Site Location of Development Permit Amendment

for

Construction of New T-Hangars and Taxilane

at the Auburn-Lewiston Municipal Airport

Town of Auburn, Maine

September 2024

Auburn-Lewiston Airport

Prepared for:
Town of Auburn
Auburn Lewiston Airport Authority
Auburn-Lewiston Municipal Airport
80 Airport Drive, Auburn, ME 04210

Prepared by:
McFarland-Johnson, Inc.
53 Regional Drive
Concord, New Hampshire 03301

McFarland Johnson

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Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE **FORM A PAGE 1**
ATS # _____
L-_____
Total Fees: _____
Date: Received _____

****

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.SA. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)	☐ **20 acre development** ☐ **Planning Permit** ☐ **Metallic Mining**	☐ **Marine Oil Terminal** ☐ **Structure** ☐ **Subdivision**	☐ **Major Amendment** ☒ **Minor Amendment**

1. Name of Applicant:	Auburn-Lewiston Municipal Airport	**6. Name of Agent (if applicable):**	John Gorham, McFarland Johnson
2. Applicant's Mailing Address:	80 Airport Drive, Auburn, ME 04210	**7. Agent's Mailing Address:**	53 Regional Drive, Concord, NH
3. Applicant's Daytime Phone #:	Jonathan LaBonte, 207-333-6601	**8. Agent's Daytime Phone # :**	603-225-2978
4. Applicant's Fax # (if available):		**9. Agent's Fax # (if available):**	
5. Applicant's *e-mail address* (REQUIRED -license will be sent via: e-mail):	j.labonte@auburnmaine.gov	**10. Agent's *e-mail address* (REQUIRED - license will be sent via e-mail):**	jgorham@mjinc.com

PROJECT INFORMATION

11. Name of Development:	Construct T-Hangars and Taxilane at Auburn-Lewiston Municipal Airport						
12. Map and Lot #'s:	**Map #:** 143	**Lot #:** 007	**13. Deed Reference #'s:**		**Book #:** 611	**Page #:** 459	
14. Location of Project City/Town:	Auburn	**15. County:**	Androscoggin	**16. UTM Northing**	44.05	**17. UTM Easting**	-70.28
18. Brief Description of Project including total parcel size:	Construct (3) 51'x220' T-Hangars and adjacent apron and taxilane pavement. Total LOD is approximately 231,605 SF						

19. Type of Direct Watershed: (Check all that apply)	☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming	☒ River, stream or brook ☐ Urban impaired stream ☐ Freshwater wetland	☐ Coastal wetland ☐ Wellhead or public water

20. Name of Waterbody Project Site drains to:	Proposed project site drains to an unnamed tributary of Moose Brook		
21. Amount of Developed Area:	Total acres: Approx. 627 AC	Existing Developed area: 627 AC acres	New Developed area: 0 acres
22. Amount of Impervious Area:	Total acres: Approx. 65.47 AC	Existing Impervious areas 63.43 acres	New Impervious area: 2.04 acres

23. Development started prior to obtaining a license?:	☐ **Yes** ☒ **No**		
24. .Development or any portion of the site subject to enforcement action?	☐ **Yes** ☒ **No**	**If yes**, name of enforcement staff involved?	
25. Common scheme of development?:	☒ **Yes** ☐ **No**	**26. Title, Right or Interest:**	☐ **own** ☐ **lease** ☐ **purchase option** ☐ **written agreement**
27. Natural Resources Protection Act permit required?:	☐ **Yes** ☒ **No**	**If yes:** ☐ **PBR** ☐ **Tier 1** ☐ **Full Permit** ☐ **Tier 2**	
28. Existing DEP Permit number (if applicable):	L-6634		
29. Names of DEP staff person(s) present at the pre-application meeting:	John Blais		
30. Does agent have an interest in project? If yes, what is the interest?	☐ **Yes** ☒ **No**		

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

CERTIFICATIONS / SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)"..

Signed:_____ Title_____Date:_____

Notice of Intent to Comply with Maine Construction General Permit	**With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed_____Date:_____**

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: _____

Name (print): _____

Date: _____

Re/Cert/Lic No.: _____

Engineer _____

Geologist_____

Soil Scientist _____

Land Surveyor _____

Site Evaluator _____

Active Member of the Maine Bar _____

Professional Landscape Architect _____

Other_____

FORM B

PUBLIC NOTICE:
NOTICE OF INTENT TO FILE

Please take notice that

Auburn-Lewiston Municipal Airport, Airport Manager's Office, 80 Airport Drive, Auburn ME 04210
(*Name, Address and Phone # of Applicant*)
207-786-0631

is intending to file a Site Location of Development Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 481 thru 490 on or about

September 6, 2024
(Anticipated Filing Date)

The application is for

Construct New T-Hangar and Taxilanes
(Description of the Project)

at the following location:

Auburn-Lewiston Municipal Airport
(*Project Location*)

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

For Federally licensed, permitted, or funded activities in the Coastal Zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. § 1456. (Delete if not applicable.)

The application will be filed for public inspection at the Department of Environmental Protection's office in (*Portland, Augusta or Bangor*)(circle one) during normal working hours. A copy of the application may also be seen at the municipal offices in Auburn, Maine and Lewiston, Maine.
(*Town*)

Written public comments may be sent to the regional office in Portland, Augusta, or Bangor where the application is filed for public inspection:

MDEP, Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103
MDEP, Eastern Maine Regional Office, 106 Hogan Road, Bangor, Maine 04401

FORM C

PUBLIC NOTICE FILING AND CERTIFICATION

The DEP Rules, Chapter 2, require an applicant to provide public notice for all Site Location projects with the exception of minor revisions and condition compliance applications. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of, if required, and held a public informational meeting in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 14, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on N/A.
Date

Approximately N/A members of the public attended the Public Informational Meeting.

Signature of Applicant or Authorized Agent

Date

FORM D

SUBMISSIONS CHECKLIST

If a provision is not applicable, put "NA"

Section 1. Development description

A. Narrative

X 1. Objectives and details

X 2. Existing facilities (with dates of construction)

B. Topographic map

X 1. Location of development boundaries

X 2. Quadrangle name

C. Construction plan

X 1. Outline of construction sequence (major aspects)

2. Dates

See Note D. Drawings Note: Some sheets are in draft form and will be submitted by 12pm on 9/12

X 1. Development facilities

X a. Location, function and ground area

X b. Length/cross-sections for roads

X 2. Site work (nature and extent)

X 3. Existing facilities (location, function ground area and floor area)

4. Topography

X a. Pre- and post-development (contours 2 ft or less)

X b. Previous construction, facilities and lot lines

X **Section 2. Title, right or interest** (copy of document)

Section 3. Financial capacity

X A. Estimated costs

B. Financing

X 1. Letter of commitment to fund

2. Self-financing

N/A a. Annual report

N/A b. Bank statement

3. Other

N/A a. Cash equity commitment

N/A b. Financial plan

N/A c. Letter

N/A 4. Affordable housing information

Section 4. Technical ability (description)

X A. Prior experience (statement)

X B. Personnel (documents)

Section 5. Noise

X A. Developments producing a minor noise impact (statement)

N/A 1. Residential developments

N/A 2. Certain non-residential subdivisions

N/A 3. Schools and hospitals

N/A 4. Other developments

N/A a. Type, source and location of noise

N/A b. Uses, zoning and plans

N/A c. Protected locations

N/A d. Minor nature of impact

N/A e. Demonstration
N/A B. Developments producing a major noise impact (full noise study)
N/A 1. Baseline
N/A a. Uses, zoning and plans
N/A b. Protected locations
N/A c. Quiet area
X 2. Noise generated by the development
N/A a. Type, source and location of noise
N/A b. Sound levels
N/A c. Control measures
N/A d. Comparison with regulatory limits
N/A e. Comparison with local limits

X **Section 6. Visual quality and scenic character**(narrative, description, visual impact analysis)

X **Section 7. Wildlife and fisheries** (narrative)

X **Section 8. Historic sites** (narrative)

X **Section 9. Unusual natural areas** (narrative)

Section 10. Buffers
X A. Site plan and narrative

Section 11. Soils
X A. Soil survey map and report
X 1. Soil investigation narrative
X 2. Soil survey map
X B. Soil survey intensity level by development type
1. Class A (High Intensity) Soil Survey
2. Class B (High Intensity) Soil Survey
3. Class C (Medium High-Intensity) Soil Survey
4. Class D (Medium Intensity) Soil Survey
See Note C. Geotechnical Investigation Note: Partially completed, will be completed later
X D. Hydric soils mapping

See Note **Section 12. Stormwater management** Note: In draft form, will be submitted by 12pm on 9/11
A. Narrative
X 1. Development location
X 2. Surface water on or abutting the site
X 3. Downstream ponds and lakes
X 4. General topography
X 5. Flooding
X 6. Alterations to natural drainage ways
X 7. Alterations to land cover
X 8. Modeling assumptions
9. Basic standard
X 10. Flooding standard
X 11. General standard
X 12. Parcel size
13. Developed area
14. Disturbed area
15. Impervious area
B. Maps
X 1. U.S.G.S. map with site boundaries
X 2. S.C.S. soils map with site boundaries
X C. Drainage Plans (a pre-development plan and a post-development plan)

X 1. Contours
X 2. Plan elements
X 3. Land cover types and boundaries
X 4. Soil group boundaries
X 5. Stormwater quantity subwatershed boundaries
X 6. Stormwater quality subwatershed boundaries
X 7. Watershed analysis points
X 8. Hydrologic flow lines (w/flow types and flow lengths labeled)
X 9. Runoff storage areas
X 10. Roads and drives
X 11. Buildings, parking lots, and other facilities
X 12. Drainage system layout for storm drains, catch basins, and culverts
X 13. Natural and man-made open drainage channels
X 14. Wetlands
N/A 15. Flooded areas
X 16. Benchmark
X 17. Stormwater detention, retention, and infiltration facilities
X 18. Stormwater treatment facilities
N/A 19. Drainage easements
X 20. Identify reaches, ponds, and subwatersheds matching stormwater model
N/A 21. Buffers

X D. Runoff analysis (pre-development and post development)
X 1. Curve number computations
X 2. Time of concentration calculations
X 3. Travel time calculations
X 4. Peak discharge calculations
X 5. Reservoir routing calculations

X E. Flooding Standard
N/A 1. Variance submissions (if applicable)
N/A a. Submissions for discharge to the ocean, great pond, or major river
N/A i. Map
N/A ii. Drainage plan
N/A iii. Drainage system design
N/A iv. Outfall design
N/A v. Easements
N/A b. Insignificant increase
N/A i. Downstream impacts
N/A
N/A c. Submissions for discharge to a public stormwater system
N/A i. Letter of permission
N/A ii. Proof of capacity
N/A ii. Outfall analysis and design (pictures)
N/A 2. Sizing of storm drains and culverts
N/A 3. Stormwater ponds and basins
N/A a. Impoundment sizing calculations
N/A b. Inlet calculations
N/A c. Outlet calculations
N/A d. Emergency spillway calculations
N/A e. Subsurface investigation report
N/A f. Embankment specifications
N/A g. Embankment seepage controls
N/A h. Outlet seepage controls
N/A i. Detail sheet
N/A j. Basin cross sections
N/A k. Basin plan sheet
X 4. Infiltration systems
X a. Well locations map
X b. Sand and gravel aquifer map
X c. Subsurface investigation report with test pit or boring logs

X d. Permeability analysis
X e. Infiltration structure design
X f. Pollutant generation and transport analysis
N/A g. Monitoring and operations plan
N/A i. Locations of storage points of potential contaminants
N/A ii. Locations of observation wells and infiltration monitoring plan
N/A iii. Groundwater quality monitoring plan
N/A 5. Drainage easement declarations.
X F. Stormwater quality treatment plan peak discharge calculations
X 1. Basic stabilization plan
X a. Ditches, swales, and other open channel stabilization
X b. Culvert and storm-drain outfall stabilization
X c. Earthen slope and embankment stabilization
X d. Disturbed area stabilization
N/A e. Gravel roads and drives stabilization

X 2. General Standard
X a. Calculations for sizing BMP
X b. Impervious area calculation
X c. Developed area calculation
X d. Summary spreadsheet of calculations

N/A 3. Phosphorus control plan
N/A a. Calculations for the site's allowable phosphorus export
N/A b. Calculations for determining the developed site's phosphorus export
N/A c. Calculations for determining any phosphorus compensation fees
N/A 4. Offset Credits
N/A a. Urban impaired stream
N/A Offset credit calculation
N/A b. Phosphorus credit determination
N/A i. Location map
N/A ii. Scaled plan
N/A iii. Title and right
N/A iv. Demolition plan
N/A v. Vegetation plan
N/A vi. Offset credit calculation
N/A vii. Calculation for the new allowable export
N/A 5. Runoff treatment measures
N/A a. structural measures
N/A i. Design drawings and specifications
N/A ii. Design calculations
N/A iii. Maintenance plan
N/A iv. TSS removal or phosphorus treatment factor determinations
N/A v. Stabilization plan
N/A b. Vegetated buffers
N/A i. Soil survey
N/A ii. Buffer plan
N/A iii. Turnout and level spreader designs
N/A iv. Deed restrictions
N/A 6. Control plan for thermal impacts to coldwater fisheries
N/A 7. Control plan for other pollutants
N/A 8. Engineering inspection of stormwater management facilities

X G. Maintenance of common facilities or property
X 1. Components of the maintenance plan
X A. Maintenance of facilities by owner or operator
X 1. Site owner or operator (name legally responsible party)
N/A 2. Contact person responsible for maintenance
X 3. Transfer mechanism

X 4. List of facilities to be maintained
X 5. List of inspection and maintenance tasks for each facility
N/A 6. Identifications of any deed covenants, easements, or restrictions
X 7. Sample maintenance log
N/A 8. Copies of any third-party maintenance contracts
N/A B. Maintenance of facilities by homeowner's association
N/A 1. Incorporation documents for the association
N/A 2. Membership criteria
N/A 3. Association officer responsible for maintenance
N/A 4. Establishment of fee assessment for maintenance work
N/A 5. Establishment of lien system
N/A 6. Reference to department order(s) in association charter
N/A 7. Transfer mechanism from developer to association
N/A 8. List of facilities to be maintained
N/A 9. Identification of any deed covenants, easements, or restrictions
N/A 10. Renewal of covenants and leases
N/A 11. List of inspection and maintenance tasks for each facility
N/A 12. Sample maintenance log
N/A 13. Copies of any third-party maintenance contracts
N/A C. Maintenance of facilities by municipality or municipal district
N/A 1. Identification of the municipal department or utility district
N/A 2. Contact person responsible for maintenance
N/A 3. Evidence of acceptance of maintenance responsibility
N/A 4. Transfer mechanism from developer
N/A 5. List of facilities to be maintained
N/A 6. List of inspection and maintenance tasks for each facility
N/A 7. Identifications of any deed covenants, easements, or restrictions
N/A 8. Sample maintenance log
N/A 2. General inspection and maintenance requirements
N/A a. Drainage easements
N/A b. Ditches, culverts, and catch-basin systems
N/A c. Roadways and parking surfaces
N/A d. Stormwater detention and retention facilities
N/A 1. Embankment inspection and maintenance
N/A 2. Outlet inspection and clean-out
N/A 3. Spillway maintenance
N/A 4. Sediment removal and disposal
N/A e. Stormwater infiltration facilities
N/A 1. Sediment protection plan
N/A 2. Infiltration rehabilitation plan
N/A 3. Sediment removal and disposal
N/A 4. Groundwater monitoring plan
N/A f. Proprietary treatment devices
N/A g. Buffers
N/A h. Other practices and measures

Section 13. Urban Impaired Stream Submissions

N/A 1. Off-site credits
N/A 2. Compensation fees (Urban Impaired Stream/Phosphorus)
N/A 3. Development impacts

Section 14. Basic Standards

X A. Narrative
X 1. Soil types
N/A 2. Existing erosion problems
N/A 3. Critical areas
N/A 4. Protected natural resources
X 5. Erosion control measures

X 6. Site stabilization
X B. Implementation schedule
X C. Erosion and sediment control plan
X 1. Pre-development and post-development contours
X 2. Plan scale and elements
X 3. Land cover types and boundaries
N/A 4. Existing erosion problems
N/A 5. Critical areas
N/A 6. Protected natural resources
X 7. Locations (general)
X 8. Locations of controls
X 9. Disturbed areas
10. Stabilized construction entrance
X D. Details and specifications (for both temporary and permanent measures)
X E. Design calculations
X F. Stabilization plan
X 1. Temporary seeding
X 2. Permanent seeding
X 3. Sodding
X 4. Temporary mulching
X 5. Permanent mulching
N/A G. Winter construction plan
N/A 1. Dormant seeding
N/A 2. Winter mulching
N/A H. Third-party inspections
N/A 1. Inspector's name, address, and telephone number
N/A 2. Inspector's qualifications
N/A 3. Inspection schedule
N/A 4. Contractor contact
N/A 5. Reporting protocol

Section 15. Groundwater

X A. Narrative
X 1. Location and maps
X 2. Quantity
X 3. Sources
X 4. Measures to prevent degradation
N/A B. Groundwater protection plan
N/A C. Monitoring plan
N/A 1. Monitoring points
N/A 2. Monitoring frequency
N/A 3. Background conditions
N/A 4. Monitoring parameters
N/A 5. Personnel qualifications
N/A 6. Proof of training
N/A 7. Equipment and methods
N/A 8. Quality assurance/quality control
N/A 9. Reporting requirements
N/A 10. Remedial action plan
N/A D. Monitoring well installation report
N/A 1. Well location map
N/A 2. Elevation data
N/A 3. Well installation data
N/A 4. Well construction details
N/A 5. Borehole logs
N/A 6. Summary of depth measurements
N/A 7. Characteristics of subsurface strata
N/A 8. Well installation contract

N/A 9. Schematic cross-sections
N/A 10. Monitoring point summary table
N/A 11. Protective casing
N/A 12. On-site well identification

Section 16. Water supply

X A. Water supply method
N/A 1. Individual wells (evidence of sufficient/healthful supply)
N/A a. Support of findings by well drillers
N/A b. Support of findings by geologist
N/A 2. Common well(s) (reports)
N/A a. Hydrogeology report
N/A b. Engineering report
N/A c. Well installation report
N/A d. Long-term safe yield and zone of influence determination
X e. Public water supply
N/A i. Proposed well or wells
N/A ii. Existing well or wells
N/A iii. Water quality analysis
N/A 3. Well construction in shallow-to-bedrock areas
N/A 4. Additional information
N/A 5. Off-site utility company or public agency
N/A 6. Other sources
N/A B. Subsurface wastewater disposal systems (locations of systems and wells)
X C. Total usage (statement re: total anticipated water usage)

Section 17. Wastewater disposal

N/A A. On-site subsurface wastewater disposal systems (investigation results)
N/A 1. Site plan
2. Soil conditions summary table
N/A 3. Logs of subsurface explorations
4. Additional test pits, borings or probes
N/A a. Soil conditions A
N/A b. Soils with Profiles 8 and 9 parent material
N/A c. Soil conditions D
N/A d. Disposal field length 60 feet or greater
N/A 5. 3-bedroom design
N/A 6. Larger disposal systems
a. System design details
N/A b. Plan view
N/A c. Cross sections
N/A d. Test pit data
N/A e. Mounding analysis
N/A B. Nitrate-nitrogen impact assessment
N/A 1. When required
N/A a. Exempted____
i. Conventional systems meeting certain setbacks
N/A ii. Denitrification systems
N/A b. Special conditions and other exemptions
N/A 2. Assumptions
N/A a. Initial concentration
N/A b. Background concentration
N/A c. Contribution from development
N/A d. Mixing and dilution
N/A e. Severe-drought scenario
N/A f. Wastewater flow to subsurface wastewater disposal fields

N/A 3. Assessment report minimum requirements
N/A a. Narrative and calculations
N/A b. Site plan
N/A i. Well locations
N/A ii. 10 mg/l and 8 mg/l isocons
N/A iii. Groundwater contours and groundwater flow divides
N/A c. References
N/A 4. Denitrification systems
N/A a. Design plans and specifications
N/A b. Installation information
N/A c. Monitoring plan
N/A d. Maintenance
N/A e. Backup system
X D. Municipal facility or utility company letter
N/A E. Storage or treatment lagoons

X **Section 18. Solid waste** (list: type, quantity, method of collection and location)
N/A A. Commercial solid waste facility (final disposal location)
X B. Off-site disposal of construction/demolition debris (final disposal location)
C. On-site disposal of woodwaste/land clearing debris
N/A 1. Applicability of rules (evidence re: applicability of rules)
2. Burning of wood wastes
N/A a. Delineation on site plan
N/A b. Plans for handling unburned woodwaste and woodash
N/A c. Evidence of capacity to accept waste (approved facility)
N/A d. Usage of materials
N/A e. Data on mixing ratios and application rates
N/A D. Special or Hazardous Waste

Section 19. Flooding
X A. Explanation of flooding impact
N/A B. Site plan showing 100-year flood elevation
N/A C. Hydrology analysis
N/A D. FEMA flood zone map with site boundaries

Section 20. Blasting
N/A A. Site Plan or map
N/A B. Report
1. Assessment
2. Blasting plan

Section 21. Air emissions (narrative and summary)
N/A A. Point and non-point sources identified
N/A B. Emission components (point sources)

Section 22. Odors
N/A A. Identification of nature/source
N/A B. Estimate of areas affected
N/A C. Methods of control)

N/A **Section 23. Water vapor** (narrative)

N/A **Section 24. Sunlight** (statement and drawing, if required)

Section 25. Notices
X A. Evidence that notice sent
X B. List of abutters for purposes of notice

Supplemental requirements for Wind Energy Developments only:

Section 26. Shadow flicker

N/A A. A copy of the Windpro Analysis and associated narrative

Section 27. Public Safety

N/A A. Design safety certifications or other documents attesting to the safety of the wind turbine equipment.
N/A B. Evidence pertaining to overspeed controls
N/A C. Site plan documenting safety setbacks zones for each wind turbine
N/A D. Other documents as necessary to demonstrate safety considerations

Section 28. Tangible Benefits

N/A A. Narrative demonstration of tangible benefits

Section 29. Decommissioning

N/A A. Description of implementation trigger for decommissioning
N/A B. Description of extent of decommissioning
N/A C. Itemization of total cost to complete decommissioning
N/A D. Demonstration of financial assurance for completeness of decommissioning plan

Section 30. Generating Facility-visual Quality and Scenic Character

N/A A. (narrative, description, visual impact analysis)

Section 1 – Development Description

Narrative

Objectives and Details

Auburn-Lewiston Municipal Airport (LEW or the Airport) is a public airport, constructed in 1935, that used to be used as a training facility for the US Navy, now it is a public use airport with private aircraft and hangar ownership. LEW is classified as a General Aviation Reliever Airport in the FAA National Plan of Integrated Airport Systems (NPIAS) and is untowered. LEW is owned by the cities of Auburn and Lewiston, occupies approximately 627 acres (AC), and is operated by the Auburn-Lewiston Airport Authority ("the Authority"). The LEW physical address is 80 Airport Drive, Auburn, Maine 04210, situated in the south-central region of Maine.

The following is a list of details of this Proposed Action:

- Construct a new 10-unit approximate dimensioned 51' x 220' T-Hangar in 2025.
- Construct two (2) additional T-hangars with same number of units and dimensions in the future.
- Construct paved aprons to support the T-Hangars.
- Construct the access taxilane for Taxiway/Taxilane Design Group 1B.[1]
- Construct access driveway off of Flight Line Drive.
- Construct incidental grading, stormwater drainage design, and taxilane marking for the proposed aprons and taxilanes.
- Install taxiway edge lighting and guidance signs at the intersection of the proposed taxilane and existing Taxiway A.

This Site Law permit amendment application includes the future development of two additional 10 unit T-hangers. Each T-hangar unit is approx. 51 ft x 220 ft with a max height of 17 ft 4 1/4 inches (in).

There is 79 ft separating the hangars based on the FAA taxilane object free area criteria[2]. The object free area criteria provides operating margin for the aircraft between the adjacent buildings. On the east side of the project there is approximately 30 ft from the proposed pavement to the airport property line along Flight Line Drive.

An access drive is proposed off Flight Line Drive to access the site. A gate will be installed within the new airport 8' tall with barb wire security fence that will be extended around the project site.

Airspace has been verified in this vicinity to allow for structures with height up to 65 ft.[3] A height well above the proposed hangar height.

[1] FAA Email Dated 7/30/24 entitled Forecast Review. From R.Nicosia-Rusin (FAA) to Laura Canham (MJ)
[2] FAA AC 150/5300-13B, Chg. 1, 8-16-2024, Table 4-1.
[3] 49 CFR Part 77.

Water and sewer for a restroom in each hangar is proposed. Electrical service from Central Maine Power is planned. A future communications conduit is planned to connect to the City and/or local communication provider network. Fire protection in the form of sprinklers is not required as the hangar will be under 12,000 square feet[4].

Existing Facilities

LEW currently has two runways, the primary is Runway 04-22, that is approximately 5,001 ft long by 100 ft wide, and a crosswind Runway 17-35, which is approximately 2,750 ft long and 75 ft wide. The current main taxiways are T/W-A, T/W-B, T/W-C, and T/W J. Currently there are 10 hangars located at the airport. LEW is proposing the construction of a new T-Hangar and the appropriate taxi lane, located to the south-south-west of existing hangars and the taxiway proposed to be perpendicular to T/W A to the proposed Hangar.

A topo map, Figure 1, has been provided at the end of this section.

Construction Plan

The proposed project, Construct New T-Hangar and Taxilanes, are currently in the permitting and design phase. The project is anticipated to bid in December 2024, and it is anticipated that the FAA Grant offer will arrive in June 2025. The construction start date for one (1) of the hangars is Fall 2025. There is no construction start date for the additional two (2) proposed hangars, however, its anticipated they would be constructed within 10 years.

The following construction sequence is anticipated:

- Fall 2025 – Construction Begins
  - Installation of erosion control measures
  - Pavement select material construction for the taxilane and aprons
  - Site utility installation
  - Drainage installation
  - Hangar foundations

- Spring 2026 – Construction within Taxiway A TOFA
  - Hangar building construction
  - Pavement hot-mix asphalt construction
  - Topsoiling/Seeding/Mulching
  - Pavement markings
  - Demobilization

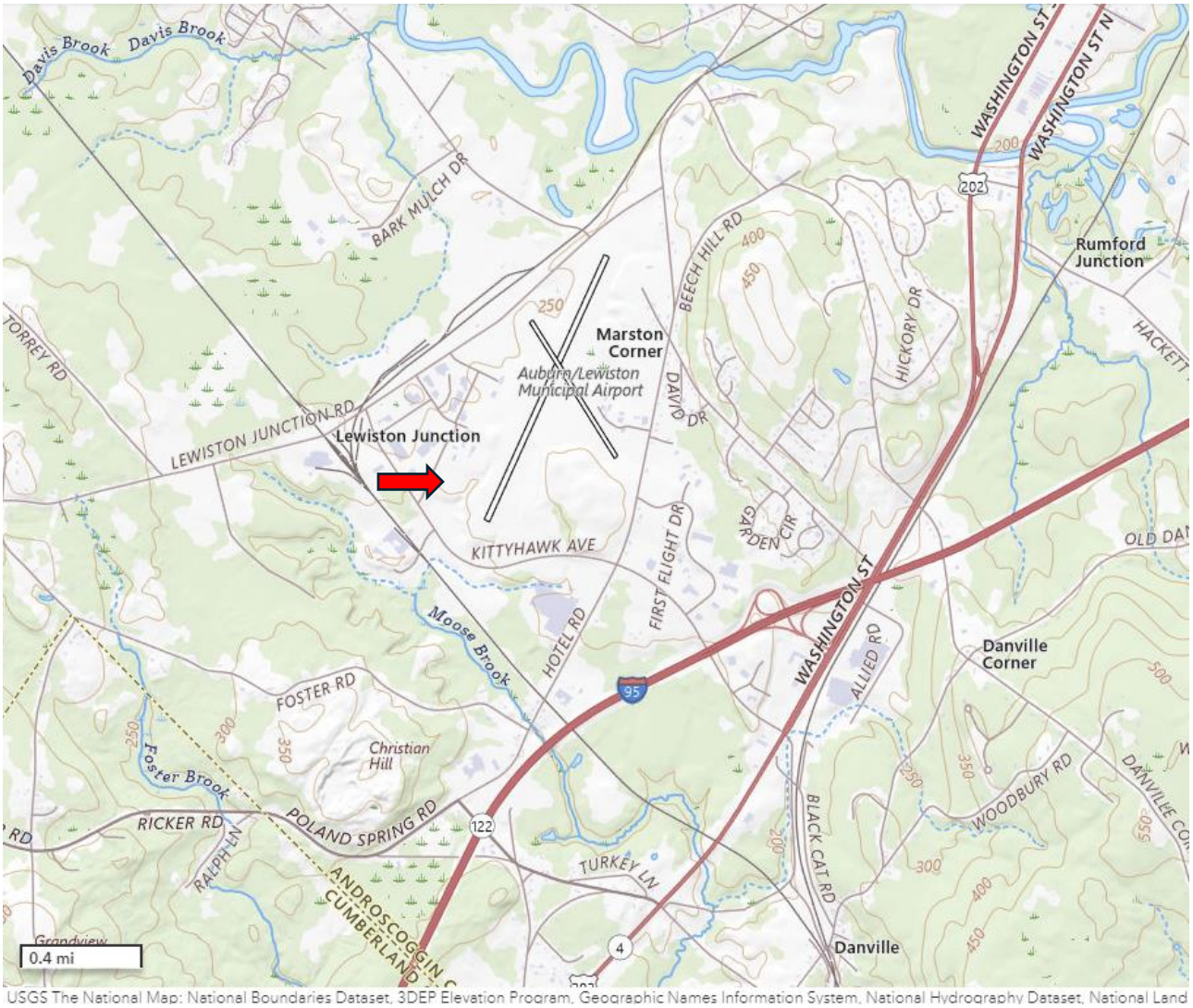
- Spring/Summer 2026 – Construction Complete

Drawing

Drawings and site plans have been provided at the end of this section.

[4] NFPA 409 Standard on Aircraft Hangars.

FIGURE 1- USGS 7.5-Minute Topographic Map (Project location depicted by arrow)



Section 2 – Title, Right, or Interest

There is no change the ownership of the property since the last permit application. This parcel is owned by the cities of Auburn and Lewiston under book/page 611/459.

KNOW ALL MEN BY THESE PRESENTS:

THAT, THE UNITED STATES OF AMERICA, acting by and through the WAR ASSETS ADMINISTRATOR, under and pursuant to Reorganization Plan One of 1947 (12 Fed. Reg. 4534), and the powers and authority contained in the provisions of the Surplus Property Act of 1944, as amended, and applicable rules, regulations and orders, party of the first part, in consideration of the assumption by the CITY OF AUBURN AND CITY OF LEWISTON, both being municipal corporations, in the State of Maine, party of the second part, of all the obligations and its taking subject to certain reservations, restrictions and conditions and its covenant to abide by and agree to certain other reservations, restrictions and conditions, all as set out hereinafter, does hereby remise, release, and forever quitclaim to the said CITIES OF AUBURN AND LEWISTON, their successors and assigns, under and subject to the reservations, restrictions and conditions, exceptions and reservation of fissionable materials and rights hereinafter set out, all right, title, interest and claim in and to the following described real, personal or mixed property situated in the County of Androscoggin, State of Maine, to wit:

Parcel One:

A certain parcel of land containing 436 acres more or less situated in said Androscoggin County bounded and described as follows:

Beginning at a point in the westerly line of the Hotel Road, so-called, 1642.98 ft. N. 11° 35' E. from the angle at station 97+ 53.44 ft. as defined by the Androscoggin (Maine) County Commissioners in a survey made by George H. Barron, June 2, 1933, minutes of which are recorded in the Clerk of the Courts Office, Commissioner Records. Said point being the same monument that marks the southeast corner of the right-of-way to the hangar as shown on a plan of the Lewiston-Auburn Airport made by George H. Barron and recorded in the Androscoggin County (Maine) Registry of Deeds, Book of Plans, Volume 2, Page 354; thence N. 11° 35' E. by said westerly line of the Hotel Road, 1496.19 ft. to an angle in said line; thence N. 11° 17' E. by the said westerly line of the Hotel Road 195.12 ft. to a point in said line marked by a concrete monument; said point being the intersection of the said westerly line of the Hotel road and the southerly line of Hardscrabble Road, so-called; thence N. 28° 7' W. by the said southerly line of Hardscrabble Road 125.42 feet; thence by land of Lucy A. Poland the following courses and distances, S. 82° 43' W. 159.65 ft. and N. 54° W. 113.38 ft; thence by lands of the City of Auburn, Alfred E. Pease and Ernest E. Pease, N. 25° 17' W. 625.45 ft; thence continuing by land of Ernest E. Pease, N. 64° 43' E. 200 ft. to a point in the southerly line of Hardscrabble Road; thence N. 26° 6' W. by the said southerly line of Hardscrabble Road 510.75 ft.

See B. 968 P. 767

See B. 3107 P. 172

See B. 2129 P. 57

See B. 2150 P. 335

See B. 2166 P. 108

See B. 2203 P. 89

See B. 2329 P. 271

See B. 2362 P. 18

See B. 2432 P. 5

See 2535 129

Section 3. Financial Capacity

A. Estimated Costs

Funding partnerships are anticipated to be $2.75M. The breakdown is as follows:

- FAA - Congressional Directed Spending (CDS) - $1,600,000
- Local (Airport) CDS 5% matching funds - $88,889
- MaineDOT CDS 5% matching funds - $88,889
- FAA - Bipartisan Infrastructure Law (BIL) - $879,000
- Local (Airport) BIL 5% matching funds - $48,833
- MaineDOT BIL 5% matching funds - $48,833

Construction cost estimates are under development for the project. The Airport will be selecting a project scope that meets the available funding.

B. Financing

B.1 Letter of commitment to fund

The FAA CDS funds were authorized in through legislation in 2021 but are contingent upon permitting. The FAA BIL funds are programmed but are contingent upon funds available. FAA does not provide letters of commitment. A grant offer is anticipated in June 2025 timeframe, upon when the LEW will submit documentation of viable funding as a condition of compliance to MaineDEP prior to starting work in 2025.

This project will not be awarded to a contractor without adequate funding readily available.

Section 4 – Technical Ability

The Auburn-Lewiston Municipal Airport has selected an aviation engineering and planning consultant through a qualifications-based selection process. McFarland Johnson is responsible for providing engineering design, permitting, construction administration and oversight services. A resident project representative will be dedicated to the project site throughout construction to monitor and report on contractor activity, including reviewing for compliance with permit requirements and design specifications.

Prior Experience

McFarland Johnson has worked on multiple projects in the State of Maine that directly relate to the design and construction phase services provided on this Construct New T-Hangar and Taxilanes project. McFarland Johnson completed a similar project at

- 2023 Eastern Slopes Regional Airport in Fryeburg, ME, Construct New Transient Hangar;
- 2022 Cape Cod Gateway Airport in Hyannis, MA, T-Hangar Replacement; and
- 2020 Brunswick Executive Airport in Brunswick, ME, Construct New Itinerant Box Hangar.

Personnel

Please see copies of personnel resumes attached.

Jordan Tate

Assistant Environmental Analyst

Jordan has extensive experience in environmental permitting for aviation and roadway transportation projects at local, state, and federal levels throughout Maine and New England. She has assisted in preparing NEPA documentation, biological assessments and essential fish habitat assessments, wetland delineations reports, and wildlife hazard assessments. Jordan has extensive experience in the field including wetland delineation, rare species survey, and stream assessment, as well as GIS and GPS capabilities to provide various mapping services for projects.

EXPERIENCE:

Construct New Transient Hangar, Eastern Slope Regional Airport, Fryeburg, Maine - Environmental analyst was responsible for performing an environmental inventory of resources within the project area, conducting rare species agency consultation and Section 106 consultation, and preparing state environmental permits. At Eastern Slope Regional Airport in Fryeburg, ME, MJ worked with the Airport Authority to construct a transient hangar. This project includes the development of alternatives, space programming, conceptual design of the alternatives, schematic design of the preferred alternative, grant coordination efforts, and project administration. *Project Owner: Eastern Slope Airport Authority*

Runway 15 Partial Parallel Taxiway & Runway 33 Bypass Taxiway, Belfast Municipal Airport, Belfast, Maine -- Environmental Analyst responsible for preparation of a Maine Natural Resource Protection Act (NRPA) Tier 3 permit application. Selected as a new consultant after the project was stalled by permitting, MJ provided stormwater design, wetland permitting, bidding, construction administration and resident engineering oversight on behalf of the City of Belfast. *Project Owner: City of Belfast, Maine*

MaineDOT - Design, Permit, Bidding for Reconstruct Mark, Light & Sign Taxiway C and Bypass, Augusta State Airport, Augusta, Maine - MJ was chosen to reconstruct the parallel taxiways which are the primary access from the GA and Terminal Apron to Runway 17/35. Project includes drainage inspection, review of geometric modification to standards, upgrade upgrading taxiway layout to FAA standards, coordination of project phasing to minimize impacts to the TSA and air service. Includes new lighting, signage and electrical homerun to vault. Compressed project schedule to obtain FAA MOS approvals, and MaineDEP stormwater permitting approvals. *Project Owner: State of Maine - Department of Transportation*

Taxiway A Reconstruction and New Electrical Vault, Robert LaFleur Airport, Waterville, Maine - The City of Waterville is proposing to reconstruct the full-length parallel Taxiway A, and portion of the associated partial stub taxiways at the Robert LaFleur, Waterville Airport (WVL). The MaineSASP has strategically identified Federal Aviation Administration (FAA) eligibility for aviation pavements statewide as a system threat. This project is intended to be submitted for FAA Airport Improvement Program (AIP) funding assistance and the City has tasked McFarland Johnson with design, permitting, and construction oversight of the proposed work. *Project Owner: City of Waterville*

EDUCATION:

BS / University of New England, Biddeford ME / Environmental Science / 2015
Specialized Training / Wildlife Acoustics / Using Kaleidoscope Pro for Bat Auto-ID (Intermediate) / 2021
Specialized Training / Wildlife Acoustics / Introduction to Kaleidoscope for Bat Analysis (Beginner) / 2020
Specialized Training / Maine Audubon / Steam-Smart Road Crossing Workshop, Phase II / 2018
Specialized Training / Maine Audubon / Stream-Smart Road Crossing Workshop, Phase I / 2018
Specialized Training / NHANRS / Vernal Pool Documentation Workshop / 2017
Specialized Training / Eagle Hill Institute / Wetland Identification, Delineation and Ecology Training / 2017

Matthew O'Brien, PE

Senior Consultant

Matt is experienced in the design and management of aviation improvements for municipal, quasi-municipal, and state airports. He understands both operations and infrastructure and he has worked on project scoping, permitting, design, construction oversight, and facility inspection. Matt has developed design reports, contract drawings, specifications, and cost estimates for projects ranging from runway extensions and relocations to taxiway and apron modifications and improvements. His experience includes airports throughout New England from small general aviation facilities like Fryeburg, ME to large commercial facilities like Bradley International in Hartford, CT. He is proficient in the use of AutoCAD Civil 3D, HydroCAD, StormCAD, and AutoTurn.

EXPERIENCE:

Design, Permitting, and Bidding of the New Transient Hangar, Eastern Slope Regional Airport, Fryeburg, Maine -- Project Manager responsible for overall project management including adherence to schedule, coordinating with the architect, and providing support to receive funding. At Eastern Slope Regional Airport in Fryeburg, ME, MJ worked with the Airport Authority to construct an FBO style corporate hangar. This project includes the development of alternatives, space programming, conceptual design of the alternatives, schematic design of the preferred alternative, grant coordination efforts, and project administration. We helped the Authority put together a funding package that includes a Northern Borders Regional Commission grant for $450,000, an Economic Development Administration grant for $800,000, an FAA grant for $300,000, and a USDA Grant and loan that covered project cashflow. We coordinated the joint funding from MaineDOT and NHDOT, along with smaller local endowments. Innovative funding allowed this hangar project to become a reality. *Project Owner: Eastern Slope Airport Authority*

Construction of New Transient Hangar, Eastern Slope Regional Airport, Fryeburg, Maine, Fryeburg, Maine -- Project Manager responsible for the oversight of all design, permitting, bidding and construction administration. McFarland Johnson developed a strength, weakness, opportunity, and threat (SWOT) analysis of the airfield and determined a transient hangar development would assist the airfield in meeting their strategic initiatives. MJ reviewed available funding sources in the State of Maine and developed a marketable document to gain consensus from both Maine and New Hampshire Department of Transportation; the North Country Council (NH) and Southern Maine Planning and Development Commission (Council of Governments enabled by state statutes); along with political support. This strategic plan led to two separate grant awards from Northern Borders Regional Commission at the maximum value of $250,000 each from Maine and New Hampshire. As a fiscally constrained project, the previous permit approval authorized removal of concrete apron with a construction price tag of approximately $400,000 along with implementation of high-priced proprietary treatment mechanisms. MJ re-permitted the hangar using low-impact development Best Management Practices (BMPs), and due to the extensive knowledge of Urban Impaired Stream mitigation, properly categorized pollutant loading of various impervious areas to completely eliminate the need of the $400,000 expense. *Project Owner: Eastern Slope Airport Authority*

Runway 15 Partial Parallel Taxiway & Runway 33 Bypass Taxiway, Belfast Municipal Airport, Belfast, Maine -- Project Manager responsible for oversight of all design, permitting, bidding and construction administration. Selected as a new consultant after the project was stalled by permitting, MJ provided stormwater design, wetland permitting, bidding, construction administration and resident engineering oversight on behalf of the City of Belfast. *Project Owner: City of Belfast, Maine*

MaineDOT - Design, Permit, Bidding for Reconstruct Mark, Light & Sign Taxiway C and Bypass, Augusta State Airport, Augusta, Maine -- Project Manager MJ was chosen to reconstruct the parallel taxiways which are the primary access from the GA and Terminal Apron to Runway 17/35. Project includes drainage inspection, review of geometric modification to standards, upgrade upgrading taxiway layout to FAA standards, coordination of project phasing to minimize impacts to the TSA and air service. Includes new lighting, signage and electrical homerun to vault. Compressed

project schedule to obtain FAA MOS approvals, and MaineDEP stormwater permitting approvals. *Project Owner: State of Maine - Department of Transportation*

MaineDOT - Construction Support for Reconstruction of Taxiway C and E and Bypass Taxiway, Augusta State Airport, Augusta, Maine -- Project Manager The Reconstruction of Taxiway E, Taxiway C, and the Bypass Taxiway Project consisted of approximately 2,000 LF of reclaimed pavement at the Augusta State Airport in Augusta, Maine. McFarland Johnson provided the construction support services including shop drawing review, RFI responses, and construction inspection for a period of sixty calendar days. During construction, new underdrain, LED lights, and airport guidance signs were installed. The project also excelled in working efficiently within the main Runway 17-35's Safety Area while minimizing disruptions to daily airport operations. *Project Owner: State of Maine - Department of Transportation*

New Itinerant Box Hangar, Brunswick Executive Airport, Brunswick, Maine -- Project Manager responsible for overall project management, coordination with client, and design. MJ worked with the Airport to construct a new 15,800 sq. ft. hangar. MJ provided an alternative approach to Urban Impaired stormwater permitting saving approximately $400k, completed the final design, and provided construction administration services. *Project Owner: Midcoast Regional Redevelopment Authority*

Taxiway A Reconstruction and New Electrical Vault, Robert LaFleur Airport, Waterville, Maine -- Project Manager The City of Waterville is proposing to reconstruct the full length parallel Taxiway A, and portion of the associated partial stub taxiways at the Robert LaFleur, Waterville Airport (WVL). The MaineSASP has strategically identified Federal Aviation Administration (FAA) eligibility for aviation pavements statewide as a system threat. This project is intended to be submitted for FAA Airport Improvement Program (AIP) funding assistance and the City has tasked McFarland Johnson with design, permitting, and construction oversight of the proposed work. *Project Owner: City of Waterville*

EDUCATION:

BS / Roger Williams University / Civil Engineering / 2007
Certificate / U.S. Environmental Protection Agency Construction General Permit Site Inspector Training / 2023
Certificate / OSHA / OSHA 10-Hour Training / 2019

Sydney Seney, PE
Senior Engineer

Sydney has more than five years of experience in the design of a variety of civil engineering projects for general assignments throughout New England and the Mid Atlantic. In her time at McFarland-Johnson, she has been involved with multiple vertical and horizontal aviation projects including hangars, taxiways, runways, and signage. Throughout these projects, Sydney has gained experience with both the design and construction process. She is proficient in AutoCAD Civil 3D and has experience with the programs Microstation and SignCAD. During the construction process, Sydney has written and reviewed numerous Request for Proposals, reviewed shop drawing submittals, completed field revisions to plans, and created As-Built plans after construction.

EXPERIENCE:

Design, Permitting, and Bidding of the New Transient Hangar,, Eastern Slope Regional Airport, Fryeburg, Maine -- At Eastern Slope Regional Airport in Fryeburg, ME, MJ worked with the Airport Authority to construct an FBO style corporate hangar. This project includes the development of alternatives, space programming, conceptual design of the alternatives, schematic design of the preferred alternative, grant coordination efforts, and project administration. We helped the Authority put together a funding package that includes a Northern Borders Regional Commission grant for $450,000, an Economic Development Administration grant for $800,000, an FAA grant for $300,000, and a USDA Grant and loan that covered project cashflow. We coordinated the joint funding from MaineDOT and NHDOT, along with smaller local endowments. Innovative funding allowed this hangar project to become a reality. *Project Owner: Eastern Slope Airport Authority*

Construction of New Transient Hangar, Eastern Slope Regional Airport, Fryeburg, Maine, Fryeburg, Maine -- Resident Engineer responsible for construction, inspection, and support including shop drawings and field changes. McFarland Johnson developed a strength, weakness, opportunity, and threat (SWOT) analysis of the airfield and determined a transient hangar development would assist the airfield in meeting their strategic initiatives. MJ reviewed available funding sources in the State of Maine and developed a marketable document to gain consensus from both Maine and New Hampshire Department of Transportation; the North Country Council (NH) and Southern Maine Planning and Development Commission (Council of Governments enabled by state statutes); along with political support. This strategic plan led to two separate grant awards from Northern Borders Regional Commission at the maximum value of $250,000 each from Maine and New Hampshire. As a fiscally constrained project, the previous permit approval authorized removal of concrete apron with a construction price tag of approximately $400,000 along with implementation of high-priced proprietary treatment mechanisms. MJ re-permitted the hangar using low-impact development Best Management Practices (BMPs), and due to the extensive knowledge of Urban Impaired Stream mitigation, properly categorized pollutant loading of various impervious areas to completely eliminate the need of the $400,000 expense. *Project Owner: Eastern Slope Airport Authority*

MaineDOT - Design, Permit, Bidding and Construction for Reconstruct Mark, Light & Sign Taxiway C and Bypass, Augusta State Airport, Augusta, Maine -- Both Project Engineer and Resident Engineer responsible for design tasks and construction, inspection, and support including shop drawings and field changes. MJ was chosen to reconstruct the parallel taxiways which are the primary access from the GA and Terminal Apron to Runway 17/35. Project includes drainage inspection, review of geometric modification to standards, upgrade upgrading taxiway layout to FAA standards, coordination of project phasing to minimize impacts to the TSA and air service. Includes new lighting, signage and electrical homerun to vault. Compressed project schedule to obtain FAA MOS approvals, and MaineDEP stormwater permitting approvals. McFarland Johnson provided the construction support services including shop drawing review, RFI responses, and construction inspection for a period of sixty calendar days. During construction, new underdrain, LED lights, and airport guidance signs were installed. The project also excelled in working efficiently within the main Runway 17-35's Safety Area while minimizing disruptions to daily airport operations. *Project Owner: State of Maine - Department*

of Transportation

Taxiway A Reconstruction and New Electrical Vault, Robert LaFleur Airport, Waterville, Maine - - Senior Project Engineer who led and delegated for the deliverance of each design submission, brought both the planset and specifications to bid, completed the bid opening process, and all the pre-construction administration. The City of Waterville is proposing to reconstruct the full-length parallel Taxiway A, and portion of the associated partial stub taxiways at the Robert LaFleur, Waterville Airport (WVL). The MaineSASP has strategically identified Federal Aviation Administration (FAA) eligibility for aviation pavements statewide as a system threat. This project is intended to be submitted for FAA Airport Improvement Program (AIP) funding assistance and the City has tasked McFarland Johnson with design, permitting, and construction oversight of the proposed work. *Project Owner: City of Waterville*

EDUCATION:

BS / University of Maine, Orono / Civil Engineering / 2018
Certificate / OSHA / OSHA 10-Hour Training / 2018

John Gorham, PE
Project Manager

John has more than 32 years of experience in the design of a variety of civil engineering projects. His time includes 7 years designing and constructing buildings, 2-years constructing landfills and 23-years design and constructing airport improvements.

Pease Development Authority - Snow Removal Equipment Purchase, Rochester, NH. Project Manager. John supported the Authority with equipment justification, specification development, bidding, and procurement of a self-propelled rotary snowplow for the Skyhaven Airport. The equipment justification was developed in accordance with FAA Advisory Circular 150/5220-20 *Airport Snow and Ice Control Equipment*. The calculations considered the airport's operations and snow removal requirements. Specifically, how far the snow needed to be 'thrown' over open pavement areas. Utilizing the SAE ARP equipment specifications as two-stage high-speed rotary plow was procured.

Concord Municipal Airport – Environmental Assessment Future Projects, Concord, NH. Project Manager. The airport is home to the federally endangered Karner Blue Butterfly. The environmental assessment considered seven (7) of the airport's CIP projects. John led the project's environmental survey and planning teams. He conducted extensive coordination with the US Fish & Wildlife, the NH Fish & Game and the NH Department of Natural and Cultural Resources. The project resulted in a 7-acre habitat mitigation site on nearby City property to offset the habitat 'take' from the proposed developments. John's efforts resulted in the FAA issuing a FONSI for over 10-years of projects at the airport.

Hartness State Airport – Reconstruct Runway 5-23, Springfield, VT. Principle Engineer. John supported the project team during the project definition and scoping phase. Challenged by the FAA's runway length analysis, John supported the project team in analysis of the runway length for the critical aircraft takeoff and landing distances per FAA Advisory Circular 150/5325-4 *Runway Length Requirements for Airport Design*. John provided guidance to the project manager in development of the preliminary design and permitting scope of work. John's background in retaining wall and reinforced steep slope construction was instrumental in defining options for the property constrained Runway 5 development. John provided guidance to the project team on runway line-of-sight profile correction, environmental permitting and construction phasing considering the use of the crosswind Runway 11-29 during construction.

Morrisville-Stowe State Airport – Runway 1-19 Paved Safety Areas, Morrisville, VT. Principle Engineer. As principle engineer, John conducted quality assurance reviews for the permitting and construction bid documents. The project extended Runway 1 by 400' and Runway 19 by 265'. Wetland impacts on the Runway 1 were mitigated with a retaining wall while maintaining the safety area required by FAA Advisory Circular 150/5300-13B *Airport Design*. The runway project construction was coordinated with a simultaneous Phase 1 1,370' extension of Taxiway A. John was instrumental in supporting quality assurance reviews of the integration of these 2 projects. The additional impervious pavements from the projects were managed with an underground infiltration system within the infield.

EDUCATION:

BS / University of New Hampshire/ Civil Engineering / 1991
MS / University of Massachusetts/ Civil Engineering/ 2001

Section 5 – Noise

Existing Conditions

FAA does not require noise analysis, and projects are presumed to conform to FAA noise standards, for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations).[1]

The project will serve Design Group I aircraft (wingspan less than 49 feet) as the hangar door widths range from 41.5' to 49'. Per the FAA's aircraft database, aircraft in Design Groups higher than Group I have a length longer than the 25' length of the T-hangar units.[2] Therefore, this project should not have aircraft higher than Design Group I.

While this is not a NEPA document as referenced in the FAA 1050.1F citation above, the period used in this evaluation is 2024-2034. The 2034 high growth operations forecast referenced from the current 2024 Master Plan is 37,560 propeller (combined piston and turbine) operations far below the 90,000 total annual operations referenced by the FAA as a threshold requiring a noise study. This project would add a maximum of thirty (30) propeller aircraft assuming all three (3) T-hangars are developed with 10 units per T-hangar. Thirty (30) aircraft operating at a high estimate of four (4) operations per day would add an additional 43,800 annual operations. The 43,800 estimate plus the 2034 estimate of 37,560 propeller operations would result in 81,360 annual propeller operations. Below the FAA propeller threshold for a noise analysis.

Jet operations (according to the TFMSC) were 494 in 2024. Using the FAA's Aerospace Forecast itinerant aircraft operations growth of 0.6%, the 700 annual jet operations will not be met within the next 20-yeasr planning period. The proposed project's T-hangars will not add jet operations based on the hangar size not accommodating jet aircraft.

The Airport is generally located in an industrial area where the nearest residential area on Hotel Road is over ½-mile from the project area. Adjacent to the project site are existing hangars serving similar aircraft. Therefore no increase to the noise intensity will result from the project.

Impacts

Noise impacts associated with the Proposed Action are expected to be insignificant. As described above, the type of propeller aircraft the project will attract will be the same as the existing adjacent hangar, the number of operations being less than the FAA threshold for a noise study, the distance to nearest residences and the industrial use of parcels adjacent to the project.

[1] FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, Appendix B, Paragraph B-1 Noise and Noise-Compatible Land Use

[2] Aircraft Characteristics Data | Federal Aviation Administration (faa.gov)

Mitigation

As noise impacts associated with the proposed action are expected to be insignificant, there are no proposed noise abatement measures.

Section 6 – Visual Quality and Scenic Character

Existing Conditions

Auburn is located within south-central Maine, which is part of the Central Maine Embayment level IV ecoregion, characterized by rolling plains with some hills, numerous lakes and ponds, and some large river valleys. Streams and rivers in this region are typically low to moderate gradient with gravel, cobble, boulder, and bedrock substrates.

The Airport itself is generally located on a gently sloping topography, with the highest point of the Airport between Runway 35 and Runway 4, which sits approximately 60 to 70 feet above the runways. There are multiple wetlands that are mapped and have been observed on Airport property, primarily in the northern half, north of Runway 17-35, and in the southwestern corner.

The visual landscape, for viewer groups on the ground, is dominated by airport land uses, including the paved surfaces like the runway, taxiway, and aprons, wide swaths of turf, the terminal building, and hangars. The remaining visual setting on Airport is predominantly a mix of shrub and forested landscape.

The majority of land immediately surrounding the airport consists of residential development to the east, Kittyhawk Avenue and commercial and industrial development to the south, Lewiston-Junction Road, and the Airport business park to the west, and residential and commercial development to the north. The Little Androscoggin River flows west to east approximately 350 feet north of the Airport, under Hotel Road. The Airport is located within the city's Industrial Zone.

Impacts

The proposed hangar will be approximately 18 feet tall and have exterior lighting. The change in light emissions associated with the project is expected to be insignificant and would not affect any abutting properties. Each hangar will have exterior lighting with wall packs. Lights will shine on the pavement. Exterior lighting will be activated by motion sensors during low light conditions. The height of the hangar is similar to other structures in the immediate vicinity and will not result in significant visual changes for nearby properties.

Mitigation

As visual impacts associated with the proposed action are expected to be insignificant, there are no proposed mitigation measures.

Section 7 – Wildlife and Fisheries

Existing Conditions

The potential occurrence of federally listed threatened and endangered species within the study area was evaluated using the USFWS Information for Planning and Conservation (IPaC) online system. The IPaC official species list indicates the proposed federally endangered tricolored bat (*Perimyotis subflavus*) and candidate species monarch butterfly (*Danaus plexippus*) have the potential to occur within the project area. The USFWS has proposed to list the tricolored bat as endangered under the ESA. A final determination regarding listing the tricolored bat is anticipated in fall 2024. If the tricolored bat is listed as endangered, consultation with USFWS would be required for any proposed impacts to tricolored bat habitat. Avoidance and minimization measures may need to be incorporated into the project for the tricolored bat if it is listed under the ESA. The USFWS will review the monarch's status each year until resources are available to begin developing a proposal to list the monarch as threatened or endangered under the ESA.

The study area was reviewed for potential occurrence of State-listed endangered or threatened species and species of special concern (ETSC) by the Maine Department of Inland Fisheries and Wildlife (MDIFW). An initial project review letter was provided by MDIFW on January 5, 2024, which listed upland sandpiper (*Bartramia longicauda*), a state threatened species, as having been historically documented in the project area. MDIFW recommended construction occur between September 1 and May 1, or alternatively, a site survey during breeding season (May through June) to determine if there is evidence of upland sandpiper activity. If no activity is documented, construction can begin once surveys are complete.

Impacts

Impacts to fisheries and wildlife can be the result of direct harm or take of a species or indirectly through harassment and other adverse actions. The Proposed Action will not result in the direct harm or take of any federally or state protected wildlife or fisheries, and therefore, this impacts analysis focuses on indirect impacts to rare species.

Upland Sandpiper

Upland sandpipers require large fields (preferably greater than 150 acres), with open shortgrass areas such as blueberry barrens, meadows, pastures, hayfields, fallow agricultural fields, and airports. They occasionally breed in bogs and open peatlands. They prefer a mix of short and tall (less than 24-inch) grass interspersed with patches of bare ground. Fence posts, if available, are used for singing perches. The birds avoid fields with uniform coverage of dense grass and legumes, or a thick layer of dead vegetation. They will use fields dominated by bunchgrasses or lowbush blueberry.

The total area of proposed disturbance is approximately 4.68 acres. Habitat within the project area consists of a gravel parking lot, areas of stockpiled sand and gravel, and areas of grasses and forbs ranging from 6 inches to 2 feet tall intermixed with exposed areas of sandy soils. Given the potential for upland sandpipers to occur on Airport, and the potentially suitable habitat within the project area,

to avoid unintentional take, a grassland bird survey will be performed at the beginning of breeding season, which begins May 1, to determine if there is evidence of upland sandpiper activity within the project area. If no upland sandpiper activity is documented, construction may begin and/or resume. However, if sandpipers begin nesting during construction, construction activities may not be able to proceed until the breeding season is over (September 1).

Avoidance and Minimization

A grassland bird survey will be conducted at the beginning of breeding season to determine if there is evidence of upland sandpiper activity within the project area.

Mitigation

The Proposed Action will not adversely affect wildlife and fisheries, therefore, compensatory mitigation is not anticipated for state-listed threatened or endangered species, or species of special concern.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588

In Reply Refer To: 08/22/2024 19:59:52 UTC
Project Code: 2024-0127208
Project Name: Auburn-Lewiston Municipal Airport CDS Hangar(s)

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

PROJECT SUMMARY

Project Code: 2024-0127208
Project Name: Auburn-Lewiston Municipal Airport CDS Hangar(s)
Project Type: Airport - New Construction
Project Description: In general, the proposed Project includes the potential construction of one or more T-hangars (10-unit, measuring 50’ x 231’) near the East Ramp, in an area to the west of the southern end of Taxiway A and Runway 4-22 and south of the airport building complex. The Project will also include construction of associated taxilanes and other related infrastructure including utility connections. At present one T-hangar is proposed, however at least two additional hangars may be located to the west, within an area that extends towards Flightline Drive.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.044295399999996,-70.29036069341686,14z

Counties: Androscoggin County, Maine

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: McFarland Johnson
Name: Jordan Tate
Address: 5 Depot Street
Address Line 2: Suite 25
City: Freeport
State: ME
Zip: 04032
Email jtate@mjinc.com
Phone: 2074174036

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
353 WATER STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

January 05, 2024

Jordan Tate
McFarland Johnson
5 Depot Street
Freeport, ME 04032

RE: Information Request – Auburn, Auburn-Lewiston Airport Project (ERID 2789)

Dear Jordan:

Per your request, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Auburn, Auburn-Lewiston Airport* project. For the purposes of this review, we are assuming that no tree clearing is proposed as part of this project.

Our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Upland Sandpiper - Upland sandpipers, a State Threatened species, have been historically documented in the project area. Upland sandpipers nest only on the ground and use both native and cultivated vegetation for nesting sites. Due to lack of recent survey efforts, it is unknown if upland sandpipers are still present in this area. Therefore, to minimize impacts we recommend that construction activities, including staging of equipment, occur between September 1 and May 1. Alternatively, we recommend site surveys during the breeding season (May-June) to determine if there is evidence of upland sandpiper activity and if there is evidence of residency during the breeding season. If no activity is detected, construction can begin once surveys are complete. If surveys are desired, they should be conducted with a biologist with experience with grassland bird surveys in Maine, and surveys should follow MDIFW protocol. Upland sandpipers are protected under Maine's Endangered Species Act and, as such, are afforded special protection against activities that may cause "Take" (kill or cause death), "harassment" (create injury or significantly disrupt normal behavior patterns), and other adverse actions.

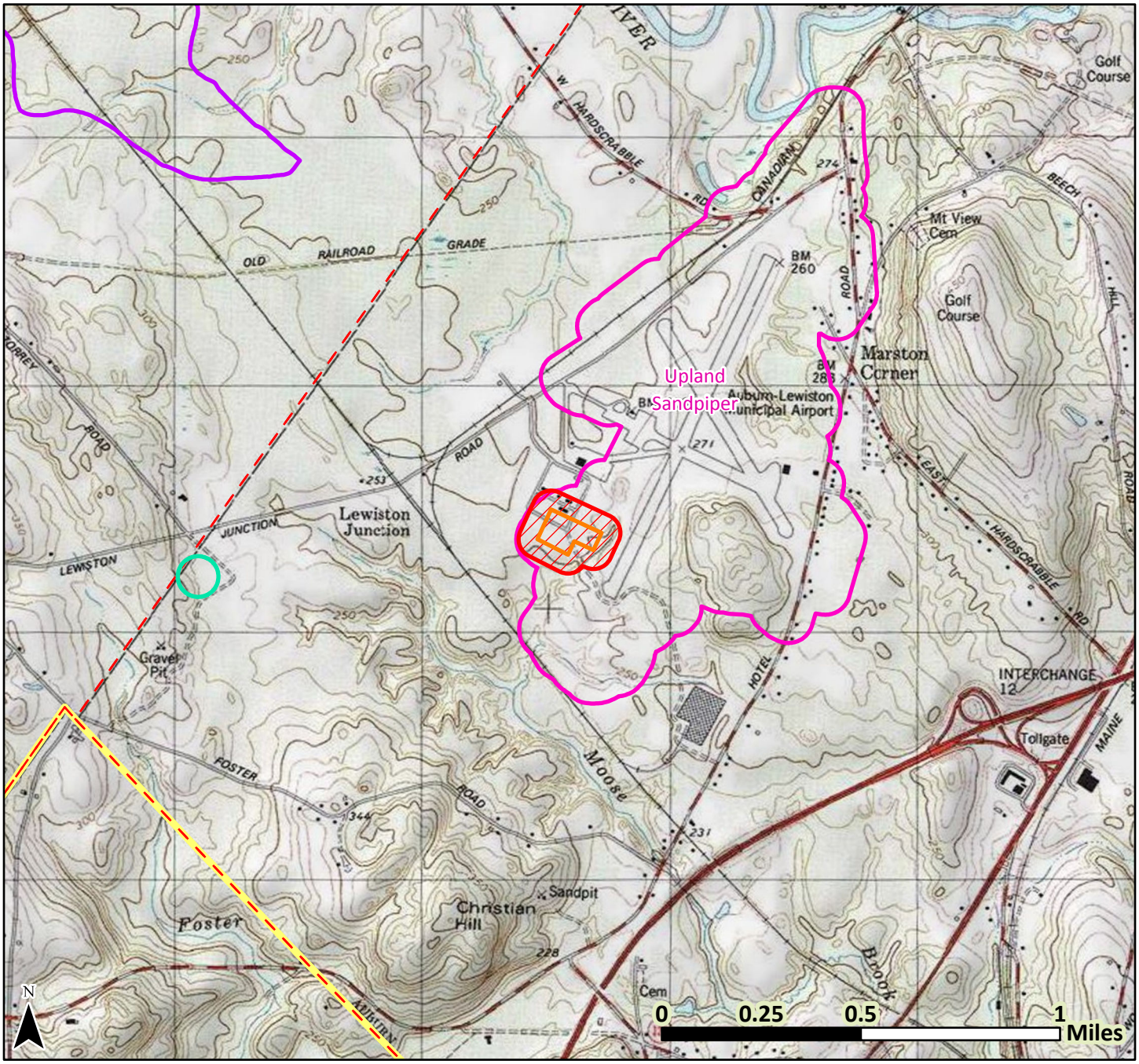
This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance, we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

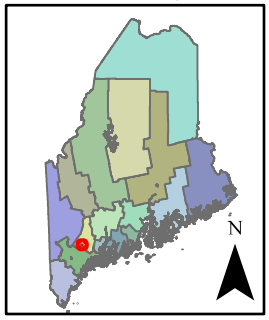
Ciara Wentworth
Resource Biologist

Maine Department of Inland Fisheries and Wildlife
Environmental Review of Fish and Wildlife Observations and Priority Habitats
Auburn, Auburn-Lewiston Airport project



- County Boundary
- Township Boundary
- Project Footprint
- Search Area
- Deer Wintering Area
- E, T, & SC Species
- Significant Vernal Pool

Date: 11/20/2023
Projection:
UTM Zone 19N, NAD83



Legend only lists resources visible in the map; see response letter for all resources that were evaluated.

Section 8 – Historic Sites

Existing Conditions

In accordance with Section 106 of the National Historic Preservation Act, an Area of Potential Effect (APE) was established for the Project, which encompassed the proposed hangar, an additional two future hangars, and associated taxilane. The Massachusetts Historic Preservation Commission (MHPC) provided a response on December 4, 2023 indicating that the proposed project is located in an area that has likely presence of prehistoric archaeological site(s). A phase I archaeological survey was recommended.

A Phase I archaeological survey was completed June 14-16, 2024, within the APE by Northeast Archaeology Research Center (NARC), which included the excavation of 68 0.5m X 0.5m test pits, one of which tested positive for precontact Native American cultural matieral. Supplemental testing was conducted on July 15, 2024, which included six additional test pits. Cumulatively, six test pits yielded cultural material, leading to the identification of a single newly recorded precontact Native American site, designated Maine state site number 23.50 ME, which is considered eligible for the National Register of Historic Places.

As currently defined, the 'Minimum Known Site Area' measures 382 sq m (4,112 sq ft) in horizontal extent, as defined by the area of artifact recovery plus a ~10 m buffer around the positive test pits, and an area that has not been cleared for archaeological artifacts also overlaps with a portion of the proposed project area.

All correspondence with MHPC has been included in this permit application. The NARC End of Field letter (EOF), dated July 23, 2024, has not been included in this application as it contains information on sensitive resources not for public distribution.

Impacts

In their EOF, NARC stated that the minimum known site area and the unsurveyed area retain archaeological sensitvity and recommend these areas be avoided by the project. On August 21, 2024, MHPC found that, with avoidance, there will be no effect on historic or archaeological properties by the proposed project. The Airport has agreed to avoid these areas and demarcate them with temporary fencing and an exlusion area for construction equipment.

Mitigation

The proposed action will not result in impacts to historical or cultural resources; therefore, mitigation is not required.

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

December 4, 2023

Ms. Jordan Tate
McFarland Johnson
5 Depot St
Suite 25
Freeport, ME 04032

Project: MHPC #1732-23 Auburn-Lewiston Airport
Construction of New Hangars

Town: Auburn, ME

Dear Ms.Tate:

In response to your recent request, I have reviewed the information received November 13, 2023 to initiate consultation on the above referenced project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

This hanger project is located on landscape that meets our predictive model for likely presence of prehistoric archaeological sites because of well drained soil, AND/OR other archaeological sites in the vicinity but not on this project. (The particular area of the airport has not previously been surveyed for archaeological sites.) A Phase I prehistoric archaeological survey may be necessary. However, we recommend a walkover survey by a professional archaeologist and consultation with Arthur Spiess prior to Phase I survey design.

A list of qualified prehistoric archaeologists can be found on our website:
https://www.maine.gov/mhpc/programs/survey/approved-consultants/prehistoric

If you have any questions regarding archaeology, please contact Dr. Arthur Spiess of this office at Arhutr.Spiess@maine.gov.

No architectural or historic archaeological resources will be affected by this undertaking.

If you have any questions regarding consultation, please contact Megan M. Rideout of this office at, megan.m.rideout@maine.gov.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

August 21, 2024

Mr. Jonathan P. LaBonte
Director
Auburn Lewiston Municipal Airport
80 Airport Drive
Auburn ME 04210

Project: MHPC# 1732-23 Auburn-Lewiston Municipal Airport
New T-Hanger and Taxi-Lanes

Town: Auburn, ME

Dear Mr. LaBonte:

My staff archaeologist, Dr. Arthur Spiess, has reviewed the Phase I archaeological survey letter report for this project and new site 23.50 by Northeast Archaeology Research Center, Inc. (Gemma-Jayne Hudgell), dated July 23, 2024. The letter report is acceptable as written, and we agree with the conclusions in the report: archaeological site 23.50 is present, and it is eligible for listing in the National Register of Historic Places. (The site evidence consists of a light scatter of stone tool manufacturing debris and one fluted point fragment of Paleoindian age.)

Thank you for discussing the project and and taking Dr. Spiess to view the site location a few weeks ago.

Based on the revised plans submitted (Figure 4 of the report), we concur that avoidance of the "minimum known site area" and the surrounding "not cleared area" as shown in Figure 4 will avoid effects from project construction. We ask that temporary fencing delineating the "not cleared" area be installed during the construction, and that it be marked as an exclusion area for construction equipment.

Conditional upon the "not cleared" area be marked and avoided during construction, I find that there will be no effect on historic or archaeological properties by the proposed new T- Hanger and Taxi-lanes project construction on the property.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132

FAX: (207) 287-2335

Section 9 – Unusual Natural Areas

Existing Conditions

The Maine Natural Areas Program (MNAP), within the Maine Department of Agriculture, Conservation, and Forestry, is responsible for the inventory of state endangered and threatened plants and unique or exemplary natural communities.

MNAP provided an initial review of the proposed project on November 15, 2023 , which indicated that there are no rare botanical features documented within the project area. As a result, there will be no impacts to rare botanical features as a result of the proposed hangar and associated taxilane.

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
177 STATE HOUSE STATION
AUGUSTA, MAINE 04333

JANET T. MILLS
GOVERNOR

AMANDA E. BEAL
COMMISSIONER

November 15, 2023

Jordan Tate
McFarland Johnson
5 Depot Street, Suite 25
Freeport, ME 04032

Via email: jtate@mjinc.com

Re: Rare and exemplary botanical features in proximity to: Proposed Hangar, Auburn-Lewiston Municipal Airport, Auburn, Maine

Dear Jordan Tate:

I have searched the Maine Natural Areas Program's Biological and Conservation Data System files in response to your request received November 15, 2023 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Auburn, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Maine Natural Areas Program (MNAP) is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. MNAP welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by MNAP are to be published in any form, the Program should be informed at the outset and credited as the source.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM
90 BLOSSOM LANE, DEERING BUILDING

PHONE: (207) 287-8044
WWW.MAINE.GOV/DACF/MNAP

The Maine Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using MNAP in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Lisa St. Hilaire

Lisa St. Hilaire | Information Manager | Maine Natural Areas Program
207-287-8044 | lisa.st.hilaire@maine.gov

Section 10 – Buffers

Existing Conditions

As discussed in Section 8, there is an archaeologically sensitive buffer area that has been established around the archaeological site 23.50 ME that was identified during the Phase I archaeological survey.

No other protected buffers exist in the project area.

Avoidance and Minimization

The MHPC has recommended and the Airport has agreed to avoid these areas and demarcate them with temporary fencing and an exlusion area for construction equipment.

Mitigation

The proposed project will not result in impacts to archaeologically sensitive areas; therefore, mitigation for impacts to buffers associated with protected resources is not required.

Section 11 – Soils

A class D soil survey was conducted by U.S.D.A. Natural Resources Conservation Service (NRCS), accessed via the online Web Soil Survey tool on August 28, 2024. Approximately 80 percent of soils within the limit of disturbance are designated as somewhat excessively drained Adams loamy sand, with the remaining 20 percent consisting of Walpole fine sandy loam. Soils within the project area are not classified as hydric. A copy of the Web Soil Survey report is provided at the end of this section.

Five (5) test pits were dug by R.W. Gillespie & Associates, Inc. on August 30, 2024. Test pits were approximately 10-feet deep. The test pits identified predominantly fine sandy soils and no visible groundwater. The report of these test pits will be available approximately mid-September 2024.

Borings for the purposes of designing the building foundations and pavements are anticipated to be conducted in the fall of 2024. The geotechnical report will be available approximately late-October 2024.

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

Proposed T-Hangar and Taxilane

August 28, 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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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: 1:1,460 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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
AaB	Adams loamy sand, 0 to 8 percent slopes	0.2	5.6%
AaC	Adams loamy sand, 8 to 15 percent slopes	2.4	70.8%
AaD	Adams loamy sand, 15 to 30 percent slopes	0.1	4.0%
Wa	Walpole fine sandy loam	0.7	19.6%
Totals for Area of Interest		**3.3**	**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

AaB—Adams loamy sand, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wqn9
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: Farmland of statewide importance

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): Base 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: 0 to 8 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): 3s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

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

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

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Section 12. Stormwater management

A. Narrative

A.1 Development Location

The proposed limit of work includes the development of approximately three (3) 10-unit T-Hangars, dimensioned 51' x 220' each. The project also includes the construction of paved apron area to support the T-Hangars and a taxilane to provide aircraft access. The project is located at the south-west corner of the Auburn-Lewiston Municipal Airport (LEW).

A.2 Surface water on or abutting the site

There is no surface water on or abutting the site.

A.3 Downstream ponds and lakes

Groundwater eventually drains to a tributary of Moose Brook.

A.4 General topography

The Pre-development terrain is a relatively flat surface for the entire project site.

A.5 Flooding

No onsite flooding has been recorded.

A.6 Alterations to natural drainage ways

In general, the overall project site is being raised by approximately 2' 6" at the apron and hangar locations. The general drainage patterns post-construction will remain consistent with Pre-development conditions. Refer to the attached permitting plan set, *Sheet PR-01 Predevelopment Plan* and *Sheet PO-01 Postdevelopment Plan* for the pre/post construction subcatchment areas and flow paths.

In existing conditions, most of the water flows towards POI-4. Post-development conditions reflect this as well with an increase in impervious area. Changes include the addition of five additional smaller subcatchment areas within Subcatchment 4. The first area, Area 4A, includes the proposed taxilane, which blocks the existing water flow path of a large portion of subcatchment 4. To still divert this water towards the pre-development subcatchment, a pipe is being installed under the proposed taxilane to divert the water. The remaining new subcatchment areas, 4B through 4F, includes the proposed stormwater treatment as well as the catch-basin and pipe system.

As described later in Section A.10., it was found that 60% of the limit of disturbance is required to be treated per the MaineDEP Chapter 500 regulations. This treatment is incorporated into the post-development subcatchment 4 and through a grassed soil filter with underdrain. If a significant rain event occurs and the soil filter overflows, the excess water will run over the emergency spillway and into an adjacent catch basin that is connected to the same system as the infiltrated water of the soil filter.

A.7 Alterations to land cover

The Post-development site adds an additional 88,776 SF of impervious area total, including 35,343 SF of hangar development, and the remaining area made up of the vehicle service road (VSR) pavement, apron pavement, taxilane pavement, and the access road to Flightline Drive. The net change of

impervious also reflects the removal of the existing parking lot and driveway as well as a portion of the existing VSR that are located within the project site.

A.8 Modeling assumptions

Subsurface conditions are estimated at this point. Five (5) soil test pits were conducted on 8-30-24. The laboratory test results have not been provided yet. Based on the sandy soils found, Type A soils were used to compute curve numbers as stated in the USDA NRCS Web Soil Survey from Section 11.

The HydroCAD Stormwater Modeling software was used to model the site's subcatchments. Required inputs include land use and time of concentration.

The site is split into four different land use classifications:

- >75% Grass Cover, (CN = 39)
- Paved Parking (CN = 98)
- Roofs (CN=98)
- Woods, Poor, HSG A (CN = 45)

Table A8-1 below summarizes overall land cover for Pre-development and Post-development conditions.

Table A8-1: Pre/Post Development Overall Land Cover Summary

	Pre-development	Post-development
Curve Number (CN)	52	54

As shown in the table, the development does increase the overall CN value as a result of the additional impervious from the hangars, taxilane, and access roads. The overall hydrology is balanced and peak flows for 2-year, 10-year, and 25-year are either equal to or less than the pre-development conditions. This is balanced through retention and the proposed soil filter. The provided HydroCAD report which breaks down land cover for each subcatchment area is attached to this section.

In this study, the Soil Conservation Services Urban Hydrology for Small watersheds, Technical Release 20 (also known as SCS TR-20) was utilized to model the surface water drainage patterns for the pre and post development drainage conditions. HydroCAD Stormwater Modeling System Software (Version 6) was used for the SCS TR-20 calculations. The SCS TR-55 method was used to estimate the Time of Concentration (Tc). This method involves estimating the length of sheet flow, shallow concentrated flow and channel flow that occurs within each subcatchment. Each Tc Path, and corresponding length and slope, is identified in the pre and post development drainage area plan. From this information, the time of concentration is determined for each watershed. Modeling was conducted using the 2, 10, and 25-year storm events with 24-hour rain fall values for Androscoggin County extracted from Appendix H of Chapter 500 stormwater regulations, which includes data from the Northeast Regional Climate Center in collaboration with Cornell University.

A.9 Water quantity control

In order to determine the need for peak flow rate reduction methods, four points of interest (POI) were analyzed for Pre-development and Post-development conditions.

Table A9-1: Pre-development Flow Rates

Description	Runoff Flow Rates (cfs)		
	2-year Rainfall	10-year Rainfall	25-year Rainfall
POI-1	0.00	0.03	0.16
POI-2	1.20	3.18	4.98
POI-3	0.02	0.37	0.94
POI-4	0.24	4.23	12.84

Table A9-1: Post-development Flow Rates

Description	Runoff Flow Rates (cfs)		
	2-year Rainfall	10-year Rainfall	25-year Rainfall
POI-1	0.00	0.02	0.15
POI-2	0.16	0.81	1.45
POI-3	0.01	0.16	0.56
POI-4	0.22	3.86	11.70

Table A9-3: Pre-development vs. Post-development Flow Rates

Description	Runoff Flow Rates (cfs)		
	2-year Rainfall	10-year Rainfall	25-year Rainfall
POI-1	0	-0.01	-0.01
POI-2	-1.04	-2.37	-3.53
POI-3	-0.01	-0.21	-0.38
POI-4	-0.02	-0.37	-1.14

As shown in the flow rate tables, all post-development flow rates are equal to or lower than the pre-development flow rates, resulting from either stormwater management or the reduction in pavement.

A.10 Water quality treatment

To meet the requirements of MDEP's stormwater management program outlined in Chapter 500, a vegetated soil filter Best Management Practice (BMP) will be installed to capture and retain runoff and pass it through a soil filter media. This process removes a wide range of pollutants such as suspended solids, phosphorus, nitrogen, metals, and hydrocarbons to reduce the impacts of site runoff on downstream water quality. The filter structure provides for the slow release of stormwater into the ground for smaller storm events. Larger rainfall events will allow for the filter's detention basin to fill up and overflow into a new catchbasin. From the catchbasin flows will continue through development via closed drainage system.

Redevelopment calculations and new development calculations were conducted to determine the amount of area to capture and treat with a structural stormwater BMP. Redevelopment treatment level calculations were performed based on land use and pollutant rating. The result was a Ranked Impact Change of 0.46. Per Table 3 of Chapter 500 this results in a 60% percentage of area that must be treated.

The Re-Developed Area was calculated based on the total disturbed area (231,605 SF) less the maintained Impervious and Turf areas which calculates to a total developed area of 121,721 SF. Applying the 60% percentage to the 121,721 SF results in a treatment area requirement of 73,033 SF. Applying credit for the existing impervious sources replaced with landscaped areas and applying the credit factor resulted in a further reduction of 15,730 SF. This resulted in the treatment area required of 57,303 SF. The area being treated is a total of 65,983 SF (Ref. Subcatchment 4E). Therefore, the treatment area exceeds the required area. The calculations follow this page.

Construct CDS Hangar(s)
Auburn-Lewiston Airport 11-Sep-24
Areas came from following CAD: "K:\Auburn-Lewiston Municipal\T-19186.01 CDS Hangar\Design\Drainage Design\Treatment\19186.01-Treat.dwg"
MEDEP Chapter 500: Stormwater Management

REDEVELOPMENT TREATMENT LEVEL CALCULATIONS

Description	Land Use	Pollutant Rating	e-Project Area (Ac	re-Weighted Rati	st-Project Area (Ac	ost-Weighted Rating
Existing Road	"Other roads"	4	0.449	1.795	0.000	0.000
Existing Parking lot	"medium use parking lot"	4	0.848	3.392	0.000	0.000
Existing Turf	"Grassed Areas Mowed More than twice per year"	2	4.020	8.040	0.000	0.000
Proposed Pavement	"Other roads"	4	0.000	0.000	2.524	10.094
Proposed Building	"other rooftops"	2	0.000	0.000	0.811	1.623
Proposed Turf	"Grassed Areas Mowed More than twice per year"	2	0.000	0.000	1.982	3.964
		Σ =	5.317	13.228	5.317	15.681
		Average Rating/Acre		2.49		2.95
		Ranked Impact Change			0.4614	

60% Treatment Required for SLODA Projects

Re-Developed Area

	Area (square feet)	AC Check
Total Disturbed	231,605	5.317
Maintained: Impervious	38,234	
Maintained: Turf	71,650	
Total Developed	**121,721**	

Table 3
Treatment Levels for Redevelopment Projects

Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects) 50% (Site projects)
> 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development

Redeveloped Treatment Required =	**73,032.60**	80,335.86

Development Treatment

	SF	AC
LOD	0	0.00
Impervious	0	0.00
Pervious	0	0.00
A) 95% Impervious	0	0.00
B) 80% Of Developed LOD	0	0.00

Developed Treatment Required =	**0.00**

SubTotal Treatment Required =	**73,032.60**	**1.68**	**AC**

Mitigation

Eliminate Impervious Source & Replace with Landscaped Area		Development Type	Credit Earned	Credit
Potential Credit (VSR Removal)	1,339	"Road"	1	1339
Potential Credit (Existing Driveway)	9,040	"Road"	1	9040
Potential Credit (Parking Lot)	7,644	"medium use parking lot"	0.7	5350.8

SubTotal Treatment Required =	**57,302.80**	**1.32**	**AC**

Based on the pollutant impacts of the development, a minimum of 60% of developed area must be treated.

A.11 Offset credits

Offset credits were applied to this development. Below is a table including the items taken as credits, their areas, and their ratings.

Table A11-1: Offset Credits

Eliminate Impervious Source & Replace w. Landscaped Area		Development Type	Credit Earned
Existing Vehicle Service Road Removal	1,339 SF	"Road"	1
Existing Driveway Removal	9,040 SF	"Road"	1
Existing Parking Lot Removal	7,644 SF	"Medium Use Parking Lot"	0.7

A.12 Compensation fees

Non-applicable. Compensation fees are not applied to this development.

A.13 Development impacts

The proposed project does not include new development impacts.

B. Map

A copy of the USGS Location Map can be found in Section 1 of this application. A Soils Survey Map showing the site's soil classification is provided in Section 11 – Soils.

C. Drainage plans

Drainage plans representing both Pre-development and Post-development conditions are attached in the plans provided.

D. Runoff analysis

A runoff analysis was conducted to model the Pre-development and Post-development stormwater routing for 2-year, 10-year, and 25-year storms. HydroCAD was used to compute curve numbers, time of concentration, travel time, and peak discharge. The HydroCAD analysis is provided at the end of this section**.** Refer to Section 12(A)(7) for curve number computation results and Section 12(A)(9) for a discussion of peak flow rate increase.

E. Flooding standards submission

In addition to the runoff analysis described in Section 12(D), a 25-year storm was used as the design standard to ensure that no flooding will occur.

F. General standards submission

F.1 Narrative

This project is classified as both a "redevelopment" project as defined in Chapter 500 of Maine's Stormwater Management Law section 3(DD). The requirement for treatment is scaled based on the pollutant discharge that, if the stormwater was untreated, would result from the project. Based off Table 2: Pollutant Impacts Rankings of Various Redevelopment Land Uses, the pollutant ranking was found to be 0.5221. Table 3: Treatment levels for Development Projects shows a Ranked Impact of 0.5221 requires 60% of the Developed Area to be treated. The "Redevelopment Treatment Level Calculations" table provides a breakdown of the treatment level calculations.

Initially, the infiltration BMP (as described in Chapter 6 of MDEP's BMP manual) was considered as a potential source of treatment. However, upon review of the United States Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) web soil survey, it was found that the soils at the site did not meet the infiltration requirements. The majority of the development consists of AdA-Adams loamy sand which has an infiltration rate of 1.42 - 14.17 in/hr.; in order to use the infiltration BMP, the permeability of the soil must be no greater than 2.41 in/hr. The development has been observed in a heavy rain event and there was no presence of ponding with little to no evidence of runoff. Therefore, it was assumed that the permeability rate is on the higher side of the range (1.42-14.17) thus greater than 2.41 in/hr.

Stormwater treatment will be completed in accordance with MDEP's BMP manual using a grassed soil filter. The soil filter will consist of a 12" layer of loamy coarse sand and covered with 6" of topsoil and seed. One of the requirements of the infiltration BMP is that the seasonal high-water table must be at least 3 feet beneath the surface. Five test pits dug to 10 feet deep on 8-30-24. The depth to seasonal high water was 96, 40, 96, 52, and 50 inches at TP-1 through TP-5, respectively. The soil filter area has a seasonal high water table elevation of 246.84. The proposed bottom of the soil filter is 3' higher at 249.84.

Underdrain is being proposed as a part of the soil filter. The filter has been designed to be compliant with Chapter 500. Ground water nor bedrock was not identified within 120 inches deep of the project site. As shown on the project plans, the stored runoff volume is stored to a depth no greater than 18 inches. The area draining to the filter does not include any public roads, fuel service facilities, high use parking lots or drive through lanes, or any storage or handling areas for petroleum products. The existing fueling operations take place on the existing apron. The project site is not an industrial facility, nor a vehicle maintenance facility. And lastly, no application of fertilizers, pesticides and similar turf-management chemicals are performed.

The proposed pipes were designed using the HydroCAD model for a 25-year storm per Section 46-210(a)(3) of the Auburn Code of Ordinances. At the 100-year storm pipes passed the storm without surcharging above the drainage structures. The material anticipated is a corrugated polyethylene pipe with a corrugated interior, installed at either 18" or 24". See GR-01 for specific pipe layout.

F.2 Drainage Plans

A treatment plan was created in accordance with Section 12(F)(2) of this application and is shown in the permitting plans provided.

F.3 Calculations

F.3a Surface Area

The surface area of the filter must be no less than the sum of 5% of the impervious area and 2% of the landscaped area within the treatments structure's subcatchment. The filter's subcatchment is split into two treatment areas. Area 1 contains 37,901 square-feet impervious pavement area and Area 2 contains 26,819 square-feet landscaped area.

$$Surface\ Area = 5\%(37{,}901\ \ sqft) + 2\%(26{,}819\ sqft)$$

Based on the filter's subcatchment, the soil filter must be at least 2,431 square-feet.

F.3b Channel Protection Volume

MDEP's BMP manual requires the soil filter to detain and filter a channel protection volume equal to 1.0-inch times the subcatchment's impervious area plus 0.4 inches times the subcatchment's landscaped area.

$$Treatment\ Volume = \frac{1}{12} ft(37{,}901\ sqft) + \frac{0.4}{12} ft(26{,}819\ \ sqft)$$

Based on the filter's subcatchment, the soil filter must detain and filter a channel protection volume of 4,052 cubic-feet.

F.3c Treatment

The proposed soil filter is approximately 2,880 SF and has the capacity to hold approximately 4,125 cubic-feet. When the basin reaches maximum capacity, stormwater will be released through a controlled overflow over the broad crested weir and into the existing swale as shown on the permitting plans provided.

F.3d Drain Time.

The stormwater manual Chapter 7.1 indicates that the soil filter must drain no less than 24 hours. This is a product of the amount of water entering the site and the required size of the filter area. All drainage infrastructure was designed for the 25-year rainfall event per the City of Auburn Article 5 Section 46-210 Drainage System Design Standards. The 100-year rainfall event was also reviewed with the system as a precaution.

F.4 Details, Designs, and Specifications

Details showing the design of the proposed soil filter can be found on *Sheet EC-02* in the plans provided.

F.5 Phosphorus Removal

Per MDEP Chapter 500 Stormwater Management, the phosphorus standard must be met when the development has 20,000 square feet of impervious area, or 5 acres or more of developed area, in the direct watershed of a lake most-at-risk. The proposed project is not in the watershed of a most-at-risk lake.

F.6 Responsible Party for Long-Term Maintenance

The protection and maintenance of the development's drainage system and stormwater treatment measures will be as described in Section 12(G) of this application.

G. Components of the maintenance plan

G.1 Person Responsible for Implementing Maintenance Plan

The soil filter will require inspection and maintenance to ensure proper performance. Ultimately, the Airport will be responsible for the completion of the required inspection and maintenance and have a full time maintenance supervisor and heavy equipment to address these needs.

G.2 Specify Transfer Mechanism

It is the responsibility of the contractor to properly construct and maintain all drainage and treatment systems through the completion of the project. Following construction, inspection and maintenance responsibilities will transfer to the Airport.

G.3 Describe Facilities to be Maintained

Multiple stormwater management measures will be implemented to control erosion and sedimentation and will require certain inspection and maintenance. Such measures include placement of erosion control sedimentation barrier to slow the flow of runoff and to filter out sediment; construction of a stabilized construction entrance consisting of angular stones to reduce tracking; installation of stone check dams to slow and filter runoff along the proposed swale, and the construction of a soil filter media to meet the stormwater treatment requirements.

G.4 Establish Inspection and Maintenance Tasks

Construction inspection will be the responsibility of the Airport and their developers, contractors and/or engineers.

Inspections shall be performed semi-annually and following any major storm event, unless specified otherwise. A major storm event is defined as one inch of rain in a 24-hour period. The following is a list of tasks to be completed for each structure:

Grassed Soil Filter

- The basin shall be inspected semi-annually and following major storm events.
- Remove sediment and plant debris from the grassy swale leading to the soil filter.
- Remove sediment and plant debris from basin.
- Bare areas shall be repaired will new filter media, seeded and mulched.
- Maintain a healthy cover of grass to minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- If ponding exceeds 72 hours, the basin shall be rototilled, seeded and mulched.
- Mow by means of a hand-held string trimmer no more than two times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization shall be avoided unless necessary to establish vegetation.
- Harvesting and pruning of excessive growth will be done occasionally. Weeded to control unwanted or invasive species may be necessary.

Closed Drainage Structures

- All pipes shall be inspected on an annual basis.
- If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it should be removed by hydraulic flushing or other mechanical means. Care must be given as to not flush the sediment into the pond or filter as it will reduce the capacity and hasten the time when it must be cleaned.
- Catch basin sumps should be cleaned in the spring to remove the winter sand and periodically during the year and on an as-needed basis to remove sediment build up. This may be accomplished by a vacuum truck or other mechanical means. Care must be given as to not flush the sediment into the pond or filter as it will reduce the capacity and hasten the time when it must be cleaned.

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 have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the facilities
c) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.

G.5 Identify Any Deed Covenants, Restrictions, or Easements on the Site

Non-applicable. There are no established deed covenants, restrictions, or drainage easements applicable to this site.

G.6 Provide Example of a Maintenance Log

An example of the BMP maintenance log that will be kept on-site is provided at the end of this section.

Soil Filter Inspection and Maintenance Log

Facility Name	
Address	
Begin Date	End Date

Date	Frequency	Inspection Action	Inspected by:	Cause for Inspection	Exceptions Noted	Comments and Actions Taken
	Monthly	Remove sediment & debris				
	Monthly (during growing season)	Mow and remove weeds				
	Monthly	Erosion (side slops, embankment)				
	As needed	Inspection after major storm to verify proper function				
	Always	Driving/parking vehicles on soil filter is prohibited				
	Always	Storing snow on soil filter is prohibited				

Miscellaneous Notes:

Instructions: Record all inspections and maintenance on this form. Use additional log sheets and/or attach extended comments or documentation as necessary. Submit a copy of the completed log with the annual independent inspectors' report to the municipality, and start a new log at that time.

- Inspected by — Note all inspections and maintenance on this form, including the required independent annual inspection.
- Cause for inspection — Note if the inspection is routine, pre-rainy-season, post-storm, annual, or in response to a noted problem or complaint.
- Exceptions noted — Note any condition that requires correction or indicates a need for maintenance.
- Comments and actions taken — Describe any maintenance done and need for follow-up.

EROSION AND SEDIMENT CONTROL MEASURES AND ACTIVITY	INSPECTION FREQUENCY		
	Weekly	Before and After a Storm	After Construction
SEDIMENT BARRIERS			
Sediment barriers are installed prior to soil disturbances	X	X	
Silt fences are keyed in and tight	X	X	
Barriers are repaired and replaced as necessary	X	X	
Barriers are removed when the site is stabilized - Silt fence should be cut at the ground surface			X
TEMPORARY STABILIZATION			
Areas are stabilized if idle for 14 days or more	X	X	
Daily stabilization within 100 ft of a natural resource	X	X	
MULCH			
Seed and mulch within 7 days of final grading. Ground is not visible	X	X	
Erosion control mix is 4-6 inch thick	X	X	
Erosion control blankets or hay mulch are anchored	X	X	
VEGETATION			
Vegetation provides 90% soil cover	X		X
Loam or soil amendment were provided	X		X
New seeded areas are mulched and protected from vehicle, foot traffic and runoff	X	X	X
Areas that will remain unworked for more than 1 year are vegetated with grass	X		
SLOPES AND EMBANKMENTS			
Final graded slopes and embankments are stabilized	X	X	X
Diversions are provided for areas with rill erosion	X	X	X
Areas steeper than 2:1 are riprapped	X		
Stones are angular, durable and various in size	X		
Riprap is underlain with a gravel layer or filter fabric	X		
STORMWATER CHANNELS AND CULVERTS			
Ditches and swales are permanently stabilized–channels that will be riprapped have been over-excavated	X	X	X
Ditches are clear of obstructions, accumulated sediments or debris	X	X	X
Ditch lining/bottoms are free of erosion	X	X	X
Check dams are spaced correctly to slow flow velocity	X		
Underlying filter fabric or gravel is not visible	X	X	X
Culvert aprons and plunge pools are sized for expected flows volume and velocity	X		
Stones are angular, durable and various in size	X		
Culverts are sized to avoid upgradient flooding	X	X	
Culvert protection extends to the maximum flow elevation within the ditch	X	X	X
Culvert is embedded, not hanging	X	X	X

LEW Stormwater Maintenance Manual

September 2024

The Auburn-Lewiston Municipal Airport (LEW) is proposing the construction of a new 10 unit T-Hangar and the associated taxilane for small aircraft, located to the south-south-west of existing hangars on the west side of the airfield along Flightline Drive. LEW will be responsible for the inspection and maintenance of the new T-Hangar, taxilane and associated drainage and site stabilization. The Site Law permit amendment application includes the future development of two additional 10-unit T-hangars of which will be incorporated into a maintenance plan upon completion.

Jonathan P. LaBonte will be the primary point of contact to orchestrate the maintenance.

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LEW has acquired a Site Location of Development Act (SLODA) permit approval for the construction of a new T-Hangar and associated taxilane. Inspection and Maintenance of the existing infrastructure during construction will be implemented by the contractor as directed by the erosion control plans and specifications. LEW will verify that the work is complete prior to payment and project closeout.

The following requirements are the Best Management Practices (BMPs) for inspection and maintenance of the stormwater infrastructure. They are standards that must be met. Additional items may be necessary depending on persistent problems. Perform maintenance as described and required in the permit unless and until the system is formally decommissioned. Maine Department of Environmental Protection (MaineDEP) requires the following after construction as a part of the Chapter 500 Stormwater Law:

1. Planning
2. Inspection and Maintenance
3. Documentation
4. Recertification
5. House Keeping

1. Planning

LEW must carry out an approved inspection and maintenance plan that is consistent with the minimum requirements. This document is the plan which addresses inspection and maintenance of the project's permanent erosion control measures and stormwater management system. The following permanent systems are created due to the construction on a new T-Hangar and associated taxilane:

- Turf
- Vegetated Slopes
- Turf Swale
- Closed Drainage System
- Catch Basins
- Pavement
- Soil Filter

2. Inspection and maintenance

All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The soil filter will require inspection and maintenance to ensure proper performance. Ultimately, LEW will be responsible for the completion of the required inspection and maintenance.

It is the responsibility of the contractor to properly construct and maintain all drainage and treatment systems through the completion of the project. Following construction, inspection and maintenance responsibilities will transfer to LEW. During inspections, the contractor shall use the attached Inspection Checklist and keep a log of any inspections performed throughout the duration of the project.

The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection on a specific site. Inspection or maintenance tasks other than those discussed below must be included in the maintenance plan developed for a specific site. Expanded and more-detailed descriptions for specific maintenance tasks may be found in the Maine DEP's "Stormwater Management for Maine: Best Management Practices."

A wet weather storm event of 1 inch in a 24-hour period will trigger an inspection.

a. 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. This work can be performed by maintenance personnel. Contact an Engineer if problem persists.

b. Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains 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. This work can be performed by a maintenance personnel. Contact an Engineer if problem persists.

c. 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. If sediment in culverts or piped drainage system is observed beyond a negligible amount, it should be removed by hydraulic flushing or other mechanical means. Care must be given as to not flush the sediment into the pond or filter as it will reduce the capacity and hasten the time when it must be cleaned. This work can be performed by maintenance personnel.

d. Inspect and clean out catch basins. Clean-out must include the removal and legal disposal of any accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. This shall be done in the spring to remove the winter sand and periodically during the year, as well as an as-needed basis to remove sediment build up. This can be accomplished by a vacuum truck or other mechanical means. Care must be given to not flush sediment into the pond or filter as it will reduce the capacity and hasten the time when it must be cleaned. If the basin outlet is designed to trap floatable materials, then remove the floating debris and any floating oils (using oil-absorptive pads). This work can be performed by maintenance personnel.

e. Inspect paved areas for pot holes and sand accumulation. Clear accumulations of winter sand in aprons and along taxiways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping.

f. Sediment basins. Accumulated sediment must be removed as needed from the basin to maintain at least ½ of the design capacity of the basin.

g. Soil Filter: Sediment must be removed from the system to prevent deterioration of system performance. The system must be rehabilitated or replaced if its performance is degraded to the point that applicable stormwater standards are not met. Snow removed from any on-site or off-site areas may not be stored over an infiltration area. Prohibit vehicles or heavy equipment from driving onto the filter area. More frequent inspection is required in the first year after construction to ensure the BMP drains less than 48 hours. The following list of tasks shall be completed semi-annually and following any major storm event:

- The basin shall be inspected semi-annually and following major storm events.
- Remove sediment and plant debris from the grassy swale leading to the soil filter.
- Remove sediment and plant debris from basin.
- Bare areas shall be repaired will new filter media, seeded and mulched.
- Maintain a healthy cover of grass to minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- If ponding exceeds 72 hours, the basin shall be rototilled, seeded and mulched.
- Mow by means of a hand-held string trimmer no more than two times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization shall be avoided unless absolutely necessary to establish vegetation.
- Harvesting and pruning of excessive growth will be done occasionally. Weeded to control unwanted or invasive species may be necessary.

h. Winter sanding is not conducted at the airport.

3. Documentation.

LEW is required to document the inspection and maintenance of the new airport facilities.

a. Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken.

b. The log must be made accessible to MaineDEP staff and a copy provided to the MaineDEP upon request. LEW shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.
c. 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. A sample log is provided as an Attachment.

4. Re-certification.

Submit a certification of the following to the MaineDEP within three (3) months of the expiration of each five-year interval from the date of issuance of the permit. Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) Program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES Program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.

a. Identification and repair of erosion problems. 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. Inspection and repair of stormwater control system. All aspects of the stormwater control system 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.

c. Maintenance. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Department, and the maintenance log is being maintained.

5. Housekeeping

To prevent materials from becoming a source of pollutants, construction and post-construction activities related to a project may require the following:

a. Spill prevention. Pollutants and materials should be stored in a manner to minimize exposure of the materials to stormwater. The site contractor or operator must develop, and implement as necessary, appropriate spill prevention, containment, and response planning measures.

Any spill or release of toxic or hazardous substances must be reported to the MaineDEP.

For oil spills, call 1-800-482-0777 which is available 24 hours/day.

For spills of toxic or hazardous material, call 1-800-452-4664 available 24 hours/day.

For more information, visit the MaineDEP's website at:
http://www.maine.gov/dep/spills/emergspillresp/

b. Groundwater protection. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

c. Fugitive sediment and dust. Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control, but other water additives may be considered as needed. A stabilized construction entrance should be included to minimize tracking of mud and sediment. If off-site tracking occurs, public roads should be swept immediately and no less than once a week and prior to significant storm events. Operations during dry months, that experience fugitive dust problems, should wet down unpaved access roads once a week or more frequently as needed with a water additive to suppress fugitive sediment and dust.

d. Debris and other materials. Minimize the exposure of construction debris, building and landscaping materials, trash, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials to precipitation and stormwater runoff. These materials must be prevented from becoming a pollutant source.

e. Excavation de-watering. Excavation de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water removed from the ponded area, either through gravity or pumping, must be spread through natural wooded buffers or removed to areas that are specifically designed to

collect the maximum amount of sediment possible, like a cofferdam sedimentation basin. Avoid allowing the water to flow over disturbed areas of the site.

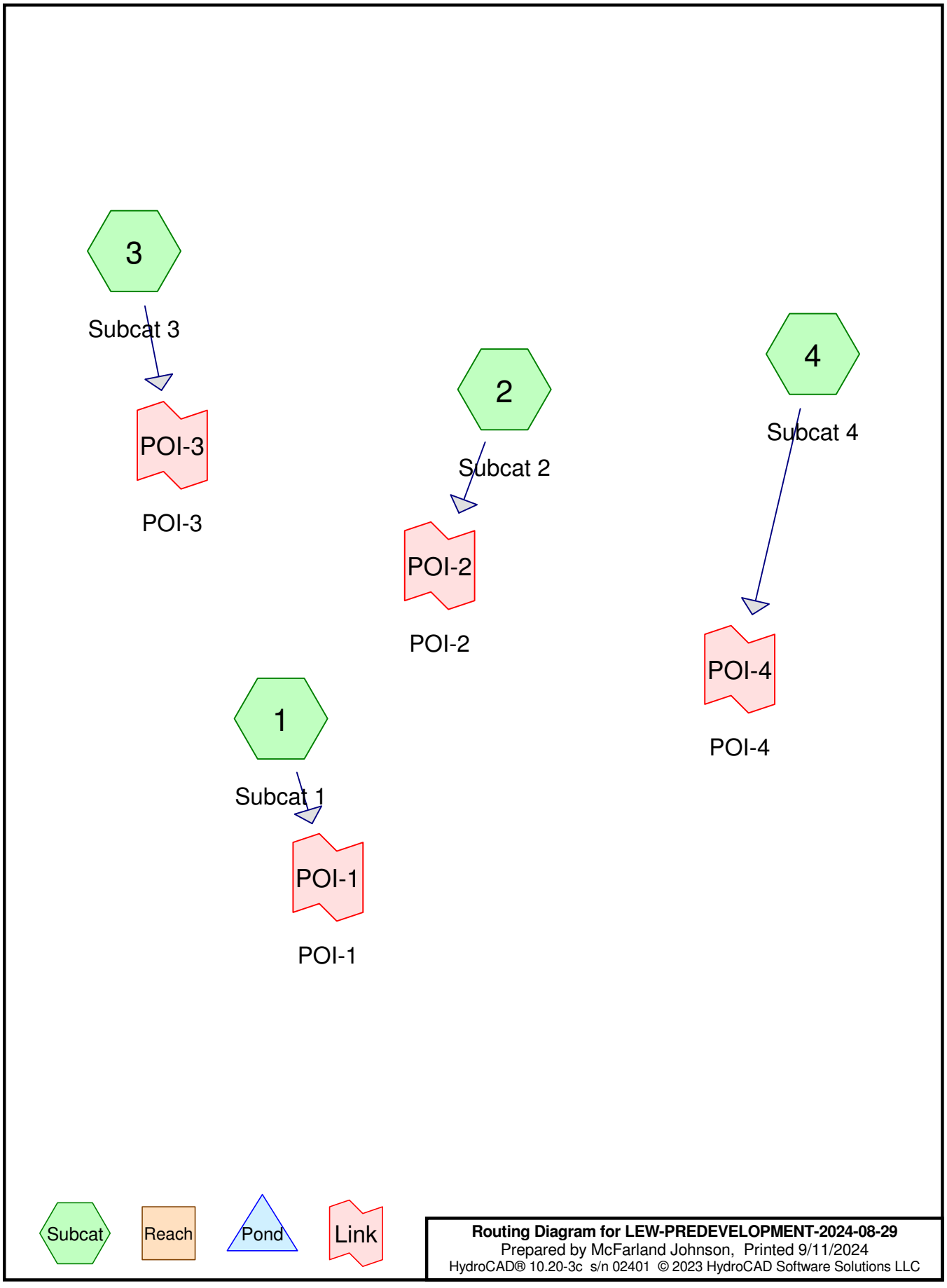
f. Authorized non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges. Where allowed non-stormwater discharges exist, they must be identified and steps should be taken to ensure the implementation of appropriate pollution prevention measures for the non-stormwater component(s) of the discharge. Authorized non-stormwater discharges are:

   i. Discharges from firefighting activity;
   ii. Fire hydrant flushings;
   iii. Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage and transmission washing is prohibited);
   iv. Dust control runoff;
   v. Routine external building washdown, not including surface paint removal, that does not involve detergents;
   vi. Pavement washwater (where spills/leaks of toxic or hazardous materials have not occurred, unless all spilled material had been removed) if detergents are not used;
   vii. Uncontaminated air conditioning or compressor condensate;
   viii. Uncontaminated groundwater or spring water;
   ix. Foundation or footer drain-water where flows are not contaminated;
   x. Uncontaminated excavation dewatering;
   xi. Potable water sources including waterline flushings; and
   xii. Landscape irrigation.

g. Unauthorized non-stormwater discharges. The MaineDEP approval under Chapter 500 Stormwater Law does not authorize a discharge that is mixed with a source of non-stormwater, other than those discharges listed above. Specifically, the MaineDEP approval does not authorize discharges of the following:

   i. Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
   ii. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance;
   iii. Soaps, solvents, or detergents used in vehicle and equipment washing; and
   iv. Toxic or hazardous substances from a spill or other release.

End Inspection and Maintenance Manual



Routing Diagram for LEW-PREDEVELOPMENT-2024-08-29
Prepared by McFarland Johnson, Printed 9/11/2024

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	D	Default	24.00	1	3.00	2
2	10-Year	NRCC 24-hr	D	Default	24.00	1	4.43	2
3	25-Year	NRCC 24-hr	D	Default	24.00	1	5.55	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
25.014	39	>75% Grass cover, Good, HSG A (1, 2, 3, 4)
6.476	98	Paved parking, HSG A (2, 3, 4)
0.385	98	Roofs, HSG A (2, 3, 4)
0.839	45	Woods, Poor, HSG A (1, 2, 4)
32.714	**52**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
32.714	HSG A	1, 2, 3, 4
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
32.714		**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
25.014	0.000	0.000	0.000	0.000	25.014	>75% Grass cover, Good	1, 2, 3, 4
6.476	0.000	0.000	0.000	0.000	6.476	Paved parking	2, 3, 4
0.385	0.000	0.000	0.000	0.000	0.385	Roofs	2, 3, 4
0.839	0.000	0.000	0.000	0.000	0.839	Woods, Poor	1, 2, 4
32.714	**0.000**	**0.000**	**0.000**	**0.000**	**32.714**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	4	0.00	0.00	214.0	0.0022	0.013	0.0	18.0	0.0	
2	4	0.00	0.00	178.0	0.0526	0.013	0.0	24.0	0.0	

Summary for Subcatchment 1: Subcat 1

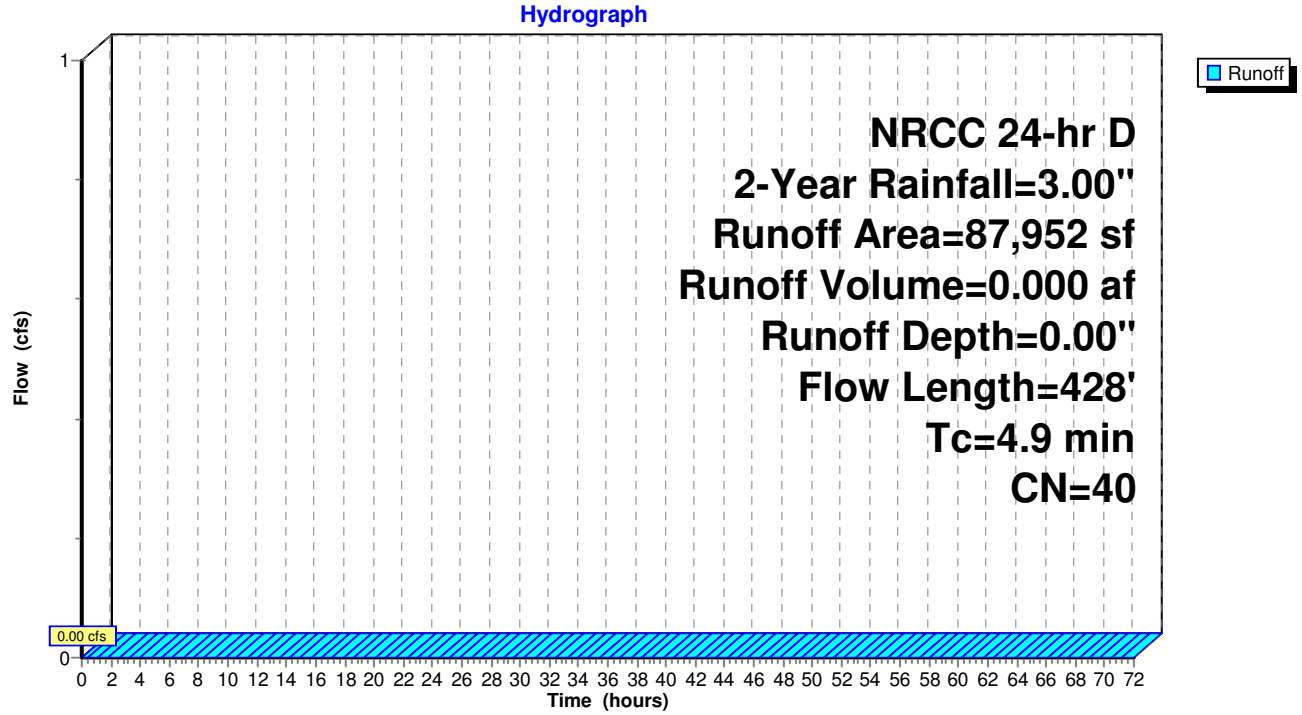
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link POI-1 : POI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
68,153	39	>75% Grass cover, Good, HSG A
19,799	45	Woods, Poor, HSG A
87,952	40	Weighted Average
87,952		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	68	0.0348	1.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.7	226	0.0398	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	134	0.0462	1.50		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
4.9	428	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

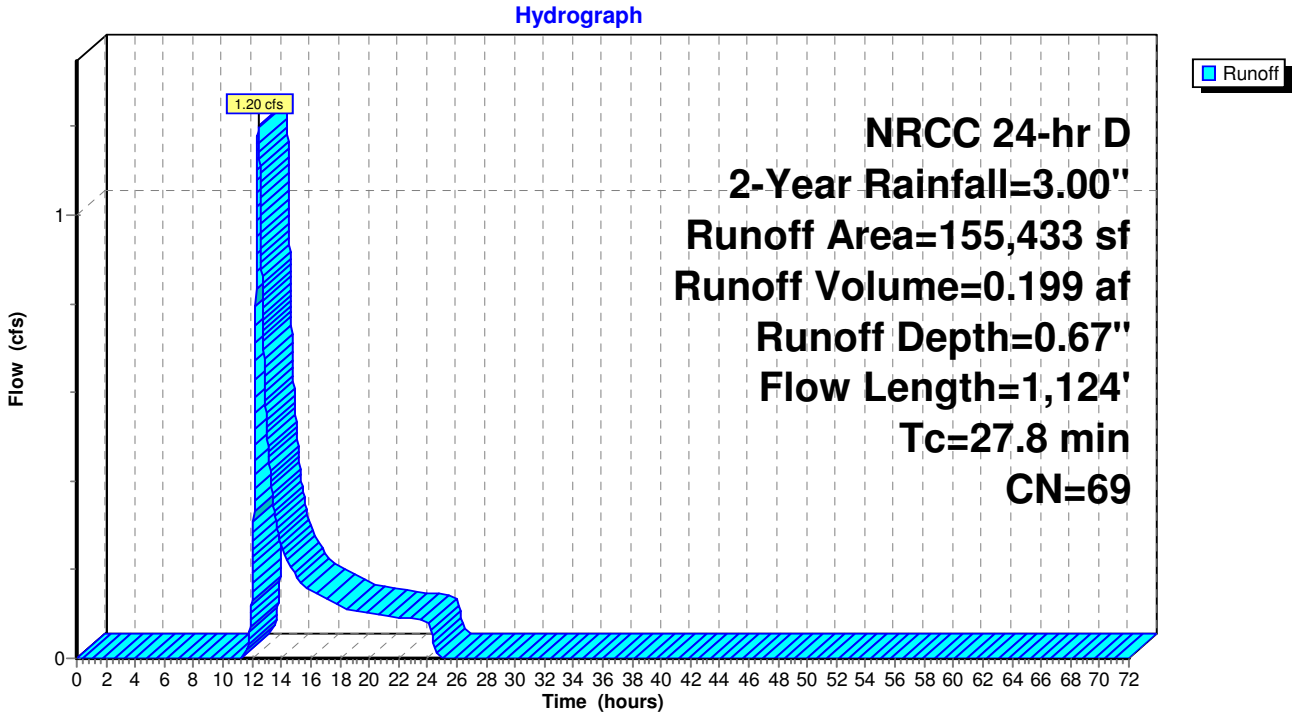
Runoff = 1.20 cfs @ 12.44 hrs, Volume= 0.199 af, Depth= 0.67"
Routed to Link POI-2 : POI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
70,094	98	Paved parking, HSG A
8,587	98	Roofs, HSG A
75,403	39	>75% Grass cover, Good, HSG A
1,349	45	Woods, Poor, HSG A
155,433	69	Weighted Average
76,752		49.38% Pervious Area
78,681		50.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	29	0.0038	0.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	49	0.0058	1.55		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1	14	0.1392	2.61		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
9.3	246	0.0040	0.44		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.9	121	0.0110	2.13		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
2.6	99	0.0080	0.63		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
1.0	60	0.0039	1.01		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
2.6	59	0.0030	0.38		**Shallow Concentrated Flow, H-I** Short Grass Pasture Kv= 7.0 fps
2.1	202	0.0097	1.59		**Shallow Concentrated Flow, I-J** Unpaved Kv= 16.1 fps
7.8	245	0.0033	0.52	0.23	**Trap/Vee/Rect Channel Flow, J-K** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
27.8	1,124	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

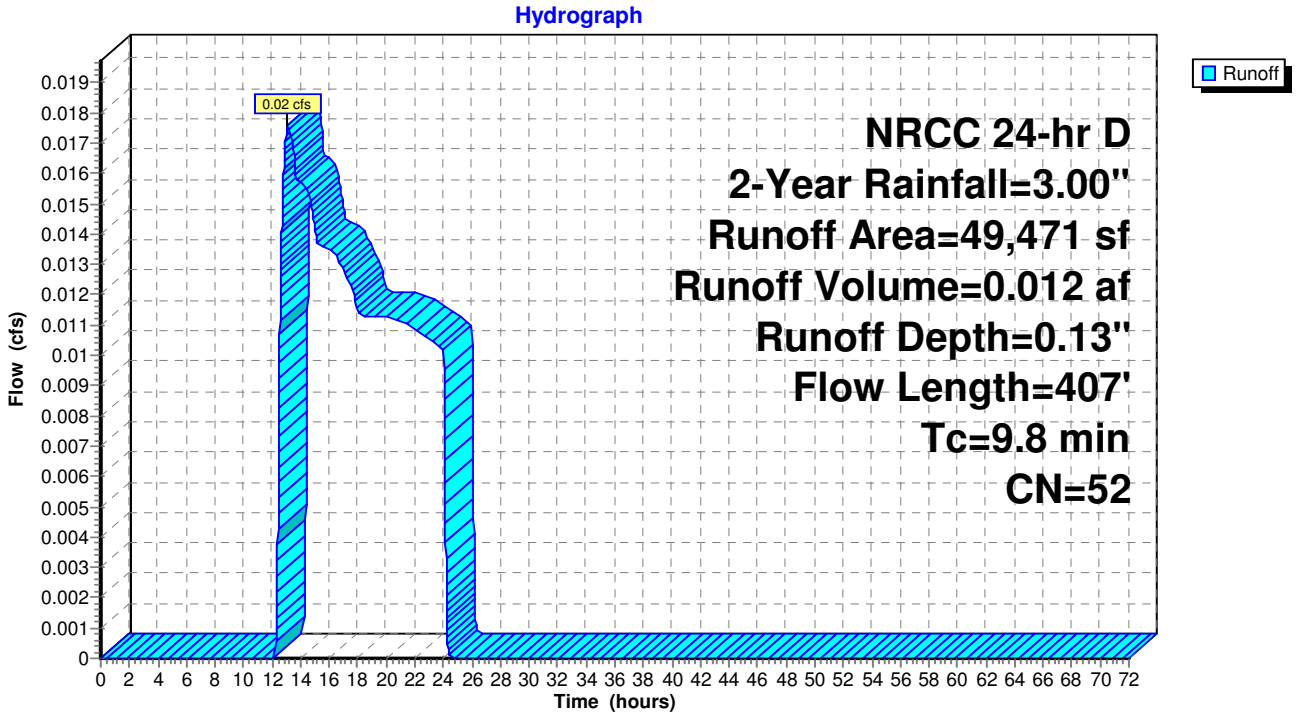
Runoff = 0.02 cfs @ 13.08 hrs, Volume= 0.012 af, Depth= 0.13"
Routed to Link POI-3 : POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
8,830	98	Paved parking, HSG A
2,005	98	Roofs, HSG A
38,636	39	>75% Grass cover, Good, HSG A
49,471	52	Weighted Average
38,636		78.10% Pervious Area
10,835		21.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	21	0.0042	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
6.3	88	0.0011	0.23		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	191	0.0153	4.78	59.78	**Channel Flow, C-D** Area= 12.5 sf Perim= 27.0' r= 0.46' n= 0.023 Earth, clean & winding
2.1	107	0.0090	0.86	0.37	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
9.8	407	Total			

Subcatchment 3: Subcat 3



Summary for Subcatchment 4: Subcat 4

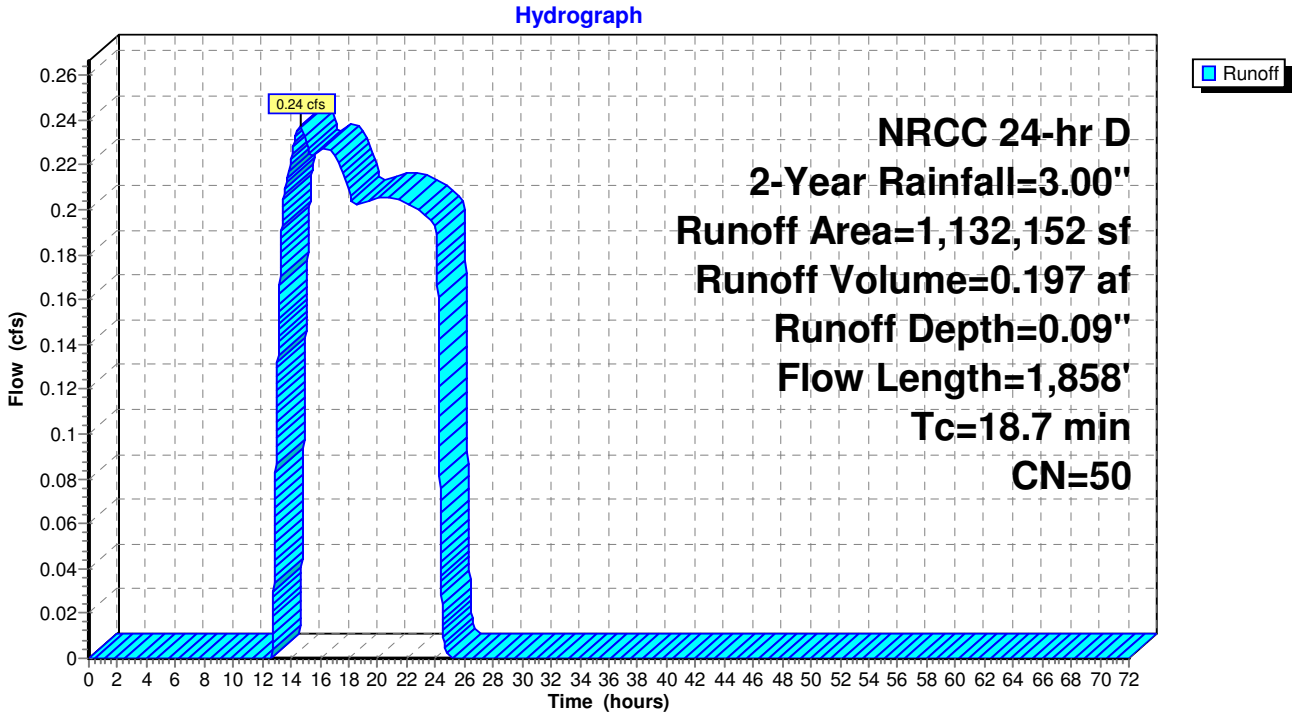
Runoff = 0.24 cfs @ 14.65 hrs, Volume= 0.197 af, Depth= 0.09"
Routed to Link POI-4 : POI-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
203,164	98	Paved parking, HSG A
6,174	98	Roofs, HSG A
907,408	39	>75% Grass cover, Good, HSG A
15,406	45	Woods, Poor, HSG A
1,132,152	50	Weighted Average
922,814		81.51% Pervious Area
209,338		18.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	53	0.0001	0.14		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
7.3	265	0.0075	0.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
3.0	894	0.0084	4.92	147.47	**Channel Flow, D-E** Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.025 Earth, grassed & winding
1.3	214	0.0022	2.79	4.93	**Pipe Channel, E-F** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, straight & clean
0.2	178	0.0526	16.52	51.88	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Concrete pipe, straight & clean
0.1	204	0.0703	35.84	1,612.61	**Channel Flow, G-H** Area= 45.0 sf Perim= 35.0' r= 1.29' n= 0.013 Concrete pipe, straight & clean
18.7	1,858	Total			

Subcatchment 4: Subcat 4

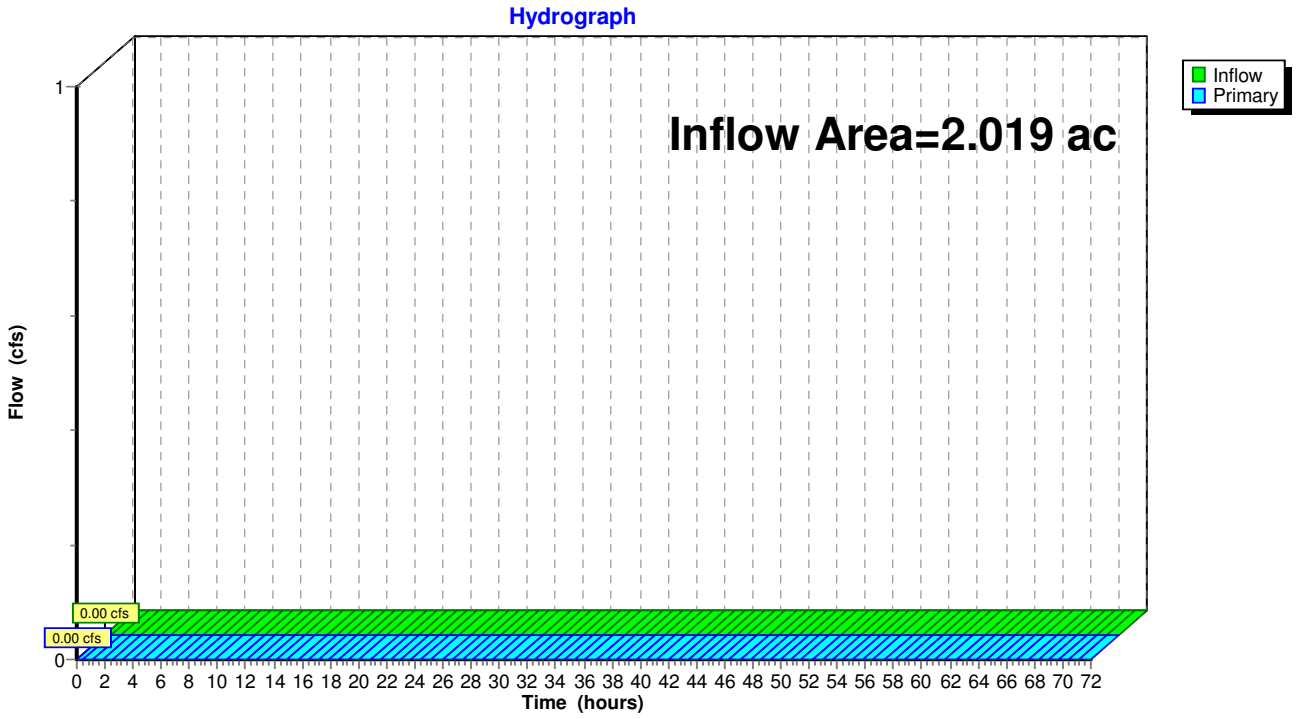


Summary for Link POI-1: POI-1

Inflow Area = 2.019 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: POI-1

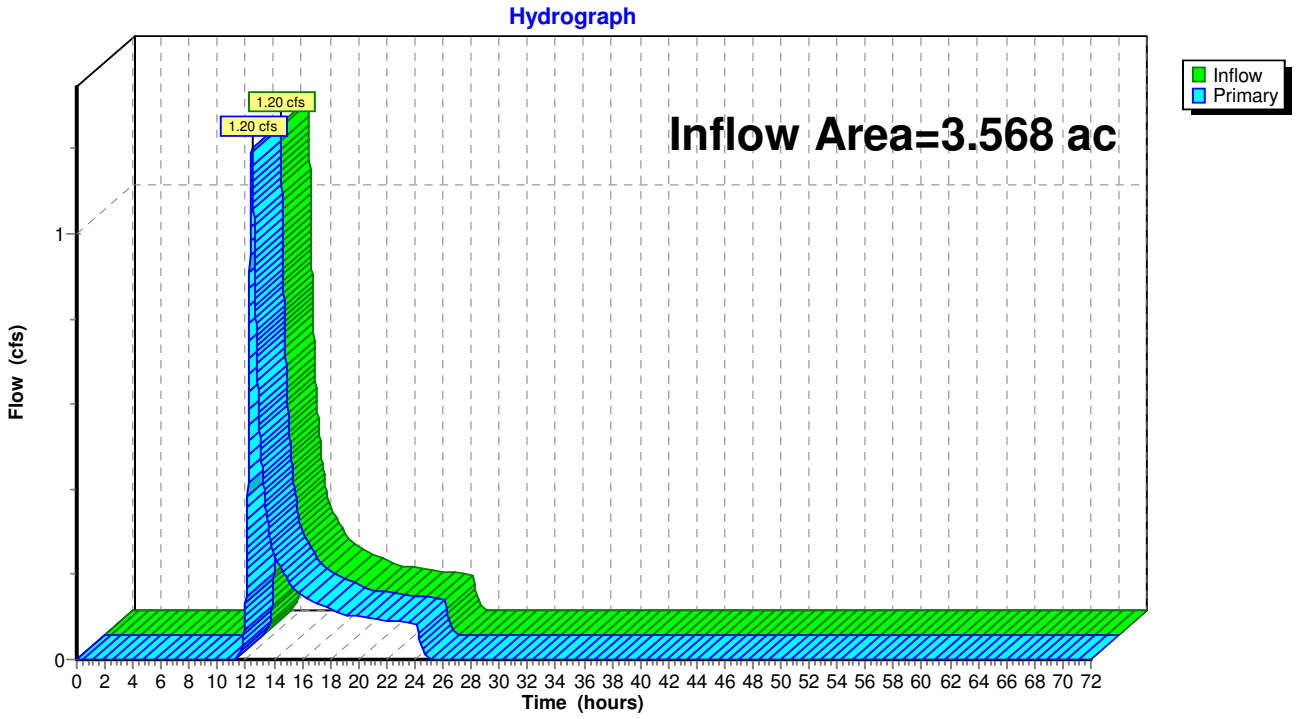


Summary for Link POI-2: POI-2

Inflow Area = 3.568 ac, 50.62% Impervious, Inflow Depth = 0.67" for 2-Year event
Inflow = 1.20 cfs @ 12.44 hrs, Volume= 0.199 af
Primary = 1.20 cfs @ 12.44 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-2: POI-2

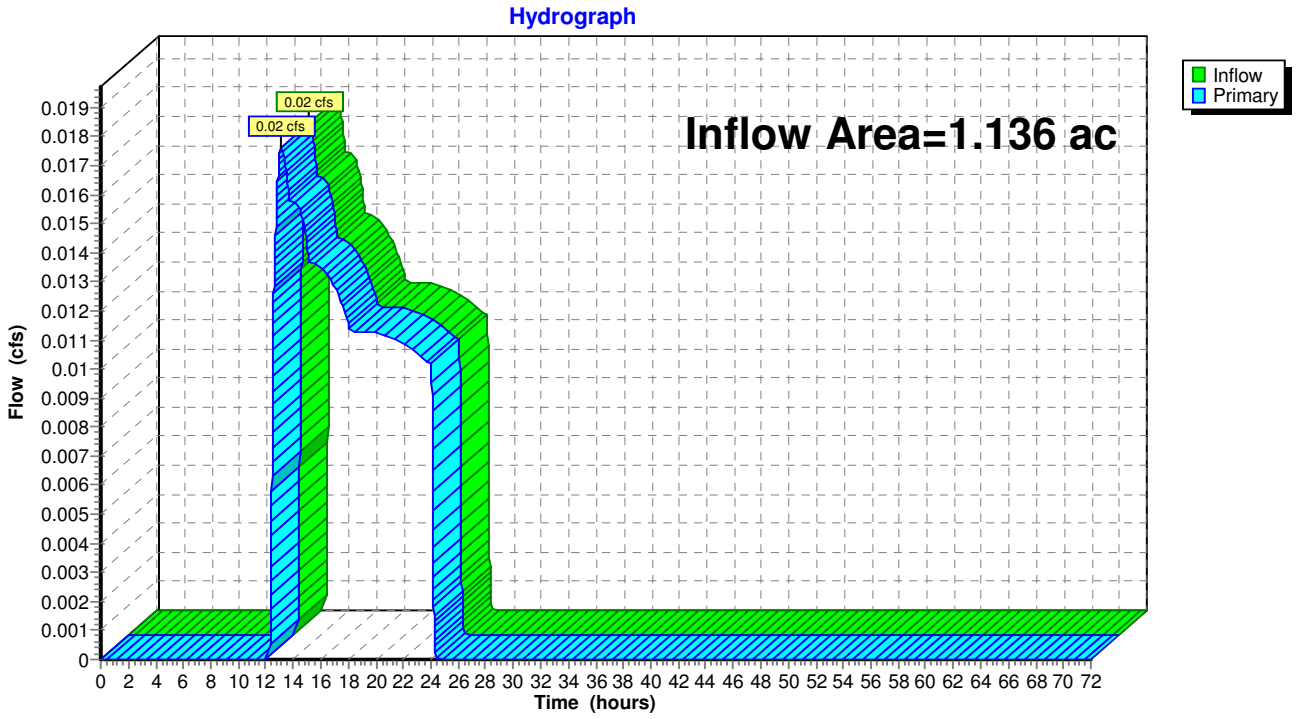


Summary for Link POI-3: POI-3

Inflow Area = 1.136 ac, 21.90% Impervious, Inflow Depth = 0.13" for 2-Year event
Inflow = 0.02 cfs @ 13.08 hrs, Volume= 0.012 af
Primary = 0.02 cfs @ 13.08 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-3: POI-3

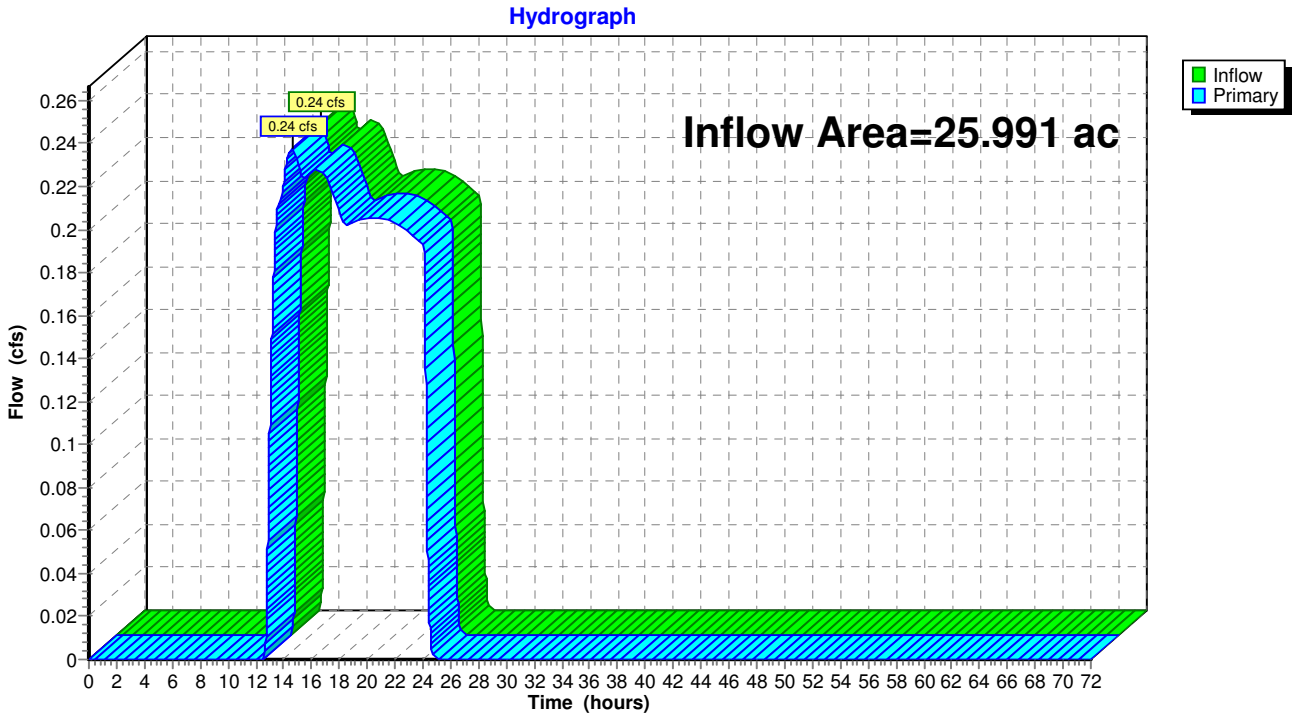


Summary for Link POI-4: POI-4

Inflow Area = 25.991 ac, 18.49% Impervious, Inflow Depth = 0.09" for 2-Year event
Inflow = 0.24 cfs @ 14.65 hrs, Volume= 0.197 af
Primary = 0.24 cfs @ 14.65 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-4: POI-4



Summary for Subcatchment 1: Subcat 1

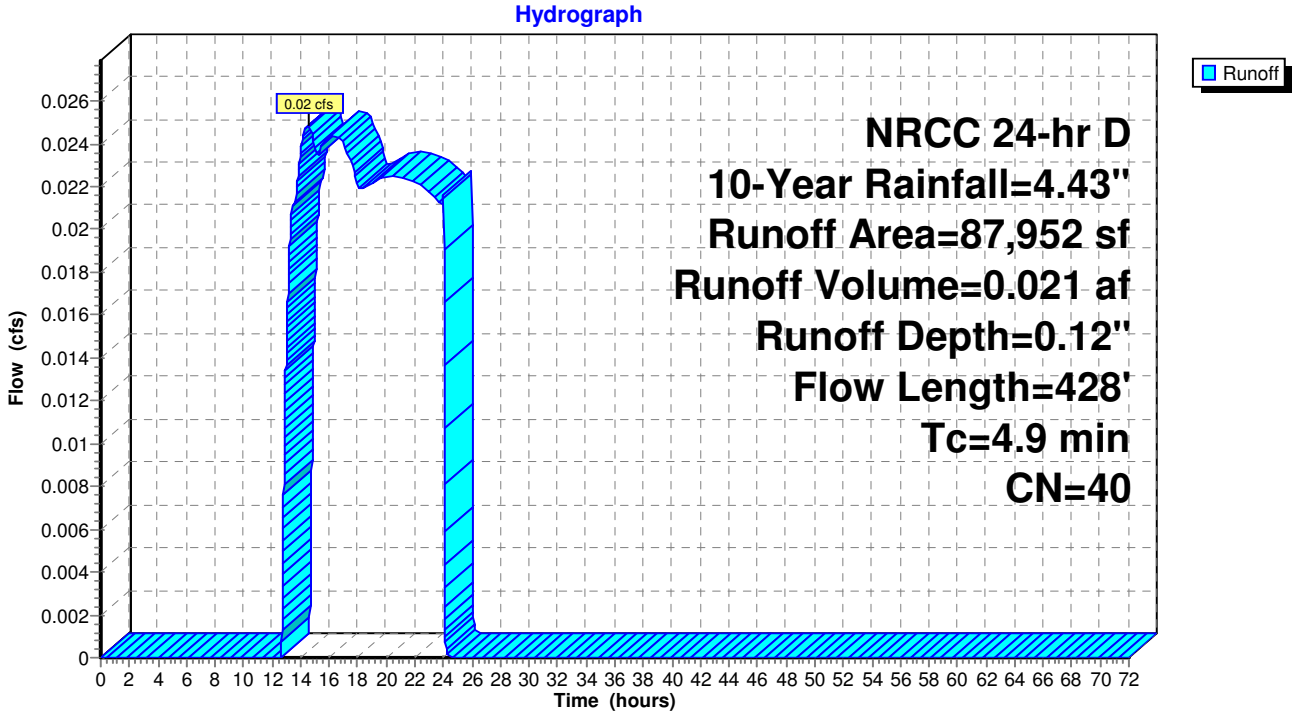
Runoff = 0.02 cfs @ 14.53 hrs, Volume= 0.021 af, Depth= 0.12"
Routed to Link POI-1 : POI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
68,153	39	>75% Grass cover, Good, HSG A
19,799	45	Woods, Poor, HSG A
87,952	40	Weighted Average
87,952		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	68	0.0348	1.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.7	226	0.0398	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	134	0.0462	1.50		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
4.9	428	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

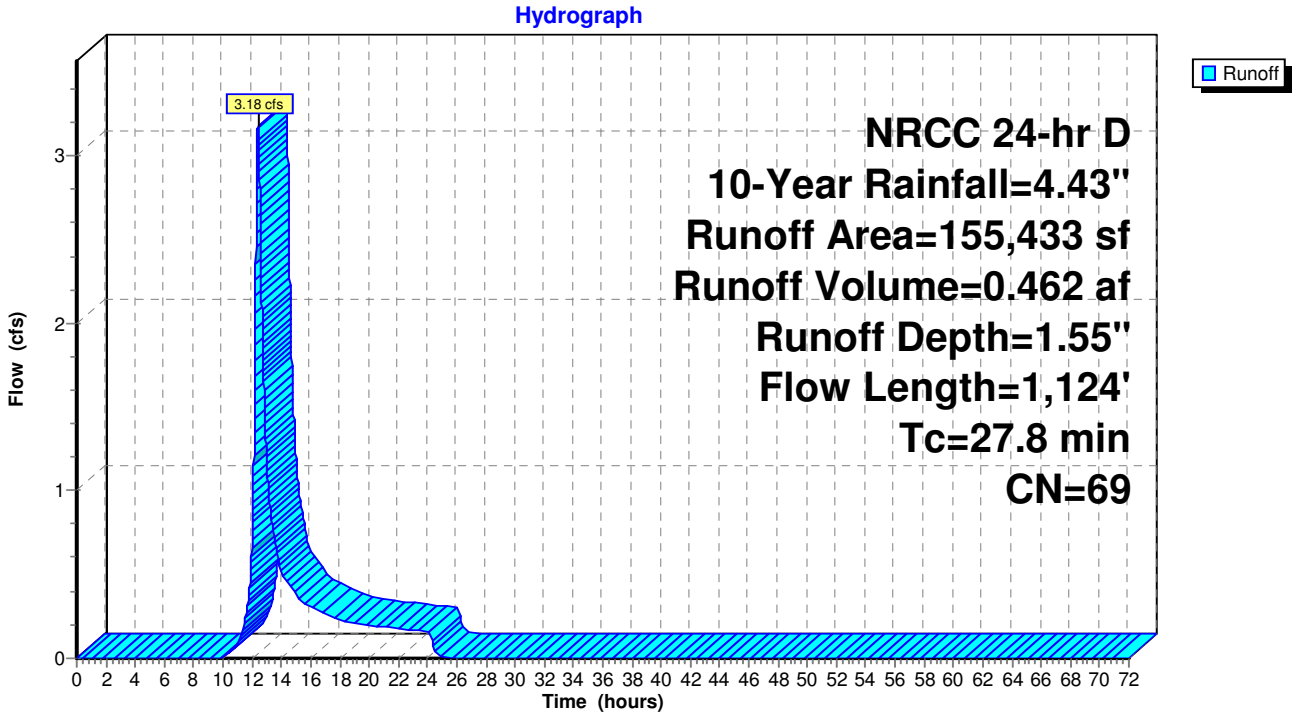
Runoff = 3.18 cfs @ 12.39 hrs, Volume= 0.462 af, Depth= 1.55"
Routed to Link POI-2 : POI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
70,094	98	Paved parking, HSG A
8,587	98	Roofs, HSG A
75,403	39	>75% Grass cover, Good, HSG A
1,349	45	Woods, Poor, HSG A
155,433	69	Weighted Average
76,752		49.38% Pervious Area
78,681		50.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	29	0.0038	0.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	49	0.0058	1.55		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1	14	0.1392	2.61		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
9.3	246	0.0040	0.44		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.9	121	0.0110	2.13		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
2.6	99	0.0080	0.63		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
1.0	60	0.0039	1.01		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
2.6	59	0.0030	0.38		**Shallow Concentrated Flow, H-I** Short Grass Pasture Kv= 7.0 fps
2.1	202	0.0097	1.59		**Shallow Concentrated Flow, I-J** Unpaved Kv= 16.1 fps
7.8	245	0.0033	0.52	0.23	**Trap/Vee/Rect Channel Flow, J-K** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
27.8	1,124	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

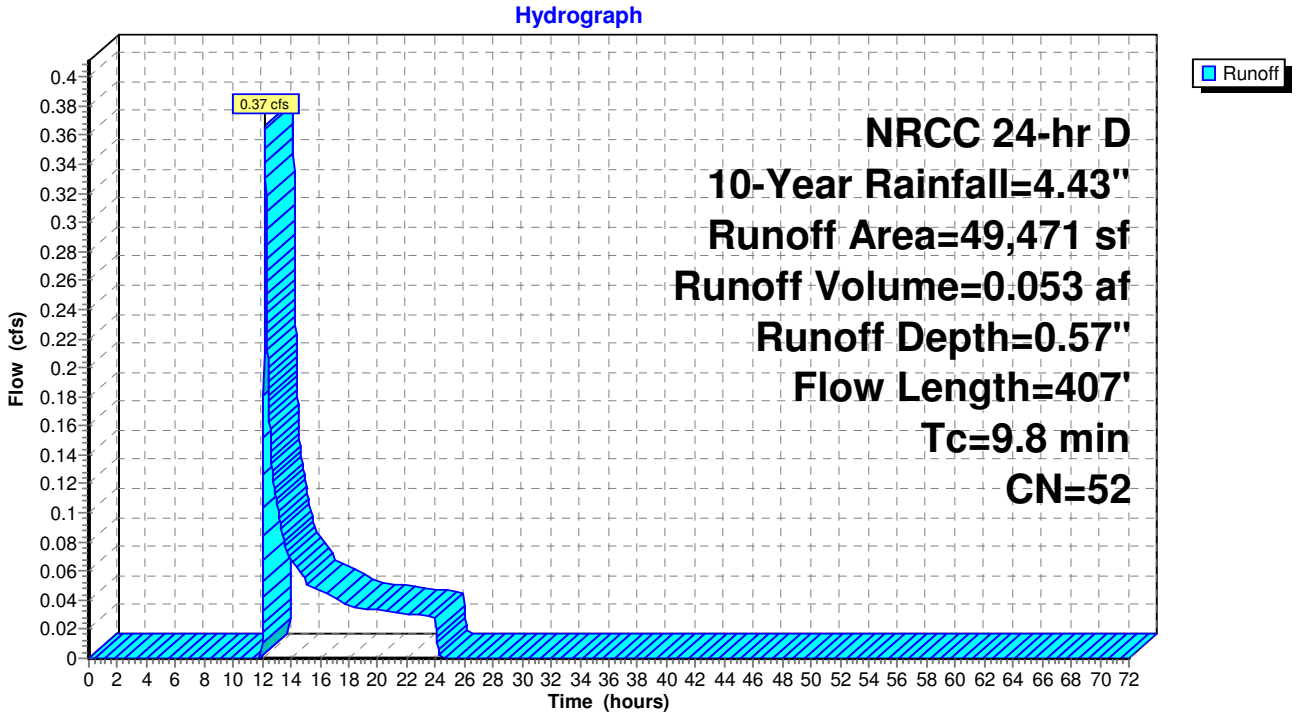
Runoff = 0.37 cfs @ 12.20 hrs, Volume= 0.053 af, Depth= 0.57"
Routed to Link POI-3 : POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
8,830	98	Paved parking, HSG A
2,005	98	Roofs, HSG A
38,636	39	>75% Grass cover, Good, HSG A
49,471	52	Weighted Average
38,636		78.10% Pervious Area
10,835		21.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	21	0.0042	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
6.3	88	0.0011	0.23		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	191	0.0153	4.78	59.78	**Channel Flow, C-D** Area= 12.5 sf Perim= 27.0' r= 0.46' n= 0.023 Earth, clean & winding
2.1	107	0.0090	0.86	0.37	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
9.8	407	Total			

Subcatchment 3: Subcat 3



Summary for Subcatchment 4: Subcat 4

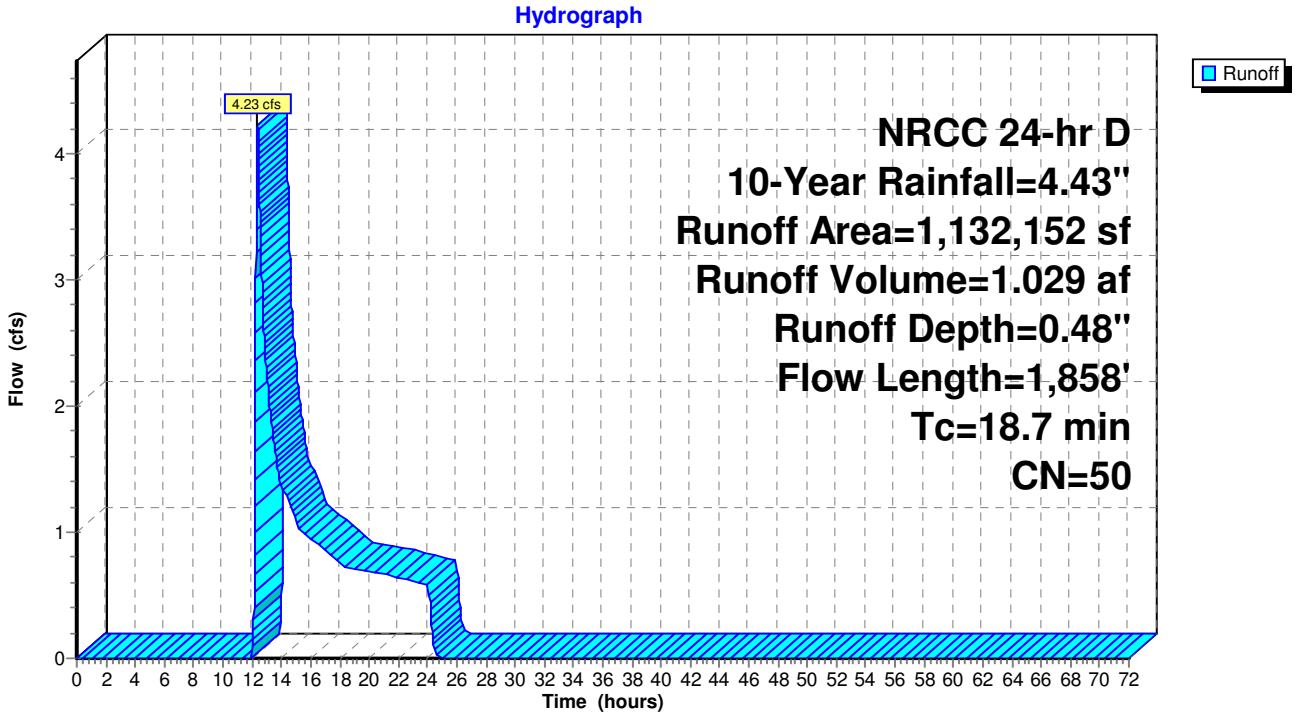
Runoff = 4.23 cfs @ 12.37 hrs, Volume= 1.029 af, Depth= 0.48"
Routed to Link POI-4 : POI-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
203,164	98	Paved parking, HSG A
6,174	98	Roofs, HSG A
907,408	39	>75% Grass cover, Good, HSG A
15,406	45	Woods, Poor, HSG A
1,132,152	50	Weighted Average
922,814		81.51% Pervious Area
209,338		18.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	53	0.0001	0.14		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
7.3	265	0.0075	0.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
3.0	894	0.0084	4.92	147.47	**Channel Flow, D-E** Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.025 Earth, grassed & winding
1.3	214	0.0022	2.79	4.93	**Pipe Channel, E-F** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, straight & clean
0.2	178	0.0526	16.52	51.88	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Concrete pipe, straight & clean
0.1	204	0.0703	35.84	1,612.61	**Channel Flow, G-H** Area= 45.0 sf Perim= 35.0' r= 1.29' n= 0.013 Concrete pipe, straight & clean
18.7	1,858	Total			

Subcatchment 4: Subcat 4

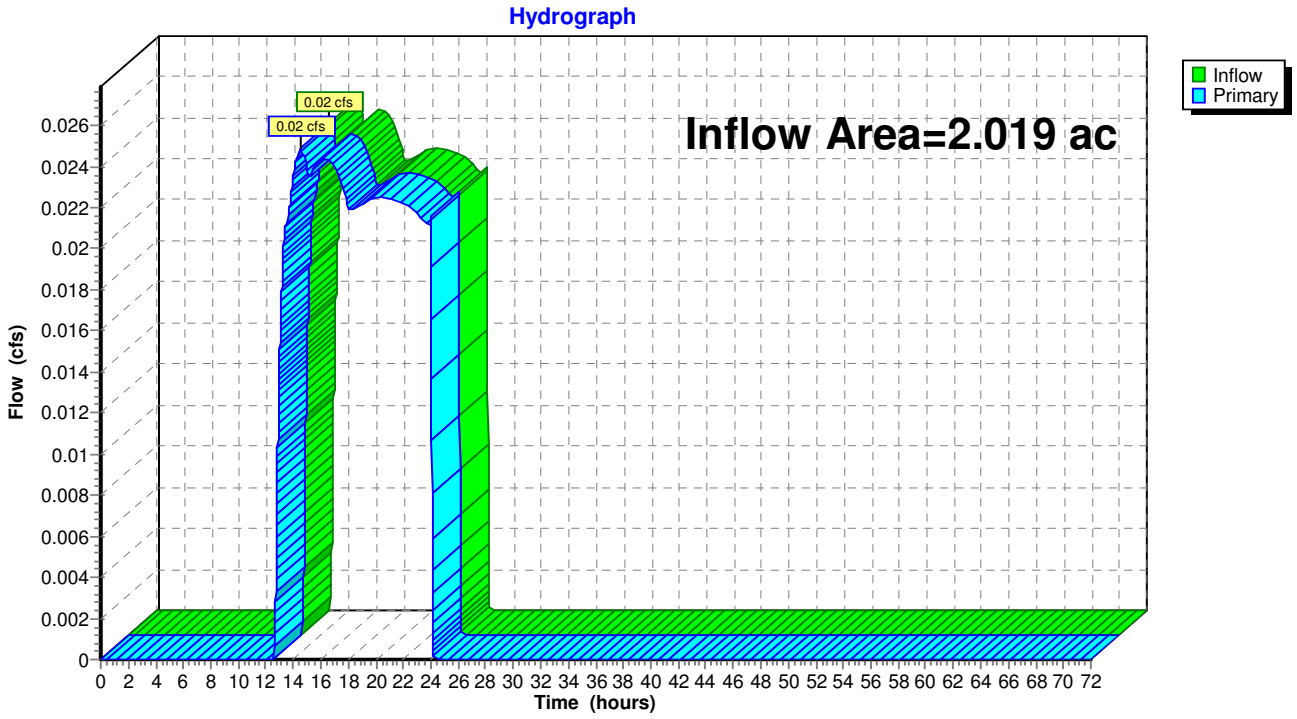


Summary for Link POI-1: POI-1

Inflow Area = 2.019 ac, 0.00% Impervious, Inflow Depth = 0.12" for 10-Year event
Inflow = 0.02 cfs @ 14.53 hrs, Volume= 0.021 af
Primary = 0.02 cfs @ 14.53 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: POI-1

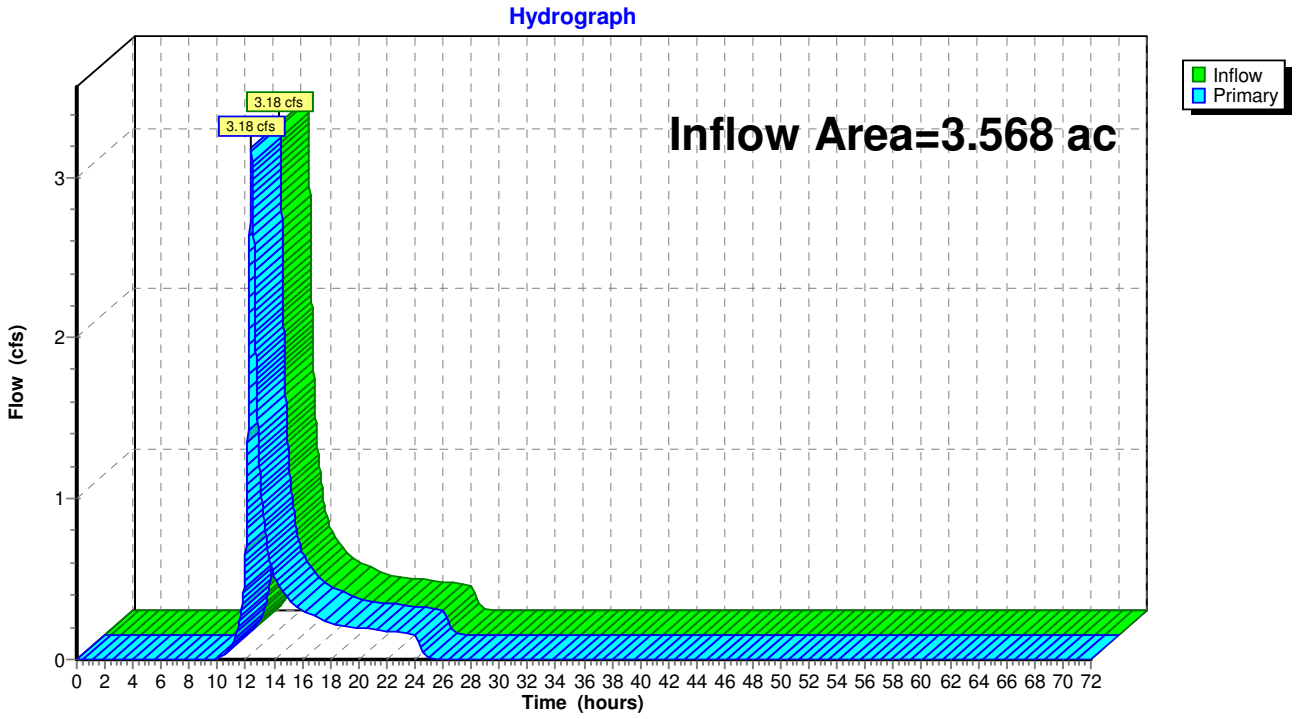


Summary for Link POI-2: POI-2

Inflow Area = 3.568 ac, 50.62% Impervious, Inflow Depth = 1.55" for 10-Year event
Inflow = 3.18 cfs @ 12.39 hrs, Volume= 0.462 af
Primary = 3.18 cfs @ 12.39 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-2: POI-2

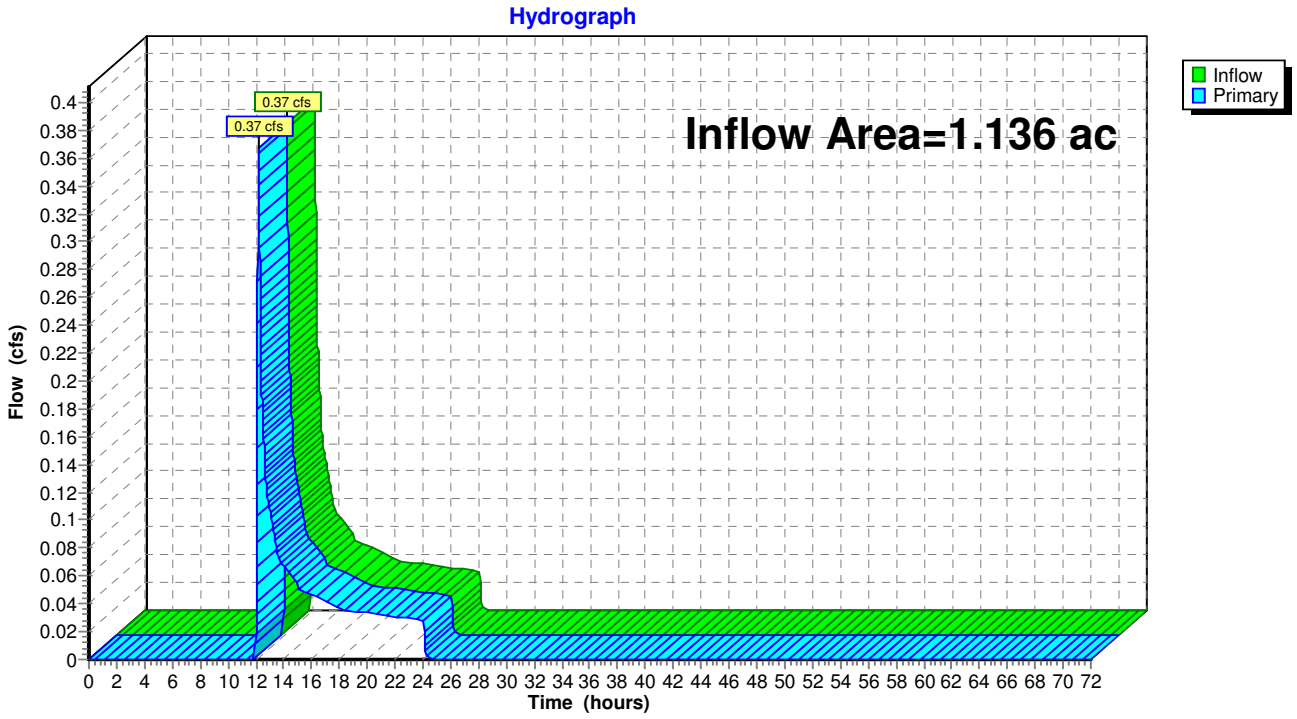


Summary for Link POI-3: POI-3

Inflow Area = 1.136 ac, 21.90% Impervious, Inflow Depth = 0.57" for 10-Year event
Inflow = 0.37 cfs @ 12.20 hrs, Volume= 0.053 af
Primary = 0.37 cfs @ 12.20 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-3: POI-3

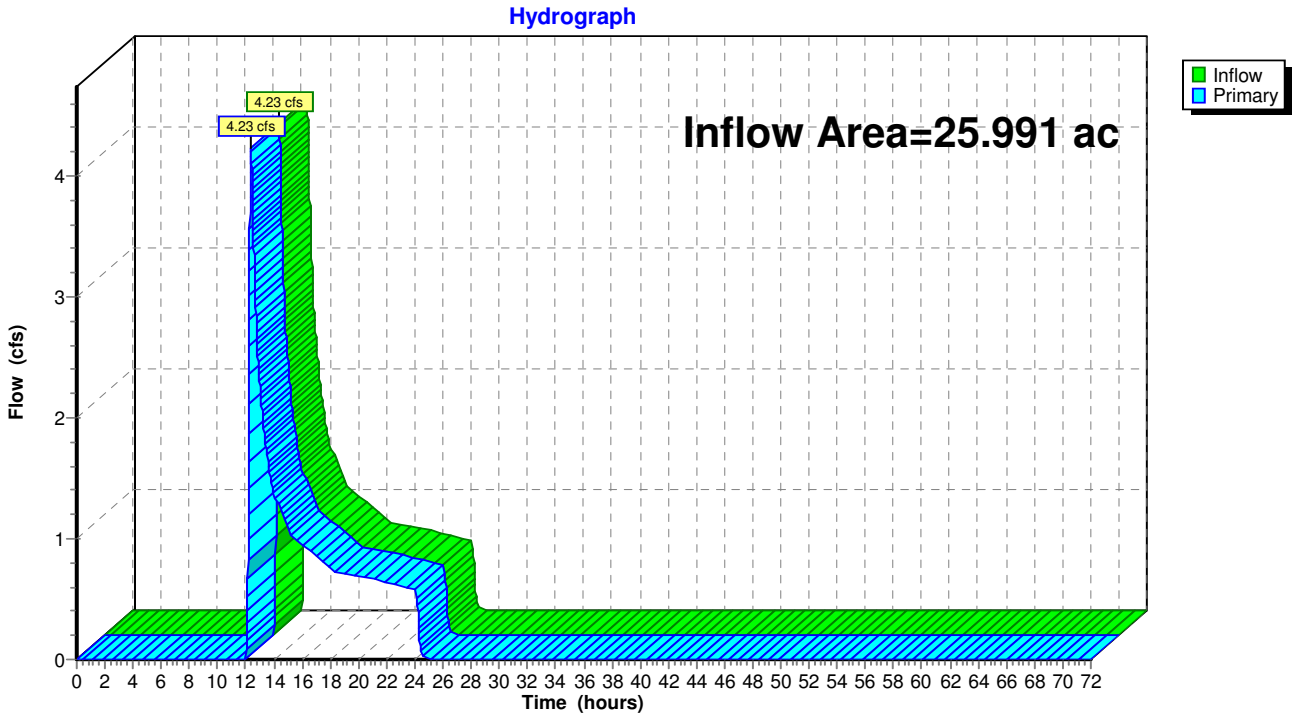


Summary for Link POI-4: POI-4

Inflow Area = 25.991 ac, 18.49% Impervious, Inflow Depth = 0.48" for 10-Year event
Inflow = 4.23 cfs @ 12.37 hrs, Volume= 1.029 af
Primary = 4.23 cfs @ 12.37 hrs, Volume= 1.029 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-4: POI-4



Summary for Subcatchment 1: Subcat 1

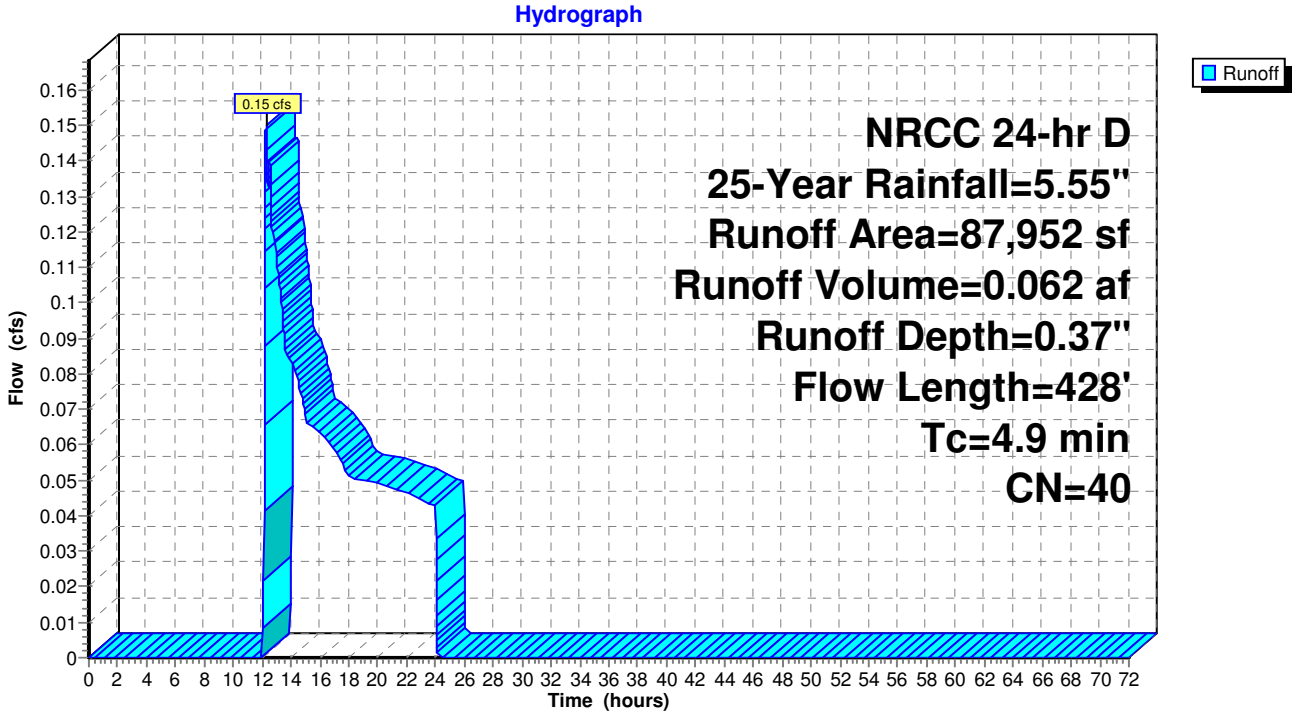
Runoff = 0.15 cfs @ 12.33 hrs, Volume= 0.062 af, Depth= 0.37"
Routed to Link POI-1 : POI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
68,153	39	>75% Grass cover, Good, HSG A
19,799	45	Woods, Poor, HSG A
87,952	40	Weighted Average
87,952		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	68	0.0348	1.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.7	226	0.0398	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	134	0.0462	1.50		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
4.9	428	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

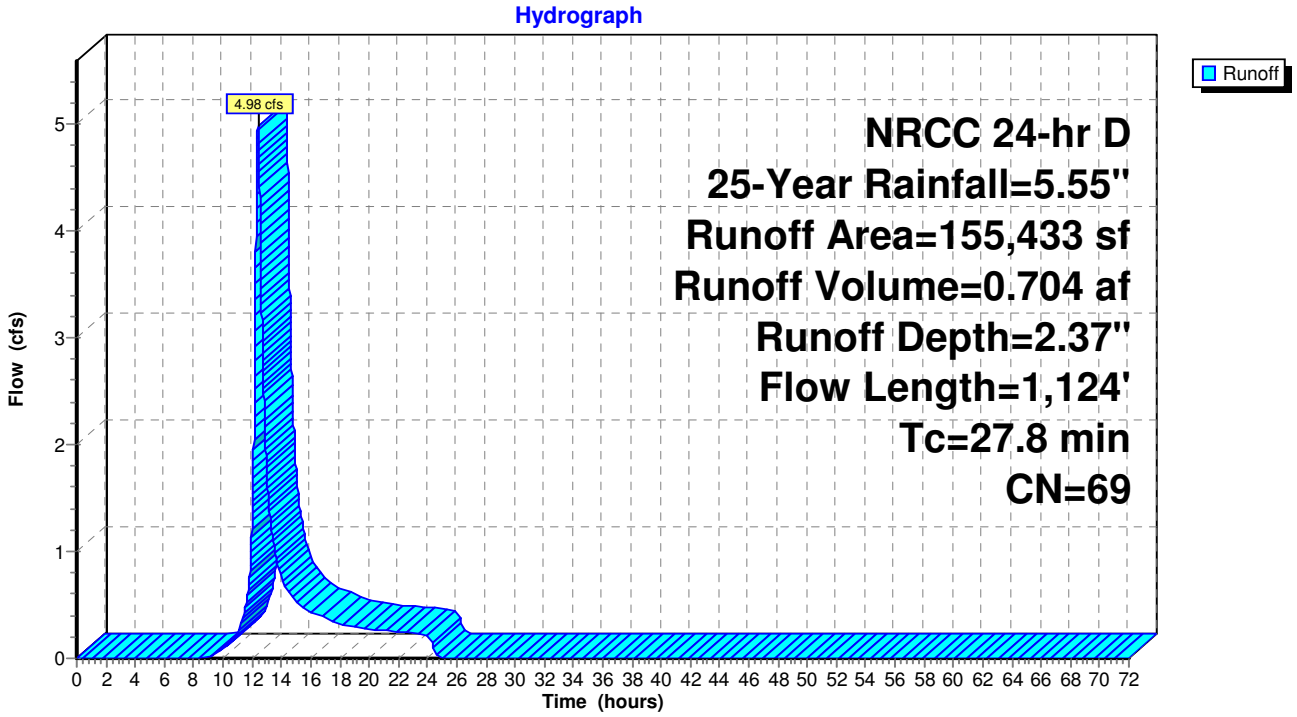
Runoff = 4.98 cfs @ 12.39 hrs, Volume= 0.704 af, Depth= 2.37"
Routed to Link POI-2 : POI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
70,094	98	Paved parking, HSG A
8,587	98	Roofs, HSG A
75,403	39	>75% Grass cover, Good, HSG A
1,349	45	Woods, Poor, HSG A
155,433	69	Weighted Average
76,752		49.38% Pervious Area
78,681		50.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	29	0.0038	0.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	49	0.0058	1.55		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1	14	0.1392	2.61		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
9.3	246	0.0040	0.44		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.9	121	0.0110	2.13		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
2.6	99	0.0080	0.63		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
1.0	60	0.0039	1.01		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
2.6	59	0.0030	0.38		**Shallow Concentrated Flow, H-I** Short Grass Pasture Kv= 7.0 fps
2.1	202	0.0097	1.59		**Shallow Concentrated Flow, I-J** Unpaved Kv= 16.1 fps
7.8	245	0.0033	0.52	0.23	**Trap/Vee/Rect Channel Flow, J-K** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
27.8	1,124	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

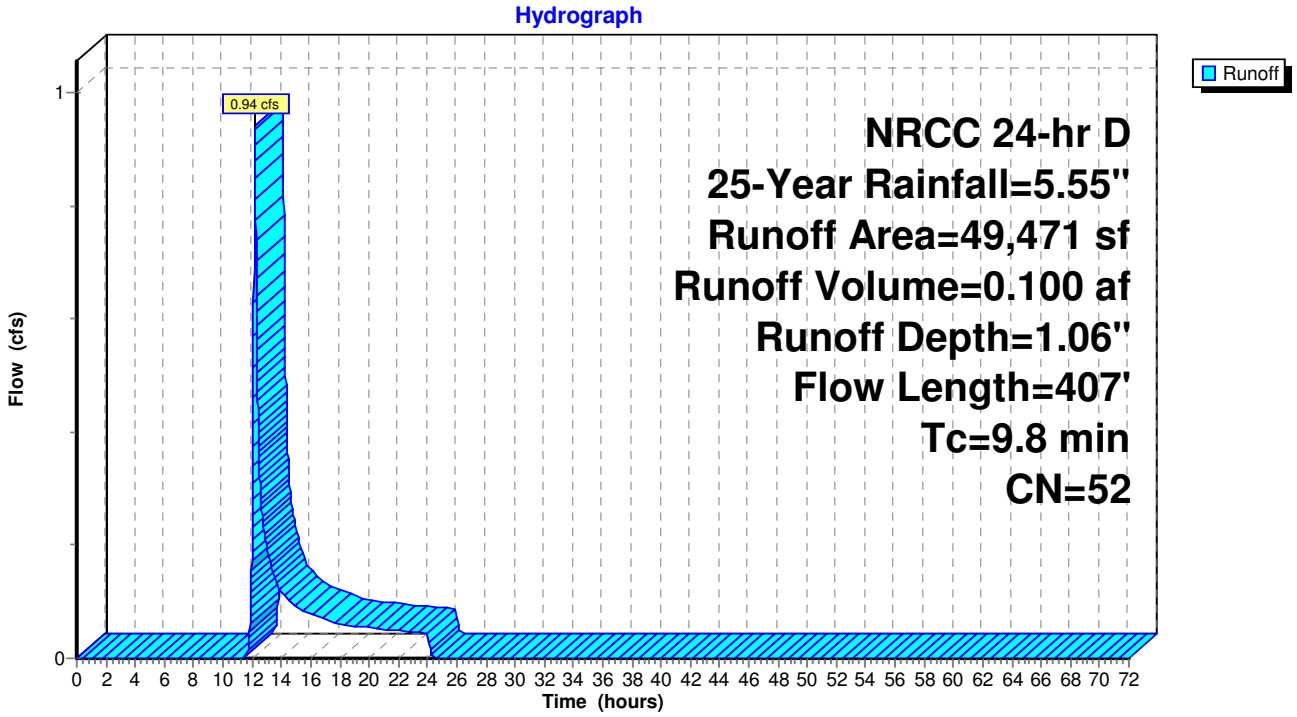
Runoff = 0.94 cfs @ 12.18 hrs, Volume= 0.100 af, Depth= 1.06"
Routed to Link POI-3 : POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
8,830	98	Paved parking, HSG A
2,005	98	Roofs, HSG A
38,636	39	>75% Grass cover, Good, HSG A
49,471	52	Weighted Average
38,636		78.10% Pervious Area
10,835		21.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	21	0.0042	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
6.3	88	0.0011	0.23		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	191	0.0153	4.78	59.78	**Channel Flow, C-D** Area= 12.5 sf Perim= 27.0' r= 0.46' n= 0.023 Earth, clean & winding
2.1	107	0.0090	0.86	0.37	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
9.8	407	Total			

Subcatchment 3: Subcat 3



Summary for Subcatchment 4: Subcat 4

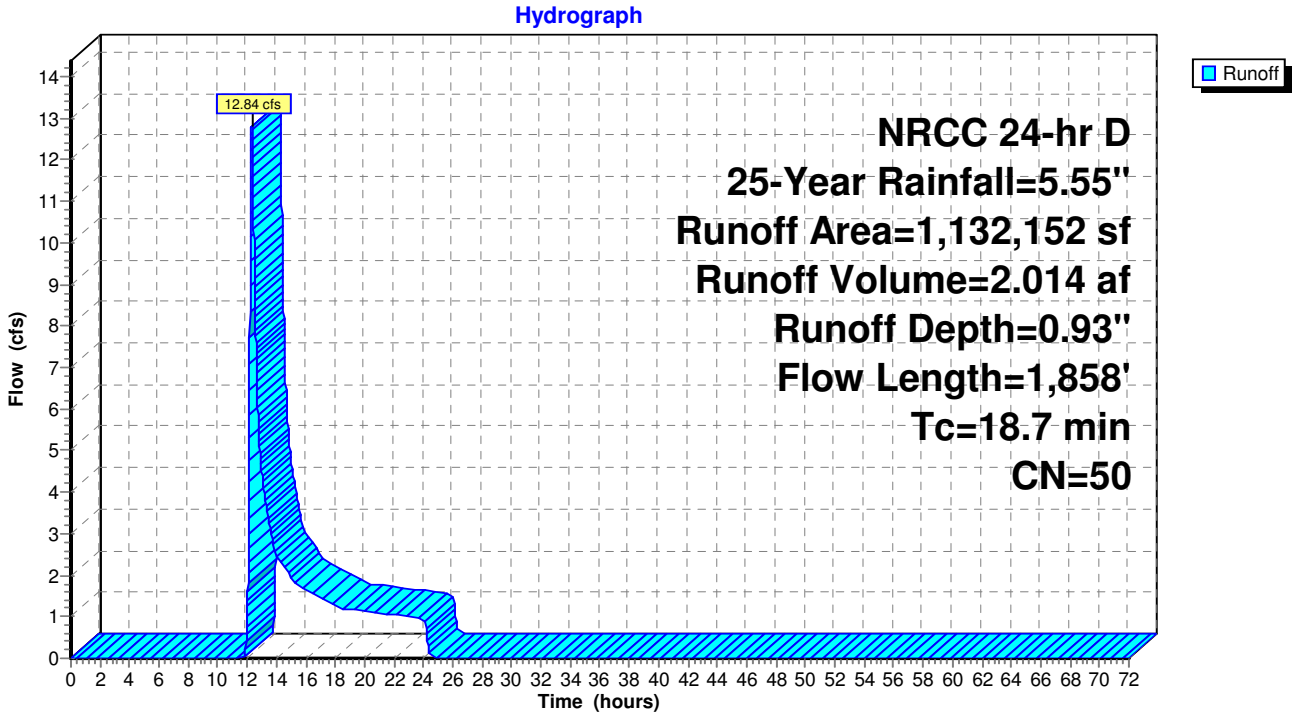
Runoff = 12.84 cfs @ 12.32 hrs, Volume= 2.014 af, Depth= 0.93"
Routed to Link POI-4 : POI-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
203,164	98	Paved parking, HSG A
6,174	98	Roofs, HSG A
907,408	39	>75% Grass cover, Good, HSG A
15,406	45	Woods, Poor, HSG A
1,132,152	50	Weighted Average
922,814		81.51% Pervious Area
209,338		18.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	53	0.0001	0.14		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
7.3	265	0.0075	0.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
3.0	894	0.0084	4.92	147.47	**Channel Flow, D-E** Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.025 Earth, grassed & winding
1.3	214	0.0022	2.79	4.93	**Pipe Channel, E-F** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, straight & clean
0.2	178	0.0526	16.52	51.88	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Concrete pipe, straight & clean
0.1	204	0.0703	35.84	1,612.61	**Channel Flow, G-H** Area= 45.0 sf Perim= 35.0' r= 1.29' n= 0.013 Concrete pipe, straight & clean
18.7	1,858	Total			

Subcatchment 4: Subcat 4

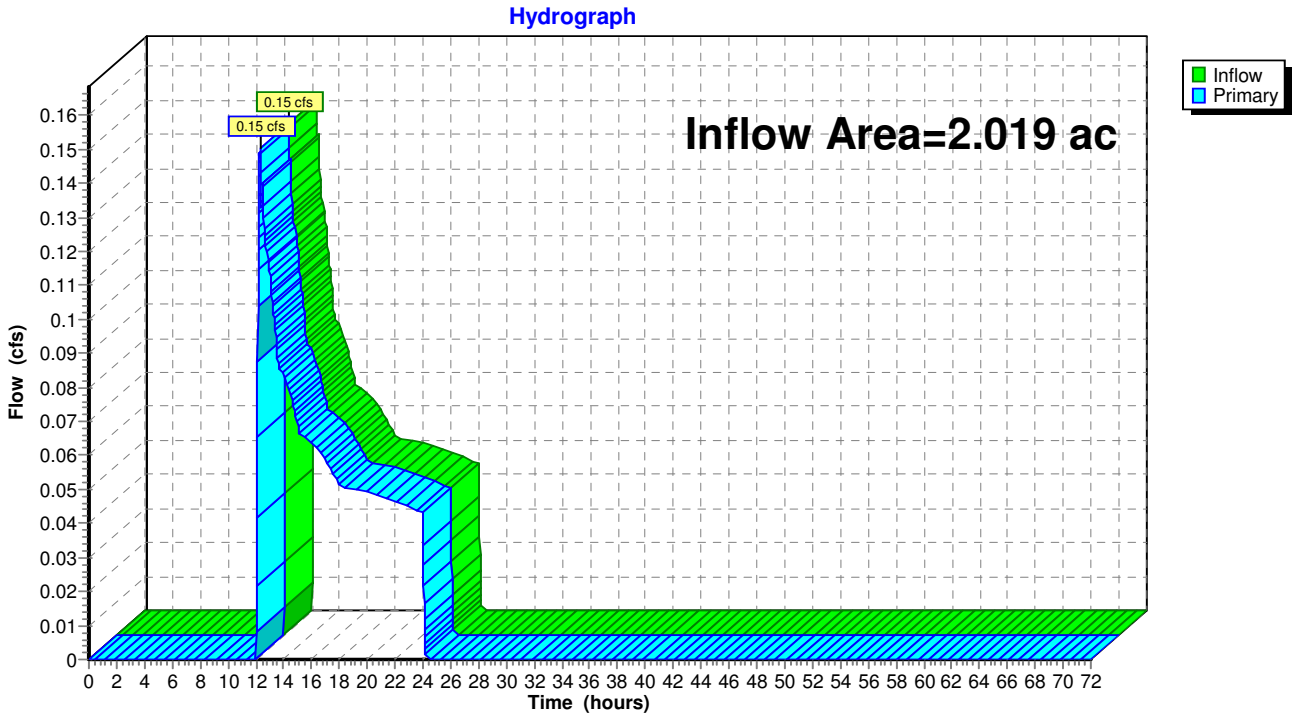


Summary for Link POI-1: POI-1

Inflow Area = 2.019 ac, 0.00% Impervious, Inflow Depth = 0.37" for 25-Year event
Inflow = 0.15 cfs @ 12.33 hrs, Volume= 0.062 af
Primary = 0.15 cfs @ 12.33 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: POI-1

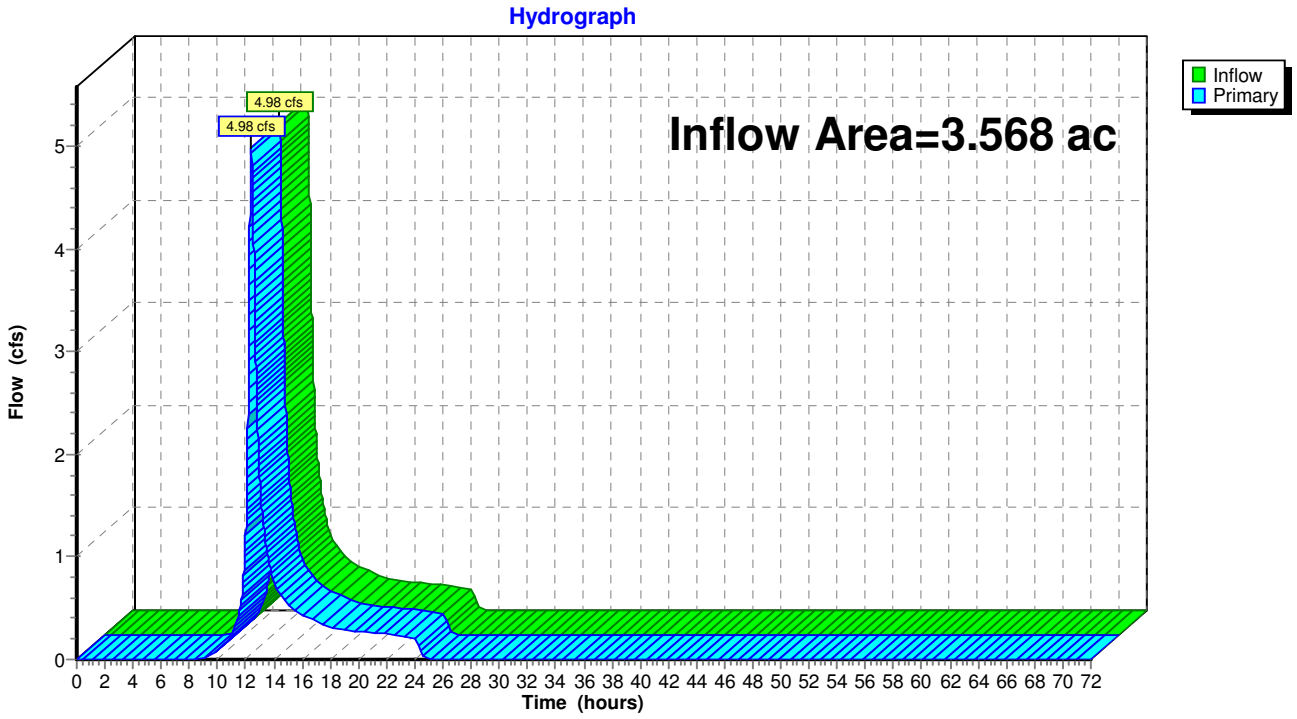


Summary for Link POI-2: POI-2

Inflow Area = 3.568 ac, 50.62% Impervious, Inflow Depth = 2.37" for 25-Year event
Inflow = 4.98 cfs @ 12.39 hrs, Volume= 0.704 af
Primary = 4.98 cfs @ 12.39 hrs, Volume= 0.704 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-2: POI-2

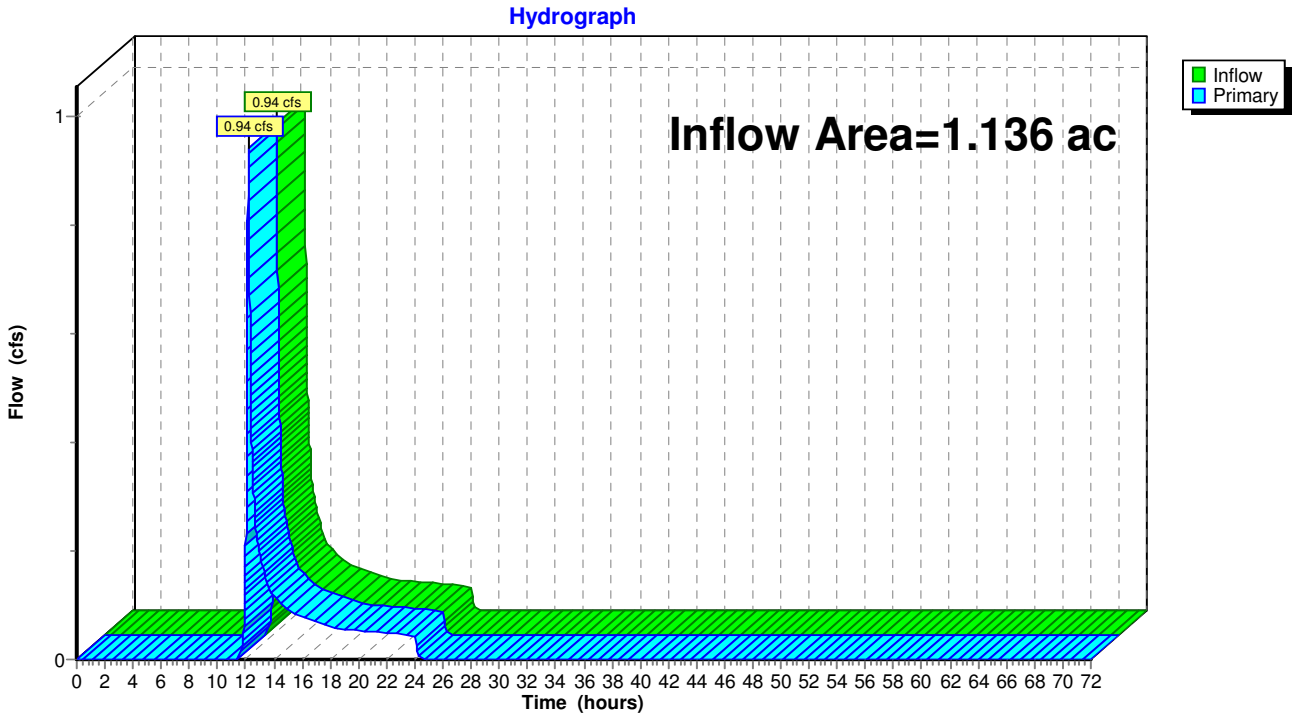


Summary for Link POI-3: POI-3

Inflow Area = 1.136 ac, 21.90% Impervious, Inflow Depth = 1.06" for 25-Year event
Inflow = 0.94 cfs @ 12.18 hrs, Volume= 0.100 af
Primary = 0.94 cfs @ 12.18 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-3: POI-3

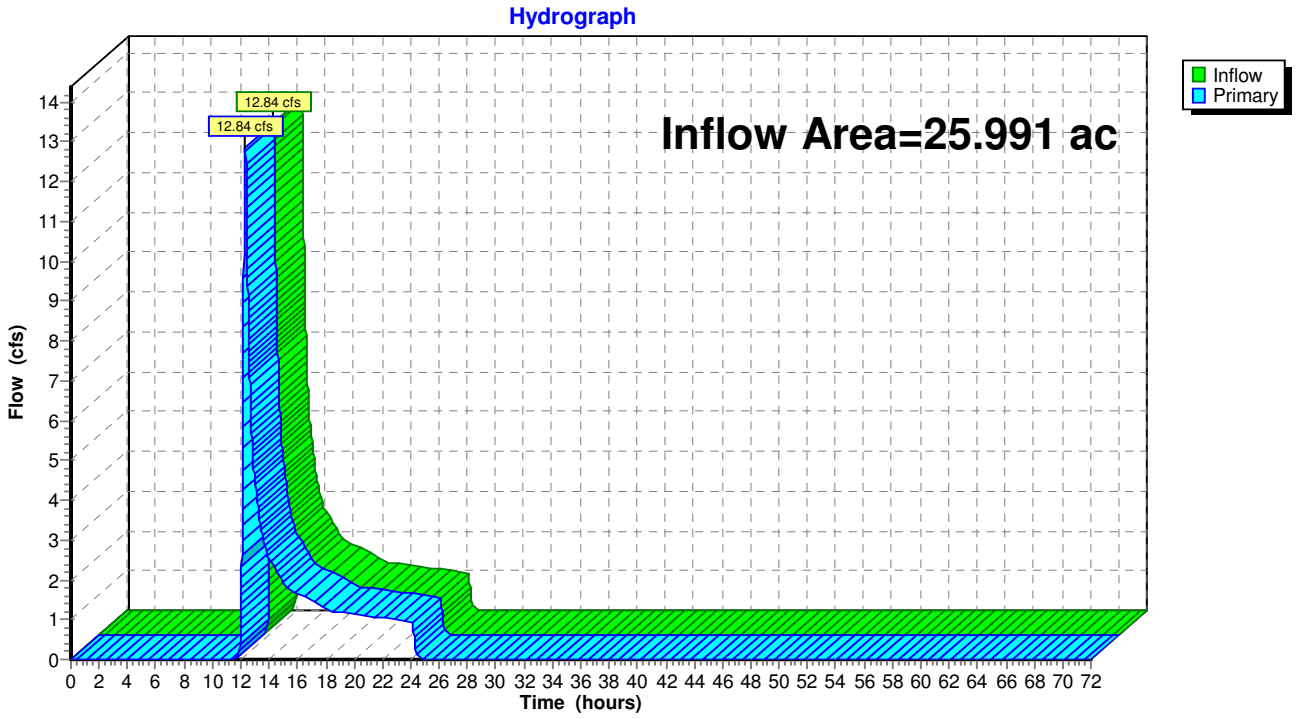


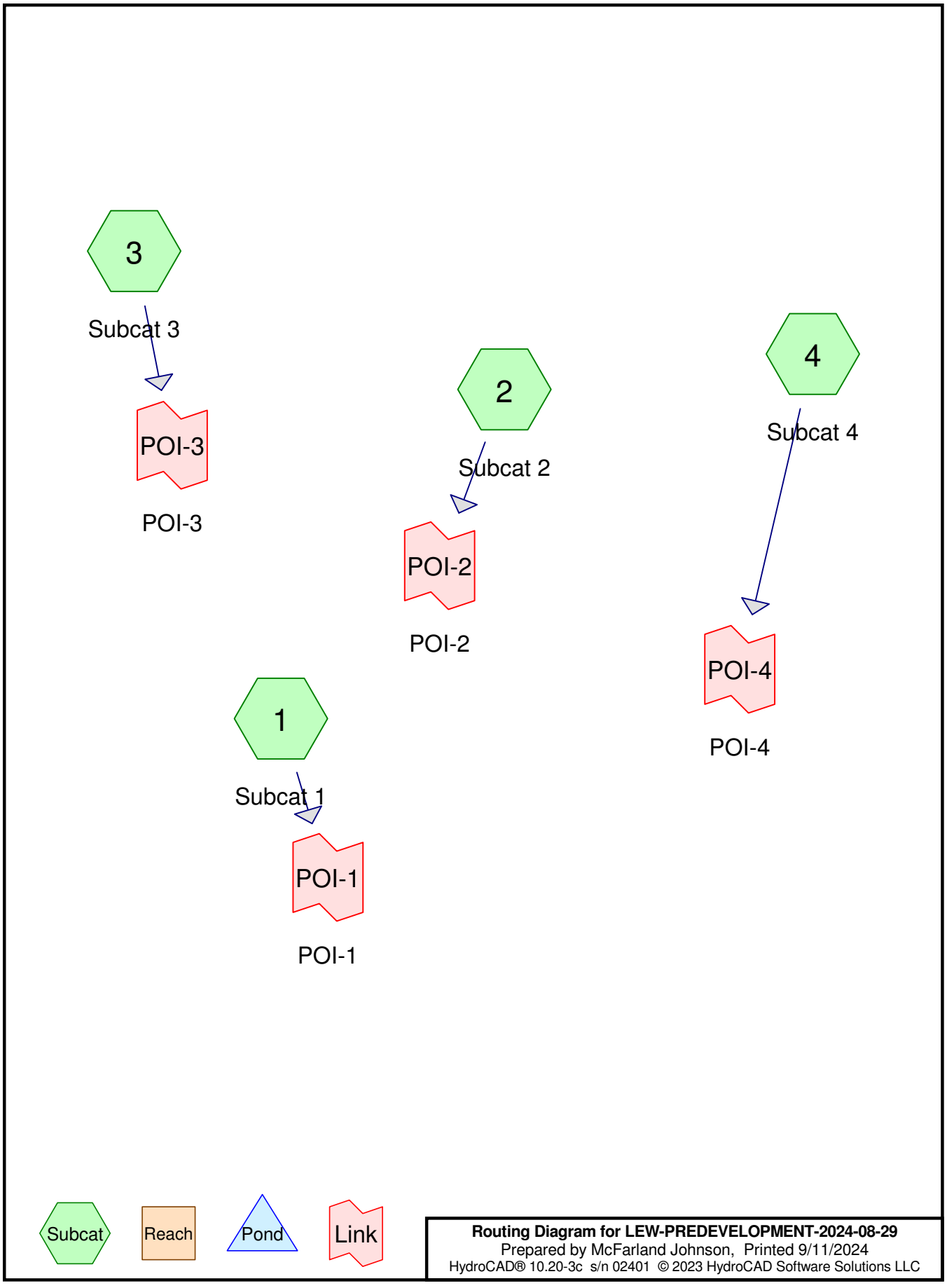
Summary for Link POI-4: POI-4

Inflow Area = 25.991 ac, 18.49% Impervious, Inflow Depth = 0.93" for 25-Year event
Inflow = 12.84 cfs @ 12.32 hrs, Volume= 2.014 af
Primary = 12.84 cfs @ 12.32 hrs, Volume= 2.014 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-4: POI-4





Routing Diagram for LEW-PREDEVELOPMENT-2024-08-29
Prepared by McFarland Johnson, Printed 9/11/2024

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	D	Default	24.00	1	3.00	2
2	10-Year	NRCC 24-hr	D	Default	24.00	1	4.43	2
3	25-Year	NRCC 24-hr	D	Default	24.00	1	5.55	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
25.014	39	>75% Grass cover, Good, HSG A (1, 2, 3, 4)
6.476	98	Paved parking, HSG A (2, 3, 4)
0.385	98	Roofs, HSG A (2, 3, 4)
0.839	45	Woods, Poor, HSG A (1, 2, 4)
32.714	**52**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
32.714	HSG A	1, 2, 3, 4
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
32.714		**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
25.014	0.000	0.000	0.000	0.000	25.014	>75% Grass cover, Good	1, 2, 3, 4
6.476	0.000	0.000	0.000	0.000	6.476	Paved parking	2, 3, 4
0.385	0.000	0.000	0.000	0.000	0.385	Roofs	2, 3, 4
0.839	0.000	0.000	0.000	0.000	0.839	Woods, Poor	1, 2, 4
32.714	**0.000**	**0.000**	**0.000**	**0.000**	**32.714**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	4	0.00	0.00	214.0	0.0022	0.013	0.0	18.0	0.0	
2	4	0.00	0.00	178.0	0.0526	0.013	0.0	24.0	0.0	

Summary for Subcatchment 1: Subcat 1

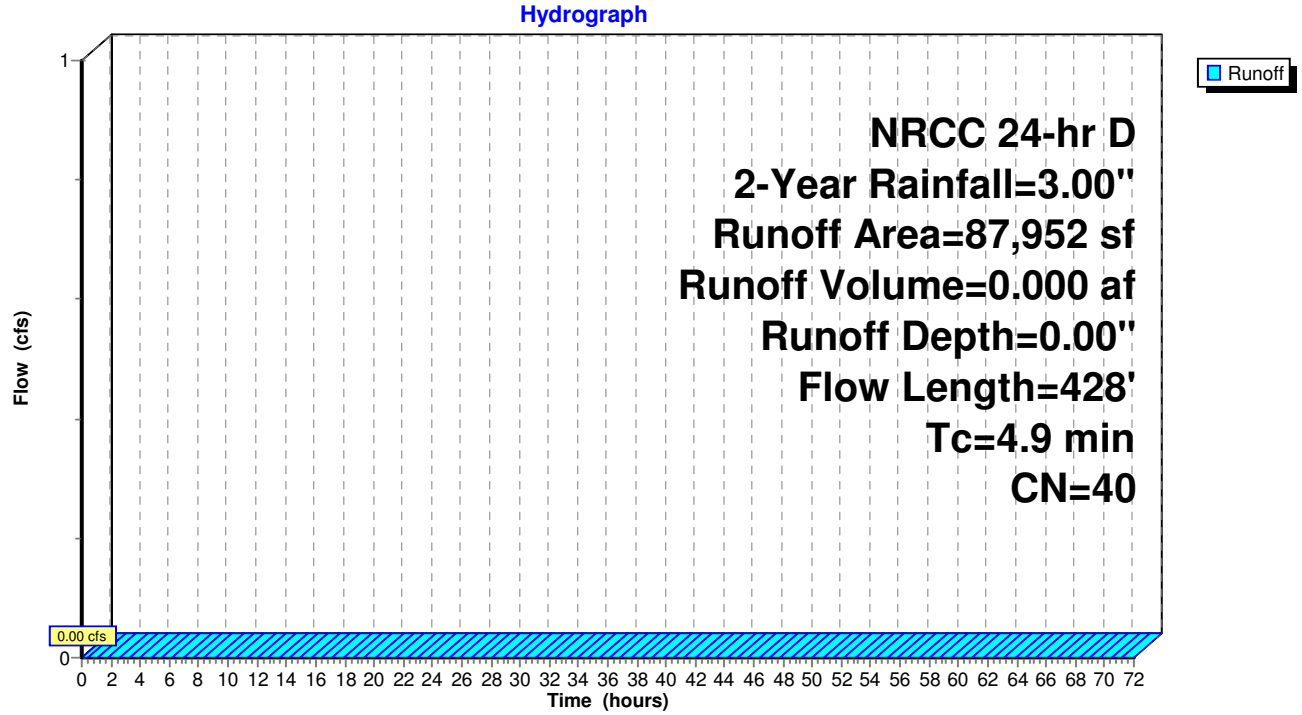
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
Routed to Link POI-1 : POI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
68,153	39	>75% Grass cover, Good, HSG A
19,799	45	Woods, Poor, HSG A
87,952	40	Weighted Average
87,952		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	68	0.0348	1.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.7	226	0.0398	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	134	0.0462	1.50		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
4.9	428	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

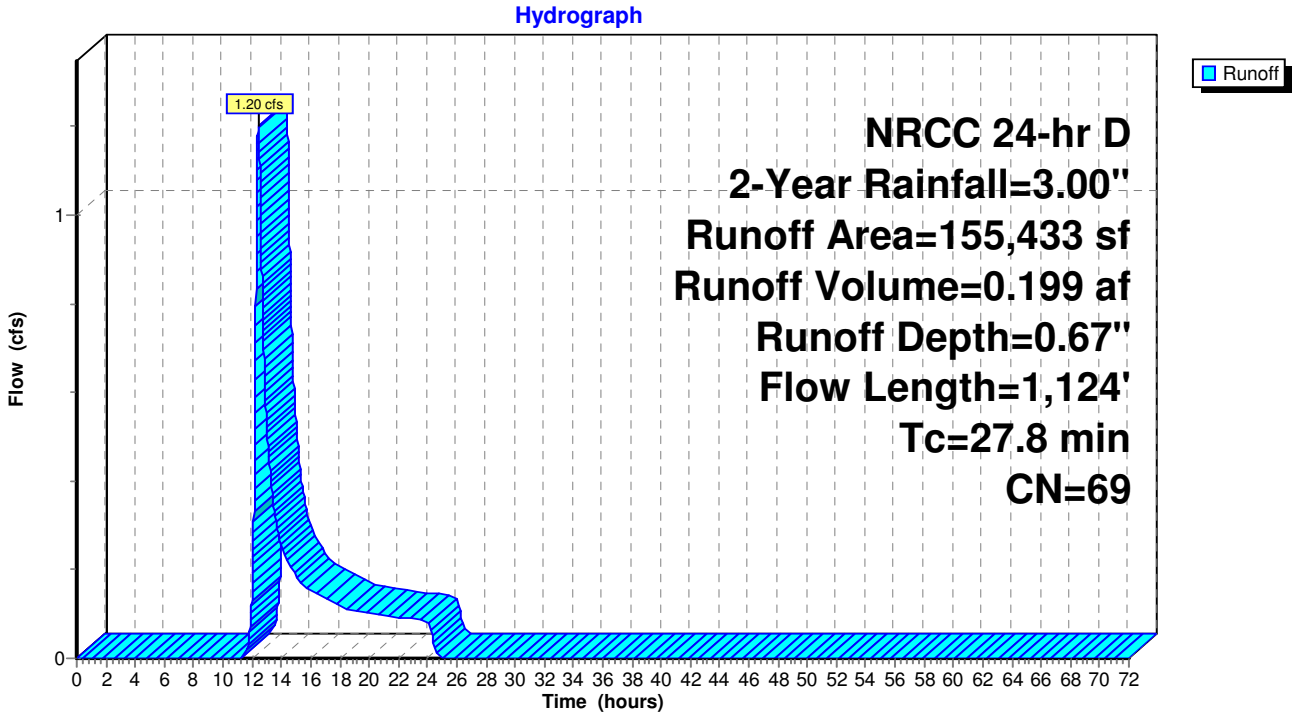
Runoff = 1.20 cfs @ 12.44 hrs, Volume= 0.199 af, Depth= 0.67"
Routed to Link POI-2 : POI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
70,094	98	Paved parking, HSG A
8,587	98	Roofs, HSG A
75,403	39	>75% Grass cover, Good, HSG A
1,349	45	Woods, Poor, HSG A
155,433	69	Weighted Average
76,752		49.38% Pervious Area
78,681		50.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	29	0.0038	0.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	49	0.0058	1.55		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1	14	0.1392	2.61		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
9.3	246	0.0040	0.44		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.9	121	0.0110	2.13		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
2.6	99	0.0080	0.63		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
1.0	60	0.0039	1.01		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
2.6	59	0.0030	0.38		**Shallow Concentrated Flow, H-I** Short Grass Pasture Kv= 7.0 fps
2.1	202	0.0097	1.59		**Shallow Concentrated Flow, I-J** Unpaved Kv= 16.1 fps
7.8	245	0.0033	0.52	0.23	**Trap/Vee/Rect Channel Flow, J-K** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
27.8	1,124	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

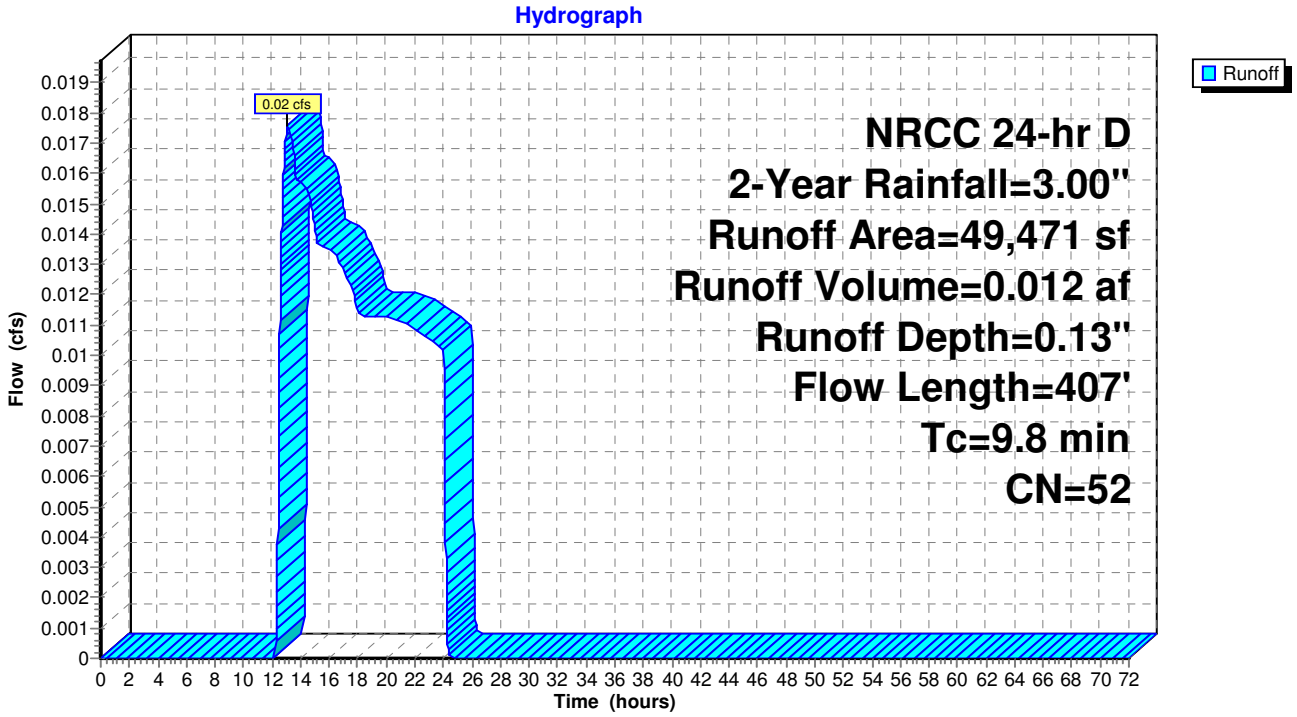
Runoff = 0.02 cfs @ 13.08 hrs, Volume= 0.012 af, Depth= 0.13"
Routed to Link POI-3 : POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
8,830	98	Paved parking, HSG A
2,005	98	Roofs, HSG A
38,636	39	>75% Grass cover, Good, HSG A
49,471	52	Weighted Average
38,636		78.10% Pervious Area
10,835		21.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	21	0.0042	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
6.3	88	0.0011	0.23		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	191	0.0153	4.78	59.78	**Channel Flow, C-D** Area= 12.5 sf Perim= 27.0' r= 0.46' n= 0.023 Earth, clean & winding
2.1	107	0.0090	0.86	0.37	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
9.8	407	Total			

Subcatchment 3: Subcat 3



Summary for Subcatchment 4: Subcat 4

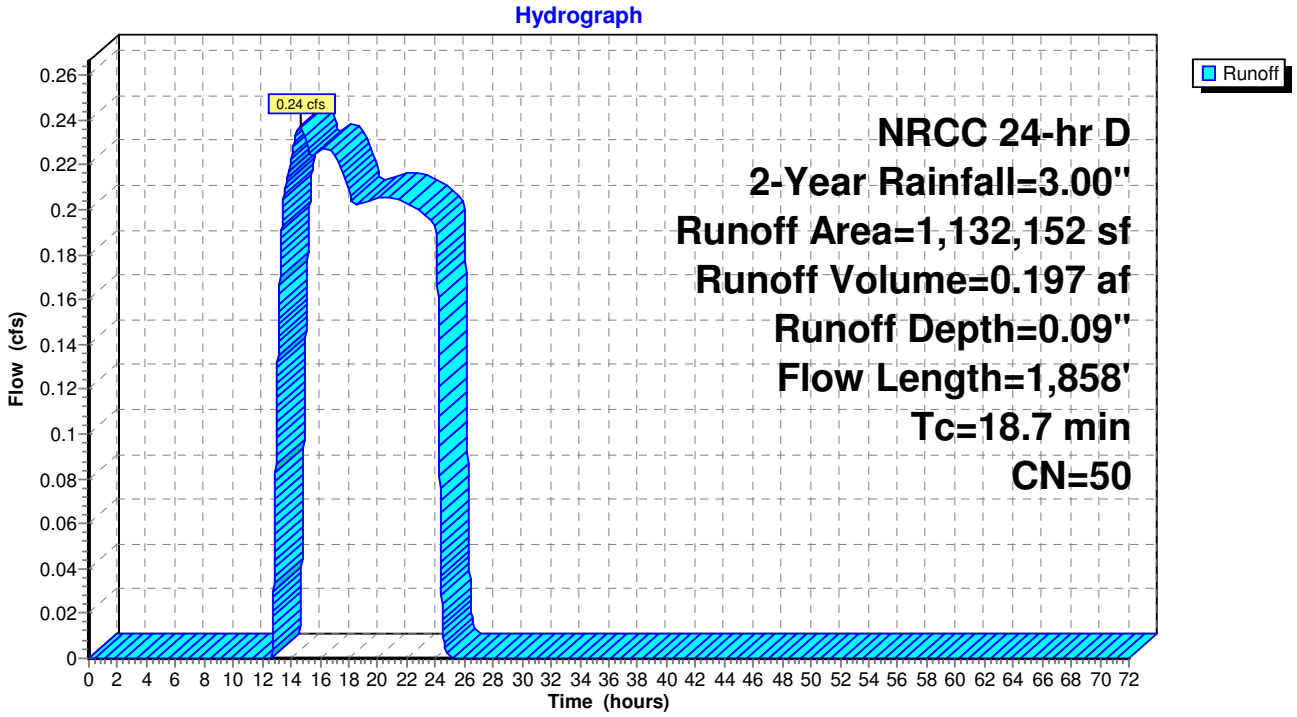
Runoff = 0.24 cfs @ 14.65 hrs, Volume= 0.197 af, Depth= 0.09"
Routed to Link POI-4 : POI-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.00"

Area (sf)	CN	Description
203,164	98	Paved parking, HSG A
6,174	98	Roofs, HSG A
907,408	39	>75% Grass cover, Good, HSG A
15,406	45	Woods, Poor, HSG A
1,132,152	50	Weighted Average
922,814		81.51% Pervious Area
209,338		18.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	53	0.0001	0.14		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
7.3	265	0.0075	0.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
3.0	894	0.0084	4.92	147.47	**Channel Flow, D-E** Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.025 Earth, grassed & winding
1.3	214	0.0022	2.79	4.93	**Pipe Channel, E-F** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, straight & clean
0.2	178	0.0526	16.52	51.88	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Concrete pipe, straight & clean
0.1	204	0.0703	35.84	1,612.61	**Channel Flow, G-H** Area= 45.0 sf Perim= 35.0' r= 1.29' n= 0.013 Concrete pipe, straight & clean
18.7	1,858	Total			

Subcatchment 4: Subcat 4

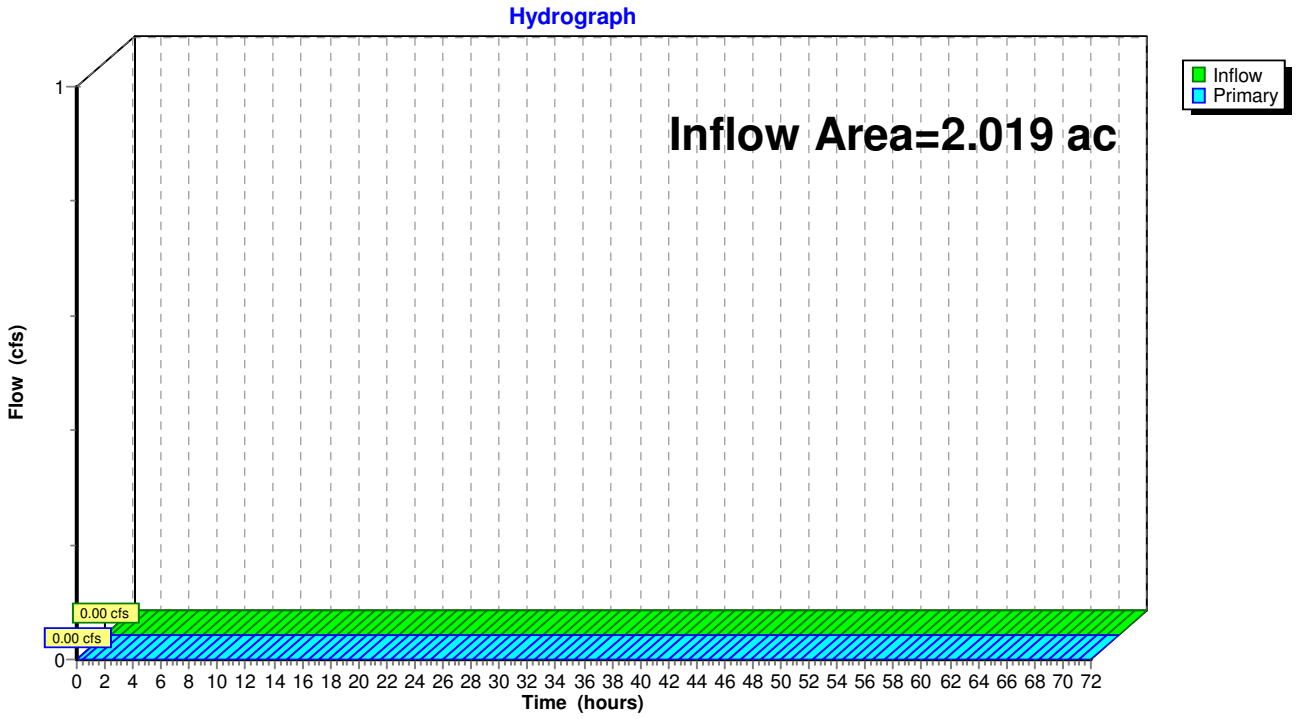


Summary for Link POI-1: POI-1

Inflow Area = 2.019 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: POI-1

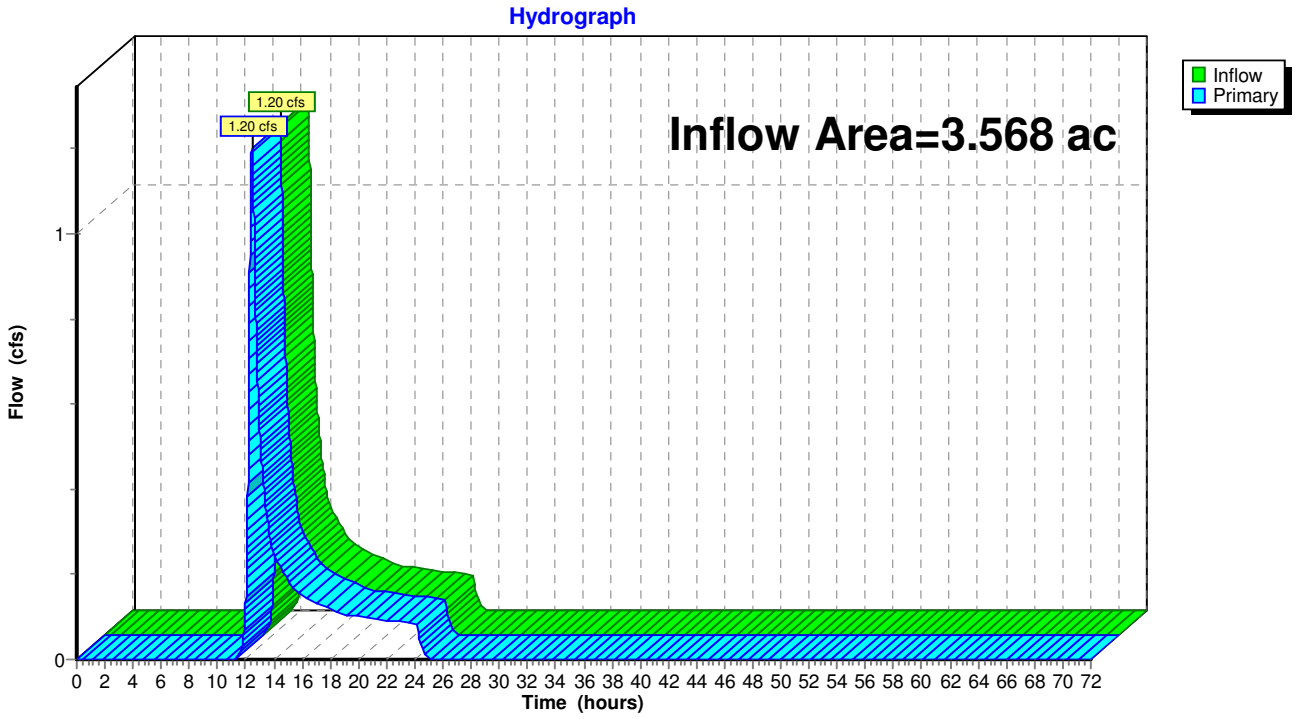


Summary for Link POI-2: POI-2

Inflow Area = 3.568 ac, 50.62% Impervious, Inflow Depth = 0.67" for 2-Year event
Inflow = 1.20 cfs @ 12.44 hrs, Volume= 0.199 af
Primary = 1.20 cfs @ 12.44 hrs, Volume= 0.199 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-2: POI-2

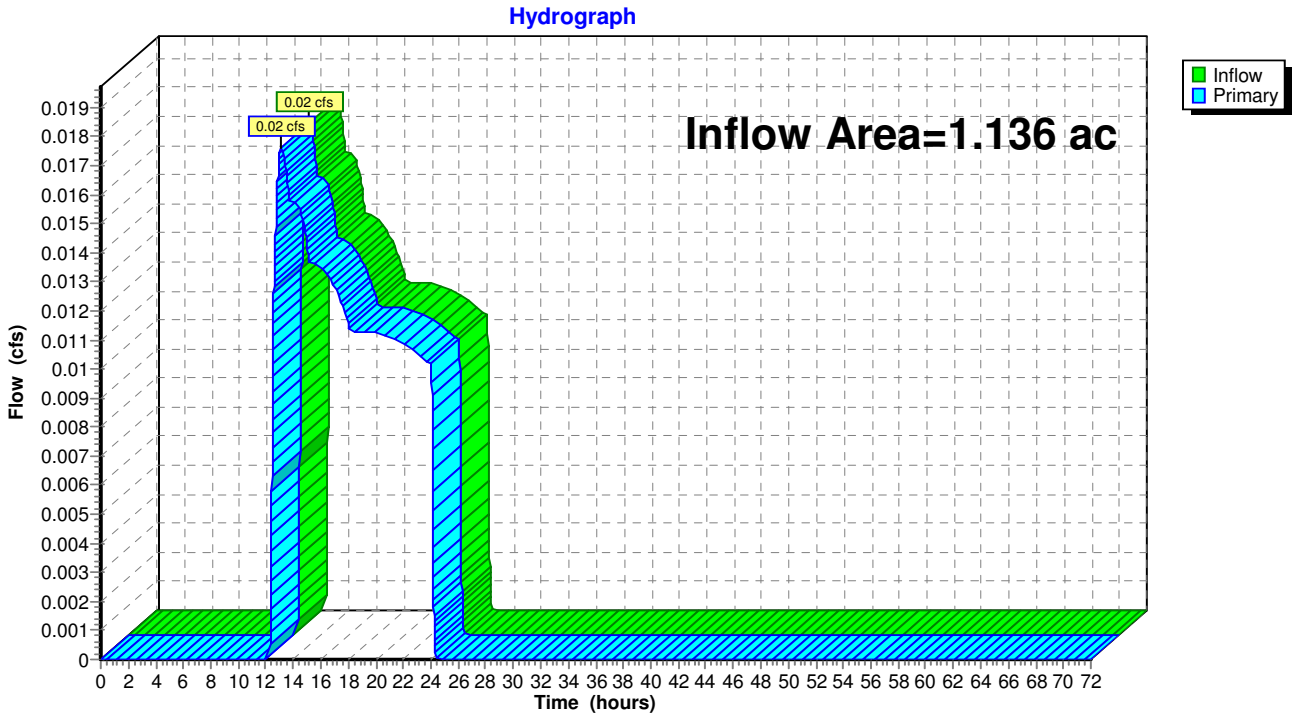


Summary for Link POI-3: POI-3

Inflow Area = 1.136 ac, 21.90% Impervious, Inflow Depth = 0.13" for 2-Year event
Inflow = 0.02 cfs @ 13.08 hrs, Volume= 0.012 af
Primary = 0.02 cfs @ 13.08 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-3: POI-3

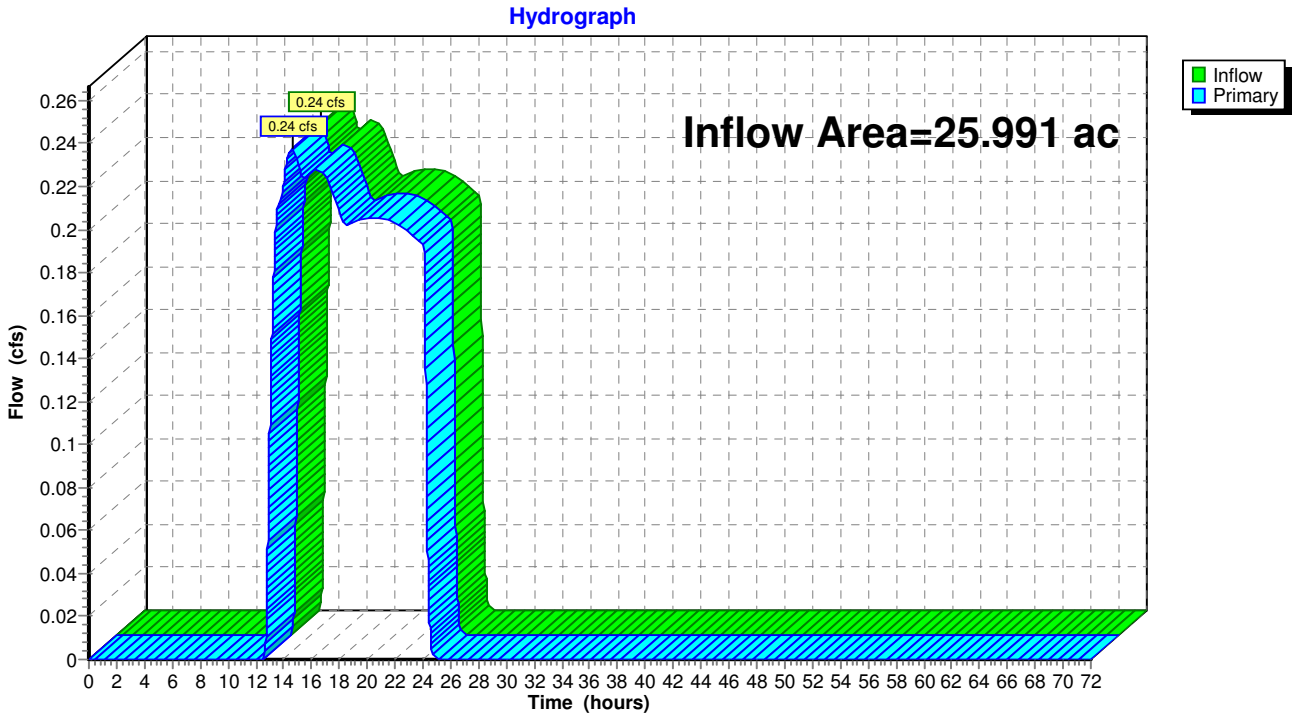


Summary for Link POI-4: POI-4

Inflow Area = 25.991 ac, 18.49% Impervious, Inflow Depth = 0.09" for 2-Year event
Inflow = 0.24 cfs @ 14.65 hrs, Volume= 0.197 af
Primary = 0.24 cfs @ 14.65 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-4: POI-4



Summary for Subcatchment 1: Subcat 1

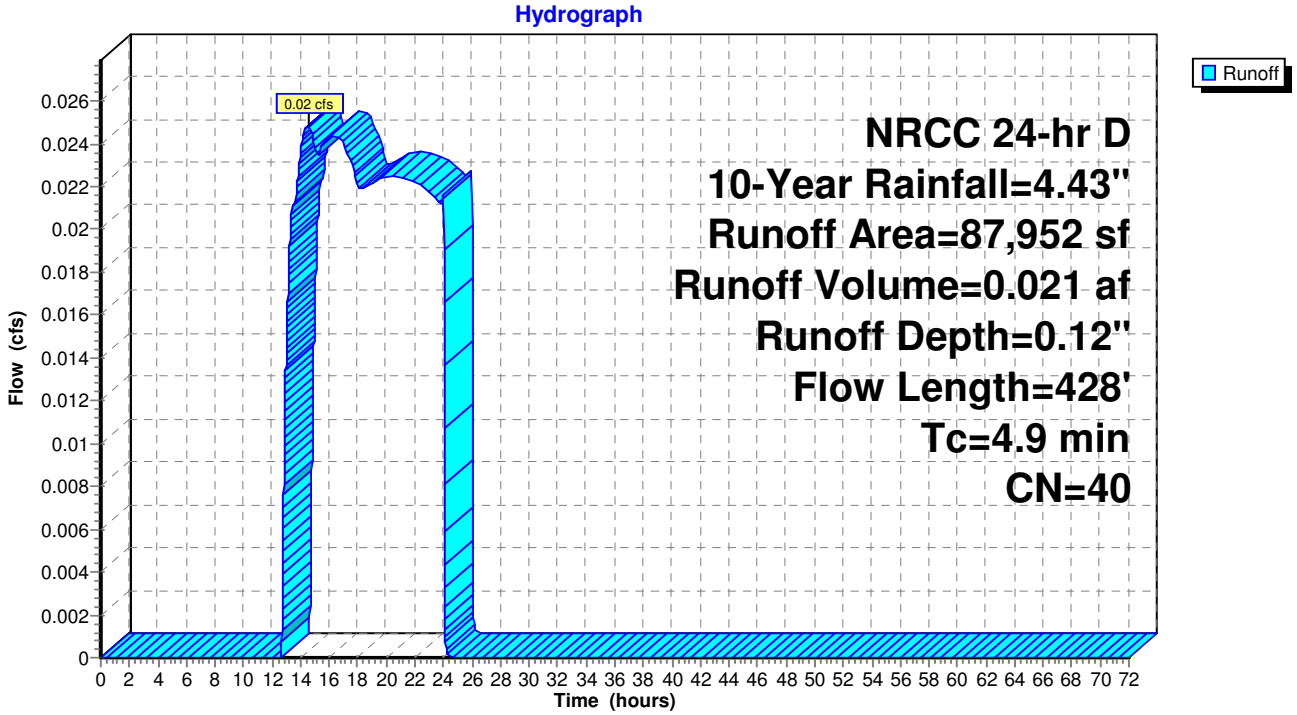
Runoff = 0.02 cfs @ 14.53 hrs, Volume= 0.021 af, Depth= 0.12"
Routed to Link POI-1 : POI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
68,153	39	>75% Grass cover, Good, HSG A
19,799	45	Woods, Poor, HSG A
87,952	40	Weighted Average
87,952		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	68	0.0348	1.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.7	226	0.0398	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	134	0.0462	1.50		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
4.9	428	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

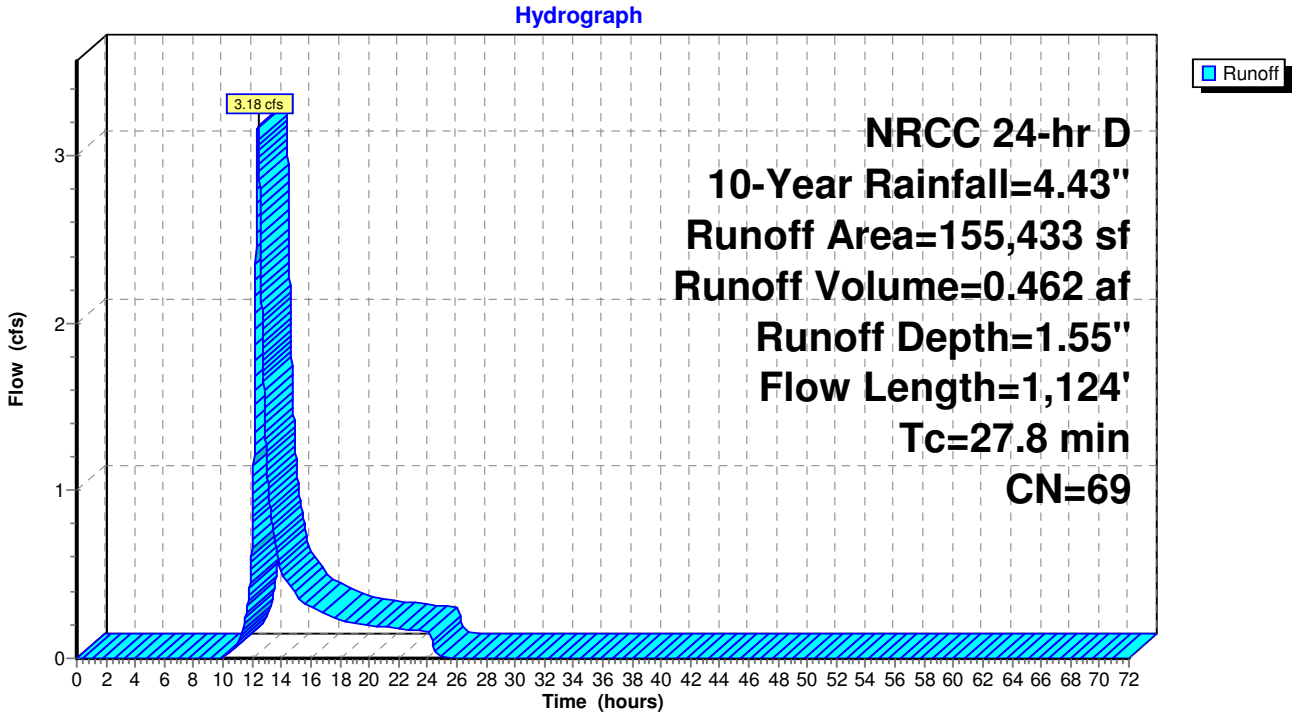
Runoff = 3.18 cfs @ 12.39 hrs, Volume= 0.462 af, Depth= 1.55"
Routed to Link POI-2 : POI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
70,094	98	Paved parking, HSG A
8,587	98	Roofs, HSG A
75,403	39	>75% Grass cover, Good, HSG A
1,349	45	Woods, Poor, HSG A
155,433	69	Weighted Average
76,752		49.38% Pervious Area
78,681		50.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	29	0.0038	0.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	49	0.0058	1.55		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1	14	0.1392	2.61		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
9.3	246	0.0040	0.44		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.9	121	0.0110	2.13		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
2.6	99	0.0080	0.63		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
1.0	60	0.0039	1.01		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
2.6	59	0.0030	0.38		**Shallow Concentrated Flow, H-I** Short Grass Pasture Kv= 7.0 fps
2.1	202	0.0097	1.59		**Shallow Concentrated Flow, I-J** Unpaved Kv= 16.1 fps
7.8	245	0.0033	0.52	0.23	**Trap/Vee/Rect Channel Flow, J-K** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
27.8	1,124	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

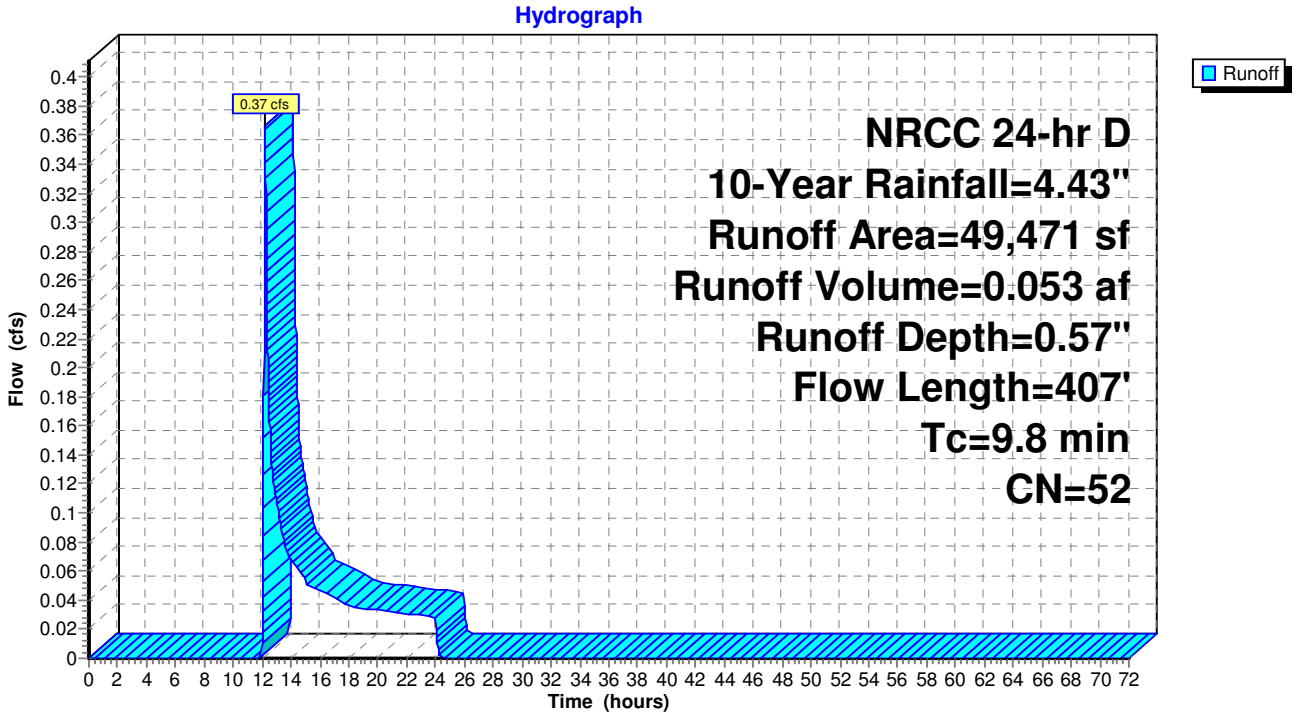
Runoff = 0.37 cfs @ 12.20 hrs, Volume= 0.053 af, Depth= 0.57"
Routed to Link POI-3 : POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
8,830	98	Paved parking, HSG A
2,005	98	Roofs, HSG A
38,636	39	>75% Grass cover, Good, HSG A
49,471	52	Weighted Average
38,636		78.10% Pervious Area
10,835		21.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	21	0.0042	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
6.3	88	0.0011	0.23		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	191	0.0153	4.78	59.78	**Channel Flow, C-D** Area= 12.5 sf Perim= 27.0' r= 0.46' n= 0.023 Earth, clean & winding
2.1	107	0.0090	0.86	0.37	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
9.8	407	Total			

Subcatchment 3: Subcat 3



Summary for Subcatchment 4: Subcat 4

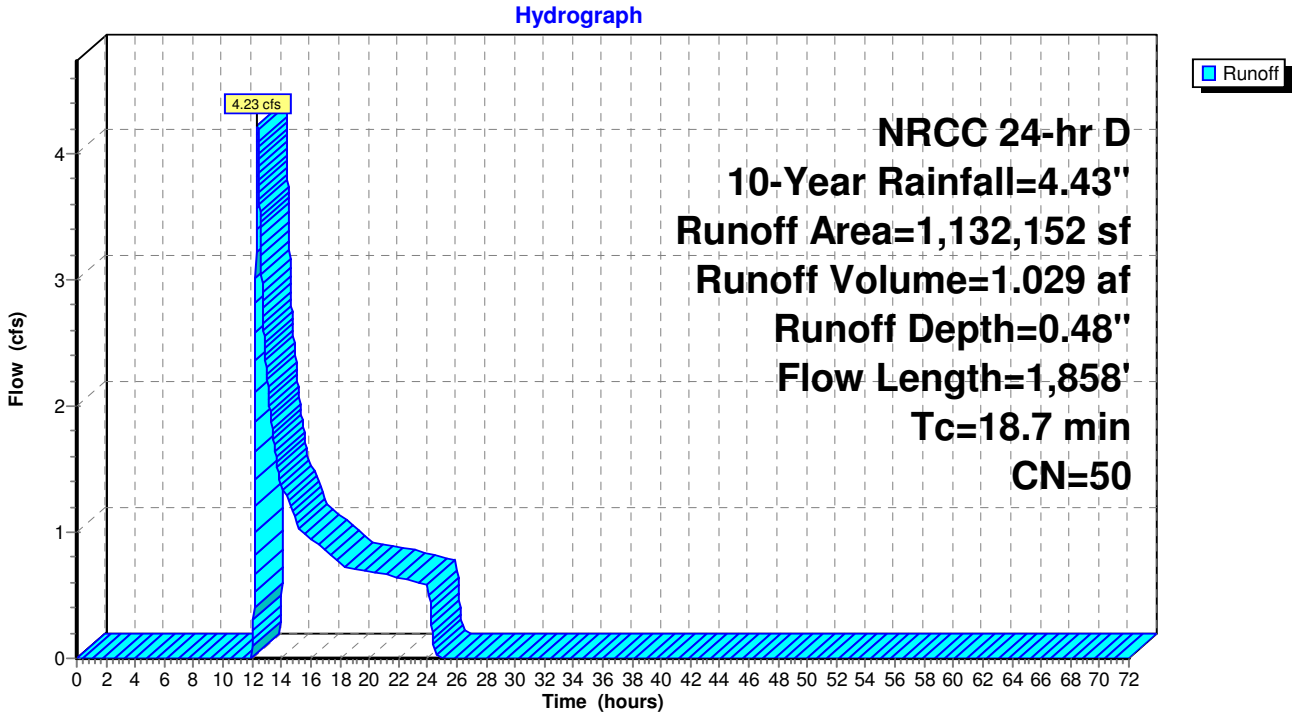
Runoff = 4.23 cfs @ 12.37 hrs, Volume= 1.029 af, Depth= 0.48"
Routed to Link POI-4 : POI-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.43"

Area (sf)	CN	Description
203,164	98	Paved parking, HSG A
6,174	98	Roofs, HSG A
907,408	39	>75% Grass cover, Good, HSG A
15,406	45	Woods, Poor, HSG A
1,132,152	50	Weighted Average
922,814		81.51% Pervious Area
209,338		18.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	53	0.0001	0.14		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
7.3	265	0.0075	0.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
3.0	894	0.0084	4.92	147.47	**Channel Flow, D-E** Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.025 Earth, grassed & winding
1.3	214	0.0022	2.79	4.93	**Pipe Channel, E-F** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, straight & clean
0.2	178	0.0526	16.52	51.88	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Concrete pipe, straight & clean
0.1	204	0.0703	35.84	1,612.61	**Channel Flow, G-H** Area= 45.0 sf Perim= 35.0' r= 1.29' n= 0.013 Concrete pipe, straight & clean
18.7	1,858	Total			

Subcatchment 4: Subcat 4

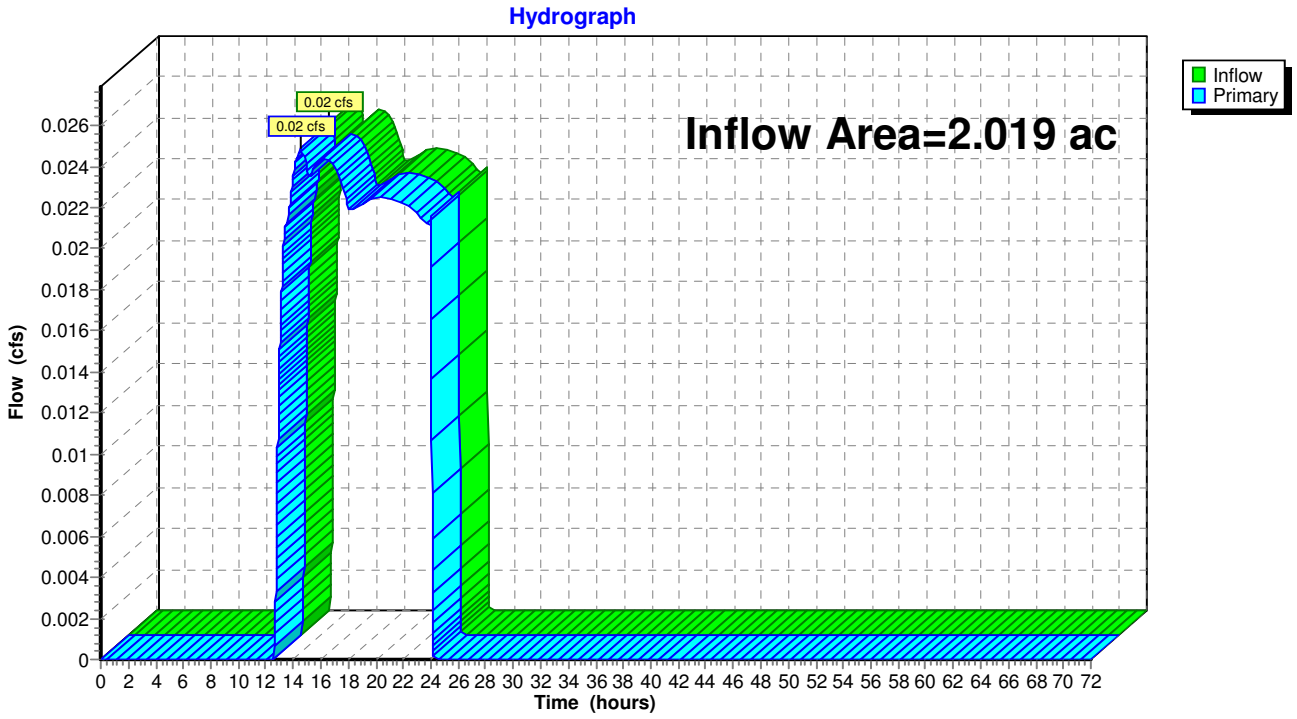


Summary for Link POI-1: POI-1

Inflow Area = 2.019 ac, 0.00% Impervious, Inflow Depth = 0.12" for 10-Year event
Inflow = 0.02 cfs @ 14.53 hrs, Volume= 0.021 af
Primary = 0.02 cfs @ 14.53 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: POI-1

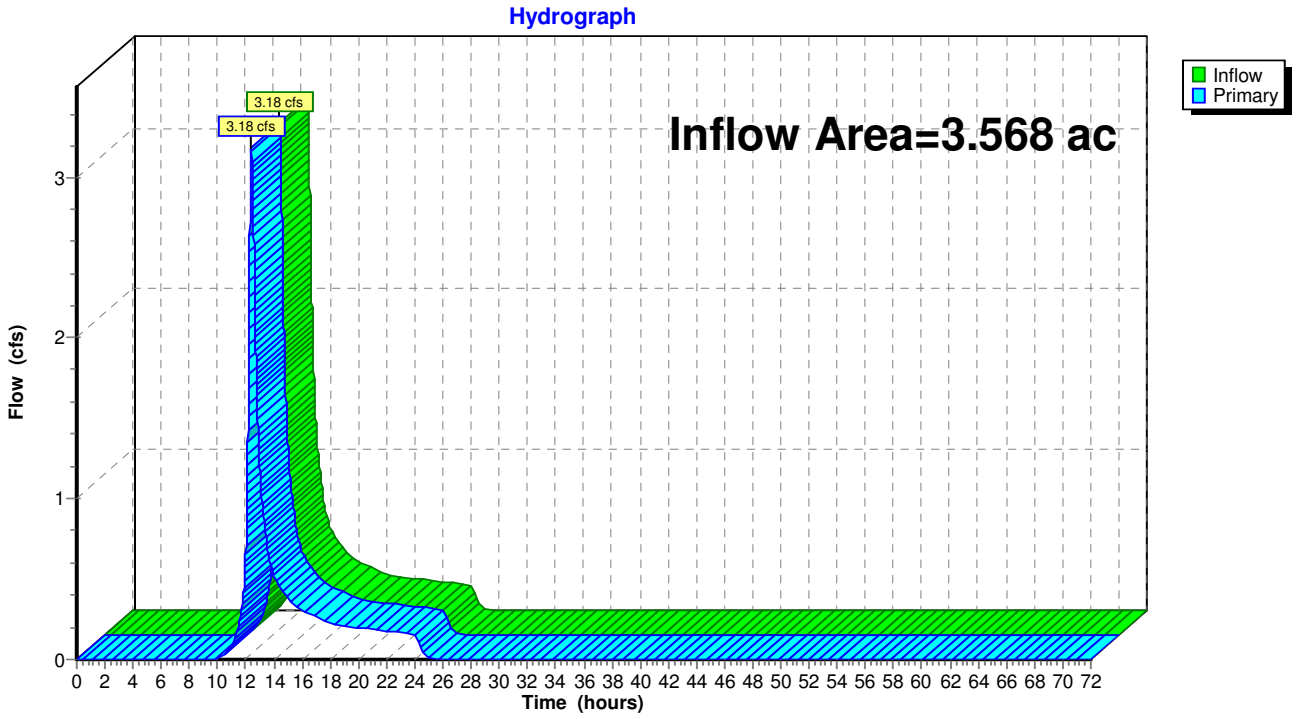


Summary for Link POI-2: POI-2

Inflow Area = 3.568 ac, 50.62% Impervious, Inflow Depth = 1.55" for 10-Year event
Inflow = 3.18 cfs @ 12.39 hrs, Volume= 0.462 af
Primary = 3.18 cfs @ 12.39 hrs, Volume= 0.462 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-2: POI-2

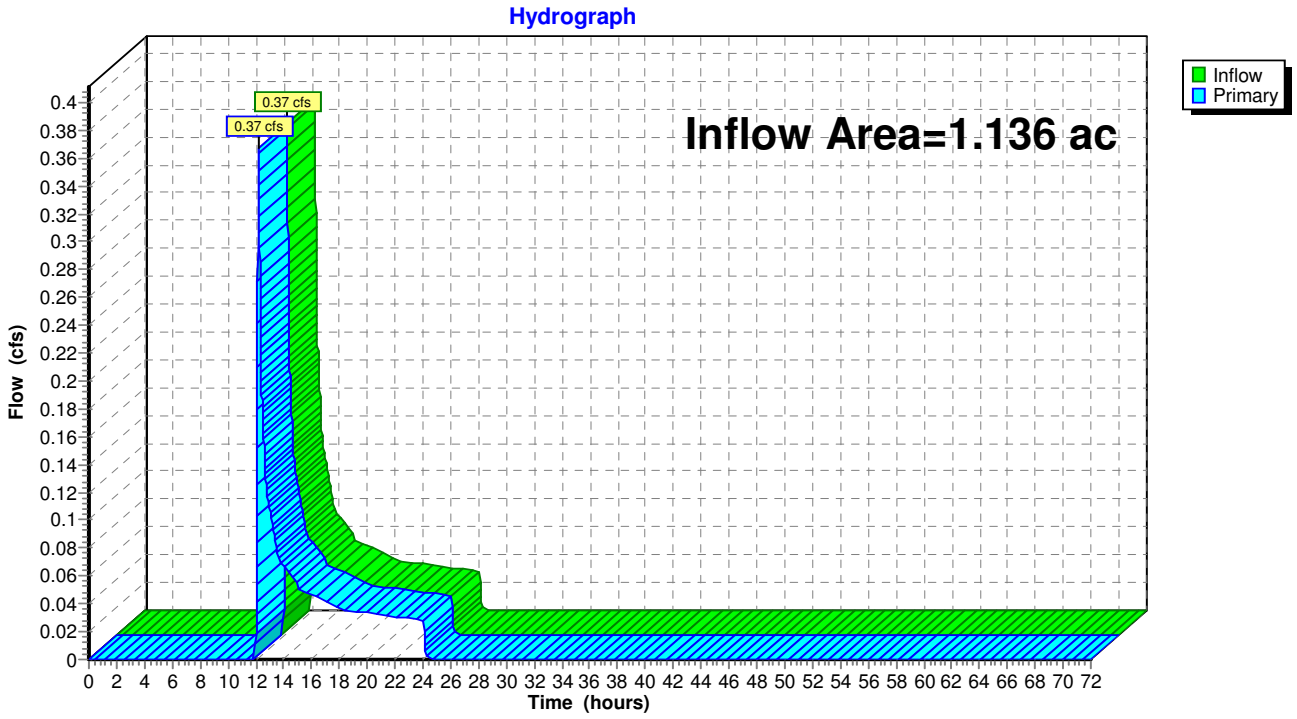


Summary for Link POI-3: POI-3

Inflow Area = 1.136 ac, 21.90% Impervious, Inflow Depth = 0.57" for 10-Year event
Inflow = 0.37 cfs @ 12.20 hrs, Volume= 0.053 af
Primary = 0.37 cfs @ 12.20 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-3: POI-3

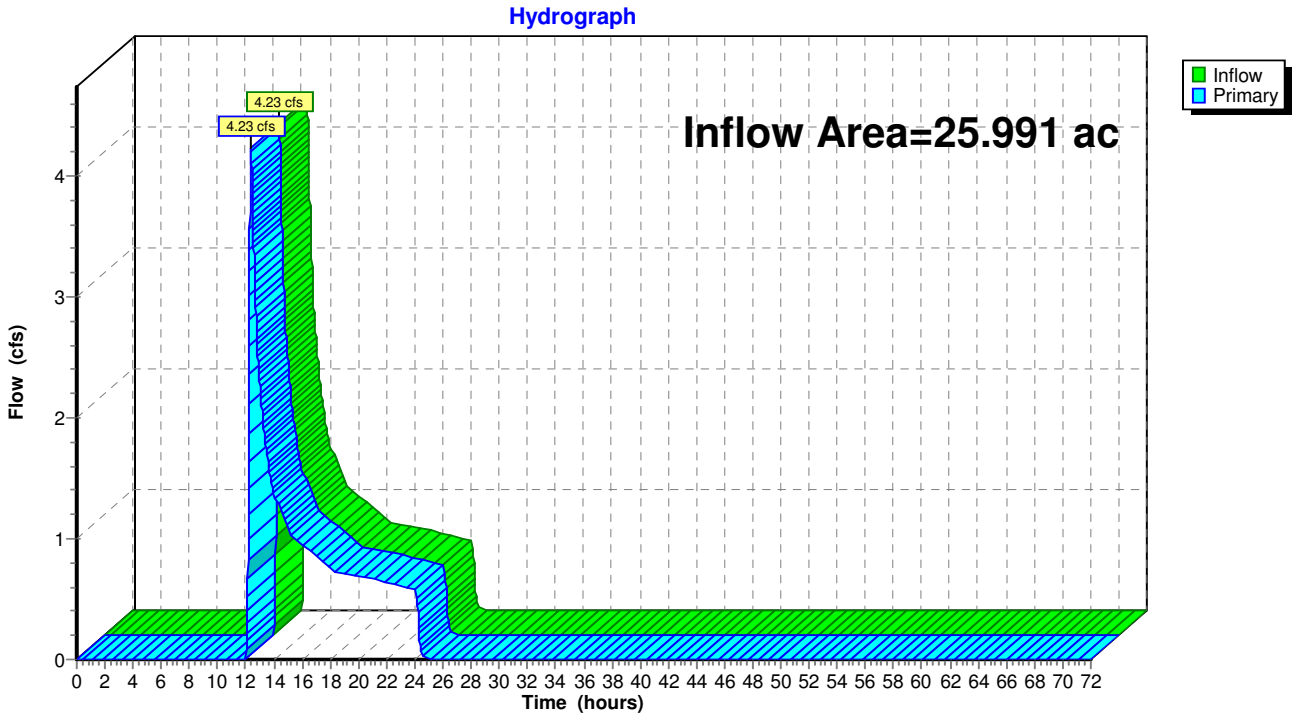


Summary for Link POI-4: POI-4

Inflow Area = 25.991 ac, 18.49% Impervious, Inflow Depth = 0.48" for 10-Year event
Inflow = 4.23 cfs @ 12.37 hrs, Volume= 1.029 af
Primary = 4.23 cfs @ 12.37 hrs, Volume= 1.029 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-4: POI-4



Summary for Subcatchment 1: Subcat 1

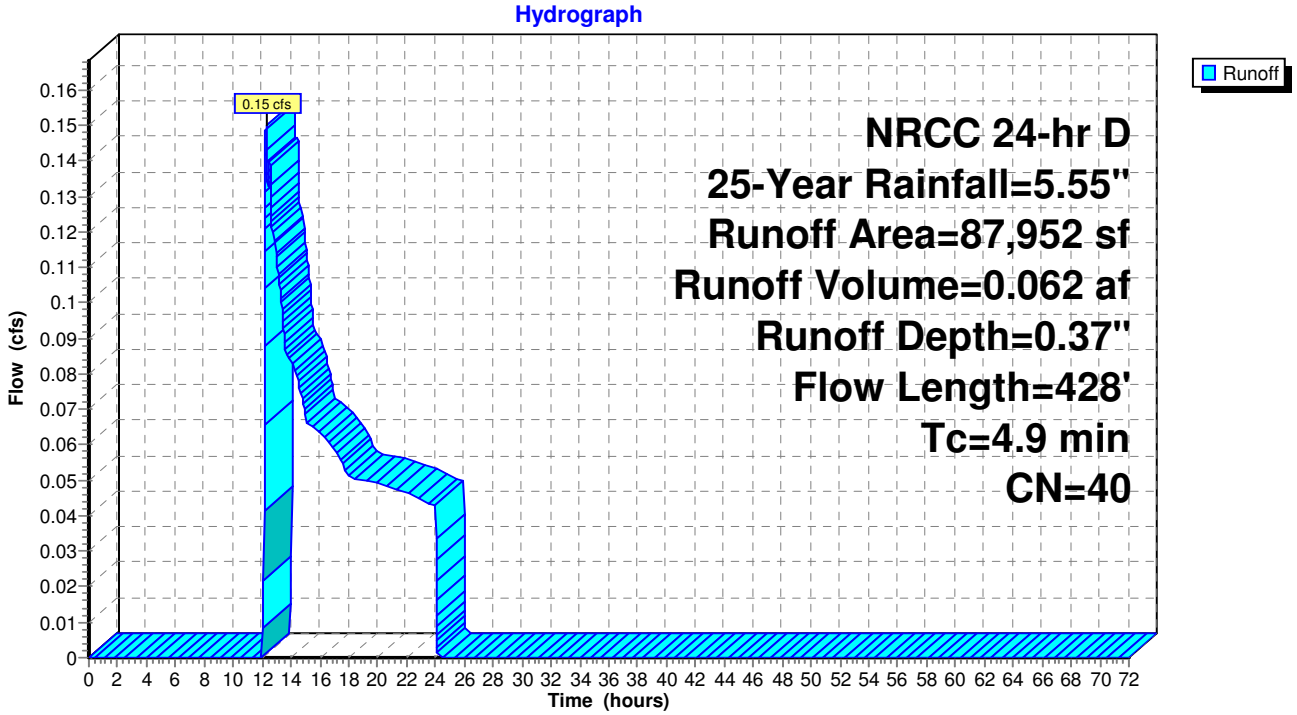
Runoff = 0.15 cfs @ 12.33 hrs, Volume= 0.062 af, Depth= 0.37"
Routed to Link POI-1 : POI-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
68,153	39	>75% Grass cover, Good, HSG A
19,799	45	Woods, Poor, HSG A
87,952	40	Weighted Average
87,952		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	68	0.0348	1.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
2.7	226	0.0398	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.5	134	0.0462	1.50		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
4.9	428	Total			

Subcatchment 1: Subcat 1



Summary for Subcatchment 2: Subcat 2

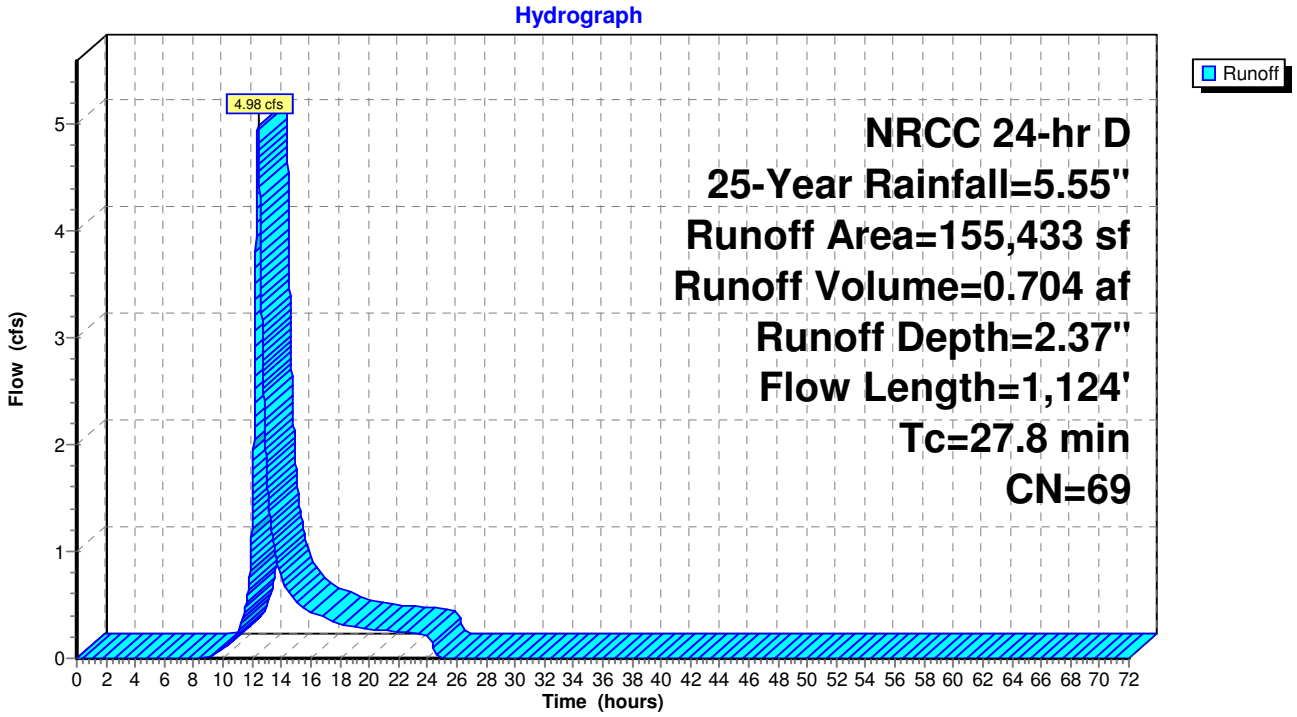
Runoff = 4.98 cfs @ 12.39 hrs, Volume= 0.704 af, Depth= 2.37"
Routed to Link POI-2 : POI-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
70,094	98	Paved parking, HSG A
8,587	98	Roofs, HSG A
75,403	39	>75% Grass cover, Good, HSG A
1,349	45	Woods, Poor, HSG A
155,433	69	Weighted Average
76,752		49.38% Pervious Area
78,681		50.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	29	0.0038	0.54		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
0.5	49	0.0058	1.55		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
0.1	14	0.1392	2.61		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
9.3	246	0.0040	0.44		**Shallow Concentrated Flow, D-E** Short Grass Pasture Kv= 7.0 fps
0.9	121	0.0110	2.13		**Shallow Concentrated Flow, E-F** Paved Kv= 20.3 fps
2.6	99	0.0080	0.63		**Shallow Concentrated Flow, F-G** Short Grass Pasture Kv= 7.0 fps
1.0	60	0.0039	1.01		**Shallow Concentrated Flow, G-H** Unpaved Kv= 16.1 fps
2.6	59	0.0030	0.38		**Shallow Concentrated Flow, H-I** Short Grass Pasture Kv= 7.0 fps
2.1	202	0.0097	1.59		**Shallow Concentrated Flow, I-J** Unpaved Kv= 16.1 fps
7.8	245	0.0033	0.52	0.23	**Trap/Vee/Rect Channel Flow, J-K** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
27.8	1,124	Total			

Subcatchment 2: Subcat 2



Summary for Subcatchment 3: Subcat 3

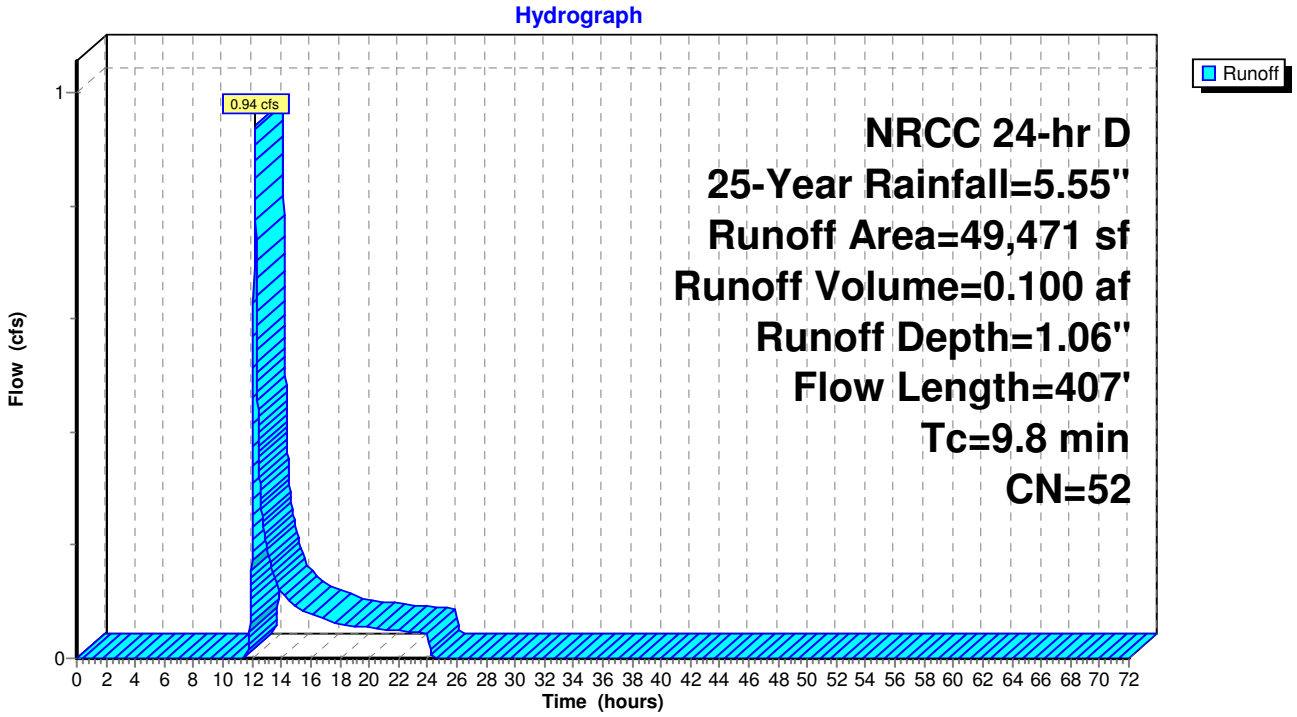
Runoff = 0.94 cfs @ 12.18 hrs, Volume= 0.100 af, Depth= 1.06"
Routed to Link POI-3 : POI-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
8,830	98	Paved parking, HSG A
2,005	98	Roofs, HSG A
38,636	39	>75% Grass cover, Good, HSG A
49,471	52	Weighted Average
38,636		78.10% Pervious Area
10,835		21.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	21	0.0042	0.52		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
6.3	88	0.0011	0.23		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.7	191	0.0153	4.78	59.78	**Channel Flow, C-D** Area= 12.5 sf Perim= 27.0' r= 0.46' n= 0.023 Earth, clean & winding
2.1	107	0.0090	0.86	0.37	**Trap/Vee/Rect Channel Flow, D-E** Bot.W=0.00' D=0.12' Z= 10.0 & 50.0 '/' Top.W=7.20' n= 0.025 Earth, grassed & winding
9.8	407	Total			

Subcatchment 3: Subcat 3



Summary for Subcatchment 4: Subcat 4

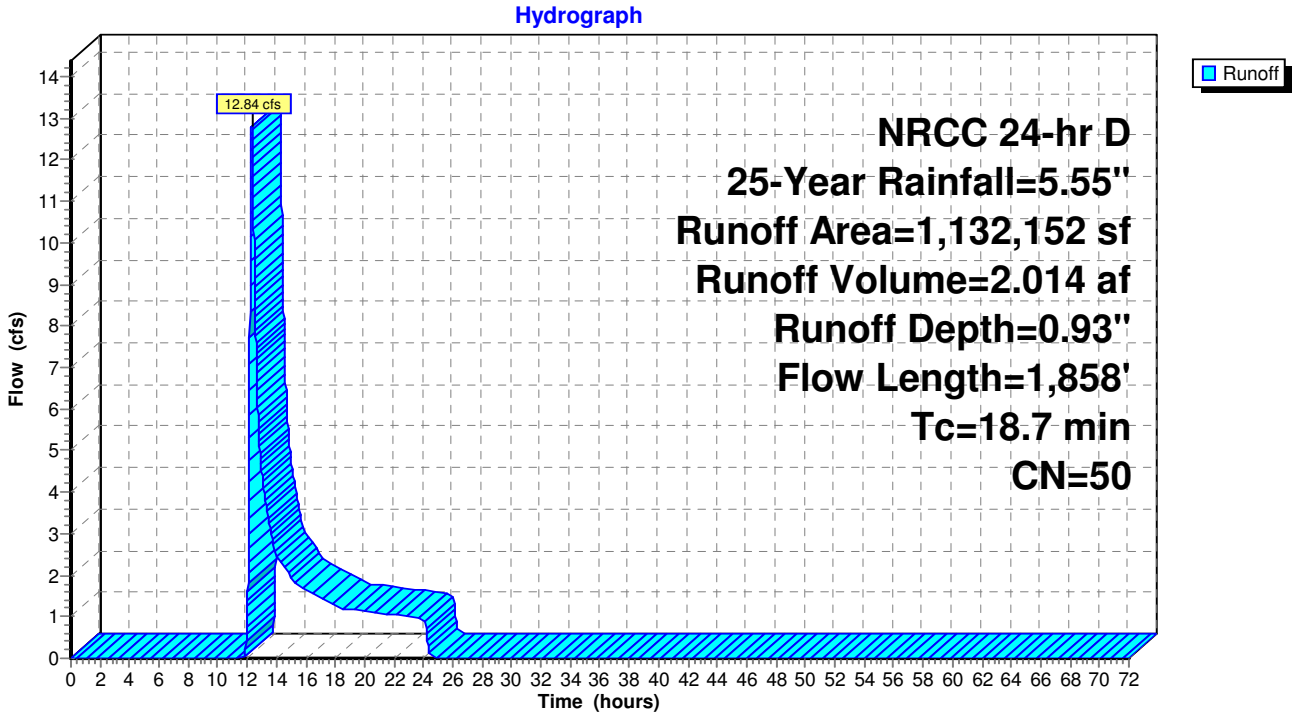
Runoff = 12.84 cfs @ 12.32 hrs, Volume= 2.014 af, Depth= 0.93"
Routed to Link POI-4 : POI-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 25-Year Rainfall=5.55"

Area (sf)	CN	Description
203,164	98	Paved parking, HSG A
6,174	98	Roofs, HSG A
907,408	39	>75% Grass cover, Good, HSG A
15,406	45	Woods, Poor, HSG A
1,132,152	50	Weighted Average
922,814		81.51% Pervious Area
209,338		18.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	53	0.0001	0.14		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.00"
7.3	265	0.0075	0.61		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
0.5	50	0.0500	1.57		**Shallow Concentrated Flow, C-D** Short Grass Pasture Kv= 7.0 fps
3.0	894	0.0084	4.92	147.47	**Channel Flow, D-E** Area= 30.0 sf Perim= 35.0' r= 0.86' n= 0.025 Earth, grassed & winding
1.3	214	0.0022	2.79	4.93	**Pipe Channel, E-F** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Concrete pipe, straight & clean
0.2	178	0.0526	16.52	51.88	**Pipe Channel, F-G** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.013 Concrete pipe, straight & clean
0.1	204	0.0703	35.84	1,612.61	**Channel Flow, G-H** Area= 45.0 sf Perim= 35.0' r= 1.29' n= 0.013 Concrete pipe, straight & clean
18.7	1,858	Total			

Subcatchment 4: Subcat 4

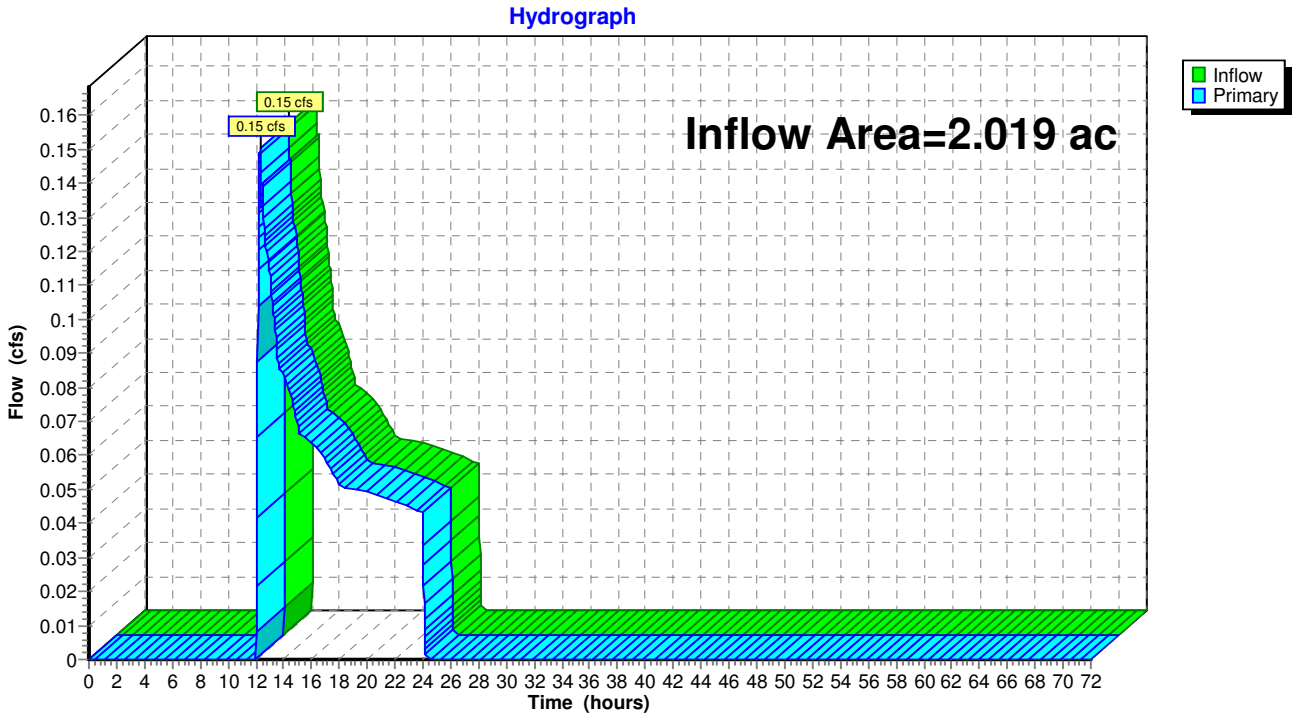


Summary for Link POI-1: POI-1

Inflow Area = 2.019 ac, 0.00% Impervious, Inflow Depth = 0.37" for 25-Year event
Inflow = 0.15 cfs @ 12.33 hrs, Volume= 0.062 af
Primary = 0.15 cfs @ 12.33 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-1: POI-1

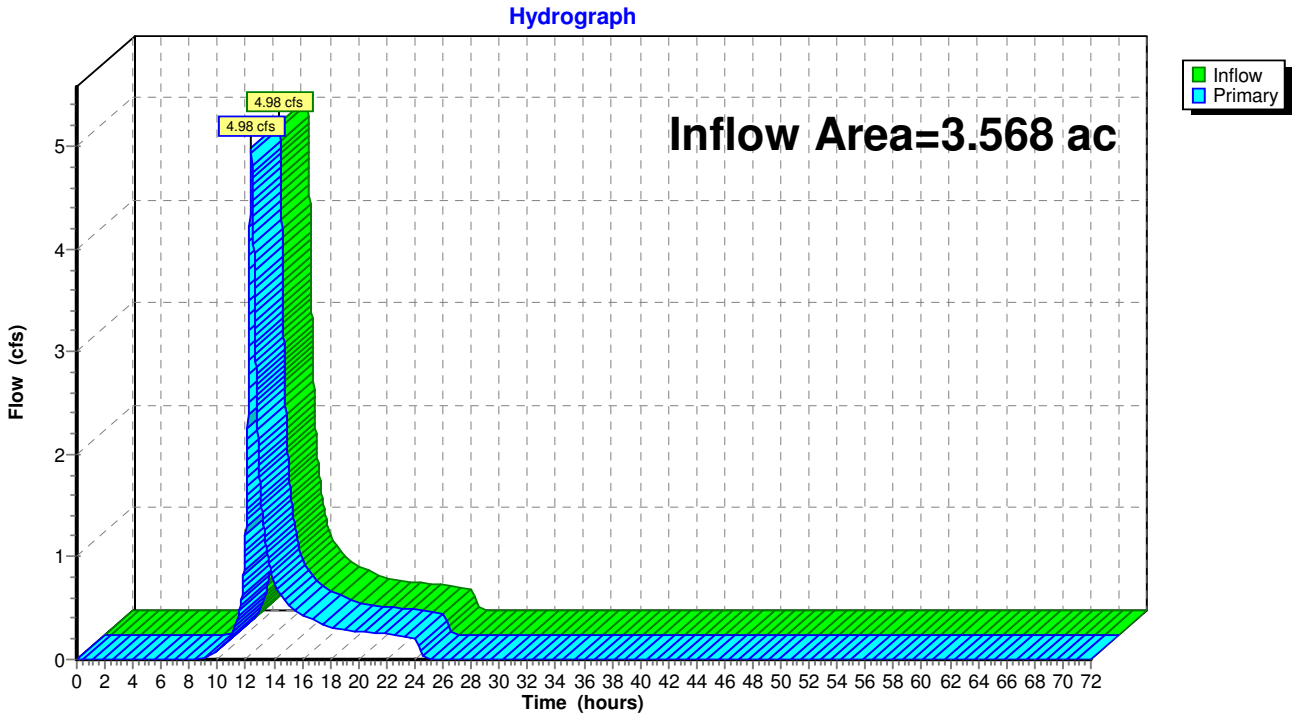


Summary for Link POI-2: POI-2

Inflow Area = 3.568 ac, 50.62% Impervious, Inflow Depth = 2.37" for 25-Year event
Inflow = 4.98 cfs @ 12.39 hrs, Volume= 0.704 af
Primary = 4.98 cfs @ 12.39 hrs, Volume= 0.704 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-2: POI-2

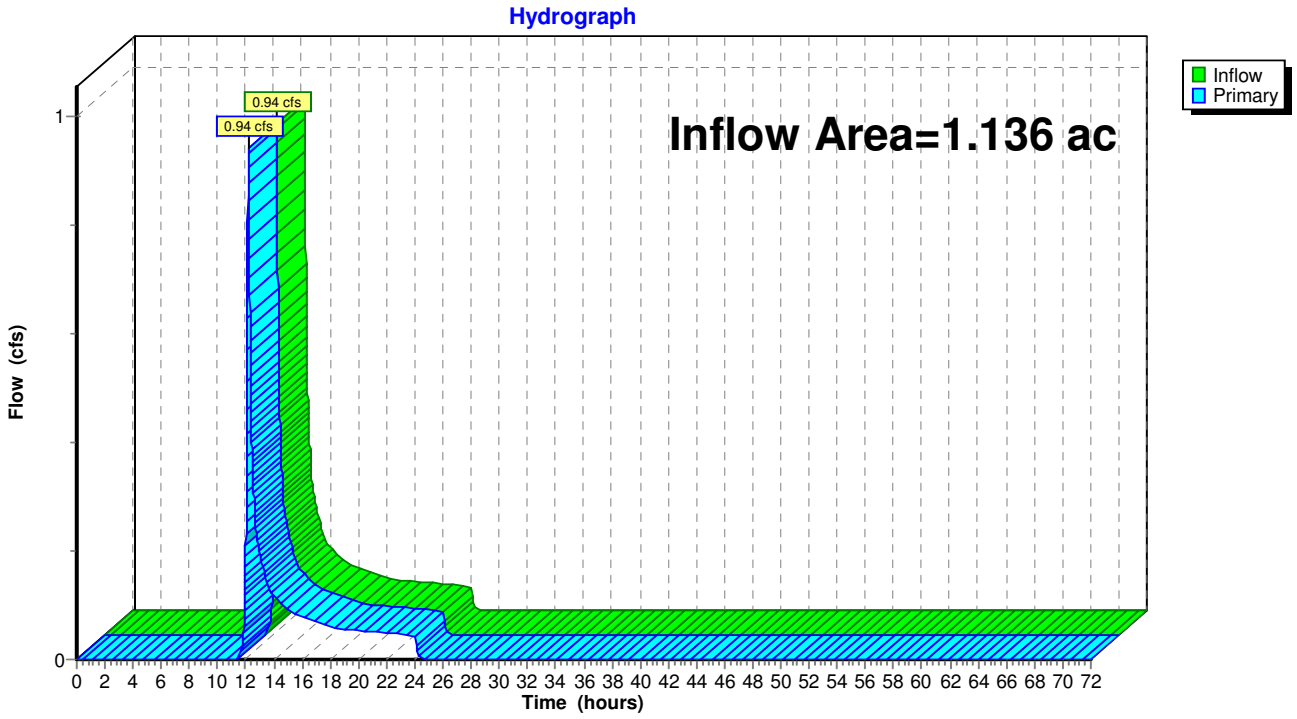


Summary for Link POI-3: POI-3

Inflow Area = 1.136 ac, 21.90% Impervious, Inflow Depth = 1.06" for 25-Year event
Inflow = 0.94 cfs @ 12.18 hrs, Volume= 0.100 af
Primary = 0.94 cfs @ 12.18 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-3: POI-3

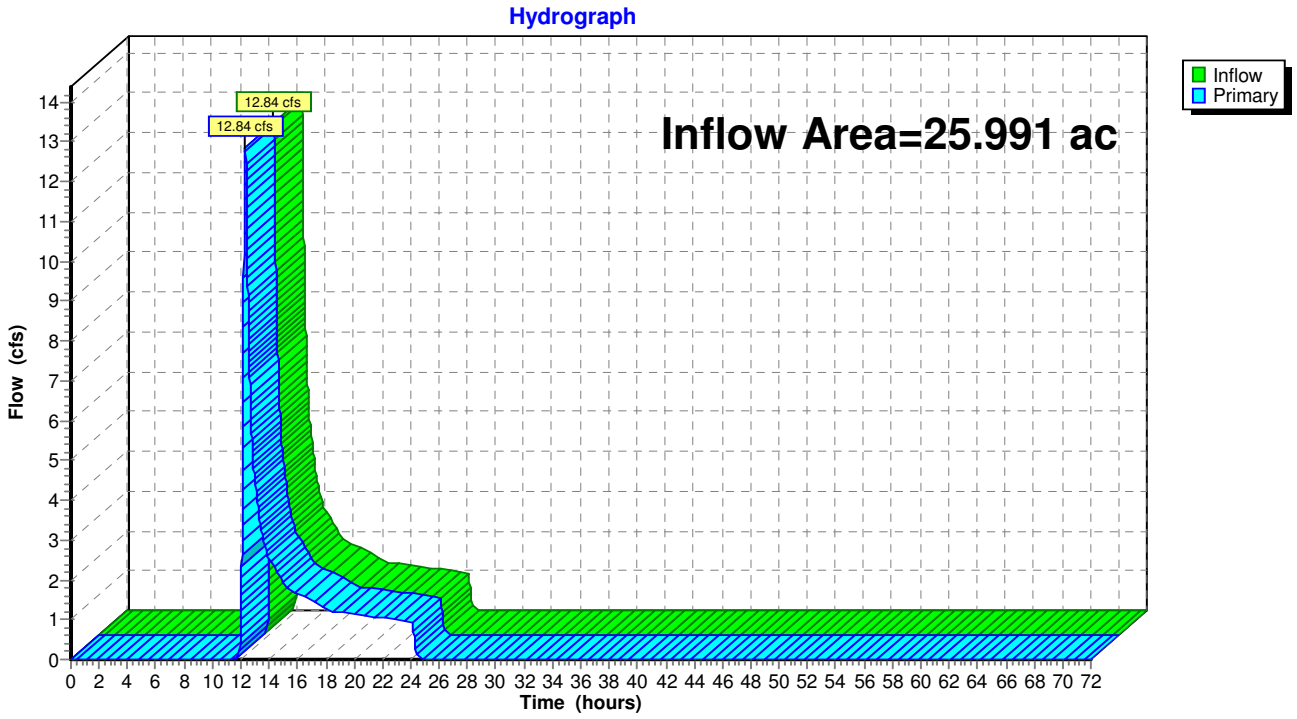


Summary for Link POI-4: POI-4

Inflow Area = 25.991 ac, 18.49% Impervious, Inflow Depth = 0.93" for 25-Year event
Inflow = 12.84 cfs @ 12.32 hrs, Volume= 2.014 af
Primary = 12.84 cfs @ 12.32 hrs, Volume= 2.014 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 1L

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

Link POI-4: POI-4



Section 14. Basic Standards Submission

September 2024

The Auburn-Lewiston Municipal Airport (LEW) is proposing the construction of a new 10 unit 50' x 220' T-Hanger and the associated taxilane for small aircraft. Inspection and Maintenance of the temporary erosion control measures construction will be implemented by the contractor as directed by the erosion control plans and specifications. LEW will employ a qualified member to conduct 3rd party inspection as a representative of the airport to verify that the contractor is fulfilling their contractual obligations. The contractor will perform maintenance as described and required in the permit until the system is formally accepted by the airport. LEW will verify that the work is completed prior to payment and project closeout.

The following sections describe Best Management Practices (BMPs) for erosion and sediment control based upon anticipated needs during construction. Additional items may be necessary depending on persistent problems.

1. Pollution Prevention

Erosion control measures will adhere to the October 2016 revision of the Maine Erosion and Sediment Control Best Management Practice (BMPs) Maine Department of Environmental Protection (MaineDEP). *Sheet GR-01, Grading, Drainage, and Erosion Control Plan* and *EC-01 through EC-05, Erosion Control Details* are provided to aid in the installation and maintenance of these methods. The following objectives will guide the contractor as they implement erosion control measures:

- Proper soil erosion and sediment control measures will be applied throughout construction and following the completion of the project to minimize disturbed areas and protect natural downgrade buffer areas.
- Control stormwater discharge through temporary stabilization measures to minimize erosion. Erosion of open drainage channels, swales, stream channels or stream banks, upland or freshwater wetlands off the project site.
- Construction activities are limited to the limits of disturbance as shown on the plans.

2. Temporary stabilization

The locations of each facility to be maintained can be found on *GR-01* in the plans provided. Within seven (7) days of construction activities ending, and in an area that will not be worked on for more than seven (7) days, exposed soil will be stabilized with mulch, or other non-erodible cover. The following is a list BMPs that will be implemented on this project during construction:

a. Sediment barriers

Sediment barriers will be installed prior to soil disturbance and can include silt fence, erosion control mix berms, or straw wattle (filter sock) as acceptable options. The following procedures will be implemented:

- Sediment barriers will be placed at the down gradient locations leaving the development and adjacent to any drainage channels within the development.
- Sediment barriers will be placed in a relatively flat area, perpendicular to sheet flow, to avoid creating voids that would allow fines to wash under the barrier.
- Both terminal ends of the sediment barriers shall extend 8 feet upslope at a 45-degree angle to prevent bypass flow.
- A sediment barrier will also be placed along the top of the slope leading to the construction site to slow runoff prior to entering the area most at risk for erosion.
- Install and maintain protection measures that remove sediment from the discharge for all storm drain inlets that carry water directly to surface water and that the project has authority to access the storm drain inlet.
- The sediment barrier alternatives will be installed and maintained as indicated in the BMP Manual.
- Sediment Barriers will be removed once site is stabilized. For removal, the sock mesh may be cut and the compost spread as a soil supplement.

b. Stabilized construction entrance

A stabilized construction entrance (SCE) will be installed prior to construction at points of egress from the site and will be inspected daily for sediment build up. The following measures will be implemented:

- At the egress of the construction site, an 8" bed of 1" – 3" stone will be placed, at a minimum, 12 feet wide by 50 feet long underlain by non-woven geotextile fabric.
- Angular stones will be used to remove sediment from construction vehicles leaving the site, but not sharp enough to puncture a tire.
- Replace stone when entrance is covered significantly with mud or as required by the Engineer.
- Other manufactured products may be an acceptable means of minimizing the transport of sediment from the construction site.
- The SCE will be maintained by the contractor until all disturbed areas are stabilized, and removed at the end of the project.
- The contractor will remove migratory sedimentation from the adjacent roads by use of a sweeper.
- Stabilized construction entrance will be removed upon completion of the project and the location will be loamed and seeded to a quality meeting or exceeding pre-development conditions.

c. Stone Check Dams

Stone checks dams will be installed prior to directing stormwater to the swale, ditch, or channel and will be inspected after each runoff event throughout construction. The following measures will be implemented:

- All damage is to be corrected immediately.
- If significant erosion occurs between structures, or down gradient, a liner of stone or other suitable material will be installed in that portion of the channel. If necessary, additional check dams may be installed.

- Remove sediment accumulated behind the dam as needed.
- Check dams will be removed upon the completion of the project. This means stone can be spread out over the site area when done, all hay bales and straw wattles will be completely removed.
- Stone check dams may be substituted by securely fastened haybales, straw wattles, or other manufactured products.

d. Dust Control

The contractor will prevent the migration of dust from the project site through the application of water or wind screens as necessary. The removal of any dust control measures will be completed by spreading water on the project site area to minimize dust migration.

e. Construction Phasing

Proper planning of the project implementation is a critical non-structural measure to prevention of erosion and sedimentation control the contractor will implement the following practices:

- Each channel will be constructed in sections so that the section's grading, shaping and installation of the permanent lining can be complete the same day.
- If a channel's final grading or lining installation must be delayed, then diversion berms will be used to divert stormwater away from the channel, properly-spaced check dams will be installed in the channel to slow the water velocity, and a temporary lining will be installed along the channel to prevent scouring.

3. Permanent Stabilization

Upon the completion of construction, the following is a list BMPs that will be implemented on this project to permanently stabilize the site:

a. *Seeded areas.* For seeded areas, a minimum of 90% cover will be distributed over the area with mature, healthy plants with no evidence of washing or rilling of the topsoil.
b. *Sodded areas.* Sodded areas are not applicable to this project.
c. *Permanent Mulch.* Permanent mulch will not be used in this project.
d. *Riprap.* For slopes stabilized with riprap, the slope will have a backing of well-graded gravel, sized appropriately, and angular stone is recommended to be used or approved geotextile to prevent soil moving from behind the riprap.
e. *Agricultural use.* Agricultural purposes are not a part of this project.
f. *Paved areas.* For paved areas, the placement of the compacted gravel subbase will be complete, provided it is free of fine material that may runoff with a rain event.
g. *Ditches, channels, and swales*. Open channels will be stabilized with a 90% cover of healthy vegetation, with a well-graded riprap lining, turf reinforcement mat, or with another non-erosive lining such as concrete or asphalt pavement. There will be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

4. Winter Construction

The project is anticipated to begin in Fall 2025 and to be completed by Spring 2026. The project anticipates a winter construction stop, and no winter construction is anticipated.

At the winter construction stop and the end of the project, the following guidelines will be implemented:

a. *Site stabilization.* For winter stabilization, hay mulch will be applied at twice the standard temporary stabilization rate. Mulch will not be spread on top of snow. Areas that have been brought to final grade will be stabilized at the end of each construction day.
b. *Ditch.* All vegetated ditch lines that have not been stabilized by November 1, or will be worked during the winter construction period, will be stabilized with an appropriate stone lining backed by an appropriate gravel bed or geotextile unless specifically released from this standard by the MaineDEP.
c. *Slopes.* Mulch netting will be used to anchor mulch on all slopes greater than 8% unless erosion control blankets or erosion control mix is being used on these slopes.

5. Other Temporary Measures

The following measures are not anticipated to be implemented during construction, but may be necessary due to contractor phasing or specific site conditions. If so, the contractor will follow the recommendations below:

a. *Stormwater Diversion Channels*
   - Ditches, swales and other open stormwater channels will be designed, constructed, and stabilized to handle the expected volume runoff.
   - When the watershed draining to a ditch or swale is less than one (1) acre of total drainage and less than one-fourth (1/4) acre of impervious area, runoff will be diverted to adjacent wooded or otherwise vegetated buffer areas where the opportunity exists.
   - The channel will receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.
   - Stormwater Diversion Channels will be removed from the project site unless determined to be vital to erosion prevention. In that case, the channels will be improved upon during the permanent construction phase.

b. *Sediment Basins*
   - Sediment basins will be designed to provide storage for either the calculated runoff from a 2-year, 24-hour storm or provide 3,600 cubic feet of capacity per acre draining to the basin.
   - Outlet structures will discharge water from the surface of the basin whenever possible.
   - Erosion controls and velocity dissipation devices will be used if the discharging waters are likely to create erosion.
   - Accumulated sediment will be removed as necessary from the basin to maintain at least one-half (½) of the design capacity of the basin.
   - Contractor shall receive prior approval from MaineDEP if the use of cationic treatment chemicals, such as polymers, flocculants, or other chemicals that contain an overall positive charge designed to reduce turbidity in stormwater will be used.

- When requesting approval to use cationic treatment chemicals, the specific controls and implementation procedures will be described to ensure the use will not lead to a violation of water quality standards.
- The contractor will specify the following information when requesting approval from MaineDEP: the type(s) of soil likely to be treated on the site; chemicals to be used; and how they are to be applied and in what quantity; any manufacturer's recommendations; and any training had by personnel who will handle and apply the chemicals.

c. *Temporary Roads*

- Gravel and paved roads will be designed and constructed using crowns, water bars, or other measures to ensure that stormwater is delivered immediately to adjacent stable ditches, vegetated buffer area, catch basin inlets, or street gutters.
- Temporary roads will be removed post construction.

d. *Temporary Culverts*

- Culverts will be sized to avoid unintended flooding of upstream areas or frequent overtopping of roadways.
- Culvert inlets will be protected with specified materials for the expected entrance velocity and protection will be installed at least as high as the expected maximum elevation of the storage behind the culvert.
- Culvert outlet design will incorporate measures (e.g. stone riprap) to prevent scour of the stream channel.
- The outlet protection measures will be designed to stay within the channel limits and take into account the tailwater depth.
- Temporary Culvert will be removed once construction of more permanent structures has been completed.

e. *Contractor Vehicle Parking Areas*

- Parking areas will managed to ensure runoff is delivered to adjacent swales, catch basins, curb gutters, or buffer area without eroding areas downslope.
- After construction, contractor vehicle parking areas will be removed.

6. Additional requirements

This narrative is a list of best practices that aid in the prevention of erosion and sedimentation and does not imply to be all encompassing, nor guarantee the prevention. The contractor will implement additional measures based on the specific needs of the project site.

Section 15 – Groundwater

Existing Conditions

According to the Maine Geological Survey, the Airport is not mapped over an area designated as a significant sand and gravel aquifer.

On August 30, 2024, five (5) test pits were excavated by R.W Gillespie & Associates around the project site. The test pits indicated fine sandy soils to the depth of the test pit. No visible ground water was found in the test pits. The results of the test pits will be available mid-September 2024.

Borings will be conducted for the purpose of designing the building foundations and pavements. The results of the geotechnical borings will be available late-October 2024.

Impacts

The proposed action includes net addition of approximately 88,000 SF of new impervious, which will be treated on site as described below.

Mitigation

The additional impervious surface will be treated on site utilizing a grass soil filter as described in the 2016 *Maine Stormwater Management Design Manual*, *Technical Design Manual Volume* III, Chapter 7.1 – *Grassed Underdrained Soil Filters*. Once the stormwater has been treated through the filter media, the stormwater will be allowed to permeate into the ground thereby recharging the groundwater.

Attenuation of the peak flows are anticipated to manage via shallow swales and detention structures. Each will increase the infiltration to the surrounding soils.

Section 16 – Water Supply

Water Supply Method

The proposed development will utilize the public water supply through 1 1/2"" CTS Plastic piping. Attached following Section 17 – Wastewater Disposal is an ability to serve letter from the Auburn Water and Sewer District.

Subsurface Wastewater Disposal Systems

There are no subsurface wastewater disposal systems anticipated with this project.

Total Usage

Design flows from the proposed project are anticipated to be less than 500 gpd.

Section 17. Wastewater disposal

Sewage disposal associated with the proposed hangars will be by means of new sanitary sewer piping directed to the existing 8" sewer main in Flight Line Drive. It is anticipated that the site will discharge up to three (3) restrooms. Each restroom consists of a sink and toilet. No floor drains are anticipated in the T-hangars.

A. On-site Subsurface Wastewater Disposal Systems

A.1 Site Plan

Not applicable. No on-site disposal.

A.2 Soil Conditions Summary

Not applicable. No on-site disposal.

A.3 Logs of Subsurface Explorations

Not applicable. No on-site disposal.

A.4 Additional Subsurface Explorations

Not applicable. No on-site disposal.

A.5 3-Bedroom Design

Non-applicable. The proposed septic system will not serve a residential subdivision.

A.6 Larger Disposal Systems

Non-applicable. The proposed septic system does not serve two or more residences and has design flows fewer than 500 gpd.

B. Nitrate-Nitrogen Impact Assessment

Not applicable. No on-site disposal.

C. Municipal Facility or Utility Company Letter

See attached Auburn Water Sewer Districts memorandum dated August 29, 2024.

D. Wastewater Discharge Information

Not applicable. The development will discharge no liquid waste into any water body.

E. Storage or Treatment Lagoons

Not applicable. The development will not include any storage or treatment of wastewater.

Auburn Water and Sewer Districts

MEMO

To: John Gorham

From: Michael Broadbent, Superintendent

CC: John Blais, Jonathan LaBonte, Matt Waite

Date: August 29, 2024

Re: Proposed Air Port Hangers, Flightline Drive, Capacity to serve

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After review of your e-mail dated August 21, 2024, I offer the following comments.

The District has sufficient Water and Sewer Capacity to serve this development. However, providing water and sewer services to these hangers has not been presented in a manner consistent with our Terms and Conditions or water main specifications. At this time there are no public water and sewer mains available to these hangers. In order to have more than one metered customer on a main it must be a public main, owned and controlled by the Districts.

For the District to accept main extensions we will need time to review and approve design drawings and material specifications for the main extensions. The mains will need a permanent easement granting the District access rights to own, service and maintain the mains.

Section 18 – Solid Waste

Excavation and grading will be performed as part of the proposed action. An estimated 3,000 cubic yards (based on the 8-30-24 concept grading) of soil is anticipated to be reutilized in another location within the project area. The intent is to use a combination of onsite material and off-site borrow material as fill as shown in the plans.

Approximately 20 cubic yards of solid waste is anticipated to be produced during the construction phase of the hangars and taxilane. This will be managed with covered dumpsters and will be brought to a landfill in Auburn, ME. Once the project is completed, no increase in solid waste (trash) will be created by the project.

To further avoid and minimize the risk of unanticipated incidental impacts, the following pollution prevention and control measures would be implemented:

- Dispose of debris and solid waste generated by the project according to applicable federal, state, and local regulations.
- Re-use excess soils on-site to the maximum extent possible.
- Stage and operate construction equipment in designated areas.
- Implement spill and leak prevention and response procedures for construction equipment.
- Maintain spill kits to rapidly respond to and limit impacts from accidental releases of vehicle fluids.
- Report releases of regulated quantities and perform cleanup according to applicable regulatory requirements.
- Manage solid wastes in designated areas and establish routine pickup for disposal according to applicable regulations.

Section 19 – Flooding

Existing Conditions

The proposed project is not located within a FEMA mapped floodplain or floodway.

Impacts

The proposed action will not result in impacts to a regulatory floodplain or floodway.

Mitigation

The additional impervious surface of the project will be treated on site utilizing a grass soil filter as described in the 2016 *Maine Stormwater Management Design Manual*, *Technical Design Manual Volume* III, Chapter 7.1 – *Grassed Underdrained Soil Filters*. Once the stormwater has been treated through the filter media, the stormwater will be allowed to permeate into the ground thereby recharging the groundwater.

Attenuation of the peak flows are anticipated to manage via shallow swales and detention structures.

Section 25. Notices

A. Evidence that notice sent

The local paper ran the below notice on 9-5-24.

PUBLIC NOTICE
NOTICE OF INTENT TO FILE

Please take notice that Auburn-Lewiston Municipal Airport (80 Airport Drive, Auburn, ME 04210) intends to file a Site Location of Development Act amendment application, pursuant to the provisions of 38 M.R.S.A. 48 thru 490 with the Maine Department of Environmental Protection (MDEP) on or about September 6, 2024. The application is to construct a new CDS T-Hanger and Taxilanes at the Auburn-Lewiston Municipal Airport (LEW).

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Augusta, ME. Any member of the public may request an electronic copy of the application by calling the MDEP regional office where the location is filed during normal working hours. A copy of the application may also be seen at the City of Auburn: Auburn Hall, 60 Court Street, Auburn, Maine 04210.

B. List of abutters for purpose of notice

See list attached list of abutters that a notice was sent to.

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Auburn-Lewiston Municipal Airport List of Abutters

Tax Map #	Lot #	Sublot #1	Parcel ID	Property Owner #1	Property Owner #2	Home Address	Mailing (Billing) Address
144	7		144-007	Staires Julie A	Staires Alice	2530 Hotel Road	2530 Hotel Road Auburn ME 04210
144	8		144-008	Bruno Chessey & Cynthia R		2550 Hotel Road	2550 Hotel Road Auburn ME 04210
144	9		144-009	Johnston Daniel Q	Johnston Debra J	2564 Hotel Road	537 Fish St Leeds ME 04263
144	10		144-010	MCY Properties LLC		2578 Hotel Road	6 Hope Street Lisbon Falls ME 04252
144	10	1	144-010-001	Reynolds Invest LLC		2584 Hotel Road	2279 Eagle Glen Parkway #112-153 Corona CA 92883
144	11		144-011	Verrill Martin D	Verrill Rachel C	12 Turcotte Lane	12 Turcotte Lane Auburn ME 04210
144	12		144-012	Mero Kayci		24 Turcotte Lane	24 Turcotte Lane Auburn ME 04210
144	13		144-013	Barry Mark S, SR		36 Turcotte Lane	36 Turcotte Lane Auburn ME 04210
144	14		144-014, 132-009	Central Maine Power Company			C/O Avangrid Mgmt CO - Local Tax One City Center, 5th Floor Portland, ME 04101
132	12		132-012	Oligny Jean M		2604 Hotel Road	48 Center Court Drive New Gloucester ME 04260
132	11		132-011	Wagg Valerie J		2616 Hotel Road	2616 Hotel Road Auburn ME 04210
132	10		132-010	Lyon III George		2626 Hotel Road	2626 Hotel Road Auburn ME 04210
132	8	1	132-008-001	Dubois Isaiah	Tardiff Elizabeth	2640 Hotel Road	2640B Hotel Road Auburn ME 04210
132	8		132-008	Sasseville Gail M		2652 Hotel Road	PO Box 152 Minot ME 04258
132	8	2	132-008-002	Sasseville Paul H	Sasseville Gail M	Hotel Road	PO Box 152 Minot ME 04258
132	7		132-007, 143-007, 131-007, 131-006, 131-002, 119-002,155-004, 156-048, 156-015	Auburn City Of	Lewiston City Of	2662 Hotel Road, 80 Airport Dr, Flight	60 Court Street Auburn ME 04210
132	6		136-006	Auburn Lewiston Municipal Airport		2672 Hotel Road	390 Lewiston Junction Road Auburn ME 04210
132	17		132-017	J and A Properties LLC		65 First Flight Dr	J and A Properties LLC PO Box 1970 Auburn ME 04210
132	5		132-005	Purvis Kerry Faye	Purvis Justin	2696 Hotel Road	2696 Hotel Road Auburn ME 04210
132	4		132-004	Corriveau David L	Corriveau Kelly S	2706 Hotel Road	2706 Hotel Road Auburn ME 04210
132	3		132-003	Holt Sandra J	Keene Brian K	2714 Hotel Road	2714 Hotel Road Auburn ME 04210-8800
132	2		132-002	Burdick Douglas B		2744 Hotel Road	8 Hancock St Gray ME 04039
132	1		132-001	Riccio Scott A		2760 Hotel Road	2760 Hotel Road Auburn ME 04210
120	17		120-17	Whiting Brigitte A		2800 Hotel Road	2800 Hotel Road Auburn ME 04210
120	1		120-001	Tambrands Incorporated		2879 Hotel Road	ATTN Tax Division C-10 PO BOX 599 Cincinnati OH 45201
131	1		131-001	Comvest INC		Kittyhawk Ave	PO Box 1686 Lewiston ME 04240
131	5		131-005	Paine Realty LLC		20 Flight Line Dr	PO Box 1056 Auburn ME 04211-1056
131	6		131-006	BT Newyo LLC		72 Flight Line Dr	ATTN Corp Real Estate Tax Dept 55 Glenlake PWKY NEAtlana GA 30328
143	8		143-008	Omni Associates		33 Omni Cir	Omni Auburn ME 041210-191
143	9		143-009, 131-002-001	E.S. Chapman Properties LLC		49 Omni Cir	497 Washington St Auburn ME 04210
143	10		143-010	Management Controls LLC		63 Omni Cir	PO Box 2058 Auburn ME 04211
143	4		143-004	Otis South LLC		Lewiston Junction Rd	C/O Karen & Ford Reiche 54 Bartol Island Rd Freeport ME 04032
143	6		143-006	Dead River Company		335 Lewiston Junction Rd	177 Turner St Auburn ME 04210
168	9		168-009	Auburn Congregation Of Jehovahs Witnesses		2256 Hotel Road	2256 Hotel Road Auburn ME 04210
156	4		156-004	Teti Derrick M	ST Pierre Melissa	66 Constellation Dr	66 Constellation Dr Auburn ME 04210
156	3		156-003	Dumont Robert N	Dumont Lisa J	50 Constellation Dr	50 Constellation Dr Auburn ME 04210
156	2		156-002	Steinmetz Thomas		32 Constellation Dr	32 Constellation Dr Auburn ME 04210
156	1		156-001	Adams Teague B		24 Constellation Dr	24 Constellation Dr Auburn ME 04210
144	2		142-002	Musie Leo G.J.	Musie Majorie	2441 Hotel Rd	PO Box 1324 Auburn ME 04211-1234
144	32		142-032	Page Benjamin N	Wade Casey	2446 Hotel Rd	2446 Hotel Road Auburn ME 04210
144	33		144-033	Benton Mark N	Benton Kathi S	427 East Hardscrabble Rd	427 E Hardscrabble Rd Auburn ME 04210
144	3		144-003	Tieman Thomas A		2480 Hotel Rd	2480 Hotel Rd Auburn ME 04210
144	4		144-004	Nadeau Normand R	Nadeau Tine	2500 Hotel Rd	2500 Hotel Rd Auburn ME 04210
144	5		144-005	Rhuda Jennifer L	Macdonald Francis	2510 Hotel Rd	2510 Hotel Rd Auburn ME 04210
144	6		144-006	Tibbetts George		2520 Hotel Rd	2520 Hotel Rd Auburn ME 04210