

Hokunui HydroCAD - Pond 1 and 6

Prepared by Roth Ecological Design Intl.

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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	P1	18.00	12.00	74.8	0.0802	0.010	72.0	0.0	0.0

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Type I 24-hr 0.5in-24hr Rainfall=0.50"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 0.00" for 0.5in-24hr event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 18%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.00' @ 24.00 hrs Surf.Area= 0.076 ac Storage= 0.000 af

Plug-Flow detention time= 41.5 min calculated for 0.000 af (63% of inflow)
 Center-of-Mass det. time= 12.3 min (1,381.3 - 1,369.0)

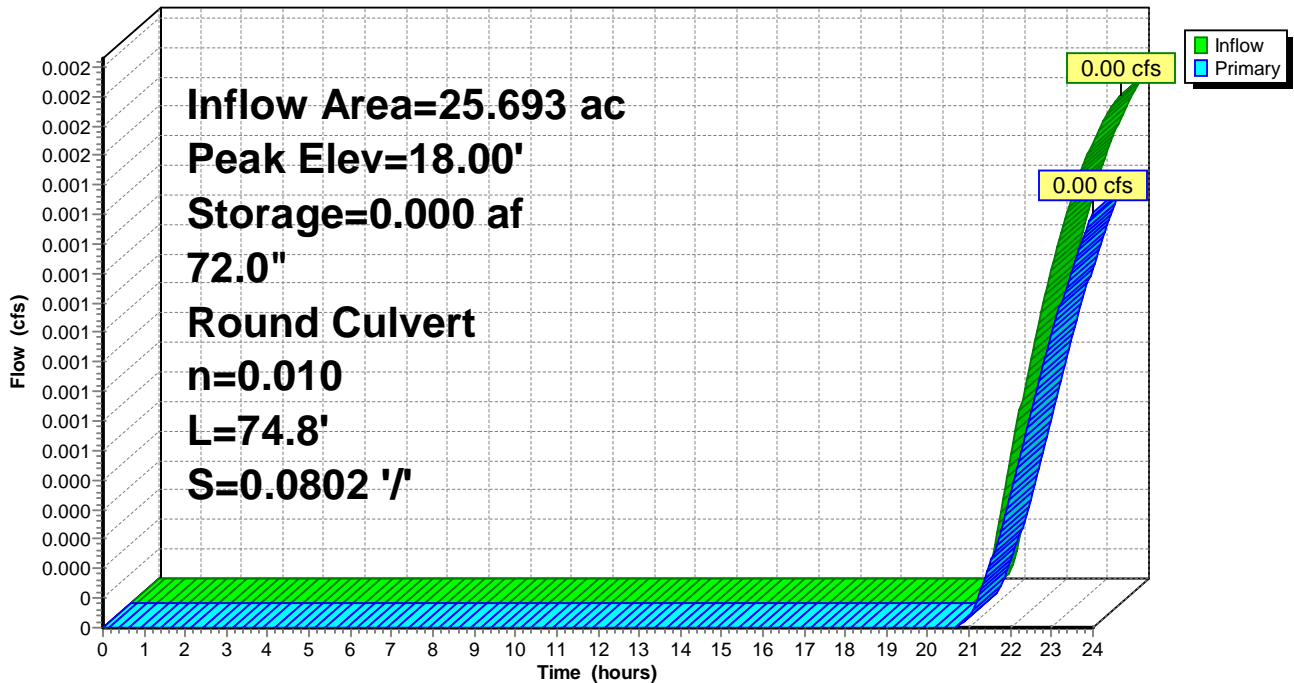
Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=18.00' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.00 cfs @ 0.10 fps)

Pond P1: Pond 1

Hydrograph



Hokunui HydroCAD - Pond 1 and 6

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Type I 24-hr 0.75in-24hr Rainfall=0.75"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 0.01" for 0.75in-24hr event
 Inflow = 0.04 cfs @ 20.54 hrs, Volume= 0.031 af
 Outflow = 0.04 cfs @ 21.53 hrs, Volume= 0.028 af, Atten= 1%, Lag= 59.3 min
 Primary = 0.04 cfs @ 21.53 hrs, Volume= 0.028 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.04' @ 21.53 hrs Surf.Area= 0.076 ac Storage= 0.003 af

Plug-Flow detention time= 52.8 min calculated for 0.028 af (91% of inflow)
 Center-of-Mass det. time= 25.1 min (1,146.8 - 1,121.7)

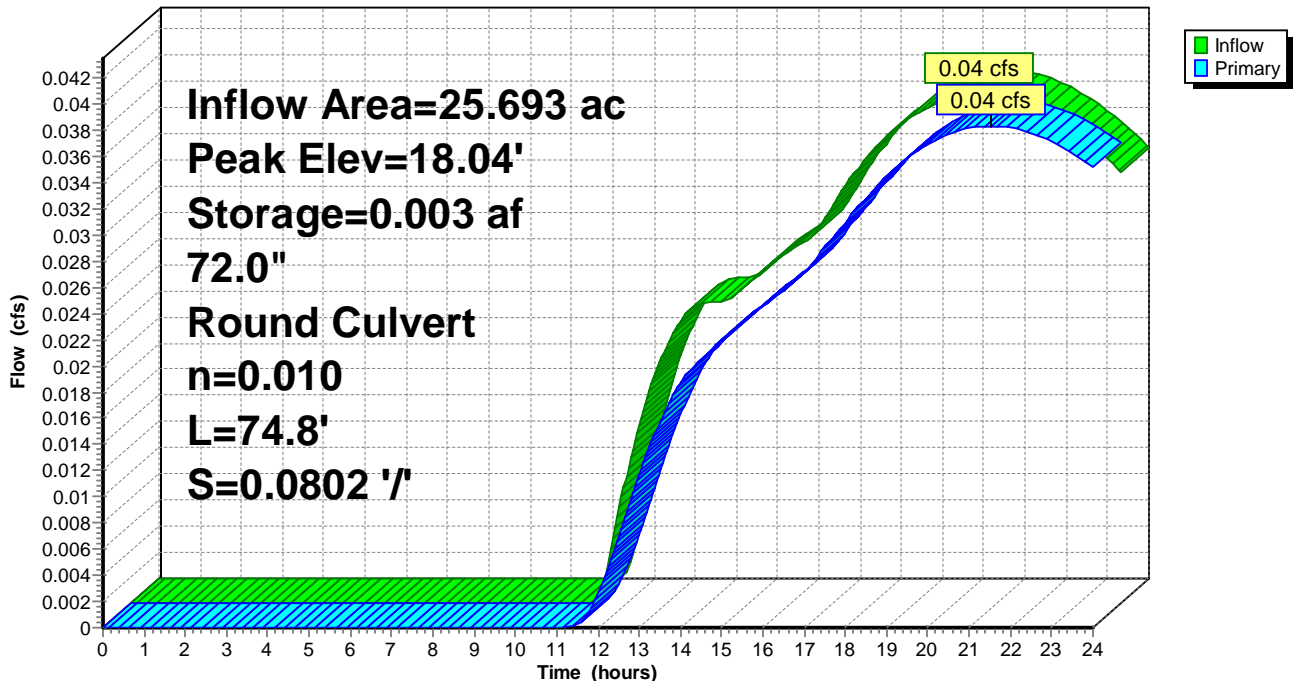
Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=0.01 cfs @ 21.53 hrs HW=18.04' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.01 cfs @ 0.50 fps)

Pond P1: Pond 1

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Type / 24-hr 1in-24hr Rainfall=1.00"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 0.06" for 1in-24hr event
 Inflow = 0.13 cfs @ 17.44 hrs, Volume= 0.132 af
 Outflow = 0.13 cfs @ 17.74 hrs, Volume= 0.125 af, Atten= 0%, Lag= 17.9 min
 Primary = 0.13 cfs @ 17.74 hrs, Volume= 0.125 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 18.12' @ 17.74 hrs Surf.Area= 0.076 ac Storage= 0.009 af

Plug-Flow detention time= 52.6 min calculated for 0.125 af (94% of inflow)
 Center-of-Mass det. time= 29.6 min (1,058.6 - 1,029.0)

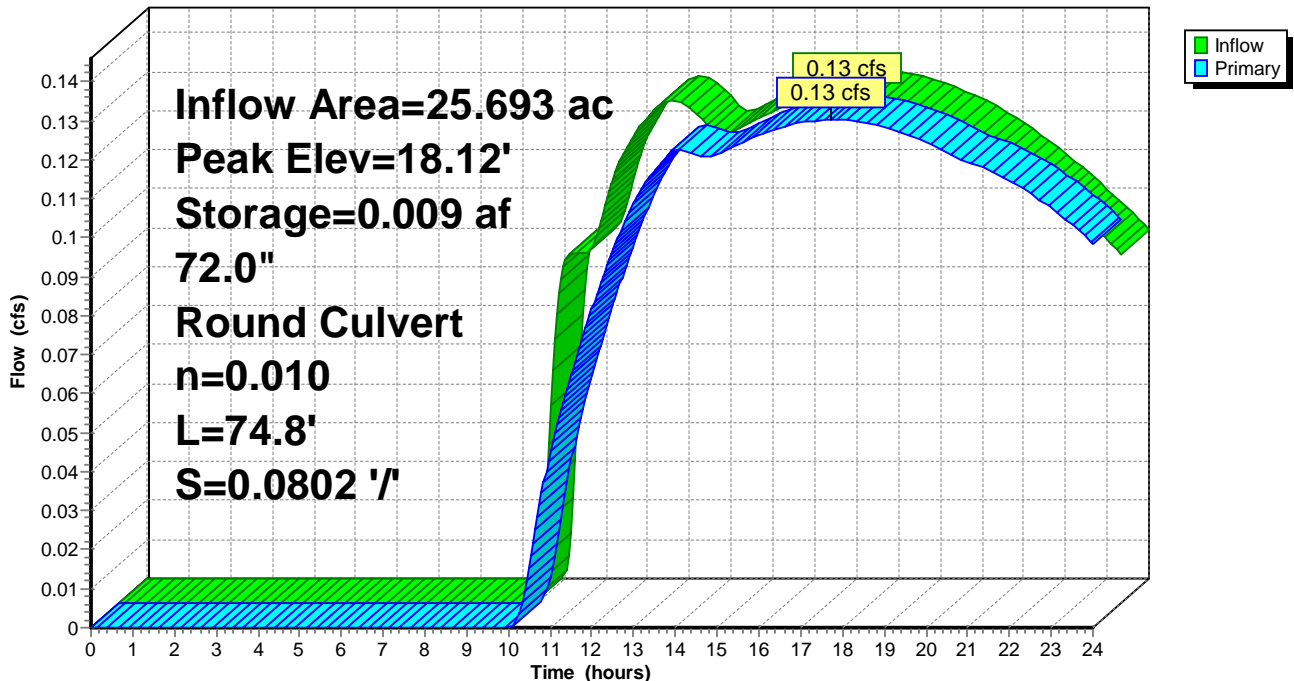
Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=0.13 cfs @ 17.74 hrs HW=18.12' (Free Discharge)
 ↑1=Culvert (Inlet Controls 0.13 cfs @ 0.90 fps)

Pond P1: Pond 1

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Type I 24-hr 2yr-24hr Rainfall=5.79"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 3.38" for 2yr-24hr event
 Inflow = 44.47 cfs @ 10.10 hrs, Volume= 7.241 af
 Outflow = 43.60 cfs @ 10.13 hrs, Volume= 7.205 af, Atten= 2%, Lag= 1.9 min
 Primary = 43.60 cfs @ 10.13 hrs, Volume= 7.205 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 20.46' @ 10.13 hrs Surf.Area= 0.080 ac Storage= 0.192 af

Plug-Flow detention time= 8.0 min calculated for 7.205 af (100% of inflow)
 Center-of-Mass det. time= 4.9 min (806.3 - 801.4)

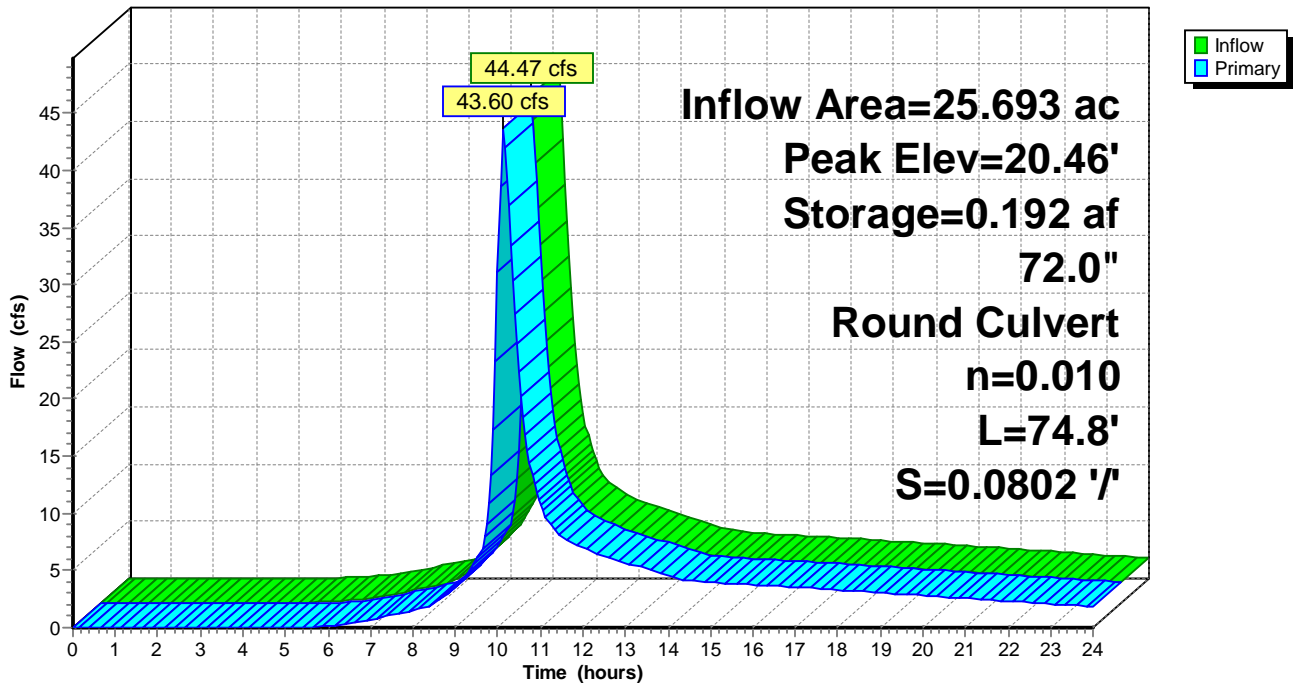
Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=43.23 cfs @ 10.13 hrs HW=20.45' (Free Discharge)
 ←1=Culvert (Inlet Controls 43.23 cfs @ 3.99 fps)

Pond P1: Pond 1

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Type I 24-hr 5yr-24hr Rainfall=7.75"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 5.14" for 5yr-24hr event
 Inflow = 69.10 cfs @ 10.09 hrs, Volume= 11.004 af
 Outflow = 68.34 cfs @ 10.12 hrs, Volume= 10.961 af, Atten= 1%, Lag= 1.6 min
 Primary = 68.34 cfs @ 10.12 hrs, Volume= 10.961 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 21.16' @ 10.12 hrs Surf.Area= 0.081 ac Storage= 0.248 af

Plug-Flow detention time= 6.7 min calculated for 10.938 af (99% of inflow)
 Center-of-Mass det. time= 4.2 min (787.9 - 783.7)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

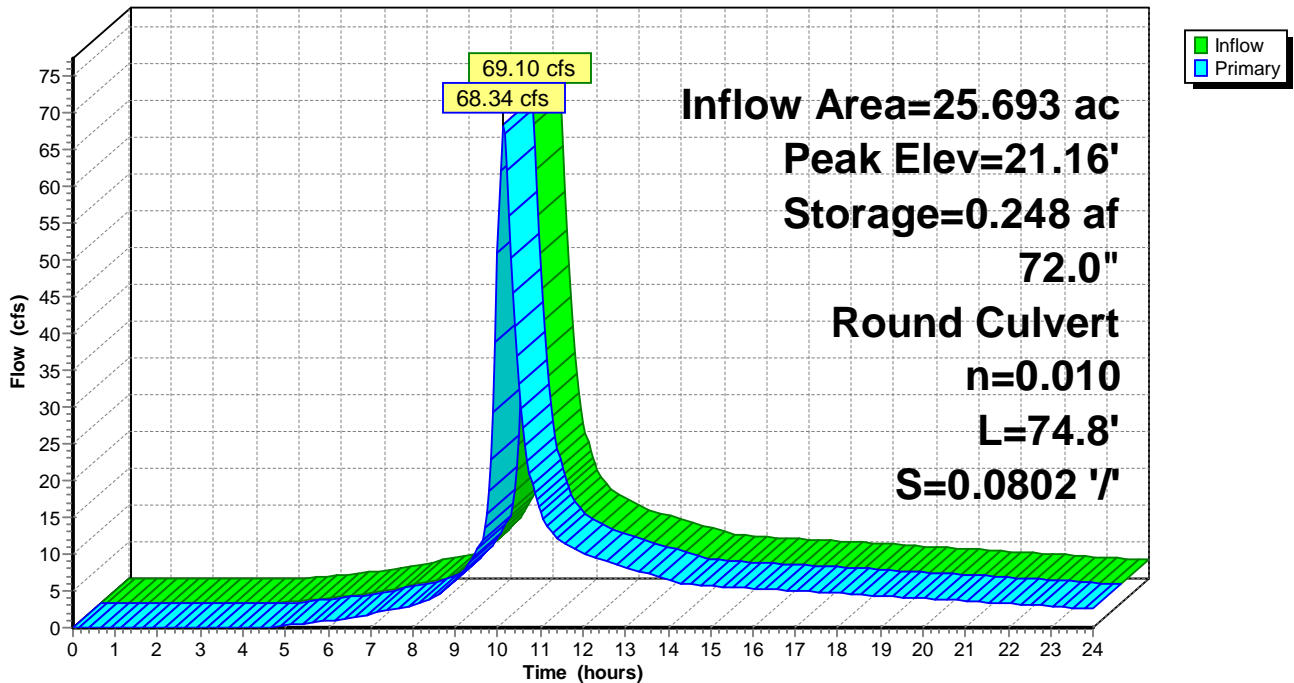
Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=67.56 cfs @ 10.12 hrs HW=21.13' (Free Discharge)

↑**1=Culvert** (Inlet Controls 67.56 cfs @ 4.52 fps)

Pond P1: Pond 1

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Type I 24-hr 10yr-24hr Rainfall=9.68"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 6.93" for 10yr-24hr event
 Inflow = 93.91 cfs @ 10.09 hrs, Volume= 14.841 af
 Outflow = 93.04 cfs @ 10.11 hrs, Volume= 14.793 af, Atten= 1%, Lag= 1.5 min
 Primary = 93.04 cfs @ 10.11 hrs, Volume= 14.793 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 21.78' @ 10.11 hrs Surf.Area= 0.082 ac Storage= 0.299 af

Plug-Flow detention time= 5.9 min calculated for 14.762 af (99% of inflow)
 Center-of-Mass det. time= 3.8 min (775.3 - 771.5)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

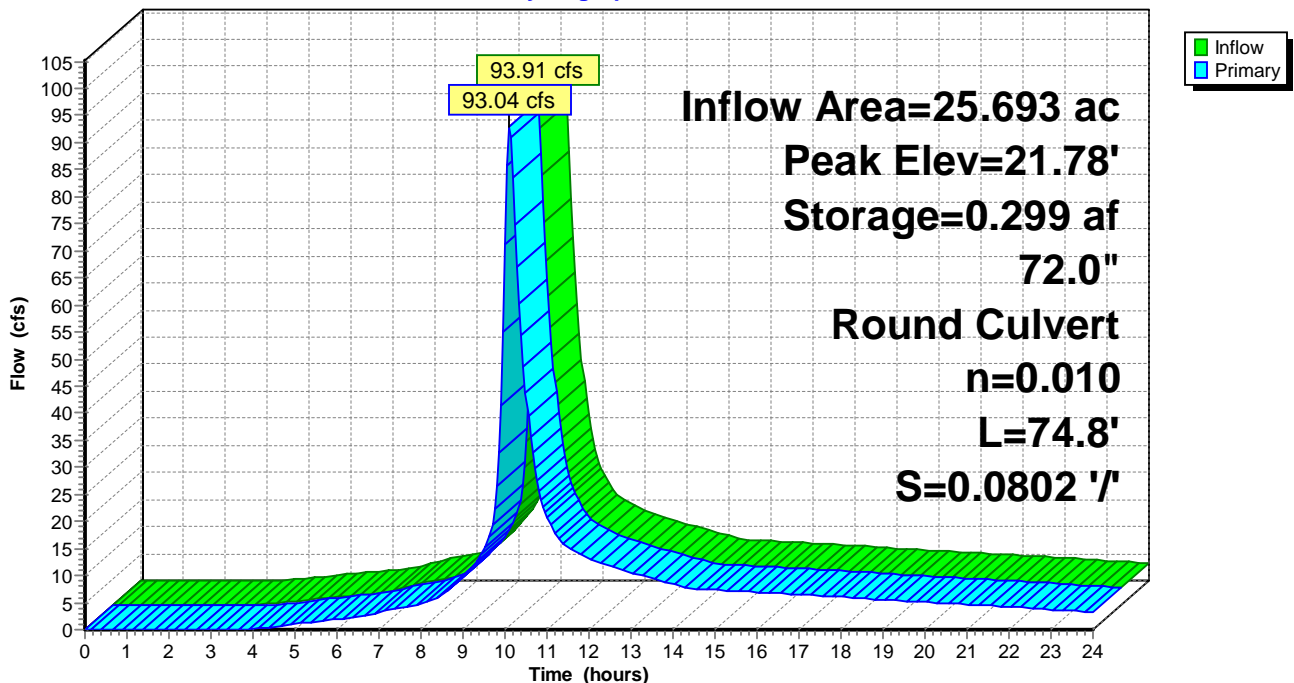
Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=92.12 cfs @ 10.11 hrs HW=21.75' (Free Discharge)

↑**1=Culvert** (Inlet Controls 92.12 cfs @ 4.95 fps)

Pond P1: Pond 1

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Type I 24-hr 100yr-24hr Rainfall=15.30"

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Summary for Pond P1: Pond 1

Inflow Area = 25.693 ac, 4.46% Impervious, Inflow Depth > 12.31" for 100yr-24hr event
 Inflow = 166.56 cfs @ 10.09 hrs, Volume= 26.363 af
 Outflow = 164.29 cfs @ 10.11 hrs, Volume= 26.301 af, Atten= 1%, Lag= 1.7 min
 Primary = 164.29 cfs @ 10.11 hrs, Volume= 26.301 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 23.55' @ 10.11 hrs Surf.Area= 0.085 ac Storage= 0.447 af

Plug-Flow detention time= 4.7 min calculated for 26.301 af (100% of inflow)
 Center-of-Mass det. time= 3.0 min (752.8 - 749.7)

Volume	Invert	Avail.Storage	Storage Description
#1	18.00'	1.034 af	44.84'W x 73.83'L x 12.00'H Prismatic Z=0.3

Device	Routing	Invert	Outlet Devices
#1	Primary	18.00'	72.0" Round Culvert L= 74.8' Ke= 1.000 Inlet / Outlet Invert= 18.00' / 12.00' S= 0.0802 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 28.27 sf

Primary OutFlow Max=162.96 cfs @ 10.11 hrs HW=23.51' (Free Discharge)
 ←1=Culvert (Inlet Controls 162.96 cfs @ 5.99 fps)

Pond P1: Pond 1

Hydrograph

