Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.470	70	Woods, Good, HSG C (2P1,2P2,3P1,3P2,P1,P2)
3.131	74	grassland, good (2P1,2P2,3P1,3P2,P1,P2)
0.547	98	Paved parking 60x280 (2P2,3P2)
0.451	98	Paved parking 60x360 (P2)
0.310	98	Paved parking 60x400 (P1)
0.555	98	Paved parking 60x500 (2P1,3P1)
5.464		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.470	HSG C	2P1, 2P2, 3P1, 3P2, P1, P2
0.000	HSG D	
4.994	Other	2P1, 2P2, 3P1, 3P2, P1, P2
5.464		**TOTAL AREA**

Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment 2P1: Runoff Area=39,174 sf 46.86% Impervious Runoff Depth=4.30"
Flow Length=151' Tc=6.0 min CN=85 Runoff=6.59 cfs 0.322 af

Subcatchment 2P2: Runoff Area=46,546 sf 30.66% Impervious Runoff Depth=3.88"
Flow Length=228' Tc=17.9 min CN=81 Runoff=4.87 cfs 0.346 af

Subcatchment 3P1: Runoff Area=17,942 sf 32.53% Impervious Runoff Depth=3.99"
Flow Length=100' Slope=0.0400 '/' Tc=9.7 min CN=82 Runoff=2.50 cfs 0.137 af

Subcatchment 3P2: Runoff Area=26,981 sf 35.40% Impervious Runoff Depth=3.99"
Flow Length=211' Tc=6.5 min CN=82 Runoff=4.20 cfs 0.206 af

Subcatchment P1: Runoff Area=48,363 sf 27.91% Impervious Runoff Depth=3.88"
Flow Length=264' Tc=11.1 min CN=81 Runoff=6.29 cfs 0.359 af

Subcatchment P2: Runoff Area=59,013 sf 33.32% Impervious Runoff Depth=3.99"
Flow Length=187' Tc=26.5 min CN=82 Runoff=5.05 cfs 0.450 af

Pond 1P: Dry Swale SW Treatment Peak Elev=1,930.18' Storage=0.159 af Inflow=6.29 cfs 0.359 af
Outflow=2.85 cfs 0.351 af

Pond 2P: Dry Swale SW Treatment Peak Elev=1,930.11' Storage=0.208 af Inflow=5.05 cfs 0.450 af
Outflow=2.17 cfs 0.417 af

Pond 3P: Dry Swale SW Treatment Peak Elev=1,922.42' Storage=0.173 af Inflow=6.59 cfs 0.322 af
Outflow=1.09 cfs 0.303 af

Pond 4P: Dry Swale SW Treatment Peak Elev=1,922.56' Storage=0.154 af Inflow=4.87 cfs 0.346 af
Outflow=2.20 cfs 0.336 af

Pond 5P: Dry Swale SW Treatment Peak Elev=1,917.92' Storage=0.061 af Inflow=2.50 cfs 0.137 af
Outflow=1.09 cfs 0.134 af

Pond 6P: Dry Swale SW Treatment Peak Elev=1,918.00' Storage=0.097 af Inflow=4.20 cfs 0.206 af
Outflow=1.64 cfs 0.200 af

Pond PND1: Dry Detention Pond Peak Elev=1,928.44' Storage=6,726 cf Inflow=3.39 cfs 0.768 af
Outflow=1.17 cfs 0.712 af

Pond PND2: Dry Detention Pond Peak Elev=1,918.35' Storage=2,790 cf Inflow=4.11 cfs 1.351 af
Outflow=3.61 cfs 1.295 af

Pond PND3: Dry Detention Pond Peak Elev=1,914.25' Storage=3,266 cf Inflow=4.87 cfs 1.629 af
Primary=0.00 cfs 0.000 af Secondary=3.91 cfs 1.574 af Outflow=3.91 cfs 1.574 af

Total Runoff Area = 5.464 ac Runoff Volume = 1.820 af Average Runoff Depth = 4.00"
65.90% Pervious = 3.601 ac 34.10% Impervious = 1.863 ac

Summary for Subcatchment 2P1:

Ru = 6.59 cfs @ 11.97 hrs, Volume= 0.322 af, Depth= 4.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	18,355	98	Paved parking 60x500
*	18,585	74	grassland, good
	2,234	70	Woods, Good, HSG C
	39,174	85	Weighted Average
	20,819		Pervious Area
	18,355		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	72	0.0764	2.46		**Sheet Flow, SHT** Smooth surfaces n= 0.011 P2= 4.00"
0.2	79	0.0190	6.68	30.07	**Channel Flow, Roadside Drainage Ditch** Area= 4.5 sf Perim= 7.4' r= 0.61' n= 0.022 Earth, clean & straight
5.3					**Direct Entry, direct entry for 6 min minimum Tc**
6.0	151	Total			

Summary for Subcatchment 2P2:

Runoff = 4.87 cfs @ 12.10 hrs, Volume= 0.346 af, Depth= 3.88"

Ru by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	14,269	98	Paved parking 60x280
*	23,522	74	grassland, good
	8,755	70	Woods, Good, HSG C
	46,546	81	Weighted Average
	32,277		Pervious Area
	14,269		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	38	0.0658	2.04		**Sheet Flow, Upper end SHT** Smooth surfaces n= 0.011 P2= 4.00"
17.2	62	0.0403	0.06		**Sheet Flow, SHT IN WOODS** Woods: Dense underbrush n= 0.800 P2= 4.00"
0.3	71	0.0775	4.18		**Shallow Concentrated Flow, SCF** Grassed Waterway Kv= 15.0 fps
0.1	57	0.0614	10.57	47.57	**Channel Flow, OCF** Area= 4.5 sf Perim= 7.4' r= 0.61' n= 0.025 Earth, clean & winding
17.9	228	Total			

Summary for Subcatchment 3P1:

Ru = 2.50 cfs @ 12.01 hrs, Volume= 0.137 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	5,837	98	Paved parking 60x500
*	11,171	74	grassland, good
	934	70	Woods, Good, HSG C
	17,942	82	Weighted Average
	12,105		Pervious Area
	5,837		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SCF TO DS** Grass: Dense n= 0.240 P2= 4.00"

Summary for Subcatchment 3P2:

Runoff = 4.20 cfs @ 11.98 hrs, Volume= 0.206 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	9,552	98	Paved parking 60x280
*	14,118	74	grassland, good
	3,311	70	Woods, Good, HSG C
	26,981	82	Weighted Average
	17,429		Pervious Area
	9,552		Impervious Area

Tc)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	50	0.0300	0.13		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"
0.3	161	0.0497	7.93	35.67	**Channel Flow, OCF** Area= 4.5 sf Perim= 7.4' r= 0.61' n= 0.030 Earth, grassed & winding
6.5	211	Total			

Summary for Subcatchment P1:

Runoff = 6.29 cfs @ 12.03 hrs, Volume= 0.359 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	13,497	98	Paved parking 60x400
*	32,952	74	grassland, good
	1,914	70	Woods, Good, HSG C
	48,363	81	Weighted Average
	34,866		Pervious Area
	13,497		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	100	0.0400	0.17		**Sheet Flow, SHT Flow** Grass: Dense n= 0.240 P2= 4.00"
1.4	164	0.0762	1.93		**Shallow Concentrated Flow, SCF to DS** Short Grass Pasture Kv= 7.0 fps
11.1	264	Total			

Summary for Subcatchment P2:

Cl for non-erosive peak velocity 3.5 to 5.0 fps during 2-yr 24-hr event with 4.00 inch rain.

Imperv Parking Lot
use 2% cross slope

Dry swale

#% max longitudinal slope
#' wide floor?

see acad layout

Runoff = 5.05 cfs @ 12.19 hrs, Volume= 0.450 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Type II 24-hr Q10 Rainfall=6.00"

	Area (sf)	CN	Description
*	19,663	98	Paved parking 60x360
*	36,033	74	grassland, good
	3,317	70	Woods, Good, HSG C
	59,013	82	Weighted Average
	39,350		Pervious Area
	19,663		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
[illegible]	100	0.0034	0.06		**Sheet Flow, SHT** Grass: Dense n= 0.240 P2= 4.00"
0.6	87	0.1379	2.60		**Shallow Concentrated Flow, SSC to DS** Short Grass Pasture Kv= 7.0 fps
26.5	187	Total			

Summary for Pond 1P: Dry Swale SW Treatment

Inflow Area = 1.110 ac, 27.91% Impervious, Inflow Depth = 3.88" for Q10 event
Inflow = 6.29 cfs @ 12.03 hrs, Volume= 0.359 af
Outflow = 2.85 cfs @ 12.17 hrs, Volume= 0.351 af, Atten= 55%, Lag= 8.6 min
Primary = 2.85 cfs @ 12.17 hrs, Volume= 0.351 af

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,930.18' @ 12.17 hrs Surf.Area= 0.092 ac Storage= 0.159 af
Flood Elev= 1,931.50' Surf.Area= 0.127 ac Storage= 0.303 af

Plug-Flow detention time= 583.5 min calculated for 0.351 af (98% of inflow)
Center-of-Mass det. time= 569.5 min (1,382.7 - 813.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,927.50'	0.303 af	**6.50'W x 188.00'L x 4.00'H Prismatoid Z=2.5**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,927.00'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,926.50' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,927.50'	**1.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
	Device 2	1,927.75'	**0.8" Vert. Vertical Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,929.50'	**Rock Dam Custom Weir, C= 2.99** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=2.85 cfs @ 12.17 hrs HW=1,930.18' TW=1,924.13' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 1.28 cfs potential flow)
  - **2=Horizontal Orifice** (Orifice Controls 0.04 cfs @ 7.88 fps)
    - **3=Vertical Orifice** (Passes 0.04 cfs of 0.29 cfs potential flow)
- **4=Rock Dam Custom Weir** (Weir Controls 2.80 cfs @ 2.46 fps)

Summary for Pond 2P: Dry Swale SW Treatment

Inflow Area =	1.355 ac, 33.32% Impervious, Inflow Depth = 3.99" for Q10 event			
Inflow =	5.05 cfs @ 12.19 hrs, Volume=	0.450 af		
Outflow =	2.17 cfs @ 12.52 hrs, Volume=	0.417 af, Atten= 57%, Lag= 19.7 min		
Primary =	2.17 cfs @ 12.52 hrs, Volume=	0.417 af		

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,930.11' @ 12.52 hrs Surf.Area= 0.118 ac Storage= 0.208 af
Flood Elev= 1,931.50' Surf.Area= 0.162 ac Storage= 0.403 af

Plug-Flow detention time= 662.9 min calculated for 0.417 af (93% of inflow)
Center-of-Mass det. time= 622.9 min (1,447.7 - 824.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,927.50'	0.403 af	**8.00'W x 232.00'L x 4.00'H Prismatoid Z=2.5**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,927.00'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,926.50' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,927.50'	**1.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,927.75'	**1.0" Vert. Vertical Orifice/Grate X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
	Primary	1,929.50'	**Rock Dam Custom Weir, C= 2.99** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=2.17 cfs @ 12.52 hrs HW=1,930.11' TW=1,926.96' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 1.26 cfs potential flow)
  - **2=Horizontal Orifice** (Orifice Controls 0.04 cfs @ 7.77 fps)
    - **3=Vertical Orifice/Grate** (Passes 0.04 cfs of 0.44 cfs potential flow)
- **4=Rock Dam Custom Weir** (Weir Controls 2.13 cfs @ 2.33 fps)

Summary for Pond 3P: Dry Swale SW Treatment

Inflow Area =	0.899 ac, 46.86% Impervious, Inflow Depth = 4.30" for Q10 event			
Inflow =	6.59 cfs @ 11.97 hrs, Volume=	0.322 af		
Outflow =	1.09 cfs @ 12.17 hrs, Volume=	0.303 af, Atten= 83%, Lag= 11.8 min		
Primary =	1.09 cfs @ 12.17 hrs, Volume=	0.303 af		

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,922.42' @ 12.17 hrs Surf.Area= 0.112 ac Storage= 0.173 af
Flood Elev= 1,924.00' Surf.Area= 0.169 ac Storage= 0.394 af

Plug-Flow detention time= 852.6 min calculated for 0.303 af (94% of inflow)
Center-of-Mass det. time= 818.3 min (1,615.8 - 797.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,920.00'	0.394 af	**5.00'W x 274.00'L x 4.00'H Prismatoid Z=2.5**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,919.50'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,919.00' S= 0.0208 '/' Cc= 0.900 n= 0.010 PVC, smooth interior
#2	Device 1	1,920.00'	**1.0" Horiz. Horiz Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,920.25'	**0.8" Vert. Vertical Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,922.00'	**Rock Dam Custom Weir, C= 3.60** Head (feet) 0.00 1.00 2.00

Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=1.09 cfs @ 12.17 hrs HW=1,922.42' TW=1,916.02' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 1.22 cfs potential flow)
  - **2=Horiz Orifice** (Orifice Controls 0.04 cfs @ 7.50 fps)
    - **3=Vertical Orifice** (Passes 0.04 cfs of 0.27 cfs potential flow)
- **4=Rock Dam Custom Weir** (Weir Controls 1.05 cfs @ 2.34 fps)

Summary for Pond 4P: Dry Swale SW Treatment

Inflow Area =	1.069 ac, 30.66% Impervious, Inflow Depth = 3.88" for Q10 event			
Inflow =	4.87 cfs @ 12.10 hrs, Volume=	0.346 af		
Outflow =	2.20 cfs @ 12.31 hrs, Volume=	0.336 af, Atten= 55%, Lag= 12.7 min		
Primary =	2.20 cfs @ 12.31 hrs, Volume=	0.336 af		

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,922.56' @ 12.31 hrs Surf.Area= 0.089 ac Storage= 0.154 af
Flood Elev= 1,924.00' Surf.Area= 0.125 ac Storage= 0.307 af

Plug-Flow detention time= 640.0 min calculated for 0.336 af (97% of inflow)
Center-of-Mass det. time= 623.1 min (1,442.6 - 819.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,920.00'	0.307 af	**8.00'W x 174.00'L x 4.00'H Prismatoid Z=2.5**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,919.50'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,919.00' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,920.00'	**1.0" Horiz. Horiz Orifice** Limited to weir flow C= 0.600
	Device 2	1,920.25'	**1.0" Vert. Vertical Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
	Primary	1,922.00'	**Rock Dam Custom Weir, C= 3.60** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=2.20 cfs @ 12.31 hrs HW=1,922.56' TW=1,917.85' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 1.25 cfs potential flow)
  - **2=Horiz Orifice** (Orifice Controls 0.04 cfs @ 7.71 fps)
    - **3=Vertical Orifice** (Passes 0.04 cfs of 0.43 cfs potential flow)
- **4=Rock Dam Custom Weir** (Weir Controls 2.15 cfs @ 2.70 fps)

Summary for Pond 5P: Dry Swale SW Treatment

Inflow Area =	0.412 ac, 32.53% Impervious, Inflow Depth = 3.99" for Q10 event			
Inflow =	2.50 cfs @ 12.01 hrs, Volume=	0.137 af		
Outflow =	1.09 cfs @ 12.15 hrs, Volume=	0.134 af, Atten= 56%, Lag= 8.0 min		
Primary =	1.09 cfs @ 12.15 hrs, Volume=	0.134 af		

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,917.92' @ 12.15 hrs Surf.Area= 0.041 ac Storage= 0.061 af
Flood Elev= 1,919.50' Surf.Area= 0.064 ac Storage= 0.144 af

Plug-Flow detention time= 407.9 min calculated for 0.134 af (98% of inflow)
Center-of-Mass det. time= 394.5 min (1,203.8 - 809.3)

92.00 +

Volume	Invert	Avail.Storage	Storage Description
#1	1,915.50'	0.144 af	**5.00'W x 92.00'L x 4.00'H Prismatoid Z=2.5**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,915.00'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,914.50' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
#2	Device 1	1,915.50'	**1.0" Horiz. Horiz Orifice** Limited to weir flow C= 0.600
#3	Device 2	1,915.75'	**0.8" Vert. Vert Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,917.50'	**Rock Dam Custom Weir, C= 3.60**

Head (feet) 0.00 1.00 2.00
Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=1.09 cfs @ 12.15 hrs HW=1,917.92' TW=1,912.18' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 1.22 cfs potential flow)
  - **2=Horiz Orifice** (Orifice Controls 0.04 cfs @ 7.49 fps)
    - **3=Vert Orifice** (Passes 0.04 cfs of 0.27 cfs potential flow)
- **4=Rock Dam Custom Weir** (Weir Controls 1.05 cfs @ 2.34 fps)

Summary for Pond 6P: Dry Swale SW Treatment

Inflow Area =	0.619 ac, 35.40% Impervious, Inflow Depth = 3.99" for Q10 event			
Inflow =	4.20 cfs @	11.98 hrs, Volume=	0.206 af	
Outflow =	1.64 cfs @	12.09 hrs, Volume=	0.200 af, Atten= 61%, Lag= 6.9 min	
Primary =	1.64 cfs @	12.09 hrs, Volume=	0.200 af	

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,918.00' @ 12.09 hrs Surf.Area= 0.058 ac Storage= 0.097 af
Flood Elev= 1,919.50' Surf.Area= 0.084 ac Storage= 0.203 af

Plug-Flow detention time= 540.0 min calculated for 0.200 af (97% of inflow)
Center-of-Mass det. time= 523.9 min (1,330.2 - 806.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,915.50'	0.203 af	**8.00'W x 111.00'L x 4.00'H Prismatoid Z=2.5**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,915.00'	**6.0" x 24.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,914.50' S= 0.0208 '/' Cc= 0.900 n= 0.009 PVC, smooth interior
	Device 1	1,915.50'	**1.0" Horiz. Horiz Orifice** Limited to weir flow C= 0.600
	Device 2	1,915.75'	**0.8" Vert. Vert Orifice X 3.00 columns** X 4 rows with 3.0" cc spacing C= 0.600
#4	Primary	1,917.50'	**Rock Dam Custom Weir, C= 3.60** Head (feet) 0.00 1.00 2.00 Width (feet) 0.00 5.00 25.00

Primary OutFlow Max=1.63 cfs @ 12.09 hrs HW=1,918.00' TW=1,911.42' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 1.24 cfs potential flow)
  - **2=Horiz Orifice** (Orifice Controls 0.04 cfs @ 7.61 fps)
    - **3=Vert Orifice** (Passes 0.04 cfs of 0.27 cfs potential flow)
- **4=Rock Dam Custom Weir** (Weir Controls 1.59 cfs @ 2.55 fps)

Summary for Pond PND1: Dry Detention Pond

Inflow Area =	2.465 ac, 30.88% Impervious, Inflow Depth > 3.74" for Q10 event			
Inflow =	3.39 cfs @	12.47 hrs, Volume=	0.768 af	
Outflow =	1.17 cfs @	13.31 hrs, Volume=	0.712 af, Atten= 65%, Lag= 50.3 min	
Primary =	1.17 cfs @	13.31 hrs, Volume=	0.712 af	

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,928.44' @ 13.31 hrs Surf.Area= 1,946 sf Storage= 6,726 cf
Flood Elev= 1,932.60' Surf.Area= 3,702 sf Storage= 18,284 cf

Plug-Flow detention time= 255.0 min calculated for 0.712 af (93% of inflow)
Center-of-Mass det. time= 73.7 min (1,491.7 - 1,418.0)

Volume	Invert	Avail.Storage	Storage Description
	1,921.50'	18,284 cf	**22.00'W x 11.35'L x 11.10'H Prismatoid Z=2.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,920.50'	**12.0" x 110.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,919.95' S= 0.0050 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	1,920.50'	**4.0" Vert. Vertical Internal Orifice** C= 0.600
#3	Device 2	1,925.50'	**36.0" Horiz. Horizontal Orifice** Limited to weir flow C= 0.600

#4	Primary	1,932.00'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=1.17 cfs @ 13.31 hrs HW=1,928.44' TW=1,918.16' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.17 cfs of 8.14 cfs potential flow)
  - **2=Vertical Internal Orifice** (Orifice Controls 1.17 cfs @ 13.42 fps)
    - **3=Horizontal Orifice** (Passes 1.17 cfs of 58.35 cfs potential flow)
- **4=roadway overflow** (Controls 0.00 cfs)

Summary for Pond PND2: Dry Detention Pond

Inflow Area =	4.433 ac, 34.07% Impervious, Inflow Depth > 3.66" for Q10 event			
Inflow =	4.11 cfs @ 12.31 hrs, Volume=	1.351 af		
Outflow =	3.61 cfs @ 12.35 hrs, Volume=	1.295 af, Atten= 12%, Lag= 2.4 min		
Primary =	3.61 cfs @ 12.35 hrs, Volume=	1.295 af		

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,918.35' @ 12.49 hrs Surf.Area= 1,133 sf Storage= 2,790 cf
Flood Elev= 1,925.10' Surf.Area= 3,702 sf Storage= 18,284 cf

Plug-Flow detention time= 141.9 min calculated for 1.295 af (96% of inflow)
Center-of-Mass det. time= 35.3 min (1,542.5 - 1,507.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,914.00'	18,284 cf	**22.00'W x 11.35'L x 11.10'H Prismatoid Z=2.0**

Device	Routing	Invert	Outlet Devices
#1	Primary	1,913.00'	**12.0" x 104.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,912.48' S= 0.0050 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
	Device 1	1,913.00'	**8.0" Vert. Vert Oriifce** C= 0.600
#3	Device 2	1,918.00'	**36.0" Horiz. Horiz Orifice** Limited to weir flow C= 0.600
#4	Primary	1,924.50'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=3.58 cfs @ 12.35 hrs HW=1,918.24' TW=1,913.71' (Dynamic Tailwater)
- **1=Culvert** (Passes 3.58 cfs of 6.35 cfs potential flow)
  - **2=Vert Oriifce** (Orifice Controls 3.58 cfs @ 10.25 fps)
    - **3=Horiz Orifice** (Passes 3.58 cfs of 3.67 cfs potential flow)
- **4=roadway overflow** (Controls 0.00 cfs)

Summary for Pond PND3: Dry Detention Pond

Inflow Area =	5.464 ac, 34.10% Impervious, Inflow Depth > 3.58" for Q10 event			
Inflow =	4.87 cfs @ 12.35 hrs, Volume=	1.629 af		
Outflow =	3.91 cfs @ 12.65 hrs, Volume=	1.574 af, Atten= 20%, Lag= 18.1 min		
Primary =	0.00 cfs @ 0.00 hrs, Volume=	0.000 af		
Secondary =	3.91 cfs @ 12.65 hrs, Volume=	1.574 af		

Routing by Sim-Route method, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
Peak Elev= 1,914.25' @ 12.65 hrs Surf.Area= 1,245 sf Storage= 3,266 cf
Flood Elev= 1,920.60' Surf.Area= 3,702 sf Storage= 18,284 cf

Plug-Flow detention time= 117.4 min calculated for 1.574 af (97% of inflow)
Center-of-Mass det. time= 28.9 min (1,517.4 - 1,488.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,909.50'	18,284 cf	**22.00'W x 11.35'L x 11.10'H Prismatoid Z=2.0**

Device	Routing	Invert	Outlet Devices
#1	Secondary	1,908.50'	**12.0" x 112.0' long Culvert** CPP, projecting, no headwall, Ke= 0.900 Outlet Invert= 1,908.00' S= 0.0045 '/' Cc= 0.900 n= 0.009 Corrugated PE, smooth interior
#2	Device 1	1,908.50'	**8.0" Vert. Vert Orifice** C= 0.600
#3	Device 2	1,913.50'	**36.0" Horiz. Horiz Orifice** Limited to weir flow C= 0.600
#4	Primary	1,920.00'	**roadway overflow, C= 2.62** Head (feet) 0.00 0.60 Width (feet) 0.00 60.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,909.50' (Free Discharge)
└─**4=roadway overflow** (Controls 0.00 cfs)

Secondary OutFlow Max=3.91 cfs @ 12.65 hrs HW=1,914.25' (Free Discharge)
└─**1=Culvert** (Passes 3.91 cfs of 6.84 cfs potential flow)
└─**2=Vert Orifice** (Orifice Controls 3.91 cfs @ 11.21 fps)
└─**3=Horiz Orifice** (Passes 3.91 cfs of 20.10 cfs potential flow)