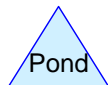
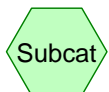


Dryden Rd - Existing Conditions



Dryden Rd - Existing Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Printed 3/2/2016

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.989	49	50-75% Grass cover, Fair, HSG A (1S)
0.143	98	Impervious Surfaces, HSG A (1S)
1.132	55	TOTAL AREA

Dryden Rd - Existing Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Printed 3/2/2016

Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
1.132	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.132		TOTAL AREA

Dryden Rd - Existing Conditions

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 4

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Dryden Rd - Existing

Runoff Area=1.132 ac 12.63% Impervious Runoff Depth=0.02"
Flow Length=273' Tc=22.1 min CN=55 Runoff=0.00 cfs 0.002 af

Total Runoff Area = 1.132 ac Runoff Volume = 0.002 af Average Runoff Depth = 0.02"
87.37% Pervious = 0.989 ac 12.63% Impervious = 0.143 ac

Dryden Rd - Existing Conditions

Prepared by Woit Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Printed 3/2/2016

Page 5

Summary for Subcatchment 1S: Dryden Rd - Existing Conditions

Runoff = 0.00 cfs @ 18.15 hrs, Volume= 0.002 af, Depth= 0.02"

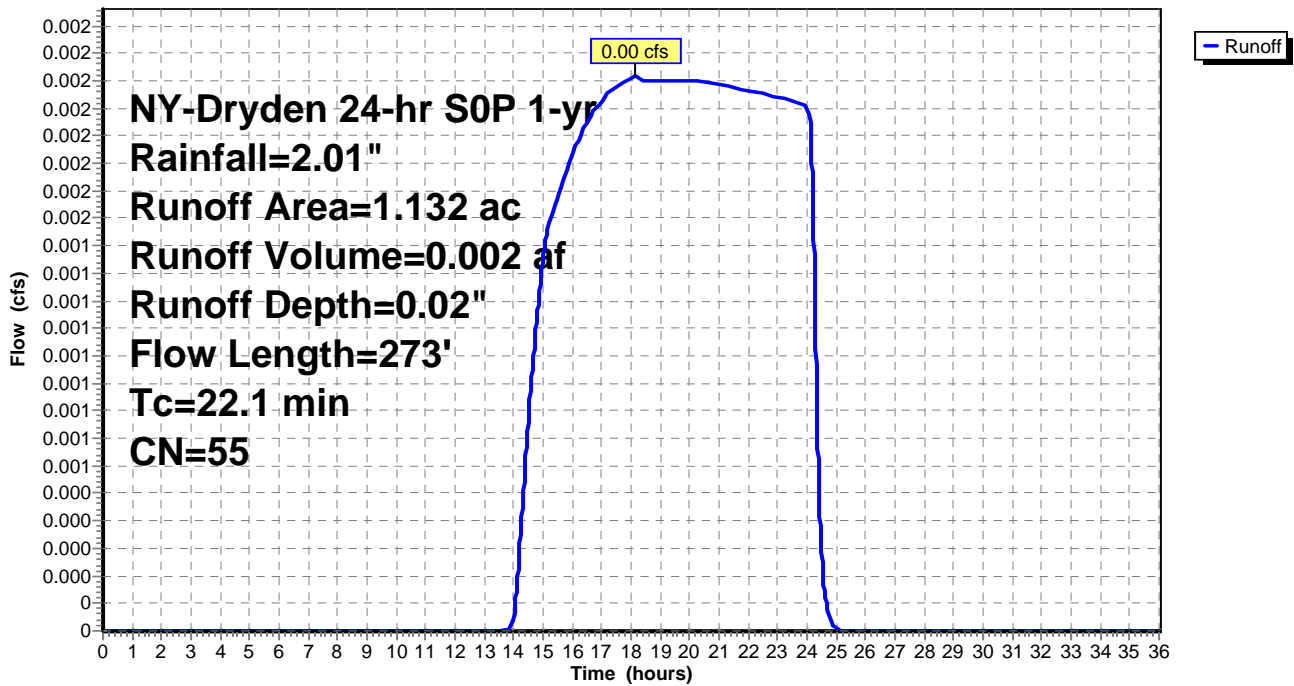
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Area (ac)	CN	Description
* 0.143	98	Impervious Surfaces, HSG A
0.989	49	50-75% Grass cover, Fair, HSG A
1.132	55	Weighted Average
0.989		87.37% Pervious Area
0.143		12.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	150	0.0099	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 2.34"
1.1	123	0.0728	1.89		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.1	273	Total			

Subcatchment 1S: Dryden Rd - Existing Conditions

Hydrograph



Dryden Rd - Existing Conditions

NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 6

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Dryden Rd - Existing

Runoff Area=1.132 ac 12.63% Impervious Runoff Depth=0.32"
Flow Length=273' Tc=22.1 min CN=55 Runoff=0.15 cfs 0.030 af

Total Runoff Area = 1.132 ac Runoff Volume = 0.030 af Average Runoff Depth = 0.32"
87.37% Pervious = 0.989 ac 12.63% Impervious = 0.143 ac

Dryden Rd - Existing Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr S0P 10-yr Rainfall=3.43"

Printed 3/2/2016

Page 7

Summary for Subcatchment 1S: Dryden Rd - Existing Conditions

Runoff = 0.15 cfs @ 12.42 hrs, Volume= 0.030 af, Depth= 0.32"

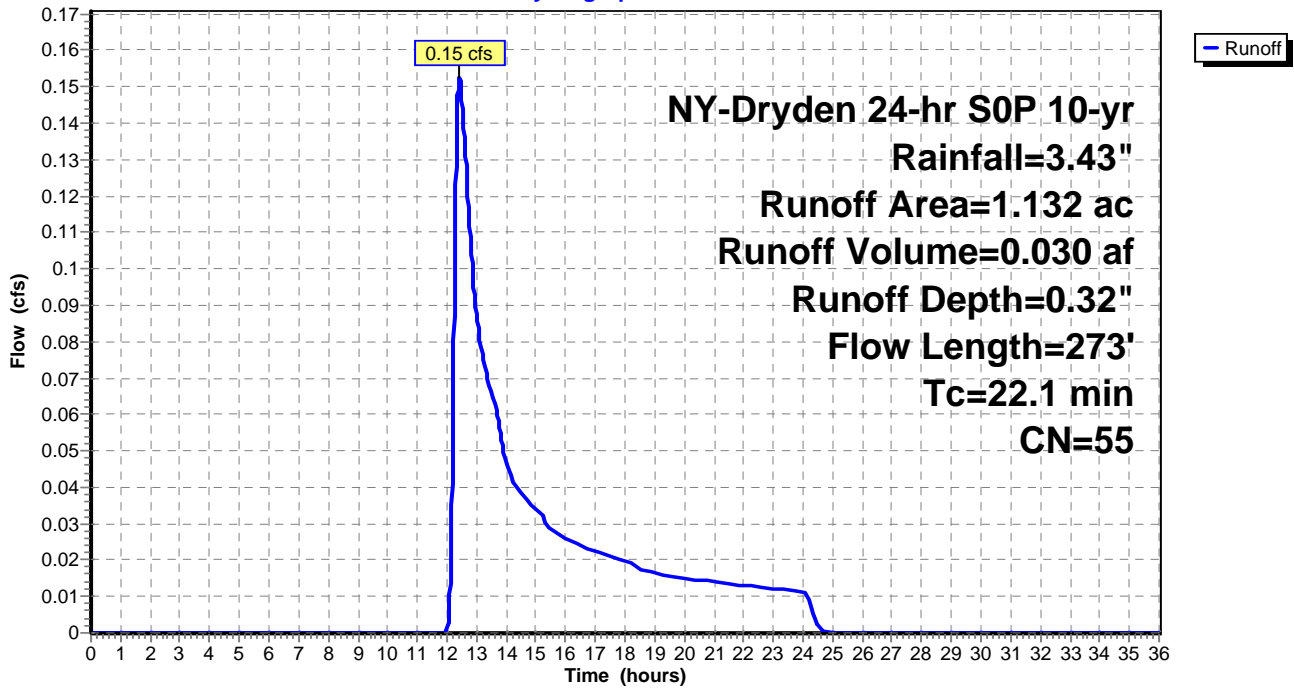
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NY-Dryden 24-hr S0P 10-yr Rainfall=3.43"

Area (ac)	CN	Description
* 0.143	98	Impervious Surfaces, HSG A
0.989	49	50-75% Grass cover, Fair, HSG A
1.132	55	Weighted Average
0.989		87.37% Pervious Area
0.143		12.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	150	0.0099	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 2.34"
1.1	123	0.0728	1.89		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.1	273	Total			

Subcatchment 1S: Dryden Rd - Existing Conditions

Hydrograph



Dryden Rd - Existing Conditions

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 8

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Dryden Rd - Existing

Runoff Area=1.132 ac 12.63% Impervious Runoff Depth=1.49"
Flow Length=273' Tc=22.1 min CN=55 Runoff=1.21 cfs 0.140 af

Total Runoff Area = 1.132 ac Runoff Volume = 0.140 af Average Runoff Depth = 1.49"
87.37% Pervious = 0.989 ac 12.63% Impervious = 0.143 ac

Dryden Rd - Existing Conditions

Prepared by Woitd Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Printed 3/2/2016

Page 9

Summary for Subcatchment 1S: Dryden Rd - Existing Conditions

Runoff = 1.21 cfs @ 12.31 hrs, Volume= 0.140 af, Depth= 1.49"

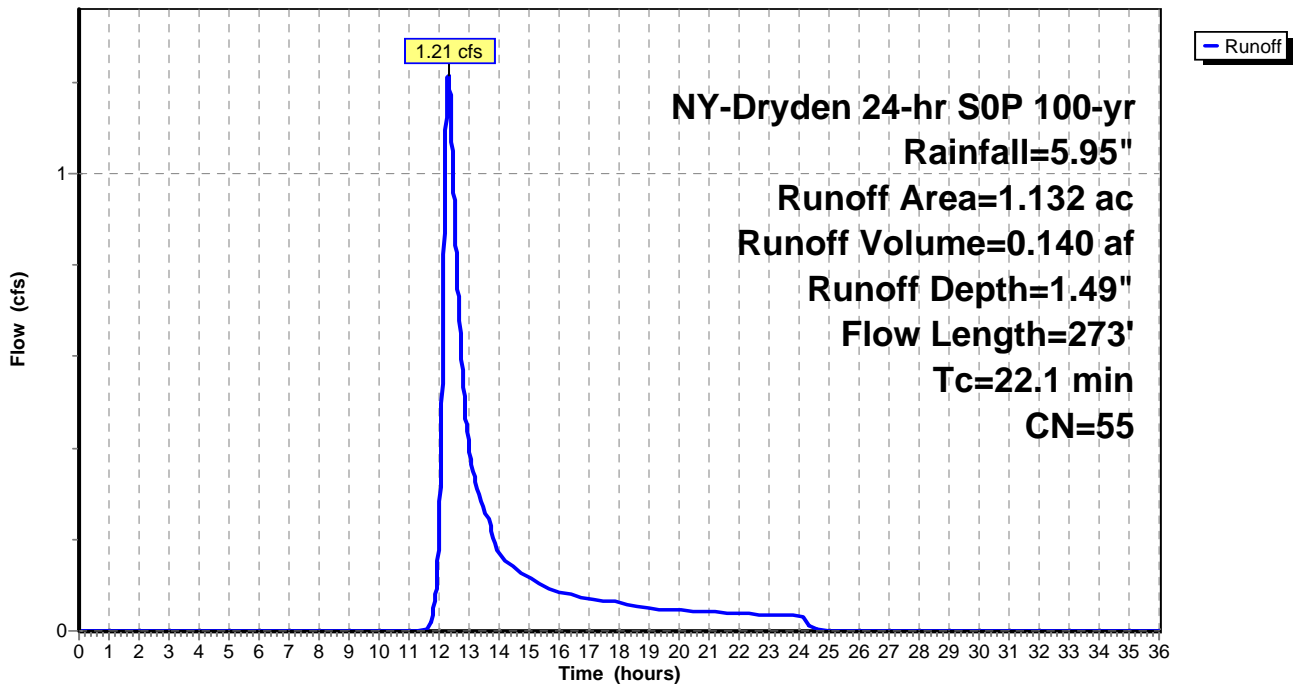
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

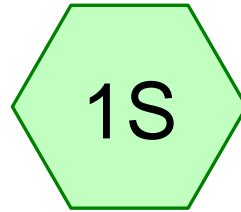
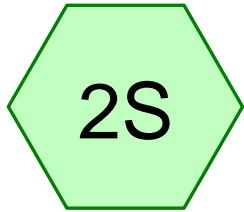
Area (ac)	CN	Description
* 0.143	98	Impervious Surfaces, HSG A
0.989	49	50-75% Grass cover, Fair, HSG A
1.132	55	Weighted Average
0.989		87.37% Pervious Area
0.143		12.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.0	150	0.0099	0.12		Sheet Flow, Grass: Short n= 0.150 P2= 2.34"
1.1	123	0.0728	1.89		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
22.1	273	Total			

Subcatchment 1S: Dryden Rd - Existing Conditions

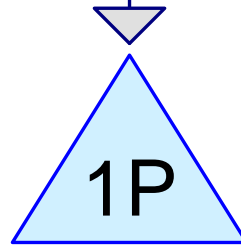
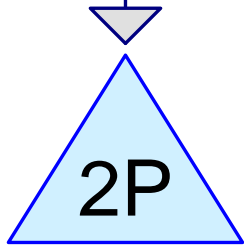
Hydrograph



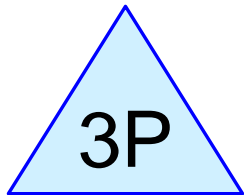


Dryden Rd - Proposed Conditions

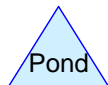
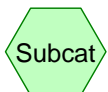
Rooftops



Bioretention Swale Flow-Through Type Stormwater Planters (x11)



Infiltration Basin



Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Printed 3/2/2016

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.583	39	>75% Grass cover, Good, HSG A (2S)
0.453	98	Paved parking, HSG B (2S)
0.096	98	Roofs, HSG A (1S)
1.132	68	TOTAL AREA

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Printed 3/2/2016

Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.679	HSG A	1S, 2S
0.453	HSG B	2S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
1.132		TOTAL AREA

Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 4

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Rooftops Runoff Area=0.096 ac 100.00% Impervious Runoff Depth=1.78"
Tc=5.0 min CN=98 Runoff=0.27 cfs 0.014 af

Subcatchment 2S: Dryden Rd - Proposed Runoff Area=1.036 ac 43.73% Impervious Runoff Depth=0.14"
Flow Length=255' Tc=5.7 min CN=65 Runoff=0.07 cfs 0.012 af

Pond 1P: Flow-Through Type Stormwater Peak Elev=890.00' Storage=458 cf Inflow=0.27 cfs 0.014 af
Outflow=0.02 cfs 0.004 af

Pond 2P: Bioretention Swale Peak Elev=882.54' Storage=20 cf Inflow=0.07 cfs 0.016 af
Discarded=0.05 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.016 af

Pond 3P: Infiltration Basin Peak Elev=883.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 1.132 ac Runoff Volume = 0.026 af Average Runoff Depth = 0.28"
51.50% Pervious = 0.583 ac 48.50% Impervious = 0.549 ac

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Printed 3/2/2016

Page 5

Summary for Subcatchment 1S: Rooftops

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 0.014 af, Depth= 1.78"

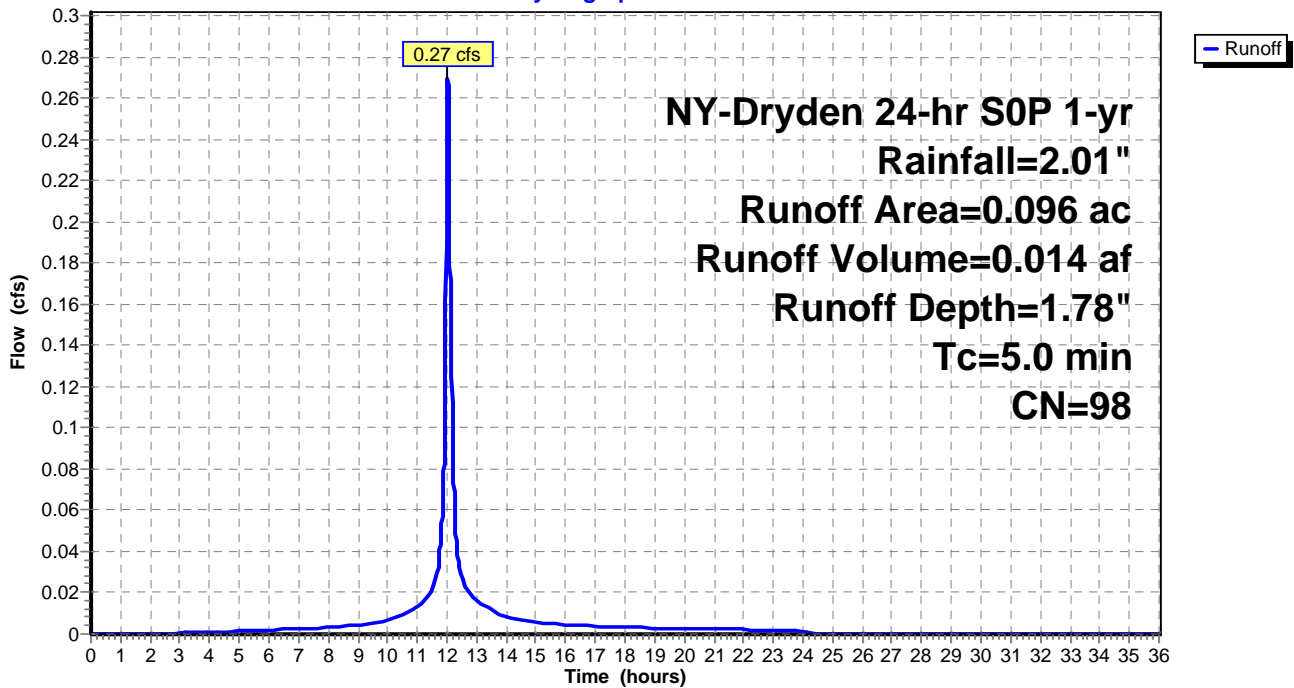
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.096	98	Roofs, HSG A
0.096		100.00% Impervious Area

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

Subcatchment 1S: Rooftops

Hydrograph



Dryden Rd - Proposed Conditions

Prepared by Woitd Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Printed 3/2/2016

Page 6

Summary for Subcatchment 2S: Dryden Rd - Proposed Conditions

Runoff = 0.07 cfs @ 12.16 hrs, Volume= 0.012 af, Depth= 0.14"

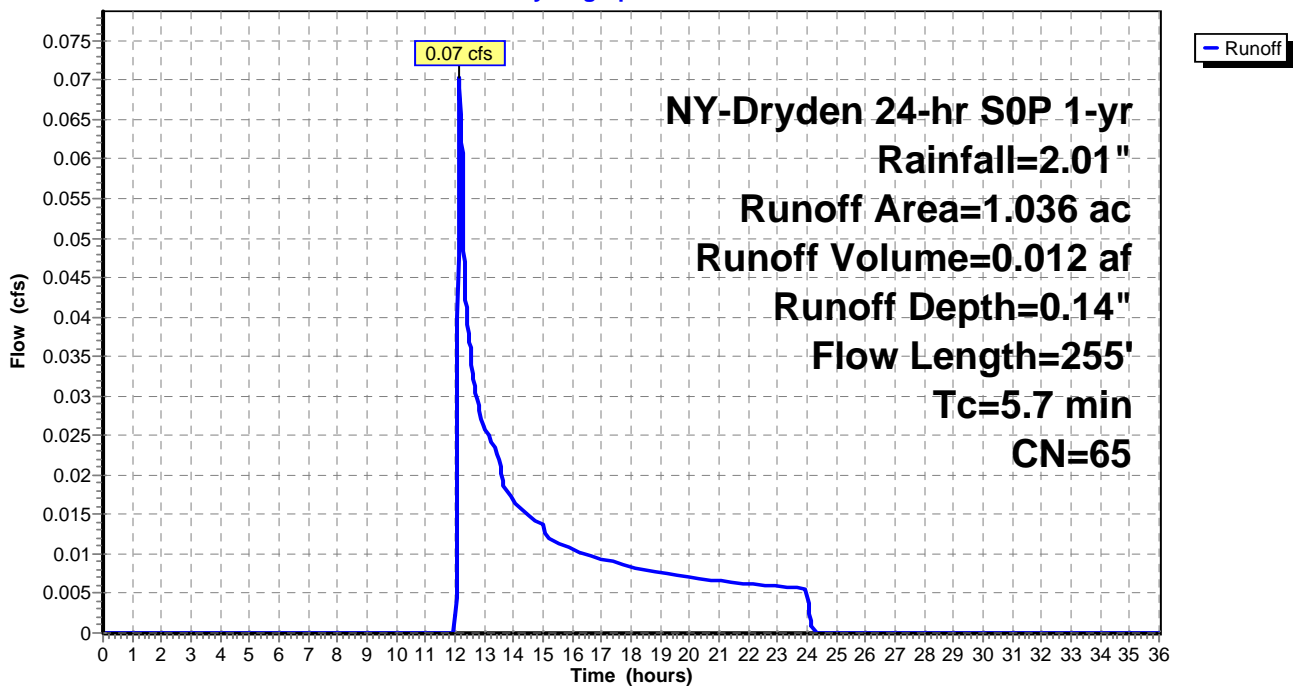
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Area (ac)	CN	Description
0.453	98	Paved parking, HSG B
0.583	39	>75% Grass cover, Good, HSG A
1.036	65	Weighted Average
0.583		56.27% Pervious Area
0.453		43.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	85	0.1780	0.34		Sheet Flow, Grass: Short n= 0.150 P2= 2.34"
1.0	65	0.0208	1.10		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.34"
0.3	55	0.0208	2.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	50	0.0914	4.87		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.7	255	Total			

Subcatchment 2S: Dryden Rd - Proposed Conditions

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 7

Summary for Pond 1P: Flow-Through Type Stormwater Planters (x11)

Inflow Area = 0.096 ac, 100.00% Impervious, Inflow Depth = 1.78" for 1-yr event
 Inflow = 0.27 cfs @ 12.03 hrs, Volume= 0.014 af
 Outflow = 0.02 cfs @ 13.05 hrs, Volume= 0.004 af, Atten= 94%, Lag= 61.5 min
 Primary = 0.02 cfs @ 13.05 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 890.00' @ 13.05 hrs Surf.Area= 1,114 sf Storage= 458 cf

Plug-Flow detention time= 417.6 min calculated for 0.004 af (26% of inflow)
 Center-of-Mass det. time= 240.6 min (1,006.0 - 765.4)

Volume	Invert	Avail.Storage	Storage Description
#1	889.50'	371 cf	1.50'W x 22.50'L x 1.00'H 12" Ponding Depth (x11)x 11
#2	888.50'	74 cf	1.50'W x 22.50'L x 1.00'H 12" Soil Media (x11)x 11 371 cf Overall x 20.0% Voids
#3	887.36'	150 cf	1.50'W x 22.50'L x 1.14'H 12" Crushed Stone (x11)x 11 423 cf Overall - 48 cf Embedded = 376 cf x 40.0% Voids
#4	887.36'	48 cf	6.0" Round 6" Underdrain (x11) x 11 Inside #3 L= 22.0'
		643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	887.36'	6.0" Round 6" PVC Outlet L= 13.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.36' / 887.29' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	890.00'	12.0" Horiz. 12" Top Grate (x11) X 9.35 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 13.05 hrs HW=890.00' (Free Discharge)

↑1=6" PVC Outlet (Passes 0.00 cfs of 1.46 cfs potential flow)

↑2=12" Top Grate (x11) (Weir Controls 0.00 cfs @ 0.94 fps)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

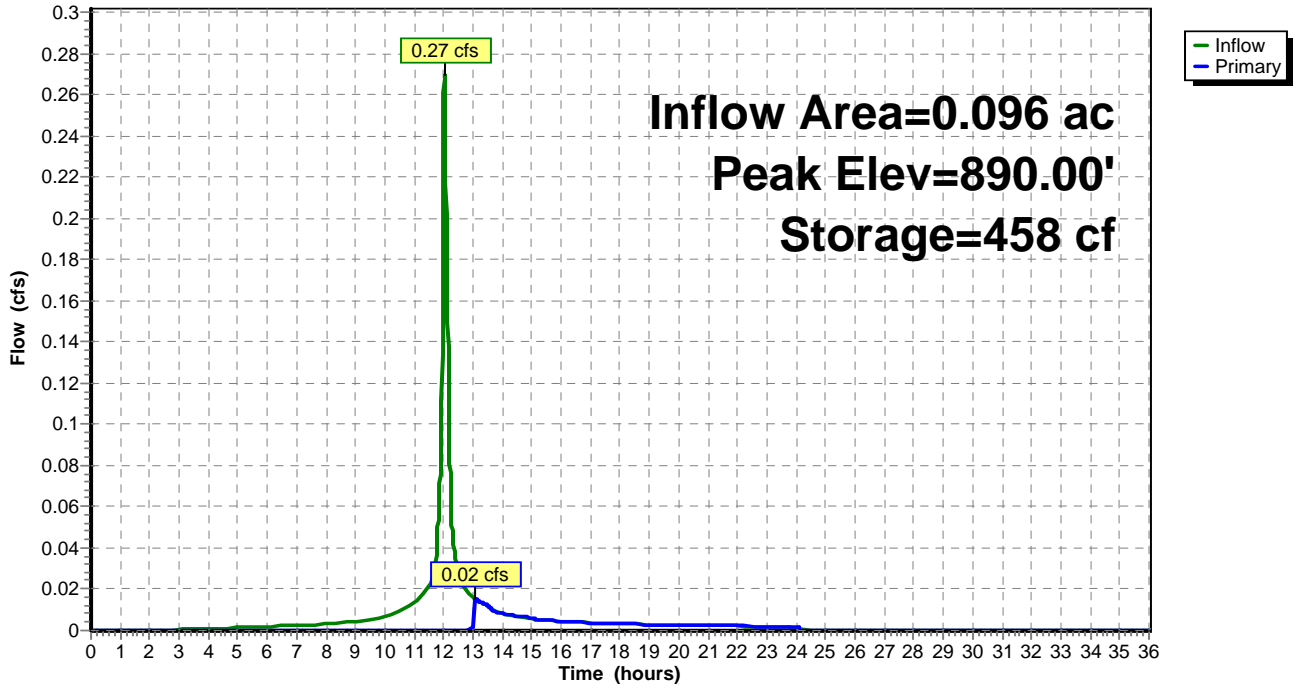
NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Printed 3/2/2016

Page 8

Pond 1P: Flow-Through Type Stormwater Planters (x11)

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Prepared by Woitd Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 9

Summary for Pond 2P: Bioretention Swale

Inflow Area = 1.132 ac, 48.50% Impervious, Inflow Depth = 0.17" for 1-yr event
 Inflow = 0.07 cfs @ 12.16 hrs, Volume= 0.016 af
 Outflow = 0.05 cfs @ 12.29 hrs, Volume= 0.016 af, Atten= 27%, Lag= 7.6 min
 Discarded = 0.05 cfs @ 12.29 hrs, Volume= 0.016 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 882.54' @ 12.29 hrs Surf.Area= 1,404 sf Storage= 20 cf

Plug-Flow detention time= 6.5 min calculated for 0.016 af (100% of inflow)
 Center-of-Mass det. time= 6.5 min (978.6 - 972.1)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	1,912 cf	12" Surface Ponding (Prismatic) Listed below (Recalc)
#2	883.25'	702 cf	30" Bioretention Soil (Prismatic) Listed below (Recalc)
			3,510 cf Overall x 20.0% Voids
#3	882.50'	421 cf	9" Crushed Stone (Prismatic) Listed below (Recalc)
			1,053 cf Overall x 40.0% Voids
		3,035 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	1,404	0	0
887.00	2,420	1,912	1,912

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
883.25	1,404	0	0
885.75	1,404	3,510	3,510

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.50	1,404	0	0
883.25	1,404	1,053	1,053

Device	Routing	Invert	Outlet Devices
#1	Primary	886.50'	4.5' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	882.50'	2.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 1.00'

Discarded OutFlow Max=0.07 cfs @ 12.29 hrs HW=882.54' (Free Discharge)
 ↑2=Exfiltration (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.50' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

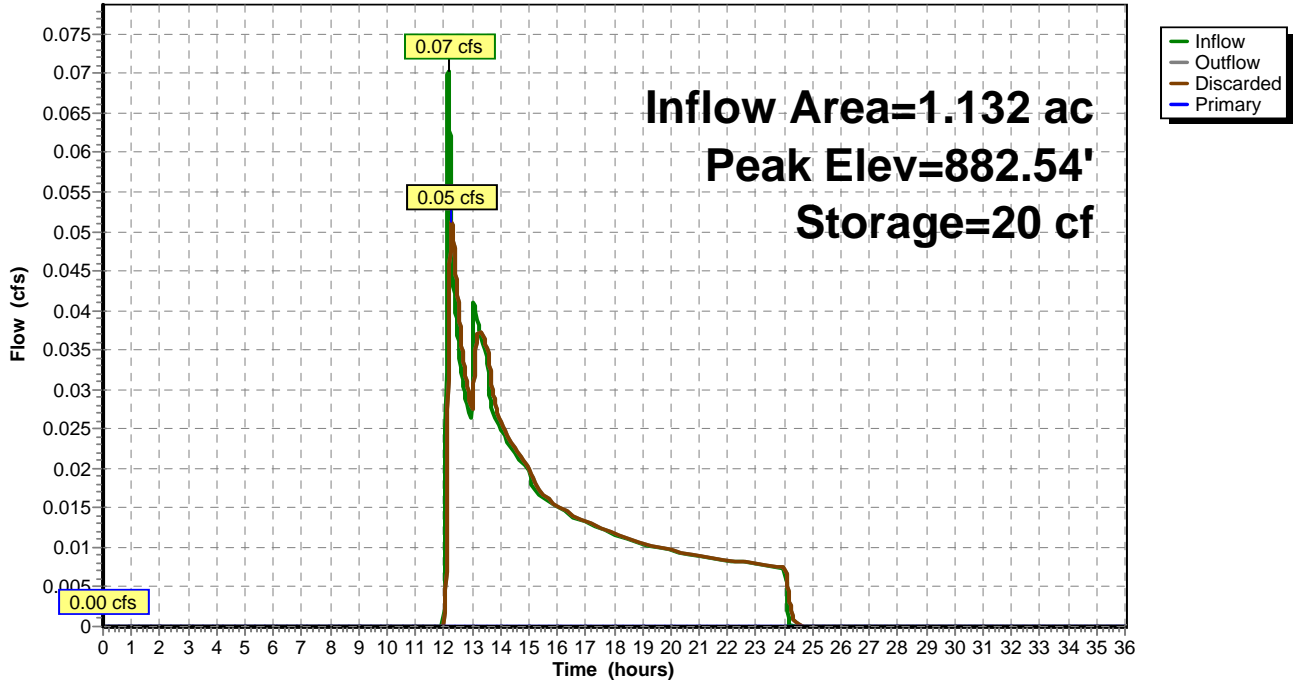
NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Printed 3/2/2016

Page 10

Pond 2P: Bioretention Swale

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 11

Summary for Pond 3P: Infiltration Basin

Inflow Area = 1.132 ac, 48.50% Impervious, Inflow Depth = 0.00" for 1-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 883.00' @ 0.00 hrs Surf.Area= 712 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	883.00'	2,512 cf	Detention Pond (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
883.00	712	0	0
884.00	1,229	971	971
885.00	1,854	1,542	2,512

Device	Routing	Invert	Outlet Devices
#1	Primary	884.50'	6.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	883.00'	2.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 1.00'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=883.00' (Free Discharge)
 ↑**2=Exfiltration** (Passes 0.00 cfs of 0.03 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=883.00' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

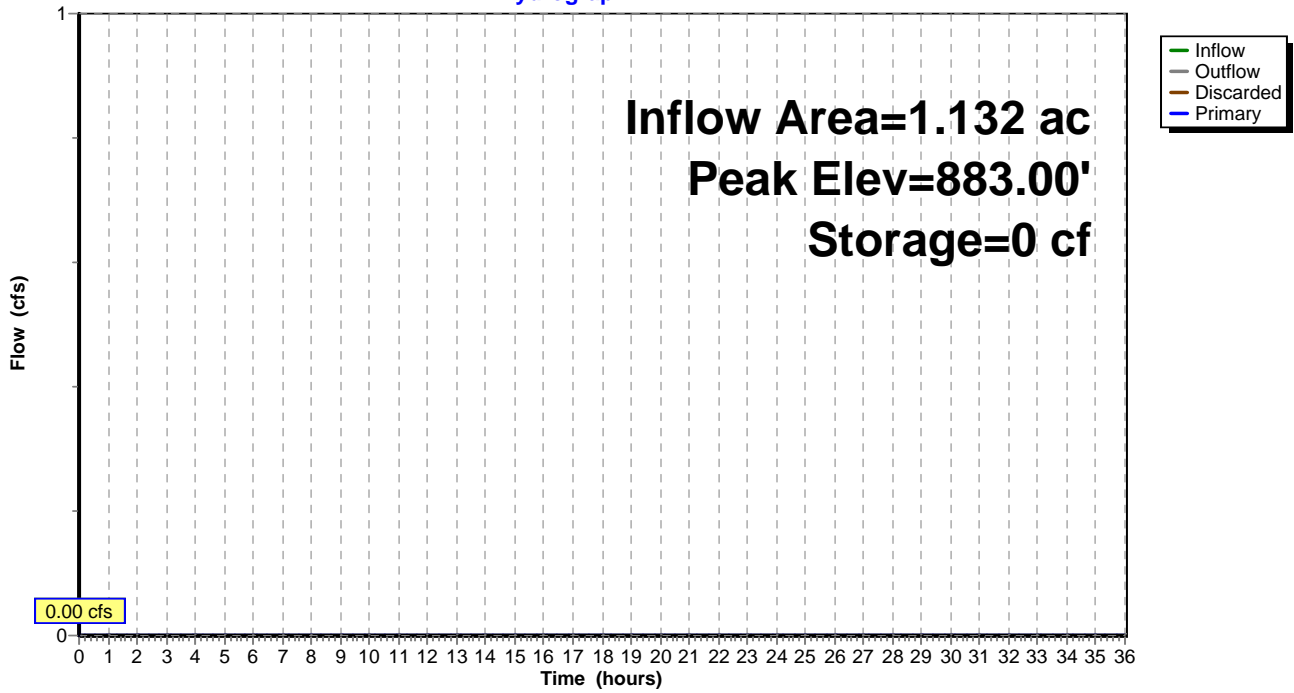
NY-Dryden 24-hr SOP 1-yr Rainfall=2.01"

Printed 3/2/2016

Page 12

Pond 3P: Infiltration Basin

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 13

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Rooftops Runoff Area=0.096 ac 100.00% Impervious Runoff Depth=3.20"
Tc=5.0 min CN=98 Runoff=0.42 cfs 0.026 af

Subcatchment 2S: Dryden Rd - Proposed Runoff Area=1.036 ac 43.73% Impervious Runoff Depth=0.72"
Flow Length=255' Tc=5.7 min CN=65 Runoff=0.85 cfs 0.062 af

Pond 1P: Flow-Through Type Stormwater Peak Elev=890.03' Storage=467 cf Inflow=0.42 cfs 0.026 af
Outflow=0.42 cfs 0.015 af

Pond 2P: Bioretention Swale Peak Elev=886.00' Storage=1,126 cf Inflow=1.25 cfs 0.077 af
Discarded=0.20 cfs 0.077 af Primary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.077 af

Pond 3P: Infiltration Basin Peak Elev=883.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 1.132 ac Runoff Volume = 0.087 af Average Runoff Depth = 0.93"
51.50% Pervious = 0.583 ac 48.50% Impervious = 0.549 ac

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr S0P 10-yr Rainfall=3.43"

Printed 3/2/2016

Page 14

Summary for Subcatchment 1S: Rooftops

Runoff = 0.42 cfs @ 12.03 hrs, Volume= 0.026 af, Depth= 3.20"

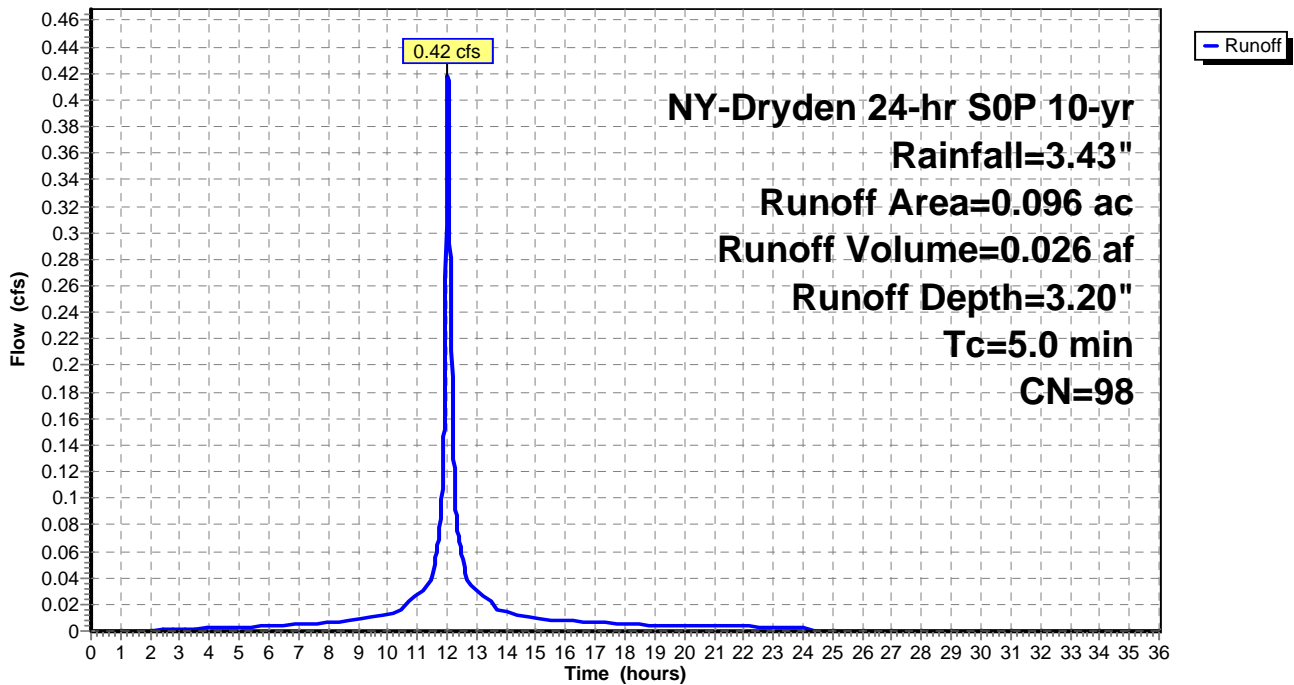
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
NY-Dryden 24-hr S0P 10-yr Rainfall=3.43"

Area (ac)	CN	Description
0.096	98	Roofs, HSG A
0.096		100.00% Impervious Area

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

Subcatchment 1S: Rooftops

Hydrograph



Dryden Rd - Proposed Conditions

Prepared by Woit Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Printed 3/2/2016

Page 15

Summary for Subcatchment 2S: Dryden Rd - Proposed Conditions

Runoff = 0.85 cfs @ 12.06 hrs, Volume= 0.062 af, Depth= 0.72"

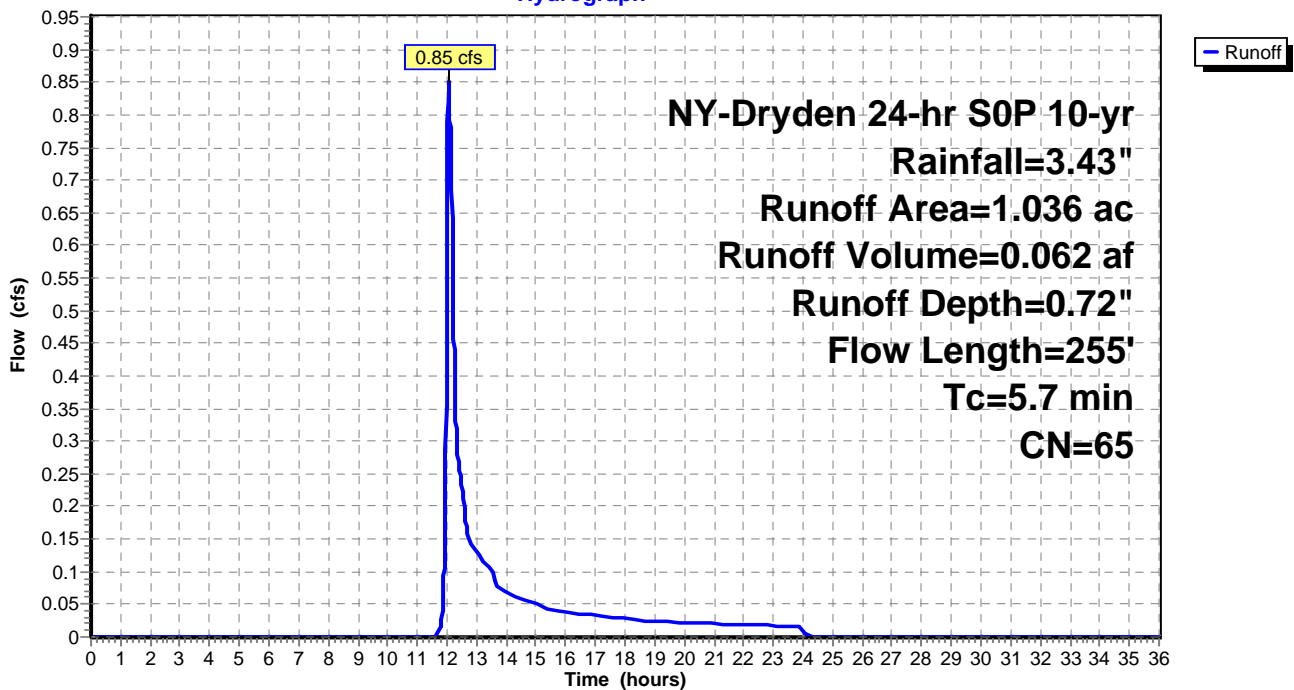
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Area (ac)	CN	Description
0.453	98	Paved parking, HSG B
0.583	39	>75% Grass cover, Good, HSG A
1.036	65	Weighted Average
0.583		56.27% Pervious Area
0.453		43.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	85	0.1780	0.34		Sheet Flow, Grass: Short n= 0.150 P2= 2.34"
1.0	65	0.0208	1.10		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.34"
0.3	55	0.0208	2.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	50	0.0914	4.87		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.7	255	Total			

Subcatchment 2S: Dryden Rd - Proposed Conditions

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr S0P 10-yr Rainfall=3.43"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 16

Summary for Pond 1P: Flow-Through Type Stormwater Planters (x11)

Inflow Area = 0.096 ac, 100.00% Impervious, Inflow Depth = 3.20" for 10-yr event
 Inflow = 0.42 cfs @ 12.03 hrs, Volume= 0.026 af
 Outflow = 0.42 cfs @ 12.03 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.4 min
 Primary = 0.42 cfs @ 12.03 hrs, Volume= 0.015 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 890.03' @ 12.03 hrs Surf.Area= 1,114 sf Storage= 467 cf

Plug-Flow detention time= 196.4 min calculated for 0.015 af (59% of inflow)
 Center-of-Mass det. time= 94.2 min (846.6 - 752.4)

Volume	Invert	Avail.Storage	Storage Description
#1	889.50'	371 cf	1.50'W x 22.50'L x 1.00'H 12" Ponding Depth (x11)x 11
#2	888.50'	74 cf	1.50'W x 22.50'L x 1.00'H 12" Soil Media (x11)x 11 371 cf Overall x 20.0% Voids
#3	887.36'	150 cf	1.50'W x 22.50'L x 1.14'H 12" Crushed Stone (x11)x 11 423 cf Overall - 48 cf Embedded = 376 cf x 40.0% Voids
#4	887.36'	48 cf	6.0" Round 6" Underdrain (x11) x 11 Inside #3 L= 22.0'
		643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	887.36'	6.0" Round 6" PVC Outlet L= 13.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.36' / 887.29' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	890.00'	12.0" Horiz. 12" Top Grate (x11) X 9.35 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.39 cfs @ 12.03 hrs HW=890.03' (Free Discharge)

↑1=6" PVC Outlet (Passes 0.39 cfs of 1.47 cfs potential flow)

↑2=12" Top Grate (x11) (Weir Controls 0.39 cfs @ 4.87 fps)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

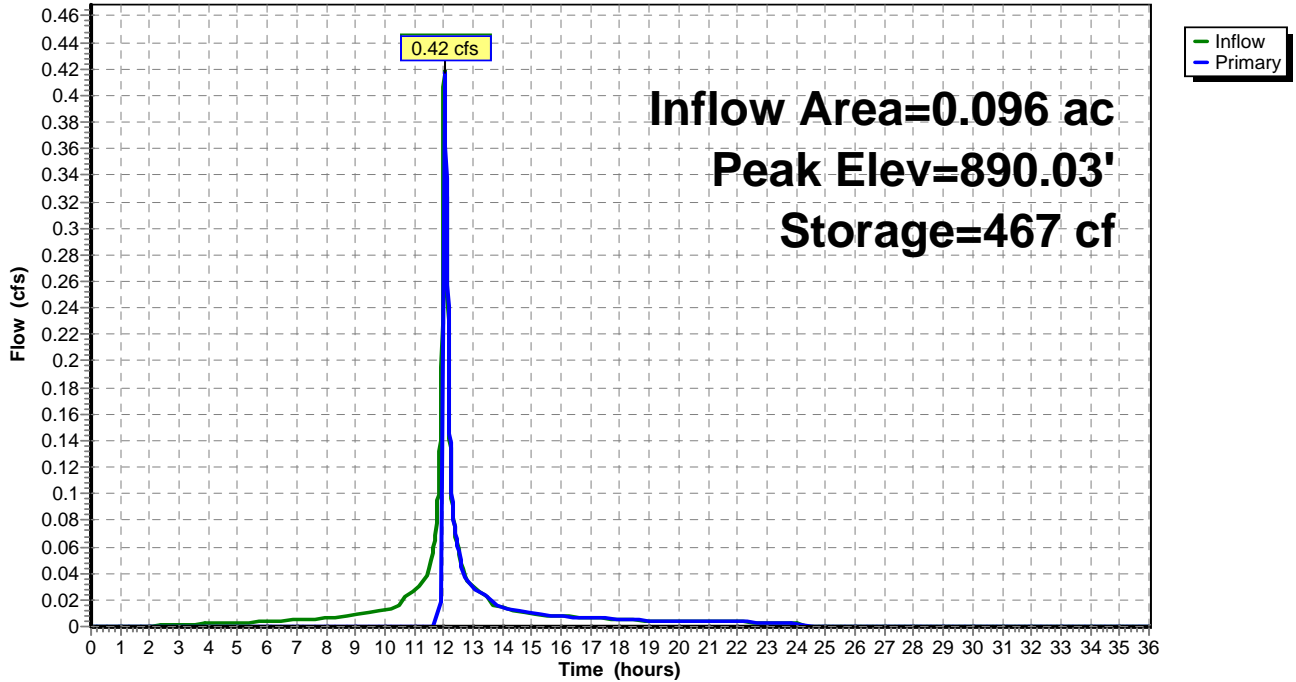
NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Printed 3/2/2016

Page 17

Pond 1P: Flow-Through Type Stormwater Planters (x11)

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Prepared by Woitd Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 18

Summary for Pond 2P: Bioretention Swale

Inflow Area = 1.132 ac, 48.50% Impervious, Inflow Depth = 0.81" for 10-yr event
 Inflow = 1.25 cfs @ 12.05 hrs, Volume= 0.077 af
 Outflow = 0.20 cfs @ 12.72 hrs, Volume= 0.077 af, Atten= 84%, Lag= 40.2 min
 Discarded = 0.20 cfs @ 12.72 hrs, Volume= 0.077 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 886.00' @ 12.72 hrs Surf.Area= 4,214 sf Storage= 1,126 cf

Plug-Flow detention time= 85.5 min calculated for 0.077 af (100% of inflow)
 Center-of-Mass det. time= 85.5 min (957.1 - 871.6)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	1,912 cf	12" Surface Ponding (Prismatic) Listed below (Recalc)
#2	883.25'	702 cf	30" Bioretention Soil (Prismatic) Listed below (Recalc)
			3,510 cf Overall x 20.0% Voids
#3	882.50'	421 cf	9" Crushed Stone (Prismatic) Listed below (Recalc)
			1,053 cf Overall x 40.0% Voids
		3,035 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	1,404	0	0
887.00	2,420	1,912	1,912

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
883.25	1,404	0	0
885.75	1,404	3,510	3,510

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.50	1,404	0	0
883.25	1,404	1,053	1,053

Device	Routing	Invert	Outlet Devices
#1	Primary	886.50'	4.5' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	882.50'	2.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 1.00'

Discarded OutFlow Max=0.20 cfs @ 12.72 hrs HW=886.00' (Free Discharge)
 ↑**2=Exfiltration** (Controls 0.20 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=882.50' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Dryden Rd - Proposed Conditions

Prepared by Woit Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

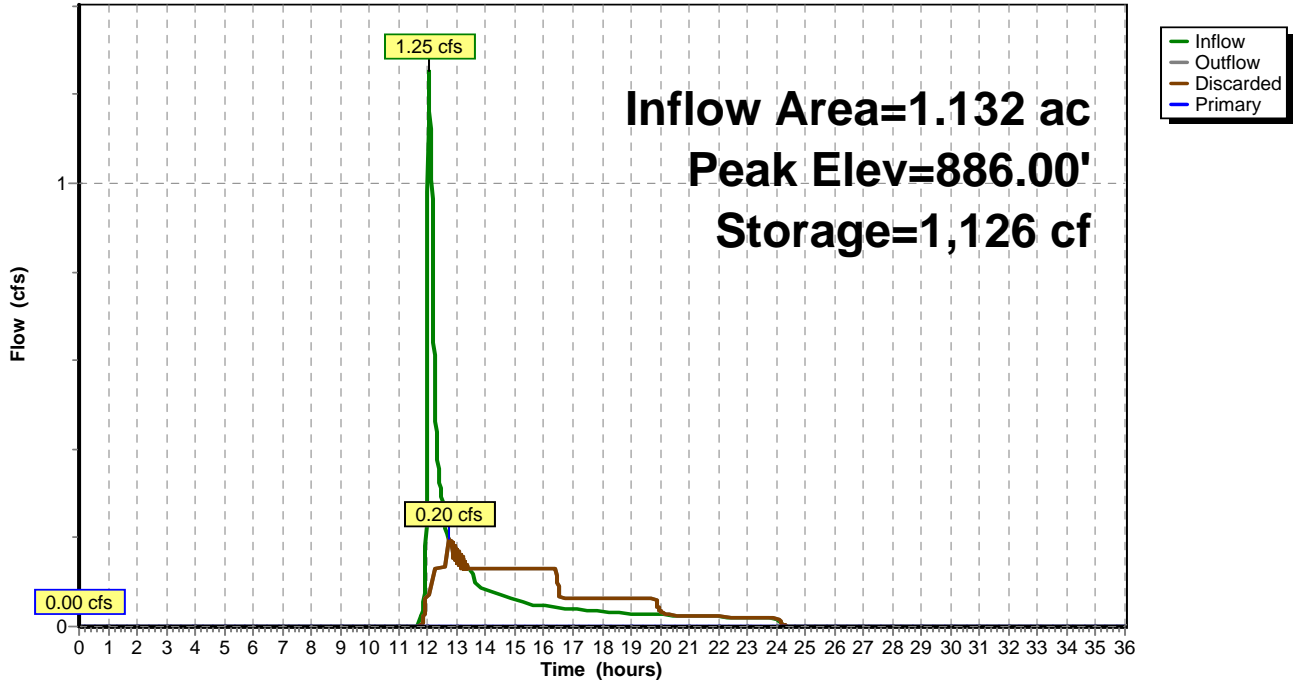
NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Printed 3/2/2016

Page 19

Pond 2P: Bioretention Swale

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr S0P 10-yr Rainfall=3.43"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 20

Summary for Pond 3P: Infiltration Basin

Inflow Area = 1.132 ac, 48.50% Impervious, Inflow Depth = 0.00" for 10-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 883.00' @ 0.00 hrs Surf.Area= 712 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	883.00'	2,512 cf	Detention Pond (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
883.00	712	0	0
884.00	1,229	971	971
885.00	1,854	1,542	2,512

Device	Routing	Invert	Outlet Devices
#1	Primary	884.50'	6.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	883.00'	2.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 1.00'

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=883.00' (Free Discharge)
 ↳ **2=Exfiltration** (Passes 0.00 cfs of 0.03 cfs potential flow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=883.00' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

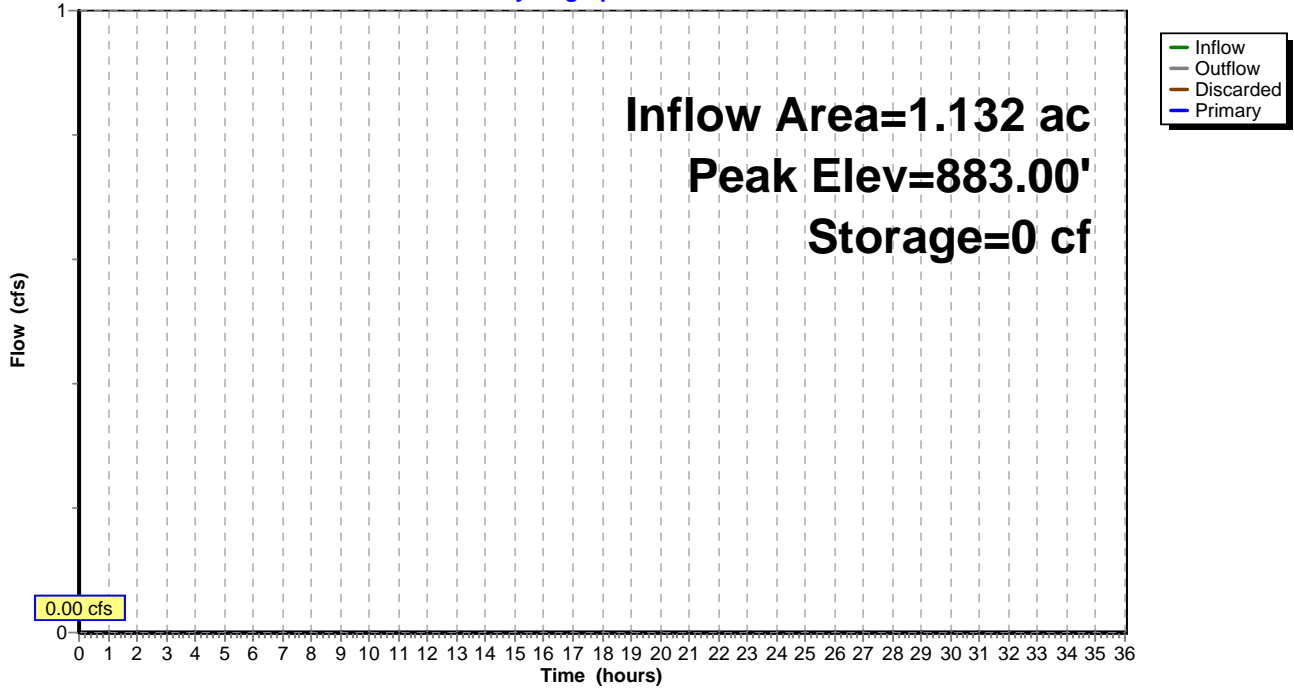
NY-Dryden 24-hr SOP 10-yr Rainfall=3.43"

Printed 3/2/2016

Page 21

Pond 3P: Infiltration Basin

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 22

Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Rooftops Runoff Area=0.096 ac 100.00% Impervious Runoff Depth=5.71"
Tc=5.0 min CN=98 Runoff=0.64 cfs 0.046 af

Subcatchment 2S: Dryden Rd - Proposed Runoff Area=1.036 ac 43.73% Impervious Runoff Depth=2.32"
Flow Length=255' Tc=5.7 min CN=65 Runoff=2.96 cfs 0.200 af

Pond 1P: Flow-Through Type Stormwater Peak Elev=890.03' Storage=470 cf Inflow=0.64 cfs 0.046 af
Outflow=0.64 cfs 0.035 af

Pond 2P: Bioretention Swale Peak Elev=886.82' Storage=2,611 cf Inflow=3.60 cfs 0.235 af
Discarded=0.23 cfs 0.157 af Primary=2.01 cfs 0.078 af Outflow=2.25 cfs 0.235 af

Pond 3P: Infiltration Basin Peak Elev=884.63' Storage=1,866 cf Inflow=2.01 cfs 0.078 af
Discarded=0.08 cfs 0.049 af Primary=0.65 cfs 0.029 af Outflow=0.73 cfs 0.078 af

Total Runoff Area = 1.132 ac Runoff Volume = 0.246 af Average Runoff Depth = 2.60"
51.50% Pervious = 0.583 ac 48.50% Impervious = 0.549 ac

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Printed 3/2/2016

Page 23

Summary for Subcatchment 1S: Rooftops

Runoff = 0.64 cfs @ 12.03 hrs, Volume= 0.046 af, Depth= 5.71"

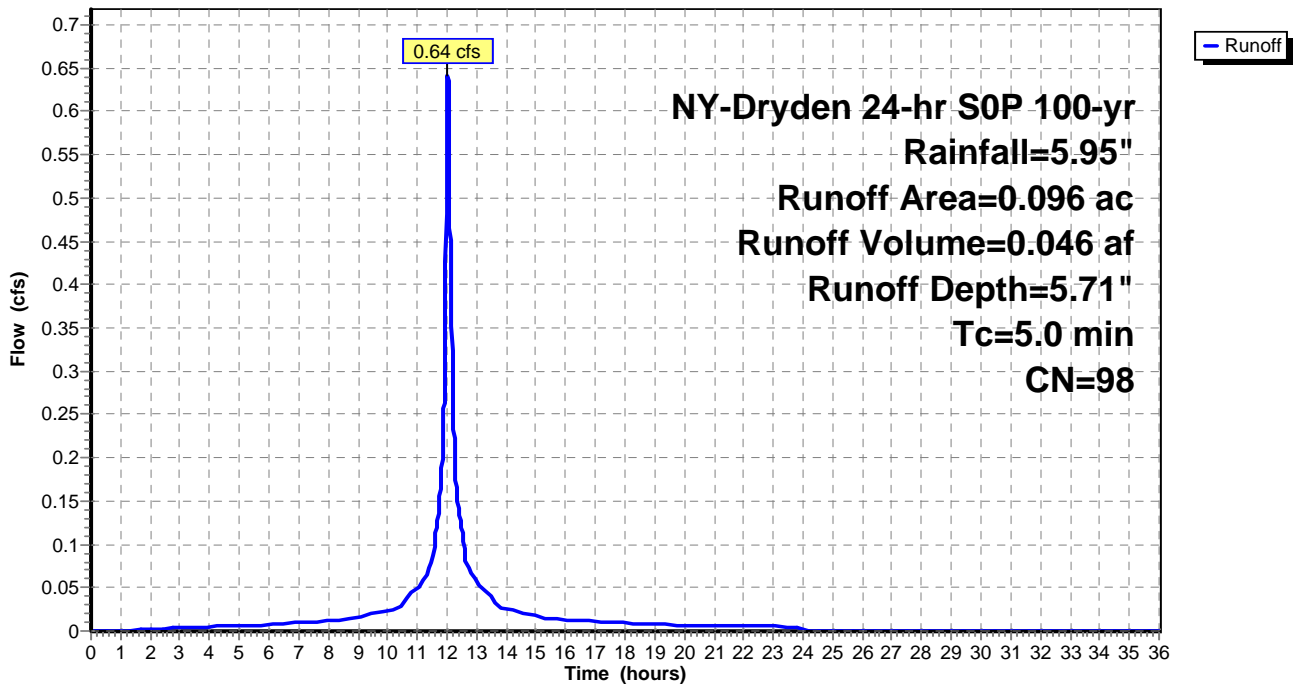
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Area (ac)	CN	Description
0.096	98	Roofs, HSG A
0.096		100.00% Impervious Area

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

Subcatchment 1S: Rooftops

Hydrograph



Dryden Rd - Proposed Conditions

Prepared by Woit Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Printed 3/2/2016

Page 24

Summary for Subcatchment 2S: Dryden Rd - Proposed Conditions

Runoff = 2.96 cfs @ 12.04 hrs, Volume= 0.200 af, Depth= 2.32"

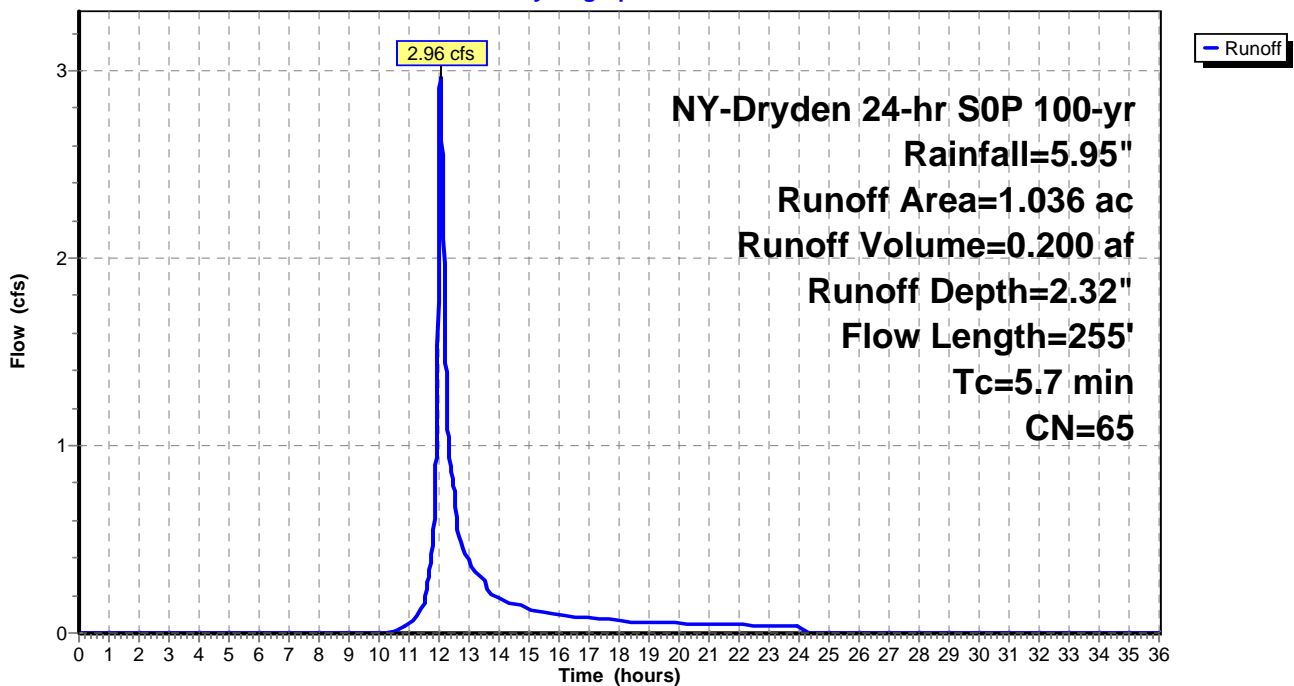
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Area (ac)	CN	Description
0.453	98	Paved parking, HSG B
0.583	39	>75% Grass cover, Good, HSG A
1.036	65	Weighted Average
0.583		56.27% Pervious Area
0.453		43.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	85	0.1780	0.34		Sheet Flow, Grass: Short n= 0.150 P2= 2.34"
1.0	65	0.0208	1.10		Sheet Flow, Smooth surfaces n= 0.011 P2= 2.34"
0.3	55	0.0208	2.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.2	50	0.0914	4.87		Shallow Concentrated Flow, Unpaved Kv= 16.1 fps
5.7	255	Total			

Subcatchment 2S: Dryden Rd - Proposed Conditions

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 25

Summary for Pond 1P: Flow-Through Type Stormwater Planters (x11)

Inflow Area = 0.096 ac, 100.00% Impervious, Inflow Depth = 5.71" for 100-yr event
 Inflow = 0.64 cfs @ 12.03 hrs, Volume= 0.046 af
 Outflow = 0.64 cfs @ 12.03 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.2 min
 Primary = 0.64 cfs @ 12.03 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 890.03' @ 12.03 hrs Surf.Area= 1,114 sf Storage= 470 cf

Plug-Flow detention time= 142.3 min calculated for 0.035 af (77% of inflow)
 Center-of-Mass det. time= 65.9 min (808.7 - 742.8)

Volume	Invert	Avail.Storage	Storage Description
#1	889.50'	371 cf	1.50'W x 22.50'L x 1.00'H 12" Ponding Depth (x11)x 11
#2	888.50'	74 cf	1.50'W x 22.50'L x 1.00'H 12" Soil Media (x11)x 11 371 cf Overall x 20.0% Voids
#3	887.36'	150 cf	1.50'W x 22.50'L x 1.14'H 12" Crushed Stone (x11)x 11 423 cf Overall - 48 cf Embedded = 376 cf x 40.0% Voids
#4	887.36'	48 cf	6.0" Round 6" Underdrain (x11) x 11 Inside #3 L= 22.0'
		643 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	887.36'	6.0" Round 6" PVC Outlet L= 13.6' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 887.36' / 887.29' S= 0.0051 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	890.00'	12.0" Horiz. 12" Top Grate (x11) X 9.35 C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.61 cfs @ 12.03 hrs HW=890.03' (Free Discharge)

↑1=6" PVC Outlet (Passes 0.61 cfs of 1.47 cfs potential flow)

↑2=12" Top Grate (x11) (Weir Controls 0.61 cfs @ 5.68 fps)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

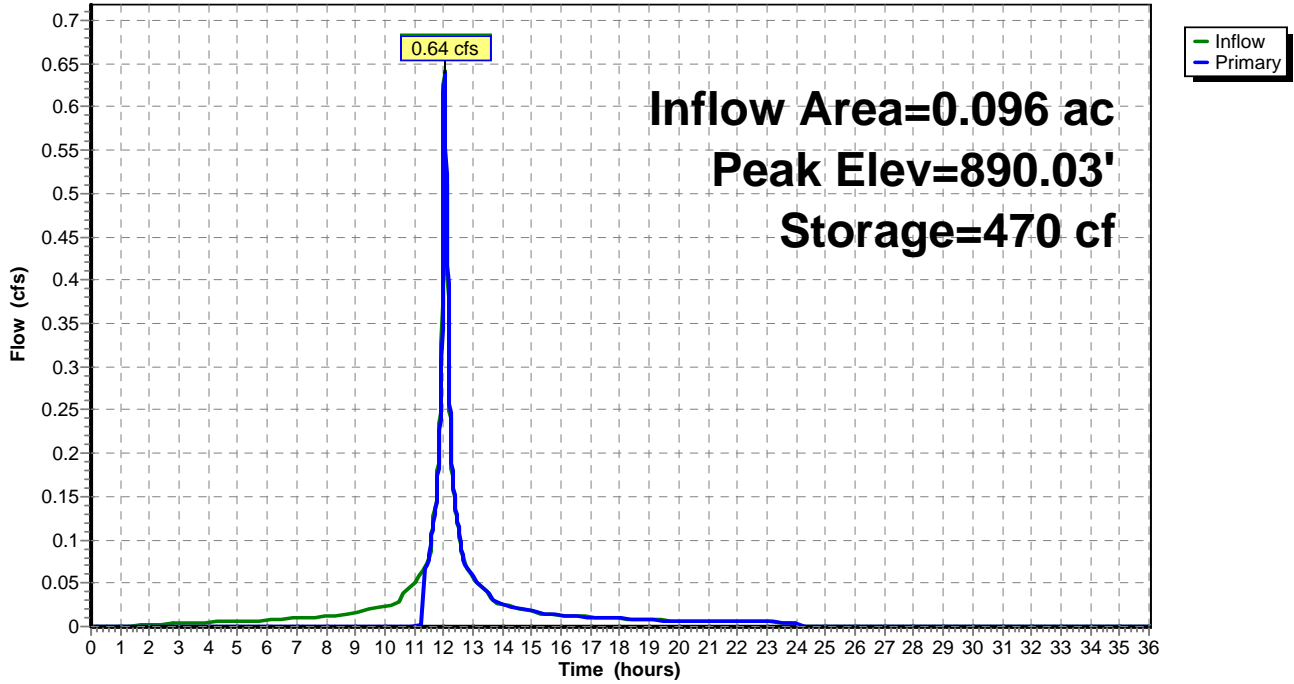
NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Printed 3/2/2016

Page 26

Pond 1P: Flow-Through Type Stormwater Planters (x11)

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Prepared by Woitd Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 27

Summary for Pond 2P: Bioretention Swale

Inflow Area = 1.132 ac, 48.50% Impervious, Inflow Depth = 2.49" for 100-yr event
 Inflow = 3.60 cfs @ 12.04 hrs, Volume= 0.235 af
 Outflow = 2.25 cfs @ 12.17 hrs, Volume= 0.235 af, Atten= 38%, Lag= 8.0 min
 Discarded = 0.23 cfs @ 12.17 hrs, Volume= 0.157 af
 Primary = 2.01 cfs @ 12.17 hrs, Volume= 0.078 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 886.82' @ 12.17 hrs Surf.Area= 5,043 sf Storage= 2,611 cf

Plug-Flow detention time= 78.7 min calculated for 0.235 af (100% of inflow)
 Center-of-Mass det. time= 78.7 min (912.9 - 834.2)

Volume	Invert	Avail.Storage	Storage Description
#1	886.00'	1,912 cf	12" Surface Ponding (Prismatic) Listed below (Recalc)
#2	883.25'	702 cf	30" Bioretention Soil (Prismatic) Listed below (Recalc)
			3,510 cf Overall x 20.0% Voids
#3	882.50'	421 cf	9" Crushed Stone (Prismatic) Listed below (Recalc)
			1,053 cf Overall x 40.0% Voids
		3,035 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
886.00	1,404	0	0
887.00	2,420	1,912	1,912

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
883.25	1,404	0	0
885.75	1,404	3,510	3,510

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
882.50	1,404	0	0
883.25	1,404	1,053	1,053

Device	Routing	Invert	Outlet Devices
#1	Primary	886.50'	4.5' long x 8.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#2	Discarded	882.50'	2.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 1.00'

Discarded OutFlow Max=0.23 cfs @ 12.17 hrs HW=886.82' (Free Discharge)
 ↑**2=Exfiltration** (Controls 0.23 cfs)

Primary OutFlow Max=2.01 cfs @ 12.17 hrs HW=886.82' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Weir Controls 2.01 cfs @ 1.41 fps)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

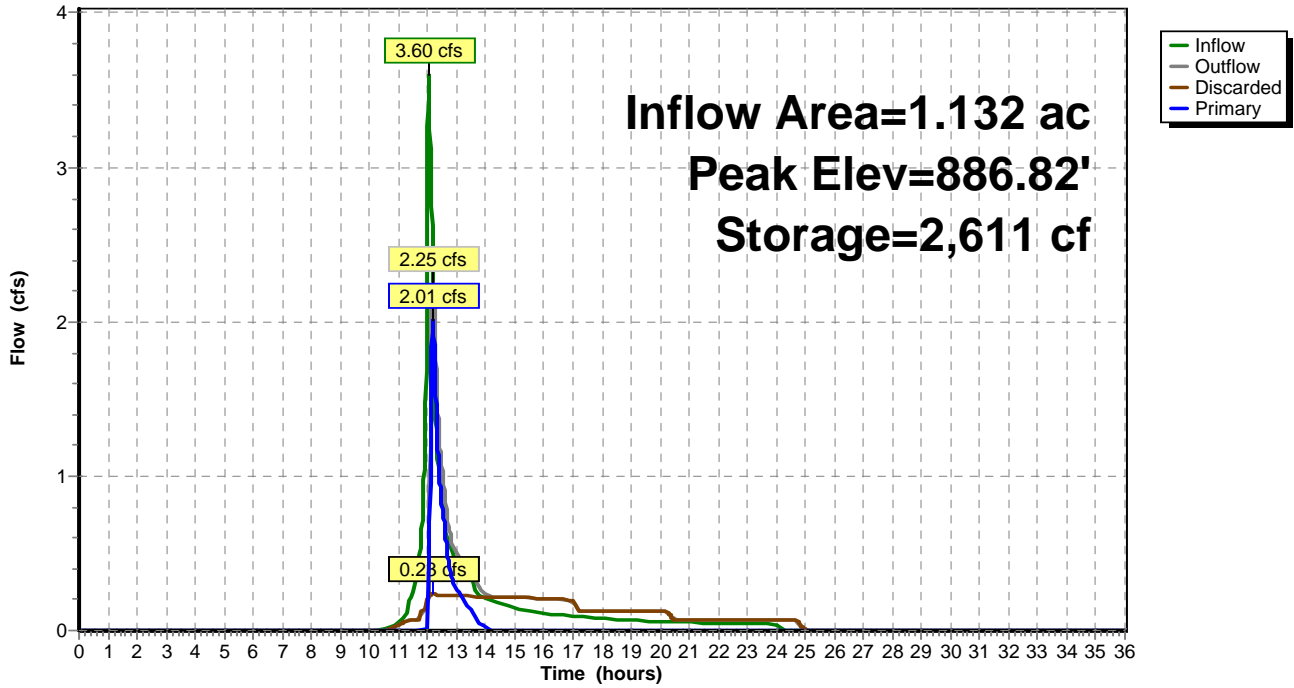
NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Printed 3/2/2016

Page 28

Pond 2P: Bioretention Swale

Hydrograph



Dryden Rd - Proposed Conditions

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Prepared by Woidt Engineering & Consulting, P.C.

Printed 3/2/2016

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

Page 29

Summary for Pond 3P: Infiltration Basin

Inflow Area = 1.132 ac, 48.50% Impervious, Inflow Depth = 0.83" for 100-yr event
 Inflow = 2.01 cfs @ 12.17 hrs, Volume= 0.078 af
 Outflow = 0.73 cfs @ 12.55 hrs, Volume= 0.078 af, Atten= 64%, Lag= 22.2 min
 Discarded = 0.08 cfs @ 12.55 hrs, Volume= 0.049 af
 Primary = 0.65 cfs @ 12.55 hrs, Volume= 0.029 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 884.63' @ 12.55 hrs Surf.Area= 1,622 sf Storage= 1,866 cf

Plug-Flow detention time= 168.6 min calculated for 0.078 af (100% of inflow)
 Center-of-Mass det. time= 168.7 min (919.8 - 751.0)

Volume	Invert	Avail.Storage	Storage Description
#1	883.00'	2,512 cf	Detention Pond (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
883.00	712	0	0
884.00	1,229	971	971
885.00	1,854	1,542	2,512

Device	Routing	Invert	Outlet Devices
#1	Primary	884.50'	6.0' long x 6.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#2	Discarded	883.00'	2.000 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 1.00'

Discarded OutFlow Max=0.08 cfs @ 12.55 hrs HW=884.63' (Free Discharge)
 ↳2=Exfiltration (Controls 0.08 cfs)

Primary OutFlow Max=0.65 cfs @ 12.55 hrs HW=884.63' (Free Discharge)
 ↳1=Broad-Crested Rectangular Weir (Weir Controls 0.65 cfs @ 0.85 fps)

Dryden Rd - Proposed Conditions

Prepared by Woidt Engineering & Consulting, P.C.

HydroCAD® 10.00-16 s/n 03703 © 2015 HydroCAD Software Solutions LLC

NY-Dryden 24-hr SOP 100-yr Rainfall=5.95"

Printed 3/2/2016

Page 30

Pond 3P: Infiltration Basin

Hydrograph

