TERRADYN CONSULTANTS, LLC

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

July 5, 2024, 24-34

John Blais
Deputy Director of Planning & Permitting
City of Auburn
60 Court Street
Auburn, ME 04210

Broad Street Farms
Andrew Hagerty
Broad Street, Auburn, ME

Dear John,

On behalf of Andrew Hagerty, we are pleased to submit the Development Review Application for the Broad Street Farms Development, which features 12 duplex homes with a total of 24-units designed using the City's Site Plan Standards. We are requesting to be placed on the agenda for the next available Planning Board meeting.

EXISTING PROJECT SITE

The project site is located at the southeast of the intersections of Broad Street and Witham Road, is approximately 35.116 acres in size, and is depicted on the City of Auburn Tax map 171 as lot 4. The site is located within the Traditional Neighborhood District T-4.2B where multifamily apartments are an allowed use.

The development parcel consists of sloping meadow fields which drains towards a central wetland on the property. And ultimately the Little Androscoggin River

PROPOSED PROJECT

The Broad Street Farms Development features the construction of 12 duplex buildings, each building featuring 2 two-bedroom units. 10 of the 12 duplexes will be accessed via 4 shared driveways off of Broad Street and 2 duplexes will be accessed off of a shared driveway from Witham Road. A copy of the floor plan and building elevations is attached to this letter (See Attachment 7)

Parking: The plan features 2 parking spaces per unit, with one space in the garage and one space in front of the garage to each unit which is in excess of the 1 space per dwelling unit required in the zoning ordinance.

Access: Shared driveways will be utilized to access the duplex units to limit the amount of new curb cuts along Broad Street, each driveway is spaced a minimum of 185' feet apart.

Daily and peak hour trip generation was determined for the proposed project based upon trip tables presented in the tenth edition of the Institute of Transportation Engineers (ITE) "Trip Generation" handbook. The ITE publication provides numerous land use categories and the average volume of trips generated by each category. Site trip estimates for this project are based upon LUC #215-Single Family Attached Housing;Calculation of the total number of trips generated per each corresponding time period are summarized below:

Land Use	Sing Family Detached- LUC 215		
Time Period	Size # of units	Trip Generation Rate (Trips per Units)	Trips Generated
Weekday	24	7.20	173
AM Weekday Peak Hour (Street)	24	0.48	12
PM Weekday Peak Hour (Street)	24	0.57	14
AM Weekday Peak Hour (Generator)	24	0.55	13
PM Weekday Peak Hour (Generator)	24	0.61	15
Saturday	24	8.76	210
Saturday Peak Hour	24	0.57	14
Sunday	24	7.17	172
Sunday Peak Hour	24	0.79	19

Utilities: The property is proposed to be served by private wells and septic systems, and new underground utilities.

Stormwater Management: The project has been designed to meet current City and Maine DEP requirements for stormwater quality and quantity control. The majority of the development will drain to meadow buffer areas and roof drain filter strips installed at each of the duplex buildings. A full stormwater report is attached.

Snow Removal: We have designated snow storage areas on the site plan. Snow storage will generally be located at the end of the shared driveways.

Landscaping: Landscaping is shown on the attached site plan drawings.

ATTACHMENTS

The following items have been attached:

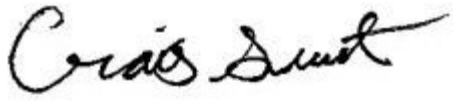
1. Application Form & Checklist
2. Property Deed
3. Standards Compliance Narrative
4. Stormwater Report
5. Financial Capacity
6. Cost Estimate
7. Building Plans

CLOSING

The project has been designed to meet the review standards of the City of Auburn's Zoning and Land Use Code. Narratives describing how these criteria and standards are met is attached to the Development Review Application. Please do not hesitate to reach out if you have any questions or require additional information.

Sincerely,

TERRADYN CONSULTANTS, LLC



Craig Sweet, P.E.
Project Engineer

Terradyn Consultants, LLC has been retained by the Applicant to act as their agent and to provide all necessary information and documentation for the Board's review and approval of this project. We very much appreciate your time and attention to this matter.

LIST OF ATTACHMENTS

Attachment 1	Application Form & Checklist
Attachment 2	Purchase & Sales Agreement
Attachment 3	Standards Compliance Narratives
Attachment 4	Stormwater Report
Attachment 5	Financial Capacity
Attachment 6	Cost Estimate
Attachment 7	Building Plans

Attachment 1

Application Form & Checklist

City of Auburn, Maine
Office of Planning & Permitting
Eric J. Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Application

PROJECT NAME: Broad Street Farms

PROPOSED DEVELOPMENT ADDRESS: Broad Sreet , Auburn, ME 04210

PARCEL ID #: 171-004

REVIEW TYPE:
Site Plan x□ Site Plan Amendment □
Subdivision □ Subdivision Amendment □

PROJECT DESCRIPTION: Construction of 12 duplex buildings

CONTACT INFORMATION:

Applicant	
Name:	Andrew Hagarty
Address:	108 Middle Street
City / State	Falmouth, ME
Zip Code	04105
Work #:	
Cell #:	(207) 232-6231
Fax #:	
Home #:	
Email:	andrewph@portlandmaine.gov

Property Owner	
Name:	
Address:	
City / State	
Zip Code	
Work #:	
Cell #:	
Fax #:	
Home #:	
Email:	

Project Representative	Terradyn Consultants, LLC
Name:	Craig Sweet, PE
Address:	41 Campus Dr. Suite 301
City / State	New Gloucester, ME 04260
Zip Code	
Work #:	(207) 926-5111
Cell #:	
Fax #:	
Home #:	
Email:	craig@terradynconsultants.com

Other professional representatives for the project (surveyors, engineers, etc.),	
Name:	Nicholas Racioppi, PLS
Address:	95 Main St. Second Floor
City / State	Auburn, ME
Zip Code	04210
Work #:	(207) 926-5111
Cell #:	
Fax #:	
Home #:	
Email:	nick@terradynconsultants.com

PROJECT DATA

The following information is required where applicable, in order complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	0	sq. ft.
Proposed Total Paved Area	23,399	sq. ft.
Proposed Total Impervious Area	51,040	sq. ft.
Proposed Impervious Net Change	51,040	sq. ft.
Impervious surface ratio existing	0	% of lot area
Impervious surface ratio proposed	3.77	% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	0	sq. ft.
Proposed Building Footprint	27,648	sq. ft.
Proposed Building Footprint Net change	100%	sq. ft.
Existing Total Building Floor Area	0	sq. ft.
Proposed Total Building Floor Area	27,648	sq. ft.
Proposed Building Floor Area Net Change	100%	sq. ft
New Building	yes	(yes or no)
Building Area/Lot coverage existing	0	% of lot area
Building Area/Lot coverage proposed	2	% of lot area

ZONING

Existing	T-4.2b
Proposed, if applicable	N/A

LAND USE

Existing	vacant farmland
Proposed	Residential

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	0
Proposed Number of Residential Units	24
Subdivision, Proposed Number of Lots	N/A

PARKING SPACES

Existing Number of Parking Spaces	0
Proposed Number of Parking Spaces	48
Number of Handicapped Parking Spaces	n/a
Proposed Total Parking Spaces	48

ESTIMATED COST OF PROJECT: $131,814

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area	0	sq. ft.
Proposed Disturbed Area	141,876	sq. ft.
Proposed Impervious Area	51040	sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

for elementary school with approx. 137 students

Total traffic estimated in the peak hour-existing (Since July 1, 1997) 0 passenger car equivalents (PCE)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) 19 passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the Traditional Neighborhood zoning district.
2. Parcel Area: 31.116 acres / 0.00071 square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	N/A	**31.116 ac**
Street Frontage	24 min 120 ft max'	1500' existing along Broad Street
Min Front Yard	25'-Max	25' maximium
Min Rear Yard	10'	10"
Min Side Yard	5'	5"
Max. Building Height	3 story	1 Story
Use Designation	Multi-family allowed	Multi-family proposed
Parking Requirement	1 space/ per unit	
Total Parking:	24	48
Overlay zoning districts (if any):	None	
Urban impaired stream watershed?	YES/NO If yes, watershed name	

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submissions shall include fifteen (15) complete packets containing the following materials:

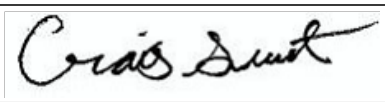
1. 5 Full size plans and 10 smaller (no larger than 11" x 17") plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed by the property owner or designated representative. (NOTE: All applications will be reviewed by staff and any incomplete application will not be accepted until all deficiencies are corrected.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

To view the City of Auburn Zoning Ordinance, go to:
www.auburnmaine.gov under City Departments / Planning, Permitting & Code / Subdivisions / Land Use /Zoning Ordinance

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:		**Date:** July, 5 2024

City of Auburn, Maine
Office of Planning & Permitting
Eric J. Cousens, Director
60 Court Street | Auburn, Maine 04210
www.auburnmaine.gov | 207.333.6601

Development Review Checklist

The following information is required where applicable to be submitted for an application to be complete

PROJECT NAME: Broad Street Farms
PROPOSED DEVELOPMENT ADDRESS: Broad Street
PARCEL #: 171-004

Required Information		*Check when Submitted*		*Applicable Ordinance*
Site Plan		*Applicant*	*Staff*	
	Owner's Names/Address	✓		
	Names of Development	✓		
	Professionally Prepared Plan	✓		
	Tax Map or Street/Parcel Number	✓		
	Zoning of Property	✓		
	Distance to Property Lines	✓		
	Boundaries of Abutting land	✓		
	Show Setbacks, Yards and Buffers	✓		
	Airport Area of Influence	N/A		
	Parking Space Calcs	✓		
	Drive Openings/Locations	✓		
	Subdivision Restrictions	None		
	Proposed Use	✓		
	PB/BOA/Other Restrictions	None		
	Fire Department Review	✓		
	Open Space/Lot Coverage	✓		

Required Information		*Check when Submitted*		*Applicable Ordinance*
Landscape Plan		*Applicant*	*Staff*	
	Greenspace Requirements	✓		
	Setbacks to Parking	✓		
	Buffer Requirements	None		
	Street Tree Requirements	N/A		
	Screened Dumpsters	✓		
	Additional Design Guidelines	✓		
	Planting Schedule	✓		
Stormwater & Erosion Control Plan		*Applicant*	*Staff*	
	Compliance w/ chapter 500	✓		
	Show Existing Surface Drainage	✓		
	Direction of Flow	✓		
	Location of Catch Basins, etc.	✓		
	Drainage Calculations	✓		
	Erosion Control Measures	✓		
	Maine Construction General Permit	✓		
	Bonding and Inspection Fees	✓		
	Post-Construction Stormwater Plan	✓		
	Inspection/monitoring requirements	N/A		
Lighting Plan		*Applicant*	*Staff*	
	Full cut-off fixtures	✓		
	Meets Parking Lot Requirements	✓		
Traffic Information		*Applicant*	*Staff*	
	Access Management	✓		
	Signage	✓		
	PCE - Trips in Peak Hour	✓		

Required Information		*Check when Submitted*		*Applicable Ordinance*
	Vehicular Movements	✓		
	Safety Concerns	✓		
	Pedestrian Circulation	✓		
	Police Traffic	✓		
	Engineering Traffic	✓		
Utility Plan		*Applicant*	*Staff*	
	Water	✓		
	Adequacy of Water Supply	✓		
	Water main extension agreement	✓		
	Sewer	✓		
	Available city capacity	✓		
	Electric	✓		
	Natural Gas	✓		
	Cable/Phone	✓		
Natural Resources		*Applicant*	*Staff*	
	Shoreland Zone	N/A		
	Flood Plain	None		
	Wetlands or Streams	None		
	Urban Impaired Stream	None		
	Phosphorus Check	N/A		
	Aquifer/Groundwater Protection	None		
	Applicable State Permits			
	Lake Auburn Watershed	N/A		
	Taylor Pond Watershed	N/A		
Right, Title or Interest		*Applicant*	*Staff*	
	Verify	✓		
	Document Existing Easements, Covenants, etc.	✓		

Required Information		*Check when Submitted*		*Applicable Ordinance*
Technical & Financial Capacity		***Applicant***	***Staff***	
	Cost Est./Financial Capacity	✓		
	Performance Guarantee			
State Subdivision Law		***Applicant***	***Staff***	
	Verify/Check	N/A		
	Covenants/Deed Restrictions	None		
	Offers of Conveyance to City	None		
	Association Documents	N/A		
	Location of Proposed Streets & Sidewalks	N/A		
	Proposed Lot Lines, etc.	N/A		
	Data to Determine Lots, etc.	N/A		
	Subdivision Lots/Blocks	N/A		
	Specified Dedication of Land	None		
Additional Subdivision Standards		***Applicant***	***Staff***	
	Mobile Home Parks	N/A		
	PUD	N/A		
A JPEG or PDF of the proposed site plan		***Applicant***	***Staff***	
		✓		
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving	Available after approval & upon Request.			

Attachment 2

Purchase and Sale Agreement

REAL ESTATE PURCHASE AND SALE AGREEMENT

AGREEMENT made this 25 day of February, 2024, by and between **JANE SKELTON and WILLIAM SKELTON, as Co-Trustees of the SKELTON FAMILY TRUST**, whose mailing address is 29 Marston Hill Road, Auburn, Maine, 04210 (hereinafter collectively called the "Seller") and **ANDREW HAGERTY**, whose mailing address is 108 Middle Road, Falmouth, Maine, 04105, or Nominee (hereinafter collectively called the "Buyer") who agree as follows:

1. Purchase and Sale of Property: Seller agrees to sell to Buyer, and Buyer agrees to purchase from the Seller on the terms and conditions set forth herein, the real estate situate in Auburn, Androscoggin County, Maine, more particularly described in Exhibit A attached hereto (hereinafter called the "Property"). Being a portion of the property described in a deed from Jane Skelton and William K. Skelton, as Co-Personal Representatives of the Estate of William B. Skelton, to Jane Skelton and William Skelton, as Co-Trustees of the Skelton Family Trust, created on July 19, 2003, which deed is dated June 6, 2006, and recorded in the Androscoggin Registry of Deeds in Book 7008, Page 308.

2. Purchase Price: The purchase price for the Property shall be Thousand Dollars and No Cents ($ 00.00) which shall be payable as follows:

   (a) earnest money deposit of Twenty-Five Thousand Dollars and No Cents ($25,000.00) to be paid concurrently with the execution of this Agreement, the receipt of which is hereby acknowledged by the Seller; and

   (b) payment of the balance in cash or certified check at closing, subject to any closing adjustments provided for in this Agreement.

   (c) Buyer's obligation to purchase the Property is not subject to financing.

3. Title:

   (a) Upon execution of this Agreement, Seller shall provide Buyer with any existing plans, surveys, abstract of title and title insurance policy that Seller has in Seller's possession. Buyer will assume responsibility and expense for any further title examination.

   (b) If record title to the Property should prove defective, Buyer shall give written notice to Seller, within 45 days of the date of this Agreement and Seller shall have a reasonable period of time to remove the title defects. If such defects cannot be removed by Seller after having made reasonable efforts, Buyer may either (i) consummate the purchase of the Property in accordance with this Agreement, or (ii) terminate this Agreement, in which case the Seller shall

refund to Buyer the deposit made hereunder whereupon the parties shall have no further obligations hereunder.

4. Deed: Seller shall, on the date of closing, execute and deliver to Buyer a good and sufficient Quitclaim Deed with Covenant deed conveying the Property to Buyer or Buyer's nominee in fee simple, with good and marketable title thereto.

5. Closing: The closing shall take place at Skelton, Taintor & Abbott Law Offices, 500 Canal Street, Lewiston, Maine 04240 on August 31, 2024, or within 14 days of Buyer or Buyer's nominee receiving final approval for any proposed development or subdivision from the City of Auburn, whichever is sooner. Time is of the essence.

6. Prorations and Fees: All real estate taxes and assessments against the Property shall be prorated between Buyer and Seller as of the date of closing over the period of the then current municipal fiscal year. Seller and Buyer shall each pay half of the real estate transfer tax in accordance with Maine statute.

7. Default: If the Buyer fails to purchase the Property for any reason other than those reasons specified herein as giving Buyer the right to terminate the Agreement, and if Seller has fully performed all of Seller's obligations hereunder, then the Seller shall retain the earnest money deposit as liquidated damages in full and complete satisfaction of all claims against Buyer.

8. Possession: Seller shall deliver possession of the Property to the Buyer at closing, free of all tenants and occupants.

9. Conditions: In the event Buyer or his nominee develops the Property, such development shall be limited to residential use. If the Property is divided into lots there shall be no more than 12 lots created, exclusive of open space or common areas and no lot shall contain more than two dwelling units. This condition shall survive the Closing. Seller to reserve easement over parcel to access remaining land on the westerly side of Maine Central Railroad.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate originals on the day, month and year first above written.

WITNESSES:

_____

_____

JANE SKELTON, as Co-Trustee
of the SKELTON FAMILY TRUST

WILLIAM SKELTON, as Co-Trustee
of the SKELTON FAMILY TRUST

SELLERS

ANDREW HAGERTY

BUYER

EXHIBIT A

A parcel of land located in Auburn, Androscoggin County, State of Maine bounded on the north by Witham Road and land of Everett Larrabee, as described in a deed recorded in the Androscoggin County Registry of Deeds in Book 945, Page 286;

On the east by the westerly side of Broad Street;

On the south by land of Central Maine Power Company; and

On the west by Maine Central Railroad.

Subject to a pipeline, easement in favor of Saucony Vacuum.

Bk 7008 Pg308 #30407
12-20-2006 @ 02:51p

DEED OF DISTRIBUTION BY PERSONAL REPRESENTATIVES (TESTATE)

KNOW ALL MEN BY THESE PRESENTS

THAT, **JANE SKELTON**, of Bangor, Penobscot County, Maine, and **WILLIAM K. SKELTON**, of Auburn, Androscoggin County, Maine, duly appointed and acting co-personal representatives of the Estate of William B. Skelton, deceased (testate), as shown by the probate records of Androscoggin County, Maine, by the power conferred by the Probate Code, and every other power, in distribution of the estate, hereby grant to **JANE SKELTON**, whose mailing address is 277 State Street, Suite 2A, Bangor, Maine, 04401, and **WILLIAM SKELTON**, whose mailing address is 224 South Witham Road, Auburn, Maine, 04210, **as Co-Trustees of the SKELTON FAMILY TRUST**, created on July 19, 2003, with an address of 277 State Street, Suite 2A, Bangor, Maine, 04401, those certain lots or parcels of land, with any buildings thereon, situated in Auburn and Minot, Androscoggin County, Maine, being more particularly described on the attached Exhibit A.

ALSO HEREBY conveying all rights, easements and privileges pertaining thereto.

WITNESS our hands this 6th day of June, 2006.

NO MAINE R.E. TRANSFER TAX PAID

Witness

Witness

ESTATE OF WILLIAM B. SKELTON

Jane Skelton, Personal Representative

William K. Skelton, Personal Representative

STATE OF MAINE
PENOBSCOT, SS.

Personally appeared before me the above-named Jane Skelton, Co-Personal Representative of the Estate of William B. Skelton, this 6th day of June, 2006, and acknowledged the foregoing instrument to be her free act and deed in her said capacity.

SEAL

Notary Public
Printed Name: Kelly J. Fergola
My commission expires: 11-09-08

STATE OF MAINE
ANDROSCOGGIN, SS.

Personally appeared before me the above-named William K. Skelton, Co-Personal Representative of the Estate of William B. Skelton, this 6th day of June, 2006, and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Notary Public
Printed Name: Barton M. Kelsa
My commission expires: 8/28/09

Skelton Law Offices, LLC
Bangor, Maine
207-947-6500

EXHIBIT A

Marston Hill Road, Auburn, Androscoggin County, Maine:

A certain lot or parcel of land, with the buildings thereon, situated in said Auburn on the Marston Hill Road, described in the following deeds:

1) Deed from Marymay Munroe Bernard to William B. Skelton and M. Claire Skelton dated September 11, 1958 and recorded in the Androscoggin County Registry of Deeds in Book 802, Page 146;

2) Deed from Ruth D. Luckstone to M. Claire Skelton dated August 3, 1961 and recorded in said Registry of Deeds in Book 855, Page 78.

There is excepted from the above premises that portion thereof conveyed by William B. Skelton, II, and M. Claire Skelton to Dale F. Eddy and Margret Eddy by warranty deed dated January 3, 1963 and recorded in said Registry of Deeds in Book 886, Page 11.

Broad Street and Witham Road, Auburn, Androscoggin County, Maine:

Those certain lots or parcels of land, with the buildings thereon, situated in said Auburn on Witham Road and Broad Street as described in the following deeds:

1) Deed from Donald W. Larrabee and Jesse R. Larrabee to William B. Skelton dated July 1, 1974 and recorded in the Androscoggin County Registry of Deeds in Book 2103, Page 49.

2) Deed from Robert A. DeWitt and Sharyn F. DeWitt to M. Claire Skelton dated June 8, 1972 and recorded in said Registry of Deeds in Book 1054, Page 448.

There is excepted from the above premises that portion thereof conveyed by M. Claire Skelton to David A. Bishop and Jana Jordan-Bishop by warranty deed dated July 16, 2003 and recorded in said Registry of Deeds in Book 5811, Page 221.

Cross Road, Minot, Androscoggin County, Maine:

That certain lot or parcel of land, with any buildings thereon, situated in said Minot, Androscoggin County, Maine, as described in the following deed:

1) Warranty deed from Gary Yakawonis to M. Claire Skelton dated March 12, 1979 and recorded in said Registry of Deeds in Book 1562, Page 84.

Reference is made to a deed from M. Claire Skelton to William B. Skelton dated June 26, 2003 and recorded in said Registry of Deeds in Book 5811, Page 219. The said William B. Skelton died July 19, 2003 as evidenced by the Probate records set forth at Docket No. 2005-251 of the Androscoggin County of Probate.

Skelton Law Offices, LLC
Bangor, Maine
207-947-6500

Attachment 3

Standards Compliance Narratives

TERRADYN CONSULTANTS, LLC

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

July 3, 2024 Project# 24-34

COMPLIANCE WITH CITY OF AUBURN ZONING AND LAND USE CODE

Broad Street, Auburn, Maine

The following information describes how the proposed project complies with Chapter 60 of the City of Auburn Zoning Ordinance. Although these performance standards are listed under Division 4. Subdivision section 60-1359, it is felt that they provide value as part of the Site Plan Review process:

1. *Will not result in undue water, air or noise pollution*

   The proposed project is a residential development and is not expected to result in any undue water, air or noise pollution.

2. *Has sufficient water available for the reasonably foreseeable needs of the subdivision;*

   The proposed wells are anticipated to reasonably provide water to the proposed units for the foreseeable future.

3. *Will not cause an unreasonable burden on the existing water supply, if one is to be utilized;*

   The proposed project will not cause an unreasonable burden to the existing water supply.

4. *Will not cause unreasonable soil erosion or reduction in capacity of the land to hold water so that a dangerous or unhealthy condition may result;*

   The proposed project will not cause unreasonable soil erosion or a reduction in the of the land to hold water. Erosion and sediment controls are shown on the attached plans and the project will result in a decrease of impervious area from existing conditions.

5. *Will not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed;*

   The project will not cause unreasonable highway or public congestion or unsafe conditions.

6. *Will provide for adequate sewage waste disposal;*

   The proposed development will be served by 4 septic systems, HHE-200 forms will be provided prior to building permits.

7. *Will not cause an unreasonable burden on the ability of a municipality to dispose of solid waste and sewage if municipal services are to be utilized*

   The proposed development is not anticipated to cause any unreasonable burden on the ability of a municipality to dispose of solid waste, the proposed development will utilize private septic systems for sewage disposal.

8. *Will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or areas and irreplaceable natural areas;*

   The proposed development will not have an adverse effect on the scenic or natural beauty of the area.

9. *In conformance with a duly adopted subdivision regulation or ordinance, comprehensive plan, development plan, or land use plan, if any;*

   The proposed development has been designed in conformance with all applicable regulations.

10. *Is funded by a [developer] that has adequate financial and technical capacity to meet the standards;*

    The applicant has adequate funding to complete the project; please see the attached letter from Saco & Biddeford Savings Institution.

    The Applicant has assembled a highly qualified team of professionals to plan, permit and develop construction documents for the project. The team services will be provided by the following companies:

CONSULTANT TEAM

Civil Engineer	Craig Sweet, P.E. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 370-2776
Surveyor	Nicholas Racioppi, P.L.S. Terradyn Consultants, LLC 41 Campus Drive, Suite 301 New Gloucester, ME 04260 (207) 926-5111
Wetland Scientist	Mark Hampton, L.S.E., C.S.S. Mark Hampton Associates P.O. Box 1931 Portland, ME 04104
Building Desing	Nick Waite Waite Residential Design Company (207) 426-0096

The team of consultants retained by the Developer has expertise and experience in the design of similar projects. Resumes of key personnel for the development team can be provided upon request.

11. *Will not adversely affect the character of the surrounding neighborhood and will not tend to depreciate the value of property adjoining the neighboring property under application;*

The proposed project will not adversely impact the surrounding area.

12. *Has provisions for on-site landscaping that are adequate to screen neighboring properties from unsightly features of the development;*

The proposed development is a residential development located within a residential area; there is not intended to be any outdoor storage or dumpsters, which would be unsightly from neighboring properties.

13. *Will not create a fire hazard and has provided adequate access to the site for emergency vehicles:*

Adequate access has been provided for emergency vehicles.

14. *Will not, alone or in conjunction with existing activities adversely affect the quality or quantity of groundwater;*

    The proposed project will not adversely impact the quality or quantity of groundwater.

15. *Does not have long-term cumulative effects on the proposed subdivision that will unreasonably increase a great pond phosphorus concentration during the construction phase and life of the proposed subdivision.*

    The proposed project is not located within a great pond watershed.

Attachment 4

Stormwater Report

207.926.5111
info@terradynconsultants.com
www.terradynconsultants.com

BROAD STREET FARMS

BROAD STREET, AUBURN, MAINE

STORMWATER MANAGEMENT REPORT

PREPARED FOR:

Andrew Hagerty
108 MIDDLE ROAD
FALMOUTH, MAINE 04105

PREPARED BY:

TERRADYN CONSULTANTS LLC
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, MAINE 04260

July 2024

Introduction

The following Stormwater Management Plan has been prepared for the proposed Broad Street Farm development to evaluate stormwater runoff and erosion control for the proposed project.

Site Calculations

Total Property Area	35.12 Ac (+/-)
Total Impervious Area	1.17 Ac
Total Developed Area	3.26 Ac

Existing Project Site

The project site is located at the southeast of the intersections of Broad Street and Witham Road, is approximately 35.116 acres in size, and is depicted on the City of Auburn Tax map 171 as lot 4. The site is located within the Traditional Neighborhood District T-4.2B where multifamily apartments are an allowed use.

The development parcel consists of sloping meadow fields that drain towards a central wetland on the property. And ultimately the Little Androscoggin River

The subject parcel is located in Zone A according to the Federal Insurance Rate Map 23001C0336E.

The following existing conditions figures are provided in Appendix 1:

Figure 1	USGS Topographic Map
Figure 2	Aerial Photograph
Figure 3	NRCS Medium Intensity Soil Survey
Figure 4	MGS Aquifer Map
Figure 5	Federal Insurance Rate Map

Proposed Project

The Broad Street Farms Development features the construction of 12 duplex buildings, each building featuring 2 two-bedroom units. 10 of the 12 duplexes will be accessed via 4 shared driveways off of Broad Street and 2 duplexes will be accessed off of a shared driveway from Witham Road.

A structural Best Management Practice (BMPs) has been designed to collect, store, and treat runoff from onsite impervious areas prior to discharge from the site. Runoff from the developed areas of the site will be directed through a series of meadow buffers, to then be discharged on site.

Applicable Design Standards

The project requires a stormwater permit pursuant to the Site Location of Development Act 38 M.R.S §420-D. The project must meet the following standards of Chapter 500:

Basic Standards: These standards include erosion and sediment control, inspection and maintenance, and housekeeping requirements.

General Standards: The General Standard requires that a project's stormwater management system includes measures that will provide pollutant removal from runoff and mitigate for the increased frequency of channels erosive flows due to runoff from smaller storms and potential temperature impacts.

Best Management Practices (BMPs) will be implemented to reduce the impacts of site development on downstream water quality. BMP sizing calculations are attached to this report.

Water Quality (BMP Standard): The water quality requirements will be met by the use of a Forested buffers to treat and detain stormwater.

Basic Standards

A site specific Erosion & Sedimentation Control Plan has been developed for the project. Means and methods to control erosion and sedimentation during and after construction are detailed in the erosion control plan narrative and construction details, which are included directly on the project drawings for ease of reference during construction.

Requirements for inspection and maintenance of the stormwater management system are provided in the stormwater management system inspection and maintenance plan located in Appendix 3.

Housekeeping requirements are included in the Erosion & Sediment Control Narrative located on the project drawings.

Water Quality (BMP Standard)

The water quality requirements will be met level spreader/meadow buffers to treat the development.

The project will result in the creation of approximately 51,040 SF of impervious area. The proposed BMPs will result in the treatment of approximately 97% of the new impervious area.

Percentage of Treatment of the Impervious Area =97% (95% required)

The project will result in the creation of approximately 141,876 SF of linear developed area. The proposed BMPs will result in the treatment of approximately 80% of the area.

Percentage of Treatment of the Developed Area = 80% (80% required)

Housekeeping and Maintenance & Inspection guidelines are attached to this report.

Stormwater Quantity Control

As part of best engineering practices, the proposed development has been designed to minimize stormwater runoff from the site in excess of the natural pre-development conditions. A hydrologic analysis of pre-development and post-development conditions was conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 22 and 55 (SCS TR-20 and TR-55). For Androscoggin, Maine a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts, per Maine DEP Chapter 500:

Storm Event	24-Hour Rainfall
2–Year Storm	3.0 inches
10–Year Storm	4.3 inches
25–Year Storm	5.4 inches

Runoff curve numbers, time of concentration, and travel time data were established based on methods outlined in the USDA TR-55 manual.

A minimum time of concentration of 6 minutes and a maximum sheet flow distance of 150 linear feet was used in the models.

Pre-Development Conditions

The pre-development HydoCAD model includes one (1) subcatchement and one (1) study point. Stormwater runoff from the project site ultimately drains to the Little Androscoggin River, stormwater runoff from the stie primarily flows through a central wetland, to the study point at the large wetland area.

A Pre-Development Watershed Map, showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 7. The Pre-development HydroCAD model is attached in Appendix 5.

Existing condition peak rates of runoff at the Study Points are as follows:

Pre-Development Peak Rates of Runoff (cfs)			
	2-Year	**10-Year**	**25-Year**
SP1	12.06	30.55	48.86

The pre-development peak rates of runoff are a baseline used for comparison to the post-development condition.

Post-Development Conditions

The post-development HydoCAD model includes one (1) subcatchement and one (1) study point. Stormwater runoff from the project site ultimately drains to the Little Androscoggin River, stormwater runoff from the stie primarily flows through a central wetland, to the study point at the large wetland area.

A post-Development Watershed Map, showing sub-watershed boundaries, time of concentration flow paths, and Study Points is provided in Appendix 7. The Post-development HydroCAD model is attached in Appendix 6.

Post-development peak rates of runoff at the Study Points are as follows:

Post-Development Peak Rates of Runoff (cfs)			
	2-Year	**10-Year**	**25-Year**
SP1	12	31	49

Stormwater Analysis

The results of the pre-development and post-development models were analyzed at the defined Study Points described above. The direct comparison of the pre-development and post-development conditions at the Study Points are as follows:

Peak Runoff Flow Rates Comparison		
Storm Event	**Pre-Development (cfs)**	**Post-Development (cfs)**
	Study Point SP1	
2-Year	12	12
10-Year	31	31
25-Year	49	49

The peak rate of runoff will decrease or remain the same in the 2, 10 & 25-year storm events.

Roof Dripline Filter Bed

Treatment & stormwater control for the roof runoff of the duplex homes will utilize roof dripline filter beds. The bed is required to provide volume for 1" of runoff from the contributing area and store it within a reservoir bed. The bed sizing is as follows:

Area of Watershed: = 1150 SF (Half of roof)
Treatment Volume Required: Area x runoff depth: 1,150 SF x 1/12 FT = 96 CF
Bed Sizing:
Porosity = 40%, Bed Length = 72', Bed Width = 2.5', Bed Depth = 1.5'
Available Volume= 0.4 x 72' x 2.5' x 1.5' = 108 CF.

The design is adequate since the available volume meets the required volume.
Standard details are provided on the attached plan set.

Summary

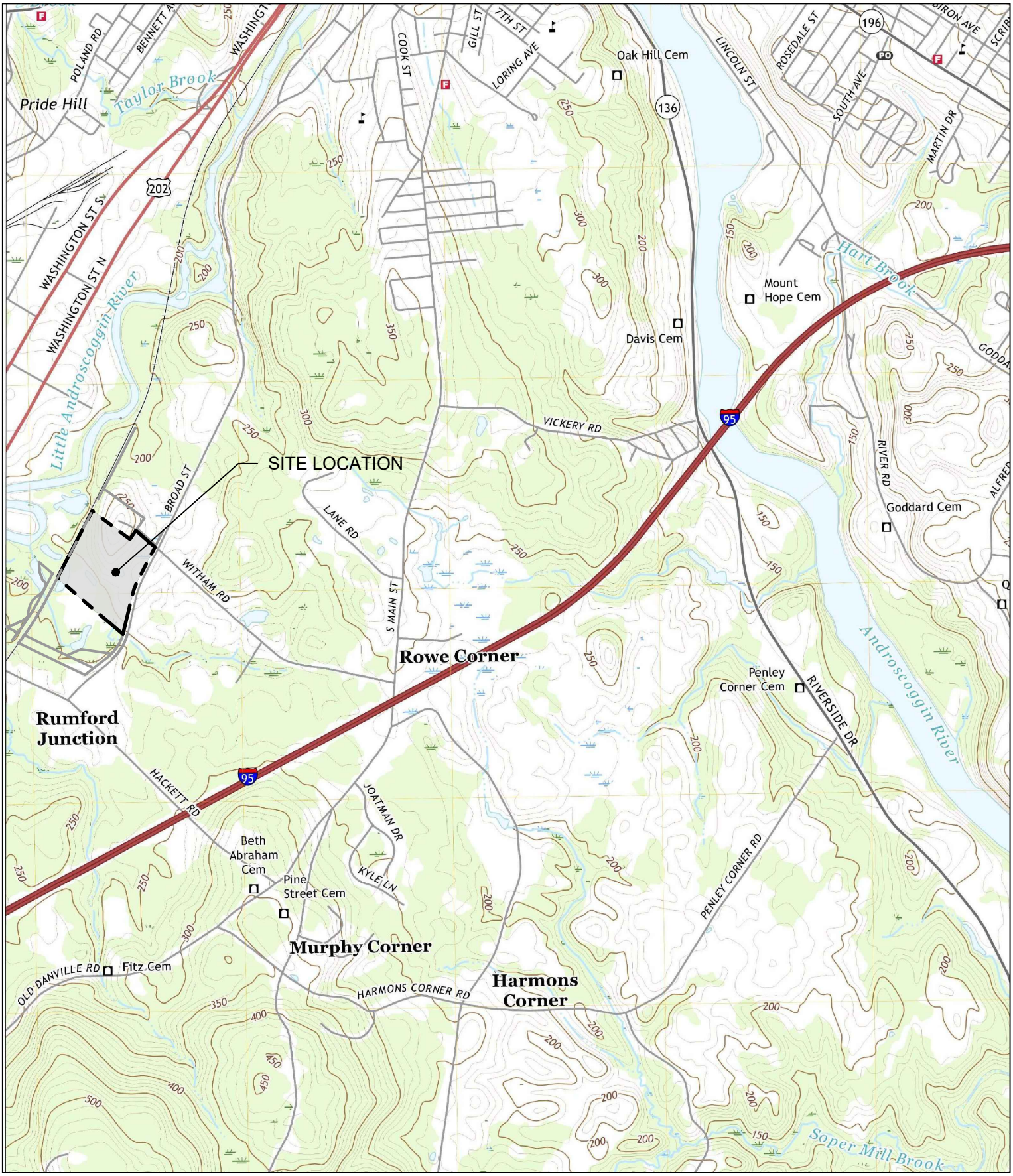
Based upon the results of this evaluation, the proposed stormwater design is not expected to cause flooding, erosion, or other significant adverse effects downstream of the site.

Appendices

1 – Existing Conditions Figures
2 – BMP Design Calculations
3 – Housekeeping & Maintenance
4- Sample Buffer Language
5 – Pre-Development HydroCAD Model
6 – Post-Development HydroCAD Model
7 – Watershed Maps

APPENDIX 1

EXISTING CONDITIONS FIGURES



USGS QUADRANGLE MAP	TERRADYN CONSULTANTS, LLC	PROJECT NO. 24-34	SHEET 1
PROJECT: BROAD STREET FARMS AUBURN, MAINE	PINELAND 41 CAMPUS DRIVE, SUITE 301 NEW GLOUCESTER, ME 04260	DATE 7/3/2024	OF 1
PREPARED FOR: ANDREW HAGERTY 108 MIDDLE ROAD FALMOUTH, MAINE 04102	PORTLAND 565 CONGRESS STREET, SUITE 201 PORTLAND, ME 04101	SCALE 1"=2,000'	
	207.926.5111 • info@terradynconsultants.com • www.terradynconsultants.com		

AERIAL MAP

PROJECT:
BROAD STREET FARMS
AUBURN, MAINE

PREPARED FOR:
ANDREW HAGERTY
108 MIDDLE ROAD
FALMOUTH, MAINE 04102

TERRADYN CONSULTANTS, LLC

PINELAND
41 CAMPUS DRIVE, SUITE 101
NEW GLOUCESTER, ME 04260

PORTLAND
565 CONGRESS STREET, SUITE 201
PORTLAND, ME 04101

207.926.5111 • info@terradynconsultants.com • www.terradynconsultants.com

PROJECT NO.	SHEET
24-34	1
DATE	OF
7/3/2024	1
SCALE	
1"=500'	

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Androscoggin and Sagadahoc Counties, Maine

June 25, 2024

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

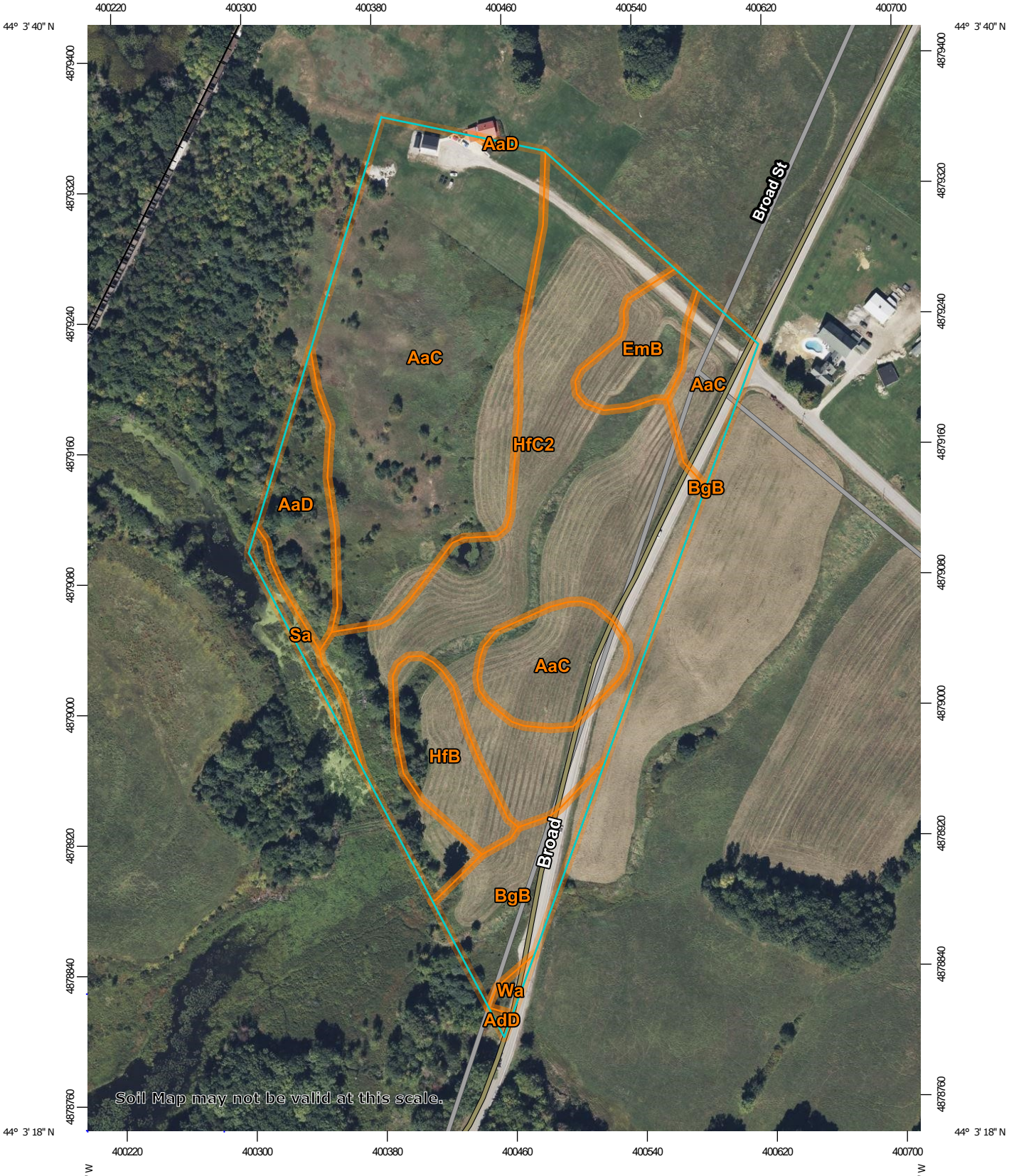
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,300 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 24, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AaC	Adams loamy sand, 8 to 15 percent slopes	10.1	41.8%
AaD	Adams loamy sand, 15 to 30 percent slopes	1.3	5.2%
AdD	Agawam fine sandy loam, 15 to 30 percent slopes	0.0	0.1%
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	1.4	5.9%
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes	0.9	3.7%
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes	1.2	4.8%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	8.9	36.7%
Sa	Saco silt loam	0.3	1.3%
Wa	Walpole fine sandy loam	0.1	0.4%
Totals for Area of Interest		**24.3**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the

scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

Androscoggin and Sagadahoc Counties, Maine

AaC—Adams loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2wqn8
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Adams and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Outwash terraces
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
Bs - 7 to 21 inches: sand
BC - 21 to 27 inches: sand
C - 27 to 65 inches: sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

AaD—Adams loamy sand, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 9kcf
Elevation: 300 to 2,200 feet
Mean annual precipitation: 30 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 70 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Adams and similar soils: 86 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Outwash terraces
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy glaciofluvial deposits derived from crystallin rock

Typical profile

H1 - 0 to 4 inches: loamy sand
H2 - 4 to 24 inches: loamy sand
H3 - 24 to 40 inches: fine sand

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): High to very high (6.00 to 20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

AdD—Agawam fine sandy loam, 15 to 30 percent slopes

Map Unit Setting

National map unit symbol: 9kcl
Elevation: 110 to 340 feet
Mean annual precipitation: 47 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Agawam and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Agawam

Setting

Landform: Outwash plains
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Coarse-loamy glaciofluvial deposits derived from slate

Typical profile

H1 - 0 to 3 inches: fine sandy loam
H2 - 3 to 37 inches: fine sandy loam
H3 - 37 to 72 inches: very fine sand

Properties and qualities

Slope: 15 to 30 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

BgB—Nicholville very fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2yjg5
Elevation: 20 to 2,300 feet
Mean annual precipitation: 34 to 50 inches
Mean annual air temperature: 37 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nicholville and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicholville

Setting

Landform: Lakebeds (relict)
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciomarine deposits

Typical profile

Ap - 0 to 7 inches: very fine sandy loam
Bs - 7 to 19 inches: very fine sandy loam
BC - 19 to 30 inches: very fine sandy loam
C - 30 to 65 inches: loamy very fine sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

EmB—Elmwood fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9kd2
Elevation: 10 to 900 feet
Mean annual precipitation: 38 to 55 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 130 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Elmwood and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Elmwood

Setting

Landform: Stream terraces
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy glaciolacustrine deposits

Typical profile

H1 - 0 to 9 inches: fine sandy loam
H2 - 9 to 23 inches: sandy loam
H3 - 23 to 40 inches: silty clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B
Ecological site: F144BY402ME - Clay Hills
Hydric soil rating: No

HfB—Hartland very fine sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9kd6
Elevation: 0 to 590 feet
Mean annual precipitation: 46 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hartland and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 19 inches: very fine sandy loam
H3 - 19 to 28 inches: very fine sandy loam
H4 - 28 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

HfC2—Hartland very fine sandy loam, 8 to 15 percent slopes, eroded

Map Unit Setting

National map unit symbol: 9kd7
Elevation: 0 to 410 feet
Mean annual precipitation: 46 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Hartland and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hartland

Setting

Landform: Lakebeds
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty glaciolacustrine deposits

Typical profile

H1 - 0 to 10 inches: very fine sandy loam
H2 - 10 to 19 inches: very fine sandy loam
H3 - 19 to 28 inches: very fine sandy loam
H4 - 28 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods), F144BY508ME - Silty Slope
Hydric soil rating: No

Sa—Saco silt loam

Map Unit Setting

National map unit symbol: 9kfc
Elevation: 10 to 1,750 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Saco and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saco

Setting

Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Coarse-silty alluvium

Typical profile

H1 - 0 to 10 inches: silt loam
H2 - 10 to 26 inches: silt loam
H3 - 26 to 65 inches: silt loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very high (about 15.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: B/D
Ecological site: F144BY120ME - Small Floodplain Riparian Complex (reserved), F144BY110ME - Broad Floodplain Riparian Complex
Hydric soil rating: Yes

Wa—Walpole fine sandy loam

Map Unit Setting

National map unit symbol: 9kfq
Elevation: 0 to 540 feet
Mean annual precipitation: 47 to 49 inches
Mean annual air temperature: 45 degrees F
Frost-free period: 150 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Walpole and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Walpole

Setting

Landform: Outwash plains
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Sandy glaciofluvial deposits

Typical profile

H1 - 0 to 6 inches: fine sandy loam
H2 - 6 to 15 inches: loamy sand
H3 - 15 to 60 inches: sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: A/D
Ecological site: F144BY303ME - Acidic Swamp
Hydric soil rating: Yes

Soil Information for All Uses

Soil Properties and Qualities

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

Soil Qualities and Features

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

Hydrologic Soil Group

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

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

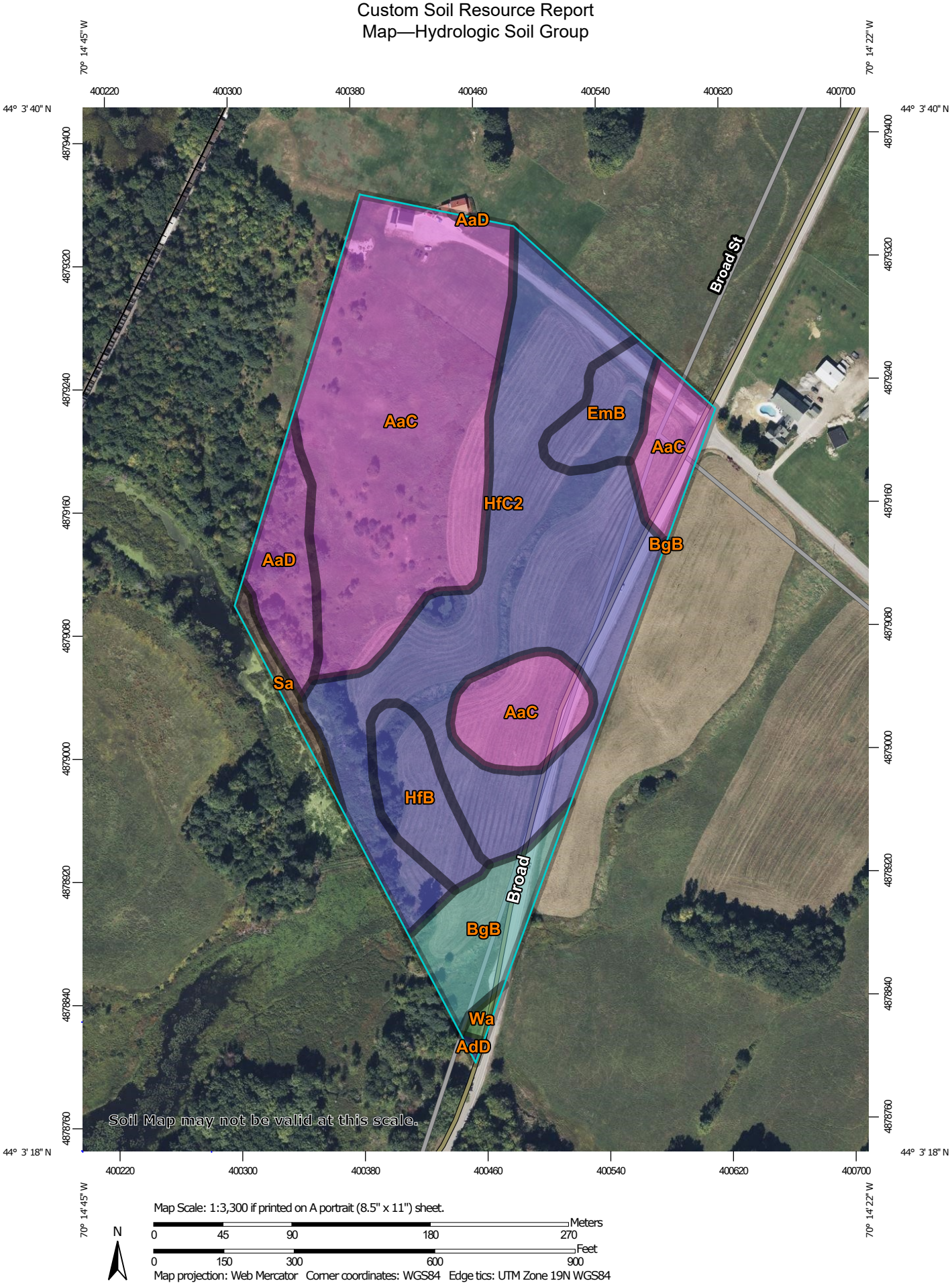
Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

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

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.



Map Scale: 1:3,300 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 24, Sep 5, 2023

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

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
AaC	Adams loamy sand, 8 to 15 percent slopes	A	10.1	41.8%
AaD	Adams loamy sand, 15 to 30 percent slopes	A	1.3	5.2%
AdD	Agawam fine sandy loam, 15 to 30 percent slopes	B	0.0	0.1%
BgB	Nicholville very fine sandy loam, 0 to 8 percent slopes	C	1.4	5.9%
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes	B	0.9	3.7%
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes	B	1.2	4.8%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	B	8.9	36.7%
Sa	Saco silt loam	B/D	0.3	1.3%
Wa	Walpole fine sandy loam	A/D	0.1	0.4%
Totals for Area of Interest			**24.3**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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FEMA MAP - FIRM 23001C0336E

PROJECT:
BROAD STREET FARMS
AUBURN, MAINE

PREPARED FOR:
ANDREW HAGERTY
108 MIDDLE ROAD
FALMOUTH, MAINE 04102

TERRADYN CONSULTANTS, LLC

PINELAND
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260

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PROJECT NO.	SHEET
24-34	1
DATE	OF
7/3/2024	1
SCALE	
1"=500'	

APPENDIX 2

BMP DESIGN CALCULATIONS

LS-1

Vegetated Buffer & Level Lip Spreader

Units 1-10

Buffer Characteristics:

Soil Type:	b
Cover:	meadow
Slope:	8.00
Length:	50

Tributary Area:	(sf)	(acre)
Total:	13,219	0.30
Impervious:	6,193	0.14
Lawn:	7,026	0.16

Berm Length Calculations:

Required Lengths:

270	ft length / acre impervious
82	ft length / acre lawn
52	**ft - Required Berm Length**
52	**ft - Berm Length Provided**

LS-2

Vegetated Buffer & Level Lip Spreader

Buffer Characteristics:

Soil Type:	b
Cover:	meadow
Slope:	7.00
Length:	72

Tributary Area:	(sf)	(acre)
Total:	24,655	0.57
Impervious:	3,268	0.08
Lawn:	21,387	0.49

Berm Length Calculations:

Required Lengths:

158	ft length / acre impervious
48	ft length / acre lawn
35	**ft - Required Berm Length**
35	**ft - Berm Length Provided**

LS-3

Vegetated Buffer & Level Lip Spreader

Buffer Characteristics:

Soil Type:	b
Cover:	meadow
Slope:	3.00
Length:	100

Tributary Area:	(sf)	(acre)
Total:	7,807	0.18
Impervious:	3,227	0.07
Lawn:	4,580	0.11

Berm Length Calculations:

Required Lengths:

100	ft length / acre impervious
30	ft length / acre lawn
11	**ft - Required Berm Length**
20	**ft - Berm Length Provided**

LS-4

Vegetated Buffer & Level Lip Spreader

Buffer Characteristics:

Soil Type:	b
Cover:	meadow
Slope:	8.00
Length:	70

Tributary Area:	(sf)	(acre)
Total:	26,127	0.60
Impervious:	5,107	0.12
Lawn:	21,020	0.48

Berm Length Calculations:

Required Lengths:

196 ft length / acre impervious

59 ft length / acre lawn

51 ft - Required Berm Length

51 ft - Berm Length Provided

LS-5

Vegetated Buffer & Level Lip Spreader

Buffer Characteristics:

Soil Type:	b
Cover:	meadow
Slope:	8.00
Length:	120

Tributary Area:	(sf)	(acre)
Total:	13,995	0.32
Impervious:	4,763	0.11
Lawn:	9,232	0.21

Berm Length Calculations:

Required Lengths:

94 ft length / acre impervious

29 ft length / acre lawn

16 ft - Required Berm Length

20 ft - Berm Length Provided

APPENDIX 3

HOUSEKEEPING & MAINTENANCE

TERRADYN CONSULTANTS, LLC

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www.terradynconsultants.com

MAINTENANCE PLAN OF STORMWATER MANAGEMENT FACILITIES

Broad Street Farms
Auburn, Maine

Project Developer: Andrew Hagerty
108 Middle Road
Falmouth, ME 04105

Responsible Party: Andrew Hagerty

List of Stormwater Measures:
Conveyance & Distribution System (Stormwater Channels & Culverts)
Roadways & Parking Surfaces
Stormwater Meadow Buffers

Introduction:
Regular inspection and maintenance of the entire stormwater management system is crucial to the long-term effectiveness of the system. The responsible party must provide regular inspection and maintenance of all permanent erosion control measures and stormwater management structures, establish any contract services required to implement the program, and keep records and a maintenance log book of inspection and maintenance activities. At a minimum, the inspection and maintenance activities outlined herein should be performed at the recommended intervals.

All measures must be maintained in effective operating condition. A person with knowledge of erosion and sedimentation practices, stormwater management, and the standards and conditions of all local, state and federal permits for the project shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected.

Inspection & Maintenance Tasks:

Inspections should be performed by a qualified erosion control professional. NOTE: The following instruction are excerpts from the Maine Department of Environmental Protection's *Stormwater Management for Maine, Volume III BMPs Technical Design Manual*, dated January 2006.

1. Inspect **vegetated areas**, particularly slopes and embankments, early in the growing season or after storm events resulting in one inch of rain in 24 hours to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

2. Inspect **ditches, swales and other open stormwater channels** in the spring, in late fall, and after storm events resulting in one inch of rain in 24 hours to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or sideslopes.

3. Inspect **resource and treatment buffers** once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders and turn-outs for erosion. If erosion is present, adjust or modify the spreader's or turnout's lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the spreader bays or turn-out pools.

Conveyance & Distribution Systems: (Stormwater Channels & Culverts, etc.)

1. Inspection schedule:

a. Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains (one inch of rain in 24 hours) to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side-slopes.

b. Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet.

c. Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

2. Mowing: Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended (Galli, 1993).

3. Erosion: It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

4. Fertilization: Routine fertilization and/or use of pesticides is strongly discouraged. If complete re-seeding is necessary, half the original recommended rate of fertilizer should be applied with a full rate of seed.

5. Sediment Removal: The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

Roadways & Parking Surfaces:

Paved surfaces shall be swept or vacuumed at least once annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events.

Level Lip Spreader:

Long term maintenance of the level spreader is essential to ensure its effectiveness. Spreaders constructed of wood, asphalt, stone or concrete curbing also require inspection and maintenance.

1. **Inspections:** At least once a year and following major storms (one inch of rain in 24 hours), the level spreader pools should be inspected for sand accumulation and debris that may reduce its capacity.

2. **Sediment Removal:** Sediment build-up should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately.
3. **Debris:** Remove debris such as leaf litter, branches and tree growth.
4. **Mowing:** Vegetated spreaders may require mowing.
5. **Snow Storage:** Do not store snow within the area of the level spreaders.
6. **Level Spreader Replacement:** The reconstruction of the level spreader may be necessary when sheet flow from the spreader channelize into the buffer.

Vegetated Swales:

Mowing: Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended (Galli, 1993).

Routine Maintenance and Inspection: The area should be inspected for failures following heavy rainfall (one inch of rain in 24 hours) and repaired as necessary for newly formed channels or gullies, reseeding/sodding of bare spots, removal of trash, leaves and/or accumulated sediments, the control of woody or other undesirable vegetation and to check the condition and integrity of the check dams.
Aeration: The buffer strip may require periodic mechanical aeration to restore infiltration capacity. This aeration must be done during a time when the area can be reseeded and mulched prior to any significant rainfall.

Erosion: It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

Fertilization: Routine fertilization and/or use of pesticides is strongly discouraged. If complete re-seeding is necessary, half the original recommended rate of fertilizer should be applied with a full rate of seed.

Sediment Removal: The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

Vegetated Buffers:

1. **Mowing:** Meadow buffers may be mown no more than twice per year. They may not be maintained as a lawn.

2. **Inspection Frequency:** Buffers should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched. A shallow stone trench should be installed and maintained as a level spreader to distribute flows evenly in any area showing concentrated flows.

3. **Access and Use:** Buffers should not be traversed by all-terrain vehicles or other vehicles. Activities within buffers should be conducted so as not to damage vegetation, disturb any organic duff layer, and expose soil.

4. **Snow Storage:** Do not store snow within the buffer area.

5. **Model Maintenance Plan:** The following techniques should be followed to maintain the integrity of buffers from initial planning through post-construction (Schueler, 1994):

   a. Planning Stage:
   i. Require buffer limits to be present on all clearing/grading and erosion control plans
   ii. Record all buffer boundaries on official maps and site plans.
   iii. Clearly establish acceptable and unacceptable uses for the buffer, and include in deed restrictions and conservation easements.
   iv. Establish clear vegetation targets and management rules for the buffer.
   v. Provide incentives for owners protect buffers through perpetual conservation easements rather than deed restrictions.
   b. Construction Stage:
   i. Pre-construction stakeout of buffers to define the Limit of Disturbance (LOD). ii. Set LOD based on drip-line of the Meadow buffer.
   iii. Conduct pre-construction meeting to familiarize contractors and foremen with LOD and buffer limit.
   iv. Mark the LOD with silt fence barrier, signs or other methods to exclude construction equipment.
   c. Post-Development Stage:
   i. Mark buffer boundaries with permanent signs (or fences) describing allowable uses.
   ii. Educate property owners/homeowner associations on the purpose, limits and allowable uses of the buffer.
   iii. Conduct periodic "buffer walks" to inspect the condition of the buffer network (using volunteers, where possible).
   iv. Replant unused meadow buffers with trees and shrubs, if possible.

6. **Tree Removal**: Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

   (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25-foot by 50-foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

Table 11.
Point System for Determining an Evenly Distributed Stand of Trees

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

(ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

Recertification requirement:

Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the Department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
(b) All aspects of the stormwater control system are operating as approved, have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system, as necessary.
(c) The stormwater maintenance plan for the site is being implemented as approved by the Department, and the maintenance log is being maintained.
(d) All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning and general maintenance.
(e) The Department may waive some or all of these recertification requirements on a case-by-case basis for permittees subject to the Department's Multi-Sector General Permit ("MSGP") and/or Maine Pollutant Discharge Elimination System ("MEPDES") programs where it is demonstrated that these programs are providing stormwater control that is at least as effective as required pursuant to this Chapter.

DOCUMENTATION:

Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the

inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Department of Environmental Protection staff and a copy provided to the Department upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

The log attached at the end of this plan is from the *Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual for Designers and Engineers (May 2016)*. The log may be used or adapted for this project.

Enc.

Sample Maintenance Log Sheet

Sample Maintenance Log Sheet:

Stormwater Management Facilities **Inspection & Maintenance Log** **Broad Street Farms**		
General Information:		
Inspected by:	Date:	Weather:
Reason for Inspection: (Regular Inspection) (Major Rain Event)		

BMP	Conditions Observed	Repairs Needed?
1. Vegetated Areas		
2. Ditches, Swales, Open Channels		
3. Roadway & Parking Surfaces		
4. Vegetated Buffers		

Detailed Repair Notes:

BMP Type	Date	Description of Repairs & Sediment Disposal

APPENDIX 4

SAMPLE BUFFER LANGUAGE

C. **Meadow buffer**

DECLARATION OF RESTRICTIONS (Non-Wooded Meadow Buffer)

THIS DECLARATION OF RESTRICTIONS is made this _____ day of _____, 20___, by _____, _____
(name) (street address)
_____, _____County, Maine _____, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near _____, _____.
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)
described in a deed from _____ to _____, dated
(name) (name of Declarant)
_____, 20 ____, and recorded in Book _____ Page_____ at the _____ County Registry of Deeds, herein referred to as the "property", and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S.A. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP").

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed or conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. Restrictions on Restricted Buffer Area. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows:

a. No soil, loam, peat, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor may the topography or the natural mineral soil or the area be altered or manipulated in any way:

b. A dense cover of grassy vegetation must be maintained over the Restricted Buffer Area, except that shrubs, trees and other woody vegetation may also be planted or allowed to grow in the area. The Restricted Buffer Area may not be maintained as a lawn or used as a pasture. If vegetation in the Restricted Buffer Area is mowed, it may be mown no more than two times per year.

c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors;

d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area, except for vehicles used in mowing;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. Enforcement. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. Binding Effect. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____
(NAME)

STATE OF MAINE, _____, County, dated _____, 20 _____.
(County) (date)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

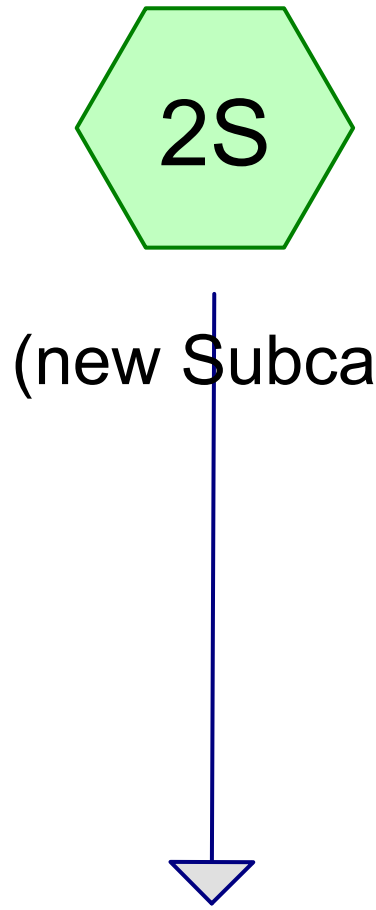
_____

Notary Public

_____

APPENDIX 5

PRE-DEVELOPMENT HYDROCAD MODEL



Subcat Reach Pond Link

Routing Diagram for 23-34 Pre
Prepared by {enter your company name here}, Printed 7/5/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
21.610	61	Pasture/grassland/range, Good, HSG B (2S)
1.780	89	Pasture/grassland/range, Poor, HSG D (2S)
0.290	98	Paved parking, HSG B (2S)
2.380	55	Woods, Good, HSG B (2S)
2.930	77	Woods, Good, HSG D (2S)
10.410	79	Woods/grass comb., Good, HSG D (2S)
39.400	**68**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
24.280	HSG B	2S
0.000	HSG C	
15.120	HSG D	2S
0.000	Other	
39.400		**TOTAL AREA**

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	21.610	0.000	0.000	0.000	21.610	Pasture/grassland/range, Good	2S
0.000	0.000	0.000	1.780	0.000	1.780	Pasture/grassland/range, Poor	2S
0.000	0.290	0.000	0.000	0.000	0.290	Paved parking	2S
0.000	2.380	0.000	2.930	0.000	5.310	Woods, Good	2S
0.000	0.000	0.000	10.410	0.000	10.410	Woods/grass comb., Good	2S
0.000	**24.280**	**0.000**	**15.120**	**0.000**	**39.400**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: (new Subcat) Runoff Area=39.400 ac 0.74% Impervious Runoff Depth>0.55"
Flow Length=1,137' Tc=38.8 min CN=68 Runoff=12 cfs 1.805 af

Link SP1: (new Link) Inflow=12 cfs 1.805 af
Primary=12 cfs 1.805 af

Total Runoff Area = 39.400 ac Runoff Volume = 1.805 af Average Runoff Depth = 0.55"
99.26% Pervious = 39.110 ac 0.74% Impervious = 0.290 ac

Summary for Subcatchment 2S: (new Subcat)

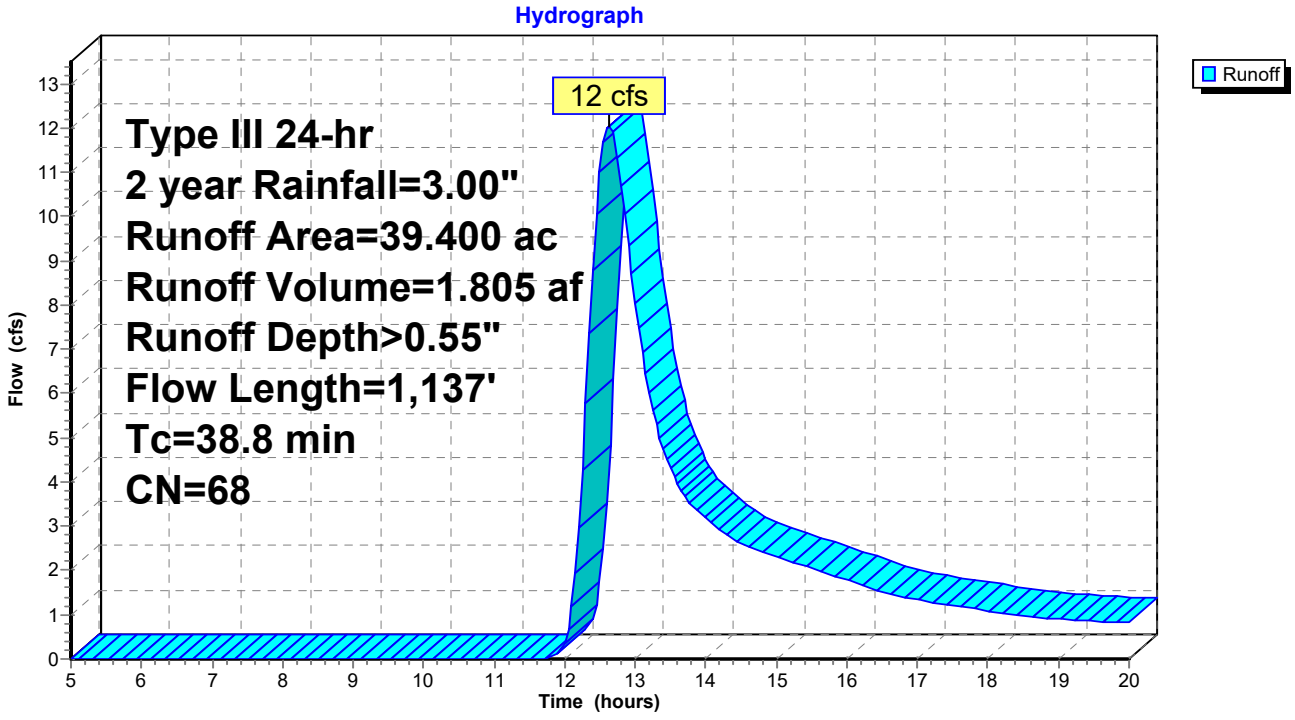
Runoff = 12 cfs @ 12.63 hrs, Volume= 1.805 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (ac)	CN	Description
2.930	77	Woods, Good, HSG D
2.380	55	Woods, Good, HSG B
1.780	89	Pasture/grassland/range, Poor, HSG D
10.410	79	Woods/grass comb., Good, HSG D
21.610	61	Pasture/grassland/range, Good, HSG B
0.290	98	Paved parking, HSG B
39.400	68	Weighted Average
39.110		99.26% Pervious Area
0.290		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.0131	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
14.7	987	0.0257	1.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.8	1,137	Total			

Subcatchment 2S: (new Subcat)

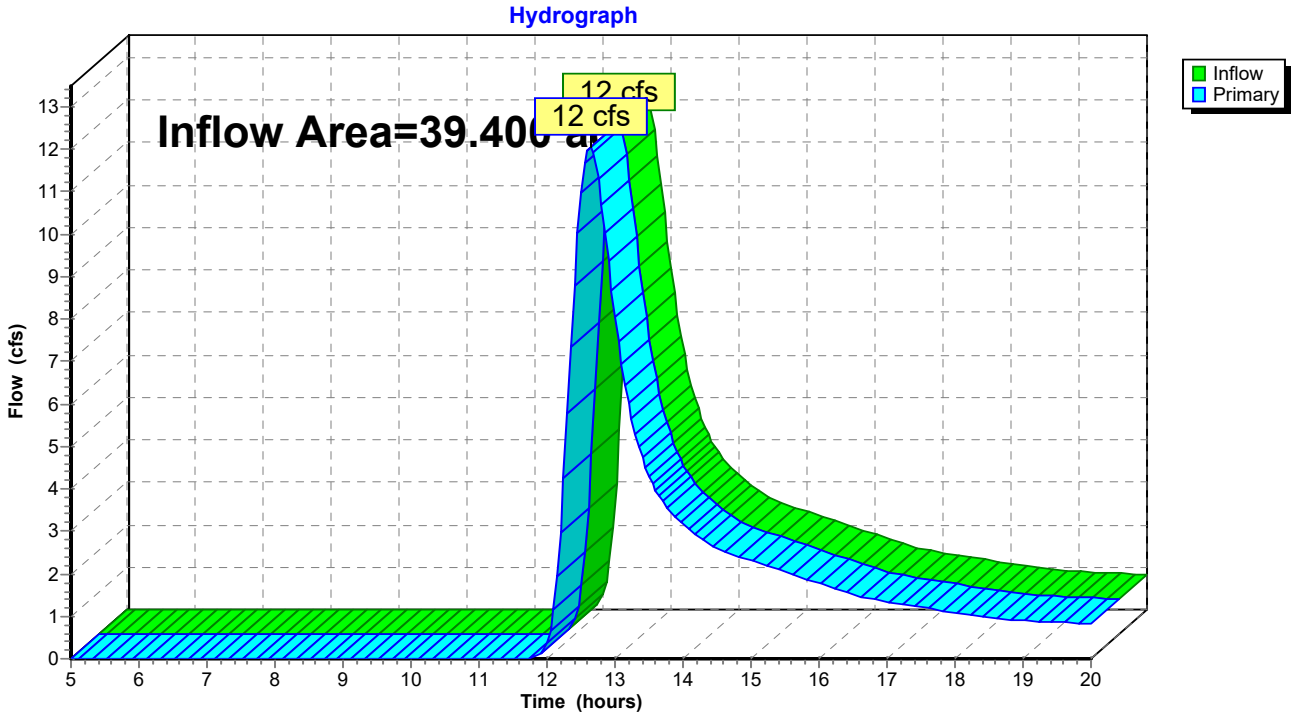


Summary for Link SP1: (new Link)

Inflow Area = 39.400 ac, 0.74% Impervious, Inflow Depth > 0.55" for 2 year event
Inflow = 12 cfs @ 12.63 hrs, Volume= 1.805 af
Primary = 12 cfs @ 12.63 hrs, Volume= 1.805 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link SP1: (new Link)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment2S: (new Subcat) Runoff Area=39.400 ac 0.74% Impervious Runoff Depth>1.26"
Flow Length=1,137' Tc=38.8 min CN=68 Runoff=31 cfs 4.127 af

Link SP1: (new Link) Inflow=31 cfs 4.127 af
Primary=31 cfs 4.127 af

Total Runoff Area = 39.400 ac Runoff Volume = 4.127 af Average Runoff Depth = 1.26"
99.26% Pervious = 39.110 ac 0.74% Impervious = 0.290 ac

Summary for Subcatchment 2S: (new Subcat)

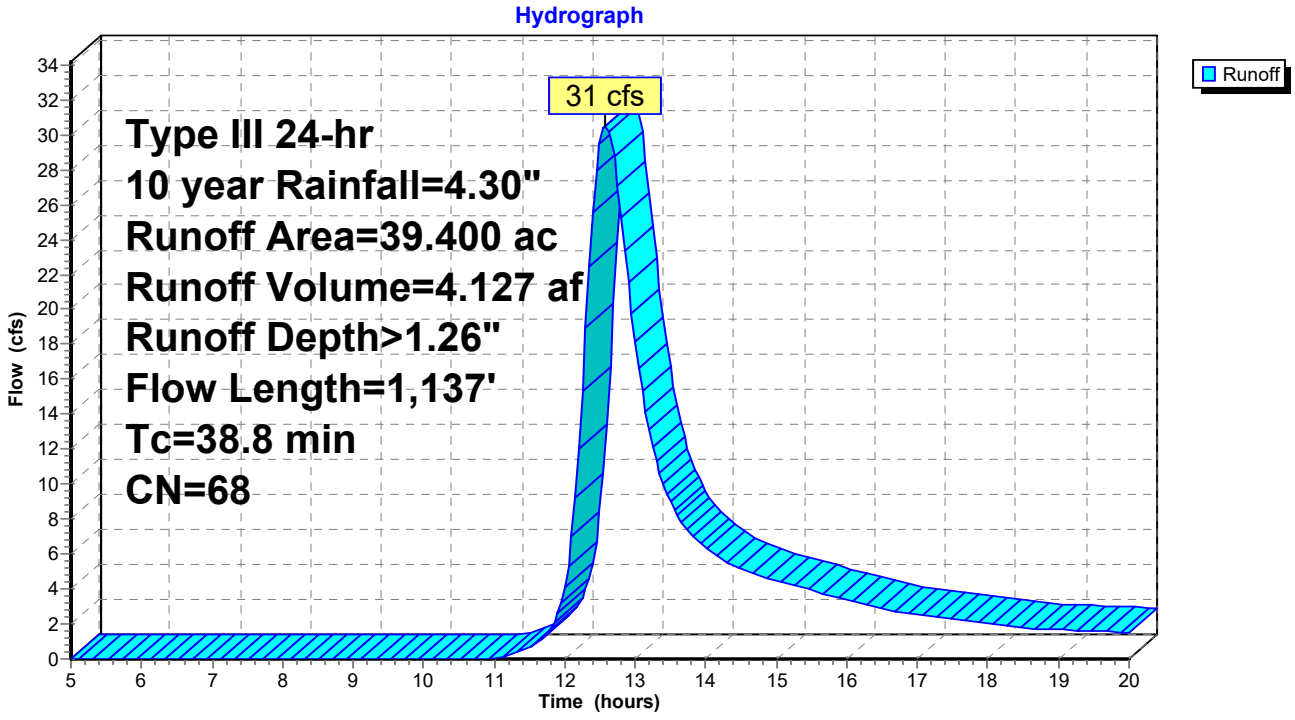
Runoff = 31 cfs @ 12.58 hrs, Volume= 4.127 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (ac)	CN	Description
2.930	77	Woods, Good, HSG D
2.380	55	Woods, Good, HSG B
1.780	89	Pasture/grassland/range, Poor, HSG D
10.410	79	Woods/grass comb., Good, HSG D
21.610	61	Pasture/grassland/range, Good, HSG B
0.290	98	Paved parking, HSG B
39.400	68	Weighted Average
39.110		99.26% Pervious Area
0.290		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.0131	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
14.7	987	0.0257	1.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.8	1,137	Total			

Subcatchment 2S: (new Subcat)

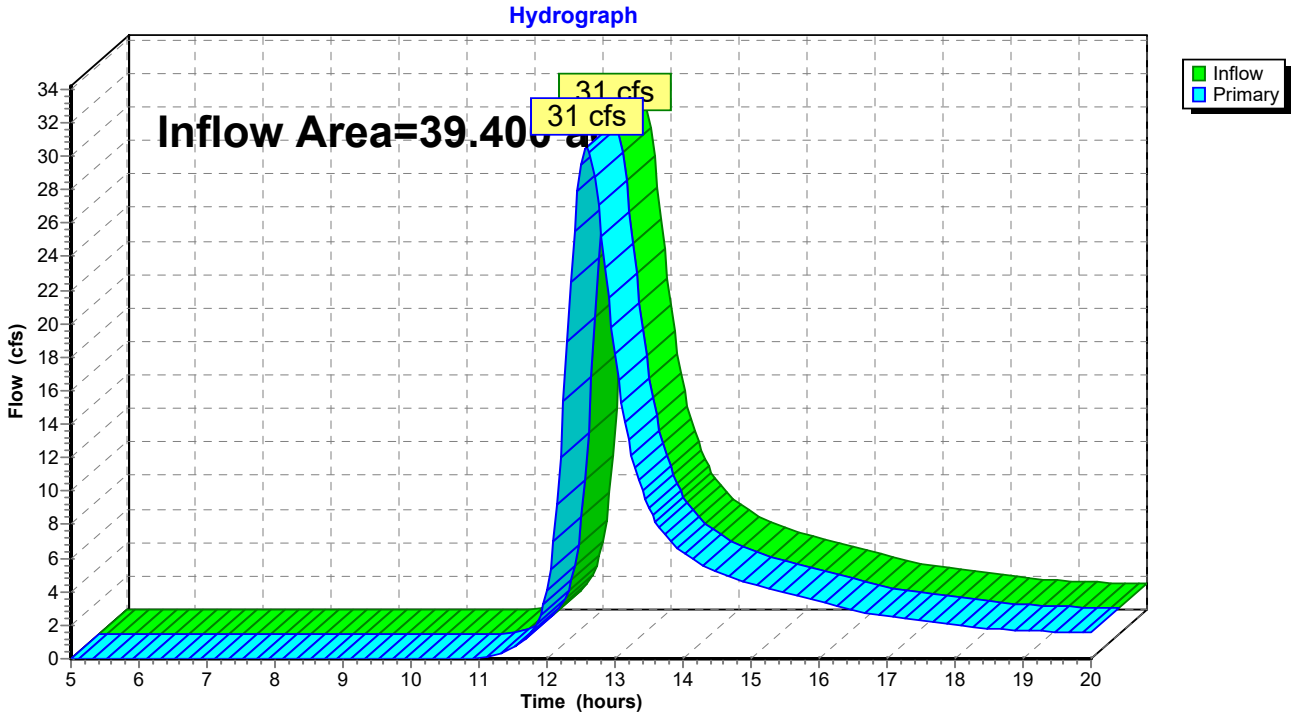


Summary for Link SP1: (new Link)

Inflow Area = 39.400 ac, 0.74% Impervious, Inflow Depth > 1.26" for 10 year event
Inflow = 31 cfs @ 12.58 hrs, Volume= 4.127 af
Primary = 31 cfs @ 12.58 hrs, Volume= 4.127 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link SP1: (new Link)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 2S: (new Subcat) Runoff Area=39.400 ac 0.74% Impervious Runoff Depth>1.97"
Flow Length=1,137' Tc=38.8 min CN=68 Runoff=49 cfs 6.467 af

Link SP1: (new Link) Inflow=49 cfs 6.467 af
Primary=49 cfs 6.467 af

Total Runoff Area = 39.400 ac Runoff Volume = 6.467 af Average Runoff Depth = 1.97"
99.26% Pervious = 39.110 ac 0.74% Impervious = 0.290 ac

Summary for Subcatchment 2S: (new Subcat)

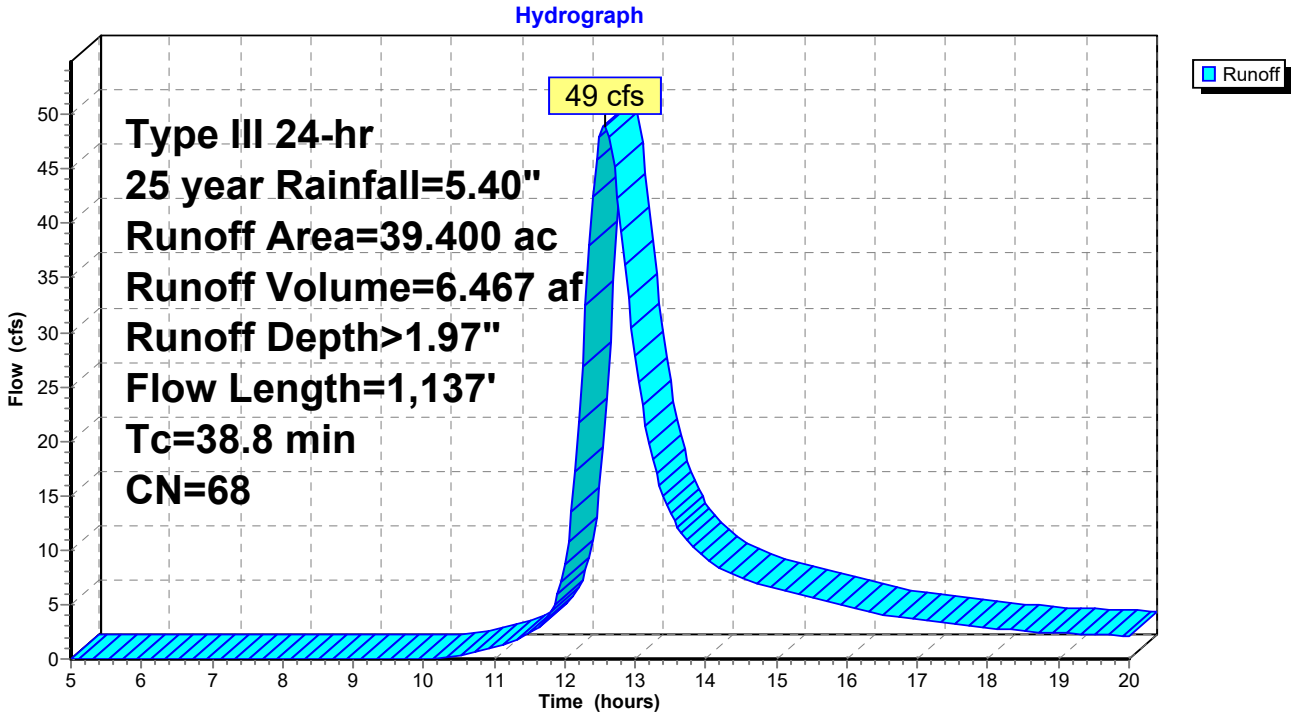
Runoff = 49 cfs @ 12.56 hrs, Volume= 6.467 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (ac)	CN	Description
2.930	77	Woods, Good, HSG D
2.380	55	Woods, Good, HSG B
1.780	89	Pasture/grassland/range, Poor, HSG D
10.410	79	Woods/grass comb., Good, HSG D
21.610	61	Pasture/grassland/range, Good, HSG B
0.290	98	Paved parking, HSG B
39.400	68	Weighted Average
39.110		99.26% Pervious Area
0.290		0.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.1	150	0.0131	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
14.7	987	0.0257	1.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
38.8	1,137	Total			

Subcatchment 2S: (new Subcat)

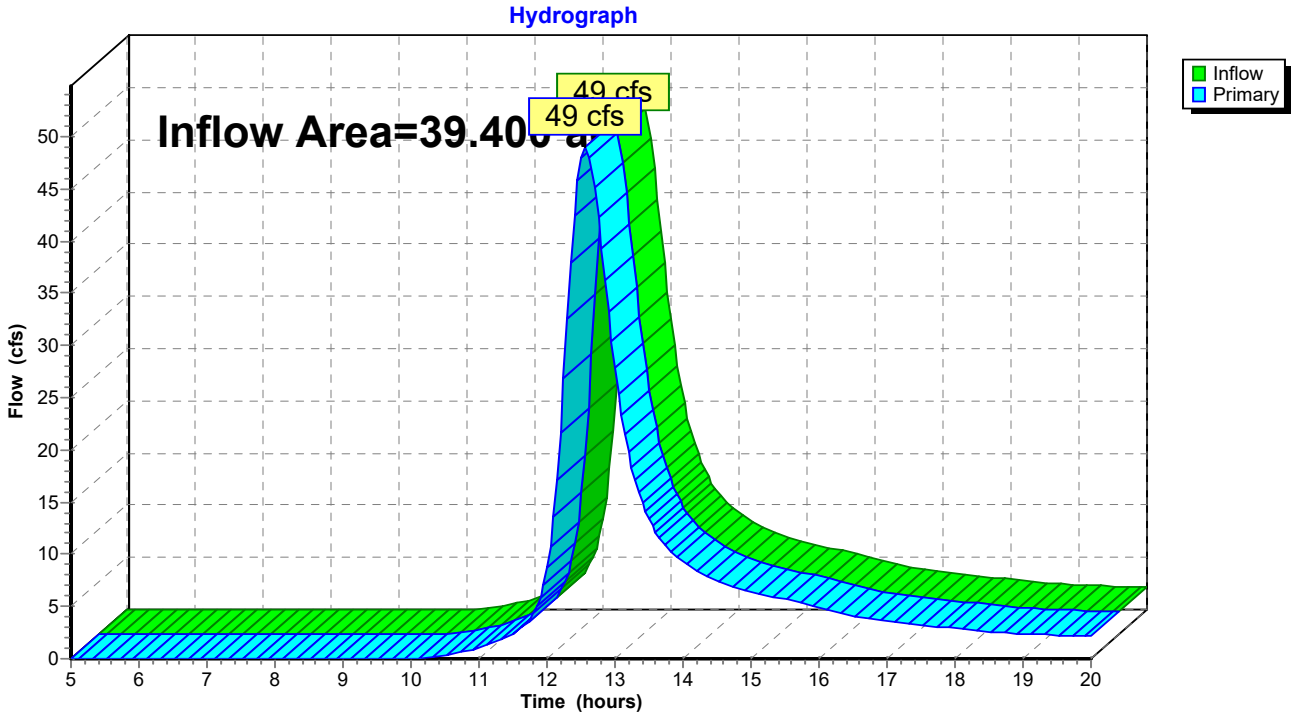


Summary for Link SP1: (new Link)

Inflow Area = 39.400 ac, 0.74% Impervious, Inflow Depth > 1.97" for 25 year event
Inflow = 49 cfs @ 12.56 hrs, Volume= 6.467 af
Primary = 49 cfs @ 12.56 hrs, Volume= 6.467 af, Atten= 0%, Lag= 0.0 min

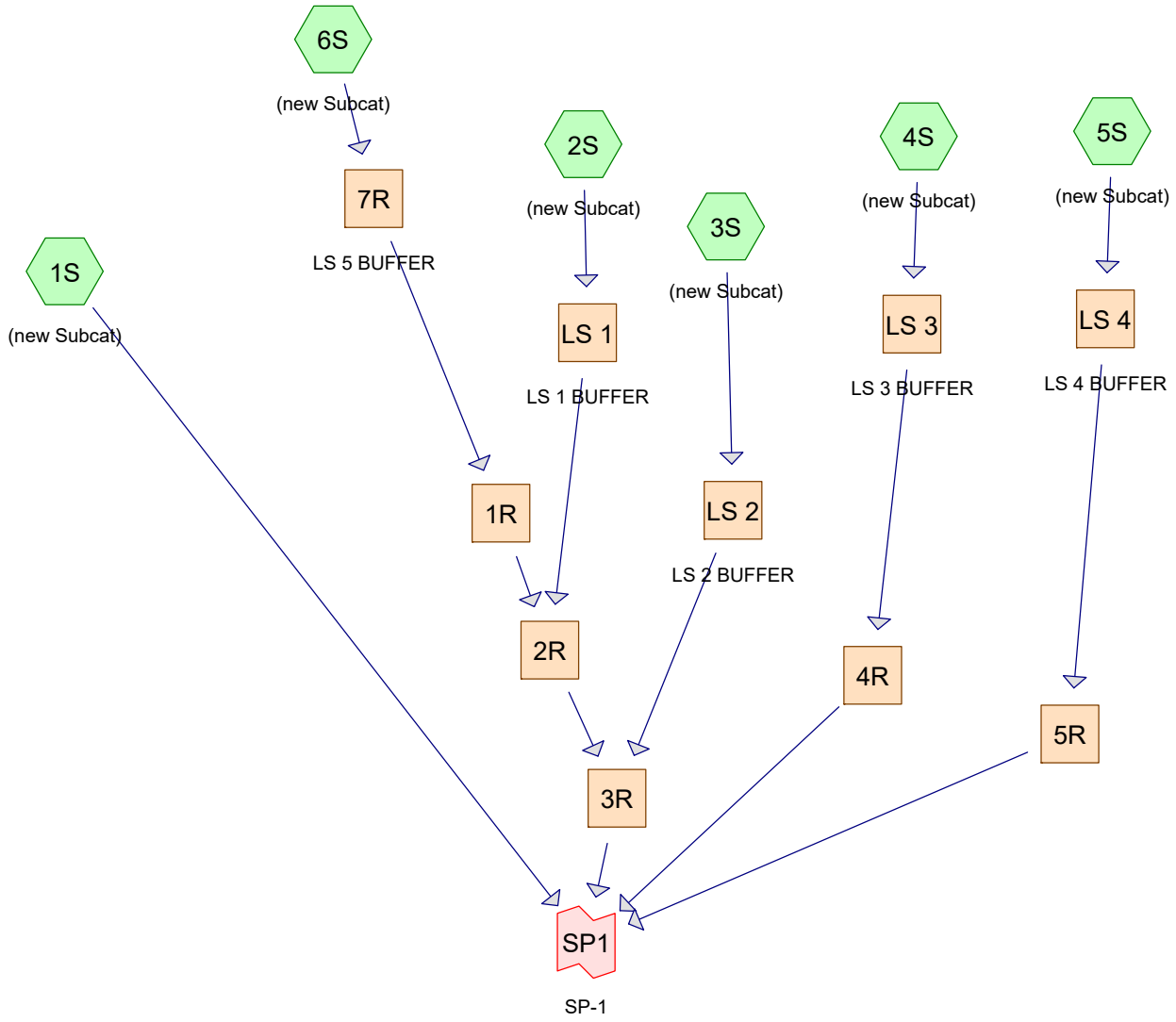
Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link SP1: (new Link)



APPENDIX 6

POST-DEVELOPMENT HYDROCAD MODEL



Subcat Reach Pond Link

Routing Diagram for 23-34 post
Prepared by {enter your company name here}, Printed 7/5/2024

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.452	61	>75% Grass cover, Good, HSG B (2S, 3S, 4S, 5S, 6S)
19.644	61	Pasture/grassland/range, Good, HSG B (1S)
1.780	89	Pasture/grassland/range, Poor, HSG D (1S)
0.808	98	Paved parking, HSG B (1S, 2S, 3S, 4S, 5S, 6S)
2.380	55	Woods, Good, HSG B (1S)
2.930	77	Woods, Good, HSG D (1S)
10.406	79	Woods/grass comb., Good, HSG D (1S)
39.400	**69**	**TOTAL AREA**

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	1.452	0.000	0.000	0.000	1.452	>75% Grass cover, Good	2S, 3S, 4S, 5S, 6S
0.000	19.644	0.000	0.000	0.000	19.644	Pasture/grassland/range, Good	1S
0.000	0.000	0.000	1.780	0.000	1.780	Pasture/grassland/range, Poor	1S
0.000	0.808	0.000	0.000	0.000	0.808	Paved parking	1S, 2S, 3S, 4S, 5S, 6S
0.000	2.380	0.000	2.930	0.000	5.310	Woods, Good	1S
0.000	0.000	0.000	10.406	0.000	10.406	Woods/grass comb., Good	1S
0.000	**24.284**	**0.000**	**15.116**	**0.000**	**39.400**	**TOTAL AREA**	

Summary for Subcatchment 1S: (new Subcat)

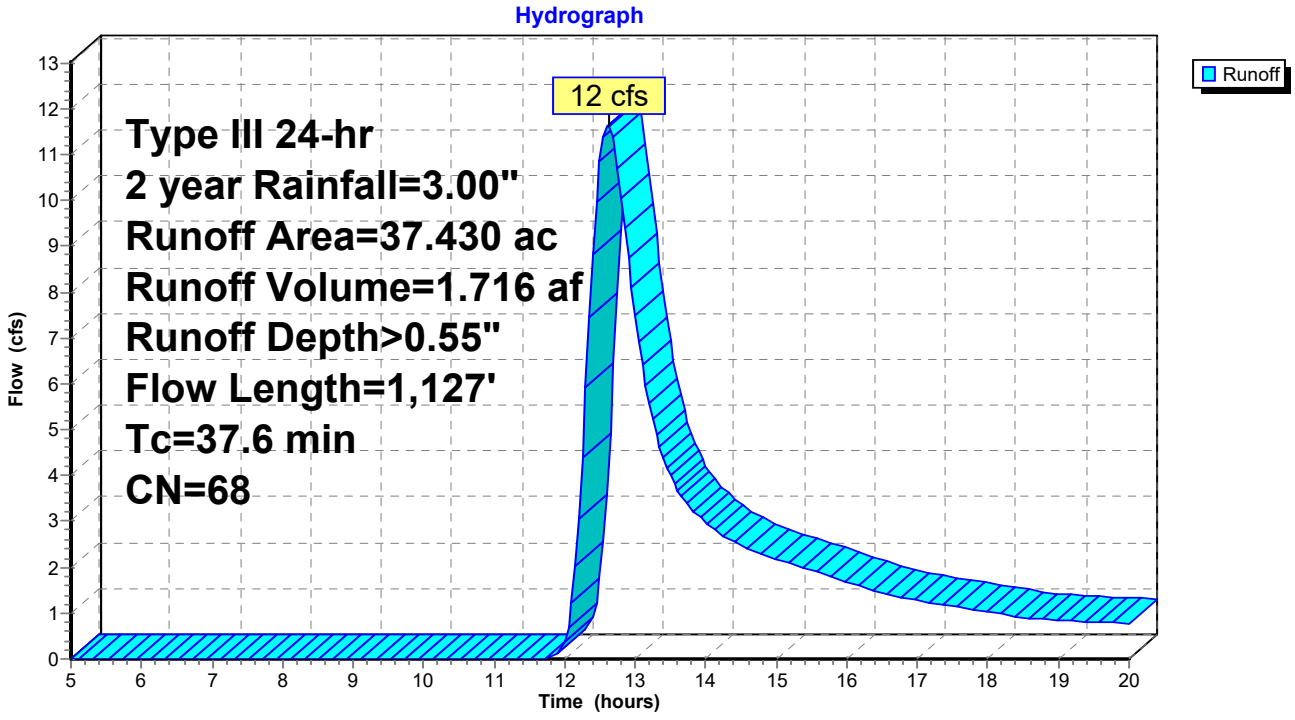
Runoff = 12 cfs @ 12.61 hrs, Volume= 1.716 af, Depth> 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (ac)	CN	Description
2.930	77	Woods, Good, HSG D
2.380	55	Woods, Good, HSG B
1.780	89	Pasture/grassland/range, Poor, HSG D
10.406	79	Woods/grass comb., Good, HSG D
19.644	61	Pasture/grassland/range, Good, HSG B
0.290	98	Paved parking, HSG B
37.430	68	Weighted Average
37.140		99.23% Pervious Area
0.290		0.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	140	0.0130	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
14.7	987	0.0256	1.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
37.6	1,127	Total			

Subcatchment 1S: (new Subcat)



Summary for Subcatchment 2S: (new Subcat)

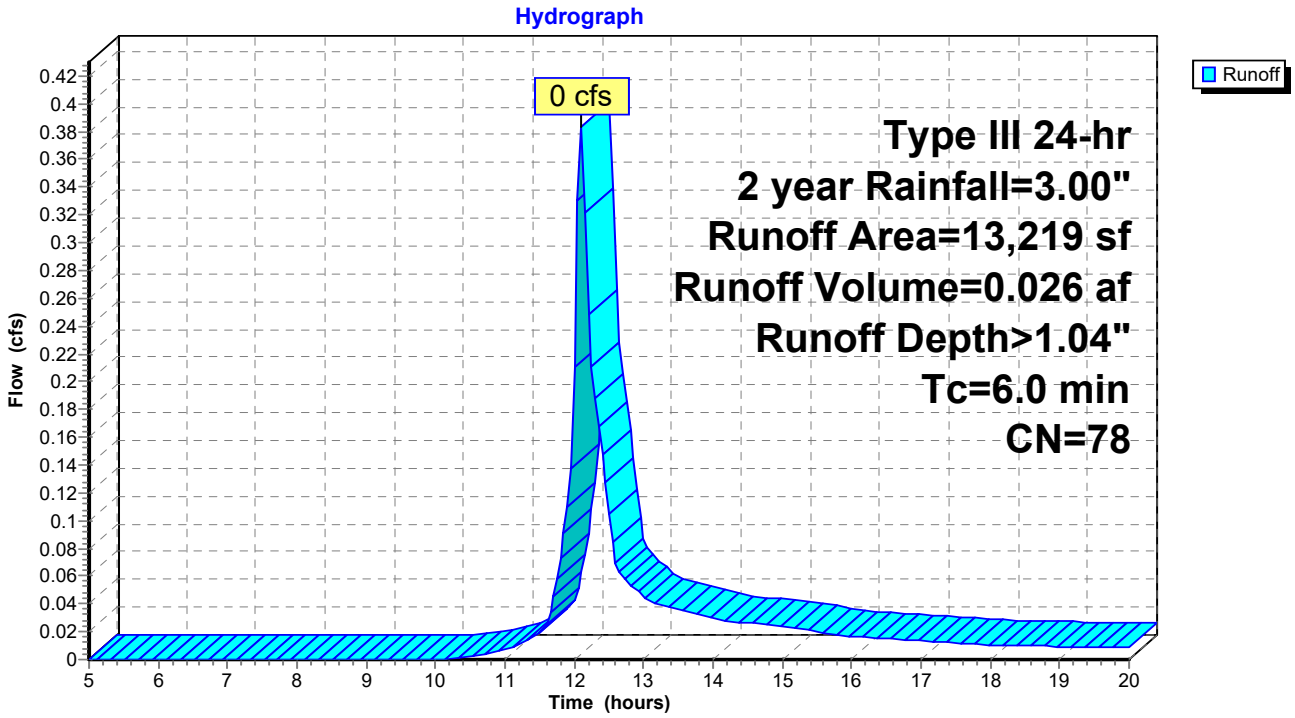
Runoff = 0 cfs @ 12.10 hrs, Volume= 0.026 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (sf)	CN	Description
6,193	98	Paved parking, HSG B
7,026	61	>75% Grass cover, Good, HSG B
13,219	78	Weighted Average
7,026		53.15% Pervious Area
6,193		46.85% Impervious Area

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

Subcatchment 2S: (new Subcat)



Summary for Subcatchment 3S: (new Subcat)

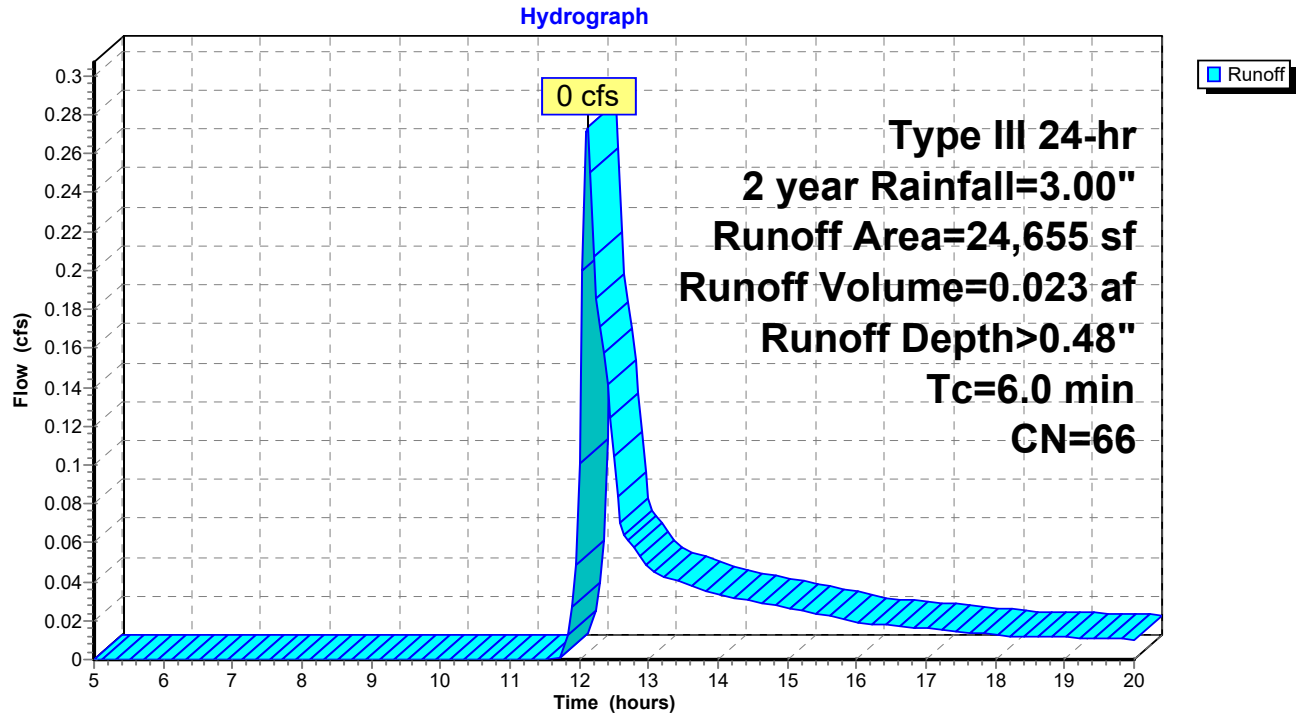
Runoff = 0 cfs @ 12.11 hrs, Volume= 0.023 af, Depth> 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (sf)	CN	Description
3,268	98	Paved parking, HSG B
21,387	61	>75% Grass cover, Good, HSG B
24,655	66	Weighted Average
21,387		86.75% Pervious Area
3,268		13.25% Impervious Area

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

Subcatchment 3S: (new Subcat)



Summary for Subcatchment 4S: (new Subcat)

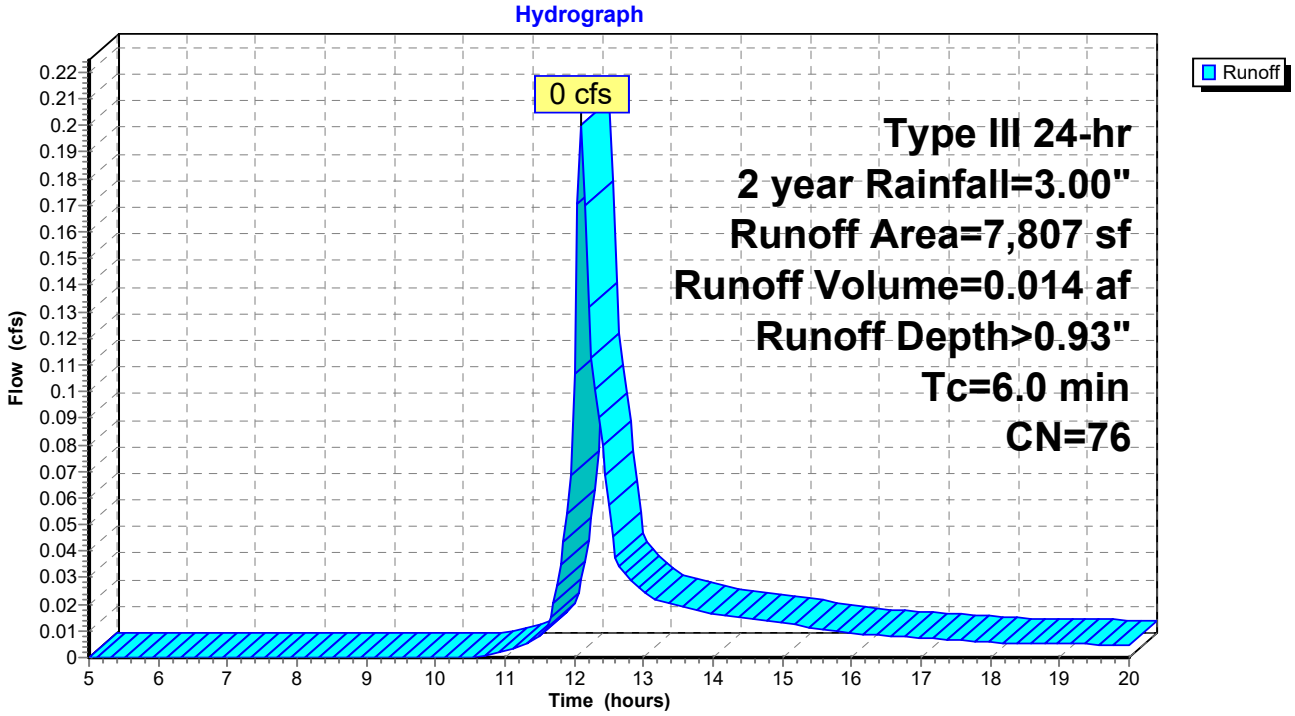
Runoff = 0 cfs @ 12.10 hrs, Volume= 0.014 af, Depth> 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (sf)	CN	Description
3,227	98	Paved parking, HSG B
4,580	61	>75% Grass cover, Good, HSG B
7,807	76	Weighted Average
4,580		58.67% Pervious Area
3,227		41.33% Impervious Area

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

Subcatchment 4S: (new Subcat)



Summary for Subcatchment 5S: (new Subcat)

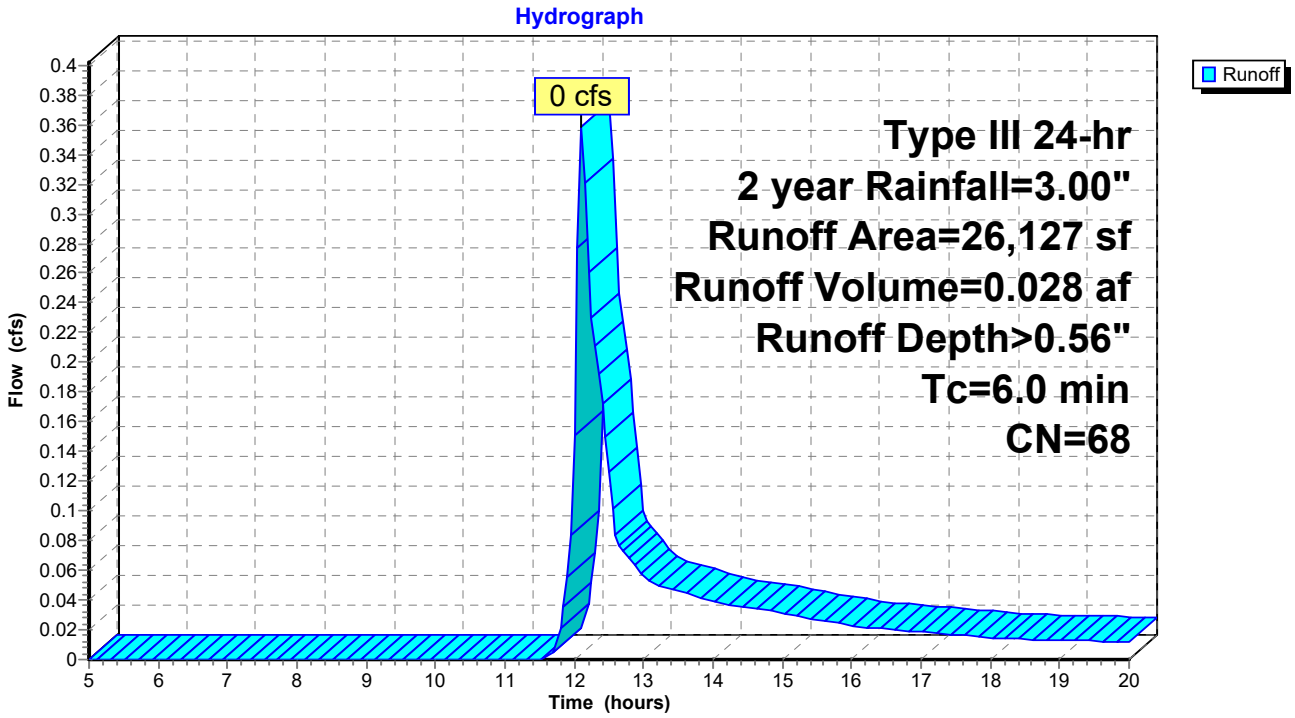
Runoff = 0 cfs @ 12.11 hrs, Volume= 0.028 af, Depth> 0.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (sf)	CN	Description
5,107	98	Paved parking, HSG B
21,020	61	>75% Grass cover, Good, HSG B
26,127	68	Weighted Average
21,020		80.45% Pervious Area
5,107		19.55% Impervious Area

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

Subcatchment 5S: (new Subcat)



Summary for Subcatchment 6S: (new Subcat)

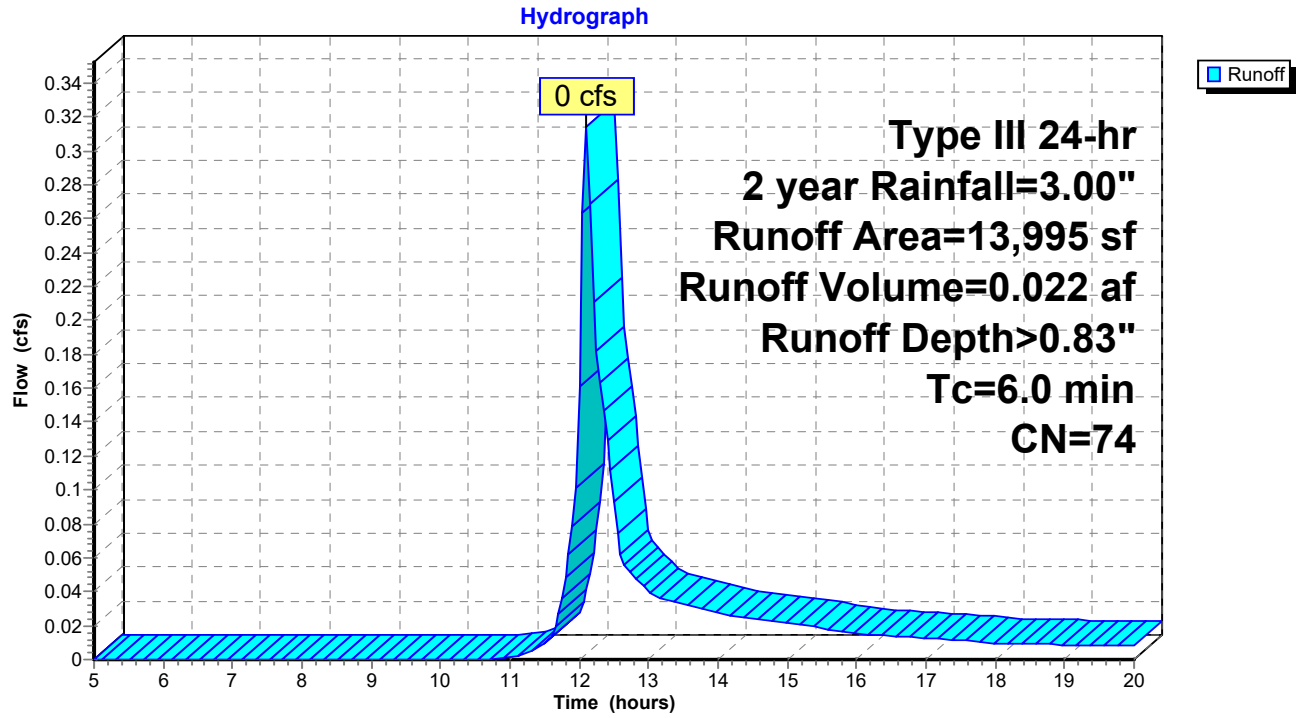
Runoff = 0 cfs @ 12.10 hrs, Volume= 0.022 af, Depth> 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

Area (sf)	CN	Description
4,763	98	Paved parking, HSG B
9,232	61	>75% Grass cover, Good, HSG B
13,995	74	Weighted Average
9,232		65.97% Pervious Area
4,763		34.03% Impervious Area

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

Subcatchment 6S: (new Subcat)



Summary for Reach 1R:

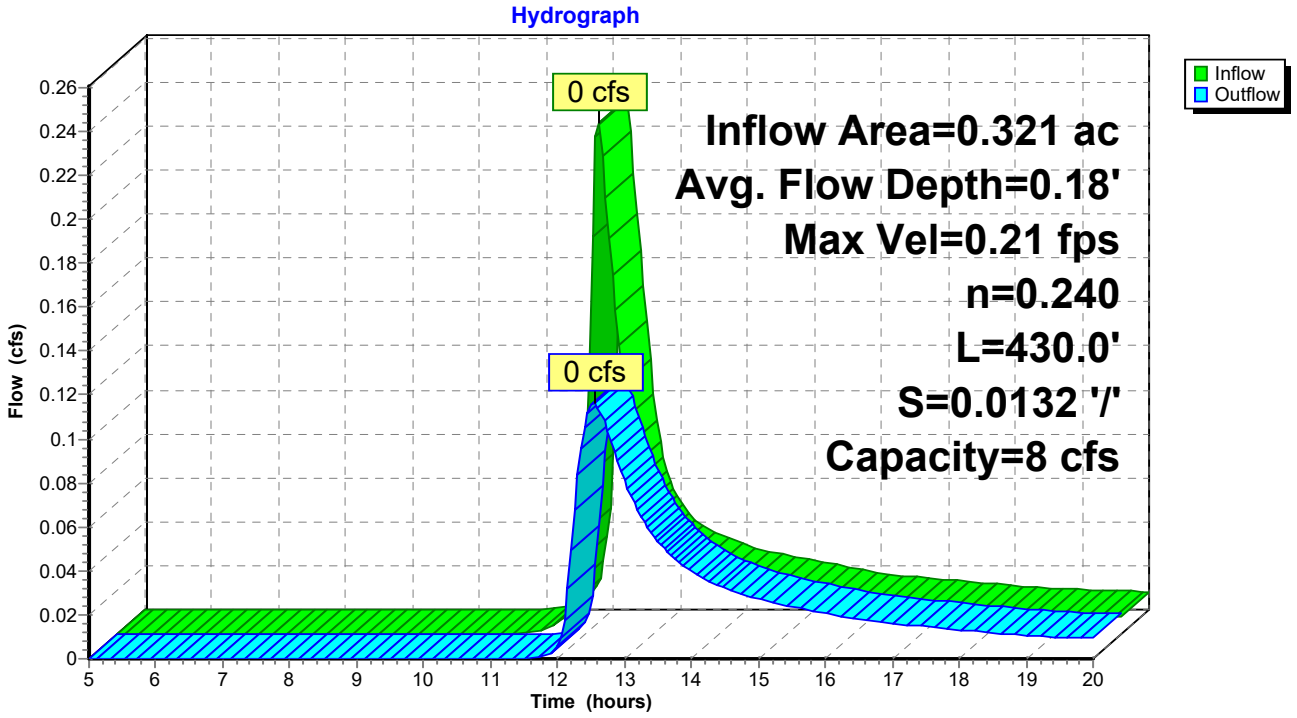
Inflow Area = 0.321 ac, 34.03% Impervious, Inflow Depth > 0.82" for 2 year event
Inflow = 0 cfs @ 12.19 hrs, Volume= 0.022 af
Outflow = 0 cfs @ 12.55 hrs, Volume= 0.021 af, Atten= 50%, Lag= 21.5 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.21 fps, Min. Travel Time= 34.3 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 64.2 min

Peak Storage= 239 cf @ 12.55 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 8 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 430.0' Slope= 0.0132 '/'
Inlet Invert= 219.67', Outlet Invert= 214.00'

Reach 1R:



Summary for Reach 2R:

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.13' @ 12.15 hrs

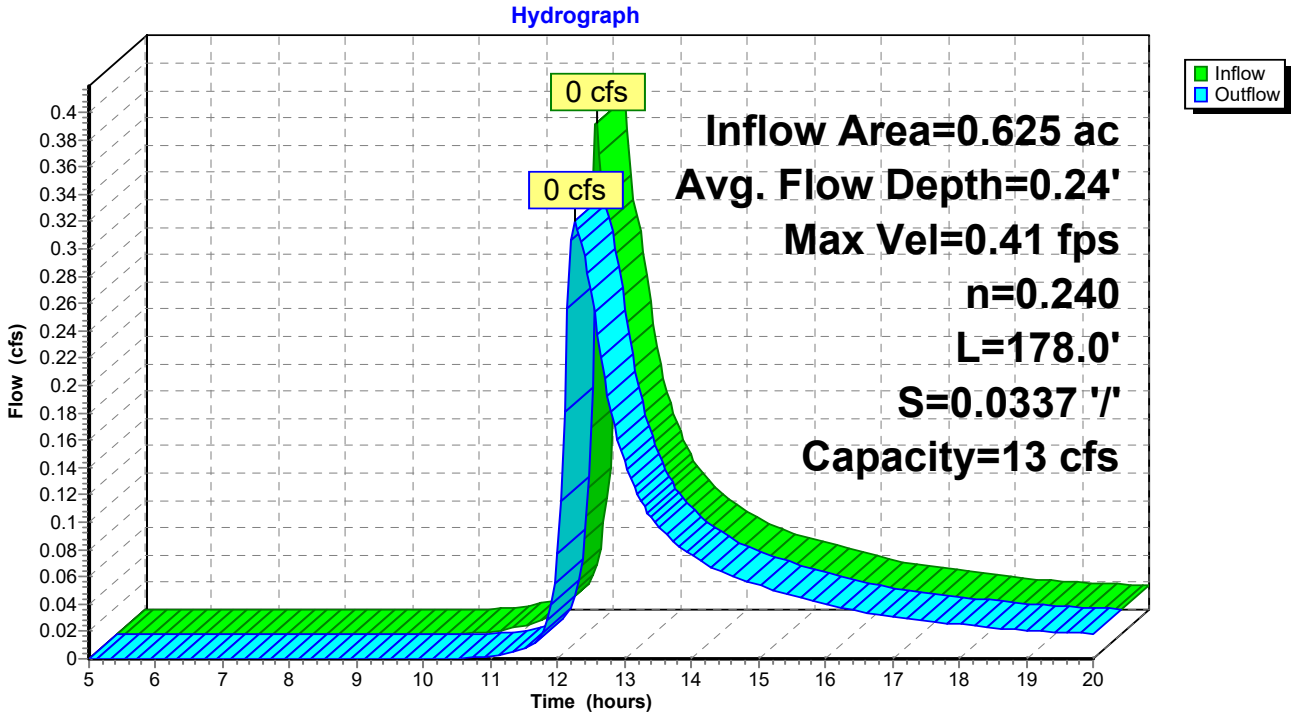
Inflow Area = 0.625 ac, 40.26% Impervious, Inflow Depth > 0.90" for 2 year event
Inflow = 0 cfs @ 12.16 hrs, Volume= 0.047 af
Outflow = 0 cfs @ 12.26 hrs, Volume= 0.046 af, Atten= 14%, Lag= 6.2 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.41 fps, Min. Travel Time= 7.3 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 15.6 min

Peak Storage= 140 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 13 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 178.0' Slope= 0.0337 '/'
Inlet Invert= 214.00', Outlet Invert= 208.00'

Reach 2R:



Summary for Reach 3R:

[62] Hint: Exceeded Reach 2R OUTLET depth by 0.07' @ 12.60 hrs

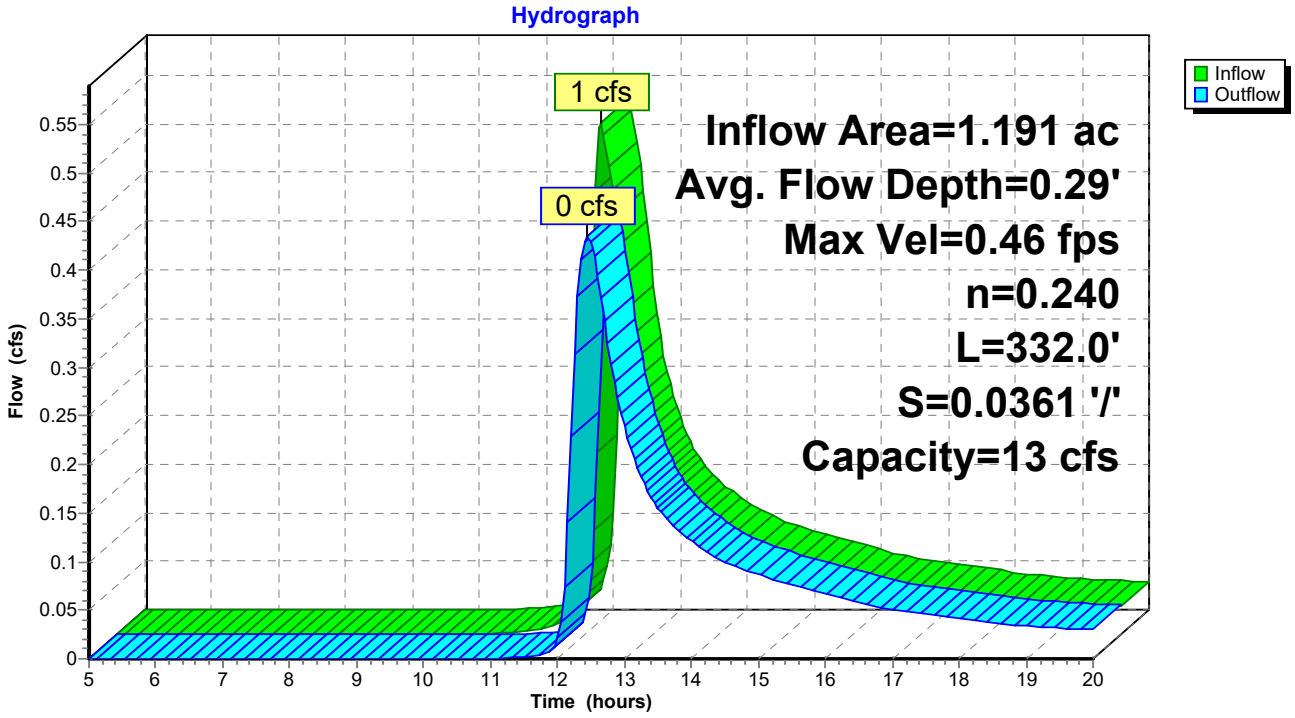
Inflow Area = 1.191 ac, 27.42% Impervious, Inflow Depth > 0.69" for 2 year event
Inflow = 1 cfs @ 12.23 hrs, Volume= 0.069 af
Outflow = 0 cfs @ 12.45 hrs, Volume= 0.067 af, Atten= 17%, Lag= 12.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.46 fps, Min. Travel Time= 11.9 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 24.6 min

Peak Storage= 312 cf @ 12.45 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 13 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 332.0' Slope= 0.0361 '/'
Inlet Invert= 208.00', Outlet Invert= 196.00'

Reach 3R:



Summary for Reach 4R:

[62] Hint: Exceeded Reach LS 3 OUTLET depth by 0.07' @ 12.45 hrs

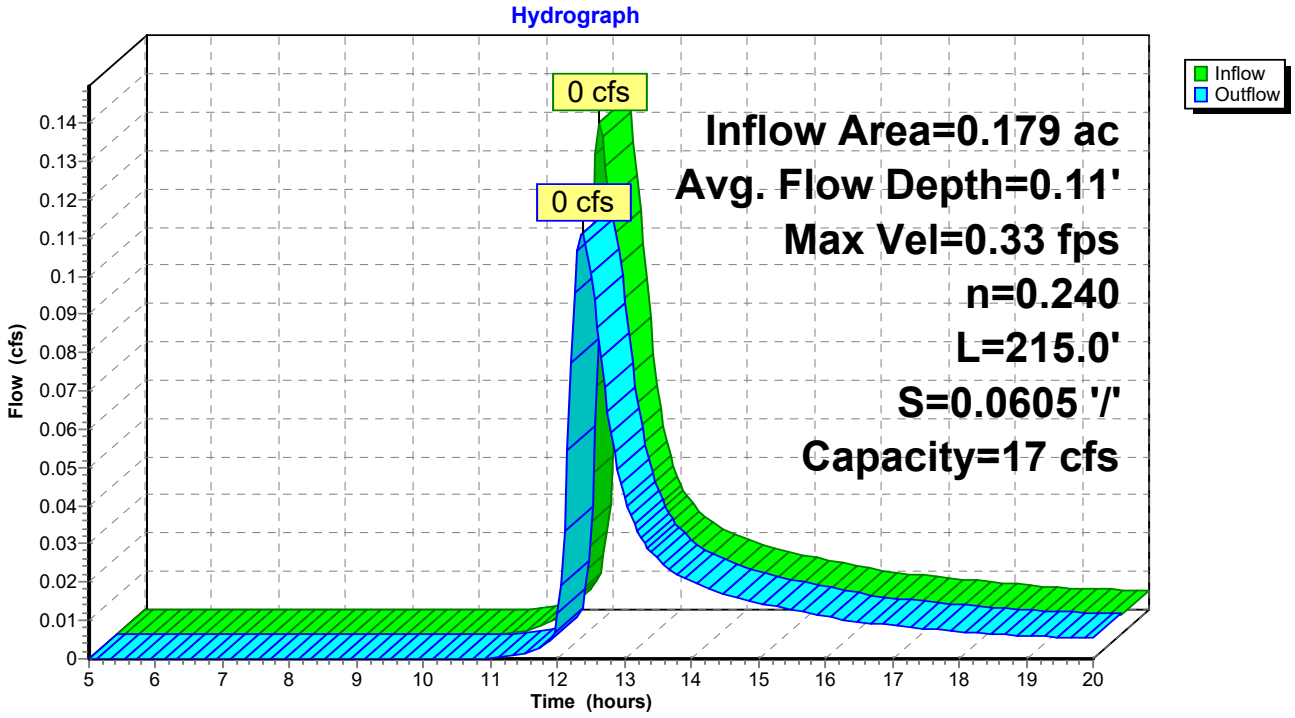
Inflow Area = 0.179 ac, 41.33% Impervious, Inflow Depth > 0.91" for 2 year event
Inflow = 0 cfs @ 12.21 hrs, Volume= 0.014 af
Outflow = 0 cfs @ 12.37 hrs, Volume= 0.013 af, Atten= 17%, Lag= 9.5 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.33 fps, Min. Travel Time= 10.8 min
Avg. Velocity = 0.15 fps, Avg. Travel Time= 23.7 min

Peak Storage= 72 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 17 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 215.0' Slope= 0.0605 '/'
Inlet Invert= 209.00', Outlet Invert= 196.00'

Reach 4R:



Summary for Reach 5R:

[62] Hint: Exceeded Reach LS 4 OUTLET depth by 0.18' @ 12.50 hrs

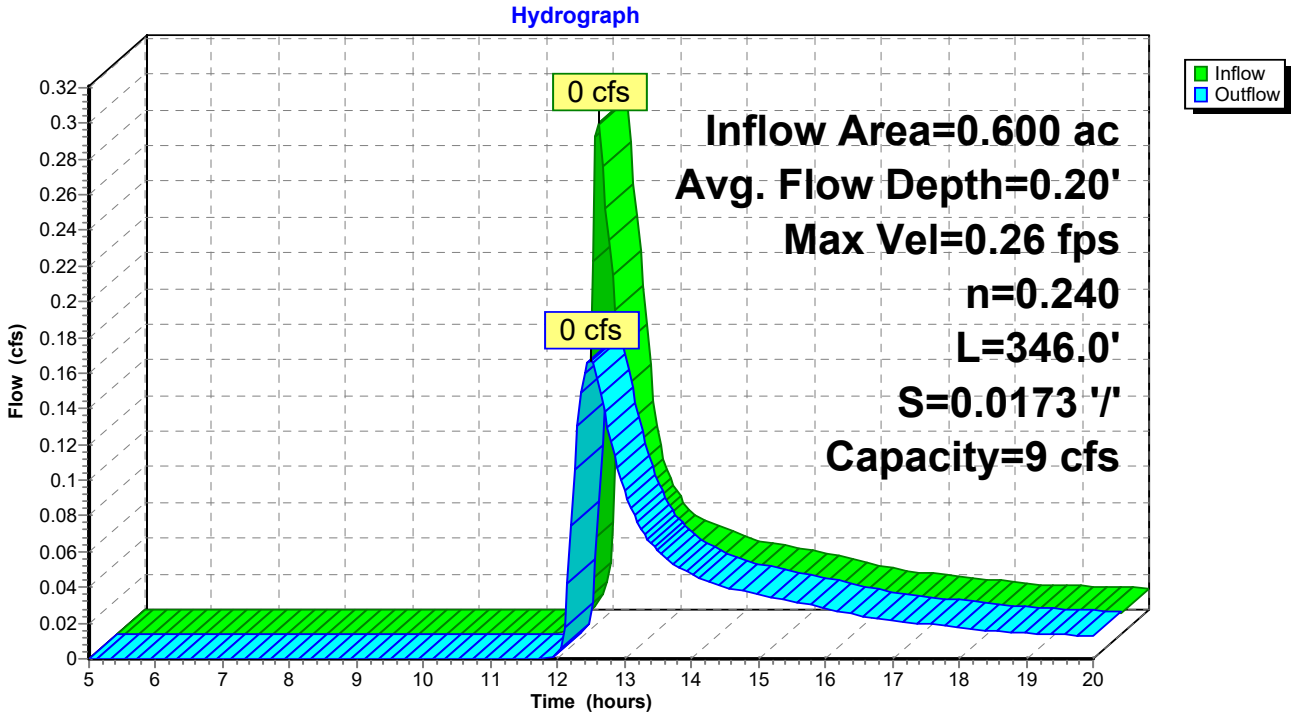
Inflow Area = 0.600 ac, 19.55% Impervious, Inflow Depth > 0.56" for 2 year event
Inflow = 0 cfs @ 12.19 hrs, Volume= 0.028 af
Outflow = 0 cfs @ 12.49 hrs, Volume= 0.027 af, Atten= 42%, Lag= 17.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.26 fps, Min. Travel Time= 22.2 min
Avg. Velocity = 0.14 fps, Avg. Travel Time= 41.3 min

Peak Storage= 223 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.20'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 9 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 346.0' Slope= 0.0173 '/'
Inlet Invert= 202.00', Outlet Invert= 196.00'

Reach 5R:



Summary for Reach 7R: LS 5 BUFFER

Inflow Area = 0.321 ac, 34.03% Impervious, Inflow Depth > 0.83" for 2 year event
Inflow = 0 cfs @ 12.10 hrs, Volume= 0.022 af
Outflow = 0 cfs @ 12.19 hrs, Volume= 0.022 af, Atten= 26%, Lag= 5.2 min

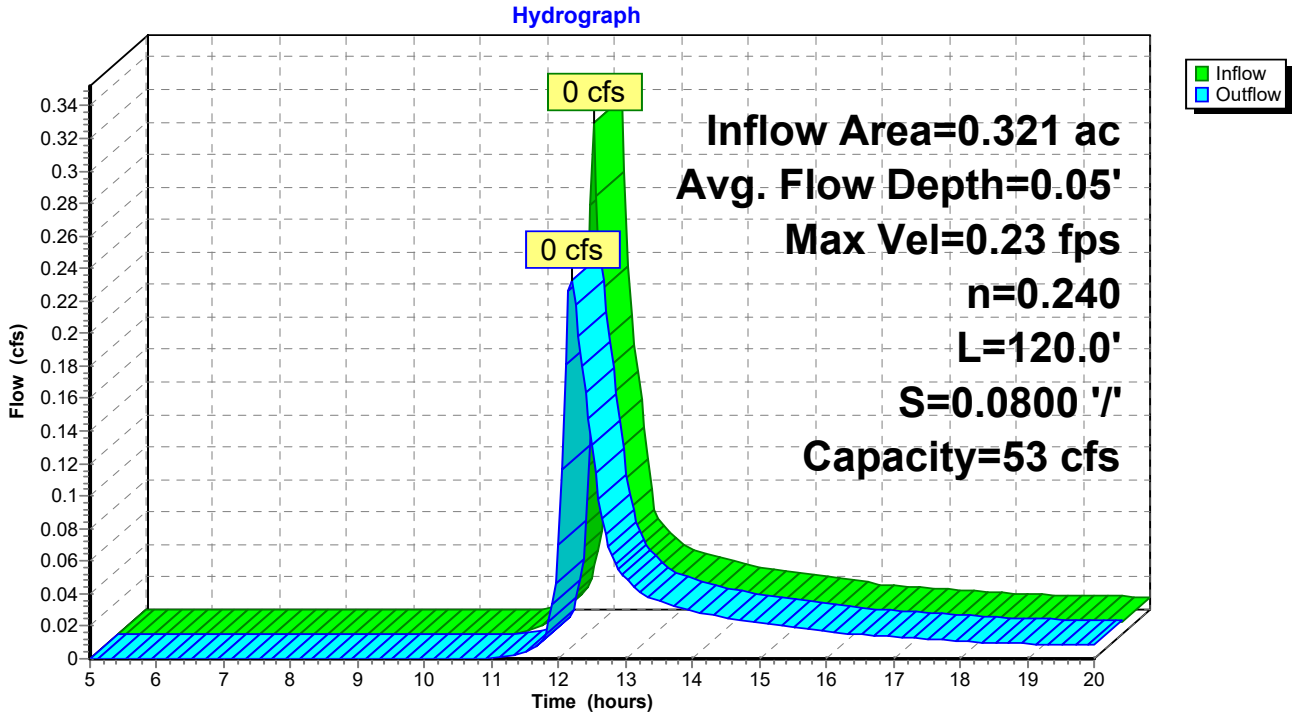
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.23 fps, Min. Travel Time= 8.8 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 20.3 min

Peak Storage= 123 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.00' Flow Area= 40.0 sf, Capacity= 53 cfs

20.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 60.00'
Length= 120.0' Slope= 0.0800 '/'
Inlet Invert= 230.00', Outlet Invert= 220.40'

‡

Reach 7R: LS 5 BUFFER



Summary for Reach LS 1: LS 1 BUFFER

Inflow Area = 0.303 ac, 46.85% Impervious, Inflow Depth > 1.04" for 2 year event
Inflow = 0 cfs @ 12.10 hrs, Volume= 0.026 af
Outflow = 0 cfs @ 12.14 hrs, Volume= 0.026 af, Atten= 11%, Lag= 2.8 min

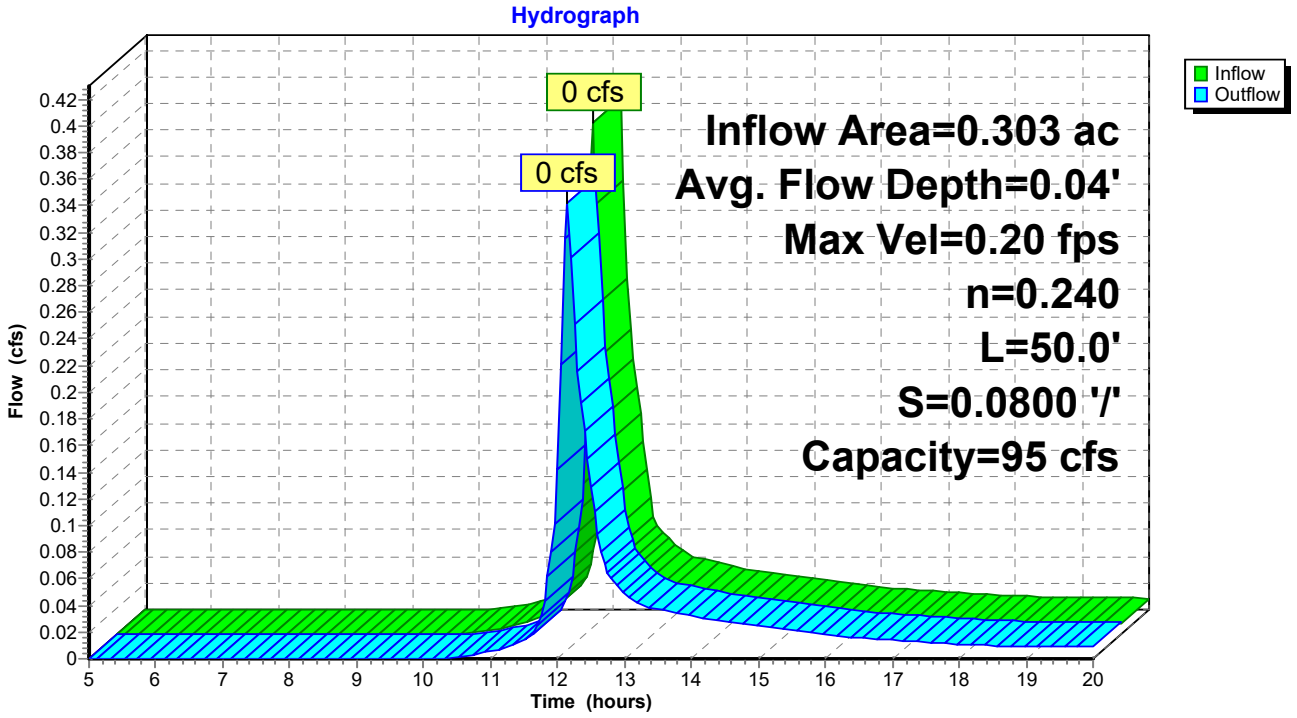
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.20 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 9.5 min

Peak Storage= 87 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 1.00' Flow Area= 65.0 sf, Capacity= 95 cfs

45.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 85.00'
Length= 50.0' Slope= 0.0800 '/'
Inlet Invert= 220.00', Outlet Invert= 216.00'

‡

Reach LS 1: LS 1 BUFFER



Summary for Reach LS 2: LS 2 BUFFER

Inflow Area = 0.566 ac, 13.25% Impervious, Inflow Depth > 0.48" for 2 year event
Inflow = 0 cfs @ 12.11 hrs, Volume= 0.023 af
Outflow = 0 cfs @ 12.21 hrs, Volume= 0.023 af, Atten= 21%, Lag= 5.5 min

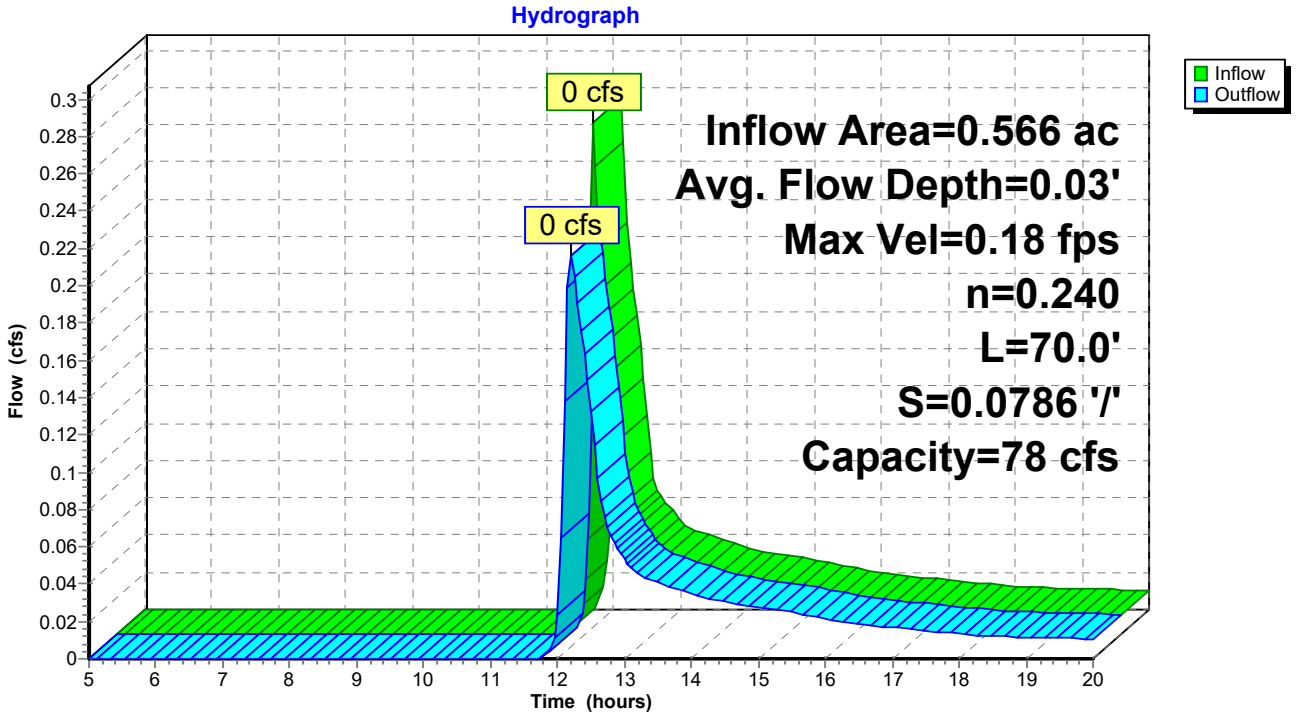
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.18 fps, Min. Travel Time= 6.5 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 13.0 min

Peak Storage= 84 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 78 cfs

35.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 75.00'
Length= 70.0' Slope= 0.0786 '/'
Inlet Invert= 215.50', Outlet Invert= 210.00'

‡

Reach LS 2: LS 2 BUFFER



Summary for Reach LS 3: LS 3 BUFFER

Inflow Area = 0.179 ac, 41.33% Impervious, Inflow Depth > 0.93" for 2 year event
Inflow = 0 cfs @ 12.10 hrs, Volume= 0.014 af
Outflow = 0 cfs @ 12.21 hrs, Volume= 0.014 af, Atten= 33%, Lag= 6.6 min

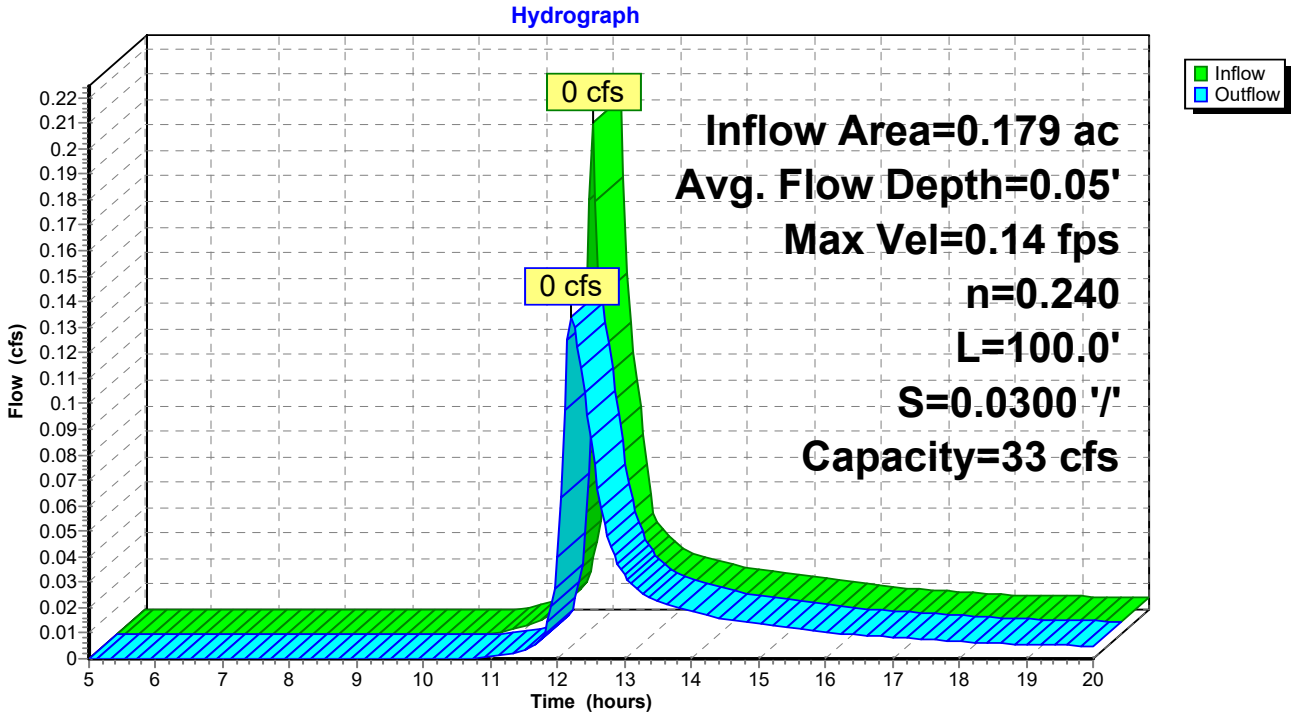
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.14 fps, Min. Travel Time= 12.3 min
Avg. Velocity = 0.06 fps, Avg. Travel Time= 27.7 min

Peak Storage= 98 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.00' Flow Area= 40.0 sf, Capacity= 33 cfs

20.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 60.00'
Length= 100.0' Slope= 0.0300 '/'
Inlet Invert= 212.00', Outlet Invert= 209.00'

‡

Reach LS 3: LS 3 BUFFER



Summary for Reach LS 4: LS 4 BUFFER

Inflow Area = 0.600 ac, 19.55% Impervious, Inflow Depth > 0.56" for 2 year event
Inflow = 0 cfs @ 12.11 hrs, Volume= 0.028 af
Outflow = 0 cfs @ 12.19 hrs, Volume= 0.028 af, Atten= 20%, Lag= 4.7 min

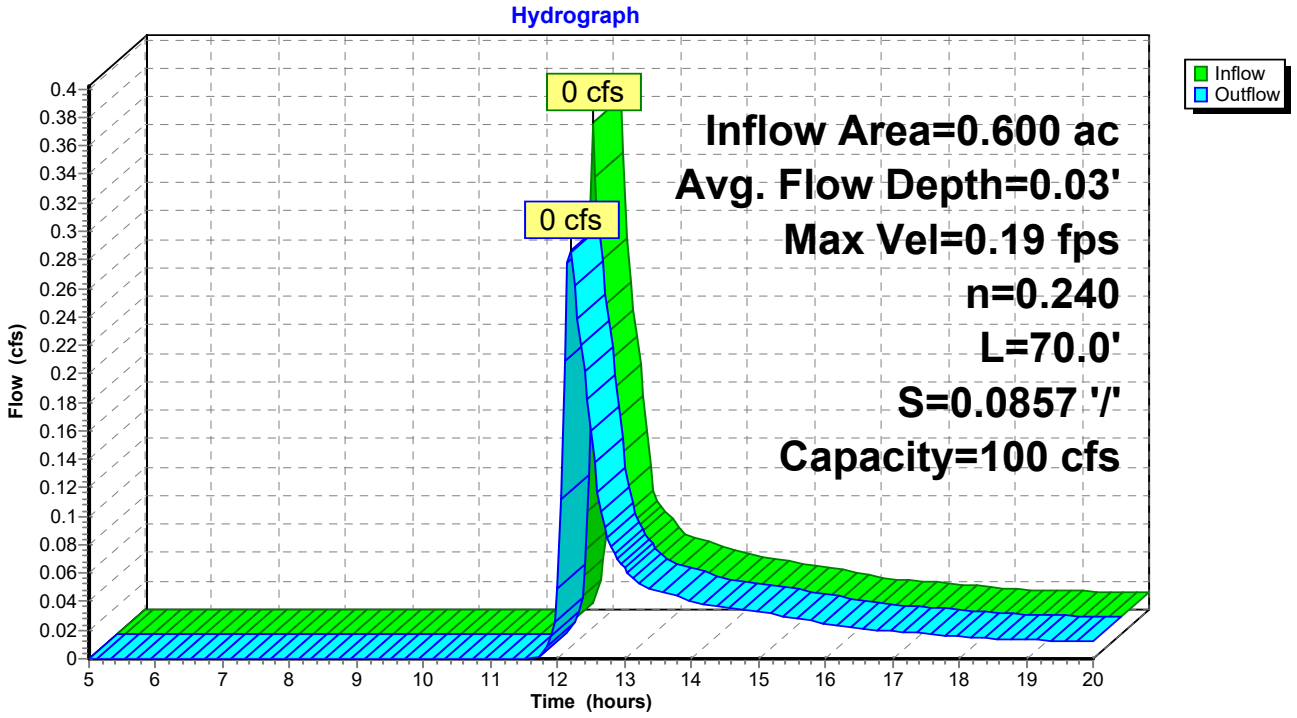
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.19 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 12.7 min

Peak Storage= 108 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00' Flow Area= 66.0 sf, Capacity= 100 cfs

46.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 86.00'
Length= 70.0' Slope= 0.0857 '/'
Inlet Invert= 208.00', Outlet Invert= 202.00'

‡

Reach LS 4: LS 4 BUFFER

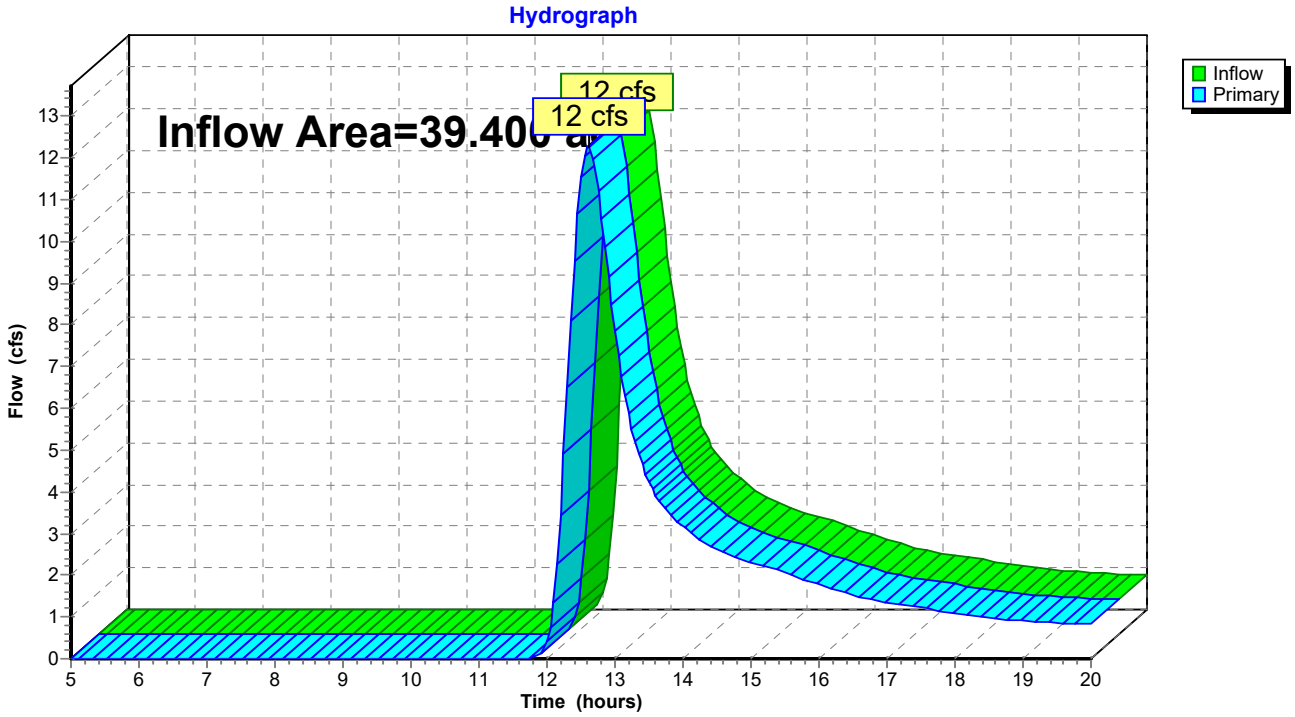


Summary for Link SP1: SP-1

Inflow Area = 39.400 ac, 2.05% Impervious, Inflow Depth > 0.56" for 2 year event
Inflow = 12 cfs @ 12.61 hrs, Volume= 1.823 af
Primary = 12 cfs @ 12.61 hrs, Volume= 1.823 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link SP1: SP-1



Summary for Subcatchment 1S: (new Subcat)

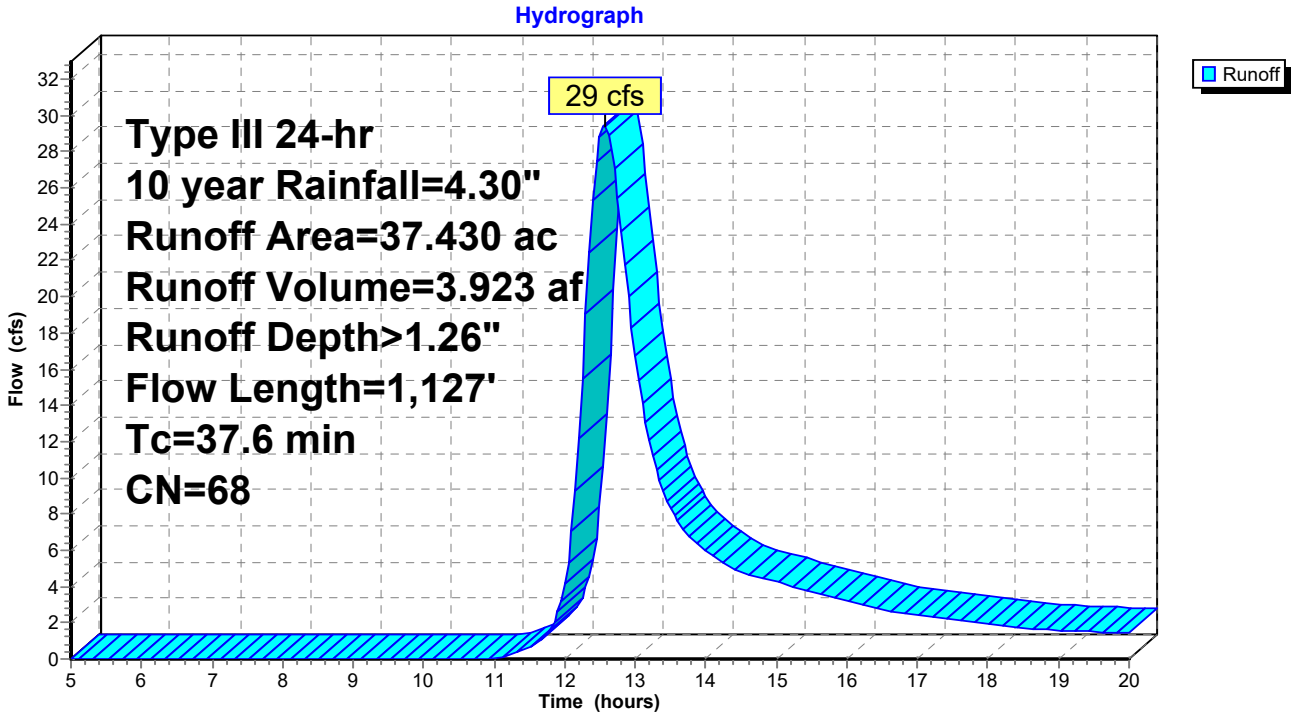
Runoff = 29 cfs @ 12.57 hrs, Volume= 3.923 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (ac)	CN	Description
2.930	77	Woods, Good, HSG D
2.380	55	Woods, Good, HSG B
1.780	89	Pasture/grassland/range, Poor, HSG D
10.406	79	Woods/grass comb., Good, HSG D
19.644	61	Pasture/grassland/range, Good, HSG B
0.290	98	Paved parking, HSG B
37.430	68	Weighted Average
37.140		99.23% Pervious Area
0.290		0.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	140	0.0130	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
14.7	987	0.0256	1.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
37.6	1,127	Total			

Subcatchment 1S: (new Subcat)



Summary for Subcatchment 2S: (new Subcat)

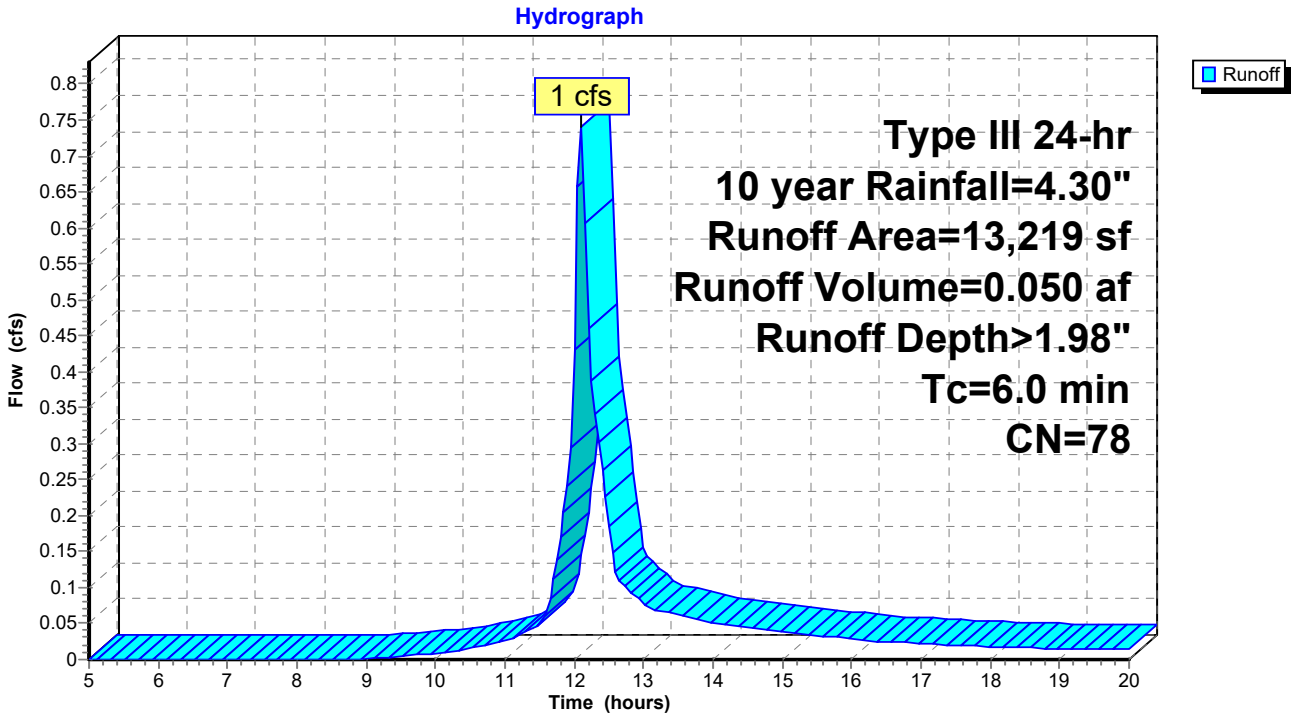
Runoff = 1 cfs @ 12.09 hrs, Volume= 0.050 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (sf)	CN	Description
6,193	98	Paved parking, HSG B
7,026	61	>75% Grass cover, Good, HSG B
13,219	78	Weighted Average
7,026		53.15% Pervious Area
6,193		46.85% Impervious Area

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

Subcatchment 2S: (new Subcat)



Summary for Subcatchment 3S: (new Subcat)

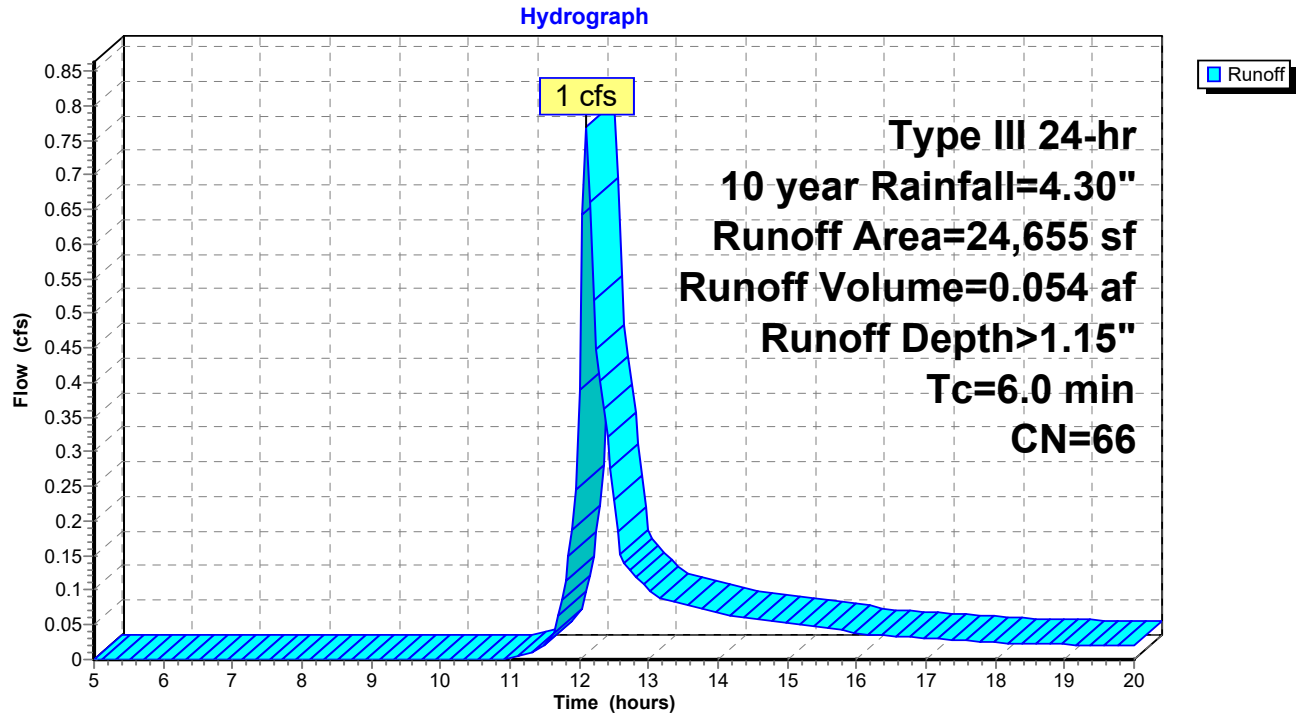
Runoff = 1 cfs @ 12.10 hrs, Volume= 0.054 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (sf)	CN	Description
3,268	98	Paved parking, HSG B
21,387	61	>75% Grass cover, Good, HSG B
24,655	66	Weighted Average
21,387		86.75% Pervious Area
3,268		13.25% Impervious Area

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

Subcatchment 3S: (new Subcat)



Summary for Subcatchment 4S: (new Subcat)

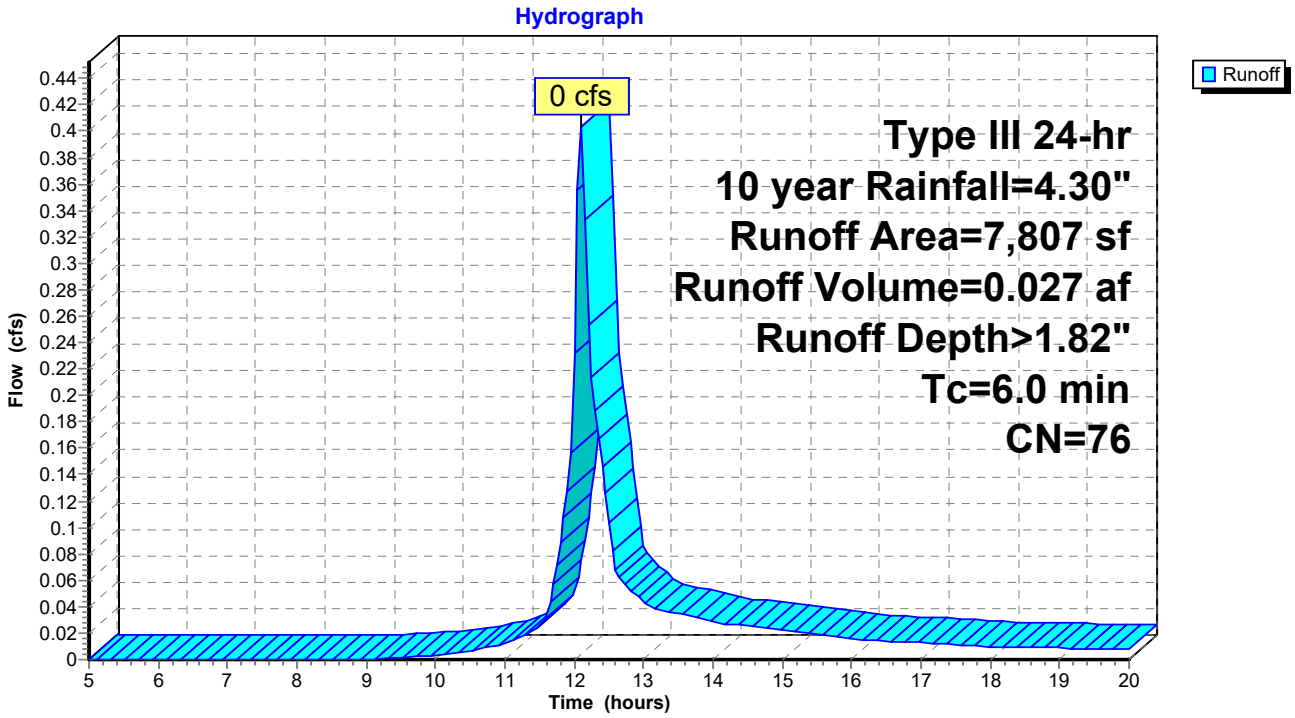
Runoff = 0 cfs @ 12.10 hrs, Volume= 0.027 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (sf)	CN	Description
3,227	98	Paved parking, HSG B
4,580	61	>75% Grass cover, Good, HSG B
7,807	76	Weighted Average
4,580		58.67% Pervious Area
3,227		41.33% Impervious Area

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

Subcatchment 4S: (new Subcat)



Summary for Subcatchment 5S: (new Subcat)

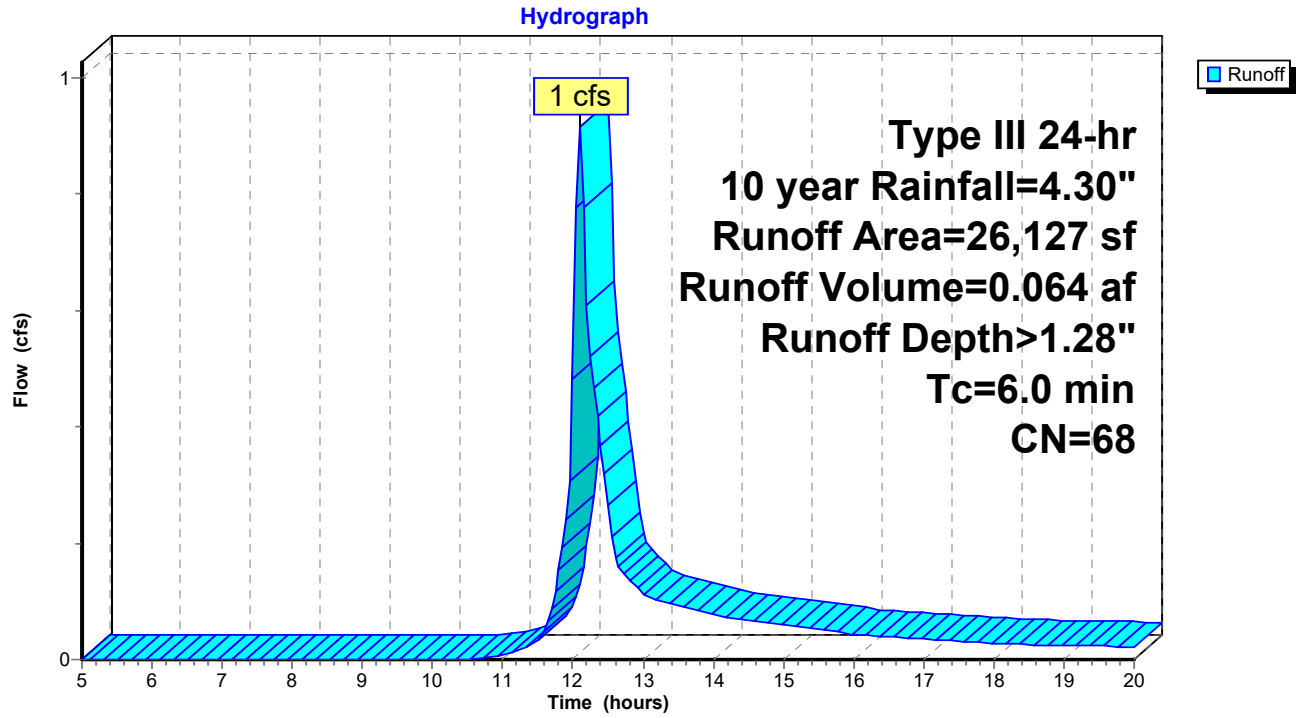
Runoff = 1 cfs @ 12.10 hrs, Volume= 0.064 af, Depth> 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (sf)	CN	Description
5,107	98	Paved parking, HSG B
21,020	61	>75% Grass cover, Good, HSG B
26,127	68	Weighted Average
21,020		80.45% Pervious Area
5,107		19.55% Impervious Area

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

Subcatchment 5S: (new Subcat)



Summary for Subcatchment 6S: (new Subcat)

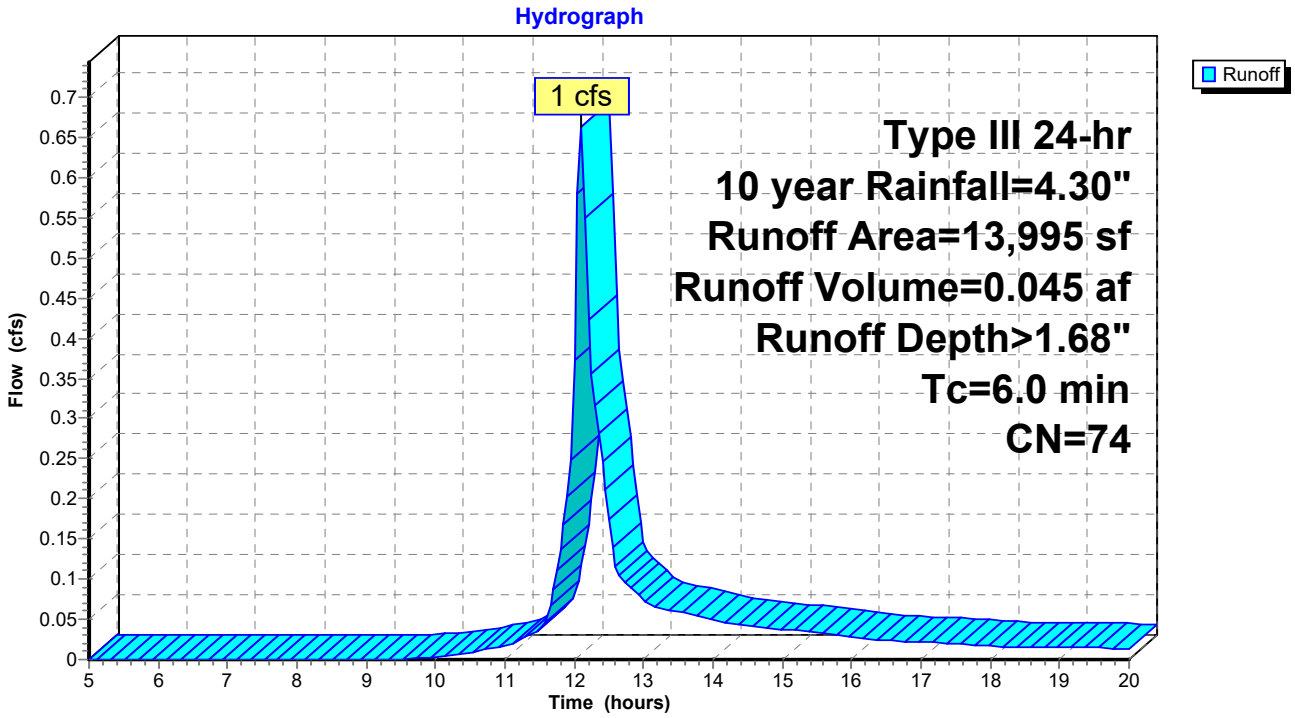
Runoff = 1 cfs @ 12.10 hrs, Volume= 0.045 af, Depth> 1.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 year Rainfall=4.30"

Area (sf)	CN	Description
4,763	98	Paved parking, HSG B
9,232	61	>75% Grass cover, Good, HSG B
13,995	74	Weighted Average
9,232		65.97% Pervious Area
4,763		34.03% Impervious Area

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

Subcatchment 6S: (new Subcat)



Summary for Reach 1R:

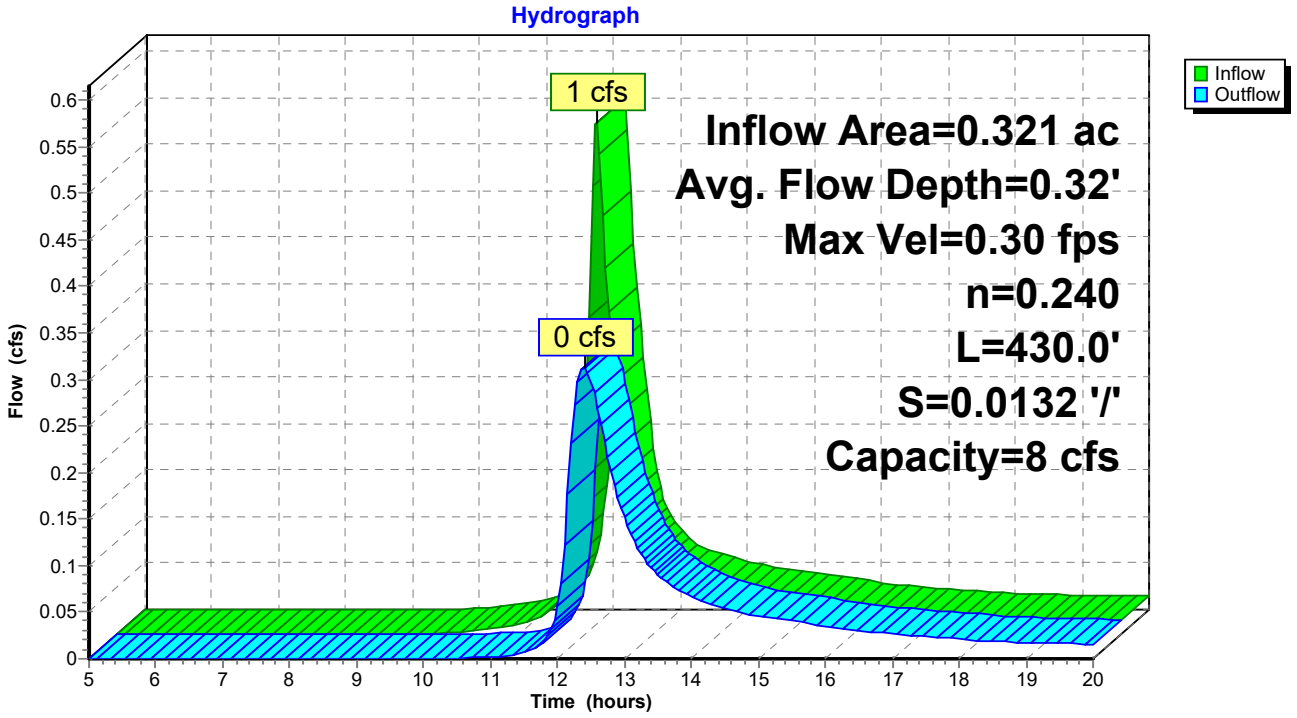
Inflow Area = 0.321 ac, 34.03% Impervious, Inflow Depth > 1.66" for 10 year event
Inflow = 1 cfs @ 12.16 hrs, Volume= 0.044 af
Outflow = 0 cfs @ 12.40 hrs, Volume= 0.043 af, Atten= 43%, Lag= 14.3 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.30 fps, Min. Travel Time= 24.1 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 54.8 min

Peak Storage= 452 cf @ 12.40 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 8 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 430.0' Slope= 0.0132 '/'
Inlet Invert= 219.67', Outlet Invert= 214.00'

Reach 1R:



Summary for Reach 2R:

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.16' @ 12.15 hrs

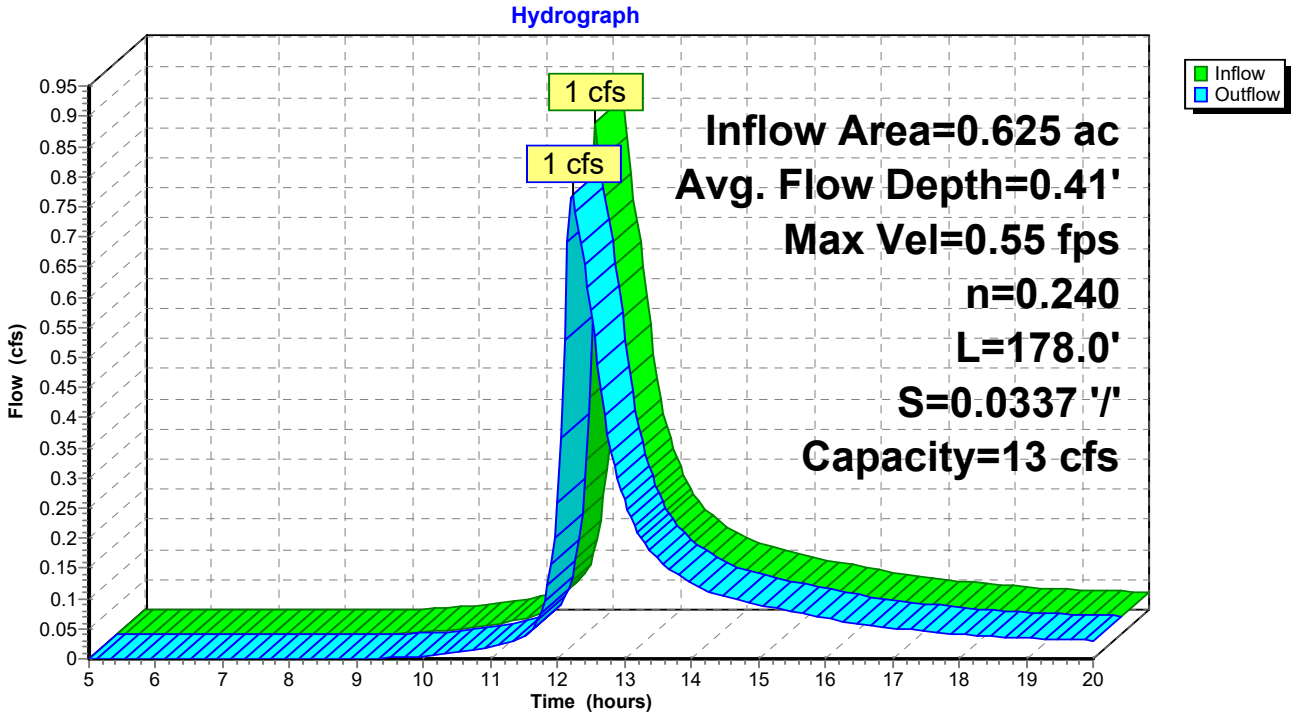
Inflow Area = 0.625 ac, 40.26% Impervious, Inflow Depth > 1.78" for 10 year event
Inflow = 1 cfs @ 12.15 hrs, Volume= 0.093 af
Outflow = 1 cfs @ 12.22 hrs, Volume= 0.092 af, Atten= 9%, Lag= 4.3 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.55 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.22 fps, Avg. Travel Time= 13.3 min

Peak Storage= 250 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.41'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 13 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 178.0' Slope= 0.0337 '/'
Inlet Invert= 214.00', Outlet Invert= 208.00'

Reach 2R:



Summary for Reach 3R:

[62] Hint: Exceeded Reach 2R OUTLET depth by 0.13' @ 12.35 hrs

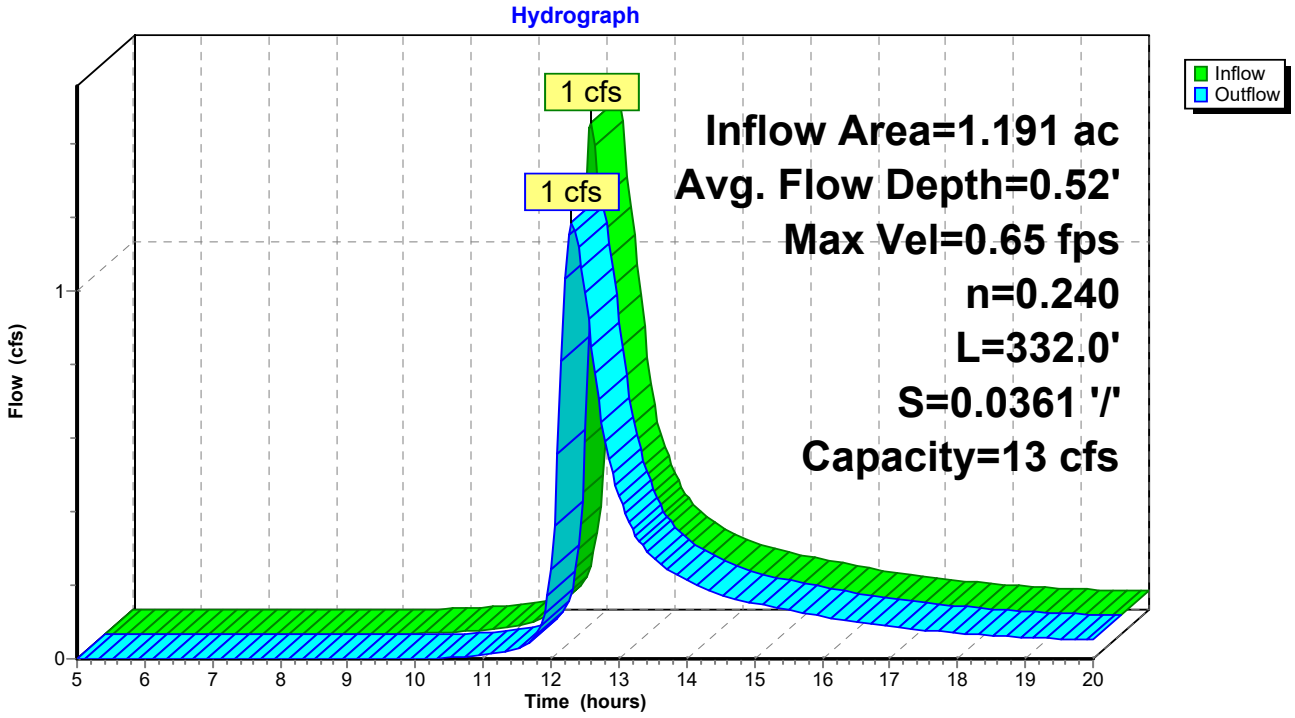
Inflow Area = 1.191 ac, 27.42% Impervious, Inflow Depth > 1.47" for 10 year event
Inflow = 1 cfs @ 12.18 hrs, Volume= 0.146 af
Outflow = 1 cfs @ 12.31 hrs, Volume= 0.144 af, Atten= 15%, Lag= 7.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.65 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 20.9 min

Peak Storage= 607 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 13 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 332.0' Slope= 0.0361 '/'
Inlet Invert= 208.00', Outlet Invert= 196.00'

Reach 3R:



Summary for Reach 4R:

[62] Hint: Exceeded Reach LS 3 OUTLET depth by 0.11' @ 12.30 hrs

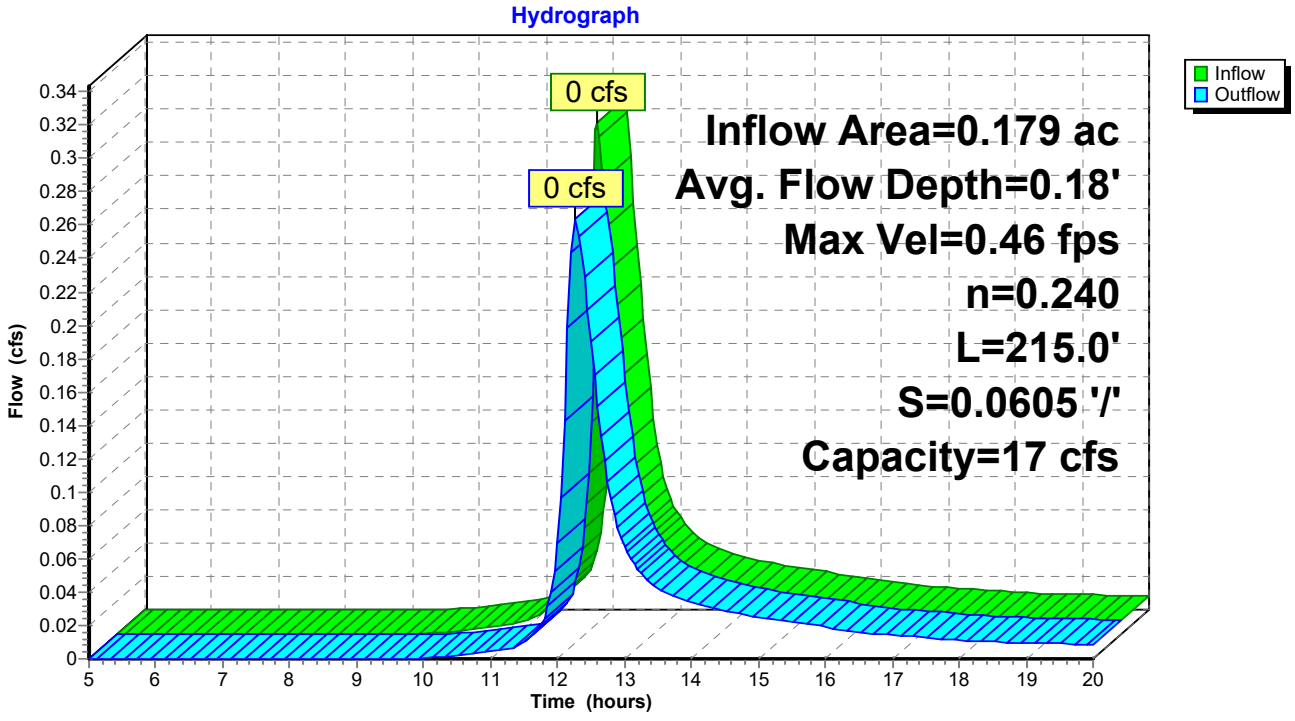
Inflow Area = 0.179 ac, 41.33% Impervious, Inflow Depth > 1.80" for 10 year event
Inflow = 0 cfs @ 12.17 hrs, Volume= 0.027 af
Outflow = 0 cfs @ 12.27 hrs, Volume= 0.027 af, Atten= 14%, Lag= 5.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.46 fps, Min. Travel Time= 7.9 min
Avg. Velocity = 0.18 fps, Avg. Travel Time= 20.2 min

Peak Storage= 124 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 17 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 215.0' Slope= 0.0605 '/'
Inlet Invert= 209.00', Outlet Invert= 196.00'

Reach 4R:



Summary for Reach 5R:

[62] Hint: Exceeded Reach LS 4 OUTLET depth by 0.35' @ 12.30 hrs

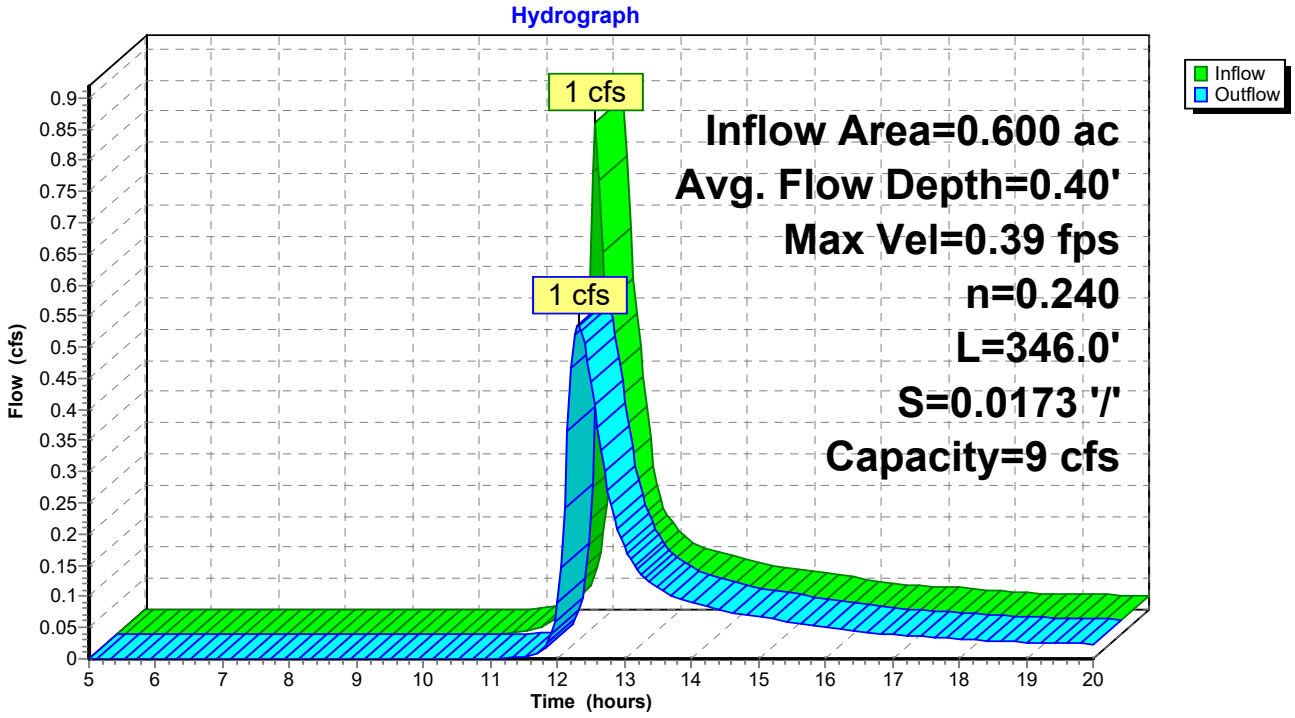
Inflow Area = 0.600 ac, 19.55% Impervious, Inflow Depth > 1.27" for 10 year event
Inflow = 1 cfs @ 12.15 hrs, Volume= 0.063 af
Outflow = 1 cfs @ 12.31 hrs, Volume= 0.062 af, Atten= 35%, Lag= 9.5 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.39 fps, Min. Travel Time= 14.8 min
Avg. Velocity = 0.17 fps, Avg. Travel Time= 33.5 min

Peak Storage= 473 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 9 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 346.0' Slope= 0.0173 '/'
Inlet Invert= 202.00', Outlet Invert= 196.00'

Reach 5R:



Summary for Reach 7R: LS 5 BUFFER

Inflow Area = 0.321 ac, 34.03% Impervious, Inflow Depth > 1.68" for 10 year event
Inflow = 1 cfs @ 12.10 hrs, Volume= 0.045 af
Outflow = 1 cfs @ 12.16 hrs, Volume= 0.044 af, Atten= 17%, Lag= 3.7 min

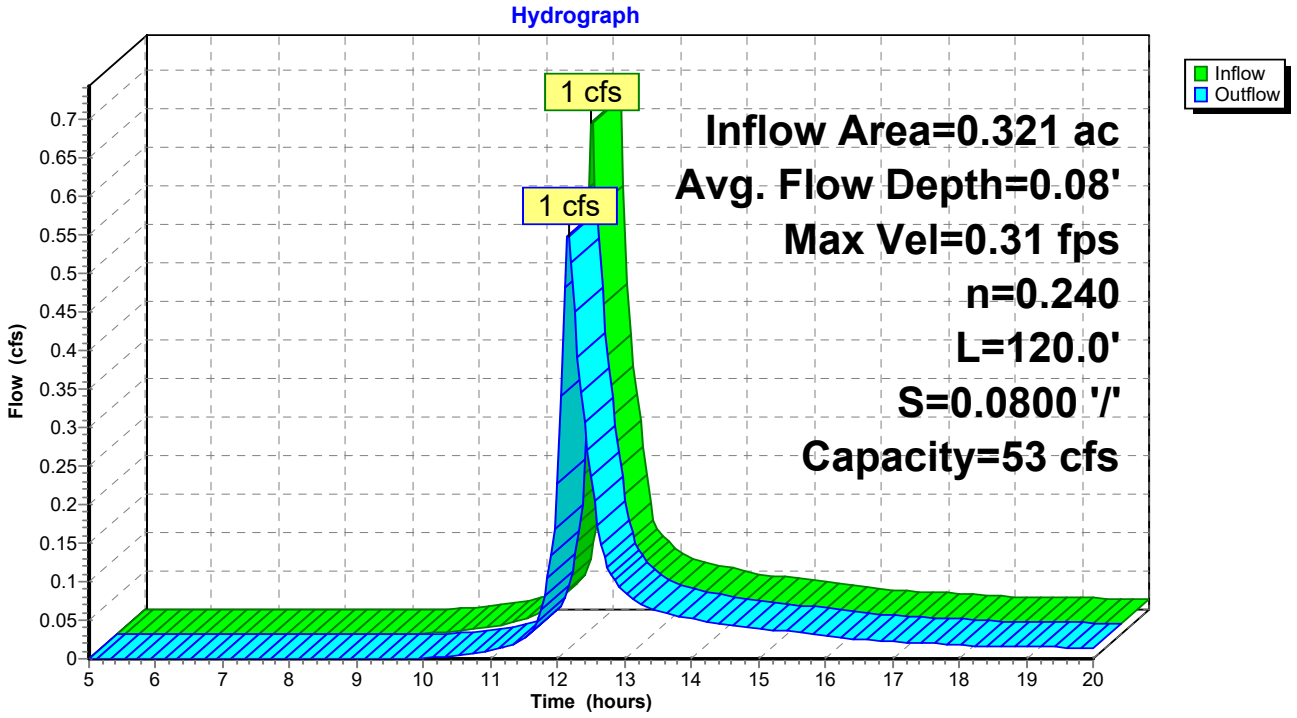
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.31 fps, Min. Travel Time= 6.4 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 17.6 min

Peak Storage= 211 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 40.0 sf, Capacity= 53 cfs

20.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 60.00'
Length= 120.0' Slope= 0.0800 '/'
Inlet Invert= 230.00', Outlet Invert= 220.40'

‡

Reach 7R: LS 5 BUFFER



Summary for Reach LS 1: LS 1 BUFFER

Inflow Area = 0.303 ac, 46.85% Impervious, Inflow Depth > 1.98" for 10 year event
Inflow = 1 cfs @ 12.09 hrs, Volume= 0.050 af
Outflow = 1 cfs @ 12.13 hrs, Volume= 0.050 af, Atten= 8%, Lag= 2.0 min

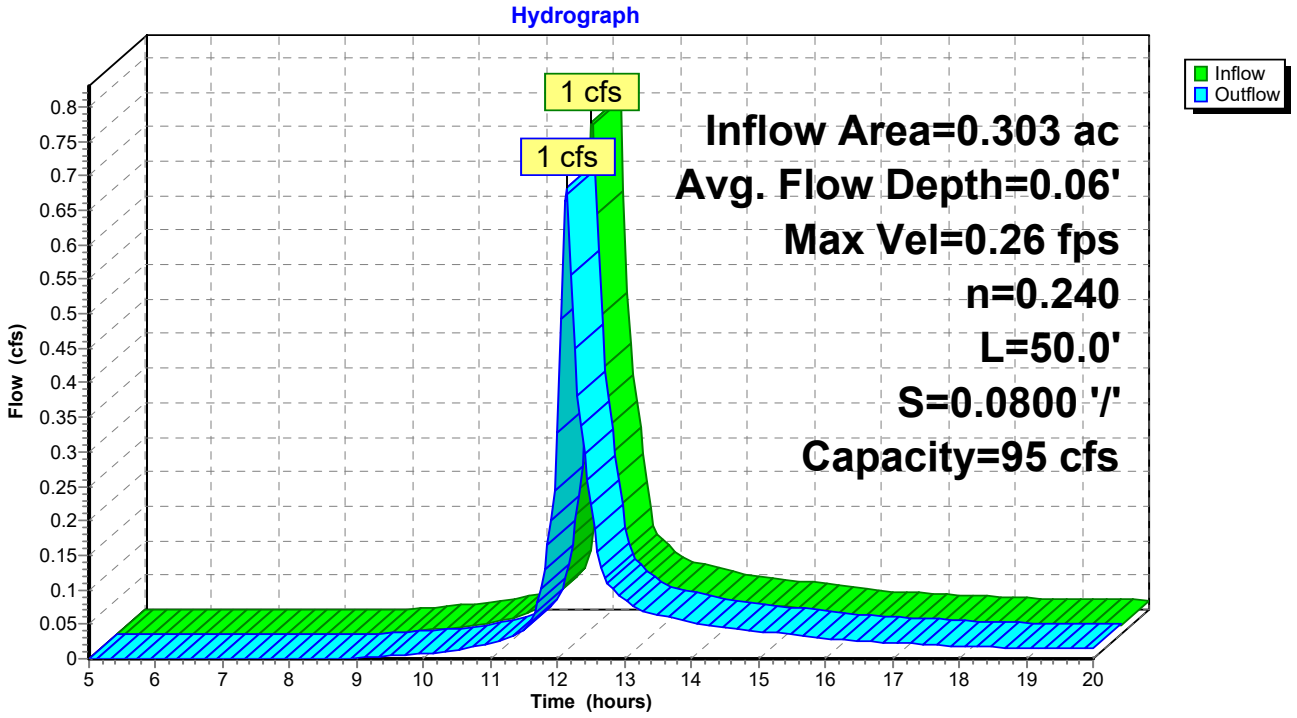
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.26 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.09 fps, Avg. Travel Time= 8.8 min

Peak Storage= 133 cf @ 12.13 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 1.00' Flow Area= 65.0 sf, Capacity= 95 cfs

45.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 85.00'
Length= 50.0' Slope= 0.0800 '/'
Inlet Invert= 220.00', Outlet Invert= 216.00'

‡

Reach LS 1: LS 1 BUFFER



Summary for Reach LS 2: LS 2 BUFFER

Inflow Area = 0.566 ac, 13.25% Impervious, Inflow Depth > 1.15" for 10 year event
Inflow = 1 cfs @ 12.10 hrs, Volume= 0.054 af
Outflow = 1 cfs @ 12.15 hrs, Volume= 0.054 af, Atten= 11%, Lag= 2.9 min

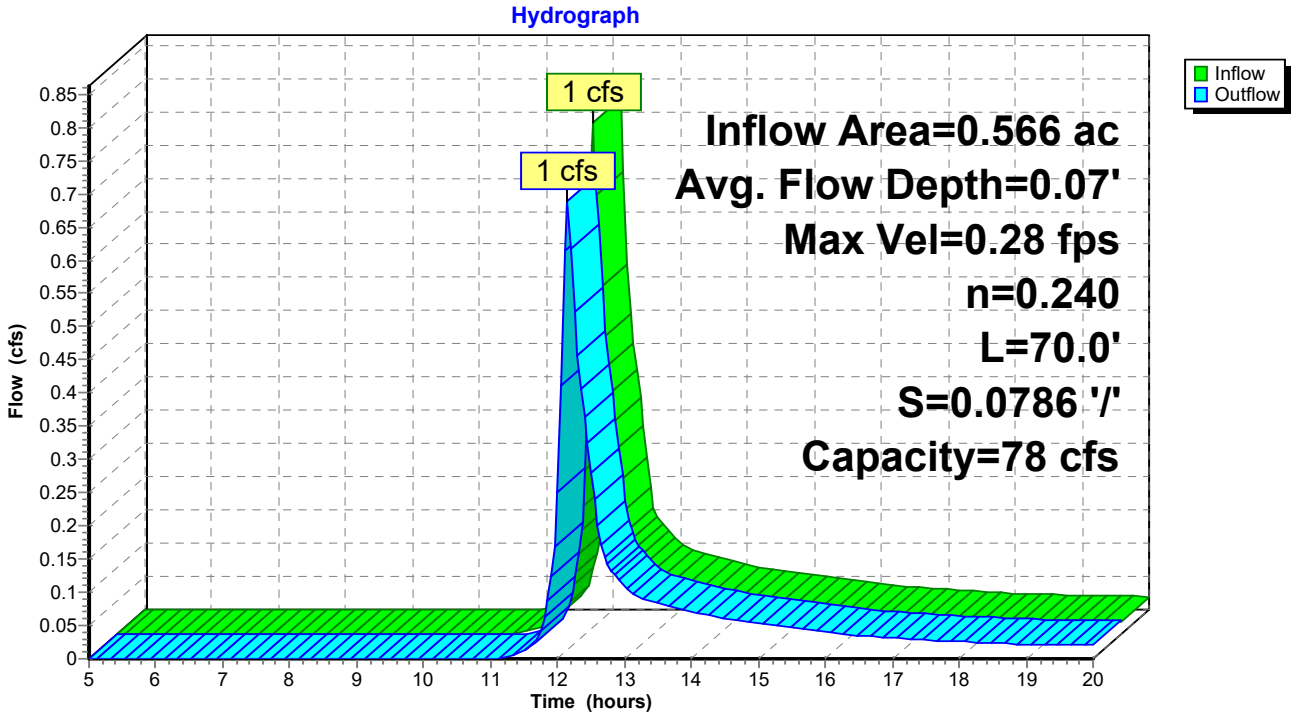
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.28 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 10.9 min

Peak Storage= 171 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 78 cfs

35.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 75.00'
Length= 70.0' Slope= 0.0786 '/'
Inlet Invert= 215.50', Outlet Invert= 210.00'

‡

Reach LS 2: LS 2 BUFFER



Summary for Reach LS 3: LS 3 BUFFER

Inflow Area = 0.179 ac, 41.33% Impervious, Inflow Depth > 1.82" for 10 year event
Inflow = 0 cfs @ 12.10 hrs, Volume= 0.027 af
Outflow = 0 cfs @ 12.17 hrs, Volume= 0.027 af, Atten= 24%, Lag= 4.6 min

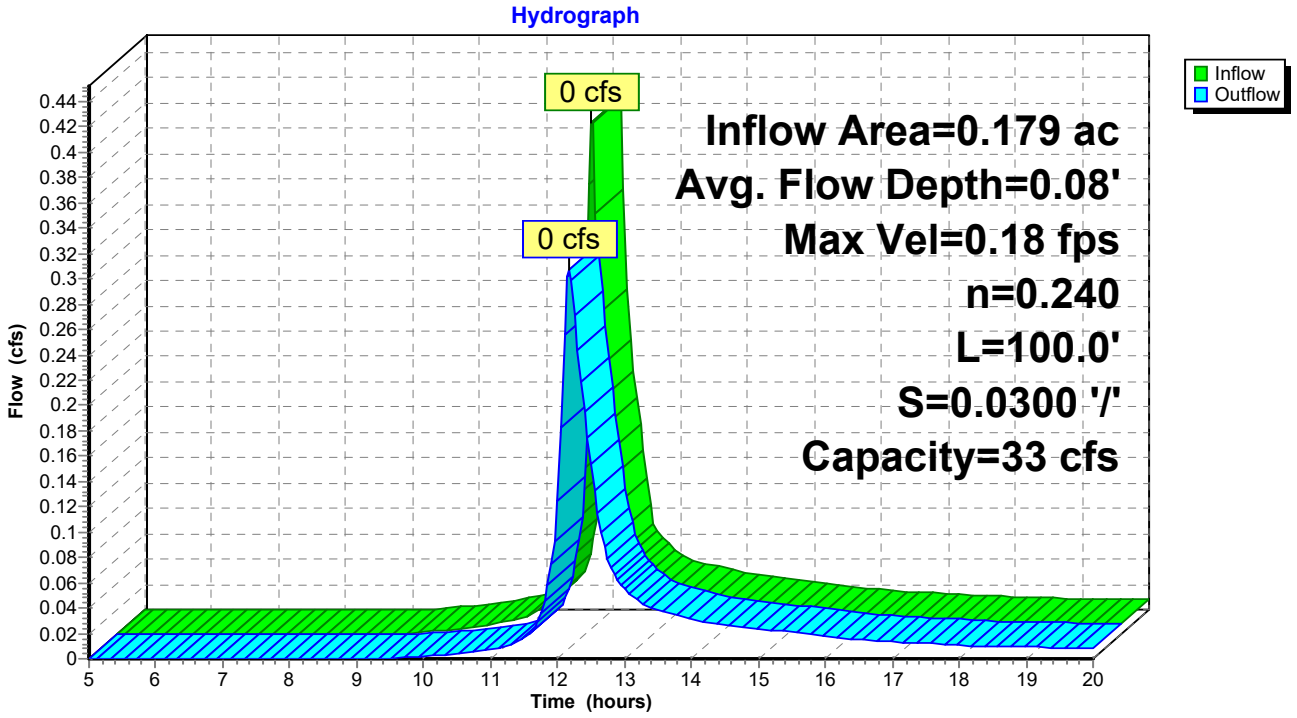
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.18 fps, Min. Travel Time= 9.0 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 24.3 min

Peak Storage= 165 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 40.0 sf, Capacity= 33 cfs

20.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 60.00'
Length= 100.0' Slope= 0.0300 '/'
Inlet Invert= 212.00', Outlet Invert= 209.00'

‡

Reach LS 3: LS 3 BUFFER



Summary for Reach LS 4: LS 4 BUFFER

Inflow Area = 0.600 ac, 19.55% Impervious, Inflow Depth > 1.28" for 10 year event
Inflow = 1 cfs @ 12.10 hrs, Volume= 0.064 af
Outflow = 1 cfs @ 12.15 hrs, Volume= 0.063 af, Atten= 11%, Lag= 2.9 min

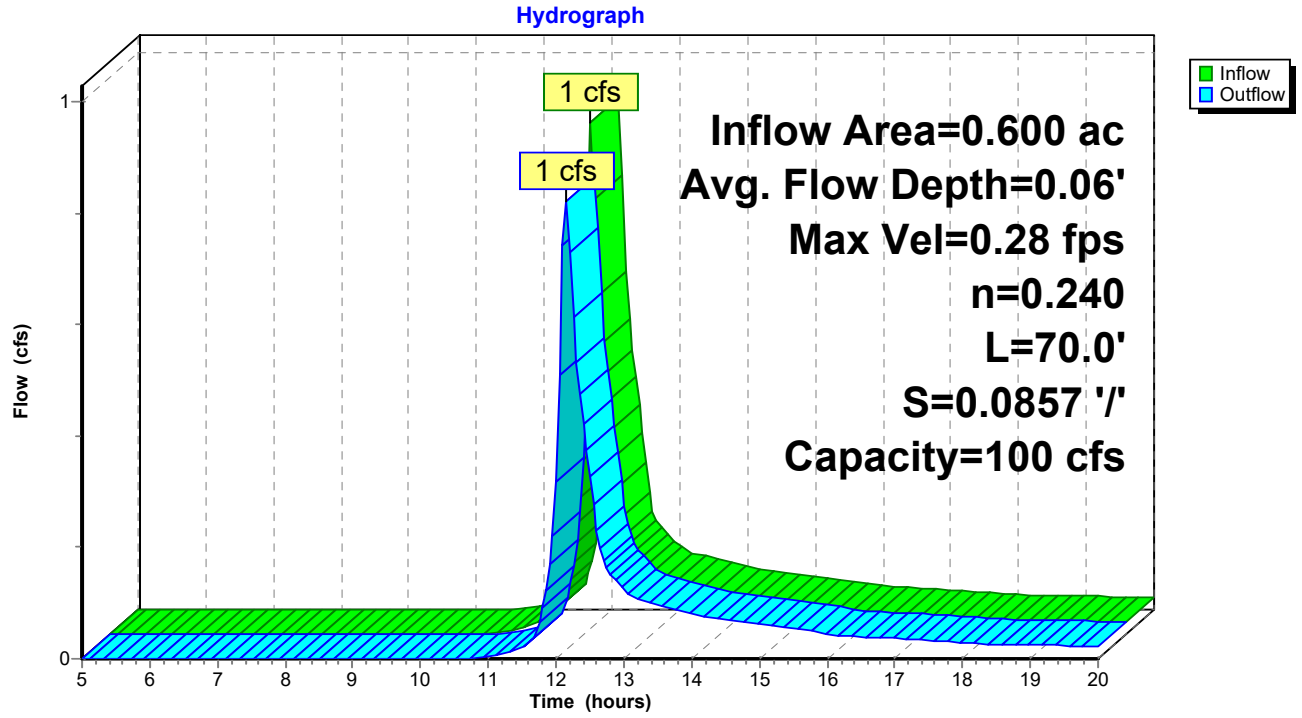
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.28 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 11.0 min

Peak Storage= 205 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 1.00' Flow Area= 66.0 sf, Capacity= 100 cfs

46.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 86.00'
Length= 70.0' Slope= 0.0857 '/'
Inlet Invert= 208.00', Outlet Invert= 202.00'

‡

Reach LS 4: LS 4 BUFFER

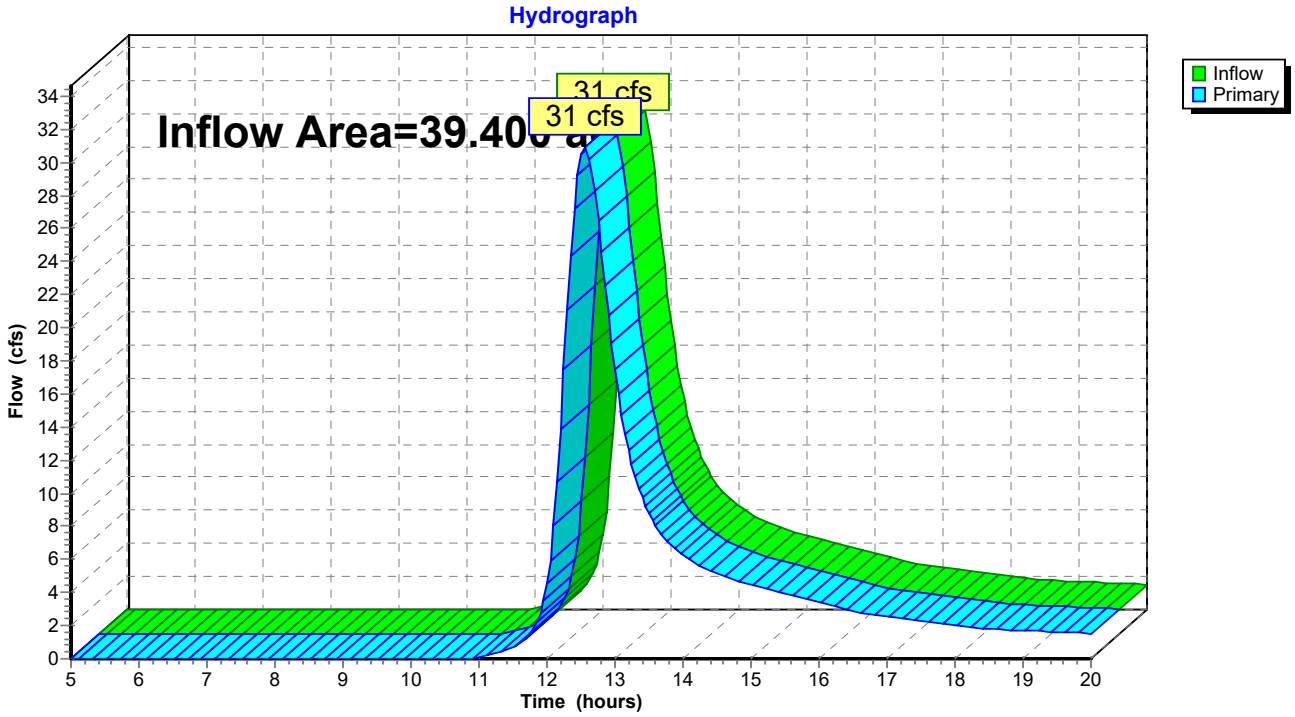


Summary for Link SP1: SP-1

Inflow Area = 39.400 ac, 2.05% Impervious, Inflow Depth > 1.27" for 10 year event
Inflow = 31 cfs @ 12.56 hrs, Volume= 4.155 af
Primary = 31 cfs @ 12.56 hrs, Volume= 4.155 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link SP1: SP-1



Summary for Subcatchment 1S: (new Subcat)

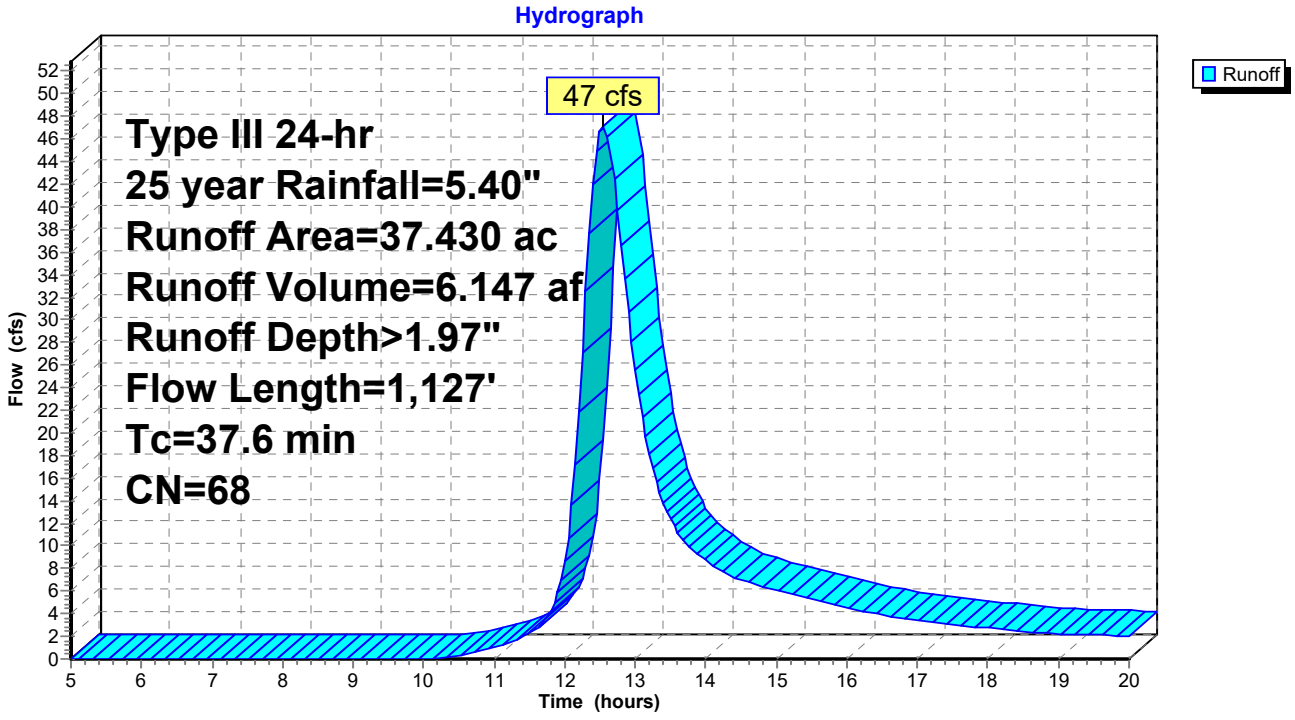
Runoff = 47 cfs @ 12.55 hrs, Volume= 6.147 af, Depth> 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (ac)	CN	Description
2.930	77	Woods, Good, HSG D
2.380	55	Woods, Good, HSG B
1.780	89	Pasture/grassland/range, Poor, HSG D
10.406	79	Woods/grass comb., Good, HSG D
19.644	61	Pasture/grassland/range, Good, HSG B
0.290	98	Paved parking, HSG B
37.430	68	Weighted Average
37.140		99.23% Pervious Area
0.290		0.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	140	0.0130	0.10		**Sheet Flow,** Grass: Dense n= 0.240 P2= 3.00"
14.7	987	0.0256	1.12		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
37.6	1,127	Total			

Subcatchment 1S: (new Subcat)



Summary for Subcatchment 2S: (new Subcat)

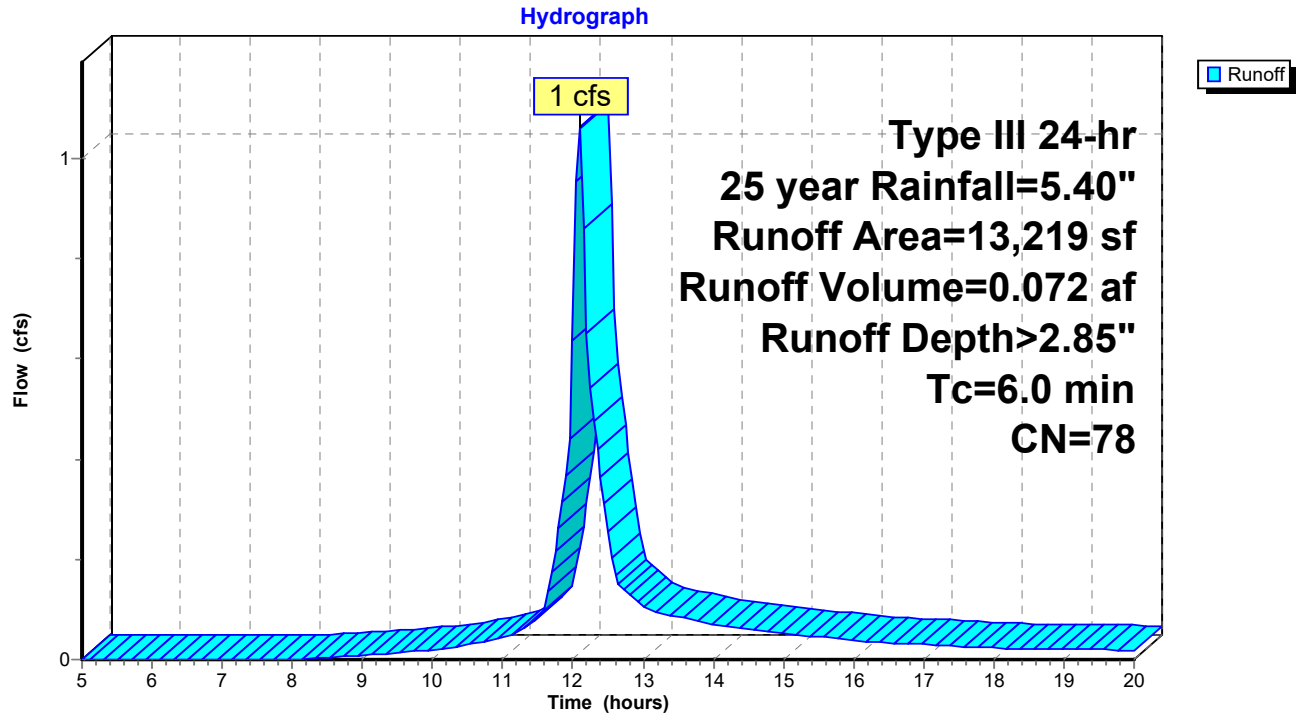
Runoff = 1 cfs @ 12.09 hrs, Volume= 0.072 af, Depth> 2.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (sf)	CN	Description
6,193	98	Paved parking, HSG B
7,026	61	>75% Grass cover, Good, HSG B
13,219	78	Weighted Average
7,026		53.15% Pervious Area
6,193		46.85% Impervious Area

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

Subcatchment 2S: (new Subcat)



Summary for Subcatchment 3S: (new Subcat)

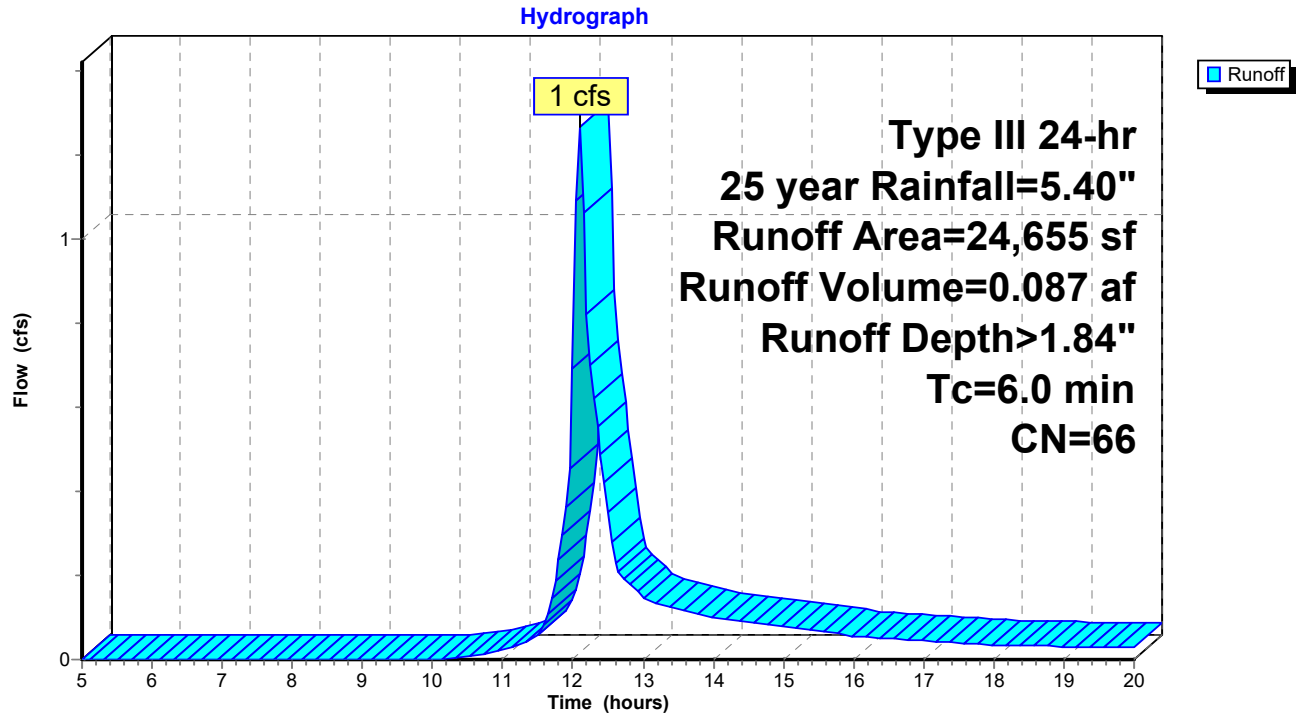
Runoff = 1 cfs @ 12.10 hrs, Volume= 0.087 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (sf)	CN	Description
3,268	98	Paved parking, HSG B
21,387	61	>75% Grass cover, Good, HSG B
24,655	66	Weighted Average
21,387		86.75% Pervious Area
3,268		13.25% Impervious Area

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

Subcatchment 3S: (new Subcat)



Summary for Subcatchment 4S: (new Subcat)

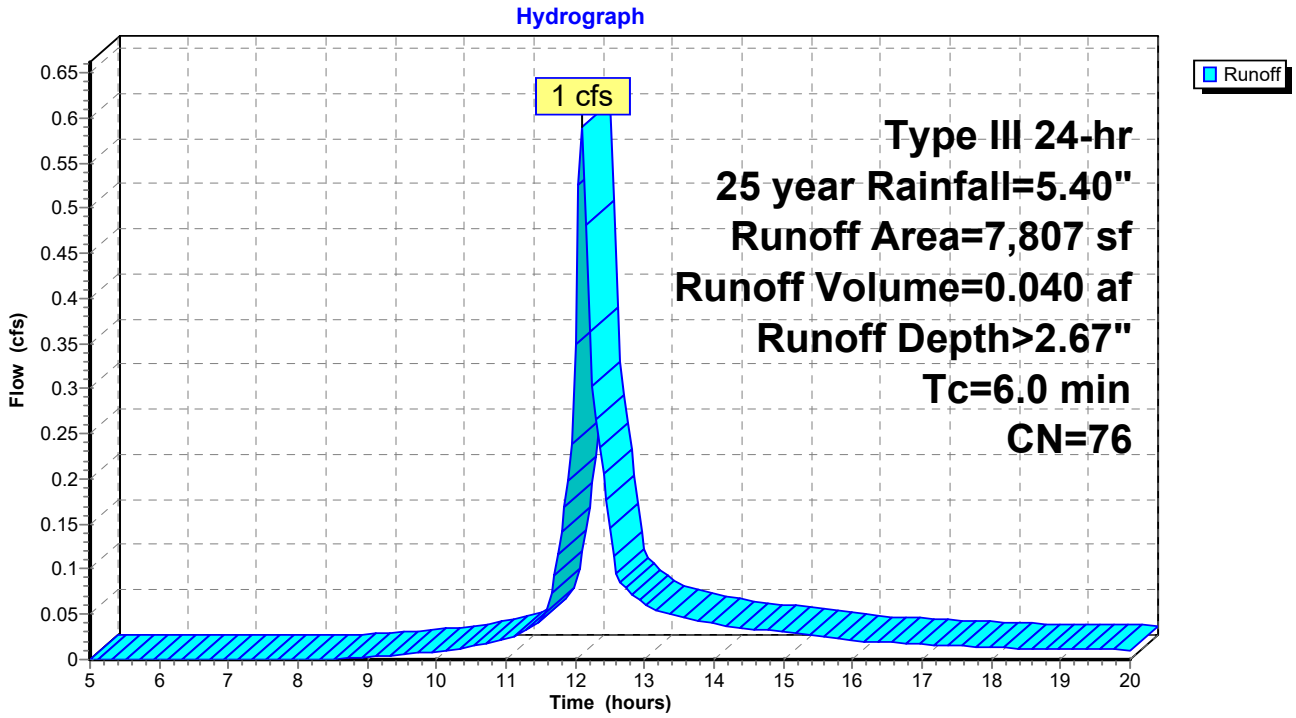
Runoff = 1 cfs @ 12.09 hrs, Volume= 0.040 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (sf)	CN	Description
3,227	98	Paved parking, HSG B
4,580	61	>75% Grass cover, Good, HSG B
7,807	76	Weighted Average
4,580		58.67% Pervious Area
3,227		41.33% Impervious Area

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

Subcatchment 4S: (new Subcat)



Summary for Subcatchment 5S: (new Subcat)

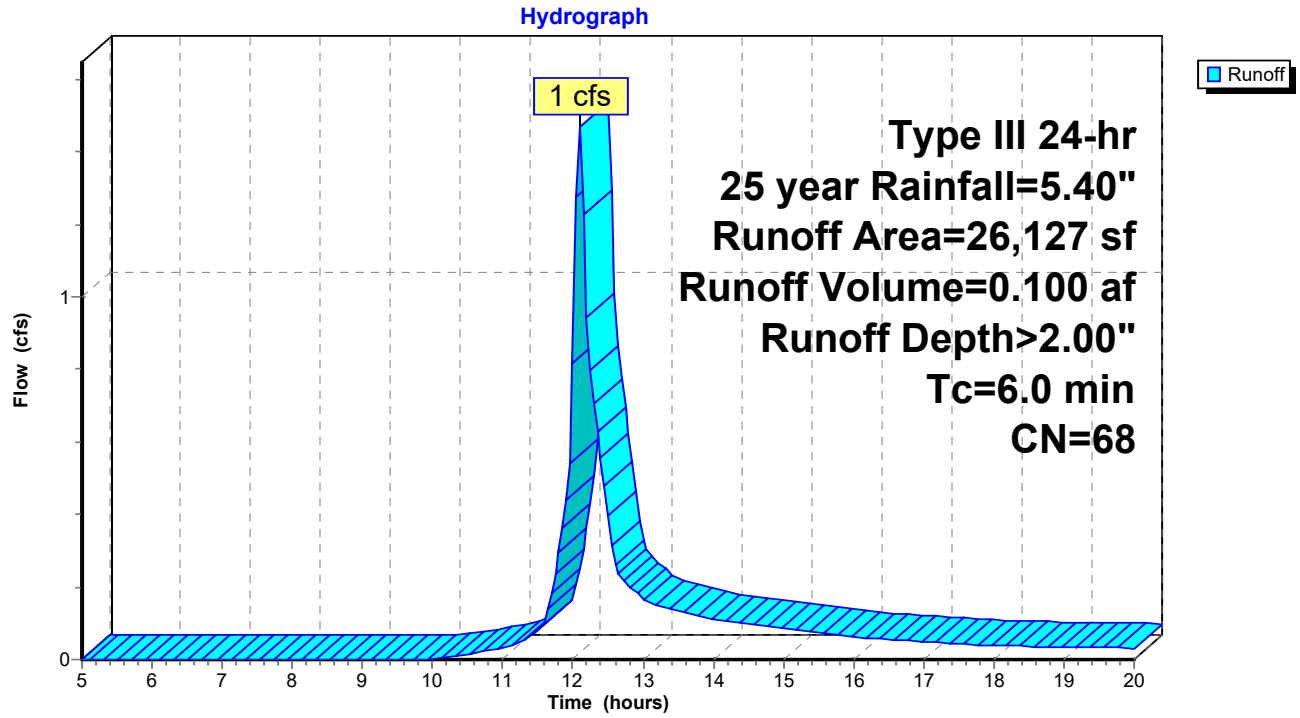
Runoff = 1 cfs @ 12.10 hrs, Volume= 0.100 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (sf)	CN	Description
5,107	98	Paved parking, HSG B
21,020	61	>75% Grass cover, Good, HSG B
26,127	68	Weighted Average
21,020		80.45% Pervious Area
5,107		19.55% Impervious Area

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

Subcatchment 5S: (new Subcat)



Summary for Subcatchment 6S: (new Subcat)

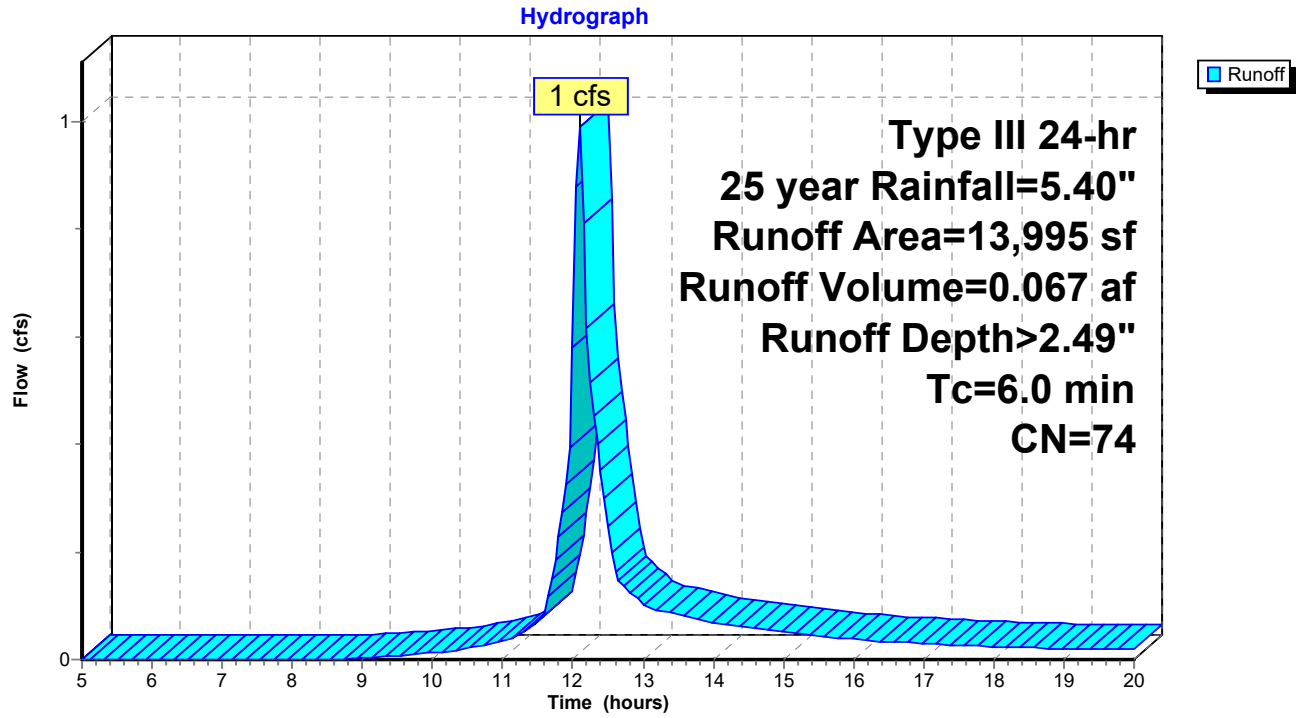
Runoff = 1 cfs @ 12.09 hrs, Volume= 0.067 af, Depth> 2.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 year Rainfall=5.40"

Area (sf)	CN	Description
4,763	98	Paved parking, HSG B
9,232	61	>75% Grass cover, Good, HSG B
13,995	74	Weighted Average
9,232		65.97% Pervious Area
4,763		34.03% Impervious Area

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

Subcatchment 6S: (new Subcat)



Summary for Reach 1R:

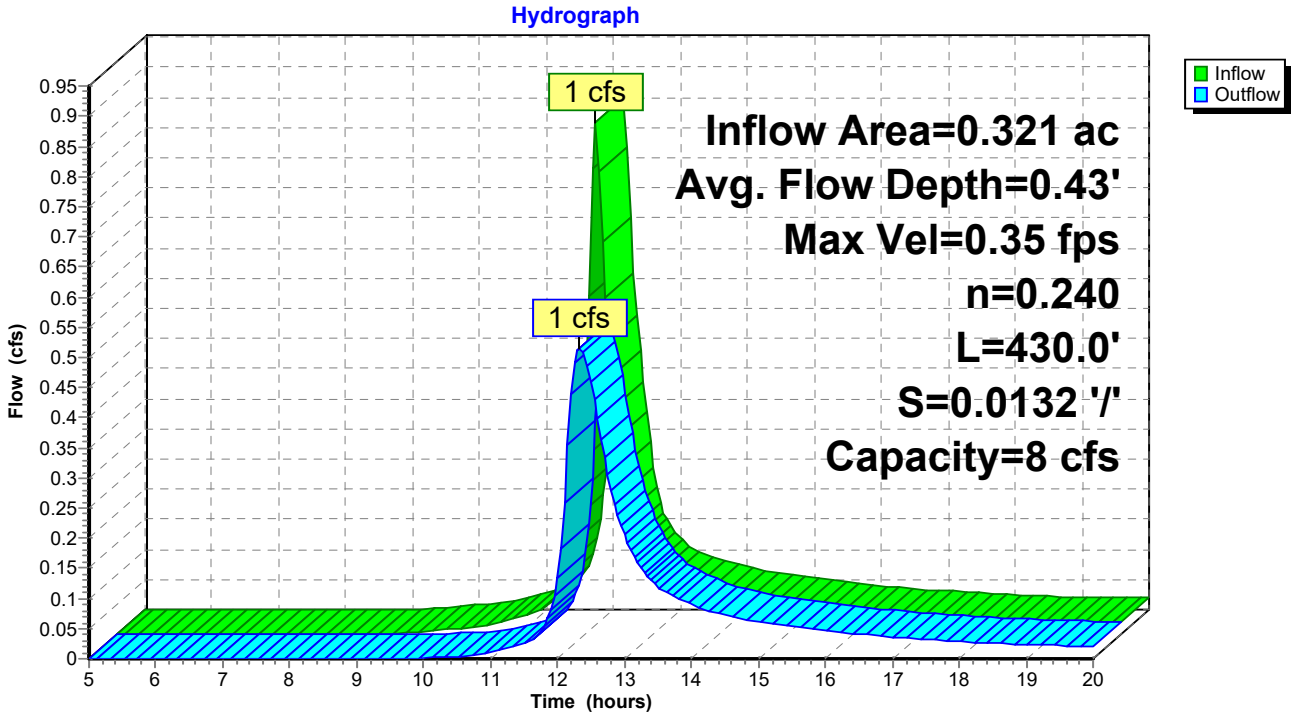
Inflow Area = 0.321 ac, 34.03% Impervious, Inflow Depth > 2.47" for 25 year event
Inflow = 1 cfs @ 12.15 hrs, Volume= 0.066 af
Outflow = 1 cfs @ 12.33 hrs, Volume= 0.064 af, Atten= 39%, Lag= 11.1 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.35 fps, Min. Travel Time= 20.4 min
Avg. Velocity = 0.14 fps, Avg. Travel Time= 49.8 min

Peak Storage= 630 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 8 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 430.0' Slope= 0.0132 '/'
Inlet Invert= 219.67', Outlet Invert= 214.00'

Reach 1R:



Summary for Reach 2R:

[62] Hint: Exceeded Reach 1R OUTLET depth by 0.18' @ 12.15 hrs

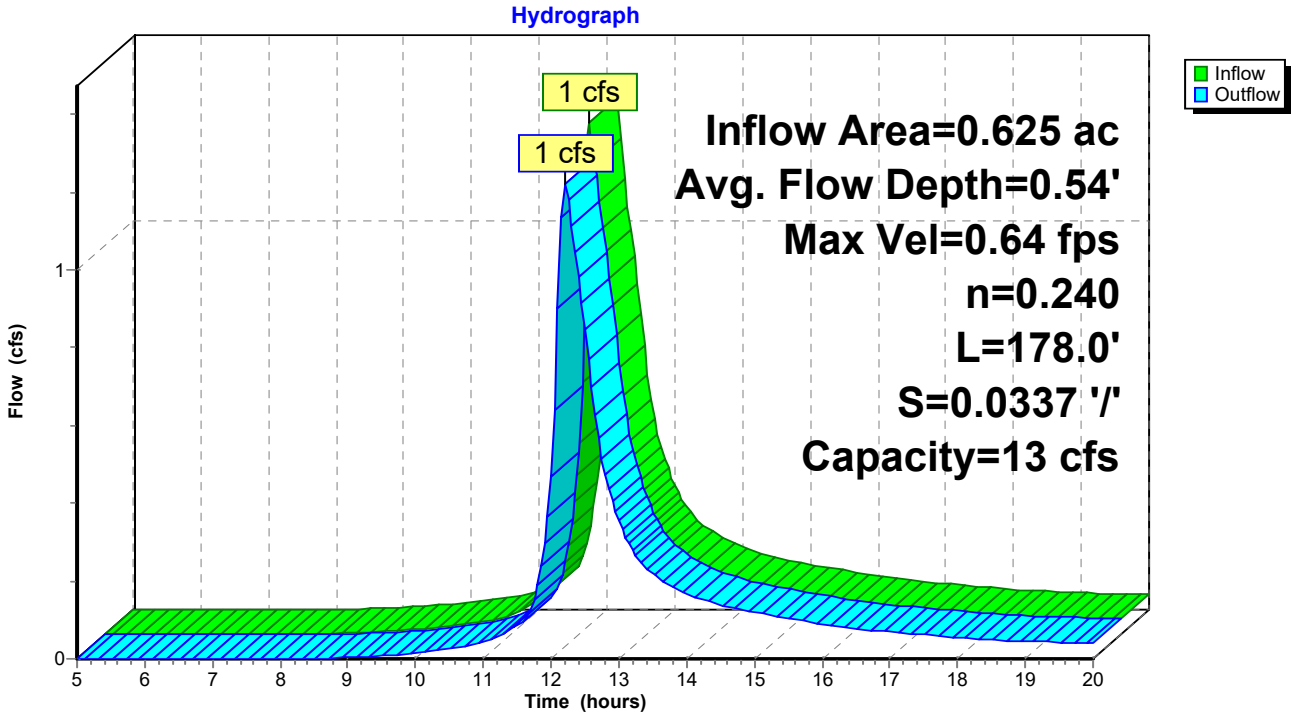
Inflow Area = 0.625 ac, 40.26% Impervious, Inflow Depth > 2.62" for 25 year event
Inflow = 1 cfs @ 12.15 hrs, Volume= 0.136 af
Outflow = 1 cfs @ 12.21 hrs, Volume= 0.135 af, Atten= 7%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.64 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.24 fps, Avg. Travel Time= 12.2 min

Peak Storage= 340 cf @ 12.21 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 13 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 178.0' Slope= 0.0337 '/'
Inlet Invert= 214.00', Outlet Invert= 208.00'

Reach 2R:



Summary for Reach 3R:

[62] Hint: Exceeded Reach 2R OUTLET depth by 0.18' @ 12.30 hrs

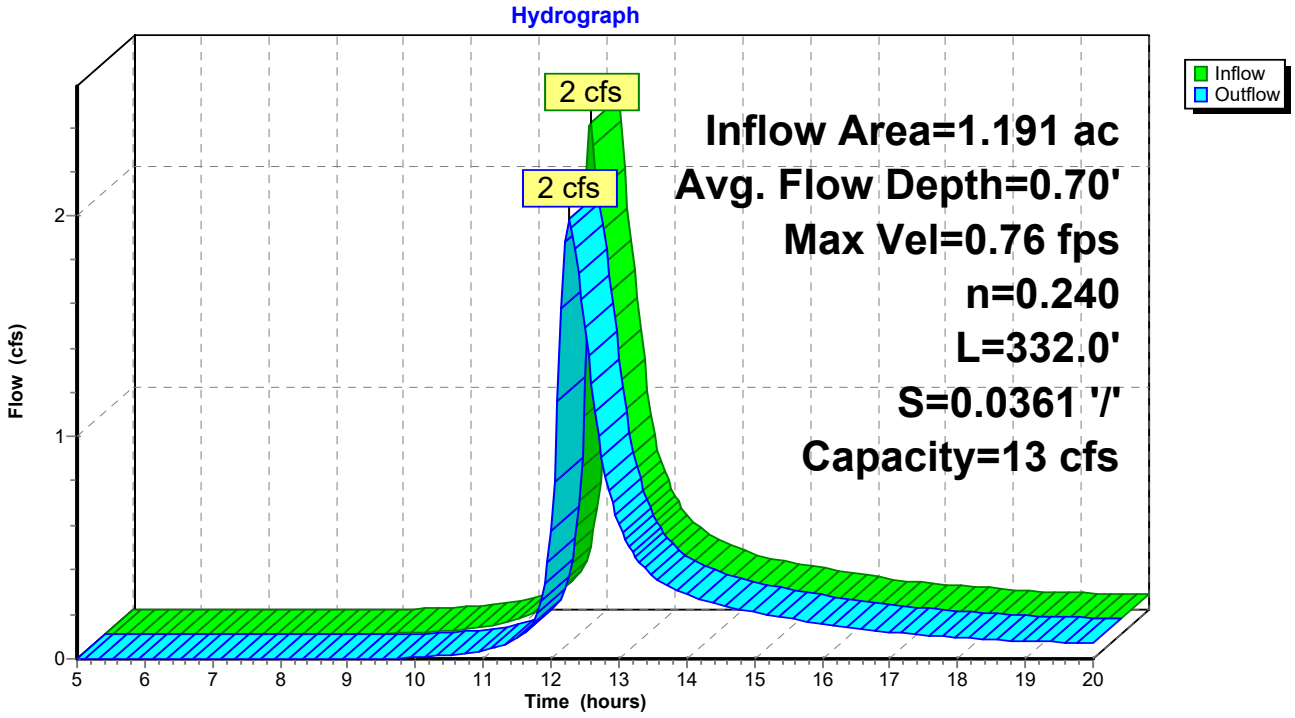
Inflow Area = 1.191 ac, 27.42% Impervious, Inflow Depth > 2.23" for 25 year event
Inflow = 2 cfs @ 12.16 hrs, Volume= 0.222 af
Outflow = 2 cfs @ 12.26 hrs, Volume= 0.219 af, Atten= 14%, Lag= 5.9 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.76 fps, Min. Travel Time= 7.3 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 19.0 min

Peak Storage= 863 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 13 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 332.0' Slope= 0.0361 '/'
Inlet Invert= 208.00', Outlet Invert= 196.00'

Reach 3R:



Summary for Reach 4R:

[62] Hint: Exceeded Reach LS 3 OUTLET depth by 0.15' @ 12.25 hrs

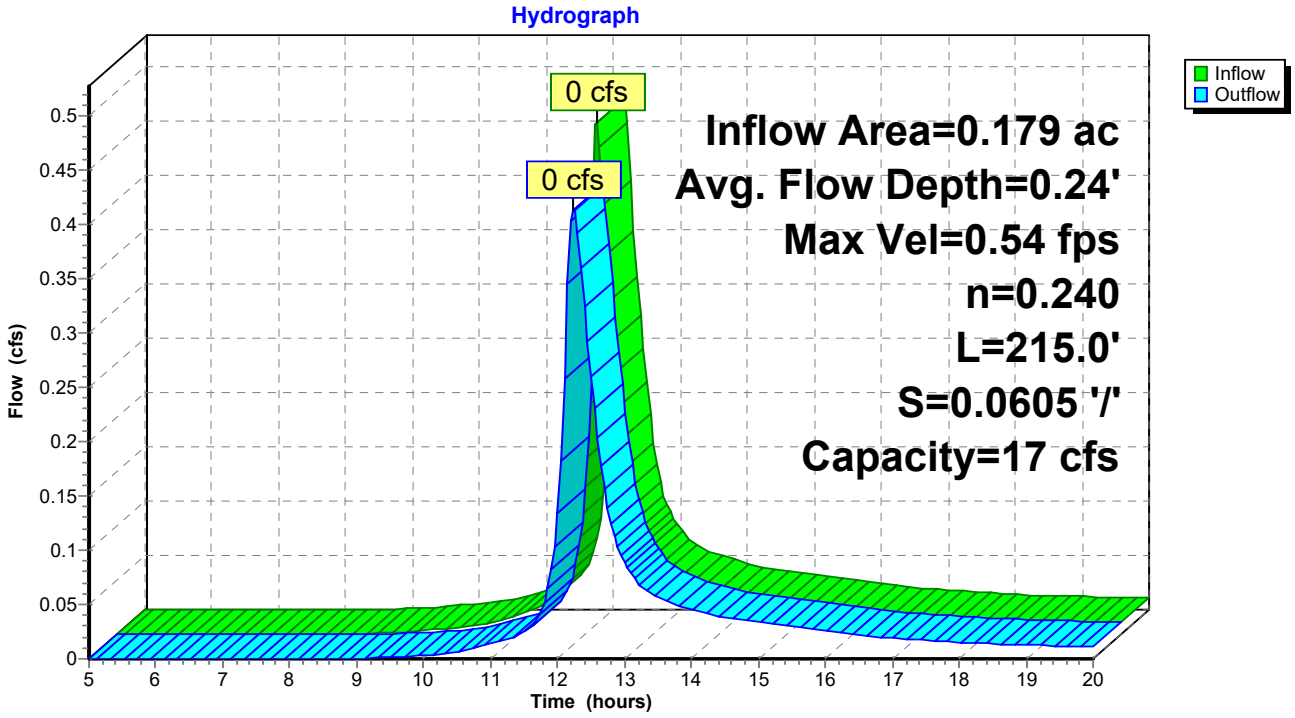
Inflow Area = 0.179 ac, 41.33% Impervious, Inflow Depth > 2.64" for 25 year event
Inflow = 0 cfs @ 12.16 hrs, Volume= 0.039 af
Outflow = 0 cfs @ 12.24 hrs, Volume= 0.039 af, Atten= 12%, Lag= 4.8 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.54 fps, Min. Travel Time= 6.7 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 18.4 min

Peak Storage= 165 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 17 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 215.0' Slope= 0.0605 '/'
Inlet Invert= 209.00', Outlet Invert= 196.00'

Reach 4R:



Summary for Reach 5R:

[62] Hint: Exceeded Reach LS 4 OUTLET depth by 0.50' @ 12.25 hrs

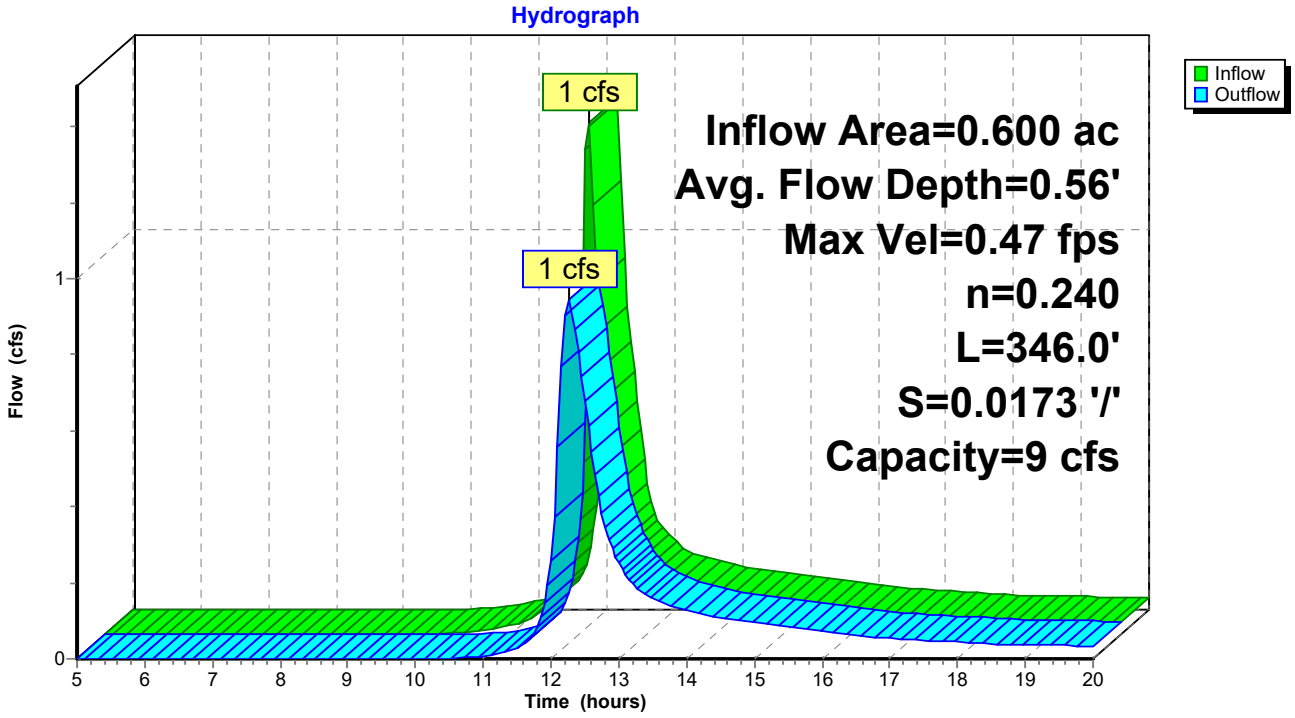
Inflow Area = 0.600 ac, 19.55% Impervious, Inflow Depth > 1.98" for 25 year event
Inflow = 1 cfs @ 12.14 hrs, Volume= 0.099 af
Outflow = 1 cfs @ 12.26 hrs, Volume= 0.097 af, Atten= 30%, Lag= 7.1 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.47 fps, Min. Travel Time= 12.3 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 30.1 min

Peak Storage= 695 cf @ 12.26 hrs
Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 2.00' Flow Area= 10.0 sf, Capacity= 9 cfs

3.00' x 2.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 346.0' Slope= 0.0173 '/'
Inlet Invert= 202.00', Outlet Invert= 196.00'

Reach 5R:



Summary for Reach 7R: LS 5 BUFFER

Inflow Area = 0.321 ac, 34.03% Impervious, Inflow Depth > 2.49" for 25 year event
Inflow = 1 cfs @ 12.09 hrs, Volume= 0.067 af
Outflow = 1 cfs @ 12.15 hrs, Volume= 0.066 af, Atten= 14%, Lag= 3.3 min

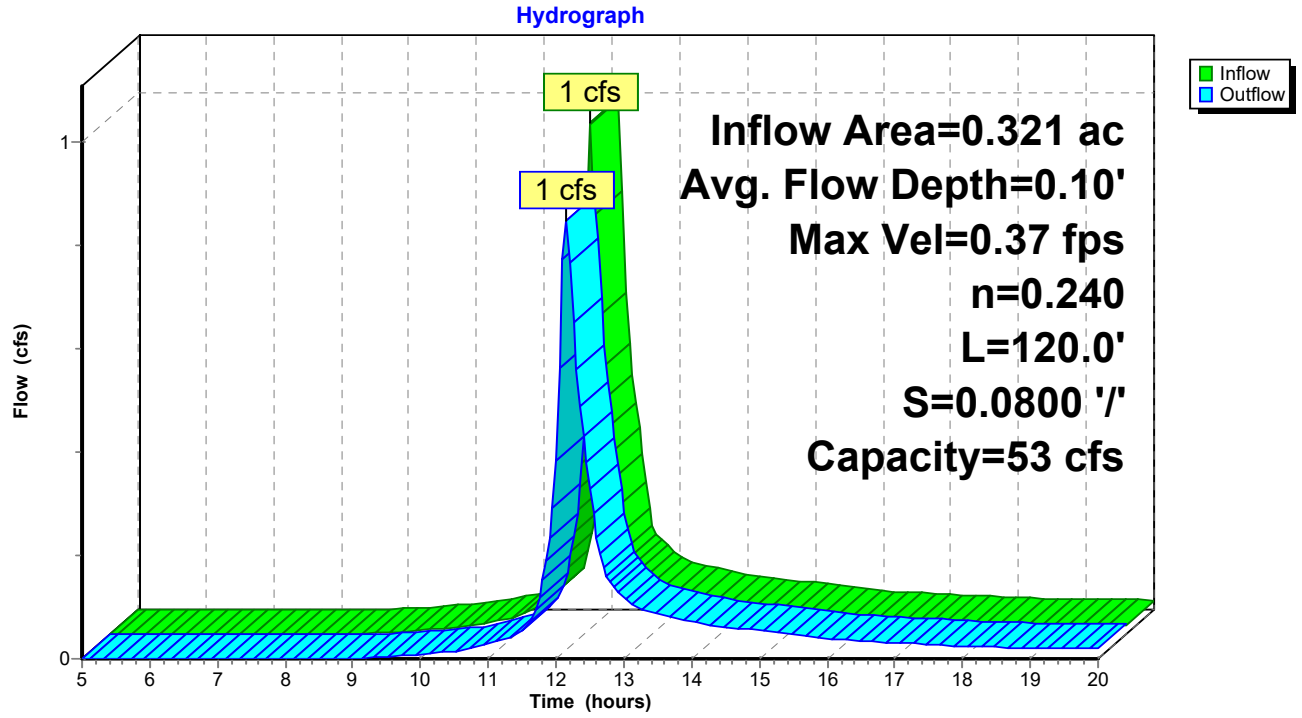
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.37 fps, Min. Travel Time= 5.5 min
Avg. Velocity = 0.13 fps, Avg. Travel Time= 15.9 min

Peak Storage= 278 cf @ 12.15 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 40.0 sf, Capacity= 53 cfs

20.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 60.00'
Length= 120.0' Slope= 0.0800 '/'
Inlet Invert= 230.00', Outlet Invert= 220.40'

‡

Reach 7R: LS 5 BUFFER



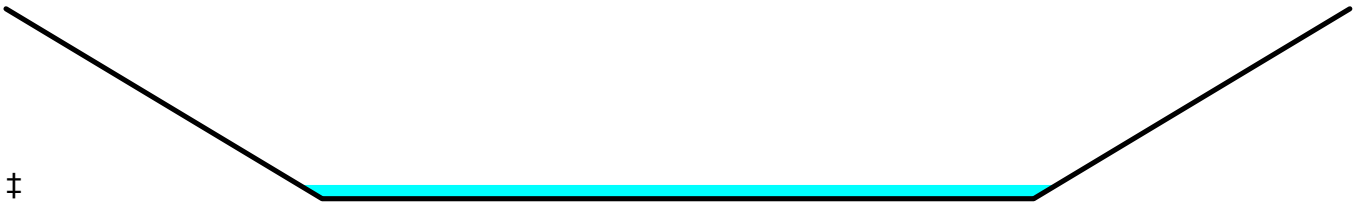
Summary for Reach LS 1: LS 1 BUFFER

Inflow Area = 0.303 ac, 46.85% Impervious, Inflow Depth > 2.85" for 25 year event
Inflow = 1 cfs @ 12.09 hrs, Volume= 0.072 af
Outflow = 1 cfs @ 12.12 hrs, Volume= 0.072 af, Atten= 6%, Lag= 1.7 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.30 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 8.3 min

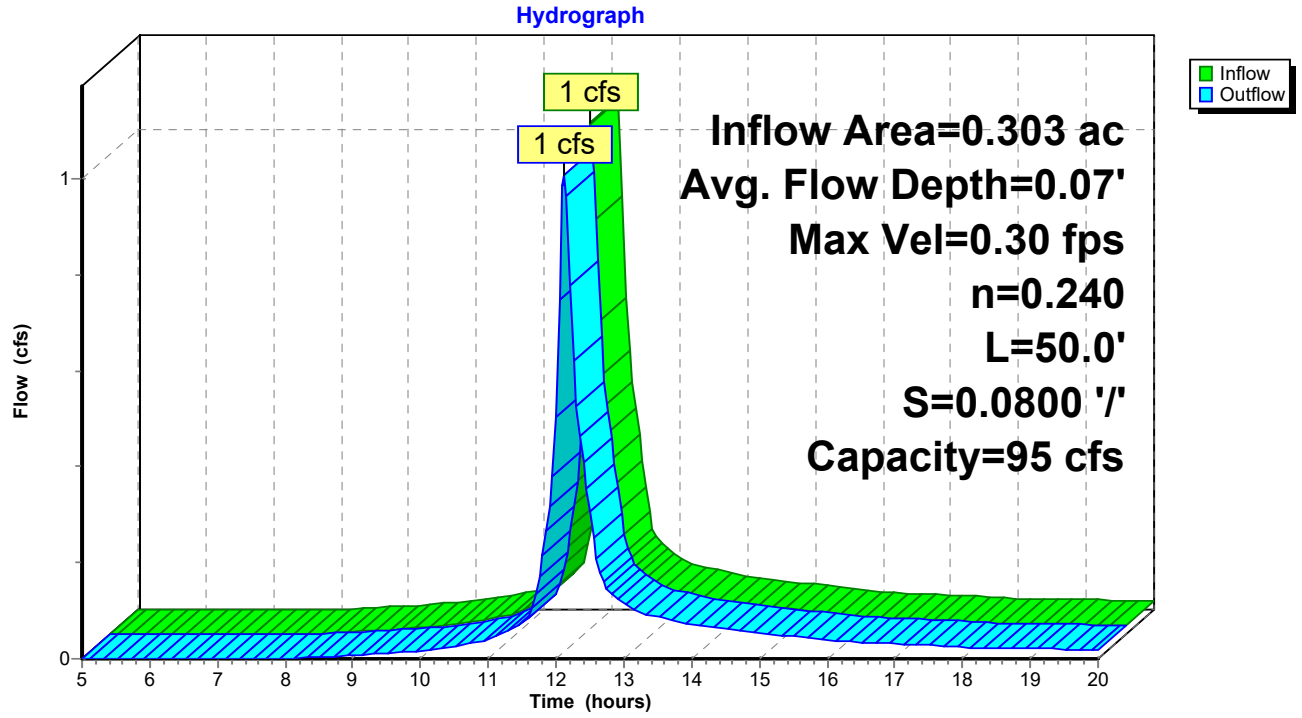
Peak Storage= 169 cf @ 12.12 hrs
Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00' Flow Area= 65.0 sf, Capacity= 95 cfs

45.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 85.00'
Length= 50.0' Slope= 0.0800 '/'
Inlet Invert= 220.00', Outlet Invert= 216.00'



‡

Reach LS 1: LS 1 BUFFER



Summary for Reach LS 2: LS 2 BUFFER

Inflow Area = 0.566 ac, 13.25% Impervious, Inflow Depth > 1.84" for 25 year event
Inflow = 1 cfs @ 12.10 hrs, Volume= 0.087 af
Outflow = 1 cfs @ 12.14 hrs, Volume= 0.086 af, Atten= 8%, Lag= 2.4 min

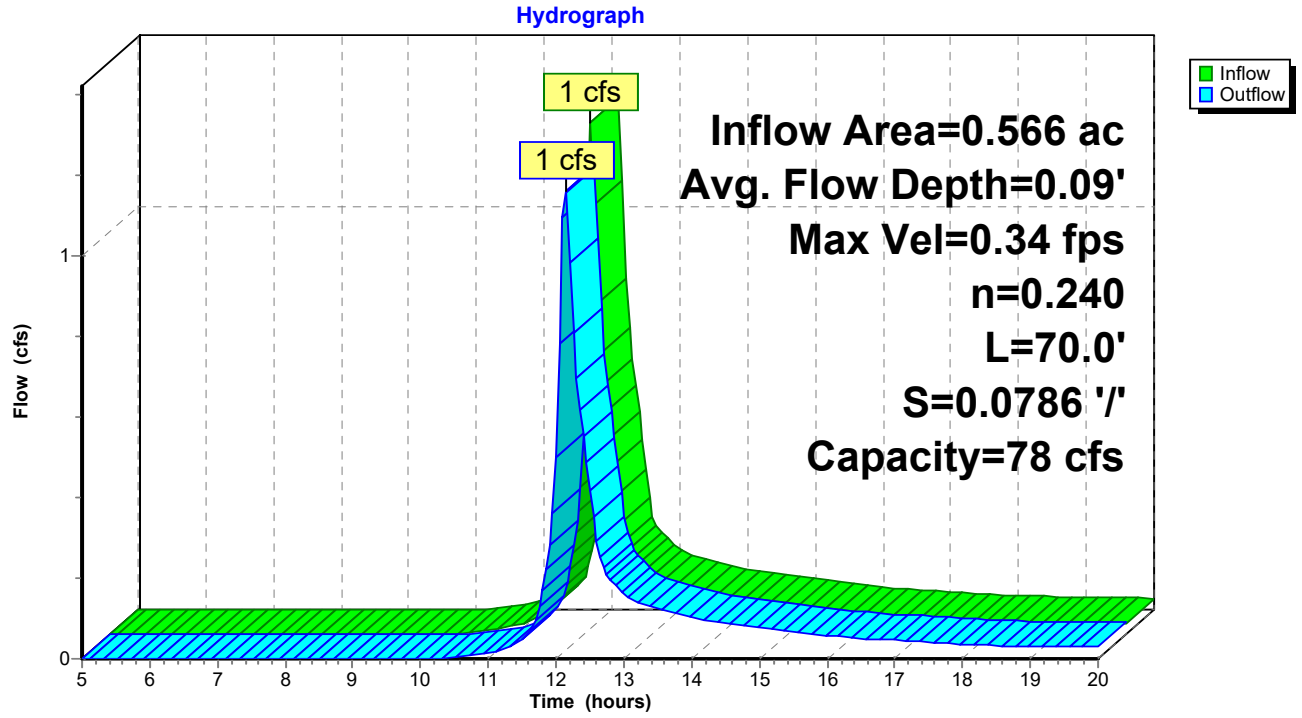
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.34 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 9.7 min

Peak Storage= 237 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.09'
Bank-Full Depth= 1.00' Flow Area= 55.0 sf, Capacity= 78 cfs

35.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 75.00'
Length= 70.0' Slope= 0.0786 '/'
Inlet Invert= 215.50', Outlet Invert= 210.00'

‡

Reach LS 2: LS 2 BUFFER



Summary for Reach LS 3: LS 3 BUFFER

Inflow Area = 0.179 ac, 41.33% Impervious, Inflow Depth > 2.67" for 25 year event
Inflow = 1 cfs @ 12.09 hrs, Volume= 0.040 af
Outflow = 0 cfs @ 12.16 hrs, Volume= 0.039 af, Atten= 20%, Lag= 4.1 min

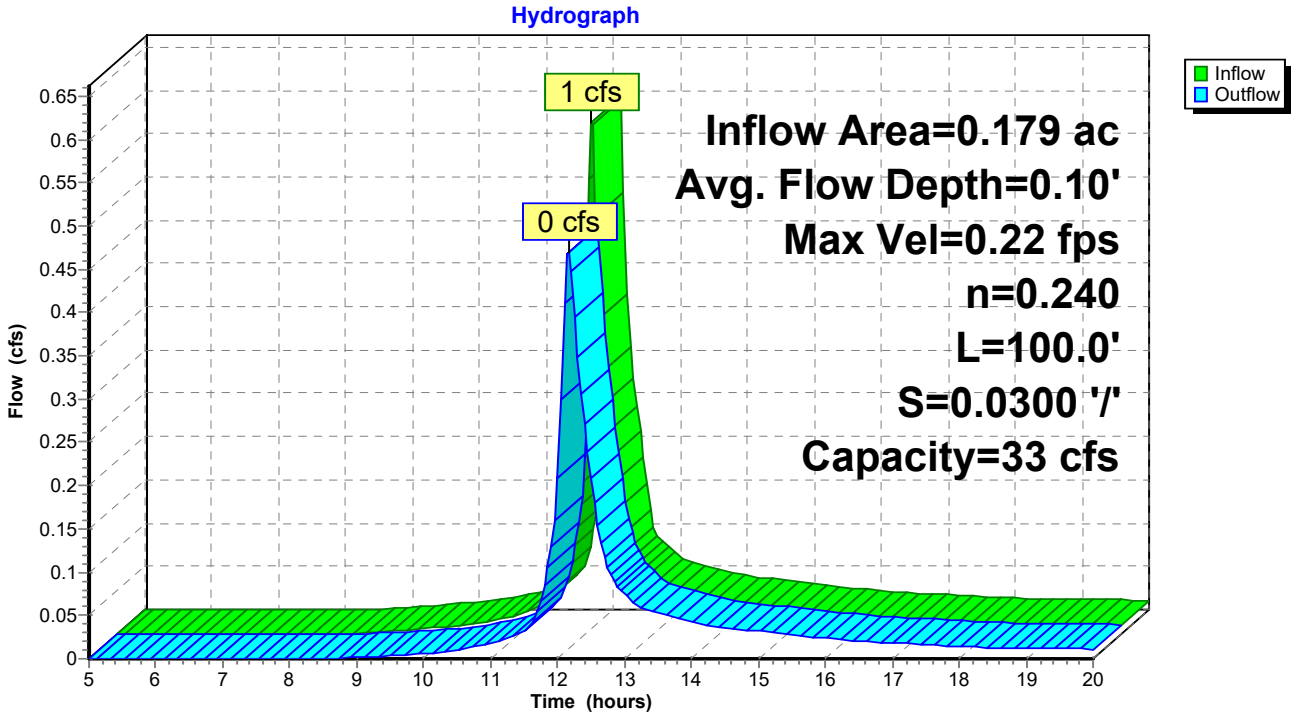
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.22 fps, Min. Travel Time= 7.7 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 22.2 min

Peak Storage= 217 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 1.00' Flow Area= 40.0 sf, Capacity= 33 cfs

20.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 60.00'
Length= 100.0' Slope= 0.0300 '/'
Inlet Invert= 212.00', Outlet Invert= 209.00'

‡

Reach LS 3: LS 3 BUFFER



Summary for Reach LS 4: LS 4 BUFFER

Inflow Area = 0.600 ac, 19.55% Impervious, Inflow Depth > 2.00" for 25 year event
Inflow = 1 cfs @ 12.10 hrs, Volume= 0.100 af
Outflow = 1 cfs @ 12.14 hrs, Volume= 0.099 af, Atten= 8%, Lag= 2.3 min

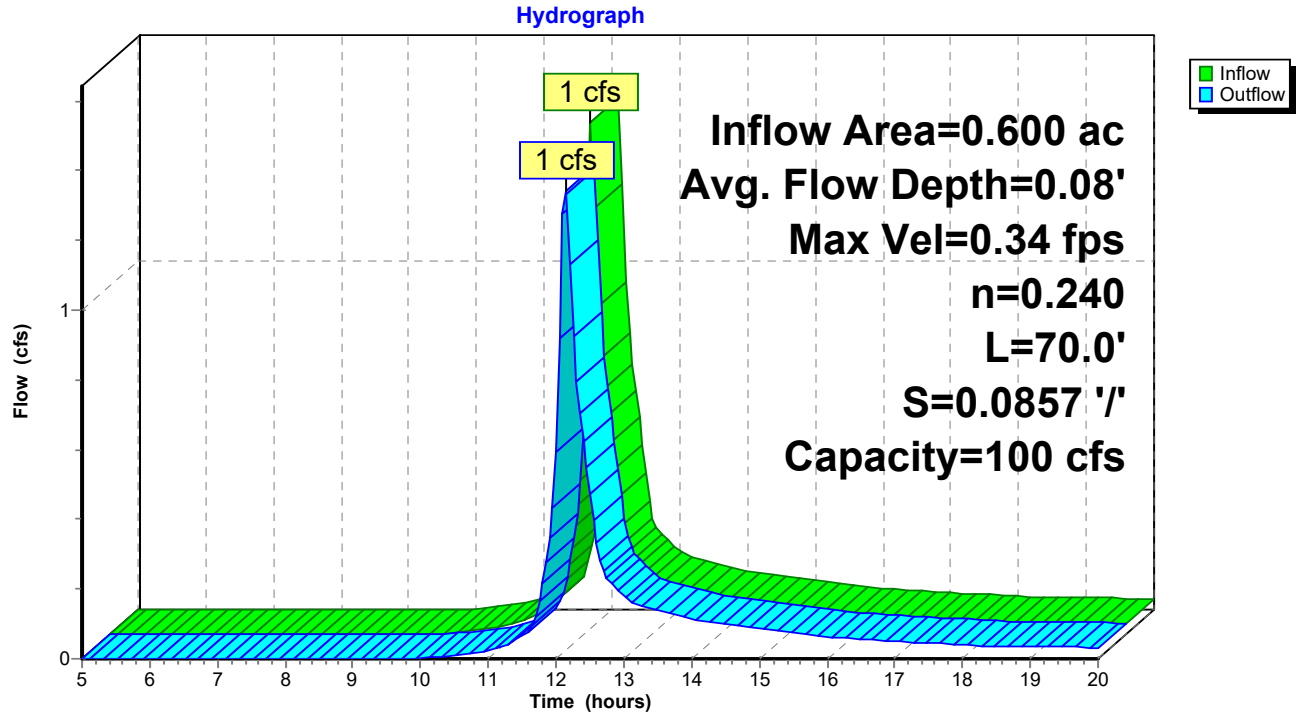
Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.34 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.12 fps, Avg. Travel Time= 10.0 min

Peak Storage= 278 cf @ 12.14 hrs
Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00' Flow Area= 66.0 sf, Capacity= 100 cfs

46.00' x 1.00' deep channel, n= 0.240 Sheet flow over Dense Grass
Side Slope Z-value= 20.0 '/' Top Width= 86.00'
Length= 70.0' Slope= 0.0857 '/'
Inlet Invert= 208.00', Outlet Invert= 202.00'

‡

Reach LS 4: LS 4 BUFFER

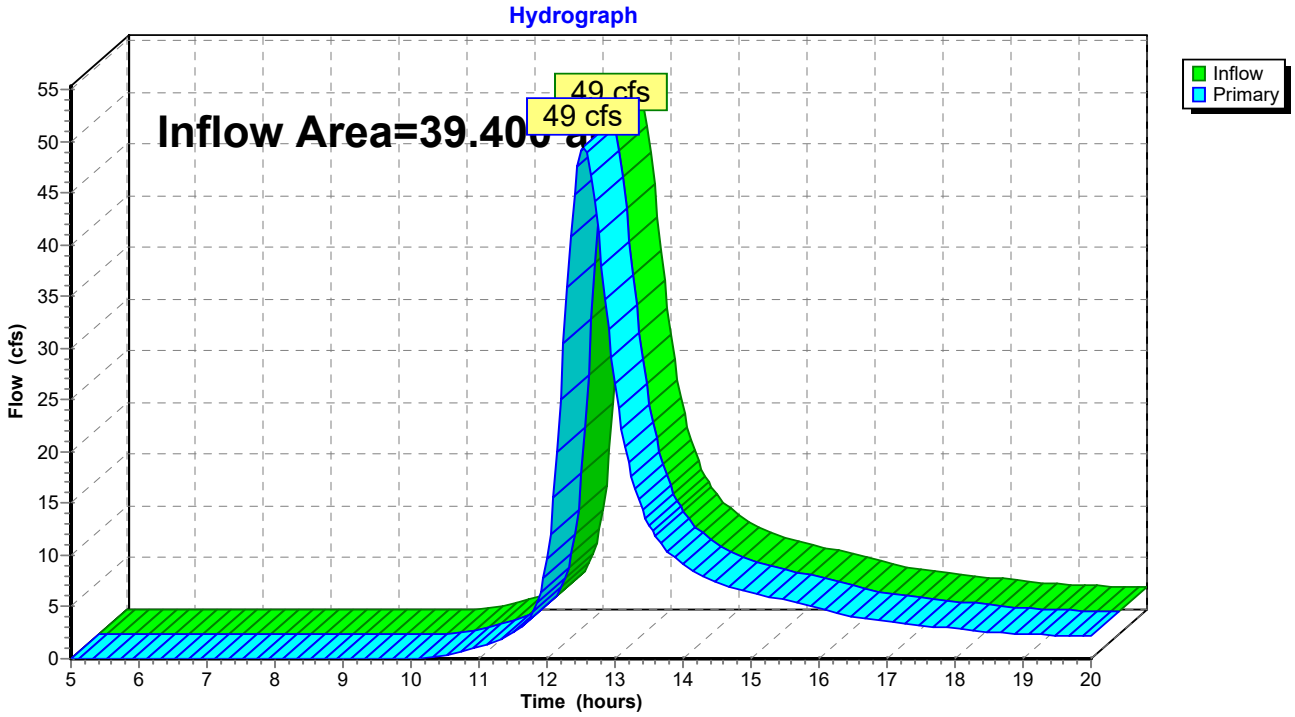


Summary for Link SP1: SP-1

Inflow Area = 39.400 ac, 2.05% Impervious, Inflow Depth > 1.98" for 25 year event
Inflow = 49 cfs @ 12.54 hrs, Volume= 6.502 af
Primary = 49 cfs @ 12.54 hrs, Volume= 6.502 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link SP1: SP-1



APPENDIX 7

WATERSHED MAPS

WATERSHED LEGEND

PREDEVELOPMENT		POSTDEVELOPMENT
	WATERSHED BOUNDARY	
	Tc FLOWPATH	
	SOILS BOUNDARY	
000	SUBCATCHMENT	000
000	POND	000
000	REACH	000
000	STUDY POINT	000
Ⓐ	Tc LABEL	Ⓐ

N

HANSEN ORIG

BROAD STREET

36" HDPE
INV.=196.14

36" HDPE
INV.=195.34

SF
L=150'
S=0.013

SCF
L=887
S=0.022

SP1

N / F
Jane Skelton
William Skelton
Broad Street
Map 171 Lot 4-1
Bk. 7008, Pg. 308

WITHAM ROAD

N / F
Everett W.
Larrabee
360 Witham Road
Map 171 Lot 3
Bk. 1239, Pg. 57

N / F
Jane Skelton
William Skelton
Broad Street
Map 171 Lot 4
Bk. 7008, Pg. 308

N / F
Jane Skelton
William Skelton
Broad Street
Map 159 Lot 9
Bk. 7008, Pg. 308

TRADITIONAL NEIGHBORHOOD DEVELOPMENT DISTRICT

INDUSTRIAL DISTRICT

TRADITIONAL NEIGHBORHOOD DEVELOPMENT DISTRICT

GENERAL BUSINESS DISTRICT

N / F

GRAPHIC SCALE
60 0 30 60 120
(IN FEET)
1 INCH = 60 FT.

DATE:

NO.	DATE	REVISIONS

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260

PHONE:
(207) 926-5111

WEB SITE:
www.terradynconsultants.com

TERRADYN CONSULTANTS, LLC
Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
BROAD STREET FARMS
AUBURN, MAINE

SHEET TITLE:
PRE-DEVELOPMENT WATERSHED

CLIENT:
ANDREW HAGERTY
108 MIDDLE ROAD
FALMOUTH, MAINE 04105

DATE:	7/2/2024
SCALE:	1"=60'
JOB NO:	24-34
SHEET:	PRE

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WATERSHED LEGEND

PREDEVELOPMENT		POSTDEVELOPMENT
	WATERSHED BOUNDARY	
	Tc FLOWPATH	
	SOILS BOUNDARY	
000	SUBCATCHMENT	000
000	POND	000
000	REACH	000
000	STUDY POINT	000
Ⓐ	Tc LABEL	Ⓐ

N

HASKELL OHIO

BROAD STREET

36" HDPE
INV.=196.14

36" HDPE
INV.=195.34

1S
1R
2S
2R
3S
3R
4S
4R
5S
5R
6S
LS1
LS2
LS3
LS4
LS5

SF
L=150'
S=0.013

SCF
L=987
S=0.022

SP1

WITHAM ROAD

N / F
Jane Skelton
William Skelton
Broad Street
Map 171 Lot 4-1
Bk. 7008, Pg. 308

N / F
Jane Skelton
William Skelton
Broad Street
Map 171 Lot 4
Bk. 7008, Pg. 308

N / F
Jane Skelton
William Skelton
Broad Street
Map 159 Lot 9
Bk. 7008, Pg. 308

N / F
Everett W.
Larrabee
360 Witham Road
Map 171 Lot 3
Bk. 1239, Pg. 57

5' SIDE
SETBACK
(TYP)

TRADITIONAL NEIGHBORHOOD DEVELOPMENT DISTRICT

INDUSTRIAL DISTRICT

GRAPHIC SCALE
60 0 30 60 120
(IN FEET)
1 INCH = 60 FT.

DATE:

NO.	DATE	REVISIONS

ADDRESS:
41 CAMPUS DRIVE, SUITE 301
NEW GLOUCESTER, ME 04260

PHONE
(207) 926-5111

WEB SITE:
www.terradynconsultants.com

TERRADYN CONSULTANTS, LLC

Civil Engineering | Land Surveying | Geomatics
Stormwater Design | Land Planning | Environmental Permitting

PERMIT DRAWING
NOT FOR CONSTRUCTION

PROJECT:
BROAD STREET FARMS
AUBURN, MAINE

SHEET TITLE:
POST DEVELOPMENT

CLIENT:
ANDREW HAGERTY
108 MIDDLE ROAD
FALMOUTH, MAINE 04105

DATE:	7/2/2024
SCALE:	1"=60'
JOB NO:	24-34
SHEET:	POST

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Attachment 5

Financial Capacity

SACO & BIDDEFORD SAVINGS INSTITUTION

Portland, Me- PHONE: (207) 602-7678 FAX: (207) 504-8117
136 Commercial St, Portland, ME 04101

06/17/2024
Andrew Hagerty
100 Middle Road
Falmouth, Me 04105

RE: Broad Street Farms Development

Please be advised that Andrew Hagerty has the financial capacity and knowledge to develop 12 duplexes in Broad Street Farms. I look forward to working with you on this project.

Should you have any questions please feel free to contact me directly at 602-7678 or my E-mail: Mjean@sbsavings.bank

Sincerely,

Michael Jean
VP Business Loan Officer
136 Commercial Street
Portland, Maine 04101

Attachment 6

Cost Estimate

TERRADYN CONSULTANTS, LLC
P.O. Box 339
New Gloucester, ME 04260
(207) 926-5111

JOB NO. 24-34
SHEET NO. 1 OF 1
CALCULATED BY CMS DATE 7/3/2024

BUDGETARY COST ESTIMATE - SITE WORK
BROAD STREET FARMS - AUBURN MAINE

ITEM	DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	AMOUNT
	EARTHWORK				
1	GRUB OPEN AREA	AC	$2,000.00	3	$6,000.00
	ROADWAY AND SIDEWALKS				
2	HOT BITUMINOUS SURFACE PAVEMENT	TON	$100.00	175	$17,500.00
3	HOT BITUMINOUS BINDER PAVEMENT	TON	$120.00	250	$30,000.00
4	BASE GRAVEL MDOT TYPE A	CY	$33.00	216	$7,128.00
5	SUBBASE GRAVEL MDOT TYPE D	CY	$21.00	866	$18,186.00
6	SLIPFORM CURB (ROAD & PARKING)	LF	$15.00	0	$0.00
7	5' WIDE SIDEWALK	SY	$40.00	0	$0.00
8	STRIPING	LS	$2,000.00	0	$0.00
	SITE IMPROVEMENTS				
9	SIGNS	EA	$250.00	0	$0.00
	DRAINAGE				
11	15" DIAMETER STORM DRAIN	LF	$40.00	200	$8,000.00
14	4' DIAMETER CATCH BASIN	EA	$5,000.00	0	$0.00
15	4' DIAMETER DRAINAGE MANHOLE	EA	$5,000.00	0	$0.00
	UTILITIES				
16	8" SEWER LINE	LF	$80.00	0	$0
17	6" SEWER LINE	LF	$60.00	250	$15,000
18	4' DIAMETER SEWER MANHOLE	EA	$5,000.00	0	$0
19	6" WATER LINE - PRIVATE	LF	$60.00	0	$0
20	4" WATER LINE - PRIVATE	LF	$45.00	0	$0
21	2" WATER LINE - PRIVATE	LF	$25.00	0	$0
22	12" TAPPING SLEEVE & 8" GATE VALVE	EA	$2,500.00	0	$0
23	6"x4" TEE & 4" GATE VALVE	EA	$1,500.00	0	$0
24	4" GATE VALVE	EA	$1,500.00	0	$0
25	TRANSFORMER PAD	EA	$1,500.00	0	$0
26	LIGHT POLE BASES	EA	$600.00	0	$0
27	SITE ELECTRICAL	LF	$15.00	100	$1,500
	EROSION & SEDIMENT CONTROL				
28	STABILIZED CONSTRUCTION ENTRANCE	EA	$2,000.00	1	$2,000.00
29	RIPRAP	CY	$40.00	0	$0.00
30	EROSION CONTROL BLANKET	SY	$15.00	0	$0.00
31	SILT FENCE	LF	$5.00	2500	$12,500.00
32	LOAM & SEED	CY	$8.00	500	$4,000.00
33	LANDSCAPING	LS	$10,000.00	1	$10,000.00

SITE WORK TOTAL= $131,814.00

NOTES

1. THE OPINION OF PROBABLE CONSTRUCTION COST IS BASED UPON THE PERMITTING PLANS FOR 80 LAKE STREET APARTMENTS DATED APRIL 4, 2024, PREPARED BY TERRADYN CONSULTANTS, LLC. THIS ESTIMATE IS IN NO WAY, IMPLIED OR EXPRESSED OTHERWISE, A WARRANTEE THAT THE PROJECT CAN BE CONSTRUCTED FOR THE ABOVE COSTS. THIS ESTIMATE IS INTENDED TO BE USED AS A SITE WORK ALLOWANCE FOR PERFORMANCE GUARANTEE PURPOSES ONLY. IT DOES NOT INCLUDE COST ASSOCIATED WITH THE BUILDING CONSTRUCTION, ENGINEERING DESIGN FEES, LAND ACQUISITION, LEGAL FEES, PERMITING FEES, TESTING SERVICES OR CONSTRUCTION PHASE SERVICES.

2. THE ONSITE PAVEMENT AND GRANULAR MATERIAL QUANTITIES FOR THE PARKING LOT ARE BASED UPON THE FOLLOWING SECTION:

MATERIAL DESCRIPTION	PAVEMENT BUILDUP (IN)		
	ROAD	PARKING LOT	DRIVEWAY
BITUMINOUS CONCRETE SURFACE COURSE (INCHES)	N/A	1	N/A
BITUMINOUS CONCRETE BINDER COURSE (INCHES)	N/A	2	N/A
AGGREGATE BASE GRAVEL (INCHES)	N/A	3	N/A
AGGREGATE SUBBASE GRAVEL (INCHES)	N/A	15	N/A

Attachment 7

Building Plans

FINAL

DRAWING SCHEDULE

AREA SCHEDULE

NAME	AREA
DECKS/PORCHES	96 sq ft.
UNIT A	1010 sq ft.
UNIT B	1010 sq ft.

ANDREW HAGERTY
NEW DUPLEX RESIDENCE
AUBURN, ME

ABBREVIATIONS:

B.O.- BOTTOM OF
BLDG.-BUILDING
CAB.-CABINET
CL.-CENTERLINE
CLG.-CEILING
CONC.-CONCRETE
DIA.-DIAMETER
DIM.-DIMENSION
DN.-DOWN
EA.-EACH
ELEV.- ELEVATION
EQ.-EQUAL
EXT-EXTERIOR
HDR.- HEADER
HF-HEMLOCK/FIR
HORIZ.- HORIZONTAL
HT.- HEIGHT
INS.- INSULATION
INT.-INTERIOR
LSL- LAMINATED STRAND LUMBER
LVL-LAMINATED VENEER LUMBER
OSB-ORIENTED STRAND BOARD
O.H.-OVERHANG
PL.-PLATE
PT.- PRESSURE TREATED (TREATED)
PSL-PARALLEL STRAND LUMBER
RM.-ROOM
SF- SQUARE FOOT
SPF.-SPRUCE/PINE/FIR
SQ- SQUARE
STD.- STANDARD
SUBFLR- SUBFLOOR
T&G- TONGUE AND GROOVE
T.O.- TOP OF
TYP.- TYPICAL
U.N.O.-UNLESS NOTED OTHERWISE
V.I.F.-VERIFY IN FIELD
VERT-VERTICAL

CONSTRUCTION TYPE: DUPLEX RESIDENCE
CLIMATE ZONE: 6A
APPLICABLE CODES:
-MUBEC (MAINE UNIFORM BUILDING AND ENERGY CODE, BASED ON MODEL CODES IRC 2021, IECC 2015, IEBC
-NFPA 101 2018

GENERAL NOTES:

1. FOLLOW ALL APPLICABLE NATIONAL, STATE, & LOCAL CODES.
2. RELEVANT MEASUREMENTS AND CONDITIONS OF EXISTING BUILDINGS OR PROPERTY SETBACKS OR OTHER SITE CONDITIONS TO BE VERIFIED IN THE FIELD. NOTIFY DESIGNER OF ANY DISCREPANCIES THAT COULD CAUSE ISSUES PRIOR TO CONSTRUCTION.
3. ANY STRUCTURAL MEMBERS NOT SIZED USING PRESCRIPTIVE METHODS FOUND IN THE CODE SHOULD BE SIZED BY A STRUCTURAL ENGINEER OR OTHER QUALIFIED PROFESSIONAL.
4. A REASONABLE EFFORT IS MADE TO PROVIDE ALL NECESSARY DIMENSIONS (IF APPLICABLE). PRINTING METHODS AND INCORRECT PAPER SIZES MAY DISTORT PLAN SCALES. DO NOT SCALE DRAWINGS.
5. PLEASE NOTE SCALE ON ALL DRAWINGS. SOME DRAWINGS ON THE SAME PAGE MAY BE DIFFERENT SCALES AND SOME SCALES MAY VARY THROUGHOUT PLAN SET.
6. NOT RESPONSIBLE FOR ERRORS AND/OR OMISSIONS.
7. WAITE RESIDENTIAL DESIGN COMPANY LLC HAS NOT BEEN RETAINED FOR FOR CONSTRUCTION SUPERVISION OR ADMINISTRATION AND ASSUMES NO RESPONSIBILTY FOR CONTRACTORS' METHODS OF CONSTRUCTION, SAFETY MEASURES,
OR CHANGES FROM THE PLAN THAT MAY NOT BE COMPLIANT WITH CURRENT CODES OR MUNICIPAL REQUIREMENTS.
8. WAITE RESIDENTIAL DESIGN COMPANY LLC IS NOT AN ARCHITECTURAL OR ENGINEERING FIRM. DRAWINGS ARE NOT PREPARED BY A REGISTERED ARCHITECT OR ENGINEER. IT IS RECOMMENDED THAT DRAWINGS BE REVIEWED BY A REGISTERED PROFESSIONAL.
9. PLANS DESIGNATED AS 'NOT FOR CONSTRUCTION' ARE TO BE CONSIDERED INCOMPLETE AND NOT FOR USE IN CONSTRUCTION.

SCALE: As Noted
DRAWN BY: NW
DATE: 5/21/2024
PAPER: ARCH D 24"x36"

REVISIONS

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REV 2	REV 6
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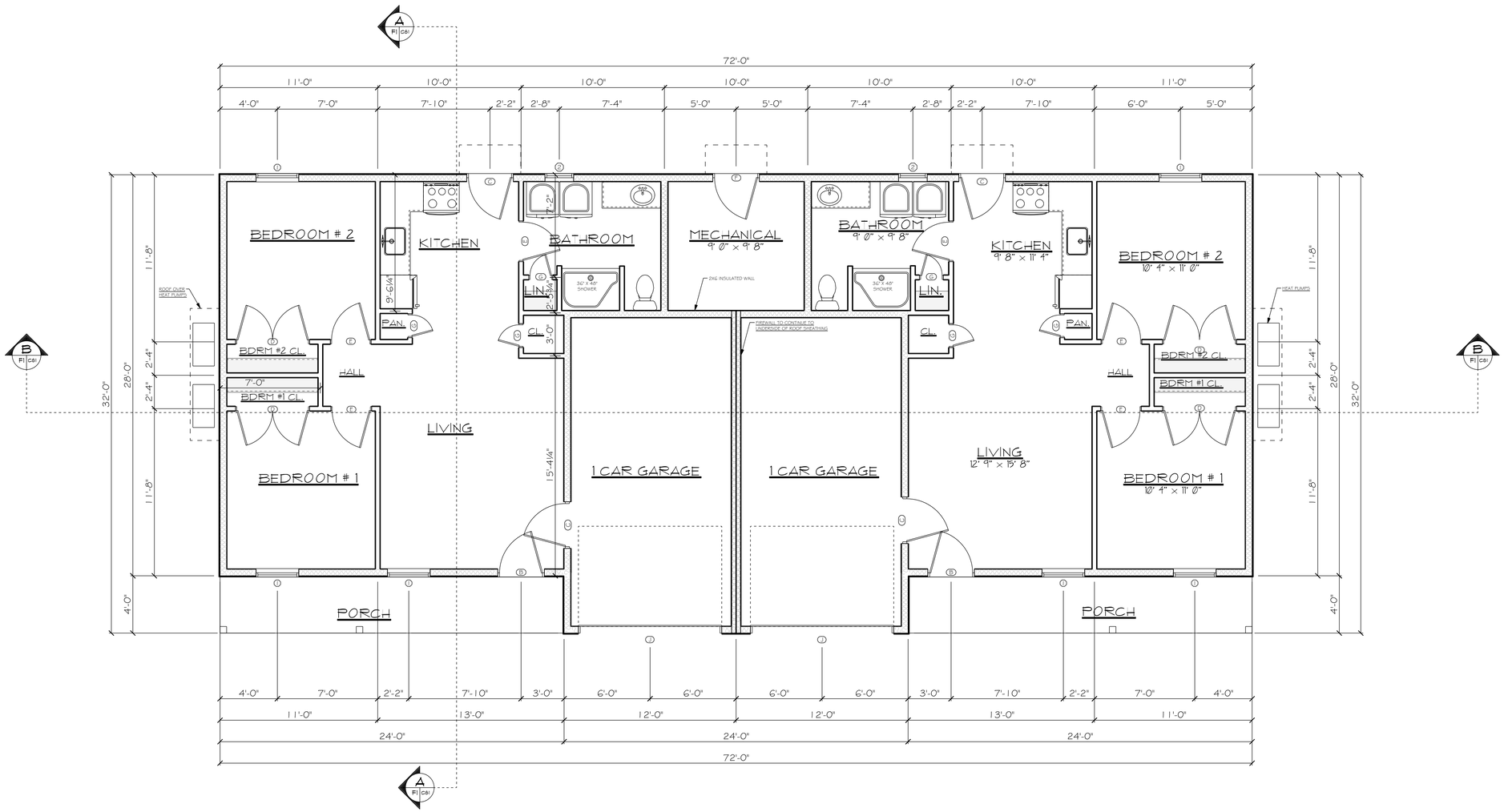

FIRST FLOOR

SCALE: 1/4" = 1'-0"

NOTES:

1. ALL EXTERIOR WALLS ARE DIMENSIONED FROM THE OUTER SIDE OF FRAMING
2. ALL INTERIOR WALLS ARE DIMENSIONED FROM THE CENTER OF THE STUD
3. BEARING WALLS MAY BE DIMENSIONED TO CENTER OF STUD OR OUTER SIDE OF FRAMING
4. EXTERIOR WALLS ARE 2X6 UNLESS NOTED OTHERWISE
5. INTERIOR WALLS ARE 2X4 UNLESS NOTED OTHERWISE
6. ALL CEILINGS ARE FLAT U.N.O.
7. APPLIANCES & FIXTURES SHOWN HAVE GENERIC SIZE VALUES. VERIFY ALL APPLIANCE & FIXTURE SIZES

SCALE: 1/4" = 1'-0"
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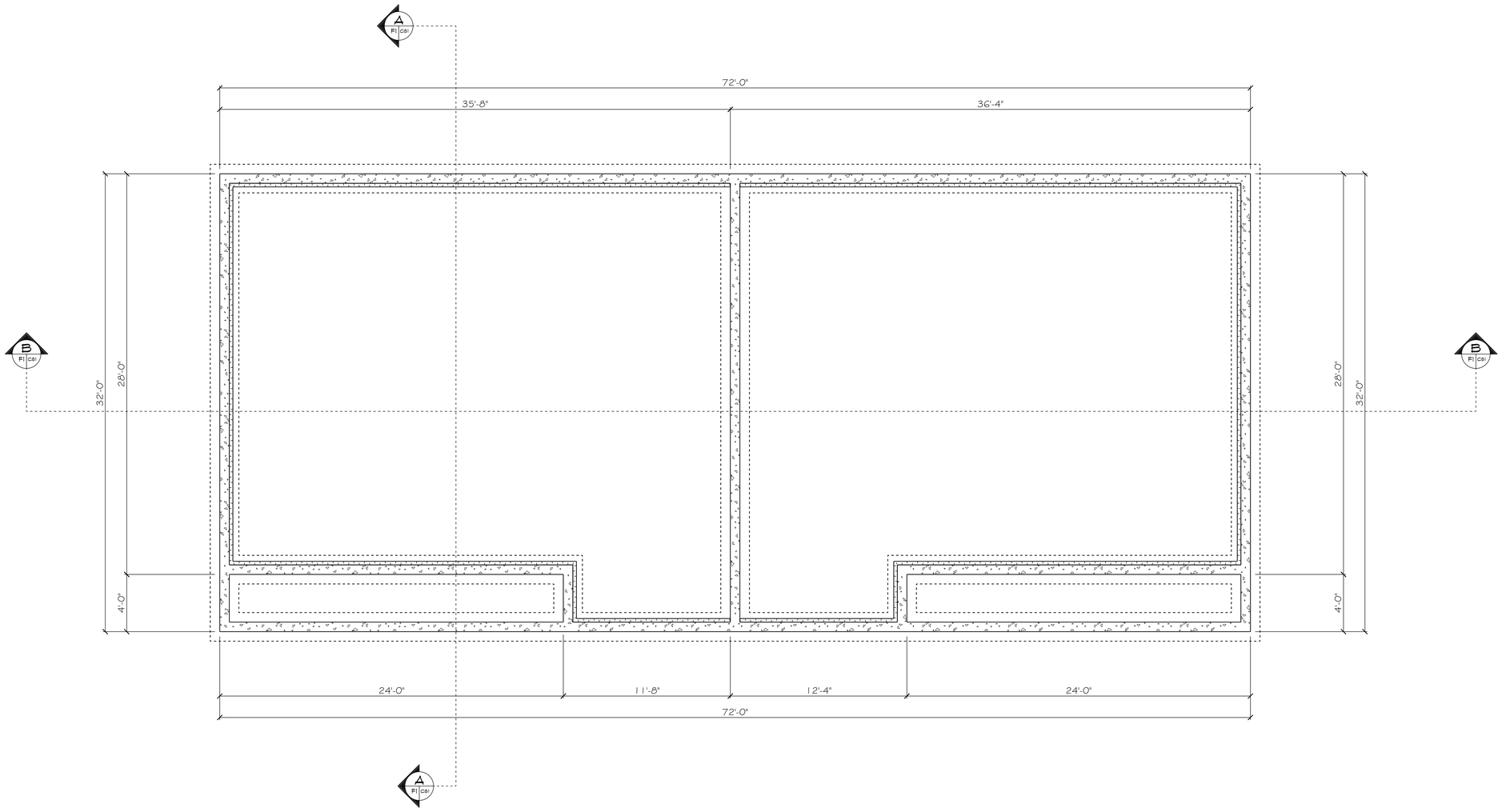

FROST WALL

SCALE: 1/4" = 1'-0"

NOTES:

1. ALL EXTERIOR WALLS ARE DIMENSIONED FROM THE OUTER SIDE OF FRAMING OR BEARING
2. ALL INTERIOR WALLS ARE DIMENSIONED FROM THE CENTER OF THE STUD
3. BEARING WALLS MAY BE DIMENSIONED TO CENTER OF STUD OR OUTER SIDE OF FRAMING
4. CONCRETE WALL THICKNESSES ARE 8" U.N.O.
5. ALL STUD WALLS ON CONCRETE TO HAVE PT BOTTOM PLATE
6. MIN. 4' CONCRETE WALL UNDER ALL WALKOUT BASEMENT STUD WALLS
7. EXTERIOR WALLS ARE 2X6 UNLESS NOTED OTHERWISE
8. INTERIOR WALLS ARE 2X4 UNLESS NOTED OTHERWISE
9. ALL FOOTING SIZES TO BE VERIFIED BASED ON SOIL BEARING CONDITIONS
10. CONCRETE STEPS IN WALKOUT/DAYLIGHT BASEMENT ARE SHOWN FOR ILLUSTRATIVE PURPOSES, VERIFY IN FIELD.

SCALE: 1/4" = 1'-0"
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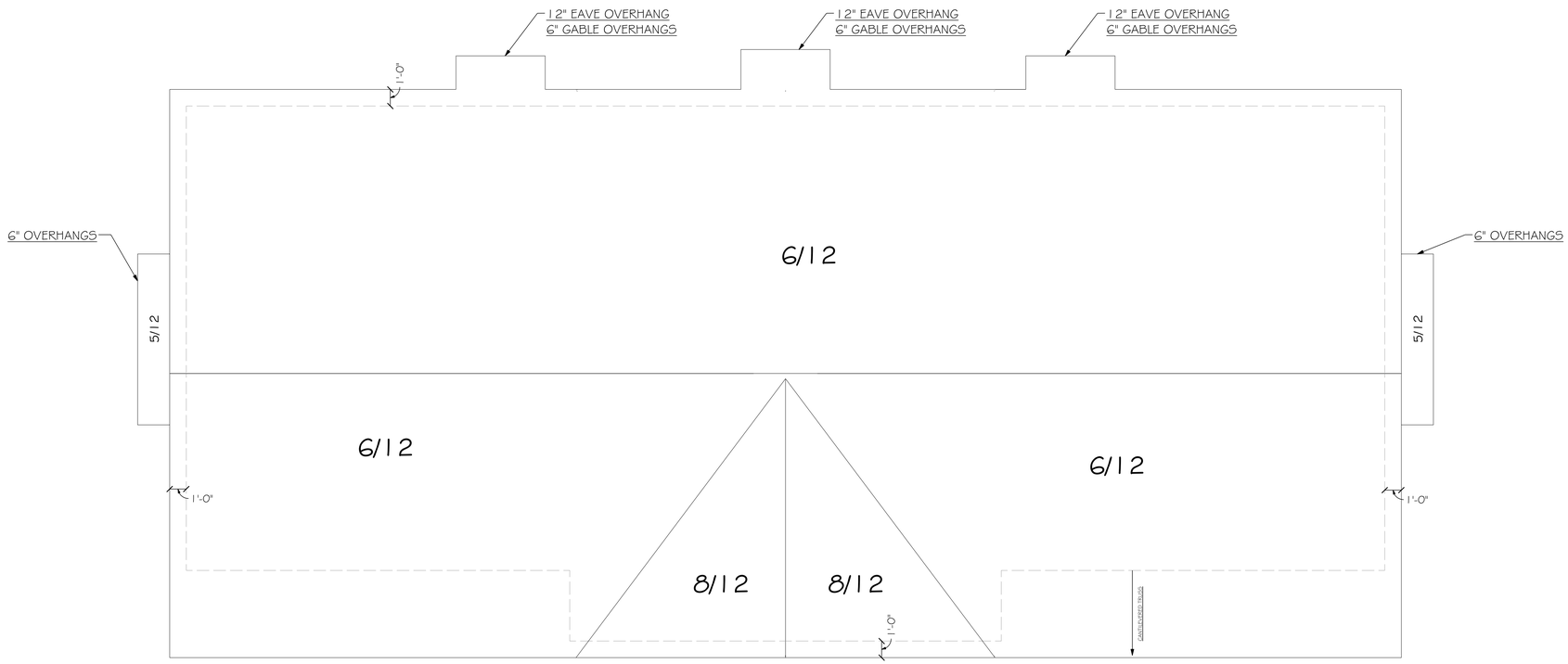

ROOF

SCALE: 1/4" = 1'-0"

NOTES:

1. ALL OVERHANGS 1'-0" U.N.O.
2. STANDARD FASCIA DEPTH IS 7 1/4"
3. IF NECESSARY, TRUSS DESIGNS TO BE RAISED HEEL TO ALLOW FOR INSULATION AS REQUIRED BY CODE

SCALE: 1/4" = 1'-0"
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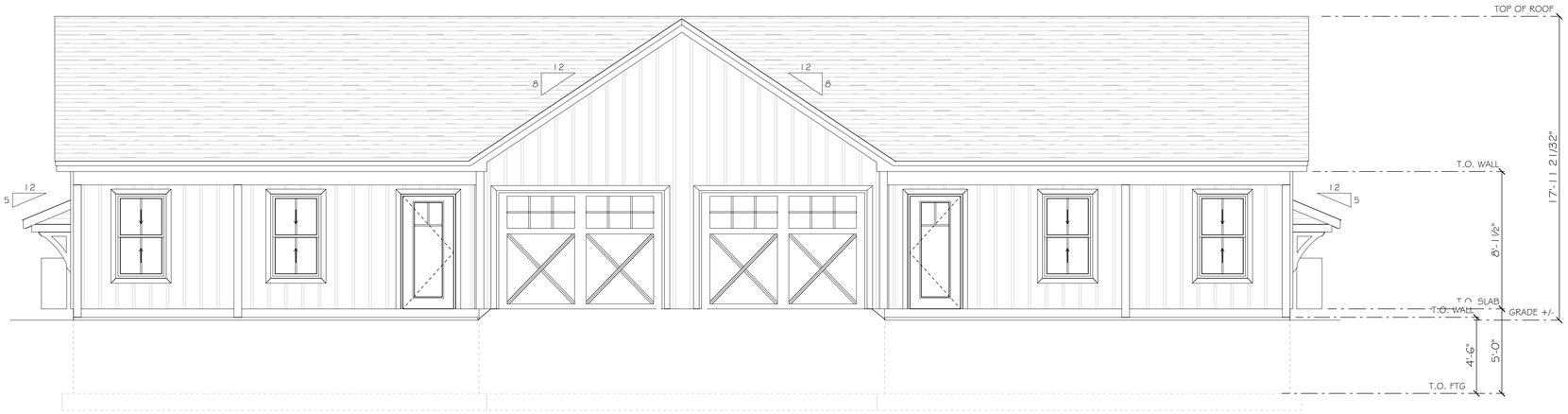
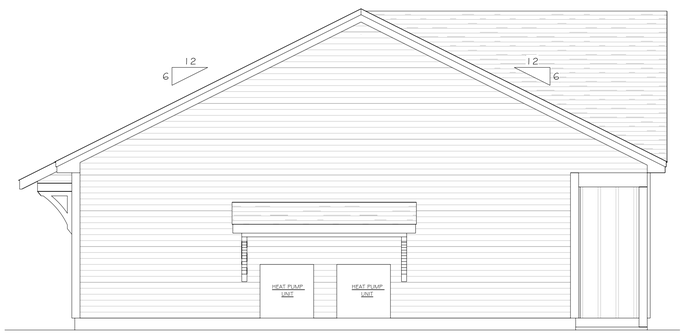


FRONT ELEVATION
SCALE: 1/4" = 1'-0"



LEFT ELEVATION
SCALE: 1/4" = 1'-0"

RIGHT ELEVATION
SCALE: 1/4" = 1'-0"

REAR ELEVATION
SCALE: 1/4" = 1'-0"

NOTES:
1. ELEVATIONS MAY NOT FULLY SHOW CONCRETE WALLS AND/OR FOOTINGS
2. DIMENSIONS TO RIDGE ARE TAKEN FROM TOP OF CONCRETE WALL U.N.O.
3. MAIN FLOOR HOUSE AND GARAGE WALL FRAMING WILL HAVE THE SAME TOP ELEVATION U.N.O.
4. VERIFY WINDOW SIZES, SHAPES, & GRILLE PATTERNS
5. TRAPEZIOD WINDOWS TO BE ORDERED AFTER OPENINGS HAVE BEEN FRAMED.
6. GARAGE DOORS, EXTERIOR DOORS, WINDOWS, AND VENTS SHOWN ARE FOR ILLUSTRATIVE PURPOSES. ACTUAL DOORS AND WINDOWS PER OWNER SELECTION.
7. CONCRETE BONDOUTS FOR GARAGE DOORS MAY VARY DEPENDING ON GRADE.

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CONSTRUCTION SPECIFICATIONS OVERVIEW

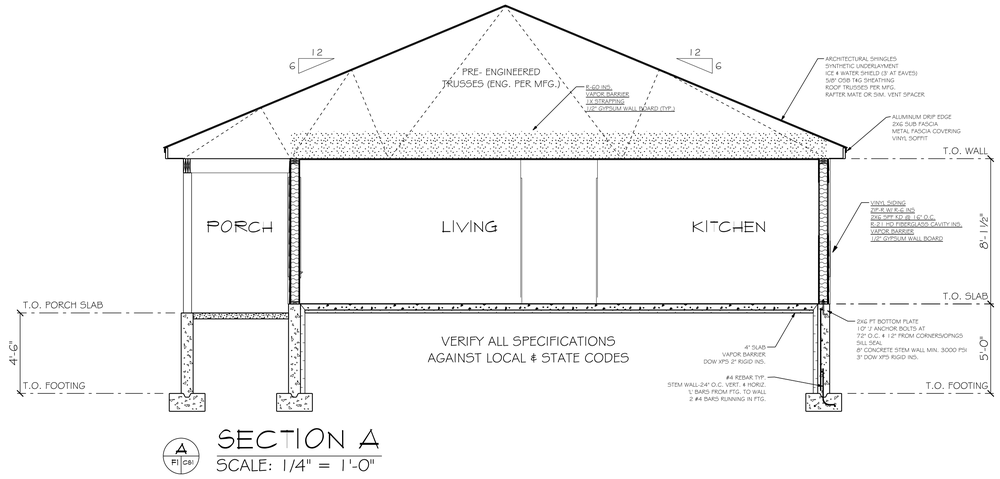
WALL HEIGHTS:
1ST FLR: 8'-1 1/2"
GARAGE: 8'-1 1/2"

WALL ASSEMBLY:
STUDS: 2x6 KD WALL (2X6 PT PL.)
SIDING 1: 4" HORIZ. CLAPBOARD,
SIDING 2: 5" EXP. CEDAR SHINGLES (GABLES)
SHEATHING: 7/16" ADVANTECH ZIP SYSTEM
CONTINUOUS INSULATION: R-5 MIN.
SPACING: 16" O.C.
CAVITY INS.: HD FIBERGLASS R-21
INT VAPOR BARRIER:
INT CLADDING: 1/2" GYPSUM WALL BOARD

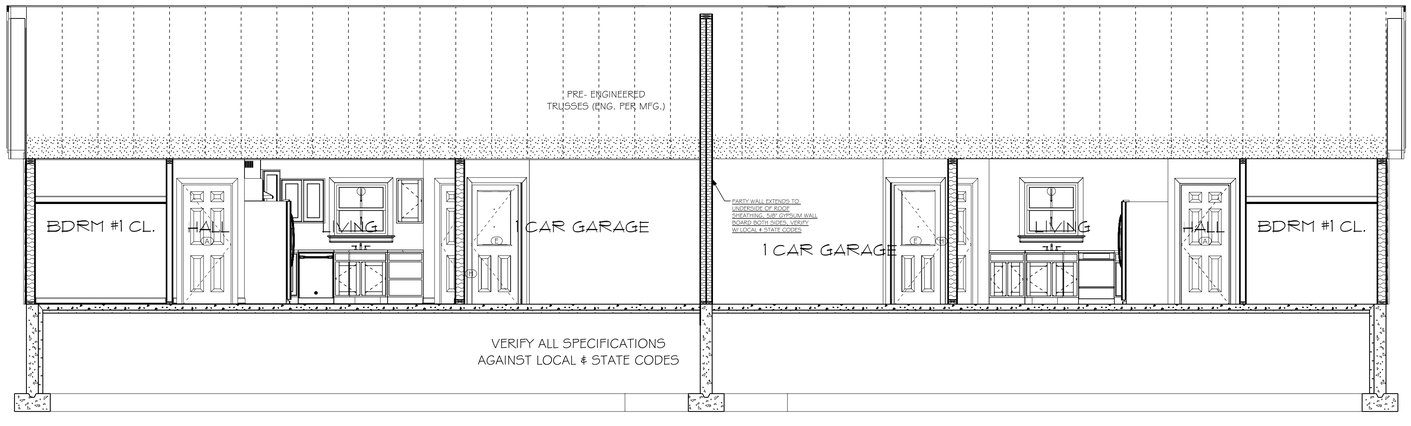
ROOF ASSEMBLY:
SYSTEM:PRE-ENGINEERED TRUSSES-
CLEAR SPAN & RAISED HEEL
SHEATHING: 5/8" T+G SHEATHING
INSULATION: R-49 (MIN.) BLOWN IN OR BATT INS.
VAPOR BARRIER:
STRAPPING: 1X3 STRAPPING
INT. CLADDING: 1/2" GYPSUM WALL BOARD

FOUNDATION:
WALL HEIGHT: 4' MIN. BELOW GRADE
WALL THICKNESS: 8"
WALL INS: 3" RIGID
FTG SIZE: 1'-0" H X 2'-0" W
SLAB THICKNESS: 4"
SLAB INS: 2" RIGID INS.

**NOTE: PLEASE REVIEW AND NOTIFY DESIGNER OF CHANGES IN SPECIFICATIONS PRIOR TO CONSTRUCTION



A / F1 / CS1 SECTION A
SCALE: 1/4" = 1'-0"



B / F1 / CS1 SECTION B
SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"
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INFORMATION CONTAINED ON THIS PAGE TO BE CONSIDERED
PRELIMINARY UNTIL SET IS DESIGNATED AS 'FINAL' OR 'ISSUED FOR PERMITTING'

AREA SCHEDULE

NAME	AREA
DECKS/PORCHES	96 sq ft.
UNIT A	1010 sq ft.
UNIT B	1010 sq ft.

REVISION SCHEDULE

VERSION	DATE	REVISION NOTE

EXTERIOR DOOR SCHEDULE

OPENING ID	COUNT	PRODUCT CODE	WIDTH	HEIGHT	HINGE	U-VALUE	SHGC	COMMENT
B	1	36X80 GLASS 1	3' 0"	6' 8"	L	0.290	0.160	
B	1	36X80 GLASS 1	3' 0"	6' 8"	R	0.290	0.160	
F	1	36X80 COLONIAL A 1	3' 0"	6' 8"	L	0.140	0.010	
C	2	36X80 DUTCH 1-No Grilles	3' 0"	6' 8"	L	0.310	0.400	
C	2	36X80 DUTCH 1-No Grilles	3' 0"	6' 8"	R	0.310	0.400	
J	2	120X84 STABLE	10' 0"	7' 0"	U	0.200	0.400	

INTERIOR DOOR SCHEDULE

OPENING ID	TYPE	COUNT	WIDTH	HEIGHT	HINGE	COMMENT
D	DOOR	4	5' 0"	6' 8"	LR	
E	DOOR	3	2' 8"	6' 8"	L	
E	DOOR	3	2' 8"	6' 8"	R	
G	DOOR	3	1' 6"	6' 8"	L	
G	DOOR	3	1' 6"	6' 8"	R	

WINDOW SCHEDULE

OPENING ID	PRODUCT CODE	COUNT	WIDTH	HEIGHT	EGRESS	U-VALUE	SHGC	COMMENT
1	MIDH 3050	6	2' 11¾"	4' 11¾"	Yes	0.270	0.290	
2	MIAWN 2020	2	2' 0"	2' 0"	No	0.240	0.240	

WINDOW, DOOR, & OPENING NOTES:

1. WINDOW BRAND & SERIES: MI 1556 SERIES
2. DOOR BRANDS & SERIES: THERMA TRU
3. ALL U-FACTORS & SHGC BASED ON PUBLISHED PERFORMANCE DATA. ACTUAL PERFORMANCE VALUES MAY VARY BASED ON SELECTIONS OF GLASS, GRILLES & OTHER OPTIONS.
4. ONLY NEW OPENINGS ARE CONTAINED IN SCHEDULE, EXISTING OPENINGS ARE NOT LISTED
5. VERIFY HINGE SIDES OF ALL DOORS AND CASEMENT WINDOWS PRIOR TO ORDERING.
6. WINDOW & DOOR INFORMATION WILL VARY BASED ON WINDOW LINE AND OPTIONS CHOSEN, VERIFY

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