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# STORM WATER MANAGEMENT REPORT

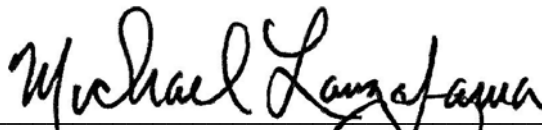
512-516 PLEASANT VALLEY WAY

TOWNSHIP OF WEST ORANGE  
ESSEX COUNTY, NJ

Block 154.06, Lots 11 & 12

PROJECT # 1240815

DATE: August 11, 2025



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MICHAEL LANZAFAMA, P.E. & P.L.S.  
NJ REG. # GB30084



# STORM WATER MANAGEMENT REPORT SUMMARY

## PROJECT LOCATION

The project is located at 512-516 Pleasant Valley Way in the Township of West Orange, Essex County, New Jersey. The site is located across the intersection with Greenwood Avenue and about 560 feet to the intersection with the southerly line of Eagle Rock Avenue. The property lies within the Office Building Zoning District.

## EXISTING CONDITIONS

The site is currently occupied by two commercial buildings. One is a One-Story frame dwelling with parking in the rear and the second building a Two story masonry building. This building has also a parking lot on the rear of the property.

The site area is 16,242 square feet in size or 0.373 acres. Its frontage on Pleasant Valley Way 124.99 feet, and it has a lot depth of 130.0 feet. It will be serviced with all basic utilities—water, gas, electric, sanitary sewer, and cable, which are provided from underground pipelines and conduits.

The area around the site is developed with residential and commercial uses. The property is not impacted by flood plains, and freshwater wetlands have not been observed.

## TOPOGRAPHY

The site slopes from north to south.

The highest elevation is approximately 422.0 feet at the most northern corner of the property. The lowest elevation is at approximately 412.0 feet in the most southern corner of the property.

## SOILS

The site contains two soil types. The Soil Survey of Essex County has identified the soils as Urban Land, Boonton, 0 to 8 percent slopes and Boonton - Urban Land, Boonton, 0 to 8 percent slopes. The Natural Resources Conservation Service has classified these soils as being in Hydrologic Soil Group "C".

## IMPERVIOUS COVERAGE SUMMARY

| IMPERVIOUS COVERAGE |          |          |
|---------------------|----------|----------|
|                     | EXISTING | PROPOSED |
| Buildings           | 2676 SF  | 3387 SF  |
| Drive & Parking     | 7679 SF  | 6473 SF  |
| Patio               | 82 SF    | 0 SF     |
| Walk/step           | 794 SF   | 1279 SF  |
| Misc.               | 12 SF    | 80 SF    |
| Total               | 11149 SF | 11219 SF |
| Net Decrease        |          | 70 SF    |

## **STORMWATER MANAGEMENT**

As with any construction project, stormwater management is an important part of the overall development process. Modern practice is a combination of the site designer's knowledge and goals in conjunction with the rules and regulations of the local municipality and the New Jersey Department of Environmental Protection (see *Hydrology* section below). Part of stormwater management is to minimize the use of artificial structures; however, practical considerations of most development sites require a combination of non-structural and structural components. A substantial portion of the existing site contains buildings and bituminous pavement.

The entire site drains to the south area where it runs thru a swale to the street on the rear and is collected by the storm system within Beasly Street. Stormwater hydrographs for both existing and proposed conditions for each drainage area, are included in this report.

The Township of West Orange requires that stormwater analyses be performed for the 2-year, 10-year, and 100-year storm events, applying reduction factors of 50%, 25%, and 20%, respectively, for major developments. Although this project does not qualify as a major development, these reductions were voluntarily applied to further enhance site performance. The "Natural Resources Conservation Service Method," as outlined in Technical Release 55 (TR-55), was utilized to size and route stormwater through the proposed drywell system.

## **DISCHARGE SUMMARY**

The following table shows that the site would produce post-developed runoff rates and volumes that are lower than the site's existing rates of runoff.

The existing and proposed peak runoff rates (Q) from the site are summarized as follows:

### **Site Discharge**

#### **Summary Peak Detention Flow**

| Frequency  | Subject to Reduction Q | Reduction |   | Q Existing Non Disturb |   | Q Allowable |  | Total Q Proposed |
|------------|------------------------|-----------|---|------------------------|---|-------------|--|------------------|
| 2 - 2020   | 0.98                   | 0.50      | + | 0.00                   | = | 0.49        |  | 0.43             |
| 10 - 2020  | 1.63                   | 0.25      | + | 0.00                   | = | 1.22        |  | 0.70             |
| 100 - 2020 | 2.97                   | 0.20      | + | 0.00                   | = | 2.38        |  | 1.89             |

The Site Discharge table shows that the proposed project would result in post-developed runoff rates that are less than or equal to the site's existing runoff rates. The hydrographs for the 2-year, 10-year and 100-year storms do not exceed at any time the pre-developed hydrographs for the same events as required per West Orange's ordinance.

Based upon this analysis, it is our professional opinion that the proposed storm water management system would enhance the existing downstream conveyance systems and meet the required Municipal standards.

Calculations supporting these findings constitute the remainder of this report.

# SOILS





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

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

**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

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: Essex County, New Jersey  
Survey Area Data: Version 20, Sep 3, 2024

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

Date(s) aerial images were photographed: Oct 10, 2022—Oct 16, 2022

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.

## Hydrologic Soil Group

| Map unit symbol                    | Map unit name                                                           | Rating | Acres in AOI | Percent of AOI |
|------------------------------------|-------------------------------------------------------------------------|--------|--------------|----------------|
| BouB                               | Boonton - Urban land, Boonton substratum complex, 0 to 8 percent slopes | C      | 0.3          | 86.4%          |
| URBONB                             | Urban land, Boonton substratum, 0 to 8 percent slopes                   |        | 0.1          | 13.6%          |
| <b>Totals for Area of Interest</b> |                                                                         |        | <b>0.4</b>   | <b>100.0%</b>  |

## Description

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.

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.

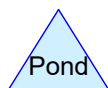
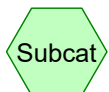
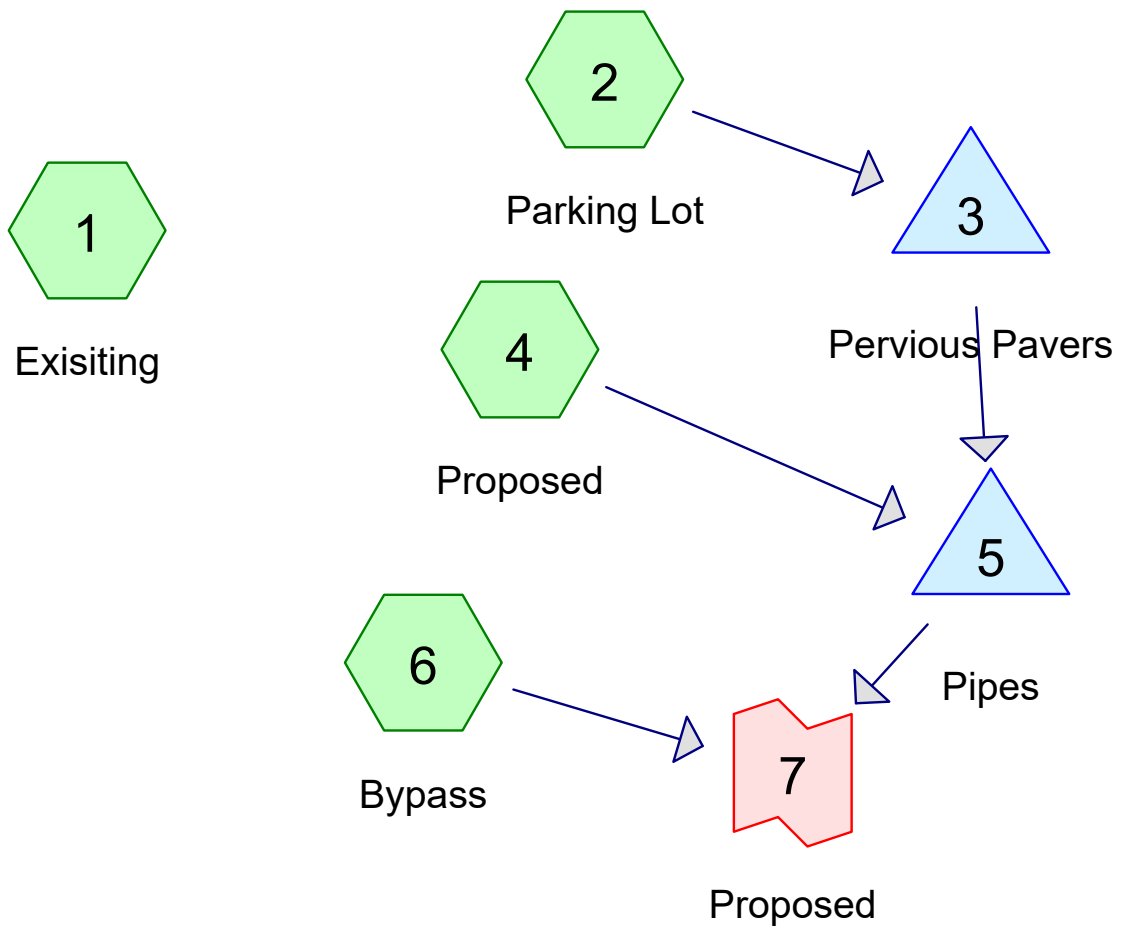
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over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



# **HYDROLOGIC ANALYSIS EXISTING & PROPOSED**





**Routing Diagram for 1240815-pipes**  
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PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

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Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points  
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment1: Exisiting**

Runoff Area=16,242 sf 68.64% Impervious Runoff Depth=2.60"  
Flow Length=141' Tc=5.9 min CN=74/98 Runoff=0.98 cfs 0.081 af

**Subcatchment2: Parking Lot**

Runoff Area=7,305 sf 88.61% Impervious Runoff Depth=3.01"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=0.57 cfs 0.042 af

**Pond 3: Pervious Pavers**

Peak Elev=414.04' Storage=347 cf Inflow=0.57 cfs 0.042 af  
Discarded=0.11 cfs 0.042 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.042 af

**Subcatchment4: Proposed**

Runoff Area=8,332 sf 56.96% Impervious Runoff Depth=2.37"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=0.52 cfs 0.038 af

**Pond 5: Pipes**

Peak Elev=412.44' Storage=183 cf Inflow=0.52 cfs 0.038 af  
Discarded=0.03 cfs 0.024 af Primary=0.41 cfs 0.014 af Outflow=0.44 cfs 0.038 af

**Subcatchment6: Bypass**

Runoff Area=605 sf 0.00% Impervious Runoff Depth=1.22"  
Flow Length=128' Tc=6.0 min CN=74/0 Runoff=0.02 cfs 0.001 af

**Link 7: Proposed**

Inflow=0.43 cfs 0.015 af  
Primary=0.43 cfs 0.015 af

**1240815-pipes**

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PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

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**Summary for Subcatchment 1: Existing**

Runoff = 0.98 cfs @ 12.13 hrs, Volume= 0.081 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 2,676     | 98 | Buildings                     |
| * | 794       | 98 | Walks/Steps & Patio           |
|   | 7,679     | 98 | Paved parking, HSG C          |
|   | 5,093     | 74 | >75% Grass cover, Good, HSG C |
|   | 16,242    | 90 | Weighted Average              |
|   | 5,093     | 74 | 31.36% Pervious Area          |
|   | 11,149    | 98 | 68.64% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------|
| 4.1         | 66               | 0.0680           | 0.27                 |                   | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 1.4         | 21               | 0.0950           | 0.24                 |                   | <b>Sheet Flow, 2</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 0.2         | 13               | 0.0390           | 1.24                 |                   | <b>Sheet Flow, 3</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1         | 13               | 0.0390           | 4.01                 |                   | <b>Shallow Concentrated Flow, 4</b><br>Paved Kv= 20.3 fps  |
| 0.1         | 28               | 0.0360           | 3.85                 |                   | <b>Shallow Concentrated Flow, 5</b><br>Paved Kv= 20.3 fps  |
| 5.9         | 141              | Total            |                      |                   |                                                            |

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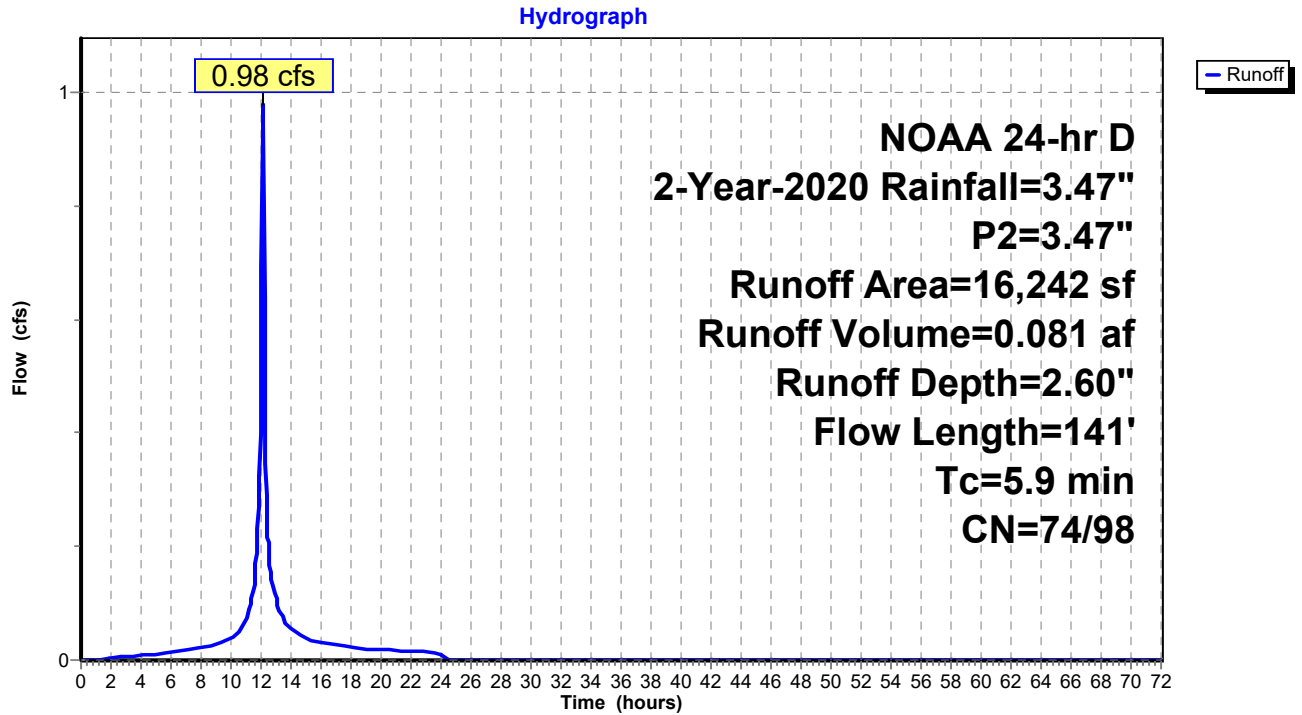
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### Subcatchment 1: Exisiting



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**Summary for Subcatchment 2: Parking Lot**

Runoff = 0.57 cfs @ 12.06 hrs, Volume= 0.042 af, Depth= 3.01"  
 Routed to Pond 3 : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,473     | 98 | Paved parking, HSG C          |
| 832       | 74 | >75% Grass cover, Good, HSG C |
| 7,305     | 95 | Weighted Average              |
| 832       | 74 | 11.39% Pervious Area          |
| 6,473     | 98 | 88.61% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                        |
|----------|---------------|---------------|-------------------|----------------|------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                    |

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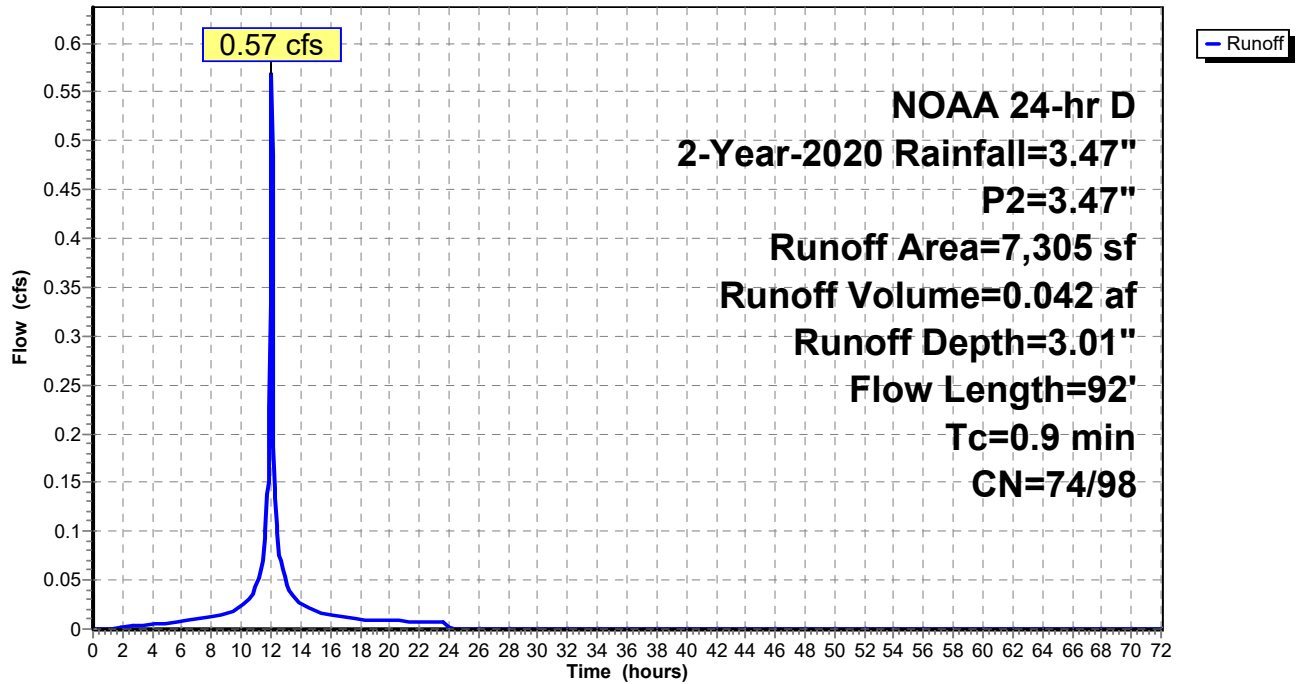
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## Subcatchment 2: Parking Lot

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

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**Summary for Pond 3: Pervious Pavers**

Inflow Area = 0.168 ac, 88.61% Impervious, Inflow Depth = 3.01" for 2-Year-2020 event  
 Inflow = 0.57 cfs @ 12.06 hrs, Volume= 0.042 af  
 Outflow = 0.11 cfs @ 11.75 hrs, Volume= 0.042 af, Atten= 81%, Lag= 0.0 min  
 Discarded = 0.11 cfs @ 11.75 hrs, Volume= 0.042 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 5 : Pipes

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 414.04' @ 12.36 hrs Surf.Area= 1,620 sf Storage= 347 cf

Plug-Flow detention time= 16.5 min calculated for 0.042 af (100% of inflow)  
 Center-of-Mass det. time= 16.5 min ( 773.5 - 757.0 )

| Volume | Invert  | Avail.Storage | Storage Description                                                            |
|--------|---------|---------------|--------------------------------------------------------------------------------|
| #1     | 413.50' | 1,730 cf      | <b>60.00'W x 27.00'L x 2.67'H Prismatoid</b><br>4,325 cf Overall x 40.0% Voids |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                        |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 413.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                     |
| #2     | Primary   | 414.50' | <b>6.0" Round Culvert</b> L= 50.0' Ke= 0.200<br>Inlet / Outlet Invert= 414.50' / 414.17' S= 0.0066 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.11 cfs @ 11.75 hrs HW=413.53' (Free Discharge)  
 ↑**1=Exfiltration** (Exfiltration Controls 0.11 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=413.50' (Free Discharge)  
 ↑**2=Culvert** ( Controls 0.00 cfs)

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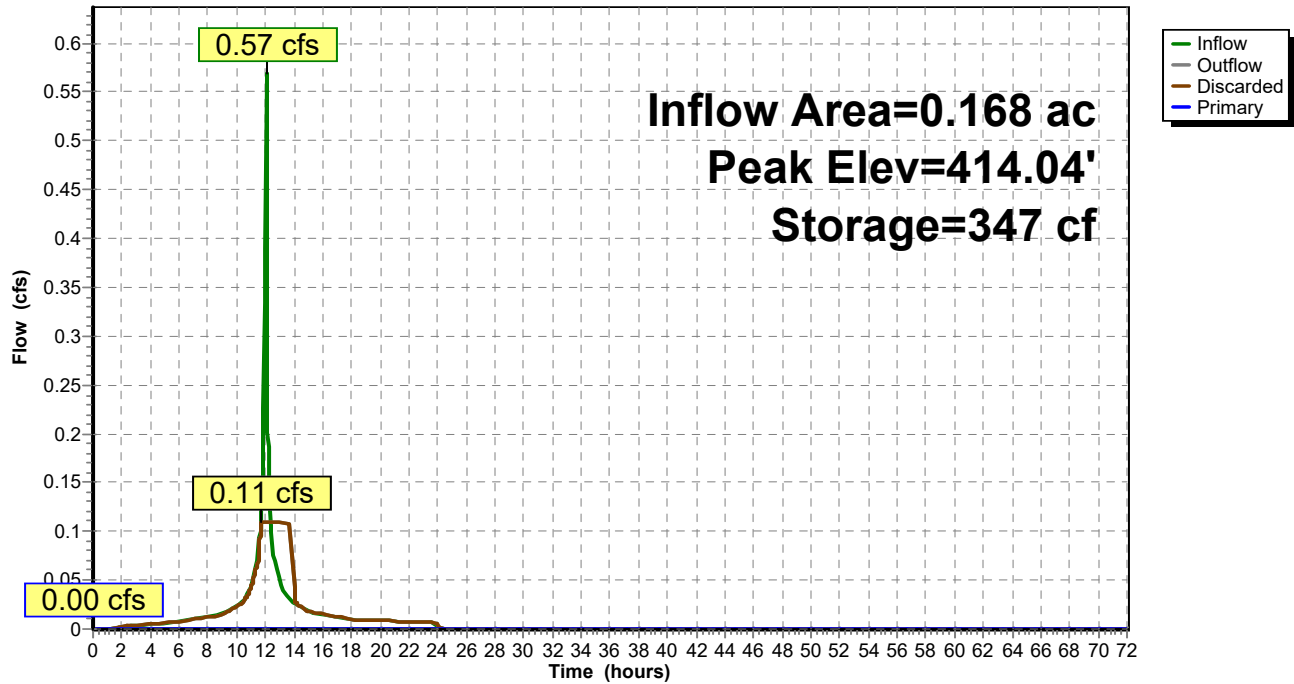
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### Pond 3: Pervious Pavers

Hydrograph



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**Summary for Subcatchment 4: Proposed**

Runoff = 0.52 cfs @ 12.06 hrs, Volume= 0.038 af, Depth= 2.37"  
 Routed to Pond 5 : Pipes

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,387     | 98 | Roofs, HSG C                  |
| 1,359     | 98 | Paved parking, HSG C          |
| 3,586     | 74 | >75% Grass cover, Good, HSG C |
| 8,332     | 88 | Weighted Average              |
| 3,586     | 74 | 43.04% Pervious Area          |
| 4,746     | 98 | 56.96% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                                            |

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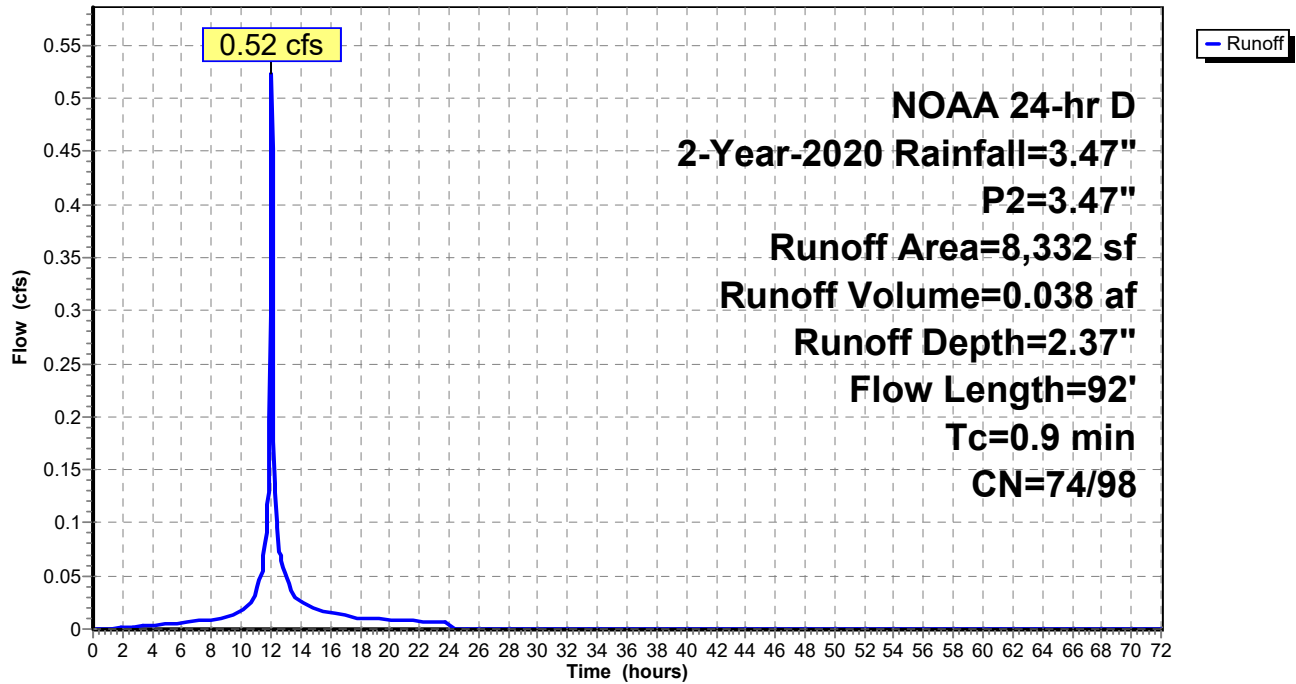
PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

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### Subcatchment 4: Proposed

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

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**Summary for Pond 5: Pipes**

Inflow Area = 0.359 ac, 71.75% Impervious, Inflow Depth = 1.26" for 2-Year-2020 event  
 Inflow = 0.52 cfs @ 12.06 hrs, Volume= 0.038 af  
 Outflow = 0.44 cfs @ 12.10 hrs, Volume= 0.038 af, Atten= 16%, Lag= 2.3 min  
 Discarded = 0.03 cfs @ 10.80 hrs, Volume= 0.024 af  
 Primary = 0.41 cfs @ 12.10 hrs, Volume= 0.014 af  
 Routed to Link 7 : Proposed

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 412.44' @ 12.10 hrs Surf.Area= 400 sf Storage= 183 cf

Plug-Flow detention time= 15.6 min calculated for 0.038 af (100% of inflow)  
 Center-of-Mass det. time= 15.6 min ( 792.5 - 776.9 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                      |
|--------|---------|---------------|----------------------------------------------------------------------------------------------------------|
| #1     | 411.50' | 329 cf        | <b>10.00'W x 40.00'L x 3.00'H Prismaoid</b><br>1,200 cf Overall - 377 cf Embedded = 823 cf x 40.0% Voids |
| #2     | 412.00' | 377 cf        | <b>24.0" Round Pipe Storage</b> x 3 Inside #1<br>L= 40.0' S= 0.0020 '/'                                  |
|        |         | 706 cf        | Total Available Storage                                                                                  |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 411.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                                |
| #2     | Primary   | 412.00' | <b>12.0" Round Culvert</b> L= 14.0' Ke= 0.100<br>Inlet / Outlet Invert= 412.00' / 411.94' S= 0.0043 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |
| #3     | Device 2  | 412.00' | <b>6.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads                                                                                                             |
| #4     | Device 2  | 414.00' | <b>24.0" x 24.0" Horiz. Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                                  |

**Discarded OutFlow** Max=0.03 cfs @ 10.80 hrs HW=411.53' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.41 cfs @ 12.10 hrs HW=412.44' (Free Discharge)  
 ↑ **2=Culvert** (Passes 0.41 cfs of 0.58 cfs potential flow)  
 ↑ **3=Orifice** (Orifice Controls 0.41 cfs @ 2.26 fps)  
 ↑ **4=Grate** ( Controls 0.00 cfs)

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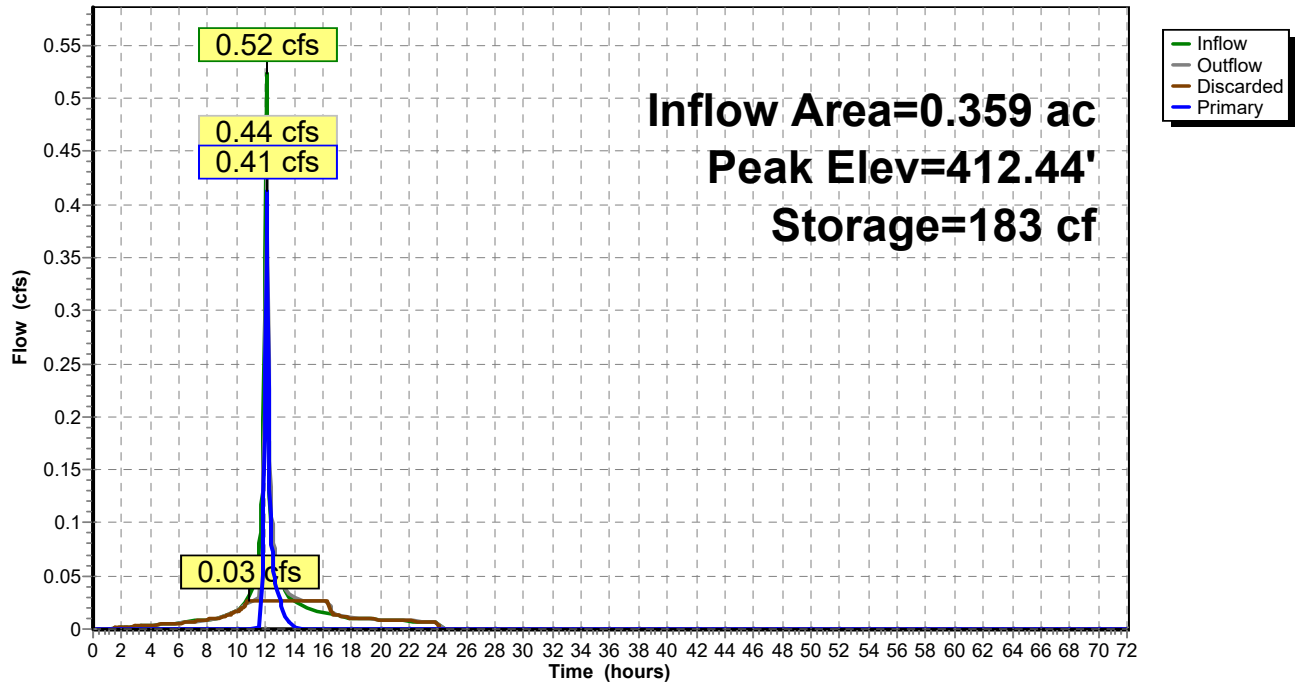
PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

Printed 9/12/2025

## Pond 5: Pipes

### Hydrograph



**1240815-pipes**

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PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

Printed 9/12/2025

**Summary for Subcatchment 6: Bypass**

Runoff = 0.02 cfs @ 12.14 hrs, Volume= 0.001 af, Depth= 1.22"  
 Routed to Link 7 : Proposed

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

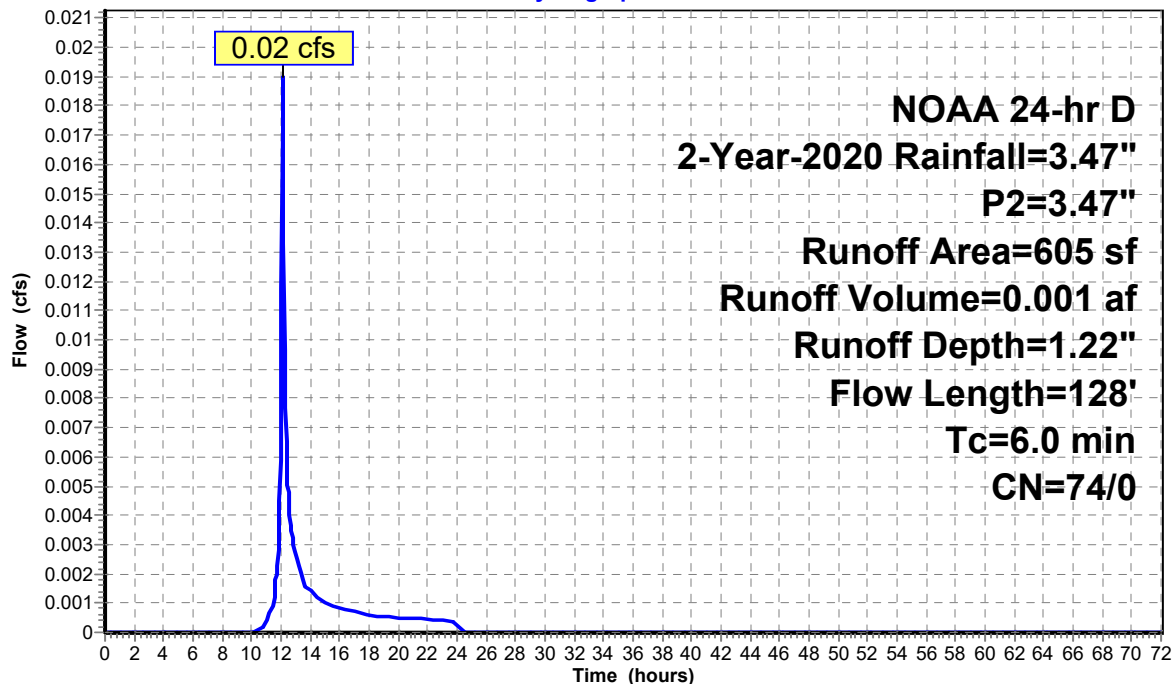
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 605       | 74 | >75% Grass cover, Good, HSG C |
| 605       | 74 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                          |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------|
| 5.9      | 100           | 0.0650        | 0.28              |                | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"              |
| 0.1      | 28            | 0.0900        | 4.50              |                | <b>Shallow Concentrated Flow, 2</b><br>Grassed Waterway Kv= 15.0 fps |
| 6.0      | 128           | Total         |                   |                |                                                                      |

**Subcatchment 6: Bypass**

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 2-Year-2020 Rainfall=3.47", P2=3.47"

Printed 9/12/2025

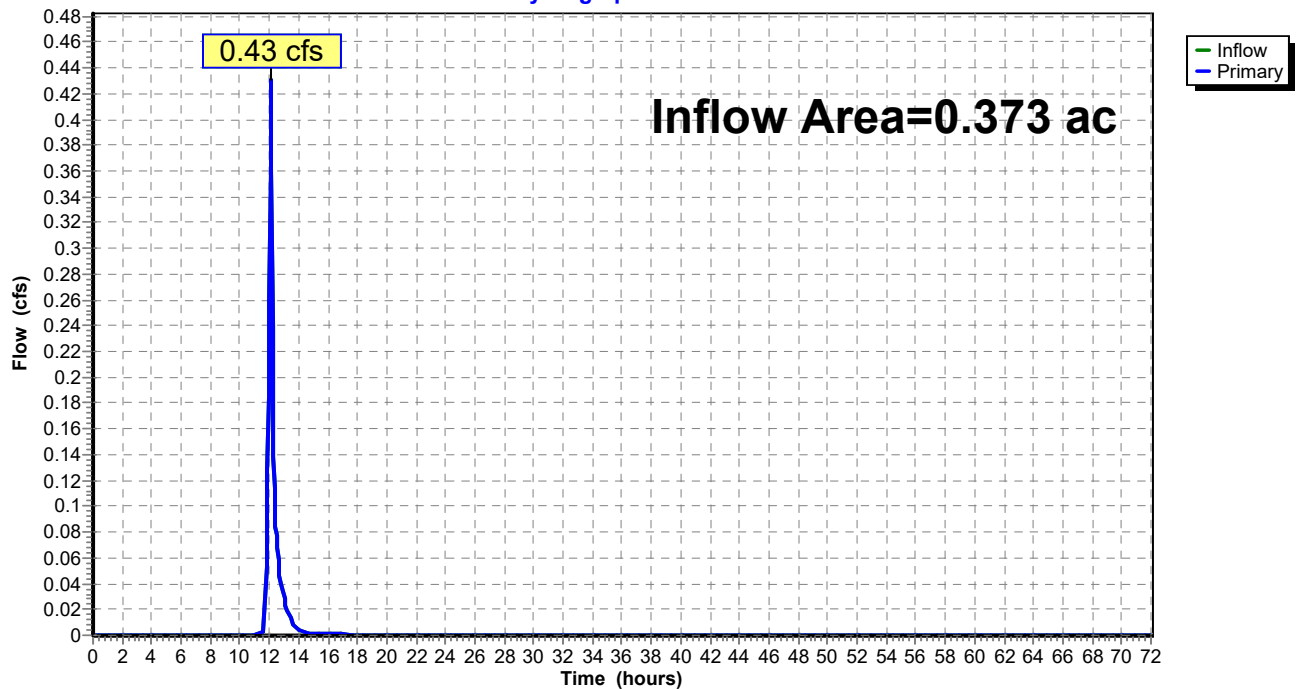
### Summary for Link 7: Proposed

Inflow Area = 0.373 ac, 69.07% Impervious, Inflow Depth = 0.49" for 2-Year-2020 event  
Inflow = 0.43 cfs @ 12.10 hrs, Volume= 0.015 af  
Primary = 0.43 cfs @ 12.10 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Link 7: Proposed

#### Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

Printed 9/12/2025

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment1: Exisiting**Runoff Area=16,242 sf 68.64% Impervious Runoff Depth=4.37"  
Flow Length=141' Tc=5.9 min CN=74/98 Runoff=1.63 cfs 0.136 af**Subcatchment2: Parking Lot**Runoff Area=7,305 sf 88.61% Impervious Runoff Depth=4.86"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=0.91 cfs 0.068 af**Pond 3: Pervious Pavers**Peak Elev=414.62' Storage=727 cf Inflow=0.91 cfs 0.068 af  
Discarded=0.11 cfs 0.066 af Primary=0.04 cfs 0.002 af Outflow=0.15 cfs 0.068 af**Subcatchment4: Proposed**Runoff Area=8,332 sf 56.96% Impervious Runoff Depth=4.08"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=0.90 cfs 0.065 af**Pond 5: Pipes**Peak Elev=412.73' Storage=267 cf Inflow=0.90 cfs 0.067 af  
Discarded=0.03 cfs 0.033 af Primary=0.66 cfs 0.034 af Outflow=0.68 cfs 0.067 af**Subcatchment6: Bypass**Runoff Area=605 sf 0.00% Impervious Runoff Depth=2.67"  
Flow Length=128' Tc=6.0 min CN=74/0 Runoff=0.04 cfs 0.003 af**Link 7: Proposed**Inflow=0.70 cfs 0.037 af  
Primary=0.70 cfs 0.037 af

**1240815-pipes**

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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

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**Summary for Subcatchment 1: Existing**

Runoff = 1.63 cfs @ 12.13 hrs, Volume= 0.136 af, Depth= 4.37"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 2,676     | 98 | Buildings                     |
| * | 794       | 98 | Walks/Steps & Patio           |
|   | 7,679     | 98 | Paved parking, HSG C          |
|   | 5,093     | 74 | >75% Grass cover, Good, HSG C |
|   | 16,242    | 90 | Weighted Average              |
|   | 5,093     | 74 | 31.36% Pervious Area          |
|   | 11,149    | 98 | 68.64% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------|
| 4.1         | 66               | 0.0680           | 0.27                 |                   | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 1.4         | 21               | 0.0950           | 0.24                 |                   | <b>Sheet Flow, 2</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 0.2         | 13               | 0.0390           | 1.24                 |                   | <b>Sheet Flow, 3</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1         | 13               | 0.0390           | 4.01                 |                   | <b>Shallow Concentrated Flow, 4</b><br>Paved Kv= 20.3 fps  |
| 0.1         | 28               | 0.0360           | 3.85                 |                   | <b>Shallow Concentrated Flow, 5</b><br>Paved Kv= 20.3 fps  |
| 5.9         | 141              | Total            |                      |                   |                                                            |

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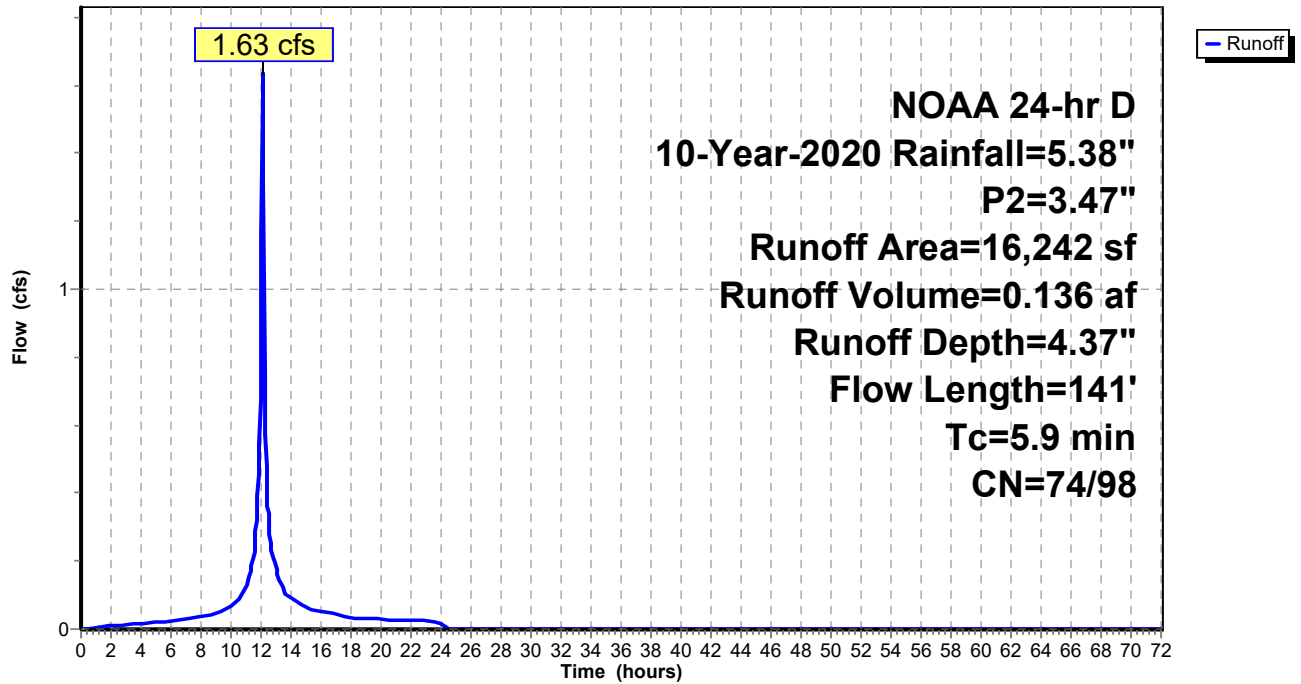
PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

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### Subcatchment 1: Exisiting

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

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**Summary for Subcatchment 2: Parking Lot**

Runoff = 0.91 cfs @ 12.06 hrs, Volume= 0.068 af, Depth= 4.86"  
 Routed to Pond 3 : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,473     | 98 | Paved parking, HSG C          |
| 832       | 74 | >75% Grass cover, Good, HSG C |
| 7,305     | 95 | Weighted Average              |
| 832       | 74 | 11.39% Pervious Area          |
| 6,473     | 98 | 88.61% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                        |
|----------|---------------|---------------|-------------------|----------------|------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                    |

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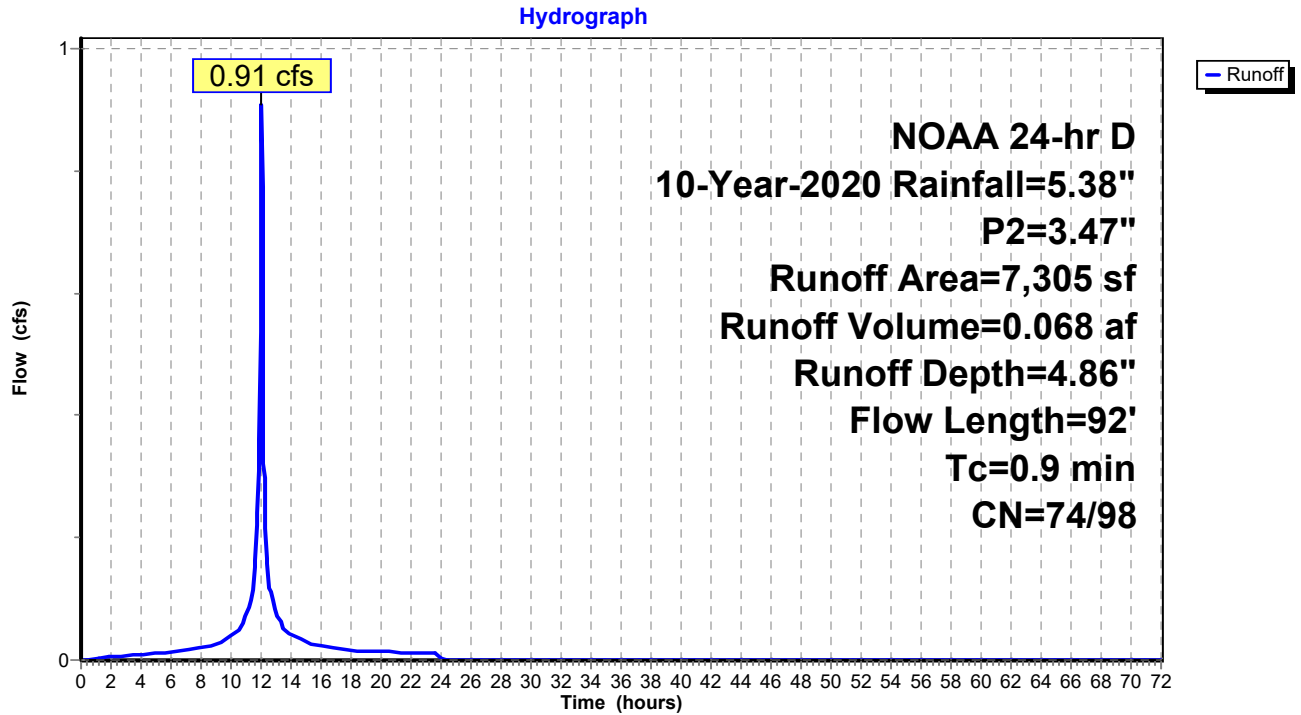
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## Subcatchment 2: Parking Lot



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NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

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**Summary for Pond 3: Pervious Pavers**

Inflow Area = 0.168 ac, 88.61% Impervious, Inflow Depth = 4.86" for 10-Year-2020 event  
 Inflow = 0.91 cfs @ 12.06 hrs, Volume= 0.068 af  
 Outflow = 0.15 cfs @ 12.49 hrs, Volume= 0.068 af, Atten= 83%, Lag= 25.6 min  
 Discarded = 0.11 cfs @ 11.50 hrs, Volume= 0.066 af  
 Primary = 0.04 cfs @ 12.49 hrs, Volume= 0.002 af  
 Routed to Pond 5 : Pipes

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 414.62' @ 12.49 hrs Surf.Area= 1,620 sf Storage= 727 cf

Plug-Flow detention time= 36.4 min calculated for 0.068 af (100% of inflow)  
 Center-of-Mass det. time= 36.4 min ( 785.7 - 749.3 )

| Volume | Invert  | Avail.Storage | Storage Description                                                            |
|--------|---------|---------------|--------------------------------------------------------------------------------|
| #1     | 413.50' | 1,730 cf      | <b>60.00'W x 27.00'L x 2.67'H Prismatoid</b><br>4,325 cf Overall x 40.0% Voids |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                        |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 413.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                     |
| #2     | Primary   | 414.50' | <b>6.0" Round Culvert</b> L= 50.0' Ke= 0.200<br>Inlet / Outlet Invert= 414.50' / 414.17' S= 0.0066 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.11 cfs @ 11.50 hrs HW=413.53' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.11 cfs)

**Primary OutFlow** Max=0.04 cfs @ 12.49 hrs HW=414.62' (Free Discharge)  
 ↑ **2=Culvert** (Barrel Controls 0.04 cfs @ 1.69 fps)

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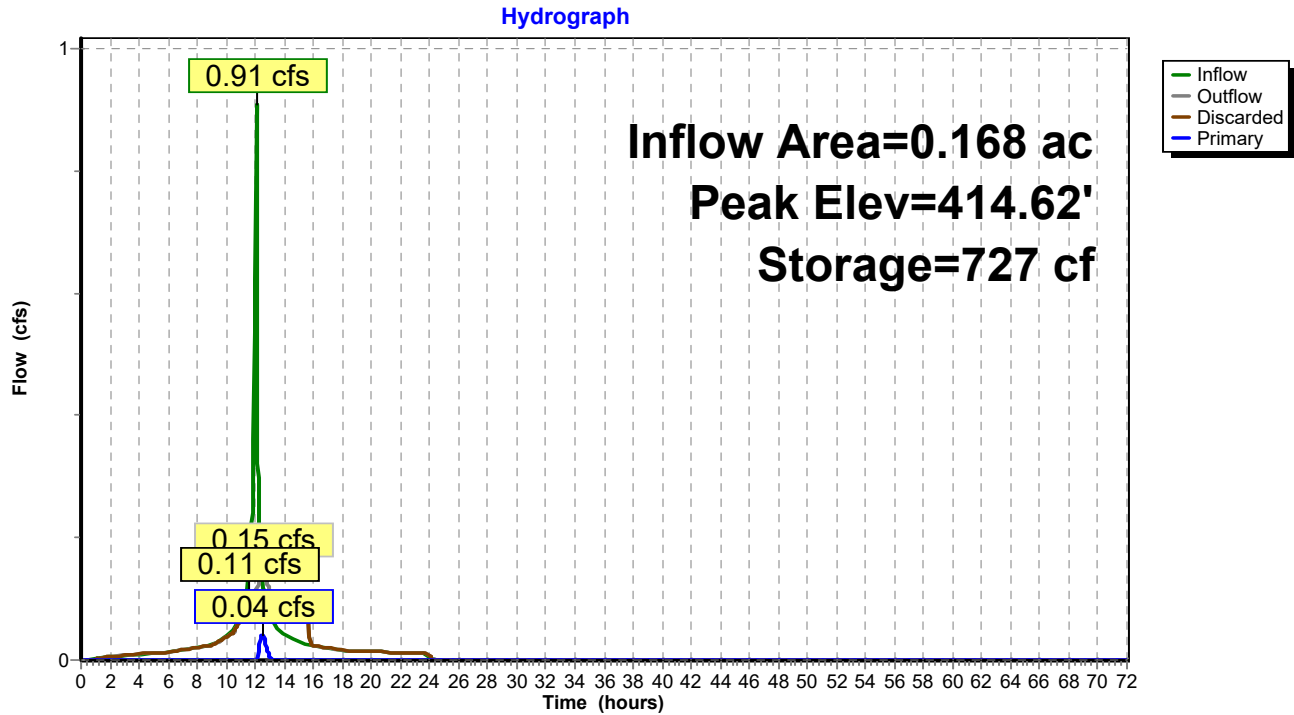
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### Pond 3: Pervious Pavers



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NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

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**Summary for Subcatchment 4: Proposed**

Runoff = 0.90 cfs @ 12.06 hrs, Volume= 0.065 af, Depth= 4.08"  
 Routed to Pond 5 : Pipes

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,387     | 98 | Roofs, HSG C                  |
| 1,359     | 98 | Paved parking, HSG C          |
| 3,586     | 74 | >75% Grass cover, Good, HSG C |
| 8,332     | 88 | Weighted Average              |
| 3,586     | 74 | 43.04% Pervious Area          |
| 4,746     | 98 | 56.96% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                        |
|----------|---------------|---------------|-------------------|----------------|------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                    |

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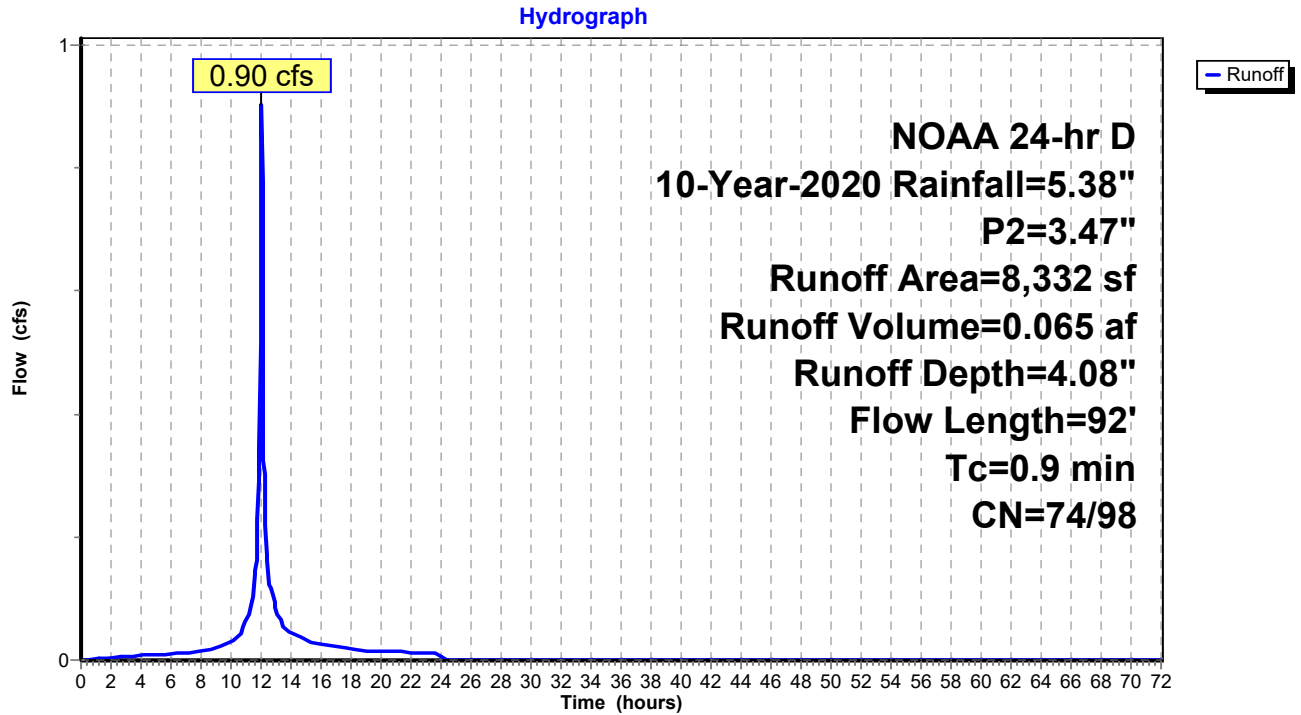
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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

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### Subcatchment 4: Proposed



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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

Printed 9/12/2025

**Summary for Pond 5: Pipes**

Inflow Area = 0.359 ac, 71.75% Impervious, Inflow Depth = 2.23" for 10-Year-2020 event  
 Inflow = 0.90 cfs @ 12.06 hrs, Volume= 0.067 af  
 Outflow = 0.68 cfs @ 12.11 hrs, Volume= 0.067 af, Atten= 24%, Lag= 2.8 min  
 Discarded = 0.03 cfs @ 9.75 hrs, Volume= 0.033 af  
 Primary = 0.66 cfs @ 12.11 hrs, Volume= 0.034 af  
 Routed to Link 7 : Proposed

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 412.73' @ 12.11 hrs Surf.Area= 400 sf Storage= 267 cf

Plug-Flow detention time= 15.4 min calculated for 0.067 af (100% of inflow)  
 Center-of-Mass det. time= 15.4 min ( 785.3 - 770.0 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                      |
|--------|---------|---------------|----------------------------------------------------------------------------------------------------------|
| #1     | 411.50' | 329 cf        | <b>10.00'W x 40.00'L x 3.00'H Prismaoid</b><br>1,200 cf Overall - 377 cf Embedded = 823 cf x 40.0% Voids |
| #2     | 412.00' | 377 cf        | <b>24.0" Round Pipe Storage</b> x 3 Inside #1<br>L= 40.0' S= 0.0020 'f'                                  |
|        |         | 706 cf        | Total Available Storage                                                                                  |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 411.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                                |
| #2     | Primary   | 412.00' | <b>12.0" Round Culvert</b> L= 14.0' Ke= 0.100<br>Inlet / Outlet Invert= 412.00' / 411.94' S= 0.0043 'f' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |
| #3     | Device 2  | 412.00' | <b>6.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads                                                                                                             |
| #4     | Device 2  | 414.00' | <b>24.0" x 24.0" Horiz. Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                                  |

**Discarded OutFlow** Max=0.03 cfs @ 9.75 hrs HW=411.53' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.65 cfs @ 12.11 hrs HW=412.72' (Free Discharge)  
 ↑ **2=Culvert** (Passes 0.65 cfs of 1.42 cfs potential flow)  
 ↑ **3=Orifice** (Orifice Controls 0.65 cfs @ 3.31 fps)  
 ↑ **4=Grate** ( Controls 0.00 cfs)

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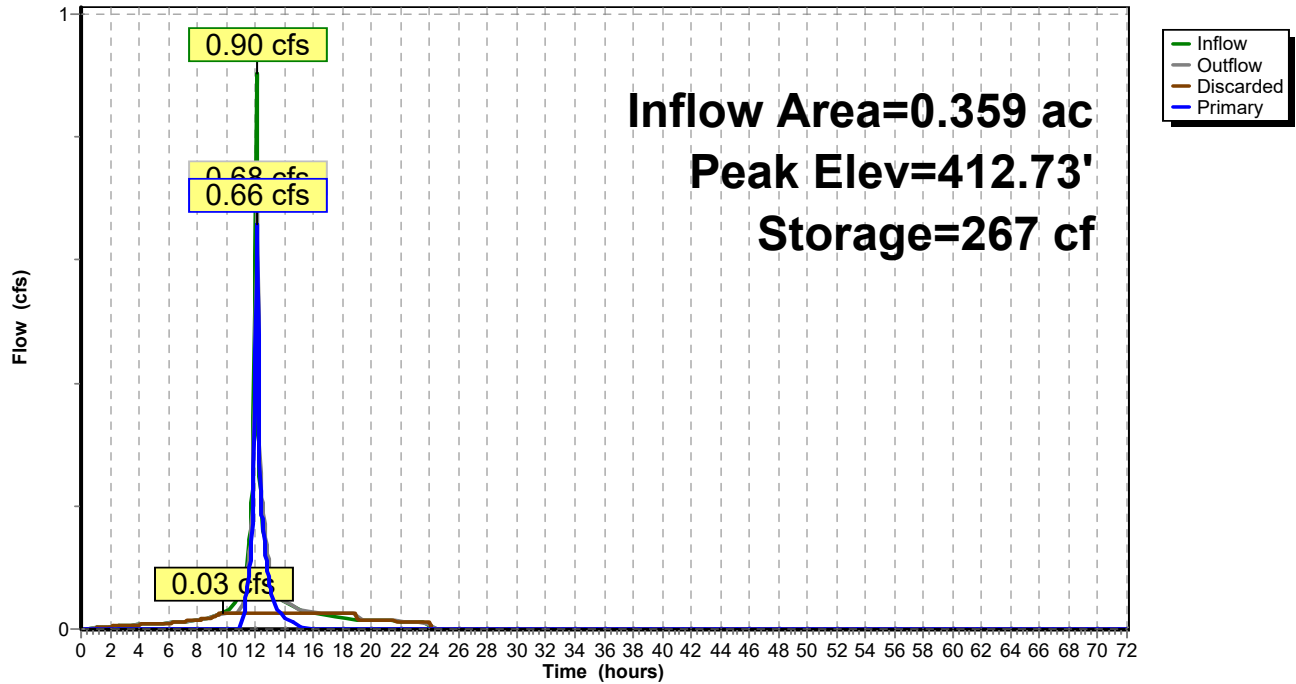
PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

Printed 9/12/2025

## Pond 5: Pipes

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

Printed 9/12/2025

**Summary for Subcatchment 6: Bypass**

Runoff = 0.04 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 2.67"  
 Routed to Link 7 : Proposed

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

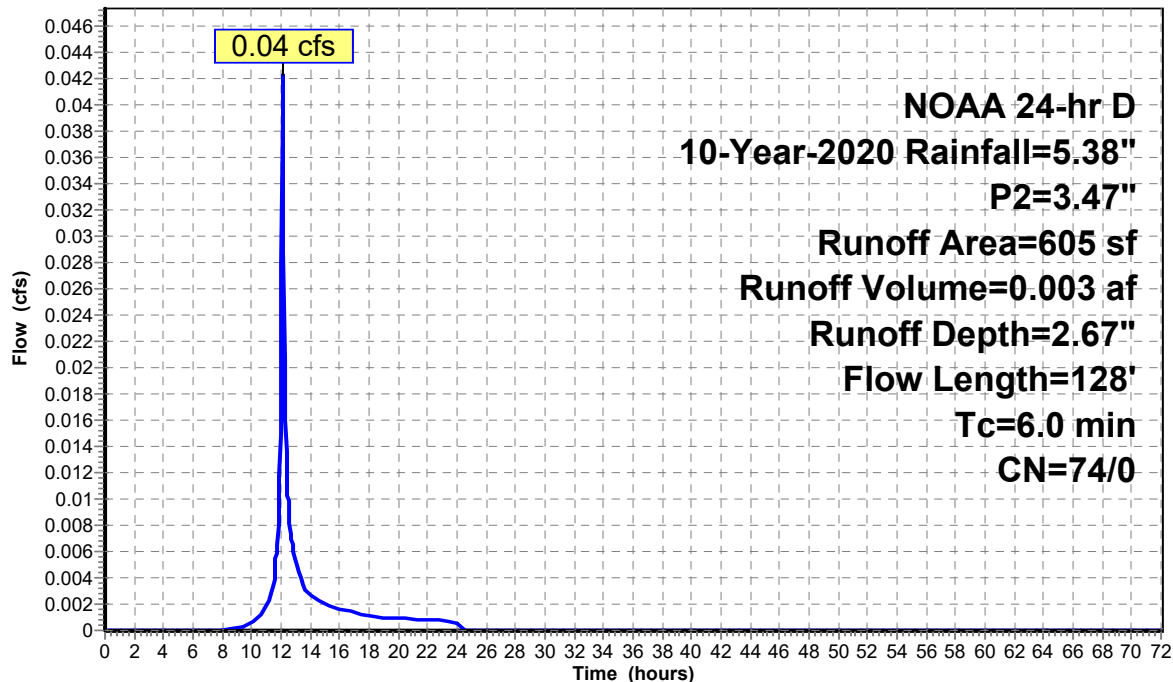
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 605       | 74 | >75% Grass cover, Good, HSG C |
| 605       | 74 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                         |
|----------|---------------|---------------|-------------------|----------------|-------------------------------------|
| 5.9      | 100           | 0.0650        | 0.28              |                | <b>Sheet Flow, 1</b>                |
|          |               |               |                   |                | Grass: Short n= 0.150 P2= 3.47"     |
| 0.1      | 28            | 0.0900        | 4.50              |                | <b>Shallow Concentrated Flow, 2</b> |
|          |               |               |                   |                | Grassed Waterway Kv= 15.0 fps       |
| 6.0      | 128           | Total         |                   |                |                                     |

**Subcatchment 6: Bypass**

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 10-Year-2020 Rainfall=5.38", P2=3.47"

Printed 9/12/2025

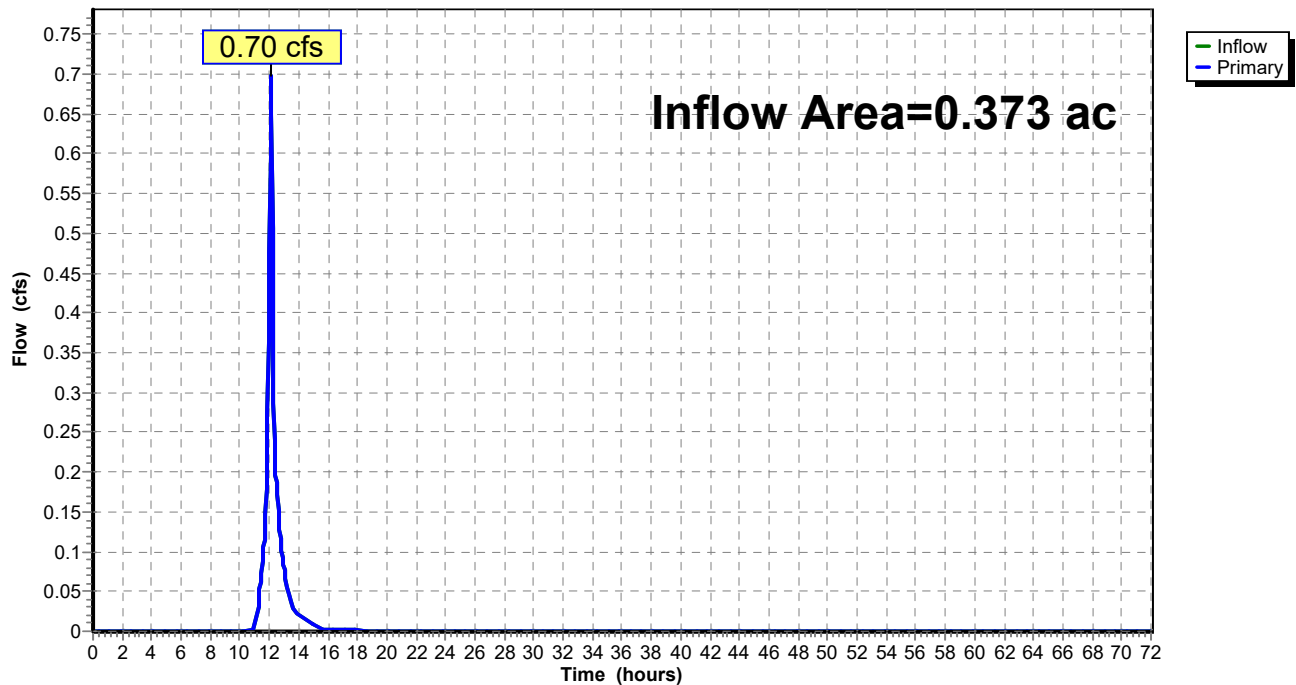
### Summary for Link 7: Proposed

Inflow Area = 0.373 ac, 69.07% Impervious, Inflow Depth = 1.18" for 10-Year-2020 event  
Inflow = 0.70 cfs @ 12.11 hrs, Volume= 0.037 af  
Primary = 0.70 cfs @ 12.11 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Link 7: Proposed

#### Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

Printed 9/12/2025

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment1: Exisiting**Runoff Area=16,242 sf 68.64% Impervious Runoff Depth=8.02"  
Flow Length=141' Tc=5.9 min CN=74/98 Runoff=2.97 cfs 0.249 af**Subcatchment2: Parking Lot**Runoff Area=7,305 sf 88.61% Impervious Runoff Depth=8.60"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=1.58 cfs 0.120 af**Pond 3: Pervious Pavers**Peak Elev=415.25' Storage=1,132 cf Inflow=1.58 cfs 0.120 af  
Discarded=0.11 cfs 0.094 af Primary=0.64 cfs 0.027 af Outflow=0.74 cfs 0.120 af**Subcatchment4: Proposed**Runoff Area=8,332 sf 56.96% Impervious Runoff Depth=7.67"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=1.68 cfs 0.122 af**Pond 5: Pipes**Peak Elev=414.08' Storage=640 cf Inflow=2.19 cfs 0.149 af  
Discarded=0.03 cfs 0.045 af Primary=1.80 cfs 0.104 af Outflow=1.83 cfs 0.149 af**Subcatchment6: Bypass**Runoff Area=605 sf 0.00% Impervious Runoff Depth=5.99"  
Flow Length=128' Tc=6.0 min CN=74/0 Runoff=0.09 cfs 0.007 af**Link 7: Proposed**Inflow=1.89 cfs 0.111 af  
Primary=1.89 cfs 0.111 af

**1240815-pipes**

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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

Printed 9/12/2025

**Summary for Subcatchment 1: Existing**

Runoff = 2.97 cfs @ 12.13 hrs, Volume= 0.249 af, Depth= 8.02"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 2,676     | 98 | Buildings                     |
| * | 794       | 98 | Walks/Steps & Patio           |
|   | 7,679     | 98 | Paved parking, HSG C          |
|   | 5,093     | 74 | >75% Grass cover, Good, HSG C |
|   | 16,242    | 90 | Weighted Average              |
|   | 5,093     | 74 | 31.36% Pervious Area          |
|   | 11,149    | 98 | 68.64% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------|
| 4.1         | 66               | 0.0680           | 0.27                 |                   | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 1.4         | 21               | 0.0950           | 0.24                 |                   | <b>Sheet Flow, 2</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 0.2         | 13               | 0.0390           | 1.24                 |                   | <b>Sheet Flow, 3</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1         | 13               | 0.0390           | 4.01                 |                   | <b>Shallow Concentrated Flow, 4</b><br>Paved Kv= 20.3 fps  |
| 0.1         | 28               | 0.0360           | 3.85                 |                   | <b>Shallow Concentrated Flow, 5</b><br>Paved Kv= 20.3 fps  |
| 5.9         | 141              | Total            |                      |                   |                                                            |

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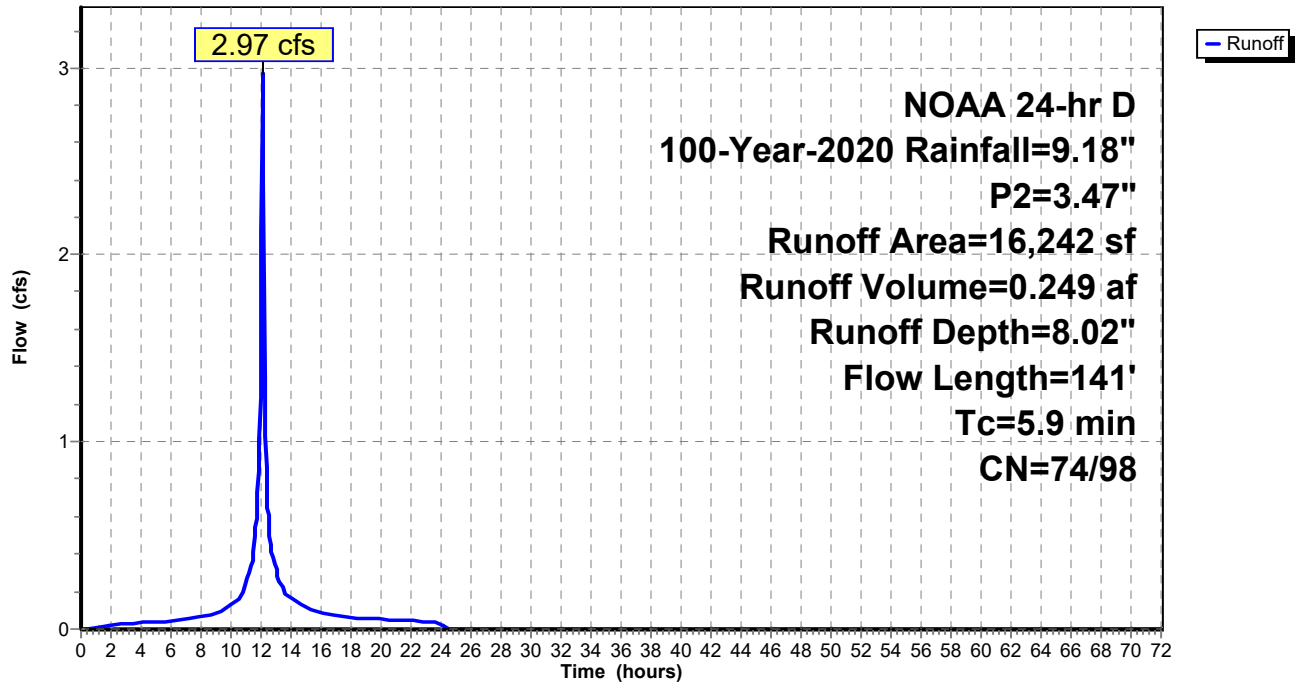
PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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### Subcatchment 1: Existing

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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**Summary for Subcatchment 2: Parking Lot**

Runoff = 1.58 cfs @ 12.06 hrs, Volume= 0.120 af, Depth= 8.60"  
 Routed to Pond 3 : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,473     | 98 | Paved parking, HSG C          |
| 832       | 74 | >75% Grass cover, Good, HSG C |
| 7,305     | 95 | Weighted Average              |
| 832       | 74 | 11.39% Pervious Area          |
| 6,473     | 98 | 88.61% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                        |
|----------|---------------|---------------|-------------------|----------------|------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                    |

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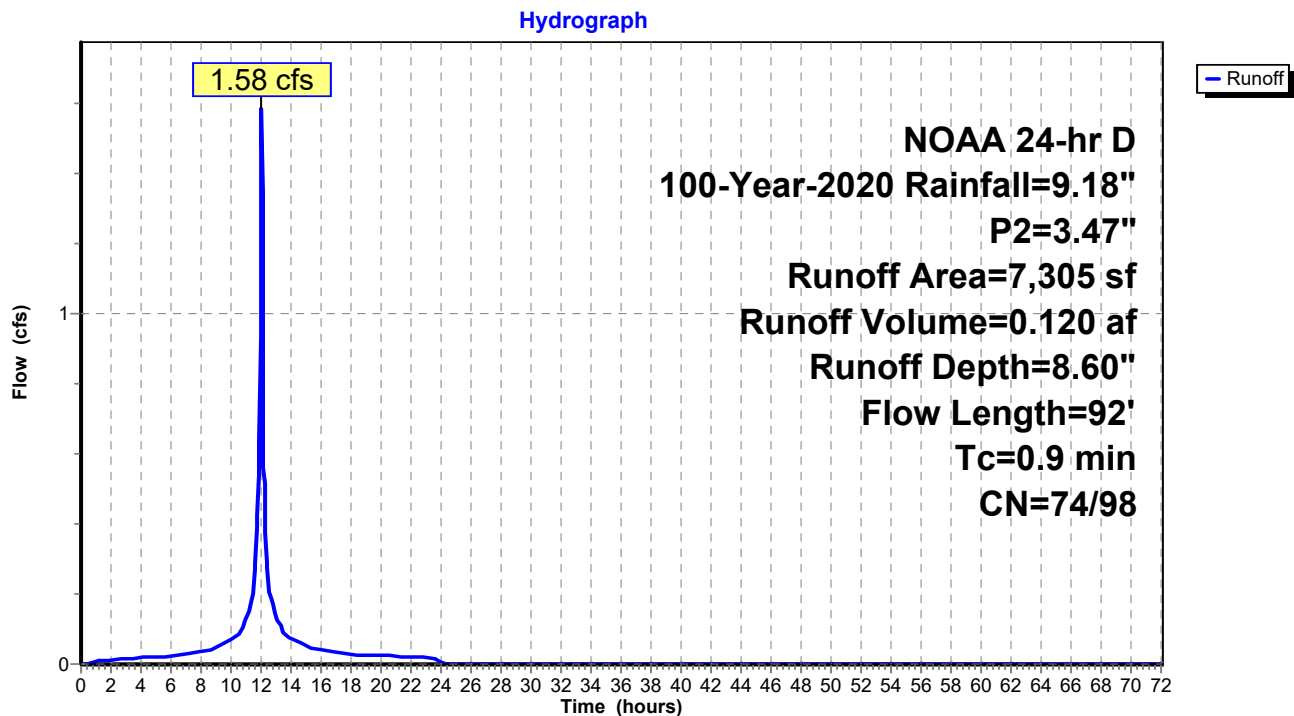
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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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## Subcatchment 2: Parking Lot



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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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**Summary for Pond 3: Pervious Pavers**

Inflow Area = 0.168 ac, 88.61% Impervious, Inflow Depth = 8.60" for 100-Year-2020 event  
 Inflow = 1.58 cfs @ 12.06 hrs, Volume= 0.120 af  
 Outflow = 0.74 cfs @ 12.15 hrs, Volume= 0.120 af, Atten= 53%, Lag= 5.6 min  
 Discarded = 0.11 cfs @ 10.90 hrs, Volume= 0.094 af  
 Primary = 0.64 cfs @ 12.15 hrs, Volume= 0.027 af  
 Routed to Pond 5 : Pipes

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 415.25' @ 12.15 hrs Surf.Area= 1,620 sf Storage= 1,132 cf

Plug-Flow detention time= 32.8 min calculated for 0.120 af (100% of inflow)  
 Center-of-Mass det. time= 32.7 min ( 774.5 - 741.8 )

| Volume | Invert  | Avail.Storage | Storage Description                                                            |
|--------|---------|---------------|--------------------------------------------------------------------------------|
| #1     | 413.50' | 1,730 cf      | <b>60.00'W x 27.00'L x 2.67'H Prismatoid</b><br>4,325 cf Overall x 40.0% Voids |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                          |
|--------|-----------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 413.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                       |
| #2     | Primary   | 414.50' | <b>6.0" Round Culvert</b> L= 50.0' Ke= 0.200<br>Inlet / Outlet Invert= 414.50' / 414.17' S= 0.0066 ' / ' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.11 cfs @ 10.90 hrs HW=413.53' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.11 cfs)

**Primary OutFlow** Max=0.64 cfs @ 12.15 hrs HW=415.24' (Free Discharge)  
 ↑ **2=Culvert** (Barrel Controls 0.64 cfs @ 3.23 fps)

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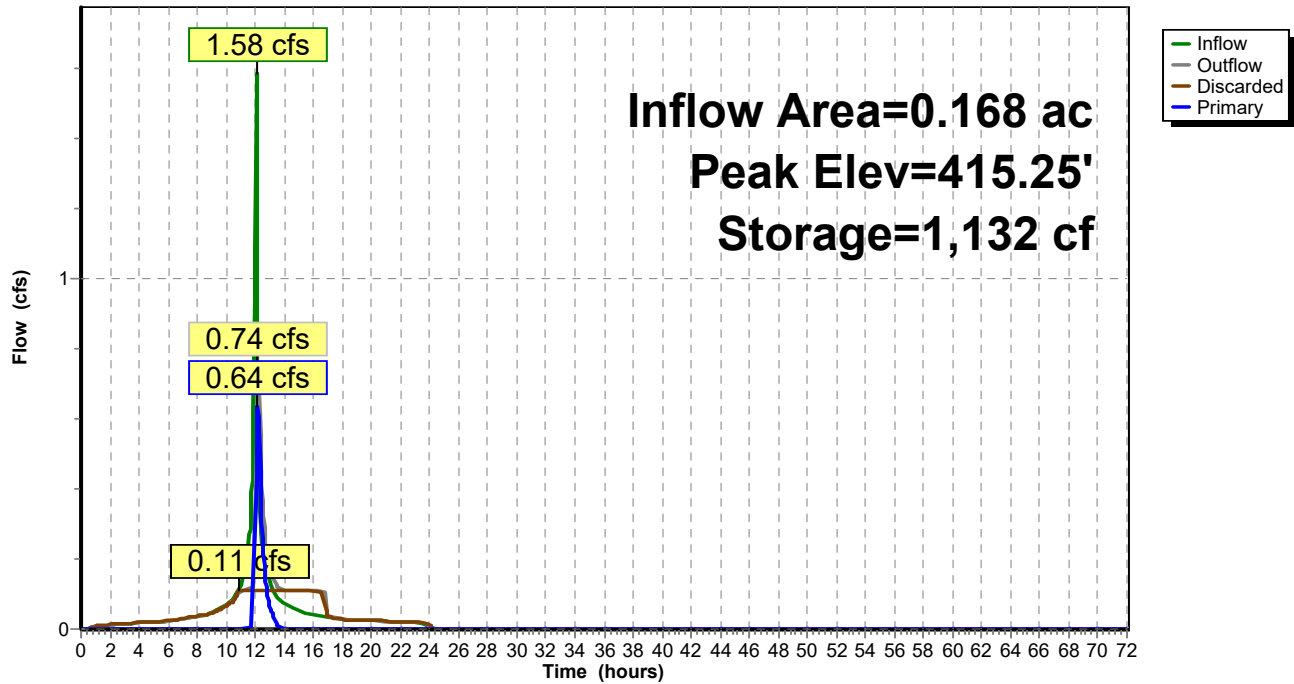
PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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### Pond 3: Pervious Pavers

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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**Summary for Subcatchment 4: Proposed**

Runoff = 1.68 cfs @ 12.06 hrs, Volume= 0.122 af, Depth= 7.67"  
 Routed to Pond 5 : Pipes

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,387     | 98 | Roofs, HSG C                  |
| 1,359     | 98 | Paved parking, HSG C          |
| 3,586     | 74 | >75% Grass cover, Good, HSG C |
| 8,332     | 88 | Weighted Average              |
| 3,586     | 74 | 43.04% Pervious Area          |
| 4,746     | 98 | 56.96% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                        |
|----------|---------------|---------------|-------------------|----------------|------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                    |

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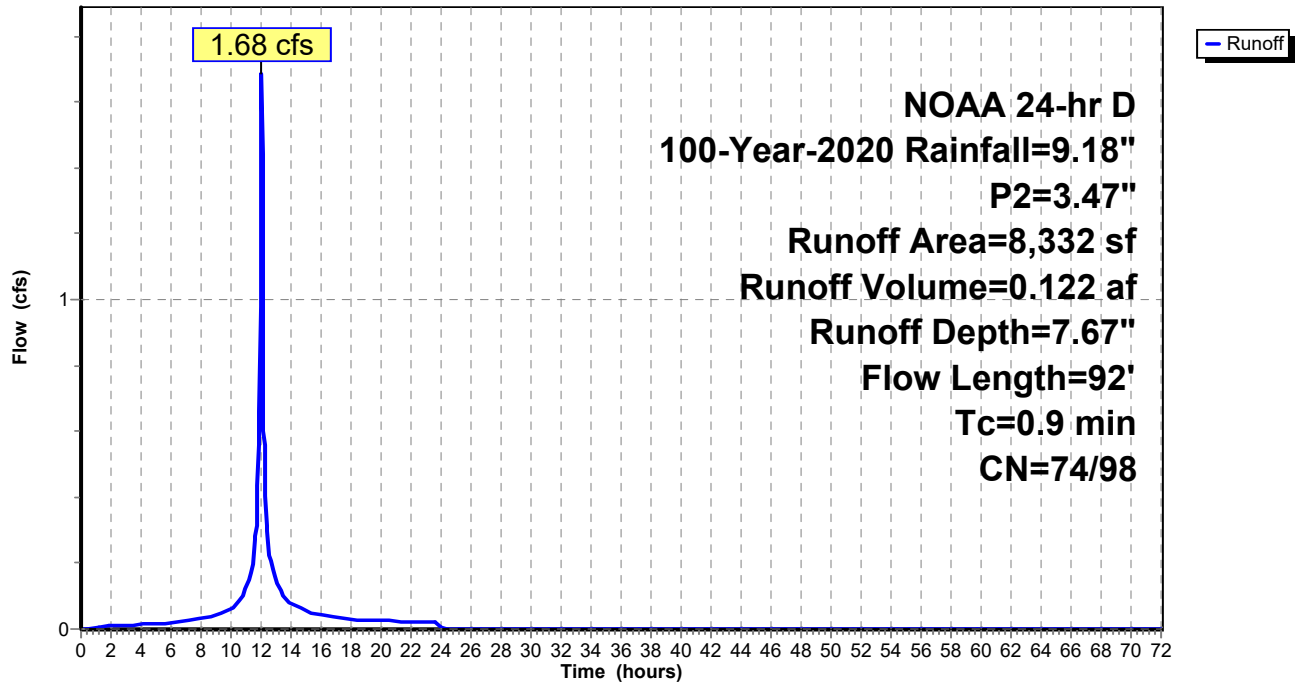
PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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### Subcatchment 4: Proposed

Hydrograph



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NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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**Summary for Pond 5: Pipes**

Inflow Area = 0.359 ac, 71.75% Impervious, Inflow Depth = 4.98" for 100-Year-2020 event  
 Inflow = 2.19 cfs @ 12.07 hrs, Volume= 0.149 af  
 Outflow = 1.83 cfs @ 12.15 hrs, Volume= 0.149 af, Atten= 16%, Lag= 4.6 min  
 Discarded = 0.03 cfs @ 7.50 hrs, Volume= 0.045 af  
 Primary = 1.80 cfs @ 12.15 hrs, Volume= 0.104 af  
 Routed to Link 7 : Proposed

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 414.08' @ 12.14 hrs Surf.Area= 400 sf Storage= 640 cf

Plug-Flow detention time= 14.9 min calculated for 0.149 af (100% of inflow)  
 Center-of-Mass det. time= 14.9 min ( 773.4 - 758.5 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                      |
|--------|---------|---------------|----------------------------------------------------------------------------------------------------------|
| #1     | 411.50' | 329 cf        | <b>10.00'W x 40.00'L x 3.00'H Prismaoid</b><br>1,200 cf Overall - 377 cf Embedded = 823 cf x 40.0% Voids |
| #2     | 412.00' | 377 cf        | <b>24.0" Round Pipe Storage</b> x 3 Inside #1<br>L= 40.0' S= 0.0020 '/'                                  |
|        |         | 706 cf        | Total Available Storage                                                                                  |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 411.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                                |
| #2     | Primary   | 412.00' | <b>12.0" Round Culvert</b> L= 14.0' Ke= 0.100<br>Inlet / Outlet Invert= 412.00' / 411.94' S= 0.0043 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |
| #3     | Device 2  | 412.00' | <b>6.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads                                                                                                             |
| #4     | Device 2  | 414.00' | <b>24.0" x 24.0" Horiz. Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                                  |

**Discarded OutFlow** Max=0.03 cfs @ 7.50 hrs HW=411.53' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=1.77 cfs @ 12.15 hrs HW=414.07' (Free Discharge)  
 ↑ **2=Culvert** (Passes 1.77 cfs of 5.52 cfs potential flow)  
 ↑ **3=Orifice** (Orifice Controls 1.28 cfs @ 6.50 fps)  
 ↑ **4=Grate** (Weir Controls 0.49 cfs @ 0.87 fps)

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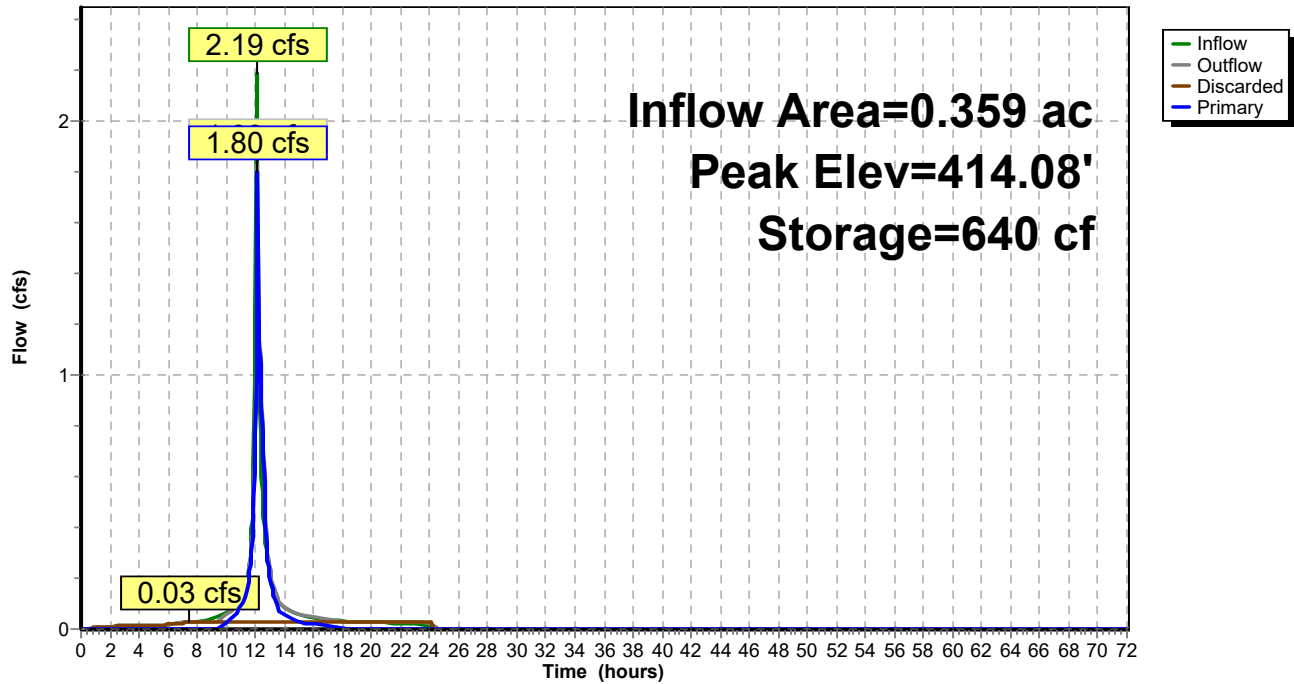
PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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### Pond 5: Pipes

Hydrograph



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NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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**Summary for Subcatchment 6: Bypass**

Runoff = 0.09 cfs @ 12.13 hrs, Volume= 0.007 af, Depth= 5.99"  
 Routed to Link 7 : Proposed

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

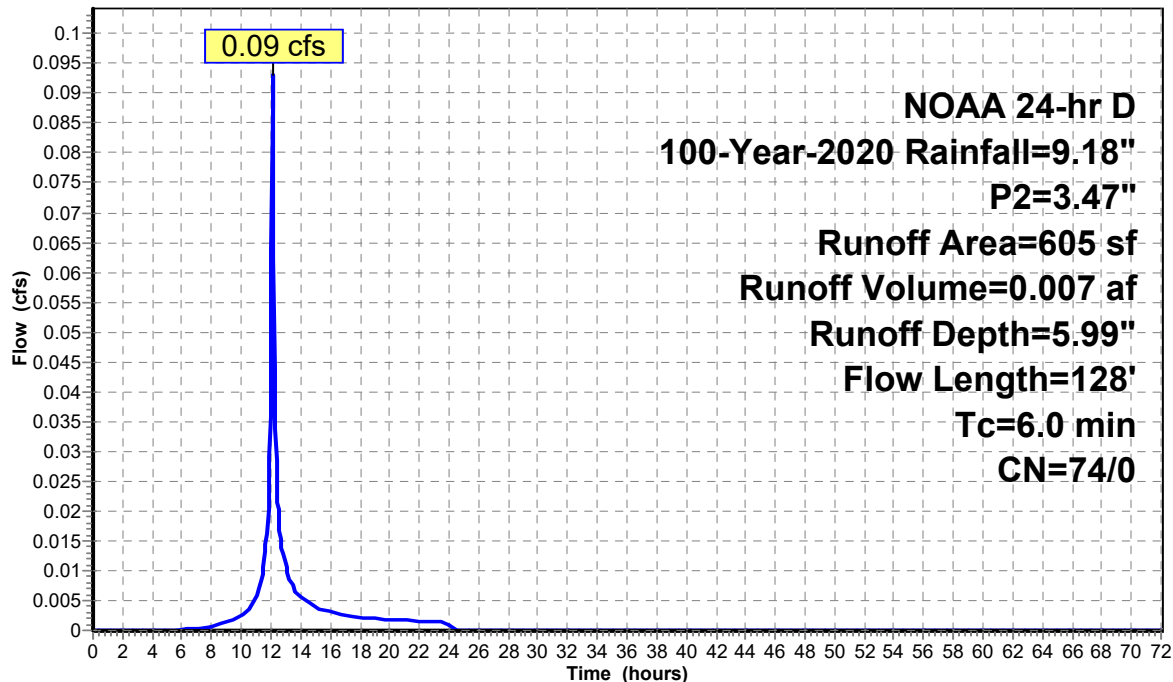
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 605       | 74 | >75% Grass cover, Good, HSG C |
| 605       | 74 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                          |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------|
| 5.9      | 100           | 0.0650        | 0.28              |                | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"              |
| 0.1      | 28            | 0.0900        | 4.50              |                | <b>Shallow Concentrated Flow, 2</b><br>Grassed Waterway Kv= 15.0 fps |
| 6.0      | 128           | Total         |                   |                |                                                                      |

**Subcatchment 6: Bypass**

Hydrograph



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PLEASANT VALLEY WAY

NOAA 24-hr D 100-Year-2020 Rainfall=9.18", P2=3.47"

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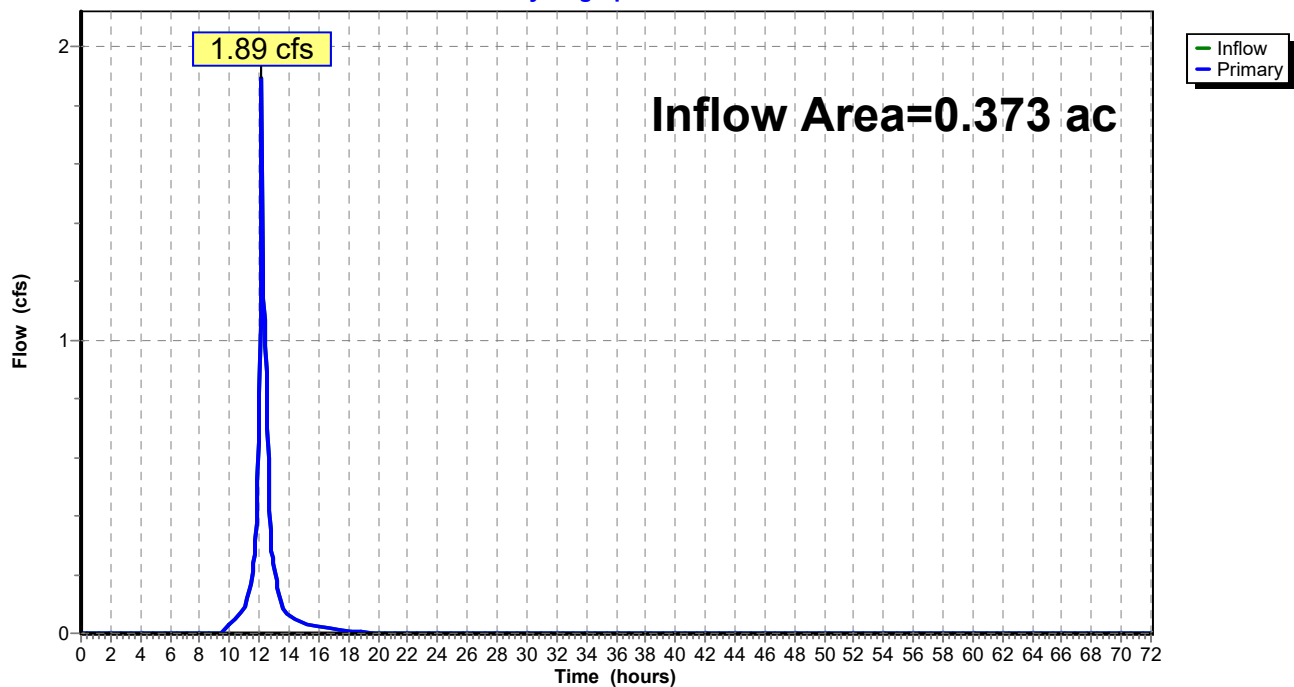
### Summary for Link 7: Proposed

Inflow Area = 0.373 ac, 69.07% Impervious, Inflow Depth = 3.57" for 100-Year-2020 event  
Inflow = 1.89 cfs @ 12.15 hrs, Volume= 0.111 af  
Primary = 1.89 cfs @ 12.15 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Link 7: Proposed

#### Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

Printed 9/12/2025

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment1: Exisiting**Runoff Area=16,242 sf 68.64% Impervious Runoff Depth=0.73"  
Flow Length=141' Tc=5.9 min CN=74/98 Runoff=0.73 cfs 0.023 af**Subcatchment2: Parking Lot**Runoff Area=7,305 sf 88.61% Impervious Runoff Depth=0.93"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=0.45 cfs 0.013 af**Pond 3: Pervious Pavers**Peak Elev=413.88' Storage=245 cf Inflow=0.45 cfs 0.013 af  
Discarded=0.11 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.013 af**Subcatchment4: Proposed**Runoff Area=8,332 sf 56.96% Impervious Runoff Depth=0.62"  
Flow Length=92' Tc=0.9 min CN=74/98 Runoff=0.33 cfs 0.010 af**Pond 5: Pipes**Peak Elev=412.30' Storage=146 cf Inflow=0.33 cfs 0.010 af  
Discarded=0.03 cfs 0.005 af Primary=0.23 cfs 0.005 af Outflow=0.26 cfs 0.010 af**Subcatchment6: Bypass**Runoff Area=605 sf 0.00% Impervious Runoff Depth=0.07"  
Flow Length=128' Tc=6.0 min CN=74/0 Runoff=0.00 cfs 0.000 af**Link 7: Proposed**Inflow=0.23 cfs 0.005 af  
Primary=0.23 cfs 0.005 af

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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

Printed 9/12/2025

**Summary for Subcatchment 1: Existing**

Runoff = 0.73 cfs @ 1.14 hrs, Volume= 0.023 af, Depth= 0.73"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 2,676     | 98 | Buildings                     |
| * | 794       | 98 | Walks/Steps & Patio           |
|   | 7,679     | 98 | Paved parking, HSG C          |
|   | 5,093     | 74 | >75% Grass cover, Good, HSG C |
|   | 16,242    | 90 | Weighted Average              |
|   | 5,093     | 74 | 31.36% Pervious Area          |
|   | 11,149    | 98 | 68.64% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------|
| 4.1         | 66               | 0.0680           | 0.27                 |                   | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 1.4         | 21               | 0.0950           | 0.24                 |                   | <b>Sheet Flow, 2</b><br>Grass: Short n= 0.150 P2= 3.47"    |
| 0.2         | 13               | 0.0390           | 1.24                 |                   | <b>Sheet Flow, 3</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1         | 13               | 0.0390           | 4.01                 |                   | <b>Shallow Concentrated Flow, 4</b><br>Paved Kv= 20.3 fps  |
| 0.1         | 28               | 0.0360           | 3.85                 |                   | <b>Shallow Concentrated Flow, 5</b><br>Paved Kv= 20.3 fps  |
| 5.9         | 141              | Total            |                      |                   |                                                            |

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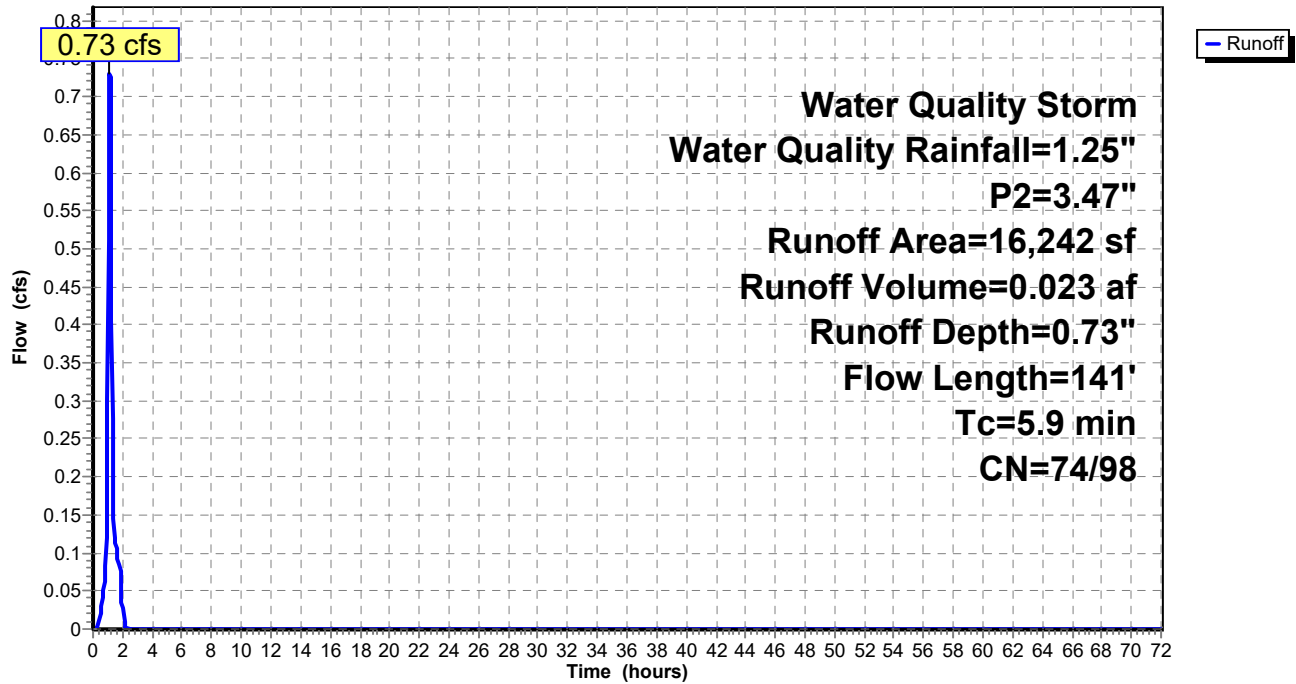
PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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### Subcatchment 1: Exisiting

Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

Printed 9/12/2025

**Summary for Subcatchment 2: Parking Lot**

Runoff = 0.45 cfs @ 1.07 hrs, Volume= 0.013 af, Depth= 0.93"  
 Routed to Pond 3 : Pervious Pavers

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 6,473     | 98 | Paved parking, HSG C          |
| 832       | 74 | >75% Grass cover, Good, HSG C |
| 7,305     | 95 | Weighted Average              |
| 832       | 74 | 11.39% Pervious Area          |
| 6,473     | 98 | 88.61% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                        |
|----------|---------------|---------------|-------------------|----------------|------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b>               |
|          |               |               |                   |                | Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                    |

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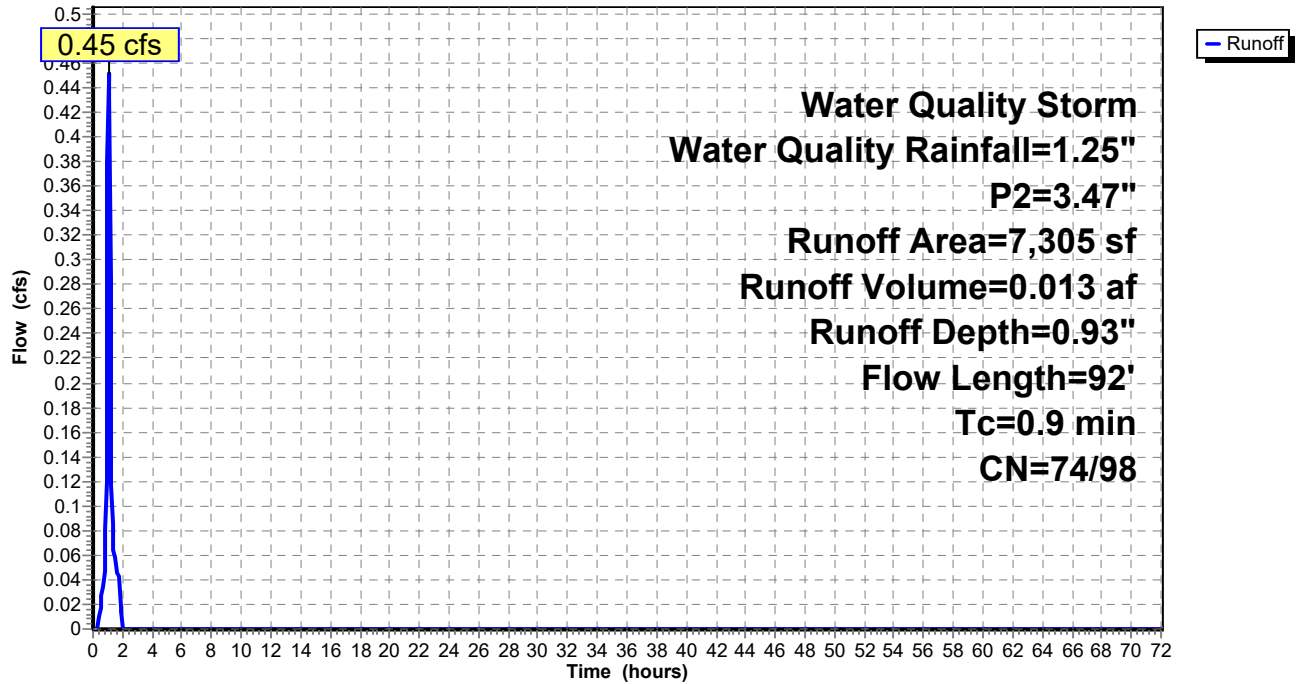
PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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## Subcatchment 2: Parking Lot

Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

Printed 9/12/2025

**Summary for Pond 3: Pervious Pavers**

Inflow Area = 0.168 ac, 88.61% Impervious, Inflow Depth = 0.93" for Water Quality event  
 Inflow = 0.45 cfs @ 1.07 hrs, Volume= 0.013 af  
 Outflow = 0.11 cfs @ 0.95 hrs, Volume= 0.013 af, Atten= 76%, Lag= 0.0 min  
 Discarded = 0.11 cfs @ 0.95 hrs, Volume= 0.013 af  
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af  
 Routed to Pond 5 : Pipes

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 413.88' @ 1.27 hrs Surf.Area= 1,620 sf Storage= 245 cf

Plug-Flow detention time= 20.6 min calculated for 0.013 af (100% of inflow)  
 Center-of-Mass det. time= 20.6 min ( 88.6 - 68.0 )

| Volume | Invert  | Avail.Storage | Storage Description                                                            |
|--------|---------|---------------|--------------------------------------------------------------------------------|
| #1     | 413.50' | 1,730 cf      | <b>60.00'W x 27.00'L x 2.67'H Prismatoid</b><br>4,325 cf Overall x 40.0% Voids |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                        |
|--------|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 413.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                     |
| #2     | Primary   | 414.50' | <b>6.0" Round Culvert</b> L= 50.0' Ke= 0.200<br>Inlet / Outlet Invert= 414.50' / 414.17' S= 0.0066 '/' Cc= 0.900<br>n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf |

**Discarded OutFlow** Max=0.11 cfs @ 0.95 hrs HW=413.54' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.11 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=413.50' (Free Discharge)  
 ↑ **2=Culvert** ( Controls 0.00 cfs)

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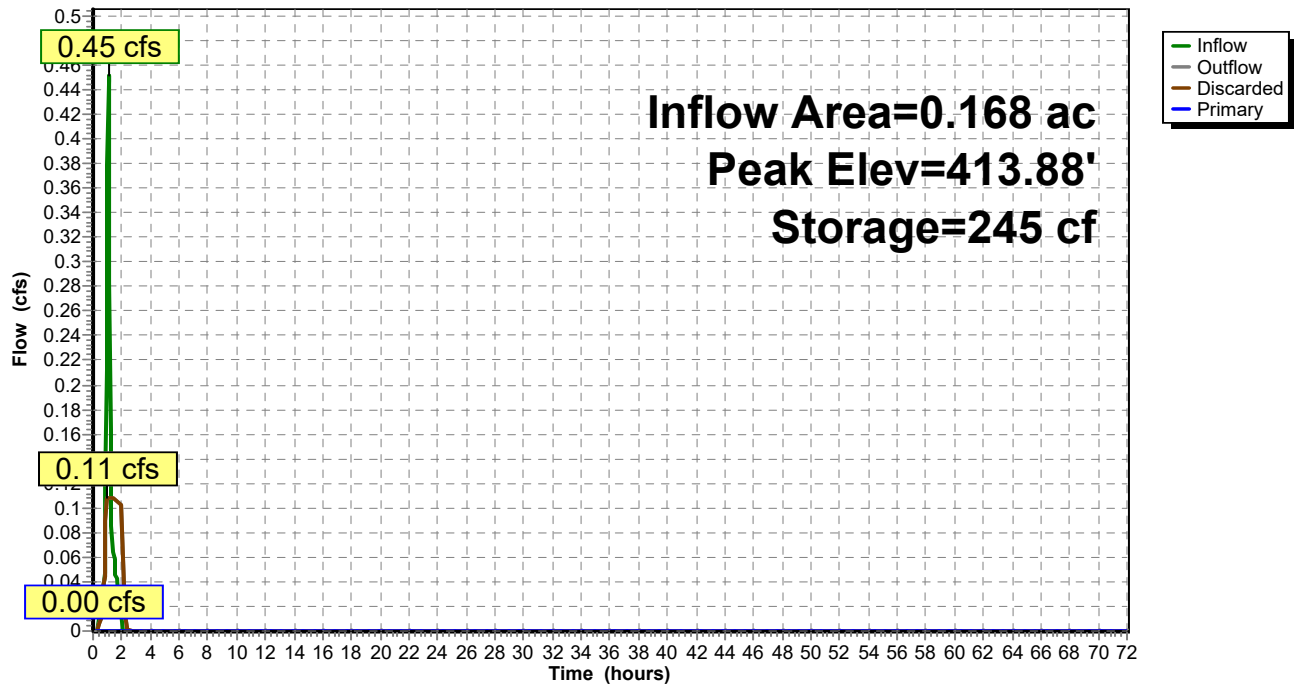
PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

Printed 9/12/2025

### Pond 3: Pervious Pavers

Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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**Summary for Subcatchment 4: Proposed**

Runoff = 0.33 cfs @ 1.07 hrs, Volume= 0.010 af, Depth= 0.62"  
 Routed to Pond 5 : Pipes

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
 Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 3,387     | 98 | Roofs, HSG C                  |
| 1,359     | 98 | Paved parking, HSG C          |
| 3,586     | 74 | >75% Grass cover, Good, HSG C |
| 8,332     | 88 | Weighted Average              |
| 3,586     | 74 | 43.04% Pervious Area          |
| 4,746     | 98 | 56.96% Impervious Area        |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                |
|----------|---------------|---------------|-------------------|----------------|------------------------------------------------------------|
| 0.1      | 8             | 0.0650        | 1.38              |                | <b>Sheet Flow, 1</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.1      | 15            | 0.6700        | 3.99              |                | <b>Sheet Flow, 2</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.5      | 59            | 0.0500        | 1.86              |                | <b>Sheet Flow, 3</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.2      | 10            | 0.0250        | 0.99              |                | <b>Sheet Flow, 4</b><br>Smooth surfaces n= 0.011 P2= 3.47" |
| 0.9      | 92            | Total         |                   |                |                                                            |

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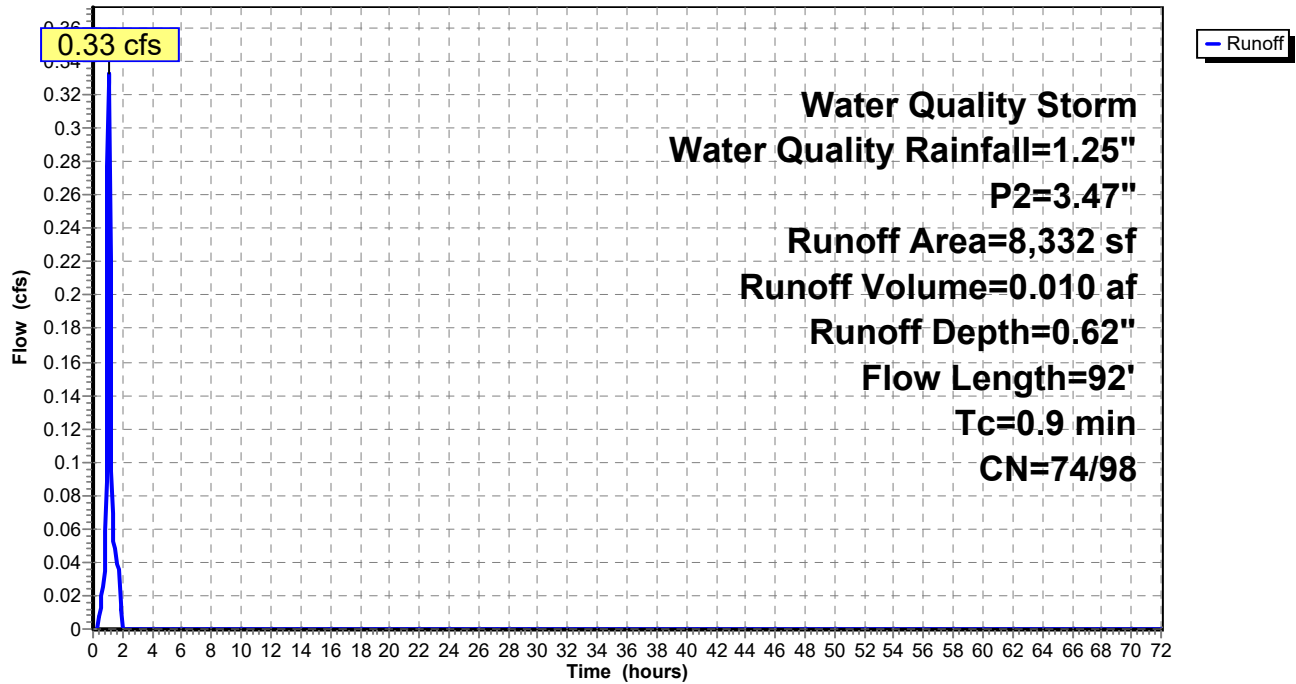
PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

Printed 9/12/2025

### Subcatchment 4: Proposed

Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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**Summary for Pond 5: Pipes**

Inflow Area = 0.359 ac, 71.75% Impervious, Inflow Depth = 0.33" for Water Quality event  
 Inflow = 0.33 cfs @ 1.07 hrs, Volume= 0.010 af  
 Outflow = 0.26 cfs @ 1.14 hrs, Volume= 0.010 af, Atten= 22%, Lag= 4.2 min  
 Discarded = 0.03 cfs @ 0.80 hrs, Volume= 0.005 af  
 Primary = 0.23 cfs @ 1.14 hrs, Volume= 0.005 af  
 Routed to Link 7 : Proposed

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 412.30' @ 1.14 hrs Surf.Area= 400 sf Storage= 146 cf

Plug-Flow detention time= 19.9 min calculated for 0.010 af (100% of inflow)  
 Center-of-Mass det. time= 19.9 min ( 88.6 - 68.7 )

| Volume | Invert  | Avail.Storage | Storage Description                                                                                      |
|--------|---------|---------------|----------------------------------------------------------------------------------------------------------|
| #1     | 411.50' | 329 cf        | <b>10.00'W x 40.00'L x 3.00'H Prismaoid</b><br>1,200 cf Overall - 377 cf Embedded = 823 cf x 40.0% Voids |
| #2     | 412.00' | 377 cf        | <b>24.0" Round Pipe Storage</b> x 3 Inside #1<br>L= 40.0' S= 0.0020 '/'                                  |
|        |         | 706 cf        | Total Available Storage                                                                                  |

| Device | Routing   | Invert  | Outlet Devices                                                                                                                                                                   |
|--------|-----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Discarded | 411.50' | <b>2.900 in/hr Exfiltration over Surface area</b>                                                                                                                                |
| #2     | Primary   | 412.00' | <b>12.0" Round Culvert</b> L= 14.0' Ke= 0.100<br>Inlet / Outlet Invert= 412.00' / 411.94' S= 0.0043 '/' Cc= 0.900<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf |
| #3     | Device 2  | 412.00' | <b>6.0" Vert. Orifice</b> C= 0.600 Limited to weir flow at low heads                                                                                                             |
| #4     | Device 2  | 414.00' | <b>24.0" x 24.0" Horiz. Grate</b> C= 0.600<br>Limited to weir flow at low heads                                                                                                  |

**Discarded OutFlow** Max=0.03 cfs @ 0.80 hrs HW=411.54' (Free Discharge)  
 ↑ **1=Exfiltration** (Exfiltration Controls 0.03 cfs)

**Primary OutFlow** Max=0.23 cfs @ 1.14 hrs HW=412.30' (Free Discharge)  
 ↑ **2=Culvert** (Passes 0.23 cfs of 0.27 cfs potential flow)  
 ↑ **3=Orifice** (Orifice Controls 0.23 cfs @ 1.86 fps)  
 ↑ **4=Grate** ( Controls 0.00 cfs)

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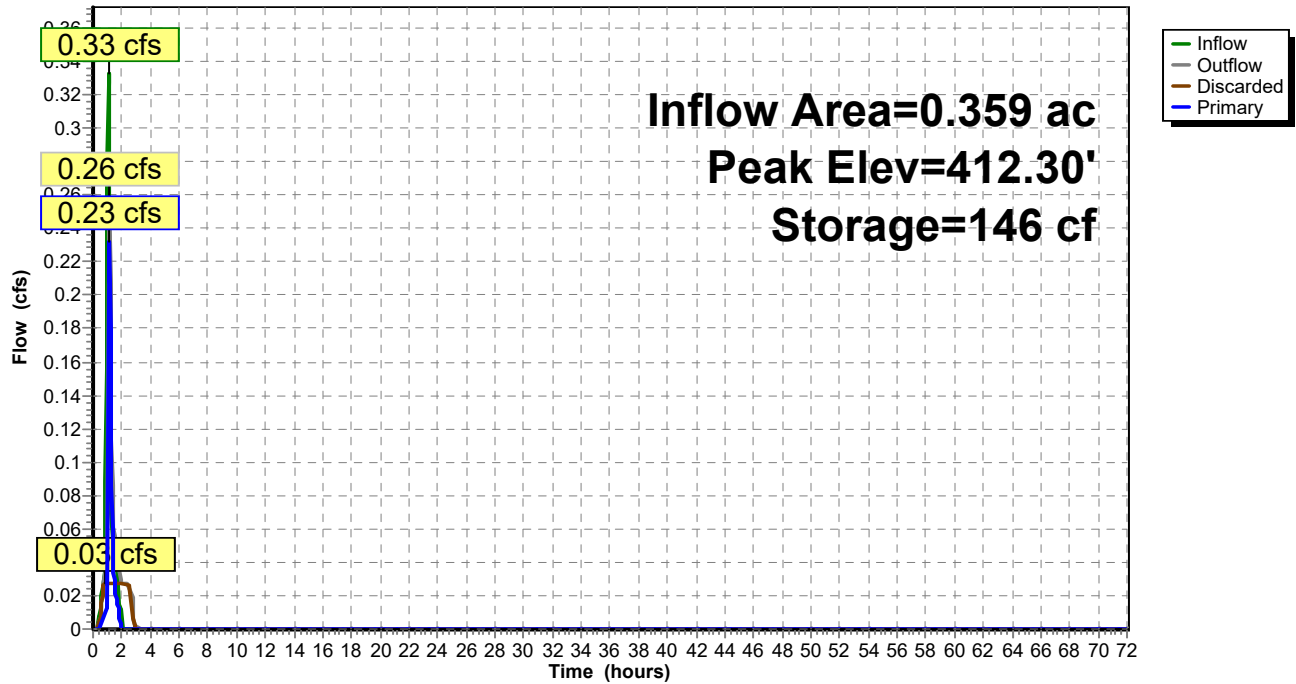
PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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## Pond 5: Pipes

Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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**Summary for Subcatchment 6: Bypass**

Runoff = 0.00 cfs @ 1.25 hrs, Volume= 0.000 af, Depth= 0.07"  
Routed to Link 7 : Proposed

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv. UI as Pervious, Time Span= 0.00-72.00 hrs, dt= 0.05  
Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

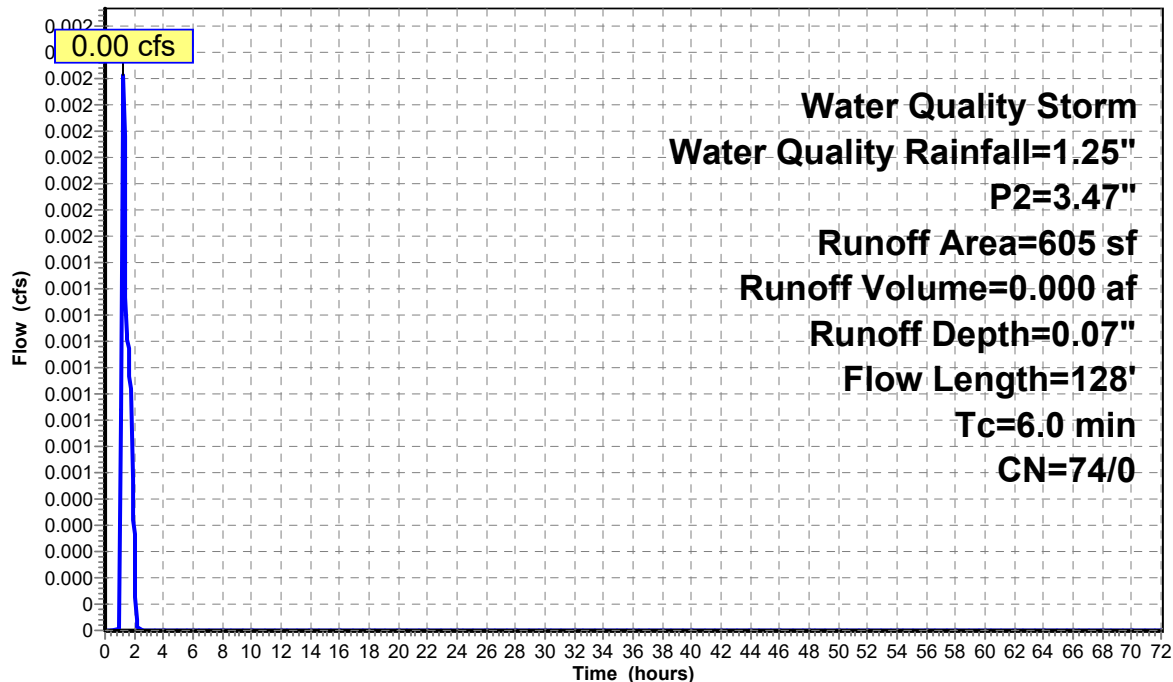
| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 605       | 74 | >75% Grass cover, Good, HSG C |
| 605       | 74 | 100.00% Pervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                          |
|----------|---------------|---------------|-------------------|----------------|----------------------------------------------------------------------|
| 5.9      | 100           | 0.0650        | 0.28              |                | <b>Sheet Flow, 1</b><br>Grass: Short n= 0.150 P2= 3.47"              |
| 0.1      | 28            | 0.0900        | 4.50              |                | <b>Shallow Concentrated Flow, 2</b><br>Grassed Waterway Kv= 15.0 fps |
| 6.0      | 128           | Total         |                   |                |                                                                      |

**Subcatchment 6: Bypass**

Hydrograph



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PLEASANT VALLEY WAY

Water Quality Storm Water Quality Rainfall=1.25", P2=3.47"

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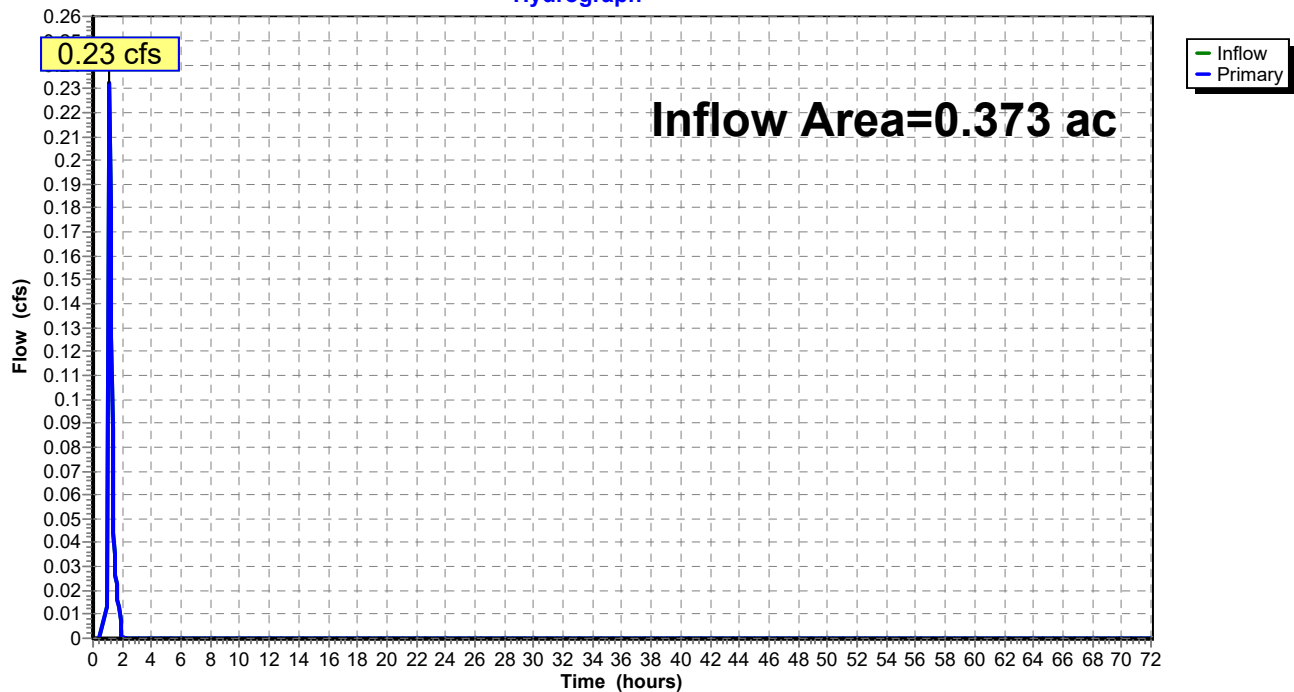
### Summary for Link 7: Proposed

Inflow Area = 0.373 ac, 69.07% Impervious, Inflow Depth = 0.16" for Water Quality event  
Inflow = 0.23 cfs @ 1.14 hrs, Volume= 0.005 af  
Primary = 0.23 cfs @ 1.14 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

### Link 7: Proposed

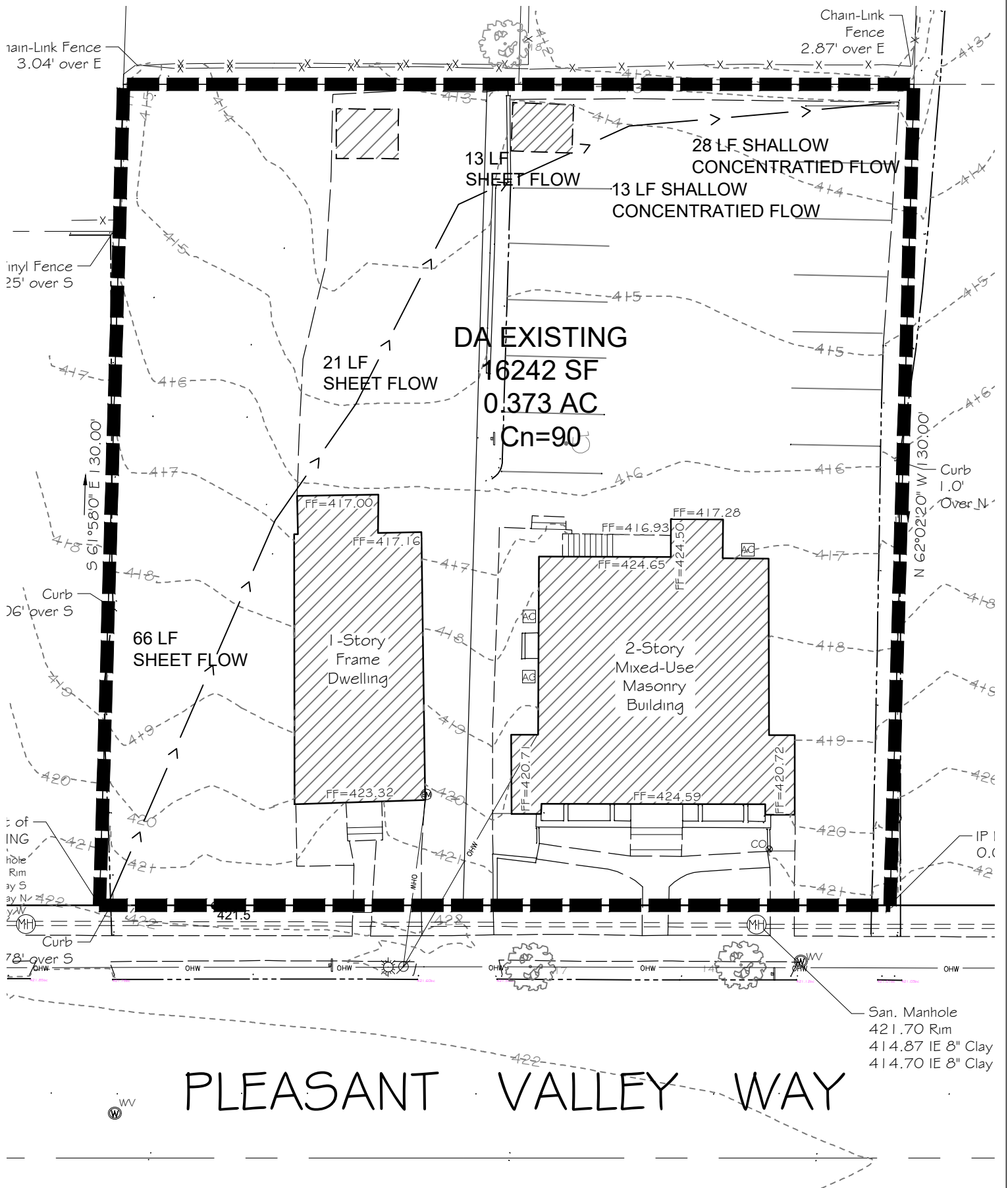
#### Hydrograph



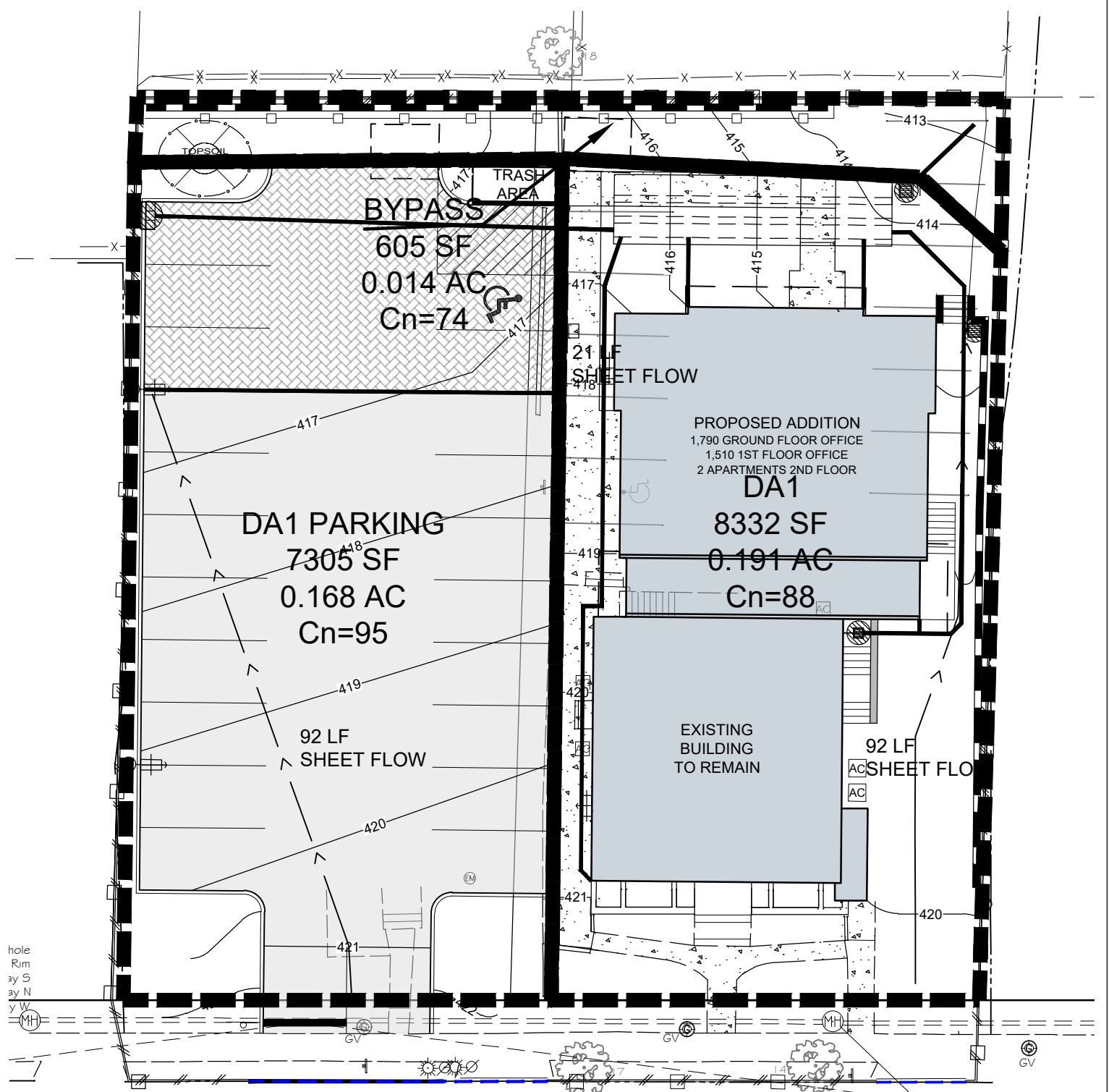


# **DRAINAGE AREA MAPS**









PLEASANT VALLEY WAY

575.40'

San. Manhole  
421.70 Rim  
414.87 IE 8" Clay  
414.70 IE 8" Clay

CASEY & KELLER, INC.  
258 MAIN STREET, MILLBURN, NJ 07041  
(973) 379-3280 Fax: (973) 379-7993

512-516 PLEASANT VALLEY WAY, WEST ORANGE

PROPOSED DRAINAGE AREA

Scale:  
1" = 20'

Project No.:  
1240815  
File Name:  
DA-EXISTING

Calc. By:  
JAA  
Check By:  
JAA

Page:  
Date:  
9/11/25