% Impervious, Inflow Depth > 2.42" for 5 Year event
Inflow = 0.70 cfs @ 12.03 hrs, Volume= 0.037 af
Primary = 0.70 cfs @ 12.03 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 9S: CANOPY

Runoff = 0.31 cfs @ 11.95 hrs, Volume= 0.016 af, Depth> 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
1,745	98	Paved parking, HSG B
1,745		100.00% Impervious Area

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

Summary for Subcatchment DA1: DA #1

Runoff = 0.85 cfs @ 12.07 hrs, Volume= 0.049 af, Depth> 1.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
19,450	60	Woods, Fair, HSG B
19,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.2	120	0.1160	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	220	Total			

Summary for Subcatchment DA2: (new Subcat)

Runoff = 1.88 cfs @ 12.04 hrs, Volume= 0.104 af, Depth> 3.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
3,030	60	Woods, Fair, HSG B
3,513	61	>75% Grass cover, Good, HSG B
10,357	98	Paved parking, HSG B
16,900	83	Weighted Average
6,543		38.72% Pervious Area
10,357		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	103	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	203	Total			

Summary for Subcatchment DA3: DA3

Runoff = 0.78 cfs @ 11.95 hrs, Volume= 0.036 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
3,700	98	Paved parking, HSG B
1,360	61	>75% Grass cover, Good, HSG B
5,060	88	Weighted Average
1,360		26.88% Pervious Area
3,700		73.12% Impervious Area

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

Summary for Subcatchment DA4: DRAINAGE AREA #4

Runoff = 0.89 cfs @ 12.03 hrs, Volume= 0.048 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YEAR Rainfall=5.31"

Area (sf)	CN	Description
4,180	98	Paved parking, HSG B
3,800	65	Woods/grass comb., Fair, HSG B
7,980	82	Weighted Average
3,800		47.62% Pervious Area
4,180		52.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 1P: (new Pond)

Inflow Area = 0.447 ac, 0.00% Impervious, Inflow Depth > 1.33" for 10 YEAR event
Inflow = 0.85 cfs @ 12.07 hrs, Volume= 0.049 af
Outflow = 0.27 cfs @ 12.32 hrs, Volume= 0.044 af, Atten= 69%, Lag= 15.0 min
Discarded = 0.05 cfs @ 12.32 hrs, Volume= 0.026 af
Primary = 0.22 cfs @ 12.32 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 121.88' @ 12.32 hrs Surf.Area= 921 sf Storage= 715 cf

Plug-Flow detention time= 94.2 min calculated for 0.044 af (88% of inflow)
Center-of-Mass det. time= 56.0 min (876.4 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1	121.00'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
121.00	700	0	0
122.00	950	825	825
123.00	1,250	1,100	1,925
124.00	1,550	1,400	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	121.50'	**5.0" Round 120** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 121.50' / 118.00' S= 0.0292 '/' Cc= 0.900 n= 0.011, Flow Area= 0.14 sf
#2	Primary	123.20'	**3.0" x 1.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	121.00'	**1.490 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 119.50'

Discarded OutFlow Max=0.05 cfs @ 12.32 hrs HW=121.88' (Free Discharge)
└**3=Exfiltration** (Controls 0.05 cfs)

Primary OutFlow Max=0.22 cfs @ 12.32 hrs HW=121.88' (Free Discharge)
├**1=120** (Inlet Controls 0.22 cfs @ 1.66 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.834 ac, 28.49% Impervious, Inflow Depth > 1.75" for 10 YEAR event
Inflow = 1.88 cfs @ 12.04 hrs, Volume= 0.121 af
Outflow = 1.88 cfs @ 12.04 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.04 hrs, Volume= 0.121 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.20' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.45'	**12.0" Round Culvert** L= 80.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.45' / 117.40' S= 0.0131 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.84 cfs @ 12.04 hrs HW=119.19' (Free Discharge)
1=Culvert (Inlet Controls 1.84 cfs @ 2.94 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.174 ac, 39.08% Impervious, Inflow Depth > 2.25" for 10 YEAR event
Inflow = 3.57 cfs @ 12.00 hrs, Volume= 0.220 af
Outflow = 3.57 cfs @ 12.00 hrs, Volume= 0.220 af, Atten= 0%, Lag= 0.0 min
Primary = 3.57 cfs @ 12.00 hrs, Volume= 0.220 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.40' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**15.0" Round Culvert** L= 26.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.60' S= 0.0692 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=3.56 cfs @ 12.00 hrs HW=118.40' (Free Discharge)
1=Culvert (Inlet Controls 3.56 cfs @ 3.40 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 52.38% Impervious, Inflow Depth > 3.12" for 10 YEAR event
Inflow = 0.89 cfs @ 12.03 hrs, Volume= 0.048 af
Primary = 0.89 cfs @ 12.03 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 9S: CANOPY

Runoff = 0.37 cfs @ 11.95 hrs, Volume= 0.019 af, Depth> 5.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
1,745	98	Paved parking, HSG B
1,745		100.00% Impervious Area

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

Summary for Subcatchment DA1: DA #1

Runoff = 1.32 cfs @ 12.06 hrs, Volume= 0.075 af, Depth> 2.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
19,450	60	Woods, Fair, HSG B
19,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.2	120	0.1160	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	220	Total			

Summary for Subcatchment DA2: (new Subcat)

Runoff = 2.43 cfs @ 12.03 hrs, Volume= 0.136 af, Depth> 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
3,030	60	Woods, Fair, HSG B
3,513	61	>75% Grass cover, Good, HSG B
10,357	98	Paved parking, HSG B
16,900	83	Weighted Average
6,543		38.72% Pervious Area
10,357		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	103	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	203	Total			

Summary for Subcatchment DA3: DA3

Runoff = 0.99 cfs @ 11.95 hrs, Volume= 0.046 af, Depth> 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
3,700	98	Paved parking, HSG B
1,360	61	>75% Grass cover, Good, HSG B
5,060	88	Weighted Average
1,360		26.88% Pervious Area
3,700		73.12% Impervious Area

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

Summary for Subcatchment DA4: DRAINAGE AREA #4

Runoff = 1.15 cfs @ 12.02 hrs, Volume= 0.063 af, Depth> 4.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25 Year Rainfall=6.46"

Area (sf)	CN	Description
4,180	98	Paved parking, HSG B
3,800	65	Woods/grass comb., Fair, HSG B
7,980	82	Weighted Average
3,800		47.62% Pervious Area
4,180		52.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 1P: (new Pond)

Inflow Area = 0.447 ac, 0.00% Impervious, Inflow Depth > 2.01" for 25 Year event
Inflow = 1.32 cfs @ 12.06 hrs, Volume= 0.075 af
Outflow = 0.44 cfs @ 12.29 hrs, Volume= 0.067 af, Atten= 66%, Lag= 13.5 min
Discarded = 0.06 cfs @ 12.29 hrs, Volume= 0.029 af
Primary = 0.38 cfs @ 12.29 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 122.26' @ 12.29 hrs Surf.Area= 1,027 sf Storage= 1,079 cf

Plug-Flow detention time= 72.6 min calculated for 0.067 af (89% of inflow)
Center-of-Mass det. time= 36.9 min (848.3 - 811.4)

Volume	Invert	Avail.Storage	Storage Description
#1	121.00'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
121.00	700	0	0
122.00	950	825	825
123.00	1,250	1,100	1,925
124.00	1,550	1,400	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	121.50'	**5.0" Round 120** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 121.50' / 118.00' S= 0.0292 '/' Cc= 0.900 n= 0.011, Flow Area= 0.14 sf
#2	Primary	123.20'	**3.0" x 1.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	121.00'	**1.490 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 119.50'

Discarded OutFlow Max=0.06 cfs @ 12.29 hrs HW=122.26' (Free Discharge)
└**3=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.38 cfs @ 12.29 hrs HW=122.26' (Free Discharge)
├**1=120** (Inlet Controls 0.38 cfs @ 2.81 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.834 ac, 28.49% Impervious, Inflow Depth > 2.51" for 25 Year event
Inflow = 2.58 cfs @ 12.05 hrs, Volume= 0.174 af
Outflow = 2.58 cfs @ 12.05 hrs, Volume= 0.174 af, Atten= 0%, Lag= 0.0 min
Primary = 2.58 cfs @ 12.05 hrs, Volume= 0.174 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.41' @ 12.05 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.45'	**12.0" Round Culvert** L= 80.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.45' / 117.40' S= 0.0131 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=2.56 cfs @ 12.05 hrs HW=119.40' (Free Discharge)
1=Culvert (Inlet Controls 2.56 cfs @ 3.32 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.174 ac, 39.08% Impervious, Inflow Depth > 3.09" for 25 Year event
Inflow = 4.62 cfs @ 12.01 hrs, Volume= 0.302 af
Outflow = 4.62 cfs @ 12.01 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min
Primary = 4.62 cfs @ 12.01 hrs, Volume= 0.302 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.63' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**15.0" Round Culvert** L= 26.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.60' S= 0.0692 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=4.58 cfs @ 12.01 hrs HW=118.62' (Free Discharge)
1=Culvert (Inlet Controls 4.58 cfs @ 3.76 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 52.38% Impervious, Inflow Depth > 4.11" for 25 Year event
Inflow = 1.15 cfs @ 12.02 hrs, Volume= 0.063 af
Primary = 1.15 cfs @ 12.02 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 9S: CANOPY

Runoff = 0.42 cfs @ 11.95 hrs, Volume= 0.022 af, Depth> 6.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
1,745	98	Paved parking, HSG B
1,745		100.00% Impervious Area

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

Summary for Subcatchment DA1: DA #1

Runoff = 1.70 cfs @ 12.06 hrs, Volume= 0.096 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
19,450	60	Woods, Fair, HSG B
19,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.2	120	0.1160	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	220	Total			

Summary for Subcatchment DA2: (new Subcat)

Runoff = 2.85 cfs @ 12.03 hrs, Volume= 0.161 af, Depth> 4.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
3,030	60	Woods, Fair, HSG B
3,513	61	>75% Grass cover, Good, HSG B
10,357	98	Paved parking, HSG B
16,900	83	Weighted Average
6,543		38.72% Pervious Area
10,357		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	103	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	203	Total			

Summary for Subcatchment DA3: DA3

Runoff = 1.14 cfs @ 11.95 hrs, Volume= 0.054 af, Depth> 5.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
3,700	98	Paved parking, HSG B
1,360	61	>75% Grass cover, Good, HSG B
5,060	88	Weighted Average
1,360		26.88% Pervious Area
3,700		73.12% Impervious Area

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

Summary for Subcatchment DA4: DRAINAGE AREA #4

Runoff = 1.35 cfs @ 12.02 hrs, Volume= 0.074 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50 Year Rainfall=7.32"

Area (sf)	CN	Description
4,180	98	Paved parking, HSG B
3,800	65	Woods/grass comb., Fair, HSG B
7,980	82	Weighted Average
3,800		47.62% Pervious Area
4,180		52.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 1P: (new Pond)

Inflow Area = 0.447 ac, 0.00% Impervious, Inflow Depth > 2.57" for 50 Year event
Inflow = 1.70 cfs @ 12.06 hrs, Volume= 0.096 af
Outflow = 0.55 cfs @ 12.29 hrs, Volume= 0.087 af, Atten= 68%, Lag= 13.8 min
Discarded = 0.07 cfs @ 12.29 hrs, Volume= 0.031 af
Primary = 0.48 cfs @ 12.29 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 122.57' @ 12.29 hrs Surf.Area= 1,121 sf Storage= 1,415 cf

Plug-Flow detention time= 64.2 min calculated for 0.087 af (91% of inflow)
Center-of-Mass det. time= 32.4 min (838.7 - 806.3)

Volume	Invert	Avail.Storage	Storage Description
#1	121.00'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
121.00	700	0	0
122.00	950	825	825
123.00	1,250	1,100	1,925
124.00	1,550	1,400	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	121.50'	**5.0" Round 120** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 121.50' / 118.00' S= 0.0292 '/' Cc= 0.900 n= 0.011, Flow Area= 0.14 sf
#2	Primary	123.20'	**3.0" x 1.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	121.00'	**1.490 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 119.50'

Discarded OutFlow Max=0.07 cfs @ 12.29 hrs HW=122.57' (Free Discharge)
└**3=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.48 cfs @ 12.29 hrs HW=122.57' (Free Discharge)
├**1=120** (Inlet Controls 0.48 cfs @ 3.53 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.834 ac, 28.49% Impervious, Inflow Depth > 3.12" for 50 Year event
Inflow = 3.13 cfs @ 12.04 hrs, Volume= 0.217 af
Outflow = 3.13 cfs @ 12.04 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.0 min
Primary = 3.13 cfs @ 12.04 hrs, Volume= 0.217 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.63' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.45'	**12.0" Round Culvert** L= 80.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.45' / 117.40' S= 0.0131 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=3.09 cfs @ 12.04 hrs HW=119.62' (Free Discharge)
1=Culvert (Inlet Controls 3.09 cfs @ 3.94 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.174 ac, 39.08% Impervious, Inflow Depth > 3.75" for 50 Year event
Inflow = 5.53 cfs @ 12.01 hrs, Volume= 0.367 af
Outflow = 5.53 cfs @ 12.01 hrs, Volume= 0.367 af, Atten= 0%, Lag= 0.0 min
Primary = 5.53 cfs @ 12.01 hrs, Volume= 0.367 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 118.90' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**15.0" Round Culvert** L= 26.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.60' S= 0.0692 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=5.47 cfs @ 12.01 hrs HW=118.88' (Free Discharge)
1=Culvert (Inlet Controls 5.47 cfs @ 4.46 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 52.38% Impervious, Inflow Depth > 4.87" for 50 Year event
Inflow = 1.35 cfs @ 12.02 hrs, Volume= 0.074 af
Primary = 1.35 cfs @ 12.02 hrs, Volume= 0.074 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 9S: CANOPY

Runoff = 0.48 cfs @ 11.95 hrs, Volume= 0.024 af, Depth> 7.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
1,745	98	Paved parking, HSG B
1,745		100.00% Impervious Area

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

Summary for Subcatchment DA1: DA #1

Runoff = 2.12 cfs @ 12.06 hrs, Volume= 0.119 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
19,450	60	Woods, Fair, HSG B
19,450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	100	0.0800	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.2	120	0.1160	1.70		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
13.3	220	Total			

Summary for Subcatchment DA2: (new Subcat)

Runoff = 3.29 cfs @ 12.03 hrs, Volume= 0.188 af, Depth> 5.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
3,030	60	Woods, Fair, HSG B
3,513	61	>75% Grass cover, Good, HSG B
10,357	98	Paved parking, HSG B
16,900	83	Weighted Average
6,543		38.72% Pervious Area
10,357		61.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.3	100	0.0950	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.6	103	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.9	203	Total			

Summary for Subcatchment DA3: DA3

Runoff = 1.30 cfs @ 11.95 hrs, Volume= 0.062 af, Depth> 6.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
3,700	98	Paved parking, HSG B
1,360	61	>75% Grass cover, Good, HSG B
5,060	88	Weighted Average
1,360		26.88% Pervious Area
3,700		73.12% Impervious Area

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

Summary for Subcatchment DA4: DRAINAGE AREA #4

Runoff = 1.57 cfs @ 12.02 hrs, Volume= 0.087 af, Depth> 5.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 Year Rainfall=8.24"

Area (sf)	CN	Description
4,180	98	Paved parking, HSG B
3,800	65	Woods/grass comb., Fair, HSG B
7,980	82	Weighted Average
3,800		47.62% Pervious Area
4,180		52.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.7	100	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.3	61	0.0330	3.69		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.0	161	Total			

Summary for Pond 1P: (new Pond)

Inflow Area = 0.447 ac, 0.00% Impervious, Inflow Depth > 3.20" for 100 Year event
Inflow = 2.12 cfs @ 12.06 hrs, Volume= 0.119 af
Outflow = 0.65 cfs @ 12.30 hrs, Volume= 0.110 af, Atten= 69%, Lag= 14.5 min
Discarded = 0.08 cfs @ 12.30 hrs, Volume= 0.033 af
Primary = 0.57 cfs @ 12.30 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 122.92' @ 12.30 hrs Surf.Area= 1,226 sf Storage= 1,824 cf

Plug-Flow detention time= 59.5 min calculated for 0.110 af (92% of inflow)
Center-of-Mass det. time= 31.7 min (833.4 - 801.7)

Volume	Invert	Avail.Storage	Storage Description
#1	121.00'	3,325 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
121.00	700	0	0
122.00	950	825	825
123.00	1,250	1,100	1,925
124.00	1,550	1,400	3,325

Device	Routing	Invert	Outlet Devices
#1	Primary	121.50'	**5.0" Round 120** L= 120.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 121.50' / 118.00' S= 0.0292 '/' Cc= 0.900 n= 0.011, Flow Area= 0.14 sf
#2	Primary	123.20'	**3.0" x 1.5" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	121.00'	**1.490 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 119.50'

Discarded OutFlow Max=0.08 cfs @ 12.30 hrs HW=122.92' (Free Discharge)
└**3=Exfiltration** (Controls 0.08 cfs)

Primary OutFlow Max=0.57 cfs @ 12.30 hrs HW=122.92' (Free Discharge)
├**1=120** (Inlet Controls 0.57 cfs @ 4.18 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond 2P: CATCH BASIN (SIL)

Inflow Area = 0.834 ac, 28.49% Impervious, Inflow Depth > 3.80" for 100 Year event
Inflow = 3.67 cfs @ 12.04 hrs, Volume= 0.264 af
Outflow = 3.67 cfs @ 12.04 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min
Primary = 3.67 cfs @ 12.04 hrs, Volume= 0.264 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.89' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	118.45'	**12.0" Round Culvert** L= 80.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 118.45' / 117.40' S= 0.0131 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=3.61 cfs @ 12.04 hrs HW=119.86' (Free Discharge)
1=Culvert (Inlet Controls 3.61 cfs @ 4.60 fps)

Summary for Pond 5P: (new Pond)

Inflow Area = 1.174 ac, 39.08% Impervious, Inflow Depth > 4.47" for 100 Year event
Inflow = 6.48 cfs @ 12.01 hrs, Volume= 0.437 af
Outflow = 6.48 cfs @ 12.01 hrs, Volume= 0.437 af, Atten= 0%, Lag= 0.0 min
Primary = 6.48 cfs @ 12.01 hrs, Volume= 0.437 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 119.23' @ 12.00 hrs

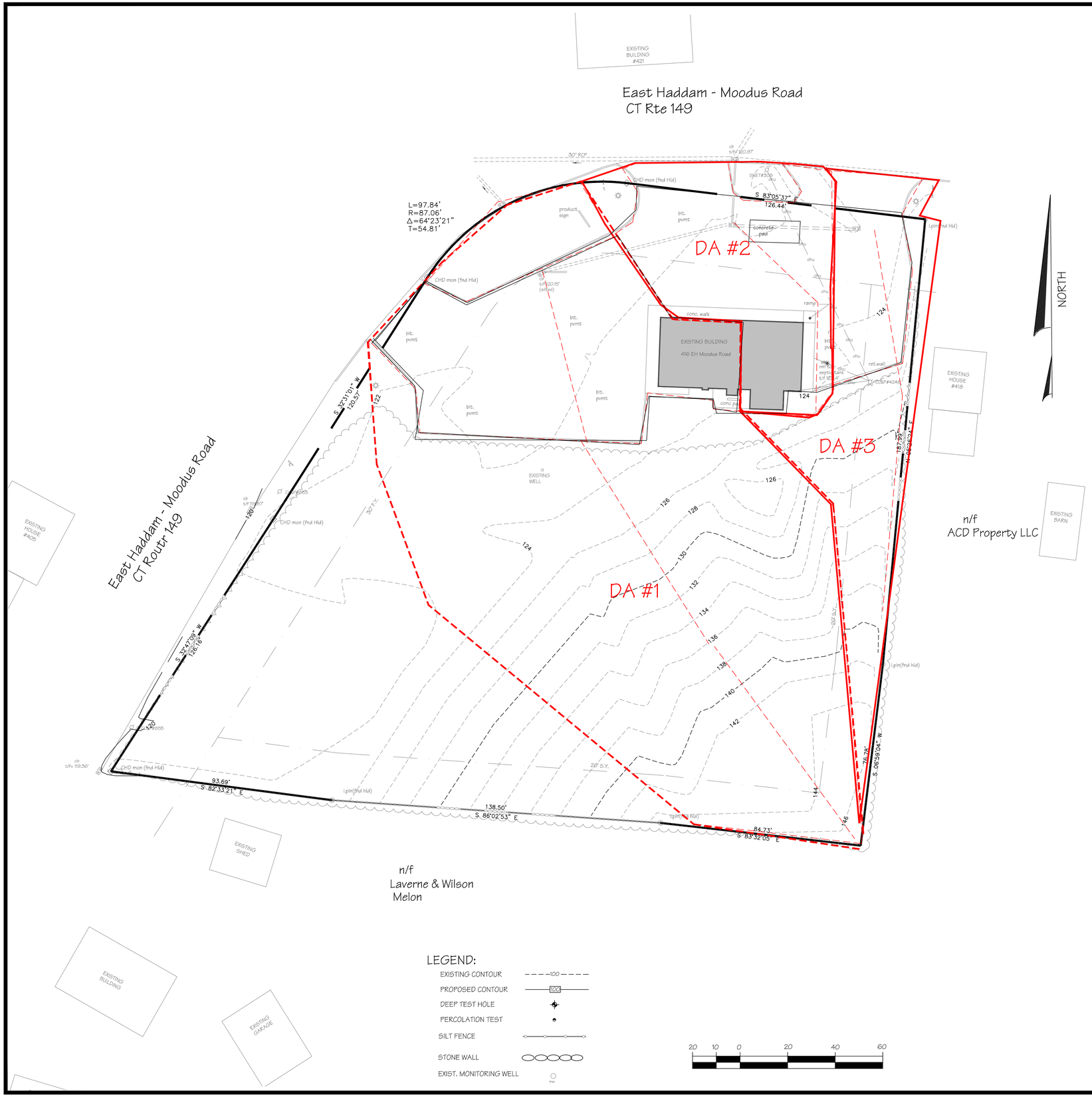
Device	Routing	Invert	Outlet Devices
#1	Primary	117.40'	**15.0" Round Culvert** L= 26.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 117.40' / 115.60' S= 0.0692 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=6.42 cfs @ 12.01 hrs HW=119.21' (Free Discharge)
1=Culvert (Inlet Controls 6.42 cfs @ 5.23 fps)

Summary for Pond 6P: (new Pond)

Inflow Area = 0.183 ac, 52.38% Impervious, Inflow Depth > 5.70" for 100 Year event
Inflow = 1.57 cfs @ 12.02 hrs, Volume= 0.087 af
Primary = 1.57 cfs @ 12.02 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



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STATE OF CONNECTICUT
ROGER D. NEMERGUT
LICENSED PROFESSIONAL ENGINEER
NO. 10008

ROGER D. NEMERGUT
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LIC. NO. 10008

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DRAINAGE AREAS - EXISTING

MOODUS FOOD STOP
416 EAST HADDAM - MOODUS ROAD
(ROUTE 149)
EAST HADDAM CONNECTICUT
MAP: 64 LOT: 64

DATE: 3-4-25
DRAWN BY: J.A.N.
CHECKED BY: R.D.N.
SCALE: 1" = 20'

NO.	DATE	REVISIONS
1	12/3/25	TOWN ENG. REV.

SHEET

ZONING ANALYSIS TABLE

ZONING DISTRICT: COMMERCIAL DISTRICT (C-3)-(Woodus Plains Road Area)
(GAS STATION/C-STORE USE SUBJECT TO APPROVAL BY SPECIAL EXCEPTION)

ZONE CRITERIA	REQUIRED	PROPOSED
MINIMUM LOT AREA	21,780 SQ. FT.	66,376 SQ. FT.
MINIMUM LOT WIDTH	100'	±126.44'
MAXIMUM LOT COVERAGE (BLDGS.)	20%	±4.60%
MIN. FRONT YARD	30'	±9.16'*
MINIMUM SIDE YARD	20'	±43.30'
MINIMUM REAR YARD	20'	±178.32'
MAX. LOT IMPERVIOUS SURFACE COVER	60%	±7.85%
MINIMUM BUILDING HEIGHT	30' MEAN / MAX. 40'	±22.00'
MAX. / MIN. PARKING SPACES	10 MAX. / 4 MIN.	15

PARKING CRITERIA PROVIDED SIZE: 9'x18'

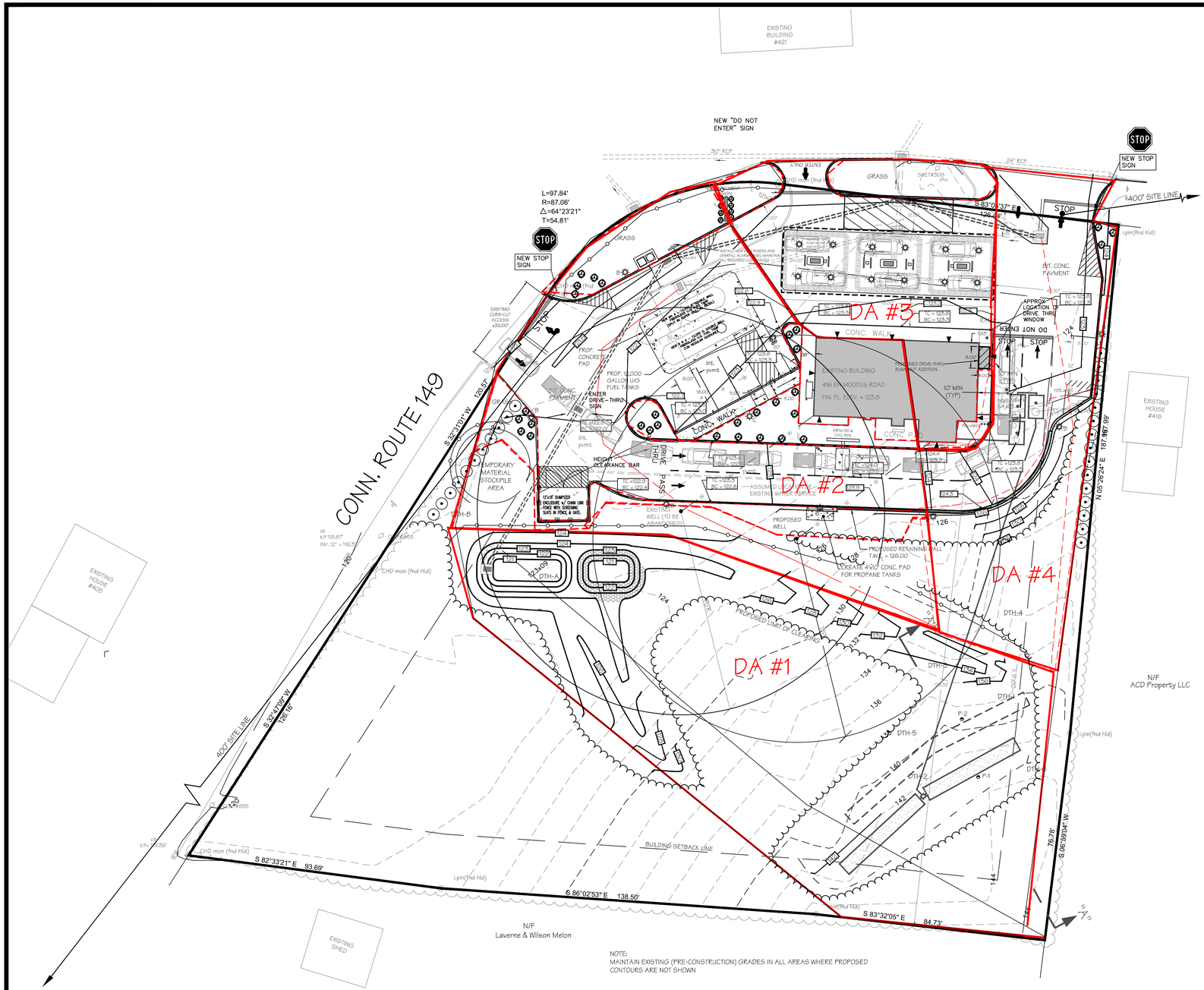
RETAIL:
MAX: 5 parking space for each 1,000 square feet of gross store floor area.

1,906 SF / 5 PER 1,000 SF = 10 TOTAL SPACES MAXIMUM ALLOWED

MIN: 2 parking space for each 1,000 square feet of gross store floor area.

1,906 SF / 2 PER 1,000 SF = 4 TOTAL SPACES MINIMUM REQUIRED

* SETBACK VARIANCE OBTAINED FROM THE ZONING BOARD OF APPEALS ON MARCH 4, 2024



NOTE:
MAINTAIN EXISTING (PRE-CONSTRUCTION) GRADES IN ALL AREAS WHERE PROPOSED CONTOURS ARE NOT SHOWN

LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- DEEP TEST HOLE
- PERCOLATION TEST
- SILT FENCE
- STONE WALL
- EXIST. MONITORING WELL

20 10 0 20 40 60

OWNER/APPLICANT:
SHAHANI INC.
53 E INDUSTRIAL RD UNIT C-1
BRANFORD, CT 06405

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STATE OF CONNECTICUT
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REGISTERED PROFESSIONAL ENGINEER

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DRAINAGE AREAS - PROPOSED

MOODUS FOOD STOP
416 EAST HADDAM - MOODUS ROAD
(ROUTE 149)
EAST HADDAM CONNECTICUT
MAP: 64 LOT: 64

DATE: 3-4-25
DRAWN BY: J.A.N.
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SCALE: 1" = 20'

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SHEET

2 OF 2