

# STORMWATER MANAGEMENT, GROUNDWATER RECHARGE AND WATER QUALITY ANALYSIS

For

*B9 Schoolhouse Owner, LLC*

*Proposed Warehouse*

*Block 514, Lots 1-3 & 60  
96 – 104 Schoolhouse Road  
Township of Franklin  
Somerset County, NJ*

Prepared by:



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A handwritten signature in black ink, appearing to read 'Kyle Kavinski'.

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## ***EXECUTIVE SUMMARY***

### **SITE DESCRIPTION**

The project area is comprised of Lots 1-3 & 60, Block 514, in the Township of Franklin, Somerset County, New Jersey. The property is located at 96 – 104 Schoolhouse Road. The subject parcel consists of existing residential dwellings with associated driveways, intermittent wooded areas and open space. Stormwater runoff from the existing development ultimately drains to the existing stormwater conveyance systems within Schoolhouse Road, an existing pond & the southern portion of the property.

The proposed development includes the construction of two (2) warehouse buildings (144,450 SF & 70,970 SF), with driveways, parking areas, utilities, lighting, and accommodating site improvements as shown on the Preliminary & Final Site Plan drawings, prepared by Dynamic Engineering Consultants, PC.

### ***I. INTRODUCTION***

This report has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the development of Lots 1-3 & 60, Block 514 in the Township of Franklin, Somerset County, New Jersey. The proposed development includes the construction of two (2) warehouse facilities with accompanying site improvements.

This Stormwater Management Study identifies and describes the manner by which the design and performance measures set forth by NJAC 7:8 and the Township of Franklin Land Use Ordinance are achieved to minimize the adverse impact of stormwater runoff quantity and quality in the surrounding stormwater conveyance systems and groundwater recharge into subsurface soils. The study has been prepared in accordance with NJAC 7:8 Stormwater Management. The scope of the study includes the building, associated driveways and roadways, landscaping, stormwater collection system, aboveground bioretention basins, pervious pavement, constructed wetlands and other associated improvements as shown on the accompanying engineering drawings.

Based upon the scope of the project, the development is classified as a major development as it disturbs more than one (1) acre of land and increases the amount of motor vehicle surface onsite by more than ¼ acre; therefore, the project has been designed to meet the green infrastructure, groundwater recharge, stormwater runoff quantity and quality standards set forth under NJAC 7:8. Accordingly, the following items are addressed within this report:

- Green Infrastructure Standards (7:8-5.3)
- Groundwater recharge standards (7:8-5.4)
- Stormwater runoff quality standards (7:8-5.5)
- Stormwater runoff quantity standards (7:8-5.6)

A Hydrological evaluation is provided for the 2, 10, and 100-year storm events utilizing the Urban Hydrology for Small Watershed TR55 method. The TR55 method is utilized to design the proposed above ground basins, pervious pavement and constructed wetlands.

*The NJDEP flow reduction requirements are as follows:*

- 2-year: 50% reduction
- 10-year: 25% reduction
- 100-year: 20% reduction

These standards will be addressed through the use of Stormwater Management Best Management Practices (BMPs) and will be designed in accordance with the BMP manual.

## ***II. EXISTING SITE CONDITIONS***

The subject parcel consists of existing residential dwellings with associated driveways, parking areas, intermittent wooded areas and open space.

The existing conditions of the tract have been verified by the ALTA/NSPS Land Title Survey, as prepared by Dynamic Survey, LLC dated 9/20/2021, last revised 1/5/2022. This information has been utilized to establish an Existing Conditions Drainage Area Map which is included within the Appendix of this Report.

The tract has been evaluated with the following existing drainage sub-watershed areas:

Study Area Schoolhouse Road: This area consists of a portion of the existing residential dwelling/driveway, along with open space areas that will be disturbed as part of the proposed site improvements. Stormwater runoff generated by this area is tributary to the stormwater conveyance system within Schoolhouse Road.

Study Area Pond: This area consists of a portion of open space & wooded areas that will be disturbed as part of the proposed site improvements. Stormwater runoff generated by this area is tributary to the existing pond on the southern portion of the property. Stormwater is ultimately tributary to the existing stormwater conveyance system within Mettler's Drive.

Study Area South: This area consists of a portion of the existing residential dwellings along with impervious, open space & wooded areas that will be disturbed as part of the proposed site improvements. Stormwater is ultimately tributary to the existing stormwater conveyance system within Mettler's Drive.

Based on Somerset County Soil Survey, the soil types native to the site are included below.

<b>SOMERSET COUNTY SOIL SURVEY INFORMATION</b>		
<b>SOIL TYPE (SYMBOL)</b>	<b>SOIL TYPE (NAME)</b>	<b>HYDROLOGIC SOIL GROUP</b>
NotB	Norton Loam, 2 to 6 percent slopes	C*
LbtA	Landsdowne Silt Loam, 0 to 2 percent slopes	C*
RehA	Rowland Silt Loam, 0 to 2 percent slopes	C*
BhnB	Birdsboro Silt Loam, 2 to 6 percent slopes	B*

\*Please note that per the soil testing performed by Hillis Carnes Engineering Associates, the existing on-site soils classify as HSG D per the NJSWBMP Chapter 12, Section 1 (See appendix). Therefore, the soils have been modeled as HSG D for the groundwater recharge calculations for disturbed areas.

### ***III. PROPOSED SITE CONDITIONS***

The proposed development includes the construction of two (2) warehouse buildings (144,450 SF & 70,970 SF), with driveways, parking areas, utilities, lighting, and accommodating site improvements as shown on the Preliminary & Final Site Plan drawings, prepared by Dynamic Engineering Consultants, PC. The stormwater management design includes two (2) aboveground bioretention basins, a porous pavement system, GI MTD and a constructed wetland.

The tract has been evaluated with the following drainage sub-watershed areas as depicted on the Proposed Drainage Area Map included within the Appendix of this report.

Study Area Basin A: This area of the tract consists of a portion of the proposed improvements including sidewalks, parking areas, access aisles and open space yard areas. The stormwater runoff from this study area drains via sheet flow to open curb cuts and via overland flow into the proposed stormwater conveyance system and aboveground bioretention basin (Basin A). The proposed basin system serves to control the release of stormwater from the 2, 10 and 100-year design storms through a proposed outlet control structure. The stormwater runoff is then conveyed to the proposed constructed wetland.

Study Area Basin B: This area of the tract consists of a portion of the proposed improvements including parking areas, access aisles and open space yard areas. The stormwater runoff from this study area drains into the proposed stormwater conveyance system and aboveground bioretention basin (Basin B). The proposed basin system serves to control the release of stormwater from the 2, 10 and 100-year design storms through a proposed outlet control structure. The stormwater runoff is then conveyed to the proposed constructed wetland.

Study Area MTD C: This area of the tract consists of a portion of the proposed improvements including parking areas, access aisles and open space yard areas. The stormwater runoff from this study area drains into the proposed stormwater conveyance system and to the Green Infrastructure MTD. Please note attenuation of the

flow has been utilized prior to the connection to the MTD. It is important to note that this attenuation has not been utilized for the proposed water quantity routing. The stormwater runoff is then conveyed to the proposed constructed wetland.

Study Area Porous Pavement D: This area of the tract consists of a portion of the proposed improvements including parking areas, access aisles, open space yard areas and a portion of the proposed roof (roof leaders). The stormwater runoff from this study area drains into the proposed porous pavement system. The proposed system serves to control the release of stormwater from the 2, 10 and 100-year design storms through a proposed outlet control structure. The stormwater runoff is then conveyed to the proposed constructed wetland.

Study Area Constructed Wetland E: This area of the tract consists of a portion of the previously treated stormwater from the above systems, non-motor vehicle impervious areas (emergency access lanes), open space yard areas and a portion of the proposed roofs (roof leaders). The stormwater runoff from this study area drains into the proposed constructed wetland. The proposed system serves to control the release of stormwater from the 2, 10 and 100-year design storms through a proposed outlet control structure. The stormwater runoff is then conveyed to the south.

Study Area South: This area consists of open space areas that will be disturbed as part of the proposed site improvements. Stormwater is ultimately tributary to the existing stormwater conveyance system within Mettler's Drive.

Study Area Pond: This area consists of open space areas that will be disturbed as part of the proposed site improvements. Stormwater runoff generated by this area is tributary to the existing pond on the southern portion of the property. Stormwater is ultimately tributary to the existing stormwater conveyance system within Mettler's Drive.

#### ***IV. DESIGN METHODOLOGY***

In order to prepare the stormwater management, water quality and groundwater recharge design for the subject project, extensive up-front investigation of the property and topography was performed. On-site review of the tract was initially performed by Dynamic Engineering Consultants, PC to verify existing site conditions and land cover characteristics. Dynamic Survey, LLC was contracted to prepare an ALTA/NSPS Land Title Survey depicting the boundary, location and topography for the existing site and surrounding watershed areas.

Based on our review of the existing site conditions and a topographic survey, the drainage area maps for the existing site conditions as defined within this report were established. A grading plan was developed for the proposed site improvements with consideration to the existing drainage patterns. The plan was designed to ensure that runoff from the proposed development could be directed to stormwater management facilities in order to address the applicable sections of the Township of Franklin Land Use Ordinance and NJAC 7:8.

Stormwater runoff from the majority of the proposed development is routed by the on-site stormwater collection and conveyance system to the above-mentioned stormwater BMP's. The proposed stormwater management systems serve to release the collected stormwater runoff from the 2, 10 and 100-year storm events through the proposed outlet control structures in order to satisfy the stormwater runoff quantity requirements set forth by the Township of Franklin and NJAC 7:8.

**V. ABOVEGROUND BIORETENTION BASIN DESIGN (SMALL SCALE – (BASINS A & B))**

In order to meet the stormwater runoff quantity requirements for the developed site, the site design incorporates two (2) aboveground bioretention basin with underdrains. The aboveground bioretention basin proposes to accept stormwater runoff from paved driveways, roadways and tributary yard areas. The runoff will be conveyed to the basin via the proposed storm water collection and conveyance system. In accordance with the New Jersey Stormwater Best Management Practices Manual, the following design considerations have been provided/satisfied:

- A maximum 2.5AC tributary drainage area.
- Basin must fully drain basin volume within 72 hours.
- Basin bottom must be as level as possible.
- Basin must be designed to safely convey overflow volume.
- The underdrain consists of three components – the sand layer, the gravel layer and the network of pipes to that collect stormwater runoff and transport it to the outflow section of the system.
- An impermeable liner has been provided along both the sides and the bottom of the basin to prevent the migration of fine particles from the surrounding soil.

**Proposed Aboveground Bioretention Basins:**

	<b>INFLOW AREA (AC)*</b>	<b>WATER QUALITY VOLUME (CF)</b>	<b>BASIN AREA (AC)</b>	<b>FILTRATION RATE OF SOIL MEDIA (IN/HR)</b>	<b>FLOW CAPACITY OF UNDERDRAIN (CFS)</b>	<b>MAX Drain Time (HR)</b>
<b>Basin A</b>	2.43	3,010	0.12	0.5	0.36	24.62
<b>Basin B</b>	1.23	4,152	0.13	0.5	0.36	31.42

\*Excludes basin area per BMP

	<b>DEPTH OF BMP (FT)</b>	<b># OF TEST PITS</b>	<b>BOTTOM OF UNDERDRAIN ELEV</b>	<b>SHWT ELEV</b>	<b>SEPARATION FROM SHGW (FT)</b>
<b>Basin A</b>	2.0	2 (2 Req)	80.20	79.20	1.0
<b>Basin B</b>	1.0	2 (2 Req)	79.50	78.50	1.0

**VI. PVIOUS PAVEMENT SYSTEM DESIGN (BASIN D)**

As noted above, in order to meet the stormwater runoff quality requirements for the developed site, the site design incorporates a pervious pavement system with an underdrain system. The pervious pavement system is designed to accept stormwater runoff from the parking lot and roof areas. In accordance with the New Jersey Stormwater Best Management Practices Manual, the following design considerations have been satisfied:

- Maximum contributory drainage area 3:1.
- Bottom of system must be a minimum of 1 foot about the Seasonal High-Water Table.
- Surface course slope not to exceed 5%.
- System must fully drain basin volume within 72 hours.
- System must be designed to safely convey overflow volume.

**Proposed Porous Pavement Basin:**

	PAVEMENT AREA (AC)	INFLOW AREA (AC)	WATER QUALITY VOLUME (CF)	DRAINAGE AREA RATIO*	BOTTOM OF STONE
<b>Basin D</b>	0.55	2.19	8,797	2.98	81.40

\*Excludes Porous Pavement area per BMP

	SEPARATION FROM SHGW (FT)	MAX DRAIN TIME (HR)	DEPTH OF BMP (FT)	# OF TEST PITS	SHWT ELEV
<b>Basin D</b>	5.1	45.0	4.0	4 (4 Req)	76.30

**VII. CONSTRUCTED WETLANDS SYSTEM DESIGN (BASIN E)**

In order to meet the stormwater quantity requirements, set forth by the Township of Franklin and NJAC 7:8 for the proposed development, the site design incorporates Standard Constructed Wetlands (extended detention). The basin accepts stormwater runoff from all small-scale basins, pervious pavement systems and building roof leader systems. The runoff is conveyed to the basin via overland flow as well as the proposed stormwater conveyance system. In accordance with the New Jersey Stormwater Best Management Practices Manual, the following design considerations have been satisfied:

- Minimum drainage area of 10 acres.
- Minimum length to width ratio of 1:1 for the pool zone.
- Maximum high marsh standing water depth of 6 inches.
- Low marsh standing water depth of 6 – 18 inches.
- Pool standing water depth of 4 – 6 FT.



**Proposed Constructed Wetland Basin:**

	<b>INFLOW AREA (AC)</b>	<b>WATER QUALITY VOLUME (CF)</b>	<b>SEMI-WET ZONE DEPTH (IN)*</b>	<b>SEMI-WET ZONE VOLUME (CF)**</b>	<b>HIGH MARSH ZONE DEPTH (IN)*</b>	<b>HIGH MARSH ZONE VOLUME (CF)**</b>
<b>Basin E</b>	13.14	22,302	0	11,151 (50% Req)	0 – 6	2,230 (10% Req)

\*Depth at standing water elevation (75.50).

\*\* Volume of Water Quality Storm

	<b>LOW MARSH DEPTH (IN)*</b>	<b>LOW MARSH VOLUME (CF)**</b>	<b>POOL ZONE DEPTH (IN)*</b>	<b>POOL ZONE VOLUME (CF)**</b>	<b>SEPARATION FROM SHGW (FT)</b>	<b>MIN DETENTION TIME 10% WQDS (HR)</b>	<b>DRAIN TIME (HR)</b>
<b>Basin E</b>	6 – 18	4,460 (20% Req)	48 – 54	2,230 (10% Req)	N/A	25	72

\*Depth at standing water elevation (75.50).

\*\* Volume of Water Quality Storm

	<b>DEPTH OF BMP (FT)</b>	<b># OF TEST PITS</b>	<b>SHWT ELEV</b>	<b>AREA OF BMP (AC)</b>
<b>Basin E</b>	10	5 (3 Req)	73.70	0.44

The constructed wetland meets the definitions of a Class IV Dam and has been designed in accordance with the Dam Safety Standards (NJAC 7:20).

- Class IV dams must impound less than 15 Acre-feet, whereas proposed constructed wetland impounds 8.5± acre-feet maximum.
- The maximum drainage area tributary to the dam is 150 acres, while Basin A has a tributary Drainage area of 13.8± acres.
- As required, the emergency spillway has been designed to pass the 24-hour 100-year frequency type-III storm plus 50%.
- All dams must have adequate storage for the design storm or have a spillway which will safely pass the design storm. As demonstrated in the appendix, adequate storage as well as adequate capacity in the emergency spillway has been provided.
- Pipe conduits for Class IV dam spillway's must be a minimum of 12 inches, while 36" pipe is provided.
- As required, a trash rack is proposed at the outlet control structure, which outlets to the principal spillway.
- One foot of freeboard has been provided around the proposed basin.

Based upon the information contained in this report, the proposed Class IV Dam does not represent a significant hazard potential or high hazard potential, therefore does not meet the requirements for a Class I or II Dam.

It is important to note that Class IV Dams qualify for a Permit-by-Rule and do not require permitting from the NJDEP.

**VIII. RUNOFF RATE REDUCTION PERFORMANCE**

The following is a comparison of the existing and proposed runoff rates:

**Existing and Proposed Conditions Peak Runoff Rate Results**  
**Summary for Schoolhouse Road Total**

	<b>EXISTING RUNOFF RATE DISTURBED AREAS (CFS)</b>	<b>REDUCTION REQUIREMENT</b>	<b>ALLOWABLE RUNOFF RATE (CFS)</b>	<b>PROPOSED RUNOFF RATE (CFS)</b>
<b>2 Year</b>	0.73	50%	0.37	0.00
<b>10 Year</b>	1.25	25%	0.94	0.00
<b>100 Year</b>	2.36	20%	1.89	0.00

**Existing and Proposed Conditions Peak Runoff Rate Results**  
**Summary for Pond Total**

	<b>EXISTING RUNOFF RATE DISTURBED AREAS (CFS)</b>	<b>REDUCTION REQUIREMENT</b>	<b>ALLOWABLE RUNOFF RATE (CFS)</b>	<b>PROPOSED RUNOFF RATE (CFS)</b>
<b>2 Year</b>	2.23	50%	1.12	0.69
<b>10 Year</b>	5.20	25%	3.90	1.60
<b>100 Year</b>	11.87	20%	9.50	3.62

**Existing and Proposed Conditions Peak Runoff Rate Results**  
**Summary for South Total**

	<b>EXISTING RUNOFF RATE DISTURBED AREAS (CFS)</b>	<b>REDUCTION REQUIREMENT</b>	<b>ALLOWABLE RUNOFF RATE (CFS)</b>	<b>PROPOSED RUNOFF RATE (CFS)</b>
<b>2 Year</b>	6.87	50%	3.44	3.30
<b>10 Year</b>	16.75	25%	12.56	5.66
<b>100 Year</b>	39.49	20%	31.59	29.70

**Existing and Proposed Conditions Peak Runoff Rate Results**  
**Summary for Total Site**

	<b>EXISTING RUNOFF RATE DISTURBED AREAS (CFS)</b>	<b>REDUCTION REQUIREMENT</b>	<b>ALLOWABLE RUNOFF RATE (CFS)</b>	<b>PROPOSED RUNOFF RATE (CFS)</b>
<b>2 Year</b>	9.13	50%	4.57	3.41
<b>10 Year</b>	22.03	25%	16.52	7.26
<b>100 Year</b>	51.49	20%	41.19	31.05

***IX. WATER QUALITY***

The TSS removal rate requirement set forth by the Township of Franklin Land Use Ordinance and NJAC 7:8 for the subject site is 80%. The design for the subject development meets the obligation for TSS removal by utilizing two (2) aboveground bioretention basins, a GI manufactured treatment device (MTD) and a pervious pavement system, each capable of a TSS removal of 80% for the proposed development. Therefore, the proposed BMPs provide a TSS removal of 80% for the subject project, satisfying the water quality aspect of the Township of Franklin Land Use Ordinance and NJAC 7:8.

A Filterra GI MTD device is being utilized to treat a portion of the motor vehicle area (Inflow Area = 2.31 AC). Please note attenuation of the flow has been utilized prior to the connection to the MTD with a proposed Detention Basin C. It is important to note that this attenuation has not been utilized for the proposed water quantity routing.

	<b>DEPTH OF BMP (FT)</b>	<b># OF TEST PITS</b>	<b>SHWT ELEV</b>	<b>SEPARATION FROM SHGW (FT)</b>	<b>AREA OF BMP (AC)</b>
<b>Basin C</b>	4.0	2 (2 Req)	76.50	1.7	0.16

## ***X. GROUNDWATER RECHARGE***

Please note that per the soil testing performed by Hillis Carnes Engineering Associates, the existing on-site soils classify as HSG D per the NJSWBMP Chapter 12, Section 1 (see appendix). Therefore, the soils have been modeled as HSG D for the groundwater recharge calculations for disturbed areas (see appendix). A copy of the NJ Groundwater Recharge Spreadsheet has been included within the Appendix of this report.

## ***XI. CONCLUSION***

The proposed development has been designed with provisions for the safe and efficient control of stormwater runoff in a manner that will not adversely impact the existing drainage patterns, adjacent roadways, or adjacent parcels.

The proposed stormwater management design incorporates numerous green infrastructure elements including aboveground small-scale bioretention basins, GI MTD and a pervious pavement system capable of 80% total suspended solid (TSS) removal as stated within the New Jersey Stormwater Best Management Practices Manual, thereby satisfying NJAC 7:8 Water Quality Standards.

Furthermore, the stormwater systems will reduce peak flow rates for the proposed development area and meet the minimum peak flow reduction for the 2, 10 and 100-year storm frequencies as dictated by NJAC 7:8. The proposed planned industrial development will not have a negative impact on the existing stormwater management system, water quality or groundwater recharge on site or within the vicinity of the subject parcel.

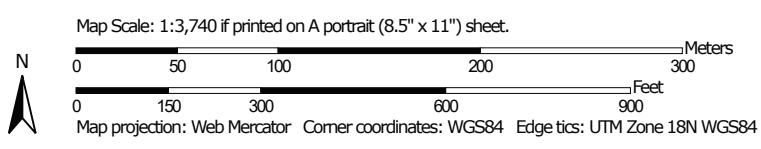
## **APPENDIX**

# **NRCS WEB SOIL SURVEY**

































Hydrologic Soil Group—Somerset County, New Jersey



Soil Map may not be valid at this scale.



### MAP LEGEND

<b>Area of Interest (AOI)</b>		 C
 Area of Interest (AOI)		 C/D
<b>Soils</b>		 D
<b>Soil Rating Polygons</b>		 Not rated or not available
 A		<b>Water Features</b>
 A/D		 Streams and Canals
 B		<b>Transportation</b>
 B/D		 Rails
 C		 Interstate Highways
 C/D		 US Routes
 D		 Major Roads
 Not rated or not available		 Local Roads
<b>Soil Rating Lines</b>		<b>Background</b>
 A		 Aerial Photography
 A/D		
 B		
 B/D		
 C		
 C/D		
 D		
 Not rated or not available		
<b>Soil Rating Points</b>		
 A		
 A/D		
 B		
 B/D		

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Somerset County, New Jersey  
 Survey Area Data: Version 18, Jun 1, 2020

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

Date(s) aerial images were photographed: Jun 22, 2019—Jul 13, 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.



## Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BhnB	Birdsboro silt loam, 2 to 6 percent slopes	B	7.0	13.2%
CoxA	Croton silt loam, 0 to 2 percent slopes	D	0.1	0.1%
LbtA	Lansdowne silt loam, 0 to 2 percent slopes	C	19.5	36.9%
NotB	Norton loam, 2 to 6 percent slopes	C	11.0	20.8%
PenB	Penn silt loam, 2 to 6 percent slopes	C	7.7	14.6%
PenC	Penn silt loam, 6 to 12 percent slopes	C	2.1	3.9%
RarAr	Raritan silt loam, 0 to 3 percent slopes, rarely flooded	C	0.2	0.3%
RorAt	Rowland silt loam, 0 to 2 percent slopes, frequently flooded	C	5.4	10.2%
<b>Totals for Area of Interest</b>			<b>52.8</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.

## Rating Options

*Aggregation Method:* Dominant Condition

*Component Percent Cutoff:* None Specified

*Tie-break Rule:* Higher

**HYDRAULIC SOIL GROUP DESIGNATION  
PREPARED BY HILLIS-CARNES**

300 S. Pennell Road  
Suite 410  
Media, PA 19063  
Phone 484-434-1000  
Fax 1-484-581-2020  
www.hcea.com

January 4, 2023

Ms. Liz Gabor  
Link Industrial Properties  
220 Commerce Drive, Suite 400  
Fort Washington, PA 19034

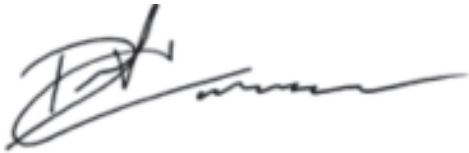
Re: Soil Test Criteria - NJSWBMP  
**104 School House Rd - GEO**  
104 School House Road  
Somerset, NJ 08873  
HCEA Project Number: P21076

Ms. Gabor,

This correspondence summarizes Hillis-Carnes Engineering Associates' (HCEA's) review of Chapter 12 in the New Jersey Stormwater Best Management Practices Manual (NJSWBMP) and its application to the soils observed and tested at the address referenced above. Based on the criteria described in the NJSWBMP, it is HCEA's determination that the conditions on site classify as Hydrologic Soil Group "D".

The information reviewed to make this determination is based on the Geotechnical Engineering Study by HCEA dated August 10, 2021, and Infiltration Testing Report by HCEA dated September 24, 2021.

Sincerely,  
**HILLIS-CARNES ENGINEERING ASSOCIATES, INC.**



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Project Manager  
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## **1.0 Purpose and Scope**

Chapter 12, Section 1 of the NJSWBMP is utilized to determine the Hydrologic Soil Group (HSG) for any site in the State of New Jersey. The following subsections are utilized to determine the HSG:

- 1A – HSG and Soil Series Designations from the NRCS Soil Survey
- 1B – Default HSG and Soil Series Designations for Runoff Computations and NJGRS Spreadsheet
- 1C – Hydrologic Soil Group Testing Procedures
- 1D – Seasonal High Water Table Location
- 1E – Perched Water Table Requirements

HCEA will address each of these subsections individually and explain how the Geotechnical Engineering Study and Infiltration Testing Report are utilized in the determination of the HSG.

## **2.0 Subsection Determinations**

### Subsection 1A & 1B:

Although the NRCS Soil Survey classified this site with HSG B and C, it was HCEA's opinion to use the information gathered from the soil borings and test pits to provide the most accurate HSG. This site is planned to undergo a significant change where most of the site is to be converted to impervious surface. Obtaining an accurate HSG for the "undisturbed" portions of the site would be beneficial to design.

### Subsection 1C:

The area of disturbance for this site is reported to be 15.24 acres. According to Chapter 12 of the NJSWBMP, a site of the size needs 8 test pits and 18 soil borings to adequately determine the HSG. In total, 8 test pits and 25 soil borings were performed.

In general, the test pits and soil borings were observed to have similar results in stratigraphy across the site. Underneath an initial layer of topsoil, a red brown to red to orange and brown New Brunswick Shale was encountered. Excavating was extremely difficult, and refusal was encountered at shallow elevations across the site. Limiting zones of clay or rock were encountered in all test pits at depths ranging from 0.5 to 6.0 feet below ground surface. Soil borings could be advanced deeper, but only the soils within 40 inches of existing ground surface pertain to the HSG classification. Test pit logs and soil boring logs can be found in the Appendix.

Double ring infiltration testing was performed at the depths indicated in Table 1 for the test pits. The infiltration testing was performed in general accordance with the methods as described in ASTM-D3385. The limiting zones identified were clay or hard rock layers. Testing depths may have been raised or lowered in elevation due to the soil strata identified in the field. Infiltration testing was not completed in TP-4, TP-6, TP-7, and TP-8 because of shallow limiting zone or poor soil conditions that prohibited seating of the double-ring infiltrometer. Data collected from the infiltration test are included in the Appendix.

Table 1: Test Pit Summary

Infiltration Testing Location	Approximate Infiltration Test Depth BGS (Feet)	Depth to Limiting Zone (ft)	Limiting Zone Elevation (ft)	Field Tested Infiltration Rate (in/hr)	Limiting Zone Material
TP-1	0.5	1.5	N/A	0.61	Hard clay
TP-2	0.5	1.5	N/A	0.25	Hard clay
TP-3	0.5	2.0	N/A	0.68	Hard clay
TP-4	N/A	2.0	N/A	N/A	Hard clay
TP-5	0.5	1.0	N/A	0.56	Hard clay
TP-6	N/A	1.0	N/A	N/A	Hard clay
TP-7	N/A	0.5	N/A	N/A	Hard clay
TP-8	N/A	0.5	N/A	N/A	Hard clay

Representative portions of each soil sample were placed in glass jars and transported to HCEA's laboratory. In the laboratory, the samples were visually reviewed to verify the field classifications. The samples were classified in accordance with the Unified Soil Classification System (USCS) and the field classifications were revised where necessary.

Laboratory testing was performed on representative samples obtained in the field exploration. Laboratory testing consisted of natural moisture content determinations, sieve analysis, and Atterberg Limits. The results of the laboratory testing are presented in the Appendix of this report.

Subsection 1D & E:

No perched water or apparent water table was observed in any excavation or soil boring.

**3.0 Conclusion**

Based on the criteria described in the NJSWBMP, our findings in the field, and laboratory testing results, it is HCEA's determination that the conditions on site classify as Hydrologic Soil Group "D".

## Appendix

Site Location Sketch (Page 5)

Field Exploration Sketch - Soil Borings (Page 6)

Field Exploration Sketch - Test Pits (Page 7)

Soil Boring Profile (Page 8)

Soil Boring Logs (Pages 9 – 58)

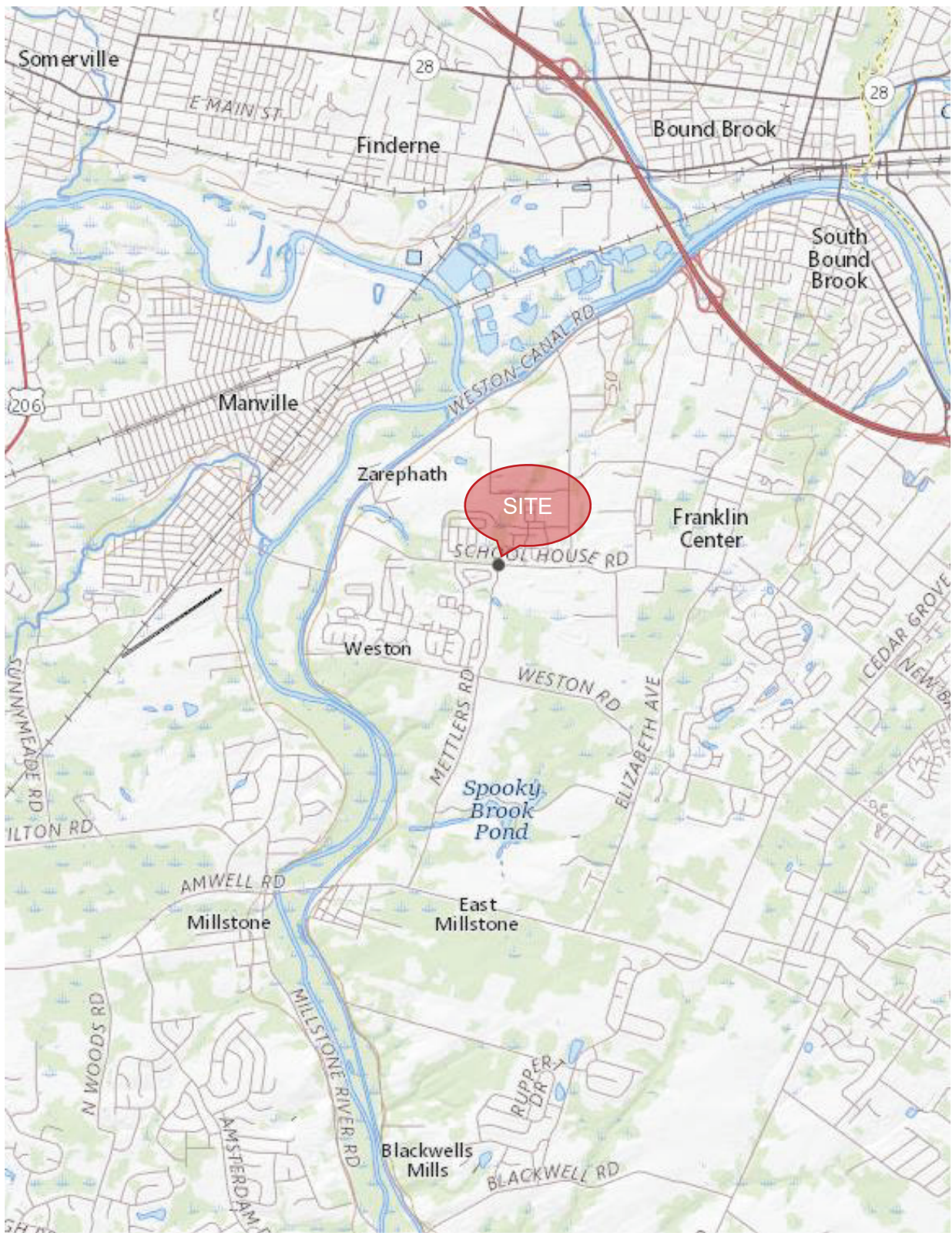
Test Pit Profile (Page 59)

Tet Pit Logs (Pages 60 – 67)

Field Classification Sheet (Page 68)

Infiltration Testing Results (Pages 69 – 76)

Laboratory Testing Results (Page 77 – 98)



**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**

300 S. Pennell Road, Suite 410  
 Media, PA 19063

Phone: (484) 434-1000 Fax: (484) 581-2020

**SITE LOCATION SKETCH**

**104 School House Road**

104 School House Road

Somerset, NJ

**JOB NO:** P21076

**DATE:** 09/24/21

**SCALE:** NTS

**PAGE:** 1

**DRAWN BY:** ATH

**CHECKED BY:** DMH





**HILLIS-CARNES**  
ENGINEERING ASSOCIATES

300 S. Pennell Road, Suite 410  
Media, PA 19063

Phone: (484) 434-1000 Fax: (484) 581-2020

**FIELD EXPLORATION SKETCH**

104 School House Road

104 School House Road

Somerset, NJ

JOB NO: P21076

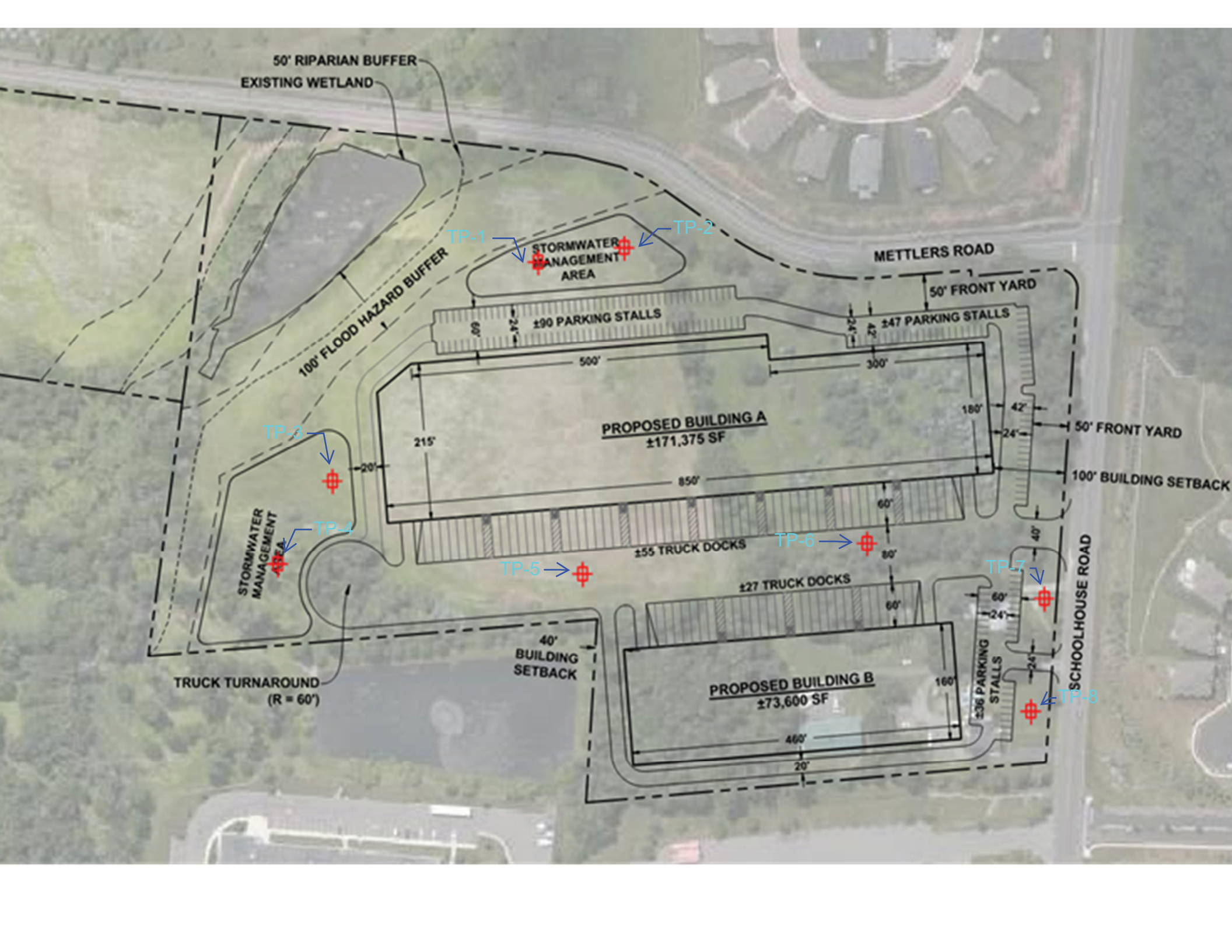
DATE: 08/12/21

SCALE: NTS

PAGE: 1

DRAWN BY: ATH

CHECKED BY: DMH



50' RIPARIAN BUFFER  
EXISTING WETLAND

100' FLOOD HAZARD BUFFER

METTLERS ROAD

TP-1  
STORMWATER  
MANAGEMENT  
AREA  
TP-2

±90 PARKING STALLS

50' FRONT YARD

±47 PARKING STALLS

PROPOSED BUILDING A  
±171,375 SF

50' FRONT YARD

100' BUILDING SETBACK

TP-3

STORMWATER  
MANAGEMENT  
AREA  
TP-4

TP-5

TP-6

TP-7

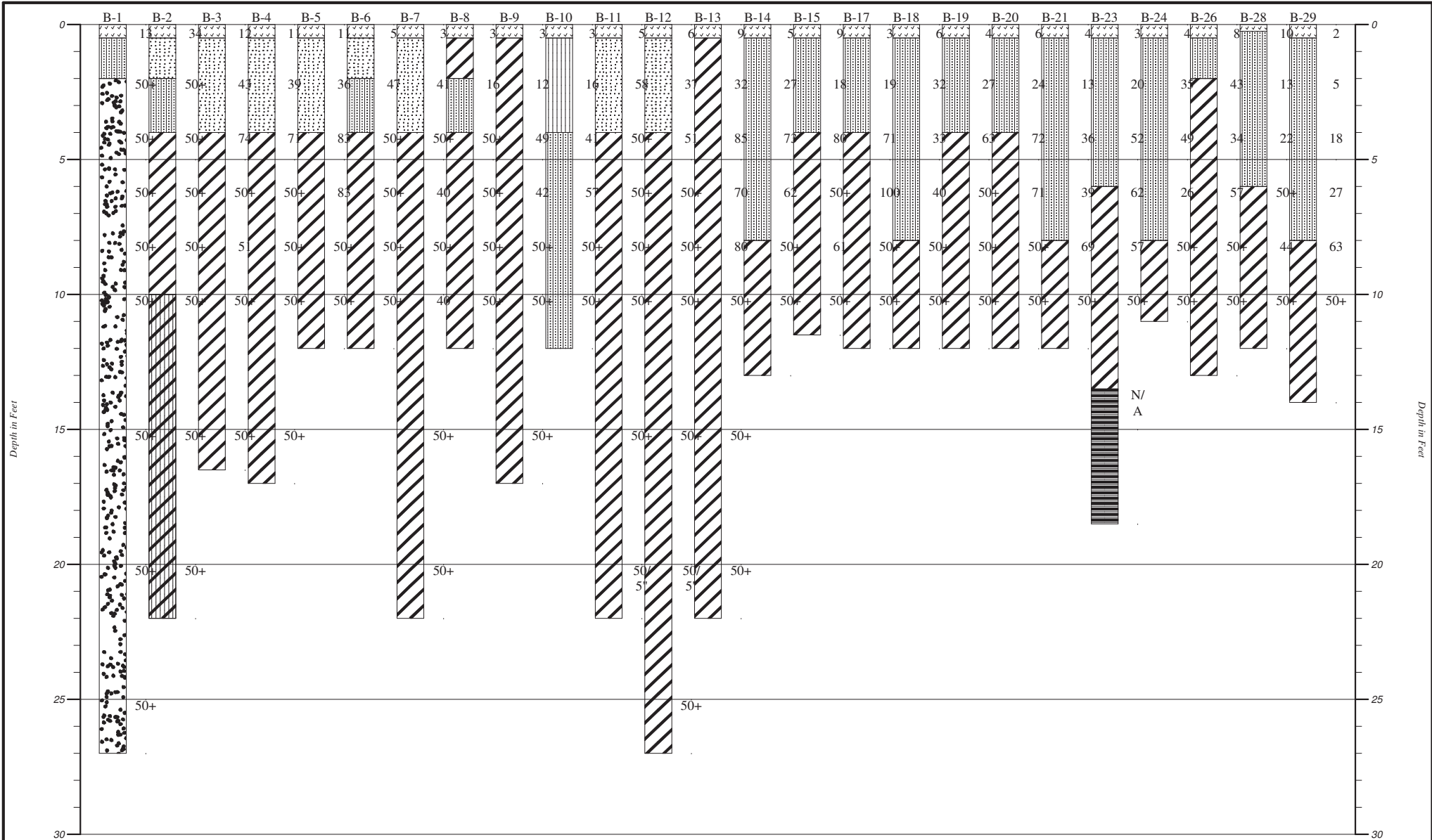
TRUCK TURNAROUND  
(R = 60')

40'  
BUILDING  
SETBACK

PROPOSED BUILDING B  
±73,600 SF

SCHOOLHOUSE ROAD

TP-8



**Hillis-Carnes Engineering Associates**  
**GENERALIZED SOIL PROFILE**

HORIZONTAL SCALE:	DRAWN BY/APPROVED BY	DATE DRAWN
VERTICAL SCALE: 1"=5'		1/4/2023
<b>104 School House Road</b>		
<b>PROJECT NO. P21076</b>		<b>FIGURE #</b>

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-1  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 lbs. lbs. Hole Diameter 4" Foreman Allied Drilling  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/8/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/8/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
0	v v v v v v v v v v		Topsoil (Approximately 6")		13"		2-4-9-26	13			
			Red-brown, moist, medium dense silty sand								
2	••••••••••	SP	Red, moist, very hard degraded rock		16"	9.7	23-37-50/4"	50+			
4	••••••••••				5"		50/5"	50+			
6	••••••••••				8"		46-50/3"	50+			
8	••••••••••				5"		50/4"	50+			
10	••••••••••				4"		50/4"	50+			
12	••••••••••										

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-1


Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 lbs. lbs. Hole Diameter 4" Foreman Allied Drilling

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/8/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/8/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
14												
16					3"		50/3"	50+				
18												
20					3"		50/3"	50+				
22												
24												
					2:		50/3"	50+				

**SAMPLER TYPE**  
 DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

**SAMPLE CONDITIONS**  
 D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION  
 AFTER 24 HRS.  
 AFTER \_\_\_ HRS.

**GROUND  
WATER**  
N/A ft.

**CAVE IN  
DEPTH**  
N/A ft.

**BORING METHOD**  
 HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING



# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-2  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 lbs. lbs. Hole Diameter 4" Foreman Allied Drilling  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/8/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/8/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0			Topsoil (Approximately 6")		22"		3-6-28-50/5"	34	
			Red-brown, moist, dense well graded sand						
2			Red, moist, very dense silty sand with degraded rock		4"		50/5"	50+	
4			Red-brown, moist, very hard clay, degraded rock		8"		42-50/2"	50+	
6					5"		50/5"	50+	
8					4"		50/4"	50+	
10			Reddish-brown, moist, very hard sandy silt/clay		3"		50/3"	50+	
12									

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	N/A ft.
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	ft.
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	ft.
RC - ROCK CORE	L - LOST		

**BORING METHOD**  
 HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

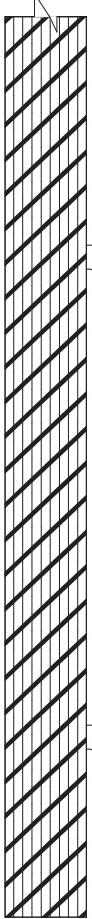
# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-2  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 lbs. lbs. Hole Diameter 4" Foreman Allied Drilling  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/8/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/8/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
14												
16					2"		50/3"	50+				●
18												
20					3"		50/3"	50+				●
22			Boring terminated at approximately 22' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method								
24												

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-3  
 Location / Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	v v v v v v v v		Topsoil (Approximately 6")		22"		1-4-8-12	12	10 30 50
2	. . . . .		Red-brown, moist, medium dense well graded sand		18"		10-18-25-32	43	
4	/ / / / / / / /		Red-brown, moist, very hard clay, degraded rock		21"		40-40-34-34	74	74
6	/ / / / / / / /				24"	14.4	39-38-27-25	50+	
8	/ / / / / / / /				17"		24-21-30-50/4"	51	
10	/ / / / / / / /				5"		50/5"	50+	
12	/ / / / / / / /								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING


STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

**HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
TEST BORING LOGS**

Project Name 104 School House Road Boring No. B-3  
 Location / Job # P21076

**SAMPLER**

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
14											
16						4"	50/4"	50+	●		
18			Boring terminated at approximately 16.5' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method							
20											
22											
24											

<b>SAMPLER TYPE</b> DRIVEN SPLIT SPOON UNLESS OTHERWISE PT - PRESSED SHELBY TUBE CA - CONTINUOUS FLIGHT AUGER RC - ROCK CORE	<b>SAMPLE CONDITIONS</b> D - DISINTEGRATED I - INTACT U - UNDISTURBED L - LOST	<b>GROUND WATER</b> AT COMPLETION <u>N/A</u> ft. AFTER 24 HRS. _____ ft. AFTER ___ HRS. _____ ft.	<b>CAVE IN DEPTH</b> <u>N/A</u> ft.	<b>BORING METHOD</b> HSA - HOLLOW STEM AUGERS CFA - CONTINUOUS FLIGHT AUGERS DC - DRIVING CASING MD - MUD DRILLING
--	--	--	--	--

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-4

Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		21"		2-4-7-10	11	10 30 50
2	●●●●		Red-brown, moist, medium dense well graded sand		19"		10-16-23-30	39	
4	▨▨▨▨		Red-brown, moist, very hard clay, degraded rock		19"		35-39-32-38	71	71
6	▨▨▨▨				9"		41-50/3"	50+	
8	▨▨▨▨				17"		30-36-50/5"	50+	
10	▨▨▨▨				3"		50/3"	50+	
12	▨▨▨▨								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-4

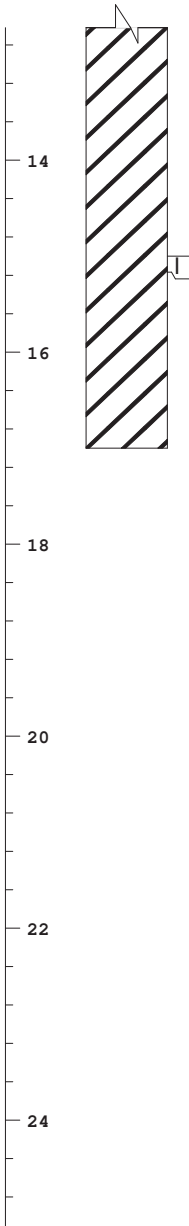
Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	Curve		
									10	30	50
							50/2"	50+	●		
			Boring terminated at approximately 17' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method							

**SAMPLER TYPE**  
 DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

**SAMPLE CONDITIONS**  
 D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION  
 AFTER 24 HRS.  
 AFTER \_\_\_ HRS.

**GROUND WATER**  
N/A ft.

**CAVE IN DEPTH**  
N/A ft.

**BORING METHOD**  
 HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-5  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		24"		2-4-7-10	11	10 30 50
2	●●●●		Red-brown, moist, medium dense well graded sand		20"	10.7	8-21-25-29	36	
4	▨▨▨▨		Red-brown, moist, very hard clay, degraded rock		21"		42-44-39-36	83	83 →
6	▨▨▨▨				18"		30-37-46-38	83	83 →
8	▨▨▨▨				16"		40-35-50/4"	50+	
10	▨▨▨▨				9"		23-50/3"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-5

Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	Curve			
									10	30	50	
			existing ground surface	Method								
14												
16												
18												
20												
22												
24												

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-6  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0			Topsoil (Approximately 6")		19"		1-1-4-9	5	
			Red-brown, moist, loose, well graded sand						
2			Red-brown, moist, dense silty sand		19"		2-18-29-32	47	
4			Red-brown, moist, very hard clay, degraded rock		4"		50/4"	50+	
6					14"		33-40-50/5"	50+	
8					5"		50/6"	50+	
10					3"		50/3"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-6  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
			existing ground surface	Method							
14											
16											
18											
20											
22											
24											

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-7  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/19/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		20"		0-1-2-5	3	10 30 50
2	●●●●		Red-brown, moist, medium dense well graded sand		24"		9-16-25-33	41	
4	▨▨▨▨		Red-brown, moist, very hard clay, degraded rock		9"		30-50/3"	50+	
6	▨▨▨▨				20"		29-25-15-15	40	
8	▨▨▨▨				12"		22-33-50/5"	50+	
10	▨▨▨▨	SP			20"	19.4	44-15-25-50/4"	40	
12	▨▨▨▨								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.


# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-7  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/19/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve					
								N	10	30	50		
14													
16					8"		33-50/2"	50+					
18													
20					3"		50/4"	50+					
22			Boring terminated at approximately 22' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method									
24													

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-8  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/19/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/19/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		19"		0-1-2-2	3	10 30 50
	/ / / /		Red-brown, moist, very soft, clay						
2			Red-brown, moist, dense silty sand		15"		4-8-8-24	16	
	/ / / /		Red-brown, moist, very hard clay, degraded rock		5"		50/5"	50+	
6	/ / / /				15"	14.9	26-46-50/3"	50+	
8	/ / / /				9"		23-50/3"	50+	
10	/ / / /				4"		50/4"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

**HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
TEST BORING LOGS**

Project Name 104 School House Road Boring No. B-8  
 Location 104 School House Rd, Somerset, NJ Job # P21076

**SAMPLER**

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/19/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/19/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve											
								N	10	30	50								
14			existing ground surface due to auger refusal	Method															
16																			
18																			
20																			
22																			
24																			

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-9  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/23/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/23/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		19"		1-1-2-3	3	10 30 50
2	/ / / /		Red-brown, moist, very soft to stiff sandy clay		18"		3-5-7-10	12	
4	/ / / /		Red-brown, moist, very hard clay, degraded rock		24"		16-25-24-24	49	
6	/ / / /				24"	12.2	27-23-19-19	42	
8	/ / / /				16"		37-35-50/4"	50+	
10	/ / / /				10"		41-50/4"	50+	
12	/ / / /								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-9

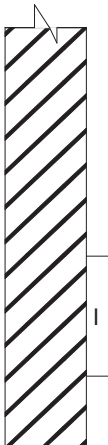
Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/23/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/23/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
												
14												
16					14"		14-33-50/3"	50+				●
18			Boring terminated at approximately 17' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method								
20												
22												
24												

**SAMPLER TYPE**  
 DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

**SAMPLE CONDITIONS**  
 D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION  
 AFTER 24 HRS.  
 AFTER \_\_\_ HRS.

**GROUND WATER**  
N/A ft.

**CAVE IN DEPTH**  
N/A ft.

**BORING METHOD**  
 HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-10  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/23/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/23/21

Elev./Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	✓✓✓✓✓		Topsoil (Approximately 6")		16"		1-1-2-4	3	10 30 50
2		SP	Brown, moist, very soft to stiff sandy silt		17"	11.8	4-6-10-11	16	
4			Red-brown, moist, dense silty sand		23"		14-20-21-26	41	
6			with white sands		21"		20-29-28-39	57	
8					3"		50/4"	50+	
10					5"		50/5"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

**HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.**

**TEST BORING LOGS**

Project Name 104 School House Road Boring No. B-10

Location 104 School House Rd, Somerset, NJ Job # P21076

**SAMPLER**

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/23/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/23/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
14			existing ground surface due to auger refusal	Method								
16												
18												
20												
22												
24												

<b>SAMPLER TYPE</b> DRIVEN SPLIT SPOON UNLESS OTHERWISE PT - PRESSED SHELBY TUBE CA - CONTINUOUS FLIGHT AUGER RC - ROCK CORE	<b>SAMPLE CONDITIONS</b> D - DISINTEGRATED I - INTACT U - UNDISTURBED L - LOST	<b>GROUND WATER</b> AT COMPLETION <u>N/A</u> ft. AFTER 24 HRS. _____ ft. AFTER ___ HRS. _____ ft.	<b>CAVE IN DEPTH</b> <u>N/A</u> ft. ____ ft. ____ ft.	<b>BORING METHOD</b> HSA - HOLLOW STEM AUGERS CFA - CONTINUOUS FLIGHT AUGERS DC - DRIVING CASING MD - MUD DRILLING
--	--	--	--	--

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-11  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
0	▽▽▽▽		Topsoil (Approximately 6")		20"		0-1-4-10	5			
2	●●●●		Red-brown, moist, medium dense well graded sand		21"		15-25-33-50/4"	58			
4	▨▨▨▨		Red-brown, moist, very hard clay, degraded rock		7"		45-50/3"	50+			
6	▨▨▨▨				9"		33-50/5"	50+			
8	▨▨▨▨				15"	18.2	42-45-50/4"	50+			
10	▨▨▨▨				9"		46-50/3"	50+			
12	▨▨▨▨										

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-11  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve												
								N	10	30	50									
14	I																			
16	I				10"		45-50/4"	50+											●	
18																				
20	I				4"		50/5"	50/5"												●
22			Boring terminated at approximately 22' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method																
24																				

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-12  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		21"		WH-2-4-7	6	10 30 50
2	●●●●		Red-brown, moist, loose to dense well graded sand		24"		10-18-19-16	37	
4	▨▨▨▨		Red-brown, moist, very hard clay, degraded rock		21"		20-27-24-20	51	
6	▨▨▨▨				11"		20-50/5"	50+	
8	▨▨▨▨				15"		40-35-50/5"	50+	
10	▨▨▨▨				9"		45-50/3"	50+	
12	▨▨▨▨								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-12  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
14												
16					9"		44-50/3"	50+				●
18												
20					3		50/3"	50/5"				●
22												
24					2"		50/2"	50+				●

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.


# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-12  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve											
								N	10	30	50								
26																			
28			Boring terminated at approximately 27' below existing ground surface	Soil classifications based on Visual-Manual Method															
30																			
32																			
34																			
36																			

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-13  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		21"		1-3-6-10	9	10 30 50
2	/ / / / /		Red-brown, moist, medium stiff to hard clay		15"		3-12-20-26	32	
4	/ / / / /	SP	Red-brown, moist, very hard clay, degraded rock		20"	11.0	30-36-49-50	85	●85 →
6	/ / / / /				13"		10-25-45-43	70	●70 →
8	/ / / / /				19"		44-40-40-25	80	●80 →
10	/ / / / /				7"		11-50/4"	50+	●
12	/ / / / /								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.


# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-13  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
14												
16					4"	50/4"	50+				●	
18												
20					3"	50/3"	50+				●	
22			Boring terminated at approximately 22' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method								
24												

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-14  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/23/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/23/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽		Topsoil (Approximately 6")		23"		1-2-3-7	5	
2			Red-brown, moist, loose to very dense silty sand		14"		3-10-17-20	27	
4					24"		23-35-38-36	73	
6					24"		26-32-30-49	62	
8	/ / / / /		Red-brown, moist, very hard clay, degraded rock		4"		50/5"	50+	
10	/ / / / /				11"		40-50/5"	50+	
12	/ / / / /								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-14


Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/23/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/23/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
			Boring terminated at approximately 13' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method							
14											
16											
18											
20											
22											
24											

**SAMPLER TYPE**  
 DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

**SAMPLE CONDITIONS**  
 D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION  
 AFTER 24 HRS.  
 AFTER \_\_\_ HRS.

**GROUND  
WATER**  
N/A ft.

**CAVE IN  
DEPTH**  
N/A ft.

**BORING METHOD**  
 HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-15  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽		Topsoil (Approximately 6")		21"		2-4-5-6	9	10
2			Red-brown, moist, loose to medium dense silty sand		21"		4-9-9-15	18	
4	/ / / / /		Red-brown, moist, very hard clay, degraded rock		20"		21-38-42-36	80	80
6	/ / / / /				9"		26-50/5"	50+	
8	/ / / / /	SP			17"	14.9	15-27-34-50/5"	61	61
10	/ / / / /				4"		50/4"	50+	
12			Boring terminated at approximately 11.5' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	N/A ft.	N/A ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	_____ ft.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS. _____ ft.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-17  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽		Topsoil (Approximately 6")		19"		1-1-2-3	3	10 30 50
2			Red-brown, moist, loose to medium dense silty sand		21"		5-7-12-12	19	
4	/ / / /		Red-brown, moist, very hard clay, degraded rock		22"		10-30-41-38	71	71
6	/ / / /				24"		35-50-50-43	100	100
8	/ / / /				12"		20-41-50/4"	50+	
10	/ / / /				9"		47-50/3"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	N/A ft.
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	ft.
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	ft.
RC - ROCK CORE	L - LOST		
		<b>BORING METHOD</b>	HSA - HOLLOW STEM AUGERS
			CFA - CONTINUOUS FLIGHT AUGERS
			DC - DRIVING CASING
			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-17

Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
			existing ground surface	Method								
14												
16												
18												
20												
22												
24												

**SAMPLER TYPE**  
 DRIVEN SPLIT SPOON UNLESS OTHERWISE  
 PT - PRESSED SHELBY TUBE  
 CA - CONTINUOUS FLIGHT AUGER  
 RC - ROCK CORE

**SAMPLE CONDITIONS**  
 D - DISINTEGRATED  
 I - INTACT  
 U - UNDISTURBED  
 L - LOST

AT COMPLETION  
 AFTER 24 HRS.  
 AFTER \_\_\_ HRS.

**GROUND  
WATER**  
N/A ft.

**CAVE IN  
DEPTH**  
N/A ft.

**BORING METHOD**  
 HSA - HOLLOW STEM AUGERS  
 CFA - CONTINUOUS FLIGHT AUGERS  
 DC - DRIVING CASING  
 MD - MUD DRILLING

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-18  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
0	▽▽▽▽▽▽		Topsoil (Approximately 6")		20"		1-2-3-4	6			
2			Red-brown, moist, loose to dense silty sand		24"		12-21-20-16	32			
4					19"		17-16-17-10	33			
6			wet		21"		12-18-22-36	40			
8			Red-brown, moist, very hard clay, degraded rock		5"		4-50/3"	50+			
10			wet		15"		40-50-50/3"	50+			
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual							

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

**HILLIS - CARNES  
ENGINEERING ASSOCIATES, INC.  
TEST BORING LOGS**

Project Name 104 School House Road Boring No. B-18  
 Location 104 School House Rd, Somerset, NJ Job # P21076

**SAMPLER**

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
			existing ground surface	Method								
14												
16												
18												
20												
22												
24												

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-19  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽		Topsoil (Approximately 6")		20"		1-1-3-4	4	10 30 50
2			Red-brown, moist, loose to medium dense silty sand		23"		10-12-15-15	27	
4			Red-brown, moist, very hard clay, degraded rock		20"		13-23-40-35	63	63
6	/ / / / /				12:"		42-45-50/0"	50+	
8	/ / / / /				14"		42-50-50/5"	50+	
10	/ / / / /		wet		3"		50/3"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-19  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/20/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/20/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve				
								N	10	30	50	
			existing ground surface	Method								
14												
16												
18												
20												
22												
24												

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-20  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽		Topsoil (Approximately 6")		18"		1-2-4-6	6	10 30 50
2			Red-brown, moist, loose to medium dense silty sand		14"		6-10-14-11	24	
4			Red-brown, moist, very hard clay, degraded rock		23"		23-35-37-36	72	72 →
6					19"	13.7	34-35-36-22	71	71 →
8					17"		31-44-50/5"	50+	
10					6"		45-50/5"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-20

Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	Curve		
									10	30	50
			existing ground surface	Method							
14											
16											
18											
20											
22											
24											

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-21  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽▽		Topsoil (Approximately 6")		21"		1-2-2-4	4	
2			Red-brown, moist, loose to dense silty sand		23"		3-4-9-13	13	
4		SP			21"	13.6	11-16-20-25	36	
6					18"		18-19-20-23	39	
8			Red-brown, moist, very hard clay, degraded rock		22"		32-27-42-49	69	
10					5"		50/6"	50+	
12			Boring terminated at approximately 12' below	Soil classifications based on Visual-Manual					

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-21  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/21/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/21/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve					
								N					
									10	30	50		
			existing ground surface	Method									
14													
16													
18													
20													
22													
24													

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-23  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽▽		Topsoil (Approximately 6")		21"		1-1-2-3	3	10 30 50
2			Red-brown, moist, loose to dense silty sand		19"		3-8-12-18	20	
4					21"		13-28-24-34	52	
6	/ / / / / /		Red-brown, moist, very hard clay, degraded rock		21"		35-30-32-32	62	62
8	/ / / / / /				21"		30-29-28-46	57	
10	/ / / / / /				5"		50/5"	50+	
12	/ / / / / /								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-23  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
14	I		Red-brown, medium hard to medium soft, New Brunswick Shale		35"		N/A	N/A			
16	I										
18											
20			Boring terminated at approximately 18.5' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method							
22											
24											

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-24  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
0	▽▽▽▽▽▽		Topsoil (Approximately 6")		19"		2-2-2-6	4			
2			Red-brown, moist, loose to dense silty sand		19"		6-14-21-26	35			
4		SP			19"	10.4	19-26-23-23	49			
6					18"		23-14-12-17	26			
8	/ / / / / /		Red-brown, moist, very hard clay, degraded rock		12"		41-50/6"	50+			
10	/ / / / / /				4"		50/4"	50+			
12			Boring terminated at approximately 11' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method							

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-26  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	▽▽▽▽▽		Topsoil (Approximately 6")		17"		2-3-5-10	8	10 30 50
			Red-brown, moist, loose to dense silty sand						
2		SP	Red-brown, moist, very hard clay, degraded rock		13"	19.5	9-13-30-39	43	
4					24"		13-16-18-21	34	
6					20"		23-24-33-36	57	
8					15"		26-38-50/3"	50+	
10					14"		26-45-50/3"	50+	
12									

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.




# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-26  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve												
								N	10	30	50									
			Boring terminated at approximately 13' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method																
14																				
16																				
18																				
20																				
22																				
24																				

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.








# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-28  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
0			Topsoil (Approximately 3") Red-brown, moist, loose to medium dense silty sand		24"		5-5-5-6	10			
2					15"		4-5-8-6	13			
4					18"		7-9-13-16	22			
6			Red-brown, moist, very hard clay, degraded rock		17"		47-36-50/5"	50+			
8					24"		26-21-23-27	44			
10					12"		26-50/6"	50+			
12											
Boring terminated at approximately 12' below				Soil classifications based on Visual-Manual							

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-28

Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.

Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE

Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./Depth	SOIL SYMBOLS/SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve					
								N	Curve				
									10	30	50		
14			existing ground surface due to auger refusal	Method									
16													
18													
20													
22													
24													

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.

# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-29  
 Location 104 School House Rd, Somerset, NJ Job # P21076

### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve	
								N	Curve
0	v v v v v v v v		Topsoil (Approximately 6")		12"		1-1-1-2	2	
2			Red-brown, moist, loose to medium dense silty sand		17"		3-3-2-8	5	
4		SP			22"	15.4	9-9-9-11	18	
6					24"		10-13-14-16	27	
8	/ / / / / / / /		Red-brown, moist, very hard clay, degraded rock		23"		18-20-43-50/5"	63	63
10	/ / / / / / / /				6"		50/6"	50+	
12	/ / / / / / / /								

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING

STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.


# HILLIS - CARNES ENGINEERING ASSOCIATES, INC.

## TEST BORING LOGS

Project Name 104 School House Road Boring No. B-29  
 Location 104 School House Rd, Somerset, NJ Job # P21076

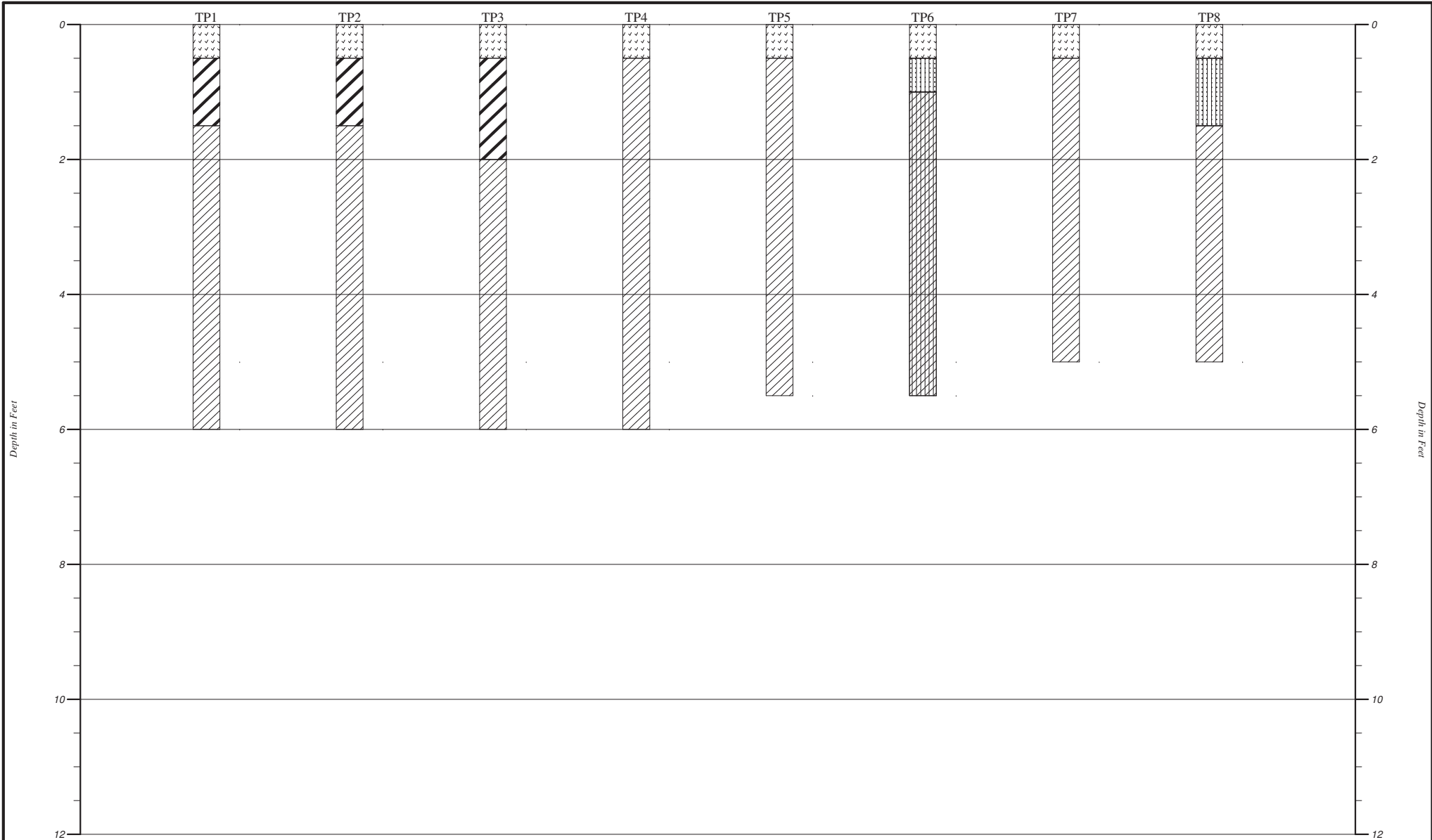
### SAMPLER

Datum N/A Hammer Wt. 140 Auto lbs. Hole Diameter 4" Foreman Boring Bros.  
 Surf. Elev. N/A Ft. Hammer Drop 30 in. Rock Core Diameter N/A Inspector AOE  
 Date Started 7/22/21 Pipe Size 2.0 O.D. in. Boring Method MD Date Completed 7/22/21

Elev./ Depth	SOIL SYMBOLS/ SAMPLE CONDITIONS	USCS	Description	Boring and Sampling Notes	Rec.	NM%	SPT Blows	SPT Blows/Foot Curve			
								N	10	30	50
14			Boring terminated at approximately 14' below existing ground surface due to auger refusal	Soil classifications based on Visual-Manual Method							
16											
18											
20											
22											
24											

<b>SAMPLER TYPE</b>	<b>SAMPLE CONDITIONS</b>	<b>GROUND WATER</b>	<b>CAVE IN DEPTH</b>	<b>BORING METHOD</b>
DRIVEN SPLIT SPOON UNLESS OTHERWISE	D - DISINTEGRATED	AT COMPLETION	<u>N/A</u> ft.	HSA - HOLLOW STEM AUGERS
PT - PRESSED SHELBY TUBE	I - INTACT	AFTER 24 HRS.	_____ ft.	CFA - CONTINUOUS FLIGHT AUGERS
CA - CONTINUOUS FLIGHT AUGER	U - UNDISTURBED	AFTER ___ HRS.	_____ ft.	DC - DRIVING CASING
RC - ROCK CORE	L - LOST			MD - MUD DRILLING


STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1' WITH 140# HAMMER FALLING 30": COUNT MADE AT 6" INTERVALS.



**Strata symbols**

 Topsoil

 High plasticity clay

 Low plasticity clay

 Description not given for: "SZ"

 Description not given for: "OZ"




<b>Hillis-Carnes Engineering Associates</b>		
<b>GENERALIZED SOIL PROFILE</b>		
HORIZONTAL SCALE:	DRAWN BY/APPROVED BY	DATE DRAWN
VERTICAL SCALE: 1"=2'		1/4/2023
104 School House Road		
PROJECT NO. P21076		FIGURE #

# TEST PIT LOG

Test Pit No. :

**TP1**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/26/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water:                      When checked:                      Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
1				CL	Brown silt loam Test was done at 0.5'		18.0
2					Hard red clay		
6					Test pit terminated at approximately 6' below existing ground surface due to excavator refusal		
8							
10							



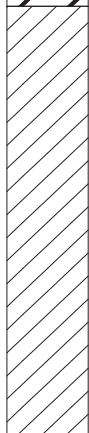
Notes:

# TEST PIT LOG

Test Pit No. :

**TP2**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/26/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water:                      When checked:                      Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
1				CL	Orange loam Test was done at 0.5'		18.3
2					Hard red clay		
6					Test pit terminated at approximately 6' below existing ground surface due to excavator refusal		
8							
10							

Notes:



# TEST PIT LOG

Test Pit No. :

**TP3**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/26/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water:                      When checked:                      Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
				CL	Gray silt loam Test was done at 0.5'		22.3
2					Hard red clay		
4							
6					Test pit terminated at approximately 6' below existing ground surface due to excavator refusal		
8							
10							


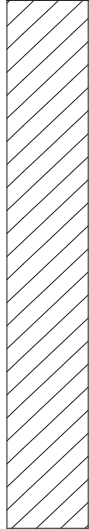
Notes:

# TEST PIT LOG

Test Pit No. :

**TP4**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/26/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water:                      When checked:                      Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
2					Gray silty clay Sample collected at 1'		26.1
4					Hard red clay		
6					Test pit terminated at approximately 6' below existing ground surface No infiltration test was done due to limiting layers of clay		
8							
10							

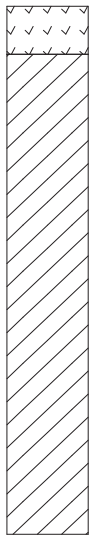
Notes:

# TEST PIT LOG

Test Pit No. :

**TP5**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/27/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water: When checked: Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
2				CL	Brown silt loam Test was done at 0.5' Hard red clay		
4							
6					Test pit terminated at approximately 5.5' below existing ground surface due to excavator refusal		
8							
10							

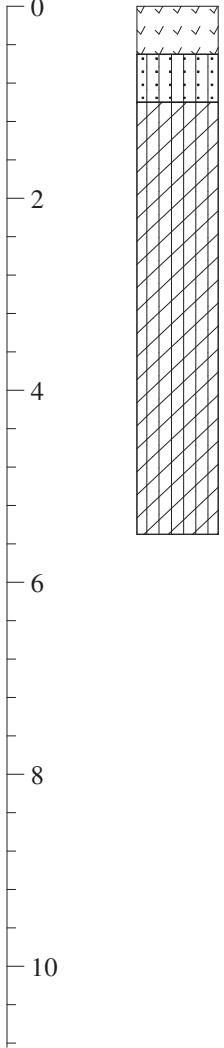
Notes:

# TEST PIT LOG

Test Pit No. :

**TP6**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/27/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water:                      When checked:                      Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
					Brown sandy silt		
2					Hard red silt loam Sample collected at 1'		19.7
4							
6					Test pit terminated at approximately 5.5' below existing ground surface No infiltration test was done due to limiting layers of clay		
8							
10							


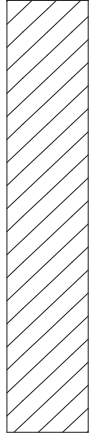
Notes:

# TEST PIT LOG

Test Pit No. :

**TP7**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/27/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water: When checked: Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %
	GRAPHIC	BULK	DRIVEN				
0					Topsoil		
2				CL	Red silt loam Sample collected at 1'  Hard red clay		20.9
4							
6					Test pit terminated at approximately 5' below existing ground surface No infiltration test was done due to limiting layers of clay		
8							
10							

Notes:

# TEST PIT LOG

Test Pit No. :

**TP8**

PROJECT 104 School House Road	PROJECT NO. P21076
CLIENT Link Industrial Properties	DATE 08/27/2021
LOCATION 104 SchoolHouse Road, Somerset, NJ	ELEV.
EXCAVATION METHOD Excavator	LOGGER
DEPTH TO - Water:                      When checked:                      Caving:	

ELEVATION/ DEPTH	SOIL SYMBOLS AND SAMPLERS			USCS	DESCRIPTION	DENSITY pcf	MOISTURE %		
	GRAPHIC	BULK	DRIVEN						
0					Topsoil				
				ML	Brown loam Sample collected at 1'				28.6
2					Hard red clay				
4									
6					Test pit terminated at approximately 5' below existing ground surface No infiltration test was done due to limiting layers of clay				
8									
10									

Notes:

### Description of Soils – per ASTM D2487

Major Component	Component Type	Component Description	Symbol	Group Name
<b>Coarse-Grained Soils</b> , More than 50% is retained on the No. 200 sieve	<b>Gravels</b> – More than 50% of the coarse fraction is retained on the No. 4 sieve. Coarse = 1" to 3" Medium = ½" to 1" Fine = ¼" to ½"	Clean Gravels <5% Passing No. 200 sieve	<b>GW</b>	Well Graded Gravel
		Gravels with fines, >12% Passing the No. 200 sieve	<b>GP</b>	Poorly Graded Gravel
			<b>GM</b>	Silty Gravel
	<b>Sands</b> – More than 50% of the coarse fraction passes the No. 4 sieve. Coarse = No. 10 to No. 4 Medium = No. 10 to No. 40 Fine = No. 40 to No. 200	Clean Sands <5% Passing No. 200 sieve	<b>SW</b>	Well Graded Sand
		Sands with fines, >12% Passing the No. 200 sieve	<b>SP</b>	Poorly Graded Sand
			<b>SM</b>	Silty Sand
<b>Fine Grained Soils</b> , More than 50% passes the No. 200 sieve	Silts and Clays Liquid Limit is less than 50 Low to medium plasticity	Inorganic	<b>ML</b>	Silt
		Organic	<b>CL</b>	Lean Clay
			<b>OL</b>	Organic silt Organic Clay
	Silts and Clays Liquid Limit of 50 or greater Medium to high plasticity	Inorganic	<b>MH</b>	Elastic Silt
		Organic	<b>CH</b>	Fat Clay
			<b>OH</b>	Organic Silt Organic Clay
<b>Highly Organic Soils</b>	Primarily Organic matter, dark color, organic odor		<b>PT</b>	Peat

### Proportions of Soil Components

### Particle Size Identification

Component Form	Description	Approximate percent by weight	Particle Size	Particle dimension
Noun	Sand, Gravel, Silt, Clay, etc.	50% or more	Boulder	12" diameter or more
Adjective	Sandy, silty, clayey, etc.	35% to 49%	Cobble	3" to 12" diameter
Some	Some sand, some silt, etc.	12% to 34%	Gravel	¼" to 3" diameter
Trace	Trace sand, trace mica, etc.	1% to 11%	Sand	0.005" to ¼" diameter
With	With sand, with mica, etc.	Presence only	Silt/Clay (fines)	Cannot see particle

### Cohesive Soils

### Granular Soils

Field Description	No. of SPT Blows/ft	Consistency	No. of SPT Blows/ft	Relative Density
Easily Molded in Hands	0 – 3	Very Soft	0 – 4	Very Loose
Easily penetrated several inches by thumb	4 – 5	Soft	5 – 10	Loose
Penetrated by thumb with moderate effort	6 – 10	Medium Stiff	11 – 30	Medium Dense
Penetrated by thumb with great effort	11 – 30	Stiff	31 – 50	Dense
Indented by thumb only with great effort	Greater than 30	Hard	Greater than 50	Very Dense

### Other Definitions:

- **Fill:** Encountered soils that were placed by man. Fill soils may be controlled (engineered structural fill) or uncontrolled fills that may contain rubble and/or debris.
- **Saprolite:** Soil material derived from the in-place chemical and physical weathering of the parent rock material. May contain relic structure. Also called residual soils. Occurs in Piedmont soils, found west of the fall line.
- **Disintegrated Rock:** Residual soil material with rock-like properties, very dense, N = 60 to 51/0".
- **Karst:** Descriptive term which denotes the potential for solutioning of the limestone rock and the development of sinkholes.
- **Alluvium:** Recently deposited soils placed by water action, typically stream or river floodplain soils.
- **Groundwater Level:** Depth within borehole where water is encountered either during drilling, or after a set period of time to allow groundwater conditions to reach equilibrium.
- **Caved Depth:** Depth at which borehole collapsed after removal of augers/casing. Indicative of loose soils and/or groundwater conditions.

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/26/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Sunny  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** 1 **Test Pit/Boring Hole Number:** TP 1 **Test Method:** Double-Ring  
**Test Depth (feet):** 0.5 **Surface Elevation (feet):** \_\_\_\_\_ **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 1.5	Brown sandy silt	
1.5 - 6.0	Red hard rock clay	

## Presoak

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
8:59	0		
9:29	30	0.04	
9:59	30	0.02	

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
9:59	0		0.00	0.00	
10:29	30	0.02	0.02	0.50	
10:59	30	0.02	0.02	0.50	
11:29	30	0.03	0.03	0.75	
11:59	30	0.03	0.03	0.75	

Stabilized Infiltration Testing Rate (inches per hour): 0.61



# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/26/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Sunny  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** 1 **Test Pit/Boring Hole Number:** TP 2 **Test Method:** Double-Ring  
**Test Depth (feet):** 0.5 **Surface Elevation (feet):** \_\_\_\_\_ **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 1.5	Orange sandy silt	
1.5 - 6	Red hard rock clay	

## Presoak

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
9:18	0		
9:48	30	0.03	
10:18	30	0.01	

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
10:18	0		0.00	0.00	
10:48	30	0.01	0.01	0.25	
11:18	30	0.01	0.01	0.25	
11:48	30	0.01	0.01	0.25	
12:18	30	0.01	0.01	0.25	

Stabilized Infiltration Testing Rate (inches per hour): 0.25

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/26/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Sunny  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** 1 **Test Pit/Boring Hole Number:** TP 3 **Test Method:** Double-Ring  
**Test Depth (feet):** 0.5 **Surface Elevation (feet):** \_\_\_\_\_ **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 2.0	Gray sandy clay	
2.0 - 6.0	Red hard rock clay	

## Presoak

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
10:29	0		
10:59	30	0.04	
11:29	30	0.02	

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
11:29	0				
11:59	30	0.03	0.03	0.75	
12:29	30	0.03	0.03	0.75	
12:59	30	0.02	0.02	0.50	
13:29	30	0.03	0.03	0.75	

Stabilized Infiltration Testing Rate (inches per hour): 0.68

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/26/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Sunny  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** **Test Pit/Boring Hole Number:** TP 4 **Test Method:** Double-Ring  
**Test Depth (feet):** **Surface Elevation (feet):** **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 2.0	Gray sandy clay	
2.0 - 6.0	Red hard rock clay	

**Presoak** No infiltration test was done due to limiting layers of clay

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
	0		
	30		
	30		

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
	0		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
			0.00	0.00	
			0.00	0.00	

Stabilized Infiltration Testing Rate (inches per hour):

--

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/27/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Clear  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** 1 **Test Pit/Boring Hole Number:** TP 5 **Test Method:** Double-Ring  
**Test Depth (feet):** 0.5 **Surface Elevation (feet):** \_\_\_\_\_ **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 1.0	Brown sandy silt	
1.0 - 5.5	Red hard rock clay	

## Presoak

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
8:45	0		
9:15	30	0.04	
9:45	30	0.02	

NB:

Pit was difficult to excavate at 5.5'

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
9:45	0				
10:15	30	0.02	0.02	0.50	
10:45	30	0.02	0.02	0.50	
11:15	30	0.03	0.03	0.63	
11:45	30	0.03	0.03	0.63	

Stabilized Infiltration Testing Rate (inches per hour): 0.56

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/27/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Clear  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** **Test Pit/Boring Hole Number:** TP 6 **Test Method:** Double-Ring  
**Test Depth (feet):** **Surface Elevation (feet):** **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 1.0	Brown sandy silt	
1.0 - 5.5	Red hard rock clay	

**Presoak** No infiltration test was done due to limiting layers of clay

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
	0		
	30		
	30		

NB:  
Pit was difficult to excavate at 5.5'

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
	0		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	

Stabilized Infiltration Testing Rate (inches per hour):

--

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/27/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Clear  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** **Test Pit/Boring Hole Number:** TP 7 **Test Method:** Double-Ring  
**Test Depth (feet):** **Surface Elevation (feet):** **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 1.5	Red sandy clay	
1.5 - 5.0	Red hard rock clay	

**Presoak** No infiltration test was done due to limiting layers of clay

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
	0		
	30		
	30		

NB:  
Pit was difficult to excavate at 5'

## Infiltration Testing

Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
	0		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
			0.00	0.00	
			0.00	0.00	

Stabilized Infiltration Testing Rate (inches per hour):

--

# PWD Stormwater Plan Review Infiltration Testing Log

Version 1 7/1/2015

**Project Name:** 104 SchoolHouse Lane **Date:** 8/27/2021  
**Project Address:** 104 SchoolHouse Rd, Somerset, NJ **Weather:** Clear  
**Testing Company:** HCEA **Tester's Name:** AOE  
**Phone Number:** 484-434-1000 **Email Address:** [oakanbi@hcea.com](mailto:oakanbi@hcea.com)  
**Test Number:** **Test Pit/Boring Hole Number:** TP 8 **Test Method:** Double-Ring  
**Test Depth (feet):** **Surface Elevation (feet):** **Instrument Diameter (inches):** 8

## Soil Characterization

Depth (feet):	Soil Texture:	Limiting Layers Type and Depth (feet):
0 - 0.5	Topsoil	
0.5 - 1.5	Brown sandy silt	
1.5 - 5.0	Red hard rock clay	

**Presoak** No infiltration test was done due to limiting layers of clay

Time:	Time Interval:	Measurement, (feet):	Drop in water level, (feet):
	0		
	30		
	30		

NB:  
Pit was difficult to excavate at 5'

## Infiltration Testing

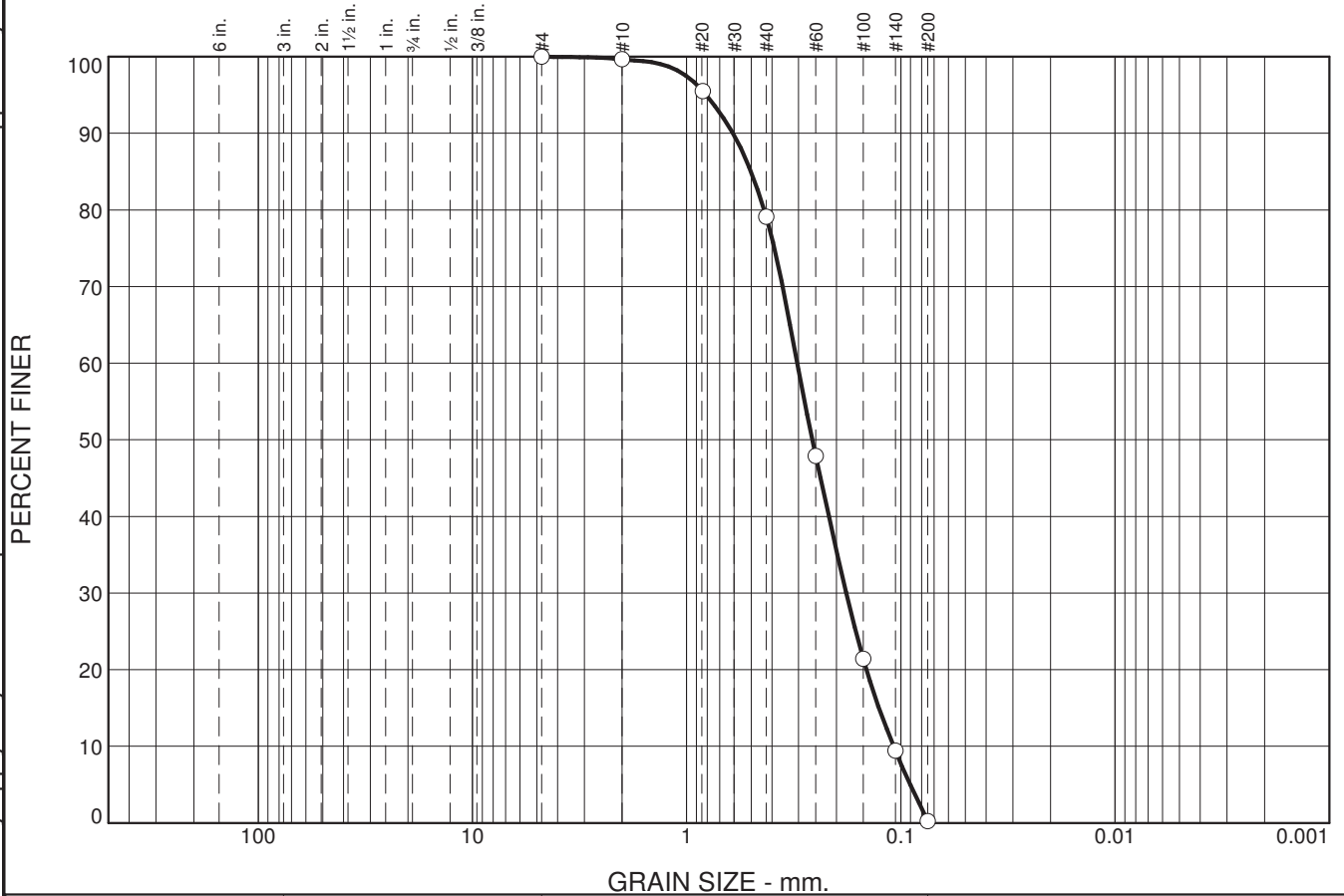
Time:	Time Interval (10 or 30 minutes):	Measurement, (feet):	Drop in water level, (feet):	Infiltration rate (inches per hour):	Remarks:
	0		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
	30		0.00	0.00	
			0.00	0.00	
			0.00	0.00	

Stabilized Infiltration Testing Rate (inches per hour):

--

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	20.5	78.9	0.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	95.5		
#40	79.1		
#60	47.9		
#100	21.4		
#140	9.5		
#200	0.2		

**Soil Description**

Red, moist, very hard degraded rock

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.6078      D<sub>85</sub>= 0.5008      D<sub>60</sub>= 0.3044  
D<sub>50</sub>= 0.2594      D<sub>30</sub>= 0.1798      D<sub>15</sub>= 0.1265  
D<sub>10</sub>= 0.1079      C<sub>u</sub>= 2.82              C<sub>c</sub>= 0.98

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Source of Sample:** B-1      **Depth:** 2  
**Sample Number:** 2

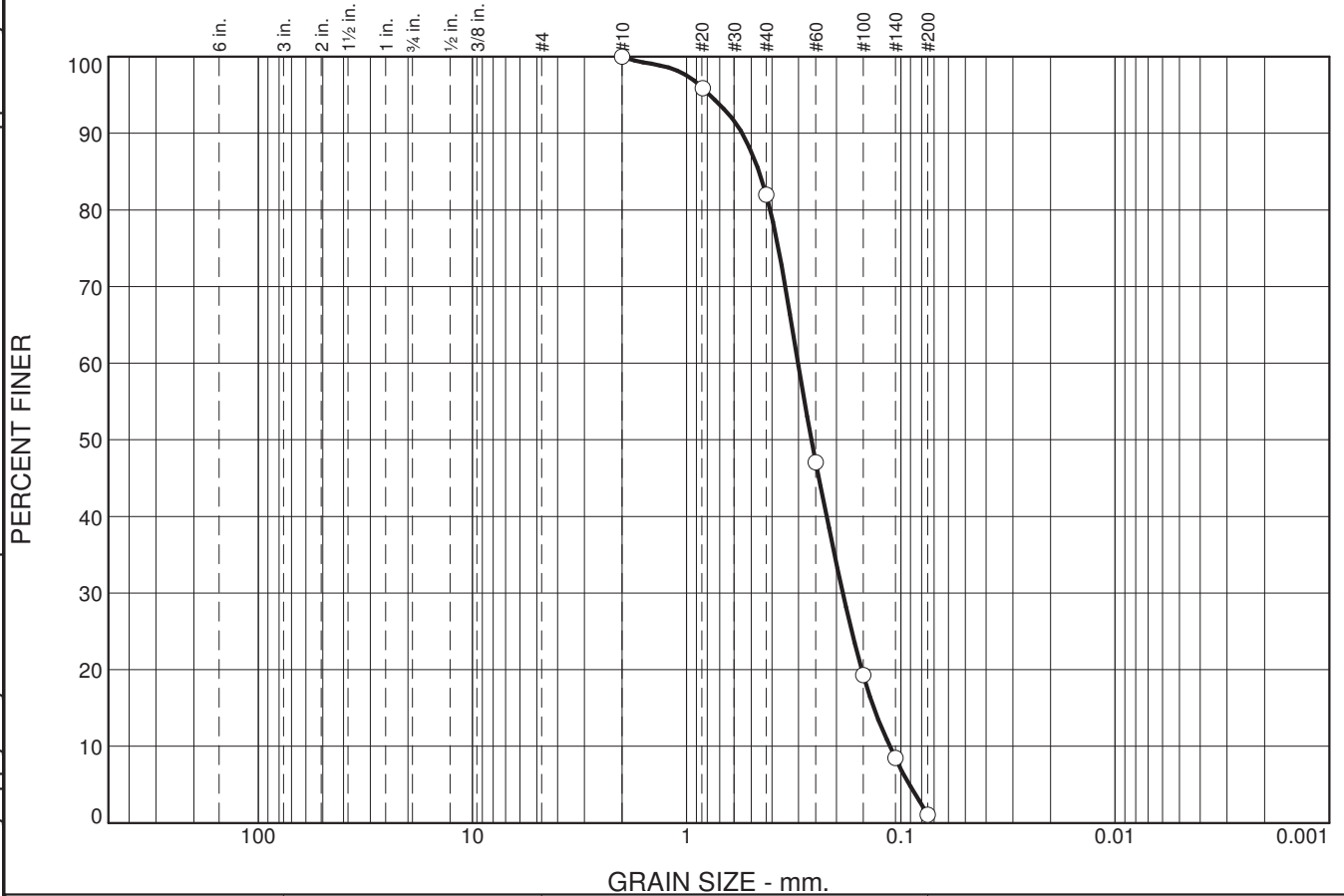
**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	18.0	80.9	1.1	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	95.9		
#40	82.0		
#60	47.1		
#100	19.3		
#140	8.5		
#200	1.1		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.5505      D<sub>85</sub>= 0.4590      D<sub>60</sub>= 0.3018  
D<sub>50</sub>= 0.2619      D<sub>30</sub>= 0.1865      D<sub>15</sub>= 0.1337  
D<sub>10</sub>= 0.1124      C<sub>u</sub>= 2.68              C<sub>c</sub>= 1.02

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Source of Sample:** B-7      **Depth:** 10  
**Sample Number:** 6

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076	<b>Figure</b>
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These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	6.0	24.3	69.7	0.0	0.0

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	94.0		
#20	84.6		
#40	69.7		
#60	52.2		
#100	29.2		
#140	14.7		
#200	0.0		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 1.2777      D<sub>85</sub>= 0.8596      D<sub>60</sub>= 0.3093  
D<sub>50</sub>= 0.2365      D<sub>30</sub>= 0.1527      D<sub>15</sub>= 0.1067  
D<sub>10</sub>= 0.0948      C<sub>u</sub>= 3.26              C<sub>c</sub>= 0.80

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

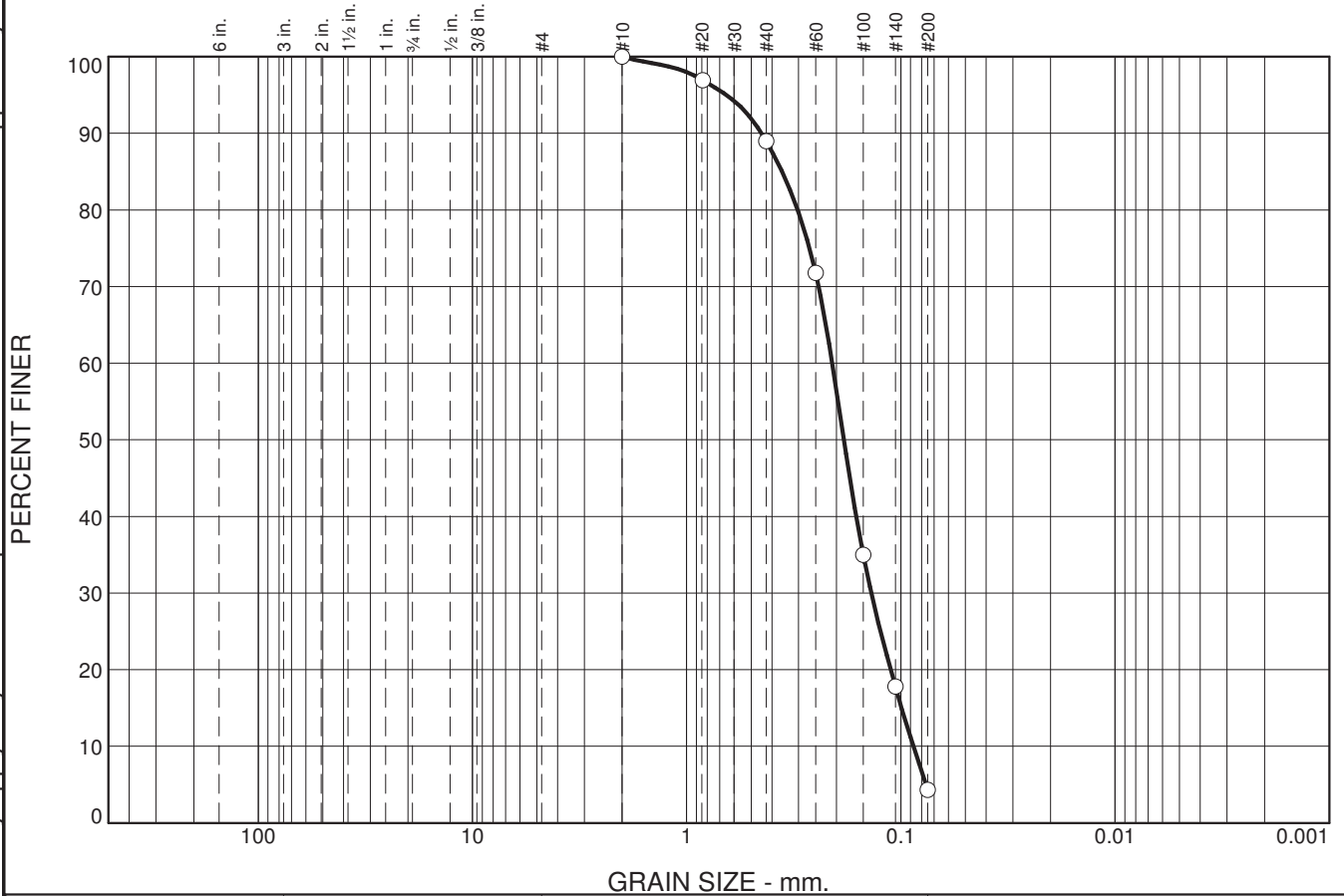
**Source of Sample:** B-10      **Depth:** 2  
**Sample Number:** 2

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	11.0	84.7	4.3	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	96.9		
#40	89.0		
#60	71.8		
#100	35.0		
#140	17.8		
#200	4.3		

**Soil Description**

Red-brown, moist, very hard clay, degraded rock

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.4468      D<sub>85</sub>= 0.3586      D<sub>60</sub>= 0.2092  
D<sub>50</sub>= 0.1844      D<sub>30</sub>= 0.1374      D<sub>15</sub>= 0.0993  
D<sub>10</sub>= 0.0872      C<sub>u</sub>= 2.40              C<sub>c</sub>= 1.03

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

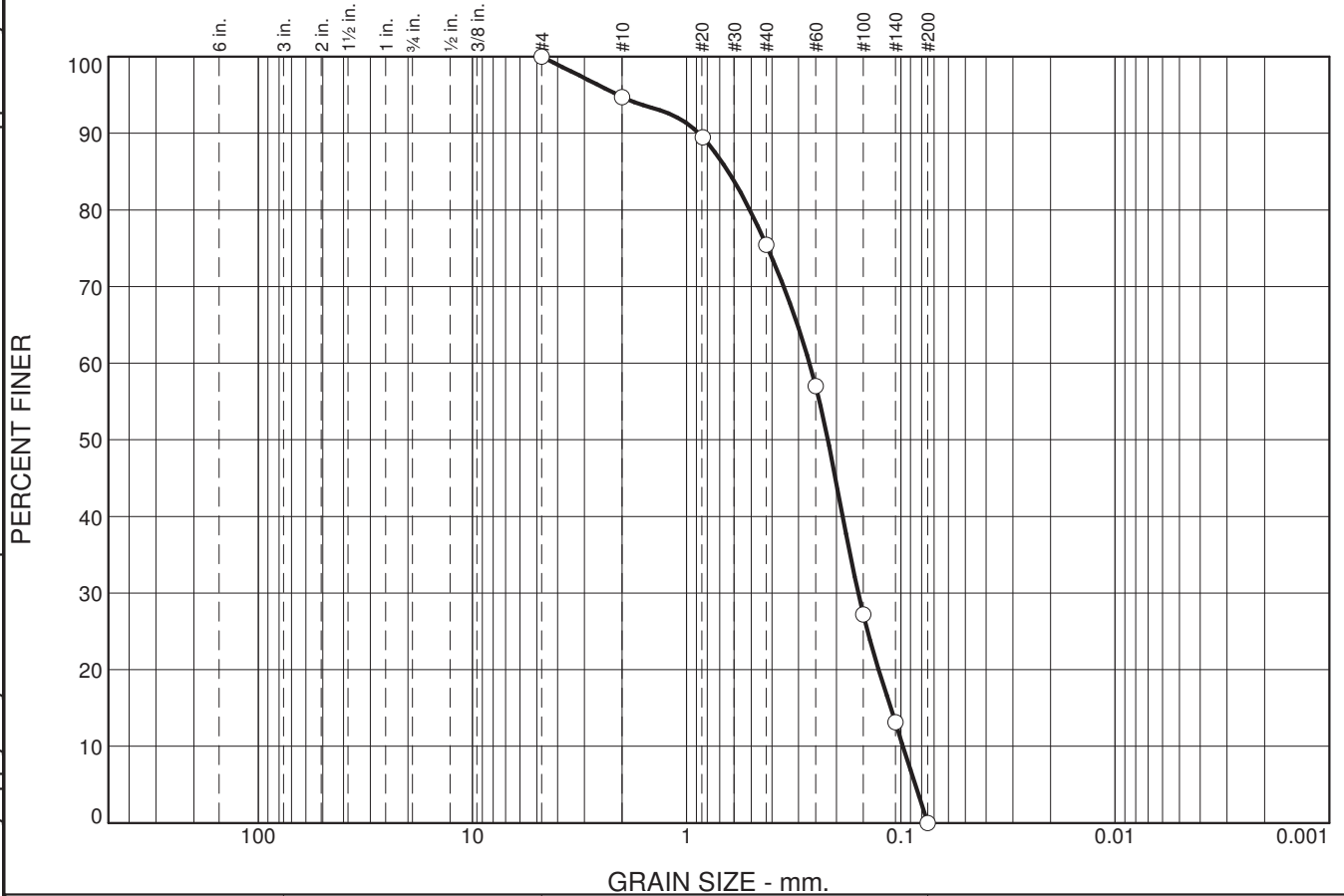
**Source of Sample:** B-13      **Depth:** 4  
**Sample Number:** 3

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	5.3	19.3	75.4	0.0	0.0

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	94.7		
#20	89.5		
#40	75.4		
#60	57.0		
#100	27.2		
#140	13.2		
#200	0.0		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.8768      D<sub>85</sub>= 0.6389      D<sub>60</sub>= 0.2673  
D<sub>50</sub>= 0.2193      D<sub>30</sub>= 0.1583      D<sub>15</sub>= 0.1112  
D<sub>10</sub>= 0.0977      C<sub>u</sub>= 2.74              C<sub>c</sub>= 0.96

**Classification**

USCS= SP                      AASHTO=

**Remarks**

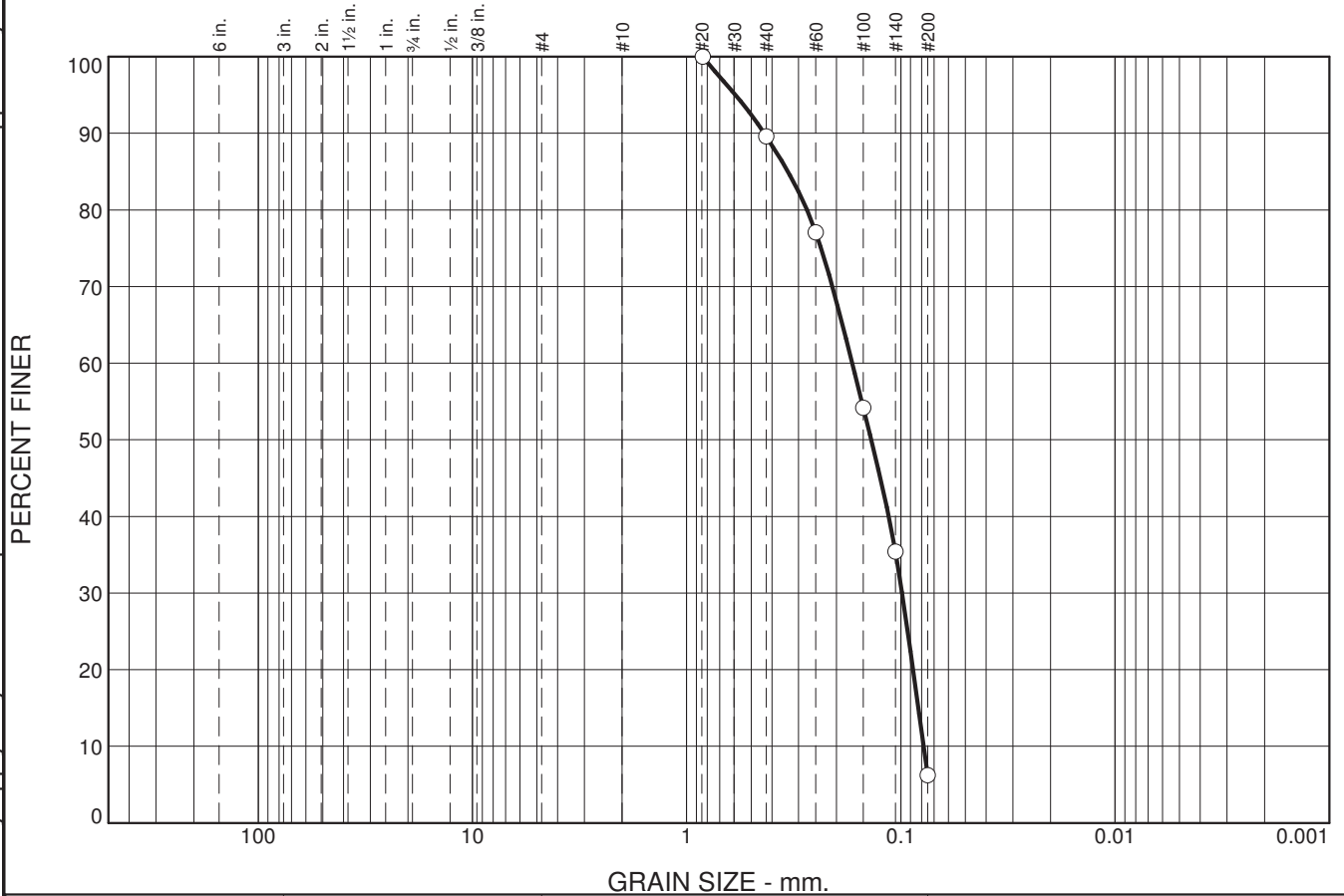
\* (no specification provided)

**Source of Sample:** B-15      **Depth:** 8      **Date:**  
**Sample Number:** 5

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076 <b>Figure</b>
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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	10.4	83.3	6.3	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#20	100.0		
#40	89.6		
#60	77.1		
#100	54.2		
#140	35.4		
#200	6.3		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.4343      D<sub>85</sub>= 0.3365      D<sub>60</sub>= 0.1688  
D<sub>50</sub>= 0.1377      D<sub>30</sub>= 0.0986      D<sub>15</sub>= 0.0829  
D<sub>10</sub>= 0.0783      C<sub>u</sub>= 2.15              C<sub>c</sub>= 0.74

**Classification**

USCS=                      AASHTO=

**Remarks**

\* (no specification provided)

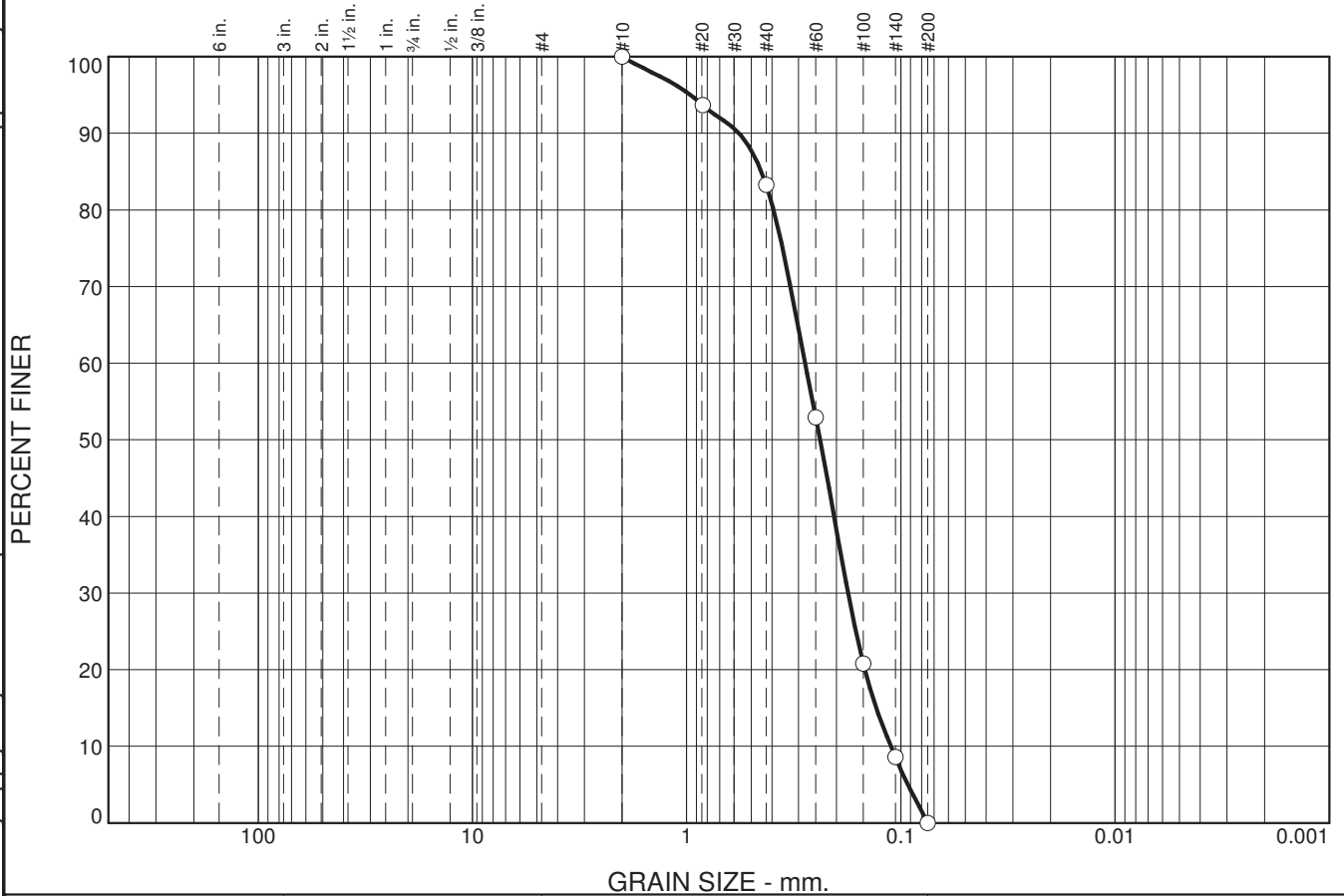
**Source of Sample:** B-20      **Depth:** 6  
**Sample Number:** 4

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	16.7	83.3	0.0	0.0

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	93.7		
#40	83.3		
#60	52.9		
#100	20.8		
#140	8.6		
#200	0.0		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.5693      D<sub>85</sub>= 0.4478      D<sub>60</sub>= 0.2799  
D<sub>50</sub>= 0.2384      D<sub>30</sub>= 0.1762      D<sub>15</sub>= 0.1303  
D<sub>10</sub>= 0.1111      C<sub>u</sub>= 2.52              C<sub>c</sub>= 1.00

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

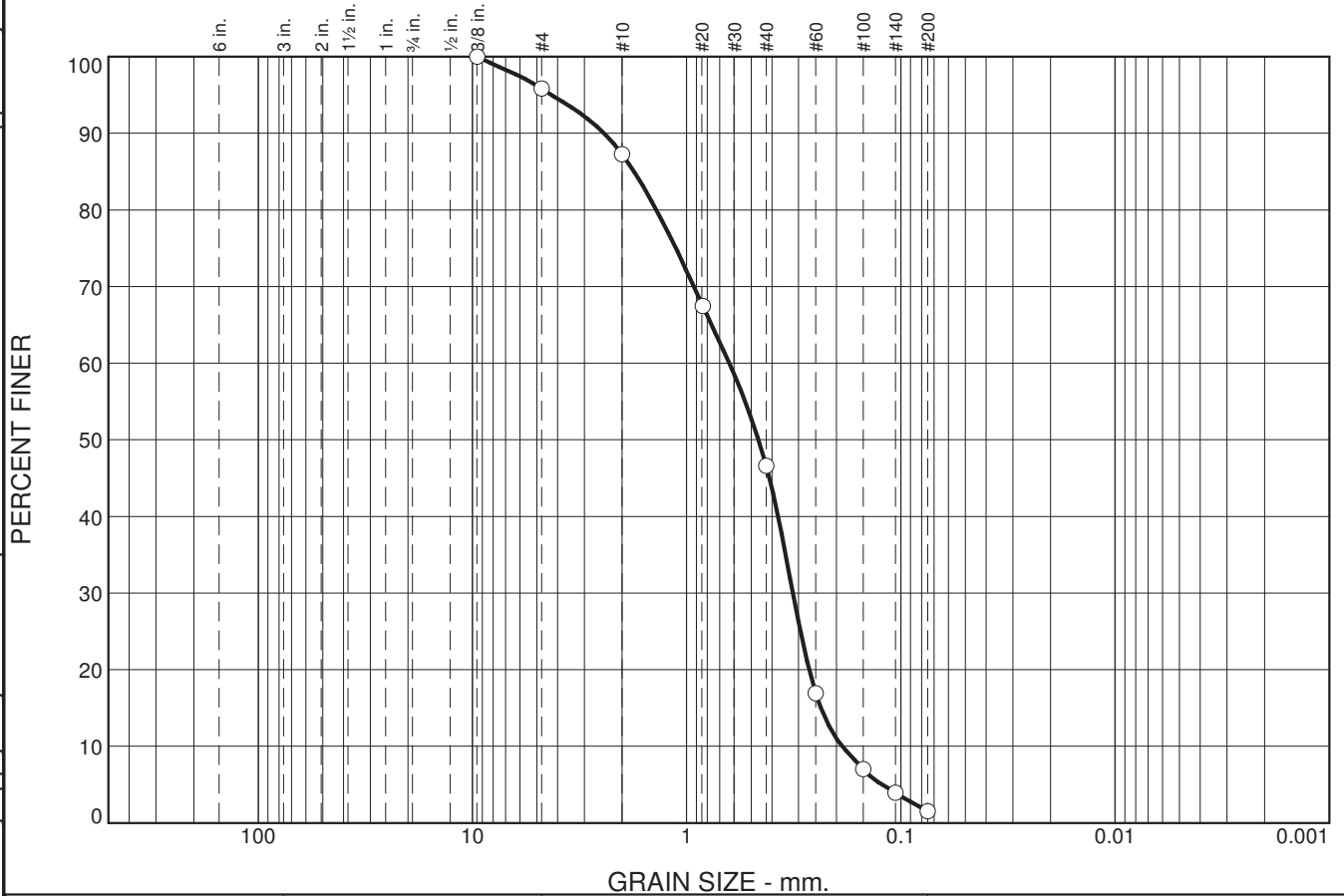
**Source of Sample:** B-21      **Depth:** 4  
**Sample Number:** 3

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	4.2	8.5	40.7	45.1	1.5	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375	100.0		
#4	95.8		
#10	87.3		
#20	67.5		
#40	46.6		
#60	16.9		
#100	7.0		
#140	4.0		
#200	1.5		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 2.4292      D<sub>85</sub>= 1.7603      D<sub>60</sub>= 0.6323  
D<sub>50</sub>= 0.4620      D<sub>30</sub>= 0.3189      D<sub>15</sub>= 0.2364  
D<sub>10</sub>= 0.1878      C<sub>u</sub>= 3.37              C<sub>c</sub>= 0.86

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

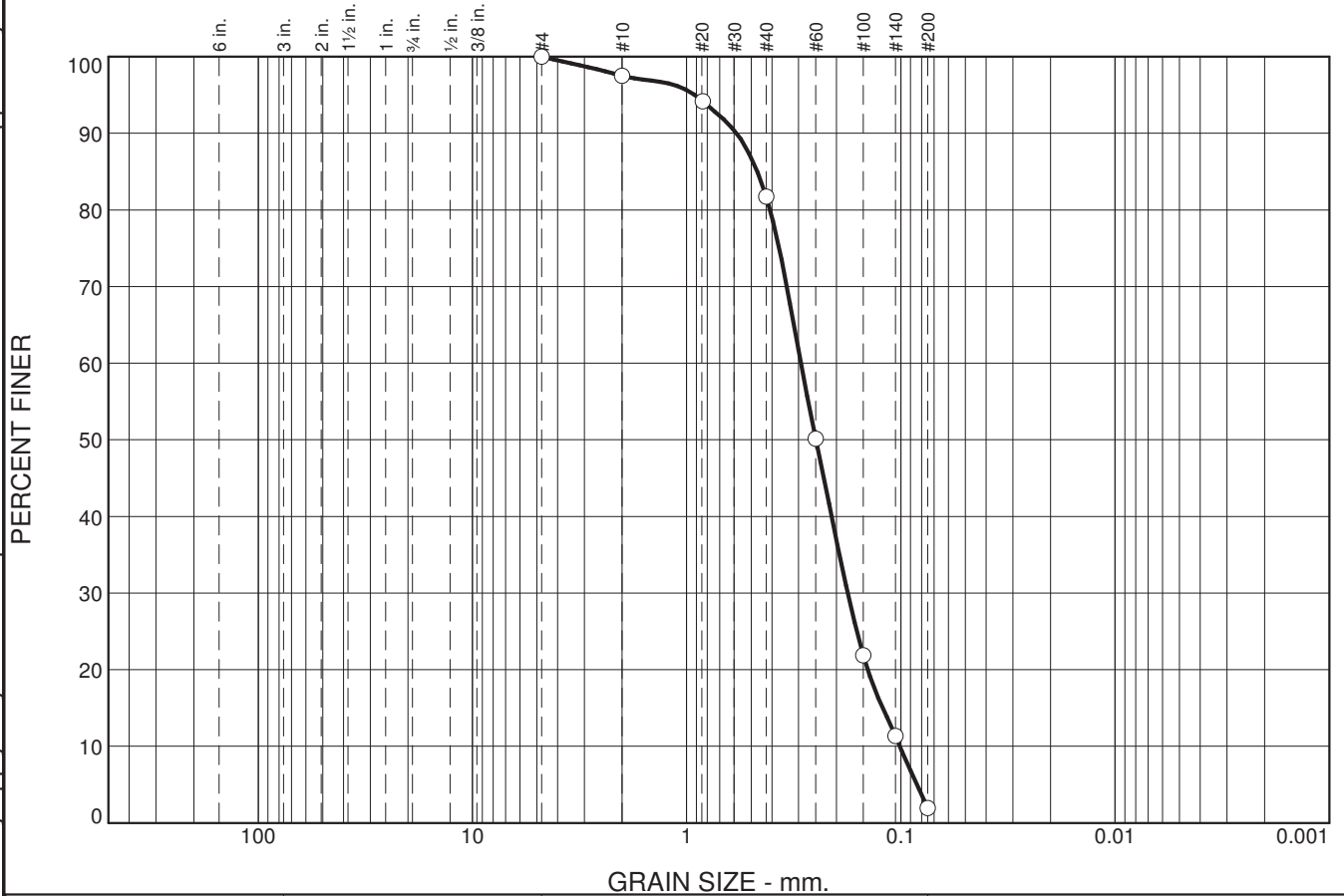
**Source of Sample:** B-24      **Depth:** 4  
**Sample Number:** 3

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.5	15.8	79.8	1.9	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.5		
#20	94.2		
#40	81.7		
#60	50.1		
#100	21.9		
#140	11.4		
#200	1.9		

**Soil Description**

Red-brown, moist, very hard clay, degraded rock

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.5852      D<sub>85</sub>= 0.4676      D<sub>60</sub>= 0.2925  
D<sub>50</sub>= 0.2494      D<sub>30</sub>= 0.1769      D<sub>15</sub>= 0.1215  
D<sub>10</sub>= 0.1010      C<sub>u</sub>= 2.89              C<sub>c</sub>= 1.06

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

**Source of Sample:** B-26      **Depth:** 2  
**Sample Number:** 2

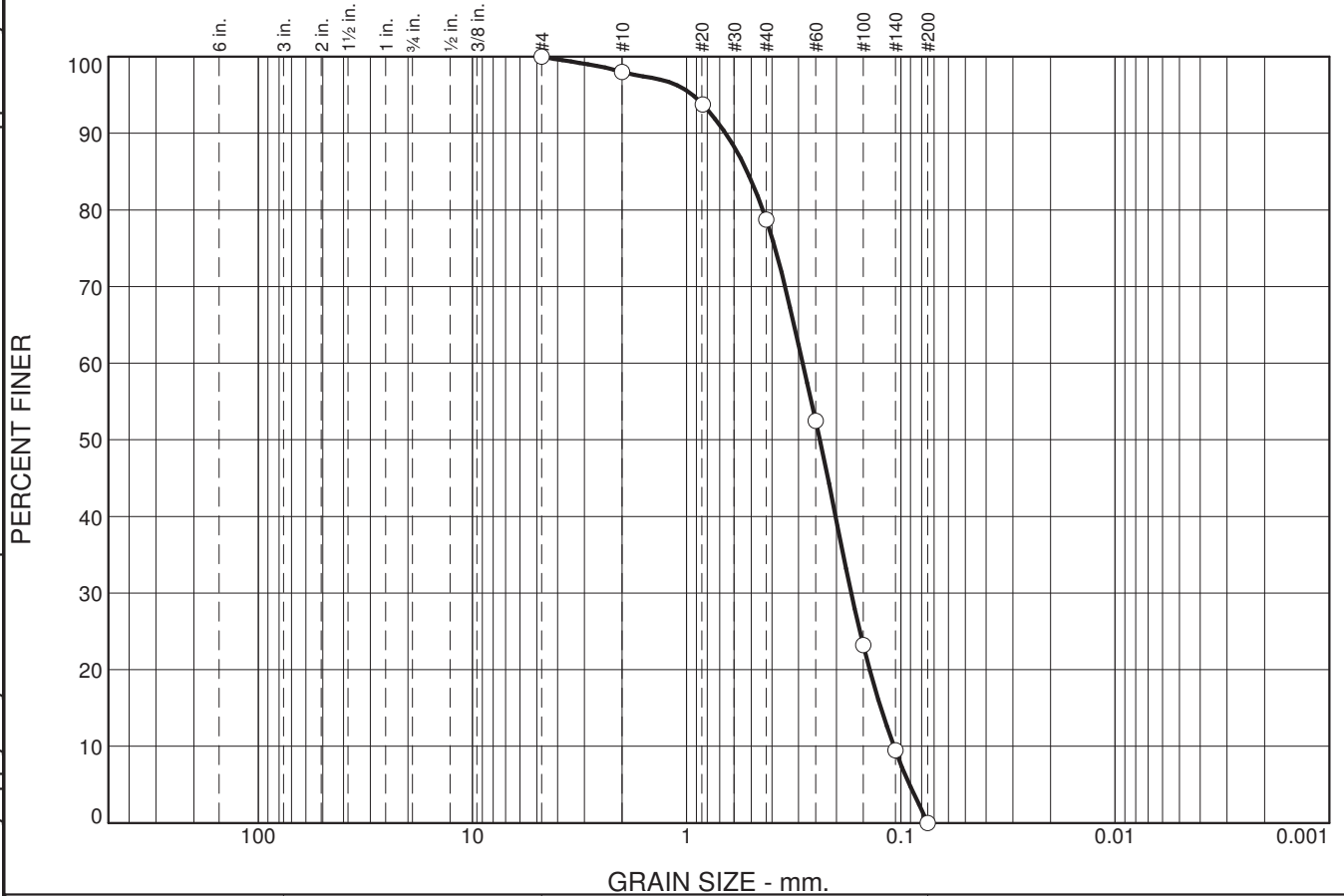
**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076	<b>Figure</b>
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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.0	19.3	78.7	0.0	0.0

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.0		
#20	93.8		
#40	78.7		
#60	52.5		
#100	23.2		
#140	9.5		
#200	0.0		

**Soil Description**

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.6582      D<sub>85</sub>= 0.5217      D<sub>60</sub>= 0.2872  
D<sub>50</sub>= 0.2390      D<sub>30</sub>= 0.1705      D<sub>15</sub>= 0.1238  
D<sub>10</sub>= 0.1076      C<sub>u</sub>= 2.67              C<sub>c</sub>= 0.94

**Classification**

USCS= SP                      AASHTO=

**Remarks**

\* (no specification provided)

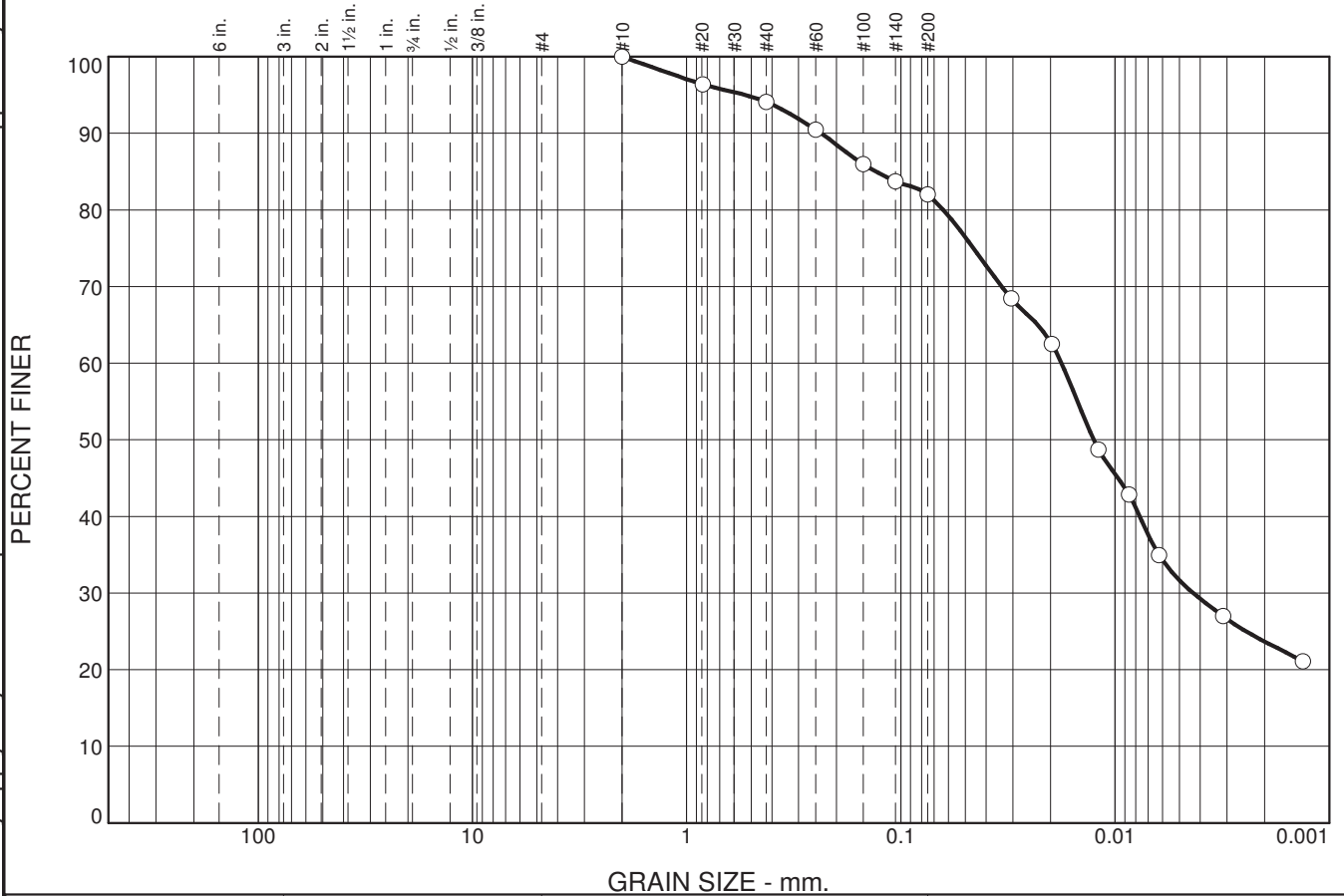
**Source of Sample:** B-29      **Depth:** 4  
**Sample Number:** 3

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076	<b>Figure</b>
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These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	5.9	12.1	58.3	23.7

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	96.4		
#40	94.1		
#60	90.5		
#100	86.0		
#140	83.7		
#200	82.0		
0.0305 mm.	68.4		
0.0197 mm.	62.5		
0.0119 mm.	48.7		
0.0086 mm.	42.9		
0.0062 mm.	35.0		
0.0031 mm.	27.0		
0.0013 mm.	21.1		

**Soil Description**

Brown silt loam  
Test was done at 0.5'

**Atterberg Limits**

PL= 16      LL= 25      PI= 9

**Coefficients**

D<sub>90</sub>= 0.2358      D<sub>85</sub>= 0.1306      D<sub>60</sub>= 0.0178  
D<sub>50</sub>= 0.0126      D<sub>30</sub>= 0.0043      D<sub>15</sub>=  
D<sub>10</sub>=                  C<sub>u</sub>=                  C<sub>c</sub>=

**Classification**

USCS= CL                  AASHTO= A-4(5)

**Remarks**

\* 57stone

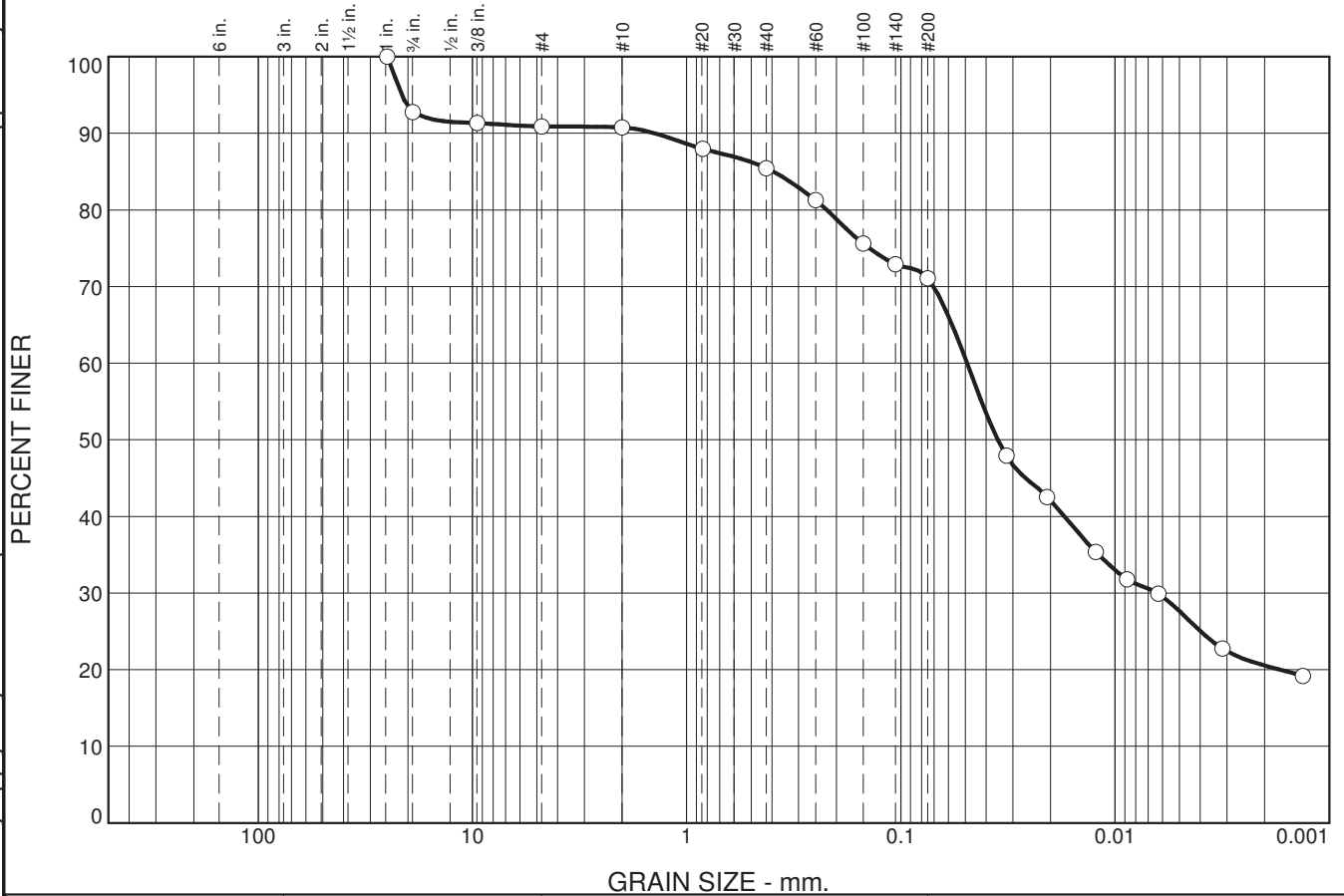
**Source of Sample:** TP1      **Depth:** 0.5

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.2	1.9	0.1	5.4	14.3	50.6	20.5

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1	100.0	95-100	
.75	92.8		
.375	91.3		
#4	90.9	0-10	X
#10	90.8		
#20	88.0		
#40	85.4		
#60	81.3		
#100	75.6		
#140	72.9		
#200	71.1		
0.0321 mm.	47.9		
0.0207 mm.	42.6		
0.0123 mm.	35.4		
0.0088 mm.	31.8		
0.0063 mm.	29.9		
0.0031 mm.	22.7		
0.0013 mm.	19.2		

**Soil Description**

Orange loam  
Test was done at 0.5'

**Atterberg Limits**

PL= 18      LL= 29      PI= 11

**Coefficients**

D<sub>90</sub>= 1.4111      D<sub>85</sub>= 0.3950      D<sub>60</sub>= 0.0491  
D<sub>50</sub>= 0.0353      D<sub>30</sub>= 0.0064      D<sub>15</sub>=  
D<sub>10</sub>=                  C<sub>u</sub>=                  C<sub>c</sub>=

**Classification**

USCS= CL                  AASHTO= A-6(6)

**Remarks**

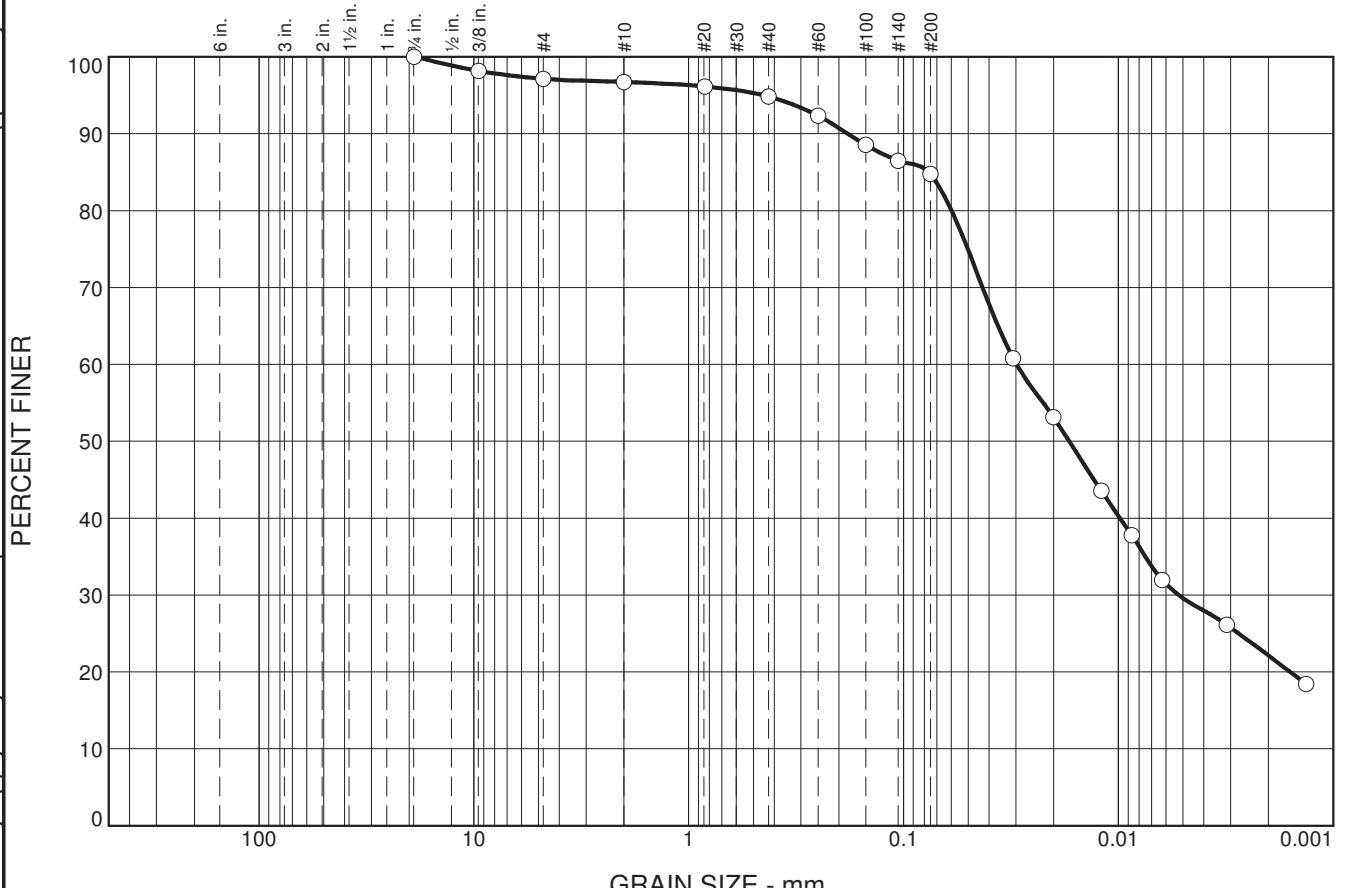
\* 57stone

**Source of Sample:** TP2      **Depth:** 0.5      **Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road
Philadelphia, Pennsylvania	<b>Project No:</b> P21076 <b>Figure</b>

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	0.4	1.8	10.2	62.6	22.1

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	98.2		
#4	97.1	0-10	X
#10	96.7		
#20	96.1		
#40	94.9		
#60	92.3		
#100	88.5		
#140	86.5		
#200	84.7		
0.0309 mm.	60.8		
0.0201 mm.	53.1		
0.0120 mm.	43.5		
0.0087 mm.	37.8		
0.0063 mm.	31.9		
0.0031 mm.	26.1		
0.0013 mm.	18.4		

**Soil Description**

Gray silt loam  
Test was done at 0.5'

**Atterberg Limits**

PL= 20      LL= 31      PI= 11

**Coefficients**

D<sub>90</sub>= 0.1822      D<sub>85</sub>= 0.0764      D<sub>60</sub>= 0.0298  
D<sub>50</sub>= 0.0169      D<sub>30</sub>= 0.0052      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= CL                      AASHTO= A-6(8)

**Remarks**

\* 57stone

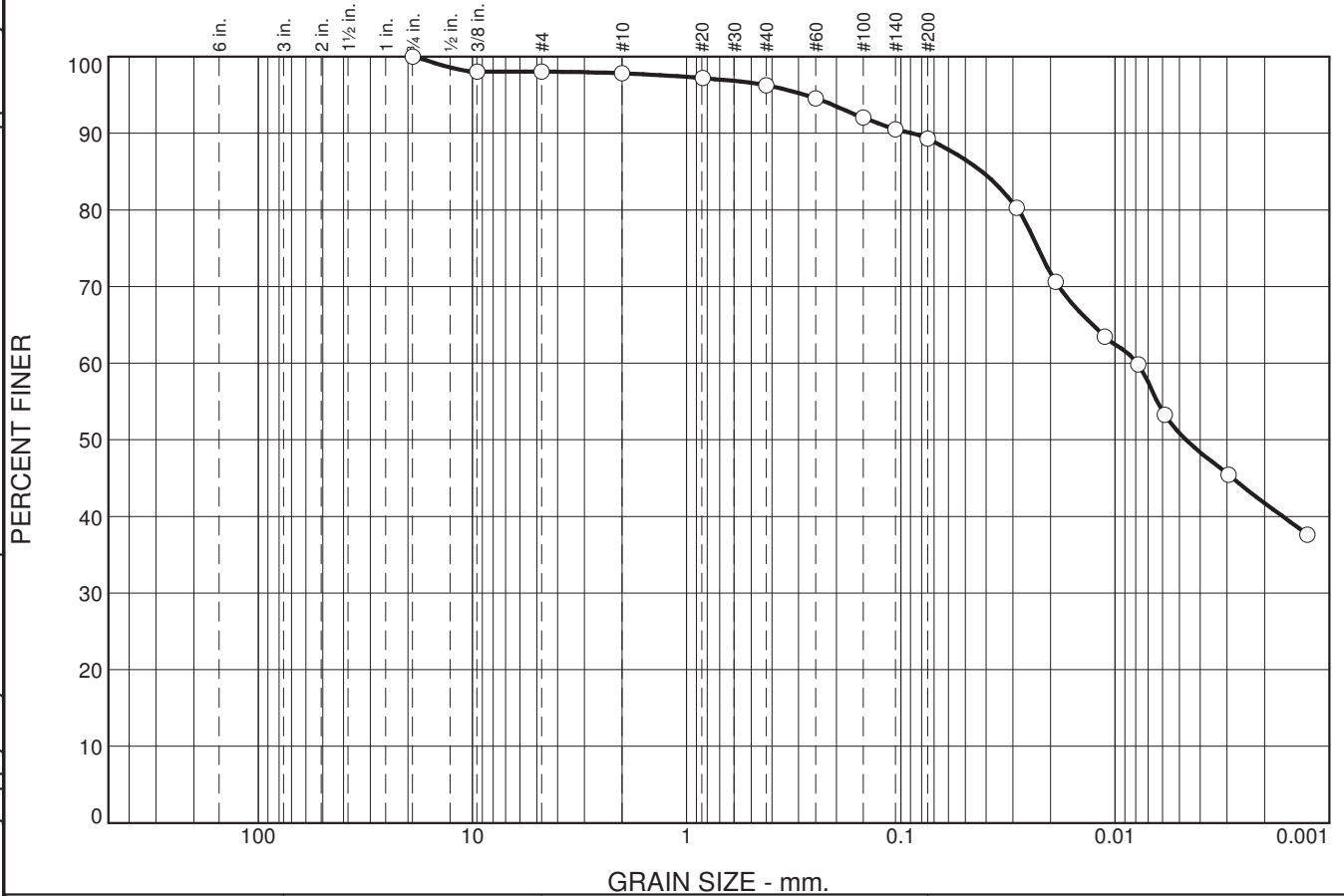
**Source of Sample:** TP3      **Depth:** 0.5

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
<b>Figure</b>	

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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.0	0.2	1.5	7.0	47.6	41.7

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	98.0		
#4	98.0	0-10	X
#10	97.8		
#20	97.2		
#40	96.3		
#60	94.6		
#100	92.0		
#140	90.5		
#200	89.3		
0.0288 mm.	80.2		
0.0190 mm.	70.6		
0.0112 mm.	63.5		
0.0078 mm.	59.8		
0.0059 mm.	53.2		
0.0030 mm.	45.4		
0.0013 mm.	37.6		

**Soil Description**

Gray silty clay  
Sample collected at 1'

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.0882      D<sub>85</sub>= 0.0418      D<sub>60</sub>= 0.0079  
D<sub>50</sub>= 0.0047      D<sub>30</sub>=                      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS=                      AASHTO=

**Remarks**

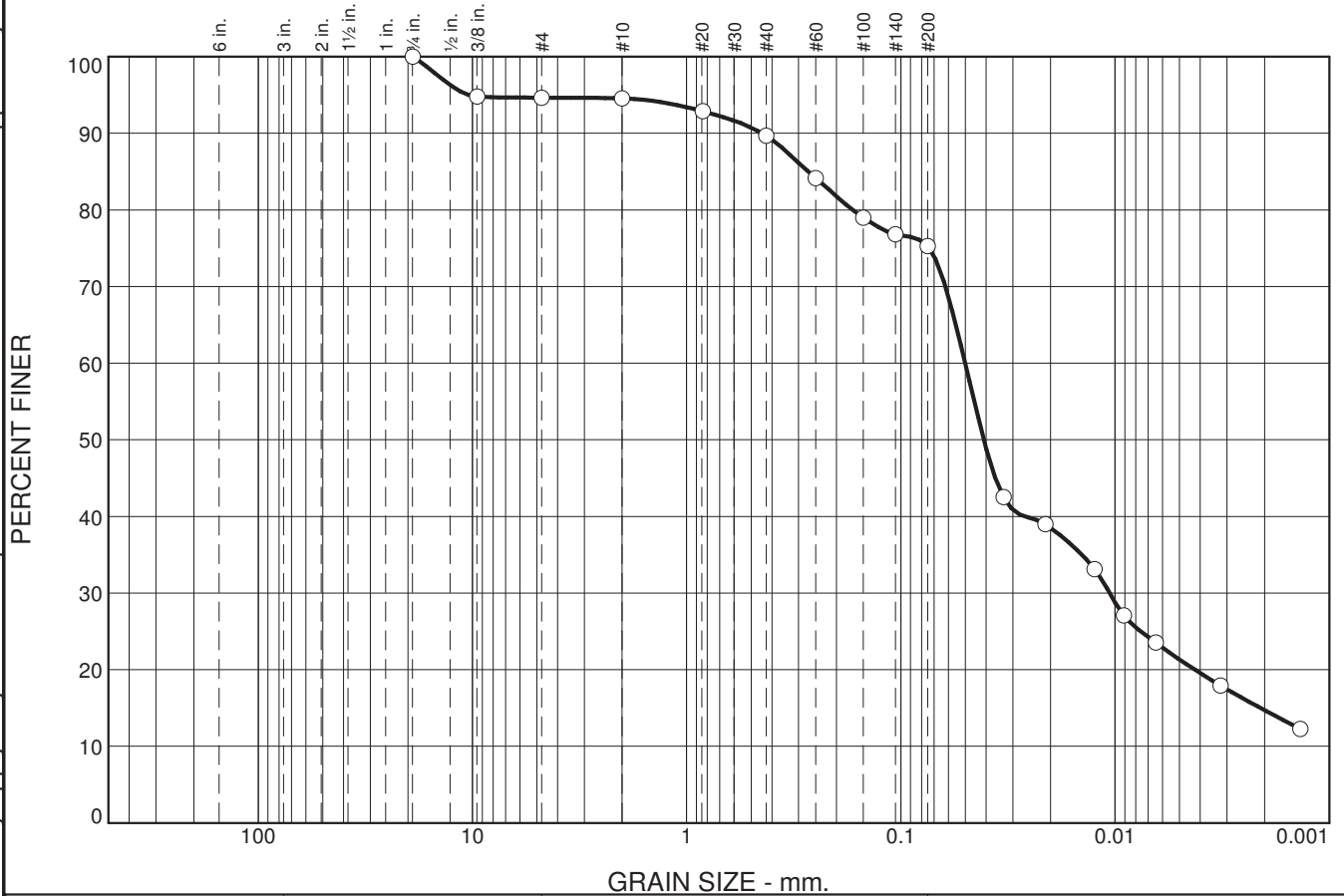
\* 57stone

**Source of Sample:** TP4      **Depth:** 0.5      **Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076 <b>Figure</b>
---	---

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples.

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	5.3	0.1	4.9	14.4	60.6	14.7

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	94.8		
#4	94.7	0-10	X
#10	94.6		
#20	92.9		
#40	89.7		
#60	84.1		
#100	79.0		
#140	76.8		
#200	75.3		
0.0331 mm.	42.5		
0.0211 mm.	39.0		
0.0125 mm.	33.1		
0.0091 mm.	27.1		
0.0065 mm.	23.6		
0.0032 mm.	17.9		
0.0014 mm.	12.3		

**Soil Description**

Brown silt loam  
Test was done at 0.5'

**Atterberg Limits**

PL= 15      LL= 25      PI= 10

**Coefficients**

D<sub>90</sub>= 0.4452      D<sub>85</sub>= 0.2709      D<sub>60</sub>= 0.0500  
D<sub>50</sub>= 0.0410      D<sub>30</sub>= 0.0106      D<sub>15</sub>= 0.0021  
D<sub>10</sub>=                  C<sub>u</sub>=                  C<sub>c</sub>=

**Classification**

USCS= CL                  AASHTO= A-4(5)

**Remarks**

\* 57stone

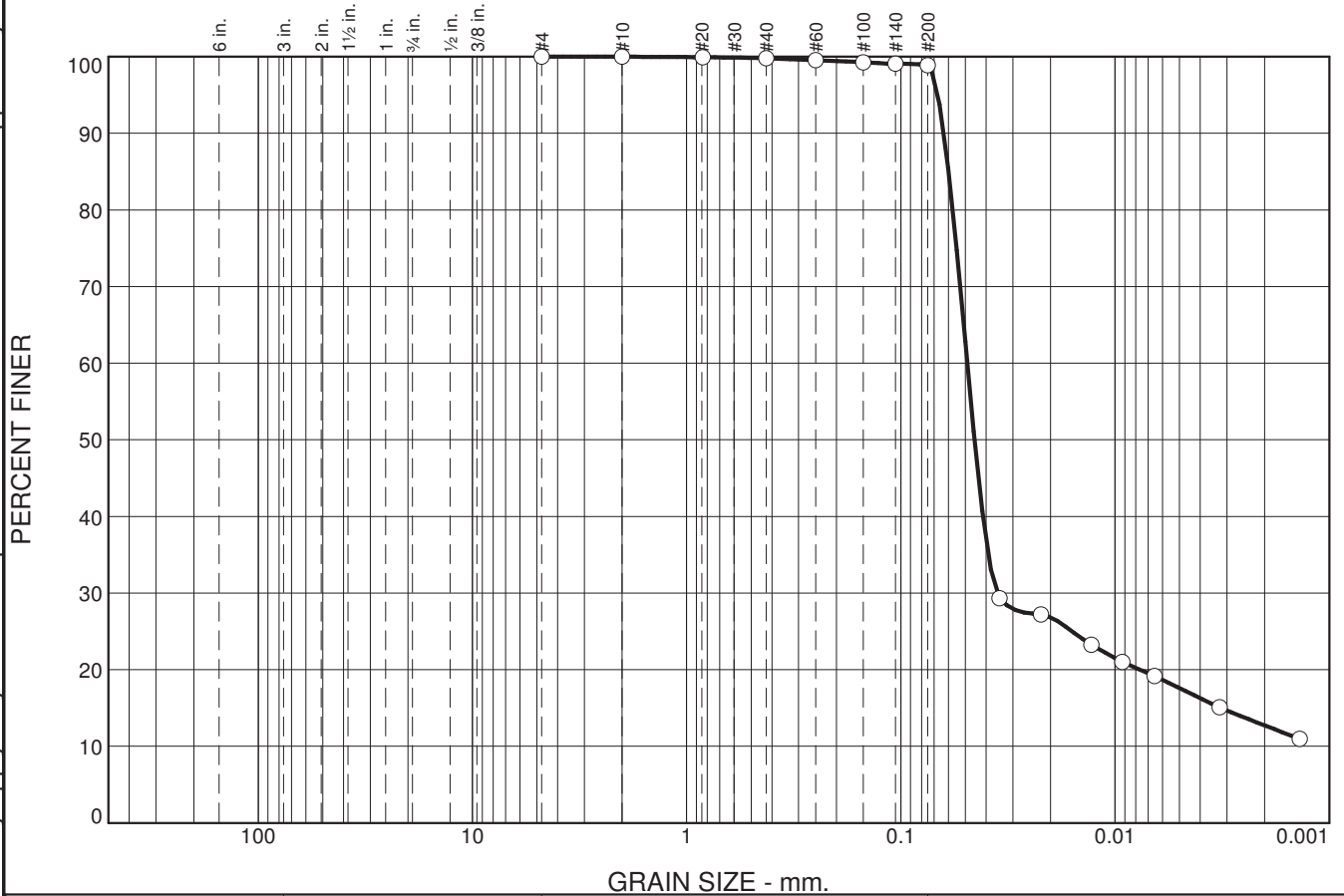
**Source of Sample:** TP5      **Depth:** 0.5

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.2	0.9	86.2	12.7

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0	0-10	X
#10	100.0		
#20	99.9		
#40	99.8		
#60	99.5		
#100	99.3		
#140	99.1		
#200	98.9		
0.0347 mm.	29.3		
0.0221 mm.	27.2		
0.0129 mm.	23.3		
0.0092 mm.	21.0		
0.0065 mm.	19.2		
0.0032 mm.	15.1		
0.0014 mm.	11.0		

**Soil Description**

Hard red silt loam  
Sample collected at 1'

**Atterberg Limits**

PL=                      LL=                      PI=

**Coefficients**

D<sub>90</sub>= 0.0629      D<sub>85</sub>= 0.0599      D<sub>60</sub>= 0.0490  
D<sub>50</sub>= 0.0453      D<sub>30</sub>= 0.0357      D<sub>15</sub>= 0.0032  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS=                      AASHTO=

**Remarks**

\* 57stone

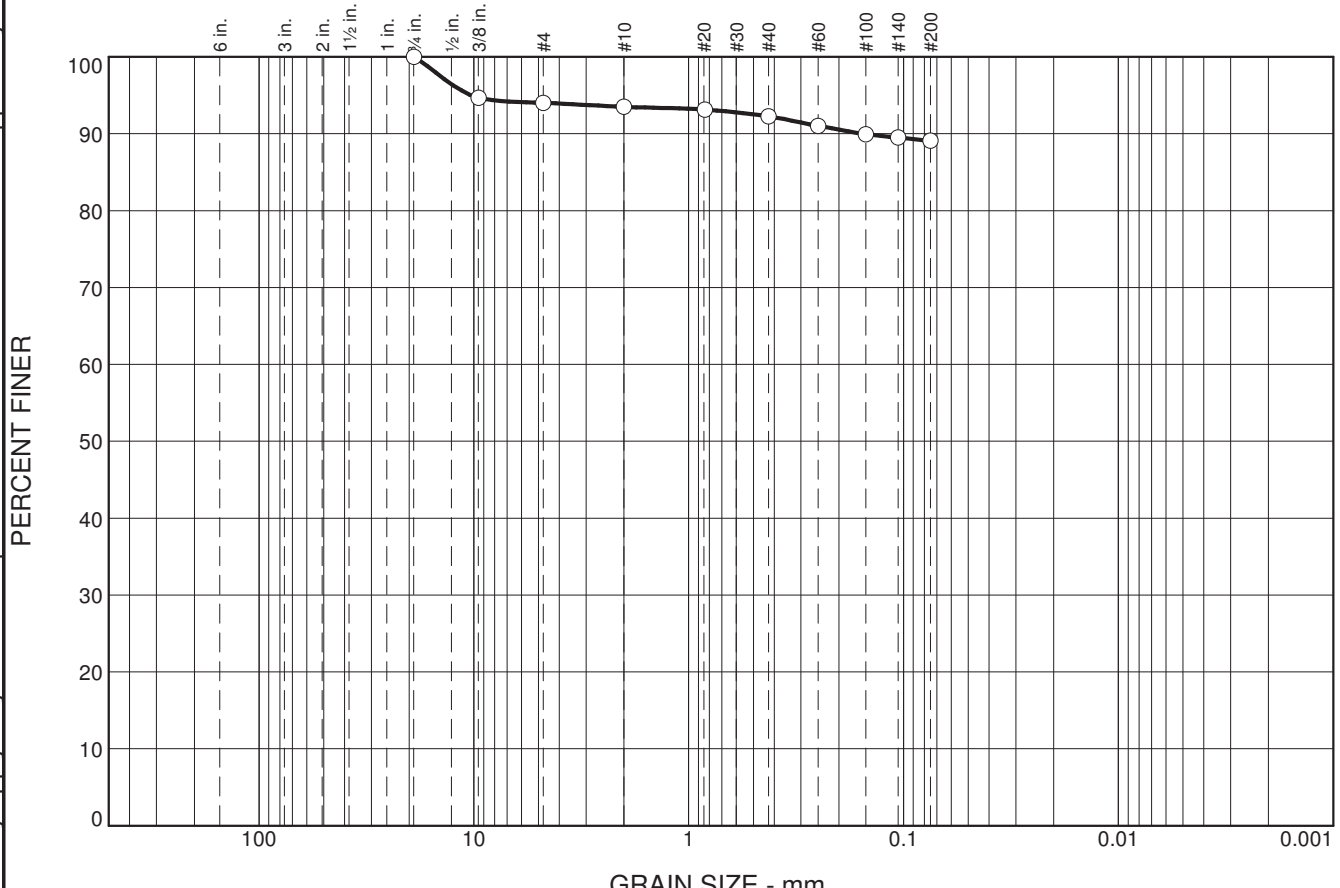
**Source of Sample:** TP6      **Depth:** 1

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	6.0	0.5	1.3	3.1	89.1	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	94.7		
#4	94.0	0-10	X
#10	93.5		
#20	93.1		
#40	92.2		
#60	91.0		
#100	89.9		
#140	89.5		
#200	89.1		

**Soil Description**

Red silt loam  
Sample collected at 1'

**Atterberg Limits**

PL= 16      LL= 41      PI= 25

**Coefficients**

D<sub>90</sub>= 0.1544      D<sub>85</sub>=      D<sub>60</sub>=  
D<sub>50</sub>=      D<sub>30</sub>=      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**

USCS= CL      AASHTO= A-7-6(22)

**Remarks**

\* 57stone

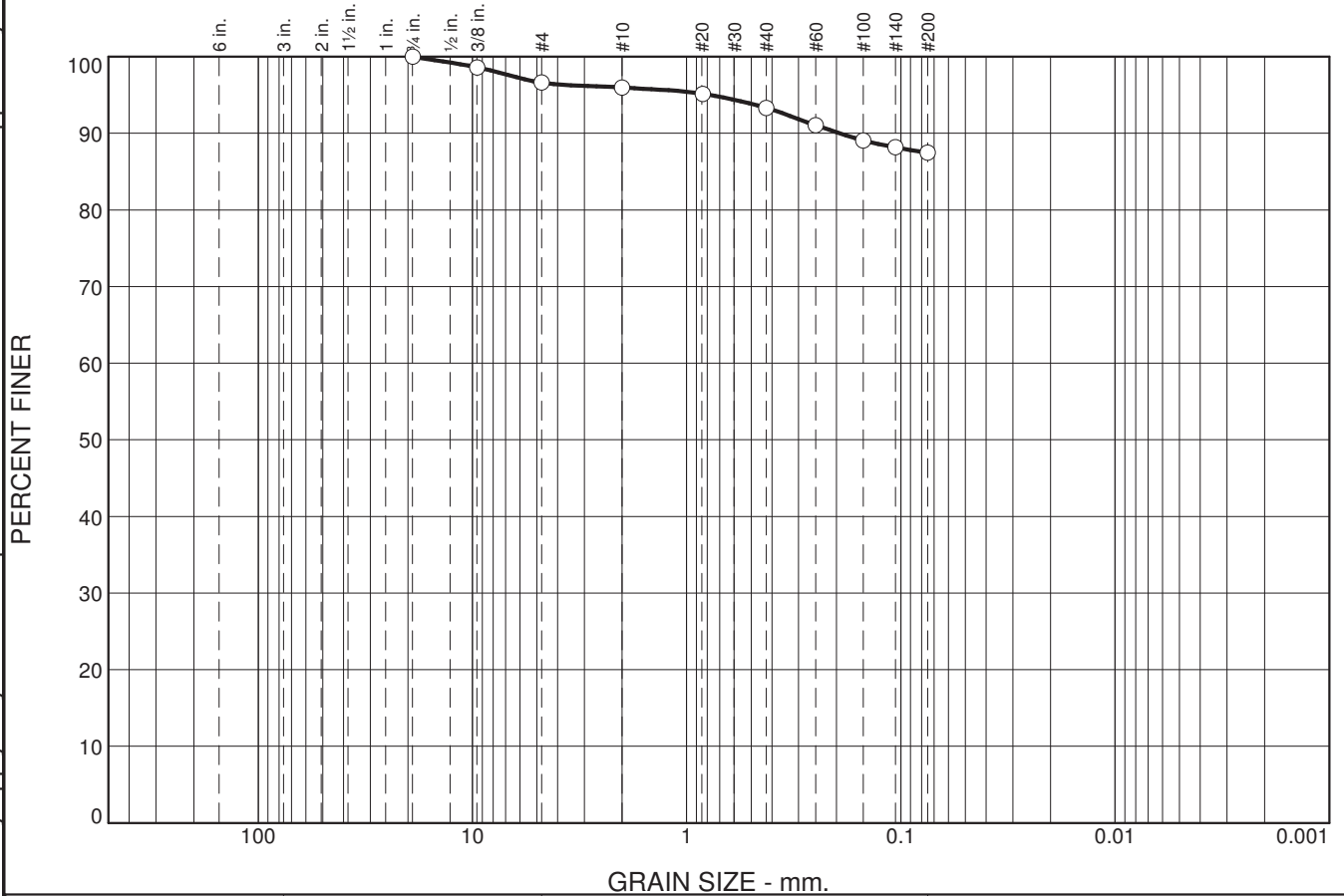
**Source of Sample:** TP7      **Depth:** 0.5      **Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076 <b>Figure</b>
---	---



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# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	3.4	0.6	2.7	5.8	87.5	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.375	98.6		
#4	96.6	0-10	X
#10	96.0		
#20	95.1		
#40	93.3		
#60	91.0		
#100	89.1		
#140	88.2		
#200	87.5		

**Soil Description**

Brown loam  
Sample collected at 1'

**Atterberg Limits**

PL= NP      LL= NP      PI= NP

**Coefficients**

D<sub>90</sub>= 0.1936      D<sub>85</sub>=      D<sub>60</sub>=  
D<sub>50</sub>=      D<sub>30</sub>=      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**

USCS= ML      AASHTO= A-4(0)

**Remarks**

\* 57stone

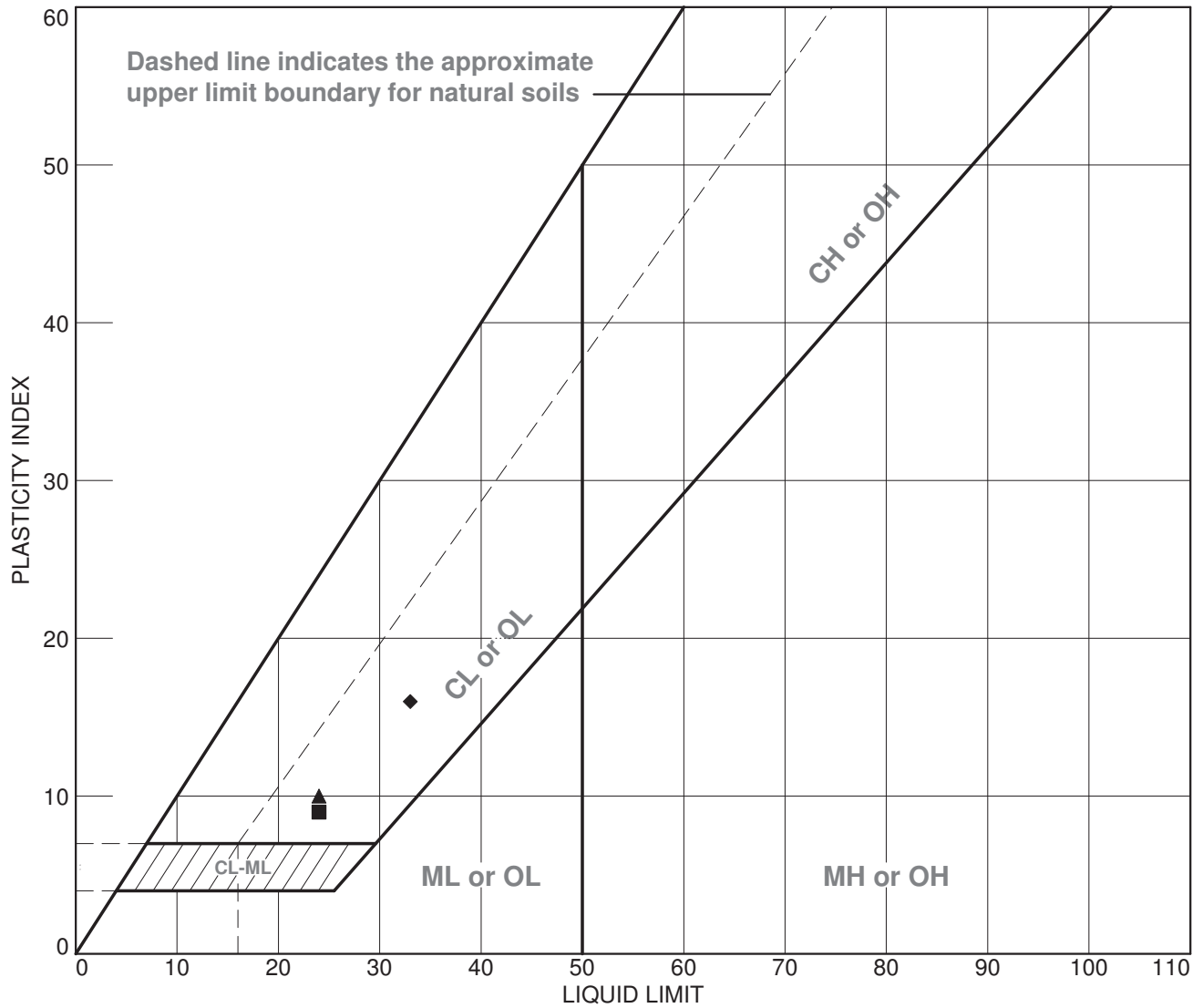
**Source of Sample:** TP8      **Depth:** 0.5

**Date:**

<b>HILLIS-CARNES ENGINEERING ASSOCIATES</b>  Philadelphia, Pennsylvania	<b>Client:</b> Link Industrial Properties <b>Project:</b> 104 School House Road  <b>Project No:</b> P21076
	<b>Figure</b>

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# LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-1	2	2	9.7				SP
■	B-3	4	6	14.4	15	24	9	
▲	B-5	2	2	10.7	14	24	10	
◆	B-8	4	6	14.9	17	33	16	

**HILLIS-CARNES ENGINEERING ASSOCIATES**

Philadelphia, Pennsylvania

**Client:** Link Industrial Properties

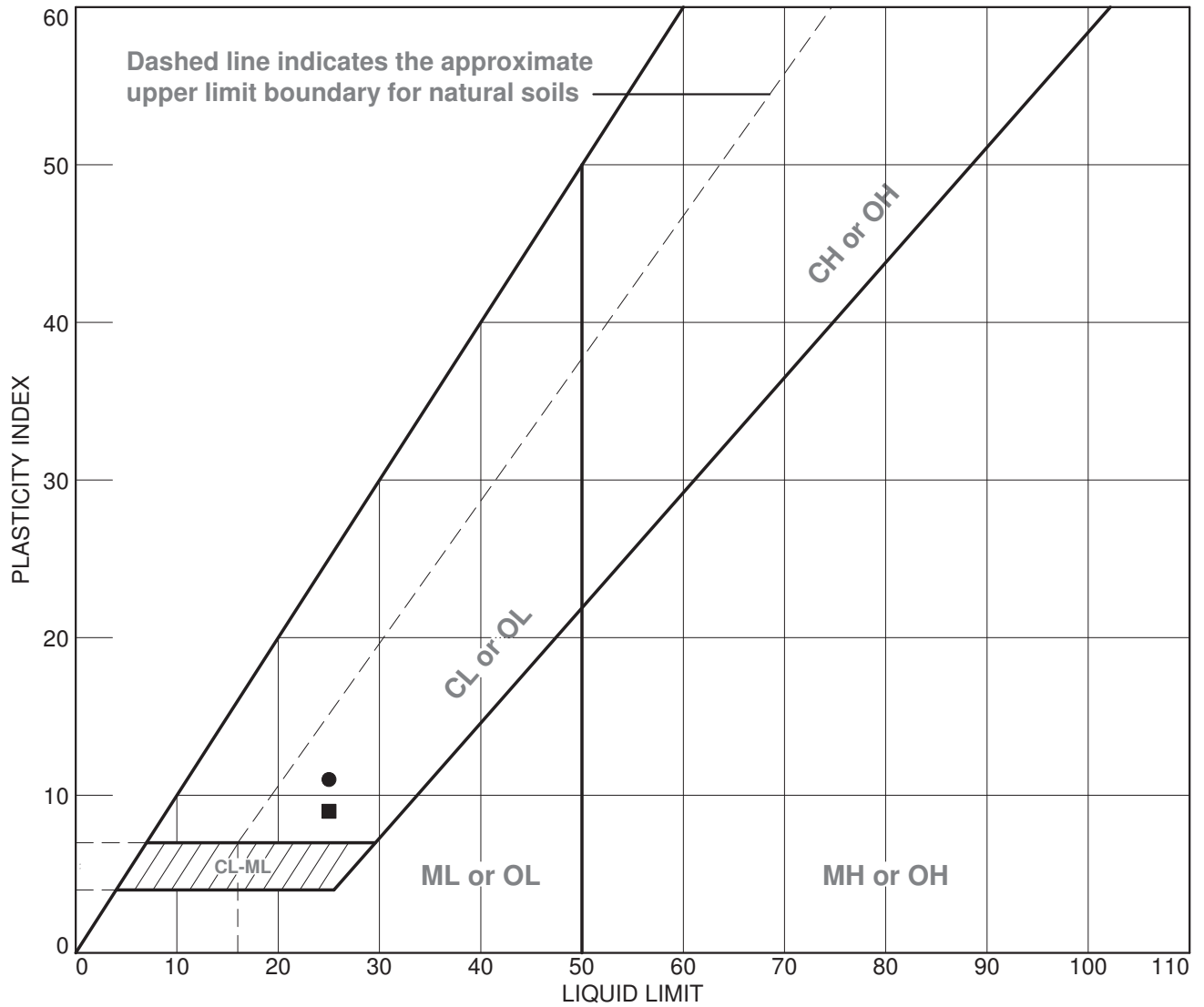
**Project:** 104 School House Road

**Project No.:** P21076

**Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples

# LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-9	4	6	12.2	14	25	11	
■	B-11	5	8	18.2	16	25	9	

**HILLIS-CARNES ENGINEERING ASSOCIATES**

Philadelphia, Pennsylvania

**Client:** Link Industrial Properties

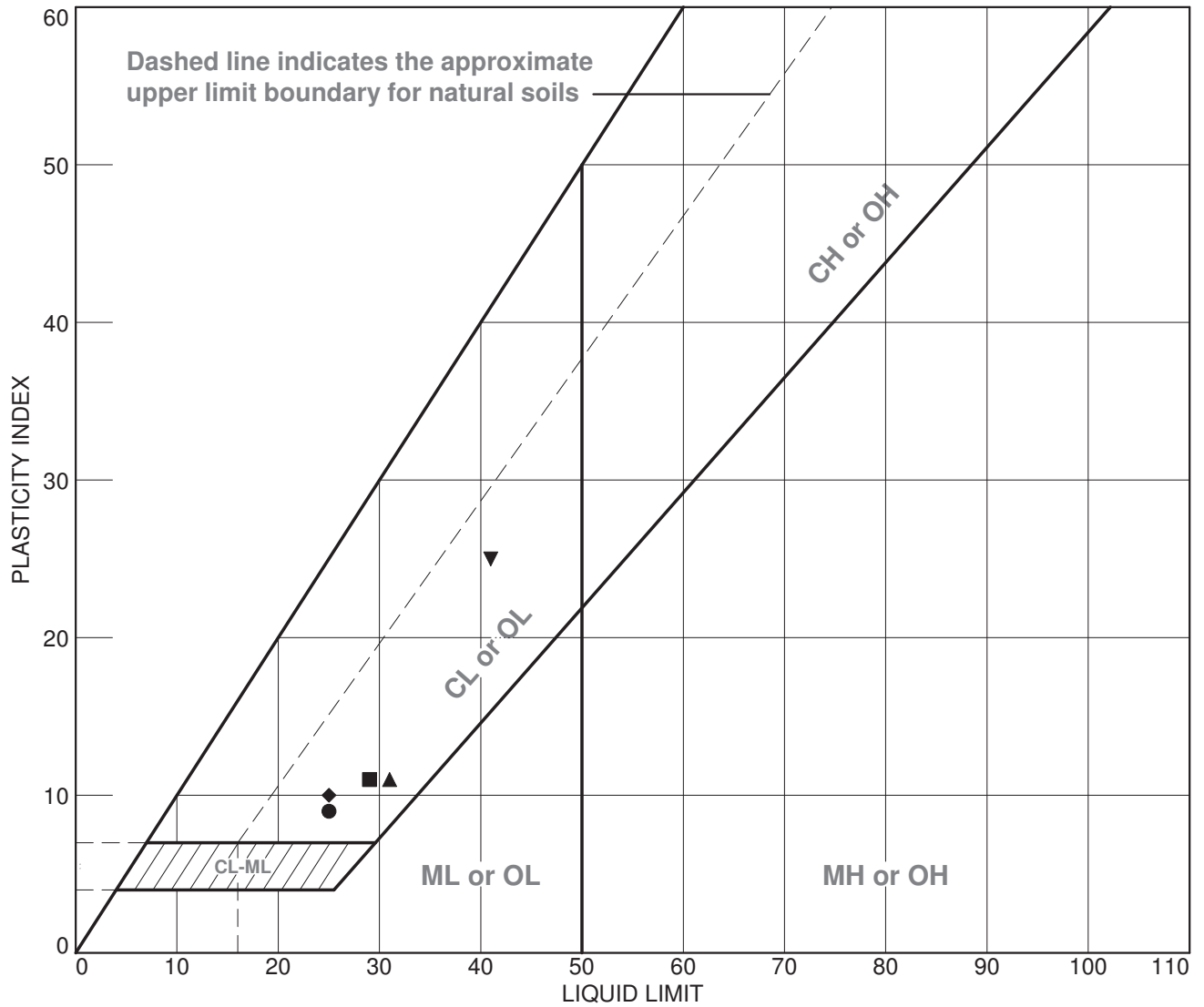
**Project:** 104 School House Road

**Project No.:** P21076

**Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples

# LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP1		0.5	18.0	16	25	9	CL
■	TP2		0.5	18.3	18	29	11	CL
▲	TP3		0.5	22.3	20	31	11	CL
◆	TP5		0.5	27.8	15	25	10	CL
▼	TP7		0.5	20.9	16	41	25	CL

**HILLIS-CARNES ENGINEERING ASSOCIATES**

Philadelphia, Pennsylvania

**Client:** Link Industrial Properties

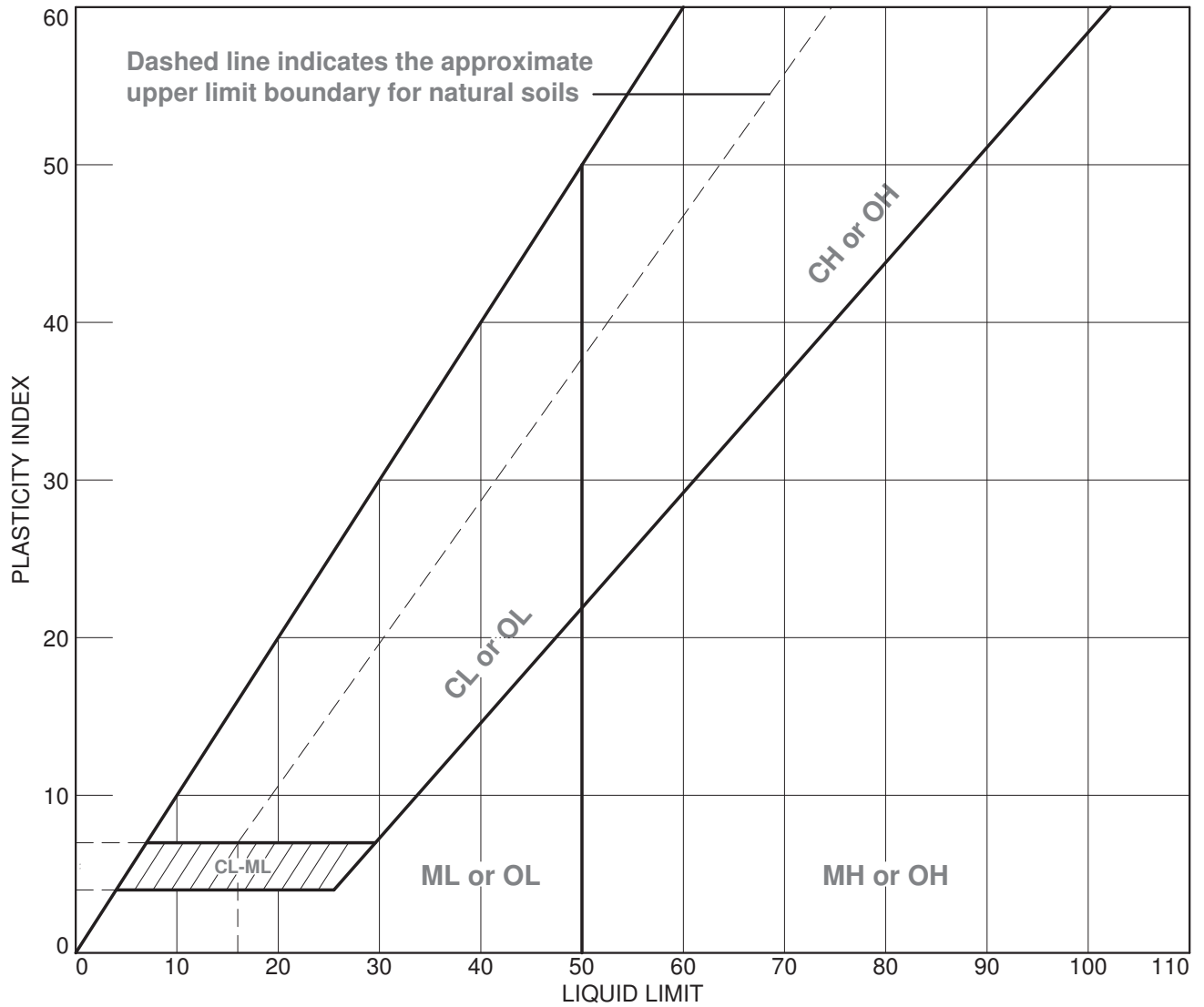
**Project:** 104 School House Road

**Project No.:** P21076

**Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicative of apparently identical samples

# LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP8		0.5	28.6	NP	NP	NP	ML

**HILLIS-CARNES ENGINEERING ASSOCIATES**

Philadelphia, Pennsylvania

**Client:** Link Industrial Properties

**Project:** 104 School House Road

**Project No.:** P21076

**Figure**

**HYDROGRAPH SUMMARY REPORTS  
EXISTING CONDITIONS  
2YR, 10YR & 100YR STORMS**

**Ex 2, 10 & 100yr**

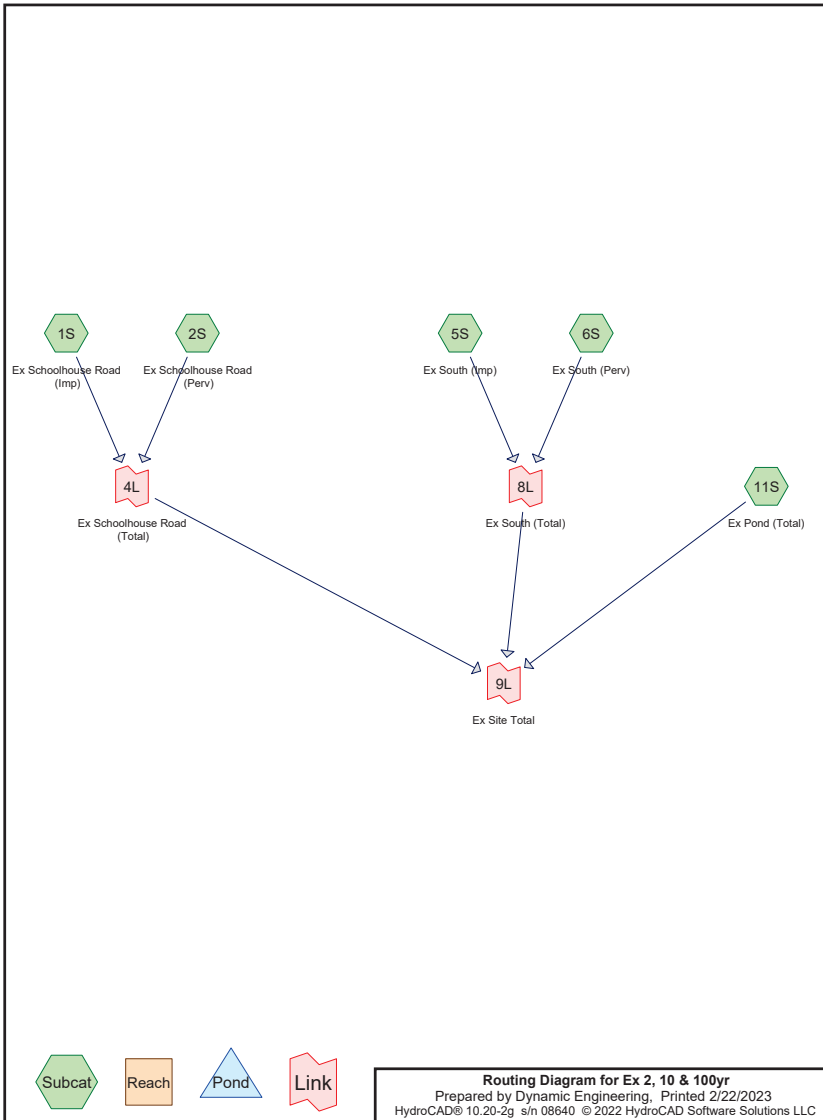
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**Project Notes**

Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C



**Ex 2, 10 & 100yr**

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**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	C	Default	24.00	1	3.29	2
2	10-Year	NOAA 24-hr	C	Default	24.00	1	4.98	2
3	100-Year	NOAA 24-hr	C	Default	24.00	1	8.29	2

**Ex 2, 10 & 100yr**

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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
2.086	61	>75% Grass cover, Good, HSG B (6S, 11S)
6.203	74	>75% Grass cover, Good, HSG C (2S, 6S, 11S)
0.340	96	Gravel surface, HSG C (1S, 5S)
0.328	98	Paved parking, HSG C (1S, 5S)
0.112	55	Woods, Good, HSG B (6S)
5.669	70	Woods, Good, HSG C (2S, 6S, 11S)
<b>14.738</b>	<b>72</b>	<b>TOTAL AREA</b>



**Ex 2, 10 & 100yr**

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.198	HSG B	6S, 11S
12.540	HSG C	1S, 2S, 5S, 6S, 11S
0.000	HSG D	
0.000	Other	
<b>14.738</b>		<b>TOTAL AREA</b>

**Ex 2, 10 & 100yr**

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**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	2.086	6.203	0.000	0.000	8.289	>75% Grass cover, Good	2S, 6S, 11S
0.000	0.000	0.340	0.000	0.000	0.340	Gravel surface	1S, 5S
0.000	0.000	0.328	0.000	0.000	0.328	Paved parking	1S, 5S
0.000	0.112	5.669	0.000	0.000	5.782	Woods, Good	2S, 6S, 11S
<b>0.000</b>	<b>2.198</b>	<b>12.540</b>	<b>0.000</b>	<b>0.000</b>	<b>14.738</b>	<b>TOTAL AREA</b>	

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment1S: Ex SchoolhouseRoad** Runoff Area=7,178 sf 69.66% Impervious Runoff Depth=2.95"  
Flow Length=130' Slope=0.0150 '/' Tc=1.5 min CN=97 Runoff=0.62 cfs 0.040 af

**Subcatchment2S: Ex SchoolhouseRoad** Runoff Area=19,671 sf 0.00% Impervious Runoff Depth=1.04"  
Flow Length=131' Tc=24.2 min CN=73 Runoff=0.34 cfs 0.039 af

**Subcatchment5S: Ex South (Imp)** Runoff Area=21,908 sf 42.34% Impervious Runoff Depth=2.95"  
Flow Length=170' Tc=2.2 min CN=97 Runoff=1.93 cfs 0.123 af

**Subcatchment6S: Ex South (Perv)** Runoff Area=478,535 sf 0.00% Impervious Runoff Depth=0.88"  
Flow Length=899' Tc=25.9 min CN=70 Runoff=6.52 cfs 0.806 af

**Subcatchment11S: Ex Pond (Total)** Runoff Area=114,714 sf 0.00% Impervious Runoff Depth=0.99"  
Flow Length=293' Tc=16.8 min CN=72 Runoff=2.23 cfs 0.216 af

**Link 4L: Ex SchoolhouseRoad (Total)** Inflow=0.73 cfs 0.080 af  
Primary=0.73 cfs 0.080 af

**Link 8L: Ex South (Total)** Inflow=6.87 cfs 0.930 af  
Primary=6.87 cfs 0.930 af

**Link 9L: Ex Site Total** Inflow=9.13 cfs 1.226 af  
Primary=9.13 cfs 1.226 af

**Total Runoff Area = 14.738 ac Runoff Volume = 1.226 af Average Runoff Depth = 1.00"**  
**97.78% Pervious = 14.411 ac 2.22% Impervious = 0.328 ac**

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 1S: Ex Schoolhouse Road (Imp)**

[49] Hint: Tc<2dt may require smaller dt

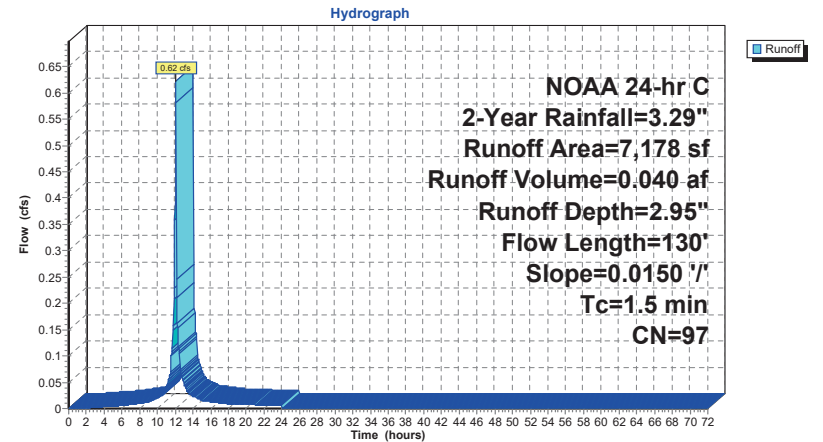
Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.040 af, Depth= 2.95"  
Routed to Link 4L : Ex Schoolhouse Road (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
5,000	98	Paved parking, HSG C
2,178	96	Gravel surface, HSG C
7,178	97	Weighted Average
2,178		30.34% Pervious Area
5,000		69.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		Sheet Flow, Sheet Flow - Imp Smooth surfaces n= 0.011 P2= 3.29"
0.2	30	0.0150	2.49		Shallow Concentrated Flow, Shallow Conc Flow - Paved Paved Kv= 20.3 fps
1.5	130	Total			

**Subcatchment 1S: Ex Schoolhouse Road (Imp)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Subcatchment 1S: Ex Schoolhouse Road (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	2.95	0.00
1.00	0.04	0.00	0.00	53.00	3.29	2.95	0.00
2.00	0.07	0.00	0.00	54.00	3.29	2.95	0.00
3.00	0.12	0.01	0.00	55.00	3.29	2.95	0.00
4.00	0.16	0.02	0.00	56.00	3.29	2.95	0.00
5.00	0.21	0.05	0.00	57.00	3.29	2.95	0.00
6.00	0.26	0.08	0.01	58.00	3.29	2.95	0.00
7.00	0.32	0.12	0.01	59.00	3.29	2.95	0.00
8.00	0.39	0.17	0.01	60.00	3.29	2.95	0.00
9.00	0.48	0.24	0.01	61.00	3.29	2.95	0.00
10.00	0.60	0.34	0.02	62.00	3.29	2.95	0.00
11.00	0.79	0.51	0.04	63.00	3.29	2.95	0.00
12.00	1.57	1.25	<b>0.40</b>	64.00	3.29	2.95	0.00
13.00	2.50	2.16	<b>0.05</b>	65.00	3.29	2.95	0.00
14.00	2.69	2.35	0.02	66.00	3.29	2.95	0.00
15.00	2.81	2.47	0.02	67.00	3.29	2.95	0.00
16.00	2.90	2.56	0.01	68.00	3.29	2.95	0.00
17.00	2.97	2.63	0.01	69.00	3.29	2.95	0.00
18.00	3.03	2.69	0.01	70.00	3.29	2.95	0.00
19.00	3.08	2.74	0.01	71.00	3.29	2.95	0.00
20.00	3.13	2.79	0.01	72.00	3.29	2.95	0.00
21.00	3.17	2.83	0.01				
22.00	3.22	2.87	0.01				
23.00	3.25	2.91	0.01				
24.00	<b>3.29</b>	<b>2.95</b>	0.01				
25.00	3.29	2.95	0.00				
26.00	3.29	2.95	0.00				
27.00	3.29	2.95	0.00				
28.00	3.29	2.95	0.00				
29.00	3.29	2.95	0.00				
30.00	3.29	2.95	0.00				
31.00	3.29	2.95	0.00				
32.00	3.29	2.95	0.00				
33.00	3.29	2.95	0.00				
34.00	3.29	2.95	0.00				
35.00	3.29	2.95	0.00				
36.00	3.29	2.95	0.00				
37.00	3.29	2.95	0.00				
38.00	3.29	2.95	0.00				
39.00	3.29	2.95	0.00				
40.00	3.29	2.95	0.00				
41.00	3.29	2.95	0.00				
42.00	3.29	2.95	0.00				
43.00	3.29	2.95	0.00				
44.00	3.29	2.95	0.00				
45.00	3.29	2.95	0.00				
46.00	3.29	2.95	0.00				
47.00	3.29	2.95	0.00				
48.00	3.29	2.95	0.00				
49.00	3.29	2.95	0.00				
50.00	3.29	2.95	0.00				
51.00	3.29	2.95	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 2S: Ex Schoolhouse Road (Perv)**

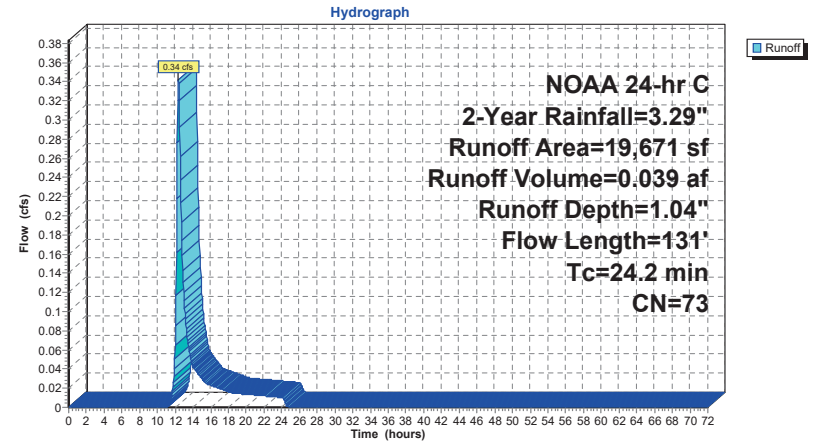
Runoff = 0.34 cfs @ 12.37 hrs, Volume= 0.039 af, Depth= 1.04"  
Routed to Link 4L : Ex Schoolhouse Road (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
15,982	74	>75% Grass cover, Good, HSG C
3,689	70	Woods, Good, HSG C
19,671	73	Weighted Average
19,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.8	100	0.0150	0.07		Sheet Flow, Sheet Flow - Grass Woods: Light underbrush n= 0.400 P2= 3.29"
0.4	31	0.0060	1.25		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
24.2	131	Total			

**Subcatchment 2S: Ex Schoolhouse Road (Perv)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Subcatchment 2S: Ex Schoolhouse Road (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	1.04	0.00
1.00	0.04	0.00	0.00	53.00	3.29	1.04	0.00
2.00	0.07	0.00	0.00	54.00	3.29	1.04	0.00
3.00	0.12	0.00	0.00	55.00	3.29	1.04	0.00
4.00	0.16	0.00	0.00	56.00	3.29	1.04	0.00
5.00	0.21	0.00	0.00	57.00	3.29	1.04	0.00
6.00	0.26	0.00	0.00	58.00	3.29	1.04	0.00
7.00	0.32	0.00	0.00	59.00	3.29	1.04	0.00
8.00	0.39	0.00	0.00	60.00	3.29	1.04	0.00
9.00	0.48	0.00	0.00	61.00	3.29	1.04	0.00
10.00	0.60	0.00	0.00	62.00	3.29	1.04	0.00
11.00	0.79	0.00	0.00	63.00	3.29	1.04	0.00
12.00	1.57	0.15	<b>0.06</b>	64.00	3.29	1.04	0.00
13.00	2.50	0.57	<b>0.11</b>	65.00	3.29	1.04	0.00
14.00	2.69	0.67	0.04	66.00	3.29	1.04	0.00
15.00	2.81	0.74	0.03	67.00	3.29	1.04	0.00
16.00	2.90	0.79	0.02	68.00	3.29	1.04	0.00
17.00	2.97	0.84	0.02	69.00	3.29	1.04	0.00
18.00	3.03	0.88	0.02	70.00	3.29	1.04	0.00
19.00	3.08	0.91	0.01	71.00	3.29	1.04	0.00
20.00	3.13	0.94	0.01	72.00	3.29	1.04	0.00
21.00	3.17	0.97	0.01				
22.00	3.22	0.99	0.01				
23.00	3.25	1.02	0.01				
24.00	<b>3.29</b>	<b>1.04</b>	0.01				
25.00	3.29	1.04	0.00				
26.00	3.29	1.04	0.00				
27.00	3.29	1.04	0.00				
28.00	3.29	1.04	0.00				
29.00	3.29	1.04	0.00				
30.00	3.29	1.04	0.00				
31.00	3.29	1.04	0.00				
32.00	3.29	1.04	0.00				
33.00	3.29	1.04	0.00				
34.00	3.29	1.04	0.00				
35.00	3.29	1.04	0.00				
36.00	3.29	1.04	0.00				
37.00	3.29	1.04	0.00				
38.00	3.29	1.04	0.00				
39.00	3.29	1.04	0.00				
40.00	3.29	1.04	0.00				
41.00	3.29	1.04	0.00				
42.00	3.29	1.04	0.00				
43.00	3.29	1.04	0.00				
44.00	3.29	1.04	0.00				
45.00	3.29	1.04	0.00				
46.00	3.29	1.04	0.00				
47.00	3.29	1.04	0.00				
48.00	3.29	1.04	0.00				
49.00	3.29	1.04	0.00				
50.00	3.29	1.04	0.00				
51.00	3.29	1.04	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 5S: Ex South (Imp)**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.93 cfs @ 12.08 hrs, Volume= 0.123 af, Depth= 2.95"  
Routed to Link 8L : Ex South (Total)

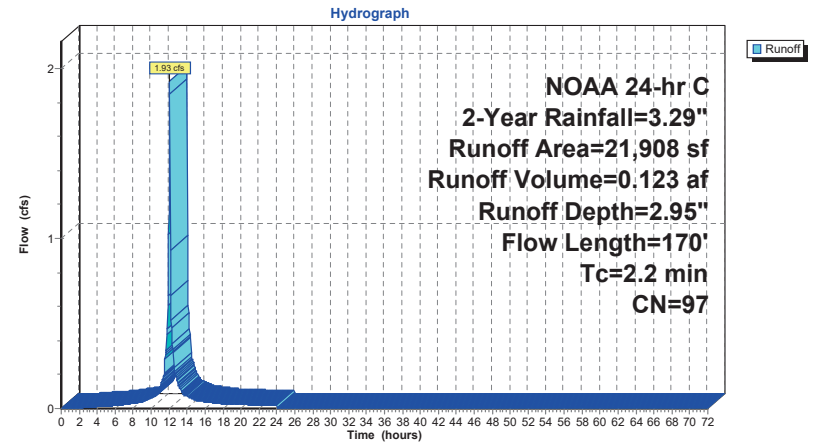
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
9,276	98	Paved parking, HSG C
12,632	96	Gravel surface, HSG C
21,908	97	Weighted Average
12,632		57.66% Pervious Area
9,276		42.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0090	1.01		Sheet Flow, Sheet Flow - Imp
					Smooth surfaces n= 0.011 P2= 3.29"
0.6	70	0.0100	2.03		Shallow Concentrated Flow, Shallow Conc Flow - Paved
					Paved Kv= 20.3 fps
2.2	170	Total			

**Subcatchment 5S: Ex South (Imp)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Subcatchment 5S: Ex South (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	2.95	0.00
1.00	0.04	0.00	0.00	53.00	3.29	2.95	0.00
2.00	0.07	0.00	0.00	54.00	3.29	2.95	0.00
3.00	0.12	0.01	0.01	55.00	3.29	2.95	0.00
4.00	0.16	0.02	0.01	56.00	3.29	2.95	0.00
5.00	0.21	0.05	0.01	57.00	3.29	2.95	0.00
6.00	0.26	0.08	0.02	58.00	3.29	2.95	0.00
7.00	0.32	0.12	0.02	59.00	3.29	2.95	0.00
8.00	0.39	0.17	0.03	60.00	3.29	2.95	0.00
9.00	0.48	0.24	0.04	61.00	3.29	2.95	0.00
10.00	0.60	0.34	0.06	62.00	3.29	2.95	0.00
11.00	0.79	0.51	0.12	63.00	3.29	2.95	0.00
12.00	1.57	1.25	1.16	64.00	3.29	2.95	0.00
13.00	2.50	2.16	0.15	65.00	3.29	2.95	0.00
14.00	2.69	2.35	0.07	66.00	3.29	2.95	0.00
15.00	2.81	2.47	0.05	67.00	3.29	2.95	0.00
16.00	2.90	2.56	0.04	68.00	3.29	2.95	0.00
17.00	2.97	2.63	0.03	69.00	3.29	2.95	0.00
18.00	3.03	2.69	0.03	70.00	3.29	2.95	0.00
19.00	3.08	2.74	0.03	71.00	3.29	2.95	0.00
20.00	3.13	2.79	0.02	72.00	3.29	2.95	0.00
21.00	3.17	2.83	0.02				
22.00	3.22	2.87	0.02				
23.00	3.25	2.91	0.02				
24.00	3.29	2.95	0.02				
25.00	3.29	2.95	0.00				
26.00	3.29	2.95	0.00				
27.00	3.29	2.95	0.00				
28.00	3.29	2.95	0.00				
29.00	3.29	2.95	0.00				
30.00	3.29	2.95	0.00				
31.00	3.29	2.95	0.00				
32.00	3.29	2.95	0.00				
33.00	3.29	2.95	0.00				
34.00	3.29	2.95	0.00				
35.00	3.29	2.95	0.00				
36.00	3.29	2.95	0.00				
37.00	3.29	2.95	0.00				
38.00	3.29	2.95	0.00				
39.00	3.29	2.95	0.00				
40.00	3.29	2.95	0.00				
41.00	3.29	2.95	0.00				
42.00	3.29	2.95	0.00				
43.00	3.29	2.95	0.00				
44.00	3.29	2.95	0.00				
45.00	3.29	2.95	0.00				
46.00	3.29	2.95	0.00				
47.00	3.29	2.95	0.00				
48.00	3.29	2.95	0.00				
49.00	3.29	2.95	0.00				
50.00	3.29	2.95	0.00				
51.00	3.29	2.95	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 6S: Ex South (Perv)**

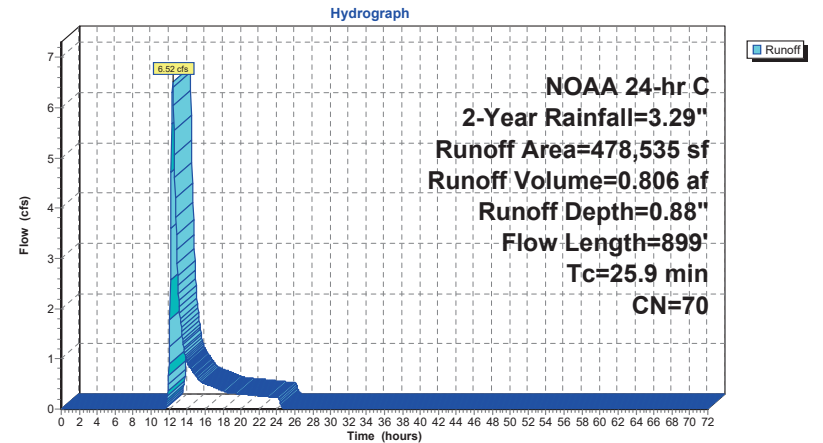
Runoff = 6.52 cfs @ 12.41 hrs, Volume= 0.806 af, Depth= 0.88"  
Routed to Link 8L : Ex South (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
180,342	74	>75% Grass cover, Good, HSG C
215,389	70	Woods, Good, HSG C
4,884	55	Woods, Good, HSG B
77,920	61	>75% Grass cover, Good, HSG B
478,535	70	Weighted Average
478,535		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
6.2	799	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
25.9	899	Total			

**Subcatchment 6S: Ex South (Perv)**



**Ex 2, 10 & 100yr**

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**Hydrograph for Subcatchment 6S: Ex South (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	0.88	0.00
1.00	0.04	0.00	0.00	53.00	3.29	0.88	0.00
2.00	0.07	0.00	0.00	54.00	3.29	0.88	0.00
3.00	0.12	0.00	0.00	55.00	3.29	0.88	0.00
4.00	0.16	0.00	0.00	56.00	3.29	0.88	0.00
5.00	0.21	0.00	0.00	57.00	3.29	0.88	0.00
6.00	0.26	0.00	0.00	58.00	3.29	0.88	0.00
7.00	0.32	0.00	0.00	59.00	3.29	0.88	0.00
8.00	0.39	0.00	0.00	60.00	3.29	0.88	0.00
9.00	0.48	0.00	0.00	61.00	3.29	0.88	0.00
10.00	0.60	0.00	0.00	62.00	3.29	0.88	0.00
11.00	0.79	0.00	0.00	63.00	3.29	0.88	0.00
12.00	1.57	0.10	<b>0.89</b>	64.00	3.29	0.88	0.00
13.00	2.50	0.46	<b>2.47</b>	65.00	3.29	0.88	0.00
14.00	2.69	0.55	0.95	66.00	3.29	0.88	0.00
15.00	2.81	0.61	0.66	67.00	3.29	0.88	0.00
16.00	2.90	0.66	0.50	68.00	3.29	0.88	0.00
17.00	2.97	0.70	0.44	69.00	3.29	0.88	0.00
18.00	3.03	0.73	0.36	70.00	3.29	0.88	0.00
19.00	3.08	0.76	0.32	71.00	3.29	0.88	0.00
20.00	3.13	0.79	0.30	72.00	3.29	0.88	0.00
21.00	3.17	0.81	0.29				
22.00	3.22	0.84	0.27				
23.00	3.25	0.86	0.25				
24.00	<b>3.29</b>	<b>0.88</b>	0.23				
25.00	3.29	0.88	0.00				
26.00	3.29	0.88	0.00				
27.00	3.29	0.88	0.00				
28.00	3.29	0.88	0.00				
29.00	3.29	0.88	0.00				
30.00	3.29	0.88	0.00				
31.00	3.29	0.88	0.00				
32.00	3.29	0.88	0.00				
33.00	3.29	0.88	0.00				
34.00	3.29	0.88	0.00				
35.00	3.29	0.88	0.00				
36.00	3.29	0.88	0.00				
37.00	3.29	0.88	0.00				
38.00	3.29	0.88	0.00				
39.00	3.29	0.88	0.00				
40.00	3.29	0.88	0.00				
41.00	3.29	0.88	0.00				
42.00	3.29	0.88	0.00				
43.00	3.29	0.88	0.00				
44.00	3.29	0.88	0.00				
45.00	3.29	0.88	0.00				
46.00	3.29	0.88	0.00				
47.00	3.29	0.88	0.00				
48.00	3.29	0.88	0.00				
49.00	3.29	0.88	0.00				
50.00	3.29	0.88	0.00				
51.00	3.29	0.88	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 11S: Ex Pond (Total)**

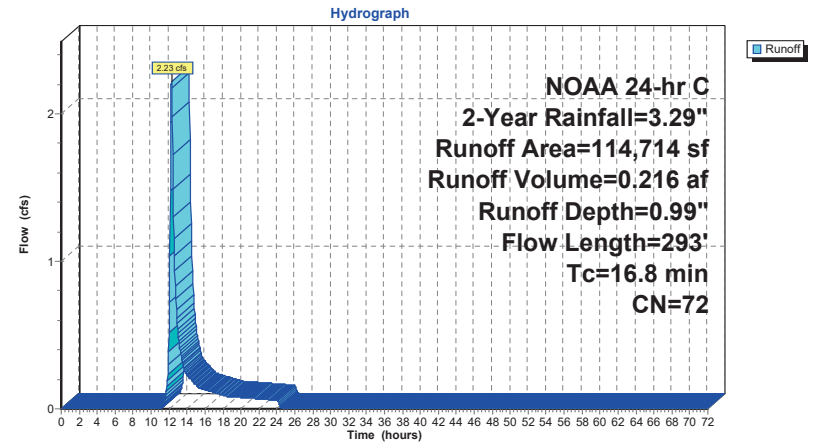
Runoff = 2.23 cfs @ 12.27 hrs, Volume= 0.216 af, Depth= 0.99"  
Routed to Link 9L : Ex Site Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
73,870	74	>75% Grass cover, Good, HSG C
27,885	70	Woods, Good, HSG C
12,959	61	>75% Grass cover, Good, HSG B
114,714	72	Weighted Average
114,714		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.3	100	0.0450	0.11		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
1.5	193	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
16.8	293	Total			

**Subcatchment 11S: Ex Pond (Total)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Subcatchment 11S: Ex Pond (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	0.99	0.00
1.00	0.04	0.00	0.00	53.00	3.29	0.99	0.00
2.00	0.07	0.00	0.00	54.00	3.29	0.99	0.00
3.00	0.12	0.00	0.00	55.00	3.29	0.99	0.00
4.00	0.16	0.00	0.00	56.00	3.29	0.99	0.00
5.00	0.21	0.00	0.00	57.00	3.29	0.99	0.00
6.00	0.26	0.00	0.00	58.00	3.29	0.99	0.00
7.00	0.32	0.00	0.00	59.00	3.29	0.99	0.00
8.00	0.39	0.00	0.00	60.00	3.29	0.99	0.00
9.00	0.48	0.00	0.00	61.00	3.29	0.99	0.00
10.00	0.60	0.00	0.00	62.00	3.29	0.99	0.00
11.00	0.79	0.00	0.00	63.00	3.29	0.99	0.00
12.00	1.57	0.13	<b>0.52</b>	64.00	3.29	0.99	0.00
13.00	2.50	0.53	<b>0.51</b>	65.00	3.29	0.99	0.00
14.00	2.69	0.63	0.23	66.00	3.29	0.99	0.00
15.00	2.81	0.70	0.16	67.00	3.29	0.99	0.00
16.00	2.90	0.75	0.13	68.00	3.29	0.99	0.00
17.00	2.97	0.79	0.11	69.00	3.29	0.99	0.00
18.00	3.03	0.83	0.09	70.00	3.29	0.99	0.00
19.00	3.08	0.86	0.08	71.00	3.29	0.99	0.00
20.00	3.13	0.89	0.08	72.00	3.29	0.99	0.00
21.00	3.17	0.91	0.07				
22.00	3.22	0.94	0.07				
23.00	3.25	0.96	0.06				
24.00	<b>3.29</b>	<b>0.99</b>	0.06				
25.00	3.29	0.99	0.00				
26.00	3.29	0.99	0.00				
27.00	3.29	0.99	0.00				
28.00	3.29	0.99	0.00				
29.00	3.29	0.99	0.00				
30.00	3.29	0.99	0.00				
31.00	3.29	0.99	0.00				
32.00	3.29	0.99	0.00				
33.00	3.29	0.99	0.00				
34.00	3.29	0.99	0.00				
35.00	3.29	0.99	0.00				
36.00	3.29	0.99	0.00				
37.00	3.29	0.99	0.00				
38.00	3.29	0.99	0.00				
39.00	3.29	0.99	0.00				
40.00	3.29	0.99	0.00				
41.00	3.29	0.99	0.00				
42.00	3.29	0.99	0.00				
43.00	3.29	0.99	0.00				
44.00	3.29	0.99	0.00				
45.00	3.29	0.99	0.00				
46.00	3.29	0.99	0.00				
47.00	3.29	0.99	0.00				
48.00	3.29	0.99	0.00				
49.00	3.29	0.99	0.00				
50.00	3.29	0.99	0.00				
51.00	3.29	0.99	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

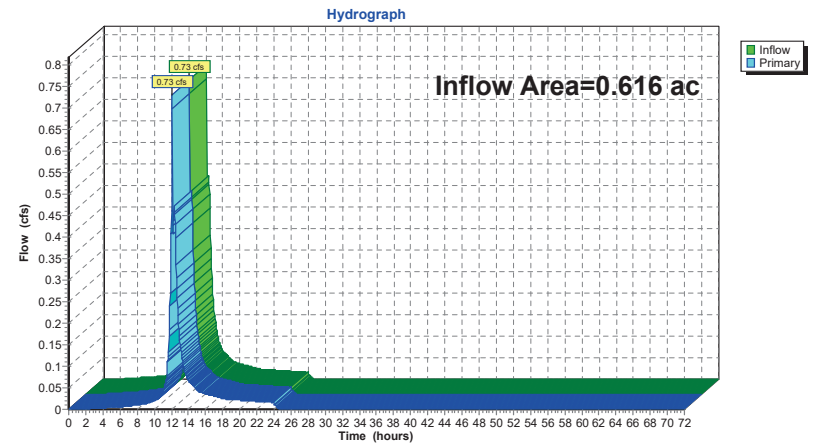
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**Summary for Link 4L: Ex Schoolhouse Road (Total)**

Inflow Area = 0.616 ac, 18.62% Impervious, Inflow Depth = 1.55" for 2-Year event  
 Inflow = 0.73 cfs @ 12.08 hrs, Volume= 0.080 af  
 Primary = 0.73 cfs @ 12.08 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 9L : Ex Site Total

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

**Link 4L: Ex Schoolhouse Road (Total)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Link 4L: Ex Schoolhouse Road (Total)**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.02	0.00	0.02	62.00	0.00	0.00	0.00
11.00	0.04	0.00	0.04	63.00	0.00	0.00	0.00
12.00	<b>0.46</b>	0.00	<b>0.46</b>	64.00	0.00	0.00	0.00
13.00	<b>0.16</b>	0.00	<b>0.16</b>	65.00	0.00	0.00	0.00
14.00	0.07	0.00	0.07	66.00	0.00	0.00	0.00
15.00	0.05	0.00	0.05	67.00	0.00	0.00	0.00
16.00	0.04	0.00	0.04	68.00	0.00	0.00	0.00
17.00	0.03	0.00	0.03	69.00	0.00	0.00	0.00
18.00	0.03	0.00	0.03	70.00	0.00	0.00	0.00
19.00	0.02	0.00	0.02	71.00	0.00	0.00	0.00
20.00	0.02	0.00	0.02	72.00	0.00	0.00	0.00
21.00	0.02	0.00	0.02				
22.00	0.02	0.00	0.02				
23.00	0.02	0.00	0.02				
24.00	0.02	0.00	0.02				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

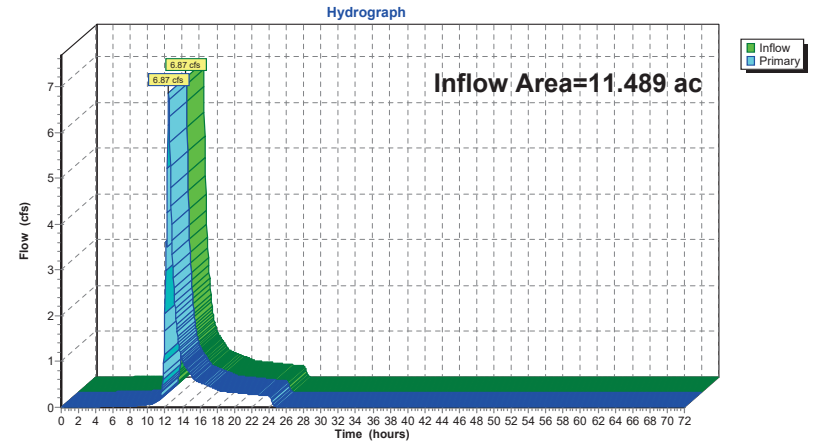
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**Summary for Link 8L: Ex South (Total)**

Inflow Area = 11.489 ac, 1.85% Impervious, Inflow Depth = 0.97" for 2-Year event  
 Inflow = 6.87 cfs @ 12.40 hrs, Volume= 0.930 af  
 Primary = 6.87 cfs @ 12.40 hrs, Volume= 0.930 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 9L : Ex Site Total

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

**Link 8L: Ex South (Total)**





**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Link 8L: Ex South (Total)**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.02	0.00	0.02	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.03	0.00	0.03	60.00	0.00	0.00	0.00
9.00	0.04	0.00	0.04	61.00	0.00	0.00	0.00
10.00	0.06	0.00	0.06	62.00	0.00	0.00	0.00
11.00	0.12	0.00	0.12	63.00	0.00	0.00	0.00
12.00	<b>2.05</b>	0.00	<b>2.05</b>	64.00	0.00	0.00	0.00
13.00	<b>2.61</b>	0.00	<b>2.61</b>	65.00	0.00	0.00	0.00
14.00	1.02	0.00	1.02	66.00	0.00	0.00	0.00
15.00	0.71	0.00	0.71	67.00	0.00	0.00	0.00
16.00	0.55	0.00	0.55	68.00	0.00	0.00	0.00
17.00	0.47	0.00	0.47	69.00	0.00	0.00	0.00
18.00	0.39	0.00	0.39	70.00	0.00	0.00	0.00
19.00	0.34	0.00	0.34	71.00	0.00	0.00	0.00
20.00	0.33	0.00	0.33	72.00	0.00	0.00	0.00
21.00	0.31	0.00	0.31				
22.00	0.29	0.00	0.29				
23.00	0.27	0.00	0.27				
24.00	0.25	0.00	0.25				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

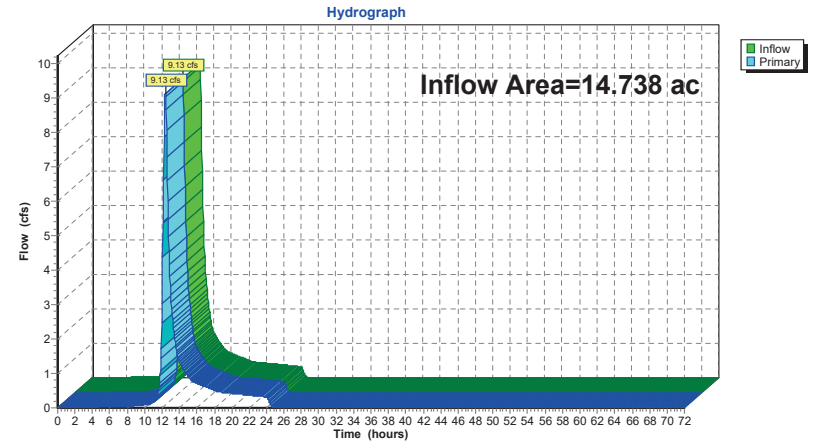
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**Summary for Link 9L: Ex Site Total**

Inflow Area = 14.738 ac, 2.22% Impervious, Inflow Depth = 1.00" for 2-Year event  
 Inflow = 9.13 cfs @ 12.37 hrs, Volume= 1.226 af  
 Primary = 9.13 cfs @ 12.37 hrs, Volume= 1.226 af, Atten= 0%, Lag= 0.0 min

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

**Link 9L: Ex Site Total**



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**Hydrograph for Link 9L: Ex Site Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.02	0.00	0.02	57.00	0.00	0.00	0.00
6.00	0.02	0.00	0.02	58.00	0.00	0.00	0.00
7.00	0.03	0.00	0.03	59.00	0.00	0.00	0.00
8.00	0.04	0.00	0.04	60.00	0.00	0.00	0.00
9.00	0.05	0.00	0.05	61.00	0.00	0.00	0.00
10.00	0.08	0.00	0.08	62.00	0.00	0.00	0.00
11.00	0.16	0.00	0.16	63.00	0.00	0.00	0.00
12.00	3.03	0.00	3.03	64.00	0.00	0.00	0.00
13.00	3.28	0.00	3.28	65.00	0.00	0.00	0.00
14.00	1.32	0.00	1.32	66.00	0.00	0.00	0.00
15.00	0.92	0.00	0.92	67.00	0.00	0.00	0.00
16.00	0.71	0.00	0.71	68.00	0.00	0.00	0.00
17.00	0.61	0.00	0.61	69.00	0.00	0.00	0.00
18.00	0.51	0.00	0.51	70.00	0.00	0.00	0.00
19.00	0.45	0.00	0.45	71.00	0.00	0.00	0.00
20.00	0.42	0.00	0.42	72.00	0.00	0.00	0.00
21.00	0.40	0.00	0.40				
22.00	0.37	0.00	0.37				
23.00	0.35	0.00	0.35				
24.00	0.32	0.00	0.32				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment 1S: Ex Schoolhouse Road</b>	Runoff Area=7,178 sf 69.66% Impervious Runoff Depth=4.63" Flow Length=130' Slope=0.0150 '/ Tc=1.5 min CN=97 Runoff=0.95 cfs 0.064 af
<b>Subcatchment 2S: Ex Schoolhouse Road</b>	Runoff Area=19,671 sf 0.00% Impervious Runoff Depth=2.26" Flow Length=131' Tc=24.2 min CN=73 Runoff=0.78 cfs 0.085 af
<b>Subcatchment 5S: Ex South (Imp)</b>	Runoff Area=21,908 sf 42.34% Impervious Runoff Depth=4.63" Flow Length=170' Tc=2.2 min CN=97 Runoff=2.95 cfs 0.194 af
<b>Subcatchment 6S: Ex South (Perv)</b>	Runoff Area=478,535 sf 0.00% Impervious Runoff Depth=2.02" Flow Length=899' Tc=25.9 min CN=70 Runoff=16.20 cfs 1.851 af
<b>Subcatchment 11S: Ex Pond (Total)</b>	Runoff Area=114,714 sf 0.00% Impervious Runoff Depth=2.18" Flow Length=293' Tc=16.8 min CN=72 Runoff=5.20 cfs 0.479 af
<b>Link 4L: Ex Schoolhouse Road (Total)</b>	Inflow=1.25 cfs 0.149 af Primary=1.25 cfs 0.149 af
<b>Link 8L: Ex South (Total)</b>	Inflow=16.75 cfs 2.045 af Primary=16.75 cfs 2.045 af
<b>Link 9L: Ex Site Total</b>	Inflow=22.03 cfs 2.672 af Primary=22.03 cfs 2.672 af

**Total Runoff Area = 14.738 ac Runoff Volume = 2.672 af Average Runoff Depth = 2.18"**  
**97.78% Pervious = 14.411 ac 2.22% Impervious = 0.328 ac**

**Ex 2, 10 & 100yr**

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**Summary for Subcatchment 1S: Ex Schoolhouse Road (Imp)**

[49] Hint: Tc<2dt may require smaller dt

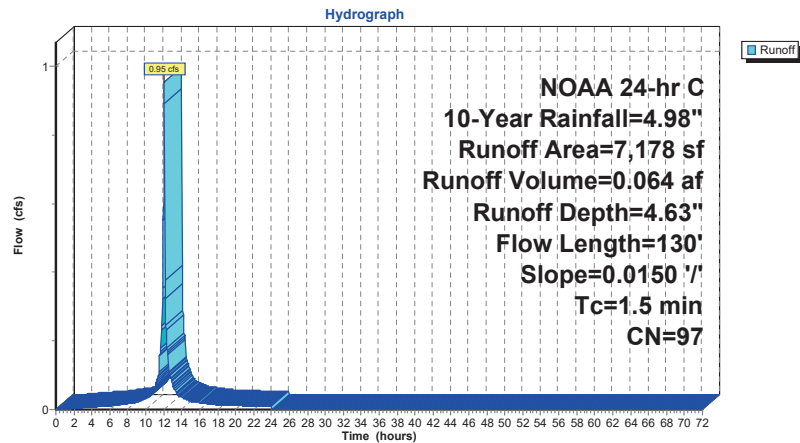
Runoff = 0.95 cfs @ 12.07 hrs, Volume= 0.064 af, Depth= 4.63"  
Routed to Link 4L : Ex Schoolhouse Road (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
5,000	98	Paved parking, HSG C
2,178	96	Gravel surface, HSG C
7,178	97	Weighted Average
2,178		30.34% Pervious Area
5,000		69.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		Sheet Flow, Sheet Flow - Imp Smooth surfaces n= 0.011 P2= 3.29"
0.2	30	0.0150	2.49		Shallow Concentrated Flow, Shallow Conc Flow - Paved Paved Kv= 20.3 fps
1.5	130	Total			

**Subcatchment 1S: Ex Schoolhouse Road (Imp)**



**Ex 2, 10 & 100yr**

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**Hydrograph for Subcatchment 1S: Ex Schoolhouse Road (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.63	0.00
1.00	0.05	0.00	0.00	53.00	4.98	4.63	0.00
2.00	0.11	0.01	0.00	54.00	4.98	4.63	0.00
3.00	0.18	0.03	0.01	55.00	4.98	4.63	0.00
4.00	0.24	0.07	0.01	56.00	4.98	4.63	0.00
5.00	0.32	0.12	0.01	57.00	4.98	4.63	0.00
6.00	0.39	0.17	0.01	58.00	4.98	4.63	0.00
7.00	0.49	0.25	0.01	59.00	4.98	4.63	0.00
8.00	0.60	0.34	0.02	60.00	4.98	4.63	0.00
9.00	0.73	0.45	0.02	61.00	4.98	4.63	0.00
10.00	0.91	0.62	0.03	62.00	4.98	4.63	0.00
11.00	1.20	0.89	0.06	63.00	4.98	4.63	0.00
12.00	2.37	2.04	0.61	64.00	4.98	4.63	0.00
13.00	3.78	3.44	0.07	65.00	4.98	4.63	0.00
14.00	4.07	3.72	0.04	66.00	4.98	4.63	0.00
15.00	4.25	3.90	0.02	67.00	4.98	4.63	0.00
16.00	4.38	4.03	0.02	68.00	4.98	4.63	0.00
17.00	4.49	4.14	0.02	69.00	4.98	4.63	0.00
18.00	4.59	4.23	0.01	70.00	4.98	4.63	0.00
19.00	4.66	4.31	0.01	71.00	4.98	4.63	0.00
20.00	4.74	4.38	0.01	72.00	4.98	4.63	0.00
21.00	4.80	4.45	0.01				
22.00	4.87	4.51	0.01				
23.00	4.93	4.57	0.01				
24.00	4.98	4.63	0.01				
25.00	4.98	4.63	0.00				
26.00	4.98	4.63	0.00				
27.00	4.98	4.63	0.00				
28.00	4.98	4.63	0.00				
29.00	4.98	4.63	0.00				
30.00	4.98	4.63	0.00				
31.00	4.98	4.63	0.00				
32.00	4.98	4.63	0.00				
33.00	4.98	4.63	0.00				
34.00	4.98	4.63	0.00				
35.00	4.98	4.63	0.00				
36.00	4.98	4.63	0.00				
37.00	4.98	4.63	0.00				
38.00	4.98	4.63	0.00				
39.00	4.98	4.63	0.00				
40.00	4.98	4.63	0.00				
41.00	4.98	4.63	0.00				
42.00	4.98	4.63	0.00				
43.00	4.98	4.63	0.00				
44.00	4.98	4.63	0.00				
45.00	4.98	4.63	0.00				
46.00	4.98	4.63	0.00				
47.00	4.98	4.63	0.00				
48.00	4.98	4.63	0.00				
49.00	4.98	4.63	0.00				
50.00	4.98	4.63	0.00				
51.00	4.98	4.63	0.00				

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**Summary for Subcatchment 2S: Ex Schoolhouse Road (Perv)**

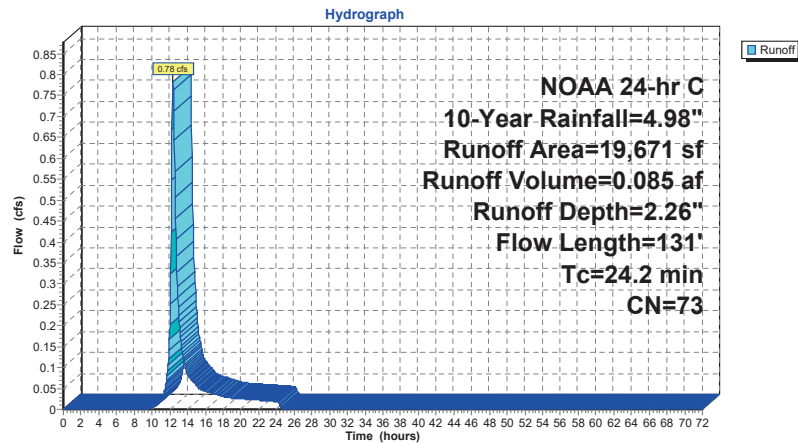
Runoff = 0.78 cfs @ 12.36 hrs, Volume= 0.085 af, Depth= 2.26"  
Routed to Link 4L : Ex Schoolhouse Road (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
15,982	74	>75% Grass cover, Good, HSG C
3,689	70	Woods, Good, HSG C
19,671	73	Weighted Average
19,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.8	100	0.0150	0.07		Sheet Flow, Sheet Flow - Grass Woods: Light underbrush n= 0.400 P2= 3.29"
0.4	31	0.0060	1.25		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
24.2	131	Total			

**Subcatchment 2S: Ex Schoolhouse Road (Perv)**



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**Hydrograph for Subcatchment 2S: Ex Schoolhouse Road (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.26	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.26	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.26	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.26	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.26	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.26	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.26	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.26	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.26	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.26	0.00
10.00	0.91	0.01	0.00	62.00	4.98	2.26	0.00
11.00	1.20	0.05	0.02	63.00	4.98	2.26	0.00
12.00	2.37	0.50	0.20	64.00	4.98	2.26	0.00
13.00	3.78	1.38	0.22	65.00	4.98	2.26	0.00
14.00	4.07	1.58	0.08	66.00	4.98	2.26	0.00
15.00	4.25	1.71	0.06	67.00	4.98	2.26	0.00
16.00	4.38	1.81	0.04	68.00	4.98	2.26	0.00
17.00	4.49	1.89	0.04	69.00	4.98	2.26	0.00
18.00	4.59	1.96	0.03	70.00	4.98	2.26	0.00
19.00	4.66	2.02	0.03	71.00	4.98	2.26	0.00
20.00	4.74	2.08	0.03	72.00	4.98	2.26	0.00
21.00	4.80	2.13	0.02				
22.00	4.87	2.18	0.02				
23.00	4.93	2.22	0.02				
24.00	4.98	2.26	0.02				
25.00	4.98	2.26	0.00				
26.00	4.98	2.26	0.00				
27.00	4.98	2.26	0.00				
28.00	4.98	2.26	0.00				
29.00	4.98	2.26	0.00				
30.00	4.98	2.26	0.00				
31.00	4.98	2.26	0.00				
32.00	4.98	2.26	0.00				
33.00	4.98	2.26	0.00				
34.00	4.98	2.26	0.00				
35.00	4.98	2.26	0.00				
36.00	4.98	2.26	0.00				
37.00	4.98	2.26	0.00				
38.00	4.98	2.26	0.00				
39.00	4.98	2.26	0.00				
40.00	4.98	2.26	0.00				
41.00	4.98	2.26	0.00				
42.00	4.98	2.26	0.00				
43.00	4.98	2.26	0.00				
44.00	4.98	2.26	0.00				
45.00	4.98	2.26	0.00				
46.00	4.98	2.26	0.00				
47.00	4.98	2.26	0.00				
48.00	4.98	2.26	0.00				
49.00	4.98	2.26	0.00				
50.00	4.98	2.26	0.00				
51.00	4.98	2.26	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Subcatchment 5S: Ex South (Imp)**

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.95 cfs @ 12.08 hrs, Volume= 0.194 af, Depth= 4.63"  
Routed to Link 8L : Ex South (Total)

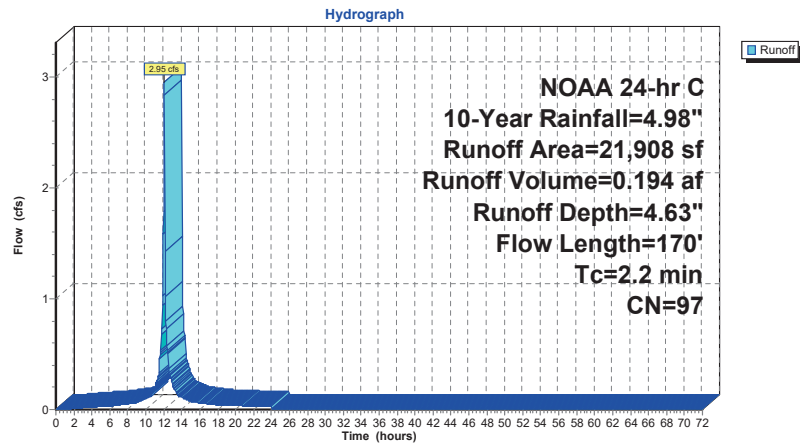
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
9,276	98	Paved parking, HSG C
12,632	96	Gravel surface, HSG C
21,908	97	Weighted Average
12,632		57.66% Pervious Area
9,276		42.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0090	1.01		Sheet Flow, Sheet Flow - Imp Smooth surfaces n= 0.011 P2= 3.29"
0.6	70	0.0100	2.03		Shallow Concentrated Flow, Shallow Conc Flow - Paved Paved Kv= 20.3 fps
2.2	170	Total			

**Subcatchment 5S: Ex South (Imp)**



**Ex 2, 10 & 100yr**

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**Hydrograph for Subcatchment 5S: Ex South (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.63	0.00
1.00	0.05	0.00	0.00	53.00	4.98	4.63	0.00
2.00	0.11	0.01	0.01	54.00	4.98	4.63	0.00
3.00	0.18	0.03	0.02	55.00	4.98	4.63	0.00
4.00	0.24	0.07	0.02	56.00	4.98	4.63	0.00
5.00	0.32	0.12	0.03	57.00	4.98	4.63	0.00
6.00	0.39	0.17	0.03	58.00	4.98	4.63	0.00
7.00	0.49	0.25	0.04	59.00	4.98	4.63	0.00
8.00	0.60	0.34	0.05	60.00	4.98	4.63	0.00
9.00	0.73	0.45	0.06	61.00	4.98	4.63	0.00
10.00	0.91	0.62	0.10	62.00	4.98	4.63	0.00
11.00	1.20	0.89	0.19	63.00	4.98	4.63	0.00
12.00	2.37	2.04	1.78	64.00	4.98	4.63	0.00
13.00	3.78	3.44	0.23	65.00	4.98	4.63	0.00
14.00	4.07	3.72	0.11	66.00	4.98	4.63	0.00
15.00	4.25	3.90	0.07	67.00	4.98	4.63	0.00
16.00	4.38	4.03	0.06	68.00	4.98	4.63	0.00
17.00	4.49	4.14	0.05	69.00	4.98	4.63	0.00
18.00	4.59	4.23	0.04	70.00	4.98	4.63	0.00
19.00	4.66	4.31	0.04	71.00	4.98	4.63	0.00
20.00	4.74	4.38	0.04	72.00	4.98	4.63	0.00
21.00	4.80	4.45	0.03				
22.00	4.87	4.51	0.03				
23.00	4.93	4.57	0.03				
24.00	4.98	4.63	0.03				
25.00	4.98	4.63	0.00				
26.00	4.98	4.63	0.00				
27.00	4.98	4.63	0.00				
28.00	4.98	4.63	0.00				
29.00	4.98	4.63	0.00				
30.00	4.98	4.63	0.00				
31.00	4.98	4.63	0.00				
32.00	4.98	4.63	0.00				
33.00	4.98	4.63	0.00				
34.00	4.98	4.63	0.00				
35.00	4.98	4.63	0.00				
36.00	4.98	4.63	0.00				
37.00	4.98	4.63	0.00				
38.00	4.98	4.63	0.00				
39.00	4.98	4.63	0.00				
40.00	4.98	4.63	0.00				
41.00	4.98	4.63	0.00				
42.00	4.98	4.63	0.00				
43.00	4.98	4.63	0.00				
44.00	4.98	4.63	0.00				
45.00	4.98	4.63	0.00				
46.00	4.98	4.63	0.00				
47.00	4.98	4.63	0.00				
48.00	4.98	4.63	0.00				
49.00	4.98	4.63	0.00				
50.00	4.98	4.63	0.00				
51.00	4.98	4.63	0.00				

**Ex 2, 10 & 100yr**

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**Summary for Subcatchment 6S: Ex South (Perv)**

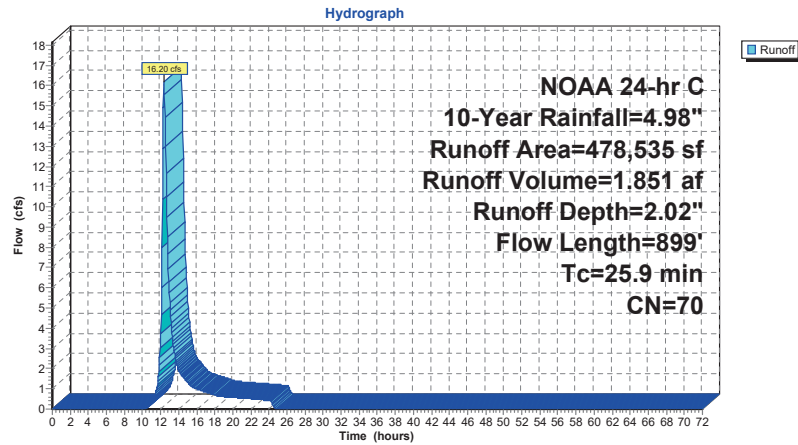
Runoff = 16.20 cfs @ 12.39 hrs, Volume= 1.851 af, Depth= 2.02"  
Routed to Link 8L : Ex South (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
180,342	74	>75% Grass cover, Good, HSG C
215,389	70	Woods, Good, HSG C
4,884	55	Woods, Good, HSG B
77,920	61	>75% Grass cover, Good, HSG B
478,535	70	Weighted Average
478,535		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
6.2	799	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
25.9	899	Total			

**Subcatchment 6S: Ex South (Perv)**



**Ex 2, 10 & 100yr**

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**Hydrograph for Subcatchment 6S: Ex South (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.02	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.02	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.02	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.02	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.02	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.02	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.02	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.02	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.02	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.02	0.00
10.00	0.91	0.00	0.00	62.00	4.98	2.02	0.00
11.00	1.20	0.02	0.30	63.00	4.98	2.02	0.00
12.00	2.37	0.40	3.73	64.00	4.98	2.02	0.00
13.00	3.78	1.19	5.28	65.00	4.98	2.02	0.00
14.00	4.07	1.38	1.91	66.00	4.98	2.02	0.00
15.00	4.25	1.50	1.31	67.00	4.98	2.02	0.00
16.00	4.38	1.59	0.99	68.00	4.98	2.02	0.00
17.00	4.49	1.67	0.85	69.00	4.98	2.02	0.00
18.00	4.59	1.73	0.70	70.00	4.98	2.02	0.00
19.00	4.66	1.79	0.62	71.00	4.98	2.02	0.00
20.00	4.74	1.84	0.58	72.00	4.98	2.02	0.00
21.00	4.80	1.89	0.54				
22.00	4.87	1.94	0.51				
23.00	4.93	1.98	0.47				
24.00	4.98	2.02	0.43				
25.00	4.98	2.02	0.01				
26.00	4.98	2.02	0.00				
27.00	4.98	2.02	0.00				
28.00	4.98	2.02	0.00				
29.00	4.98	2.02	0.00				
30.00	4.98	2.02	0.00				
31.00	4.98	2.02	0.00				
32.00	4.98	2.02	0.00				
33.00	4.98	2.02	0.00				
34.00	4.98	2.02	0.00				
35.00	4.98	2.02	0.00				
36.00	4.98	2.02	0.00				
37.00	4.98	2.02	0.00				
38.00	4.98	2.02	0.00				
39.00	4.98	2.02	0.00				
40.00	4.98	2.02	0.00				
41.00	4.98	2.02	0.00				
42.00	4.98	2.02	0.00				
43.00	4.98	2.02	0.00				
44.00	4.98	2.02	0.00				
45.00	4.98	2.02	0.00				
46.00	4.98	2.02	0.00				
47.00	4.98	2.02	0.00				
48.00	4.98	2.02	0.00				
49.00	4.98	2.02	0.00				
50.00	4.98	2.02	0.00				
51.00	4.98	2.02	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Subcatchment 11S: Ex Pond (Total)**

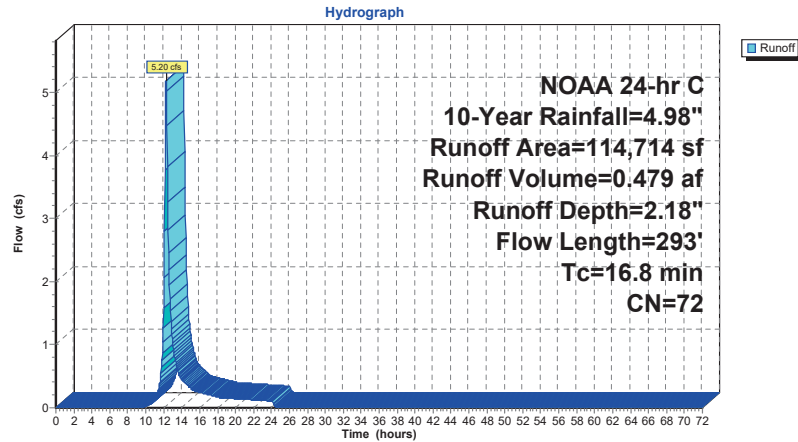
Runoff = 5.20 cfs @ 12.26 hrs, Volume= 0.479 af, Depth= 2.18"  
Routed to Link 9L : Ex Site Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
73,870	74	>75% Grass cover, Good, HSG C
27,885	70	Woods, Good, HSG C
12,959	61	>75% Grass cover, Good, HSG B
114,714	72	Weighted Average
114,714		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.3	100	0.0450	0.11		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
1.5	193	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
16.8	293	Total			

**Subcatchment 11S: Ex Pond (Total)**



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**Hydrograph for Subcatchment 11S: Ex Pond (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.18	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.18	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.18	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.18	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.18	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.18	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.18	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.18	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.18	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.18	0.00
10.00	0.91	0.00	0.02	62.00	4.98	2.18	0.00
11.00	1.20	0.04	0.13	63.00	4.98	2.18	0.00
12.00	2.37	0.46	1.58	64.00	4.98	2.18	0.00
13.00	3.78	1.31	1.03	65.00	4.98	2.18	0.00
14.00	4.07	1.51	0.45	66.00	4.98	2.18	0.00
15.00	4.25	1.64	0.31	67.00	4.98	2.18	0.00
16.00	4.38	1.73	0.24	68.00	4.98	2.18	0.00
17.00	4.49	1.82	0.21	69.00	4.98	2.18	0.00
18.00	4.59	1.88	0.17	70.00	4.98	2.18	0.00
19.00	4.66	1.94	0.15	71.00	4.98	2.18	0.00
20.00	4.74	2.00	0.14	72.00	4.98	2.18	0.00
21.00	4.80	2.05	0.13				
22.00	4.87	2.10	0.13				
23.00	4.93	2.14	0.12				
24.00	4.98	2.18	0.11				
25.00	4.98	2.18	0.00				
26.00	4.98	2.18	0.00				
27.00	4.98	2.18	0.00				
28.00	4.98	2.18	0.00				
29.00	4.98	2.18	0.00				
30.00	4.98	2.18	0.00				
31.00	4.98	2.18	0.00				
32.00	4.98	2.18	0.00				
33.00	4.98	2.18	0.00				
34.00	4.98	2.18	0.00				
35.00	4.98	2.18	0.00				
36.00	4.98	2.18	0.00				
37.00	4.98	2.18	0.00				
38.00	4.98	2.18	0.00				
39.00	4.98	2.18	0.00				
40.00	4.98	2.18	0.00				
41.00	4.98	2.18	0.00				
42.00	4.98	2.18	0.00				
43.00	4.98	2.18	0.00				
44.00	4.98	2.18	0.00				
45.00	4.98	2.18	0.00				
46.00	4.98	2.18	0.00				
47.00	4.98	2.18	0.00				
48.00	4.98	2.18	0.00				
49.00	4.98	2.18	0.00				
50.00	4.98	2.18	0.00				
51.00	4.98	2.18	0.00				

**Ex 2, 10 & 100yr**

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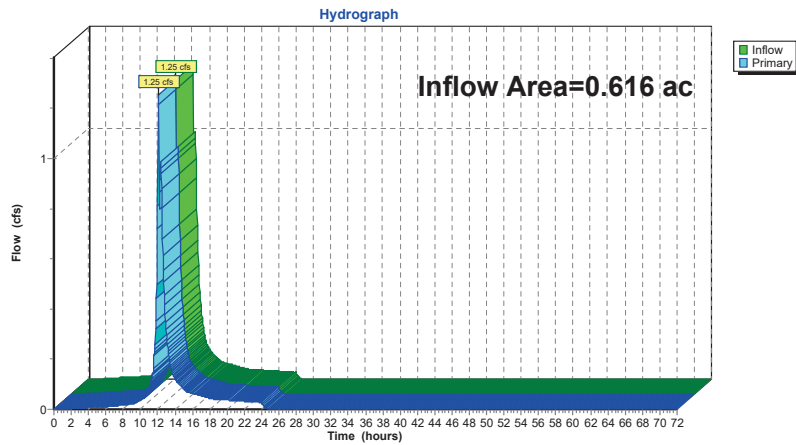
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**Summary for Link 4L: Ex Schoolhouse Road (Total)**

Inflow Area = 0.616 ac, 18.62% Impervious, Inflow Depth = 2.90" for 10-Year event  
 Inflow = 1.25 cfs @ 12.08 hrs, Volume= 0.149 af  
 Primary = 1.25 cfs @ 12.08 hrs, Volume= 0.149 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 9L : Ex Site Total

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

**Link 4L: Ex Schoolhouse Road (Total)**



**Ex 2, 10 & 100yr**

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**Hydrograph for Link 4L: Ex Schoolhouse Road (Total)**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.02	0.00	0.02	61.00	0.00	0.00	0.00
10.00	0.04	0.00	0.04	62.00	0.00	0.00	0.00
11.00	0.09	0.00	0.09	63.00	0.00	0.00	0.00
12.00	<b>0.81</b>	0.00	<b>0.81</b>	64.00	0.00	0.00	0.00
13.00	<b>0.30</b>	0.00	<b>0.30</b>	65.00	0.00	0.00	0.00
14.00	0.12	0.00	0.12	66.00	0.00	0.00	0.00
15.00	0.08	0.00	0.08	67.00	0.00	0.00	0.00
16.00	0.06	0.00	0.06	68.00	0.00	0.00	0.00
17.00	0.05	0.00	0.05	69.00	0.00	0.00	0.00
18.00	0.04	0.00	0.04	70.00	0.00	0.00	0.00
19.00	0.04	0.00	0.04	71.00	0.00	0.00	0.00
20.00	0.04	0.00	0.04	72.00	0.00	0.00	0.00
21.00	0.03	0.00	0.03				
22.00	0.03	0.00	0.03				
23.00	0.03	0.00	0.03				
24.00	0.03	0.00	0.03				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				



**Ex 2, 10 & 100yr**

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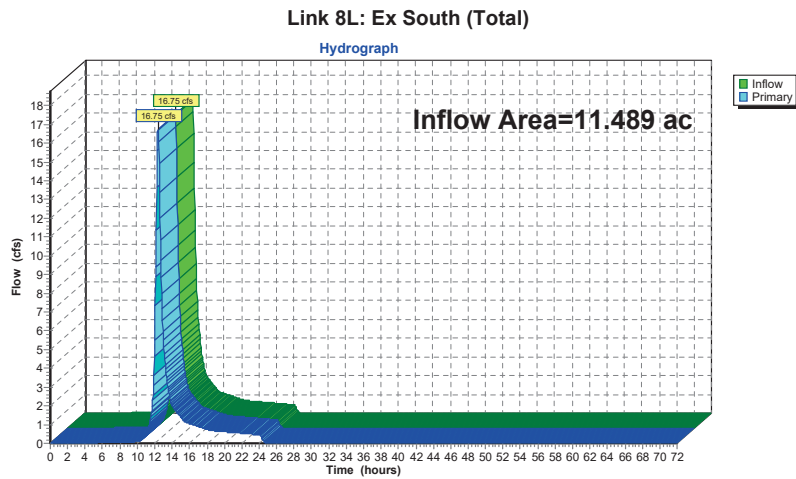
NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Link 8L: Ex South (Total)**

Inflow Area = 11.489 ac, 1.85% Impervious, Inflow Depth = 2.14" for 10-Year event  
 Inflow = 16.75 cfs @ 12.38 hrs, Volume= 2.045 af  
 Primary = 16.75 cfs @ 12.38 hrs, Volume= 2.045 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 9L : Ex Site Total

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



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Hydrograph for Link 8L: Ex South (Total)**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.02	0.00	0.02	55.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	56.00	0.00	0.00	0.00
5.00	0.03	0.00	0.03	57.00	0.00	0.00	0.00
6.00	0.03	0.00	0.03	58.00	0.00	0.00	0.00
7.00	0.04	0.00	0.04	59.00	0.00	0.00	0.00
8.00	0.05	0.00	0.05	60.00	0.00	0.00	0.00
9.00	0.06	0.00	0.06	61.00	0.00	0.00	0.00
10.00	0.10	0.00	0.10	62.00	0.00	0.00	0.00
11.00	0.49	0.00	0.49	63.00	0.00	0.00	0.00
12.00	5.51	0.00	5.51	64.00	0.00	0.00	0.00
13.00	5.51	0.00	5.51	65.00	0.00	0.00	0.00
14.00	2.02	0.00	2.02	66.00	0.00	0.00	0.00
15.00	1.39	0.00	1.39	67.00	0.00	0.00	0.00
16.00	1.05	0.00	1.05	68.00	0.00	0.00	0.00
17.00	0.90	0.00	0.90	69.00	0.00	0.00	0.00
18.00	0.74	0.00	0.74	70.00	0.00	0.00	0.00
19.00	0.65	0.00	0.65	71.00	0.00	0.00	0.00
20.00	0.62	0.00	0.62	72.00	0.00	0.00	0.00
21.00	0.58	0.00	0.58				
22.00	0.54	0.00	0.54				
23.00	0.50	0.00	0.50				
24.00	0.46	0.00	0.46				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

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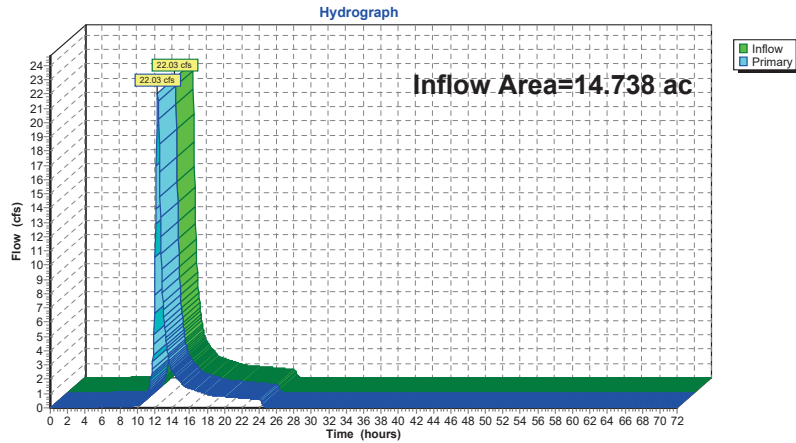
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**Summary for Link 9L: Ex Site Total**

Inflow Area = 14.738 ac, 2.22% Impervious, Inflow Depth = 2.18" for 10-Year event  
 Inflow = 22.03 cfs @ 12.35 hrs, Volume= 2.672 af  
 Primary = 22.03 cfs @ 12.35 hrs, Volume= 2.672 af, Atten= 0%, Lag= 0.0 min

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

**Link 9L: Ex Site Total**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Hydrograph for Link 9L: Ex Site Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.02	0.00	0.02	55.00	0.00	0.00	0.00
4.00	0.03	0.00	0.03	56.00	0.00	0.00	0.00
5.00	0.04	0.00	0.04	57.00	0.00	0.00	0.00
6.00	0.04	0.00	0.04	58.00	0.00	0.00	0.00
7.00	0.06	0.00	0.06	59.00	0.00	0.00	0.00
8.00	0.07	0.00	0.07	60.00	0.00	0.00	0.00
9.00	0.08	0.00	0.08	61.00	0.00	0.00	0.00
10.00	0.16	0.00	0.16	62.00	0.00	0.00	0.00
11.00	0.71	0.00	0.71	63.00	0.00	0.00	0.00
12.00	<b>7.91</b>	0.00	<b>7.91</b>	64.00	0.00	0.00	0.00
13.00	<b>6.83</b>	0.00	<b>6.83</b>	65.00	0.00	0.00	0.00
14.00	2.59	0.00	2.59	66.00	0.00	0.00	0.00
15.00	1.78	0.00	1.78	67.00	0.00	0.00	0.00
16.00	1.36	0.00	1.36	68.00	0.00	0.00	0.00
17.00	1.16	0.00	1.16	69.00	0.00	0.00	0.00
18.00	0.96	0.00	0.96	70.00	0.00	0.00	0.00
19.00	0.85	0.00	0.85	71.00	0.00	0.00	0.00
20.00	0.80	0.00	0.80	72.00	0.00	0.00	0.00
21.00	0.75	0.00	0.75				
22.00	0.70	0.00	0.70				
23.00	0.64	0.00	0.64				
24.00	0.60	0.00	0.60				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

NOAA 24-hr C 100-Year Rainfall=8.29"

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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, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment1S: Ex SchoolhouseRoad** Runoff Area=7,178 sf 69.66% Impervious Runoff Depth=7.93"  
 Flow Length=130' Slope=0.0150 '/' Tc=1.5 min CN=97 Runoff=1.60 cfs 0.109 af

**Subcatchment2S: Ex SchoolhouseRoad** Runoff Area=19,671 sf 0.00% Impervious Runoff Depth=5.07"  
 Flow Length=131' Tc=24.2 min CN=73 Runoff=1.76 cfs 0.191 af

**Subcatchment5S: Ex South (Imp)** Runoff Area=21,908 sf 42.34% Impervious Runoff Depth=7.93"  
 Flow Length=170' Tc=2.2 min CN=97 Runoff=4.95 cfs 0.332 af

**Subcatchment6S: Ex South (Perv)** Runoff Area=478,535 sf 0.00% Impervious Runoff Depth=4.71"  
 Flow Length=899' Tc=25.9 min CN=70 Runoff=38.58 cfs 4.316 af

**Subcatchment11S: Ex Pond (Total)** Runoff Area=114,714 sf 0.00% Impervious Runoff Depth=4.95"  
 Flow Length=293' Tc=16.8 min CN=72 Runoff=11.87 cfs 1.086 af

**Link 4L: Ex SchoolhouseRoad (Total)** Inflow=2.36 cfs 0.300 af  
 Primary=2.36 cfs 0.300 af

**Link 8L: Ex South (Total)** Inflow=39.49 cfs 4.648 af  
 Primary=39.49 cfs 4.648 af

**Link 9L: Ex Site Total** Inflow=51.49 cfs 6.034 af  
 Primary=51.49 cfs 6.034 af

**Total Runoff Area = 14.738 ac Runoff Volume = 6.034 af Average Runoff Depth = 4.91"**  
**97.78% Pervious = 14.411 ac 2.22% Impervious = 0.328 ac**

**Ex 2, 10 & 100yr**

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**Summary for Subcatchment 1S: Ex Schoolhouse Road (Imp)**

[49] Hint: Tc<2dt may require smaller dt

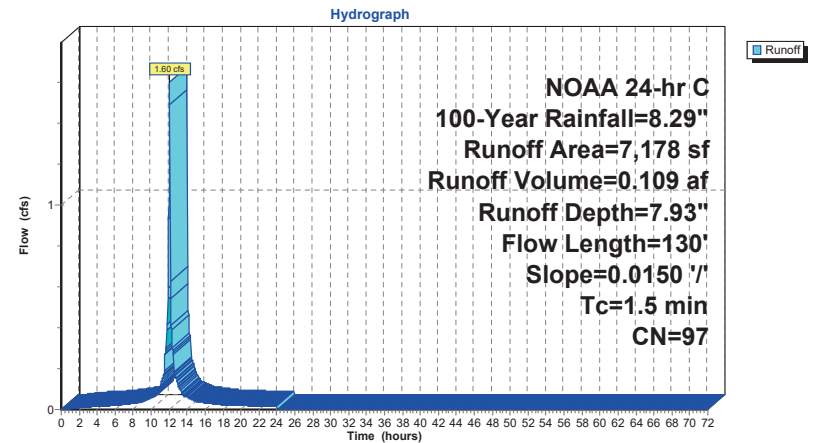
Runoff = 1.60 cfs @ 12.07 hrs, Volume= 0.109 af, Depth= 7.93"  
 Routed to Link 4L : Ex Schoolhouse Road (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
5,000	98	Paved parking, HSG C
2,178	96	Gravel surface, HSG C
7,178	97	Weighted Average
2,178		30.34% Pervious Area
5,000		69.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		Sheet Flow, Sheet Flow - Imp Smooth surfaces n= 0.011 P2= 3.29"
0.2	30	0.0150	2.49		Shallow Concentrated Flow, Shallow Conc Flow - Paved Paved Kv= 20.3 fps
1.5	130	Total			

**Subcatchment 1S: Ex Schoolhouse Road (Imp)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 1S: Ex Schoolhouse Road (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	7.93	0.00
1.00	0.09	0.00	0.00	53.00	8.29	7.93	0.00
2.00	0.19	0.04	0.01	54.00	8.29	7.93	0.00
3.00	0.29	0.10	0.01	55.00	8.29	7.93	0.00
4.00	0.41	0.18	0.02	56.00	8.29	7.93	0.00
5.00	0.53	0.28	0.02	57.00	8.29	7.93	0.00
6.00	0.66	0.39	0.02	58.00	8.29	7.93	0.00
7.00	0.81	0.53	0.03	59.00	8.29	7.93	0.00
8.00	0.99	0.70	0.03	60.00	8.29	7.93	0.00
9.00	1.21	0.91	0.04	61.00	8.29	7.93	0.00
10.00	1.51	1.19	0.06	62.00	8.29	7.93	0.00
11.00	1.99	1.66	0.11	63.00	8.29	7.93	0.00
12.00	3.95	3.60	<b>1.03</b>	64.00	8.29	7.93	0.00
13.00	6.30	5.94	<b>0.12</b>	65.00	8.29	7.93	0.00
14.00	6.78	6.42	0.06	66.00	8.29	7.93	0.00
15.00	7.08	6.72	0.04	67.00	8.29	7.93	0.00
16.00	7.30	6.94	0.03	68.00	8.29	7.93	0.00
17.00	7.48	7.12	0.03	69.00	8.29	7.93	0.00
18.00	7.63	7.27	0.02	70.00	8.29	7.93	0.00
19.00	7.76	7.40	0.02	71.00	8.29	7.93	0.00
20.00	7.88	7.52	0.02	72.00	8.29	7.93	0.00
21.00	8.00	7.64	0.02				
22.00	8.10	7.74	0.02				
23.00	8.20	7.84	0.02				
24.00	<b>8.29</b>	<b>7.93</b>	0.02				
25.00	8.29	7.93	0.00				
26.00	8.29	7.93	0.00				
27.00	8.29	7.93	0.00				
28.00	8.29	7.93	0.00				
29.00	8.29	7.93	0.00				
30.00	8.29	7.93	0.00				
31.00	8.29	7.93	0.00				
32.00	8.29	7.93	0.00				
33.00	8.29	7.93	0.00				
34.00	8.29	7.93	0.00				
35.00	8.29	7.93	0.00				
36.00	8.29	7.93	0.00				
37.00	8.29	7.93	0.00				
38.00	8.29	7.93	0.00				
39.00	8.29	7.93	0.00				
40.00	8.29	7.93	0.00				
41.00	8.29	7.93	0.00				
42.00	8.29	7.93	0.00				
43.00	8.29	7.93	0.00				
44.00	8.29	7.93	0.00				
45.00	8.29	7.93	0.00				
46.00	8.29	7.93	0.00				
47.00	8.29	7.93	0.00				
48.00	8.29	7.93	0.00				
49.00	8.29	7.93	0.00				
50.00	8.29	7.93	0.00				
51.00	8.29	7.93	0.00				

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**Summary for Subcatchment 2S: Ex Schoolhouse Road (Perv)**

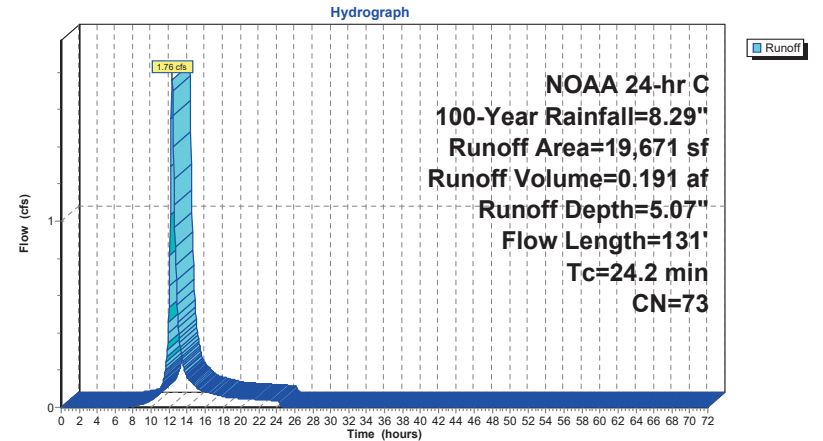
Runoff = 1.76 cfs @ 12.35 hrs, Volume= 0.191 af, Depth= 5.07"  
Routed to Link 4L : Ex Schoolhouse Road (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
15,982	74	>75% Grass cover, Good, HSG C
3,689	70	Woods, Good, HSG C
19,671	73	Weighted Average
19,671		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.8	100	0.0150	0.07		Sheet Flow, Sheet Flow - Grass Woods: Light underbrush n= 0.400 P2= 3.29"
0.4	31	0.0060	1.25		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
24.2	131	Total			

**Subcatchment 2S: Ex Schoolhouse Road (Perv)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 2S: Ex Schoolhouse Road (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	5.07	0.00
1.00	0.09	0.00	0.00	53.00	8.29	5.07	0.00
2.00	0.19	0.00	0.00	54.00	8.29	5.07	0.00
3.00	0.29	0.00	0.00	55.00	8.29	5.07	0.00
4.00	0.41	0.00	0.00	56.00	8.29	5.07	0.00
5.00	0.53	0.00	0.00	57.00	8.29	5.07	0.00
6.00	0.66	0.00	0.00	58.00	8.29	5.07	0.00
7.00	0.81	0.00	0.00	59.00	8.29	5.07	0.00
8.00	0.99	0.02	0.01	60.00	8.29	5.07	0.00
9.00	1.21	0.05	0.02	61.00	8.29	5.07	0.00
10.00	1.51	0.13	0.04	62.00	8.29	5.07	0.00
11.00	1.99	0.32	0.09	63.00	8.29	5.07	0.00
12.00	3.95	1.49	<b>0.54</b>	64.00	8.29	5.07	0.00
13.00	6.30	3.34	<b>0.46</b>	65.00	8.29	5.07	0.00
14.00	6.78	3.75	0.16	66.00	8.29	5.07	0.00
15.00	7.08	4.00	0.11	67.00	8.29	5.07	0.00
16.00	7.30	4.19	0.08	68.00	8.29	5.07	0.00
17.00	7.48	4.35	0.07	69.00	8.29	5.07	0.00
18.00	7.63	4.49	0.06	70.00	8.29	5.07	0.00
19.00	7.76	4.60	0.05	71.00	8.29	5.07	0.00
20.00	7.88	4.71	0.05	72.00	8.29	5.07	0.00
21.00	8.00	4.81	0.05				
22.00	8.10	4.90	0.04				
23.00	8.20	4.99	0.04				
24.00	<b>8.29</b>	<b>5.07</b>	0.04				
25.00	8.29	5.07	0.00				
26.00	8.29	5.07	0.00				
27.00	8.29	5.07	0.00				
28.00	8.29	5.07	0.00				
29.00	8.29	5.07	0.00				
30.00	8.29	5.07	0.00				
31.00	8.29	5.07	0.00				
32.00	8.29	5.07	0.00				
33.00	8.29	5.07	0.00				
34.00	8.29	5.07	0.00				
35.00	8.29	5.07	0.00				
36.00	8.29	5.07	0.00				
37.00	8.29	5.07	0.00				
38.00	8.29	5.07	0.00				
39.00	8.29	5.07	0.00				
40.00	8.29	5.07	0.00				
41.00	8.29	5.07	0.00				
42.00	8.29	5.07	0.00				
43.00	8.29	5.07	0.00				
44.00	8.29	5.07	0.00				
45.00	8.29	5.07	0.00				
46.00	8.29	5.07	0.00				
47.00	8.29	5.07	0.00				
48.00	8.29	5.07	0.00				
49.00	8.29	5.07	0.00				
50.00	8.29	5.07	0.00				
51.00	8.29	5.07	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 5S: Ex South (Imp)**

[49] Hint: Tc<2dt may require smaller dt

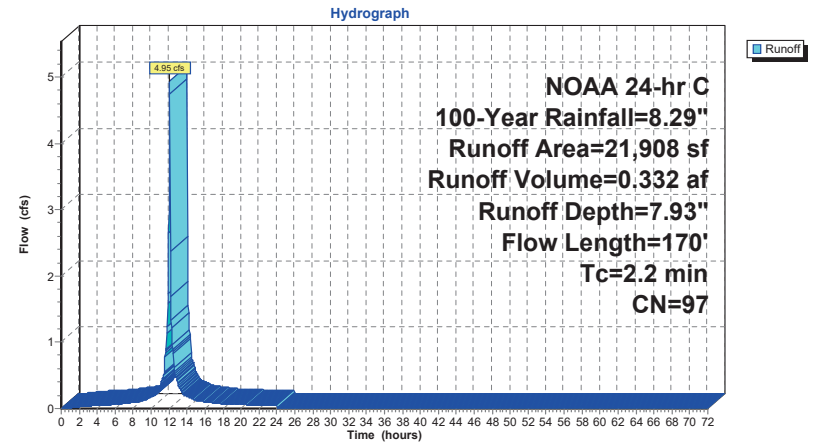
Runoff = 4.95 cfs @ 12.08 hrs, Volume= 0.332 af, Depth= 7.93"  
Routed to Link 8L : Ex South (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
9,276	98	Paved parking, HSG C
12,632	96	Gravel surface, HSG C
21,908	97	Weighted Average
12,632		57.66% Pervious Area
9,276		42.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0090	1.01		Sheet Flow, Sheet Flow - Imp Smooth surfaces n= 0.011 P2= 3.29"
0.6	70	0.0100	2.03		Shallow Concentrated Flow, Shallow Conc Flow - Paved Paved Kv= 20.3 fps
2.2	170	Total			

**Subcatchment 5S: Ex South (Imp)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 5S: Ex South (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.01
2.00	0.19	0.04	0.02
3.00	0.29	0.10	0.04
4.00	0.41	0.18	0.05
5.00	0.53	0.28	0.05
6.00	0.66	0.39	0.06
7.00	0.81	0.53	0.08
8.00	0.99	0.70	0.09
9.00	1.21	0.91	0.11
10.00	1.51	1.19	0.18
11.00	1.99	1.66	0.33
12.00	3.95	3.60	<b>3.00</b>
13.00	6.30	5.94	<b>0.38</b>
14.00	6.78	6.42	0.19
15.00	7.08	6.72	0.12
16.00	7.30	6.94	0.10
17.00	7.48	7.12	0.09
18.00	7.63	7.27	0.07
19.00	7.76	7.40	0.06
20.00	7.88	7.52	0.06
21.00	8.00	7.64	0.06
22.00	8.10	7.74	0.05
23.00	8.20	7.84	0.05
24.00	<b>8.29</b>	<b>7.93</b>	0.05
25.00	8.29	7.93	0.00
26.00	8.29	7.93	0.00
27.00	8.29	7.93	0.00
28.00	8.29	7.93	0.00
29.00	8.29	7.93	0.00
30.00	8.29	7.93	0.00
31.00	8.29	7.93	0.00
32.00	8.29	7.93	0.00
33.00	8.29	7.93	0.00
34.00	8.29	7.93	0.00
35.00	8.29	7.93	0.00
36.00	8.29	7.93	0.00
37.00	8.29	7.93	0.00
38.00	8.29	7.93	0.00
39.00	8.29	7.93	0.00
40.00	8.29	7.93	0.00
41.00	8.29	7.93	0.00
42.00	8.29	7.93	0.00
43.00	8.29	7.93	0.00
44.00	8.29	7.93	0.00
45.00	8.29	7.93	0.00
46.00	8.29	7.93	0.00
47.00	8.29	7.93	0.00
48.00	8.29	7.93	0.00
49.00	8.29	7.93	0.00
50.00	8.29	7.93	0.00
51.00	8.29	7.93	0.00

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	8.29	7.93	0.00
53.00	8.29	7.93	0.00
54.00	8.29	7.93	0.00
55.00	8.29	7.93	0.00
56.00	8.29	7.93	0.00
57.00	8.29	7.93	0.00
58.00	8.29	7.93	0.00
59.00	8.29	7.93	0.00
60.00	8.29	7.93	0.00
61.00	8.29	7.93	0.00
62.00	8.29	7.93	0.00
63.00	8.29	7.93	0.00
64.00	8.29	7.93	0.00
65.00	8.29	7.93	0.00
66.00	8.29	7.93	0.00
67.00	8.29	7.93	0.00
68.00	8.29	7.93	0.00
69.00	8.29	7.93	0.00
70.00	8.29	7.93	0.00
71.00	8.29	7.93	0.00
72.00	8.29	7.93	0.00

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 6S: Ex South (Perv)**

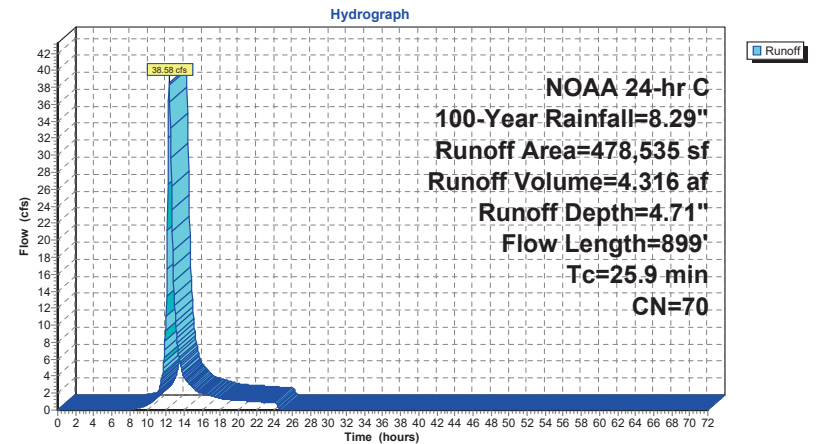
Runoff = 38.58 cfs @ 12.37 hrs, Volume= 4.316 af, Depth= 4.71"  
Routed to Link 8L : Ex South (Total)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
180,342	74	>75% Grass cover, Good, HSG C
215,389	70	Woods, Good, HSG C
4,884	55	Woods, Good, HSG B
77,920	61	>75% Grass cover, Good, HSG B
478,535	70	Weighted Average
478,535		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods
6.2	799	0.0180	2.16		Woods: Light underbrush n= 0.400 P2= 3.29" Shallow Concentrated Flow, Shallow Conc Flow - Unpaved
25.9	899	Total			Unpaved Kv= 16.1 fps

**Subcatchment 6S: Ex South (Perv)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 6S: Ex South (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.19	0.00	0.00
3.00	0.29	0.00	0.00
4.00	0.41	0.00	0.00
5.00	0.53	0.00	0.00
6.00	0.66	0.00	0.00
7.00	0.81	0.00	0.00
8.00	0.99	0.00	0.06
9.00	1.21	0.03	0.28
10.00	1.51	0.09	0.72
11.00	1.99	0.24	1.78
12.00	3.95	1.30	11.05
13.00	6.30	3.05	11.31
14.00	6.78	3.44	3.92
15.00	7.08	3.68	2.65
16.00	7.30	3.87	1.99
17.00	7.48	4.02	1.69
18.00	7.63	4.15	1.39
19.00	7.76	4.26	1.22
20.00	7.88	4.37	1.14
21.00	8.00	4.46	1.07
22.00	8.10	4.55	0.99
23.00	8.20	4.64	0.92
24.00	8.29	4.71	0.84
25.00	8.29	4.71	0.01
26.00	8.29	4.71	0.00
27.00	8.29	4.71	0.00
28.00	8.29	4.71	0.00
29.00	8.29	4.71	0.00
30.00	8.29	4.71	0.00
31.00	8.29	4.71	0.00
32.00	8.29	4.71	0.00
33.00	8.29	4.71	0.00
34.00	8.29	4.71	0.00
35.00	8.29	4.71	0.00
36.00	8.29	4.71	0.00
37.00	8.29	4.71	0.00
38.00	8.29	4.71	0.00
39.00	8.29	4.71	0.00
40.00	8.29	4.71	0.00
41.00	8.29	4.71	0.00
42.00	8.29	4.71	0.00
43.00	8.29	4.71	0.00
44.00	8.29	4.71	0.00
45.00	8.29	4.71	0.00
46.00	8.29	4.71	0.00
47.00	8.29	4.71	0.00
48.00	8.29	4.71	0.00
49.00	8.29	4.71	0.00
50.00	8.29	4.71	0.00
51.00	8.29	4.71	0.00

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 11S: Ex Pond (Total)**

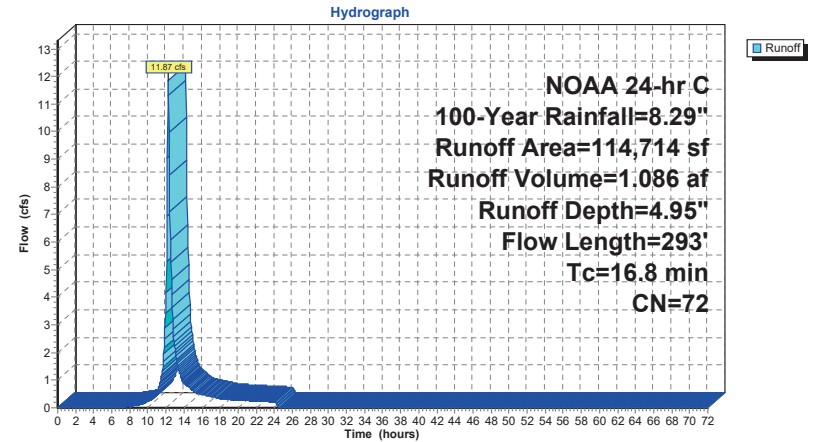
Runoff = 11.87 cfs @ 12.26 hrs, Volume= 1.086 af, Depth= 4.95"  
Routed to Link 9L : Ex Site Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
73,870	74	>75% Grass cover, Good, HSG C
27,885	70	Woods, Good, HSG C
12,959	61	>75% Grass cover, Good, HSG B
114,714	72	Weighted Average
114,714		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.3	100	0.0450	0.11		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
1.5	193	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
16.8	293	Total			

**Subcatchment 11S: Ex Pond (Total)**



**Ex 2, 10 & 100yr**

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**Hydrograph for Subcatchment 11S: Ex Pond (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.19	0.00	0.00
3.00	0.29	0.00	0.00
4.00	0.41	0.00	0.00
5.00	0.53	0.00	0.00
6.00	0.66	0.00	0.00
7.00	0.81	0.00	0.00
8.00	0.99	0.01	0.04
9.00	1.21	0.04	0.10
10.00	1.51	0.12	0.23
11.00	1.99	0.29	0.57
12.00	3.95	1.43	<b>4.18</b>
13.00	6.30	3.24	<b>2.10</b>
14.00	6.78	3.64	0.89
15.00	7.08	3.90	0.61
16.00	7.30	4.08	0.48
17.00	7.48	4.24	0.41
18.00	7.63	4.37	0.33
19.00	7.76	4.49	0.30
20.00	7.88	4.59	0.28
21.00	8.00	4.69	0.26
22.00	8.10	4.78	0.24
23.00	8.20	4.87	0.22
24.00	<b>8.29</b>	<b>4.95</b>	0.21
25.00	8.29	4.95	0.00
26.00	8.29	4.95	0.00
27.00	8.29	4.95	0.00
28.00	8.29	4.95	0.00
29.00	8.29	4.95	0.00
30.00	8.29	4.95	0.00
31.00	8.29	4.95	0.00
32.00	8.29	4.95	0.00
33.00	8.29	4.95	0.00
34.00	8.29	4.95	0.00
35.00	8.29	4.95	0.00
36.00	8.29	4.95	0.00
37.00	8.29	4.95	0.00
38.00	8.29	4.95	0.00
39.00	8.29	4.95	0.00
40.00	8.29	4.95	0.00
41.00	8.29	4.95	0.00
42.00	8.29	4.95	0.00
43.00	8.29	4.95	0.00
44.00	8.29	4.95	0.00
45.00	8.29	4.95	0.00
46.00	8.29	4.95	0.00
47.00	8.29	4.95	0.00
48.00	8.29	4.95	0.00
49.00	8.29	4.95	0.00
50.00	8.29	4.95	0.00
51.00	8.29	4.95	0.00

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
52.00	8.29	4.95	0.00
53.00	8.29	4.95	0.00
54.00	8.29	4.95	0.00
55.00	8.29	4.95	0.00
56.00	8.29	4.95	0.00
57.00	8.29	4.95	0.00
58.00	8.29	4.95	0.00
59.00	8.29	4.95	0.00
60.00	8.29	4.95	0.00
61.00	8.29	4.95	0.00
62.00	8.29	4.95	0.00
63.00	8.29	4.95	0.00
64.00	8.29	4.95	0.00
65.00	8.29	4.95	0.00
66.00	8.29	4.95	0.00
67.00	8.29	4.95	0.00
68.00	8.29	4.95	0.00
69.00	8.29	4.95	0.00
70.00	8.29	4.95	0.00
71.00	8.29	4.95	0.00
72.00	8.29	4.95	0.00

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

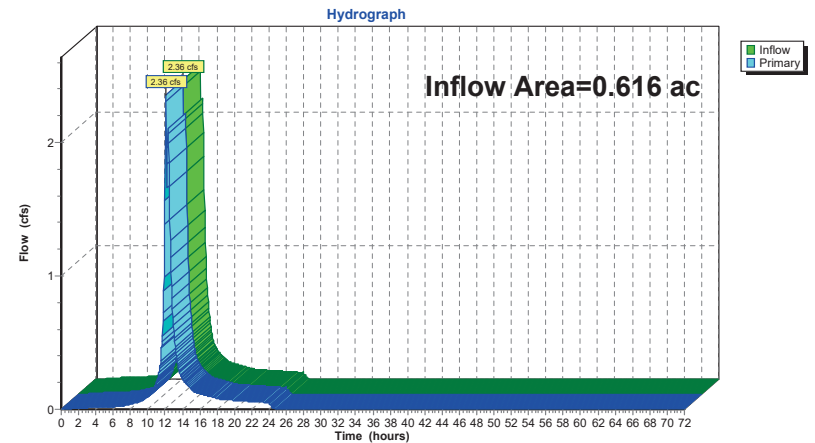
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**Summary for Link 4L: Ex Schoolhouse Road (Total)**

Inflow Area = 0.616 ac, 18.62% Impervious, Inflow Depth = 5.83" for 100-Year event  
 Inflow = 2.36 cfs @ 12.08 hrs, Volume= 0.300 af  
 Primary = 2.36 cfs @ 12.08 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 9L : Ex Site Total

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

**Link 4L: Ex Schoolhouse Road (Total)**





**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Link 4L: Ex Schoolhouse Road (Total)**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	56.00	0.00	0.00	0.00
5.00	0.02	0.00	0.02	57.00	0.00	0.00	0.00
6.00	0.02	0.00	0.02	58.00	0.00	0.00	0.00
7.00	0.03	0.00	0.03	59.00	0.00	0.00	0.00
8.00	0.04	0.00	0.04	60.00	0.00	0.00	0.00
9.00	0.06	0.00	0.06	61.00	0.00	0.00	0.00
10.00	0.10	0.00	0.10	62.00	0.00	0.00	0.00
11.00	0.20	0.00	0.20	63.00	0.00	0.00	0.00
12.00	1.57	0.00	1.57	64.00	0.00	0.00	0.00
13.00	0.58	0.00	0.58	65.00	0.00	0.00	0.00
14.00	0.23	0.00	0.23	66.00	0.00	0.00	0.00
15.00	0.15	0.00	0.15	67.00	0.00	0.00	0.00
16.00	0.12	0.00	0.12	68.00	0.00	0.00	0.00
17.00	0.10	0.00	0.10	69.00	0.00	0.00	0.00
18.00	0.08	0.00	0.08	70.00	0.00	0.00	0.00
19.00	0.07	0.00	0.07	71.00	0.00	0.00	0.00
20.00	0.07	0.00	0.07	72.00	0.00	0.00	0.00
21.00	0.06	0.00	0.06				
22.00	0.06	0.00	0.06				
23.00	0.05	0.00	0.05				
24.00	0.05	0.00	0.05				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

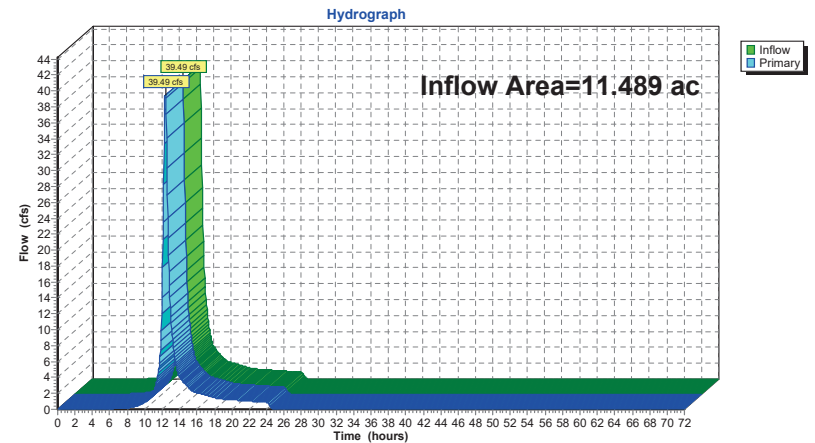
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**Summary for Link 8L: Ex South (Total)**

Inflow Area = 11.489 ac, 1.85% Impervious, Inflow Depth = 4.86" for 100-Year event  
 Inflow = 39.49 cfs @ 12.37 hrs, Volume= 4.648 af  
 Primary = 39.49 cfs @ 12.37 hrs, Volume= 4.648 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 9L : Ex Site Total

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

**Link 8L: Ex South (Total)**



**Ex 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Link 8L: Ex South (Total)**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.01	0.00	0.01	53.00	0.00	0.00	0.00
2.00	0.02	0.00	0.02	54.00	0.00	0.00	0.00
3.00	0.04	0.00	0.04	55.00	0.00	0.00	0.00
4.00	0.05	0.00	0.05	56.00	0.00	0.00	0.00
5.00	0.05	0.00	0.05	57.00	0.00	0.00	0.00
6.00	0.06	0.00	0.06	58.00	0.00	0.00	0.00
7.00	0.08	0.00	0.08	59.00	0.00	0.00	0.00
8.00	0.15	0.00	0.15	60.00	0.00	0.00	0.00
9.00	0.39	0.00	0.39	61.00	0.00	0.00	0.00
10.00	0.89	0.00	0.89	62.00	0.00	0.00	0.00
11.00	2.11	0.00	2.11	63.00	0.00	0.00	0.00
12.00	<b>14.05</b>	0.00	<b>14.05</b>	64.00	0.00	0.00	0.00
13.00	<b>11.68</b>	0.00	<b>11.68</b>	65.00	0.00	0.00	0.00
14.00	4.10	0.00	4.10	66.00	0.00	0.00	0.00
15.00	2.78	0.00	2.78	67.00	0.00	0.00	0.00
16.00	2.09	0.00	2.09	68.00	0.00	0.00	0.00
17.00	1.78	0.00	1.78	69.00	0.00	0.00	0.00
18.00	1.46	0.00	1.46	70.00	0.00	0.00	0.00
19.00	1.28	0.00	1.28	71.00	0.00	0.00	0.00
20.00	1.20	0.00	1.20	72.00	0.00	0.00	0.00
21.00	1.12	0.00	1.12				
22.00	1.05	0.00	1.05				
23.00	0.96	0.00	0.96				
24.00	0.89	0.00	0.89				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

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NOAA 24-hr C 100-Year Rainfall=8.29"

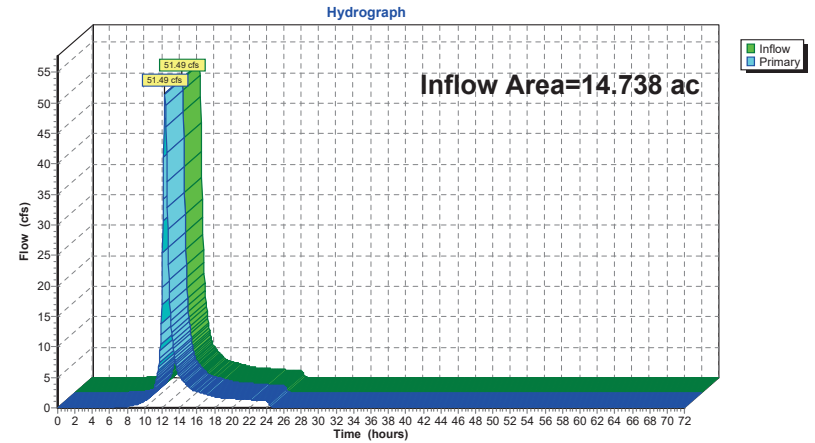
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**Summary for Link 9L: Ex Site Total**

Inflow Area = 14.738 ac, 2.22% Impervious, Inflow Depth = 4.91" for 100-Year event  
 Inflow = 51.49 cfs @ 12.33 hrs, Volume= 6.034 af  
 Primary = 51.49 cfs @ 12.33 hrs, Volume= 6.034 af, Atten= 0%, Lag= 0.0 min

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

**Link 9L: Ex Site Total**



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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Link 9L: Ex Site Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.01	0.00	0.01	53.00	0.00	0.00	0.00
2.00	0.03	0.00	0.03	54.00	0.00	0.00	0.00
3.00	0.05	0.00	0.05	55.00	0.00	0.00	0.00
4.00	0.06	0.00	0.06	56.00	0.00	0.00	0.00
5.00	0.07	0.00	0.07	57.00	0.00	0.00	0.00
6.00	0.08	0.00	0.08	58.00	0.00	0.00	0.00
7.00	0.10	0.00	0.10	59.00	0.00	0.00	0.00
8.00	0.23	0.00	0.23	60.00	0.00	0.00	0.00
9.00	0.54	0.00	0.54	61.00	0.00	0.00	0.00
10.00	1.22	0.00	1.22	62.00	0.00	0.00	0.00
11.00	2.88	0.00	2.88	63.00	0.00	0.00	0.00
12.00	<b>19.80</b>	0.00	<b>19.80</b>	64.00	0.00	0.00	0.00
13.00	<b>14.36</b>	0.00	<b>14.36</b>	65.00	0.00	0.00	0.00
14.00	5.22	0.00	5.22	66.00	0.00	0.00	0.00
15.00	3.54	0.00	3.54	67.00	0.00	0.00	0.00
16.00	2.69	0.00	2.69	68.00	0.00	0.00	0.00
17.00	2.28	0.00	2.28	69.00	0.00	0.00	0.00
18.00	1.88	0.00	1.88	70.00	0.00	0.00	0.00
19.00	1.65	0.00	1.65	71.00	0.00	0.00	0.00
20.00	1.55	0.00	1.55	72.00	0.00	0.00	0.00
21.00	1.45	0.00	1.45				
22.00	1.35	0.00	1.35				
23.00	1.24	0.00	1.24				
24.00	1.15	0.00	1.15				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Ex 2, 10 & 100yr**

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- 37 Link 8L: Ex South (Total)
- 39 Link 9L: Ex Site Total

**100-Year Event**

- 41 Node Listing
- 42 Subcat 1S: Ex Schoolhouse Road (Imp)
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- 48 Subcat 6S: Ex South (Perv)
- 50 Subcat 11S: Ex Pond (Total)
- 52 Link 4L: Ex Schoolhouse Road (Total)
- 54 Link 8L: Ex South (Total)
- 56 Link 9L: Ex Site Total

**HYDROGRAPH SUMMARY REPORTS  
PROPOSED CONDITIONS  
2YR, 10YR, 25 YR & 100YR STORMS**

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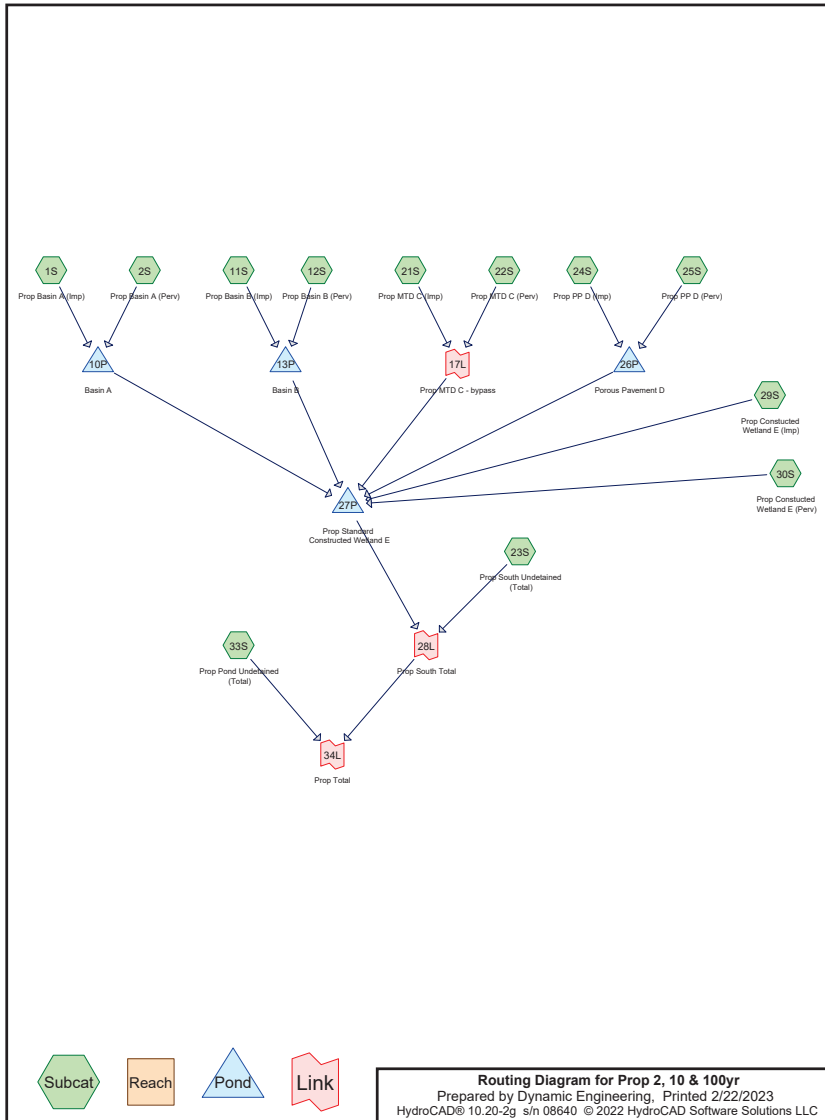
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**Project Notes**

Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C  
Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C



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**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	C	Default	24.00	1	3.29	2
2	10-Year	NOAA 24-hr	C	Default	24.00	1	4.98	2
3	25-Year	NOAA 24-hr	C	Default	24.00	1	6.15	2
4	100-Year	NOAA 24-hr	C	Default	24.00	1	8.29	2

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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
1.341	61	>75% Grass cover, Good, HSG B (2S, 23S, 25S, 30S, 33S)
3.342	74	>75% Grass cover, Good, HSG C (2S, 12S, 22S, 23S, 25S, 30S, 33S)
4.581	98	Imp (1S, 11S, 21S, 24S)
0.395	98	Paved Driveway (Emergency Only) (29S)
4.938	98	Roofs (24S, 29S)
0.142	98	Wetland Pool (29S)
<b>14.738</b>	<b>89</b>	<b>TOTAL AREA</b>

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.341	HSG B	2S, 23S, 25S, 30S, 33S
3.342	HSG C	2S, 12S, 22S, 23S, 25S, 30S, 33S
0.000	HSG D	
10.056	Other	1S, 11S, 21S, 24S, 29S
<b>14.738</b>		<b>TOTAL AREA</b>

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**Ground Covers (all nodes)**

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchme Numbers
0.000	1.341	3.342	0.000	0.000	4.682	>75% Grass cover, Good	
0.000	0.000	0.000	0.000	4.581	4.581	Imp	
0.000	0.000	0.000	0.000	0.395	0.395	Paved Driveway (Emergency Only)	
0.000	0.000	0.000	0.000	4.938	4.938	Roofs	
0.000	0.000	0.000	0.000	0.142	0.142	Wetland Pool	
<b>0.000</b>	<b>1.341</b>	<b>3.342</b>	<b>0.000</b>	<b>10.056</b>	<b>14.738</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (all nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1S	0.00	0.00	365.0	0.0050	0.012	0.0	15.0	0.0
2	1S	0.00	0.00	76.0	0.0050	0.012	0.0	18.0	0.0
3	11S	0.00	0.00	227.0	0.0025	0.012	24.0	8.0	0.0
4	11S	0.00	0.00	104.0	0.0025	0.012	30.0	19.0	0.0
5	21S	0.00	0.00	108.0	0.0030	0.012	0.0	21.0	0.0
6	21S	0.00	0.00	108.0	0.0030	0.012	0.0	24.0	0.0
7	21S	0.00	0.00	433.0	0.0030	0.012	0.0	30.0	0.0
8	24S	0.00	0.00	19.0	0.0050	0.012	0.0	15.0	0.0
9	29S	0.00	0.00	533.0	0.0050	0.012	0.0	15.0	0.0
10	29S	0.00	0.00	177.0	0.0050	0.012	0.0	18.0	0.0
11	29S	0.00	0.00	218.0	0.0100	0.012	0.0	18.0	0.0
12	29S	0.00	0.00	104.0	0.0050	0.012	0.0	24.0	0.0
13	29S	0.00	0.00	655.0	0.0040	0.012	0.0	36.0	0.0

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Prop Basin A (Imp)</b>	Runoff Area=29,111 sf 100.00% Impervious Runoff Depth=3.06" Flow Length=541' Tc=3.4 min CN=98 Runoff=2.49 cfs 0.170 af
<b>Subcatchment2S: Prop Basin A (Perv)</b>	Runoff Area=82,064 sf 0.00% Impervious Runoff Depth=1.10" Flow Length=253' Tc=10.9 min CN=74 Runoff=2.16 cfs 0.172 af
<b>Subcatchment11S: Prop Basin B (Imp)</b>	Runoff Area=47,330 sf 100.00% Impervious Runoff Depth=3.06" Flow Length=431' Tc=3.5 min CN=98 Runoff=4.03 cfs 0.277 af
<b>Subcatchment12S: Prop Basin B (Perv)</b>	Runoff Area=11,691 sf 0.00% Impervious Runoff Depth=1.10" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.33 cfs 0.025 af
<b>Subcatchment21S: Prop MTD C (Imp)</b>	Runoff Area=97,184 sf 100.00% Impervious Runoff Depth=3.06" Flow Length=824' Tc=4.3 min CN=98 Runoff=8.00 cfs 0.568 af
<b>Subcatchment22S: Prop MTD C (Perv)</b>	Runoff Area=3,542 sf 0.00% Impervious Runoff Depth=1.10" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.10 cfs 0.007 af
<b>Subcatchment23S: Prop South Undetained</b>	Runoff Area=42,030 sf 0.00% Impervious Runoff Depth=0.64" Flow Length=1,060' Tc=27.6 min CN=65 Runoff=0.36 cfs 0.052 af
<b>Subcatchment24S: Prop PP D (Imp)</b>	Runoff Area=91,203 sf 100.00% Impervious Runoff Depth=3.06" Flow Length=229' Tc=2.6 min CN=98 Runoff=8.03 cfs 0.533 af
<b>Subcatchment25S: Prop PP D (Perv)</b>	Runoff Area=4,137 sf 0.00% Impervious Runoff Depth=0.69" Flow Length=42' Slope=0.0100 '/' Tc=9.3 min CN=66 Runoff=0.06 cfs 0.005 af
<b>Subcatchment29S: Prop Constructed</b>	Runoff Area=173,212 sf 100.00% Impervious Runoff Depth=3.06" Flow Length=1,787' Tc=7.0 min CN=98 Runoff=13.13 cfs 1.013 af
<b>Subcatchment30S: Prop Constructed</b>	Runoff Area=32,801 sf 0.00% Impervious Runoff Depth=0.64" Flow Length=115' Slope=0.0180 '/' Tc=9.7 min CN=65 Runoff=0.46 cfs 0.040 af
<b>Subcatchment33S: Prop Pond Undetained</b>	Runoff Area=27,700 sf 0.00% Impervious Runoff Depth=0.99" Flow Length=1,060' Tc=27.6 min CN=72 Runoff=0.42 cfs 0.052 af
<b>Pond 10P: Basin A</b>	Peak Elev=84.21' Storage=5,219 cf Inflow=3.96 cfs 0.343 af Outflow=2.31 cfs 0.274 af
<b>Pond 13P: Basin B</b>	Peak Elev=83.33' Storage=5,021 cf Inflow=4.26 cfs 0.301 af Outflow=3.69 cfs 0.205 af
<b>Pond 26P: Porous Pavement D</b>	Peak Elev=83.31' Storage=15,720 cf Inflow=8.06 cfs 0.539 af Outflow=0.41 cfs 0.424 af
<b>Pond 27P: Prop Standard Constructed</b>	Peak Elev=78.38' Storage=49,700 cf Inflow=26.32 cfs 2.532 af Outflow=3.20 cfs 2.528 af



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Link 17L: Prop MTD C - bypass

Inflow=8.07 cfs 0.576 af  
Primary=8.07 cfs 0.576 af

Link 28L: Prop South Total

Inflow=3.38 cfs 2.580 af  
Primary=3.38 cfs 2.580 af

Link 34L: Prop Total

Inflow=3.71 cfs 2.632 af  
Primary=3.71 cfs 2.632 af

**Total Runoff Area = 14.738 ac Runoff Volume = 2.916 af Average Runoff Depth = 2.37"**  
**31.77% Pervious = 4.682 ac 68.23% Impervious = 10.056 ac**

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 1S: Prop Basin A (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.49 cfs @ 12.09 hrs, Volume= 0.170 af, Depth= 3.06"  
Routed to Pond 10P : Basin A

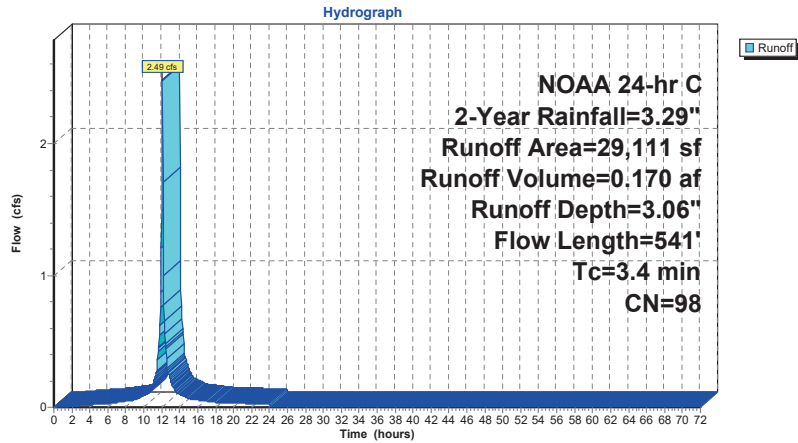
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
* 29,111	98	Imp
29,111		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	365	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	76	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.4	541	Total			

Subcatchment 1S: Prop Basin A (Imp)



Hydrograph for Subcatchment 1S: Prop Basin A (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	3.06	0.00
1.00	0.04	0.00	0.00	53.00	3.29	3.06	0.00
2.00	0.07	0.00	0.01	54.00	3.29	3.06	0.00
3.00	0.12	0.02	0.01	55.00	3.29	3.06	0.00
4.00	0.16	0.04	0.02	56.00	3.29	3.06	0.00
5.00	0.21	0.08	0.02	57.00	3.29	3.06	0.00
6.00	0.26	0.11	0.03	58.00	3.29	3.06	0.00
7.00	0.32	0.16	0.04	59.00	3.29	3.06	0.00
8.00	0.39	0.22	0.05	60.00	3.29	3.06	0.00
9.00	0.48	0.30	0.06	61.00	3.29	3.06	0.00
10.00	0.60	0.41	0.09	62.00	3.29	3.06	0.00
11.00	0.79	0.59	0.17	63.00	3.29	3.06	0.00
12.00	1.57	1.35	1.50	64.00	3.29	3.06	0.00
13.00	2.50	2.27	0.20	65.00	3.29	3.06	0.00
14.00	2.69	2.46	0.10	66.00	3.29	3.06	0.00
15.00	2.81	2.58	0.07	67.00	3.29	3.06	0.00
16.00	2.90	2.66	0.05	68.00	3.29	3.06	0.00
17.00	2.97	2.74	0.05	69.00	3.29	3.06	0.00
18.00	3.03	2.80	0.04	70.00	3.29	3.06	0.00
19.00	3.08	2.85	0.03	71.00	3.29	3.06	0.00
20.00	3.13	2.90	0.03	72.00	3.29	3.06	0.00
21.00	3.17	2.94	0.03				
22.00	3.22	2.98	0.03				
23.00	3.25	3.02	0.02				
24.00	3.29	3.06	0.03				
25.00	3.29	3.06	0.00				
26.00	3.29	3.06	0.00				
27.00	3.29	3.06	0.00				
28.00	3.29	3.06	0.00				
29.00	3.29	3.06	0.00				
30.00	3.29	3.06	0.00				
31.00	3.29	3.06	0.00				
32.00	3.29	3.06	0.00				
33.00	3.29	3.06	0.00				
34.00	3.29	3.06	0.00				
35.00	3.29	3.06	0.00				
36.00	3.29	3.06	0.00				
37.00	3.29	3.06	0.00				
38.00	3.29	3.06	0.00				
39.00	3.29	3.06	0.00				
40.00	3.29	3.06	0.00				
41.00	3.29	3.06	0.00				
42.00	3.29	3.06	0.00				
43.00	3.29	3.06	0.00				
44.00	3.29	3.06	0.00				
45.00	3.29	3.06	0.00				
46.00	3.29	3.06	0.00				
47.00	3.29	3.06	0.00				
48.00	3.29	3.06	0.00				
49.00	3.29	3.06	0.00				
50.00	3.29	3.06	0.00				
51.00	3.29	3.06	0.00				

**Summary for Subcatchment 2S: Prop Basin A (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.033)) / .24 = 76'$

Runoff = 2.16 cfs @ 12.20 hrs, Volume= 0.172 af, Depth= 1.10"  
 Routed to Pond 10P : Basin A

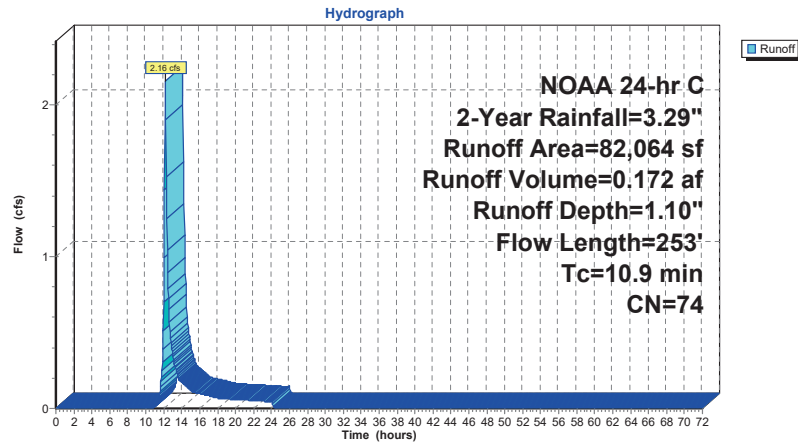
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
81,664	74	>75% Grass cover, Good, HSG C
400	61	>75% Grass cover, Good, HSG B
82,064	74	Weighted Average
82,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	76	0.0330	0.14		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
1.7	177	0.0120	1.76		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps

10.9 253 Total

**Subcatchment 2S: Prop Basin A (Perv)**



**Hydrograph for Subcatchment 2S: Prop Basin A (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	1.10	0.00
1.00	0.04	0.00	0.00	53.00	3.29	1.10	0.00
2.00	0.07	0.00	0.00	54.00	3.29	1.10	0.00
3.00	0.12	0.00	0.00	55.00	3.29	1.10	0.00
4.00	0.16	0.00	0.00	56.00	3.29	1.10	0.00
5.00	0.21	0.00	0.00	57.00	3.29	1.10	0.00
6.00	0.26	0.00	0.00	58.00	3.29	1.10	0.00
7.00	0.32	0.00	0.00	59.00	3.29	1.10	0.00
8.00	0.39	0.00	0.00	60.00	3.29	1.10	0.00
9.00	0.48	0.00	0.00	61.00	3.29	1.10	0.00
10.00	0.60	0.00	0.00	62.00	3.29	1.10	0.00
11.00	0.79	0.00	0.01	63.00	3.29	1.10	0.00
12.00	1.57	0.17	0.70	64.00	3.29	1.10	0.00
13.00	2.50	0.61	0.36	65.00	3.29	1.10	0.00
14.00	2.69	0.72	0.17	66.00	3.29	1.10	0.00
15.00	2.81	0.79	0.12	67.00	3.29	1.10	0.00
16.00	2.90	0.84	0.10	68.00	3.29	1.10	0.00
17.00	2.97	0.89	0.08	69.00	3.29	1.10	0.00
18.00	3.03	0.93	0.07	70.00	3.29	1.10	0.00
19.00	3.08	0.96	0.06	71.00	3.29	1.10	0.00
20.00	3.13	0.99	0.06	72.00	3.29	1.10	0.00
21.00	3.17	1.02	0.05				
22.00	3.22	1.05	0.05				
23.00	3.25	1.07	0.05				
24.00	3.29	1.10	0.05				
25.00	3.29	1.10	0.00				
26.00	3.29	1.10	0.00				
27.00	3.29	1.10	0.00				
28.00	3.29	1.10	0.00				
29.00	3.29	1.10	0.00				
30.00	3.29	1.10	0.00				
31.00	3.29	1.10	0.00				
32.00	3.29	1.10	0.00				
33.00	3.29	1.10	0.00				
34.00	3.29	1.10	0.00				
35.00	3.29	1.10	0.00				
36.00	3.29	1.10	0.00				
37.00	3.29	1.10	0.00				
38.00	3.29	1.10	0.00				
39.00	3.29	1.10	0.00				
40.00	3.29	1.10	0.00				
41.00	3.29	1.10	0.00				
42.00	3.29	1.10	0.00				
43.00	3.29	1.10	0.00				
44.00	3.29	1.10	0.00				
45.00	3.29	1.10	0.00				
46.00	3.29	1.10	0.00				
47.00	3.29	1.10	0.00				
48.00	3.29	1.10	0.00				
49.00	3.29	1.10	0.00				
50.00	3.29	1.10	0.00				
51.00	3.29	1.10	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 11S: Prop Basin B (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
[47] Hint: Peak is 123% of capacity of segment #2

Runoff = 4.03 cfs @ 12.09 hrs, Volume= 0.277 af, Depth= 3.06"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
47,330	98	Imp
47,330		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	227	0.0025	2.46	3.28	<b>Pipe Channel, Channel Flow</b> 24.0" x 8.0" Box Area= 1.3 sf Perim= 5.3' r= 0.25' n= 0.012 Concrete pipe, finished
0.4	104	0.0025	3.86	12.65	<b>Pipe Channel, RCP_Elliptical 30x19</b> 30.0" x 19.0", R=33.5" Elliptical Area= 3.3 sf Perim= 6.7' r= 0.49' n= 0.012 Concrete pipe, finished
3.5	431	Total			

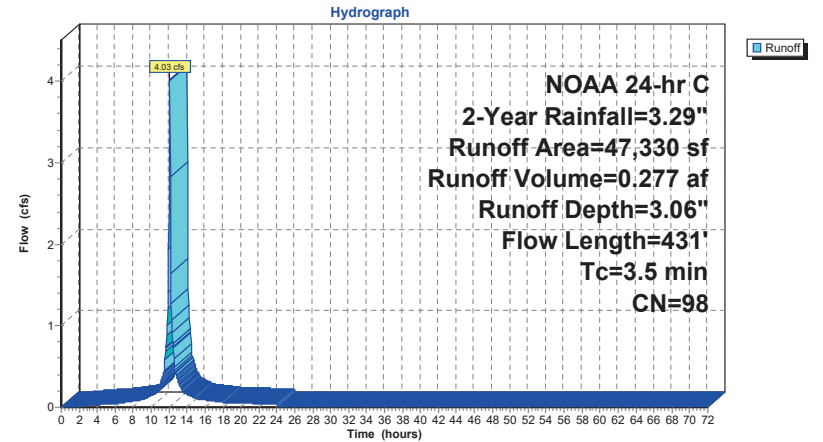
**Prop 2, 10 & 100yr**

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**Subcatchment 11S: Prop Basin B (Imp)**



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**Hydrograph for Subcatchment 11S: Prop Basin B (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	3.06	0.00
1.00	0.04	0.00	0.00	53.00	3.29	3.06	0.00
2.00	0.07	0.00	0.01	54.00	3.29	3.06	0.00
3.00	0.12	0.02	0.02	55.00	3.29	3.06	0.00
4.00	0.16	0.04	0.03	56.00	3.29	3.06	0.00
5.00	0.21	0.08	0.04	57.00	3.29	3.06	0.00
6.00	0.26	0.11	0.04	58.00	3.29	3.06	0.00
7.00	0.32	0.16	0.06	59.00	3.29	3.06	0.00
8.00	0.39	0.22	0.07	60.00	3.29	3.06	0.00
9.00	0.48	0.30	0.09	61.00	3.29	3.06	0.00
10.00	0.60	0.41	0.14	62.00	3.29	3.06	0.00
11.00	0.79	0.59	0.27	63.00	3.29	3.06	0.00
12.00	1.57	1.35	<b>2.42</b>	64.00	3.29	3.06	0.00
13.00	2.50	2.27	<b>0.32</b>	65.00	3.29	3.06	0.00
14.00	2.69	2.46	0.16	66.00	3.29	3.06	0.00
15.00	2.81	2.58	0.11	67.00	3.29	3.06	0.00
16.00	2.90	2.66	0.09	68.00	3.29	3.06	0.00
17.00	2.97	2.74	0.07	69.00	3.29	3.06	0.00
18.00	3.03	2.80	0.06	70.00	3.29	3.06	0.00
19.00	3.08	2.85	0.05	71.00	3.29	3.06	0.00
20.00	3.13	2.90	0.05	72.00	3.29	3.06	0.00
21.00	3.17	2.94	0.05				
22.00	3.22	2.98	0.04				
23.00	3.25	3.02	0.04				
24.00	<b>3.29</b>	<b>3.06</b>	0.04				
25.00	3.29	3.06	0.00				
26.00	3.29	3.06	0.00				
27.00	3.29	3.06	0.00				
28.00	3.29	3.06	0.00				
29.00	3.29	3.06	0.00				
30.00	3.29	3.06	0.00				
31.00	3.29	3.06	0.00				
32.00	3.29	3.06	0.00				
33.00	3.29	3.06	0.00				
34.00	3.29	3.06	0.00				
35.00	3.29	3.06	0.00				
36.00	3.29	3.06	0.00				
37.00	3.29	3.06	0.00				
38.00	3.29	3.06	0.00				
39.00	3.29	3.06	0.00				
40.00	3.29	3.06	0.00				
41.00	3.29	3.06	0.00				
42.00	3.29	3.06	0.00				
43.00	3.29	3.06	0.00				
44.00	3.29	3.06	0.00				
45.00	3.29	3.06	0.00				
46.00	3.29	3.06	0.00				
47.00	3.29	3.06	0.00				
48.00	3.29	3.06	0.00				
49.00	3.29	3.06	0.00				
50.00	3.29	3.06	0.00				
51.00	3.29	3.06	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 12S: Prop Basin B (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

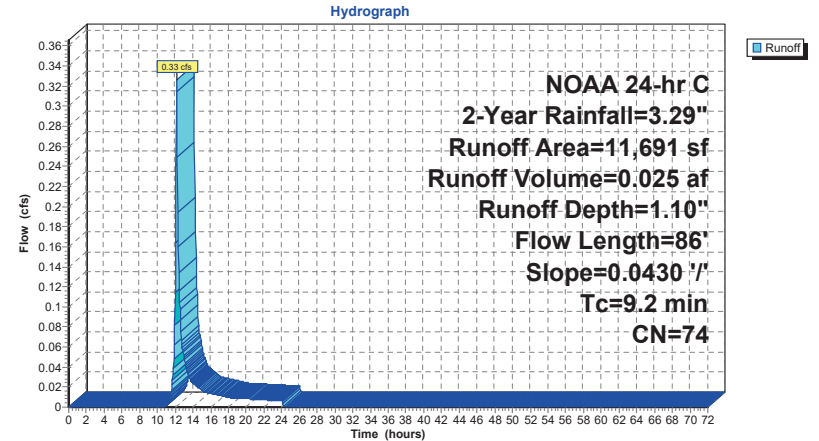
Runoff = 0.33 cfs @ 12.17 hrs, Volume= 0.025 af, Depth= 1.10"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
11,691	74	>75% Grass cover, Good, HSG C
11,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2=3.29"

**Subcatchment 12S: Prop Basin B (Perv)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 12S: Prop Basin B (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	1.10	0.00
1.00	0.04	0.00	0.00	53.00	3.29	1.10	0.00
2.00	0.07	0.00	0.00	54.00	3.29	1.10	0.00
3.00	0.12	0.00	0.00	55.00	3.29	1.10	0.00
4.00	0.16	0.00	0.00	56.00	3.29	1.10	0.00
5.00	0.21	0.00	0.00	57.00	3.29	1.10	0.00
6.00	0.26	0.00	0.00	58.00	3.29	1.10	0.00
7.00	0.32	0.00	0.00	59.00	3.29	1.10	0.00
8.00	0.39	0.00	0.00	60.00	3.29	1.10	0.00
9.00	0.48	0.00	0.00	61.00	3.29	1.10	0.00
10.00	0.60	0.00	0.00	62.00	3.29	1.10	0.00
11.00	0.79	0.00	0.00	63.00	3.29	1.10	0.00
12.00	1.57	0.17	<b>0.11</b>	64.00	3.29	1.10	0.00
13.00	2.50	0.61	<b>0.05</b>	65.00	3.29	1.10	0.00
14.00	2.69	0.72	0.02	66.00	3.29	1.10	0.00
15.00	2.81	0.79	0.02	67.00	3.29	1.10	0.00
16.00	2.90	0.84	0.01	68.00	3.29	1.10	0.00
17.00	2.97	0.89	0.01	69.00	3.29	1.10	0.00
18.00	3.03	0.93	0.01	70.00	3.29	1.10	0.00
19.00	3.08	0.96	0.01	71.00	3.29	1.10	0.00
20.00	3.13	0.99	0.01	72.00	3.29	1.10	0.00
21.00	3.17	1.02	0.01				
22.00	3.22	1.05	0.01				
23.00	3.25	1.07	0.01				
24.00	<b>3.29</b>	<b>1.10</b>	0.01				
25.00	3.29	1.10	0.00				
26.00	3.29	1.10	0.00				
27.00	3.29	1.10	0.00				
28.00	3.29	1.10	0.00				
29.00	3.29	1.10	0.00				
30.00	3.29	1.10	0.00				
31.00	3.29	1.10	0.00				
32.00	3.29	1.10	0.00				
33.00	3.29	1.10	0.00				
34.00	3.29	1.10	0.00				
35.00	3.29	1.10	0.00				
36.00	3.29	1.10	0.00				
37.00	3.29	1.10	0.00				
38.00	3.29	1.10	0.00				
39.00	3.29	1.10	0.00				
40.00	3.29	1.10	0.00				
41.00	3.29	1.10	0.00				
42.00	3.29	1.10	0.00				
43.00	3.29	1.10	0.00				
44.00	3.29	1.10	0.00				
45.00	3.29	1.10	0.00				
46.00	3.29	1.10	0.00				
47.00	3.29	1.10	0.00				
48.00	3.29	1.10	0.00				
49.00	3.29	1.10	0.00				
50.00	3.29	1.10	0.00				
51.00	3.29	1.10	0.00				

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**Summary for Subcatchment 21S: Prop MTD C (Imp)**

Sheet Flow = (100 X Sq root (0.015))/0.11 = 1,113' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.00 cfs @ 12.10 hrs, Volume= 0.568 af, Depth= 3.06"  
Routed to Link 17L : Prop MTD C - bypass

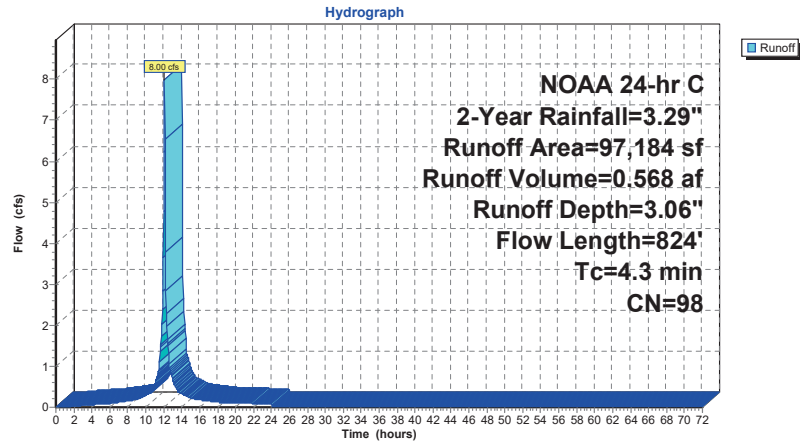
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
* 97,184	98	Imp
97,184		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.6	75	0.0120	2.22		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.5	108	0.0030	3.91	9.40	<b>Pipe Channel, Channel Flow</b> 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.012 Concrete pipe, finished
0.4	108	0.0030	4.27	13.42	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.5	433	0.0030	4.96	24.34	<b>Pipe Channel, Channel Flow</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.3	824	Total			

Subcatchment 21S: Prop MTD C (Imp)



Hydrograph for Subcatchment 21S: Prop MTD C (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	3.06	0.00
1.00	0.04	0.00	0.00	53.00	3.29	3.06	0.00
2.00	0.07	0.00	0.02	54.00	3.29	3.06	0.00
3.00	0.12	0.02	0.04	55.00	3.29	3.06	0.00
4.00	0.16	0.04	0.06	56.00	3.29	3.06	0.00
5.00	0.21	0.08	0.08	57.00	3.29	3.06	0.00
6.00	0.26	0.11	0.09	58.00	3.29	3.06	0.00
7.00	0.32	0.16	0.12	59.00	3.29	3.06	0.00
8.00	0.39	0.22	0.15	60.00	3.29	3.06	0.00
9.00	0.48	0.30	0.19	61.00	3.29	3.06	0.00
10.00	0.60	0.41	0.29	62.00	3.29	3.06	0.00
11.00	0.79	0.59	0.55	63.00	3.29	3.06	0.00
12.00	1.57	1.35	<b>4.78</b>	64.00	3.29	3.06	0.00
13.00	2.50	2.27	<b>0.67</b>	65.00	3.29	3.06	0.00
14.00	2.69	2.46	0.33	66.00	3.29	3.06	0.00
15.00	2.81	2.58	0.22	67.00	3.29	3.06	0.00
16.00	2.90	2.66	0.18	68.00	3.29	3.06	0.00
17.00	2.97	2.74	0.15	69.00	3.29	3.06	0.00
18.00	3.03	2.80	0.12	70.00	3.29	3.06	0.00
19.00	3.08	2.85	0.11	71.00	3.29	3.06	0.00
20.00	3.13	2.90	0.10	72.00	3.29	3.06	0.00
21.00	3.17	2.94	0.10				
22.00	3.22	2.98	0.09				
23.00	3.25	3.02	0.08				
24.00	<b>3.29</b>	<b>3.06</b>	0.09				
25.00	3.29	3.06	0.00				
26.00	3.29	3.06	0.00				
27.00	3.29	3.06	0.00				
28.00	3.29	3.06	0.00				
29.00	3.29	3.06	0.00				
30.00	3.29	3.06	0.00				
31.00	3.29	3.06	0.00				
32.00	3.29	3.06	0.00				
33.00	3.29	3.06	0.00				
34.00	3.29	3.06	0.00				
35.00	3.29	3.06	0.00				
36.00	3.29	3.06	0.00				
37.00	3.29	3.06	0.00				
38.00	3.29	3.06	0.00				
39.00	3.29	3.06	0.00				
40.00	3.29	3.06	0.00				
41.00	3.29	3.06	0.00				
42.00	3.29	3.06	0.00				
43.00	3.29	3.06	0.00				
44.00	3.29	3.06	0.00				
45.00	3.29	3.06	0.00				
46.00	3.29	3.06	0.00				
47.00	3.29	3.06	0.00				
48.00	3.29	3.06	0.00				
49.00	3.29	3.06	0.00				
50.00	3.29	3.06	0.00				
51.00	3.29	3.06	0.00				

**Summary for Subcatchment 22S: Prop MTD C (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

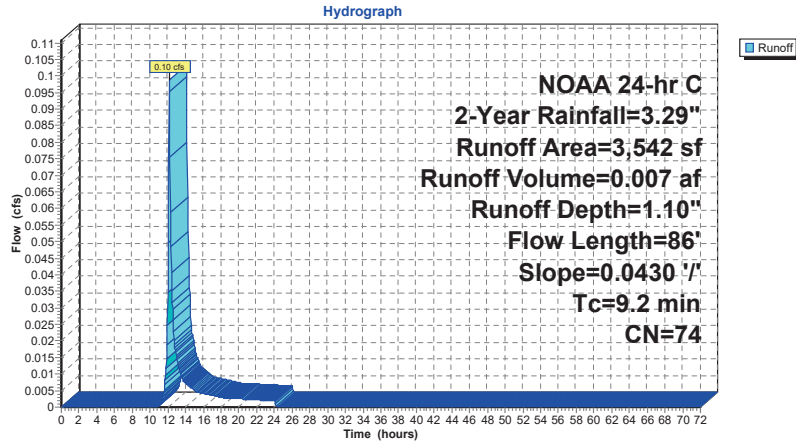
Runoff = 0.10 cfs @ 12.17 hrs, Volume= 0.007 af, Depth= 1.10"  
 Routed to Link 17L : Prop MTD C - bypass

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
3,542	74	>75% Grass cover, Good, HSG C
3,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"

**Subcatchment 22S: Prop MTD C (Perv)**



**Hydrograph for Subcatchment 22S: Prop MTD C (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	1.10	0.00
1.00	0.04	0.00	0.00	53.00	3.29	1.10	0.00
2.00	0.07	0.00	0.00	54.00	3.29	1.10	0.00
3.00	0.12	0.00	0.00	55.00	3.29	1.10	0.00
4.00	0.16	0.00	0.00	56.00	3.29	1.10	0.00
5.00	0.21	0.00	0.00	57.00	3.29	1.10	0.00
6.00	0.26	0.00	0.00	58.00	3.29	1.10	0.00
7.00	0.32	0.00	0.00	59.00	3.29	1.10	0.00
8.00	0.39	0.00	0.00	60.00	3.29	1.10	0.00
9.00	0.48	0.00	0.00	61.00	3.29	1.10	0.00
10.00	0.60	0.00	0.00	62.00	3.29	1.10	0.00
11.00	0.79	0.00	0.00	63.00	3.29	1.10	0.00
12.00	1.57	0.17	0.03	64.00	3.29	1.10	0.00
13.00	2.50	0.61	0.01	65.00	3.29	1.10	0.00
14.00	2.69	0.72	0.01	66.00	3.29	1.10	0.00
15.00	2.81	0.79	0.01	67.00	3.29	1.10	0.00
16.00	2.90	0.84	0.00	68.00	3.29	1.10	0.00
17.00	2.97	0.89	0.00	69.00	3.29	1.10	0.00
18.00	3.03	0.93	0.00	70.00	3.29	1.10	0.00
19.00	3.08	0.96	0.00	71.00	3.29	1.10	0.00
20.00	3.13	0.99	0.00	72.00	3.29	1.10	0.00
21.00	3.17	1.02	0.00				
22.00	3.22	1.05	0.00				
23.00	3.25	1.07	0.00				
24.00	3.29	1.10	0.00				
25.00	3.29	1.10	0.00				
26.00	3.29	1.10	0.00				
27.00	3.29	1.10	0.00				
28.00	3.29	1.10	0.00				
29.00	3.29	1.10	0.00				
30.00	3.29	1.10	0.00				
31.00	3.29	1.10	0.00				
32.00	3.29	1.10	0.00				
33.00	3.29	1.10	0.00				
34.00	3.29	1.10	0.00				
35.00	3.29	1.10	0.00				
36.00	3.29	1.10	0.00				
37.00	3.29	1.10	0.00				
38.00	3.29	1.10	0.00				
39.00	3.29	1.10	0.00				
40.00	3.29	1.10	0.00				
41.00	3.29	1.10	0.00				
42.00	3.29	1.10	0.00				
43.00	3.29	1.10	0.00				
44.00	3.29	1.10	0.00				
45.00	3.29	1.10	0.00				
46.00	3.29	1.10	0.00				
47.00	3.29	1.10	0.00				
48.00	3.29	1.10	0.00				
49.00	3.29	1.10	0.00				
50.00	3.29	1.10	0.00				
51.00	3.29	1.10	0.00				



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 23S: Prop South Undetained (Total)**

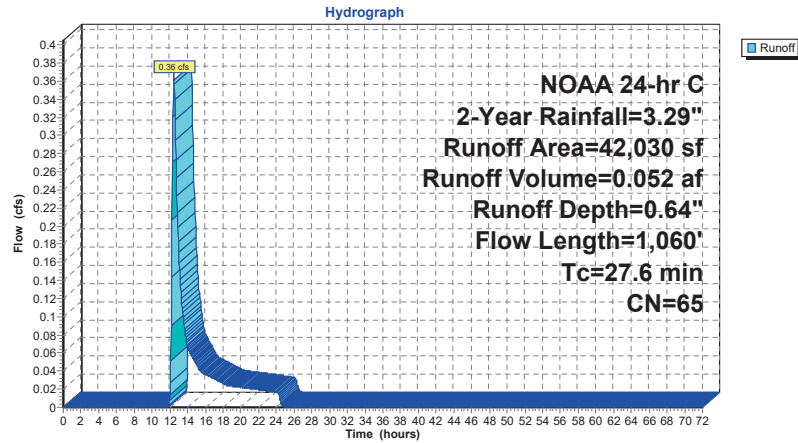
Runoff = 0.36 cfs @ 12.46 hrs, Volume= 0.052 af, Depth= 0.64"  
Routed to Link 28L : Prop South Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
29,825	61	>75% Grass cover, Good, HSG B
12,205	74	>75% Grass cover, Good, HSG C
42,030	65	Weighted Average
42,030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 23S: Prop South Undetained (Total)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 23S: Prop South Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	0.64	0.00
1.00	0.04	0.00	0.00	53.00	3.29	0.64	0.00
2.00	0.07	0.00	0.00	54.00	3.29	0.64	0.00
3.00	0.12	0.00	0.00	55.00	3.29	0.64	0.00
4.00	0.16	0.00	0.00	56.00	3.29	0.64	0.00
5.00	0.21	0.00	0.00	57.00	3.29	0.64	0.00
6.00	0.26	0.00	0.00	58.00	3.29	0.64	0.00
7.00	0.32	0.00	0.00	59.00	3.29	0.64	0.00
8.00	0.39	0.00	0.00	60.00	3.29	0.64	0.00
9.00	0.48	0.00	0.00	61.00	3.29	0.64	0.00
10.00	0.60	0.00	0.00	62.00	3.29	0.64	0.00
11.00	0.79	0.00	0.00	63.00	3.29	0.64	0.00
12.00	1.57	0.04	0.01	64.00	3.29	0.64	0.00
13.00	2.50	0.30	0.17	65.00	3.29	0.64	0.00
14.00	2.69	0.37	0.07	66.00	3.29	0.64	0.00
15.00	2.81	0.42	0.05	67.00	3.29	0.64	0.00
16.00	2.90	0.46	0.04	68.00	3.29	0.64	0.00
17.00	2.97	0.49	0.03	69.00	3.29	0.64	0.00
18.00	3.03	0.52	0.03	70.00	3.29	0.64	0.00
19.00	3.08	0.54	0.02	71.00	3.29	0.64	0.00
20.00	3.13	0.57	0.02	72.00	3.29	0.64	0.00
21.00	3.17	0.59	0.02				
22.00	3.22	0.61	0.02				
23.00	3.25	0.63	0.02				
24.00	3.29	0.64	0.02				
25.00	3.29	0.64	0.00				
26.00	3.29	0.64	0.00				
27.00	3.29	0.64	0.00				
28.00	3.29	0.64	0.00				
29.00	3.29	0.64	0.00				
30.00	3.29	0.64	0.00				
31.00	3.29	0.64	0.00				
32.00	3.29	0.64	0.00				
33.00	3.29	0.64	0.00				
34.00	3.29	0.64	0.00				
35.00	3.29	0.64	0.00				
36.00	3.29	0.64	0.00				
37.00	3.29	0.64	0.00				
38.00	3.29	0.64	0.00				
39.00	3.29	0.64	0.00				
40.00	3.29	0.64	0.00				
41.00	3.29	0.64	0.00				
42.00	3.29	0.64	0.00				
43.00	3.29	0.64	0.00				
44.00	3.29	0.64	0.00				
45.00	3.29	0.64	0.00				
46.00	3.29	0.64	0.00				
47.00	3.29	0.64	0.00				
48.00	3.29	0.64	0.00				
49.00	3.29	0.64	0.00				
50.00	3.29	0.64	0.00				
51.00	3.29	0.64	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 24S: Prop PP D (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
[47] Hint: Peak is 162% of capacity of segment #3

Runoff = 8.03 cfs @ 12.08 hrs, Volume= 0.533 af, Depth= 3.06"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
* 65,300	98	Roofs
* 25,903	98	Imp
91,203	98	Weighted Average
91,203		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.9	110	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.1	19	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.6	229	Total			

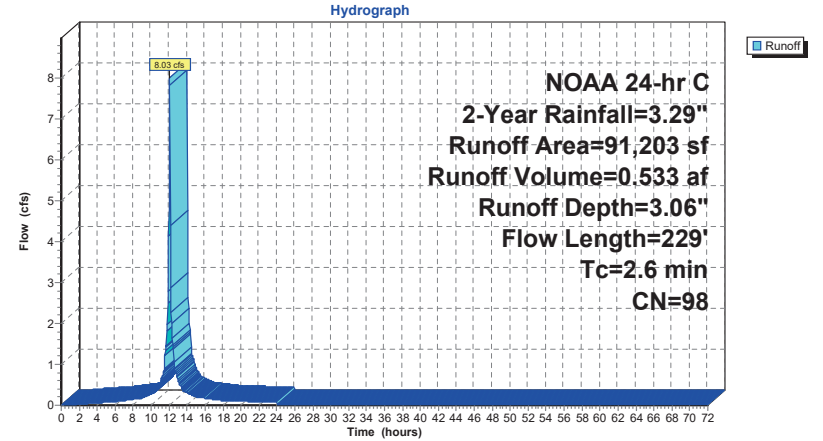
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**Subcatchment 24S: Prop PP D (Imp)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 24S: Prop PP D (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	3.06	0.00
1.00	0.04	0.00	0.00	53.00	3.29	3.06	0.00
2.00	0.07	0.00	0.02	54.00	3.29	3.06	0.00
3.00	0.12	0.02	0.04	55.00	3.29	3.06	0.00
4.00	0.16	0.04	0.06	56.00	3.29	3.06	0.00
5.00	0.21	0.08	0.07	57.00	3.29	3.06	0.00
6.00	0.26	0.11	0.09	58.00	3.29	3.06	0.00
7.00	0.32	0.16	0.11	59.00	3.29	3.06	0.00
8.00	0.39	0.22	0.14	60.00	3.29	3.06	0.00
9.00	0.48	0.30	0.18	61.00	3.29	3.06	0.00
10.00	0.60	0.41	0.28	62.00	3.29	3.06	0.00
11.00	0.79	0.59	0.53	63.00	3.29	3.06	0.00
12.00	1.57	1.35	<b>4.82</b>	64.00	3.29	3.06	0.00
13.00	2.50	2.27	<b>0.62</b>	65.00	3.29	3.06	0.00
14.00	2.69	2.46	0.31	66.00	3.29	3.06	0.00
15.00	2.81	2.58	0.20	67.00	3.29	3.06	0.00
16.00	2.90	2.66	0.17	68.00	3.29	3.06	0.00
17.00	2.97	2.74	0.14	69.00	3.29	3.06	0.00
18.00	3.03	2.80	0.11	70.00	3.29	3.06	0.00
19.00	3.08	2.85	0.11	71.00	3.29	3.06	0.00
20.00	3.13	2.90	0.10	72.00	3.29	3.06	0.00
21.00	3.17	2.94	0.09				
22.00	3.22	2.98	0.08				
23.00	3.25	3.02	0.08				
24.00	<b>3.29</b>	<b>3.06</b>	0.09				
25.00	3.29	3.06	0.00				
26.00	3.29	3.06	0.00				
27.00	3.29	3.06	0.00				
28.00	3.29	3.06	0.00				
29.00	3.29	3.06	0.00				
30.00	3.29	3.06	0.00				
31.00	3.29	3.06	0.00				
32.00	3.29	3.06	0.00				
33.00	3.29	3.06	0.00				
34.00	3.29	3.06	0.00				
35.00	3.29	3.06	0.00				
36.00	3.29	3.06	0.00				
37.00	3.29	3.06	0.00				
38.00	3.29	3.06	0.00				
39.00	3.29	3.06	0.00				
40.00	3.29	3.06	0.00				
41.00	3.29	3.06	0.00				
42.00	3.29	3.06	0.00				
43.00	3.29	3.06	0.00				
44.00	3.29	3.06	0.00				
45.00	3.29	3.06	0.00				
46.00	3.29	3.06	0.00				
47.00	3.29	3.06	0.00				
48.00	3.29	3.06	0.00				
49.00	3.29	3.06	0.00				
50.00	3.29	3.06	0.00				
51.00	3.29	3.06	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 25S: Prop PP D (Perv)**

Sheet Flow = (100 X Sq root (0.01))/ .24 = 42'

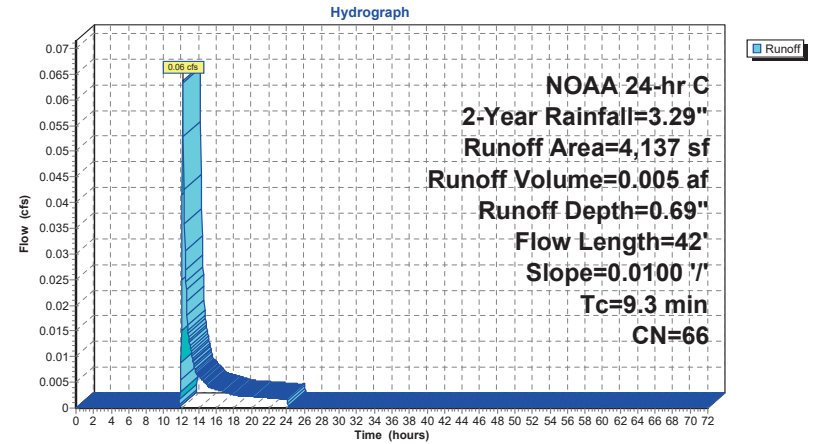
Runoff = 0.06 cfs @ 12.19 hrs, Volume= 0.005 af, Depth= 0.69"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
2,432	61	>75% Grass cover, Good, HSG B
1,705	74	>75% Grass cover, Good, HSG C
4,137	66	Weighted Average
4,137		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	42	0.0100	0.08		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"

**Subcatchment 25S: Prop PP D (Perv)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 25S: Prop PP D (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	0.69	0.00
1.00	0.04	0.00	0.00	53.00	3.29	0.69	0.00
2.00	0.07	0.00	0.00	54.00	3.29	0.69	0.00
3.00	0.12	0.00	0.00	55.00	3.29	0.69	0.00
4.00	0.16	0.00	0.00	56.00	3.29	0.69	0.00
5.00	0.21	0.00	0.00	57.00	3.29	0.69	0.00
6.00	0.26	0.00	0.00	58.00	3.29	0.69	0.00
7.00	0.32	0.00	0.00	59.00	3.29	0.69	0.00
8.00	0.39	0.00	0.00	60.00	3.29	0.69	0.00
9.00	0.48	0.00	0.00	61.00	3.29	0.69	0.00
10.00	0.60	0.00	0.00	62.00	3.29	0.69	0.00
11.00	0.79	0.00	0.00	63.00	3.29	0.69	0.00
12.00	1.57	0.05	<b>0.02</b>	64.00	3.29	0.69	0.00
13.00	2.50	0.33	<b>0.01</b>	65.00	3.29	0.69	0.00
14.00	2.69	0.40	0.01	66.00	3.29	0.69	0.00
15.00	2.81	0.46	0.00	67.00	3.29	0.69	0.00
16.00	2.90	0.50	0.00	68.00	3.29	0.69	0.00
17.00	2.97	0.53	0.00	69.00	3.29	0.69	0.00
18.00	3.03	0.56	0.00	70.00	3.29	0.69	0.00
19.00	3.08	0.58	0.00	71.00	3.29	0.69	0.00
20.00	3.13	0.61	0.00	72.00	3.29	0.69	0.00
21.00	3.17	0.63	0.00				
22.00	3.22	0.65	0.00				
23.00	3.25	0.67	0.00				
24.00	<b>3.29</b>	<b>0.69</b>	0.00				
25.00	3.29	0.69	0.00				
26.00	3.29	0.69	0.00				
27.00	3.29	0.69	0.00				
28.00	3.29	0.69	0.00				
29.00	3.29	0.69	0.00				
30.00	3.29	0.69	0.00				
31.00	3.29	0.69	0.00				
32.00	3.29	0.69	0.00				
33.00	3.29	0.69	0.00				
34.00	3.29	0.69	0.00				
35.00	3.29	0.69	0.00				
36.00	3.29	0.69	0.00				
37.00	3.29	0.69	0.00				
38.00	3.29	0.69	0.00				
39.00	3.29	0.69	0.00				
40.00	3.29	0.69	0.00				
41.00	3.29	0.69	0.00				
42.00	3.29	0.69	0.00				
43.00	3.29	0.69	0.00				
44.00	3.29	0.69	0.00				
45.00	3.29	0.69	0.00				
46.00	3.29	0.69	0.00				
47.00	3.29	0.69	0.00				
48.00	3.29	0.69	0.00				
49.00	3.29	0.69	0.00				
50.00	3.29	0.69	0.00				
51.00	3.29	0.69	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 29S: Prop Constructed Wetland E (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[47] Hint: Peak is 265% of capacity of segment #2  
[47] Hint: Peak is 163% of capacity of segment #3  
[47] Hint: Peak is 115% of capacity of segment #4

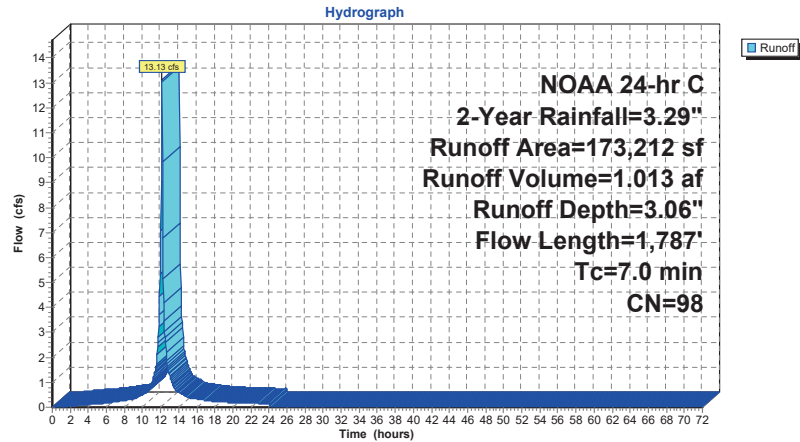
Runoff = 13.13 cfs @ 12.14 hrs, Volume= 1.013 af, Depth= 3.06"  
Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
*	17,219	98 Paved Driveway (Emergency Only)
*	149,804	98 Roofs
*	6,189	98 Wetland Pool
173,212	98	Weighted Average
173,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
2.2	533	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.6	177	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.6	218	0.0100	6.44	11.38	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	104	0.0050	5.52	17.33	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.7	655	0.0040	6.47	45.70	<b>Pipe Channel, Channel Flow</b> 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.012 Concrete pipe, finished
7.0	1,787	Total			

Subcatchment 29S: Prop Constucted Wetland E (Imp)



Hydrograph for Subcatchment 29S: Prop Constucted Wetland E (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	3.06	0.00
1.00	0.04	0.00	0.00	53.00	3.29	3.06	0.00
2.00	0.07	0.00	0.04	54.00	3.29	3.06	0.00
3.00	0.12	0.02	0.08	55.00	3.29	3.06	0.00
4.00	0.16	0.04	0.11	56.00	3.29	3.06	0.00
5.00	0.21	0.08	0.14	57.00	3.29	3.06	0.00
6.00	0.26	0.11	0.16	58.00	3.29	3.06	0.00
7.00	0.32	0.16	0.21	59.00	3.29	3.06	0.00
8.00	0.39	0.22	0.27	60.00	3.29	3.06	0.00
9.00	0.48	0.30	0.33	61.00	3.29	3.06	0.00
10.00	0.60	0.41	0.52	62.00	3.29	3.06	0.00
11.00	0.79	0.59	0.95	63.00	3.29	3.06	0.00
12.00	1.57	1.35	7.08	64.00	3.29	3.06	0.00
13.00	2.50	2.27	1.26	65.00	3.29	3.06	0.00
14.00	2.69	2.46	0.60	66.00	3.29	3.06	0.00
15.00	2.81	2.58	0.40	67.00	3.29	3.06	0.00
16.00	2.90	2.66	0.32	68.00	3.29	3.06	0.00
17.00	2.97	2.74	0.27	69.00	3.29	3.06	0.00
18.00	3.03	2.80	0.22	70.00	3.29	3.06	0.00
19.00	3.08	2.85	0.20	71.00	3.29	3.06	0.00
20.00	3.13	2.90	0.19	72.00	3.29	3.06	0.00
21.00	3.17	2.94	0.17				
22.00	3.22	2.98	0.16				
23.00	3.25	3.02	0.15				
24.00	3.29	3.06	0.15				
25.00	3.29	3.06	0.00				
26.00	3.29	3.06	0.00				
27.00	3.29	3.06	0.00				
28.00	3.29	3.06	0.00				
29.00	3.29	3.06	0.00				
30.00	3.29	3.06	0.00				
31.00	3.29	3.06	0.00				
32.00	3.29	3.06	0.00				
33.00	3.29	3.06	0.00				
34.00	3.29	3.06	0.00				
35.00	3.29	3.06	0.00				
36.00	3.29	3.06	0.00				
37.00	3.29	3.06	0.00				
38.00	3.29	3.06	0.00				
39.00	3.29	3.06	0.00				
40.00	3.29	3.06	0.00				
41.00	3.29	3.06	0.00				
42.00	3.29	3.06	0.00				
43.00	3.29	3.06	0.00				
44.00	3.29	3.06	0.00				
45.00	3.29	3.06	0.00				
46.00	3.29	3.06	0.00				
47.00	3.29	3.06	0.00				
48.00	3.29	3.06	0.00				
49.00	3.29	3.06	0.00				
50.00	3.29	3.06	0.00				
51.00	3.29	3.06	0.00				

**Summary for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Sheet Flow = (100 X Sq root (0.018))/24 = 56'

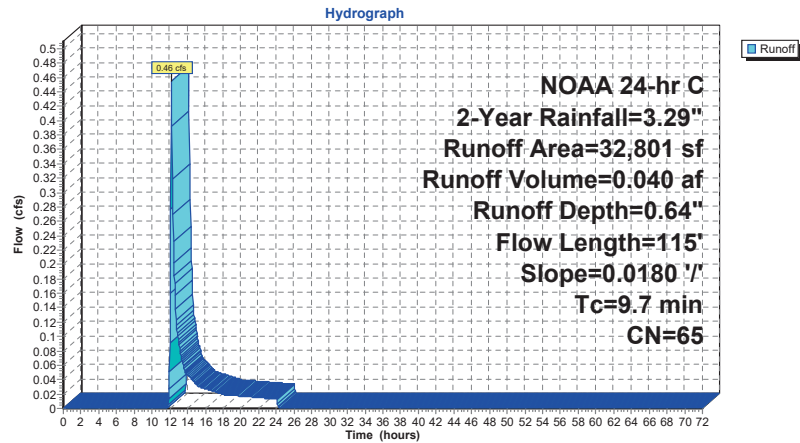
Runoff = 0.46 cfs @ 12.19 hrs, Volume= 0.040 af, Depth= 0.64"  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
22,340	61	>75% Grass cover, Good, HSG B
10,461	74	>75% Grass cover, Good, HSG C
32,801	65	Weighted Average
32,801		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	56	0.0180	0.10		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
0.5	59	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps
9.7	115				Total

**Subcatchment 30S: Prop Constucted Wetland E (Perv)**



**Hydrograph for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	0.64	0.00
1.00	0.04	0.00	0.00	53.00	3.29	0.64	0.00
2.00	0.07	0.00	0.00	54.00	3.29	0.64	0.00
3.00	0.12	0.00	0.00	55.00	3.29	0.64	0.00
4.00	0.16	0.00	0.00	56.00	3.29	0.64	0.00
5.00	0.21	0.00	0.00	57.00	3.29	0.64	0.00
6.00	0.26	0.00	0.00	58.00	3.29	0.64	0.00
7.00	0.32	0.00	0.00	59.00	3.29	0.64	0.00
8.00	0.39	0.00	0.00	60.00	3.29	0.64	0.00
9.00	0.48	0.00	0.00	61.00	3.29	0.64	0.00
10.00	0.60	0.00	0.00	62.00	3.29	0.64	0.00
11.00	0.79	0.00	0.00	63.00	3.29	0.64	0.00
12.00	1.57	0.04	0.09	64.00	3.29	0.64	0.00
13.00	2.50	0.30	0.09	65.00	3.29	0.64	0.00
14.00	2.69	0.37	0.05	66.00	3.29	0.64	0.00
15.00	2.81	0.42	0.03	67.00	3.29	0.64	0.00
16.00	2.90	0.46	0.03	68.00	3.29	0.64	0.00
17.00	2.97	0.49	0.02	69.00	3.29	0.64	0.00
18.00	3.03	0.52	0.02	70.00	3.29	0.64	0.00
19.00	3.08	0.54	0.02	71.00	3.29	0.64	0.00
20.00	3.13	0.57	0.02	72.00	3.29	0.64	0.00
21.00	3.17	0.59	0.02				
22.00	3.22	0.61	0.01				
23.00	3.25	0.63	0.01				
24.00	3.29	0.64	0.01				
25.00	3.29	0.64	0.00				
26.00	3.29	0.64	0.00				
27.00	3.29	0.64	0.00				
28.00	3.29	0.64	0.00				
29.00	3.29	0.64	0.00				
30.00	3.29	0.64	0.00				
31.00	3.29	0.64	0.00				
32.00	3.29	0.64	0.00				
33.00	3.29	0.64	0.00				
34.00	3.29	0.64	0.00				
35.00	3.29	0.64	0.00				
36.00	3.29	0.64	0.00				
37.00	3.29	0.64	0.00				
38.00	3.29	0.64	0.00				
39.00	3.29	0.64	0.00				
40.00	3.29	0.64	0.00				
41.00	3.29	0.64	0.00				
42.00	3.29	0.64	0.00				
43.00	3.29	0.64	0.00				
44.00	3.29	0.64	0.00				
45.00	3.29	0.64	0.00				
46.00	3.29	0.64	0.00				
47.00	3.29	0.64	0.00				
48.00	3.29	0.64	0.00				
49.00	3.29	0.64	0.00				
50.00	3.29	0.64	0.00				
51.00	3.29	0.64	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Subcatchment 33S: Prop Pond Undetained (Total)**

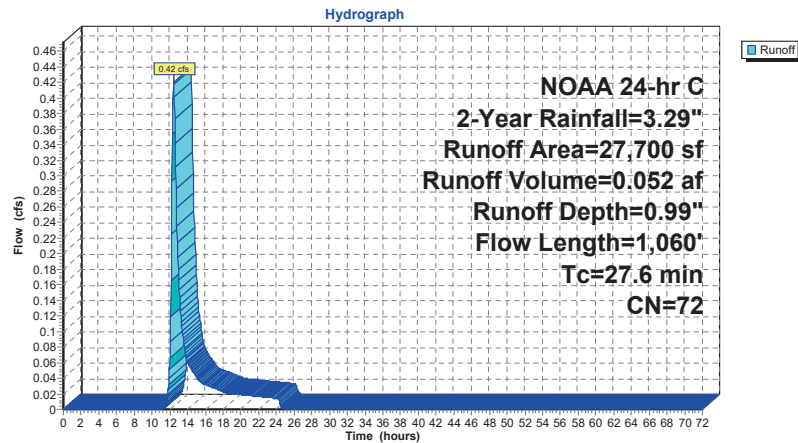
Runoff = 0.42 cfs @ 12.42 hrs, Volume= 0.052 af, Depth= 0.99"  
Routed to Link 34L : Prop Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 2-Year Rainfall=3.29"

Area (sf)	CN	Description
3,410	61	>75% Grass cover, Good, HSG B
24,290	74	>75% Grass cover, Good, HSG C
27,700	72	Weighted Average
27,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 33S: Prop Pond Undetained (Total)**



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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Subcatchment 33S: Prop Pond Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	3.29	0.99	0.00
1.00	0.04	0.00	0.00	53.00	3.29	0.99	0.00
2.00	0.07	0.00	0.00	54.00	3.29	0.99	0.00
3.00	0.12	0.00	0.00	55.00	3.29	0.99	0.00
4.00	0.16	0.00	0.00	56.00	3.29	0.99	0.00
5.00	0.21	0.00	0.00	57.00	3.29	0.99	0.00
6.00	0.26	0.00	0.00	58.00	3.29	0.99	0.00
7.00	0.32	0.00	0.00	59.00	3.29	0.99	0.00
8.00	0.39	0.00	0.00	60.00	3.29	0.99	0.00
9.00	0.48	0.00	0.00	61.00	3.29	0.99	0.00
10.00	0.60	0.00	0.00	62.00	3.29	0.99	0.00
11.00	0.79	0.00	0.00	63.00	3.29	0.99	0.00
12.00	1.57	0.13	0.07	64.00	3.29	0.99	0.00
13.00	2.50	0.53	0.17	65.00	3.29	0.99	0.00
14.00	2.69	0.63	0.06	66.00	3.29	0.99	0.00
15.00	2.81	0.70	0.04	67.00	3.29	0.99	0.00
16.00	2.90	0.75	0.03	68.00	3.29	0.99	0.00
17.00	2.97	0.79	0.03	69.00	3.29	0.99	0.00
18.00	3.03	0.83	0.02	70.00	3.29	0.99	0.00
19.00	3.08	0.86	0.02	71.00	3.29	0.99	0.00
20.00	3.13	0.89	0.02	72.00	3.29	0.99	0.00
21.00	3.17	0.91	0.02				
22.00	3.22	0.94	0.02				
23.00	3.25	0.96	0.02				
24.00	3.29	0.99	0.01				
25.00	3.29	0.99	0.00				
26.00	3.29	0.99	0.00				
27.00	3.29	0.99	0.00				
28.00	3.29	0.99	0.00				
29.00	3.29	0.99	0.00				
30.00	3.29	0.99	0.00				
31.00	3.29	0.99	0.00				
32.00	3.29	0.99	0.00				
33.00	3.29	0.99	0.00				
34.00	3.29	0.99	0.00				
35.00	3.29	0.99	0.00				
36.00	3.29	0.99	0.00				
37.00	3.29	0.99	0.00				
38.00	3.29	0.99	0.00				
39.00	3.29	0.99	0.00				
40.00	3.29	0.99	0.00				
41.00	3.29	0.99	0.00				
42.00	3.29	0.99	0.00				
43.00	3.29	0.99	0.00				
44.00	3.29	0.99	0.00				
45.00	3.29	0.99	0.00				
46.00	3.29	0.99	0.00				
47.00	3.29	0.99	0.00				
48.00	3.29	0.99	0.00				
49.00	3.29	0.99	0.00				
50.00	3.29	0.99	0.00				
51.00	3.29	0.99	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Summary for Pond 10P: Basin A**

Inflow Area = 2.552 ac, 26.18% Impervious, Inflow Depth = 1.61" for 2-Year event  
 Inflow = 3.96 cfs @ 12.11 hrs, Volume= 0.343 af  
 Outflow = 2.31 cfs @ 12.29 hrs, Volume= 0.274 af, Atten= 42%, Lag= 10.6 min  
 Primary = 2.31 cfs @ 12.29 hrs, Volume= 0.274 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.21' @ 12.29 hrs Surf.Area= 5,221 sf Storage= 5,219 cf

Plug-Flow detention time= 168.0 min calculated for 0.274 af (80% of inflow)  
 Center-of-Mass det. time= 81.5 min ( 893.3 - 811.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	83.20'	12,042 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.20	5,125	0	0
84.00	5,200	4,130	4,130
85.00	5,300	5,250	9,380
85.50	5,350	2,663	12,042

Device	Routing	Invert	Outlet Devices
#1	Primary	83.78'	<b>2.6' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#2	Primary	85.10'	<b>16.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=2.30 cfs @ 12.29 hrs HW=84.21' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir(Weir Controls 2.30 cfs @ 2.14 fps)  
 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Prop 2, 10 & 100yr**

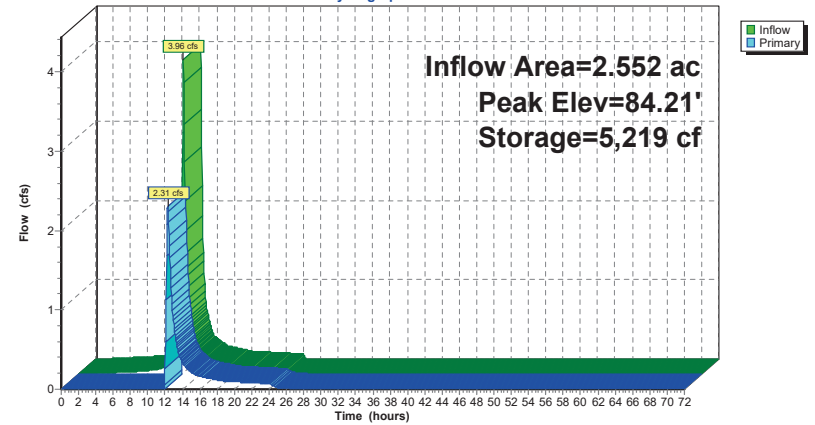
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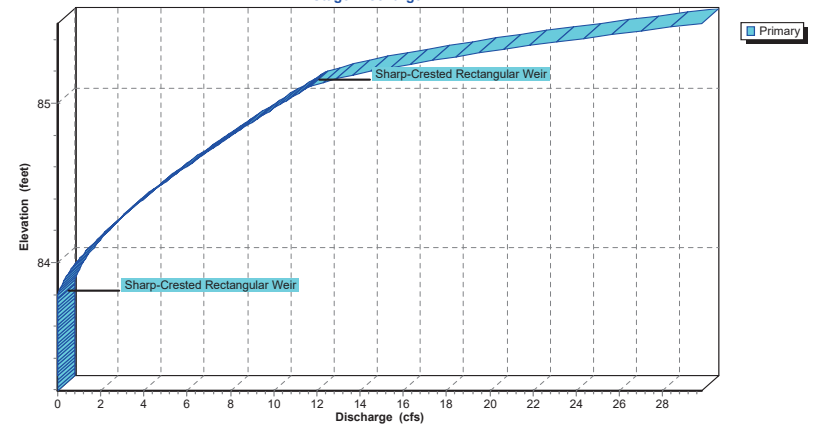
**Pond 10P: Basin A**

Hydrograph



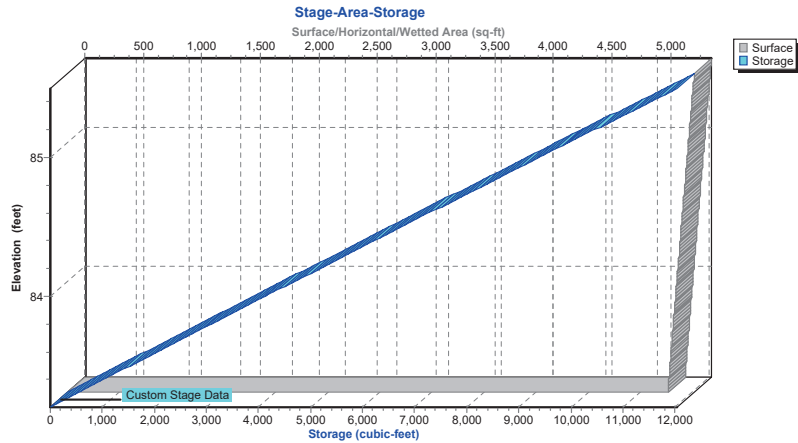
**Pond 10P: Basin A**

Stage-Discharge





**Pond 10P: Basin A**



**Hydrograph for Pond 10P: Basin A**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	83.20	0.00
2.50	0.01	25	83.20	0.00
5.00	0.02	180	83.24	0.00
7.50	0.04	456	83.29	0.00
10.00	<b>0.09</b>	<b>977</b>	<b>83.39</b>	<b>0.00</b>
12.50	<b>1.23</b>	<b>4,867</b>	<b>84.14</b>	<b>1.80</b>
15.00	0.18	3,440	83.87	0.22
17.50	0.12	3,302	83.84	0.13
20.00	0.09	3,241	83.83	0.09
22.50	0.07	3,214	83.82	0.08
25.00	0.00	3,078	83.80	0.02
27.50	0.00	3,001	83.78	0.00
30.00	0.00	2,990	83.78	0.00
32.50	0.00	2,989	83.78	0.00
35.00	0.00	2,988	83.78	0.00
37.50	0.00	2,988	83.78	0.00
40.00	0.00	2,988	83.78	0.00
42.50	0.00	2,988	83.78	0.00
45.00	0.00	2,988	83.78	0.00
47.50	0.00	2,988	83.78	0.00
50.00	0.00	2,988	83.78	0.00
52.50	0.00	2,988	83.78	0.00
55.00	0.00	2,988	83.78	0.00
57.50	0.00	2,988	83.78	0.00
60.00	0.00	2,988	83.78	0.00
62.50	0.00	2,988	83.78	0.00
65.00	0.00	2,988	83.78	0.00
67.50	0.00	2,988	83.78	0.00
70.00	0.00	2,988	83.78	0.00

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Stage-Discharge for Pond 10P: Basin A**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
83.20	0.00	84.24	2.56	85.28	17.80
83.22	0.00	84.26	2.72	85.30	18.74
83.24	0.00	84.28	2.89	85.32	19.71
83.26	0.00	84.30	3.06	85.34	20.71
83.28	0.00	84.32	3.23	85.36	21.75
83.30	0.00	84.34	3.41	85.38	22.81
83.32	0.00	84.36	3.59	85.40	23.91
83.34	0.00	84.38	3.77	85.42	25.04
83.36	0.00	84.40	3.95	85.44	26.19
83.38	0.00	84.42	4.14	85.46	27.37
83.40	0.00	84.44	4.33	85.48	28.58
83.42	0.00	84.46	4.52	85.50	<b>29.81</b>
83.44	0.00	84.48	4.71		
83.46	0.00	84.50	4.91		
83.48	0.00	84.52	5.10		
83.50	0.00	84.54	5.30		
83.52	0.00	84.56	5.51		
83.54	0.00	84.58	5.71		
83.56	0.00	84.60	5.91		
83.58	0.00	84.62	6.12		
83.60	0.00	84.64	6.33		
83.62	0.00	84.66	6.54		
83.64	0.00	84.68	6.76		
83.66	0.00	84.70	6.97		
83.68	0.00	84.72	7.19		
83.70	0.00	84.74	7.41		
83.72	0.00	84.76	7.63		
83.74	0.00	84.78	7.85		
83.76	0.00	84.80	8.07		
83.78	0.00	84.82	8.30		
83.80	0.02	84.84	8.52		
83.82	0.07	84.86	8.75		
83.84	0.12	84.88	8.98		
83.86	0.19	84.90	9.21		
83.88	0.27	84.92	9.44		
83.90	0.35	84.94	9.67		
83.92	0.44	84.96	9.91		
83.94	0.54	84.98	10.14		
83.96	0.64	85.00	10.38		
83.98	0.75	85.02	10.62		
84.00	0.86	85.04	10.86		
84.02	0.98	85.06	11.10		
84.04	1.10	85.08	11.34		
84.06	1.23	85.10	11.58		
84.08	1.36	85.12	11.98		
84.10	1.50	85.14	12.49		
84.12	1.64	85.16	13.09		
84.14	1.79	85.18	13.75		
84.16	1.93	85.20	14.47		
84.18	2.08	85.22	15.24		
84.20	2.24	85.24	16.05		
84.22	2.40	85.26	16.91		

**Prop 2, 10 & 100yr**

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**Stage-Area-Storage for Pond 10P: Basin A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
83.20	5,125	0
83.25	5,130	256
83.30	5,134	513
83.35	5,139	770
83.40	5,144	1,027
83.45	5,148	1,284
83.50	5,153	1,542
83.55	5,158	1,799
83.60	5,163	2,058
83.65	5,167	2,316
83.70	5,172	2,574
83.75	5,177	2,833
83.80	5,181	3,092
83.85	5,186	3,351
83.90	5,191	3,610
83.95	5,195	3,870
84.00	5,200	4,130
84.05	5,205	4,390
84.10	5,210	4,651
84.15	5,215	4,911
84.20	5,220	5,172
84.25	5,225	5,433
84.30	5,230	5,694
84.35	5,235	5,956
84.40	5,240	6,218
84.45	5,245	6,480
84.50	5,250	6,742
84.55	5,255	7,005
84.60	5,260	7,268
84.65	5,265	7,531
84.70	5,270	7,795
84.75	5,275	8,058
84.80	5,280	8,322
84.85	5,285	8,586
84.90	5,290	8,851
84.95	5,295	9,115
85.00	5,300	9,380
85.05	5,305	9,645
85.10	5,310	9,911
85.15	5,315	10,176
85.20	5,320	10,442
85.25	5,325	10,708
85.30	5,330	10,974
85.35	5,335	11,241
85.40	5,340	11,508
85.45	5,345	11,775
85.50	<b>5,350</b>	<b>12,042</b>

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**Summary for Pond 13P: Basin B**

Inflow Area = 1.355 ac, 80.19% Impervious, Inflow Depth = 2.67" for 2-Year event  
 Inflow = 4.26 cfs @ 12.10 hrs, Volume= 0.301 af  
 Outflow = 3.69 cfs @ 12.13 hrs, Volume= 0.205 af, Atten= 13%, Lag= 2.3 min  
 Primary = 3.69 cfs @ 12.13 hrs, Volume= 0.205 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.33' @ 12.13 hrs Surf.Area= 5,640 sf Storage= 5,021 cf

Plug-Flow detention time= 191.8 min calculated for 0.205 af (68% of inflow)  
 Center-of-Mass det. time= 91.2 min ( 855.0 - 763.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	82.43'	8,837 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.43	5,550	0	0
83.00	5,607	3,180	3,180
84.00	5,707	5,657	8,837

Device	Routing	Invert	Outlet Devices
#1	Primary	83.18'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=3.58 cfs @ 12.13 hrs HW=83.32' (Free Discharge)  
 ↳1=Sharp-Crested Rectangular Weir(Weir Controls 3.58 cfs @ 1.24 fps)

**Prop 2, 10 & 100yr**

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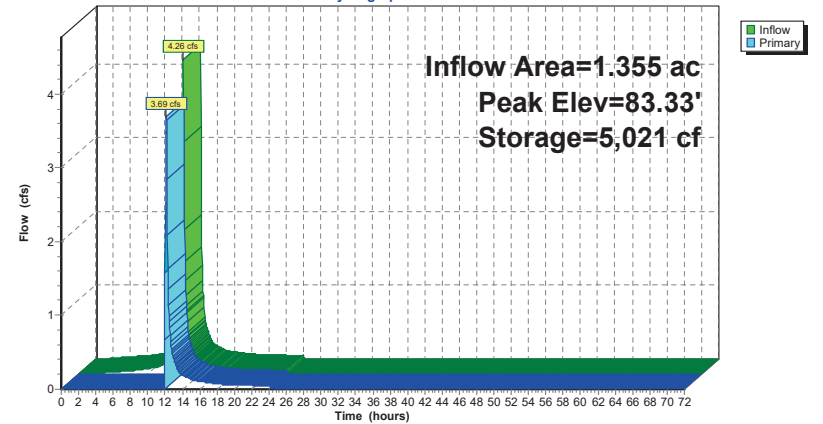
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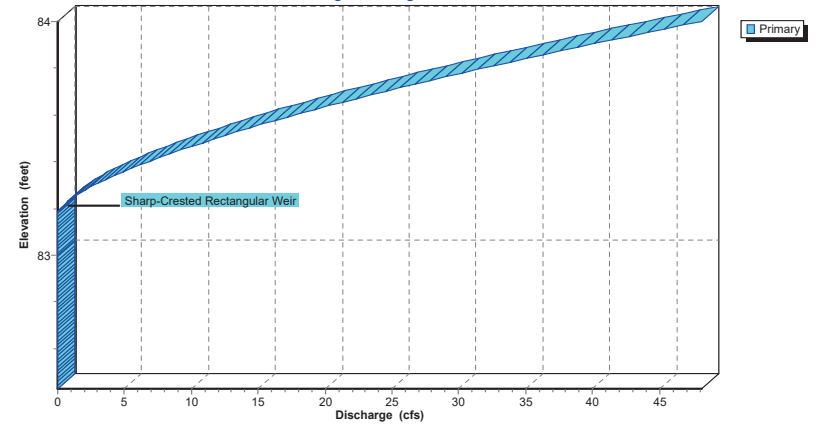
**Pond 13P: Basin B**

Hydrograph

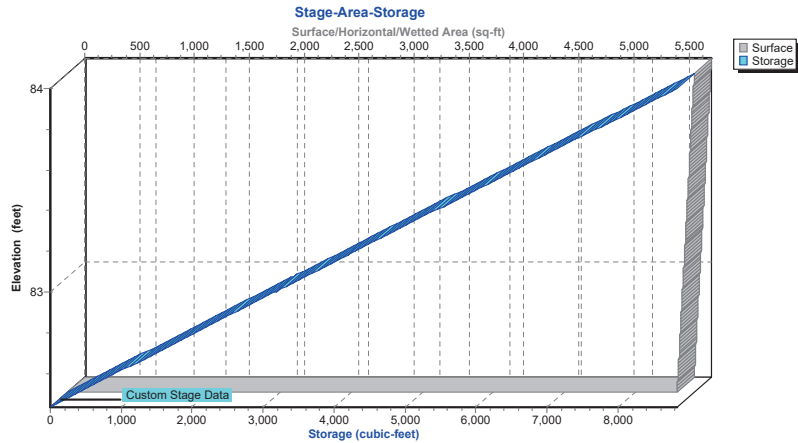


**Pond 13P: Basin B**

Stage-Discharge



**Pond 13P: Basin B**



**Hydrograph for Pond 13P: Basin B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	82.43	0.00
2.50	0.02	41	82.44	0.00
5.00	0.04	293	82.48	0.00
7.50	0.07	741	82.56	0.00
10.00	<b>0.14</b>	<b>1,587</b>	<b>82.72</b>	<b>0.00</b>
12.50	<b>0.83</b>	<b>4,516</b>	<b>83.24</b>	<b>0.91</b>
15.00	0.12	4,276	83.20	0.13
17.50	0.08	4,247	83.19	0.08
20.00	0.06	4,236	83.19	0.06
22.50	0.05	4,230	83.19	0.05
25.00	0.00	4,194	83.18	0.00
27.50	0.00	4,191	83.18	0.00
30.00	0.00	4,191	83.18	0.00
32.50	0.00	4,191	83.18	0.00
35.00	0.00	4,191	83.18	0.00
37.50	0.00	4,191	83.18	0.00
40.00	0.00	4,191	83.18	0.00
42.50	0.00	4,191	83.18	0.00
45.00	0.00	4,191	83.18	0.00
47.50	0.00	4,191	83.18	0.00
50.00	0.00	4,191	83.18	0.00
52.50	0.00	4,191	83.18	0.00
55.00	0.00	4,191	83.18	0.00
57.50	0.00	4,191	83.18	0.00
60.00	0.00	4,191	83.18	0.00
62.50	0.00	4,191	83.18	0.00
65.00	0.00	4,191	83.18	0.00
67.50	0.00	4,191	83.18	0.00
70.00	0.00	4,191	83.18	0.00

Stage-Discharge for Pond 13P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
82.43	0.00	82.95	0.00	83.47	10.18	83.99	47.29
82.44	0.00	82.96	0.00	83.48	10.71	84.00	48.16
82.45	0.00	82.97	0.00	83.49	11.25		
82.46	0.00	82.98	0.00	83.50	11.80		
82.47	0.00	82.99	0.00	83.51	12.36		
82.48	0.00	83.00	0.00	83.52	12.92		
82.49	0.00	83.01	0.00	83.53	13.49		
82.50	0.00	83.02	0.00	83.54	14.08		
82.51	0.00	83.03	0.00	83.55	14.66		
82.52	0.00	83.04	0.00	83.56	15.26		
82.53	0.00	83.05	0.00	83.57	15.87		
82.54	0.00	83.06	0.00	83.58	16.48		
82.55	0.00	83.07	0.00	83.59	17.10		
82.56	0.00	83.08	0.00	83.60	17.73		
82.57	0.00	83.09	0.00	83.61	18.36		
82.58	0.00	83.10	0.00	83.62	19.00		
82.59	0.00	83.11	0.00	83.63	19.65		
82.60	0.00	83.12	0.00	83.64	20.31		
82.61	0.00	83.13	0.00	83.65	20.97		
82.62	0.00	83.14	0.00	83.66	21.64		
82.63	0.00	83.15	0.00	83.67	22.32		
82.64	0.00	83.16	0.00	83.68	23.01		
82.65	0.00	83.17	0.00	83.69	23.70		
82.66	0.00	83.18	0.00	83.70	24.40		
82.67	0.00	83.19	0.07	83.71	25.10		
82.68	0.00	83.20	0.18	83.72	25.81		
82.69	0.00	83.21	0.34	83.73	26.53		
82.70	0.00	83.22	0.52	83.74	27.25		
82.71	0.00	83.23	0.73	83.75	27.98		
82.72	0.00	83.24	0.96	83.76	28.72		
82.73	0.00	83.25	1.21	83.77	29.46		
82.74	0.00	83.26	1.48	83.78	30.21		
82.75	0.00	83.27	1.76	83.79	30.97		
82.76	0.00	83.28	2.07	83.80	31.73		
82.77	0.00	83.29	2.38	83.81	32.50		
82.78	0.00	83.30	2.72	83.82	33.27		
82.79	0.00	83.31	3.06	83.83	34.05		
82.80	0.00	83.32	3.42	83.84	34.84		
82.81	0.00	83.33	3.79	83.85	35.63		
82.82	0.00	83.34	4.18	83.86	36.42		
82.83	0.00	83.35	4.58	83.87	37.23		
82.84	0.00	83.36	4.99	83.88	38.03		
82.85	0.00	83.37	5.41	83.89	38.85		
82.86	0.00	83.38	5.84	83.90	39.67		
82.87	0.00	83.39	6.28	83.91	40.49		
82.88	0.00	83.40	6.73	83.92	41.32		
82.89	0.00	83.41	7.20	83.93	42.16		
82.90	0.00	83.42	7.67	83.94	43.00		
82.91	0.00	83.43	8.15	83.95	43.85		
82.92	0.00	83.44	8.65	83.96	44.70		
82.93	0.00	83.45	9.15	83.97	45.56		
82.94	0.00	83.46	9.66	83.98	46.42		

Stage-Area-Storage for Pond 13P: Basin B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
82.43	5,550	0	83.47	5,654	5,826
82.45	5,552	111	83.49	5,656	5,939
82.47	5,554	222	83.51	5,658	6,052
82.49	5,556	333	83.53	5,660	6,165
82.51	5,558	444	83.55	5,662	6,279
82.53	5,560	555	83.57	5,664	6,392
82.55	5,562	667	83.59	5,666	6,505
82.57	5,564	778	83.61	5,668	6,619
82.59	5,566	889	83.63	5,670	6,732
82.61	5,568	1,001	83.65	5,672	6,845
82.63	5,570	1,112	83.67	5,674	6,959
82.65	5,572	1,223	83.69	5,676	7,072
82.67	5,574	1,335	83.71	5,678	7,186
82.69	5,576	1,446	83.73	5,680	7,299
82.71	5,578	1,558	83.75	5,682	7,413
82.73	5,580	1,669	83.77	5,684	7,527
82.75	5,582	1,781	83.79	5,686	7,640
82.77	5,584	1,893	83.81	5,688	7,754
82.79	5,586	2,004	83.83	5,690	7,868
82.81	5,588	2,116	83.85	5,692	7,982
82.83	5,590	2,228	83.87	5,694	8,096
82.85	5,592	2,340	83.89	5,696	8,210
82.87	5,594	2,452	83.91	5,698	8,324
82.89	5,596	2,564	83.93	5,700	8,438
82.91	5,598	2,676	83.95	5,702	8,552
82.93	5,600	2,788	83.97	5,704	8,666
82.95	5,602	2,900	83.99	5,706	8,780
82.97	5,604	3,012			
82.99	5,606	3,124			
83.01	5,608	3,236			
83.03	5,610	3,348			
83.05	5,612	3,460			
83.07	5,614	3,572			
83.09	5,616	3,685			
83.11	5,618	3,797			
83.13	5,620	3,910			
83.15	5,622	4,022			
83.17	5,624	4,134			
83.19	5,626	4,247			
83.21	5,628	4,359			
83.23	5,630	4,472			
83.25	5,632	4,585			
83.27	5,634	4,697			
83.29	5,636	4,810			
83.31	5,638	4,923			
83.33	5,640	5,036			
83.35	5,642	5,148			
83.37	5,644	5,261			
83.39	5,646	5,374			
83.41	5,648	5,487			
83.43	5,650	5,600			
83.45	5,652	5,713			

**Prop 2, 10 & 100yr**

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**Summary for Pond 26P: Porous Pavement D**

Inflow Area = 2.189 ac, 95.66% Impervious, Inflow Depth = 2.95" for 2-Year event  
 Inflow = 8.06 cfs @ 12.08 hrs, Volume= 0.539 af  
 Outflow = 0.41 cfs @ 13.45 hrs, Volume= 0.424 af, Atten= 95%, Lag= 82.1 min  
 Primary = 0.41 cfs @ 13.45 hrs, Volume= 0.424 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.31' @ 13.45 hrs Surf.Area= 11,488 sf Storage= 15,720 cf

Plug-Flow detention time=473.7 min calculated for 0.424 af (79% of inflow)  
 Center-of-Mass det. time= 390.8 min ( 1,146.0 - 755.2 )

Volume	Invert	Avail.Storage	Storage Description
#1A	81.90'	4,595 cf	<b>29.65'W x 387.43'L x 4.00'H Stone Storage</b> 45,936 cf Overall - 34,448 cf Embedded = 11,488 cf x 40.0% Voids
#2A	81.90'	33,414 cf	<b>ACO StormBrixx SD 1</b> x 1470 Inside #1 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 1470 Chambers in 15 Rows
		38,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	81.90'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	85.65'	<b>4.0" long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=0.41 cfs @ 13.45 hrs HW=83.31' TW=82.35' (Fixed TW Elev= 82.35')

- 1=Orifice/Grate (Orifice Controls 0.41 cfs @ 4.72 fps)
- 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

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**Pond 26P: Porous Pavement D - Chamber Wizard Stone Storage**

**Chamber Model = ACO StormBrixx SD 1 (ACO StormBrixx®SD)**  
 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf  
 Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

98 Chambers/Row x 3.95' Long = 387.43' Row Length  
 15 Rows x 23.7" Wide = 29.65' Base Width  
 36.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

1,470 Chambers x 22.7 cf = 33,414.5 cf Chamber Storage  
 1,470 Chambers x 23.4 cf = 34,447.9 cf Displacement

45,935.6 cf Field - 34,447.9 cf Chambers = 11,487.7 cf Stone x 40.0% Voids = 4,595.1 cf Stone Storage

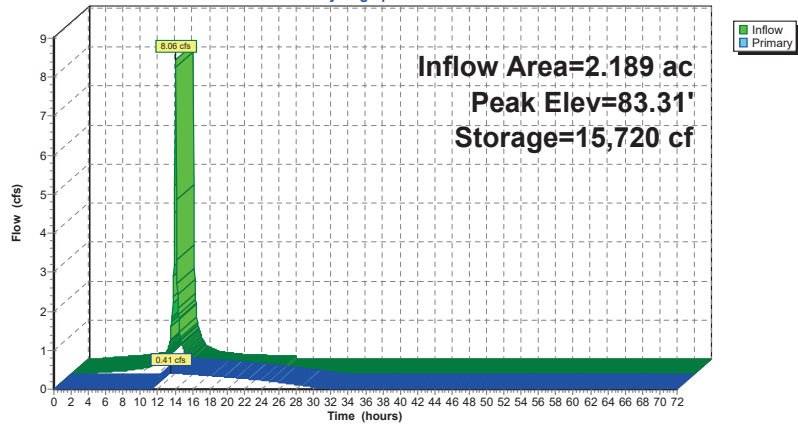
Chamber Storage + Stone Storage = 38,009.5 cf = 0.873 af  
 Overall Storage Efficiency = 82.7%  
 Overall System Size = 387.43' x 29.65' x 4.00'

1,470 Chambers  
 1,701.3 cy Field  
 425.5 cy Stone



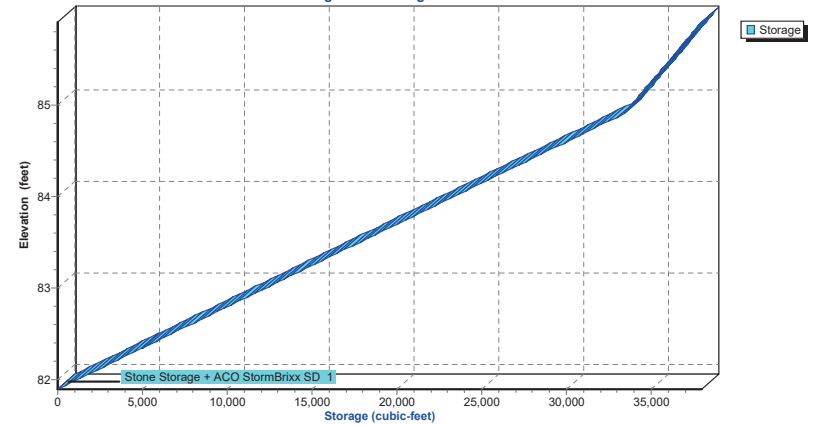
Pond 26P: Porous Pavement D

Hydrograph



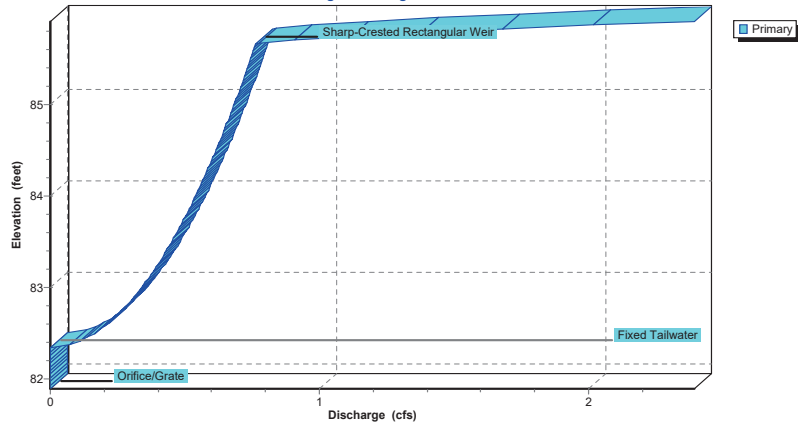
Pond 26P: Porous Pavement D

Stage-Area-Storage



Pond 26P: Porous Pavement D

Stage-Discharge



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**Hydrograph for Pond 26P: Porous Pavement D**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	81.90	0.00
2.50	0.03	81	81.91	0.00
5.00	0.07	568	81.95	0.00
7.50	0.13	1,435	82.03	0.00
10.00	<b>0.28</b>	3,073	82.18	0.00
12.50	<b>1.41</b>	<b>14,767</b>	<b>83.23</b>	<b>0.39</b>
15.00	0.21	<b>15,073</b>	<b>83.25</b>	<b>0.40</b>
17.50	0.13	13,144	83.08	0.36
20.00	0.10	11,124	82.90	0.31
22.50	0.08	9,368	82.74	0.26
25.00	0.00	7,676	82.59	0.21
27.50	0.00	6,150	82.45	0.13
30.00	0.00	5,274	82.37	0.06
32.50	0.00	5,051	82.35	0.01
35.00	0.00	5,019	82.35	0.00
37.50	0.00	5,015	82.35	0.00
40.00	0.00	5,014	82.35	0.00
42.50	0.00	5,014	82.35	0.00
45.00	0.00	5,014	82.35	0.00
47.50	0.00	5,014	82.35	0.00
50.00	0.00	5,014	82.35	0.00
52.50	0.00	5,014	82.35	0.00
55.00	0.00	5,014	82.35	0.00
57.50	0.00	5,014	82.35	0.00
60.00	0.00	5,014	82.35	0.00
62.50	0.00	5,014	82.35	0.00
65.00	0.00	5,014	82.35	0.00
67.50	0.00	5,014	82.35	0.00
70.00	0.00	5,014	82.35	0.00

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**Stage-Discharge for Pond 26P: Porous Pavement D**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
81.90	0.00	82.94	0.32	83.98	0.54	85.02	0.69
81.92	0.00	82.96	0.33	84.00	0.54	85.04	0.69
81.94	0.00	82.98	0.33	84.02	0.54	85.06	0.69
81.96	0.00	83.00	0.34	84.04	0.55	85.08	0.69
81.98	0.00	83.02	0.34	84.06	0.55	85.10	0.70
82.00	0.00	83.04	0.35	84.08	0.55	85.12	0.70
82.02	0.00	83.06	0.35	84.10	0.56	85.14	0.70
82.04	0.00	83.08	0.36	84.12	0.56	85.16	0.70
82.06	0.00	83.10	0.36	84.14	0.56	85.18	0.71
82.08	0.00	83.12	0.37	84.16	0.57	85.20	0.71
82.10	0.00	83.14	0.37	84.18	0.57	85.22	0.71
82.12	0.00	83.16	0.38	84.20	0.57	85.24	0.71
82.14	0.00	83.18	0.38	84.22	0.57	85.26	0.72
82.16	0.00	83.20	0.39	84.24	0.58	85.28	0.72
82.18	0.00	83.22	0.39	84.26	0.58	85.30	0.72
82.20	0.00	83.24	0.40	84.28	0.58	85.32	0.72
82.22	0.00	83.26	0.40	84.30	0.59	85.34	0.73
82.24	0.00	83.28	0.41	84.32	0.59	85.36	0.73
82.26	0.00	83.30	0.41	84.34	0.59	85.38	0.73
82.28	0.00	83.32	0.41	84.36	0.60	85.40	0.73
82.30	0.00	83.34	0.42	84.38	0.60	85.42	0.74
82.32	0.00	83.36	0.42	84.40	0.60	85.44	0.74
82.34	0.00	83.38	0.43	84.42	0.60	85.46	0.74
82.36	0.04	83.40	0.43	84.44	0.61	85.48	0.74
82.38	0.07	83.42	0.43	84.46	0.61	85.50	0.75
82.40	0.09	83.44	0.44	84.48	0.61	85.52	0.75
82.42	0.11	83.46	0.44	84.50	0.62	85.54	0.75
82.44	0.13	83.48	0.45	84.52	0.62	85.56	0.75
82.46	0.14	83.50	0.45	84.54	0.62	85.58	0.76
82.48	0.15	83.52	0.45	84.56	0.62	85.60	0.76
82.50	0.16	83.54	0.46	84.58	0.63	85.62	0.76
82.52	0.17	83.56	0.46	84.60	0.63	85.64	0.76
82.54	0.18	83.58	0.47	84.62	0.63	85.66	0.78
82.56	0.19	83.60	0.47	84.64	0.64	85.68	0.83
82.58	0.20	83.62	0.47	84.66	0.64	85.70	0.91
82.60	0.21	83.64	0.48	84.68	0.64	85.72	1.01
82.62	0.22	83.66	0.48	84.70	0.64	85.74	1.13
82.64	0.23	83.68	0.48	84.72	0.65	85.76	1.25
82.66	0.23	83.70	0.49	84.74	0.65	85.78	1.39
82.68	0.24	83.72	0.49	84.76	0.65	85.80	1.53
82.70	0.25	83.74	0.50	84.78	0.66	85.82	1.69
82.72	0.26	83.76	0.50	84.80	0.66	85.84	1.86
82.74	0.26	83.78	0.50	84.82	0.66	85.86	2.03
82.76	0.27	83.80	0.51	84.84	0.66	85.88	2.22
82.78	0.28	83.82	0.51	84.86	0.67	85.90	<b>2.41</b>
82.80	0.28	83.84	0.51	84.88	0.67		
82.82	0.29	83.86	0.52	84.90	0.67		
82.84	0.29	83.88	0.52	84.92	0.67		
82.86	0.30	83.90	0.52	84.94	0.68		
82.88	0.31	83.92	0.53	84.96	0.68		
82.90	0.31	83.94	0.53	84.98	0.68		
82.92	0.32	83.96	0.53	85.00	0.68		



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**Stage-Area-Storage for Pond 26P: Porous Pavement D**

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
81.90	0	84.50	28,972
81.95	557	84.55	29,529
82.00	1,114	84.60	30,086
82.05	1,671	84.65	30,643
82.10	2,229	84.70	31,200
82.15	2,786	84.75	31,758
82.20	3,343	84.80	32,315
82.25	3,900	84.85	32,872
82.30	4,457	84.90	33,429
82.35	5,014	84.95	33,986
82.40	5,572	85.00	34,543
82.45	6,129	85.05	35,100
82.50	6,686	85.10	35,657
82.55	7,243	85.15	36,214
82.60	7,800	85.20	36,771
82.65	8,357	85.25	37,328
82.70	8,914	85.30	37,885
82.75	9,472	85.35	38,442
82.80	10,029	85.40	38,999
82.85	10,586	85.45	39,556
82.90	11,143	85.50	40,113
82.95	11,700	85.55	40,670
83.00	12,257	85.60	41,227
83.05	12,814	85.65	41,784
83.10	13,372	85.70	42,341
83.15	13,929	85.75	42,898
83.20	14,486	85.80	43,455
83.25	15,043	85.85	44,012
83.30	15,600	85.90	<b>44,569</b>
83.35	16,157		
83.40	16,715		
83.45	17,272		
83.50	17,829		
83.55	18,386		
83.60	18,943		
83.65	19,500		
83.70	20,057		
83.75	20,615		
83.80	21,172		
83.85	21,729		
83.90	22,286		
83.95	22,843		
84.00	23,400		
84.05	23,958		
84.10	24,515		
84.15	25,072		
84.20	25,629		
84.25	26,186		
84.30	26,743		
84.35	27,300		
84.40	27,858		
84.45	28,415		

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**Summary for Pond 27P: Prop Standard Constructed Wetland E**

Inflow Area = 13.138 ac, 76.54% Impervious, Inflow Depth = 2.31" for 2-Year event  
 Inflow = 26.32 cfs @ 12.13 hrs, Volume= 2.532 af  
 Outflow = 3.20 cfs @ 13.14 hrs, Volume= 2.528 af, Atten= 88%, Lag= 60.6 min  
 Primary = 3.20 cfs @ 13.14 hrs, Volume= 2.528 af  
 Routed to Link 28L : Prop South Total

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 78.38' @ 13.14 hrs Surf.Area= 19,334 sf Storage= 49,700 cf

Plug-Flow detention time=455.4 min calculated for 2.526 af (100% of inflow)  
 Center-of-Mass det. time= 454.9 min ( 1,302.3 - 847.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	75.50'	140,019 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

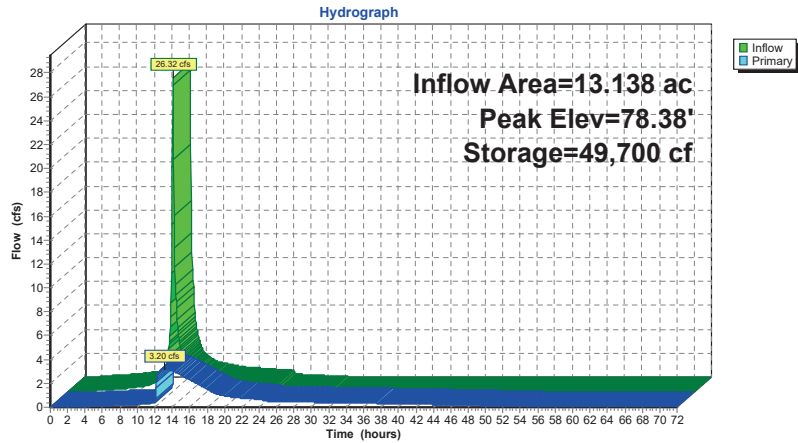
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.50	6,189	0	0
76.00	15,855	5,511	5,511
77.00	19,196	17,526	23,037
78.00	19,296	19,246	42,283
79.00	19,396	19,346	61,629
80.00	19,496	19,446	81,075
81.00	19,548	19,522	100,597
82.00	19,648	19,598	120,195
83.00	20,000	19,824	140,019

Device	Routing	Invert	Outlet Devices
#1	Primary	75.50'	<b>3.7" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	77.20'	<b>30.0" W x 2.5" H Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	80.15'	<b>1.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Primary	82.05'	<b>20.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

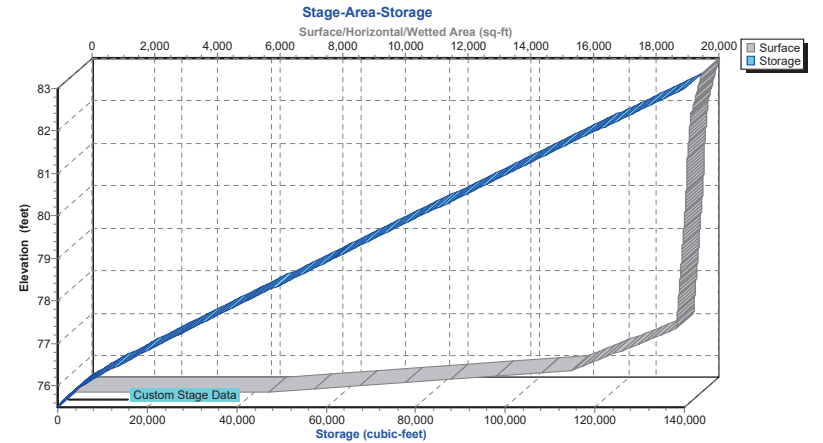
**Primary OutFlow** Max=3.20 cfs @ 13.14 hrs HW=78.38' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.59 cfs @ 7.96 fps)
- 2=Orifice/Grate (Orifice Controls 2.60 cfs @ 5.00 fps)
- 3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)
- 4=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

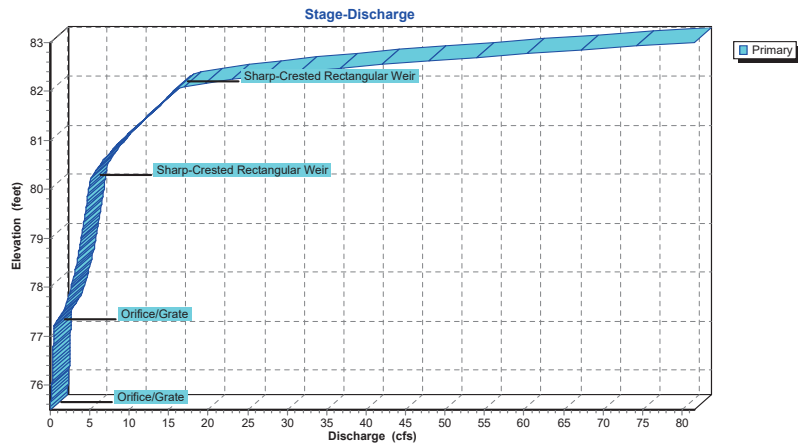
Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



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**Hydrograph for Pond 27P: Prop Standard Constructed Wetland E**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	75.50	0.00
2.50	0.09	215	75.53	0.01
5.00	0.21	1,386	75.67	0.06
7.50	0.38	2,976	75.82	0.15
10.00	<b>0.81</b>	6,106	76.04	0.22
12.50	<b>7.61</b>	<b>46,084</b>	<b>78.20</b>	<b>2.94</b>
15.00	1.40	<b>42,974</b>	<b>78.04</b>	<b>2.70</b>
17.50	0.97	33,545	77.55	1.72
20.00	0.78	29,766	77.35	0.95
22.50	0.65	28,822	77.30	0.72
25.00	0.23	27,424	77.23	0.49
27.50	0.14	25,011	77.10	0.43
30.00	0.06	22,105	76.95	0.41
32.50	0.01	18,772	76.77	0.38
35.00	0.00	15,523	76.59	0.35
37.50	0.00	12,539	76.42	0.32
40.00	0.00	9,854	76.27	0.28
42.50	0.00	7,481	76.12	0.25
45.00	0.00	5,430	75.99	0.21
47.50	0.00	3,720	75.88	0.17
50.00	0.00	2,398	75.77	0.12
52.50	0.00	1,536	75.69	0.07
55.00	0.00	1,039	75.64	0.04
57.50	0.00	743	75.60	0.03
60.00	0.00	563	75.58	0.02
62.50	0.00	447	75.56	0.01
65.00	0.00	356	75.55	0.01
67.50	0.00	283	75.54	0.01
70.00	0.00	226	75.53	0.01

**Prop 2, 10 & 100yr**

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**Stage-Discharge for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
75.50	0.00	78.10	2.80	80.70	7.28
75.55	0.01	78.15	2.87	80.75	7.56
75.60	0.02	78.20	2.95	80.80	7.85
75.65	0.05	78.25	3.02	80.85	8.15
75.70	0.08	78.30	3.09	80.90	8.45
75.75	0.11	78.35	3.15	80.95	8.75
75.80	0.14	78.40	3.22	81.00	9.06
75.85	0.16	78.45	3.28	81.05	9.37
75.90	0.18	78.50	3.35	81.10	9.69
75.95	0.20	78.55	3.41	81.15	10.01
76.00	0.21	78.60	3.47	81.20	10.33
76.05	0.23	78.65	3.53	81.25	10.66
76.10	0.24	78.70	3.59	81.30	10.99
76.15	0.25	78.75	3.65	81.35	11.32
76.20	0.27	78.80	3.70	81.40	11.65
76.25	0.28	78.85	3.76	81.45	11.98
76.30	0.29	78.90	3.82	81.50	12.31
76.35	0.30	78.95	3.87	81.55	12.65
76.40	0.31	79.00	3.92	81.60	12.98
76.45	0.32	79.05	3.98	81.65	13.32
76.50	0.33	79.10	4.03	81.70	13.65
76.55	0.34	79.15	4.08	81.75	13.98
76.60	0.35	79.20	4.13	81.80	14.32
76.65	0.36	79.25	4.18	81.85	14.65
76.70	0.37	79.30	4.23	81.90	14.98
76.75	0.38	79.35	4.28	81.95	15.31
76.80	0.38	79.40	4.33	82.00	15.64
76.85	0.39	79.45	4.37	82.05	15.96
76.90	0.40	79.50	4.42	82.10	17.02
76.95	0.41	79.55	4.47	82.15	18.68
77.00	0.42	79.60	4.51	82.20	20.72
77.05	0.42	79.65	4.56	82.25	23.09
77.10	0.43	79.70	4.60	82.30	25.72
77.15	0.44	79.75	4.65	82.35	28.59
77.20	0.45	79.80	4.69	82.40	31.68
77.25	0.54	79.85	4.74	82.45	34.97
77.30	0.72	79.90	4.78	82.50	38.44
77.35	0.93	79.95	4.82	82.55	42.10
77.40	1.19	80.00	4.87	82.60	45.91
77.45	1.42	80.05	4.91	82.65	49.89
77.50	1.58	80.10	4.95	82.70	54.01
77.55	1.73	80.15	4.99	82.75	58.28
77.60	1.86	80.20	5.09	82.80	62.68
77.65	1.98	80.25	5.23	82.85	67.22
77.70	2.09	80.30	5.39	82.90	71.88
77.75	2.19	80.35	5.58	82.95	76.67
77.80	2.29	80.40	5.79	83.00	<b>81.57</b>
77.85	2.38	80.45	6.01		
77.90	2.47	80.50	6.24		
77.95	2.56	80.55	6.49		
78.00	2.64	80.60	6.74		
78.05	2.72	80.65	7.01		

**Prop 2, 10 & 100yr**

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**Stage-Area-Storage for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
75.50	6,189	0	80.70	19,532	94,734
75.60	8,122	716	80.80	19,538	96,688
75.70	10,055	1,624	80.90	19,543	98,642
75.80	11,989	2,727	81.00	19,548	100,597
75.90	13,922	4,022	81.10	19,558	102,552
76.00	15,855	5,511	81.20	19,568	104,508
76.10	16,189	7,113	81.30	19,578	106,465
76.20	16,523	8,749	81.40	19,588	108,424
76.30	16,857	10,418	81.50	19,598	110,383
76.40	17,191	12,120	81.60	19,608	112,343
76.50	17,526	13,856	81.70	19,618	114,305
76.60	17,860	15,625	81.80	19,628	116,267
76.70	18,194	17,428	81.90	19,638	118,230
76.80	18,528	19,264	82.00	19,648	120,195
76.90	18,862	21,134	82.10	19,683	122,161
77.00	19,196	23,037	82.20	19,718	124,131
77.10	19,206	24,957	82.30	19,754	126,105
77.20	19,216	26,878	82.40	19,789	128,082
77.30	19,226	28,800	82.50	19,824	130,063
77.40	19,236	30,723	82.60	19,859	132,047
77.50	19,246	32,647	82.70	19,894	134,034
77.60	19,256	34,572	82.80	19,930	136,026
77.70	19,266	36,498	82.90	19,965	138,020
77.80	19,276	38,425	83.00	<b>20,000</b>	<b>140,019</b>
77.90	19,286	40,353			
78.00	19,296	42,283			
78.10	19,306	44,213			
78.20	19,316	46,144			
78.30	19,326	48,076			
78.40	19,336	50,009			
78.50	19,346	51,943			
78.60	19,356	53,878			
78.70	19,366	55,814			
78.80	19,376	57,751			
78.90	19,386	59,689			
79.00	19,396	61,629			
79.10	19,406	63,569			
79.20	19,416	65,510			
79.30	19,426	67,452			
79.40	19,436	69,395			
79.50	19,446	71,339			
79.60	19,456	73,284			
79.70	19,466	75,230			
79.80	19,476	77,177			
79.90	19,486	79,125			
80.00	19,496	81,075			
80.10	19,501	83,024			
80.20	19,506	84,975			
80.30	19,512	86,926			
80.40	19,517	88,877			
80.50	19,522	90,829			
80.60	19,527	92,781			

**Prop 2, 10 & 100yr**

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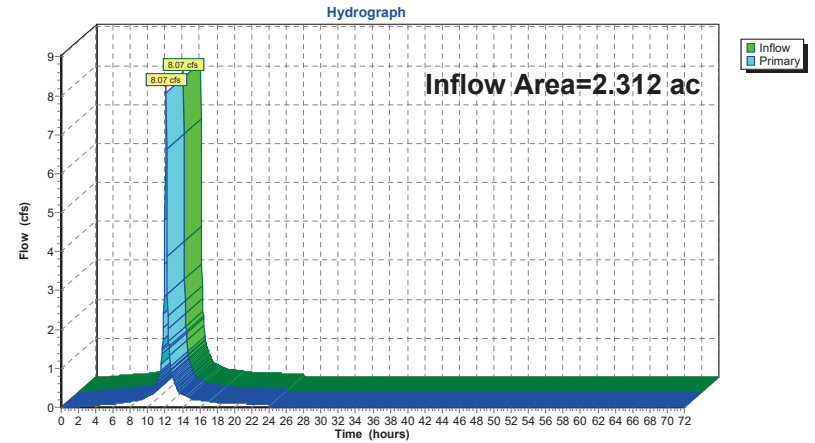
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**Summary for Link 17L: Prop MTD C - bypass**

Inflow Area = 2.312 ac, 96.48% Impervious, Inflow Depth = 2.99" for 2-Year event  
 Inflow = 8.07 cfs @ 12.10 hrs, Volume= 0.576 af  
 Primary = 8.07 cfs @ 12.10 hrs, Volume= 0.576 af, Atten= 0%, Lag= 0.0 min  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

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

**Link 17L: Prop MTD C - bypass**



**Prop 2, 10 & 100yr**

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**Hydrograph for Link 17L: Prop MTD C - bypass**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.02	0.00	0.02	54.00	0.00	0.00	0.00
3.00	0.04	0.00	0.04	55.00	0.00	0.00	0.00
4.00	0.06	0.00	0.06	56.00	0.00	0.00	0.00
5.00	0.08	0.00	0.08	57.00	0.00	0.00	0.00
6.00	0.09	0.00	0.09	58.00	0.00	0.00	0.00
7.00	0.12	0.00	0.12	59.00	0.00	0.00	0.00
8.00	0.15	0.00	0.15	60.00	0.00	0.00	0.00
9.00	0.19	0.00	0.19	61.00	0.00	0.00	0.00
10.00	0.29	0.00	0.29	62.00	0.00	0.00	0.00
11.00	0.55	0.00	0.55	63.00	0.00	0.00	0.00
12.00	<b>4.82</b>	0.00	<b>4.82</b>	64.00	0.00	0.00	0.00
13.00	<b>0.69</b>	0.00	<b>0.69</b>	65.00	0.00	0.00	0.00
14.00	0.34	0.00	0.34	66.00	0.00	0.00	0.00
15.00	0.22	0.00	0.22	67.00	0.00	0.00	0.00
16.00	0.18	0.00	0.18	68.00	0.00	0.00	0.00
17.00	0.16	0.00	0.16	69.00	0.00	0.00	0.00
18.00	0.12	0.00	0.12	70.00	0.00	0.00	0.00
19.00	0.11	0.00	0.11	71.00	0.00	0.00	0.00
20.00	0.11	0.00	0.11	72.00	0.00	0.00	0.00
21.00	0.10	0.00	0.10				
22.00	0.09	0.00	0.09				
23.00	0.09	0.00	0.09				
24.00	0.09	0.00	0.09				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

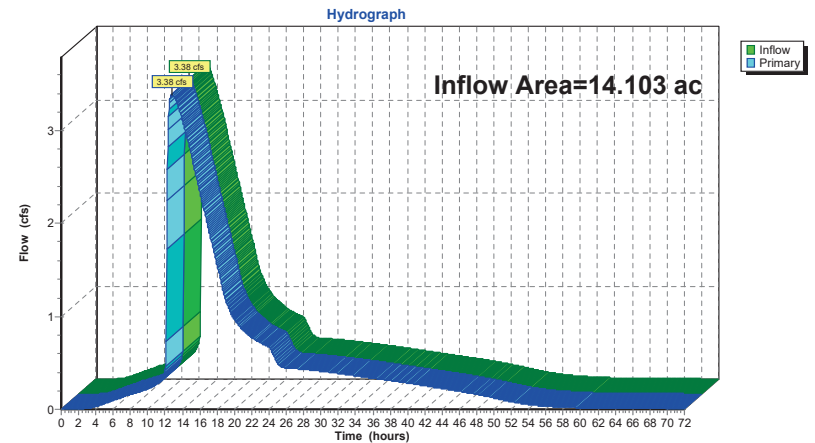
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**Summary for Link 28L: Prop South Total**

Inflow Area = 14.103 ac, 71.31% Impervious, Inflow Depth > 2.20" for 2-Year event  
 Inflow = 3.38 cfs @ 12.76 hrs, Volume= 2.580 af  
 Primary = 3.38 cfs @ 12.76 hrs, Volume= 2.580 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 34L : Prop Total

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

**Link 28L: Prop South Total**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

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**Hydrograph for Link 28L: Prop South Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.08	0.00	0.08
1.00	0.00	0.00	0.00	53.00	0.06	0.00	0.06
2.00	0.00	0.00	0.00	54.00	0.05	0.00	0.05
3.00	0.01	0.00	0.01	55.00	0.04	0.00	0.04
4.00	0.03	0.00	0.03	56.00	0.03	0.00	0.03
5.00	0.06	0.00	0.06	57.00	0.03	0.00	0.03
6.00	0.10	0.00	0.10	58.00	0.02	0.00	0.02
7.00	0.13	0.00	0.13	59.00	0.02	0.00	0.02
8.00	0.16	0.00	0.16	60.00	0.02	0.00	0.02
9.00	0.19	0.00	0.19	61.00	0.01	0.00	0.01
10.00	0.22	0.00	0.22	62.00	0.01	0.00	0.01
11.00	0.27	0.00	0.27	63.00	0.01	0.00	0.01
12.00	<b>0.42</b>	0.00	<b>0.42</b>	64.00	0.01	0.00	0.01
13.00	<b>3.36</b>	0.00	<b>3.36</b>	65.00	0.01	0.00	0.01
14.00	3.10	0.00	3.10	66.00	0.01	0.00	0.01
15.00	2.75	0.00	2.75	67.00	0.01	0.00	0.01
16.00	2.34	0.00	2.34	68.00	0.01	0.00	0.01
17.00	1.94	0.00	1.94	69.00	0.01	0.00	0.01
18.00	1.55	0.00	1.55	70.00	0.01	0.00	0.01
19.00	1.17	0.00	1.17	71.00	0.01	0.00	0.01
20.00	0.97	0.00	0.97	72.00	0.00	0.00	0.00
21.00	0.85	0.00	0.85				
22.00	0.77	0.00	0.77				
23.00	0.72	0.00	0.72				
24.00	0.67	0.00	0.67				
25.00	0.49	0.00	0.49				
26.00	0.44	0.00	0.44				
27.00	0.44	0.00	0.44				
28.00	0.43	0.00	0.43				
29.00	0.42	0.00	0.42				
30.00	0.41	0.00	0.41				
31.00	0.40	0.00	0.40				
32.00	0.39	0.00	0.39				
33.00	0.37	0.00	0.37				
34.00	0.36	0.00	0.36				
35.00	0.35	0.00	0.35				
36.00	0.34	0.00	0.34				
37.00	0.32	0.00	0.32				
38.00	0.31	0.00	0.31				
39.00	0.30	0.00	0.30				
40.00	0.28	0.00	0.28				
41.00	0.27	0.00	0.27				
42.00	0.25	0.00	0.25				
43.00	0.24	0.00	0.24				
44.00	0.22	0.00	0.22				
45.00	0.21	0.00	0.21				
46.00	0.19	0.00	0.19				
47.00	0.18	0.00	0.18				
48.00	0.16	0.00	0.16				
49.00	0.14	0.00	0.14				
50.00	0.12	0.00	0.12				
51.00	0.10	0.00	0.10				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 2-Year Rainfall=3.29"

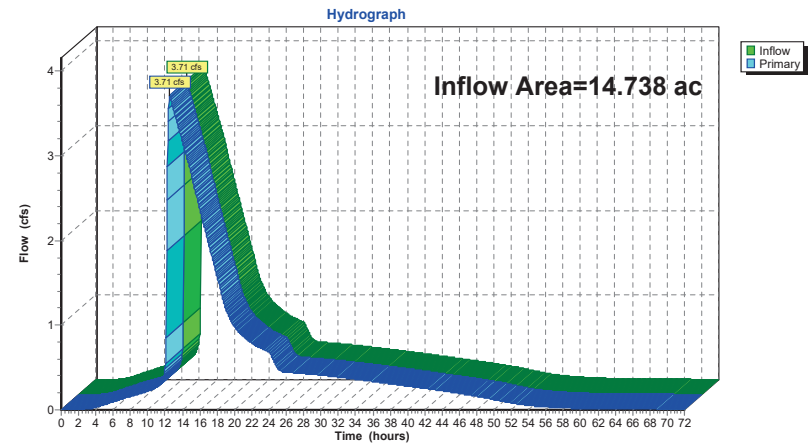
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**Summary for Link 34L: Prop Total**

Inflow Area = 14.738 ac, 68.23% Impervious, Inflow Depth > 2.14" for 2-Year event  
 Inflow = 3.71 cfs @ 12.56 hrs, Volume= 2.632 af  
 Primary = 3.71 cfs @ 12.56 hrs, Volume= 2.632 af, Atten= 0%, Lag= 0.0 min

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

**Link 34L: Prop Total**



**Prop 2, 10 & 100yr**

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**Hydrograph for Link 34L: Prop Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.08	0.00	0.08
1.00	0.00	0.00	0.00	53.00	0.06	0.00	0.06
2.00	0.00	0.00	0.00	54.00	0.05	0.00	0.05
3.00	0.01	0.00	0.01	55.00	0.04	0.00	0.04
4.00	0.03	0.00	0.03	56.00	0.03	0.00	0.03
5.00	0.06	0.00	0.06	57.00	0.03	0.00	0.03
6.00	0.10	0.00	0.10	58.00	0.02	0.00	0.02
7.00	0.13	0.00	0.13	59.00	0.02	0.00	0.02
8.00	0.16	0.00	0.16	60.00	0.02	0.00	0.02
9.00	0.19	0.00	0.19	61.00	0.01	0.00	0.01
10.00	0.22	0.00	0.22	62.00	0.01	0.00	0.01
11.00	0.27	0.00	0.27	63.00	0.01	0.00	0.01
12.00	0.49	0.00	0.49	64.00	0.01	0.00	0.01
13.00	3.53	0.00	3.53	65.00	0.01	0.00	0.01
14.00	3.16	0.00	3.16	66.00	0.01	0.00	0.01
15.00	2.79	0.00	2.79	67.00	0.01	0.00	0.01
16.00	2.37	0.00	2.37	68.00	0.01	0.00	0.01
17.00	1.97	0.00	1.97	69.00	0.01	0.00	0.01
18.00	1.57	0.00	1.57	70.00	0.01	0.00	0.01
19.00	1.19	0.00	1.19	71.00	0.01	0.00	0.01
20.00	0.99	0.00	0.99	72.00	0.00	0.00	0.00
21.00	0.87	0.00	0.87				
22.00	0.79	0.00	0.79				
23.00	0.73	0.00	0.73				
24.00	0.68	0.00	0.68				
25.00	0.49	0.00	0.49				
26.00	0.44	0.00	0.44				
27.00	0.44	0.00	0.44				
28.00	0.43	0.00	0.43				
29.00	0.42	0.00	0.42				
30.00	0.41	0.00	0.41				
31.00	0.40	0.00	0.40				
32.00	0.39	0.00	0.39				
33.00	0.37	0.00	0.37				
34.00	0.36	0.00	0.36				
35.00	0.35	0.00	0.35				
36.00	0.34	0.00	0.34				
37.00	0.32	0.00	0.32				
38.00	0.31	0.00	0.31				
39.00	0.30	0.00	0.30				
40.00	0.28	0.00	0.28				
41.00	0.27	0.00	0.27				
42.00	0.25	0.00	0.25				
43.00	0.24	0.00	0.24				
44.00	0.22	0.00	0.22				
45.00	0.21	0.00	0.21				
46.00	0.19	0.00	0.19				
47.00	0.18	0.00	0.18				
48.00	0.16	0.00	0.16				
49.00	0.14	0.00	0.14				
50.00	0.12	0.00	0.12				
51.00	0.10	0.00	0.10				

**Prop 2, 10 & 100yr**

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Prop Basin A (Imp)</b>	Runoff Area=29,111 sf 100.00% Impervious Runoff Depth=4.74" Flow Length=541' Tc=3.4 min CN=98 Runoff=3.79 cfs 0.264 af
<b>Subcatchment2S: Prop Basin A (Perv)</b>	Runoff Area=82,064 sf 0.00% Impervious Runoff Depth=2.35" Flow Length=253' Tc=10.9 min CN=74 Runoff=4.76 cfs 0.369 af
<b>Subcatchment11S: Prop Basin B (Imp)</b>	Runoff Area=47,330 sf 100.00% Impervious Runoff Depth=4.74" Flow Length=431' Tc=3.5 min CN=98 Runoff=6.13 cfs 0.429 af
<b>Subcatchment12S: Prop Basin B (Perv)</b>	Runoff Area=11,691 sf 0.00% Impervious Runoff Depth=2.35" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.72 cfs 0.053 af
<b>Subcatchment21S: Prop MTD C (Imp)</b>	Runoff Area=97,184 sf 100.00% Impervious Runoff Depth=4.74" Flow Length=824' Tc=4.3 min CN=98 Runoff=12.18 cfs 0.882 af
<b>Subcatchment22S: Prop MTD C (Perv)</b>	Runoff Area=3,542 sf 0.00% Impervious Runoff Depth=2.35" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.22 cfs 0.016 af
<b>Subcatchment23S: Prop South Undetained</b>	Runoff Area=42,030 sf 0.00% Impervious Runoff Depth=1.64" Flow Length=1,060' Tc=27.6 min CN=65 Runoff=1.08 cfs 0.132 af
<b>Subcatchment24S: Prop PP D (Imp)</b>	Runoff Area=91,203 sf 100.00% Impervious Runoff Depth=4.74" Flow Length=229' Tc=2.6 min CN=98 Runoff=12.22 cfs 0.828 af
<b>Subcatchment25S: Prop PP D (Perv)</b>	Runoff Area=4,137 sf 0.00% Impervious Runoff Depth=1.71" Flow Length=42' Slope=0.0100 '/' Tc=9.3 min CN=66 Runoff=0.18 cfs 0.014 af
<b>Subcatchment29S: Prop Constructed</b>	Runoff Area=173,212 sf 100.00% Impervious Runoff Depth=4.74" Flow Length=1,787' Tc=7.0 min CN=98 Runoff=20.01 cfs 1.572 af
<b>Subcatchment30S: Prop Constructed</b>	Runoff Area=32,801 sf 0.00% Impervious Runoff Depth=1.64" Flow Length=115' Slope=0.0180 '/' Tc=9.7 min CN=65 Runoff=1.33 cfs 0.103 af
<b>Subcatchment33S: Prop Pond Undetained</b>	Runoff Area=27,700 sf 0.00% Impervious Runoff Depth=2.18" Flow Length=1,060' Tc=27.6 min CN=72 Runoff=0.99 cfs 0.116 af
<b>Pond 10P: Basin A</b>	Peak Elev=84.55' Storage=7,000 cf Inflow=7.33 cfs 0.633 af Outflow=5.39 cfs 0.564 af
<b>Pond 13P: Basin B</b>	Peak Elev=83.38' Storage=5,332 cf Inflow=6.68 cfs 0.482 af Outflow=5.95 cfs 0.386 af
<b>Pond 26P: Porous Pavement D</b>	Peak Elev=84.09' Storage=24,369 cf Inflow=12.34 cfs 0.841 af Outflow=0.55 cfs 0.726 af
<b>Pond 27P: Prop Standard Constructed</b>	Peak Elev=80.20' Storage=85,046 cf Inflow=43.15 cfs 4.248 af Outflow=5.11 cfs 4.242 af

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Link 17L: Prop MTD C - bypass

Inflow=12.35 cfs 0.898 af  
 Primary=12.35 cfs 0.898 af

Link 28L: Prop South Total

Inflow=5.81 cfs 4.374 af  
 Primary=5.81 cfs 4.374 af

Link 34L: Prop Total

Inflow=6.77 cfs 4.490 af  
 Primary=6.77 cfs 4.490 af

**Total Runoff Area = 14.738 ac Runoff Volume = 4.776 af Average Runoff Depth = 3.89"**  
**31.77% Pervious = 4.682 ac 68.23% Impervious = 10.056 ac**

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 1S: Prop Basin A (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.79 cfs @ 12.09 hrs, Volume= 0.264 af, Depth= 4.74"  
 Routed to Pond 10P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year Rainfall=4.98"

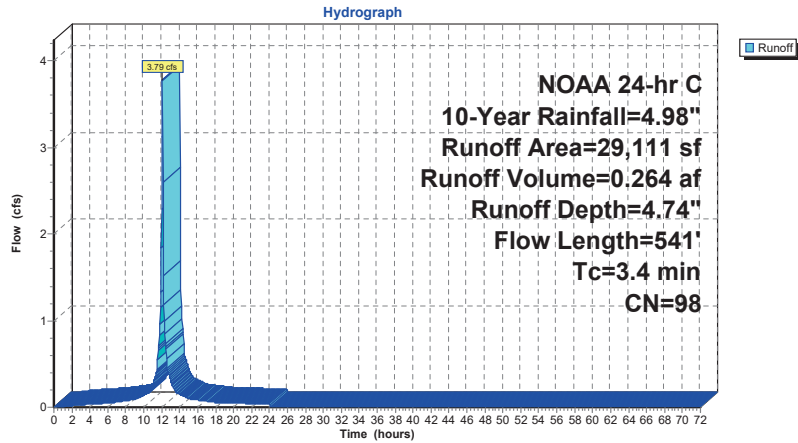
Area (sf)	CN	Description
* 29,111	98	Imp
29,111		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	365	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	76	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.4	541	Total			



Subcatchment 1S: Prop Basin A (Imp)



Hydrograph for Subcatchment 1S: Prop Basin A (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.74	0.00
1.00	0.05	0.00	0.00	53.00	4.98	4.74	0.00
2.00	0.11	0.02	0.02	54.00	4.98	4.74	0.00
3.00	0.18	0.05	0.03	55.00	4.98	4.74	0.00
4.00	0.24	0.10	0.04	56.00	4.98	4.74	0.00
5.00	0.32	0.16	0.04	57.00	4.98	4.74	0.00
6.00	0.39	0.22	0.05	58.00	4.98	4.74	0.00
7.00	0.49	0.31	0.06	59.00	4.98	4.74	0.00
8.00	0.60	0.41	0.07	60.00	4.98	4.74	0.00
9.00	0.73	0.53	0.09	61.00	4.98	4.74	0.00
10.00	0.91	0.70	0.14	62.00	4.98	4.74	0.00
11.00	1.20	0.98	0.26	63.00	4.98	4.74	0.00
12.00	2.37	2.14	<b>2.28</b>	64.00	4.98	4.74	0.00
13.00	3.78	3.55	<b>0.30</b>	65.00	4.98	4.74	0.00
14.00	4.07	3.84	0.15	66.00	4.98	4.74	0.00
15.00	4.25	4.02	0.10	67.00	4.98	4.74	0.00
16.00	4.38	4.15	0.08	68.00	4.98	4.74	0.00
17.00	4.49	4.26	0.07	69.00	4.98	4.74	0.00
18.00	4.59	4.35	0.06	70.00	4.98	4.74	0.00
19.00	4.66	4.43	0.05	71.00	4.98	4.74	0.00
20.00	4.74	4.50	0.05	72.00	4.98	4.74	0.00
21.00	4.80	4.57	0.04				
22.00	4.87	4.63	0.04				
23.00	4.93	4.69	0.04				
24.00	<b>4.98</b>	<b>4.74</b>	0.04				
25.00	4.98	4.74	0.00				
26.00	4.98	4.74	0.00				
27.00	4.98	4.74	0.00				
28.00	4.98	4.74	0.00				
29.00	4.98	4.74	0.00				
30.00	4.98	4.74	0.00				
31.00	4.98	4.74	0.00				
32.00	4.98	4.74	0.00				
33.00	4.98	4.74	0.00				
34.00	4.98	4.74	0.00				
35.00	4.98	4.74	0.00				
36.00	4.98	4.74	0.00				
37.00	4.98	4.74	0.00				
38.00	4.98	4.74	0.00				
39.00	4.98	4.74	0.00				
40.00	4.98	4.74	0.00				
41.00	4.98	4.74	0.00				
42.00	4.98	4.74	0.00				
43.00	4.98	4.74	0.00				
44.00	4.98	4.74	0.00				
45.00	4.98	4.74	0.00				
46.00	4.98	4.74	0.00				
47.00	4.98	4.74	0.00				
48.00	4.98	4.74	0.00				
49.00	4.98	4.74	0.00				
50.00	4.98	4.74	0.00				
51.00	4.98	4.74	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 2S: Prop Basin A (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.033)) / .24 = 76'$

Runoff = 4.76 cfs @ 12.19 hrs, Volume= 0.369 af, Depth= 2.35"  
Routed to Pond 10P : Basin A

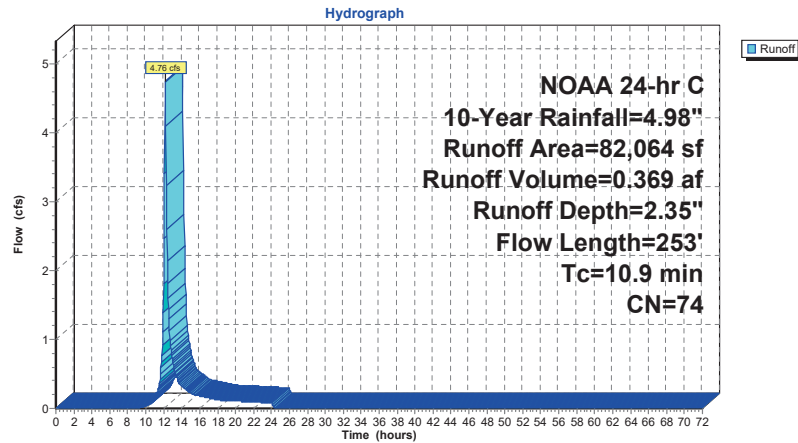
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
81,664	74	>75% Grass cover, Good, HSG C
400	61	>75% Grass cover, Good, HSG B
82,064	74	Weighted Average
82,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	76	0.0330	0.14		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
1.7	177	0.0120	1.76		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps

10.9 253 Total

**Subcatchment 2S: Prop Basin A (Perv)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 2S: Prop Basin A (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.35	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.35	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.35	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.35	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.35	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.35	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.35	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.35	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.35	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.35	0.00
10.00	0.91	0.01	0.04	62.00	4.98	2.35	0.00
11.00	1.20	0.06	0.14	63.00	4.98	2.35	0.00
12.00	2.37	0.54	1.82	64.00	4.98	2.35	0.00
13.00	3.78	1.44	0.69	65.00	4.98	2.35	0.00
14.00	4.07	1.65	0.32	66.00	4.98	2.35	0.00
15.00	4.25	1.78	0.22	67.00	4.98	2.35	0.00
16.00	4.38	1.88	0.18	68.00	4.98	2.35	0.00
17.00	4.49	1.97	0.15	69.00	4.98	2.35	0.00
18.00	4.59	2.04	0.12	70.00	4.98	2.35	0.00
19.00	4.66	2.10	0.11	71.00	4.98	2.35	0.00
20.00	4.74	2.16	0.11	72.00	4.98	2.35	0.00
21.00	4.80	2.21	0.10				
22.00	4.87	2.26	0.09				
23.00	4.93	2.31	0.09				
24.00	4.98	2.35	0.08				
25.00	4.98	2.35	0.00				
26.00	4.98	2.35	0.00				
27.00	4.98	2.35	0.00				
28.00	4.98	2.35	0.00				
29.00	4.98	2.35	0.00				
30.00	4.98	2.35	0.00				
31.00	4.98	2.35	0.00				
32.00	4.98	2.35	0.00				
33.00	4.98	2.35	0.00				
34.00	4.98	2.35	0.00				
35.00	4.98	2.35	0.00				
36.00	4.98	2.35	0.00				
37.00	4.98	2.35	0.00				
38.00	4.98	2.35	0.00				
39.00	4.98	2.35	0.00				
40.00	4.98	2.35	0.00				
41.00	4.98	2.35	0.00				
42.00	4.98	2.35	0.00				
43.00	4.98	2.35	0.00				
44.00	4.98	2.35	0.00				
45.00	4.98	2.35	0.00				
46.00	4.98	2.35	0.00				
47.00	4.98	2.35	0.00				
48.00	4.98	2.35	0.00				
49.00	4.98	2.35	0.00				
50.00	4.98	2.35	0.00				
51.00	4.98	2.35	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Subcatchment 11S: Prop Basin B (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
[47] Hint: Peak is 187% of capacity of segment #2

Runoff = 6.13 cfs @ 12.09 hrs, Volume= 0.429 af, Depth= 4.74"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
47,330	98	Imp
47,330		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	227	0.0025	2.46	3.28	<b>Pipe Channel, Channel Flow</b> 24.0" x 8.0" Box Area= 1.3 sf Perim= 5.3' r= 0.25' n= 0.012 Concrete pipe, finished
0.4	104	0.0025	3.86	12.65	<b>Pipe Channel, RCP_Elliptical 30x19</b> 30.0" x 19.0", R=33.5" Elliptical Area= 3.3 sf Perim= 6.7' r= 0.49' n= 0.012 Concrete pipe, finished
3.5	431	Total			

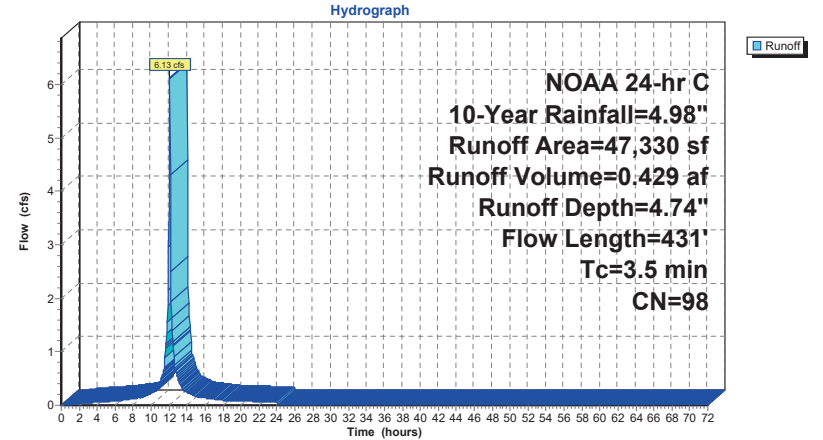
**Prop 2, 10 & 100yr**

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**Subcatchment 11S: Prop Basin B (Imp)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 11S: Prop Basin B (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.74	0.00
1.00	0.05	0.00	0.01	53.00	4.98	4.74	0.00
2.00	0.11	0.02	0.03	54.00	4.98	4.74	0.00
3.00	0.18	0.05	0.04	55.00	4.98	4.74	0.00
4.00	0.24	0.10	0.06	56.00	4.98	4.74	0.00
5.00	0.32	0.16	0.07	57.00	4.98	4.74	0.00
6.00	0.39	0.22	0.08	58.00	4.98	4.74	0.00
7.00	0.49	0.31	0.10	59.00	4.98	4.74	0.00
8.00	0.60	0.41	0.12	60.00	4.98	4.74	0.00
9.00	0.73	0.53	0.15	61.00	4.98	4.74	0.00
10.00	0.91	0.70	0.23	62.00	4.98	4.74	0.00
11.00	1.20	0.98	0.42	63.00	4.98	4.74	0.00
12.00	2.37	2.14	<b>3.70</b>	64.00	4.98	4.74	0.00
13.00	3.78	3.55	<b>0.49</b>	65.00	4.98	4.74	0.00
14.00	4.07	3.84	0.24	66.00	4.98	4.74	0.00
15.00	4.25	4.02	0.16	67.00	4.98	4.74	0.00
16.00	4.38	4.15	0.13	68.00	4.98	4.74	0.00
17.00	4.49	4.26	0.11	69.00	4.98	4.74	0.00
18.00	4.59	4.35	0.09	70.00	4.98	4.74	0.00
19.00	4.66	4.43	0.08	71.00	4.98	4.74	0.00
20.00	4.74	4.50	0.08	72.00	4.98	4.74	0.00
21.00	4.80	4.57	0.07				
22.00	4.87	4.63	0.07				
23.00	4.93	4.69	0.06				
24.00	<b>4.98</b>	<b>4.74</b>	0.07				
25.00	4.98	4.74	0.00				
26.00	4.98	4.74	0.00				
27.00	4.98	4.74	0.00				
28.00	4.98	4.74	0.00				
29.00	4.98	4.74	0.00				
30.00	4.98	4.74	0.00				
31.00	4.98	4.74	0.00				
32.00	4.98	4.74	0.00				
33.00	4.98	4.74	0.00				
34.00	4.98	4.74	0.00				
35.00	4.98	4.74	0.00				
36.00	4.98	4.74	0.00				
37.00	4.98	4.74	0.00				
38.00	4.98	4.74	0.00				
39.00	4.98	4.74	0.00				
40.00	4.98	4.74	0.00				
41.00	4.98	4.74	0.00				
42.00	4.98	4.74	0.00				
43.00	4.98	4.74	0.00				
44.00	4.98	4.74	0.00				
45.00	4.98	4.74	0.00				
46.00	4.98	4.74	0.00				
47.00	4.98	4.74	0.00				
48.00	4.98	4.74	0.00				
49.00	4.98	4.74	0.00				
50.00	4.98	4.74	0.00				
51.00	4.98	4.74	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Subcatchment 12S: Prop Basin B (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

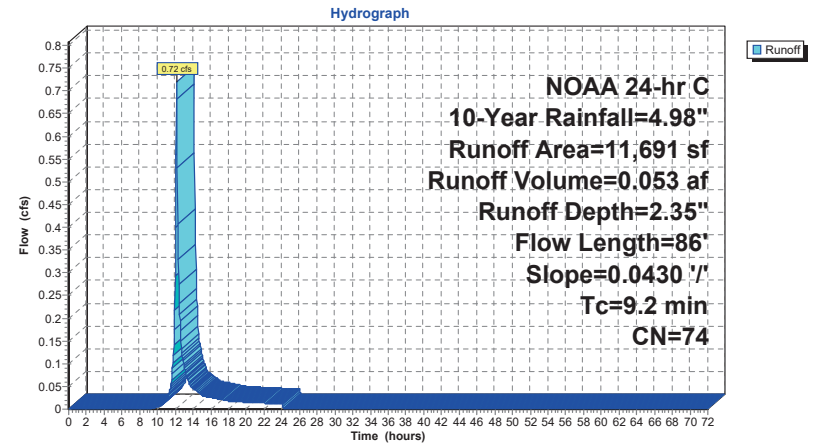
Runoff = 0.72 cfs @ 12.17 hrs, Volume= 0.053 af, Depth= 2.35"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
11,691	74	>75% Grass cover, Good, HSG C
11,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 12S: Prop Basin B (Perv)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 12S: Prop Basin B (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.35	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.35	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.35	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.35	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.35	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.35	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.35	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.35	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.35	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.35	0.00
10.00	0.91	0.01	0.01	62.00	4.98	2.35	0.00
11.00	1.20	0.06	0.02	63.00	4.98	2.35	0.00
12.00	2.37	0.54	<b>0.29</b>	64.00	4.98	2.35	0.00
13.00	3.78	1.44	<b>0.10</b>	65.00	4.98	2.35	0.00
14.00	4.07	1.65	0.05	66.00	4.98	2.35	0.00
15.00	4.25	1.78	0.03	67.00	4.98	2.35	0.00
16.00	4.38	1.88	0.03	68.00	4.98	2.35	0.00
17.00	4.49	1.97	0.02	69.00	4.98	2.35	0.00
18.00	4.59	2.04	0.02	70.00	4.98	2.35	0.00
19.00	4.66	2.10	0.02	71.00	4.98	2.35	0.00
20.00	4.74	2.16	0.02	72.00	4.98	2.35	0.00
21.00	4.80	2.21	0.01				
22.00	4.87	2.26	0.01				
23.00	4.93	2.31	0.01				
24.00	<b>4.98</b>	<b>2.35</b>	0.01				
25.00	4.98	2.35	0.00				
26.00	4.98	2.35	0.00				
27.00	4.98	2.35	0.00				
28.00	4.98	2.35	0.00				
29.00	4.98	2.35	0.00				
30.00	4.98	2.35	0.00				
31.00	4.98	2.35	0.00				
32.00	4.98	2.35	0.00				
33.00	4.98	2.35	0.00				
34.00	4.98	2.35	0.00				
35.00	4.98	2.35	0.00				
36.00	4.98	2.35	0.00				
37.00	4.98	2.35	0.00				
38.00	4.98	2.35	0.00				
39.00	4.98	2.35	0.00				
40.00	4.98	2.35	0.00				
41.00	4.98	2.35	0.00				
42.00	4.98	2.35	0.00				
43.00	4.98	2.35	0.00				
44.00	4.98	2.35	0.00				
45.00	4.98	2.35	0.00				
46.00	4.98	2.35	0.00				
47.00	4.98	2.35	0.00				
48.00	4.98	2.35	0.00				
49.00	4.98	2.35	0.00				
50.00	4.98	2.35	0.00				
51.00	4.98	2.35	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Subcatchment 21S: Prop MTD C (Imp)**

Sheet Flow = (100 X Sq root (0.015))/0.11 = 1,113' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
 [47] Hint: Peak is 130% of capacity of segment #3

Runoff = 12.18 cfs @ 12.10 hrs, Volume= 0.882 af, Depth= 4.74"  
 Routed to Link 17L : Prop MTD C - bypass

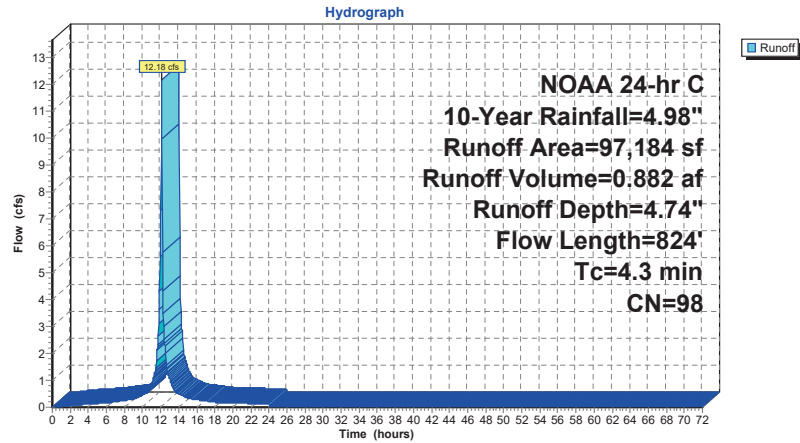
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
97,184	98	Imp
97,184		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.6	75	0.0120	2.22		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.5	108	0.0030	3.91	9.40	<b>Pipe Channel, Channel Flow</b> 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.012 Concrete pipe, finished
0.4	108	0.0030	4.27	13.42	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.5	433	0.0030	4.96	24.34	<b>Pipe Channel, Channel Flow</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.3	824	Total			

Subcatchment 21S: Prop MTD C (Imp)



Hydrograph for Subcatchment 21S: Prop MTD C (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.74	0.00
1.00	0.05	0.00	0.01	53.00	4.98	4.74	0.00
2.00	0.11	0.02	0.06	54.00	4.98	4.74	0.00
3.00	0.18	0.05	0.09	55.00	4.98	4.74	0.00
4.00	0.24	0.10	0.12	56.00	4.98	4.74	0.00
5.00	0.32	0.16	0.14	57.00	4.98	4.74	0.00
6.00	0.39	0.22	0.16	58.00	4.98	4.74	0.00
7.00	0.49	0.31	0.20	59.00	4.98	4.74	0.00
8.00	0.60	0.41	0.25	60.00	4.98	4.74	0.00
9.00	0.73	0.53	0.30	61.00	4.98	4.74	0.00
10.00	0.91	0.70	0.46	62.00	4.98	4.74	0.00
11.00	1.20	0.98	0.86	63.00	4.98	4.74	0.00
12.00	2.37	2.14	7.31	64.00	4.98	4.74	0.00
13.00	3.78	3.55	1.02	65.00	4.98	4.74	0.00
14.00	4.07	3.84	0.50	66.00	4.98	4.74	0.00
15.00	4.25	4.02	0.33	67.00	4.98	4.74	0.00
16.00	4.38	4.15	0.27	68.00	4.98	4.74	0.00
17.00	4.49	4.26	0.23	69.00	4.98	4.74	0.00
18.00	4.59	4.35	0.19	70.00	4.98	4.74	0.00
19.00	4.66	4.43	0.17	71.00	4.98	4.74	0.00
20.00	4.74	4.50	0.16	72.00	4.98	4.74	0.00
21.00	4.80	4.57	0.15				
22.00	4.87	4.63	0.14				
23.00	4.93	4.69	0.13				
24.00	4.98	4.74	0.14				
25.00	4.98	4.74	0.00				
26.00	4.98	4.74	0.00				
27.00	4.98	4.74	0.00				
28.00	4.98	4.74	0.00				
29.00	4.98	4.74	0.00				
30.00	4.98	4.74	0.00				
31.00	4.98	4.74	0.00				
32.00	4.98	4.74	0.00				
33.00	4.98	4.74	0.00				
34.00	4.98	4.74	0.00				
35.00	4.98	4.74	0.00				
36.00	4.98	4.74	0.00				
37.00	4.98	4.74	0.00				
38.00	4.98	4.74	0.00				
39.00	4.98	4.74	0.00				
40.00	4.98	4.74	0.00				
41.00	4.98	4.74	0.00				
42.00	4.98	4.74	0.00				
43.00	4.98	4.74	0.00				
44.00	4.98	4.74	0.00				
45.00	4.98	4.74	0.00				
46.00	4.98	4.74	0.00				
47.00	4.98	4.74	0.00				
48.00	4.98	4.74	0.00				
49.00	4.98	4.74	0.00				
50.00	4.98	4.74	0.00				
51.00	4.98	4.74	0.00				

**Summary for Subcatchment 22S: Prop MTD C (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

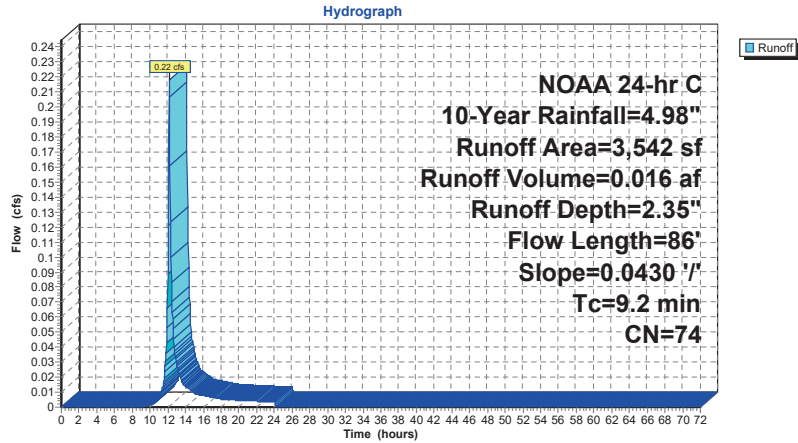
Runoff = 0.22 cfs @ 12.17 hrs, Volume= 0.016 af, Depth= 2.35"  
 Routed to Link 17L : Prop MTD C - bypass

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
3,542	74	>75% Grass cover, Good, HSG C
3,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 22S: Prop MTD C (Perv)**



**Hydrograph for Subcatchment 22S: Prop MTD C (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.35	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.35	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.35	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.35	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.35	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.35	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.35	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.35	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.35	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.35	0.00
10.00	0.91	0.01	0.00	62.00	4.98	2.35	0.00
11.00	1.20	0.06	0.01	63.00	4.98	2.35	0.00
12.00	2.37	0.54	0.09	64.00	4.98	2.35	0.00
13.00	3.78	1.44	0.03	65.00	4.98	2.35	0.00
14.00	4.07	1.65	0.01	66.00	4.98	2.35	0.00
15.00	4.25	1.78	0.01	67.00	4.98	2.35	0.00
16.00	4.38	1.88	0.01	68.00	4.98	2.35	0.00
17.00	4.49	1.97	0.01	69.00	4.98	2.35	0.00
18.00	4.59	2.04	0.01	70.00	4.98	2.35	0.00
19.00	4.66	2.10	0.00	71.00	4.98	2.35	0.00
20.00	4.74	2.16	0.00	72.00	4.98	2.35	0.00
21.00	4.80	2.21	0.00				
22.00	4.87	2.26	0.00				
23.00	4.93	2.31	0.00				
24.00	4.98	2.35	0.00				
25.00	4.98	2.35	0.00				
26.00	4.98	2.35	0.00				
27.00	4.98	2.35	0.00				
28.00	4.98	2.35	0.00				
29.00	4.98	2.35	0.00				
30.00	4.98	2.35	0.00				
31.00	4.98	2.35	0.00				
32.00	4.98	2.35	0.00				
33.00	4.98	2.35	0.00				
34.00	4.98	2.35	0.00				
35.00	4.98	2.35	0.00				
36.00	4.98	2.35	0.00				
37.00	4.98	2.35	0.00				
38.00	4.98	2.35	0.00				
39.00	4.98	2.35	0.00				
40.00	4.98	2.35	0.00				
41.00	4.98	2.35	0.00				
42.00	4.98	2.35	0.00				
43.00	4.98	2.35	0.00				
44.00	4.98	2.35	0.00				
45.00	4.98	2.35	0.00				
46.00	4.98	2.35	0.00				
47.00	4.98	2.35	0.00				
48.00	4.98	2.35	0.00				
49.00	4.98	2.35	0.00				
50.00	4.98	2.35	0.00				
51.00	4.98	2.35	0.00				

**Summary for Subcatchment 23S: Prop South Undetained (Total)**

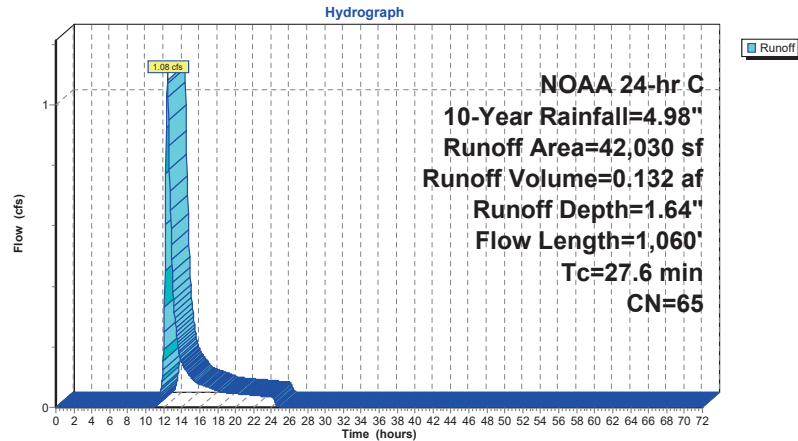
Runoff = 1.08 cfs @ 12.42 hrs, Volume= 0.132 af, Depth= 1.64"  
 Routed to Link 28L : Prop South Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
29,825	61	>75% Grass cover, Good, HSG B
12,205	74	>75% Grass cover, Good, HSG C
42,030	65	Weighted Average
42,030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 23S: Prop South Undetained (Total)**



**Hydrograph for Subcatchment 23S: Prop South Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	1.64	0.00
1.00	0.05	0.00	0.00	53.00	4.98	1.64	0.00
2.00	0.11	0.00	0.00	54.00	4.98	1.64	0.00
3.00	0.18	0.00	0.00	55.00	4.98	1.64	0.00
4.00	0.24	0.00	0.00	56.00	4.98	1.64	0.00
5.00	0.32	0.00	0.00	57.00	4.98	1.64	0.00
6.00	0.39	0.00	0.00	58.00	4.98	1.64	0.00
7.00	0.49	0.00	0.00	59.00	4.98	1.64	0.00
8.00	0.60	0.00	0.00	60.00	4.98	1.64	0.00
9.00	0.73	0.00	0.00	61.00	4.98	1.64	0.00
10.00	0.91	0.00	0.00	62.00	4.98	1.64	0.00
11.00	1.20	0.00	0.00	63.00	4.98	1.64	0.00
12.00	2.37	0.25	0.19	64.00	4.98	1.64	0.00
13.00	3.78	0.91	0.41	65.00	4.98	1.64	0.00
14.00	4.07	1.07	0.15	66.00	4.98	1.64	0.00
15.00	4.25	1.18	0.10	67.00	4.98	1.64	0.00
16.00	4.38	1.26	0.08	68.00	4.98	1.64	0.00
17.00	4.49	1.33	0.07	69.00	4.98	1.64	0.00
18.00	4.59	1.38	0.05	70.00	4.98	1.64	0.00
19.00	4.66	1.43	0.05	71.00	4.98	1.64	0.00
20.00	4.74	1.48	0.05	72.00	4.98	1.64	0.00
21.00	4.80	1.52	0.04				
22.00	4.87	1.57	0.04				
23.00	4.93	1.60	0.04				
24.00	4.98	1.64	0.03				
25.00	4.98	1.64	0.00				
26.00	4.98	1.64	0.00				
27.00	4.98	1.64	0.00				
28.00	4.98	1.64	0.00				
29.00	4.98	1.64	0.00				
30.00	4.98	1.64	0.00				
31.00	4.98	1.64	0.00				
32.00	4.98	1.64	0.00				
33.00	4.98	1.64	0.00				
34.00	4.98	1.64	0.00				
35.00	4.98	1.64	0.00				
36.00	4.98	1.64	0.00				
37.00	4.98	1.64	0.00				
38.00	4.98	1.64	0.00				
39.00	4.98	1.64	0.00				
40.00	4.98	1.64	0.00				
41.00	4.98	1.64	0.00				
42.00	4.98	1.64	0.00				
43.00	4.98	1.64	0.00				
44.00	4.98	1.64	0.00				
45.00	4.98	1.64	0.00				
46.00	4.98	1.64	0.00				
47.00	4.98	1.64	0.00				
48.00	4.98	1.64	0.00				
49.00	4.98	1.64	0.00				
50.00	4.98	1.64	0.00				
51.00	4.98	1.64	0.00				



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Summary for Subcatchment 24S: Prop PP D (Imp)**

Sheet Flow =  $(100 \times \text{Sq root}(0.01)) / 0.011 = 909'$  (Use 100')

[49] Hint:  $T_c < 2dt$  may require smaller dt  
[47] Hint: Peak is 247% of capacity of segment #3

Runoff = 12.22 cfs @ 12.08 hrs, Volume= 0.828 af, Depth= 4.74"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
* 65,300	98	Roofs
* 25,903	98	Imp
91,203	98	Weighted Average
91,203		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.9	110	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.1	19	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.6	229	Total			

**Prop 2, 10 & 100yr**

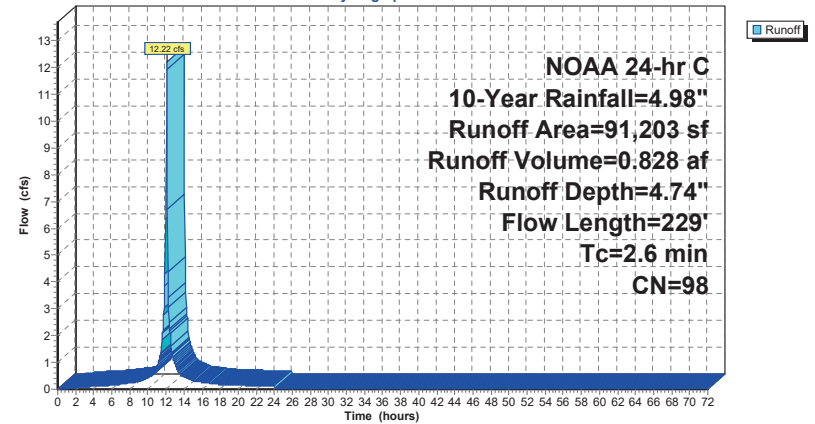
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**Subcatchment 24S: Prop PP D (Imp)**

Hydrograph



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 24S: Prop PP D (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.74	0.00
1.00	0.05	0.00	0.01	53.00	4.98	4.74	0.00
2.00	0.11	0.02	0.06	54.00	4.98	4.74	0.00
3.00	0.18	0.05	0.09	55.00	4.98	4.74	0.00
4.00	0.24	0.10	0.11	56.00	4.98	4.74	0.00
5.00	0.32	0.16	0.13	57.00	4.98	4.74	0.00
6.00	0.39	0.22	0.15	58.00	4.98	4.74	0.00
7.00	0.49	0.31	0.19	59.00	4.98	4.74	0.00
8.00	0.60	0.41	0.23	60.00	4.98	4.74	0.00
9.00	0.73	0.53	0.28	61.00	4.98	4.74	0.00
10.00	0.91	0.70	0.44	62.00	4.98	4.74	0.00
11.00	1.20	0.98	0.82	63.00	4.98	4.74	0.00
12.00	2.37	2.14	<b>7.36</b>	64.00	4.98	4.74	0.00
13.00	3.78	3.55	<b>0.94</b>	65.00	4.98	4.74	0.00
14.00	4.07	3.84	0.47	66.00	4.98	4.74	0.00
15.00	4.25	4.02	0.31	67.00	4.98	4.74	0.00
16.00	4.38	4.15	0.26	68.00	4.98	4.74	0.00
17.00	4.49	4.26	0.22	69.00	4.98	4.74	0.00
18.00	4.59	4.35	0.17	70.00	4.98	4.74	0.00
19.00	4.66	4.43	0.16	71.00	4.98	4.74	0.00
20.00	4.74	4.50	0.15	72.00	4.98	4.74	0.00
21.00	4.80	4.57	0.14				
22.00	4.87	4.63	0.13				
23.00	4.93	4.69	0.12				
24.00	<b>4.98</b>	<b>4.74</b>	0.13				
25.00	4.98	4.74	0.00				
26.00	4.98	4.74	0.00				
27.00	4.98	4.74	0.00				
28.00	4.98	4.74	0.00				
29.00	4.98	4.74	0.00				
30.00	4.98	4.74	0.00				
31.00	4.98	4.74	0.00				
32.00	4.98	4.74	0.00				
33.00	4.98	4.74	0.00				
34.00	4.98	4.74	0.00				
35.00	4.98	4.74	0.00				
36.00	4.98	4.74	0.00				
37.00	4.98	4.74	0.00				
38.00	4.98	4.74	0.00				
39.00	4.98	4.74	0.00				
40.00	4.98	4.74	0.00				
41.00	4.98	4.74	0.00				
42.00	4.98	4.74	0.00				
43.00	4.98	4.74	0.00				
44.00	4.98	4.74	0.00				
45.00	4.98	4.74	0.00				
46.00	4.98	4.74	0.00				
47.00	4.98	4.74	0.00				
48.00	4.98	4.74	0.00				
49.00	4.98	4.74	0.00				
50.00	4.98	4.74	0.00				
51.00	4.98	4.74	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 25S: Prop PP D (Perv)**

Sheet Flow = (100 X Sq root (0.01))/.24 = 42'

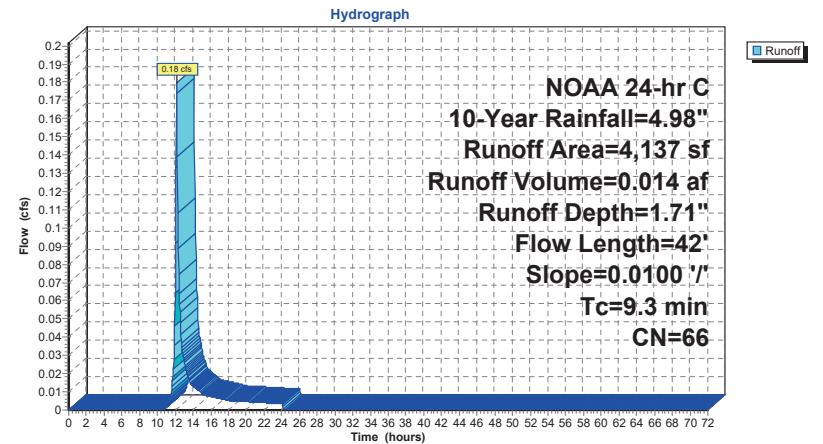
Runoff = 0.18 cfs @ 12.17 hrs, Volume= 0.014 af, Depth= 1.71"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
2,432	61	>75% Grass cover, Good, HSG B
1,705	74	>75% Grass cover, Good, HSG C
4,137	66	Weighted Average
4,137		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	42	0.0100	0.08		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"

**Subcatchment 25S: Prop PP D (Perv)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 25S: Prop PP D (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	1.71	0.00
1.00	0.05	0.00	0.00	53.00	4.98	1.71	0.00
2.00	0.11	0.00	0.00	54.00	4.98	1.71	0.00
3.00	0.18	0.00	0.00	55.00	4.98	1.71	0.00
4.00	0.24	0.00	0.00	56.00	4.98	1.71	0.00
5.00	0.32	0.00	0.00	57.00	4.98	1.71	0.00
6.00	0.39	0.00	0.00	58.00	4.98	1.71	0.00
7.00	0.49	0.00	0.00	59.00	4.98	1.71	0.00
8.00	0.60	0.00	0.00	60.00	4.98	1.71	0.00
9.00	0.73	0.00	0.00	61.00	4.98	1.71	0.00
10.00	0.91	0.00	0.00	62.00	4.98	1.71	0.00
11.00	1.20	0.01	0.00	63.00	4.98	1.71	0.00
12.00	2.37	0.28	<b>0.06</b>	64.00	4.98	1.71	0.00
13.00	3.78	0.96	<b>0.03</b>	65.00	4.98	1.71	0.00
14.00	4.07	1.13	0.01	66.00	4.98	1.71	0.00
15.00	4.25	1.24	0.01	67.00	4.98	1.71	0.00
16.00	4.38	1.32	0.01	68.00	4.98	1.71	0.00
17.00	4.49	1.39	0.01	69.00	4.98	1.71	0.00
18.00	4.59	1.45	0.01	70.00	4.98	1.71	0.00
19.00	4.66	1.50	0.00	71.00	4.98	1.71	0.00
20.00	4.74	1.55	0.00	72.00	4.98	1.71	0.00
21.00	4.80	1.60	0.00				
22.00	4.87	1.64	0.00				
23.00	4.93	1.68	0.00				
24.00	<b>4.98</b>	<b>1.71</b>	0.00				
25.00	4.98	1.71	0.00				
26.00	4.98	1.71	0.00				
27.00	4.98	1.71	0.00				
28.00	4.98	1.71	0.00				
29.00	4.98	1.71	0.00				
30.00	4.98	1.71	0.00				
31.00	4.98	1.71	0.00				
32.00	4.98	1.71	0.00				
33.00	4.98	1.71	0.00				
34.00	4.98	1.71	0.00				
35.00	4.98	1.71	0.00				
36.00	4.98	1.71	0.00				
37.00	4.98	1.71	0.00				
38.00	4.98	1.71	0.00				
39.00	4.98	1.71	0.00				
40.00	4.98	1.71	0.00				
41.00	4.98	1.71	0.00				
42.00	4.98	1.71	0.00				
43.00	4.98	1.71	0.00				
44.00	4.98	1.71	0.00				
45.00	4.98	1.71	0.00				
46.00	4.98	1.71	0.00				
47.00	4.98	1.71	0.00				
48.00	4.98	1.71	0.00				
49.00	4.98	1.71	0.00				
50.00	4.98	1.71	0.00				
51.00	4.98	1.71	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Subcatchment 29S: Prop Constructed Wetland E (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

- [47] Hint: Peak is 404% of capacity of segment #2
- [47] Hint: Peak is 249% of capacity of segment #3
- [47] Hint: Peak is 176% of capacity of segment #4
- [47] Hint: Peak is 115% of capacity of segment #5

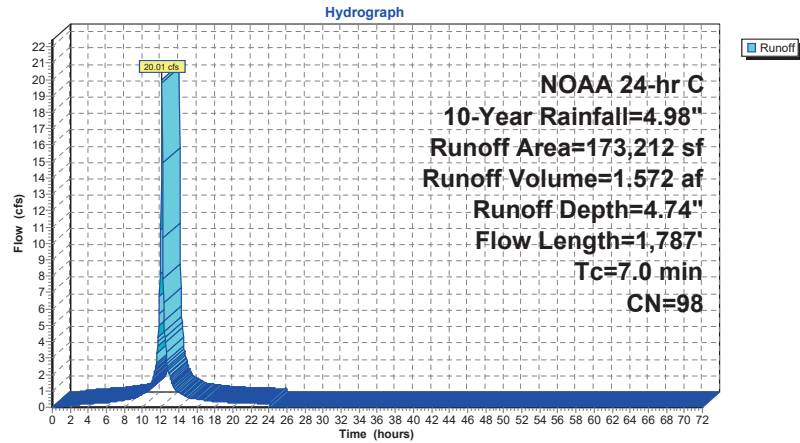
Runoff = 20.01 cfs @ 12.14 hrs, Volume= 1.572 af, Depth= 4.74"  
Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
*	17,219	98 Paved Driveway (Emergency Only)
*	149,804	98 Roofs
*	6,189	98 Wetland Pool
173,212	98	Weighted Average
173,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
2.2	533	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.6	177	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.6	218	0.0100	6.44	11.38	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	104	0.0050	5.52	17.33	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.7	655	0.0040	6.47	45.70	<b>Pipe Channel, Channel Flow</b> 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.012 Concrete pipe, finished
7.0	1,787	Total			

Subcatchment 29S: Prop Constucted Wetland E (Imp)



Hydrograph for Subcatchment 29S: Prop Constucted Wetland E (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	4.74	0.00
1.00	0.05	0.00	0.02	53.00	4.98	4.74	0.00
2.00	0.11	0.02	0.10	54.00	4.98	4.74	0.00
3.00	0.18	0.05	0.16	55.00	4.98	4.74	0.00
4.00	0.24	0.10	0.21	56.00	4.98	4.74	0.00
5.00	0.32	0.16	0.24	57.00	4.98	4.74	0.00
6.00	0.39	0.22	0.28	58.00	4.98	4.74	0.00
7.00	0.49	0.31	0.36	59.00	4.98	4.74	0.00
8.00	0.60	0.41	0.44	60.00	4.98	4.74	0.00
9.00	0.73	0.53	0.53	61.00	4.98	4.74	0.00
10.00	0.91	0.70	0.81	62.00	4.98	4.74	0.00
11.00	1.20	0.98	1.48	63.00	4.98	4.74	0.00
12.00	2.37	2.14	10.82	64.00	4.98	4.74	0.00
13.00	3.78	3.55	1.91	65.00	4.98	4.74	0.00
14.00	4.07	3.84	0.90	66.00	4.98	4.74	0.00
15.00	4.25	4.02	0.60	67.00	4.98	4.74	0.00
16.00	4.38	4.15	0.49	68.00	4.98	4.74	0.00
17.00	4.49	4.26	0.41	69.00	4.98	4.74	0.00
18.00	4.59	4.35	0.33	70.00	4.98	4.74	0.00
19.00	4.66	4.43	0.30	71.00	4.98	4.74	0.00
20.00	4.74	4.50	0.28	72.00	4.98	4.74	0.00
21.00	4.80	4.57	0.26				
22.00	4.87	4.63	0.24				
23.00	4.93	4.69	0.23				
24.00	4.98	4.74	0.23				
25.00	4.98	4.74	0.00				
26.00	4.98	4.74	0.00				
27.00	4.98	4.74	0.00				
28.00	4.98	4.74	0.00				
29.00	4.98	4.74	0.00				
30.00	4.98	4.74	0.00				
31.00	4.98	4.74	0.00				
32.00	4.98	4.74	0.00				
33.00	4.98	4.74	0.00				
34.00	4.98	4.74	0.00				
35.00	4.98	4.74	0.00				
36.00	4.98	4.74	0.00				
37.00	4.98	4.74	0.00				
38.00	4.98	4.74	0.00				
39.00	4.98	4.74	0.00				
40.00	4.98	4.74	0.00				
41.00	4.98	4.74	0.00				
42.00	4.98	4.74	0.00				
43.00	4.98	4.74	0.00				
44.00	4.98	4.74	0.00				
45.00	4.98	4.74	0.00				
46.00	4.98	4.74	0.00				
47.00	4.98	4.74	0.00				
48.00	4.98	4.74	0.00				
49.00	4.98	4.74	0.00				
50.00	4.98	4.74	0.00				
51.00	4.98	4.74	0.00				

**Summary for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.018)) / .24 = 56'$

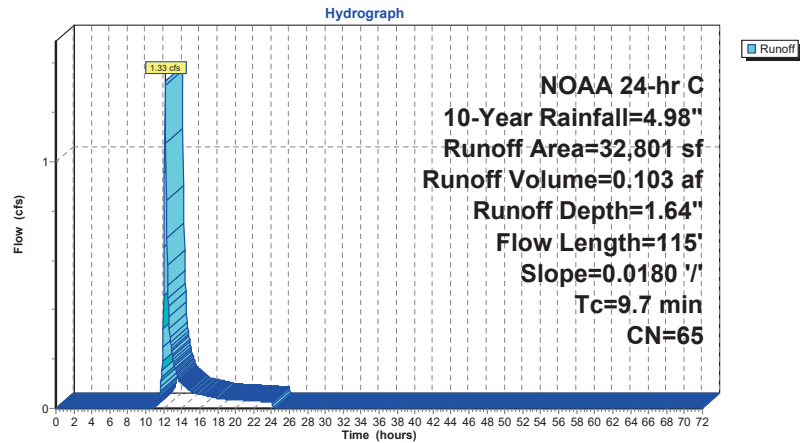
Runoff = 1.33 cfs @ 12.18 hrs, Volume= 0.103 af, Depth= 1.64"  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
22,340	61	>75% Grass cover, Good, HSG B
10,461	74	>75% Grass cover, Good, HSG C
32,801	65	Weighted Average
32,801		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	56	0.0180	0.10		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
0.5	59	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps
9.7	115	Total			

**Subcatchment 30S: Prop Constucted Wetland E (Perv)**



**Hydrograph for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	1.64	0.00
1.00	0.05	0.00	0.00	53.00	4.98	1.64	0.00
2.00	0.11	0.00	0.00	54.00	4.98	1.64	0.00
3.00	0.18	0.00	0.00	55.00	4.98	1.64	0.00
4.00	0.24	0.00	0.00	56.00	4.98	1.64	0.00
5.00	0.32	0.00	0.00	57.00	4.98	1.64	0.00
6.00	0.39	0.00	0.00	58.00	4.98	1.64	0.00
7.00	0.49	0.00	0.00	59.00	4.98	1.64	0.00
8.00	0.60	0.00	0.00	60.00	4.98	1.64	0.00
9.00	0.73	0.00	0.00	61.00	4.98	1.64	0.00
10.00	0.91	0.00	0.00	62.00	4.98	1.64	0.00
11.00	1.20	0.00	0.01	63.00	4.98	1.64	0.00
12.00	2.37	0.25	0.46	64.00	4.98	1.64	0.00
13.00	3.78	0.91	0.21	65.00	4.98	1.64	0.00
14.00	4.07	1.07	0.10	66.00	4.98	1.64	0.00
15.00	4.25	1.18	0.07	67.00	4.98	1.64	0.00
16.00	4.38	1.26	0.06	68.00	4.98	1.64	0.00
17.00	4.49	1.33	0.05	69.00	4.98	1.64	0.00
18.00	4.59	1.38	0.04	70.00	4.98	1.64	0.00
19.00	4.66	1.43	0.04	71.00	4.98	1.64	0.00
20.00	4.74	1.48	0.03	72.00	4.98	1.64	0.00
21.00	4.80	1.52	0.03				
22.00	4.87	1.57	0.03				
23.00	4.93	1.60	0.03				
24.00	4.98	1.64	0.03				
25.00	4.98	1.64	0.00				
26.00	4.98	1.64	0.00				
27.00	4.98	1.64	0.00				
28.00	4.98	1.64	0.00				
29.00	4.98	1.64	0.00				
30.00	4.98	1.64	0.00				
31.00	4.98	1.64	0.00				
32.00	4.98	1.64	0.00				
33.00	4.98	1.64	0.00				
34.00	4.98	1.64	0.00				
35.00	4.98	1.64	0.00				
36.00	4.98	1.64	0.00				
37.00	4.98	1.64	0.00				
38.00	4.98	1.64	0.00				
39.00	4.98	1.64	0.00				
40.00	4.98	1.64	0.00				
41.00	4.98	1.64	0.00				
42.00	4.98	1.64	0.00				
43.00	4.98	1.64	0.00				
44.00	4.98	1.64	0.00				
45.00	4.98	1.64	0.00				
46.00	4.98	1.64	0.00				
47.00	4.98	1.64	0.00				
48.00	4.98	1.64	0.00				
49.00	4.98	1.64	0.00				
50.00	4.98	1.64	0.00				
51.00	4.98	1.64	0.00				

**Summary for Subcatchment 33S: Prop Pond Undetained (Total)**

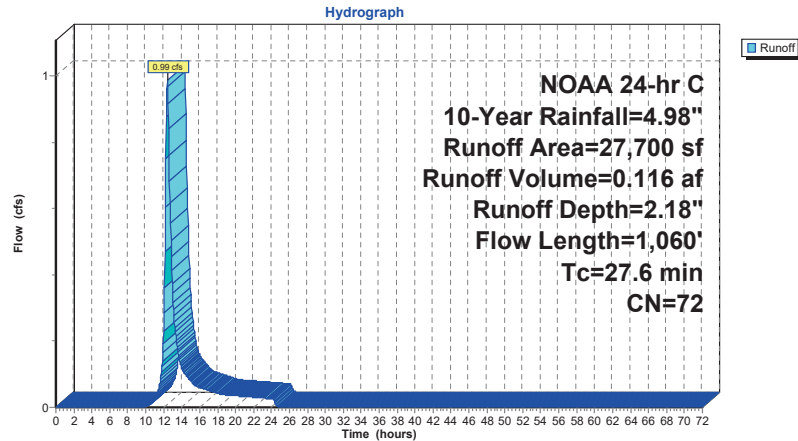
Runoff = 0.99 cfs @ 12.41 hrs, Volume= 0.116 af, Depth= 2.18"  
 Routed to Link 34L : Prop Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 10-Year Rainfall=4.98"

Area (sf)	CN	Description
3,410	61	>75% Grass cover, Good, HSG B
24,290	74	>75% Grass cover, Good, HSG C
27,700	72	Weighted Average
27,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 33S: Prop Pond Undetained (Total)**



**Hydrograph for Subcatchment 33S: Prop Pond Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	4.98	2.18	0.00
1.00	0.05	0.00	0.00	53.00	4.98	2.18	0.00
2.00	0.11	0.00	0.00	54.00	4.98	2.18	0.00
3.00	0.18	0.00	0.00	55.00	4.98	2.18	0.00
4.00	0.24	0.00	0.00	56.00	4.98	2.18	0.00
5.00	0.32	0.00	0.00	57.00	4.98	2.18	0.00
6.00	0.39	0.00	0.00	58.00	4.98	2.18	0.00
7.00	0.49	0.00	0.00	59.00	4.98	2.18	0.00
8.00	0.60	0.00	0.00	60.00	4.98	2.18	0.00
9.00	0.73	0.00	0.00	61.00	4.98	2.18	0.00
10.00	0.91	0.00	0.00	62.00	4.98	2.18	0.00
11.00	1.20	0.04	0.02	63.00	4.98	2.18	0.00
12.00	2.37	0.46	0.23	64.00	4.98	2.18	0.00
13.00	3.78	1.31	0.34	65.00	4.98	2.18	0.00
14.00	4.07	1.51	0.12	66.00	4.98	2.18	0.00
15.00	4.25	1.64	0.08	67.00	4.98	2.18	0.00
16.00	4.38	1.73	0.06	68.00	4.98	2.18	0.00
17.00	4.49	1.82	0.05	69.00	4.98	2.18	0.00
18.00	4.59	1.88	0.04	70.00	4.98	2.18	0.00
19.00	4.66	1.94	0.04	71.00	4.98	2.18	0.00
20.00	4.74	2.00	0.04	72.00	4.98	2.18	0.00
21.00	4.80	2.05	0.03				
22.00	4.87	2.10	0.03				
23.00	4.93	2.14	0.03				
24.00	4.98	2.18	0.03				
25.00	4.98	2.18	0.00				
26.00	4.98	2.18	0.00				
27.00	4.98	2.18	0.00				
28.00	4.98	2.18	0.00				
29.00	4.98	2.18	0.00				
30.00	4.98	2.18	0.00				
31.00	4.98	2.18	0.00				
32.00	4.98	2.18	0.00				
33.00	4.98	2.18	0.00				
34.00	4.98	2.18	0.00				
35.00	4.98	2.18	0.00				
36.00	4.98	2.18	0.00				
37.00	4.98	2.18	0.00				
38.00	4.98	2.18	0.00				
39.00	4.98	2.18	0.00				
40.00	4.98	2.18	0.00				
41.00	4.98	2.18	0.00				
42.00	4.98	2.18	0.00				
43.00	4.98	2.18	0.00				
44.00	4.98	2.18	0.00				
45.00	4.98	2.18	0.00				
46.00	4.98	2.18	0.00				
47.00	4.98	2.18	0.00				
48.00	4.98	2.18	0.00				
49.00	4.98	2.18	0.00				
50.00	4.98	2.18	0.00				
51.00	4.98	2.18	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Pond 10P: Basin A**

Inflow Area = 2.552 ac, 26.18% Impervious, Inflow Depth = 2.98" for 10-Year event  
 Inflow = 7.33 cfs @ 12.12 hrs, Volume= 0.633 af  
 Outflow = 5.39 cfs @ 12.25 hrs, Volume= 0.564 af, Atten= 26%, Lag= 7.6 min  
 Primary = 5.39 cfs @ 12.25 hrs, Volume= 0.564 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.55' @ 12.25 hrs Surf.Area= 5,255 sf Storage= 7,000 cf

Plug-Flow detention time= 112.6 min calculated for 0.564 af (89% of inflow)  
 Center-of-Mass det. time= 57.7 min ( 861.9 - 804.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	83.20'	12,042 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.20	5,125	0	0
84.00	5,200	4,130	4,130
85.00	5,300	5,250	9,380
85.50	5,350	2,663	12,042

Device	Routing	Invert	Outlet Devices
#1	Primary	83.78'	<b>2.6' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#2	Primary	85.10'	<b>16.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=5.39 cfs @ 12.25 hrs HW=84.55' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir(Weir Controls 5.39 cfs @ 2.87 fps)  
 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Prop 2, 10 & 100yr**

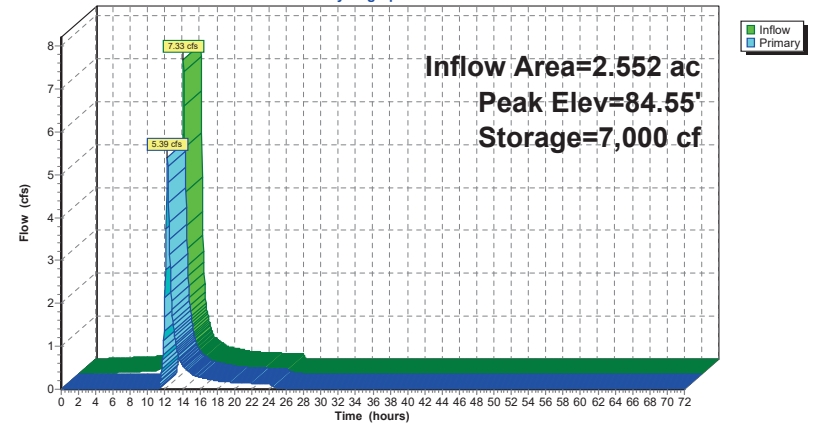
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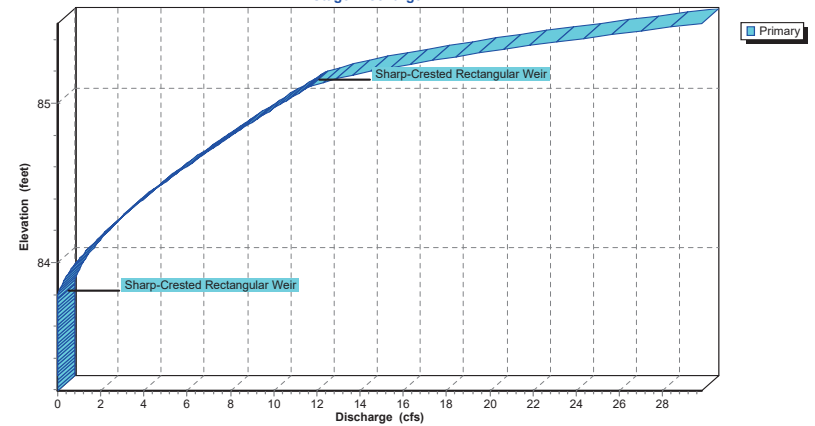
**Pond 10P: Basin A**

Hydrograph

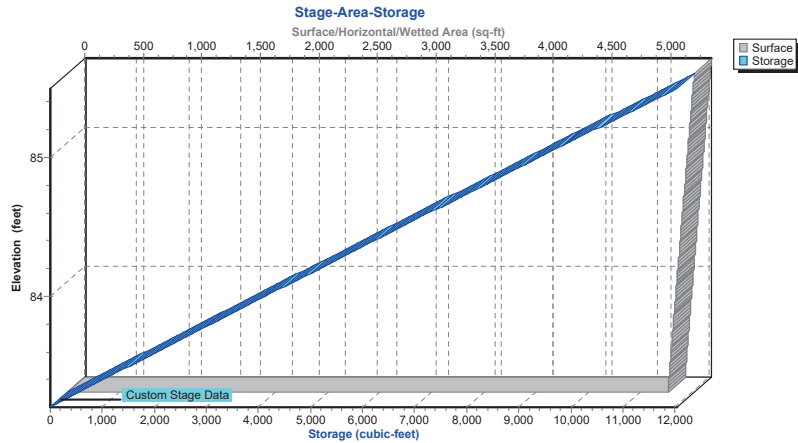


**Pond 10P: Basin A**

Stage-Discharge



**Pond 10P: Basin A**



**Hydrograph for Pond 10P: Basin A**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	83.20	0.00
2.50	0.02	79	83.22	0.00
5.00	0.04	377	83.27	0.00
7.50	0.07	844	83.36	0.00
10.00	<b>0.17</b>	<b>1,731</b>	<b>83.54</b>	<b>0.00</b>
12.50	<b>2.26</b>	<b>5,946</b>	<b>84.35</b>	<b>3.48</b>
15.00	0.32	3,634	83.90	0.37
17.50	0.20	3,437	83.87	0.22
20.00	0.15	3,352	83.85	0.16
22.50	0.13	3,312	83.84	0.13
25.00	0.00	3,102	83.80	0.03
27.50	0.00	3,004	83.78	0.00
30.00	0.00	2,990	83.78	0.00
32.50	0.00	2,989	83.78	0.00
35.00	0.00	2,988	83.78	0.00
37.50	0.00	2,988	83.78	0.00
40.00	0.00	2,988	83.78	0.00
42.50	0.00	2,988	83.78	0.00
45.00	0.00	2,988	83.78	0.00
47.50	0.00	2,988	83.78	0.00
50.00	0.00	2,988	83.78	0.00
52.50	0.00	2,988	83.78	0.00
55.00	0.00	2,988	83.78	0.00
57.50	0.00	2,988	83.78	0.00
60.00	0.00	2,988	83.78	0.00
62.50	0.00	2,988	83.78	0.00
65.00	0.00	2,988	83.78	0.00
67.50	0.00	2,988	83.78	0.00
70.00	0.00	2,988	83.78	0.00



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**Stage-Discharge for Pond 10P: Basin A**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
83.20	0.00	84.24	2.56	85.28	17.80
83.22	0.00	84.26	2.72	85.30	18.74
83.24	0.00	84.28	2.89	85.32	19.71
83.26	0.00	84.30	3.06	85.34	20.71
83.28	0.00	84.32	3.23	85.36	21.75
83.30	0.00	84.34	3.41	85.38	22.81
83.32	0.00	84.36	3.59	85.40	23.91
83.34	0.00	84.38	3.77	85.42	25.04
83.36	0.00	84.40	3.95	85.44	26.19
83.38	0.00	84.42	4.14	85.46	27.37
83.40	0.00	84.44	4.33	85.48	28.58
83.42	0.00	84.46	4.52	85.50	<b>29.81</b>
83.44	0.00	84.48	4.71		
83.46	0.00	84.50	4.91		
83.48	0.00	84.52	5.10		
83.50	0.00	84.54	5.30		
83.52	0.00	84.56	5.51		
83.54	0.00	84.58	5.71		
83.56	0.00	84.60	5.91		
83.58	0.00	84.62	6.12		
83.60	0.00	84.64	6.33		
83.62	0.00	84.66	6.54		
83.64	0.00	84.68	6.76		
83.66	0.00	84.70	6.97		
83.68	0.00	84.72	7.19		
83.70	0.00	84.74	7.41		
83.72	0.00	84.76	7.63		
83.74	0.00	84.78	7.85		
83.76	0.00	84.80	8.07		
83.78	0.00	84.82	8.30		
83.80	0.02	84.84	8.52		
83.82	0.07	84.86	8.75		
83.84	0.12	84.88	8.98		
83.86	0.19	84.90	9.21		
83.88	0.27	84.92	9.44		
83.90	0.35	84.94	9.67		
83.92	0.44	84.96	9.91		
83.94	0.54	84.98	10.14		
83.96	0.64	85.00	10.38		
83.98	0.75	85.02	10.62		
84.00	0.86	85.04	10.86		
84.02	0.98	85.06	11.10		
84.04	1.10	85.08	11.34		
84.06	1.23	85.10	11.58		
84.08	1.36	85.12	11.98		
84.10	1.50	85.14	12.49		
84.12	1.64	85.16	13.09		
84.14	1.79	85.18	13.75		
84.16	1.93	85.20	14.47		
84.18	2.08	85.22	15.24		
84.20	2.24	85.24	16.05		
84.22	2.40	85.26	16.91		

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**Stage-Area-Storage for Pond 10P: Basin A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
83.20	5,125	0
83.25	5,130	256
83.30	5,134	513
83.35	5,139	770
83.40	5,144	1,027
83.45	5,148	1,284
83.50	5,153	1,542
83.55	5,158	1,799
83.60	5,163	2,058
83.65	5,167	2,316
83.70	5,172	2,574
83.75	5,177	2,833
83.80	5,181	3,092
83.85	5,186	3,351
83.90	5,191	3,610
83.95	5,195	3,870
84.00	5,200	4,130
84.05	5,205	4,390
84.10	5,210	4,651
84.15	5,215	4,911
84.20	5,220	5,172
84.25	5,225	5,433
84.30	5,230	5,694
84.35	5,235	5,956
84.40	5,240	6,218
84.45	5,245	6,480
84.50	5,250	6,742
84.55	5,255	7,005
84.60	5,260	7,268
84.65	5,265	7,531
84.70	5,270	7,795
84.75	5,275	8,058
84.80	5,280	8,322
84.85	5,285	8,586
84.90	5,290	8,851
84.95	5,295	9,115
85.00	5,300	9,380
85.05	5,305	9,645
85.10	5,310	9,911
85.15	5,315	10,176
85.20	5,320	10,442
85.25	5,325	10,708
85.30	5,330	10,974
85.35	5,335	11,241
85.40	5,340	11,508
85.45	5,345	11,775
85.50	<b>5,350</b>	<b>12,042</b>

**Prop 2, 10 & 100yr**

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**Summary for Pond 13P: Basin B**

Inflow Area = 1.355 ac, 80.19% Impervious, Inflow Depth = 4.27" for 10-Year event  
 Inflow = 6.68 cfs @ 12.10 hrs, Volume= 0.482 af  
 Outflow = 5.95 cfs @ 12.13 hrs, Volume= 0.386 af, Atten= 11%, Lag= 1.9 min  
 Primary = 5.95 cfs @ 12.13 hrs, Volume= 0.386 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.38' @ 12.13 hrs Surf.Area= 5,645 sf Storage= 5,332 cf

Plug-Flow detention time= 152.2 min calculated for 0.386 af (80% of inflow)  
 Center-of-Mass det. time= 71.6 min ( 828.8 - 757.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	82.43'	8,837 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.43	5,550	0	0
83.00	5,607	3,180	3,180
84.00	5,707	5,657	8,837

Device	Routing	Invert	Outlet Devices
#1	Primary	83.18'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=5.76 cfs @ 12.13 hrs HW=83.38' (Free Discharge)  
 ↳ Sharp-Crested Rectangular Weir (Weir Controls 5.76 cfs @ 1.46 fps)

**Prop 2, 10 & 100yr**

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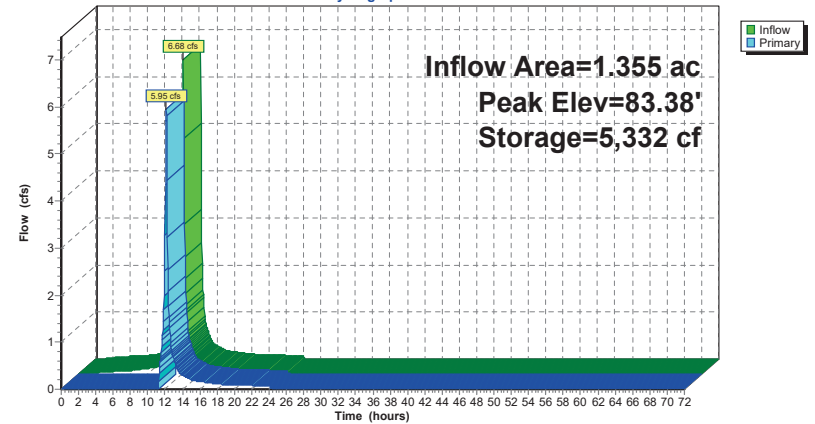
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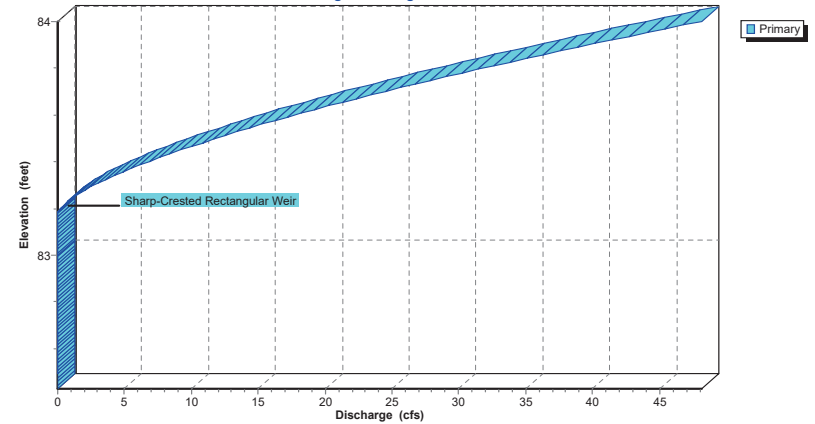
**Pond 13P: Basin B**

Hydrograph

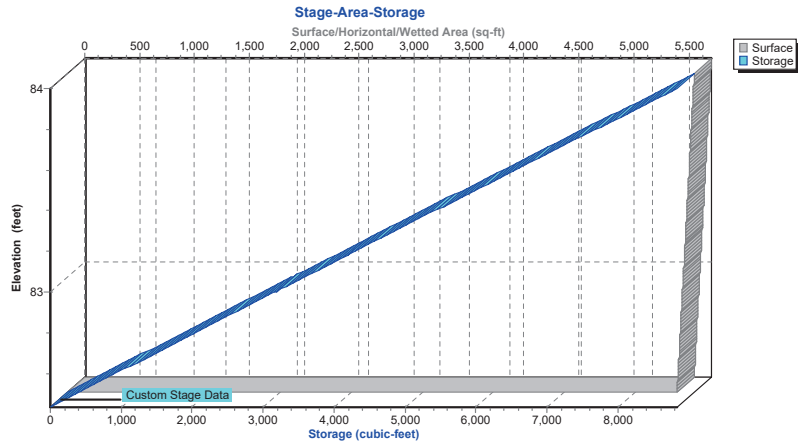


**Pond 13P: Basin B**

Stage-Discharge



Pond 13P: Basin B



Hydrograph for Pond 13P: Basin B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	82.43	0.00
2.50	0.04	128	82.45	0.00
5.00	0.07	612	82.54	0.00
7.50	0.11	1,371	82.68	0.00
10.00	<b>0.23</b>	<b>2,733</b>	<b>82.92</b>	<b>0.00</b>
12.50	<b>1.31</b>	<b>4,628</b>	<b>83.26</b>	<b>1.42</b>
15.00	0.19	4,308	83.20	0.20
17.50	0.12	4,271	83.19	0.12
20.00	0.09	4,254	83.19	0.09
22.50	0.08	4,246	83.19	0.08
25.00	0.00	4,194	83.18	0.00
27.50	0.00	4,191	83.18	0.00
30.00	0.00	4,191	83.18	0.00
32.50	0.00	4,191	83.18	0.00
35.00	0.00	4,191	83.18	0.00
37.50	0.00	4,191	83.18	0.00
40.00	0.00	4,191	83.18	0.00
42.50	0.00	4,191	83.18	0.00
45.00	0.00	4,191	83.18	0.00
47.50	0.00	4,191	83.18	0.00
50.00	0.00	4,191	83.18	0.00
52.50	0.00	4,191	83.18	0.00
55.00	0.00	4,191	83.18	0.00
57.50	0.00	4,191	83.18	0.00
60.00	0.00	4,191	83.18	0.00
62.50	0.00	4,191	83.18	0.00
65.00	0.00	4,191	83.18	0.00
67.50	0.00	4,191	83.18	0.00
70.00	0.00	4,191	83.18	0.00

Stage-Discharge for Pond 13P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
82.43	0.00	82.95	0.00	83.47	10.18	83.99	47.29
82.44	0.00	82.96	0.00	83.48	10.71	84.00	<b>48.16</b>
82.45	0.00	82.97	0.00	83.49	11.25		
82.46	0.00	82.98	0.00	83.50	11.80		
82.47	0.00	82.99	0.00	83.51	12.36		
82.48	0.00	83.00	0.00	83.52	12.92		
82.49	0.00	83.01	0.00	83.53	13.49		
82.50	0.00	83.02	0.00	83.54	14.08		
82.51	0.00	83.03	0.00	83.55	14.66		
82.52	0.00	83.04	0.00	83.56	15.26		
82.53	0.00	83.05	0.00	83.57	15.87		
82.54	0.00	83.06	0.00	83.58	16.48		
82.55	0.00	83.07	0.00	83.59	17.10		
82.56	0.00	83.08	0.00	83.60	17.73		
82.57	0.00	83.09	0.00	83.61	18.36		
82.58	0.00	83.10	0.00	83.62	19.00		
82.59	0.00	83.11	0.00	83.63	19.65		
82.60	0.00	83.12	0.00	83.64	20.31		
82.61	0.00	83.13	0.00	83.65	20.97		
82.62	0.00	83.14	0.00	83.66	21.64		
82.63	0.00	83.15	0.00	83.67	22.32		
82.64	0.00	83.16	0.00	83.68	23.01		
82.65	0.00	83.17	0.00	83.69	23.70		
82.66	0.00	83.18	0.00	83.70	24.40		
82.67	0.00	83.19	0.07	83.71	25.10		
82.68	0.00	83.20	0.18	83.72	25.81		
82.69	0.00	83.21	0.34	83.73	26.53		
82.70	0.00	83.22	0.52	83.74	27.25		
82.71	0.00	83.23	0.73	83.75	27.98		
82.72	0.00	83.24	0.96	83.76	28.72		
82.73	0.00	83.25	1.21	83.77	29.46		
82.74	0.00	83.26	1.48	83.78	30.21		
82.75	0.00	83.27	1.76	83.79	30.97		
82.76	0.00	83.28	2.07	83.80	31.73		
82.77	0.00	83.29	2.38	83.81	32.50		
82.78	0.00	83.30	2.72	83.82	33.27		
82.79	0.00	83.31	3.06	83.83	34.05		
82.80	0.00	83.32	3.42	83.84	34.84		
82.81	0.00	83.33	3.79	83.85	35.63		
82.82	0.00	83.34	4.18	83.86	36.42		
82.83	0.00	83.35	4.58	83.87	37.23		
82.84	0.00	83.36	4.99	83.88	38.03		
82.85	0.00	83.37	5.41	83.89	38.85		
82.86	0.00	83.38	5.84	83.90	39.67		
82.87	0.00	83.39	6.28	83.91	40.49		
82.88	0.00	83.40	6.73	83.92	41.32		
82.89	0.00	83.41	7.20	83.93	42.16		
82.90	0.00	83.42	7.67	83.94	43.00		
82.91	0.00	83.43	8.15	83.95	43.85		
82.92	0.00	83.44	8.65	83.96	44.70		
82.93	0.00	83.45	9.15	83.97	45.56		
82.94	0.00	83.46	9.66	83.98	46.42		

Stage-Area-Storage for Pond 13P: Basin B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
82.43	5,550	0	83.47	5,654	5,826
82.45	5,552	111	83.49	5,656	5,939
82.47	5,554	222	83.51	5,658	6,052
82.49	5,556	333	83.53	5,660	6,165
82.51	5,558	444	83.55	5,662	6,279
82.53	5,560	555	83.57	5,664	6,392
82.55	5,562	667	83.59	5,666	6,505
82.57	5,564	778	83.61	5,668	6,619
82.59	5,566	889	83.63	5,670	6,732
82.61	5,568	1,001	83.65	5,672	6,845
82.63	5,570	1,112	83.67	5,674	6,959
82.65	5,572	1,223	83.69	5,676	7,072
82.67	5,574	1,335	83.71	5,678	7,186
82.69	5,576	1,446	83.73	5,680	7,299
82.71	5,578	1,558	83.75	5,682	7,413
82.73	5,580	1,669	83.77	5,684	7,527
82.75	5,582	1,781	83.79	5,686	7,640
82.77	5,584	1,893	83.81	5,688	7,754
82.79	5,586	2,004	83.83	5,690	7,868
82.81	5,588	2,116	83.85	5,692	7,982
82.83	5,590	2,228	83.87	5,694	8,096
82.85	5,592	2,340	83.89	5,696	8,210
82.87	5,594	2,452	83.91	5,698	8,324
82.89	5,596	2,564	83.93	5,700	8,438
82.91	5,598	2,676	83.95	5,702	8,552
82.93	5,600	2,788	83.97	5,704	8,666
82.95	5,602	2,900	83.99	<b>5,706</b>	<b>8,780</b>
82.97	5,604	3,012			
82.99	5,606	3,124			
83.01	5,608	3,236			
83.03	5,610	3,348			
83.05	5,612	3,460			
83.07	5,614	3,572			
83.09	5,616	3,685			
83.11	5,618	3,797			
83.13	5,620	3,910			
83.15	5,622	4,022			
83.17	5,624	4,134			
83.19	5,626	4,247			
83.21	5,628	4,359			
83.23	5,630	4,472			
83.25	5,632	4,585			
83.27	5,634	4,697			
83.29	5,636	4,810			
83.31	5,638	4,923			
83.33	5,640	5,036			
83.35	5,642	5,148			
83.37	5,644	5,261			
83.39	5,646	5,374			
83.41	5,648	5,487			
83.43	5,650	5,600			
83.45	5,652	5,713			

**Prop 2, 10 & 100yr**

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**Summary for Pond 26P: Porous Pavement D**

Inflow Area = 2.189 ac, 95.66% Impervious, Inflow Depth = 4.61" for 10-Year event  
 Inflow = 12.34 cfs @ 12.08 hrs, Volume= 0.841 af  
 Outflow = 0.55 cfs @ 13.58 hrs, Volume= 0.726 af, Atten= 96%, Lag= 89.9 min  
 Primary = 0.55 cfs @ 13.58 hrs, Volume= 0.726 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.09' @ 13.58 hrs Surf.Area= 11,488 sf Storage= 24,369 cf

Plug-Flow detention time= 550.3 min calculated for 0.726 af (86% of inflow)  
 Center-of-Mass det. time= 486.4 min ( 1,234.1 - 747.7 )

Volume	Invert	Avail.Storage	Storage Description
#1A	81.90'	4,595 cf	<b>29.65'W x 387.43'L x 4.00'H Stone Storage</b> 45,936 cf Overall - 34,448 cf Embedded = 11,488 cf x 40.0% Voids
#2A	81.90'	33,414 cf	<b>ACO StormBrixx SD 1</b> x 1470 Inside #1 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 1470 Chambers in 15 Rows
		38,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	81.90'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	85.65'	<b>4.0" long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.55 cfs @ 13.58 hrs HW=84.09' TW=82.35' (Fixed TW Elev= 82.35')

- 1=Orifice/Grate (Orifice Controls 0.55 cfs @ 6.35 fps)
- 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

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**Pond 26P: Porous Pavement D - Chamber Wizard Stone Storage**

**Chamber Model = ACO StormBrixx SD 1 (ACO StormBrixx®SD)**  
 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf  
 Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

98 Chambers/Row x 3.95' Long = 387.43' Row Length  
 15 Rows x 23.7" Wide = 29.65' Base Width  
 36.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

1,470 Chambers x 22.7 cf = 33,414.5 cf Chamber Storage  
 1,470 Chambers x 23.4 cf = 34,447.9 cf Displacement

45,935.6 cf Field - 34,447.9 cf Chambers = 11,487.7 cf Stone x 40.0% Voids = 4,595.1 cf Stone Storage

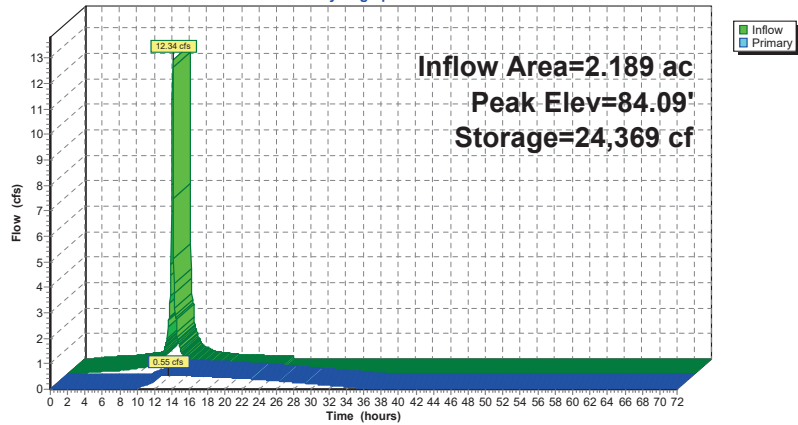
Chamber Storage + Stone Storage = 38,009.5 cf = 0.873 af  
 Overall Storage Efficiency = 82.7%  
 Overall System Size = 387.43' x 29.65' x 4.00'

1,470 Chambers  
 1,701.3 cy Field  
 425.5 cy Stone



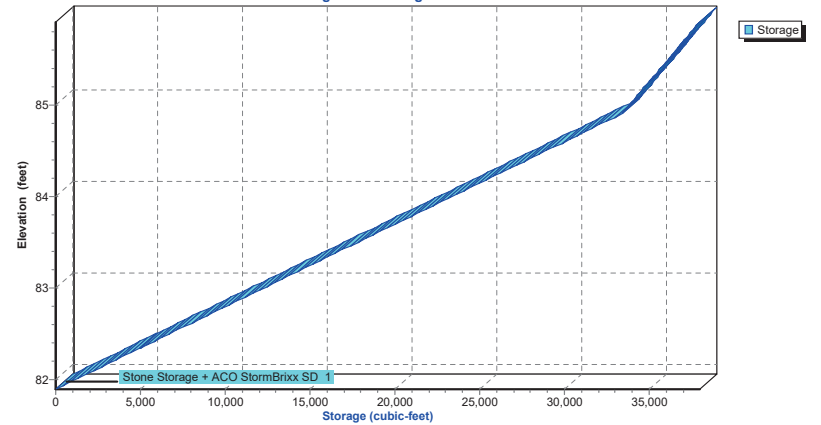
Pond 26P: Porous Pavement D

Hydrograph



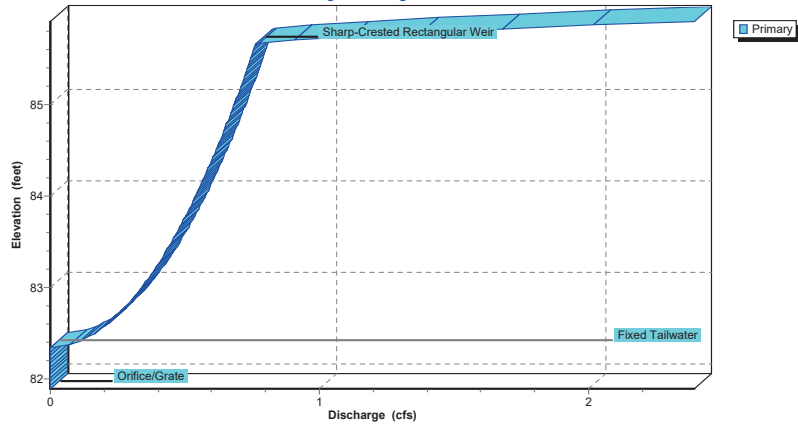
Pond 26P: Porous Pavement D

Stage-Area-Storage



Pond 26P: Porous Pavement D

Stage-Discharge



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**Hydrograph for Pond 26P: Porous Pavement D**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	81.90	0.00
2.50	0.07	251	81.92	0.00
5.00	0.13	1,187	82.01	0.00
7.50	0.21	2,653	82.14	0.00
10.00	<b>0.44</b>	5,256	82.37	0.05
12.50	<b>2.16</b>	<b>22,623</b>	<b>83.93</b>	<b>0.53</b>
15.00	0.32	<b>23,762</b>	<b>84.03</b>	<b>0.55</b>
17.50	0.20	21,294	83.81	0.51
20.00	0.15	18,452	83.56	0.46
22.50	0.13	15,778	83.32	0.41
25.00	0.00	12,967	83.06	0.35
27.50	0.00	10,094	82.81	0.28
30.00	0.00	7,862	82.61	0.21
32.50	0.00	6,273	82.46	0.14
35.00	0.00	5,329	82.38	0.07
37.50	0.00	5,058	82.35	0.01
40.00	0.00	5,021	82.35	0.00
42.50	0.00	5,015	82.35	0.00
45.00	0.00	5,014	82.35	0.00
47.50	0.00	5,014	82.35	0.00
50.00	0.00	5,014	82.35	0.00
52.50	0.00	5,014	82.35	0.00
55.00	0.00	5,014	82.35	0.00
57.50	0.00	5,014	82.35	0.00
60.00	0.00	5,014	82.35	0.00
62.50	0.00	5,014	82.35	0.00
65.00	0.00	5,014	82.35	0.00
67.50	0.00	5,014	82.35	0.00
70.00	0.00	5,014	82.35	0.00

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**Stage-Discharge for Pond 26P: Porous Pavement D**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
81.90	0.00	82.94	0.32	83.98	0.54	85.02	0.69
81.92	0.00	82.96	0.33	84.00	0.54	85.04	0.69
81.94	0.00	82.98	0.33	84.02	0.54	85.06	0.69
81.96	0.00	83.00	0.34	84.04	0.55	85.08	0.69
81.98	0.00	83.02	0.34	84.06	0.55	85.10	0.70
82.00	0.00	83.04	0.35	84.08	0.55	85.12	0.70
82.02	0.00	83.06	0.35	84.10	0.56	85.14	0.70
82.04	0.00	83.08	0.36	84.12	0.56	85.16	0.70
82.06	0.00	83.10	0.36	84.14	0.56	85.18	0.71
82.08	0.00	83.12	0.37	84.16	0.57	85.20	0.71
82.10	0.00	83.14	0.37	84.18	0.57	85.22	0.71
82.12	0.00	83.16	0.38	84.20	0.57	85.24	0.71
82.14	0.00	83.18	0.38	84.22	0.57	85.26	0.72
82.16	0.00	83.20	0.39	84.24	0.58	85.28	0.72
82.18	0.00	83.22	0.39	84.26	0.58	85.30	0.72
82.20	0.00	83.24	0.40	84.28	0.58	85.32	0.72
82.22	0.00	83.26	0.40	84.30	0.59	85.34	0.73
82.24	0.00	83.28	0.41	84.32	0.59	85.36	0.73
82.26	0.00	83.30	0.41	84.34	0.59	85.38	0.73
82.28	0.00	83.32	0.41	84.36	0.60	85.40	0.73
82.30	0.00	83.34	0.42	84.38	0.60	85.42	0.74
82.32	0.00	83.36	0.42	84.40	0.60	85.44	0.74
82.34	0.00	83.38	0.43	84.42	0.60	85.46	0.74
82.36	0.04	83.40	0.43	84.44	0.61	85.48	0.74
82.38	0.07	83.42	0.43	84.46	0.61	85.50	0.75
82.40	0.09	83.44	0.44	84.48	0.61	85.52	0.75
82.42	0.11	83.46	0.44	84.50	0.62	85.54	0.75
82.44	0.13	83.48	0.45	84.52	0.62	85.56	0.75
82.46	0.14	83.50	0.45	84.54	0.62	85.58	0.76
82.48	0.15	83.52	0.45	84.56	0.62	85.60	0.76
82.50	0.16	83.54	0.46	84.58	0.63	85.62	0.76
82.52	0.17	83.56	0.46	84.60	0.63	85.64	0.76
82.54	0.18	83.58	0.47	84.62	0.63	85.66	0.78
82.56	0.19	83.60	0.47	84.64	0.64	85.68	0.83
82.58	0.20	83.62	0.47	84.66	0.64	85.70	0.91
82.60	0.21	83.64	0.48	84.68	0.64	85.72	1.01
82.62	0.22	83.66	0.48	84.70	0.64	85.74	1.13
82.64	0.23	83.68	0.48	84.72	0.65	85.76	1.25
82.66	0.23	83.70	0.49	84.74	0.65	85.78	1.39
82.68	0.24	83.72	0.49	84.76	0.65	85.80	1.53
82.70	0.25	83.74	0.50	84.78	0.66	85.82	1.69
82.72	0.26	83.76	0.50	84.80	0.66	85.84	1.86
82.74	0.26	83.78	0.50	84.82	0.66	85.86	2.03
82.76	0.27	83.80	0.51	84.84	0.66	85.88	2.22
82.78	0.28	83.82	0.51	84.86	0.67	85.90	<b>2.41</b>
82.80	0.28	83.84	0.51	84.88	0.67		
82.82	0.29	83.86	0.52	84.90	0.67		
82.84	0.29	83.88	0.52	84.92	0.67		
82.86	0.30	83.90	0.52	84.94	0.68		
82.88	0.31	83.92	0.53	84.96	0.68		
82.90	0.31	83.94	0.53	84.98	0.68		
82.92	0.32	83.96	0.53	85.00	0.68		

**Prop 2, 10 & 100yr**

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**Stage-Area-Storage for Pond 26P: Porous Pavement D**

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
81.90	0	84.50	28,972
81.95	557	84.55	29,529
82.00	1,114	84.60	30,086
82.05	1,671	84.65	30,643
82.10	2,229	84.70	31,200
82.15	2,786	84.75	31,758
82.20	3,343	84.80	32,315
82.25	3,900	84.85	32,872
82.30	4,457	84.90	33,429
82.35	5,014	84.95	33,986
82.40	5,572	85.00	34,543
82.45	6,129	85.05	35,100
82.50	6,686	85.10	35,657
82.55	7,243	85.15	36,214
82.60	7,800	85.20	36,771
82.65	8,357	85.25	37,328
82.70	8,914	85.30	37,885
82.75	9,472	85.35	38,442
82.80	10,029	85.40	38,999
82.85	10,586	85.45	39,556
82.90	11,143	85.50	40,113
82.95	11,700	85.55	40,670
83.00	12,257	85.60	41,227
83.05	12,814	85.65	41,784
83.10	13,372	85.70	42,341
83.15	13,929	85.75	42,898
83.20	14,486	85.80	43,455
83.25	15,043	85.85	44,012
83.30	15,600	85.90	<b>44,569</b>
83.35	16,157		
83.40	16,715		
83.45	17,272		
83.50	17,829		
83.55	18,386		
83.60	18,943		
83.65	19,500		
83.70	20,057		
83.75	20,615		
83.80	21,172		
83.85	21,729		
83.90	22,286		
83.95	22,843		
84.00	23,400		
84.05	23,958		
84.10	24,515		
84.15	25,072		
84.20	25,629		
84.25	26,186		
84.30	26,743		
84.35	27,300		
84.40	27,858		
84.45	28,415		

**Prop 2, 10 & 100yr**

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**Summary for Pond 27P: Prop Standard Constructed Wetland E**

Inflow Area = 13.138 ac, 76.54% Impervious, Inflow Depth = 3.88" for 10-Year event  
 Inflow = 43.15 cfs @ 12.13 hrs, Volume= 4.248 af  
 Outflow = 5.11 cfs @ 13.11 hrs, Volume= 4.242 af, Atten= 88%, Lag= 59.0 min  
 Primary = 5.11 cfs @ 13.11 hrs, Volume= 4.242 af  
 Routed to Link 28L : Prop South Total

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 80.20' @ 13.11 hrs Surf.Area= 19,507 sf Storage= 85,046 cf

Plug-Flow detention time=382.3 min calculated for 4.239 af (100% of inflow)  
 Center-of-Mass det. time= 381.6 min ( 1,238.9 - 857.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	75.50'	140,019 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

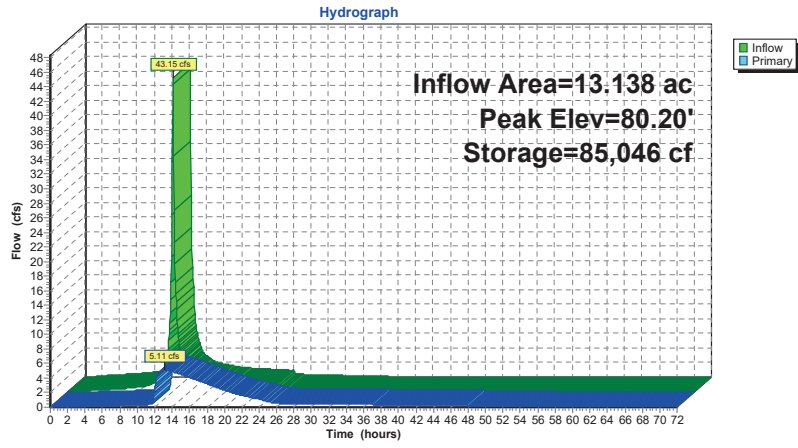
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.50	6,189	0	0
76.00	15,855	5,511	5,511
77.00	19,196	17,526	23,037
78.00	19,296	19,246	42,283
79.00	19,396	19,346	61,629
80.00	19,496	19,446	81,075
81.00	19,548	19,522	100,597
82.00	19,648	19,598	120,195
83.00	20,000	19,824	140,019

Device	Routing	Invert	Outlet Devices
#1	Primary	75.50'	<b>3.7" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	77.20'	<b>30.0" W x 2.5" H Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	80.15'	<b>1.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Primary	82.05'	<b>20.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

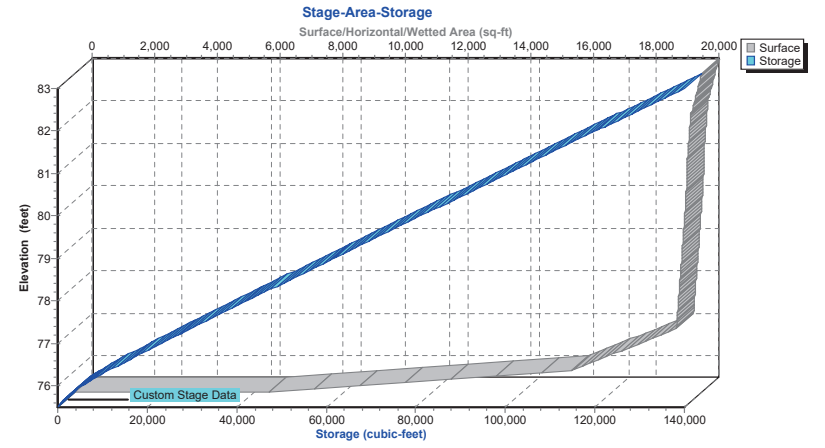
**Primary OutFlow** Max=5.10 cfs @ 13.11 hrs HW=80.20' (Free Discharge)  
 1=Orifice/Grate (Orifice Controls 0.77 cfs @ 10.27 fps)  
 2=Orifice/Grate (Orifice Controls 4.27 cfs @ 8.20 fps)  
 3=Sharp-Crested Rectangular Weir (Weir Controls 0.06 cfs @ 0.76 fps)  
 4=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)



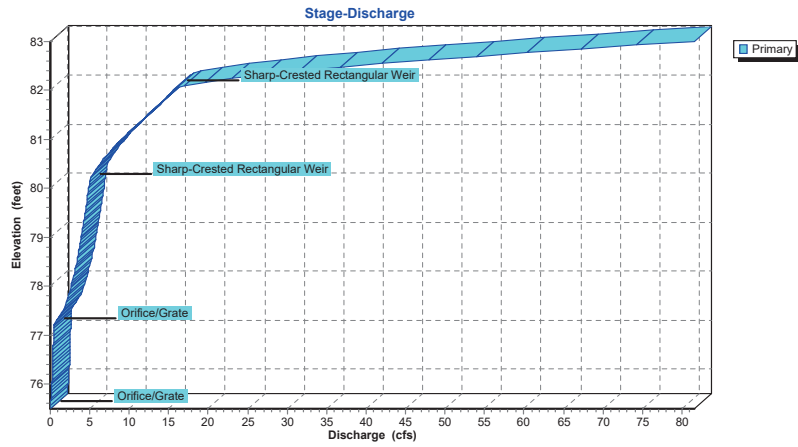
Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



**Prop 2, 10 & 100yr**

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**Hydrograph for Pond 27P: Prop Standard Constructed Wetland E**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	75.50	0.00
2.50	0.21	665	75.59	0.02
5.00	0.38	2,704	75.80	0.14
7.50	0.62	5,443	76.00	0.21
10.00	<b>1.33</b>	10,862	76.33	0.29
12.50	<b>12.46</b>	<b>79,321</b>	<b>79.91</b>	<b>4.79</b>
15.00	2.13	<b>73,180</b>	<b>79.59</b>	<b>4.51</b>
17.50	1.48	53,224	78.57	3.43
20.00	1.20	39,026	77.83	2.35
22.50	1.02	32,021	77.47	1.47
25.00	0.39	28,896	77.31	0.74
27.50	0.29	26,897	77.20	0.45
30.00	0.21	25,174	77.11	0.43
32.50	0.14	22,935	76.99	0.42
35.00	0.07	20,231	76.85	0.39
37.50	0.01	17,088	76.68	0.36
40.00	0.00	13,991	76.51	0.33
42.50	0.00	11,158	76.34	0.30
45.00	0.00	8,629	76.19	0.26
47.50	0.00	6,416	76.06	0.23
50.00	0.00	4,530	75.93	0.19
52.50	0.00	3,007	75.82	0.15
55.00	0.00	1,912	75.73	0.10
57.50	0.00	1,253	75.66	0.05
60.00	0.00	873	75.62	0.03
62.50	0.00	642	75.59	0.02
65.00	0.00	500	75.57	0.01
67.50	0.00	399	75.56	0.01
70.00	0.00	318	75.55	0.01

**Prop 2, 10 & 100yr**

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**Stage-Discharge for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
75.50	0.00	78.10	2.80	80.70	7.28
75.55	0.01	78.15	2.87	80.75	7.56
75.60	0.02	78.20	2.95	80.80	7.85
75.65	0.05	78.25	3.02	80.85	8.15
75.70	0.08	78.30	3.09	80.90	8.45
75.75	0.11	78.35	3.15	80.95	8.75
75.80	0.14	78.40	3.22	81.00	9.06
75.85	0.16	78.45	3.28	81.05	9.37
75.90	0.18	78.50	3.35	81.10	9.69
75.95	0.20	78.55	3.41	81.15	10.01
76.00	0.21	78.60	3.47	81.20	10.33
76.05	0.23	78.65	3.53	81.25	10.66
76.10	0.24	78.70	3.59	81.30	10.99
76.15	0.25	78.75	3.65	81.35	11.32
76.20	0.27	78.80	3.70	81.40	11.65
76.25	0.28	78.85	3.76	81.45	11.98
76.30	0.29	78.90	3.82	81.50	12.31
76.35	0.30	78.95	3.87	81.55	12.65
76.40	0.31	79.00	3.92	81.60	12.98
76.45	0.32	79.05	3.98	81.65	13.32
76.50	0.33	79.10	4.03	81.70	13.65
76.55	0.34	79.15	4.08	81.75	13.98
76.60	0.35	79.20	4.13	81.80	14.32
76.65	0.36	79.25	4.18	81.85	14.65
76.70	0.37	79.30	4.23	81.90	14.98
76.75	0.38	79.35	4.28	81.95	15.31
76.80	0.38	79.40	4.33	82.00	15.64
76.85	0.39	79.45	4.37	82.05	15.96
76.90	0.40	79.50	4.42	82.10	17.02
76.95	0.41	79.55	4.47	82.15	18.68
77.00	0.42	79.60	4.51	82.20	20.72
77.05	0.42	79.65	4.56	82.25	23.09
77.10	0.43	79.70	4.60	82.30	25.72
77.15	0.44	79.75	4.65	82.35	28.59
77.20	0.45	79.80	4.69	82.40	31.68
77.25	0.54	79.85	4.74	82.45	34.97
77.30	0.72	79.90	4.78	82.50	38.44
77.35	0.93	79.95	4.82	82.55	42.10
77.40	1.19	80.00	4.87	82.60	45.91
77.45	1.42	80.05	4.91	82.65	49.89
77.50	1.58	80.10	4.95	82.70	54.01
77.55	1.73	80.15	4.99	82.75	58.28
77.60	1.86	80.20	5.09	82.80	62.68
77.65	1.98	80.25	5.23	82.85	67.22
77.70	2.09	80.30	5.39	82.90	71.88
77.75	2.19	80.35	5.58	82.95	76.67
77.80	2.29	80.40	5.79	83.00	<b>81.57</b>
77.85	2.38	80.45	6.01		
77.90	2.47	80.50	6.24		
77.95	2.56	80.55	6.49		
78.00	2.64	80.60	6.74		
78.05	2.72	80.65	7.01		

Stage-Area-Storage for Pond 27P: Prop Standard Constructed Wetland E

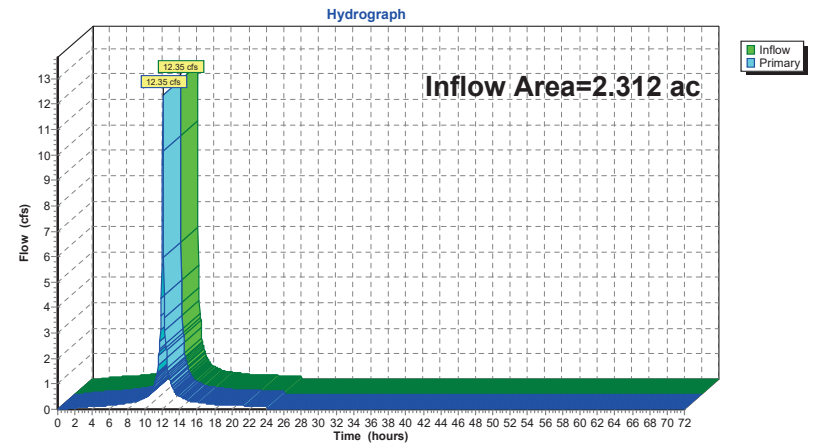
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
75.50	6,189	0	80.70	19,532	94,734
75.60	8,122	716	80.80	19,538	96,688
75.70	10,055	1,624	80.90	19,543	98,642
75.80	11,989	2,727	81.00	19,548	100,597
75.90	13,922	4,022	81.10	19,558	102,552
76.00	15,855	5,511	81.20	19,568	104,508
76.10	16,189	7,113	81.30	19,578	106,465
76.20	16,523	8,749	81.40	19,588	108,424
76.30	16,857	10,418	81.50	19,598	110,383
76.40	17,191	12,120	81.60	19,608	112,343
76.50	17,526	13,856	81.70	19,618	114,305
76.60	17,860	15,625	81.80	19,628	116,267
76.70	18,194	17,428	81.90	19,638	118,230
76.80	18,528	19,264	82.00	19,648	120,195
76.90	18,862	21,134	82.10	19,683	122,161
77.00	19,196	23,037	82.20	19,718	124,131
77.10	19,206	24,957	82.30	19,754	126,105
77.20	19,216	26,878	82.40	19,789	128,082
77.30	19,226	28,800	82.50	19,824	130,063
77.40	19,236	30,723	82.60	19,859	132,047
77.50	19,246	32,647	82.70	19,894	134,034
77.60	19,256	34,572	82.80	19,930	136,026
77.70	19,266	36,498	82.90	19,965	138,020
77.80	19,276	38,425	83.00	<b>20,000</b>	<b>140,019</b>
77.90	19,286	40,353			
78.00	19,296	42,283			
78.10	19,306	44,213			
78.20	19,316	46,144			
78.30	19,326	48,076			
78.40	19,336	50,009			
78.50	19,346	51,943			
78.60	19,356	53,878			
78.70	19,366	55,814			
78.80	19,376	57,751			
78.90	19,386	59,689			
79.00	19,396	61,629			
79.10	19,406	63,569			
79.20	19,416	65,510			
79.30	19,426	67,452			
79.40	19,436	69,395			
79.50	19,446	71,339			
79.60	19,456	73,284			
79.70	19,466	75,230			
79.80	19,476	77,177			
79.90	19,486	79,125			
80.00	19,496	81,075			
80.10	19,501	83,024			
80.20	19,506	84,975			
80.30	19,512	86,926			
80.40	19,517	88,877			
80.50	19,522	90,829			
80.60	19,527	92,781			

Summary for Link 17L: Prop MTD C - bypass

Inflow Area = 2.312 ac, 96.48% Impervious, Inflow Depth = 4.66" for 10-Year event  
 Inflow = 12.35 cfs @ 12.10 hrs, Volume= 0.898 af  
 Primary = 12.35 cfs @ 12.10 hrs, Volume= 0.898 af, Atten= 0%, Lag= 0.0 min  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

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

Link 17L: Prop MTD C - bypass



**Prop 2, 10 & 100yr**

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**Hydrograph for Link 17L: Prop MTD C - bypass**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.01	0.00	0.01	53.00	0.00	0.00	0.00
2.00	0.06	0.00	0.06	54.00	0.00	0.00	0.00
3.00	0.09	0.00	0.09	55.00	0.00	0.00	0.00
4.00	0.12	0.00	0.12	56.00	0.00	0.00	0.00
5.00	0.14	0.00	0.14	57.00	0.00	0.00	0.00
6.00	0.16	0.00	0.16	58.00	0.00	0.00	0.00
7.00	0.20	0.00	0.20	59.00	0.00	0.00	0.00
8.00	0.25	0.00	0.25	60.00	0.00	0.00	0.00
9.00	0.30	0.00	0.30	61.00	0.00	0.00	0.00
10.00	0.46	0.00	0.46	62.00	0.00	0.00	0.00
11.00	0.86	0.00	0.86	63.00	0.00	0.00	0.00
12.00	7.40	0.00	7.40	64.00	0.00	0.00	0.00
13.00	1.05	0.00	1.05	65.00	0.00	0.00	0.00
14.00	0.51	0.00	0.51	66.00	0.00	0.00	0.00
15.00	0.34	0.00	0.34	67.00	0.00	0.00	0.00
16.00	0.28	0.00	0.28	68.00	0.00	0.00	0.00
17.00	0.24	0.00	0.24	69.00	0.00	0.00	0.00
18.00	0.19	0.00	0.19	70.00	0.00	0.00	0.00
19.00	0.18	0.00	0.18	71.00	0.00	0.00	0.00
20.00	0.16	0.00	0.16	72.00	0.00	0.00	0.00
21.00	0.15	0.00	0.15				
22.00	0.14	0.00	0.14				
23.00	0.13	0.00	0.13				
24.00	0.14	0.00	0.14				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Prop 2, 10 & 100yr**

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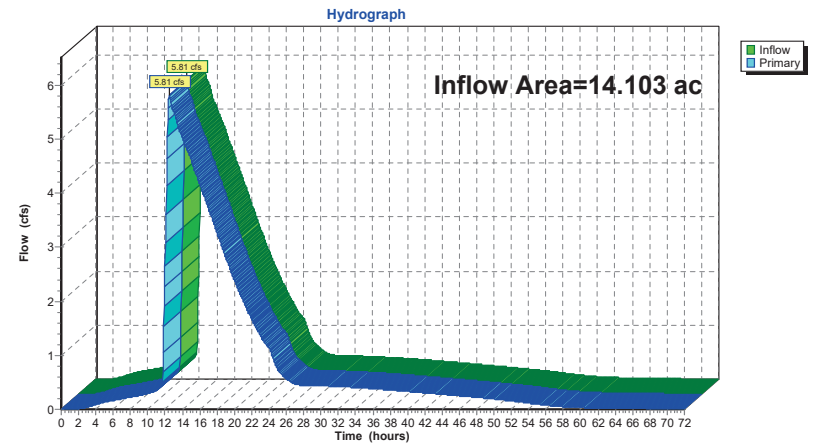
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**Summary for Link 28L: Prop South Total**

Inflow Area = 14.103 ac, 71.31% Impervious, Inflow Depth > 3.72" for 10-Year event  
 Inflow = 5.81 cfs @ 12.50 hrs, Volume= 4.374 af  
 Primary = 5.81 cfs @ 12.50 hrs, Volume= 4.374 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 34L : Prop Total

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

**Link 28L: Prop South Total**



**Prop 2, 10 & 100yr**

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**Hydrograph for Link 28L: Prop South Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.16	0.00	0.16
1.00	0.00	0.00	0.00	53.00	0.14	0.00	0.14
2.00	0.01	0.00	0.01	54.00	0.12	0.00	0.12
3.00	0.04	0.00	0.04	55.00	0.10	0.00	0.10
4.00	0.09	0.00	0.09	56.00	0.08	0.00	0.08
5.00	0.14	0.00	0.14	57.00	0.06	0.00	0.06
6.00	0.17	0.00	0.17	58.00	0.05	0.00	0.05
7.00	0.20	0.00	0.20	59.00	0.04	0.00	0.04
8.00	0.22	0.00	0.22	60.00	0.03	0.00	0.03
9.00	0.26	0.00	0.26	61.00	0.03	0.00	0.03
10.00	0.29	0.00	0.29	62.00	0.02	0.00	0.02
11.00	0.36	0.00	0.36	63.00	0.02	0.00	0.02
12.00	<b>2.65</b>	0.00	<b>2.65</b>	64.00	0.01	0.00	0.01
13.00	<b>5.51</b>	0.00	<b>5.51</b>	65.00	0.01	0.00	0.01
14.00	5.01	0.00	5.01	66.00	0.01	0.00	0.01
15.00	4.61	0.00	4.61	67.00	0.01	0.00	0.01
16.00	4.16	0.00	4.16	68.00	0.01	0.00	0.01
17.00	3.72	0.00	3.72	69.00	0.01	0.00	0.01
18.00	3.26	0.00	3.26	70.00	0.01	0.00	0.01
19.00	2.81	0.00	2.81	71.00	0.01	0.00	0.01
20.00	2.39	0.00	2.39	72.00	0.01	0.00	0.01
21.00	2.01	0.00	2.01				
22.00	1.67	0.00	1.67				
23.00	1.36	0.00	1.36				
24.00	1.14	0.00	1.14				
25.00	0.74	0.00	0.74				
26.00	0.57	0.00	0.57				
27.00	0.47	0.00	0.47				
28.00	0.44	0.00	0.44				
29.00	0.44	0.00	0.44				
30.00	0.43	0.00	0.43				
31.00	0.43	0.00	0.43				
32.00	0.42	0.00	0.42				
33.00	0.41	0.00	0.41				
34.00	0.40	0.00	0.40				
35.00	0.39	0.00	0.39				
36.00	0.38	0.00	0.38				
37.00	0.37	0.00	0.37				
38.00	0.36	0.00	0.36				
39.00	0.35	0.00	0.35				
40.00	0.33	0.00	0.33				
41.00	0.32	0.00	0.32				
42.00	0.31	0.00	0.31				
43.00	0.29	0.00	0.29				
44.00	0.28	0.00	0.28				
45.00	0.26	0.00	0.26				
46.00	0.25	0.00	0.25				
47.00	0.24	0.00	0.24				
48.00	0.22	0.00	0.22				
49.00	0.21	0.00	0.21				
50.00	0.19	0.00	0.19				
51.00	0.17	0.00	0.17				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

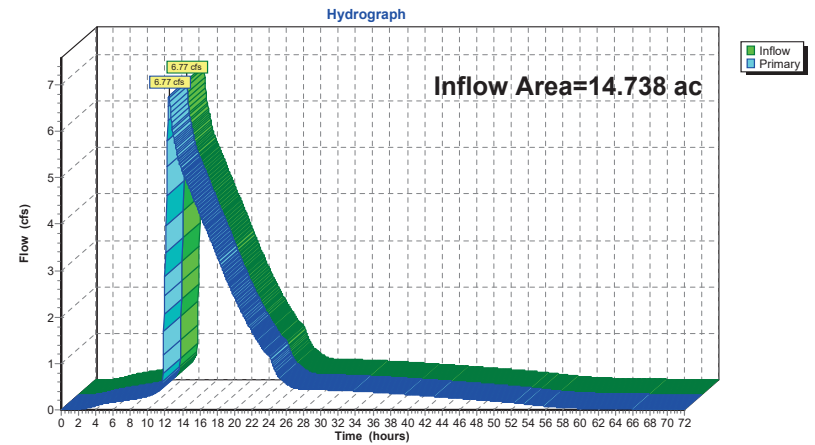
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**Summary for Link 34L: Prop Total**

Inflow Area = 14.738 ac, 68.23% Impervious, Inflow Depth > 3.66" for 10-Year event  
 Inflow = 6.77 cfs @ 12.45 hrs, Volume= 4.490 af  
 Primary = 6.77 cfs @ 12.45 hrs, Volume= 4.490 af, Atten= 0%, Lag= 0.0 min

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

**Link 34L: Prop Total**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 10-Year Rainfall=4.98"

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**Hydrograph for Link 34L: Prop Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.16	0.00	0.16
1.00	0.00	0.00	0.00	53.00	0.14	0.00	0.14
2.00	0.01	0.00	0.01	54.00	0.12	0.00	0.12
3.00	0.04	0.00	0.04	55.00	0.10	0.00	0.10
4.00	0.09	0.00	0.09	56.00	0.08	0.00	0.08
5.00	0.14	0.00	0.14	57.00	0.06	0.00	0.06
6.00	0.17	0.00	0.17	58.00	0.05	0.00	0.05
7.00	0.20	0.00	0.20	59.00	0.04	0.00	0.04
8.00	0.22	0.00	0.22	60.00	0.03	0.00	0.03
9.00	0.26	0.00	0.26	61.00	0.03	0.00	0.03
10.00	0.30	0.00	0.30	62.00	0.02	0.00	0.02
11.00	0.38	0.00	0.38	63.00	0.02	0.00	0.02
12.00	<b>2.88</b>	0.00	<b>2.88</b>	64.00	0.01	0.00	0.01
13.00	<b>5.85</b>	0.00	<b>5.85</b>	65.00	0.01	0.00	0.01
14.00	5.13	0.00	5.13	66.00	0.01	0.00	0.01
15.00	4.69	0.00	4.69	67.00	0.01	0.00	0.01
16.00	4.22	0.00	4.22	68.00	0.01	0.00	0.01
17.00	3.77	0.00	3.77	69.00	0.01	0.00	0.01
18.00	3.30	0.00	3.30	70.00	0.01	0.00	0.01
19.00	2.85	0.00	2.85	71.00	0.01	0.00	0.01
20.00	2.43	0.00	2.43	72.00	0.01	0.00	0.01
21.00	2.04	0.00	2.04				
22.00	1.70	0.00	1.70				
23.00	1.39	0.00	1.39				
24.00	1.16	0.00	1.16				
25.00	0.74	0.00	0.74				
26.00	0.57	0.00	0.57				
27.00	0.47	0.00	0.47				
28.00	0.44	0.00	0.44				
29.00	0.44	0.00	0.44				
30.00	0.43	0.00	0.43				
31.00	0.43	0.00	0.43				
32.00	0.42	0.00	0.42				
33.00	0.41	0.00	0.41				
34.00	0.40	0.00	0.40				
35.00	0.39	0.00	0.39				
36.00	0.38	0.00	0.38				
37.00	0.37	0.00	0.37				
38.00	0.36	0.00	0.36				
39.00	0.35	0.00	0.35				
40.00	0.33	0.00	0.33				
41.00	0.32	0.00	0.32				
42.00	0.31	0.00	0.31				
43.00	0.29	0.00	0.29				
44.00	0.28	0.00	0.28				
45.00	0.26	0.00	0.26				
46.00	0.25	0.00	0.25				
47.00	0.24	0.00	0.24				
48.00	0.22	0.00	0.22				
49.00	0.21	0.00	0.21				
50.00	0.19	0.00	0.19				
51.00	0.17	0.00	0.17				

**Prop 2, 10 & 100yr**

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Prop Basin A (Imp)</b>	Runoff Area=29,111 sf 100.00% Impervious Runoff Depth=5.91" Flow Length=541' Tc=3.4 min CN=98 Runoff=4.68 cfs 0.329 af
<b>Subcatchment2S: Prop Basin A (Perv)</b>	Runoff Area=82,064 sf 0.00% Impervious Runoff Depth=3.31" Flow Length=253' Tc=10.9 min CN=74 Runoff=6.72 cfs 0.520 af
<b>Subcatchment11S: Prop Basin B (Imp)</b>	Runoff Area=47,330 sf 100.00% Impervious Runoff Depth=5.91" Flow Length=431' Tc=3.5 min CN=98 Runoff=7.59 cfs 0.535 af
<b>Subcatchment12S: Prop Basin B (Perv)</b>	Runoff Area=11,691 sf 0.00% Impervious Runoff Depth=3.31" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=1.02 cfs 0.074 af
<b>Subcatchment21S: Prop MTD C (Imp)</b>	Runoff Area=97,184 sf 100.00% Impervious Runoff Depth=5.91" Flow Length=824' Tc=4.3 min CN=98 Runoff=15.07 cfs 1.099 af
<b>Subcatchment22S: Prop MTD C (Perv)</b>	Runoff Area=3,542 sf 0.00% Impervious Runoff Depth=3.31" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.31 cfs 0.022 af
<b>Subcatchment23S: Prop South Undetained</b>	Runoff Area=42,030 sf 0.00% Impervious Runoff Depth=2.46" Flow Length=1,060' Tc=27.6 min CN=65 Runoff=1.68 cfs 0.198 af
<b>Subcatchment24S: Prop PP D (Imp)</b>	Runoff Area=91,203 sf 100.00% Impervious Runoff Depth=5.91" Flow Length=229' Tc=2.6 min CN=98 Runoff=15.12 cfs 1.031 af
<b>Subcatchment25S: Prop PP D (Perv)</b>	Runoff Area=4,137 sf 0.00% Impervious Runoff Depth=2.55" Flow Length=42' Slope=0.0100 '/' Tc=9.3 min CN=66 Runoff=0.27 cfs 0.020 af
<b>Subcatchment29S: Prop Constructed</b>	Runoff Area=173,212 sf 100.00% Impervious Runoff Depth=5.91" Flow Length=1,787' Tc=7.0 min CN=98 Runoff=24.75 cfs 1.959 af
<b>Subcatchment30S: Prop Constructed</b>	Runoff Area=32,801 sf 0.00% Impervious Runoff Depth=2.46" Flow Length=115' Slope=0.0180 '/' Tc=9.7 min CN=65 Runoff=2.04 cfs 0.154 af
<b>Subcatchment33S: Prop Pond Undetained</b>	Runoff Area=27,700 sf 0.00% Impervious Runoff Depth=3.12" Flow Length=1,060' Tc=27.6 min CN=72 Runoff=1.43 cfs 0.165 af
<b>Pond 10P: Basin A</b>	Peak Elev=84.75' Storage=8,058 cf Inflow=9.82 cfs 0.849 af Outflow=7.52 cfs 0.781 af
<b>Pond 13P: Basin B</b>	Peak Elev=83.42' Storage=5,527 cf Inflow=8.37 cfs 0.609 af Outflow=7.52 cfs 0.513 af
<b>Pond 26P: Porous Pavement D</b>	Peak Elev=84.63' Storage=30,395 cf Inflow=15.31 cfs 1.052 af Outflow=0.63 cfs 0.937 af
<b>Pond 27P: Prop Standard Constructed</b>	Peak Elev=81.13' Storage=103,077 cf Inflow=54.68 cfs 5.465 af Outflow=9.86 cfs 5.457 af

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Link 17L: Prop MTD C - bypass

Inflow=15.32 cfs 1.122 af  
Primary=15.32 cfs 1.122 af

Link 28L: Prop South Total

Inflow=11.02 cfs 5.655 af  
Primary=11.02 cfs 5.655 af

Link 34L: Prop Total

Inflow=12.13 cfs 5.820 af  
Primary=12.13 cfs 5.820 af

**Total Runoff Area = 14.738 ac Runoff Volume = 6.108 af Average Runoff Depth = 4.97"**  
**31.77% Pervious = 4.682 ac 68.23% Impervious = 10.056 ac**

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**Summary for Subcatchment 1S: Prop Basin A (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.68 cfs @ 12.09 hrs, Volume= 0.329 af, Depth= 5.91"  
Routed to Pond 10P : Basin A

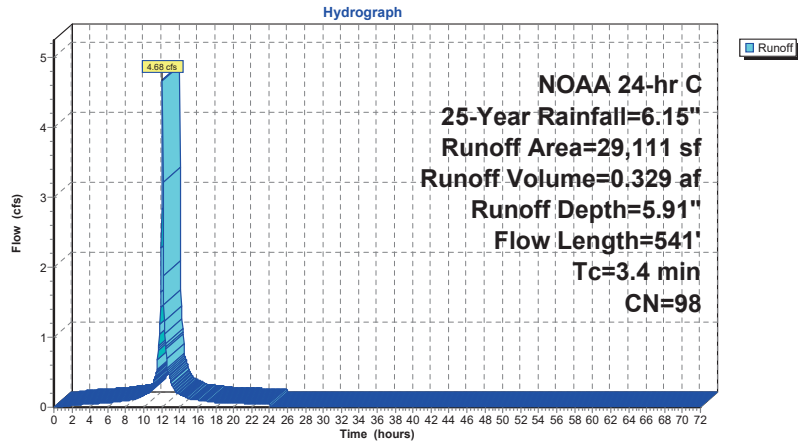
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
* 29,111	98	Imp
29,111		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	365	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	76	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.4	541	Total			

Subcatchment 1S: Prop Basin A (Imp)



Hydrograph for Subcatchment 1S: Prop Basin A (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	5.91	0.00
1.00	0.07	0.00	0.01	53.00	6.15	5.91	0.00
2.00	0.14	0.03	0.03	54.00	6.15	5.91	0.00
3.00	0.22	0.08	0.04	55.00	6.15	5.91	0.00
4.00	0.30	0.15	0.05	56.00	6.15	5.91	0.00
5.00	0.39	0.22	0.05	57.00	6.15	5.91	0.00
6.00	0.49	0.31	0.06	58.00	6.15	5.91	0.00
7.00	0.60	0.41	0.08	59.00	6.15	5.91	0.00
8.00	0.74	0.54	0.09	60.00	6.15	5.91	0.00
9.00	0.90	0.69	0.11	61.00	6.15	5.91	0.00
10.00	1.12	0.91	0.17	62.00	6.15	5.91	0.00
11.00	1.48	1.26	0.32	63.00	6.15	5.91	0.00
12.00	2.93	2.70	2.83	64.00	6.15	5.91	0.00
13.00	4.67	4.44	0.37	65.00	6.15	5.91	0.00
14.00	5.03	4.79	0.18	66.00	6.15	5.91	0.00
15.00	5.25	5.01	0.12	67.00	6.15	5.91	0.00
16.00	5.41	5.18	0.10	68.00	6.15	5.91	0.00
17.00	5.55	5.31	0.08	69.00	6.15	5.91	0.00
18.00	5.66	5.42	0.07	70.00	6.15	5.91	0.00
19.00	5.76	5.52	0.06	71.00	6.15	5.91	0.00
20.00	5.85	5.61	0.06	72.00	6.15	5.91	0.00
21.00	5.93	5.69	0.05				
22.00	6.01	5.77	0.05				
23.00	6.08	5.84	0.05				
24.00	6.15	5.91	0.05				
25.00	6.15	5.91	0.00				
26.00	6.15	5.91	0.00				
27.00	6.15	5.91	0.00				
28.00	6.15	5.91	0.00				
29.00	6.15	5.91	0.00				
30.00	6.15	5.91	0.00				
31.00	6.15	5.91	0.00				
32.00	6.15	5.91	0.00				
33.00	6.15	5.91	0.00				
34.00	6.15	5.91	0.00				
35.00	6.15	5.91	0.00				
36.00	6.15	5.91	0.00				
37.00	6.15	5.91	0.00				
38.00	6.15	5.91	0.00				
39.00	6.15	5.91	0.00				
40.00	6.15	5.91	0.00				
41.00	6.15	5.91	0.00				
42.00	6.15	5.91	0.00				
43.00	6.15	5.91	0.00				
44.00	6.15	5.91	0.00				
45.00	6.15	5.91	0.00				
46.00	6.15	5.91	0.00				
47.00	6.15	5.91	0.00				
48.00	6.15	5.91	0.00				
49.00	6.15	5.91	0.00				
50.00	6.15	5.91	0.00				
51.00	6.15	5.91	0.00				



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**Summary for Subcatchment 2S: Prop Basin A (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.033)) / .24 = 76'$

Runoff = 6.72 cfs @ 12.19 hrs, Volume= 0.520 af, Depth= 3.31"  
Routed to Pond 10P : Basin A

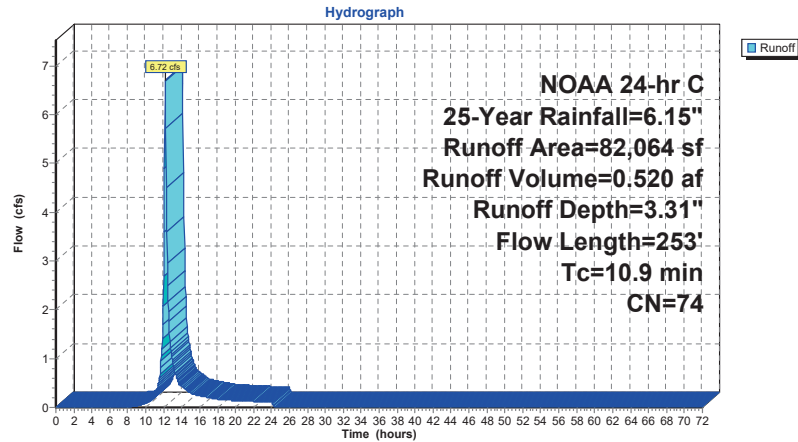
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
81,664	74	>75% Grass cover, Good, HSG C
400	61	>75% Grass cover, Good, HSG B
82,064	74	Weighted Average
82,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	76	0.0330	0.14		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
1.7	177	0.0120	1.76		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps
10.9	253	Total			

**Subcatchment 2S: Prop Basin A (Perv)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 2S: Prop Basin A (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	3.31	0.00
1.00	0.07	0.00	0.00	53.00	6.15	3.31	0.00
2.00	0.14	0.00	0.00	54.00	6.15	3.31	0.00
3.00	0.22	0.00	0.00	55.00	6.15	3.31	0.00
4.00	0.30	0.00	0.00	56.00	6.15	3.31	0.00
5.00	0.39	0.00	0.00	57.00	6.15	3.31	0.00
6.00	0.49	0.00	0.00	58.00	6.15	3.31	0.00
7.00	0.60	0.00	0.00	59.00	6.15	3.31	0.00
8.00	0.74	0.00	0.00	60.00	6.15	3.31	0.00
9.00	0.90	0.01	0.03	61.00	6.15	3.31	0.00
10.00	1.12	0.04	0.09	62.00	6.15	3.31	0.00
11.00	1.48	0.14	0.26	63.00	6.15	3.31	0.00
12.00	2.93	0.86	2.70	64.00	6.15	3.31	0.00
13.00	4.67	2.11	0.93	65.00	6.15	3.31	0.00
14.00	5.03	2.39	0.43	66.00	6.15	3.31	0.00
15.00	5.25	2.57	0.30	67.00	6.15	3.31	0.00
16.00	5.41	2.70	0.24	68.00	6.15	3.31	0.00
17.00	5.55	2.81	0.20	69.00	6.15	3.31	0.00
18.00	5.66	2.90	0.16	70.00	6.15	3.31	0.00
19.00	5.76	2.98	0.15	71.00	6.15	3.31	0.00
20.00	5.85	3.06	0.14	72.00	6.15	3.31	0.00
21.00	5.93	3.13	0.13				
22.00	6.01	3.19	0.12				
23.00	6.08	3.25	0.11				
24.00	6.15	3.31	0.11				
25.00	6.15	3.31	0.00				
26.00	6.15	3.31	0.00				
27.00	6.15	3.31	0.00				
28.00	6.15	3.31	0.00				
29.00	6.15	3.31	0.00				
30.00	6.15	3.31	0.00				
31.00	6.15	3.31	0.00				
32.00	6.15	3.31	0.00				
33.00	6.15	3.31	0.00				
34.00	6.15	3.31	0.00				
35.00	6.15	3.31	0.00				
36.00	6.15	3.31	0.00				
37.00	6.15	3.31	0.00				
38.00	6.15	3.31	0.00				
39.00	6.15	3.31	0.00				
40.00	6.15	3.31	0.00				
41.00	6.15	3.31	0.00				
42.00	6.15	3.31	0.00				
43.00	6.15	3.31	0.00				
44.00	6.15	3.31	0.00				
45.00	6.15	3.31	0.00				
46.00	6.15	3.31	0.00				
47.00	6.15	3.31	0.00				
48.00	6.15	3.31	0.00				
49.00	6.15	3.31	0.00				
50.00	6.15	3.31	0.00				
51.00	6.15	3.31	0.00				

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**Summary for Subcatchment 11S: Prop Basin B (Imp)**

Sheet Flow =  $(100 \times \text{Sq root}(0.01)) / 0.011 = 909'$  (Use 100')

[49] Hint:  $T_c < 2dt$  may require smaller dt  
[47] Hint: Peak is 232% of capacity of segment #2

Runoff = 7.59 cfs @ 12.09 hrs, Volume= 0.535 af, Depth= 5.91"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
47,330	98	Imp
47,330		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	227	0.0025	2.46	3.28	<b>Pipe Channel, Channel Flow</b> 24.0" x 8.0" Box Area= 1.3 sf Perim= 5.3' r= 0.25' n= 0.012 Concrete pipe, finished
0.4	104	0.0025	3.86	12.65	<b>Pipe Channel, RCP_Elliptical 30x19</b> 30.0" x 19.0", R=33.5" Elliptical Area= 3.3 sf Perim= 6.7' r= 0.49' n= 0.012 Concrete pipe, finished
3.5	431	Total			

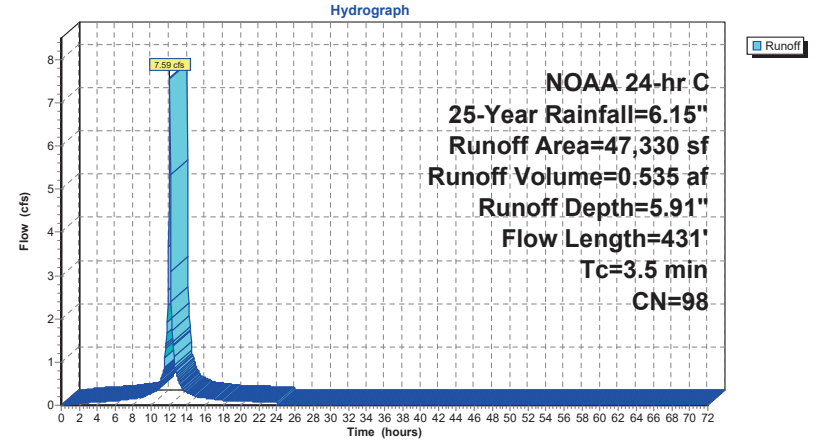
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**Subcatchment 11S: Prop Basin B (Imp)**



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**Hydrograph for Subcatchment 11S: Prop Basin B (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	5.91	0.00
1.00	0.07	0.00	0.01	53.00	6.15	5.91	0.00
2.00	0.14	0.03	0.04	54.00	6.15	5.91	0.00
3.00	0.22	0.08	0.06	55.00	6.15	5.91	0.00
4.00	0.30	0.15	0.08	56.00	6.15	5.91	0.00
5.00	0.39	0.22	0.09	57.00	6.15	5.91	0.00
6.00	0.49	0.31	0.10	58.00	6.15	5.91	0.00
7.00	0.60	0.41	0.13	59.00	6.15	5.91	0.00
8.00	0.74	0.54	0.15	60.00	6.15	5.91	0.00
9.00	0.90	0.69	0.18	61.00	6.15	5.91	0.00
10.00	1.12	0.91	0.28	62.00	6.15	5.91	0.00
11.00	1.48	1.26	0.52	63.00	6.15	5.91	0.00
12.00	2.93	2.70	<b>4.58</b>	64.00	6.15	5.91	0.00
13.00	4.67	4.44	<b>0.61</b>	65.00	6.15	5.91	0.00
14.00	5.03	4.79	0.30	66.00	6.15	5.91	0.00
15.00	5.25	5.01	0.20	67.00	6.15	5.91	0.00
16.00	5.41	5.18	0.16	68.00	6.15	5.91	0.00
17.00	5.55	5.31	0.14	69.00	6.15	5.91	0.00
18.00	5.66	5.42	0.11	70.00	6.15	5.91	0.00
19.00	5.76	5.52	0.10	71.00	6.15	5.91	0.00
20.00	5.85	5.61	0.10	72.00	6.15	5.91	0.00
21.00	5.93	5.69	0.09				
22.00	6.01	5.77	0.08				
23.00	6.08	5.84	0.08				
24.00	<b>6.15</b>	<b>5.91</b>	0.08				
25.00	6.15	5.91	0.00				
26.00	6.15	5.91	0.00				
27.00	6.15	5.91	0.00				
28.00	6.15	5.91	0.00				
29.00	6.15	5.91	0.00				
30.00	6.15	5.91	0.00				
31.00	6.15	5.91	0.00				
32.00	6.15	5.91	0.00				
33.00	6.15	5.91	0.00				
34.00	6.15	5.91	0.00				
35.00	6.15	5.91	0.00				
36.00	6.15	5.91	0.00				
37.00	6.15	5.91	0.00				
38.00	6.15	5.91	0.00				
39.00	6.15	5.91	0.00				
40.00	6.15	5.91	0.00				
41.00	6.15	5.91	0.00				
42.00	6.15	5.91	0.00				
43.00	6.15	5.91	0.00				
44.00	6.15	5.91	0.00				
45.00	6.15	5.91	0.00				
46.00	6.15	5.91	0.00				
47.00	6.15	5.91	0.00				
48.00	6.15	5.91	0.00				
49.00	6.15	5.91	0.00				
50.00	6.15	5.91	0.00				
51.00	6.15	5.91	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Subcatchment 12S: Prop Basin B (Perv)**

Sheet Flow = (100 X Sq root (0.043))/0.24 = 86'

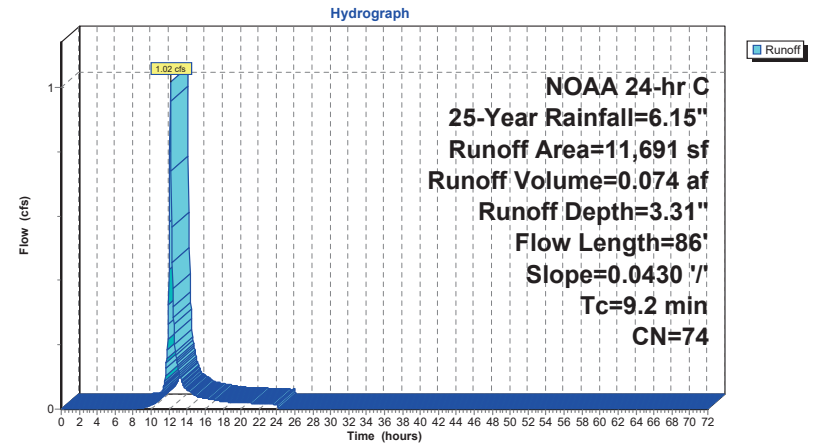
Runoff = 1.02 cfs @ 12.17 hrs, Volume= 0.074 af, Depth= 3.31"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
11,691	74	>75% Grass cover, Good, HSG C
11,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 12S: Prop Basin B (Perv)**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Hydrograph for Subcatchment 12S: Prop Basin B (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	3.31	0.00
1.00	0.07	0.00	0.00	53.00	6.15	3.31	0.00
2.00	0.14	0.00	0.00	54.00	6.15	3.31	0.00
3.00	0.22	0.00	0.00	55.00	6.15	3.31	0.00
4.00	0.30	0.00	0.00	56.00	6.15	3.31	0.00
5.00	0.39	0.00	0.00	57.00	6.15	3.31	0.00
6.00	0.49	0.00	0.00	58.00	6.15	3.31	0.00
7.00	0.60	0.00	0.00	59.00	6.15	3.31	0.00
8.00	0.74	0.00	0.00	60.00	6.15	3.31	0.00
9.00	0.90	0.01	0.00	61.00	6.15	3.31	0.00
10.00	1.12	0.04	0.01	62.00	6.15	3.31	0.00
11.00	1.48	0.14	0.04	63.00	6.15	3.31	0.00
12.00	2.93	0.86	<b>0.43</b>	64.00	6.15	3.31	0.00
13.00	4.67	2.11	<b>0.13</b>	65.00	6.15	3.31	0.00
14.00	5.03	2.39	0.06	66.00	6.15	3.31	0.00
15.00	5.25	2.57	0.04	67.00	6.15	3.31	0.00
16.00	5.41	2.70	0.03	68.00	6.15	3.31	0.00
17.00	5.55	2.81	0.03	69.00	6.15	3.31	0.00
18.00	5.66	2.90	0.02	70.00	6.15	3.31	0.00
19.00	5.76	2.98	0.02	71.00	6.15	3.31	0.00
20.00	5.85	3.06	0.02	72.00	6.15	3.31	0.00
21.00	5.93	3.13	0.02				
22.00	6.01	3.19	0.02				
23.00	6.08	3.25	0.02				
24.00	<b>6.15</b>	<b>3.31</b>	0.02				
25.00	6.15	3.31	0.00				
26.00	6.15	3.31	0.00				
27.00	6.15	3.31	0.00				
28.00	6.15	3.31	0.00				
29.00	6.15	3.31	0.00				
30.00	6.15	3.31	0.00				
31.00	6.15	3.31	0.00				
32.00	6.15	3.31	0.00				
33.00	6.15	3.31	0.00				
34.00	6.15	3.31	0.00				
35.00	6.15	3.31	0.00				
36.00	6.15	3.31	0.00				
37.00	6.15	3.31	0.00				
38.00	6.15	3.31	0.00				
39.00	6.15	3.31	0.00				
40.00	6.15	3.31	0.00				
41.00	6.15	3.31	0.00				
42.00	6.15	3.31	0.00				
43.00	6.15	3.31	0.00				
44.00	6.15	3.31	0.00				
45.00	6.15	3.31	0.00				
46.00	6.15	3.31	0.00				
47.00	6.15	3.31	0.00				
48.00	6.15	3.31	0.00				
49.00	6.15	3.31	0.00				
50.00	6.15	3.31	0.00				
51.00	6.15	3.31	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Subcatchment 21S: Prop MTD C (Imp)**

Sheet Flow = (100 X Sq root (0.015))/0.011 = 1,113' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
[47] Hint: Peak is 160% of capacity of segment #3  
[47] Hint: Peak is 112% of capacity of segment #4

Runoff = 15.07 cfs @ 12.10 hrs, Volume= 1.099 af, Depth= 5.91"  
Routed to Link 17L : Prop MTD C - bypass

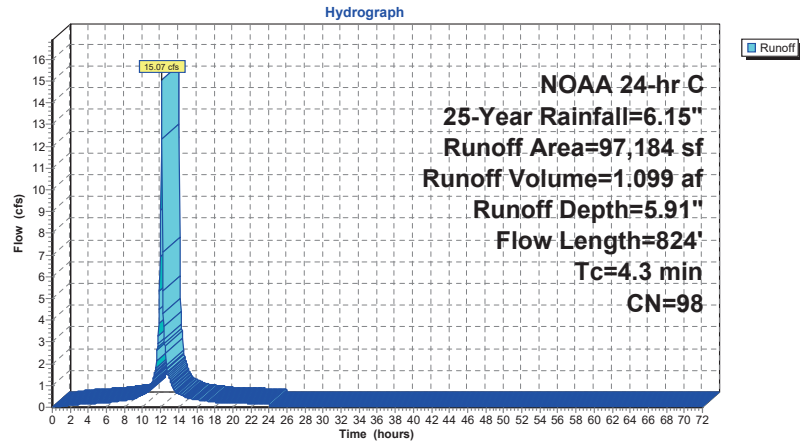
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
* 97,184	98	Imp
97,184		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.6	75	0.0120	2.22		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.5	108	0.0030	3.91	9.40	<b>Pipe Channel, Channel Flow</b> 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.012 Concrete pipe, finished
0.4	108	0.0030	4.27	13.42	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.5	433	0.0030	4.96	24.34	<b>Pipe Channel, Channel Flow</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.3	824	Total			

Subcatchment 21S: Prop MTD C (Imp)



Hydrograph for Subcatchment 21S: Prop MTD C (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	5.91	0.00
1.00	0.07	0.00	0.03	53.00	6.15	5.91	0.00
2.00	0.14	0.03	0.09	54.00	6.15	5.91	0.00
3.00	0.22	0.08	0.13	55.00	6.15	5.91	0.00
4.00	0.30	0.15	0.16	56.00	6.15	5.91	0.00
5.00	0.39	0.22	0.18	57.00	6.15	5.91	0.00
6.00	0.49	0.31	0.20	58.00	6.15	5.91	0.00
7.00	0.60	0.41	0.26	59.00	6.15	5.91	0.00
8.00	0.74	0.54	0.32	60.00	6.15	5.91	0.00
9.00	0.90	0.69	0.37	61.00	6.15	5.91	0.00
10.00	1.12	0.91	0.58	62.00	6.15	5.91	0.00
11.00	1.48	1.26	1.07	63.00	6.15	5.91	0.00
12.00	2.93	2.70	9.05	64.00	6.15	5.91	0.00
13.00	4.67	4.44	1.26	65.00	6.15	5.91	0.00
14.00	5.03	4.79	0.62	66.00	6.15	5.91	0.00
15.00	5.25	5.01	0.41	67.00	6.15	5.91	0.00
16.00	5.41	5.18	0.34	68.00	6.15	5.91	0.00
17.00	5.55	5.31	0.28	69.00	6.15	5.91	0.00
18.00	5.66	5.42	0.23	70.00	6.15	5.91	0.00
19.00	5.76	5.52	0.21	71.00	6.15	5.91	0.00
20.00	5.85	5.61	0.20	72.00	6.15	5.91	0.00
21.00	5.93	5.69	0.18				
22.00	6.01	5.77	0.17				
23.00	6.08	5.84	0.16				
24.00	6.15	5.91	0.17				
25.00	6.15	5.91	0.00				
26.00	6.15	5.91	0.00				
27.00	6.15	5.91	0.00				
28.00	6.15	5.91	0.00				
29.00	6.15	5.91	0.00				
30.00	6.15	5.91	0.00				
31.00	6.15	5.91	0.00				
32.00	6.15	5.91	0.00				
33.00	6.15	5.91	0.00				
34.00	6.15	5.91	0.00				
35.00	6.15	5.91	0.00				
36.00	6.15	5.91	0.00				
37.00	6.15	5.91	0.00				
38.00	6.15	5.91	0.00				
39.00	6.15	5.91	0.00				
40.00	6.15	5.91	0.00				
41.00	6.15	5.91	0.00				
42.00	6.15	5.91	0.00				
43.00	6.15	5.91	0.00				
44.00	6.15	5.91	0.00				
45.00	6.15	5.91	0.00				
46.00	6.15	5.91	0.00				
47.00	6.15	5.91	0.00				
48.00	6.15	5.91	0.00				
49.00	6.15	5.91	0.00				
50.00	6.15	5.91	0.00				
51.00	6.15	5.91	0.00				

**Summary for Subcatchment 22S: Prop MTD C (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

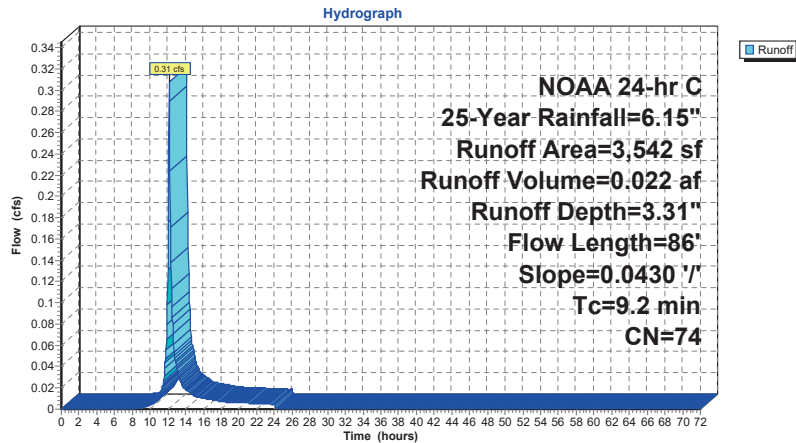
Runoff = 0.31 cfs @ 12.17 hrs, Volume= 0.022 af, Depth= 3.31"  
 Routed to Link 17L : Prop MTD C - bypass

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
3,542	74	>75% Grass cover, Good, HSG C
3,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 22S: Prop MTD C (Perv)**



**Hydrograph for Subcatchment 22S: Prop MTD C (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	3.31	0.00
1.00	0.07	0.00	0.00	53.00	6.15	3.31	0.00
2.00	0.14	0.00	0.00	54.00	6.15	3.31	0.00
3.00	0.22	0.00	0.00	55.00	6.15	3.31	0.00
4.00	0.30	0.00	0.00	56.00	6.15	3.31	0.00
5.00	0.39	0.00	0.00	57.00	6.15	3.31	0.00
6.00	0.49	0.00	0.00	58.00	6.15	3.31	0.00
7.00	0.60	0.00	0.00	59.00	6.15	3.31	0.00
8.00	0.74	0.00	0.00	60.00	6.15	3.31	0.00
9.00	0.90	0.01	0.00	61.00	6.15	3.31	0.00
10.00	1.12	0.04	0.00	62.00	6.15	3.31	0.00
11.00	1.48	0.14	0.01	63.00	6.15	3.31	0.00
12.00	2.93	0.86	0.13	64.00	6.15	3.31	0.00
13.00	4.67	2.11	0.04	65.00	6.15	3.31	0.00
14.00	5.03	2.39	0.02	66.00	6.15	3.31	0.00
15.00	5.25	2.57	0.01	67.00	6.15	3.31	0.00
16.00	5.41	2.70	0.01	68.00	6.15	3.31	0.00
17.00	5.55	2.81	0.01	69.00	6.15	3.31	0.00
18.00	5.66	2.90	0.01	70.00	6.15	3.31	0.00
19.00	5.76	2.98	0.01	71.00	6.15	3.31	0.00
20.00	5.85	3.06	0.01	72.00	6.15	3.31	0.00
21.00	5.93	3.13	0.01				
22.00	6.01	3.19	0.01				
23.00	6.08	3.25	0.00				
24.00	6.15	3.31	0.00				
25.00	6.15	3.31	0.00				
26.00	6.15	3.31	0.00				
27.00	6.15	3.31	0.00				
28.00	6.15	3.31	0.00				
29.00	6.15	3.31	0.00				
30.00	6.15	3.31	0.00				
31.00	6.15	3.31	0.00				
32.00	6.15	3.31	0.00				
33.00	6.15	3.31	0.00				
34.00	6.15	3.31	0.00				
35.00	6.15	3.31	0.00				
36.00	6.15	3.31	0.00				
37.00	6.15	3.31	0.00				
38.00	6.15	3.31	0.00				
39.00	6.15	3.31	0.00				
40.00	6.15	3.31	0.00				
41.00	6.15	3.31	0.00				
42.00	6.15	3.31	0.00				
43.00	6.15	3.31	0.00				
44.00	6.15	3.31	0.00				
45.00	6.15	3.31	0.00				
46.00	6.15	3.31	0.00				
47.00	6.15	3.31	0.00				
48.00	6.15	3.31	0.00				
49.00	6.15	3.31	0.00				
50.00	6.15	3.31	0.00				
51.00	6.15	3.31	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Subcatchment 23S: Prop South Undetained (Total)**

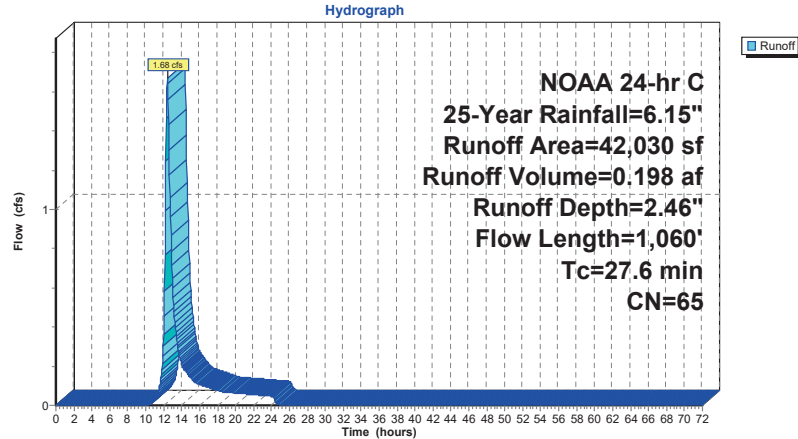
Runoff = 1.68 cfs @ 12.41 hrs, Volume= 0.198 af, Depth= 2.46"  
Routed to Link 28L : Prop South Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
29,825	61	>75% Grass cover, Good, HSG B
12,205	74	>75% Grass cover, Good, HSG C
42,030	65	Weighted Average
42,030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 23S: Prop South Undetained (Total)**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Hydrograph for Subcatchment 23S: Prop South Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	2.46	0.00
1.00	0.07	0.00	0.00	53.00	6.15	2.46	0.00
2.00	0.14	0.00	0.00	54.00	6.15	2.46	0.00
3.00	0.22	0.00	0.00	55.00	6.15	2.46	0.00
4.00	0.30	0.00	0.00	56.00	6.15	2.46	0.00
5.00	0.39	0.00	0.00	57.00	6.15	2.46	0.00
6.00	0.49	0.00	0.00	58.00	6.15	2.46	0.00
7.00	0.60	0.00	0.00	59.00	6.15	2.46	0.00
8.00	0.74	0.00	0.00	60.00	6.15	2.46	0.00
9.00	0.90	0.00	0.00	61.00	6.15	2.46	0.00
10.00	1.12	0.00	0.00	62.00	6.15	2.46	0.00
11.00	1.48	0.03	0.03	63.00	6.15	2.46	0.00
12.00	2.93	0.47	0.36	64.00	6.15	2.46	0.00
13.00	4.67	1.44	0.60	65.00	6.15	2.46	0.00
14.00	5.03	1.67	0.21	66.00	6.15	2.46	0.00
15.00	5.25	1.82	0.14	67.00	6.15	2.46	0.00
16.00	5.41	1.93	0.11	68.00	6.15	2.46	0.00
17.00	5.55	2.03	0.09	69.00	6.15	2.46	0.00
18.00	5.66	2.11	0.08	70.00	6.15	2.46	0.00
19.00	5.76	2.18	0.07	71.00	6.15	2.46	0.00
20.00	5.85	2.24	0.06	72.00	6.15	2.46	0.00
21.00	5.93	2.30	0.06				
22.00	6.01	2.36	0.05				
23.00	6.08	2.41	0.05				
24.00	6.15	2.46	0.05				
25.00	6.15	2.46	0.00				
26.00	6.15	2.46	0.00				
27.00	6.15	2.46	0.00				
28.00	6.15	2.46	0.00				
29.00	6.15	2.46	0.00				
30.00	6.15	2.46	0.00				
31.00	6.15	2.46	0.00				
32.00	6.15	2.46	0.00				
33.00	6.15	2.46	0.00				
34.00	6.15	2.46	0.00				
35.00	6.15	2.46	0.00				
36.00	6.15	2.46	0.00				
37.00	6.15	2.46	0.00				
38.00	6.15	2.46	0.00				
39.00	6.15	2.46	0.00				
40.00	6.15	2.46	0.00				
41.00	6.15	2.46	0.00				
42.00	6.15	2.46	0.00				
43.00	6.15	2.46	0.00				
44.00	6.15	2.46	0.00				
45.00	6.15	2.46	0.00				
46.00	6.15	2.46	0.00				
47.00	6.15	2.46	0.00				
48.00	6.15	2.46	0.00				
49.00	6.15	2.46	0.00				
50.00	6.15	2.46	0.00				
51.00	6.15	2.46	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Subcatchment 24S: Prop PP D (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
[47] Hint: Peak is 306% of capacity of segment #3

Runoff = 15.12 cfs @ 12.08 hrs, Volume= 1.031 af, Depth= 5.91"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
* 65,300	98	Roofs
* 25,903	98	Imp
91,203	98	Weighted Average
91,203		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.9	110	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.1	19	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.6	229	Total			

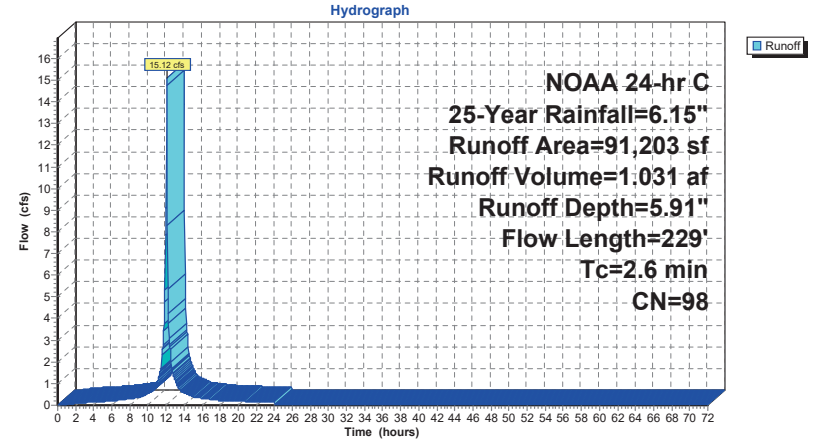
**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Subcatchment 24S: Prop PP D (Imp)**





**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Hydrograph for Subcatchment 24S: Prop PP D (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	5.91	0.00
1.00	0.07	0.00	0.03	53.00	6.15	5.91	0.00
2.00	0.14	0.03	0.08	54.00	6.15	5.91	0.00
3.00	0.22	0.08	0.12	55.00	6.15	5.91	0.00
4.00	0.30	0.15	0.15	56.00	6.15	5.91	0.00
5.00	0.39	0.22	0.17	57.00	6.15	5.91	0.00
6.00	0.49	0.31	0.19	58.00	6.15	5.91	0.00
7.00	0.60	0.41	0.24	59.00	6.15	5.91	0.00
8.00	0.74	0.54	0.30	60.00	6.15	5.91	0.00
9.00	0.90	0.69	0.35	61.00	6.15	5.91	0.00
10.00	1.12	0.91	0.54	62.00	6.15	5.91	0.00
11.00	1.48	1.26	1.02	63.00	6.15	5.91	0.00
12.00	2.93	2.70	<b>9.11</b>	64.00	6.15	5.91	0.00
13.00	4.67	4.44	<b>1.17</b>	65.00	6.15	5.91	0.00
14.00	5.03	4.79	0.58	66.00	6.15	5.91	0.00
15.00	5.25	5.01	0.38	67.00	6.15	5.91	0.00
16.00	5.41	5.18	0.32	68.00	6.15	5.91	0.00
17.00	5.55	5.31	0.27	69.00	6.15	5.91	0.00
18.00	5.66	5.42	0.21	70.00	6.15	5.91	0.00
19.00	5.76	5.52	0.20	71.00	6.15	5.91	0.00
20.00	5.85	5.61	0.18	72.00	6.15	5.91	0.00
21.00	5.93	5.69	0.17				
22.00	6.01	5.77	0.16				
23.00	6.08	5.84	0.15				
24.00	<b>6.15</b>	<b>5.91</b>	0.16				
25.00	6.15	5.91	0.00				
26.00	6.15	5.91	0.00				
27.00	6.15	5.91	0.00				
28.00	6.15	5.91	0.00				
29.00	6.15	5.91	0.00				
30.00	6.15	5.91	0.00				
31.00	6.15	5.91	0.00				
32.00	6.15	5.91	0.00				
33.00	6.15	5.91	0.00				
34.00	6.15	5.91	0.00				
35.00	6.15	5.91	0.00				
36.00	6.15	5.91	0.00				
37.00	6.15	5.91	0.00				
38.00	6.15	5.91	0.00				
39.00	6.15	5.91	0.00				
40.00	6.15	5.91	0.00				
41.00	6.15	5.91	0.00				
42.00	6.15	5.91	0.00				
43.00	6.15	5.91	0.00				
44.00	6.15	5.91	0.00				
45.00	6.15	5.91	0.00				
46.00	6.15	5.91	0.00				
47.00	6.15	5.91	0.00				
48.00	6.15	5.91	0.00				
49.00	6.15	5.91	0.00				
50.00	6.15	5.91	0.00				
51.00	6.15	5.91	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Subcatchment 25S: Prop PP D (Perv)**

Sheet Flow = (100 X Sq root (0.01))/0.24 = 42'

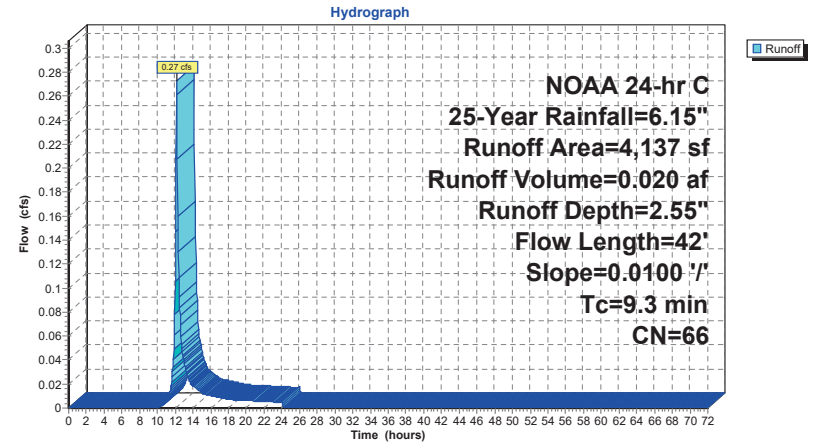
Runoff = 0.27 cfs @ 12.17 hrs, Volume= 0.020 af, Depth= 2.55"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
2,432	61	>75% Grass cover, Good, HSG B
1,705	74	>75% Grass cover, Good, HSG C
4,137	66	Weighted Average
4,137		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	42	0.0100	0.08		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"

**Subcatchment 25S: Prop PP D (Perv)**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Hydrograph for Subcatchment 25S: Prop PP D (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	2.55	0.00
1.00	0.07	0.00	0.00	53.00	6.15	2.55	0.00
2.00	0.14	0.00	0.00	54.00	6.15	2.55	0.00
3.00	0.22	0.00	0.00	55.00	6.15	2.55	0.00
4.00	0.30	0.00	0.00	56.00	6.15	2.55	0.00
5.00	0.39	0.00	0.00	57.00	6.15	2.55	0.00
6.00	0.49	0.00	0.00	58.00	6.15	2.55	0.00
7.00	0.60	0.00	0.00	59.00	6.15	2.55	0.00
8.00	0.74	0.00	0.00	60.00	6.15	2.55	0.00
9.00	0.90	0.00	0.00	61.00	6.15	2.55	0.00
10.00	1.12	0.00	0.00	62.00	6.15	2.55	0.00
11.00	1.48	0.04	0.01	63.00	6.15	2.55	0.00
12.00	2.93	0.51	0.11	64.00	6.15	2.55	0.00
13.00	4.67	1.51	0.04	65.00	6.15	2.55	0.00
14.00	5.03	1.75	0.02	66.00	6.15	2.55	0.00
15.00	5.25	1.90	0.01	67.00	6.15	2.55	0.00
16.00	5.41	2.01	0.01	68.00	6.15	2.55	0.00
17.00	5.55	2.11	0.01	69.00	6.15	2.55	0.00
18.00	5.66	2.19	0.01	70.00	6.15	2.55	0.00
19.00	5.76	2.26	0.01	71.00	6.15	2.55	0.00
20.00	5.85	2.33	0.01	72.00	6.15	2.55	0.00
21.00	5.93	2.39	0.01				
22.00	6.01	2.45	0.01				
23.00	6.08	2.50	0.00				
24.00	6.15	2.55	0.00				
25.00	6.15	2.55	0.00				
26.00	6.15	2.55	0.00				
27.00	6.15	2.55	0.00				
28.00	6.15	2.55	0.00				
29.00	6.15	2.55	0.00				
30.00	6.15	2.55	0.00				
31.00	6.15	2.55	0.00				
32.00	6.15	2.55	0.00				
33.00	6.15	2.55	0.00				
34.00	6.15	2.55	0.00				
35.00	6.15	2.55	0.00				
36.00	6.15	2.55	0.00				
37.00	6.15	2.55	0.00				
38.00	6.15	2.55	0.00				
39.00	6.15	2.55	0.00				
40.00	6.15	2.55	0.00				
41.00	6.15	2.55	0.00				
42.00	6.15	2.55	0.00				
43.00	6.15	2.55	0.00				
44.00	6.15	2.55	0.00				
45.00	6.15	2.55	0.00				
46.00	6.15	2.55	0.00				
47.00	6.15	2.55	0.00				
48.00	6.15	2.55	0.00				
49.00	6.15	2.55	0.00				
50.00	6.15	2.55	0.00				
51.00	6.15	2.55	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Subcatchment 29S: Prop Constructed Wetland E (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

- [47] Hint: Peak is 500% of capacity of segment #2
- [47] Hint: Peak is 308% of capacity of segment #3
- [47] Hint: Peak is 218% of capacity of segment #4
- [47] Hint: Peak is 143% of capacity of segment #5

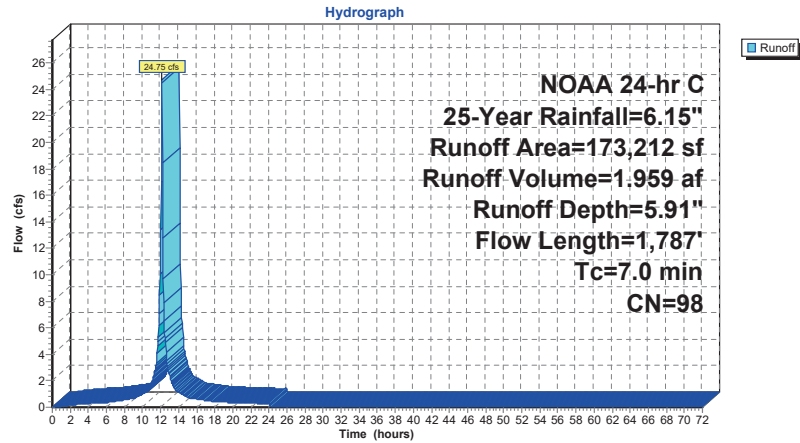
Runoff = 24.75 cfs @ 12.14 hrs, Volume= 1.959 af, Depth= 5.91"  
Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
*	17,219	98 Paved Driveway (Emergency Only)
*	149,804	98 Roofs
*	6,189	98 Wetland Pool
173,212	98	Weighted Average
173,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
2.2	533	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.6	177	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.6	218	0.0100	6.44	11.38	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	104	0.0050	5.52	17.33	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.7	655	0.0040	6.47	45.70	<b>Pipe Channel, Channel Flow</b> 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.012 Concrete pipe, finished
7.0	1,787	Total			

Subcatchment 29S: Prop Constucted Wetland E (Imp)



Hydrograph for Subcatchment 29S: Prop Constucted Wetland E (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	5.91	0.00
1.00	0.07	0.00	0.04	53.00	6.15	5.91	0.00
2.00	0.14	0.03	0.15	54.00	6.15	5.91	0.00
3.00	0.22	0.08	0.22	55.00	6.15	5.91	0.00
4.00	0.30	0.15	0.28	56.00	6.15	5.91	0.00
5.00	0.39	0.22	0.32	57.00	6.15	5.91	0.00
6.00	0.49	0.31	0.36	58.00	6.15	5.91	0.00
7.00	0.60	0.41	0.45	59.00	6.15	5.91	0.00
8.00	0.74	0.54	0.56	60.00	6.15	5.91	0.00
9.00	0.90	0.69	0.66	61.00	6.15	5.91	0.00
10.00	1.12	0.91	1.01	62.00	6.15	5.91	0.00
11.00	1.48	1.26	1.84	63.00	6.15	5.91	0.00
12.00	2.93	2.70	13.39	64.00	6.15	5.91	0.00
13.00	4.67	4.44	2.37	65.00	6.15	5.91	0.00
14.00	5.03	4.79	1.12	66.00	6.15	5.91	0.00
15.00	5.25	5.01	0.75	67.00	6.15	5.91	0.00
16.00	5.41	5.18	0.61	68.00	6.15	5.91	0.00
17.00	5.55	5.31	0.51	69.00	6.15	5.91	0.00
18.00	5.66	5.42	0.41	70.00	6.15	5.91	0.00
19.00	5.76	5.52	0.38	71.00	6.15	5.91	0.00
20.00	5.85	5.61	0.35	72.00	6.15	5.91	0.00
21.00	5.93	5.69	0.33				
22.00	6.01	5.77	0.30				
23.00	6.08	5.84	0.28				
24.00	6.15	5.91	0.28				
25.00	6.15	5.91	0.00				
26.00	6.15	5.91	0.00				
27.00	6.15	5.91	0.00				
28.00	6.15	5.91	0.00				
29.00	6.15	5.91	0.00				
30.00	6.15	5.91	0.00				
31.00	6.15	5.91	0.00				
32.00	6.15	5.91	0.00				
33.00	6.15	5.91	0.00				
34.00	6.15	5.91	0.00				
35.00	6.15	5.91	0.00				
36.00	6.15	5.91	0.00				
37.00	6.15	5.91	0.00				
38.00	6.15	5.91	0.00				
39.00	6.15	5.91	0.00				
40.00	6.15	5.91	0.00				
41.00	6.15	5.91	0.00				
42.00	6.15	5.91	0.00				
43.00	6.15	5.91	0.00				
44.00	6.15	5.91	0.00				
45.00	6.15	5.91	0.00				
46.00	6.15	5.91	0.00				
47.00	6.15	5.91	0.00				
48.00	6.15	5.91	0.00				
49.00	6.15	5.91	0.00				
50.00	6.15	5.91	0.00				
51.00	6.15	5.91	0.00				

**Summary for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Sheet Flow = (100 X Sq root (0.018))/0.24 = 56'

Runoff = 2.04 cfs @ 12.18 hrs, Volume= 0.154 af, Depth= 2.46"  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

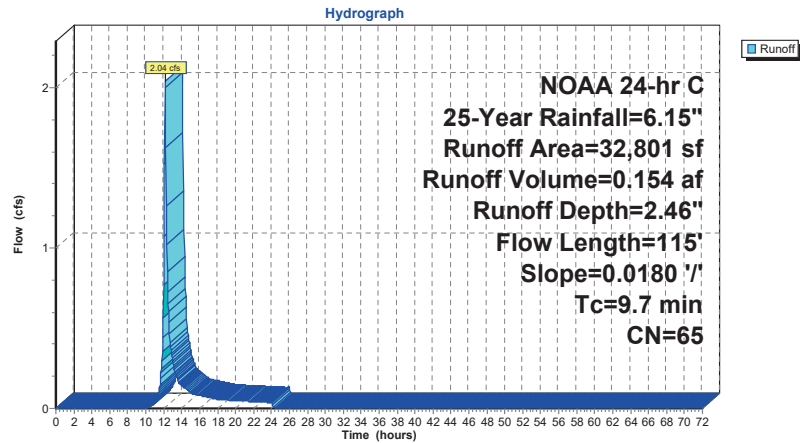
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
22,340	61	>75% Grass cover, Good, HSG B
10,461	74	>75% Grass cover, Good, HSG C
32,801	65	Weighted Average
32,801		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	56	0.0180	0.10		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
0.5	59	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps

9.7 115 Total

**Subcatchment 30S: Prop Constucted Wetland E (Perv)**



**Hydrograph for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	2.46	0.00
1.00	0.07	0.00	0.00	53.00	6.15	2.46	0.00
2.00	0.14	0.00	0.00	54.00	6.15	2.46	0.00
3.00	0.22	0.00	0.00	55.00	6.15	2.46	0.00
4.00	0.30	0.00	0.00	56.00	6.15	2.46	0.00
5.00	0.39	0.00	0.00	57.00	6.15	2.46	0.00
6.00	0.49	0.00	0.00	58.00	6.15	2.46	0.00
7.00	0.60	0.00	0.00	59.00	6.15	2.46	0.00
8.00	0.74	0.00	0.00	60.00	6.15	2.46	0.00
9.00	0.90	0.00	0.00	61.00	6.15	2.46	0.00
10.00	1.12	0.00	0.00	62.00	6.15	2.46	0.00
11.00	1.48	0.03	0.04	63.00	6.15	2.46	0.00
12.00	2.93	0.47	0.77	64.00	6.15	2.46	0.00
13.00	4.67	1.44	0.30	65.00	6.15	2.46	0.00
14.00	5.03	1.67	0.14	66.00	6.15	2.46	0.00
15.00	5.25	1.82	0.10	67.00	6.15	2.46	0.00
16.00	5.41	1.93	0.08	68.00	6.15	2.46	0.00
17.00	5.55	2.03	0.07	69.00	6.15	2.46	0.00
18.00	5.66	2.11	0.06	70.00	6.15	2.46	0.00
19.00	5.76	2.18	0.05	71.00	6.15	2.46	0.00
20.00	5.85	2.24	0.05	72.00	6.15	2.46	0.00
21.00	5.93	2.30	0.04				
22.00	6.01	2.36	0.04				
23.00	6.08	2.41	0.04				
24.00	6.15	2.46	0.04				
25.00	6.15	2.46	0.00				
26.00	6.15	2.46	0.00				
27.00	6.15	2.46	0.00				
28.00	6.15	2.46	0.00				
29.00	6.15	2.46	0.00				
30.00	6.15	2.46	0.00				
31.00	6.15	2.46	0.00				
32.00	6.15	2.46	0.00				
33.00	6.15	2.46	0.00				
34.00	6.15	2.46	0.00				
35.00	6.15	2.46	0.00				
36.00	6.15	2.46	0.00				
37.00	6.15	2.46	0.00				
38.00	6.15	2.46	0.00				
39.00	6.15	2.46	0.00				
40.00	6.15	2.46	0.00				
41.00	6.15	2.46	0.00				
42.00	6.15	2.46	0.00				
43.00	6.15	2.46	0.00				
44.00	6.15	2.46	0.00				
45.00	6.15	2.46	0.00				
46.00	6.15	2.46	0.00				
47.00	6.15	2.46	0.00				
48.00	6.15	2.46	0.00				
49.00	6.15	2.46	0.00				
50.00	6.15	2.46	0.00				
51.00	6.15	2.46	0.00				

**Summary for Subcatchment 33S: Prop Pond Undetained (Total)**

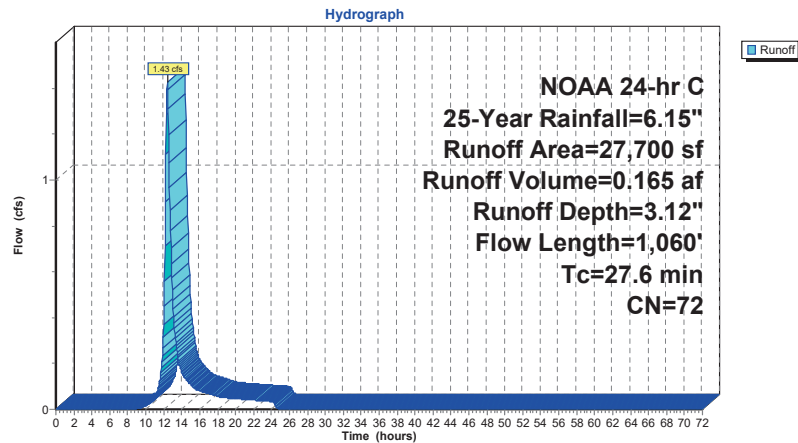
Runoff = 1.43 cfs @ 12.40 hrs, Volume= 0.165 af, Depth= 3.12"  
 Routed to Link 34L : Prop Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 25-Year Rainfall=6.15"

Area (sf)	CN	Description
3,410	61	>75% Grass cover, Good, HSG B
24,290	74	>75% Grass cover, Good, HSG C
27,700	72	Weighted Average
27,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 33S: Prop Pond Undetained (Total)**



**Hydrograph for Subcatchment 33S: Prop Pond Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	6.15	3.12	0.00
1.00	0.07	0.00	0.00	53.00	6.15	3.12	0.00
2.00	0.14	0.00	0.00	54.00	6.15	3.12	0.00
3.00	0.22	0.00	0.00	55.00	6.15	3.12	0.00
4.00	0.30	0.00	0.00	56.00	6.15	3.12	0.00
5.00	0.39	0.00	0.00	57.00	6.15	3.12	0.00
6.00	0.49	0.00	0.00	58.00	6.15	3.12	0.00
7.00	0.60	0.00	0.00	59.00	6.15	3.12	0.00
8.00	0.74	0.00	0.00	60.00	6.15	3.12	0.00
9.00	0.90	0.00	0.00	61.00	6.15	3.12	0.00
10.00	1.12	0.03	0.02	62.00	6.15	3.12	0.00
11.00	1.48	0.11	0.05	63.00	6.15	3.12	0.00
12.00	2.93	0.77	0.37	64.00	6.15	3.12	0.00
13.00	4.67	1.95	0.47	65.00	6.15	3.12	0.00
14.00	5.03	2.22	0.16	66.00	6.15	3.12	0.00
15.00	5.25	2.39	0.11	67.00	6.15	3.12	0.00
16.00	5.41	2.52	0.08	68.00	6.15	3.12	0.00
17.00	5.55	2.63	0.07	69.00	6.15	3.12	0.00
18.00	5.66	2.72	0.06	70.00	6.15	3.12	0.00
19.00	5.76	2.80	0.05	71.00	6.15	3.12	0.00
20.00	5.85	2.87	0.05	72.00	6.15	3.12	0.00
21.00	5.93	2.94	0.04				
22.00	6.01	3.00	0.04				
23.00	6.08	3.06	0.04				
24.00	6.15	3.12	0.03				
25.00	6.15	3.12	0.00				
26.00	6.15	3.12	0.00				
27.00	6.15	3.12	0.00				
28.00	6.15	3.12	0.00				
29.00	6.15	3.12	0.00				
30.00	6.15	3.12	0.00				
31.00	6.15	3.12	0.00				
32.00	6.15	3.12	0.00				
33.00	6.15	3.12	0.00				
34.00	6.15	3.12	0.00				
35.00	6.15	3.12	0.00				
36.00	6.15	3.12	0.00				
37.00	6.15	3.12	0.00				
38.00	6.15	3.12	0.00				
39.00	6.15	3.12	0.00				
40.00	6.15	3.12	0.00				
41.00	6.15	3.12	0.00				
42.00	6.15	3.12	0.00				
43.00	6.15	3.12	0.00				
44.00	6.15	3.12	0.00				
45.00	6.15	3.12	0.00				
46.00	6.15	3.12	0.00				
47.00	6.15	3.12	0.00				
48.00	6.15	3.12	0.00				
49.00	6.15	3.12	0.00				
50.00	6.15	3.12	0.00				
51.00	6.15	3.12	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Summary for Pond 10P: Basin A**

Inflow Area = 2.552 ac, 26.18% Impervious, Inflow Depth = 3.99" for 25-Year event  
 Inflow = 9.82 cfs @ 12.12 hrs, Volume= 0.849 af  
 Outflow = 7.52 cfs @ 12.24 hrs, Volume= 0.781 af, Atten= 23%, Lag= 7.0 min  
 Primary = 7.52 cfs @ 12.24 hrs, Volume= 0.781 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.75' @ 12.24 hrs Surf.Area= 5,275 sf Storage= 8,058 cf

Plug-Flow detention time=93.5 min calculated for 0.780 af (92% of inflow)  
 Center-of-Mass det. time= 50.2 min ( 849.9 - 799.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	83.20'	12,042 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.20	5,125	0	0
84.00	5,200	4,130	4,130
85.00	5,300	5,250	9,380
85.50	5,350	2,663	12,042

Device	Routing	Invert	Outlet Devices
#1	Primary	83.78'	<b>2.6' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#2	Primary	85.10'	<b>16.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=7.48 cfs @ 12.24 hrs HW=84.75' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir(Weir Controls 7.48 cfs @ 3.22 fps)  
 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Prop 2, 10 & 100yr**

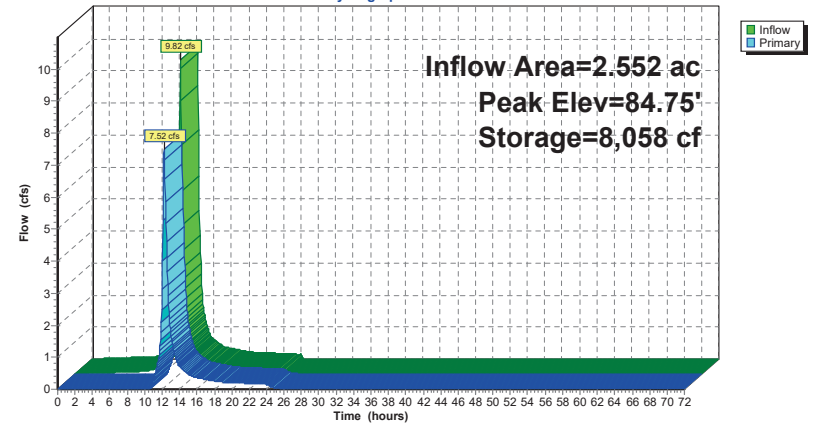
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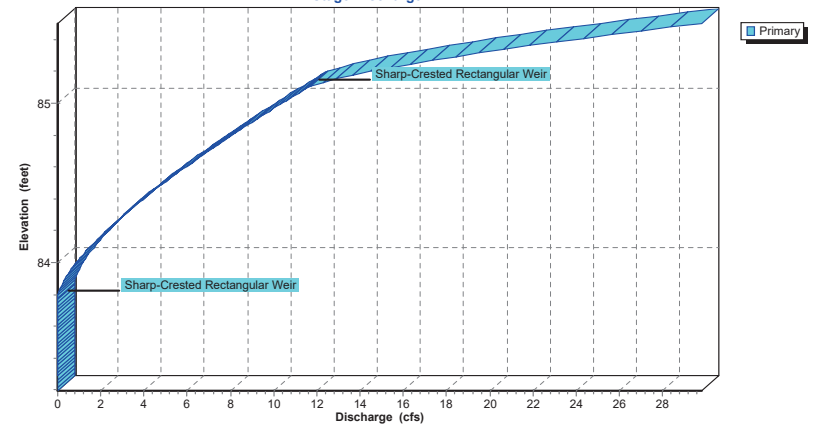
**Pond 10P: Basin A**

Hydrograph

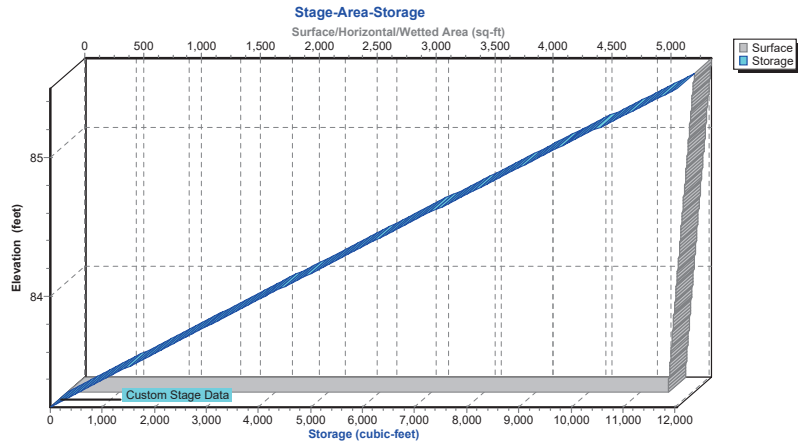


**Pond 10P: Basin A**

Stage-Discharge



Pond 10P: Basin A



Hydrograph for Pond 10P: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	83.20	0.00
2.50	0.03	126	83.22	0.00
5.00	0.05	527	83.30	0.00
7.50	0.09	1,126	83.42	0.00
10.00	<b>0.26</b>	<b>2,420</b>	<b>83.67</b>	<b>0.00</b>
12.50	<b>3.01</b>	<b>6,582</b>	<b>84.47</b>	<b>4.61</b>
15.00	0.42	3,754	83.93	0.48
17.50	0.26	3,520	83.88	0.28
20.00	0.20	3,421	83.86	0.20
22.50	0.16	3,370	83.85	0.17
25.00	0.00	3,115	83.80	0.03
27.50	0.00	3,005	83.78	0.00
30.00	0.00	2,991	83.78	0.00
32.50	0.00	2,989	83.78	0.00
35.00	0.00	2,988	83.78	0.00
37.50	0.00	2,988	83.78	0.00
40.00	0.00	2,988	83.78	0.00
42.50	0.00	2,988	83.78	0.00
45.00	0.00	2,988	83.78	0.00
47.50	0.00	2,988	83.78	0.00
50.00	0.00	2,988	83.78	0.00
52.50	0.00	2,988	83.78	0.00
55.00	0.00	2,988	83.78	0.00
57.50	0.00	2,988	83.78	0.00
60.00	0.00	2,988	83.78	0.00
62.50	0.00	2,988	83.78	0.00
65.00	0.00	2,988	83.78	0.00
67.50	0.00	2,988	83.78	0.00
70.00	0.00	2,988	83.78	0.00

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**Stage-Discharge for Pond 10P: Basin A**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
83.20	0.00	84.24	2.56	85.28	17.80
83.22	0.00	84.26	2.72	85.30	18.74
83.24	0.00	84.28	2.89	85.32	19.71
83.26	0.00	84.30	3.06	85.34	20.71
83.28	0.00	84.32	3.23	85.36	21.75
83.30	0.00	84.34	3.41	85.38	22.81
83.32	0.00	84.36	3.59	85.40	23.91
83.34	0.00	84.38	3.77	85.42	25.04
83.36	0.00	84.40	3.95	85.44	26.19
83.38	0.00	84.42	4.14	85.46	27.37
83.40	0.00	84.44	4.33	85.48	28.58
83.42	0.00	84.46	4.52	85.50	<b>29.81</b>
83.44	0.00	84.48	4.71		
83.46	0.00	84.50	4.91		
83.48	0.00	84.52	5.10		
83.50	0.00	84.54	5.30		
83.52	0.00	84.56	5.51		
83.54	0.00	84.58	5.71		
83.56	0.00	84.60	5.91		
83.58	0.00	84.62	6.12		
83.60	0.00	84.64	6.33		
83.62	0.00	84.66	6.54		
83.64	0.00	84.68	6.76		
83.66	0.00	84.70	6.97		
83.68	0.00	84.72	7.19		
83.70	0.00	84.74	7.41		
83.72	0.00	84.76	7.63		
83.74	0.00	84.78	7.85		
83.76	0.00	84.80	8.07		
83.78	0.00	84.82	8.30		
83.80	0.02	84.84	8.52		
83.82	0.07	84.86	8.75		
83.84	0.12	84.88	8.98		
83.86	0.19	84.90	9.21		
83.88	0.27	84.92	9.44		
83.90	0.35	84.94	9.67		
83.92	0.44	84.96	9.91		
83.94	0.54	84.98	10.14		
83.96	0.64	85.00	10.38		
83.98	0.75	85.02	10.62		
84.00	0.86	85.04	10.86		
84.02	0.98	85.06	11.10		
84.04	1.10	85.08	11.34		
84.06	1.23	85.10	11.58		
84.08	1.36	85.12	11.98		
84.10	1.50	85.14	12.49		
84.12	1.64	85.16	13.09		
84.14	1.79	85.18	13.75		
84.16	1.93	85.20	14.47		
84.18	2.08	85.22	15.24		
84.20	2.24	85.24	16.05		
84.22	2.40	85.26	16.91		

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**Stage-Area-Storage for Pond 10P: Basin A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
83.20	5,125	0
83.25	5,130	256
83.30	5,134	513
83.35	5,139	770
83.40	5,144	1,027
83.45	5,148	1,284
83.50	5,153	1,542
83.55	5,158	1,799
83.60	5,163	2,058
83.65	5,167	2,316
83.70	5,172	2,574
83.75	5,177	2,833
83.80	5,181	3,092
83.85	5,186	3,351
83.90	5,191	3,610
83.95	5,195	3,870
84.00	5,200	4,130
84.05	5,205	4,390
84.10	5,210	4,651
84.15	5,215	4,911
84.20	5,220	5,172
84.25	5,225	5,433
84.30	5,230	5,694
84.35	5,235	5,956
84.40	5,240	6,218
84.45	5,245	6,480
84.50	5,250	6,742
84.55	5,255	7,005
84.60	5,260	7,268
84.65	5,265	7,531
84.70	5,270	7,795
84.75	5,275	8,058
84.80	5,280	8,322
84.85	5,285	8,586
84.90	5,290	8,851
84.95	5,295	9,115
85.00	5,300	9,380
85.05	5,305	9,645
85.10	5,310	9,911
85.15	5,315	10,176
85.20	5,320	10,442
85.25	5,325	10,708
85.30	5,330	10,974
85.35	5,335	11,241
85.40	5,340	11,508
85.45	5,345	11,775
85.50	<b>5,350</b>	<b>12,042</b>



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**Summary for Pond 13P: Basin B**

Inflow Area = 1.355 ac, 80.19% Impervious, Inflow Depth = 5.40" for 25-Year event  
 Inflow = 8.37 cfs @ 12.10 hrs, Volume= 0.609 af  
 Outflow = 7.52 cfs @ 12.13 hrs, Volume= 0.513 af, Atten= 10%, Lag= 1.8 min  
 Primary = 7.52 cfs @ 12.13 hrs, Volume= 0.513 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.42' @ 12.13 hrs Surf.Area= 5,649 sf Storage= 5,527 cf

Plug-Flow detention time= 135.6 min calculated for 0.513 af (84% of inflow)  
 Center-of-Mass det. time= 64.4 min ( 818.6 - 754.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	82.43'	8,837 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.43	5,550	0	0
83.00	5,607	3,180	3,180
84.00	5,707	5,657	8,837

Device	Routing	Invert	Outlet Devices
#1	Primary	83.18'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=7.28 cfs @ 12.13 hrs HW=83.41' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir(Weir Controls 7.28 cfs @ 1.57 fps)

**Prop 2, 10 & 100yr**

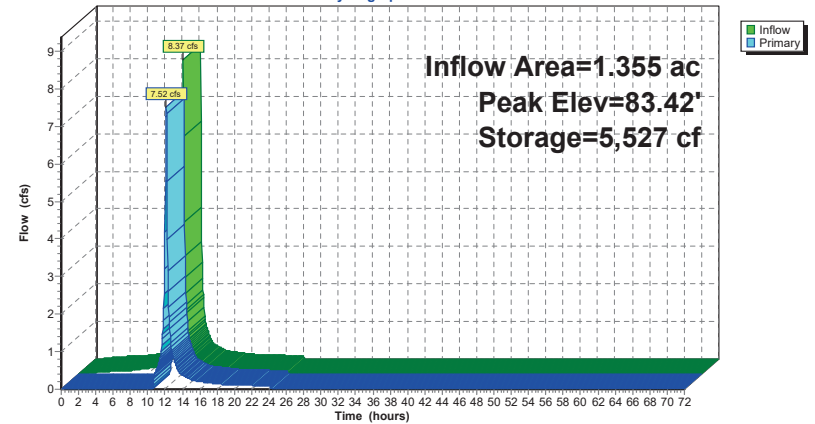
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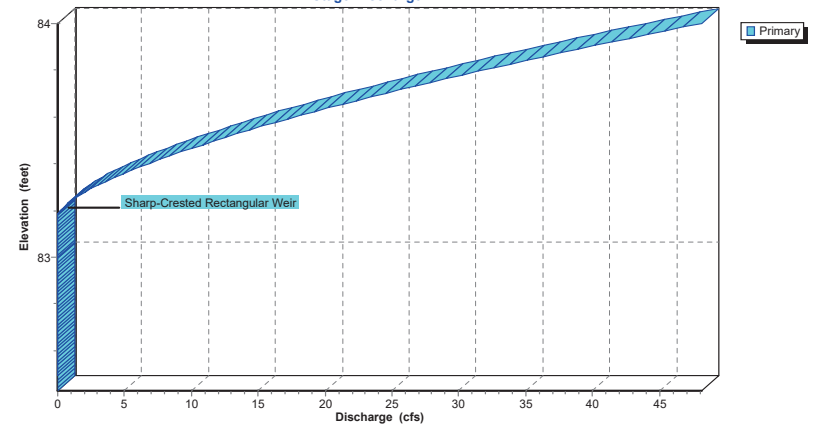
**Pond 13P: Basin B**

Hydrograph

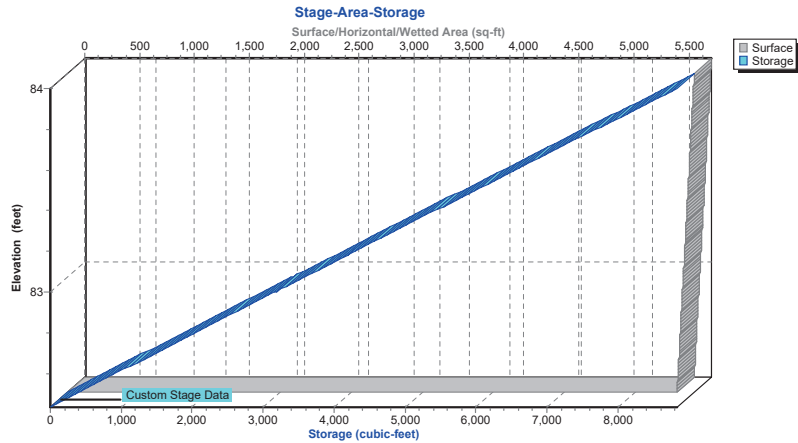


**Pond 13P: Basin B**

Stage-Discharge



**Pond 13P: Basin B**



**Hydrograph for Pond 13P: Basin B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	82.43	0.00
2.50	0.05	205	82.47	0.00
5.00	0.09	856	82.58	0.00
7.50	0.14	1,829	82.76	0.00
10.00	<b>0.29</b>	<b>3,566</b>	<b>83.07</b>	<b>0.00</b>
12.50	<b>1.65</b>	<b>4,697</b>	<b>83.27</b>	<b>1.77</b>
15.00	0.24	4,326	83.20	0.25
17.50	0.15	4,288	83.20	0.16
20.00	0.12	4,267	83.19	0.12
22.50	0.10	4,256	83.19	0.10
25.00	0.00	4,195	83.18	0.00
27.50	0.00	4,191	83.18	0.00
30.00	0.00	4,191	83.18	0.00
32.50	0.00	4,191	83.18	0.00
35.00	0.00	4,191	83.18	0.00
37.50	0.00	4,191	83.18	0.00
40.00	0.00	4,191	83.18	0.00
42.50	0.00	4,191	83.18	0.00
45.00	0.00	4,191	83.18	0.00
47.50	0.00	4,191	83.18	0.00
50.00	0.00	4,191	83.18	0.00
52.50	0.00	4,191	83.18	0.00
55.00	0.00	4,191	83.18	0.00
57.50	0.00	4,191	83.18	0.00
60.00	0.00	4,191	83.18	0.00
62.50	0.00	4,191	83.18	0.00
65.00	0.00	4,191	83.18	0.00
67.50	0.00	4,191	83.18	0.00
70.00	0.00	4,191	83.18	0.00

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**Stage-Discharge for Pond 13P: Basin B**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
82.43	0.00	82.95	0.00	83.47	10.18	83.99	47.29
82.44	0.00	82.96	0.00	83.48	10.71	84.00	<b>48.16</b>
82.45	0.00	82.97	0.00	83.49	11.25		
82.46	0.00	82.98	0.00	83.50	11.80		
82.47	0.00	82.99	0.00	83.51	12.36		
82.48	0.00	83.00	0.00	83.52	12.92		
82.49	0.00	83.01	0.00	83.53	13.49		
82.50	0.00	83.02	0.00	83.54	14.08		
82.51	0.00	83.03	0.00	83.55	14.66		
82.52	0.00	83.04	0.00	83.56	15.26		
82.53	0.00	83.05	0.00	83.57	15.87		
82.54	0.00	83.06	0.00	83.58	16.48		
82.55	0.00	83.07	0.00	83.59	17.10		
82.56	0.00	83.08	0.00	83.60	17.73		
82.57	0.00	83.09	0.00	83.61	18.36		
82.58	0.00	83.10	0.00	83.62	19.00		
82.59	0.00	83.11	0.00	83.63	19.65		
82.60	0.00	83.12	0.00	83.64	20.31		
82.61	0.00	83.13	0.00	83.65	20.97		
82.62	0.00	83.14	0.00	83.66	21.64		
82.63	0.00	83.15	0.00	83.67	22.32		
82.64	0.00	83.16	0.00	83.68	23.01		
82.65	0.00	83.17	0.00	83.69	23.70		
82.66	0.00	83.18	0.00	83.70	24.40		
82.67	0.00	83.19	0.07	83.71	25.10		
82.68	0.00	83.20	0.18	83.72	25.81		
82.69	0.00	83.21	0.34	83.73	26.53		
82.70	0.00	83.22	0.52	83.74	27.25		
82.71	0.00	83.23	0.73	83.75	27.98		
82.72	0.00	83.24	0.96	83.76	28.72		
82.73	0.00	83.25	1.21	83.77	29.46		
82.74	0.00	83.26	1.48	83.78	30.21		
82.75	0.00	83.27	1.76	83.79	30.97		
82.76	0.00	83.28	2.07	83.80	31.73		
82.77	0.00	83.29	2.38	83.81	32.50		
82.78	0.00	83.30	2.72	83.82	33.27		
82.79	0.00	83.31	3.06	83.83	34.05		
82.80	0.00	83.32	3.42	83.84	34.84		
82.81	0.00	83.33	3.79	83.85	35.63		
82.82	0.00	83.34	4.18	83.86	36.42		
82.83	0.00	83.35	4.58	83.87	37.23		
82.84	0.00	83.36	4.99	83.88	38.03		
82.85	0.00	83.37	5.41	83.89	38.85		
82.86	0.00	83.38	5.84	83.90	39.67		
82.87	0.00	83.39	6.28	83.91	40.49		
82.88	0.00	83.40	6.73	83.92	41.32		
82.89	0.00	83.41	7.20	83.93	42.16		
82.90	0.00	83.42	7.67	83.94	43.00		
82.91	0.00	83.43	8.15	83.95	43.85		
82.92	0.00	83.44	8.65	83.96	44.70		
82.93	0.00	83.45	9.15	83.97	45.56		
82.94	0.00	83.46	9.66	83.98	46.42		

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**Stage-Area-Storage for Pond 13P: Basin B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
82.43	5,550	0	83.47	5,654	5,826
82.45	5,552	111	83.49	5,656	5,939
82.47	5,554	222	83.51	5,658	6,052
82.49	5,556	333	83.53	5,660	6,165
82.51	5,558	444	83.55	5,662	6,279
82.53	5,560	555	83.57	5,664	6,392
82.55	5,562	667	83.59	5,666	6,505
82.57	5,564	778	83.61	5,668	6,619
82.59	5,566	889	83.63	5,670	6,732
82.61	5,568	1,001	83.65	5,672	6,845
82.63	5,570	1,112	83.67	5,674	6,959
82.65	5,572	1,223	83.69	5,676	7,072
82.67	5,574	1,335	83.71	5,678	7,186
82.69	5,576	1,446	83.73	5,680	7,299
82.71	5,578	1,558	83.75	5,682	7,413
82.73	5,580	1,669	83.77	5,684	7,527
82.75	5,582	1,781	83.79	5,686	7,640
82.77	5,584	1,893	83.81	5,688	7,754
82.79	5,586	2,004	83.83	5,690	7,868
82.81	5,588	2,116	83.85	5,692	7,982
82.83	5,590	2,228	83.87	5,694	8,096
82.85	5,592	2,340	83.89	5,696	8,210
82.87	5,594	2,452	83.91	5,698	8,324
82.89	5,596	2,564	83.93	5,700	8,438
82.91	5,598	2,676	83.95	5,702	8,552
82.93	5,600	2,788	83.97	5,704	8,666
82.95	5,602	2,900	83.99	<b>5,706</b>	<b>8,780</b>
82.97	5,604	3,012			
82.99	5,606	3,124			
83.01	5,608	3,236			
83.03	5,610	3,348			
83.05	5,612	3,460			
83.07	5,614	3,572			
83.09	5,616	3,685			
83.11	5,618	3,797			
83.13	5,620	3,910			
83.15	5,622	4,022			
83.17	5,624	4,134			
83.19	5,626	4,247			
83.21	5,628	4,359			
83.23	5,630	4,472			
83.25	5,632	4,585			
83.27	5,634	4,697			
83.29	5,636	4,810			
83.31	5,638	4,923			
83.33	5,640	5,036			
83.35	5,642	5,148			
83.37	5,644	5,261			
83.39	5,646	5,374			
83.41	5,648	5,487			
83.43	5,650	5,600			
83.45	5,652	5,713			

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**Summary for Pond 26P: Porous Pavement D**

Inflow Area = 2.189 ac, 95.66% Impervious, Inflow Depth = 5.77" for 25-Year event  
 Inflow = 15.31 cfs @ 12.08 hrs, Volume= 1.052 af  
 Outflow = 0.63 cfs @ 13.80 hrs, Volume= 0.937 af, Atten= 96%, Lag= 102.7 min  
 Primary = 0.63 cfs @ 13.80 hrs, Volume= 0.937 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 84.63' @ 13.80 hrs Surf.Area= 11,488 sf Storage= 30,395 cf

Plug-Flow detention time= 595.3 min calculated for 0.936 af (89% of inflow)  
 Center-of-Mass det. time= 540.1 min ( 1,284.5 - 744.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	81.90'	4,595 cf	<b>29.65'W x 387.43'L x 4.00'H Stone Storage</b> 45,936 cf Overall - 34,448 cf Embedded = 11,488 cf x 40.0% Voids
#2A	81.90'	33,414 cf	<b>ACO StormBrixx SD 1</b> x 1470 Inside #1 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 1470 Chambers in 15 Rows
		38,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	81.90'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	85.65'	<b>4.0" long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=0.63 cfs @ 13.80 hrs HW=84.63' TW=82.35' (Fixed TW Elev= 82.35')

- 1=Orifice/Grate (Orifice Controls 0.63 cfs @ 7.27 fps)
- 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Prop 2, 10 & 100yr**

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**Pond 26P: Porous Pavement D - Chamber Wizard Stone Storage**

**Chamber Model = ACO StormBrixx SD 1 (ACO StormBrixx®SD)**

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf  
 Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

98 Chambers/Row x 3.95' Long = 387.43' Row Length  
 15 Rows x 23.7" Wide = 29.65' Base Width  
 36.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

1,470 Chambers x 22.7 cf = 33,414.5 cf Chamber Storage  
 1,470 Chambers x 23.4 cf = 34,447.9 cf Displacement

45,935.6 cf Field - 34,447.9 cf Chambers = 11,487.7 cf Stone x 40.0% Voids = 4,595.1 cf Stone Storage

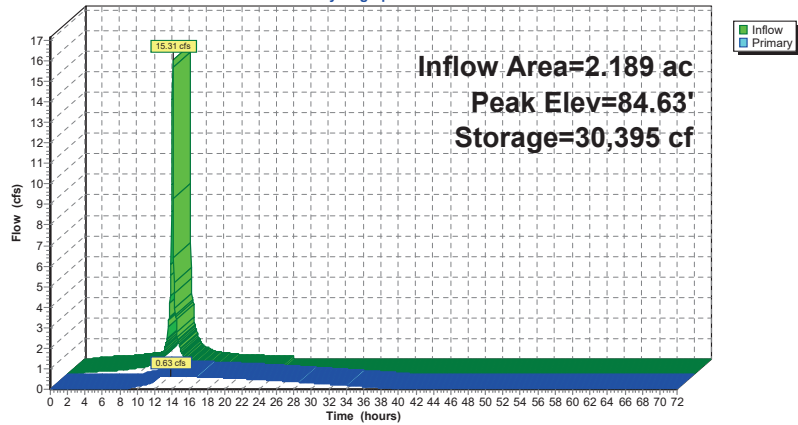
Chamber Storage + Stone Storage = 38,009.5 cf = 0.873 af  
 Overall Storage Efficiency = 82.7%  
 Overall System Size = 387.43' x 29.65' x 4.00'

1,470 Chambers  
 1,701.3 cy Field  
 425.5 cy Stone



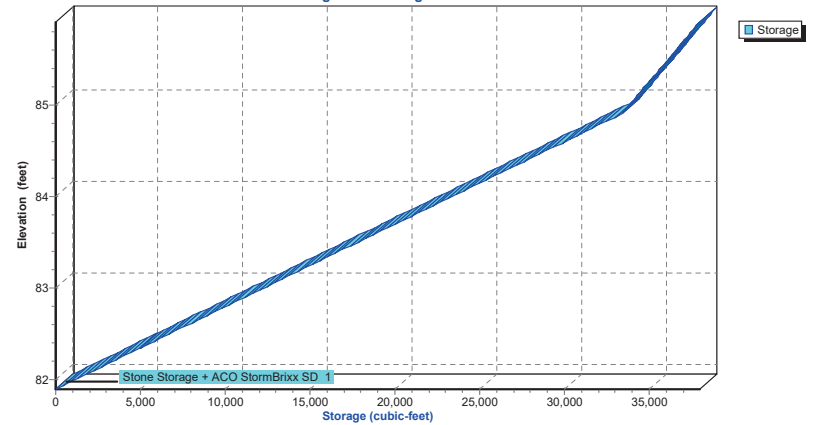
**Pond 26P: Porous Pavement D**

Hydrograph



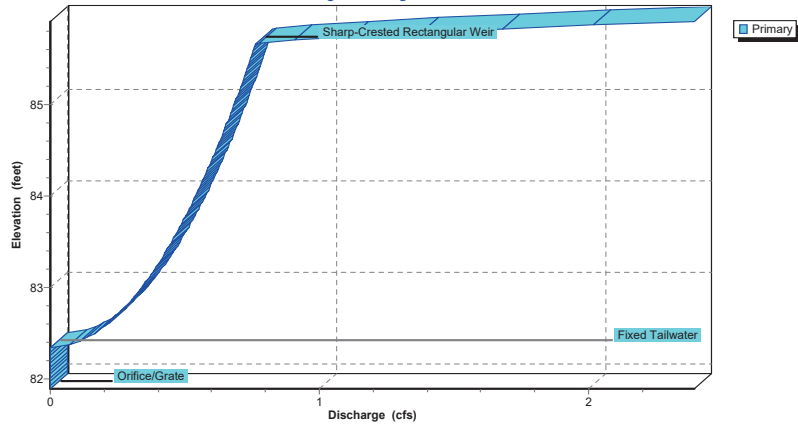
**Pond 26P: Porous Pavement D**

Stage-Area-Storage



**Pond 26P: Porous Pavement D**

Stage-Discharge



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**Hydrograph for Pond 26P: Porous Pavement D**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	81.90	0.00
2.50	0.10	400	81.94	0.00
5.00	0.17	1,658	82.05	0.00
7.50	0.27	3,538	82.22	0.00
10.00	<b>0.54</b>	6,436	82.48	0.15
12.50	<b>2.68</b>	<b>28,002</b>	<b>84.41</b>	<b>0.60</b>
15.00	0.40	<b>29,885</b>	<b>84.58</b>	<b>0.63</b>
17.50	0.25	27,206	84.34	0.59
20.00	0.19	23,957	84.05	0.55
22.50	0.16	20,803	83.77	0.50
25.00	0.00	17,367	83.46	0.44
27.50	0.00	13,706	83.13	0.37
30.00	0.00	10,687	82.86	0.30
32.50	0.00	8,310	82.65	0.23
35.00	0.00	6,576	82.49	0.16
37.50	0.00	5,487	82.39	0.08
40.00	0.00	5,083	82.36	0.02
42.50	0.00	5,024	82.35	0.00
45.00	0.00	5,016	82.35	0.00
47.50	0.00	5,015	82.35	0.00
50.00	0.00	5,014	82.35	0.00
52.50	0.00	5,014	82.35	0.00
55.00	0.00	5,014	82.35	0.00
57.50	0.00	5,014	82.35	0.00
60.00	0.00	5,014	82.35	0.00
62.50	0.00	5,014	82.35	0.00
65.00	0.00	5,014	82.35	0.00
67.50	0.00	5,014	82.35	0.00
70.00	0.00	5,014	82.35	0.00

**Prop 2, 10 & 100yr**

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**Stage-Discharge for Pond 26P: Porous Pavement D**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
81.90	0.00	82.94	0.32	83.98	0.54	85.02	0.69
81.92	0.00	82.96	0.33	84.00	0.54	85.04	0.69
81.94	0.00	82.98	0.33	84.02	0.54	85.06	0.69
81.96	0.00	83.00	0.34	84.04	0.55	85.08	0.69
81.98	0.00	83.02	0.34	84.06	0.55	85.10	0.70
82.00	0.00	83.04	0.35	84.08	0.55	85.12	0.70
82.02	0.00	83.06	0.35	84.10	0.56	85.14	0.70
82.04	0.00	83.08	0.36	84.12	0.56	85.16	0.70
82.06	0.00	83.10	0.36	84.14	0.56	85.18	0.71
82.08	0.00	83.12	0.37	84.16	0.57	85.20	0.71
82.10	0.00	83.14	0.37	84.18	0.57	85.22	0.71
82.12	0.00	83.16	0.38	84.20	0.57	85.24	0.71
82.14	0.00	83.18	0.38	84.22	0.57	85.26	0.72
82.16	0.00	83.20	0.39	84.24	0.58	85.28	0.72
82.18	0.00	83.22	0.39	84.26	0.58	85.30	0.72
82.20	0.00	83.24	0.40	84.28	0.58	85.32	0.72
82.22	0.00	83.26	0.40	84.30	0.59	85.34	0.73
82.24	0.00	83.28	0.41	84.32	0.59	85.36	0.73
82.26	0.00	83.30	0.41	84.34	0.59	85.38	0.73
82.28	0.00	83.32	0.41	84.36	0.60	85.40	0.73
82.30	0.00	83.34	0.42	84.38	0.60	85.42	0.74
82.32	0.00	83.36	0.42	84.40	0.60	85.44	0.74
82.34	0.00	83.38	0.43	84.42	0.60	85.46	0.74
82.36	0.04	83.40	0.43	84.44	0.61	85.48	0.74
82.38	0.07	83.42	0.43	84.46	0.61	85.50	0.75
82.40	0.09	83.44	0.44	84.48	0.61	85.52	0.75
82.42	0.11	83.46	0.44	84.50	0.62	85.54	0.75
82.44	0.13	83.48	0.45	84.52	0.62	85.56	0.75
82.46	0.14	83.50	0.45	84.54	0.62	85.58	0.76
82.48	0.15	83.52	0.45	84.56	0.62	85.60	0.76
82.50	0.16	83.54	0.46	84.58	0.63	85.62	0.76
82.52	0.17	83.56	0.46	84.60	0.63	85.64	0.76
82.54	0.18	83.58	0.47	84.62	0.63	85.66	0.78
82.56	0.19	83.60	0.47	84.64	0.64	85.68	0.83
82.58	0.20	83.62	0.47	84.66	0.64	85.70	0.91
82.60	0.21	83.64	0.48	84.68	0.64	85.72	1.01
82.62	0.22	83.66	0.48	84.70	0.64	85.74	1.13
82.64	0.23	83.68	0.48	84.72	0.65	85.76	1.25
82.66	0.23	83.70	0.49	84.74	0.65	85.78	1.39
82.68	0.24	83.72	0.49	84.76	0.65	85.80	1.53
82.70	0.25	83.74	0.50	84.78	0.66	85.82	1.69
82.72	0.26	83.76	0.50	84.80	0.66	85.84	1.86
82.74	0.26	83.78	0.50	84.82	0.66	85.86	2.03
82.76	0.27	83.80	0.51	84.84	0.66	85.88	2.22
82.78	0.28	83.82	0.51	84.86	0.67	85.90	<b>2.41</b>
82.80	0.28	83.84	0.51	84.88	0.67		
82.82	0.29	83.86	0.52	84.90	0.67		
82.84	0.29	83.88	0.52	84.92	0.67		
82.86	0.30	83.90	0.52	84.94	0.68		
82.88	0.31	83.92	0.53	84.96	0.68		
82.90	0.31	83.94	0.53	84.98	0.68		
82.92	0.32	83.96	0.53	85.00	0.68		

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**Stage-Area-Storage for Pond 26P: Porous Pavement D**

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
81.90	0	84.50	28,972
81.95	557	84.55	29,529
82.00	1,114	84.60	30,086
82.05	1,671	84.65	30,643
82.10	2,229	84.70	31,200
82.15	2,786	84.75	31,758
82.20	3,343	84.80	32,315
82.25	3,900	84.85	32,872
82.30	4,457	84.90	33,429
82.35	5,014	84.95	33,986
82.40	5,572	85.00	34,543
82.45	6,129	85.05	35,100
82.50	6,686	85.10	35,657
82.55	7,243	85.15	36,214
82.60	7,800	85.20	36,771
82.65	8,357	85.25	37,328
82.70	8,914	85.30	37,885
82.75	9,472	85.35	38,442
82.80	10,029	85.40	38,999
82.85	10,586	85.45	39,556
82.90	11,143	85.50	40,113
82.95	11,700	85.55	40,670
83.00	12,257	85.60	41,227
83.05	12,814	85.65	41,784
83.10	13,372	85.70	42,341
83.15	13,929	85.75	42,898
83.20	14,486	85.80	43,455
83.25	15,043	85.85	44,012
83.30	15,600	85.90	<b>44,569</b>
83.35	16,157		
83.40	16,715		
83.45	17,272		
83.50	17,829		
83.55	18,386		
83.60	18,943		
83.65	19,500		
83.70	20,057		
83.75	20,615		
83.80	21,172		
83.85	21,729		
83.90	22,286		
83.95	22,843		
84.00	23,400		
84.05	23,958		
84.10	24,515		
84.15	25,072		
84.20	25,629		
84.25	26,186		
84.30	26,743		
84.35	27,300		
84.40	27,858		
84.45	28,415		

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**Summary for Pond 27P: Prop Standard Constructed Wetland E**

Inflow Area = 13.138 ac, 76.54% Impervious, Inflow Depth = 4.99" for 25-Year event  
 Inflow = 54.68 cfs @ 12.13 hrs, Volume= 5,465 af  
 Outflow = 9.86 cfs @ 12.72 hrs, Volume= 5,457 af, Atten= 82%, Lag= 35.3 min  
 Primary = 9.86 cfs @ 12.72 hrs, Volume= 5,457 af  
 Routed to Link 28L : Prop South Total

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 81.13' @ 12.72 hrs Surf.Area= 19,561 sf Storage= 103,077 cf

Plug-Flow detention time=347.0 min calculated for 5,454 af (100% of inflow)  
 Center-of-Mass det. time= 346.0 min ( 1,209.2 - 863.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	75.50'	140,019 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

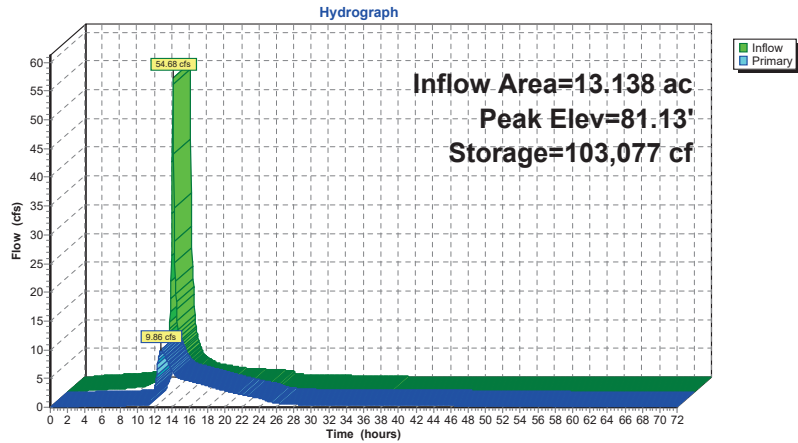
  

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.50	6,189	0	0
76.00	15,855	5,511	5,511
77.00	19,196	17,526	23,037
78.00	19,296	19,246	42,283
79.00	19,396	19,346	61,629
80.00	19,496	19,446	81,075
81.00	19,548	19,522	100,597
82.00	19,648	19,598	120,195
83.00	20,000	19,824	140,019

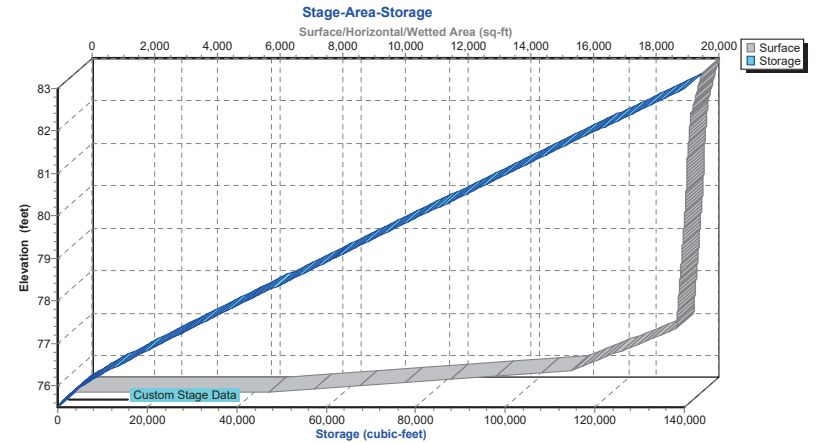
Device	Routing	Invert	Outlet Devices
#1	Primary	75.50'	<b>3.7" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	77.20'	<b>30.0" W x 2.5" H Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	80.15'	<b>1.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Primary	82.05'	<b>20.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=9.86 cfs @ 12.72 hrs HW=81.13' (Free Discharge)  
 1=Orifice/Grate (Orifice Controls 0.84 cfs @ 11.26 fps)  
 2=Orifice/Grate (Orifice Controls 4.90 cfs @ 9.41 fps)  
 3=Sharp-Crested Rectangular Weir (Weir Controls 4.11 cfs @ 3.23 fps)  
 4=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

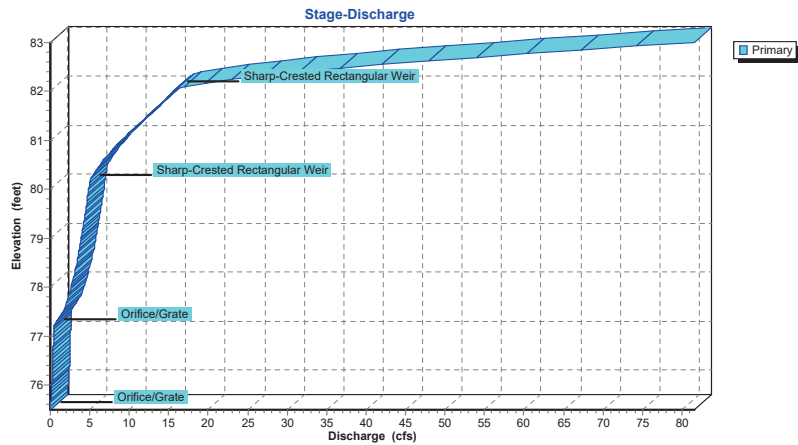
Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E





**Prop 2, 10 & 100yr**

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**Hydrograph for Pond 27P: Prop Standard Constructed Wetland E**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	75.50	0.00
2.50	0.30	1,049	75.64	0.04
5.00	0.50	3,723	75.88	0.17
7.50	0.79	7,379	76.12	0.24
10.00	<b>1.74</b>	14,795	76.55	0.34
12.50	<b>15.77</b>	<b>100,904</b>	<b>81.02</b>	<b>9.16</b>
15.00	2.63	<b>82,682</b>	<b>80.08</b>	<b>4.94</b>
17.50	1.81	62,039	79.02	3.95
20.00	1.47	45,625	78.17	2.91
22.50	1.26	35,914	77.67	2.02
25.00	0.48	30,146	77.37	1.04
27.50	0.37	27,616	77.24	0.52
30.00	0.30	26,457	77.18	0.44
32.50	0.23	24,892	77.10	0.43
35.00	0.16	22,812	76.99	0.42
37.50	0.08	20,257	76.85	0.39
40.00	0.02	17,238	76.69	0.37
42.50	0.00	14,148	76.52	0.33
45.00	0.00	11,302	76.35	0.30
47.50	0.00	8,756	76.20	0.27
50.00	0.00	6,526	76.06	0.23
52.50	0.00	4,622	75.94	0.19
55.00	0.00	3,078	75.83	0.15
57.50	0.00	1,959	75.73	0.10
60.00	0.00	1,279	75.66	0.06
62.50	0.00	889	75.62	0.03
65.00	0.00	651	75.59	0.02
67.50	0.00	506	75.57	0.01
70.00	0.00	403	75.56	0.01

**Prop 2, 10 & 100yr**

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**Stage-Discharge for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
75.50	0.00	78.10	2.80	80.70	7.28
75.55	0.01	78.15	2.87	80.75	7.56
75.60	0.02	78.20	2.95	80.80	7.85
75.65	0.05	78.25	3.02	80.85	8.15
75.70	0.08	78.30	3.09	80.90	8.45
75.75	0.11	78.35	3.15	80.95	8.75
75.80	0.14	78.40	3.22	81.00	9.06
75.85	0.16	78.45	3.28	81.05	9.37
75.90	0.18	78.50	3.35	81.10	9.69
75.95	0.20	78.55	3.41	81.15	10.01
76.00	0.21	78.60	3.47	81.20	10.33
76.05	0.23	78.65	3.53	81.25	10.66
76.10	0.24	78.70	3.59	81.30	10.99
76.15	0.25	78.75	3.65	81.35	11.32
76.20	0.27	78.80	3.70	81.40	11.65
76.25	0.28	78.85	3.76	81.45	11.98
76.30	0.29	78.90	3.82	81.50	12.31
76.35	0.30	78.95	3.87	81.55	12.65
76.40	0.31	79.00	3.92	81.60	12.98
76.45	0.32	79.05	3.98	81.65	13.32
76.50	0.33	79.10	4.03	81.70	13.65
76.55	0.34	79.15	4.08	81.75	13.98
76.60	0.35	79.20	4.13	81.80	14.32
76.65	0.36	79.25	4.18	81.85	14.65
76.70	0.37	79.30	4.23	81.90	14.98
76.75	0.38	79.35	4.28	81.95	15.31
76.80	0.38	79.40	4.33	82.00	15.64
76.85	0.39	79.45	4.37	82.05	15.96
76.90	0.40	79.50	4.42	82.10	17.02
76.95	0.41	79.55	4.47	82.15	18.68
77.00	0.42	79.60	4.51	82.20	20.72
77.05	0.42	79.65	4.56	82.25	23.09
77.10	0.43	79.70	4.60	82.30	25.72
77.15	0.44	79.75	4.65	82.35	28.59
77.20	0.45	79.80	4.69	82.40	31.68
77.25	0.54	79.85	4.74	82.45	34.97
77.30	0.72	79.90	4.78	82.50	38.44
77.35	0.93	79.95	4.82	82.55	42.10
77.40	1.19	80.00	4.87	82.60	45.91
77.45	1.42	80.05	4.91	82.65	49.89
77.50	1.58	80.10	4.95	82.70	54.01
77.55	1.73	80.15	4.99	82.75	58.28
77.60	1.86	80.20	5.09	82.80	62.68
77.65	1.98	80.25	5.23	82.85	67.22
77.70	2.09	80.30	5.39	82.90	71.88
77.75	2.19	80.35	5.58	82.95	76.67
77.80	2.29	80.40	5.79	83.00	<b>81.57</b>
77.85	2.38	80.45	6.01		
77.90	2.47	80.50	6.24		
77.95	2.56	80.55	6.49		
78.00	2.64	80.60	6.74		
78.05	2.72	80.65	7.01		

**Prop 2, 10 & 100yr**

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**Stage-Area-Storage for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
75.50	6,189	0	80.70	19,532	94,734
75.60	8,122	716	80.80	19,538	96,688
75.70	10,055	1,624	80.90	19,543	98,642
75.80	11,989	2,727	81.00	19,548	100,597
75.90	13,922	4,022	81.10	19,558	102,552
76.00	15,855	5,511	81.20	19,568	104,508
76.10	16,189	7,113	81.30	19,578	106,465
76.20	16,523	8,749	81.40	19,588	108,424
76.30	16,857	10,418	81.50	19,598	110,383
76.40	17,191	12,120	81.60	19,608	112,343
76.50	17,526	13,856	81.70	19,618	114,305
76.60	17,860	15,625	81.80	19,628	116,267
76.70	18,194	17,428	81.90	19,638	118,230
76.80	18,528	19,264	82.00	19,648	120,195
76.90	18,862	21,134	82.10	19,683	122,161
77.00	19,196	23,037	82.20	19,718	124,131
77.10	19,206	24,957	82.30	19,754	126,105
77.20	19,216	26,878	82.40	19,789	128,082
77.30	19,226	28,800	82.50	19,824	130,063
77.40	19,236	30,723	82.60	19,859	132,047
77.50	19,246	32,647	82.70	19,894	134,034
77.60	19,256	34,572	82.80	19,930	136,026
77.70	19,266	36,498	82.90	19,965	138,020
77.80	19,276	38,425	83.00	<b>20,000</b>	<b>140,019</b>
77.90	19,286	40,353			
78.00	19,296	42,283			
78.10	19,306	44,213			
78.20	19,316	46,144			
78.30	19,326	48,076			
78.40	19,336	50,009			
78.50	19,346	51,943			
78.60	19,356	53,878			
78.70	19,366	55,814			
78.80	19,376	57,751			
78.90	19,386	59,689			
79.00	19,396	61,629			
79.10	19,406	63,569			
79.20	19,416	65,510			
79.30	19,426	67,452			
79.40	19,436	69,395			
79.50	19,446	71,339			
79.60	19,456	73,284			
79.70	19,466	75,230			
79.80	19,476	77,177			
79.90	19,486	79,125			
80.00	19,496	81,075			
80.10	19,501	83,024			
80.20	19,506	84,975			
80.30	19,512	86,926			
80.40	19,517	88,877			
80.50	19,522	90,829			
80.60	19,527	92,781			

**Prop 2, 10 & 100yr**

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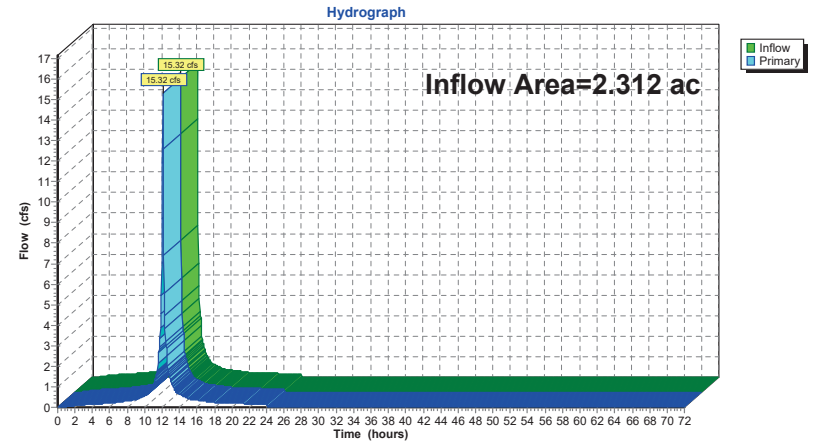
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**Summary for Link 17L: Prop MTD C - bypass**

Inflow Area = 2.312 ac, 96.48% Impervious, Inflow Depth = 5.82" for 25-Year event  
 Inflow = 15.32 cfs @ 12.10 hrs, Volume= 1.122 af  
 Primary = 15.32 cfs @ 12.10 hrs, Volume= 1.122 af, Atten= 0%, Lag= 0.0 min  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

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

**Link 17L: Prop MTD C - bypass**



**Prop 2, 10 & 100yr**

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**Hydrograph for Link 17L: Prop MTD C - bypass**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.03	0.00	0.03	53.00	0.00	0.00	0.00
2.00	0.09	0.00	0.09	54.00	0.00	0.00	0.00
3.00	0.13	0.00	0.13	55.00	0.00	0.00	0.00
4.00	0.16	0.00	0.16	56.00	0.00	0.00	0.00
5.00	0.18	0.00	0.18	57.00	0.00	0.00	0.00
6.00	0.20	0.00	0.20	58.00	0.00	0.00	0.00
7.00	0.26	0.00	0.26	59.00	0.00	0.00	0.00
8.00	0.32	0.00	0.32	60.00	0.00	0.00	0.00
9.00	0.37	0.00	0.37	61.00	0.00	0.00	0.00
10.00	0.58	0.00	0.58	62.00	0.00	0.00	0.00
11.00	1.08	0.00	1.08	63.00	0.00	0.00	0.00
12.00	<b>9.18</b>	0.00	<b>9.18</b>	64.00	0.00	0.00	0.00
13.00	<b>1.30</b>	0.00	<b>1.30</b>	65.00	0.00	0.00	0.00
14.00	0.64	0.00	0.64	66.00	0.00	0.00	0.00
15.00	0.42	0.00	0.42	67.00	0.00	0.00	0.00
16.00	0.35	0.00	0.35	68.00	0.00	0.00	0.00
17.00	0.29	0.00	0.29	69.00	0.00	0.00	0.00
18.00	0.24	0.00	0.24	70.00	0.00	0.00	0.00
19.00	0.22	0.00	0.22	71.00	0.00	0.00	0.00
20.00	0.20	0.00	0.20	72.00	0.00	0.00	0.00
21.00	0.19	0.00	0.19				
22.00	0.17	0.00	0.17				
23.00	0.16	0.00	0.16				
24.00	0.18	0.00	0.18				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

**Prop 2, 10 & 100yr**

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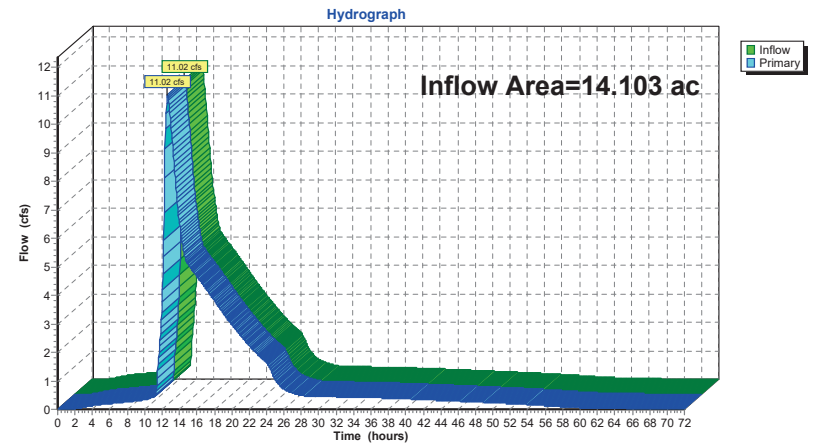
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**Summary for Link 28L: Prop South Total**

Inflow Area = 14.103 ac, 71.31% Impervious, Inflow Depth > 4.81" for 25-Year event  
 Inflow = 11.02 cfs @ 12.62 hrs, Volume= 5.655 af  
 Primary = 11.02 cfs @ 12.62 hrs, Volume= 5.655 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 34L : Prop Total

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

**Link 28L: Prop South Total**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

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**Hydrograph for Link 28L: Prop South Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.20	0.00	0.20
1.00	0.00	0.00	0.00	53.00	0.18	0.00	0.18
2.00	0.02	0.00	0.02	54.00	0.17	0.00	0.17
3.00	0.07	0.00	0.07	55.00	0.15	0.00	0.15
4.00	0.13	0.00	0.13	56.00	0.13	0.00	0.13
5.00	0.17	0.00	0.17	57.00	0.11	0.00	0.11
6.00	0.20	0.00	0.20	58.00	0.09	0.00	0.09
7.00	0.23	0.00	0.23	59.00	0.07	0.00	0.07
8.00	0.26	0.00	0.26	60.00	0.06	0.00	0.06
9.00	0.29	0.00	0.29	61.00	0.04	0.00	0.04
10.00	0.34	0.00	0.34	62.00	0.04	0.00	0.04
11.00	0.44	0.00	0.44	63.00	0.03	0.00	0.03
12.00	<b>3.77</b>	0.00	<b>3.77</b>	64.00	0.02	0.00	0.02
13.00	<b>10.02</b>	0.00	<b>10.02</b>	65.00	0.02	0.00	0.02
14.00	6.51	0.00	6.51	66.00	0.02	0.00	0.02
15.00	5.08	0.00	5.08	67.00	0.01	0.00	0.01
16.00	4.66	0.00	4.66	68.00	0.01	0.00	0.01
17.00	4.24	0.00	4.24	69.00	0.01	0.00	0.01
18.00	3.81	0.00	3.81	70.00	0.01	0.00	0.01
19.00	3.38	0.00	3.38	71.00	0.01	0.00	0.01
20.00	2.97	0.00	2.97	72.00	0.01	0.00	0.01
21.00	2.59	0.00	2.59				
22.00	2.24	0.00	2.24				
23.00	1.92	0.00	1.92				
24.00	1.64	0.00	1.64				
25.00	1.04	0.00	1.04				
26.00	0.70	0.00	0.70				
27.00	0.57	0.00	0.57				
28.00	0.48	0.00	0.48				
29.00	0.45	0.00	0.45				
30.00	0.44	0.00	0.44				
31.00	0.44	0.00	0.44				
32.00	0.43	0.00	0.43				
33.00	0.43	0.00	0.43				
34.00	0.42	0.00	0.42				
35.00	0.42	0.00	0.42				
36.00	0.41	0.00	0.41				
37.00	0.40	0.00	0.40				
38.00	0.39	0.00	0.39				
39.00	0.38	0.00	0.38				
40.00	0.37	0.00	0.37				
41.00	0.35	0.00	0.35				
42.00	0.34	0.00	0.34				
43.00	0.33	0.00	0.33				
44.00	0.31	0.00	0.31				
45.00	0.30	0.00	0.30				
46.00	0.29	0.00	0.29				
47.00	0.27	0.00	0.27				
48.00	0.26	0.00	0.26				
49.00	0.24	0.00	0.24				
50.00	0.23	0.00	0.23				
51.00	0.22	0.00	0.22				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 25-Year Rainfall=6.15"

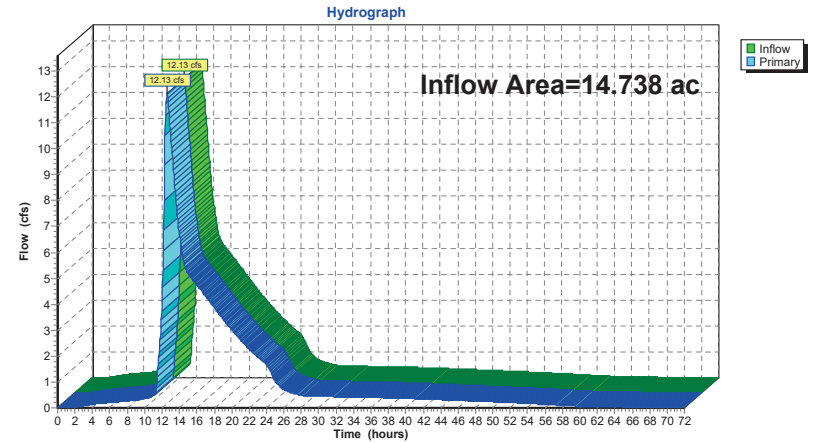
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**Summary for Link 34L: Prop Total**

Inflow Area = 14.738 ac, 68.23% Impervious, Inflow Depth > 4.74" for 25-Year event  
 Inflow = 12.13 cfs @ 12.56 hrs, Volume= 5.820 af  
 Primary = 12.13 cfs @ 12.56 hrs, Volume= 5.820 af, Atten= 0%, Lag= 0.0 min

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

**Link 34L: Prop Total**



**Prop 2, 10 & 100yr**

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**Hydrograph for Link 34L: Prop Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.20	0.00	0.20
1.00	0.00	0.00	0.00	53.00	0.18	0.00	0.18
2.00	0.02	0.00	0.02	54.00	0.17	0.00	0.17
3.00	0.07	0.00	0.07	55.00	0.15	0.00	0.15
4.00	0.13	0.00	0.13	56.00	0.13	0.00	0.13
5.00	0.17	0.00	0.17	57.00	0.11	0.00	0.11
6.00	0.20	0.00	0.20	58.00	0.09	0.00	0.09
7.00	0.23	0.00	0.23	59.00	0.07	0.00	0.07
8.00	0.26	0.00	0.26	60.00	0.06	0.00	0.06
9.00	0.30	0.00	0.30	61.00	0.04	0.00	0.04
10.00	0.36	0.00	0.36	62.00	0.04	0.00	0.04
11.00	0.49	0.00	0.49	63.00	0.03	0.00	0.03
12.00	4.14	0.00	4.14	64.00	0.02	0.00	0.02
13.00	10.50	0.00	10.50	65.00	0.02	0.00	0.02
14.00	6.67	0.00	6.67	66.00	0.02	0.00	0.02
15.00	5.19	0.00	5.19	67.00	0.01	0.00	0.01
16.00	4.74	0.00	4.74	68.00	0.01	0.00	0.01
17.00	4.31	0.00	4.31	69.00	0.01	0.00	0.01
18.00	3.87	0.00	3.87	70.00	0.01	0.00	0.01
19.00	3.43	0.00	3.43	71.00	0.01	0.00	0.01
20.00	3.02	0.00	3.02	72.00	0.01	0.00	0.01
21.00	2.63	0.00	2.63				
22.00	2.28	0.00	2.28				
23.00	1.96	0.00	1.96				
24.00	1.67	0.00	1.67				
25.00	1.04	0.00	1.04				
26.00	0.70	0.00	0.70				
27.00	0.57	0.00	0.57				
28.00	0.48	0.00	0.48				
29.00	0.45	0.00	0.45				
30.00	0.44	0.00	0.44				
31.00	0.44	0.00	0.44				
32.00	0.43	0.00	0.43				
33.00	0.43	0.00	0.43				
34.00	0.42	0.00	0.42				
35.00	0.42	0.00	0.42				
36.00	0.41	0.00	0.41				
37.00	0.40	0.00	0.40				
38.00	0.39	0.00	0.39				
39.00	0.38	0.00	0.38				
40.00	0.37	0.00	0.37				
41.00	0.35	0.00	0.35				
42.00	0.34	0.00	0.34				
43.00	0.33	0.00	0.33				
44.00	0.31	0.00	0.31				
45.00	0.30	0.00	0.30				
46.00	0.29	0.00	0.29				
47.00	0.27	0.00	0.27				
48.00	0.26	0.00	0.26				
49.00	0.24	0.00	0.24				
50.00	0.23	0.00	0.23				
51.00	0.22	0.00	0.22				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Prop Basin A (Imp)</b>	Runoff Area=29,111 sf 100.00% Impervious Runoff Depth=8.05" Flow Length=541' Tc=3.4 min CN=98 Runoff=6.32 cfs 0.448 af
<b>Subcatchment2S: Prop Basin A (Perv)</b>	Runoff Area=82,064 sf 0.00% Impervious Runoff Depth=5.19" Flow Length=253' Tc=10.9 min CN=74 Runoff=10.43 cfs 0.814 af
<b>Subcatchment11S: Prop Basin B (Imp)</b>	Runoff Area=47,330 sf 100.00% Impervious Runoff Depth=8.05" Flow Length=431' Tc=3.5 min CN=98 Runoff=10.24 cfs 0.729 af
<b>Subcatchment12S: Prop Basin B (Perv)</b>	Runoff Area=11,691 sf 0.00% Impervious Runoff Depth=5.19" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=1.58 cfs 0.116 af
<b>Subcatchment21S: Prop MTD C (Imp)</b>	Runoff Area=97,184 sf 100.00% Impervious Runoff Depth=8.05" Flow Length=824' Tc=4.3 min CN=98 Runoff=20.35 cfs 1.497 af
<b>Subcatchment22S: Prop MTD C (Perv)</b>	Runoff Area=3,542 sf 0.00% Impervious Runoff Depth=5.19" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.48 cfs 0.035 af
<b>Subcatchment23S: Prop South Undetained</b>	Runoff Area=42,030 sf 0.00% Impervious Runoff Depth=4.13" Flow Length=1,060' Tc=27.6 min CN=65 Runoff=2.87 cfs 0.332 af
<b>Subcatchment24S: Prop PP D (Imp)</b>	Runoff Area=91,203 sf 100.00% Impervious Runoff Depth=8.05" Flow Length=229' Tc=2.6 min CN=98 Runoff=20.41 cfs 1.405 af
<b>Subcatchment25S: Prop PP D (Perv)</b>	Runoff Area=4,137 sf 0.00% Impervious Runoff Depth=4.25" Flow Length=42' Slope=0.0100 '/' Tc=9.3 min CN=66 Runoff=0.46 cfs 0.034 af
<b>Subcatchment29S: Prop Constructed</b>	Runoff Area=173,212 sf 100.00% Impervious Runoff Depth=8.05" Flow Length=1,787' Tc=7.0 min CN=98 Runoff=33.42 cfs 2.668 af
<b>Subcatchment30S: Prop Constructed</b>	Runoff Area=32,801 sf 0.00% Impervious Runoff Depth=4.13" Flow Length=115' Slope=0.0180 '/' Tc=9.7 min CN=65 Runoff=3.48 cfs 0.259 af
<b>Subcatchment33S: Prop Pond Undetained</b>	Runoff Area=27,700 sf 0.00% Impervious Runoff Depth=4.95" Flow Length=1,060' Tc=27.6 min CN=72 Runoff=2.27 cfs 0.262 af
<b>Pond 10P: Basin A</b>	Peak Elev=85.10' Storage=9,895 cf Inflow=14.36 cfs 1.262 af Outflow=11.55 cfs 1.194 af
<b>Pond 13P: Basin B</b>	Peak Elev=83.47' Storage=5,854 cf Inflow=11.48 cfs 0.845 af Outflow=10.43 cfs 0.749 af
<b>Pond 26P: Porous Pavement D</b>	Peak Elev=85.89' Storage=37,978 cf Inflow=20.74 cfs 1.438 af Outflow=2.33 cfs 1.323 af
<b>Pond 27P: Prop Standard Constructed</b>	Peak Elev=82.34' Storage=126,986 cf Inflow=76.05 cfs 7.724 af Outflow=28.31 cfs 7.714 af

**Prop 2, 10 & 100yr**

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Link 17L: Prop MTD C - bypass

Inflow=20.73 cfs 1.532 af  
Primary=20.73 cfs 1.532 af

Link 28L: Prop South Total

Inflow=31.18 cfs 8.046 af  
Primary=31.18 cfs 8.046 af

Link 34L: Prop Total

Inflow=33.45 cfs 8.308 af  
Primary=33.45 cfs 8.308 af

**Total Runoff Area = 14.738 ac Runoff Volume = 8.598 af Average Runoff Depth = 7.00"**  
**31.77% Pervious = 4.682 ac 68.23% Impervious = 10.056 ac**

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 1S: Prop Basin A (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt  
[47] Hint: Peak is 128% of capacity of segment #2

Runoff = 6.32 cfs @ 12.09 hrs, Volume= 0.448 af, Depth= 8.05"  
Routed to Pond 10P : Basin A

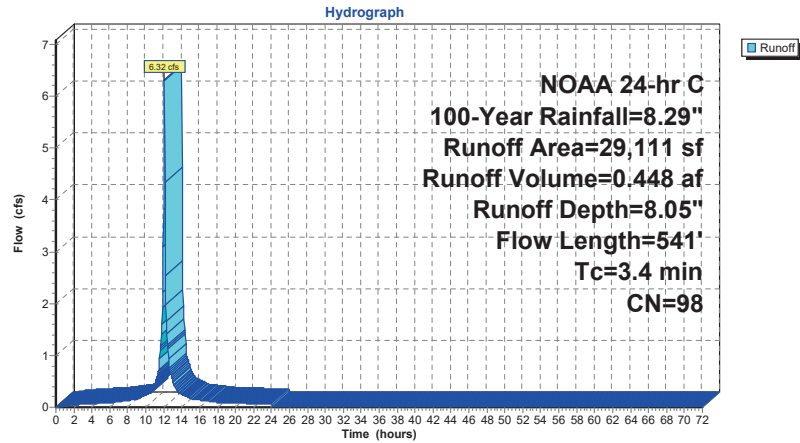
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
29,111	98	Imp
29,111		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	365	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	76	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.4	541	Total			

Subcatchment 1S: Prop Basin A (Imp)



Hydrograph for Subcatchment 1S: Prop Basin A (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	8.05	0.00
1.00	0.09	0.01	0.02	53.00	8.29	8.05	0.00
2.00	0.19	0.06	0.04	54.00	8.29	8.05	0.00
3.00	0.29	0.14	0.06	55.00	8.29	8.05	0.00
4.00	0.41	0.23	0.07	56.00	8.29	8.05	0.00
5.00	0.53	0.34	0.08	57.00	8.29	8.05	0.00
6.00	0.66	0.46	0.08	58.00	8.29	8.05	0.00
7.00	0.81	0.61	0.11	59.00	8.29	8.05	0.00
8.00	0.99	0.78	0.13	60.00	8.29	8.05	0.00
9.00	1.21	1.00	0.15	61.00	8.29	8.05	0.00
10.00	1.51	1.29	0.24	62.00	8.29	8.05	0.00
11.00	1.99	1.76	0.44	63.00	8.29	8.05	0.00
12.00	3.95	3.72	<b>3.82</b>	64.00	8.29	8.05	0.00
13.00	6.30	6.06	<b>0.51</b>	65.00	8.29	8.05	0.00
14.00	6.78	6.54	0.25	66.00	8.29	8.05	0.00
15.00	7.08	6.84	0.17	67.00	8.29	8.05	0.00
16.00	7.30	7.06	0.14	68.00	8.29	8.05	0.00
17.00	7.48	7.24	0.11	69.00	8.29	8.05	0.00
18.00	7.63	7.39	0.09	70.00	8.29	8.05	0.00
19.00	7.76	7.52	0.08	71.00	8.29	8.05	0.00
20.00	7.88	7.64	0.08	72.00	8.29	8.05	0.00
21.00	8.00	7.76	0.07				
22.00	8.10	7.86	0.07				
23.00	8.20	7.96	0.06				
24.00	<b>8.29</b>	<b>8.05</b>	0.07				
25.00	8.29	8.05	0.00				
26.00	8.29	8.05	0.00				
27.00	8.29	8.05	0.00				
28.00	8.29	8.05	0.00				
29.00	8.29	8.05	0.00				
30.00	8.29	8.05	0.00				
31.00	8.29	8.05	0.00				
32.00	8.29	8.05	0.00				
33.00	8.29	8.05	0.00				
34.00	8.29	8.05	0.00				
35.00	8.29	8.05	0.00				
36.00	8.29	8.05	0.00				
37.00	8.29	8.05	0.00				
38.00	8.29	8.05	0.00				
39.00	8.29	8.05	0.00				
40.00	8.29	8.05	0.00				
41.00	8.29	8.05	0.00				
42.00	8.29	8.05	0.00				
43.00	8.29	8.05	0.00				
44.00	8.29	8.05	0.00				
45.00	8.29	8.05	0.00				
46.00	8.29	8.05	0.00				
47.00	8.29	8.05	0.00				
48.00	8.29	8.05	0.00				
49.00	8.29	8.05	0.00				
50.00	8.29	8.05	0.00				
51.00	8.29	8.05	0.00				

**Summary for Subcatchment 2S: Prop Basin A (Perv)**

Sheet Flow = (100 X Sq root (0.033))/0.24 = 76'

Runoff = 10.43 cfs @ 12.19 hrs, Volume= 0.814 af, Depth= 5.19"  
 Routed to Pond 10P : Basin A

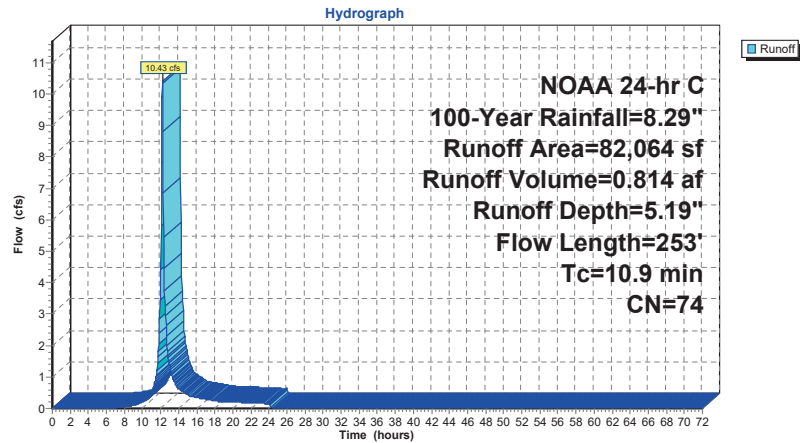
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
81,664	74	>75% Grass cover, Good, HSG C
400	61	>75% Grass cover, Good, HSG B
82,064	74	Weighted Average
82,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	76	0.0330	0.14		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
1.7	177	0.0120	1.76		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps

10.9 253 Total

**Subcatchment 2S: Prop Basin A (Perv)**



**Hydrograph for Subcatchment 2S: Prop Basin A (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	5.19	0.00
1.00	0.09	0.00	0.00	53.00	8.29	5.19	0.00
2.00	0.19	0.00	0.00	54.00	8.29	5.19	0.00
3.00	0.29	0.00	0.00	55.00	8.29	5.19	0.00
4.00	0.41	0.00	0.00	56.00	8.29	5.19	0.00
5.00	0.53	0.00	0.00	57.00	8.29	5.19	0.00
6.00	0.66	0.00	0.00	58.00	8.29	5.19	0.00
7.00	0.81	0.00	0.01	59.00	8.29	5.19	0.00
8.00	0.99	0.02	0.05	60.00	8.29	5.19	0.00
9.00	1.21	0.06	0.10	61.00	8.29	5.19	0.00
10.00	1.51	0.15	0.21	62.00	8.29	5.19	0.00
11.00	1.99	0.34	0.50	63.00	8.29	5.19	0.00
12.00	3.95	1.56	4.41	64.00	8.29	5.19	0.00
13.00	6.30	3.44	1.37	65.00	8.29	5.19	0.00
14.00	6.78	3.85	0.63	66.00	8.29	5.19	0.00
15.00	7.08	4.11	0.43	67.00	8.29	5.19	0.00
16.00	7.30	4.30	0.34	68.00	8.29	5.19	0.00
17.00	7.48	4.46	0.29	69.00	8.29	5.19	0.00
18.00	7.63	4.60	0.24	70.00	8.29	5.19	0.00
19.00	7.76	4.71	0.21	71.00	8.29	5.19	0.00
20.00	7.88	4.82	0.20	72.00	8.29	5.19	0.00
21.00	8.00	4.92	0.19				
22.00	8.10	5.02	0.17				
23.00	8.20	5.10	0.16				
24.00	8.29	5.19	0.15				
25.00	8.29	5.19	0.00				
26.00	8.29	5.19	0.00				
27.00	8.29	5.19	0.00				
28.00	8.29	5.19	0.00				
29.00	8.29	5.19	0.00				
30.00	8.29	5.19	0.00				
31.00	8.29	5.19	0.00				
32.00	8.29	5.19	0.00				
33.00	8.29	5.19	0.00				
34.00	8.29	5.19	0.00				
35.00	8.29	5.19	0.00				
36.00	8.29	5.19	0.00				
37.00	8.29	5.19	0.00				
38.00	8.29	5.19	0.00				
39.00	8.29	5.19	0.00				
40.00	8.29	5.19	0.00				
41.00	8.29	5.19	0.00				
42.00	8.29	5.19	0.00				
43.00	8.29	5.19	0.00				
44.00	8.29	5.19	0.00				
45.00	8.29	5.19	0.00				
46.00	8.29	5.19	0.00				
47.00	8.29	5.19	0.00				
48.00	8.29	5.19	0.00				
49.00	8.29	5.19	0.00				
50.00	8.29	5.19	0.00				
51.00	8.29	5.19	0.00				



**Summary for Subcatchment 11S: Prop Basin B (Imp)**

Sheet Flow =  $(100 \times \text{Sq root}(0.01)) / 0.011 = 909'$  (Use 100')

[49] Hint:  $T_c < 2dt$  may require smaller dt  
 [47] Hint: Peak is 313% of capacity of segment #2

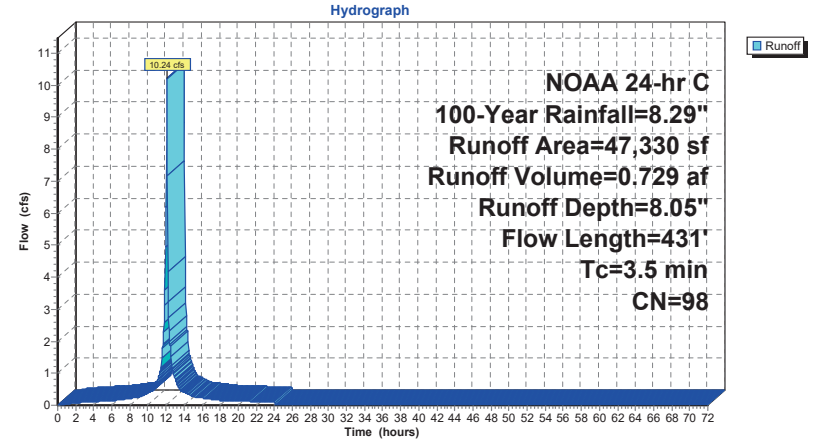
Runoff = 10.24 cfs @ 12.09 hrs, Volume= 0.729 af, Depth= 8.05"  
 Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
47,330	98	Imp
47,330		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	227	0.0025	2.46	3.28	<b>Pipe Channel, Channel Flow</b> 24.0" x 8.0" Box Area= 1.3 sf Perim= 5.3' r= 0.25' n= 0.012 Concrete pipe, finished
0.4	104	0.0025	3.86	12.65	<b>Pipe Channel, RCP_Elliptical 30x19</b> 30.0" x 19.0", R=33.5" Elliptical Area= 3.3 sf Perim= 6.7' r= 0.49' n= 0.012 Concrete pipe, finished
3.5	431	Total			

**Subcatchment 11S: Prop Basin B (Imp)**



**Prop 2, 10 & 100yr**

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**Hydrograph for Subcatchment 11S: Prop Basin B (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	8.05	0.00
1.00	0.09	0.01	0.03	53.00	8.29	8.05	0.00
2.00	0.19	0.06	0.07	54.00	8.29	8.05	0.00
3.00	0.29	0.14	0.09	55.00	8.29	8.05	0.00
4.00	0.41	0.23	0.11	56.00	8.29	8.05	0.00
5.00	0.53	0.34	0.12	57.00	8.29	8.05	0.00
6.00	0.66	0.46	0.14	58.00	8.29	8.05	0.00
7.00	0.81	0.61	0.17	59.00	8.29	8.05	0.00
8.00	0.99	0.78	0.21	60.00	8.29	8.05	0.00
9.00	1.21	1.00	0.25	61.00	8.29	8.05	0.00
10.00	1.51	1.29	0.38	62.00	8.29	8.05	0.00
11.00	1.99	1.76	0.71	63.00	8.29	8.05	0.00
12.00	3.95	3.72	<b>6.18</b>	64.00	8.29	8.05	0.00
13.00	6.30	6.06	<b>8.82</b>	65.00	8.29	8.05	0.00
14.00	6.78	6.54	0.40	66.00	8.29	8.05	0.00
15.00	7.08	6.84	0.27	67.00	8.29	8.05	0.00
16.00	7.30	7.06	0.22	68.00	8.29	8.05	0.00
17.00	7.48	7.24	0.19	69.00	8.29	8.05	0.00
18.00	7.63	7.39	0.15	70.00	8.29	8.05	0.00
19.00	7.76	7.52	0.14	71.00	8.29	8.05	0.00
20.00	7.88	7.64	0.13	72.00	8.29	8.05	0.00
21.00	8.00	7.76	0.12				
22.00	8.10	7.86	0.11				
23.00	8.20	7.96	0.10				
24.00	<b>8.29</b>	<b>8.05</b>	0.11				
25.00	8.29	8.05	0.00				
26.00	8.29	8.05	0.00				
27.00	8.29	8.05	0.00				
28.00	8.29	8.05	0.00				
29.00	8.29	8.05	0.00				
30.00	8.29	8.05	0.00				
31.00	8.29	8.05	0.00				
32.00	8.29	8.05	0.00				
33.00	8.29	8.05	0.00				
34.00	8.29	8.05	0.00				
35.00	8.29	8.05	0.00				
36.00	8.29	8.05	0.00				
37.00	8.29	8.05	0.00				
38.00	8.29	8.05	0.00				
39.00	8.29	8.05	0.00				
40.00	8.29	8.05	0.00				
41.00	8.29	8.05	0.00				
42.00	8.29	8.05	0.00				
43.00	8.29	8.05	0.00				
44.00	8.29	8.05	0.00				
45.00	8.29	8.05	0.00				
46.00	8.29	8.05	0.00				
47.00	8.29	8.05	0.00				
48.00	8.29	8.05	0.00				
49.00	8.29	8.05	0.00				
50.00	8.29	8.05	0.00				
51.00	8.29	8.05	0.00				

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**Summary for Subcatchment 12S: Prop Basin B (Perv)**

Sheet Flow = (100 X Sq root (0.043))/0.24 = 86'

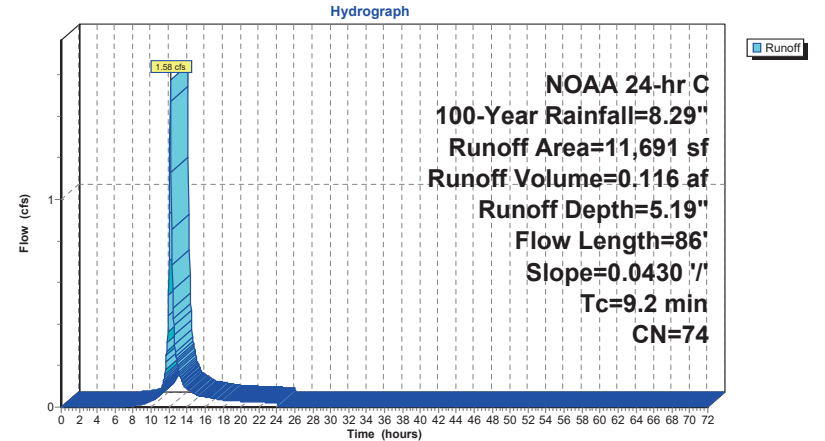
Runoff = 1.58 cfs @ 12.16 hrs, Volume= 0.116 af, Depth= 5.19"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
11,691	74	>75% Grass cover, Good, HSG C
11,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 12S: Prop Basin B (Perv)**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 12S: Prop Basin B (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.09	0.00	0.00
2.00	0.19	0.00	0.00
3.00	0.29	0.00	0.00
4.00	0.41	0.00	0.00
5.00	0.53	0.00	0.00
6.00	0.66	0.00	0.00
7.00	0.81	0.00	0.00
8.00	0.99	0.02	0.01
9.00	1.21	0.06	0.01
10.00	1.51	0.15	0.03
11.00	1.99	0.34	0.07
12.00	3.95	1.56	<b>0.70</b>
13.00	6.30	3.44	<b>0.19</b>
14.00	6.78	3.85	0.09
15.00	7.08	4.11	0.06
16.00	7.30	4.30	0.05
17.00	7.48	4.46	0.04
18.00	7.63	4.60	0.03
19.00	7.76	4.71	0.03
20.00	7.88	4.82	0.03
21.00	8.00	4.92	0.03
22.00	8.10	5.02	0.02
23.00	8.20	5.10	0.02
24.00	<b>8.29</b>	<b>5.19</b>	0.02
25.00	8.29	5.19	0.00
26.00	8.29	5.19	0.00
27.00	8.29	5.19	0.00
28.00	8.29	5.19	0.00
29.00	8.29	5.19	0.00
30.00	8.29	5.19	0.00
31.00	8.29	5.19	0.00
32.00	8.29	5.19	0.00
33.00	8.29	5.19	0.00
34.00	8.29	5.19	0.00
35.00	8.29	5.19	0.00
36.00	8.29	5.19	0.00
37.00	8.29	5.19	0.00
38.00	8.29	5.19	0.00
39.00	8.29	5.19	0.00
40.00	8.29	5.19	0.00
41.00	8.29	5.19	0.00
42.00	8.29	5.19	0.00
43.00	8.29	5.19	0.00
44.00	8.29	5.19	0.00
45.00	8.29	5.19	0.00
46.00	8.29	5.19	0.00
47.00	8.29	5.19	0.00
48.00	8.29	5.19	0.00
49.00	8.29	5.19	0.00
50.00	8.29	5.19	0.00
51.00	8.29	5.19	0.00

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 21S: Prop MTD C (Imp)**

Sheet Flow = (100 X Sq root (0.015))/0.011 = 1,113' (Use 100')

- [49] Hint: Tc<2dt may require smaller dt
- [47] Hint: Peak is 216% of capacity of segment #3
- [47] Hint: Peak is 152% of capacity of segment #4

Runoff = 20.35 cfs @ 12.10 hrs, Volume= 1.497 af, Depth= 8.05"  
Routed to Link 17L : Prop MTD C - bypass

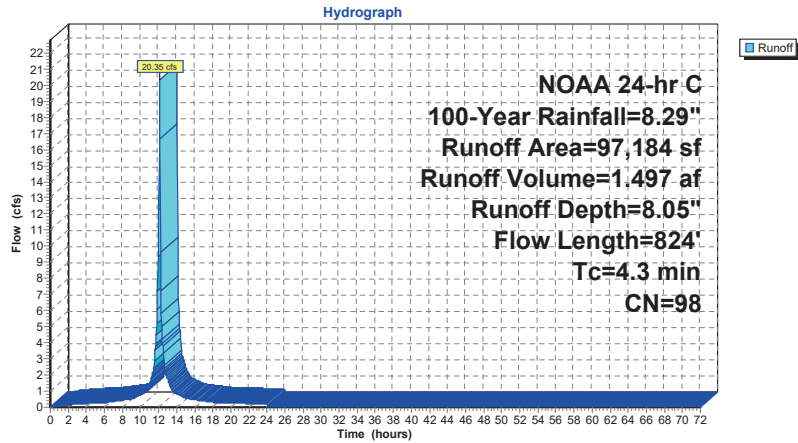
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
* 97,184	98	Imp
97,184		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.6	75	0.0120	2.22		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.5	108	0.0030	3.91	9.40	<b>Pipe Channel, Channel Flow</b> 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.012 Concrete pipe, finished
0.4	108	0.0030	4.27	13.42	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.5	433	0.0030	4.96	24.34	<b>Pipe Channel, Channel Flow</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.3	824	Total			

Subcatchment 21S: Prop MTD C (Imp)



Hydrograph for Subcatchment 21S: Prop MTD C (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	8.05	0.00
1.00	0.09	0.01	0.07	53.00	8.29	8.05	0.00
2.00	0.19	0.06	0.15	54.00	8.29	8.05	0.00
3.00	0.29	0.14	0.19	55.00	8.29	8.05	0.00
4.00	0.41	0.23	0.23	56.00	8.29	8.05	0.00
5.00	0.53	0.34	0.26	57.00	8.29	8.05	0.00
6.00	0.66	0.46	0.28	58.00	8.29	8.05	0.00
7.00	0.81	0.61	0.36	59.00	8.29	8.05	0.00
8.00	0.99	0.78	0.43	60.00	8.29	8.05	0.00
9.00	1.21	1.00	0.51	61.00	8.29	8.05	0.00
10.00	1.51	1.29	0.79	62.00	8.29	8.05	0.00
11.00	1.99	1.76	1.45	63.00	8.29	8.05	0.00
12.00	3.95	3.72	12.22	64.00	8.29	8.05	0.00
13.00	6.30	6.06	1.71	65.00	8.29	8.05	0.00
14.00	6.78	6.54	0.83	66.00	8.29	8.05	0.00
15.00	7.08	6.84	0.55	67.00	8.29	8.05	0.00
16.00	7.30	7.06	0.46	68.00	8.29	8.05	0.00
17.00	7.48	7.24	0.38	69.00	8.29	8.05	0.00
18.00	7.63	7.39	0.31	70.00	8.29	8.05	0.00
19.00	7.76	7.52	0.28	71.00	8.29	8.05	0.00
20.00	7.88	7.64	0.26	72.00	8.29	8.05	0.00
21.00	8.00	7.76	0.25				
22.00	8.10	7.86	0.23				
23.00	8.20	7.96	0.21				
24.00	8.29	8.05	0.23				
25.00	8.29	8.05	0.00				
26.00	8.29	8.05	0.00				
27.00	8.29	8.05	0.00				
28.00	8.29	8.05	0.00				
29.00	8.29	8.05	0.00				
30.00	8.29	8.05	0.00				
31.00	8.29	8.05	0.00				
32.00	8.29	8.05	0.00				
33.00	8.29	8.05	0.00				
34.00	8.29	8.05	0.00				
35.00	8.29	8.05	0.00				
36.00	8.29	8.05	0.00				
37.00	8.29	8.05	0.00				
38.00	8.29	8.05	0.00				
39.00	8.29	8.05	0.00				
40.00	8.29	8.05	0.00				
41.00	8.29	8.05	0.00				
42.00	8.29	8.05	0.00				
43.00	8.29	8.05	0.00				
44.00	8.29	8.05	0.00				
45.00	8.29	8.05	0.00				
46.00	8.29	8.05	0.00				
47.00	8.29	8.05	0.00				
48.00	8.29	8.05	0.00				
49.00	8.29	8.05	0.00				
50.00	8.29	8.05	0.00				
51.00	8.29	8.05	0.00				

**Summary for Subcatchment 22S: Prop MTD C (Perv)**

Sheet Flow = (100 X Sq root (0.043))/0.24 = 86'

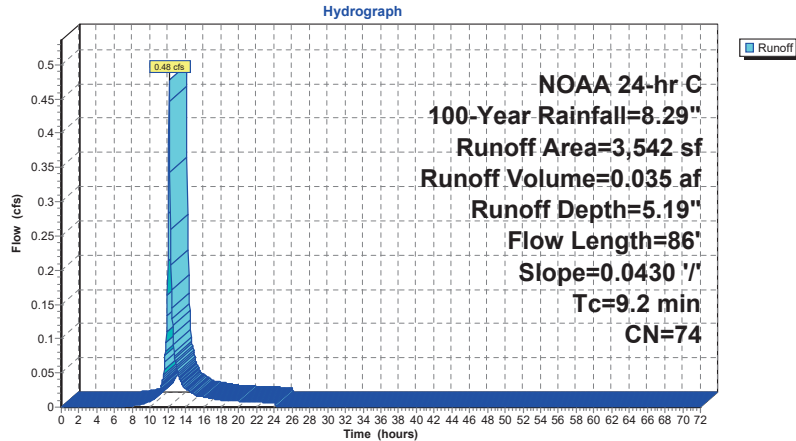
Runoff = 0.48 cfs @ 12.16 hrs, Volume= 0.035 af, Depth= 5.19"  
 Routed to Link 17L : Prop MTD C - bypass

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
3,542	74	>75% Grass cover, Good, HSG C
3,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 22S: Prop MTD C (Perv)**



**Hydrograph for Subcatchment 22S: Prop MTD C (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	5.19	0.00
1.00	0.09	0.00	0.00	53.00	8.29	5.19	0.00
2.00	0.19	0.00	0.00	54.00	8.29	5.19	0.00
3.00	0.29	0.00	0.00	55.00	8.29	5.19	0.00
4.00	0.41	0.00	0.00	56.00	8.29	5.19	0.00
5.00	0.53	0.00	0.00	57.00	8.29	5.19	0.00
6.00	0.66	0.00	0.00	58.00	8.29	5.19	0.00
7.00	0.81	0.00	0.00	59.00	8.29	5.19	0.00
8.00	0.99	0.02	0.00	60.00	8.29	5.19	0.00
9.00	1.21	0.06	0.00	61.00	8.29	5.19	0.00
10.00	1.51	0.15	0.01	62.00	8.29	5.19	0.00
11.00	1.99	0.34	0.02	63.00	8.29	5.19	0.00
12.00	3.95	1.56	0.21	64.00	8.29	5.19	0.00
13.00	6.30	3.44	0.06	65.00	8.29	5.19	0.00
14.00	6.78	3.85	0.03	66.00	8.29	5.19	0.00
15.00	7.08	4.11	0.02	67.00	8.29	5.19	0.00
16.00	7.30	4.30	0.01	68.00	8.29	5.19	0.00
17.00	7.48	4.46	0.01	69.00	8.29	5.19	0.00
18.00	7.63	4.60	0.01	70.00	8.29	5.19	0.00
19.00	7.76	4.71	0.01	71.00	8.29	5.19	0.00
20.00	7.88	4.82	0.01	72.00	8.29	5.19	0.00
21.00	8.00	4.92	0.01				
22.00	8.10	5.02	0.01				
23.00	8.20	5.10	0.01				
24.00	8.29	5.19	0.01				
25.00	8.29	5.19	0.00				
26.00	8.29	5.19	0.00				
27.00	8.29	5.19	0.00				
28.00	8.29	5.19	0.00				
29.00	8.29	5.19	0.00				
30.00	8.29	5.19	0.00				
31.00	8.29	5.19	0.00				
32.00	8.29	5.19	0.00				
33.00	8.29	5.19	0.00				
34.00	8.29	5.19	0.00				
35.00	8.29	5.19	0.00				
36.00	8.29	5.19	0.00				
37.00	8.29	5.19	0.00				
38.00	8.29	5.19	0.00				
39.00	8.29	5.19	0.00				
40.00	8.29	5.19	0.00				
41.00	8.29	5.19	0.00				
42.00	8.29	5.19	0.00				
43.00	8.29	5.19	0.00				
44.00	8.29	5.19	0.00				
45.00	8.29	5.19	0.00				
46.00	8.29	5.19	0.00				
47.00	8.29	5.19	0.00				
48.00	8.29	5.19	0.00				
49.00	8.29	5.19	0.00				
50.00	8.29	5.19	0.00				
51.00	8.29	5.19	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 23S: Prop South Undetained (Total)**

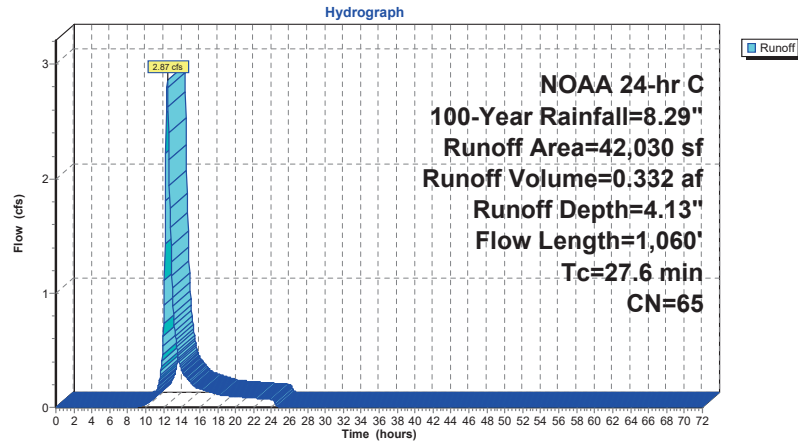
Runoff = 2.87 cfs @ 12.40 hrs, Volume= 0.332 af, Depth= 4.13"  
Routed to Link 28L : Prop South Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
29,825	61	>75% Grass cover, Good, HSG B
12,205	74	>75% Grass cover, Good, HSG C
42,030	65	Weighted Average
42,030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 23S: Prop South Undetained (Total)**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 23S: Prop South Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	4.13	0.00
1.00	0.09	0.00	0.00	53.00	8.29	4.13	0.00
2.00	0.19	0.00	0.00	54.00	8.29	4.13	0.00
3.00	0.29	0.00	0.00	55.00	8.29	4.13	0.00
4.00	0.41	0.00	0.00	56.00	8.29	4.13	0.00
5.00	0.53	0.00	0.00	57.00	8.29	4.13	0.00
6.00	0.66	0.00	0.00	58.00	8.29	4.13	0.00
7.00	0.81	0.00	0.00	59.00	8.29	4.13	0.00
8.00	0.99	0.00	0.00	60.00	8.29	4.13	0.00
9.00	1.21	0.00	0.00	61.00	8.29	4.13	0.00
10.00	1.51	0.03	0.03	62.00	8.29	4.13	0.00
11.00	1.99	0.13	0.10	63.00	8.29	4.13	0.00
12.00	3.95	1.00	0.73	64.00	8.29	4.13	0.00
13.00	6.30	2.57	0.96	65.00	8.29	4.13	0.00
14.00	6.78	2.93	0.32	66.00	8.29	4.13	0.00
15.00	7.08	3.16	0.22	67.00	8.29	4.13	0.00
16.00	7.30	3.33	0.16	68.00	8.29	4.13	0.00
17.00	7.48	3.48	0.14	69.00	8.29	4.13	0.00
18.00	7.63	3.60	0.12	70.00	8.29	4.13	0.00
19.00	7.76	3.70	0.10	71.00	8.29	4.13	0.00
20.00	7.88	3.80	0.09	72.00	8.29	4.13	0.00
21.00	8.00	3.89	0.09				
22.00	8.10	3.98	0.08				
23.00	8.20	4.06	0.08				
24.00	8.29	4.13	0.07				
25.00	8.29	4.13	0.00				
26.00	8.29	4.13	0.00				
27.00	8.29	4.13	0.00				
28.00	8.29	4.13	0.00				
29.00	8.29	4.13	0.00				
30.00	8.29	4.13	0.00				
31.00	8.29	4.13	0.00				
32.00	8.29	4.13	0.00				
33.00	8.29	4.13	0.00				
34.00	8.29	4.13	0.00				
35.00	8.29	4.13	0.00				
36.00	8.29	4.13	0.00				
37.00	8.29	4.13	0.00				
38.00	8.29	4.13	0.00				
39.00	8.29	4.13	0.00				
40.00	8.29	4.13	0.00				
41.00	8.29	4.13	0.00				
42.00	8.29	4.13	0.00				
43.00	8.29	4.13	0.00				
44.00	8.29	4.13	0.00				
45.00	8.29	4.13	0.00				
46.00	8.29	4.13	0.00				
47.00	8.29	4.13	0.00				
48.00	8.29	4.13	0.00				
49.00	8.29	4.13	0.00				
50.00	8.29	4.13	0.00				
51.00	8.29	4.13	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 24S: Prop PP D (Imp)**

Sheet Flow =  $(100 \times \text{Sq root}(0.01)) / 0.011 = 909'$  (Use 100')

[49] Hint:  $T_c < 2dt$  may require smaller dt  
[47] Hint: Peak is 413% of capacity of segment #3

Runoff = 20.41 cfs @ 12.08 hrs, Volume= 1.405 af, Depth= 8.05"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
* 65,300	98	Roofs
* 25,903	98	Imp
91,203	98	Weighted Average
91,203		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.9	110	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.1	19	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.6	229	Total			

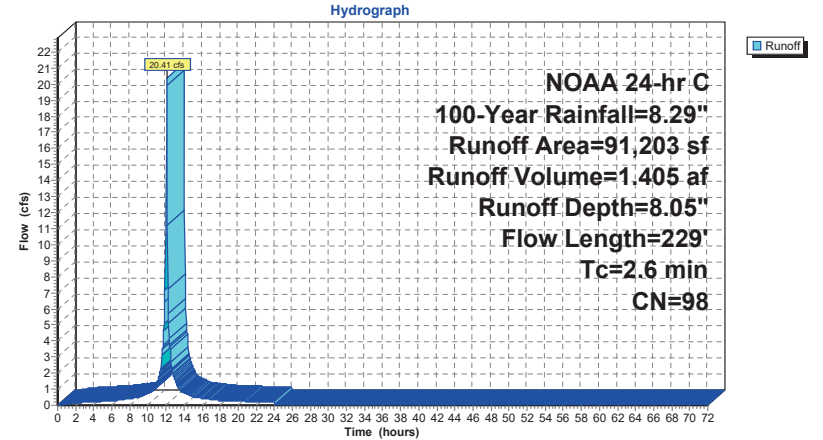
**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Subcatchment 24S: Prop PP D (Imp)**



**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 24S: Prop PP D (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	8.05	0.00
1.00	0.09	0.01	0.06	53.00	8.29	8.05	0.00
2.00	0.19	0.06	0.14	54.00	8.29	8.05	0.00
3.00	0.29	0.14	0.18	55.00	8.29	8.05	0.00
4.00	0.41	0.23	0.21	56.00	8.29	8.05	0.00
5.00	0.53	0.34	0.24	57.00	8.29	8.05	0.00
6.00	0.66	0.46	0.26	58.00	8.29	8.05	0.00
7.00	0.81	0.61	0.34	59.00	8.29	8.05	0.00
8.00	0.99	0.78	0.41	60.00	8.29	8.05	0.00
9.00	1.21	1.00	0.48	61.00	8.29	8.05	0.00
10.00	1.51	1.29	0.74	62.00	8.29	8.05	0.00
11.00	1.99	1.76	1.38	63.00	8.29	8.05	0.00
12.00	3.95	3.72	<b>12.31</b>	64.00	8.29	8.05	0.00
13.00	6.30	6.06	<b>1.57</b>	65.00	8.29	8.05	0.00
14.00	6.78	6.54	0.78	66.00	8.29	8.05	0.00
15.00	7.08	6.84	0.52	67.00	8.29	8.05	0.00
16.00	7.30	7.06	0.43	68.00	8.29	8.05	0.00
17.00	7.48	7.24	0.36	69.00	8.29	8.05	0.00
18.00	7.63	7.39	0.29	70.00	8.29	8.05	0.00
19.00	7.76	7.52	0.27	71.00	8.29	8.05	0.00
20.00	7.88	7.64	0.25	72.00	8.29	8.05	0.00
21.00	8.00	7.76	0.23				
22.00	8.10	7.86	0.21				
23.00	8.20	7.96	0.20				
24.00	<b>8.29</b>	<b>8.05</b>	0.22				
25.00	8.29	8.05	0.00				
26.00	8.29	8.05	0.00				
27.00	8.29	8.05	0.00				
28.00	8.29	8.05	0.00				
29.00	8.29	8.05	0.00				
30.00	8.29	8.05	0.00				
31.00	8.29	8.05	0.00				
32.00	8.29	8.05	0.00				
33.00	8.29	8.05	0.00				
34.00	8.29	8.05	0.00				
35.00	8.29	8.05	0.00				
36.00	8.29	8.05	0.00				
37.00	8.29	8.05	0.00				
38.00	8.29	8.05	0.00				
39.00	8.29	8.05	0.00				
40.00	8.29	8.05	0.00				
41.00	8.29	8.05	0.00				
42.00	8.29	8.05	0.00				
43.00	8.29	8.05	0.00				
44.00	8.29	8.05	0.00				
45.00	8.29	8.05	0.00				
46.00	8.29	8.05	0.00				
47.00	8.29	8.05	0.00				
48.00	8.29	8.05	0.00				
49.00	8.29	8.05	0.00				
50.00	8.29	8.05	0.00				
51.00	8.29	8.05	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 25S: Prop PP D (Perv)**

Sheet Flow = (100 X Sq root (0.01))/0.24 = 42'

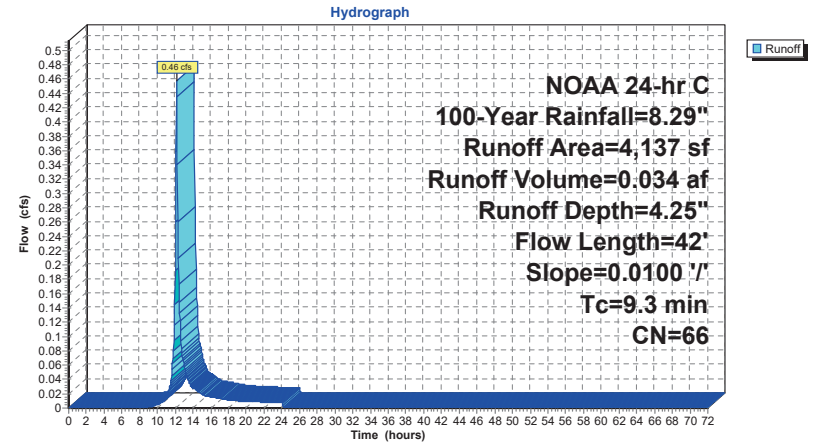
Runoff = 0.46 cfs @ 12.17 hrs, Volume= 0.034 af, Depth= 4.25"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
2,432	61	>75% Grass cover, Good, HSG B
1,705	74	>75% Grass cover, Good, HSG C
4,137	66	Weighted Average
4,137		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	42	0.0100	0.08		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"

**Subcatchment 25S: Prop PP D (Perv)**





**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Hydrograph for Subcatchment 25S: Prop PP D (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	4.25	0.00
1.00	0.09	0.00	0.00	53.00	8.29	4.25	0.00
2.00	0.19	0.00	0.00	54.00	8.29	4.25	0.00
3.00	0.29	0.00	0.00	55.00	8.29	4.25	0.00
4.00	0.41	0.00	0.00	56.00	8.29	4.25	0.00
5.00	0.53	0.00	0.00	57.00	8.29	4.25	0.00
6.00	0.66	0.00	0.00	58.00	8.29	4.25	0.00
7.00	0.81	0.00	0.00	59.00	8.29	4.25	0.00
8.00	0.99	0.00	0.00	60.00	8.29	4.25	0.00
9.00	1.21	0.01	0.00	61.00	8.29	4.25	0.00
10.00	1.51	0.04	0.00	62.00	8.29	4.25	0.00
11.00	1.99	0.15	0.02	63.00	8.29	4.25	0.00
12.00	3.95	1.06	<b>0.19</b>	64.00	8.29	4.25	0.00
13.00	6.30	2.67	<b>0.06</b>	65.00	8.29	4.25	0.00
14.00	6.78	3.03	0.03	66.00	8.29	4.25	0.00
15.00	7.08	3.27	0.02	67.00	8.29	4.25	0.00
16.00	7.30	3.44	0.02	68.00	8.29	4.25	0.00
17.00	7.48	3.59	0.01	69.00	8.29	4.25	0.00
18.00	7.63	3.71	0.01	70.00	8.29	4.25	0.00
19.00	7.76	3.81	0.01	71.00	8.29	4.25	0.00
20.00	7.88	3.91	0.01	72.00	8.29	4.25	0.00
21.00	8.00	4.01	0.01				
22.00	8.10	4.09	0.01				
23.00	8.20	4.17	0.01				
24.00	<b>8.29</b>	<b>4.25</b>	0.01				
25.00	8.29	4.25	0.00				
26.00	8.29	4.25	0.00				
27.00	8.29	4.25	0.00				
28.00	8.29	4.25	0.00				
29.00	8.29	4.25	0.00				
30.00	8.29	4.25	0.00				
31.00	8.29	4.25	0.00				
32.00	8.29	4.25	0.00				
33.00	8.29	4.25	0.00				
34.00	8.29	4.25	0.00				
35.00	8.29	4.25	0.00				
36.00	8.29	4.25	0.00				
37.00	8.29	4.25	0.00				
38.00	8.29	4.25	0.00				
39.00	8.29	4.25	0.00				
40.00	8.29	4.25	0.00				
41.00	8.29	4.25	0.00				
42.00	8.29	4.25	0.00				
43.00	8.29	4.25	0.00				
44.00	8.29	4.25	0.00				
45.00	8.29	4.25	0.00				
46.00	8.29	4.25	0.00				
47.00	8.29	4.25	0.00				
48.00	8.29	4.25	0.00				
49.00	8.29	4.25	0.00				
50.00	8.29	4.25	0.00				
51.00	8.29	4.25	0.00				

**Prop 2, 10 & 100yr**

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Subcatchment 29S: Prop Constructed Wetland E (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

- [47] Hint: Peak is 675% of capacity of segment #2
- [47] Hint: Peak is 415% of capacity of segment #3
- [47] Hint: Peak is 294% of capacity of segment #4
- [47] Hint: Peak is 193% of capacity of segment #5

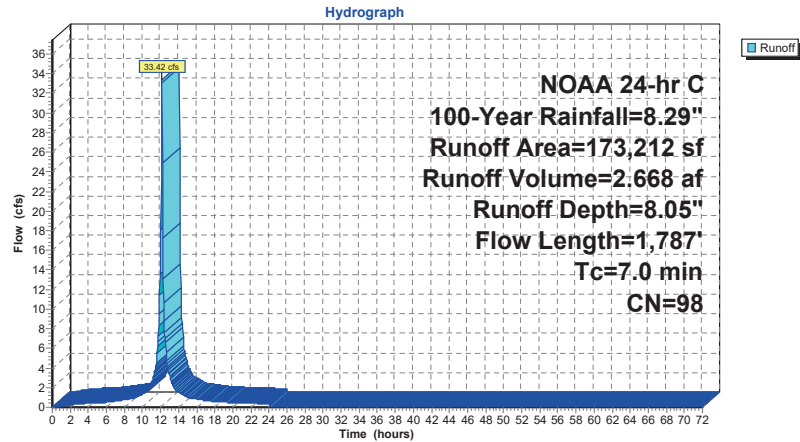
Runoff = 33.42 cfs @ 12.14 hrs, Volume= 2.668 af, Depth= 8.05"  
Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
*	17,219	98 Paved Driveway (Emergency Only)
*	149,804	98 Roofs
*	6,189	98 Wetland Pool
<hr/>		
173,212	98	Weighted Average
173,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
2.2	533	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.6	177	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.6	218	0.0100	6.44	11.38	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	104	0.0050	5.52	17.33	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.7	655	0.0040	6.47	45.70	<b>Pipe Channel, Channel Flow</b> 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.012 Concrete pipe, finished
<hr/>					
7.0	1,787	Total			

Subcatchment 29S: Prop Constucted Wetland E (Imp)



Hydrograph for Subcatchment 29S: Prop Constucted Wetland E (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	8.05	0.00
1.00	0.09	0.01	0.11	53.00	8.29	8.05	0.00
2.00	0.19	0.06	0.26	54.00	8.29	8.05	0.00
3.00	0.29	0.14	0.34	55.00	8.29	8.05	0.00
4.00	0.41	0.23	0.40	56.00	8.29	8.05	0.00
5.00	0.53	0.34	0.45	57.00	8.29	8.05	0.00
6.00	0.66	0.46	0.50	58.00	8.29	8.05	0.00
7.00	0.81	0.61	0.63	59.00	8.29	8.05	0.00
8.00	0.99	0.78	0.77	60.00	8.29	8.05	0.00
9.00	1.21	1.00	0.90	61.00	8.29	8.05	0.00
10.00	1.51	1.29	1.38	62.00	8.29	8.05	0.00
11.00	1.99	1.76	2.50	63.00	8.29	8.05	0.00
12.00	3.95	3.72	18.10	64.00	8.29	8.05	0.00
13.00	6.30	6.06	3.19	65.00	8.29	8.05	0.00
14.00	6.78	6.54	1.51	66.00	8.29	8.05	0.00
15.00	7.08	6.84	1.01	67.00	8.29	8.05	0.00
16.00	7.30	7.06	0.82	68.00	8.29	8.05	0.00
17.00	7.48	7.24	0.69	69.00	8.29	8.05	0.00
18.00	7.63	7.39	0.56	70.00	8.29	8.05	0.00
19.00	7.76	7.52	0.51	71.00	8.29	8.05	0.00
20.00	7.88	7.64	0.47	72.00	8.29	8.05	0.00
21.00	8.00	7.76	0.44				
22.00	8.10	7.86	0.41				
23.00	8.20	7.96	0.38				
24.00	8.29	8.05	0.38				
25.00	8.29	8.05	0.00				
26.00	8.29	8.05	0.00				
27.00	8.29	8.05	0.00				
28.00	8.29	8.05	0.00				
29.00	8.29	8.05	0.00				
30.00	8.29	8.05	0.00				
31.00	8.29	8.05	0.00				
32.00	8.29	8.05	0.00				
33.00	8.29	8.05	0.00				
34.00	8.29	8.05	0.00				
35.00	8.29	8.05	0.00				
36.00	8.29	8.05	0.00				
37.00	8.29	8.05	0.00				
38.00	8.29	8.05	0.00				
39.00	8.29	8.05	0.00				
40.00	8.29	8.05	0.00				
41.00	8.29	8.05	0.00				
42.00	8.29	8.05	0.00				
43.00	8.29	8.05	0.00				
44.00	8.29	8.05	0.00				
45.00	8.29	8.05	0.00				
46.00	8.29	8.05	0.00				
47.00	8.29	8.05	0.00				
48.00	8.29	8.05	0.00				
49.00	8.29	8.05	0.00				
50.00	8.29	8.05	0.00				
51.00	8.29	8.05	0.00				

**Summary for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Sheet Flow = (100 X Sq root (0.018))/0.24 = 56'

Runoff = 3.48 cfs @ 12.17 hrs, Volume= 0.259 af, Depth= 4.13"  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

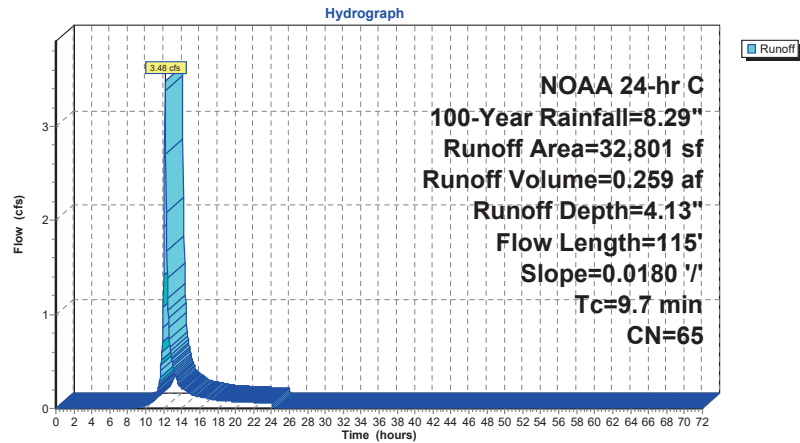
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
22,340	61	>75% Grass cover, Good, HSG B
10,461	74	>75% Grass cover, Good, HSG C
32,801	65	Weighted Average
32,801		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	56	0.0180	0.10		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
0.5	59	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps

9.7 115 Total

**Subcatchment 30S: Prop Constucted Wetland E (Perv)**



**Hydrograph for Subcatchment 30S: Prop Constucted Wetland E (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	4.13	0.00
1.00	0.09	0.00	0.00	53.00	8.29	4.13	0.00
2.00	0.19	0.00	0.00	54.00	8.29	4.13	0.00
3.00	0.29	0.00	0.00	55.00	8.29	4.13	0.00
4.00	0.41	0.00	0.00	56.00	8.29	4.13	0.00
5.00	0.53	0.00	0.00	57.00	8.29	4.13	0.00
6.00	0.66	0.00	0.00	58.00	8.29	4.13	0.00
7.00	0.81	0.00	0.00	59.00	8.29	4.13	0.00
8.00	0.99	0.00	0.00	60.00	8.29	4.13	0.00
9.00	1.21	0.00	0.01	61.00	8.29	4.13	0.00
10.00	1.51	0.03	0.03	62.00	8.29	4.13	0.00
11.00	1.99	0.13	0.11	63.00	8.29	4.13	0.00
12.00	3.95	1.00	1.42	64.00	8.29	4.13	0.00
13.00	6.30	2.57	0.47	65.00	8.29	4.13	0.00
14.00	6.78	2.93	0.22	66.00	8.29	4.13	0.00
15.00	7.08	3.16	0.15	67.00	8.29	4.13	0.00
16.00	7.30	3.33	0.12	68.00	8.29	4.13	0.00
17.00	7.48	3.48	0.10	69.00	8.29	4.13	0.00
18.00	7.63	3.60	0.08	70.00	8.29	4.13	0.00
19.00	7.76	3.70	0.08	71.00	8.29	4.13	0.00
20.00	7.88	3.80	0.07	72.00	8.29	4.13	0.00
21.00	8.00	3.89	0.07				
22.00	8.10	3.98	0.06				
23.00	8.20	4.06	0.06				
24.00	8.29	4.13	0.06				
25.00	8.29	4.13	0.00				
26.00	8.29	4.13	0.00				
27.00	8.29	4.13	0.00				
28.00	8.29	4.13	0.00				
29.00	8.29	4.13	0.00				
30.00	8.29	4.13	0.00				
31.00	8.29	4.13	0.00				
32.00	8.29	4.13	0.00				
33.00	8.29	4.13	0.00				
34.00	8.29	4.13	0.00				
35.00	8.29	4.13	0.00				
36.00	8.29	4.13	0.00				
37.00	8.29	4.13	0.00				
38.00	8.29	4.13	0.00				
39.00	8.29	4.13	0.00				
40.00	8.29	4.13	0.00				
41.00	8.29	4.13	0.00				
42.00	8.29	4.13	0.00				
43.00	8.29	4.13	0.00				
44.00	8.29	4.13	0.00				
45.00	8.29	4.13	0.00				
46.00	8.29	4.13	0.00				
47.00	8.29	4.13	0.00				
48.00	8.29	4.13	0.00				
49.00	8.29	4.13	0.00				
50.00	8.29	4.13	0.00				
51.00	8.29	4.13	0.00				

**Summary for Subcatchment 33S: Prop Pond Undetained (Total)**

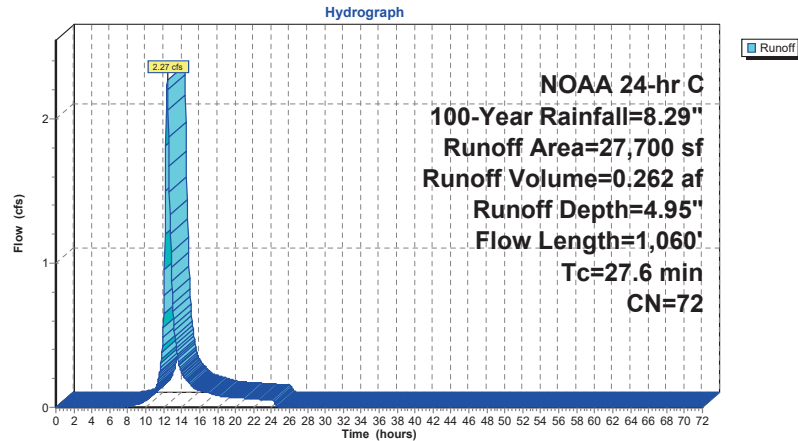
Runoff = 2.27 cfs @ 12.39 hrs, Volume= 0.262 af, Depth= 4.95"  
 Routed to Link 34L : Prop Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 NOAA 24-hr C 100-Year Rainfall=8.29"

Area (sf)	CN	Description
3,410	61	>75% Grass cover, Good, HSG B
24,290	74	>75% Grass cover, Good, HSG C
27,700	72	Weighted Average
27,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	100	0.0240	0.08		Sheet Flow, Sheet Flow - Woods Woods: Light underbrush n= 0.400 P2= 3.29"
7.9	960	0.0160	2.04		Shallow Concentrated Flow, Shallow Conc Flow - Unpaved Unpaved Kv= 16.1 fps
27.6	1,060	Total			

**Subcatchment 33S: Prop Pond Undetained (Total)**



**Hydrograph for Subcatchment 33S: Prop Pond Undetained (Total)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	8.29	4.95	0.00
1.00	0.09	0.00	0.00	53.00	8.29	4.95	0.00
2.00	0.19	0.00	0.00	54.00	8.29	4.95	0.00
3.00	0.29	0.00	0.00	55.00	8.29	4.95	0.00
4.00	0.41	0.00	0.00	56.00	8.29	4.95	0.00
5.00	0.53	0.00	0.00	57.00	8.29	4.95	0.00
6.00	0.66	0.00	0.00	58.00	8.29	4.95	0.00
7.00	0.81	0.00	0.00	59.00	8.29	4.95	0.00
8.00	0.99	0.01	0.01	60.00	8.29	4.95	0.00
9.00	1.21	0.04	0.02	61.00	8.29	4.95	0.00
10.00	1.51	0.12	0.05	62.00	8.29	4.95	0.00
11.00	1.99	0.29	0.11	63.00	8.29	4.95	0.00
12.00	3.95	1.43	0.65	64.00	8.29	4.95	0.00
13.00	6.30	3.24	0.72	65.00	8.29	4.95	0.00
14.00	6.78	3.64	0.24	66.00	8.29	4.95	0.00
15.00	7.08	3.90	0.16	67.00	8.29	4.95	0.00
16.00	7.30	4.08	0.12	68.00	8.29	4.95	0.00
17.00	7.48	4.24	0.10	69.00	8.29	4.95	0.00
18.00	7.63	4.37	0.08	70.00	8.29	4.95	0.00
19.00	7.76	4.49	0.07	71.00	8.29	4.95	0.00
20.00	7.88	4.59	0.07	72.00	8.29	4.95	0.00
21.00	8.00	4.69	0.06				
22.00	8.10	4.78	0.06				
23.00	8.20	4.87	0.05				
24.00	8.29	4.95	0.05				
25.00	8.29	4.95	0.00				
26.00	8.29	4.95	0.00				
27.00	8.29	4.95	0.00				
28.00	8.29	4.95	0.00				
29.00	8.29	4.95	0.00				
30.00	8.29	4.95	0.00				
31.00	8.29	4.95	0.00				
32.00	8.29	4.95	0.00				
33.00	8.29	4.95	0.00				
34.00	8.29	4.95	0.00				
35.00	8.29	4.95	0.00				
36.00	8.29	4.95	0.00				
37.00	8.29	4.95	0.00				
38.00	8.29	4.95	0.00				
39.00	8.29	4.95	0.00				
40.00	8.29	4.95	0.00				
41.00	8.29	4.95	0.00				
42.00	8.29	4.95	0.00				
43.00	8.29	4.95	0.00				
44.00	8.29	4.95	0.00				
45.00	8.29	4.95	0.00				
46.00	8.29	4.95	0.00				
47.00	8.29	4.95	0.00				
48.00	8.29	4.95	0.00				
49.00	8.29	4.95	0.00				
50.00	8.29	4.95	0.00				
51.00	8.29	4.95	0.00				

**Prop 2, 10 & 100yr**

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**Summary for Pond 10P: Basin A**

Inflow Area = 2.552 ac, 26.18% Impervious, Inflow Depth = 5.94" for 100-Year event  
 Inflow = 14.36 cfs @ 12.13 hrs, Volume= 1.262 af  
 Outflow = 11.55 cfs @ 12.23 hrs, Volume= 1.194 af, Atten= 20%, Lag= 6.3 min  
 Primary = 11.55 cfs @ 12.23 hrs, Volume= 1.194 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 85.10' @ 12.23 hrs Surf.Area= 5,310 sf Storage= 9,895 cf

Plug-Flow detention time= 72.8 min calculated for 1.193 af (95% of inflow)  
 Center-of-Mass det. time= 41.8 min ( 834.6 - 792.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	83.20'	12,042 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.20	5,125	0	0
84.00	5,200	4,130	4,130
85.00	5,300	5,250	9,380
85.50	5,350	2,663	12,042

Device	Routing	Invert	Outlet Devices
#1	Primary	83.78'	<b>2.6' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#2	Primary	85.10'	<b>16.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=11.47 cfs @ 12.23 hrs HW=85.09' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir(Weir Controls 11.47 cfs @ 3.74 fps)  
 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Prop 2, 10 & 100yr**

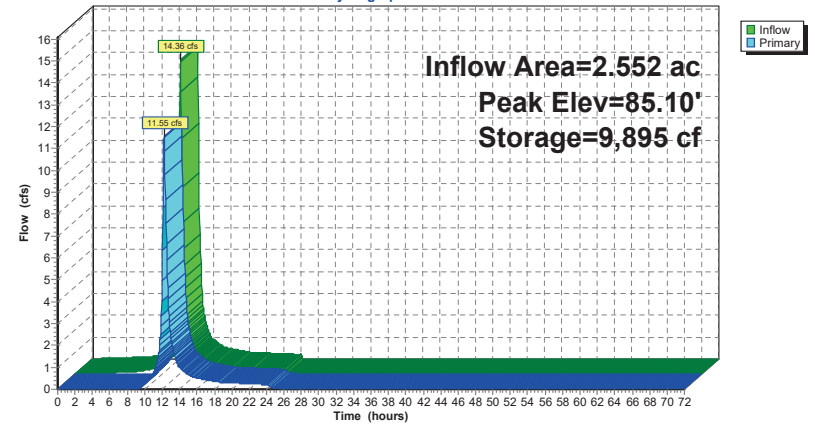
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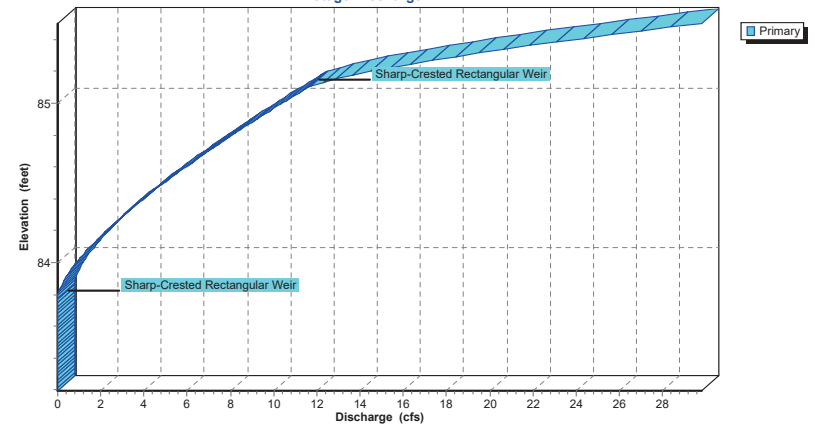
**Pond 10P: Basin A**

Hydrograph

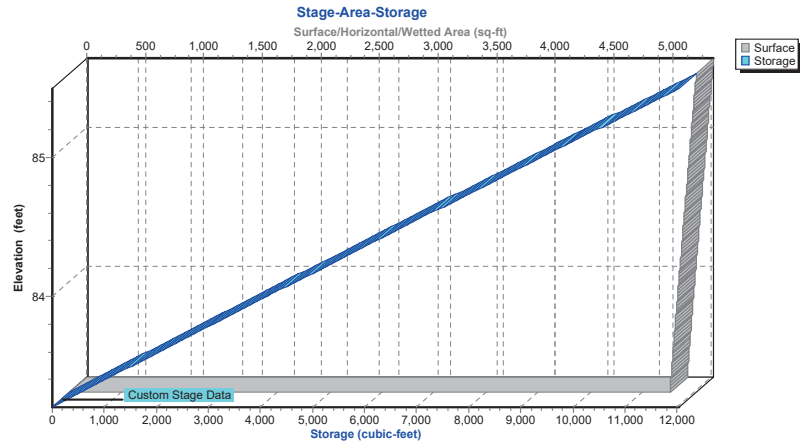


**Pond 10P: Basin A**

Stage-Discharge



**Pond 10P: Basin A**



**Hydrograph for Pond 10P: Basin A**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	83.20	0.00
2.50	0.05	227	83.24	0.00
5.00	0.08	817	83.36	0.00
7.50	0.15	1,704	83.53	0.00
10.00	<b>0.44</b>	<b>3,570</b>	<b>83.89</b>	<b>0.32</b>
12.50	<b>4.38</b>	<b>7,639</b>	<b>84.67</b>	<b>6.66</b>
15.00	0.60	3,951	83.97	0.67
17.50	0.37	3,658	83.91	0.39
20.00	0.28	3,532	83.88	0.29
22.50	0.23	3,470	83.87	0.24
25.00	0.00	3,135	83.81	0.04
27.50	0.00	3,007	83.78	0.00
30.00	0.00	2,991	83.78	0.00
32.50	0.00	2,989	83.78	0.00
35.00	0.00	2,988	83.78	0.00
37.50	0.00	2,988	83.78	0.00
40.00	0.00	2,988	83.78	0.00
42.50	0.00	2,988	83.78	0.00
45.00	0.00	2,988	83.78	0.00
47.50	0.00	2,988	83.78	0.00
50.00	0.00	2,988	83.78	0.00
52.50	0.00	2,988	83.78	0.00
55.00	0.00	2,988	83.78	0.00
57.50	0.00	2,988	83.78	0.00
60.00	0.00	2,988	83.78	0.00
62.50	0.00	2,988	83.78	0.00
65.00	0.00	2,988	83.78	0.00
67.50	0.00	2,988	83.78	0.00
70.00	0.00	2,988	83.78	0.00

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**Stage-Discharge for Pond 10P: Basin A**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
83.20	0.00	84.24	2.56	85.28	17.80
83.22	0.00	84.26	2.72	85.30	18.74
83.24	0.00	84.28	2.89	85.32	19.71
83.26	0.00	84.30	3.06	85.34	20.71
83.28	0.00	84.32	3.23	85.36	21.75
83.30	0.00	84.34	3.41	85.38	22.81
83.32	0.00	84.36	3.59	85.40	23.91
83.34	0.00	84.38	3.77	85.42	25.04
83.36	0.00	84.40	3.95	85.44	26.19
83.38	0.00	84.42	4.14	85.46	27.37
83.40	0.00	84.44	4.33	85.48	28.58
83.42	0.00	84.46	4.52	85.50	<b>29.81</b>
83.44	0.00	84.48	4.71		
83.46	0.00	84.50	4.91		
83.48	0.00	84.52	5.10		
83.50	0.00	84.54	5.30		
83.52	0.00	84.56	5.51		
83.54	0.00	84.58	5.71		
83.56	0.00	84.60	5.91		
83.58	0.00	84.62	6.12		
83.60	0.00	84.64	6.33		
83.62	0.00	84.66	6.54		
83.64	0.00	84.68	6.76		
83.66	0.00	84.70	6.97		
83.68	0.00	84.72	7.19		
83.70	0.00	84.74	7.41		
83.72	0.00	84.76	7.63		
83.74	0.00	84.78	7.85		
83.76	0.00	84.80	8.07		
83.78	0.00	84.82	8.30		
83.80	0.02	84.84	8.52		
83.82	0.07	84.86	8.75		
83.84	0.12	84.88	8.98		
83.86	0.19	84.90	9.21		
83.88	0.27	84.92	9.44		
83.90	0.35	84.94	9.67		
83.92	0.44	84.96	9.91		
83.94	0.54	84.98	10.14		
83.96	0.64	85.00	10.38		
83.98	0.75	85.02	10.62		
84.00	0.86	85.04	10.86		
84.02	0.98	85.06	11.10		
84.04	1.10	85.08	11.34		
84.06	1.23	85.10	11.58		
84.08	1.36	85.12	11.98		
84.10	1.50	85.14	12.49		
84.12	1.64	85.16	13.09		
84.14	1.79	85.18	13.75		
84.16	1.93	85.20	14.47		
84.18	2.08	85.22	15.24		
84.20	2.24	85.24	16.05		
84.22	2.40	85.26	16.91		

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**Stage-Area-Storage for Pond 10P: Basin A**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
83.20	5,125	0
83.25	5,130	256
83.30	5,134	513
83.35	5,139	770
83.40	5,144	1,027
83.45	5,148	1,284
83.50	5,153	1,542
83.55	5,158	1,799
83.60	5,163	2,058
83.65	5,167	2,316
83.70	5,172	2,574
83.75	5,177	2,833
83.80	5,181	3,092
83.85	5,186	3,351
83.90	5,191	3,610
83.95	5,195	3,870
84.00	5,200	4,130
84.05	5,205	4,390
84.10	5,210	4,651
84.15	5,215	4,911
84.20	5,220	5,172
84.25	5,225	5,433
84.30	5,230	5,694
84.35	5,235	5,956
84.40	5,240	6,218
84.45	5,245	6,480
84.50	5,250	6,742
84.55	5,255	7,005
84.60	5,260	7,268
84.65	5,265	7,531
84.70	5,270	7,795
84.75	5,275	8,058
84.80	5,280	8,322
84.85	5,285	8,586
84.90	5,290	8,851
84.95	5,295	9,115
85.00	5,300	9,380
85.05	5,305	9,645
85.10	5,310	9,911
85.15	5,315	10,176
85.20	5,320	10,442
85.25	5,325	10,708
85.30	5,330	10,974
85.35	5,335	11,241
85.40	5,340	11,508
85.45	5,345	11,775
85.50	<b>5,350</b>	<b>12,042</b>

**Summary for Pond 13P: Basin B**

Inflow Area = 1.355 ac, 80.19% Impervious, Inflow Depth = 7.48" for 100-Year event  
 Inflow = 11.48 cfs @ 12.10 hrs, Volume= 0.845 af  
 Outflow = 10.43 cfs @ 12.13 hrs, Volume= 0.749 af, Atten= 9%, Lag= 1.7 min  
 Primary = 10.43 cfs @ 12.13 hrs, Volume= 0.749 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.47' @ 12.13 hrs Surf.Area= 5,654 sf Storage= 5,854 cf

Plug-Flow detention time= 112.3 min calculated for 0.748 af (89% of inflow)  
 Center-of-Mass det. time= 54.9 min ( 805.2 - 750.3 )

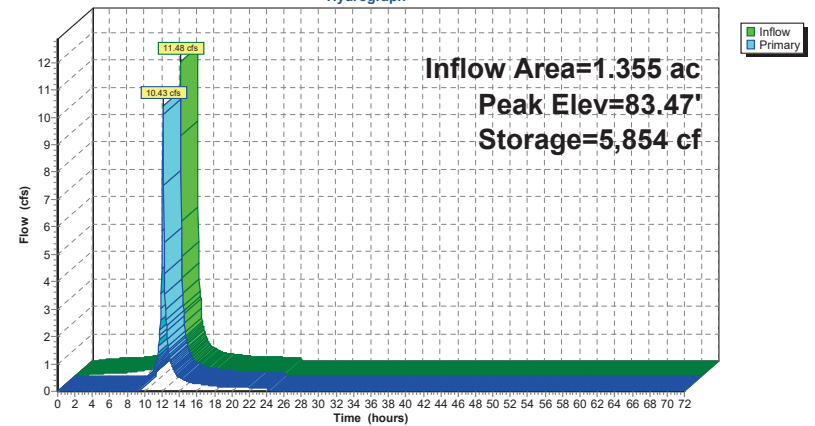
Volume	Invert	Avail.Storage	Storage Description
#1	82.43'	8,837 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.43	5,550	0	0
83.00	5,607	3,180	3,180
84.00	5,707	5,657	8,837

Device	Routing	Invert	Outlet Devices
#1	Primary	83.18'	20.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=10.10 cfs @ 12.13 hrs HW=83.47' (Free Discharge)  
 ↳ Sharp-Crested Rectangular Weir (Weir Controls 10.10 cfs @ 1.76 fps)

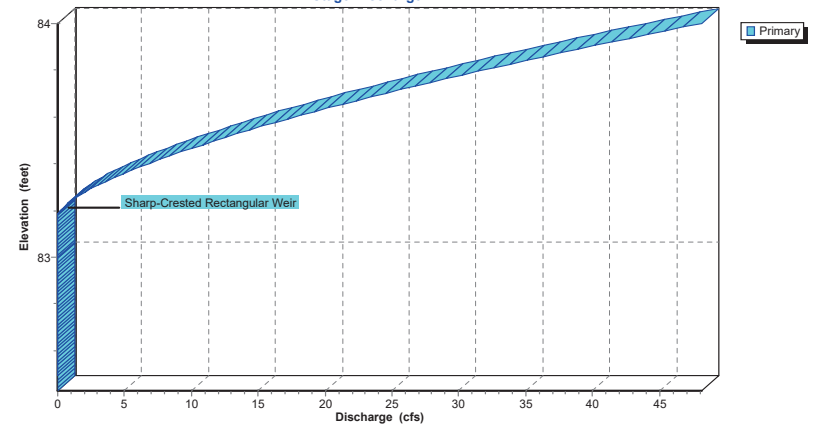
**Pond 13P: Basin B**

Hydrograph



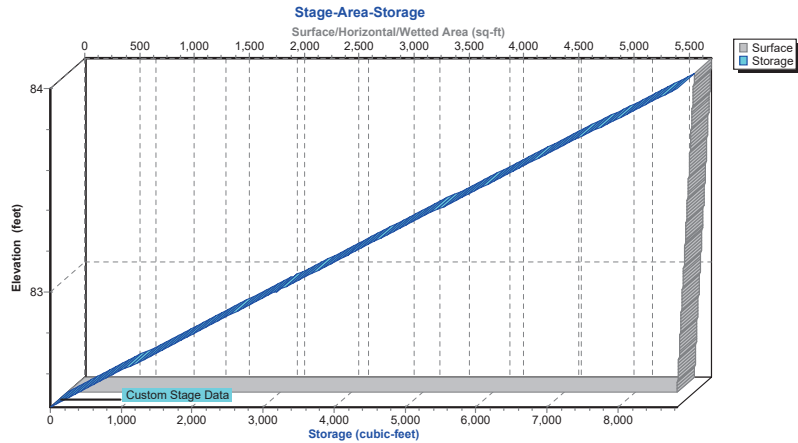
**Pond 13P: Basin B**

Stage-Discharge





**Pond 13P: Basin B**



**Hydrograph for Pond 13P: Basin B**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	82.43	0.00
2.50	0.08	368	82.50	0.00
5.00	0.12	1,327	82.67	0.00
7.50	0.20	2,696	82.91	0.00
10.00	<b>0.41</b>	<b>4,377</b>	<b>83.21</b>	<b>0.40</b>
12.50	<b>2.26</b>	<b>4,813</b>	<b>83.29</b>	<b>2.41</b>
15.00	0.33	4,359	83.21	0.34
17.50	0.21	4,311	83.20	0.21
20.00	0.16	4,290	83.20	0.16
22.50	0.13	4,275	83.20	0.13
25.00	0.00	4,195	83.18	0.00
27.50	0.00	4,191	83.18	0.00
30.00	0.00	4,191	83.18	0.00
32.50	0.00	4,191	83.18	0.00
35.00	0.00	4,191	83.18	0.00
37.50	0.00	4,191	83.18	0.00
40.00	0.00	4,191	83.18	0.00
42.50	0.00	4,191	83.18	0.00
45.00	0.00	4,191	83.18	0.00
47.50	0.00	4,191	83.18	0.00
50.00	0.00	4,191	83.18	0.00
52.50	0.00	4,191	83.18	0.00
55.00	0.00	4,191	83.18	0.00
57.50	0.00	4,191	83.18	0.00
60.00	0.00	4,191	83.18	0.00
62.50	0.00	4,191	83.18	0.00
65.00	0.00	4,191	83.18	0.00
67.50	0.00	4,191	83.18	0.00
70.00	0.00	4,191	83.18	0.00

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**Stage-Discharge for Pond 13P: Basin B**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
82.43	0.00	82.95	0.00	83.47	10.18	83.99	47.29
82.44	0.00	82.96	0.00	83.48	10.71	84.00	<b>48.16</b>
82.45	0.00	82.97	0.00	83.49	11.25		
82.46	0.00	82.98	0.00	83.50	11.80		
82.47	0.00	82.99	0.00	83.51	12.36		
82.48	0.00	83.00	0.00	83.52	12.92		
82.49	0.00	83.01	0.00	83.53	13.49		
82.50	0.00	83.02	0.00	83.54	14.08		
82.51	0.00	83.03	0.00	83.55	14.66		
82.52	0.00	83.04	0.00	83.56	15.26		
82.53	0.00	83.05	0.00	83.57	15.87		
82.54	0.00	83.06	0.00	83.58	16.48		
82.55	0.00	83.07	0.00	83.59	17.10		
82.56	0.00	83.08	0.00	83.60	17.73		
82.57	0.00	83.09	0.00	83.61	18.36		
82.58	0.00	83.10	0.00	83.62	19.00		
82.59	0.00	83.11	0.00	83.63	19.65		
82.60	0.00	83.12	0.00	83.64	20.31		
82.61	0.00	83.13	0.00	83.65	20.97		
82.62	0.00	83.14	0.00	83.66	21.64		
82.63	0.00	83.15	0.00	83.67	22.32		
82.64	0.00	83.16	0.00	83.68	23.01		
82.65	0.00	83.17	0.00	83.69	23.70		
82.66	0.00	83.18	0.00	83.70	24.40		
82.67	0.00	83.19	0.07	83.71	25.10		
82.68	0.00	83.20	0.18	83.72	25.81		
82.69	0.00	83.21	0.34	83.73	26.53		
82.70	0.00	83.22	0.52	83.74	27.25		
82.71	0.00	83.23	0.73	83.75	27.98		
82.72	0.00	83.24	0.96	83.76	28.72		
82.73	0.00	83.25	1.21	83.77	29.46		
82.74	0.00	83.26	1.48	83.78	30.21		
82.75	0.00	83.27	1.76	83.79	30.97		
82.76	0.00	83.28	2.07	83.80	31.73		
82.77	0.00	83.29	2.38	83.81	32.50		
82.78	0.00	83.30	2.72	83.82	33.27		
82.79	0.00	83.31	3.06	83.83	34.05		
82.80	0.00	83.32	3.42	83.84	34.84		
82.81	0.00	83.33	3.79	83.85	35.63		
82.82	0.00	83.34	4.18	83.86	36.42		
82.83	0.00	83.35	4.58	83.87	37.23		
82.84	0.00	83.36	4.99	83.88	38.03		
82.85	0.00	83.37	5.41	83.89	38.85		
82.86	0.00	83.38	5.84	83.90	39.67		
82.87	0.00	83.39	6.28	83.91	40.49		
82.88	0.00	83.40	6.73	83.92	41.32		
82.89	0.00	83.41	7.20	83.93	42.16		
82.90	0.00	83.42	7.67	83.94	43.00		
82.91	0.00	83.43	8.15	83.95	43.85		
82.92	0.00	83.44	8.65	83.96	44.70		
82.93	0.00	83.45	9.15	83.97	45.56		
82.94	0.00	83.46	9.66	83.98	46.42		

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**Stage-Area-Storage for Pond 13P: Basin B**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
82.43	5,550	0	83.47	5,654	5,826
82.45	5,552	111	83.49	5,656	5,939
82.47	5,554	222	83.51	5,658	6,052
82.49	5,556	333	83.53	5,660	6,165
82.51	5,558	444	83.55	5,662	6,279
82.53	5,560	555	83.57	5,664	6,392
82.55	5,562	667	83.59	5,666	6,505
82.57	5,564	778	83.61	5,668	6,619
82.59	5,566	889	83.63	5,670	6,732
82.61	5,568	1,001	83.65	5,672	6,845
82.63	5,570	1,112	83.67	5,674	6,959
82.65	5,572	1,223	83.69	5,676	7,072
82.67	5,574	1,335	83.71	5,678	7,186
82.69	5,576	1,446	83.73	5,680	7,299
82.71	5,578	1,558	83.75	5,682	7,413
82.73	5,580	1,669	83.77	5,684	7,527
82.75	5,582	1,781	83.79	5,686	7,640
82.77	5,584	1,893	83.81	5,688	7,754
82.79	5,586	2,004	83.83	5,690	7,868
82.81	5,588	2,116	83.85	5,692	7,982
82.83	5,590	2,228	83.87	5,694	8,096
82.85	5,592	2,340	83.89	5,696	8,210
82.87	5,594	2,452	83.91	5,698	8,324
82.89	5,596	2,564	83.93	5,700	8,438
82.91	5,598	2,676	83.95	5,702	8,552
82.93	5,600	2,788	83.97	5,704	8,666
82.95	5,602	2,900	83.99	<b>5,706</b>	<b>8,780</b>
82.97	5,604	3,012			
82.99	5,606	3,124			
83.01	5,608	3,236			
83.03	5,610	3,348			
83.05	5,612	3,460			
83.07	5,614	3,572			
83.09	5,616	3,685			
83.11	5,618	3,797			
83.13	5,620	3,910			
83.15	5,622	4,022			
83.17	5,624	4,134			
83.19	5,626	4,247			
83.21	5,628	4,359			
83.23	5,630	4,472			
83.25	5,632	4,585			
83.27	5,634	4,697			
83.29	5,636	4,810			
83.31	5,638	4,923			
83.33	5,640	5,036			
83.35	5,642	5,148			
83.37	5,644	5,261			
83.39	5,646	5,374			
83.41	5,648	5,487			
83.43	5,650	5,600			
83.45	5,652	5,713			

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NOAA 24-hr C 100-Year Rainfall=8.29"

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**Summary for Pond 26P: Porous Pavement D**

Inflow Area = 2.189 ac, 95.66% Impervious, Inflow Depth = 7.88" for 100-Year event  
 Inflow = 20.74 cfs @ 12.09 hrs, Volume= 1.438 af  
 Outflow = 2.33 cfs @ 12.64 hrs, Volume= 1.323 af, Atten= 89%, Lag= 33.0 min  
 Primary = 2.33 cfs @ 12.64 hrs, Volume= 1.323 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 85.89' @ 12.64 hrs Surf.Area= 11,488 sf Storage= 37,978 cf

Plug-Flow detention time= 585.7 min calculated for 1.323 af (92% of inflow)  
 Center-of-Mass det. time= 540.6 min ( 1,281.1 - 740.5 )

Volume	Invert	Avail.Storage	Storage Description
#1A	81.90'	4,595 cf	<b>29.65'W x 387.43'L x 4.00'H Stone Storage</b> 45,936 cf Overall - 34,448 cf Embedded = 11,488 cf x 40.0% Voids
#2A	81.90'	33,414 cf	<b>ACO StormBrixx SD 1</b> x 1470 Inside #1 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 1470 Chambers in 15 Rows
		38,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	81.90'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	85.65'	<b>4.0" long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=2.32 cfs @ 12.64 hrs HW=85.89' TW=82.35' (Fixed TW Elev= 82.35')

- 1=Orifice/Grate (Orifice Controls 0.79 cfs @ 9.06 fps)
- 2=Sharp-Crested Rectangular Weir(Weir Controls 1.53 cfs @ 1.61 fps)

**Prop 2, 10 & 100yr**

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**Pond 26P: Porous Pavement D - Chamber Wizard Stone Storage**

**Chamber Model = ACO StormBrixx SD 1 (ACO StormBrixx®SD)**  
 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf  
 Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

98 Chambers/Row x 3.95' Long = 387.43' Row Length  
 15 Rows x 23.7" Wide = 29.65' Base Width  
 36.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

1,470 Chambers x 22.7 cf = 33,414.5 cf Chamber Storage  
 1,470 Chambers x 23.4 cf = 34,447.9 cf Displacement

45,935.6 cf Field - 34,447.9 cf Chambers = 11,487.7 cf Stone x 40.0% Voids = 4,595.1 cf Stone Storage

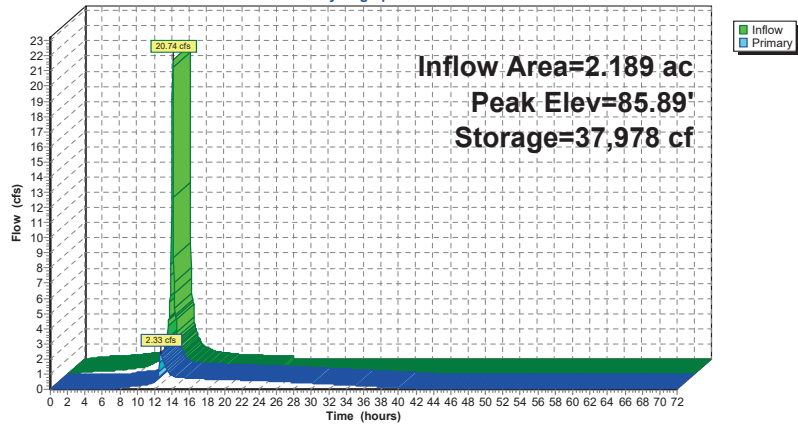
Chamber Storage + Stone Storage = 38,009.5 cf = 0.873 af  
 Overall Storage Efficiency = 82.7%  
 Overall System Size = 387.43' x 29.65' x 4.00'

1,470 Chambers  
 1,701.3 cy Field  
 425.5 cy Stone



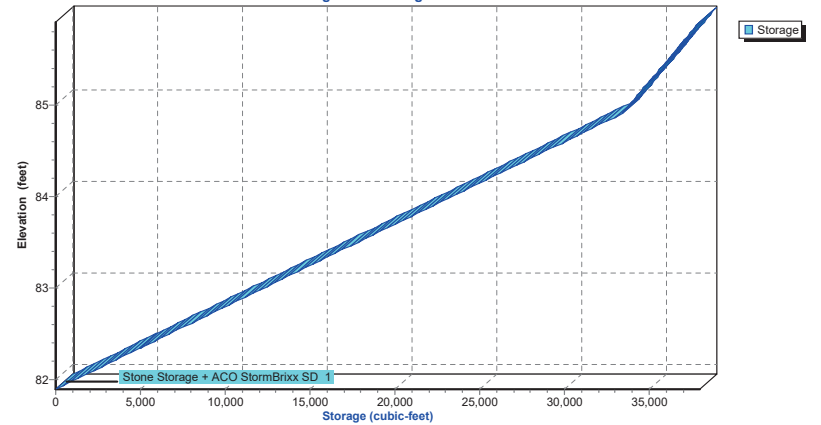
Pond 26P: Porous Pavement D

Hydrograph



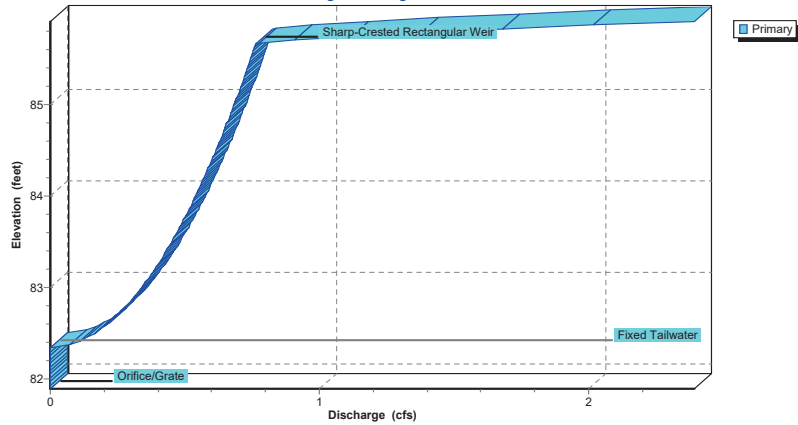
Pond 26P: Porous Pavement D

Stage-Area-Storage



Pond 26P: Porous Pavement D

Stage-Discharge



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**Hydrograph for Pond 26P: Porous Pavement D**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	81.90	0.00
2.50	0.16	718	81.96	0.00
5.00	0.24	2,569	82.13	0.00
7.50	0.37	5,190	82.37	0.04
10.00	<b>0.75</b>	8,343	82.65	0.23
12.50	<b>3.64</b>	<b>37,691</b>	<b>85.83</b>	<b>1.77</b>
15.00	0.54	<b>36,611</b>	<b>85.59</b>	<b>0.76</b>
17.50	0.34	33,922	85.01	0.69
20.00	0.26	30,559	84.64	0.64
22.50	0.21	27,145	84.34	0.59
25.00	0.00	23,162	83.98	0.54
27.50	0.00	18,657	83.57	0.46
30.00	0.00	14,794	83.23	0.39
32.50	0.00	11,572	82.94	0.32
35.00	0.00	8,992	82.71	0.25
37.50	0.00	7,054	82.53	0.18
40.00	0.00	5,760	82.42	0.11
42.50	0.00	5,142	82.36	0.03
45.00	0.00	5,032	82.35	0.00
47.50	0.00	5,017	82.35	0.00
50.00	0.00	5,015	82.35	0.00
52.50	0.00	5,014	82.35	0.00
55.00	0.00	5,014	82.35	0.00
57.50	0.00	5,014	82.35	0.00
60.00	0.00	5,014	82.35	0.00
62.50	0.00	5,014	82.35	0.00
65.00	0.00	5,014	82.35	0.00
67.50	0.00	5,014	82.35	0.00
70.00	0.00	5,014	82.35	0.00

**Prop 2, 10 & 100yr**

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**Stage-Discharge for Pond 26P: Porous Pavement D**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
81.90	0.00	82.94	0.32	83.98	0.54	85.02	0.69
81.92	0.00	82.96	0.33	84.00	0.54	85.04	0.69
81.94	0.00	82.98	0.33	84.02	0.54	85.06	0.69
81.96	0.00	83.00	0.34	84.04	0.55	85.08	0.69
81.98	0.00	83.02	0.34	84.06	0.55	85.10	0.70
82.00	0.00	83.04	0.35	84.08	0.55	85.12	0.70
82.02	0.00	83.06	0.35	84.10	0.56	85.14	0.70
82.04	0.00	83.08	0.36	84.12	0.56	85.16	0.70
82.06	0.00	83.10	0.36	84.14	0.56	85.18	0.71
82.08	0.00	83.12	0.37	84.16	0.57	85.20	0.71
82.10	0.00	83.14	0.37	84.18	0.57	85.22	0.71
82.12	0.00	83.16	0.38	84.20	0.57	85.24	0.71
82.14	0.00	83.18	0.38	84.22	0.57	85.26	0.72
82.16	0.00	83.20	0.39	84.24	0.58	85.28	0.72
82.18	0.00	83.22	0.39	84.26	0.58	85.30	0.72
82.20	0.00	83.24	0.40	84.28	0.58	85.32	0.72
82.22	0.00	83.26	0.40	84.30	0.59	85.34	0.73
82.24	0.00	83.28	0.41	84.32	0.59	85.36	0.73
82.26	0.00	83.30	0.41	84.34	0.59	85.38	0.73
82.28	0.00	83.32	0.41	84.36	0.60	85.40	0.73
82.30	0.00	83.34	0.42	84.38	0.60	85.42	0.74
82.32	0.00	83.36	0.42	84.40	0.60	85.44	0.74
82.34	0.00	83.38	0.43	84.42	0.60	85.46	0.74
82.36	0.04	83.40	0.43	84.44	0.61	85.48	0.74
82.38	0.07	83.42	0.43	84.46	0.61	85.50	0.75
82.40	0.09	83.44	0.44	84.48	0.61	85.52	0.75
82.42	0.11	83.46	0.44	84.50	0.62	85.54	0.75
82.44	0.13	83.48	0.45	84.52	0.62	85.56	0.75
82.46	0.14	83.50	0.45	84.54	0.62	85.58	0.76
82.48	0.15	83.52	0.45	84.56	0.62	85.60	0.76
82.50	0.16	83.54	0.46	84.58	0.63	85.62	0.76
82.52	0.17	83.56	0.46	84.60	0.63	85.64	0.76
82.54	0.18	83.58	0.47	84.62	0.63	85.66	0.78
82.56	0.19	83.60	0.47	84.64	0.64	85.68	0.83
82.58	0.20	83.62	0.47	84.66	0.64	85.70	0.91
82.60	0.21	83.64	0.48	84.68	0.64	85.72	1.01
82.62	0.22	83.66	0.48	84.70	0.64	85.74	1.13
82.64	0.23	83.68	0.48	84.72	0.65	85.76	1.25
82.66	0.23	83.70	0.49	84.74	0.65	85.78	1.39
82.68	0.24	83.72	0.49	84.76	0.65	85.80	1.53
82.70	0.25	83.74	0.50	84.78	0.66	85.82	1.69
82.72	0.26	83.76	0.50	84.80	0.66	85.84	1.86
82.74	0.26	83.78	0.50	84.82	0.66	85.86	2.03
82.76	0.27	83.80	0.51	84.84	0.66	85.88	2.22
82.78	0.28	83.82	0.51	84.86	0.67	85.90	<b>2.41</b>
82.80	0.28	83.84	0.51	84.88	0.67		
82.82	0.29	83.86	0.52	84.90	0.67		
82.84	0.29	83.88	0.52	84.92	0.67		
82.86	0.30	83.90	0.52	84.94	0.68		
82.88	0.31	83.92	0.53	84.96	0.68		
82.90	0.31	83.94	0.53	84.98	0.68		
82.92	0.32	83.96	0.53	85.00	0.68		

**Prop 2, 10 & 100yr**

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**Stage-Area-Storage for Pond 26P: Porous Pavement D**

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
81.90	0	84.50	28,972
81.95	557	84.55	29,529
82.00	1,114	84.60	30,086
82.05	1,671	84.65	30,643
82.10	2,229	84.70	31,200
82.15	2,786	84.75	31,758
82.20	3,343	84.80	32,315
82.25	3,900	84.85	32,872
82.30	4,457	84.90	33,429
82.35	5,014	84.95	33,986
82.40	5,572	85.00	34,543
82.45	6,129	85.05	35,100
82.50	6,686	85.10	35,657
82.55	7,243	85.15	36,214
82.60	7,800	85.20	36,771
82.65	8,357	85.25	37,328
82.70	8,914	85.30	37,885
82.75	9,472	85.35	38,442
82.80	10,029	85.40	38,999
82.85	10,586	85.45	39,556
82.90	11,143	85.50	40,113
82.95	11,700	85.55	40,670
83.00	12,257	85.60	41,227
83.05	12,814	85.65	41,784
83.10	13,372	85.70	42,341
83.15	13,929	85.75	42,898
83.20	14,486	85.80	43,455
83.25	15,043	85.85	44,012
83.30	15,600	85.90	<b>44,569</b>
83.35	16,157		
83.40	16,715		
83.45	17,272		
83.50	17,829		
83.55	18,386		
83.60	18,943		
83.65	19,500		
83.70	20,057		
83.75	20,615		
83.80	21,172		
83.85	21,729		
83.90	22,286		
83.95	22,843		
84.00	23,400		
84.05	23,958		
84.10	24,515		
84.15	25,072		
84.20	25,629		
84.25	26,186		
84.30	26,743		
84.35	27,300		
84.40	27,858		
84.45	28,415		

**Prop 2, 10 & 100yr**

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**Summary for Pond 27P: Prop Standard Constructed Wetland E**

Inflow Area = 13.138 ac, 76.54% Impervious, Inflow Depth = 7.06" for 100-Year event  
 Inflow = 76.05 cfs @ 12.13 hrs, Volume= 7.724 af  
 Outflow = 28.31 cfs @ 12.39 hrs, Volume= 7.714 af, Atten= 63%, Lag= 15.8 min  
 Primary = 28.31 cfs @ 12.39 hrs, Volume= 7.714 af  
 Routed to Link 28L : Prop South Total

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 82.34' @ 12.39 hrs Surf.Area= 19,769 sf Storage= 126,986 cf

Plug-Flow detention time=292.3 min calculated for 7.714 af (100% of inflow)  
 Center-of-Mass det. time= 290.1 min ( 1,148.2 - 858.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	75.50'	140,019 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

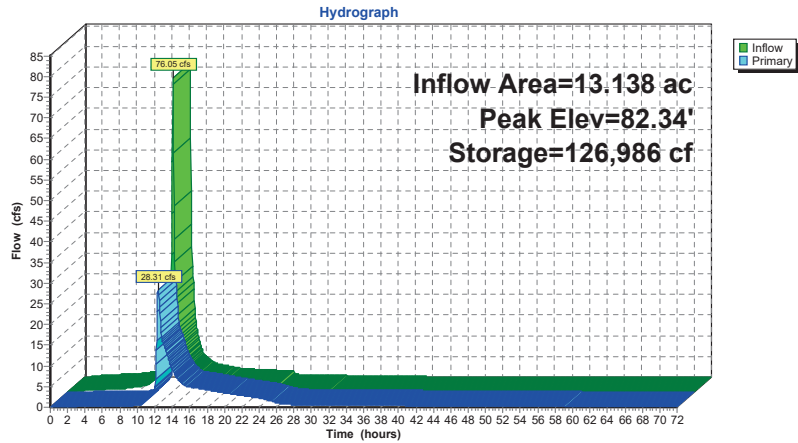
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.50	6,189	0	0
76.00	15,855	5,511	5,511
77.00	19,196	17,526	23,037
78.00	19,296	19,246	42,283
79.00	19,396	19,346	61,629
80.00	19,496	19,446	81,075
81.00	19,548	19,522	100,597
82.00	19,648	19,598	120,195
83.00	20,000	19,824	140,019

Device	Routing	Invert	Outlet Devices
#1	Primary	75.50'	<b>3.7" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	77.20'	<b>30.0" W x 2.5" H Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	80.15'	<b>1.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Primary	82.05'	<b>20.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

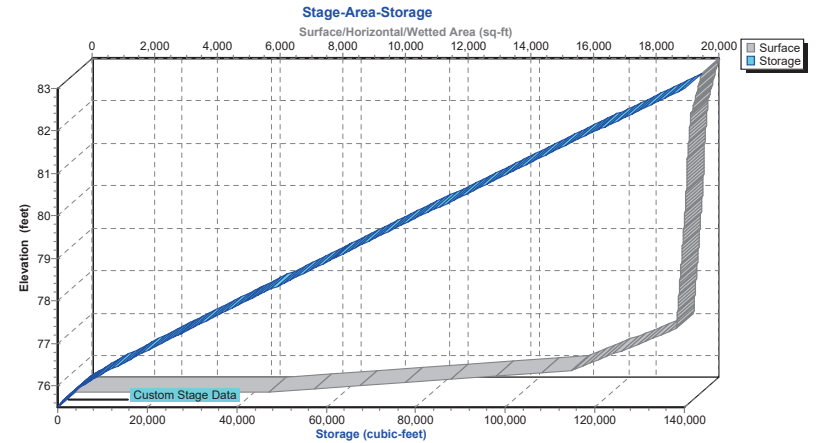
**Primary OutFlow** Max=28.16 cfs @ 12.39 hrs HW=82.34' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.93 cfs @ 12.45 fps)
- 2=Orifice/Grate (Orifice Controls 5.63 cfs @ 10.81 fps)
- 3=Sharp-Crested Rectangular Weir (Weir Controls 11.27 cfs @ 4.84 fps)
- 4=Sharp-Crested Rectangular Weir (Weir Controls 10.33 cfs @ 1.77 fps)

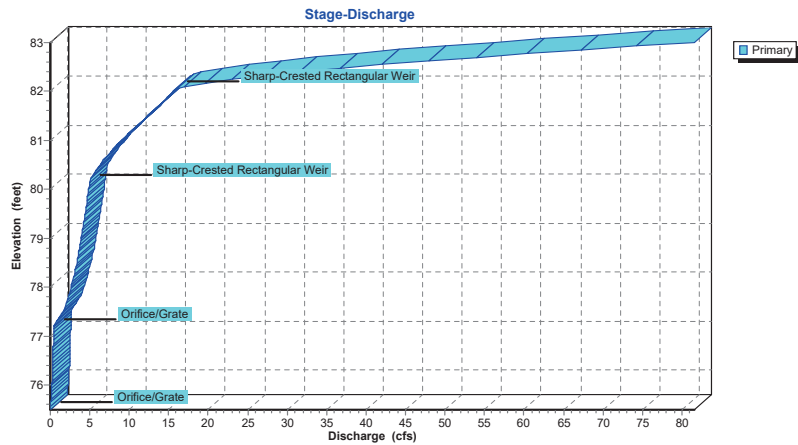
Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



Pond 27P: Prop Standard Constructed Wetland E



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**Hydrograph for Pond 27P: Prop Standard Constructed Wetland E**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	75.50	0.00
2.50	0.48	1,836	75.72	0.09
5.00	0.71	5,802	76.02	0.22
7.50	1.13	11,225	76.35	0.30
10.00	<b>3.16</b>	<b>23,871</b>	<b>77.04</b>	<b>0.42</b>
12.50	<b>22.87</b>	<b>126,075</b>	<b>82.30</b>	<b>25.70</b>
15.00	3.50	89,657	80.44	5.97
17.50	2.36	71,110	79.49	4.41
20.00	1.90	54,161	78.61	3.49
22.50	1.64	42,533	78.01	2.66
25.00	0.58	33,429	77.54	1.70
27.50	0.47	28,536	77.29	0.67
30.00	0.39	27,349	77.22	0.48
32.50	0.32	26,465	77.18	0.44
35.00	0.25	25,094	77.11	0.43
37.50	0.18	23,196	77.01	0.42
40.00	0.11	20,811	76.88	0.40
42.50	0.03	17,953	76.73	0.37
45.00	0.00	14,848	76.56	0.34
47.50	0.00	11,939	76.39	0.31
50.00	0.00	9,322	76.23	0.27
52.50	0.00	7,017	76.09	0.24
55.00	0.00	5,036	75.97	0.20
57.50	0.00	3,403	75.85	0.16
60.00	0.00	2,177	75.75	0.11
62.50	0.00	1,405	75.68	0.06
65.00	0.00	963	75.63	0.04
67.50	0.00	697	75.60	0.02
70.00	0.00	534	75.58	0.01

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**Stage-Discharge for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
75.50	0.00	78.10	2.80	80.70	7.28
75.55	0.01	78.15	2.87	80.75	7.56
75.60	0.02	78.20	2.95	80.80	7.85
75.65	0.05	78.25	3.02	80.85	8.15
75.70	0.08	78.30	3.09	80.90	8.45
75.75	0.11	78.35	3.15	80.95	8.75
75.80	0.14	78.40	3.22	81.00	9.06
75.85	0.16	78.45	3.28	81.05	9.37
75.90	0.18	78.50	3.35	81.10	9.69
75.95	0.20	78.55	3.41	81.15	10.01
76.00	0.21	78.60	3.47	81.20	10.33
76.05	0.23	78.65	3.53	81.25	10.66
76.10	0.24	78.70	3.59	81.30	10.99
76.15	0.25	78.75	3.65	81.35	11.32
76.20	0.27	78.80	3.70	81.40	11.65
76.25	0.28	78.85	3.76	81.45	11.98
76.30	0.29	78.90	3.82	81.50	12.31
76.35	0.30	78.95	3.87	81.55	12.65
76.40	0.31	79.00	3.92	81.60	12.98
76.45	0.32	79.05	3.98	81.65	13.32
76.50	0.33	79.10	4.03	81.70	13.65
76.55	0.34	79.15	4.08	81.75	13.98
76.60	0.35	79.20	4.13	81.80	14.32
76.65	0.36	79.25	4.18	81.85	14.65
76.70	0.37	79.30	4.23	81.90	14.98
76.75	0.38	79.35	4.28	81.95	15.31
76.80	0.38	79.40	4.33	82.00	15.64
76.85	0.39	79.45	4.37	82.05	15.96
76.90	0.40	79.50	4.42	82.10	17.02
76.95	0.41	79.55	4.47	82.15	18.68
77.00	0.42	79.60	4.51	82.20	20.72
77.05	0.42	79.65	4.56	82.25	23.09
77.10	0.43	79.70	4.60	82.30	25.72
77.15	0.44	79.75	4.65	82.35	28.59
77.20	0.45	79.80	4.69	82.40	31.68
77.25	0.54	79.85	4.74	82.45	34.97
77.30	0.72	79.90	4.78	82.50	38.44
77.35	0.93	79.95	4.82	82.55	42.10
77.40	1.19	80.00	4.87	82.60	45.91
77.45	1.42	80.05	4.91	82.65	49.89
77.50	1.58	80.10	4.95	82.70	54.01
77.55	1.73	80.15	4.99	82.75	58.28
77.60	1.86	80.20	5.09	82.80	62.68
77.65	1.98	80.25	5.23	82.85	67.22
77.70	2.09	80.30	5.39	82.90	71.88
77.75	2.19	80.35	5.58	82.95	76.67
77.80	2.29	80.40	5.79	83.00	<b>81.57</b>
77.85	2.38	80.45	6.01		
77.90	2.47	80.50	6.24		
77.95	2.56	80.55	6.49		
78.00	2.64	80.60	6.74		
78.05	2.72	80.65	7.01		



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**Stage-Area-Storage for Pond 27P: Prop Standard Constructed Wetland E**

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
75.50	6,189	0	80.70	19,532	94,734
75.60	8,122	716	80.80	19,538	96,688
75.70	10,055	1,624	80.90	19,543	98,642
75.80	11,989	2,727	81.00	19,548	100,597
75.90	13,922	4,022	81.10	19,558	102,552
76.00	15,855	5,511	81.20	19,568	104,508
76.10	16,189	7,113	81.30	19,578	106,465
76.20	16,523	8,749	81.40	19,588	108,424
76.30	16,857	10,418	81.50	19,598	110,383
76.40	17,191	12,120	81.60	19,608	112,343
76.50	17,526	13,856	81.70	19,618	114,305
76.60	17,860	15,625	81.80	19,628	116,267
76.70	18,194	17,428	81.90	19,638	118,230
76.80	18,528	19,264	82.00	19,648	120,195
76.90	18,862	21,134	82.10	19,683	122,161
77.00	19,196	23,037	82.20	19,718	124,131
77.10	19,206	24,957	82.30	19,754	126,105
77.20	19,216	26,878	82.40	19,789	128,082
77.30	19,226	28,800	82.50	19,824	130,063
77.40	19,236	30,723	82.60	19,859	132,047
77.50	19,246	32,647	82.70	19,894	134,034
77.60	19,256	34,572	82.80	19,930	136,026
77.70	19,266	36,498	82.90	19,965	138,020
77.80	19,276	38,425	83.00	<b>20,000</b>	<b>140,019</b>
77.90	19,286	40,353			
78.00	19,296	42,283			
78.10	19,306	44,213			
78.20	19,316	46,144			
78.30	19,326	48,076			
78.40	19,336	50,009			
78.50	19,346	51,943			
78.60	19,356	53,878			
78.70	19,366	55,814			
78.80	19,376	57,751			
78.90	19,386	59,689			
79.00	19,396	61,629			
79.10	19,406	63,569			
79.20	19,416	65,510			
79.30	19,426	67,452			
79.40	19,436	69,395			
79.50	19,446	71,339			
79.60	19,456	73,284			
79.70	19,466	75,230			
79.80	19,476	77,177			
79.90	19,486	79,125			
80.00	19,496	81,075			
80.10	19,501	83,024			
80.20	19,506	84,975			
80.30	19,512	86,926			
80.40	19,517	88,877			
80.50	19,522	90,829			
80.60	19,527	92,781			

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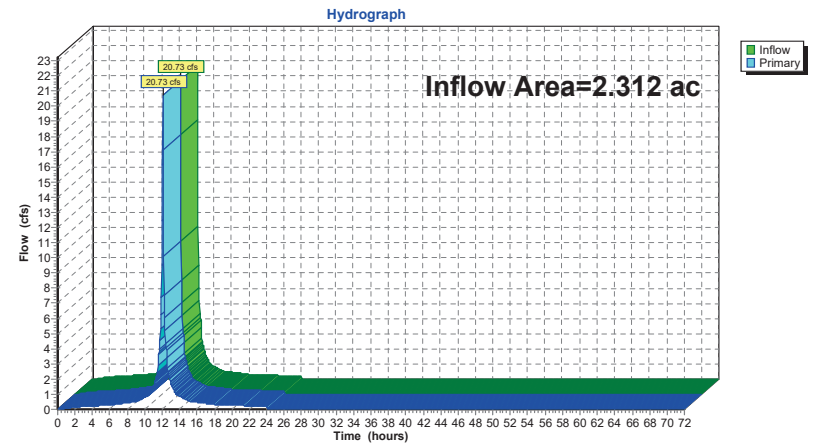
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**Summary for Link 17L: Prop MTD C - bypass**

Inflow Area = 2.312 ac, 96.48% Impervious, Inflow Depth = 7.95" for 100-Year event  
 Inflow = 20.73 cfs @ 12.10 hrs, Volume= 1.532 af  
 Primary = 20.73 cfs @ 12.10 hrs, Volume= 1.532 af, Atten= 0%, Lag= 0.0 min  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

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

**Link 17L: Prop MTD C - bypass**



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**Hydrograph for Link 17L: Prop MTD C - bypass**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.07	0.00	0.07	53.00	0.00	0.00	0.00
2.00	0.15	0.00	0.15	54.00	0.00	0.00	0.00
3.00	0.19	0.00	0.19	55.00	0.00	0.00	0.00
4.00	0.23	0.00	0.23	56.00	0.00	0.00	0.00
5.00	0.26	0.00	0.26	57.00	0.00	0.00	0.00
6.00	0.28	0.00	0.28	58.00	0.00	0.00	0.00
7.00	0.36	0.00	0.36	59.00	0.00	0.00	0.00
8.00	0.44	0.00	0.44	60.00	0.00	0.00	0.00
9.00	0.52	0.00	0.52	61.00	0.00	0.00	0.00
10.00	0.80	0.00	0.80	62.00	0.00	0.00	0.00
11.00	1.47	0.00	1.47	63.00	0.00	0.00	0.00
12.00	<b>12.44</b>	0.00	<b>12.44</b>	64.00	0.00	0.00	0.00
13.00	<b>1.76</b>	0.00	<b>1.76</b>	65.00	0.00	0.00	0.00
14.00	0.86	0.00	0.86	66.00	0.00	0.00	0.00
15.00	0.57	0.00	0.57	67.00	0.00	0.00	0.00
16.00	0.47	0.00	0.47	68.00	0.00	0.00	0.00
17.00	0.40	0.00	0.40	69.00	0.00	0.00	0.00
18.00	0.32	0.00	0.32	70.00	0.00	0.00	0.00
19.00	0.29	0.00	0.29	71.00	0.00	0.00	0.00
20.00	0.27	0.00	0.27	72.00	0.00	0.00	0.00
21.00	0.25	0.00	0.25				
22.00	0.24	0.00	0.24				
23.00	0.22	0.00	0.22				
24.00	0.24	0.00	0.24				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

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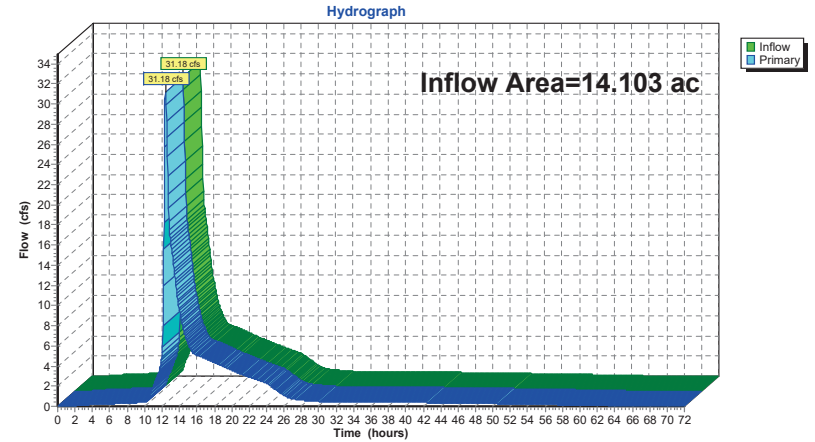
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**Summary for Link 28L: Prop South Total**

Inflow Area = 14.103 ac, 71.31% Impervious, Inflow Depth > 6.85" for 100-Year event  
 Inflow = 31.18 cfs @ 12.39 hrs, Volume= 8.046 af  
 Primary = 31.18 cfs @ 12.39 hrs, Volume= 8.046 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 34L : Prop Total

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

**Link 28L: Prop South Total**



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**Hydrograph for Link 28L: Prop South Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.25	0.00	0.25
1.00	0.00	0.00	0.00	53.00	0.23	0.00	0.23
2.00	0.05	0.00	0.05	54.00	0.22	0.00	0.22
3.00	0.13	0.00	0.13	55.00	0.20	0.00	0.20
4.00	0.18	0.00	0.18	56.00	0.19	0.00	0.19
5.00	0.22	0.00	0.22	57.00	0.17	0.00	0.17
6.00	0.25	0.00	0.25	58.00	0.15	0.00	0.15
7.00	0.28	0.00	0.28	59.00	0.13	0.00	0.13
8.00	0.32	0.00	0.32	60.00	0.11	0.00	0.11
9.00	0.37	0.00	0.37	61.00	0.09	0.00	0.09
10.00	0.45	0.00	0.45	62.00	0.07	0.00	0.07
11.00	2.05	0.00	2.05	63.00	0.06	0.00	0.06
12.00	<b>5.31</b>	0.00	<b>5.31</b>	64.00	0.05	0.00	0.05
13.00	<b>16.31</b>	0.00	<b>16.31</b>	65.00	0.04	0.00	0.04
14.00	9.50	0.00	9.50	66.00	0.03	0.00	0.03
15.00	6.18	0.00	6.18	67.00	0.03	0.00	0.03
16.00	5.07	0.00	5.07	68.00	0.02	0.00	0.02
17.00	4.72	0.00	4.72	69.00	0.02	0.00	0.02
18.00	4.34	0.00	4.34	70.00	0.01	0.00	0.01
19.00	3.95	0.00	3.95	71.00	0.01	0.00	0.01
20.00	3.58	0.00	3.58	72.00	0.01	0.00	0.01
21.00	3.23	0.00	3.23				
22.00	2.90	0.00	2.90				
23.00	2.59	0.00	2.59				
24.00	2.30	0.00	2.30				
25.00	1.70	0.00	1.70				
26.00	1.09	0.00	1.09				
27.00	0.75	0.00	0.75				
28.00	0.62	0.00	0.62				
29.00	0.54	0.00	0.54				
30.00	0.48	0.00	0.48				
31.00	0.46	0.00	0.46				
32.00	0.45	0.00	0.45				
33.00	0.44	0.00	0.44				
34.00	0.44	0.00	0.44				
35.00	0.43	0.00	0.43				
36.00	0.43	0.00	0.43				
37.00	0.42	0.00	0.42				
38.00	0.41	0.00	0.41				
39.00	0.41	0.00	0.41				
40.00	0.40	0.00	0.40				
41.00	0.39	0.00	0.39				
42.00	0.38	0.00	0.38				
43.00	0.37	0.00	0.37				
44.00	0.35	0.00	0.35				
45.00	0.34	0.00	0.34				
46.00	0.33	0.00	0.33				
47.00	0.31	0.00	0.31				
48.00	0.30	0.00	0.30				
49.00	0.29	0.00	0.29				
50.00	0.27	0.00	0.27				
51.00	0.26	0.00	0.26				

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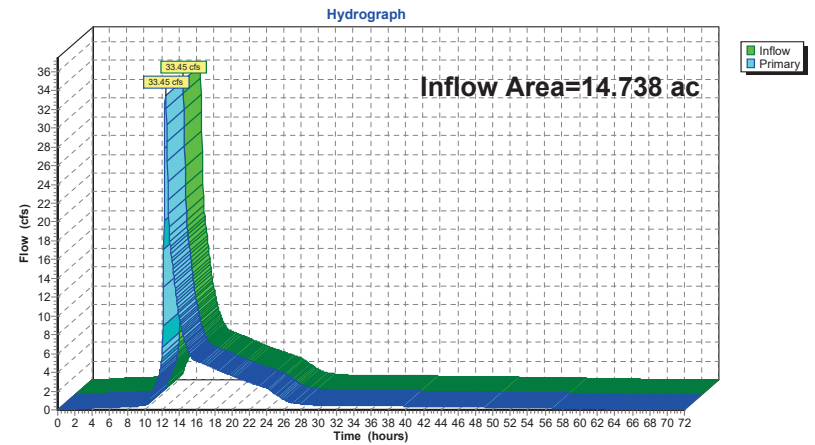
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**Summary for Link 34L: Prop Total**

Inflow Area = 14.738 ac, 68.23% Impervious, Inflow Depth > 6.76" for 100-Year event  
 Inflow = 33.45 cfs @ 12.39 hrs, Volume= 8.308 af  
 Primary = 33.45 cfs @ 12.39 hrs, Volume= 8.308 af, Atten= 0%, Lag= 0.0 min

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

**Link 34L: Prop Total**



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**Hydrograph for Link 34L: Prop Total**

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.25	0.00	0.25
1.00	0.00	0.00	0.00	53.00	0.23	0.00	0.23
2.00	0.05	0.00	0.05	54.00	0.22	0.00	0.22
3.00	0.13	0.00	0.13	55.00	0.20	0.00	0.20
4.00	0.18	0.00	0.18	56.00	0.19	0.00	0.19
5.00	0.22	0.00	0.22	57.00	0.17	0.00	0.17
6.00	0.25	0.00	0.25	58.00	0.15	0.00	0.15
7.00	0.28	0.00	0.28	59.00	0.13	0.00	0.13
8.00	0.33	0.00	0.33	60.00	0.11	0.00	0.11
9.00	0.39	0.00	0.39	61.00	0.09	0.00	0.09
10.00	0.50	0.00	0.50	62.00	0.07	0.00	0.07
11.00	2.16	0.00	2.16	63.00	0.06	0.00	0.06
12.00	<b>5.96</b>	0.00	<b>5.96</b>	64.00	0.05	0.00	0.05
13.00	<b>17.03</b>	0.00	<b>17.03</b>	65.00	0.04	0.00	0.04
14.00	9.74	0.00	9.74	66.00	0.03	0.00	0.03
15.00	6.34	0.00	6.34	67.00	0.03	0.00	0.03
16.00	5.19	0.00	5.19	68.00	0.02	0.00	0.02
17.00	4.82	0.00	4.82	69.00	0.02	0.00	0.02
18.00	4.43	0.00	4.43	70.00	0.01	0.00	0.01
19.00	4.02	0.00	4.02	71.00	0.01	0.00	0.01
20.00	3.65	0.00	3.65	72.00	0.01	0.00	0.01
21.00	3.30	0.00	3.30				
22.00	2.96	0.00	2.96				
23.00	2.64	0.00	2.64				
24.00	2.35	0.00	2.35				
25.00	1.70	0.00	1.70				
26.00	1.09	0.00	1.09				
27.00	0.75	0.00	0.75				
28.00	0.62	0.00	0.62				
29.00	0.54	0.00	0.54				
30.00	0.48	0.00	0.48				
31.00	0.46	0.00	0.46				
32.00	0.45	0.00	0.45				
33.00	0.44	0.00	0.44				
34.00	0.44	0.00	0.44				
35.00	0.43	0.00	0.43				
36.00	0.43	0.00	0.43				
37.00	0.42	0.00	0.42				
38.00	0.41	0.00	0.41				
39.00	0.41	0.00	0.41				
40.00	0.40	0.00	0.40				
41.00	0.39	0.00	0.39				
42.00	0.38	0.00	0.38				
43.00	0.37	0.00	0.37				
44.00	0.35	0.00	0.35				
45.00	0.34	0.00	0.34				
46.00	0.33	0.00	0.33				
47.00	0.31	0.00	0.31				
48.00	0.30	0.00	0.30				
49.00	0.29	0.00	0.29				
50.00	0.27	0.00	0.27				
51.00	0.26	0.00	0.26				

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- 70 Node Listing
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- 75 Subcat 2S: Prop Basin A (Perv)
- 77 Subcat 11S: Prop Basin B (Imp)
- 80 Subcat 12S: Prop Basin B (Perv)
- 82 Subcat 21S: Prop MTD C (Imp)
- 85 Subcat 22S: Prop MTD C (Perv)
- 87 Subcat 23S: Prop South Undetained (Total)
- 89 Subcat 24S: Prop PP D (Imp)
- 92 Subcat 25S: Prop PP D (Perv)
- 94 Subcat 29S: Prop Constructed Wetland E (Imp)
- 97 Subcat 30S: Prop Constructed Wetland E (Perv)
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- 132 Node Listing
- 134 Subcat 1S: Prop Basin A (Imp)
- 137 Subcat 2S: Prop Basin A (Perv)
- 139 Subcat 11S: Prop Basin B (Imp)
- 142 Subcat 12S: Prop Basin B (Perv)
- 144 Subcat 21S: Prop MTD C (Imp)
- 147 Subcat 22S: Prop MTD C (Perv)
- 149 Subcat 23S: Prop South Undetained (Total)
- 151 Subcat 24S: Prop PP D (Imp)
- 154 Subcat 25S: Prop PP D (Perv)
- 156 Subcat 29S: Prop Constructed Wetland E (Imp)
- 159 Subcat 30S: Prop Constructed Wetland E (Perv)
- 161 Subcat 33S: Prop Pond Undetained (Total)
- 163 Pond 10P: Basin A
- 169 Pond 13P: Basin B
- 175 Pond 26P: Porous Pavement D
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- 188 Link 17L: Prop MTD C - bypass
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- 194 Node Listing
- 196 Subcat 1S: Prop Basin A (Imp)
- 199 Subcat 2S: Prop Basin A (Perv)
- 201 Subcat 11S: Prop Basin B (Imp)
- 204 Subcat 12S: Prop Basin B (Perv)
- 206 Subcat 21S: Prop MTD C (Imp)
- 209 Subcat 22S: Prop MTD C (Perv)
- 211 Subcat 23S: Prop South Undetained (Total)
- 213 Subcat 24S: Prop PP D (Imp)
- 216 Subcat 25S: Prop PP D (Perv)
- 218 Subcat 29S: Prop Constructed Wetland E (Imp)
- 221 Subcat 30S: Prop Constructed Wetland E (Perv)
- 223 Subcat 33S: Prop Pond Undetained (Total)
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**HYDROGRAPH SUMMARY REPORTS  
WATER QUALITY STORM**

WQ

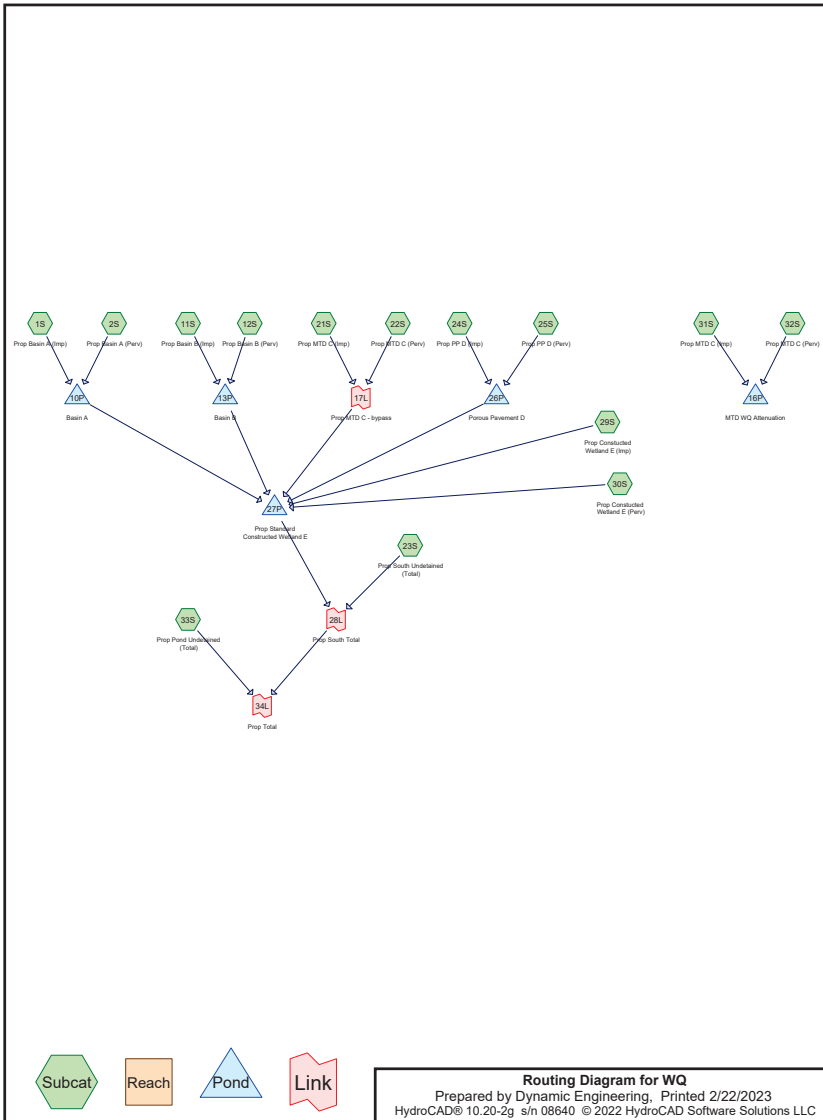
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### Project Notes

Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C  
Rainfall events imported from "NRCS-Rain.txt" for 6617 NJ Somerset-C



**WQ**

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**Rainfall Events Listing (selected events)**

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	WQ	NJ DEP 2-hr		Default	2.00	1	1.25	2

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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
1.341	61	>75% Grass cover, Good, HSG B (2S, 23S, 25S, 30S, 33S)
3.423	74	>75% Grass cover, Good, HSG C (2S, 12S, 22S, 23S, 25S, 30S, 32S, 33S)
4.581	98	Imp (1S, 11S, 21S, 24S)
0.395	98	Paved Driveway (Emergency Only) (29S)
2.231	98	Paved parking, HSG C (31S)
4.938	98	Roofs (24S, 29S)
0.142	98	Wetland Pool (29S)
<b>17.051</b>	<b>90</b>	<b>TOTAL AREA</b>



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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
1.341	HSG B	2S, 23S, 25S, 30S, 33S
5.654	HSG C	2S, 12S, 22S, 23S, 25S, 30S, 31S, 32S, 33S
0.000	HSG D	
10.056	Other	1S, 11S, 21S, 24S, 29S
<b>17.051</b>		<b>TOTAL AREA</b>

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchme Numbers
0.000	1.341	3.423	0.000	0.000	4.764	>75% Grass cover, Good	
0.000	0.000	0.000	0.000	4.581	4.581	Imp	
0.000	0.000	0.000	0.000	0.395	0.395	Paved Driveway (Emergency Only)	
0.000	0.000	2.231	0.000	0.000	2.231	Paved parking	
0.000	0.000	0.000	0.000	4.938	4.938	Roofs	
0.000	0.000	0.000	0.000	0.142	0.142	Wetland Pool	
<b>0.000</b>	<b>1.341</b>	<b>5.654</b>	<b>0.000</b>	<b>10.056</b>	<b>17.051</b>	<b>TOTAL AREA</b>	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1S	0.00	0.00	365.0	0.0050	0.012	0.0	15.0	0.0
2	1S	0.00	0.00	76.0	0.0050	0.012	0.0	18.0	0.0
3	11S	0.00	0.00	227.0	0.0025	0.012	24.0	8.0	0.0
4	11S	0.00	0.00	104.0	0.0025	0.012	30.0	19.0	0.0
5	21S	0.00	0.00	108.0	0.0030	0.012	0.0	21.0	0.0
6	21S	0.00	0.00	108.0	0.0030	0.012	0.0	24.0	0.0
7	21S	0.00	0.00	433.0	0.0030	0.012	0.0	30.0	0.0
8	24S	0.00	0.00	19.0	0.0050	0.012	0.0	15.0	0.0
9	29S	0.00	0.00	533.0	0.0050	0.012	0.0	15.0	0.0
10	29S	0.00	0.00	177.0	0.0050	0.012	0.0	18.0	0.0
11	29S	0.00	0.00	218.0	0.0100	0.012	0.0	18.0	0.0
12	29S	0.00	0.00	104.0	0.0050	0.012	0.0	24.0	0.0
13	29S	0.00	0.00	655.0	0.0040	0.012	0.0	36.0	0.0
14	31S	0.00	0.00	108.0	0.0030	0.012	0.0	21.0	0.0
15	31S	0.00	0.00	108.0	0.0030	0.012	0.0	24.0	0.0
16	31S	0.00	0.00	433.0	0.0030	0.012	0.0	30.0	0.0

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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, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Subcatchment1S: Prop Basin A (Imp)</b>	Runoff Area=29,111 sf 100.00% Impervious Runoff Depth=1.03" Flow Length=541' Tc=3.4 min CN=98 Runoff=2.00 cfs 0.058 af
<b>Subcatchment2S: Prop Basin A (Perv)</b>	Runoff Area=82,064 sf 0.00% Impervious Runoff Depth=0.07" Flow Length=253' Tc=10.9 min CN=74 Runoff=0.24 cfs 0.012 af
<b>Subcatchment11S: Prop Basin B (Imp)</b>	Runoff Area=47,330 sf 100.00% Impervious Runoff Depth=1.03" Flow Length=431' Tc=3.5 min CN=98 Runoff=3.25 cfs 0.094 af
<b>Subcatchment12S: Prop Basin B (Perv)</b>	Runoff Area=11,691 sf 0.00% Impervious Runoff Depth=0.07" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.04 cfs 0.002 af
<b>Subcatchment21S: Prop MTD C (Imp)</b>	Runoff Area=97,184 sf 100.00% Impervious Runoff Depth=1.03" Flow Length=824' Tc=4.3 min CN=98 Runoff=6.80 cfs 0.192 af
<b>Subcatchment22S: Prop MTD C (Perv)</b>	Runoff Area=3,542 sf 0.00% Impervious Runoff Depth=0.07" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.01 cfs 0.000 af
<b>Subcatchment23S: Prop South Undetained</b>	Runoff Area=42,030 sf 0.00% Impervious Runoff Depth=0.01" Flow Length=100' Slope=0.2100 '/' Tc=5.5 min CN=65 Runoff=0.01 cfs 0.000 af
<b>Subcatchment24S: Prop PP D (Imp)</b>	Runoff Area=91,203 sf 100.00% Impervious Runoff Depth=1.03" Flow Length=229' Tc=2.6 min CN=98 Runoff=6.32 cfs 0.181 af
<b>Subcatchment25S: Prop PP D (Perv)</b>	Runoff Area=4,137 sf 0.00% Impervious Runoff Depth=0.01" Flow Length=42' Slope=0.0100 '/' Tc=9.3 min CN=66 Runoff=0.00 cfs 0.000 af
<b>Subcatchment29S: Prop Constructed</b>	Runoff Area=173,212 sf 100.00% Impervious Runoff Depth=1.03" Flow Length=1,787' Tc=7.0 min CN=98 Runoff=11.14 cfs 0.343 af
<b>Subcatchment30S: Prop Constructed</b>	Runoff Area=32,801 sf 0.00% Impervious Runoff Depth=0.01" Flow Length=115' Slope=0.0180 '/' Tc=9.7 min CN=65 Runoff=0.01 cfs 0.000 af
<b>Subcatchment31S: Prop MTD C (Imp)</b>	Runoff Area=97,184 sf 100.00% Impervious Runoff Depth=1.03" Flow Length=824' Tc=4.3 min CN=98 Runoff=6.80 cfs 0.192 af
<b>Subcatchment32S: Prop MTD C (Perv)</b>	Runoff Area=3,542 sf 0.00% Impervious Runoff Depth=0.07" Flow Length=86' Slope=0.0430 '/' Tc=9.2 min CN=74 Runoff=0.01 cfs 0.000 af
<b>Subcatchment33S: Prop Pond Undetained</b>	Runoff Area=27,700 sf 0.00% Impervious Runoff Depth=0.05" Flow Length=100' Slope=0.0610 '/' Tc=9.0 min CN=72 Runoff=0.05 cfs 0.003 af
<b>Pond 10P: Basin A</b>	Peak Elev=83.78' Storage=3,010 cf Inflow=2.00 cfs 0.069 af Outflow=0.00 cfs 0.001 af
<b>Pond 13P: Basin B</b>	Peak Elev=83.17' Storage=4,152 cf Inflow=3.25 cfs 0.095 af Outflow=0.00 cfs 0.000 af

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NJ DEP 2-hr WQ Rainfall=1.25"

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**Pond 16P: MTD WQ Attenuation** Peak Elev=81.49' Storage=6,965 cf Inflow=6.80 cfs 0.193 af  
Outflow=0.54 cfs 0.193 af

**Pond 26P: Porous Pavement D** Peak Elev=82.56' Storage=7,320 cf Inflow=6.32 cfs 0.181 af  
Outflow=0.19 cfs 0.065 af

**Pond 27P: Prop Standard Constructed** Peak Elev=76.96' Storage=22,302 cf Inflow=17.74 cfs 0.602 af  
Outflow=0.41 cfs 0.602 af

**Link 17L: Prop MTD C - bypass** Inflow=6.80 cfs 0.193 af  
Primary=6.80 cfs 0.193 af

**Link 28L: Prop South Total** Inflow=0.42 cfs 0.602 af  
Primary=0.42 cfs 0.602 af

**Link 34L: Prop Total** Inflow=0.45 cfs 0.605 af  
Primary=0.45 cfs 0.605 af

**Total Runoff Area = 17.051 ac Runoff Volume = 1.077 af Average Runoff Depth = 0.76"**  
**27.94% Pervious = 4.764 ac 72.06% Impervious = 12.287 ac**

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NJ DEP 2-hr WQ Rainfall=1.25"

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**Summary for Subcatchment 1S: Prop Basin A (Imp)**

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.00 cfs @ 1.07 hrs, Volume= 0.058 af, Depth= 1.03"  
Routed to Pond 10P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

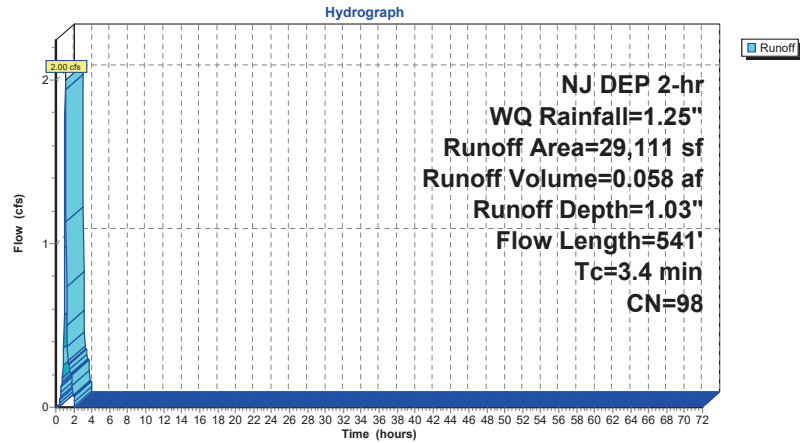
Area (sf)	CN	Description
* 29,111	98	Imp
29,111		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	365	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.3	76	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
3.4	541	Total			

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Subcatchment 1S: Prop Basin A (Imp)



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Hydrograph for Subcatchment 1S: Prop Basin A (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	1.77	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.06	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

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Summary for Subcatchment 2S: Prop Basin A (Perv)

Sheet Flow = (100 X Sq root (0.033))/0.24 = 76'

Runoff = 0.24 cfs @ 1.28 hrs, Volume= 0.012 af, Depth= 0.07"  
Routed to Pond 10P : Basin A

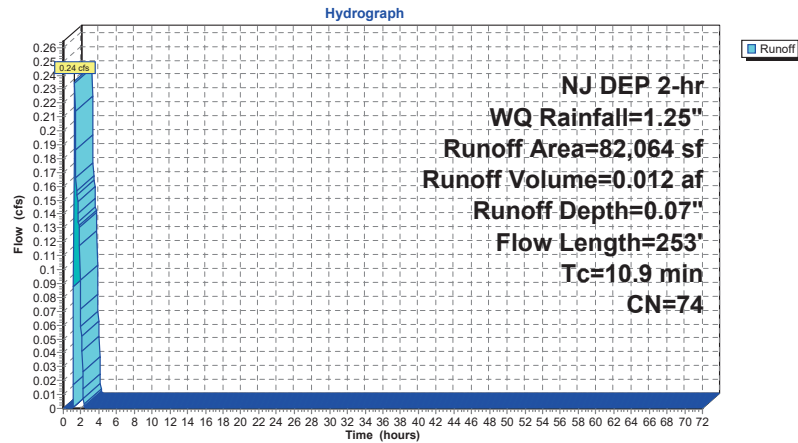
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
81,664	74	>75% Grass cover, Good, HSG C
400	61	>75% Grass cover, Good, HSG B
82,064	74	Weighted Average
82,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	76	0.0330	0.14		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
1.7	177	0.0120	1.76		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps
10.9	253	Total			

Subcatchment 2S: Prop Basin A (Perv)



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Hydrograph for Subcatchment 2S: Prop Basin A (Perv)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.07	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.07	0.00
2.00	1.25	0.07	0.06	54.00	1.25	0.07	0.00
3.00	1.25	0.07	0.00	55.00	1.25	0.07	0.00
4.00	1.25	0.07	0.00	56.00	1.25	0.07	0.00
5.00	1.25	0.07	0.00	57.00	1.25	0.07	0.00
6.00	1.25	0.07	0.00	58.00	1.25	0.07	0.00
7.00	1.25	0.07	0.00	59.00	1.25	0.07	0.00
8.00	1.25	0.07	0.00	60.00	1.25	0.07	0.00
9.00	1.25	0.07	0.00	61.00	1.25	0.07	0.00
10.00	1.25	0.07	0.00	62.00	1.25	0.07	0.00
11.00	1.25	0.07	0.00	63.00	1.25	0.07	0.00
12.00	1.25	0.07	0.00	64.00	1.25	0.07	0.00
13.00	1.25	0.07	0.00	65.00	1.25	0.07	0.00
14.00	1.25	0.07	0.00	66.00	1.25	0.07	0.00
15.00	1.25	0.07	0.00	67.00	1.25	0.07	0.00
16.00	1.25	0.07	0.00	68.00	1.25	0.07	0.00
17.00	1.25	0.07	0.00	69.00	1.25	0.07	0.00
18.00	1.25	0.07	0.00	70.00	1.25	0.07	0.00
19.00	1.25	0.07	0.00	71.00	1.25	0.07	0.00
20.00	1.25	0.07	0.00	72.00	1.25	0.07	0.00
21.00	1.25	0.07	0.00				
22.00	1.25	0.07	0.00				
23.00	1.25	0.07	0.00				
24.00	1.25	0.07	0.00				
25.00	1.25	0.07	0.00				
26.00	1.25	0.07	0.00				
27.00	1.25	0.07	0.00				
28.00	1.25	0.07	0.00				
29.00	1.25	0.07	0.00				
30.00	1.25	0.07	0.00				
31.00	1.25	0.07	0.00				
32.00	1.25	0.07	0.00				
33.00	1.25	0.07	0.00				
34.00	1.25	0.07	0.00				
35.00	1.25	0.07	0.00				
36.00	1.25	0.07	0.00				
37.00	1.25	0.07	0.00				
38.00	1.25	0.07	0.00				
39.00	1.25	0.07	0.00				
40.00	1.25	0.07	0.00				
41.00	1.25	0.07	0.00				
42.00	1.25	0.07	0.00				
43.00	1.25	0.07	0.00				
44.00	1.25	0.07	0.00				
45.00	1.25	0.07	0.00				
46.00	1.25	0.07	0.00				
47.00	1.25	0.07	0.00				
48.00	1.25	0.07	0.00				
49.00	1.25	0.07	0.00				
50.00	1.25	0.07	0.00				
51.00	1.25	0.07	0.00				

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Summary for Subcatchment 11S: Prop Basin B (Imp)

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.25 cfs @ 1.07 hrs, Volume= 0.094 af, Depth= 1.03"  
Routed to Pond 13P : Basin B

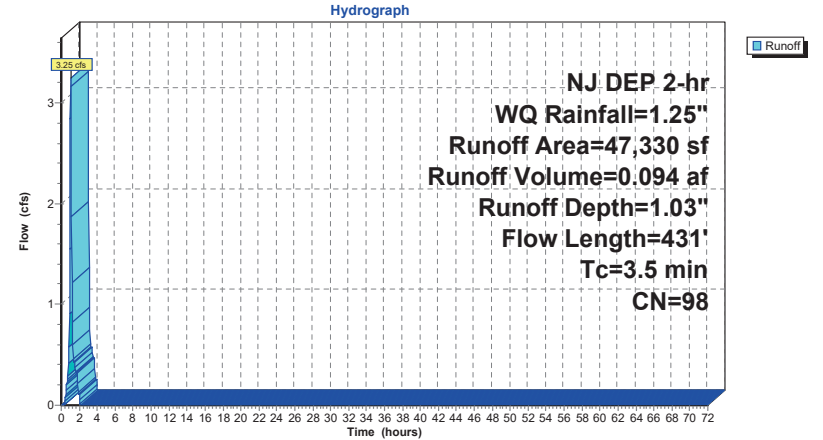
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
* 47,330	98	Imp
47,330		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
1.5	227	0.0025	2.46	3.28	<b>Pipe Channel, Channel Flow</b> 24.0" x 8.0" Box Area= 1.3 sf Perim= 5.3' r= 0.25' n= 0.012 Concrete pipe, finished
0.4	104	0.0025	3.86	12.65	<b>Pipe Channel, RCP_Elliptical 30x19</b> 30.0" x 19.0", R=33.5" Elliptical Area= 3.3 sf Perim= 6.7' r= 0.49' n= 0.012 Concrete pipe, finished
3.5	431	Total			

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Subcatchment 11S: Prop Basin B (Imp)



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Hydrograph for Subcatchment 11S: Prop Basin B (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	2.84	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.11	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

WQ

Summary for Subcatchment 12S: Prop Basin B (Perv)

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

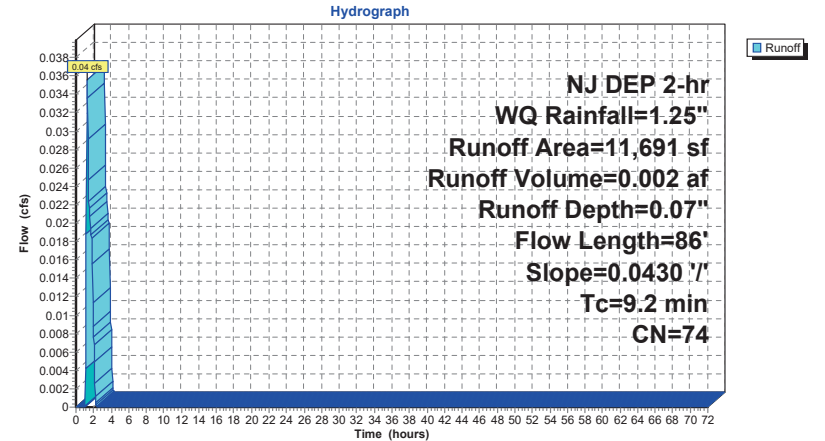
Runoff = 0.04 cfs @ 1.26 hrs, Volume= 0.002 af, Depth= 0.07"  
Routed to Pond 13P : Basin B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
11,691	74	>75% Grass cover, Good, HSG C
11,691		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

Subcatchment 12S: Prop Basin B (Perv)



Hydrograph for Subcatchment 12S: Prop Basin B (Perv)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.07	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.07	0.00
2.00	1.25	0.07	0.01	54.00	1.25	0.07	0.00
3.00	1.25	0.07	0.00	55.00	1.25	0.07	0.00
4.00	1.25	0.07	0.00	56.00	1.25	0.07	0.00
5.00	1.25	0.07	0.00	57.00	1.25	0.07	0.00
6.00	1.25	0.07	0.00	58.00	1.25	0.07	0.00
7.00	1.25	0.07	0.00	59.00	1.25	0.07	0.00
8.00	1.25	0.07	0.00	60.00	1.25	0.07	0.00
9.00	1.25	0.07	0.00	61.00	1.25	0.07	0.00
10.00	1.25	0.07	0.00	62.00	1.25	0.07	0.00
11.00	1.25	0.07	0.00	63.00	1.25	0.07	0.00
12.00	1.25	0.07	0.00	64.00	1.25	0.07	0.00
13.00	1.25	0.07	0.00	65.00	1.25	0.07	0.00
14.00	1.25	0.07	0.00	66.00	1.25	0.07	0.00
15.00	1.25	0.07	0.00	67.00	1.25	0.07	0.00
16.00	1.25	0.07	0.00	68.00	1.25	0.07	0.00
17.00	1.25	0.07	0.00	69.00	1.25	0.07	0.00
18.00	1.25	0.07	0.00	70.00	1.25	0.07	0.00
19.00	1.25	0.07	0.00	71.00	1.25	0.07	0.00
20.00	1.25	0.07	0.00	72.00	1.25	0.07	0.00
21.00	1.25	0.07	0.00				
22.00	1.25	0.07	0.00				
23.00	1.25	0.07	0.00				
24.00	1.25	0.07	0.00				
25.00	1.25	0.07	0.00				
26.00	1.25	0.07	0.00				
27.00	1.25	0.07	0.00				
28.00	1.25	0.07	0.00				
29.00	1.25	0.07	0.00				
30.00	1.25	0.07	0.00				
31.00	1.25	0.07	0.00				
32.00	1.25	0.07	0.00				
33.00	1.25	0.07	0.00				
34.00	1.25	0.07	0.00				
35.00	1.25	0.07	0.00				
36.00	1.25	0.07	0.00				
37.00	1.25	0.07	0.00				
38.00	1.25	0.07	0.00				
39.00	1.25	0.07	0.00				
40.00	1.25	0.07	0.00				
41.00	1.25	0.07	0.00				
42.00	1.25	0.07	0.00				
43.00	1.25	0.07	0.00				
44.00	1.25	0.07	0.00				
45.00	1.25	0.07	0.00				
46.00	1.25	0.07	0.00				
47.00	1.25	0.07	0.00				
48.00	1.25	0.07	0.00				
49.00	1.25	0.07	0.00				
50.00	1.25	0.07	0.00				
51.00	1.25	0.07	0.00				

Summary for Subcatchment 21S: Prop MTD C (Imp)

Sheet Flow = (100 X Sq root (0.015))/0.11 = 1,113' (Use 100')

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.80 cfs @ 1.08 hrs, Volume= 0.192 af, Depth= 1.03"  
Routed to Link 17L : Prop MTD C - bypass

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
* 97,184	98	Imp
97,184		100.00% Impervious Area

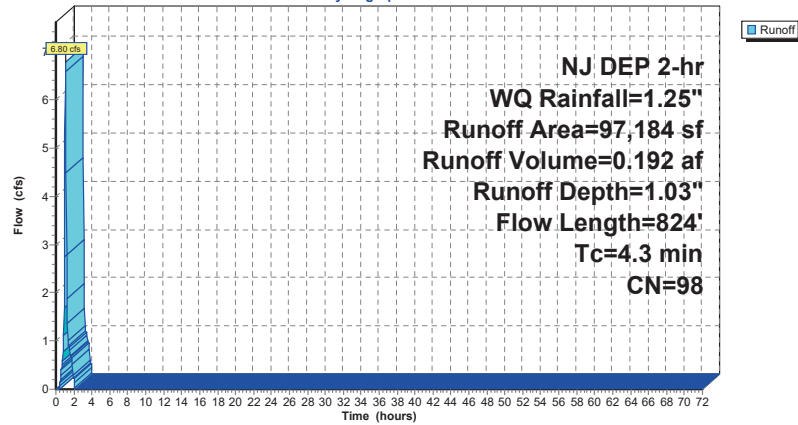
  

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.6	75	0.0120	2.22		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.5	108	0.0030	3.91	9.40	<b>Pipe Channel, Channel Flow</b> 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.012 Concrete pipe, finished
0.4	108	0.0030	4.27	13.42	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.5	433	0.0030	4.96	24.34	<b>Pipe Channel, Channel Flow</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.3	824	Total			



Subcatchment 21S: Prop MTD C (Imp)

Hydrograph



Hydrograph for Subcatchment 21S: Prop MTD C (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	5.30	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.22	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

**Summary for Subcatchment 22S: Prop MTD C (Perv)**

Sheet Flow =  $(100 \times \text{Sq root}(0.043)) / .24 = 86'$

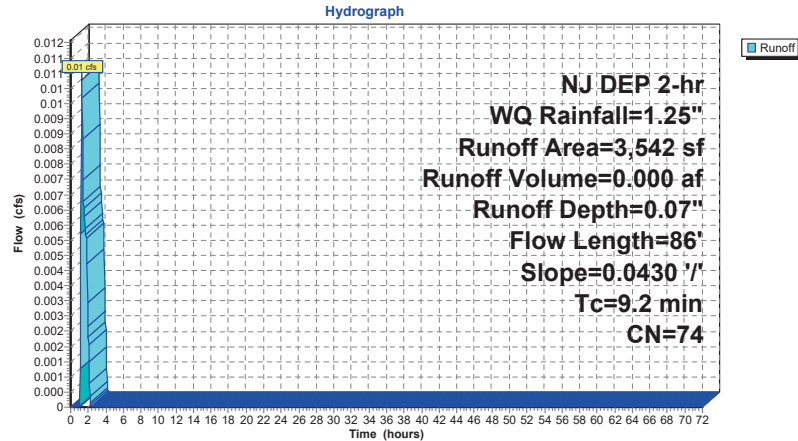
Runoff = 0.01 cfs @ 1.26 hrs, Volume= 0.000 af, Depth= 0.07"  
Routed to Link 17L : Prop MTD C - bypass

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
3,542	74	>75% Grass cover, Good, HSG C
3,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 22S: Prop MTD C (Perv)**



**Hydrograph for Subcatchment 22S: Prop MTD C (Perv)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.07	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.07	0.00
2.00	1.25	0.07	0.00	54.00	1.25	0.07	0.00
3.00	1.25	0.07	0.00	55.00	1.25	0.07	0.00
4.00	1.25	0.07	0.00	56.00	1.25	0.07	0.00
5.00	1.25	0.07	0.00	57.00	1.25	0.07	0.00
6.00	1.25	0.07	0.00	58.00	1.25	0.07	0.00
7.00	1.25	0.07	0.00	59.00	1.25	0.07	0.00
8.00	1.25	0.07	0.00	60.00	1.25	0.07	0.00
9.00	1.25	0.07	0.00	61.00	1.25	0.07	0.00
10.00	1.25	0.07	0.00	62.00	1.25	0.07	0.00
11.00	1.25	0.07	0.00	63.00	1.25	0.07	0.00
12.00	1.25	0.07	0.00	64.00	1.25	0.07	0.00
13.00	1.25	0.07	0.00	65.00	1.25	0.07	0.00
14.00	1.25	0.07	0.00	66.00	1.25	0.07	0.00
15.00	1.25	0.07	0.00	67.00	1.25	0.07	0.00
16.00	1.25	0.07	0.00	68.00	1.25	0.07	0.00
17.00	1.25	0.07	0.00	69.00	1.25	0.07	0.00
18.00	1.25	0.07	0.00	70.00	1.25	0.07	0.00
19.00	1.25	0.07	0.00	71.00	1.25	0.07	0.00
20.00	1.25	0.07	0.00	72.00	1.25	0.07	0.00
21.00	1.25	0.07	0.00				
22.00	1.25	0.07	0.00				
23.00	1.25	0.07	0.00				
24.00	1.25	0.07	0.00				
25.00	1.25	0.07	0.00				
26.00	1.25	0.07	0.00				
27.00	1.25	0.07	0.00				
28.00	1.25	0.07	0.00				
29.00	1.25	0.07	0.00				
30.00	1.25	0.07	0.00				
31.00	1.25	0.07	0.00				
32.00	1.25	0.07	0.00				
33.00	1.25	0.07	0.00				
34.00	1.25	0.07	0.00				
35.00	1.25	0.07	0.00				
36.00	1.25	0.07	0.00				
37.00	1.25	0.07	0.00				
38.00	1.25	0.07	0.00				
39.00	1.25	0.07	0.00				
40.00	1.25	0.07	0.00				
41.00	1.25	0.07	0.00				
42.00	1.25	0.07	0.00				
43.00	1.25	0.07	0.00				
44.00	1.25	0.07	0.00				
45.00	1.25	0.07	0.00				
46.00	1.25	0.07	0.00				
47.00	1.25	0.07	0.00				
48.00	1.25	0.07	0.00				
49.00	1.25	0.07	0.00				
50.00	1.25	0.07	0.00				
51.00	1.25	0.07	0.00				

WQ

Summary for Subcatchment 23S: Prop South Undetained (Total)

Sheet Flow = (100 X Sq root (0.215))/0.24 = 193' (use 100')

[49] Hint: Tc<2dt may require smaller dt

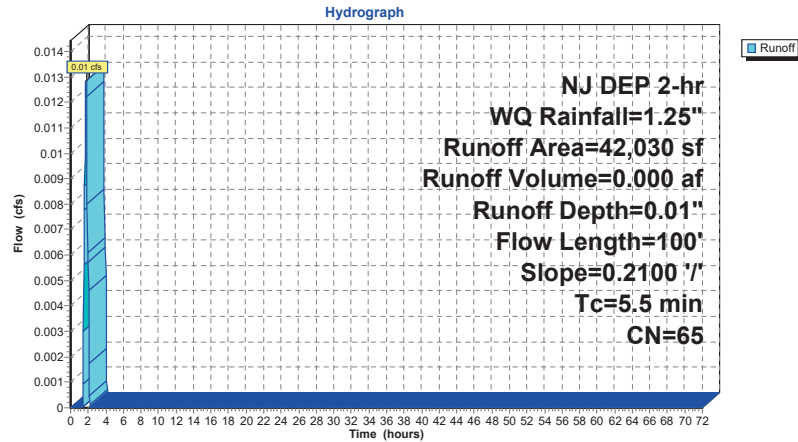
Runoff = 0.01 cfs @ 1.76 hrs, Volume= 0.000 af, Depth= 0.01"  
Routed to Link 28L : Prop South Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
29,825	61	>75% Grass cover, Good, HSG B
12,205	74	>75% Grass cover, Good, HSG C
42,030	65	Weighted Average
42,030		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.5	100	0.2100	0.30		Sheet Flow, Sheet Flow - Woods Grass: Dense n=0.240 P2= 3.29"

Subcatchment 23S: Prop South Undetained (Total)



WQ

Hydrograph for Subcatchment 23S: Prop South Undetained (Total)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.01	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.01	0.00
2.00	1.25	0.01	0.01	54.00	1.25	0.01	0.00
3.00	1.25	0.01	0.00	55.00	1.25	0.01	0.00
4.00	1.25	0.01	0.00	56.00	1.25	0.01	0.00
5.00	1.25	0.01	0.00	57.00	1.25	0.01	0.00
6.00	1.25	0.01	0.00	58.00	1.25	0.01	0.00
7.00	1.25	0.01	0.00	59.00	1.25	0.01	0.00
8.00	1.25	0.01	0.00	60.00	1.25	0.01	0.00
9.00	1.25	0.01	0.00	61.00	1.25	0.01	0.00
10.00	1.25	0.01	0.00	62.00	1.25	0.01	0.00
11.00	1.25	0.01	0.00	63.00	1.25	0.01	0.00
12.00	1.25	0.01	0.00	64.00	1.25	0.01	0.00
13.00	1.25	0.01	0.00	65.00	1.25	0.01	0.00
14.00	1.25	0.01	0.00	66.00	1.25	0.01	0.00
15.00	1.25	0.01	0.00	67.00	1.25	0.01	0.00
16.00	1.25	0.01	0.00	68.00	1.25	0.01	0.00
17.00	1.25	0.01	0.00	69.00	1.25	0.01	0.00
18.00	1.25	0.01	0.00	70.00	1.25	0.01	0.00
19.00	1.25	0.01	0.00	71.00	1.25	0.01	0.00
20.00	1.25	0.01	0.00	72.00	1.25	0.01	0.00
21.00	1.25	0.01	0.00				
22.00	1.25	0.01	0.00				
23.00	1.25	0.01	0.00				
24.00	1.25	0.01	0.00				
25.00	1.25	0.01	0.00				
26.00	1.25	0.01	0.00				
27.00	1.25	0.01	0.00				
28.00	1.25	0.01	0.00				
29.00	1.25	0.01	0.00				
30.00	1.25	0.01	0.00				
31.00	1.25	0.01	0.00				
32.00	1.25	0.01	0.00				
33.00	1.25	0.01	0.00				
34.00	1.25	0.01	0.00				
35.00	1.25	0.01	0.00				
36.00	1.25	0.01	0.00				
37.00	1.25	0.01	0.00				
38.00	1.25	0.01	0.00				
39.00	1.25	0.01	0.00				
40.00	1.25	0.01	0.00				
41.00	1.25	0.01	0.00				
42.00	1.25	0.01	0.00				
43.00	1.25	0.01	0.00				
44.00	1.25	0.01	0.00				
45.00	1.25	0.01	0.00				
46.00	1.25	0.01	0.00				
47.00	1.25	0.01	0.00				
48.00	1.25	0.01	0.00				
49.00	1.25	0.01	0.00				
50.00	1.25	0.01	0.00				
51.00	1.25	0.01	0.00				

**WQ**

**Summary for Subcatchment 24S: Prop PP D (Imp)**

Sheet Flow =  $(100 \times \text{Sq root}(0.01)) / 0.011 = 909'$  (Use 100')

[49] Hint:  $T_c < 2dt$  may require smaller dt  
[47] Hint: Peak is 128% of capacity of segment #3

Runoff = 6.32 cfs @ 1.05 hrs, Volume= 0.181 af, Depth= 1.03"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

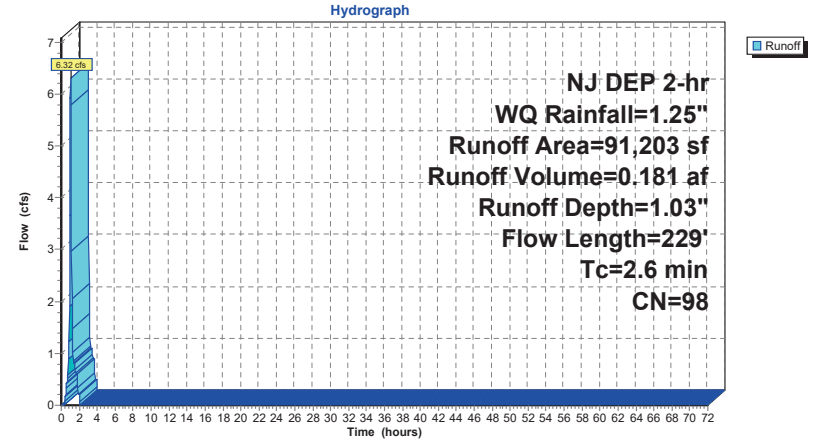
Area (sf)	CN	Description
* 65,300	98	Roofs
* 25,903	98	Imp
91,203	98	Weighted Average
91,203		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.9	110	0.0100	2.03		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.1	19	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
2.6	229	Total			

**WQ**

**Subcatchment 24S: Prop PP D (Imp)**



WQ

Hydrograph for Subcatchment 24S: Prop PP D (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	5.91	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.20	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

WQ

Summary for Subcatchment 25S: Prop PP D (Perv)

Sheet Flow = (100 X Sq root (0.01))/ .24 = 42'

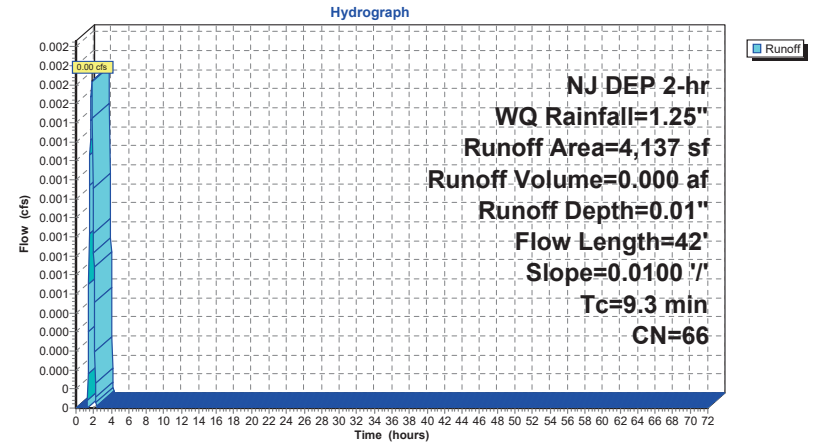
Runoff = 0.00 cfs @ 1.79 hrs, Volume= 0.000 af, Depth= 0.01"  
Routed to Pond 26P : Porous Pavement D

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
2,432	61	>75% Grass cover, Good, HSG B
1,705	74	>75% Grass cover, Good, HSG C
4,137	66	Weighted Average
4,137		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	42	0.0100	0.08		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"

Subcatchment 25S: Prop PP D (Perv)



Hydrograph for Subcatchment 25S: Prop PP D (Perv)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.01	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.01	0.00
2.00	1.25	0.01	0.00	54.00	1.25	0.01	0.00
3.00	1.25	0.01	0.00	55.00	1.25	0.01	0.00
4.00	1.25	0.01	0.00	56.00	1.25	0.01	0.00
5.00	1.25	0.01	0.00	57.00	1.25	0.01	0.00
6.00	1.25	0.01	0.00	58.00	1.25	0.01	0.00
7.00	1.25	0.01	0.00	59.00	1.25	0.01	0.00
8.00	1.25	0.01	0.00	60.00	1.25	0.01	0.00
9.00	1.25	0.01	0.00	61.00	1.25	0.01	0.00
10.00	1.25	0.01	0.00	62.00	1.25	0.01	0.00
11.00	1.25	0.01	0.00	63.00	1.25	0.01	0.00
12.00	1.25	0.01	0.00	64.00	1.25	0.01	0.00
13.00	1.25	0.01	0.00	65.00	1.25	0.01	0.00
14.00	1.25	0.01	0.00	66.00	1.25	0.01	0.00
15.00	1.25	0.01	0.00	67.00	1.25	0.01	0.00
16.00	1.25	0.01	0.00	68.00	1.25	0.01	0.00
17.00	1.25	0.01	0.00	69.00	1.25	0.01	0.00
18.00	1.25	0.01	0.00	70.00	1.25	0.01	0.00
19.00	1.25	0.01	0.00	71.00	1.25	0.01	0.00
20.00	1.25	0.01	0.00	72.00	1.25	0.01	0.00
21.00	1.25	0.01	0.00				
22.00	1.25	0.01	0.00				
23.00	1.25	0.01	0.00				
24.00	1.25	0.01	0.00				
25.00	1.25	0.01	0.00				
26.00	1.25	0.01	0.00				
27.00	1.25	0.01	0.00				
28.00	1.25	0.01	0.00				
29.00	1.25	0.01	0.00				
30.00	1.25	0.01	0.00				
31.00	1.25	0.01	0.00				
32.00	1.25	0.01	0.00				
33.00	1.25	0.01	0.00				
34.00	1.25	0.01	0.00				
35.00	1.25	0.01	0.00				
36.00	1.25	0.01	0.00				
37.00	1.25	0.01	0.00				
38.00	1.25	0.01	0.00				
39.00	1.25	0.01	0.00				
40.00	1.25	0.01	0.00				
41.00	1.25	0.01	0.00				
42.00	1.25	0.01	0.00				
43.00	1.25	0.01	0.00				
44.00	1.25	0.01	0.00				
45.00	1.25	0.01	0.00				
46.00	1.25	0.01	0.00				
47.00	1.25	0.01	0.00				
48.00	1.25	0.01	0.00				
49.00	1.25	0.01	0.00				
50.00	1.25	0.01	0.00				
51.00	1.25	0.01	0.00				

Summary for Subcatchment 29S: Prop Constructed Wetland E (Imp)

Sheet Flow = (100 X Sq root (0.01))/0.011 = 909' (Use 100')

[47] Hint: Peak is 225% of capacity of segment #2  
[47] Hint: Peak is 138% of capacity of segment #3

Runoff = 11.14 cfs @ 1.11 hrs, Volume= 0.343 af, Depth= 1.03"  
Routed to Pond 27P : Prop Standard Constructed Wetland E

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

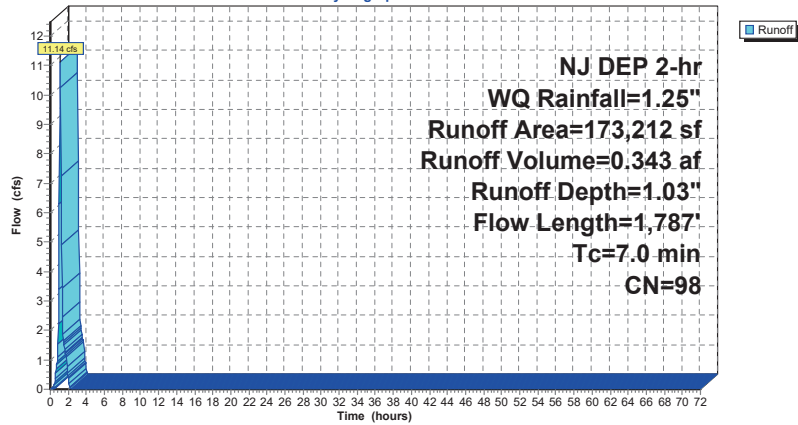
Area (sf)	CN	Description
17,219	98	Paved Driveway (Emergency Only)
149,804	98	Roofs
6,189	98	Wetland Pool
173,212	98	Weighted Average
173,212		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.06		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
2.2	533	0.0050	4.03	4.95	<b>Pipe Channel, Channel Flow</b> 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012 Concrete pipe, finished
0.6	177	0.0050	4.55	8.05	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.6	218	0.0100	6.44	11.38	<b>Pipe Channel, Channel Flow</b> 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.012 Concrete pipe, finished
0.3	104	0.0050	5.52	17.33	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.7	655	0.0040	6.47	45.70	<b>Pipe Channel, Channel Flow</b> 36.0" Round Area= 7.1 sf Perim= 9.4' r= 0.75' n= 0.012 Concrete pipe, finished
7.0	1,787	Total			

WQ

Subcatchment 29S: Prop Constucted Wetland E (Imp)

Hydrograph



WQ

Hydrograph for Subcatchment 29S: Prop Constucted Wetland E (Imp)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	6.29	53.00	1.25	1.03	0.00
2.00	1.25	1.03	0.41	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

WQ

Prepared by Dynamic Engineering  
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NJ DEP 2-hr WQ Rainfall=1.25"  
Printed 2/22/2023  
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Summary for Subcatchment 30S: Prop Constucted Wetland E (Perv)

Sheet Flow = (100 X Sq root (0.018))/L.24 = 56'

Runoff = 0.01 cfs @ 1.80 hrs, Volume= 0.000 af, Depth= 0.01"  
Routed to Pond 27P : Prop Standard Constructed Wetland E

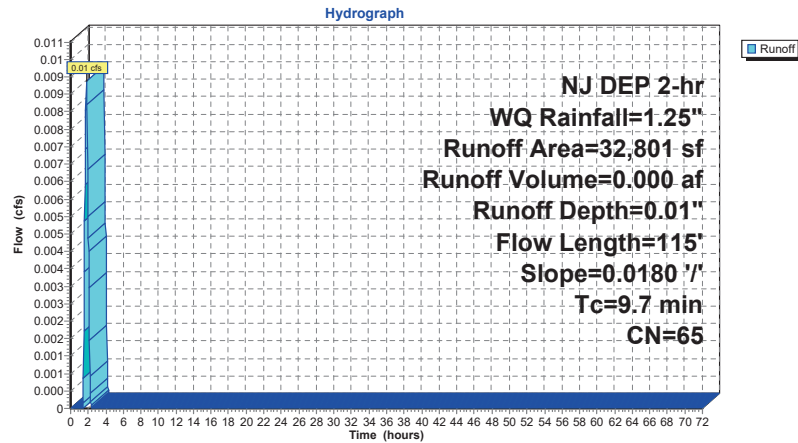
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
22,340	61	>75% Grass cover, Good, HSG B
10,461	74	>75% Grass cover, Good, HSG C
32,801	65	Weighted Average
32,801		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	56	0.0180	0.10		Sheet Flow, Sheet Flow Grass: Dense n= 0.240 P2= 3.29"
0.5	59	0.0180	2.16		Shallow Concentrated Flow, Shallow Conc Flow Unpaved Kv= 16.1 fps

9.7 115 Total

Subcatchment 30S: Prop Constucted Wetland E (Perv)



WQ

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NJ DEP 2-hr WQ Rainfall=1.25"  
Printed 2/22/2023  
Page 36

Hydrograph for Subcatchment 30S: Prop Constucted Wetland E (Perv)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.01	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.01	0.00
2.00	1.25	0.01	0.00	54.00	1.25	0.01	0.00
3.00	1.25	0.01	0.00	55.00	1.25	0.01	0.00
4.00	1.25	0.01	0.00	56.00	1.25	0.01	0.00
5.00	1.25	0.01	0.00	57.00	1.25	0.01	0.00
6.00	1.25	0.01	0.00	58.00	1.25	0.01	0.00
7.00	1.25	0.01	0.00	59.00	1.25	0.01	0.00
8.00	1.25	0.01	0.00	60.00	1.25	0.01	0.00
9.00	1.25	0.01	0.00	61.00	1.25	0.01	0.00
10.00	1.25	0.01	0.00	62.00	1.25	0.01	0.00
11.00	1.25	0.01	0.00	63.00	1.25	0.01	0.00
12.00	1.25	0.01	0.00	64.00	1.25	0.01	0.00
13.00	1.25	0.01	0.00	65.00	1.25	0.01	0.00
14.00	1.25	0.01	0.00	66.00	1.25	0.01	0.00
15.00	1.25	0.01	0.00	67.00	1.25	0.01	0.00
16.00	1.25	0.01	0.00	68.00	1.25	0.01	0.00
17.00	1.25	0.01	0.00	69.00	1.25	0.01	0.00
18.00	1.25	0.01	0.00	70.00	1.25	0.01	0.00
19.00	1.25	0.01	0.00	71.00	1.25	0.01	0.00
20.00	1.25	0.01	0.00	72.00	1.25	0.01	0.00
21.00	1.25	0.01	0.00				
22.00	1.25	0.01	0.00				
23.00	1.25	0.01	0.00				
24.00	1.25	0.01	0.00				
25.00	1.25	0.01	0.00				
26.00	1.25	0.01	0.00				
27.00	1.25	0.01	0.00				
28.00	1.25	0.01	0.00				
29.00	1.25	0.01	0.00				
30.00	1.25	0.01	0.00				
31.00	1.25	0.01	0.00				
32.00	1.25	0.01	0.00				
33.00	1.25	0.01	0.00				
34.00	1.25	0.01	0.00				
35.00	1.25	0.01	0.00				
36.00	1.25	0.01	0.00				
37.00	1.25	0.01	0.00				
38.00	1.25	0.01	0.00				
39.00	1.25	0.01	0.00				
40.00	1.25	0.01	0.00				
41.00	1.25	0.01	0.00				
42.00	1.25	0.01	0.00				
43.00	1.25	0.01	0.00				
44.00	1.25	0.01	0.00				
45.00	1.25	0.01	0.00				
46.00	1.25	0.01	0.00				
47.00	1.25	0.01	0.00				
48.00	1.25	0.01	0.00				
49.00	1.25	0.01	0.00				
50.00	1.25	0.01	0.00				
51.00	1.25	0.01	0.00				



WQ

Summary for Subcatchment 31S: Prop MTD C (Imp)

Sheet Flow =  $(100 \times \text{Sq root } (0.015)) / 0.011 = 1,113'$  (Use 100')

[49] Hint:  $T_c < 2dt$  may require smaller dt

Runoff = 6.80 cfs @ 1.08 hrs, Volume= 0.192 af, Depth= 1.03"  
Routed to Pond 16P : MTD WQ Attenuation

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

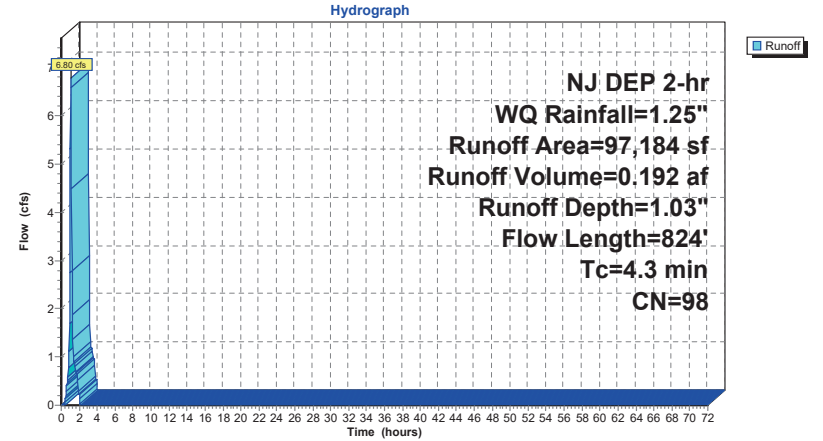
Area (sf)	CN	Description
97,184	98	Paved parking, HSG C
97,184		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0150	1.24		<b>Sheet Flow, Sheet Flow</b> Smooth surfaces n= 0.011 P2= 3.29"
0.6	75	0.0120	2.22		<b>Shallow Concentrated Flow, Shallow Conc Flow</b> Paved Kv= 20.3 fps
0.5	108	0.0030	3.91	9.40	<b>Pipe Channel, Channel Flow</b> 21.0" Round Area= 2.4 sf Perim= 5.5' r= 0.44' n= 0.012 Concrete pipe, finished
0.4	108	0.0030	4.27	13.42	<b>Pipe Channel, Channel Flow</b> 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012 Concrete pipe, finished
1.5	433	0.0030	4.96	24.34	<b>Pipe Channel, Channel Flow</b> 30.0" Round Area= 4.9 sf Perim= 7.9' r= 0.63' n= 0.012 Concrete pipe, finished
4.3	824	Total			

WQ

Subcatchment 31S: Prop MTD C (Imp)



**WQ**

**Hydrograph for Subcatchment 31S: Prop MTD C (Imp)**

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	1.03	0.00
1.00	0.63	0.43	<b>5.30</b>	53.00	1.25	1.03	0.00
2.00	<b>1.25</b>	<b>1.03</b>	<b>0.22</b>	54.00	1.25	1.03	0.00
3.00	1.25	1.03	0.00	55.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00	56.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00	57.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00	58.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00	59.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00	60.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00	61.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00	62.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00	63.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00	64.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00	65.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00	66.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00	67.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00	68.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00	69.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00	70.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00	71.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00	72.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00				
22.00	1.25	1.03	0.00				
23.00	1.25	1.03	0.00				
24.00	1.25	1.03	0.00				
25.00	1.25	1.03	0.00				
26.00	1.25	1.03	0.00				
27.00	1.25	1.03	0.00				
28.00	1.25	1.03	0.00				
29.00	1.25	1.03	0.00				
30.00	1.25	1.03	0.00				
31.00	1.25	1.03	0.00				
32.00	1.25	1.03	0.00				
33.00	1.25	1.03	0.00				
34.00	1.25	1.03	0.00				
35.00	1.25	1.03	0.00				
36.00	1.25	1.03	0.00				
37.00	1.25	1.03	0.00				
38.00	1.25	1.03	0.00				
39.00	1.25	1.03	0.00				
40.00	1.25	1.03	0.00				
41.00	1.25	1.03	0.00				
42.00	1.25	1.03	0.00				
43.00	1.25	1.03	0.00				
44.00	1.25	1.03	0.00				
45.00	1.25	1.03	0.00				
46.00	1.25	1.03	0.00				
47.00	1.25	1.03	0.00				
48.00	1.25	1.03	0.00				
49.00	1.25	1.03	0.00				
50.00	1.25	1.03	0.00				
51.00	1.25	1.03	0.00				

**WQ**

**Summary for Subcatchment 32S: Prop MTD C (Perv)**

Sheet Flow =  $(100 \times \text{Sq root } (0.043)) / .24 = 86'$

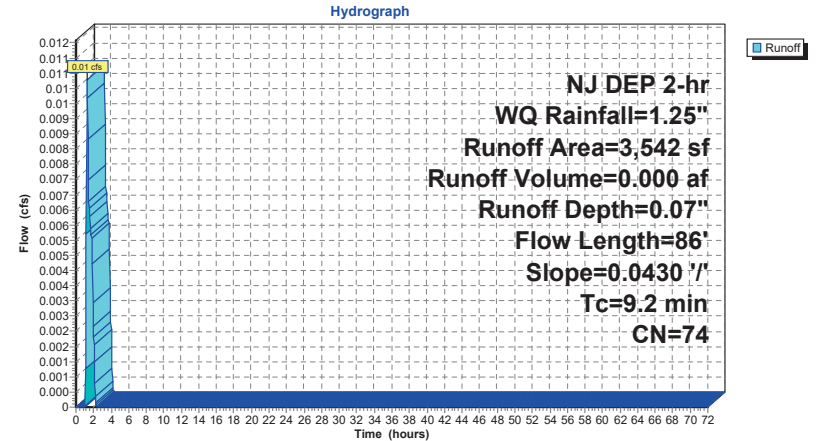
Runoff = 0.01 cfs @ 1.26 hrs, Volume= 0.000 af, Depth= 0.07"  
Routed to Pond 16P : MTD WQ Attenuation

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
3,542	74	>75% Grass cover, Good, HSG C
3,542		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	86	0.0430	0.16		Sheet Flow, Sheet Flow Grass: Dense n=0.240 P2= 3.29"

**Subcatchment 32S: Prop MTD C (Perv)**



WQ

Hydrograph for Subcatchment 32S: Prop MTD C (Perv)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.07	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.07	0.00
2.00	1.25	0.07	0.00	54.00	1.25	0.07	0.00
3.00	1.25	0.07	0.00	55.00	1.25	0.07	0.00
4.00	1.25	0.07	0.00	56.00	1.25	0.07	0.00
5.00	1.25	0.07	0.00	57.00	1.25	0.07	0.00
6.00	1.25	0.07	0.00	58.00	1.25	0.07	0.00
7.00	1.25	0.07	0.00	59.00	1.25	0.07	0.00
8.00	1.25	0.07	0.00	60.00	1.25	0.07	0.00
9.00	1.25	0.07	0.00	61.00	1.25	0.07	0.00
10.00	1.25	0.07	0.00	62.00	1.25	0.07	0.00
11.00	1.25	0.07	0.00	63.00	1.25	0.07	0.00
12.00	1.25	0.07	0.00	64.00	1.25	0.07	0.00
13.00	1.25	0.07	0.00	65.00	1.25	0.07	0.00
14.00	1.25	0.07	0.00	66.00	1.25	0.07	0.00
15.00	1.25	0.07	0.00	67.00	1.25	0.07	0.00
16.00	1.25	0.07	0.00	68.00	1.25	0.07	0.00
17.00	1.25	0.07	0.00	69.00	1.25	0.07	0.00
18.00	1.25	0.07	0.00	70.00	1.25	0.07	0.00
19.00	1.25	0.07	0.00	71.00	1.25	0.07	0.00
20.00	1.25	0.07	0.00	72.00	1.25	0.07	0.00
21.00	1.25	0.07	0.00				
22.00	1.25	0.07	0.00				
23.00	1.25	0.07	0.00				
24.00	1.25	0.07	0.00				
25.00	1.25	0.07	0.00				
26.00	1.25	0.07	0.00				
27.00	1.25	0.07	0.00				
28.00	1.25	0.07	0.00				
29.00	1.25	0.07	0.00				
30.00	1.25	0.07	0.00				
31.00	1.25	0.07	0.00				
32.00	1.25	0.07	0.00				
33.00	1.25	0.07	0.00				
34.00	1.25	0.07	0.00				
35.00	1.25	0.07	0.00				
36.00	1.25	0.07	0.00				
37.00	1.25	0.07	0.00				
38.00	1.25	0.07	0.00				
39.00	1.25	0.07	0.00				
40.00	1.25	0.07	0.00				
41.00	1.25	0.07	0.00				
42.00	1.25	0.07	0.00				
43.00	1.25	0.07	0.00				
44.00	1.25	0.07	0.00				
45.00	1.25	0.07	0.00				
46.00	1.25	0.07	0.00				
47.00	1.25	0.07	0.00				
48.00	1.25	0.07	0.00				
49.00	1.25	0.07	0.00				
50.00	1.25	0.07	0.00				
51.00	1.25	0.07	0.00				

WQ

Summary for Subcatchment 33S: Prop Pond Undetained (Total)

Sheet Flow = (100 X Sq root (0.061))/0.24 = 103' (use 100')

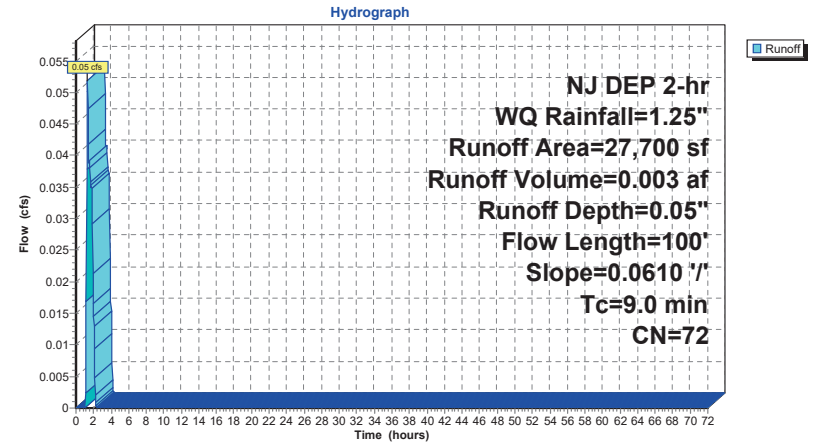
Runoff = 0.05 cfs @ 1.29 hrs, Volume= 0.003 af, Depth= 0.05"  
Routed to Link 34L : Prop Total

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
NJ DEP 2-hr WQ Rainfall=1.25"

Area (sf)	CN	Description
3,410	61	>75% Grass cover, Good, HSG B
24,290	74	>75% Grass cover, Good, HSG C
27,700	72	Weighted Average
27,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	100	0.0610	0.18		Sheet Flow, Sheet Flow - Woods Grass: Dense n= 0.240 P2= 3.29"

Subcatchment 33S: Prop Pond Undetained (Total)



WQ

Hydrograph for Subcatchment 33S: Prop Pond Undetained (Total)

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	52.00	1.25	0.05	0.00
1.00	0.63	0.00	0.00	53.00	1.25	0.05	0.00
2.00	1.25	0.05	0.01	54.00	1.25	0.05	0.00
3.00	1.25	0.05	0.00	55.00	1.25	0.05	0.00
4.00	1.25	0.05	0.00	56.00	1.25	0.05	0.00
5.00	1.25	0.05	0.00	57.00	1.25	0.05	0.00
6.00	1.25	0.05	0.00	58.00	1.25	0.05	0.00
7.00	1.25	0.05	0.00	59.00	1.25	0.05	0.00
8.00	1.25	0.05	0.00	60.00	1.25	0.05	0.00
9.00	1.25	0.05	0.00	61.00	1.25	0.05	0.00
10.00	1.25	0.05	0.00	62.00	1.25	0.05	0.00
11.00	1.25	0.05	0.00	63.00	1.25	0.05	0.00
12.00	1.25	0.05	0.00	64.00	1.25	0.05	0.00
13.00	1.25	0.05	0.00	65.00	1.25	0.05	0.00
14.00	1.25	0.05	0.00	66.00	1.25	0.05	0.00
15.00	1.25	0.05	0.00	67.00	1.25	0.05	0.00
16.00	1.25	0.05	0.00	68.00	1.25	0.05	0.00
17.00	1.25	0.05	0.00	69.00	1.25	0.05	0.00
18.00	1.25	0.05	0.00	70.00	1.25	0.05	0.00
19.00	1.25	0.05	0.00	71.00	1.25	0.05	0.00
20.00	1.25	0.05	0.00	72.00	1.25	0.05	0.00
21.00	1.25	0.05	0.00				
22.00	1.25	0.05	0.00				
23.00	1.25	0.05	0.00				
24.00	1.25	0.05	0.00				
25.00	1.25	0.05	0.00				
26.00	1.25	0.05	0.00				
27.00	1.25	0.05	0.00				
28.00	1.25	0.05	0.00				
29.00	1.25	0.05	0.00				
30.00	1.25	0.05	0.00				
31.00	1.25	0.05	0.00				
32.00	1.25	0.05	0.00				
33.00	1.25	0.05	0.00				
34.00	1.25	0.05	0.00				
35.00	1.25	0.05	0.00				
36.00	1.25	0.05	0.00				
37.00	1.25	0.05	0.00				
38.00	1.25	0.05	0.00				
39.00	1.25	0.05	0.00				
40.00	1.25	0.05	0.00				
41.00	1.25	0.05	0.00				
42.00	1.25	0.05	0.00				
43.00	1.25	0.05	0.00				
44.00	1.25	0.05	0.00				
45.00	1.25	0.05	0.00				
46.00	1.25	0.05	0.00				
47.00	1.25	0.05	0.00				
48.00	1.25	0.05	0.00				
49.00	1.25	0.05	0.00				
50.00	1.25	0.05	0.00				
51.00	1.25	0.05	0.00				

WQ

Summary for Pond 10P: Basin A

Inflow Area = 2.552 ac, 26.18% Impervious, Inflow Depth = 0.33" for WQ event  
 Inflow = 2.00 cfs @ 1.07 hrs, Volume= 0.069 af  
 Outflow = 0.00 cfs @ 2.28 hrs, Volume= 0.001 af, Atten= 100%, Lag= 72.9 min  
 Primary = 0.00 cfs @ 2.28 hrs, Volume= 0.001 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.78' @ 2.28 hrs Surf.Area= 5,180 sf Storage= 3,010 cf

Plug-Flow detention time= 176.9 min calculated for 0.001 af (1% of inflow)  
 Center-of-Mass det. time= 131.5 min ( 203.5 - 72.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	83.20'	12,042 cf	Custom Stage Data (Prismatic) listed below (Recalc)

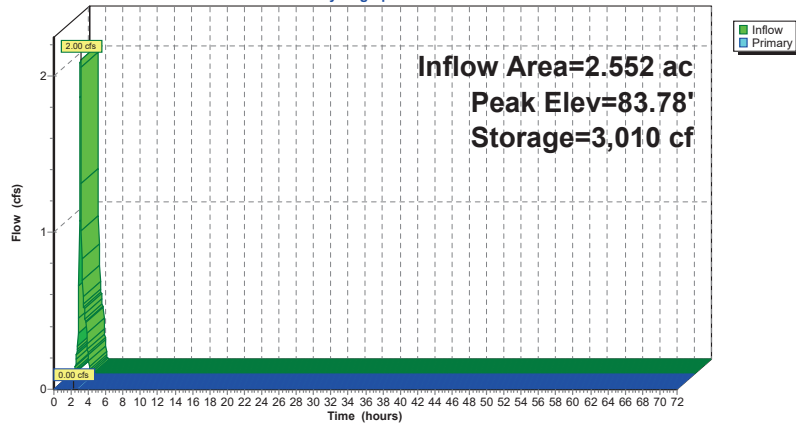
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.20	5,125	0	0
84.00	5,200	4,130	4,130
85.00	5,300	5,250	9,380
85.50	5,350	2,663	12,042

Device	Routing	Invert	Outlet Devices
#1	Primary	83.78'	2.6' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	85.10'	16.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 2.28 hrs HW=83.78' (Free Discharge)  
 1=Sharp-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.21 fps)  
 2=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

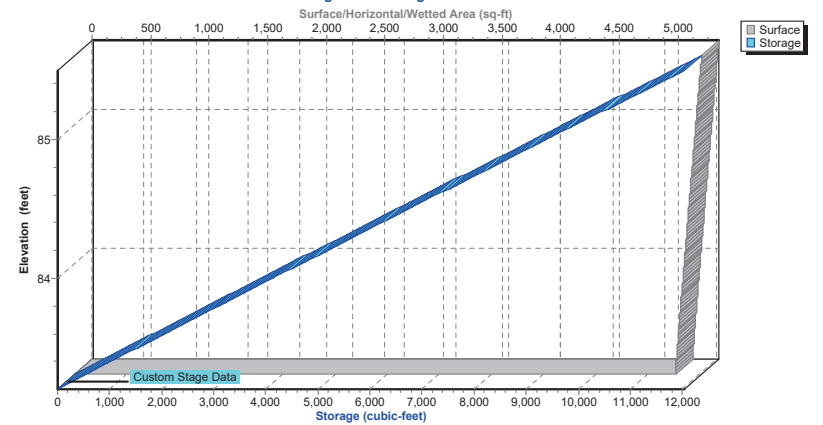
Pond 10P: Basin A

Hydrograph



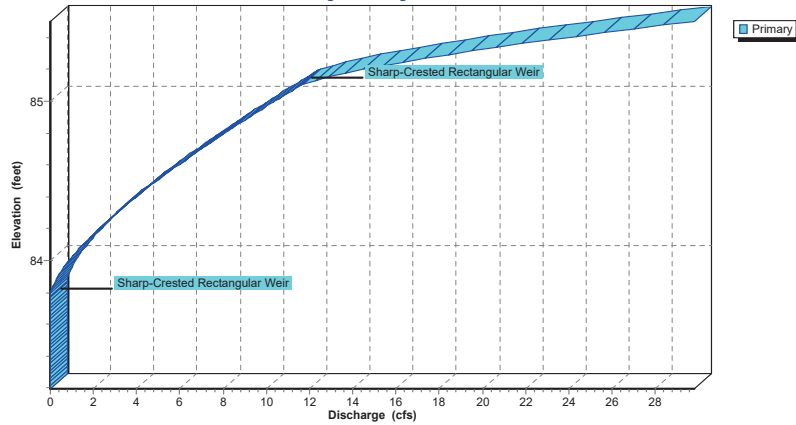
Pond 10P: Basin A

Stage-Area-Storage



Pond 10P: Basin A

Stage-Discharge



WQ

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NJ DEP 2-hr WQ Rainfall=1.25"

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Hydrograph for Pond 10P: Basin A

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	83.20	0.00
2.50	0.00	3,008	83.78	0.00
5.00	0.00	2,991	83.78	0.00
7.50	0.00	2,989	83.78	0.00
10.00	0.00	2,988	83.78	0.00
12.50	0.00	2,988	83.78	0.00
15.00	0.00	2,988	83.78	0.00
17.50	0.00	2,988	83.78	0.00
20.00	0.00	2,988	83.78	0.00
22.50	0.00	2,988	83.78	0.00
25.00	0.00	2,988	83.78	0.00
27.50	0.00	2,988	83.78	0.00
30.00	0.00	2,988	83.78	0.00
32.50	0.00	2,988	83.78	0.00
35.00	0.00	2,988	83.78	0.00
37.50	0.00	2,988	83.78	0.00
40.00	0.00	2,988	83.78	0.00
42.50	0.00	2,988	83.78	0.00
45.00	0.00	2,988	83.78	0.00
47.50	0.00	2,988	83.78	0.00
50.00	0.00	2,988	83.78	0.00
52.50	0.00	2,988	83.78	0.00
55.00	0.00	2,988	83.78	0.00
57.50	0.00	2,988	83.78	0.00
60.00	0.00	2,988	83.78	0.00
62.50	0.00	2,988	83.78	0.00
65.00	0.00	2,988	83.78	0.00
67.50	0.00	2,988	83.78	0.00
70.00	0.00	2,988	83.78	0.00

WQ

Prepared by Dynamic Engineering  
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NJ DEP 2-hr WQ Rainfall=1.25"

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Stage-Discharge for Pond 10P: Basin A

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
83.20	0.00	84.24	2.56	85.28	17.80
83.22	0.00	84.26	2.72	85.30	18.74
83.24	0.00	84.28	2.89	85.32	19.71
83.26	0.00	84.30	3.06	85.34	20.71
83.28	0.00	84.32	3.23	85.36	21.75
83.30	0.00	84.34	3.41	85.38	22.81
83.32	0.00	84.36	3.59	85.40	23.91
83.34	0.00	84.38	3.77	85.42	25.04
83.36	0.00	84.40	3.95	85.44	26.19
83.38	0.00	84.42	4.14	85.46	27.37
83.40	0.00	84.44	4.33	85.48	28.58
83.42	0.00	84.46	4.52	85.50	29.81
83.44	0.00	84.48	4.71		
83.46	0.00	84.50	4.91		
83.48	0.00	84.52	5.10		
83.50	0.00	84.54	5.30		
83.52	0.00	84.56	5.51		
83.54	0.00	84.58	5.71		
83.56	0.00	84.60	5.91		
83.58	0.00	84.62	6.12		
83.60	0.00	84.64	6.33		
83.62	0.00	84.66	6.54		
83.64	0.00	84.68	6.76		
83.66	0.00	84.70	6.97		
83.68	0.00	84.72	7.19		
83.70	0.00	84.74	7.41		
83.72	0.00	84.76	7.63		
83.74	0.00	84.78	7.85		
83.76	0.00	84.80	8.07		
83.78	0.00	84.82	8.30		
83.80	0.02	84.84	8.52		
83.82	0.07	84.86	8.75		
83.84	0.12	84.88	8.98		
83.86	0.19	84.90	9.21		
83.88	0.27	84.92	9.44		
83.90	0.35	84.94	9.67		
83.92	0.44	84.96	9.91		
83.94	0.54	84.98	10.14		
83.96	0.64	85.00	10.38		
83.98	0.75	85.02	10.62		
84.00	0.86	85.04	10.86		
84.02	0.98	85.06	11.10		
84.04	1.10	85.08	11.34		
84.06	1.23	85.10	11.58		
84.08	1.36	85.12	11.98		
84.10	1.50	85.14	12.49		
84.12	1.64	85.16	13.09		
84.14	1.79	85.18	13.75		
84.16	1.93	85.20	14.47		
84.18	2.08	85.22	15.24		
84.20	2.24	85.24	16.05		
84.22	2.40	85.26	16.91		

WQ

Stage-Area-Storage for Pond 10P: Basin A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
83.20	5,125	0
83.25	5,130	256
83.30	5,134	513
83.35	5,139	770
83.40	5,144	1,027
83.45	5,148	1,284
83.50	5,153	1,542
83.55	5,158	1,799
83.60	5,163	2,058
83.65	5,167	2,316
83.70	5,172	2,574
83.75	5,177	2,833
83.80	5,181	3,092
83.85	5,186	3,351
83.90	5,191	3,610
83.95	5,195	3,870
84.00	5,200	4,130
84.05	5,205	4,390
84.10	5,210	4,651
84.15	5,215	4,911
84.20	5,220	5,172
84.25	5,225	5,433
84.30	5,230	5,694
84.35	5,235	5,956
84.40	5,240	6,218
84.45	5,245	6,480
84.50	5,250	6,742
84.55	5,255	7,005
84.60	5,260	7,268
84.65	5,265	7,531
84.70	5,270	7,795
84.75	5,275	8,058
84.80	5,280	8,322
84.85	5,285	8,586
84.90	5,290	8,851
84.95	5,295	9,115
85.00	5,300	9,380
85.05	5,305	9,645
85.10	5,310	9,911
85.15	5,315	10,176
85.20	5,320	10,442
85.25	5,325	10,708
85.30	5,330	10,974
85.35	5,335	11,241
85.40	5,340	11,508
85.45	5,345	11,775
85.50	<b>5,350</b>	<b>12,042</b>

WQ

Summary for Pond 13P: Basin B

Inflow Area = 1.355 ac, 80.19% Impervious, Inflow Depth = 0.84" for WQ event  
 Inflow = 3.25 cfs @ 1.07 hrs, Volume= 0.095 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 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 83.17' @ 2.55 hrs Surf.Area= 5,624 sf Storage= 4,152 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	82.43'	8,837 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

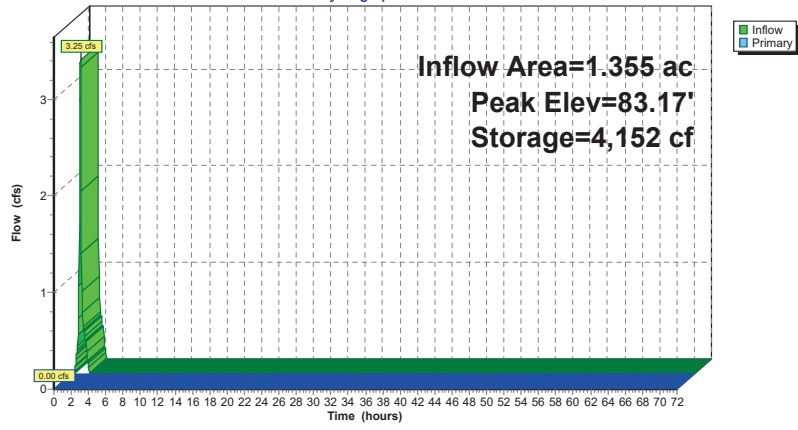
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
82.43	5,550	0	0
83.00	5,607	3,180	3,180
84.00	5,707	5,657	8,837

Device	Routing	Invert	Outlet Devices
#1	Primary	83.18'	<b>20.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=82.43' (Free Discharge)  
 ↑=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

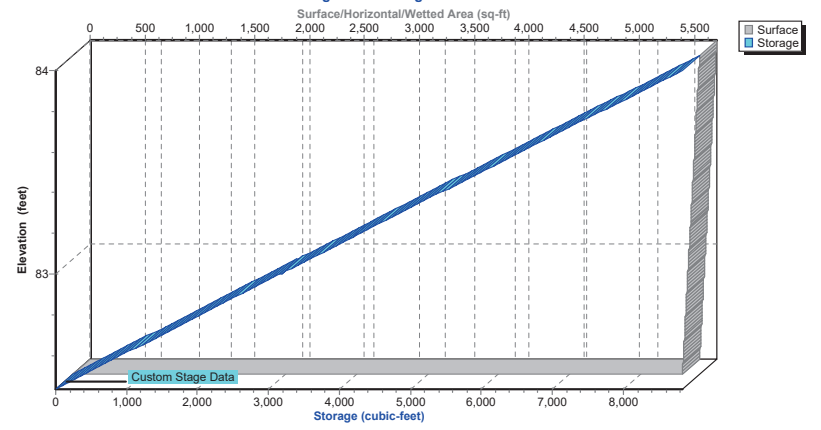
Pond 13P: Basin B

Hydrograph



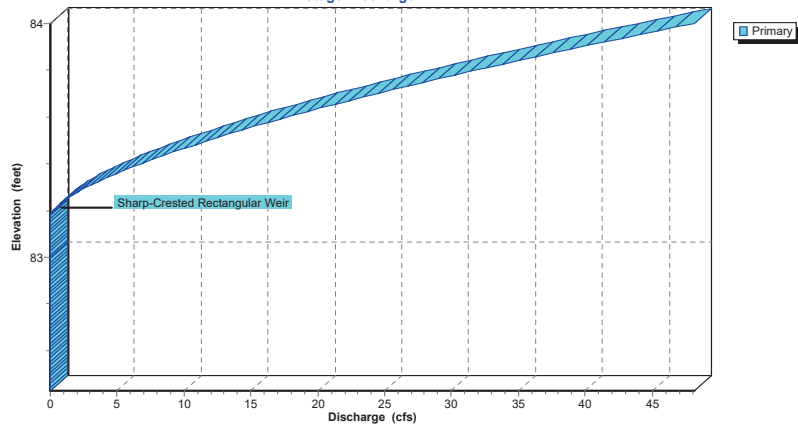
Pond 13P: Basin B

Stage-Area-Storage



Pond 13P: Basin B

Stage-Discharge





WQ

Hydrograph for Pond 13P: Basin B

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	82.43	0.00
2.50	0.00	4,152	83.17	0.00
5.00	0.00	4,152	83.17	0.00
7.50	0.00	4,152	83.17	0.00
10.00	0.00	4,152	83.17	0.00
12.50	0.00	4,152	83.17	0.00
15.00	0.00	4,152	83.17	0.00
17.50	0.00	4,152	83.17	0.00
20.00	0.00	4,152	83.17	0.00
22.50	0.00	4,152	83.17	0.00
25.00	0.00	4,152	83.17	0.00
27.50	0.00	4,152	83.17	0.00
30.00	0.00	4,152	83.17	0.00
32.50	0.00	4,152	83.17	0.00
35.00	0.00	4,152	83.17	0.00
37.50	0.00	4,152	83.17	0.00
40.00	0.00	4,152	83.17	0.00
42.50	0.00	4,152	83.17	0.00
45.00	0.00	4,152	83.17	0.00
47.50	0.00	4,152	83.17	0.00
50.00	0.00	4,152	83.17	0.00
52.50	0.00	4,152	83.17	0.00
55.00	0.00	4,152	83.17	0.00
57.50	0.00	4,152	83.17	0.00
60.00	0.00	4,152	83.17	0.00
62.50	0.00	4,152	83.17	0.00
65.00	0.00	4,152	83.17	0.00
67.50	0.00	4,152	83.17	0.00
70.00	0.00	4,152	83.17	0.00

WQ

Stage-Discharge for Pond 13P: Basin B

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
82.43	0.00	82.95	0.00	83.47	10.18	83.99	47.29
82.44	0.00	82.96	0.00	83.48	10.71	84.00	48.16
82.45	0.00	82.97	0.00	83.49	11.25		
82.46	0.00	82.98	0.00	83.50	11.80		
82.47	0.00	82.99	0.00	83.51	12.36		
82.48	0.00	83.00	0.00	83.52	12.92		
82.49	0.00	83.01	0.00	83.53	13.49		
82.50	0.00	83.02	0.00	83.54	14.08		
82.51	0.00	83.03	0.00	83.55	14.66		
82.52	0.00	83.04	0.00	83.56	15.26		
82.53	0.00	83.05	0.00	83.57	15.87		
82.54	0.00	83.06	0.00	83.58	16.48		
82.55	0.00	83.07	0.00	83.59	17.10		
82.56	0.00	83.08	0.00	83.60	17.73		
82.57	0.00	83.09	0.00	83.61	18.36		
82.58	0.00	83.10	0.00	83.62	19.00		
82.59	0.00	83.11	0.00	83.63	19.65		
82.60	0.00	83.12	0.00	83.64	20.31		
82.61	0.00	83.13	0.00	83.65	20.97		
82.62	0.00	83.14	0.00	83.66	21.64		
82.63	0.00	83.15	0.00	83.67	22.32		
82.64	0.00	83.16	0.00	83.68	23.01		
82.65	0.00	83.17	0.00	83.69	23.70		
82.66	0.00	83.18	0.00	83.70	24.40		
82.67	0.00	83.19	0.07	83.71	25.10		
82.68	0.00	83.20	0.18	83.72	25.81		
82.69	0.00	83.21	0.34	83.73	26.53		
82.70	0.00	83.22	0.52	83.74	27.25		
82.71	0.00	83.23	0.73	83.75	27.98		
82.72	0.00	83.24	0.96	83.76	28.72		
82.73	0.00	83.25	1.21	83.77	29.46		
82.74	0.00	83.26	1.48	83.78	30.21		
82.75	0.00	83.27	1.76	83.79	30.97		
82.76	0.00	83.28	2.07	83.80	31.73		
82.77	0.00	83.29	2.38	83.81	32.50		
82.78	0.00	83.30	2.72	83.82	33.27		
82.79	0.00	83.31	3.06	83.83	34.05		
82.80	0.00	83.32	3.42	83.84	34.84		
82.81	0.00	83.33	3.79	83.85	35.63		
82.82	0.00	83.34	4.18	83.86	36.42		
82.83	0.00	83.35	4.58	83.87	37.23		
82.84	0.00	83.36	4.99	83.88	38.03		
82.85	0.00	83.37	5.41	83.89	38.85		
82.86	0.00	83.38	5.84	83.90	39.67		
82.87	0.00	83.39	6.28	83.91	40.49		
82.88	0.00	83.40	6.73	83.92	41.32		
82.89	0.00	83.41	7.20	83.93	42.16		
82.90	0.00	83.42	7.67	83.94	43.00		
82.91	0.00	83.43	8.15	83.95	43.85		
82.92	0.00	83.44	8.65	83.96	44.70		
82.93	0.00	83.45	9.15	83.97	45.56		
82.94	0.00	83.46	9.66	83.98	46.42		

Stage-Area-Storage for Pond 13P: Basin B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
82.43	5,550	0	83.47	5,654	5,826
82.45	5,552	111	83.49	5,656	5,939
82.47	5,554	222	83.51	5,658	6,052
82.49	5,556	333	83.53	5,660	6,165
82.51	5,558	444	83.55	5,662	6,279
82.53	5,560	555	83.57	5,664	6,392
82.55	5,562	667	83.59	5,666	6,505
82.57	5,564	778	83.61	5,668	6,619
82.59	5,566	889	83.63	5,670	6,732
82.61	5,568	1,001	83.65	5,672	6,845
82.63	5,570	1,112	83.67	5,674	6,959
82.65	5,572	1,223	83.69	5,676	7,072
82.67	5,574	1,335	83.71	5,678	7,186
82.69	5,576	1,446	83.73	5,680	7,299
82.71	5,578	1,558	83.75	5,682	7,413
82.73	5,580	1,669	83.77	5,684	7,527
82.75	5,582	1,781	83.79	5,686	7,640
82.77	5,584	1,893	83.81	5,688	7,754
82.79	5,586	2,004	83.83	5,690	7,868
82.81	5,588	2,116	83.85	5,692	7,982
82.83	5,590	2,228	83.87	5,694	8,096
82.85	5,592	2,340	83.89	5,696	8,210
82.87	5,594	2,452	83.91	5,698	8,324
82.89	5,596	2,564	83.93	5,700	8,438
82.91	5,598	2,676	83.95	5,702	8,552
82.93	5,600	2,788	83.97	5,704	8,666
82.95	5,602	2,900	83.99	<b>5,706</b>	<b>8,780</b>
82.97	5,604	3,012			
82.99	5,606	3,124			
83.01	5,608	3,236			
83.03	5,610	3,348			
83.05	5,612	3,460			
83.07	5,614	3,572			
83.09	5,616	3,685			
83.11	5,618	3,797			
83.13	5,620	3,910			
83.15	5,622	4,022			
83.17	5,624	4,134			
83.19	5,626	4,247			
83.21	5,628	4,359			
83.23	5,630	4,472			
83.25	5,632	4,585			
83.27	5,634	4,697			
83.29	5,636	4,810			
83.31	5,638	4,923			
83.33	5,640	5,036			
83.35	5,642	5,148			
83.37	5,644	5,261			
83.39	5,646	5,374			
83.41	5,648	5,487			
83.43	5,650	5,600			
83.45	5,652	5,713			

Summary for Pond 16P: MTD WQ Attenuation

Inflow Area = 2.312 ac, 96.48% Impervious, Inflow Depth = 1.00" for WQ event  
 Inflow = 6.80 cfs @ 1.08 hrs, Volume= 0.193 af  
 Outflow = 0.54 cfs @ 1.79 hrs, Volume= 0.193 af, Atten= 92%, Lag= 42.8 min  
 Primary = 0.54 cfs @ 1.79 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 81.49' @ 1.79 hrs Surf.Area= 2,571 sf Storage= 6,965 cf

Plug-Flow detention time= 225.9 min calculated for 0.193 af (100% of inflow)  
 Center-of-Mass det. time= 227.6 min ( 296.4 - 68.8 )

Volume	Invert	Avail.Storage	Storage Description
#1A	78.70'	1,028 cf	<b>13.84'W x 185.81'L x 4.00'H Field A</b> 10,281 cf Overall - 7,710 cf Embedded = 2,571 cf x 40.0% Voids
#2A	78.70'	7,478 cf	<b>ACO StormBrixx SD 1 x 329 Inside #1</b> Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 329 Chambers in 7 Rows
		8,507 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	78.70'	<b>3.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	81.45'	<b>5.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=0.53 cfs @ 1.79 hrs HW=81.49' (Free Discharge)  
 1=Orifice/Grate (Orifice Controls 0.39 cfs @ 7.86 fps)  
 2=Sharp-Crested Rectangular Weir (Weir Controls 0.14 cfs @ 0.67 fps)

WQ

Pond 16P: MTD WQ Attenuation - Chamber Wizard Field A

Chamber Model = ACO StormBrixx SD 1 (ACO StormBrixx®SD)

Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf  
Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

47 Chambers/Row x 3.95' Long = 185.81' Row Length  
7 Rows x 23.7" Wide = 13.84' Base Width  
36.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

329 Chambers x 22.7 cf = 7,478.5 cf of Chamber Storage  
329 Chambers x 23.4 cf = 7,709.8 cf of Displacement

10,280.8 cf of Field - 7,709.8 cf of Chambers = 2,571.0 cf of Stone x 40.0% Voids = 1,028.4 cf of Stone Storage

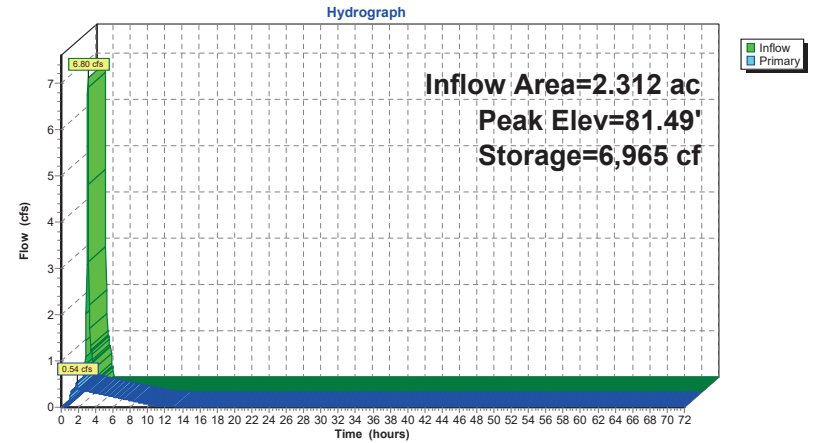
Chamber Storage + Stone Storage = 8,506.9 cf = 0.195 af  
Overall Storage Efficiency = 82.7%  
Overall System Size = 185.81' x 13.84' x 4.00'

329 Chambers  
380.8 cy Field  
95.2 cy Stone

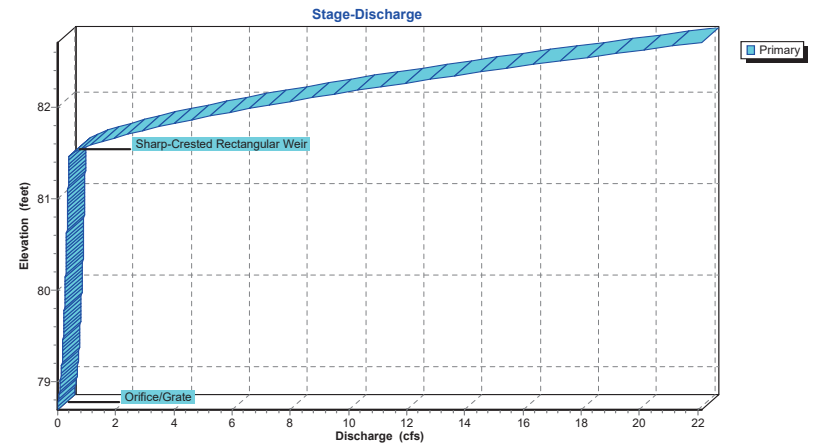


WQ

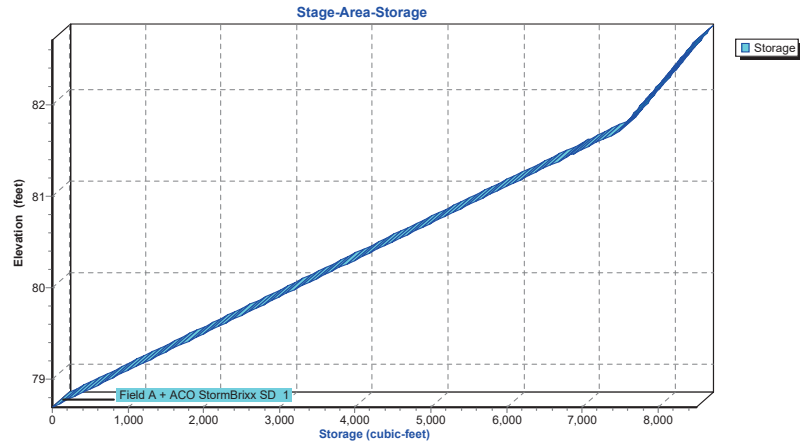
Pond 16P: MTD WQ Attenuation



Pond 16P: MTD WQ Attenuation



Pond 16P: MTD WQ Attenuation



Hydrograph for Pond 16P: MTD WQ Attenuation

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	78.70	0.00
2.50	0.00	6,224	81.20	0.36
5.00	0.00	3,402	80.06	0.26
7.50	0.00	1,488	79.30	0.16
10.00	0.00	481	78.89	0.06
12.50	0.00	206	78.78	0.01
15.00	0.00	124	78.75	0.01
17.50	0.00	88	78.74	0.00
20.00	0.00	64	78.73	0.00
22.50	0.00	47	78.72	0.00
25.00	0.00	35	78.71	0.00
27.50	0.00	25	78.71	0.00
30.00	0.00	19	78.71	0.00
32.50	0.00	14	78.71	0.00
35.00	0.00	10	78.70	0.00
37.50	0.00	7	78.70	0.00
40.00	0.00	5	78.70	0.00
42.50	0.00	4	78.70	0.00
45.00	0.00	3	78.70	0.00
47.50	0.00	2	78.70	0.00
50.00	0.00	2	78.70	0.00
52.50	0.00	1	78.70	0.00
55.00	0.00	1	78.70	0.00
57.50	0.00	1	78.70	0.00
60.00	0.00	0	78.70	0.00
62.50	0.00	0	78.70	0.00
65.00	0.00	0	78.70	0.00
67.50	0.00	0	78.70	0.00
70.00	0.00	0	78.70	0.00

Stage-Discharge for Pond 16P: MTD WQ Attenuation

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
78.70	0.00	79.74	0.23	80.78	0.33	81.82	4.03
78.72	0.00	79.76	0.23	80.80	0.33	81.84	4.33
78.74	0.00	79.78	0.23	80.82	0.33	81.86	4.63
78.76	0.01	79.80	0.23	80.84	0.34	81.88	4.94
78.78	0.01	79.82	0.24	80.86	0.34	81.90	5.26
78.80	0.02	79.84	0.24	80.88	0.34	81.92	5.58
78.82	0.03	79.86	0.24	80.90	0.34	81.94	5.92
78.84	0.04	79.88	0.24	80.92	0.34	81.96	6.25
78.86	0.05	79.90	0.25	80.94	0.34	81.98	6.59
78.88	0.05	79.92	0.25	80.96	0.35	82.00	6.94
78.90	0.06	79.94	0.25	80.98	0.35	82.02	7.30
78.92	0.07	79.96	0.25	81.00	0.35	82.04	7.66
78.94	0.08	79.98	0.25	81.02	0.35	82.06	8.02
78.96	0.09	80.00	0.26	81.04	0.35	82.08	8.40
78.98	0.09	80.02	0.26	81.06	0.35	82.10	8.77
79.00	0.10	80.04	0.26	81.08	0.35	82.12	9.16
79.02	0.10	80.06	0.26	81.10	0.36	82.14	9.54
79.04	0.11	80.08	0.26	81.12	0.36	82.16	9.94
79.06	0.11	80.10	0.27	81.14	0.36	82.18	10.33
79.08	0.12	80.12	0.27	81.16	0.36	82.20	10.74
79.10	0.12	80.14	0.27	81.18	0.36	82.22	11.14
79.12	0.13	80.16	0.27	81.20	0.36	82.24	11.55
79.14	0.13	80.18	0.28	81.22	0.37	82.26	11.97
79.16	0.14	80.20	0.28	81.24	0.37	82.28	12.39
79.18	0.14	80.22	0.28	81.26	0.37	82.30	12.82
79.20	0.14	80.24	0.28	81.28	0.37	82.32	13.25
79.22	0.15	80.26	0.28	81.30	0.37	82.34	13.68
79.24	0.15	80.28	0.29	81.32	0.37	82.36	14.12
79.26	0.16	80.30	0.29	81.34	0.37	82.38	14.56
79.28	0.16	80.32	0.29	81.36	0.38	82.40	15.01
79.30	0.16	80.34	0.29	81.38	0.38	82.42	15.46
79.32	0.17	80.36	0.29	81.40	0.38	82.44	15.92
79.34	0.17	80.38	0.29	81.42	0.38	82.46	16.38
79.36	0.17	80.40	0.30	81.44	0.38	82.48	16.84
79.38	0.18	80.42	0.30	81.46	0.40	82.50	17.31
79.40	0.18	80.44	0.30	81.48	0.47	82.52	17.78
79.42	0.18	80.46	0.30	81.50	0.57	82.54	18.25
79.44	0.19	80.48	0.30	81.52	0.69	82.56	18.73
79.46	0.19	80.50	0.31	81.54	0.83	82.58	19.21
79.48	0.19	80.52	0.31	81.56	0.98	82.60	19.70
79.50	0.19	80.54	0.31	81.58	1.15	82.62	20.18
79.52	0.20	80.56	0.31	81.60	1.34	82.64	20.68
79.54	0.20	80.58	0.31	81.62	1.53	82.66	21.17
79.56	0.20	80.60	0.31	81.64	1.74	82.68	21.67
79.58	0.21	80.62	0.32	81.66	1.96	82.70	22.17
79.60	0.21	80.64	0.32	81.68	2.19		
79.62	0.21	80.66	0.32	81.70	2.42		
79.64	0.21	80.68	0.32	81.72	2.67		
79.66	0.22	80.70	0.32	81.74	2.93		
79.68	0.22	80.72	0.33	81.76	3.19		
79.70	0.22	80.74	0.33	81.78	3.46		
79.72	0.22	80.76	0.33	81.80	3.75		

Stage-Area-Storage for Pond 16P: MTD WQ Attenuation

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
78.70	0	81.30	6,484
78.75	125	81.35	6,609
78.80	249	81.40	6,734
78.85	374	81.45	6,858
78.90	499	81.50	6,983
78.95	623	81.55	7,108
79.00	748	81.60	7,232
79.05	873	81.65	7,357
79.10	998	81.70	7,480
79.15	1,122	81.75	7,531
79.20	1,247	81.80	7,583
79.25	1,372	81.85	7,634
79.30	1,496	81.90	7,686
79.35	1,621	81.95	7,737
79.40	1,746	82.00	7,788
79.45	1,870	82.05	7,840
79.50	1,995	82.10	7,891
79.55	2,120	82.15	7,943
79.60	2,245	82.20	7,994
79.65	2,369	82.25	8,045
79.70	2,494	82.30	8,097
79.75	2,619	82.35	8,148
79.80	2,743	82.40	8,200
79.85	2,868	82.45	8,251
79.90	2,993	82.50	8,303
79.95	3,117	82.55	8,354
80.00	3,242	82.60	8,405
80.05	3,367	82.65	8,457
80.10	3,491	82.70	8,507
80.15	3,616		
80.20	3,741		
80.25	3,866		
80.30	3,990		
80.35	4,115		
80.40	4,240		
80.45	4,364		
80.50	4,489		
80.55	4,614		
80.60	4,738		
80.65	4,863		
80.70	4,988		
80.75	5,113		
80.80	5,237		
80.85	5,362		
80.90	5,487		
80.95	5,611		
81.00	5,736		
81.05	5,861		
81.10	5,985		
81.15	6,110		
81.20	6,235		
81.25	6,359		

**Summary for Pond 26P: Porous Pavement D**

Inflow Area = 2.189 ac, 95.66% Impervious, Inflow Depth = 0.99" for WQ event  
 Inflow = 6.32 cfs @ 1.05 hrs, Volume= 0.181 af  
 Outflow = 0.19 cfs @ 1.98 hrs, Volume= 0.065 af, Atten= 97%, Lag= 56.3 min  
 Primary = 0.19 cfs @ 1.98 hrs, Volume= 0.065 af  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 82.56' @ 1.98 hrs Surf.Area= 11,488 sf Storage= 7,320 cf

Plug-Flow detention time= 175.9 min calculated for 0.065 af (36% of inflow)  
 Center-of-Mass det. time= 162.4 min ( 229.6 - 67.1 )

Volume	Invert	Avail.Storage	Storage Description
#1A	81.90'	4,595 cf	<b>29.65'W x 387.43'L x 4.00'H Stone Storage</b> 45,936 cf Overall - 34,448 cf Embedded = 11,488 cf x 40.0% Voids
#2A	81.90'	33,414 cf	<b>ACO StormBrixx SD 1</b> x 1470 Inside #1 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf 1470 Chambers in 15 Rows
		38,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	81.90'	<b>4.0" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	85.65'	<b>4.0" long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=0.19 cfs @ 1.98 hrs HW=82.56' TW=82.35' (Fixed TW Elev= 82.35')  
 1=Orifice/Grate (Orifice Controls 0.19 cfs @ 2.19 fps)  
 2=Sharp-Crested Rectangular Weir( Controls 0.00 cfs)

**Pond 26P: Porous Pavement D - Chamber Wizard Stone Storage**

**Chamber Model = ACO StormBrixx SD 1 (ACO StormBrixx®SD)**  
 Inside= 23.7"W x 36.0"H => 5.75 sf x 3.95'L = 22.7 cf  
 Outside= 23.7"W x 36.0"H => 5.93 sf x 3.95'L = 23.4 cf

98 Chambers/Row x 3.95' Long = 387.43' Row Length  
 15 Rows x 23.7" Wide = 29.65' Base Width  
 36.0" Chamber Height + 12.0" Stone Cover = 4.00' Field Height

1,470 Chambers x 22.7 cf = 33,414.5 cf Chamber Storage  
 1,470 Chambers x 23.4 cf = 34,447.9 cf Displacement

45,935.6 cf Field - 34,447.9 cf Chambers = 11,487.7 cf Stone x 40.0% Voids = 4,595.1 cf Stone Storage

Chamber Storage + Stone Storage = 38,009.5 cf = 0.873 af  
 Overall Storage Efficiency = 82.7%  
 Overall System Size = 387.43' x 29.65' x 4.00'

1,470 Chambers  
 1,701.3 cy Field  
 425.5 cy Stone

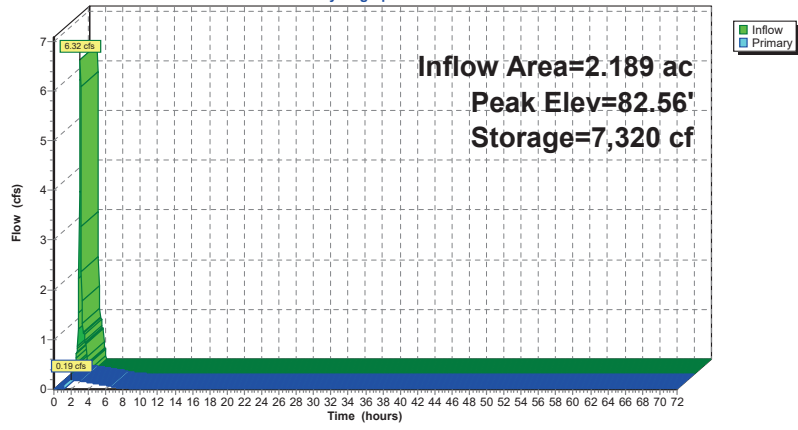


WQ

NJ DEP 2-hr WQ Rainfall=1.25"

Pond 26P: Porous Pavement D

Hydrograph

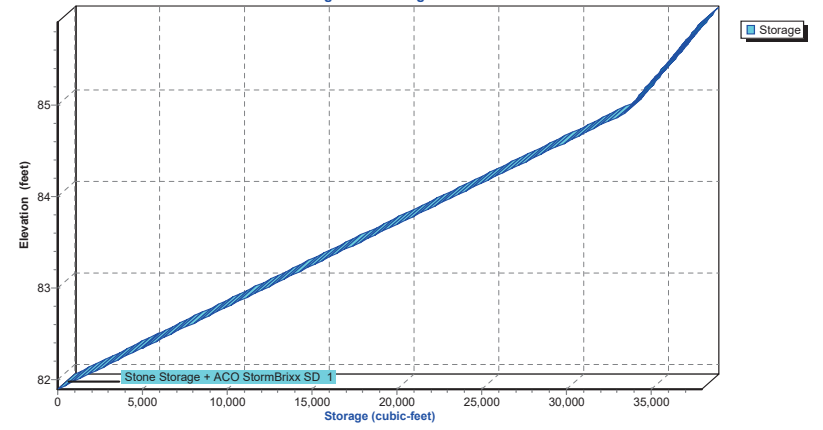


WQ

NJ DEP 2-hr WQ Rainfall=1.25"

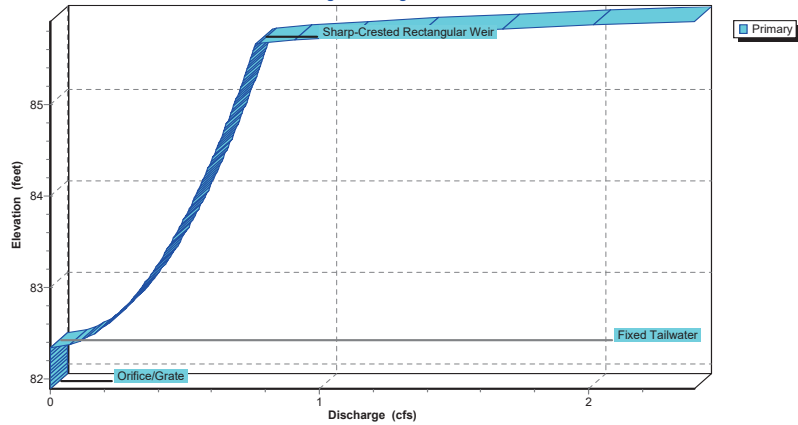
Pond 26P: Porous Pavement D

Stage-Area-Storage



Pond 26P: Porous Pavement D

Stage-Discharge



WQ

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NJ DEP 2-hr WQ Rainfall=1.25"  
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Hydrograph for Pond 26P: Porous Pavement D

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	81.90	0.00
2.50	0.00	7,017	82.53	0.18
5.00	0.00	5,737	82.41	0.11
7.50	0.00	5,137	82.36	0.03
10.00	0.00	5,032	82.35	0.00
12.50	0.00	5,017	82.35	0.00
15.00	0.00	5,015	82.35	0.00
17.50	0.00	5,014	82.35	0.00
20.00	0.00	5,014	82.35	0.00
22.50	0.00	5,014	82.35	0.00
25.00	0.00	5,014	82.35	0.00
27.50	0.00	5,014	82.35	0.00
30.00	0.00	5,014	82.35	0.00
32.50	0.00	5,014	82.35	0.00
35.00	0.00	5,014	82.35	0.00
37.50	0.00	5,014	82.35	0.00
40.00	0.00	5,014	82.35	0.00
42.50	0.00	5,014	82.35	0.00
45.00	0.00	5,014	82.35	0.00
47.50	0.00	5,014	82.35	0.00
50.00	0.00	5,014	82.35	0.00
52.50	0.00	5,014	82.35	0.00
55.00	0.00	5,014	82.35	0.00
57.50	0.00	5,014	82.35	0.00
60.00	0.00	5,014	82.35	0.00
62.50	0.00	5,014	82.35	0.00
65.00	0.00	5,014	82.35	0.00
67.50	0.00	5,014	82.35	0.00
70.00	0.00	5,014	82.35	0.00

WQ

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NJ DEP 2-hr WQ Rainfall=1.25"  
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Stage-Discharge for Pond 26P: Porous Pavement D

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
81.90	0.00	82.94	0.32	83.98	0.54	85.02	0.69
81.92	0.00	82.96	0.33	84.00	0.54	85.04	0.69
81.94	0.00	82.98	0.33	84.02	0.54	85.06	0.69
81.96	0.00	83.00	0.34	84.04	0.55	85.08	0.69
81.98	0.00	83.02	0.34	84.06	0.55	85.10	0.70
82.00	0.00	83.04	0.35	84.08	0.55	85.12	0.70
82.02	0.00	83.06	0.35	84.10	0.56	85.14	0.70
82.04	0.00	83.08	0.36	84.12	0.56	85.16	0.70
82.06	0.00	83.10	0.36	84.14	0.56	85.18	0.71
82.08	0.00	83.12	0.37	84.16	0.57	85.20	0.71
82.10	0.00	83.14	0.37	84.18	0.57	85.22	0.71
82.12	0.00	83.16	0.38	84.20	0.57	85.24	0.71
82.14	0.00	83.18	0.38	84.22	0.57	85.26	0.72
82.16	0.00	83.20	0.39	84.24	0.58	85.28	0.72
82.18	0.00	83.22	0.39	84.26	0.58	85.30	0.72
82.20	0.00	83.24	0.40	84.28	0.58	85.32	0.72
82.22	0.00	83.26	0.40	84.30	0.59	85.34	0.73
82.24	0.00	83.28	0.41	84.32	0.59	85.36	0.73
82.26	0.00	83.30	0.41	84.34	0.59	85.38	0.73
82.28	0.00	83.32	0.41	84.36	0.60	85.40	0.73
82.30	0.00	83.34	0.42	84.38	0.60	85.42	0.74
82.32	0.00	83.36	0.42	84.40	0.60	85.44	0.74
82.34	0.00	83.38	0.43	84.42	0.60	85.46	0.74
82.36	0.04	83.40	0.43	84.44	0.61	85.48	0.74
82.38	0.07	83.42	0.43	84.46	0.61	85.50	0.75
82.40	0.09	83.44	0.44	84.48	0.61	85.52	0.75
82.42	0.11	83.46	0.44	84.50	0.62	85.54	0.75
82.44	0.13	83.48	0.45	84.52	0.62	85.56	0.75
82.46	0.14	83.50	0.45	84.54	0.62	85.58	0.76
82.48	0.15	83.52	0.45	84.56	0.62	85.60	0.76
82.50	0.16	83.54	0.46	84.58	0.63	85.62	0.76
82.52	0.17	83.56	0.46	84.60	0.63	85.64	0.76
82.54	0.18	83.58	0.47	84.62	0.63	85.66	0.78
82.56	0.19	83.60	0.47	84.64	0.64	85.68	0.83
82.58	0.20	83.62	0.47	84.66	0.64	85.70	0.91
82.60	0.21	83.64	0.48	84.68	0.64	85.72	1.01
82.62	0.22	83.66	0.48	84.70	0.64	85.74	1.13
82.64	0.23	83.68	0.48	84.72	0.65	85.76	1.25
82.66	0.23	83.70	0.49	84.74	0.65	85.78	1.39
82.68	0.24	83.72	0.49	84.76	0.65	85.80	1.53
82.70	0.25	83.74	0.50	84.78	0.66	85.82	1.69
82.72	0.26	83.76	0.50	84.80	0.66	85.84	1.86
82.74	0.26	83.78	0.50	84.82	0.66	85.86	2.03
82.76	0.27	83.80	0.51	84.84	0.66	85.88	2.22
82.78	0.28	83.82	0.51	84.86	0.67	85.90	2.41
82.80	0.28	83.84	0.51	84.88	0.67		
82.82	0.29	83.86	0.52	84.90	0.67		
82.84	0.29	83.88	0.52	84.92	0.67		
82.86	0.30	83.90	0.52	84.94	0.68		
82.88	0.31	83.92	0.53	84.96	0.68		
82.90	0.31	83.94	0.53	84.98	0.68		
82.92	0.32	83.96	0.53	85.00	0.68		



Stage-Area-Storage for Pond 26P: Porous Pavement D

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
81.90	0	84.50	28,972
81.95	557	84.55	29,529
82.00	1,114	84.60	30,086
82.05	1,671	84.65	30,643
82.10	2,229	84.70	31,200
82.15	2,786	84.75	31,758
82.20	3,343	84.80	32,315
82.25	3,900	84.85	32,872
82.30	4,457	84.90	33,429
82.35	5,014	84.95	33,986
82.40	5,572	85.00	34,543
82.45	6,129	85.05	35,100
82.50	6,686	85.10	35,657
82.55	7,243	85.15	36,214
82.60	7,800	85.20	36,771
82.65	8,357	85.25	37,328
82.70	8,914	85.30	37,885
82.75	9,472	85.35	38,442
82.80	10,029	85.40	39,000
82.85	10,586	85.45	39,557
82.90	11,143	85.50	40,114
82.95	11,700	85.55	40,671
83.00	12,257	85.60	41,228
83.05	12,814	85.65	41,785
83.10	13,372	85.70	42,342
83.15	13,929	85.75	42,900
83.20	14,486	85.80	43,457
83.25	15,043	85.85	44,014
83.30	15,600	85.90	<b>44,571</b>
83.35	16,157		
83.40	16,715		
83.45	17,272		
83.50	17,829		
83.55	18,386		
83.60	18,943		
83.65	19,500		
83.70	20,057		
83.75	20,615		
83.80	21,172		
83.85	21,729		
83.90	22,286		
83.95	22,843		
84.00	23,400		
84.05	23,958		
84.10	24,515		
84.15	25,072		
84.20	25,629		
84.25	26,186		
84.30	26,743		
84.35	27,300		
84.40	27,858		
84.45	28,415		

Summary for Pond 27P: Prop Standard Constructed Wetland E

Inflow Area = 13.138 ac, 76.54% Impervious, Inflow Depth = 0.55" for WQ event  
 Inflow = 17.74 cfs @ 1.09 hrs, Volume= 0.602 af  
 Outflow = 0.41 cfs @ 2.11 hrs, Volume= 0.602 af, Atten= 98%, Lag= 61.0 min  
 Primary = 0.41 cfs @ 2.11 hrs, Volume= 0.602 af  
 Routed to Link 28L : Prop South Total

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs  
 Peak Elev= 76.96' @ 2.11 hrs Surf.Area= 19,068 sf Storage= 22,302 cf

Plug-Flow detention time= 649.8 min calculated for 0.602 af (100% of inflow)  
 Center-of-Mass det. time= 649.4 min ( 737.2 - 87.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	75.50'	140,019 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.50	6,189	0	0
76.00	15,855	5,511	5,511
77.00	19,196	17,526	23,037
78.00	19,296	19,246	42,283
79.00	19,396	19,346	61,629
80.00	19,496	19,446	81,075
81.00	19,548	19,522	100,597
82.00	19,648	19,598	120,195
83.00	20,000	19,824	140,019

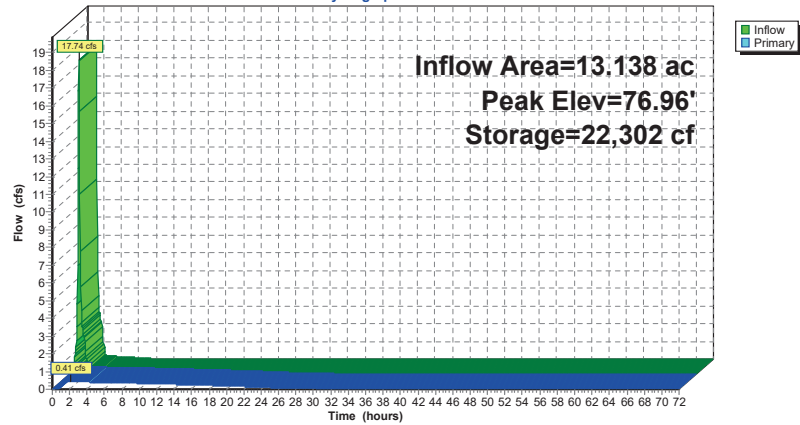
Device	Routing	Invert	Outlet Devices
#1	Primary	75.50'	<b>3.7" Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#2	Primary	77.20'	<b>30.0" W x 2.5" H Vert. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads
#3	Primary	80.15'	<b>1.5' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)
#4	Primary	82.05'	<b>20.0' long Sharp-Crested Rectangular Weir</b> 2 End Contraction(s)

Primary OutFlow Max=0.41 cfs @ 2.11 hrs HW=76.96' (Free Discharge)

- 1=Orifice/Grate (Orifice Controls 0.41 cfs @ 5.51 fps)
- 2=Orifice/Grate ( Controls 0.00 cfs)
- 3=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)
- 4=Sharp-Crested Rectangular Weir ( Controls 0.00 cfs)

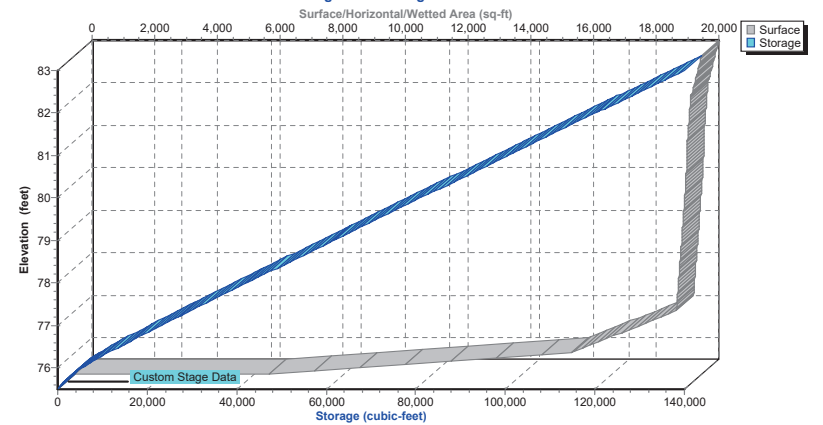
### Pond 27P: Prop Standard Constructed Wetland E

Hydrograph



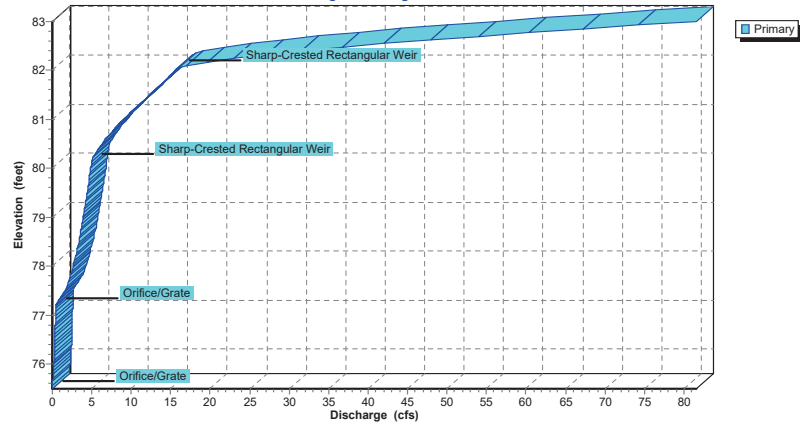
### Pond 27P: Prop Standard Constructed Wetland E

Stage-Area-Storage



### Pond 27P: Prop Standard Constructed Wetland E

Stage-Discharge



WQ

Hydrograph for Pond 27P: Prop Standard Constructed Wetland E

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0	75.50	0.00
2.50	0.18	22,027	76.95	0.41
5.00	0.11	19,729	76.82	0.39
7.50	0.03	16,943	76.67	0.36
10.00	0.00	13,922	76.50	0.33
12.50	0.00	11,105	76.34	0.30
15.00	0.00	8,583	76.19	0.26
17.50	0.00	6,376	76.05	0.23
20.00	0.00	4,497	75.93	0.19
22.50	0.00	2,982	75.82	0.15
25.00	0.00	1,896	75.73	0.10
27.50	0.00	1,243	75.66	0.05
30.00	0.00	867	75.62	0.03
32.50	0.00	638	75.59	0.02
35.00	0.00	498	75.57	0.01
37.50	0.00	397	75.56	0.01
40.00	0.00	316	75.55	0.01
42.50	0.00	252	75.54	0.01
45.00	0.00	201	75.53	0.01
47.50	0.00	160	75.52	0.00
50.00	0.00	127	75.52	0.00
52.50	0.00	101	75.51	0.00
55.00	0.00	81	75.51	0.00
57.50	0.00	64	75.51	0.00
60.00	0.00	51	75.51	0.00
62.50	0.00	41	75.51	0.00
65.00	0.00	33	75.50	0.00
67.50	0.00	26	75.50	0.00
70.00	0.00	21	75.50	0.00

WQ

Stage-Discharge for Pond 27P: Prop Standard Constructed Wetland E

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
75.50	0.00	78.10	2.80	80.70	7.28
75.55	0.01	78.15	2.87	80.75	7.56
75.60	0.02	78.20	2.95	80.80	7.85
75.65	0.05	78.25	3.02	80.85	8.15
75.70	0.08	78.30	3.09	80.90	8.45
75.75	0.11	78.35	3.15	80.95	8.75
75.80	0.14	78.40	3.22	81.00	9.06
75.85	0.16	78.45	3.28	81.05	9.37
75.90	0.18	78.50	3.35	81.10	9.69
75.95	0.20	78.55	3.41	81.15	10.01
76.00	0.21	78.60	3.47	81.20	10.33
76.05	0.23	78.65	3.53	81.25	10.66
76.10	0.24	78.70	3.59	81.30	10.99
76.15	0.25	78.75	3.65	81.35	11.32
76.20	0.27	78.80	3.70	81.40	11.65
76.25	0.28	78.85	3.76	81.45	11.98
76.30	0.29	78.90	3.82	81.50	12.31
76.35	0.30	78.95	3.87	81.55	12.65
76.40	0.31	79.00	3.92	81.60	12.98
76.45	0.32	79.05	3.98	81.65	13.32
76.50	0.33	79.10	4.03	81.70	13.65
76.55	0.34	79.15	4.08	81.75	13.98
76.60	0.35	79.20	4.13	81.80	14.32
76.65	0.36	79.25	4.18	81.85	14.65
76.70	0.37	79.30	4.23	81.90	14.98
76.75	0.38	79.35	4.28	81.95	15.31
76.80	0.38	79.40	4.33	82.00	15.64
76.85	0.39	79.45	4.37	82.05	15.96
76.90	0.40	79.50	4.42	82.10	17.02
76.95	0.41	79.55	4.47	82.15	18.68
77.00	0.42	79.60	4.51	82.20	20.72
77.05	0.42	79.65	4.56	82.25	23.09
77.10	0.43	79.70	4.60	82.30	25.72
77.15	0.44	79.75	4.65	82.35	28.59
77.20	0.45	79.80	4.69	82.40	31.68
77.25	0.54	79.85	4.74	82.45	34.97
77.30	0.72	79.90	4.78	82.50	38.44
77.35	0.93	79.95	4.82	82.55	42.10
77.40	1.19	80.00	4.87	82.60	45.91
77.45	1.42	80.05	4.91	82.65	49.89
77.50	1.58	80.10	4.95	82.70	54.01
77.55	1.73	80.15	4.99	82.75	58.28
77.60	1.86	80.20	5.09	82.80	62.68
77.65	1.98	80.25	5.23	82.85	67.22
77.70	2.09	80.30	5.39	82.90	71.88
77.75	2.19	80.35	5.58	82.95	76.67
77.80	2.29	80.40	5.79	83.00	81.57
77.85	2.38	80.45	6.01		
77.90	2.47	80.50	6.24		
77.95	2.56	80.55	6.49		
78.00	2.64	80.60	6.74		
78.05	2.72	80.65	7.01		

Stage-Area-Storage for Pond 27P: Prop Standard Constructed Wetland E

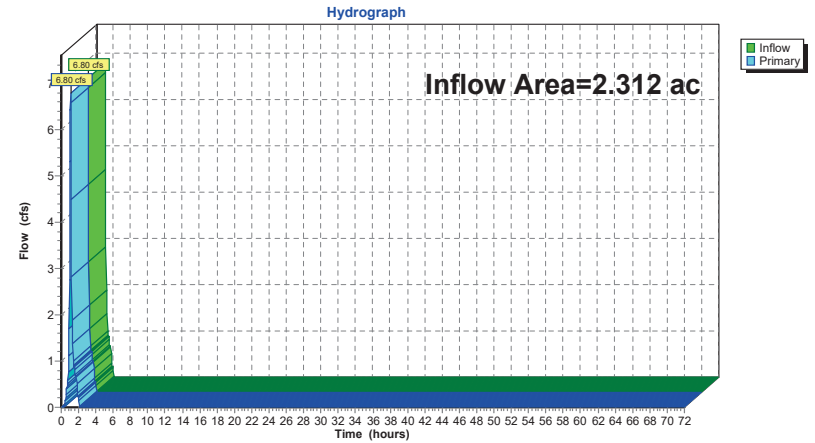
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
75.50	6,189	0	80.70	19,532	94,734
75.60	8,122	716	80.80	19,538	96,688
75.70	10,055	1,624	80.90	19,543	98,642
75.80	11,989	2,727	81.00	19,548	100,597
75.90	13,922	4,022	81.10	19,558	102,552
76.00	15,855	5,511	81.20	19,568	104,508
76.10	16,189	7,113	81.30	19,578	106,465
76.20	16,523	8,749	81.40	19,588	108,424
76.30	16,857	10,418	81.50	19,598	110,383
76.40	17,191	12,120	81.60	19,608	112,343
76.50	17,526	13,856	81.70	19,618	114,305
76.60	17,860	15,625	81.80	19,628	116,267
76.70	18,194	17,428	81.90	19,638	118,230
76.80	18,528	19,264	82.00	19,648	120,195
76.90	18,862	21,134	82.10	19,683	122,161
77.00	19,196	23,037	82.20	19,718	124,131
77.10	19,206	24,957	82.30	19,754	126,105
77.20	19,216	26,878	82.40	19,789	128,082
77.30	19,226	28,800	82.50	19,824	130,063
77.40	19,236	30,723	82.60	19,859	132,047
77.50	19,246	32,647	82.70	19,894	134,034
77.60	19,256	34,572	82.80	19,930	136,026
77.70	19,266	36,498	82.90	19,965	138,020
77.80	19,276	38,425	83.00	<b>20,000</b>	<b>140,019</b>
77.90	19,286	40,353			
78.00	19,296	42,283			
78.10	19,306	44,213			
78.20	19,316	46,144			
78.30	19,326	48,076			
78.40	19,336	50,009			
78.50	19,346	51,943			
78.60	19,356	53,878			
78.70	19,366	55,814			
78.80	19,376	57,751			
78.90	19,386	59,689			
79.00	19,396	61,629			
79.10	19,406	63,569			
79.20	19,416	65,510			
79.30	19,426	67,452			
79.40	19,436	69,395			
79.50	19,446	71,339			
79.60	19,456	73,284			
79.70	19,466	75,230			
79.80	19,476	77,177			
79.90	19,486	79,125			
80.00	19,496	81,075			
80.10	19,501	83,024			
80.20	19,506	84,975			
80.30	19,512	86,926			
80.40	19,517	88,877			
80.50	19,522	90,829			
80.60	19,527	92,781			

Summary for Link 17L: Prop MTD C - bypass

Inflow Area = 2.312 ac, 96.48% Impervious, Inflow Depth = 1.00" for WQ event  
 Inflow = 6.80 cfs @ 1.08 hrs, Volume= 0.193 af  
 Primary = 6.80 cfs @ 1.08 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min  
 Routed to Pond 27P : Prop Standard Constructed Wetland E

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

Link 17L: Prop MTD C - bypass



Hydrograph for Link 17L: Prop MTD C - bypass

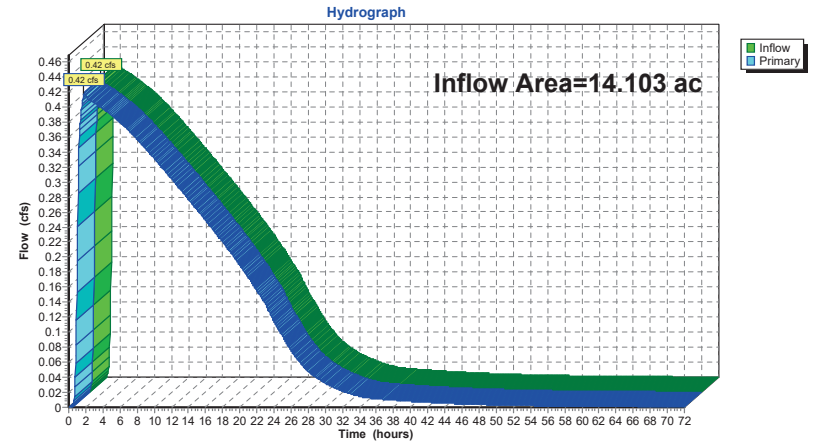
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	5.30	0.00	5.30	53.00	0.00	0.00	0.00
2.00	0.22	0.00	0.22	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.00	0.00	0.00	63.00	0.00	0.00	0.00
12.00	0.00	0.00	0.00	64.00	0.00	0.00	0.00
13.00	0.00	0.00	0.00	65.00	0.00	0.00	0.00
14.00	0.00	0.00	0.00	66.00	0.00	0.00	0.00
15.00	0.00	0.00	0.00	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 28L: Prop South Total

Inflow Area = 14.103 ac, 71.31% Impervious, Inflow Depth > 0.51" for WQ event  
 Inflow = 0.42 cfs @ 1.80 hrs, Volume= 0.602 af  
 Primary = 0.42 cfs @ 1.80 hrs, Volume= 0.602 af, Atten= 0%, Lag= 0.0 min  
 Routed to Link 34L : Prop Total

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

Link 28L: Prop South Total



Hydrograph for Link 28L: Prop South Total

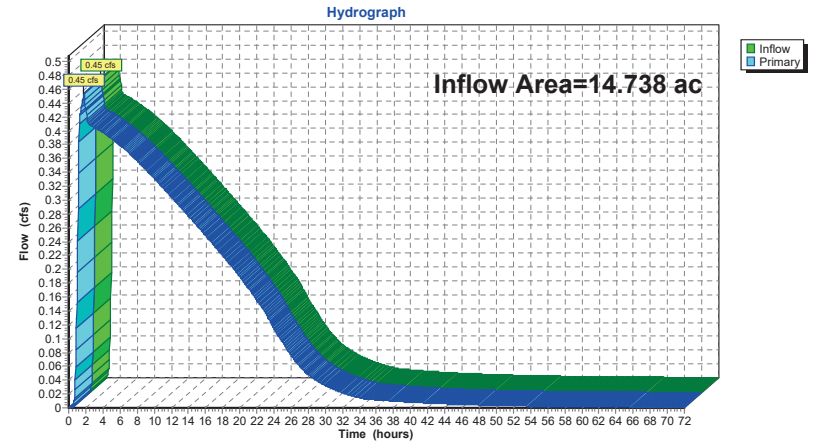
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.20	0.00	0.20	53.00	0.00	0.00	0.00
2.00	0.42	0.00	0.42	54.00	0.00	0.00	0.00
3.00	0.41	0.00	0.41	55.00	0.00	0.00	0.00
4.00	0.40	0.00	0.40	56.00	0.00	0.00	0.00
5.00	0.39	0.00	0.39	57.00	0.00	0.00	0.00
6.00	0.38	0.00	0.38	58.00	0.00	0.00	0.00
7.00	0.37	0.00	0.37	59.00	0.00	0.00	0.00
8.00	0.36	0.00	0.36	60.00	0.00	0.00	0.00
9.00	0.34	0.00	0.34	61.00	0.00	0.00	0.00
10.00	0.33	0.00	0.33	62.00	0.00	0.00	0.00
11.00	0.32	0.00	0.32	63.00	0.00	0.00	0.00
12.00	0.30	0.00	0.30	64.00	0.00	0.00	0.00
13.00	0.29	0.00	0.29	65.00	0.00	0.00	0.00
14.00	0.28	0.00	0.28	66.00	0.00	0.00	0.00
15.00	0.26	0.00	0.26	67.00	0.00	0.00	0.00
16.00	0.25	0.00	0.25	68.00	0.00	0.00	0.00
17.00	0.23	0.00	0.23	69.00	0.00	0.00	0.00
18.00	0.22	0.00	0.22	70.00	0.00	0.00	0.00
19.00	0.21	0.00	0.21	71.00	0.00	0.00	0.00
20.00	0.19	0.00	0.19	72.00	0.00	0.00	0.00
21.00	0.17	0.00	0.17				
22.00	0.16	0.00	0.16				
23.00	0.14	0.00	0.14				
24.00	0.11	0.00	0.11				
25.00	0.10	0.00	0.10				
26.00	0.08	0.00	0.08				
27.00	0.06	0.00	0.06				
28.00	0.05	0.00	0.05				
29.00	0.04	0.00	0.04				
30.00	0.03	0.00	0.03				
31.00	0.03	0.00	0.03				
32.00	0.02	0.00	0.02				
33.00	0.02	0.00	0.02				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.01	0.00	0.01				
37.00	0.01	0.00	0.01				
38.00	0.01	0.00	0.01				
39.00	0.01	0.00	0.01				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.01	0.00	0.01				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 34L: Prop Total

Inflow Area = 14.738 ac, 68.23% Impervious, Inflow Depth > 0.49" for WQ event  
 Inflow = 0.45 cfs @ 1.78 hrs, Volume= 0.605 af  
 Primary = 0.45 cfs @ 1.78 hrs, Volume= 0.605 af, Atten= 0%, Lag= 0.0 min

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

Link 34L: Prop Total



WQ

Hydrograph for Link 34L: Prop Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.00	0.00	52.00	0.00	0.00	0.00
1.00	0.20	0.00	0.20	53.00	0.00	0.00	0.00
2.00	0.43	0.00	0.43	54.00	0.00	0.00	0.00
3.00	0.41	0.00	0.41	55.00	0.00	0.00	0.00
4.00	0.40	0.00	0.40	56.00	0.00	0.00	0.00
5.00	0.39	0.00	0.39	57.00	0.00	0.00	0.00
6.00	0.38	0.00	0.38	58.00	0.00	0.00	0.00
7.00	0.37	0.00	0.37	59.00	0.00	0.00	0.00
8.00	0.36	0.00	0.36	60.00	0.00	0.00	0.00
9.00	0.34	0.00	0.34	61.00	0.00	0.00	0.00
10.00	0.33	0.00	0.33	62.00	0.00	0.00	0.00
11.00	0.32	0.00	0.32	63.00	0.00	0.00	0.00
12.00	0.30	0.00	0.30	64.00	0.00	0.00	0.00
13.00	0.29	0.00	0.29	65.00	0.00	0.00	0.00
14.00	0.28	0.00	0.28	66.00	0.00	0.00	0.00
15.00	0.26	0.00	0.26	67.00	0.00	0.00	0.00
16.00	0.25	0.00	0.25	68.00	0.00	0.00	0.00
17.00	0.23	0.00	0.23	69.00	0.00	0.00	0.00
18.00	0.22	0.00	0.22	70.00	0.00	0.00	0.00
19.00	0.21	0.00	0.21	71.00	0.00	0.00	0.00
20.00	0.19	0.00	0.19	72.00	0.00	0.00	0.00
21.00	0.17	0.00	0.17				
22.00	0.16	0.00	0.16				
23.00	0.14	0.00	0.14				
24.00	0.11	0.00	0.11				
25.00	0.10	0.00	0.10				
26.00	0.08	0.00	0.08				
27.00	0.06	0.00	0.06				
28.00	0.05	0.00	0.05				
29.00	0.04	0.00	0.04				
30.00	0.03	0.00	0.03				
31.00	0.03	0.00	0.03				
32.00	0.02	0.00	0.02				
33.00	0.02	0.00	0.02				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.01	0.00	0.01				
37.00	0.01	0.00	0.01				
38.00	0.01	0.00	0.01				
39.00	0.01	0.00	0.01				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.01	0.00	0.01				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

WQ

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Project Reports

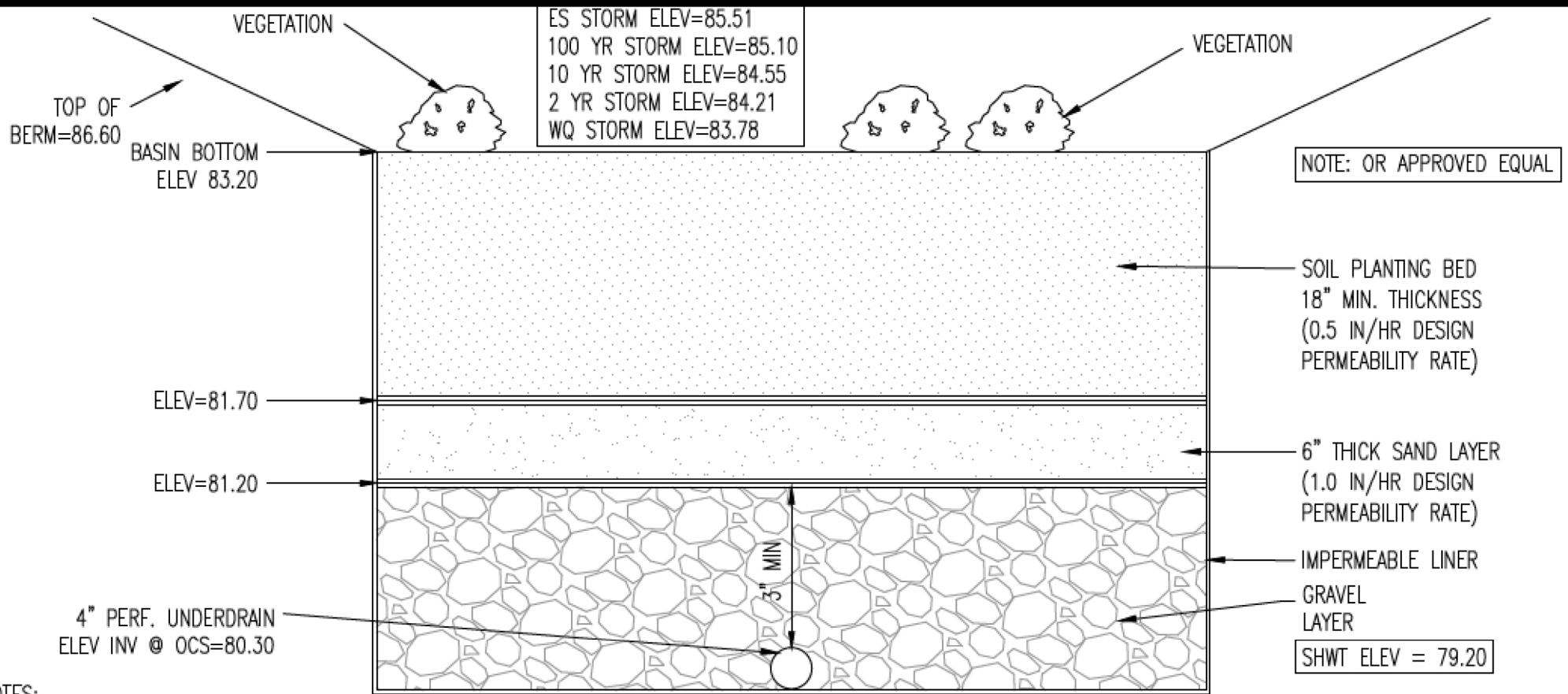
- 1 Routing Diagram
- 2 Project Notes
- 3 Rainfall Events Listing (selected events)
- 4 Area Listing (all nodes)
- 5 Soil Listing (all nodes)
- 6 Ground Covers (all nodes)
- 7 Pipe Listing (all nodes)

WQ Event

- 8 Node Listing
- 10 Subcat 1S: Prop Basin A (Imp)
- 13 Subcat 2S: Prop Basin A (Perv)
- 15 Subcat 11S: Prop Basin B (Imp)
- 18 Subcat 12S: Prop Basin B (Perv)
- 20 Subcat 21S: Prop MTD C (Imp)
- 23 Subcat 22S: Prop MTD C (Perv)
- 25 Subcat 23S: Prop South Undetained (Total)
- 27 Subcat 24S: Prop PP D (Imp)
- 30 Subcat 25S: Prop PP D (Perv)
- 32 Subcat 29S: Prop Constructed Wetland E (Imp)
- 35 Subcat 30S: Prop Constructed Wetland E (Perv)
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- 76 Link 17L: Prop MTD C - bypass
- 78 Link 28L: Prop South Total
- 80 Link 34L: Prop Total

**ABOVEGROUND BIORETENTION BASIN SCHEMATIC  
DETAILS**



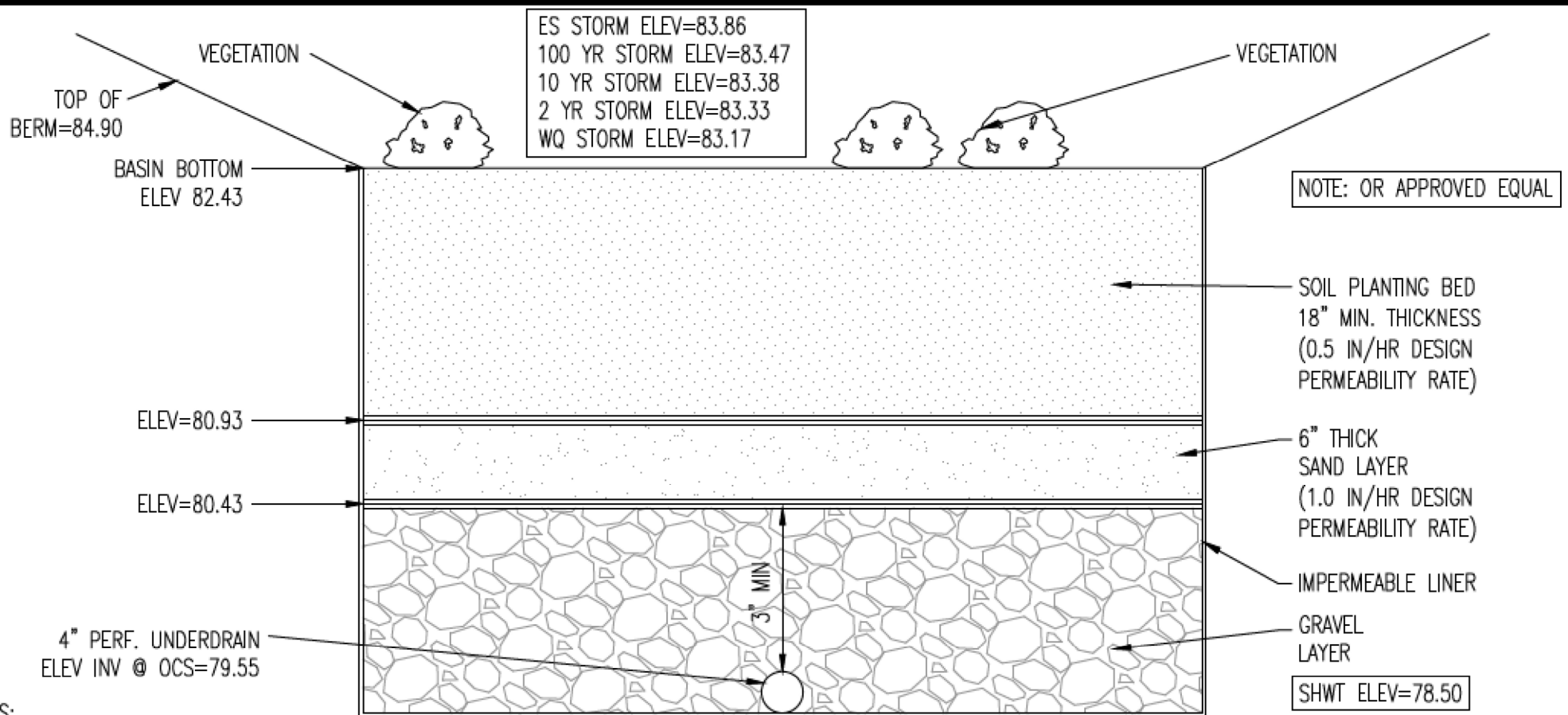


**NOTES:**

1. THE VEGETATION IN A BIORETENTION SYSTEM REMOVES SOME OF THE NUTRIENTS AND OTHER POLLUTANTS IN THE STORMWATER INFLOW. THE ENVIRONMENT AROUND THE ROOT SYSTEM BREAKS DOWN SOME POLLUTANTS AND CONVERTS OTHERS TO LESS HARMFUL COMPOUNDS. THE USE OF NATIVE PLANT MATERIAL IS RECOMMENDED FOR BIORETENTION SYSTEMS WHENEVER POSSIBLE. THE GOAL OF THE PLANTING PLAN SHOULD BE TO SIMULATE A FOREST - SHRUB COMMUNITY OF PRIMARILY UPLAND TYPE. AS THERE WILL BE VARIOUS WETNESS ZONES WITHIN A WELL DESIGNED AND CONSTRUCTED BIORETENTION SYSTEM, PLANTS MUST BE SELECTED AND PLACES APPROPRIATELY. IN GENERAL, TREES SHOULD DOMINATE THE PERIMETER ZONE THAT IS SUBJECT TO LESS FREQUENT INUNDATION. SHRUBS AND HERBACEOUS SPECIES THAT ARE ADAPTED TO MOISTER CONDITIONS AND EXPECTED POLLUTANT LOADS SHOULD BE SELECTED FOR THE WETTER ZONES. THE NUMBER OF STEMS PER ACRE SHOULD AVERAGE 1,000, WITH TREE SPACING OF 12 FEET AND SHRUB SPACING OF 8 FEET.
2. THE SAND LAYER SERVES AS A TRANSITION BETWEEN THE PLANTING SOIL BED AND THE GRAVEL LAYER AND UNDERDRAIN PIPES. IT MUST HAVE A MINIMUM THICKNESS OF 6 INCHES AND CONSIST OF CLEAN MEDIUM AGGREGATE CONCRETE SAND (AASHTO M-6/ASTM C-33). TO ENSURE PROPER SYSTEM OPERATION, THE SAND LAYER MUST HAVE A PERMEABILITY RATE AT LEAST TWICE AS FAST AS THE DESIGN PERMEABILITY RATE OF THE PLANTING SOIL BED.
3. THE BIORETENTION BED SOIL MUST BE TESTED BEFORE DELIVERY TO THE SITE AND CONFORM TO THE SPECIFICATIONS OF DESIGN PERMEABILITY RATES. A CERTIFICATION FROM THE SUPPLIER OR ACCREDITED LABORATORY WILL BE REQUIRED.

**BIORETENTION BASIN 'A' DETAIL**

NOT TO SCALE

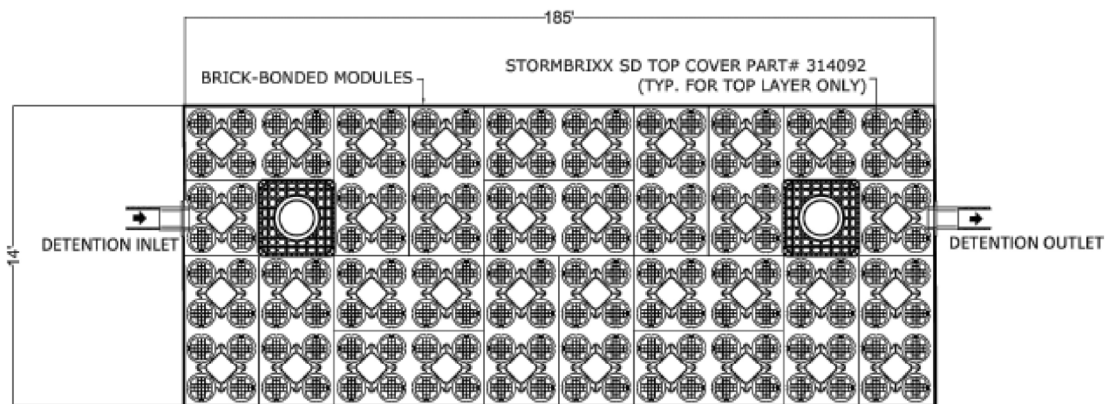


- NOTES:
1. THE VEGETATION IN A BIORETENTION SYSTEM REMOVES SOME OF THE NUTRIENTS AND OTHER POLLUTANTS IN THE STORMWATER INFLOW. THE ENVIRONMENT AROUND THE ROOT SYSTEM BREAKS DOWN SOME POLLUTANTS AND CONVERTS OTHERS TO LESS HARMFUL COMPOUNDS. THE USE OF NATIVE PLANT MATERIAL IS RECOMMENDED FOR BIORETENTION SYSTEMS WHENEVER POSSIBLE. THE GOAL OF THE PLANTING PLAN SHOULD BE TO SIMULATE A FOREST – SHRUB COMMUNITY OF PRIMARILY UPLAND TYPE. AS THERE WILL BE VARIOUS WETNESS ZONES WITHIN A WELL DESIGNED AND CONSTRUCTED BIORETENTION SYSTEM, PLANTS MUST BE SELECTED AND PLACES APPROPRIATELY. IN GENERAL, TREES SHOULD DOMINATE THE PERIMETER ZONE THAT IS SUBJECT TO LESS FREQUENT INUNDATION. SHRUBS AND HERBACEOUS SPECIES THAT ARE ADAPTED TO MOISTER CONDITIONS AND EXPECTED POLLUTANT LOADS SHOULD BE SELECTED FOR THE WETTER ZONES. THE NUMBER OF STEMS PER ACRE SHOULD AVERAGE 1,000, WITH TREE SPACING OF 12 FEET AND SHRUB SPACING OF 8 FEET.
  2. THE SAND LAYER SERVES AS A TRANSITION BETWEEN THE PLANTING SOIL BED AND THE GRAVEL LAYER AND UNDERDRAIN PIPES. IT MUST HAVE A MINIMUM THICKNESS OF 6 INCHES AND CONSIST OF CLEAN MEDIUM AGGREGATE CONCRETE SAND (AASHTO M-6/ASTM C-33). TO ENSURE PROPER SYSTEM OPERATION, THE SAND LAYER MUST HAVE A PERMEABILITY RATE AT LEAST TWICE AS FAST AS THE DESIGN PERMEABILITY RATE OF THE PLANTING SOIL BED.
  3. THE BIORETENTION BED SOIL MUST BE TESTED BEFORE DELIVERY TO THE SITE AND CONFORM TO THE SPECIFICATIONS OF DESIGN PERMEABILITY RATES. A CERTIFICATION FROM THE SUPPLIER OR ACCREDITED LABORATORY WILL BE REQUIRED.

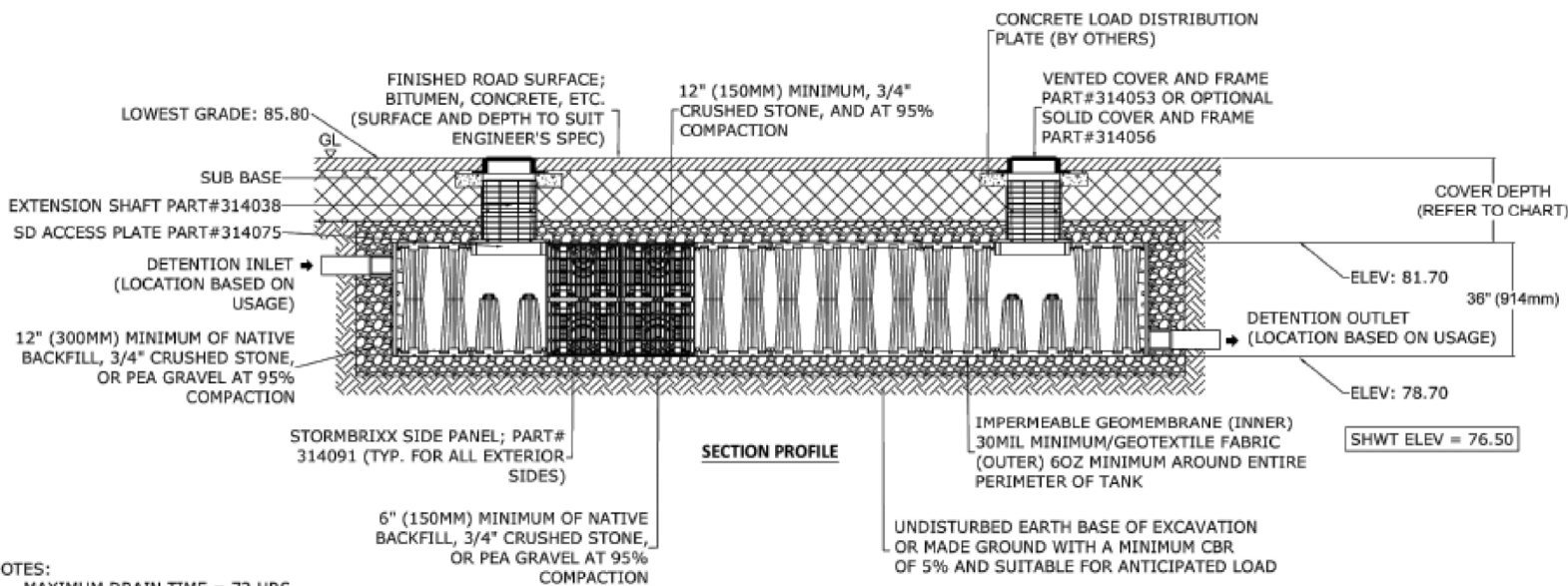
## **BIORETENTION BASIN 'B' DETAIL**

NOT TO SCALE

**STORMBRIXX SCHEMATIC UNDERGROUND BASIN  
DETAIL**



PLAN



SECTION PROFILE

**Installation depths of ACO StormBrixx SD**

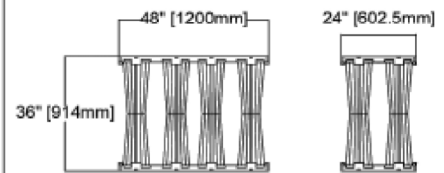
Installation Location	Minimum cover depth <sup>(4)</sup> ft (m)
Non-trafficked areas i.e. landscaping <sup>(2)</sup>	1.65 (0.5)
Parking lots, vehicles up to 5,512lbs gross mass <sup>(1)</sup>	1.8 (0.55)
Parking lots, occasional vehicles greater than 5,512lbs gross mass <sup>(3)</sup>	2.0 (0.6)
Occasional heavy truck traffic up to HS-20 loading	Please consult with ACO
Maximum cover depth of ACO StormBrixx SD	6.5 (2)
Maximum depth to invert of ACO StormBrixx SD one layer system	9.56 (2.9)

**Notes**

- (1) Assumes 27 degree load distribution through fill material and overlaying surface asphalt or block paving
- (2) Minimum cover depth to avoid accidental damage from gardening/landscaping work
- (3) Occasional sanitation trucks or similar vehicles (typically one per week)
- (4) Please check minimum frost cover depths and water table heights for geographical location

**ACO StormBrixx SD Module**

48"x24"x36" [1200x602.5x914mm (H)]  
22.54cuft net volume per completed module  
Brick or Cross Bonded (where applicable)  
part# 314090



\*All systems must be designed and installed to meet or exceed ACO StormBrixx minimum requirements. Although ACO StormBrixx offers support during the design, review, and construction phases of the module system, it is the ultimate responsibility of the Engineer of Record to design the system in full compliance with all applicable engineering practices, laws, and regulations.

**DETENTION - STORMBRIXX SD ONE LAYER WITH ACCESS PLATES (BASIN C)**

**INSTALLATION DRAWING - ACO STORMBRIXX SD (OR APPROVED EQUAL)**

**ACO, Inc.**

825 W. Beechcraft St Casa Grande, AZ 85122 Tel: 520-421-9988 Fax: 520-421-9899	9470 Pinecone Drive Mentor, OH 44060 Tel: 440-639-7230 Fax: 440-639-7235	4211 Pleasant Rd. Fort Mill, SC 29708 Tel: 440-639-7230 Fax: 803-802-1063
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D-SD-1L-DVT  
  
DATE: 07/31/2019  
ISSUE: D

**POROUS PAVEMENT BASIN SCHEMATIC DETAIL**