

**Stormwater Management Report
67 Kennedy Road Warehouse & Distribution Center
352 Sullivan Ave, 67 & 68 Kennedy Road
South Windsor, Connecticut**

Prepared by:

**Design Professionals, Inc.
21 Jeffrey Drive
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**March 30, 2022
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Introduction

Scannell Properties #644, LLC is proposing an industrial development of a tract of land comprised of three properties located at 352 Sullivan Ave, & 67 & 68 Kennedy Road, South Windsor, Connecticut. The properties are referenced on the Town of South Windsor Tax Assessors map as GIS#: 87300352, 49800067, and 49800068 respectively. The proposed development will include the construction of one 241,800 SF industrial building. Associated site improvements will include but not be limited to: new access driveways, parking areas for vehicles, sidewalks, landscaping, lighting, utilities, and stormwater management BMP's.

The total combined tract area is 19.245 acres. 17.5± acres of this area are proposed to be disturbed during construction. For more information, please refer to the plans entitled "67 Kennedy Road Warehouse & Distribution Center ~ Site Plan ~ 352 Sullivan Ave, & 67 & 68 Kennedy Road ~ South Windsor, CT ~ GIS#: 87300352, 49800067, and 49800068" prepared by Design Professionals, Inc., and dated March 30, 2022, as amended.

Pre-Development Site Conditions

The existing surficial characteristics of the area to be developed can be primarily classified as undisturbed woodland area surrounded by industrial development. The property shares its northern property boundary with Connecticut Southern Rail line. The center of this rail line was identified as the sites northern drainage limit. Further review of the site topography indicated a ridgeline exists spanning east to west across the center of the property. Stormwater that falls north of this boundary would flow to the rail line property. Stormwater that falls south of this boundary would flow to drainage system in Sullivan Ave and Kennedy Road. All stormwater runoff generated across the tract would flow to one of four design points. These four design points were identified as follows:

1. **Design Point 1 (DP#1):** Existing depression at the shared property boundary with the Rail Line ROW. Conveys water to a swale tributary to the Scantic River via an 18" CMP culvert.
2. **Design Point 2 (DP#2):** Sheet flow across the North-West Property corner to the Rail Line property.
3. **Design Point 3 (DP#3):** Sheet flow runoff to Sullivan Ave (via subsurface stormwater conveyance system on 330 Sullivan Ave in existing conditions).
4. **Design Point 4 (DP#4):** Sheet flow runoff to Kennedy Road.
5. **Design Point 5 (DP#5):** Existing roadway drainage to catchbasin in Kennedy Road.

All design points ultimately drain to The Scantic River, and is a part of local basin ID 4200-00-4-R18. Existing conditions watershed delineations are identified in the Existing Conditions Drainage Map located in **Appendix G**.

Based on Natural Resources Conservation Service (NRCS) Hydrologic Soil Group (HSG) mapping, soils types A, B, C, D, & B/D are located on site. See **Appendix C** for The NRCS Soil Map & Data.

An evaluation was performed to quantify the peak rate of stormwater discharge offsite to the design points identified. The Natural Resources Conservation Service's TR-55 Manual was followed in predicting the peak rates of runoff and volumes. HydroCAD computer modeling software was utilized.

Peak rates of stormwater runoff were evaluated for the 2-, 10-, 25-, 50- and 100-year storm events. Rainfall data from NOAA Atlas 14 Point Frequency Estimates was used to generate storm conditions. NOAA Atlas 14 rainfall data is included in **Appendix D** for reference. For more information, please refer to the enclosed Pre-Development Drainage HydroCAD Report located in **Appendix A**.

Post-Development Site Conditions

The proposed development will include the construction of one 241,800 SF industrial building. Associated site improvements will include but not be limited to new access driveways, parking areas for vehicles, sidewalks, landscaping, lighting, utilities, and stormwater management BMP's. Site generated runoff from all proposed roofs, roadways, parking, and landscaped areas will be either collected in an underground storm water conveyance system or allowed to sheet flow to one of eight proposed detention systems. A general description of each detention system is included below:

1. Proposed Pond 1 (PP1) : 150,160± cft underground storage system collecting runoff from the proposed roof area and detained flow from pond water quality basin PP2. Most of this detained flow will be sent to the proposed mitigation area. The remaining discharge from this pond will be released to a proposed preformed scour hole near the 18" Pipe outlet (DP1) adjacent to the Rail Road Property.
2. Proposed Pond 2 (PP2) : 136,855± cft Water quality basin collecting runoff from the west truck parking and loading area. Detained discharge from this pond will be released to pond underground chamber system PP1.
3. Proposed Pond 3 (PP3) : 7,082± cft underground storage system collecting runoff from the grass areas south of the proposed berm along Sullivan Ave. Detained discharge from this pond will be released to an Existing CB in Sullivan Ave.
4. Proposed Pond 4 (PP4) : 5,682± cft underground storage system collecting runoff from the eastern standard parking areas. Detained discharge from this pond will be released to a catchbasin in the northern truck parking access drive and be conveyed to underground storage system PP1 for further detention.

5. Proposed Pond 5 (PP5) : 42,367± cft Water quality basin collecting runoff from the proposed cul-de-sac and existing Kennedy Road runoff. Detained runoff from this basin will be released to the existing stormwater collection system in Kennedy Road.
6. Proposed Pond 6 (PP6) : 13,094± cft underground storage system collecting runoff from the grass area on the east side of the site adjacent to Kennedy Road. Detained runoff from this basin will be released to the existing stormwater collection system in Kennedy Road.
7. Proposed Pond 8 (PP7) : 3,839± cft underground storage system collecting runoff from the grass areas south of the proposed building and north of the proposed berm along Sullivan Ave. Detained discharge from this pond will be released to an Existing CB in Sullivan Ave.

See **Appendix B** for the Post Development Condition and Pond summary HydroCAD reports. The Proposed Conditions Drainage Map for the site can be found in **Appendix G**.

Analysis of Results

The pre-development and post-development conditions were analyzed using HydroCAD consistent with National Resource Conservation Service (NRCS) hydrology methods. Four discharge locations (**Design Point #1 - 4**) were identified as points of interest for assessing downstream effects. The following table contains the data generated from the HydroCAD software:

Reach		2 year	10 year	25 year	50 year	100 year
DP#1 – Rail Road Pond (North of site)	Pre	1.63	5.04	7.46	8.86	11.43
	Post	0.45	2.64	4.10	5.44	7.34
DP#2 – North West Corner of Site	Pre	0.01	0.29	0.68	1.05	1.52
	Post	0.02	0.15	0.28	0.38	0.51
DP#3 – Overland Flow to Sullivan Ave	Pre	0.00	0.73	1.77	2.73	3.90
	Post	0.02	0.36	1.16	1.92	2.77
DP#4 – Flow to Kennedy Road Drainage System	Pre	0.37	0.74	0.99	1.17	1.38
	Post	0.29	0.45	0.62	0.92	1.28

As seen in the table above, most of the storm events evaluated for the subject project will result in peak runoff rates in the proposed condition that are less than the peak runoff rates of the existing condition for 2-, 10-, 25-, 50- and 100-year design storms. The model did indicate that there will be a small increase of 0.01 and 0.02 cfs in the 2-yr storm outflow to DP#2 and DP#3 respectively. It is our opinion that this increase is negligible and will not cause any detrimental downstream impacts. This increase is offset by reductions in the peak flow to the other design points evaluated, all of which ultimately drain to the Scantic River.

Storm Sewer Collection System

The proposed subsurface stormwater collection and conveyance system was designed to adequately convey proposed runoff under 10- year storm event conditions. The design of the storm sewers followed the guidelines set forth in the Connecticut Department of Transportation's Drainage Manual. It is estimated that during a 10-year storm event, all proposed subsurface culverts will convey storm runoff without resulting in any unacceptable flooding conditions.

Water Quality

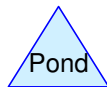
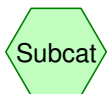
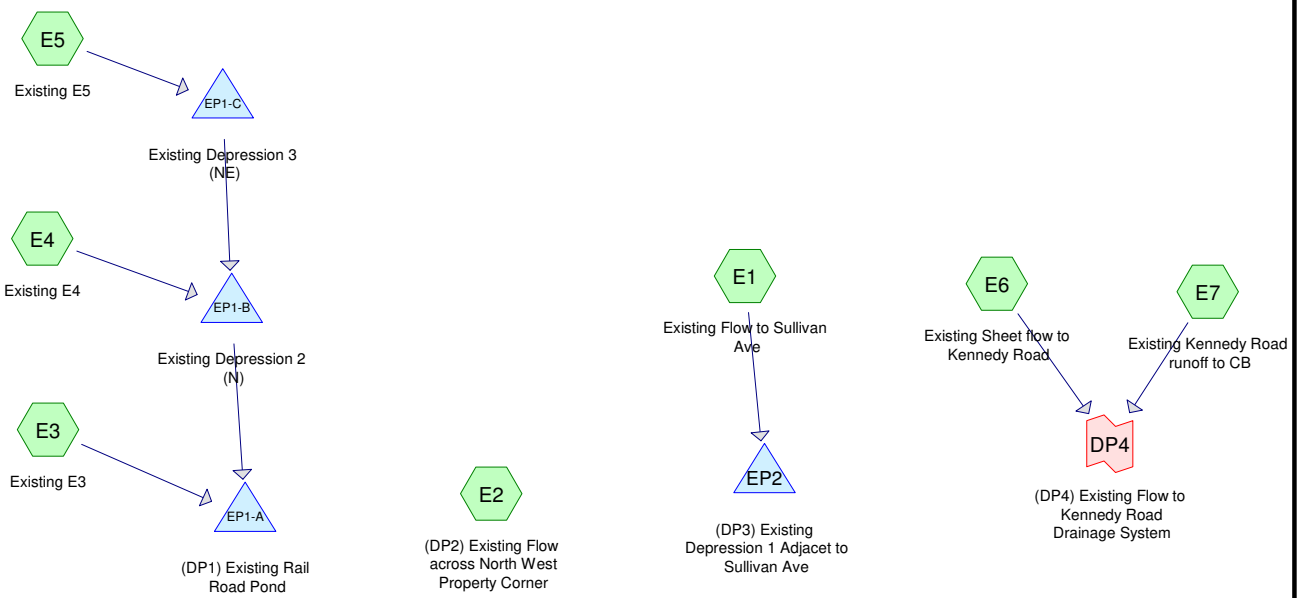
The proposed water quality basin and forebays were sized to treat a 1" rain event as recommended in the 2004 Connecticut Stormwater Quality Manual. The proposed forebay was sized to store over 10% of this water quality volume as recommended by the 2004 Connecticut Stormwater Quality Manual. Water Quality Volume calculations and basin stage storage tables are included as **Appendix F** of this report.

Stormtech Isolator rows will also be utilized to address water quality for all other areas draining to one of the proposed underground chamber systems and the two catchbasin to be located in the norther truck parking access drive. The number of isolator rows provided will be more than adequate to treat the required water quality flow rate based on the determined water quality flow and manufacture specs for treated flow rate per chamber. The required water quality flow was also calculated considering recommended equations provided in the 2004 Connecticut Stormwater Quality Manual. Water Quality Flow calculations and isolation chamber specs are included as **Appendix F** of this report.

Conclusion

The proposed stormwater management system as discussed herein and shown on the referenced plans is appropriate for the proposed development on the subject site and should not pose any detrimental impacts to the environment.

APPENDIX A
Watershed Computations
(Pre-Development Drainage HydroCAD Report)



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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: Existing Flow to	Runoff Area=321,193 sf 0.59% Impervious Runoff Depth=0.46" Flow Length=887' Tc=65.5 min CN=62 Runoff=1.03 cfs 0.280 af
Subcatchment E2: (DP2) Existing Flow	Runoff Area=76,582 sf 0.00% Impervious Runoff Depth=0.06" Flow Length=421' Tc=47.3 min CN=47 Runoff=0.01 cfs 0.009 af
Subcatchment E3: Existing E3	Runoff Area=215,061 sf 2.00% Impervious Runoff Depth=0.57" Flow Length=745' Tc=62.5 min CN=65 Runoff=0.99 cfs 0.235 af
Subcatchment E4: Existing E4	Runoff Area=84,154 sf 7.59% Impervious Runoff Depth=0.84" Flow Length=462' Tc=45.4 min CN=71 Runoff=0.79 cfs 0.136 af
Subcatchment E5: Existing E5	Runoff Area=246,805 sf 12.89% Impervious Runoff Depth=0.84" Flow Length=779' Tc=77.8 min CN=71 Runoff=1.67 cfs 0.398 af
Subcatchment E6: Existing Sheet flow to	Runoff Area=2,937 sf 0.00% Impervious Runoff Depth=0.23" Flow Length=26' Slope=0.0200 '/' Tc=7.3 min CN=55 Runoff=0.01 cfs 0.001 af
Subcatchment E7: Existing Kennedy Road	Runoff Area=7,294 sf 69.19% Impervious Runoff Depth=1.86" Tc=6.0 min CN=87 Runoff=0.37 cfs 0.026 af
Pond EP1-A: (DP1) Existing Rail Road Pond	Peak Elev=80.59' Storage=385 cf Inflow=1.65 cfs 0.365 af 18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=1.63 cfs 0.365 af
Pond EP1-B: Existing Depression 2 (N)	Peak Elev=83.27' Storage=938 cf Inflow=0.79 cfs 0.136 af Outflow=0.66 cfs 0.130 af
Pond EP1-C: Existing Depression 3 (NE)	Peak Elev=83.41' Storage=17,323 cf Inflow=1.67 cfs 0.398 af Outflow=0.00 cfs 0.000 af
Pond EP2: (DP3) Existing Depression 1	Peak Elev=82.74' Storage=12,193 cf Inflow=1.03 cfs 0.280 af Outflow=0.00 cfs 0.000 af
Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System	Inflow=0.37 cfs 0.027 af Primary=0.37 cfs 0.027 af

Total Runoff Area = 21.901 ac Runoff Volume = 1.085 af Average Runoff Depth = 0.59"
94.82% Pervious = 20.767 ac 5.18% Impervious = 1.135 ac

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Existing Condition
Type III 24-hr 10-yr Rainfall=4.98"

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Page 3

Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: Existing Flow to	Runoff Area=321,193 sf 0.59% Impervious Runoff Depth=1.43" Flow Length=887' Tc=65.5 min CN=62 Runoff=4.18 cfs 0.876 af
Subcatchment E2: (DP2) Existing Flow	Runoff Area=76,582 sf 0.00% Impervious Runoff Depth=0.53" Flow Length=421' Tc=47.3 min CN=47 Runoff=0.29 cfs 0.078 af
Subcatchment E3: Existing E3	Runoff Area=215,061 sf 2.00% Impervious Runoff Depth=1.64" Flow Length=745' Tc=62.5 min CN=65 Runoff=3.43 cfs 0.675 af
Subcatchment E4: Existing E4	Runoff Area=84,154 sf 7.59% Impervious Runoff Depth=2.10" Flow Length=462' Tc=45.4 min CN=71 Runoff=2.16 cfs 0.338 af
Subcatchment E5: Existing E5	Runoff Area=246,805 sf 12.89% Impervious Runoff Depth=2.10" Flow Length=779' Tc=77.8 min CN=71 Runoff=4.59 cfs 0.992 af
Subcatchment E6: Existing Sheet flow to	Runoff Area=2,937 sf 0.00% Impervious Runoff Depth=0.97" Flow Length=26' Slope=0.0200 '/' Tc=7.3 min CN=55 Runoff=0.06 cfs 0.005 af
Subcatchment E7: Existing Kennedy Road	Runoff Area=7,294 sf 69.19% Impervious Runoff Depth=3.55" Tc=6.0 min CN=87 Runoff=0.69 cfs 0.050 af
Pond EP1-A: (DP1) Existing Rail Road Pond	Peak Elev=81.68' Storage=1,783 cf Inflow=5.38 cfs 1.275 af 18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=5.04 cfs 1.275 af
Pond EP1-B: Existing Depression 2 (N)	Peak Elev=83.37' Storage=1,763 cf Inflow=2.16 cfs 0.607 af Outflow=1.97 cfs 0.600 af
Pond EP1-C: Existing Depression 3 (NE)	Peak Elev=83.78' Storage=35,651 cf Inflow=4.59 cfs 0.992 af Outflow=0.32 cfs 0.268 af
Pond EP2: (DP3) Existing Depression 1	Peak Elev=83.02' Storage=22,792 cf Inflow=4.18 cfs 0.876 af Outflow=0.73 cfs 0.483 af
Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System	Inflow=0.74 cfs 0.055 af Primary=0.74 cfs 0.055 af

Total Runoff Area = 21.901 ac Runoff Volume = 3.014 af Average Runoff Depth = 1.65"
94.82% Pervious = 20.767 ac 5.18% Impervious = 1.135 ac

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Existing Condition
Type III 24-hr 25-yr Rainfall=6.13"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: Existing Flow to	Runoff Area=321,193 sf 0.59% Impervious Runoff Depth=2.18" Flow Length=887' Tc=65.5 min CN=62 Runoff=6.70 cfs 1.339 af
Subcatchment E2: (DP2) Existing Flow	Runoff Area=76,582 sf 0.00% Impervious Runoff Depth=0.99" Flow Length=421' Tc=47.3 min CN=47 Runoff=0.68 cfs 0.145 af
Subcatchment E3: Existing E3	Runoff Area=215,061 sf 2.00% Impervious Runoff Depth=2.45" Flow Length=745' Tc=62.5 min CN=65 Runoff=5.30 cfs 1.006 af
Subcatchment E4: Existing E4	Runoff Area=84,154 sf 7.59% Impervious Runoff Depth=3.00" Flow Length=462' Tc=45.4 min CN=71 Runoff=3.12 cfs 0.484 af
Subcatchment E5: Existing E5	Runoff Area=246,805 sf 12.89% Impervious Runoff Depth=3.00" Flow Length=779' Tc=77.8 min CN=71 Runoff=6.66 cfs 1.418 af
Subcatchment E6: Existing Sheet flow to	Runoff Area=2,937 sf 0.00% Impervious Runoff Depth=1.59" Flow Length=26' Slope=0.0200 '/' Tc=7.3 min CN=55 Runoff=0.11 cfs 0.009 af
Subcatchment E7: Existing Kennedy Road	Runoff Area=7,294 sf 69.19% Impervious Runoff Depth=4.64" Tc=6.0 min CN=87 Runoff=0.89 cfs 0.065 af
Pond EP1-A: (DP1) Existing Rail Road Pond	Peak Elev=82.38' Storage=3,404 cf Inflow=8.14 cfs 2.178 af 18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=7.46 cfs 2.178 af
Pond EP1-B: Existing Depression 2 (N)	Peak Elev=83.42' Storage=2,280 cf Inflow=3.12 cfs 1.178 af Outflow=2.88 cfs 1.172 af
Pond EP1-C: Existing Depression 3 (NE)	Peak Elev=83.84' Storage=39,407 cf Inflow=6.66 cfs 1.418 af Outflow=1.32 cfs 0.694 af
Pond EP2: (DP3) Existing Depression 1	Peak Elev=83.12' Storage=28,614 cf Inflow=6.70 cfs 1.339 af Outflow=1.77 cfs 0.946 af
Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System	Inflow=0.99 cfs 0.074 af Primary=0.99 cfs 0.074 af

Total Runoff Area = 21.901 ac Runoff Volume = 4.467 af Average Runoff Depth = 2.45"
94.82% Pervious = 20.767 ac 5.18% Impervious = 1.135 ac

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Existing Condition
Type III 24-hr 50-yr Rainfall=6.97"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: Existing Flow to	Runoff Area=321,193 sf 0.59% Impervious Runoff Depth=2.78" Flow Length=887' Tc=65.5 min CN=62 Runoff=8.72 cfs 1.708 af
Subcatchment E2: (DP2) Existing Flow	Runoff Area=76,582 sf 0.00% Impervious Runoff Depth=1.39" Flow Length=421' Tc=47.3 min CN=47 Runoff=1.05 cfs 0.204 af
Subcatchment E3: Existing E3	Runoff Area=215,061 sf 2.00% Impervious Runoff Depth=3.08" Flow Length=745' Tc=62.5 min CN=65 Runoff=6.76 cfs 1.267 af
Subcatchment E4: Existing E4	Runoff Area=84,154 sf 7.59% Impervious Runoff Depth=3.70" Flow Length=462' Tc=45.4 min CN=71 Runoff=3.85 cfs 0.595 af
Subcatchment E5: Existing E5	Runoff Area=246,805 sf 12.89% Impervious Runoff Depth=3.70" Flow Length=779' Tc=77.8 min CN=71 Runoff=8.25 cfs 1.746 af
Subcatchment E6: Existing Sheet flow to	Runoff Area=2,937 sf 0.00% Impervious Runoff Depth=2.10" Flow Length=26' Slope=0.0200 '/' Tc=7.3 min CN=55 Runoff=0.15 cfs 0.012 af
Subcatchment E7: Existing Kennedy Road	Runoff Area=7,294 sf 69.19% Impervious Runoff Depth=5.45" Tc=6.0 min CN=87 Runoff=1.03 cfs 0.076 af
Pond EP1-A: (DP1) Existing Rail Road Pond	Peak Elev=82.90' Storage=5,443 cf Inflow=10.28 cfs 2.878 af 18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=8.86 cfs 2.878 af
Pond EP1-B: Existing Depression 2 (N)	Peak Elev=83.45' Storage=2,659 cf Inflow=3.85 cfs 1.617 af Outflow=3.57 cfs 1.611 af
Pond EP1-C: Existing Depression 3 (NE)	Peak Elev=83.88' Storage=41,932 cf Inflow=8.25 cfs 1.746 af Outflow=2.67 cfs 1.022 af
Pond EP2: (DP3) Existing Depression 1	Peak Elev=83.20' Storage=33,927 cf Inflow=8.72 cfs 1.708 af Outflow=2.73 cfs 1.314 af
Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System	Inflow=1.17 cfs 0.088 af Primary=1.17 cfs 0.088 af

Total Runoff Area = 21.901 ac Runoff Volume = 5.608 af Average Runoff Depth = 3.07"
94.82% Pervious = 20.767 ac 5.18% Impervious = 1.135 ac

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Existing Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: Existing Flow to Runoff Area=321,193 sf 0.59% Impervious Runoff Depth=3.48"
Flow Length=887' Tc=65.5 min CN=62 Runoff=11.07 cfs 2.138 af

Subcatchment E2: (DP2) Existing Flow Runoff Area=76,582 sf 0.00% Impervious Runoff Depth=1.88"
Flow Length=421' Tc=47.3 min CN=47 Runoff=1.52 cfs 0.276 af

Subcatchment E3: Existing E3 Runoff Area=215,061 sf 2.00% Impervious Runoff Depth=3.81"
Flow Length=745' Tc=62.5 min CN=65 Runoff=8.45 cfs 1.569 af

Subcatchment E4: Existing E4 Runoff Area=84,154 sf 7.59% Impervious Runoff Depth=4.49"
Flow Length=462' Tc=45.4 min CN=71 Runoff=4.69 cfs 0.723 af

Subcatchment E5: Existing E5 Runoff Area=246,805 sf 12.89% Impervious Runoff Depth=4.49"
Flow Length=779' Tc=77.8 min CN=71 Runoff=10.04 cfs 2.121 af

Subcatchment E6: Existing Sheet flow to Runoff Area=2,937 sf 0.00% Impervious Runoff Depth=2.72"
Flow Length=26' Slope=0.0200 '/' Tc=7.3 min CN=55 Runoff=0.20 cfs 0.015 af

Subcatchment E7: Existing Kennedy Road Runoff Area=7,294 sf 69.19% Impervious Runoff Depth=6.35"
Tc=6.0 min CN=87 Runoff=1.19 cfs 0.089 af

Pond EP1-A: (DP1) Existing Rail Road Pond Peak Elev=83.34' Storage=8,670 cf Inflow=12.72 cfs 3.683 af
18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=9.89 cfs 3.683 af

Pond EP1-B: Existing Depression 2 (N) Peak Elev=83.52' Storage=3,680 cf Inflow=5.70 cfs 2.120 af
Outflow=5.52 cfs 2.114 af

Pond EP1-C: Existing Depression 3 (NE) Peak Elev=83.92' Storage=44,544 cf Inflow=10.04 cfs 2.121 af
Outflow=4.75 cfs 1.397 af

Pond EP2: (DP3) Existing Depression 1 Peak Elev=83.28' Storage=40,432 cf Inflow=11.07 cfs 2.138 af
Outflow=3.90 cfs 1.745 af

Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System Inflow=1.38 cfs 0.104 af
Primary=1.38 cfs 0.104 af

Total Runoff Area = 21.901 ac Runoff Volume = 6.931 af Average Runoff Depth = 3.80"
94.82% Pervious = 20.767 ac 5.18% Impervious = 1.135 ac

4670 Hydrocad

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Summary for Subcatchment E1: Existing Flow to Sullivan Ave

Runoff = 1.03 cfs @ 13.10 hrs, Volume= 0.280 af, Depth= 0.46"
 Routed to Pond EP2 : (DP3) Existing Depression 1 Adjacent to Sullivan Ave

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
23,040	61	>75% Grass cover, Good, HSG B
3,445	80	>75% Grass cover, Good, HSG D
* 3,223	71	>75% Grass cover, Good, HSG B/D
* 1,879	98	IMPERVIOUS
3,151	30	Woods, Good, HSG A
121,413	55	Woods, Good, HSG B
* 103,315	66	Woods, Good, HSG B/D
61,727	70	Woods, Good, HSG C
321,193	62	Weighted Average
319,314		99.41% Pervious Area
1,879		0.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.0	100	0.0150	0.07		Sheet Flow, Woodland Sheet Flow
					Woods: Light underbrush n= 0.400 P2= 3.22"
41.5	787	0.0040	0.32		Shallow Concentrated Flow, Woodland SCF
					Woodland Kv= 5.0 fps
65.5	887	Total			

Summary for Subcatchment E2: (DP2) Existing Flow across North West Property Corner

Runoff = 0.01 cfs @ 15.61 hrs, Volume= 0.009 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
1,541	39	>75% Grass cover, Good, HSG A
3,329	61	>75% Grass cover, Good, HSG B
* 285	71	>75% Grass cover, Good, HSG B/D
37,312	30	Woods, Good, HSG A
2,030	55	Woods, Good, HSG B
* 31,307	66	Woods, Good, HSG B/D
778	70	Woods, Good, HSG C
76,582	47	Weighted Average
76,582		100.00% Pervious Area

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0160	0.07		Sheet Flow, Woodland SF Woods: Light underbrush n= 0.400 P2= 3.22"
23.9	321	0.0020	0.22		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
47.3	421	Total			

Summary for Subcatchment E3: Existing E3

Runoff = 0.99 cfs @ 12.99 hrs, Volume= 0.235 af, Depth= 0.57"
 Routed to Pond EP1-A : (DP1) Existing Rail Road Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
* 2,034	71	>75% Grass cover, Good, HSG B/D
23,119	30	Woods, Good, HSG A
* 44,406	66	Woods, Good, HSG B/D
127,134	70	Woods, Good, HSG C
2,337	39	>75% Grass cover, Good, HSG A
1,707	74	>75% Grass cover, Good, HSG C
* 4,311	98	IMPERVIOUS
452	30	Meadow, non-grazed, HSG A
9,561	71	Meadow, non-grazed, HSG C
215,061	65	Weighted Average
210,750		98.00% Pervious Area
4,311		2.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.7	100	0.0140	0.07		Sheet Flow, Woodland SF Woods: Light underbrush n= 0.400 P2= 3.22"
37.5	616	0.0030	0.27		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
0.3	29	0.1223	1.75		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
62.5	745	Total			

Summary for Subcatchment E4: Existing E4

Runoff = 0.79 cfs @ 12.71 hrs, Volume= 0.136 af, Depth= 0.84"
 Routed to Pond EP1-B : Existing Depression 2 (N)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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	Area (sf)	CN	Description
*	21,303	66	Woods, Good, HSG B/D
	37,857	70	Woods, Good, HSG C
*	6,388	98	IMPERVIOUS
*	7,667	68	Meadow, non-grazed, HSG B/D
	10,939	71	Meadow, non-grazed, HSG C
	84,154	71	Weighted Average
	77,766		92.41% Pervious Area
	6,388		7.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.4	100	0.0160	0.07		Sheet Flow, Woodland SF Woods: Light underbrush n= 0.400 P2= 3.22"
15.2	288	0.0040	0.32		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
6.8	74	0.0013	0.18		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
45.4	462	Total			

Summary for Subcatchment E5: Existing E5

Runoff = 1.67 cfs @ 13.14 hrs, Volume= 0.398 af, Depth= 0.84"
 Routed to Pond EP1-C : Existing Depression 3 (NE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

	Area (sf)	CN	Description
*	7,449	71	>75% Grass cover, Good, HSG B/D
	5,261	74	>75% Grass cover, Good, HSG C
*	31,803	98	IMPERVIOUS
	456	55	Woods, Good, HSG B
*	157,810	66	Woods, Good, HSG B/D
	27,607	70	Woods, Good, HSG C
	10,125	71	Meadow, non-grazed, HSG C
*	6,294	68	Meadow, non-grazed, HSG B/D
	246,805	71	Weighted Average
	215,002		87.11% Pervious Area
	31,803		12.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.2	100	0.0110	0.06		Sheet Flow, Woodland Sheet Flow Woods: Light underbrush n= 0.400 P2= 3.22"
50.6	679	0.0020	0.22		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
77.8	779	Total			

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Summary for Subcatchment E6: Existing Sheet flow to Kennedy Road

Runoff = 0.01 cfs @ 12.37 hrs, Volume= 0.001 af, Depth= 0.23"
 Routed to Link DP4 : (DP4) Existing Flow to Kennedy Road Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
2,937	55	Woods, Good, HSG B
2,937		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	26	0.0200	0.06		Sheet Flow, Woodland SF Woods: Light underbrush n= 0.400 P2= 3.22"

Summary for Subcatchment E7: Existing Kennedy Road runoff to CB

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.026 af, Depth= 1.86"
 Routed to Link DP4 : (DP4) Existing Flow to Kennedy Road Drainage System

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
* 5,047	98	IMPERVIOUS
2,047	61	>75% Grass cover, Good, HSG B
* 200	71	>75% Grass cover, Good, HSG B/D
7,294	87	Weighted Average
2,247		30.81% Pervious Area
5,047		69.19% Impervious Area

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

Summary for Pond EP1-A: (DP1) Existing Rail Road Pond

Inflow Area = 12.535 ac, 7.78% Impervious, Inflow Depth = 0.35" for 2-yr event
 Inflow = 1.65 cfs @ 12.99 hrs, Volume= 0.365 af
 Outflow = 1.63 cfs @ 13.04 hrs, Volume= 0.365 af, Atten= 1%, Lag= 3.1 min
 Primary = 1.63 cfs @ 13.04 hrs, Volume= 0.365 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 80.59' @ 13.04 hrs Surf.Area= 790 sf Storage= 385 cf

Plug-Flow detention time= 3.8 min calculated for 0.365 af (100% of inflow)
 Center-of-Mass det. time= 3.8 min (952.6 - 948.9)

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Volume	Invert	Avail.Storage	Storage Description
#1	79.70'	45,776 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
79.70	10	0	0	10
80.00	382	45	45	382
81.00	1,156	734	780	1,162
82.00	2,173	1,638	2,418	2,189
83.00	5,061	3,517	5,934	5,085
84.00	30,796	16,114	22,048	30,823
84.25	47,868	9,755	31,803	47,896
84.50	64,318	13,973	45,776	64,347

Device	Routing	Invert	Outlet Devices
#1	Primary	79.70'	18.0" Round 18" Culvert L= 43.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 79.60' / 79.70' S= -0.0023 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=1.63 cfs @ 13.04 hrs HW=80.59' (Free Discharge)↑ **1=18" Culvert** (Barrel Controls 1.63 cfs @ 1.86 fps)**Summary for Pond EP1-B: Existing Depression 2 (N)**

Inflow Area = 7.598 ac, 11.54% Impervious, Inflow Depth = 0.21" for 2-yr event
 Inflow = 0.79 cfs @ 12.71 hrs, Volume= 0.136 af
 Outflow = 0.66 cfs @ 12.93 hrs, Volume= 0.130 af, Atten= 17%, Lag= 13.4 min
 Primary = 0.66 cfs @ 12.93 hrs, Volume= 0.130 af
 Routed to Pond EP1-A : (DP1) Existing Rail Road Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.27' @ 12.93 hrs Surf.Area= 6,211 sf Storage= 938 cf

Plug-Flow detention time= 59.9 min calculated for 0.130 af (96% of inflow)
 Center-of-Mass det. time= 37.3 min (947.4 - 910.1)

Volume	Invert	Avail.Storage	Storage Description
#1	82.75'	44,199 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.75	10	0	0	10
83.00	952	88	88	952
84.00	44,690	17,388	17,477	44,692
84.25	53,316	12,235	29,711	53,320
84.50	62,708	14,487	44,199	62,715

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Device	Routing	Invert	Outlet Devices
#1	Primary	83.10'	Spillway 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.90 Width (feet) 1.00 28.00
#2	Primary	83.50'	Spillway 2, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 Width (feet) 1.00 19.00

Primary OutFlow Max=0.66 cfs @ 12.93 hrs HW=83.27' TW=80.58' (Dynamic Tailwater)

1=Spillway 1 (Weir Controls 0.66 cfs @ 1.14 fps)

2=Spillway 2 (Controls 0.00 cfs)

Summary for Pond EP1-C: Existing Depression 3 (NE)

Inflow Area = 5.666 ac, 12.89% Impervious, Inflow Depth = 0.84" for 2-yr event
 Inflow = 1.67 cfs @ 13.14 hrs, Volume= 0.398 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Routed to Pond EP1-B : Existing Depression 2 (N)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.41' @ 28.36 hrs Surf.Area= 39,845 sf Storage= 17,323 cf

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

Volume	Invert	Avail.Storage	Storage Description	
#1	82.40'	100,821 cf	Custom Stage Data (Conic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.40	10	0	0	10
83.00	23,047	4,707	4,707	23,048
84.00	72,641	45,535	50,242	72,647
84.25	96,136	21,029	71,271	96,144
84.50	141,733	29,550	100,821	141,742

Device	Routing	Invert	Outlet Devices
#1	Primary	83.70'	Spill Way 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.30 Width (feet) 1.00 34.00
#2	Primary	83.80'	Spill Way 2, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.20 Width (feet) 1.00 34.00
#3	Primary	83.90'	Spill Way 3, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.20 Width (feet) 1.00 3.00

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Existing Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=82.40' TW=82.75' (Dynamic Tailwater)

↑ **1=Spill Way 1** (Controls 0.00 cfs)

— **2=Spill Way 2** (Controls 0.00 cfs)

— **3=Spill Way 3** (Controls 0.00 cfs)

Summary for Pond EP2: (DP3) Existing Depression 1 Adjacent to Sullivan Ave

Inflow Area = 7.374 ac, 0.59% Impervious, Inflow Depth = 0.46" for 2-yr event
Inflow = 1.03 cfs @ 13.10 hrs, Volume= 0.280 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
Peak Elev= 82.74' @ 27.66 hrs Surf.Area= 32,746 sf Storage= 12,193 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	82.00'	144,179 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.00	81	0	0
83.00	44,050	22,066	22,066
84.00	200,176	122,113	144,179

Device	Routing	Invert	Outlet Devices
#1	Primary	82.88'	6.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=82.00' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System

Inflow Area = 0.235 ac, 49.33% Impervious, Inflow Depth = 1.39" for 2-yr event
Inflow = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af
Primary = 0.37 cfs @ 12.09 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

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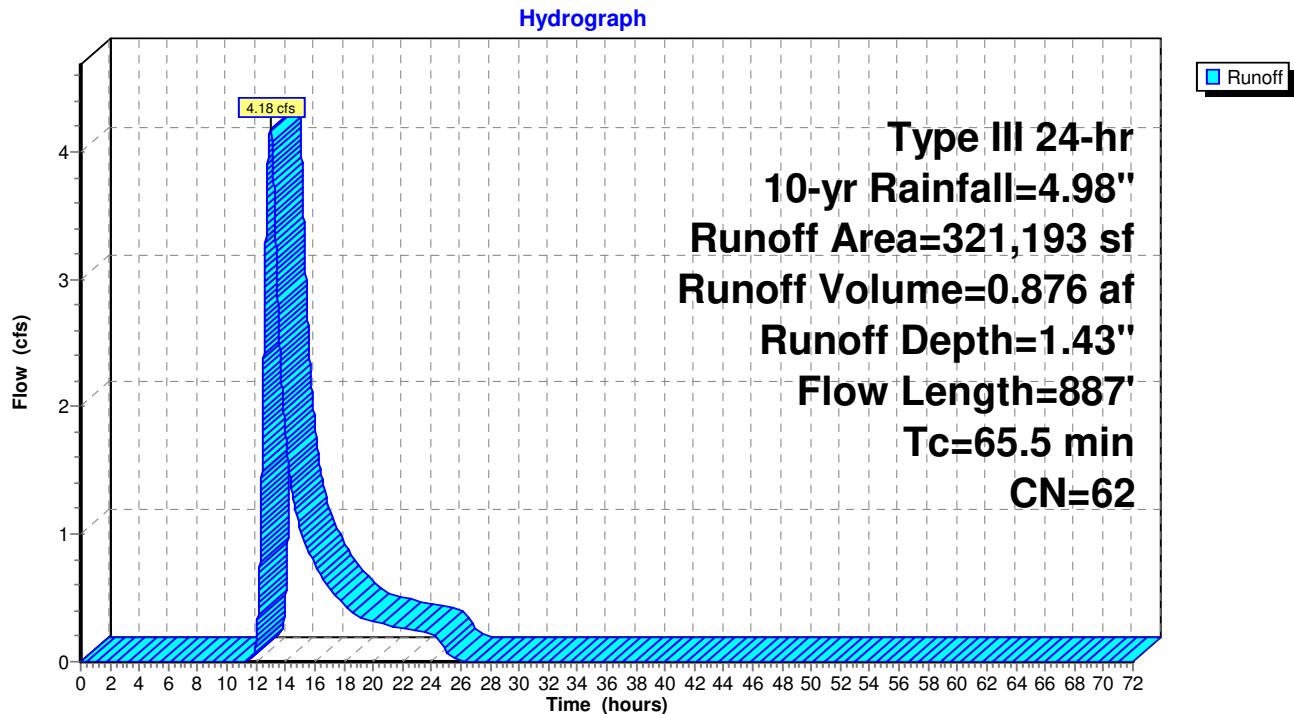
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Existing Condition
Type III 24-hr 10-yr Rainfall=4.98"

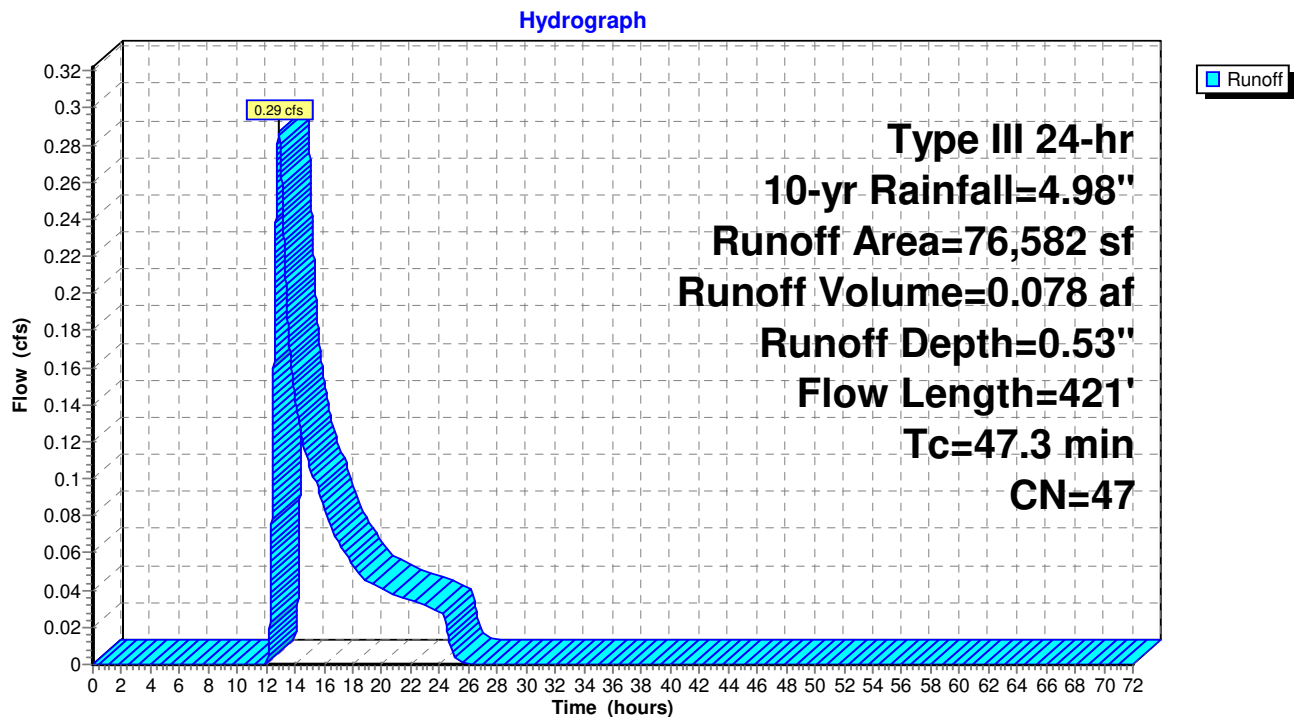
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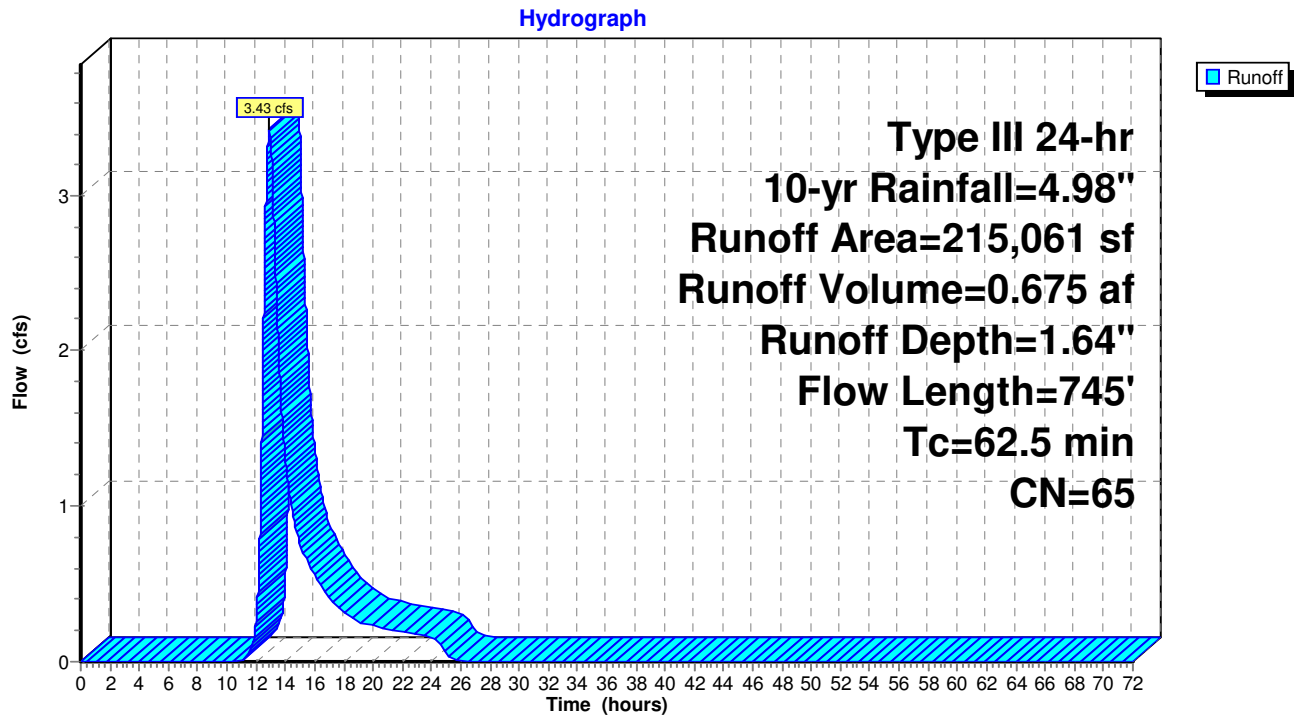
Subcatchment E1: Existing Flow to Sullivan Ave



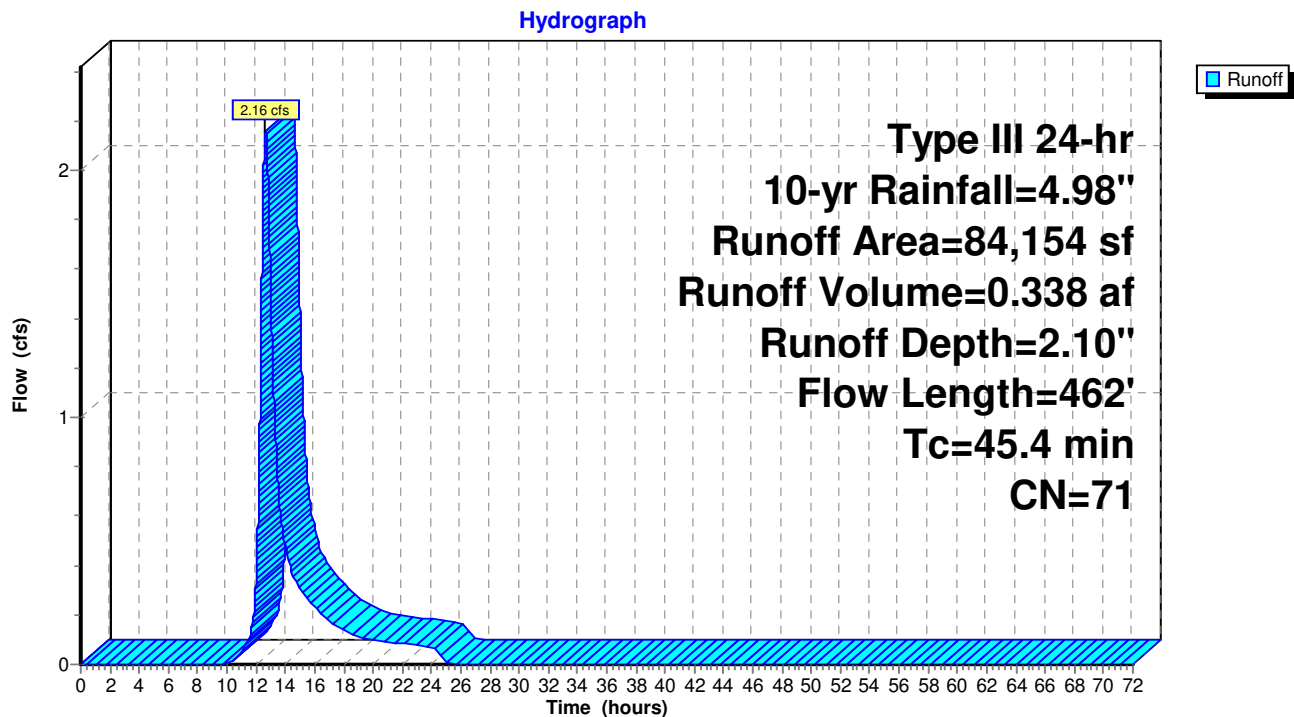
Subcatchment E2: (DP2) Existing Flow across North West Property Corner

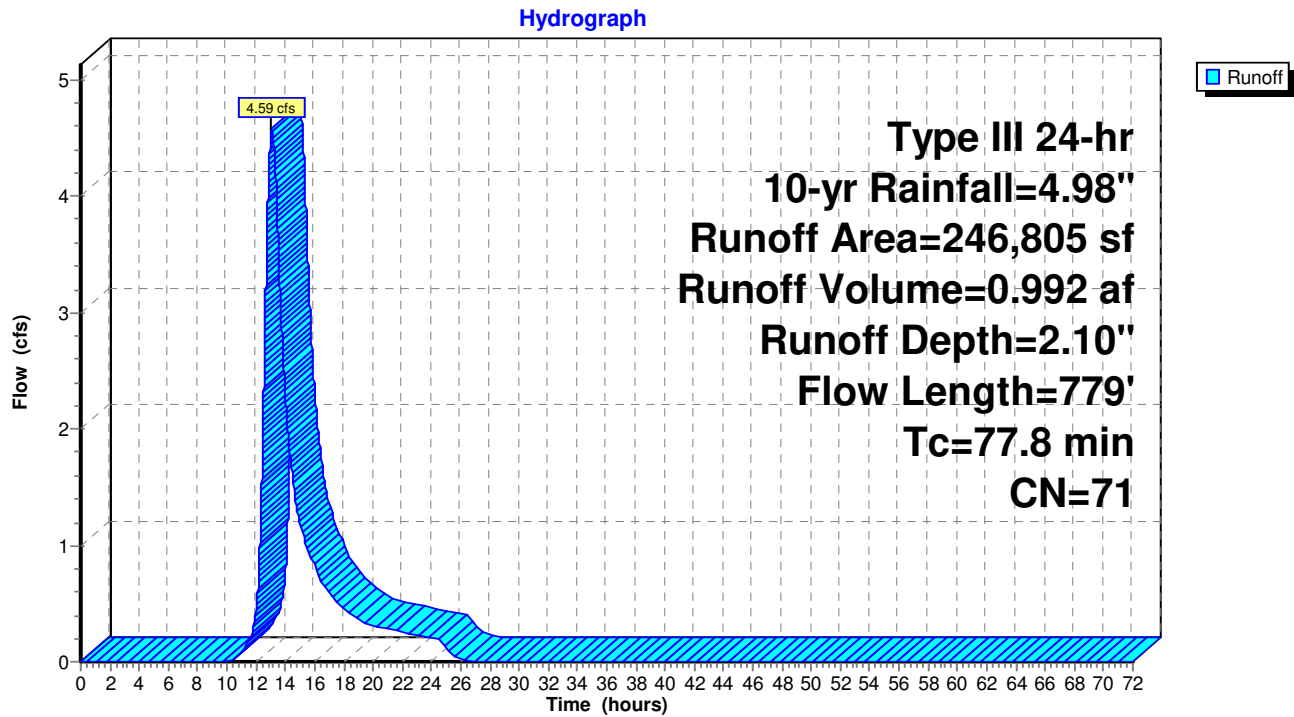
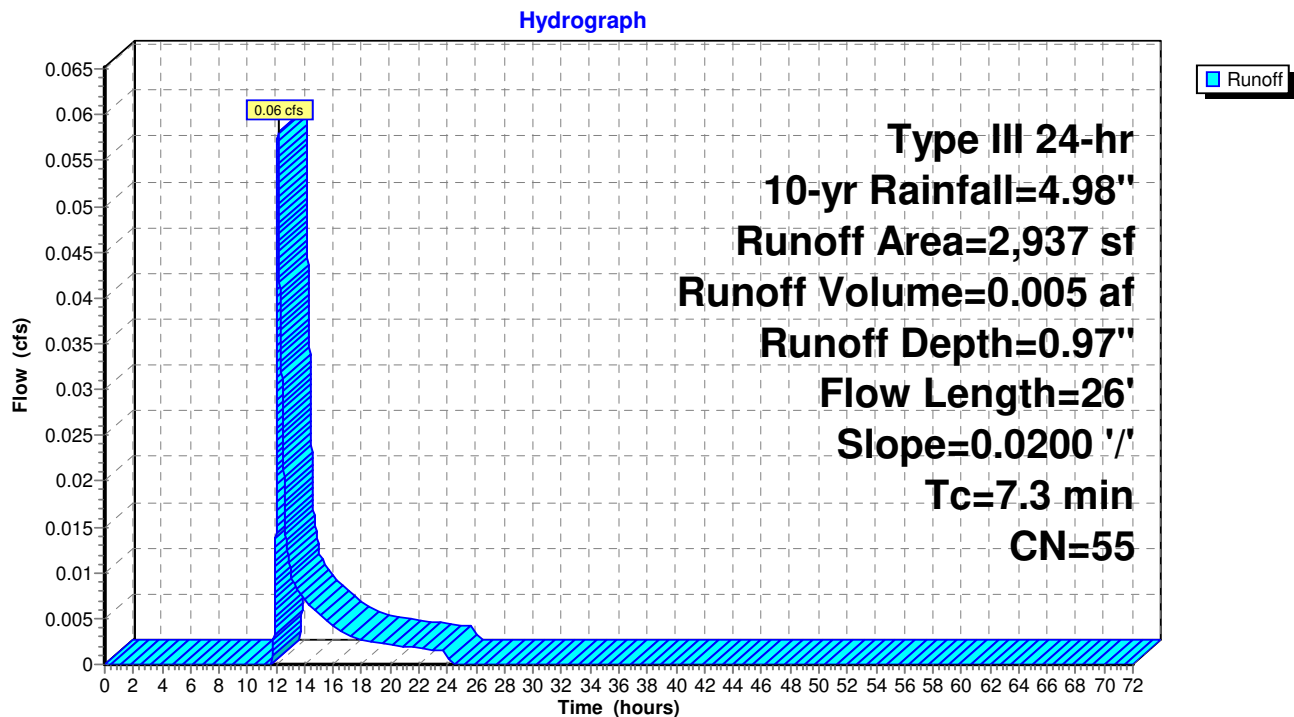


Subcatchment E3: Existing E3

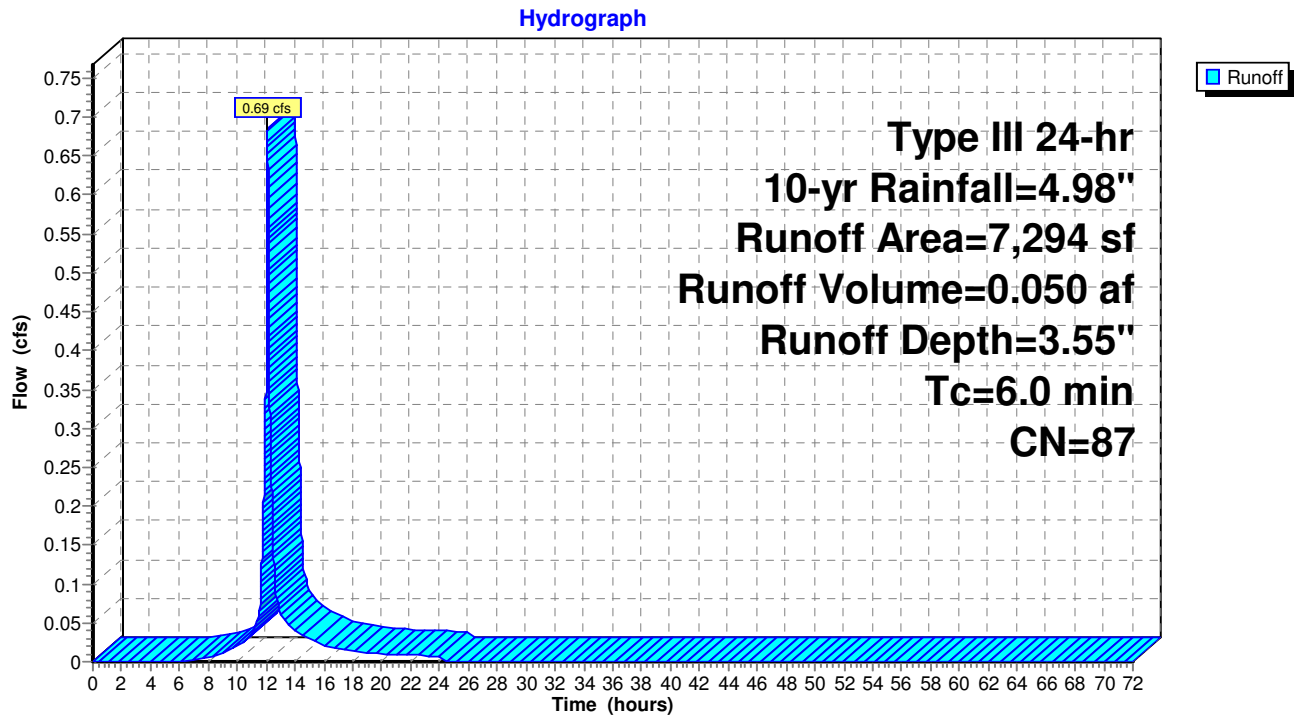


Subcatchment E4: Existing E4

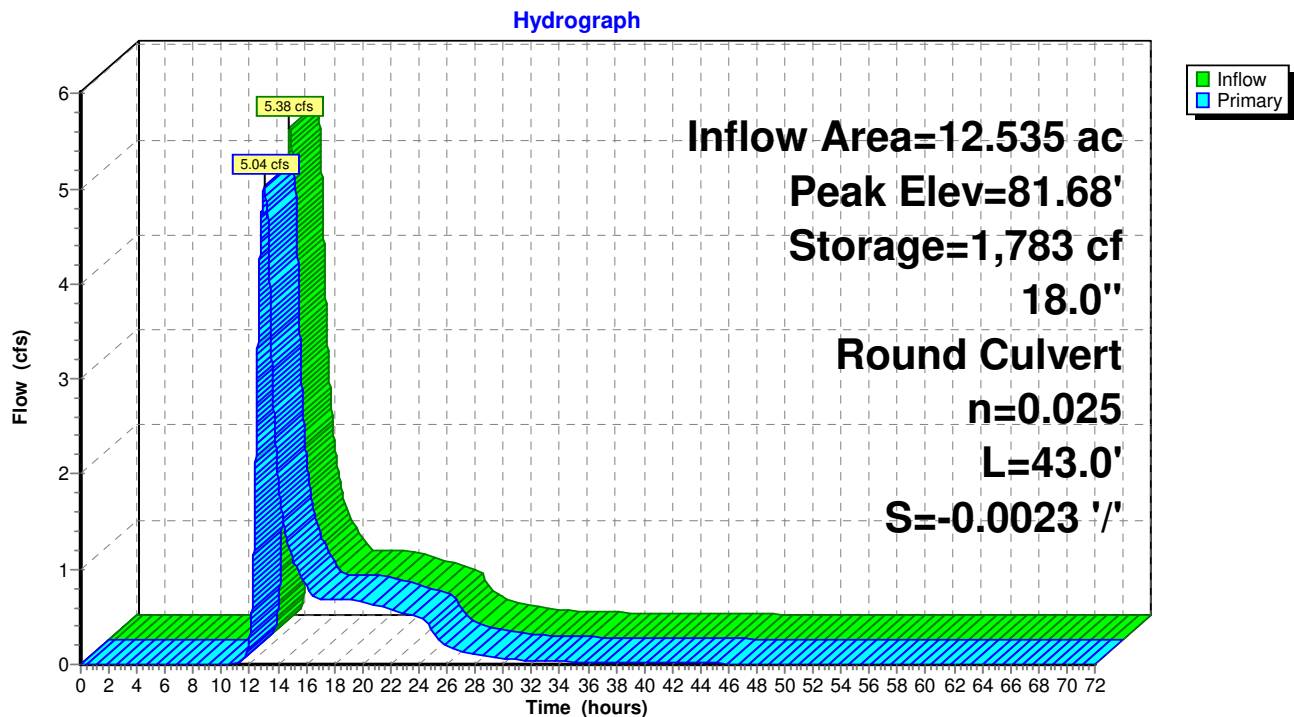


Subcatchment E5: Existing E5**Subcatchment E6: Existing Sheet flow to Kennedy Road**

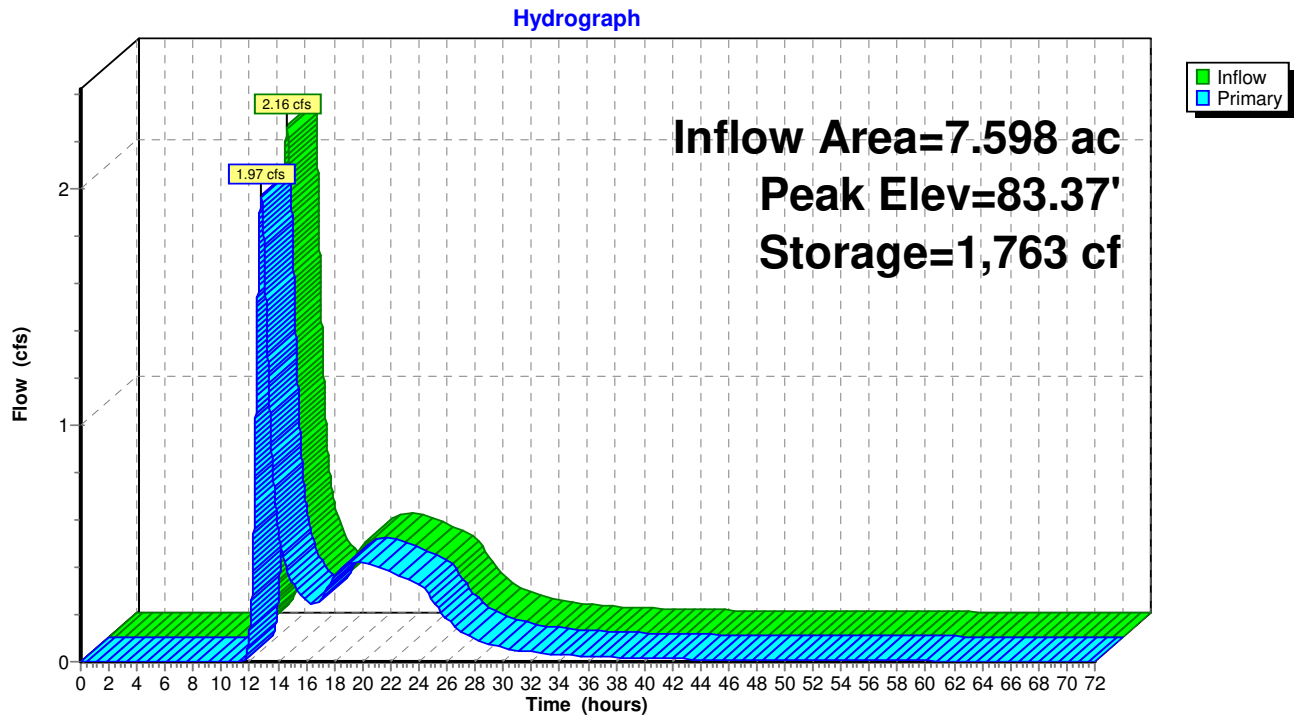
Subcatchment E7: Existing Kennedy Road runoff to CB



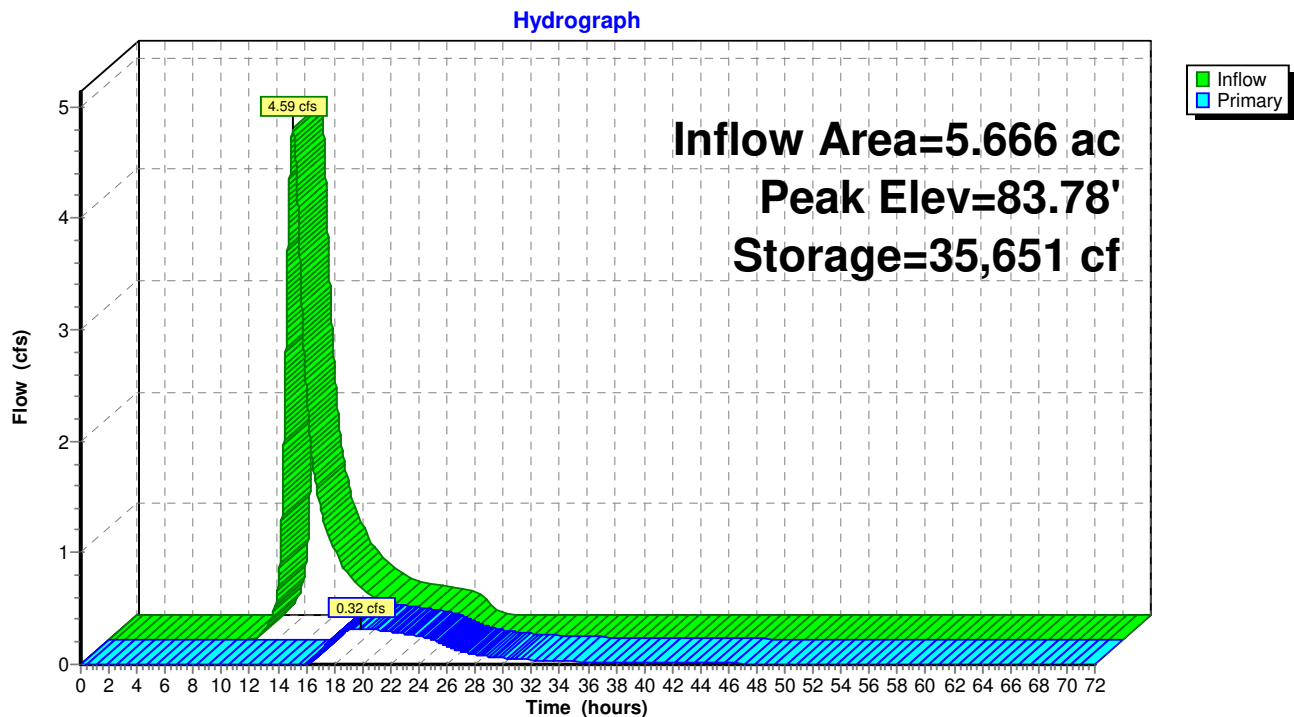
Pond EP1-A: (DP1) Existing Rail Road Pond



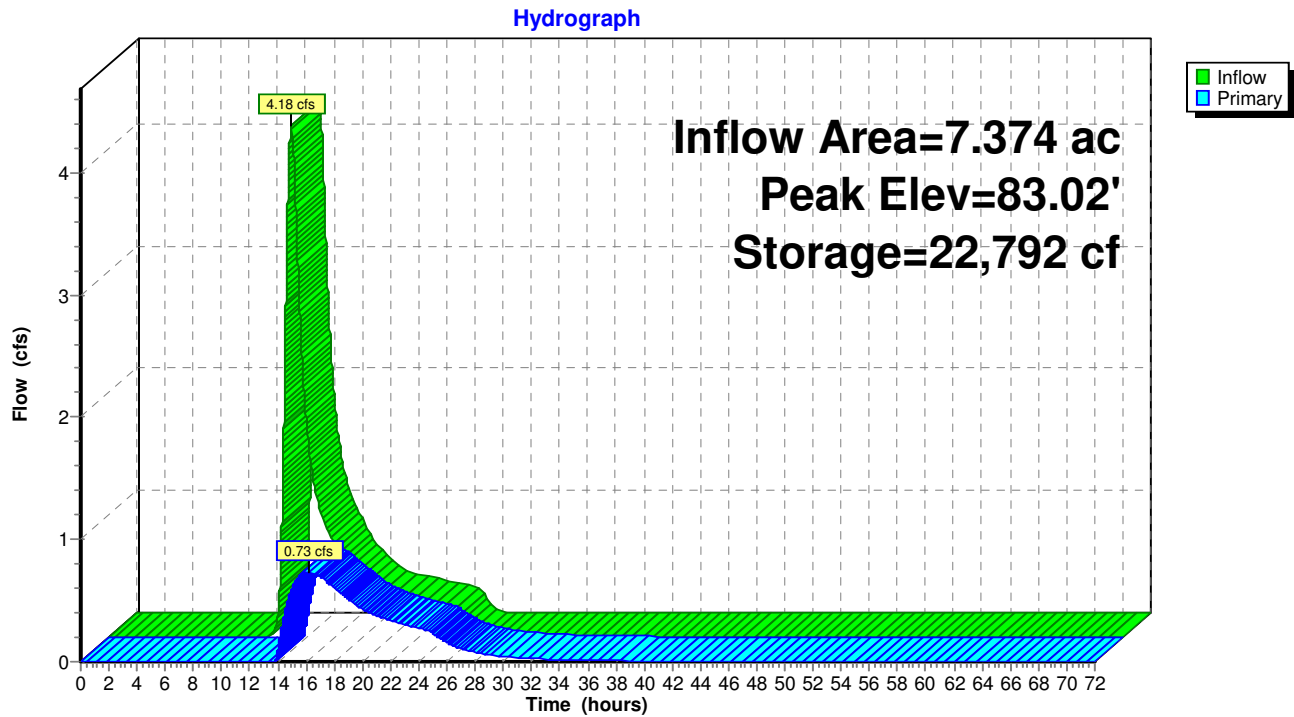
Pond EP1-B: Existing Depression 2 (N)



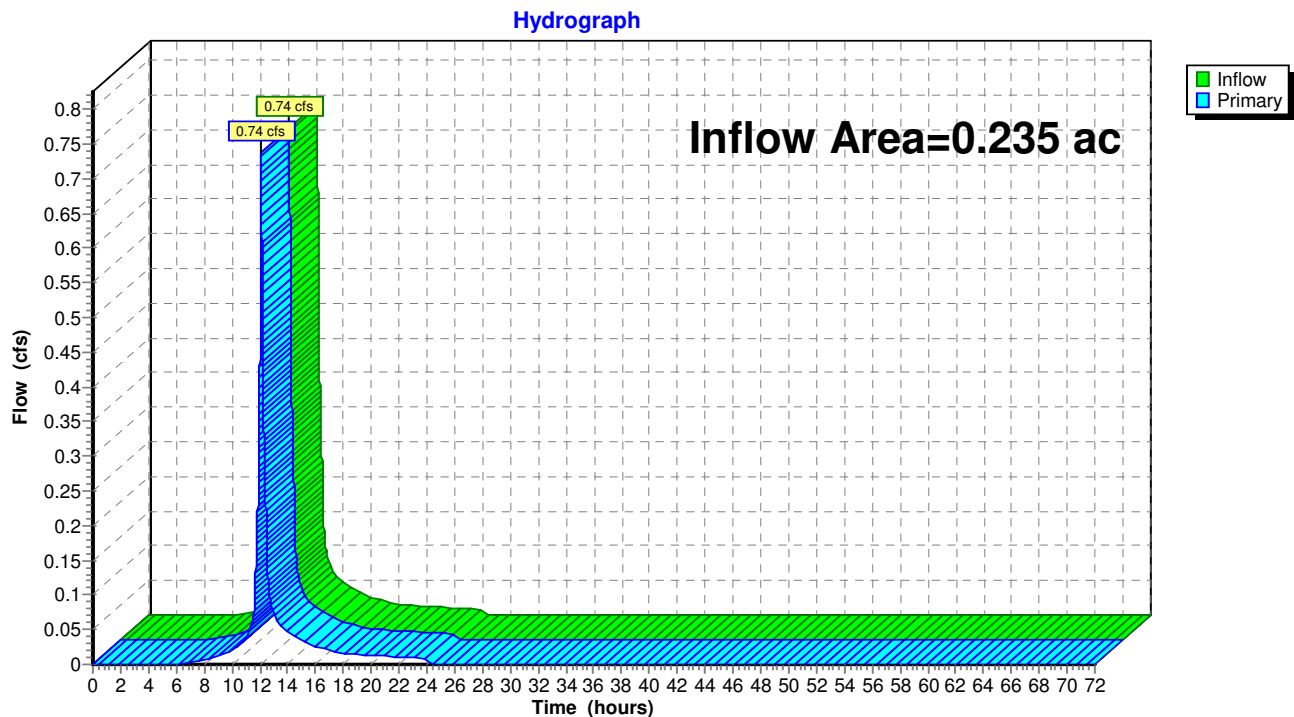
Pond EP1-C: Existing Depression 3 (NE)

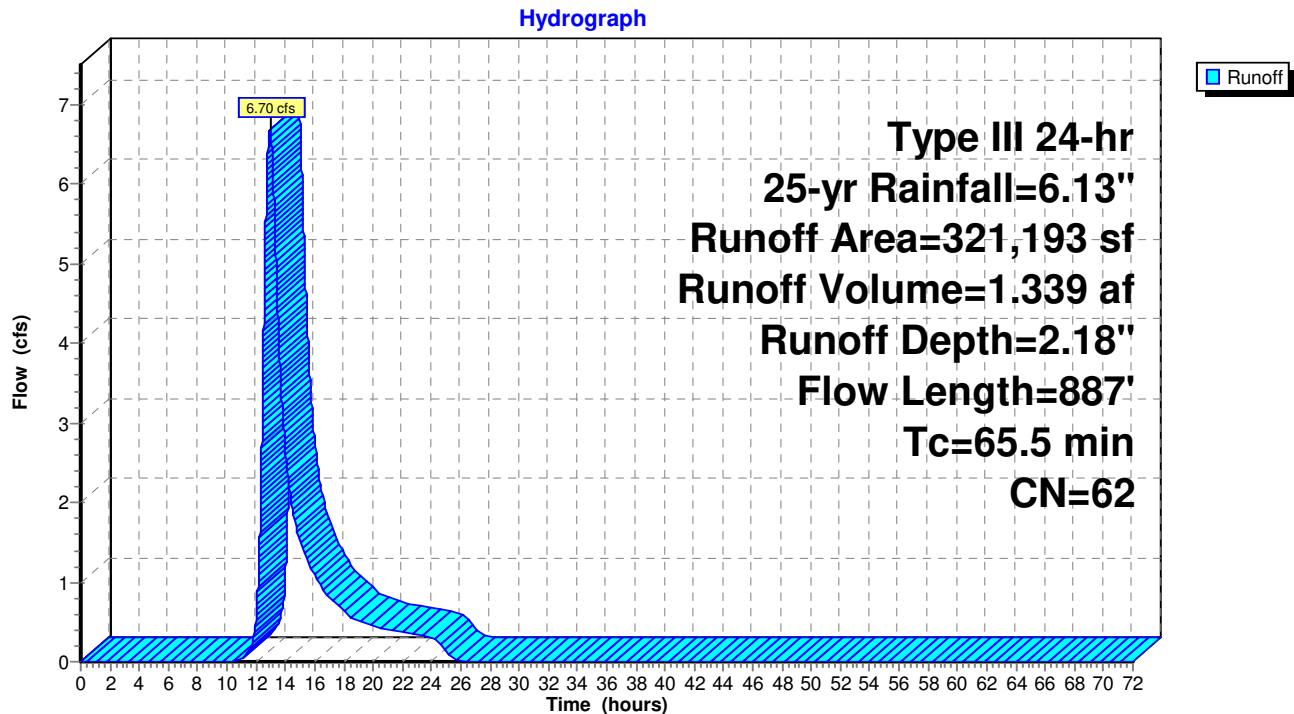
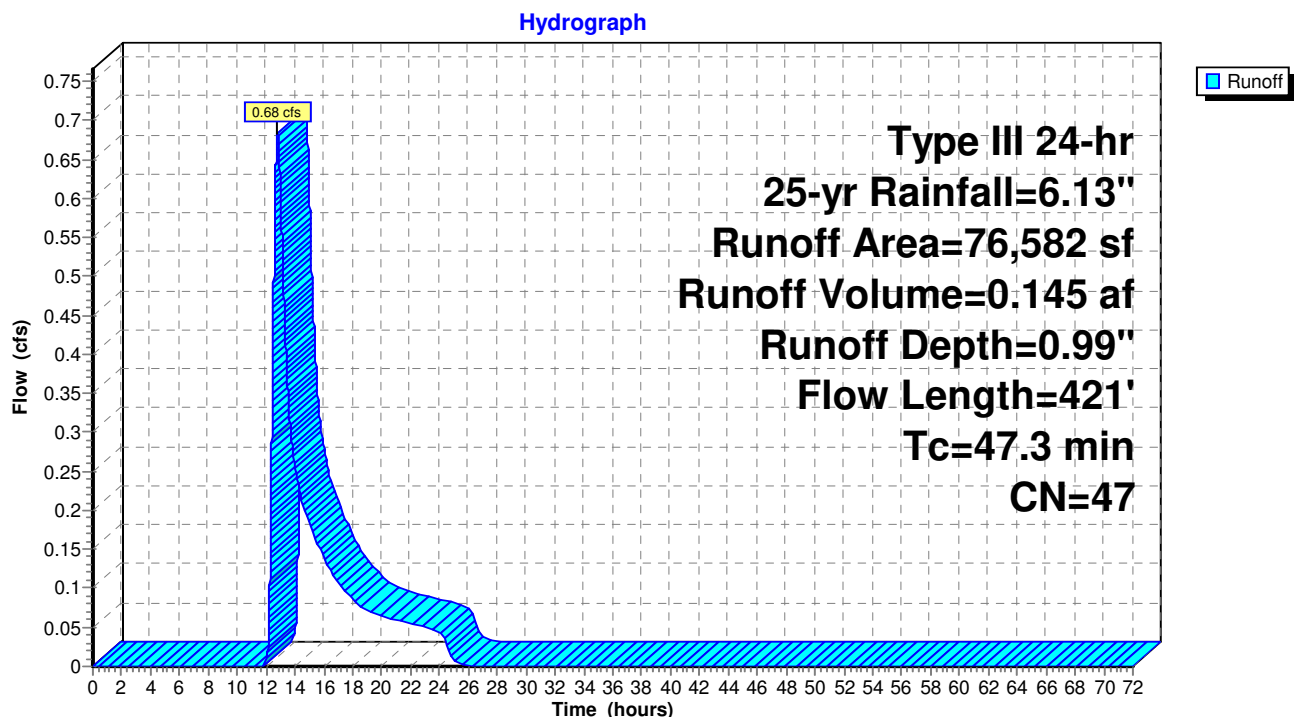


Pond EP2: (DP3) Existing Depression 1 Adjacent to Sullivan Ave

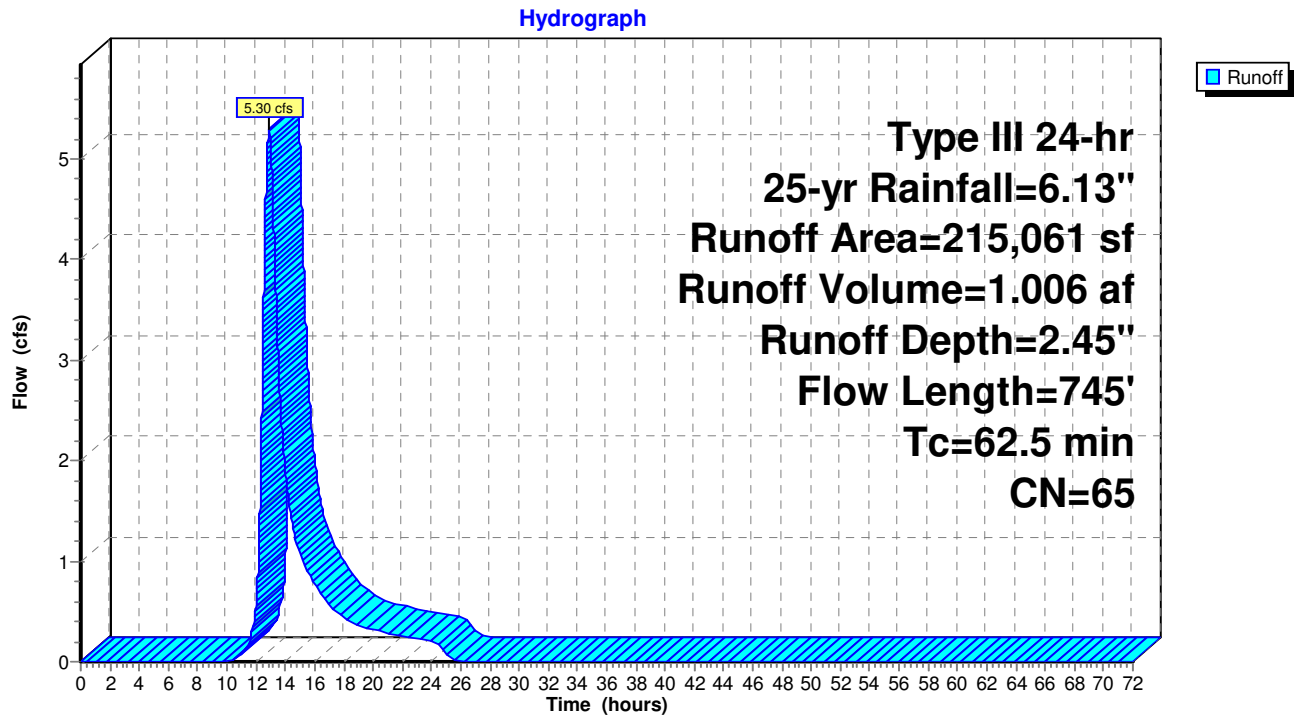


Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System

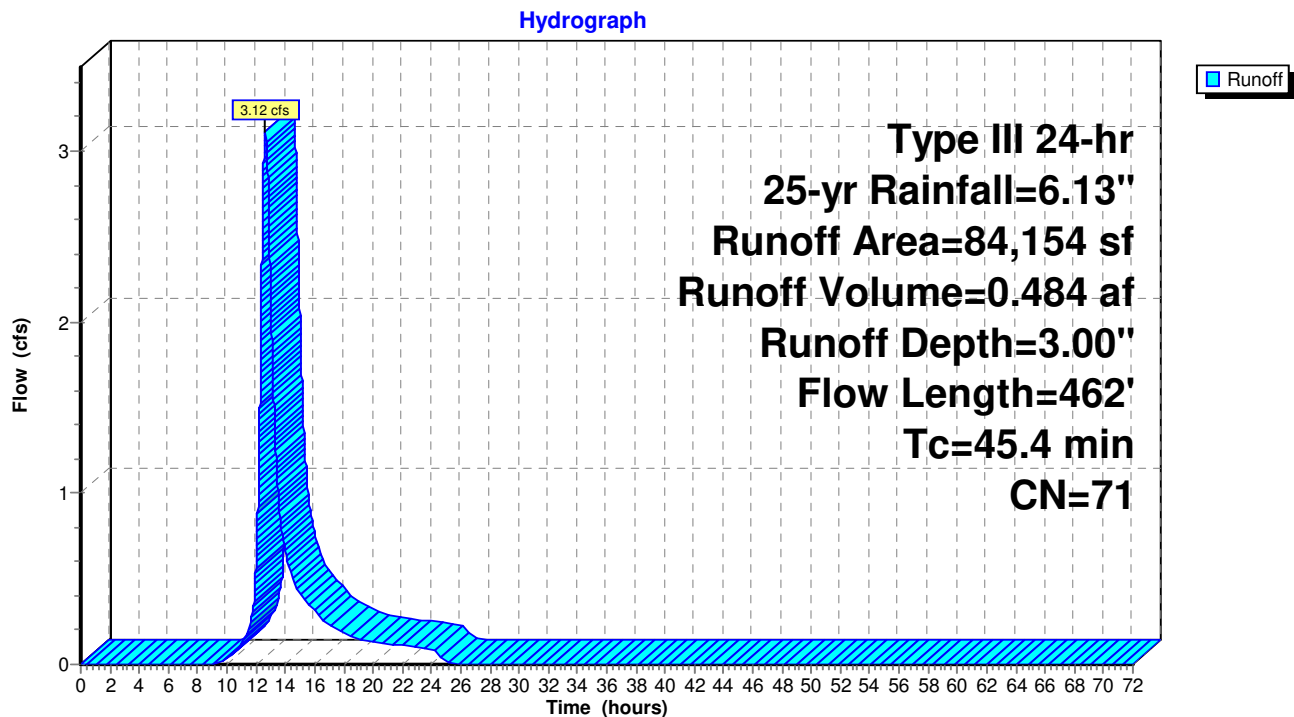


Subcatchment E1: Existing Flow to Sullivan Ave**Subcatchment E2: (DP2) Existing Flow across North West Property Corner**

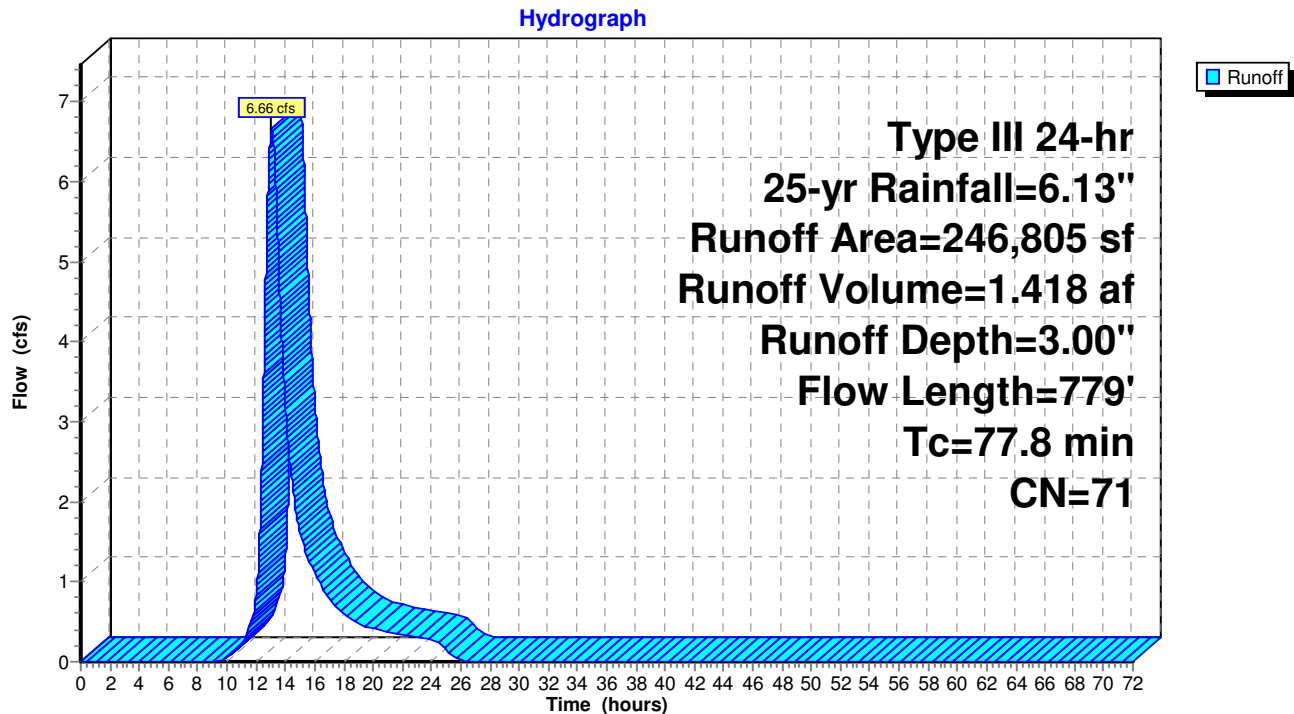
Subcatchment E3: Existing E3



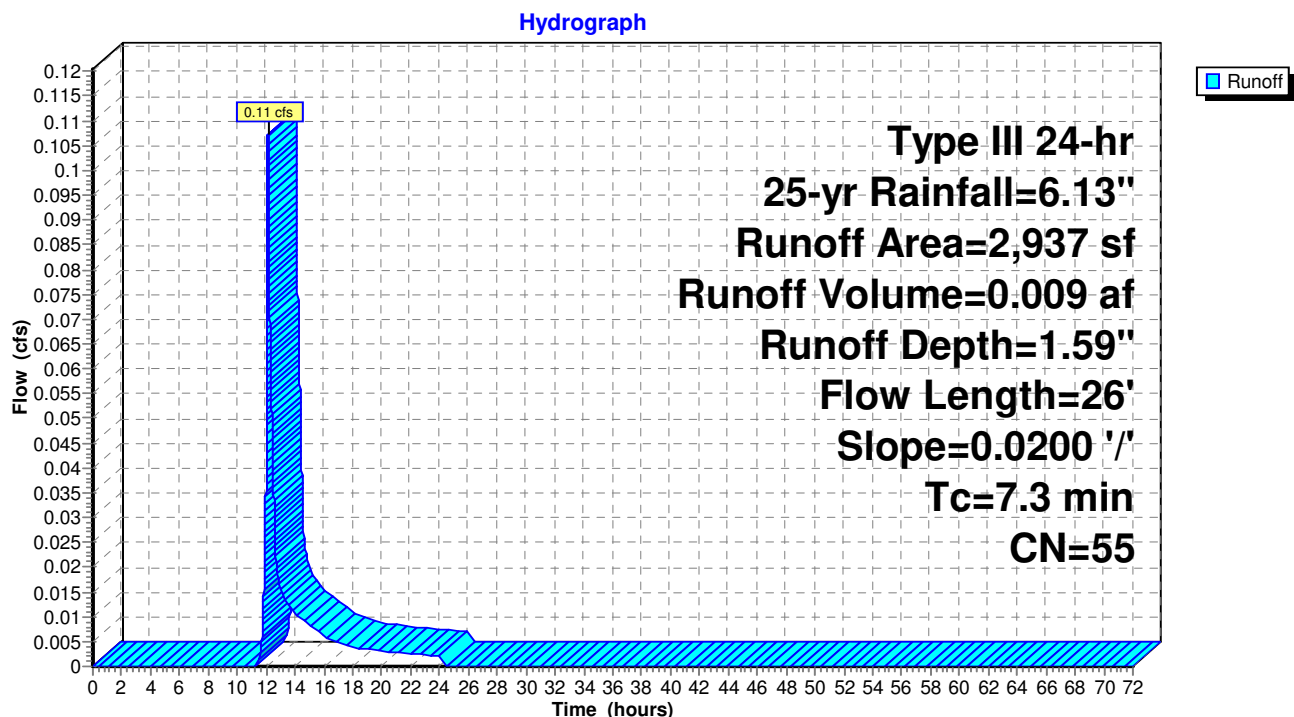
Subcatchment E4: Existing E4

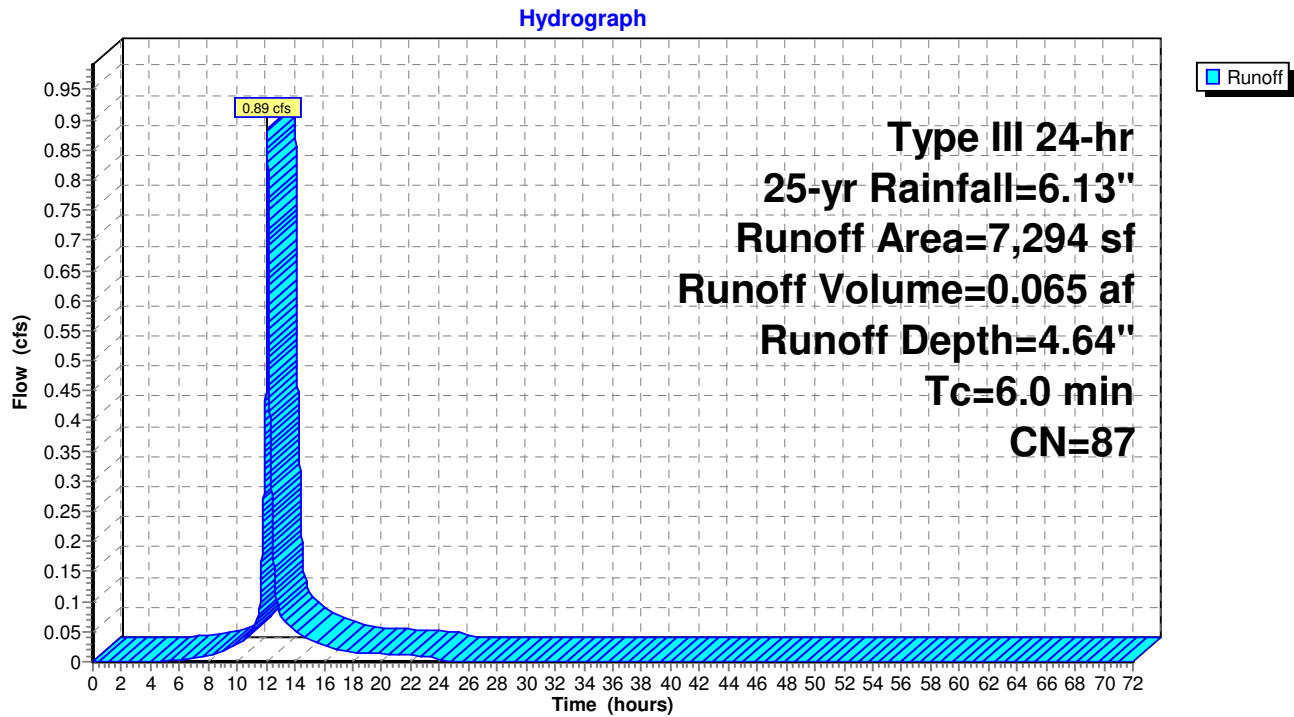
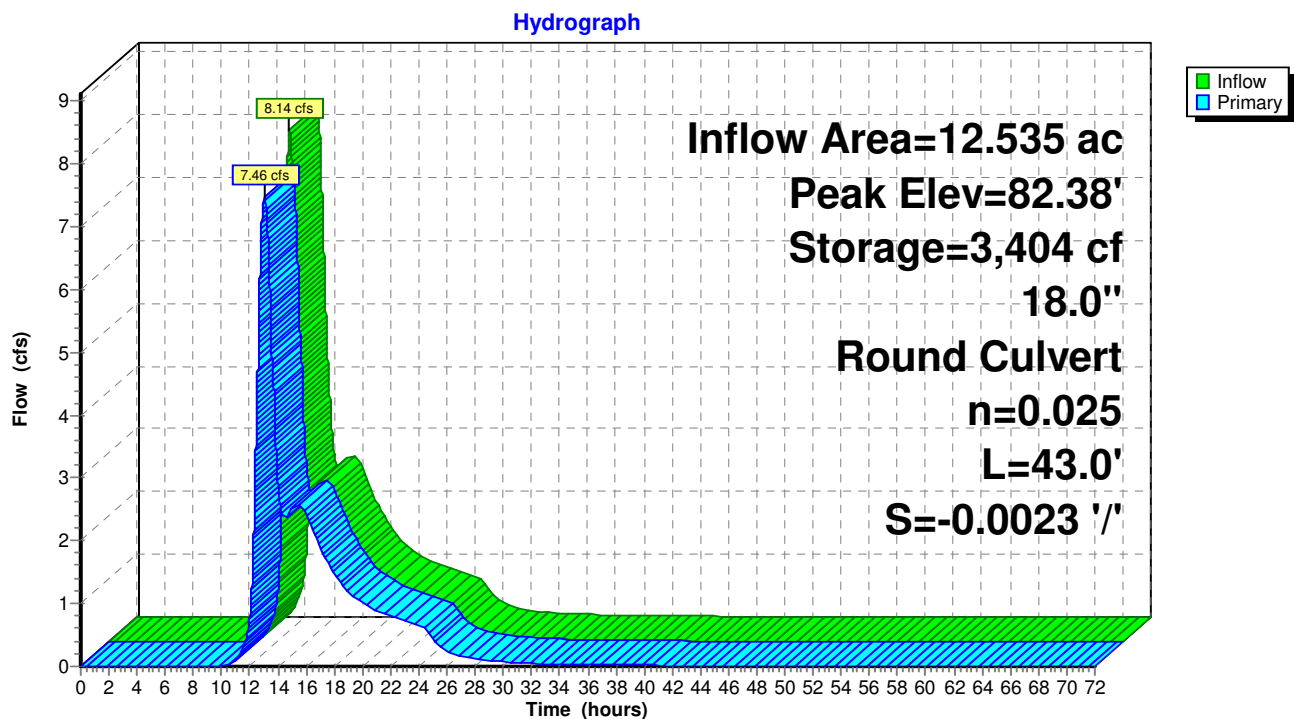


Subcatchment E5: Existing E5

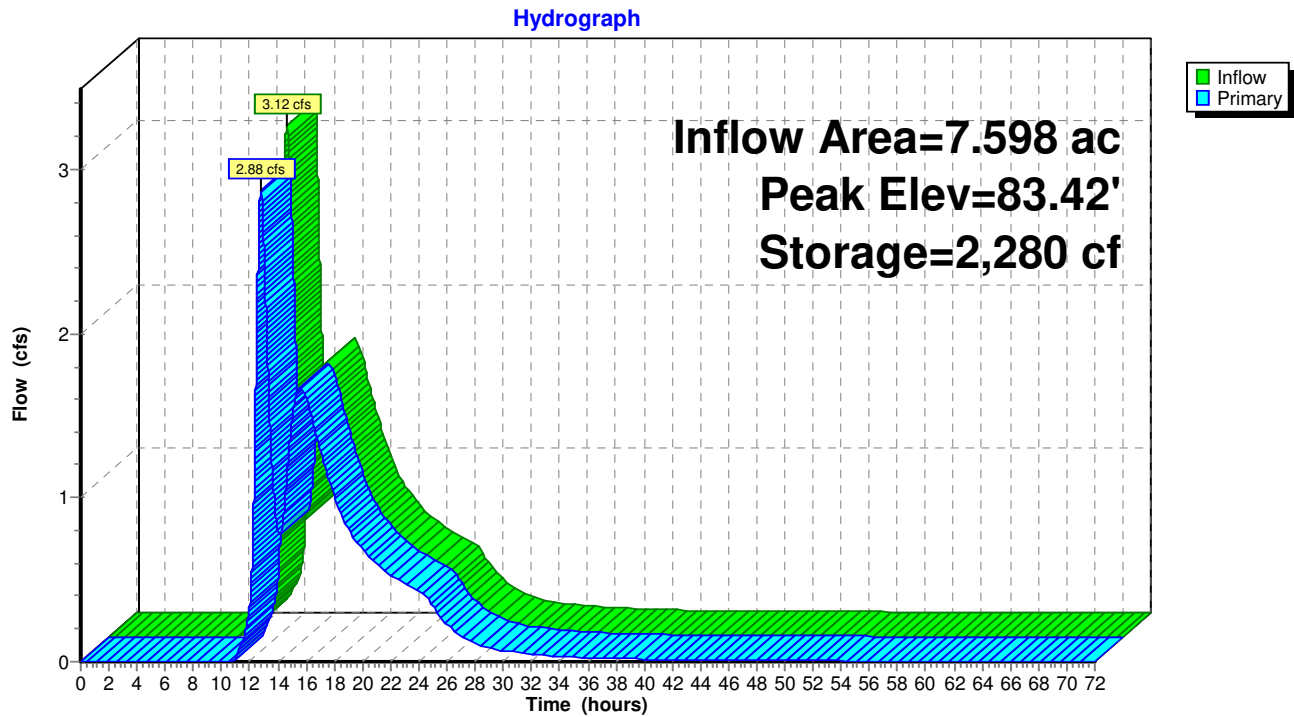


Subcatchment E6: Existing Sheet flow to Kennedy Road

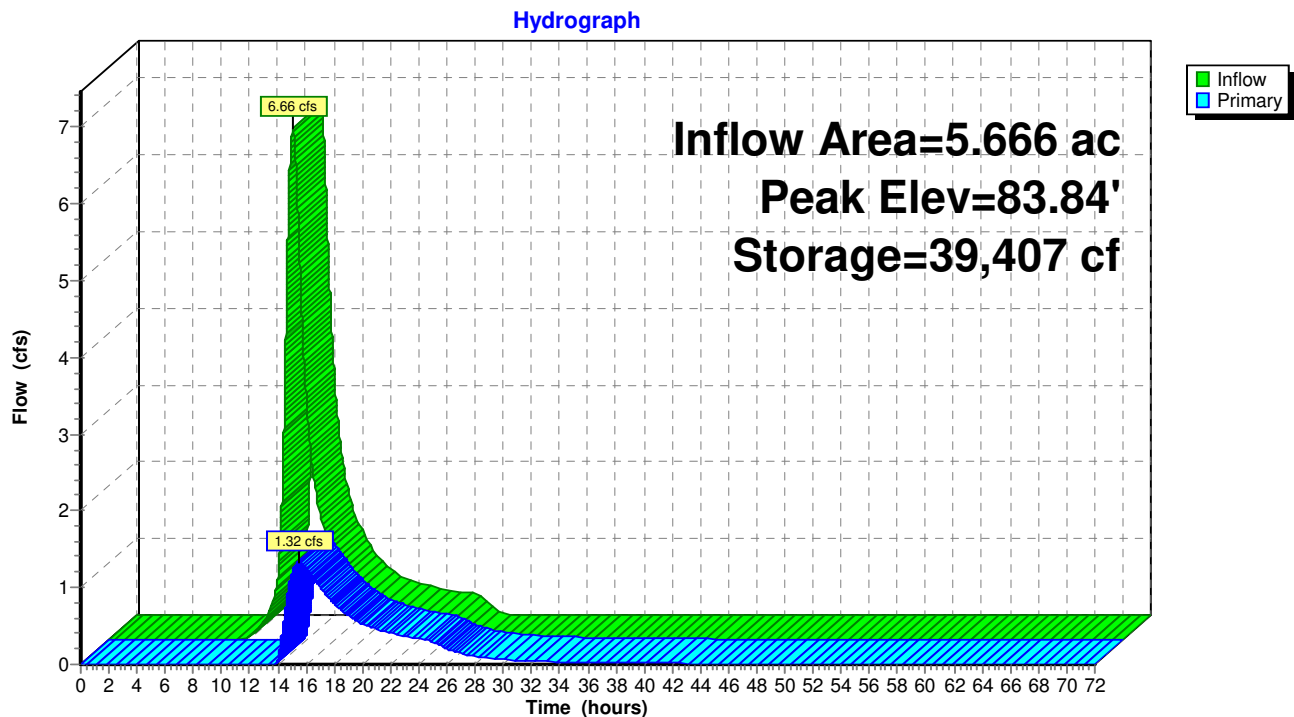


Subcatchment E7: Existing Kennedy Road runoff to CB**Pond EP1-A: (DP1) Existing Rail Road Pond**

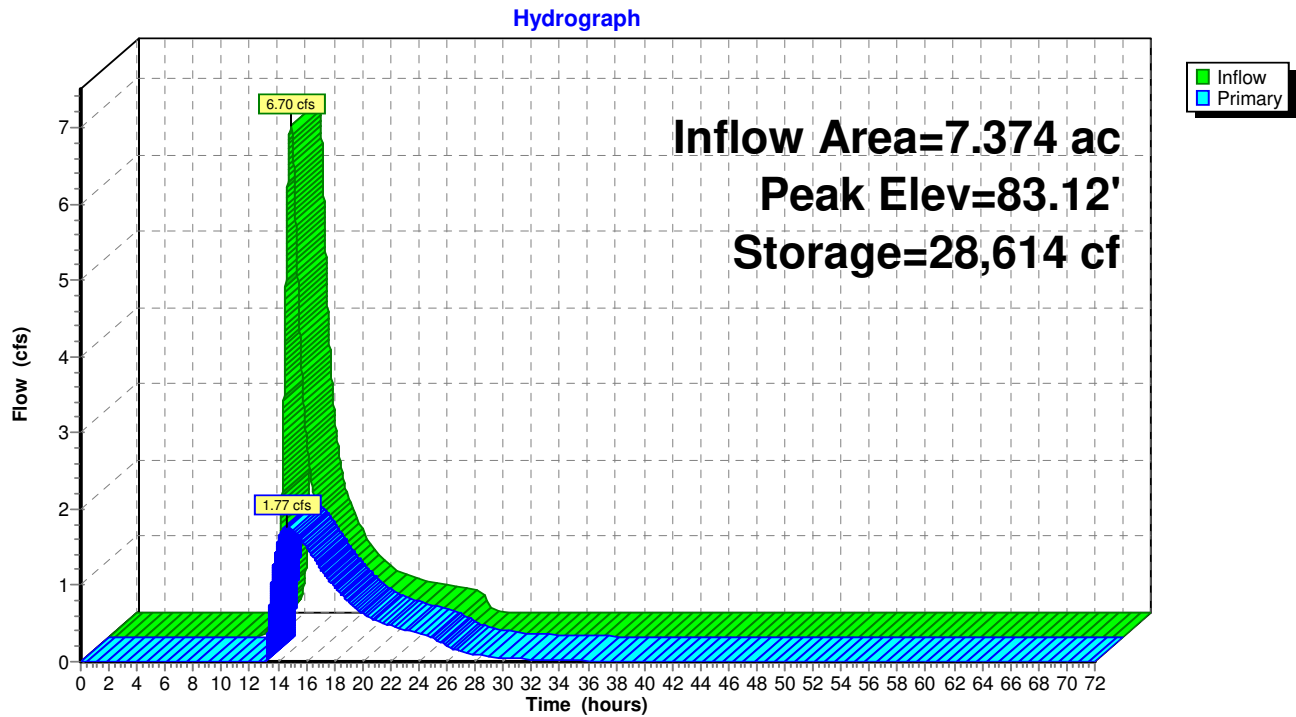
Pond EP1-B: Existing Depression 2 (N)



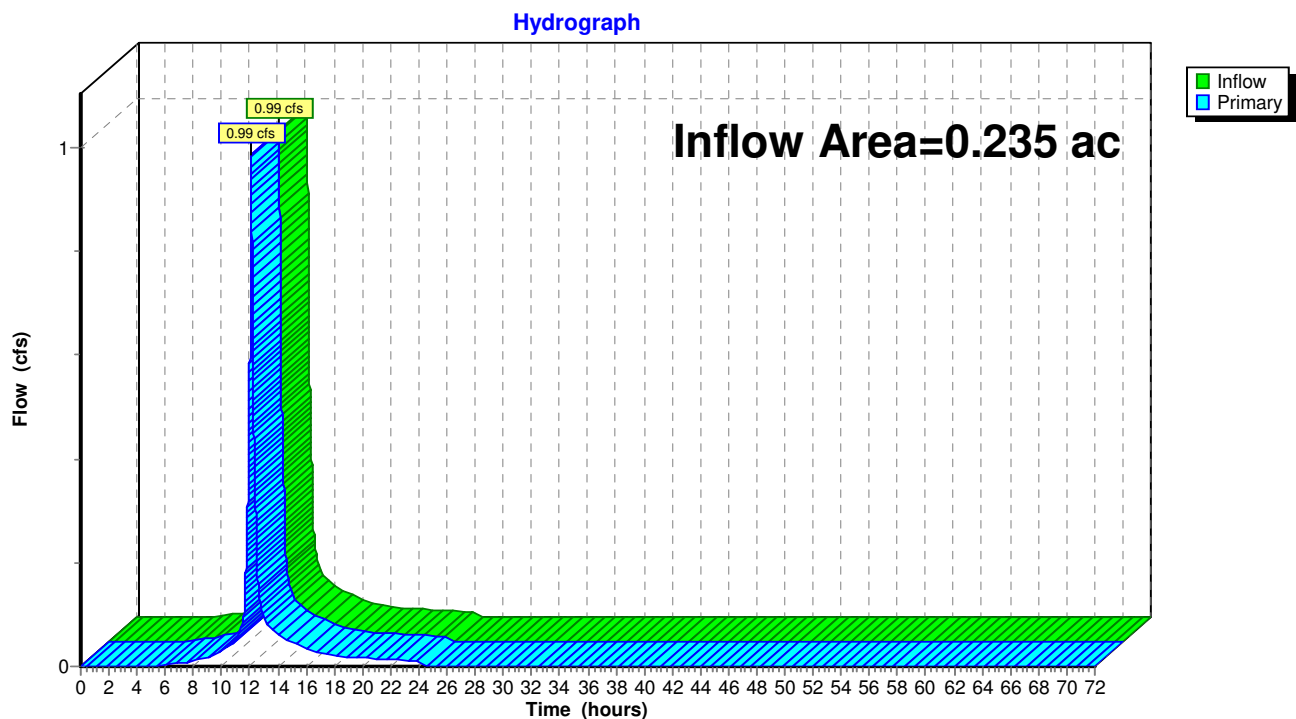
Pond EP1-C: Existing Depression 3 (NE)



Pond EP2: (DP3) Existing Depression 1 Adjacent to Sullivan Ave



Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System



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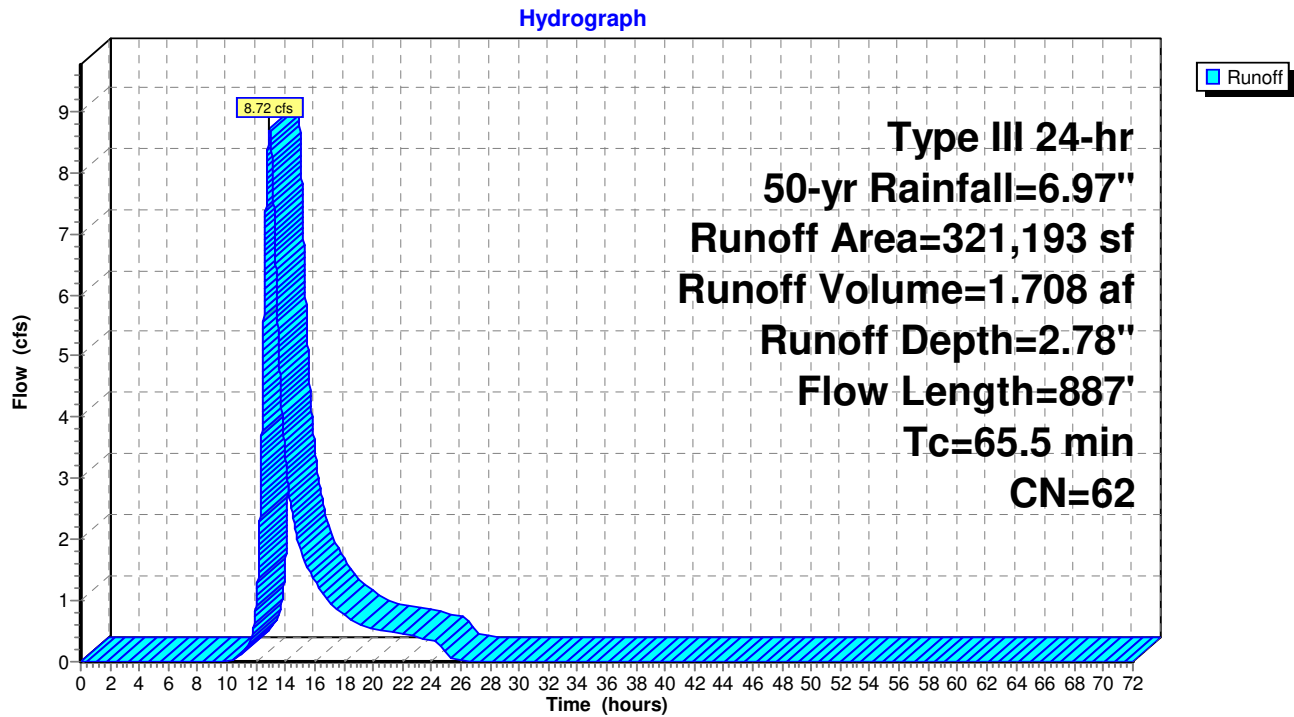
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Existing Condition
Type III 24-hr 50-yr Rainfall=6.97"

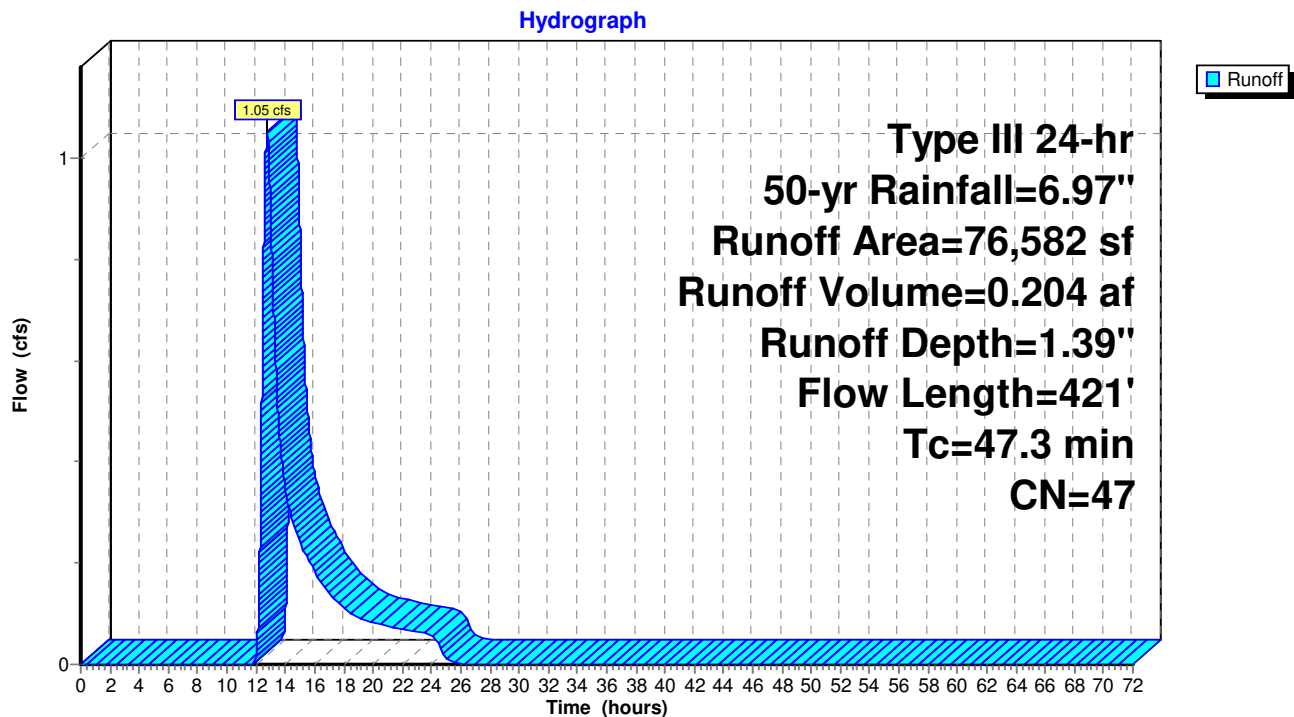
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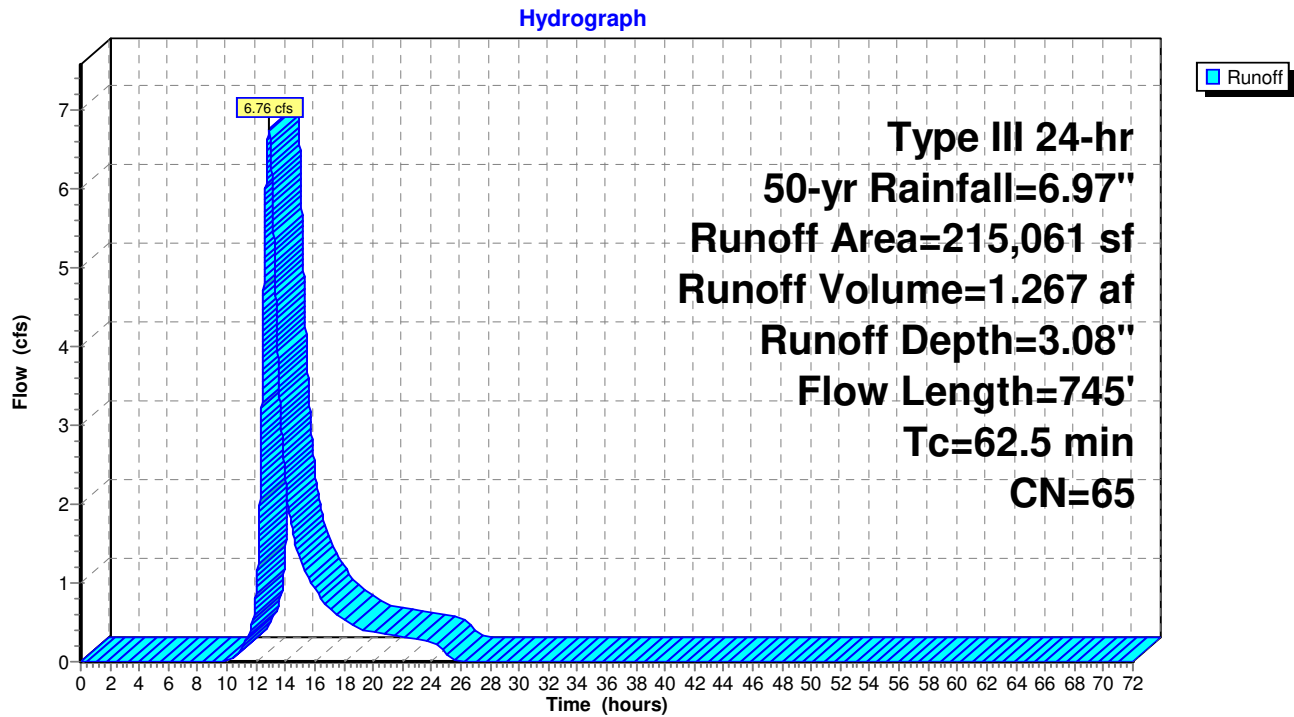
Subcatchment E1: Existing Flow to Sullivan Ave



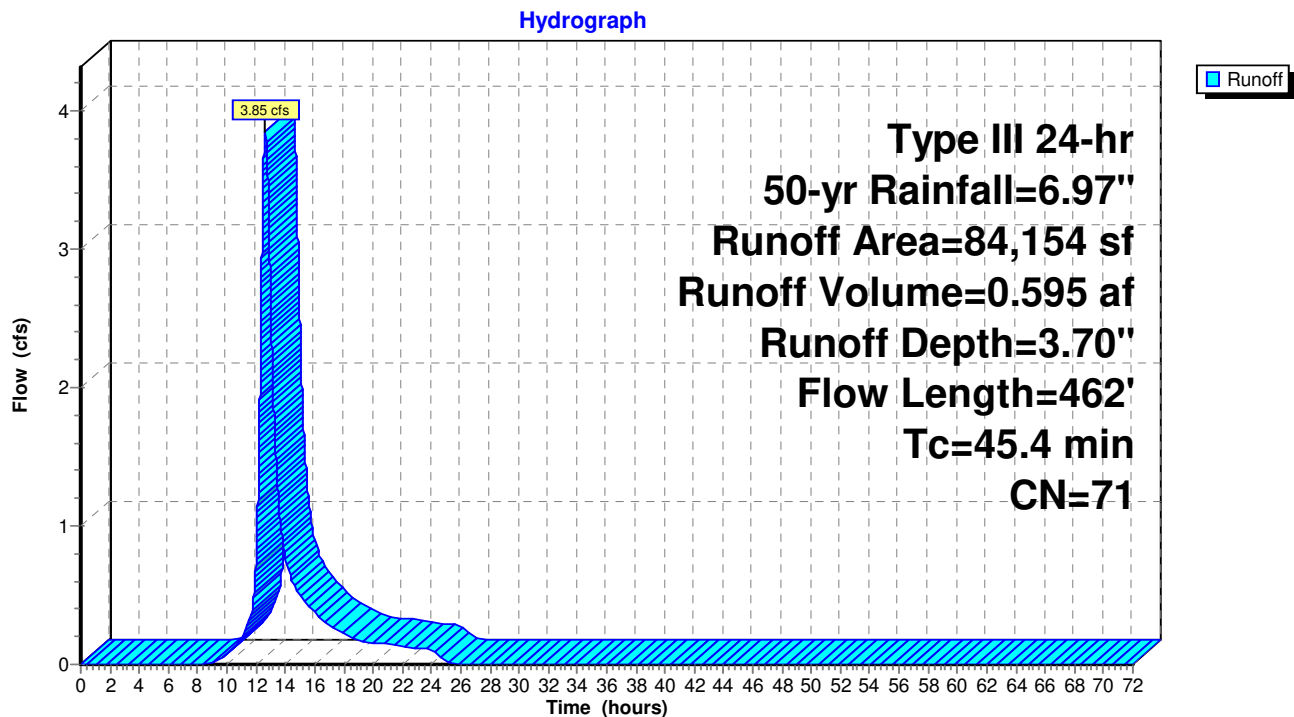
Subcatchment E2: (DP2) Existing Flow across North West Property Corner



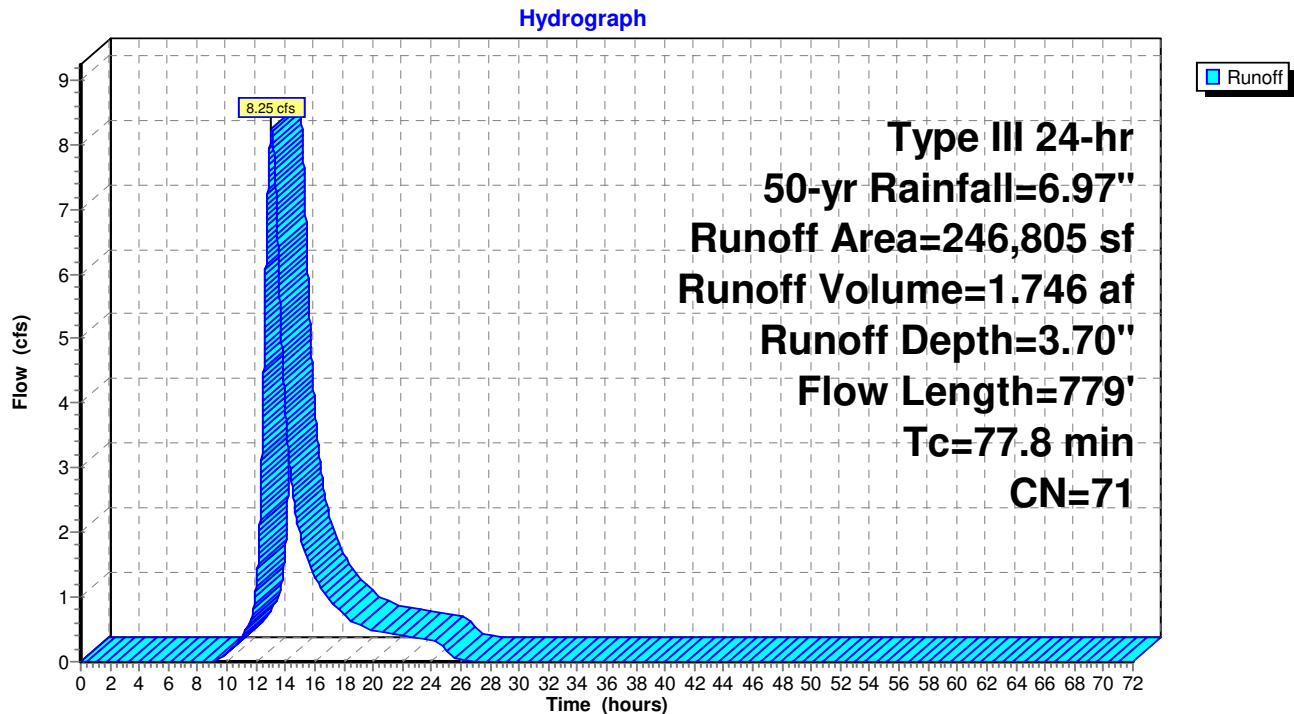
Subcatchment E3: Existing E3



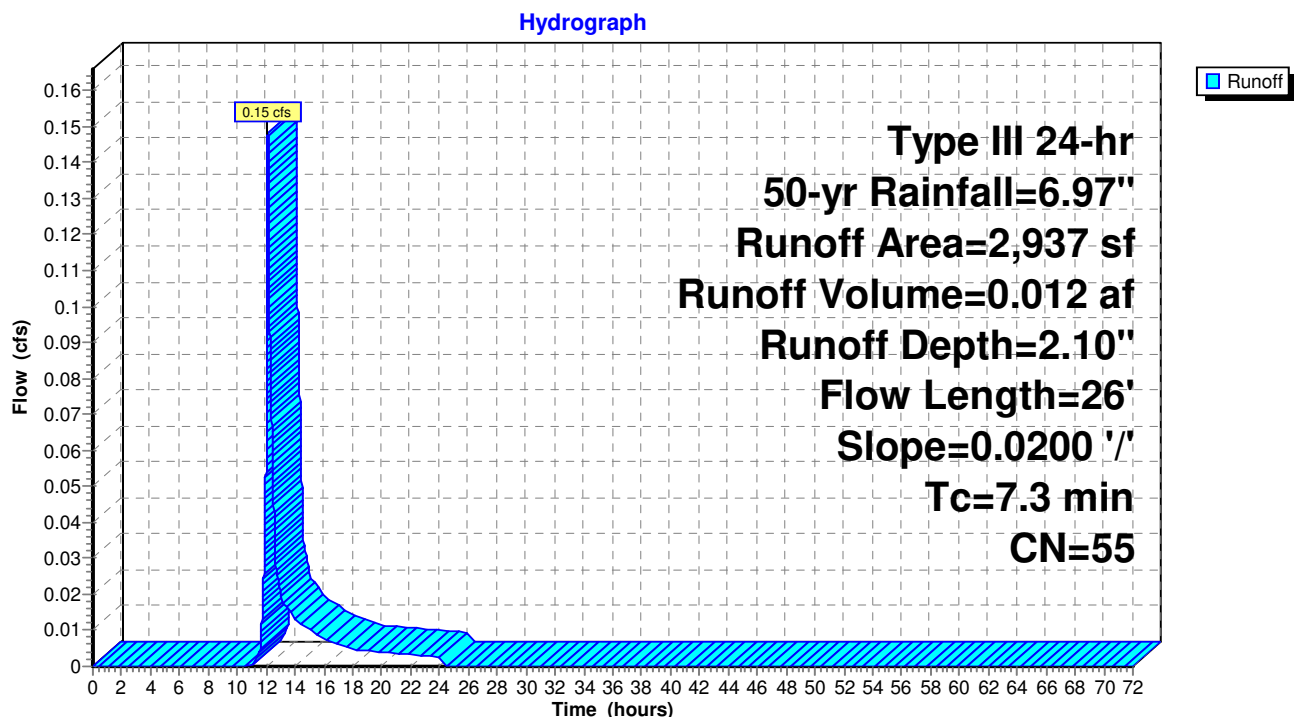
Subcatchment E4: Existing E4



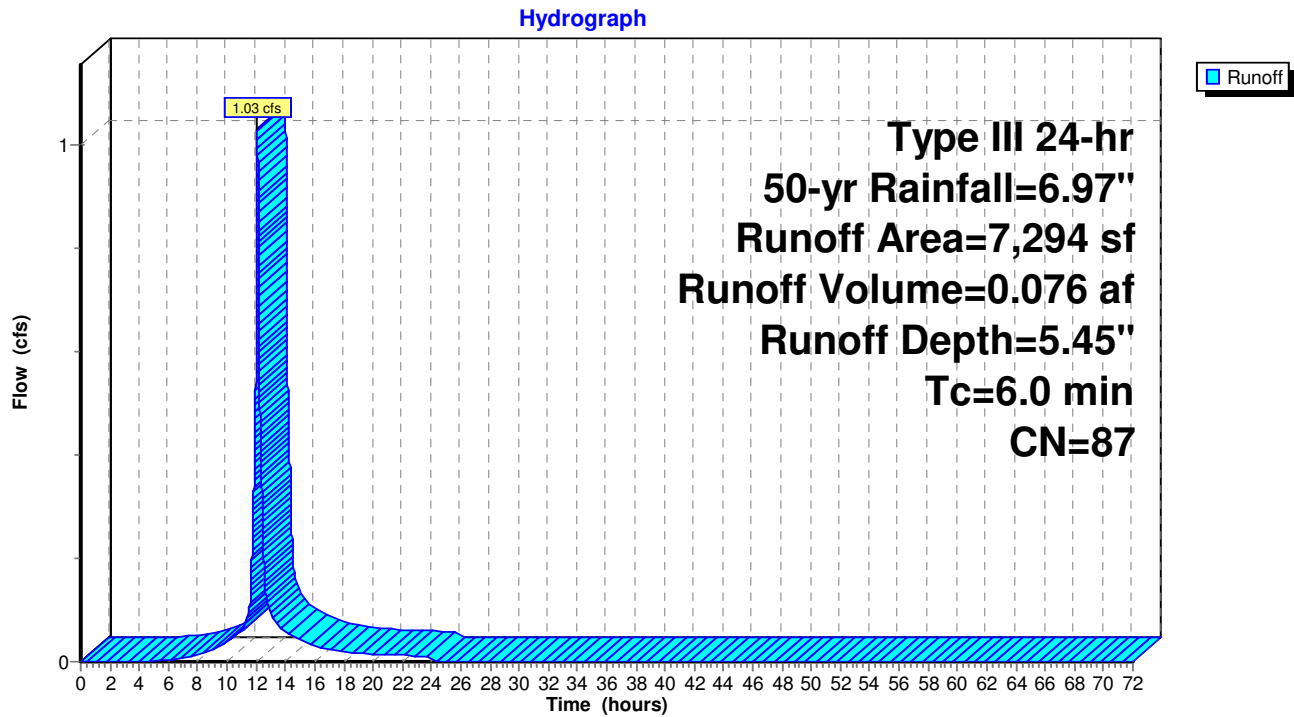
Subcatchment E5: Existing E5



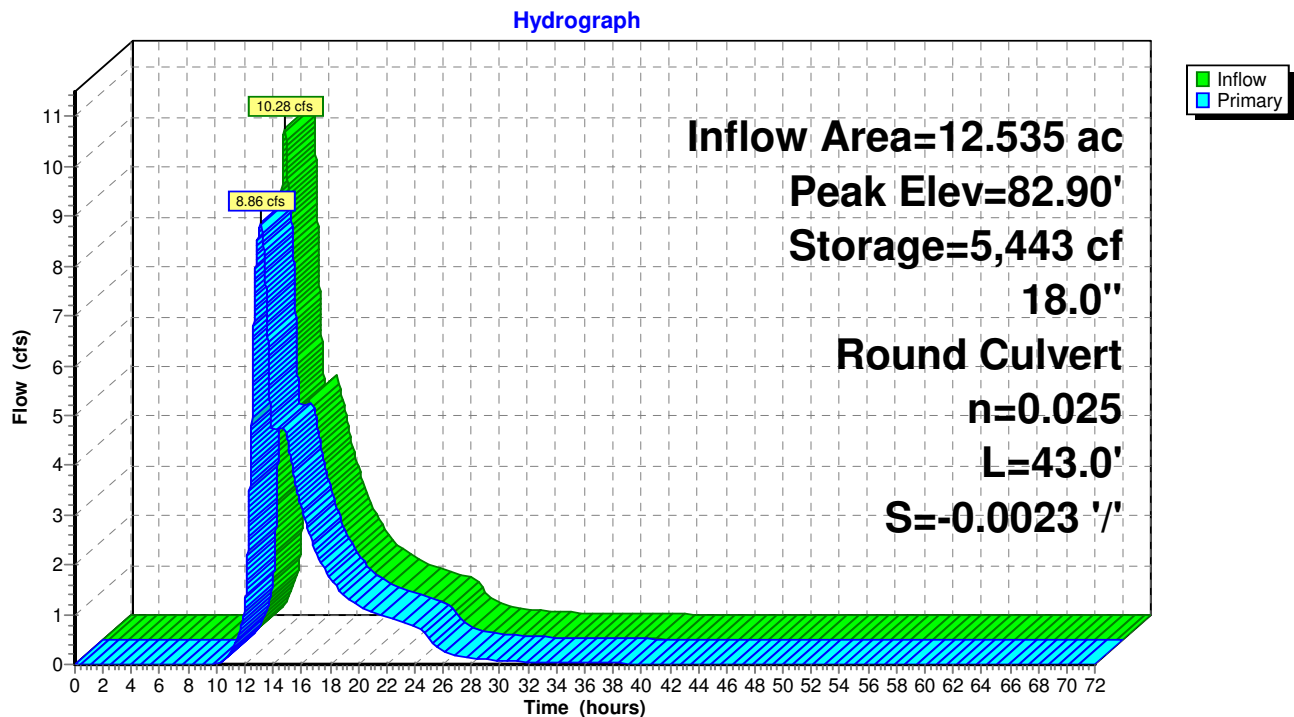
Subcatchment E6: Existing Sheet flow to Kennedy Road



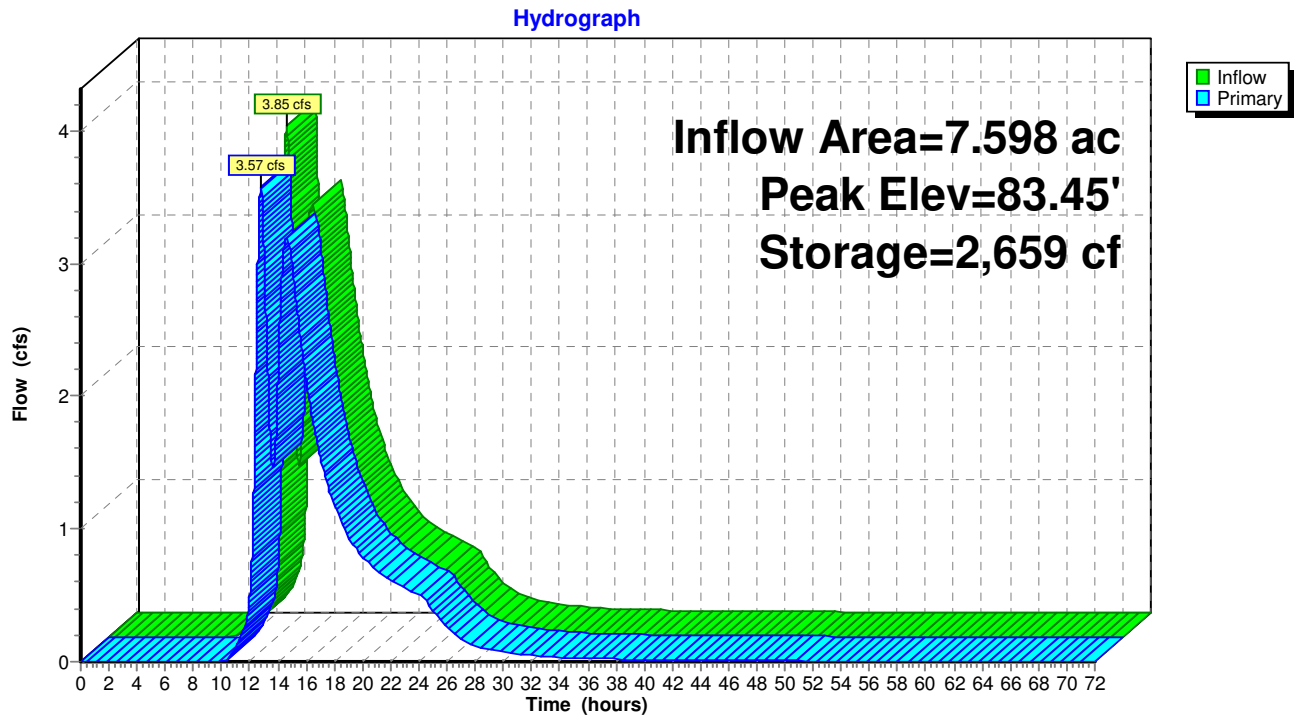
Subcatchment E7: Existing Kennedy Road runoff to CB



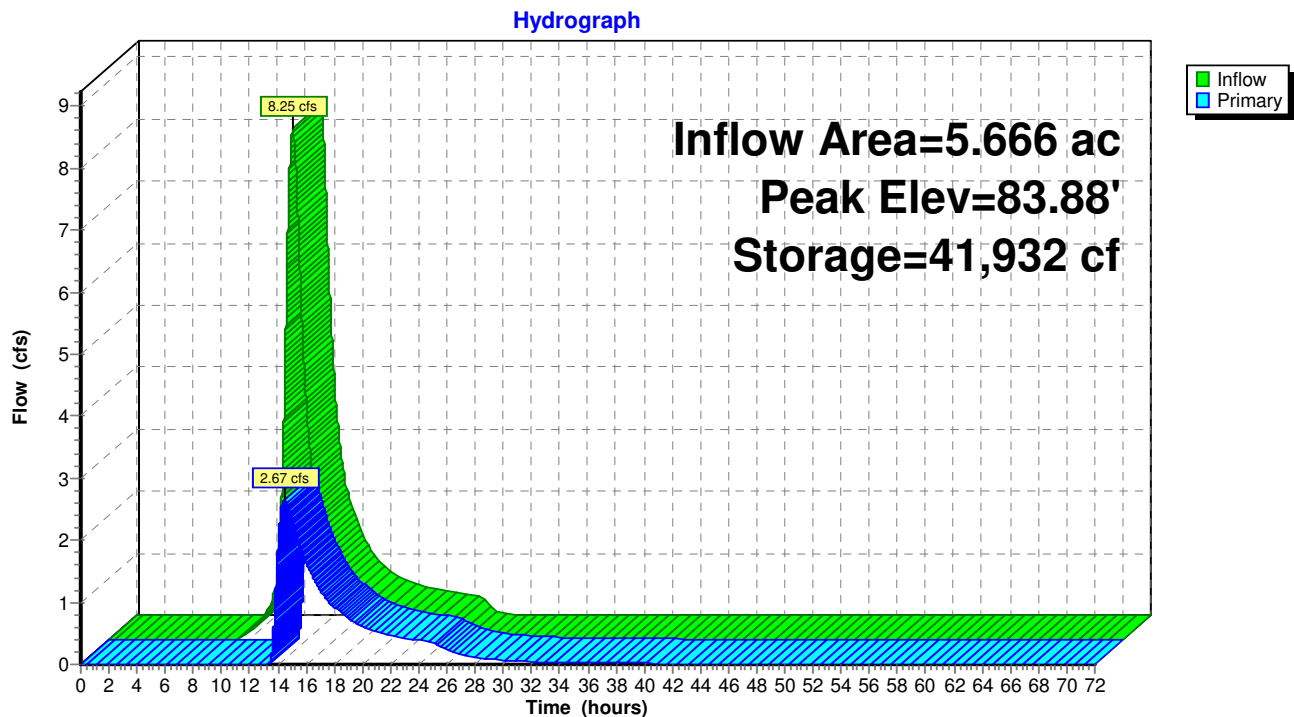
Pond EP1-A: (DP1) Existing Rail Road Pond



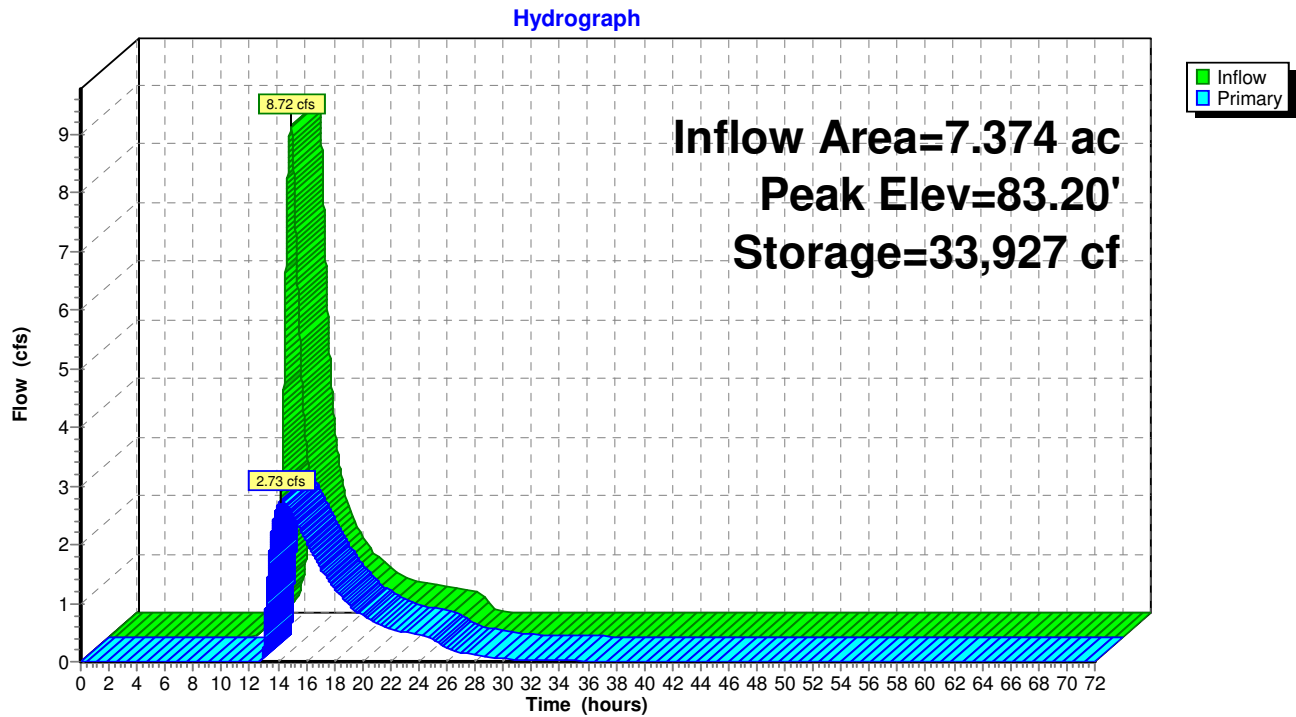
Pond EP1-B: Existing Depression 2 (N)



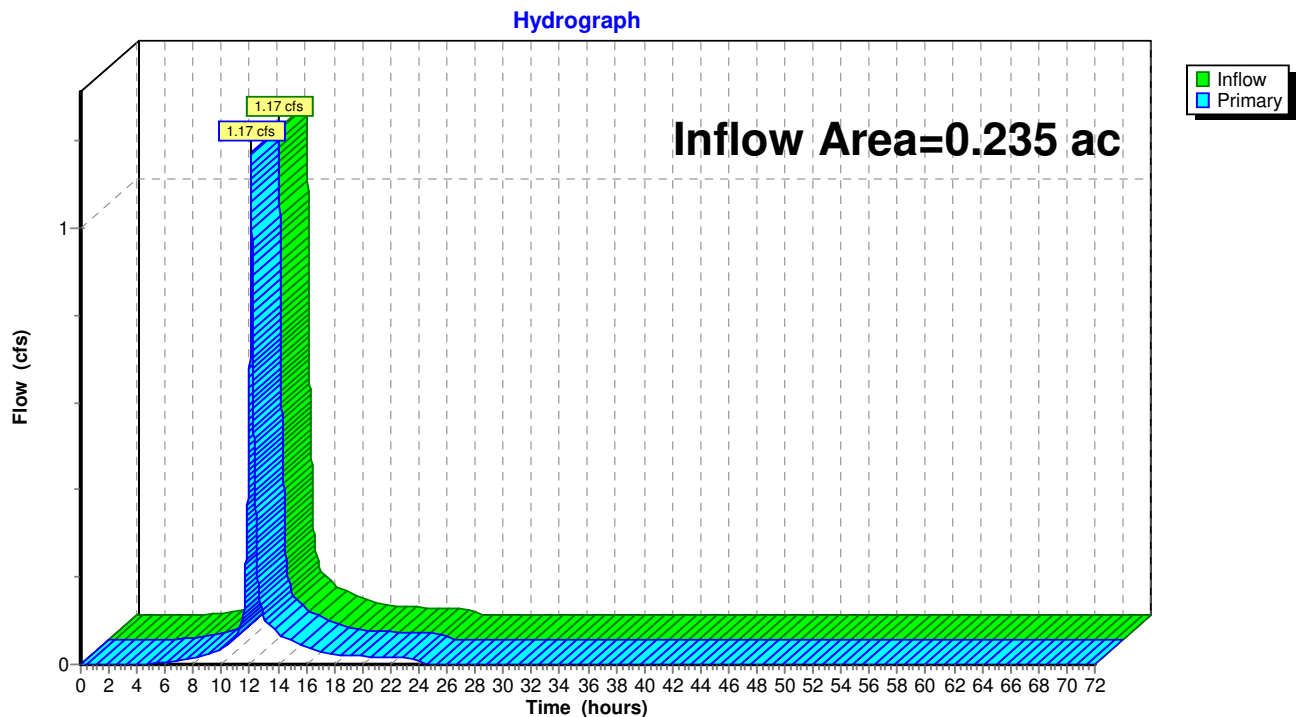
Pond EP1-C: Existing Depression 3 (NE)

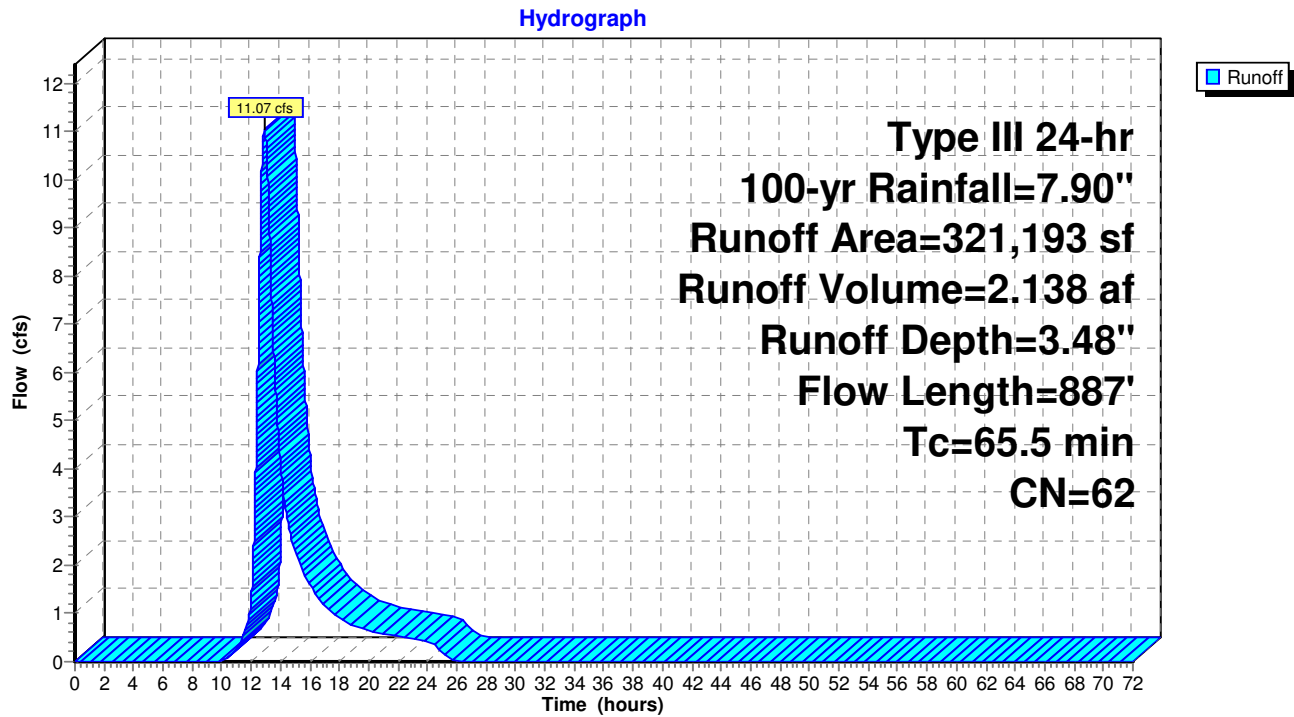
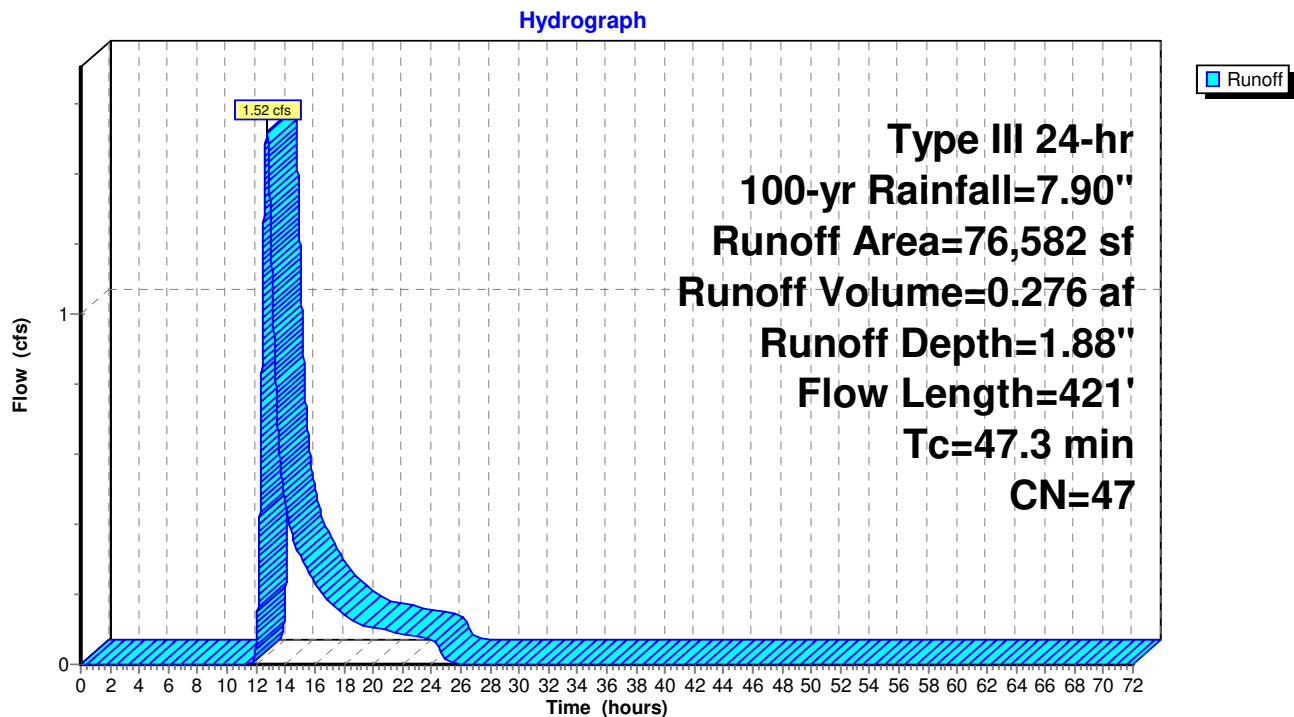


Pond EP2: (DP3) Existing Depression 1 Adjacent to Sullivan Ave

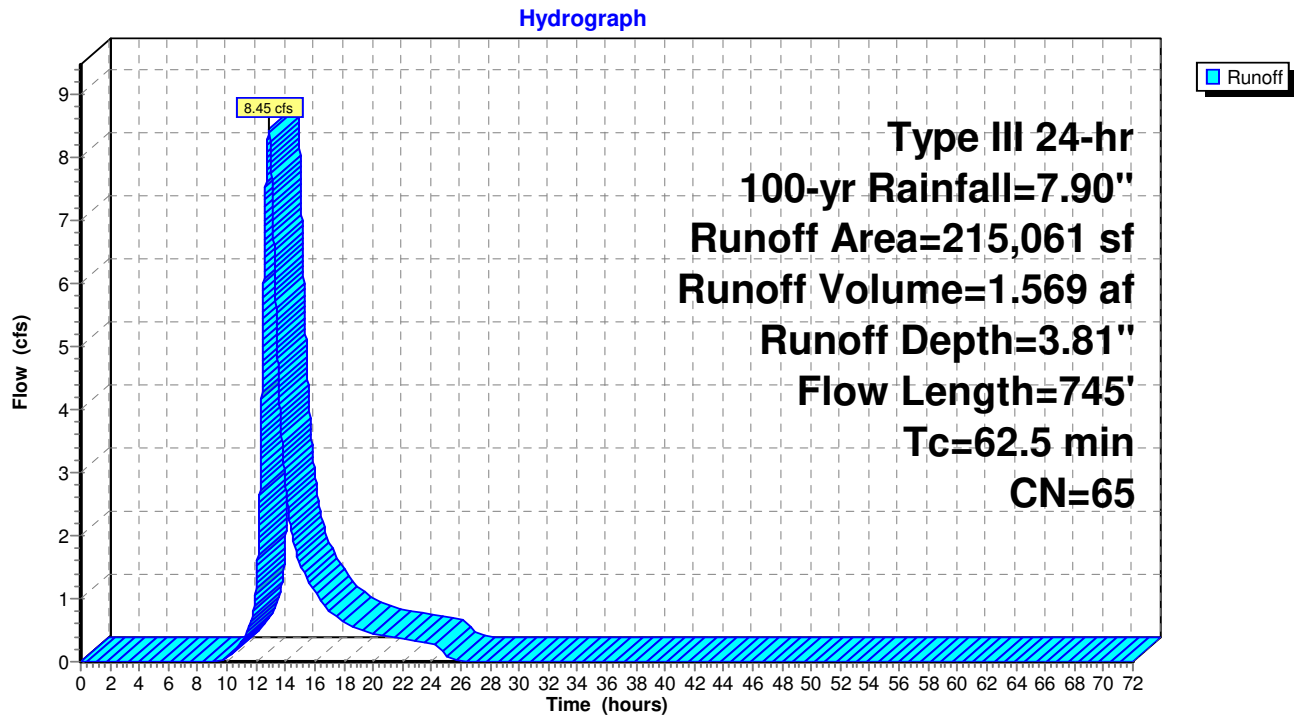


Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System

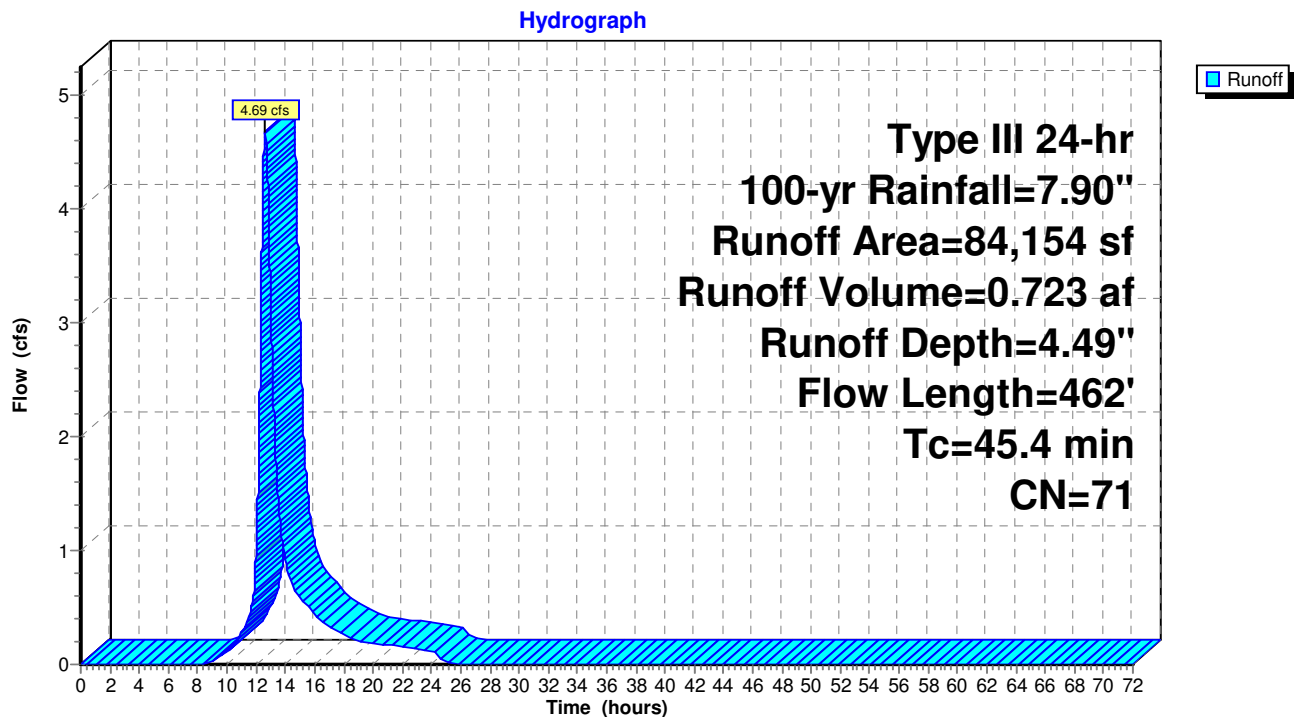


Subcatchment E1: Existing Flow to Sullivan Ave**Subcatchment E2: (DP2) Existing Flow across North West Property Corner**

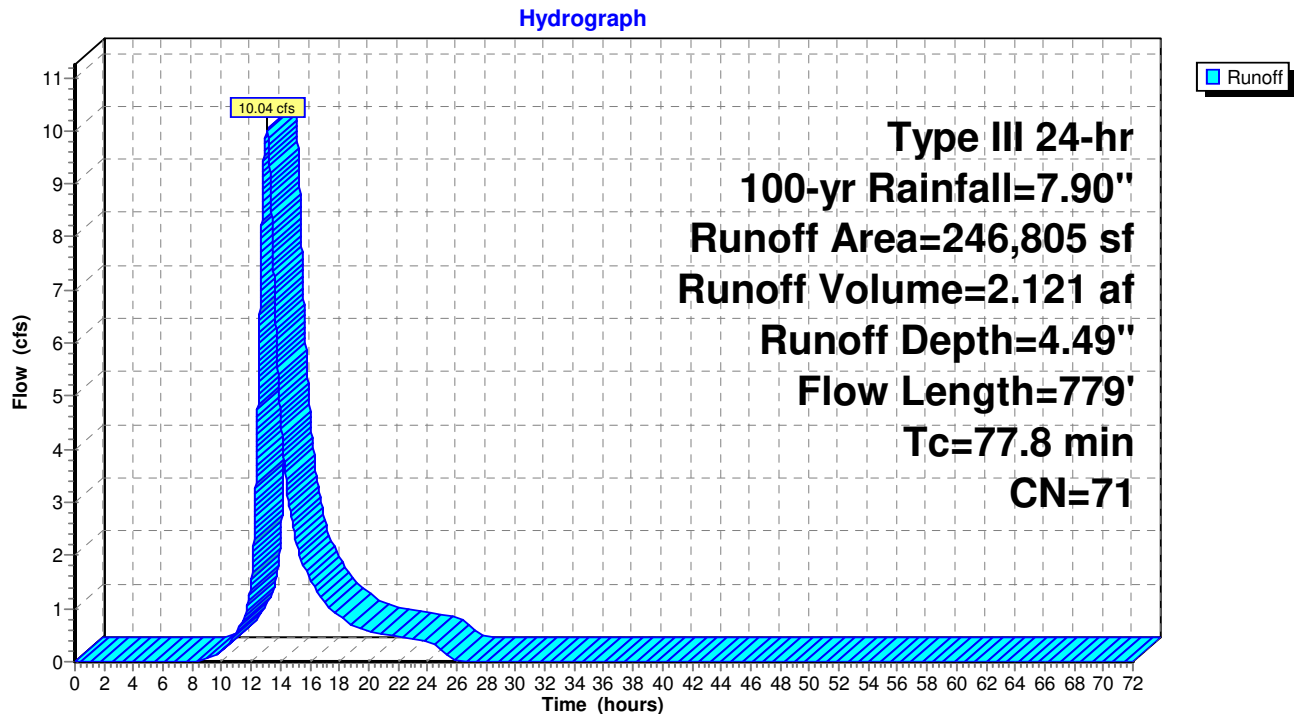
Subcatchment E3: Existing E3



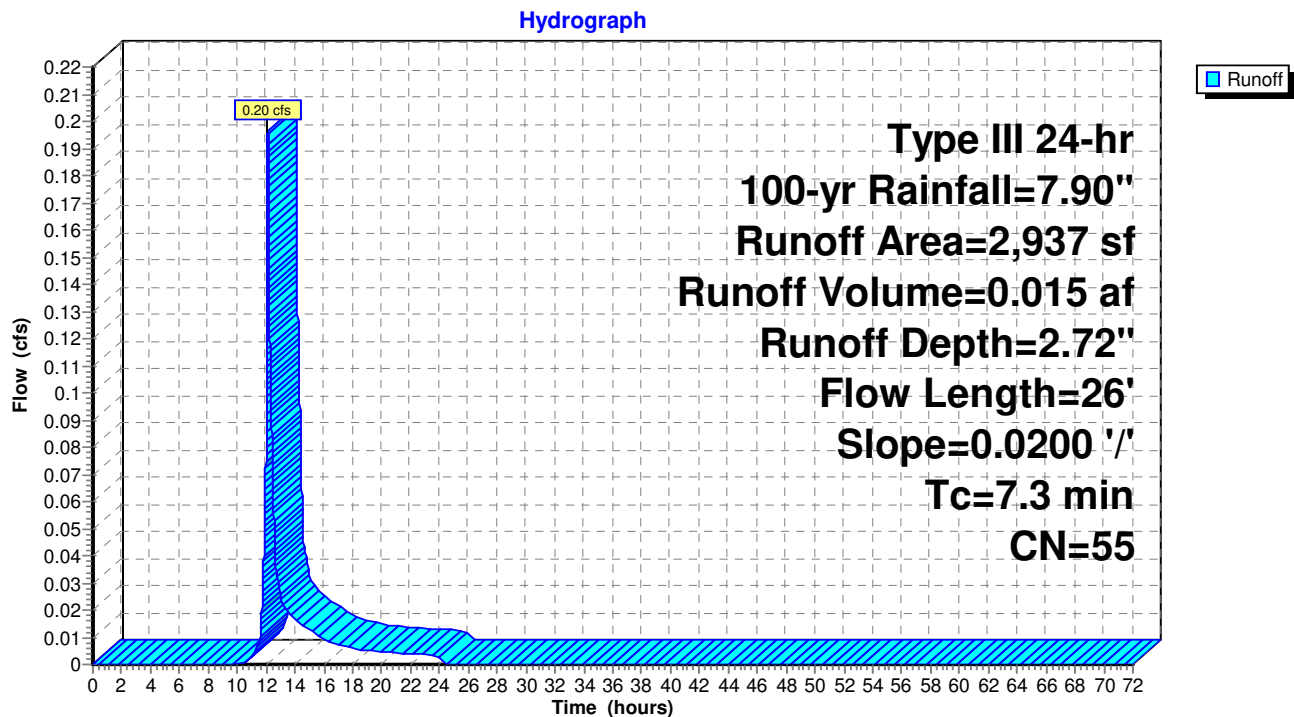
Subcatchment E4: Existing E4



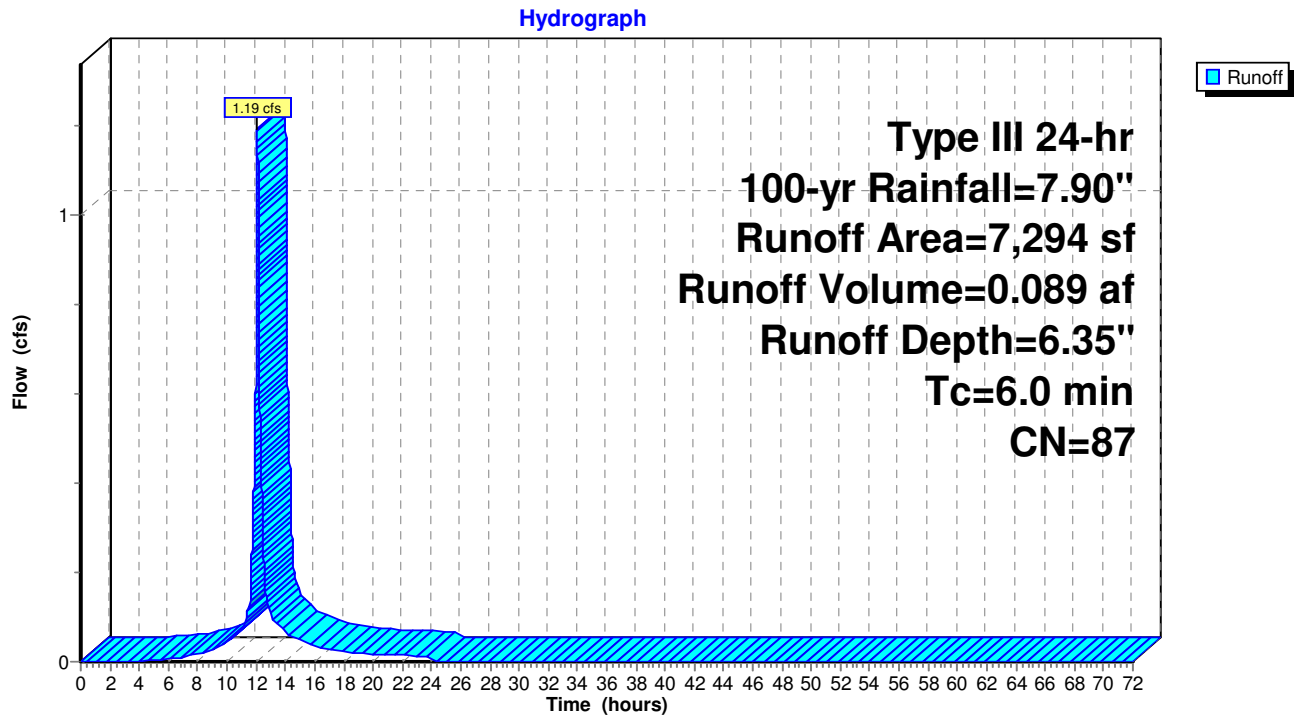
Subcatchment E5: Existing E5



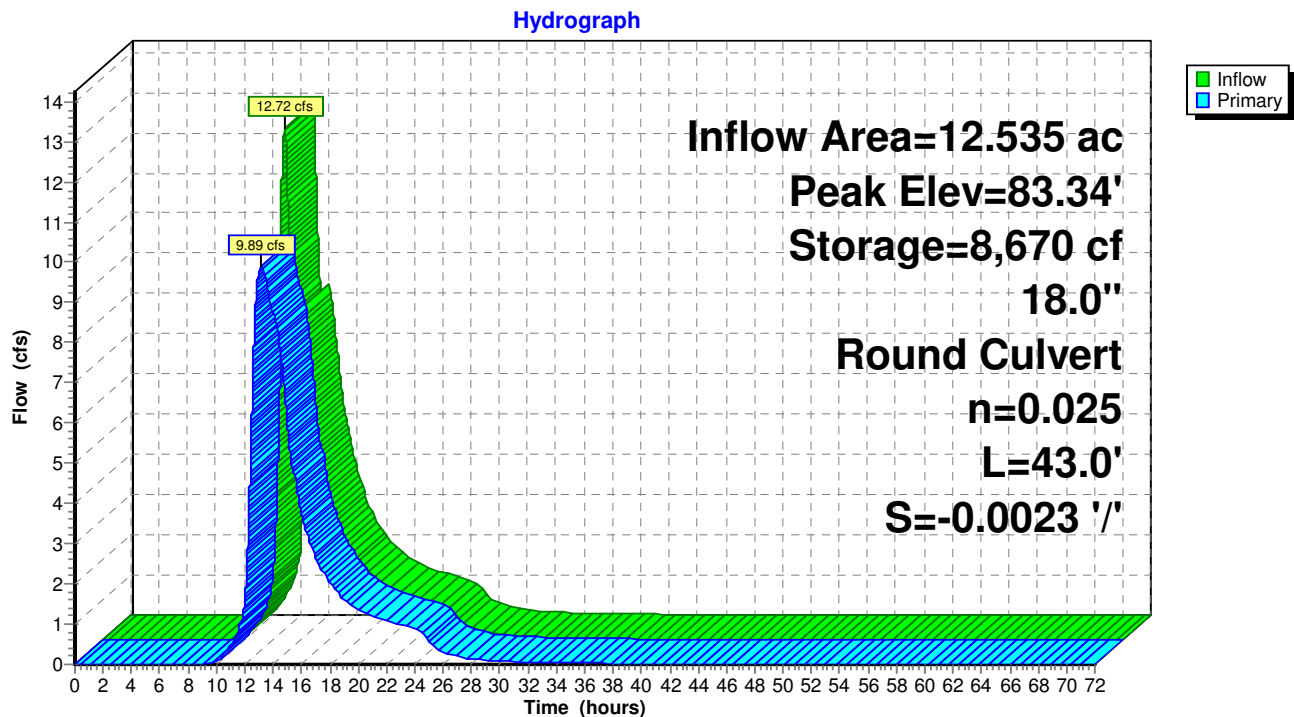
Subcatchment E6: Existing Sheet flow to Kennedy Road



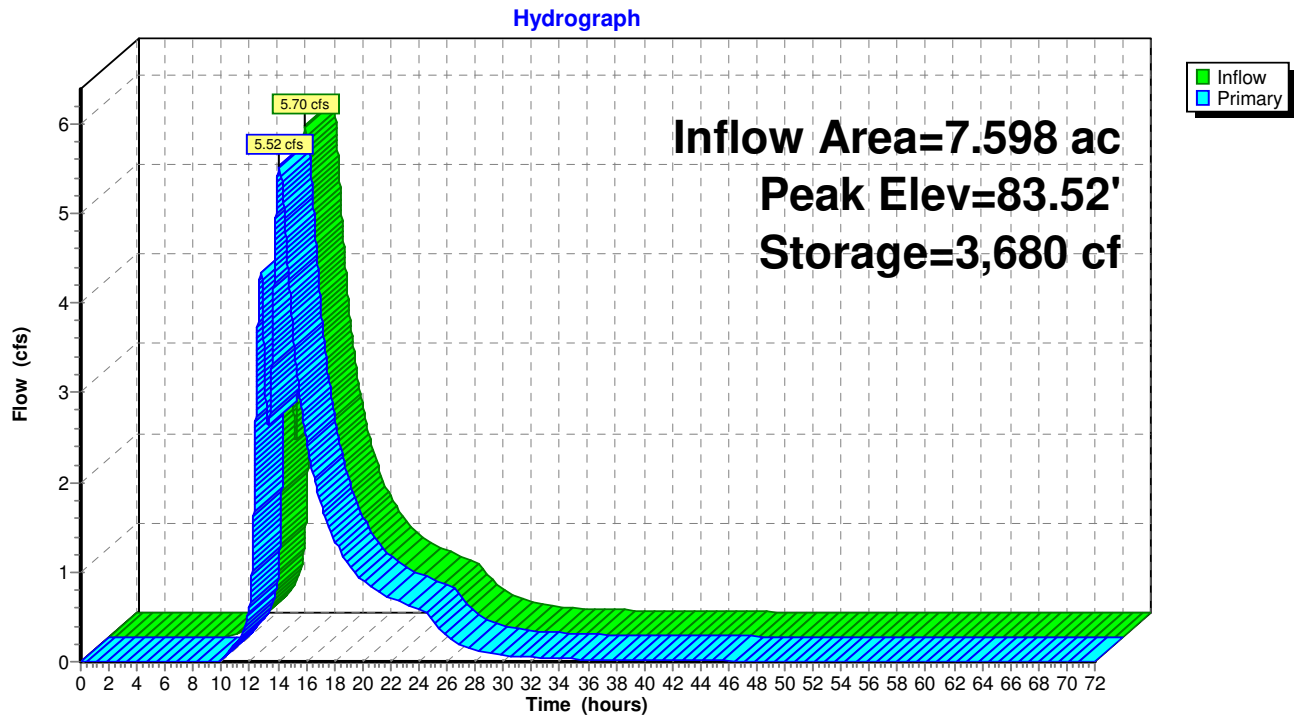
Subcatchment E7: Existing Kennedy Road runoff to CB



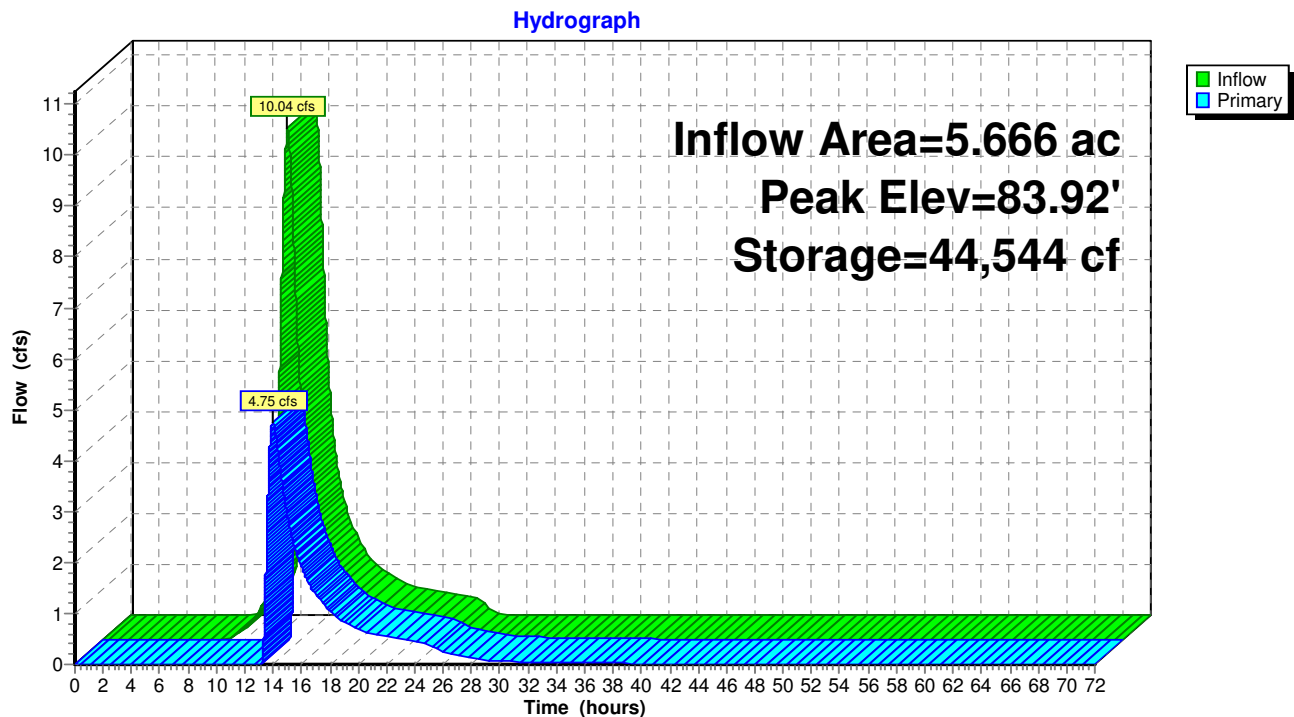
Pond EP1-A: (DP1) Existing Rail Road Pond



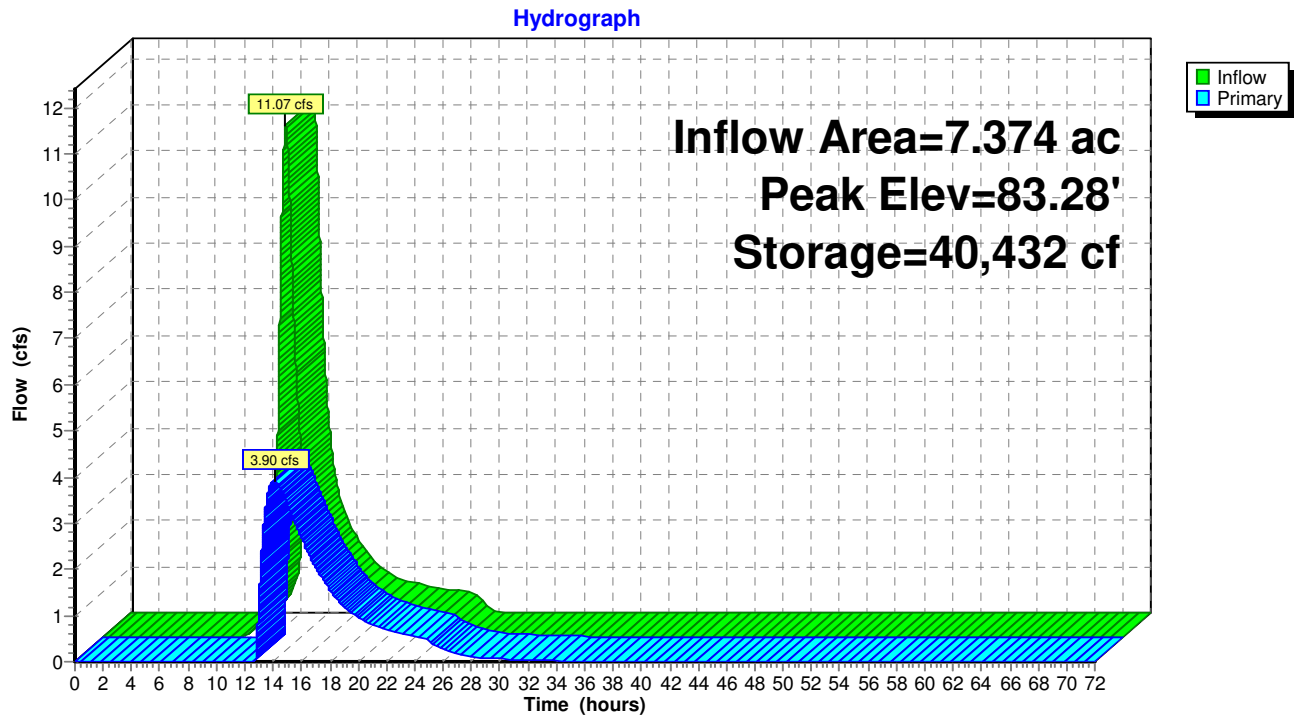
Pond EP1-B: Existing Depression 2 (N)



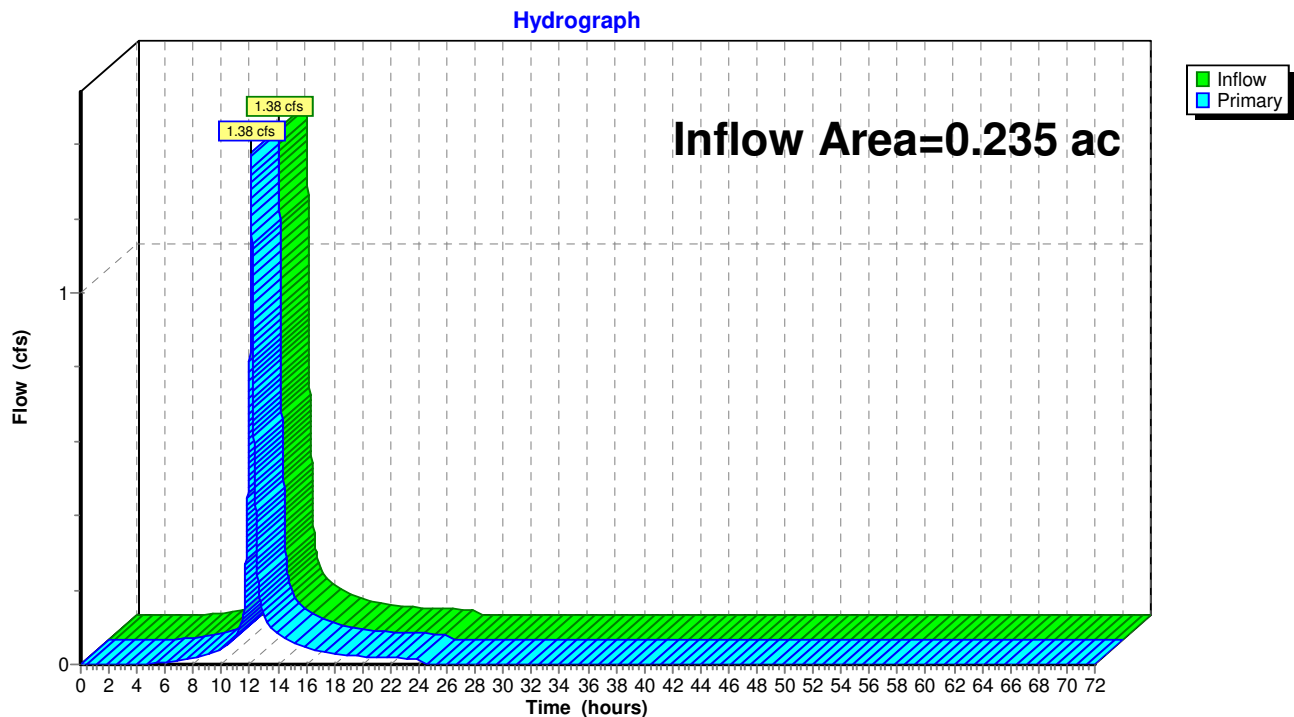
Pond EP1-C: Existing Depression 3 (NE)



Pond EP2: (DP3) Existing Depression 1 Adjacent to Sullivan Ave



Link DP4: (DP4) Existing Flow to Kennedy Road Drainage System



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Existing Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Summary for Pond EP1-A: (DP1) Existing Rail Road Pond

Inflow Area = 12.535 ac, 7.78% Impervious, Inflow Depth > 3.53" for 100-yr event
 Inflow = 12.72 cfs @ 12.85 hrs, Volume= 3.683 af
 Outflow = 9.89 cfs @ 13.16 hrs, Volume= 3.683 af, Atten= 22%, Lag= 18.7 min
 Primary = 9.89 cfs @ 13.16 hrs, Volume= 3.683 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.34' @ 13.16 hrs Surf.Area= 11,396 sf Storage= 8,670 cf

Plug-Flow detention time= 7.3 min calculated for 3.683 af (100% of inflow)
 Center-of-Mass det. time= 7.3 min (970.6 - 963.3)

Volume	Invert	Avail.Storage	Storage Description		
#1	79.70'	45,776 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
79.70	10	0	0	10	
80.00	382	45	45	382	
81.00	1,156	734	780	1,162	
82.00	2,173	1,638	2,418	2,189	
83.00	5,061	3,517	5,934	5,085	
84.00	30,796	16,114	22,048	30,823	
84.25	47,868	9,755	31,803	47,896	
84.50	64,318	13,973	45,776	64,347	

Device	Routing	Invert	Outlet Devices
#1	Primary	79.70'	18.0" Round 18" Culvert L= 43.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 79.60' / 79.70' S= -0.0023 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=9.89 cfs @ 13.16 hrs HW=83.34' (Free Discharge)

↑ **1=18" Culvert** (Barrel Controls 9.89 cfs @ 5.60 fps)

Summary for Pond EP1-B: Existing Depression 2 (N)

Inflow Area = 7.598 ac, 11.54% Impervious, Inflow Depth > 3.35" for 100-yr event
 Inflow = 5.70 cfs @ 13.94 hrs, Volume= 2.120 af
 Outflow = 5.52 cfs @ 14.10 hrs, Volume= 2.114 af, Atten= 3%, Lag= 9.8 min
 Primary = 5.52 cfs @ 14.10 hrs, Volume= 2.114 af
 Routed to Pond EP1-A : (DP1) Existing Rail Road Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.52' @ 14.10 hrs Surf.Area= 15,739 sf Storage= 3,680 cf

Plug-Flow detention time= 22.7 min calculated for 2.114 af (100% of inflow)
 Center-of-Mass det. time= 15.0 min (1,018.8 - 1,003.8)

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Existing Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Volume	Invert	Avail.Storage	Storage Description
#1	82.75'	44,199 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.75	10	0	0	10
83.00	952	88	88	952
84.00	44,690	17,388	17,477	44,692
84.25	53,316	12,235	29,711	53,320
84.50	62,708	14,487	44,199	62,715

Device	Routing	Invert	Outlet Devices
#1	Primary	83.10'	Spillway 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.90 Width (feet) 1.00 28.00
#2	Primary	83.50'	Spillway 2, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 Width (feet) 1.00 19.00

Primary OutFlow Max=5.52 cfs @ 14.10 hrs HW=83.52' TW=82.80' (Dynamic Tailwater)

1=Spillway 1 (Weir Controls 5.50 cfs @ 1.76 fps)

2=Spillway 2 (Weir Controls 0.02 cfs @ 0.48 fps)

Summary for Pond EP1-C: Existing Depression 3 (NE)

Inflow Area = 5.666 ac, 12.89% Impervious, Inflow Depth = 4.49" for 100-yr event
 Inflow = 10.04 cfs @ 13.05 hrs, Volume= 2.121 af
 Outflow = 4.75 cfs @ 13.98 hrs, Volume= 1.397 af, Atten= 53%, Lag= 55.3 min
 Primary = 4.75 cfs @ 13.98 hrs, Volume= 1.397 af
 Routed to Pond EP1-B : Existing Depression 2 (N)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.92' @ 13.98 hrs Surf.Area= 67,575 sf Storage= 44,544 cf

Plug-Flow detention time= 292.0 min calculated for 1.397 af (66% of inflow)
 Center-of-Mass det. time= 188.5 min (1,078.4 - 889.9)

Volume	Invert	Avail.Storage	Storage Description
#1	82.40'	100,821 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.40	10	0	0	10
83.00	23,047	4,707	4,707	23,048
84.00	72,641	45,535	50,242	72,647
84.25	96,136	21,029	71,271	96,144
84.50	141,733	29,550	100,821	141,742

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Existing Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Device	Routing	Invert	Outlet Devices
#1	Primary	83.70'	Spill Way 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.30 Width (feet) 1.00 34.00
#2	Primary	83.80'	Spill Way 2, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.20 Width (feet) 1.00 34.00
#3	Primary	83.90'	Spill Way 3, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.20 Width (feet) 1.00 3.00

Primary OutFlow Max=4.75 cfs @ 13.98 hrs HW=83.92' TW=83.52' (Dynamic Tailwater)

1=Spill Way 1 (Weir Controls 3.56 cfs @ 1.25 fps)

2=Spill Way 2 (Weir Controls 1.18 cfs @ 0.92 fps)

3=Spill Way 3 (Weir Controls 0.01 cfs @ 0.44 fps)

Summary for Pond EP2: (DP3) Existing Depression 1 Adjacent to Sullivan Ave

Inflow Area = 7.374 ac, 0.59% Impervious, Inflow Depth = 3.48" for 100-yr event
 Inflow = 11.07 cfs @ 12.88 hrs, Volume= 2.138 af
 Outflow = 3.90 cfs @ 14.06 hrs, Volume= 1.745 af, Atten= 65%, Lag= 70.5 min
 Primary = 3.90 cfs @ 14.06 hrs, Volume= 1.745 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.28' @ 14.06 hrs Surf.Area= 87,610 sf Storage= 40,432 cf

Plug-Flow detention time= 227.2 min calculated for 1.745 af (82% of inflow)

Center-of-Mass det. time= 151.4 min (1,049.0 - 897.6)

Volume	Invert	Avail.Storage	Storage Description
#1	82.00'	144,179 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

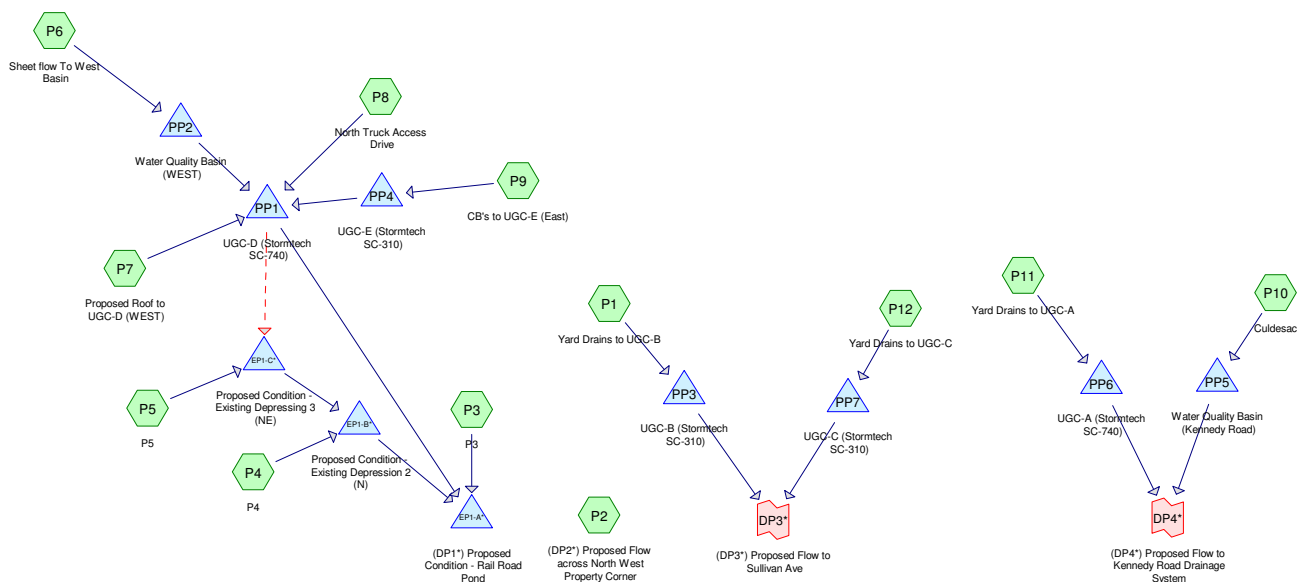
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.00	81	0	0
83.00	44,050	22,066	22,066
84.00	200,176	122,113	144,179

Device	Routing	Invert	Outlet Devices
#1	Primary	82.88'	6.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=3.90 cfs @ 14.06 hrs HW=83.28' (Free Discharge)

1=Broad-Crested Rectangular Weir (Weir Controls 3.90 cfs @ 1.63 fps)

APPENDIX B
Watershed Computations
(Post-Development Drainage HydroCAD Report)



Routing Diagram for 4670 Hydrocad

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: Yard Drains to UGC-B Runoff Area=53,290 sf 8.92% Impervious Runoff Depth=0.57"
 Tc=7.0 min CN=65 Runoff=0.61 cfs 0.058 af

Subcatchment P10: Culdesac Runoff Area=41,659 sf 70.56% Impervious Runoff Depth=2.03"
 Tc=6.0 min CN=89 Runoff=2.26 cfs 0.162 af

Subcatchment P11: Yard Drains to UGC-A Runoff Area=50,556 sf 17.93% Impervious Runoff Depth=1.00"
 Tc=7.0 min CN=74 Runoff=1.24 cfs 0.097 af

Subcatchment P12: Yard Drains to UGC-C Runoff Area=11,086 sf 6.38% Impervious Runoff Depth=0.49"
 Tc=7.0 min CN=63 Runoff=0.10 cfs 0.010 af

Subcatchment P2: (DP2*) Proposed Flow Runoff Area=7,789 sf 0.00% Impervious Runoff Depth=0.23"
 Tc=8.0 min CN=55 Runoff=0.02 cfs 0.003 af

Subcatchment P3: P3 Runoff Area=26,135 sf 16.50% Impervious Runoff Depth=0.75"
 Tc=25.0 min CN=69 Runoff=0.28 cfs 0.037 af

Subcatchment P4: P4 Runoff Area=38,079 sf 16.78% Impervious Runoff Depth=1.00"
 Flow Length=168' Tc=68.3 min CN=74 Runoff=0.35 cfs 0.073 af

Subcatchment P5: P5 Runoff Area=215,643 sf 4.13% Impervious Runoff Depth=0.75"
 Flow Length=505' Tc=53.7 min CN=69 Runoff=1.58 cfs 0.308 af

Subcatchment P6: Sheet flow To West Runoff Area=4.681 ac 86.82% Impervious Runoff Depth=2.39"
 Tc=6.0 min CN=93 Runoff=12.73 cfs 0.932 af

Subcatchment P7: Proposed Roof to Runoff Area=241,800 sf 100.00% Impervious Runoff Depth=2.91"
 Tc=6.0 min CN=98 Runoff=16.93 cfs 1.345 af

Subcatchment P8: North Truck Access Runoff Area=20,432 sf 65.38% Impervious Runoff Depth=2.11"
 Tc=7.0 min CN=90 Runoff=1.11 cfs 0.083 af

Subcatchment P9: CB's to UGC-E (East) Runoff Area=50,163 sf 84.49% Impervious Runoff Depth=2.39"
 Tc=6.0 min CN=93 Runoff=3.13 cfs 0.229 af

Pond EP1-A*: (DP1*) Proposed Condition - Rail Peak Elev=80.15' Storage=109 cf Inflow=0.45 cfs 1.172 af
 18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=0.44 cfs 1.171 af

Pond EP1-B*: Proposed Condition - Existing Peak Elev=83.23' Storage=574 cf Inflow=0.39 cfs 0.878 af
 Outflow=0.39 cfs 0.870 af

Pond EP1-C*: Proposed Condition - Existing Peak Elev=83.39' Storage=48,170 cf Inflow=1.92 cfs 1.695 af
 Outflow=0.39 cfs 0.805 af

Pond PP1: UGC-D (Stormtech SC-740) Peak Elev=83.97' Storage=83,571 cf Inflow=20.01 cfs 2.509 af
 Primary=0.06 cfs 0.264 af Secondary=0.92 cfs 1.388 af Outflow=0.99 cfs 1.652 af

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Pond PP2: Water Quality Basin (WEST) Peak Elev=84.10' Storage=43,724 cf Inflow=12.73 cfs 0.932 af
10.0" Round Culvert n=0.012 L=19.0' S=0.0063 '/' Outflow=0.87 cfs 0.852 af

Pond PP3: UGC-B (Stormtech SC-310) Peak Elev=80.86' Storage=3,737 cf Inflow=0.61 cfs 0.058 af
Outflow=0.02 cfs 0.011 af

Pond PP4: UGC-E (Stormtech SC-310) Peak Elev=86.55' Storage=3,077 cf Inflow=3.13 cfs 0.229 af
Outflow=2.03 cfs 0.229 af

Pond PP5: Water Quality Basin (Kennedy) Peak Elev=80.59' Storage=14,494 cf Inflow=2.26 cfs 0.162 af
Outflow=0.27 cfs 0.160 af

Pond PP6: UGC-A (Stormtech SC-740) Peak Elev=80.69' Storage=4,924 cf Inflow=1.24 cfs 0.097 af
Outflow=0.02 cfs 0.079 af

Pond PP7: UGC-C (Stormtech SC-310) Peak Elev=83.99' Storage=1,047 cf Inflow=0.10 cfs 0.010 af
Outflow=0.01 cfs 0.010 af

Link DP3*: (DP3*) Proposed Flow to Sullivan Ave Inflow=0.02 cfs 0.021 af
Primary=0.02 cfs 0.021 af

Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System Inflow=0.29 cfs 0.239 af
Primary=0.29 cfs 0.239 af

Total Runoff Area = 22.051 ac Runoff Volume = 3.336 af Average Runoff Depth = 1.82"
43.98% Pervious = 9.698 ac 56.02% Impervious = 12.353 ac

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Proposed Condition
Type III 24-hr 10-yr Rainfall=4.98"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: Yard Drains to UGC-B Runoff Area=53,290 sf 8.92% Impervious Runoff Depth=1.64"
Tc=7.0 min CN=65 Runoff=2.16 cfs 0.167 af

Subcatchment P10: Culdesac Runoff Area=41,659 sf 70.56% Impervious Runoff Depth=3.75"
Tc=6.0 min CN=89 Runoff=4.09 cfs 0.299 af

Subcatchment P11: Yard Drains to UGC-A Runoff Area=50,556 sf 17.93% Impervious Runoff Depth=2.35"
Tc=7.0 min CN=74 Runoff=3.07 cfs 0.227 af

Subcatchment P12: Yard Drains to UGC-C Runoff Area=11,086 sf 6.38% Impervious Runoff Depth=1.50"
Tc=7.0 min CN=63 Runoff=0.40 cfs 0.032 af

Subcatchment P2: (DP2*) Proposed Flow Runoff Area=7,789 sf 0.00% Impervious Runoff Depth=0.97"
Tc=8.0 min CN=55 Runoff=0.15 cfs 0.014 af

Subcatchment P3: P3 Runoff Area=26,135 sf 16.50% Impervious Runoff Depth=1.94"
Tc=25.0 min CN=69 Runoff=0.82 cfs 0.097 af

Subcatchment P4: P4 Runoff Area=38,079 sf 16.78% Impervious Runoff Depth=2.35"
Flow Length=168' Tc=68.3 min CN=74 Runoff=0.87 cfs 0.171 af

Subcatchment P5: P5 Runoff Area=215,643 sf 4.13% Impervious Runoff Depth=1.94"
Flow Length=505' Tc=53.7 min CN=69 Runoff=4.60 cfs 0.801 af

Subcatchment P6: Sheet flow To West Runoff Area=4.681 ac 86.82% Impervious Runoff Depth=4.18"
Tc=6.0 min CN=93 Runoff=21.59 cfs 1.630 af

Subcatchment P7: Proposed Roof to Runoff Area=241,800 sf 100.00% Impervious Runoff Depth=4.74"
Tc=6.0 min CN=98 Runoff=27.08 cfs 2.194 af

Subcatchment P8: North Truck Access Runoff Area=20,432 sf 65.38% Impervious Runoff Depth=3.86"
Tc=7.0 min CN=90 Runoff=1.98 cfs 0.151 af

Subcatchment P9: CB's to UGC-E (East) Runoff Area=50,163 sf 84.49% Impervious Runoff Depth=4.18"
Tc=6.0 min CN=93 Runoff=5.31 cfs 0.401 af

Pond EP1-A*: (DP1*) Proposed Condition - Rail Peak Elev=80.87' Storage=640 cf Inflow=2.64 cfs 3.552 af
18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=2.64 cfs 3.552 af

Pond EP1-B*: Proposed Condition - Existing Peak Elev=83.40' Storage=1,449 cf Inflow=2.53 cfs 3.174 af
Outflow=2.53 cfs 3.166 af

Pond EP1-C*: Proposed Condition - Existing Peak Elev=83.55' Storage=61,145 cf Inflow=6.71 cfs 3.913 af
Outflow=2.46 cfs 3.003 af

Pond PP1: UGC-D (Stormtech SC-740) Peak Elev=84.47' Storage=107,832 cf Inflow=33.11 cfs 4.284 af
Primary=0.07 cfs 0.289 af Secondary=2.44 cfs 3.112 af Outflow=2.51 cfs 3.401 af

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Proposed Condition
Type III 24-hr 10-yr Rainfall=4.98"

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Pond PP2: Water Quality Basin (WEST) Peak Elev=84.59' Storage=65,233 cf Inflow=21.59 cfs 1.630 af
10.0" Round Culvert n=0.012 L=19.0' S=0.0063 '/' Outflow=1.39 cfs 1.538 af

Pond PP3: UGC-B (Stormtech SC-310) Peak Elev=81.09' Storage=4,558 cf Inflow=2.16 cfs 0.167 af
Outflow=0.34 cfs 0.120 af

Pond PP4: UGC-E (Stormtech SC-310) Peak Elev=86.86' Storage=3,950 cf Inflow=5.31 cfs 0.401 af
Outflow=3.69 cfs 0.401 af

Pond PP5: Water Quality Basin (Kennedy) Peak Elev=81.08' Storage=17,687 cf Inflow=4.09 cfs 0.299 af
Outflow=0.40 cfs 0.298 af

Pond PP6: UGC-A (Stormtech SC-740) Peak Elev=81.66' Storage=9,172 cf Inflow=3.07 cfs 0.227 af
Outflow=0.06 cfs 0.182 af

Pond PP7: UGC-C (Stormtech SC-310) Peak Elev=84.28' Storage=1,669 cf Inflow=0.40 cfs 0.032 af
Outflow=0.02 cfs 0.031 af

Link DP3*: (DP3*) Proposed Flow to Sullivan Ave Inflow=0.36 cfs 0.151 af
Primary=0.36 cfs 0.151 af

Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System Inflow=0.45 cfs 0.479 af
Primary=0.45 cfs 0.479 af

Total Runoff Area = 22.051 ac Runoff Volume = 6.185 af Average Runoff Depth = 3.37"
43.98% Pervious = 9.698 ac 56.02% Impervious = 12.353 ac

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Proposed Condition
Type III 24-hr 25-yr Rainfall=6.13"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: Yard Drains to UGC-B Runoff Area=53,290 sf 8.92% Impervious Runoff Depth=2.45"
Tc=7.0 min CN=65 Runoff=3.32 cfs 0.249 af

Subcatchment P10: Culdesac Runoff Area=41,659 sf 70.56% Impervious Runoff Depth=4.86"
Tc=6.0 min CN=89 Runoff=5.23 cfs 0.387 af

Subcatchment P11: Yard Drains to UGC-A Runoff Area=50,556 sf 17.93% Impervious Runoff Depth=3.29"
Tc=7.0 min CN=74 Runoff=4.33 cfs 0.319 af

Subcatchment P12: Yard Drains to UGC-C Runoff Area=11,086 sf 6.38% Impervious Runoff Depth=2.27"
Tc=7.0 min CN=63 Runoff=0.63 cfs 0.048 af

Subcatchment P2: (DP2*) Proposed Flow Runoff Area=7,789 sf 0.00% Impervious Runoff Depth=1.59"
Tc=8.0 min CN=55 Runoff=0.28 cfs 0.024 af

Subcatchment P3: P3 Runoff Area=26,135 sf 16.50% Impervious Runoff Depth=2.81"
Tc=25.0 min CN=69 Runoff=1.20 cfs 0.141 af

Subcatchment P4: P4 Runoff Area=38,079 sf 16.78% Impervious Runoff Depth=3.29"
Flow Length=168' Tc=68.3 min CN=74 Runoff=1.22 cfs 0.240 af

Subcatchment P5: P5 Runoff Area=215,643 sf 4.13% Impervious Runoff Depth=2.81"
Flow Length=505' Tc=53.7 min CN=69 Runoff=6.78 cfs 1.161 af

Subcatchment P6: Sheet flow To West Runoff Area=4.681 ac 86.82% Impervious Runoff Depth=5.31"
Tc=6.0 min CN=93 Runoff=27.07 cfs 2.072 af

Subcatchment P7: Proposed Roof to Runoff Area=241,800 sf 100.00% Impervious Runoff Depth=5.89"
Tc=6.0 min CN=98 Runoff=33.39 cfs 2.725 af

Subcatchment P8: North Truck Access Runoff Area=20,432 sf 65.38% Impervious Runoff Depth=4.97"
Tc=7.0 min CN=90 Runoff=2.52 cfs 0.194 af

Subcatchment P9: CB's to UGC-E (East) Runoff Area=50,163 sf 84.49% Impervious Runoff Depth=5.31"
Tc=6.0 min CN=93 Runoff=6.66 cfs 0.510 af

Pond EP1-A*: (DP1*) Proposed Condition - Peak Elev=81.27' Storage=1,118 cf Inflow=4.11 cfs 5.118 af
18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=4.10 cfs 5.117 af

Pond EP1-B*: Proposed Condition - Existing Peak Elev=83.47' Storage=1,922 cf Inflow=3.95 cfs 4.681 af
Outflow=3.94 cfs 4.673 af

Pond EP1-C*: Proposed Condition - Existing Peak Elev=83.57' Storage=63,426 cf Inflow=9.78 cfs 5.363 af
Outflow=3.78 cfs 4.441 af

Pond PP1: UGC-D (Stormtech SC-740) Peak Elev=84.84' Storage=123,717 cf Inflow=41.08 cfs 5.402 af
Primary=0.08 cfs 0.304 af Secondary=3.16 cfs 4.202 af Outflow=3.24 cfs 4.506 af

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Proposed Condition
Type III 24-hr 25-yr Rainfall=6.13"

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Pond PP2: Water Quality Basin (WEST) Peak Elev=84.95' Storage=82,637 cf Inflow=27.07 cfs 2.072 af
10.0" Round Culvert n=0.012 L=19.0' S=0.0063 '/' Outflow=1.35 cfs 1.973 af

Pond PP3: UGC-B (Stormtech SC-310) Peak Elev=81.36' Storage=5,403 cf Inflow=3.32 cfs 0.249 af
Outflow=1.14 cfs 0.202 af

Pond PP4: UGC-E (Stormtech SC-310) Peak Elev=87.10' Storage=4,506 cf Inflow=6.66 cfs 0.510 af
Outflow=4.51 cfs 0.509 af

Pond PP5: Water Quality Basin (Kennedy) Peak Elev=81.38' Storage=19,784 cf Inflow=5.23 cfs 0.387 af
Outflow=0.46 cfs 0.386 af

Pond PP6: UGC-A (Stormtech SC-740) Peak Elev=82.30' Storage=11,407 cf Inflow=4.33 cfs 0.319 af
Outflow=0.19 cfs 0.262 af

Pond PP7: UGC-C (Stormtech SC-310) Peak Elev=84.53' Storage=2,189 cf Inflow=0.63 cfs 0.048 af
Outflow=0.02 cfs 0.047 af

Link DP3*: (DP3*) Proposed Flow to Sullivan Ave Inflow=1.16 cfs 0.249 af
Primary=1.16 cfs 0.249 af

Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System Inflow=0.62 cfs 0.648 af
Primary=0.62 cfs 0.648 af

Total Runoff Area = 22.051 ac Runoff Volume = 8.070 af Average Runoff Depth = 4.39"
43.98% Pervious = 9.698 ac 56.02% Impervious = 12.353 ac

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Type III 24-hr 50-yr Rainfall=6.97"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: Yard Drains to UGC-B Runoff Area=53,290 sf 8.92% Impervious Runoff Depth=3.08"
Tc=7.0 min CN=65 Runoff=4.22 cfs 0.314 af

Subcatchment P10: Culdesac Runoff Area=41,659 sf 70.56% Impervious Runoff Depth=5.68"
Tc=6.0 min CN=89 Runoff=6.06 cfs 0.453 af

Subcatchment P11: Yard Drains to UGC-A Runoff Area=50,556 sf 17.93% Impervious Runoff Depth=4.02"
Tc=7.0 min CN=74 Runoff=5.28 cfs 0.388 af

Subcatchment P12: Yard Drains to UGC-C Runoff Area=11,086 sf 6.38% Impervious Runoff Depth=2.88"
Tc=7.0 min CN=63 Runoff=0.82 cfs 0.061 af

Subcatchment P2: (DP2*) Proposed Flow Runoff Area=7,789 sf 0.00% Impervious Runoff Depth=2.10"
Tc=8.0 min CN=55 Runoff=0.38 cfs 0.031 af

Subcatchment P3: P3 Runoff Area=26,135 sf 16.50% Impervious Runoff Depth=3.49"
Tc=25.0 min CN=69 Runoff=1.50 cfs 0.174 af

Subcatchment P4: P4 Runoff Area=38,079 sf 16.78% Impervious Runoff Depth=4.02"
Flow Length=168' Tc=68.3 min CN=74 Runoff=1.49 cfs 0.293 af

Subcatchment P5: P5 Runoff Area=215,643 sf 4.13% Impervious Runoff Depth=3.49"
Flow Length=505' Tc=53.7 min CN=69 Runoff=8.47 cfs 1.440 af

Subcatchment P6: Sheet flow To West Runoff Area=4.681 ac 86.82% Impervious Runoff Depth=6.14"
Tc=6.0 min CN=93 Runoff=31.04 cfs 2.396 af

Subcatchment P7: Proposed Roof to Runoff Area=241,800 sf 100.00% Impervious Runoff Depth=6.73"
Tc=6.0 min CN=98 Runoff=38.00 cfs 3.114 af

Subcatchment P8: North Truck Access Runoff Area=20,432 sf 65.38% Impervious Runoff Depth=5.79"
Tc=7.0 min CN=90 Runoff=2.91 cfs 0.226 af

Subcatchment P9: CB's to UGC-E (East) Runoff Area=50,163 sf 84.49% Impervious Runoff Depth=6.14"
Tc=6.0 min CN=93 Runoff=7.64 cfs 0.589 af

Pond EP1-A*: (DP1*) Proposed Condition - Peak Elev=81.78' Storage=1,965 cf Inflow=5.46 cfs 6.284 af
18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=5.44 cfs 6.284 af

Pond EP1-B*: Proposed Condition - Existing Peak Elev=83.51' Storage=2,330 cf Inflow=5.24 cfs 5.804 af
Outflow=5.24 cfs 5.795 af

Pond EP1-C*: Proposed Condition - Peak Elev=83.60' Storage=65,368 cf Inflow=12.29 cfs 6.440 af
Outflow=4.95 cfs 5.511 af

Pond PP1: UGC-D (Stormtech SC-740) Peak Elev=85.18' Storage=134,958 cf Inflow=46.38 cfs 6.221 af
Primary=0.09 cfs 0.315 af Secondary=3.91 cfs 5.001 af Outflow=4.00 cfs 5.315 af

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Proposed Condition
Type III 24-hr 50-yr Rainfall=6.97"

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Pond PP2: Water Quality Basin (WEST) Peak Elev=85.23' Storage=96,368 cf Inflow=31.04 cfs 2.396 af
10.0" Round Culvert n=0.012 L=19.0' S=0.0063 '/' Outflow=1.47 cfs 2.292 af

Pond PP3: UGC-B (Stormtech SC-310) Peak Elev=81.56' Storage=5,916 cf Inflow=4.22 cfs 0.314 af
Outflow=1.91 cfs 0.267 af

Pond PP4: UGC-E (Stormtech SC-310) Peak Elev=87.31' Storage=4,919 cf Inflow=7.64 cfs 0.589 af
Outflow=5.11 cfs 0.589 af

Pond PP5: Water Quality Basin (Kennedy) Peak Elev=81.60' Storage=21,357 cf Inflow=6.06 cfs 0.453 af
Outflow=0.50 cfs 0.451 af

Pond PP6: UGC-A (Stormtech SC-740) Peak Elev=82.44' Storage=11,785 cf Inflow=5.28 cfs 0.388 af
Outflow=0.41 cfs 0.331 af

Pond PP7: UGC-C (Stormtech SC-310) Peak Elev=84.70' Storage=2,506 cf Inflow=0.82 cfs 0.061 af
Outflow=0.03 cfs 0.060 af

Link DP3*: (DP3*) Proposed Flow to Sullivan Ave Inflow=1.92 cfs 0.327 af
Primary=1.92 cfs 0.327 af

Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System Inflow=0.92 cfs 0.782 af
Primary=0.92 cfs 0.782 af

Total Runoff Area = 22.051 ac Runoff Volume = 9.479 af Average Runoff Depth = 5.16"
43.98% Pervious = 9.698 ac 56.02% Impervious = 12.353 ac

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Proposed Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Time span=0.00-72.00 hrs, dt=0.002 hrs, 36001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment P1: Yard Drains to UGC-B Runoff Area=53,290 sf 8.92% Impervious Runoff Depth=3.81"
Tc=7.0 min CN=65 Runoff=5.26 cfs 0.389 af

Subcatchment P10: Culdesac Runoff Area=41,659 sf 70.56% Impervious Runoff Depth=6.59"
Tc=6.0 min CN=89 Runoff=6.97 cfs 0.525 af

Subcatchment P11: Yard Drains to UGC-A Runoff Area=50,556 sf 17.93% Impervious Runoff Depth=4.84"
Tc=7.0 min CN=74 Runoff=6.34 cfs 0.468 af

Subcatchment P12: Yard Drains to UGC-C Runoff Area=11,086 sf 6.38% Impervious Runoff Depth=3.59"
Tc=7.0 min CN=63 Runoff=1.03 cfs 0.076 af

Subcatchment P2: (DP2*) Proposed Flow Runoff Area=7,789 sf 0.00% Impervious Runoff Depth=2.72"
Tc=8.0 min CN=55 Runoff=0.51 cfs 0.040 af

Subcatchment P3: P3 Runoff Area=26,135 sf 16.50% Impervious Runoff Depth=4.26"
Tc=25.0 min CN=69 Runoff=1.84 cfs 0.213 af

Subcatchment P4: P4 Runoff Area=38,079 sf 16.78% Impervious Runoff Depth=4.84"
Flow Length=168' Tc=68.3 min CN=74 Runoff=1.80 cfs 0.352 af

Subcatchment P5: P5 Runoff Area=215,643 sf 4.13% Impervious Runoff Depth=4.26"
Flow Length=505' Tc=53.7 min CN=69 Runoff=10.40 cfs 1.759 af

Subcatchment P6: Sheet flow To West Runoff Area=4.681 ac 86.82% Impervious Runoff Depth=7.06"
Tc=6.0 min CN=93 Runoff=35.43 cfs 2.755 af

Subcatchment P7: Proposed Roof to Runoff Area=241,800 sf 100.00% Impervious Runoff Depth=7.66"
Tc=6.0 min CN=98 Runoff=43.10 cfs 3.543 af

Subcatchment P8: North Truck Access Runoff Area=20,432 sf 65.38% Impervious Runoff Depth=6.71"
Tc=7.0 min CN=90 Runoff=3.34 cfs 0.262 af

Subcatchment P9: CB's to UGC-E (East) Runoff Area=50,163 sf 84.49% Impervious Runoff Depth=7.06"
Tc=6.0 min CN=93 Runoff=8.72 cfs 0.678 af

Pond EP1-A*: (DP1*) Proposed Condition - Peak Elev=82.33' Storage=3,280 cf Inflow=7.47 cfs 7.593 af
18.0" Round Culvert n=0.025 L=43.0' S=-0.0023 '/' Outflow=7.34 cfs 7.592 af

Pond EP1-B*: Proposed Condition - Existing Peak Elev=83.57' Storage=2,885 cf Inflow=7.19 cfs 7.062 af
Outflow=7.18 cfs 7.054 af

Pond EP1-C*: Proposed Condition - Peak Elev=83.64' Storage=68,867 cf Inflow=15.16 cfs 7.647 af
Outflow=6.65 cfs 6.710 af

Pond PP1: UGC-D (Stormtech SC-740) Peak Elev=85.69' Storage=149,204 cf Inflow=52.10 cfs 7.130 af
Primary=0.10 cfs 0.326 af Secondary=4.82 cfs 5.888 af Outflow=4.92 cfs 6.214 af

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Proposed Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Pond PP2: Water Quality Basin (WEST) Peak Elev=85.53' Storage=111,451 cf Inflow=35.43 cfs 2.755 af
10.0" Round Culvert n=0.012 L=19.0' S=0.0063 ' / ' Outflow=1.72 cfs 2.646 af

Pond PP3: UGC-B (Stormtech SC-310) Peak Elev=81.83' Storage=6,539 cf Inflow=5.26 cfs 0.389 af
Outflow=2.75 cfs 0.342 af

Pond PP4: UGC-E (Stormtech SC-310) Peak Elev=87.56' Storage=5,388 cf Inflow=8.72 cfs 0.678 af
Outflow=5.74 cfs 0.678 af

Pond PP5: Water Quality Basin (Kennedy) Peak Elev=81.84' Storage=23,135 cf Inflow=6.97 cfs 0.525 af
Outflow=0.54 cfs 0.523 af

Pond PP6: UGC-A (Stormtech SC-740) Peak Elev=82.81' Storage=12,755 cf Inflow=6.34 cfs 0.468 af
Outflow=0.73 cfs 0.410 af

Pond PP7: UGC-C (Stormtech SC-310) Peak Elev=84.94' Storage=2,910 cf Inflow=1.03 cfs 0.076 af
Outflow=0.04 cfs 0.075 af

Link DP3*: (DP3*) Proposed Flow to Sullivan Ave Inflow=2.77 cfs 0.417 af
Primary=2.77 cfs 0.417 af

Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System Inflow=1.28 cfs 0.934 af
Primary=1.28 cfs 0.934 af

Total Runoff Area = 22.051 ac Runoff Volume = 11.062 af Average Runoff Depth = 6.02"
43.98% Pervious = 9.698 ac 56.02% Impervious = 12.353 ac

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Summary for Subcatchment P1: Yard Drains to UGC-B

Runoff = 0.61 cfs @ 12.13 hrs, Volume= 0.058 af, Depth= 0.57"
 Routed to Pond PP3 : UGC-B (Stormtech SC-310)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
45,366	61	>75% Grass cover, Good, HSG B
3,169	80	>75% Grass cover, Good, HSG D
* 2	71	>75% Grass cover, Good, HSG B/D
* 4,753	98	IMPERVIOUS
53,290	65	Weighted Average
48,537		91.08% Pervious Area
4,753		8.92% Impervious Area

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

Summary for Subcatchment P10: Culdesac

Runoff = 2.26 cfs @ 12.09 hrs, Volume= 0.162 af, Depth= 2.03"
 Routed to Pond PP5 : Water Quality Basin (Kennedy Road)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
* 29,394	98	IMPERVIOUS
2,607	61	>75% Grass cover, Good, HSG B
* 9,658	71	>75% Grass cover, Good, HSG B/D
41,659	89	Weighted Average
12,265		29.44% Pervious Area
29,394		70.56% Impervious Area

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

Summary for Subcatchment P11: Yard Drains to UGC-A

Runoff = 1.24 cfs @ 12.11 hrs, Volume= 0.097 af, Depth= 1.00"
 Routed to Pond PP6 : UGC-A (Stormtech SC-740)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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	Area (sf)	CN	Description
*	9,067	98	IMPERVIOUS
	12,690	61	>75% Grass cover, Good, HSG B
	4,707	74	>75% Grass cover, Good, HSG C
*	24,092	71	>75% Grass cover, Good, HSG B/D
	50,556	74	Weighted Average
	41,489		82.07% Pervious Area
	9,067		17.93% Impervious Area

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

Summary for Subcatchment P12: Yard Drains to UGC-C

Runoff = 0.10 cfs @ 12.13 hrs, Volume= 0.010 af, Depth= 0.49"
 Routed to Pond PP7 : UGC-C (Stormtech SC-310)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

	Area (sf)	CN	Description
*	707	98	IMPERVIOUS
	10,379	61	>75% Grass cover, Good, HSG B
	11,086	63	Weighted Average
	10,379		93.62% Pervious Area
	707		6.38% Impervious Area

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

Summary for Subcatchment P2: (DP2*) Proposed Flow across North West Property Corner

Runoff = 0.02 cfs @ 12.38 hrs, Volume= 0.003 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

	Area (sf)	CN	Description
	2,334	39	>75% Grass cover, Good, HSG A
	5,236	61	>75% Grass cover, Good, HSG B
*	219	71	>75% Grass cover, Good, HSG B/D
	7,789	55	Weighted Average
	7,789		100.00% Pervious Area

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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

Summary for Subcatchment P3: P3

Runoff = 0.28 cfs @ 12.42 hrs, Volume= 0.037 af, Depth= 0.75"
 Routed to Pond EP1-A* : (DP1*) Proposed Condition - Rail Road Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
4,985	39	>75% Grass cover, Good, HSG A
6,554	74	>75% Grass cover, Good, HSG C
* 4,312	98	IMPERVIOUS
452	30	Meadow, non-grazed, HSG A
9,561	71	Meadow, non-grazed, HSG C
271	70	Woods, Good, HSG C
26,135	69	Weighted Average
21,823		83.50% Pervious Area
4,312		16.50% Impervious Area

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

Summary for Subcatchment P4: P4

Runoff = 0.35 cfs @ 12.98 hrs, Volume= 0.073 af, Depth= 1.00"
 Routed to Pond EP1-B* : Proposed Condition - Existing Depression 2 (N)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
* 8,678	66	Woods, Good, HSG B/D
4,407	70	Woods, Good, HSG C
* 6,388	98	IMPERVIOUS
* 7,667	68	Meadow, non-grazed, HSG B/D
10,939	71	Meadow, non-grazed, HSG C
38,079	74	Weighted Average
31,691		83.22% Pervious Area
6,388		16.78% Impervious Area

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
62.0	100	0.0014	0.03		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.22"
6.3	68	0.0013	0.18		Shallow Concentrated Flow, Woodland SCF Woodland Kv= 5.0 fps
68.3	168	Total			

Summary for Subcatchment P5: P5

Runoff = 1.58 cfs @ 12.83 hrs, Volume= 0.308 af, Depth= 0.75"
 Routed to Pond EP1-C* : Proposed Condition - Existing Depressing 3 (NE)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
1,504	74	>75% Grass cover, Good, HSG C
* 9,745	71	>75% Grass cover, Good, HSG B/D
25,599	70	Woods, Good, HSG C
* 127,460	66	Woods, Good, HSG B/D
* 8,904	98	IMPERVIOUS
* 13,961	68	Meadow, non-grazed, HSG B/D
28,470	71	Meadow, non-grazed, HSG C
215,643	69	Weighted Average
206,739		95.87% Pervious Area
8,904		4.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	23	0.2900	0.25		Sheet Flow, GRASS SF Grass: Dense n= 0.240 P2= 3.22"
22.4	82	0.0120	0.06		Sheet Flow, WOODLAND SF Woods: Light underbrush n= 0.400 P2= 3.22"
29.8	400	0.0020	0.22		Shallow Concentrated Flow, WOOD SCF Woodland Kv= 5.0 fps
53.7	505	Total			

Summary for Subcatchment P6: Sheet flow To West Basin

Runoff = 12.73 cfs @ 12.09 hrs, Volume= 0.932 af, Depth= 2.39"
 Routed to Pond PP2 : Water Quality Basin (WEST)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

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Area (ac)	CN	Description
0.113	39	>75% Grass cover, Good, HSG A
0.154	61	>75% Grass cover, Good, HSG B
0.141	74	>75% Grass cover, Good, HSG C
* 0.209	71	>75% Grass cover, Good, HSG B/D
* 4.064	98	IMPERVIOUS
4.681	93	Weighted Average
0.617		13.18% Pervious Area
4.064		86.82% Impervious Area

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

Summary for Subcatchment P7: Proposed Roof to UGC-D (WEST)

Runoff = 16.93 cfs @ 12.09 hrs, Volume= 1.345 af, Depth= 2.91"
 Routed to Pond PP1 : UGC-D (Stormtech SC-740)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
* 241,800	98	IMPERVIOUS
241,800		100.00% Impervious Area

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

Summary for Subcatchment P8: North Truck Access Drive

Runoff = 1.11 cfs @ 12.10 hrs, Volume= 0.083 af, Depth= 2.11"
 Routed to Pond PP1 : UGC-D (Stormtech SC-740)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
6,791	74	>75% Grass cover, Good, HSG C
* 283	71	>75% Grass cover, Good, HSG B/D
* 13,358	98	IMPERVIOUS
20,432	90	Weighted Average
7,074		34.62% Pervious Area
13,358		65.38% Impervious Area

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

Summary for Subcatchment P9: CB's to UGC-E (East)

Runoff = 3.13 cfs @ 12.09 hrs, Volume= 0.229 af, Depth= 2.39"
 Routed to Pond PP4 : UGC-E (Stormtech SC-310)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Type III 24-hr 2-yr Rainfall=3.14"

Area (sf)	CN	Description
922	74	>75% Grass cover, Good, HSG C
2,430	61	>75% Grass cover, Good, HSG B
* 4,429	71	>75% Grass cover, Good, HSG B/D
* 42,382	98	IMPERVIOUS
50,163	93	Weighted Average
7,781		15.51% Pervious Area
42,382		84.49% Impervious Area

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

Summary for Pond EP1-A*: (DP1*) Proposed Condition - Rail Road Pond

Inflow Area = 18.277 ac, 62.07% Impervious, Inflow Depth > 0.77" for 2-yr event
 Inflow = 0.45 cfs @ 13.18 hrs, Volume= 1.172 af
 Outflow = 0.44 cfs @ 29.92 hrs, Volume= 1.171 af, Atten= 1%, Lag= 1,004.3 min
 Primary = 0.44 cfs @ 29.92 hrs, Volume= 1.171 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 80.15' @ 29.92 hrs Surf.Area= 471 sf Storage= 109 cf

Plug-Flow detention time= 3.7 min calculated for 1.171 af (100% of inflow)
 Center-of-Mass det. time= 3.1 min (2,271.0 - 2,267.9)

Volume	Invert	Avail.Storage	Storage Description
#1	79.70'	23,243 cf	Custom Stage Data (Conic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
79.70	10	0	0	10
80.00	382	45	45	382
81.00	1,156	734	780	1,162
82.00	2,173	1,638	2,418	2,189
83.00	5,061	3,517	5,934	5,085
84.00	14,320	9,298	15,232	14,350
84.50	17,785	8,011	23,243	17,822

Device	Routing	Invert	Outlet Devices
#1	Primary	79.70'	18.0" Round 18" Culvert L= 43.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 79.60' / 79.70' S= -0.0023 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=0.44 cfs @ 29.92 hrs HW=80.15' (Free Discharge)↑ **1=18" Culvert** (Barrel Controls 0.44 cfs @ 1.12 fps)**Summary for Pond EP1-B*: Proposed Condition - Existing Depression 2 (N)**

Inflow Area = 5.825 ac, 6.03% Impervious, Inflow Depth > 1.81" for 2-yr event
 Inflow = 0.39 cfs @ 29.77 hrs, Volume= 0.878 af
 Outflow = 0.39 cfs @ 29.93 hrs, Volume= 0.870 af, Atten= 0%, Lag= 9.6 min
 Primary = 0.39 cfs @ 29.93 hrs, Volume= 0.870 af
 Routed to Pond EP1-A* : (DP1*) Proposed Condition - Rail Road Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.23' @ 29.93 hrs Surf.Area= 3,565 sf Storage= 574 cf

Plug-Flow detention time= 40.1 min calculated for 0.870 af (99% of inflow)
 Center-of-Mass det. time= 22.8 min (2,292.1 - 2,269.3)

Volume	Invert	Avail.Storage	Storage Description
#1	82.75'	23,186 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.75	10	0	0	10
83.00	952	88	88	952
84.00	24,585	10,125	10,213	24,587
84.50	27,331	12,973	23,186	27,348

Device	Routing	Invert	Outlet Devices
#1	Primary	83.10'	Spillway 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.90 Width (feet) 1.00 28.00
#2	Primary	83.50'	Spillway 2, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 Width (feet) 1.00 19.00

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Primary OutFlow Max=0.39 cfs @ 29.93 hrs HW=83.23' TW=80.15' (Dynamic Tailwater)

1=Spillway 1 (Weir Controls 0.39 cfs @ 1.02 fps)

2=Spillway 2 (Controls 0.00 cfs)

Summary for Pond EP1-C*: Proposed Condition - Existing Depressing 3 (NE)

Inflow Area = 4.950 ac, 4.13% Impervious, Inflow Depth > 4.11" for 2-yr event

Inflow = 1.92 cfs @ 12.89 hrs, Volume= 1.695 af

Outflow = 0.39 cfs @ 29.77 hrs, Volume= 0.805 af, Atten= 80%, Lag= 1,013.2 min

Primary = 0.39 cfs @ 29.77 hrs, Volume= 0.805 af

Routed to Pond EP1-B* : Proposed Condition - Existing Depression 2 (N)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Peak Elev= 83.39' @ 29.78 hrs Surf.Area= 76,069 sf Storage= 48,170 cf

Plug-Flow detention time= 1,426.3 min calculated for 0.805 af (47% of inflow)

Center-of-Mass det. time= 917.9 min (2,391.1 - 1,473.2)

Volume	Invert	Avail.Storage	Storage Description
#1	82.40'	169,561 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.40	10	0	0	10
82.50	28,123	955	955	28,123
83.00	58,903	21,288	22,243	58,905
84.00	108,005	82,223	104,466	108,018
84.50	153,716	65,095	169,561	153,733

Device	Routing	Invert	Outlet Devices
#1	Primary	83.70'	Spill Way 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.30 Width (feet) 1.00 34.00
#2	Primary	83.20'	Spill Way 3, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.30 Width (feet) 1.00 3.00
#3	Primary	83.50'	57.0' long + 0.3 ' SideZ x 3.0' breadth SW2 - 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.39 cfs @ 29.77 hrs HW=83.39' TW=83.23' (Dynamic Tailwater)

1=Spill Way 1 (Controls 0.00 cfs)

2=Spill Way 3 (Weir Controls 0.39 cfs @ 1.29 fps)

3=SW2 - Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Summary for Pond PP1: UGC-D (Stormtech SC-740)

Inflow Area = 11.853 ac, 91.92% Impervious, Inflow Depth > 2.54" for 2-yr event
 Inflow = 20.01 cfs @ 12.09 hrs, Volume= 2.509 af
 Outflow = 0.99 cfs @ 16.89 hrs, Volume= 1.652 af, Atten= 95%, Lag= 288.1 min
 Primary = 0.06 cfs @ 16.89 hrs, Volume= 0.264 af
 Routed to Pond EP1-A* : (DP1*) Proposed Condition - Rail Road Pond
 Secondary = 0.92 cfs @ 16.89 hrs, Volume= 1.388 af
 Routed to Pond EP1-C* : Proposed Condition - Existing Depressing 3 (NE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Starting Elev= 82.82' Surf.Area= 69,966 sf Storage= 19,799 cf
 Peak Elev= 83.97' @ 16.89 hrs Surf.Area= 69,966 sf Storage= 83,571 cf (63,773 cf above start)

Plug-Flow detention time= 1,335.2 min calculated for 1.197 af (48% of inflow)
 Center-of-Mass det. time= 696.6 min (1,720.5 - 1,023.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	82.22'	24,565 cf	34.75'W x 801.06'L x 3.50'H Field A 97,429 cf Overall - 36,017 cf Embedded = 61,412 cf x 40.0% Voids
#2A	82.72'	36,017 cf	ADS_StormTech SC-740 +Cap x 784 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 784 Chambers in 7 Rows
#3B	82.22'	4,732 cf	6.25'W x 765.46'L x 3.50'H Field B 16,744 cf Overall - 4,916 cf Embedded = 11,829 cf x 40.0% Voids
#4B	82.72'	4,916 cf	ADS_StormTech SC-740 +Cap x 107 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	82.22'	24,873 cf	39.50'W x 715.62'L x 3.50'H Field C 98,934 cf Overall - 36,752 cf Embedded = 62,182 cf x 40.0% Voids
#6C	82.72'	36,752 cf	ADS_StormTech SC-740 +Cap x 800 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 800 Chambers in 8 Rows
#7D	82.22'	4,600 cf	6.25'W x 744.10'L x 3.50'H Field D 16,277 cf Overall - 4,778 cf Embedded = 11,499 cf x 40.0% Voids
#8D	82.72'	4,778 cf	ADS_StormTech SC-740 +Cap x 104 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#9E	82.22'	4,380 cf	6.25'W x 708.50'L x 3.50'H Field E 15,498 cf Overall - 4,548 cf Embedded = 10,950 cf x 40.0% Voids
#10E	82.72'	4,548 cf	ADS_StormTech SC-740 +Cap x 99 Inside #9 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		150,159 cf	Total Available Storage

Storage Group A created with Chamber Wizard
 Storage Group B created with Chamber Wizard
 Storage Group C created with Chamber Wizard
 Storage Group D created with Chamber Wizard

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Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	82.78'	12.0" Round 12" RCP L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.78' / 82.70' S= 0.0057 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	83.40'	12.0" Round 12" HDPE L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.40' / 83.20' S= 0.0051 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Device 1	82.82'	1.5" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 16.89 hrs HW=83.97' TW=79.94' (Dynamic Tailwater)

└─1=12" RCP (Passes 0.06 cfs of 2.73 cfs potential flow)

└─3=Orifice/Grate (Orifice Controls 0.06 cfs @ 5.03 fps)

Secondary OutFlow Max=0.92 cfs @ 16.89 hrs HW=83.97' TW=82.99' (Dynamic Tailwater)

└─2=12" HDPE (Barrel Controls 0.92 cfs @ 2.86 fps)

Summary for Pond PP2: Water Quality Basin (WEST)

Inflow Area = 4.681 ac, 86.82% Impervious, Inflow Depth = 2.39" for 2-yr event
 Inflow = 12.73 cfs @ 12.09 hrs, Volume= 0.932 af
 Outflow = 0.87 cfs @ 13.54 hrs, Volume= 0.852 af, Atten= 93%, Lag= 87.1 min
 Primary = 0.87 cfs @ 13.54 hrs, Volume= 0.852 af
 Routed to Pond PP1 : UGC-D (Stormtech SC-740)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 83.50' Surf.Area= 39,354 sf Storage= 18,954 cf

Peak Elev= 84.10' @ 13.54 hrs Surf.Area= 42,967 sf Storage= 43,724 cf (24,770 cf above start)

Plug-Flow detention time= 1,431.0 min calculated for 0.417 af (45% of inflow)

Center-of-Mass det. time= 722.9 min (1,516.3 - 793.3)

Volume	Invert	Avail.Storage	Storage Description	
#1	83.00'	136,855 cf	Custom Stage Data (Conic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
83.00	36,482	0	0	36,482
84.00	42,335	39,372	39,372	42,377
85.00	48,730	45,495	84,867	48,817
86.00	55,314	51,987	136,855	55,450

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	10.0" Round Culvert L= 19.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.50' / 83.38' S= 0.0063 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

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Primary OutFlow Max=0.87 cfs @ 13.54 hrs HW=84.10' TW=83.83' (Dynamic Tailwater)↑**1=Culvert** (Outlet Controls 0.87 cfs @ 2.88 fps)**Summary for Pond PP3: UGC-B (Stormtech SC-310)**

Inflow Area = 1.223 ac, 8.92% Impervious, Inflow Depth = 0.57" for 2-yr event
 Inflow = 0.61 cfs @ 12.13 hrs, Volume= 0.058 af
 Outflow = 0.02 cfs @ 23.19 hrs, Volume= 0.011 af, Atten= 97%, Lag= 663.8 min
 Primary = 0.02 cfs @ 23.19 hrs, Volume= 0.011 af
 Routed to Link DP3* : (DP3*) Proposed Flow to Sullivan Ave

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 80.30' Surf.Area= 5,806 sf Storage= 1,459 cf

Peak Elev= 80.86' @ 23.19 hrs Surf.Area= 5,806 sf Storage= 3,737 cf (2,278 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= 665.5 min (1,563.7 - 898.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	79.73'	2,828 cf	8.17'W x 473.12'L x 2.33'H Field A 9,016 cf Overall - 1,946 cf Embedded = 7,070 cf x 40.0% Voids
#2A	80.23'	1,946 cf	ADS_StormTech SC-310 +Cap x 132 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 132 Chambers in 2 Rows
#3B	79.73'	1,483 cf	4.83'W x 401.92'L x 2.33'H Field B 4,533 cf Overall - 826 cf Embedded = 3,707 cf x 40.0% Voids
#4B	80.23'	826 cf	ADS_StormTech SC-310 +Cap x 56 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		7,082 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.69'	12.0" Round 12" HDPE OUT L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.69' / 79.27' S= 0.0210 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	80.80'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 23.19 hrs HW=80.86' TW=0.00' (Dynamic Tailwater)↑**1=12" HDPE OUT** (Passes 0.02 cfs of 3.10 cfs potential flow)↑**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.85 fps)

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Summary for Pond PP4: UGC-E (Stormtech SC-310)

Inflow Area = 1.152 ac, 84.49% Impervious, Inflow Depth = 2.39" for 2-yr event
 Inflow = 3.13 cfs @ 12.09 hrs, Volume= 0.229 af
 Outflow = 2.03 cfs @ 12.18 hrs, Volume= 0.229 af, Atten= 35%, Lag= 5.4 min
 Primary = 2.03 cfs @ 12.18 hrs, Volume= 0.229 af
 Routed to Pond PP1 : UGC-D (Stormtech SC-740)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Starting Elev= 85.95' Surf.Area= 4,780 sf Storage= 1,189 cf
 Peak Elev= 86.55' @ 12.18 hrs Surf.Area= 4,780 sf Storage= 3,077 cf (1,888 cf above start)

Plug-Flow detention time= 128.8 min calculated for 0.202 af (88% of inflow)
 Center-of-Mass det. time= 45.2 min (838.5 - 793.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	85.38'	1,850 cf	4.83'W x 501.60'L x 2.33'H Field A 5,657 cf Overall - 1,032 cf Embedded = 4,625 cf x 40.0% Voids
#2A	85.88'	1,032 cf	ADS_StormTech SC-310 +Cap x 70 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3B	85.38'	1,798 cf	4.83'W x 487.36'L x 2.33'H Field B 5,496 cf Overall - 1,002 cf Embedded = 4,494 cf x 40.0% Voids
#4B	85.88'	1,002 cf	ADS_StormTech SC-310 +Cap x 68 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		5,682 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	85.44'	15.0" Round 15" HDPE OUT L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.44' / 85.13' S= 0.0053 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	85.95'	10.0" Round 10" HDPE X 2.00 L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.95' / 85.80' S= 0.0300 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=2.03 cfs @ 12.18 hrs HW=86.55' TW=83.46' (Dynamic Tailwater)

1=15" HDPE OUT (Passes 2.03 cfs of 3.39 cfs potential flow)

2=10" HDPE (Barrel Controls 2.03 cfs @ 3.40 fps)

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Summary for Pond PP5: Water Quality Basin (Kennedy Road)

Inflow Area = 0.956 ac, 70.56% Impervious, Inflow Depth = 2.03" for 2-yr event
 Inflow = 2.26 cfs @ 12.09 hrs, Volume= 0.162 af
 Outflow = 0.27 cfs @ 12.75 hrs, Volume= 0.160 af, Atten= 88%, Lag= 39.5 min
 Primary = 0.27 cfs @ 12.75 hrs, Volume= 0.160 af
 Routed to Link DP4* : (DP4*) Proposed Flow to Kennedy Road Drainage System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Starting Elev= 80.00' Surf.Area= 5,601 sf Storage= 11,033 cf
 Peak Elev= 80.59' @ 12.75 hrs Surf.Area= 6,216 sf Storage= 14,494 cf (3,461 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= 236.1 min (1,047.9 - 811.8)

Volume	Invert	Avail.Storage	Storage Description	
#1	75.00'	42,367 cf	Custom Stage Data (Conic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.00	239	0	0	239
76.00	786	486	486	791
77.00	1,382	1,070	1,556	1,399
78.00	2,063	1,711	3,267	2,095
78.80	2,824	1,947	5,214	2,869
79.00	4,585	734	5,948	4,630
80.00	5,601	5,085	11,033	5,677
81.00	6,669	6,127	17,160	6,781
82.00	7,793	7,224	24,384	7,944
83.00	8,973	8,376	32,760	9,168
84.00	10,257	9,608	42,367	10,498

Device	Routing	Invert	Outlet Devices
#1	Primary	79.79'	12.0" Round 12" RCP Culvert L= 34.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.79' / 79.60' S= 0.0056 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf
#2	Device 1	80.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.27 cfs @ 12.75 hrs HW=80.59' TW=0.00' (Dynamic Tailwater)

1=12" RCP Culvert (Passes 0.27 cfs of 1.57 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.27 cfs @ 3.12 fps)

Summary for Pond PP6: UGC-A (Stormtech SC-740)

Inflow Area = 1.161 ac, 17.93% Impervious, Inflow Depth = 1.00" for 2-yr event
 Inflow = 1.24 cfs @ 12.11 hrs, Volume= 0.097 af
 Outflow = 0.02 cfs @ 23.30 hrs, Volume= 0.079 af, Atten= 98%, Lag= 671.3 min
 Primary = 0.02 cfs @ 23.30 hrs, Volume= 0.079 af
 Routed to Link DP4* : (DP4*) Proposed Flow to Kennedy Road Drainage System

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 80.00' Surf.Area= 6,498 sf Storage= 1,594 cf

Peak Elev= 80.69' @ 23.30 hrs Surf.Area= 6,498 sf Storage= 4,924 cf (3,330 cf above start)

Plug-Flow detention time= 2,317.8 min calculated for 0.043 af (44% of inflow)

Center-of-Mass det. time= 1,417.9 min (2,282.1 - 864.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	79.44'	4,292 cf	6.25'W x 694.26'L x 3.50'H Field A 15,187 cf Overall - 4,456 cf Embedded = 10,731 cf x 40.0% Voids
#2A	79.94'	4,456 cf	ADS_StormTech SC-740 +Cap x 97 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	79.44'	2,140 cf	6.25'W x 345.38'L x 3.50'H Field B 7,555 cf Overall - 2,205 cf Embedded = 5,350 cf x 40.0% Voids
#4B	79.94'	2,205 cf	ADS_StormTech SC-740 +Cap x 48 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		13,094 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	80.00'	12.0" Round 12" HDPE L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 80.00' / 79.90' S= 0.0056 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	80.66'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	80.00'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	82.16'	9.0" W x 3.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 23.30 hrs HW=80.69' TW=0.00' (Dynamic Tailwater)

- 1=12" HDPE (Passes 0.02 cfs of 1.23 cfs potential flow)
- 2=Orifice/Grate (Orifice Controls 0.00 cfs @ 0.62 fps)
- 3=Orifice/Grate (Orifice Controls 0.02 cfs @ 3.89 fps)
- 4=Orifice/Grate (Controls 0.00 cfs)

Summary for Pond PP7: UGC-C (Stormtech SC-310)

Inflow Area = 0.254 ac, 6.38% Impervious, Inflow Depth = 0.49" for 2-yr event
 Inflow = 0.10 cfs @ 12.13 hrs, Volume= 0.010 af
 Outflow = 0.01 cfs @ 17.02 hrs, Volume= 0.010 af, Atten= 93%, Lag= 293.5 min
 Primary = 0.01 cfs @ 17.02 hrs, Volume= 0.010 af
 Routed to Link DP3* : (DP3*) Proposed Flow to Sullivan Ave

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

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Proposed Condition
Type III 24-hr 2-yr Rainfall=3.14"

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Starting Elev= 83.88' Surf.Area= 3,231 sf Storage= 804 cf

Peak Elev= 83.99' @ 17.02 hrs Surf.Area= 3,231 sf Storage= 1,047 cf (243 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= 565.3 min (1,472.9 - 907.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	83.31'	1,299 cf	4.83'W x 352.08'L x 2.33'H Field A 3,971 cf Overall - 722 cf Embedded = 3,248 cf x 40.0% Voids
#2A	83.81'	722 cf	ADS_StormTech SC-310 +Cap x 49 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3B	83.31'	1,168 cf	4.83'W x 316.48'L x 2.33'H Field B 3,569 cf Overall - 649 cf Embedded = 2,921 cf x 40.0% Voids
#4B	83.81'	649 cf	ADS_StormTech SC-310 +Cap x 44 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		3,839 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	83.20'	12.0" Round 12" HDPE L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.20' / 81.60' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	83.88'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	84.50'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.01 cfs @ 17.02 hrs HW=83.99' TW=0.00' (Dynamic Tailwater)

1=12" HDPE (Passes 0.01 cfs of 2.01 cfs potential flow)
 2=Orifice/Grate (Orifice Controls 0.01 cfs @ 1.25 fps)
 3=Orifice/Grate (Controls 0.00 cfs)

Summary for Link DP3*: (DP3*) Proposed Flow to Sullivan Ave

Inflow Area = 1.478 ac, 8.48% Impervious, Inflow Depth > 0.17" for 2-yr event
 Inflow = 0.02 cfs @ 22.97 hrs, Volume= 0.021 af
 Primary = 0.02 cfs @ 22.97 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

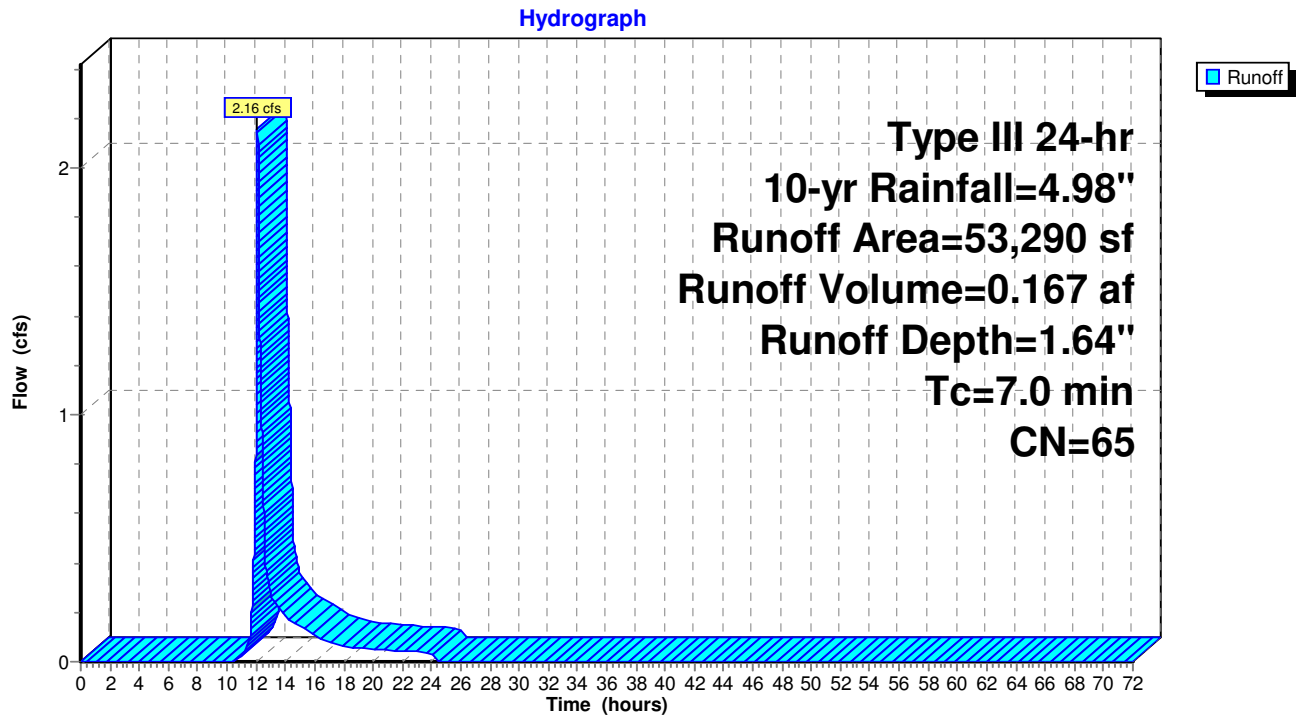
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Summary for Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System

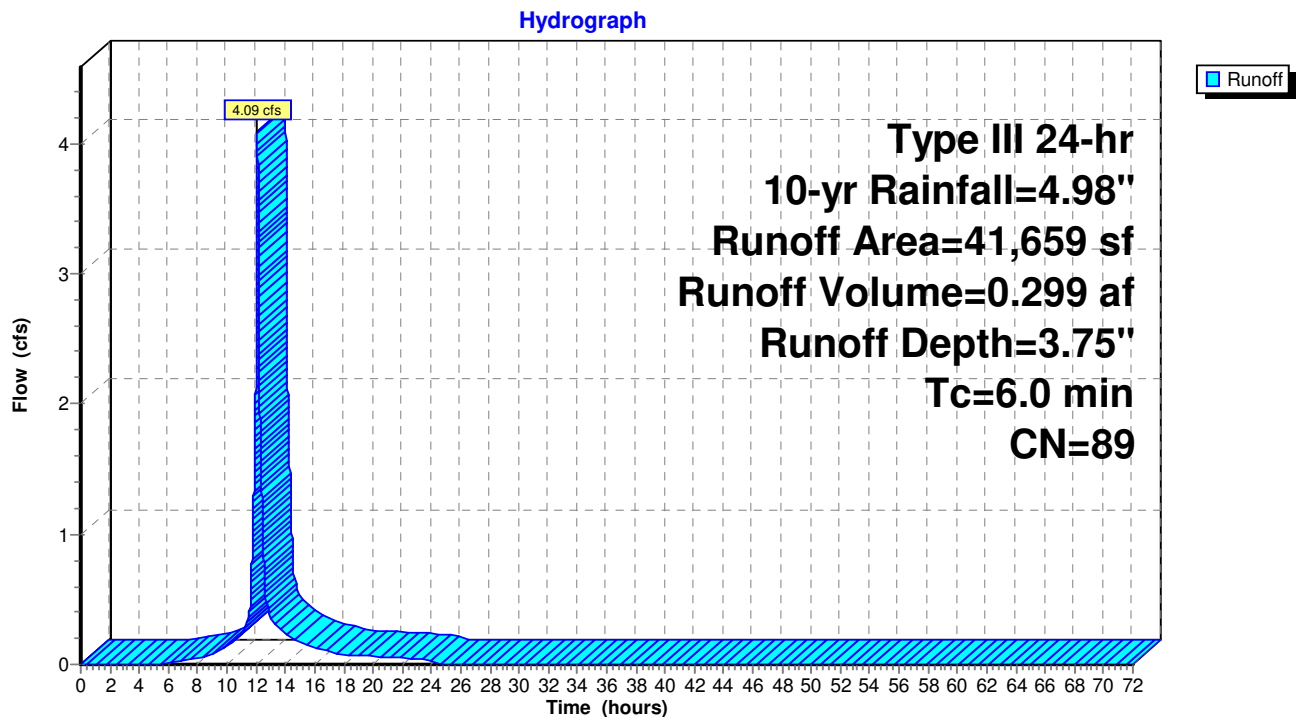
Inflow Area = 2.117 ac, 41.71% Impervious, Inflow Depth > 1.36" for 2-yr event
 Inflow = 0.29 cfs @ 12.81 hrs, Volume= 0.239 af
 Primary = 0.29 cfs @ 12.81 hrs, Volume= 0.239 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

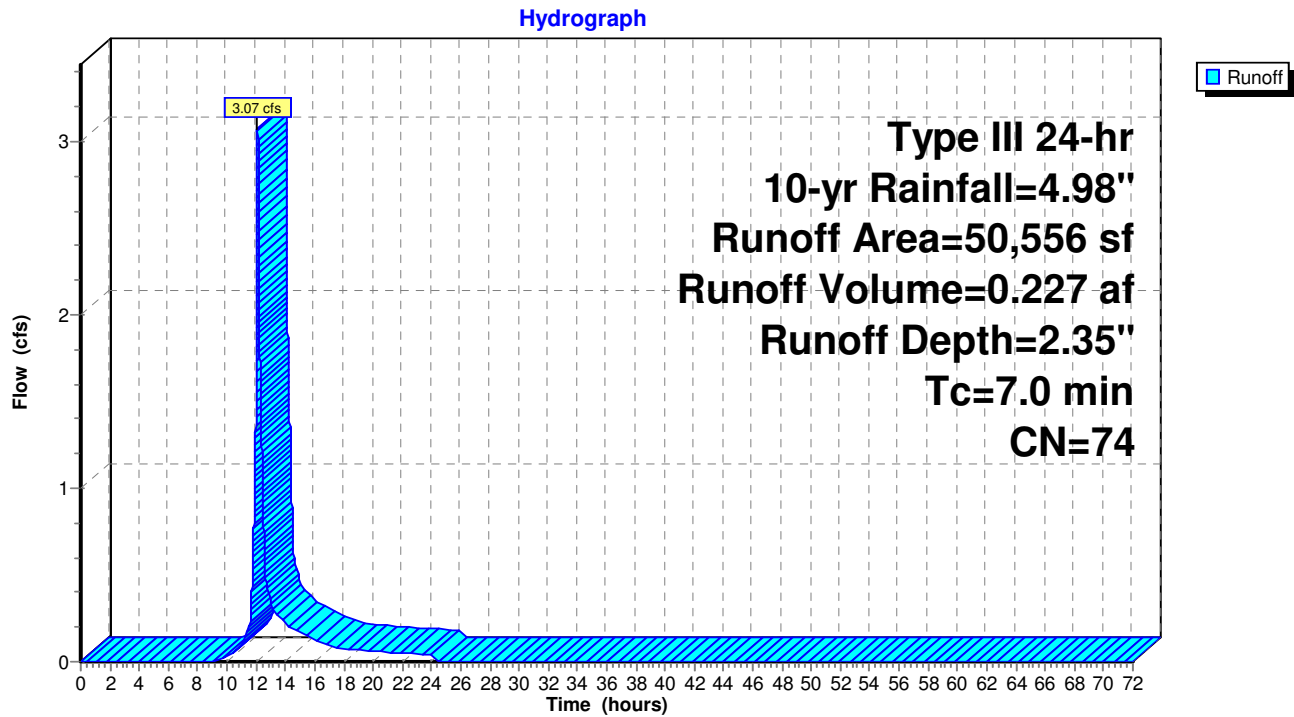
Subcatchment P1: Yard Drains to UGC-B



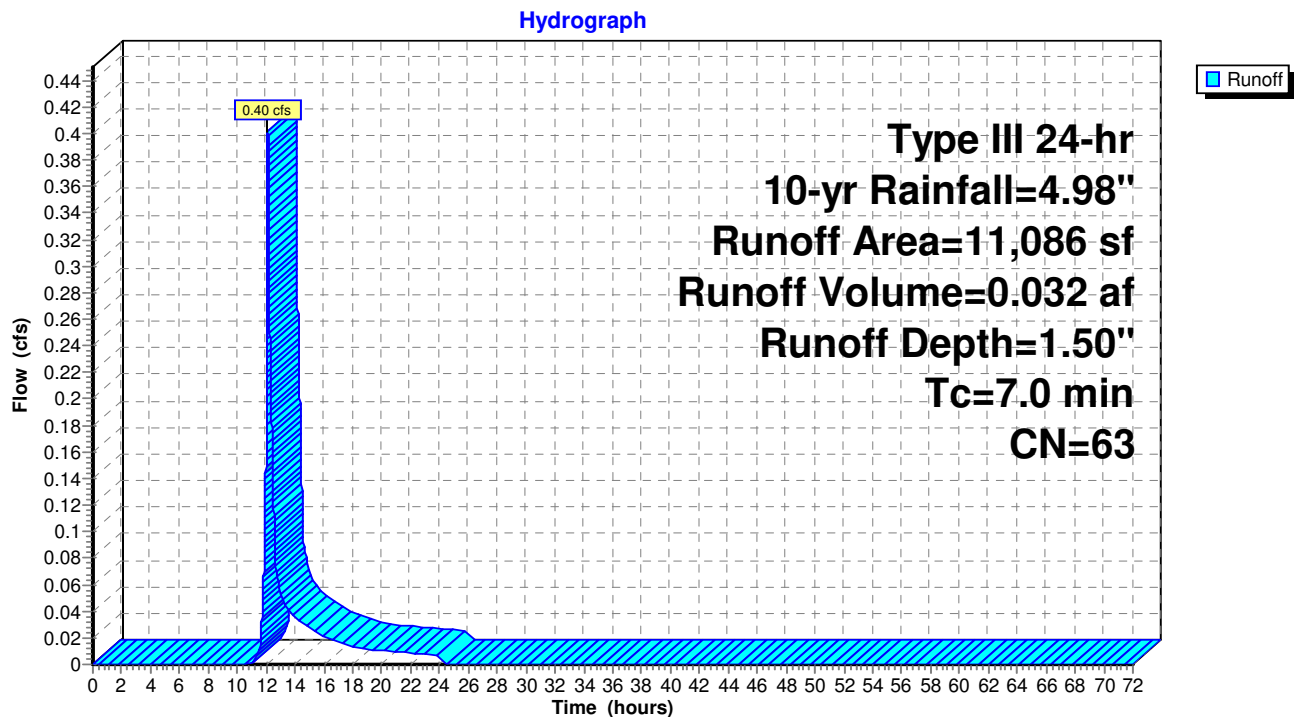
Subcatchment P10: Culdesac

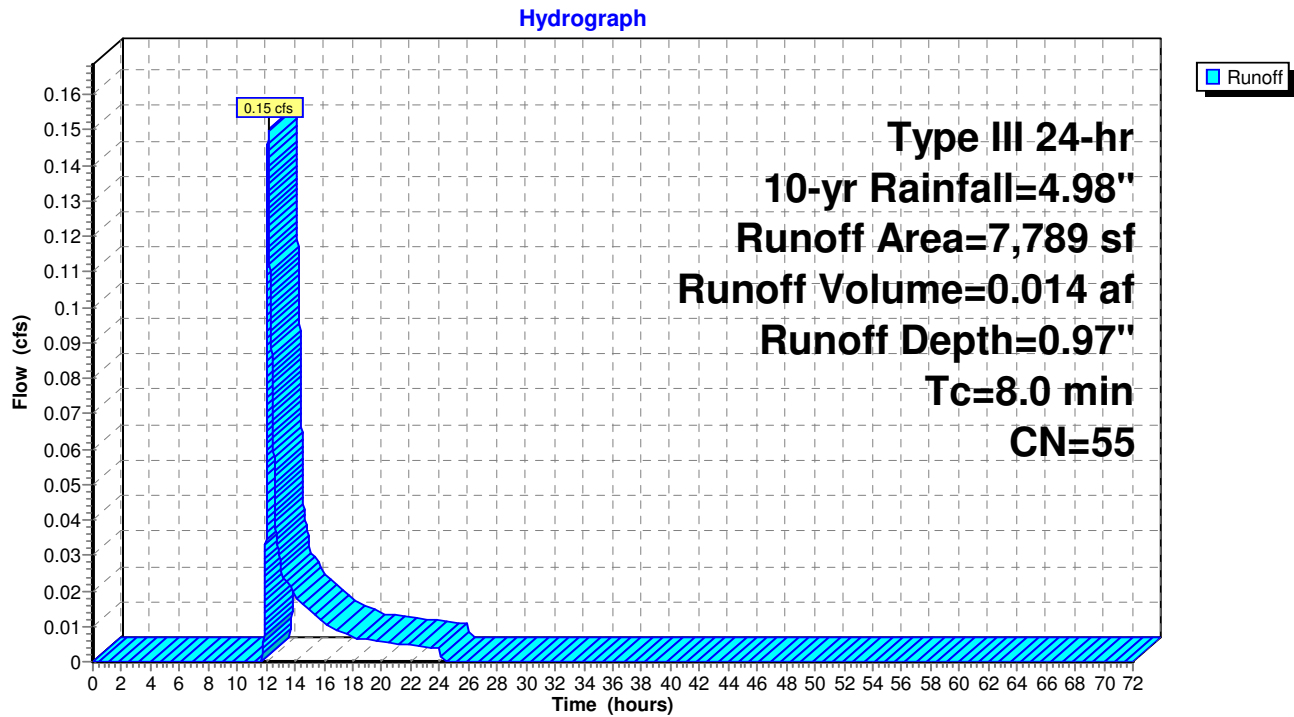
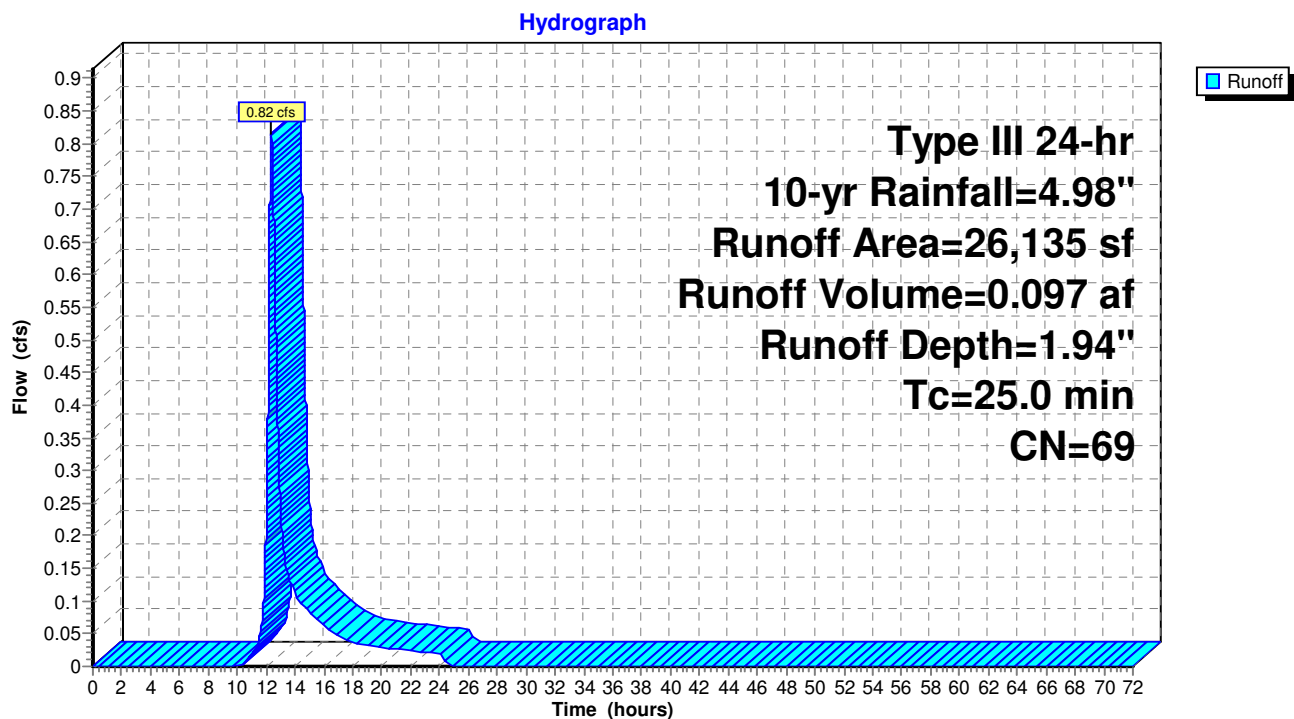


Subcatchment P11: Yard Drains to UGC-A



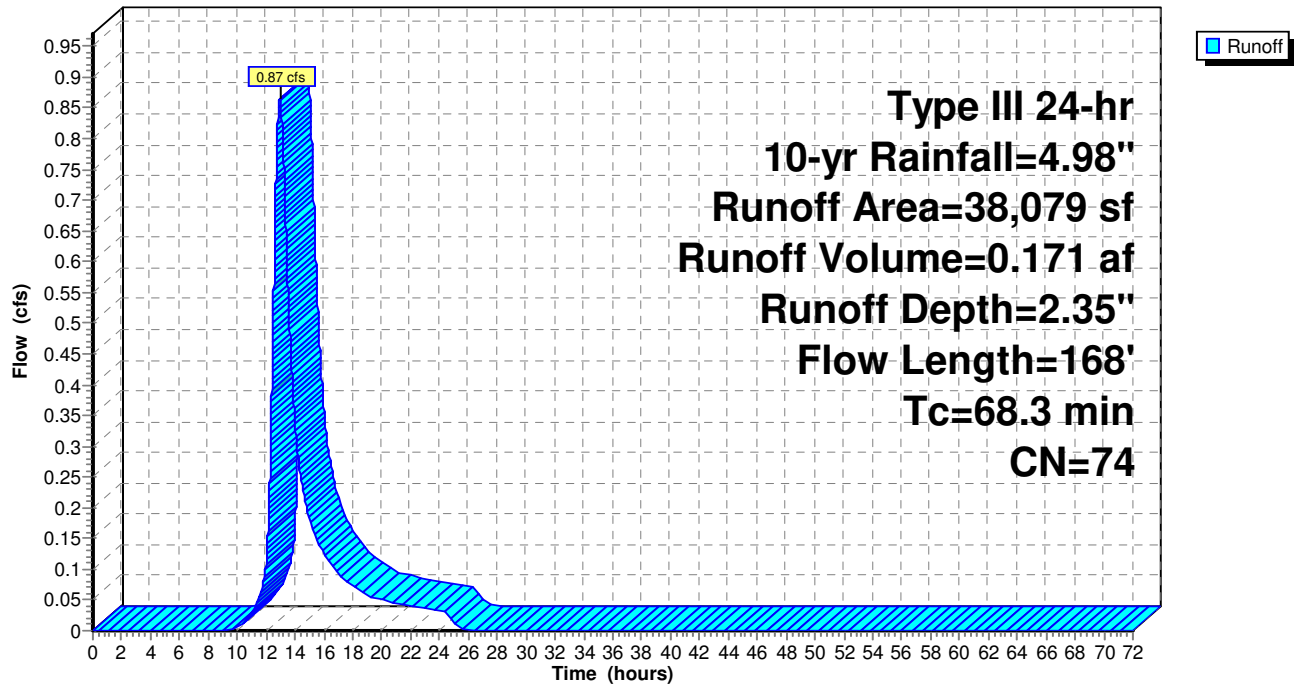
Subcatchment P12: Yard Drains to UGC-C



Subcatchment P2: (DP2*) Proposed Flow across North West Property Corner**Subcatchment P3: P3**

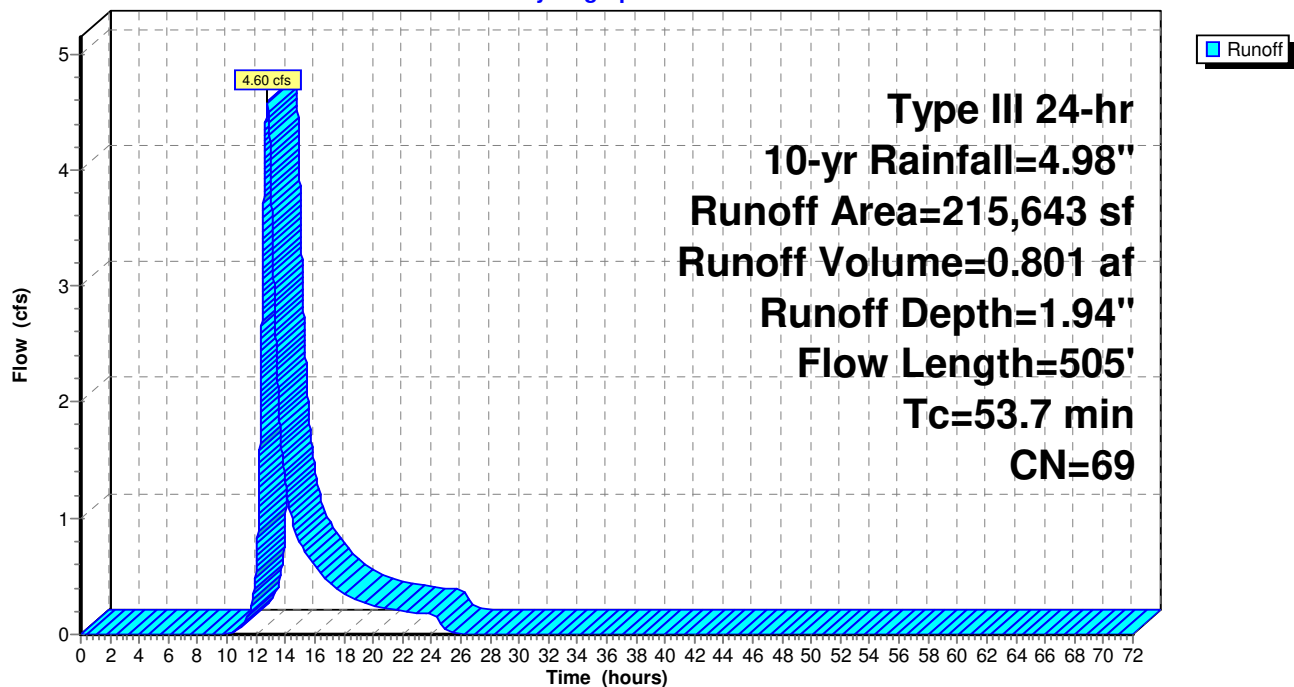
Subcatchment P4: P4

Hydrograph

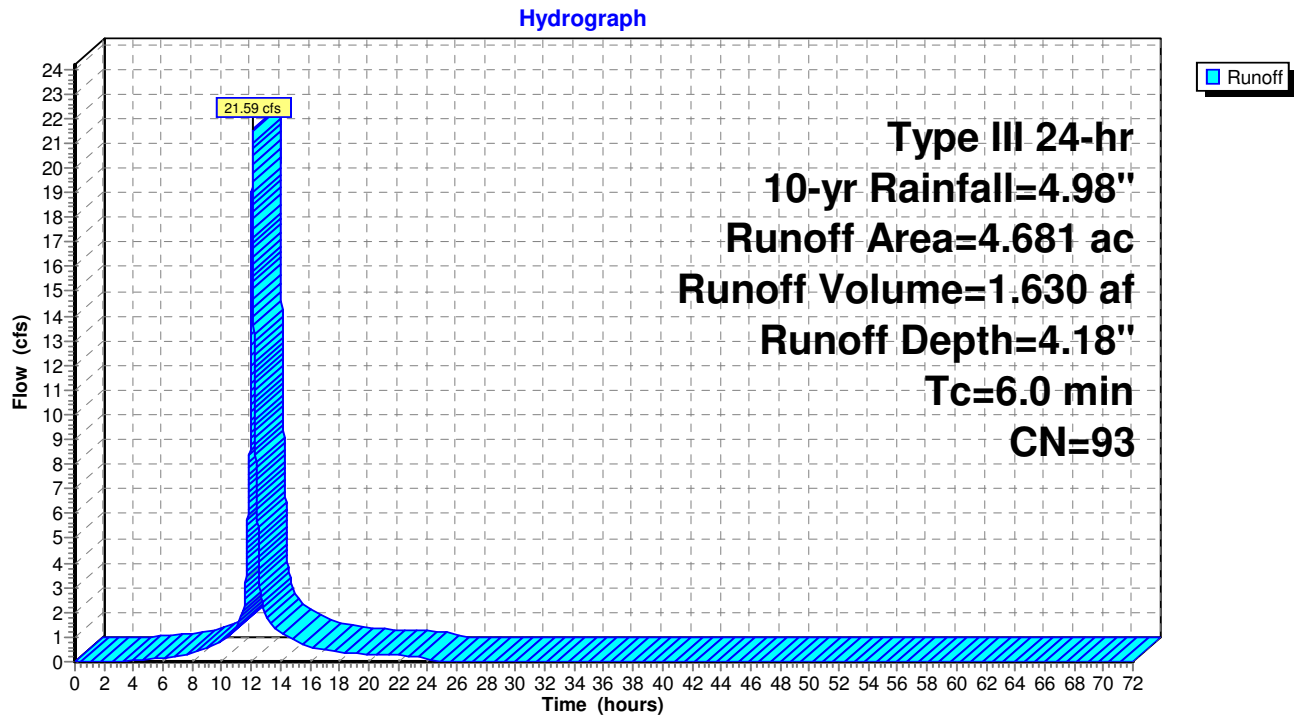


Subcatchment P5: P5

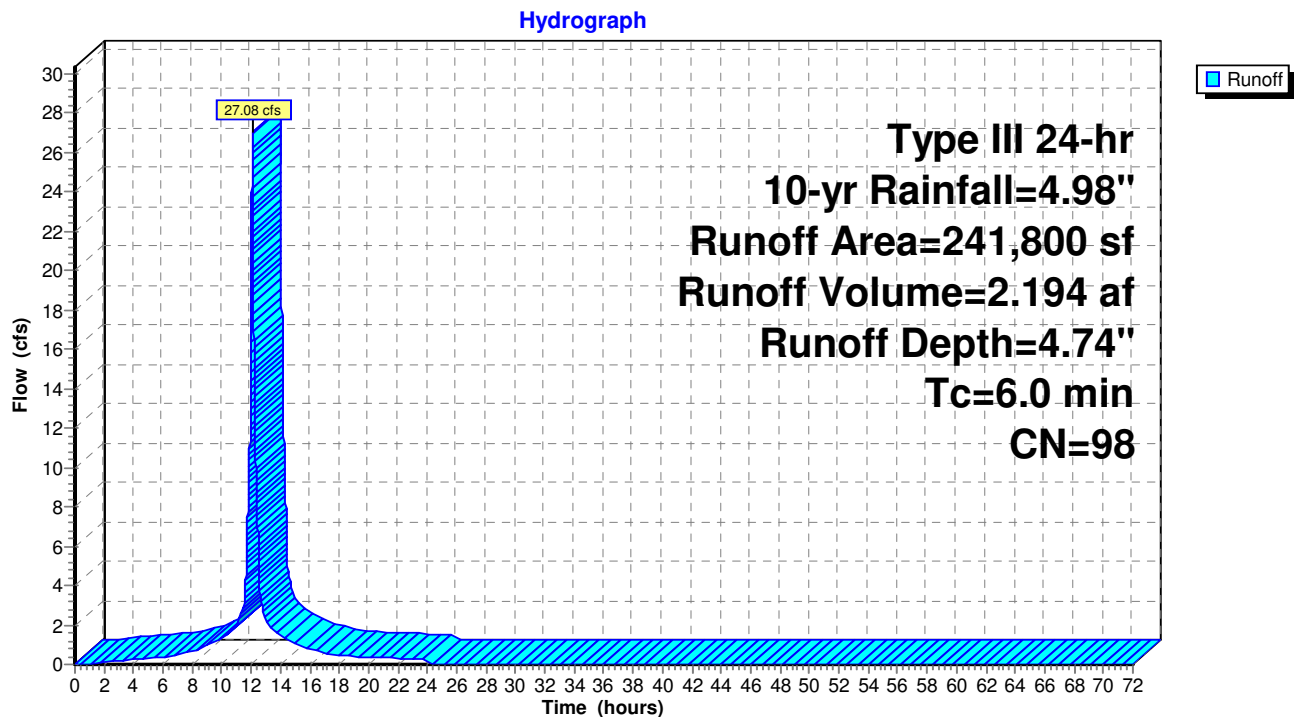
Hydrograph

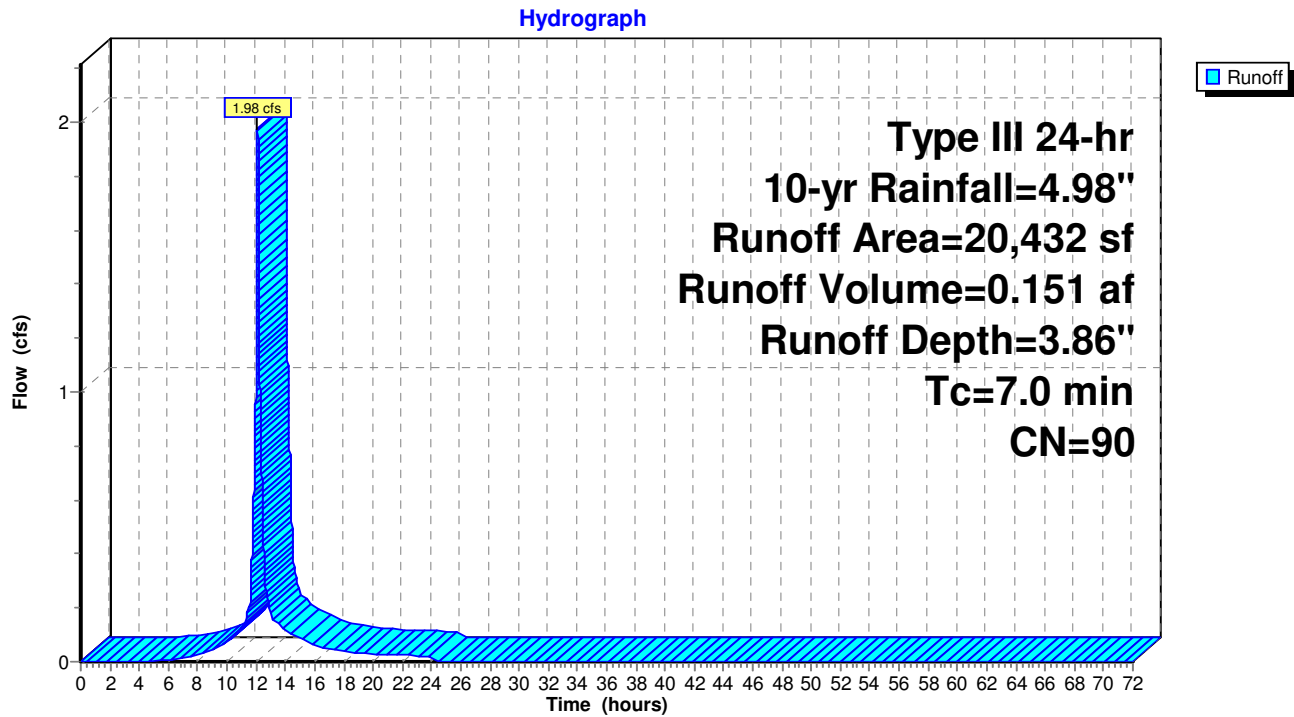
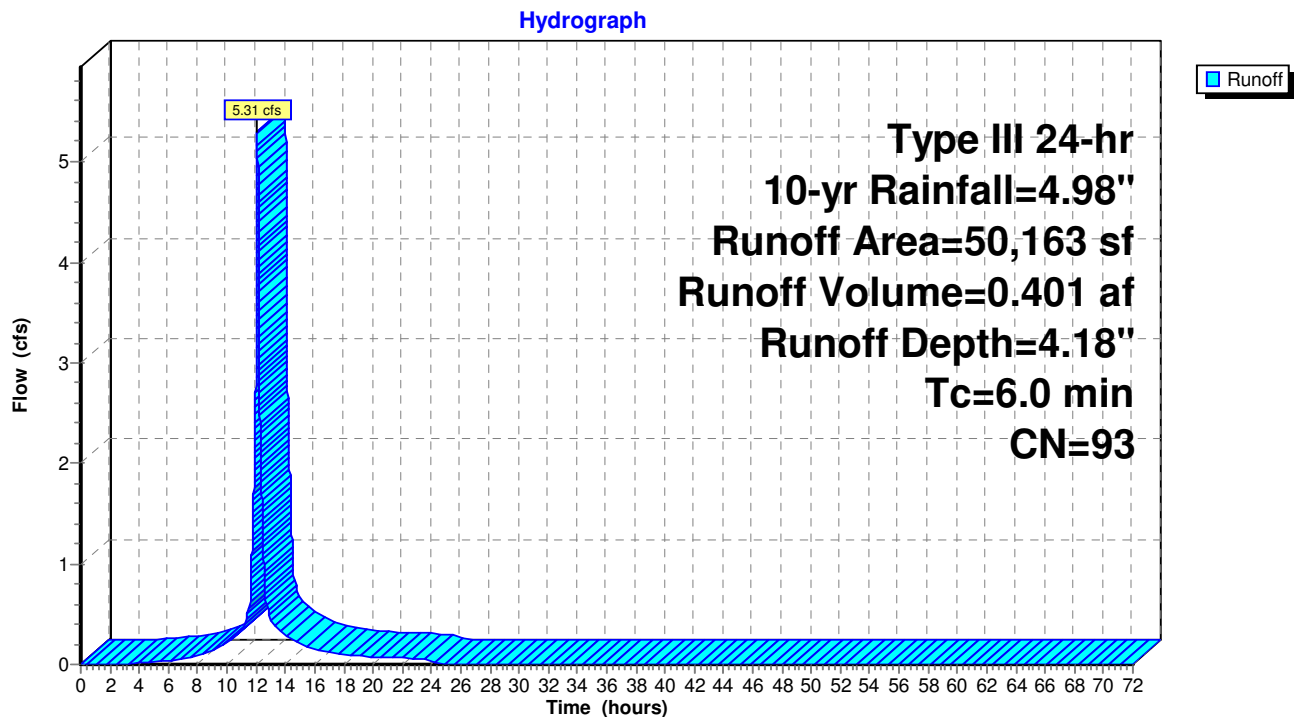


Subcatchment P6: Sheet flow To West Basin

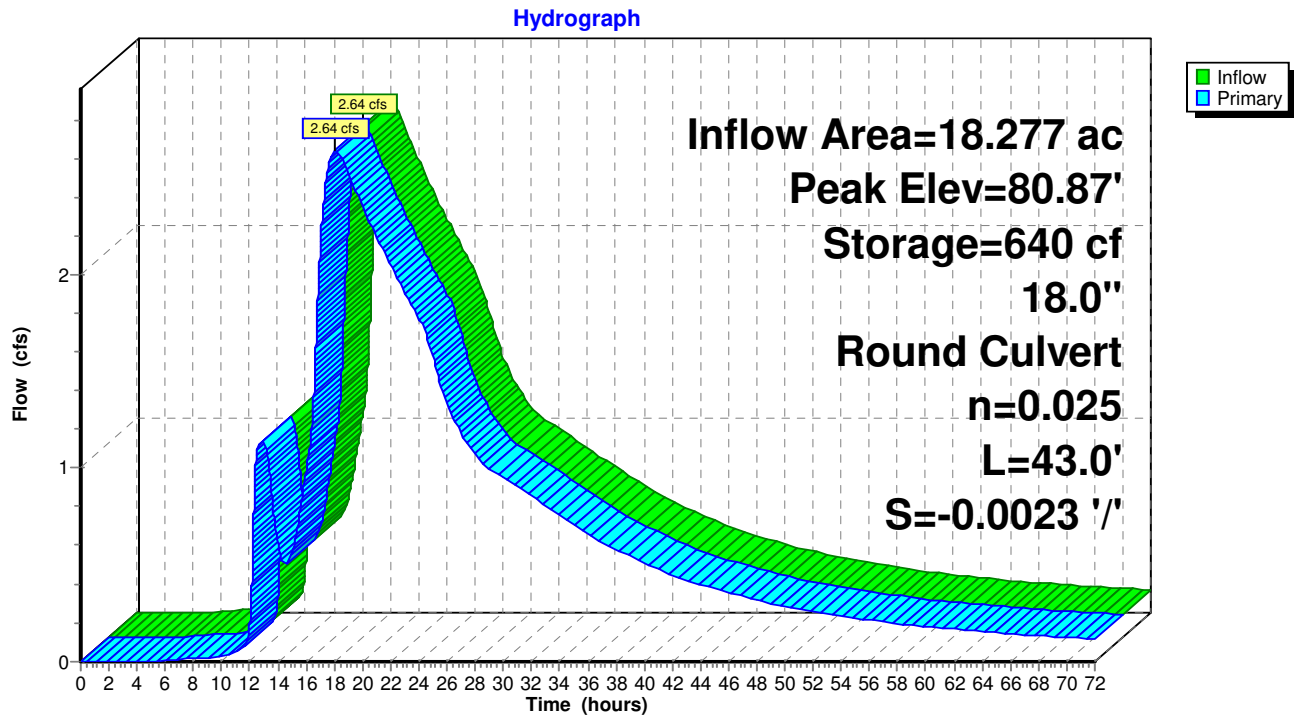


Subcatchment P7: Proposed Roof to UGC-D (WEST)

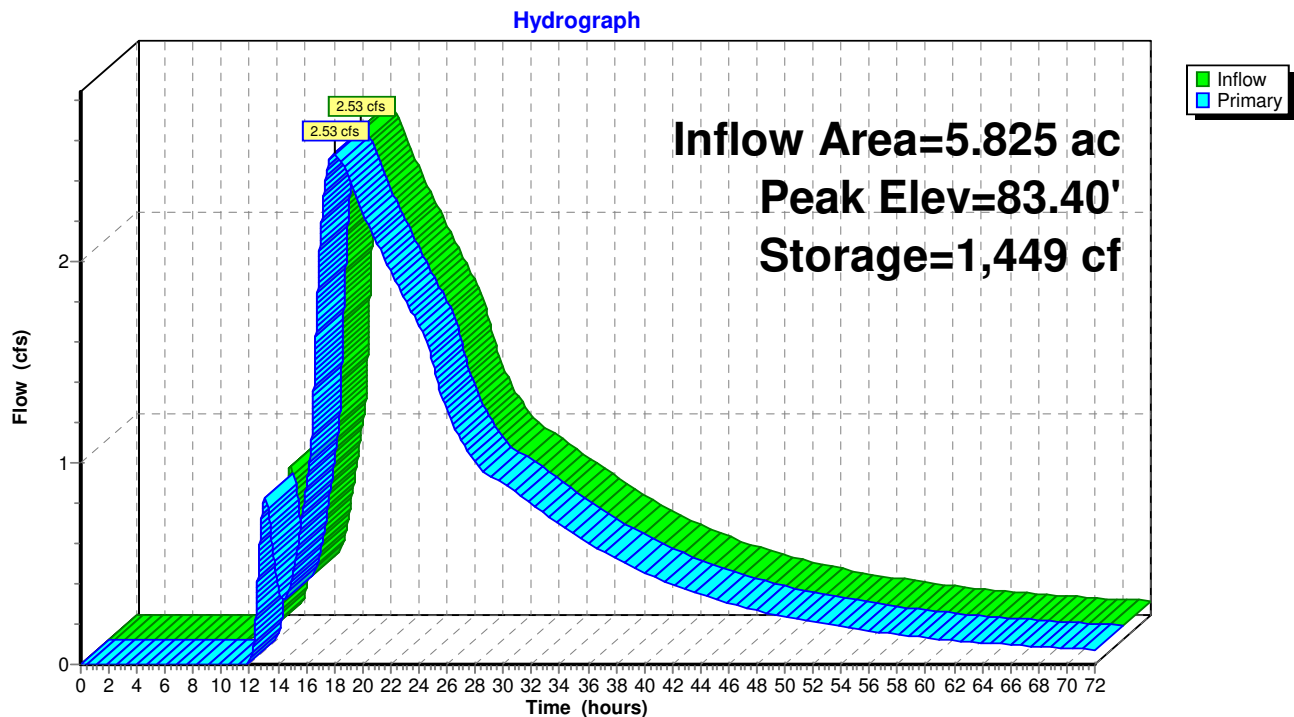


Subcatchment P8: North Truck Access Drive**Subcatchment P9: CB's to UGC-E (East)**

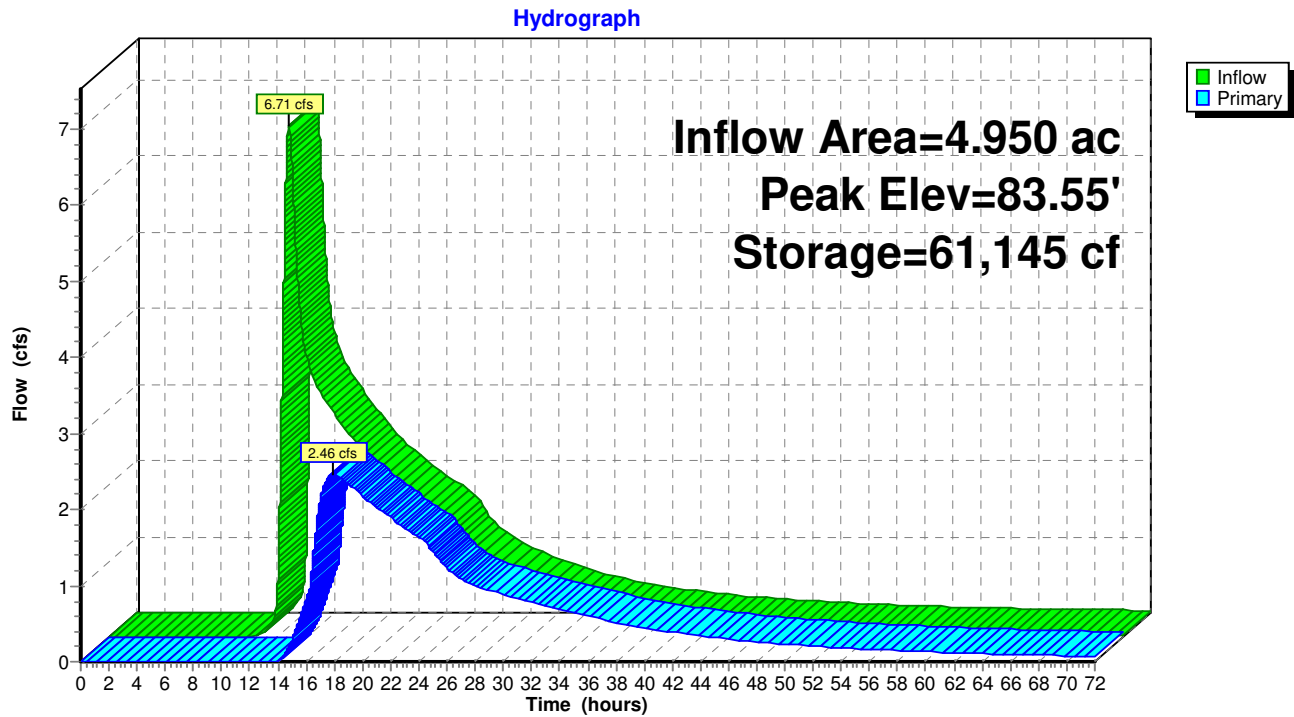
Pond EP1-A*: (DP1*) Proposed Condition - Rail Road Pond



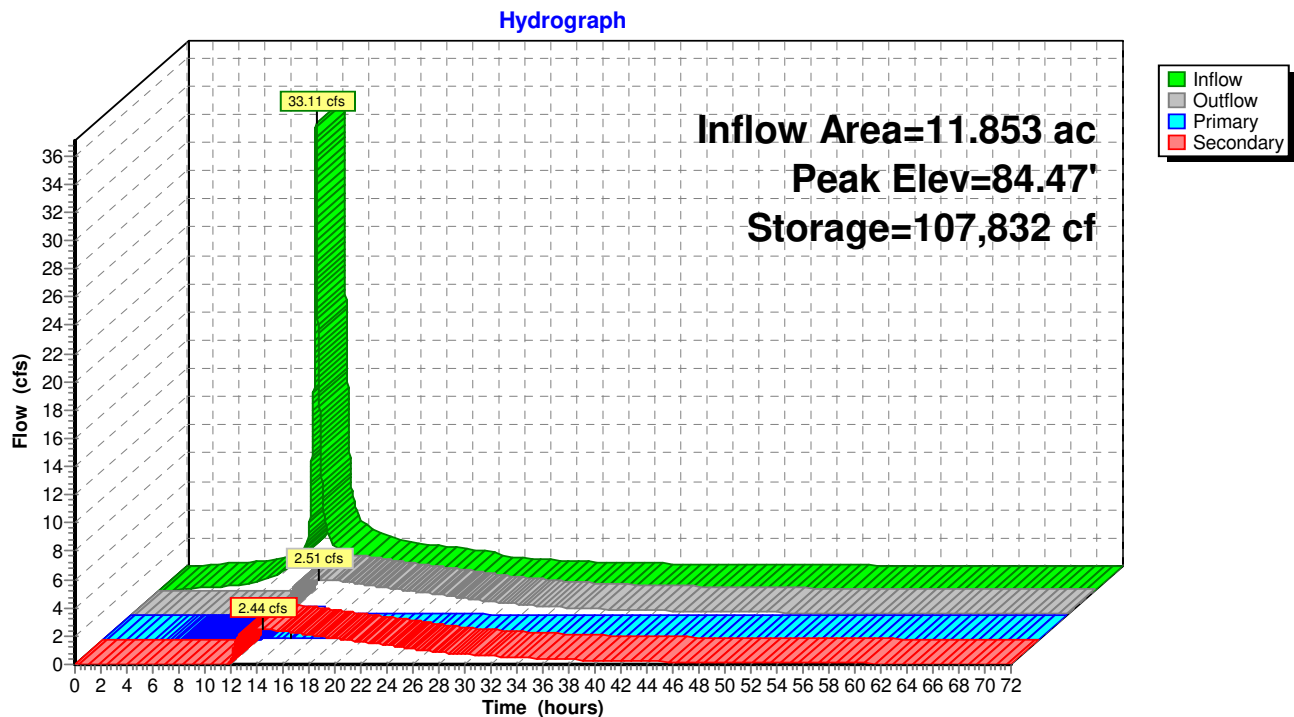
Pond EP1-B*: Proposed Condition - Existing Depression 2 (N)



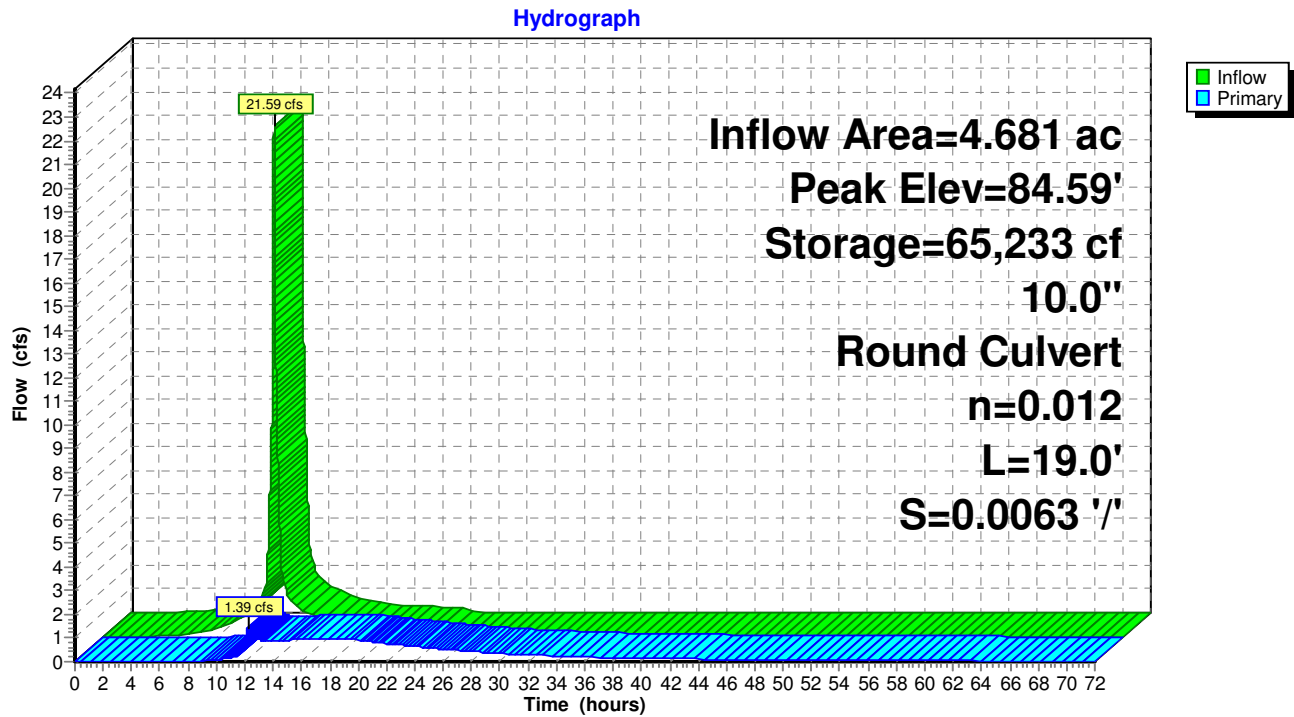
Pond EP1-C*: Proposed Condition - Existing Depressing 3 (NE)



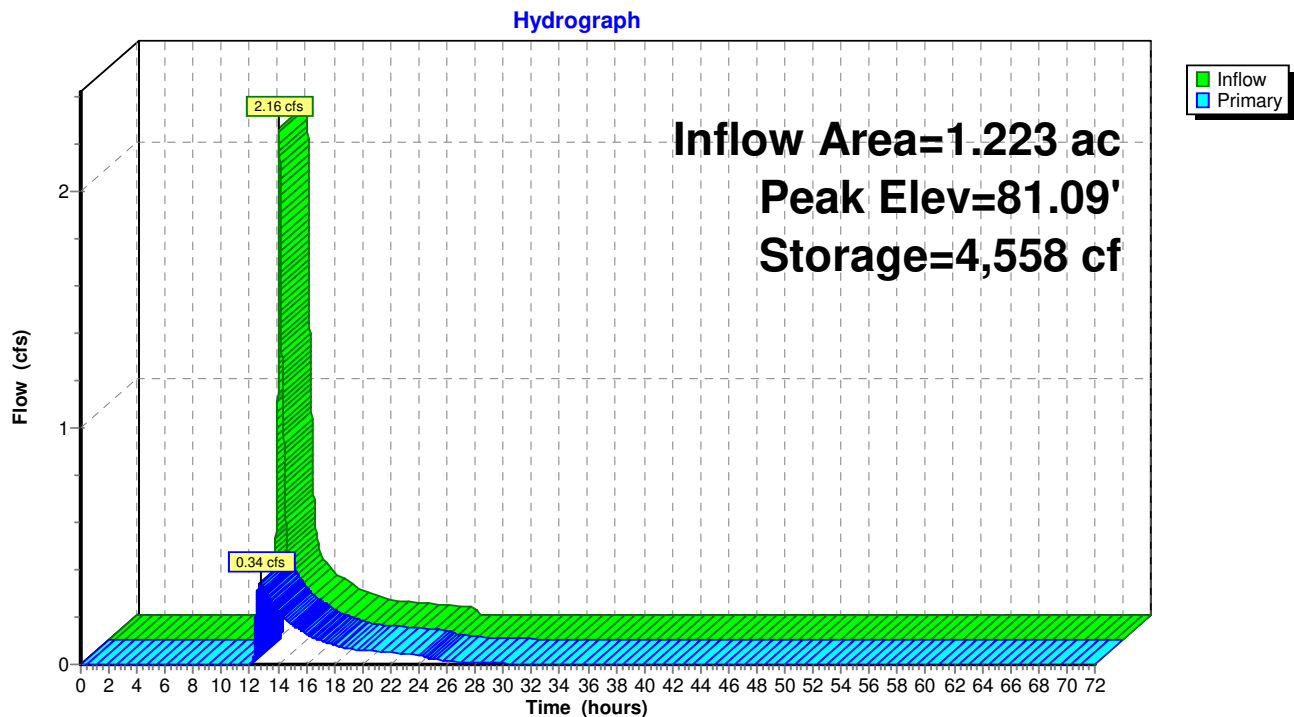
Pond PP1: UGC-D (Stormtech SC-740)



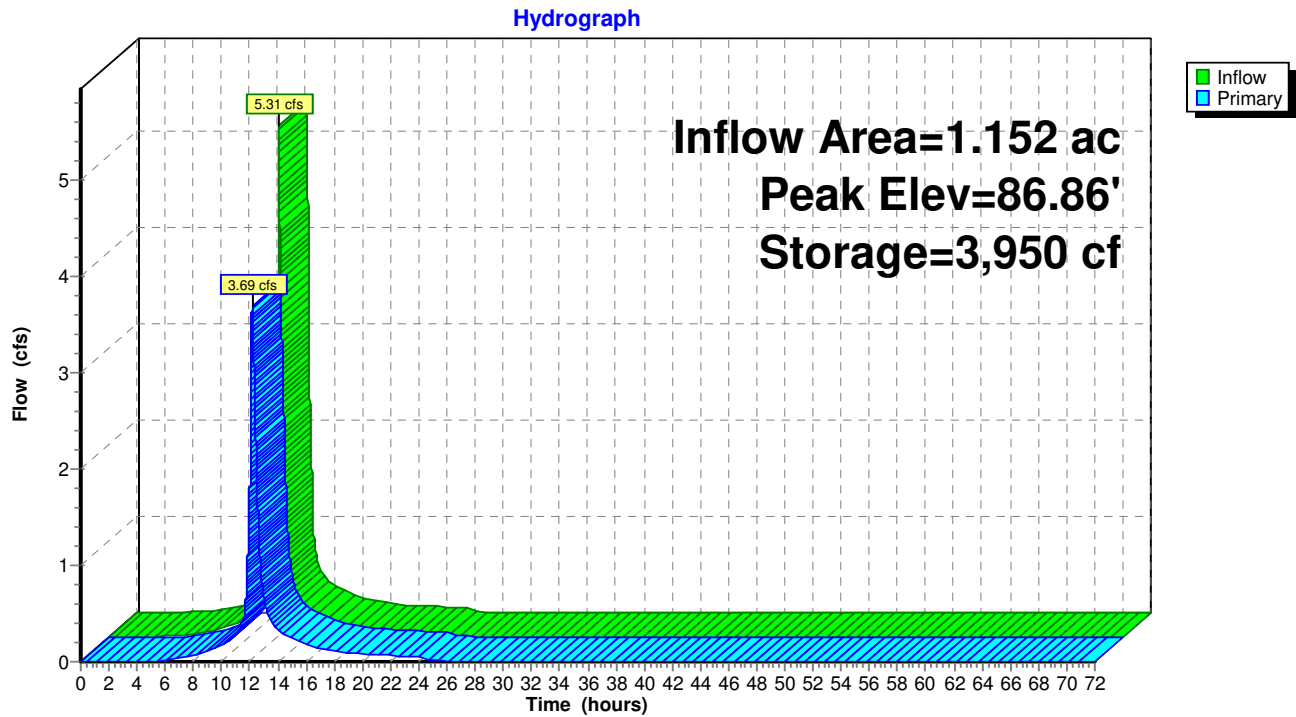
Pond PP2: Water Quality Basin (WEST)



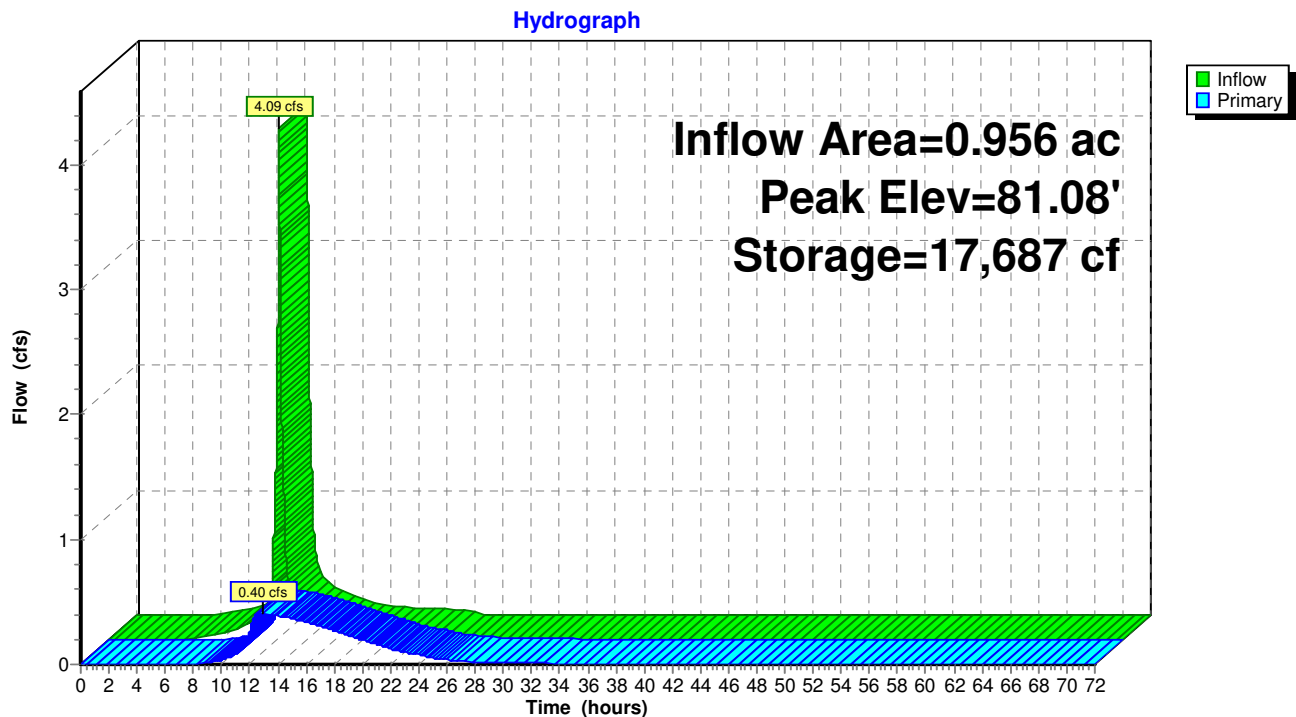
Pond PP3: UGC-B (Stormtech SC-310)



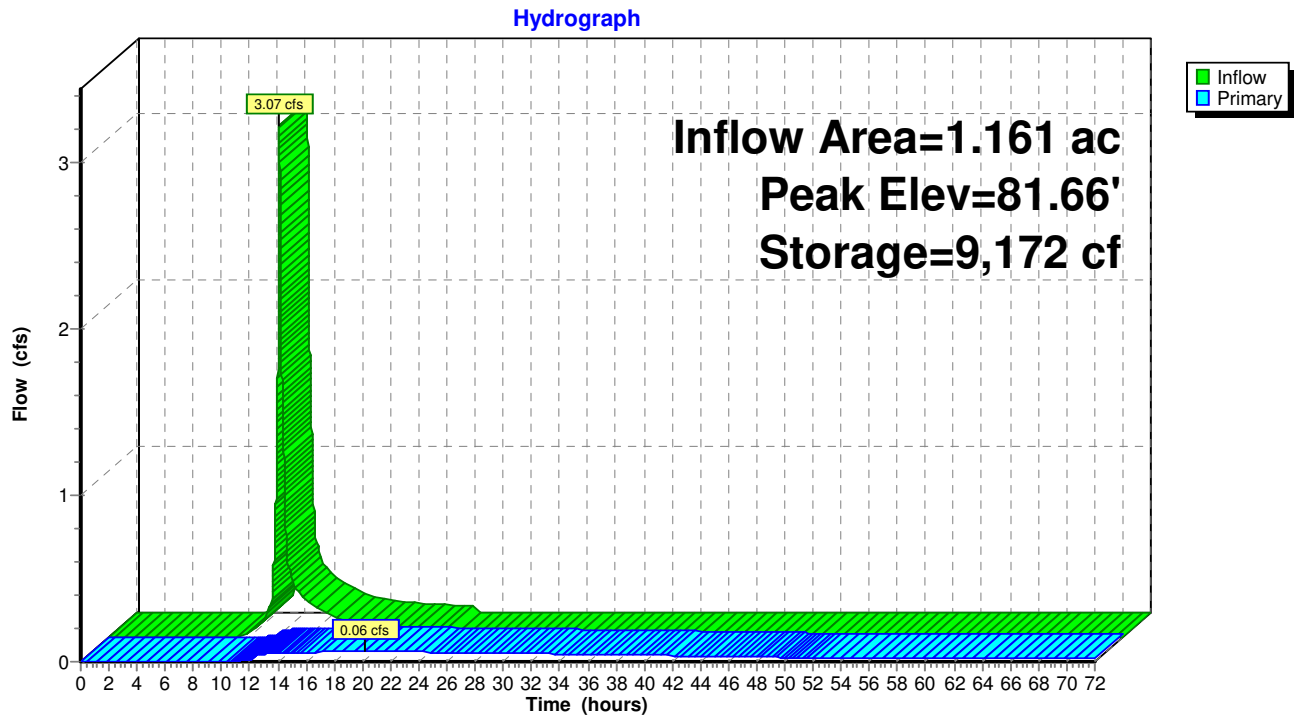
Pond PP4: UGC-E (Stormtech SC-310)



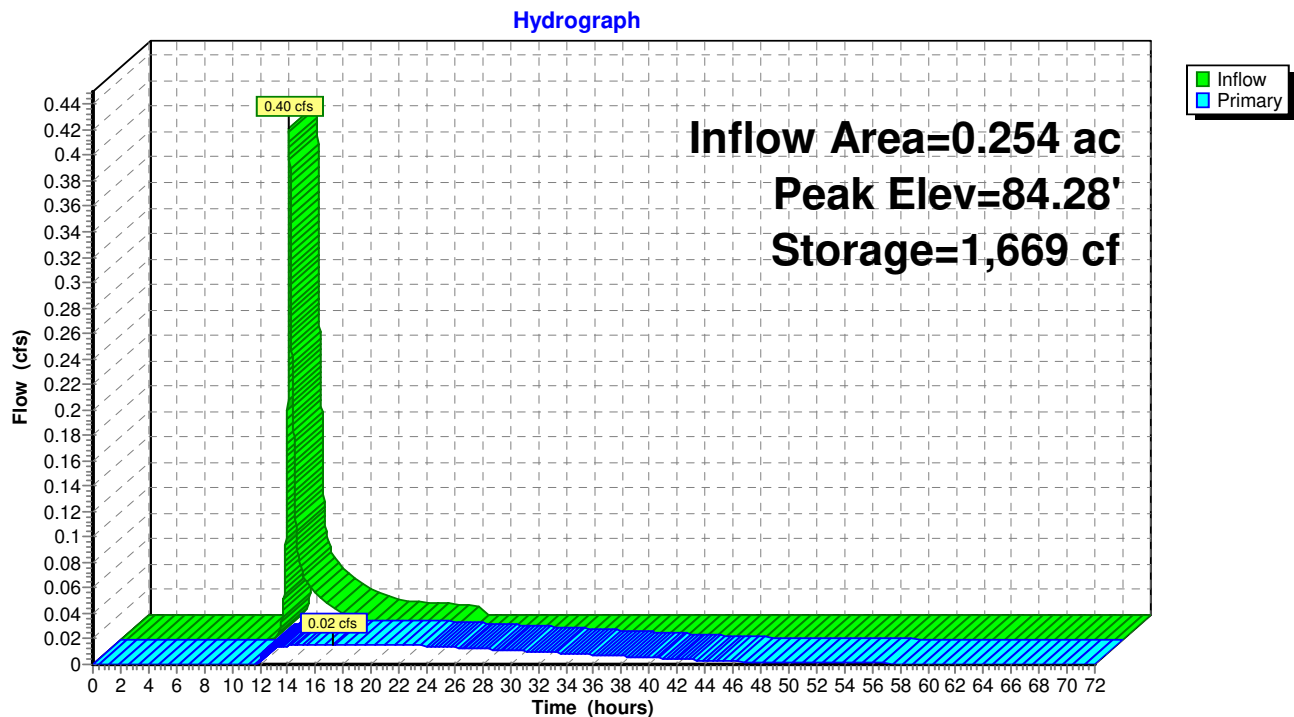
Pond PP5: Water Quality Basin (Kennedy Road)



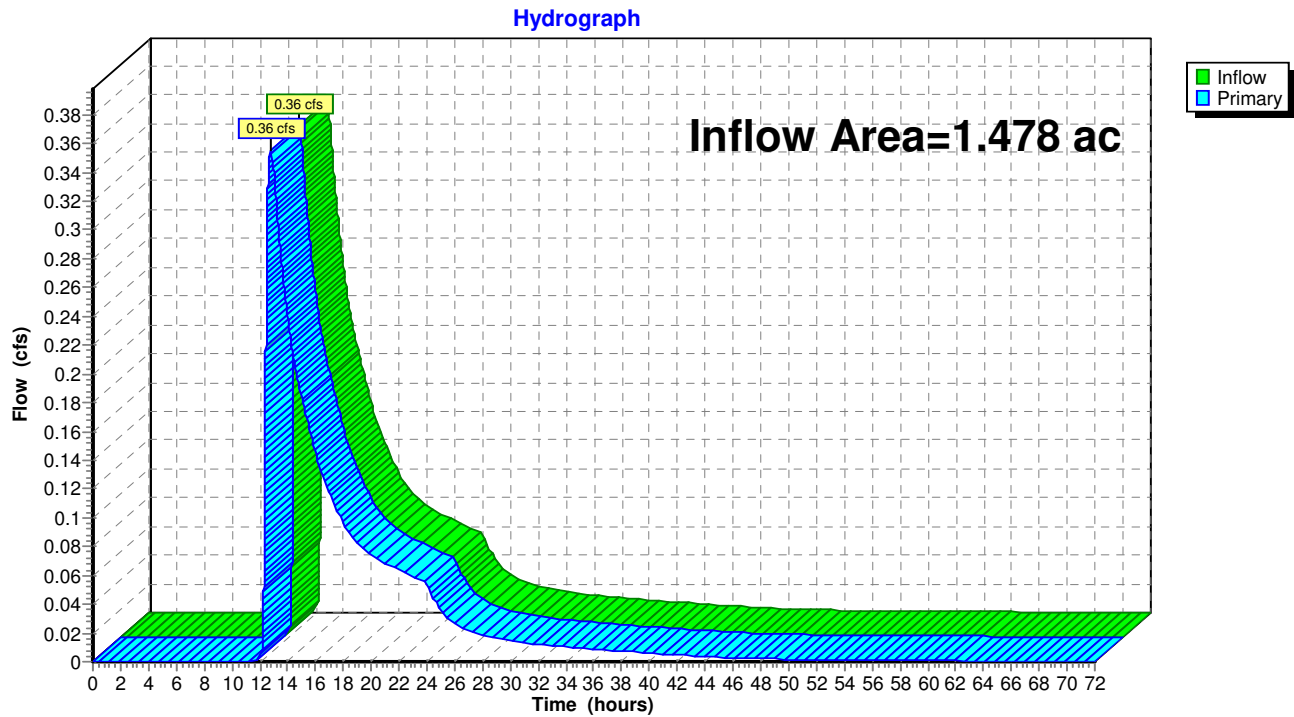
Pond PP6: UGC-A (Stormtech SC-740)



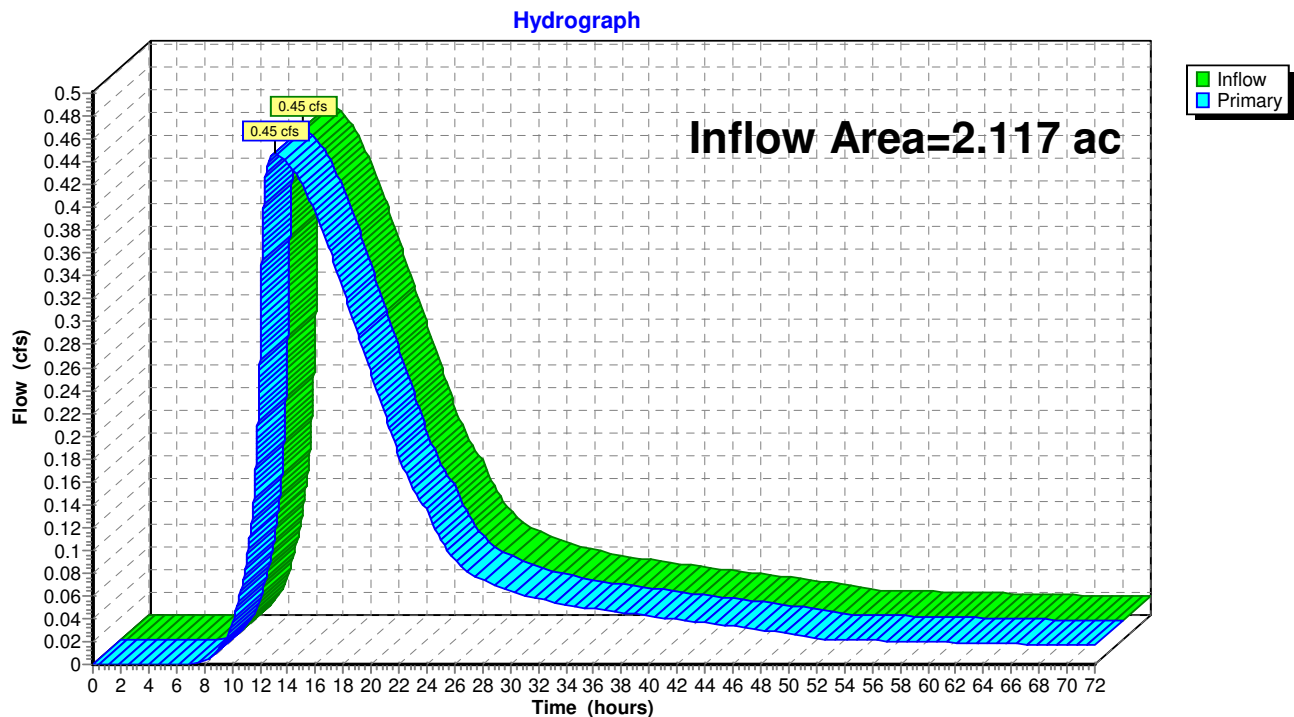
Pond PP7: UGC-C (Stormtech SC-310)



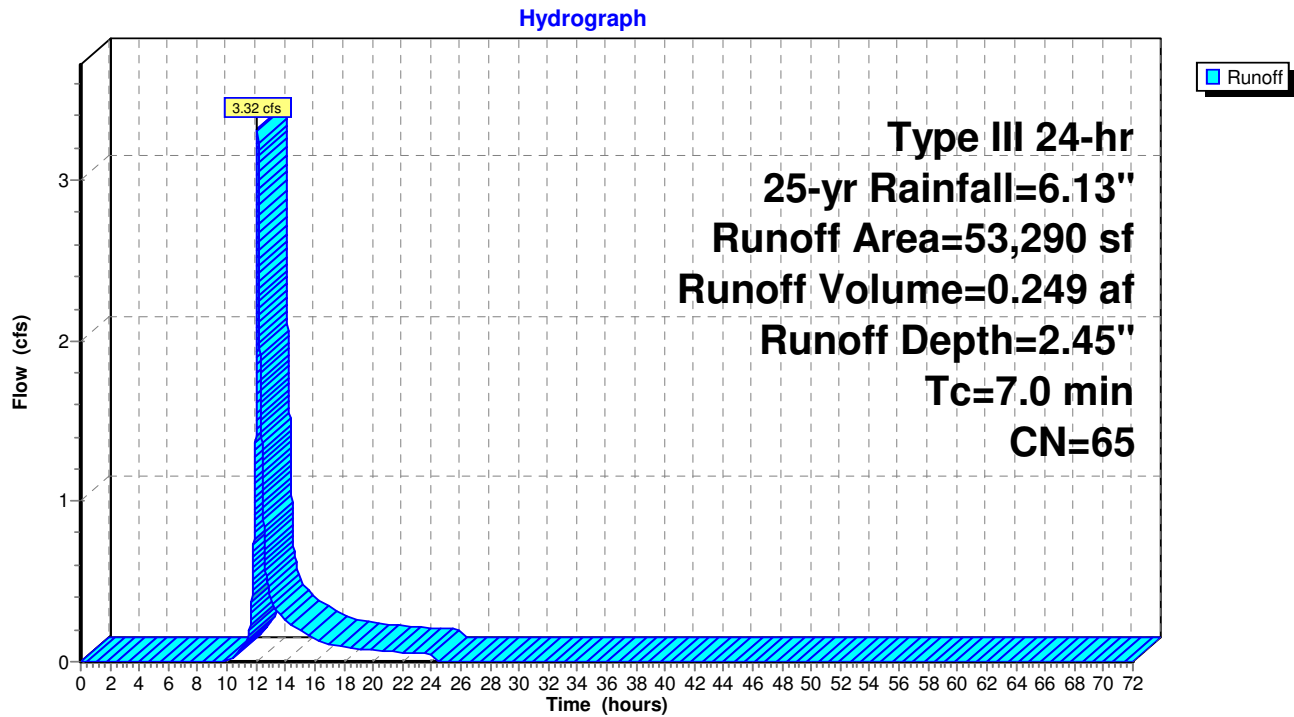
Link DP3*: (DP3*) Proposed Flow to Sullivan Ave



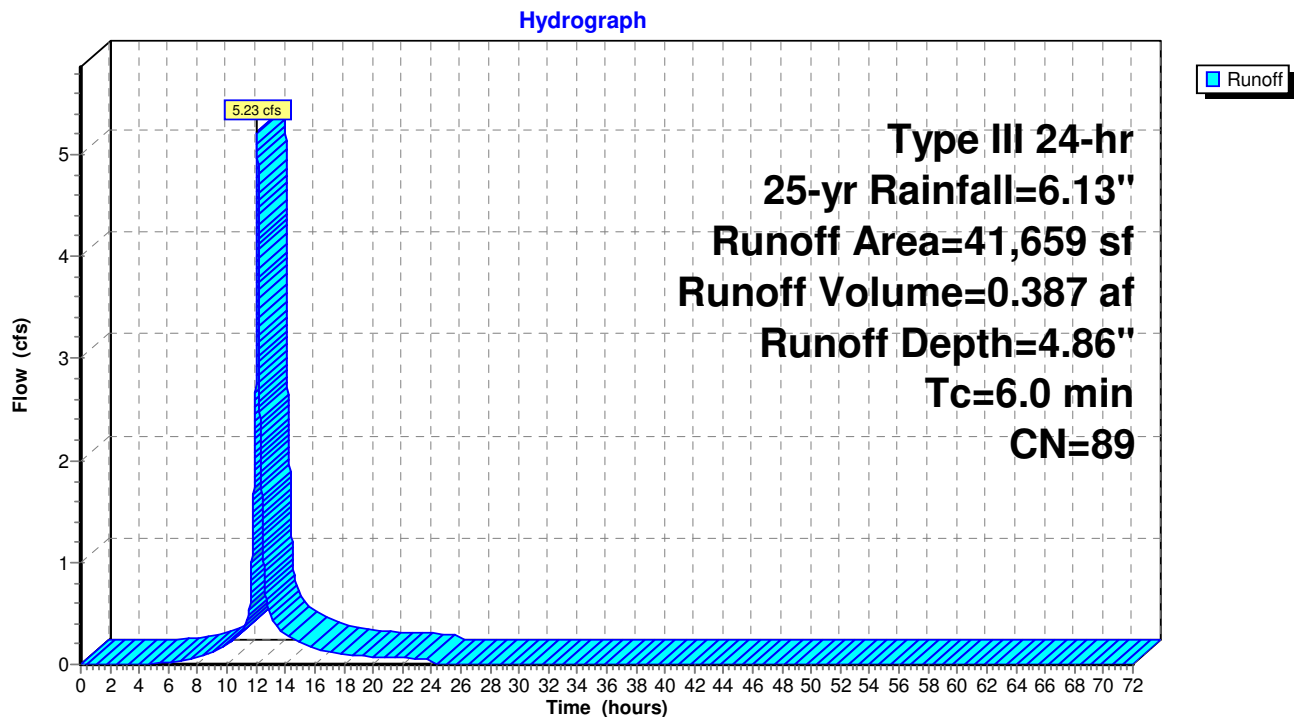
Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System



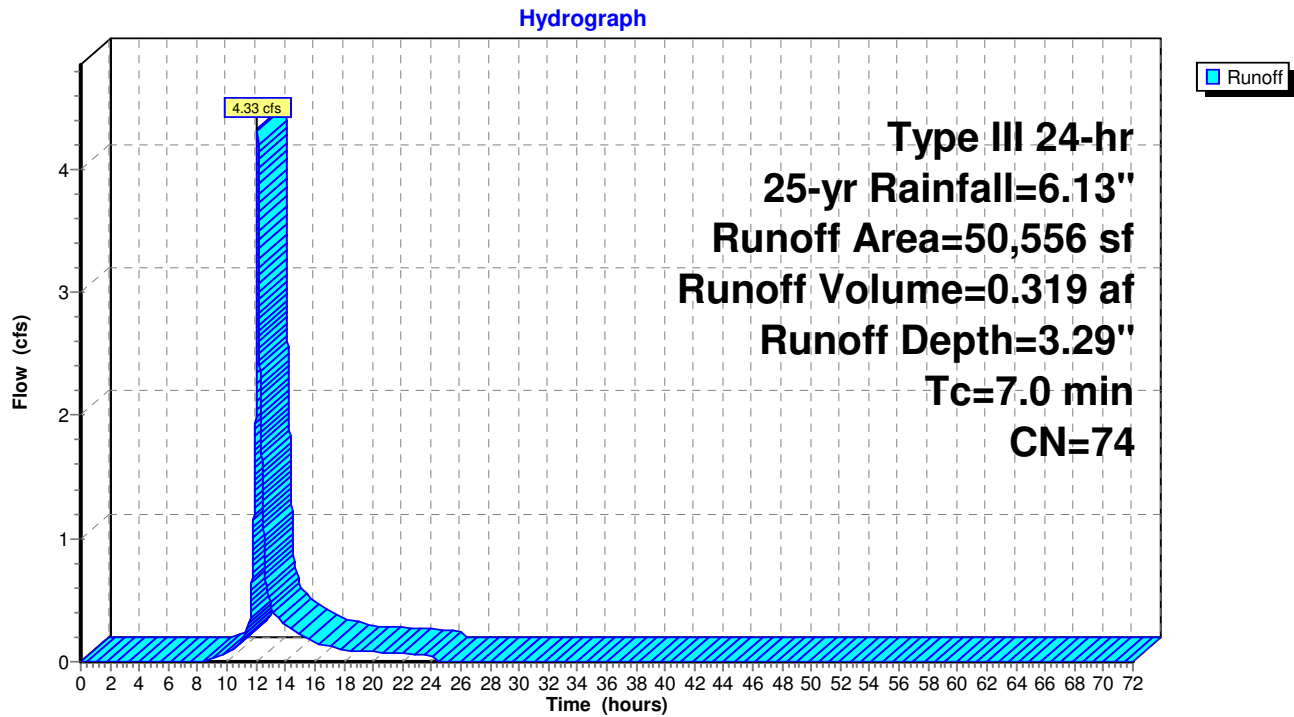
Subcatchment P1: Yard Drains to UGC-B



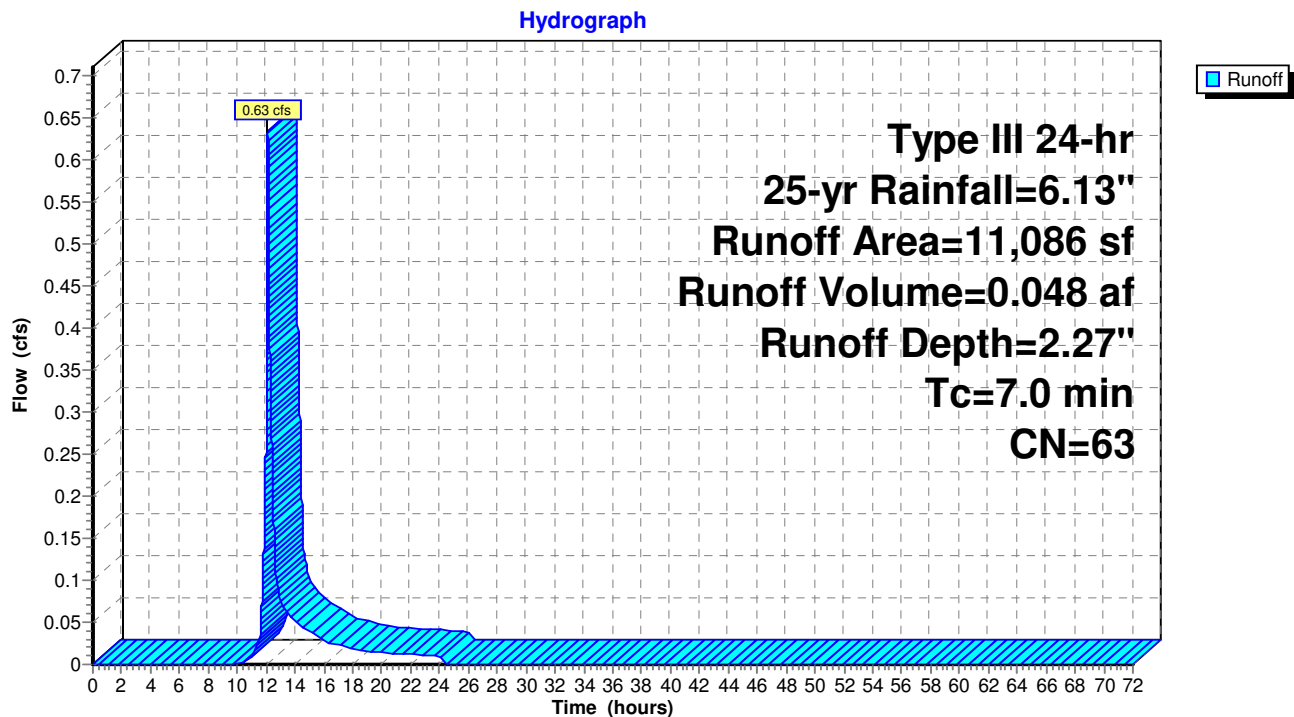
Subcatchment P10: Culdesac



Subcatchment P11: Yard Drains to UGC-A



Subcatchment P12: Yard Drains to UGC-C



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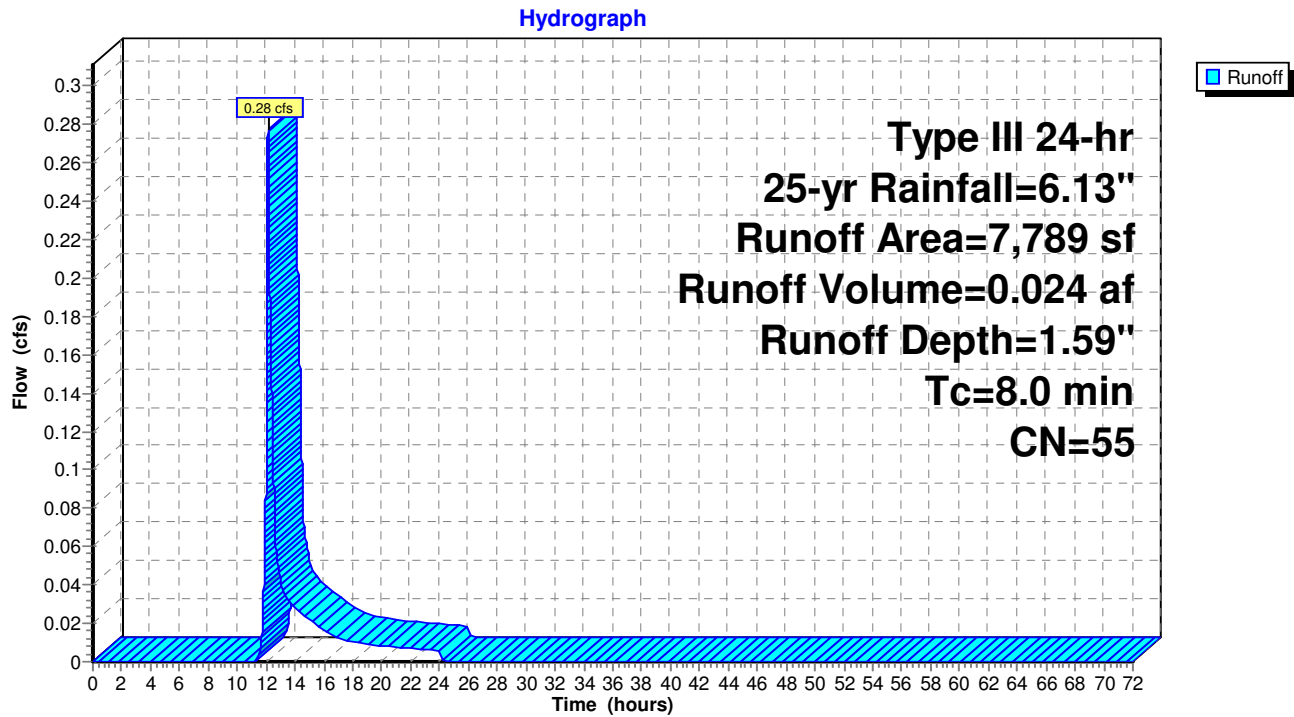
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Proposed Condition
Type III 24-hr 25-yr Rainfall=6.13"

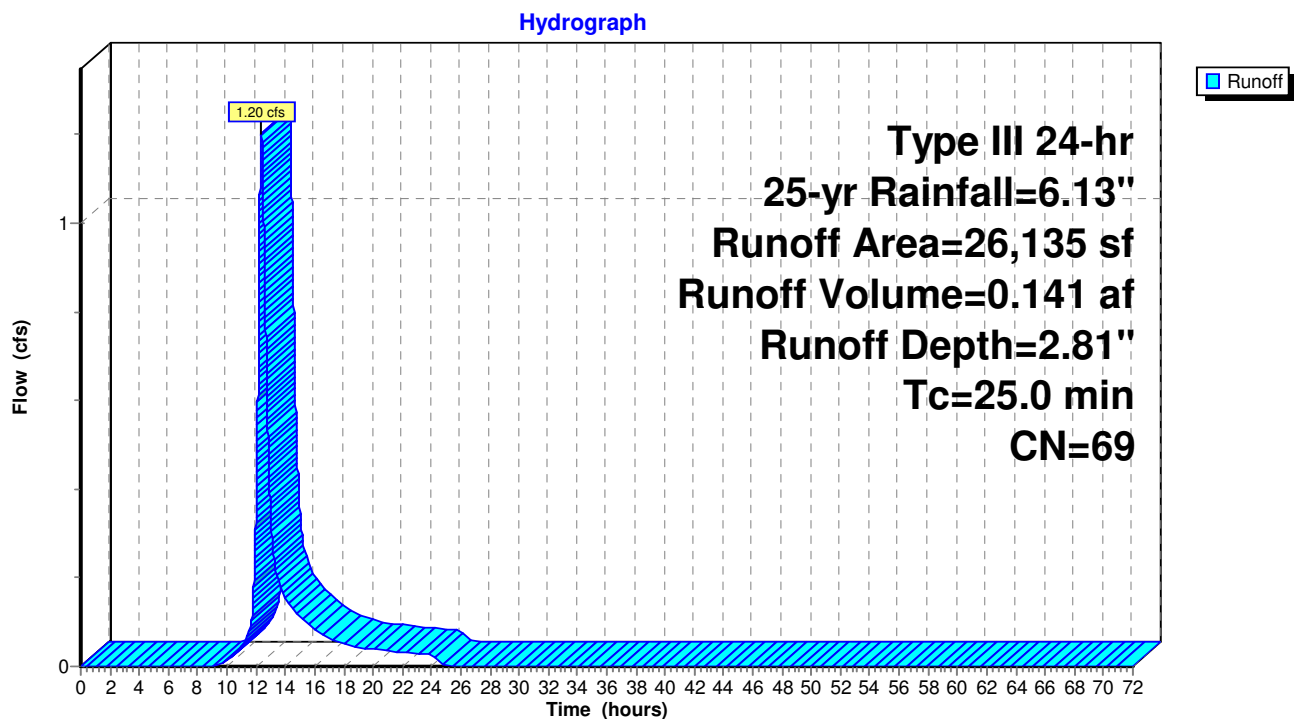
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Subcatchment P2: (DP2*) Proposed Flow across North West Property Corner

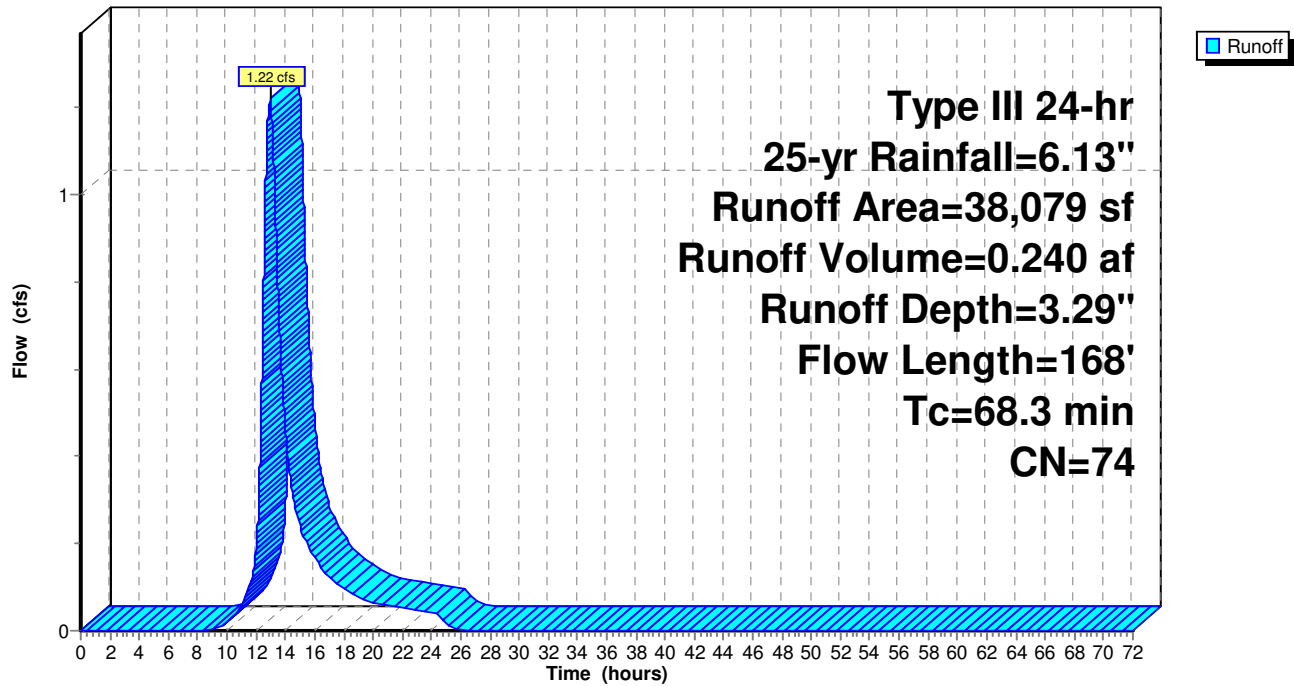


Subcatchment P3: P3



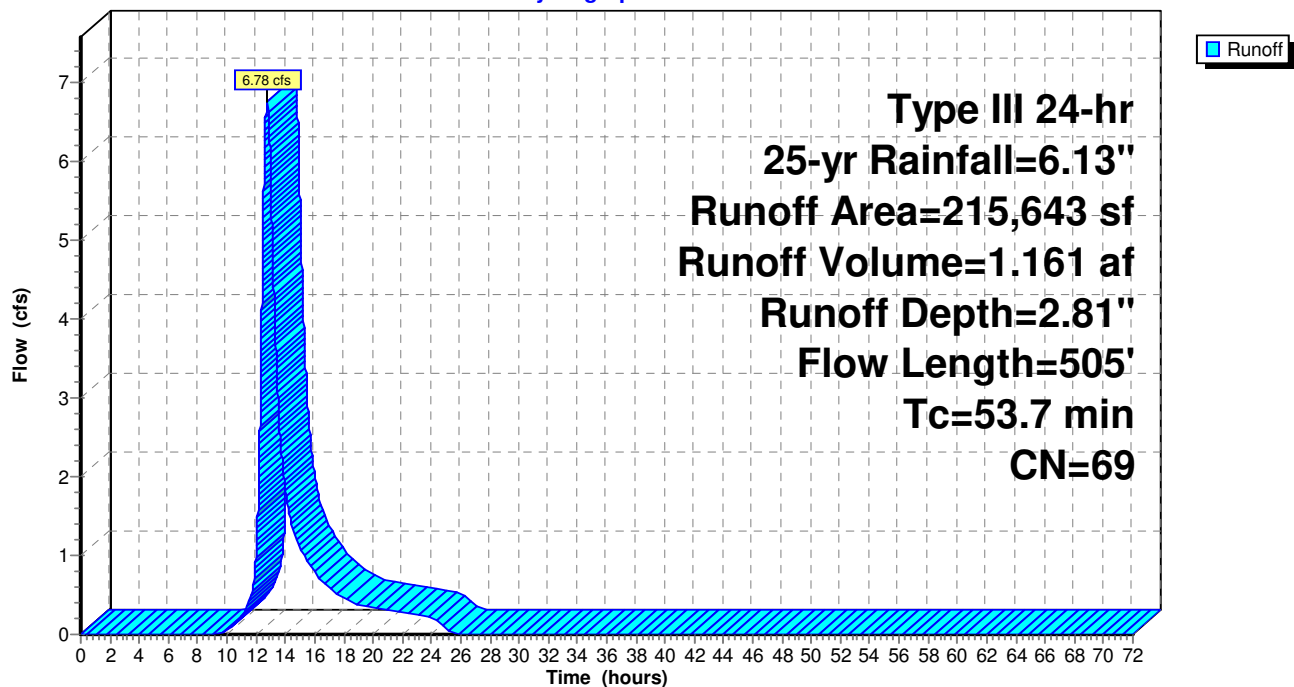
Subcatchment P4: P4

Hydrograph

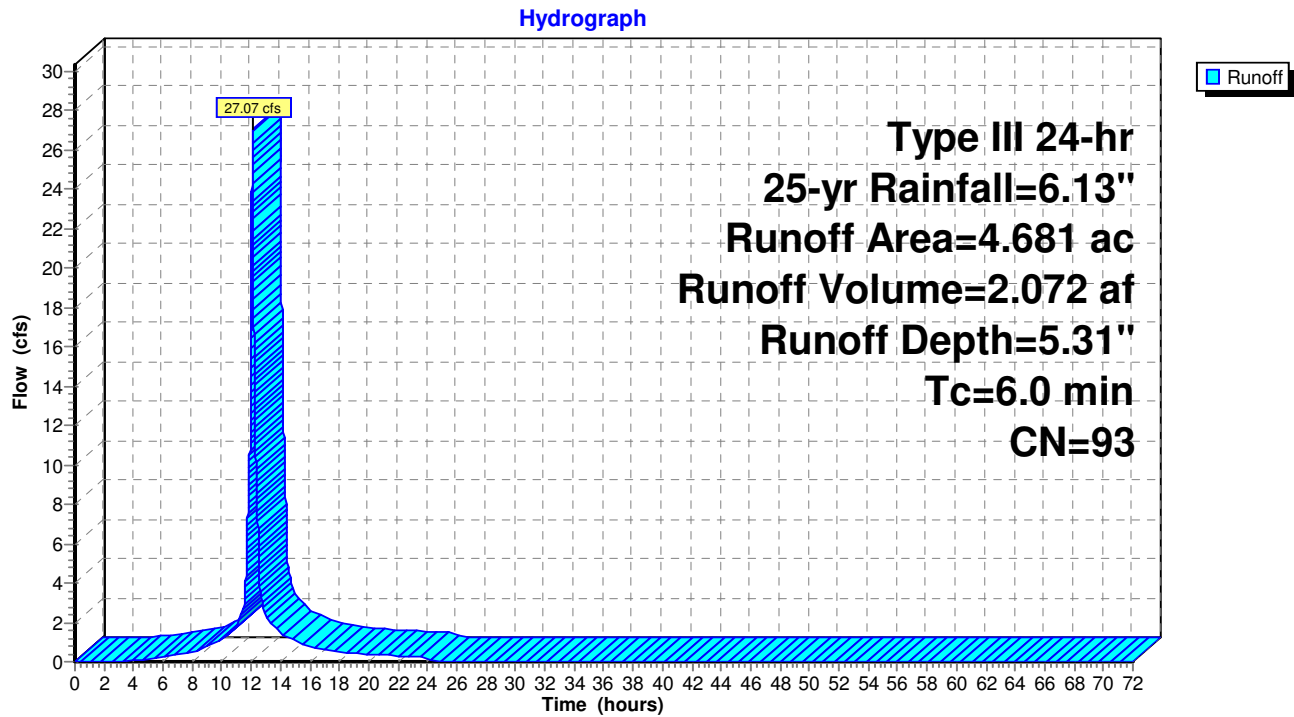


Subcatchment P5: P5

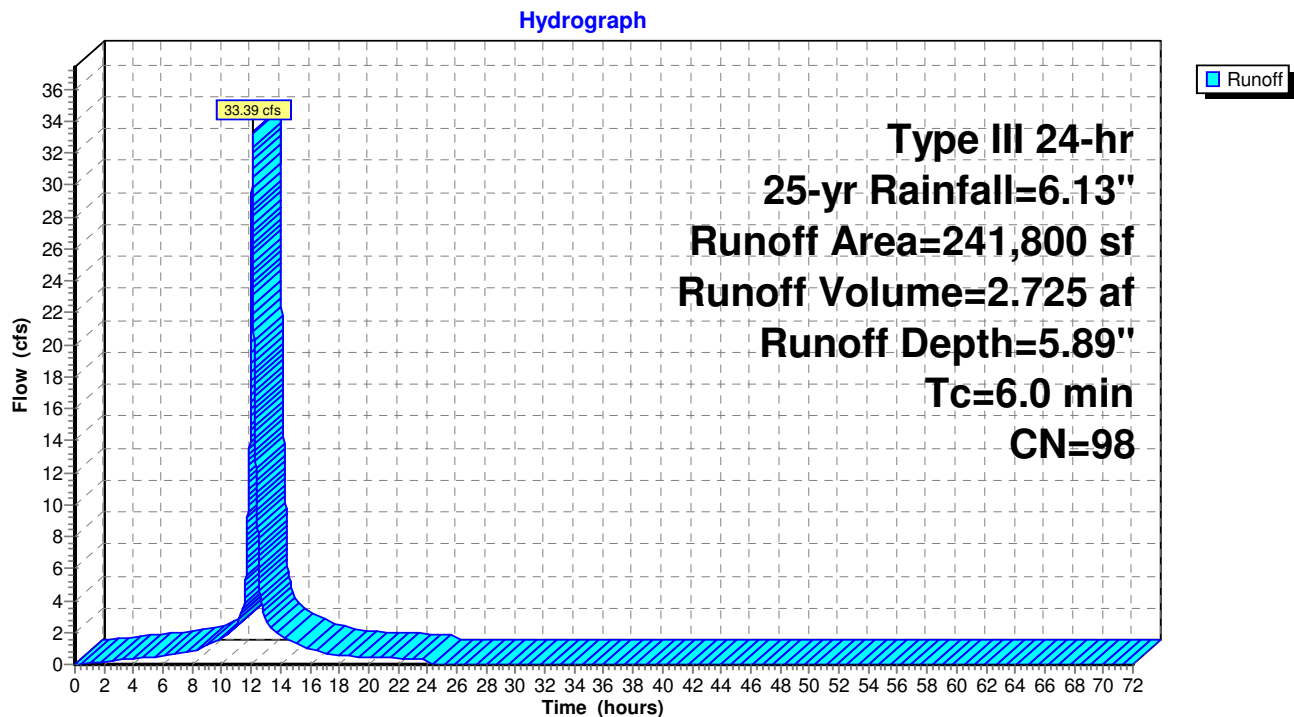
Hydrograph



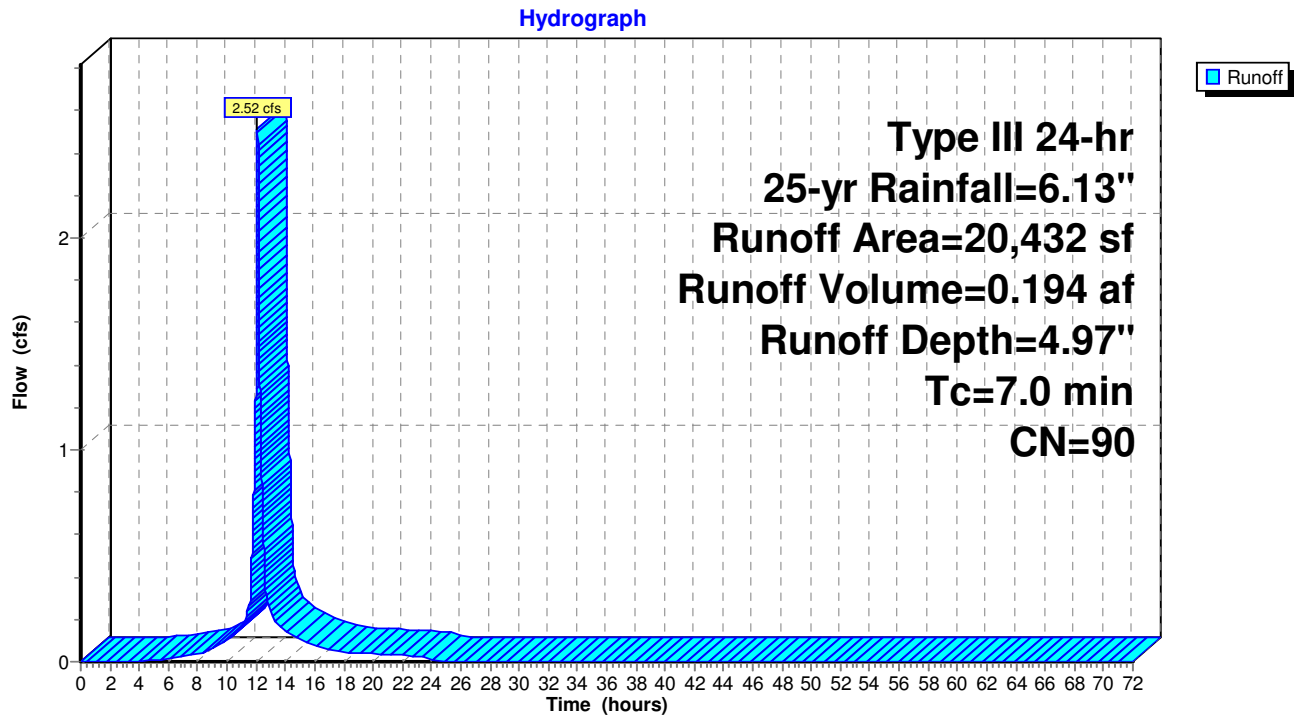
Subcatchment P6: Sheet flow To West Basin



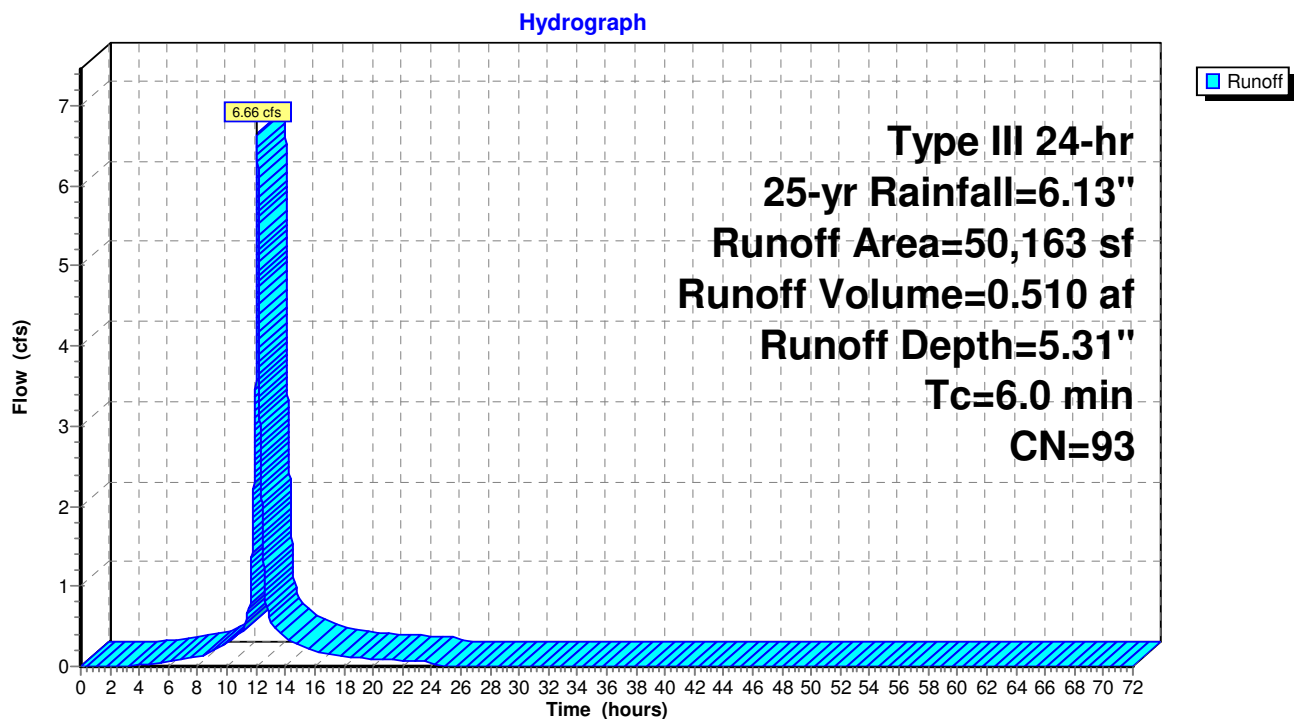
Subcatchment P7: Proposed Roof to UGC-D (WEST)



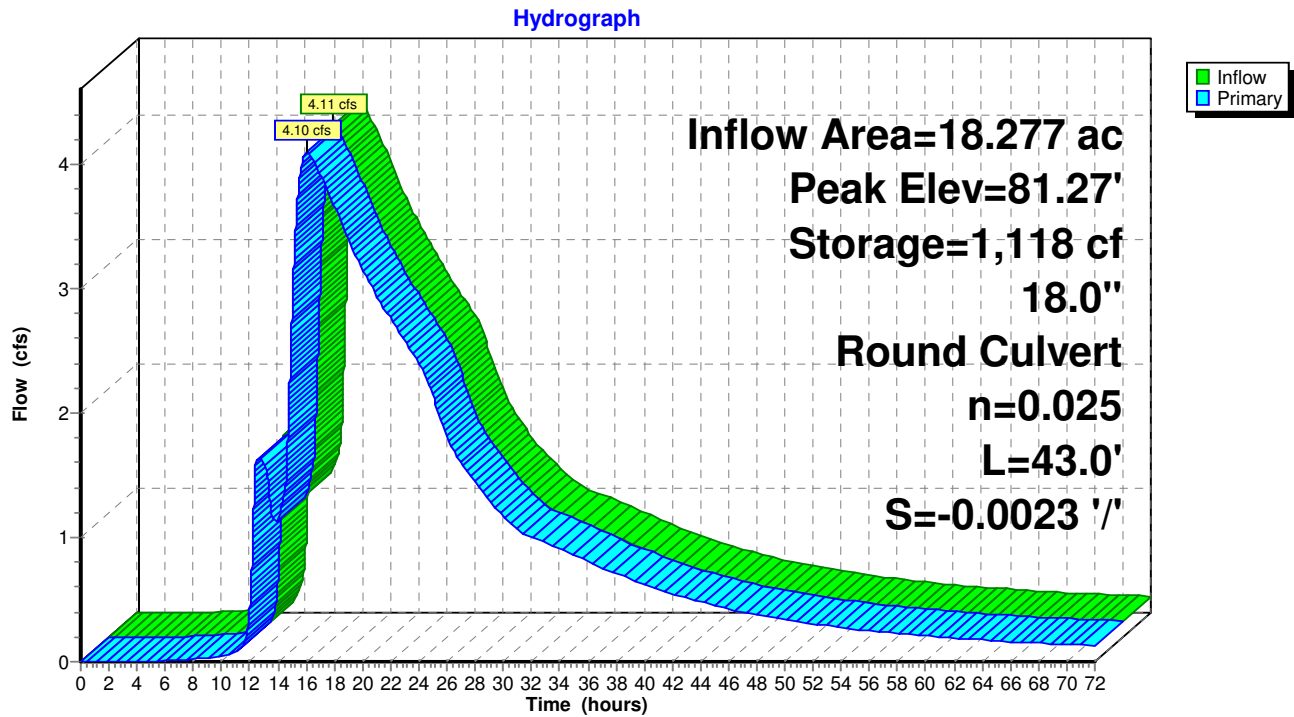
Subcatchment P8: North Truck Access Drive



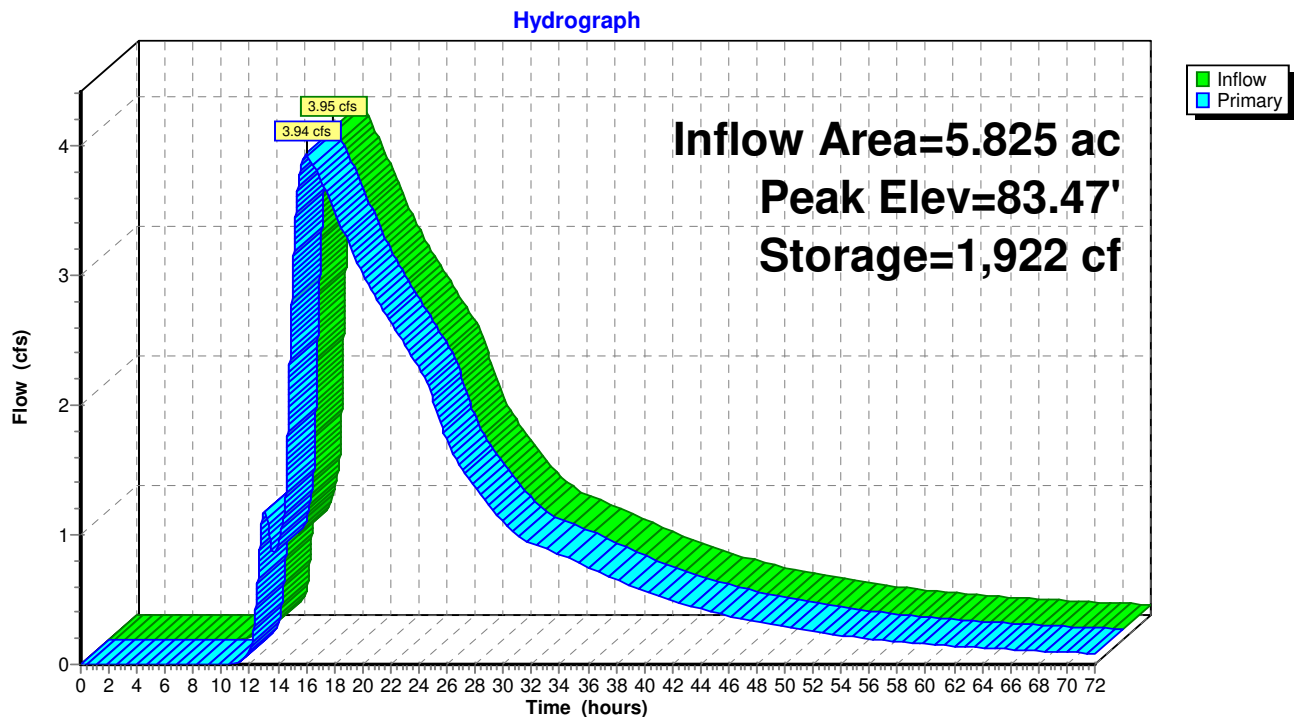
Subcatchment P9: CB's to UGC-E (East)



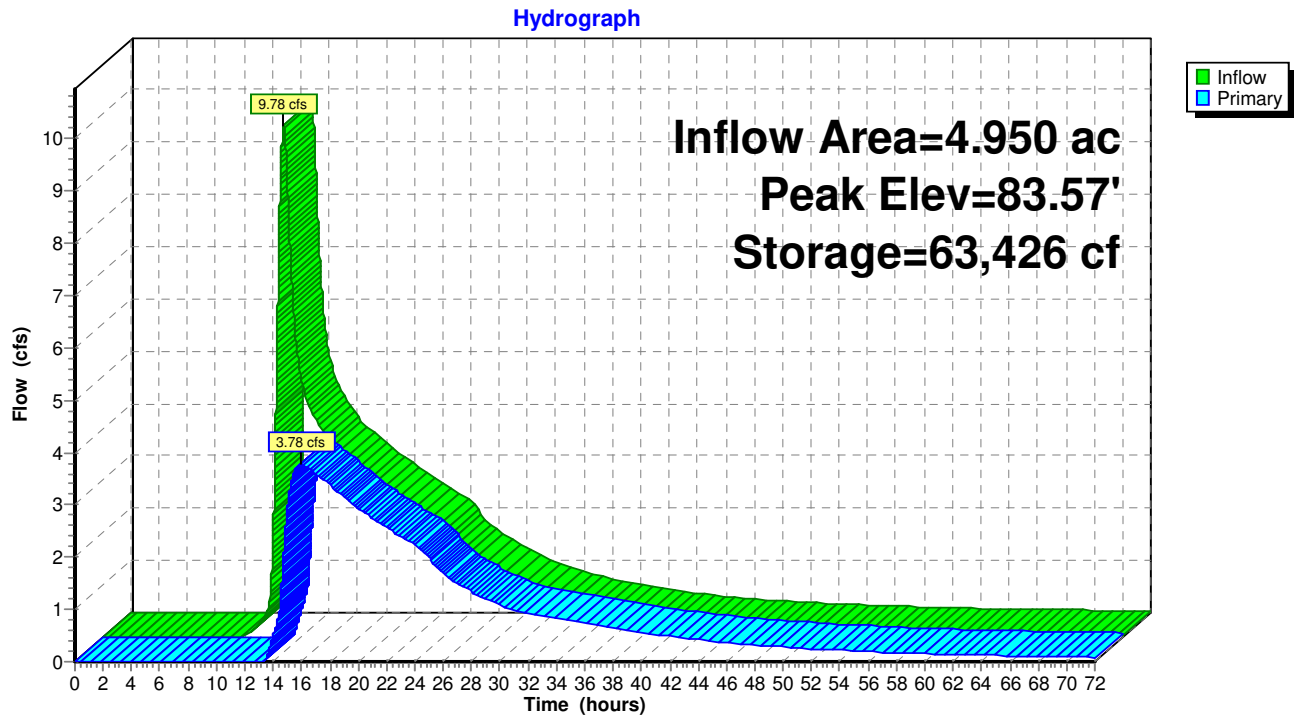
Pond EP1-A*: (DP1*) Proposed Condition - Rail Road Pond



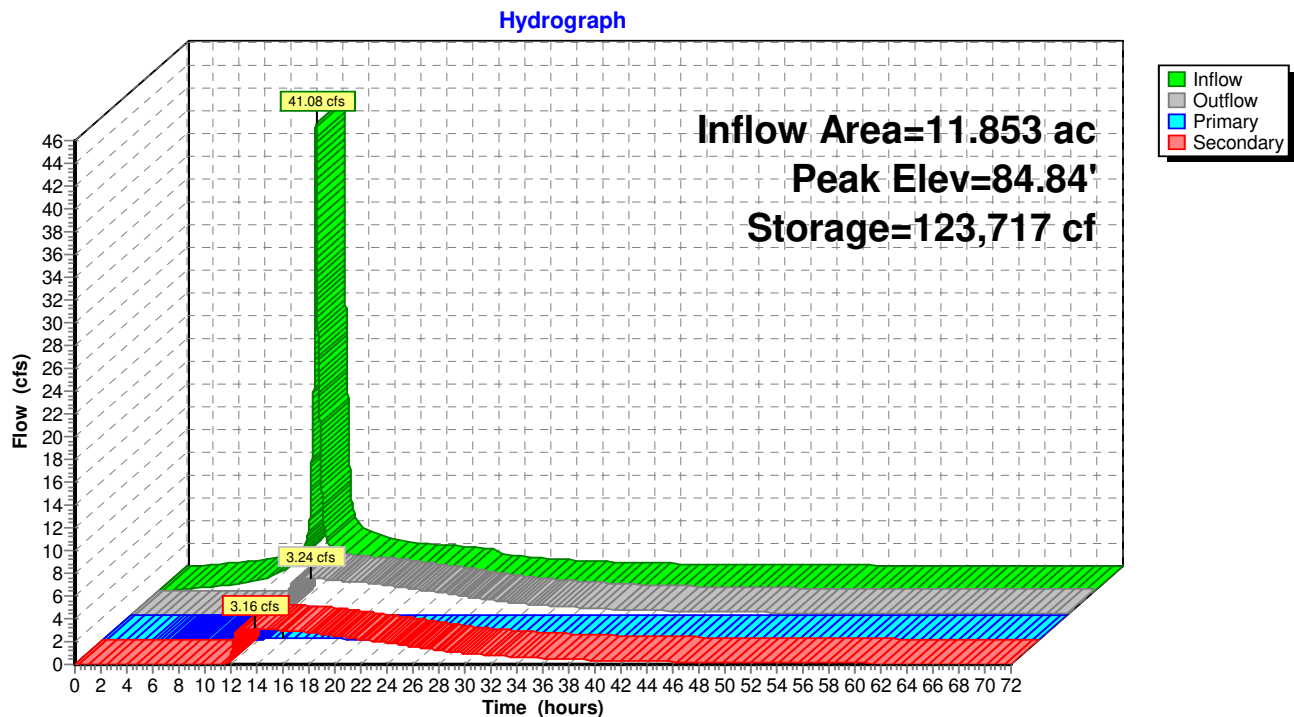
Pond EP1-B*: Proposed Condition - Existing Depression 2 (N)



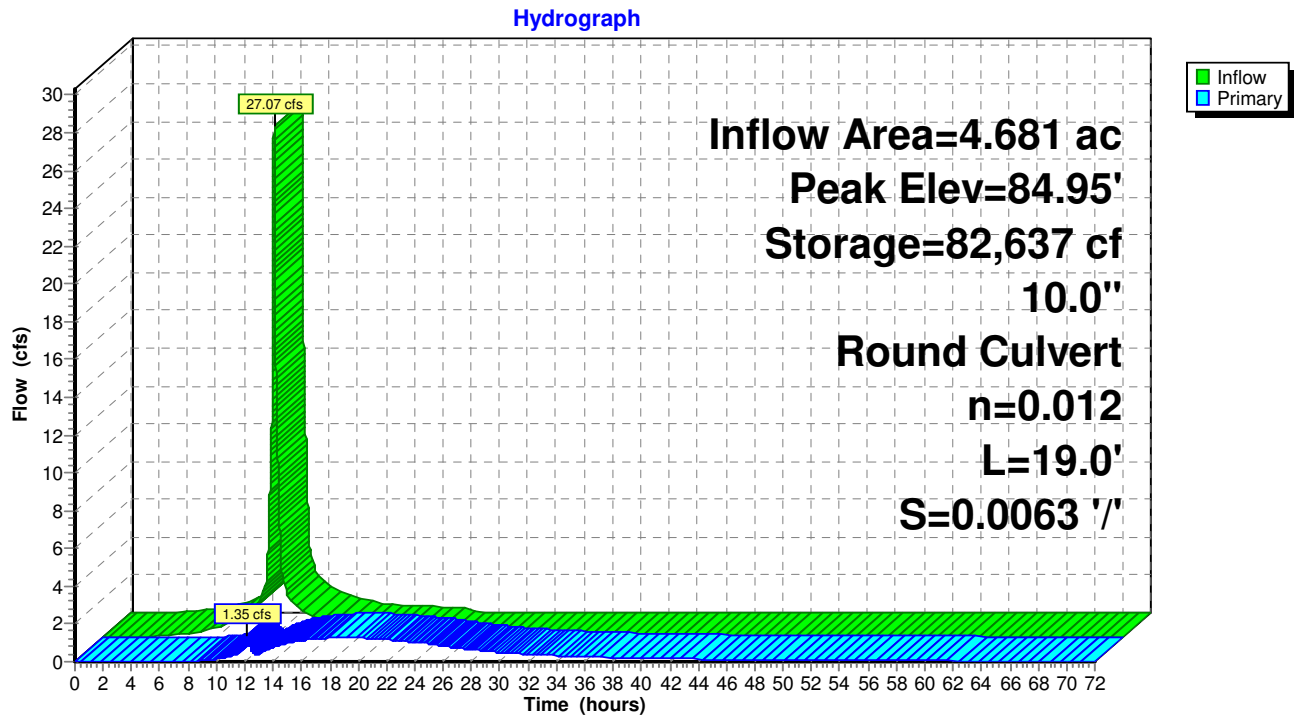
Pond EP1-C*: Proposed Condition - Existing Depressing 3 (NE)



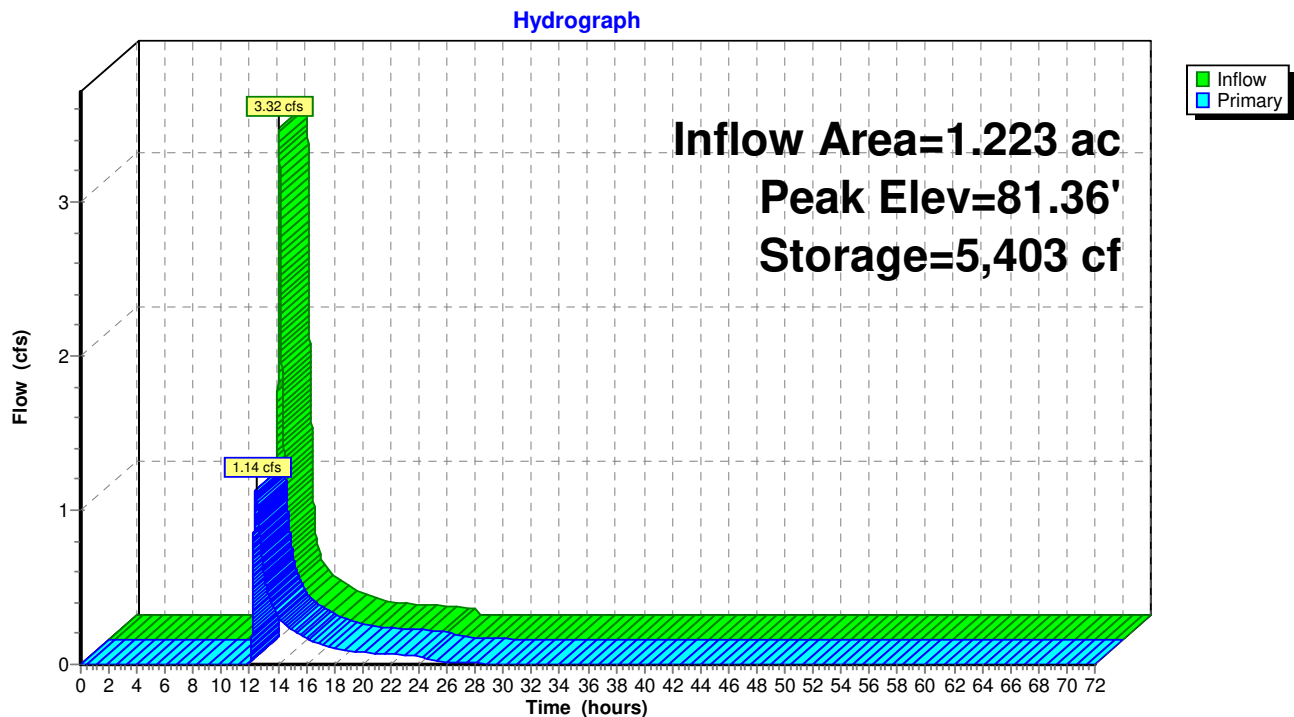
Pond PP1: UGC-D (Stormtech SC-740)



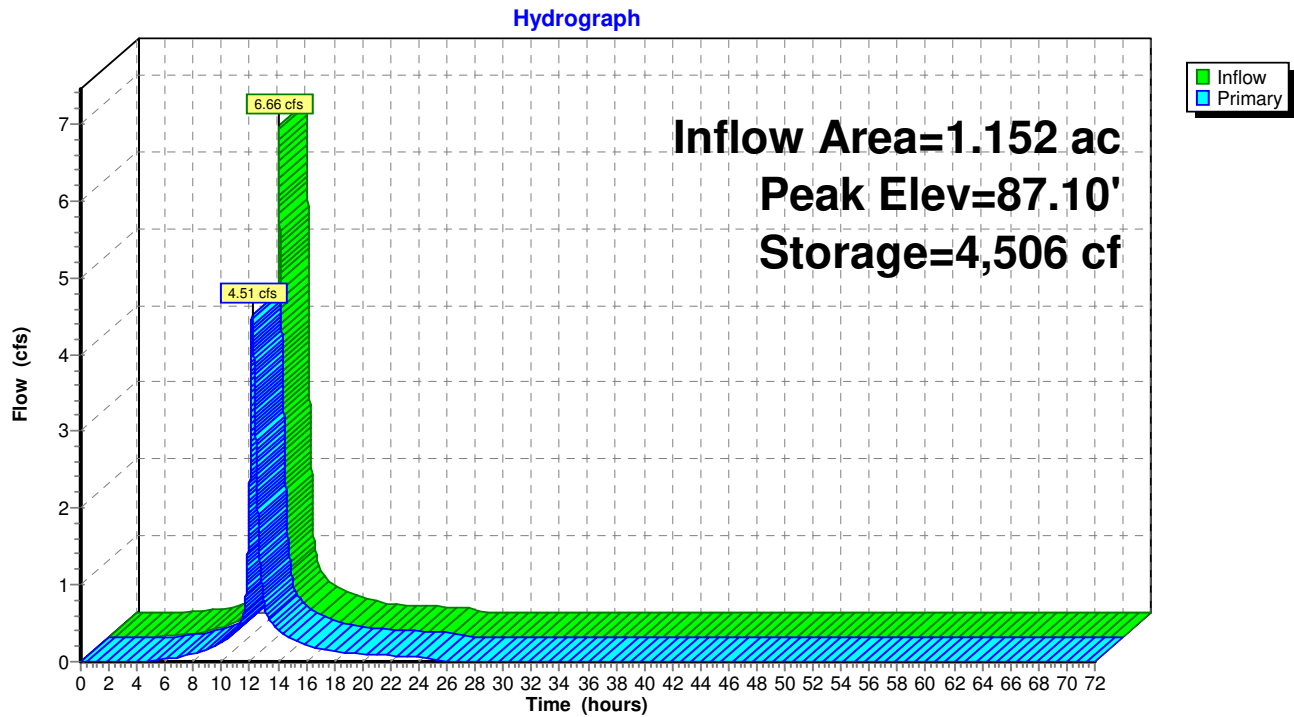
Pond PP2: Water Quality Basin (WEST)



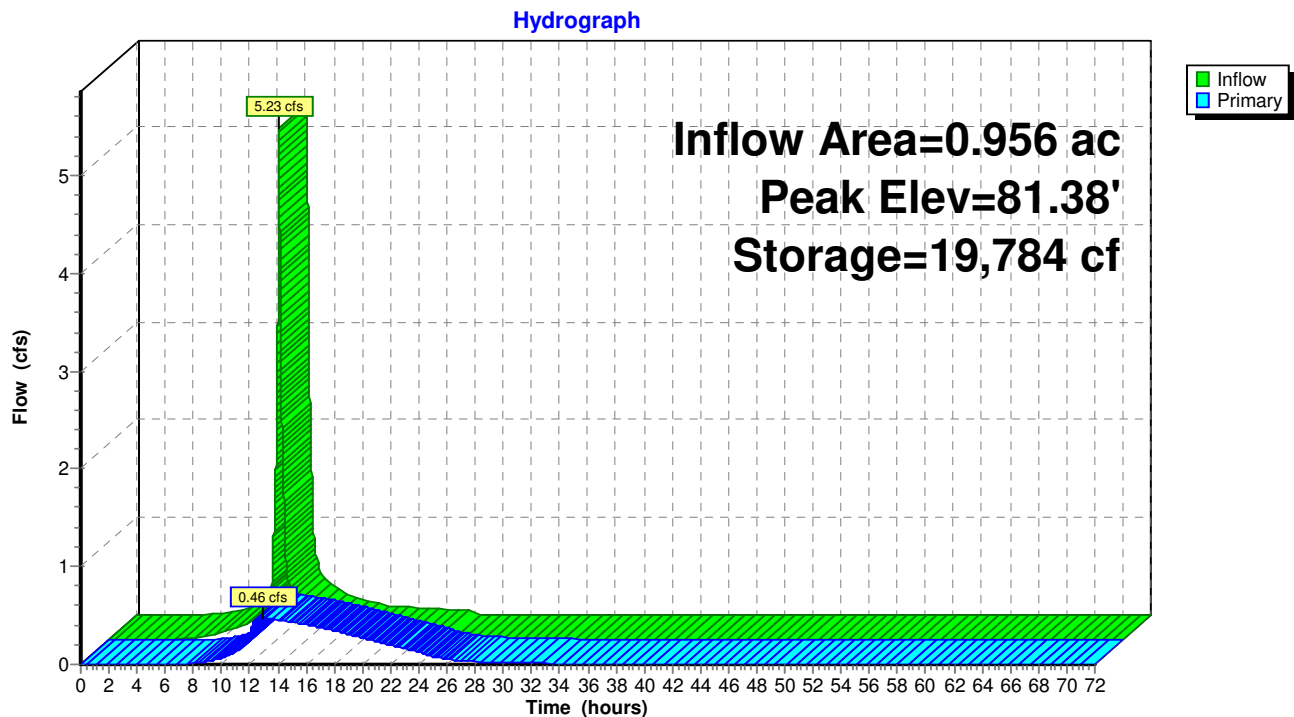
Pond PP3: UGC-B (Stormtech SC-310)



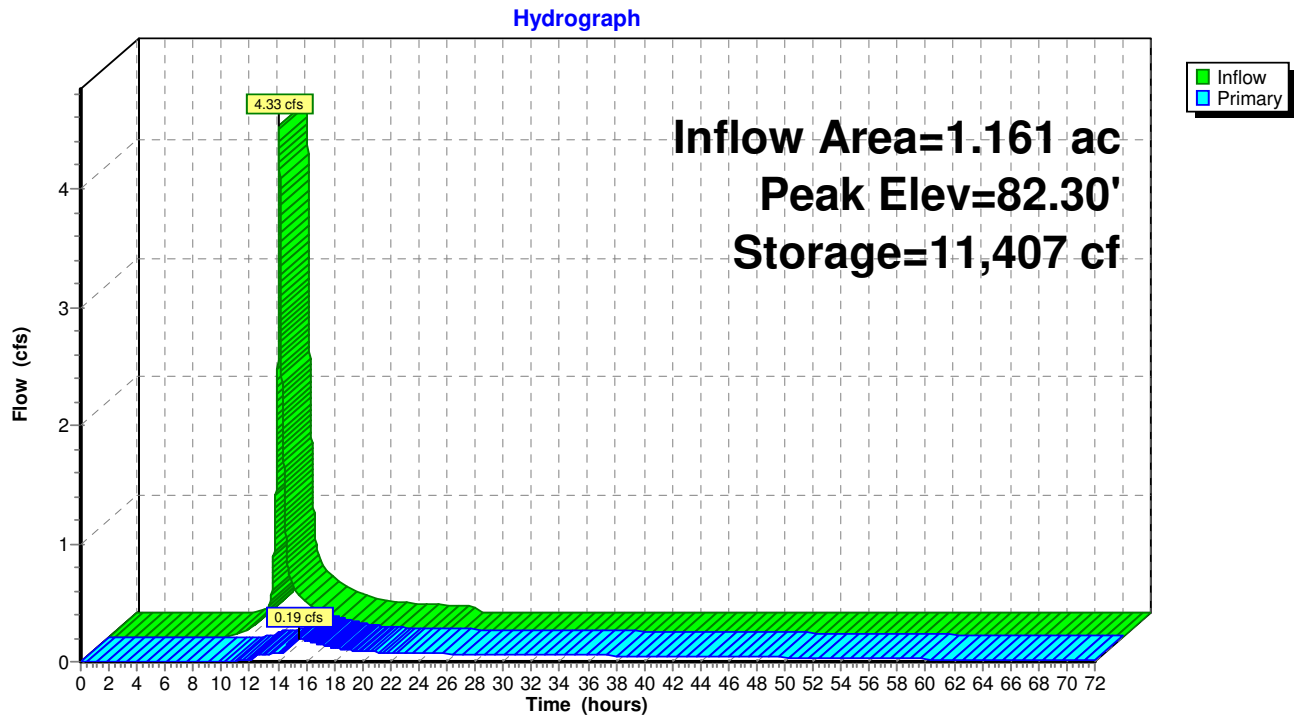
Pond PP4: UGC-E (Stormtech SC-310)



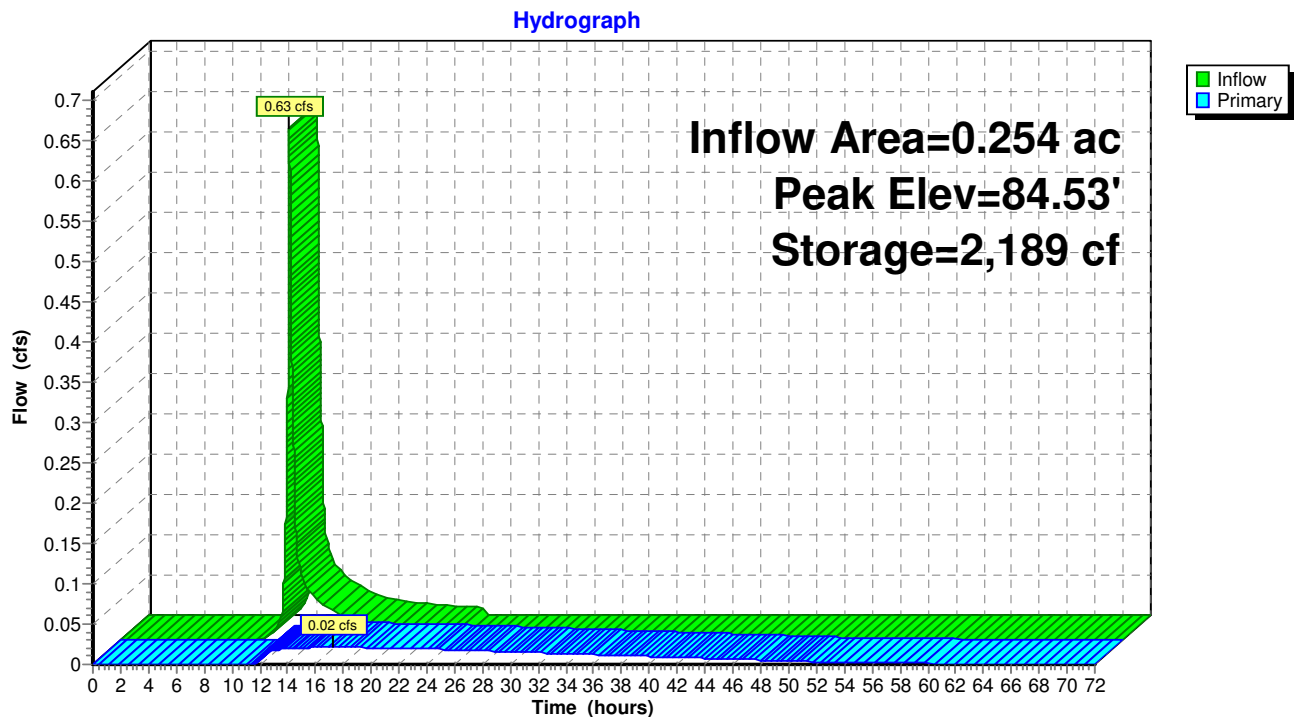
Pond PP5: Water Quality Basin (Kennedy Road)



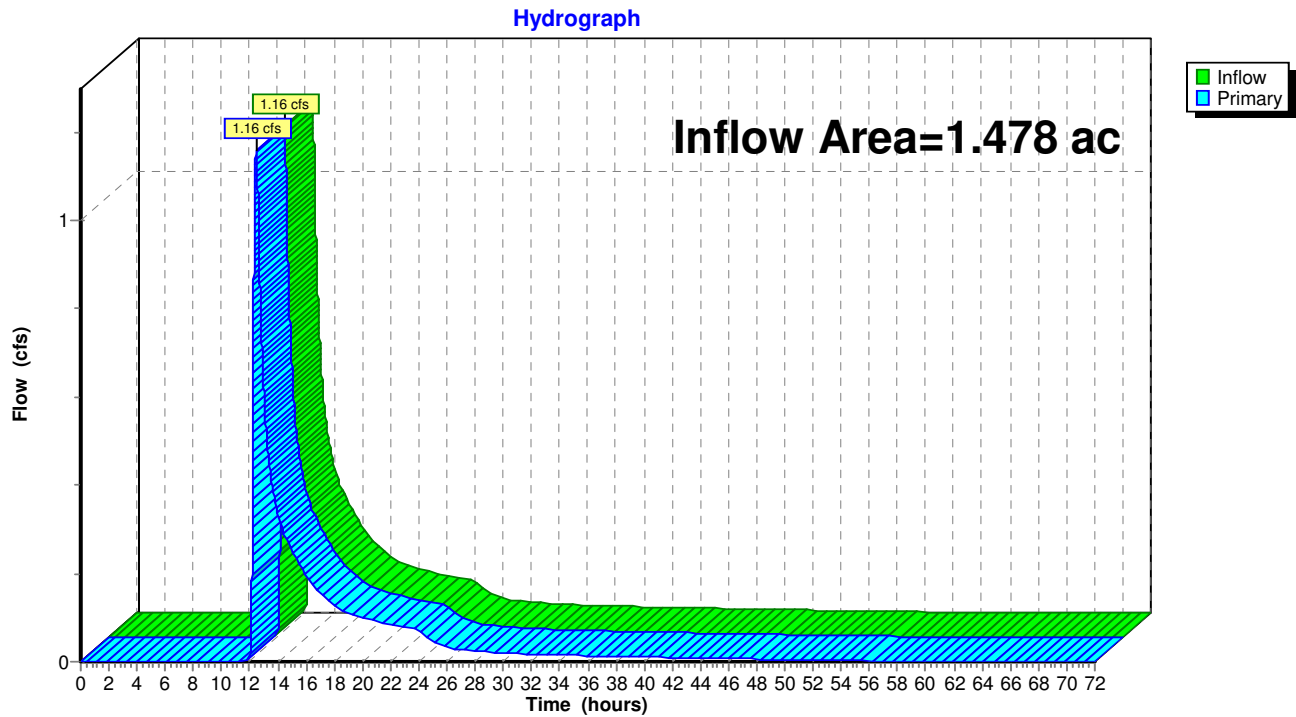
Pond PP6: UGC-A (Stormtech SC-740)



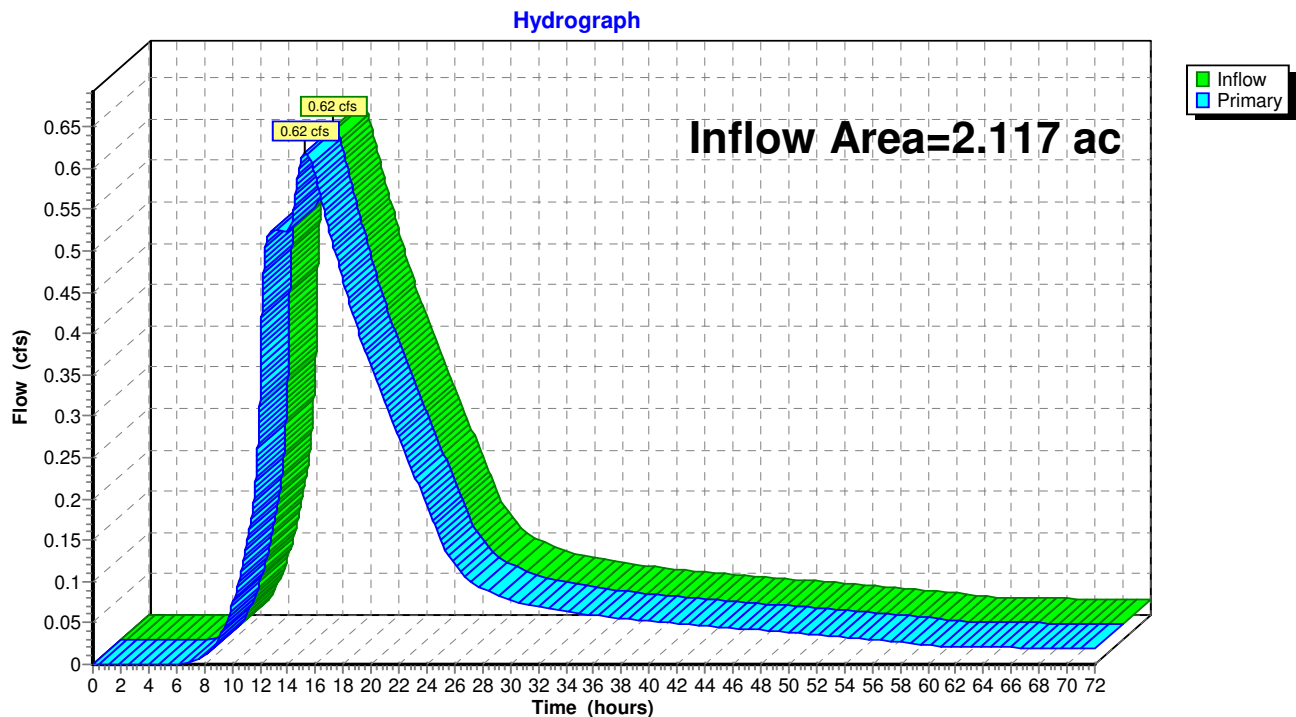
Pond PP7: UGC-C (Stormtech SC-310)



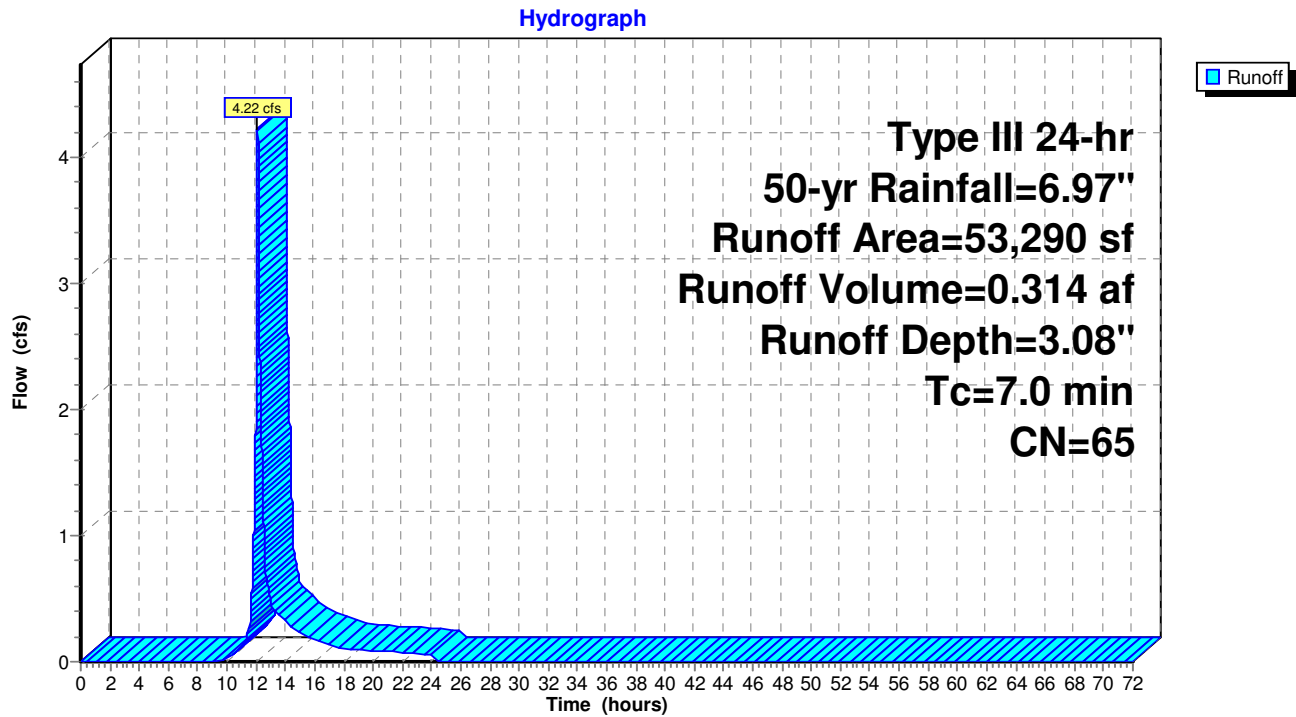
Link DP3*: (DP3*) Proposed Flow to Sullivan Ave



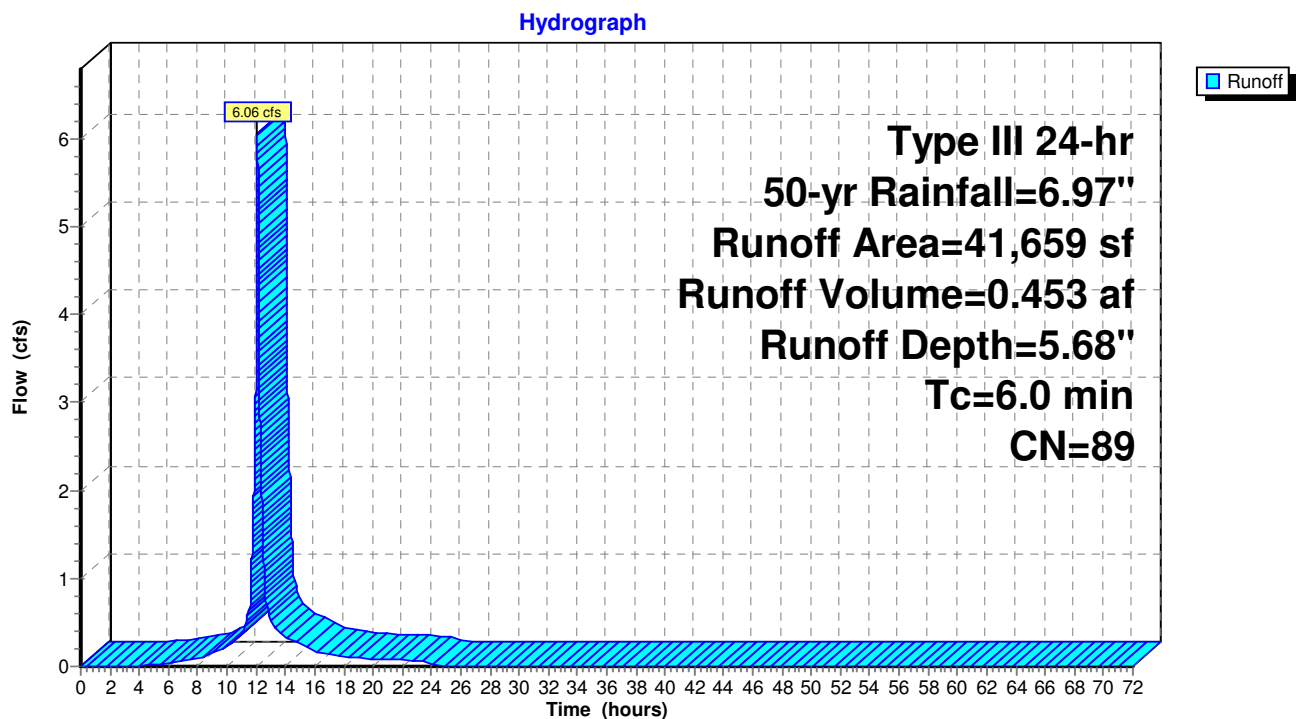
Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System



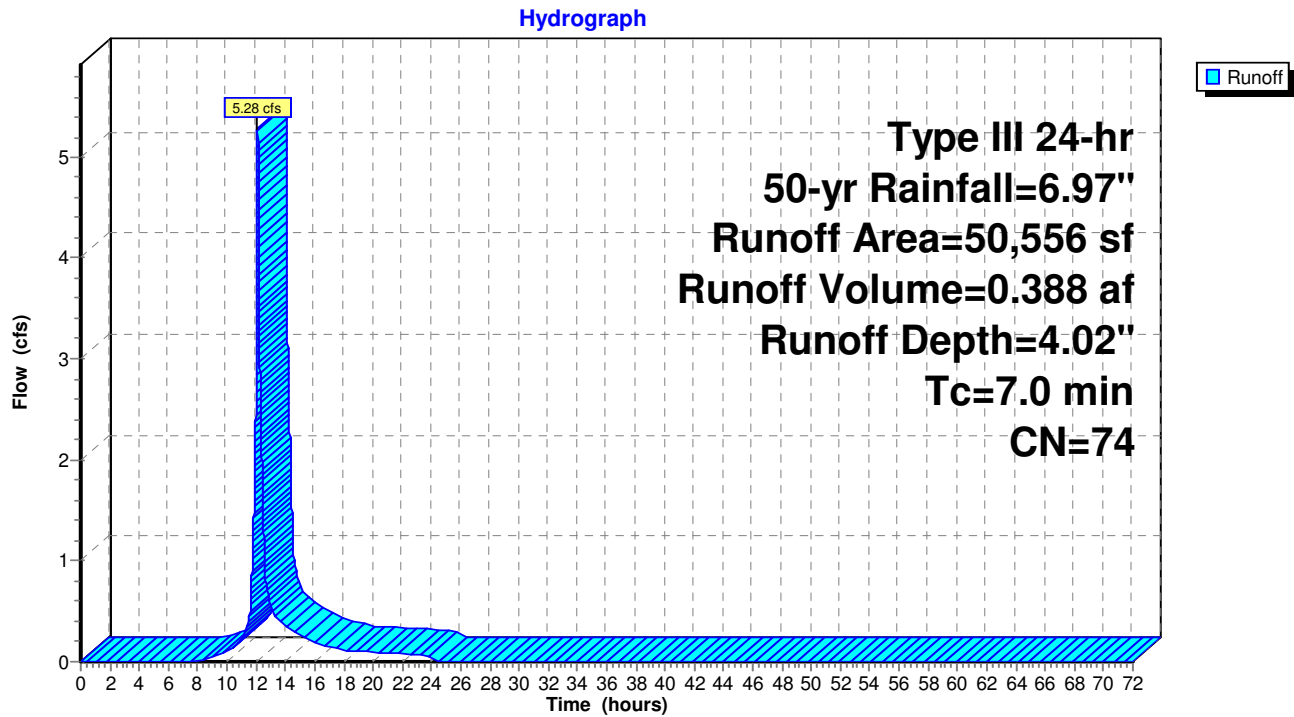
Subcatchment P1: Yard Drains to UGC-B



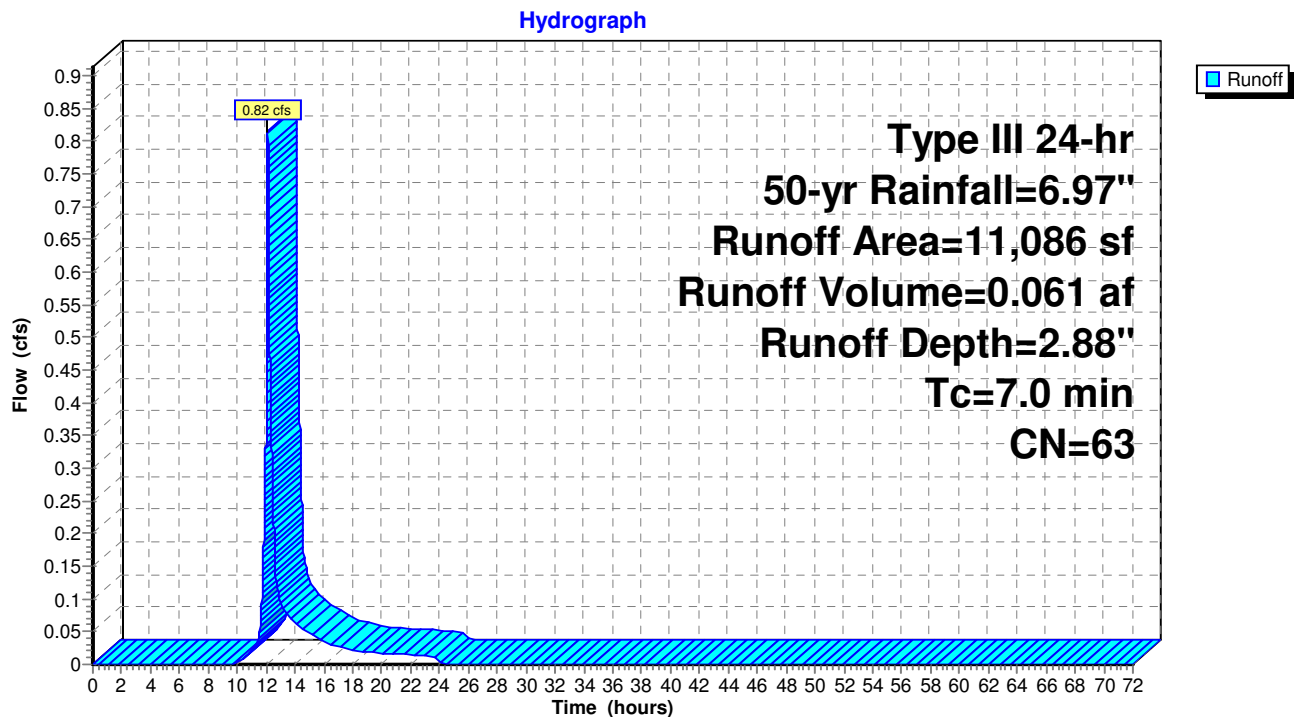
Subcatchment P10: Culdesac



Subcatchment P11: Yard Drains to UGC-A



Subcatchment P12: Yard Drains to UGC-C



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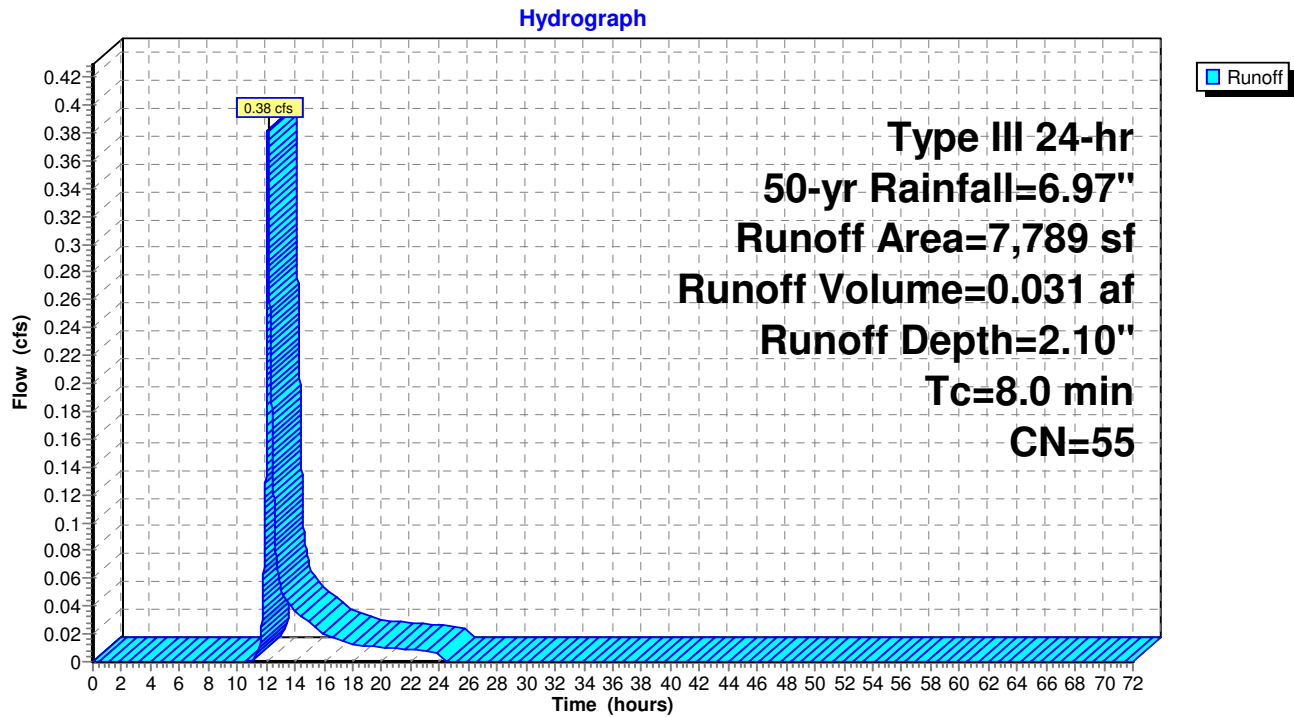
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Proposed Condition
Type III 24-hr 50-yr Rainfall=6.97"

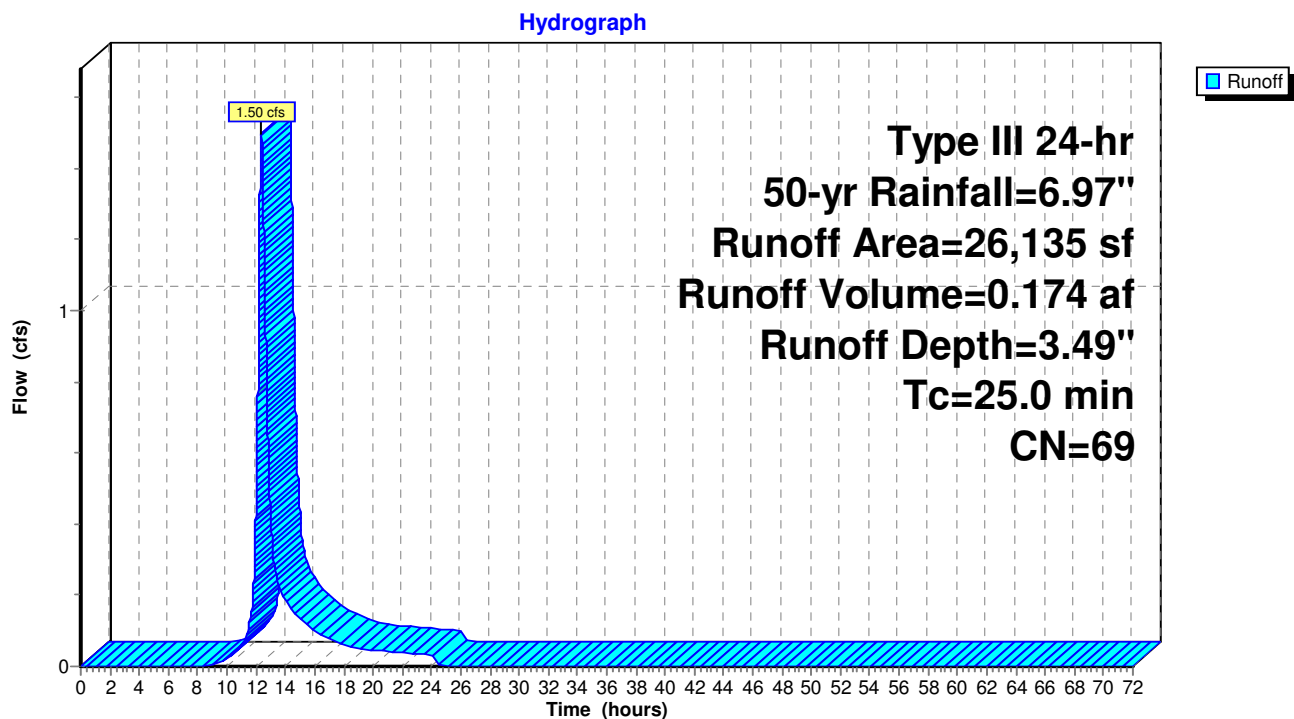
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Subcatchment P2: (DP2*) Proposed Flow across North West Property Corner

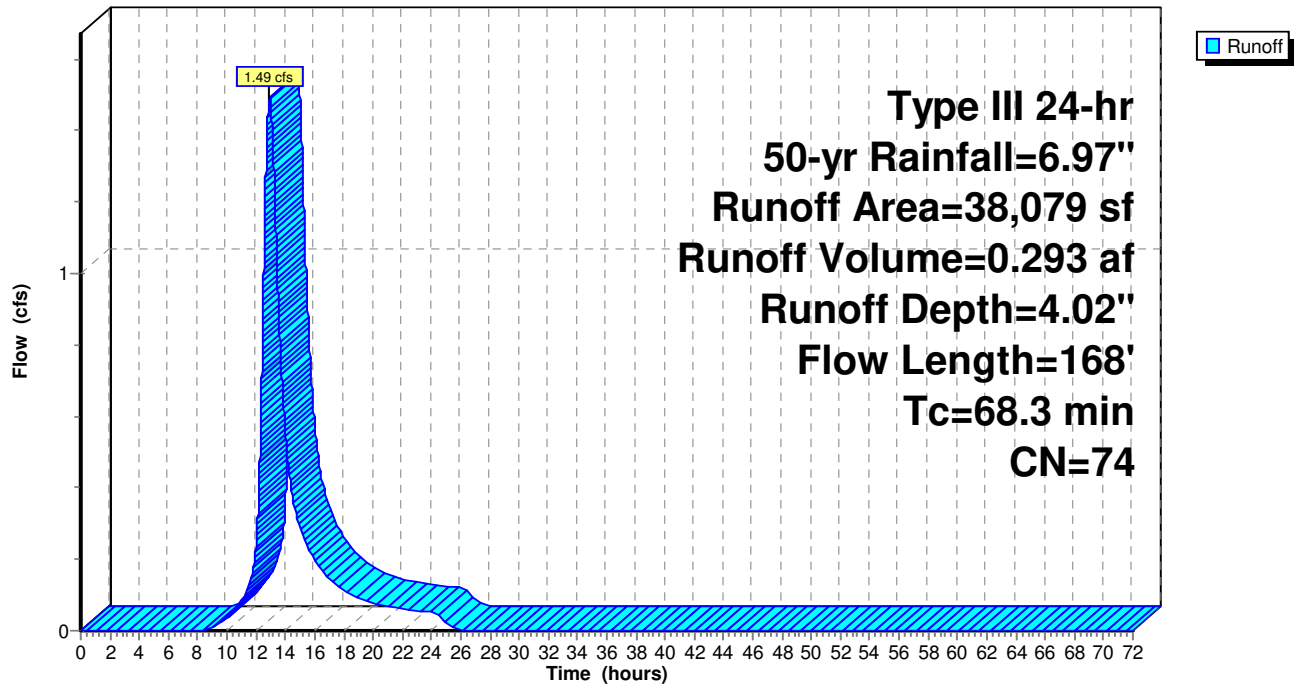


Subcatchment P3: P3



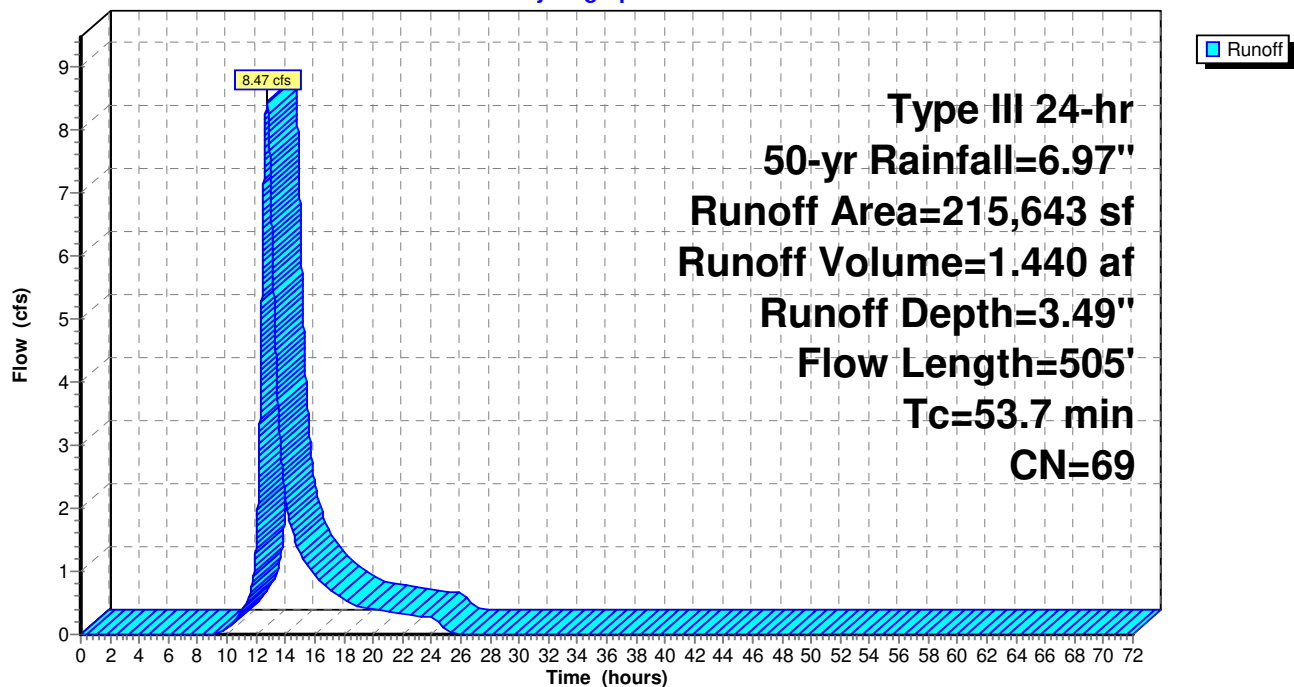
Subcatchment P4: P4

Hydrograph

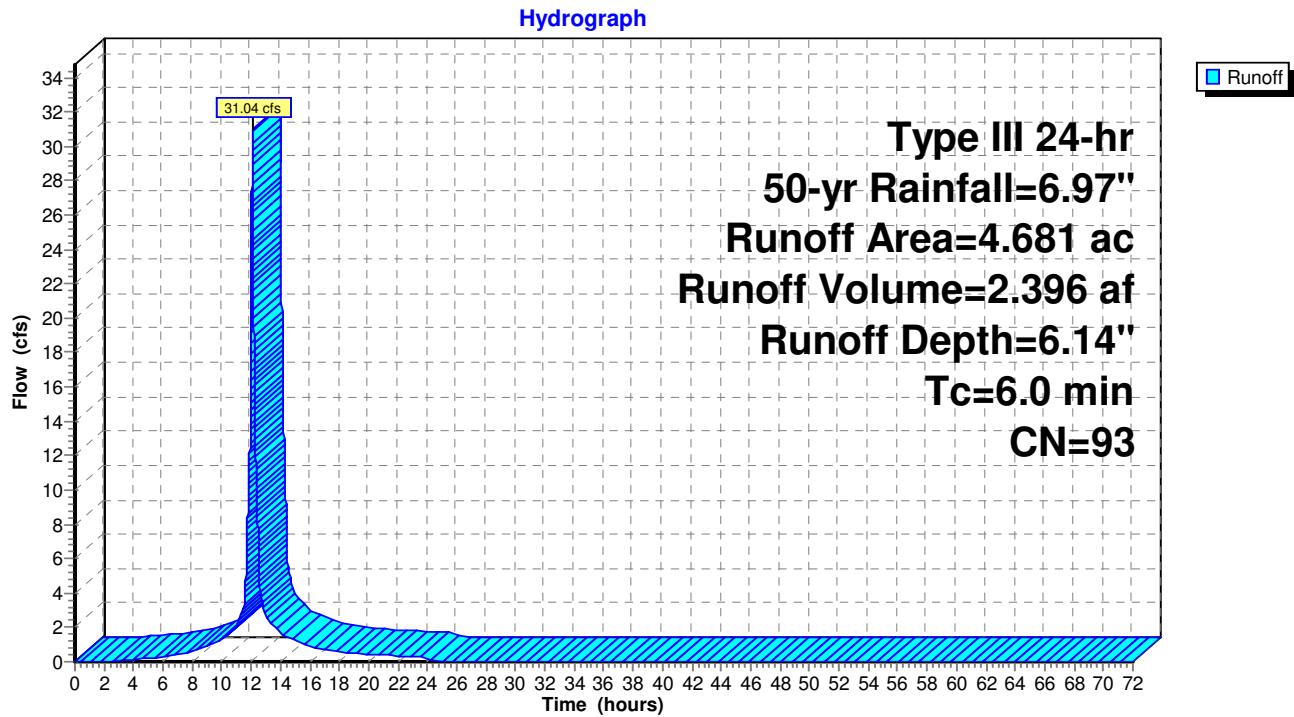


Subcatchment P5: P5

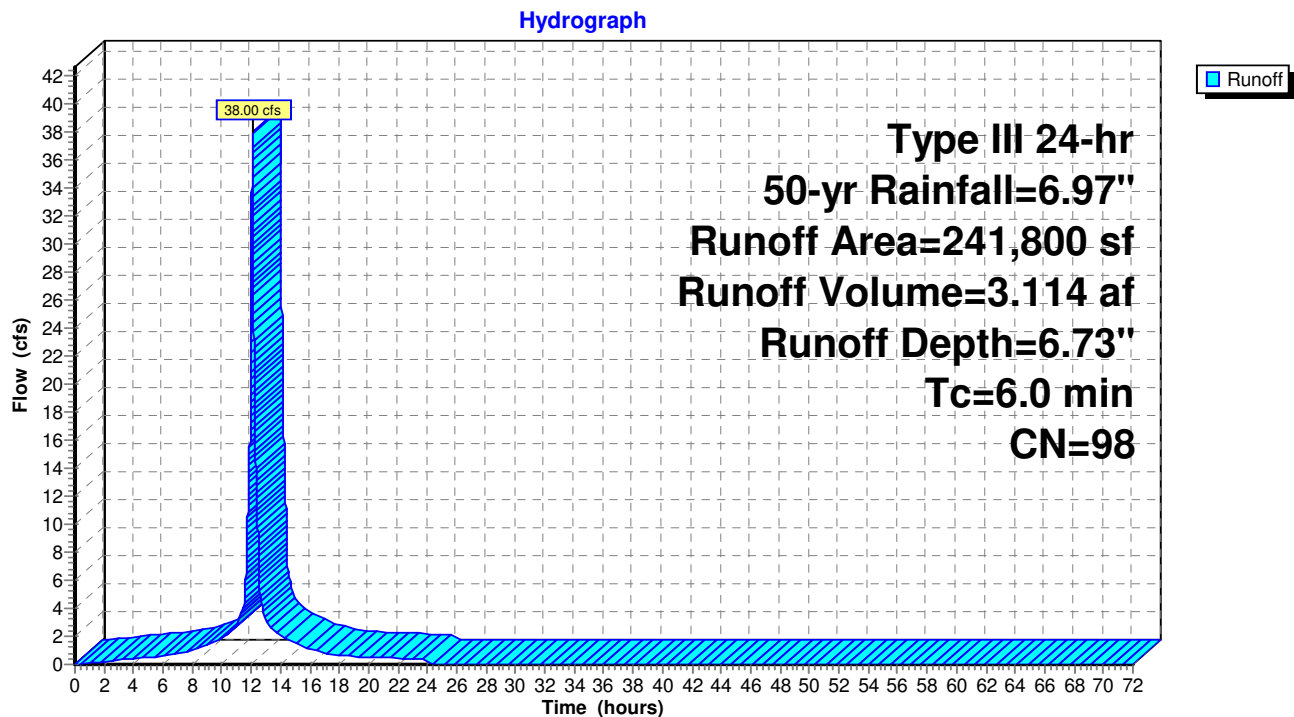
Hydrograph



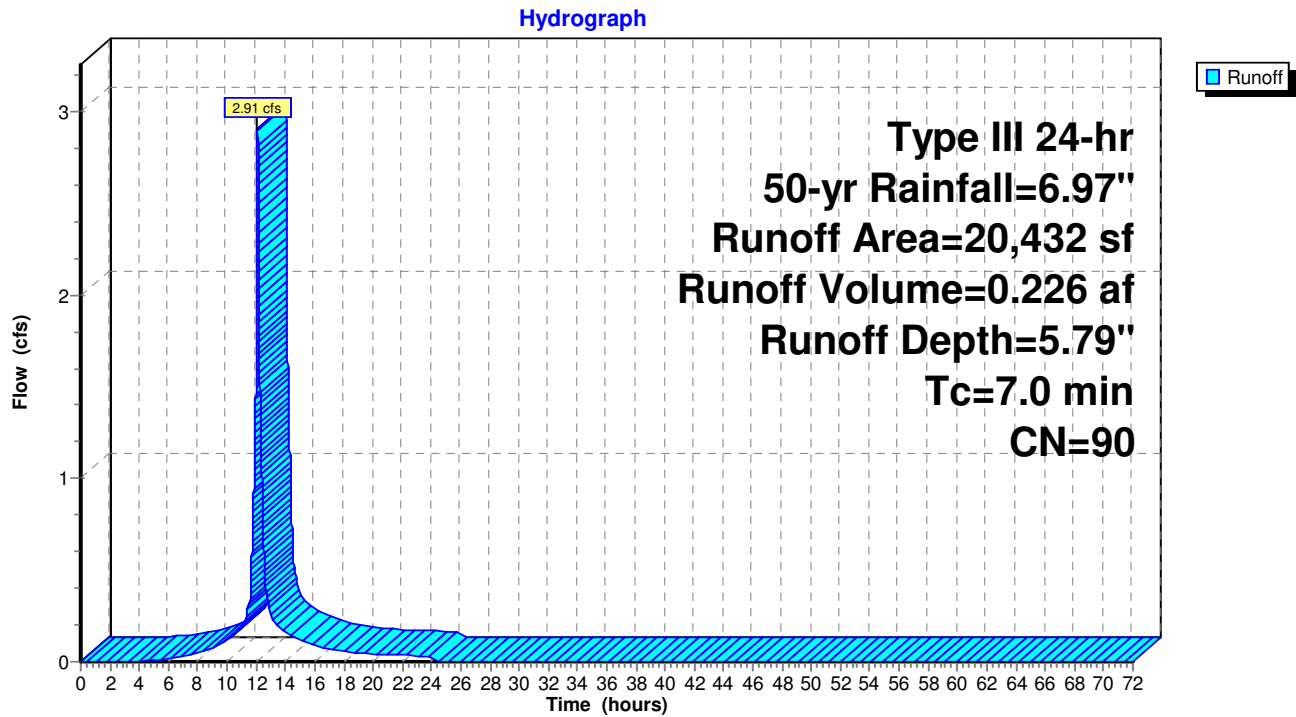
Subcatchment P6: Sheet flow To West Basin



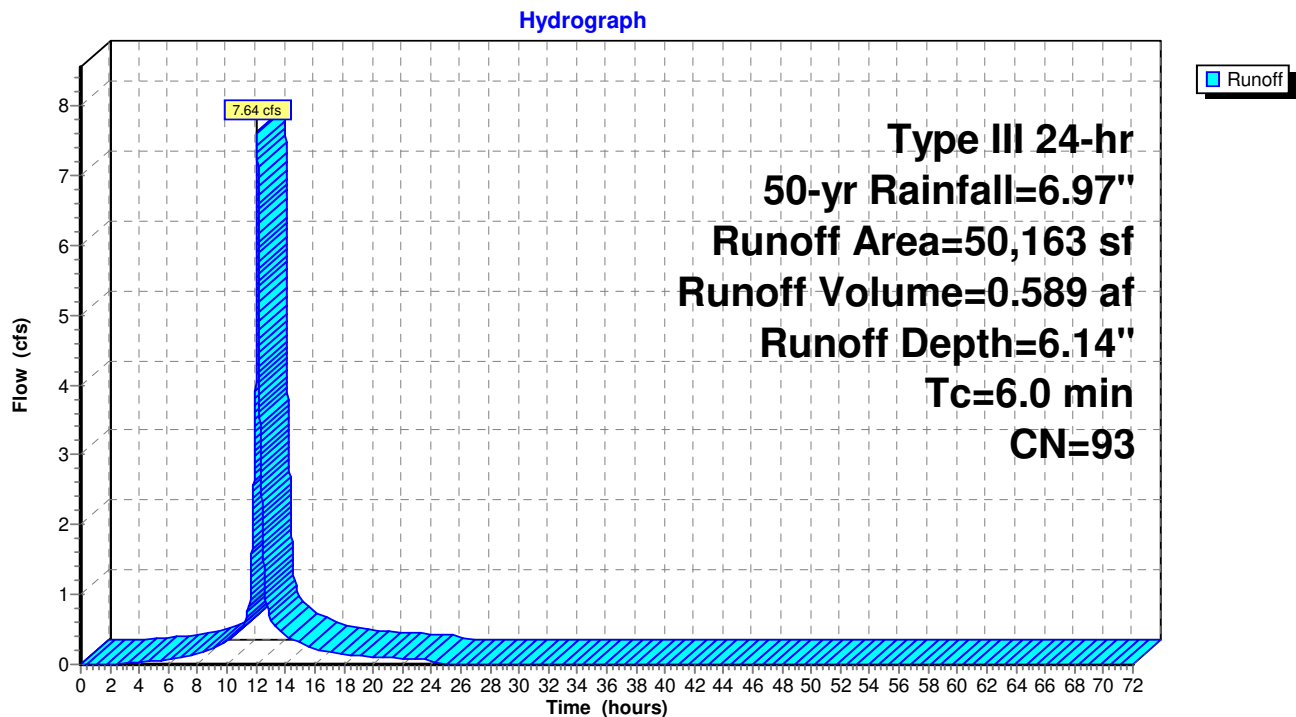
Subcatchment P7: Proposed Roof to UGC-D (WEST)



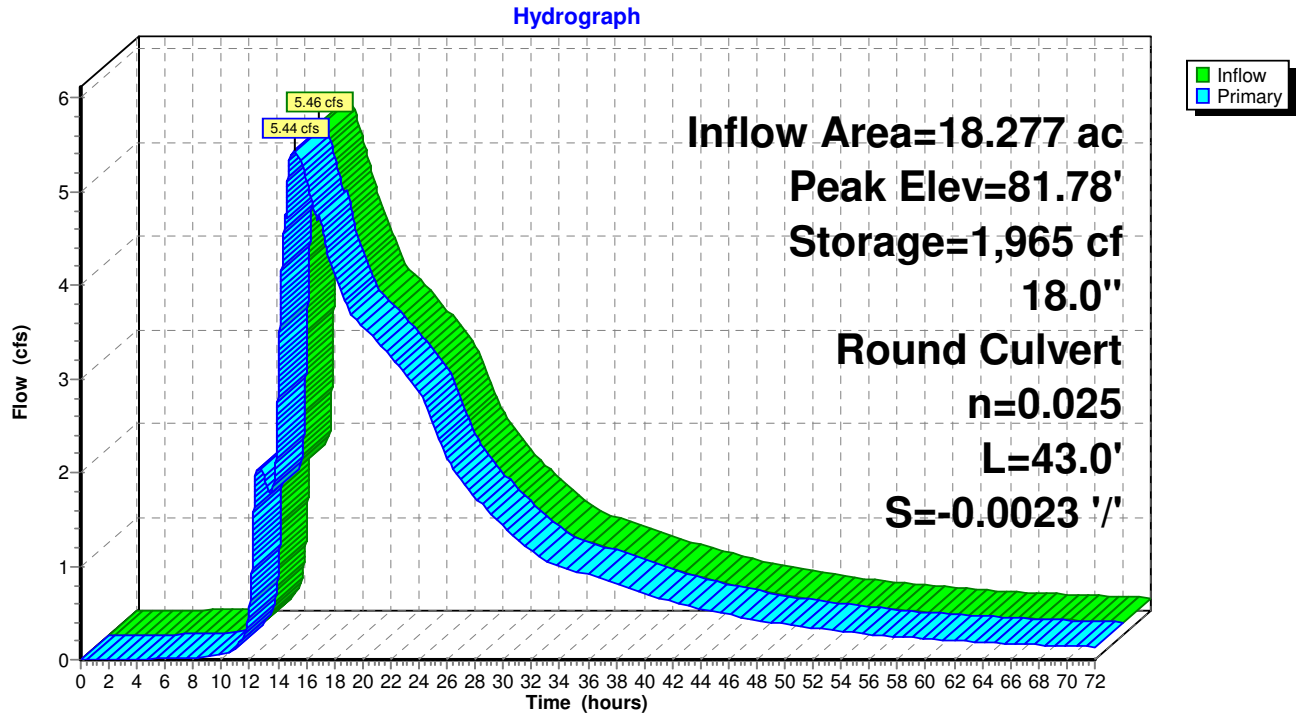
Subcatchment P8: North Truck Access Drive



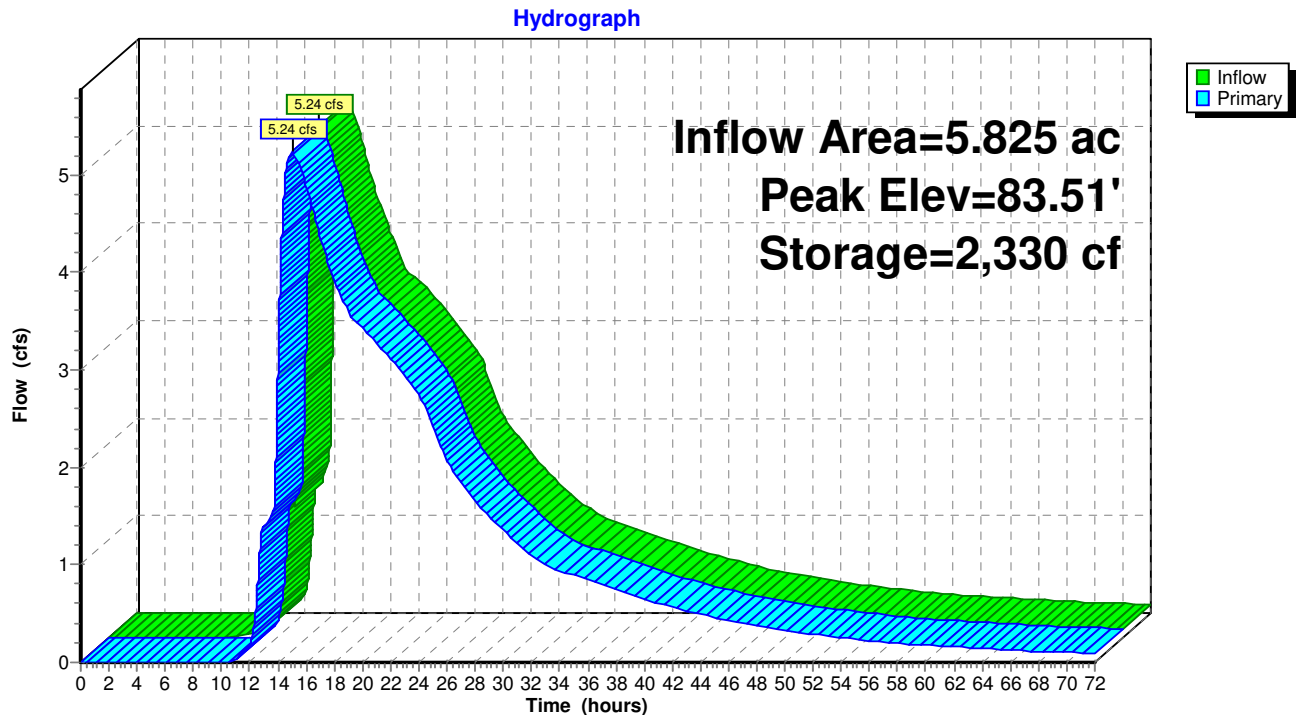
Subcatchment P9: CB's to UGC-E (East)



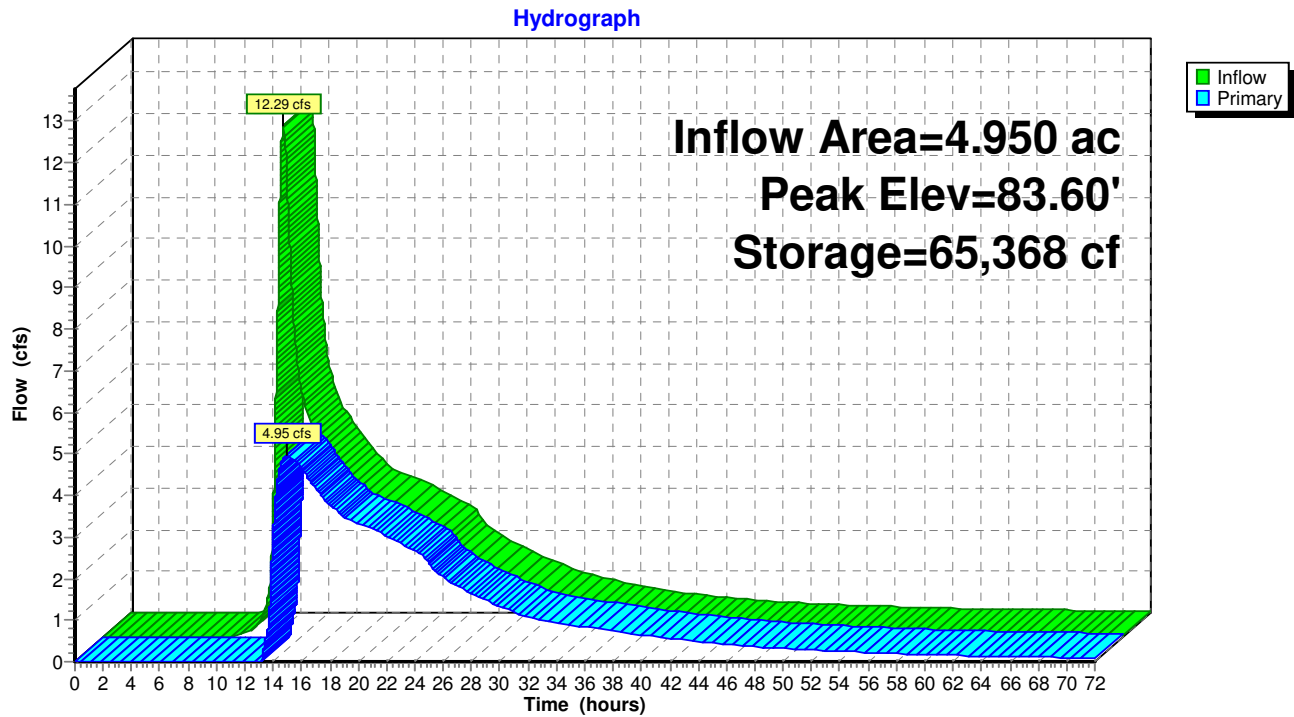
Pond EP1-A*: (DP1*) Proposed Condition - Rail Road Pond



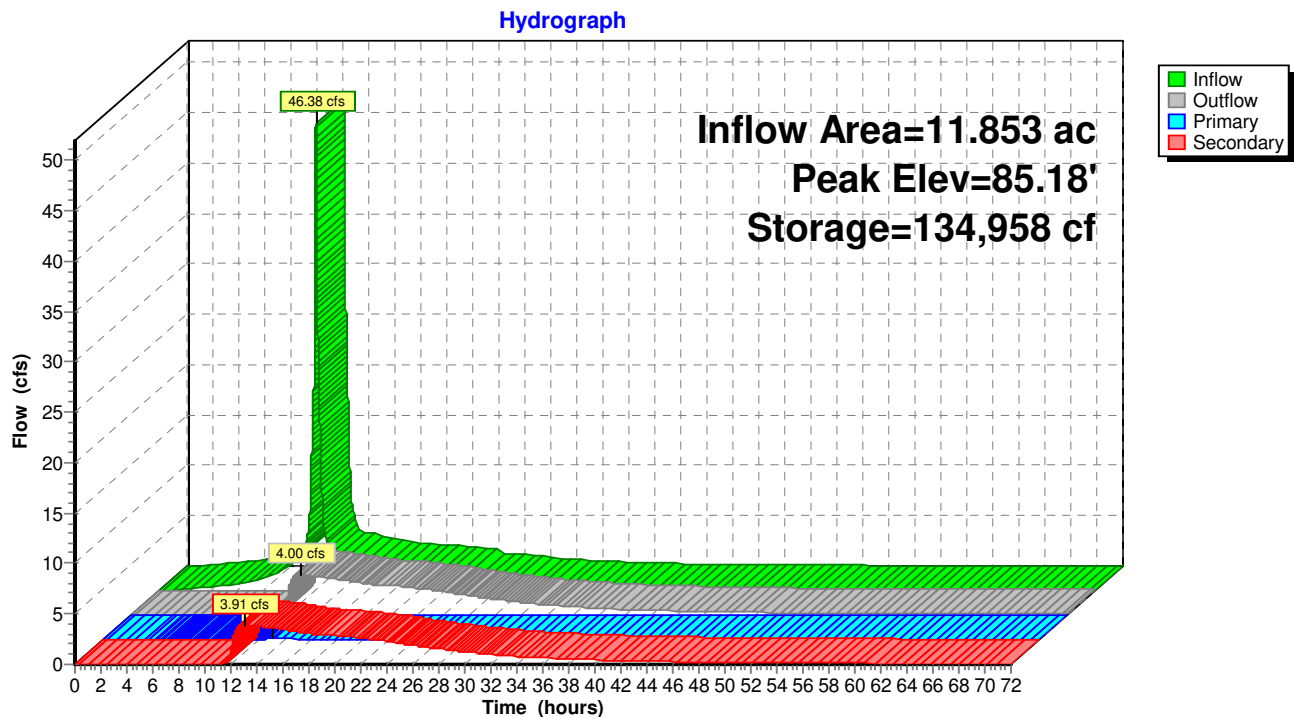
Pond EP1-B*: Proposed Condition - Existing Depression 2 (N)



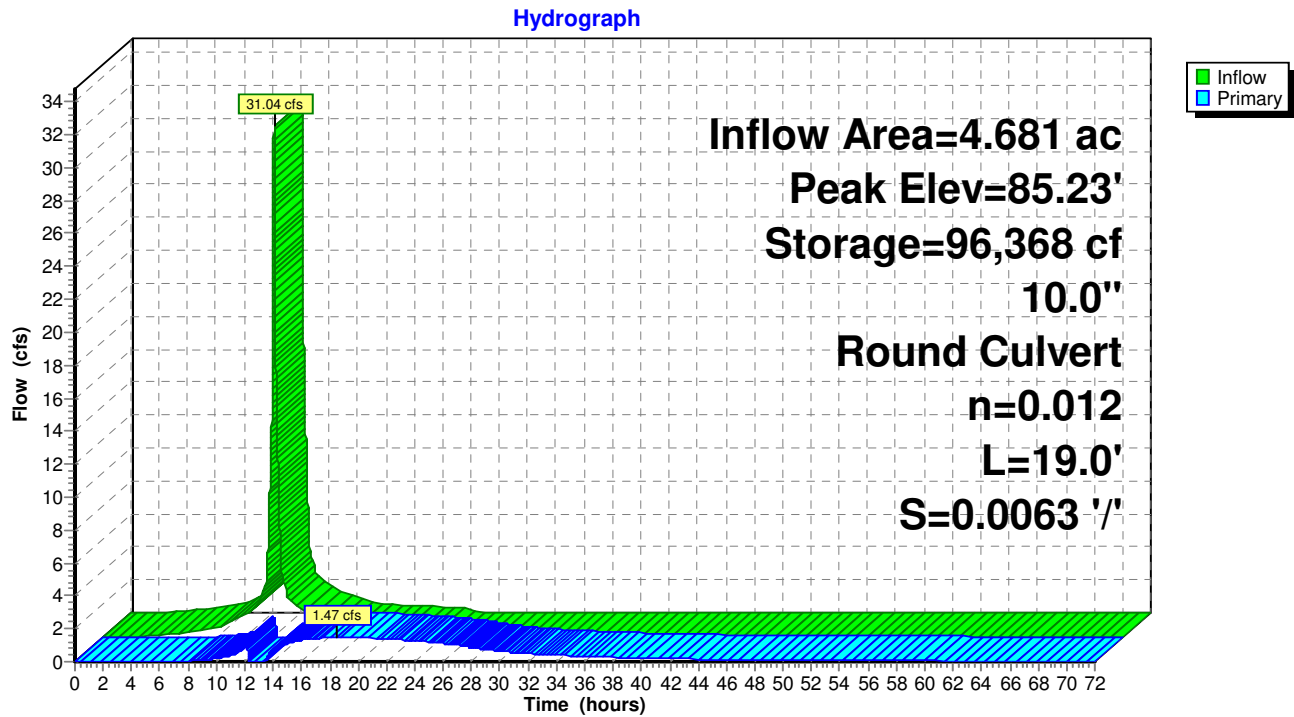
Pond EP1-C*: Proposed Condition - Existing Depressing 3 (NE)



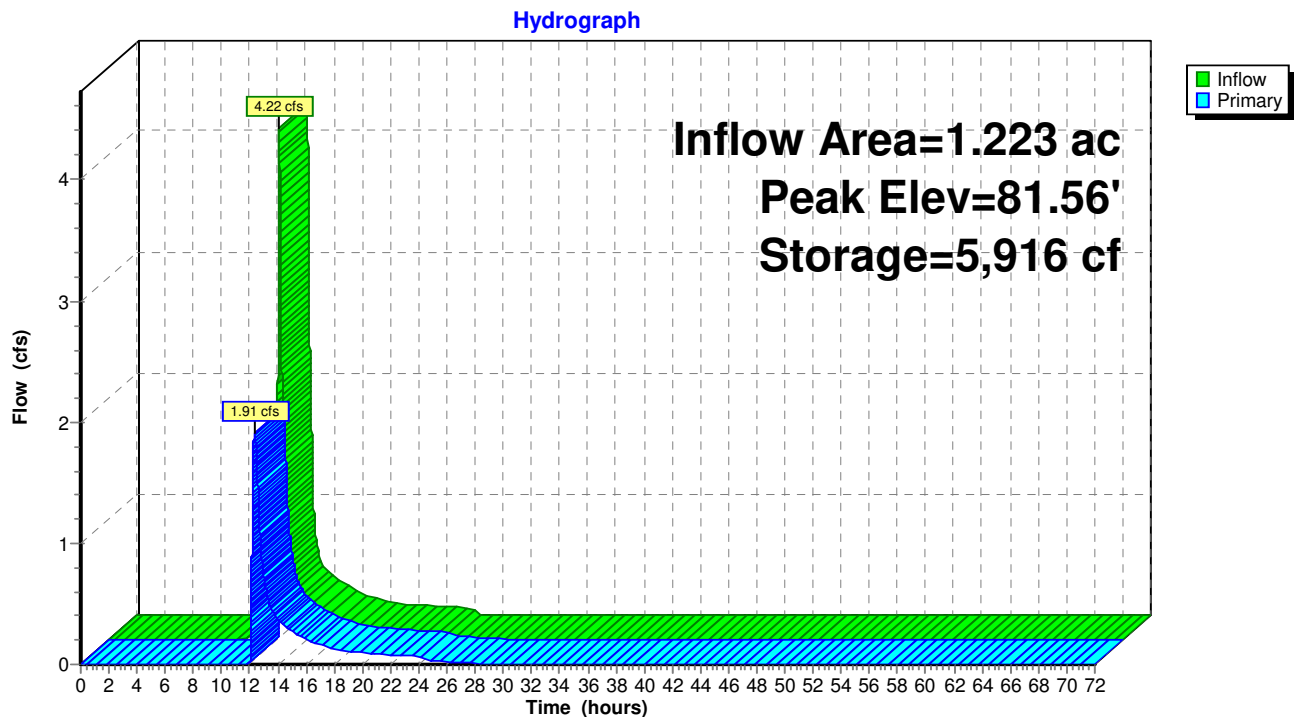
Pond PP1: UGC-D (Stormtech SC-740)



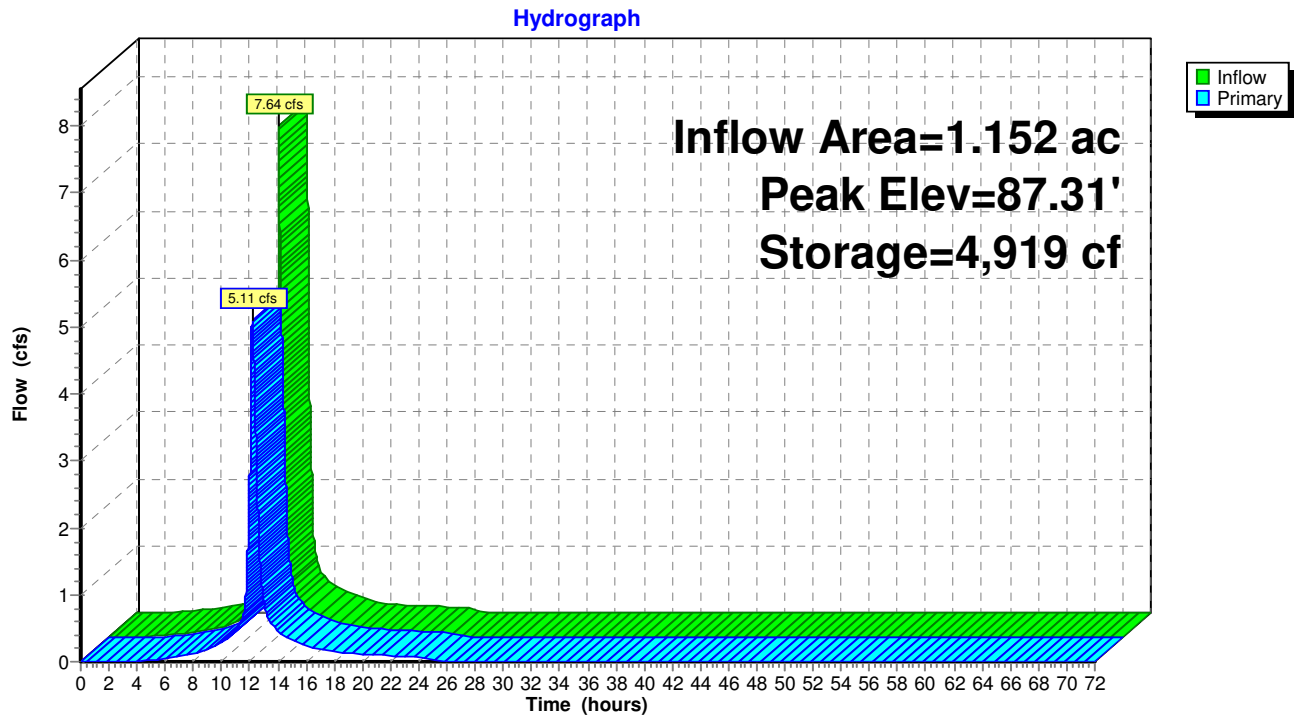
Pond PP2: Water Quality Basin (WEST)



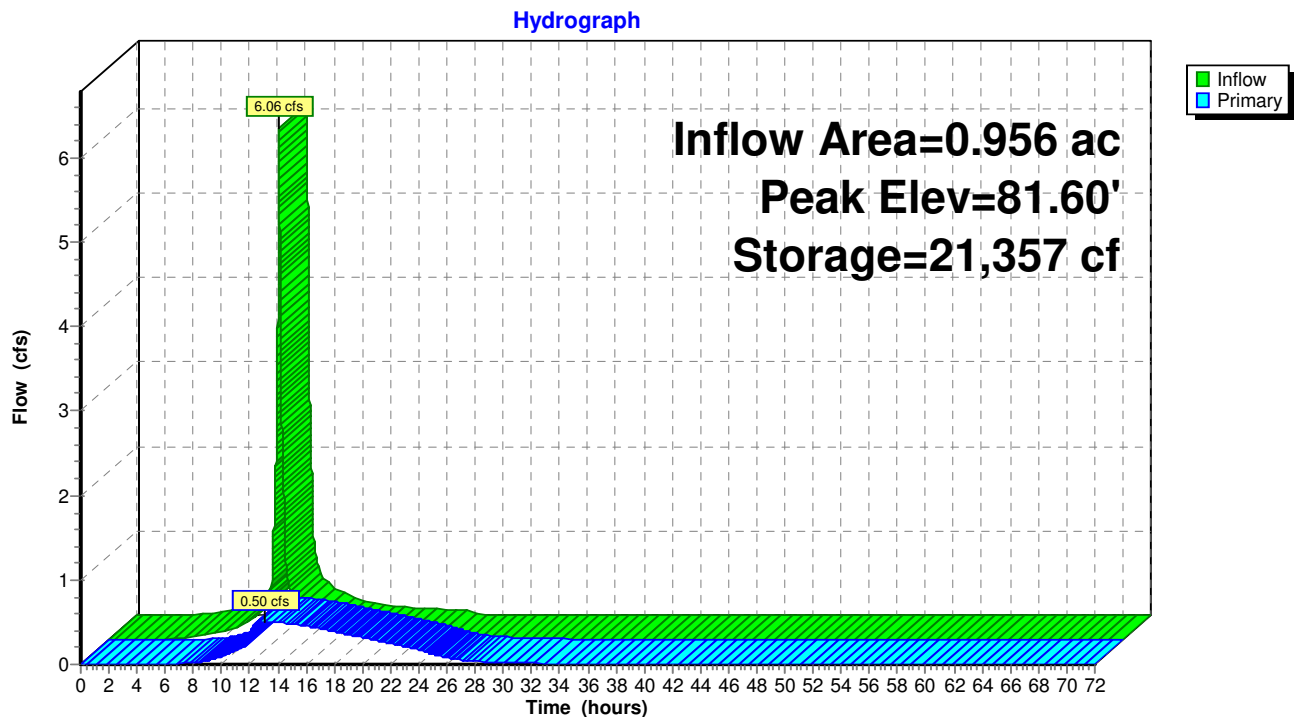
Pond PP3: UGC-B (Stormtech SC-310)



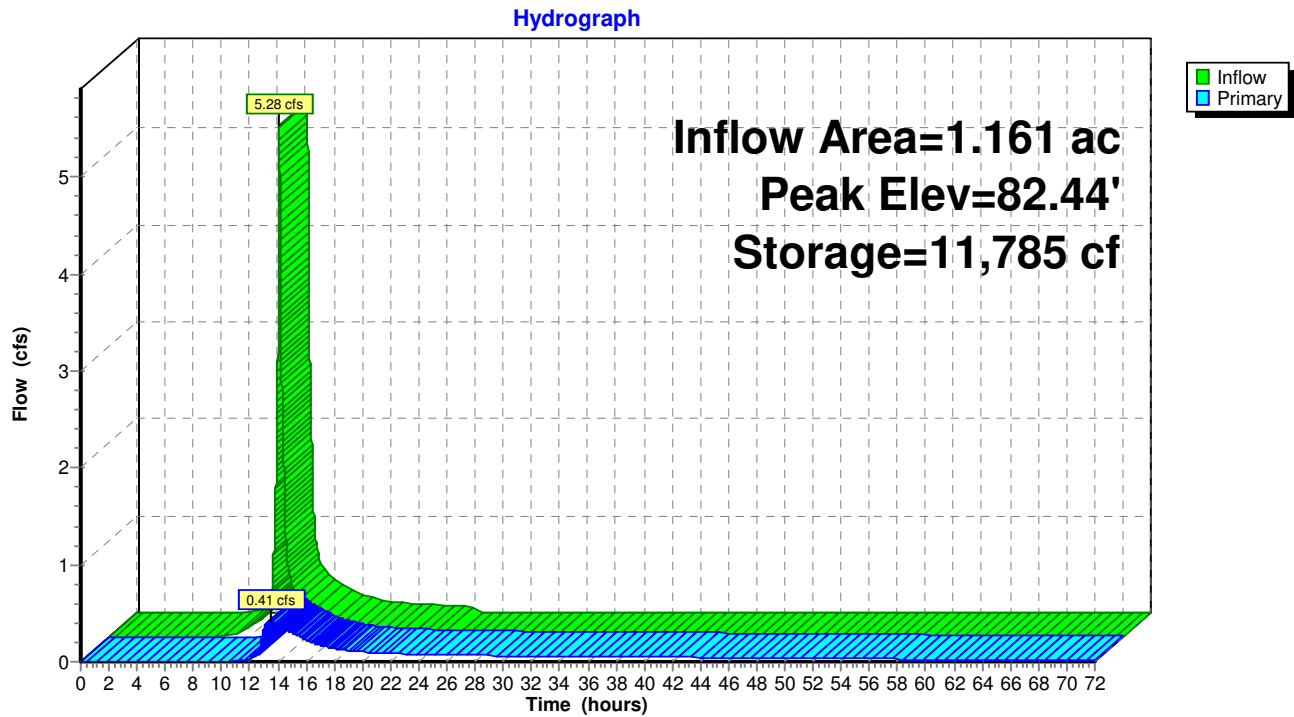
Pond PP4: UGC-E (Stormtech SC-310)



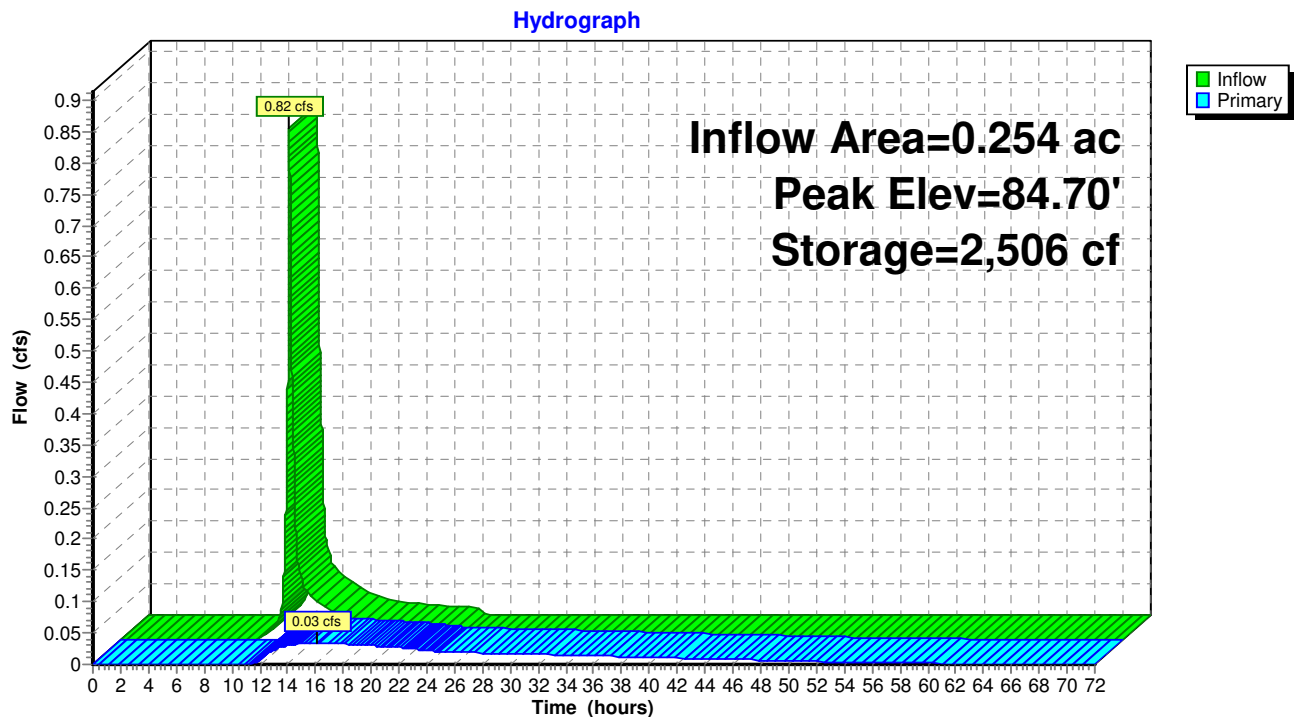
Pond PP5: Water Quality Basin (Kennedy Road)



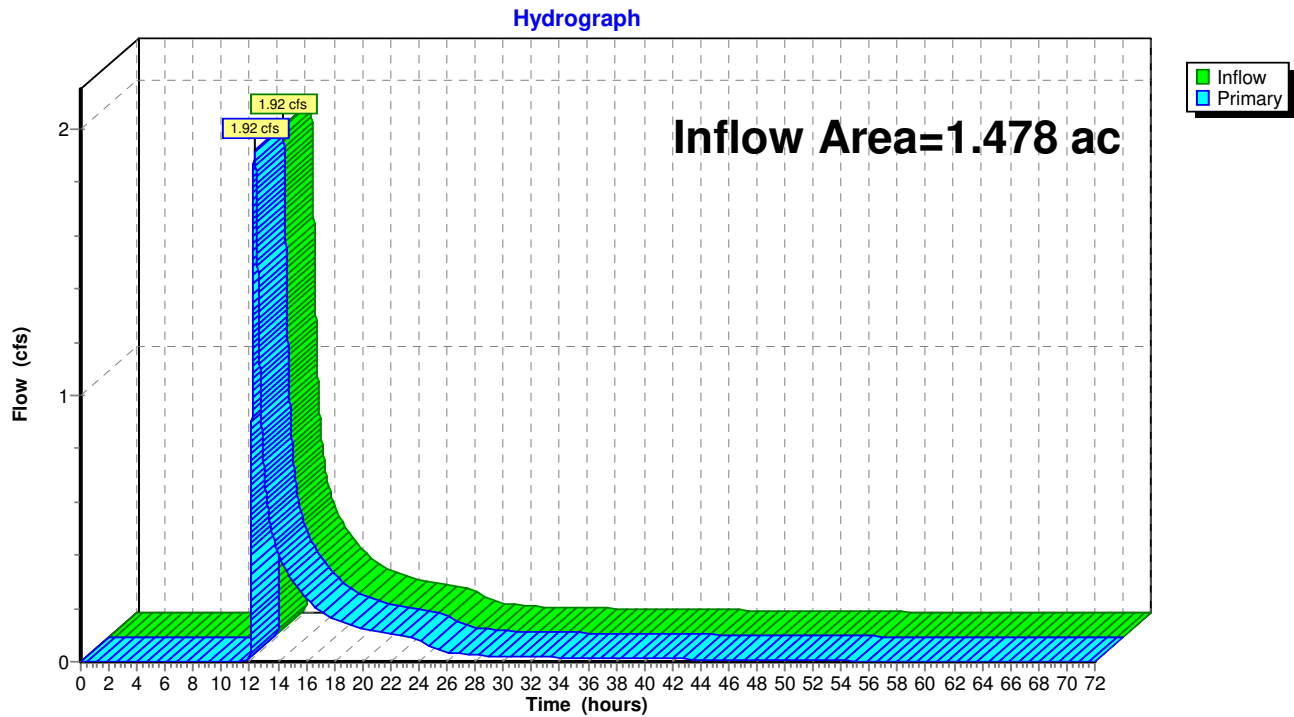
Pond PP6: UGC-A (Stormtech SC-740)



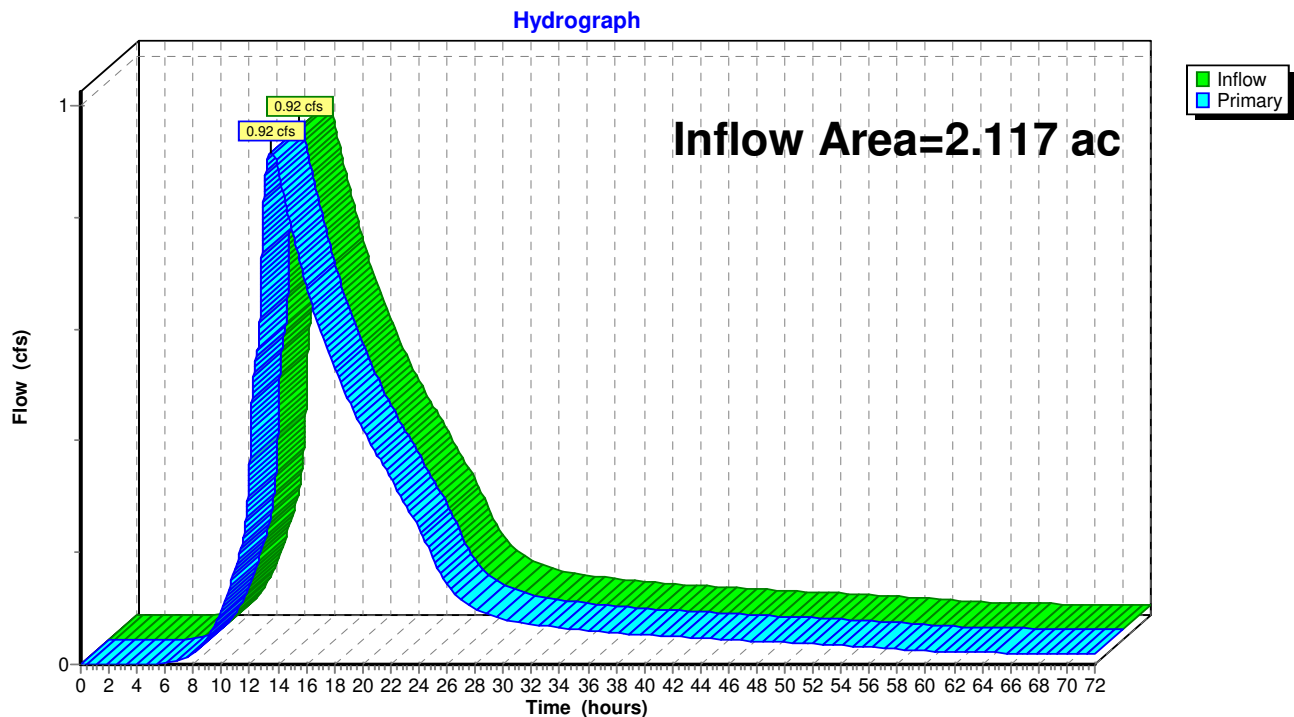
Pond PP7: UGC-C (Stormtech SC-310)



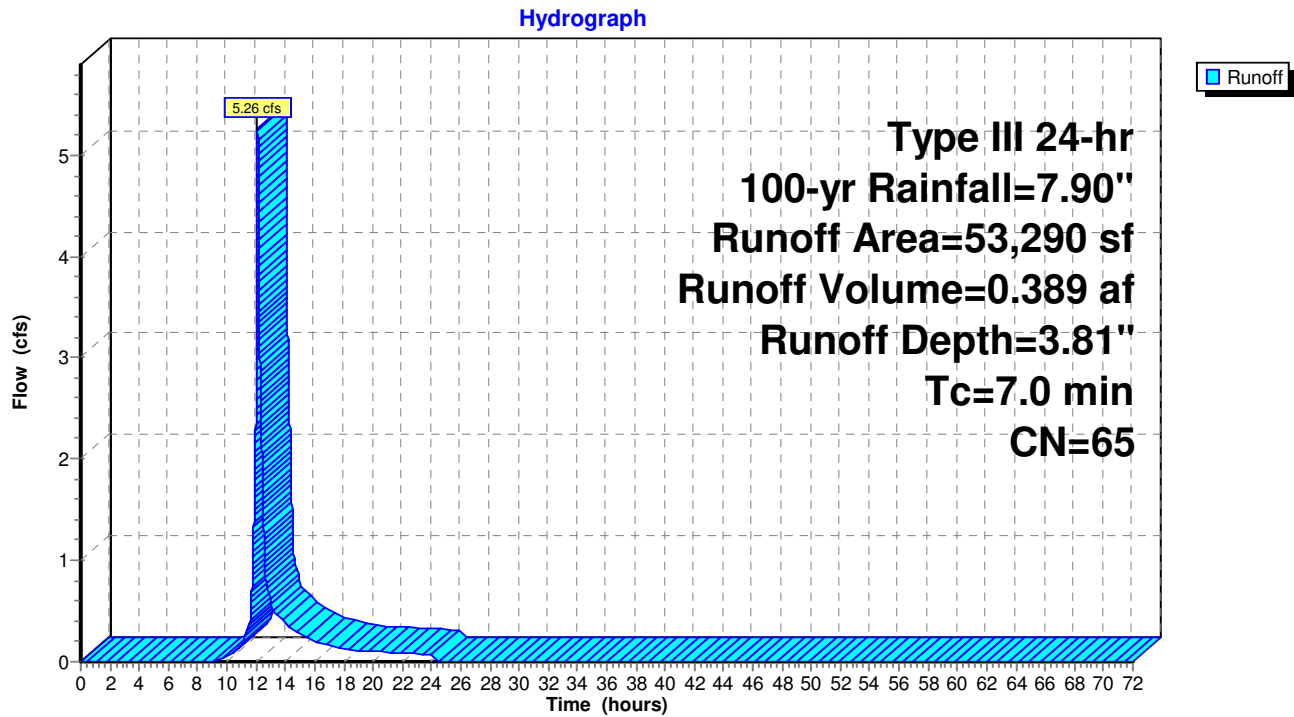
Link DP3*: (DP3*) Proposed Flow to Sullivan Ave



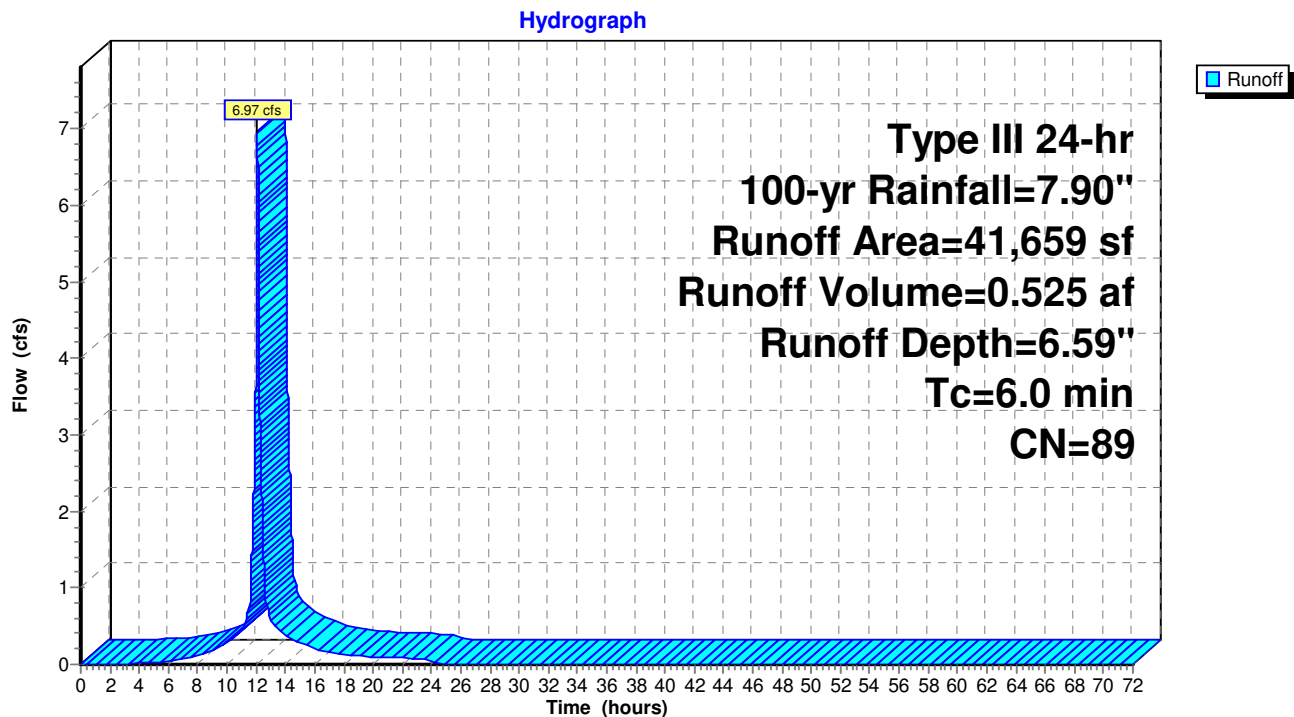
Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System



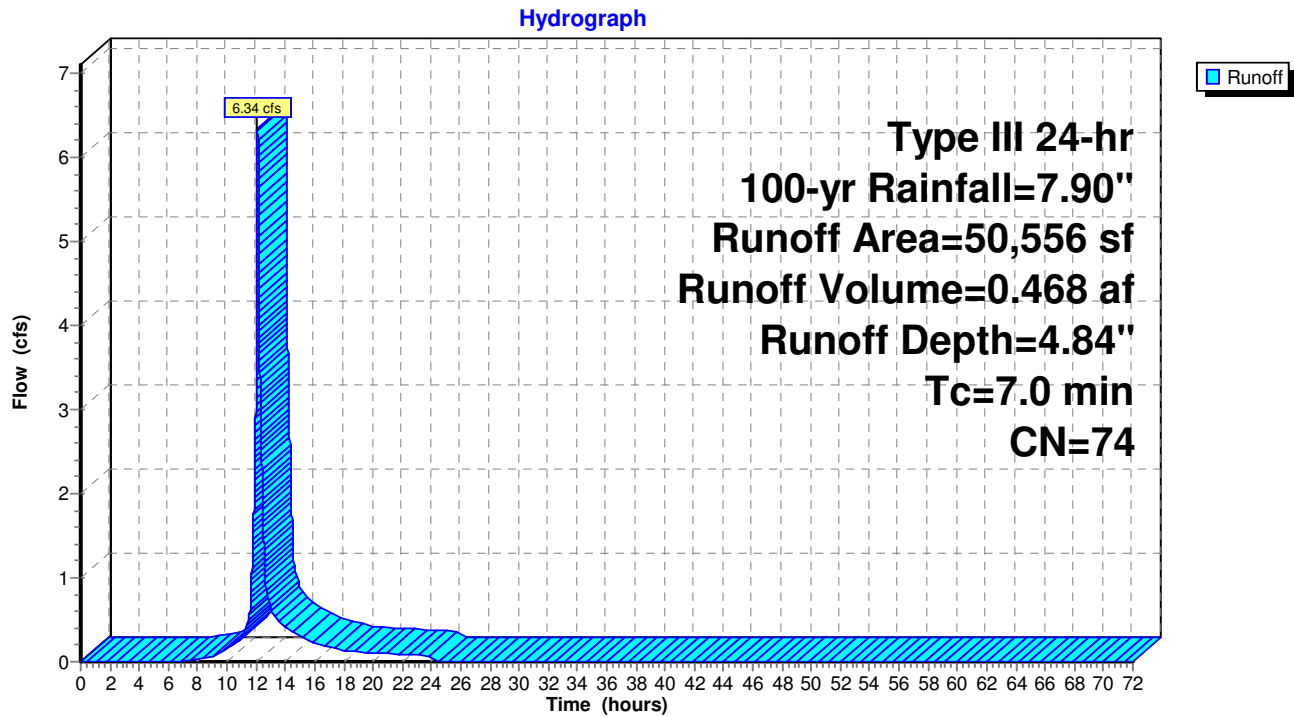
Subcatchment P1: Yard Drains to UGC-B



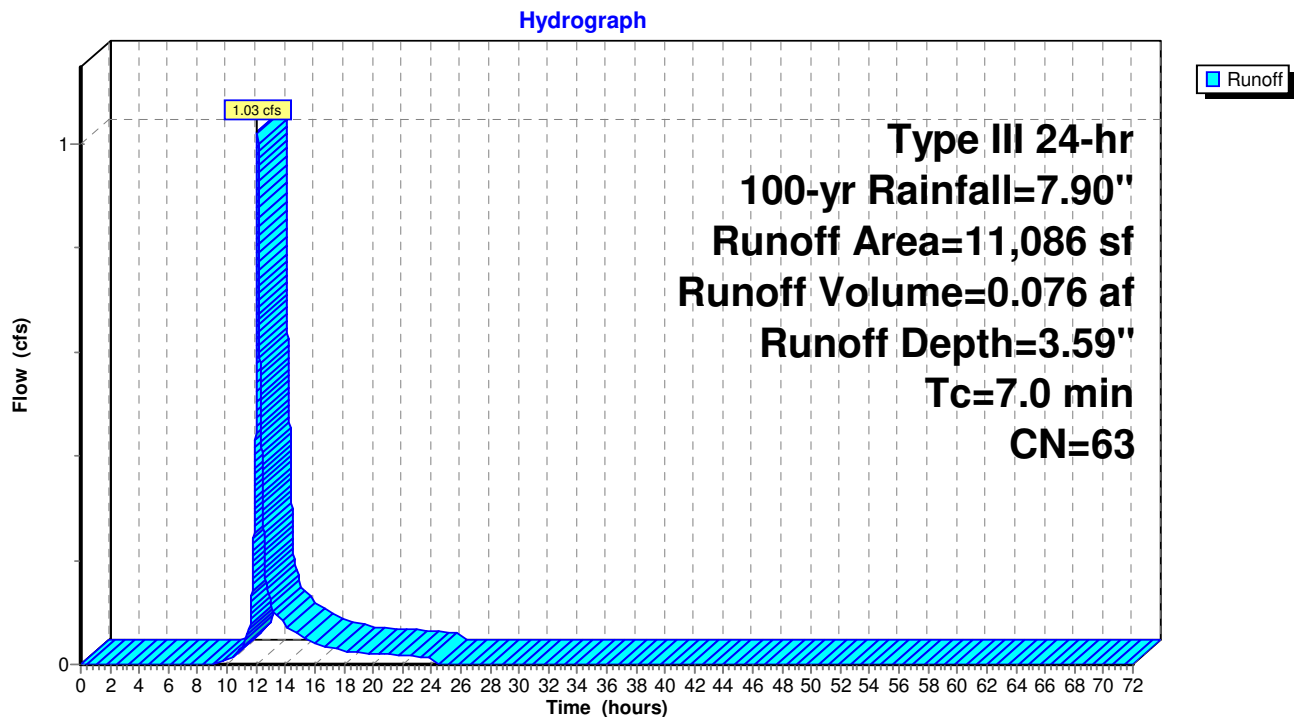
Subcatchment P10: Culdesac



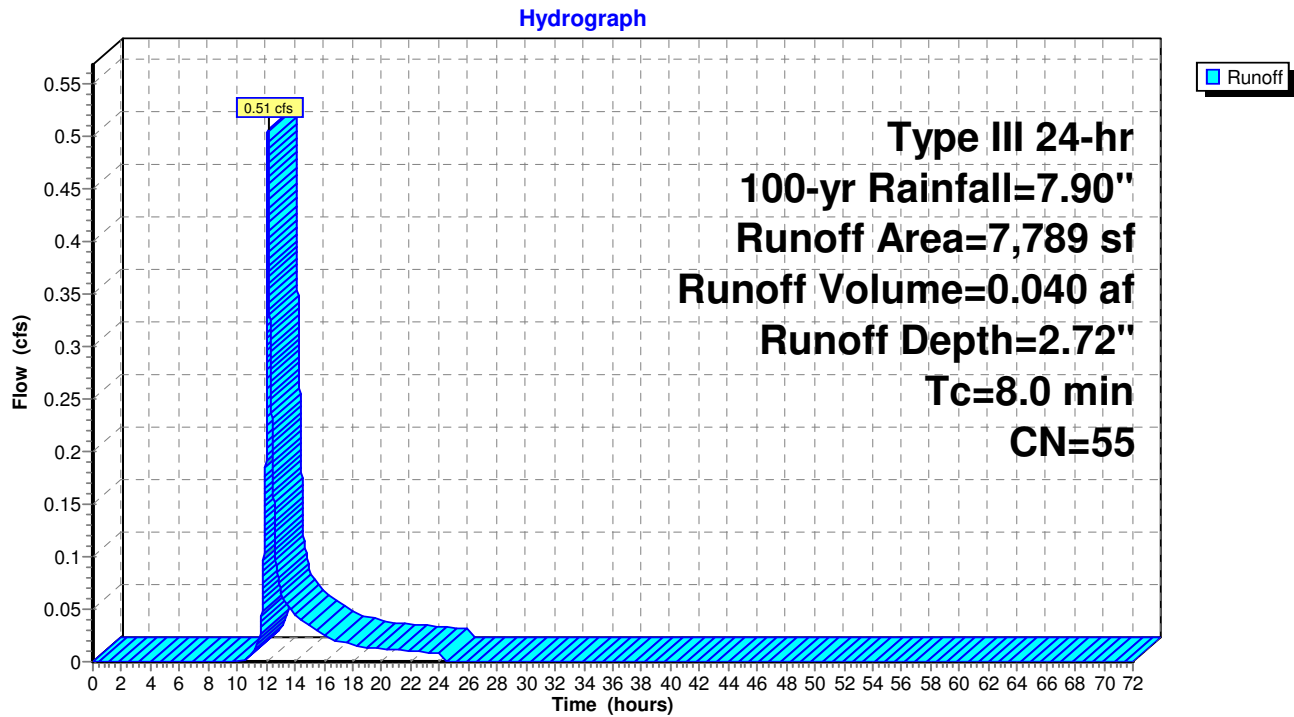
Subcatchment P11: Yard Drains to UGC-A



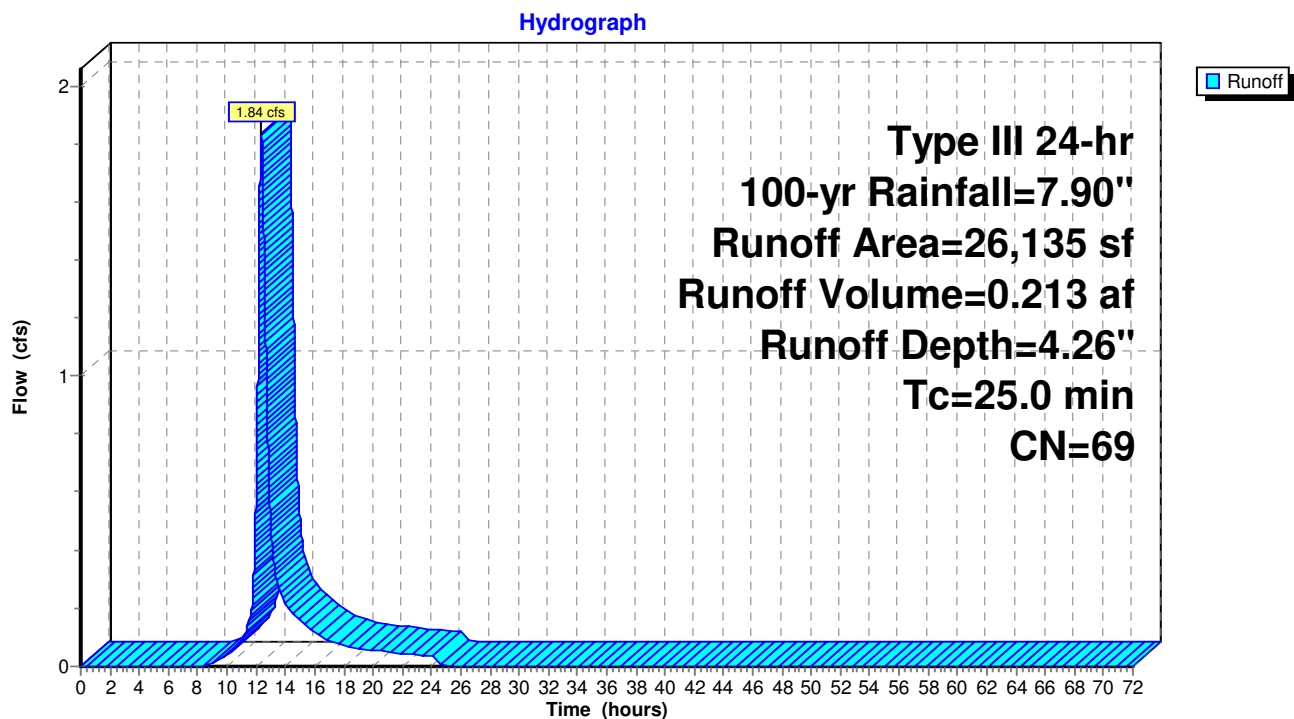
Subcatchment P12: Yard Drains to UGC-C



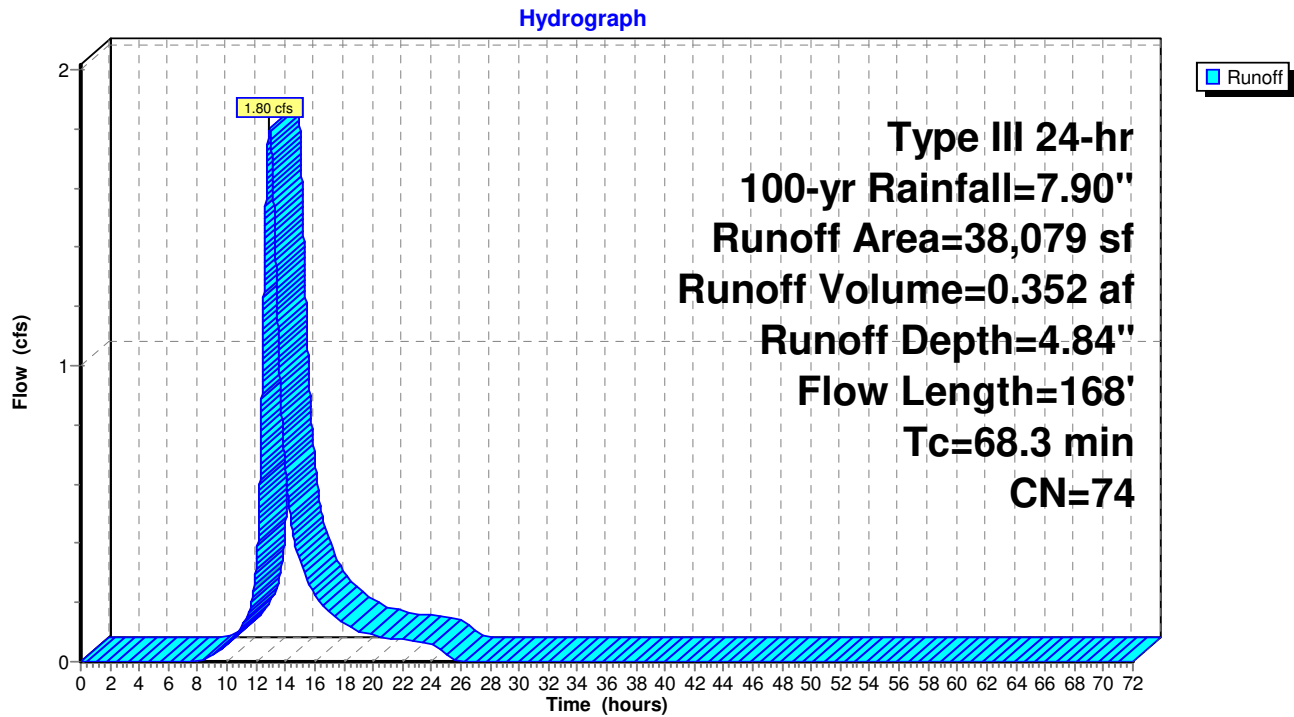
Subcatchment P2: (DP2*) Proposed Flow across North West Property Corner



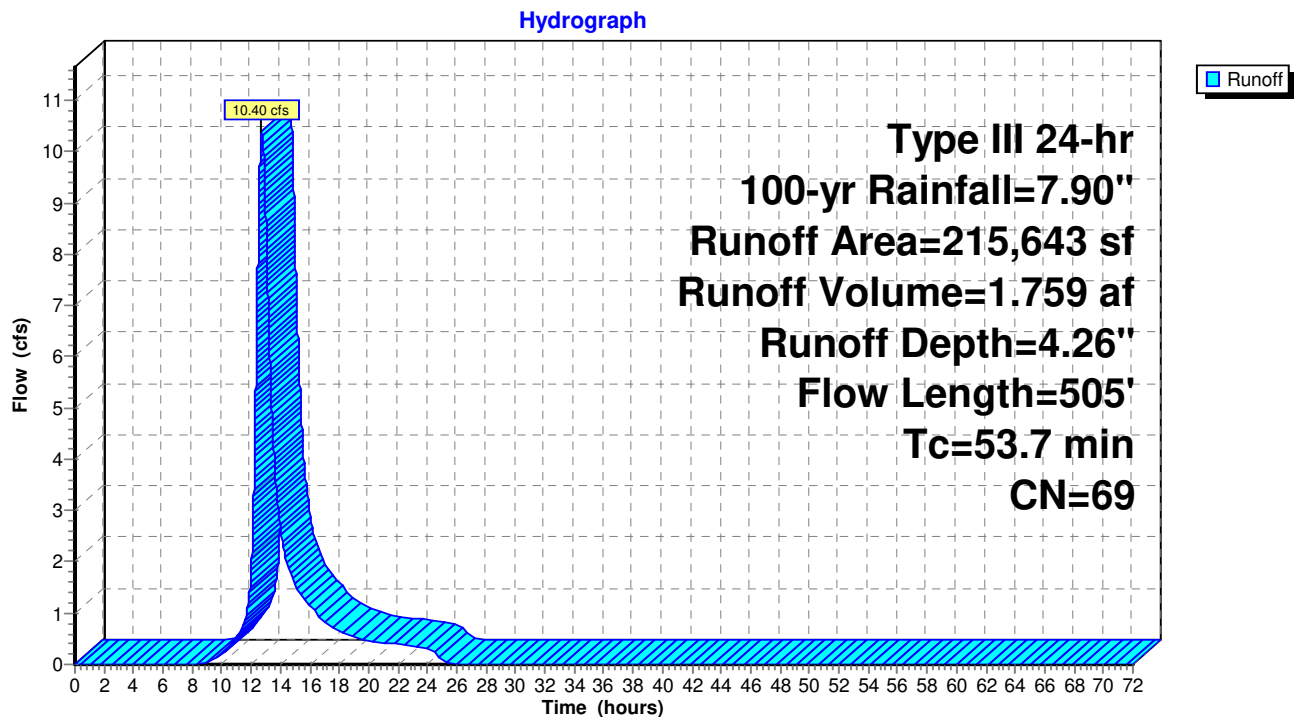
Subcatchment P3: P3



Subcatchment P4: P4

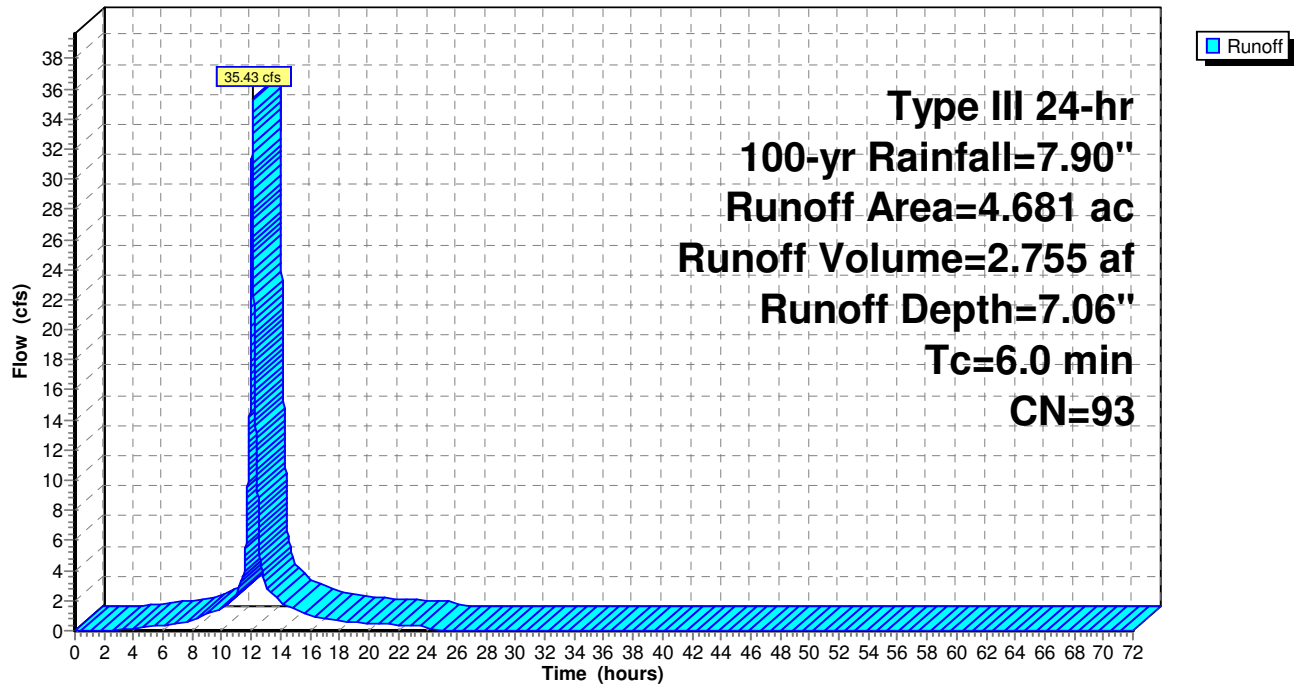


Subcatchment P5: P5



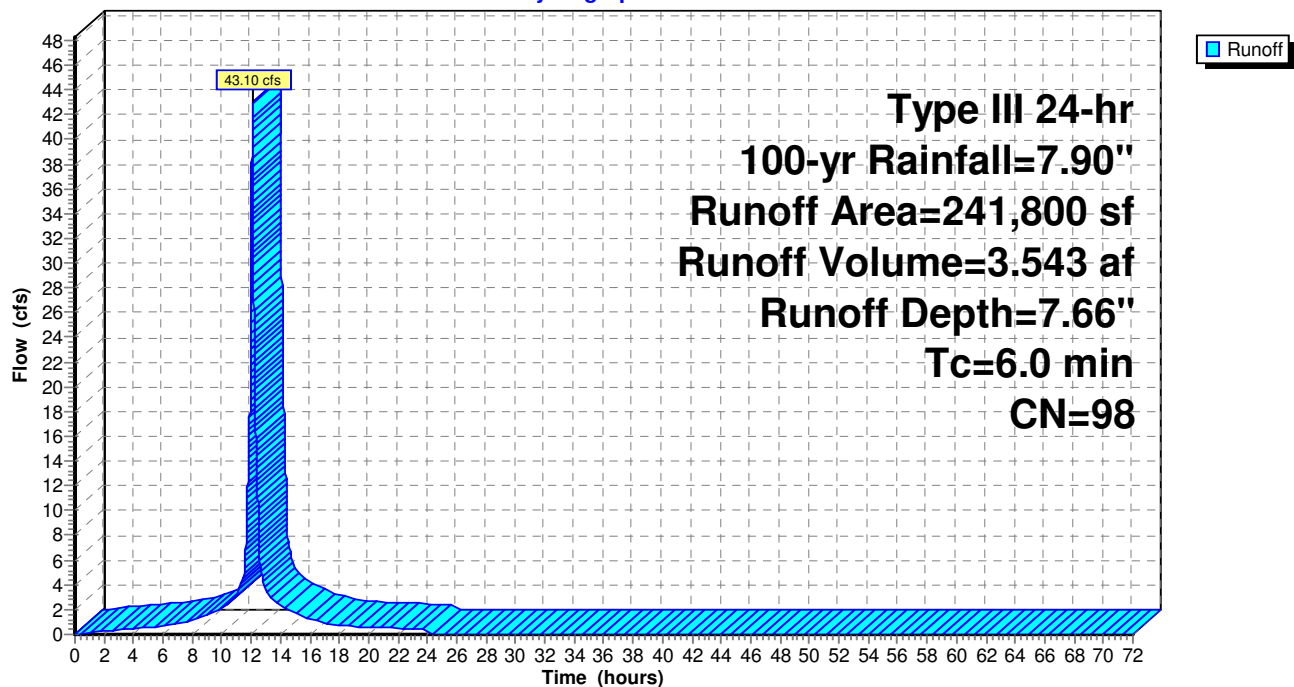
Subcatchment P6: Sheet flow To West Basin

Hydrograph

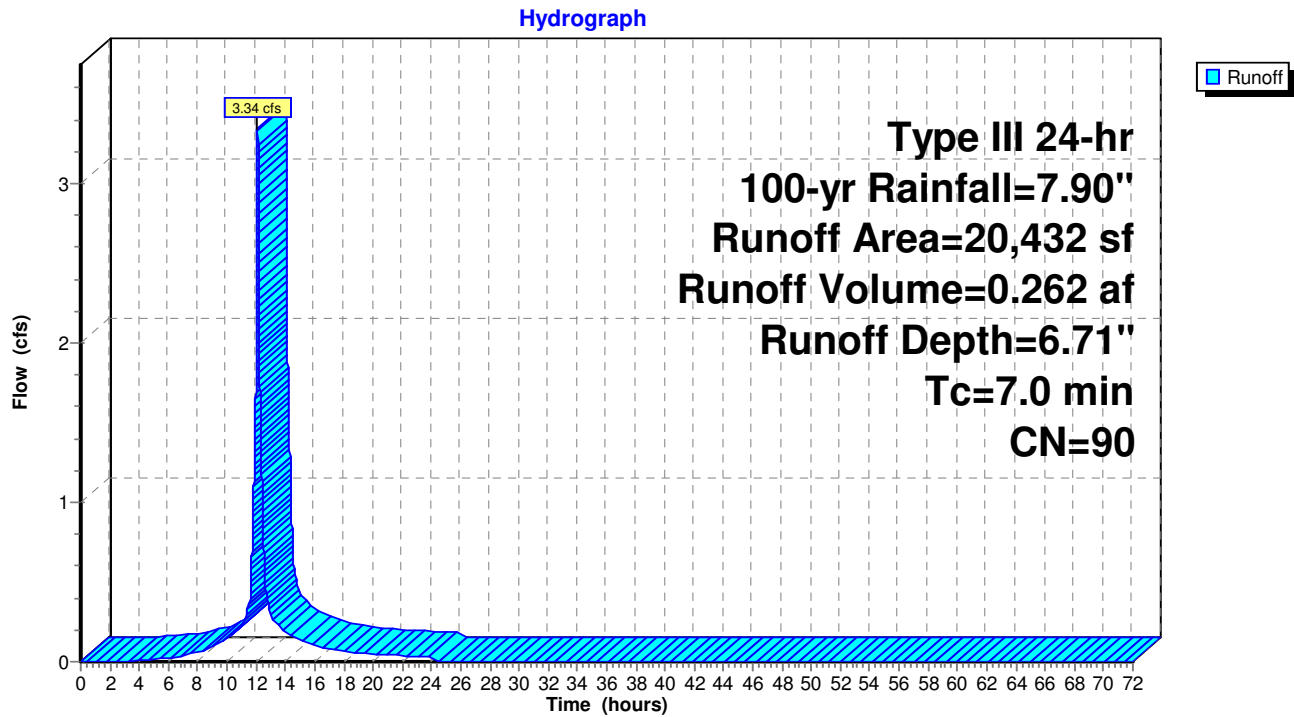


Subcatchment P7: Proposed Roof to UGC-D (WEST)

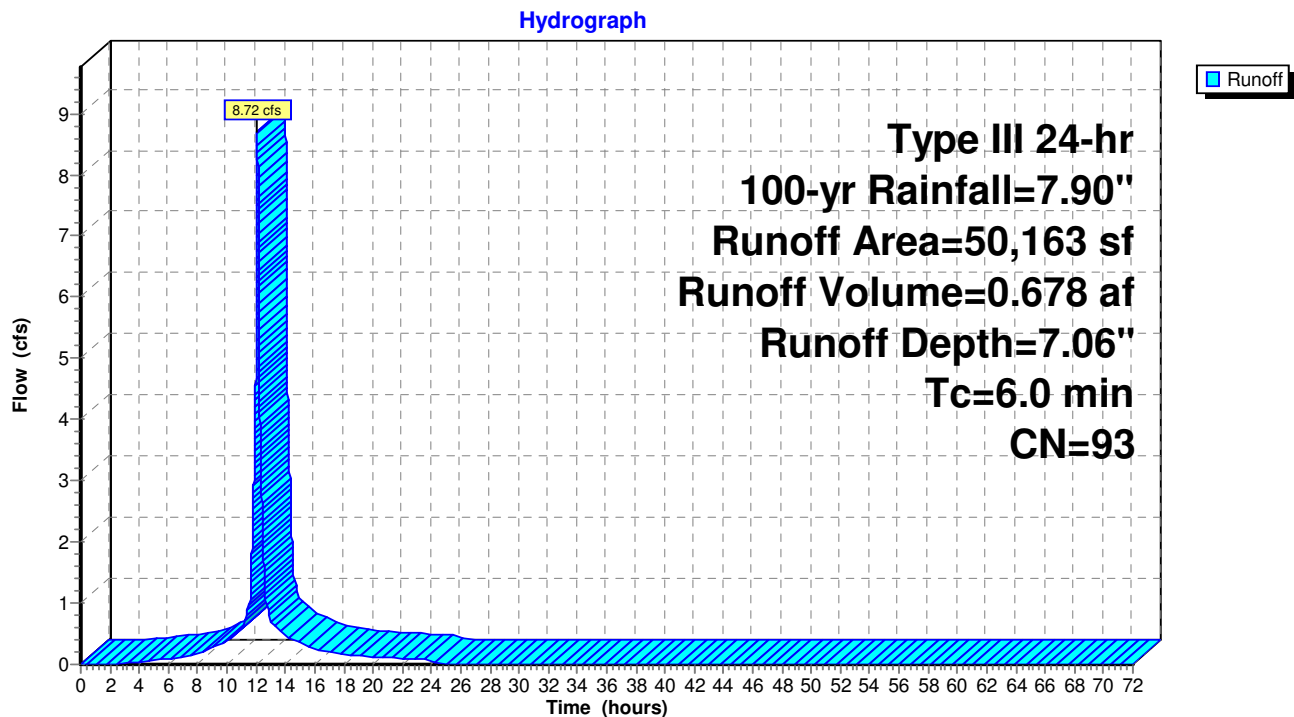
Hydrograph



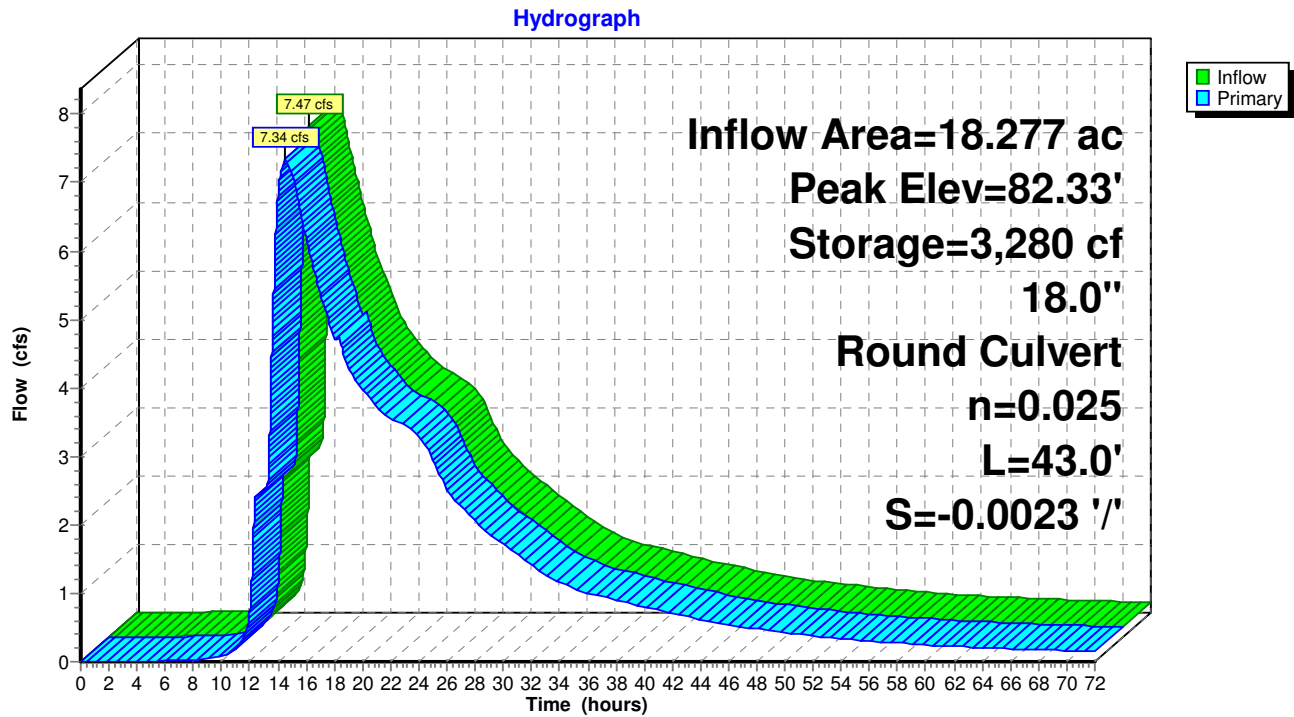
Subcatchment P8: North Truck Access Drive



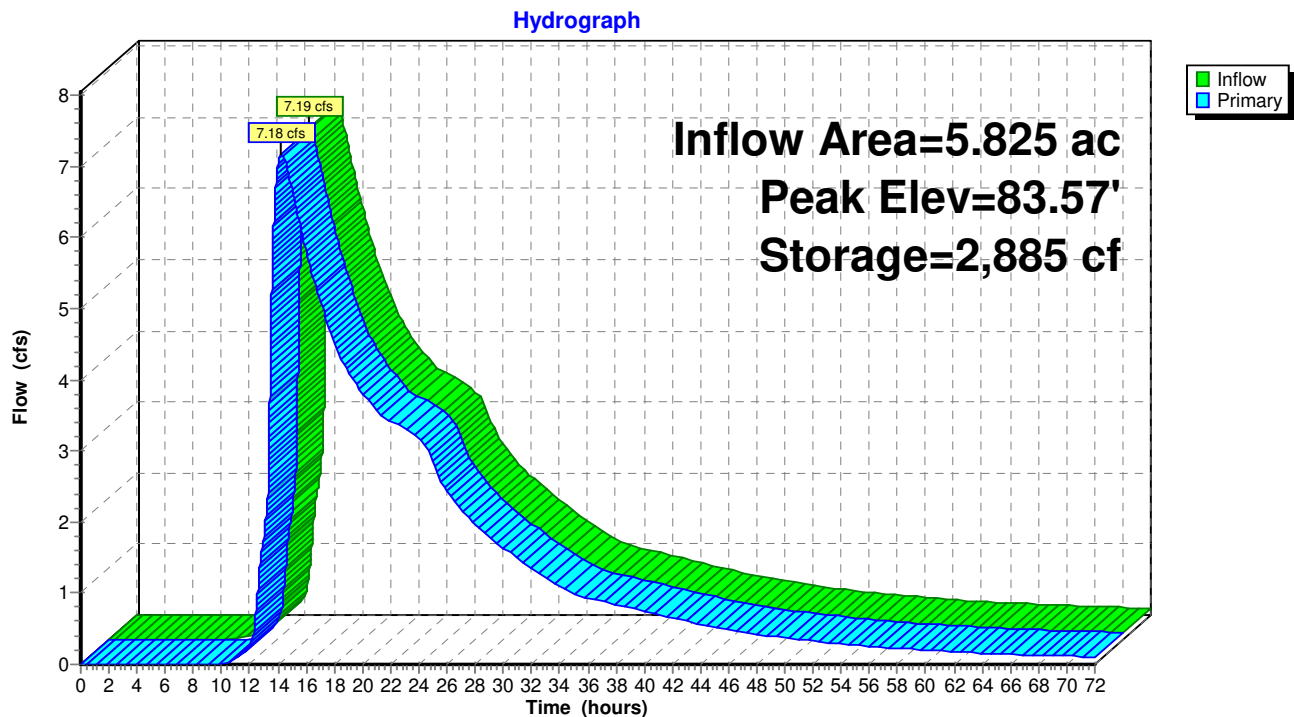
Subcatchment P9: CB's to UGC-E (East)



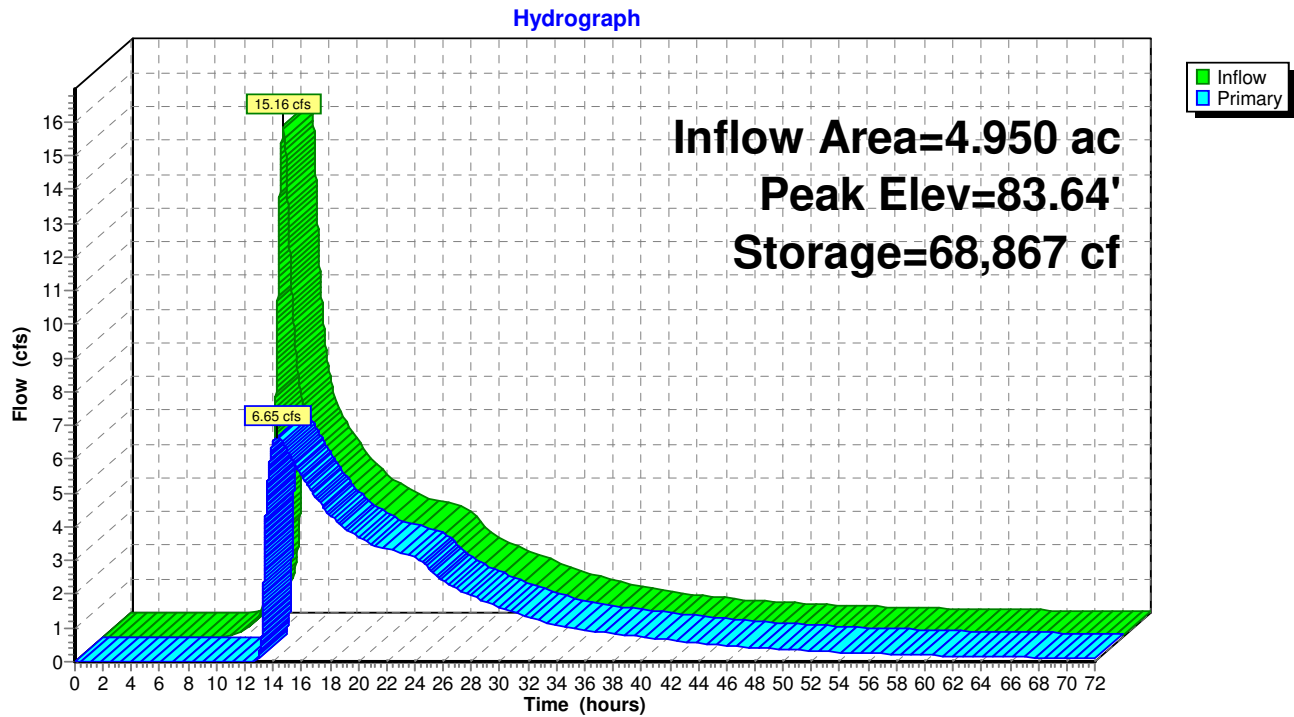
Pond EP1-A*: (DP1*) Proposed Condition - Rail Road Pond



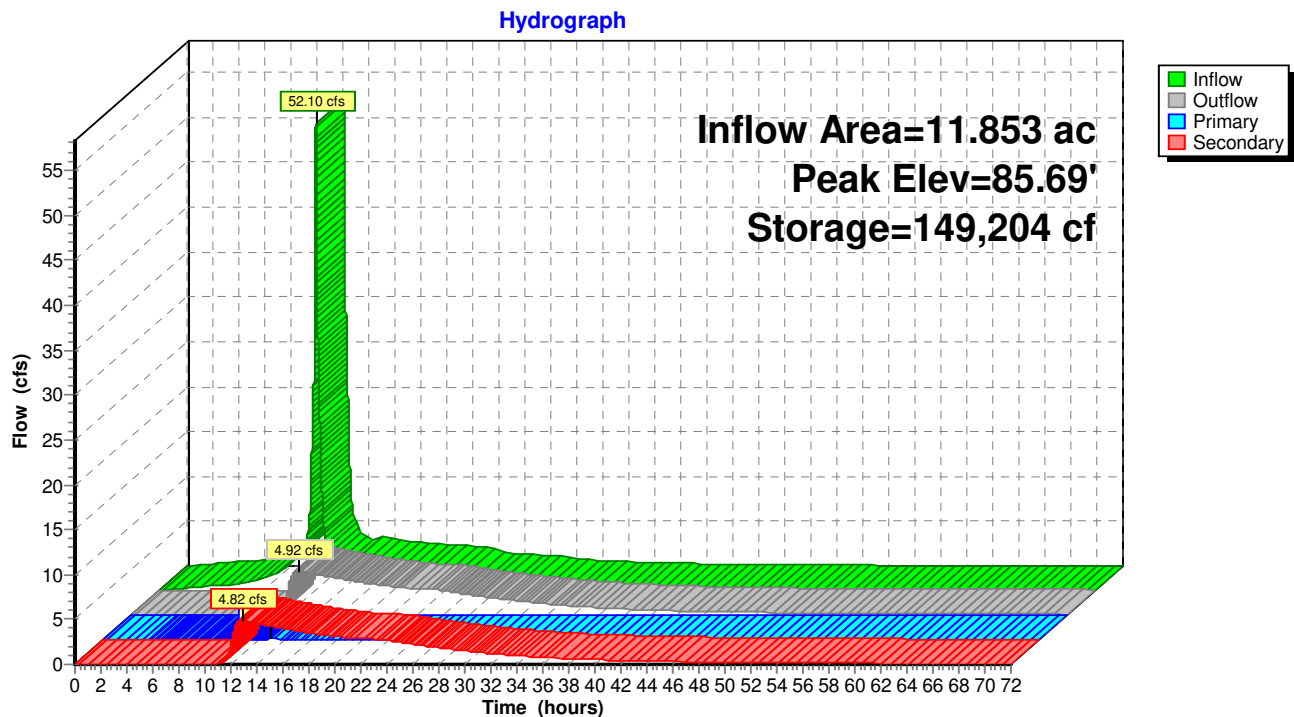
Pond EP1-B*: Proposed Condition - Existing Depression 2 (N)



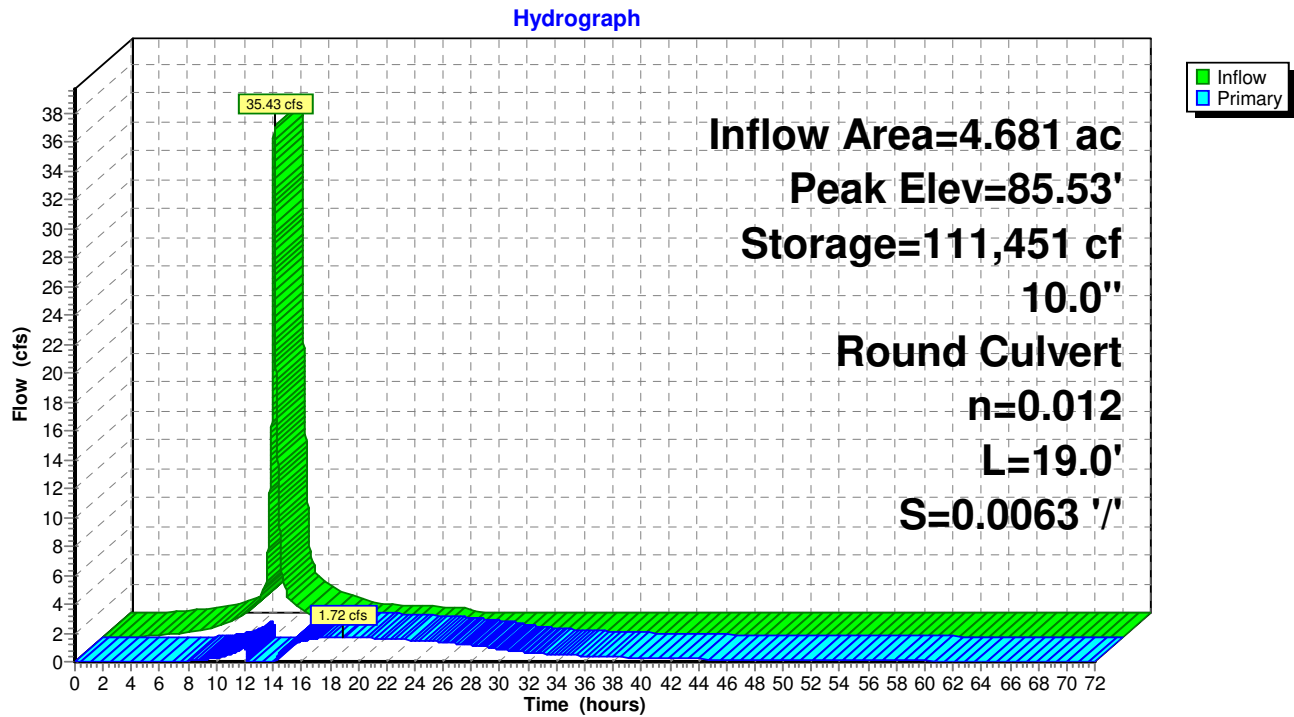
Pond EP1-C*: Proposed Condition - Existing Depressing 3 (NE)



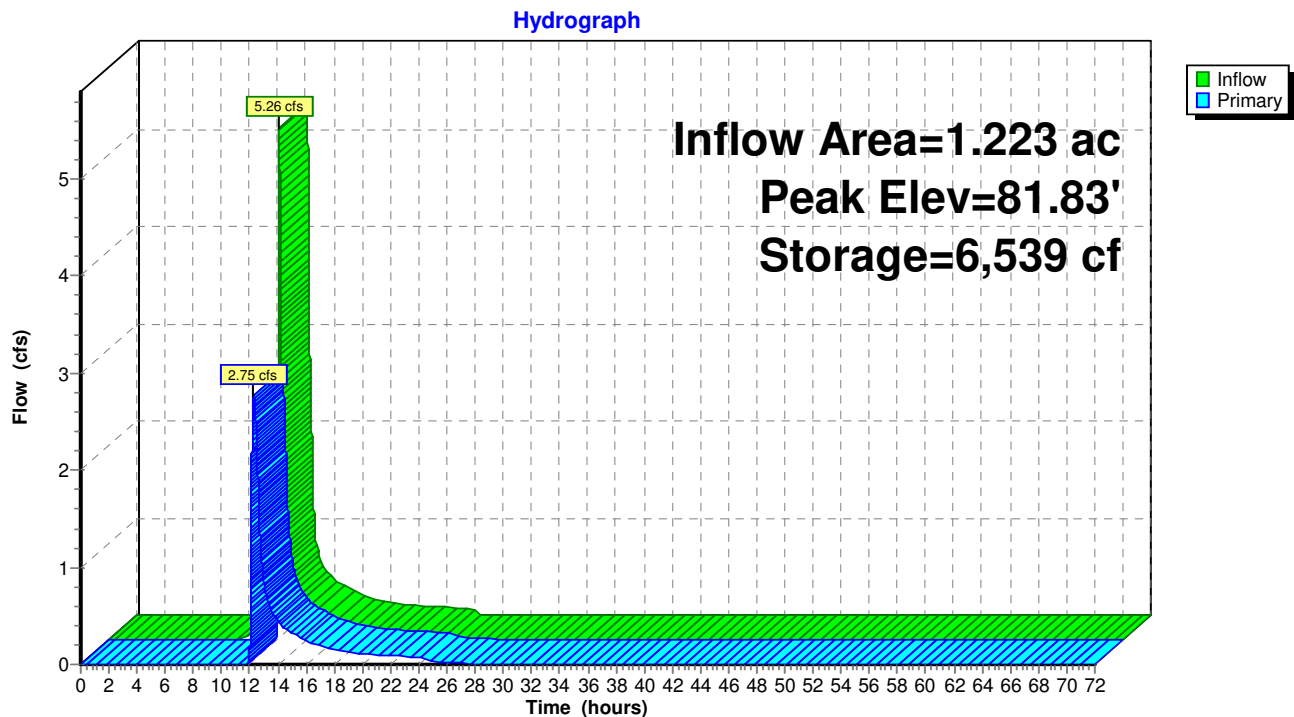
Pond PP1: UGC-D (Stormtech SC-740)



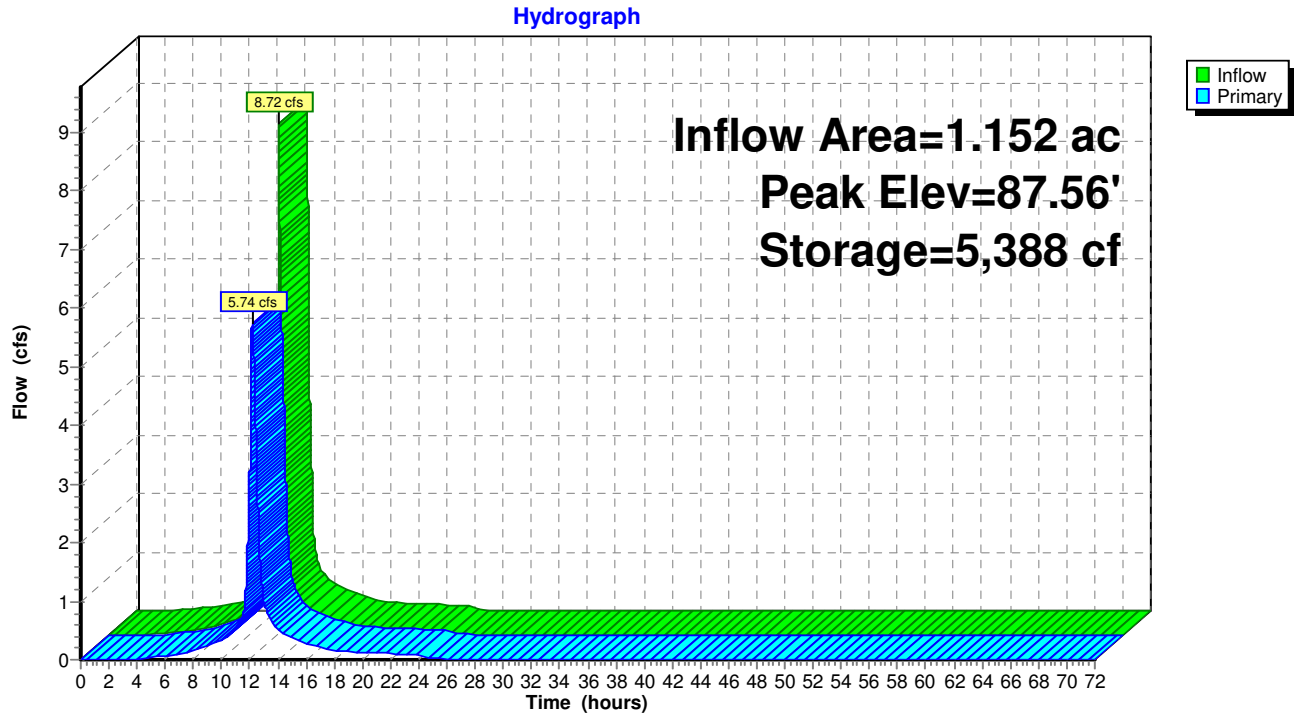
Pond PP2: Water Quality Basin (WEST)



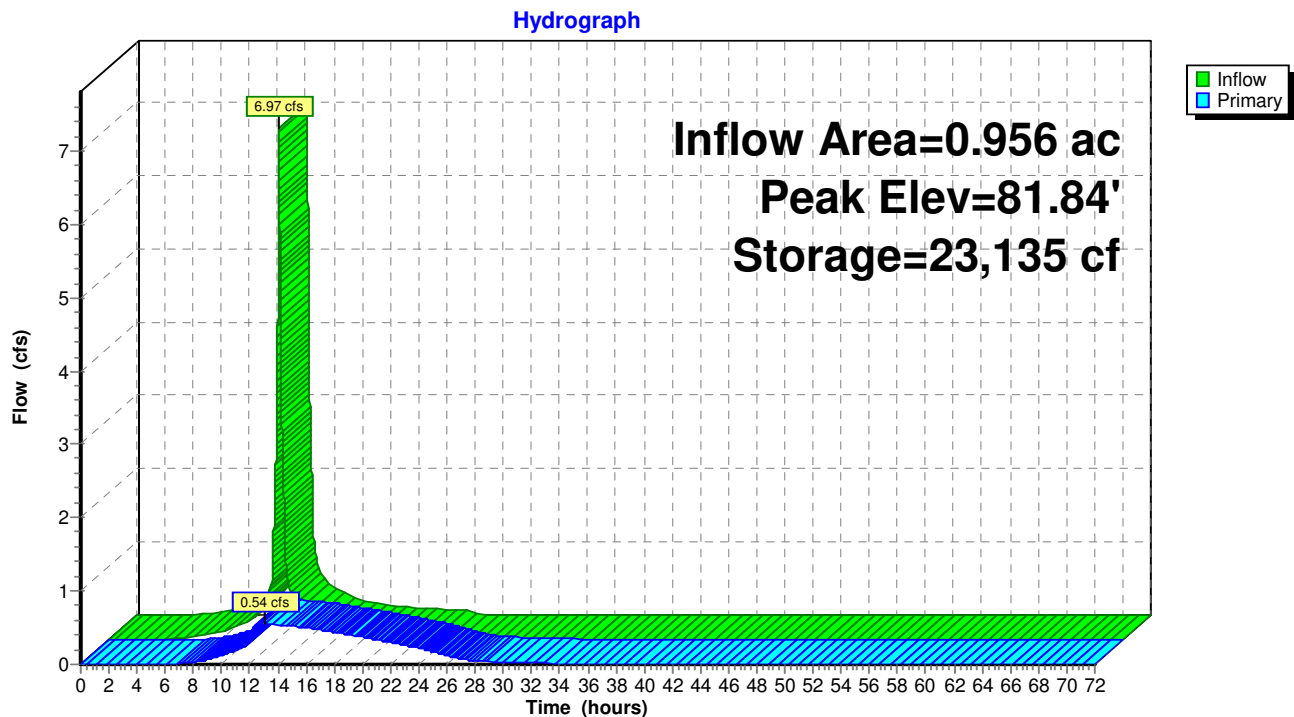
Pond PP3: UGC-B (Stormtech SC-310)



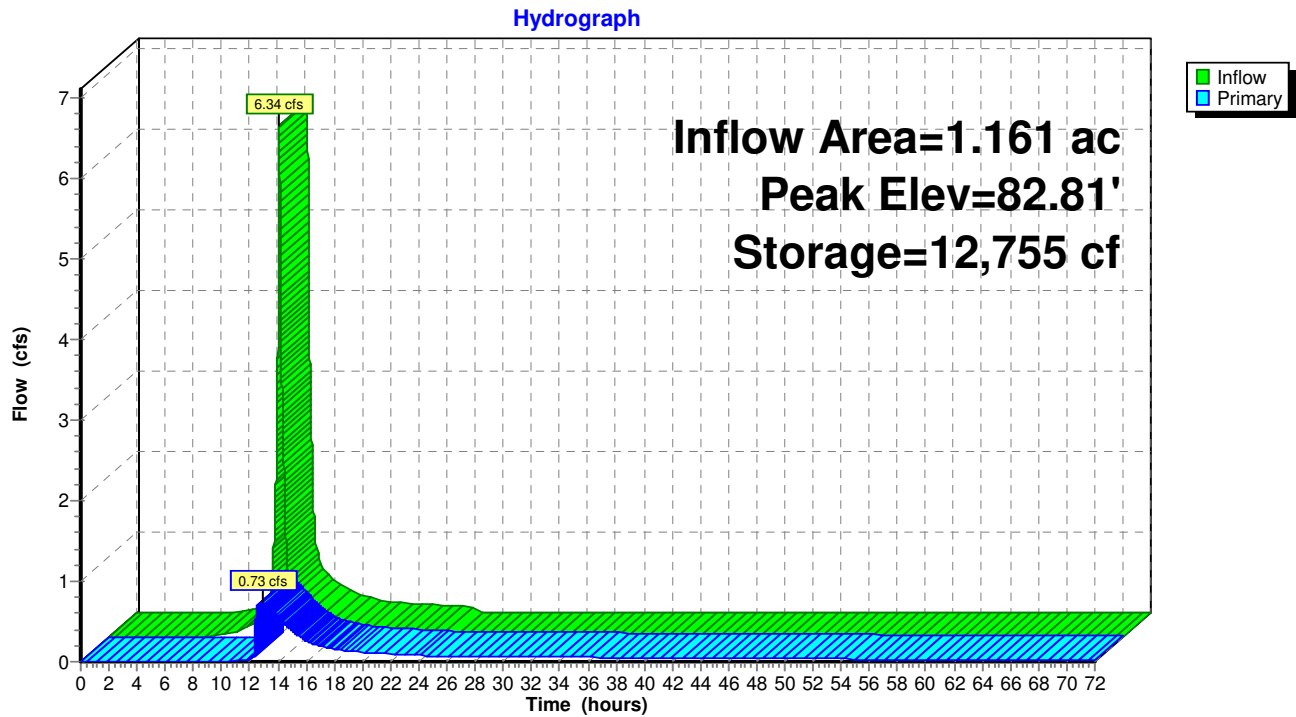
Pond PP4: UGC-E (Stormtech SC-310)



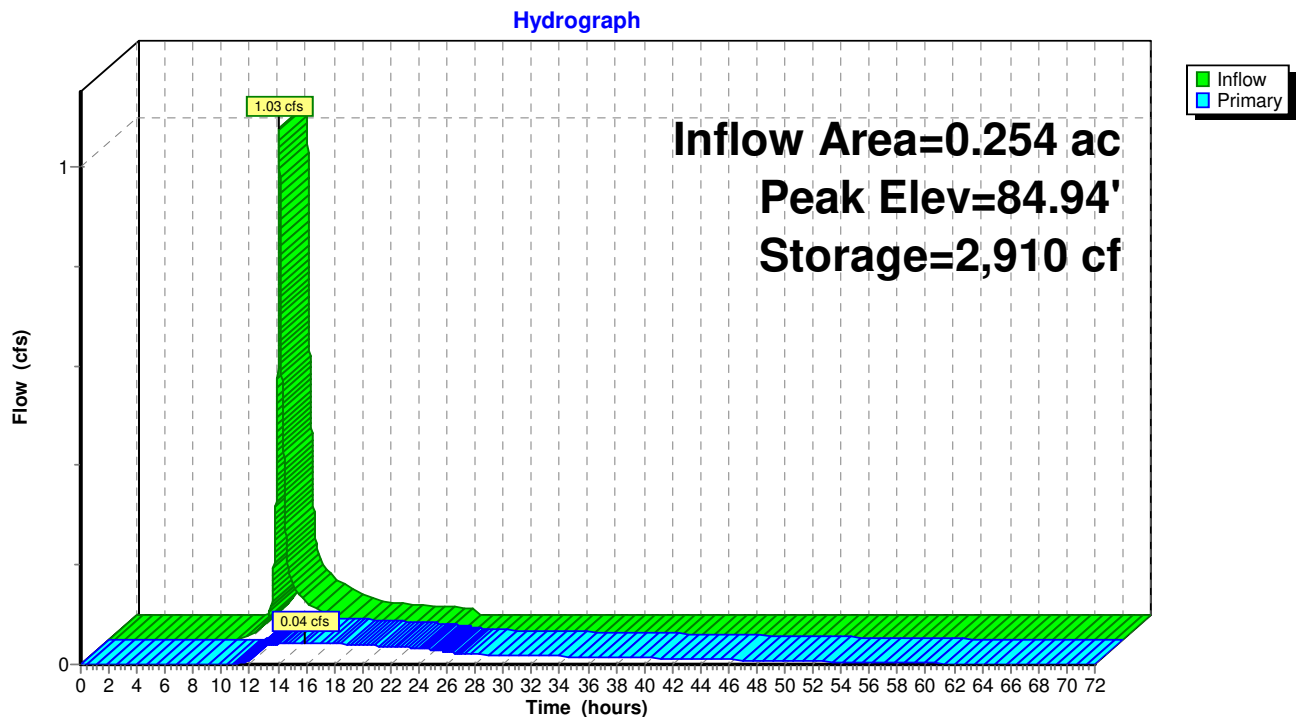
Pond PP5: Water Quality Basin (Kennedy Road)



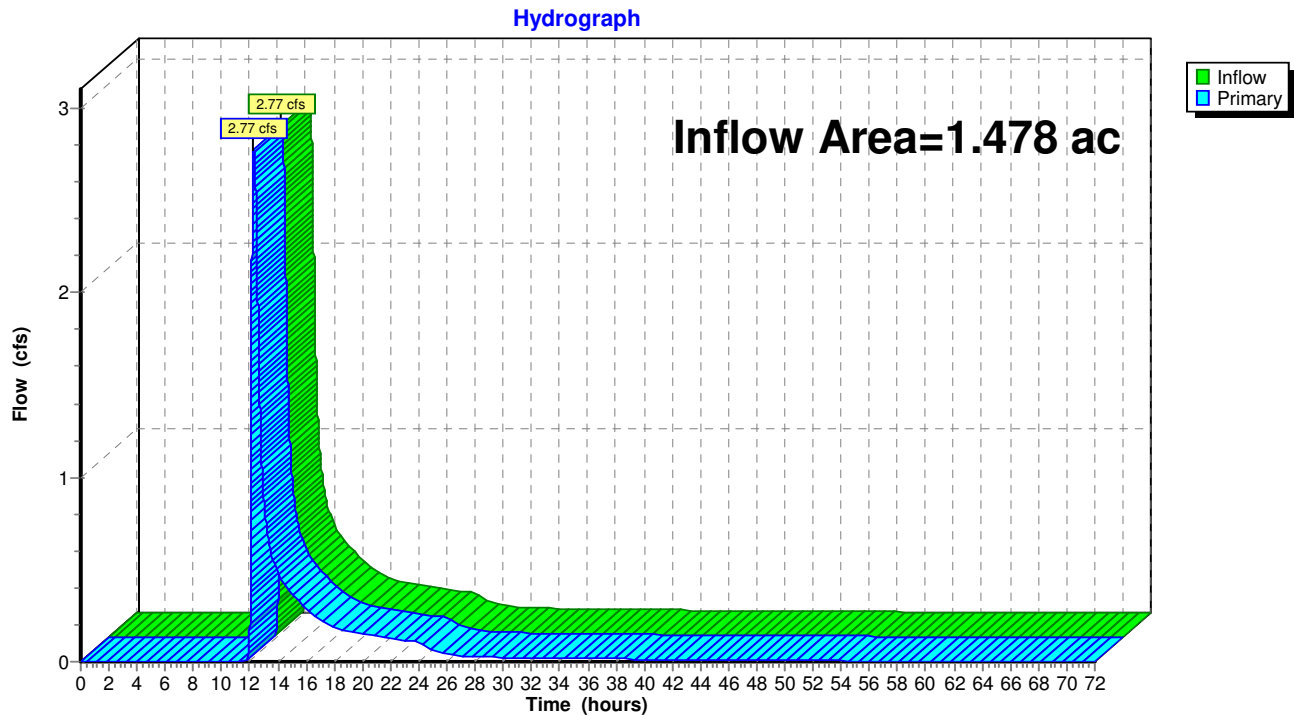
Pond PP6: UGC-A (Stormtech SC-740)



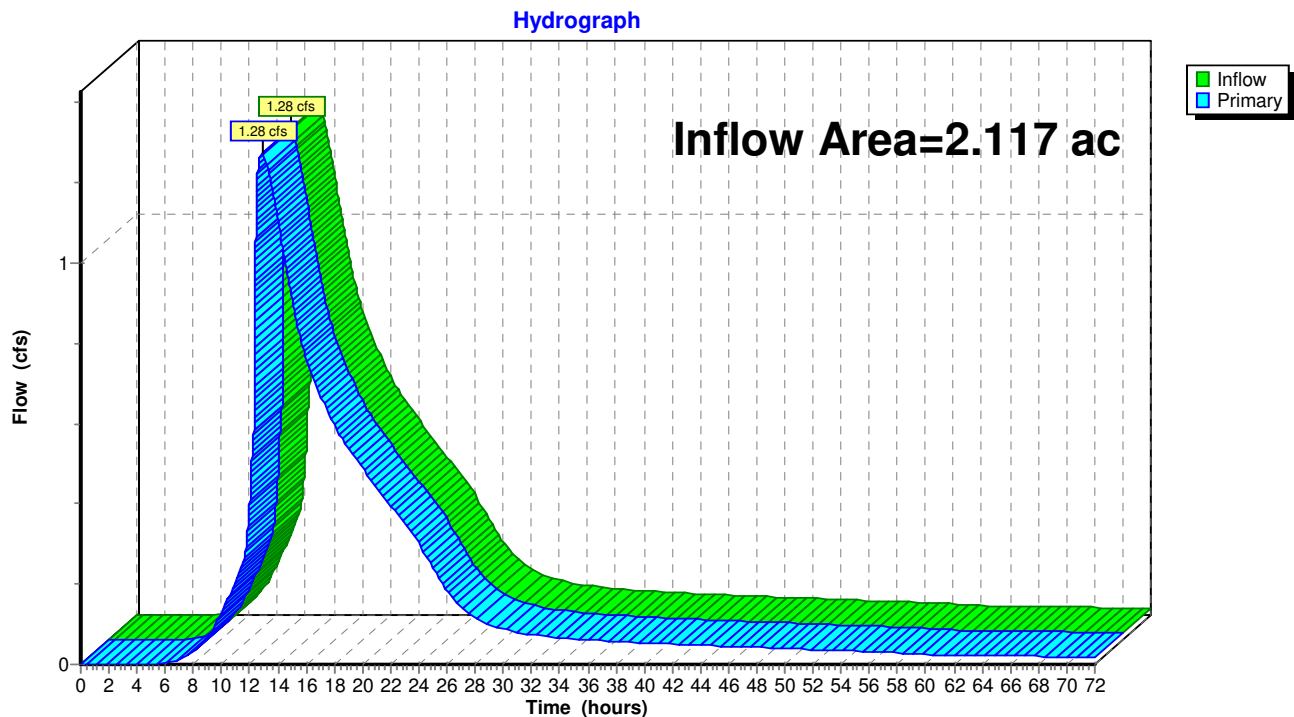
Pond PP7: UGC-C (Stormtech SC-310)



Link DP3*: (DP3*) Proposed Flow to Sullivan Ave



Link DP4*: (DP4*) Proposed Flow to Kennedy Road Drainage System



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Proposed Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Summary for Pond EP1-A*: (DP1*) Proposed Condition - Rail Road Pond

Inflow Area = 18.277 ac, 62.07% Impervious, Inflow Depth > 4.99" for 100-yr event
 Inflow = 7.47 cfs @ 14.23 hrs, Volume= 7.593 af
 Outflow = 7.34 cfs @ 14.54 hrs, Volume= 7.592 af, Atten= 2%, Lag= 18.4 min
 Primary = 7.34 cfs @ 14.54 hrs, Volume= 7.592 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 82.33' @ 14.54 hrs Surf.Area= 3,005 sf Storage= 3,280 cf

Plug-Flow detention time= 4.9 min calculated for 7.592 af (100% of inflow)
 Center-of-Mass det. time= 4.6 min (1,519.6 - 1,515.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	79.70'	23,243 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)	
79.70	10	0	0	10	
80.00	382	45	45	382	
81.00	1,156	734	780	1,162	
82.00	2,173	1,638	2,418	2,189	
83.00	5,061	3,517	5,934	5,085	
84.00	14,320	9,298	15,232	14,350	
84.50	17,785	8,011	23,243	17,822	

Device	Routing	Invert	Outlet Devices
#1	Primary	79.70'	18.0" Round 18" Culvert L= 43.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 79.60' / 79.70' S= -0.0023 ' / ' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 1.77 sf

Primary OutFlow Max=7.34 cfs @ 14.54 hrs HW=82.33' (Free Discharge)
 ↑ **1=18" Culvert** (Barrel Controls 7.34 cfs @ 4.15 fps)

Summary for Pond EP1-B*: Proposed Condition - Existing Depression 2 (N)

Inflow Area = 5.825 ac, 6.03% Impervious, Inflow Depth > 14.55" for 100-yr event
 Inflow = 7.19 cfs @ 14.16 hrs, Volume= 7.062 af
 Outflow = 7.18 cfs @ 14.25 hrs, Volume= 7.054 af, Atten= 0%, Lag= 5.0 min
 Primary = 7.18 cfs @ 14.25 hrs, Volume= 7.054 af

Routed to Pond EP1-A* : (DP1*) Proposed Condition - Rail Road Pond

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.57' @ 14.25 hrs Surf.Area= 10,567 sf Storage= 2,885 cf

Plug-Flow detention time= 11.4 min calculated for 7.053 af (100% of inflow)
 Center-of-Mass det. time= 7.9 min (1,503.9 - 1,496.0)

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Proposed Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Volume	Invert	Avail.Storage	Storage Description
#1	82.75'	23,186 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.75	10	0	0	10
83.00	952	88	88	952
84.00	24,585	10,125	10,213	24,587
84.50	27,331	12,973	23,186	27,348

Device	Routing	Invert	Outlet Devices
#1	Primary	83.10'	Spillway 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.90 Width (feet) 1.00 28.00
#2	Primary	83.50'	Spillway 2, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.50 Width (feet) 1.00 19.00

Primary OutFlow Max=7.18 cfs @ 14.25 hrs HW=83.57' TW=82.29' (Dynamic Tailwater)

1=Spillway 1 (Weir Controls 7.05 cfs @ 1.85 fps)

2=Spillway 2 (Weir Controls 0.13 cfs @ 0.78 fps)

Summary for Pond EP1-C*: Proposed Condition - Existing Depressing 3 (NE)

Inflow Area = 4.950 ac, 4.13% Impervious, Inflow Depth > 18.54" for 100-yr event
 Inflow = 15.16 cfs @ 12.71 hrs, Volume= 7.647 af
 Outflow = 6.65 cfs @ 14.29 hrs, Volume= 6.710 af, Atten= 56%, Lag= 94.8 min
 Primary = 6.65 cfs @ 14.29 hrs, Volume= 6.710 af
 Routed to Pond EP1-B* : Proposed Condition - Existing Depression 2 (N)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Peak Elev= 83.64' @ 14.27 hrs Surf.Area= 88,475 sf Storage= 68,867 cf

Plug-Flow detention time= 405.8 min calculated for 6.710 af (88% of inflow)

Center-of-Mass det. time= 223.8 min (1,528.6 - 1,304.9)

Volume	Invert	Avail.Storage	Storage Description
#1	82.40'	169,561 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
82.40	10	0	0	10
82.50	28,123	955	955	28,123
83.00	58,903	21,288	22,243	58,905
84.00	108,005	82,223	104,466	108,018
84.50	153,716	65,095	169,561	153,733

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Proposed Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Device	Routing	Invert	Outlet Devices
#1	Primary	83.70'	Spill Way 1, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.30 Width (feet) 1.00 34.00
#2	Primary	83.20'	Spill Way 3, Cv= 2.62 (C= 3.28) Head (feet) 0.00 0.30 Width (feet) 1.00 3.00
#3	Primary	83.50'	57.0' long + 0.3'/' SideZ x 3.0' breadth SW2 - 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=6.65 cfs @ 14.29 hrs HW=83.64' TW=83.57' (Dynamic Tailwater)

1=Spill Way 1 (Controls 0.00 cfs)

2=Spill Way 3 (Orifice Controls 0.76 cfs @ 1.26 fps)

3=SW2 - Broad-Crested Rectangular Weir (Weir Controls 5.89 cfs @ 0.75 fps)

Summary for Pond PP1: UGC-D (Stormtech SC-740)

Inflow Area = 11.853 ac, 91.92% Impervious, Inflow Depth > 7.22" for 100-yr event
 Inflow = 52.10 cfs @ 12.09 hrs, Volume= 7.130 af
 Outflow = 4.92 cfs @ 13.00 hrs, Volume= 6.214 af, Atten= 91%, Lag= 54.8 min
 Primary = 0.10 cfs @ 13.00 hrs, Volume= 0.326 af
 Routed to Pond EP1-A* : (DP1*) Proposed Condition - Rail Road Pond
 Secondary = 4.82 cfs @ 13.00 hrs, Volume= 5.888 af
 Routed to Pond EP1-C* : Proposed Condition - Existing Depressing 3 (NE)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Starting Elev= 82.82' Surf.Area= 69,966 sf Storage= 19,799 cf
 Peak Elev= 85.69' @ 13.00 hrs Surf.Area= 69,966 sf Storage= 149,204 cf (129,405 cf above start)

Plug-Flow detention time= 705.5 min calculated for 5.759 af (81% of inflow)
 Center-of-Mass det. time= 422.2 min (1,474.1 - 1,051.9)

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Proposed Condition
Type III 24-hr 100-yr Rainfall=7.90"

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Volume	Invert	Avail.Storage	Storage Description
#1A	82.22'	24,565 cf	34.75'W x 801.06'L x 3.50'H Field A 97,429 cf Overall - 36,017 cf Embedded = 61,412 cf x 40.0% Voids
#2A	82.72'	36,017 cf	ADS_StormTech SC-740 +Cap x 784 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 784 Chambers in 7 Rows
#3B	82.22'	4,732 cf	6.25'W x 765.46'L x 3.50'H Field B 16,744 cf Overall - 4,916 cf Embedded = 11,829 cf x 40.0% Voids
#4B	82.72'	4,916 cf	ADS_StormTech SC-740 +Cap x 107 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#5C	82.22'	24,873 cf	39.50'W x 715.62'L x 3.50'H Field C 98,934 cf Overall - 36,752 cf Embedded = 62,182 cf x 40.0% Voids
#6C	82.72'	36,752 cf	ADS_StormTech SC-740 +Cap x 800 Inside #5 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 800 Chambers in 8 Rows
#7D	82.22'	4,600 cf	6.25'W x 744.10'L x 3.50'H Field D 16,277 cf Overall - 4,778 cf Embedded = 11,499 cf x 40.0% Voids
#8D	82.72'	4,778 cf	ADS_StormTech SC-740 +Cap x 104 Inside #7 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#9E	82.22'	4,380 cf	6.25'W x 708.50'L x 3.50'H Field E 15,498 cf Overall - 4,548 cf Embedded = 10,950 cf x 40.0% Voids
#10E	82.72'	4,548 cf	ADS_StormTech SC-740 +Cap x 99 Inside #9 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		150,159 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Storage Group C created with Chamber Wizard

Storage Group D created with Chamber Wizard

Storage Group E created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	82.78'	12.0" Round 12" RCP L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 82.78' / 82.70' S= 0.0057 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#2	Secondary	83.40'	12.0" Round 12" HDPE L= 39.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.40' / 83.20' S= 0.0051 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf
#3	Device 1	82.82'	1.5" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

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Primary OutFlow Max=0.10 cfs @ 13.00 hrs HW=85.69' TW=80.81' (Dynamic Tailwater)↑**1=12" RCP** (Passes 0.10 cfs of 5.87 cfs potential flow)↑**3=Orifice/Grate** (Orifice Controls 0.10 cfs @ 8.06 fps)**Secondary OutFlow** Max=4.82 cfs @ 13.00 hrs HW=85.69' TW=83.38' (Dynamic Tailwater)↑**2=12" HDPE** (Barrel Controls 4.82 cfs @ 6.13 fps)**Summary for Pond PP2: Water Quality Basin (WEST)**

Inflow Area = 4.681 ac, 86.82% Impervious, Inflow Depth = 7.06" for 100-yr event
 Inflow = 35.43 cfs @ 12.09 hrs, Volume= 2.755 af
 Outflow = 1.72 cfs @ 18.85 hrs, Volume= 2.646 af, Atten= 95%, Lag= 405.8 min
 Primary = 1.72 cfs @ 18.85 hrs, Volume= 2.646 af
 Routed to Pond PP1 : UGC-D (Stormtech SC-740)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Starting Elev= 83.50' Surf.Area= 39,354 sf Storage= 18,954 cf
 Peak Elev= 85.53' @ 15.43 hrs Surf.Area= 52,149 sf Storage= 111,451 cf (92,496 cf above start)

Plug-Flow detention time= 1,009.0 min calculated for 2.211 af (80% of inflow)
 Center-of-Mass det. time= 795.3 min (1,560.9 - 765.7)

Volume	Invert	Avail.Storage	Storage Description	
#1	83.00'	136,855 cf	Custom Stage Data (Conic) Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
83.00	36,482	0	0	36,482
84.00	42,335	39,372	39,372	42,377
85.00	48,730	45,495	84,867	48,817
86.00	55,314	51,987	136,855	55,450

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	10.0" Round Culvert L= 19.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.50' / 83.38' S= 0.0063 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.72 cfs @ 18.85 hrs HW=85.34' TW=84.91' (Dynamic Tailwater)↑**1=Culvert** (Inlet Controls 1.72 cfs @ 3.15 fps)**Summary for Pond PP3: UGC-B (Stormtech SC-310)**

Inflow Area = 1.223 ac, 8.92% Impervious, Inflow Depth = 3.81" for 100-yr event
 Inflow = 5.26 cfs @ 12.10 hrs, Volume= 0.389 af
 Outflow = 2.75 cfs @ 12.27 hrs, Volume= 0.342 af, Atten= 48%, Lag= 10.3 min
 Primary = 2.75 cfs @ 12.27 hrs, Volume= 0.342 af
 Routed to Link DP3* : (DP3*) Proposed Flow to Sullivan Ave

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 80.30' Surf.Area= 5,806 sf Storage= 1,459 cf

Peak Elev= 81.83' @ 12.27 hrs Surf.Area= 5,806 sf Storage= 6,539 cf (5,080 cf above start)

Plug-Flow detention time= 173.7 min calculated for 0.308 af (79% of inflow)

Center-of-Mass det. time= 73.5 min (910.4 - 836.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	79.73'	2,828 cf	8.17'W x 473.12'L x 2.33'H Field A 9,016 cf Overall - 1,946 cf Embedded = 7,070 cf x 40.0% Voids
#2A	80.23'	1,946 cf	ADS_StormTech SC-310 +Cap x 132 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 132 Chambers in 2 Rows
#3B	79.73'	1,483 cf	4.83'W x 401.92'L x 2.33'H Field B 4,533 cf Overall - 826 cf Embedded = 3,707 cf x 40.0% Voids
#4B	80.23'	826 cf	ADS_StormTech SC-310 +Cap x 56 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		7,082 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	79.69'	12.0" Round 12" HDPE OUT L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.69' / 79.27' S= 0.0210 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	80.80'	12.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.75 cfs @ 12.27 hrs HW=81.83' TW=0.00' (Dynamic Tailwater)

1=12" HDPE OUT (Passes 2.75 cfs of 4.84 cfs potential flow)

2=Orifice/Grate (Orifice Controls 2.75 cfs @ 3.50 fps)

Summary for Pond PP4: UGC-E (Stormtech SC-310)

Inflow Area = 1.152 ac, 84.49% Impervious, Inflow Depth = 7.06" for 100-yr event
 Inflow = 8.72 cfs @ 12.09 hrs, Volume= 0.678 af
 Outflow = 5.74 cfs @ 12.17 hrs, Volume= 0.678 af, Atten= 34%, Lag= 5.1 min
 Primary = 5.74 cfs @ 12.17 hrs, Volume= 0.678 af
 Routed to Pond PP1 : UGC-D (Stormtech SC-740)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 85.95' Surf.Area= 4,780 sf Storage= 1,189 cf

Peak Elev= 87.56' @ 12.17 hrs Surf.Area= 4,780 sf Storage= 5,388 cf (4,199 cf above start)

Plug-Flow detention time= 68.7 min calculated for 0.650 af (96% of inflow)

Center-of-Mass det. time= 28.5 min (794.2 - 765.7)

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Volume	Invert	Avail.Storage	Storage Description
#1A	85.38'	1,850 cf	4.83'W x 501.60'L x 2.33'H Field A 5,657 cf Overall - 1,032 cf Embedded = 4,625 cf x 40.0% Voids
#2A	85.88'	1,032 cf	ADS_StormTech SC-310 +Cap x 70 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3B	85.38'	1,798 cf	4.83'W x 487.36'L x 2.33'H Field B 5,496 cf Overall - 1,002 cf Embedded = 4,494 cf x 40.0% Voids
#4B	85.88'	1,002 cf	ADS_StormTech SC-310 +Cap x 68 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		5,682 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	85.44'	15.0" Round 15" HDPE OUT L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.44' / 85.13' S= 0.0053 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#2	Device 1	85.95'	10.0" Round 10" HDPE X 2.00 L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 85.95' / 85.80' S= 0.0300 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=5.74 cfs @ 12.17 hrs HW=87.56' TW=84.84' (Dynamic Tailwater)

1=15" HDPE OUT (Passes 5.74 cfs of 6.54 cfs potential flow)

2=10" HDPE (Inlet Controls 5.74 cfs @ 5.26 fps)

Summary for Pond PP5: Water Quality Basin (Kennedy Road)

Inflow Area = 0.956 ac, 70.56% Impervious, Inflow Depth = 6.59" for 100-yr event
 Inflow = 6.97 cfs @ 12.09 hrs, Volume= 0.525 af
 Outflow = 0.54 cfs @ 13.10 hrs, Volume= 0.523 af, Atten= 92%, Lag= 61.0 min
 Primary = 0.54 cfs @ 13.10 hrs, Volume= 0.523 af

Routed to Link DP4* : (DP4*) Proposed Flow to Kennedy Road Drainage System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 80.00' Surf.Area= 5,601 sf Storage= 11,033 cf

Peak Elev= 81.84' @ 13.10 hrs Surf.Area= 7,605 sf Storage= 23,135 cf (12,102 cf above start)

Plug-Flow detention time= 644.8 min calculated for 0.270 af (51% of inflow)

Center-of-Mass det. time= 293.4 min (1,072.8 - 779.4)

Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	42,367 cf	Custom Stage Data (Conic) Listed below (Recalc)

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Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
75.00	239	0	0	239
76.00	786	486	486	791
77.00	1,382	1,070	1,556	1,399
78.00	2,063	1,711	3,267	2,095
78.80	2,824	1,947	5,214	2,869
79.00	4,585	734	5,948	4,630
80.00	5,601	5,085	11,033	5,677
81.00	6,669	6,127	17,160	6,781
82.00	7,793	7,224	24,384	7,944
83.00	8,973	8,376	32,760	9,168
84.00	10,257	9,608	42,367	10,498

Device	Routing	Invert	Outlet Devices
#1	Primary	79.79'	12.0" Round 12" RCP Culvert L= 34.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.79' / 79.60' S= 0.0056 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf
#2	Device 1	80.00'	4.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.54 cfs @ 13.10 hrs HW=81.84' TW=0.00' (Dynamic Tailwater)↑ **1=12" RCP Culvert** (Passes 0.54 cfs of 4.38 cfs potential flow)↑ **2=Orifice/Grate** (Orifice Controls 0.54 cfs @ 6.22 fps)**Summary for Pond PP6: UGC-A (Stormtech SC-740)**

Inflow Area = 1.161 ac, 17.93% Impervious, Inflow Depth = 4.84" for 100-yr event
 Inflow = 6.34 cfs @ 12.10 hrs, Volume= 0.468 af
 Outflow = 0.73 cfs @ 12.86 hrs, Volume= 0.410 af, Atten= 88%, Lag= 45.8 min
 Primary = 0.73 cfs @ 12.86 hrs, Volume= 0.410 af
 Routed to Link DP4* : (DP4*) Proposed Flow to Kennedy Road Drainage System

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs
 Starting Elev= 80.00' Surf.Area= 6,498 sf Storage= 1,594 cf
 Peak Elev= 82.81' @ 12.86 hrs Surf.Area= 6,498 sf Storage= 12,755 cf (11,161 cf above start)

Plug-Flow detention time= 912.7 min calculated for 0.374 af (80% of inflow)
 Center-of-Mass det. time= 755.0 min (1,572.8 - 817.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	79.44'	4,292 cf	6.25'W x 694.26'L x 3.50'H Field A 15,187 cf Overall - 4,456 cf Embedded = 10,731 cf x 40.0% Voids
#2A	79.94'	4,456 cf	ADS StormTech SC-740 +Cap x 97 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	79.44'	2,140 cf	6.25'W x 345.38'L x 3.50'H Field B 7,555 cf Overall - 2,205 cf Embedded = 5,350 cf x 40.0% Voids
#4B	79.94'	2,205 cf	ADS StormTech SC-740 +Cap x 48 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

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Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

13,094 cf Total Available Storage

Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	80.00'	12.0" Round 12" HDPE L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 80.00' / 79.90' S= 0.0056 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	80.66'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	80.00'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Device 1	82.16'	9.0" W x 3.0" H Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.73 cfs @ 12.86 hrs HW=82.81' TW=0.00' (Dynamic Tailwater)

1=12" HDPE (Passes 0.73 cfs of 5.75 cfs potential flow)

2=Orifice/Grate (Orifice Controls 0.04 cfs @ 6.99 fps)

3=Orifice/Grate (Orifice Controls 0.04 cfs @ 8.01 fps)

4=Orifice/Grate (Orifice Controls 0.65 cfs @ 3.48 fps)

Summary for Pond PP7: UGC-C (Stormtech SC-310)

Inflow Area = 0.254 ac, 6.38% Impervious, Inflow Depth = 3.59" for 100-yr event

Inflow = 1.03 cfs @ 12.10 hrs, Volume= 0.076 af

Outflow = 0.04 cfs @ 15.89 hrs, Volume= 0.075 af, Atten= 96%, Lag= 227.4 min

Primary = 0.04 cfs @ 15.89 hrs, Volume= 0.075 af

Routed to Link DP3* : (DP3*) Proposed Flow to Sullivan Ave

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.002 hrs

Starting Elev= 83.88' Surf.Area= 3,231 sf Storage= 804 cf

Peak Elev= 84.94' @ 15.89 hrs Surf.Area= 3,231 sf Storage= 2,910 cf (2,106 cf above start)

Plug-Flow detention time= 1,130.1 min calculated for 0.057 af (74% of inflow)

Center-of-Mass det. time= 796.4 min (1,637.6 - 841.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	83.31'	1,299 cf	4.83'W x 352.08'L x 2.33'H Field A 3,971 cf Overall - 722 cf Embedded = 3,248 cf x 40.0% Voids
#2A	83.81'	722 cf	ADS StormTech SC-310 +Cap x 49 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
#3B	83.31'	1,168 cf	4.83'W x 316.48'L x 2.33'H Field B 3,569 cf Overall - 649 cf Embedded = 2,921 cf x 40.0% Voids
#4B	83.81'	649 cf	ADS StormTech SC-310 +Cap x 44 Inside #3 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
3,839 cf			Total Available Storage

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Storage Group A created with Chamber Wizard

Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	83.20'	12.0" Round 12" HDPE L= 96.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.20' / 81.60' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#2	Device 1	83.88'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#3	Device 1	84.50'	1.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.04 cfs @ 15.89 hrs HW=84.94' TW=0.00' (Dynamic Tailwater)

↑ **1=12" HDPE** (Passes 0.04 cfs of 4.21 cfs potential flow)
↑ **2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 4.86 fps)
↑ **3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 3.03 fps)

APPENDIX C
NRCS Soil Map & Data



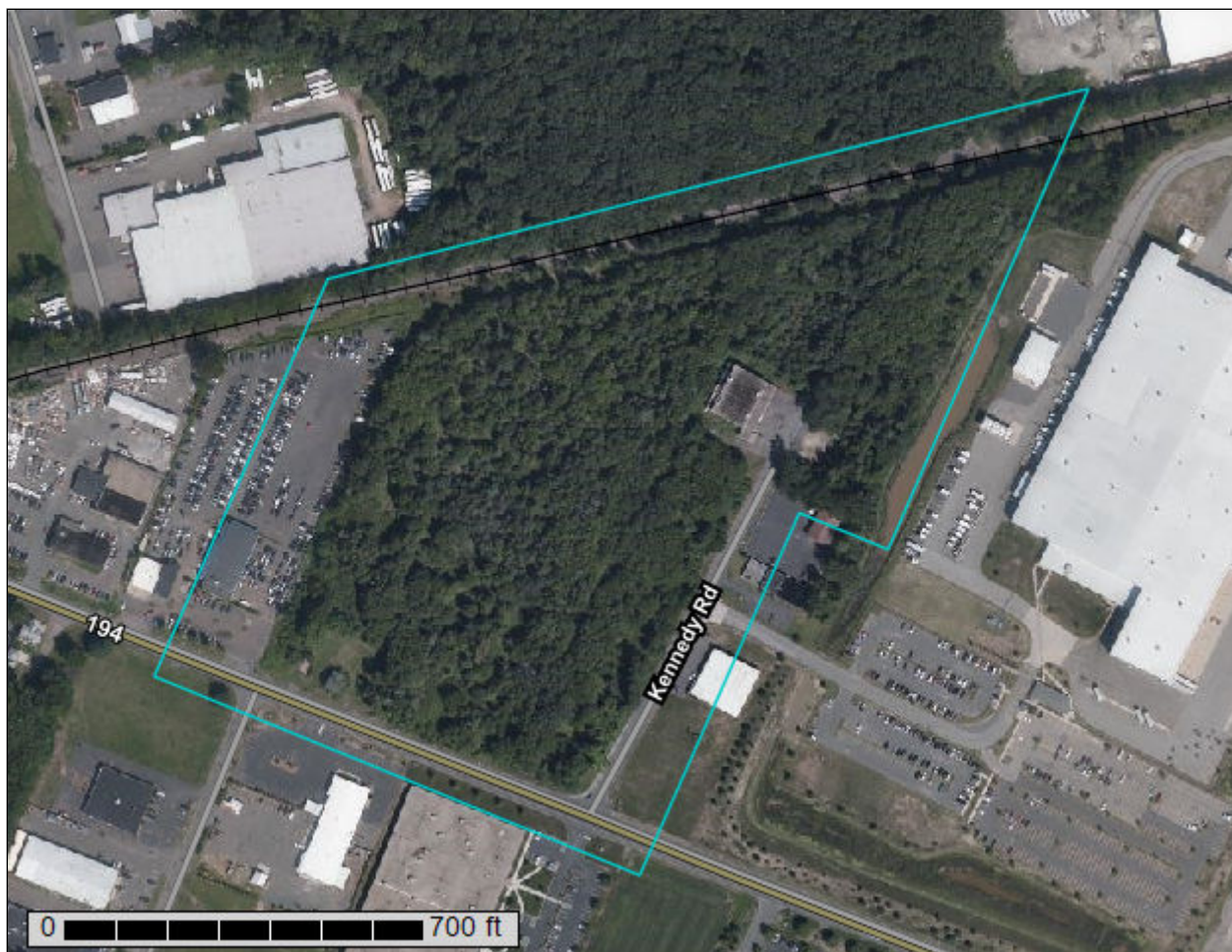
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a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for State of Connecticut



March 18, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

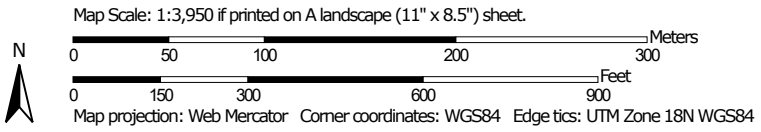
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identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.


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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip

 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 24, 2019—Oct 24, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
13	Walpole sandy loam, 0 to 3 percent slopes	10.6	32.3%
23A	Sudbury sandy loam, 0 to 5 percent slopes	3.7	11.4%
36A	Windsor loamy sand, 0 to 3 percent slopes	1.9	5.8%
304	Udorthents, loamy, very steep	0.1	0.2%
306	Udorthents-Urban land complex	5.7	17.2%
307	Urban land	1.4	4.2%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	9.5	28.8%
Totals for Area of Interest		32.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

State of Connecticut

13—Walpole sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkl

Elevation: 0 to 1,020 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 250 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Walpole and similar soils: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole

Setting

Landform: Depressions, outwash plains, outwash terraces, depressions, deltas

Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Tread, dip, talf

Down-slope shape: Concave

Across-slope shape: Concave

Parent material: Sandy glaciofluvial deposits derived from igneous, metamorphic and sedimentary rock

Typical profile

Oe - 0 to 1 inches: mucky peat

A - 1 to 7 inches: sandy loam

Bg - 7 to 21 inches: sandy loam

BC - 21 to 25 inches: gravelly sandy loam

C - 25 to 65 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Poorly drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: About 0 to 4 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 6.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Ecological site: F144AY028MA - Wet Outwash

Hydric soil rating: Yes

Minor Components

Sudbury

Percent of map unit: 10 percent
Landform: Outwash plains, deltas, terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Scarboro

Percent of map unit: 10 percent
Landform: Outwash plains, deltas, outwash terraces
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread, dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

23A—Sudbury sandy loam, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 9lkv
Elevation: 0 to 1,200 feet
Mean annual precipitation: 43 to 54 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sudbury and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sudbury

Setting

Landform: Terraces, outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Sandy and gravelly glaciofluvial deposits derived from granite and/or schist and/or gneiss

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 5 inches: sandy loam
Bw1 - 5 to 17 inches: gravelly sandy loam
Bw2 - 17 to 25 inches: sandy loam
2C - 25 to 60 inches: stratified gravel to sand

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144AY027MA - Moist Sandy Outwash
Hydric soil rating: No

Minor Components

Agawam

Percent of map unit: 5 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Merrimac

Percent of map unit: 5 percent
Landform: Terraces, outwash plains, kames
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ninigret

Percent of map unit: 5 percent
Landform: Terraces, outwash plains
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

Tisbury

Percent of map unit: 3 percent
Landform: Terraces, outwash plains
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Walpole

Percent of map unit: 2 percent
Landform: Drainageways on terraces, depressions on terraces
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

36A—Windsor loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svkg

Elevation: 0 to 990 feet

Mean annual precipitation: 36 to 71 inches

Mean annual air temperature: 39 to 55 degrees F

Frost-free period: 140 to 240 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Windsor, loamy sand, and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Windsor, Loamy Sand

Setting

Landform: Outwash plains, outwash terraces, deltas, dunes

Landform position (three-dimensional): Tread, riser

Down-slope shape: Linear, convex

Across-slope shape: Linear, convex

Parent material: Loose sandy glaciofluvial deposits derived from granite and/or loose sandy glaciofluvial deposits derived from schist and/or loose sandy glaciofluvial deposits derived from gneiss

Typical profile

O - 0 to 1 inches: moderately decomposed plant material

A - 1 to 3 inches: loamy sand

Bw - 3 to 25 inches: loamy sand

C - 25 to 65 inches: sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2s

Hydrologic Soil Group: A

Ecological site: F144AY022MA - Dry Outwash

Hydric soil rating: No

Minor Components

Deerfield, loamy sand

Percent of map unit: 10 percent
Landform: Deltas, terraces, outwash plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Hinckley, loamy sand

Percent of map unit: 5 percent
Landform: Deltas, kames, eskers, outwash plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Head slope, nose slope, side slope, crest, rise
Down-slope shape: Convex
Across-slope shape: Convex, linear
Hydric soil rating: No

304—Udorthents, loamy, very steep

Map Unit Setting

National map unit symbol: 9lmd
Elevation: 0 to 1,200 feet
Mean annual precipitation: 37 to 52 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 140 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Landform: Escarpments
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

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Properties and qualities

Slope: 25 to 70 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Shaker

Percent of map unit: 3 percent
Landform: Terraces, drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Scitico

Percent of map unit: 3 percent
Landform: Terraces, drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Maybid

Percent of map unit: 2 percent
Landform: Terraces, drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Raynham

Percent of map unit: 1 percent
Landform: Drainageways, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Unnamed, frequently flooded

Percent of map unit: 1 percent
Landform: Drainageways
Hydric soil rating: Yes

306—Udorthents-Urban land complex

Map Unit Setting

National map unit symbol: 9lmg
Elevation: 0 to 2,000 feet
Mean annual precipitation: 43 to 56 inches
Mean annual air temperature: 45 to 55 degrees F
Frost-free period: 120 to 185 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents and similar soils: 50 percent
Urban land: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents

Setting

Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Drift

Typical profile

A - 0 to 5 inches: loam
C1 - 5 to 21 inches: gravelly loam
C2 - 21 to 80 inches: very gravelly sandy loam

Properties and qualities

Slope: 0 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 1.98 in/hr)
Depth to water table: About 54 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: Unranked

Minor Components

Unnamed, undisturbed soils

Percent of map unit: 8 percent

Hydric soil rating: No

Udorthents, wet substratum

Percent of map unit: 5 percent

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Rock outcrop

Percent of map unit: 2 percent

Hydric soil rating: No

307—Urban land

Map Unit Setting

National map unit symbol: 9lmh

Elevation: 0 to 2,000 feet

Mean annual precipitation: 43 to 56 inches

Mean annual air temperature: 45 to 55 degrees F

Frost-free period: 120 to 185 days

Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 80 percent

Minor components: 20 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Typical profile

H - 0 to 6 inches: material

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: D

Hydric soil rating: Unranked

Minor Components

Udorthents, wet substratum

Percent of map unit: 10 percent

Down-slope shape: Convex

Across-slope shape: Linear

Hydric soil rating: No

Unnamed, undisturbed soils

Percent of map unit: 10 percent

Hydric soil rating: No

701A—Ninigret fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2y07d

Elevation: 0 to 1,260 feet

Mean annual precipitation: 43 to 54 inches

Mean annual air temperature: 45 to 55 degrees F

Frost-free period: 140 to 185 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Ninigret and similar soils: 85 percent

Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ninigret

Setting

Landform: Kame terraces, outwash plains, moraines, kames, outwash terraces

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Convex, linear

Across-slope shape: Convex, concave

Parent material: Coarse-loamy eolian deposits over sandy and gravelly glaciofluvial deposits derived from gneiss, granite, schist, and/or phyllite

Typical profile

Ap - 0 to 8 inches: fine sandy loam

Bw1 - 8 to 16 inches: fine sandy loam

Bw2 - 16 to 26 inches: fine sandy loam

2C - 26 to 65 inches: stratified loamy sand to loamy fine sand

Properties and qualities

Slope: 0 to 3 percent

Depth to restrictive feature: 18 to 38 inches to strongly contrasting textural stratification

Drainage class: Moderately well drained

Runoff class: Very low

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Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high
(0.14 to 14.17 in/hr)

Depth to water table: About 17 to 39 inches

Frequency of flooding: None

Frequency of ponding: None

Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C

Ecological site: F144AY026CT - Moist Silty Outwash

Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent

Landform: Outwash plains, outwash terraces, eskers, kames, moraines

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Side slope, crest, tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Agawam

Percent of map unit: 5 percent

Landform: Kame terraces, outwash plains, outwash terraces, moraines, kames

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Side slope, crest, tread

Down-slope shape: Convex

Across-slope shape: Convex

Hydric soil rating: No

Tisbury

Percent of map unit: 3 percent

Landform: Outwash terraces, valley trains, deltas, outwash plains

Landform position (three-dimensional): Tread

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: No

Raypol

Percent of map unit: 2 percent

Landform: Drainageways, depressions

Down-slope shape: Concave

Across-slope shape: Concave

Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

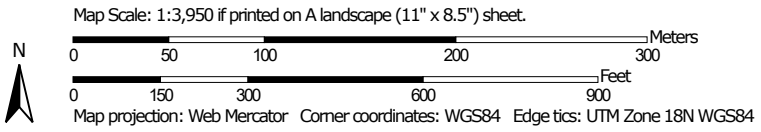
Custom Soil Resource Report

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.


Custom Soil Resource Report Map—Hydrologic Soil Group



Custom Soil Resource Report









MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines


 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points






 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 21, Sep 7, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 24, 2019—Oct 24, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
13	Walpole sandy loam, 0 to 3 percent slopes	B/D	10.6	32.3%
23A	Sudbury sandy loam, 0 to 5 percent slopes	B	3.7	11.4%
36A	Windsor loamy sand, 0 to 3 percent slopes	A	1.9	5.8%
304	Udorthents, loamy, very steep	B	0.1	0.2%
306	Udorthents-Urban land complex	B	5.7	17.2%
307	Urban land	D	1.4	4.2%
701A	Ninigret fine sandy loam, 0 to 3 percent slopes	C	9.5	28.8%
Totals for Area of Interest			32.9	100.0%

Rating Options—Hydrologic Soil Group*Aggregation Method: Dominant Condition**Component Percent Cutoff: None Specified**Tie-break Rule: Higher*

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APPENDIX D
NOAA Atlas 14 Rainfall Data



NOAA Atlas 14, Volume 10, Version 3
Location name: South Windsor, Connecticut, USA*
Latitude: 41.8547°, Longitude: -72.5879°
Elevation: 82.29 ft**

* source: ESRI Maps

** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.338 (0.261-0.438)	0.409 (0.315-0.530)	0.525 (0.403-0.683)	0.621 (0.474-0.812)	0.753 (0.558-1.03)	0.853 (0.620-1.19)	0.957 (0.677-1.39)	1.07 (0.722-1.60)	1.24 (0.804-1.91)	1.38 (0.874-2.17)
10-min	0.479 (0.370-0.621)	0.580 (0.447-0.751)	0.744 (0.572-0.969)	0.880 (0.673-1.15)	1.07 (0.790-1.46)	1.21 (0.877-1.69)	1.36 (0.959-1.97)	1.52 (1.02-2.26)	1.76 (1.14-2.71)	1.96 (1.24-3.07)
15-min	0.564 (0.435-0.730)	0.682 (0.525-0.884)	0.875 (0.672-1.14)	1.03 (0.790-1.35)	1.25 (0.930-1.72)	1.42 (1.03-1.99)	1.59 (1.13-2.32)	1.79 (1.20-2.66)	2.07 (1.34-3.19)	2.30 (1.46-3.61)
30-min	0.757 (0.584-0.980)	0.918 (0.708-1.19)	1.18 (0.907-1.54)	1.40 (1.07-1.84)	1.70 (1.26-2.33)	1.93 (1.40-2.70)	2.17 (1.53-3.15)	2.44 (1.64-3.62)	2.82 (1.83-4.34)	3.13 (1.98-4.92)
60-min	0.950 (0.733-1.23)	1.16 (0.890-1.50)	1.49 (1.15-1.94)	1.77 (1.35-2.32)	2.15 (1.60-2.95)	2.44 (1.77-3.41)	2.74 (1.94-3.98)	3.08 (2.07-4.58)	3.57 (2.31-5.49)	3.97 (2.51-6.22)
2-hr	1.23 (0.952-1.58)	1.48 (1.15-1.91)	1.90 (1.47-2.46)	2.25 (1.73-2.93)	2.73 (2.04-3.72)	3.09 (2.26-4.31)	3.47 (2.48-5.04)	3.92 (2.64-5.78)	4.59 (2.98-7.01)	5.15 (3.27-8.03)
3-hr	1.41 (1.10-1.82)	1.71 (1.33-2.19)	2.19 (1.70-2.82)	2.59 (1.99-3.35)	3.14 (2.35-4.27)	3.54 (2.61-4.94)	3.98 (2.86-5.78)	4.51 (3.04-6.64)	5.32 (3.46-8.10)	6.00 (3.82-9.32)
6-hr	1.77 (1.39-2.26)	2.15 (1.68-2.75)	2.77 (2.16-3.55)	3.28 (2.54-4.23)	3.99 (3.00-5.40)	4.50 (3.34-6.26)	5.07 (3.67-7.35)	5.77 (3.91-8.44)	6.86 (4.47-10.4)	7.79 (4.97-12.0)
12-hr	2.17 (1.71-2.75)	2.66 (2.09-3.37)	3.46 (2.71-4.40)	4.12 (3.21-5.28)	5.03 (3.82-6.79)	5.71 (4.25-7.89)	6.44 (4.70-9.31)	7.36 (5.00-10.7)	8.80 (5.76-13.2)	10.0 (6.43-15.4)
24-hr	2.52 (2.00-3.18)	3.14 (2.48-3.96)	4.15 (3.27-5.25)	4.98 (3.90-6.35)	6.13 (4.68-8.24)	6.97 (5.23-9.61)	7.90 (5.81-11.4)	9.09 (6.20-13.1)	11.0 (7.21-16.4)	12.7 (8.12-19.3)
2-day	2.83 (2.25-3.55)	3.57 (2.84-4.48)	4.78 (3.79-6.02)	5.79 (4.56-7.33)	7.17 (5.51-9.62)	8.18 (6.19-11.3)	9.31 (6.91-13.5)	10.8 (7.39-15.5)	13.3 (8.72-19.7)	15.4 (9.94-23.4)
3-day	3.08 (2.46-3.85)	3.90 (3.11-4.87)	5.23 (4.16-6.56)	6.33 (5.01-7.99)	7.85 (6.06-10.5)	8.96 (6.80-12.3)	10.2 (7.61-14.7)	11.9 (8.12-17.0)	14.6 (9.62-21.6)	17.1 (11.0-25.7)
4-day	3.32 (2.66-4.13)	4.18 (3.35-5.22)	5.61 (4.47-7.02)	6.79 (5.38-8.54)	8.41 (6.50-11.2)	9.58 (7.29-13.1)	10.9 (8.15-15.7)	12.7 (8.70-18.1)	15.6 (10.3-23.0)	18.2 (11.8-27.4)
7-day	3.95 (3.18-4.90)	4.93 (3.97-6.13)	6.54 (5.24-8.15)	7.87 (6.27-9.86)	9.71 (7.53-12.9)	11.0 (8.42-15.0)	12.5 (9.37-17.9)	14.5 (9.99-20.6)	17.7 (11.7-26.0)	20.6 (13.3-30.8)
10-day	4.59 (3.71-5.68)	5.63 (4.54-6.97)	7.34 (5.89-9.11)	8.75 (6.99-10.9)	10.7 (8.31-14.1)	12.1 (9.24-16.4)	13.7 (10.2-19.4)	15.7 (10.9-22.3)	19.0 (12.6-27.8)	22.0 (14.2-32.7)
20-day	6.62 (5.37-8.13)	7.72 (6.26-9.49)	9.52 (7.70-11.8)	11.0 (8.85-13.7)	13.1 (10.2-17.0)	14.6 (11.1-19.4)	16.3 (12.1-22.5)	18.3 (12.7-25.6)	21.3 (14.2-30.9)	23.9 (15.6-35.4)
30-day	8.35 (6.80-10.2)	9.48 (7.71-11.6)	11.3 (9.18-13.9)	12.8 (10.4-15.9)	15.0 (11.6-19.3)	16.5 (12.6-21.7)	18.2 (13.4-24.8)	20.1 (14.0-28.0)	22.8 (15.3-32.9)	25.1 (16.3-36.9)
45-day	10.5 (8.61-12.8)	11.7 (9.55-14.3)	13.6 (11.1-16.7)	15.2 (12.3-18.7)	17.3 (13.5-22.1)	19.0 (14.5-24.7)	20.7 (15.2-27.8)	22.4 (15.7-31.1)	24.7 (16.6-35.5)	26.5 (17.3-38.9)
60-day	12.4 (10.1-15.1)	13.6 (11.1-16.5)	15.5 (12.7-19.0)	17.2 (13.9-21.1)	19.4 (15.2-24.6)	21.2 (16.1-27.4)	22.9 (16.7-30.4)	24.5 (17.2-33.8)	26.5 (17.8-37.9)	27.9 (18.3-40.9)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical



NOAA Atlas 14, Volume 10, Version 3
Location name: South Windsor, Connecticut, USA*
Latitude: 41.8547°, Longitude: -72.5879°
Elevation: 82.29 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.06 (3.13-5.26)	4.91 (3.78-6.36)	6.30 (4.84-8.20)	7.45 (5.69-9.74)	9.04 (6.70-12.4)	10.2 (7.44-14.3)	11.5 (8.12-16.7)	12.9 (8.66-19.2)	14.9 (9.65-23.0)	16.6 (10.5-26.0)
10-min	2.87 (2.22-3.73)	3.48 (2.68-4.51)	4.46 (3.43-5.81)	5.28 (4.04-6.91)	6.40 (4.74-8.76)	7.25 (5.26-10.1)	8.13 (5.75-11.8)	9.13 (6.13-13.6)	10.6 (6.83-16.2)	11.7 (7.43-18.4)
15-min	2.26 (1.74-2.92)	2.73 (2.10-3.54)	3.50 (2.69-4.55)	4.14 (3.16-5.42)	5.02 (3.72-6.87)	5.68 (4.13-7.94)	6.38 (4.51-9.26)	7.16 (4.81-10.6)	8.28 (5.36-12.7)	9.21 (5.83-14.5)
30-min	1.51 (1.17-1.96)	1.84 (1.42-2.38)	2.36 (1.81-3.08)	2.80 (2.14-3.67)	3.41 (2.52-4.66)	3.86 (2.81-5.40)	4.34 (3.07-6.30)	4.87 (3.27-7.23)	5.64 (3.65-8.68)	6.27 (3.97-9.84)
60-min	0.950 (0.733-1.23)	1.16 (0.890-1.50)	1.49 (1.15-1.94)	1.77 (1.35-2.32)	2.15 (1.60-2.95)	2.44 (1.77-3.41)	2.74 (1.94-3.98)	3.08 (2.07-4.58)	3.57 (2.31-5.49)	3.97 (2.51-6.22)
2-hr	0.614 (0.476-0.790)	0.742 (0.575-0.956)	0.952 (0.735-1.23)	1.13 (0.864-1.46)	1.36 (1.02-1.86)	1.54 (1.13-2.15)	1.73 (1.24-2.52)	1.96 (1.32-2.89)	2.29 (1.49-3.51)	2.58 (1.63-4.02)
3-hr	0.471 (0.367-0.604)	0.569 (0.442-0.731)	0.729 (0.564-0.939)	0.861 (0.664-1.12)	1.04 (0.782-1.42)	1.18 (0.868-1.64)	1.33 (0.953-1.93)	1.50 (1.01-2.21)	1.77 (1.15-2.70)	2.00 (1.27-3.11)
6-hr	0.296 (0.232-0.378)	0.359 (0.281-0.459)	0.462 (0.360-0.593)	0.548 (0.424-0.706)	0.665 (0.502-0.902)	0.752 (0.557-1.05)	0.847 (0.613-1.23)	0.964 (0.652-1.41)	1.15 (0.747-1.73)	1.30 (0.830-2.01)
12-hr	0.180 (0.142-0.228)	0.220 (0.173-0.280)	0.287 (0.225-0.365)	0.342 (0.267-0.438)	0.418 (0.317-0.564)	0.474 (0.353-0.655)	0.535 (0.390-0.773)	0.611 (0.415-0.888)	0.730 (0.478-1.10)	0.834 (0.534-1.28)
24-hr	0.105 (0.083-0.133)	0.131 (0.103-0.165)	0.173 (0.136-0.219)	0.208 (0.163-0.264)	0.256 (0.195-0.343)	0.291 (0.218-0.401)	0.329 (0.242-0.475)	0.379 (0.258-0.548)	0.458 (0.300-0.685)	0.527 (0.338-0.803)
2-day	0.059 (0.047-0.074)	0.074 (0.059-0.093)	0.100 (0.079-0.125)	0.121 (0.095-0.153)	0.149 (0.115-0.200)	0.170 (0.129-0.235)	0.194 (0.144-0.280)	0.225 (0.154-0.323)	0.276 (0.182-0.410)	0.322 (0.207-0.487)
3-day	0.043 (0.034-0.054)	0.054 (0.043-0.068)	0.073 (0.058-0.091)	0.088 (0.070-0.111)	0.109 (0.084-0.146)	0.124 (0.094-0.171)	0.142 (0.106-0.204)	0.165 (0.113-0.236)	0.203 (0.134-0.300)	0.237 (0.153-0.357)
4-day	0.035 (0.028-0.043)	0.044 (0.035-0.054)	0.058 (0.047-0.073)	0.071 (0.056-0.089)	0.088 (0.068-0.117)	0.100 (0.076-0.137)	0.114 (0.085-0.164)	0.132 (0.091-0.189)	0.163 (0.107-0.240)	0.190 (0.123-0.285)
7-day	0.024 (0.019-0.029)	0.029 (0.024-0.036)	0.039 (0.031-0.048)	0.047 (0.037-0.059)	0.058 (0.045-0.077)	0.066 (0.050-0.089)	0.075 (0.056-0.106)	0.086 (0.059-0.123)	0.106 (0.070-0.155)	0.123 (0.079-0.183)
10-day	0.019 (0.015-0.024)	0.023 (0.019-0.029)	0.031 (0.025-0.038)	0.036 (0.029-0.046)	0.045 (0.035-0.059)	0.050 (0.039-0.068)	0.057 (0.043-0.081)	0.066 (0.045-0.093)	0.079 (0.053-0.116)	0.091 (0.059-0.136)
20-day	0.014 (0.011-0.017)	0.016 (0.013-0.020)	0.020 (0.016-0.024)	0.023 (0.018-0.028)	0.027 (0.021-0.035)	0.030 (0.023-0.040)	0.034 (0.025-0.047)	0.038 (0.026-0.053)	0.044 (0.030-0.064)	0.050 (0.032-0.074)
30-day	0.012 (0.009-0.014)	0.013 (0.011-0.016)	0.016 (0.013-0.019)	0.018 (0.014-0.022)	0.021 (0.016-0.027)	0.023 (0.017-0.030)	0.025 (0.019-0.034)	0.028 (0.019-0.039)	0.032 (0.021-0.046)	0.035 (0.023-0.051)
45-day	0.010 (0.008-0.012)	0.011 (0.009-0.013)	0.013 (0.010-0.015)	0.014 (0.011-0.017)	0.016 (0.013-0.020)	0.018 (0.013-0.023)	0.019 (0.014-0.026)	0.021 (0.015-0.029)	0.023 (0.015-0.033)	0.025 (0.016-0.036)
60-day	0.009 (0.007-0.010)	0.009 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.010-0.015)	0.013 (0.011-0.017)	0.015 (0.011-0.019)	0.016 (0.012-0.021)	0.017 (0.012-0.024)	0.018 (0.012-0.026)	0.019 (0.013-0.028)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

APPENDIX E
Storm Sewer Analysis

Subbasin Summary

Subbasin ID	Area	Weighted Runoff Coefficient	Total Rainfall	Total Runoff	Total Runoff	Peak Runoff	Time of Concentration
	(ac)		(in)	(in)	Volume (ac-in)	(cfs)	(days hh:mm:ss)
Sub-CB-01	0.20	0.6100	0.73	0.44	0.09	0.76	0 00:07:00
Sub-CB-02	0.17	0.7700	0.68	0.52	0.09	0.86	0 00:06:00
Sub-CB-03	0.11	0.7900	0.68	0.53	0.06	0.58	0 00:06:00
Sub-CB-04	0.27	0.8100	0.68	0.55	0.15	1.46	0 00:06:00
Sub-CB-05	0.30	0.8100	0.68	0.55	0.16	1.63	0 00:06:00
Sub-CB-06	0.31	0.8100	0.68	0.55	0.17	1.72	0 00:06:00
Sub-CB-09 (DEEP SUMP)	0.21	0.9000	0.68	0.61	0.13	1.29	0 00:06:00
Sub-CB-10 (DEEP SUMP)	0.06	0.9000	0.68	0.61	0.04	0.37	0 00:06:00
Sub-CB-11 (DEEP SUMP)	0.32	0.9000	0.68	0.61	0.20	1.97	0 00:06:00
Sub-CB-12	0.24	0.6800	0.73	0.49	0.12	1.02	0 00:07:00
Sub-CB-13	0.23	0.6700	0.73	0.49	0.11	0.96	0 00:07:00
Sub-DMH-07(ROOF)	1.33	0.9000	0.68	0.61	0.81	8.09	0 00:06:00
Sub-DMH-09(ROOF)	1.28	0.9000	0.68	0.61	0.78	7.79	0 00:06:00
Sub-DMH-11(ROOF)	1.71	0.9000	0.68	0.61	1.04	10.40	0 00:06:00
Sub-DMH-13(ROOF)	1.24	0.9000	0.68	0.61	0.75	7.54	0 00:06:00
Sub-S.DRAIN-01	0.13	0.7600	0.68	0.51	0.07	0.67	0 00:06:00
Sub-S.DRAIN-02	0.12	0.8200	0.68	0.55	0.07	0.67	0 00:06:00
Sub-YD-01	0.17	0.2500	0.77	0.19	0.03	0.25	0 00:08:00
Sub-YD-02	0.12	0.2500	0.77	0.19	0.02	0.17	0 00:08:00
Sub-YD-03	0.16	0.2500	0.77	0.19	0.03	0.23	0 00:08:00
Sub-YD-04	0.16	0.2500	0.77	0.19	0.03	0.24	0 00:08:00
Sub-YD-05	0.13	0.2500	0.77	0.19	0.03	0.19	0 00:08:00
Sub-YD-06	0.17	0.2500	0.77	0.19	0.03	0.24	0 00:08:00
Sub-YD-07	0.06	0.2500	0.77	0.19	0.01	0.09	0 00:08:00
Sub-YD-08	0.16	0.2500	0.77	0.19	0.03	0.24	0 00:08:00
Sub-YD-09	0.14	0.2500	0.77	0.19	0.03	0.21	0 00:08:00
Sub-YD-10	0.16	0.2500	0.77	0.19	0.03	0.23	0 00:08:00
Sub-YD-11	0.13	0.2500	0.77	0.19	0.03	0.20	0 00:08:00
Sub-YD-12	0.08	0.3200	0.68	0.22	0.02	0.17	0 00:06:00
Sub-YD-13	0.10	0.3000	0.68	0.20	0.02	0.20	0 00:06:00
Sub-YD-14	0.08	0.2500	0.77	0.19	0.02	0.11	0 00:08:00
Sub-YD-15	0.36	0.2500	0.68	0.17	0.06	0.62	0 00:06:00

Link Summary

From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity
		(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)
OCS-05	DMH-16	59.00	85.44	85.13	0.5300	15.000	0.0120	4.92	5.07
DMH-16	CB-12	147.00	85.13	84.38	0.5100	15.000	0.0120	4.19	5.00
CB-12	CB-13	207.00	84.38	83.35	0.5000	18.000	0.0120	4.65	8.03
CB-13	DMH-15	68.00	83.35	83.00	0.5100	24.000	0.0120	5.60	17.58
SLOTTED DRAIN TRANSITION TO CB-08	CB-08	6.04	83.68	82.83	14.0800	12.000	0.0120	0.65	14.48
SLOTTED DRAIN TRANSITION TO CB-07	CB-07	3.89	85.25	84.27	25.2000	12.000	0.0120	0.65	19.37
CB-09 (DEEP SUMP)	CB-10 (DEEP SUMP)	92.15	81.46	81.00	0.5000	15.000	0.0120	1.26	4.95
CB-11 (DEEP SUMP)	CB-10 (DEEP SUMP)	83.83	81.20	80.78	0.5000	15.000	0.0120	1.92	4.95
CB-04	DMH-02	21.51	86.61	85.97	2.9800	12.000	0.0120	1.45	6.66
CB-05	DMH-03	21.33	86.61	85.97	3.0000	12.000	0.0120	1.62	6.69
CB-06	DMH-04	21.35	86.61	85.97	3.0000	12.000	0.0120	1.71	6.68
CB-02	CB-03	135.00	87.00	86.33	0.5000	12.000	0.0120	0.83	2.72
YD-15	CB-01	56.00	80.80	80.51	0.5200	12.000	0.0120	0.61	2.78
YD-06	UGC-A14	19.56	80.80	80.04	3.8900	12.000	0.0120	0.24	7.61
SD-02	SLOTTED DRAIN TRANSITION TO CB-08	28.28	84.00	83.68	1.1300	12.000	0.0120	0.65	4.11
CB-03	UGC-E01	76.50	86.33	85.95	0.5000	12.000	0.0120	1.35	2.72
SD-01	SLOTTED DRAIN TRANSITION TO CB-07	22.82	85.50	85.25	1.1000	12.000	0.0120	0.66	4.04
YD-01	UGC-A01	11.96	80.64	80.04	5.0000	12.000	0.0120	0.24	8.63
YD-02	UGC-A03	3.56	81.28	80.04	34.8300	12.000	0.0120	0.17	22.78
YD-03	UGC-A05	3.56	81.28	80.04	34.8300	12.000	0.0120	0.23	22.78
CB-07	DMH-01 (24 PLASTIC)	12.11	83.97	83.91	0.5000	12.000	0.0120	0.65	2.73
DMH-01 (24 PLASTIC)	UGC-A07	3.56	81.28	80.04	34.8300	12.000	0.0120	0.65	22.78
YD-04	UGC-A09	3.57	81.28	80.04	34.7800	12.000	0.0120	0.24	22.76
YD-05	UGC-A11	3.57	81.28	80.04	34.7800	12.000	0.0120	0.19	22.76
CB-08	DMH-02 (24 PLASTIC)	12.67	82.83	82.77	0.5000	12.000	0.0120	0.64	2.73
DMH-02 (24 PLASTIC)	UGC-A12	3.35	81.28	80.04	37.0100	12.000	0.0120	0.64	23.48
YD-07	UGC-B01	3.00	80.32	80.30	0.6200	12.000	0.0120	0.09	3.04
CB-01	UGC-B10	19.00	80.41	80.30	0.5800	12.000	0.0120	1.30	2.94
YD-08	UGC-B03	3.00	81.60	80.30	43.3300	12.000	0.0120	0.24	25.41
YD-09	UGC-B05	3.00	81.60	80.30	43.3300	12.000	0.0120	0.21	25.41
YD-10	UGC-B07	3.00	81.60	80.30	43.3300	12.000	0.0120	0.23	25.41
YD-11	UGC-B09	3.00	81.60	80.30	43.3300	12.000	0.0120	0.19	25.41
YD-14	DMH-11 (24 PLASTIC)	4.00	88.80	88.77	0.7100	12.000	0.0120	0.11	3.25
YD-12	UGC-C01	3.00	83.90	83.88	0.5900	12.000	0.0120	0.17	2.97
YD-13	UGC-C03	3.00	85.22	83.88	44.6700	12.000	0.0120	0.20	25.80
DMH-11 (24 PLASTIC)	UGC-C05	3.00	85.22	83.88	44.6700	12.000	0.0120	0.11	25.80
DMH-02	UGC-E03	3.56	85.97	85.95	0.5600	12.000	0.0120	1.44	2.89
CB-10 (DEEP SUMP)	FE-06	17.00	80.59	80.50	0.5300	15.000	0.0130	3.49	4.70
DMH-13	DMH-12	55.00	85.80	84.63	2.1300	15.000	0.0120	7.50	10.21
DMH-11	DMH-10	55.00	85.80	84.63	2.1300	15.000	0.0120	10.40	10.21
DMH-09	DMH-08	55.00	85.80	84.63	2.1300	15.000	0.0120	7.73	10.21
DMH-07	DMH-06	55.00	85.80	84.63	2.1300	15.000	0.0120	8.01	10.21

Peak Flow Velocity	Peak Flow Depth	Total Time Surcharged
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(ft/sec)	(ft)	(min)
5.96	1.04	0.00
5.70	0.89	0.00
3.55	1.05	0.00
3.01	1.45	0.00
2.40	0.38	0.00
4.74	0.23	0.00
2.24	0.58	0.00
2.30	0.80	0.00
3.57	0.53	0.00
5.81	0.39	0.00
5.87	0.40	0.00
2.31	0.47	0.00
2.05	0.40	0.00
4.09	0.13	0.00
2.46	0.37	0.00
3.22	0.53	0.00
2.56	0.36	0.00
4.32	0.12	0.00
7.12	0.07	0.00
7.62	0.08	0.00
2.45	0.37	0.00
9.00	0.15	0.00
7.65	0.08	0.00
7.28	0.07	0.00
2.45	0.37	0.00
9.06	0.15	0.00
1.47	0.13	0.00
3.12	0.52	0.00
8.09	0.08	0.00
7.85	0.07	0.00
8.01	0.08	0.00
7.74	0.07	0.00
1.67	0.14	0.00
1.72	0.18	0.00
7.87	0.07	0.00
6.97	0.05	0.00
3.03	0.58	0.00
3.12	1.07	0.00
7.60	0.94	0.00
8.70	1.25	0.00
7.62	0.97	0.00
7.64	1.01	0.00

Junction Input

Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)
CB-01	80.41	84.04
CB-02	87.00	89.45
CB-03	86.33	89.63
CB-04	86.61	89.05
CB-05	86.61	89.05
CB-06	86.61	89.05
CB-07	83.97	86.77
CB-08	82.83	85.33
CB-09 (DEEP SUMP)	81.46	84.16
CB-10 (DEEP SUMP)	80.59	84.09
CB-11 (DEEP SUMP)	81.20	83.90
CB-12	84.38	88.20
CB-13	83.35	87.10
DMH-01 (24 PLASTIC)	80.06	86.01
DMH-02	85.97	90.14
DMH-02 (24 PLASTIC)	81.28	86.07
DMH-07	85.80	89.13
DMH-09	85.80	89.13
DMH-11	85.80	89.13
DMH-11 (24 PLASTIC)	85.22	92.50
DMH-13	85.80	89.13
DMH-16	85.13	90.50
OCS-05	85.44	91.05
SD-01	85.50	85.36
SD-02	84.00	84.29
SLOTTED DRAIN TRANSITION TO CB-08	83.68	84.22
SLOTTED DRAIN TRANSITION TO CB-07	85.25	89.55
YD-01	80.64	84.60
YD-02	81.28	85.00
YD-03	80.06	85.00
YD-04	80.06	85.00
YD-05	80.06	85.00
YD-06	80.80	83.00
YD-07	80.32	83.80
YD-08	80.32	83.80
YD-09	81.60	83.80
YD-10	80.32	83.80
YD-11	80.32	83.80
YD-12	83.90	91.00
YD-13	83.90	91.00
YD-14	88.80	91.00
YD-15	80.80	83.00

Junction Results

Element ID	Peak Inflow	Peak Lateral Inflow	Max HGL Elevation Attained	Min Freeboard Attained	Time of Max HGL Occurrence
	(cfs)	(cfs)	(ft)	(ft)	(days hh:mm)
CB-01	1.30	0.76	80.99	3.05	0 00:07
CB-02	0.86	0.86	87.38	2.07	0 00:06
CB-03	1.39	0.58	86.89	2.74	0 00:06
CB-04	1.46	1.46	87.01	2.04	0 00:06
CB-05	1.63	1.63	87.05	2.00	0 00:06
CB-06	1.72	1.72	87.06	1.99	0 00:06
CB-07	0.65	0.00	84.38	2.39	0 00:06
CB-08	0.65	0.00	83.24	2.09	0 00:06
CB-09 (DEEP SUMP)	1.29	1.29	81.90	2.26	0 00:06
CB-10 (DEEP SUMP)	3.53	0.37	81.73	2.36	0 00:06
CB-11 (DEEP SUMP)	1.97	1.97	81.86	2.04	0 00:06
CB-12	4.71	1.02	85.25	2.95	0 00:02
CB-13	5.57	0.96	84.78	2.32	0 00:01
DMH-01 (24 PLASTIC)	0.65	0.00	81.46	4.55	0 00:06
DMH-02	1.45	0.00	86.64	3.50	0 00:06
DMH-02 (24 PLASTIC)	0.64	0.00	81.46	4.61	0 00:06
DMH-07	8.09	8.09	87.00	2.13	0 00:06
DMH-09	7.78	7.78	86.93	2.20	0 00:06
DMH-11	10.40	10.40	88.49	0.64	0 00:05
DMH-11 (24 PLASTIC)	0.11	0.00	85.28	7.22	0 00:08
DMH-13	7.54	7.54	86.89	2.24	0 00:06
DMH-16	4.92	0.00	86.18	4.32	0 00:00
OCS-05	3.69	3.69	90.01	1.04	0 00:00
SD-01	0.67	0.67	85.89	0.61	0 00:06
SD-02	0.66	0.66	84.39	0.61	0 00:06
SLOTTED DRAIN TRANSITION TO CB-08	0.65	0.00	84.04	0.64	0 00:06
SLOTTED DRAIN TRANSITION TO CB-07	0.66	0.00	85.59	3.96	0 00:06
YD-01	0.25	0.25	80.77	3.83	0 00:08
YD-02	0.17	0.17	81.36	3.64	0 00:08
YD-03	0.23	0.23	81.37	3.63	0 00:08
YD-04	0.24	0.24	81.37	3.63	0 00:08
YD-05	0.19	0.19	81.36	3.64	0 00:08
YD-06	0.24	0.24	80.94	2.06	0 00:08
YD-07	0.09	0.09	80.46	3.34	0 00:08
YD-08	0.24	0.24	81.69	2.11	0 00:08
YD-09	0.21	0.21	81.68	2.12	0 00:08
YD-10	0.23	0.23	81.69	2.11	0 00:08
YD-11	0.19	0.19	81.68	2.12	0 00:08
YD-12	0.17	0.17	84.10	6.90	0 00:06
YD-13	0.20	0.20	85.30	5.70	0 00:06
YD-14	0.11	0.11	88.95	2.05	0 00:08
YD-15	0.62	0.62	81.14	1.86	0 00:06

APPENDIX F
Water Quality Volume

May 04, 2022

Water Quality Volume Calculations

Per 2004 Connecticut Stormwater Quality Manual, Section 7.4.1:

Areas for Calculation: Drainage Area P6 to West Basin

	P6
Impervious	4.06
Pervious	0.62
Total Area	4.68
% Impervious	86.82%

Water Quality Volume (WQV) = (1") (R)(A)/12, where:

R = unitless volumetric runoff coefficient = $0.05 + 0.009(I)$, where:

I = percent impervious cover of drainage area = 86.82%

$R = 0.05 + 0.009(I)$

$R = 0.05 + 0.009(86.82)$

$R = \underline{0.831}$

A = drainage area in acres = 4.68 acres

$WQV = (1'')(R)(A \text{ acres})/12 \text{ inches per foot}$

$WQV = (1'')(0.831)(4.68 \text{ acres})/12 \text{ inches per foot}$

$WQV = \underline{0.324} \text{ acre-feet required} = 14,113.44 \text{ cft}$

Proposed BMP

The proposed West Water Quality Basin will provide **59,237 cft** (below basin outlet FE-01 @ Elev. 83.50). The proposed wet pool of the water quality basin will provide more than 100% of the water quality volume for the area drainage to it. Water quality basin stage storage reports are included as a part of this appendix.

WEST BASIN WQV STAGE STORAGE TABLE

ELEV	AREA (sq. ft.)	DEPT H (ft)	AVG END INC. VOL. (cu. ft.)	AVG END TOTAL VOL. (cu. ft.)	CONIC INC. VOL. (cu. ft.)	CONIC TOTAL VOL. (cu. ft.)
81.00	17,089.46	N/A	N/A	0.00	N/A	0.00
82.00	21,605.71	1.00	19347.59	19347.59	19303.51	19303.51
83.00	26,250.26	1.00	23927.99	43275.57	23890.34	43193.84
83.50	38,302.72	0.50	16138.25	59413.82	16043.65	59237.50

67 Kennedy Road – DPI Project No.:4670

May 04, 2022

Water Quality Flow Calculations

Per 2004 Connecticut Stormwater Quality Manual

Per Appendix B page B-3:

Water Quality Flow (WQF) = (qu)(A)(Q), where:

qu = unit peak discharge (cfs/mi²/inch) per Exhibit 4-III

A = drainage area (mi²)

Q = runoff depth (in watershed inches)

= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

ISOLATION ROW-1 (P12 to UGC-A)

To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:

Time of Concentration (Tc):

7 mins = 0.12 hours

Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:

Initial abstraction (Ia) from Table 4-I in Chapter 4 of TR-55 needs Curve Number (CN)

CN = 74

Ia = 0.703 inches

Design Precipitation (P) = **1"**

Ia/P = 0.703

Unit Peak Discharge qu = 200 cfs/mi²/inch

Drainage Area A = 50,556 sf = 1.16 acres = 0.0018 mi²

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (3.10") (R)(A)/12, where:

R = volumetric runoff coefficient

= 0.05 + 0.009(I), where I = percent impervious cover = 17.93%

R = 0.05 + 0.009(I)

R = 0.05 + 0.009(17.93)

R = 0.211

A = drainage area in acres = 1.16 acres

WQV = (1.0 in)(R)(A)/12

WQV = (1.0 in)(0.211)(1.16 acres) / 12 in/ft

WQV = 0.020 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area

Q = (0.020 acre-feet x 12 in/ft) / 1.16 acres

Q = 0.206 in

WQF = qu x A x Q

WQF = 200 cfs/mi²/inch x 0.0018 mi² x 0.206 in

WQF = **0.074 cfs required**

Proposed

The proposed **8** chamber **SC-740** Stormtech Isolator row (@ **0.15 cfs** treated flow rate per chamber) is rated for 80% TSS removal for the required **0.074 cfs** water quality flow. The current design plan will provide **1.20 cfs** of WQF. See isolator row sizing chart included in the appendix.

67 Kennedy Road – DPI Project No.:4670

May 04, 2022

Water Quality Flow Calculations

Per 2004 Connecticut Stormwater Quality Manual

Per Appendix B page B-3:

Water Quality Flow (WQF) = (qu)(A)(Q), where:

qu = unit peak discharge (cfs/mi²/inch) per Exhibit 4-III

A = drainage area (mi²)

Q = runoff depth (in watershed inches)

= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

ISOLATION ROW-2 (P1 to UGC-B)

To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:

Time of Concentration (Tc):

7 mins = 0.12 hours

Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:

Initial abstraction (Ia) from Table 4-I in Chapter 4 of TR-55 needs Curve Number (CN)

CN = 65

Ia = 1.077 inches

Design Precipitation (P) = **1"**

Ia/P = 1.077

Unit Peak Discharge qu = 140 cfs/mi²/inch

Drainage Area A = 53,290 sf = 1.22 acres = 0.0019 mi²

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (3.10") (R)(A)/12, where:

R = volumetric runoff coefficient

= 0.05 + 0.009(I), where I = percent impervious cover = 8.92%

R = 0.05 + 0.009(I)

R = 0.05 + 0.009(8.92)

R = 0.130

A = drainage area in acres = 1.22 acres

WQV = (1.0 in)(R)(A)/12

WQV = (1.0 in)(0.130)(1.22 acres) / 12 in/ft

WQV = 0.013 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area

Q = (0.013 acre-feet x 12 in/ft) / 1.22 acres

Q = 0.128 in

WQF = qu x A x Q

WQF = 140 cfs/mi²/inch x 0.0019 mi² x 0.128 in

WQF = **0.034 cfs required**

Proposed

The proposed **7** chamber **SC-310** Stormtech Isolator row (@ **0.11 cfs** treated flow rate per chamber) is rated for 80% TSS removal for the required **0.074 cfs** water quality flow. The current design plan will provide **0.77 cfs** of WQF. See isolator row sizing chart included in the appendix.

67 Kennedy Road – DPI Project No.:4670

May 04, 2022

Water Quality Flow Calculations

Per 2004 Connecticut Stormwater Quality Manual

Per Appendix B page B-3:

Water Quality Flow (WQF) = (qu)(A)(Q), where:

qu = unit peak discharge (cfs/mi²/inch) per Exhibit 4-III

A = drainage area (mi²)

Q = runoff depth (in watershed inches)

= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

ISOLATION ROW-3 (P13 to UGC-C)

To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:

Time of Concentration (Tc):

7 mins = 0.12 hours

Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:

Initial abstraction (Ia) from Table 4-I in Chapter 4 of TR-55 needs Curve Number (CN)

CN = 63

Ia = 1.175 inches

Design Precipitation (P) = **1"**

Ia/P = 1.175

Unit Peak Discharge qu = 130 cfs/mi²/inch

Drainage Area A = 11,086 sf = 0.25 acres = 0.0004 mi²

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (3.10") (R)(A)/12, where:

R = volumetric runoff coefficient

= 0.05 + 0.009(I), where I = percent impervious cover = 6.38%

R = 0.05 + 0.009(I)

R = 0.05 + 0.009(6.38)

R = 0.107

A = drainage area in acres = 0.25 acres

WQV = (1.0 in)(R)(A)/12

WQV = (1.0 in)(0.107)(0.25 acres) / 12 in/ft

WQV = 0.002 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area

Q = (0.002 acre-feet x 12 in/ft) / 0.25 acres

Q = 0.096 in

WQF = qu x A x Q

WQF = 130 cfs/mi²/inch x 0.0004 mi² x 0.096 in

WQF = **0.049 cfs required**

Proposed

The proposed 7 chamber SC-310 Stormtech Isolator row (@ **0.11 cfs** treated flow rate per chamber) is rated for 80% TSS removal for the required **0.049 cfs** water quality flow. The current design plan will provide **0.77 cfs** of WQF. See isolator row sizing chart included in the appendix.

67 Kennedy Road – DPI Project No.:4670

May 04, 2022

Water Quality Flow Calculations

Per 2004 Connecticut Stormwater Quality Manual

Per Appendix B page B-3:

Water Quality Flow (WQF) = (qu)(A)(Q), where:

qu = unit peak discharge (cfs/mi²/inch) per Exhibit 4-III

A = drainage area (mi²)

Q = runoff depth (in watershed inches)

= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

ISOLATION ROW-4 (P10 to UGC-E)

To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:

Time of Concentration (Tc):

6 mins = 0.10 hours

Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:

Initial abstraction (Ia) from Table 4-I in Chapter 4 of TR-55 needs Curve Number (CN)

CN = 93

Ia = 0.151 inches

Design Precipitation (P) = **1"**

Ia/P = 0.151

Unit Peak Discharge qu = 645 cfs/mi²/inch

Drainage Area A = 50,163 sf = 1.15 acres = 0.0018 mi²

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (3.10") (R)(A)/12, where:

R = volumetric runoff coefficient

= 0.05 + 0.009(I), where I = percent impervious cover = 84.49%

R = 0.05 + 0.009(I)

R = 0.05 + 0.009(84.49)

R = 0.810

A = drainage area in acres = 1.15 acres

WQV = (1.0 in)(R)(A)/12

WQV = (1.0 in)(0.810)(1.15 acres) / 12 in/ft

WQV = 0.078 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area

Q = (0.078 acre-feet x 12 in/ft) / 1.15 acres

Q = 0.814 in

WQF = qu x A x Q

WQF = 645 cfs/mi²/inch x 0.0018 mi² x 0.814 in

WQF = **0.945 cfs required**

Proposed

The proposed **10** chamber **SC-310** Stormtech Isolator row (@ **0.11 cfs** treated flow rate per chamber) is rated for 80% TSS removal for the required **0.945 cfs** water quality flow. The current design plan will provide **1.10 cfs** of WQF. See isolator row sizing chart included in the appendix.

67 Kennedy Road – DPI Project No.:4670

May 04, 2022

Water Quality Flow Calculations

Per 2004 Connecticut Stormwater Quality Manual

Per Appendix B page B-3:

Water Quality Flow (WQF) = (qu)(A)(Q), where:

qu = unit peak discharge (cfs/mi²/inch) per Exhibit 4-III

A = drainage area (mi²)

Q = runoff depth (in watershed inches)

= [Water Quality Volume (WQV) (in acre-feet)] x [12 inches/foot] / drainage area (acres)

ISOLATION ROW-5 (P8 to UGC-D)

To find Unit Peak Discharge qu with Exhibit 4-III, the following is needed:

Time of Concentration (Tc):

7 mins = 0.12 hours

Initial Abstraction (Ia) in inches / Design Precipitation (P) in inches:

Initial abstraction (Ia) from Table 4-I in Chapter 4 of TR-55 needs Curve Number (CN)

CN = 90

Ia = 0.222 inches

Design Precipitation (P) = **1"**

Ia/P = 0.222

Unit Peak Discharge qu = 600 cfs/mi²/inch

Drainage Area A = 20,432 sf = 0.47 acres = 0.0007 mi²

Runoff Depth Q = WQV (acre-feet) x 12 / drainage area (acres)

Water Quality Volume (WQV) = (3.10") (R)(A)/12, where:

R = volumetric runoff coefficient

= 0.05 + 0.009(I), where I = percent impervious cover = 65.38%

R = 0.05 + 0.009(I)

R = 0.05 + 0.009(65.38)

R = 0.638

A = drainage area in acres = 0.47 acres

WQV = (1.0 in)(R)(A)/12

WQV = (1.0 in)(0.638)(0.47 acres) / 12 in/ft

WQV = 0.025 acre-feet

Q = (WQV X 12 in/ft)/Drainage Area

Q = (0.025 acre-feet x 12 in/ft) / 0.47 acres

Q = 0.638 in

WQF = qu x A x Q

WQF = 600 cfs/mi²/inch x 0.0007 mi² x 0.638 in

WQF = **0.268 cfs required**

Proposed

The proposed **3** chamber **SC-310** Stormtech Isolator row (@ **0.11 cfs** treated flow rate per chamber) is rated for 80% TSS removal for the required **0.268 cfs** water quality flow. The current design plan will provide **0.33 cfs** of WQF. See isolator row sizing chart included in the appendix.



STORMTECH ISOLATOR ROW SIZING CHART

	SC-160LP	SC-310	SC-740	DC-780	MC-3500	MC-4500
Chamber Area (Sq.Ft.)	11.4	20	27.8	27.8	43.2	30.1
Treated Flow Rate per chamber (CFS)	0.055	0.11	0.15	0.15	0.24	0.17

NOTE: Testing of the Isolator Row verified by NJCAT. It has shown to have a TSS removal efficiency of 84% for SIL-CO-SIL 250. MASTEP verification of up to 83% TSS of the OK-110.

NJCAT verified Treated Flow Rate (GPM / Sq.Ft.) 2.5



For more information contact ADS at
 800-821-6710 or visit www.ads-pipe.com

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APPENDIX G
Drainage Area Maps

REFERENCES:
THIS PLAN REFERS TO THE FOLLOWING:
1. PLAN ENTITLED "PROPERTY & TOPOGRAPHIC SURVEY, 67 KENNEDY ROAD & 352 SULLIVAN AVENUE, SOUTH WINDSOR, CONNECTICUT" DATED 9/20/2021, PREPARED BY DESIGN PROFESSIONALS, INC.

DESIGN POINT 1
18" CORRUGATED METAL PIPE
FROM EXISTING POND IN RAIL ROAD R.O.W.

DESIGN POINT 2
FLOW ACROSS NORTH
WEST PROPERTY CORNER

DESIGN POINT 3
TO SULLIVAN AVE VIA 330
SULLIVAN AVE SUBSURFACE
STORMWATER CONVEYANCE
SYSTEM

DESIGN POINT 4
FLOW TO KENNEDY ROAD
DRAINAGE SYSTEM

67 KENNEDY ROAD
WAREHOUSE &
DISTRIBUTION CENTER
352 SULLIVAN AVENUE, 67 & 68 KENNEDY ROAD
SOUTH WINDSOR, CONNECTICUT 06074
GIS NOS: 87300352, 49800067, & 49800068

REVISIONS

NO.	DATE	BY	REVISIONS
1	4/7/22	DHJ	EAS PLAN UPDATES
2	4/20/22	DHJ	P2C SUBMISSION
3	5/4/22	DHJ	IMA/CC COMMENTS

EXISTING
DRAINAGE MAP

SCALE: 0' 30' 60' 120'
1" = 60'

SHEET
C-DA1
SHEET 1 OF 2

PREPARED FOR
Scannell Properties #644, LLC
294 Grove Lane East
Suite 140
Wayzata, MN 55391
763-331-8851 T

DESIGN PROFESSIONALS, INC.

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P.O. BOX 167
SOUTH WINDSOR, CT 06074
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www.designprofessionalsinc.com

CIVIL & TRAFFIC ENGINEERS / LAND SURVEYORS
PLANNERS / LANDSCAPE ARCHITECTS

PROJECT NO.
4670

DATE
3/30/2022

DESIGNED BY
DHJ/BPW

DRAWN BY
DHJ

CHECKED BY
BPW

File: C:\jden\4670\Engineering\Stormwater\4670 Drainage Planning Layout_01 - C-DA1 Plotted: 5/4/2022 3:30 PM Last Saved: 5/4/2022 1:51 PM Last Saved By: David Jamison

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TO SULLIVAN AVE VIA 330
SULLIVAN AVE SUBSURFACE
STORMWATER CONVEYANCE
SYSTEM

DESIGN POINT 4
FLOW TO KENNEDY ROAD
DRAINAGE SYSTEM

DISTRIBUTION CENTER
241,800 SF

PROPOSED UNDERGROUND
CHAMBER SYSTEM (TYP)

PROPOSED TC PATH
(TYP)

PROPOSED TOP OF
POND (TYP)

EP1-A OUTLET
18" ACCMP
ELEV.=79.60±

EP1-B* OUTLET
19" SPILLWAY-2
F.L.=83.50±

EP1-B* OUTLET
28" SPILLWAY-1
F.L.=83.10±

EP1-C* OUTLET
34±" SPILLWAY-1
F.L.=83.70±

EP1-C* OUTLET
57" SPILLWAY-2
F.L.=83.50±

EP1-C* OUTLET
3" SPILLWAY-3
F.L.=83.20±

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3	5/4/22	IMA/CC COMMENTS	DHI

PROPOSED
DRAINAGE MAP

SCALE: 0 30' 60' 120'
1" = 60'

SHEET
C-DA2
SHEET 2 OF 2