Application	

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL

GENERAL LAND USE APPLICATION

1. Applicant's Name:	Robbinsville Heights LLC				
Contact Person:	Rajeshkumar Patel				
Address:	96 Overbrook Avenue				
	Edison, NJ 08817				
Telephone:	(631) 415-8540				
Email:	Shayonapropertiesusa@gmail.com				
Relationship to Owner:	Owner				

2. Property Address:	2345-2349 N.J. Route 33				
	Township of Robbinsville, NJ 08691				
Development Name:	Robbinsville Heights				
Zoning District:	TCS-RA (Town Center South - Redevelopment Area) Zone				
Tax Map Page:	1.30	Block:	1	Lot(s)	18, 19 & 20

3. Property Owner:	Robbinsville Heights LLC
Contact Person:	Rajeshkumar Patel
Address:	96 Overbrook Avenue
	Edison, NJ 08817
Telephone:	(631) 415-8540
Email:	Shayonapropertiesusa@gmail.com

4. Name of Attorney	Dino Spadaccini, Esq.
Firm:	The Spadaccini Law Firm, LLC
Address:	98 Franklin Corner Road
	Lawrenceville, NJ 08648
Telephone:	(609) 912-0100
Email:	Dino@spadlaw.com

5. Name of Engineer:	Mark Janiszewski, P.E.
Firm:	Colliers Engineering & Design
Address:	1000 Waterview Drive, Suite 201
	Hamilton, NJ 08691
Telephone:	(609) 934-5366
Email:	mark.janiszewski@collierseng.com

6. Name of Architect:	Ric Perez, AIA
Firm:	Perez + Radosti Associates, P.C.
Address:	379 Princeton Hightstown Road, Suite 308
	Cranbury, NJ 08512
Telephone:	(609) 308-7706
Email:	ric@pranj.com

7. **Application Type:** (Check all applicable - a completed Checklist is required for each)	
☐	Appeal
☐	Certificate of Nonconformity Request
☐	Conceptual/Informal Review
☐	Extension of Prior Approvals
☐	Home Occupation Permit
☐	Interpretation of the Zoning Map or Ordinance
☑	Site Plan – Preliminary Major, Residential. No. of Units proposed: 28
☑	Site Plan – Final Major, Residential. No. of Units proposed: 28
☑	Site Plan – Preliminary Major, Non-Residential. Total GFA proposed: 15,936 s.f.
☑	Site Plan – Final Major, Non-Residential. Total GFA proposed: 15,936 s.f.
☐	Site Plan – Minor Site Plan
☐	Site Plan – Administrative Site Plan Review (☐ check if related to a pool or sports court)
☐	Site Plan – Waiver of Site Plan
☐	Subdivision – Preliminary Major. Total No. of Lots proposed:
☐	Subdivision – Final Major. Total No. of Lots proposed:
☐	Subdivision – Minor. Total No. of Lots proposed:
☐	Variances – Residential Bulk. No. of Bulk Variances:
☐	Variances – Residential 'D'. No. of 'D' Variances: No. of Units:
☐	Variances – Non-Residential 'D'. No. of 'D' Variances: Total GFA:
☐	Other

* Check all applicable and submit appropriate Checklist for each application type

8. Is the property served by public sewer or septic system?	Public sewer system

9. Is the property served by public water system or private well?	Public water system

10. Has there been a previous appeal or approval for this property?	No
If so, please describe:	

11. Provide a brief history of the site, its location and description of current use(s) of property:
The property in question is located at 2345, 2347 and 2349 NJ Route 33 on Block 1, Lots 18, 19 & 20. The site is located at the southwest corner of New Jersey State Highway Route 33 and South Commerce Square. The overall property consists of approximately 1.69 acres of land and is currently developed with an abandoned office building to be demolished (Lot 18), and two (2) single-family homes (Lots 19 & 20) that were recently demolished.

12. Provide written narrative of proposal, be specific (include proposed development, use and/or description of operations:	The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor.

Copies of any applicable Checklists and the required submission items, including administrative forms, fees and digital copies, must be provided as one comprehensive submission at time of filing.

I have reviewed the By-Laws of the Planning and Zoning Boards, the general instructions to applicants, the application and accompanying documentation and consent to filing of the same with the Township of Robbinsville Planning Board/Zoning Board. I certify that all statements contained herein, any documents and plans filed herewith are true and correct to the best of my knowledge, information and belief. By signing as the applicant, I also certify that I am an authorized signatory and have full authority this execute this application.

R Abate — SIGN HERE — 12.13.25.

Applicant's Signature — Date

Rajeshkumar Patel, Owner

Applicant's Name & Title, printed

I do hereby accept the responsibilities as agent for this application (if different from applicant).

SIGN HERE

Agent's Signature — Date

Dino Spadaccini, Esq.

Agent's Name & Title, printed

TOWNSHIP USE ONLY BELOW THIS LINE

Application No: _____ *Fees Paid:* _____

Date Received: _____ *Escrow Paid.* _____

Referred To: _____

(Planning Board or Zoning Board)

12. Provide written narrative of proposal, be specific (include proposed development, use and/or description of operations:	The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor.

Copies of any applicable Checklists and the required submission items, including administrative forms, fees and digital copies, must be provided as one comprehensive submission at time of filing.

I have reviewed the By-Laws of the Planning and Zoning Boards, the general instructions to applicants, the application and accompanying documentation and consent to filing of the same with the Township of Robbinsville Planning Board/Zoning Board. I certify that all statements contained herein, any documents and plans filed herewith are true and correct to the best of my knowledge, information and belief. By signing as the applicant, I also certify that I am an authorized signatory and have full authority this execute this application.

SIGN HERE

Applicant's Signature _____ Date _____

Rajeshkumar Patel

Applicant's Name & Title, printed

I do hereby accept the responsibilities as agent for this application (if different from applicant).

SIGN HERE

Agent's Signature _____ Date 12/23/2025

Dino Spadaccini, Esq.

Agent's Name & Title, printed

TOWNSHIP USE ONLY BELOW THIS LINE

Application No: _____ *Fees Paid:* _____

Date Received: _____ *Escrow Paid.* _____

Referred To: _____

(Planning Board or Zoning Board)

RIDER TO APPLICATION
OF
ROBBINSVILLE HEIGHTS, LLC

Applicant/Owner:	**Robbinsville Heights, LLC**
Property:	**2345-2349 N.J. Route 33**
	Block 1, Lots 18, 19 & 20
Zone:	**Town Center South - Redevelopment Area ("TCS-RA")**
Application:	**Preliminary and Final Site Plan**

The applicant and owner, Robbinsville Heights, LLC (the "Applicant" or "Applicants"), is filing this application with the Robbinsville Township Land Use Board (the "Board") for preliminary and final site plan approval for a mixed-use retail and residential building in connection with a parcel having an address of 2345-2349 N.J. Route 33, known and designated as Block 1, Lots 18, 19 & 20, Tax Map Page 1.30 on the tax maps of the Township of Robbinsville, Mercer County, New Jersey, which is situated in the Town Center Couth – Redevelopment Area ("TCS-RA") Zoning District (the "Property").

The Property consists of an approximately 73,520-s.f. (1.69-acre) parcel consisting of three contiguous lots. Lots 19 and 20 were previously developed with single-family homes which have been demolished, leaving the two lots vacant. There is an existing abandoned office building on Lot 18 which is also proposed to be demolished. The Applicant proposes to construct a four-story mixed-use building as well as associated improvements including an enclosed ground-floor patio, parking, stormwater management &c.

The proposed four-story building will have a footprint of 11,716 s.f. The ground floor will consist of a restaurant/bar, liquor store, and two retail spaces for future rental, as well as a lobby, mail room, and office in connection with the twenty-eight (28) proposed apartments. The second and third floors will consist of residential apartments. The fourth floor will be divided between residential apartments and a rooftop bar and lounge with an open patio.

The following is the zoning data for your convenience which is also set forth in the plans and notes submitted herewith:

	REQUIRED*	EXISTING	PROPOSED
REDEVELOPMENT STANDARDS			
MINIMUM PARCEL SIZE	N/A	73,520 SF±	73,520 SF±
MINIMUM PARCEL WIDTH	N/A		
MINIMUM PARCEL DEPTH	N/A		
MINIMUM SETBACK FROM ROUTE 33	0 FT		> 0 FT
MINIMUM SETBACK FROM LIBERTY STREET	40 FT	N/A	N/A
SETBACK FROM REMAINING PROPERTY LINES	15 FT		> 15 FT
MAXIMUM BUILDING HEIGHT	4.5 STORIES 60 FT + ARCHITECTURAL FEATURES		4.5 STORIES 48 FT + ARCHITECTURAL FEATURES
MAXIMUM IMPERVIOUS SURFACE COVERAGE	90%		73.54%
MINIMUM DWELLING UNIT SIZE	650 SF		832 SF
MAXIMUM FAR	1.3		0.64
TC-2 TOWN CENTER DISTRICT STANDARDS			
SIDE YARD SETBACK	10 FT		69 FT
REAR YARD SETBACK	50 FT		133.6FT
PARKING BUFFER (ALL LOT LINES)	5 FT		5 FT

The following is the residential unit breakdown for your convenience which is also set forth in the plans and notes submitted herewith:

APARTMENT TYPE BREAKDOWN	
QTY.	TYPE
3	1 BEDROOM / 1 BATH
7	2 BEDROOM / 2 BATH- TYPE A
8	2 BEDROOM / 2 BATH- TYPE B
5	2 BEDROOM / 2 BATH- TYPE C
5	3 BEDROOM / 2 BATH
28 TOTAL NUMBER OF APARTMENTS	

The following are the parking calculations which are also set forth in the plans and notes submitted herewith:

Land Use	Size	ITE Estimate		Proposed Parking Supply
Residential (RSIS) – Garden Apartment	3 units	0.68 spaces per 1-bedroom unit (LUC 218)	2 spaces	117 spaces
	20 units	1.23 spaces per 2 & 2+ bedroom units (LUC 221)	31 spaces	
	5 units			
LUC 822 – Strip Retail Plaza (< 40k)	6,167 SF	2.79 spaces per 1,000 SF of GFA	18 spaces	
LUC 932 – High-Turnover (Sit-Down) Restaurant	6,776 SF	8.97 spaces per 1,000 SF of GFA	61 spaces	
Total		**112 spaces**		

The provided parking conforms to the requirements of the Town Center South Redevelopment Area Amended & Restated Redevelopment Plan.

Lastly, in addition to the approvals and relief set forth above, the Applicant requests that the Board grant any additional approvals, permits, variances, interpretations, waivers or exceptions reflected in the plans and materials filed (as same may be amended or revised from time to time without further notice) or determined to be necessary during the review and processing of the application(s).

Robbinsville
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Planning and Zoning Office

WAIVER/VARIANCE REQUEST FORM

Applicant's Name: Robbinsville Heights LLC

Address: 96 Overbrook Avenue

Edison, NJ 08817

Development Name: Robbinsville Heights

Township of Robbinsville Tax Block(s): 1, Lot(s): 18, 19 & 20

This form is an integral part of any development checklist submitted to the Township of Robbinsville wherein waivers from design standards, waivers from application checklist submission items or variances are requested. All requests should be specific and should reference the relief requested by Ordinance, Codebook Section or Checklist item. This form must be completed for all requested or required waivers/variances and submitted with the application in order for the application to be considered complete.

It is the applicant's or its professionals' responsibility to complete this form in order for proper consideration to be given to the request. Adequate documentation and support data shall be provided with each request in order for the Township to determine the appropriateness of the request. Where technical references or support data are given, the request form shall be signed and sealed by the appropriate professional.

See attached Addendum A - Checklist and Design Waiver Requests.

DESIGN WAIVER/VARIANCE REQUEST FORM (CONTINUED)

Ordinance/Codebook or Checklist Reference	Explanation and Support Data for Submission Waiver, Design Waiver or Variance Request

Addendum A – Design & Checklist Waiver Requests
Robbinsville Heights
Preliminary and Final Major Site Plan
Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, New Jersey
CED Project No.: 24002939A
January 2026

Colliers Engineering & Design

Design Waiver Requests

1. **Ordinance Section 142-47.D(3)**: A waiver is requested to propose island spacing that exceeds the minimum requirement of one planting island equivalent to nine feet wide by 18 feet deep per five parking spaces.

   This waiver is requested to maximize parking on site to create a Town Center atmosphere. Trees and shrubs are provided throughout the site.

2. **Ordinance Section 142-37.A(9)(d)**: A waiver is requested to provide light levels at property line that exceed the 0.2 footcandle maximum requirement.

   This waiver is requested for traffic safety such that adequate light is provided at intersections and drive aisles.

Preliminary Site Plan Checklist Waiver Requests

I. 12	Zoning Permit Denial/Notice of Violation	Not Applicable for this project.
I. 13	Resolution for previous Planning/Zoning Board Approvals	Not Applicable – no previous approvals for this site have been obtained.
I. 24	Community Impact Statement/Study	Submission Waiver. The mixed-use development is consistent with the Town Center South Redevelopment Area Plan.
I. 28	Water Quality Test Reports by NJDEPE certified laboratory for existing on-site wells.	Not Applicable. No on-site wells.
II. 36	Plan shall show location of all existing sewage disposal systems on the site in question and within 200 feet of the total tract boundary of the site plan pursuant to current Codes and Statutes.	Not Applicable. No existing on-site sewage disposal systems.
II. 37	Provide certification by a New Jersey Licensed Professional Engineer regarding adequacy of any and all existing on-site sewage disposal systems.	Not Applicable. No existing on-site sewage disposal systems.
II. 38	Submission of groundwater quality test report for all existing on-site wells or potable water supplies.	Not Applicable. No existing on-site wells or potable water supplies.
II. 39	Soils Tests shall be provided for primary and reserve septic areas.	Not Applicable. No septic areas are proposed with this application.

II. 40	The Location and results of all complete, incomplete, unacceptable and unwitnessed profile pits, permeability tests, basin, floods and percolation tests. All results shall be shown on a separate plan(s)entitled "Sewage Disposal and Water Supply Plan".	Not Applicable. No septic areas or wells are proposed with this application.
II. 41	Submission of individual soil test reports by soil log or test number foreach test location in numerical ascending order shall be provided.	Not Applicable. No septic areas or wells are proposed with this application.
II. 42	Submission of Treatment Works or NJPDES permits for sewage systems not in compliance with current Statutes.	Not Applicable. Proposed sewage system has been designed in accordance with current Statutes. A Treatment Works Approval will be sought by the applicant after Township approval.
III. 61	Plans and centerline profiles shall be provided for widening of all existing roadways.	Not applicable. The project does not involve widening existing roads.
III. 62	Half cross sections, 50 feet on center, shall be provided along the side of all widened existing roadways.	Not applicable. The project does not involve widening existing roads.
III. 74	Community Impact Statement/Study shall be prepared in accordance with the current Code Requirements.	Submission Waiver. The mixed-use development is consistent with the Town Center South Redevelopment Area Plan.

Final Site Plan Checklist Waiver Requests

I. 12	Zoning Permit Denial/Notice of Violation	Not Applicable for this project.
I. 13	Resolution(s) for Preliminary Site Plan and any other Approvals.	Not Applicable – This application requests Preliminary and Final Site Plan Approval simultaneously.
I. 14	Copy of Signed Preliminary Site Plan and Affidavit that all Conditions of the Preliminary Site Plan Resolution of Approval have been met.	Not Applicable – This application requests Preliminary and Final Site Plan Approval simultaneously.
II. 24	Compliance with any and all conditions of Preliminary Site Plan approval and the Preliminary Site Plan Checklist.	Not Applicable – This application requests Preliminary and Final Site Plan Approval simultaneously.
II. 25	Final septic system design criteria and grading shown on "Sewage Disposal and Water Supply Plan".	Not Applicable. No on-site sewage disposal systems or wells are proposed.

II. 26	Copies of any NJDEPE permits for sewage disposal systems and water supplies not in conformance with current code and statutes.	Not Applicable. No on-site sewage disposal systems or wells are proposed.
III. 29	An estimate of all construction quantities for all on-site and off-tract improvements. This estimate shall include all construction quantities for all site improvements shown on the approved Preliminary Site Plan and shall be signed, sealed and dated by a New Jersey Professional Engineer.	Submission Waiver. A cost estimate will be provided as a condition of Site Plan Approval.
III. 31	Metes and bounds descriptions for all right-of-way dedications, sight triangle easements; drainage; detention; or conservation easement; and common driveway easements.	Submission Waiver. Descriptions will be prepared as a condition of Site Plan Approval.
III. 33	A developer's agreement approved and executed by the Robbinsville Township Committee when improvements to public property or improvements shall be dedicated to the public or a Homeowners Association.	Submission Waiver. If required, the Applicant will enter into a developer's agreement as a condition of Site Plan Approval.

Addendum B-List of Outside Agency Approvals & Anticipated Developer Contributions
Robbinsville Heights
Preliminary and Final Major Site Plan
Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, New Jersey
CED Project No.: 24002939A
January 2026

Colliers Engineering & Design

Outside Agency Approvals

Agency	Approval Required	Date Submitted	Status
Mercer County Planning Board	Preliminary and Final Site Plan	Pending	Pending
Mercer County Soil Conservation District	Soil Erosion and Sediment Control Plan Certification	Pending	Pending
New Jersey Department of Transportation	Major Access Permit	Pending	Pending
New Jersey Department of Environmental Protection	Treatment Works Approval	Pending	Pending

Anticipated Developer Contributions

At this time, no developer contributions are anticipated, including: fees, fair-share payments, anticipated payments in lieu for waivers requested, etc. to be paid to the Township, per current Codes or Ordinance.

Robbinsville
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Planning and Zoning Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600 Fax (609) 259-2128

AFFIDAVIT OF OWNERSHIP

State of New Jersey, County of Mercer, SS.:

Owner's name: Rajeshkumar Patel of full age, being duly sworn according to law on oath depose(s) and say(s) that he/she/they reside(s) at 96 Overbrook Avenue in the Township of Edison in the County of Middlesex and State of New Jersey that he/she/they is/are the owner in fee of all that certain lot, piece or parcel of land situated, lying and being in the Township of Robbinsville, New Jersey, and known and designated as:

Block(s) 1, Lot (s) 18, 19 & 20, also known as (Address):

2345-2349 N.J. Route 33, Robbinsville, New Jersey.

Sworn and subscribed before me this 13th day of December 2025.

JRathod
(Notary)

JITENDRA RATHOD
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES APR. 19, 2026

RA Patel
(Owner's Signature)

Rajeshkumar Patel, owner
(Owner's Name, Title)

AUTHORIZATION

(If anyone other than above owner is making this application, the following authorization must be executed.)

To the Planning/Zoning Board:

Robbinsville Heights LLC is hereby authorized to make this application.

Applicant's relationship to Owner: Applicant is owner

(Owner's Signature) (Date)

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APPLICANT'S DISCLOSURE STATEMENT
(Corporation or Partnership)

A corporation or partnership applying to the Planning or Zoning Board for:

a. Subdivision with six (6) or more lots: or
b. Site Plan for commercial purpose; or
c. Variance to construct multiple dwelling of twenty-five (25) or more family units; or
d. Approval of a commercial use

must provide the names and addresses of all persons, stockholders or individual partners owning at least a ten (10) percent interest in the corporation, partnership are as follows:

NAME ADDRESS

(1) SHAYONA PROPERTIES USALLC - 96 Overbrook Ave Edison NJ 08817
(Jyoti Patel & Aditi Patel) (60%)
↳ 30% each (2 equal partners)

(2) SHYPM LLC (15%) - 96 Overbrook Ave, Edison NJ 08817
Jyoti Patel
Aditi Patel
Hetal Patel
} 5% each (3 equal partners)

(3) RAJESH PATEL - 96 Overbrook Ave, Edison NJ 08817
(25%)

or, See attached ☐

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Planning and Zoning Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600 Fax (609) 259-2128

CONSENT TO ENTRY

The undersigned hereby consents to the entry onto the property known as:

(Address) 2345-2349 N.J. Route 33, also known as:

Block 1, Lot(s) 18, 19 & 20 on the Tax Map of the Township of Robbinsville, by the members of the Township of Robbinsville Planning Board or Zoning Board, consultants and professionals representing the Boards, members of the Township of Robbinsville Environmental Commission, and other officials of the Township pertaining to this application, to perform an inspection of the subject property in connection with the land use application which is submitted herewith for approval by the appropriate Township Land Use Board.

By signing this consent, I affirm that I have full authority to execute this consent.

R A Patel SIGN HERE 12-13-25

(Signature of Owner) (Date)

Rajeshkumar Patel, Owner

(Name, Title - printed)

96 Overbrook Avenue, Edison, NJ 08817

(Address of Owner)

Robbinsville
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Planning and Zoning Office

FEE COMPUTATION SCHEDULE

Applicant: Robbinsville Heights LLC Date: _____

Block: 1 Lot(s): 18, 19 & 20

Computed by: Jodi Westhead, Colliers Engineering & Design Title: Project Services Manager

Lot Area: 1.69 Acres = 73,616.4 s.f. Parking spaces proposed: 117

Non-Residential ☑ Residential ☑

	Administrative Fees	Escrow Deposit
SUBDIVISION (#of lots _____)		
Minor Subdivision		
Preliminary Major		
Final Major		
SUBTOTAL	$	$
SITE PLAN		
Minor		
Non-Residential (Gross Floor Area: _____)		
Preliminary Major		
Final Major		
Residential (# of units _____)		
Preliminary Major		
Final Major		
Waiver of Site Plan		
Administrative Site Plan Review		
Pool and Sports Courts		
Other than Pools & Sports Courts		
SUBTOTAL	$	$
VARIANCES		
Bulk/Hardship (# of bulk variances _____)		
Residential		
Non-Residential		
"D" Variances (# of 'D' variances _____)		
Residential		
Non-Residential (Gross Floor Area _____)		
SUBTOTAL	$	$
OTHER		
Appeals and Interpretations		
Certificate of Nonconformity		
Conceptual/Informal Review		
Design Waiver(s)		
Educational Training Fee	30.00	
Home Occupation		
Publication of Decision Fee	75.00	
Signage		
Other		
SUBTOTAL	$	$
TOTAL OF ABOVE	$ To be calcualted by Township *	$ To be calculated by Township *

* Please submit two (2) checks payable to Township of Robbinsville, one for fees and one for escrow.

See §142-84 for Fee Ordinance

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TAX & UTILITY ASSESSMENT CERTIFICATION

Taxes and Utility Assessments must be certified as current when filing a General Land Use application and at time of hearing.

Include all affected lots.

Block 1, Lot 18

Block 1, Lot 19

Block 1, Lot 20

Block _____, Lot _____

Property Address: 2345-2349 N.J. Route 33

Owner's Name: Rajeshkumar Patel, Robbinsville Heights LLC

Applicant's Name: Robbinsville Heights LLC

FOR TAX OFFICE USE ONLY:

☒ **Taxes are Current** ☐ **Taxes are Delinquent**

☐ **No Sewer Connection** ☒ **Sewer is Current** ☐ **Sewer is Delinquent**

Taxes for the next quarter are due 11/1/26.
(Date)

CERTIFIED THAT TAXES AND UTILITY ASSESSMENTS HAVE BEEN PAID AND ARE CURRENT BY:

Kelly Foot — 8/21/26

Office of the Tax Collector — Date

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2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600 Fax (609) 259-2128

ESCROW AGREEMENT

This agreement made this _____ day of _____ 20 _____ between:

NAME: Robbinsville Heights LLC

ADDRESS: 96 Overbrook Avenue, Edison, NJ 08817

TYPE OF APPLICATION: Preliminary & Final Major Site Plan BLOCK 1 LOT 18, 19 & 20

Hereinafter called "Applicant"

and:

The Township of Robbinsville, in the County of Mercer, a municipal corporation of the State of New Jersey; Hereinafter called "Township"

WITNESSETH:

THAT the Applicant has submitted a development application to the Township's Planning Board/Zoning Board for consideration in accordance with the New Jersey Municipal Land Use Law and the Township of Robbinsville Land Use and Development Ordinance and Applicant hereby covenants and agrees as follows:

1. Applicant agrees to pay all costs related to the Township's review and administration of the proposed application with said costs including but not limited to:

   A. Conceptual review by the Technical Review Committee (TRC), Planning Board Work session, which entails professional consultant services as may be required by the Township;

   B. Full application professional review by the Township's TRC and Planning Board/Zoning Board, which entails professional consultant costs for: Planner, Engineering, Legal and other extraordinary consultant services as may be required by the Township;

   C. In house application review of the application by the Township's Department of Health and any other extraordinary review by any other department, office or municipal employee as may be required by the Township.

   D. Administration and handling of the application by the Township's Planning Office/Zoning Office and/or Office of the Township Clerk with said costs including but not limited to: secretarial and clerical administrative handling, escrow account bookkeeping, accounts receivable and payable, TRC and Board meeting secretarial/recording services.

   E. All tax map plotting services required to reflect approved conditions on the official Tax Maps of Robbinsville.

2. Applicant understands and agrees to pay all costs as set forth above from the date of initial application submission through the Township's signature of approved plans which shall include any costs for extensions and revalidations.

3. Applicant understands and agrees to deposit with the Township's Planning Office/Zoning Office an initial application filing fee in accordance with fees and permits section of the Ordinance upon submission of the application.

4. Applicant understands and agrees that the Township will draw down from said deposit to cover costs as set forth in Section 1 above.

5. Applicant understands and agrees to pay WITHIN TEN BUSINESS DAYS of receipt of the Township's statement/billing all additional costs as may be incurred and billed to the applicant by the township relative to the review and administration of the application even if the costs of said review and administration exceed the initial filing fee deposit.

6. Applicant understands and agrees that in the event Applicant fails to pay a billed amount, the Township may discontinue Planning Board/Zoning Board review and consideration on said application or if Planning Board/Zoning Board approval has been previously granted, the Township may deny issuance of a construction permit and/or certificate of occupancy or if permit has been previously issued Township may initiate a Stop Work Order.

7. Township agrees to refund to applicant any sum deposited with Township for review and administration of the application not spent nor needed by the Township.

8. Applicant agrees and understands that it is incumbent on the applicant to periodically monitor the status of said escrow account. Applicant should verify the escrow account balance one week prior to any public hearing. If an escrow account is deficient, the application may not be heard by the Board.

9. Applicant agrees and understands that it is the responsibility of the applicant to pay all escrow charges even if the applicant sells or conveys said property cited above to another party. An applicant may enter into an assignment agreement with any new developer, which would be reviewed by the Township Attorney for approvals.

10. Applicant will complete the attached Escrow Account Contact Information form. Applicant agrees and understands that if there is any change in Applicant/Developer or any change in the Applicant's/Developer's address or contact information, the Applicant is responsible to notify the Township of Robbinsville Finance Department and the Administrative Officer and will amend any necessary documents.

Rajeshkumar Patel, Robbinsville Heights LLC
Applicant's Name - Print

R A Patel — 12.13.25
Applicant's Signature — Date

Administrative Officer — Date

Application #: _____

Escrow Account #: _____

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2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600 Fax (609) 259-2128

ESCROW ACCOUNT CONTACT INFORMATION

Name of Applicant: Robbinsville Heights LLC

Project Address: 2345-2349 N.J. Route 33

Project Block: 1 Lot(s): 18, 19 & 20

Person or firm responsible for receiving and discussing financial/escrow account information (this would include receiving copies of any vouchers/invoices, account statements, requests to replenish the escrow account-per the escrow agreement, etc.):

Name: Rajeshkumar Patel, Robbinsville Heights LLC

E-mail address: Shayonapropertiesusa@gmail.com

Address: 96 Overbrook Avenue, Edison, NJ 08817

Phone number: (631) 415-8540

Robbinsville Township will send all escrow documents via email and will request the Board's professionals do the same.

All correspondence concerning escrow accounts shall be directed to the Township of Robbinsville Finance Department. I understand that if there is any change in Applicant/Developer or any change in the Applicant's/Developer's address or contact information, I am responsible to notify the Township of Robbinsville Finance Department and the Administrative Officer and will amend any necessary documents.

By signing this form, I certify that I am an authorized signatory and have full authority to have/grant access to this Developer's escrow account information.

RAPatel SIGN HERE 12/13/25

SIGNATURE DATE

Rajeshkumar Patel, owner

NAME, TITLE

For Dept. Use:
- ☐ Save to Server
- ☐ Copy to Finance
- ☐ Add to Escrow Sheet

Application:	
Date Rcvd.:	
Received by:	

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL

PRELIMINARY SITE PLAN CHECKLIST

1. Applicant's Name:	Robbinsville Heights LLC
Contact Person:	Rajeshkumar Patel
Address:	96 Overbrook Avenue, Edison, NJ 08817
Telephone:	(631) 415-8540
Email:	Shayonapropertiesusa@gmail.com
Relationship to Owner:	Owner

2. Property Address:	2345-2349 N.J. Route 33, Township of Robbinsville, NJ 08691
Development Name:	Robbinsville Heights
Zoning District:	TCS-RA (Town Center South - Redevelopment Area) Zone
Block(s):	1
Lot(s):	18, 19 & 20

3. Property Owner:	Robbinsville Heights LLC
Contact Person:	Rajeshkumar Patel
Address:	96 Overbrook Avenue, Edison, NJ 08817
Telephone:	(631) 415-8540
Email:	Shayonapropertiesusa@gmail.com

4. Name of Attorney:	Dino Spadaccini, Esq.
Firm:	The Spadaccini Law Firm, LLC
Address:	98 Franklin Corner Road, Lawrenceville, NJ 08648
Telephone:	(609) 912-0100
Email:	Dino@spadlaw.com

5. Has this property ever been subject of a previous application to the Planning or Zoning Board?
If so, please describe (incl. Resolution #):
No.

6. Description of Property, brief history of the site, its location and description of current use(s) (may attach addendum):
The property in question is located at 2345, 2347 and 2349 NJ Route 33 on Block 1, Lots 18, 19 & 20. The site is located at the southwest corner of New Jersey State Highway
Route 33 and South Commerce Square. The overall property consists of approximately 1.69 acres of land and is currently developed with an abandoned office building
to be demolished (Lot 18), and two (2) single-family homes (Lots 19 & 20) that were recently demolished.

7. Provide Detail of the Exact Nature of the Application (may attach addendum):
The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional
retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd and 4th floors; and a rooftop bar/lounge is also proposed
on the 4th floor.

8. Description of Relief Requested, including Section(s) of Ordinance variance is requested (may attach addendum):
See attached Addendum A.

INSTRUCTIONS:

1. This checklist shall be completed by the applicant or its authorized representative and submitted with the application. This checklist shall be used in determining completeness or incompleteness of the application pursuant to Robbinsville Township's Land Use and Development Ordinance(s). The applicant is advised that failure to provide all data required on this checklist or failure to apply for the appropriated waivers will render the application incomplete. Applications will not be placed on an agenda until it has been deemed complete by the Administrative Officer.

2. Applicant to complete checklist column with an "X" in the appropriate column. A waiver should be requested for all checklist item you may consider "not applicable" ("n/a") and reason(s) you would consider it "not applicable." ****** All waivers requested should be explained in detail on the Waiver/Variance Request Form. Failure to provide a reason for the request will render the application incomplete.

3. The Technical Review Committee (TRC) will determine if any item where a waiver is requested shall be required to be provided and the application shall be considered incomplete if not provided.

4. The applicant shall submit three (3) collated copies of all correspondence (including cover and response letters) and administrative forms. The applicant shall submit three (3) signed and sealed copies of all maps, plans or reports and all additional submission item(s). All submissions must include a digital copy in pdf. format of all submission items (email to BoardSecretary@robbinsville.net, dropbox, thumb drive or disk). All re-submissions must include a point-by-point response letter addressing all comments from the Board's professionals or from the Technical Review Committee (TRC) Meeting. All submissions must be made as one comprehensive submission, not under separate cover.

I. ADMINISTRATIVE			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	1. Completed General Land Use Application Form.	✓	
☐	2. Completed Fee Schedule Form.	✓	
☐	3. Payment of Required Fees (two separate checks).	✓	
☐	4. Completed Escrow Agreement Form with Escrow Contact Sheet.	✓	
☐	5. Completed W-9 Form (for Escrow Account).	✓	
☐	6. Tax & Utility Assessment Certification Form (Applicant part complete).	✓	
☐	7. Completed Waiver/Variance Request Form.	✓	
☐	8. Completed Affidavit of Ownership Form (notarized).	✓	
☐	9. Completed Disclosure Statement Form.	✓	
☐	10. Completed Consent of Entry Form.	✓	
☐	11. Completed Checklist(s) for All Applicable Requests.	✓	
☐	12. "Zoning Permit Denial" or "Notice of Violation" (N.O.V.) from Zoning, Code or Construction Official.		✓
☐	13. Resolution(s) for all previous Planning/Zoning Board approvals.		✓
☐	14. Proposed Operations Statement, including details of existing and proposed use(s), hours of operation, number of employees, provisions for maintenance, etc., signed by Applicant and notarized.	✓	
☐	15. Certification by the Applicants Engineer that proposal is consistent with Wastewater Management Plan of the Township of Robbinsville.	✓	
☐	16. Boundary and Topographic Survey of the total tract, certified to the Applicant, signed and sealed by the preparing N.J. Licensed Land Surveyor in accordance with current statute. Current-no greater than two (2) years old, to scale, accurately showing all existing conditions (including fencing, pavement, pools, all buildings and structures), with accurate distances from property lines shown.	✓	
☐	17. "Will Serve" letters for all Applicable Utilities	✓	

☐	18. Preliminary Site Plan, designed, drawn, signed and sealed by N.J.P.E., L.S. or A.I.A. as appropriate, to scale, sheets numbered consecutively, folded, collated, bound, signed and sealed with a common preparation and/or revision date(s).	✓	
☐	19. Architectural Floor Plans and Elevations, signed and sealed by the preparing N.J. licensed Architect, sheets numbered consecutively, folded, collated, bound, with a common preparation and/or revision date(s) with the site plan, with the uses of each area clearly defined on plan.	✓	
☐	20. Rendered Elevations for site.	✓	
☐	21. Sign Inventory Plan and Details, sheets numbered consecutively, folded, collated, with a common preparation and/or revision date(s).	✓	
☐	22. List of all necessary Outside Agency Approvals indicating status of approvals, including copies of each approval (NJDOT, NJDEP, etc.).	✓	
☐	23. List of any anticipated developer contributions, fees, fair-share payments, anticipated payments in lieu for waivers requested, etc. to be paid to the Township, per current Codes or Ordinance.	✓	
☐	24. Community Impact Statement/Study, signed.		✓
☐	25. Environmental Impact Statement/Study, signed and sealed.	✓	
☐	26. Traffic Impact Assessment/Study, signed and sealed.	✓	
☐	27. Soil Test Reports, collated, signed and sealed.	✓	
☐	28. Water Quality Test Reports by NJDEPE certified laboratory for existing on-site wells.		✓
☐	29. Stormwater management calculations collated, bound, signed and sealed with common preparation and/or revision dates.	✓	
☐	30. Stormwater Management Facility Operations & Maintenance Manual (if approved, shall be filed with the County Clerk's office).	✓	
☐	31. Sanitary Sewer Engineer's Report, signed and sealed, bearing a common date of issue or revision with the plans and specifications; projected flow calculations; specifications and details on any equipment or structure to be installed which may have an effect on the sanitary sewer flows.	✓	
☐	32. Proof of submission of a request for a wetlands letter of interpretation to the New Jersey Department of Environmental Protection a minimum of 60 days prior to submitting this application. Proof shall include acknowledgement of receipt by the New Jersey Department of Environmental Protection.	✓	
☐	33. Submission of a wetlands report and wetlands delineation.	✓	
☐	34. Photographs of property views from street and all other off-site area(s) visible to proposed improvement(s), aerial photos of site.	✓	
☐	35. Complete application, filed as one submission, with quantities and digital copies as noted in the Instructions, #4.	✓	

II. HEALTH

Township Use Only		Provided per Checklist	**Waiver Requested
☐	36. Plan shall show location of all existing sewage disposal systems on the site in question and within 200 feet of the total tract boundary of the site plan pursuant to current Codes and Statutes.		✓
☐	37. Provide certification by a New Jersey Licensed Professional Engineer regarding adequacy of any and all existing on-site sewage disposal systems. Potential reserve areas for modification of existing systems shall be shown on the plan. Application will be declared incomplete		✓

	should failing or unsatisfactory conditions be noted, certified, or found to exist.		✓
☐	38. Submission of groundwater quality test report for all existing on-site wells or potable water supplies. Application will be declared incomplete should failing or unsatisfactory conditions be noted, certified, or found to exist.		✓
☐	39. Soils Tests shall be provided for primary and reserve septic areas. Test results submitted which are invalid because of expiration dates or do not comply with all provisions of the current Codes and Statutes shall render the application incomplete.		✓
☐	40. The Location and results of all complete, incomplete, unacceptable and unwitnessed profile pits, permeability tests, basin, floods and percolation tests. All results shall be shown on a separate plan(s) entitled "Sewage Disposal and Water Supply Plan". All dimensioned to all proposed and existing: lot lines, watercourses, easements, wetland limits, sewage disposal and water supply systems within 200 feet of the tests.		✓
☐	41. Submission of individual soil test reports by soil log or test number for each test location in numerical ascending order shall be provided. Each report shall be signed and sealed by a NJPE and coordinated with each lot number shown on the plan.		✓
☐	42. Submission of Treatment Works or NJPDES permits for sewage systems not in compliance with current Statutes.		✓

III. ENGINEERING/PLANNING			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	43. Site Plan designed, drawn, signed and sealed by N.J.P.E., L.S. or A.I.A., as appropriate.	✓	
☐	44. Site Plan shall show the proposed use and site improvements including but not limited to: existing topography; location of all proposed structures with dimensions to boundaries; location of all existing structures to remain or to be removed; proposed access aisles with curb-to-curb dimensions for width; curb radii dimensions; automobile parking stalls with dimensions for width and depth; truck loading and parking aisle and stall with dimensions for stall length and width; type of truck to use loading area; typical truck radii detail; loading dock locations; all sidewalk locations and dimensions; provisions for handicapped; location of trash enclosure or accessory structures; location of bench mark; flood hazard areas; wetlands boundaries; stream corridor areas; and easement areas; any other details deemed necessary by the Township/Board Engineer.	✓	
☐	45. All scales shall be written and graphically identified. Minimum scales for plan preparation shall be as follows: preparation shall be as follows: a. Key Maps: 1" = 1000' b. Boundary and Topographic Survey: 1" = 100' c. Environmental Inventory Maps: 1" = 200' d. Site Plan, Subdivision, Grading, and Drainage Plans: 1" = 50' e. Plans and Profiles: 1" = 50' – Horizontal; 1" = 50' – Vertical, Horizontal to Vertical portion of scales being no more than 10 f. Sewage Disposal and Water Supply Plan: 1" = 50' g. Landscaping Plan: 1' = 50' with individual unit, berm, island, or other detailed landscaping being provided at minimum 1" = 20'	✓	

☐	46. Site Plan shall be blackline reproduction on standard sized sheets: 30" x 42", 24" x 36", 11" x 17", 8 ½" x 13".	✓	
☐	47. Title block shall contain minimum data per current Statutes.	✓	
☐	48. A north arrow with reference meridian shall be provided.	✓	
☐	49. Signature lines for the Township Engineer, Board Chairperson for appropriate Board and Board Secretary on cover sheet.	✓	
☐	50. A legend identifying symbols and drafting techniques used. The standard Legend identified in the Robbinsville Township Site Improvement Standards is preferred.	✓	
☐	51. A key map showing the tract in question; north arrow; zoning; tax lot numbers, tax block numbers, tax sheet numbers, owners names as identified on certified list provided by Township for tract in question and all lots within 200 feet of tract; Municipal Boundaries; Existing or proposed "Master Plan" features or facilities on the site or within 500 feet of total tract; signature and seal of licensed professional; names and address of owner, applicant and professional preparing the map; owners certification, zoning data for each zone with all proposed data and deficiencies listed, number of proposed lots, and index of sheets (where applicable). All measurements specified herein shall be measured radially from the boundary and shall include all lots, zones, etc. on opposite sides of road and within other municipalities.	✓	
☐	52. Boundary and topographic survey of the total tract, certified to the Applicant, shall be signed and sealed by the preparing N.J. Licensed Land Surveyor in accordance with current Statutes. Topography within 200 feet from the property boundary shall be shown. All topography shall be based on NAVD 88 datum with two bench marks established within 500 feet of the subdivision boundary and shown with appropriate references.	✓	
☐	53. An environmental inventory plan identifying the following existing on-site features and offsite features within 50 feet of the site: a. Soils Classifications in accordance with Mercer County Soils Survey. b. Existing topography. c. Physical features including watercourses, stream corridors, culverts or bridges. d. Delineate wetlands along with notation identifying professionals who delineated the wetlands and include N.J.D.E.P. LOI data. e. Existing easements. f. Critical areas as defined in the Land Use & Development Ordinance. g. Gross density calc. pursuant to the current Land Use Ordinance. h. A summary to nearest one tenth of an acre of all critical areas, wetlands, easements, soil types and different zoning classifications.	✓	
☐	54. Bulk Requirements Schedule/Table indicating Zoning District shall be tabulated to show all bulk requirements of the zone or zones in which the site is located and the bulk data proposed by the application. This tabulation shall also identify compliance or noncompliance for all existing structures. All lot areas shown shall be identified as gross and net areas. Density shall be shown as defined by the Land Use and Development Ordinance. Bulk Requirements Schedule/Table shall identify permitted, existing and proposed improvement conditions. Any relief previously granted shall be indicated and referenced on the plan. All requested variances and waiver shall be noted on the plan.	✓	
☐	55. All existing and proposed utility service lines and laterals on site and along the frontage of the site. This shall include storm drainage, water mains, sanitary mains, sump pump connections, natural gas, and underground electric and phone service.	✓	

☐	56. Drainage and grading plan duplicating all data shown on the site plan (dimensions not required to determine slopes should not be shown). Existing and proposed contours with intervals of one foot where slopes are less than two percent; with intervals of two feet where slopes are between two percent and ten percent; and with intervals of five feet where slopes exceed ten percent; spot elevations at bottom of curb for every point of curvature or tangency, breaks in grade, and handicapped ramps, elevations of drainage inlet grates or manhole rims; storm and sanitary sewer pipe invert elevations; elevations at corners of proposed structures; finished first floor elevations; and elevations at loading ramps. Contours must be based on NAVD 88 elevations and bench marks must be shown. Where drainage swales are proposed, the elevation, percent longitudinal slope and typical cross section of the swales shall be shown. Proposed grading should be designed to provide a balanced cut /fill condition, as much as practical.	✓	
☐	57. Storm drainage profiles for all diversion swales, waterways, storm sewer pipe and any other conduit not shown on roadway plan and profile sheets shall be provided. These profiles may be shown on a separate sheet entitled “Drainage Profiles”, the detention basin plan or construction detail plans and the following minimum details shall be shown: Existing elevations shall be shown at 100-foot intervals. Proposed elevations for appurtenances shall be shown at 100-foot intervals, concrete structure elevations shall be shown at 50-foot intervals; invert elevations; elevations at grade changes. Proposed slopes shall be written.	✓	
☐	58. A Detention/Retention basin plan showing; all existing and proposed grades and contours, outlet structure details, conduit outlet protection details; all inverts; low flow channel with proposed longitudinal slope(s) and typical cross section; trash rack details; emergency spillway cross sections and profiles to point of discharge; construction details. Slopes and items required by this section shall provide the minimums required by the Design Standards of Robbinsville Twp.	✓	
☐	59. Hydraulic calculations for stormwater detention/retention showing no reduction in conformance with Mercer County Soil Conversation District and N.J.D.E.P. a. Pre-development conditions shall be considered as “good”. b. Post development conditions shall be considered as “poor” with maximum impervious coverages permitted by ordinance being used in developing post development curve numbers. c. Calculations shall include a drainage area map showing pre and post development conditions with soil types, soil uses and flow patterns, time of concentration flow paths and flow lengths and slopes. d. Routing of pre and post development flows through each basin using the mass storage equation and “Urban Hydrology for Small Watersheds TR-55”. e. Emergency spillways shall be provided. The cross sections shall be designed to pass the 100-year post development inflow plus 50%. The invert shall be set at the crest of the 100-year storage elevation in the basin. f. All detention basins shall be designed to serve as a sediment basin during and after construction in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey References. g. Computations showing Compliance with the Regulations of the Mercer County Planning Board and Mercer County Soil Conservation District.	✓	

☐	60. Hydraulic calculations for stormwater runoff collection system shall be submitted. Calculations may use the rational method or Soil Conservation Service method.	✓	
☐	61. Plans and centerline profiles shall be provided for widening of all existing roadways.		✓
☐	62. Half cross sections, 50 feet on center, shall be provided along the side of all widened existing roadways. Each section shall include the location and NAVD 88 elevation of all existing and proposed physical centerline; right-of-way centerline; edge of pavements, right-of-way lines, sidewalk centerlines, sidewalk widths. In addition, the existing and proposed contours 25 feet from the proposed right-of -way line shall be shown.		✓
☐	63. Typical construction details shall be provided on drawings designated as "Construction Details". Details to be shown shall include: typical roadway cross section; storm/sanitary sewer inlets and manholes (each type); storm sewer headwalls, storm sewer trench; storm sewer flared-end section; underdrain; curb; curb end treatment, depressed curb; sidewalk, handicap ramp, street signs; warning and regulatory signs; sump pump/underdrain to storm sewer connection; any "poured in place" concrete details and reinforcing schedules; all retaining wall details; sanitary sewer trench details, sanitary cleanout details; and other details deemed appropriate by the Township/Board Engineer.	✓	
☐	64. Landscaping plan shall show the site, all existing and proposed topography, existing onsite tree groupings and offsite tree groupings within 200 feet; typical planting details; landscaping notations and details containing minimum data required in the "Site Improvement Standards"; detailed locations of proposed plant materials; enlarged details for individual multi-family units, landscaped islands, and landscaped berms; and all intermittent and perennial streams, lakes and other water bodies. All trees and tree groups shown shall be classified as to general size and species.	✓	
☐	65. Location and details of all proposed outdoor lighting including site lighting stanchion locations including the 0.5 footcandle boundary limit in plan form, details showing type of light(s), height of light(s), style of light(s), typical footing detail; typical illumination pattern (to scale); color and wattage of lights; all lighting details may be included on the landscaping plan.	✓	
☐	66. Location and details of all proposed signage, including free-standing (show setbacks) and building mounted (façade) signage; details may be included on the landscaping plan.	✓	
☐	67. Plan shall provide location and details of all proposed Electric Vehicle charging stations or "Make-Ready" parking spaces.	✓	
☐	68. Architectural Floor Plans shall not conflict with the Site Plan.	✓	
☐	69. All on-site wetlands shall be field identified by a qualified expert in accordance with NJDEPE standards, and surveyed, and located on the plan by the applicant's New Jersey licensed land surveyor. A wetland report identifying all observations and findings of the wetlands expert shall accompany the major subdivision application. If the lands remaining are 50 acres or larger and not to be built upon, wetlands will only be required to be identified within 150 feet of the proposed lots or any other on-site or off tract improvements. The applicant shall certify in writing that no construction shall occur upon the remaining lands until all on-site wetlands are identified. Any buffer areas shall be shown on the plan.	✓	

☐	70. Plan shall provide cultural features, historic sites, and critical view sheds, as mapped by the Township.	✓	
☐	71. Plan shall show location and construction details for pedestrian and bicycle circulation systems (including width and materials) and site furnishings.	✓	
☐	72. Site Plan shall provide location(s) and details of any proposed fence.	✓	
☐	73. Site Plan shall show location(s) and detail of loading areas and any screening provided.	✓	
☐	74. Community Impact Statement/Study shall be prepared in accordance with the current Code Requirements.		✓
☐	75. Environmental Impact Statement/Study shall be prepared in accordance with the current Code requirements.	✓	
☐	76. Traffic Impact Analysis/Study shall include, but not limited to, existing and background peak hour traffic volumes and distribution patterns; peak hour on-site generated traffic volumes and distribution patterns; existing and proposed traffic composition; analysis of adequacy of proposed on-site circulation patterns including adequacy of truck and automobile turning radii; analysis of need for number of loading bays; existing and proposed levels of service and volume/capacity ratios; adequacy of proposed sight distances; analysis of need for acceleration/deceleration lanes; analysis of need for roadway striping, signage of reflectorization; need for signalization and a summary recommendation and conclusions for the analysis. The study area shall include the site as proposed by this application; the site as proposed by a master development plan; the existing and proposed roadway frontages of the site, and the nearest intersection of public roadways as measured away from the site in opposite directions. The roadways approaching the site shall be generally reviewed for adequacy to support site generated traffic. The capacity of off-street parking shall be provided and compared to the parking demands for the proposed use(s) for the overall site. Traffic and pedestrian safety shall be addressed. This report shall be prepared by a N.J. Licensed Professional Engineer qualified to make the analysis as required.	✓	
☐	77. Plan shall provide a data table of existing, required and proposed parking spaces, Electric Vehicle charging stations and loading areas.	✓	
☐	78. Compliance with all Design Standards of the Land Use and Development Ordinance, or a waiver/variance requested on Waiver/Variance Request Form.	✓	

IV. ARCHITECTURE & LANDSCAPING			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	79. Architectural Floor Plans and Elevations shall include title block, including Title, author of the drawing, drawing number and property reference. Sheets shall be scaled, numbered consecutively, folded, collated, bound, signed and sealed by a NJ licensed Architect with a common date of issue and revision date(s) with the Site Plan.	✓	
☐	80. Architectural drawings shall be clearly labeled and shall include: a. Drawing Title. b. North arrow on plans. c. Floor Plans of each floor level. d. Room labels on plans to clearly define each use e. Overall dimensions on plans. f. Elevations of each façade of each building noting all façade	✓	

	material types, colors, grills, storefronts, roof screens, building mounted lighting, signage, and any other appurtenances g. All building heights and dimensions. h. Clear and detailed reference to screening of ground mounted and/or roof mounted equipment. i. Clear indication of the requested variances and waivers.		
☐	81. Site Plan shall show location and detail of trash enclosures and any screening provided.	✓	
☐	82. Site Plan shall provide clear reference or delineation of any sustainable design features.	✓	
☐	83. Site Plan shall provide location(s) of all proposed lighting, and/or all relocation of existing lighting and specifications of all lighting type(s) proposed for the project, including details and design for site lighting and building mounted lighting.	✓	
☐	84. Rendered Elevations shall show elevations of each façade and include any building mounted or façade signage and lighting.	✓	
☐	85. Sign Inventory Plan shall detail inventory and sign locations for all signage proposed on site and/or building mounted signage. Plans shall include proposed graphics, dimensions, colors, lighting and general construction and mounting details. Ground or free-standing signs must include dimensions, height and setbacks.	✓	
☐	86. Tree Save/Tree Clear Plan indicating the area to be cleared, including trees with a trunk diameter of eight (8”) inches or greater, measured four and a half (4.5’) feet above ground level. Plan should include species, size and general health conditions of any trees to be cleared. Area of disturbance shall be indicated.	✓	
☐	87. Aerial extent of forest and tree cover, which includes the outside perimeter of individual trees and with a depiction of trees to remain, be removed, or relocated.	✓	
☐	88. Plan shall show existing and proposed geography, screened.	✓	
☐	89. Surveyed location of all trees located within 25 feet of the limit of disturbance.	✓	
☐	90. Plan shall provide location of proposed landscaping, including trees, shrubs, groundcovers, vegetative plants with keys.	✓	
☐	91. Plan shall contain a chart showing the following: a. Proposed plant names, both common and scientific. b. Proposed plant sizes in caliper, height, and/or width at the time of installation. c. Type of nursery stock, i.e., balled and burlapped or container and size of container. d. Proposed plant spacing and other comments. e. Planting notes, including a specification that the plants must conform to the American Standard for Nursery Stock, latest edition. f. Delineation showing which areas to be irrigated. g. Maintenance specifications (including irrigation). h. Planting details conforming to current cultural horticultural practices.	✓	
☐	92. Outdoor pedestrian spaces with landscape architectural elements shall be labeled.	✓	
☐	93. Plantings, buffer areas, re-forestation areas shown to meet the Township Code (contributions may apply to waivers granted).	✓	

	V. PRIOR TO PUBLIC HEARING	Acknowledged by Preparer (initial)
☐	94. The notice of publication and the notice of service on the affected owners must be accomplished at least ten (10) days prior to the hearing date scheduled by the Administrative Officer in accordance with the M.L.U.L and Township Ordinance. Proof of Service Package must be filed with the Administrative Officer before the application will be considered complete and the hearing can proceed.	✓
☐	95. Witness/Exhibit List shall be provided five (5) days prior to hearing: Exhibit A-1: Complete Application Package (current version of all submission items). Exhibit A-2: Board's Professional's Review Memos. Exhibit A-3: Affidavit of Proof of Service Package. Exhibit A-4: (continue with any additional exhibits to be introduced, if any).	✓
☐	96. Tax & Utility Assessment Certification Form, to be re-certified, if necessary.	✓
☐	97. Escrow Account must be current prior to hearing.	✓

Person Preparing Checklist:	Mark Janiszewski, P.E.
Firm:	Colliers Engineering & Design
Address:	1000 Waterview Drive, Suite 201, Hamilton NJ 08691
Telephone:	(609) 934-5366
Email:	mark.janiszewski@collierseng.com

CERTIFICATION:

I have prepared this checklist and confirm that I have provided a response to all waivers being requested and listed all variance relief sought on the Waiver/Variance Form. I certify that the checklist is complete and accurate.

Signature/Certification of Person Preparing Checklist — Date: December 22, 2025

TOWNSHIP USE ONLY BELOW THIS LINE

Application No: _____ *Fees Paid:* _____

Date(s) Received: _____ *Escrow Paid.* _____

Referred To (Planning Board or Zoning Board): _____

Application:	
Date Rcvd.:	
Received by:	

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL

FINAL SITE PLAN CHECKLIST

1. Applicant's Name:	Robbinsville Heights LLC
Contact Person:	Rajeshkumar Patel
Address:	96 Overbrook Avenue, Edison, NJ 08817
Telephone:	(631) 415-8540
Email:	Shayonapropertiesusa@gmail.com
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4. Name of Attorney:	Dino Spadaccini, Esq.
Firm:	The Spadaccini Law Firm, LLC
Address:	98 Franklin Corner Road, Lawrenceville, NJ 08648
Telephone:	(609) 912-0100
Email:	Dino@spadlaw.com

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The property in question is located at 2345, 2347 and 2349 NJ Route 33 on Block 1, Lots 18, 19 & 20. The site is located at the southwest corner of New Jersey State Highway
Route 33 and South Commerce Square. The overall property consists of approximately 1.69 acres of land and is currently developed with an abandoned office building
to be demolished (Lot 18), and two (2) single-family homes (Lots 19 & 20) that were recently demolished.

7. Provide Detail of the Exact Nature of the Application (may attach addendum):
The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional
retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd and 4th floors; and a rooftop bar/lounge is also proposed
on the 4th floor.

8. Description of Relief Requested, including Section(s) of Ordinance variance is requested (may attach addendum):
See attached Addendum A.

INSTRUCTIONS:

1. This checklist shall be completed by the applicant or its authorized representative and submitted with the application. This checklist shall be used in determining completeness or incompleteness of the application pursuant to Robbinsville Township's Land Use and Development Ordinance(s). The applicant is advised that failure to provide all data required on this checklist or failure to apply for the appropriated waivers will render the application incomplete. Applications will not be placed on an agenda until it has been deemed complete by the Administrative Officer.

2. Applicant to complete checklist column with an "X" in the appropriate column. A waiver should be requested for all checklist item you may consider "not applicable" ("n/a") and reason(s) you would consider it "not applicable." ****** All waivers requested should be explained in detail on the Waiver/Variance Request Form. Failure to provide a reason for the request will render the application incomplete.

3. The Technical Review Committee (TRC) will determine if any item where a waiver is requested shall be required to be provided and the application shall be considered incomplete if not provided.

4. The applicant shall submit three (3) collated copies of all correspondence (including cover and response letters) and administrative forms. The applicant shall submit three (3) signed and sealed copies of all maps, plans or reports and all additional submission item(s). All submissions must include a digital copy in pdf. format of all submission items (email to BoardSecretary@robbinsville.net, dropbox, thumb drive or disk). All re-submissions must include a point-by-point response letter addressing all comments from the Board's professionals or from the Technical Review Committee (TRC) Meeting. All submissions must be made as one comprehensive submission, not under separate cover.

I. ADMINISTRATIVE			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	1. Completed General Land Use Application Form.	✓	
☐	2. Completed Fee Schedule Form.	✓	
☐	3. Payment of Required Fees (two separate checks).	✓	
☐	4. Completed Escrow Agreement Form with Escrow Contact Sheet.	✓	
☐	5. Completed W-9 Form (for Escrow Account).	✓	
☐	6. Tax & Utility Assessment Certification Form (Applicant part complete)	✓	
☐	7. Completed Waiver/Variance Request Form.	✓	
☐	8. Completed Affidavit of Ownership Form (notarized).	✓	
☐	9. Completed Disclosure Statement Form.	✓	
☐	10. Completed Consent of Entry Form.	✓	
☐	11. Completed Checklist(s) for All Applicable Requests.	✓	
☐	12. "Zoning Permit Denial" or "Notice of Violation" (N.O.V.) from Zoning, Code or Construction Official.		✓
☐	13. Resolution(s) for Preliminary Site Plan and any other Approvals.		✓
☐	14. Copy of Signed Preliminary Site Plan and Affidavit that all Conditions of the Preliminary Site Plan Resolution of Approval have been met.		✓
☐	15. Proposed Operations Statement, including details of existing and proposed use(s), hours of operation, number of employees, provisions for maintenance, etc., signed by Applicant and notarized.	✓	
☐	16. Final Site Plan, designed, drawn, signed and sealed by N.J.P.E., L.S. or A.I.A. as appropriate, to scale, sheets numbered consecutively, folded, collated, bound, signed and sealed with a common preparation and/or revision date(s).	✓	
☐	17. Architectural Floor Plans and Elevations, signed and sealed by the preparing N.J. licensed Architect, sheets numbered consecutively, folded, collated, bound, with a common preparation and/or revision date(s) with the site plan, with the uses of each area clearly defined.	✓	

☐	18. Rendered Elevations for site.	✓	
☐	19. Sign Inventory Plan and Details, sheets numbered consecutively, folded, collated, with a common preparation and/or revision date(s).	✓	
☐	20. "Will Serve" letters for all Applicable Utilities	✓	
☐	21. List of all necessary Outside Agency Approvals indicating status of approvals, including copies of each approval (NJDOT, NJDEP, etc.).	✓	
☐	22. Photographs of property views from street and all other off-site area(s) visible to proposed improvement(s), aerial photos of site.	✓	
☐	23. Complete application, filed as one submission, with quantities and digital copies as noted in the Instructions, #4.	✓	

II. HEALTH			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	24. Compliance with any and all conditions of Preliminary Site Plan approval and the Preliminary Site Plan Checklist.		✓
☐	25. Final septic system design criteria and grading shown on "Sewage Disposal and Water Supply Plan".		✓
☐	26. Copies of any NJDEPE permits for sewage disposal systems and water supplies not in conformance with current code and statutes.		✓

III. ENGINEERING/PLANNING			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	27. Final Site Plan designed, drawn, signed and sealed by N.J.P.E., L.S. or A.I.A. as appropriate, based on Preliminary Site Plan & Checklist.	✓	
☐	28. Compliance with any and all conditions of Preliminary Site Plan Approval and the Preliminary Site Plan Checklist. All documents submitted for Preliminary Site Plan Approval shall be appropriately revised, re-titled, dated, and submitted for Final Major Site Plan Approval. All documents submitted shall bear the same date.	✓	
☐	29. An estimate of all construction quantities for all on-site and off-tract improvements. This estimate shall include all construction quantities for all site improvements shown on the approved Preliminary Site Plan and shall be signed, sealed and dated by a New Jersey Professional Engineer.		✓
☐	30. List of any anticipated developer contributions, fees, Fair-Share payments, etc.	✓	
☐	31. Metes and bounds descriptions for all right-of-way dedications, sight triangle easements; drainage; detention; or conservation easement; and common driveway easements.		✓
☐	32. Detailed project phasing plan including proposed construction sequences, routes to and from site, construction methods, hours of operations, construction traffic control plans, temporary construction office locations and any other construction-related plans.	✓	
☐	33. A developer's agreement approved and executed by the Robbinsville Township Committee when improvements to public property or improvements shall be dedicated to the public or a Homeowners Association.		✓
☐	34. Compliance with all Design Standards of the Land Use and Development Ordinance, or a waiver/variance requested on Waiver/Variance Request Form.	✓	

IV. ARCHITECTURE & LANDSCAPING			
Township Use Only		**Provided per Checklist**	****Waiver Requested**
☐	35. Architectural Floor Plans and Elevations shall include title block, including Title, author of the drawing, drawing number and property reference. Sheets shall be scaled, numbered consecutively, folded, collated, bound, signed and sealed by a NJ licensed Architect with a common date of issue and revision date(s) with the Final Site Plan and based on the Preliminary Site Plan and Checklist.	✓	
☐	36. Rendered Elevations shall show elevations of each façade and include any building mounted or façade signage and lighting.	✓	
☐	37. Sign Inventory Plan shall detail inventory and sign locations for all signage proposed on site and/or building mounted signage. Plans shall include proposed graphics, dimensions, colors, lighting and general construction and mounting details. Ground or free-standing signs must include dimensions, height and setbacks.	✓	
☐	38. Plantings, buffer areas, re-forestation areas shown to meet the Township Code (contributions may apply to waivers granted).	✓	

V. PRIOR TO PUBLIC HEARING		Acknowledged by Preparer (initial)
☐	39. If required, notice of publication and the notice of service on the affected owners must be accomplished at least ten (10) days prior to the hearing date scheduled by the Administrative Officer in accordance with M.L.U.L and Twp. Ordinance. Proof of Service Package must be filed with the Administrative Officer before the application will be considered complete and the hearing can proceed.	✓
☐	40. Witness/Exhibit List shall be provided five (5) days prior to hearing: Exhibit A-1: Complete Application Package (current version of all submission items). Exhibit A-2: Board's Professional's Review Memos. Exhibit A-3: Affidavit of Proof of Service Package. Exhibit A-4: (continue with any additional exhibits to be introduced, if any).	✓
☐	41. Tax & Utility Assessment Certification Form, to be re-certified, if necessary.	✓
☐	42. Escrow Account must be current prior to hearing.	✓

Person Preparing Checklist:	Mark Janiszewski, P.E.
Firm:	Colliers Engineering & Design
Address:	1000 Waterview Drive, Suite 201, Hamilton NJ 08691
Telephone:	(609) 934-5366
Email:	mark.janiszewski@collierseng.com

CERTIFICATION:

I have prepared this checklist and confirm that I have provided a response to all waivers being requested and listed all variance relief sought on the Waiver/Variance Form. I certify that the checklist is complete and accurate.

_____ December 22, 2025

Signature/Certification of Person Preparing Checklist Date

TOWNSHIP USE ONLY BELOW THIS LINE

Application No: _____ *Fees Paid:* _____

Date(s) Received: _____ *Escrow Paid.* _____

Referred To (Planning Board or Zoning Board): _____

CERTIFICATION / AFFIDAVIT OF OPERATIONS

Liquor Bar, restaurant and Retail Liquor Establishment with other retail and residential units in Robbinsville Township, Mercer County, New Jersey

I, **Rajeshkumar Patel**, of full age, hereby certify and state as follows:

1. Authority

I am the **authorized representative** of the applicant proposing to operate a liquor bar, restaurant and retail liquor establishment in **Robbinsville Township, Mercer County, NJ**, at:

Property Address: 2345-2349 N.J. Route 33, Township of Robbinsville, NJ 08691
Block: 1 Lot: 18,19,20

I am authorized to submit this Certification on behalf of the applicant.

---

2. Existing Use

The subject property is currently utilized as **Vacant land with one abandoned structure**. It was previously utilized as residential and mixed use in the past. There is no active liquor license currently operating at the premises.

---

3. Proposed Use

The proposed use is a **New Jersey–licensed liquor bar with retail package goods sales**, allowing:

- **On-premises consumption** of alcoholic beverages within a designated bar/lounge area; and
- **A restaurant with outdoor and rooftop seating areas; and**
- **On-premises retail sales** of packaged beer, wine, and spirits; and
- **Other conducive retail establishments**; and
- **Residential Apartment Units**

No manufacturing, bottling, or wholesale distribution of alcoholic beverages shall occur on the premises. All operations shall comply with **New Jersey Alcoholic Beverage Control (ABC)** regulations and the **Robbinsville Township Land Development Ordinance**.

---

4. Hours of Operation

These are proposed hours based on similar businesses in the area and are subject to change based on season and demand. All hours are subject to Robbinsville Township

ordinances and NJ ABC approval. Alcohol service shall cease in accordance with NJ ABC regulations and all applicable township ordinances.

Retail Liquor Sales:

- Monday–Saturday: 10:00 AM – 10:00 PM
- Sunday: 12:00 PM – 8:00 PM

Liquor Bar (On-Premises Consumption):

- Monday–Thursday: 4:00 PM – 10:00 PM
- Friday–Saturday: 4:00 PM – 11:00 PM
- Sunday: 4:00 PM – 9:00 PM

Other retail businesses will follow appropriate Hours of Operations based on surrounding businesses and township ordinances.

---

5. Employees

The liquor bar, retail liquor and restaurant establishment will employ approximately **6–10 employees**, including a manager, bartenders, retail sales associates, and support/security staff as needed. All employees involved in alcohol service shall complete **New Jersey–approved Responsible Beverage Service (RBS) training**.

---

6. Occupancy

Maximum occupancy shall comply with the **New Jersey Uniform Construction Code (UCC)** and approvals issued by the Robbinsville Township Fire Official. Posted occupancy limits shall be strictly enforced.

---

7. Noise, Loitering, and Community Impact

- No amplified outdoor music in violation of applicable noise regulations is proposed.
- Interior music levels shall be maintained at reasonable levels to prevent disturbance to surrounding properties.
- A strict no-loitering policy shall be enforced.

---

8. Parking and Traffic

Parking shall be provided on-site or through approved shared parking arrangements in compliance with Robbinsville Township zoning requirements. The proposed use is not expected to generate traffic in excess of typical retail or restaurant uses.

9. Maintenance and Sanitation

The premises shall be maintained in a **clean, safe, and orderly condition** at all times, including daily trash and recycling removal, secure refuse storage, and routine maintenance of the building, lighting, signage, and landscaping.

---

10. Compliance

The establishment shall operate in full compliance with:

- **New Jersey Division of Alcoholic Beverage Control (N.J.A.C. 13:2)**
- **Robbinsville Township zoning and land-use ordinances**
- **New Jersey Uniform Construction Code and Fire Code**
- **Mercer County and local Health Department requirements**

All conditions imposed by the **Robbinsville Township Planning Board / Zoning Board of Adjustment and NJ ABC** shall be strictly observed.

Certification

I certify that the foregoing statements are true and accurate to the best of my knowledge and belief. I understand that any false statement may subject me to penalties under the laws of the State of New Jersey.

Signature: Rajesh Patel

Printed Name: Rajeshkumar Patel
Title: Authorized Representative
Date: January 7, 2026

Notary Acknowledgment

State of New Jersey)
County of Mercer) ss:

Subscribed and sworn before me this 7 day of JAN, 20.26

Notary Public: Rajesh

My Commission Expires: February 26, 2026

Rajesh V. Tank
NOTARY PUBLIC
STATE OF NEW JERSEY
MY COMMISSION EXPIRES February 26, 2026

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 1: View of Site, facing South from NJ Highway 33 (Image from Google Earth)

Photo 2: View of Site, facing South from NJ Highway 33 (Image from Google Earth)

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

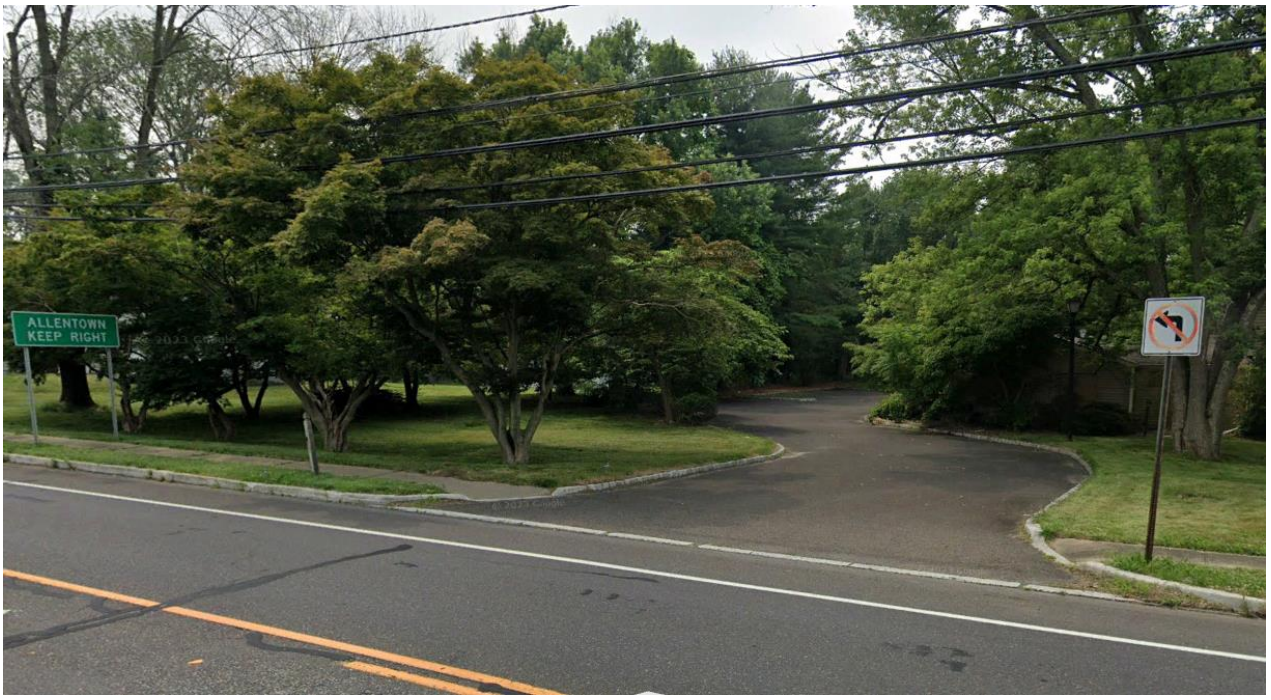


Photo 3: View of Site entrance, facing South from NJ Highway 33 (Image from Google Earth)

Photo 4: View of Site, facing South from NJ Highway 33 (Image from Google Earth)

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

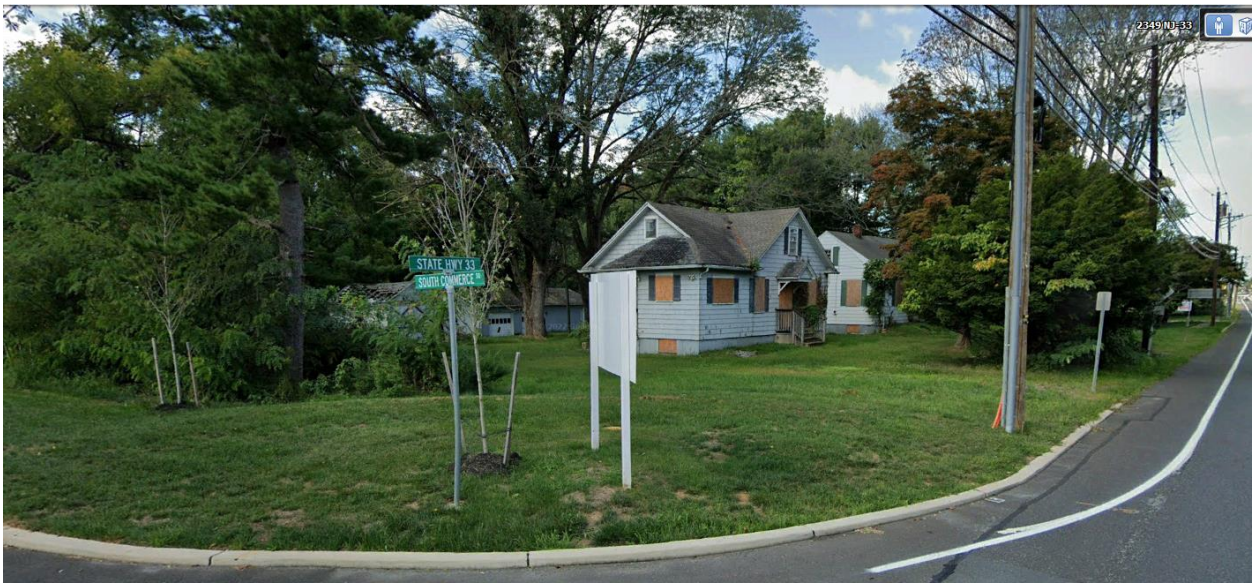


Photo 5: Northeastern portion of Site, view from S Commerce Sq/NJ Highway 33 (Image from Google Earth)

Photo 6: View characterizing the vegetation on Site

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 7: View characterizing the vegetation on Site

Photo 8: View characterizing the vegetation on Site

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 9: View characterizing the vegetation on Site, facing North towards NJ Highway 33

Photo 10: View characterizing the vegetation on Site, facing North towards NJ Highway 33

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 11: View characterizing the vegetation on Site, facing West towards Driveway/Site Entrance

Photo 12: Facing West on Site towards Driveway/Site Entrance

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 13: Taken from Site driveway, facing West

Photo 14: Taken from Site driveway, facing West

0 50 100 150 200 Feet

1 inch = 100 feet

Source:
NJDEP Geographical Information Systems

Sewer Service Area Map

2345-2349 Route 33

Block 1, Lots 18, 19 & 20
2345-2349 Route 33
Township of Robbinsville
Mercer County, NJ

December 11, 2025

Project No.: 24002939A

Mark Janiszewski, P.E.
NJ Licensed Professional Engineer
No. GE45561

verizon

October 5, 2025

To: Jodi Westhead
Colliers Engineering & Design
Project# CED Project No. 24002939A

Project: Will Serve for a new mixed use building Robbinsville Heights
2435-2349 Rte. 33
Block 1 Lot s 18 & 20
Township of Robbinsville, Mercer County New Jersey

In reference to the above-mentioned Development and subject to applicable laws, regulations and tariffs, Verizon New Jersey Inc. will supply the necessary communication service at the Development if we receive the proper information, easements and payment listed below, as required by Verizon's tariff:

1. One full set of paper development plans.
2. Mailing addresses for each building when they become available to start to establish the 911 database.

   Please mail to:

   Robert Sasse
   1318 Maple Ave
   Roebling, NJ 08554

3. Documentation granting all required rights-of-way and easements at no cost to Verizon.
4. Payment in full of the required advance construction payment based on estimated costs. For planning purposes, the average cost to provide new facilities is typically $1,000-$2,500 per unit in a development. The actual cost to you will depend on such factors as lot size, the proximity of existing feeder facilities, the existing feeder capacity, terrain and other environmental conditions (e.g., railroads, waterways). Please contact Verizon if you require a more precise estimate of construction costs for the Development.

Should you need any additional information, please do not hesitate to contact me on 609-954-7264.

Sincerely, Robert Sasse

Robert Sasse
Verizon Engineer

Jodi Westhead
Colliers Engineering & Design
1000 Waterview Drive Suite 201
Hamilton, New Jersey 08691

October 8, 2025

Re: Will Serve Letter
Robbinsville Heights
Block 1, Lot 18-20
Robbinsville Township, Mercer County, New Jersey

Dear Ms. Westhead:

By this letter we confirm that Aqua New Jersey (ANJ) is willing and able to provide water service to the above referenced project/property. We are unaware of any moratorium in Robbinsville Township at this time.

The proposed project will require a main extension. Enclosed is the New Business Package to assist you in the process. Please fill out and return all necessary forms within the package and provide the most up to date utility plan.

This will serve is good for one year after the date of this letter. We cannot guarantee service after that. If you have any questions or would like to discuss this matter further, please contact me at (609) 587-4080 x56519.

Sincerely,
Aqua New Jersey, Inc.

Brielle Bianchini
Engineering Tech

Jersey Central Power & Light
A FirstEnergy Company

101 Crawfords Corner Rd
Building 1 Suite 1-511
Holmdel, NJ 07733

October 8, 2025

Colliers Engineering & Design
Attn: Jodi Westhead
1000 Waterview Dr
Hamilton, NJ 08691

Re: Blk 1 Lts 18,19, & 20, Township of Robbinsville, Mercer County New Jersey

Dear Customer,

In response to your recent request for service on the subject property, the following information is provided regarding the process for obtaining electric service from Jersey Central Power & Light Company, ("JCP&L").

It has been determined that the subject property is within JCP&L's service territory. Electric service will be provided in accordance with JCP&L's Tariff for Service which is on file with and approved by the New Jersey Board of Public Utilities. Completion of your request for service is contingent upon your obtaining all required approvals from appropriate authorities and agencies, including, but not limited to, permits for construction. It will be your responsibility to provide JCP&L with complete electric load information and site plans for review, approvals, and engineering, etc. well in advance of construction of the proposed facility.

JCP&L will begin construction approximately ninety (90) days after receipt of the following items. Please bear in mind, however, that weather or terrain conditions can affect the anticipated work schedule.

- Signed agreement (Right-of-Way/Easement, URD Agreement, Fixed Bill, or Pay-Now/Pay-Later Contract) as applicable.
- Payment of non-refundable contribution and/or refundable deposit, as applicable
- Site plan that has been approved by the municipality for the proposed development project, showing specific locations of all streets, curb lines, property lines, sidewalks, streetlights, and building location, where applicable.

The Applicant/Customer is responsible for compliance with all Federal, State and Local Codes. This includes but is not limited to the National Electric Code and the National Electric Safety Code. JCP&L reserves the right to refuse connection to customer premises that are not in compliance with applicable Codes.

The exact method of service to the point of delivery will be determined subject to the above-requested information and approval by our Regional Engineering Process. This may require the Applicant/Customer to provide a mutually agreeable location for a substation and/or pay for a prorated portion of the cost to upgrade system facilities or add other necessary equipment to the electrical infrastructure in order to meet your requirements.

Thank you for your inquiry. If you wish to proceed with this project, you'll need to apply for service by calling 1-800-662-3115. We look forward to working with you.

Respectfully,

George F. Salazar/rgh

George F. Salazar
Jersey Central Power & Light Company
Central Region Engineering Services

Public Service Electric & Gas Company
Construction Inquiry-North
PO Box 710 Newark, NJ 07101-0710
Phone: 800-722-0256 Fax: 908-497-1762

Will Serve Electric and Gas

10/9/2025

Colliers
Jodi Westhead
1000 Waterview Dr. Suite 201
Hamilton, NJ 08691

Service Address
Robbinsville Heights
2345-2349 Route 33
Block 1 Lots 18, 19 & 20
Robbinsville Twp., NJ

Project Reference Number:

Dear Ms. Westhead,

Please be advised, gas and electric service can be made available for the service address above consistent with service requirements and PSE&G's tariffs for gas and electric services.

Please notify PSE&G Construction Inquiry at 800-722-0256 if you have any questions or concerns.

PSE&G appreciates the opportunity to service your energy needs and thanks you for your business.

Thank You,
Construction Inquiry
Public Service Electric & Gas Company

Roberts
ENGINEERING GROUP LLC
Women Business Enterprise Certified

1670 Whitehorse-Hamilton Square Rd.
Hamilton, New Jersey 08690
609-586-1141 fax 609-586-1143
www.RobertsEngineeringGroup.com

November 17, 2025

Jodi Westhead
Project Services Manager
Civil/Site Associate
Colliers Engineering & Design
1000 Waterview Drive Suite 201
Hamilton, New Jersey 08691
Email: jodi.westhead@collierseng.com

Re: Sewer Utility Will-Serve Request
Robbinsville Heights
Block 1, Lots 18. 19 & 20
Robbinsville Township, Mercer County, New Jersey
Our File No.: RT1601

Dear Ms. Westhead:

Attached please find:

1. 8 1/2" x 11" plan of the project area, entitled "Sewer Utility Will-Serve Request, Sanitary Sewer System Plan, Tax Block 1, Tax Lots 18, 19 & 20, dated November 14, 2025".

This is to confirm that the above-mentioned project is within the existing Sewer Service Area, as delineated on the current Robbinsville Township Sanitary Sewer System Plan and within the Town Center South Redevelopment Area of Robbinsville Township. An application for an extension of the sanitary sewerage system to serve this project can be considered. This area is served by a gravity sanitary sewer main flowing west to Washington Boulevard. The existing Rt. 33 Pump Station in this area is scheduled to be decommissioned and is not available for use.

Robbinsville Township has a reserved capacity for treatment of 2.5 million gallons per day at the Hamilton Township Department of Water Pollution Control's Wastewater Treatment Plant, pursuant to the *Agreement for Multi-Municipal Sewerage System*. At this time, there appears to be sufficient capacity to treat the wastewater for this project. Please note that on-site and/or off-tract improvements may be necessary to convey the wastewater generated by this project through the Township's system. This will be addressed upon submission of a formal *Sanitary Sewer Extension Application* to the Township.

A connection fee will be required for this application, and the fee amount can be found in the Robbinsville Township Sewer Ordinance or by contacting the Township Clerk.

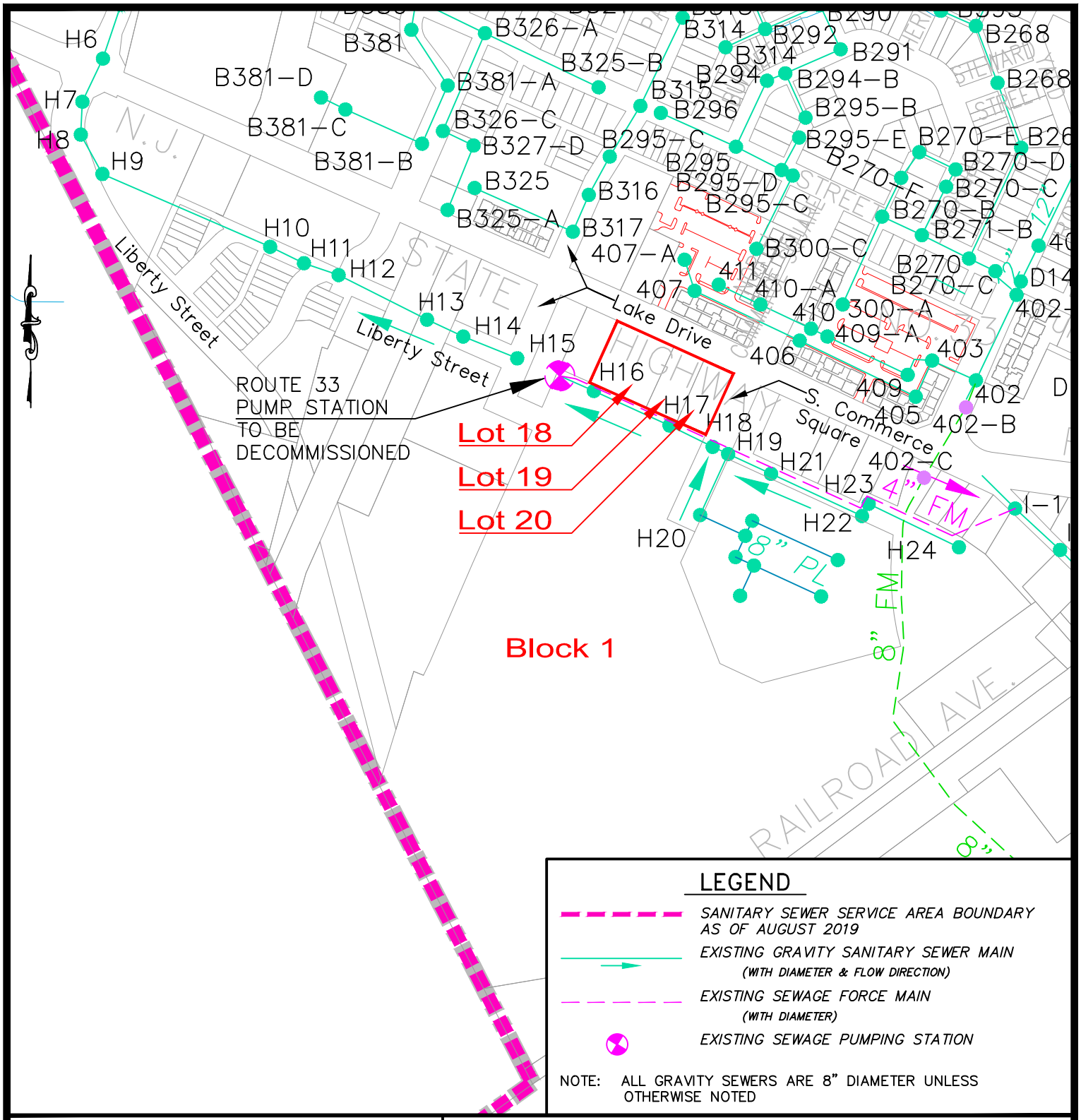
This letter is not to be construed as a reservation of capacity for this project, nor a guarantee that capacity will be available at the time your company submits an application. Capacity is allowed on a first-come-first-served basis. It is the policy of the Township that no reservation of capacity be made until a *Treatment Works Approval Permit* is issued by the New Jersey Department of Environmental Protection for the construction and operation of a sewer extension.

If there are any questions, please do not hesitate to contact our office.

Very truly yours,

Carmela Roberts, P.E., C.M.E., C.P.W.M.
Sewer Utility Engineer

cc: John Nunziato, P.E., P.P., Township Engineer
Dan Rafferty, Township Zoning Officer
Chris English, Township Director of Community Development
Chris Rupp, Director of Public Works
Tianna Thompson, Township Planning/Zoning Board Secretary
Cameron Corini, P.E., C.M.E., C.P.W.M., Roberts Engineering Group, LLC
Justin Streleckis, PE, Roberts Engineering Group, LLC
GS-Bachman, E.I.T., Roberts Engineering Group, LLC



Roberts
ENGINEERING GROUP LLC
Women Business Enterprise Certified
CERTIFICATE OF AUTHORIZATION: 24GA28159100
1670 Whitehorse-Hamilton Square Rd.
Hamilton, New Jersey 08690
609-586-1141 fax 609-586-1143
www.RobertsEngineeringGroup.com

Sewer Utility Will-Serve Request

Sanitary Sewer System Plan

TAX BLOCK 1, TAX LOTS 18, 19 & 20

Township of Robbinsville,

Mercer County, New Jersey

SCALE: 1" = ±400'

DWG. No: SS
11/14/2025

State of New Jersey

PHILIP D. MURPHY
Governor

TAHESHA L. WAY
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Land Resource Protection
Mail Code 501-02A
P.O. Box 420
Trenton, New Jersey 08625-0420
www.dep.nj.gov/wlm/lrp

SHAWN M. LATOURETTE
Commissioner

March 6, 2025

Thomas Visaggio
Capodagli Property Company
201 South Wood Ave
Linden, NJ 07036

RE: Freshwater Wetlands Letter of Interpretation: **Line Verification**
File and Activity No.: 1100-04-0002.4 FWW240001
Applicant: Capodagli Property Company (Thomas Visaggio)
Block and Lot: [1; 65.02] – Robbinsville Township
Block and Lot: [1961; 203] – Hamilton Township
Robbinsville & Hamilton Townships, Mercer County
Sub-watershed: Back Creek (above Yardville-H Sq Road)

Dear Mr. Visaggio:

This letter is in response to your request for a Letter of Interpretation to have Division of Land Resource Protection (Division) staff verify the boundary of the freshwater wetlands, transition areas, and/or State open waters on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection (NJDEP), the U.S. Army Corps of Engineers (USACOE) Philadelphia and New York Districts, and the U.S. Environmental Protection Agency (USEPA), the NJDEP is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted by Division staff on November 20, 2024, the Division has determined that the wetlands and waters boundary line(s) are accurate as shown on the survey plan entitled: "**BOUNDARY, TOPOGRAPHIC AND WETLANDS LOCATION PLAN, BOUNDARY, TOPOGRAPHIC AND WETLANDS LOCATION PLAN FOR ROBBINSVILLE REDEVELOPMENT BLOCK 1 LOTS 65.02 (ROBBINSVILLE) AND BLOCK 1961, LOT 203 (HAMILTON) ROBBINSVILLE TOWNSHIP & HAMILTON TOWNSHIP, MERCER COUNTY, NEW JERSEY**", Sheet No. 1 of 1, dated July 22, 2024, last revised **January 22, 2025**, and prepared by Colliers Engineering & Design, Inc.

The freshwater wetlands and waters boundary line(s), as determined in this letter, must be shown on any future site development plans. The line(s) should be labeled with the above File and Activity number and the following note:

"**Freshwater Wetlands/Waters Boundary Line as verified by NJDEP**."

Wetlands Resource Value Classification ("RVC")

In addition, the Division has determined that the resource value and standard transition area or buffer required adjacent to the delineated wetlands are as follows:

Intermediate: All freshwater wetlands shown. [50-foot transition area]

The Division has determined that the following freshwater wetlands onsite are isolated and not part of a surface water tributary system: [line segments L56 through L64]. RVC and all other designations may affect requirements for wetland, State open water, and/or transition area permitting, such as the requirements for an Individual Wetlands Permit (N.J.A.C. 7:7A-9 and 10), the types of General Permits by Certification or General Permits available (N.J.A.C. 7:7A-5, 6 and 7), and any modification available through a Transition Area Waiver (N.J.A.C. 7:7A-8). Please refer to the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 *et seq*.) and implementing rules for additional information.

Wetlands resource value classification is based on the best information available to the Division. The classification is subject to reevaluation at any time if additional or updated information is made available, including, but not limited to, information supplied by the applicant.

General Information

Pursuant to the Freshwater Wetlands Protection Act rules, you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information be disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation.

Regulated activities proposed within a freshwater wetland, State open water, or transition area, as defined under N.J.A.C. 7:7A-2.2 and 2.3 of the Freshwater Wetlands Protection Act rules, require a permit from this office unless specifically exempted at N.J.A.C. 7:7A-2.4. The approved plan(s) and supporting jurisdictional limit information are now part of the Division's public records.

Please be advised that any surface water features on the site or adjacent to the site may possess flood hazard areas and/or riparian zones and development within these areas may be subject to the Flood Hazard Area Control Act rules at N.J.A.C. 7:13. The Department can verify the extent of flood hazard areas and/or riparian zones through a flood hazard area verification under the application procedures set forth at N.J.A.C. 7:13-5.1.

This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred onsite. This determination of jurisdiction extent or presence does not make a finding that wetlands or water areas are "isolated" or part of a surface water tributary system unless specifically called out in this letter as such. Furthermore, obtaining this determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

Recording

Within 90 calendar days of the date of this letter, the applicant shall submit the following information to the clerk of each county in which the site is located, and shall send proof to the Division that this information is recorded on the deed of each lot referenced in the letter of interpretation:

1. The Department File and Activity number for the letter of interpretation;

2. The approval and expiration date of the letter of interpretation;

3. A metes and bounds description of the wetland boundary approved under the letter of interpretation;

4. The width and location of any transition area approved under the letter of interpretation; and

5. The following statement: "The State of New Jersey has determined that all or a portion of this site lies in a freshwater wetland, State open water, and/or transition area. Certain activities within these areas are regulated by the New Jersey Department of Environmental Protection and some activities may be prohibited on this site or may first require a freshwater wetland permit. Contact the Division of Land Resource Protection at (609) 777-0454 or visit https://dep.nj.gov/wlm/lrp for more information prior to the commencement of any construction onsite."

Failure to have this information recorded in the deed of each lot and/or to submit proof of recording to the Division constitutes a violation of the Freshwater Wetlands Protection Act rules and may result in suspension or termination of the letter of interpretation and/or subject the applicant to enforcement action pursuant to N.J.A.C. 7:7A-22.

Appeal Process

In accordance with N.J.A.C. 7:7A-21, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, 401 E. State Street, Mail Code 401-07A, P.O. Box 420, Trenton, NJ 08625-0420. This request must include a completed copy of the Administrative Hearing Request Checklist found at www.dep.nj.gov/wlm/forms. Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available at www.dep.nj.gov/bulletin. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please visit the website www.nj.gov/dep/odr for more information on this process.

If you have any questions regarding this letter, please contact Ariana Tsiattalos of our staff by e-mail at Ariana.Tsiattalos@dep.nj.gov or by phone at (609) 777-0454. Be sure to indicate the Department's file number in all communication.

Sincerely,

Rebecca Grike, Environmental Specialist IV
Division of Land Resource Protection

e-copy: Municipal Clerk
Agent

State of New Jersey

MIKIE SHERRILL
Governor

DR. DALE G. CALDWELL
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Land Resource Protection
Mail Code 501-02A
P.O. Box 420
Trenton, New Jersey 08625-0420
dep.nj.gov/wlm/lrp

ED POTOSNAK
Acting Commissioner

April 28, 2026

Robbinsville Heights, LLC
c/o Deep Patel
30 Norwood Place
Edison, NJ 08817

RE: Letter of Interpretation: Presence/Absence Determination – **Absent**
File and Activity No.: 1112-25-0007.1 FWW250001
Applicant: Robbinsville Heights, LLC
Block(s) and Lot(s): [1, 19] [1, 20]
Robbinsville Twp, Mercer County

Dear Deep Patel:

This letter is in response to your request for a Letter of Interpretation from the Division of Land Resource Protection (Division) indicating the presence or absence of freshwater wetlands, State open waters, or transition areas on the referenced property.

In accordance with agreements between the State of New Jersey Department of Environmental Protection (NJDEP), the U.S. Army Corps of Engineers (USACOE) Philadelphia and New York Districts, and the U.S. Environmental Protection Agency (USEPA), the NJDEP is the lead agency for establishing the extent of State and Federally regulated wetlands and waters. The USEPA and/or USACOE retain the right to reevaluate and modify the jurisdictional determination at any time should the information prove to be incomplete or inaccurate.

Based upon the information submitted, and upon a site inspection conducted by Division staff on April 1, 2026, the Division has determined that **freshwater wetlands and waters are not present** on the referenced property. In addition, the Division has determined that **no part of the above referenced property occurs within a transition area or buffer** as designated in N.J.A.C. 7:7A-3.3(d).

Please be advised that any surface water features on the site or adjacent to the site may possess flood hazard areas and/or riparian zones and development within these areas may be subject to the Flood Hazard Area Control Act rules at N.J.A.C. 7:13. The Department can verify the extent of flood hazard areas and/or riparian zones through a flood hazard area verification under the application procedures set forth at N.J.A.C. 7:13-5.1.

Pursuant to the Freshwater Wetlands Protection Act rules (N.J.A.C. 7:7A), you are entitled to rely upon this jurisdictional determination for a period of five years from the date of this letter unless it is determined that the letter is based on inaccurate or incomplete information. Should additional information

be disclosed or discovered, the Division reserves the right to void the original letter of interpretation and issue a revised letter of interpretation. This letter in no way legalizes any fill which may have been placed, or other regulated activities which may have occurred onsite. This determination does not affect your responsibility to obtain any local, State, or Federal permits which may be required.

In accordance with N.J.A.C. 7:7A-21, any person who is aggrieved by this decision may request a hearing within 30 days of the date the decision is published in the DEP Bulletin by writing to: New Jersey Department of Environmental Protection, Office of Administrative Hearings and Dispute Resolution, Attention: Adjudicatory Hearing Requests, 401 E. State Street, Mail Code 401-07A, P.O. Box 420, Trenton, NJ 08625-0420. This request must include a completed copy of the Administrative Hearing Request Checklist found at https://dep.nj.gov/wlm/forms/. Hearing requests received after 30 days of publication notice may be denied. The DEP Bulletin is available at https://dep.nj.gov/bulletin/. In addition to your hearing request, you may file a request with the Office of Dispute Resolution to engage in alternative dispute resolution. Please visit the website https://dep.nj.gov/oahdr/ for more information on this process.

If you have any questions regarding this letter, please contact Ariana Tsiattalos of our staff by e-mail at Ariana.Tsiattalos@dep.nj.gov or by phone at (609) 777-0454. Be sure to indicate the Department's file number in all communication.

Sincerely,

Rebecca Grike, Supervisor
Division of Land Resource Protection

e-copy: Municipal Clerk
Agent

Colliers
Engineering & Design

VIA EMAIL
August 12, 2026

Ms. Tianna Thompson, Land Use Coordinator
Township of Robbinsville
2298 Route 33
Robbinsville, NJ 08691

Robbinsville Heights
Township Application Number R25-07-01
Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, New Jersey
Project No. 24002939A

Dear Ms. Thompson,

On behalf of Robbinsville Heights, LLC, Colliers Engineering & Design respectfully submits the following in response to the review letter prepared by Bruce P. Klein, PE, PTOE of T&M Associates, dated June 25, 2026 for the above referenced project. Enclosed for your review, please find the following:

- One (1) PDF of the Liberty Street Concept Plan, dated July 7, 2026;
- One (1) PDF copy of the SU-30 Truck Turning Plan, dated July 7, 2026;
- One (1) PDF containing the "Basin Access Dimension Plan" and "Basin Access Grading Plan" dated August 10, 2026.

Our responses to the comments contained in the above referenced letter is as follows in **bold:**

REVIEW LETTER PREPARED BY BRUCE P. KLEIN, PE, PTOE OF T&M ASSOCIATES, DATED JUNE 25, 2026

Traffic Impact

3. The Architectural Plans indicate a 6,305 SF Bar/Lounge area plus a covered patio space on the 4th floor, whereas the TIS indicates the Drinking Place area will be 4,095 SF. Please clarify the size of the Drinking Place.

   The applicant has clarified the Bar/Lounge will consist of 4,095 SF interior space plus 2,210 SF exterior patio space for a total of 6,305 SF.

CED Response:

Confirmed.

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4. The Architectural Plans indicate a 2,681 SF Restaurant area on the ground floor, plus covered and open patio spaces. Please provide information on the anticipated times of year the patio will be open, including if it will be covered or provide outdoor heaters.

   The Applicant has clarified that the Restaurant patio area will be uncovered, with heaters, and open during the spring, summer, and fall, weather permitting. Since the patio space will be utilized as additional restaurant area during the majority of the year, the Traffic Report shall be revised to include the trip generation and parking demand for the outdoor patio area.

CED Response:

The outdoor patio does not generate independent or concurrent vehicular trips. While the patio features seasonal heaters, its operational function is strictly auxiliary and non-concurrent with the indoor dining space.

- **Non-Concurrent Patron Shift: Outdoor dining functions as an alternative seating choice, not an additive generator. On days when weather permits patio dining, patrons shift from the indoor tables to the outdoor tables; total kitchen throughput and overall seating capacity remain functionally bounded.**
- **Limited Seasonal Footprint: Uncovered patios, even those equipped with directional heaters, experience strictly limited operational days per year due to precipitation, extreme summer heat, and winter temperatures. Heaters extend patron comfort during shoulder seasons but do not convert the patio into a permanent, year-round concurrent generation area.**
- **Conclusion: Adding baseline ITE trip generation and parking calculations for the patio square footage artificially increases the projected peak vehicular demand, which contradicts real-world restaurant operations.**

5. It is understood that the Drinking Place site component would not be open during the AM peak hour, however it is our understanding that this use will be open on weekends. The Applicant shall clarify why a SAT trip generation was not provided for LUC 975 – Drinking Place and revise Table 2 as necessary. Testimony shall be provided to confirm that these additional SAT trips will not change the conclusions of the traffic analysis.

   Continuing comment. The Applicant has indicated testimony would be provided, however revisions to the traffic impact study are required to account for trips associated with the bar/lounge rooftop patio area as well as anticipated operations during the Saturday peak hour.

   For reference, the proposed 6,305 LUC 975 – Drinking Place is estimated to generate 57 trips during the SAT peak hour based on current ITE Trip Generation Manual 12th Edition rates.

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CED Response:

The Saturday peak afternoon operations for the rooftop lounge align with standard mixed-use traffic behavior. The generation associated with LUC 975 during the Saturday midday/afternoon peak does not overlap with morning commuter peaks and is safely absorbed by the surrounding corridor capacity without degrading study area Level of Service (LOS).

6. The Traffic Report indicates that the proposed site will generate 71 trips during the AM peak hour, 111 trips during the PM peak hour, and 85 trips during the SAT peak hour. The trip generation calculations are consistent with the rates presented in the current ITE Trip Generation Manual, 12th Edition however, updates to the trip generation for the project may be required based on comments #3, 4 & 5 above.

   Continuing comment. Trip generation estimates shall be updated, consistent with the comments identified above.

CED Response:

Acknowledged. A revised Trip Generation summary table will be submitted under separate cover to formally reconcile the finalized core square footages and clarify the non-concurrent auxiliary nature of the seasonal outdoor patio areas.

14. In accordance with Section 1.4.3 of the Redevelopment Plan, Liberty Street will be realigned to run along the southern boundary of the proposed site and intersect with South Commerce Square approximately 25' south of the proposed South Commerce Square Site Driveway. The Applicant shall clarify how site access be accomplished or modified with the completion of Liberty Street.

    Continuing comment. Information on how the site will interact with Liberty Street shall be provided.

CED Response:

Enclosed is a Concept Plan depicting the construction of 100 linear feet of Liberty Street starting at South Commerce Square. The parking has been reconfigured at the southeast corner of the site allowing for a new proposed driveway onto Liberty Street. The driveway connection from the site directly to South Commerce Square has been removed.

15. The proposed Route 33 Site Driveway provides full-access, however; all other nearby driveways along Route 33 prohibit left-turn egress movements. In accordance with Section 9.2.1 of the Redevelopment Plan, potential improvements to the Route 33 right-of-way may include measures to regulate left-turn movements. Allowing left-turn egress at this location would likely introduce cut-through traffic from adjacent developments that share access via Liberty Street and South Commerce Square. This concern will become more significant once the Route 130 connector road is constructed. Please

provide justification for the current full-access driveway configuration or revise the access scheme accordingly. If the access configuration is revised, the supporting traffic analysis must be updated accordingly.

Continuing comment. We recommend the access configuration be revised to prohibit left turns out of the site consistent with the Redevelopment Plan.

CED Response:

The full-movement access (including left-turn egress) along Route 33 is safe, geometrically supported, and vital to project viability.

The Need for the Left Turn: Originally, the WTC plan recommending prohibiting left turns at non-signalized intersections was predicated on the availability of alternative road connectivity parallel to Rt 33, which is not the case today for this development. Once this connectivity becomes available (i.e. Liberty Street), the left turn can then be prohibited.

Designed for Left-Turn Maneuvers: The Route 33 corridor directly fronting the site features an established center two-way left-turn lane (TWLTL) median. This principal arterial infrastructure is explicitly engineered by NJDOT to separate left-turning vehicles from through-traffic, safely facilitating both left turns in and left turns out.

Corridor Operation: Left-turn access is highly frequent along this urban principal arterial corridor. Commercial businesses directly across the street enjoy left-turn access. Prohibiting left turns at our driveway creates an inequitable operational constraint.

Impact of Restriction: Denying direct left-turn egress will force exiting vehicles bound for Route 33 West to execute circuitous loop circulation through the realigned Liberty Street and South Commerce Square. Cut-through traffic becomes a secondary problem only if direct arterial egress is restricted.

Good Operational Metrics: Synchro capacity analysis confirms that the westbound left-turn exiting the site operates at an excellent LOS A/B, with a 95th percentile queue of approximately one vehicle. Available sight distance (502 feet left, 430 feet right) comfortably exceeds NJDOT intersection sight distance standards.

16. Site access is proposed along Route 33 and therefore, a NJDOT Highway Access Permit will be required. The Applicant shall provide the Township with an update on the status of the NJDOT review and approval process.

Continuing comment. The Applicant has indicated testimony would be provided.

CED Response:

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The application to the NJDOT is pending. The applicant will provide the a copy of the submission documents to the Board Traffic Engineer and will submit a copy of the permit when received.

Parking and Loading

17. A total of 134 (28 guest) parking spaces are required per Section 9.3.1 of the Amended Redevelopment Plan. The parking space requirement calculations are provided below for reference:

    Amended Redevelopment Plan, Section 9.3.1 Requirements:

    All parking within the Redevelopment Area shall be governed by the New Jersey Residential Site Improvement Standards and the schedules contained in Parking Generation (most recent edition) published by the Institute of Transportation of Engineers:

    RSIS Requirement:

    Garden Apartment

    1.8 spaces per 1-bedroom unit = 1.8 * 3 units = 5.4 spaces

    2.0 spaces per 2-bedroom unit = 2.0 * 20 units = 40 spaces

    2.1 spaces per 3-bedroom unit = 2.1 * 5 units = 10.5 spaces

    Required guest parking provisions provided in common areas

    0.5 spaces per unit = 0.5 * 28 units = 5 spaces

    Subtotal = 56 (28 guest) spaces

    ITE Parking Generation Manual, 6th Edition (Average Demand):

    LU 822 – Strip Retail Plaza (< 40k)

    2.79 spaces per 1,000 SF GFA = 2.79 * (6,167 SF / 1,000) = 17.2 spaces

    LU 932 – High Turnover (Sit-Down) Restaurant

    8.97 spaces per 1,000 SF GFA = 8.97 * (6,776 SF / 1,000) = 60.8 spaces

    Subtotal = 78 Spaces

    Total Parking Required = 134 (28 guest) spaces

    EV Credit

    A parking space prepared with electric vehicle supply equipment or Make-Ready equipment pursuant to this section shall count as at least two parking spaces for the purpose of

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complying with a minimum parking space requirement. This subsection shall result in a reduction of no more than 10 percent of the total required parking.

EV Parking Required = 11 spaces (see calculation in subsequent comment)

Maximum allowed reduction = 134 spaces * 0.10 = 14 spaces

11 space credit < 14 space max. reduction

Allowable EV Credit = 11 spaces

The Site Plan provides 117 (117 guest) physical parking spaces with an applied 11 EV-space credit for a total effective parking supply of 128 (117 guest) spaces for compliance purposes. This effective parking space supply does not satisfy the Amended Redevelopment Plan requirement of 134 (28 guest) parking spaces, with a 6-space deficit.

The Applicant shall provide testimony to justify the proposed parking deficit. There is concern that peak-period parking demands may overlap between the residential and non-residential components of the project. Residential parking demand typically peaks during the evening hours, which coincides with the peak demand period for restaurant and drinking-place uses, potentially intensifying overall site demand.

In addition, consistent with comments #3, & 4 above, please clarify the size of the Restaurant and Drinking Place and revise the parking calculations accordingly.

Continuing comment. The proposed parking supply and parking requirement calculations shall be revised to account for the bar/lounge rooftop patio area and restaurant outdoor patio area, consistent with previous comments.

CED Response:

Testimony will confirm that the effective parking supply of 116 spaces safely accommodates actual peak site demand.

- **Reconciling Overlapping Peaks: The base RSIS/ITE requirement of 128 spaces (134 – 11 EV Credits) assumes isolated, additive peak behaviors. Within a compact Town Center mixed-use environment, overnight residential parking peaks do not coincide with daytime retail peaks.**
- **Internal Trip Capture: A substantial percentage of evening dining and lounge patrons will represent "captured trips." On-site residents or walk-ins from adjacent Town Center residential blocks who do not occupy parking stalls.**
- **Non-Concurrent Patio Area: As established in Comment 4, the outdoor seasonal dining areas represent alternative patron seating rather than additive parking demand.**
- **We Are providing about 25% more than the existing land uses: Our proposed site provides a ratio of approximately 4.2 spaces per 1,000 SF of commercial space. This**

means we are providing 30% more commercial parking density than the established, successful Town Center benchmark sitting right across the highway.

20. In accordance with Section 9.5 of the Redevelopment Plan, loading and deliveries, including removal of refuse and recycling material, shall be accommodated via loading areas of such size and number of spaces as may be appropriate for the uses such spaces are intended to serve and loading areas shall be oriented in such a fashion as to create the least possible interference with traffic movement, both internal and external to a Redevelopment Project. The current Site Plan does not delineate any loading spaces. The Applicant shall clarify how loading operations will be accommodated to satisfy this Redevelopment Plan requirement.

    Continuing comment.

CED Response:

Driveway Geometrics: The curb radii at the driveway onto Route 33 have been revised to be 25'. We have revised the Truck Turn Exhibit with this new geometry with an SU-30 Design Vehicle. It is anticipated that box trucks (SU-30) vehicles will be the primary delivery vehicles to the site. SU-30s can make the ingress and egress movements without encroaching into the opposite lane.

Delivery Management: Deliveries will be restricted to designated off-peak hours (e.g., early morning prior to retail opening). Medium single-unit delivery trucks will utilize the designated wide internal drive aisles adjacent to the commercial entrances for active unloading, ensuring zero interference with primary vehicular circulation.

Site Plan

21. A R1-1 "STOP" sign and stop bar shall be installed at the Route 33 Site Driveway approach. *Partially addressed*. A R1-1 "STOP" sign shall be installed at the Route 33 Site Driveway approach.

CED Response:

The plans have been revised accordingly.

Access and Circulation

28. A sight triangle with 241' for right-turn egress movements is shown at the South Commerce Square Site Driveway approach. If configured as a full-access driveway, an additional sight triangle shall be provided for left-turn egress movements at this location.

Note, vegetation/landscape clearing may be necessary within the South Commerce Square median to accommodate the required sight distance.

Continuing comment. The South Commerce Square Site Driveway sight distance, geometrics, and access scheme will be further evaluated following the Applicant's response to Comment #14 regarding the proposed Liberty Street extension.

CED Response:

The plans will be revised as needed to be in compliance with NJDOT requirements.

29. Intersection sight easements shall be established at the South Commerce Square Site Driveway in accordance with Section 142-36.F of the Township's Ordinance.

    The Applicant has agreed to comply. We defer further coordination regarding sight easements to the Board Engineer.

CED Response:

With the removal of the driveway onto South Commerce Square, this comment is not longer relevant. However, the applicant agrees to provide site lines for the driveway onto Liberty Street and from Liberty Street onto South Commerce Square to ensure compliance with the applicable regulations.

30. The Applicant shall provide a statement describing how building deliveries will be managed, including where the drop-off area will be located and the largest type of delivery vehicle anticipated. The proposed site does not appear to designate a delivery area.

Continuing comment.

CED Response:

Deliveries will be restricted to designated off-peak hours (e.g., early morning prior to retail opening). Medium single-unit delivery trucks will utilize the designated wide internal drive aisles adjacent to the commercial entrances for active unloading, ensuring zero interference with primary vehicular circulation.

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31. The Applicant shall provide a statement describing the trash collection process for the building. A safe accessible route shall be provided between the building and all trash collection areas.

    Continuing comment.

CED Response:

Trash will be collected by private haulers for the development. The trash will be consolidated within the building for both the residential and commercial uses. The trash enclosures is located with the parking lot and is easily accessible to residents and business owners.

32. Design Vehicle Circulation Plans have been provided. The following shall be addressed:

    c. Delivery Truck (SU-40 or largest anticipated) – Provide an additional circulation plan which shows the vehicle entering the site, accessing the designated loading area(s), and exiting the site in one continuous movement. Loading operations shall not be permitted within access aisles.

       Continuing comment. The Delivery Vehicle turning template shows the vehicle encroaching into the full width of the Route 33 Site Driveway egress lane when entering the site, which is not acceptable. If a vehicle is occupying the driveway while attempting to exit, the Delivery Vehicle would be forced to stop within Route 33. Similarly, the Delivery Vehicle encroaches into the full width of the South Commerce Square Site Driveway ingress lane when exiting the site, creating the same operational concern. The Applicant shall revise the driveway geometry and Delivery Vehicle access path to eliminate these driveway-approach lane encroachments.

CED Response:

Driveway Geometrics: The curb radii at the driveway onto Route 33 have been revised to be 25'. We have revised the Truck Turn Exhibit with this new geometry with an SU-30 Design Vehicle. It is anticipated that box trucks (SU-30) vehicles will be the primary delivery vehicles to the site. SU-30s can make the ingress and egress movements without encroaching into the opposite lane.

<u>Transportation Improvement Plan (TIP) Fee for Route 130 & Voelbel Road</u>

33. The Applicant is required to pay a fair share contribution (TIP fee) for roadway improvements in accordance with Section 142-90.C.2.a.3 of the Municipal Code. The calculation is based on the following:

    a. Add the <u>total</u> proposed Site Generated peak hour traffic for AM, PM, & Weekend trips

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b. Multiply the total trips by the anticipated percent distribution of traffic utilizing the intersection of Route 130 & Voelbel Road

c. Multiply the resultant number of trips by 2025 base fee of $731.31, then adjust this fee as appropriate for the current year based on the "rate of interest charged on judgments docketed with the Superior Court of New Jersey", which is established as 4.5% for 2026.

The TIP fee calculation is as follows:

TIP Fee = (_____AM +_____PM +_____SAT "new" trips) x_____% distribution x ($731.31 x 1.045 rate of interest)

Consistent with prior comments, the Applicant shall confirm the square footage of and provide SAT peak hour trip generation for the drinking place component. The TIP Fee will be calculated once the Trip Generation has been revised accordingly.

Continuing comment. The Applicant has agreed to address the required TIP Fee as part of the Developer's Agreement however, revisions to the trip generation are required, consistent with previous comments.

Specifically, the trip generation shall be revised to include the bar/lounge rooftop patio area, restaurant outdoor patio area, and SAT trip generation associated with the

bar/lounge component. A TIP Fee will be calculated once the Trip Generation has been revised.

CED Response:

As part of the Developer's Agreement, the applicant will address required fees.

Basin Access:

Additionally, please note that a PDF containing the Basin Access Dimension Plan and Basin Access Grading Plan is enclosed in this submission. This plan depicts an entry point for basin access through parking spaces. It is anticipated that basin access for vehicles will be limited and infrequent as most inspections will be performed by people. However, when basin access is required by vehicles, the parking spaces will be sectioned off allowing access into the basin.

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We trust that this submission addresses the comments contained in the above referenced letter. Should you have any questions or require additional information, please contact me directly.

Colliers Engineering & Design, Inc.

Mark Janiszewski, P.E.
Geographic Discipline Leader | Civil Site

Enclosures

cc: John Nunziato, PE, PP, CME, Robbinsville Township Engineer, w/ enclosures via email
Bruce Klein, PE, PTOE, T&M Associates, w/ enclosures via email
Carolyn A. Feign, PE, PP, CME, ARH Associates, w/ enclosures via email
Stuart B. Wiser, PP, AICP, ARH Associates, w/ enclosures via email
Rajeshkumar Patel, Robbinsville Heights, LLC, w/enclosures via email
Hari Patel, Robbinsville Heights, LLC, w/enclosures via email
Dino Spadaccini, Esq., The Spadaccini Law Firm, LLC w/enclosures via FedEx
Ric Perez, AIA, Perez + Radosti Associates, P.C., w/enclosures via email
Maurice Rached, PE, Colliers Engineering & Design
Jodi Westhead, Colliers Engineering & Design

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& Design

Stormwater Management Facilities Maintenance Manual

December 22, 2025

Revised May 29, 2026

Robbinsville Heights
Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, New Jersey

Prepared for:

Robbinsville Heights LLC
96 Overbrook Avenue
Edison, NJ 08817

Prepared by:

Mark J. Janiszewski
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Project No. 24002939A

Colliers Engineering & Design

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Part 1: Background Information

Introduction

The purpose of this manual is to provide an operation and maintenance plan for the stormwater management facilities proposed as part of the most current set of site plans prepared by Colliers Engineering & Design entitled “Preliminary & Final Major Site Plan for Robbinsville Heights”, dated December 22, 2025, last revised May 11, 2026 and the “Stormwater Management Report for Robbinsville Heights”, dated December 22, 2025, last revised May 11, 2026 for details of the stormwater management design.

This manual is prepared in accordance with the maintenance requirements of N.J.A.C. 7.8-5.8, and with guidance from the New Jersey Stormwater Best Management Practices Manual and the NJDEP Stormwater Management Facilities Maintenance Manual. The New Jersey Department of Environmental Protection (NJDEP) Stormwater Management Rules (N.J.A.C. 7:8) requires a maintenance plan for the stormwater management measures incorporated into the design of a major development.

Project Description

This operations and maintenance manual is being submitted as part of the Preliminary & Final Major Site Plan application known as Robbinsville Heights. This subject site is located on Block 1, Lots 18, 19 & 20 on sheet 1.30 of the official tax map of the Township of Robbinsville, Mercer County, New Jersey dated November 29, 2018 and revised through January 22, 2021.

The subject project site is located at the southwest corner of New Jersey State Highway Route 33 and South Commerce Square in Robbinsville Township, Mercer County, New Jersey. The site consists of approximately 1.69 acres of land and is presently developed with an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished. The proposed development consists of a 4-story mixed-use building with a rooftop bar, outdoor seating and associated improvements.

Proposed Stormwater Management Facilities

Maintenance procedures for the stormwater management facilities should follow the operation and maintenance procedures outlined in the New Jersey Stormwater Best Management Practices Manual. Management of stormwater runoff for water quantity and water quality will be provided by porous pavement, bioretention basins, and infiltration basins.

Project Contracts

All stormwater management facility construction shall be undertaken by an experienced, qualified, and licensed contractor in accordance with the latest set of site plans entitled “Preliminary & Final Major Site Plan for Robbinsville Heights,” prepared by Colliers Engineering & Design.

Part 2: Operation and Maintenance

General Information

This manual is intended as a guide for Robbinsville Heights and outlines the proper procedure for conducting operations and maintenance for the stormwater management facilities described above. The operations and maintenance plan set forth in this manual is primarily based on the inspection and preventative maintenance of the stormwater management facilities to prevent the need for corrective action.

Responsible Party

The contractor shall maintain all facilities, structures and land areas associated with the BMPs during the construction and installation. After completion and approval of the BMPs, the party responsible for the maintenance and repair of the stormwater management facilities onsite and associated stormwater structures discharging on Lot 65.02, Block 1 is:

Robbinsville Heights LLC
96 Overbrook Avenue
Edison, NJ 08817
(631) 415-8540

Pursuant to N.J.A.C. 7.8-5.8, the responsible party shall:

a. Ensure this maintenance plan and any future revisions to the plan are recorded upon the deed of record. If there is a change in ownership, copies of the maintenance plan shall be provided to the future owner and operator of the stormwater management collection system.

b. Perform preventative and corrective maintenance on the stormwater management facilities proposed within the most current set of site plans prepared by Colliers Engineering & Design entitled “Preliminary & Final Major Site Plan for Robbinsville Heights.”

c. Maintain a detailed and continuous log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the most current set of site plans prepared by Colliers Engineering & Design entitled, “Preliminary & Final Major Site Plan for Robbinsville Heights” including a record of all inspections and copies of all maintenance-related work orders.

d. Evaluate the effectiveness of this maintenance plan at least once per year and adjust the plan and deed as needed.

e. Retain and make available, upon request, by any public entity with administrative, health, environmental, or safety authority over the site the following:

    i. This maintenance plan and any revisions thereof
    ii. Maintenance and inspection logs and records

iii. Maintenance-related work orders

The responsible party may contract with qualified outside contractors and inspectors to perform the operations and maintenance tasks described in this manual. All contracted parties shall receive and review a copy of the most current revision of this manual. This will aid in transferring knowledge of the stormwater management facilities on site and associated stormwater structures discharging on Lot 65.02, Block 1 to the contracted party and also allow for consistent maintenance work and inspection reports to be completed. The following section provides a location for the responsible party to document various contracted parties.

Designated Inspectors List

This section must be updated periodically to reflect the name(s) and telephone number(s) of the Inspectors and Contractors who are appointed by Responsible Party to perform inspections and maintenance work on the stormwater management facilities.

Inspectors

Professional Engineer
Colliers Engineering & Design
1000 Waterview Drive, Suite 201
Hamilton, New Jersey 08691
(609) 587-8200

Designated Contractor

Officers

Description of System

Stormwater management facilities are structures or measures that were incorporated into the design and construction of the project to mitigate the impact of stormwater runoff. Stormwater management facilities are often referred to as Best Management Practices (BMPs). BMPs can be both structural, like a detention basin or wet pond, and nonstructural, like the preservation of woods. The stormwater management system consists of one (1) sand bottom infiltration basin, one (1) porous pavement section with infiltration, one (1) porous pavement section with an underdrain and one (1) underground basin with infiltration.

In addition to the structural BMPs listed above, the project was designed to incorporate nonstructural stormwater strategies. Examples include protection of existing vegetation, as well as compliance with the Standards for Soil Erosion and Sediment Control. Therefore, the site itself (including storm sewer pipes, stormwater inlets, landscaping, grass, pavement, curb, etc.) must be maintained in accordance with this manual for all BMPs to function properly.

Maintenance procedures for stormwater management facilities (BMPs) can be categorized as Functional Maintenance and Aesthetic Maintenance. Functional maintenance includes preventative (routine) maintenance and corrective (emergency) maintenance. Aesthetic Maintenance can be considered as maintenance which enhances or maintains the visual appearance of the facilities. Aesthetic Maintenance may not be required for assuring the intended operation of the BMP; however, it can improve the quality of life in the community and reduce the amount of required Functional Maintenance. Emphasis should be placed on adequately performing preventative and aesthetic maintenance to prevent the need for corrective maintenance procedures.

Part 3: Preventative Maintenance Procedures

The purpose of Preventative Maintenance is to ensure that the BMPs always remain operational and safe, while minimizing the need for emergency or corrective maintenance. Preventative maintenance includes tasks that help stormwater management facilities function both effectively and safely. The life of stormwater facilities can be increased, and the potential for damage to the facilities reduced, with proper preventative maintenance. The Preventative Maintenance Plan for this project should comply with the following schedule.

Reporting

The recording of all maintenance work and inspections provides valuable data on the facility's condition. Reviewing this information will also help to establish more efficient and beneficial maintenance procedures and practices. A written log should be kept of the work performed during inspections. An Annual Maintenance Report should be prepared summarizing the work performed during that calendar year, the current condition of the basin, and any improvements proposed for the upcoming year.

Inspection and Regular Maintenance

The site and each BMP shall be inspected at least four times annually. Informal inspections shall occur during preventative and/or aesthetic maintenance procedures, as well as after every storm exceeding one inch of rainfall or more. The primary purpose of the inspection is to ascertain the operational condition and safety of the site and each BMP. Inspections will also provide information on the effectiveness of regularly scheduled Preventative and Aesthetic Maintenance procedures and will help to identify where changes in the extent and scheduling of the procedures are warranted.

Inspections conducted in accordance with this manual are either informal or regularly scheduled. Informal inspections shall include the following tasks:

a. Inspect inlets for clogging, excessive soil, sediment, debris, and trash accumulation or evidence of erosion.
b. Inspect inlets for damage to curb and grates.
c. Inspect pavement for signs of setting, depressions, or ponding.
d. Inspect for standing water in the basin(s), while noting the approximate time from the beginning of the last storm event.

Finally, the facility inspections will also be used to determine the need for, and timing of, Corrective Maintenance procedures.

Grass Cutting and Grass Maintenance

A regularly scheduled program of mowing and trimming of grass during the growing season will help to maintain a tightly knit turf, and will also help to prevent diseases, pests, and the intrusion of weeds. Grass mowing shall occur at least once a month, but not more than once every week, during the growing season, which extends from April 15 to November 15 in this part of New Jersey. Grass shall not be allowed to grow more than 1 to 2 inches between cuttings as this may damage the grasses growing points and limit its continued healthy growth. All grass clippings shall be collected and bagged at the time of mowing and disposed of in accordance with the local solid waste management regulations.

Grassed areas shall be inspected biweekly during the first growing season when establishing or restoring vegetation. Once established, inspections of vegetation health, density, and diversity should be performed at least twice annually during both the growing and non-growing seasons. The vegetative cover should be maintained at 85 percent. Damaged areas of grass cover shall be re-seeded and re-established as needed to prevent the erosion of the underlying soil and to prevent the potential for the underlying soil to enter the components of the stormwater management facilities. If vegetation has greater than 50 percent damage, the area should be re-established in accordance with the original specifications. Any areas of dead or dying grass should be documented within this manual, as well as any areas without grass. An assessment by the inspection personnel shall be made to determine the cause of any observed problems and corrective measures will be implemented and may include fertilizing, de-thatching, and soil conditioning in order to maintain healthy growth. These areas shall be restored promptly, season permitting. However, corrective measures shall not compromise the intended purpose of the basin, and the use of fertilizers and pesticides shall be minimized to the greatest extent possible. Additionally, provisions will be made

to re-seed or re-sod to re-establish grass cover in areas damaged by sediment accumulation, storm water flow, or other causes.

Vegetative Cover

The site landscaping including but not limited to the various species of shrubs and trees, shall be inspected monthly. Any dead or dying trees will be noted, as well as trees with dead or dying limbs. An assessment by the inspection personnel shall be made to determine the possible cause of this problem and corrective measures shall be implemented. Trees, shrubs, and ground cover also require periodic maintenance including fertilizing, pruning/trimming, replacing dead or dying trees, and pest control in order to maintain healthy growth.

Removal and Disposal of Trash and Debris

A regularly scheduled program of debris and trash removal from the stormwater management facilities, including but not limited to inlets, orifices, outlet control structures, and with basins and all onsite BMPs, shall be performed to reduce the chance of outlet structures, trash racks, rip-rap aprons, inflow points and other components becoming clogged and inoperable during storm events. Trash and debris will be removed during the monthly inspections or on an as needed basis whenever it is present. Additionally, removal of trash and debris will prevent possible damage to vegetated areas and eliminate potential mosquito breeding habitats. Disposal of debris and trash must comply with all local, county, state, and federal waste regulations. Only suitable disposal and recycling sites will be utilized.

Sediment Removal and Disposal

All BMPs shall be inspected for excessive sediment accumulation at least four times annually as well as after ever storm exceeding one inch of rainfall. Accumulated sediment shall be removed before it threatens the operation of the BMP. Sediment removal may be required once a year or after major storm events. Usually, sediment accumulation will be small enough to remedy with a shovel and a wheelbarrow. If a large amount of sediment has accumulated, light earth moving equipment may be required. Removal of sediments will also decrease the potential for areas of ponding and thus aid in the elimination of mosquito breeding habitats. Disposal of debris and trash must comply with all local, county, state, and federal waste regulations. Only suitable disposal and recycling sites will be utilized.

Elimination of Potential Mosquito Breeding Habits

The most effective mosquito control program is one that eliminates potential breeding habitats. Stagnant pools of water can be attractive to mosquitoes and can be a source of a large mosquito population. The site should be inspected to ensure standing pools of water do not exist. If these areas are found, corrective actions should be taken.

Part 4: Corrective Maintenance Procedures

Corrective Maintenance may be required on an emergency or non-routine basis to correct problems or malfunctions of the facilities and to restore the system back to its intended operation and safe

condition of a site and the BMPs. Corrective maintenance includes both minor and major procedures to ensure the functioning of the systems. The Corrective Maintenance Plan for this project should comply with the following schedule.

Removal of Debris and Sediment

Sediment, debris, and trash, within the stormwater management facilities, including, but not limited to inlets, pipes, and basins, shall be removed if accumulation threatens the volume and or discharge capacity of the system or BMP. Sediment, debris, and trash should be removed immediately if the system becomes compromised and should be properly disposed of in a timely manner. Equipment and personnel must be available to perform the removal work on short notice. Debris and sediment will be disposed of off-site at a predetermined location which accepts refuse. Disposal of debris and trash must comply with all local, county, state, and federal waste regulations. Only suitable disposal and recycling sites will be utilized. Sediment removal shall be performed when the facility is dry.

Structural Repairs

Structural damage to outlet and inlet structures, trash racks, manholes, the pipe conveyance system, headwalls or other structural components from vandalism, flood events or other causes must be repaired promptly. Equipment, materials, and personnel must be available to perform these repairs on short notice. The immediacy of the repairs will depend upon the nature of damage and its effects on the safety and operation of the facility. The analysis of structural damage, design and performance of structural repairs shall only be undertaken by qualified personnel. The industry standard for life expectancy of structures is 40 years. Should the outlet controls of the system become affected, any ponded water shall be removed. The system shall be repaired and restored to its original design condition. Portable pumps may be necessary to remove the ponded water temporarily until the system can be repaired.

Embankment and Slope Repairs

Damage to embankments and side slopes will be repaired promptly. This damage can result from rain or flood events, vandalism, animals, vehicles, or neglect. Typical problems include settlement, scouring, cracking, sloughing, seepage, and rutting. Equipment, materials, and personnel must be available to perform these repairs on short notice. The immediacy of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel. Unwanted trees and brush with extensive, woody root systems shall be completely removed from basin embankments to prevent the destabilization of the vegetation and the creation of the seepage routes. Roots shall be removed completely to prevent their decomposition within the embankment. Voids and burrows shall be plugged by filling with material similar to the existing material and capped just below grade with stone, concrete, or other material.

Extermination of Mosquitos

If neglected, a BMP can readily become an ideal mosquito breeding area. Evidence of excessive algae growth, siltation and/or mosquito breeding shall necessitate the implementation of corrective measures to eliminate such problems. Extermination of mosquitoes shall be performed

immediately, and will usually require the services of an expert, such as the local Mosquito Extermination Commission. Proper procedures carried out by trained personnel can control the mosquitoes with a minimum of damage or disturbance to the environment. If mosquito control becomes necessary and cannot be handled through preventative measures alone, the maintenance program shall be re-evaluated to place more emphasis on the control of mosquito breeding habitats.

Erosion Repair

Vegetative cover or other protective measures are necessary to prevent the loss of soil from the erosive forces of wind and water. Where a re-seeding program has not been effective in maintaining a non-erosive vegetative cover or other factors have exposed soils to erosion, other measures or corrective steps will be initiated to prevent further loss of soil and any subsequent danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including riprap, gabion lining, sod, seeding, concrete lining and re-grading. The local Soil Conservation District can provide valuable assistance in recommending materials and methodologies to control erosion. Riprap aprons shall be inspected on a semi-annual schedule and after a major storm event. Repairs shall be made as needed to maintain the design of the conduit outlet protection.

Elimination of Animal Burrows

Animal burrows can impair the stability of dams, embankments, and side slopes. Additionally, burrows can present a safety hazard for maintenance personnel.

Burrows will be plugged by filling with material similar to the existing material and capped just below the grade with stone, concrete or other material. If plugging of the burrows does not discourage the animals from returning, further measures should be taken to either remove the animal population or to make critical areas of the facility unattractive to them.

Snow and Ice Removal

Accumulations of snow, sleet or ice can threaten the functionality of a BMP, particularly at inlets, outlets, and emergency spillways. Structures should be inspected after major storm events or extended periods of cold weather. Providing the equipment, materials, and personnel necessary to monitor and remove snow and ice from these areas is critical to the continued functioning of the facility during the winter months.

Part 5: Aesthetic Maintenance Procedures

Aesthetic Maintenance procedures include the upkeep of the stormwater management facilities and their onsite surroundings to ensure the site is appealing to its user and the surrounding areas. Some of these procedures have the potential to reduce preventative or corrective maintenance. The Aesthetic Maintenance Procedures for this project should comply with the following schedule.

Graffiti Removal

The timely removal of graffiti will restore the aesthetic quality of a BMP. Removal can be accomplished by painting or otherwise covering the graffiti, or by removing it with scrapers, solvents, or cleansers. Timely removal is important to discourage further graffiti and other acts of vandalism.

Grass Trimming

Although time consuming, trimming of grass edges around structures and fences will provide for a neat and attractive appearance of the facility. Such maintenance should be performed in conformance with the aforementioned preventative maintenance procedures.

Control of Weeds

Although a regular grass maintenance program will keep weed intrusion to a minimum, some weeds will invariably appear. Periodic removal of unsightly or nuisance plants, either chemically or mechanically, will help maintain a healthy turf and keep grassed areas looking attractive.

Details

Careful, meticulous, and frequent attention to the performance of maintenance items such as painting, tree pruning, leaf collection, debris removal, and grass cutting will result in a BMP that remains both functional and attractive.

Part 6: Sand Bottom Infiltration Basin

Purpose

One (1) small-scale sand bottom infiltration basin is proposed with highly permeable components designed to both maximize the removal of pollutants from stormwater and to promote groundwater recharge. Pollutants are treated through settling, filtration of the runoff through the soils, as well as biological and chemical activity within the components. The total suspended solids (TSS) removal rate is 80%.

General Maintenance

Proper and timely maintenance is essential to continuous, effective operation. All structural components shall be inspected, at least once annually, for cracking, subsidence, spalling, erosion, and deterioration. Components expected to receive and/or trap debris and sediment must be inspected for clogging at least four times annually, as well as after every storm exceeding 1 inch of rainfall. Sediment removal must take place when runoff has drained, and the basin is dry. Disposal of debris, trash, sediment, and other waste material must be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

Stormwater BMPs may not be used for stockpiling of plowed snow and ice, compost, or any other material.

Vegetated Areas

Bi-weekly inspections are required when establishing/restoring vegetation. A minimum of one inspection during the growing season and one inspection during the non-growing season is required to ensure the health, density, and diversity of the vegetation. Mowing and trimming of vegetation must be performed on a regular schedule based on specific site conditions; perimeter grass should be mowed at least once a month during growing season.

Grass surrounding the infiltration basin must be carefully maintained with lightweight equipment, such as a hand-held line trimmer, in order to maintain the permeability of the system. Vegetative cover must be maintained at 85%; damage must be addressed through replanting in accordance with the original specifications. Remove unwanted growth as necessary with minimum disruption to the remaining vegetation. Vegetated areas must be inspected at least once annually for erosion, scour and unwanted growth; any unwanted growth should be removed with minimum disruption to the remaining vegetation. All use of fertilizers, pesticides, mechanical treatments, and other means to ensure optimum vegetation health must not compromise the intended purpose of the system.

Drain Time

The basin should be inspected at least twice annually to determine if the permeability of the basin has decreased. Infiltration basins must fully drain the water quality design storm (WQDS) within 72 hours of the most recent rainfall. Corrective maintenance shall be performed if the basin fails to drain the WQDS within 72 hours. The design drain time shall be closely monitored to ensure potential failure is recognized early. Annual tilling of the sand layer, using lightweight equipment, may assist in maintaining the infiltration capacity by breaking up clogged surfaces.

Part 7: Pervious Paving Systems: Porous Asphalt

Purpose

A pervious paving system is a stormwater management facility that filters stormwater runoff as it moves vertically through the system by infiltrating through the void spaces in the surface course. Benefits of using pervious paving systems include improved traction, reduced noise, and reduced surface ponding. Porous asphalt areas are proposed primarily provide water quality treatment, however, a stone storage bed below the porous areas is proposed to provide water quantity control. The proposed porous asphalt sections consist of a 2” open graded friction surface course, 4” asphalt stabilized drainage base course, 1” choker course and a variable depth stone storage bed.

Both of the proposed pervious paving systems are designed with a stone bed depth that at a minimum is suitable for fully containing the volume of stormwater runoff produced by the water quality design storm. As such, 80% TSS removal is provided.

General Maintenance

Regular and effective maintenance is crucial to ensure effective pervious paving system performance. Failure to correctly maintain a pervious paving system will shorten its lifespan or result in system failure.

The surface course must be inspected after every storm exceeding 1 inch of rainfall and when standing water is observed. If mud or sediment is tracked onto the surface course, the mud or sediment should be removed as soon as possible. Removal should take place when all runoff has drained from the surface course. Additionally, all structural components shall be inspected, at least once annually, for cracking, subsidence, spalling, erosion, and deterioration.

Quarterly vacuum sweeps, not power sweeps, should be performed on the surface course with a commercial cleaning unit. Air blowing or high-pressure power washing is not recommended. All inlet structures within or draining to the porous pavement storage bed should also be cleaned in conjunction with the surface course. One of the quarterly cleanings must be performed in the spring. One cleaning must be performed in autumn after fallen leaves are collected and removed.

Care must be taken when removing snow from the surface course; pervious paving surface courses may be damaged by snowplows or loader buckets set too low to the ground or not equipped with a rubber blade guard. Additionally, during and after snow events, sand, grit, or cinders may not be used on the surface course.

In addition, the following must be considered when maintaining porous asphalt:

1. Under no circumstance may any sealant, prime coat or other treatments that could reduce the rate of infiltration of the surface course be applied to the porous pavement systems.
2. Over the lifetime of the surface course, no more than 10% of its surface area may be patched with impervious material. It is recommended that all areas experiencing failure be replaced with a similar pervious material, so as to not jeopardize the functionality of the designed system. All patching must be recorded in the maintenance manual for future reference to prevent exceedance of this maximum.
3. Do not allow construction staging, soil/mulch storage, etc. on unprotected pavement surface.
4. Do not apply herbicides.

Each spring, after the last snow or ice event, the infiltration rate of the surface course must be tested in accordance with the methods of either ASTM C1701 or C1781, as corresponds to the post construction test performed for the system. At least 3 locations must be tested. One of the locations must be in an area where sediment is most likely to be deposited. The other test locations must be evenly spaced across the system surface. The locations and results obtained must be recorded in the maintenance plan for future reference and compared to the as-built testing results as a metric for determining if a system requires correction action. The chart provided below shows the approximate infiltration rate based upon the time it takes to infiltrate either 8 or 40 pounds of water specified in the above-cited tests. This chart should be included in the maintenance plan for future reference. The infiltration rate, I, is based upon the following calculation.

$I = (KK * MM)/ (D^2 * t)$, where

K = 126,870 in-lbs,

M = water mass, lbs

D = ring diameter = 12 inches

t = time, in seconds

Test Methods Per ASTM C1701 or C1781		
Time to Infiltrate the Specified Amount of Water (seconds)	Approximate Surface Infiltration Rate (inches per hour)	
	M = 8 lbs	M = 40 lbs
30	235	1175
60	118	587
100	70.5	352
200	35.2	176
350	20.1	100.7
360	19.6	97.9
380	18.5	92.7
900	7.8	39.2
1760	4.0	20.0
1910	3.7	18.5
3600	2.0	9.8
5400	1.3	6.5
5470	1.3	6.4
6000	1.2	5.9

Drain Time

No standing water may remain in the storage bed 72 hours after a rain event in order to allow for sufficient storage for the next rain event. Storage times in excess of 72 hours may render the system ineffective and may result in anaerobic conditions, odor and both water quality and mosquito breeding conditions. If the system fails to drain within 72 hours, then corrective action must be taken.

Part 8: Subsurface Infiltration Basins

Purpose

Subsurface infiltration basins are proposed with highly permeable components designed to both maximize the removal of pollutants from stormwater and to promote groundwater recharge. Pollutants are treated through settling, filtration of the runoff through the soils, as well as biological and chemical activity with the soil. The total suspended solids (TSS) removal rate is 80%.

General Maintenance

Proper and timely maintenance is essential to continuous, effective operation. All structural components shall be inspected, at least once annually, for cracking, subsidence, spalling, erosion, and deterioration. Components expected to receive and/or trap debris and sediment must be inspected for clogging at least four times annually, as well as after every storm exceeding 1 inch of rainfall. Sediment removal must take place when runoff has drained and the basin is dry. Disposal of debris, trash, sediment, and other waste material must be done at suitable disposal/recycling sites and in compliance with all applicable local, state, and federal waste regulations.

Drain Time

The basin should be inspected at least twice annually to determine if the permeability of the bed has decreased. Subsurface infiltration basins must fully drain within 72 hours of the most recent rainfall. Corrective maintenance shall be performed if the basin fails to drain within 72 hours. Standing water in excess of 72 hours is a sign of basin failure. The design drain time shall be closely monitored to ensure potential failure is recognized early.

Part 9: Equipment and Costs

Maintenance Tools and Equipment

The following is a list of required inspection equipment for routine operation and maintenance procedures and inspections.

a. A clipboard, a pencil, and the inspection checklist – the inspection checklist is included in the Appendix.
b. A standard 6-foot collapsible ruler – measurements of cracks in concrete, sediment thickness, etc. can provide important data needed to make maintenance decisions.
c. A camera – photographs of observed portions of the facilities will provide a measure of performance when comparing past and present maintenance practices or conditions.
d. A flashlight – a flashlight can be used to observe the inside of the inlets onsite.

The following is a list of tools and machinery typically required to maintain a stormwater management facility.

Grass Maintenance Equipment

Tractor Mounted Mowers	Fertilizer Spreaders
Riding Mowers	De-thatching Equipment
Hand Mowers	Pesticide & Herbicide Application Equipment
Gas Powered Trimmers	Grass Clipping & Leaf Collection Equipment
Gas Powered Edgers	Seed Spreaders

Vegetative Cover Maintenance Equipment	
Saws	Hedge Trimmers
Pruning Shears	Wood Clippers

Transportation Equipment
Trucks for Transportation of Materials
Trucks for Transportation of Equipment
Vehicles for Transportation of Personnel

Debris Trash & Sediment Removal Equipment
Loader
Backhoe
Grader

Shovels	Tools for maintenance of equipment
Rakes	Office Space
Picks	Office Equipment
Painting Equipment	Telephones
Gloves	Safety Equipment
Standard Mechanic Tools	Tools for Concrete Work (mixers, forms, etc.)

Materials	
Topsoil	Mulch
File	Paint
Seed	Paint Removers
Soil Amenities (fertilizer, lime, etc.)	Spare Parts for Equipment
Chemicals	Oil and Grease for Equipment
	Concrete

Maintenance Costs

In order to properly implement a stormwater management facilities maintenance plan, the costs associated with the maintenance procedures must be budgeted into the overall cost of the facilities. The Appendix provides costs associated with equipment commonly required to maintain stormwater management facilities. In addition, the cost of labor, in man-hours, is provided to budget the amount of time necessary to implement he maintenance procedures.

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Appendix A

SWM Maintenance Work Order and Checklist

Maintenance Work Order and Checklist for Stormwater Management Facilities

Name of Facility: _____

Location: _____ Date of Work Order: _____

Crew: _____ Work Started: date _____ time _____

Equipment: _____ Work Completed: date _____ time _____

Weather: _____ Total Manhours of Work: _____

Instructions: The original of this form should be kept unmarked, and in the O&M Manual at all times. Following each inspection, a copy of this form should be made and kept with the corresponding inspection checklist. The purpose of this form is to identify the maintenance items required based on the inspection.

The inspector should complete the general information above, including the facility name, location and the date of the work order. Next, the inspector should identify which items below require maintenance using a check mark in the appropriate box. Details should be given as to the location of the item(s) requiring maintenance. Upon completion the inspector shall submit the inspection checklist and maintenance work order to the property owner, or responsible party as designated in Part I, Section D of the O&M Manual.

The contractor responsible for adressing the maintemance requirements, as determined by the inspector, should complete the maintenance info above at the time maintenance is performed. Additionally, as the specific tasks ar completed, the contractor should mark the appropriate box below identifying there compleion, and sign the last sheet verifying that all items have been addressed.

A. Preventative Maintenance

Work Item	**Items Required (√)**	**Items Done (√)**	Comments and Special Instructions
1. Grass Cutting			
A. Bottoms			
B. Embankments and Side Slopes			
C. Perimeter Areas			
D. Access Areas and Roads			
E. Other:			
2. Grass Maintenance			
A. Fertilizing			
B. Re-Seeding			
C. De-Thatching			
D. Pest Control			
E. Other:			
3. Vegetative Cover			
A. Fertilizing			
B. Pruning			
C. Pest Control			
D. Other:			

Work Item	Items Required (√)	Items Done (√)	Comments and Special Instructions
4. Trash and Debris Removal			
A. Bottoms			
B. Embankments and Side Slopes			
C. Perimeter Areas			
D. Inlets			
E. Outlets and Trash Racks			
F. Other:			
5. Sediment Removal			
A. Inlets			
B. Outlets and Trash Racks			
C. Bottoms			
D. Other:			
6. Elimination of Petential Mosquito Breeding Habitats			
A. Mosquito Habitats			
7. Basin Maintenance			
A. Debris and Trash Removal			
B. Weed Removal			
C. Remove & Replace Bio-Media			
D. Other:			

B. Corrective Maintenance

1. Removal of Debris & Sediment			
2. Structural Repairs			
3. Embankment & Slope Repairs			
4. Control of Mosquitoes			
5. Erosion Repair			
6. Elimination of Animal Burrows			
7. Snow & Ice Removal			
8. Other			

Work Item	**Items Required (√)**	**Items Done (√)**	Comments and Special Instructions

C. Aesthetic Maintenance

1. Graffiti Removal			
2. Grass Trimming			
3. Weeding			
4. Details			
4. Other			

Remarks (Refer to Item No. , If Applicable):

Work Order Prepared By: _____

Work Completed By: _____

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Appendix B

SWM Maintenance Log

Maintenance Log
for
Stormwater Management Facilities

Name of Facility: _____ Log Year: 20____

Location: _____

Instructions: The original of this form should be kept unmarked, and in the O&M Manual at all times. Each calendar year a copy of this form should be made and kept with the corresponding "Inspection Log" in a separate binder to be completed by the personel performing the inspections.

Begin by entering the date that any maintenance is performed in accordance with a maintenance work order created after an inspection, in the first available "Date" box below. Following the completion of the item(s) required on the maintenance work order and checklist, the inspector should verify completion of those items by placing a check mark in the corresponding box below.

Date:										

A. Preventative Maintenance

1. Grass Cutting	(√) Completed									
A. Bottoms										
B. Embankments and Side Slopes										
C. Perimeter Areas										
D. Other:										

2. Grass Maintenance										
A. Fertilizing										
B. Re-Seeding										
C. De-Thatching										
D. Pest Control										
E. Other:										

3. Vegetative Cover										
A. Fertilizing										
B. Pruning										
C. Pest Control										
D. Other:										

4. Trash and Debris Removal										
A. Bottoms										

B. Embankments and Side Slopes										
C. Perimeter										
D. Inlets										
E. Outlets and Trash Racks										
F. Other:										

5. Sediment Removal

A. Inlets										
B. Outlets and Trash Racks										
C. Bottoms										
D. Other:										

6. Elimination of Petential Mosquito Breeding Habitats

A. Mosquito Habitats										

B. Corrective Maintenance

1. Removal of Debris and Sediment										
2. Structural Repairs										
3. Embankment & Slope Repairs										
4. Control of Mosquitoes										
5. Erosion Repair										
6. Elimination of Animal Burrows										
7. Snow & Ice Removal										
8. Other										

C. Aesthetic Maintenance

1. Graffiti Removal										
2. Grass Trimming										
3. Weeding										

4. Details										
5. Other:										

Remarks (Refer to Item No. , If Applicable):

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Appendix C

SWM Inspection Checklist

Inspection Checklist
for
Stormwater Management Facilities

Name of Facility: _____

Location: _____ Date: _____

Weather: _____

Instructions: The original of this form should be kept unmarked, and in the O&M Manual at all times. For each inspection, a copy of this form should be made and kept in a separate binder to be completed by the personel performing the inspections.

At the time of each inspection, begin by completing the information above. Next, for each item identified for each facility, mark the column corresponding to the condition of the item being inspected, according to the following schedule of conditions:

1 The item checked is in good condition and the maintenance program is adequate.

2 The item checked requires attention, but does not present an immediate threat to the facility function or other facility components.

3 The item checked requires immediate attention to keep the facility operational or to prevent damage to other facility components.

If the inspection results in a condition other than being in good condition (Condition 1) then the inspector should note the location and extent of deficiencies in the comments column. Use the bottoom and reverse side of the last checklist sheet for additional space.

Facility Item	O.K. (1)	Routine (2)	Urgent (3)	Comments
1. Porous Asphalt	Indicate Condition (i.e. 1, 2 or 3)			
A. Condition of Pavement				
B. Standing Water				
C. Settlement				
D. Trash and Debris				
E. Seepage				
F. Aesthetics				
G. Other				

2. Subsurface Infiltration Basin				
A. Structure				
B. Standing Water				
C. Trash and Debris				
D. Bio-media				
E. Aesthetics				
F. Other				

Facility Item	O.K. (1)	Routine (2)	Urgent (3)	Comments
3. Infiltration Basins				
A. Vegetation (Side Slopes and Bottom)				
B. Erosion				
C. Standing Water				
D. Settlement				
E. Sloughing				
F. Trash and Debris				
G. Seepage				
H. Aesthetics				
I. Sand Bottom				
J. Other:				
5. Inlet Structures				
A. Condition of Structure				
B. Erosion				
C. Trash and Debris				
D. Sediment				
E. Aesthetics				
F. Other:				
6. Outlet Structure				
A. Condition of Structure				
B. Erosion				
C. Trash and Debris				
D. Sediment				
E. Mechanical Components				
F. Aesthetics				
G. Other.				
7. Emergency Spillway				
A. Vegetation				
B. Lining				
C. Erosion				
D. Trash and Debris				
E. Other:				
8. Site Perimeter				
A. Vegetation				
B. Erosion				
C. Trash and Debris				
D. Fences and Gates				
E. Aesthetics				
F. Other:				
9. Access Roads				
A. Vegetation				
B. Road Surface				

Facility Item	O.K. (1)	Routine (2)	Urgent (3)	Comments
C. Fence and Gates				
D. Erosion				
E. Aesthetics				
F. Other				

10. Miscellaneous
A. Effectiveness of Exist. Maint. Program
B. Potential Mosquito Habitats
C. Other

Inspector: _____

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Appendix D

SWM Inspection Log

Inspection Log
for
Stormwater Management Facilities

Name of Facility: _____ Log Year: 20____

Location: _____

Instructions: The original of this form should be kept unmarked, and in the O&M Manual at all times. Each calendar year a copy of this form should be made and kept with the corresponding "Maintenance Log" in a separate binder to be completed by the personel performing the inspections.

At the time of each inspection, begin by entering the date in the first available column. Underneath the date, circle the letter identifying the type of inspection being performed (**I = Informal Inspection**, or **R = Regularly Scheduled Inspection).** Next, for each item identified for each facility, provide a numeric value identifying its condition based on the values provided below:

1 The item checked is in good condition and the maintenance program is adequate.

2 The item checked requires attention, but does not present an immediate threat to the facility function or other facility components.

3 The item checked requires immediate attention to keep the facility operational or to prevent damage to other facility components.

The numeric value provided for each item should correspond to the condition identified on the inspection checklist completed at the time of the inspection.

Facility Item	Date:									
	Inspection Type:	I / R	I / R	I / R	I / R	I / R	I / R	I / R	I / R	I / R	I / R
1. Porous Asphalt	Indicate Condition (i.e. 1, 2 or 3)									
A. Condition of Pavement										
B. Standing Water										
C. Settlement										
D. Trash and Debris										
E. Seepage										
F. Aesthetics										
G. Other										
2. Subsurface Infiltration Basin										
A. Structure										
B. Standing Water										
C. Trash and Debris										
D. Bio-media										
E. Aesthetics										
F. Other										
3. Infiltration Basins										

A. Vegetation (Side Slopes and Bottom)										
B. Erosion										
C. Standing Water										
D. Settlement										
E. Sloughing										
F. Trash and Debris										
G. Seepage										
H. Aesthetics										
I. Sand Bottom										
J. Other:										

5. Inlet Structures										
A. Condition of Structure										
B. Erosion										
C. Trash and Debris										
D. Sediment										
E. Aesthetics										
F. Other:										
6. Outlet Structure										
A. Condition of Structure										
B. Erosion										
C. Trash and Debris										
D. Sediment										
E. Mechanical Components										
F. Aesthetics										
G. Other.										

7. Emergency Spillway										
A. Vegetation										
B. Lining										
C. Erosion										
D. Trash and Debris										
E. Other:										

8. Site Perimeter										
A. Vegetation										
B. Erosion										
C. Trash and Debris										
D. Fences and Gates										
E. Aesthetics										
F. Other:										

9. Access Roads										
A. Vegetation										
B. Road Surface										
C. Fence and Gates										

D. Erosion										
E. Aesthetics										
F. Other										

10. Miscellaneous

A. Effectiveness of Exist. Maint. Program										
B. Potential Mosquito Habitats										
C. Other										
D.										
E.										
F.										
G.										

Remarks (Refer to Item No. If Applicable):

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Appendix E

Maintenance Costs

Cost Data SWMF Maintenance Equipment and Material Costs		
Grass Maintenance Equipment		
	Purchase	**Rent (Per Day)**
Hand Mower	$300-$500	$25-$40
Riding Mower	$3,000-$5,000	$75-$100
Tractor Mower	$15,000-$20,000	$100-$300
Trimmer/ Edger	$200-$500	$25-$35
Spreader	$100-$200	$20-$30
Chemical Sprayer	$200-$500	$25-$40

Vegetative Cover Maintenance Equipment		
	Purchase	**Rent (Per Day)**
Hand Saw	$15	$5
Chain Saw	$300-$500	$15-$35
Pruning Shears	$25	$5
Shrub Trimmer	$200	$25-$35
Brush Chipper	$1,000-$5,000	$50-$150

Transportation Equipment			
	Purchase	**Lease (per month)**	**Rent (Per Day)**
Van	$10,000-$15,000	$400	$50-$70
Pickup Truck	$10,000-$15,000	$400	$50-$70
Dump Truck	$30,000-$50,000	$1,200	$75-$150
Light Duty Trailer	$3,000-$5,000	$150	$30-$50
Heavy Duty Trailer	$10,000-$20,000	$500	$100-$200

Debris, Trash and Sediment Removal Equipment			
	Purchase	**Lease (per month)**	**Rent (Per Day)**
Front End Loader	$50,000-$100,000	$1,500-$2,000	$200-$400
Backhoe	$30,000-$50,000	$1,200	$150-$300
Excavator	$100,000+	$2,000+	$400-$1,000
Vacuum Truck	$100,000+	$2,000+	$400-$1,000

Miscellaneous Equipment		
	Purchase	**Rent (Per Day)**
Shovel	$15	$5
Leaf Rake	$15	$5
Soil Rake	$15	$5
Pick	$15	$5
Wheelbarrow	$100-$200	$10
Gloves	$5	N/A
Portable Compressor	$500-$1,000	$50-$100
Portable Generator	$500-$1,000	$50-$100
Concrete Mixer	$500-$1,000	$25-$50
Welding Equipment	$500-$1,500	$35-$70

Materials	
	Purchase
Topsoil	$35/Cubic Yard
Fill Soil	$15/Cubic Yard
Grass Seed	$5/Pound
Soil Amenities (Fertilizer, Lime, etc.)	$0.05/sq.ft.
Chemicals (Pesticides, Herbicides, etc.)	$10/gallon
Mulch	$25/Cubic Yard
Paint	$20/gallon
Paint Remover	$10/gallon
Machine/Motor Lubricants	$5/gallon
Dry Mortar Mix	$4/50 pound bag
Concrete Delivered to Site	$60-$100/Cubic Yard

Notes:

1. Estimated equipment costs are based upon Industrial/Commercial grade equipment

2. The cost estimates presented above are intended for general planning and comparison purposes.

Cost Data Costs of SWMF Maintenance Tasks		
Preventative Maintenance Tasks (Values expressed in Man-Hours)		
	Small Facility	**Large Facility**
Grass Cutting	1	1-2
Grass Maintenance	0.5	1
Trash & Debris Removal	0.5	1
Sediment Removal	4	8
Mobilization	1	1
Inspection & Reporting	1	2

Corrective Maintenance Tasks (Values expressed in Man-Hours)		
	Small Facility	**Large Facility**
Trash & Debris Removal	4	8
Structural Repairs	24	40
Dewatering	4	80
Mosquito Extermination	1	2-4
Erosion Repair	4	8
Fence Repair	2-4	4-8
Snow & Ice Removal	1	2
Mobilization	2	2

Aesthetic Maintenance Tasks (Values expressed in Man-Hours)		
	Small Facility	**Large Facility**
Grass Trimming	0.5	2
Weed Control	0.5	2
Landscape Maintenance	1-2	2-4
Graffiti Removal	2-4	4-8

Notes:

1. Facility Size Definitions:

   Small Facility: Total SWMF Site Area ¼ Acre
   Large Facility: Total SWMF Site Area 1 Acre

Appropriate adjustments to the cost estimates presented above should be made as necessary to account for actual SWMF size. See text for further information.

2. Cost estimates are presented in terms of man-hours. These values should be used in conjunction with applicable personnel rates to determine labor costs for a specific program or facility.

3. The cost estimates presented above are intended for general planning and comparison purposes.

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Appendix F

Stormwater Management Facilities Map

HIGHWAY 33
(VARIABLE WIDTH R.O.W.)

HIGHWAY 33
(VARIABLE WIDTH R.O.W.)

N COMMERCE SQUARE

S COMMERCE SQUARE

SIGHT LINE
14.5' X 502'
DESIGN SPEED 45 MPH
PASSENGER CAR

SIGHT LINE
14.5' X 430'
DESIGN SPEED 45 MPH
PASSENGER CAR

SIGHT LINE
14.5' X 241'
DESIGN SPEED 25 MPH
PASSENGER CAR

PROPOSED 4-STORY BUILDING
11,716 S.F. BUILDING FOOTPRINT
53,047 S.F. GFA

POROUS ASPHALT BASIN A
WITH UNDERDRAIN

UNDERGROUND BASIN B
WITH INFILTRATION

SAND BOTTOM
INFILTRATION BASIN D

POROUS ASPHALT BASIN C
WITH INFILTRATION

TEMPORARY
GRADING EASEMENT

PROPOSED 20'
UTILITY EASEMENT

LOT 17, BLOCK 1
N/F JP PROPERTY
INVESTMENT, LLC

1, BLOCK 16.01
/F ROMSREN
BINSVILLE, LLC

WOODED AREA

STOP

NO PARKING FIRE LANE

ONLY

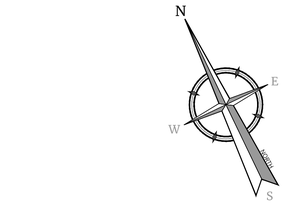
BUILDING OVERHANG

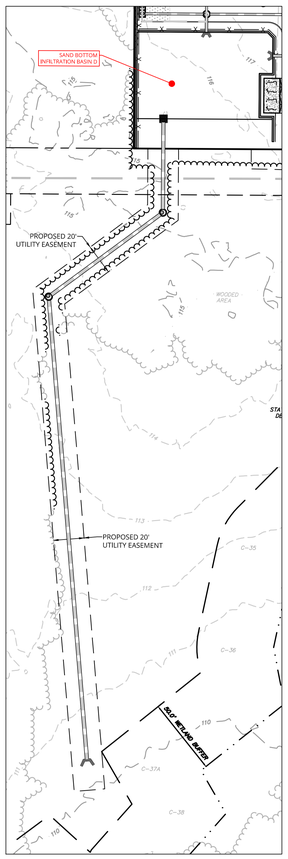
BRICK WALK

CONC. WALK

STEP

SIGN





INSET
SCALE: 1" = 40'

STORMWATER FACILITY
STATE PLANE COORDINATES AT CENTROID

BMP ID	BMP TYPE	NORTHING	EASTING
BASIN A	POROUS ASPHALT WITH UNDERDRAIN	504,546	455,981
BASIN B	UNDERGROUND BASIN WITH INFILTRATION	504,476	456,053
BASIN C	POROUS ASPHALT WITH INFILTRATION	504,376	456,118
BASIN D	SAND BOTTOM BASIN WITH INFILTRATION	504,460	455,954

20 0 20 40
SCALE : 1" = 20'

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Doing Business as

REV	DATE	DESCRIPTION
1	5/11/26	REVISED PER ARH ASSOCIATES LETTER DATED 1/19/26

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

811 Know what's below. Call before you dig.

ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE45561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone:609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN
DRAWN BY: SLD
DESIGNED BY: SLD
REVIEWED BY: MJJ
DATE ISSUED: 12/22/25
PROJECT NUMBER: 24002939A
SHEET NAME:

STORMWATER MANAGEMENT FACILITIES MAP

DRAWING NUMBER:
1.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Last Saved By: SLD C:\Users\sdavis\Desktop\Engineering\Projects\24002939A\CAD\24002939A-SWM.dwg 12/22/2025 10:43:54 AM By: SLD EXPIRES on 12/31/2025

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Sanitary Sewer Report

December 22, 2025

Revised May 29, 2026

Robbinsville Heights

Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, NJ

Prepared for:

Robbinsville Heights, LLC
96 Overbrook Avenue
Edison, NJ 08817

Prepared by:

Mark Janiszewski, P.E.
New Jersey Professional Engineer
License No. 45561

Colliers Engineering & Design
1000 Waterview Drive Suite 201
Hamilton, New Jersey 08691
Main: 877 627 3772
Colliersengineering.com

Project No. 24002939A

Colliers Engineering & Design

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Executive Summary

The applicant, Robbinsville Heights, LLC, is proposing improvements to Block 1, Lots 18, 19 & 20, located at 2345, 2347 and 2349 NJ Route 33, which consists of approximately 1.69 acres of land. The site is presently developed with an abandoned office building to be demolished (Lot 18), and two (2) single family homes (Lots 19 & 20) that were recently demolished. The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd, and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor. The subject property is located in the Suburban Planning Area (PA 2).

As per §142-19 of the Township of Robbinsville Land Use Ordinance and the Amended and Restated Redevelopment Plan dated September 11, 2025, prepared by ARH Associates, the development will qualify as a principal permitted use within the TC-2, Town Center 2 Zoning District, in which adult housing developments are permitted uses.

This report summarizes the development's anticipated sanitary sewer flows and method of connection to the public sanitary sewer system.

Sanitary Sewer

Existing Sanitary Sewer System

The project is located within the Robbinsville Township Utilities Division (RUD) sewer service area. Robbinsville Township owns and operates the public sewer system within the Township. Robbinsville Township has an agreement with Hamilton where sanitary flow from Robbinsville Township will be conveyed through Hamilton Township and treated by the Hamilton Township Water Pollution Control.

An existing 8" PVC sanitary sewer main exists within South Commerce Square. The 8" main provides sanitary service to the existing Project Freedom development. The 8" main traverses north then heads west along a proposed right-of-way for a Master Plan Road within the development area.

Proposed Sanitary Sewer System

The proposed development consists of a 4-story mixed-use building with 28 apartment units, a liquor store, retail space, and a bar/lounge. Sanitary sewer will be collected within the building and a proposed 8" PVC lateral will exit the south side of the building. The 8" lateral will then discharge into an existing manhole in South Commerce Square.

Sanitary Sewer Flows

Proposed Sanitary Sewer Flows

The proposed development will utilize public sewer service. Sanitary flows will discharge via a gravity line into a manhole within South Commerce Square which is owned and operated by the Township of Robbinsville Sewer Department. The anticipated flows are as follows:

Establishment Type	Unit of Measurement	# of Measurement Units	Gallons per Day per Unit	Projected Flow GPD
Liquor Store/Retail/Office	Sq. Ft.	6,339	0.10	634 gpd
Restaurant	Seats	75	35	2,625 gpd
Bar/Lounge	Seats	75	20	1,500 gpd
1 BR Residential Unit	Units	3	150	450 gpd
2 BR Residential Unit	Units	20	225	4,500 gpd
3 BR Residential Unit	Units	5	300	1,500 gpd
			Total Estimated GPD	**11,209 GPD**

Deductions of flows are shown in *italics* from the pervious developments on the site.

Per the Will Serve Letter provided by Roberts Engineering Group, dated November 17, 2025 (Appendix A), at this time, there appears to be sufficient capacity at the Hamilton Township Water Pollution Control 's Wastewater Treatment Plant to treat the wastewater generated by this project.

The project will require NJDEP Treatment Works Approval as the flows exceed 8,000 GPD.

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Appendix

Appendix A | Will Serve Letter

Roberts
ENGINEERING GROUP LLC
Women Business Enterprise Certified

1670 Whitehorse-Hamilton Square Rd.
Hamilton, New Jersey 08690
609-586-1141 fax 609-586-1143
www.RobertsEngineeringGroup.com

November 17, 2025

Jodi Westhead
Project Services Manager
Civil/Site Associate
Colliers Engineering & Design
1000 Waterview Drive Suite 201
Hamilton, New Jersey 08691
Email: jodi.westhead@collierseng.com

Re: Sewer Utility Will-Serve Request
Robbinsville Heights
Block 1, Lots 18. 19 & 20
Robbinsville Township, Mercer County, New Jersey
Our File No.: RT1601

Dear Ms. Westhead:

Attached please find:

1. 8 1/2" x 11" plan of the project area, entitled "Sewer Utility Will-Serve Request, Sanitary Sewer System Plan, Tax Block 1, Tax Lots 18, 19 & 20, dated November 14, 2025".

This is to confirm that the above-mentioned project is within the existing Sewer Service Area, as delineated on the current Robbinsville Township Sanitary Sewer System Plan and within the Town Center South Redevelopment Area of Robbinsville Township. An application for an extension of the sanitary sewerage system to serve this project can be considered. This area is served by a gravity sanitary sewer main flowing west to Washington Boulevard. The existing Rt. 33 Pump Station in this area is scheduled to be decommissioned and is not available for use.

Robbinsville Township has a reserved capacity for treatment of 2.5 million gallons per day at the Hamilton Township Department of Water Pollution Control's Wastewater Treatment Plant, pursuant to the *Agreement for Multi-Municipal Sewerage System*. At this time, there appears to be sufficient capacity to treat the wastewater for this project. Please note that on-site and/or off-tract improvements may be necessary to convey the wastewater generated by this project through the Township's system. This will be addressed upon submission of a formal *Sanitary Sewer Extension Application* to the Township.

A connection fee will be required for this application, and the fee amount can be found in the Robbinsville Township Sewer Ordinance or by contacting the Township Clerk.

This letter is not to be construed as a reservation of capacity for this project, nor a guarantee that capacity will be available at the time your company submits an application. Capacity is allowed on a first-come-first-served basis. It is the policy of the Township that no reservation of capacity be made until a *Treatment Works Approval Permit* is issued by the New Jersey Department of Environmental Protection for the construction and operation of a sewer extension.

If there are any questions, please do not hesitate to contact our office.

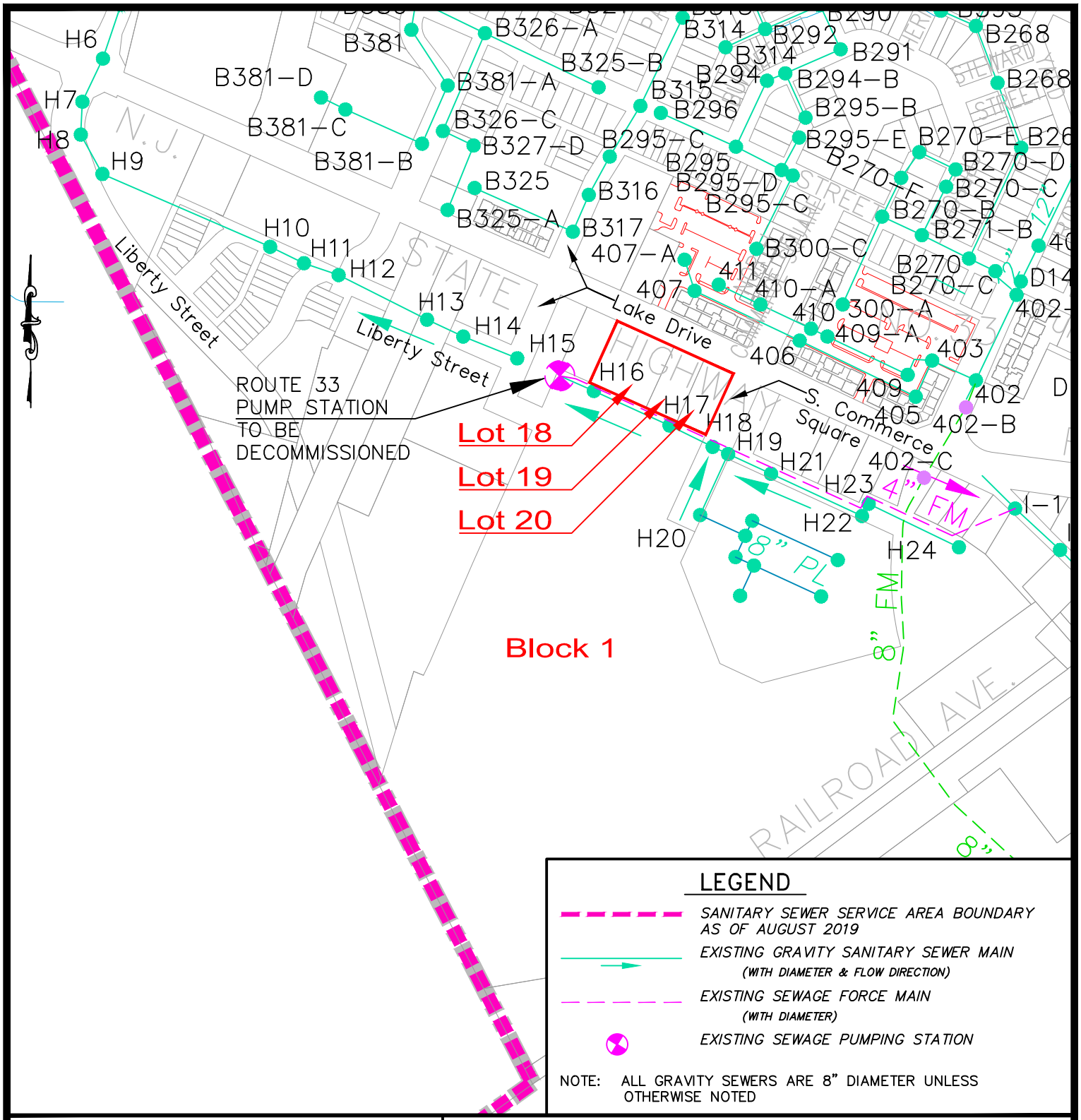
Very truly yours,

Carmela Roberts, P.E., C.M.E., C.P.W.M.
Sewer Utility Engineer

cc: John Nunziato, P.E., P.P., Township Engineer
Dan Rafferty, Township Zoning Officer
Chris English, Township Director of Community Development
Chris Rupp, Director of Public Works
Tianna Thompson, Township Planning/Zoning Board Secretary
Cameron Corini, P.E., C.M.E., C.P.W.M., Roberts Engineering Group, LLC
Justin Streleckis, PE, Roberts Engineering Group, LLC
GS-Bachman, E.I.T., Roberts Engineering Group, LLC

Colliers Engineering & Design

Appendix B |Existing Mapping



Roberts
ENGINEERING GROUP LLC
Women Business Enterprise Certified
CERTIFICATE OF AUTHORIZATION: 24GA28159100
1670 Whitehorse-Hamilton Square Rd.
Hamilton, New Jersey 08690
609-586-1141 fax 609-586-1143
www.RobertsEngineeringGroup.com

Sewer Utility Will-Serve Request

Sanitary Sewer System Plan

TAX BLOCK 1, TAX LOTS 18, 19 & 20

Township of Robbinsville,

Mercer County, New Jersey

SCALE: 1" = ±400'

DWG. No: SS
11/14/2025

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Stormwater Management Report

December 22, 2025

Revised May 29, 2026

Robbinsville Heights
Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, New Jersey

Prepared for:

Robbinsville Heights LLC
96 Overbrook Avenue
Edison, NJ 08817

Prepared by:

Mark Janiszewski, P.E.
New Jersey Professional Engineer
License No. 45561

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1000 Waterview Drive
Suite 201
Hamilton New Jersey 08691
Main: 877 627 3772
Colliersengineering.com

Project No. 24002939A

Colliers Engineering & Design

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Colliers Engineering & Design

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1.0 Introduction

This report has been prepared in accordance with the New Jersey Stormwater Management Rules at N.J.A.C. 7:8 to verify the proposed improvements have been designed to minimize the adverse impact of stormwater runoff on water quality, water quantity and loss of groundwater recharge in receiving water bodies.

1.1 Site Location & Project Description

The subject project site is located at the southwest corner of New Jersey State Highway Route 33 and South Commerce Square in Robbinsville Township, Mercer County, New Jersey and referred to as Block 1, Lots 18, 19 & 20 on sheet 1.30 of the official tax map of the Township of Robbinsville. The site consists of approximately 1.69 acres of land and is presently developed with an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished. The proposed development consists of a 4-story mixed-use building with a rooftop bar, outdoor seating and associated improvements. The proposed project includes 0.25 acres of disturbance on Lot 65.01, Block 1, which is abuts the Southern property line of the site. These disturbances will include proposed grading and a proposed stormwater outfall.

1.2 Stormwater Management Description

The proposed improvements will result in the disturbance of greater than one (1) acre of land, the creation of more than one-quarter acre of regulated motor vehicle surface and are not defined as an exempt linear development project under N.J.A.C. 7:8-5.2(d). As a result, the project is defined as a major development according to N.J.A.C. 7:8-1.2 and is subject to compliance with the requirements described under Subchapter 5. A hydrologic and hydraulic analysis of the project site has been prepared along with the design of appropriate stormwater management measures to address stormwater quantity, quality, and groundwater recharge. The minimum design and performance standards have been met by incorporating green infrastructure measures in accordance with N.J.A.C. 7:8-5.3. These measures have been designed to account for the existing site conditions, to minimize maintenance, to be strong, durable and corrosion resistant, and to meet the minimum safety standards as described in Subchapter 6.

1.3 Methodology & Software

The pre-developed and post-developed conditions were analyzed using the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) methodology, as described in the National Engineering Handbook Part 630 Hydrology. This modeling technique is incorporated in the HydroCAD stormwater modeling software by HydroCAD Software Solutions, LLC, and was used to analyze the pre-development and post-development runoff. Runoff Curve Numbers for the existing conditions analysis were based on site conditions present at the time of survey. In accordance with Chapter 15 of the NEH, time of concentration was calculated at each drainage area. The DelMarva Unit Hydrograph was used in the calculations and analysis for all scenarios.

Rainfall depths used in the analysis are site specific NOAA rainfall rates as outlined in Chapter 5 of the New Jersey Stormwater Best Management Practices Manual. However, the proposed Flood Hazard Area Control Act rules sets forth change factors for future precipitation rates for each

county. The following Future Precipitation Change Factors are taken from Table 5-6 of the proposed rule:

Mercer County, Current Precipitation Adjustment Factors

2-year Design Storm:	1.01 inches
10-year Design Storm:	1.02 inches
100-year Design Storm:	1.04 inches

Mercer County, Future Precipitation Adjustment Factors

2-year Design Storm:	1.16 inches
10-year Design Storm:	1.17 inches
100-year Design Storm:	1.36 inches

The proposed rainfall rates for the project site used in this analysis are as follows:

	NOAA Rainfall Rate (inches)	Adjusted Rainfall Rate (inches)	Adjusted Future Rainfall Rate (inches)
2-year Design Storm	3.32	3.35	3.85
10-year Design Storm	5.06	5.16	5.92
100-year Design Storm	8.45	8.79	11.49

The design of the stormwater conveyance system was performed using the Rational Method as included in the Hydraflow Storm Sewers extension for AutoCad Civil 3D.

1.4 Regulatory Compliance

This project has been designed in accordance with N.J.A.C. 7:8. The proposed stormwater measures have been designed to meet the requirements of Robbinsville Township, Mercer County, and the NJDEP. Compliance with the applicable regulations is explained in detail in the remainder of this report and verified with calculations as appropriate in the Appendices.

2.0 Pre-Development

2.1 Existing Conditions

The site has been analyzed as two drainage areas to determine the peak flows for the 2-, 10- and 100-year storm events. The existing drainage areas are described below:

Area Name	Description
EDA-1	A small portion of the pre-developed site that drains north towards Route 33. This area is comprised mostly of grass area, but also contains a small area of woods and a small portion of impervious surfaces from the existing bituminous driveway.
EDA-2	A portion of the pre-developed site that drains south to the wetlands on the adjacent property. This area is comprised mostly of grass and wooded areas,

Area Name	Description
	in addition to impervious surfaces consisting of the existing buildings, paved surfaces, and parking areas.

2.2 Soil Characteristics

The existing soil classifications for the site are based on the USDA NRCS Web Soil Survey. The survey is useful at the planning level to draw general conclusions about the suitability of a site for certain land uses. Based on the web site data, the site consists of the following soil types:

NRCS Soil Unit Summary	
Soil Name	**Hydrologic Group**
SacB – Sassafras sandy loam, 2 to 5 percent slopes	B
MBYB – Mattapex and Bertie Loams, 0 to 5 percent slopes	C

2.3 Hydrologic Analysis of Existing Conditions

The drainage areas were analyzed to determine the pre-development hydrographs resulting from the current cover and topographic conditions. Drainage Area The total volumes and peak runoff rates leaving the existing project area for various magnitude storms are presented in Table 2.1.

Detailed calculations for the pre-developed conditions are located in Appendix B.

Table 2.1: Pre-Development Runoff Results

Current Rainfall Rates				
Storm Event	**Peak Discharge (ft^3/s)**			
	POA #1	POA #2 (Total)	POA #2 (Onsite)	POA #2 (Offsite)
2-year	0.10	1.03	1.02	0.06
10-year	0.25	1.90	1.82	0.20
100-year	0.65	4.18	3.91	0.58
Projected Rainfall Rates				
Storm Event	**Peak Discharge (ft^3/s)**			
	POA #1	POA #2 (Total)	POA #2 (Onsite)	POA #2 (Offsite)
2-year	0.14	1.23	1.21	0.10
10-year	0.33	2.34	2.23	0.28
100-year	0.97	6.36	5.64	0.89

3.0 Post-Development

3.1 Proposed Conditions

The proposed stormwater management design implements several green infrastructure Best Management Practices (BMP's) to mitigate the stormwater runoff resulting from the development. These BMP's will reduce onsite peak flow rates at the two analysis points discussed in the existing conditions discussed above. The conveyance system includes pervious pavement and drainage inlets with associated piping. These features will collect and convey stormwater runoff from the building, pavement and landscape areas to either an underground basin or a sand bottom basin where it will be temporarily stored and discharged at a controlled rate to the points of discharge. Runoff from the remainder of the site will be discharged in a manner consistent with existing conditions.

3.2 Green Infrastructure

Green infrastructure Best Management Practices (BMPs) must be utilized to satisfy groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards as described under N.J.A.C. 7:8-5.3. These standards include drainage area limitations for BMPs that have been designed to address groundwater recharge and stormwater runoff quality. To meet the requirements of this section, several BMPs have been designed to address stormwater quality, quantity and recharge as described in the remainder of the report.

BMP ID	Green Infrastructure
Basin A	Porous Asphalt Pavement with Underdrain
Basin B	Underground Basin with Infiltration
Basin C	Porous Asphalt Pavement with Infiltration
Basin D	Small-Scale Sand Bottom Infiltration Basin

3.3 Groundwater Recharge

One of two criteria must be met in order to comply with the groundwater recharge standards as described at 7:8-5.4. Either 100 percent of the site's average annual pre-developed groundwater recharge volume must be maintained after development or 100 percent of the difference between the site's pre- and post-development 2-year runoff volume must be infiltrated.

The site's pre- and post-developed average annual recharge volumes were calculated using the New Jersey Groundwater Recharge Spreadsheet, version 2.0. The post-developed annual recharge deficit was calculated to be 52,471 cubic feet. Through several stormwater infiltration BMPs, a recharge volume of 270,451 cubic feet is proposed to balance the deficit. As recharge is provided by various disconnected BMPs, a summary table which demonstrates compliance of provided recharge is summarized below.

BMP ID	Green Infrastructure	Recharge Volume
Basin B	Underground Basin with Infiltration	28,060 cubic feet
Basin C	Porous Asphalt Pavement with Infiltration	171,802 cubic feet
Basin D	Sand Bottom Infiltration Basin	70,589 cubic feet
	Total Recharge Provided	270,451 cubic feet

3.4 Stormwater Runoff Quality

In accordance with N.J.A.C. 7:8-5.5, stormwater management measures must be designed to reduce the post-construction load of total suspended solids (TSS) in stormwater runoff generated from the water quality design storm. Stormwater runoff from the net increase of motor vehicle surface shall be treated to remove 80% of the anticipated TSS load, expressed as an annual average.

A total of 0.91 ac of motor vehicle surfaces is proposed on the subject site. The following table summarizes the proposed water quality treatment for the site:

BMP ID	Green Infrastructure	Proposed Area of Motor Vehicle Surface Treatment
Basin A	Porous Asphalt with Underdrain	0.12 AC
Basin C	Porous Asphalt Pavement with Infiltration	0.76 AC
	Total	0.88 AC

A small portion of the proposed motor vehicle surface requiring treatment will bypass the proposed basins. This area is comprised of 0.03 acres of onsite pavement area, which is a result of the proposed entrance drives. The NJDEP requires 50% TSS removal for proposed motor vehicle surfaces that are replacing existing motor vehicle surface (redevelopment). This “credit” cab be applied to offset the pavement area at the driveway that is unable to be captured and treated by the proposed basins.

Existing motor vehicle surface = 0.21 acres @ 50% = 0.11 acre-%

Proposed motor vehicle surface not being treated = 0.03 acres @ 80% = 0.02 acre-%

Therefore, the redevelopment credit exceeds the required treatment for this area.

3.5 Stormwater Runoff Quantity

In accordance with N.J.A.C. 7:8-5.6, stormwater runoff quantity impacts must be controlled according to any of the four design provisions described in that section. For onsite runoff discharging to analysis points POA-1 and POA-2 stormwater management measures have been designed so that the post-construction peak runoff rates for the 2-, 10-, and 100-year storm events are equal to or less than 50, 75, and 80 percent, respectively, of the pre-construction peak runoff rates. The offsite disturbances on Lot 65.01, Block 1 will be a temporary disturbance in land use for grading and a stormwater outfall and therefore have been analyzed but have not been included for the peak flow and quantity reductions.

The drainage area parameters were analyzed to determine the post-development hydrographs resulting from the proposed cover, topographic conditions, and proposed stormwater management

measures. Based on the pre-development peak flow rates, allowable post development peak flow rates have been determined for each storm event and each Points of Analysis and are presented in Tables 3.3, 3.4 and 3.5. The post-development drainage area plan and detailed calculations for the pre-developed conditions are located in Appendix C.

Table 3.3: Peak Discharge Reduction Compliance & Post-Development Runoff Results, POA #1

Storm Event	Peak Discharge (ft^3/s)	Peak Discharge, Allowed (ft^3/s)	Peak Discharge, Designed (ft^3/s)
2-year	0.10	0.10 x 50% = 0.05	0.05
10-year	0.25	0.25 x 75% = 0.19	0.09
100-year	0.65	0.65 x 80% = 0.52	0.17
2-year Projected	0.14	0.14 x 50% = 0.07	0.07
10-year Projected	0.33	0.33 x 75% = 0.25	0.11
100-year Projected	0.97	0.97 x 80% = 0.78	0.23

Table 3.4: Peak Discharge Reduction Compliance & Post-Development Runoff Results, POA #2 (Onsite Reduction)

Storm Event	Peak Discharge (ft^3/s)	Peak Discharge, Allowed (ft^3/s)	Peak Discharge, Designed (ft^3/s)
2-year	1.02	1.02 x 50% = 0.51	0.33
10-year	1.82	1.82 x 75% = 1.37	0.79
100-year	3.91	3.91 x 80% = 3.13	1.59
2-year Projected	1.21	1.21 x 50% = 0.61	0.44
10-year Projected	2.23	2.23 x 75% = 1.67	0.97
100-year Projected	5.64	5.64 x 80% = 4.51	3.61

3.6 Detention Facility Drain Time

As required within Chapter 9.6 of the NJ BMP Manual, no standing water may remain in the infiltration facilities 72 hours after a rain event in order to allow for sufficient storage for the next rain event and to prevent anaerobic conditions, odor, and both water quality and mosquito breeding conditions. At the end of any rain event, the maximum volume of water remaining is that which is stored below the lowest orifice, weir or riser. Using infiltration rates from test pit data and an infiltration area equal to the infiltration facility's stone bottom, the infiltration period for the recharge BMP was determined as follows:

$$Infiltration\ Period\ (T) = \frac{V}{AR}$$

BMP ID	Design Infiltration Rate, in/hr	Design Infiltration Rate, ft/hr (R)	Infiltration Area, SF (A)	Maximum Infiltration Volume, AF	Maximum Infiltration Volume, CF (V)	Drain Time, Hours (T)
Basin B	1.47	0.123	1,884	0.023	1,002	4.34
Basin C	1.34	0.111	17,788	0.074	3,223	1.62
Basin D	0.59	0.049	4,728	0.013	566	2.44

Each facility in the proposed design has been designed to drain in less than 72 hours.

3.7 Groundwater Mounding

To ensure there will be no adverse effects to the infiltration facilities or surrounding areas due to groundwater mounding, an analysis has been performed based on the above calculated infiltration periods. The results can be found in Appendix C.

3.8 Stormwater Conveyance

The design of the stormwater conveyance system was performed using the Rational Method as included in the Hydraflow Storm Sewers extension in AutoCad Civil 3D. A minimum time of concentration of 6 minutes was utilized. The Intensity-Duration-Frequency (IDF) curve used in determining the peak flow rates to the storm inlets was based on the NOAA Atlas 14 for 2349 NJ Route 33, Robbinsville, New Jersey. Manning's Formula with a Coefficient of 0.012 for high density polyethylene pipe was utilized. "C" values of 0.95 were utilized. The 25-year event was used for all pipes, except for those downstream of outfall structures and BMP perforated underdrains, in which 100-year event outflows were utilized in the design of the conveyance system to ensure transmission of flows from the various BMPs for extended detention and peak flow attenuation.

4.0 Maintenance of Stormwater Management Measures

A Stormwater Management Operations and Maintenance Manual has been prepared to describe the stormwater management system to the owner and to outline the required maintenance procedures and frequencies.

5.0 Soil Erosion and Sediment Control

The proposed improvements have been designed to meet the minimum design and performance standards for erosion control as established under the Soil Erosion and Sediment Control Act at N.J.S.A 4:24-39 et seq., and implementing rules at N.J.A.C. 2:90 and 16:25A. The practices employed include the use of silt fence at downgrade slopes, inlet protection, stone construction entrance, dust control measures, and temporary and permanent vegetative cover. The project plans include Soil Erosion and Sediment Control Plan and Detail sheets which include site specific notes and guidelines to be used throughout the project site to protect against erosion.

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6.0 Conclusion

The proposed improvements have been designed to minimize the adverse impact of stormwater runoff on water quality, water quantity and loss of groundwater recharge in receiving water bodies. Compliance with the rule has been accomplished by incorporating multiple Green Infrastructure BMPs into the design of the site. The project complies with the requirements at N.J.A.C. 7:8, Township and County requirements, and the New Jersey Soil Erosion and Sediment Control Standards.

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Appendix A | Site Data

Aerial Map
Tax Map
USGS Map
Zoning Map
FEMA Flood Insurance Rate Map
Waterways Map
Watershed Map
Web Soil Survey
NOAA Rainfall Rates

0 50 100 150 200 Feet

1 inch = 100 feet

Source:
NJ 2020 Orthophotography

Aerial Map

2345-2349 Route 33

Block 1, Lots 18, 19 & 20
2345-2349 Route 33
Township of Robbinsville
Mercer County, NJ

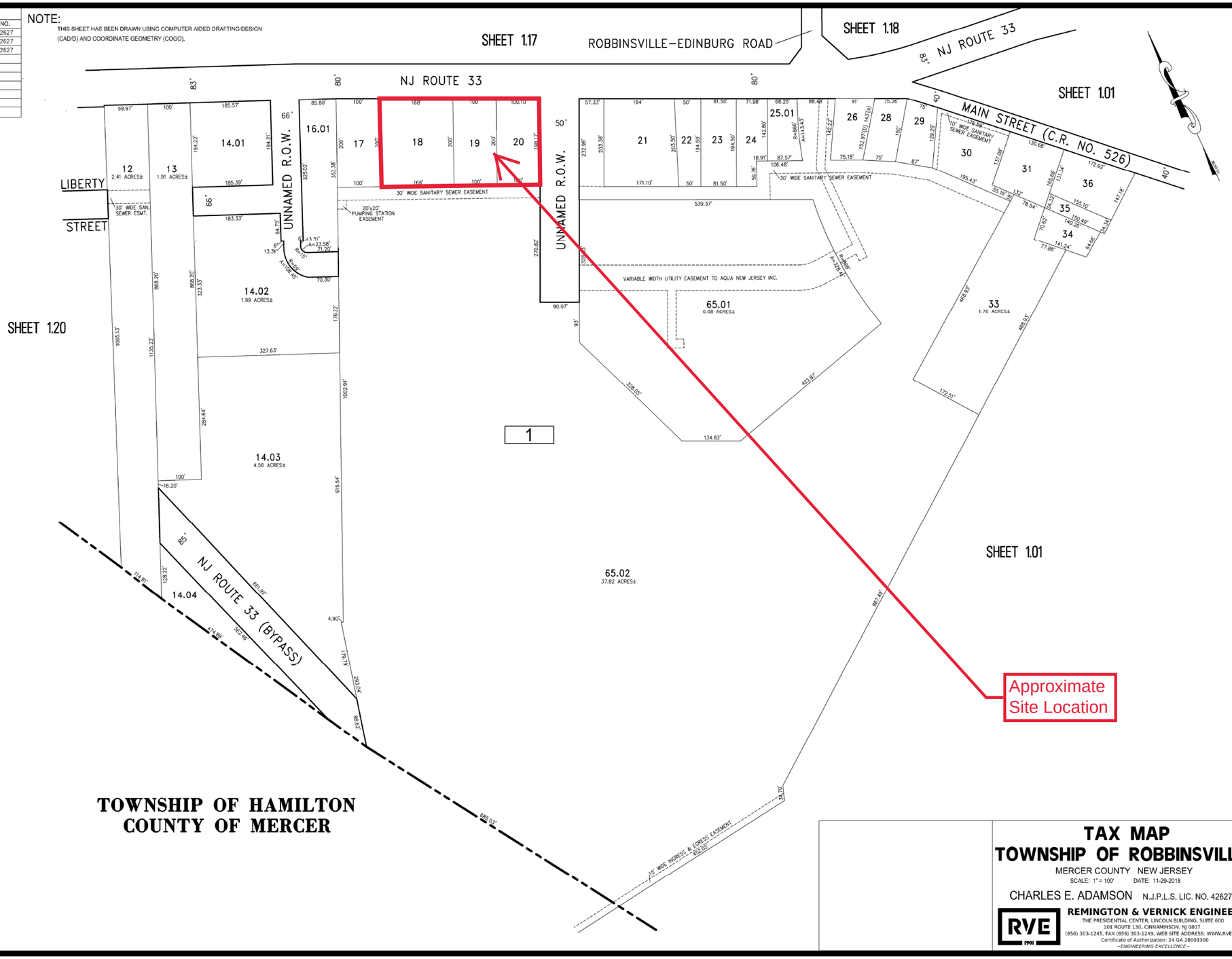
March 21, 2024

Project No.: 24002939A

Colliers Engineering & Design

REVISIONS		
DATE	NAME	NO.
1-14-2019	CHARLES E. ADAMSON	42627
3-1-2019	CHARLES E. ADAMSON	42627
1-22-2021	CHARLES E. ADAMSON	42627

NOTE:
THIS SHEET HAS BEEN DRAWN USING COMPUTER AIDED DRAFTING/DESIGN (CAD/D) AND COORDINATE GEOMETRY (COGO).



TOWNSHIP OF HAMILTON
COUNTY OF MERCER

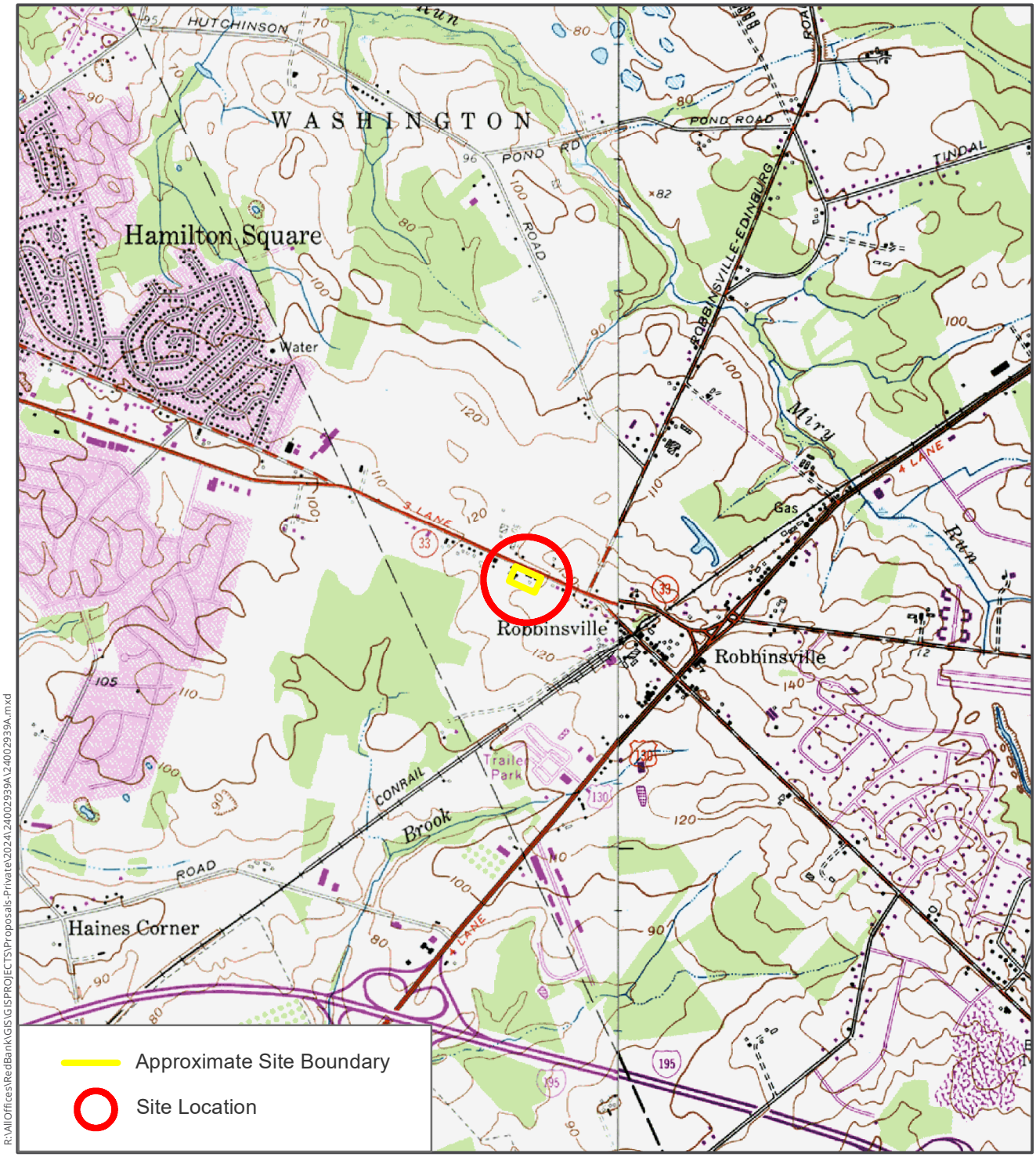
TAX MAP
TOWNSHIP OF ROBBINSVILLE

MERCER COUNTY NEW JERSEY
SCALE: 1" = 100' DATE: 11-29-2018

CHARLES E. ADAMSON N.J.P.L.S. LIC. NO. 42627

REMINGTON & VERNICK ENGINEERS
THE PRESIDENTIAL CENTER, LINCOLN BUILDING, SUITE 600
101 ROUTE 130, CINNAMINSON, NJ 0807
(856) 303-1245, FAX (856) 303-1249, WEB SITE ADDRESS: WWW.RVE.COM
Certificate of Authorization: 24 GA 28003300
-ENGINEERING EXCELLENCE-

FREEDOM VILLAGE



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0 1,000 2,000 3,000 4,000 Feet

1 inch = 2,000 feet

Source:
United States Geological Survey

USGS Map

2345-2349 Route 33

Block 1, Lots 18, 19 & 20
2345-2349 Route 33
Township of Robbinsville
Mercer County, NJ

March 21, 2024

Project No.: 24002939A

Colliers Engineering & Design

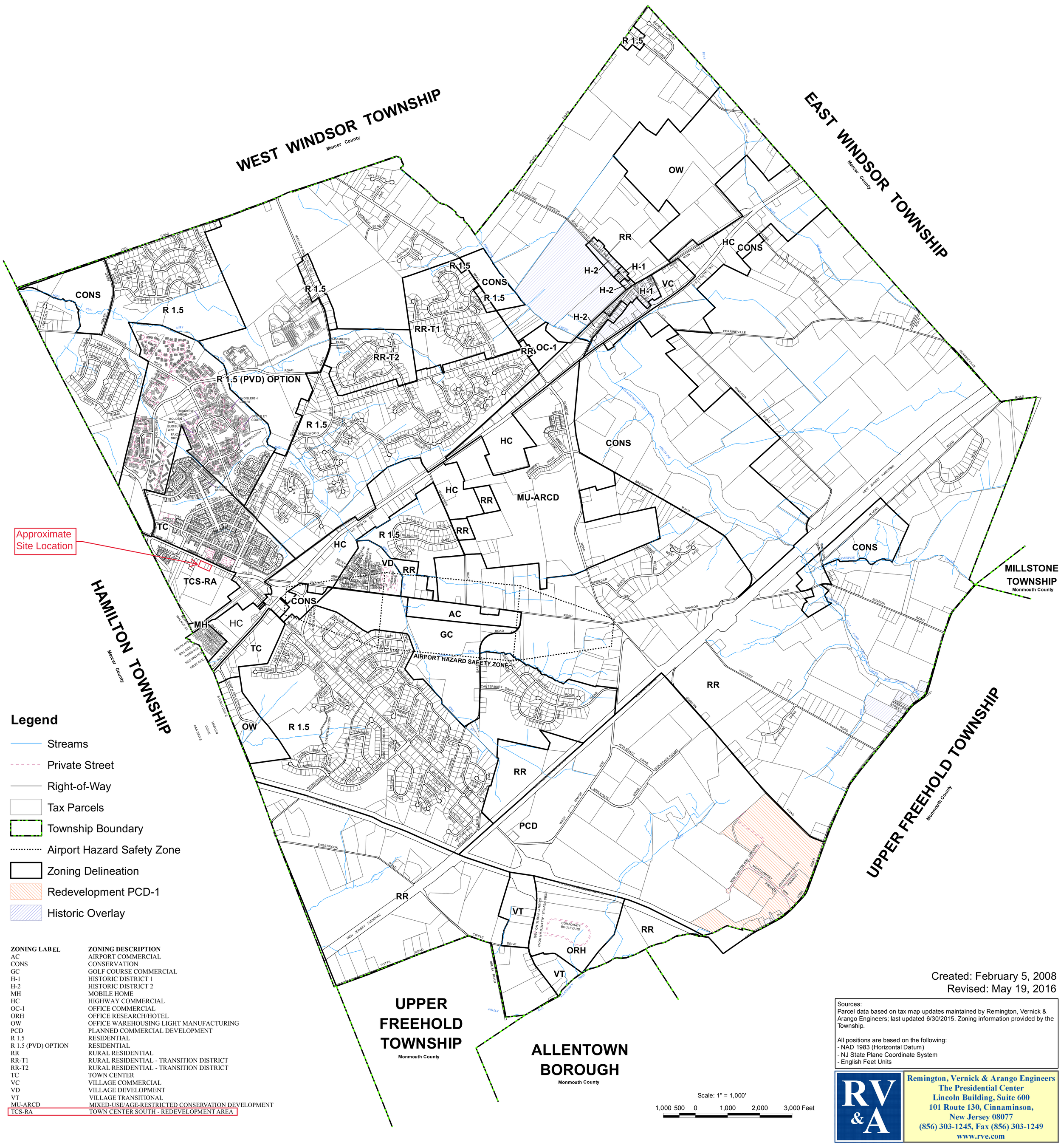
Robbinsville TOWNSHIP

BE AT THE CENTER OF IT ALL

Zoning

Robbinsville Township

Mercer County, New Jersey



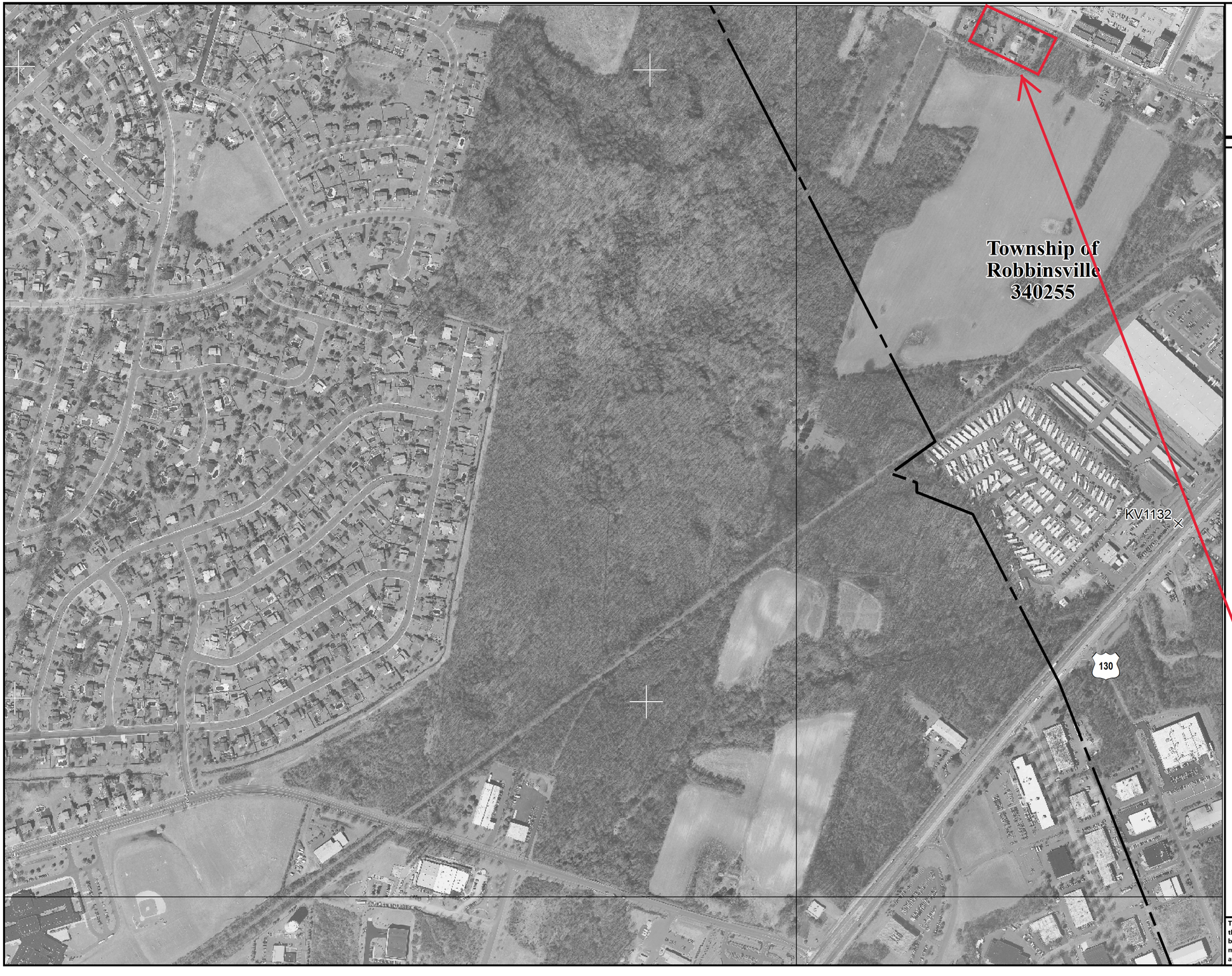
ZONING LABEL	ZONING DESCRIPTION
AC	AIRPORT COMMERCIAL
CONS	CONSERVATION
GC	GOLF COURSE COMMERCIAL
H-1	HISTORIC DISTRICT 1
H-2	HISTORIC DISTRICT 2
MH	MOBILE HOME
HC	HIGHWAY COMMERCIAL
OC-1	OFFICE COMMERCIAL
ORH	OFFICE RESEARCH/HOTEL
OW	OFFICE WAREHOUSING LIGHT MANUFACTURING
PCD	PLANNED COMMERCIAL DEVELOPMENT
R 1.5	RESIDENTIAL
R 1.5 (PVD) OPTION	RESIDENTIAL
RR	RURAL RESIDENTIAL
RR-T1	RURAL RESIDENTIAL - TRANSITION DISTRICT
RR-T2	RURAL RESIDENTIAL - TRANSITION DISTRICT
TC	TOWN CENTER
VC	VILLAGE COMMERCIAL
VD	VILLAGE DEVELOPMENT
VT	VILLAGE TRANSITIONAL
MU-ARCD	MIXED-USE/AGE-RESTRICTED CONSERVATION DEVELOPMENT
TCS-RA	TOWN CENTER SOUTH - REDEVELOPMENT AREA

Created: February 5, 2008
Revised: May 19, 2016

Sources:
Parcel data based on tax map updates maintained by Remington, Vernick & Arango Engineers; last updated 6/30/2015. Zoning information provided by the Township.

All positions are based on the following:
- NAD 1983 (Horizontal Datum)
- NJ State Plane Coordinate System
- English Feet Units

Remington, Vernick & Arango Engineers
The Presidential Center
Lincoln Building, Suite 600
101 Route 130, Cinnaminson,
New Jersey 08077
(856) 303-1245, Fax (856) 303-1249
www.rve.com



MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0234F

FIRM

FLOOD INSURANCE RATE MAP

MERCER COUNTY, NEW JERSEY
(ALL JURISDICTIONS)

PANEL 234 OF 276

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HAMILTON, TOWNSHIP OF	340246	0234	F
ROBBINSVILLE, TOWNSHIP OF	340255	0234	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

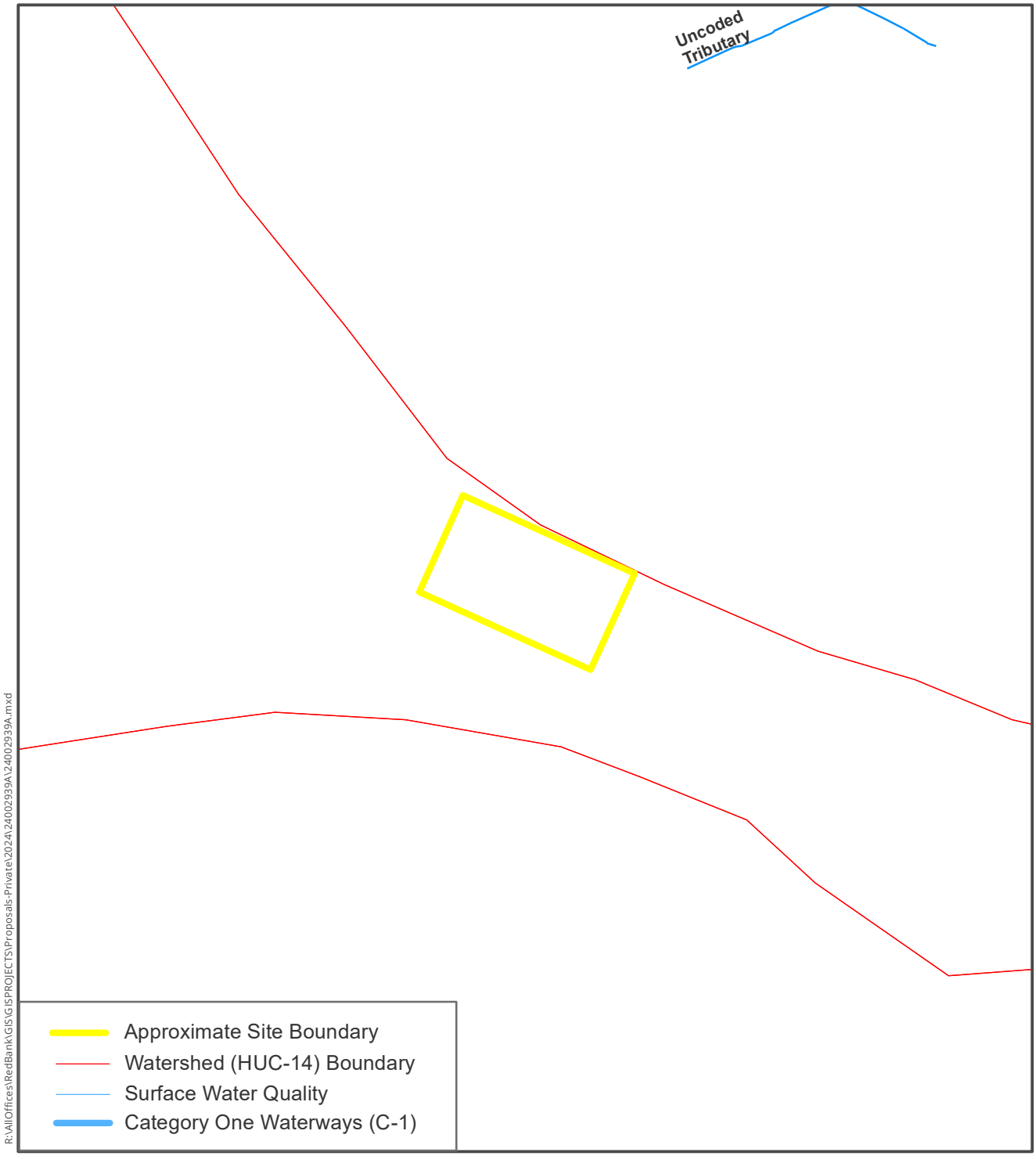
MAP NUMBER
34021C0234F

EFFECTIVE DATE
JULY 20, 2016

Federal Emergency Management Agency

Approximate Site Location

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at https://msc.fema.gov.



0 150 300 450 600 Feet

1 inch = 300 feet

Source:
NJDEP Geographical Information Systems

Waterways Map

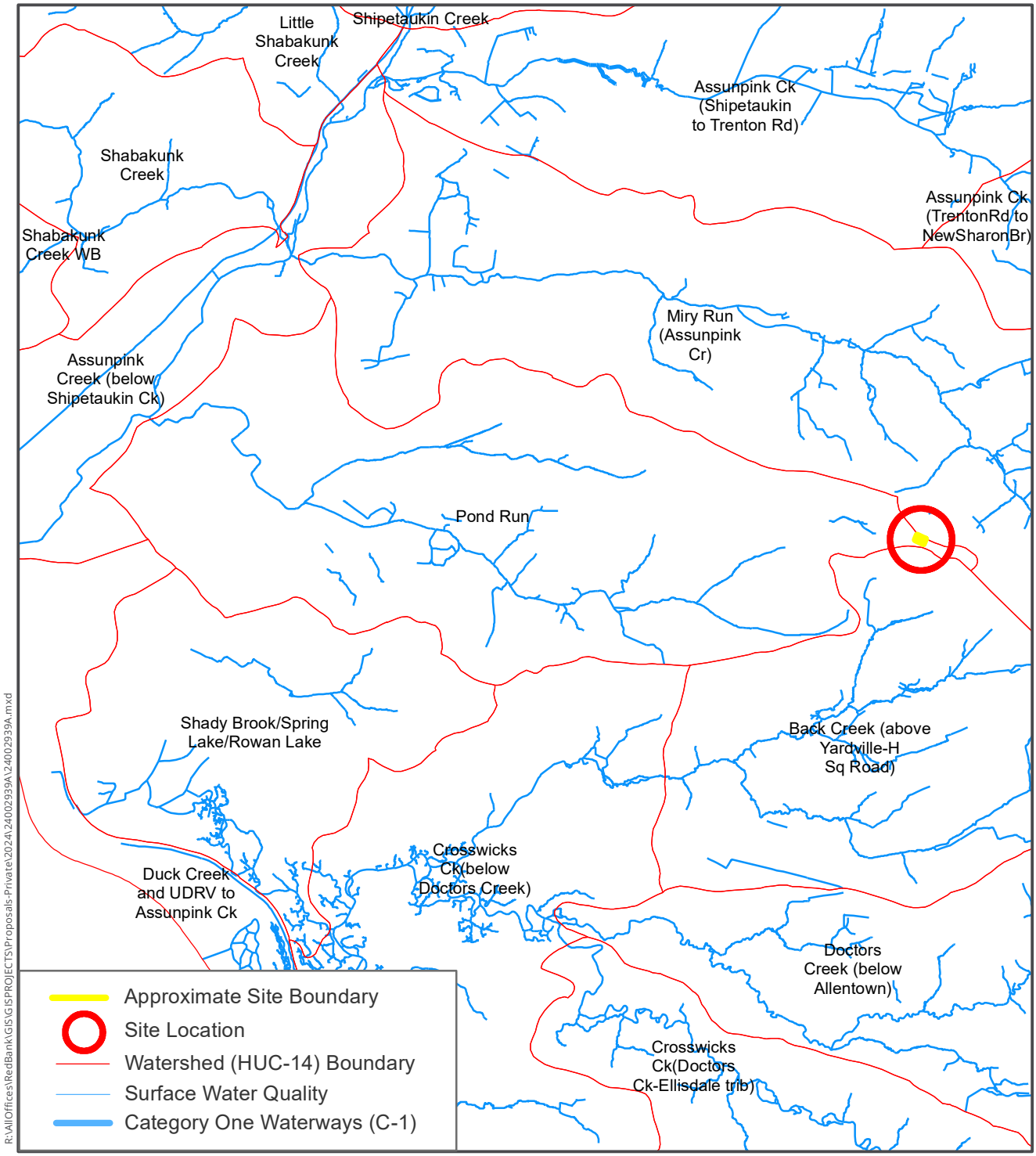
2345-2349 Route 33

Block 1, Lots 18, 19 & 20
2345-2349 Route 33
Township of Robbinsville
Mercer County, NJ

March 21, 2024

Project No.: 24002939A

Colliers Engineering & Design



0 3,100 6,200 9,300 12,400 Feet

1 inch = 6,000 feet

Source:
NJDEP Geographical Information Systems

Watershed Map

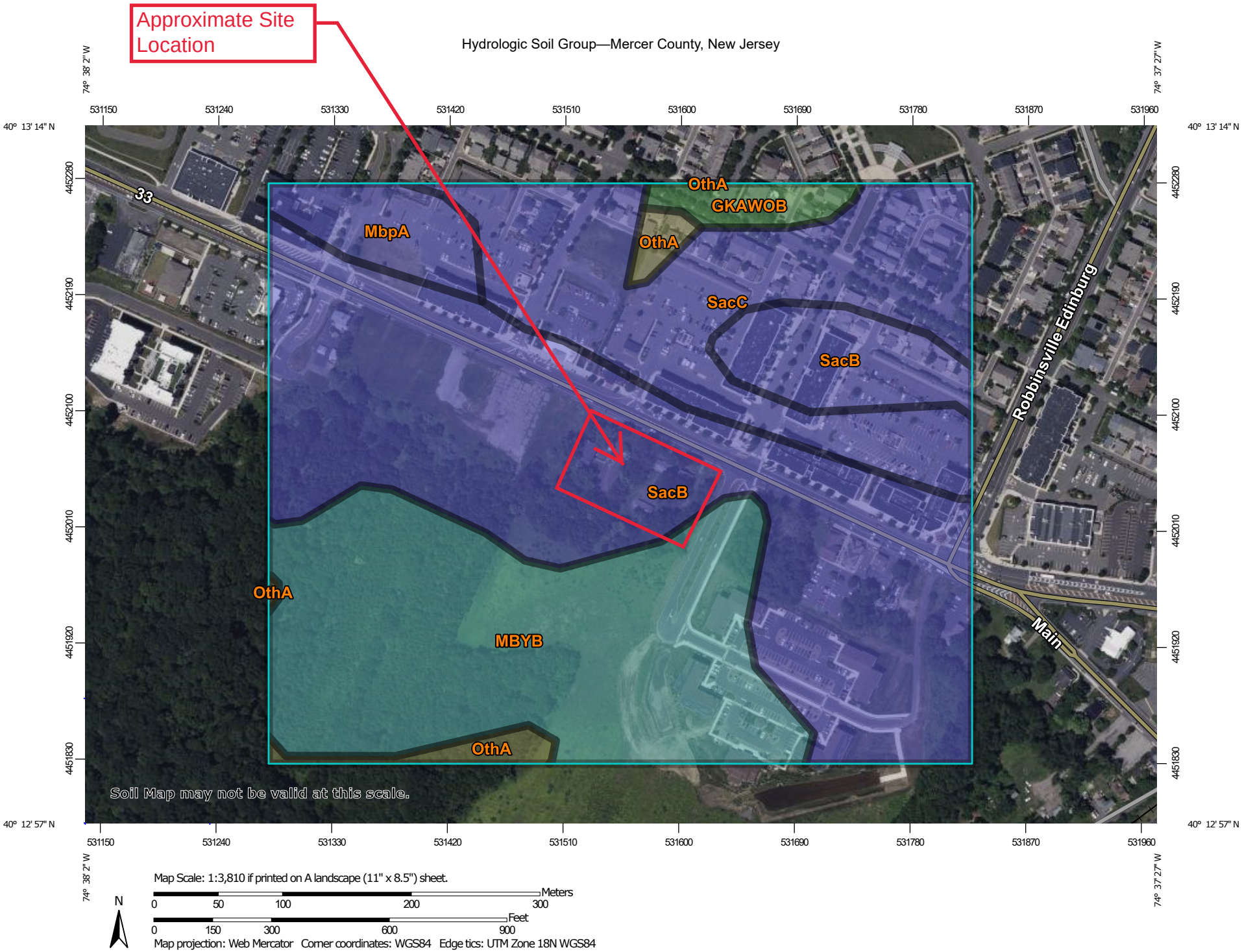
2345-2349 Route 33

Block 1, Lots 18, 19 & 20
2345-2349 Route 33
Township of Robbinsville
Mercer County, NJ

March 21, 2024

Project No.: 24002939A

Colliers Engineering & Design



Map Scale: 1:3,810 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

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

Soil Rating Lines

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

Soil Rating Points

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

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Mercer County, New Jersey
Survey Area Data: Version 19, Aug 29, 2023

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

Date(s) aerial images were photographed: Jun 4, 2022—Jul 22, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
GKAWOB	Glassboro and Woodstown sandy loams, 0 to 5 percent slopes	A/D	1.2	1.9%
MbpA	Matapeake loam, 0 to 2 percent slopes	B	2.3	3.8%
MBYB	Mattapex and Bertie loams, 0 to 5 percent slopes	C	17.1	28.1%
OthA	Othello silt loams, 0 to 2 percent slopes, northern coastal plain	C/D	1.3	2.1%
SacB	Sassafras sandy loam, 2 to 5 percent slopes, Northern Coastal Plain	B	26.9	44.1%
SacC	Sassafras sandy loam, 5 to 10 percent slopes, Northern Coastal Plain	B	12.3	20.1%
Totals for Area of Interest			**61.1**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NOAA Atlas 14, Volume 2, Version 3
Location name: Robbinsville, New Jersey, USA*
Latitude: 40.2174°, Longitude: -74.626°
Elevation: 127 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.342 (0.309-0.378)	0.408 (0.370-0.452)	0.485 (0.438-0.536)	0.541 (0.488-0.598)	0.610 (0.548-0.674)	0.661 (0.591-0.730)	0.712 (0.633-0.788)	0.760 (0.672-0.843)	0.819 (0.717-0.915)	0.865 (0.751-0.971)
10-min	0.546 (0.494-0.604)	0.652 (0.592-0.722)	0.776 (0.702-0.858)	0.865 (0.781-0.956)	0.973 (0.874-1.07)	1.05 (0.942-1.16)	1.13 (1.01-1.25)	1.20 (1.06-1.34)	1.30 (1.13-1.45)	1.36 (1.18-1.53)
15-min	0.682 (0.617-0.755)	0.820 (0.744-0.908)	0.982 (0.888-1.08)	1.09 (0.988-1.21)	1.23 (1.11-1.36)	1.33 (1.19-1.47)	1.43 (1.27-1.58)	1.52 (1.34-1.69)	1.63 (1.43-1.82)	1.71 (1.48-1.92)
30-min	0.935 (0.846-1.04)	1.13 (1.03-1.25)	1.40 (1.26-1.54)	1.58 (1.43-1.75)	1.83 (1.64-2.02)	2.01 (1.80-2.22)	2.19 (1.95-2.42)	2.37 (2.09-2.62)	2.60 (2.27-2.90)	2.77 (2.40-3.11)
60-min	1.17 (1.06-1.29)	1.42 (1.29-1.57)	1.79 (1.62-1.98)	2.06 (1.86-2.28)	2.43 (2.18-2.69)	2.72 (2.43-3.00)	3.02 (2.68-3.34)	3.32 (2.93-3.68)	3.72 (3.26-4.16)	4.04 (3.51-4.54)
2-hr	1.42 (1.28-1.57)	1.73 (1.56-1.91)	2.19 (1.98-2.42)	2.54 (2.29-2.81)	3.03 (2.72-3.34)	3.43 (3.06-3.78)	3.83 (3.40-4.24)	4.25 (3.74-4.72)	4.84 (4.21-5.40)	5.31 (4.57-5.95)
3-hr	1.56 (1.40-1.74)	1.90 (1.71-2.12)	2.41 (2.16-2.69)	2.81 (2.52-3.13)	3.36 (3.00-3.74)	3.82 (3.38-4.25)	4.30 (3.78-4.79)	4.79 (4.18-5.35)	5.48 (4.72-6.16)	6.05 (5.14-6.83)
6-hr	1.97 (1.77-2.21)	2.39 (2.14-2.68)	3.02 (2.70-3.39)	3.54 (3.15-3.96)	4.29 (3.79-4.80)	4.91 (4.31-5.49)	5.59 (4.85-6.25)	6.31 (5.42-7.07)	7.36 (6.21-8.29)	8.24 (6.86-9.32)
12-hr	2.38 (2.13-2.72)	2.89 (2.57-3.29)	3.68 (3.27-4.18)	4.35 (3.85-4.93)	5.35 (4.70-6.05)	6.22 (5.42-7.03)	7.18 (6.17-8.11)	8.24 (6.97-9.34)	9.84 (8.15-11.2)	11.2 (9.12-12.8)
24-hr	2.75 (2.50-3.04)	3.32 (3.04-3.68)	4.26 (3.88-4.70)	5.06 (4.60-5.57)	6.25 (5.63-6.88)	7.29 (6.51-8.00)	8.45 (7.47-9.27)	9.73 (8.51-10.7)	11.7 (10.0-12.9)	13.4 (11.3-14.7)
2-day	3.18 (2.90-3.50)	3.85 (3.52-4.25)	4.94 (4.49-5.45)	5.85 (5.31-6.44)	7.20 (6.49-7.91)	8.35 (7.47-9.17)	9.62 (8.54-10.6)	11.0 (9.67-12.1)	13.1 (11.3-14.5)	14.9 (12.7-16.5)
3-day	3.37 (3.10-3.68)	4.08 (3.75-4.47)	5.20 (4.77-5.69)	6.13 (5.61-6.70)	7.50 (6.82-8.18)	8.66 (7.82-9.43)	9.92 (8.90-10.8)	11.3 (10.0-12.3)	13.3 (11.7-14.6)	15.1 (13.1-16.6)
4-day	3.56 (3.30-3.87)	4.31 (3.99-4.68)	5.46 (5.05-5.93)	6.41 (5.92-6.96)	7.80 (7.15-8.45)	8.96 (8.17-9.70)	10.2 (9.26-11.1)	11.6 (10.4-12.6)	13.6 (12.1-14.8)	15.3 (13.4-16.6)
7-day	4.17 (3.87-4.52)	5.01 (4.65-5.44)	6.25 (5.80-6.79)	7.29 (6.74-7.90)	8.79 (8.08-9.51)	10.0 (9.18-10.9)	11.4 (10.4-12.3)	12.9 (11.6-13.9)	15.0 (13.4-16.2)	16.7 (14.8-18.2)
10-day	4.75 (4.43-5.11)	5.68 (5.30-6.12)	6.98 (6.51-7.52)	8.05 (7.49-8.66)	9.56 (8.85-10.3)	10.8 (9.96-11.6)	12.1 (11.1-13.0)	13.5 (12.3-14.5)	15.4 (13.9-16.7)	17.1 (15.3-18.5)
20-day	6.41 (6.05-6.81)	7.62 (7.18-8.09)	9.13 (8.60-9.70)	10.3 (9.72-11.0)	12.0 (11.2-12.7)	13.3 (12.4-14.1)	14.6 (13.6-15.5)	16.0 (14.8-17.0)	17.8 (16.4-19.0)	19.3 (17.6-20.5)
30-day	7.98 (7.57-8.41)	9.42 (8.94-9.93)	11.1 (10.5-11.7)	12.4 (11.7-13.0)	14.1 (13.3-14.8)	15.4 (14.5-16.2)	16.7 (15.7-17.6)	18.0 (16.9-19.0)	19.7 (18.4-20.9)	21.0 (19.5-22.3)
45-day	10.2 (9.69-10.7)	12.0 (11.4-12.6)	13.9 (13.2-14.6)	15.3 (14.5-16.1)	17.2 (16.3-18.0)	18.5 (17.5-19.4)	19.9 (18.7-20.9)	21.1 (19.9-22.2)	22.8 (21.3-24.0)	23.9 (22.4-25.3)
60-day	12.2 (11.6-12.8)	14.3 (13.7-15.0)	16.4 (15.7-17.2)	18.0 (17.1-18.8)	19.9 (19.0-20.8)	21.4 (20.3-22.4)	22.7 (21.6-23.8)	24.0 (22.7-25.2)	25.6 (24.1-26.8)	26.7 (25.1-28.1)

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

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

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

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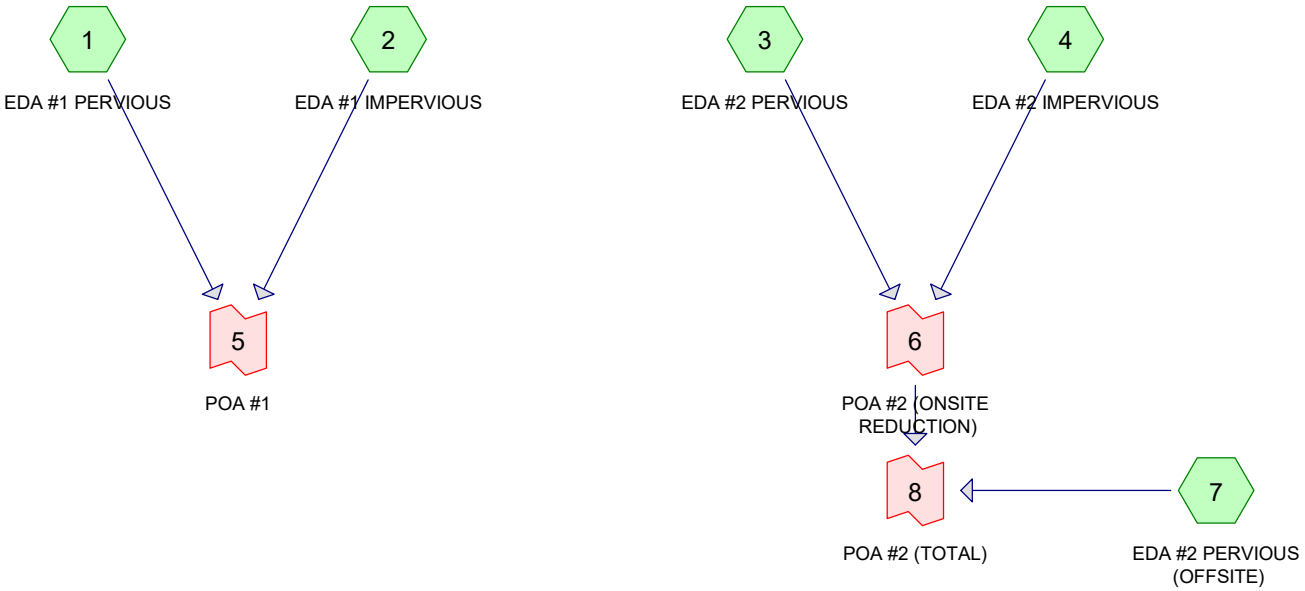
Appendix B | Pre-Development

Existing Drainage Calculations



Subcat Reach Pond Link

Routing Diagram for 260420_Existing_R1
Prepared by Colliers Engineering & Design, Printed 5/6/2026
HydroCAD® 10.20-8a s/n 04431 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	C	Default	24.00	1	3.35	2
2	2-Year Projected	NOAA 24-hr	C	Default	24.00	1	3.85	2
3	10-Year	NOAA 24-hr	C	Default	24.00	1	5.16	2
4	10-Year Projected	NOAA 24-hr	C	Default	24.00	1	5.92	2
5	100-Year	NOAA 24-hr	C	Default	24.00	1	8.79	2
6	100-Year Projected	NOAA 24-hr	C	Default	24.00	1	11.49	2

Summary for Subcatchment 1: EDA #1 PERVIOUS

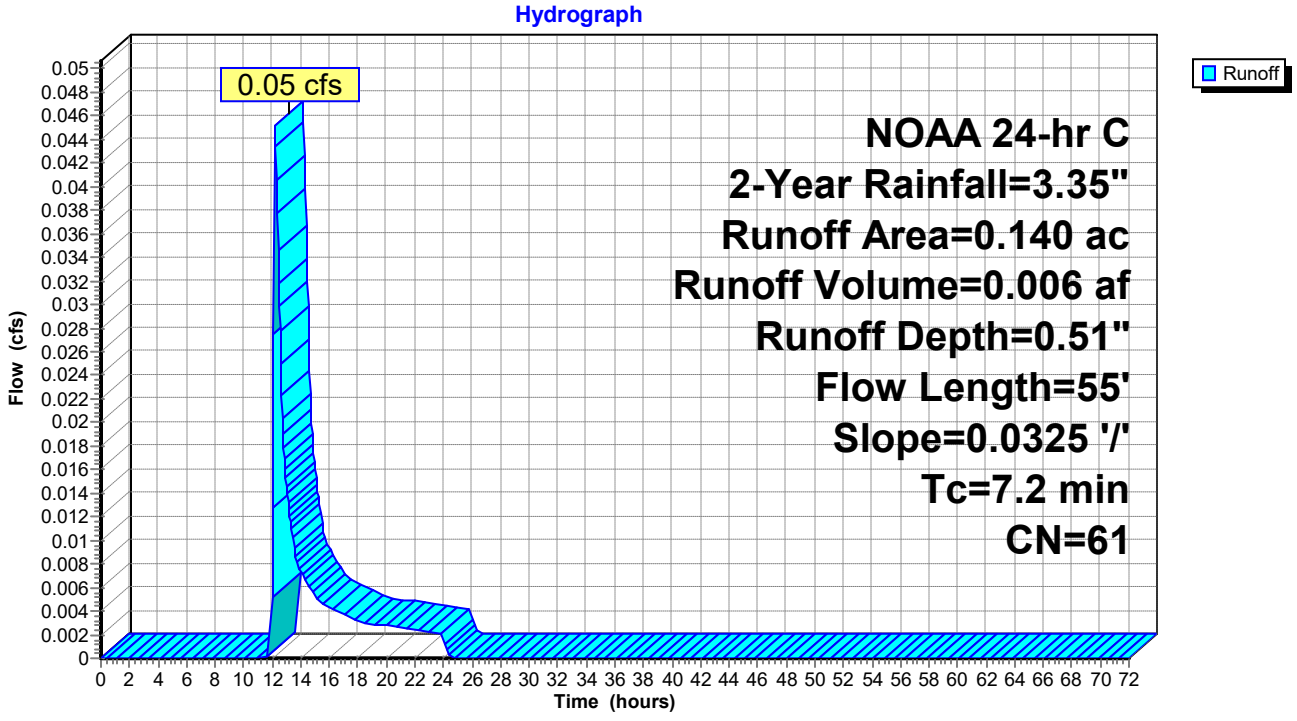
Runoff = 0.05 cfs @ 12.20 hrs, Volume= 0.006 af, Depth= 0.51"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.010	55	Woods, Good, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.140	61	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	55	0.0325	0.13		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"

Subcatchment 1: EDA #1 PERVIOUS



Hydrograph for Subcatchment 1: EDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.60	0.02	**0.01**
13.00	2.55	0.21	**0.01**
14.00	2.74	0.27	0.01
15.00	2.86	0.31	0.01
16.00	2.95	0.35	0.00
17.00	3.02	0.37	0.00
18.00	3.08	0.40	0.00
19.00	3.14	0.42	0.00
20.00	3.19	0.44	0.00
21.00	3.23	0.46	0.00
22.00	3.27	0.47	0.00
23.00	3.31	0.49	0.00
24.00	**3.35**	**0.51**	0.00
25.00	3.35	0.51	0.00
26.00	3.35	0.51	0.00
27.00	3.35	0.51	0.00
28.00	3.35	0.51	0.00
29.00	3.35	0.51	0.00
30.00	3.35	0.51	0.00
31.00	3.35	0.51	0.00
32.00	3.35	0.51	0.00
33.00	3.35	0.51	0.00
34.00	3.35	0.51	0.00
35.00	3.35	0.51	0.00
36.00	3.35	0.51	0.00
37.00	3.35	0.51	0.00
38.00	3.35	0.51	0.00
39.00	3.35	0.51	0.00
40.00	3.35	0.51	0.00
41.00	3.35	0.51	0.00
42.00	3.35	0.51	0.00
43.00	3.35	0.51	0.00
44.00	3.35	0.51	0.00
45.00	3.35	0.51	0.00
46.00	3.35	0.51	0.00
47.00	3.35	0.51	0.00
48.00	3.35	0.51	0.00
49.00	3.35	0.51	0.00
50.00	3.35	0.51	0.00
51.00	3.35	0.51	0.00
52.00	3.35	0.51	0.00
53.00	3.35	0.51	0.00
54.00	3.35	0.51	0.00
55.00	3.35	0.51	0.00
56.00	3.35	0.51	0.00
57.00	3.35	0.51	0.00
58.00	3.35	0.51	0.00
59.00	3.35	0.51	0.00
60.00	3.35	0.51	0.00
61.00	3.35	0.51	0.00
62.00	3.35	0.51	0.00
63.00	3.35	0.51	0.00
64.00	3.35	0.51	0.00
65.00	3.35	0.51	0.00
66.00	3.35	0.51	0.00
67.00	3.35	0.51	0.00
68.00	3.35	0.51	0.00
69.00	3.35	0.51	0.00
70.00	3.35	0.51	0.00
71.00	3.35	0.51	0.00
72.00	3.35	0.51	0.00

Summary for Subcatchment 2: EDA #1 IMPERVIOUS

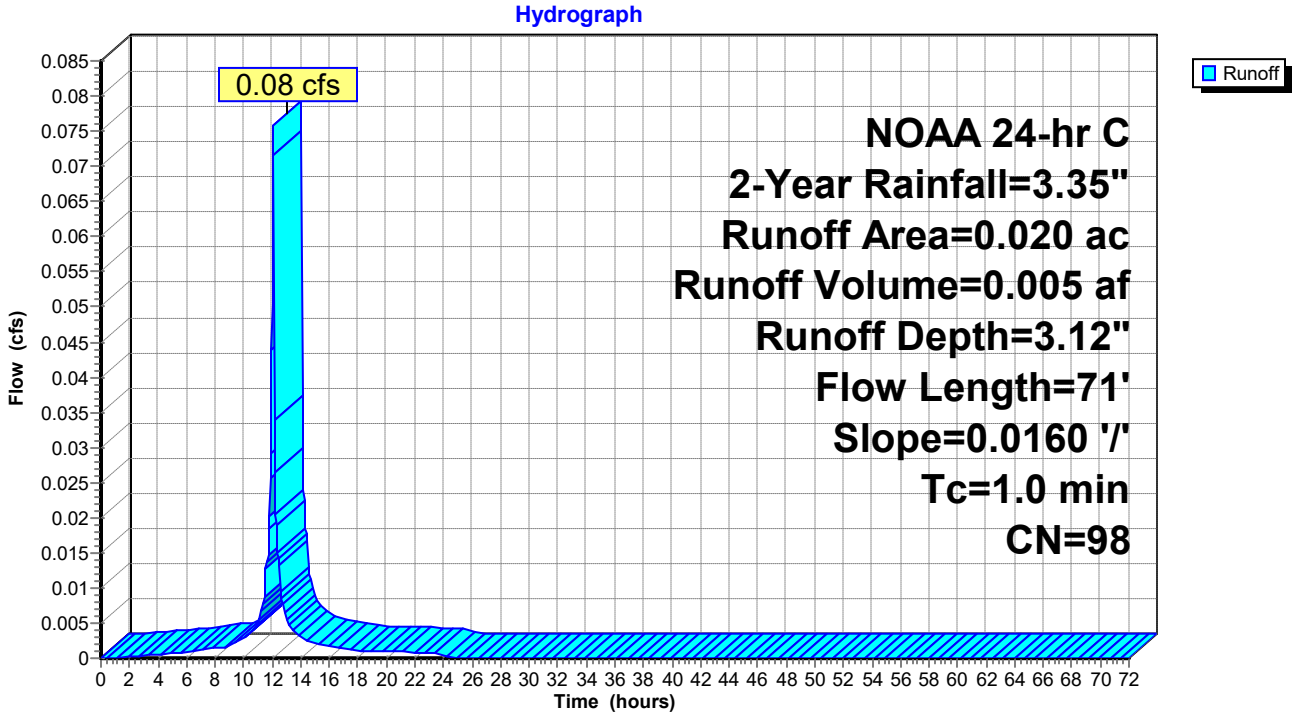
Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.005 af, Depth= 3.12"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.020	98	Impervious
	0.020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	71	0.0160	1.19		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: EDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: EDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.00
4.00	0.16	0.05	0.00
5.00	0.21	0.08	0.00
6.00	0.27	0.12	0.00
7.00	0.33	0.17	0.00
8.00	0.40	0.23	0.00
9.00	0.49	0.31	0.00
10.00	0.61	0.42	0.00
11.00	0.80	0.60	0.01
12.00	1.60	1.38	**0.05**
13.00	2.55	2.32	**0.01**
14.00	2.74	2.51	0.00
15.00	2.86	2.63	0.00
16.00	2.95	2.72	0.00
17.00	3.02	2.79	0.00
18.00	3.08	2.85	0.00
19.00	3.14	2.90	0.00
20.00	3.19	2.95	0.00
21.00	3.23	3.00	0.00
22.00	3.27	3.04	0.00
23.00	3.31	3.08	0.00
24.00	**3.35**	**3.12**	0.00
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 3: EDA #2 PERVIOUS

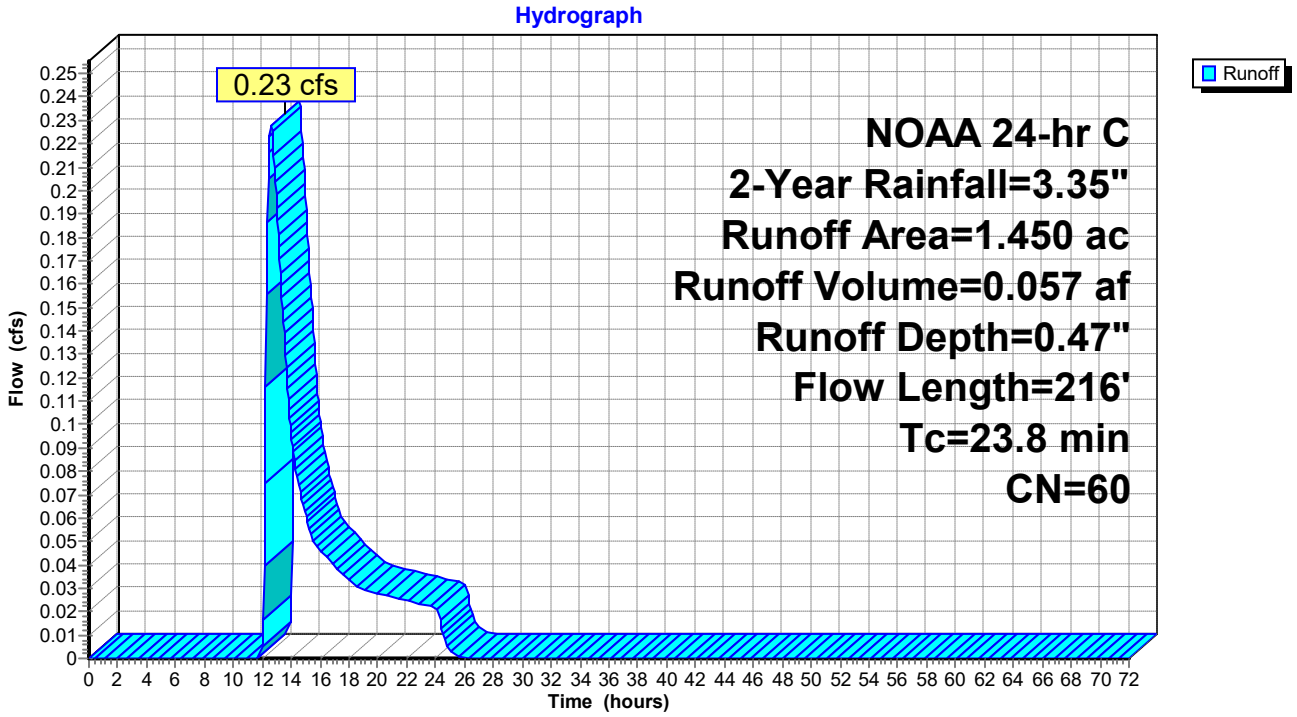
Runoff = 0.23 cfs @ 12.61 hrs, Volume= 0.057 af, Depth= 0.47"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.600	55	Woods, Good, HSG B
0.720	61	>75% Grass cover, Good, HSG B
0.060	70	Woods, Good, HSG C
0.070	74	>75% Grass cover, Good, HSG C
1.450	60	Weighted Average
1.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 3: EDA #2 PERVIOUS



Hydrograph for Subcatchment 3: EDA #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.60	0.01	**0.00**
13.00	2.55	0.19	**0.19**
14.00	2.74	0.24	0.10
15.00	2.86	0.28	0.06
16.00	2.95	0.32	0.05
17.00	3.02	0.34	0.04
18.00	3.08	0.36	0.03
19.00	3.14	0.38	0.03
20.00	3.19	0.40	0.03
21.00	3.23	0.42	0.03
22.00	3.27	0.44	0.02
23.00	3.31	0.45	0.02
24.00	**3.35**	**0.47**	0.02
25.00	3.35	0.47	0.00
26.00	3.35	0.47	0.00
27.00	3.35	0.47	0.00
28.00	3.35	0.47	0.00
29.00	3.35	0.47	0.00
30.00	3.35	0.47	0.00
31.00	3.35	0.47	0.00
32.00	3.35	0.47	0.00
33.00	3.35	0.47	0.00
34.00	3.35	0.47	0.00
35.00	3.35	0.47	0.00
36.00	3.35	0.47	0.00
37.00	3.35	0.47	0.00
38.00	3.35	0.47	0.00
39.00	3.35	0.47	0.00
40.00	3.35	0.47	0.00
41.00	3.35	0.47	0.00
42.00	3.35	0.47	0.00
43.00	3.35	0.47	0.00
44.00	3.35	0.47	0.00
45.00	3.35	0.47	0.00
46.00	3.35	0.47	0.00
47.00	3.35	0.47	0.00
48.00	3.35	0.47	0.00
49.00	3.35	0.47	0.00
50.00	3.35	0.47	0.00
51.00	3.35	0.47	0.00
52.00	3.35	0.47	0.00
53.00	3.35	0.47	0.00
54.00	3.35	0.47	0.00
55.00	3.35	0.47	0.00
56.00	3.35	0.47	0.00
57.00	3.35	0.47	0.00
58.00	3.35	0.47	0.00
59.00	3.35	0.47	0.00
60.00	3.35	0.47	0.00
61.00	3.35	0.47	0.00
62.00	3.35	0.47	0.00
63.00	3.35	0.47	0.00
64.00	3.35	0.47	0.00
65.00	3.35	0.47	0.00
66.00	3.35	0.47	0.00
67.00	3.35	0.47	0.00
68.00	3.35	0.47	0.00
69.00	3.35	0.47	0.00
70.00	3.35	0.47	0.00
71.00	3.35	0.47	0.00
72.00	3.35	0.47	0.00

Summary for Subcatchment 4: EDA #2 IMPERVIOUS

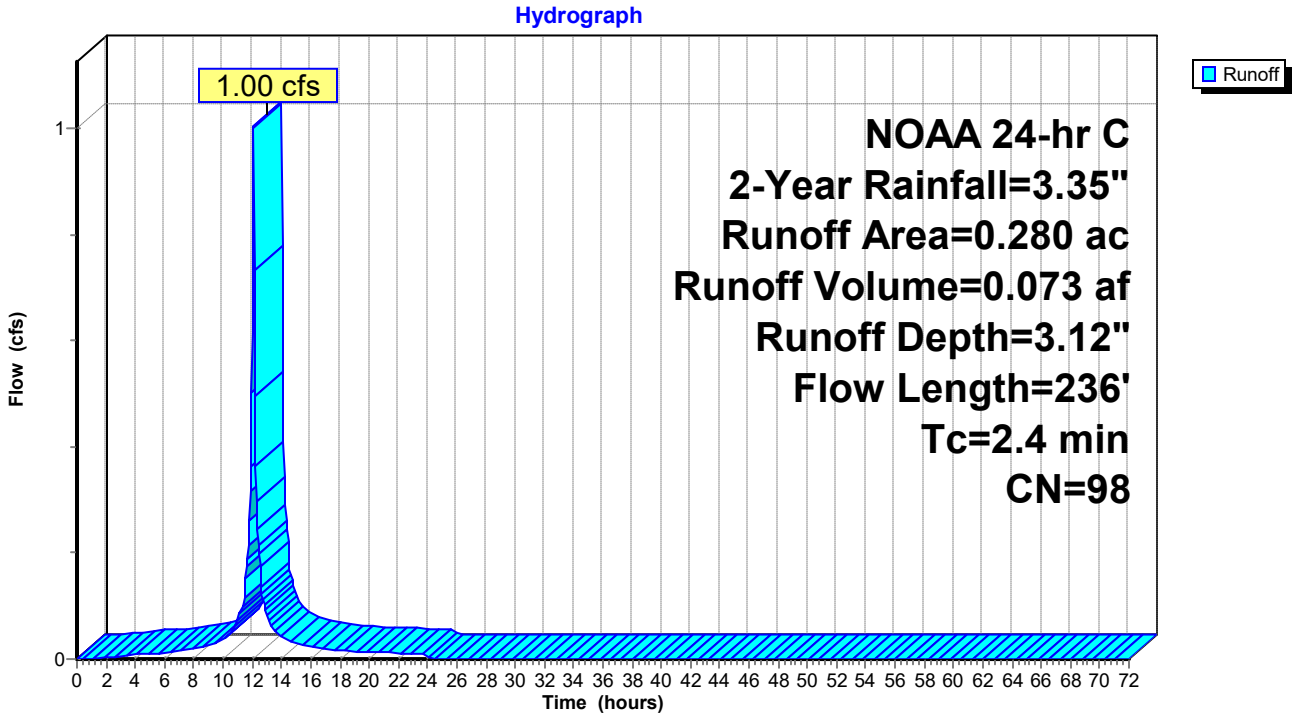
Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.073 af, Depth= 3.12"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.280	98	Impervious
	0.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0158	1.27		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.1	136	0.0100	2.03		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
2.4	236	Total			

Subcatchment 4: EDA #2 IMPERVIOUS



Hydrograph for Subcatchment 4: EDA #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.01
4.00	0.16	0.05	0.01
5.00	0.21	0.08	0.01
6.00	0.27	0.12	0.01
7.00	0.33	0.17	0.02
8.00	0.40	0.23	0.02
9.00	0.49	0.31	0.02
10.00	0.61	0.42	0.04
11.00	0.80	0.60	0.07
12.00	1.60	1.38	**0.61**
13.00	2.55	2.32	**0.09**
14.00	2.74	2.51	0.04
15.00	2.86	2.63	0.03
16.00	2.95	2.72	0.02
17.00	3.02	2.79	0.02
18.00	3.08	2.85	0.02
19.00	3.14	2.90	0.01
20.00	3.19	2.95	0.01
21.00	3.23	3.00	0.01
22.00	3.27	3.04	0.01
23.00	3.31	3.08	0.01
24.00	**3.35**	**3.12**	0.01
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

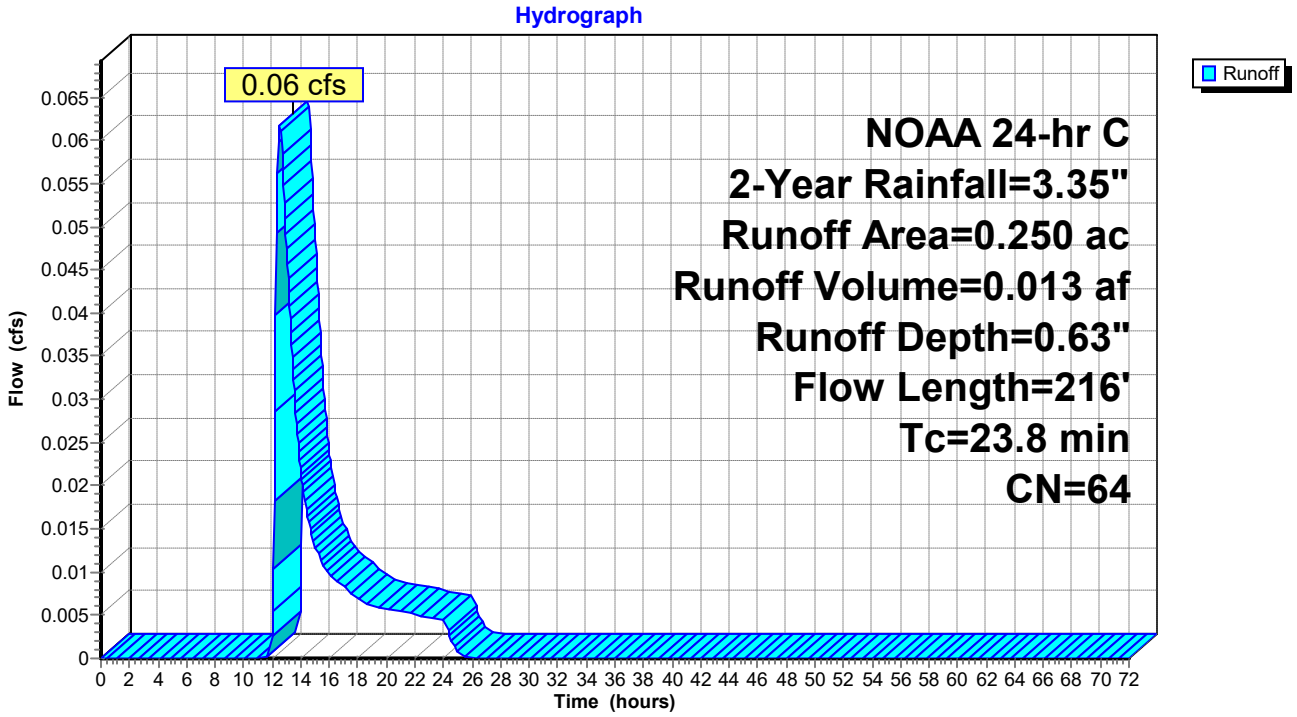
Runoff = 0.06 cfs @ 12.51 hrs, Volume= 0.013 af, Depth= 0.63"
Routed to Link 8 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.110	55	Woods, Good, HSG B
0.030	61	>75% Grass cover, Good, HSG B
0.020	70	Woods, Good, HSG C
0.090	74	>75% Grass cover, Good, HSG C
0.250	64	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)



Hydrograph for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

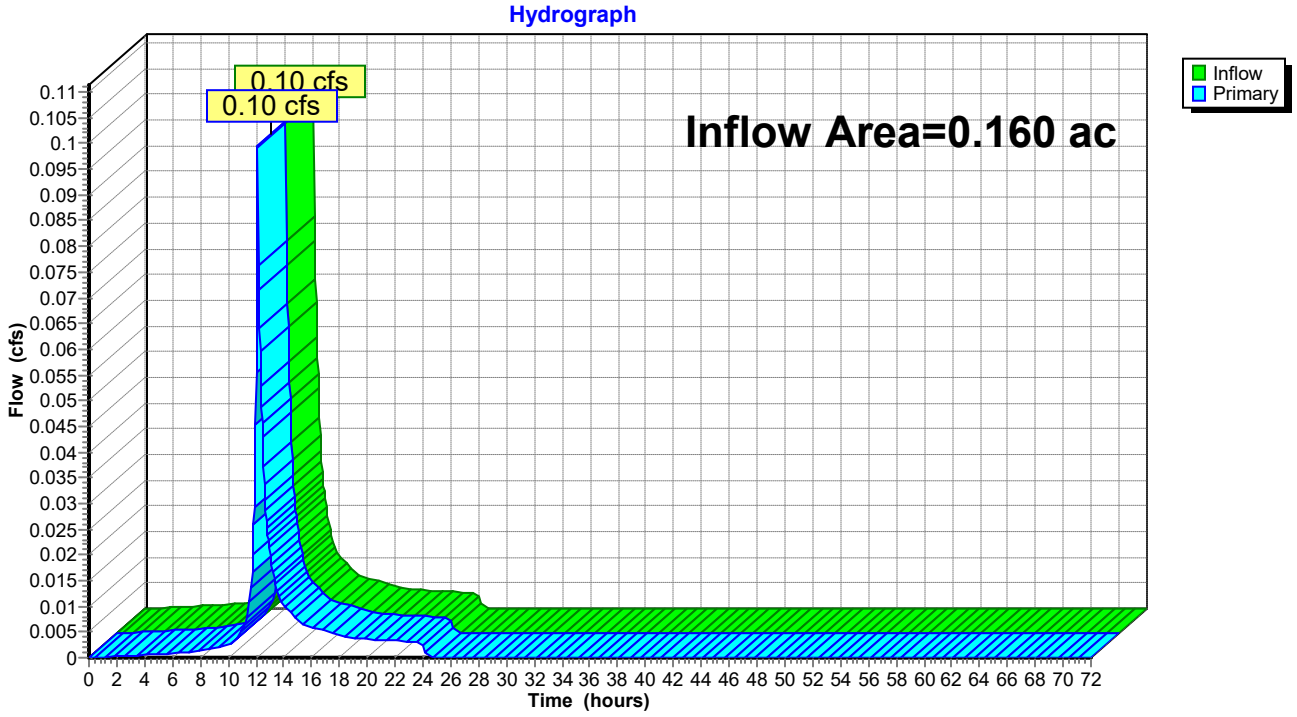
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.00	0.00
12.00	1.60	0.04	**0.00**
13.00	2.55	0.29	**0.05**
14.00	2.74	0.36	0.02
15.00	2.86	0.41	0.01
16.00	2.95	0.45	0.01
17.00	3.02	0.48	0.01
18.00	3.08	0.51	0.01
19.00	3.14	0.53	0.01
20.00	3.19	0.55	0.01
21.00	3.23	0.57	0.01
22.00	3.27	0.59	0.01
23.00	3.31	0.61	0.00
24.00	**3.35**	**0.63**	0.00
25.00	3.35	0.63	0.00
26.00	3.35	0.63	0.00
27.00	3.35	0.63	0.00
28.00	3.35	0.63	0.00
29.00	3.35	0.63	0.00
30.00	3.35	0.63	0.00
31.00	3.35	0.63	0.00
32.00	3.35	0.63	0.00
33.00	3.35	0.63	0.00
34.00	3.35	0.63	0.00
35.00	3.35	0.63	0.00
36.00	3.35	0.63	0.00
37.00	3.35	0.63	0.00
38.00	3.35	0.63	0.00
39.00	3.35	0.63	0.00
40.00	3.35	0.63	0.00
41.00	3.35	0.63	0.00
42.00	3.35	0.63	0.00
43.00	3.35	0.63	0.00
44.00	3.35	0.63	0.00
45.00	3.35	0.63	0.00
46.00	3.35	0.63	0.00
47.00	3.35	0.63	0.00
48.00	3.35	0.63	0.00
49.00	3.35	0.63	0.00
50.00	3.35	0.63	0.00
51.00	3.35	0.63	0.00
52.00	3.35	0.63	0.00
53.00	3.35	0.63	0.00
54.00	3.35	0.63	0.00
55.00	3.35	0.63	0.00
56.00	3.35	0.63	0.00
57.00	3.35	0.63	0.00
58.00	3.35	0.63	0.00
59.00	3.35	0.63	0.00
60.00	3.35	0.63	0.00
61.00	3.35	0.63	0.00
62.00	3.35	0.63	0.00
63.00	3.35	0.63	0.00
64.00	3.35	0.63	0.00
65.00	3.35	0.63	0.00
66.00	3.35	0.63	0.00
67.00	3.35	0.63	0.00
68.00	3.35	0.63	0.00
69.00	3.35	0.63	0.00
70.00	3.35	0.63	0.00
71.00	3.35	0.63	0.00
72.00	3.35	0.63	0.00

Summary for Link 5: POA #1

Inflow Area = 0.160 ac, 12.50% Impervious, Inflow Depth = 0.83" for 2-Year event
Inflow = 0.10 cfs @ 12.09 hrs, Volume= 0.011 af
Primary = 0.10 cfs @ 12.09 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 7L

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

Link 5: POA #1



Hydrograph for Link 5: POA #1

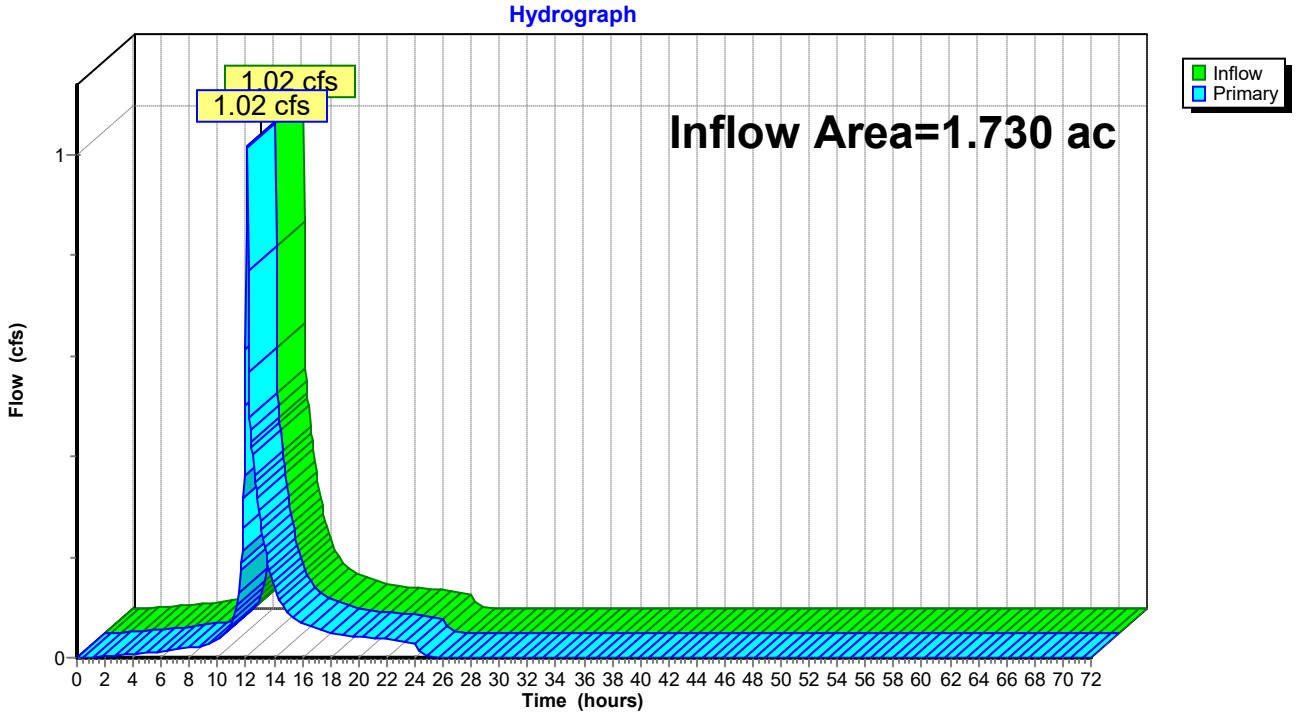
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 6: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.730 ac, 16.18% Impervious, Inflow Depth = 0.90" for 2-Year event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 0.129 af
Primary = 1.02 cfs @ 12.09 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
Routed to Link 8 : POA #2 (TOTAL)

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

Link 6: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 6: POA #2 (ONSITE REDUCTION)

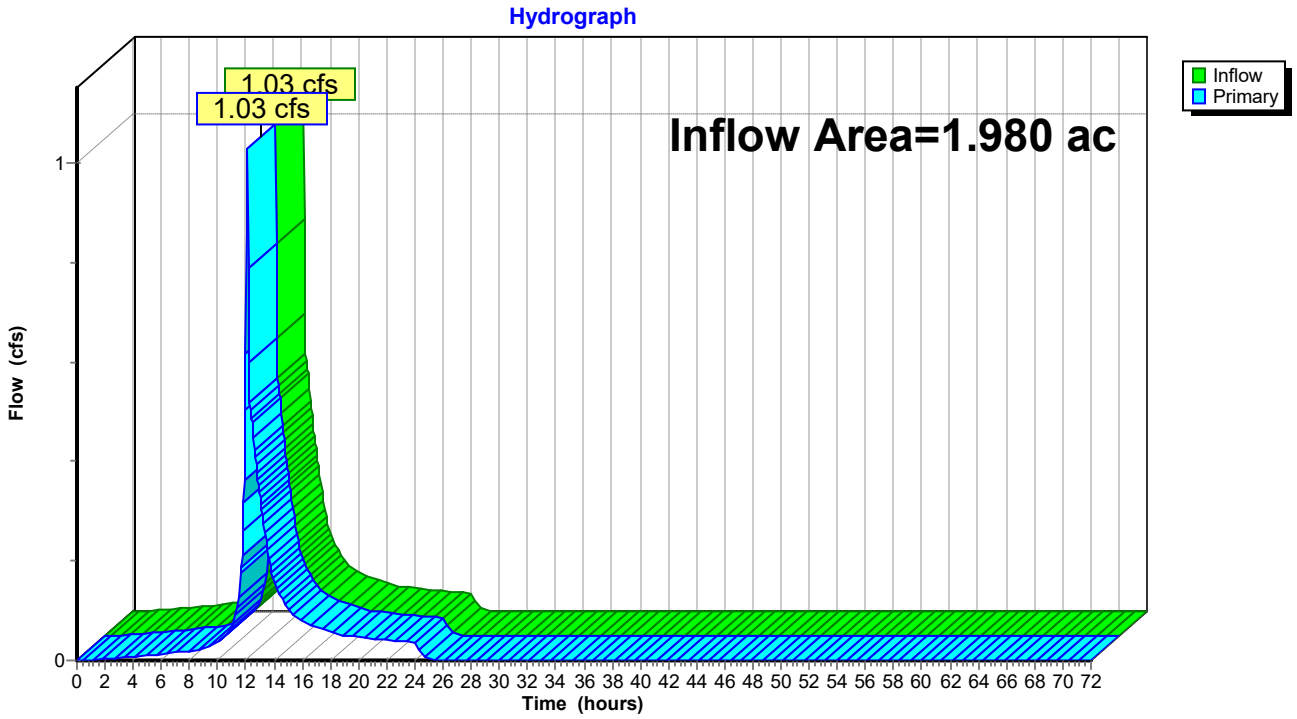
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01
4.00	0.01	0.00	0.01
5.00	0.01	0.00	0.01
6.00	0.01	0.00	0.01
7.00	0.02	0.00	0.02
8.00	0.02	0.00	0.02
9.00	0.02	0.00	0.02
10.00	0.04	0.00	0.04
11.00	0.07	0.00	0.07
12.00	**0.61**	0.00	**0.61**
13.00	**0.28**	0.00	**0.28**
14.00	0.14	0.00	0.14
15.00	0.09	0.00	0.09
16.00	0.07	0.00	0.07
17.00	0.06	0.00	0.06
18.00	0.05	0.00	0.05
19.00	0.04	0.00	0.04
20.00	0.04	0.00	0.04
21.00	0.04	0.00	0.04
22.00	0.04	0.00	0.04
23.00	0.03	0.00	0.03
24.00	0.03	0.00	0.03
25.00	0.00	0.00	0.00
26.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 8: POA #2 (TOTAL)

Inflow Area = 1.980 ac, 14.14% Impervious, Inflow Depth = 0.86" for 2-Year event
Inflow = 1.03 cfs @ 12.10 hrs, Volume= 0.142 af
Primary = 1.03 cfs @ 12.10 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min

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

Link 8: POA #2 (TOTAL)



Hydrograph for Link 8: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.02	0.00	0.02	61.00	0.00	0.00	0.00
10.00	0.04	0.00	0.04	62.00	0.00	0.00	0.00
11.00	0.07	0.00	0.07	63.00	0.00	0.00	0.00
12.00	**0.62**	0.00	**0.62**	64.00	0.00	0.00	0.00
13.00	**0.33**	0.00	**0.33**	65.00	0.00	0.00	0.00
14.00	0.16	0.00	0.16	66.00	0.00	0.00	0.00
15.00	0.10	0.00	0.10	67.00	0.00	0.00	0.00
16.00	0.08	0.00	0.08	68.00	0.00	0.00	0.00
17.00	0.07	0.00	0.07	69.00	0.00	0.00	0.00
18.00	0.06	0.00	0.06	70.00	0.00	0.00	0.00
19.00	0.05	0.00	0.05	71.00	0.00	0.00	0.00
20.00	0.05	0.00	0.05	72.00	0.00	0.00	0.00
21.00	0.04	0.00	0.04				
22.00	0.04	0.00	0.04				
23.00	0.04	0.00	0.04				
24.00	0.04	0.00	0.04				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: EDA #1 PERVIOUS

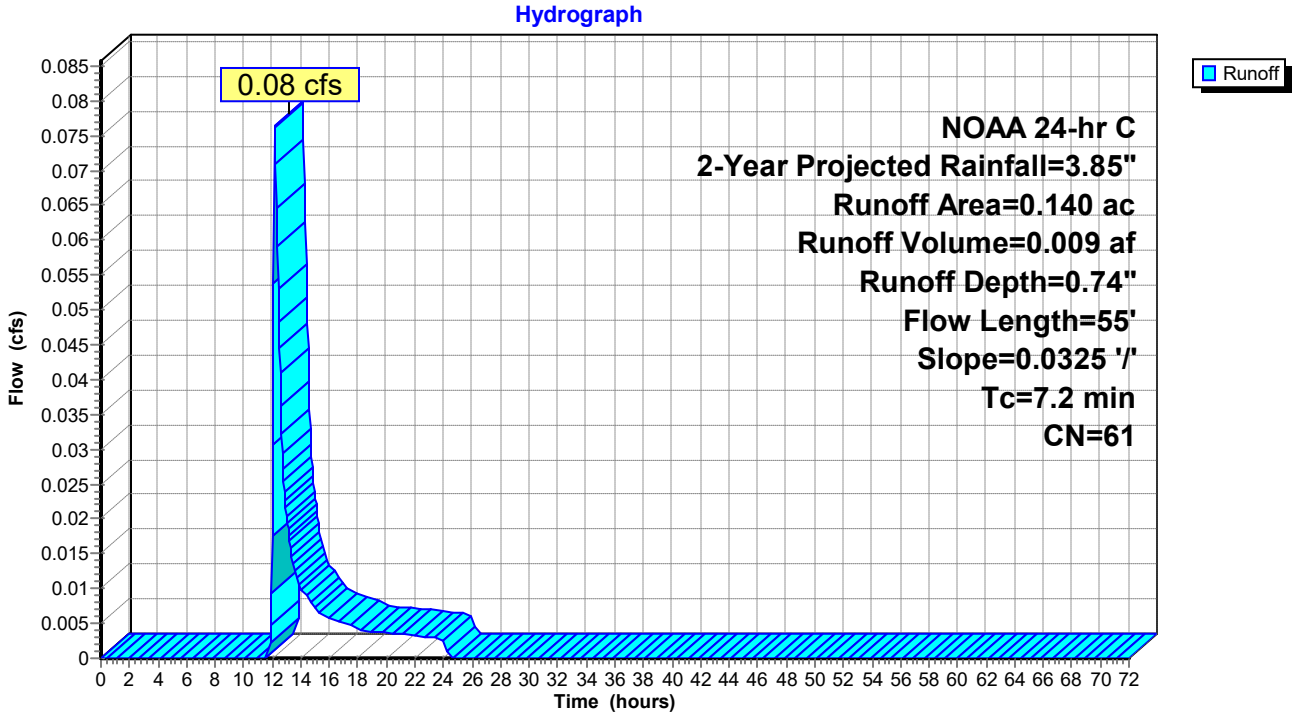
Runoff = 0.08 cfs @ 12.18 hrs, Volume= 0.009 af, Depth= 0.74"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.010	55	Woods, Good, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.140	61	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	55	0.0325	0.13		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"

Subcatchment 1: EDA #1 PERVIOUS



Hydrograph for Subcatchment 1: EDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.00	0.00
11.00	0.92	0.00	0.00
12.00	1.83	0.04	**0.02**
13.00	2.93	0.34	**0.02**
14.00	3.15	0.42	0.01
15.00	3.29	0.48	0.01
16.00	3.39	0.52	0.01
17.00	3.47	0.56	0.01
18.00	3.54	0.59	0.00
19.00	3.61	0.62	0.00
20.00	3.66	0.65	0.00
21.00	3.71	0.67	0.00
22.00	3.76	0.70	0.00
23.00	3.81	0.72	0.00
24.00	**3.85**	**0.74**	0.00
25.00	3.85	0.74	0.00
26.00	3.85	0.74	0.00
27.00	3.85	0.74	0.00
28.00	3.85	0.74	0.00
29.00	3.85	0.74	0.00
30.00	3.85	0.74	0.00
31.00	3.85	0.74	0.00
32.00	3.85	0.74	0.00
33.00	3.85	0.74	0.00
34.00	3.85	0.74	0.00
35.00	3.85	0.74	0.00
36.00	3.85	0.74	0.00
37.00	3.85	0.74	0.00
38.00	3.85	0.74	0.00
39.00	3.85	0.74	0.00
40.00	3.85	0.74	0.00
41.00	3.85	0.74	0.00
42.00	3.85	0.74	0.00
43.00	3.85	0.74	0.00
44.00	3.85	0.74	0.00
45.00	3.85	0.74	0.00
46.00	3.85	0.74	0.00
47.00	3.85	0.74	0.00
48.00	3.85	0.74	0.00
49.00	3.85	0.74	0.00
50.00	3.85	0.74	0.00
51.00	3.85	0.74	0.00
52.00	3.85	0.74	0.00
53.00	3.85	0.74	0.00
54.00	3.85	0.74	0.00
55.00	3.85	0.74	0.00
56.00	3.85	0.74	0.00
57.00	3.85	0.74	0.00
58.00	3.85	0.74	0.00
59.00	3.85	0.74	0.00
60.00	3.85	0.74	0.00
61.00	3.85	0.74	0.00
62.00	3.85	0.74	0.00
63.00	3.85	0.74	0.00
64.00	3.85	0.74	0.00
65.00	3.85	0.74	0.00
66.00	3.85	0.74	0.00
67.00	3.85	0.74	0.00
68.00	3.85	0.74	0.00
69.00	3.85	0.74	0.00
70.00	3.85	0.74	0.00
71.00	3.85	0.74	0.00
72.00	3.85	0.74	0.00

Summary for Subcatchment 2: EDA #1 IMPERVIOUS

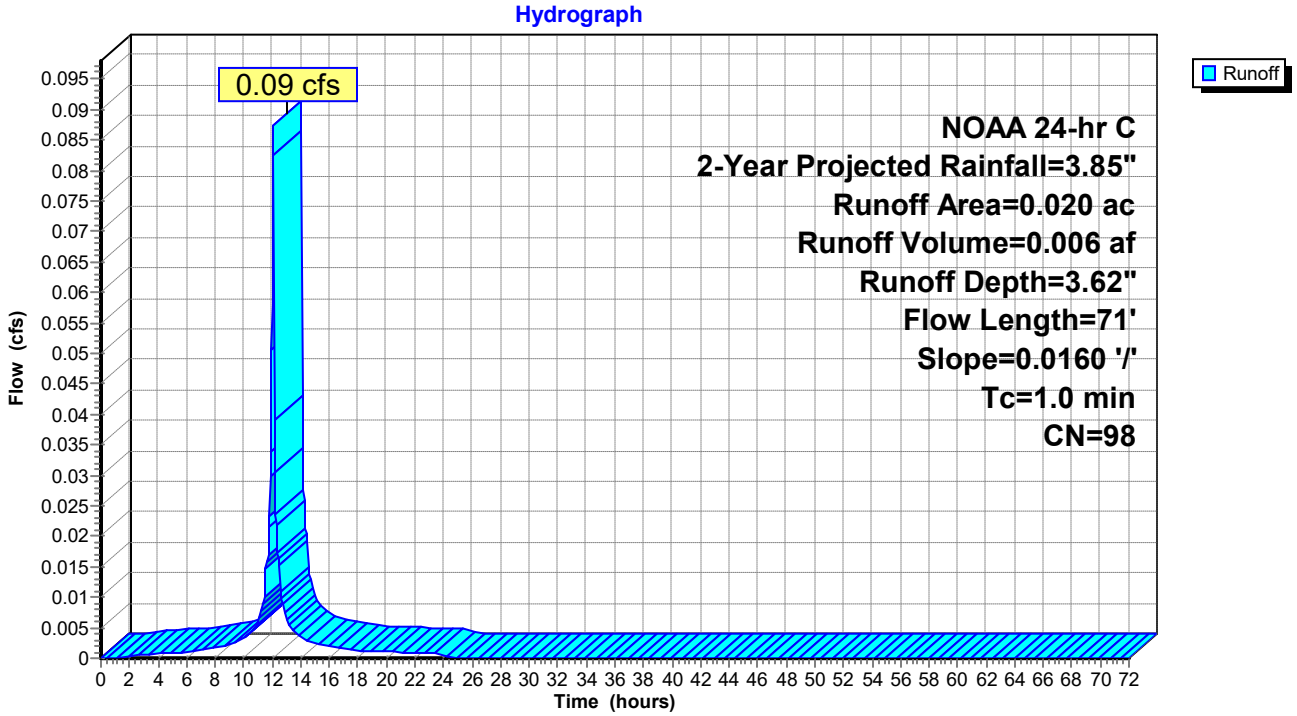
Runoff = 0.09 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 3.62"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.020	98	Impervious
	0.020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	71	0.0160	1.19		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: EDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: EDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.00
4.00	0.19	0.06	0.00
5.00	0.24	0.10	0.00
6.00	0.31	0.15	0.00
7.00	0.38	0.21	0.00
8.00	0.46	0.28	0.00
9.00	0.56	0.37	0.00
10.00	0.70	0.51	0.00
11.00	0.92	0.72	0.01
12.00	1.83	1.61	**0.06**
13.00	2.93	2.69	**0.01**
14.00	3.15	2.92	0.00
15.00	3.29	3.05	0.00
16.00	3.39	3.16	0.00
17.00	3.47	3.24	0.00
18.00	3.54	3.31	0.00
19.00	3.61	3.37	0.00
20.00	3.66	3.43	0.00
21.00	3.71	3.48	0.00
22.00	3.76	3.53	0.00
23.00	3.81	3.57	0.00
24.00	**3.85**	**3.62**	0.00
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 3: EDA #2 PERVIOUS

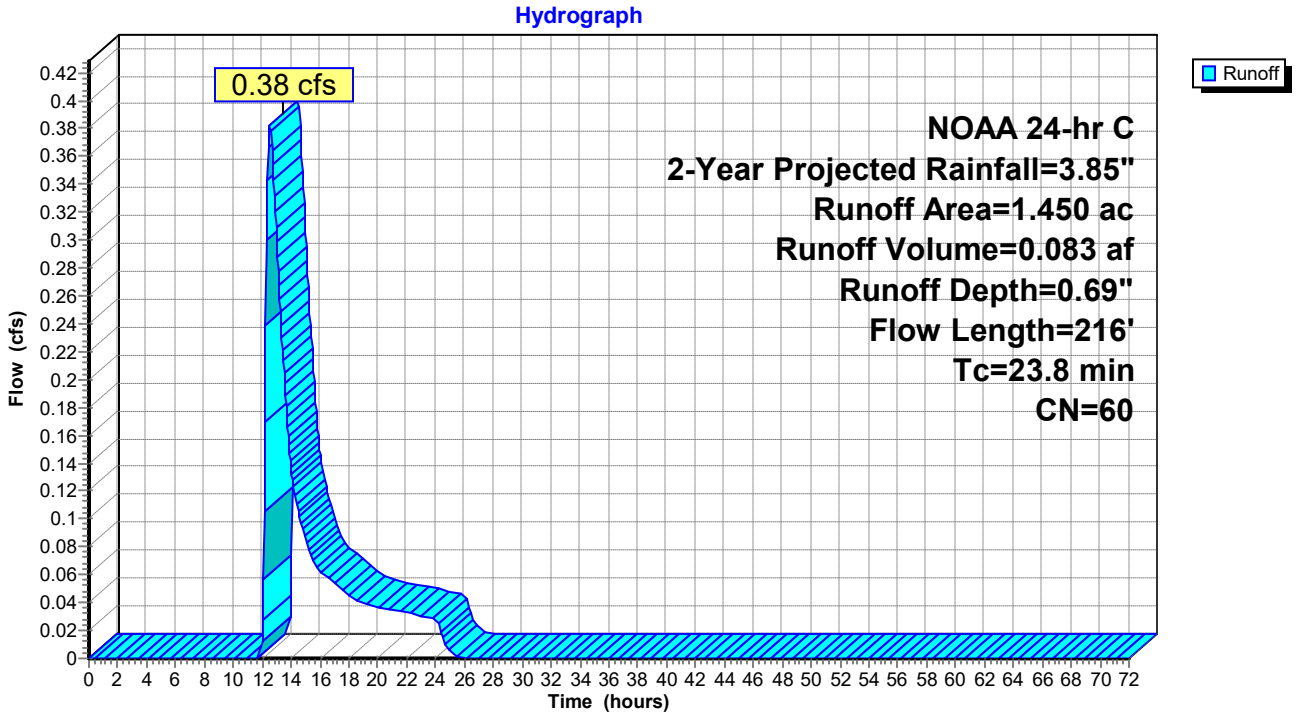
Runoff = 0.38 cfs @ 12.52 hrs, Volume= 0.083 af, Depth= 0.69"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.600	55	Woods, Good, HSG B
0.720	61	>75% Grass cover, Good, HSG B
0.060	70	Woods, Good, HSG C
0.070	74	>75% Grass cover, Good, HSG C
1.450	60	Weighted Average
1.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 3: EDA #2 PERVIOUS



Hydrograph for Subcatchment 3: EDA #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.00	0.00
11.00	0.92	0.00	0.00
12.00	1.83	0.04	**0.01**
13.00	2.93	0.31	**0.30**
14.00	3.15	0.39	0.14
15.00	3.29	0.44	0.08
16.00	3.39	0.48	0.06
17.00	3.47	0.52	0.05
18.00	3.54	0.55	0.05
19.00	3.61	0.58	0.04
20.00	3.66	0.60	0.04
21.00	3.71	0.63	0.04
22.00	3.76	0.65	0.03
23.00	3.81	0.67	0.03
24.00	**3.85**	**0.69**	0.03
25.00	3.85	0.69	0.00
26.00	3.85	0.69	0.00
27.00	3.85	0.69	0.00
28.00	3.85	0.69	0.00
29.00	3.85	0.69	0.00
30.00	3.85	0.69	0.00
31.00	3.85	0.69	0.00
32.00	3.85	0.69	0.00
33.00	3.85	0.69	0.00
34.00	3.85	0.69	0.00
35.00	3.85	0.69	0.00
36.00	3.85	0.69	0.00
37.00	3.85	0.69	0.00
38.00	3.85	0.69	0.00
39.00	3.85	0.69	0.00
40.00	3.85	0.69	0.00
41.00	3.85	0.69	0.00
42.00	3.85	0.69	0.00
43.00	3.85	0.69	0.00
44.00	3.85	0.69	0.00
45.00	3.85	0.69	0.00
46.00	3.85	0.69	0.00
47.00	3.85	0.69	0.00
48.00	3.85	0.69	0.00
49.00	3.85	0.69	0.00
50.00	3.85	0.69	0.00
51.00	3.85	0.69	0.00
52.00	3.85	0.69	0.00
53.00	3.85	0.69	0.00
54.00	3.85	0.69	0.00
55.00	3.85	0.69	0.00
56.00	3.85	0.69	0.00
57.00	3.85	0.69	0.00
58.00	3.85	0.69	0.00
59.00	3.85	0.69	0.00
60.00	3.85	0.69	0.00
61.00	3.85	0.69	0.00
62.00	3.85	0.69	0.00
63.00	3.85	0.69	0.00
64.00	3.85	0.69	0.00
65.00	3.85	0.69	0.00
66.00	3.85	0.69	0.00
67.00	3.85	0.69	0.00
68.00	3.85	0.69	0.00
69.00	3.85	0.69	0.00
70.00	3.85	0.69	0.00
71.00	3.85	0.69	0.00
72.00	3.85	0.69	0.00

Summary for Subcatchment 4: EDA #2 IMPERVIOUS

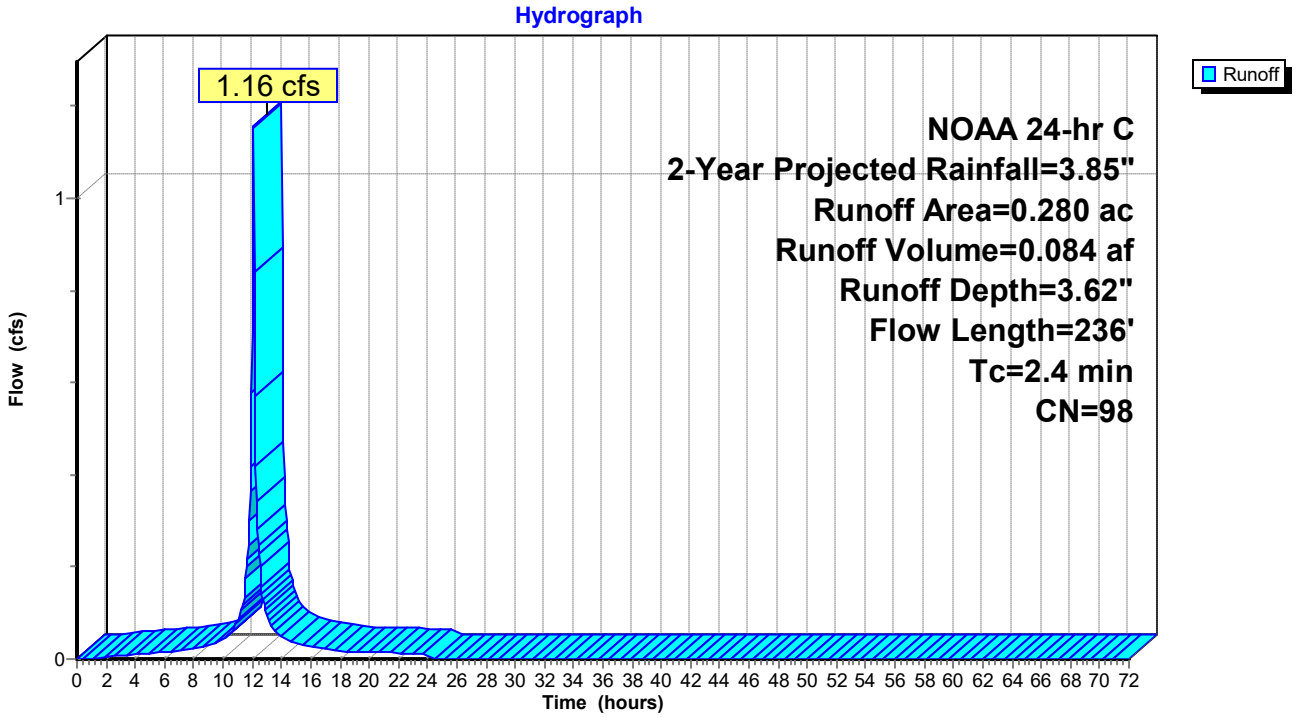
Runoff = 1.16 cfs @ 12.09 hrs, Volume= 0.084 af, Depth= 3.62"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.280	98	Impervious
	0.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0158	1.27		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.1	136	0.0100	2.03		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
2.4	236	Total			

Subcatchment 4: EDA #2 IMPERVIOUS



Hydrograph for Subcatchment 4: EDA #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.01
4.00	0.19	0.06	0.01
5.00	0.24	0.10	0.01
6.00	0.31	0.15	0.01
7.00	0.38	0.21	0.02
8.00	0.46	0.28	0.02
9.00	0.56	0.37	0.03
10.00	0.70	0.51	0.04
11.00	0.92	0.72	0.08
12.00	1.83	1.61	**0.71**
13.00	2.93	2.69	**0.10**
14.00	3.15	2.92	0.05
15.00	3.29	3.05	0.03
16.00	3.39	3.16	0.03
17.00	3.47	3.24	0.02
18.00	3.54	3.31	0.02
19.00	3.61	3.37	0.02
20.00	3.66	3.43	0.02
21.00	3.71	3.48	0.01
22.00	3.76	3.53	0.01
23.00	3.81	3.57	0.01
24.00	**3.85**	**3.62**	0.01
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

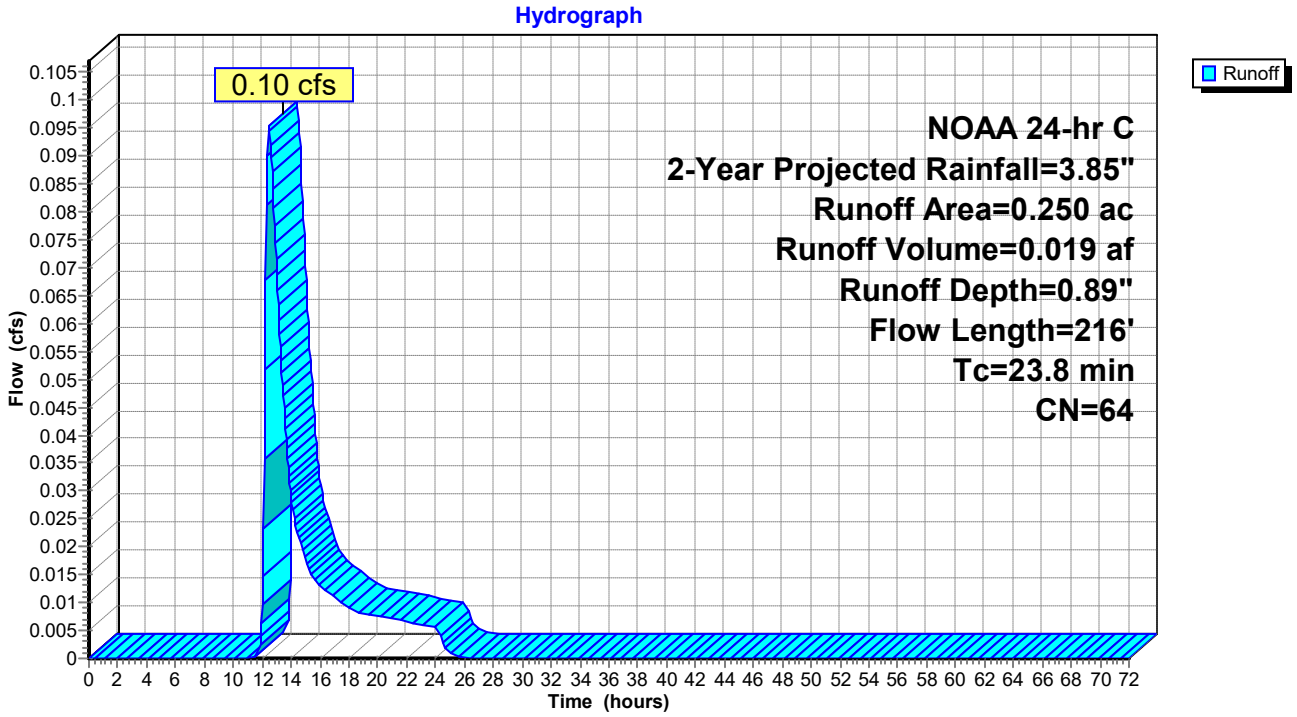
Runoff = 0.10 cfs @ 12.46 hrs, Volume= 0.019 af, Depth= 0.89"
Routed to Link 8 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.110	55	Woods, Good, HSG B
0.030	61	>75% Grass cover, Good, HSG B
0.020	70	Woods, Good, HSG C
0.090	74	>75% Grass cover, Good, HSG C
0.250	64	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)



Hydrograph for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

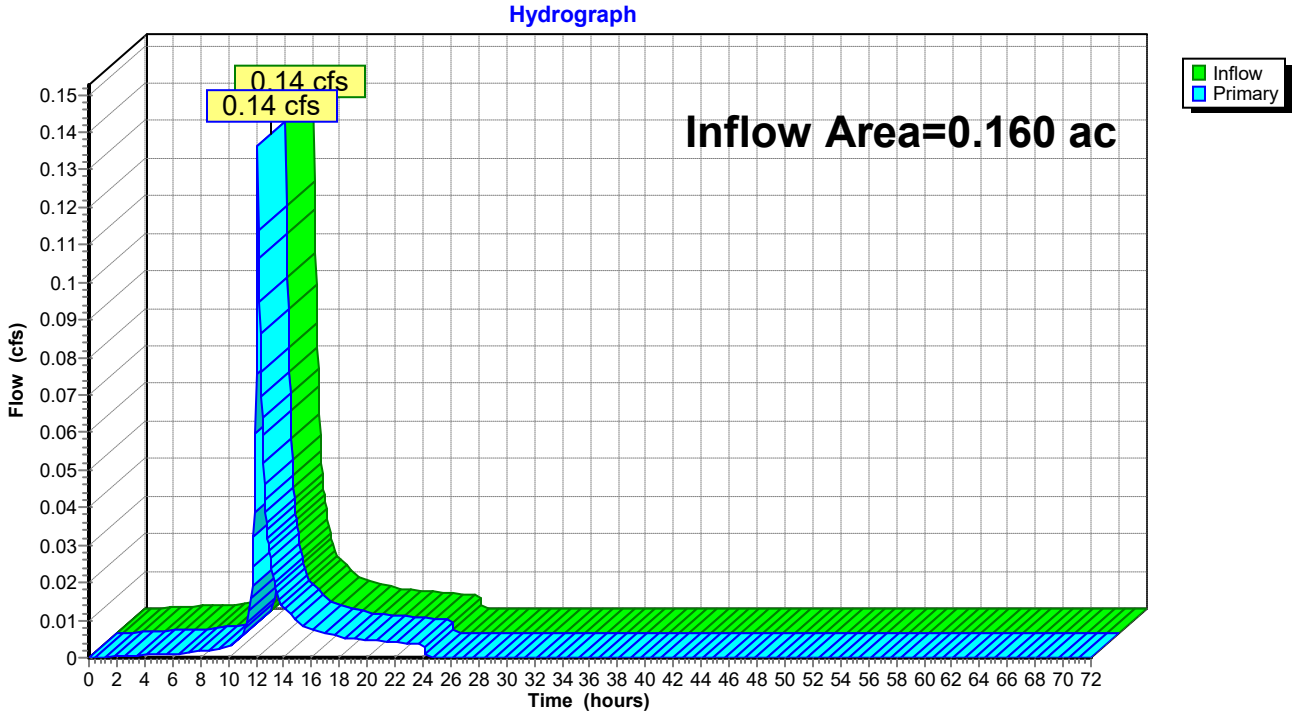
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.00	0.00
11.00	0.92	0.00	0.00
12.00	1.83	0.08	**0.01**
13.00	2.93	0.44	**0.07**
14.00	3.15	0.54	0.03
15.00	3.29	0.60	0.02
16.00	3.39	0.65	0.01
17.00	3.47	0.69	0.01
18.00	3.54	0.73	0.01
19.00	3.61	0.76	0.01
20.00	3.66	0.79	0.01
21.00	3.71	0.82	0.01
22.00	3.76	0.84	0.01
23.00	3.81	0.87	0.01
24.00	**3.85**	**0.89**	0.01
25.00	3.85	0.89	0.00
26.00	3.85	0.89	0.00
27.00	3.85	0.89	0.00
28.00	3.85	0.89	0.00
29.00	3.85	0.89	0.00
30.00	3.85	0.89	0.00
31.00	3.85	0.89	0.00
32.00	3.85	0.89	0.00
33.00	3.85	0.89	0.00
34.00	3.85	0.89	0.00
35.00	3.85	0.89	0.00
36.00	3.85	0.89	0.00
37.00	3.85	0.89	0.00
38.00	3.85	0.89	0.00
39.00	3.85	0.89	0.00
40.00	3.85	0.89	0.00
41.00	3.85	0.89	0.00
42.00	3.85	0.89	0.00
43.00	3.85	0.89	0.00
44.00	3.85	0.89	0.00
45.00	3.85	0.89	0.00
46.00	3.85	0.89	0.00
47.00	3.85	0.89	0.00
48.00	3.85	0.89	0.00
49.00	3.85	0.89	0.00
50.00	3.85	0.89	0.00
51.00	3.85	0.89	0.00
52.00	3.85	0.89	0.00
53.00	3.85	0.89	0.00
54.00	3.85	0.89	0.00
55.00	3.85	0.89	0.00
56.00	3.85	0.89	0.00
57.00	3.85	0.89	0.00
58.00	3.85	0.89	0.00
59.00	3.85	0.89	0.00
60.00	3.85	0.89	0.00
61.00	3.85	0.89	0.00
62.00	3.85	0.89	0.00
63.00	3.85	0.89	0.00
64.00	3.85	0.89	0.00
65.00	3.85	0.89	0.00
66.00	3.85	0.89	0.00
67.00	3.85	0.89	0.00
68.00	3.85	0.89	0.00
69.00	3.85	0.89	0.00
70.00	3.85	0.89	0.00
71.00	3.85	0.89	0.00
72.00	3.85	0.89	0.00

Summary for Link 5: POA #1

Inflow Area = 0.160 ac, 12.50% Impervious, Inflow Depth = 1.10" for 2-Year Projected event
Inflow = 0.14 cfs @ 12.10 hrs, Volume= 0.015 af
Primary = 0.14 cfs @ 12.10 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 7L

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

Link 5: POA #1



Hydrograph for Link 5: POA #1

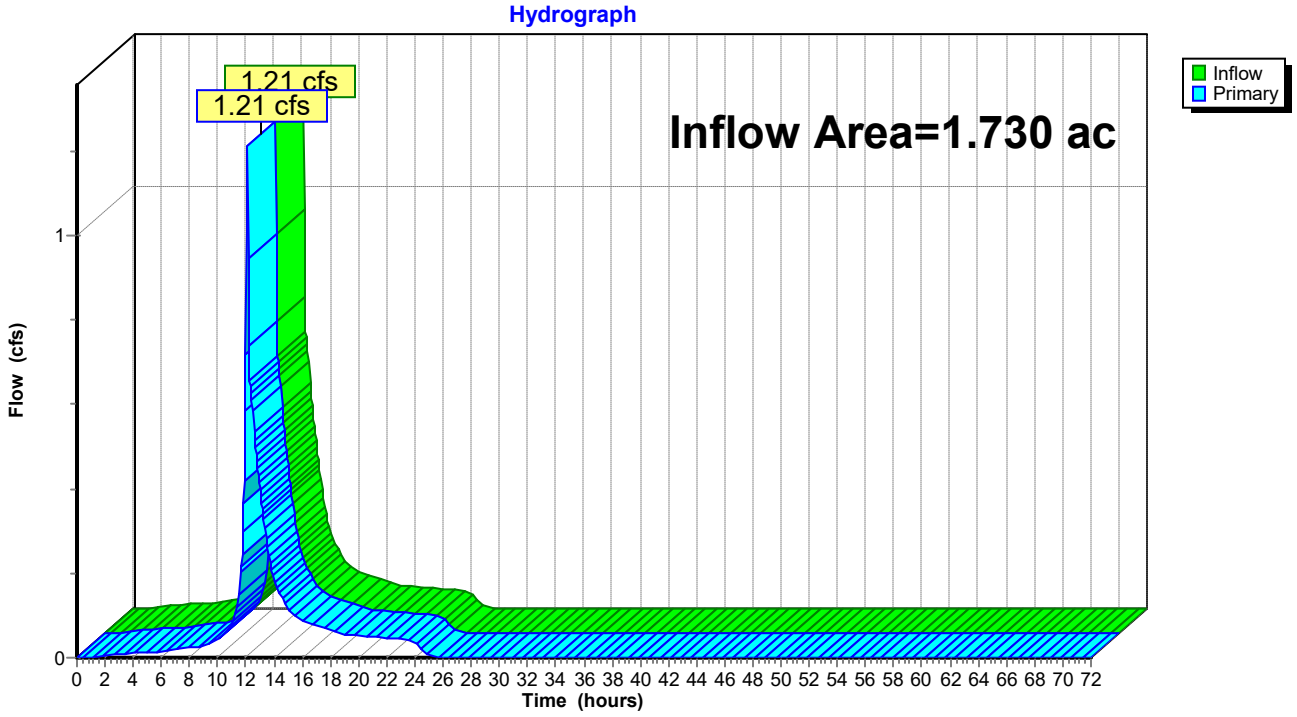
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 6: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.730 ac, 16.18% Impervious, Inflow Depth = 1.16" for 2-Year Projected event
Inflow = 1.21 cfs @ 12.10 hrs, Volume= 0.168 af
Primary = 1.21 cfs @ 12.10 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min
Routed to Link 8 : POA #2 (TOTAL)

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

Link 6: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 6: POA #2 (ONSITE REDUCTION)

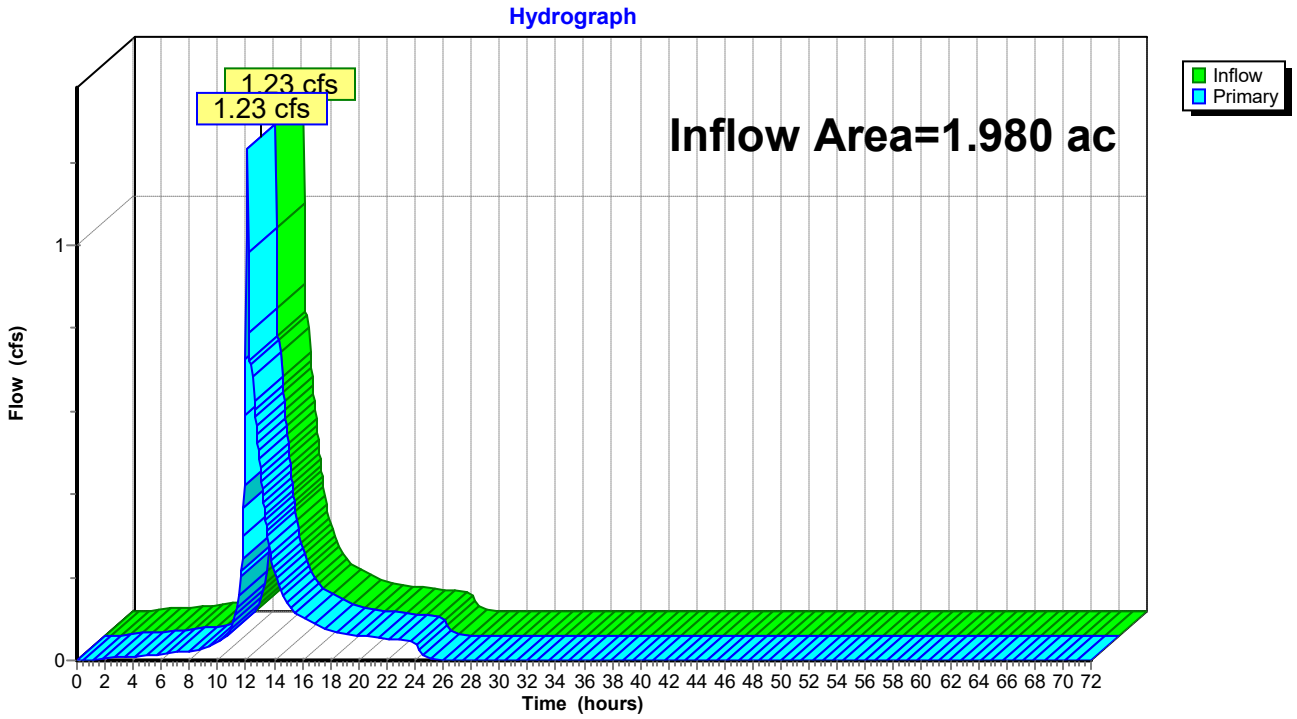
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.03	0.00	0.03	61.00	0.00	0.00	0.00
10.00	0.04	0.00	0.04	62.00	0.00	0.00	0.00
11.00	0.08	0.00	0.08	63.00	0.00	0.00	0.00
12.00	**0.72**	0.00	**0.72**	64.00	0.00	0.00	0.00
13.00	**0.40**	0.00	**0.40**	65.00	0.00	0.00	0.00
14.00	0.19	0.00	0.19	66.00	0.00	0.00	0.00
15.00	0.12	0.00	0.12	67.00	0.00	0.00	0.00
16.00	0.09	0.00	0.09	68.00	0.00	0.00	0.00
17.00	0.08	0.00	0.08	69.00	0.00	0.00	0.00
18.00	0.06	0.00	0.06	70.00	0.00	0.00	0.00
19.00	0.06	0.00	0.06	71.00	0.00	0.00	0.00
20.00	0.05	0.00	0.05	72.00	0.00	0.00	0.00
21.00	0.05	0.00	0.05				
22.00	0.05	0.00	0.05				
23.00	0.04	0.00	0.04				
24.00	0.04	0.00	0.04				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 8: POA #2 (TOTAL)

Inflow Area = 1.980 ac, 14.14% Impervious, Inflow Depth = 1.13" for 2-Year Projected event
Inflow = 1.23 cfs @ 12.10 hrs, Volume= 0.186 af
Primary = 1.23 cfs @ 12.10 hrs, Volume= 0.186 af, Atten= 0%, Lag= 0.0 min

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

Link 8: POA #2 (TOTAL)



Hydrograph for Link 8: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.03	0.00	0.03	61.00	0.00	0.00	0.00
10.00	0.04	0.00	0.04	62.00	0.00	0.00	0.00
11.00	0.08	0.00	0.08	63.00	0.00	0.00	0.00
12.00	**0.73**	0.00	**0.73**	64.00	0.00	0.00	0.00
13.00	**0.47**	0.00	**0.47**	65.00	0.00	0.00	0.00
14.00	0.21	0.00	0.21	66.00	0.00	0.00	0.00
15.00	0.13	0.00	0.13	67.00	0.00	0.00	0.00
16.00	0.10	0.00	0.10	68.00	0.00	0.00	0.00
17.00	0.09	0.00	0.09	69.00	0.00	0.00	0.00
18.00	0.07	0.00	0.07	70.00	0.00	0.00	0.00
19.00	0.06	0.00	0.06	71.00	0.00	0.00	0.00
20.00	0.06	0.00	0.06	72.00	0.00	0.00	0.00
21.00	0.06	0.00	0.06				
22.00	0.05	0.00	0.05				
23.00	0.05	0.00	0.05				
24.00	0.05	0.00	0.05				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: EDA #1 PERVIOUS

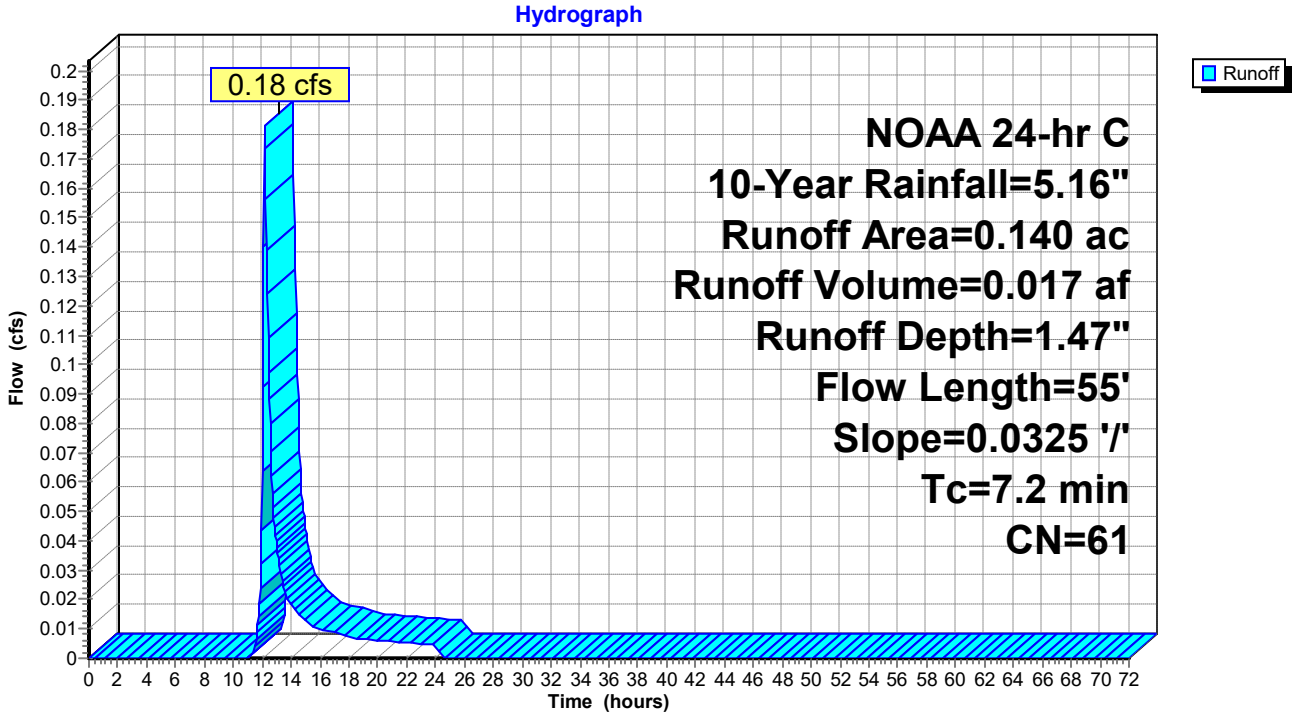
Runoff = 0.18 cfs @ 12.17 hrs, Volume= 0.017 af, Depth= 1.47"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.010	55	Woods, Good, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.140	61	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	55	0.0325	0.13		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"

Subcatchment 1: EDA #1 PERVIOUS



Hydrograph for Subcatchment 1: EDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.00	0.00
10.00	0.94	0.00	0.00
11.00	1.24	0.00	0.00
12.00	2.46	0.18	**0.06**
13.00	3.92	0.77	**0.04**
14.00	4.22	0.93	0.02
15.00	4.41	1.03	0.01
16.00	4.54	1.10	0.01
17.00	4.66	1.17	0.01
18.00	4.75	1.22	0.01
19.00	4.83	1.27	0.01
20.00	4.91	1.31	0.01
21.00	4.98	1.36	0.01
22.00	5.04	1.40	0.01
23.00	5.10	1.43	0.01
24.00	**5.16**	**1.47**	0.00
25.00	5.16	1.47	0.00
26.00	5.16	1.47	0.00
27.00	5.16	1.47	0.00
28.00	5.16	1.47	0.00
29.00	5.16	1.47	0.00
30.00	5.16	1.47	0.00
31.00	5.16	1.47	0.00
32.00	5.16	1.47	0.00
33.00	5.16	1.47	0.00
34.00	5.16	1.47	0.00
35.00	5.16	1.47	0.00
36.00	5.16	1.47	0.00
37.00	5.16	1.47	0.00
38.00	5.16	1.47	0.00
39.00	5.16	1.47	0.00
40.00	5.16	1.47	0.00
41.00	5.16	1.47	0.00
42.00	5.16	1.47	0.00
43.00	5.16	1.47	0.00
44.00	5.16	1.47	0.00
45.00	5.16	1.47	0.00
46.00	5.16	1.47	0.00
47.00	5.16	1.47	0.00
48.00	5.16	1.47	0.00
49.00	5.16	1.47	0.00
50.00	5.16	1.47	0.00
51.00	5.16	1.47	0.00
52.00	5.16	1.47	0.00
53.00	5.16	1.47	0.00
54.00	5.16	1.47	0.00
55.00	5.16	1.47	0.00
56.00	5.16	1.47	0.00
57.00	5.16	1.47	0.00
58.00	5.16	1.47	0.00
59.00	5.16	1.47	0.00
60.00	5.16	1.47	0.00
61.00	5.16	1.47	0.00
62.00	5.16	1.47	0.00
63.00	5.16	1.47	0.00
64.00	5.16	1.47	0.00
65.00	5.16	1.47	0.00
66.00	5.16	1.47	0.00
67.00	5.16	1.47	0.00
68.00	5.16	1.47	0.00
69.00	5.16	1.47	0.00
70.00	5.16	1.47	0.00
71.00	5.16	1.47	0.00
72.00	5.16	1.47	0.00

Summary for Subcatchment 2: EDA #1 IMPERVIOUS

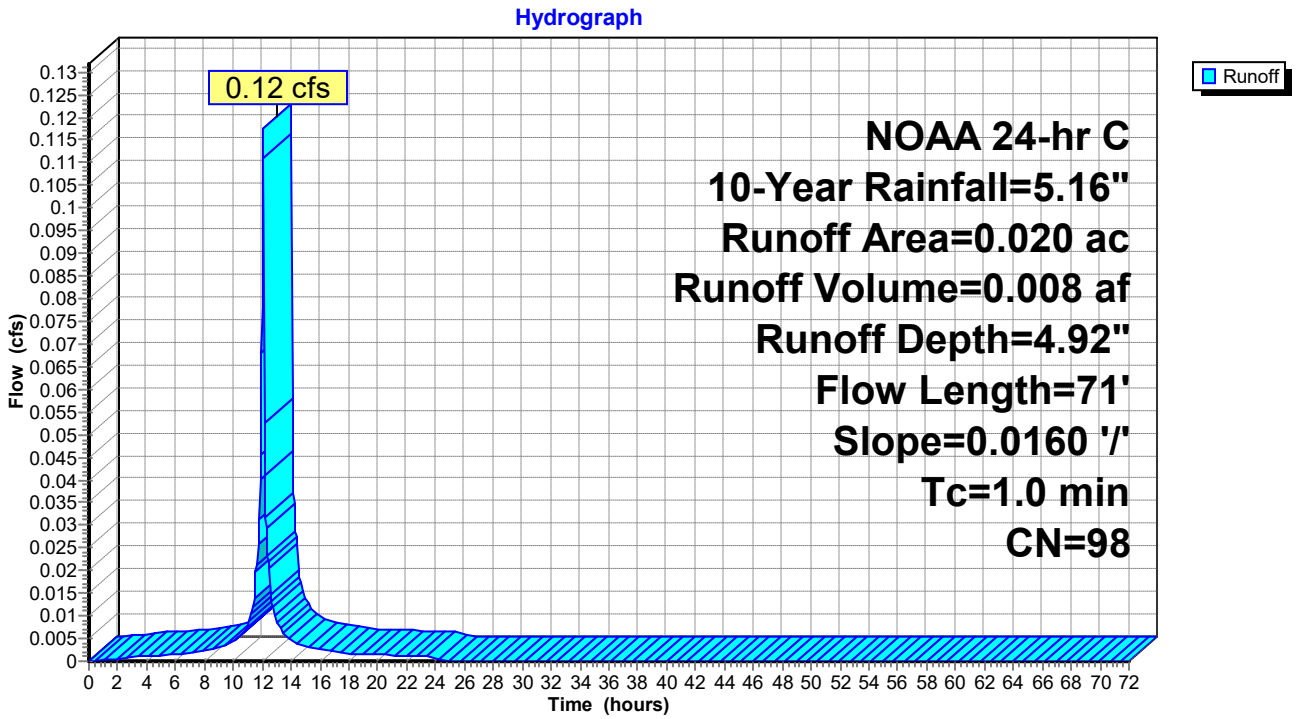
Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 4.92"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.020	98	Impervious
	0.020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	71	0.0160	1.19		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: EDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: EDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.18	0.06	0.00
4.00	0.25	0.11	0.00
5.00	0.33	0.17	0.00
6.00	0.41	0.24	0.00
7.00	0.50	0.32	0.00
8.00	0.62	0.43	0.00
9.00	0.75	0.55	0.00
10.00	0.94	0.73	0.00
11.00	1.24	1.02	0.01
12.00	2.46	2.23	**0.08**
13.00	3.92	3.69	**0.01**
14.00	4.22	3.98	0.00
15.00	4.41	4.17	0.00
16.00	4.54	4.31	0.00
17.00	4.66	4.42	0.00
18.00	4.75	4.51	0.00
19.00	4.83	4.60	0.00
20.00	4.91	4.67	0.00
21.00	4.98	4.74	0.00
22.00	5.04	4.81	0.00
23.00	5.10	4.87	0.00
24.00	**5.16**	**4.92**	0.00
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 3: EDA #2 PERVIOUS

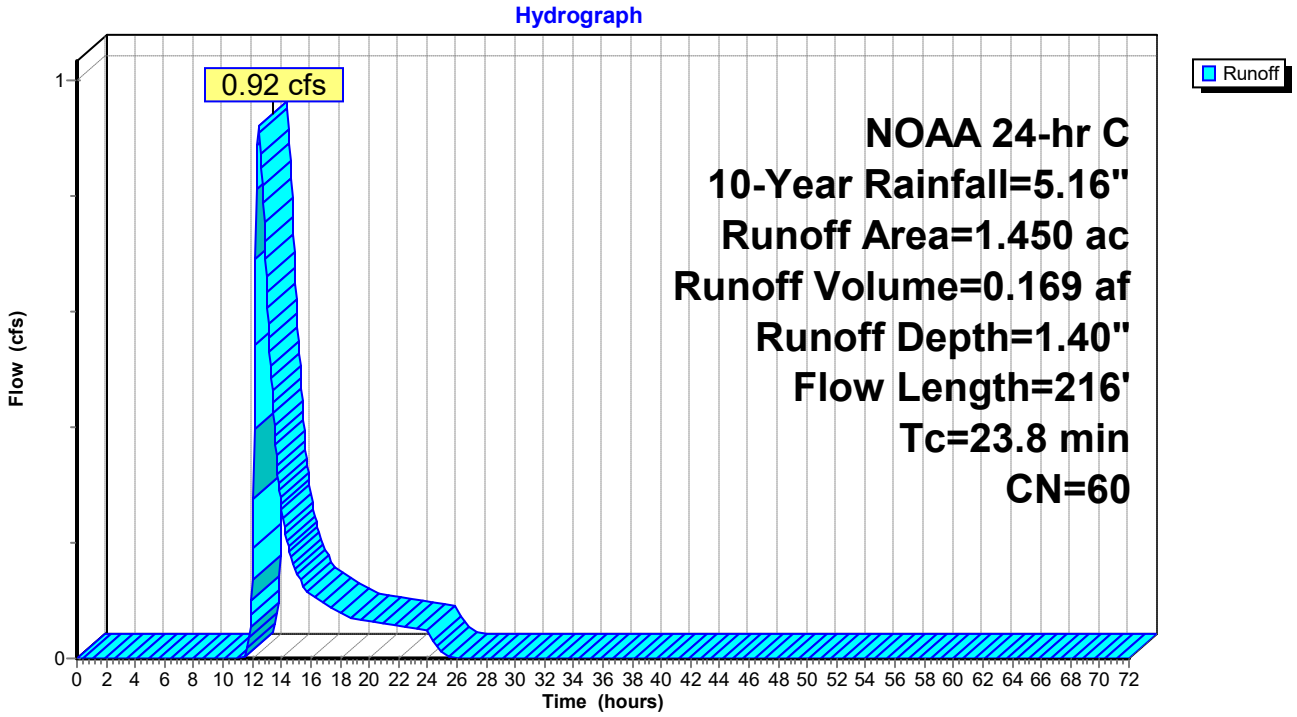
Runoff = 0.92 cfs @ 12.44 hrs, Volume= 0.169 af, Depth= 1.40"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.600	55	Woods, Good, HSG B
0.720	61	>75% Grass cover, Good, HSG B
0.060	70	Woods, Good, HSG C
0.070	74	>75% Grass cover, Good, HSG C
1.450	60	Weighted Average
1.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 3: EDA #2 PERVIOUS



Hydrograph for Subcatchment 3: EDA #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.00	0.00
10.00	0.94	0.00	0.00
11.00	1.24	0.00	0.00
12.00	2.46	0.16	**0.14**
13.00	3.92	0.72	**0.63**
14.00	4.22	0.87	0.26
15.00	4.41	0.97	0.15
16.00	4.54	1.04	0.11
17.00	4.66	1.11	0.09
18.00	4.75	1.16	0.08
19.00	4.83	1.20	0.07
20.00	4.91	1.25	0.06
21.00	4.98	1.29	0.06
22.00	5.04	1.33	0.06
23.00	5.10	1.36	0.05
24.00	**5.16**	**1.40**	0.05
25.00	5.16	1.40	0.01
26.00	5.16	1.40	0.00
27.00	5.16	1.40	0.00
28.00	5.16	1.40	0.00
29.00	5.16	1.40	0.00
30.00	5.16	1.40	0.00
31.00	5.16	1.40	0.00
32.00	5.16	1.40	0.00
33.00	5.16	1.40	0.00
34.00	5.16	1.40	0.00
35.00	5.16	1.40	0.00
36.00	5.16	1.40	0.00
37.00	5.16	1.40	0.00
38.00	5.16	1.40	0.00
39.00	5.16	1.40	0.00
40.00	5.16	1.40	0.00
41.00	5.16	1.40	0.00
42.00	5.16	1.40	0.00
43.00	5.16	1.40	0.00
44.00	5.16	1.40	0.00
45.00	5.16	1.40	0.00
46.00	5.16	1.40	0.00
47.00	5.16	1.40	0.00
48.00	5.16	1.40	0.00
49.00	5.16	1.40	0.00
50.00	5.16	1.40	0.00
51.00	5.16	1.40	0.00
52.00	5.16	1.40	0.00
53.00	5.16	1.40	0.00
54.00	5.16	1.40	0.00
55.00	5.16	1.40	0.00
56.00	5.16	1.40	0.00
57.00	5.16	1.40	0.00
58.00	5.16	1.40	0.00
59.00	5.16	1.40	0.00
60.00	5.16	1.40	0.00
61.00	5.16	1.40	0.00
62.00	5.16	1.40	0.00
63.00	5.16	1.40	0.00
64.00	5.16	1.40	0.00
65.00	5.16	1.40	0.00
66.00	5.16	1.40	0.00
67.00	5.16	1.40	0.00
68.00	5.16	1.40	0.00
69.00	5.16	1.40	0.00
70.00	5.16	1.40	0.00
71.00	5.16	1.40	0.00
72.00	5.16	1.40	0.00

Summary for Subcatchment 4: EDA #2 IMPERVIOUS

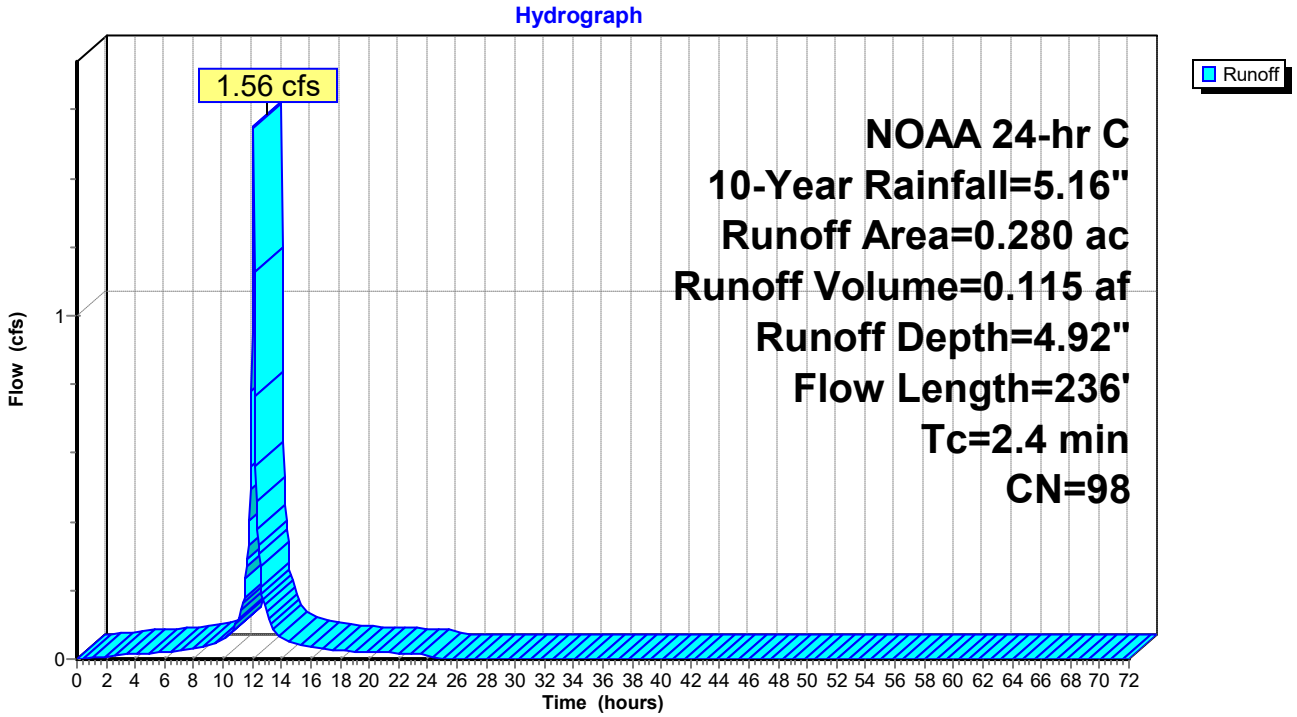
Runoff = 1.56 cfs @ 12.09 hrs, Volume= 0.115 af, Depth= 4.92"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.280	98	Impervious
	0.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0158	1.27		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.1	136	0.0100	2.03		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
2.4	236	Total			

Subcatchment 4: EDA #2 IMPERVIOUS



Hydrograph for Subcatchment 4: EDA #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.01
3.00	0.18	0.06	0.01
4.00	0.25	0.11	0.02
5.00	0.33	0.17	0.02
6.00	0.41	0.24	0.02
7.00	0.50	0.32	0.03
8.00	0.62	0.43	0.03
9.00	0.75	0.55	0.04
10.00	0.94	0.73	0.06
11.00	1.24	1.02	0.11
12.00	2.46	2.23	**0.95**
13.00	3.92	3.69	**0.13**
14.00	4.22	3.98	0.07
15.00	4.41	4.17	0.04
16.00	4.54	4.31	0.04
17.00	4.66	4.42	0.03
18.00	4.75	4.51	0.02
19.00	4.83	4.60	0.02
20.00	4.91	4.67	0.02
21.00	4.98	4.74	0.02
22.00	5.04	4.81	0.02
23.00	5.10	4.87	0.02
24.00	**5.16**	**4.92**	0.02
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

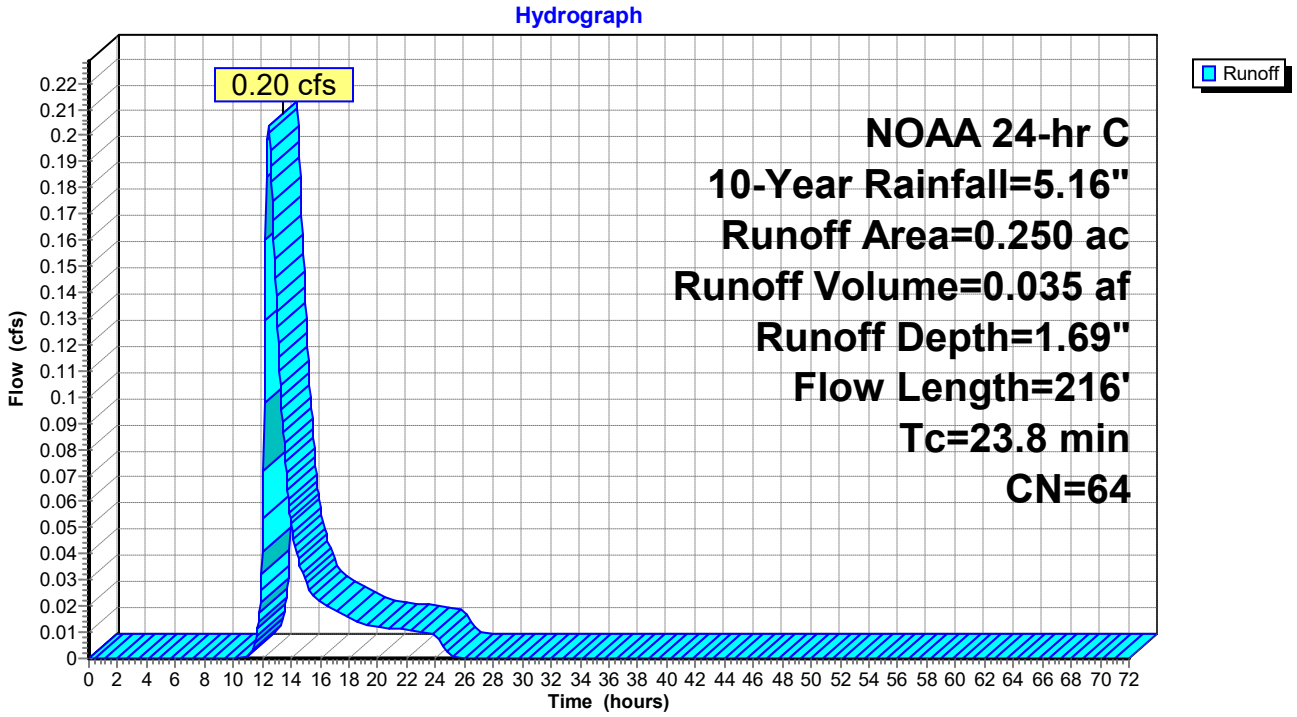
Runoff = 0.20 cfs @ 12.42 hrs, Volume= 0.035 af, Depth= 1.69"
Routed to Link 8 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.110	55	Woods, Good, HSG B
0.030	61	>75% Grass cover, Good, HSG B
0.020	70	Woods, Good, HSG C
0.090	74	>75% Grass cover, Good, HSG C
0.250	64	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)



Hydrograph for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

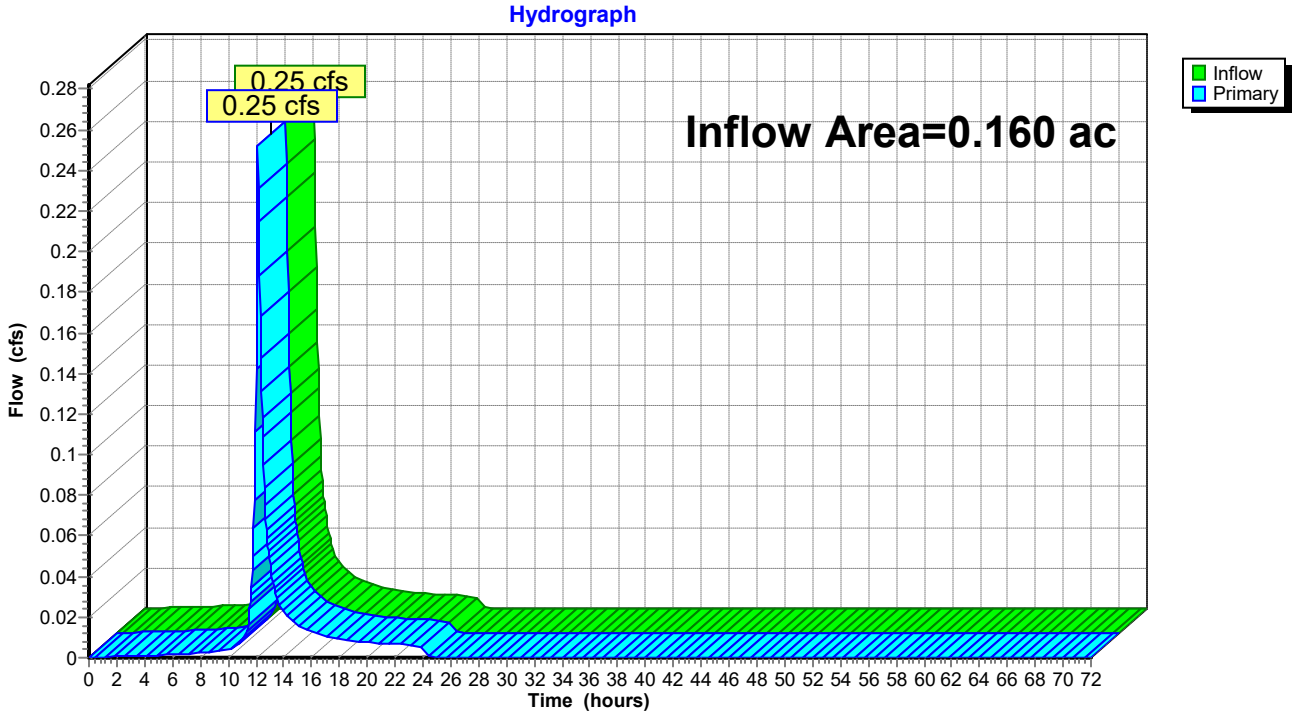
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.00	0.00
10.00	0.94	0.00	0.00
11.00	1.24	0.00	0.00
12.00	2.46	0.26	**0.04**
13.00	3.92	0.93	**0.13**
14.00	4.22	1.10	0.05
15.00	4.41	1.21	0.03
16.00	4.54	1.29	0.02
17.00	4.66	1.36	0.02
18.00	4.75	1.42	0.02
19.00	4.83	1.47	0.01
20.00	4.91	1.52	0.01
21.00	4.98	1.57	0.01
22.00	5.04	1.61	0.01
23.00	5.10	1.65	0.01
24.00	**5.16**	**1.69**	0.01
25.00	5.16	1.69	0.00
26.00	5.16	1.69	0.00
27.00	5.16	1.69	0.00
28.00	5.16	1.69	0.00
29.00	5.16	1.69	0.00
30.00	5.16	1.69	0.00
31.00	5.16	1.69	0.00
32.00	5.16	1.69	0.00
33.00	5.16	1.69	0.00
34.00	5.16	1.69	0.00
35.00	5.16	1.69	0.00
36.00	5.16	1.69	0.00
37.00	5.16	1.69	0.00
38.00	5.16	1.69	0.00
39.00	5.16	1.69	0.00
40.00	5.16	1.69	0.00
41.00	5.16	1.69	0.00
42.00	5.16	1.69	0.00
43.00	5.16	1.69	0.00
44.00	5.16	1.69	0.00
45.00	5.16	1.69	0.00
46.00	5.16	1.69	0.00
47.00	5.16	1.69	0.00
48.00	5.16	1.69	0.00
49.00	5.16	1.69	0.00
50.00	5.16	1.69	0.00
51.00	5.16	1.69	0.00
52.00	5.16	1.69	0.00
53.00	5.16	1.69	0.00
54.00	5.16	1.69	0.00
55.00	5.16	1.69	0.00
56.00	5.16	1.69	0.00
57.00	5.16	1.69	0.00
58.00	5.16	1.69	0.00
59.00	5.16	1.69	0.00
60.00	5.16	1.69	0.00
61.00	5.16	1.69	0.00
62.00	5.16	1.69	0.00
63.00	5.16	1.69	0.00
64.00	5.16	1.69	0.00
65.00	5.16	1.69	0.00
66.00	5.16	1.69	0.00
67.00	5.16	1.69	0.00
68.00	5.16	1.69	0.00
69.00	5.16	1.69	0.00
70.00	5.16	1.69	0.00
71.00	5.16	1.69	0.00
72.00	5.16	1.69	0.00

Summary for Link 5: POA #1

Inflow Area = 0.160 ac, 12.50% Impervious, Inflow Depth = 1.90" for 10-Year event
Inflow = 0.25 cfs @ 12.11 hrs, Volume= 0.025 af
Primary = 0.25 cfs @ 12.11 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 7L

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

Link 5: POA #1



Hydrograph for Link 5: POA #1

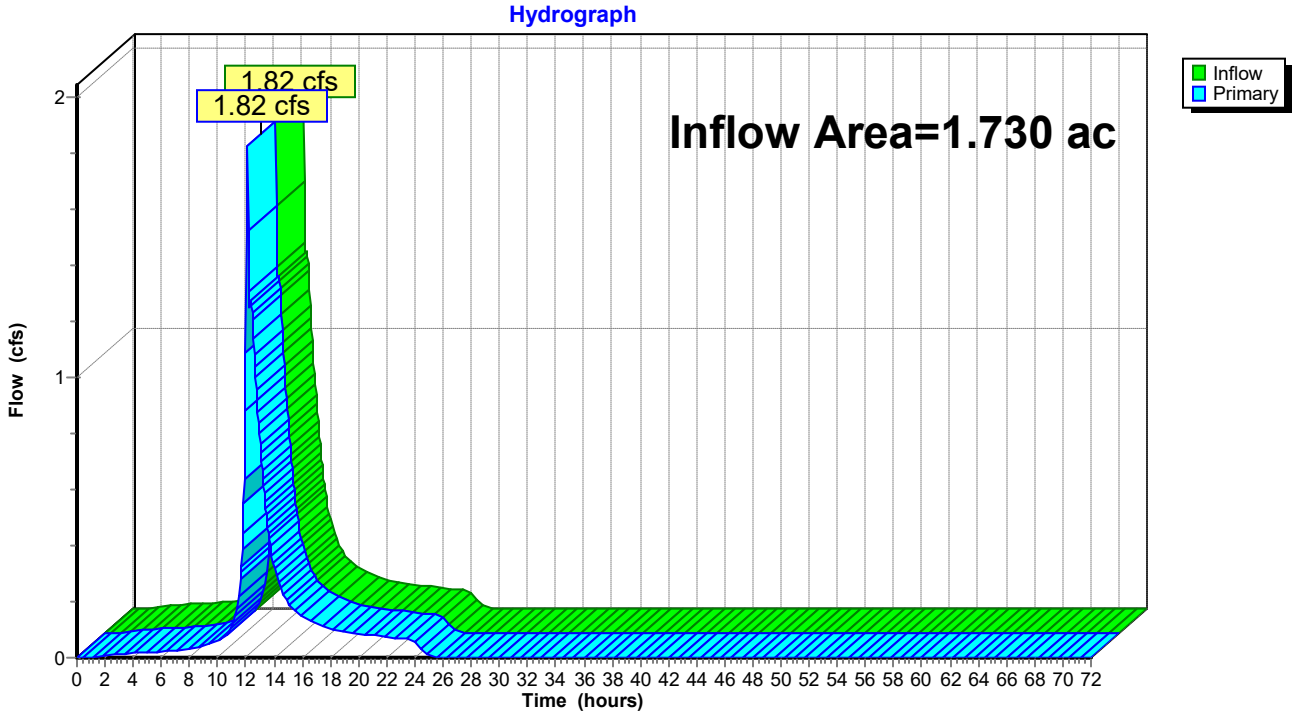
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	**0.14**	0.00	**0.14**	64.00	0.00	0.00	0.00
13.00	**0.05**	0.00	**0.05**	65.00	0.00	0.00	0.00
14.00	0.02	0.00	0.02	66.00	0.00	0.00	0.00
15.00	0.02	0.00	0.02	67.00	0.00	0.00	0.00
16.00	0.01	0.00	0.01	68.00	0.00	0.00	0.00
17.00	0.01	0.00	0.01	69.00	0.00	0.00	0.00
18.00	0.01	0.00	0.01	70.00	0.00	0.00	0.00
19.00	0.01	0.00	0.01	71.00	0.00	0.00	0.00
20.00	0.01	0.00	0.01	72.00	0.00	0.00	0.00
21.00	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.730 ac, 16.18% Impervious, Inflow Depth = 1.97" for 10-Year event
Inflow = 1.82 cfs @ 12.10 hrs, Volume= 0.283 af
Primary = 1.82 cfs @ 12.10 hrs, Volume= 0.283 af, Atten= 0%, Lag= 0.0 min
Routed to Link 8 : POA #2 (TOTAL)

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

Link 6: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 6: POA #2 (ONSITE REDUCTION)

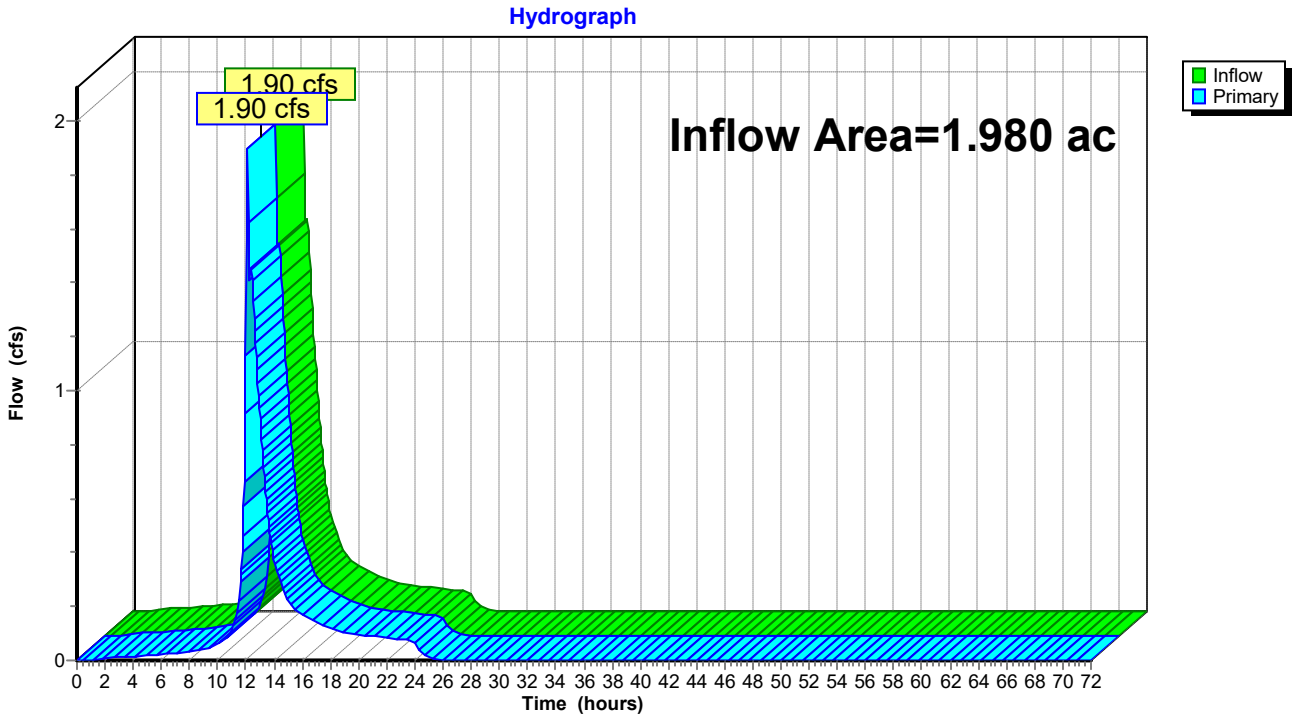
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01
3.00	0.01	0.00	0.01
4.00	0.02	0.00	0.02
5.00	0.02	0.00	0.02
6.00	0.02	0.00	0.02
7.00	0.03	0.00	0.03
8.00	0.03	0.00	0.03
9.00	0.04	0.00	0.04
10.00	0.06	0.00	0.06
11.00	0.11	0.00	0.11
12.00	**1.09**	0.00	**1.09**
13.00	**0.77**	0.00	**0.77**
14.00	0.32	0.00	0.32
15.00	0.19	0.00	0.19
16.00	0.15	0.00	0.15
17.00	0.12	0.00	0.12
18.00	0.10	0.00	0.10
19.00	0.09	0.00	0.09
20.00	0.08	0.00	0.08
21.00	0.08	0.00	0.08
22.00	0.07	0.00	0.07
23.00	0.07	0.00	0.07
24.00	0.07	0.00	0.07
25.00	0.01	0.00	0.01
26.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 8: POA #2 (TOTAL)

Inflow Area = 1.980 ac, 14.14% Impervious, Inflow Depth = 1.93" for 10-Year event
Inflow = 1.90 cfs @ 12.10 hrs, Volume= 0.319 af
Primary = 1.90 cfs @ 12.10 hrs, Volume= 0.319 af, Atten= 0%, Lag= 0.0 min

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

Link 8: POA #2 (TOTAL)



Hydrograph for Link 8: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.01	0.00	0.01	55.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	56.00	0.00	0.00	0.00
5.00	0.02	0.00	0.02	57.00	0.00	0.00	0.00
6.00	0.02	0.00	0.02	58.00	0.00	0.00	0.00
7.00	0.03	0.00	0.03	59.00	0.00	0.00	0.00
8.00	0.03	0.00	0.03	60.00	0.00	0.00	0.00
9.00	0.04	0.00	0.04	61.00	0.00	0.00	0.00
10.00	0.06	0.00	0.06	62.00	0.00	0.00	0.00
11.00	0.11	0.00	0.11	63.00	0.00	0.00	0.00
12.00	**1.13**	0.00	**1.13**	64.00	0.00	0.00	0.00
13.00	**0.90**	0.00	**0.90**	65.00	0.00	0.00	0.00
14.00	0.37	0.00	0.37	66.00	0.00	0.00	0.00
15.00	0.22	0.00	0.22	67.00	0.00	0.00	0.00
16.00	0.17	0.00	0.17	68.00	0.00	0.00	0.00
17.00	0.14	0.00	0.14	69.00	0.00	0.00	0.00
18.00	0.12	0.00	0.12	70.00	0.00	0.00	0.00
19.00	0.10	0.00	0.10	71.00	0.00	0.00	0.00
20.00	0.10	0.00	0.10	72.00	0.00	0.00	0.00
21.00	0.09	0.00	0.09				
22.00	0.08	0.00	0.08				
23.00	0.08	0.00	0.08				
24.00	0.08	0.00	0.08				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: EDA #1 PERVIOUS

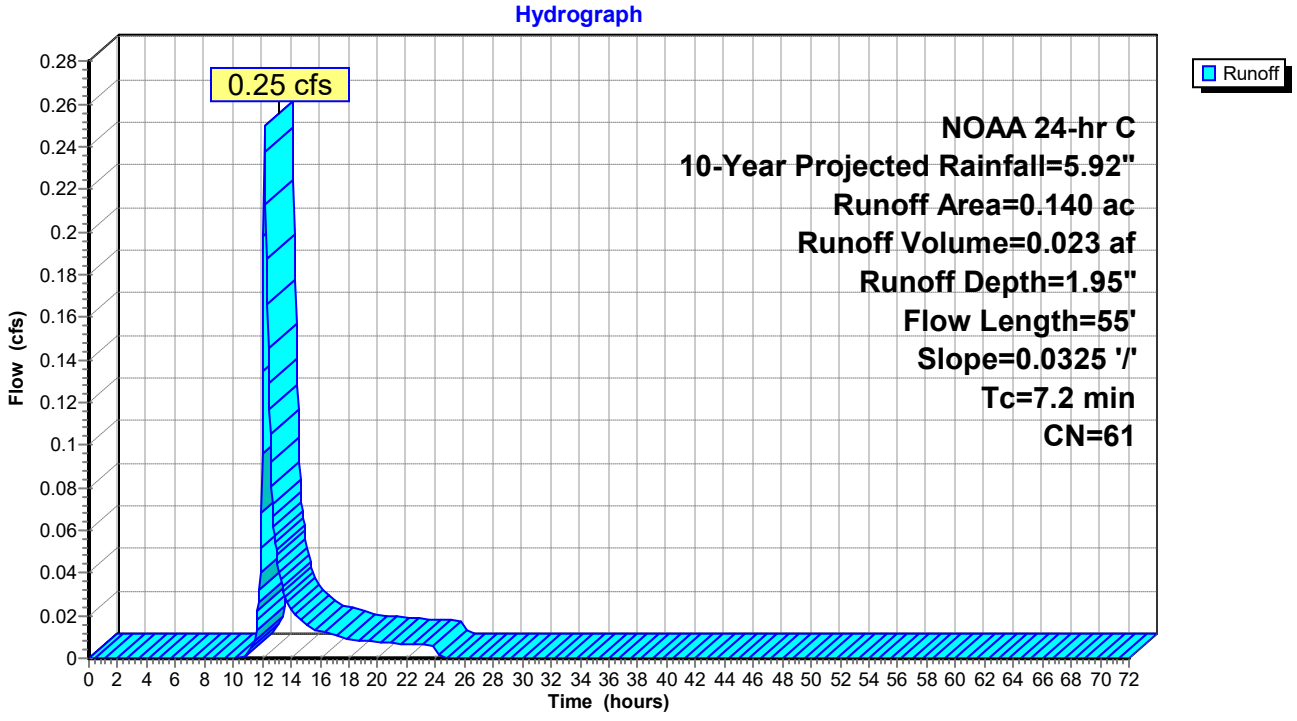
Runoff = 0.25 cfs @ 12.17 hrs, Volume= 0.023 af, Depth= 1.95"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.010	55	Woods, Good, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.140	61	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	55	0.0325	0.13		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"

Subcatchment 1: EDA #1 PERVIOUS



Hydrograph for Subcatchment 1: EDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.00	0.00
9.00	0.86	0.00	0.00
10.00	1.08	0.00	0.00
11.00	1.42	0.00	0.00
12.00	2.82	0.30	**0.10**
13.00	4.50	1.08	**0.05**
14.00	4.84	1.27	0.02
15.00	5.06	1.40	0.02
16.00	5.21	1.50	0.01
17.00	5.34	1.58	0.01
18.00	5.45	1.65	0.01
19.00	5.54	1.71	0.01
20.00	5.63	1.76	0.01
21.00	5.71	1.81	0.01
22.00	5.79	1.86	0.01
23.00	5.86	1.91	0.01
24.00	**5.92**	**1.95**	0.01
25.00	5.92	1.95	0.00
26.00	5.92	1.95	0.00
27.00	5.92	1.95	0.00
28.00	5.92	1.95	0.00
29.00	5.92	1.95	0.00
30.00	5.92	1.95	0.00
31.00	5.92	1.95	0.00
32.00	5.92	1.95	0.00
33.00	5.92	1.95	0.00
34.00	5.92	1.95	0.00
35.00	5.92	1.95	0.00
36.00	5.92	1.95	0.00
37.00	5.92	1.95	0.00
38.00	5.92	1.95	0.00
39.00	5.92	1.95	0.00
40.00	5.92	1.95	0.00
41.00	5.92	1.95	0.00
42.00	5.92	1.95	0.00
43.00	5.92	1.95	0.00
44.00	5.92	1.95	0.00
45.00	5.92	1.95	0.00
46.00	5.92	1.95	0.00
47.00	5.92	1.95	0.00
48.00	5.92	1.95	0.00
49.00	5.92	1.95	0.00
50.00	5.92	1.95	0.00
51.00	5.92	1.95	0.00
52.00	5.92	1.95	0.00
53.00	5.92	1.95	0.00
54.00	5.92	1.95	0.00
55.00	5.92	1.95	0.00
56.00	5.92	1.95	0.00
57.00	5.92	1.95	0.00
58.00	5.92	1.95	0.00
59.00	5.92	1.95	0.00
60.00	5.92	1.95	0.00
61.00	5.92	1.95	0.00
62.00	5.92	1.95	0.00
63.00	5.92	1.95	0.00
64.00	5.92	1.95	0.00
65.00	5.92	1.95	0.00
66.00	5.92	1.95	0.00
67.00	5.92	1.95	0.00
68.00	5.92	1.95	0.00
69.00	5.92	1.95	0.00
70.00	5.92	1.95	0.00
71.00	5.92	1.95	0.00
72.00	5.92	1.95	0.00

Summary for Subcatchment 2: EDA #1 IMPERVIOUS

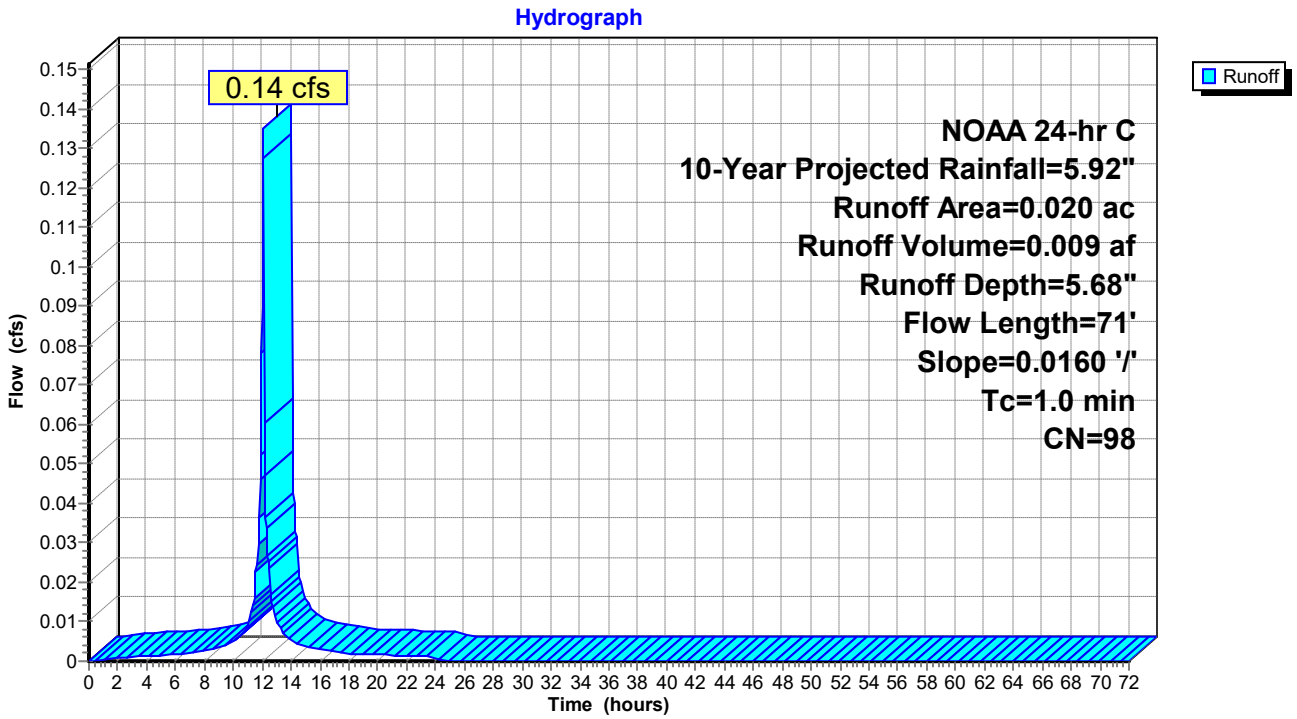
Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 5.68"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.020	98	Impervious
	0.020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	71	0.0160	1.19		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: EDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: EDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.00
3.00	0.21	0.08	0.00
4.00	0.29	0.14	0.00
5.00	0.38	0.21	0.00
6.00	0.47	0.29	0.00
7.00	0.58	0.39	0.00
8.00	0.71	0.51	0.00
9.00	0.86	0.66	0.00
10.00	1.08	0.87	0.01
11.00	1.42	1.20	0.01
12.00	2.82	2.59	**0.09**
13.00	4.50	4.26	**0.01**
14.00	4.84	4.60	0.01
15.00	5.06	4.82	0.00
16.00	5.21	4.97	0.00
17.00	5.34	5.11	0.00
18.00	5.45	5.21	0.00
19.00	5.54	5.31	0.00
20.00	5.63	5.39	0.00
21.00	5.71	5.47	0.00
22.00	5.79	5.55	0.00
23.00	5.86	5.62	0.00
24.00	**5.92**	**5.68**	0.00
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 3: EDA #2 PERVIOUS

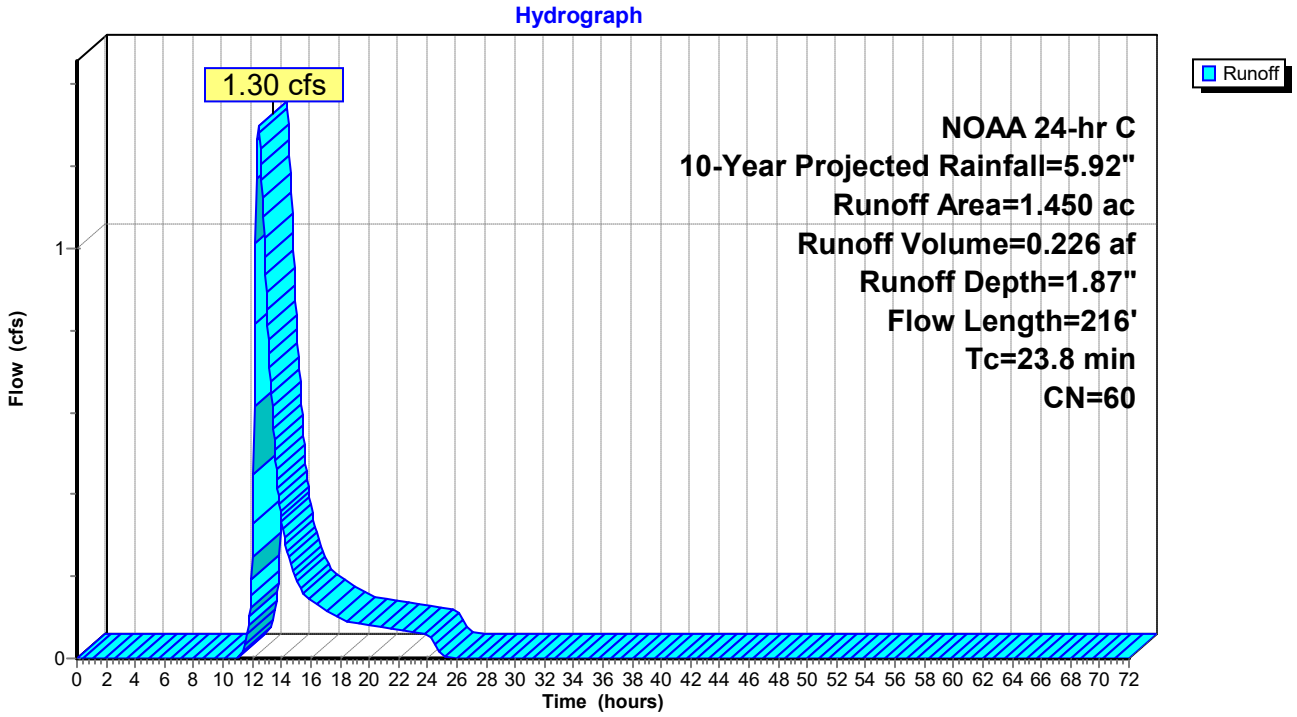
Runoff = 1.30 cfs @ 12.42 hrs, Volume= 0.226 af, Depth= 1.87"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.600	55	Woods, Good, HSG B
0.720	61	>75% Grass cover, Good, HSG B
0.060	70	Woods, Good, HSG C
0.070	74	>75% Grass cover, Good, HSG C
1.450	60	Weighted Average
1.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 3: EDA #2 PERVIOUS



Hydrograph for Subcatchment 3: EDA #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.00	0.00
9.00	0.86	0.00	0.00
10.00	1.08	0.00	0.00
11.00	1.42	0.00	0.00
12.00	2.82	0.27	**0.25**
13.00	4.50	1.02	**0.85**
14.00	4.84	1.21	0.33
15.00	5.06	1.33	0.19
16.00	5.21	1.43	0.14
17.00	5.34	1.51	0.12
18.00	5.45	1.57	0.10
19.00	5.54	1.63	0.09
20.00	5.63	1.68	0.08
21.00	5.71	1.74	0.08
22.00	5.79	1.78	0.07
23.00	5.86	1.83	0.07
24.00	**5.92**	**1.87**	0.06
25.00	5.92	1.87	0.01
26.00	5.92	1.87	0.00
27.00	5.92	1.87	0.00
28.00	5.92	1.87	0.00
29.00	5.92	1.87	0.00
30.00	5.92	1.87	0.00
31.00	5.92	1.87	0.00
32.00	5.92	1.87	0.00
33.00	5.92	1.87	0.00
34.00	5.92	1.87	0.00
35.00	5.92	1.87	0.00
36.00	5.92	1.87	0.00
37.00	5.92	1.87	0.00
38.00	5.92	1.87	0.00
39.00	5.92	1.87	0.00
40.00	5.92	1.87	0.00
41.00	5.92	1.87	0.00
42.00	5.92	1.87	0.00
43.00	5.92	1.87	0.00
44.00	5.92	1.87	0.00
45.00	5.92	1.87	0.00
46.00	5.92	1.87	0.00
47.00	5.92	1.87	0.00
48.00	5.92	1.87	0.00
49.00	5.92	1.87	0.00
50.00	5.92	1.87	0.00
51.00	5.92	1.87	0.00
52.00	5.92	1.87	0.00
53.00	5.92	1.87	0.00
54.00	5.92	1.87	0.00
55.00	5.92	1.87	0.00
56.00	5.92	1.87	0.00
57.00	5.92	1.87	0.00
58.00	5.92	1.87	0.00
59.00	5.92	1.87	0.00
60.00	5.92	1.87	0.00
61.00	5.92	1.87	0.00
62.00	5.92	1.87	0.00
63.00	5.92	1.87	0.00
64.00	5.92	1.87	0.00
65.00	5.92	1.87	0.00
66.00	5.92	1.87	0.00
67.00	5.92	1.87	0.00
68.00	5.92	1.87	0.00
69.00	5.92	1.87	0.00
70.00	5.92	1.87	0.00
71.00	5.92	1.87	0.00
72.00	5.92	1.87	0.00

Summary for Subcatchment 4: EDA #2 IMPERVIOUS

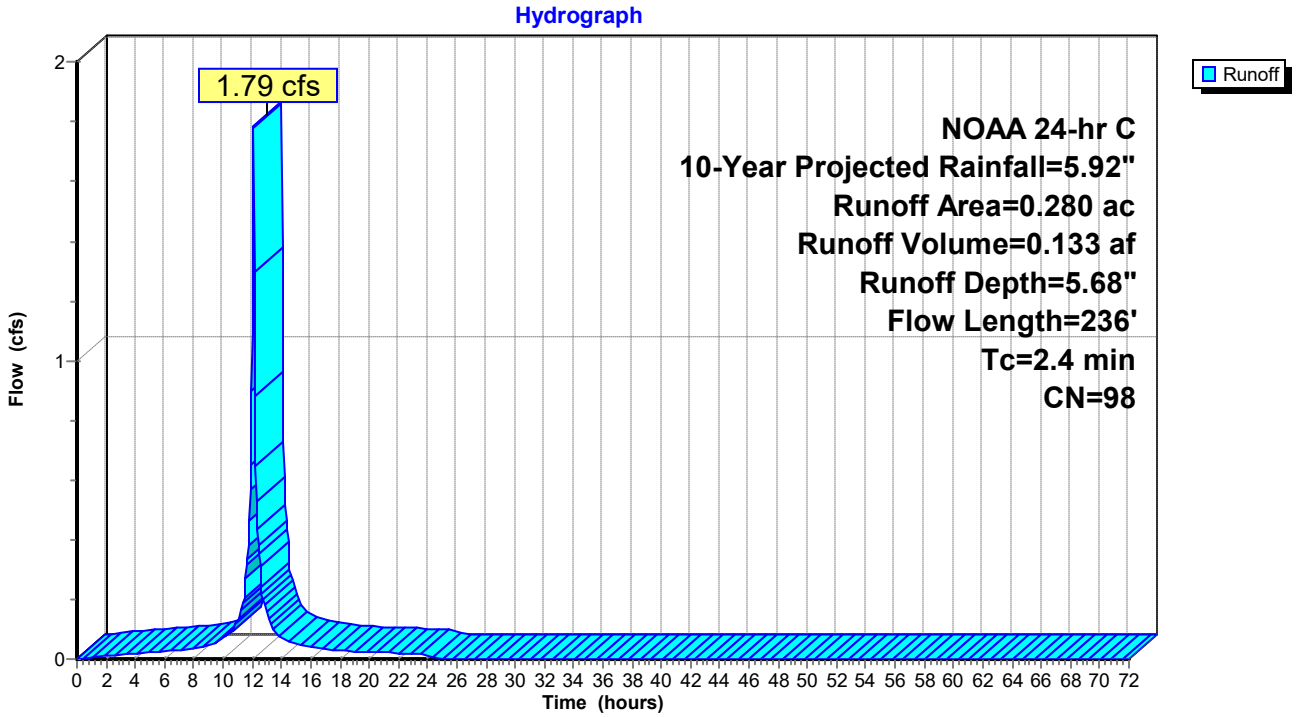
Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.133 af, Depth= 5.68"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.280	98	Impervious
	0.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0158	1.27		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.1	136	0.0100	2.03		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
2.4	236	Total			

Subcatchment 4: EDA #2 IMPERVIOUS



Hydrograph for Subcatchment 4: EDA #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.01
3.00	0.21	0.08	0.02
4.00	0.29	0.14	0.02
5.00	0.38	0.21	0.02
6.00	0.47	0.29	0.02
7.00	0.58	0.39	0.03
8.00	0.71	0.51	0.04
9.00	0.86	0.66	0.04
10.00	1.08	0.87	0.07
11.00	1.42	1.20	0.13
12.00	2.82	2.59	**1.09**
13.00	4.50	4.26	**0.15**
14.00	4.84	4.60	0.07
15.00	5.06	4.82	0.05
16.00	5.21	4.97	0.04
17.00	5.34	5.11	0.03
18.00	5.45	5.21	0.03
19.00	5.54	5.31	0.03
20.00	5.63	5.39	0.02
21.00	5.71	5.47	0.02
22.00	5.79	5.55	0.02
23.00	5.86	5.62	0.02
24.00	**5.92**	**5.68**	0.02
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

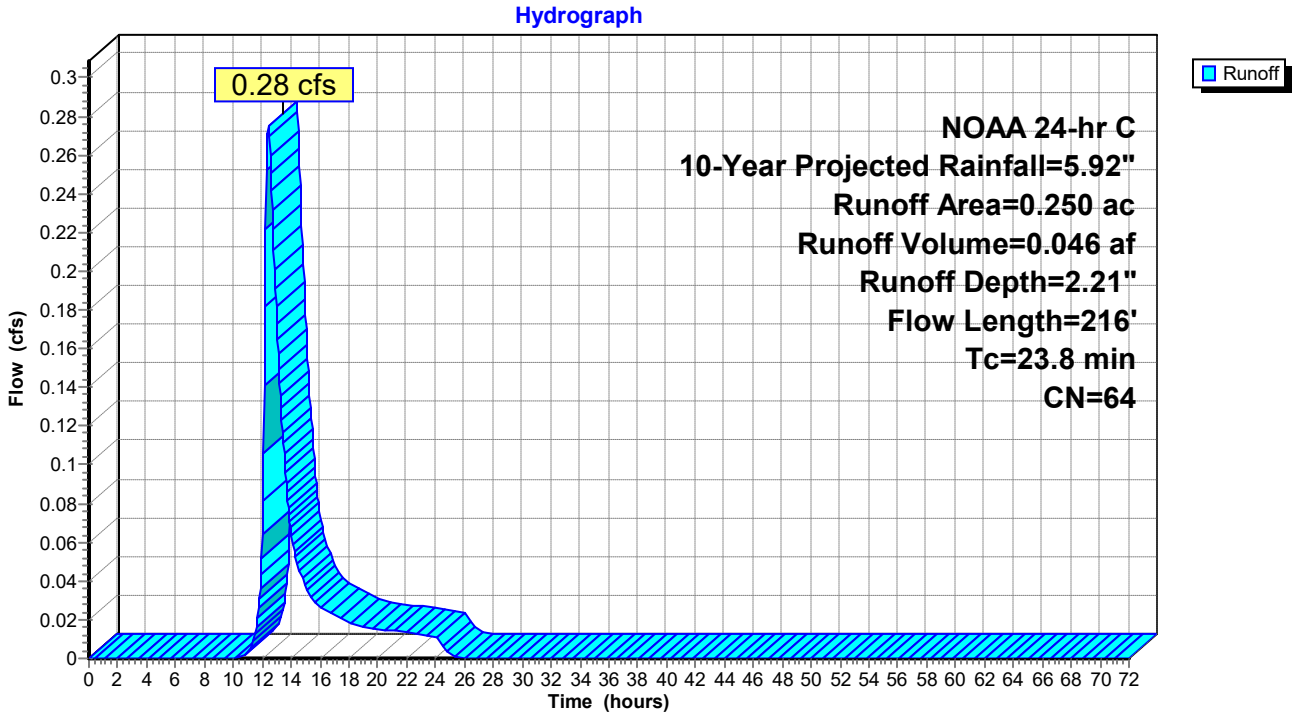
Runoff = 0.28 cfs @ 12.41 hrs, Volume= 0.046 af, Depth= 2.21"
Routed to Link 8 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.110	55	Woods, Good, HSG B
0.030	61	>75% Grass cover, Good, HSG B
0.020	70	Woods, Good, HSG C
0.090	74	>75% Grass cover, Good, HSG C
0.250	64	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)



Hydrograph for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

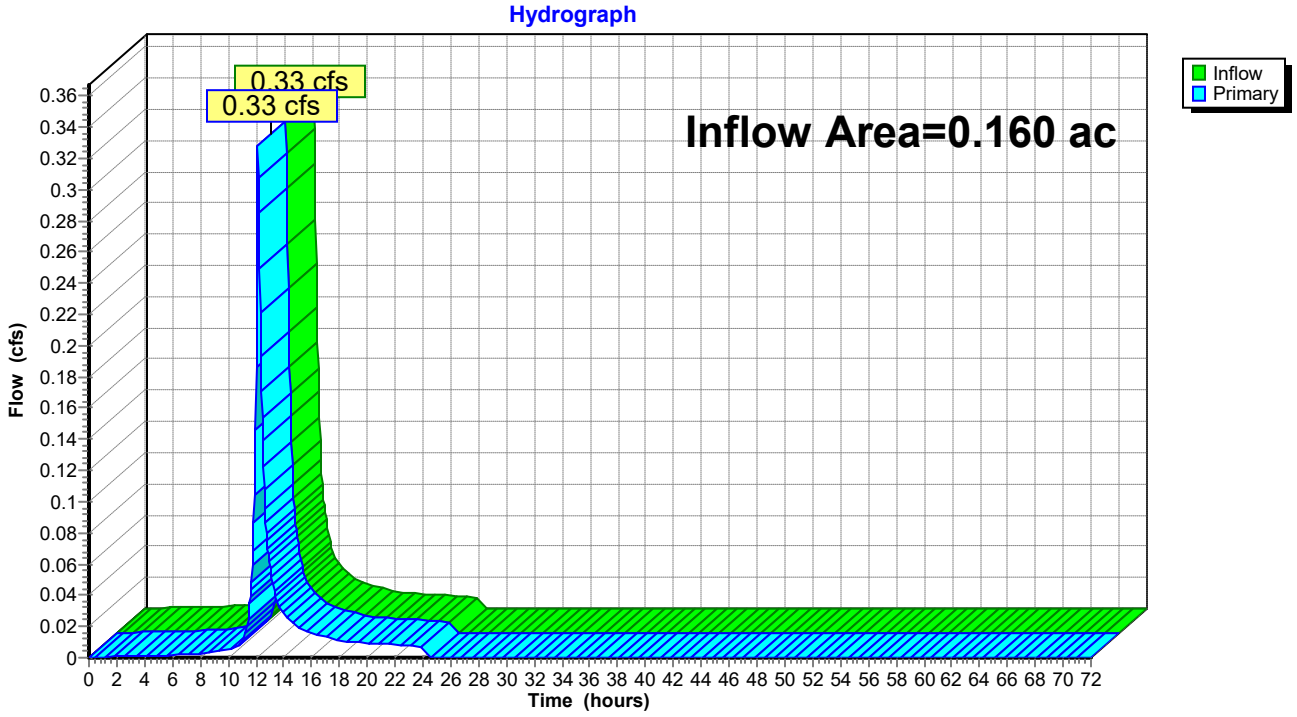
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.00	0.00
9.00	0.86	0.00	0.00
10.00	1.08	0.00	0.00
11.00	1.42	0.01	0.00
12.00	2.82	0.39	**0.06**
13.00	4.50	1.27	**0.17**
14.00	4.84	1.48	0.06
15.00	5.06	1.62	0.04
16.00	5.21	1.72	0.03
17.00	5.34	1.81	0.02
18.00	5.45	1.88	0.02
19.00	5.54	1.94	0.02
20.00	5.63	2.00	0.02
21.00	5.71	2.06	0.01
22.00	5.79	2.11	0.01
23.00	5.86	2.16	0.01
24.00	**5.92**	**2.21**	0.01
25.00	5.92	2.21	0.00
26.00	5.92	2.21	0.00
27.00	5.92	2.21	0.00
28.00	5.92	2.21	0.00
29.00	5.92	2.21	0.00
30.00	5.92	2.21	0.00
31.00	5.92	2.21	0.00
32.00	5.92	2.21	0.00
33.00	5.92	2.21	0.00
34.00	5.92	2.21	0.00
35.00	5.92	2.21	0.00
36.00	5.92	2.21	0.00
37.00	5.92	2.21	0.00
38.00	5.92	2.21	0.00
39.00	5.92	2.21	0.00
40.00	5.92	2.21	0.00
41.00	5.92	2.21	0.00
42.00	5.92	2.21	0.00
43.00	5.92	2.21	0.00
44.00	5.92	2.21	0.00
45.00	5.92	2.21	0.00
46.00	5.92	2.21	0.00
47.00	5.92	2.21	0.00
48.00	5.92	2.21	0.00
49.00	5.92	2.21	0.00
50.00	5.92	2.21	0.00
51.00	5.92	2.21	0.00
52.00	5.92	2.21	0.00
53.00	5.92	2.21	0.00
54.00	5.92	2.21	0.00
55.00	5.92	2.21	0.00
56.00	5.92	2.21	0.00
57.00	5.92	2.21	0.00
58.00	5.92	2.21	0.00
59.00	5.92	2.21	0.00
60.00	5.92	2.21	0.00
61.00	5.92	2.21	0.00
62.00	5.92	2.21	0.00
63.00	5.92	2.21	0.00
64.00	5.92	2.21	0.00
65.00	5.92	2.21	0.00
66.00	5.92	2.21	0.00
67.00	5.92	2.21	0.00
68.00	5.92	2.21	0.00
69.00	5.92	2.21	0.00
70.00	5.92	2.21	0.00
71.00	5.92	2.21	0.00
72.00	5.92	2.21	0.00

Summary for Link 5: POA #1

Inflow Area = 0.160 ac, 12.50% Impervious, Inflow Depth = 2.42" for 10-Year Projected event
Inflow = 0.33 cfs @ 12.11 hrs, Volume= 0.032 af
Primary = 0.33 cfs @ 12.11 hrs, Volume= 0.032 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 7L

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

Link 5: POA #1



Hydrograph for Link 5: POA #1

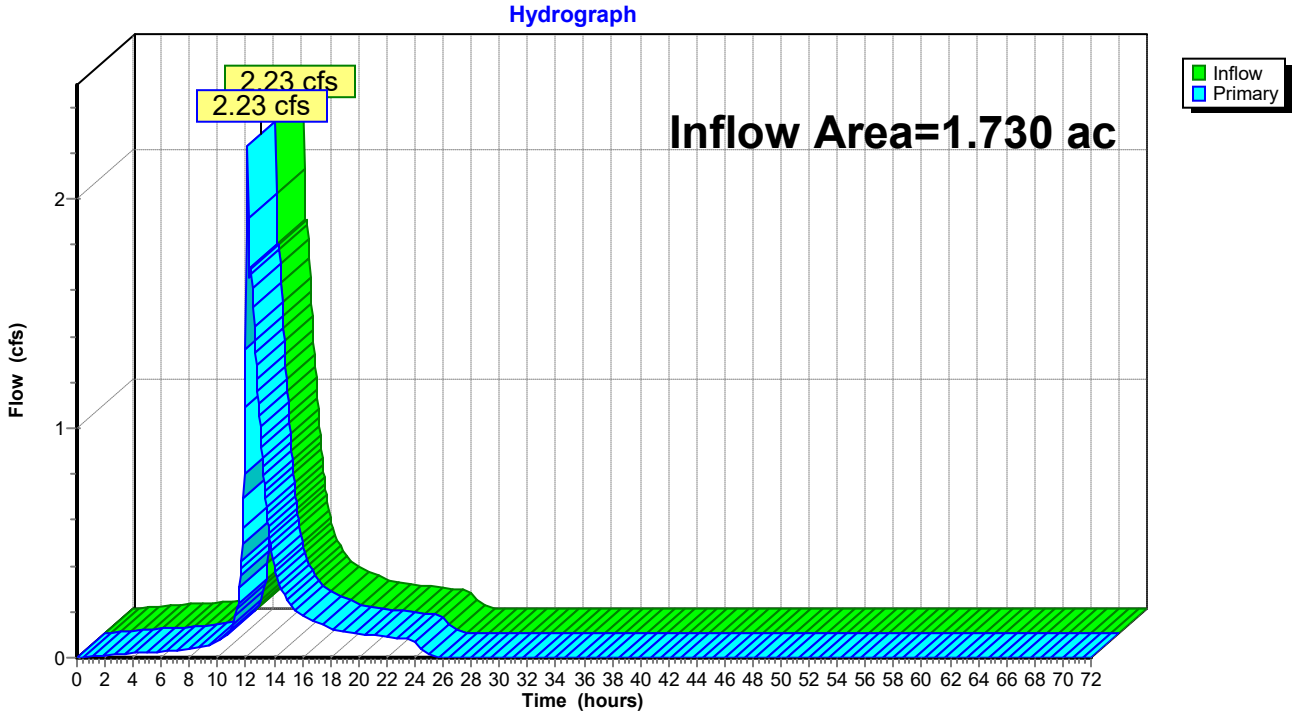
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	**0.19**	0.00	**0.19**	64.00	0.00	0.00	0.00
13.00	**0.06**	0.00	**0.06**	65.00	0.00	0.00	0.00
14.00	0.03	0.00	0.03	66.00	0.00	0.00	0.00
15.00	0.02	0.00	0.02	67.00	0.00	0.00	0.00
16.00	0.02	0.00	0.02	68.00	0.00	0.00	0.00
17.00	0.01	0.00	0.01	69.00	0.00	0.00	0.00
18.00	0.01	0.00	0.01	70.00	0.00	0.00	0.00
19.00	0.01	0.00	0.01	71.00	0.00	0.00	0.00
20.00	0.01	0.00	0.01	72.00	0.00	0.00	0.00
21.00	0.01	0.00	0.01				
22.00	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.730 ac, 16.18% Impervious, Inflow Depth = 2.49" for 10-Year Projected event
Inflow = 2.23 cfs @ 12.10 hrs, Volume= 0.358 af
Primary = 2.23 cfs @ 12.10 hrs, Volume= 0.358 af, Atten= 0%, Lag= 0.0 min
Routed to Link 8 : POA #2 (TOTAL)

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

Link 6: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 6: POA #2 (ONSITE REDUCTION)

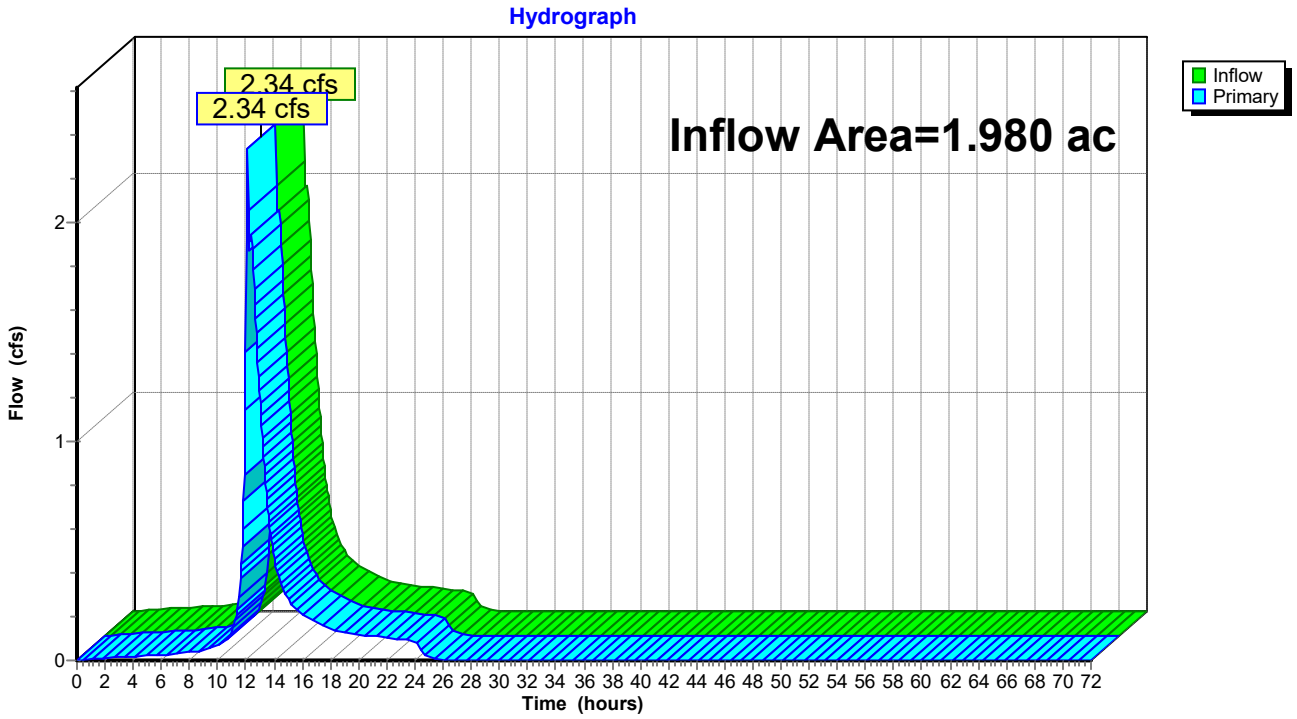
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01
3.00	0.02	0.00	0.02
4.00	0.02	0.00	0.02
5.00	0.02	0.00	0.02
6.00	0.02	0.00	0.02
7.00	0.03	0.00	0.03
8.00	0.04	0.00	0.04
9.00	0.04	0.00	0.04
10.00	0.07	0.00	0.07
11.00	0.13	0.00	0.13
12.00	**1.34**	0.00	**1.34**
13.00	**1.00**	0.00	**1.00**
14.00	0.41	0.00	0.41
15.00	0.24	0.00	0.24
16.00	0.18	0.00	0.18
17.00	0.15	0.00	0.15
18.00	0.13	0.00	0.13
19.00	0.11	0.00	0.11
20.00	0.10	0.00	0.10
21.00	0.10	0.00	0.10
22.00	0.09	0.00	0.09
23.00	0.08	0.00	0.08
24.00	0.08	0.00	0.08
25.00	0.01	0.00	0.01
26.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 8: POA #2 (TOTAL)

Inflow Area = 1.980 ac, 14.14% Impervious, Inflow Depth = 2.45" for 10-Year Projected event
Inflow = 2.34 cfs @ 12.10 hrs, Volume= 0.404 af
Primary = 2.34 cfs @ 12.10 hrs, Volume= 0.404 af, Atten= 0%, Lag= 0.0 min

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

Link 8: POA #2 (TOTAL)



Hydrograph for Link 8: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.01	0.00	0.01	54.00	0.00	0.00	0.00
3.00	0.02	0.00	0.02	55.00	0.00	0.00	0.00
4.00	0.02	0.00	0.02	56.00	0.00	0.00	0.00
5.00	0.02	0.00	0.02	57.00	0.00	0.00	0.00
6.00	0.02	0.00	0.02	58.00	0.00	0.00	0.00
7.00	0.03	0.00	0.03	59.00	0.00	0.00	0.00
8.00	0.04	0.00	0.04	60.00	0.00	0.00	0.00
9.00	0.04	0.00	0.04	61.00	0.00	0.00	0.00
10.00	0.07	0.00	0.07	62.00	0.00	0.00	0.00
11.00	0.13	0.00	0.13	63.00	0.00	0.00	0.00
12.00	**1.41**	0.00	**1.41**	64.00	0.00	0.00	0.00
13.00	**1.18**	0.00	**1.18**	65.00	0.00	0.00	0.00
14.00	0.47	0.00	0.47	66.00	0.00	0.00	0.00
15.00	0.28	0.00	0.28	67.00	0.00	0.00	0.00
16.00	0.21	0.00	0.21	68.00	0.00	0.00	0.00
17.00	0.18	0.00	0.18	69.00	0.00	0.00	0.00
18.00	0.15	0.00	0.15	70.00	0.00	0.00	0.00
19.00	0.13	0.00	0.13	71.00	0.00	0.00	0.00
20.00	0.12	0.00	0.12	72.00	0.00	0.00	0.00
21.00	0.11	0.00	0.11				
22.00	0.10	0.00	0.10				
23.00	0.10	0.00	0.10				
24.00	0.09	0.00	0.09				
25.00	0.01	0.00	0.01				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: EDA #1 PERVIOUS

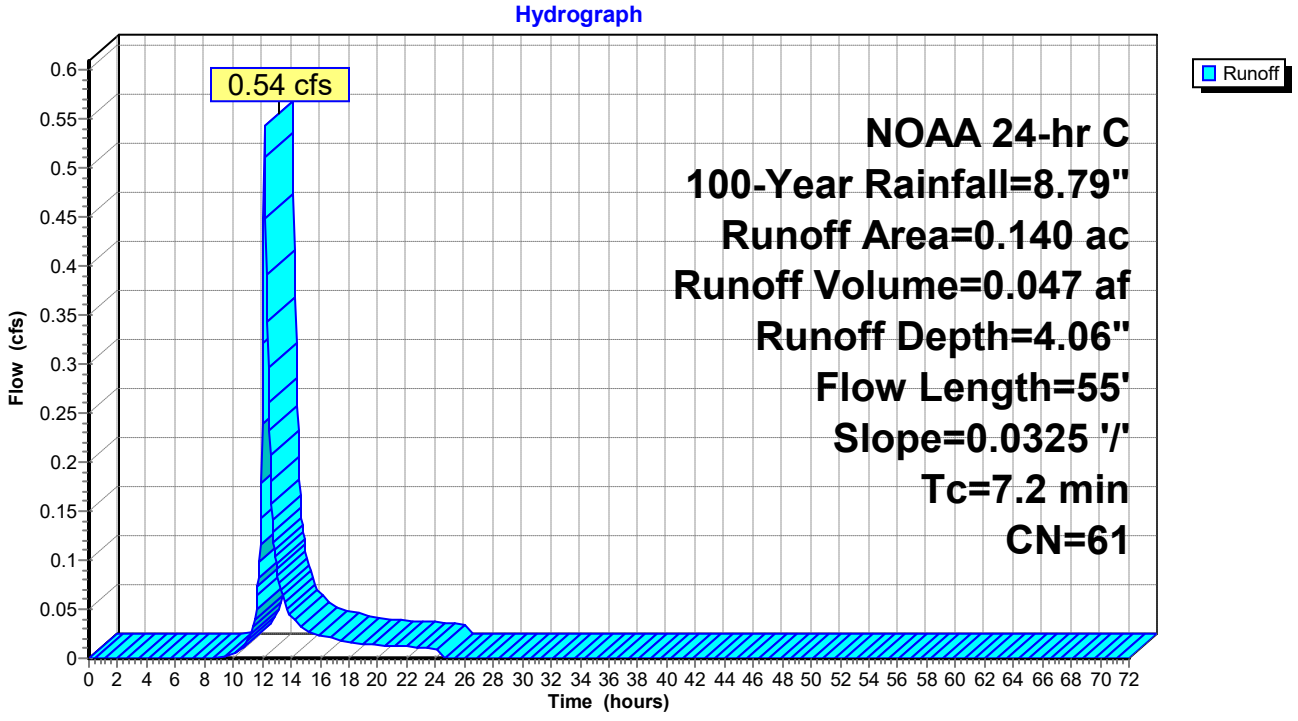
Runoff = 0.54 cfs @ 12.16 hrs, Volume= 0.047 af, Depth= 4.06"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.010	55	Woods, Good, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.140	61	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	55	0.0325	0.13		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"

Subcatchment 1: EDA #1 PERVIOUS



Hydrograph for Subcatchment 1: EDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.00	0.00
7.00	0.86	0.00	0.00
8.00	1.05	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.60	0.02	0.00
11.00	2.11	0.10	0.02
12.00	4.19	0.91	**0.24**
13.00	6.68	2.47	**0.09**
14.00	7.19	2.84	0.04
15.00	7.51	3.07	0.03
16.00	7.74	3.25	0.02
17.00	7.93	3.39	0.02
18.00	8.09	3.52	0.02
19.00	8.23	3.62	0.01
20.00	8.36	3.72	0.01
21.00	8.48	3.81	0.01
22.00	8.59	3.90	0.01
23.00	8.69	3.98	0.01
24.00	**8.79**	**4.06**	0.01
25.00	8.79	4.06	0.00
26.00	8.79	4.06	0.00
27.00	8.79	4.06	0.00
28.00	8.79	4.06	0.00
29.00	8.79	4.06	0.00
30.00	8.79	4.06	0.00
31.00	8.79	4.06	0.00
32.00	8.79	4.06	0.00
33.00	8.79	4.06	0.00
34.00	8.79	4.06	0.00
35.00	8.79	4.06	0.00
36.00	8.79	4.06	0.00
37.00	8.79	4.06	0.00
38.00	8.79	4.06	0.00
39.00	8.79	4.06	0.00
40.00	8.79	4.06	0.00
41.00	8.79	4.06	0.00
42.00	8.79	4.06	0.00
43.00	8.79	4.06	0.00
44.00	8.79	4.06	0.00
45.00	8.79	4.06	0.00
46.00	8.79	4.06	0.00
47.00	8.79	4.06	0.00
48.00	8.79	4.06	0.00
49.00	8.79	4.06	0.00
50.00	8.79	4.06	0.00
51.00	8.79	4.06	0.00
52.00	8.79	4.06	0.00
53.00	8.79	4.06	0.00
54.00	8.79	4.06	0.00
55.00	8.79	4.06	0.00
56.00	8.79	4.06	0.00
57.00	8.79	4.06	0.00
58.00	8.79	4.06	0.00
59.00	8.79	4.06	0.00
60.00	8.79	4.06	0.00
61.00	8.79	4.06	0.00
62.00	8.79	4.06	0.00
63.00	8.79	4.06	0.00
64.00	8.79	4.06	0.00
65.00	8.79	4.06	0.00
66.00	8.79	4.06	0.00
67.00	8.79	4.06	0.00
68.00	8.79	4.06	0.00
69.00	8.79	4.06	0.00
70.00	8.79	4.06	0.00
71.00	8.79	4.06	0.00
72.00	8.79	4.06	0.00

Summary for Subcatchment 2: EDA #1 IMPERVIOUS

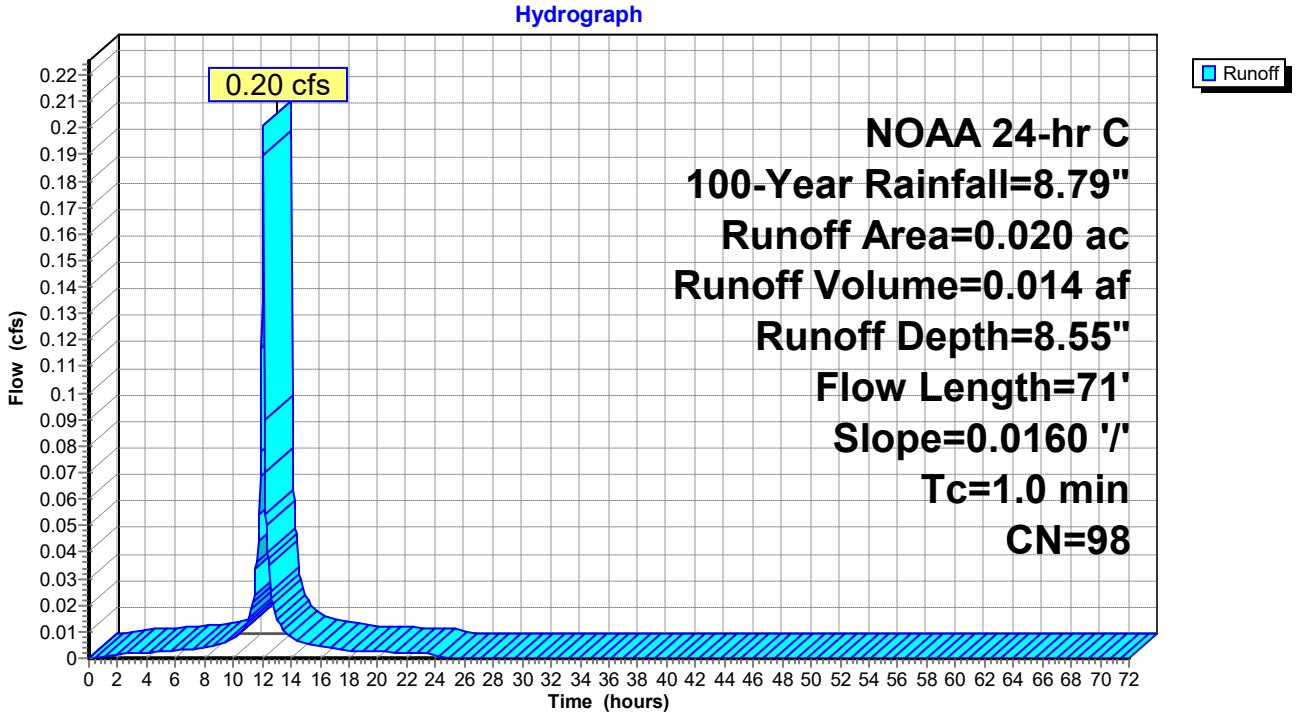
Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 8.55"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.020	98	Impervious
	0.020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	71	0.0160	1.19		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: EDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: EDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.20	0.07	0.00
3.00	0.31	0.15	0.00
4.00	0.43	0.26	0.00
5.00	0.56	0.37	0.00
6.00	0.70	0.50	0.00
7.00	0.86	0.65	0.00
8.00	1.05	0.84	0.00
9.00	1.28	1.07	0.00
10.00	1.60	1.38	0.01
11.00	2.11	1.88	0.01
12.00	4.19	3.95	**0.13**
13.00	6.68	6.44	**0.02**
14.00	7.19	6.95	0.01
15.00	7.51	7.27	0.01
16.00	7.74	7.50	0.00
17.00	7.93	7.69	0.00
18.00	8.09	7.85	0.00
19.00	8.23	7.99	0.00
20.00	8.36	8.12	0.00
21.00	8.48	8.24	0.00
22.00	8.59	8.35	0.00
23.00	8.69	8.45	0.00
24.00	**8.79**	**8.55**	0.00
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 3: EDA #2 PERVIOUS

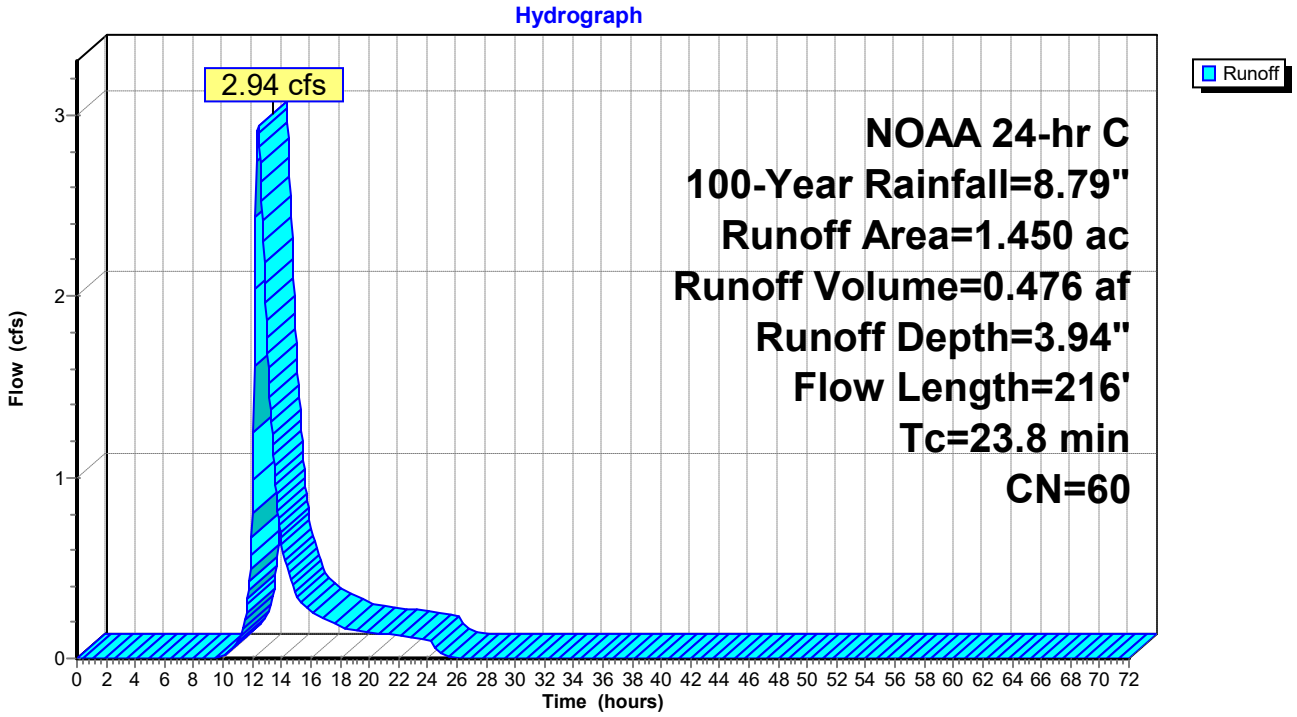
Runoff = 2.94 cfs @ 12.40 hrs, Volume= 0.476 af, Depth= 3.94"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.600	55	Woods, Good, HSG B
0.720	61	>75% Grass cover, Good, HSG B
0.060	70	Woods, Good, HSG C
0.070	74	>75% Grass cover, Good, HSG C
1.450	60	Weighted Average
1.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 3: EDA #2 PERVIOUS



Hydrograph for Subcatchment 3: EDA #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.00	0.00
7.00	0.86	0.00	0.00
8.00	1.05	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.60	0.01	0.01
11.00	2.11	0.08	0.09
12.00	4.19	0.86	**0.80**
13.00	6.68	2.38	**1.77**
14.00	7.19	2.74	0.64
15.00	7.51	2.97	0.36
16.00	7.74	3.14	0.26
17.00	7.93	3.28	0.22
18.00	8.09	3.40	0.18
19.00	8.23	3.51	0.15
20.00	8.36	3.61	0.14
21.00	8.48	3.70	0.14
22.00	8.59	3.78	0.13
23.00	8.69	3.86	0.12
24.00	**8.79**	**3.94**	0.11
25.00	8.79	3.94	0.02
26.00	8.79	3.94	0.00
27.00	8.79	3.94	0.00
28.00	8.79	3.94	0.00
29.00	8.79	3.94	0.00
30.00	8.79	3.94	0.00
31.00	8.79	3.94	0.00
32.00	8.79	3.94	0.00
33.00	8.79	3.94	0.00
34.00	8.79	3.94	0.00
35.00	8.79	3.94	0.00
36.00	8.79	3.94	0.00
37.00	8.79	3.94	0.00
38.00	8.79	3.94	0.00
39.00	8.79	3.94	0.00
40.00	8.79	3.94	0.00
41.00	8.79	3.94	0.00
42.00	8.79	3.94	0.00
43.00	8.79	3.94	0.00
44.00	8.79	3.94	0.00
45.00	8.79	3.94	0.00
46.00	8.79	3.94	0.00
47.00	8.79	3.94	0.00
48.00	8.79	3.94	0.00
49.00	8.79	3.94	0.00
50.00	8.79	3.94	0.00
51.00	8.79	3.94	0.00
52.00	8.79	3.94	0.00
53.00	8.79	3.94	0.00
54.00	8.79	3.94	0.00
55.00	8.79	3.94	0.00
56.00	8.79	3.94	0.00
57.00	8.79	3.94	0.00
58.00	8.79	3.94	0.00
59.00	8.79	3.94	0.00
60.00	8.79	3.94	0.00
61.00	8.79	3.94	0.00
62.00	8.79	3.94	0.00
63.00	8.79	3.94	0.00
64.00	8.79	3.94	0.00
65.00	8.79	3.94	0.00
66.00	8.79	3.94	0.00
67.00	8.79	3.94	0.00
68.00	8.79	3.94	0.00
69.00	8.79	3.94	0.00
70.00	8.79	3.94	0.00
71.00	8.79	3.94	0.00
72.00	8.79	3.94	0.00

Summary for Subcatchment 4: EDA #2 IMPERVIOUS

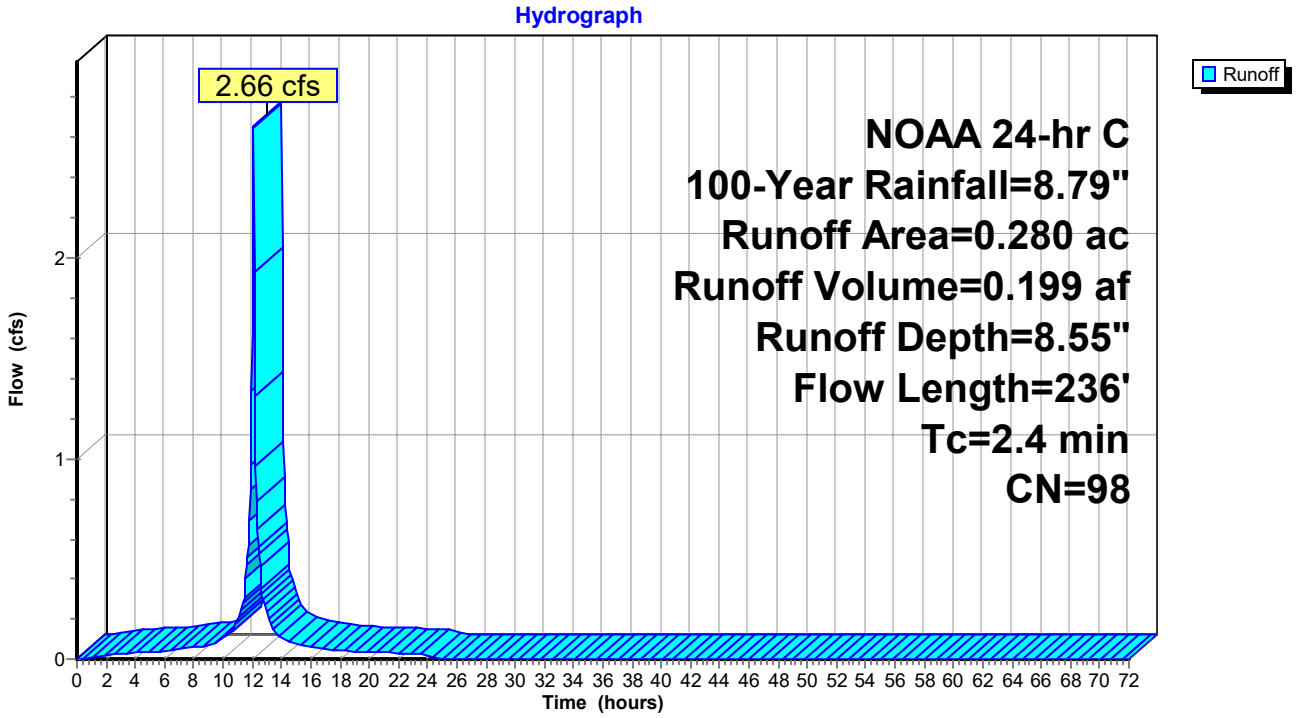
Runoff = 2.66 cfs @ 12.09 hrs, Volume= 0.199 af, Depth= 8.55"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.280	98	Impervious
	0.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0158	1.27		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.1	136	0.0100	2.03		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
2.4	236	Total			

Subcatchment 4: EDA #2 IMPERVIOUS



Hydrograph for Subcatchment 4: EDA #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.20	0.07	0.02
3.00	0.31	0.15	0.03
4.00	0.43	0.26	0.03
5.00	0.56	0.37	0.03
6.00	0.70	0.50	0.04
7.00	0.86	0.65	0.05
8.00	1.05	0.84	0.06
9.00	1.28	1.07	0.07
10.00	1.60	1.38	0.10
11.00	2.11	1.88	0.19
12.00	4.19	3.95	**1.63**
13.00	6.68	6.44	**0.23**
14.00	7.19	6.95	0.11
15.00	7.51	7.27	0.07
16.00	7.74	7.50	0.06
17.00	7.93	7.69	0.05
18.00	8.09	7.85	0.04
19.00	8.23	7.99	0.04
20.00	8.36	8.12	0.04
21.00	8.48	8.24	0.03
22.00	8.59	8.35	0.03
23.00	8.69	8.45	0.03
24.00	**8.79**	**8.55**	0.03
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

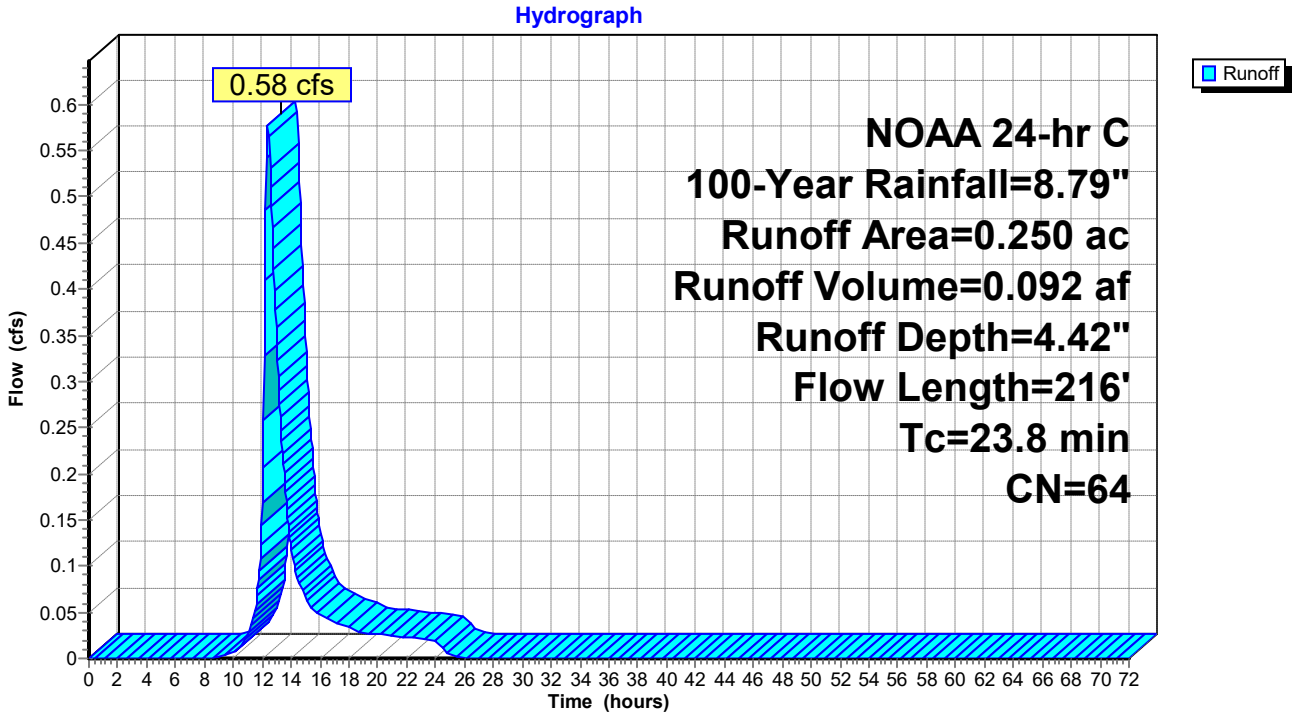
Runoff = 0.58 cfs @ 12.39 hrs, Volume= 0.092 af, Depth= 4.42"
Routed to Link 8 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.110	55	Woods, Good, HSG B
0.030	61	>75% Grass cover, Good, HSG B
0.020	70	Woods, Good, HSG C
0.090	74	>75% Grass cover, Good, HSG C
0.250	64	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)



Hydrograph for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

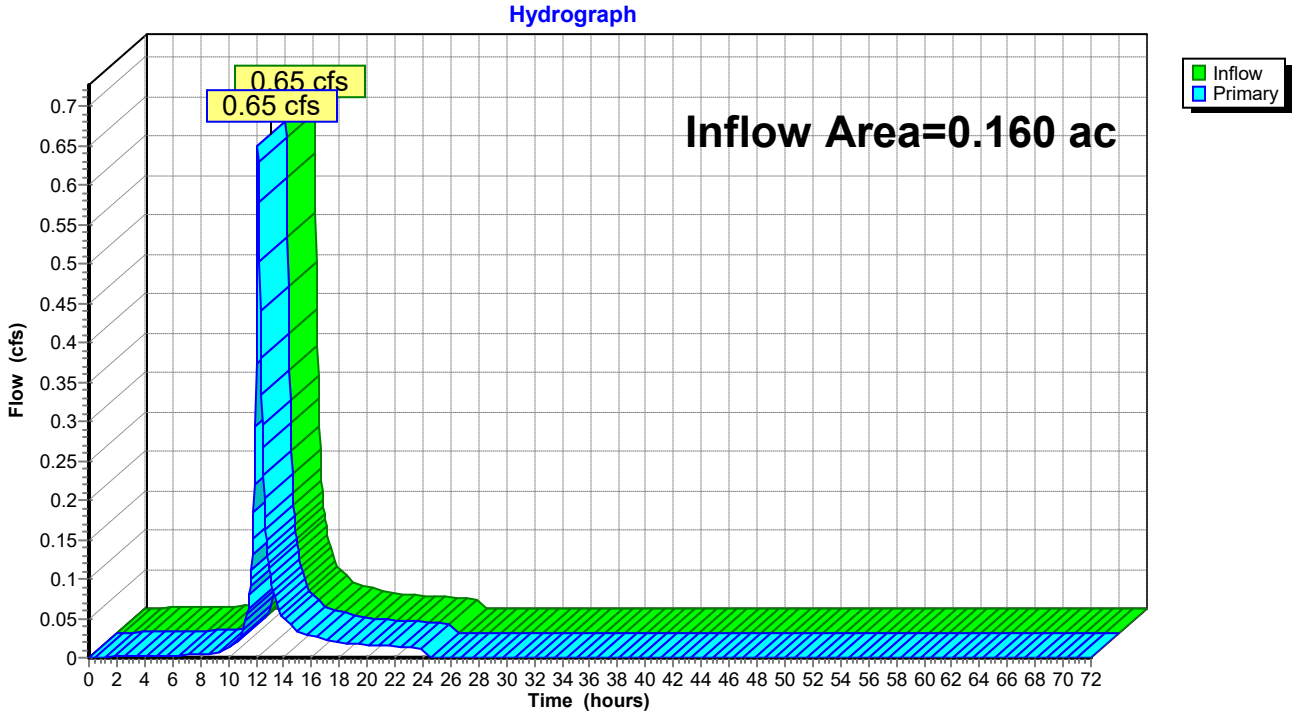
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.00	0.00
7.00	0.86	0.00	0.00
8.00	1.05	0.00	0.00
9.00	1.28	0.00	0.00
10.00	1.60	0.04	0.01
11.00	2.11	0.15	0.02
12.00	4.19	1.08	**0.17**
13.00	6.68	2.76	**0.34**
14.00	7.19	3.14	0.12
15.00	7.51	3.39	0.07
16.00	7.74	3.57	0.05
17.00	7.93	3.73	0.04
18.00	8.09	3.86	0.03
19.00	8.23	3.97	0.03
20.00	8.36	4.07	0.03
21.00	8.48	4.17	0.02
22.00	8.59	4.26	0.02
23.00	8.69	4.34	0.02
24.00	**8.79**	**4.42**	0.02
25.00	8.79	4.42	0.00
26.00	8.79	4.42	0.00
27.00	8.79	4.42	0.00
28.00	8.79	4.42	0.00
29.00	8.79	4.42	0.00
30.00	8.79	4.42	0.00
31.00	8.79	4.42	0.00
32.00	8.79	4.42	0.00
33.00	8.79	4.42	0.00
34.00	8.79	4.42	0.00
35.00	8.79	4.42	0.00
36.00	8.79	4.42	0.00
37.00	8.79	4.42	0.00
38.00	8.79	4.42	0.00
39.00	8.79	4.42	0.00
40.00	8.79	4.42	0.00
41.00	8.79	4.42	0.00
42.00	8.79	4.42	0.00
43.00	8.79	4.42	0.00
44.00	8.79	4.42	0.00
45.00	8.79	4.42	0.00
46.00	8.79	4.42	0.00
47.00	8.79	4.42	0.00
48.00	8.79	4.42	0.00
49.00	8.79	4.42	0.00
50.00	8.79	4.42	0.00
51.00	8.79	4.42	0.00
52.00	8.79	4.42	0.00
53.00	8.79	4.42	0.00
54.00	8.79	4.42	0.00
55.00	8.79	4.42	0.00
56.00	8.79	4.42	0.00
57.00	8.79	4.42	0.00
58.00	8.79	4.42	0.00
59.00	8.79	4.42	0.00
60.00	8.79	4.42	0.00
61.00	8.79	4.42	0.00
62.00	8.79	4.42	0.00
63.00	8.79	4.42	0.00
64.00	8.79	4.42	0.00
65.00	8.79	4.42	0.00
66.00	8.79	4.42	0.00
67.00	8.79	4.42	0.00
68.00	8.79	4.42	0.00
69.00	8.79	4.42	0.00
70.00	8.79	4.42	0.00
71.00	8.79	4.42	0.00
72.00	8.79	4.42	0.00

Summary for Link 5: POA #1

Inflow Area = 0.160 ac, 12.50% Impervious, Inflow Depth = 4.62" for 100-Year event
Inflow = 0.65 cfs @ 12.12 hrs, Volume= 0.062 af
Primary = 0.65 cfs @ 12.12 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 7L

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

Link 5: POA #1



Hydrograph for Link 5: POA #1

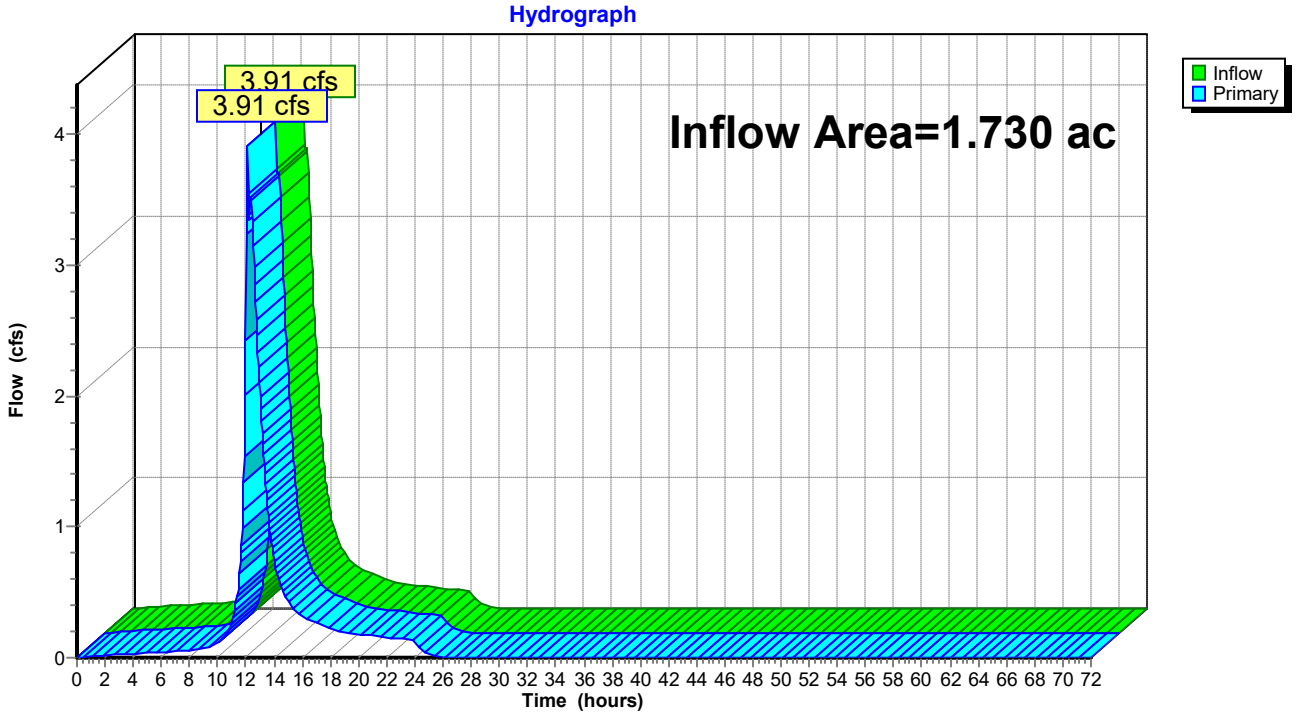
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.03	0.00	0.03	63.00	0.00	0.00	0.00
12.00	**0.37**	0.00	**0.37**	64.00	0.00	0.00	0.00
13.00	**0.11**	0.00	**0.11**	65.00	0.00	0.00	0.00
14.00	0.05	0.00	0.05	66.00	0.00	0.00	0.00
15.00	0.03	0.00	0.03	67.00	0.00	0.00	0.00
16.00	0.03	0.00	0.03	68.00	0.00	0.00	0.00
17.00	0.02	0.00	0.02	69.00	0.00	0.00	0.00
18.00	0.02	0.00	0.02	70.00	0.00	0.00	0.00
19.00	0.02	0.00	0.02	71.00	0.00	0.00	0.00
20.00	0.02	0.00	0.02	72.00	0.00	0.00	0.00
21.00	0.02	0.00	0.02				
22.00	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.730 ac, 16.18% Impervious, Inflow Depth = 4.68" for 100-Year event
Inflow = 3.91 cfs @ 12.11 hrs, Volume= 0.675 af
Primary = 3.91 cfs @ 12.11 hrs, Volume= 0.675 af, Atten= 0%, Lag= 0.0 min
Routed to Link 8 : POA #2 (TOTAL)

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

Link 6: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 6: POA #2 (ONSITE REDUCTION)

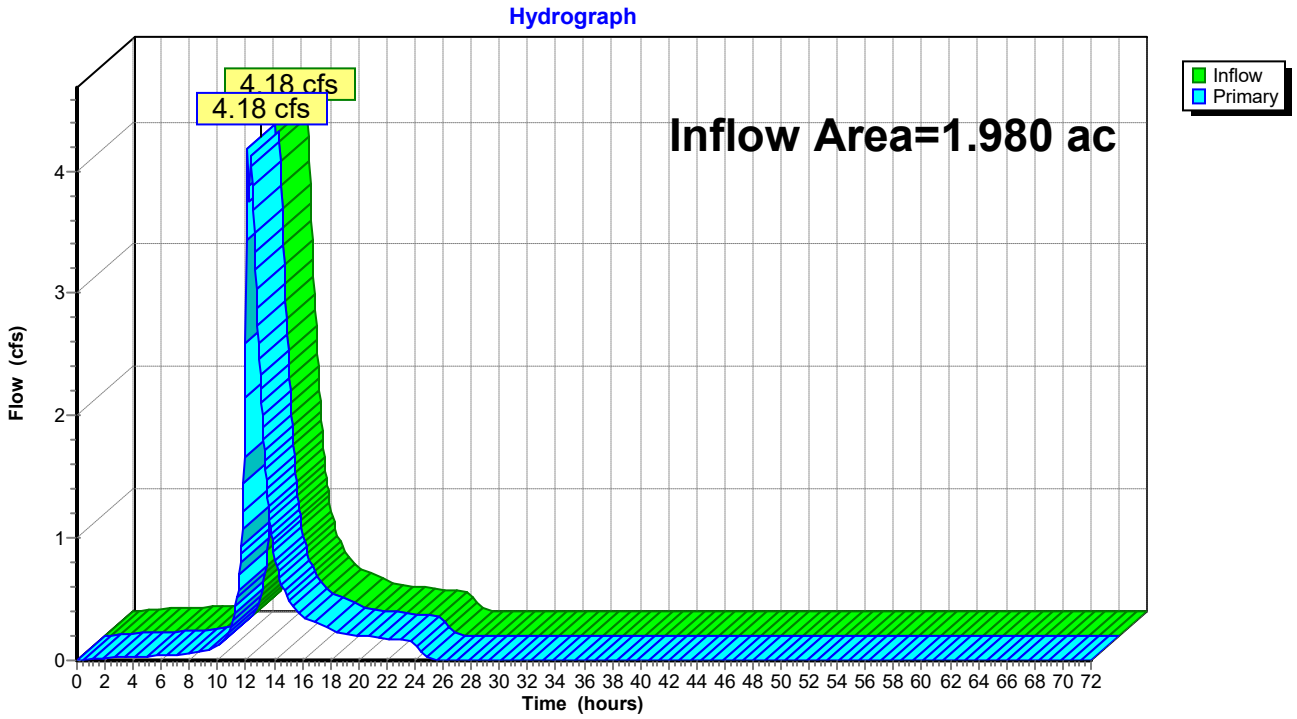
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.01	0.00	0.01
2.00	0.02	0.00	0.02
3.00	0.03	0.00	0.03
4.00	0.03	0.00	0.03
5.00	0.03	0.00	0.03
6.00	0.04	0.00	0.04
7.00	0.05	0.00	0.05
8.00	0.06	0.00	0.06
9.00	0.07	0.00	0.07
10.00	0.12	0.00	0.12
11.00	0.28	0.00	0.28
12.00	**2.43**	0.00	**2.43**
13.00	**2.00**	0.00	**2.00**
14.00	0.75	0.00	0.75
15.00	0.43	0.00	0.43
16.00	0.32	0.00	0.32
17.00	0.27	0.00	0.27
18.00	0.22	0.00	0.22
19.00	0.19	0.00	0.19
20.00	0.18	0.00	0.18
21.00	0.17	0.00	0.17
22.00	0.16	0.00	0.16
23.00	0.14	0.00	0.14
24.00	0.14	0.00	0.14
25.00	0.02	0.00	0.02
26.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 8: POA #2 (TOTAL)

Inflow Area = 1.980 ac, 14.14% Impervious, Inflow Depth = 4.65" for 100-Year event
Inflow = 4.18 cfs @ 12.11 hrs, Volume= 0.767 af
Primary = 4.18 cfs @ 12.11 hrs, Volume= 0.767 af, Atten= 0%, Lag= 0.0 min

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

Link 8: POA #2 (TOTAL)



Hydrograph for Link 8: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.01	0.00	0.01	53.00	0.00	0.00	0.00
2.00	0.02	0.00	0.02	54.00	0.00	0.00	0.00
3.00	0.03	0.00	0.03	55.00	0.00	0.00	0.00
4.00	0.03	0.00	0.03	56.00	0.00	0.00	0.00
5.00	0.03	0.00	0.03	57.00	0.00	0.00	0.00
6.00	0.04	0.00	0.04	58.00	0.00	0.00	0.00
7.00	0.05	0.00	0.05	59.00	0.00	0.00	0.00
8.00	0.06	0.00	0.06	60.00	0.00	0.00	0.00
9.00	0.07	0.00	0.07	61.00	0.00	0.00	0.00
10.00	0.13	0.00	0.13	62.00	0.00	0.00	0.00
11.00	0.31	0.00	0.31	63.00	0.00	0.00	0.00
12.00	**2.60**	0.00	**2.60**	64.00	0.00	0.00	0.00
13.00	**2.34**	0.00	**2.34**	65.00	0.00	0.00	0.00
14.00	0.87	0.00	0.87	66.00	0.00	0.00	0.00
15.00	0.50	0.00	0.50	67.00	0.00	0.00	0.00
16.00	0.37	0.00	0.37	68.00	0.00	0.00	0.00
17.00	0.31	0.00	0.31	69.00	0.00	0.00	0.00
18.00	0.25	0.00	0.25	70.00	0.00	0.00	0.00
19.00	0.22	0.00	0.22	71.00	0.00	0.00	0.00
20.00	0.21	0.00	0.21	72.00	0.00	0.00	0.00
21.00	0.19	0.00	0.19				
22.00	0.18	0.00	0.18				
23.00	0.17	0.00	0.17				
24.00	0.16	0.00	0.16				
25.00	0.02	0.00	0.02				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: EDA #1 PERVIOUS

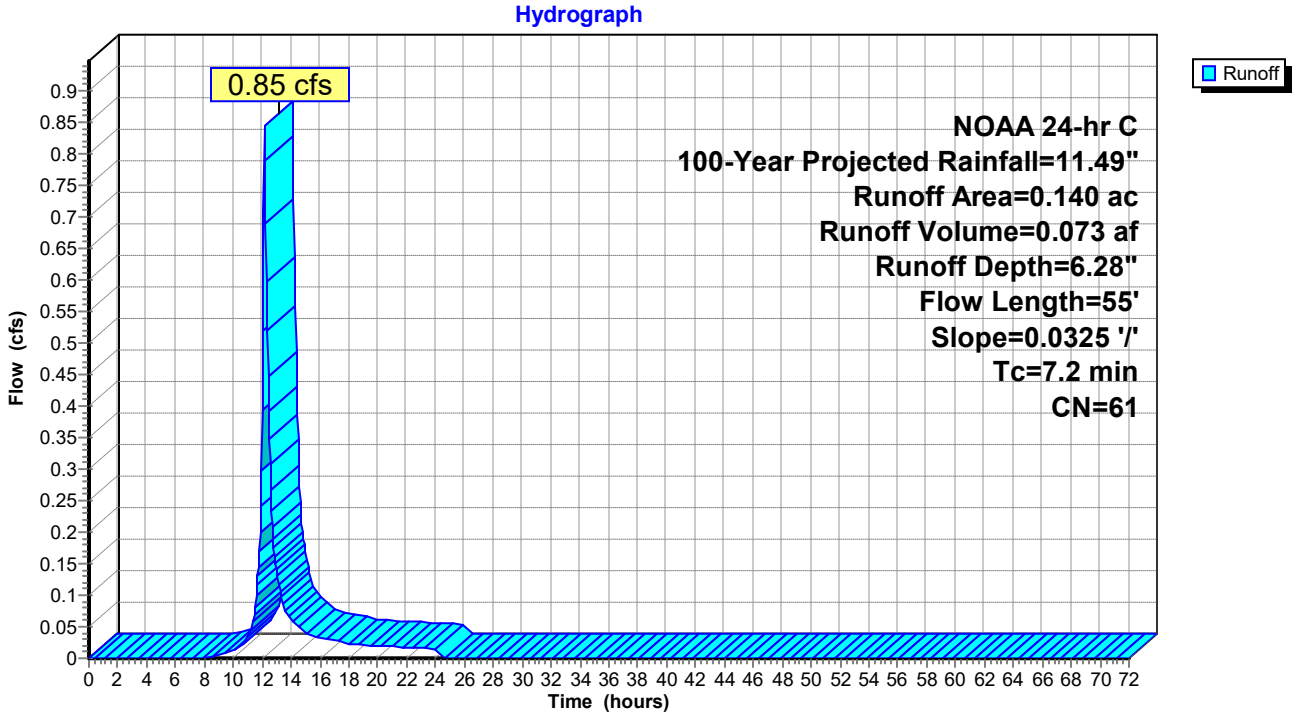
Runoff = 0.85 cfs @ 12.16 hrs, Volume= 0.073 af, Depth= 6.28"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.010	55	Woods, Good, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.140	61	Weighted Average
0.140		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.2	55	0.0325	0.13		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"

Subcatchment 1: EDA #1 PERVIOUS



Hydrograph for Subcatchment 1: EDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.00	0.00
6.00	0.91	0.00	0.00
7.00	1.12	0.00	0.00
8.00	1.38	0.00	0.00
9.00	1.68	0.02	0.00
10.00	2.09	0.09	0.01
11.00	2.76	0.28	0.04
12.00	5.48	1.66	**0.39**
13.00	8.73	4.01	**0.13**
14.00	9.40	4.54	0.06
15.00	9.81	4.88	0.04
16.00	10.11	5.13	0.03
17.00	10.37	5.34	0.03
18.00	10.58	5.51	0.02
19.00	10.76	5.66	0.02
20.00	10.93	5.80	0.02
21.00	11.08	5.94	0.02
22.00	11.23	6.06	0.02
23.00	11.36	6.17	0.02
24.00	**11.49**	**6.28**	0.02
25.00	11.49	6.28	0.00
26.00	11.49	6.28	0.00
27.00	11.49	6.28	0.00
28.00	11.49	6.28	0.00
29.00	11.49	6.28	0.00
30.00	11.49	6.28	0.00
31.00	11.49	6.28	0.00
32.00	11.49	6.28	0.00
33.00	11.49	6.28	0.00
34.00	11.49	6.28	0.00
35.00	11.49	6.28	0.00
36.00	11.49	6.28	0.00
37.00	11.49	6.28	0.00
38.00	11.49	6.28	0.00
39.00	11.49	6.28	0.00
40.00	11.49	6.28	0.00
41.00	11.49	6.28	0.00
42.00	11.49	6.28	0.00
43.00	11.49	6.28	0.00
44.00	11.49	6.28	0.00
45.00	11.49	6.28	0.00
46.00	11.49	6.28	0.00
47.00	11.49	6.28	0.00
48.00	11.49	6.28	0.00
49.00	11.49	6.28	0.00
50.00	11.49	6.28	0.00
51.00	11.49	6.28	0.00
52.00	11.49	6.28	0.00
53.00	11.49	6.28	0.00
54.00	11.49	6.28	0.00
55.00	11.49	6.28	0.00
56.00	11.49	6.28	0.00
57.00	11.49	6.28	0.00
58.00	11.49	6.28	0.00
59.00	11.49	6.28	0.00
60.00	11.49	6.28	0.00
61.00	11.49	6.28	0.00
62.00	11.49	6.28	0.00
63.00	11.49	6.28	0.00
64.00	11.49	6.28	0.00
65.00	11.49	6.28	0.00
66.00	11.49	6.28	0.00
67.00	11.49	6.28	0.00
68.00	11.49	6.28	0.00
69.00	11.49	6.28	0.00
70.00	11.49	6.28	0.00
71.00	11.49	6.28	0.00
72.00	11.49	6.28	0.00

Summary for Subcatchment 2: EDA #1 IMPERVIOUS

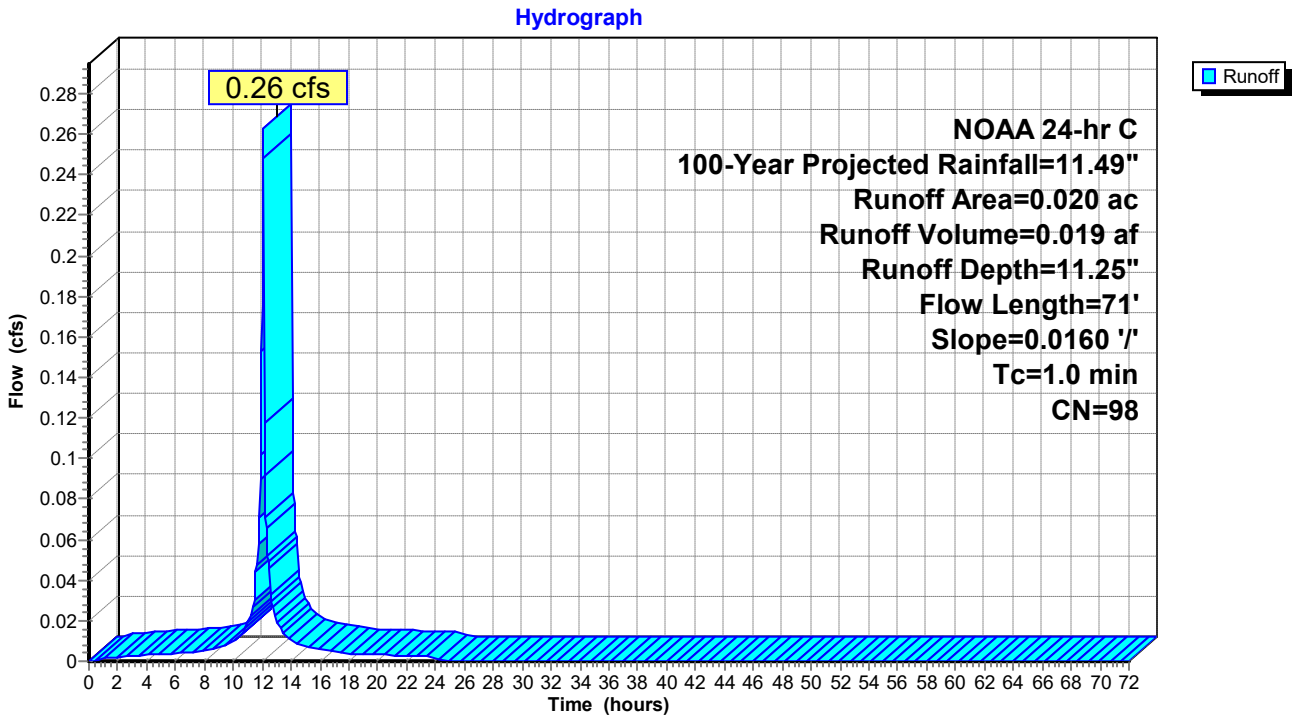
Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.019 af, Depth=11.25"
Routed to Link 5 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.020	98	Impervious
	0.020		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	71	0.0160	1.19		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: EDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: EDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.00
2.00	0.26	0.11	0.00
3.00	0.41	0.23	0.00
4.00	0.56	0.37	0.00
5.00	0.73	0.53	0.00
6.00	0.91	0.70	0.00
7.00	1.12	0.91	0.00
8.00	1.38	1.16	0.01
9.00	1.68	1.46	0.01
10.00	2.09	1.87	0.01
11.00	2.76	2.53	0.02
12.00	5.48	5.24	**0.18**
13.00	8.73	8.49	**0.02**
14.00	9.40	9.15	0.01
15.00	9.81	9.57	0.01
16.00	10.11	9.87	0.01
17.00	10.37	10.13	0.00
18.00	10.58	10.34	0.00
19.00	10.76	10.52	0.00
20.00	10.93	10.69	0.00
21.00	11.08	10.84	0.00
22.00	11.23	10.99	0.00
23.00	11.36	11.12	0.00
24.00	**11.49**	**11.25**	0.00
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 3: EDA #2 PERVIOUS

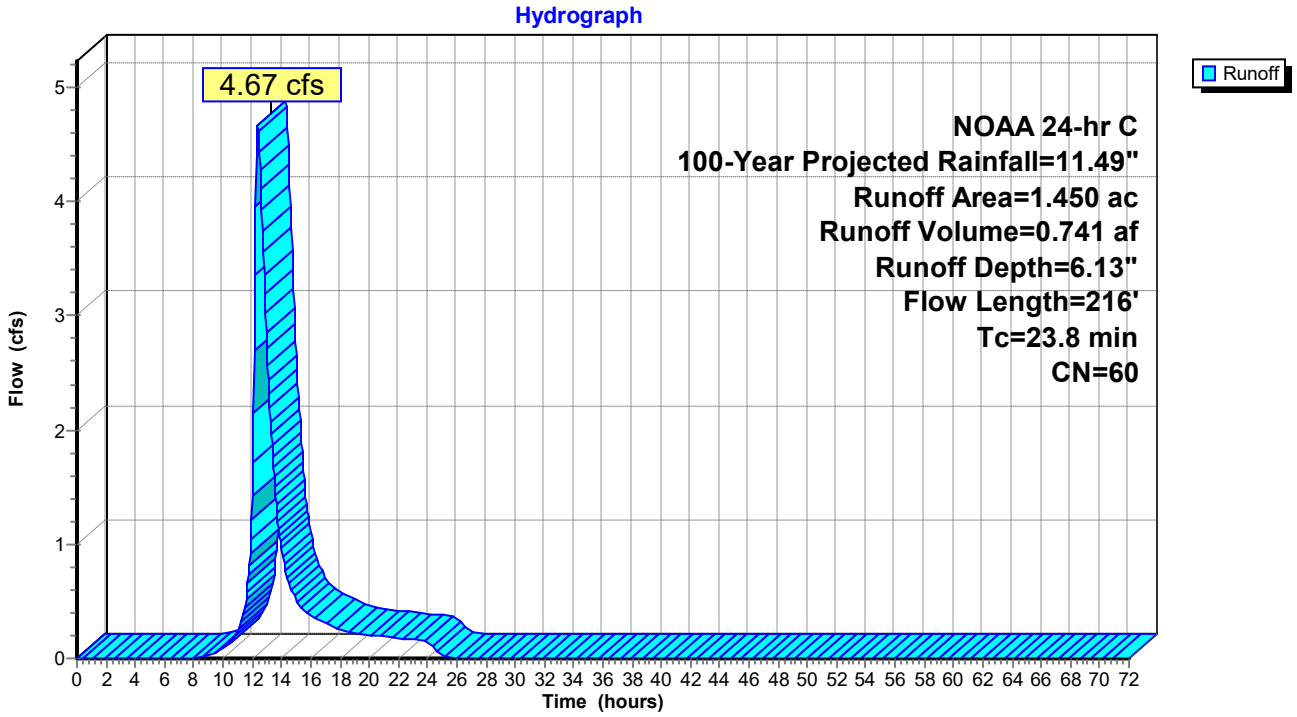
Runoff = 4.67 cfs @ 12.39 hrs, Volume= 0.741 af, Depth= 6.13"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.600	55	Woods, Good, HSG B
0.720	61	>75% Grass cover, Good, HSG B
0.060	70	Woods, Good, HSG C
0.070	74	>75% Grass cover, Good, HSG C
1.450	60	Weighted Average
1.450		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 3: EDA #2 PERVIOUS



Hydrograph for Subcatchment 3: EDA #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.00	0.00
6.00	0.91	0.00	0.00
7.00	1.12	0.00	0.00
8.00	1.38	0.00	0.00
9.00	1.68	0.02	0.02
10.00	2.09	0.08	0.08
11.00	2.76	0.25	0.23
12.00	5.48	1.59	**1.42**
13.00	8.73	3.89	**2.71**
14.00	9.40	4.41	0.94
15.00	9.81	4.75	0.52
16.00	10.11	4.99	0.37
17.00	10.37	5.20	0.31
18.00	10.58	5.37	0.26
19.00	10.76	5.52	0.22
20.00	10.93	5.66	0.21
21.00	11.08	5.79	0.19
22.00	11.23	5.91	0.18
23.00	11.36	6.03	0.17
24.00	**11.49**	**6.13**	0.15
25.00	11.49	6.13	0.02
26.00	11.49	6.13	0.00
27.00	11.49	6.13	0.00
28.00	11.49	6.13	0.00
29.00	11.49	6.13	0.00
30.00	11.49	6.13	0.00
31.00	11.49	6.13	0.00
32.00	11.49	6.13	0.00
33.00	11.49	6.13	0.00
34.00	11.49	6.13	0.00
35.00	11.49	6.13	0.00
36.00	11.49	6.13	0.00
37.00	11.49	6.13	0.00
38.00	11.49	6.13	0.00
39.00	11.49	6.13	0.00
40.00	11.49	6.13	0.00
41.00	11.49	6.13	0.00
42.00	11.49	6.13	0.00
43.00	11.49	6.13	0.00
44.00	11.49	6.13	0.00
45.00	11.49	6.13	0.00
46.00	11.49	6.13	0.00
47.00	11.49	6.13	0.00
48.00	11.49	6.13	0.00
49.00	11.49	6.13	0.00
50.00	11.49	6.13	0.00
51.00	11.49	6.13	0.00
52.00	11.49	6.13	0.00
53.00	11.49	6.13	0.00
54.00	11.49	6.13	0.00
55.00	11.49	6.13	0.00
56.00	11.49	6.13	0.00
57.00	11.49	6.13	0.00
58.00	11.49	6.13	0.00
59.00	11.49	6.13	0.00
60.00	11.49	6.13	0.00
61.00	11.49	6.13	0.00
62.00	11.49	6.13	0.00
63.00	11.49	6.13	0.00
64.00	11.49	6.13	0.00
65.00	11.49	6.13	0.00
66.00	11.49	6.13	0.00
67.00	11.49	6.13	0.00
68.00	11.49	6.13	0.00
69.00	11.49	6.13	0.00
70.00	11.49	6.13	0.00
71.00	11.49	6.13	0.00
72.00	11.49	6.13	0.00

Summary for Subcatchment 4: EDA #2 IMPERVIOUS

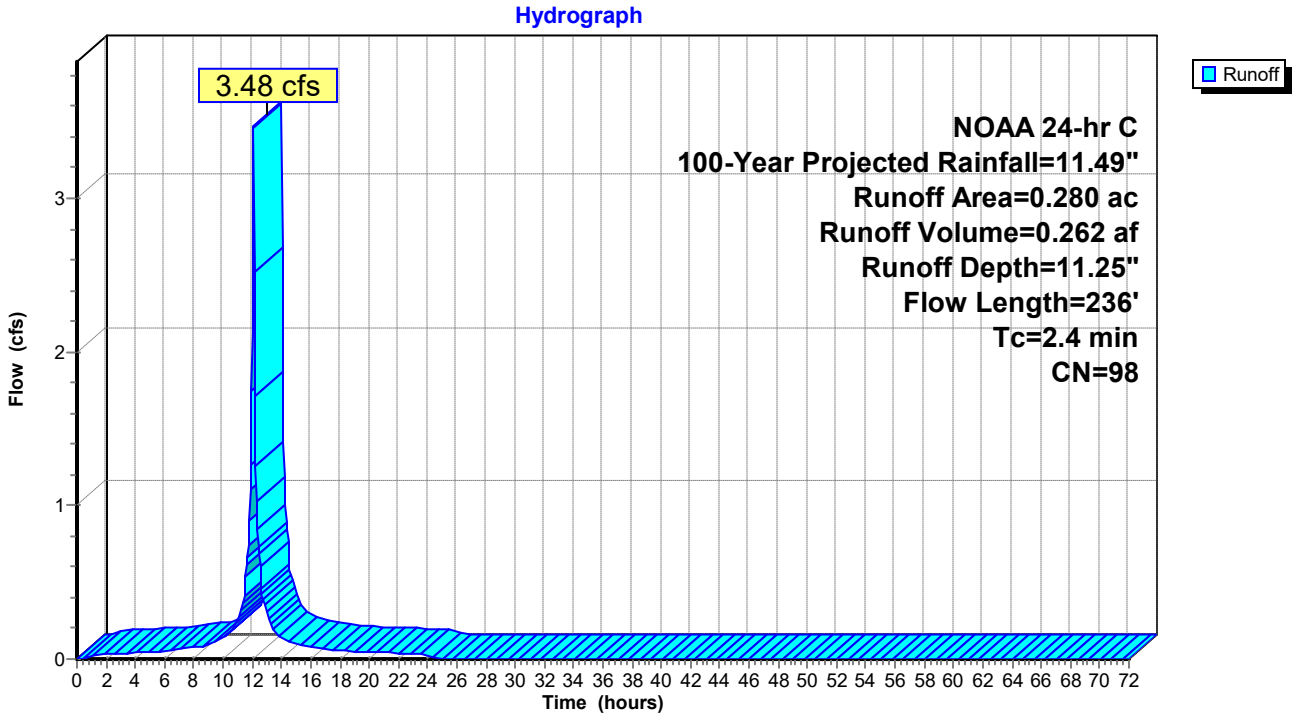
Runoff = 3.48 cfs @ 12.09 hrs, Volume= 0.262 af, Depth=11.25"
Routed to Link 6 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.280	98	Impervious
	0.280		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0158	1.27		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.1	136	0.0100	2.03		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
2.4	236	Total			

Subcatchment 4: EDA #2 IMPERVIOUS



Hydrograph for Subcatchment 4: EDA #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.02
2.00	0.26	0.11	0.03
3.00	0.41	0.23	0.04
4.00	0.56	0.37	0.04
5.00	0.73	0.53	0.05
6.00	0.91	0.70	0.05
7.00	1.12	0.91	0.06
8.00	1.38	1.16	0.08
9.00	1.68	1.46	0.09
10.00	2.09	1.87	0.14
11.00	2.76	2.53	0.25
12.00	5.48	5.24	**2.13**
13.00	8.73	8.49	**0.30**
14.00	9.40	9.15	0.15
15.00	9.81	9.57	0.10
16.00	10.11	9.87	0.08
17.00	10.37	10.13	0.07
18.00	10.58	10.34	0.05
19.00	10.76	10.52	0.05
20.00	10.93	10.69	0.05
21.00	11.08	10.84	0.04
22.00	11.23	10.99	0.04
23.00	11.36	11.12	0.04
24.00	**11.49**	**11.25**	0.04
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

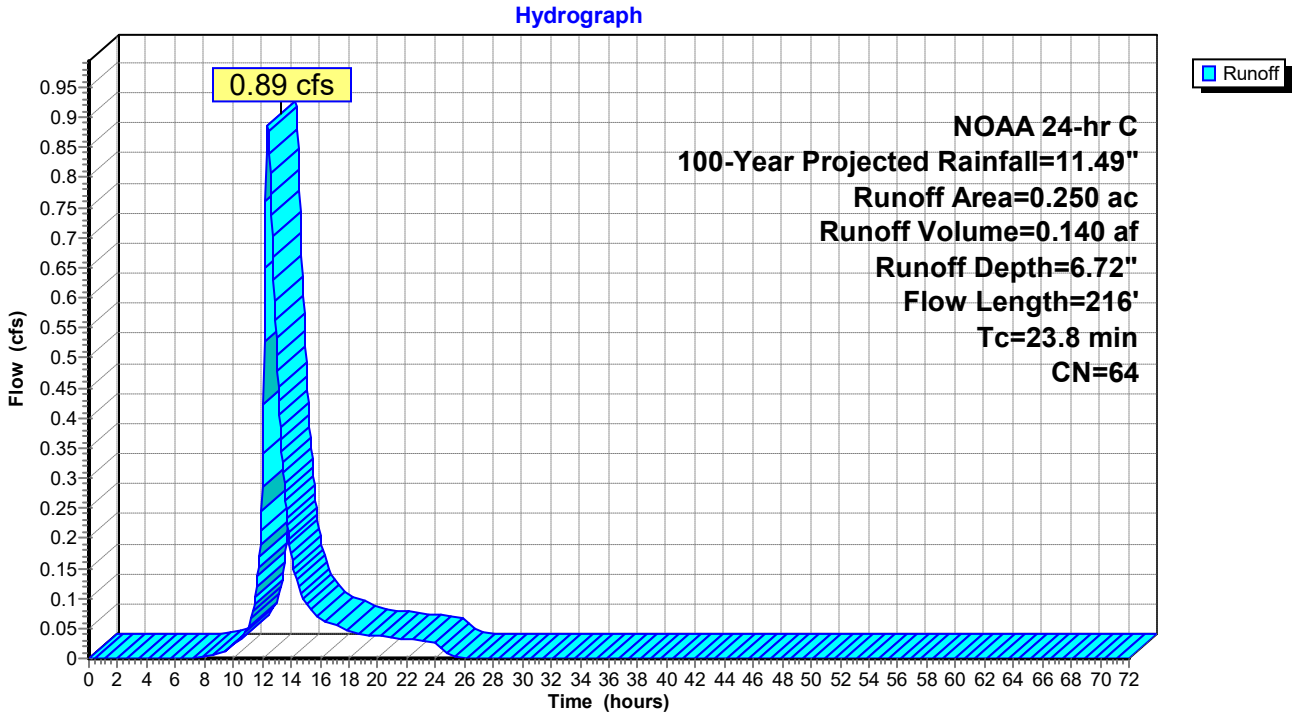
Runoff = 0.89 cfs @ 12.38 hrs, Volume= 0.140 af, Depth= 6.72"
Routed to Link 8 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.110	55	Woods, Good, HSG B
0.030	61	>75% Grass cover, Good, HSG B
0.020	70	Woods, Good, HSG C
0.090	74	>75% Grass cover, Good, HSG C
0.250	64	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	14	0.0234	0.09		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
10.5	45	0.0234	0.07		**Sheet Flow, Woods** Woods: Light underbrush n= 0.400 P2= 3.31"
6.5	41	0.0234	0.11		**Sheet Flow, Grass** Grass: Dense n= 0.240 P2= 3.31"
4.1	116	0.0087	0.47		**Shallow Concentrated Flow, Woods** Woodland Kv= 5.0 fps
23.8	216	Total			

Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)



Hydrograph for Subcatchment 7: EDA #2 PERVIOUS (OFFSITE)

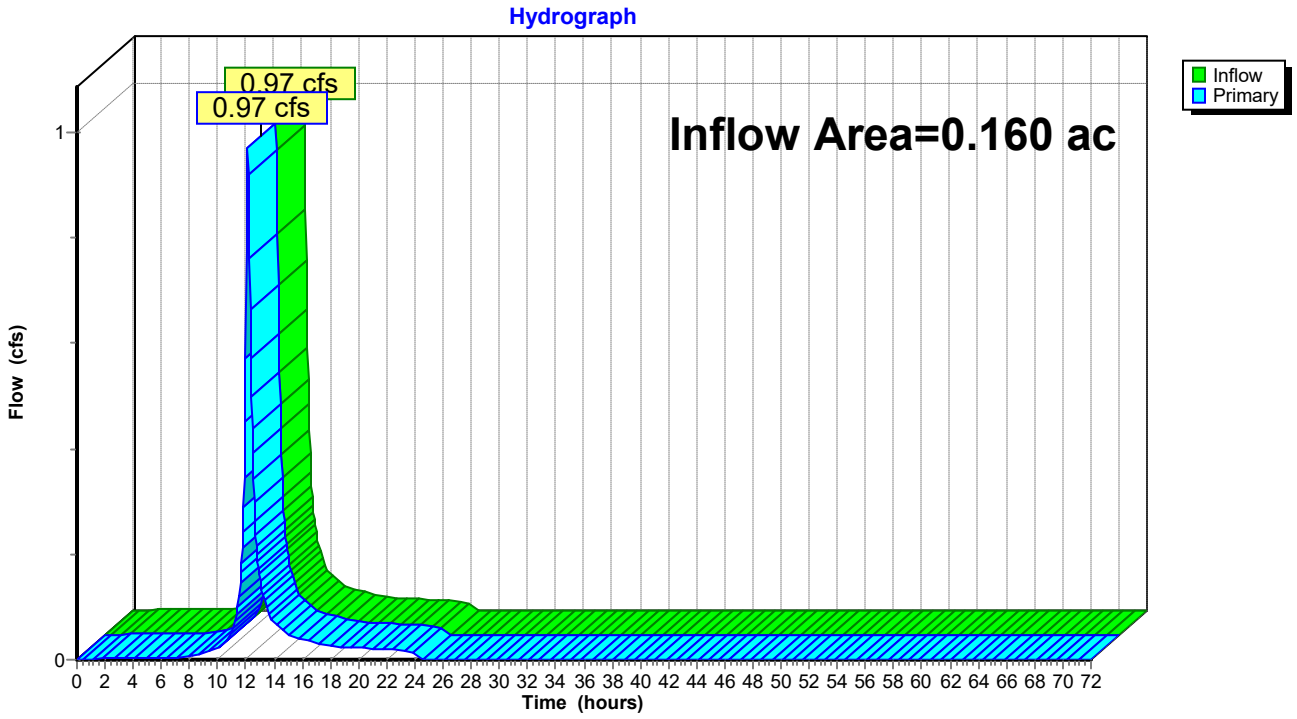
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.00	0.00
6.00	0.91	0.00	0.00
7.00	1.12	0.00	0.00
8.00	1.38	0.01	0.00
9.00	1.68	0.05	0.01
10.00	2.09	0.14	0.02
11.00	2.76	0.37	0.05
12.00	5.48	1.90	**0.29**
13.00	8.73	4.37	**0.50**
14.00	9.40	4.92	0.17
15.00	9.81	5.27	0.09
16.00	10.11	5.53	0.07
17.00	10.37	5.75	0.06
18.00	10.58	5.93	0.05
19.00	10.76	6.08	0.04
20.00	10.93	6.23	0.04
21.00	11.08	6.36	0.03
22.00	11.23	6.49	0.03
23.00	11.36	6.61	0.03
24.00	**11.49**	**6.72**	0.03
25.00	11.49	6.72	0.00
26.00	11.49	6.72	0.00
27.00	11.49	6.72	0.00
28.00	11.49	6.72	0.00
29.00	11.49	6.72	0.00
30.00	11.49	6.72	0.00
31.00	11.49	6.72	0.00
32.00	11.49	6.72	0.00
33.00	11.49	6.72	0.00
34.00	11.49	6.72	0.00
35.00	11.49	6.72	0.00
36.00	11.49	6.72	0.00
37.00	11.49	6.72	0.00
38.00	11.49	6.72	0.00
39.00	11.49	6.72	0.00
40.00	11.49	6.72	0.00
41.00	11.49	6.72	0.00
42.00	11.49	6.72	0.00
43.00	11.49	6.72	0.00
44.00	11.49	6.72	0.00
45.00	11.49	6.72	0.00
46.00	11.49	6.72	0.00
47.00	11.49	6.72	0.00
48.00	11.49	6.72	0.00
49.00	11.49	6.72	0.00
50.00	11.49	6.72	0.00
51.00	11.49	6.72	0.00
52.00	11.49	6.72	0.00
53.00	11.49	6.72	0.00
54.00	11.49	6.72	0.00
55.00	11.49	6.72	0.00
56.00	11.49	6.72	0.00
57.00	11.49	6.72	0.00
58.00	11.49	6.72	0.00
59.00	11.49	6.72	0.00
60.00	11.49	6.72	0.00
61.00	11.49	6.72	0.00
62.00	11.49	6.72	0.00
63.00	11.49	6.72	0.00
64.00	11.49	6.72	0.00
65.00	11.49	6.72	0.00
66.00	11.49	6.72	0.00
67.00	11.49	6.72	0.00
68.00	11.49	6.72	0.00
69.00	11.49	6.72	0.00
70.00	11.49	6.72	0.00
71.00	11.49	6.72	0.00
72.00	11.49	6.72	0.00

Summary for Link 5: POA #1

Inflow Area = 0.160 ac, 12.50% Impervious, Inflow Depth = 6.90" for 100-Year Projected event
Inflow = 0.97 cfs @ 12.13 hrs, Volume= 0.092 af
Primary = 0.97 cfs @ 12.13 hrs, Volume= 0.092 af, Atten= 0%, Lag= 0.0 min
Routed to nonexistent node 7L

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

Link 5: POA #1



Hydrograph for Link 5: POA #1

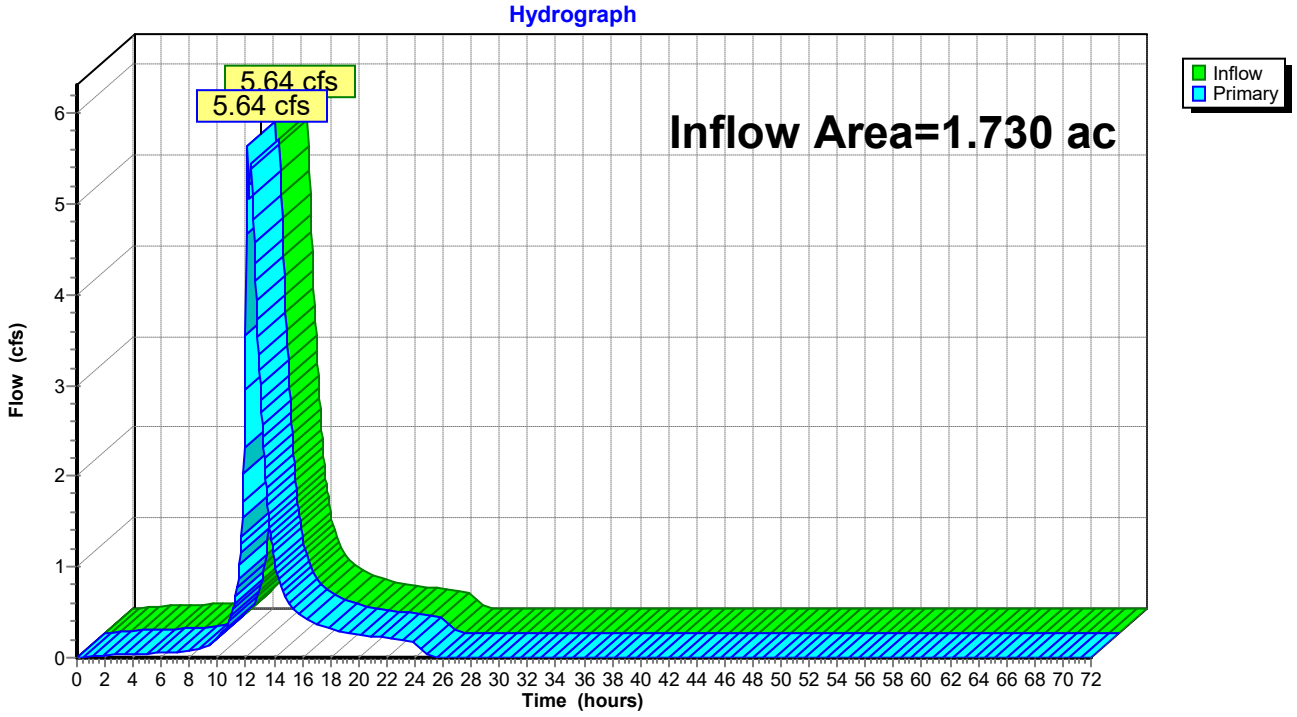
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.02	0.00	0.02	62.00	0.00	0.00	0.00
11.00	0.06	0.00	0.06	63.00	0.00	0.00	0.00
12.00	**0.57**	0.00	**0.57**	64.00	0.00	0.00	0.00
13.00	**0.15**	0.00	**0.15**	65.00	0.00	0.00	0.00
14.00	0.07	0.00	0.07	66.00	0.00	0.00	0.00
15.00	0.05	0.00	0.05	67.00	0.00	0.00	0.00
16.00	0.04	0.00	0.04	68.00	0.00	0.00	0.00
17.00	0.03	0.00	0.03	69.00	0.00	0.00	0.00
18.00	0.03	0.00	0.03	70.00	0.00	0.00	0.00
19.00	0.02	0.00	0.02	71.00	0.00	0.00	0.00
20.00	0.02	0.00	0.02	72.00	0.00	0.00	0.00
21.00	0.02	0.00	0.02				
22.00	0.02	0.00	0.02				
23.00	0.02	0.00	0.02				
24.00	0.02	0.00	0.02				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 6: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.730 ac, 16.18% Impervious, Inflow Depth = 6.96" for 100-Year Projected event
Inflow = 5.64 cfs @ 12.11 hrs, Volume= 1.003 af
Primary = 5.64 cfs @ 12.11 hrs, Volume= 1.003 af, Atten= 0%, Lag= 0.0 min
Routed to Link 8 : POA #2 (TOTAL)

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

Link 6: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 6: POA #2 (ONSITE REDUCTION)

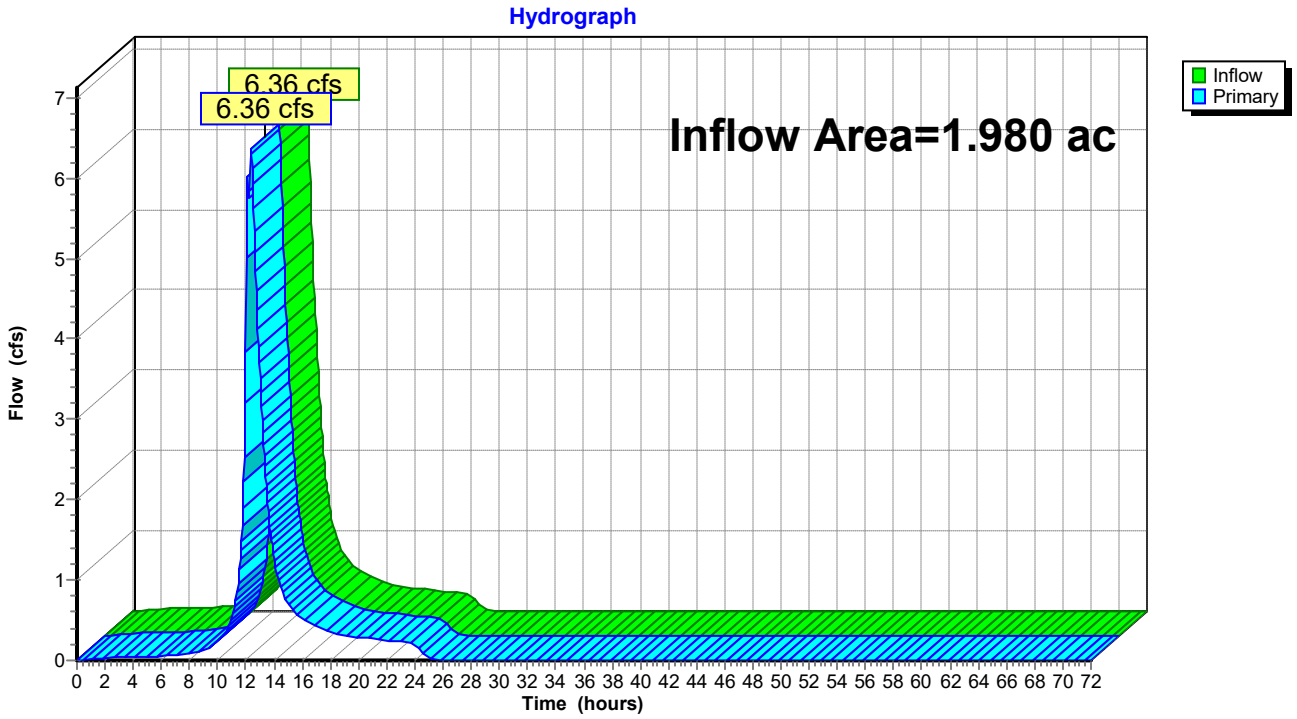
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.02	0.00	0.02
2.00	0.03	0.00	0.03
3.00	0.04	0.00	0.04
4.00	0.04	0.00	0.04
5.00	0.05	0.00	0.05
6.00	0.05	0.00	0.05
7.00	0.06	0.00	0.06
8.00	0.08	0.00	0.08
9.00	0.11	0.00	0.11
10.00	0.22	0.00	0.22
11.00	0.48	0.00	0.48
12.00	**3.55**	0.00	**3.55**
13.00	**3.01**	0.00	**3.01**
14.00	1.09	0.00	1.09
15.00	0.62	0.00	0.62
16.00	0.45	0.00	0.45
17.00	0.38	0.00	0.38
18.00	0.31	0.00	0.31
19.00	0.27	0.00	0.27
20.00	0.25	0.00	0.25
21.00	0.24	0.00	0.24
22.00	0.22	0.00	0.22
23.00	0.20	0.00	0.20
24.00	0.19	0.00	0.19
25.00	0.02	0.00	0.02
26.00	0.00	0.00	0.00
27.00	0.00	0.00	0.00
28.00	0.00	0.00	0.00
29.00	0.00	0.00	0.00
30.00	0.00	0.00	0.00
31.00	0.00	0.00	0.00
32.00	0.00	0.00	0.00
33.00	0.00	0.00	0.00
34.00	0.00	0.00	0.00
35.00	0.00	0.00	0.00
36.00	0.00	0.00	0.00
37.00	0.00	0.00	0.00
38.00	0.00	0.00	0.00
39.00	0.00	0.00	0.00
40.00	0.00	0.00	0.00
41.00	0.00	0.00	0.00
42.00	0.00	0.00	0.00
43.00	0.00	0.00	0.00
44.00	0.00	0.00	0.00
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 8: POA #2 (TOTAL)

Inflow Area = 1.980 ac, 14.14% Impervious, Inflow Depth = 6.93" for 100-Year Projected event
Inflow = 6.36 cfs @ 12.35 hrs, Volume= 1.143 af
Primary = 6.36 cfs @ 12.35 hrs, Volume= 1.143 af, Atten= 0%, Lag= 0.0 min

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

Link 8: POA #2 (TOTAL)



Hydrograph for Link 8: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.02	0.00	0.02	53.00	0.00	0.00	0.00
2.00	0.03	0.00	0.03	54.00	0.00	0.00	0.00
3.00	0.04	0.00	0.04	55.00	0.00	0.00	0.00
4.00	0.04	0.00	0.04	56.00	0.00	0.00	0.00
5.00	0.05	0.00	0.05	57.00	0.00	0.00	0.00
6.00	0.05	0.00	0.05	58.00	0.00	0.00	0.00
7.00	0.06	0.00	0.06	59.00	0.00	0.00	0.00
8.00	0.08	0.00	0.08	60.00	0.00	0.00	0.00
9.00	0.12	0.00	0.12	61.00	0.00	0.00	0.00
10.00	0.24	0.00	0.24	62.00	0.00	0.00	0.00
11.00	0.54	0.00	0.54	63.00	0.00	0.00	0.00
12.00	**3.84**	0.00	**3.84**	64.00	0.00	0.00	0.00
13.00	**3.51**	0.00	**3.51**	65.00	0.00	0.00	0.00
14.00	1.26	0.00	1.26	66.00	0.00	0.00	0.00
15.00	0.71	0.00	0.71	67.00	0.00	0.00	0.00
16.00	0.52	0.00	0.52	68.00	0.00	0.00	0.00
17.00	0.43	0.00	0.43	69.00	0.00	0.00	0.00
18.00	0.36	0.00	0.36	70.00	0.00	0.00	0.00
19.00	0.31	0.00	0.31	71.00	0.00	0.00	0.00
20.00	0.29	0.00	0.29	72.00	0.00	0.00	0.00
21.00	0.27	0.00	0.27				
22.00	0.25	0.00	0.25				
23.00	0.23	0.00	0.23				
24.00	0.22	0.00	0.22				
25.00	0.03	0.00	0.03				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

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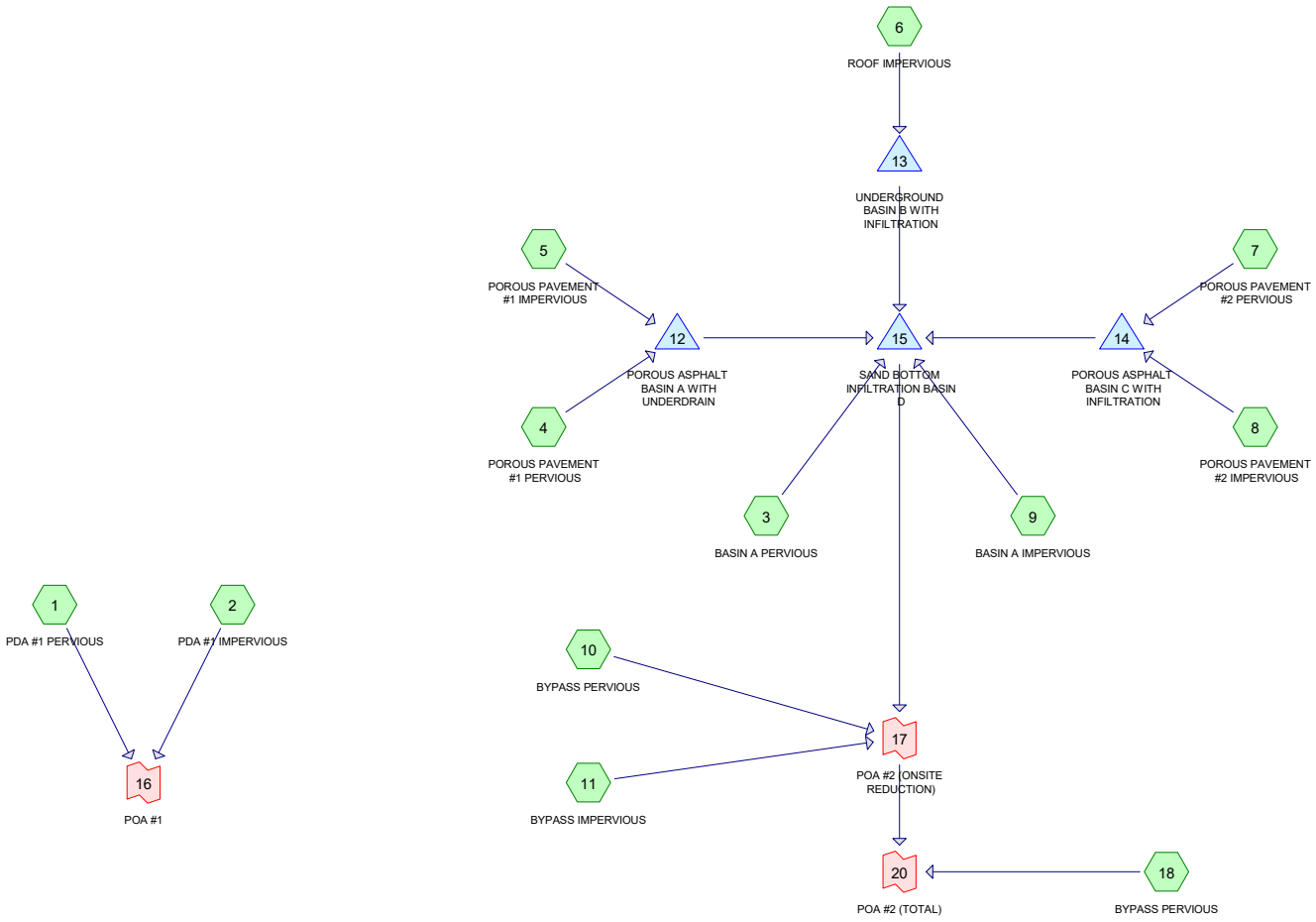
Appendix C | Post-Development

Post-Development Analysis Calculations
Groundwater Recharge Spreadsheet
Groundwater Mounding Analysis



Subcat Reach Pond Link

Routing Diagram for 260420_Proposed_R1
Prepared by Colliers Engineering & Design, Printed 5/6/2026
HydroCAD® 10.20-8a s/n 04431 © 2025 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NOAA 24-hr	C	Default	24.00	1	3.35	2
2	2-Year Projected	NOAA 24-hr	C	Default	24.00	1	3.85	2
3	10-Year	NOAA 24-hr	C	Default	24.00	1	5.16	2
4	10-Year Projected	NOAA 24-hr	C	Default	24.00	1	5.92	2
5	100-Year	NOAA 24-hr	C	Default	24.00	1	8.79	2
6	100-Year Projected	NOAA 24-hr	C	Default	24.00	1	11.49	2
7	NJWQ	NJ DEP 2-hr		Default	2.00	1	1.25	2
8	25 Year	NOAA 24-hr	C	Default	24.00	1	6.44	2

Summary for Subcatchment 1: PDA #1 PERVIOUS

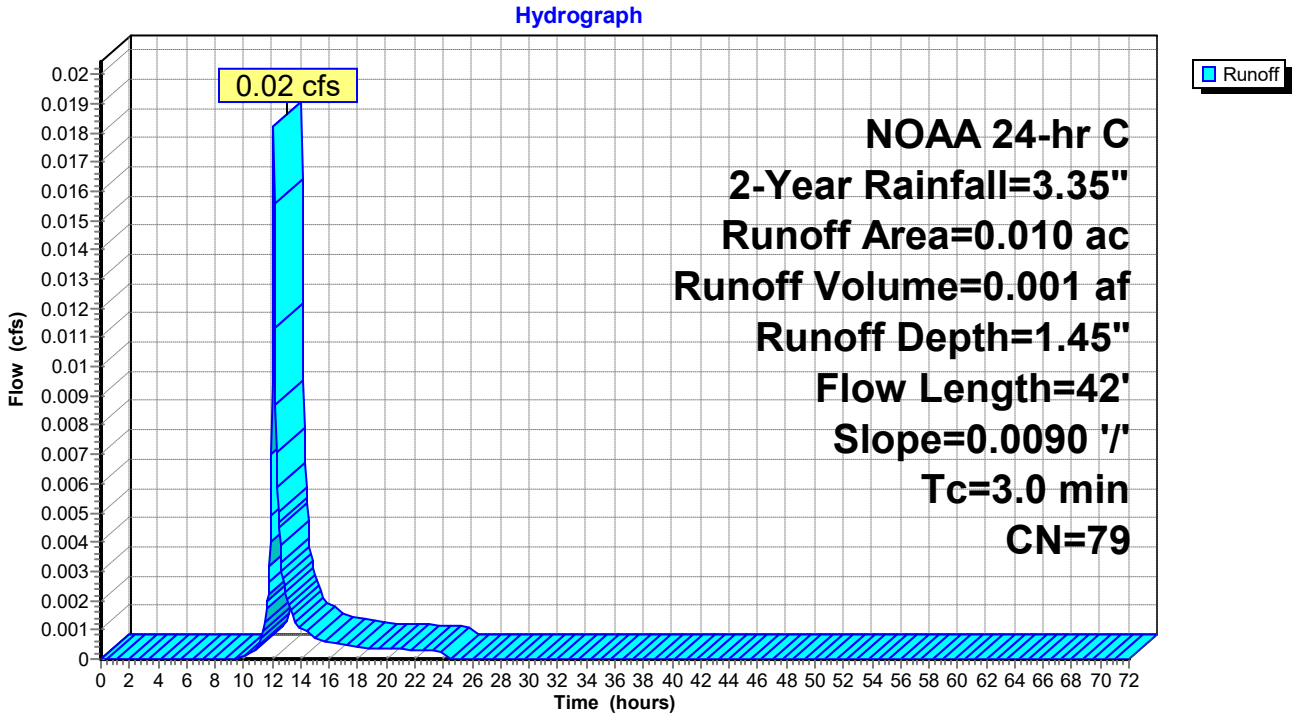
Runoff = 0.02 cfs @ 12.11 hrs, Volume= 0.001 af, Depth= 1.45"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.03	0.00
12.00	1.60	0.30	**0.01**
13.00	2.55	0.87	**0.00**
14.00	2.74	1.00	0.00
15.00	2.86	1.09	0.00
16.00	2.95	1.15	0.00
17.00	3.02	1.21	0.00
18.00	3.08	1.25	0.00
19.00	3.14	1.29	0.00
20.00	3.19	1.33	0.00
21.00	3.23	1.36	0.00
22.00	3.27	1.39	0.00
23.00	3.31	1.42	0.00
24.00	**3.35**	**1.45**	0.00
25.00	3.35	1.45	0.00
26.00	3.35	1.45	0.00
27.00	3.35	1.45	0.00
28.00	3.35	1.45	0.00
29.00	3.35	1.45	0.00
30.00	3.35	1.45	0.00
31.00	3.35	1.45	0.00
32.00	3.35	1.45	0.00
33.00	3.35	1.45	0.00
34.00	3.35	1.45	0.00
35.00	3.35	1.45	0.00
36.00	3.35	1.45	0.00
37.00	3.35	1.45	0.00
38.00	3.35	1.45	0.00
39.00	3.35	1.45	0.00
40.00	3.35	1.45	0.00
41.00	3.35	1.45	0.00
42.00	3.35	1.45	0.00
43.00	3.35	1.45	0.00
44.00	3.35	1.45	0.00
45.00	3.35	1.45	0.00
46.00	3.35	1.45	0.00
47.00	3.35	1.45	0.00
48.00	3.35	1.45	0.00
49.00	3.35	1.45	0.00
50.00	3.35	1.45	0.00
51.00	3.35	1.45	0.00
52.00	3.35	1.45	0.00
53.00	3.35	1.45	0.00
54.00	3.35	1.45	0.00
55.00	3.35	1.45	0.00
56.00	3.35	1.45	0.00
57.00	3.35	1.45	0.00
58.00	3.35	1.45	0.00
59.00	3.35	1.45	0.00
60.00	3.35	1.45	0.00
61.00	3.35	1.45	0.00
62.00	3.35	1.45	0.00
63.00	3.35	1.45	0.00
64.00	3.35	1.45	0.00
65.00	3.35	1.45	0.00
66.00	3.35	1.45	0.00
67.00	3.35	1.45	0.00
68.00	3.35	1.45	0.00
69.00	3.35	1.45	0.00
70.00	3.35	1.45	0.00
71.00	3.35	1.45	0.00
72.00	3.35	1.45	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

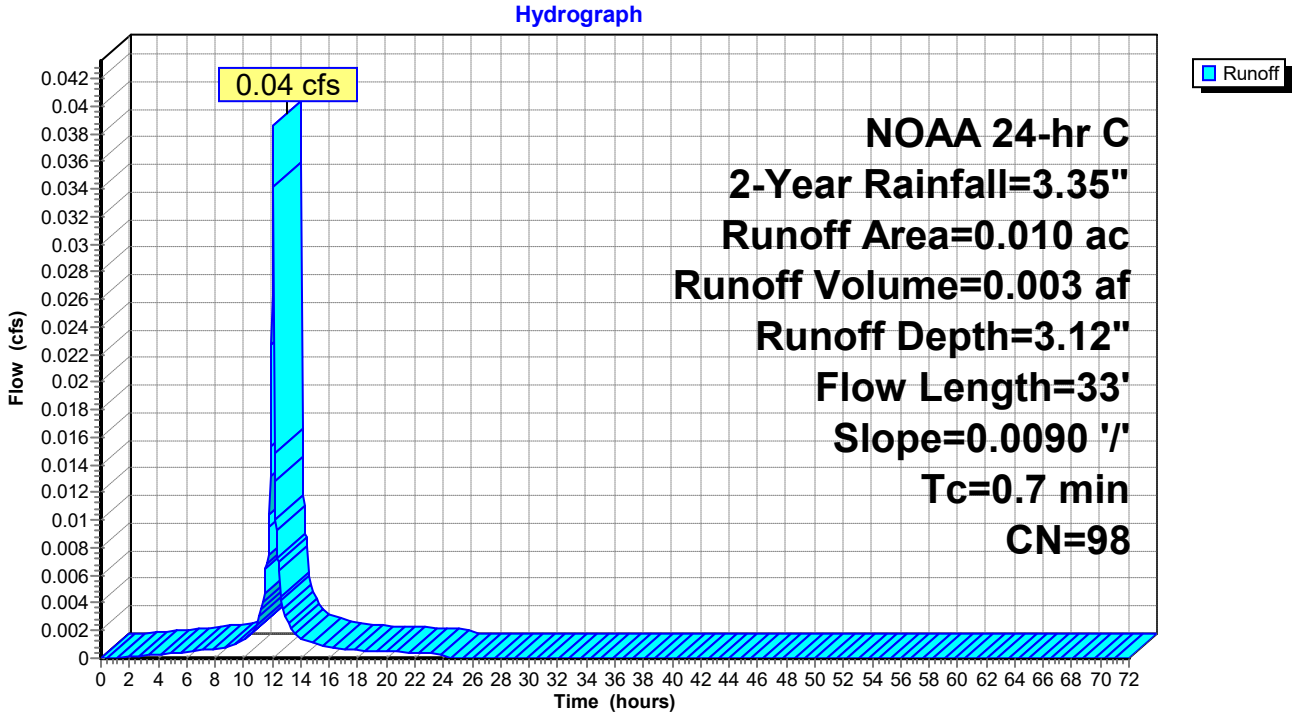
Runoff = 0.04 cfs @ 12.06 hrs, Volume= 0.003 af, Depth= 3.12"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.00
4.00	0.16	0.05	0.00
5.00	0.21	0.08	0.00
6.00	0.27	0.12	0.00
7.00	0.33	0.17	0.00
8.00	0.40	0.23	0.00
9.00	0.49	0.31	0.00
10.00	0.61	0.42	0.00
11.00	0.80	0.60	0.00
12.00	1.60	1.38	**0.03**
13.00	2.55	2.32	**0.00**
14.00	2.74	2.51	0.00
15.00	2.86	2.63	0.00
16.00	2.95	2.72	0.00
17.00	3.02	2.79	0.00
18.00	3.08	2.85	0.00
19.00	3.14	2.90	0.00
20.00	3.19	2.95	0.00
21.00	3.23	3.00	0.00
22.00	3.27	3.04	0.00
23.00	3.31	3.08	0.00
24.00	**3.35**	**3.12**	0.00
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

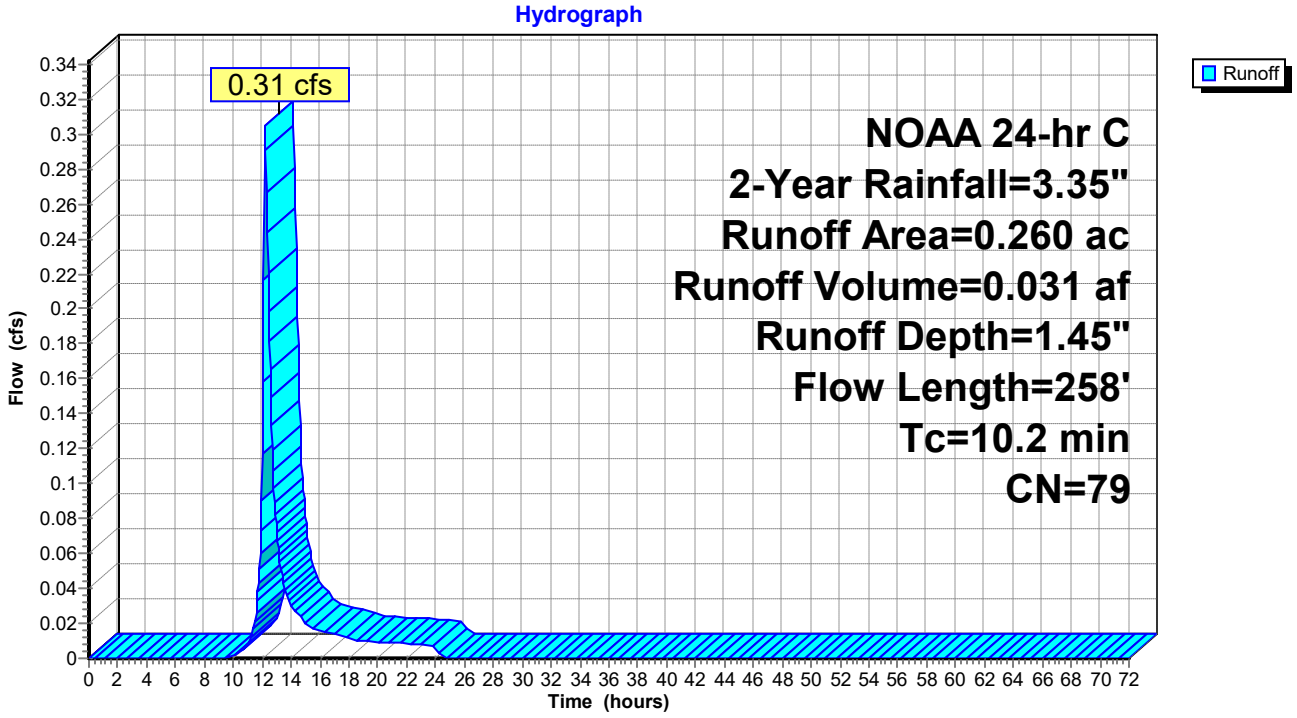
Runoff = 0.31 cfs @ 12.21 hrs, Volume= 0.031 af, Depth= 1.45"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.03	0.01
12.00	1.60	0.30	**0.12**
13.00	2.55	0.87	**0.07**
14.00	2.74	1.00	0.03
15.00	2.86	1.09	0.02
16.00	2.95	1.15	0.02
17.00	3.02	1.21	0.01
18.00	3.08	1.25	0.01
19.00	3.14	1.29	0.01
20.00	3.19	1.33	0.01
21.00	3.23	1.36	0.01
22.00	3.27	1.39	0.01
23.00	3.31	1.42	0.01
24.00	**3.35**	**1.45**	0.01
25.00	3.35	1.45	0.00
26.00	3.35	1.45	0.00
27.00	3.35	1.45	0.00
28.00	3.35	1.45	0.00
29.00	3.35	1.45	0.00
30.00	3.35	1.45	0.00
31.00	3.35	1.45	0.00
32.00	3.35	1.45	0.00
33.00	3.35	1.45	0.00
34.00	3.35	1.45	0.00
35.00	3.35	1.45	0.00
36.00	3.35	1.45	0.00
37.00	3.35	1.45	0.00
38.00	3.35	1.45	0.00
39.00	3.35	1.45	0.00
40.00	3.35	1.45	0.00
41.00	3.35	1.45	0.00
42.00	3.35	1.45	0.00
43.00	3.35	1.45	0.00
44.00	3.35	1.45	0.00
45.00	3.35	1.45	0.00
46.00	3.35	1.45	0.00
47.00	3.35	1.45	0.00
48.00	3.35	1.45	0.00
49.00	3.35	1.45	0.00
50.00	3.35	1.45	0.00
51.00	3.35	1.45	0.00
52.00	3.35	1.45	0.00
53.00	3.35	1.45	0.00
54.00	3.35	1.45	0.00
55.00	3.35	1.45	0.00
56.00	3.35	1.45	0.00
57.00	3.35	1.45	0.00
58.00	3.35	1.45	0.00
59.00	3.35	1.45	0.00
60.00	3.35	1.45	0.00
61.00	3.35	1.45	0.00
62.00	3.35	1.45	0.00
63.00	3.35	1.45	0.00
64.00	3.35	1.45	0.00
65.00	3.35	1.45	0.00
66.00	3.35	1.45	0.00
67.00	3.35	1.45	0.00
68.00	3.35	1.45	0.00
69.00	3.35	1.45	0.00
70.00	3.35	1.45	0.00
71.00	3.35	1.45	0.00
72.00	3.35	1.45	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

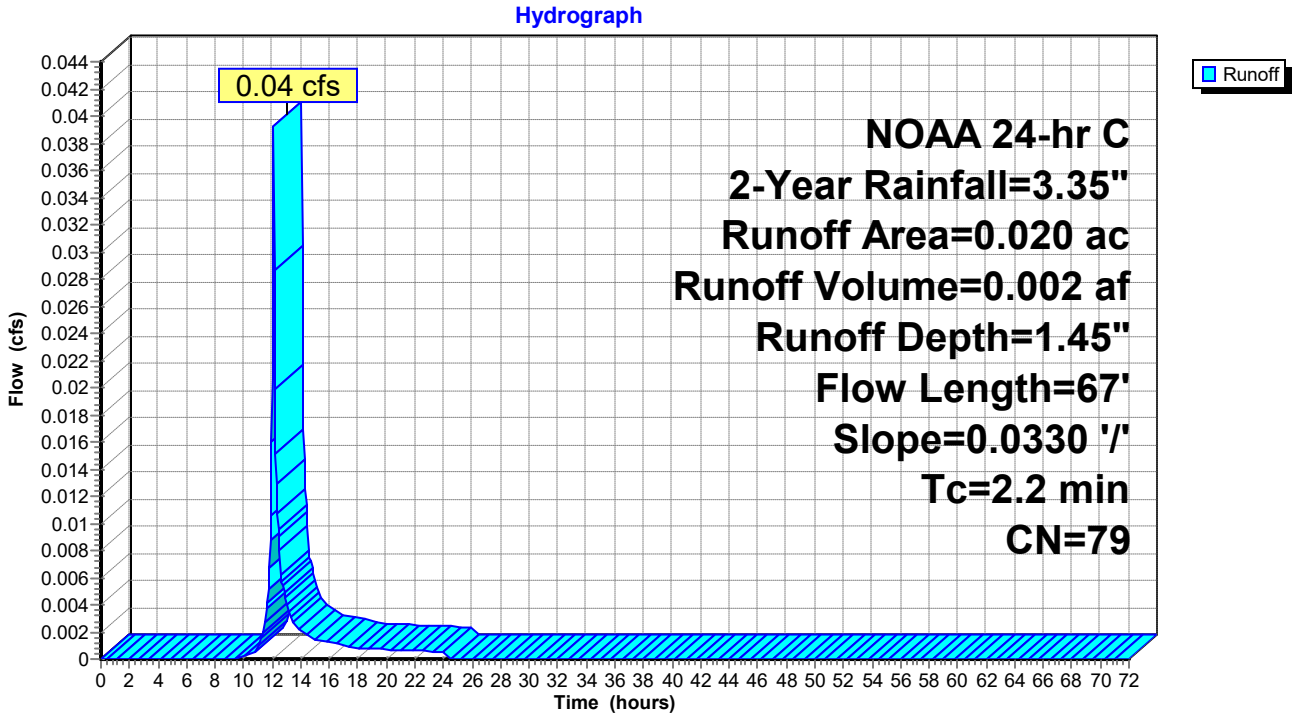
Runoff = 0.04 cfs @ 12.10 hrs, Volume= 0.002 af, Depth= 1.45"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.03	0.00
12.00	1.60	0.30	**0.02**
13.00	2.55	0.87	**0.00**
14.00	2.74	1.00	0.00
15.00	2.86	1.09	0.00
16.00	2.95	1.15	0.00
17.00	3.02	1.21	0.00
18.00	3.08	1.25	0.00
19.00	3.14	1.29	0.00
20.00	3.19	1.33	0.00
21.00	3.23	1.36	0.00
22.00	3.27	1.39	0.00
23.00	3.31	1.42	0.00
24.00	**3.35**	**1.45**	0.00
25.00	3.35	1.45	0.00
26.00	3.35	1.45	0.00
27.00	3.35	1.45	0.00
28.00	3.35	1.45	0.00
29.00	3.35	1.45	0.00
30.00	3.35	1.45	0.00
31.00	3.35	1.45	0.00
32.00	3.35	1.45	0.00
33.00	3.35	1.45	0.00
34.00	3.35	1.45	0.00
35.00	3.35	1.45	0.00
36.00	3.35	1.45	0.00
37.00	3.35	1.45	0.00
38.00	3.35	1.45	0.00
39.00	3.35	1.45	0.00
40.00	3.35	1.45	0.00
41.00	3.35	1.45	0.00
42.00	3.35	1.45	0.00
43.00	3.35	1.45	0.00
44.00	3.35	1.45	0.00
45.00	3.35	1.45	0.00
46.00	3.35	1.45	0.00
47.00	3.35	1.45	0.00
48.00	3.35	1.45	0.00
49.00	3.35	1.45	0.00
50.00	3.35	1.45	0.00
51.00	3.35	1.45	0.00
52.00	3.35	1.45	0.00
53.00	3.35	1.45	0.00
54.00	3.35	1.45	0.00
55.00	3.35	1.45	0.00
56.00	3.35	1.45	0.00
57.00	3.35	1.45	0.00
58.00	3.35	1.45	0.00
59.00	3.35	1.45	0.00
60.00	3.35	1.45	0.00
61.00	3.35	1.45	0.00
62.00	3.35	1.45	0.00
63.00	3.35	1.45	0.00
64.00	3.35	1.45	0.00
65.00	3.35	1.45	0.00
66.00	3.35	1.45	0.00
67.00	3.35	1.45	0.00
68.00	3.35	1.45	0.00
69.00	3.35	1.45	0.00
70.00	3.35	1.45	0.00
71.00	3.35	1.45	0.00
72.00	3.35	1.45	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

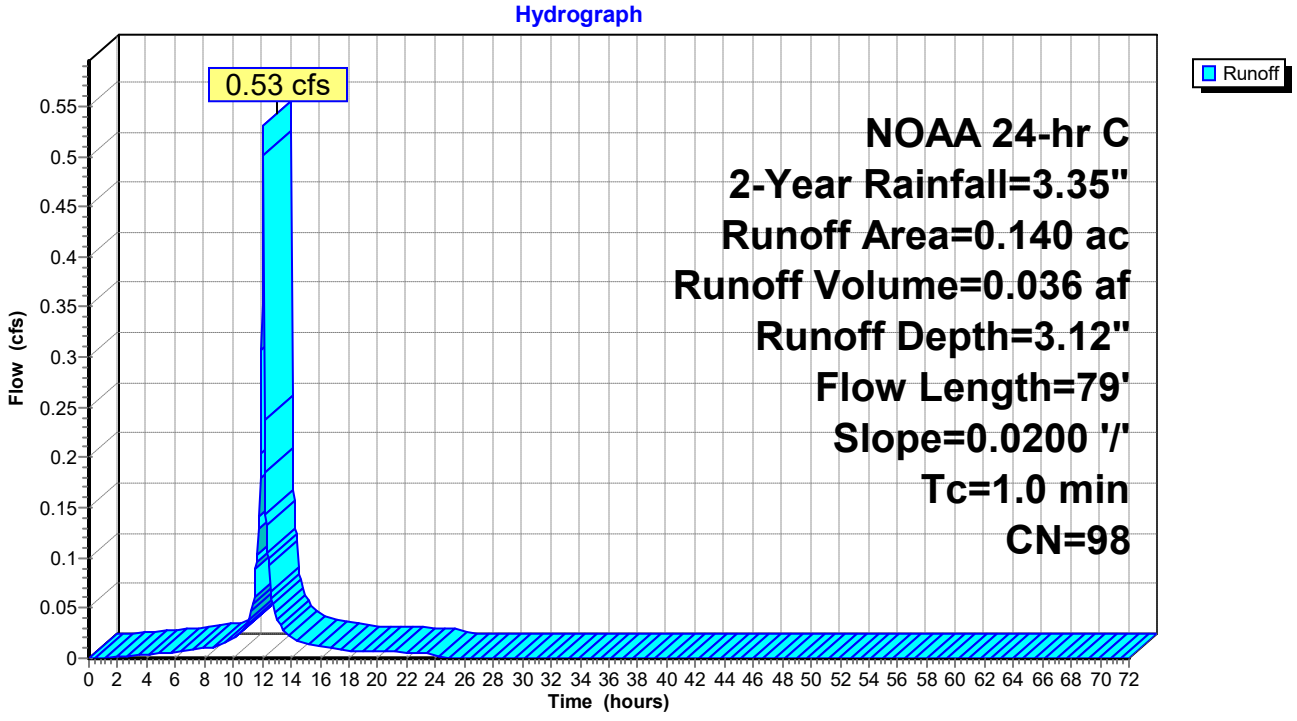
Runoff = 0.53 cfs @ 12.07 hrs, Volume= 0.036 af, Depth= 3.12"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.00
4.00	0.16	0.05	0.00
5.00	0.21	0.08	0.01
6.00	0.27	0.12	0.01
7.00	0.33	0.17	0.01
8.00	0.40	0.23	0.01
9.00	0.49	0.31	0.01
10.00	0.61	0.42	0.02
11.00	0.80	0.60	0.04
12.00	1.60	1.38	**0.35**
13.00	2.55	2.32	**0.04**
14.00	2.74	2.51	0.02
15.00	2.86	2.63	0.01
16.00	2.95	2.72	0.01
17.00	3.02	2.79	0.01
18.00	3.08	2.85	0.01
19.00	3.14	2.90	0.01
20.00	3.19	2.95	0.01
21.00	3.23	3.00	0.01
22.00	3.27	3.04	0.01
23.00	3.31	3.08	0.01
24.00	**3.35**	**3.12**	0.01
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

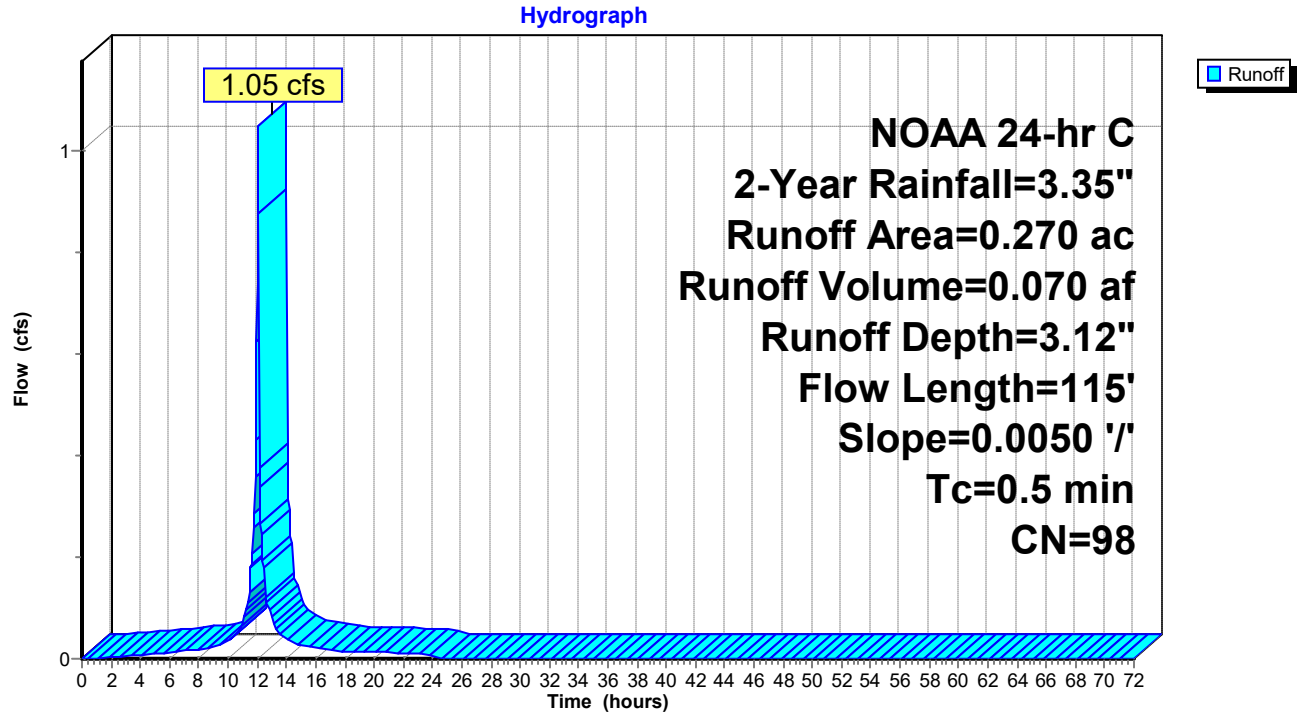
Runoff = 1.05 cfs @ 12.06 hrs, Volume= 0.070 af, Depth= 3.12"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.01
4.00	0.16	0.05	0.01
5.00	0.21	0.08	0.01
6.00	0.27	0.12	0.01
7.00	0.33	0.17	0.02
8.00	0.40	0.23	0.02
9.00	0.49	0.31	0.02
10.00	0.61	0.42	0.04
11.00	0.80	0.60	0.07
12.00	1.60	1.38	**0.74**
13.00	2.55	2.32	**0.08**
14.00	2.74	2.51	0.04
15.00	2.86	2.63	0.03
16.00	2.95	2.72	0.02
17.00	3.02	2.79	0.02
18.00	3.08	2.85	0.01
19.00	3.14	2.90	0.01
20.00	3.19	2.95	0.01
21.00	3.23	3.00	0.01
22.00	3.27	3.04	0.01
23.00	3.31	3.08	0.01
24.00	**3.35**	**3.12**	0.01
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

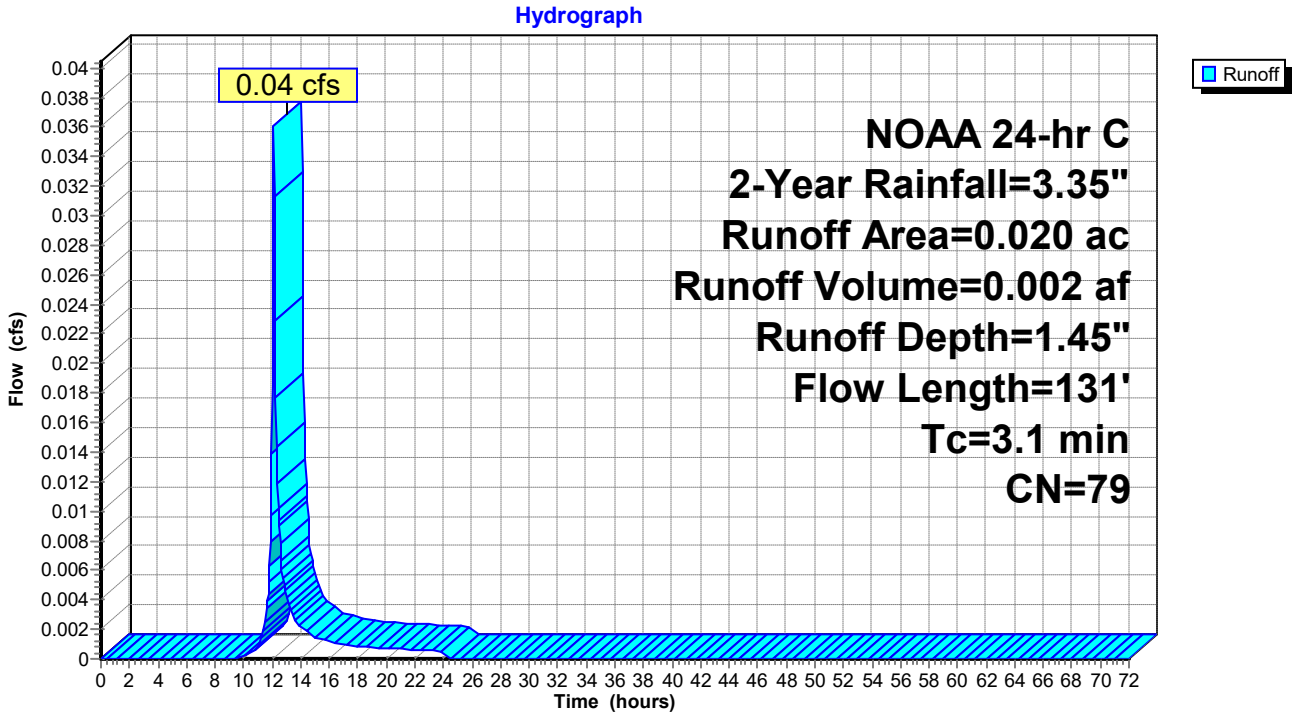
Runoff = 0.04 cfs @ 12.11 hrs, Volume= 0.002 af, Depth= 1.45"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.00	0.00
11.00	0.80	0.03	0.00
12.00	1.60	0.30	**0.02**
13.00	2.55	0.87	**0.00**
14.00	2.74	1.00	0.00
15.00	2.86	1.09	0.00
16.00	2.95	1.15	0.00
17.00	3.02	1.21	0.00
18.00	3.08	1.25	0.00
19.00	3.14	1.29	0.00
20.00	3.19	1.33	0.00
21.00	3.23	1.36	0.00
22.00	3.27	1.39	0.00
23.00	3.31	1.42	0.00
24.00	**3.35**	**1.45**	0.00
25.00	3.35	1.45	0.00
26.00	3.35	1.45	0.00
27.00	3.35	1.45	0.00
28.00	3.35	1.45	0.00
29.00	3.35	1.45	0.00
30.00	3.35	1.45	0.00
31.00	3.35	1.45	0.00
32.00	3.35	1.45	0.00
33.00	3.35	1.45	0.00
34.00	3.35	1.45	0.00
35.00	3.35	1.45	0.00
36.00	3.35	1.45	0.00
37.00	3.35	1.45	0.00
38.00	3.35	1.45	0.00
39.00	3.35	1.45	0.00
40.00	3.35	1.45	0.00
41.00	3.35	1.45	0.00
42.00	3.35	1.45	0.00
43.00	3.35	1.45	0.00
44.00	3.35	1.45	0.00
45.00	3.35	1.45	0.00
46.00	3.35	1.45	0.00
47.00	3.35	1.45	0.00
48.00	3.35	1.45	0.00
49.00	3.35	1.45	0.00
50.00	3.35	1.45	0.00
51.00	3.35	1.45	0.00
52.00	3.35	1.45	0.00
53.00	3.35	1.45	0.00
54.00	3.35	1.45	0.00
55.00	3.35	1.45	0.00
56.00	3.35	1.45	0.00
57.00	3.35	1.45	0.00
58.00	3.35	1.45	0.00
59.00	3.35	1.45	0.00
60.00	3.35	1.45	0.00
61.00	3.35	1.45	0.00
62.00	3.35	1.45	0.00
63.00	3.35	1.45	0.00
64.00	3.35	1.45	0.00
65.00	3.35	1.45	0.00
66.00	3.35	1.45	0.00
67.00	3.35	1.45	0.00
68.00	3.35	1.45	0.00
69.00	3.35	1.45	0.00
70.00	3.35	1.45	0.00
71.00	3.35	1.45	0.00
72.00	3.35	1.45	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

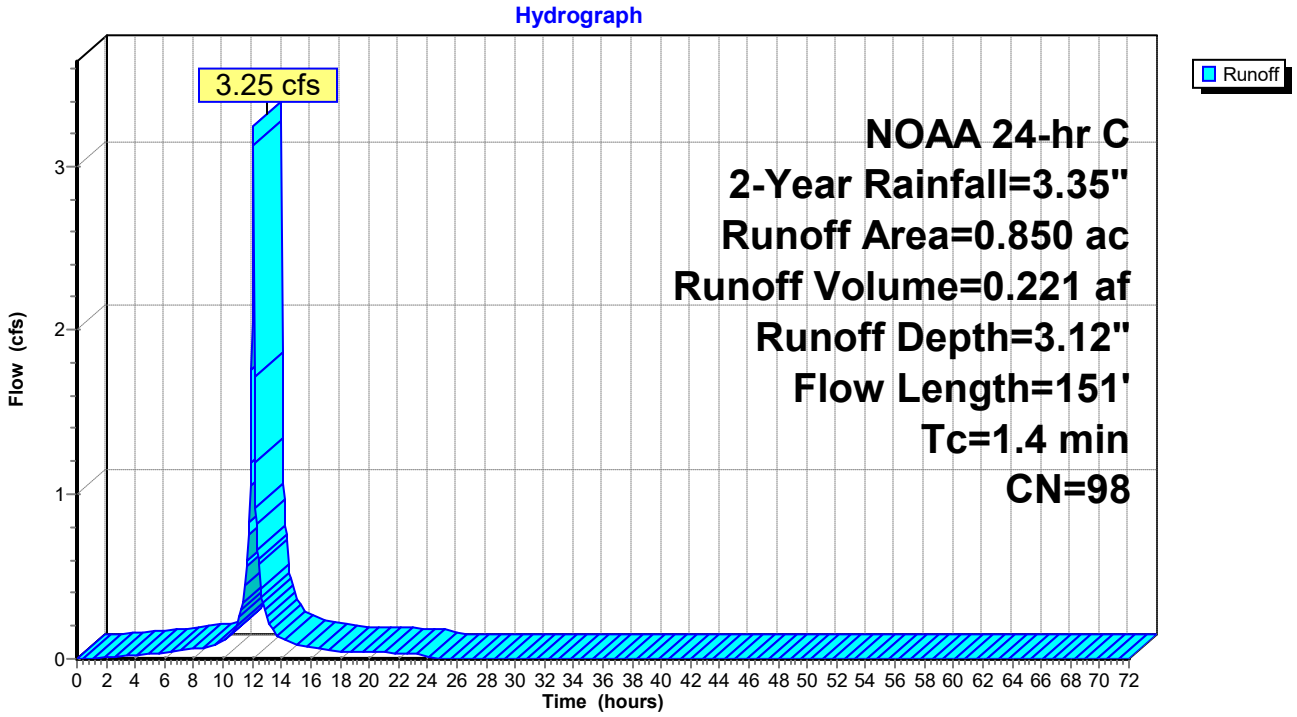
Runoff = 3.25 cfs @ 12.08 hrs, Volume= 0.221 af, Depth= 3.12"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.01
3.00	0.12	0.02	0.02
4.00	0.16	0.05	0.02
5.00	0.21	0.08	0.03
6.00	0.27	0.12	0.04
7.00	0.33	0.17	0.05
8.00	0.40	0.23	0.06
9.00	0.49	0.31	0.07
10.00	0.61	0.42	0.11
11.00	0.80	0.60	0.22
12.00	1.60	1.38	**2.05**
13.00	2.55	2.32	**0.26**
14.00	2.74	2.51	0.13
15.00	2.86	2.63	0.08
16.00	2.95	2.72	0.07
17.00	3.02	2.79	0.06
18.00	3.08	2.85	0.05
19.00	3.14	2.90	0.04
20.00	3.19	2.95	0.04
21.00	3.23	3.00	0.04
22.00	3.27	3.04	0.03
23.00	3.31	3.08	0.03
24.00	**3.35**	**3.12**	0.03
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

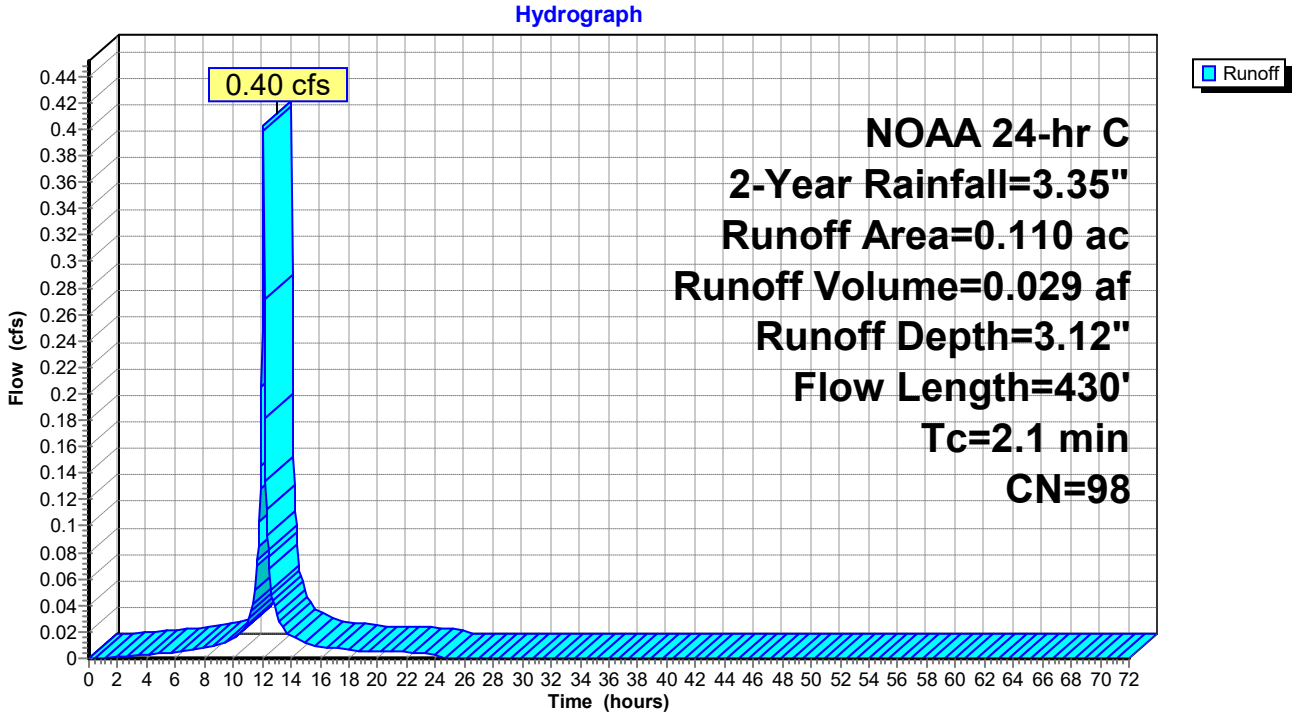
Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.029 af, Depth= 3.12"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.00
4.00	0.16	0.05	0.00
5.00	0.21	0.08	0.00
6.00	0.27	0.12	0.00
7.00	0.33	0.17	0.01
8.00	0.40	0.23	0.01
9.00	0.49	0.31	0.01
10.00	0.61	0.42	0.01
11.00	0.80	0.60	0.03
12.00	1.60	1.38	**0.25**
13.00	2.55	2.32	**0.03**
14.00	2.74	2.51	0.02
15.00	2.86	2.63	0.01
16.00	2.95	2.72	0.01
17.00	3.02	2.79	0.01
18.00	3.08	2.85	0.01
19.00	3.14	2.90	0.01
20.00	3.19	2.95	0.01
21.00	3.23	3.00	0.00
22.00	3.27	3.04	0.00
23.00	3.31	3.08	0.00
24.00	**3.35**	**3.12**	0.00
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

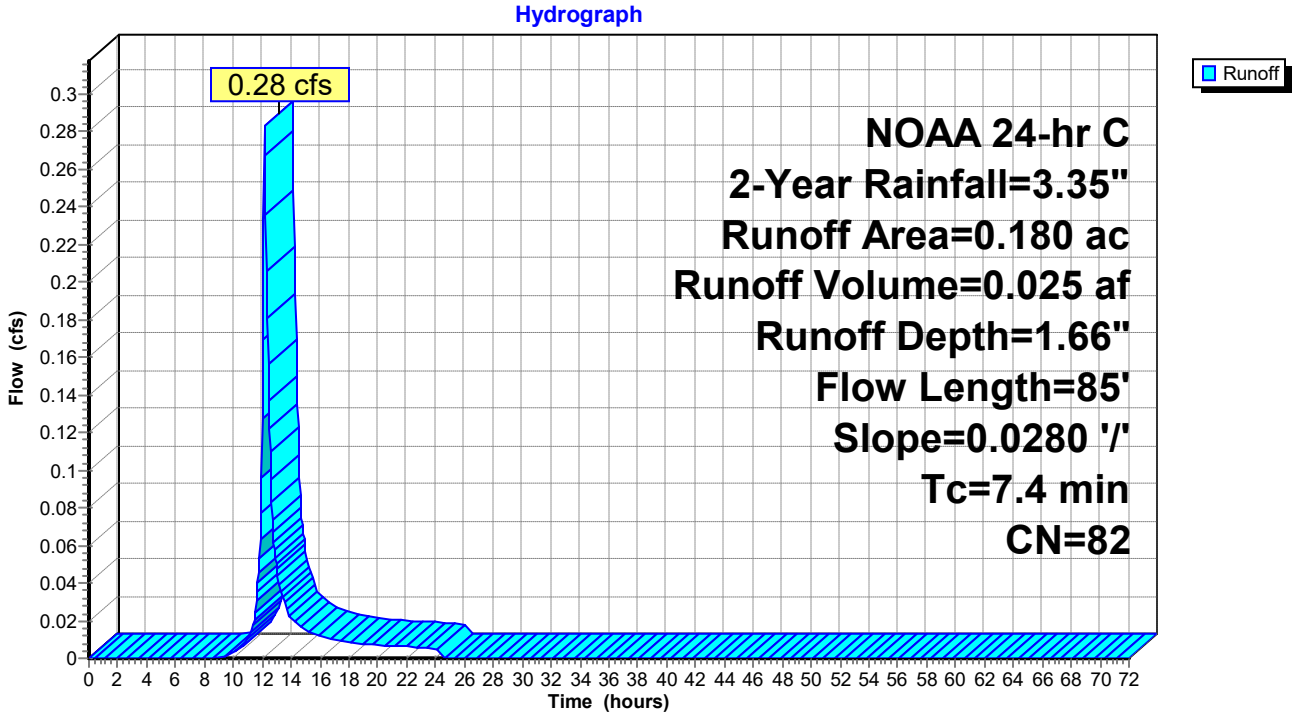
Runoff = 0.28 cfs @ 12.16 hrs, Volume= 0.025 af, Depth= 1.66"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.01	0.00
11.00	0.80	0.05	0.01
12.00	1.60	0.40	**0.13**
13.00	2.55	1.03	**0.05**
14.00	2.74	1.18	0.02
15.00	2.86	1.27	0.01
16.00	2.95	1.34	0.01
17.00	3.02	1.40	0.01
18.00	3.08	1.45	0.01
19.00	3.14	1.49	0.01
20.00	3.19	1.53	0.01
21.00	3.23	1.56	0.01
22.00	3.27	1.60	0.01
23.00	3.31	1.63	0.01
24.00	**3.35**	**1.66**	0.01
25.00	3.35	1.66	0.00
26.00	3.35	1.66	0.00
27.00	3.35	1.66	0.00
28.00	3.35	1.66	0.00
29.00	3.35	1.66	0.00
30.00	3.35	1.66	0.00
31.00	3.35	1.66	0.00
32.00	3.35	1.66	0.00
33.00	3.35	1.66	0.00
34.00	3.35	1.66	0.00
35.00	3.35	1.66	0.00
36.00	3.35	1.66	0.00
37.00	3.35	1.66	0.00
38.00	3.35	1.66	0.00
39.00	3.35	1.66	0.00
40.00	3.35	1.66	0.00
41.00	3.35	1.66	0.00
42.00	3.35	1.66	0.00
43.00	3.35	1.66	0.00
44.00	3.35	1.66	0.00
45.00	3.35	1.66	0.00
46.00	3.35	1.66	0.00
47.00	3.35	1.66	0.00
48.00	3.35	1.66	0.00
49.00	3.35	1.66	0.00
50.00	3.35	1.66	0.00
51.00	3.35	1.66	0.00
52.00	3.35	1.66	0.00
53.00	3.35	1.66	0.00
54.00	3.35	1.66	0.00
55.00	3.35	1.66	0.00
56.00	3.35	1.66	0.00
57.00	3.35	1.66	0.00
58.00	3.35	1.66	0.00
59.00	3.35	1.66	0.00
60.00	3.35	1.66	0.00
61.00	3.35	1.66	0.00
62.00	3.35	1.66	0.00
63.00	3.35	1.66	0.00
64.00	3.35	1.66	0.00
65.00	3.35	1.66	0.00
66.00	3.35	1.66	0.00
67.00	3.35	1.66	0.00
68.00	3.35	1.66	0.00
69.00	3.35	1.66	0.00
70.00	3.35	1.66	0.00
71.00	3.35	1.66	0.00
72.00	3.35	1.66	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

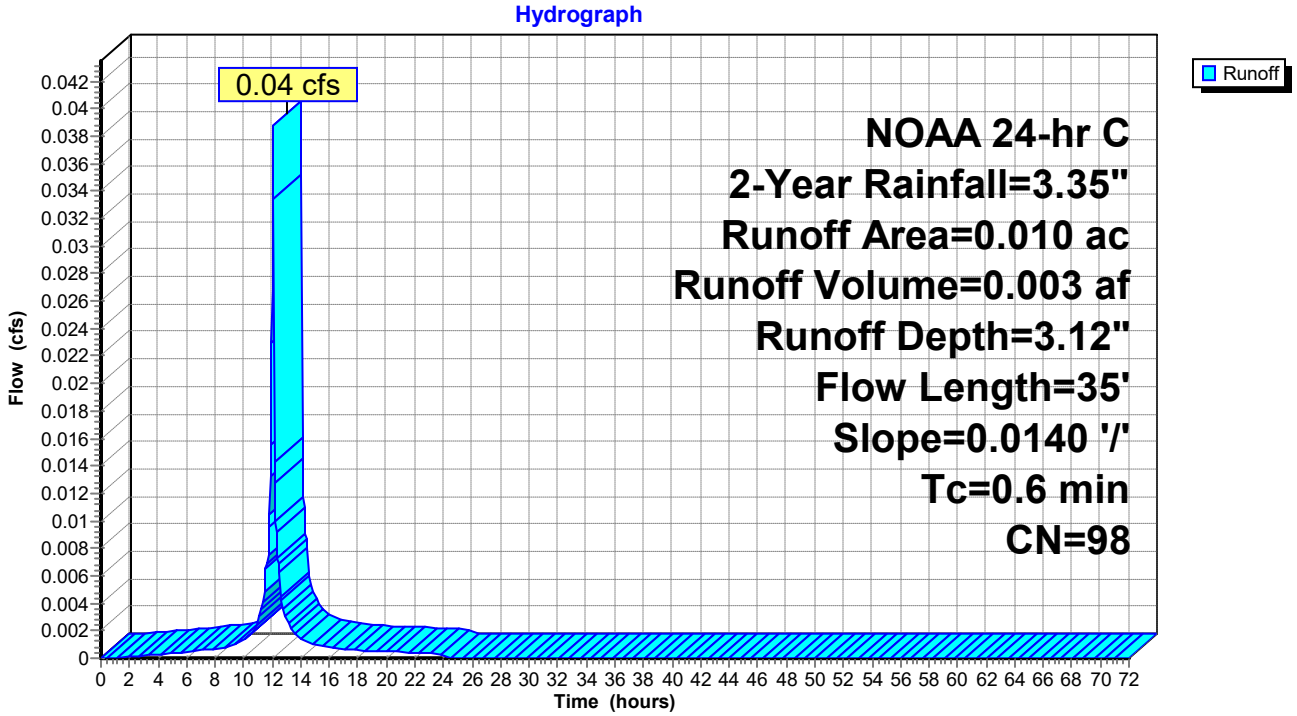
Runoff = 0.04 cfs @ 12.06 hrs, Volume= 0.003 af, Depth= 3.12"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.01	0.00
3.00	0.12	0.02	0.00
4.00	0.16	0.05	0.00
5.00	0.21	0.08	0.00
6.00	0.27	0.12	0.00
7.00	0.33	0.17	0.00
8.00	0.40	0.23	0.00
9.00	0.49	0.31	0.00
10.00	0.61	0.42	0.00
11.00	0.80	0.60	0.00
12.00	1.60	1.38	**0.03**
13.00	2.55	2.32	**0.00**
14.00	2.74	2.51	0.00
15.00	2.86	2.63	0.00
16.00	2.95	2.72	0.00
17.00	3.02	2.79	0.00
18.00	3.08	2.85	0.00
19.00	3.14	2.90	0.00
20.00	3.19	2.95	0.00
21.00	3.23	3.00	0.00
22.00	3.27	3.04	0.00
23.00	3.31	3.08	0.00
24.00	**3.35**	**3.12**	0.00
25.00	3.35	3.12	0.00
26.00	3.35	3.12	0.00
27.00	3.35	3.12	0.00
28.00	3.35	3.12	0.00
29.00	3.35	3.12	0.00
30.00	3.35	3.12	0.00
31.00	3.35	3.12	0.00
32.00	3.35	3.12	0.00
33.00	3.35	3.12	0.00
34.00	3.35	3.12	0.00
35.00	3.35	3.12	0.00
36.00	3.35	3.12	0.00
37.00	3.35	3.12	0.00
38.00	3.35	3.12	0.00
39.00	3.35	3.12	0.00
40.00	3.35	3.12	0.00
41.00	3.35	3.12	0.00
42.00	3.35	3.12	0.00
43.00	3.35	3.12	0.00
44.00	3.35	3.12	0.00
45.00	3.35	3.12	0.00
46.00	3.35	3.12	0.00
47.00	3.35	3.12	0.00
48.00	3.35	3.12	0.00
49.00	3.35	3.12	0.00
50.00	3.35	3.12	0.00
51.00	3.35	3.12	0.00
52.00	3.35	3.12	0.00
53.00	3.35	3.12	0.00
54.00	3.35	3.12	0.00
55.00	3.35	3.12	0.00
56.00	3.35	3.12	0.00
57.00	3.35	3.12	0.00
58.00	3.35	3.12	0.00
59.00	3.35	3.12	0.00
60.00	3.35	3.12	0.00
61.00	3.35	3.12	0.00
62.00	3.35	3.12	0.00
63.00	3.35	3.12	0.00
64.00	3.35	3.12	0.00
65.00	3.35	3.12	0.00
66.00	3.35	3.12	0.00
67.00	3.35	3.12	0.00
68.00	3.35	3.12	0.00
69.00	3.35	3.12	0.00
70.00	3.35	3.12	0.00
71.00	3.35	3.12	0.00
72.00	3.35	3.12	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

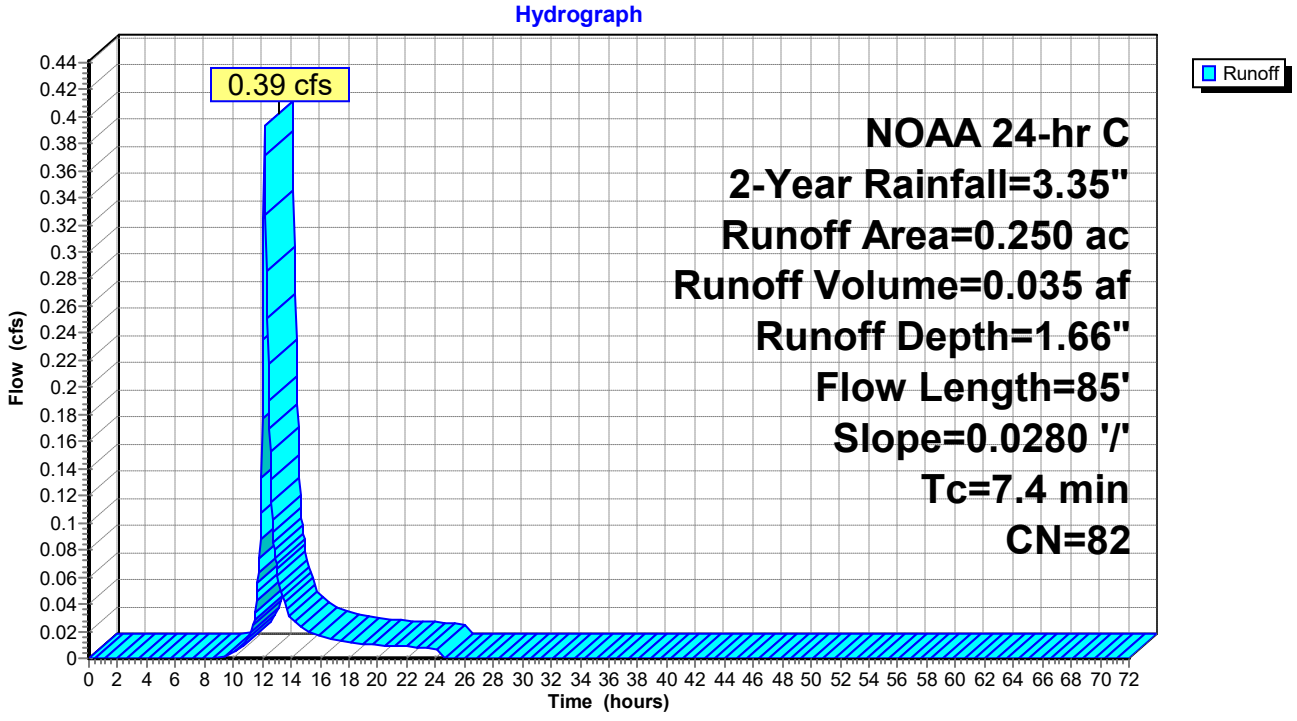
Runoff = 0.39 cfs @ 12.16 hrs, Volume= 0.035 af, Depth= 1.66"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Rainfall=3.35"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.08	0.00	0.00
3.00	0.12	0.00	0.00
4.00	0.16	0.00	0.00
5.00	0.21	0.00	0.00
6.00	0.27	0.00	0.00
7.00	0.33	0.00	0.00
8.00	0.40	0.00	0.00
9.00	0.49	0.00	0.00
10.00	0.61	0.01	0.00
11.00	0.80	0.05	0.01
12.00	1.60	0.40	**0.18**
13.00	2.55	1.03	**0.07**
14.00	2.74	1.18	0.03
15.00	2.86	1.27	0.02
16.00	2.95	1.34	0.02
17.00	3.02	1.40	0.01
18.00	3.08	1.45	0.01
19.00	3.14	1.49	0.01
20.00	3.19	1.53	0.01
21.00	3.23	1.56	0.01
22.00	3.27	1.60	0.01
23.00	3.31	1.63	0.01
24.00	**3.35**	**1.66**	0.01
25.00	3.35	1.66	0.00
26.00	3.35	1.66	0.00
27.00	3.35	1.66	0.00
28.00	3.35	1.66	0.00
29.00	3.35	1.66	0.00
30.00	3.35	1.66	0.00
31.00	3.35	1.66	0.00
32.00	3.35	1.66	0.00
33.00	3.35	1.66	0.00
34.00	3.35	1.66	0.00
35.00	3.35	1.66	0.00
36.00	3.35	1.66	0.00
37.00	3.35	1.66	0.00
38.00	3.35	1.66	0.00
39.00	3.35	1.66	0.00
40.00	3.35	1.66	0.00
41.00	3.35	1.66	0.00
42.00	3.35	1.66	0.00
43.00	3.35	1.66	0.00
44.00	3.35	1.66	0.00
45.00	3.35	1.66	0.00
46.00	3.35	1.66	0.00
47.00	3.35	1.66	0.00
48.00	3.35	1.66	0.00
49.00	3.35	1.66	0.00
50.00	3.35	1.66	0.00
51.00	3.35	1.66	0.00
52.00	3.35	1.66	0.00
53.00	3.35	1.66	0.00
54.00	3.35	1.66	0.00
55.00	3.35	1.66	0.00
56.00	3.35	1.66	0.00
57.00	3.35	1.66	0.00
58.00	3.35	1.66	0.00
59.00	3.35	1.66	0.00
60.00	3.35	1.66	0.00
61.00	3.35	1.66	0.00
62.00	3.35	1.66	0.00
63.00	3.35	1.66	0.00
64.00	3.35	1.66	0.00
65.00	3.35	1.66	0.00
66.00	3.35	1.66	0.00
67.00	3.35	1.66	0.00
68.00	3.35	1.66	0.00
69.00	3.35	1.66	0.00
70.00	3.35	1.66	0.00
71.00	3.35	1.66	0.00
72.00	3.35	1.66	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 2.91" for 2-Year event
Inflow = 0.57 cfs @ 12.07 hrs, Volume= 0.039 af
Outflow = 0.06 cfs @ 12.69 hrs, Volume= 0.026 af, Atten= 89%, Lag= 37.1 min
Primary = 0.06 cfs @ 12.69 hrs, Volume= 0.026 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.33' @ 12.69 hrs Surf.Area= 0.118 ac Storage= 0.024 af

Plug-Flow detention time= 375.8 min calculated for 0.026 af (68% of inflow)
Center-of-Mass det. time= 277.7 min (1,036.0 - 758.3)

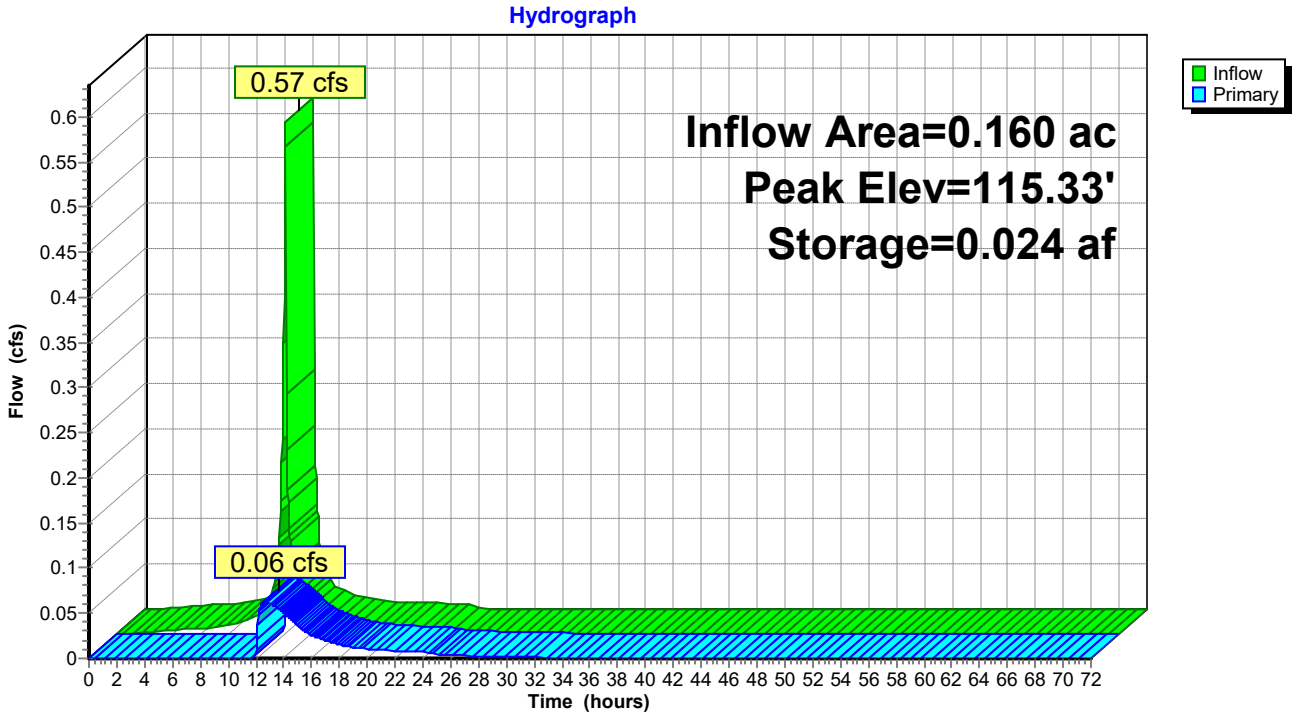
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.06 cfs @ 12.69 hrs HW=115.33' TW=112.99' (Dynamic Tailwater)
↑ **1=Culvert** (Passes 0.06 cfs of 7.00 cfs potential flow)
↑ **2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.82 fps)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.82	0.00
2.50	0.00	0.000	114.82	0.00
5.00	0.01	0.001	114.84	0.00
7.50	0.01	0.002	114.87	0.00
10.00	**0.02**	0.005	114.92	0.00
12.50	**0.10**	**0.024**	**115.32**	**0.06**
15.00	0.02	**0.020**	**115.23**	**0.04**
17.50	0.01	0.017	115.18	0.02
20.00	0.01	0.016	115.16	0.01
22.50	0.01	0.015	115.15	0.01
25.00	0.00	0.015	115.13	0.00
27.50	0.00	0.014	115.12	0.00
30.00	0.00	0.014	115.11	0.00
32.50	0.00	0.013	115.10	0.00
35.00	0.00	0.013	115.10	0.00
37.50	0.00	0.013	115.10	0.00
40.00	0.00	0.013	115.09	0.00
42.50	0.00	0.013	115.09	0.00
45.00	0.00	0.013	115.09	0.00
47.50	0.00	0.013	115.09	0.00
50.00	0.00	0.013	115.09	0.00
52.50	0.00	0.013	115.09	0.00
55.00	0.00	0.013	115.09	0.00
57.50	0.00	0.013	115.09	0.00
60.00	0.00	0.013	115.09	0.00
62.50	0.00	0.013	115.09	0.00
65.00	0.00	0.013	115.09	0.00
67.50	0.00	0.013	115.09	0.00
70.00	0.00	0.013	115.09	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 3.12" for 2-Year event
Inflow = 1.05 cfs @ 12.06 hrs, Volume= 0.070 af
Outflow = 0.16 cfs @ 12.50 hrs, Volume= 0.047 af, Atten= 85%, Lag= 26.4 min
Primary = 0.16 cfs @ 12.50 hrs, Volume= 0.047 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.28' @ 12.50 hrs Surf.Area= 0.043 ac Storage= 0.041 af

Plug-Flow detention time= 280.4 min calculated for 0.047 af (67% of inflow)
Center-of-Mass det. time= 181.6 min (933.4 - 751.8)

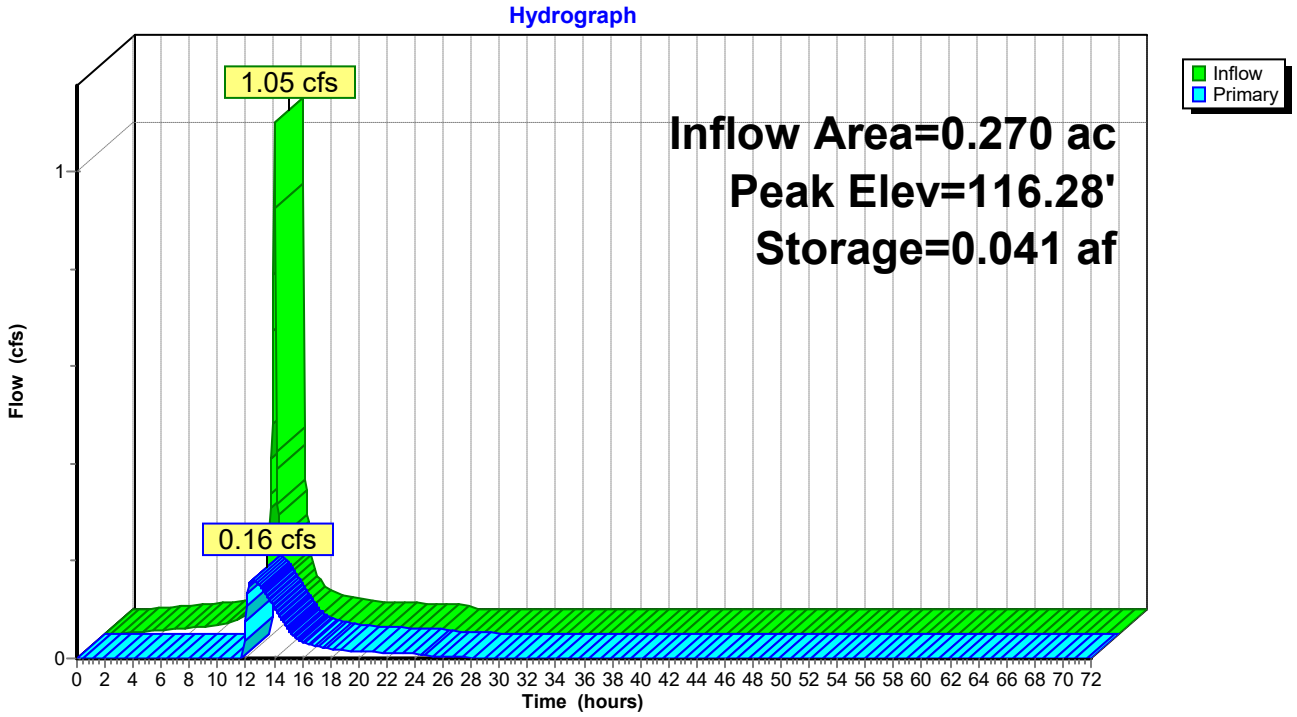
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.16 cfs @ 12.50 hrs HW=116.28' TW=112.92' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.16 cfs of 8.10 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 3.27 fps)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.63	0.00
2.50	0.00	0.000	114.65	0.00
5.00	0.01	0.002	114.73	0.00
7.50	0.02	0.004	114.89	0.00
10.00	**0.04**	0.009	115.17	0.00
12.50	**0.17**	**0.041**	**116.28**	**0.16**
15.00	0.03	0.029	115.88	0.06
17.50	0.02	0.026	115.80	0.02
20.00	0.01	0.026	115.77	0.01
22.50	0.01	0.026	115.77	0.01
25.00	0.00	0.025	115.74	0.01
27.50	0.00	0.024	115.72	0.00
30.00	0.00	0.024	115.71	0.00
32.50	0.00	0.024	115.71	0.00
35.00	0.00	0.024	115.70	0.00
37.50	0.00	0.024	115.70	0.00
40.00	0.00	0.024	115.70	0.00
42.50	0.00	0.024	115.70	0.00
45.00	0.00	0.023	115.70	0.00
47.50	0.00	0.023	115.70	0.00
50.00	0.00	0.023	115.70	0.00
52.50	0.00	0.023	115.70	0.00
55.00	0.00	0.023	115.69	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 3.08" for 2-Year event
Inflow = 3.28 cfs @ 12.08 hrs, Volume= 0.223 af
Outflow = 0.30 cfs @ 12.85 hrs, Volume= 0.147 af, Atten= 91%, Lag= 46.0 min
Primary = 0.30 cfs @ 12.85 hrs, Volume= 0.147 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.49' @ 12.85 hrs Surf.Area= 0.410 ac Storage= 0.143 af

Plug-Flow detention time= 427.2 min calculated for 0.147 af (66% of inflow)
Center-of-Mass det. time= 327.4 min (1,081.6 - 754.2)

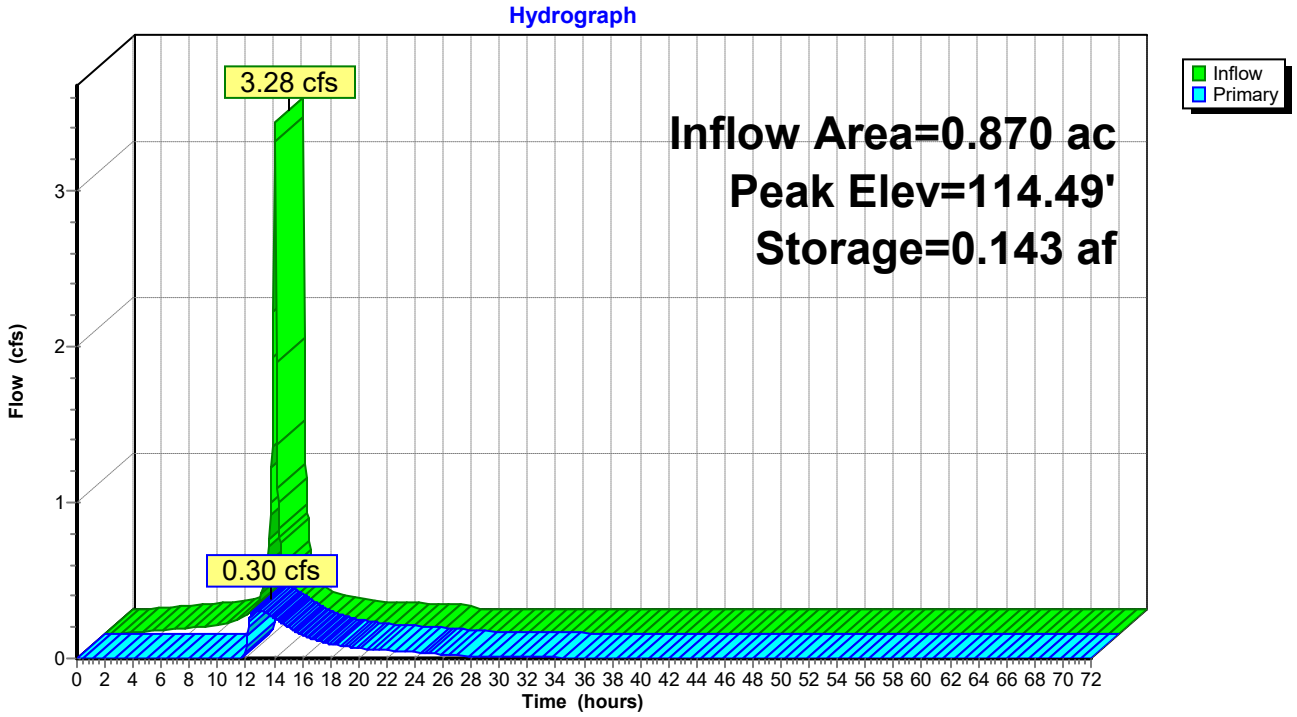
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.30 cfs @ 12.85 hrs HW=114.49' TW=113.05' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.30 cfs of 4.50 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.30 cfs @ 2.23 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	113.62	0.00
2.50	0.01	0.001	113.62	0.00
5.00	0.03	0.005	113.65	0.00
7.50	0.05	0.014	113.70	0.00
10.00	**0.12**	0.029	113.80	0.00
12.50	**0.57**	**0.141**	**114.48**	**0.30**
15.00	0.09	**0.123**	**114.37**	**0.20**
17.50	0.05	0.108	114.28	0.10
20.00	0.04	0.100	114.23	0.07
22.50	0.03	0.096	114.21	0.05
25.00	0.00	0.092	114.18	0.03
27.50	0.00	0.087	114.15	0.02
30.00	0.00	0.084	114.13	0.01
32.50	0.00	0.082	114.12	0.01
35.00	0.00	0.081	114.11	0.01
37.50	0.00	0.080	114.11	0.00
40.00	0.00	0.079	114.10	0.00
42.50	0.00	0.079	114.10	0.00
45.00	0.00	0.078	114.10	0.00
47.50	0.00	0.078	114.09	0.00
50.00	0.00	0.077	114.09	0.00
52.50	0.00	0.077	114.09	0.00
55.00	0.00	0.077	114.09	0.00
57.50	0.00	0.077	114.09	0.00
60.00	0.00	0.077	114.09	0.00
62.50	0.00	0.076	114.09	0.00
65.00	0.00	0.076	114.08	0.00
67.50	0.00	0.076	114.08	0.00
70.00	0.00	0.076	114.08	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 2.01" for 2-Year event
Inflow = 0.95 cfs @ 12.15 hrs, Volume= 0.280 af
Outflow = 0.31 cfs @ 15.10 hrs, Volume= 0.265 af, Atten= 67%, Lag= 177.2 min
Primary = 0.31 cfs @ 15.10 hrs, Volume= 0.265 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 113.34' @ 15.10 hrs Surf.Area= 0.116 ac Storage= 0.096 af

Plug-Flow detention time= 270.9 min calculated for 0.264 af (94% of inflow)
Center-of-Mass det. time= 204.3 min (1,198.4 - 994.0)

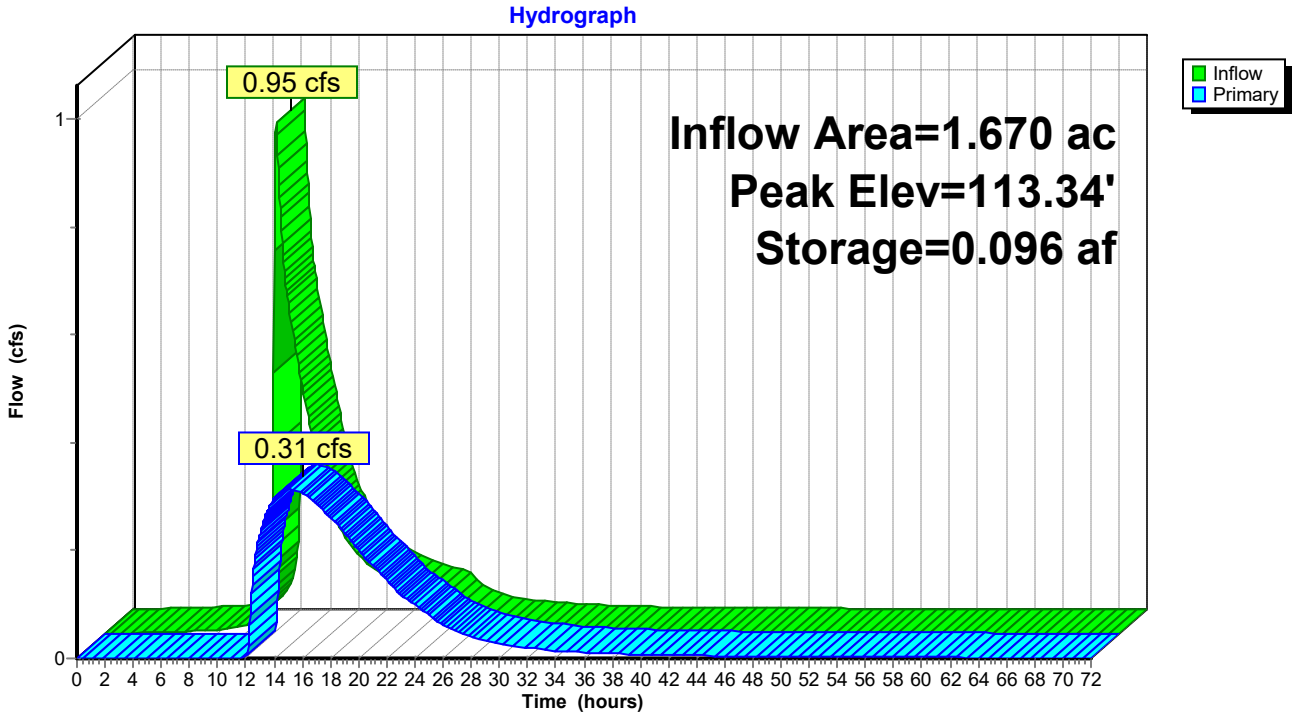
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.31 cfs @ 15.10 hrs HW=113.34' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.31 cfs of 6.26 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.31 cfs @ 3.60 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

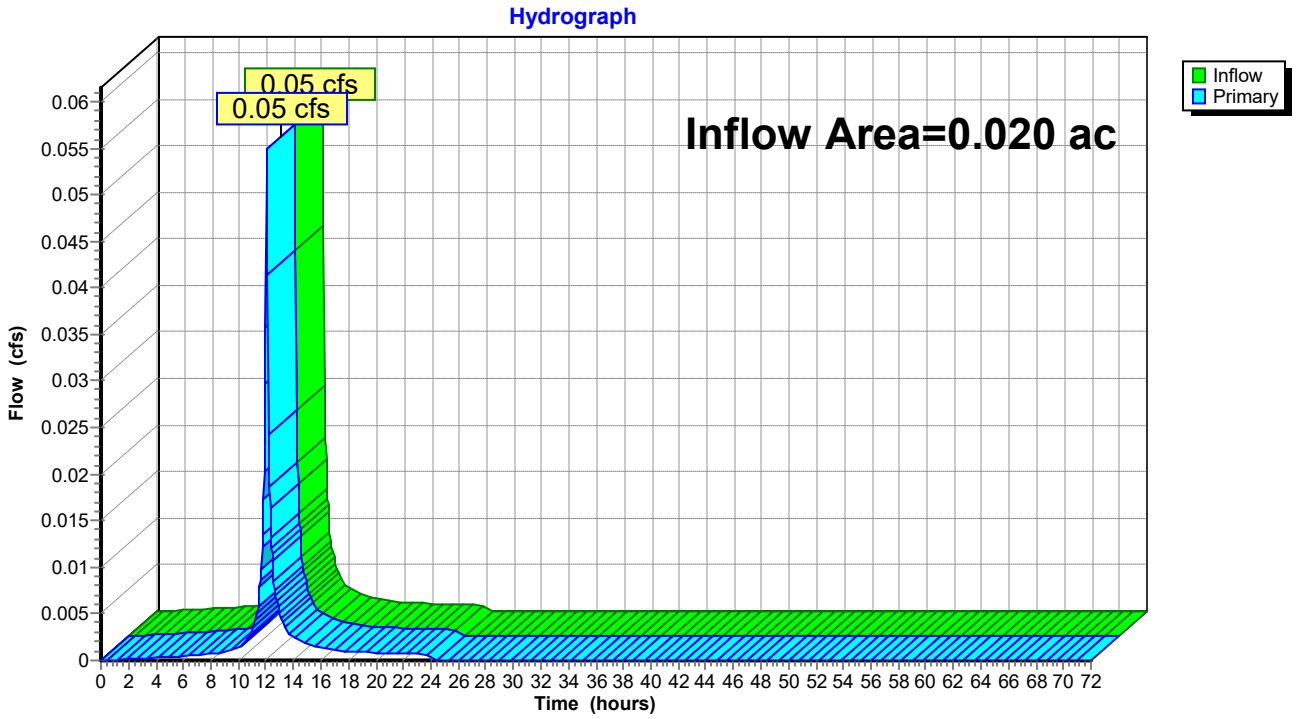
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.00	0.000	112.50	0.00
5.00	0.00	0.001	112.51	0.00
7.50	0.01	0.002	112.52	0.00
10.00	**0.02**	0.004	112.53	0.00
12.50	**0.77**	0.047	112.92	0.15
15.00	0.33	**0.096**	**113.34**	**0.31**
17.50	0.16	**0.081**	**113.21**	**0.27**
20.00	0.11	0.058	113.02	0.20
22.50	0.08	0.043	112.88	0.13
25.00	0.04	0.035	112.82	0.08
27.50	0.02	0.029	112.76	0.04
30.00	0.01	0.025	112.73	0.03
32.50	0.01	0.023	112.71	0.02
35.00	0.01	0.021	112.69	0.01
37.50	0.00	0.020	112.68	0.01
40.00	0.00	0.019	112.67	0.01
42.50	0.00	0.019	112.67	0.01
45.00	0.00	0.018	112.66	0.00
47.50	0.00	0.018	112.66	0.00
50.00	0.00	0.017	112.66	0.00
52.50	0.00	0.017	112.65	0.00
55.00	0.00	0.017	112.65	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.016	112.65	0.00
62.50	0.00	0.016	112.65	0.00
65.00	0.00	0.016	112.64	0.00
67.50	0.00	0.016	112.64	0.00
70.00	0.00	0.016	112.64	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 2.28" for 2-Year event
Inflow = 0.05 cfs @ 12.08 hrs, Volume= 0.004 af
Primary = 0.05 cfs @ 12.08 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

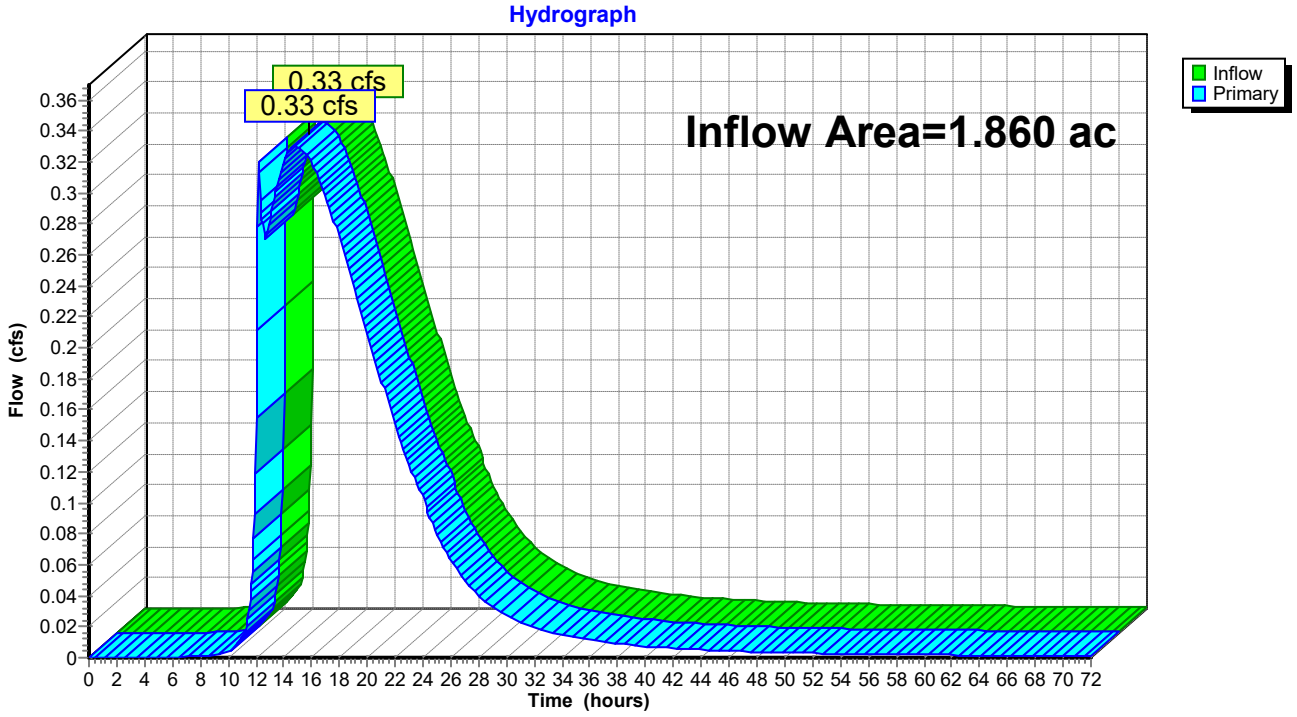
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth > 1.88" for 2-Year event
Inflow = 0.33 cfs @ 14.83 hrs, Volume= 0.292 af
Primary = 0.33 cfs @ 14.83 hrs, Volume= 0.292 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

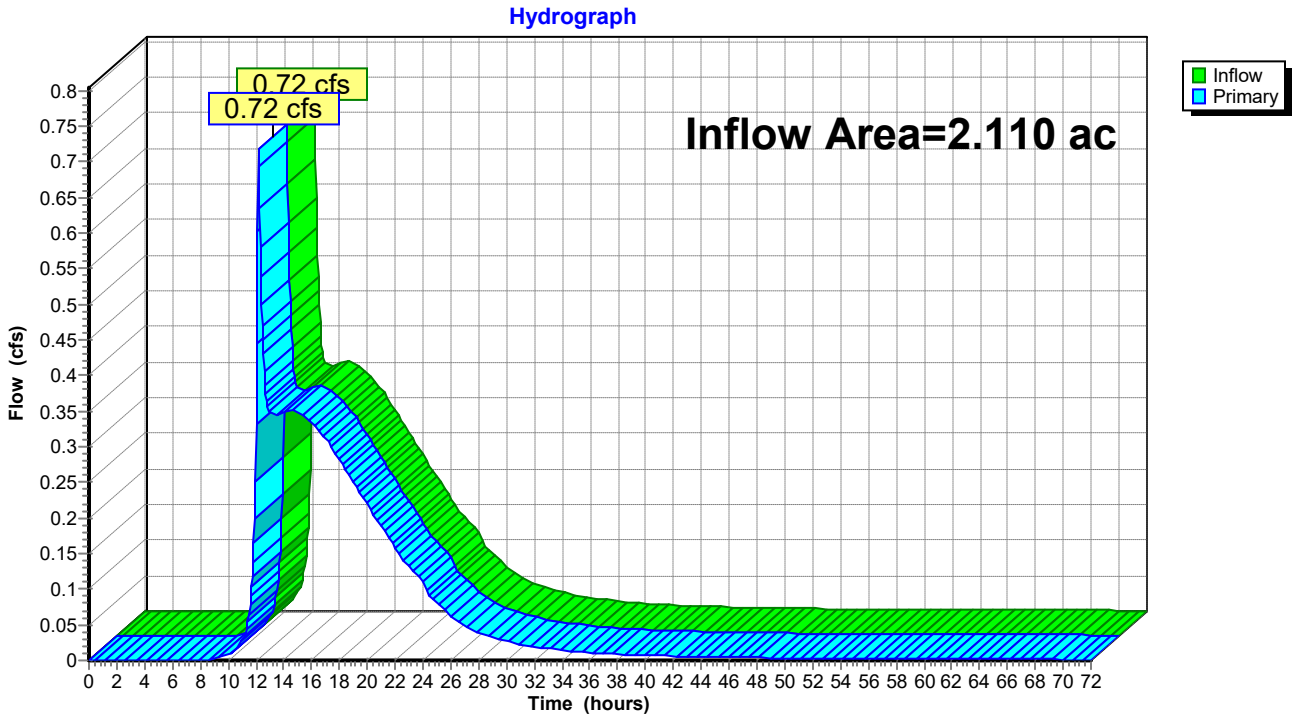
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	0.15	0.00	0.15	64.00	0.00	0.00	0.00
13.00	0.28	0.00	0.28	65.00	0.00	0.00	0.00
14.00	**0.32**	0.00	**0.32**	66.00	0.00	0.00	0.00
15.00	**0.33**	0.00	**0.33**	67.00	0.00	0.00	0.00
16.00	0.32	0.00	0.32	68.00	0.00	0.00	0.00
17.00	0.30	0.00	0.30	69.00	0.00	0.00	0.00
18.00	0.27	0.00	0.27	70.00	0.00	0.00	0.00
19.00	0.24	0.00	0.24	71.00	0.00	0.00	0.00
20.00	0.21	0.00	0.21	72.00	0.00	0.00	0.00
21.00	0.18	0.00	0.18				
22.00	0.15	0.00	0.15				
23.00	0.12	0.00	0.12				
24.00	0.11	0.00	0.11				
25.00	0.08	0.00	0.08				
26.00	0.06	0.00	0.06				
27.00	0.05	0.00	0.05				
28.00	0.04	0.00	0.04				
29.00	0.03	0.00	0.03				
30.00	0.03	0.00	0.03				
31.00	0.02	0.00	0.02				
32.00	0.02	0.00	0.02				
33.00	0.02	0.00	0.02				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.01	0.00	0.01				
37.00	0.01	0.00	0.01				
38.00	0.01	0.00	0.01				
39.00	0.01	0.00	0.01				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth > 1.86" for 2-Year event
Inflow = 0.72 cfs @ 12.17 hrs, Volume= 0.327 af
Primary = 0.72 cfs @ 12.17 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.03	0.00	0.03	63.00	0.00	0.00	0.00
12.00	**0.33**	0.00	**0.33**	64.00	0.00	0.00	0.00
13.00	**0.35**	0.00	**0.35**	65.00	0.00	0.00	0.00
14.00	0.35	0.00	0.35	66.00	0.00	0.00	0.00
15.00	0.35	0.00	0.35	67.00	0.00	0.00	0.00
16.00	0.34	0.00	0.34	68.00	0.00	0.00	0.00
17.00	0.31	0.00	0.31	69.00	0.00	0.00	0.00
18.00	0.28	0.00	0.28	70.00	0.00	0.00	0.00
19.00	0.25	0.00	0.25	71.00	0.00	0.00	0.00
20.00	0.22	0.00	0.22	72.00	0.00	0.00	0.00
21.00	0.19	0.00	0.19				
22.00	0.16	0.00	0.16				
23.00	0.13	0.00	0.13				
24.00	0.11	0.00	0.11				
25.00	0.08	0.00	0.08				
26.00	0.06	0.00	0.06				
27.00	0.05	0.00	0.05				
28.00	0.04	0.00	0.04				
29.00	0.03	0.00	0.03				
30.00	0.03	0.00	0.03				
31.00	0.02	0.00	0.02				
32.00	0.02	0.00	0.02				
33.00	0.02	0.00	0.02				
34.00	0.01	0.00	0.01				
35.00	0.01	0.00	0.01				
36.00	0.01	0.00	0.01				
37.00	0.01	0.00	0.01				
38.00	0.01	0.00	0.01				
39.00	0.01	0.00	0.01				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: PDA #1 PERVIOUS

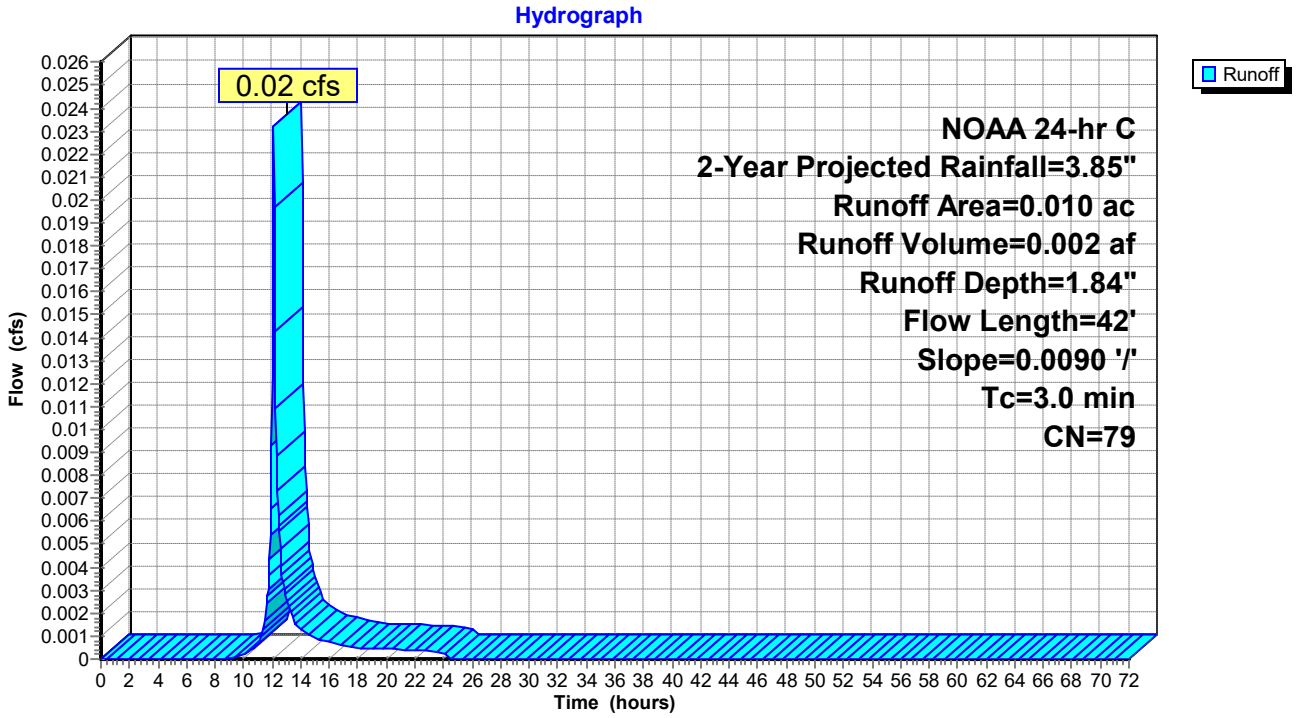
Runoff = 0.02 cfs @ 12.11 hrs, Volume= 0.002 af, Depth= 1.84"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.01	0.00
11.00	0.92	0.05	0.00
12.00	1.83	0.43	**0.01**
13.00	2.93	1.13	**0.00**
14.00	3.15	1.30	0.00
15.00	3.29	1.40	0.00
16.00	3.39	1.48	0.00
17.00	3.47	1.55	0.00
18.00	3.54	1.60	0.00
19.00	3.61	1.65	0.00
20.00	3.66	1.69	0.00
21.00	3.71	1.73	0.00
22.00	3.76	1.77	0.00
23.00	3.81	1.81	0.00
24.00	**3.85**	**1.84**	0.00
25.00	3.85	1.84	0.00
26.00	3.85	1.84	0.00
27.00	3.85	1.84	0.00
28.00	3.85	1.84	0.00
29.00	3.85	1.84	0.00
30.00	3.85	1.84	0.00
31.00	3.85	1.84	0.00
32.00	3.85	1.84	0.00
33.00	3.85	1.84	0.00
34.00	3.85	1.84	0.00
35.00	3.85	1.84	0.00
36.00	3.85	1.84	0.00
37.00	3.85	1.84	0.00
38.00	3.85	1.84	0.00
39.00	3.85	1.84	0.00
40.00	3.85	1.84	0.00
41.00	3.85	1.84	0.00
42.00	3.85	1.84	0.00
43.00	3.85	1.84	0.00
44.00	3.85	1.84	0.00
45.00	3.85	1.84	0.00
46.00	3.85	1.84	0.00
47.00	3.85	1.84	0.00
48.00	3.85	1.84	0.00
49.00	3.85	1.84	0.00
50.00	3.85	1.84	0.00
51.00	3.85	1.84	0.00
52.00	3.85	1.84	0.00
53.00	3.85	1.84	0.00
54.00	3.85	1.84	0.00
55.00	3.85	1.84	0.00
56.00	3.85	1.84	0.00
57.00	3.85	1.84	0.00
58.00	3.85	1.84	0.00
59.00	3.85	1.84	0.00
60.00	3.85	1.84	0.00
61.00	3.85	1.84	0.00
62.00	3.85	1.84	0.00
63.00	3.85	1.84	0.00
64.00	3.85	1.84	0.00
65.00	3.85	1.84	0.00
66.00	3.85	1.84	0.00
67.00	3.85	1.84	0.00
68.00	3.85	1.84	0.00
69.00	3.85	1.84	0.00
70.00	3.85	1.84	0.00
71.00	3.85	1.84	0.00
72.00	3.85	1.84	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

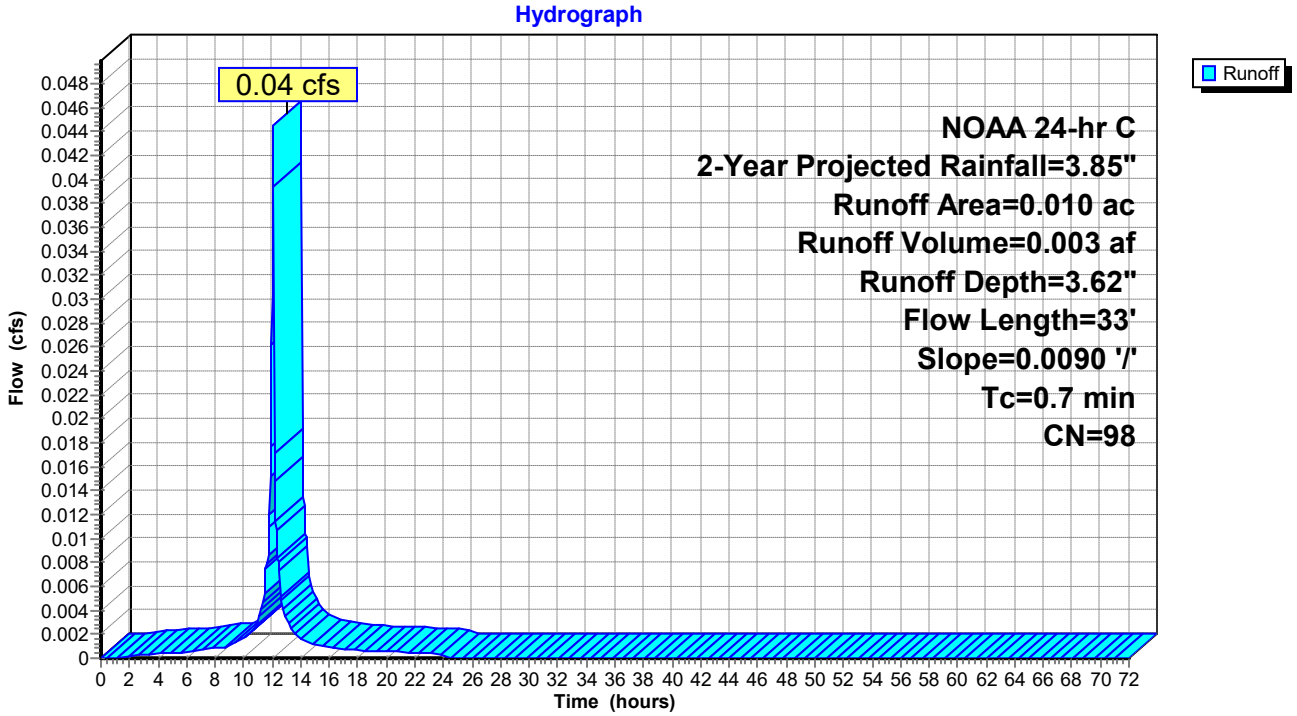
Runoff = 0.04 cfs @ 12.06 hrs, Volume= 0.003 af, Depth= 3.62"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.00
4.00	0.19	0.06	0.00
5.00	0.24	0.10	0.00
6.00	0.31	0.15	0.00
7.00	0.38	0.21	0.00
8.00	0.46	0.28	0.00
9.00	0.56	0.37	0.00
10.00	0.70	0.51	0.00
11.00	0.92	0.72	0.00
12.00	1.83	1.61	**0.03**
13.00	2.93	2.69	**0.00**
14.00	3.15	2.92	0.00
15.00	3.29	3.05	0.00
16.00	3.39	3.16	0.00
17.00	3.47	3.24	0.00
18.00	3.54	3.31	0.00
19.00	3.61	3.37	0.00
20.00	3.66	3.43	0.00
21.00	3.71	3.48	0.00
22.00	3.76	3.53	0.00
23.00	3.81	3.57	0.00
24.00	**3.85**	**3.62**	0.00
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

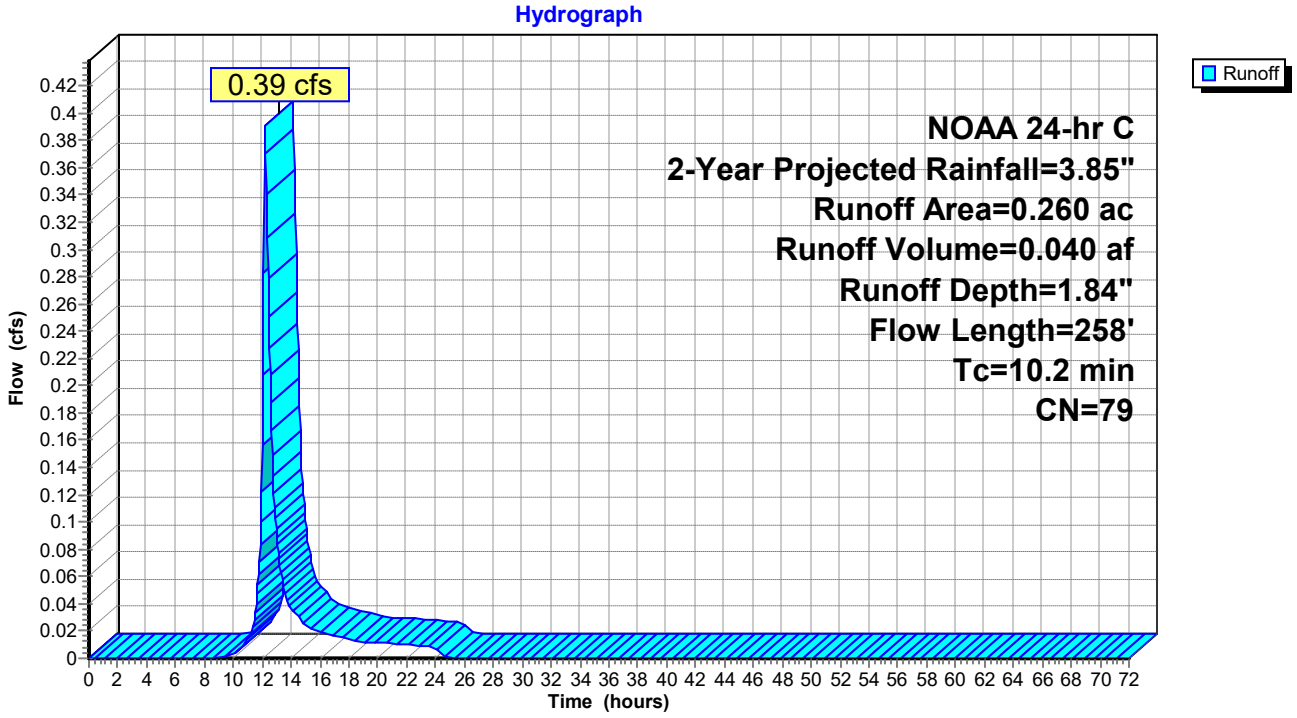
Runoff = 0.39 cfs @ 12.20 hrs, Volume= 0.040 af, Depth= 1.84"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.01	0.00
11.00	0.92	0.05	0.01
12.00	1.83	0.43	**0.16**
13.00	2.93	1.13	**0.09**
14.00	3.15	1.30	0.04
15.00	3.29	1.40	0.02
16.00	3.39	1.48	0.02
17.00	3.47	1.55	0.02
18.00	3.54	1.60	0.01
19.00	3.61	1.65	0.01
20.00	3.66	1.69	0.01
21.00	3.71	1.73	0.01
22.00	3.76	1.77	0.01
23.00	3.81	1.81	0.01
24.00	**3.85**	**1.84**	0.01
25.00	3.85	1.84	0.00
26.00	3.85	1.84	0.00
27.00	3.85	1.84	0.00
28.00	3.85	1.84	0.00
29.00	3.85	1.84	0.00
30.00	3.85	1.84	0.00
31.00	3.85	1.84	0.00
32.00	3.85	1.84	0.00
33.00	3.85	1.84	0.00
34.00	3.85	1.84	0.00
35.00	3.85	1.84	0.00
36.00	3.85	1.84	0.00
37.00	3.85	1.84	0.00
38.00	3.85	1.84	0.00
39.00	3.85	1.84	0.00
40.00	3.85	1.84	0.00
41.00	3.85	1.84	0.00
42.00	3.85	1.84	0.00
43.00	3.85	1.84	0.00
44.00	3.85	1.84	0.00
45.00	3.85	1.84	0.00
46.00	3.85	1.84	0.00
47.00	3.85	1.84	0.00
48.00	3.85	1.84	0.00
49.00	3.85	1.84	0.00
50.00	3.85	1.84	0.00
51.00	3.85	1.84	0.00
52.00	3.85	1.84	0.00
53.00	3.85	1.84	0.00
54.00	3.85	1.84	0.00
55.00	3.85	1.84	0.00
56.00	3.85	1.84	0.00
57.00	3.85	1.84	0.00
58.00	3.85	1.84	0.00
59.00	3.85	1.84	0.00
60.00	3.85	1.84	0.00
61.00	3.85	1.84	0.00
62.00	3.85	1.84	0.00
63.00	3.85	1.84	0.00
64.00	3.85	1.84	0.00
65.00	3.85	1.84	0.00
66.00	3.85	1.84	0.00
67.00	3.85	1.84	0.00
68.00	3.85	1.84	0.00
69.00	3.85	1.84	0.00
70.00	3.85	1.84	0.00
71.00	3.85	1.84	0.00
72.00	3.85	1.84	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

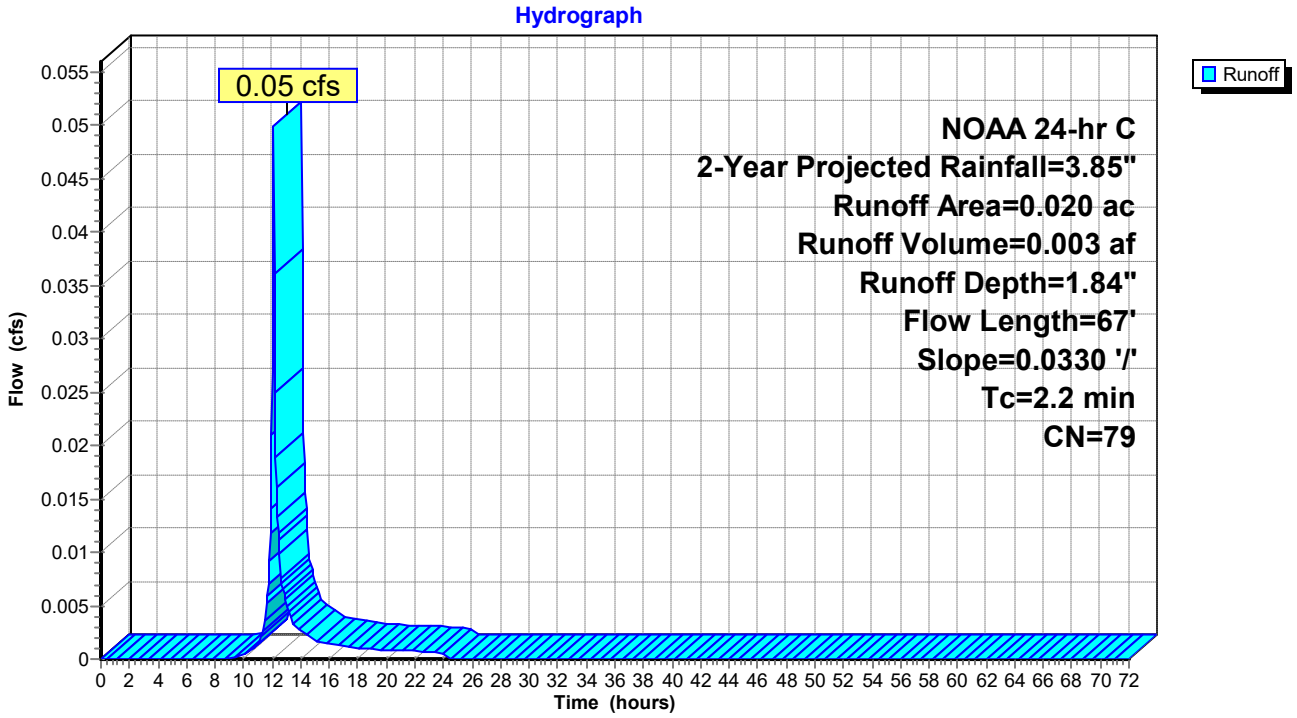
Runoff = 0.05 cfs @ 12.10 hrs, Volume= 0.003 af, Depth= 1.84"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.01	0.00
11.00	0.92	0.05	0.00
12.00	1.83	0.43	**0.03**
13.00	2.93	1.13	**0.01**
14.00	3.15	1.30	0.00
15.00	3.29	1.40	0.00
16.00	3.39	1.48	0.00
17.00	3.47	1.55	0.00
18.00	3.54	1.60	0.00
19.00	3.61	1.65	0.00
20.00	3.66	1.69	0.00
21.00	3.71	1.73	0.00
22.00	3.76	1.77	0.00
23.00	3.81	1.81	0.00
24.00	**3.85**	**1.84**	0.00
25.00	3.85	1.84	0.00
26.00	3.85	1.84	0.00
27.00	3.85	1.84	0.00
28.00	3.85	1.84	0.00
29.00	3.85	1.84	0.00
30.00	3.85	1.84	0.00
31.00	3.85	1.84	0.00
32.00	3.85	1.84	0.00
33.00	3.85	1.84	0.00
34.00	3.85	1.84	0.00
35.00	3.85	1.84	0.00
36.00	3.85	1.84	0.00
37.00	3.85	1.84	0.00
38.00	3.85	1.84	0.00
39.00	3.85	1.84	0.00
40.00	3.85	1.84	0.00
41.00	3.85	1.84	0.00
42.00	3.85	1.84	0.00
43.00	3.85	1.84	0.00
44.00	3.85	1.84	0.00
45.00	3.85	1.84	0.00
46.00	3.85	1.84	0.00
47.00	3.85	1.84	0.00
48.00	3.85	1.84	0.00
49.00	3.85	1.84	0.00
50.00	3.85	1.84	0.00
51.00	3.85	1.84	0.00
52.00	3.85	1.84	0.00
53.00	3.85	1.84	0.00
54.00	3.85	1.84	0.00
55.00	3.85	1.84	0.00
56.00	3.85	1.84	0.00
57.00	3.85	1.84	0.00
58.00	3.85	1.84	0.00
59.00	3.85	1.84	0.00
60.00	3.85	1.84	0.00
61.00	3.85	1.84	0.00
62.00	3.85	1.84	0.00
63.00	3.85	1.84	0.00
64.00	3.85	1.84	0.00
65.00	3.85	1.84	0.00
66.00	3.85	1.84	0.00
67.00	3.85	1.84	0.00
68.00	3.85	1.84	0.00
69.00	3.85	1.84	0.00
70.00	3.85	1.84	0.00
71.00	3.85	1.84	0.00
72.00	3.85	1.84	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

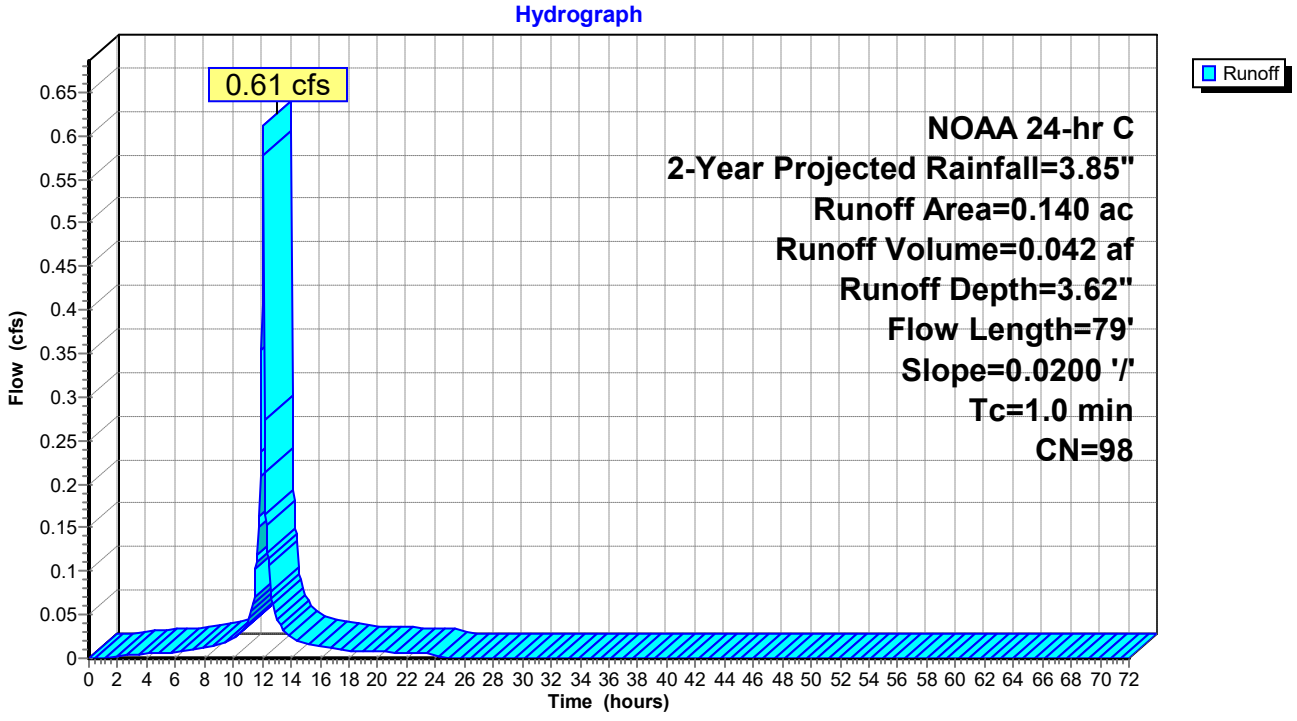
Runoff = 0.61 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 3.62"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.00
4.00	0.19	0.06	0.01
5.00	0.24	0.10	0.01
6.00	0.31	0.15	0.01
7.00	0.38	0.21	0.01
8.00	0.46	0.28	0.01
9.00	0.56	0.37	0.01
10.00	0.70	0.51	0.02
11.00	0.92	0.72	0.04
12.00	1.83	1.61	**0.41**
13.00	2.93	2.69	**0.05**
14.00	3.15	2.92	0.02
15.00	3.29	3.05	0.02
16.00	3.39	3.16	0.01
17.00	3.47	3.24	0.01
18.00	3.54	3.31	0.01
19.00	3.61	3.37	0.01
20.00	3.66	3.43	0.01
21.00	3.71	3.48	0.01
22.00	3.76	3.53	0.01
23.00	3.81	3.57	0.01
24.00	**3.85**	**3.62**	0.01
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

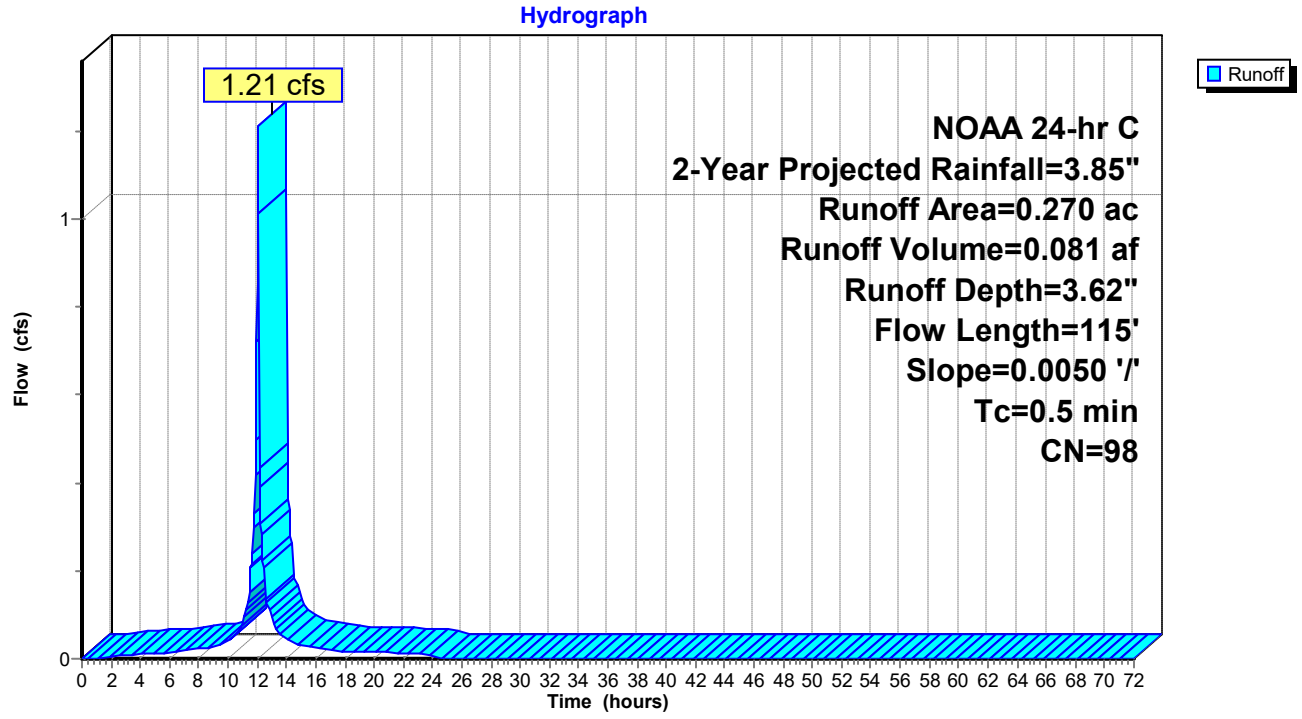
Runoff = 1.21 cfs @ 12.06 hrs, Volume= 0.081 af, Depth= 3.62"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.01
4.00	0.19	0.06	0.01
5.00	0.24	0.10	0.01
6.00	0.31	0.15	0.01
7.00	0.38	0.21	0.02
8.00	0.46	0.28	0.02
9.00	0.56	0.37	0.03
10.00	0.70	0.51	0.04
11.00	0.92	0.72	0.08
12.00	1.83	1.61	**0.85**
13.00	2.93	2.69	**0.09**
14.00	3.15	2.92	0.05
15.00	3.29	3.05	0.03
16.00	3.39	3.16	0.03
17.00	3.47	3.24	0.02
18.00	3.54	3.31	0.02
19.00	3.61	3.37	0.02
20.00	3.66	3.43	0.01
21.00	3.71	3.48	0.01
22.00	3.76	3.53	0.01
23.00	3.81	3.57	0.01
24.00	**3.85**	**3.62**	0.01
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

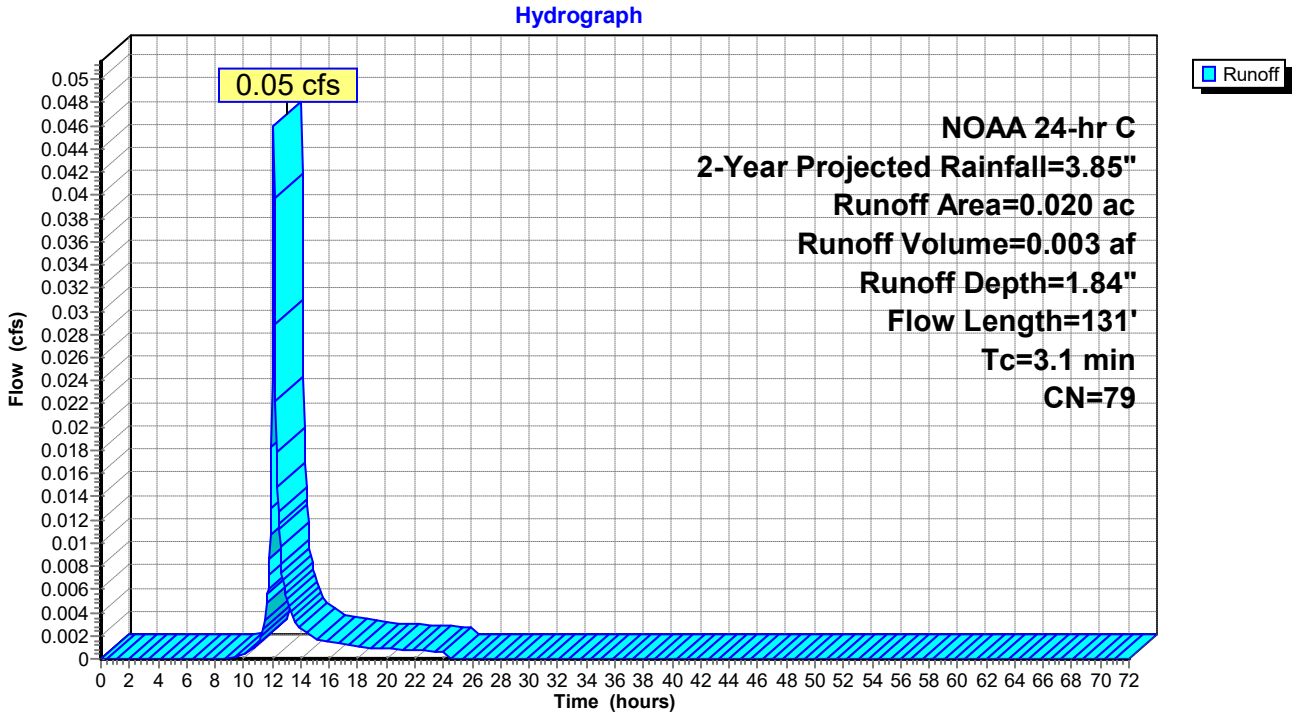
Runoff = 0.05 cfs @ 12.11 hrs, Volume= 0.003 af, Depth= 1.84"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.00	0.00
10.00	0.70	0.01	0.00
11.00	0.92	0.05	0.00
12.00	1.83	0.43	**0.02**
13.00	2.93	1.13	**0.01**
14.00	3.15	1.30	0.00
15.00	3.29	1.40	0.00
16.00	3.39	1.48	0.00
17.00	3.47	1.55	0.00
18.00	3.54	1.60	0.00
19.00	3.61	1.65	0.00
20.00	3.66	1.69	0.00
21.00	3.71	1.73	0.00
22.00	3.76	1.77	0.00
23.00	3.81	1.81	0.00
24.00	**3.85**	**1.84**	0.00
25.00	3.85	1.84	0.00
26.00	3.85	1.84	0.00
27.00	3.85	1.84	0.00
28.00	3.85	1.84	0.00
29.00	3.85	1.84	0.00
30.00	3.85	1.84	0.00
31.00	3.85	1.84	0.00
32.00	3.85	1.84	0.00
33.00	3.85	1.84	0.00
34.00	3.85	1.84	0.00
35.00	3.85	1.84	0.00
36.00	3.85	1.84	0.00
37.00	3.85	1.84	0.00
38.00	3.85	1.84	0.00
39.00	3.85	1.84	0.00
40.00	3.85	1.84	0.00
41.00	3.85	1.84	0.00
42.00	3.85	1.84	0.00
43.00	3.85	1.84	0.00
44.00	3.85	1.84	0.00
45.00	3.85	1.84	0.00
46.00	3.85	1.84	0.00
47.00	3.85	1.84	0.00
48.00	3.85	1.84	0.00
49.00	3.85	1.84	0.00
50.00	3.85	1.84	0.00
51.00	3.85	1.84	0.00
52.00	3.85	1.84	0.00
53.00	3.85	1.84	0.00
54.00	3.85	1.84	0.00
55.00	3.85	1.84	0.00
56.00	3.85	1.84	0.00
57.00	3.85	1.84	0.00
58.00	3.85	1.84	0.00
59.00	3.85	1.84	0.00
60.00	3.85	1.84	0.00
61.00	3.85	1.84	0.00
62.00	3.85	1.84	0.00
63.00	3.85	1.84	0.00
64.00	3.85	1.84	0.00
65.00	3.85	1.84	0.00
66.00	3.85	1.84	0.00
67.00	3.85	1.84	0.00
68.00	3.85	1.84	0.00
69.00	3.85	1.84	0.00
70.00	3.85	1.84	0.00
71.00	3.85	1.84	0.00
72.00	3.85	1.84	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

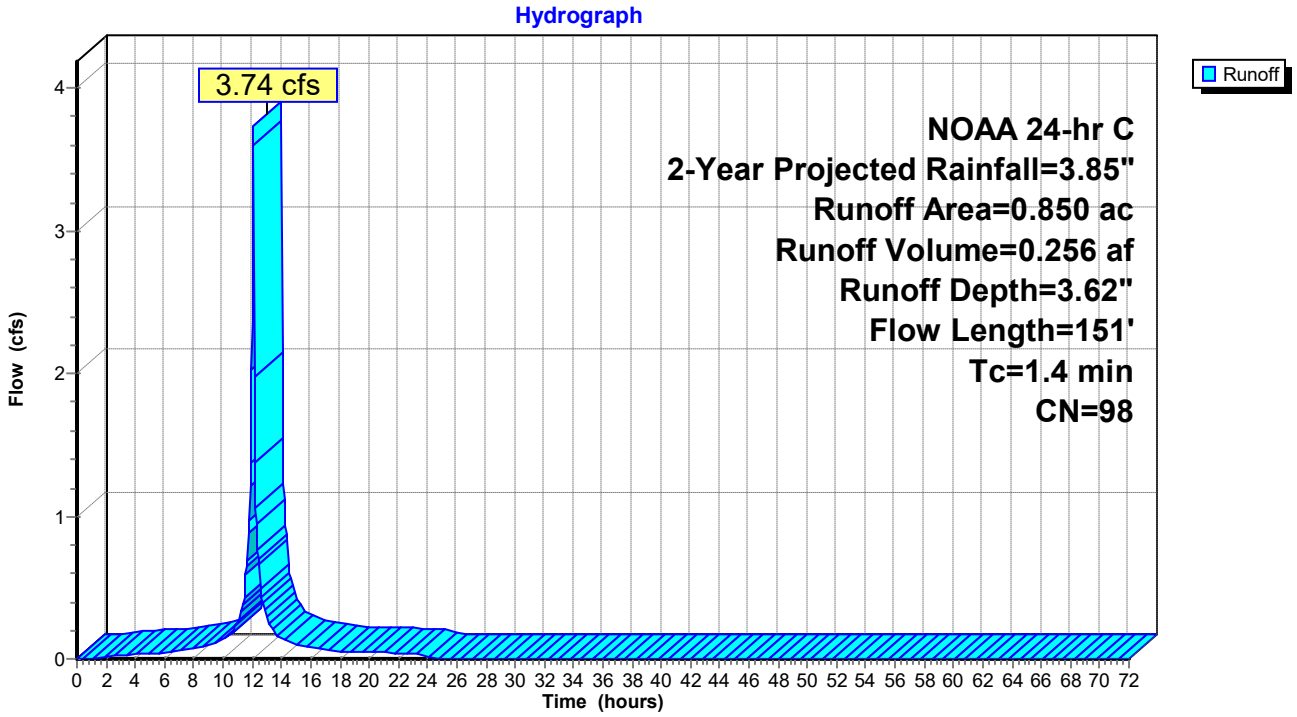
Runoff = 3.74 cfs @ 12.08 hrs, Volume= 0.256 af, Depth= 3.62"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.01
3.00	0.14	0.03	0.02
4.00	0.19	0.06	0.03
5.00	0.24	0.10	0.04
6.00	0.31	0.15	0.04
7.00	0.38	0.21	0.06
8.00	0.46	0.28	0.07
9.00	0.56	0.37	0.09
10.00	0.70	0.51	0.13
11.00	0.92	0.72	0.25
12.00	1.83	1.61	**2.36**
13.00	2.93	2.69	**0.29**
14.00	3.15	2.92	0.15
15.00	3.29	3.05	0.10
16.00	3.39	3.16	0.08
17.00	3.47	3.24	0.07
18.00	3.54	3.31	0.05
19.00	3.61	3.37	0.05
20.00	3.66	3.43	0.05
21.00	3.71	3.48	0.04
22.00	3.76	3.53	0.04
23.00	3.81	3.57	0.04
24.00	**3.85**	**3.62**	0.04
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

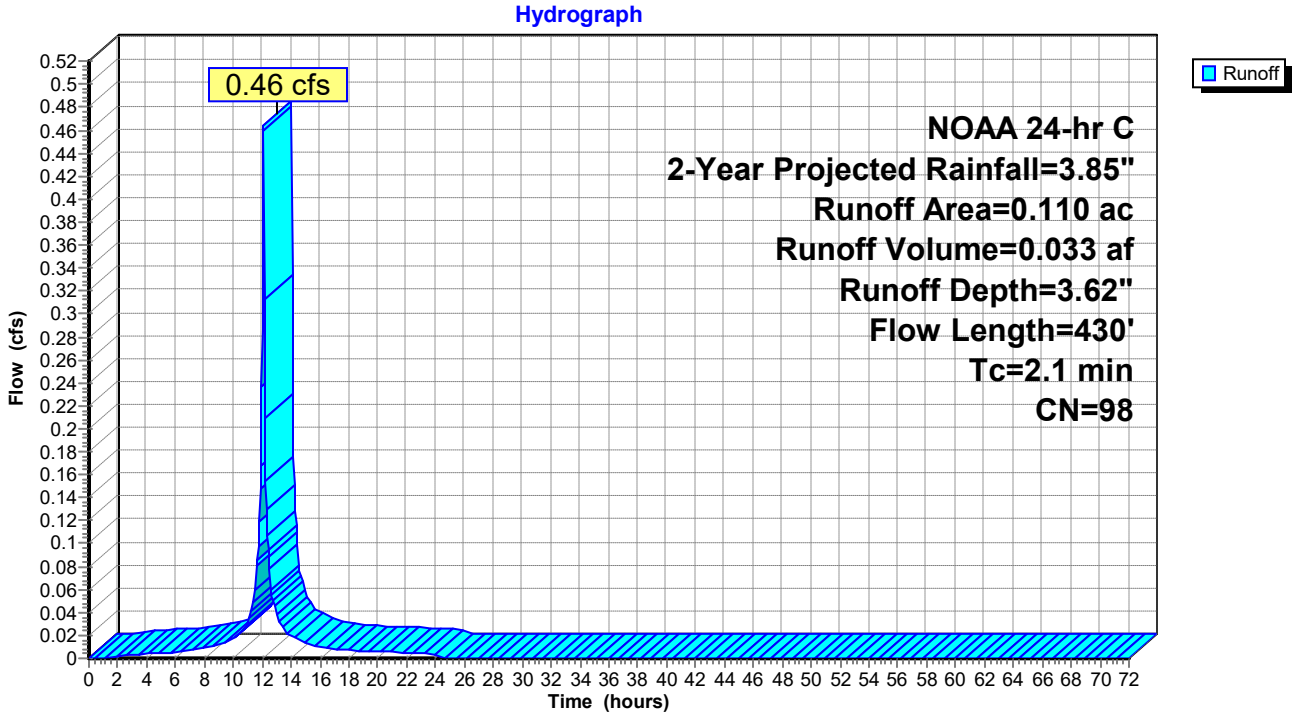
Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 3.62"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.00
4.00	0.19	0.06	0.00
5.00	0.24	0.10	0.00
6.00	0.31	0.15	0.01
7.00	0.38	0.21	0.01
8.00	0.46	0.28	0.01
9.00	0.56	0.37	0.01
10.00	0.70	0.51	0.02
11.00	0.92	0.72	0.03
12.00	1.83	1.61	**0.29**
13.00	2.93	2.69	**0.04**
14.00	3.15	2.92	0.02
15.00	3.29	3.05	0.01
16.00	3.39	3.16	0.01
17.00	3.47	3.24	0.01
18.00	3.54	3.31	0.01
19.00	3.61	3.37	0.01
20.00	3.66	3.43	0.01
21.00	3.71	3.48	0.01
22.00	3.76	3.53	0.01
23.00	3.81	3.57	0.00
24.00	**3.85**	**3.62**	0.01
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

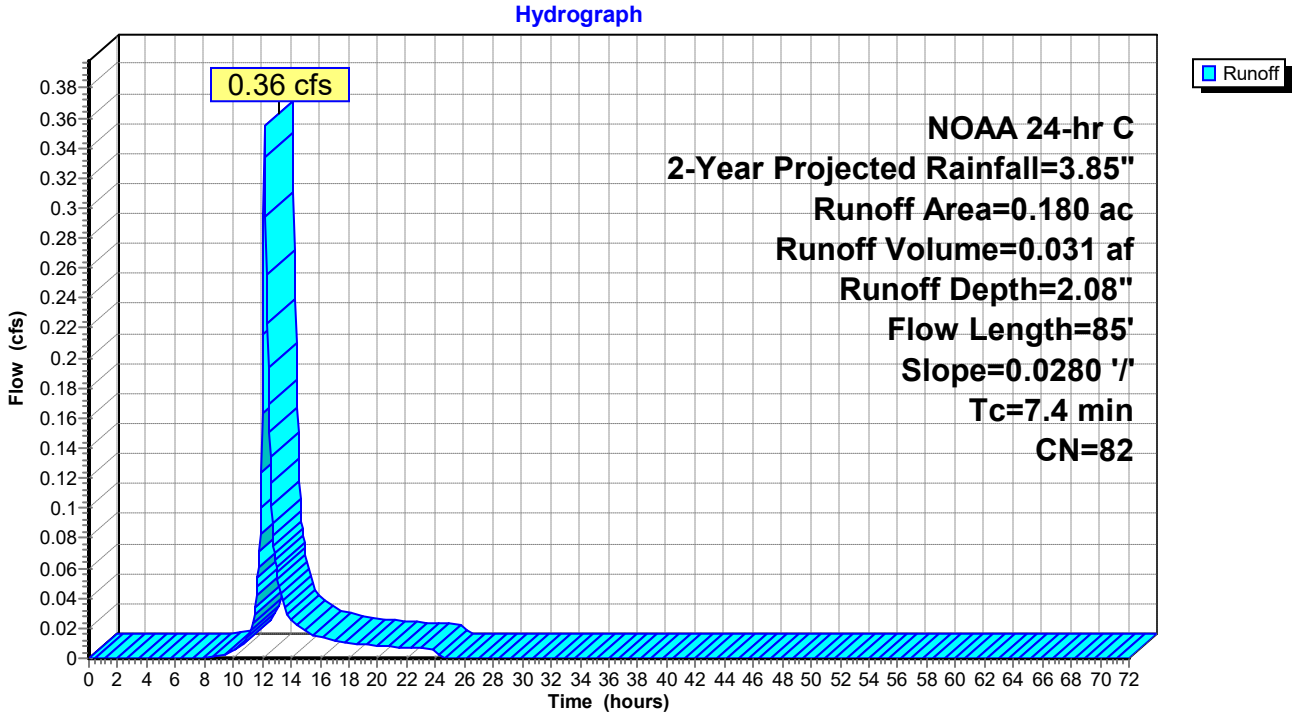
Runoff = 0.36 cfs @ 12.16 hrs, Volume= 0.031 af, Depth= 2.08"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.01	0.00
10.00	0.70	0.03	0.01
11.00	0.92	0.09	0.02
12.00	1.83	0.54	**0.16**
13.00	2.93	1.32	**0.06**
14.00	3.15	1.50	0.03
15.00	3.29	1.61	0.02
16.00	3.39	1.69	0.01
17.00	3.47	1.76	0.01
18.00	3.54	1.82	0.01
19.00	3.61	1.87	0.01
20.00	3.66	1.92	0.01
21.00	3.71	1.96	0.01
22.00	3.76	2.00	0.01
23.00	3.81	2.04	0.01
24.00	**3.85**	**2.08**	0.01
25.00	3.85	2.08	0.00
26.00	3.85	2.08	0.00
27.00	3.85	2.08	0.00
28.00	3.85	2.08	0.00
29.00	3.85	2.08	0.00
30.00	3.85	2.08	0.00
31.00	3.85	2.08	0.00
32.00	3.85	2.08	0.00
33.00	3.85	2.08	0.00
34.00	3.85	2.08	0.00
35.00	3.85	2.08	0.00
36.00	3.85	2.08	0.00
37.00	3.85	2.08	0.00
38.00	3.85	2.08	0.00
39.00	3.85	2.08	0.00
40.00	3.85	2.08	0.00
41.00	3.85	2.08	0.00
42.00	3.85	2.08	0.00
43.00	3.85	2.08	0.00
44.00	3.85	2.08	0.00
45.00	3.85	2.08	0.00
46.00	3.85	2.08	0.00
47.00	3.85	2.08	0.00
48.00	3.85	2.08	0.00
49.00	3.85	2.08	0.00
50.00	3.85	2.08	0.00
51.00	3.85	2.08	0.00
52.00	3.85	2.08	0.00
53.00	3.85	2.08	0.00
54.00	3.85	2.08	0.00
55.00	3.85	2.08	0.00
56.00	3.85	2.08	0.00
57.00	3.85	2.08	0.00
58.00	3.85	2.08	0.00
59.00	3.85	2.08	0.00
60.00	3.85	2.08	0.00
61.00	3.85	2.08	0.00
62.00	3.85	2.08	0.00
63.00	3.85	2.08	0.00
64.00	3.85	2.08	0.00
65.00	3.85	2.08	0.00
66.00	3.85	2.08	0.00
67.00	3.85	2.08	0.00
68.00	3.85	2.08	0.00
69.00	3.85	2.08	0.00
70.00	3.85	2.08	0.00
71.00	3.85	2.08	0.00
72.00	3.85	2.08	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

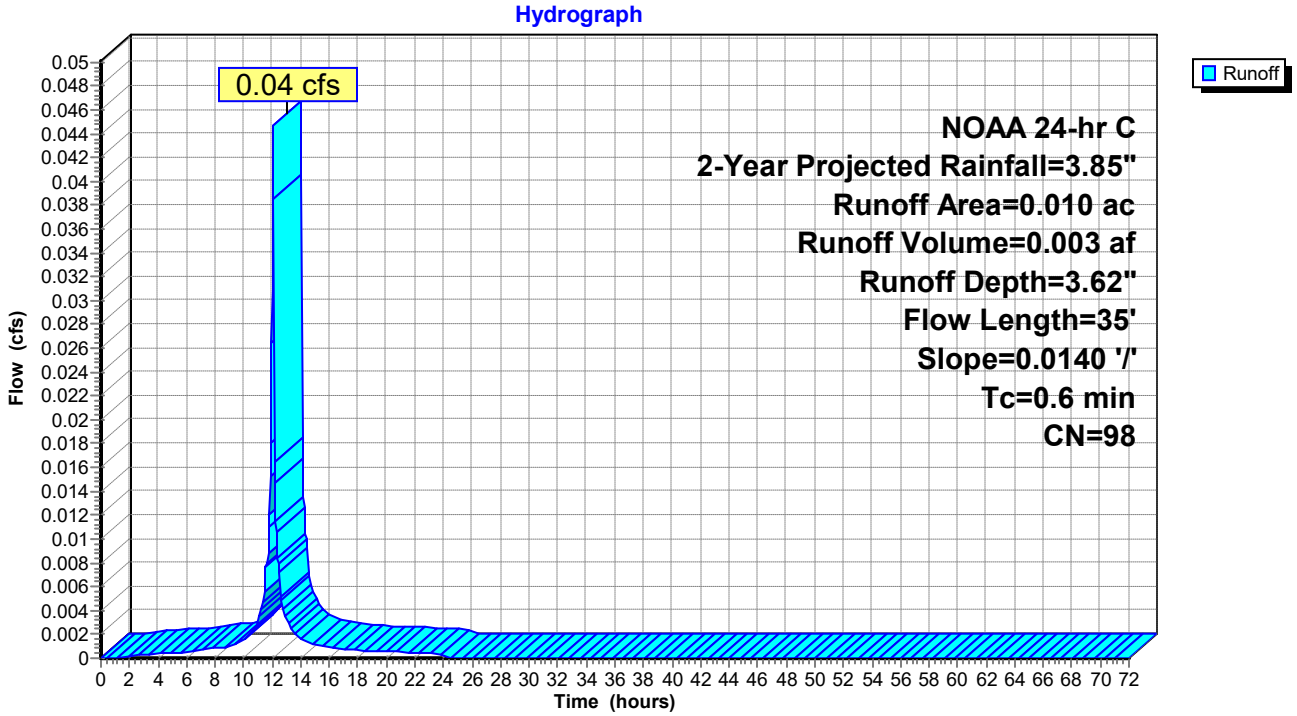
Runoff = 0.04 cfs @ 12.06 hrs, Volume= 0.003 af, Depth= 3.62"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.01	0.00
3.00	0.14	0.03	0.00
4.00	0.19	0.06	0.00
5.00	0.24	0.10	0.00
6.00	0.31	0.15	0.00
7.00	0.38	0.21	0.00
8.00	0.46	0.28	0.00
9.00	0.56	0.37	0.00
10.00	0.70	0.51	0.00
11.00	0.92	0.72	0.00
12.00	1.83	1.61	**0.03**
13.00	2.93	2.69	**0.00**
14.00	3.15	2.92	0.00
15.00	3.29	3.05	0.00
16.00	3.39	3.16	0.00
17.00	3.47	3.24	0.00
18.00	3.54	3.31	0.00
19.00	3.61	3.37	0.00
20.00	3.66	3.43	0.00
21.00	3.71	3.48	0.00
22.00	3.76	3.53	0.00
23.00	3.81	3.57	0.00
24.00	**3.85**	**3.62**	0.00
25.00	3.85	3.62	0.00
26.00	3.85	3.62	0.00
27.00	3.85	3.62	0.00
28.00	3.85	3.62	0.00
29.00	3.85	3.62	0.00
30.00	3.85	3.62	0.00
31.00	3.85	3.62	0.00
32.00	3.85	3.62	0.00
33.00	3.85	3.62	0.00
34.00	3.85	3.62	0.00
35.00	3.85	3.62	0.00
36.00	3.85	3.62	0.00
37.00	3.85	3.62	0.00
38.00	3.85	3.62	0.00
39.00	3.85	3.62	0.00
40.00	3.85	3.62	0.00
41.00	3.85	3.62	0.00
42.00	3.85	3.62	0.00
43.00	3.85	3.62	0.00
44.00	3.85	3.62	0.00
45.00	3.85	3.62	0.00
46.00	3.85	3.62	0.00
47.00	3.85	3.62	0.00
48.00	3.85	3.62	0.00
49.00	3.85	3.62	0.00
50.00	3.85	3.62	0.00
51.00	3.85	3.62	0.00
52.00	3.85	3.62	0.00
53.00	3.85	3.62	0.00
54.00	3.85	3.62	0.00
55.00	3.85	3.62	0.00
56.00	3.85	3.62	0.00
57.00	3.85	3.62	0.00
58.00	3.85	3.62	0.00
59.00	3.85	3.62	0.00
60.00	3.85	3.62	0.00
61.00	3.85	3.62	0.00
62.00	3.85	3.62	0.00
63.00	3.85	3.62	0.00
64.00	3.85	3.62	0.00
65.00	3.85	3.62	0.00
66.00	3.85	3.62	0.00
67.00	3.85	3.62	0.00
68.00	3.85	3.62	0.00
69.00	3.85	3.62	0.00
70.00	3.85	3.62	0.00
71.00	3.85	3.62	0.00
72.00	3.85	3.62	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

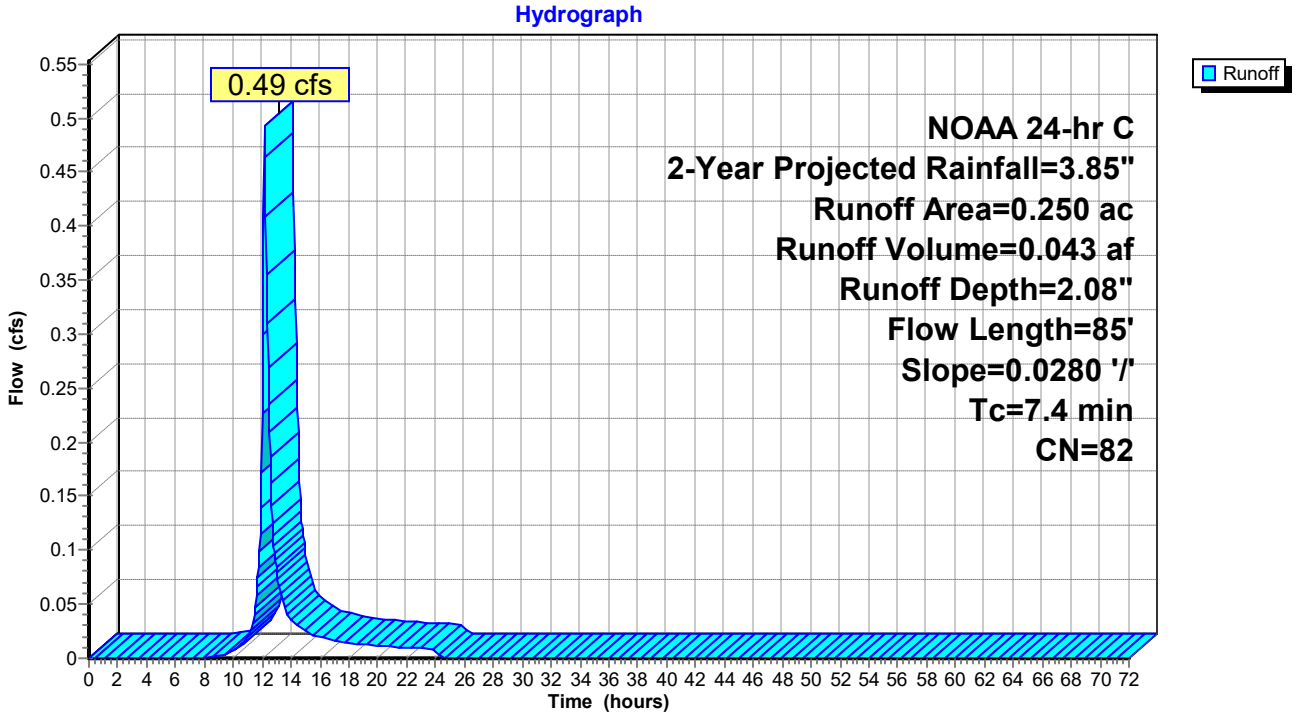
Runoff = 0.49 cfs @ 12.16 hrs, Volume= 0.043 af, Depth= 2.08"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 2-Year Projected Rainfall=3.85"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.04	0.00	0.00
2.00	0.09	0.00	0.00
3.00	0.14	0.00	0.00
4.00	0.19	0.00	0.00
5.00	0.24	0.00	0.00
6.00	0.31	0.00	0.00
7.00	0.38	0.00	0.00
8.00	0.46	0.00	0.00
9.00	0.56	0.01	0.00
10.00	0.70	0.03	0.01
11.00	0.92	0.09	0.02
12.00	1.83	0.54	**0.23**
13.00	2.93	1.32	**0.08**
14.00	3.15	1.50	0.04
15.00	3.29	1.61	0.02
16.00	3.39	1.69	0.02
17.00	3.47	1.76	0.02
18.00	3.54	1.82	0.01
19.00	3.61	1.87	0.01
20.00	3.66	1.92	0.01
21.00	3.71	1.96	0.01
22.00	3.76	2.00	0.01
23.00	3.81	2.04	0.01
24.00	**3.85**	**2.08**	0.01
25.00	3.85	2.08	0.00
26.00	3.85	2.08	0.00
27.00	3.85	2.08	0.00
28.00	3.85	2.08	0.00
29.00	3.85	2.08	0.00
30.00	3.85	2.08	0.00
31.00	3.85	2.08	0.00
32.00	3.85	2.08	0.00
33.00	3.85	2.08	0.00
34.00	3.85	2.08	0.00
35.00	3.85	2.08	0.00
36.00	3.85	2.08	0.00
37.00	3.85	2.08	0.00
38.00	3.85	2.08	0.00
39.00	3.85	2.08	0.00
40.00	3.85	2.08	0.00
41.00	3.85	2.08	0.00
42.00	3.85	2.08	0.00
43.00	3.85	2.08	0.00
44.00	3.85	2.08	0.00
45.00	3.85	2.08	0.00
46.00	3.85	2.08	0.00
47.00	3.85	2.08	0.00
48.00	3.85	2.08	0.00
49.00	3.85	2.08	0.00
50.00	3.85	2.08	0.00
51.00	3.85	2.08	0.00
52.00	3.85	2.08	0.00
53.00	3.85	2.08	0.00
54.00	3.85	2.08	0.00
55.00	3.85	2.08	0.00
56.00	3.85	2.08	0.00
57.00	3.85	2.08	0.00
58.00	3.85	2.08	0.00
59.00	3.85	2.08	0.00
60.00	3.85	2.08	0.00
61.00	3.85	2.08	0.00
62.00	3.85	2.08	0.00
63.00	3.85	2.08	0.00
64.00	3.85	2.08	0.00
65.00	3.85	2.08	0.00
66.00	3.85	2.08	0.00
67.00	3.85	2.08	0.00
68.00	3.85	2.08	0.00
69.00	3.85	2.08	0.00
70.00	3.85	2.08	0.00
71.00	3.85	2.08	0.00
72.00	3.85	2.08	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 3.39" for 2-Year Projected event
Inflow = 0.66 cfs @ 12.07 hrs, Volume= 0.045 af
Outflow = 0.08 cfs @ 12.62 hrs, Volume= 0.033 af, Atten= 88%, Lag= 32.6 min
Primary = 0.08 cfs @ 12.62 hrs, Volume= 0.033 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.40' @ 12.62 hrs Surf.Area= 0.118 ac Storage= 0.028 af

Plug-Flow detention time= 353.3 min calculated for 0.033 af (72% of inflow)
Center-of-Mass det. time= 259.5 min (1,015.2 - 755.6)

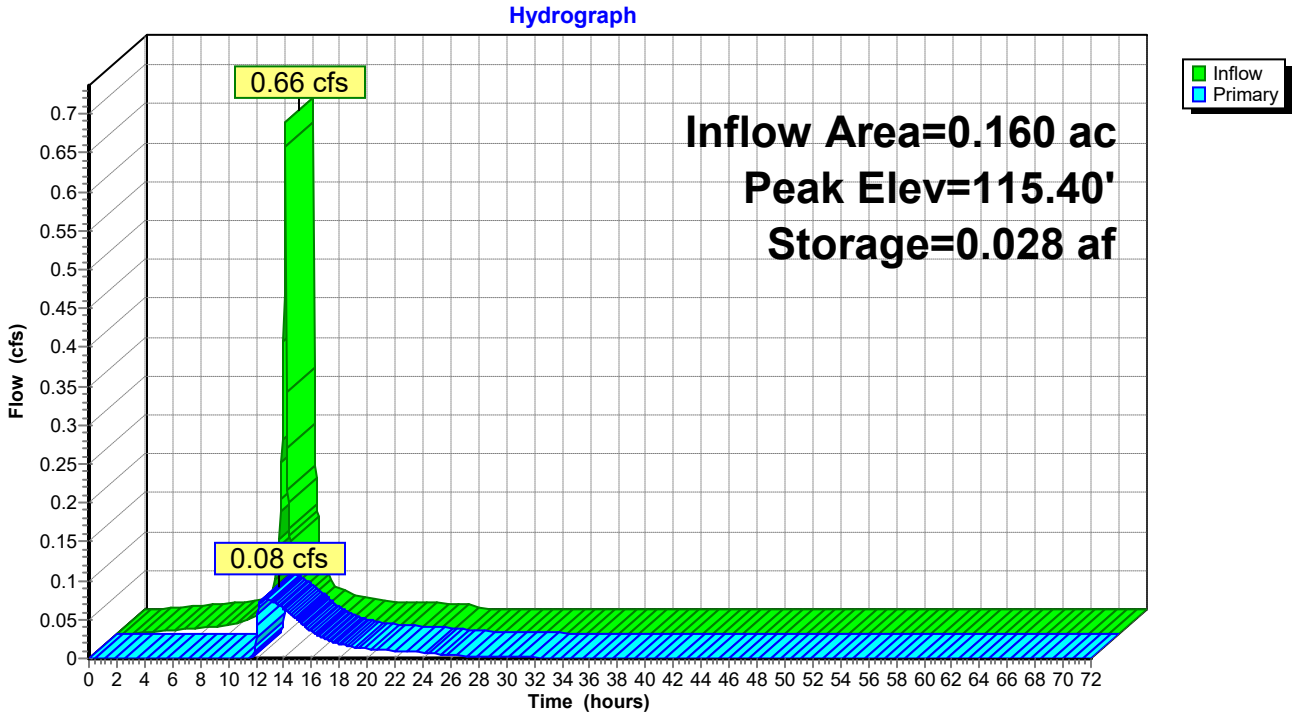
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.08 cfs @ 12.62 hrs HW=115.40' TW=113.09' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.08 cfs of 7.18 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 2.25 fps)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.82	0.00
2.50	0.00	0.000	114.82	0.00
5.00	0.01	0.001	114.84	0.00
7.50	0.01	0.003	114.88	0.00
10.00	**0.02**	0.006	114.94	0.00
12.50	**0.12**	**0.027**	**115.40**	**0.08**
15.00	0.02	**0.021**	**115.27**	**0.05**
17.50	0.01	0.018	115.19	0.02
20.00	0.01	0.016	115.16	0.01
22.50	0.01	0.016	115.15	0.01
25.00	0.00	0.015	115.13	0.01
27.50	0.00	0.014	115.12	0.00
30.00	0.00	0.014	115.11	0.00
32.50	0.00	0.013	115.10	0.00
35.00	0.00	0.013	115.10	0.00
37.50	0.00	0.013	115.10	0.00
40.00	0.00	0.013	115.09	0.00
42.50	0.00	0.013	115.09	0.00
45.00	0.00	0.013	115.09	0.00
47.50	0.00	0.013	115.09	0.00
50.00	0.00	0.013	115.09	0.00
52.50	0.00	0.013	115.09	0.00
55.00	0.00	0.013	115.09	0.00
57.50	0.00	0.013	115.09	0.00
60.00	0.00	0.013	115.09	0.00
62.50	0.00	0.013	115.09	0.00
65.00	0.00	0.013	115.09	0.00
67.50	0.00	0.013	115.09	0.00
70.00	0.00	0.013	115.09	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 3.62" for 2-Year Projected event
Inflow = 1.21 cfs @ 12.06 hrs, Volume= 0.081 af
Outflow = 0.19 cfs @ 12.49 hrs, Volume= 0.058 af, Atten= 84%, Lag= 26.0 min
Primary = 0.19 cfs @ 12.49 hrs, Volume= 0.058 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.46' @ 12.49 hrs Surf.Area= 0.043 ac Storage= 0.047 af

Plug-Flow detention time= 268.7 min calculated for 0.058 af (71% of inflow)
Center-of-Mass det. time= 174.2 min (923.1 - 748.9)

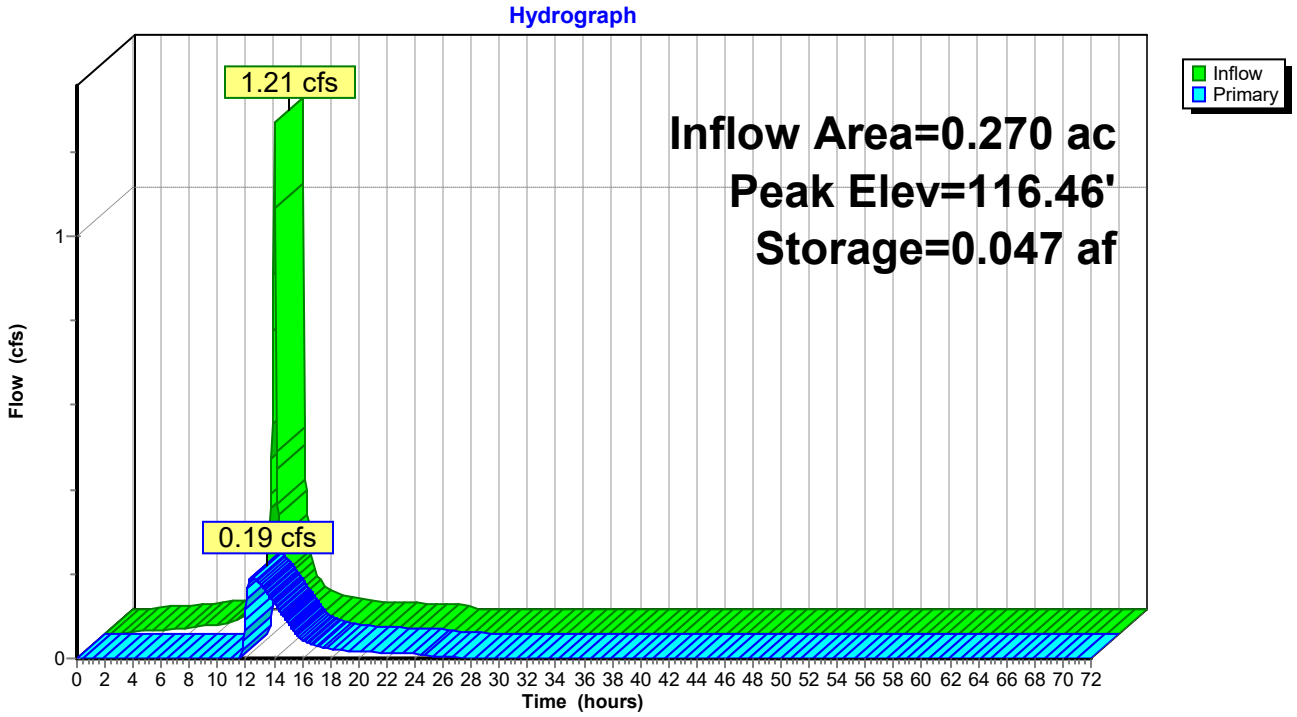
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.19 cfs @ 12.49 hrs HW=116.46' TW=113.02' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.19 cfs of 8.59 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.19 cfs @ 3.87 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.63	0.00
2.50	0.01	0.000	114.65	0.00
5.00	0.01	0.002	114.76	0.00
7.50	0.02	0.005	114.95	0.00
10.00	**0.04**	0.011	115.25	0.00
12.50	**0.19**	**0.047**	**116.46**	**0.19**
15.00	0.03	0.031	115.94	0.08
17.50	0.02	0.027	115.81	0.03
20.00	0.01	0.026	115.78	0.02
22.50	0.01	0.026	115.77	0.01
25.00	0.00	0.025	115.74	0.01
27.50	0.00	0.024	115.72	0.00
30.00	0.00	0.024	115.71	0.00
32.50	0.00	0.024	115.71	0.00
35.00	0.00	0.024	115.70	0.00
37.50	0.00	0.024	115.70	0.00
40.00	0.00	0.024	115.70	0.00
42.50	0.00	0.024	115.70	0.00
45.00	0.00	0.024	115.70	0.00
47.50	0.00	0.023	115.70	0.00
50.00	0.00	0.023	115.70	0.00
52.50	0.00	0.023	115.70	0.00
55.00	0.00	0.023	115.69	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 3.57" for 2-Year Projected event
Inflow = 3.78 cfs @ 12.08 hrs, Volume= 0.259 af
Outflow = 0.38 cfs @ 12.76 hrs, Volume= 0.183 af, Atten= 90%, Lag= 40.8 min
Primary = 0.38 cfs @ 12.76 hrs, Volume= 0.183 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.62' @ 12.76 hrs Surf.Area= 0.410 ac Storage= 0.163 af

Plug-Flow detention time= 397.7 min calculated for 0.183 af (71% of inflow)
Center-of-Mass det. time= 304.3 min (1,055.6 - 751.3)

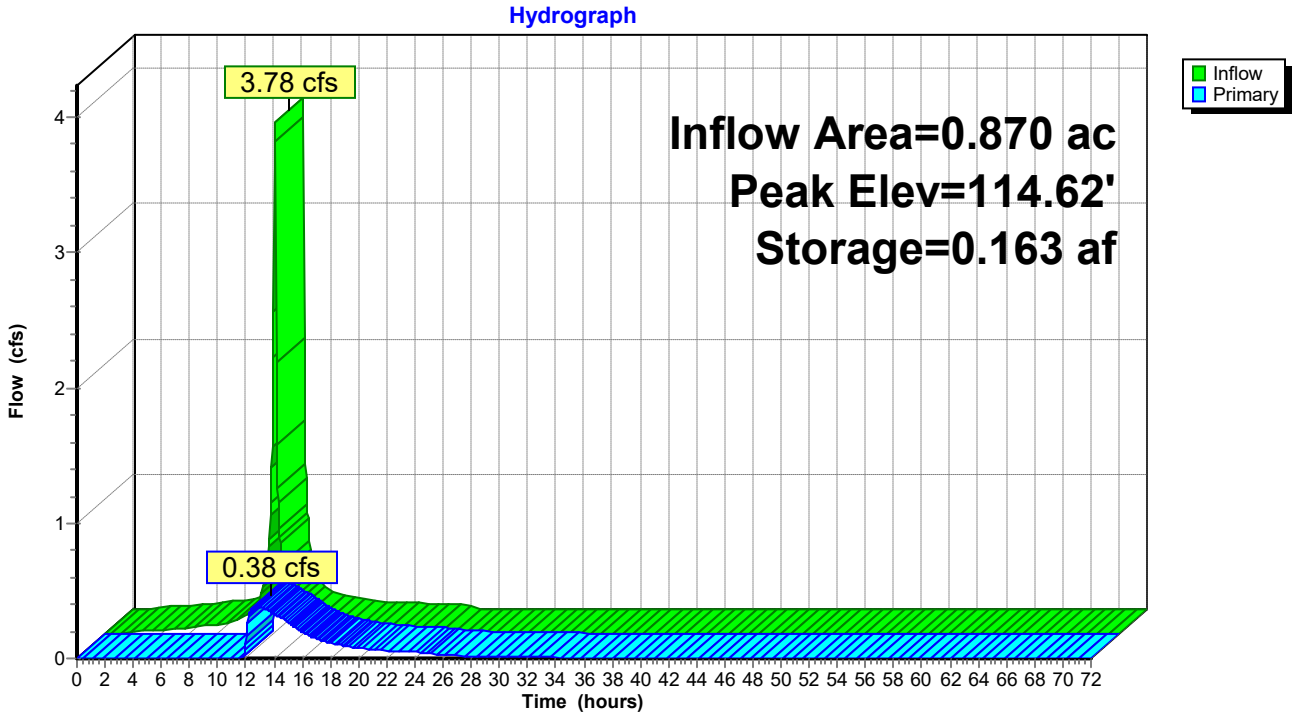
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.38 cfs @ 12.76 hrs HW=114.62' TW=113.15' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.38 cfs of 5.32 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.38 cfs @ 2.80 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	113.62	0.00
2.50	0.02	0.001	113.63	0.00
5.00	0.04	0.007	113.66	0.00
7.50	0.06	0.017	113.72	0.00
10.00	**0.13**	0.035	113.84	0.00
12.50	**0.66**	**0.162**	**114.61**	**0.38**
15.00	0.10	**0.135**	**114.44**	**0.27**
17.50	0.06	0.112	114.30	0.13
20.00	0.05	0.103	114.25	0.08
22.50	0.04	0.098	114.22	0.06
25.00	0.00	0.093	114.19	0.04
27.50	0.00	0.087	114.15	0.02
30.00	0.00	0.084	114.13	0.01
32.50	0.00	0.082	114.12	0.01
35.00	0.00	0.081	114.11	0.01
37.50	0.00	0.080	114.11	0.00
40.00	0.00	0.079	114.10	0.00
42.50	0.00	0.079	114.10	0.00
45.00	0.00	0.078	114.10	0.00
47.50	0.00	0.078	114.09	0.00
50.00	0.00	0.078	114.09	0.00
52.50	0.00	0.077	114.09	0.00
55.00	0.00	0.077	114.09	0.00
57.50	0.00	0.077	114.09	0.00
60.00	0.00	0.077	114.09	0.00
62.50	0.00	0.076	114.09	0.00
65.00	0.00	0.076	114.09	0.00
67.50	0.00	0.076	114.08	0.00
70.00	0.00	0.076	114.08	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 2.49" for 2-Year Projected event
Inflow = 1.23 cfs @ 12.13 hrs, Volume= 0.347 af
Outflow = 0.38 cfs @ 15.40 hrs, Volume= 0.331 af, Atten= 69%, Lag= 196.5 min
Primary = 0.38 cfs @ 15.40 hrs, Volume= 0.331 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 113.59' @ 15.40 hrs Surf.Area= 0.118 ac Storage= 0.125 af

Plug-Flow detention time= 264.8 min calculated for 0.331 af (95% of inflow)
Center-of-Mass det. time= 210.3 min (1,187.2 - 977.0)

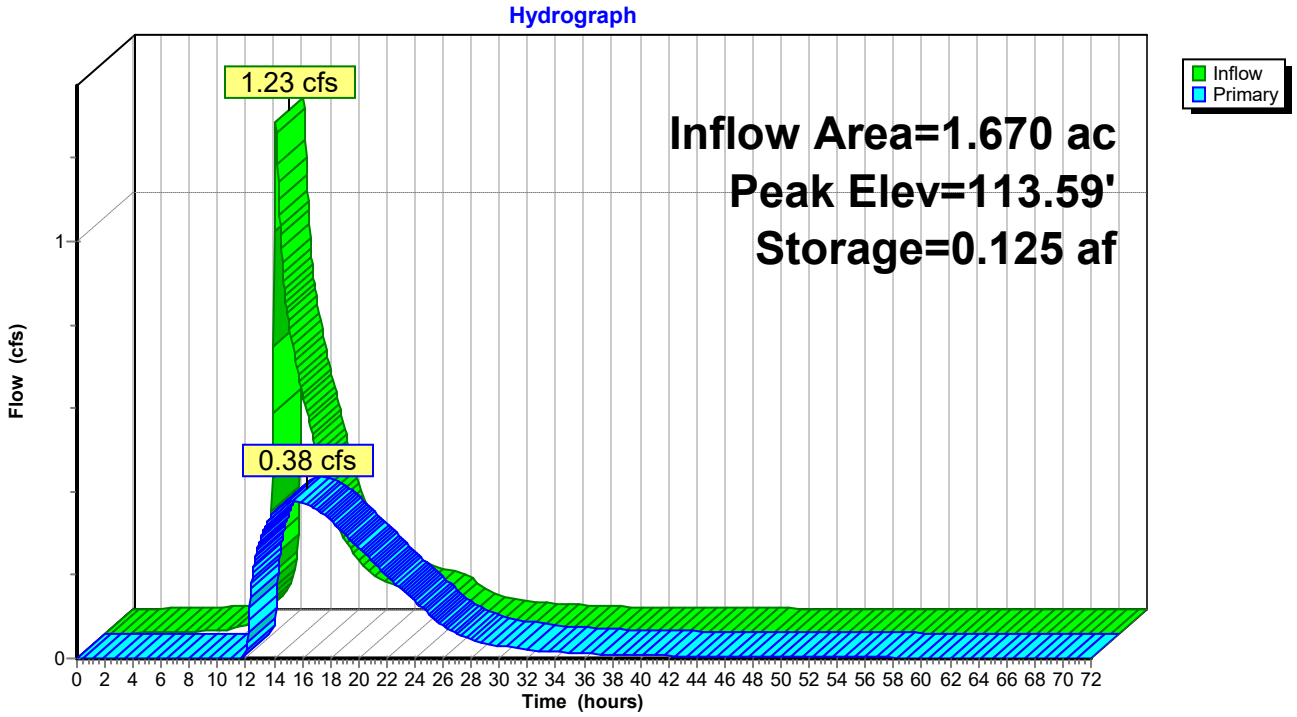
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.38 cfs @ 15.40 hrs HW=113.59' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.38 cfs of 8.45 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.38 cfs @ 4.32 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

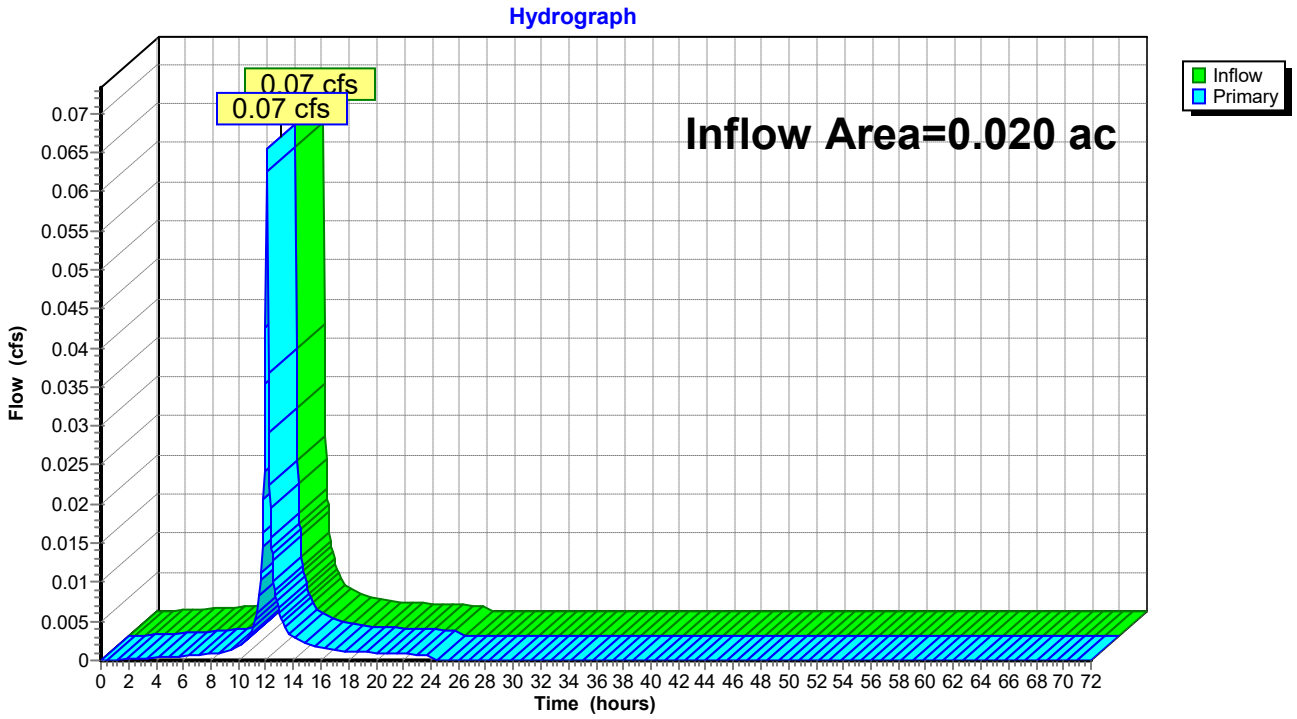
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.00	0.000	112.50	0.00
5.00	0.00	0.001	112.51	0.00
7.50	0.01	0.002	112.52	0.00
10.00	**0.02**	0.005	112.54	0.00
12.50	**0.96**	0.059	113.03	0.21
15.00	0.44	**0.124**	**113.58**	**0.38**
17.50	0.20	**0.109**	**113.46**	**0.34**
20.00	0.12	0.078	113.19	0.27
22.50	0.09	0.054	112.98	0.18
25.00	0.05	0.039	112.85	0.11
27.50	0.02	0.031	112.77	0.05
30.00	0.01	0.026	112.73	0.03
32.50	0.01	0.023	112.71	0.02
35.00	0.01	0.022	112.69	0.01
37.50	0.00	0.020	112.68	0.01
40.00	0.00	0.020	112.68	0.01
42.50	0.00	0.019	112.67	0.01
45.00	0.00	0.018	112.66	0.00
47.50	0.00	0.018	112.66	0.00
50.00	0.00	0.017	112.66	0.00
52.50	0.00	0.017	112.65	0.00
55.00	0.00	0.017	112.65	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.016	112.65	0.00
62.50	0.00	0.016	112.65	0.00
65.00	0.00	0.016	112.64	0.00
67.50	0.00	0.016	112.64	0.00
70.00	0.00	0.016	112.64	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 2.73" for 2-Year Projected event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af
Primary = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

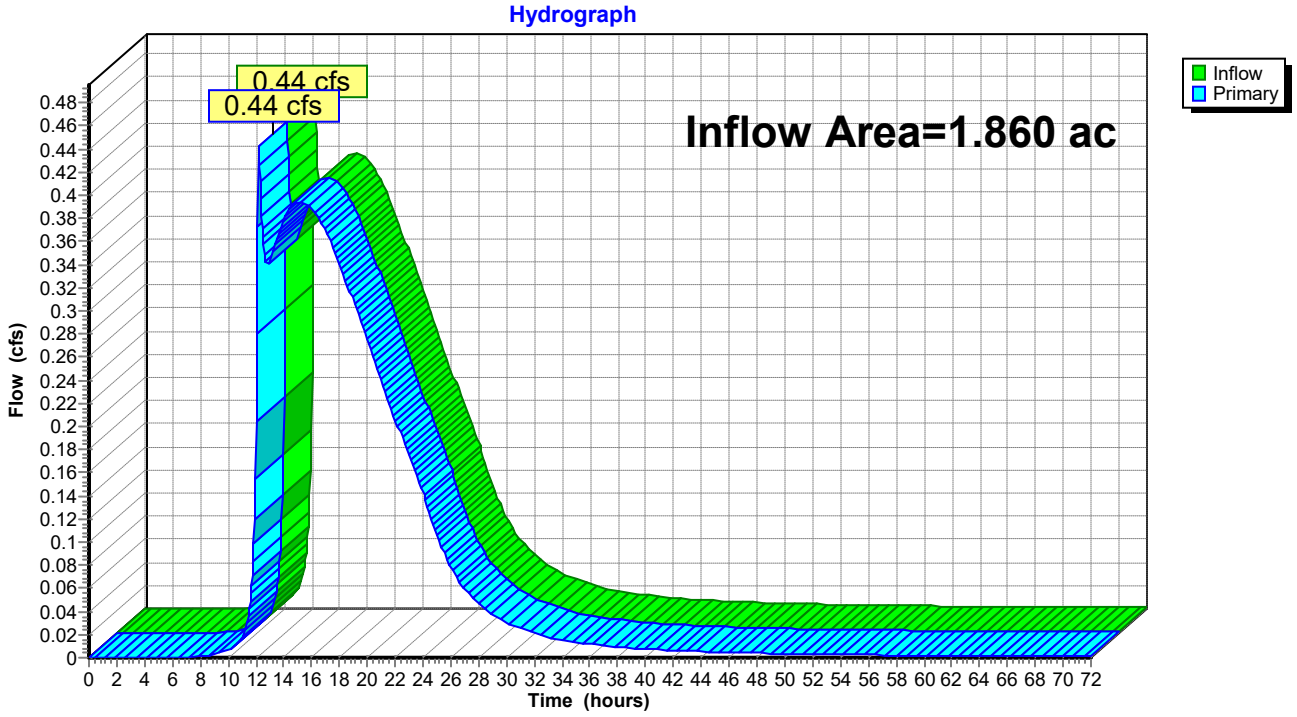
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth > 2.36" for 2-Year Projected event
Inflow = 0.44 cfs @ 12.19 hrs, Volume= 0.365 af
Primary = 0.44 cfs @ 12.19 hrs, Volume= 0.365 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

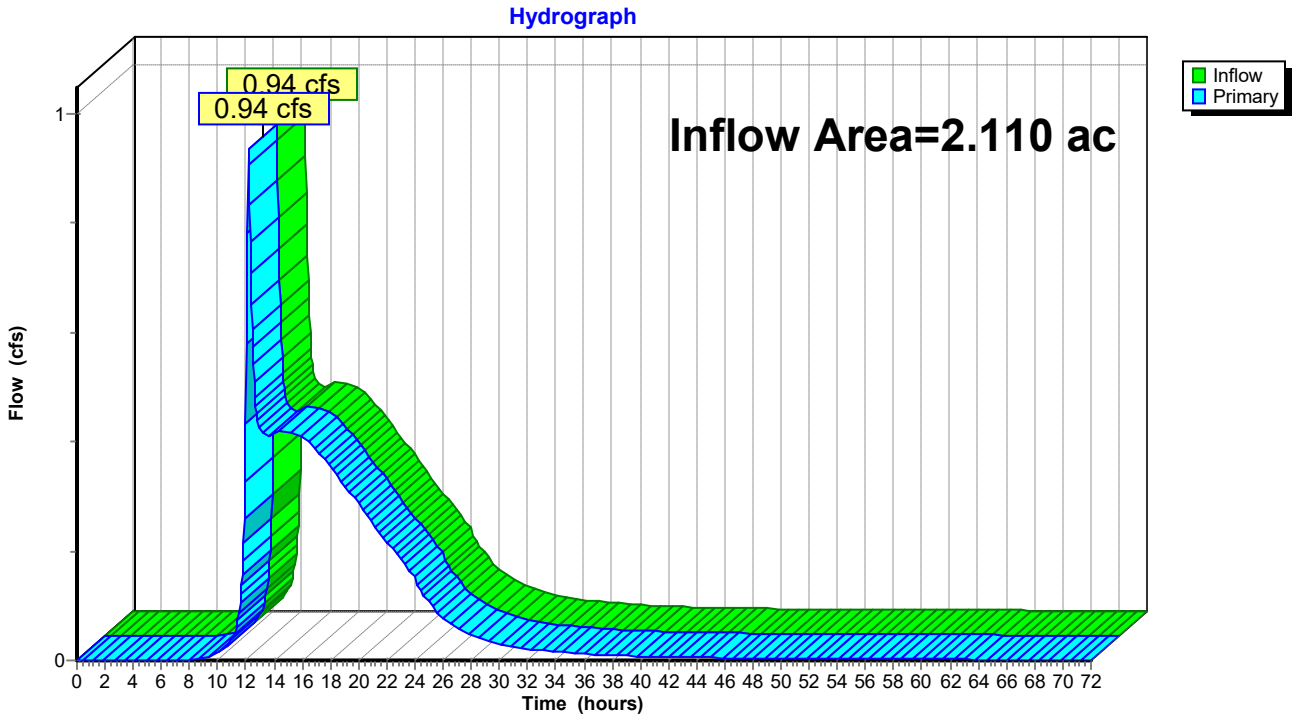
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.02	0.00	0.02	63.00	0.00	0.00	0.00
12.00	**0.20**	0.00	**0.20**	64.00	0.00	0.00	0.00
13.00	**0.34**	0.00	**0.34**	65.00	0.00	0.00	0.00
14.00	0.38	0.00	0.38	66.00	0.00	0.00	0.00
15.00	0.39	0.00	0.39	67.00	0.00	0.00	0.00
16.00	0.39	0.00	0.39	68.00	0.00	0.00	0.00
17.00	0.37	0.00	0.37	69.00	0.00	0.00	0.00
18.00	0.34	0.00	0.34	70.00	0.00	0.00	0.00
19.00	0.31	0.00	0.31	71.00	0.00	0.00	0.00
20.00	0.27	0.00	0.27	72.00	0.00	0.00	0.00
21.00	0.24	0.00	0.24				
22.00	0.21	0.00	0.21				
23.00	0.18	0.00	0.18				
24.00	0.14	0.00	0.14				
25.00	0.11	0.00	0.11				
26.00	0.08	0.00	0.08				
27.00	0.06	0.00	0.06				
28.00	0.05	0.00	0.05				
29.00	0.04	0.00	0.04				
30.00	0.03	0.00	0.03				
31.00	0.03	0.00	0.03				
32.00	0.02	0.00	0.02				
33.00	0.02	0.00	0.02				
34.00	0.02	0.00	0.02				
35.00	0.01	0.00	0.01				
36.00	0.01	0.00	0.01				
37.00	0.01	0.00	0.01				
38.00	0.01	0.00	0.01				
39.00	0.01	0.00	0.01				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth > 2.32" for 2-Year Projected event
Inflow = 0.94 cfs @ 12.17 hrs, Volume= 0.409 af
Primary = 0.94 cfs @ 12.17 hrs, Volume= 0.409 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01
10.00	0.01	0.00	0.01
11.00	0.04	0.00	0.04
12.00	**0.43**	0.00	**0.43**
13.00	**0.42**	0.00	**0.42**
14.00	0.41	0.00	0.41
15.00	0.42	0.00	0.42
16.00	0.41	0.00	0.41
17.00	0.39	0.00	0.39
18.00	0.35	0.00	0.35
19.00	0.32	0.00	0.32
20.00	0.29	0.00	0.29
21.00	0.25	0.00	0.25
22.00	0.22	0.00	0.22
23.00	0.18	0.00	0.18
24.00	0.15	0.00	0.15
25.00	0.11	0.00	0.11
26.00	0.08	0.00	0.08
27.00	0.06	0.00	0.06
28.00	0.05	0.00	0.05
29.00	0.04	0.00	0.04
30.00	0.03	0.00	0.03
31.00	0.03	0.00	0.03
32.00	0.02	0.00	0.02
33.00	0.02	0.00	0.02
34.00	0.02	0.00	0.02
35.00	0.01	0.00	0.01
36.00	0.01	0.00	0.01
37.00	0.01	0.00	0.01
38.00	0.01	0.00	0.01
39.00	0.01	0.00	0.01
40.00	0.01	0.00	0.01
41.00	0.01	0.00	0.01
42.00	0.01	0.00	0.01
43.00	0.01	0.00	0.01
44.00	0.01	0.00	0.01
45.00	0.00	0.00	0.00
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Subcatchment 1: PDA #1 PERVIOUS

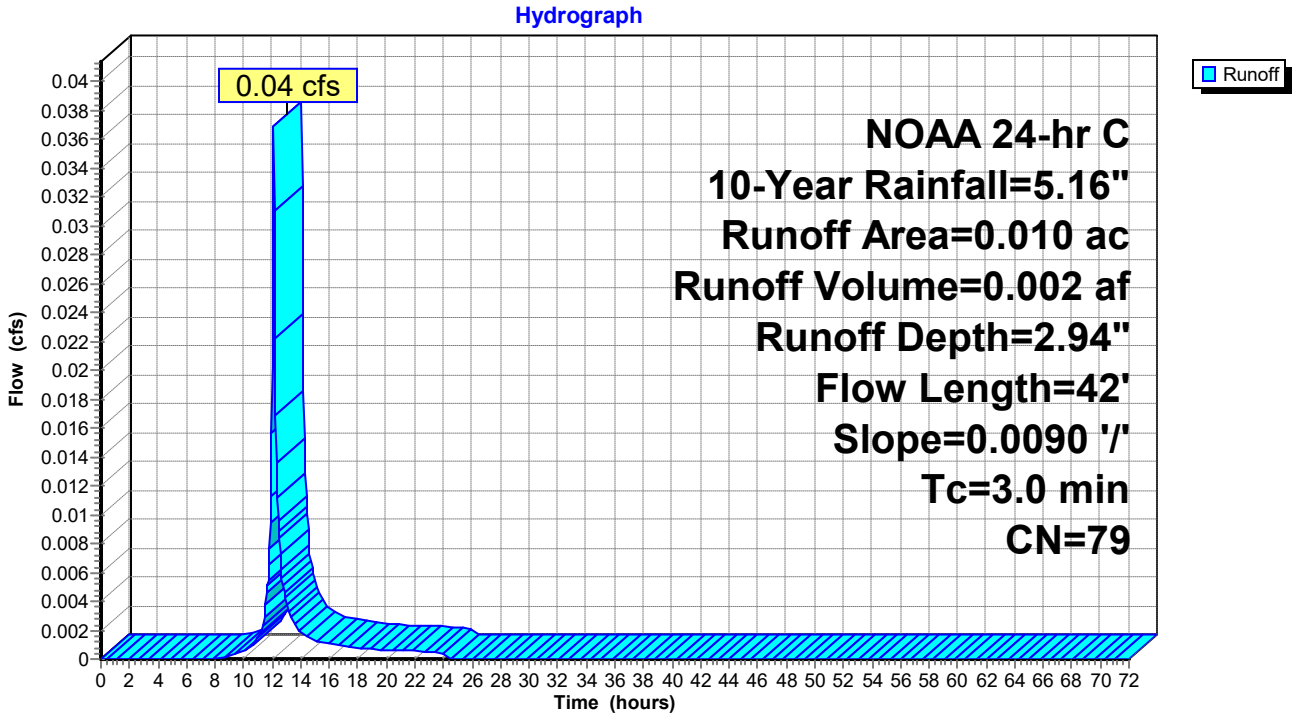
Runoff = 0.04 cfs @ 12.10 hrs, Volume= 0.002 af, Depth= 2.94"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.02	0.00
10.00	0.94	0.05	0.00
11.00	1.24	0.15	0.00
12.00	2.46	0.81	**0.02**
13.00	3.92	1.90	**0.00**
14.00	4.22	2.14	0.00
15.00	4.41	2.30	0.00
16.00	4.54	2.41	0.00
17.00	4.66	2.51	0.00
18.00	4.75	2.59	0.00
19.00	4.83	2.66	0.00
20.00	4.91	2.72	0.00
21.00	4.98	2.78	0.00
22.00	5.04	2.84	0.00
23.00	5.10	2.89	0.00
24.00	**5.16**	**2.94**	0.00
25.00	5.16	2.94	0.00
26.00	5.16	2.94	0.00
27.00	5.16	2.94	0.00
28.00	5.16	2.94	0.00
29.00	5.16	2.94	0.00
30.00	5.16	2.94	0.00
31.00	5.16	2.94	0.00
32.00	5.16	2.94	0.00
33.00	5.16	2.94	0.00
34.00	5.16	2.94	0.00
35.00	5.16	2.94	0.00
36.00	5.16	2.94	0.00
37.00	5.16	2.94	0.00
38.00	5.16	2.94	0.00
39.00	5.16	2.94	0.00
40.00	5.16	2.94	0.00
41.00	5.16	2.94	0.00
42.00	5.16	2.94	0.00
43.00	5.16	2.94	0.00
44.00	5.16	2.94	0.00
45.00	5.16	2.94	0.00
46.00	5.16	2.94	0.00
47.00	5.16	2.94	0.00
48.00	5.16	2.94	0.00
49.00	5.16	2.94	0.00
50.00	5.16	2.94	0.00
51.00	5.16	2.94	0.00
52.00	5.16	2.94	0.00
53.00	5.16	2.94	0.00
54.00	5.16	2.94	0.00
55.00	5.16	2.94	0.00
56.00	5.16	2.94	0.00
57.00	5.16	2.94	0.00
58.00	5.16	2.94	0.00
59.00	5.16	2.94	0.00
60.00	5.16	2.94	0.00
61.00	5.16	2.94	0.00
62.00	5.16	2.94	0.00
63.00	5.16	2.94	0.00
64.00	5.16	2.94	0.00
65.00	5.16	2.94	0.00
66.00	5.16	2.94	0.00
67.00	5.16	2.94	0.00
68.00	5.16	2.94	0.00
69.00	5.16	2.94	0.00
70.00	5.16	2.94	0.00
71.00	5.16	2.94	0.00
72.00	5.16	2.94	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

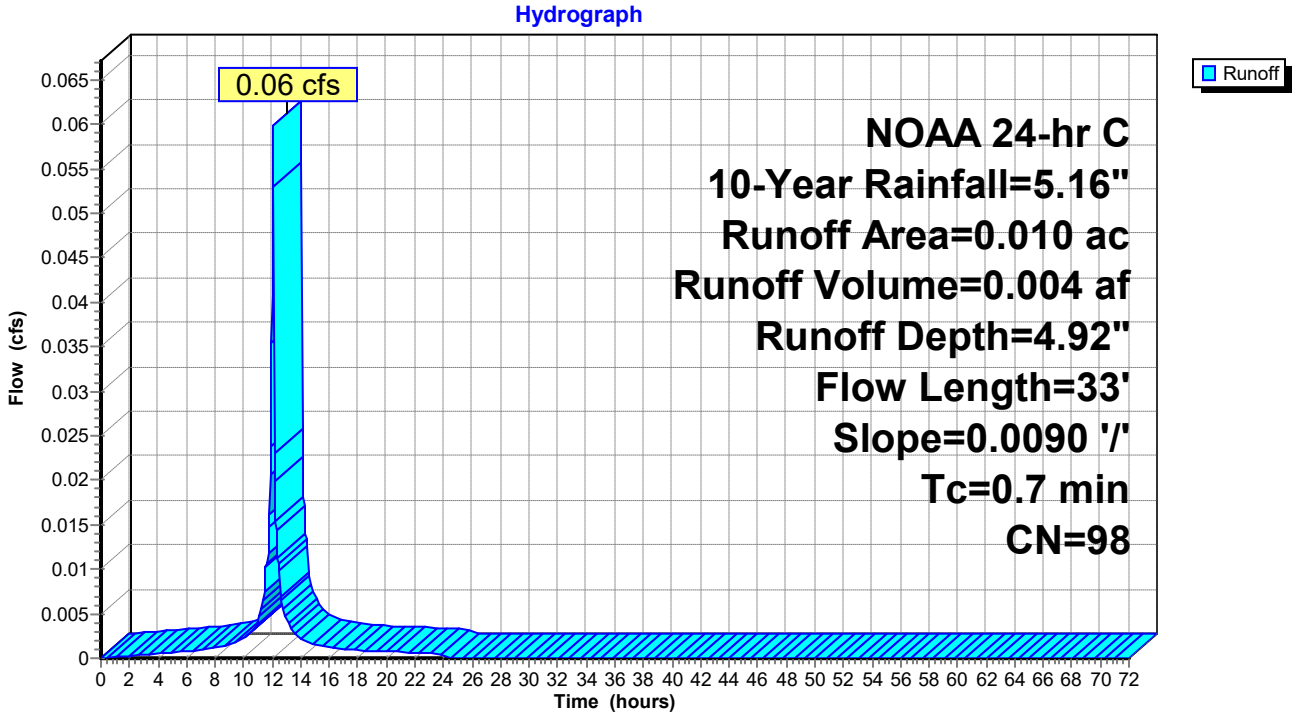
Runoff = 0.06 cfs @ 12.06 hrs, Volume= 0.004 af, Depth= 4.92"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.18	0.06	0.00
4.00	0.25	0.11	0.00
5.00	0.33	0.17	0.00
6.00	0.41	0.24	0.00
7.00	0.50	0.32	0.00
8.00	0.62	0.43	0.00
9.00	0.75	0.55	0.00
10.00	0.94	0.73	0.00
11.00	1.24	1.02	0.00
12.00	2.46	2.23	**0.04**
13.00	3.92	3.69	**0.00**
14.00	4.22	3.98	0.00
15.00	4.41	4.17	0.00
16.00	4.54	4.31	0.00
17.00	4.66	4.42	0.00
18.00	4.75	4.51	0.00
19.00	4.83	4.60	0.00
20.00	4.91	4.67	0.00
21.00	4.98	4.74	0.00
22.00	5.04	4.81	0.00
23.00	5.10	4.87	0.00
24.00	**5.16**	**4.92**	0.00
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

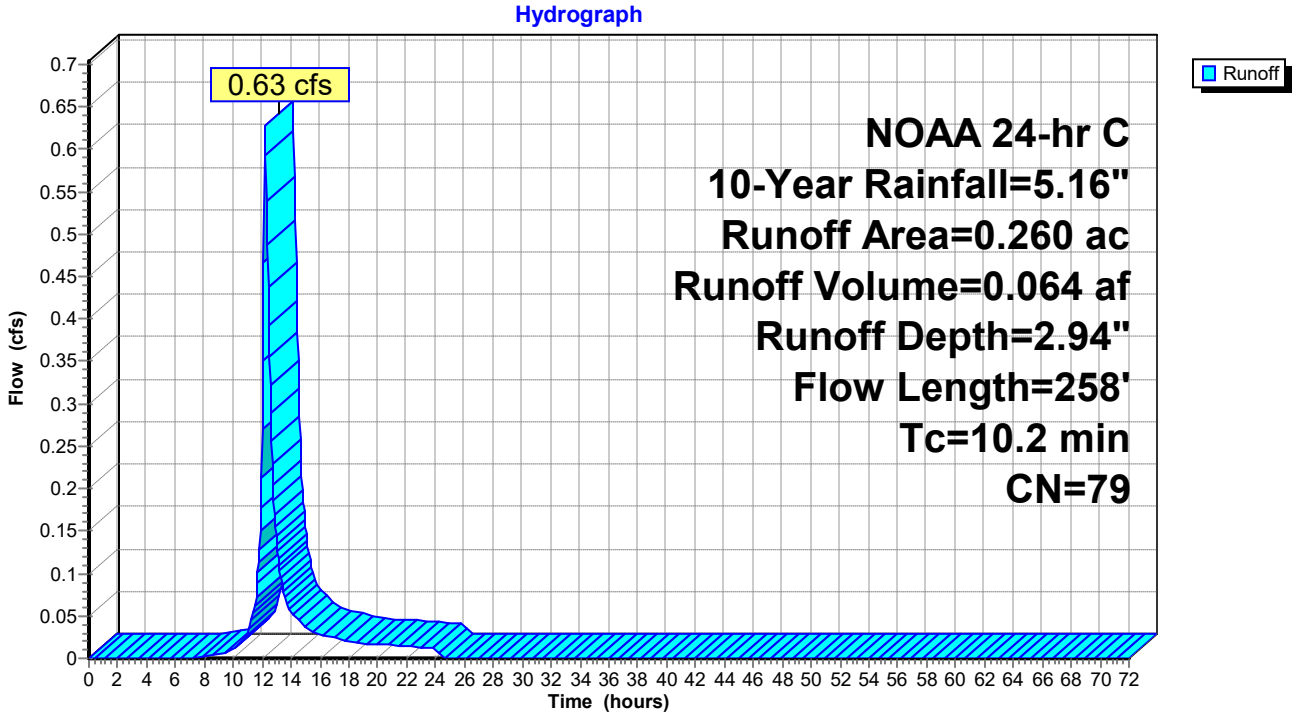
Runoff = 0.63 cfs @ 12.20 hrs, Volume= 0.064 af, Depth= 2.94"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.02	0.00
10.00	0.94	0.05	0.01
11.00	1.24	0.15	0.03
12.00	2.46	0.81	**0.27**
13.00	3.92	1.90	**0.13**
14.00	4.22	2.14	0.05
15.00	4.41	2.30	0.04
16.00	4.54	2.41	0.03
17.00	4.66	2.51	0.02
18.00	4.75	2.59	0.02
19.00	4.83	2.66	0.02
20.00	4.91	2.72	0.02
21.00	4.98	2.78	0.02
22.00	5.04	2.84	0.01
23.00	5.10	2.89	0.01
24.00	**5.16**	**2.94**	0.01
25.00	5.16	2.94	0.00
26.00	5.16	2.94	0.00
27.00	5.16	2.94	0.00
28.00	5.16	2.94	0.00
29.00	5.16	2.94	0.00
30.00	5.16	2.94	0.00
31.00	5.16	2.94	0.00
32.00	5.16	2.94	0.00
33.00	5.16	2.94	0.00
34.00	5.16	2.94	0.00
35.00	5.16	2.94	0.00
36.00	5.16	2.94	0.00
37.00	5.16	2.94	0.00
38.00	5.16	2.94	0.00
39.00	5.16	2.94	0.00
40.00	5.16	2.94	0.00
41.00	5.16	2.94	0.00
42.00	5.16	2.94	0.00
43.00	5.16	2.94	0.00
44.00	5.16	2.94	0.00
45.00	5.16	2.94	0.00
46.00	5.16	2.94	0.00
47.00	5.16	2.94	0.00
48.00	5.16	2.94	0.00
49.00	5.16	2.94	0.00
50.00	5.16	2.94	0.00
51.00	5.16	2.94	0.00
52.00	5.16	2.94	0.00
53.00	5.16	2.94	0.00
54.00	5.16	2.94	0.00
55.00	5.16	2.94	0.00
56.00	5.16	2.94	0.00
57.00	5.16	2.94	0.00
58.00	5.16	2.94	0.00
59.00	5.16	2.94	0.00
60.00	5.16	2.94	0.00
61.00	5.16	2.94	0.00
62.00	5.16	2.94	0.00
63.00	5.16	2.94	0.00
64.00	5.16	2.94	0.00
65.00	5.16	2.94	0.00
66.00	5.16	2.94	0.00
67.00	5.16	2.94	0.00
68.00	5.16	2.94	0.00
69.00	5.16	2.94	0.00
70.00	5.16	2.94	0.00
71.00	5.16	2.94	0.00
72.00	5.16	2.94	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

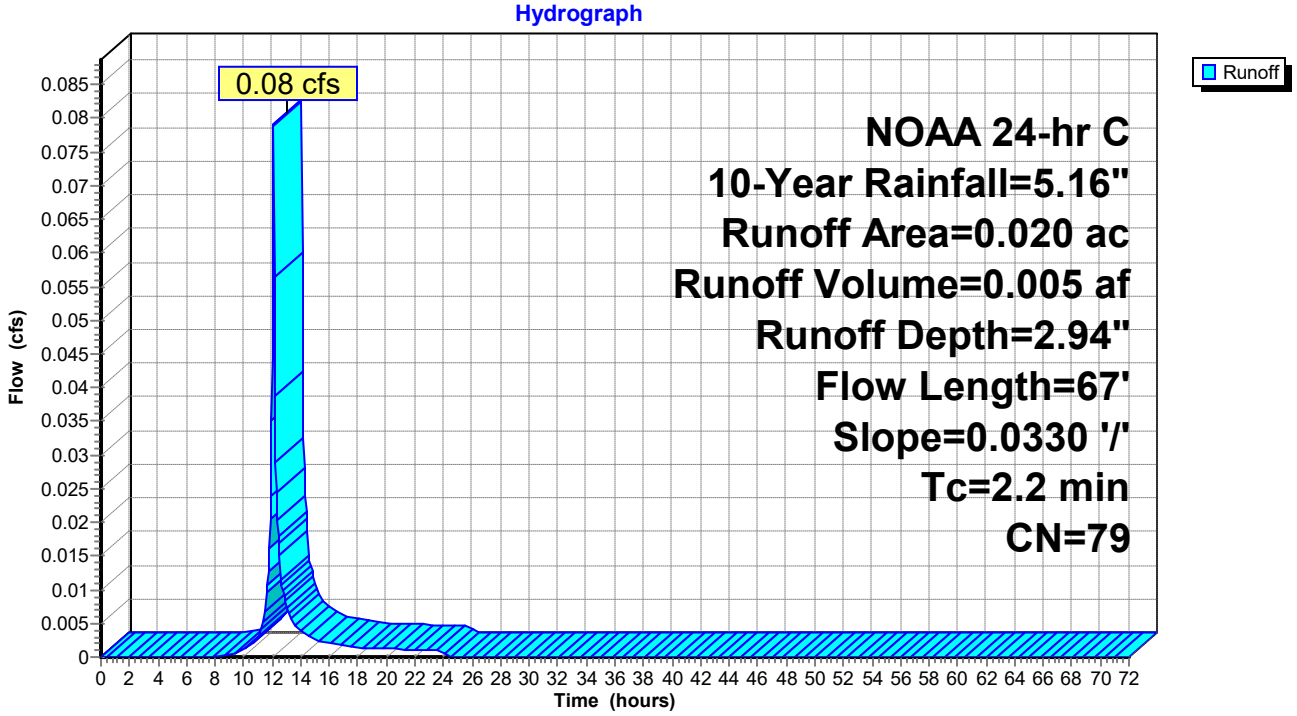
Runoff = 0.08 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 2.94"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.02	0.00
10.00	0.94	0.05	0.00
11.00	1.24	0.15	0.00
12.00	2.46	0.81	**0.04**
13.00	3.92	1.90	**0.01**
14.00	4.22	2.14	0.00
15.00	4.41	2.30	0.00
16.00	4.54	2.41	0.00
17.00	4.66	2.51	0.00
18.00	4.75	2.59	0.00
19.00	4.83	2.66	0.00
20.00	4.91	2.72	0.00
21.00	4.98	2.78	0.00
22.00	5.04	2.84	0.00
23.00	5.10	2.89	0.00
24.00	**5.16**	**2.94**	0.00
25.00	5.16	2.94	0.00
26.00	5.16	2.94	0.00
27.00	5.16	2.94	0.00
28.00	5.16	2.94	0.00
29.00	5.16	2.94	0.00
30.00	5.16	2.94	0.00
31.00	5.16	2.94	0.00
32.00	5.16	2.94	0.00
33.00	5.16	2.94	0.00
34.00	5.16	2.94	0.00
35.00	5.16	2.94	0.00
36.00	5.16	2.94	0.00
37.00	5.16	2.94	0.00
38.00	5.16	2.94	0.00
39.00	5.16	2.94	0.00
40.00	5.16	2.94	0.00
41.00	5.16	2.94	0.00
42.00	5.16	2.94	0.00
43.00	5.16	2.94	0.00
44.00	5.16	2.94	0.00
45.00	5.16	2.94	0.00
46.00	5.16	2.94	0.00
47.00	5.16	2.94	0.00
48.00	5.16	2.94	0.00
49.00	5.16	2.94	0.00
50.00	5.16	2.94	0.00
51.00	5.16	2.94	0.00
52.00	5.16	2.94	0.00
53.00	5.16	2.94	0.00
54.00	5.16	2.94	0.00
55.00	5.16	2.94	0.00
56.00	5.16	2.94	0.00
57.00	5.16	2.94	0.00
58.00	5.16	2.94	0.00
59.00	5.16	2.94	0.00
60.00	5.16	2.94	0.00
61.00	5.16	2.94	0.00
62.00	5.16	2.94	0.00
63.00	5.16	2.94	0.00
64.00	5.16	2.94	0.00
65.00	5.16	2.94	0.00
66.00	5.16	2.94	0.00
67.00	5.16	2.94	0.00
68.00	5.16	2.94	0.00
69.00	5.16	2.94	0.00
70.00	5.16	2.94	0.00
71.00	5.16	2.94	0.00
72.00	5.16	2.94	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

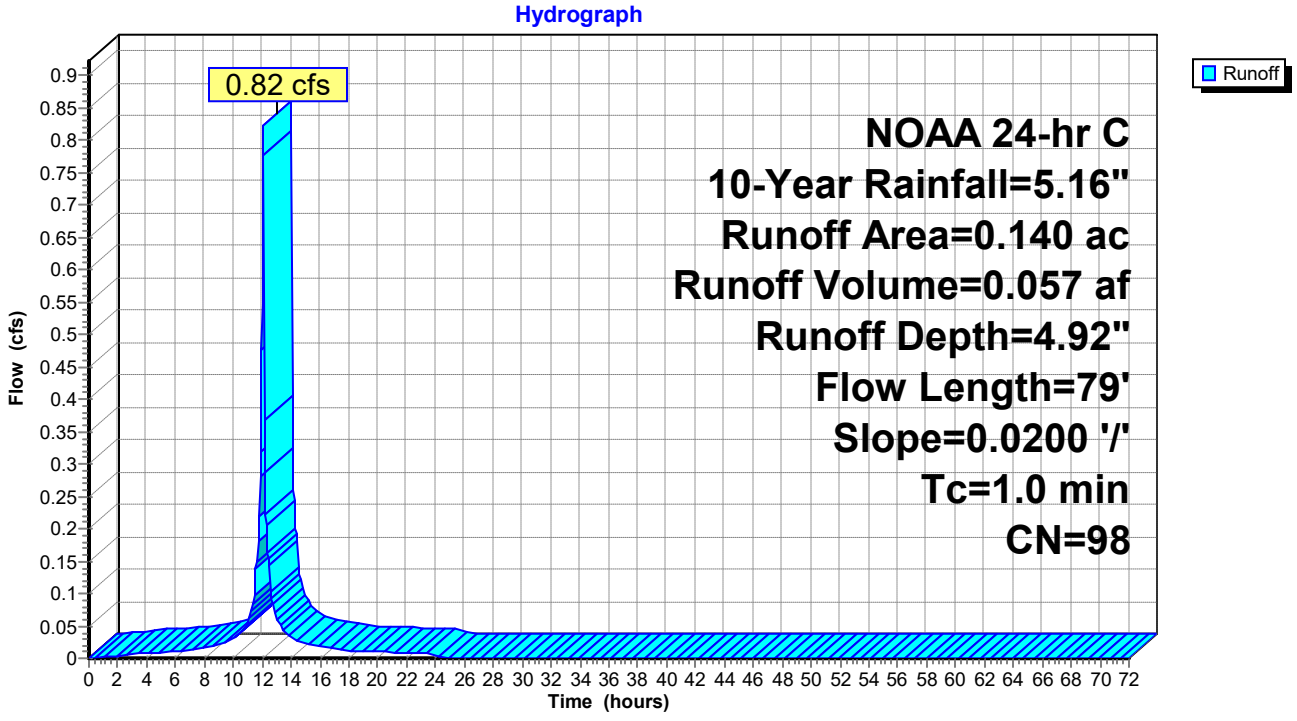
Runoff = 0.82 cfs @ 12.07 hrs, Volume= 0.057 af, Depth= 4.92"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.18	0.06	0.01
4.00	0.25	0.11	0.01
5.00	0.33	0.17	0.01
6.00	0.41	0.24	0.01
7.00	0.50	0.32	0.01
8.00	0.62	0.43	0.02
9.00	0.75	0.55	0.02
10.00	0.94	0.73	0.03
11.00	1.24	1.02	0.06
12.00	2.46	2.23	**0.55**
13.00	3.92	3.69	**0.06**
14.00	4.22	3.98	0.03
15.00	4.41	4.17	0.02
16.00	4.54	4.31	0.02
17.00	4.66	4.42	0.01
18.00	4.75	4.51	0.01
19.00	4.83	4.60	0.01
20.00	4.91	4.67	0.01
21.00	4.98	4.74	0.01
22.00	5.04	4.81	0.01
23.00	5.10	4.87	0.01
24.00	**5.16**	**4.92**	0.01
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

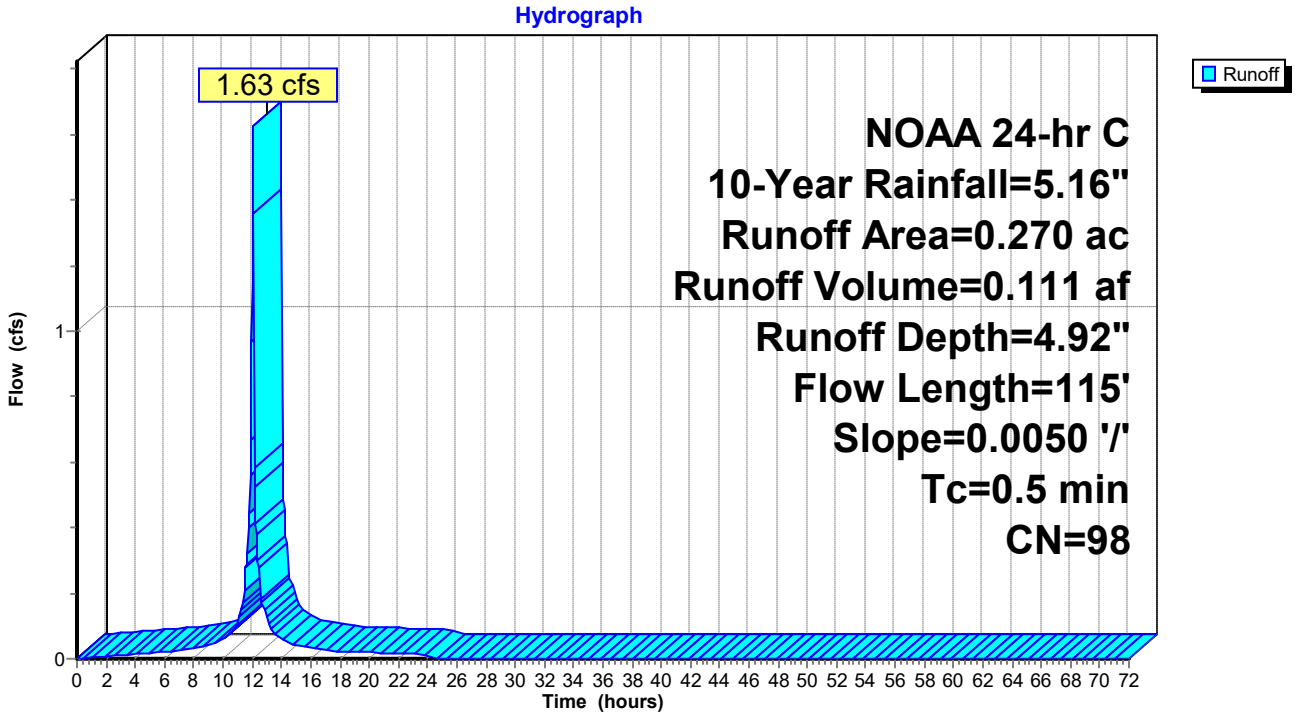
Runoff = 1.63 cfs @ 12.06 hrs, Volume= 0.111 af, Depth= 4.92"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.01
3.00	0.18	0.06	0.01
4.00	0.25	0.11	0.02
5.00	0.33	0.17	0.02
6.00	0.41	0.24	0.02
7.00	0.50	0.32	0.03
8.00	0.62	0.43	0.03
9.00	0.75	0.55	0.04
10.00	0.94	0.73	0.06
11.00	1.24	1.02	0.11
12.00	2.46	2.23	**1.14**
13.00	3.92	3.69	**0.12**
14.00	4.22	3.98	0.06
15.00	4.41	4.17	0.04
16.00	4.54	4.31	0.03
17.00	4.66	4.42	0.03
18.00	4.75	4.51	0.02
19.00	4.83	4.60	0.02
20.00	4.91	4.67	0.02
21.00	4.98	4.74	0.02
22.00	5.04	4.81	0.02
23.00	5.10	4.87	0.02
24.00	**5.16**	**4.92**	0.01
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

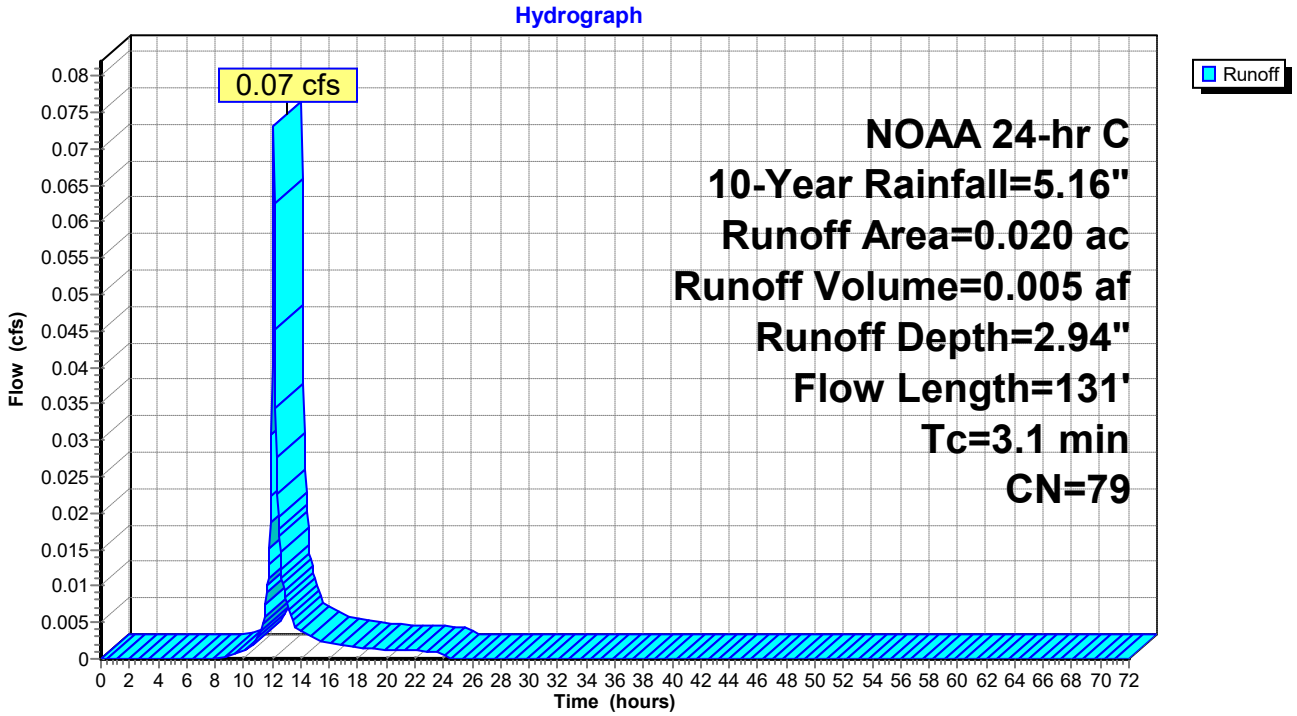
Runoff = 0.07 cfs @ 12.11 hrs, Volume= 0.005 af, Depth= 2.94"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.00	0.00
9.00	0.75	0.02	0.00
10.00	0.94	0.05	0.00
11.00	1.24	0.15	0.00
12.00	2.46	0.81	**0.04**
13.00	3.92	1.90	**0.01**
14.00	4.22	2.14	0.00
15.00	4.41	2.30	0.00
16.00	4.54	2.41	0.00
17.00	4.66	2.51	0.00
18.00	4.75	2.59	0.00
19.00	4.83	2.66	0.00
20.00	4.91	2.72	0.00
21.00	4.98	2.78	0.00
22.00	5.04	2.84	0.00
23.00	5.10	2.89	0.00
24.00	**5.16**	**2.94**	0.00
25.00	5.16	2.94	0.00
26.00	5.16	2.94	0.00
27.00	5.16	2.94	0.00
28.00	5.16	2.94	0.00
29.00	5.16	2.94	0.00
30.00	5.16	2.94	0.00
31.00	5.16	2.94	0.00
32.00	5.16	2.94	0.00
33.00	5.16	2.94	0.00
34.00	5.16	2.94	0.00
35.00	5.16	2.94	0.00
36.00	5.16	2.94	0.00
37.00	5.16	2.94	0.00
38.00	5.16	2.94	0.00
39.00	5.16	2.94	0.00
40.00	5.16	2.94	0.00
41.00	5.16	2.94	0.00
42.00	5.16	2.94	0.00
43.00	5.16	2.94	0.00
44.00	5.16	2.94	0.00
45.00	5.16	2.94	0.00
46.00	5.16	2.94	0.00
47.00	5.16	2.94	0.00
48.00	5.16	2.94	0.00
49.00	5.16	2.94	0.00
50.00	5.16	2.94	0.00
51.00	5.16	2.94	0.00
52.00	5.16	2.94	0.00
53.00	5.16	2.94	0.00
54.00	5.16	2.94	0.00
55.00	5.16	2.94	0.00
56.00	5.16	2.94	0.00
57.00	5.16	2.94	0.00
58.00	5.16	2.94	0.00
59.00	5.16	2.94	0.00
60.00	5.16	2.94	0.00
61.00	5.16	2.94	0.00
62.00	5.16	2.94	0.00
63.00	5.16	2.94	0.00
64.00	5.16	2.94	0.00
65.00	5.16	2.94	0.00
66.00	5.16	2.94	0.00
67.00	5.16	2.94	0.00
68.00	5.16	2.94	0.00
69.00	5.16	2.94	0.00
70.00	5.16	2.94	0.00
71.00	5.16	2.94	0.00
72.00	5.16	2.94	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

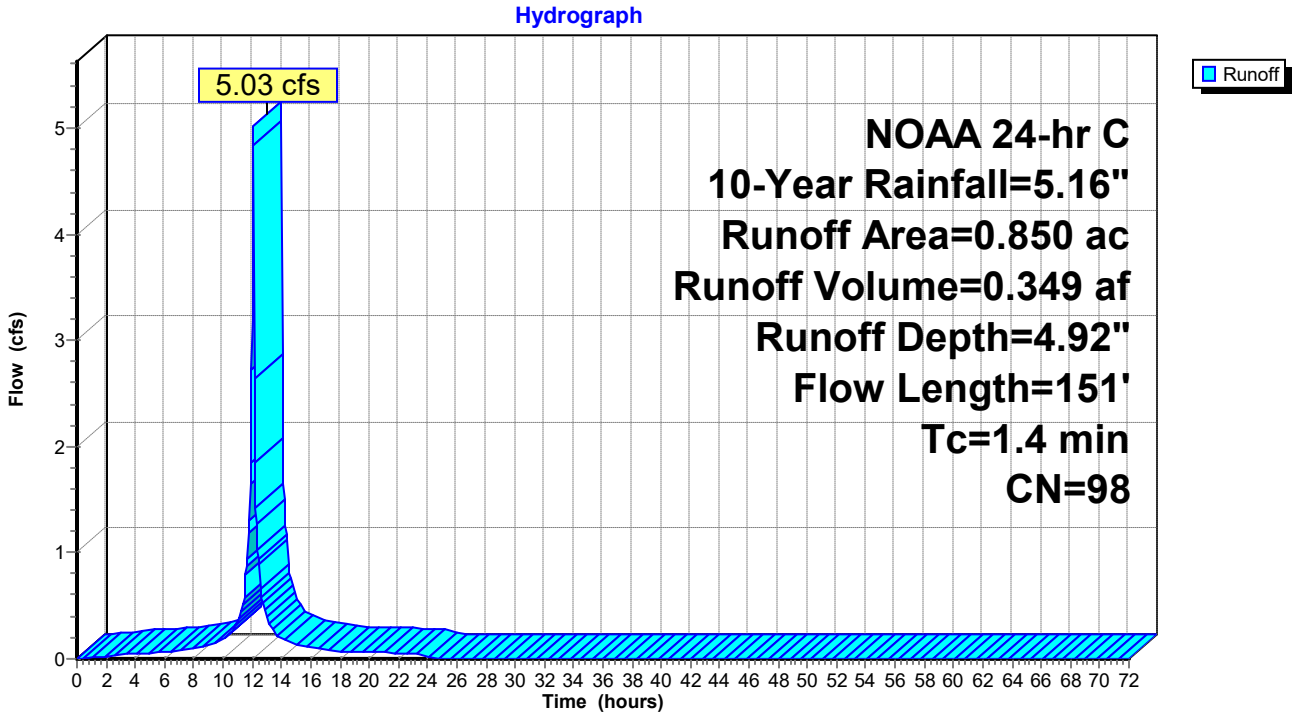
Runoff = 5.03 cfs @ 12.08 hrs, Volume= 0.349 af, Depth= 4.92"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.01
2.00	0.12	0.02	0.02
3.00	0.18	0.06	0.04
4.00	0.25	0.11	0.05
5.00	0.33	0.17	0.06
6.00	0.41	0.24	0.06
7.00	0.50	0.32	0.08
8.00	0.62	0.43	0.10
9.00	0.75	0.55	0.12
10.00	0.94	0.73	0.18
11.00	1.24	1.02	0.35
12.00	2.46	2.23	**3.18**
13.00	3.92	3.69	**0.40**
14.00	4.22	3.98	0.20
15.00	4.41	4.17	0.13
16.00	4.54	4.31	0.11
17.00	4.66	4.42	0.09
18.00	4.75	4.51	0.07
19.00	4.83	4.60	0.07
20.00	4.91	4.67	0.06
21.00	4.98	4.74	0.06
22.00	5.04	4.81	0.05
23.00	5.10	4.87	0.05
24.00	**5.16**	**4.92**	0.05
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

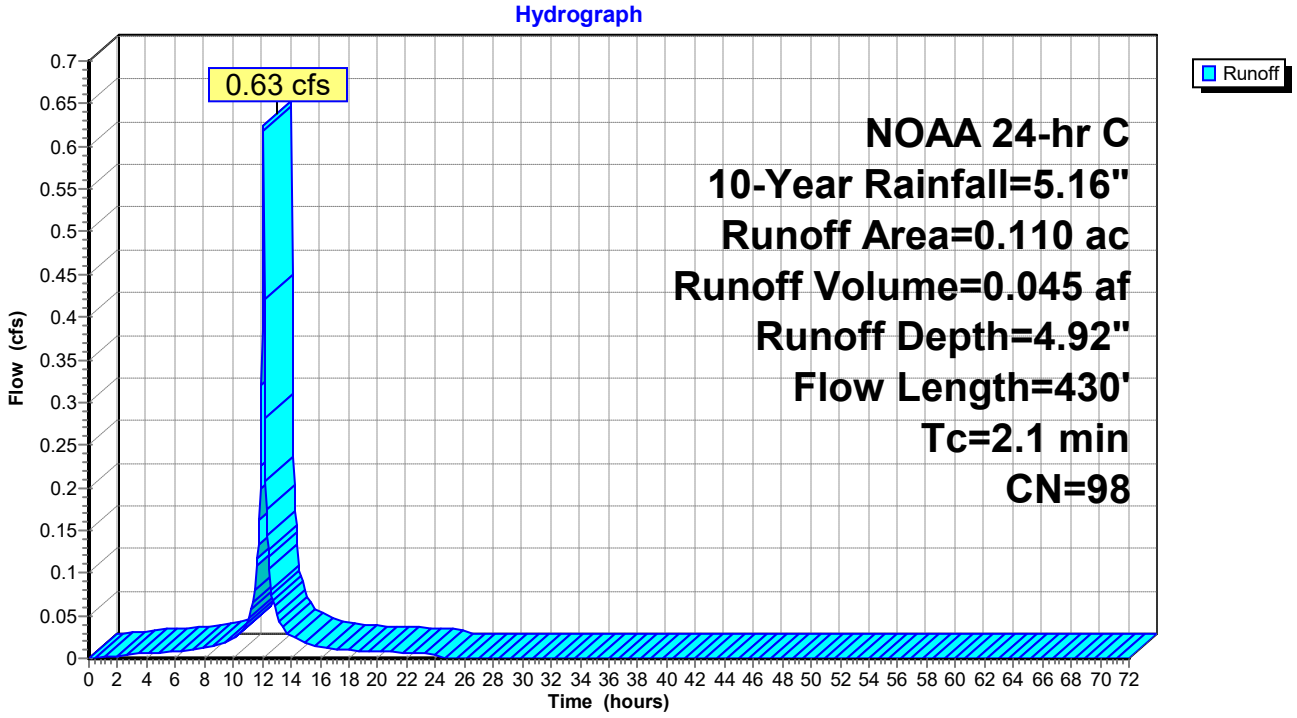
Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.045 af, Depth= 4.92"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.18	0.06	0.00
4.00	0.25	0.11	0.01
5.00	0.33	0.17	0.01
6.00	0.41	0.24	0.01
7.00	0.50	0.32	0.01
8.00	0.62	0.43	0.01
9.00	0.75	0.55	0.02
10.00	0.94	0.73	0.02
11.00	1.24	1.02	0.04
12.00	2.46	2.23	**0.38**
13.00	3.92	3.69	**0.05**
14.00	4.22	3.98	0.03
15.00	4.41	4.17	0.02
16.00	4.54	4.31	0.01
17.00	4.66	4.42	0.01
18.00	4.75	4.51	0.01
19.00	4.83	4.60	0.01
20.00	4.91	4.67	0.01
21.00	4.98	4.74	0.01
22.00	5.04	4.81	0.01
23.00	5.10	4.87	0.01
24.00	**5.16**	**4.92**	0.01
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

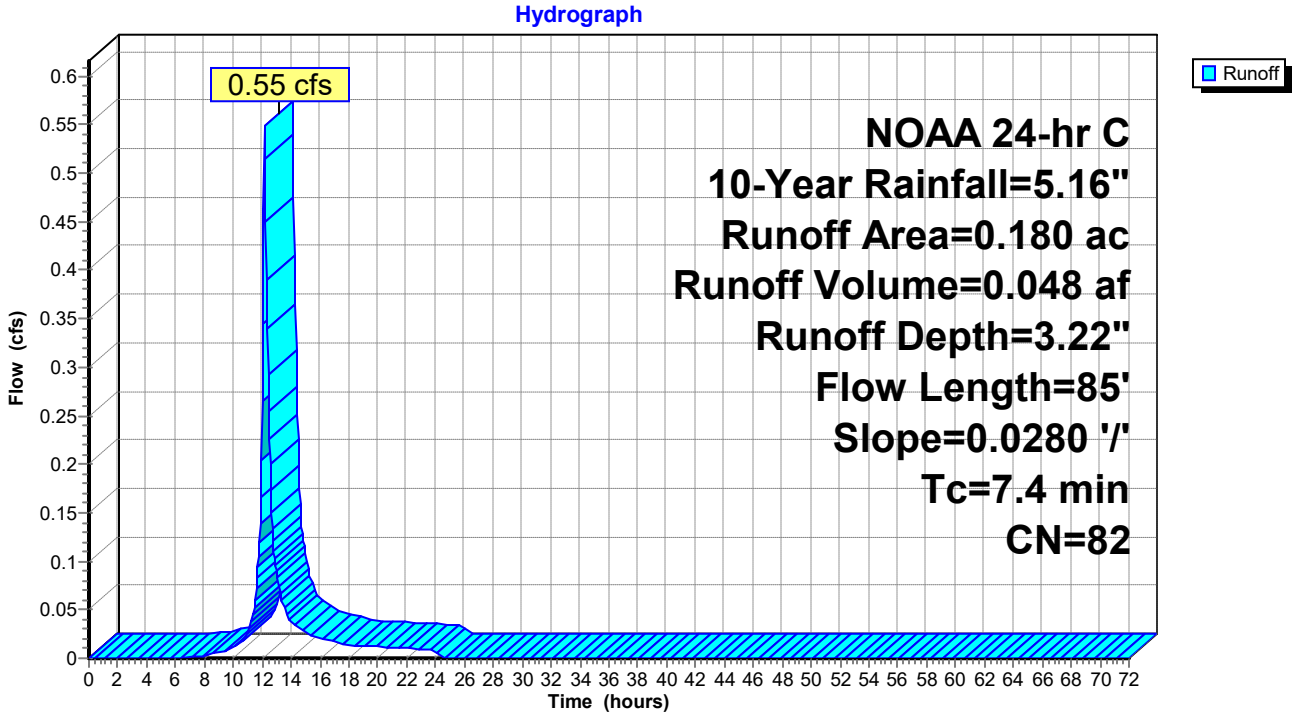
Runoff = 0.55 cfs @ 12.16 hrs, Volume= 0.048 af, Depth= 3.22"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.01	0.00
9.00	0.75	0.04	0.01
10.00	0.94	0.09	0.01
11.00	1.24	0.21	0.03
12.00	2.46	0.97	**0.27**
13.00	3.92	2.14	**0.08**
14.00	4.22	2.39	0.04
15.00	4.41	2.55	0.03
16.00	4.54	2.67	0.02
17.00	4.66	2.77	0.02
18.00	4.75	2.86	0.01
19.00	4.83	2.93	0.01
20.00	4.91	3.00	0.01
21.00	4.98	3.06	0.01
22.00	5.04	3.12	0.01
23.00	5.10	3.17	0.01
24.00	**5.16**	**3.22**	0.01
25.00	5.16	3.22	0.00
26.00	5.16	3.22	0.00
27.00	5.16	3.22	0.00
28.00	5.16	3.22	0.00
29.00	5.16	3.22	0.00
30.00	5.16	3.22	0.00
31.00	5.16	3.22	0.00
32.00	5.16	3.22	0.00
33.00	5.16	3.22	0.00
34.00	5.16	3.22	0.00
35.00	5.16	3.22	0.00
36.00	5.16	3.22	0.00
37.00	5.16	3.22	0.00
38.00	5.16	3.22	0.00
39.00	5.16	3.22	0.00
40.00	5.16	3.22	0.00
41.00	5.16	3.22	0.00
42.00	5.16	3.22	0.00
43.00	5.16	3.22	0.00
44.00	5.16	3.22	0.00
45.00	5.16	3.22	0.00
46.00	5.16	3.22	0.00
47.00	5.16	3.22	0.00
48.00	5.16	3.22	0.00
49.00	5.16	3.22	0.00
50.00	5.16	3.22	0.00
51.00	5.16	3.22	0.00
52.00	5.16	3.22	0.00
53.00	5.16	3.22	0.00
54.00	5.16	3.22	0.00
55.00	5.16	3.22	0.00
56.00	5.16	3.22	0.00
57.00	5.16	3.22	0.00
58.00	5.16	3.22	0.00
59.00	5.16	3.22	0.00
60.00	5.16	3.22	0.00
61.00	5.16	3.22	0.00
62.00	5.16	3.22	0.00
63.00	5.16	3.22	0.00
64.00	5.16	3.22	0.00
65.00	5.16	3.22	0.00
66.00	5.16	3.22	0.00
67.00	5.16	3.22	0.00
68.00	5.16	3.22	0.00
69.00	5.16	3.22	0.00
70.00	5.16	3.22	0.00
71.00	5.16	3.22	0.00
72.00	5.16	3.22	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

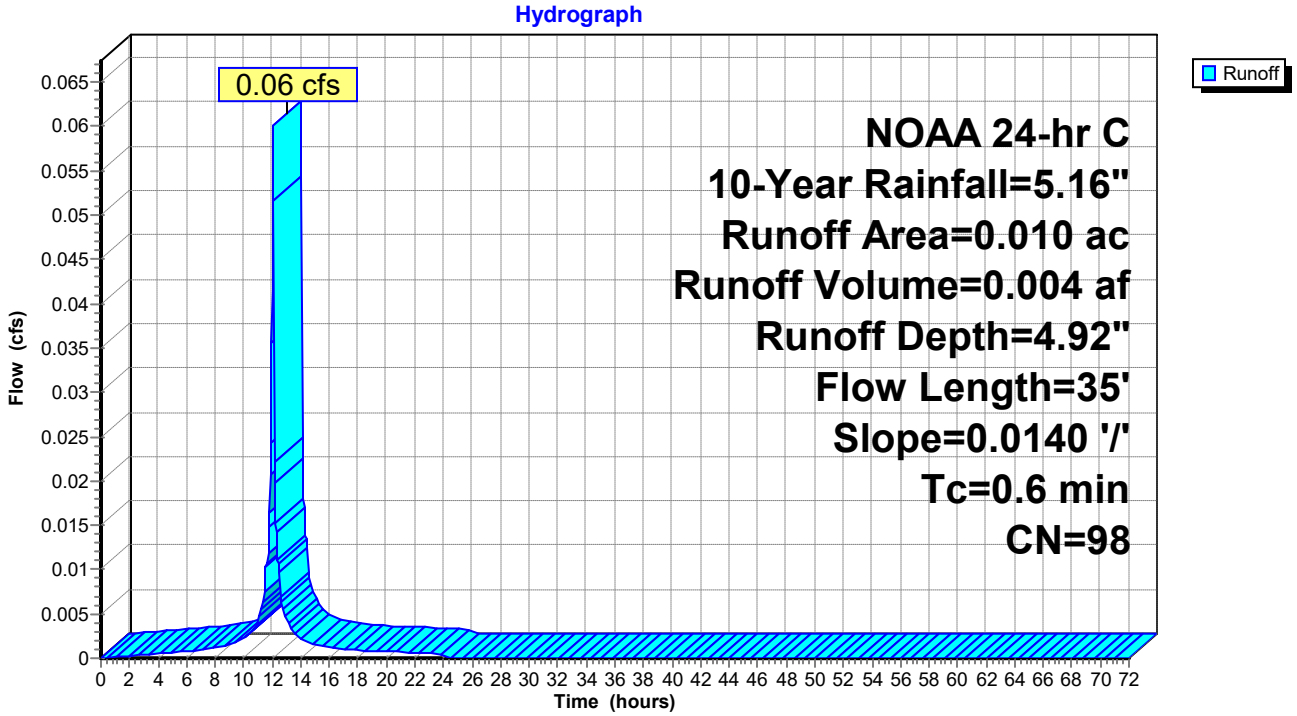
Runoff = 0.06 cfs @ 12.06 hrs, Volume= 0.004 af, Depth= 4.92"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.02	0.00
3.00	0.18	0.06	0.00
4.00	0.25	0.11	0.00
5.00	0.33	0.17	0.00
6.00	0.41	0.24	0.00
7.00	0.50	0.32	0.00
8.00	0.62	0.43	0.00
9.00	0.75	0.55	0.00
10.00	0.94	0.73	0.00
11.00	1.24	1.02	0.00
12.00	2.46	2.23	**0.04**
13.00	3.92	3.69	**0.00**
14.00	4.22	3.98	0.00
15.00	4.41	4.17	0.00
16.00	4.54	4.31	0.00
17.00	4.66	4.42	0.00
18.00	4.75	4.51	0.00
19.00	4.83	4.60	0.00
20.00	4.91	4.67	0.00
21.00	4.98	4.74	0.00
22.00	5.04	4.81	0.00
23.00	5.10	4.87	0.00
24.00	**5.16**	**4.92**	0.00
25.00	5.16	4.92	0.00
26.00	5.16	4.92	0.00
27.00	5.16	4.92	0.00
28.00	5.16	4.92	0.00
29.00	5.16	4.92	0.00
30.00	5.16	4.92	0.00
31.00	5.16	4.92	0.00
32.00	5.16	4.92	0.00
33.00	5.16	4.92	0.00
34.00	5.16	4.92	0.00
35.00	5.16	4.92	0.00
36.00	5.16	4.92	0.00
37.00	5.16	4.92	0.00
38.00	5.16	4.92	0.00
39.00	5.16	4.92	0.00
40.00	5.16	4.92	0.00
41.00	5.16	4.92	0.00
42.00	5.16	4.92	0.00
43.00	5.16	4.92	0.00
44.00	5.16	4.92	0.00
45.00	5.16	4.92	0.00
46.00	5.16	4.92	0.00
47.00	5.16	4.92	0.00
48.00	5.16	4.92	0.00
49.00	5.16	4.92	0.00
50.00	5.16	4.92	0.00
51.00	5.16	4.92	0.00
52.00	5.16	4.92	0.00
53.00	5.16	4.92	0.00
54.00	5.16	4.92	0.00
55.00	5.16	4.92	0.00
56.00	5.16	4.92	0.00
57.00	5.16	4.92	0.00
58.00	5.16	4.92	0.00
59.00	5.16	4.92	0.00
60.00	5.16	4.92	0.00
61.00	5.16	4.92	0.00
62.00	5.16	4.92	0.00
63.00	5.16	4.92	0.00
64.00	5.16	4.92	0.00
65.00	5.16	4.92	0.00
66.00	5.16	4.92	0.00
67.00	5.16	4.92	0.00
68.00	5.16	4.92	0.00
69.00	5.16	4.92	0.00
70.00	5.16	4.92	0.00
71.00	5.16	4.92	0.00
72.00	5.16	4.92	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

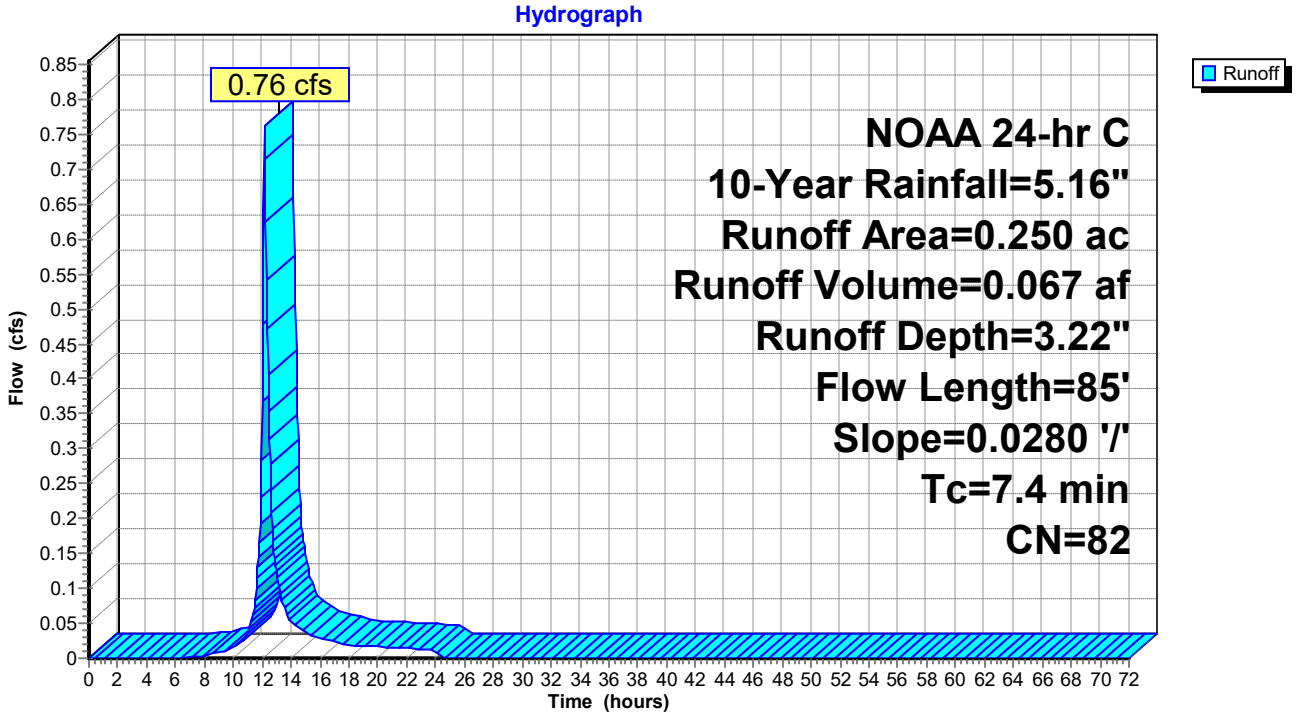
Runoff = 0.76 cfs @ 12.16 hrs, Volume= 0.067 af, Depth= 3.22"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Rainfall=5.16"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.12	0.00	0.00
3.00	0.18	0.00	0.00
4.00	0.25	0.00	0.00
5.00	0.33	0.00	0.00
6.00	0.41	0.00	0.00
7.00	0.50	0.00	0.00
8.00	0.62	0.01	0.00
9.00	0.75	0.04	0.01
10.00	0.94	0.09	0.02
11.00	1.24	0.21	0.04
12.00	2.46	0.97	**0.37**
13.00	3.92	2.14	**0.12**
14.00	4.22	2.39	0.05
15.00	4.41	2.55	0.04
16.00	4.54	2.67	0.03
17.00	4.66	2.77	0.02
18.00	4.75	2.86	0.02
19.00	4.83	2.93	0.02
20.00	4.91	3.00	0.02
21.00	4.98	3.06	0.02
22.00	5.04	3.12	0.01
23.00	5.10	3.17	0.01
24.00	**5.16**	**3.22**	0.01
25.00	5.16	3.22	0.00
26.00	5.16	3.22	0.00
27.00	5.16	3.22	0.00
28.00	5.16	3.22	0.00
29.00	5.16	3.22	0.00
30.00	5.16	3.22	0.00
31.00	5.16	3.22	0.00
32.00	5.16	3.22	0.00
33.00	5.16	3.22	0.00
34.00	5.16	3.22	0.00
35.00	5.16	3.22	0.00
36.00	5.16	3.22	0.00
37.00	5.16	3.22	0.00
38.00	5.16	3.22	0.00
39.00	5.16	3.22	0.00
40.00	5.16	3.22	0.00
41.00	5.16	3.22	0.00
42.00	5.16	3.22	0.00
43.00	5.16	3.22	0.00
44.00	5.16	3.22	0.00
45.00	5.16	3.22	0.00
46.00	5.16	3.22	0.00
47.00	5.16	3.22	0.00
48.00	5.16	3.22	0.00
49.00	5.16	3.22	0.00
50.00	5.16	3.22	0.00
51.00	5.16	3.22	0.00
52.00	5.16	3.22	0.00
53.00	5.16	3.22	0.00
54.00	5.16	3.22	0.00
55.00	5.16	3.22	0.00
56.00	5.16	3.22	0.00
57.00	5.16	3.22	0.00
58.00	5.16	3.22	0.00
59.00	5.16	3.22	0.00
60.00	5.16	3.22	0.00
61.00	5.16	3.22	0.00
62.00	5.16	3.22	0.00
63.00	5.16	3.22	0.00
64.00	5.16	3.22	0.00
65.00	5.16	3.22	0.00
66.00	5.16	3.22	0.00
67.00	5.16	3.22	0.00
68.00	5.16	3.22	0.00
69.00	5.16	3.22	0.00
70.00	5.16	3.22	0.00
71.00	5.16	3.22	0.00
72.00	5.16	3.22	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 4.68" for 10-Year event
Inflow = 0.90 cfs @ 12.07 hrs, Volume= 0.062 af
Outflow = 0.11 cfs @ 12.60 hrs, Volume= 0.050 af, Atten= 88%, Lag= 31.9 min
Primary = 0.11 cfs @ 12.60 hrs, Volume= 0.050 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.60' @ 12.60 hrs Surf.Area= 0.118 ac Storage= 0.037 af

Plug-Flow detention time= 321.4 min calculated for 0.050 af (80% of inflow)
Center-of-Mass det. time= 240.8 min (991.4 - 750.6)

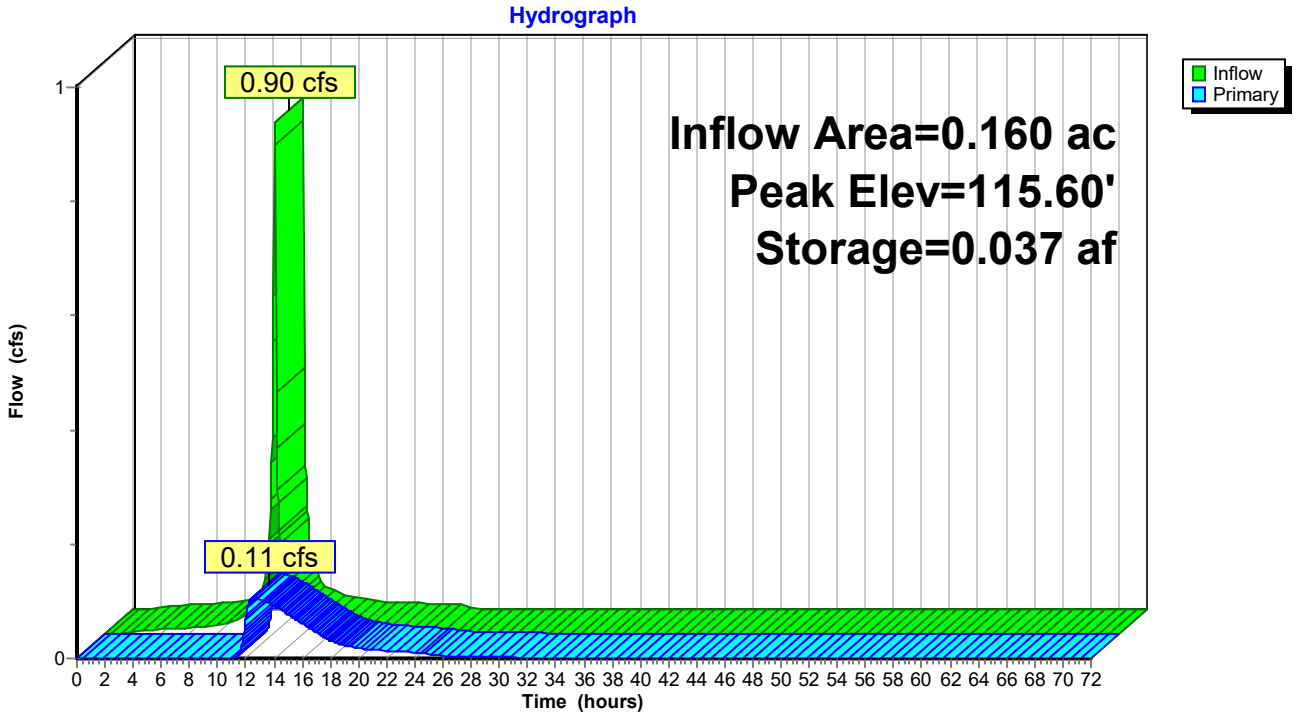
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.11 cfs @ 12.60 hrs HW=115.60' TW=113.50' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.11 cfs of 7.65 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.11 cfs @ 3.11 fps)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.82	0.00
2.50	0.01	0.000	114.83	0.00
5.00	0.01	0.002	114.86	0.00
7.50	0.01	0.004	114.91	0.00
10.00	**0.03**	0.009	115.00	0.00
12.50	**0.16**	**0.037**	**115.60**	**0.11**
15.00	0.02	**0.028**	**115.40**	**0.08**
17.50	0.02	0.020	115.24	0.04
20.00	0.01	0.017	115.18	0.02
22.50	0.01	0.016	115.16	0.01
25.00	0.00	0.015	115.14	0.01
27.50	0.00	0.014	115.12	0.00
30.00	0.00	0.014	115.11	0.00
32.50	0.00	0.013	115.10	0.00
35.00	0.00	0.013	115.10	0.00
37.50	0.00	0.013	115.10	0.00
40.00	0.00	0.013	115.09	0.00
42.50	0.00	0.013	115.09	0.00
45.00	0.00	0.013	115.09	0.00
47.50	0.00	0.013	115.09	0.00
50.00	0.00	0.013	115.09	0.00
52.50	0.00	0.013	115.09	0.00
55.00	0.00	0.013	115.09	0.00
57.50	0.00	0.013	115.09	0.00
60.00	0.00	0.013	115.09	0.00
62.50	0.00	0.013	115.09	0.00
65.00	0.00	0.013	115.09	0.00
67.50	0.00	0.013	115.09	0.00
70.00	0.00	0.013	115.09	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 4.92" for 10-Year event
Inflow = 1.63 cfs @ 12.06 hrs, Volume= 0.111 af
Outflow = 0.82 cfs @ 12.15 hrs, Volume= 0.087 af, Atten= 50%, Lag= 5.6 min
Primary = 0.82 cfs @ 12.15 hrs, Volume= 0.087 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.71' @ 12.15 hrs Surf.Area= 0.043 ac Storage= 0.054 af

Plug-Flow detention time= 230.5 min calculated for 0.087 af (79% of inflow)
Center-of-Mass det. time= 148.2 min (891.7 - 743.5)

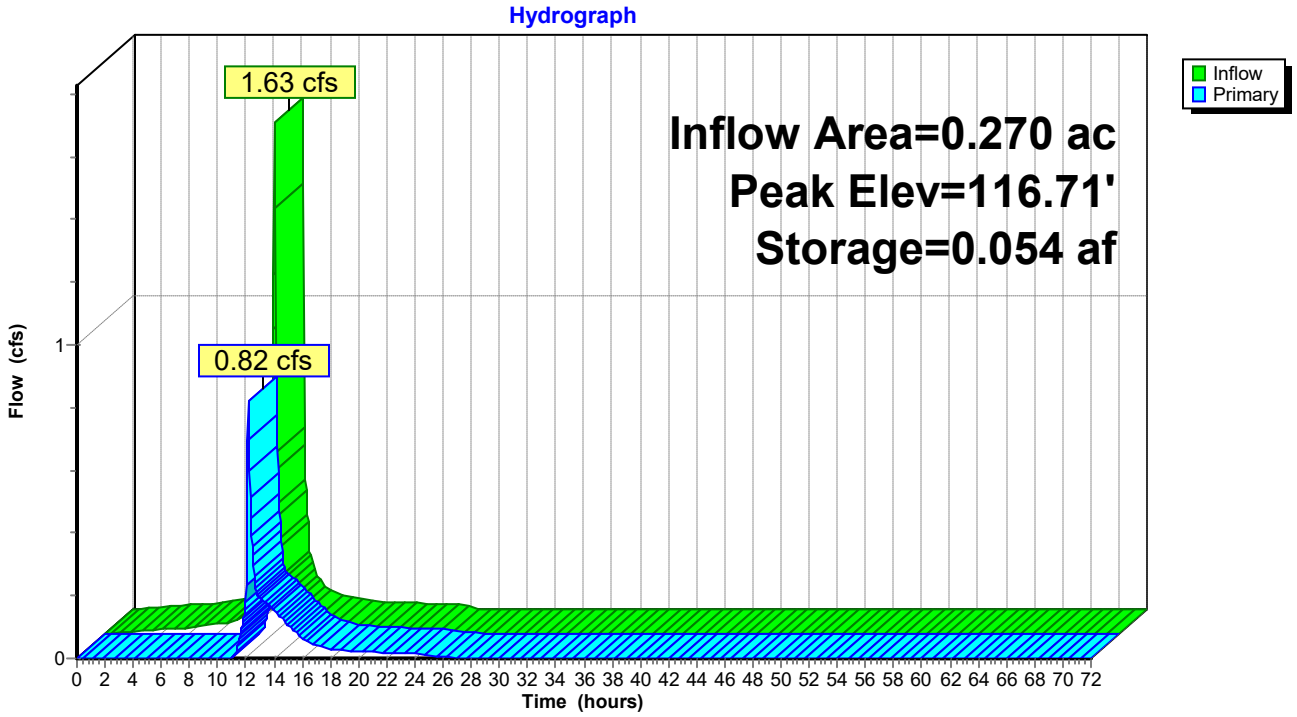
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.82 cfs @ 12.15 hrs HW=116.71' TW=113.04' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.82 cfs of 9.10 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.54 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 0.60 cfs @ 1.48 fps)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.63	0.00
2.50	0.01	0.001	114.68	0.00
5.00	0.02	0.004	114.85	0.00
7.50	0.03	0.008	115.11	0.00
10.00	**0.06**	**0.016**	**115.45**	**0.00**
12.50	**0.26**	**0.050**	**116.57**	**0.33**
15.00	0.04	0.033	116.02	0.11
17.50	0.03	0.027	115.83	0.03
20.00	0.02	0.026	115.80	0.02
22.50	0.02	0.026	115.78	0.02
25.00	0.00	0.025	115.75	0.01
27.50	0.00	0.024	115.72	0.00
30.00	0.00	0.024	115.71	0.00
32.50	0.00	0.024	115.71	0.00
35.00	0.00	0.024	115.70	0.00
37.50	0.00	0.024	115.70	0.00
40.00	0.00	0.024	115.70	0.00
42.50	0.00	0.024	115.70	0.00
45.00	0.00	0.024	115.70	0.00
47.50	0.00	0.023	115.70	0.00
50.00	0.00	0.023	115.70	0.00
52.50	0.00	0.023	115.70	0.00
55.00	0.00	0.023	115.69	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 4.88" for 10-Year event
Inflow = 5.10 cfs @ 12.08 hrs, Volume= 0.354 af
Outflow = 0.54 cfs @ 12.71 hrs, Volume= 0.278 af, Atten= 89%, Lag= 38.0 min
Primary = 0.54 cfs @ 12.71 hrs, Volume= 0.278 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.94' @ 12.71 hrs Surf.Area= 0.410 ac Storage= 0.217 af

Plug-Flow detention time= 362.7 min calculated for 0.278 af (79% of inflow)
Center-of-Mass det. time= 279.7 min (1,025.7 - 746.0)

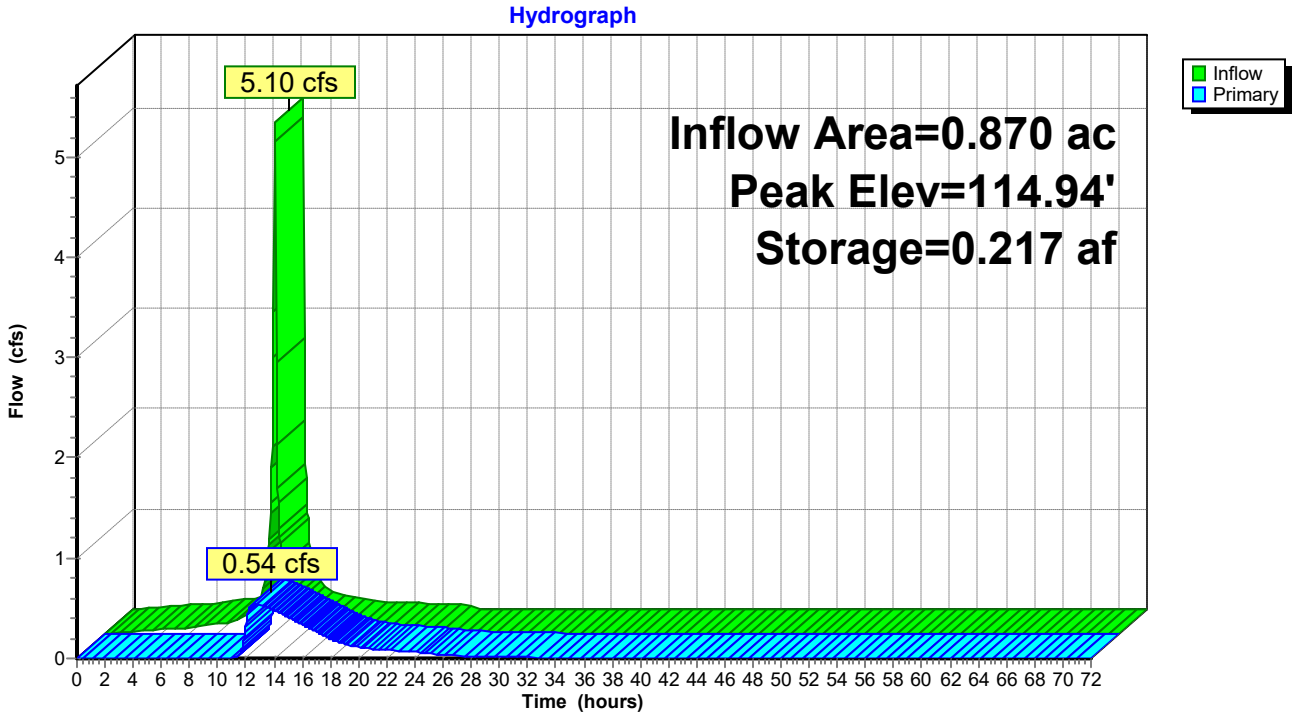
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.54 cfs @ 12.71 hrs HW=114.94' TW=113.56' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.54 cfs of 7.39 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.54 cfs @ 3.93 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	113.62	0.00
2.50	0.03	0.003	113.64	0.00
5.00	0.06	0.012	113.69	0.00
7.50	0.09	0.026	113.78	0.00
10.00	**0.18**	0.052	113.93	0.00
12.50	**0.89**	**0.216**	**114.93**	**0.53**
15.00	0.13	**0.172**	**114.67**	**0.41**
17.50	0.08	0.128	114.40	0.23
20.00	0.06	0.110	114.29	0.11
22.50	0.05	0.102	114.24	0.08
25.00	0.00	0.095	114.20	0.05
27.50	0.00	0.089	114.16	0.02
30.00	0.00	0.085	114.14	0.01
32.50	0.00	0.083	114.13	0.01
35.00	0.00	0.081	114.12	0.01
37.50	0.00	0.080	114.11	0.00
40.00	0.00	0.080	114.10	0.00
42.50	0.00	0.079	114.10	0.00
45.00	0.00	0.078	114.10	0.00
47.50	0.00	0.078	114.10	0.00
50.00	0.00	0.078	114.09	0.00
52.50	0.00	0.077	114.09	0.00
55.00	0.00	0.077	114.09	0.00
57.50	0.00	0.077	114.09	0.00
60.00	0.00	0.077	114.09	0.00
62.50	0.00	0.076	114.09	0.00
65.00	0.00	0.076	114.09	0.00
67.50	0.00	0.076	114.08	0.00
70.00	0.00	0.076	114.08	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 3.76" for 10-Year event
Inflow = 2.40 cfs @ 12.14 hrs, Volume= 0.524 af
Outflow = 0.51 cfs @ 16.00 hrs, Volume= 0.508 af, Atten= 79%, Lag= 231.6 min
Primary = 0.51 cfs @ 16.00 hrs, Volume= 0.508 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.24' @ 16.00 hrs Surf.Area= 0.121 ac Storage= 0.202 af

Plug-Flow detention time= 278.9 min calculated for 0.508 af (97% of inflow)
Center-of-Mass det. time= 240.3 min (1,193.2 - 953.0)

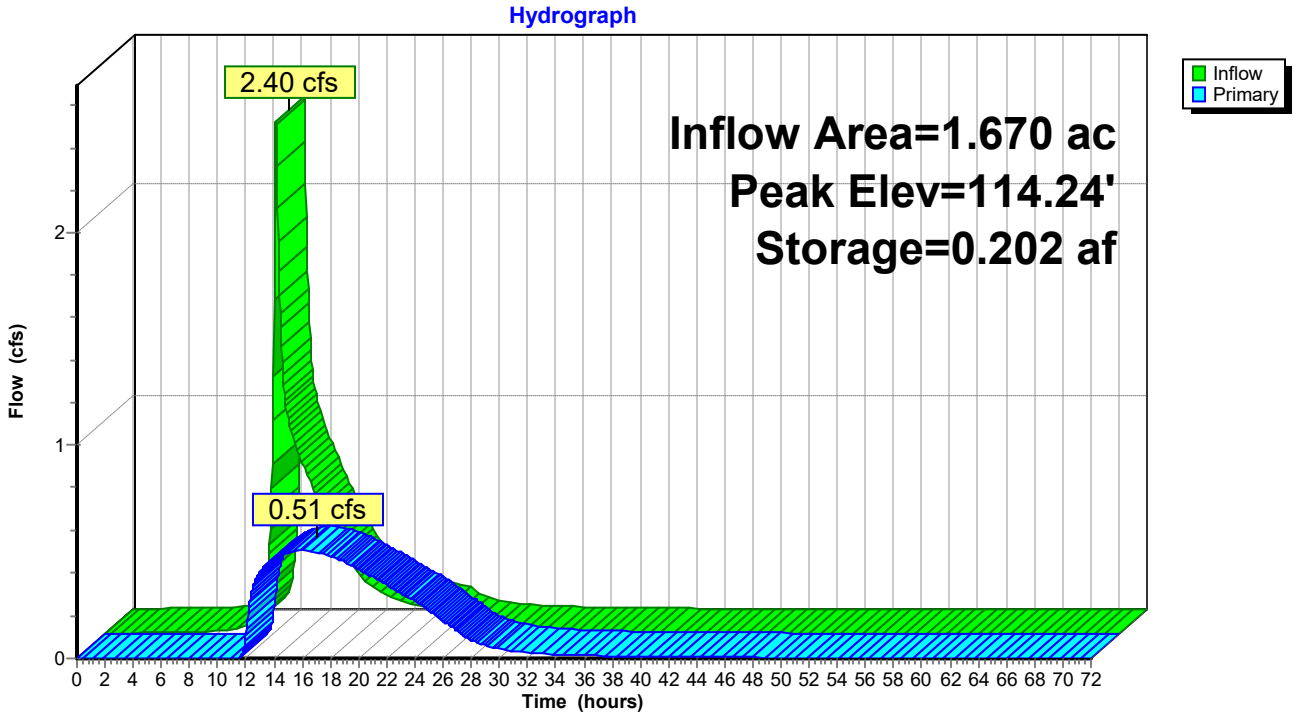
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.51 cfs @ 16.00 hrs HW=114.24' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.51 cfs of 13.87 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.51 cfs @ 5.80 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

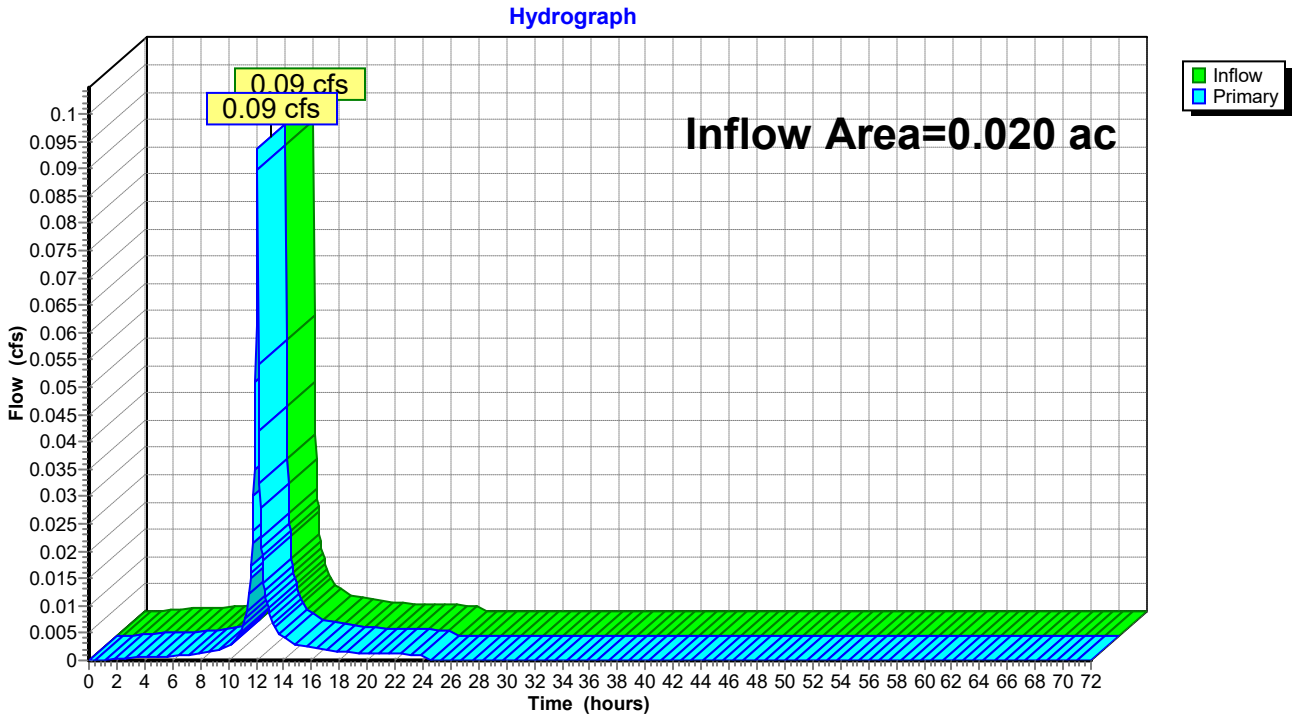
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.00	0.000	112.50	0.00
5.00	0.01	0.002	112.51	0.00
7.50	0.01	0.003	112.53	0.00
10.00	**0.04**	0.008	112.57	0.00
12.50	**1.44**	0.105	113.42	0.34
15.00	0.65	**0.196**	**114.19**	**0.50**
17.50	0.33	**0.191**	**114.15**	**0.49**
20.00	0.18	0.146	113.77	0.42
22.50	0.13	0.101	113.38	0.32
25.00	0.06	0.065	113.07	0.22
27.50	0.03	0.039	112.85	0.10
30.00	0.02	0.029	112.76	0.05
32.50	0.01	0.025	112.72	0.03
35.00	0.01	0.023	112.70	0.02
37.50	0.01	0.021	112.69	0.01
40.00	0.00	0.020	112.68	0.01
42.50	0.00	0.019	112.67	0.01
45.00	0.00	0.019	112.67	0.01
47.50	0.00	0.018	112.66	0.00
50.00	0.00	0.018	112.66	0.00
52.50	0.00	0.017	112.65	0.00
55.00	0.00	0.017	112.65	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.016	112.65	0.00
62.50	0.00	0.016	112.65	0.00
65.00	0.00	0.016	112.64	0.00
67.50	0.00	0.016	112.64	0.00
70.00	0.00	0.016	112.64	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 3.93" for 10-Year event
Inflow = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af
Primary = 0.09 cfs @ 12.08 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

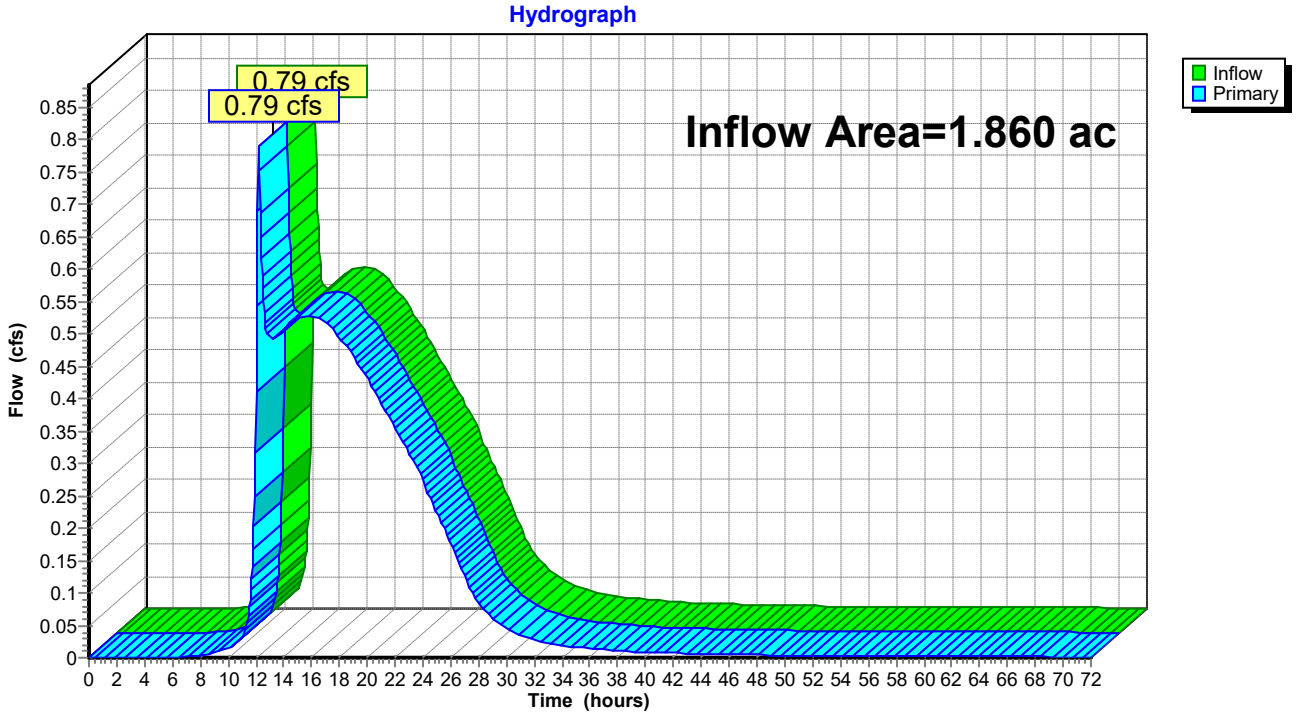
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth > 3.62" for 10-Year event
Inflow = 0.79 cfs @ 12.17 hrs, Volume= 0.560 af
Primary = 0.79 cfs @ 12.17 hrs, Volume= 0.560 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

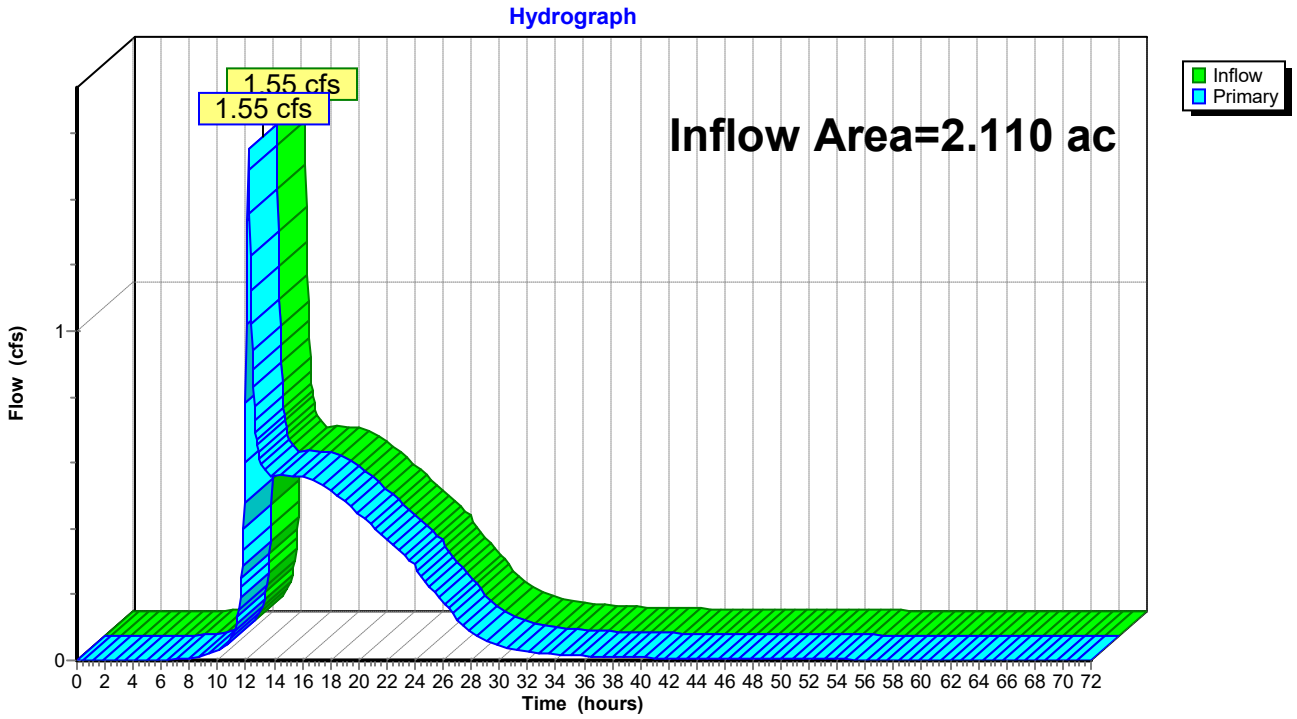
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01
10.00	0.01	0.00	0.01
11.00	0.03	0.00	0.03
12.00	**0.41**	0.00	**0.41**
13.00	**0.49**	0.00	**0.49**
14.00	0.51	0.00	0.51
15.00	0.52	0.00	0.52
16.00	0.53	0.00	0.53
17.00	0.52	0.00	0.52
18.00	0.49	0.00	0.49
19.00	0.46	0.00	0.46
20.00	0.43	0.00	0.43
21.00	0.39	0.00	0.39
22.00	0.35	0.00	0.35
23.00	0.32	0.00	0.32
24.00	0.28	0.00	0.28
25.00	0.22	0.00	0.22
26.00	0.18	0.00	0.18
27.00	0.13	0.00	0.13
28.00	0.09	0.00	0.09
29.00	0.06	0.00	0.06
30.00	0.05	0.00	0.05
31.00	0.04	0.00	0.04
32.00	0.03	0.00	0.03
33.00	0.02	0.00	0.02
34.00	0.02	0.00	0.02
35.00	0.02	0.00	0.02
36.00	0.01	0.00	0.01
37.00	0.01	0.00	0.01
38.00	0.01	0.00	0.01
39.00	0.01	0.00	0.01
40.00	0.01	0.00	0.01
41.00	0.01	0.00	0.01
42.00	0.01	0.00	0.01
43.00	0.01	0.00	0.01
44.00	0.01	0.00	0.01
45.00	0.01	0.00	0.01
46.00	0.00	0.00	0.00
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth > 3.57" for 10-Year event
Inflow = 1.55 cfs @ 12.17 hrs, Volume= 0.627 af
Primary = 1.55 cfs @ 12.17 hrs, Volume= 0.627 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01	60.00	0.00	0.00	0.00
9.00	0.01	0.00	0.01	61.00	0.00	0.00	0.00
10.00	0.03	0.00	0.03	62.00	0.00	0.00	0.00
11.00	0.07	0.00	0.07	63.00	0.00	0.00	0.00
12.00	**0.78**	0.00	**0.78**	64.00	0.00	0.00	0.00
13.00	**0.61**	0.00	**0.61**	65.00	0.00	0.00	0.00
14.00	0.56	0.00	0.56	66.00	0.00	0.00	0.00
15.00	0.56	0.00	0.56	67.00	0.00	0.00	0.00
16.00	0.56	0.00	0.56	68.00	0.00	0.00	0.00
17.00	0.54	0.00	0.54	69.00	0.00	0.00	0.00
18.00	0.51	0.00	0.51	70.00	0.00	0.00	0.00
19.00	0.48	0.00	0.48	71.00	0.00	0.00	0.00
20.00	0.45	0.00	0.45	72.00	0.00	0.00	0.00
21.00	0.41	0.00	0.41				
22.00	0.37	0.00	0.37				
23.00	0.33	0.00	0.33				
24.00	0.29	0.00	0.29				
25.00	0.22	0.00	0.22				
26.00	0.18	0.00	0.18				
27.00	0.13	0.00	0.13				
28.00	0.09	0.00	0.09				
29.00	0.06	0.00	0.06				
30.00	0.05	0.00	0.05				
31.00	0.04	0.00	0.04				
32.00	0.03	0.00	0.03				
33.00	0.02	0.00	0.02				
34.00	0.02	0.00	0.02				
35.00	0.02	0.00	0.02				
36.00	0.01	0.00	0.01				
37.00	0.01	0.00	0.01				
38.00	0.01	0.00	0.01				
39.00	0.01	0.00	0.01				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.01	0.00	0.01				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: PDA #1 PERVIOUS

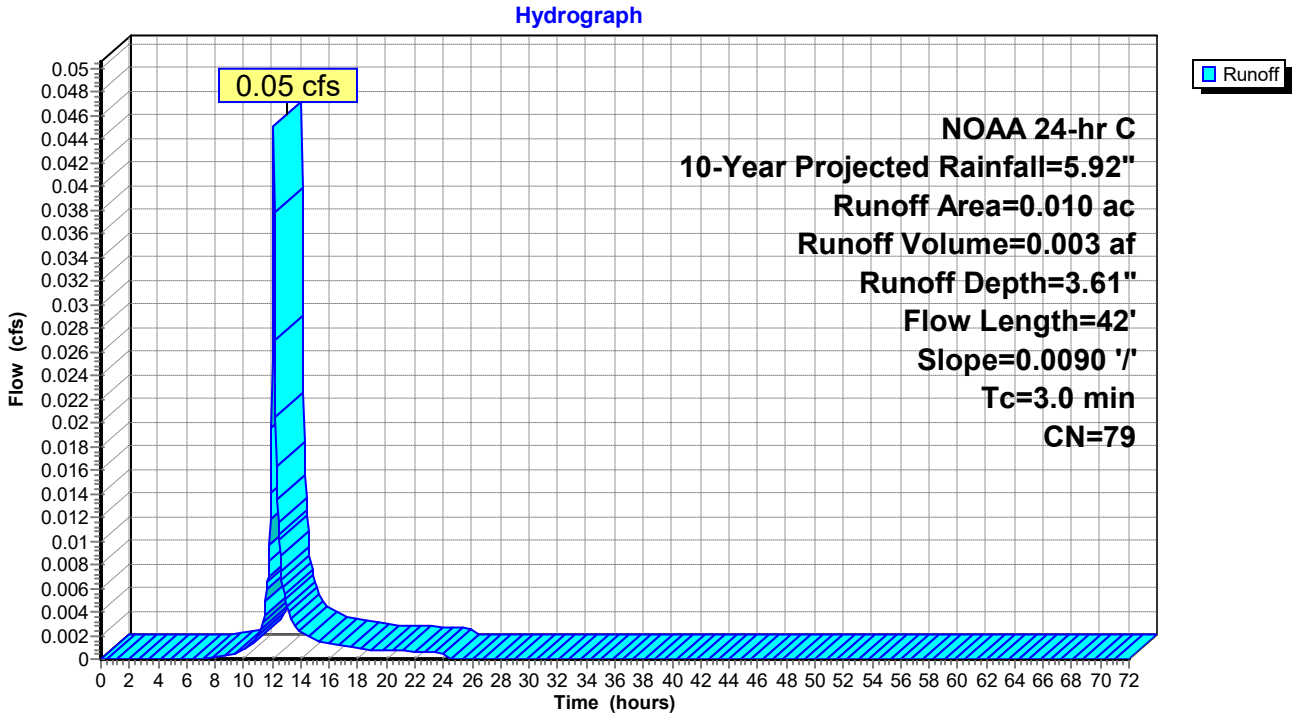
Runoff = 0.05 cfs @ 12.10 hrs, Volume= 0.003 af, Depth= 3.61"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.01	0.00
9.00	0.86	0.04	0.00
10.00	1.08	0.09	0.00
11.00	1.42	0.22	0.00
12.00	2.82	1.06	**0.03**
13.00	4.50	2.38	**0.00**
14.00	4.84	2.66	0.00
15.00	5.06	2.85	0.00
16.00	5.21	2.98	0.00
17.00	5.34	3.10	0.00
18.00	5.45	3.19	0.00
19.00	5.54	3.27	0.00
20.00	5.63	3.35	0.00
21.00	5.71	3.42	0.00
22.00	5.79	3.49	0.00
23.00	5.86	3.55	0.00
24.00	**5.92**	**3.61**	0.00
25.00	5.92	3.61	0.00
26.00	5.92	3.61	0.00
27.00	5.92	3.61	0.00
28.00	5.92	3.61	0.00
29.00	5.92	3.61	0.00
30.00	5.92	3.61	0.00
31.00	5.92	3.61	0.00
32.00	5.92	3.61	0.00
33.00	5.92	3.61	0.00
34.00	5.92	3.61	0.00
35.00	5.92	3.61	0.00
36.00	5.92	3.61	0.00
37.00	5.92	3.61	0.00
38.00	5.92	3.61	0.00
39.00	5.92	3.61	0.00
40.00	5.92	3.61	0.00
41.00	5.92	3.61	0.00
42.00	5.92	3.61	0.00
43.00	5.92	3.61	0.00
44.00	5.92	3.61	0.00
45.00	5.92	3.61	0.00
46.00	5.92	3.61	0.00
47.00	5.92	3.61	0.00
48.00	5.92	3.61	0.00
49.00	5.92	3.61	0.00
50.00	5.92	3.61	0.00
51.00	5.92	3.61	0.00
52.00	5.92	3.61	0.00
53.00	5.92	3.61	0.00
54.00	5.92	3.61	0.00
55.00	5.92	3.61	0.00
56.00	5.92	3.61	0.00
57.00	5.92	3.61	0.00
58.00	5.92	3.61	0.00
59.00	5.92	3.61	0.00
60.00	5.92	3.61	0.00
61.00	5.92	3.61	0.00
62.00	5.92	3.61	0.00
63.00	5.92	3.61	0.00
64.00	5.92	3.61	0.00
65.00	5.92	3.61	0.00
66.00	5.92	3.61	0.00
67.00	5.92	3.61	0.00
68.00	5.92	3.61	0.00
69.00	5.92	3.61	0.00
70.00	5.92	3.61	0.00
71.00	5.92	3.61	0.00
72.00	5.92	3.61	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

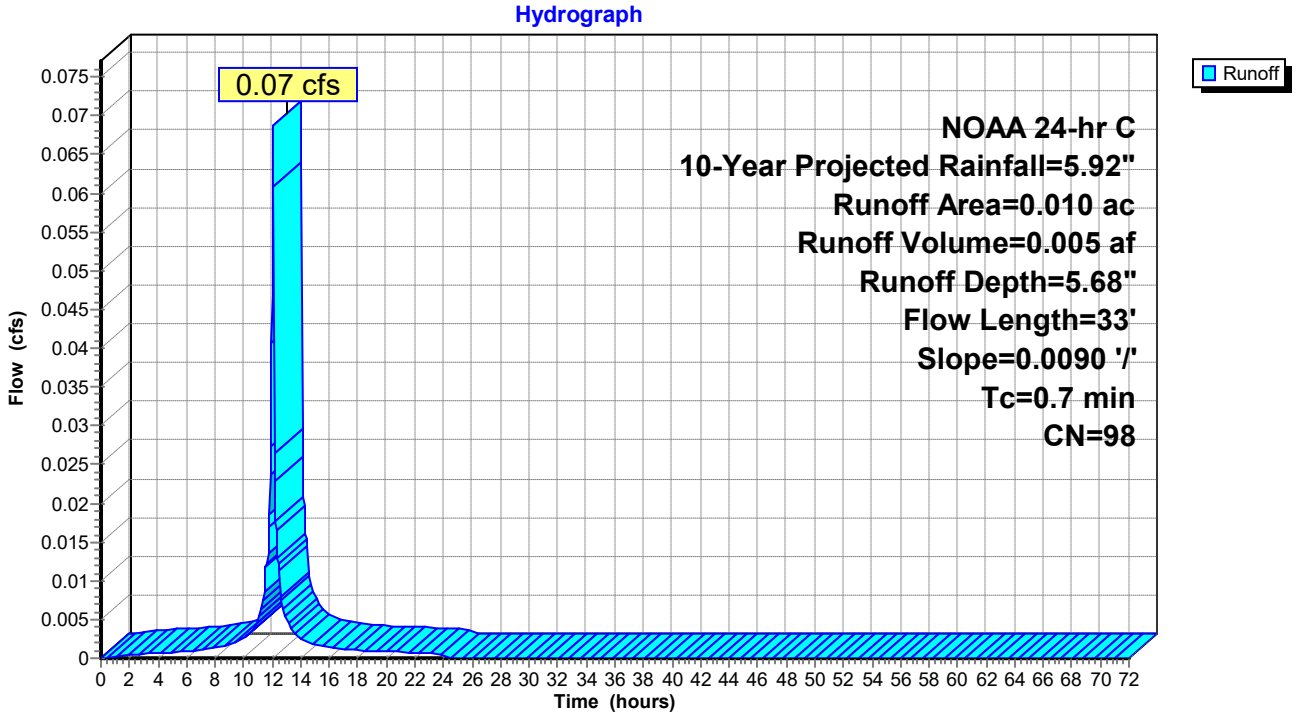
Runoff = 0.07 cfs @ 12.06 hrs, Volume= 0.005 af, Depth= 5.68"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.00
3.00	0.21	0.08	0.00
4.00	0.29	0.14	0.00
5.00	0.38	0.21	0.00
6.00	0.47	0.29	0.00
7.00	0.58	0.39	0.00
8.00	0.71	0.51	0.00
9.00	0.86	0.66	0.00
10.00	1.08	0.87	0.00
11.00	1.42	1.20	0.00
12.00	2.82	2.59	**0.05**
13.00	4.50	4.26	**0.01**
14.00	4.84	4.60	0.00
15.00	5.06	4.82	0.00
16.00	5.21	4.97	0.00
17.00	5.34	5.11	0.00
18.00	5.45	5.21	0.00
19.00	5.54	5.31	0.00
20.00	5.63	5.39	0.00
21.00	5.71	5.47	0.00
22.00	5.79	5.55	0.00
23.00	5.86	5.62	0.00
24.00	**5.92**	**5.68**	0.00
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

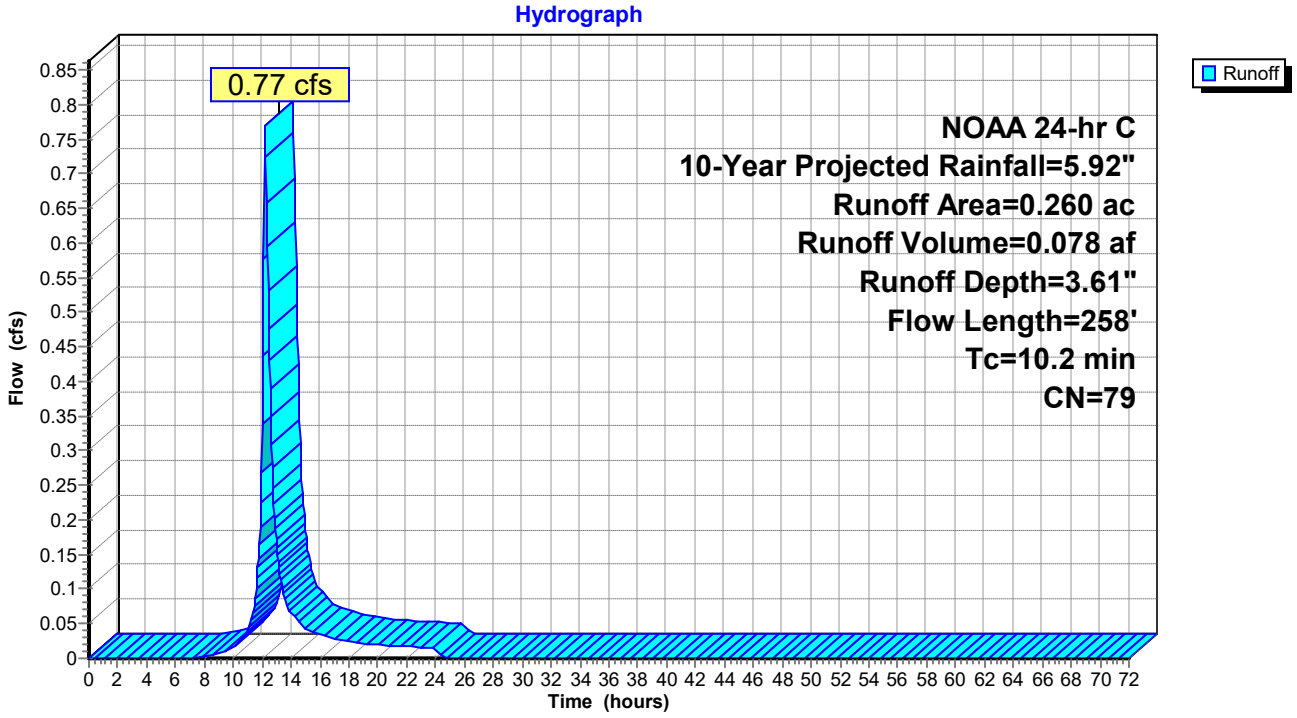
Runoff = 0.77 cfs @ 12.20 hrs, Volume= 0.078 af, Depth= 3.61"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.01	0.00
9.00	0.86	0.04	0.01
10.00	1.08	0.09	0.02
11.00	1.42	0.22	0.04
12.00	2.82	1.06	**0.34**
13.00	4.50	2.38	**0.16**
14.00	4.84	2.66	0.06
15.00	5.06	2.85	0.04
16.00	5.21	2.98	0.03
17.00	5.34	3.10	0.03
18.00	5.45	3.19	0.02
19.00	5.54	3.27	0.02
20.00	5.63	3.35	0.02
21.00	5.71	3.42	0.02
22.00	5.79	3.49	0.02
23.00	5.86	3.55	0.02
24.00	**5.92**	**3.61**	0.01
25.00	5.92	3.61	0.00
26.00	5.92	3.61	0.00
27.00	5.92	3.61	0.00
28.00	5.92	3.61	0.00
29.00	5.92	3.61	0.00
30.00	5.92	3.61	0.00
31.00	5.92	3.61	0.00
32.00	5.92	3.61	0.00
33.00	5.92	3.61	0.00
34.00	5.92	3.61	0.00
35.00	5.92	3.61	0.00
36.00	5.92	3.61	0.00
37.00	5.92	3.61	0.00
38.00	5.92	3.61	0.00
39.00	5.92	3.61	0.00
40.00	5.92	3.61	0.00
41.00	5.92	3.61	0.00
42.00	5.92	3.61	0.00
43.00	5.92	3.61	0.00
44.00	5.92	3.61	0.00
45.00	5.92	3.61	0.00
46.00	5.92	3.61	0.00
47.00	5.92	3.61	0.00
48.00	5.92	3.61	0.00
49.00	5.92	3.61	0.00
50.00	5.92	3.61	0.00
51.00	5.92	3.61	0.00
52.00	5.92	3.61	0.00
53.00	5.92	3.61	0.00
54.00	5.92	3.61	0.00
55.00	5.92	3.61	0.00
56.00	5.92	3.61	0.00
57.00	5.92	3.61	0.00
58.00	5.92	3.61	0.00
59.00	5.92	3.61	0.00
60.00	5.92	3.61	0.00
61.00	5.92	3.61	0.00
62.00	5.92	3.61	0.00
63.00	5.92	3.61	0.00
64.00	5.92	3.61	0.00
65.00	5.92	3.61	0.00
66.00	5.92	3.61	0.00
67.00	5.92	3.61	0.00
68.00	5.92	3.61	0.00
69.00	5.92	3.61	0.00
70.00	5.92	3.61	0.00
71.00	5.92	3.61	0.00
72.00	5.92	3.61	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

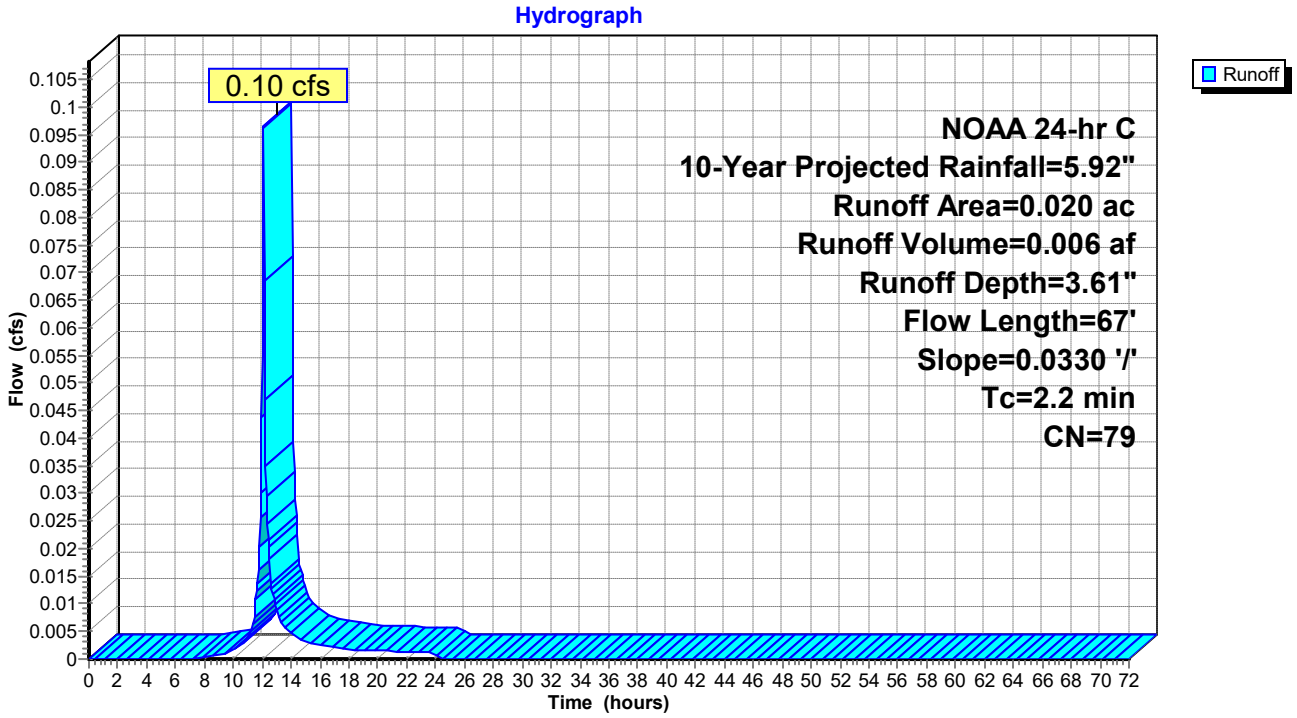
Runoff = 0.10 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 3.61"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.01	0.00
9.00	0.86	0.04	0.00
10.00	1.08	0.09	0.00
11.00	1.42	0.22	0.00
12.00	2.82	1.06	**0.05**
13.00	4.50	2.38	**0.01**
14.00	4.84	2.66	0.00
15.00	5.06	2.85	0.00
16.00	5.21	2.98	0.00
17.00	5.34	3.10	0.00
18.00	5.45	3.19	0.00
19.00	5.54	3.27	0.00
20.00	5.63	3.35	0.00
21.00	5.71	3.42	0.00
22.00	5.79	3.49	0.00
23.00	5.86	3.55	0.00
24.00	**5.92**	**3.61**	0.00
25.00	5.92	3.61	0.00
26.00	5.92	3.61	0.00
27.00	5.92	3.61	0.00
28.00	5.92	3.61	0.00
29.00	5.92	3.61	0.00
30.00	5.92	3.61	0.00
31.00	5.92	3.61	0.00
32.00	5.92	3.61	0.00
33.00	5.92	3.61	0.00
34.00	5.92	3.61	0.00
35.00	5.92	3.61	0.00
36.00	5.92	3.61	0.00
37.00	5.92	3.61	0.00
38.00	5.92	3.61	0.00
39.00	5.92	3.61	0.00
40.00	5.92	3.61	0.00
41.00	5.92	3.61	0.00
42.00	5.92	3.61	0.00
43.00	5.92	3.61	0.00
44.00	5.92	3.61	0.00
45.00	5.92	3.61	0.00
46.00	5.92	3.61	0.00
47.00	5.92	3.61	0.00
48.00	5.92	3.61	0.00
49.00	5.92	3.61	0.00
50.00	5.92	3.61	0.00
51.00	5.92	3.61	0.00
52.00	5.92	3.61	0.00
53.00	5.92	3.61	0.00
54.00	5.92	3.61	0.00
55.00	5.92	3.61	0.00
56.00	5.92	3.61	0.00
57.00	5.92	3.61	0.00
58.00	5.92	3.61	0.00
59.00	5.92	3.61	0.00
60.00	5.92	3.61	0.00
61.00	5.92	3.61	0.00
62.00	5.92	3.61	0.00
63.00	5.92	3.61	0.00
64.00	5.92	3.61	0.00
65.00	5.92	3.61	0.00
66.00	5.92	3.61	0.00
67.00	5.92	3.61	0.00
68.00	5.92	3.61	0.00
69.00	5.92	3.61	0.00
70.00	5.92	3.61	0.00
71.00	5.92	3.61	0.00
72.00	5.92	3.61	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

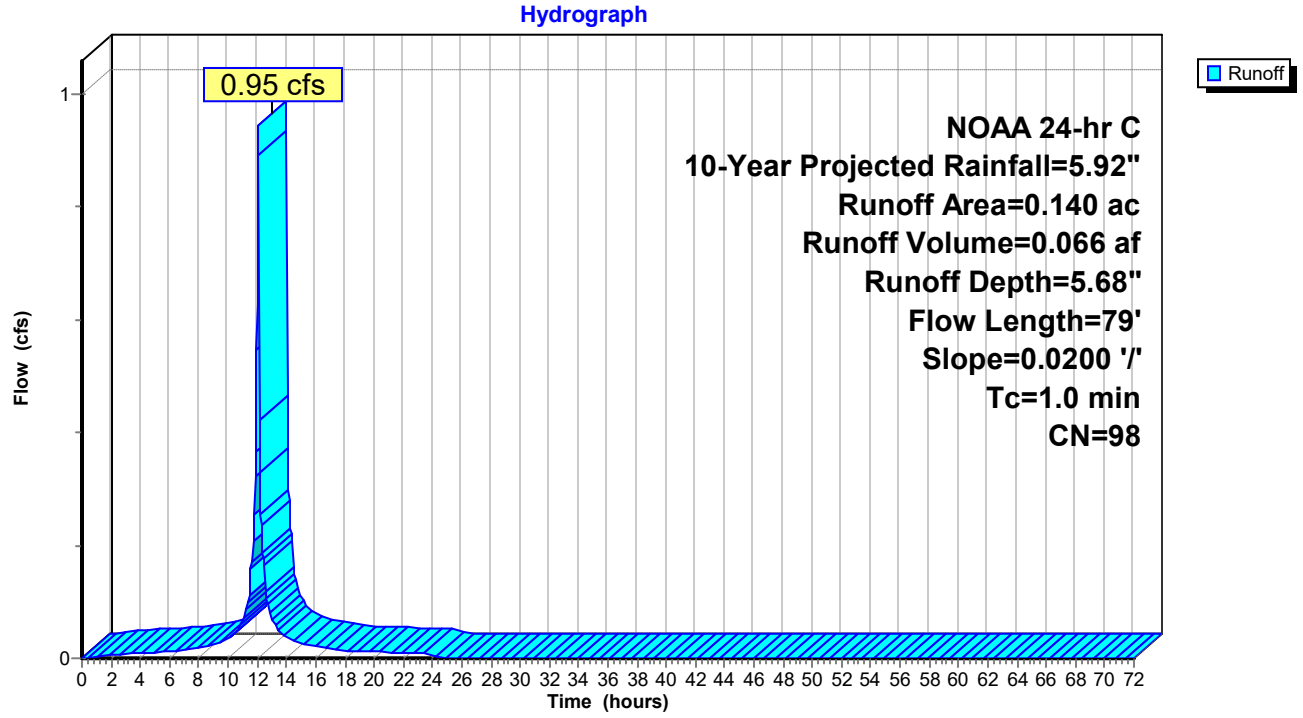
Runoff = 0.95 cfs @ 12.07 hrs, Volume= 0.066 af, Depth= 5.68"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.01
3.00	0.21	0.08	0.01
4.00	0.29	0.14	0.01
5.00	0.38	0.21	0.01
6.00	0.47	0.29	0.01
7.00	0.58	0.39	0.02
8.00	0.71	0.51	0.02
9.00	0.86	0.66	0.02
10.00	1.08	0.87	0.04
11.00	1.42	1.20	0.07
12.00	2.82	2.59	**0.63**
13.00	4.50	4.26	**0.07**
14.00	4.84	4.60	0.04
15.00	5.06	4.82	0.02
16.00	5.21	4.97	0.02
17.00	5.34	5.11	0.02
18.00	5.45	5.21	0.01
19.00	5.54	5.31	0.01
20.00	5.63	5.39	0.01
21.00	5.71	5.47	0.01
22.00	5.79	5.55	0.01
23.00	5.86	5.62	0.01
24.00	**5.92**	**5.68**	0.01
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

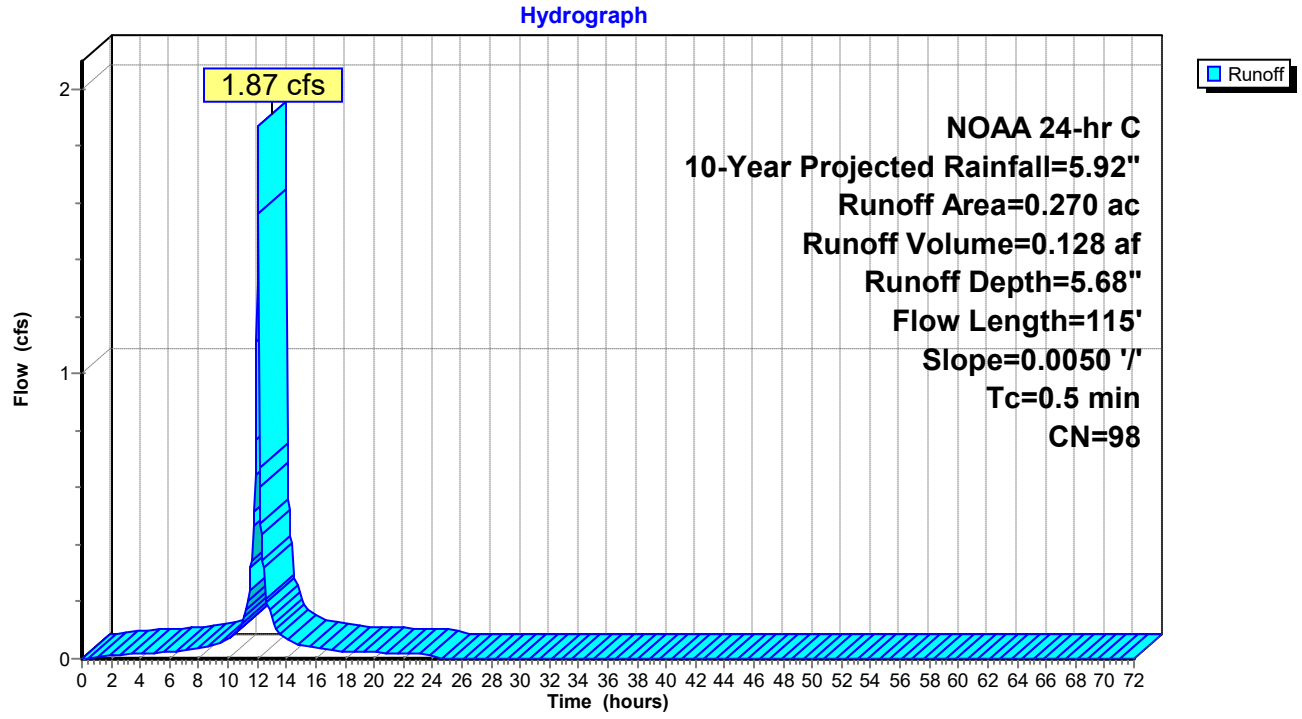
Runoff = 1.87 cfs @ 12.06 hrs, Volume= 0.128 af, Depth= 5.68"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.01
3.00	0.21	0.08	0.01
4.00	0.29	0.14	0.02
5.00	0.38	0.21	0.02
6.00	0.47	0.29	0.02
7.00	0.58	0.39	0.03
8.00	0.71	0.51	0.04
9.00	0.86	0.66	0.04
10.00	1.08	0.87	0.07
11.00	1.42	1.20	0.13
12.00	2.82	2.59	**1.32**
13.00	4.50	4.26	**0.14**
14.00	4.84	4.60	0.07
15.00	5.06	4.82	0.05
16.00	5.21	4.97	0.04
17.00	5.34	5.11	0.03
18.00	5.45	5.21	0.03
19.00	5.54	5.31	0.02
20.00	5.63	5.39	0.02
21.00	5.71	5.47	0.02
22.00	5.79	5.55	0.02
23.00	5.86	5.62	0.02
24.00	**5.92**	**5.68**	0.02
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

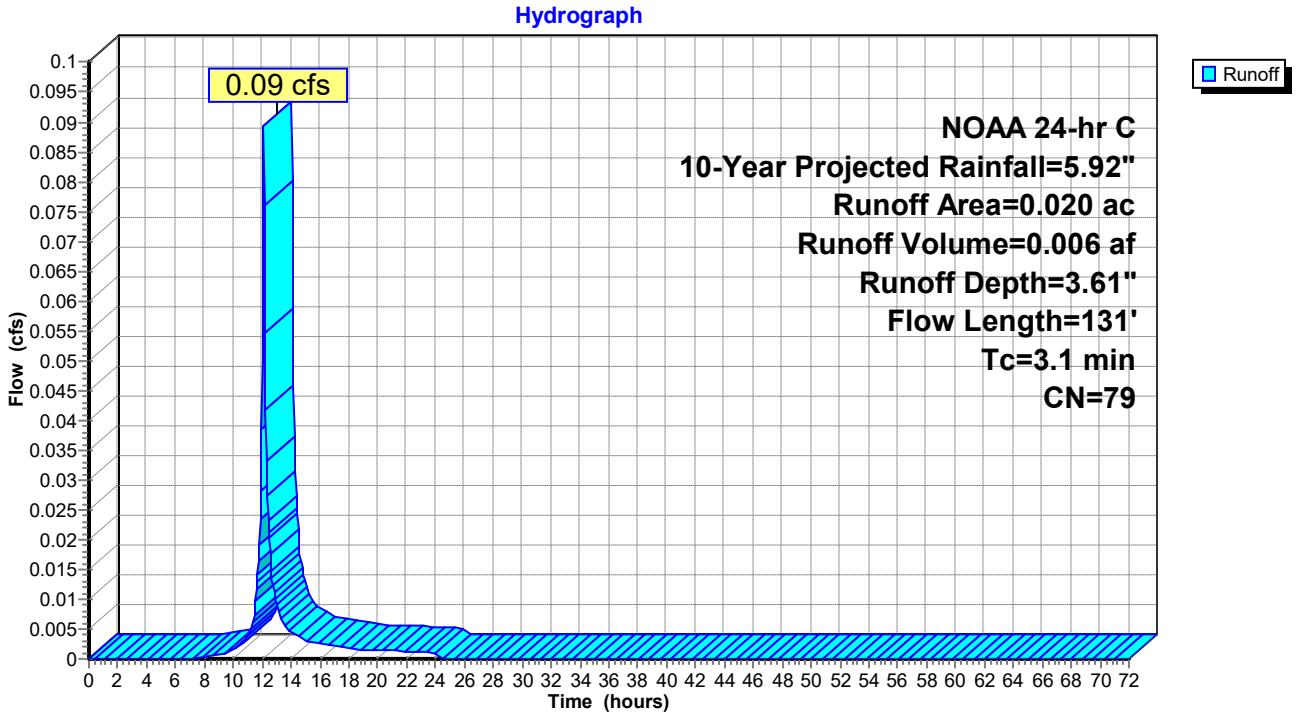
Runoff = 0.09 cfs @ 12.10 hrs, Volume= 0.006 af, Depth= 3.61"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.00	0.00
8.00	0.71	0.01	0.00
9.00	0.86	0.04	0.00
10.00	1.08	0.09	0.00
11.00	1.42	0.22	0.00
12.00	2.82	1.06	**0.05**
13.00	4.50	2.38	**0.01**
14.00	4.84	2.66	0.00
15.00	5.06	2.85	0.00
16.00	5.21	2.98	0.00
17.00	5.34	3.10	0.00
18.00	5.45	3.19	0.00
19.00	5.54	3.27	0.00
20.00	5.63	3.35	0.00
21.00	5.71	3.42	0.00
22.00	5.79	3.49	0.00
23.00	5.86	3.55	0.00
24.00	**5.92**	**3.61**	0.00
25.00	5.92	3.61	0.00
26.00	5.92	3.61	0.00
27.00	5.92	3.61	0.00
28.00	5.92	3.61	0.00
29.00	5.92	3.61	0.00
30.00	5.92	3.61	0.00
31.00	5.92	3.61	0.00
32.00	5.92	3.61	0.00
33.00	5.92	3.61	0.00
34.00	5.92	3.61	0.00
35.00	5.92	3.61	0.00
36.00	5.92	3.61	0.00
37.00	5.92	3.61	0.00
38.00	5.92	3.61	0.00
39.00	5.92	3.61	0.00
40.00	5.92	3.61	0.00
41.00	5.92	3.61	0.00
42.00	5.92	3.61	0.00
43.00	5.92	3.61	0.00
44.00	5.92	3.61	0.00
45.00	5.92	3.61	0.00
46.00	5.92	3.61	0.00
47.00	5.92	3.61	0.00
48.00	5.92	3.61	0.00
49.00	5.92	3.61	0.00
50.00	5.92	3.61	0.00
51.00	5.92	3.61	0.00
52.00	5.92	3.61	0.00
53.00	5.92	3.61	0.00
54.00	5.92	3.61	0.00
55.00	5.92	3.61	0.00
56.00	5.92	3.61	0.00
57.00	5.92	3.61	0.00
58.00	5.92	3.61	0.00
59.00	5.92	3.61	0.00
60.00	5.92	3.61	0.00
61.00	5.92	3.61	0.00
62.00	5.92	3.61	0.00
63.00	5.92	3.61	0.00
64.00	5.92	3.61	0.00
65.00	5.92	3.61	0.00
66.00	5.92	3.61	0.00
67.00	5.92	3.61	0.00
68.00	5.92	3.61	0.00
69.00	5.92	3.61	0.00
70.00	5.92	3.61	0.00
71.00	5.92	3.61	0.00
72.00	5.92	3.61	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

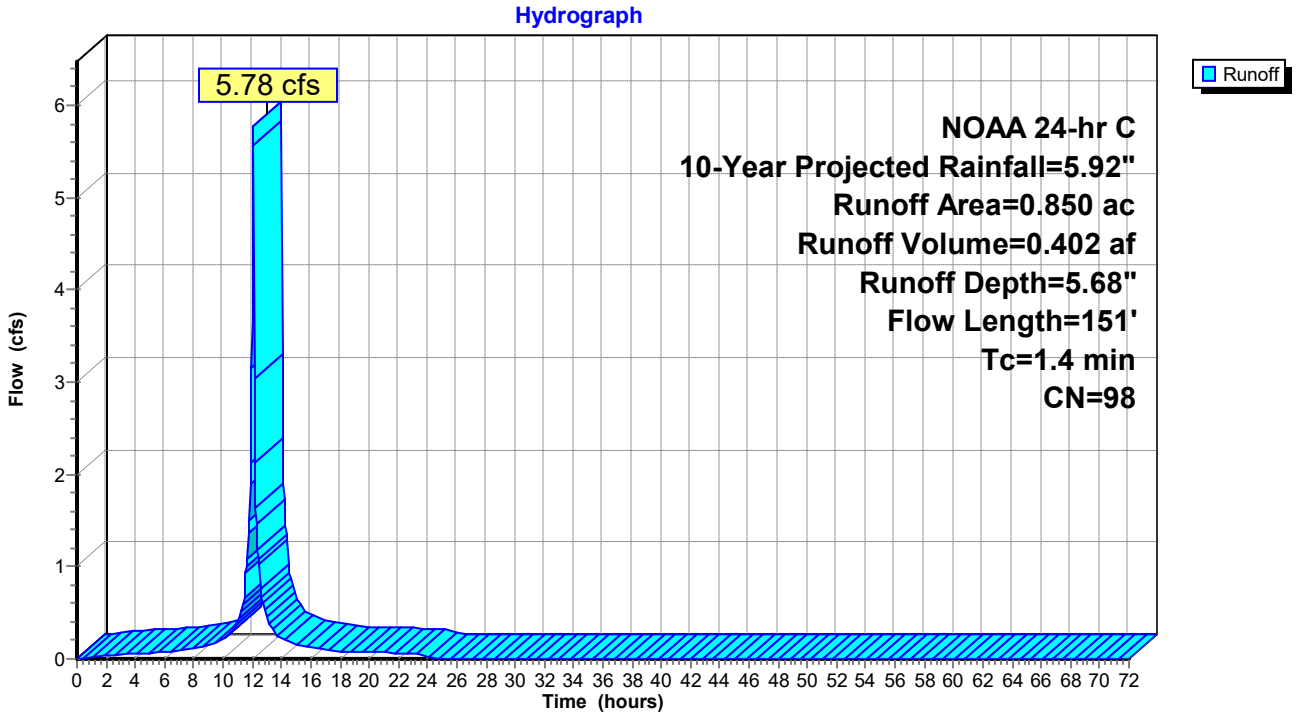
Runoff = 5.78 cfs @ 12.08 hrs, Volume= 0.402 af, Depth= 5.68"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.01
2.00	0.13	0.03	0.03
3.00	0.21	0.08	0.05
4.00	0.29	0.14	0.06
5.00	0.38	0.21	0.07
6.00	0.47	0.29	0.07
7.00	0.58	0.39	0.09
8.00	0.71	0.51	0.12
9.00	0.86	0.66	0.14
10.00	1.08	0.87	0.21
11.00	1.42	1.20	0.40
12.00	2.82	2.59	**3.66**
13.00	4.50	4.26	**0.45**
14.00	4.84	4.60	0.23
15.00	5.06	4.82	0.15
16.00	5.21	4.97	0.12
17.00	5.34	5.11	0.10
18.00	5.45	5.21	0.08
19.00	5.54	5.31	0.08
20.00	5.63	5.39	0.07
21.00	5.71	5.47	0.07
22.00	5.79	5.55	0.06
23.00	5.86	5.62	0.06
24.00	**5.92**	**5.68**	0.06
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
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59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

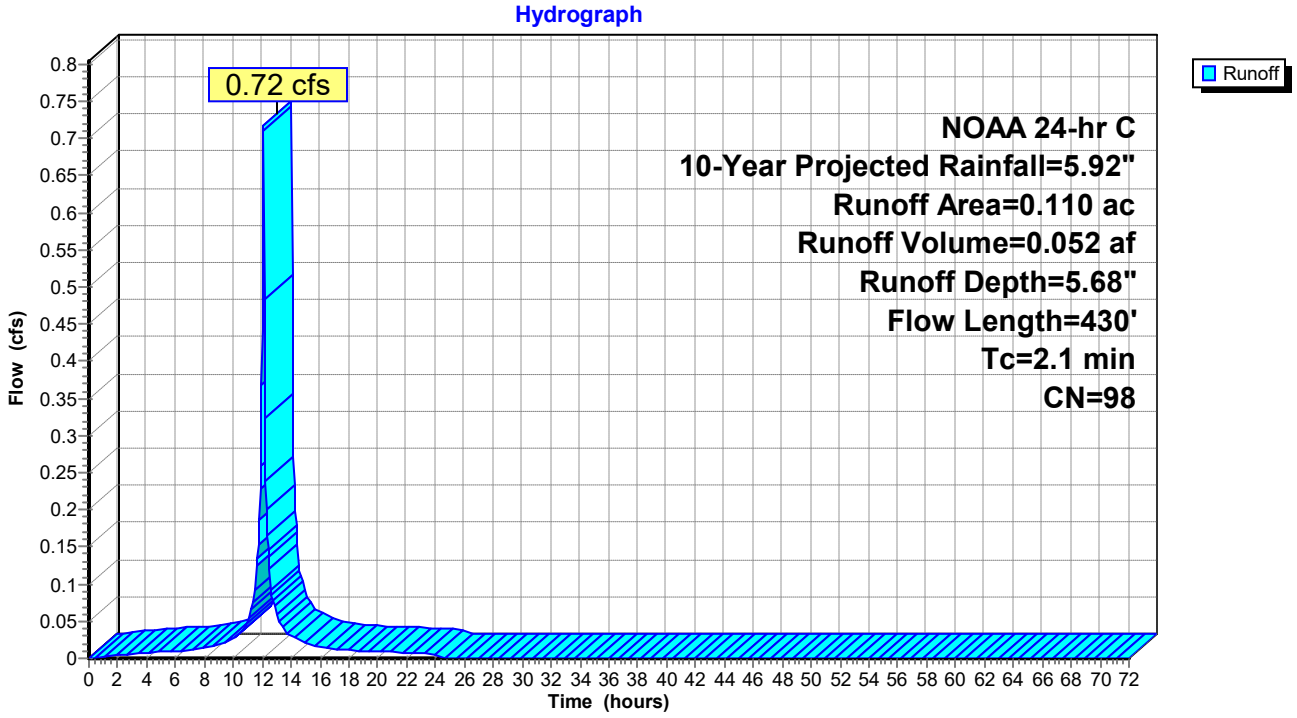
Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.052 af, Depth= 5.68"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.00
3.00	0.21	0.08	0.01
4.00	0.29	0.14	0.01
5.00	0.38	0.21	0.01
6.00	0.47	0.29	0.01
7.00	0.58	0.39	0.01
8.00	0.71	0.51	0.01
9.00	0.86	0.66	0.02
10.00	1.08	0.87	0.03
11.00	1.42	1.20	0.05
12.00	2.82	2.59	**0.44**
13.00	4.50	4.26	**0.06**
14.00	4.84	4.60	0.03
15.00	5.06	4.82	0.02
16.00	5.21	4.97	0.02
17.00	5.34	5.11	0.01
18.00	5.45	5.21	0.01
19.00	5.54	5.31	0.01
20.00	5.63	5.39	0.01
21.00	5.71	5.47	0.01
22.00	5.79	5.55	0.01
23.00	5.86	5.62	0.01
24.00	**5.92**	**5.68**	0.01
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

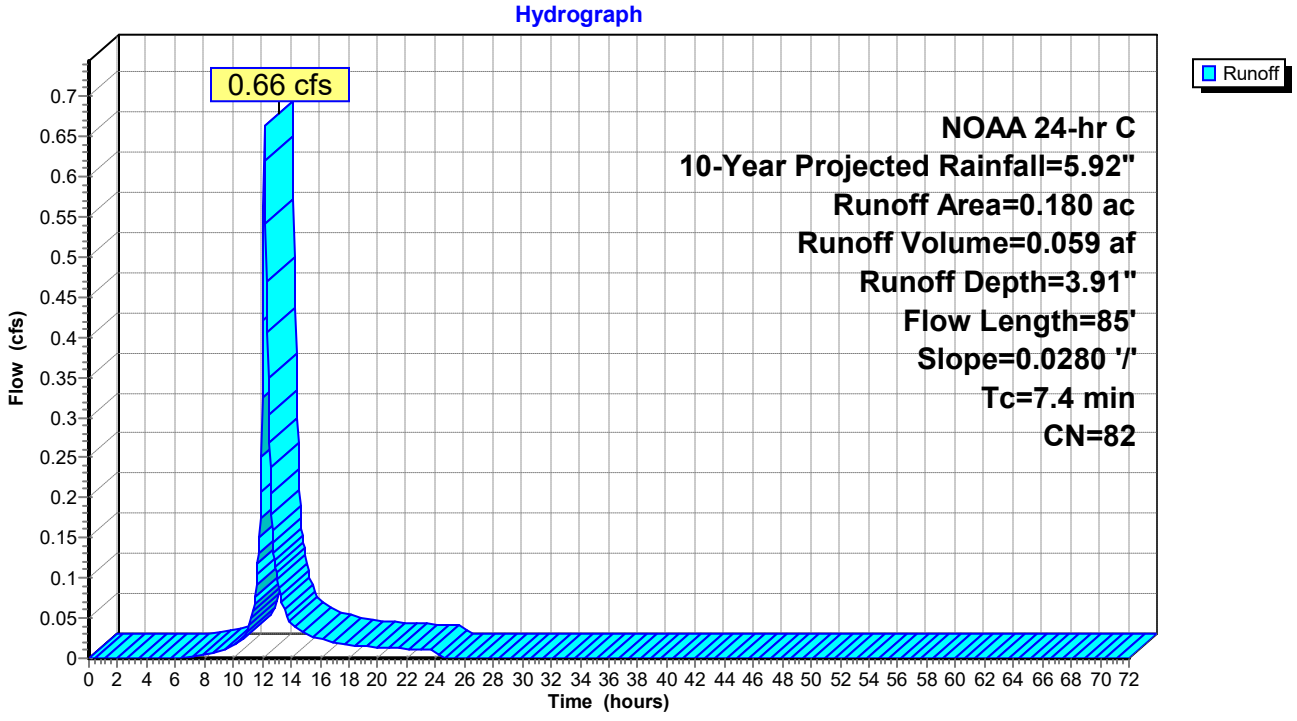
Runoff = 0.66 cfs @ 12.16 hrs, Volume= 0.059 af, Depth= 3.91"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.01	0.00
8.00	0.71	0.03	0.00
9.00	0.86	0.07	0.01
10.00	1.08	0.14	0.02
11.00	1.42	0.30	0.04
12.00	2.82	1.24	**0.33**
13.00	4.50	2.64	**0.10**
14.00	4.84	2.94	0.04
15.00	5.06	3.13	0.03
16.00	5.21	3.27	0.02
17.00	5.34	3.39	0.02
18.00	5.45	3.49	0.02
19.00	5.54	3.57	0.01
20.00	5.63	3.65	0.01
21.00	5.71	3.72	0.01
22.00	5.79	3.79	0.01
23.00	5.86	3.85	0.01
24.00	**5.92**	**3.91**	0.01
25.00	5.92	3.91	0.00
26.00	5.92	3.91	0.00
27.00	5.92	3.91	0.00
28.00	5.92	3.91	0.00
29.00	5.92	3.91	0.00
30.00	5.92	3.91	0.00
31.00	5.92	3.91	0.00
32.00	5.92	3.91	0.00
33.00	5.92	3.91	0.00
34.00	5.92	3.91	0.00
35.00	5.92	3.91	0.00
36.00	5.92	3.91	0.00
37.00	5.92	3.91	0.00
38.00	5.92	3.91	0.00
39.00	5.92	3.91	0.00
40.00	5.92	3.91	0.00
41.00	5.92	3.91	0.00
42.00	5.92	3.91	0.00
43.00	5.92	3.91	0.00
44.00	5.92	3.91	0.00
45.00	5.92	3.91	0.00
46.00	5.92	3.91	0.00
47.00	5.92	3.91	0.00
48.00	5.92	3.91	0.00
49.00	5.92	3.91	0.00
50.00	5.92	3.91	0.00
51.00	5.92	3.91	0.00
52.00	5.92	3.91	0.00
53.00	5.92	3.91	0.00
54.00	5.92	3.91	0.00
55.00	5.92	3.91	0.00
56.00	5.92	3.91	0.00
57.00	5.92	3.91	0.00
58.00	5.92	3.91	0.00
59.00	5.92	3.91	0.00
60.00	5.92	3.91	0.00
61.00	5.92	3.91	0.00
62.00	5.92	3.91	0.00
63.00	5.92	3.91	0.00
64.00	5.92	3.91	0.00
65.00	5.92	3.91	0.00
66.00	5.92	3.91	0.00
67.00	5.92	3.91	0.00
68.00	5.92	3.91	0.00
69.00	5.92	3.91	0.00
70.00	5.92	3.91	0.00
71.00	5.92	3.91	0.00
72.00	5.92	3.91	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

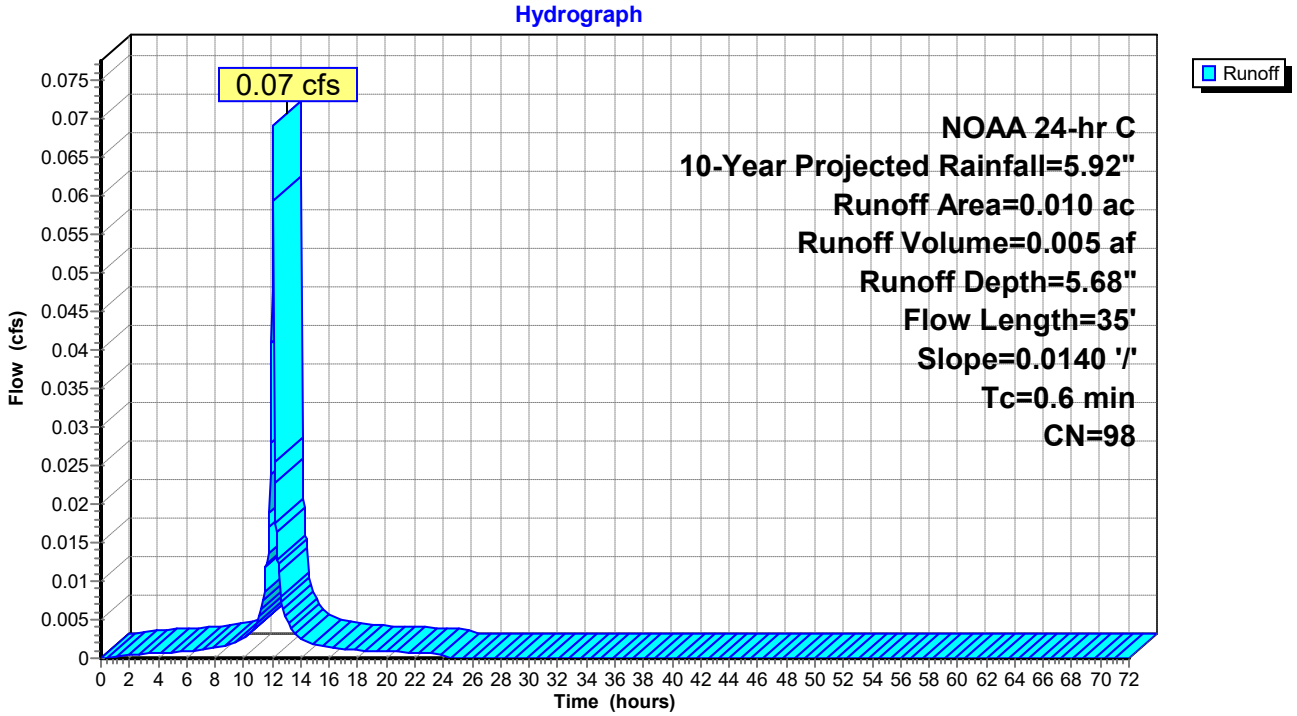
Runoff = 0.07 cfs @ 12.06 hrs, Volume= 0.005 af, Depth= 5.68"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.03	0.00
3.00	0.21	0.08	0.00
4.00	0.29	0.14	0.00
5.00	0.38	0.21	0.00
6.00	0.47	0.29	0.00
7.00	0.58	0.39	0.00
8.00	0.71	0.51	0.00
9.00	0.86	0.66	0.00
10.00	1.08	0.87	0.00
11.00	1.42	1.20	0.00
12.00	2.82	2.59	**0.05**
13.00	4.50	4.26	**0.01**
14.00	4.84	4.60	0.00
15.00	5.06	4.82	0.00
16.00	5.21	4.97	0.00
17.00	5.34	5.11	0.00
18.00	5.45	5.21	0.00
19.00	5.54	5.31	0.00
20.00	5.63	5.39	0.00
21.00	5.71	5.47	0.00
22.00	5.79	5.55	0.00
23.00	5.86	5.62	0.00
24.00	**5.92**	**5.68**	0.00
25.00	5.92	5.68	0.00
26.00	5.92	5.68	0.00
27.00	5.92	5.68	0.00
28.00	5.92	5.68	0.00
29.00	5.92	5.68	0.00
30.00	5.92	5.68	0.00
31.00	5.92	5.68	0.00
32.00	5.92	5.68	0.00
33.00	5.92	5.68	0.00
34.00	5.92	5.68	0.00
35.00	5.92	5.68	0.00
36.00	5.92	5.68	0.00
37.00	5.92	5.68	0.00
38.00	5.92	5.68	0.00
39.00	5.92	5.68	0.00
40.00	5.92	5.68	0.00
41.00	5.92	5.68	0.00
42.00	5.92	5.68	0.00
43.00	5.92	5.68	0.00
44.00	5.92	5.68	0.00
45.00	5.92	5.68	0.00
46.00	5.92	5.68	0.00
47.00	5.92	5.68	0.00
48.00	5.92	5.68	0.00
49.00	5.92	5.68	0.00
50.00	5.92	5.68	0.00
51.00	5.92	5.68	0.00
52.00	5.92	5.68	0.00
53.00	5.92	5.68	0.00
54.00	5.92	5.68	0.00
55.00	5.92	5.68	0.00
56.00	5.92	5.68	0.00
57.00	5.92	5.68	0.00
58.00	5.92	5.68	0.00
59.00	5.92	5.68	0.00
60.00	5.92	5.68	0.00
61.00	5.92	5.68	0.00
62.00	5.92	5.68	0.00
63.00	5.92	5.68	0.00
64.00	5.92	5.68	0.00
65.00	5.92	5.68	0.00
66.00	5.92	5.68	0.00
67.00	5.92	5.68	0.00
68.00	5.92	5.68	0.00
69.00	5.92	5.68	0.00
70.00	5.92	5.68	0.00
71.00	5.92	5.68	0.00
72.00	5.92	5.68	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

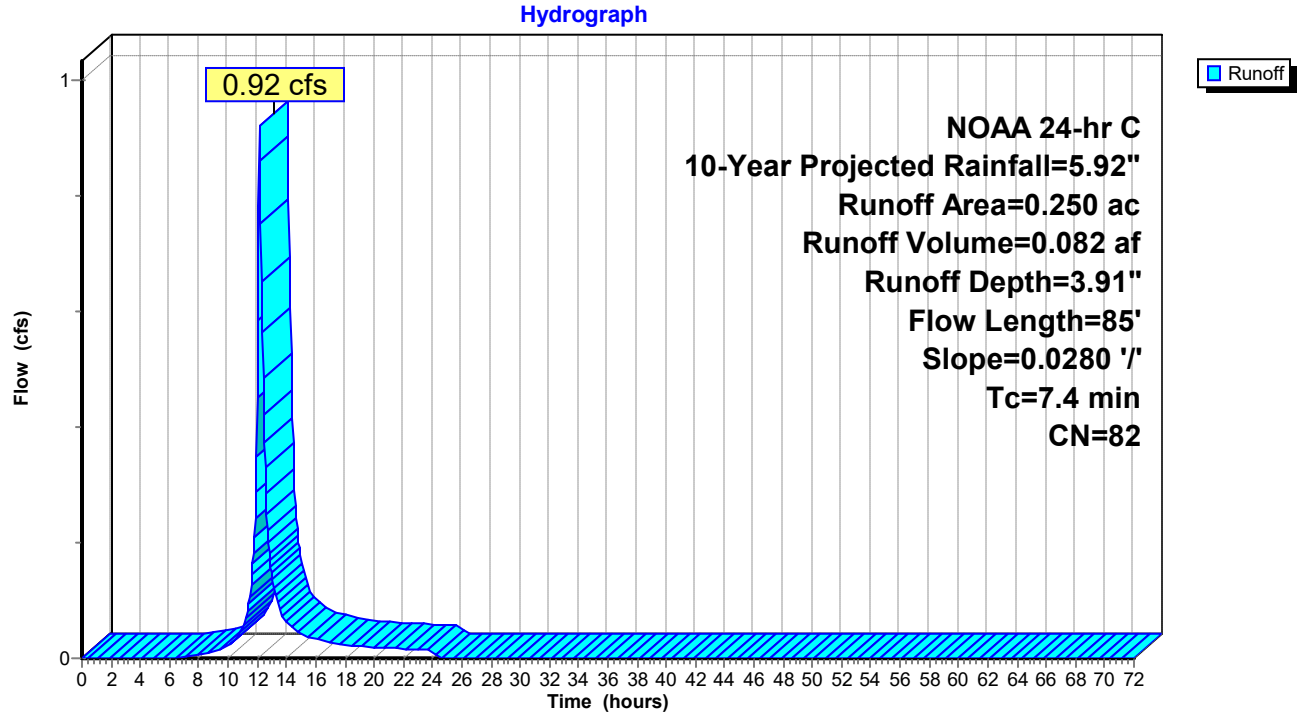
Runoff = 0.92 cfs @ 12.16 hrs, Volume= 0.082 af, Depth= 3.91"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 10-Year Projected Rainfall=5.92"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.06	0.00	0.00
2.00	0.13	0.00	0.00
3.00	0.21	0.00	0.00
4.00	0.29	0.00	0.00
5.00	0.38	0.00	0.00
6.00	0.47	0.00	0.00
7.00	0.58	0.01	0.00
8.00	0.71	0.03	0.01
9.00	0.86	0.07	0.01
10.00	1.08	0.14	0.02
11.00	1.42	0.30	0.05
12.00	2.82	1.24	**0.45**
13.00	4.50	2.64	**0.14**
14.00	4.84	2.94	0.06
15.00	5.06	3.13	0.04
16.00	5.21	3.27	0.03
17.00	5.34	3.39	0.03
18.00	5.45	3.49	0.02
19.00	5.54	3.57	0.02
20.00	5.63	3.65	0.02
21.00	5.71	3.72	0.02
22.00	5.79	3.79	0.02
23.00	5.86	3.85	0.02
24.00	**5.92**	**3.91**	0.02
25.00	5.92	3.91	0.00
26.00	5.92	3.91	0.00
27.00	5.92	3.91	0.00
28.00	5.92	3.91	0.00
29.00	5.92	3.91	0.00
30.00	5.92	3.91	0.00
31.00	5.92	3.91	0.00
32.00	5.92	3.91	0.00
33.00	5.92	3.91	0.00
34.00	5.92	3.91	0.00
35.00	5.92	3.91	0.00
36.00	5.92	3.91	0.00
37.00	5.92	3.91	0.00
38.00	5.92	3.91	0.00
39.00	5.92	3.91	0.00
40.00	5.92	3.91	0.00
41.00	5.92	3.91	0.00
42.00	5.92	3.91	0.00
43.00	5.92	3.91	0.00
44.00	5.92	3.91	0.00
45.00	5.92	3.91	0.00
46.00	5.92	3.91	0.00
47.00	5.92	3.91	0.00
48.00	5.92	3.91	0.00
49.00	5.92	3.91	0.00
50.00	5.92	3.91	0.00
51.00	5.92	3.91	0.00
52.00	5.92	3.91	0.00
53.00	5.92	3.91	0.00
54.00	5.92	3.91	0.00
55.00	5.92	3.91	0.00
56.00	5.92	3.91	0.00
57.00	5.92	3.91	0.00
58.00	5.92	3.91	0.00
59.00	5.92	3.91	0.00
60.00	5.92	3.91	0.00
61.00	5.92	3.91	0.00
62.00	5.92	3.91	0.00
63.00	5.92	3.91	0.00
64.00	5.92	3.91	0.00
65.00	5.92	3.91	0.00
66.00	5.92	3.91	0.00
67.00	5.92	3.91	0.00
68.00	5.92	3.91	0.00
69.00	5.92	3.91	0.00
70.00	5.92	3.91	0.00
71.00	5.92	3.91	0.00
72.00	5.92	3.91	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 5.42" for 10-Year Projected event
Inflow = 1.03 cfs @ 12.07 hrs, Volume= 0.072 af
Outflow = 0.12 cfs @ 12.62 hrs, Volume= 0.060 af, Atten= 88%, Lag= 32.9 min
Primary = 0.12 cfs @ 12.62 hrs, Volume= 0.060 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.71' @ 12.62 hrs Surf.Area= 0.118 ac Storage= 0.042 af

Plug-Flow detention time= 312.0 min calculated for 0.060 af (83% of inflow)
Center-of-Mass det. time= 237.4 min (985.8 - 748.4)

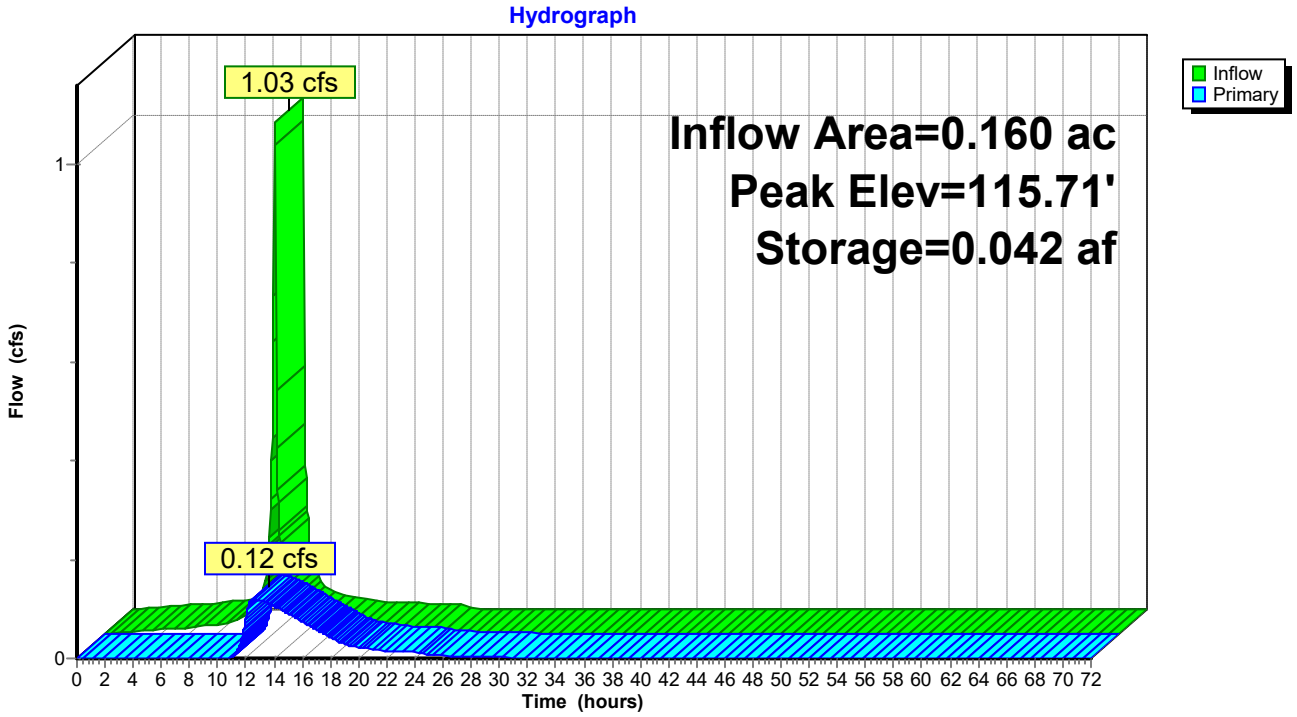
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.12 cfs @ 12.62 hrs HW=115.71' TW=113.76' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.12 cfs of 7.90 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.12 cfs @ 3.50 fps)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.82	0.00
2.50	0.01	0.001	114.83	0.00
5.00	0.01	0.002	114.87	0.00
7.50	0.02	0.005	114.93	0.00
10.00	**0.04**	0.010	115.04	0.00
12.50	**0.18**	**0.042**	**115.71**	**0.12**
15.00	0.03	**0.032**	**115.49**	**0.09**
17.50	0.02	0.022	115.28	0.05
20.00	0.01	0.018	115.20	0.02
22.50	0.01	0.017	115.17	0.01
25.00	0.00	0.015	115.15	0.01
27.50	0.00	0.014	115.12	0.00
30.00	0.00	0.014	115.11	0.00
32.50	0.00	0.013	115.10	0.00
35.00	0.00	0.013	115.10	0.00
37.50	0.00	0.013	115.10	0.00
40.00	0.00	0.013	115.09	0.00
42.50	0.00	0.013	115.09	0.00
45.00	0.00	0.013	115.09	0.00
47.50	0.00	0.013	115.09	0.00
50.00	0.00	0.013	115.09	0.00
52.50	0.00	0.013	115.09	0.00
55.00	0.00	0.013	115.09	0.00
57.50	0.00	0.013	115.09	0.00
60.00	0.00	0.013	115.09	0.00
62.50	0.00	0.013	115.09	0.00
65.00	0.00	0.013	115.09	0.00
67.50	0.00	0.013	115.09	0.00
70.00	0.00	0.013	115.09	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 5.68" for 10-Year Projected event
Inflow = 1.87 cfs @ 12.06 hrs, Volume= 0.128 af
Outflow = 1.28 cfs @ 12.12 hrs, Volume= 0.104 af, Atten= 32%, Lag= 3.7 min
Primary = 1.28 cfs @ 12.12 hrs, Volume= 0.104 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.80' @ 12.12 hrs Surf.Area= 0.043 ac Storage= 0.057 af

Plug-Flow detention time= 212.3 min calculated for 0.104 af (82% of inflow)
Center-of-Mass det. time= 137.5 min (878.8 - 741.3)

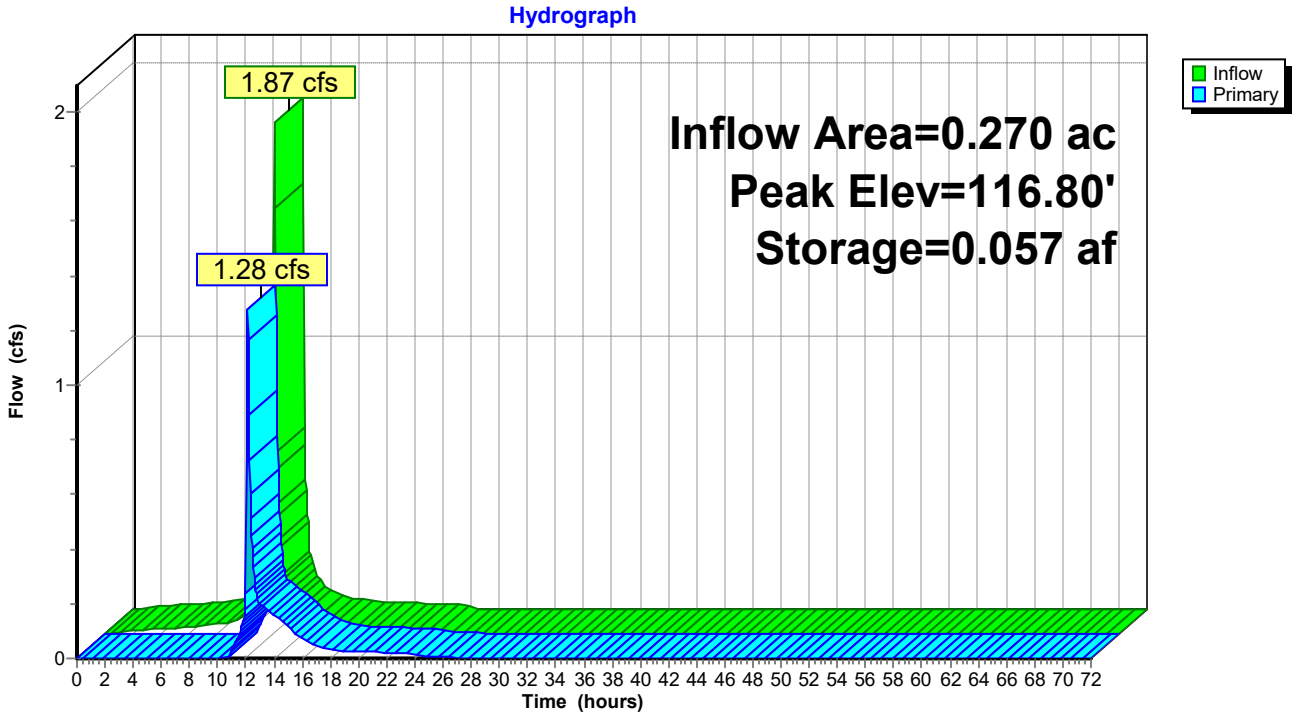
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.21 cfs @ 12.12 hrs HW=116.79' TW=113.16' (Dynamic Tailwater)
↑**1=Culvert** (Passes 1.21 cfs of 9.25 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.23 cfs @ 4.75 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 0.98 cfs @ 1.75 fps)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.63	0.00
2.50	0.01	0.001	114.70	0.00
5.00	0.02	0.005	114.90	0.00
7.50	0.03	0.010	115.20	0.00
10.00	**0.07**	**0.019**	**115.56**	**0.00**
12.50	**0.30**	**0.051**	**116.59**	**0.37**
15.00	0.05	0.035	116.06	0.12
17.50	0.03	0.028	115.84	0.04
20.00	0.02	0.027	115.80	0.02
22.50	0.02	0.026	115.79	0.02
25.00	0.00	0.025	115.75	0.01
27.50	0.00	0.024	115.72	0.00
30.00	0.00	0.024	115.71	0.00
32.50	0.00	0.024	115.71	0.00
35.00	0.00	0.024	115.70	0.00
37.50	0.00	0.024	115.70	0.00
40.00	0.00	0.024	115.70	0.00
42.50	0.00	0.024	115.70	0.00
45.00	0.00	0.024	115.70	0.00
47.50	0.00	0.023	115.70	0.00
50.00	0.00	0.023	115.70	0.00
52.50	0.00	0.023	115.70	0.00
55.00	0.00	0.023	115.69	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 5.63" for 10-Year Projected event
Inflow = 5.86 cfs @ 12.08 hrs, Volume= 0.408 af
Outflow = 0.61 cfs @ 12.73 hrs, Volume= 0.332 af, Atten= 90%, Lag= 39.1 min
Primary = 0.61 cfs @ 12.73 hrs, Volume= 0.332 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.13' @ 12.73 hrs Surf.Area= 0.410 ac Storage= 0.248 af

Plug-Flow detention time= 370.0 min calculated for 0.332 af (81% of inflow)
Center-of-Mass det. time= 292.7 min (1,036.5 - 743.8)

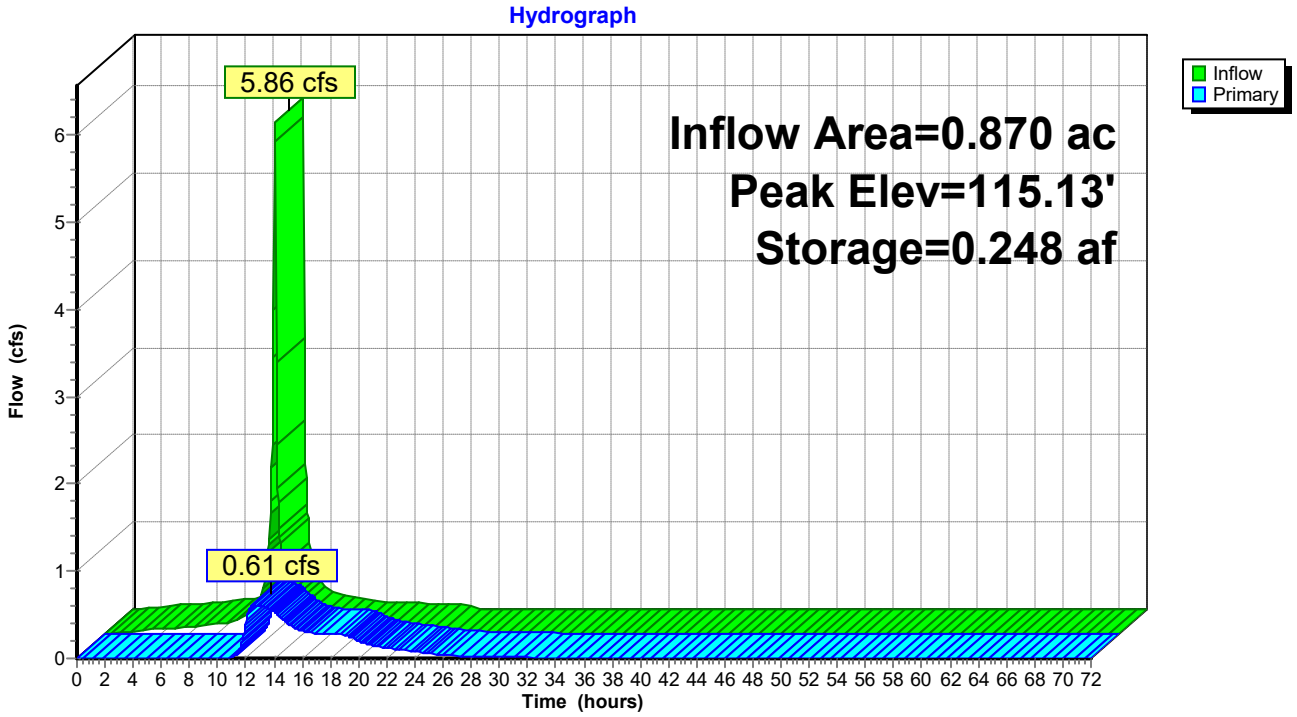
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.61 cfs @ 12.73 hrs HW=115.13' TW=113.83' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.61 cfs of 8.26 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.61 cfs @ 4.45 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	113.62	0.00
2.50	0.04	0.003	113.64	0.00
5.00	0.07	0.015	113.71	0.00
7.50	0.11	0.031	113.81	0.00
10.00	**0.21**	0.061	113.99	0.00
12.50	**1.02**	**0.246**	**115.12**	**0.60**
15.00	0.15	**0.201**	**114.85**	**0.40**
17.50	0.10	0.161	114.60	0.28
20.00	0.07	0.124	114.38	0.20
22.50	0.06	0.108	114.28	0.11
25.00	0.00	0.098	114.22	0.06
27.50	0.00	0.090	114.17	0.03
30.00	0.00	0.086	114.14	0.02
32.50	0.00	0.083	114.13	0.01
35.00	0.00	0.082	114.12	0.01
37.50	0.00	0.081	114.11	0.00
40.00	0.00	0.080	114.11	0.00
42.50	0.00	0.079	114.10	0.00
45.00	0.00	0.078	114.10	0.00
47.50	0.00	0.078	114.10	0.00
50.00	0.00	0.078	114.09	0.00
52.50	0.00	0.077	114.09	0.00
55.00	0.00	0.077	114.09	0.00
57.50	0.00	0.077	114.09	0.00
60.00	0.00	0.077	114.09	0.00
62.50	0.00	0.077	114.09	0.00
65.00	0.00	0.076	114.09	0.00
67.50	0.00	0.076	114.08	0.00
70.00	0.00	0.076	114.08	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 4.51" for 10-Year Projected event
Inflow = 3.19 cfs @ 12.12 hrs, Volume= 0.627 af
Outflow = 0.55 cfs @ 15.69 hrs, Volume= 0.611 af, Atten= 83%, Lag= 214.1 min
Primary = 0.55 cfs @ 15.69 hrs, Volume= 0.611 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.51' @ 15.69 hrs Surf.Area= 0.123 ac Storage= 0.236 af

Plug-Flow detention time= 287.9 min calculated for 0.611 af (97% of inflow)
Center-of-Mass det. time= 256.7 min (1,212.1 - 955.4)

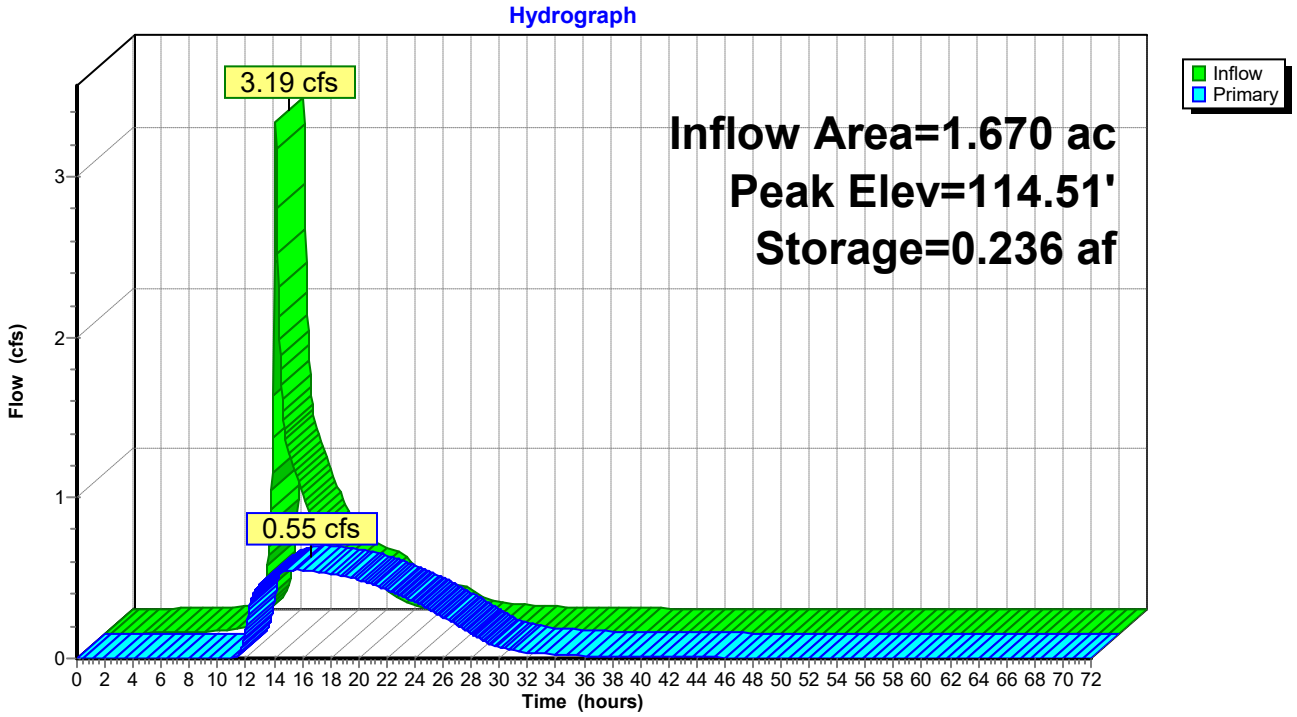
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.55 cfs @ 15.69 hrs HW=114.51' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.55 cfs of 15.41 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.55 cfs @ 6.33 fps)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

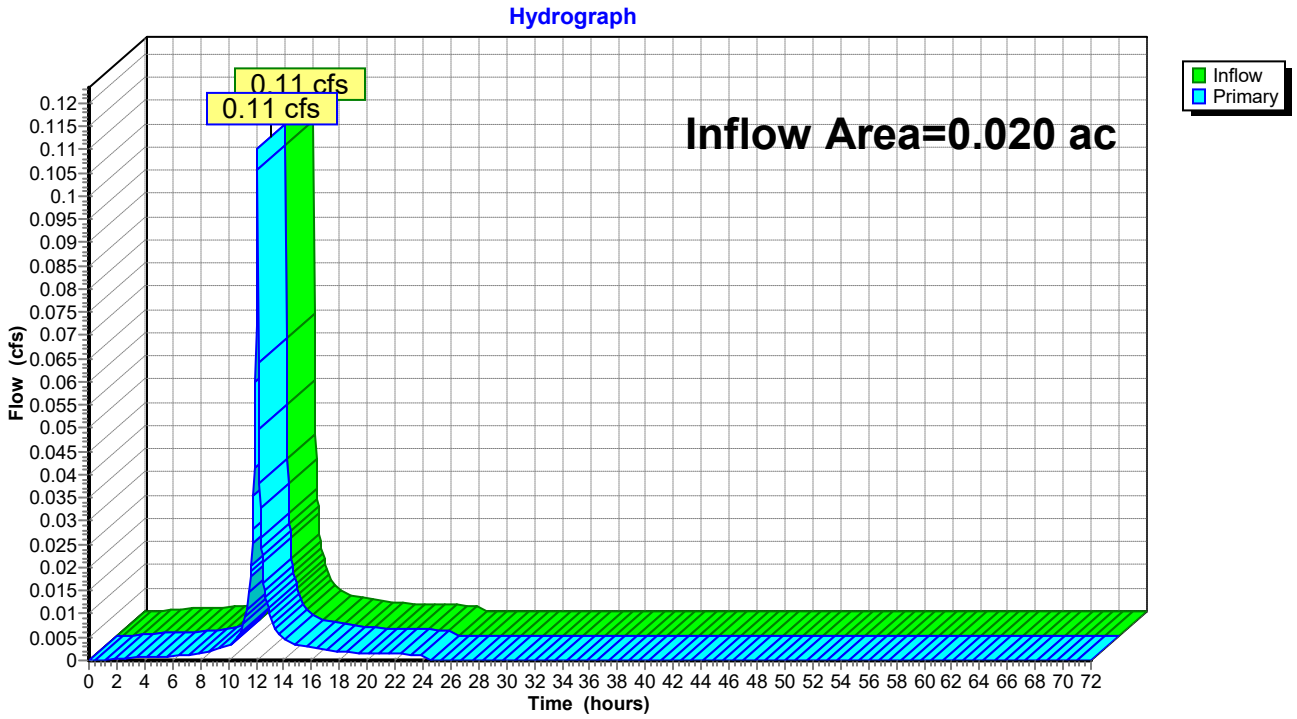
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.01	0.000	112.50	0.00
5.00	0.01	0.002	112.52	0.00
7.50	0.02	0.004	112.54	0.00
10.00	**0.05**	0.009	112.59	0.00
12.50	**1.65**	0.134	113.67	0.39
15.00	0.67	**0.233**	**114.49**	**0.55**
17.50	0.41	**0.224**	**114.42**	**0.54**
20.00	0.28	0.191	114.15	0.49
22.50	0.16	0.141	113.73	0.41
25.00	0.07	0.093	113.32	0.31
27.50	0.03	0.053	112.97	0.18
30.00	0.02	0.033	112.80	0.07
32.50	0.01	0.027	112.74	0.03
35.00	0.01	0.023	112.71	0.02
37.50	0.01	0.022	112.69	0.01
40.00	0.00	0.020	112.68	0.01
42.50	0.00	0.019	112.67	0.01
45.00	0.00	0.019	112.67	0.01
47.50	0.00	0.018	112.66	0.00
50.00	0.00	0.018	112.66	0.00
52.50	0.00	0.017	112.66	0.00
55.00	0.00	0.017	112.65	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.017	112.65	0.00
62.50	0.00	0.016	112.65	0.00
65.00	0.00	0.016	112.65	0.00
67.50	0.00	0.016	112.64	0.00
70.00	0.00	0.016	112.64	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 4.65" for 10-Year Projected event
Inflow = 0.11 cfs @ 12.08 hrs, Volume= 0.008 af
Primary = 0.11 cfs @ 12.08 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

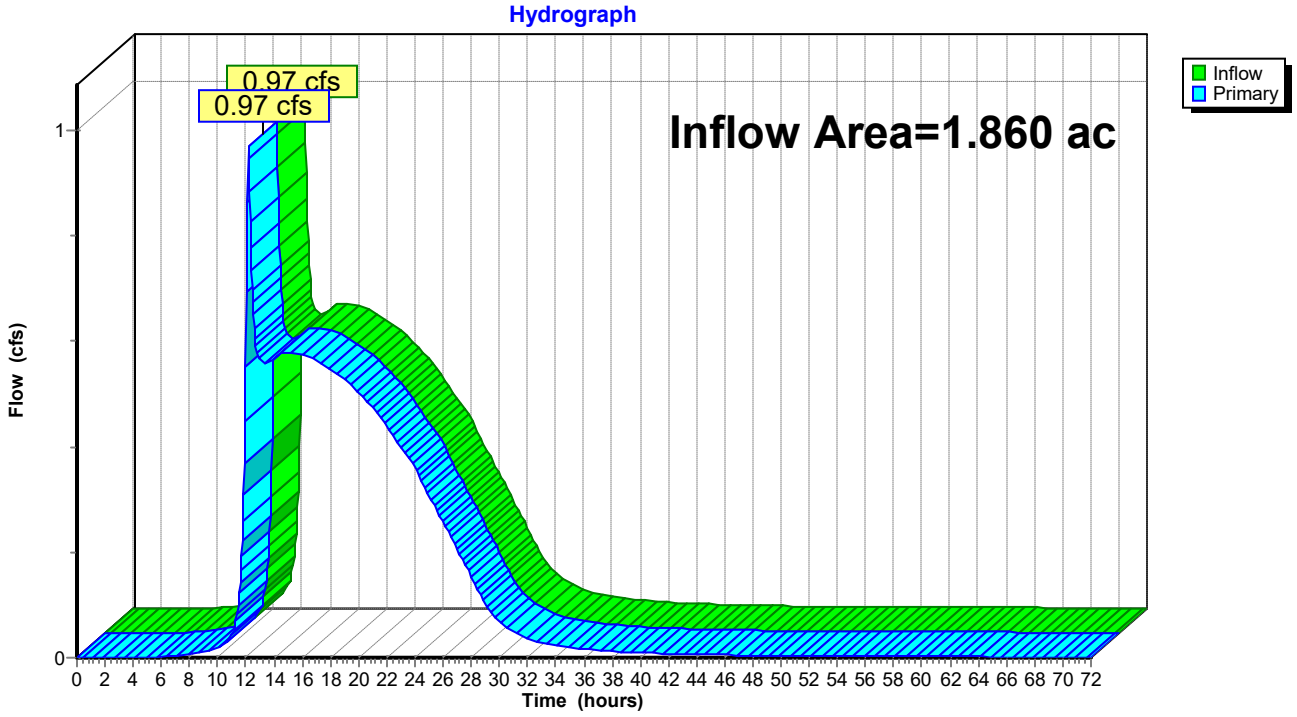
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth > 4.35" for 10-Year Projected event
Inflow = 0.97 cfs @ 12.17 hrs, Volume= 0.675 af
Primary = 0.97 cfs @ 12.17 hrs, Volume= 0.675 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

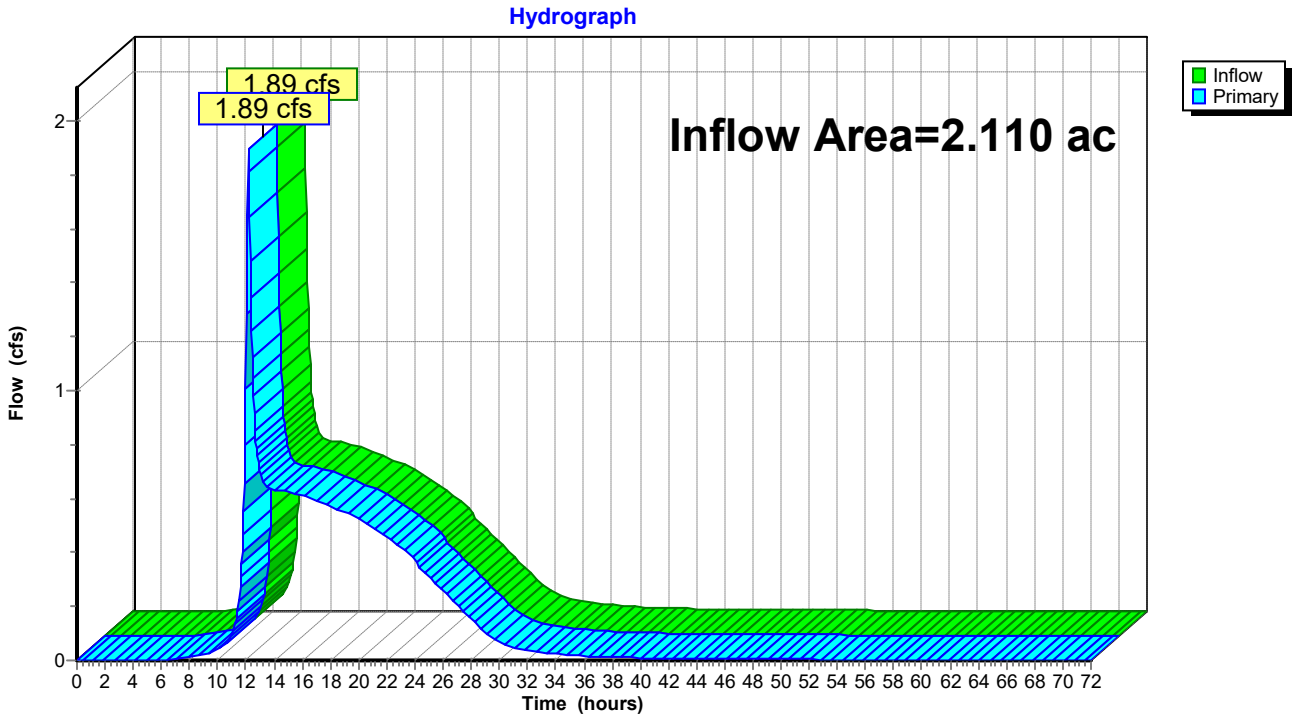
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.01	0.00	0.01
9.00	0.01	0.00	0.01
10.00	0.02	0.00	0.02
11.00	0.04	0.00	0.04
12.00	**0.55**	0.00	**0.55**
13.00	**0.56**	0.00	**0.56**
14.00	0.57	0.00	0.57
15.00	0.58	0.00	0.58
16.00	0.58	0.00	0.58
17.00	0.56	0.00	0.56
18.00	0.55	0.00	0.55
19.00	0.53	0.00	0.53
20.00	0.51	0.00	0.51
21.00	0.47	0.00	0.47
22.00	0.44	0.00	0.44
23.00	0.40	0.00	0.40
24.00	0.36	0.00	0.36
25.00	0.31	0.00	0.31
26.00	0.26	0.00	0.26
27.00	0.21	0.00	0.21
28.00	0.15	0.00	0.15
29.00	0.10	0.00	0.10
30.00	0.07	0.00	0.07
31.00	0.05	0.00	0.05
32.00	0.04	0.00	0.04
33.00	0.03	0.00	0.03
34.00	0.02	0.00	0.02
35.00	0.02	0.00	0.02
36.00	0.02	0.00	0.02
37.00	0.01	0.00	0.01
38.00	0.01	0.00	0.01
39.00	0.01	0.00	0.01
40.00	0.01	0.00	0.01
41.00	0.01	0.00	0.01
42.00	0.01	0.00	0.01
43.00	0.01	0.00	0.01
44.00	0.01	0.00	0.01
45.00	0.01	0.00	0.01
46.00	0.01	0.00	0.01
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth > 4.30" for 10-Year Projected event
Inflow = 1.89 cfs @ 12.16 hrs, Volume= 0.756 af
Primary = 1.89 cfs @ 12.16 hrs, Volume= 0.756 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01
8.00	0.01	0.00	0.01
9.00	0.02	0.00	0.02
10.00	0.04	0.00	0.04
11.00	0.10	0.00	0.10
12.00	**1.00**	0.00	**1.00**
13.00	**0.70**	0.00	**0.70**
14.00	0.63	0.00	0.63
15.00	0.62	0.00	0.62
16.00	0.61	0.00	0.61
17.00	0.59	0.00	0.59
18.00	0.57	0.00	0.57
19.00	0.55	0.00	0.55
20.00	0.52	0.00	0.52
21.00	0.49	0.00	0.49
22.00	0.46	0.00	0.46
23.00	0.42	0.00	0.42
24.00	0.38	0.00	0.38
25.00	0.31	0.00	0.31
26.00	0.26	0.00	0.26
27.00	0.21	0.00	0.21
28.00	0.15	0.00	0.15
29.00	0.10	0.00	0.10
30.00	0.07	0.00	0.07
31.00	0.05	0.00	0.05
32.00	0.04	0.00	0.04
33.00	0.03	0.00	0.03
34.00	0.02	0.00	0.02
35.00	0.02	0.00	0.02
36.00	0.02	0.00	0.02
37.00	0.01	0.00	0.01
38.00	0.01	0.00	0.01
39.00	0.01	0.00	0.01
40.00	0.01	0.00	0.01
41.00	0.01	0.00	0.01
42.00	0.01	0.00	0.01
43.00	0.01	0.00	0.01
44.00	0.01	0.00	0.01
45.00	0.01	0.00	0.01
46.00	0.01	0.00	0.01
47.00	0.00	0.00	0.00
48.00	0.00	0.00	0.00
49.00	0.00	0.00	0.00
50.00	0.00	0.00	0.00
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Subcatchment 1: PDA #1 PERVIOUS

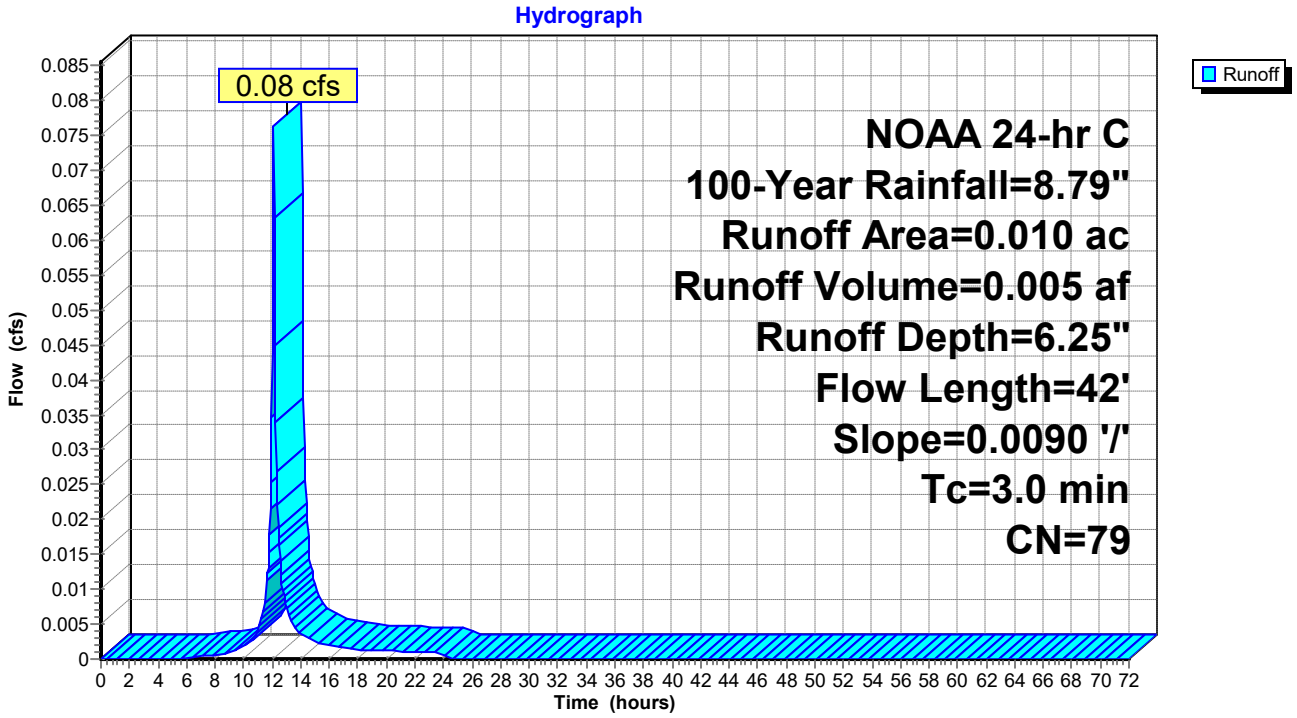
Runoff = 0.08 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 6.25"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.01	0.00
7.00	0.86	0.04	0.00
8.00	1.05	0.09	0.00
9.00	1.28	0.17	0.00
10.00	1.60	0.31	0.00
11.00	2.11	0.59	0.00
12.00	4.19	2.12	**0.04**
13.00	6.68	4.29	**0.01**
14.00	7.19	4.76	0.00
15.00	7.51	5.05	0.00
16.00	7.74	5.26	0.00
17.00	7.93	5.45	0.00
18.00	8.09	5.59	0.00
19.00	8.23	5.72	0.00
20.00	8.36	5.84	0.00
21.00	8.48	5.96	0.00
22.00	8.59	6.06	0.00
23.00	8.69	6.16	0.00
24.00	**8.79**	**6.25**	0.00
25.00	8.79	6.25	0.00
26.00	8.79	6.25	0.00
27.00	8.79	6.25	0.00
28.00	8.79	6.25	0.00
29.00	8.79	6.25	0.00
30.00	8.79	6.25	0.00
31.00	8.79	6.25	0.00
32.00	8.79	6.25	0.00
33.00	8.79	6.25	0.00
34.00	8.79	6.25	0.00
35.00	8.79	6.25	0.00
36.00	8.79	6.25	0.00
37.00	8.79	6.25	0.00
38.00	8.79	6.25	0.00
39.00	8.79	6.25	0.00
40.00	8.79	6.25	0.00
41.00	8.79	6.25	0.00
42.00	8.79	6.25	0.00
43.00	8.79	6.25	0.00
44.00	8.79	6.25	0.00
45.00	8.79	6.25	0.00
46.00	8.79	6.25	0.00
47.00	8.79	6.25	0.00
48.00	8.79	6.25	0.00
49.00	8.79	6.25	0.00
50.00	8.79	6.25	0.00
51.00	8.79	6.25	0.00
52.00	8.79	6.25	0.00
53.00	8.79	6.25	0.00
54.00	8.79	6.25	0.00
55.00	8.79	6.25	0.00
56.00	8.79	6.25	0.00
57.00	8.79	6.25	0.00
58.00	8.79	6.25	0.00
59.00	8.79	6.25	0.00
60.00	8.79	6.25	0.00
61.00	8.79	6.25	0.00
62.00	8.79	6.25	0.00
63.00	8.79	6.25	0.00
64.00	8.79	6.25	0.00
65.00	8.79	6.25	0.00
66.00	8.79	6.25	0.00
67.00	8.79	6.25	0.00
68.00	8.79	6.25	0.00
69.00	8.79	6.25	0.00
70.00	8.79	6.25	0.00
71.00	8.79	6.25	0.00
72.00	8.79	6.25	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

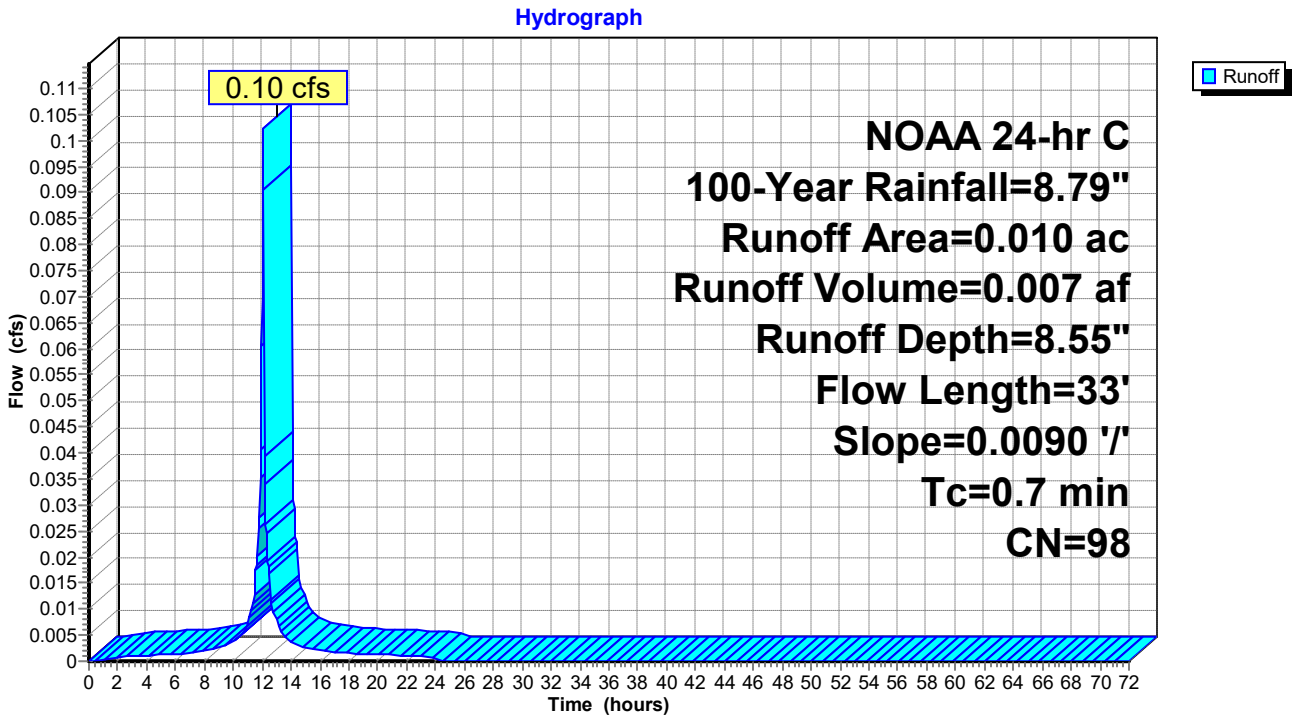
Runoff = 0.10 cfs @ 12.06 hrs, Volume= 0.007 af, Depth= 8.55"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.20	0.07	0.00
3.00	0.31	0.15	0.00
4.00	0.43	0.26	0.00
5.00	0.56	0.37	0.00
6.00	0.70	0.50	0.00
7.00	0.86	0.65	0.00
8.00	1.05	0.84	0.00
9.00	1.28	1.07	0.00
10.00	1.60	1.38	0.00
11.00	2.11	1.88	0.01
12.00	4.19	3.95	**0.07**
13.00	6.68	6.44	**0.01**
14.00	7.19	6.95	0.00
15.00	7.51	7.27	0.00
16.00	7.74	7.50	0.00
17.00	7.93	7.69	0.00
18.00	8.09	7.85	0.00
19.00	8.23	7.99	0.00
20.00	8.36	8.12	0.00
21.00	8.48	8.24	0.00
22.00	8.59	8.35	0.00
23.00	8.69	8.45	0.00
24.00	**8.79**	**8.55**	0.00
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

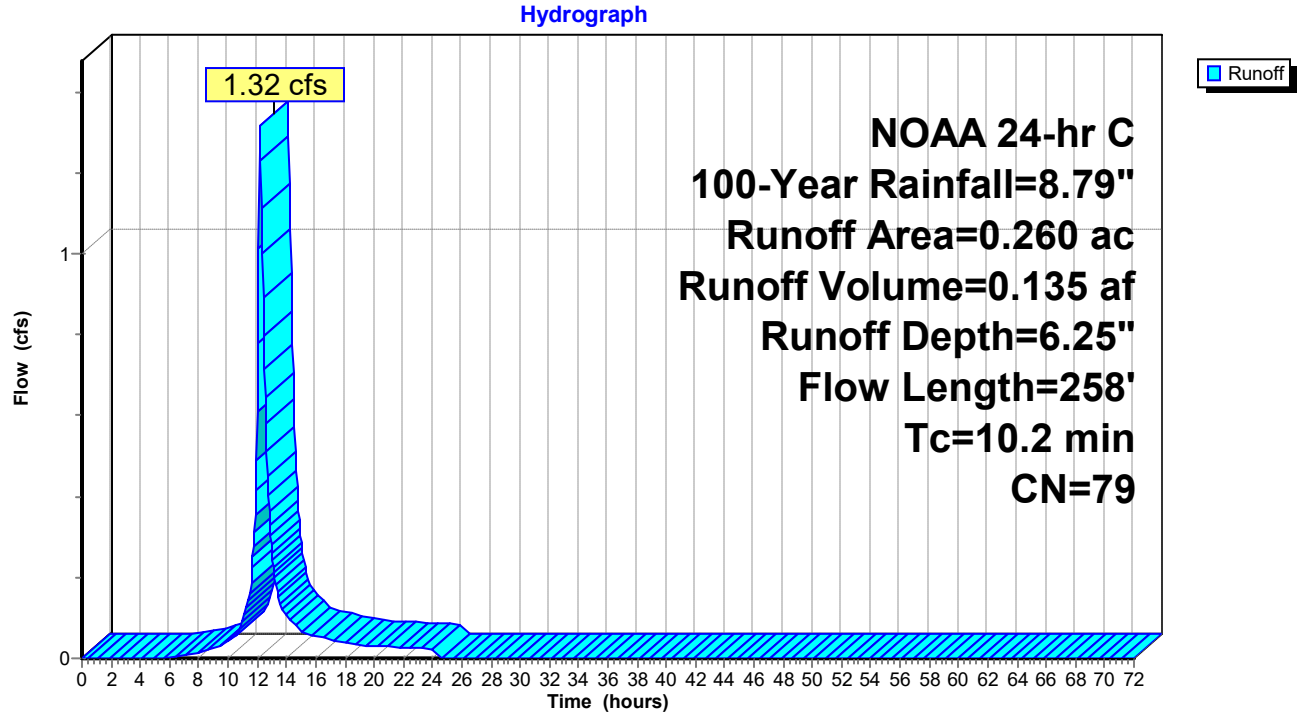
Runoff = 1.32 cfs @ 12.20 hrs, Volume= 0.135 af, Depth= 6.25"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.01	0.00
7.00	0.86	0.04	0.01
8.00	1.05	0.09	0.01
9.00	1.28	0.17	0.02
10.00	1.60	0.31	0.04
11.00	2.11	0.59	0.09
12.00	4.19	2.12	**0.61**
13.00	6.68	4.29	**0.26**
14.00	7.19	4.76	0.10
15.00	7.51	5.05	0.07
16.00	7.74	5.26	0.05
17.00	7.93	5.45	0.05
18.00	8.09	5.59	0.04
19.00	8.23	5.72	0.03
20.00	8.36	5.84	0.03
21.00	8.48	5.96	0.03
22.00	8.59	6.06	0.03
23.00	8.69	6.16	0.02
24.00	**8.79**	**6.25**	0.02
25.00	8.79	6.25	0.00
26.00	8.79	6.25	0.00
27.00	8.79	6.25	0.00
28.00	8.79	6.25	0.00
29.00	8.79	6.25	0.00
30.00	8.79	6.25	0.00
31.00	8.79	6.25	0.00
32.00	8.79	6.25	0.00
33.00	8.79	6.25	0.00
34.00	8.79	6.25	0.00
35.00	8.79	6.25	0.00
36.00	8.79	6.25	0.00
37.00	8.79	6.25	0.00
38.00	8.79	6.25	0.00
39.00	8.79	6.25	0.00
40.00	8.79	6.25	0.00
41.00	8.79	6.25	0.00
42.00	8.79	6.25	0.00
43.00	8.79	6.25	0.00
44.00	8.79	6.25	0.00
45.00	8.79	6.25	0.00
46.00	8.79	6.25	0.00
47.00	8.79	6.25	0.00
48.00	8.79	6.25	0.00
49.00	8.79	6.25	0.00
50.00	8.79	6.25	0.00
51.00	8.79	6.25	0.00
52.00	8.79	6.25	0.00
53.00	8.79	6.25	0.00
54.00	8.79	6.25	0.00
55.00	8.79	6.25	0.00
56.00	8.79	6.25	0.00
57.00	8.79	6.25	0.00
58.00	8.79	6.25	0.00
59.00	8.79	6.25	0.00
60.00	8.79	6.25	0.00
61.00	8.79	6.25	0.00
62.00	8.79	6.25	0.00
63.00	8.79	6.25	0.00
64.00	8.79	6.25	0.00
65.00	8.79	6.25	0.00
66.00	8.79	6.25	0.00
67.00	8.79	6.25	0.00
68.00	8.79	6.25	0.00
69.00	8.79	6.25	0.00
70.00	8.79	6.25	0.00
71.00	8.79	6.25	0.00
72.00	8.79	6.25	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

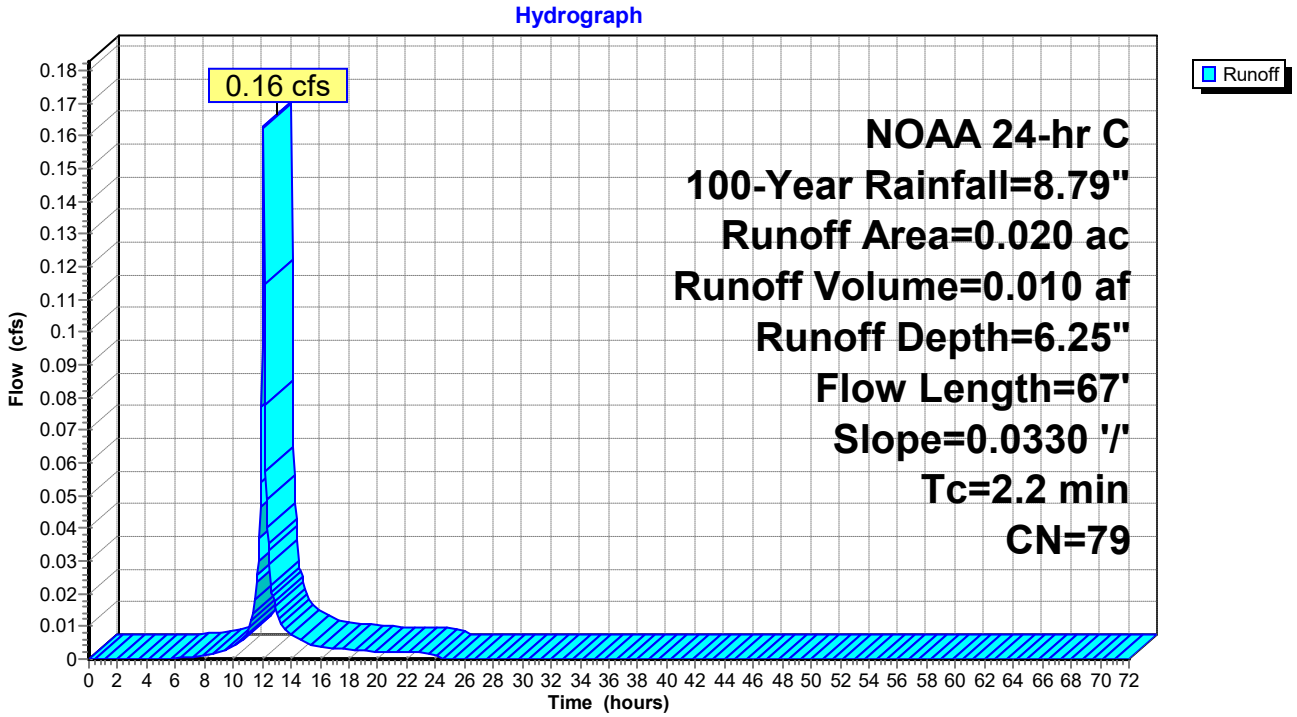
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.010 af, Depth= 6.25"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.01	0.00
7.00	0.86	0.04	0.00
8.00	1.05	0.09	0.00
9.00	1.28	0.17	0.00
10.00	1.60	0.31	0.00
11.00	2.11	0.59	0.01
12.00	4.19	2.12	**0.10**
13.00	6.68	4.29	**0.01**
14.00	7.19	4.76	0.01
15.00	7.51	5.05	0.00
16.00	7.74	5.26	0.00
17.00	7.93	5.45	0.00
18.00	8.09	5.59	0.00
19.00	8.23	5.72	0.00
20.00	8.36	5.84	0.00
21.00	8.48	5.96	0.00
22.00	8.59	6.06	0.00
23.00	8.69	6.16	0.00
24.00	**8.79**	**6.25**	0.00
25.00	8.79	6.25	0.00
26.00	8.79	6.25	0.00
27.00	8.79	6.25	0.00
28.00	8.79	6.25	0.00
29.00	8.79	6.25	0.00
30.00	8.79	6.25	0.00
31.00	8.79	6.25	0.00
32.00	8.79	6.25	0.00
33.00	8.79	6.25	0.00
34.00	8.79	6.25	0.00
35.00	8.79	6.25	0.00
36.00	8.79	6.25	0.00
37.00	8.79	6.25	0.00
38.00	8.79	6.25	0.00
39.00	8.79	6.25	0.00
40.00	8.79	6.25	0.00
41.00	8.79	6.25	0.00
42.00	8.79	6.25	0.00
43.00	8.79	6.25	0.00
44.00	8.79	6.25	0.00
45.00	8.79	6.25	0.00
46.00	8.79	6.25	0.00
47.00	8.79	6.25	0.00
48.00	8.79	6.25	0.00
49.00	8.79	6.25	0.00
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53.00	8.79	6.25	0.00
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55.00	8.79	6.25	0.00
56.00	8.79	6.25	0.00
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58.00	8.79	6.25	0.00
59.00	8.79	6.25	0.00
60.00	8.79	6.25	0.00
61.00	8.79	6.25	0.00
62.00	8.79	6.25	0.00
63.00	8.79	6.25	0.00
64.00	8.79	6.25	0.00
65.00	8.79	6.25	0.00
66.00	8.79	6.25	0.00
67.00	8.79	6.25	0.00
68.00	8.79	6.25	0.00
69.00	8.79	6.25	0.00
70.00	8.79	6.25	0.00
71.00	8.79	6.25	0.00
72.00	8.79	6.25	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

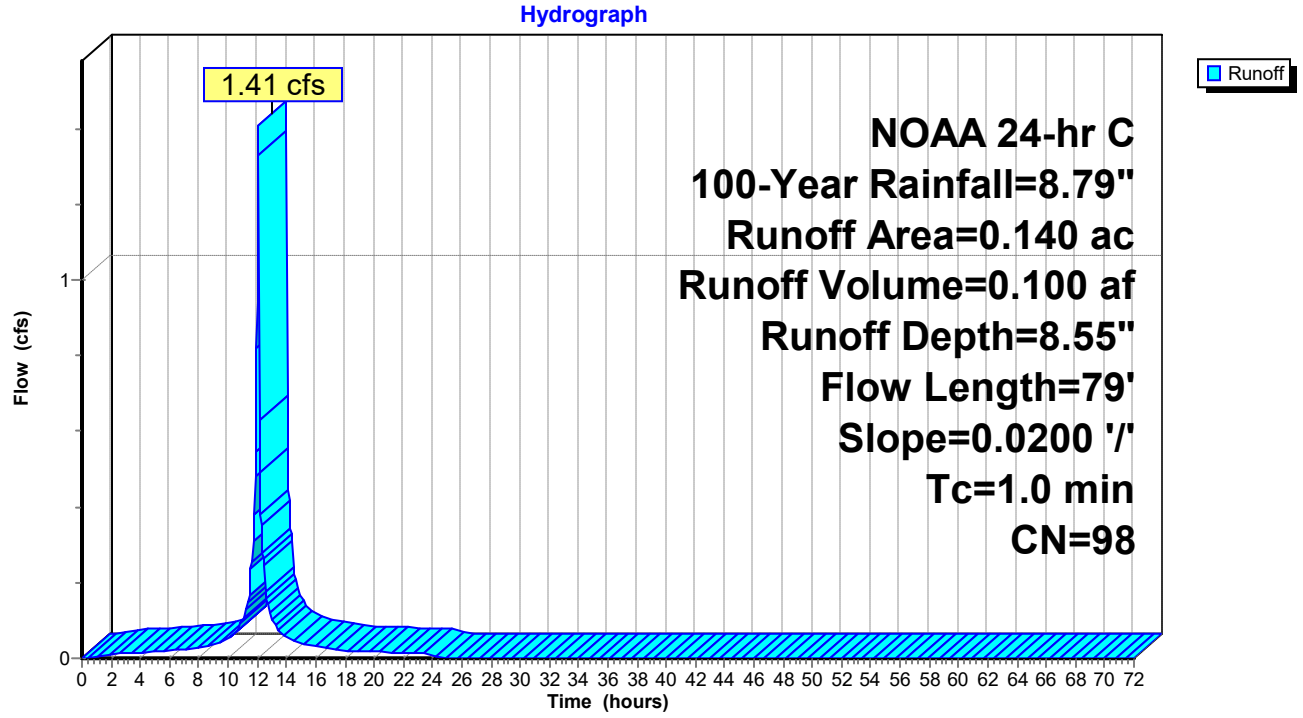
Runoff = 1.41 cfs @ 12.07 hrs, Volume= 0.100 af, Depth= 8.55"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.20	0.07	0.01
3.00	0.31	0.15	0.01
4.00	0.43	0.26	0.02
5.00	0.56	0.37	0.02
6.00	0.70	0.50	0.02
7.00	0.86	0.65	0.02
8.00	1.05	0.84	0.03
9.00	1.28	1.07	0.03
10.00	1.60	1.38	0.05
11.00	2.11	1.88	0.10
12.00	4.19	3.95	**0.94**
13.00	6.68	6.44	**0.11**
14.00	7.19	6.95	0.05
15.00	7.51	7.27	0.04
16.00	7.74	7.50	0.03
17.00	7.93	7.69	0.03
18.00	8.09	7.85	0.02
19.00	8.23	7.99	0.02
20.00	8.36	8.12	0.02
21.00	8.48	8.24	0.02
22.00	8.59	8.35	0.02
23.00	8.69	8.45	0.01
24.00	**8.79**	**8.55**	0.01
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

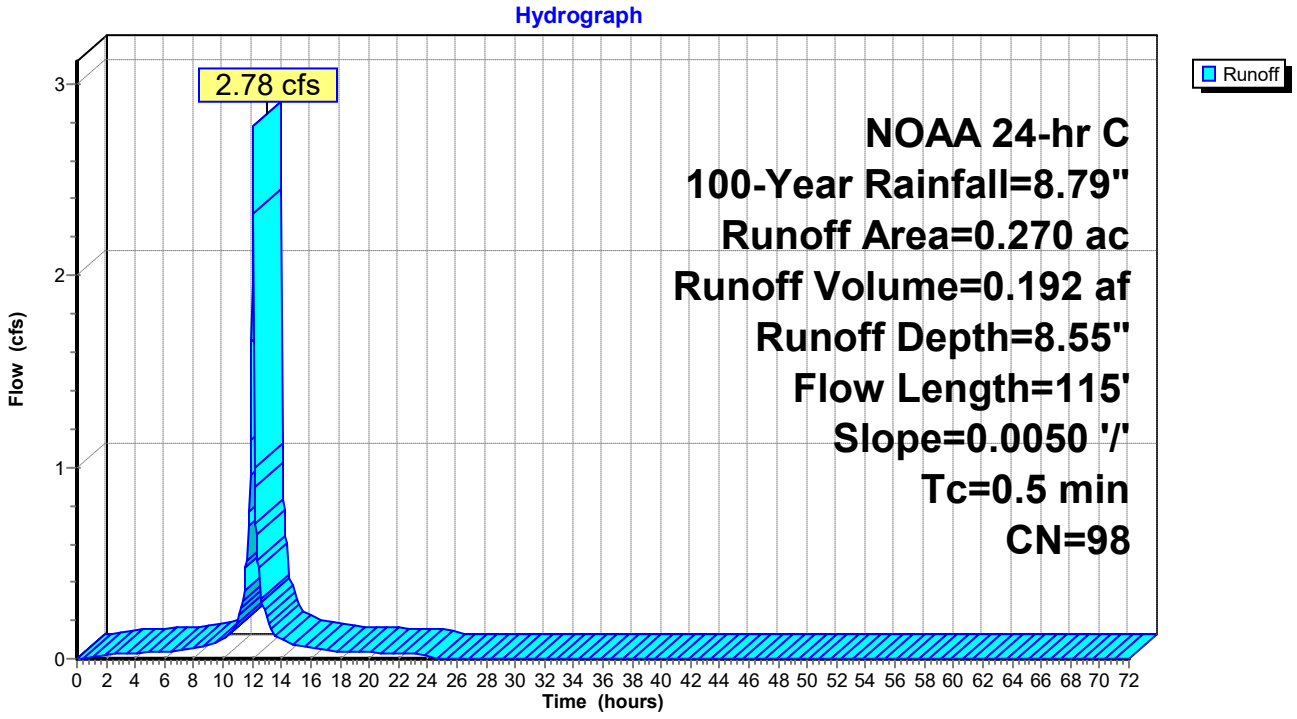
Runoff = 2.78 cfs @ 12.06 hrs, Volume= 0.192 af, Depth= 8.55"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.01
2.00	0.20	0.07	0.02
3.00	0.31	0.15	0.03
4.00	0.43	0.26	0.03
5.00	0.56	0.37	0.03
6.00	0.70	0.50	0.04
7.00	0.86	0.65	0.05
8.00	1.05	0.84	0.06
9.00	1.28	1.07	0.07
10.00	1.60	1.38	0.10
11.00	2.11	1.88	0.19
12.00	4.19	3.95	**1.96**
13.00	6.68	6.44	**0.21**
14.00	7.19	6.95	0.11
15.00	7.51	7.27	0.07
16.00	7.74	7.50	0.06
17.00	7.93	7.69	0.05
18.00	8.09	7.85	0.04
19.00	8.23	7.99	0.04
20.00	8.36	8.12	0.03
21.00	8.48	8.24	0.03
22.00	8.59	8.35	0.03
23.00	8.69	8.45	0.03
24.00	**8.79**	**8.55**	0.02
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

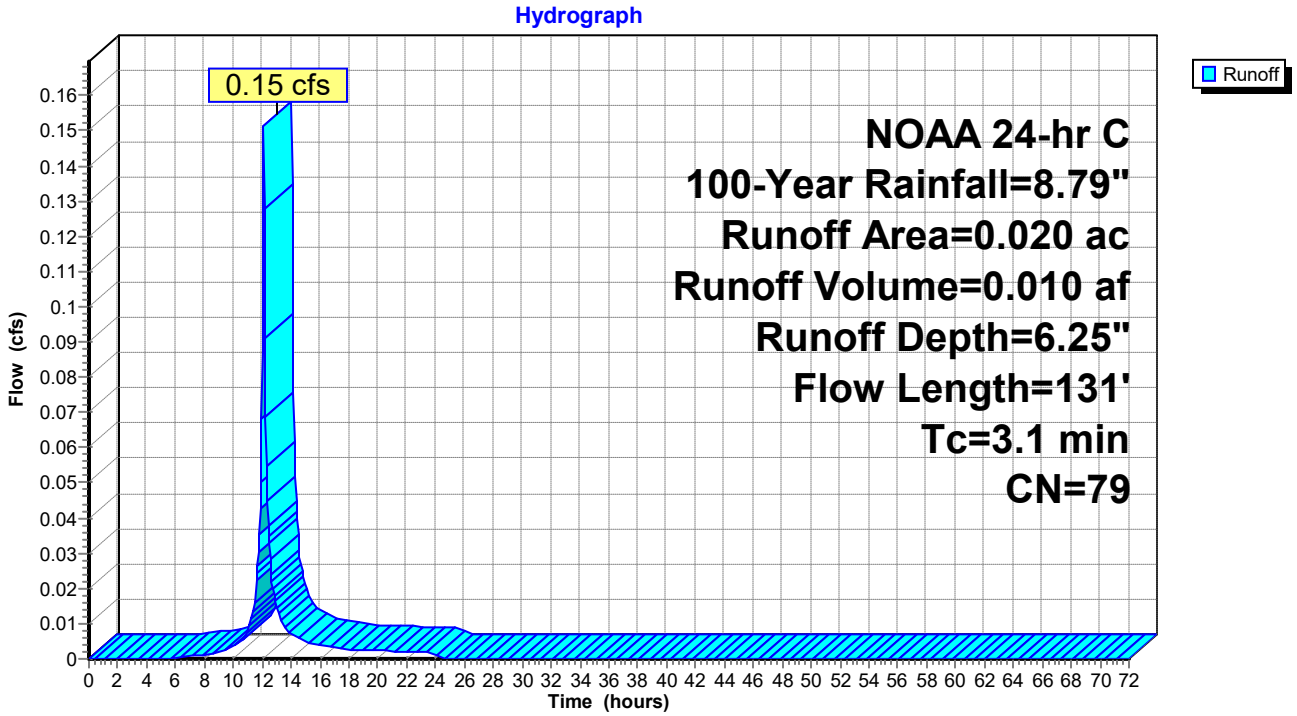
Runoff = 0.15 cfs @ 12.10 hrs, Volume= 0.010 af, Depth= 6.25"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.00	0.00
6.00	0.70	0.01	0.00
7.00	0.86	0.04	0.00
8.00	1.05	0.09	0.00
9.00	1.28	0.17	0.00
10.00	1.60	0.31	0.00
11.00	2.11	0.59	0.01
12.00	4.19	2.12	**0.09**
13.00	6.68	4.29	**0.02**
14.00	7.19	4.76	0.01
15.00	7.51	5.05	0.00
16.00	7.74	5.26	0.00
17.00	7.93	5.45	0.00
18.00	8.09	5.59	0.00
19.00	8.23	5.72	0.00
20.00	8.36	5.84	0.00
21.00	8.48	5.96	0.00
22.00	8.59	6.06	0.00
23.00	8.69	6.16	0.00
24.00	**8.79**	**6.25**	0.00
25.00	8.79	6.25	0.00
26.00	8.79	6.25	0.00
27.00	8.79	6.25	0.00
28.00	8.79	6.25	0.00
29.00	8.79	6.25	0.00
30.00	8.79	6.25	0.00
31.00	8.79	6.25	0.00
32.00	8.79	6.25	0.00
33.00	8.79	6.25	0.00
34.00	8.79	6.25	0.00
35.00	8.79	6.25	0.00
36.00	8.79	6.25	0.00
37.00	8.79	6.25	0.00
38.00	8.79	6.25	0.00
39.00	8.79	6.25	0.00
40.00	8.79	6.25	0.00
41.00	8.79	6.25	0.00
42.00	8.79	6.25	0.00
43.00	8.79	6.25	0.00
44.00	8.79	6.25	0.00
45.00	8.79	6.25	0.00
46.00	8.79	6.25	0.00
47.00	8.79	6.25	0.00
48.00	8.79	6.25	0.00
49.00	8.79	6.25	0.00
50.00	8.79	6.25	0.00
51.00	8.79	6.25	0.00
52.00	8.79	6.25	0.00
53.00	8.79	6.25	0.00
54.00	8.79	6.25	0.00
55.00	8.79	6.25	0.00
56.00	8.79	6.25	0.00
57.00	8.79	6.25	0.00
58.00	8.79	6.25	0.00
59.00	8.79	6.25	0.00
60.00	8.79	6.25	0.00
61.00	8.79	6.25	0.00
62.00	8.79	6.25	0.00
63.00	8.79	6.25	0.00
64.00	8.79	6.25	0.00
65.00	8.79	6.25	0.00
66.00	8.79	6.25	0.00
67.00	8.79	6.25	0.00
68.00	8.79	6.25	0.00
69.00	8.79	6.25	0.00
70.00	8.79	6.25	0.00
71.00	8.79	6.25	0.00
72.00	8.79	6.25	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

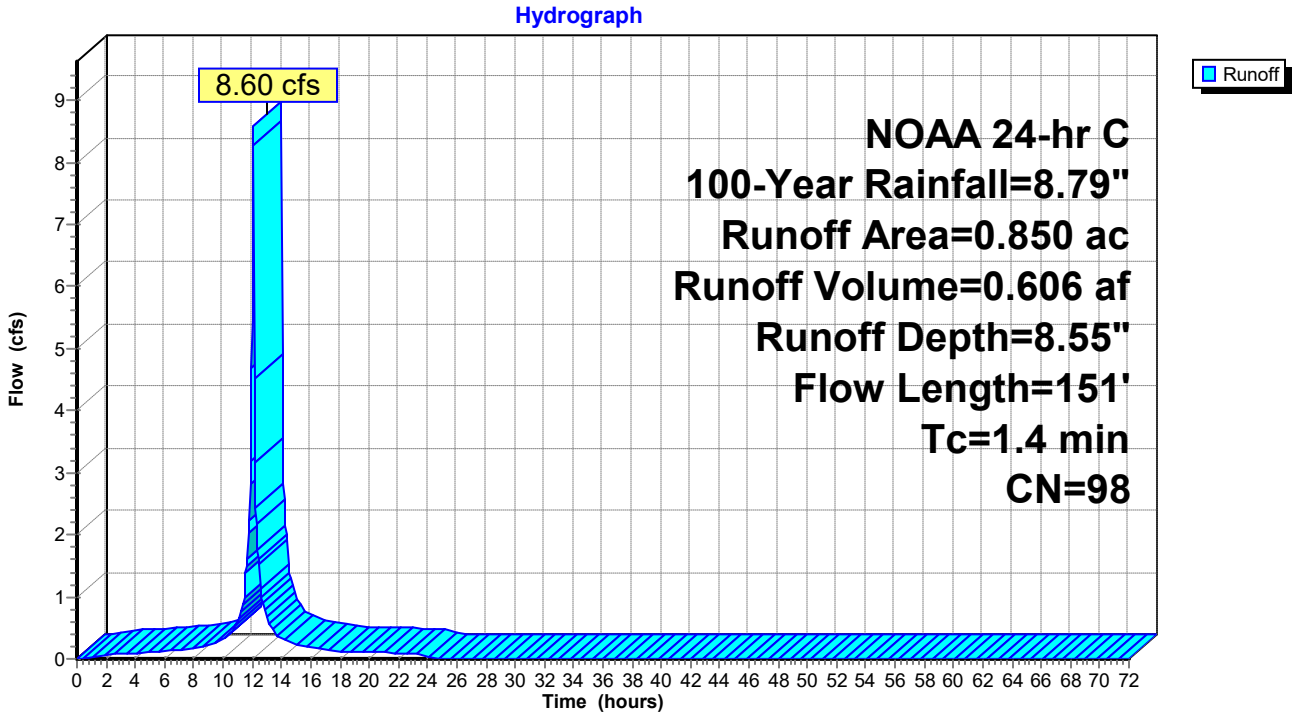
Runoff = 8.60 cfs @ 12.08 hrs, Volume= 0.606 af, Depth= 8.55"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.03
2.00	0.20	0.07	0.06
3.00	0.31	0.15	0.08
4.00	0.43	0.26	0.09
5.00	0.56	0.37	0.10
6.00	0.70	0.50	0.11
7.00	0.86	0.65	0.15
8.00	1.05	0.84	0.18
9.00	1.28	1.07	0.21
10.00	1.60	1.38	0.32
11.00	2.11	1.88	0.60
12.00	4.19	3.95	**5.44**
13.00	6.68	6.44	**0.67**
14.00	7.19	6.95	0.33
15.00	7.51	7.27	0.22
16.00	7.74	7.50	0.18
17.00	7.93	7.69	0.15
18.00	8.09	7.85	0.12
19.00	8.23	7.99	0.11
20.00	8.36	8.12	0.11
21.00	8.48	8.24	0.10
22.00	8.59	8.35	0.09
23.00	8.69	8.45	0.08
24.00	**8.79**	**8.55**	0.09
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

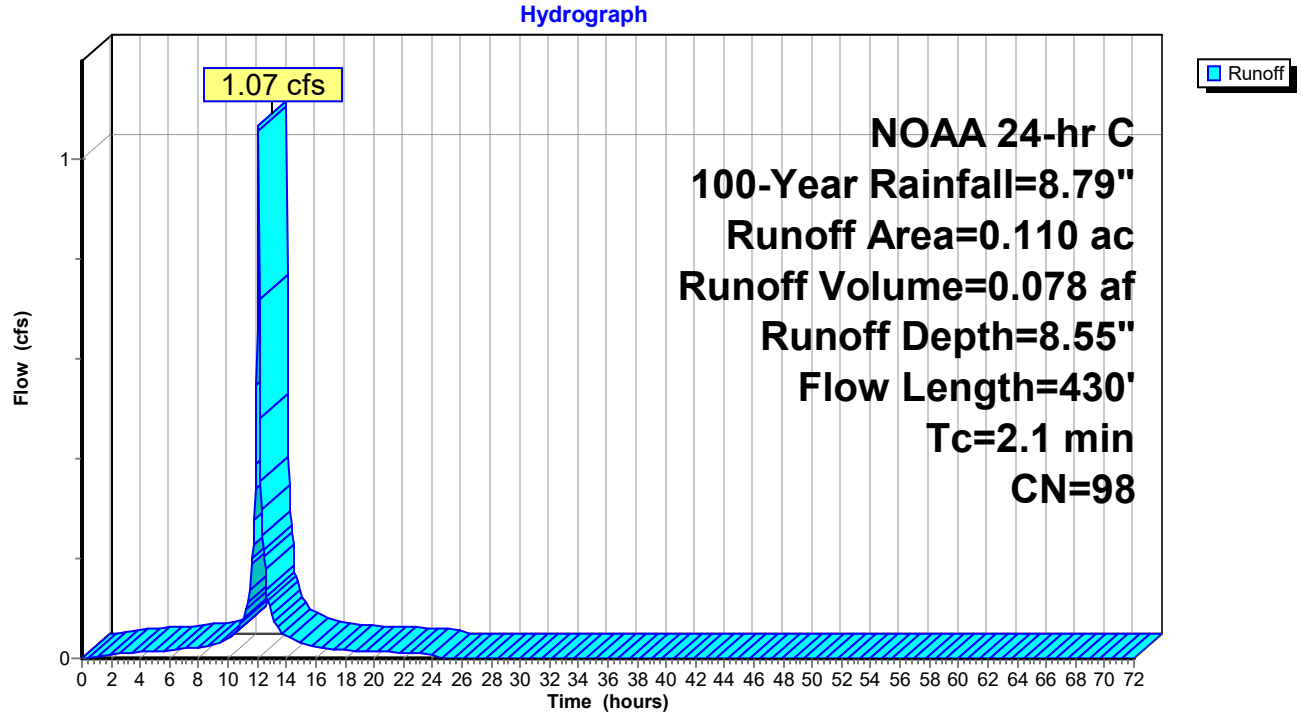
Runoff = 1.07 cfs @ 12.09 hrs, Volume= 0.078 af, Depth= 8.55"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.20	0.07	0.01
3.00	0.31	0.15	0.01
4.00	0.43	0.26	0.01
5.00	0.56	0.37	0.01
6.00	0.70	0.50	0.01
7.00	0.86	0.65	0.02
8.00	1.05	0.84	0.02
9.00	1.28	1.07	0.03
10.00	1.60	1.38	0.04
11.00	2.11	1.88	0.08
12.00	4.19	3.95	**0.66**
13.00	6.68	6.44	**0.09**
14.00	7.19	6.95	0.04
15.00	7.51	7.27	0.03
16.00	7.74	7.50	0.02
17.00	7.93	7.69	0.02
18.00	8.09	7.85	0.02
19.00	8.23	7.99	0.01
20.00	8.36	8.12	0.01
21.00	8.48	8.24	0.01
22.00	8.59	8.35	0.01
23.00	8.69	8.45	0.01
24.00	**8.79**	**8.55**	0.01
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

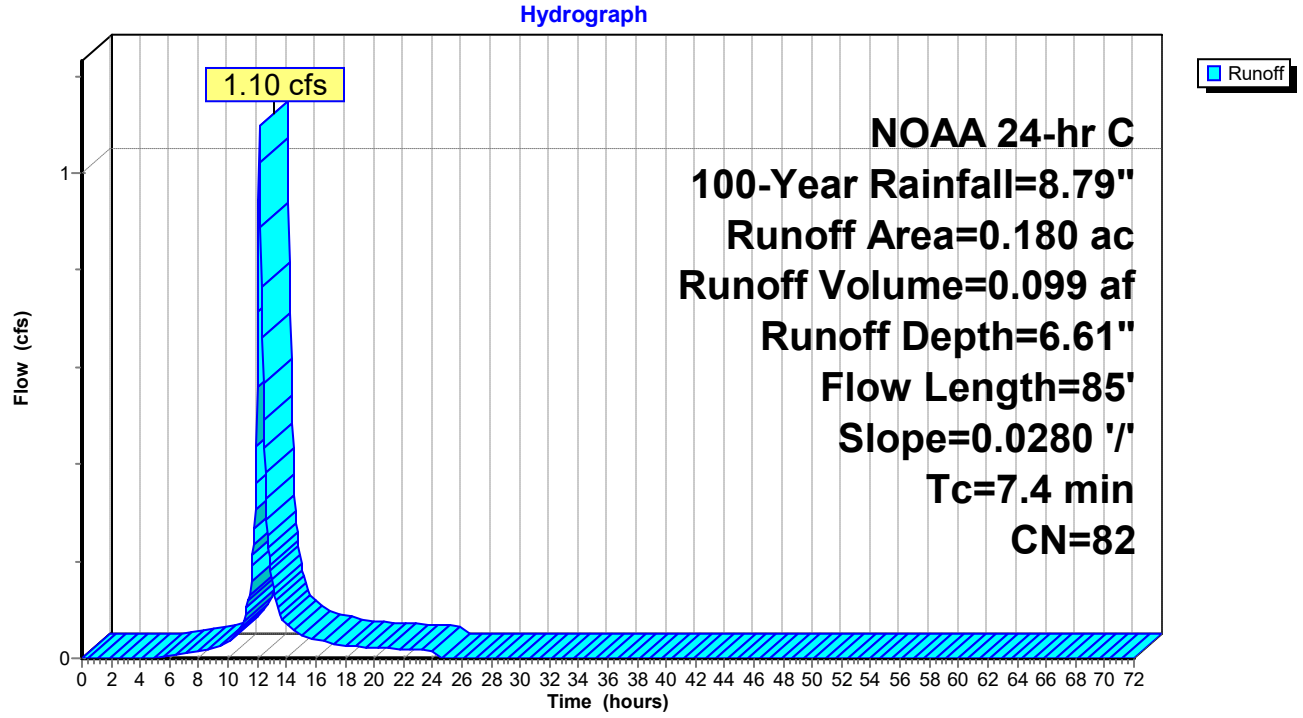
Runoff = 1.10 cfs @ 12.16 hrs, Volume= 0.099 af, Depth= 6.61"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.01	0.00
6.00	0.70	0.03	0.00
7.00	0.86	0.07	0.01
8.00	1.05	0.13	0.01
9.00	1.28	0.23	0.02
10.00	1.60	0.40	0.04
11.00	2.11	0.72	0.07
12.00	4.19	2.37	**0.56**
13.00	6.68	4.62	**0.16**
14.00	7.19	5.09	0.07
15.00	7.51	5.39	0.05
16.00	7.74	5.61	0.04
17.00	7.93	5.80	0.03
18.00	8.09	5.95	0.03
19.00	8.23	6.08	0.02
20.00	8.36	6.20	0.02
21.00	8.48	6.32	0.02
22.00	8.59	6.42	0.02
23.00	8.69	6.52	0.02
24.00	**8.79**	**6.61**	0.02
25.00	8.79	6.61	0.00
26.00	8.79	6.61	0.00
27.00	8.79	6.61	0.00
28.00	8.79	6.61	0.00
29.00	8.79	6.61	0.00
30.00	8.79	6.61	0.00
31.00	8.79	6.61	0.00
32.00	8.79	6.61	0.00
33.00	8.79	6.61	0.00
34.00	8.79	6.61	0.00
35.00	8.79	6.61	0.00
36.00	8.79	6.61	0.00
37.00	8.79	6.61	0.00
38.00	8.79	6.61	0.00
39.00	8.79	6.61	0.00
40.00	8.79	6.61	0.00
41.00	8.79	6.61	0.00
42.00	8.79	6.61	0.00
43.00	8.79	6.61	0.00
44.00	8.79	6.61	0.00
45.00	8.79	6.61	0.00
46.00	8.79	6.61	0.00
47.00	8.79	6.61	0.00
48.00	8.79	6.61	0.00
49.00	8.79	6.61	0.00
50.00	8.79	6.61	0.00
51.00	8.79	6.61	0.00
52.00	8.79	6.61	0.00
53.00	8.79	6.61	0.00
54.00	8.79	6.61	0.00
55.00	8.79	6.61	0.00
56.00	8.79	6.61	0.00
57.00	8.79	6.61	0.00
58.00	8.79	6.61	0.00
59.00	8.79	6.61	0.00
60.00	8.79	6.61	0.00
61.00	8.79	6.61	0.00
62.00	8.79	6.61	0.00
63.00	8.79	6.61	0.00
64.00	8.79	6.61	0.00
65.00	8.79	6.61	0.00
66.00	8.79	6.61	0.00
67.00	8.79	6.61	0.00
68.00	8.79	6.61	0.00
69.00	8.79	6.61	0.00
70.00	8.79	6.61	0.00
71.00	8.79	6.61	0.00
72.00	8.79	6.61	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

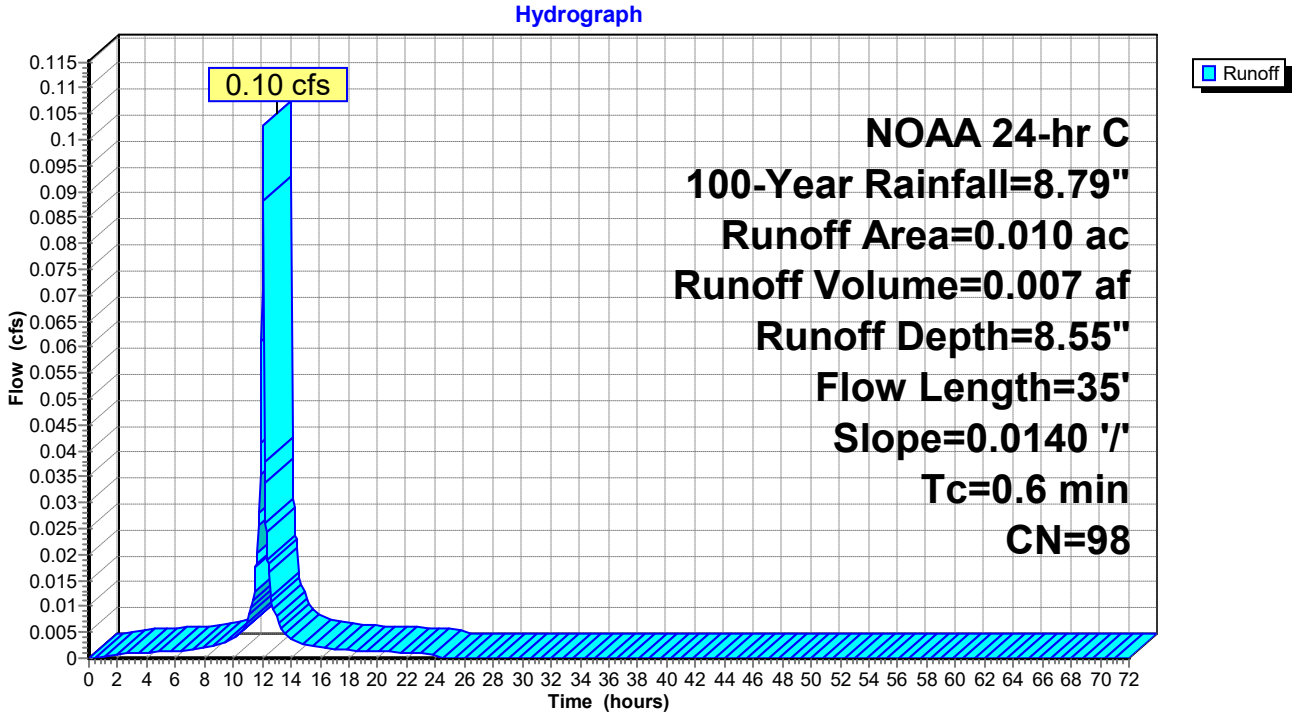
Runoff = 0.10 cfs @ 12.06 hrs, Volume= 0.007 af, Depth= 8.55"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.01	0.00
2.00	0.20	0.07	0.00
3.00	0.31	0.15	0.00
4.00	0.43	0.26	0.00
5.00	0.56	0.37	0.00
6.00	0.70	0.50	0.00
7.00	0.86	0.65	0.00
8.00	1.05	0.84	0.00
9.00	1.28	1.07	0.00
10.00	1.60	1.38	0.00
11.00	2.11	1.88	0.01
12.00	4.19	3.95	**0.07**
13.00	6.68	6.44	**0.01**
14.00	7.19	6.95	0.00
15.00	7.51	7.27	0.00
16.00	7.74	7.50	0.00
17.00	7.93	7.69	0.00
18.00	8.09	7.85	0.00
19.00	8.23	7.99	0.00
20.00	8.36	8.12	0.00
21.00	8.48	8.24	0.00
22.00	8.59	8.35	0.00
23.00	8.69	8.45	0.00
24.00	**8.79**	**8.55**	0.00
25.00	8.79	8.55	0.00
26.00	8.79	8.55	0.00
27.00	8.79	8.55	0.00
28.00	8.79	8.55	0.00
29.00	8.79	8.55	0.00
30.00	8.79	8.55	0.00
31.00	8.79	8.55	0.00
32.00	8.79	8.55	0.00
33.00	8.79	8.55	0.00
34.00	8.79	8.55	0.00
35.00	8.79	8.55	0.00
36.00	8.79	8.55	0.00
37.00	8.79	8.55	0.00
38.00	8.79	8.55	0.00
39.00	8.79	8.55	0.00
40.00	8.79	8.55	0.00
41.00	8.79	8.55	0.00
42.00	8.79	8.55	0.00
43.00	8.79	8.55	0.00
44.00	8.79	8.55	0.00
45.00	8.79	8.55	0.00
46.00	8.79	8.55	0.00
47.00	8.79	8.55	0.00
48.00	8.79	8.55	0.00
49.00	8.79	8.55	0.00
50.00	8.79	8.55	0.00
51.00	8.79	8.55	0.00
52.00	8.79	8.55	0.00
53.00	8.79	8.55	0.00
54.00	8.79	8.55	0.00
55.00	8.79	8.55	0.00
56.00	8.79	8.55	0.00
57.00	8.79	8.55	0.00
58.00	8.79	8.55	0.00
59.00	8.79	8.55	0.00
60.00	8.79	8.55	0.00
61.00	8.79	8.55	0.00
62.00	8.79	8.55	0.00
63.00	8.79	8.55	0.00
64.00	8.79	8.55	0.00
65.00	8.79	8.55	0.00
66.00	8.79	8.55	0.00
67.00	8.79	8.55	0.00
68.00	8.79	8.55	0.00
69.00	8.79	8.55	0.00
70.00	8.79	8.55	0.00
71.00	8.79	8.55	0.00
72.00	8.79	8.55	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

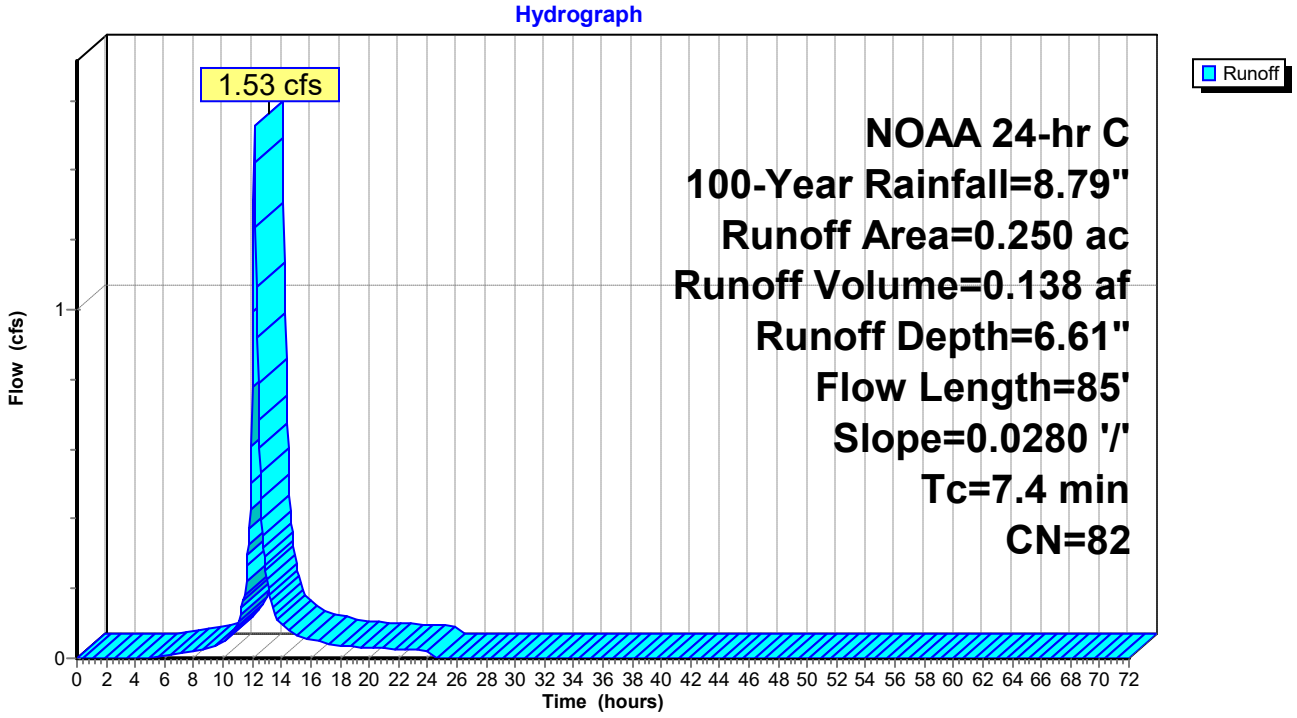
Runoff = 1.53 cfs @ 12.16 hrs, Volume= 0.138 af, Depth= 6.61"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Rainfall=8.79"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.10	0.00	0.00
2.00	0.20	0.00	0.00
3.00	0.31	0.00	0.00
4.00	0.43	0.00	0.00
5.00	0.56	0.01	0.00
6.00	0.70	0.03	0.01
7.00	0.86	0.07	0.01
8.00	1.05	0.13	0.02
9.00	1.28	0.23	0.03
10.00	1.60	0.40	0.05
11.00	2.11	0.72	0.10
12.00	4.19	2.37	**0.78**
13.00	6.68	4.62	**0.22**
14.00	7.19	5.09	0.10
15.00	7.51	5.39	0.07
16.00	7.74	5.61	0.05
17.00	7.93	5.80	0.04
18.00	8.09	5.95	0.04
19.00	8.23	6.08	0.03
20.00	8.36	6.20	0.03
21.00	8.48	6.32	0.03
22.00	8.59	6.42	0.03
23.00	8.69	6.52	0.02
24.00	**8.79**	**6.61**	0.02
25.00	8.79	6.61	0.00
26.00	8.79	6.61	0.00
27.00	8.79	6.61	0.00
28.00	8.79	6.61	0.00
29.00	8.79	6.61	0.00
30.00	8.79	6.61	0.00
31.00	8.79	6.61	0.00
32.00	8.79	6.61	0.00
33.00	8.79	6.61	0.00
34.00	8.79	6.61	0.00
35.00	8.79	6.61	0.00
36.00	8.79	6.61	0.00
37.00	8.79	6.61	0.00
38.00	8.79	6.61	0.00
39.00	8.79	6.61	0.00
40.00	8.79	6.61	0.00
41.00	8.79	6.61	0.00
42.00	8.79	6.61	0.00
43.00	8.79	6.61	0.00
44.00	8.79	6.61	0.00
45.00	8.79	6.61	0.00
46.00	8.79	6.61	0.00
47.00	8.79	6.61	0.00
48.00	8.79	6.61	0.00
49.00	8.79	6.61	0.00
50.00	8.79	6.61	0.00
51.00	8.79	6.61	0.00
52.00	8.79	6.61	0.00
53.00	8.79	6.61	0.00
54.00	8.79	6.61	0.00
55.00	8.79	6.61	0.00
56.00	8.79	6.61	0.00
57.00	8.79	6.61	0.00
58.00	8.79	6.61	0.00
59.00	8.79	6.61	0.00
60.00	8.79	6.61	0.00
61.00	8.79	6.61	0.00
62.00	8.79	6.61	0.00
63.00	8.79	6.61	0.00
64.00	8.79	6.61	0.00
65.00	8.79	6.61	0.00
66.00	8.79	6.61	0.00
67.00	8.79	6.61	0.00
68.00	8.79	6.61	0.00
69.00	8.79	6.61	0.00
70.00	8.79	6.61	0.00
71.00	8.79	6.61	0.00
72.00	8.79	6.61	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 8.26" for 100-Year event
Inflow = 1.56 cfs @ 12.07 hrs, Volume= 0.110 af
Outflow = 0.16 cfs @ 12.76 hrs, Volume= 0.098 af, Atten= 90%, Lag= 41.0 min
Primary = 0.16 cfs @ 12.76 hrs, Volume= 0.098 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.13' @ 12.76 hrs Surf.Area= 0.118 ac Storage= 0.062 af

Plug-Flow detention time= 296.0 min calculated for 0.098 af (89% of inflow)
Center-of-Mass det. time= 238.4 min (981.2 - 742.8)

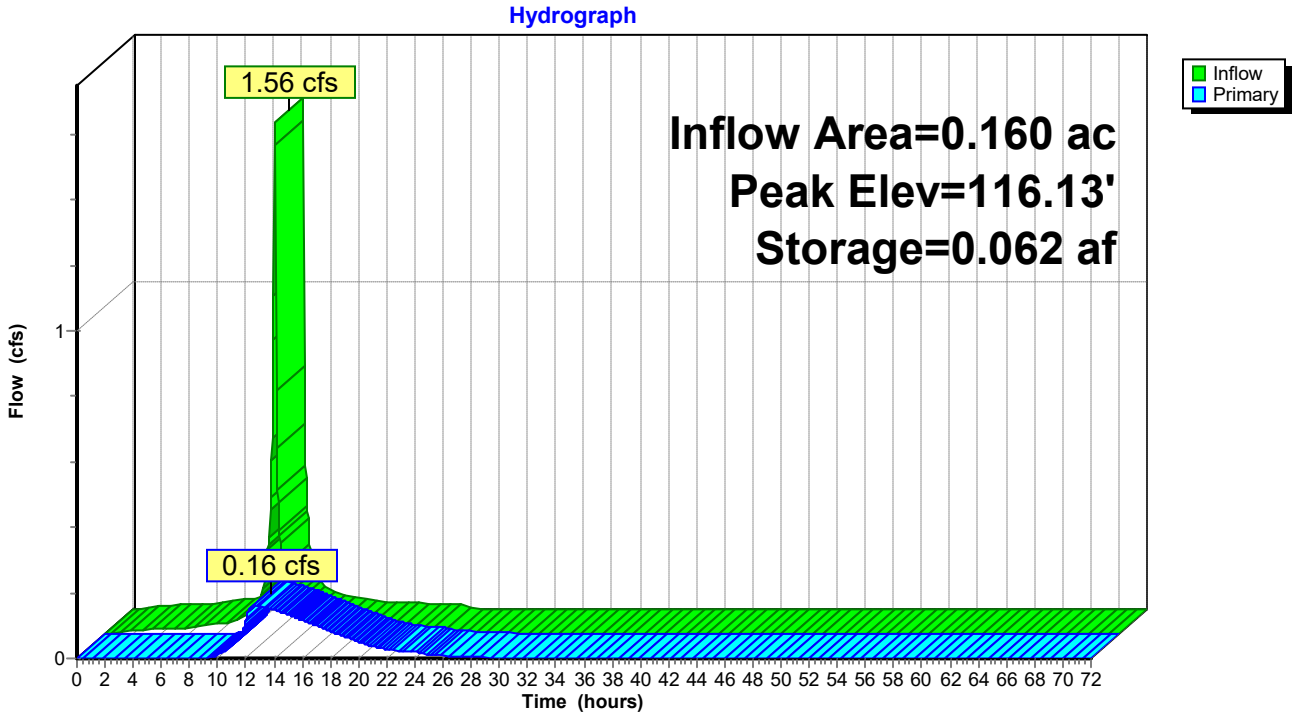
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 12.76 hrs HW=116.13' TW=114.80' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.16 cfs of 6.80 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.16 cfs @ 4.68 fps)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.82	0.00
2.50	0.01	0.001	114.85	0.00
5.00	0.02	0.004	114.91	0.00
7.50	0.03	0.009	115.00	0.00
10.00	**0.06**	0.016	115.16	0.01
12.50	**0.27**	**0.061**	**116.11**	**0.16**
15.00	0.04	**0.048**	**115.84**	**0.13**
17.50	0.03	0.032	115.49	0.09
20.00	0.02	0.022	115.28	0.05
22.50	0.02	0.018	115.20	0.03
25.00	0.00	0.016	115.16	0.01
27.50	0.00	0.015	115.13	0.00
30.00	0.00	0.014	115.11	0.00
32.50	0.00	0.014	115.11	0.00
35.00	0.00	0.013	115.10	0.00
37.50	0.00	0.013	115.10	0.00
40.00	0.00	0.013	115.10	0.00
42.50	0.00	0.013	115.09	0.00
45.00	0.00	0.013	115.09	0.00
47.50	0.00	0.013	115.09	0.00
50.00	0.00	0.013	115.09	0.00
52.50	0.00	0.013	115.09	0.00
55.00	0.00	0.013	115.09	0.00
57.50	0.00	0.013	115.09	0.00
60.00	0.00	0.013	115.09	0.00
62.50	0.00	0.013	115.09	0.00
65.00	0.00	0.013	115.09	0.00
67.50	0.00	0.013	115.09	0.00
70.00	0.00	0.013	115.09	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 8.55" for 100-Year event
Inflow = 2.78 cfs @ 12.06 hrs, Volume= 0.192 af
Outflow = 2.38 cfs @ 12.10 hrs, Volume= 0.169 af, Atten= 15%, Lag= 2.3 min
Primary = 2.38 cfs @ 12.10 hrs, Volume= 0.169 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.99' @ 12.10 hrs Surf.Area= 0.043 ac Storage= 0.062 af

Plug-Flow detention time= 173.0 min calculated for 0.169 af (88% of inflow)
Center-of-Mass det. time= 112.6 min (848.4 - 735.8)

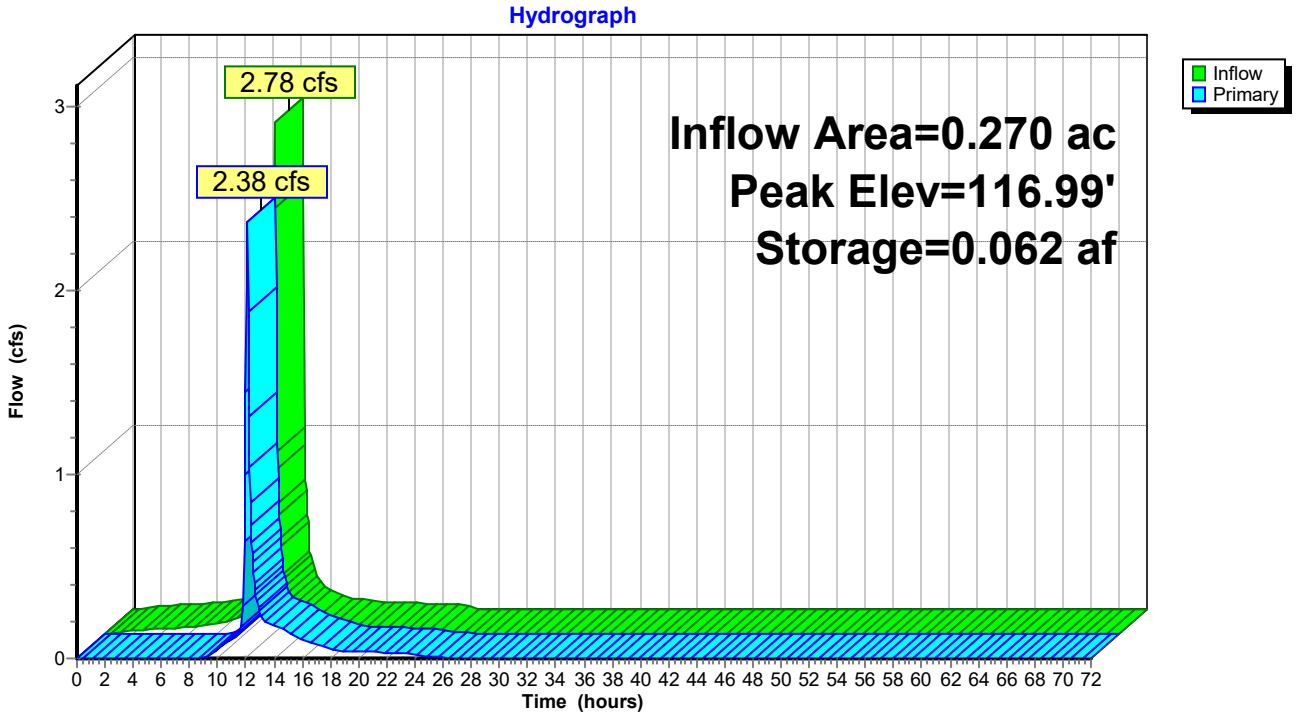
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.35 cfs @ 12.10 hrs HW=116.98' TW=113.77' (Dynamic Tailwater)
↑**1=Culvert** (Passes 2.35 cfs of 9.62 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.26 cfs @ 5.21 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 2.09 cfs @ 2.27 fps)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.63	0.00
2.50	0.02	0.002	114.77	0.00
5.00	0.03	0.008	115.11	0.00
7.50	0.05	0.017	115.46	0.00
10.00	**0.10**	**0.029**	**115.87**	**0.06**
12.50	**0.44**	**0.052**	**116.63**	**0.52**
15.00	0.07	0.039	116.18	0.14
17.50	0.04	0.029	115.89	0.06
20.00	0.03	0.028	115.83	0.04
22.50	0.03	0.027	115.82	0.03
25.00	0.00	0.025	115.76	0.01
27.50	0.00	0.024	115.73	0.00
30.00	0.00	0.024	115.71	0.00
32.50	0.00	0.024	115.71	0.00
35.00	0.00	0.024	115.70	0.00
37.50	0.00	0.024	115.70	0.00
40.00	0.00	0.024	115.70	0.00
42.50	0.00	0.024	115.70	0.00
45.00	0.00	0.024	115.70	0.00
47.50	0.00	0.023	115.70	0.00
50.00	0.00	0.023	115.70	0.00
52.50	0.00	0.023	115.70	0.00
55.00	0.00	0.023	115.70	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 8.50" for 100-Year event
Inflow = 8.74 cfs @ 12.08 hrs, Volume= 0.616 af
Outflow = 0.79 cfs @ 12.34 hrs, Volume= 0.540 af, Atten= 91%, Lag= 15.6 min
Primary = 0.79 cfs @ 12.34 hrs, Volume= 0.540 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.85' @ 13.05 hrs Surf.Area= 0.410 ac Storage= 0.365 af

Plug-Flow detention time= 399.5 min calculated for 0.540 af (88% of inflow)
Center-of-Mass det. time= 340.5 min (1,078.8 - 738.3)

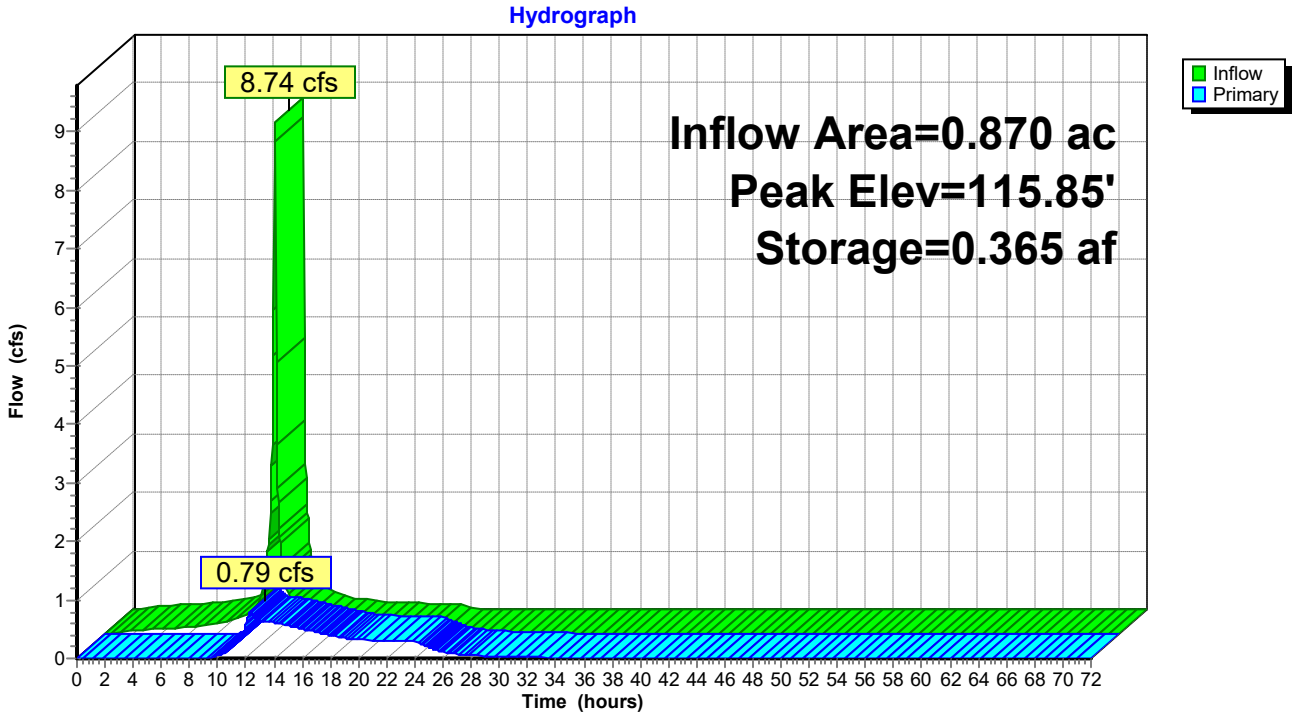
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.77 cfs @ 12.34 hrs HW=115.71' TW=114.35' (Dynamic Tailwater)
↑ **1=Culvert** (Passes 0.77 cfs of 9.93 cfs potential flow)
↑ **2=Orifice/Grate** (Orifice Controls 0.77 cfs @ 5.62 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	113.62	0.00
2.50	0.07	0.007	113.67	0.00
5.00	0.10	0.026	113.78	0.00
7.50	0.16	0.052	113.94	0.00
10.00	**0.32**	0.096	114.21	**0.05**
12.50	**1.52**	**0.355**	**115.79**	**0.74**
15.00	0.23	**0.326**	**115.61**	0.56
17.50	0.14	0.261	115.21	0.42
20.00	0.11	0.211	114.91	0.32
22.50	0.09	0.168	114.64	0.30
25.00	0.00	0.122	114.36	0.19
27.50	0.00	0.099	114.22	0.06
30.00	0.00	0.091	114.17	0.03
32.50	0.00	0.086	114.15	0.02
35.00	0.00	0.084	114.13	0.01
37.50	0.00	0.082	114.12	0.01
40.00	0.00	0.081	114.11	0.00
42.50	0.00	0.080	114.11	0.00
45.00	0.00	0.079	114.10	0.00
47.50	0.00	0.079	114.10	0.00
50.00	0.00	0.078	114.10	0.00
52.50	0.00	0.078	114.09	0.00
55.00	0.00	0.077	114.09	0.00
57.50	0.00	0.077	114.09	0.00
60.00	0.00	0.077	114.09	0.00
62.50	0.00	0.077	114.09	0.00
65.00	0.00	0.077	114.09	0.00
67.50	0.00	0.076	114.09	0.00
70.00	0.00	0.076	114.08	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 7.33" for 100-Year event
Inflow = 5.27 cfs @ 12.11 hrs, Volume= 1.020 af
Outflow = 1.24 cfs @ 13.27 hrs, Volume= 1.004 af, Atten= 76%, Lag= 69.8 min
Primary = 1.24 cfs @ 13.27 hrs, Volume= 1.004 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.91' @ 13.27 hrs Surf.Area= 0.125 ac Storage= 0.285 af

Plug-Flow detention time= 262.9 min calculated for 1.004 af (98% of inflow)
Center-of-Mass det. time= 242.6 min (1,212.7 - 970.1)

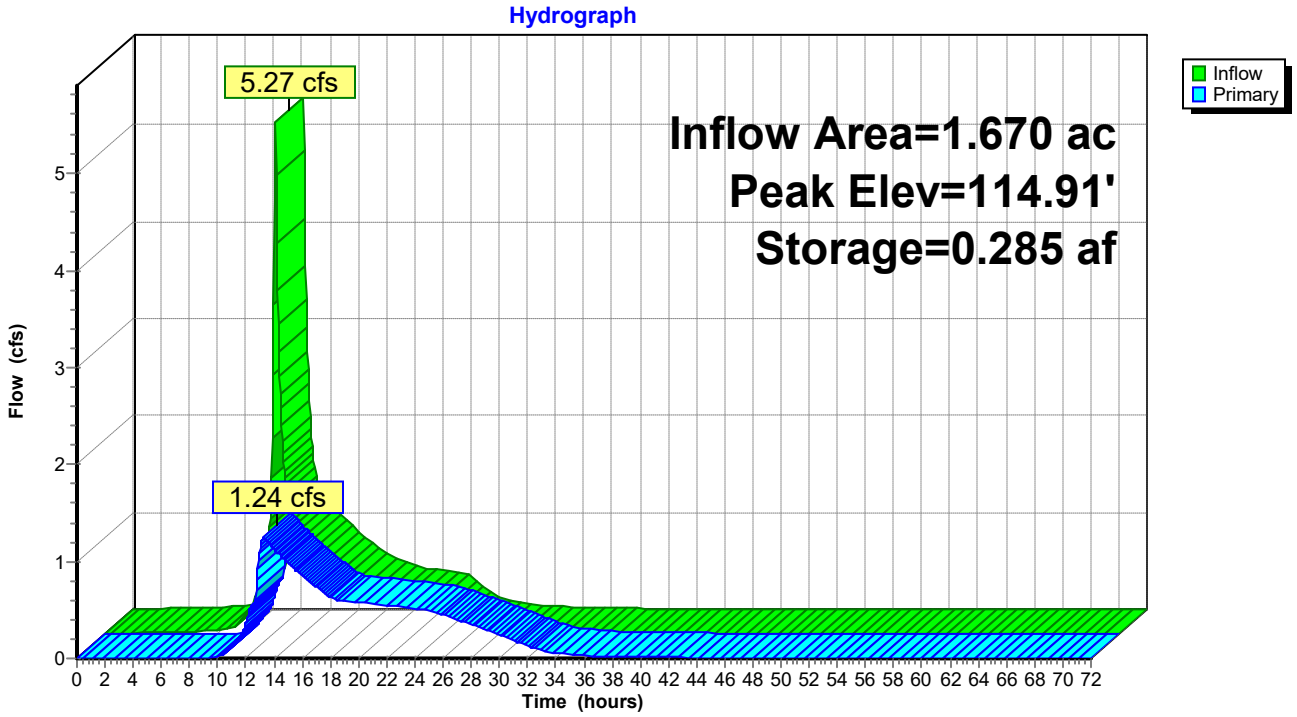
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.24 cfs @ 13.27 hrs HW=114.91' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 1.24 cfs of 15.55 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.61 cfs @ 7.02 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.63 cfs @ 1.31 fps)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

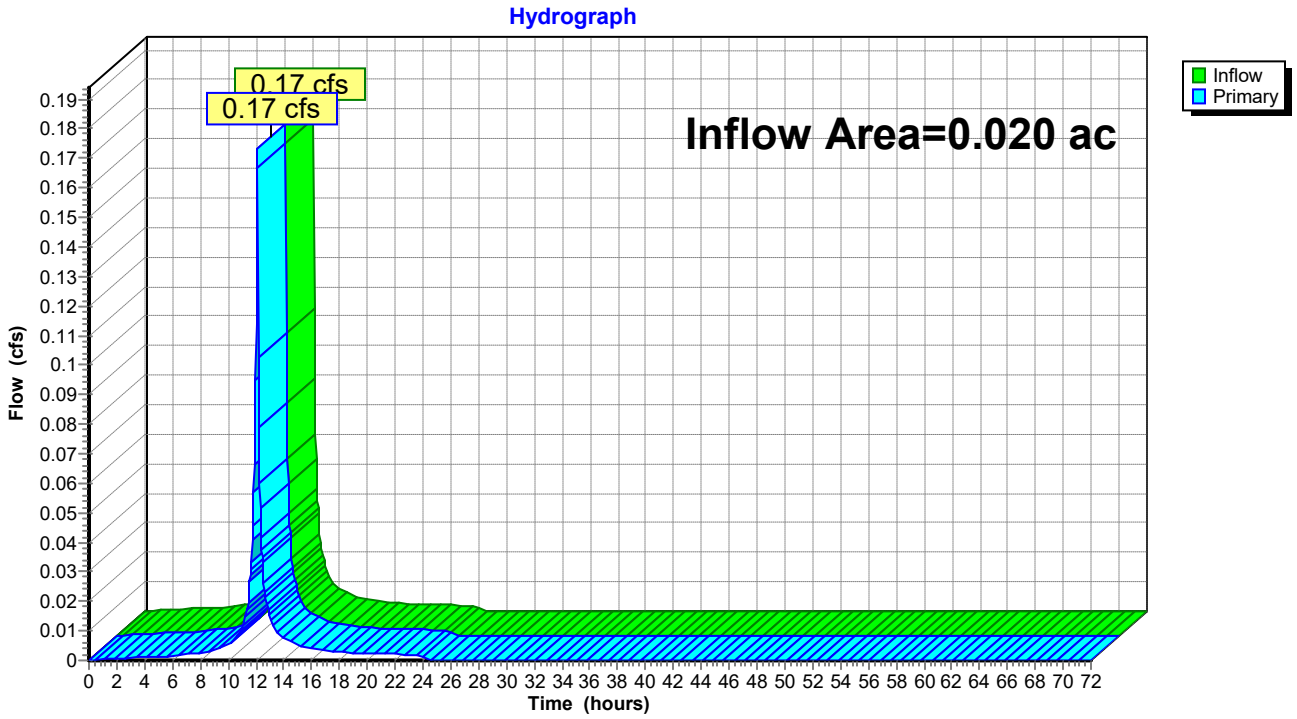
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.01	0.001	112.51	0.00
5.00	0.01	0.003	112.53	0.00
7.50	0.03	0.008	112.57	0.00
10.00	**0.20**	0.022	112.70	0.01
12.50	**2.34**	**0.243**	**114.57**	**0.56**
15.00	0.94	**0.279**	**114.86**	**0.98**
17.50	0.64	0.270	114.79	0.68
20.00	0.45	0.254	114.66	0.58
22.50	0.39	0.225	114.43	0.54
25.00	0.21	0.189	114.13	0.49
27.50	0.07	0.125	113.59	0.38
30.00	0.03	0.070	113.12	0.24
32.50	0.02	0.039	112.85	0.10
35.00	0.01	0.028	112.75	0.04
37.50	0.01	0.024	112.72	0.02
40.00	0.01	0.022	112.70	0.01
42.50	0.00	0.020	112.68	0.01
45.00	0.00	0.019	112.67	0.01
47.50	0.00	0.019	112.67	0.01
50.00	0.00	0.018	112.66	0.00
52.50	0.00	0.018	112.66	0.00
55.00	0.00	0.017	112.66	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.017	112.65	0.00
62.50	0.00	0.017	112.65	0.00
65.00	0.00	0.016	112.65	0.00
67.50	0.00	0.016	112.65	0.00
70.00	0.00	0.016	112.64	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 7.40" for 100-Year event
Inflow = 0.17 cfs @ 12.08 hrs, Volume= 0.012 af
Primary = 0.17 cfs @ 12.08 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

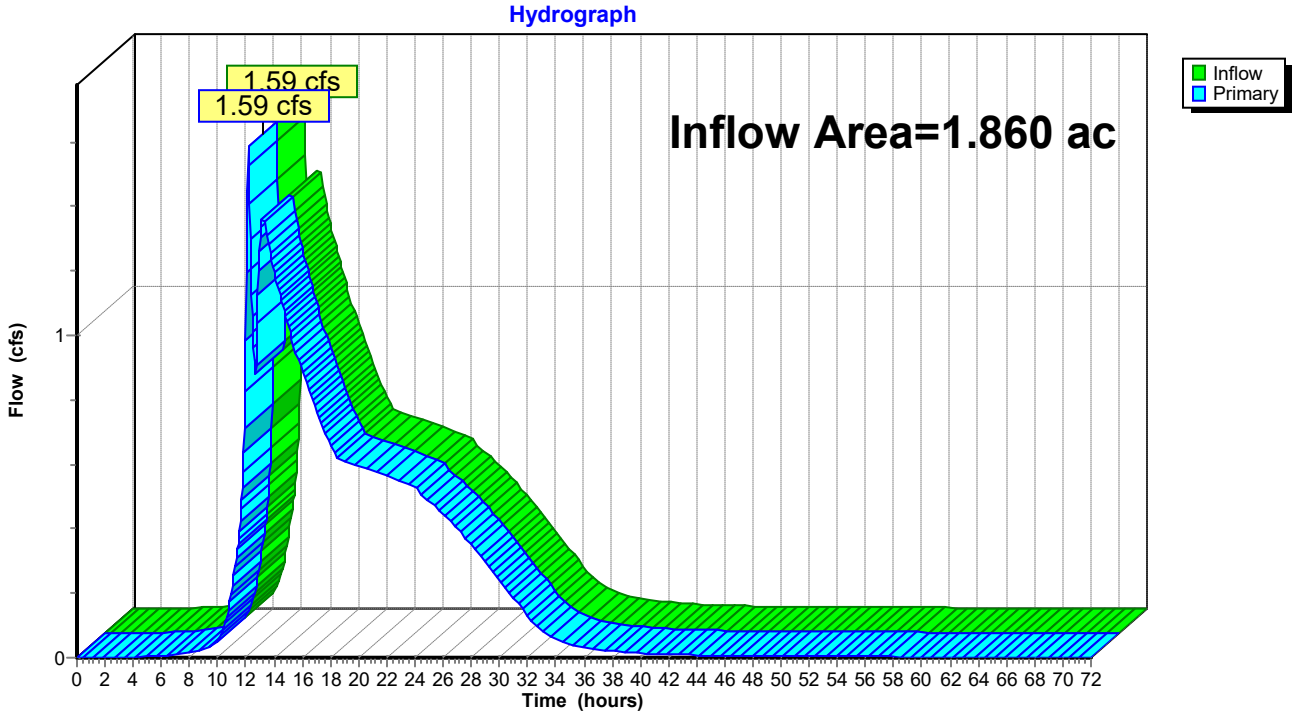
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00	58.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00	59.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00	60.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00	61.00	0.00	0.00	0.00
10.00	0.01	0.00	0.01	62.00	0.00	0.00	0.00
11.00	0.01	0.00	0.01	63.00	0.00	0.00	0.00
12.00	**0.11**	0.00	**0.11**	64.00	0.00	0.00	0.00
13.00	**0.02**	0.00	**0.02**	65.00	0.00	0.00	0.00
14.00	0.01	0.00	0.01	66.00	0.00	0.00	0.00
15.00	0.01	0.00	0.01	67.00	0.00	0.00	0.00
16.00	0.00	0.00	0.00	68.00	0.00	0.00	0.00
17.00	0.00	0.00	0.00	69.00	0.00	0.00	0.00
18.00	0.00	0.00	0.00	70.00	0.00	0.00	0.00
19.00	0.00	0.00	0.00	71.00	0.00	0.00	0.00
20.00	0.00	0.00	0.00	72.00	0.00	0.00	0.00
21.00	0.00	0.00	0.00				
22.00	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
27.00	0.00	0.00	0.00				
28.00	0.00	0.00	0.00				
29.00	0.00	0.00	0.00				
30.00	0.00	0.00	0.00				
31.00	0.00	0.00	0.00				
32.00	0.00	0.00	0.00				
33.00	0.00	0.00	0.00				
34.00	0.00	0.00	0.00				
35.00	0.00	0.00	0.00				
36.00	0.00	0.00	0.00				
37.00	0.00	0.00	0.00				
38.00	0.00	0.00	0.00				
39.00	0.00	0.00	0.00				
40.00	0.00	0.00	0.00				
41.00	0.00	0.00	0.00				
42.00	0.00	0.00	0.00				
43.00	0.00	0.00	0.00				
44.00	0.00	0.00	0.00				
45.00	0.00	0.00	0.00				
46.00	0.00	0.00	0.00				
47.00	0.00	0.00	0.00				
48.00	0.00	0.00	0.00				
49.00	0.00	0.00	0.00				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth > 7.17" for 100-Year event
Inflow = 1.59 cfs @ 12.16 hrs, Volume= 1.111 af
Primary = 1.59 cfs @ 12.16 hrs, Volume= 1.111 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

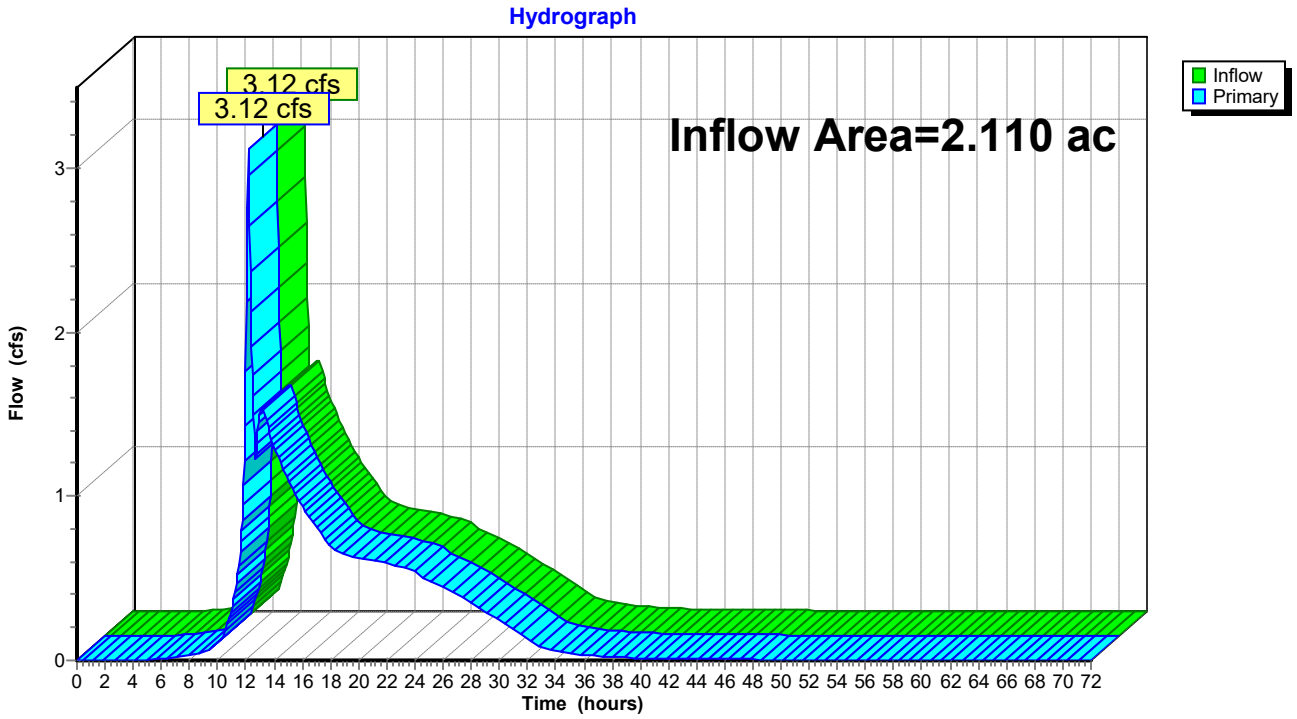
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.01	0.00	0.01	59.00	0.00	0.00	0.00
8.00	0.02	0.00	0.02	60.00	0.00	0.00	0.00
9.00	0.02	0.00	0.02	61.00	0.00	0.00	0.00
10.00	0.05	0.00	0.05	62.00	0.00	0.00	0.00
11.00	0.22	0.00	0.22	63.00	0.00	0.00	0.00
12.00	**0.98**	0.00	**0.98**	64.00	0.00	0.00	0.00
13.00	**1.31**	0.00	**1.31**	65.00	0.00	0.00	0.00
14.00	1.20	0.00	1.20	66.00	0.00	0.00	0.00
15.00	1.03	0.00	1.03	67.00	0.00	0.00	0.00
16.00	0.89	0.00	0.89	68.00	0.00	0.00	0.00
17.00	0.77	0.00	0.77	69.00	0.00	0.00	0.00
18.00	0.66	0.00	0.66	70.00	0.00	0.00	0.00
19.00	0.61	0.00	0.61	71.00	0.00	0.00	0.00
20.00	0.60	0.00	0.60	72.00	0.00	0.00	0.00
21.00	0.58	0.00	0.58				
22.00	0.57	0.00	0.57				
23.00	0.55	0.00	0.55				
24.00	0.53	0.00	0.53				
25.00	0.49	0.00	0.49				
26.00	0.45	0.00	0.45				
27.00	0.40	0.00	0.40				
28.00	0.35	0.00	0.35				
29.00	0.30	0.00	0.30				
30.00	0.24	0.00	0.24				
31.00	0.19	0.00	0.19				
32.00	0.13	0.00	0.13				
33.00	0.08	0.00	0.08				
34.00	0.06	0.00	0.06				
35.00	0.04	0.00	0.04				
36.00	0.03	0.00	0.03				
37.00	0.02	0.00	0.02				
38.00	0.02	0.00	0.02				
39.00	0.02	0.00	0.02				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.01	0.00	0.01				
46.00	0.01	0.00	0.01				
47.00	0.01	0.00	0.01				
48.00	0.01	0.00	0.01				
49.00	0.01	0.00	0.01				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth > 7.10" for 100-Year event
Inflow = 3.12 cfs @ 12.16 hrs, Volume= 1.248 af
Primary = 3.12 cfs @ 12.16 hrs, Volume= 1.248 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00	56.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01	57.00	0.00	0.00	0.00
6.00	0.01	0.00	0.01	58.00	0.00	0.00	0.00
7.00	0.02	0.00	0.02	59.00	0.00	0.00	0.00
8.00	0.04	0.00	0.04	60.00	0.00	0.00	0.00
9.00	0.05	0.00	0.05	61.00	0.00	0.00	0.00
10.00	0.10	0.00	0.10	62.00	0.00	0.00	0.00
11.00	0.32	0.00	0.32	63.00	0.00	0.00	0.00
12.00	**1.76**	0.00	**1.76**	64.00	0.00	0.00	0.00
13.00	**1.53**	0.00	**1.53**	65.00	0.00	0.00	0.00
14.00	1.30	0.00	1.30	66.00	0.00	0.00	0.00
15.00	1.10	0.00	1.10	67.00	0.00	0.00	0.00
16.00	0.94	0.00	0.94	68.00	0.00	0.00	0.00
17.00	0.81	0.00	0.81	69.00	0.00	0.00	0.00
18.00	0.70	0.00	0.70	70.00	0.00	0.00	0.00
19.00	0.64	0.00	0.64	71.00	0.00	0.00	0.00
20.00	0.63	0.00	0.63	72.00	0.00	0.00	0.00
21.00	0.61	0.00	0.61				
22.00	0.59	0.00	0.59				
23.00	0.57	0.00	0.57				
24.00	0.55	0.00	0.55				
25.00	0.49	0.00	0.49				
26.00	0.45	0.00	0.45				
27.00	0.40	0.00	0.40				
28.00	0.35	0.00	0.35				
29.00	0.30	0.00	0.30				
30.00	0.24	0.00	0.24				
31.00	0.19	0.00	0.19				
32.00	0.13	0.00	0.13				
33.00	0.08	0.00	0.08				
34.00	0.06	0.00	0.06				
35.00	0.04	0.00	0.04				
36.00	0.03	0.00	0.03				
37.00	0.02	0.00	0.02				
38.00	0.02	0.00	0.02				
39.00	0.02	0.00	0.02				
40.00	0.01	0.00	0.01				
41.00	0.01	0.00	0.01				
42.00	0.01	0.00	0.01				
43.00	0.01	0.00	0.01				
44.00	0.01	0.00	0.01				
45.00	0.01	0.00	0.01				
46.00	0.01	0.00	0.01				
47.00	0.01	0.00	0.01				
48.00	0.01	0.00	0.01				
49.00	0.01	0.00	0.01				
50.00	0.00	0.00	0.00				
51.00	0.00	0.00	0.00				

Summary for Subcatchment 1: PDA #1 PERVIOUS

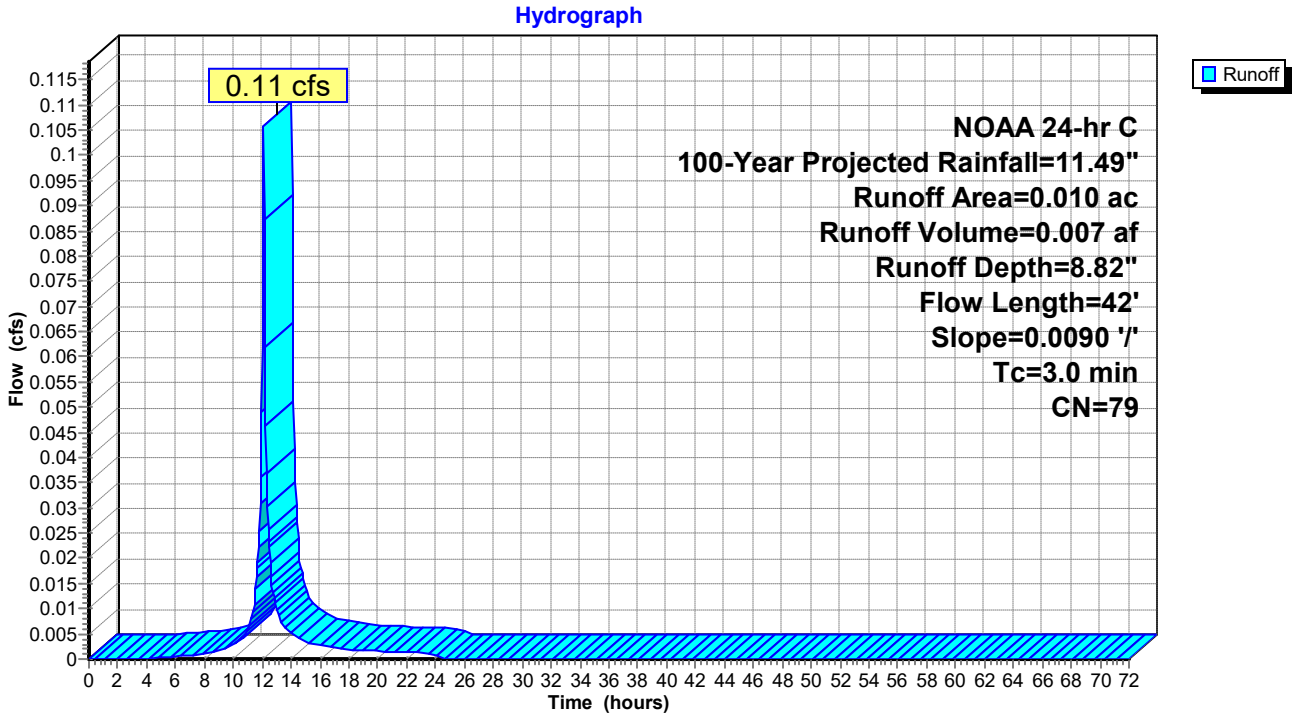
Runoff = 0.11 cfs @ 12.10 hrs, Volume= 0.007 af, Depth= 8.82"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.01	0.00
6.00	0.91	0.05	0.00
7.00	1.12	0.11	0.00
8.00	1.38	0.20	0.00
9.00	1.68	0.35	0.00
10.00	2.09	0.58	0.00
11.00	2.76	1.01	0.01
12.00	5.48	3.22	**0.06**
13.00	8.73	6.19	**0.01**
14.00	9.40	6.82	0.00
15.00	9.81	7.21	0.00
16.00	10.11	7.50	0.00
17.00	10.37	7.74	0.00
18.00	10.58	7.95	0.00
19.00	10.76	8.12	0.00
20.00	10.93	8.28	0.00
21.00	11.08	8.43	0.00
22.00	11.23	8.57	0.00
23.00	11.36	8.70	0.00
24.00	**11.49**	**8.82**	0.00
25.00	11.49	8.82	0.00
26.00	11.49	8.82	0.00
27.00	11.49	8.82	0.00
28.00	11.49	8.82	0.00
29.00	11.49	8.82	0.00
30.00	11.49	8.82	0.00
31.00	11.49	8.82	0.00
32.00	11.49	8.82	0.00
33.00	11.49	8.82	0.00
34.00	11.49	8.82	0.00
35.00	11.49	8.82	0.00
36.00	11.49	8.82	0.00
37.00	11.49	8.82	0.00
38.00	11.49	8.82	0.00
39.00	11.49	8.82	0.00
40.00	11.49	8.82	0.00
41.00	11.49	8.82	0.00
42.00	11.49	8.82	0.00
43.00	11.49	8.82	0.00
44.00	11.49	8.82	0.00
45.00	11.49	8.82	0.00
46.00	11.49	8.82	0.00
47.00	11.49	8.82	0.00
48.00	11.49	8.82	0.00
49.00	11.49	8.82	0.00
50.00	11.49	8.82	0.00
51.00	11.49	8.82	0.00
52.00	11.49	8.82	0.00
53.00	11.49	8.82	0.00
54.00	11.49	8.82	0.00
55.00	11.49	8.82	0.00
56.00	11.49	8.82	0.00
57.00	11.49	8.82	0.00
58.00	11.49	8.82	0.00
59.00	11.49	8.82	0.00
60.00	11.49	8.82	0.00
61.00	11.49	8.82	0.00
62.00	11.49	8.82	0.00
63.00	11.49	8.82	0.00
64.00	11.49	8.82	0.00
65.00	11.49	8.82	0.00
66.00	11.49	8.82	0.00
67.00	11.49	8.82	0.00
68.00	11.49	8.82	0.00
69.00	11.49	8.82	0.00
70.00	11.49	8.82	0.00
71.00	11.49	8.82	0.00
72.00	11.49	8.82	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

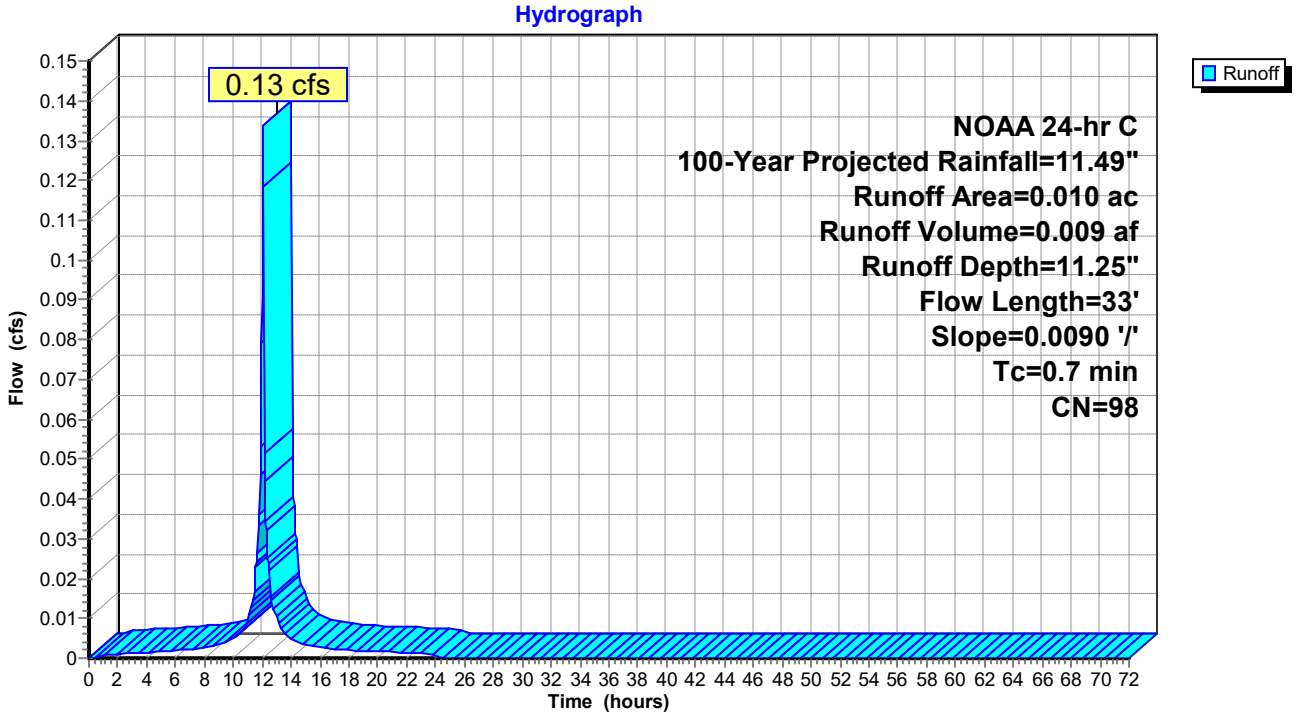
Runoff = 0.13 cfs @ 12.06 hrs, Volume= 0.009 af, Depth=11.25"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.00
2.00	0.26	0.11	0.00
3.00	0.41	0.23	0.00
4.00	0.56	0.37	0.00
5.00	0.73	0.53	0.00
6.00	0.91	0.70	0.00
7.00	1.12	0.91	0.00
8.00	1.38	1.16	0.00
9.00	1.68	1.46	0.00
10.00	2.09	1.87	0.00
11.00	2.76	2.53	0.01
12.00	5.48	5.24	**0.09**
13.00	8.73	8.49	**0.01**
14.00	9.40	9.15	0.01
15.00	9.81	9.57	0.00
16.00	10.11	9.87	0.00
17.00	10.37	10.13	0.00
18.00	10.58	10.34	0.00
19.00	10.76	10.52	0.00
20.00	10.93	10.69	0.00
21.00	11.08	10.84	0.00
22.00	11.23	10.99	0.00
23.00	11.36	11.12	0.00
24.00	**11.49**	**11.25**	0.00
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

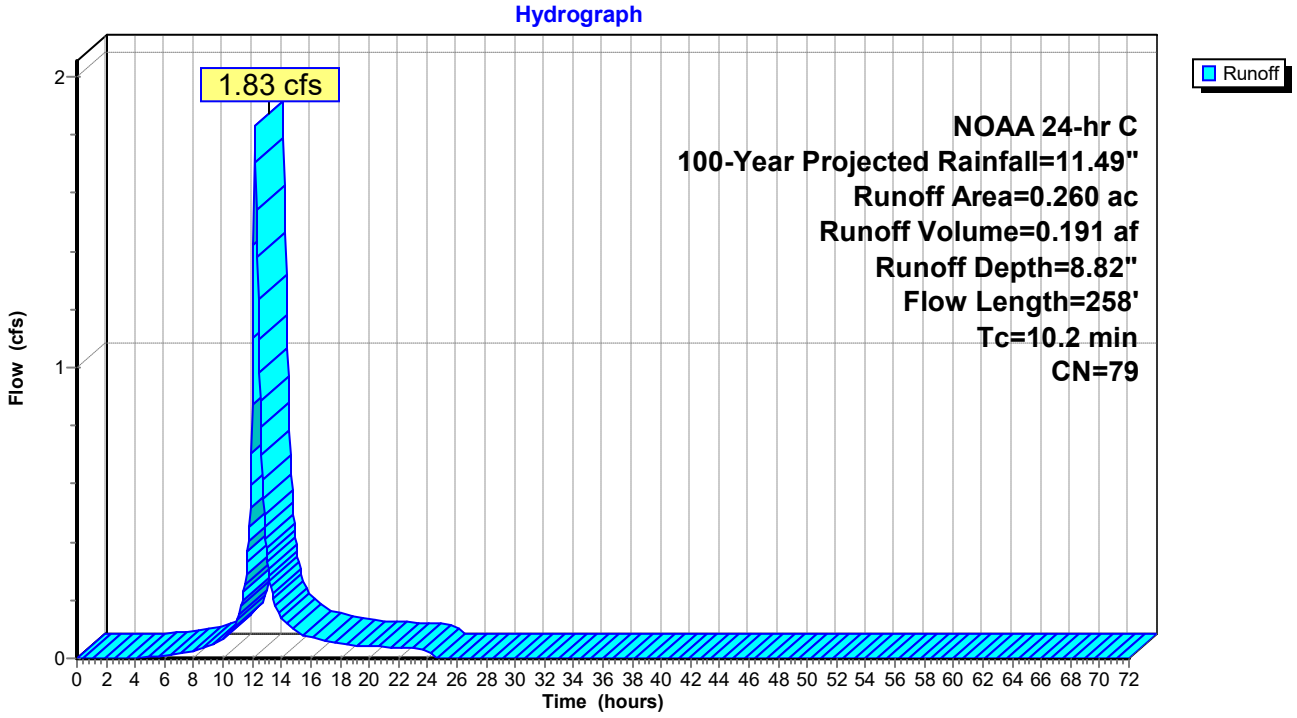
Runoff = 1.83 cfs @ 12.20 hrs, Volume= 0.191 af, Depth= 8.82"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.01	0.00
6.00	0.91	0.05	0.01
7.00	1.12	0.11	0.02
8.00	1.38	0.20	0.03
9.00	1.68	0.35	0.04
10.00	2.09	0.58	0.07
11.00	2.76	1.01	0.14
12.00	5.48	3.22	**0.87**
13.00	8.73	6.19	**0.35**
14.00	9.40	6.82	0.14
15.00	9.81	7.21	0.09
16.00	10.11	7.50	0.07
17.00	10.37	7.74	0.06
18.00	10.58	7.95	0.05
19.00	10.76	8.12	0.04
20.00	10.93	8.28	0.04
21.00	11.08	8.43	0.04
22.00	11.23	8.57	0.04
23.00	11.36	8.70	0.03
24.00	**11.49**	**8.82**	0.03
25.00	11.49	8.82	0.00
26.00	11.49	8.82	0.00
27.00	11.49	8.82	0.00
28.00	11.49	8.82	0.00
29.00	11.49	8.82	0.00
30.00	11.49	8.82	0.00
31.00	11.49	8.82	0.00
32.00	11.49	8.82	0.00
33.00	11.49	8.82	0.00
34.00	11.49	8.82	0.00
35.00	11.49	8.82	0.00
36.00	11.49	8.82	0.00
37.00	11.49	8.82	0.00
38.00	11.49	8.82	0.00
39.00	11.49	8.82	0.00
40.00	11.49	8.82	0.00
41.00	11.49	8.82	0.00
42.00	11.49	8.82	0.00
43.00	11.49	8.82	0.00
44.00	11.49	8.82	0.00
45.00	11.49	8.82	0.00
46.00	11.49	8.82	0.00
47.00	11.49	8.82	0.00
48.00	11.49	8.82	0.00
49.00	11.49	8.82	0.00
50.00	11.49	8.82	0.00
51.00	11.49	8.82	0.00
52.00	11.49	8.82	0.00
53.00	11.49	8.82	0.00
54.00	11.49	8.82	0.00
55.00	11.49	8.82	0.00
56.00	11.49	8.82	0.00
57.00	11.49	8.82	0.00
58.00	11.49	8.82	0.00
59.00	11.49	8.82	0.00
60.00	11.49	8.82	0.00
61.00	11.49	8.82	0.00
62.00	11.49	8.82	0.00
63.00	11.49	8.82	0.00
64.00	11.49	8.82	0.00
65.00	11.49	8.82	0.00
66.00	11.49	8.82	0.00
67.00	11.49	8.82	0.00
68.00	11.49	8.82	0.00
69.00	11.49	8.82	0.00
70.00	11.49	8.82	0.00
71.00	11.49	8.82	0.00
72.00	11.49	8.82	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

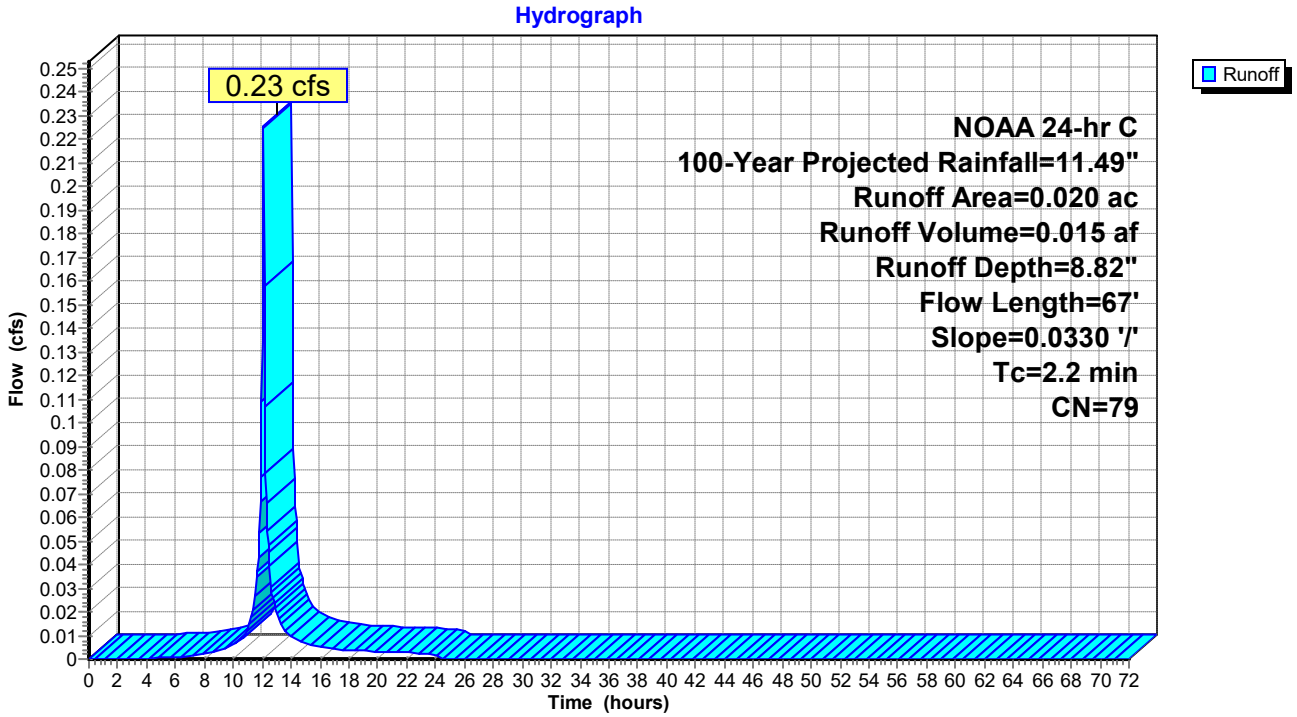
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.015 af, Depth= 8.82"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.01	0.00
6.00	0.91	0.05	0.00
7.00	1.12	0.11	0.00
8.00	1.38	0.20	0.00
9.00	1.68	0.35	0.00
10.00	2.09	0.58	0.01
11.00	2.76	1.01	0.01
12.00	5.48	3.22	**0.13**
13.00	8.73	6.19	**0.02**
14.00	9.40	6.82	0.01
15.00	9.81	7.21	0.01
16.00	10.11	7.50	0.01
17.00	10.37	7.74	0.00
18.00	10.58	7.95	0.00
19.00	10.76	8.12	0.00
20.00	10.93	8.28	0.00
21.00	11.08	8.43	0.00
22.00	11.23	8.57	0.00
23.00	11.36	8.70	0.00
24.00	**11.49**	**8.82**	0.00
25.00	11.49	8.82	0.00
26.00	11.49	8.82	0.00
27.00	11.49	8.82	0.00
28.00	11.49	8.82	0.00
29.00	11.49	8.82	0.00
30.00	11.49	8.82	0.00
31.00	11.49	8.82	0.00
32.00	11.49	8.82	0.00
33.00	11.49	8.82	0.00
34.00	11.49	8.82	0.00
35.00	11.49	8.82	0.00
36.00	11.49	8.82	0.00
37.00	11.49	8.82	0.00
38.00	11.49	8.82	0.00
39.00	11.49	8.82	0.00
40.00	11.49	8.82	0.00
41.00	11.49	8.82	0.00
42.00	11.49	8.82	0.00
43.00	11.49	8.82	0.00
44.00	11.49	8.82	0.00
45.00	11.49	8.82	0.00
46.00	11.49	8.82	0.00
47.00	11.49	8.82	0.00
48.00	11.49	8.82	0.00
49.00	11.49	8.82	0.00
50.00	11.49	8.82	0.00
51.00	11.49	8.82	0.00
52.00	11.49	8.82	0.00
53.00	11.49	8.82	0.00
54.00	11.49	8.82	0.00
55.00	11.49	8.82	0.00
56.00	11.49	8.82	0.00
57.00	11.49	8.82	0.00
58.00	11.49	8.82	0.00
59.00	11.49	8.82	0.00
60.00	11.49	8.82	0.00
61.00	11.49	8.82	0.00
62.00	11.49	8.82	0.00
63.00	11.49	8.82	0.00
64.00	11.49	8.82	0.00
65.00	11.49	8.82	0.00
66.00	11.49	8.82	0.00
67.00	11.49	8.82	0.00
68.00	11.49	8.82	0.00
69.00	11.49	8.82	0.00
70.00	11.49	8.82	0.00
71.00	11.49	8.82	0.00
72.00	11.49	8.82	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

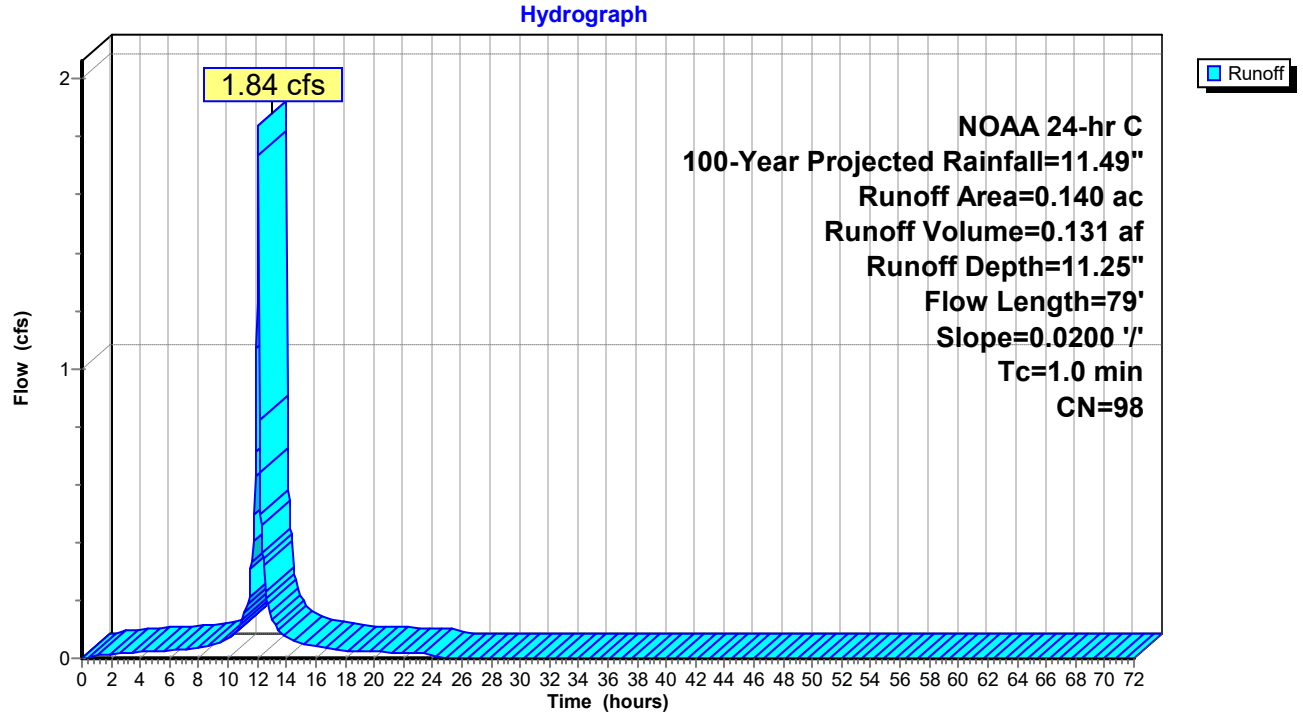
Runoff = 1.84 cfs @ 12.07 hrs, Volume= 0.131 af, Depth=11.25"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.01
2.00	0.26	0.11	0.01
3.00	0.41	0.23	0.02
4.00	0.56	0.37	0.02
5.00	0.73	0.53	0.02
6.00	0.91	0.70	0.03
7.00	1.12	0.91	0.03
8.00	1.38	1.16	0.04
9.00	1.68	1.46	0.05
10.00	2.09	1.87	0.07
11.00	2.76	2.53	0.13
12.00	5.48	5.24	**1.23**
13.00	8.73	8.49	**0.14**
14.00	9.40	9.15	0.07
15.00	9.81	9.57	0.05
16.00	10.11	9.87	0.04
17.00	10.37	10.13	0.03
18.00	10.58	10.34	0.03
19.00	10.76	10.52	0.02
20.00	10.93	10.69	0.02
21.00	11.08	10.84	0.02
22.00	11.23	10.99	0.02
23.00	11.36	11.12	0.02
24.00	**11.49**	**11.25**	0.02
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

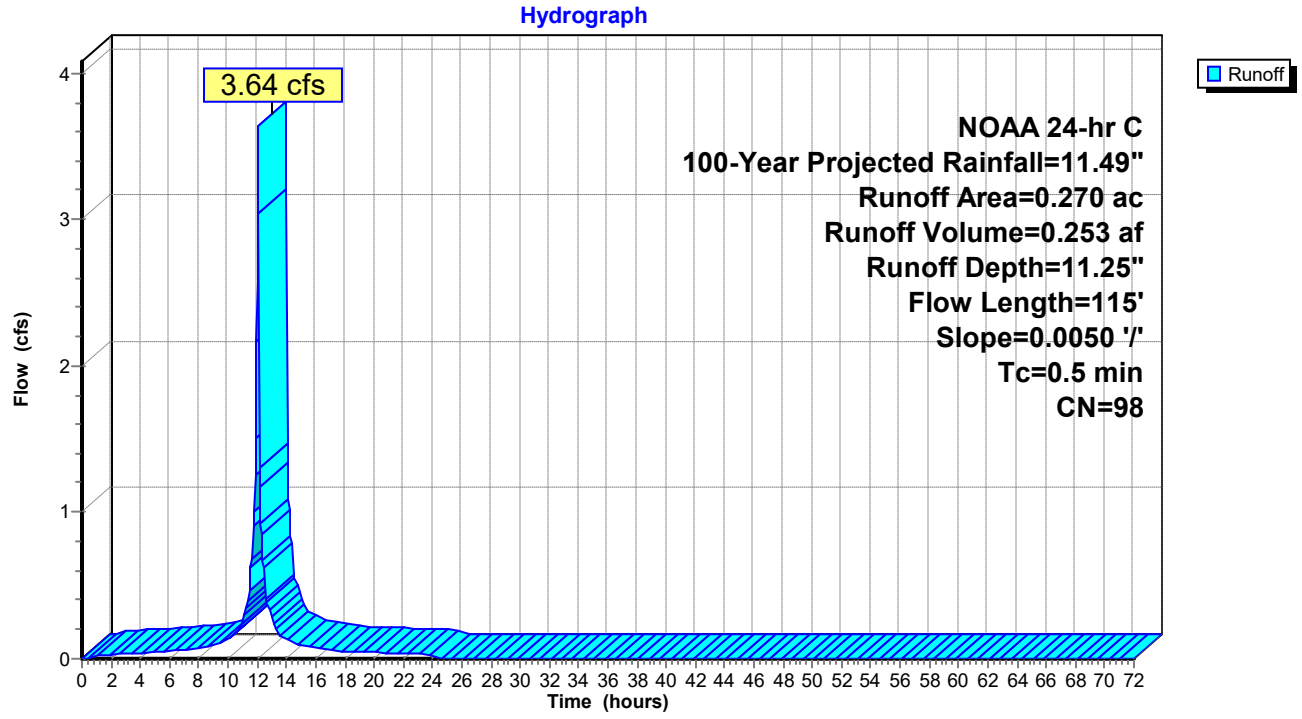
Runoff = 3.64 cfs @ 12.06 hrs, Volume= 0.253 af, Depth=11.25"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.02
2.00	0.26	0.11	0.03
3.00	0.41	0.23	0.04
4.00	0.56	0.37	0.04
5.00	0.73	0.53	0.04
6.00	0.91	0.70	0.05
7.00	1.12	0.91	0.06
8.00	1.38	1.16	0.07
9.00	1.68	1.46	0.09
10.00	2.09	1.87	0.13
11.00	2.76	2.53	0.26
12.00	5.48	5.24	**2.56**
13.00	8.73	8.49	**0.27**
14.00	9.40	9.15	0.14
15.00	9.81	9.57	0.09
16.00	10.11	9.87	0.08
17.00	10.37	10.13	0.06
18.00	10.58	10.34	0.05
19.00	10.76	10.52	0.05
20.00	10.93	10.69	0.04
21.00	11.08	10.84	0.04
22.00	11.23	10.99	0.04
23.00	11.36	11.12	0.04
24.00	**11.49**	**11.25**	0.03
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

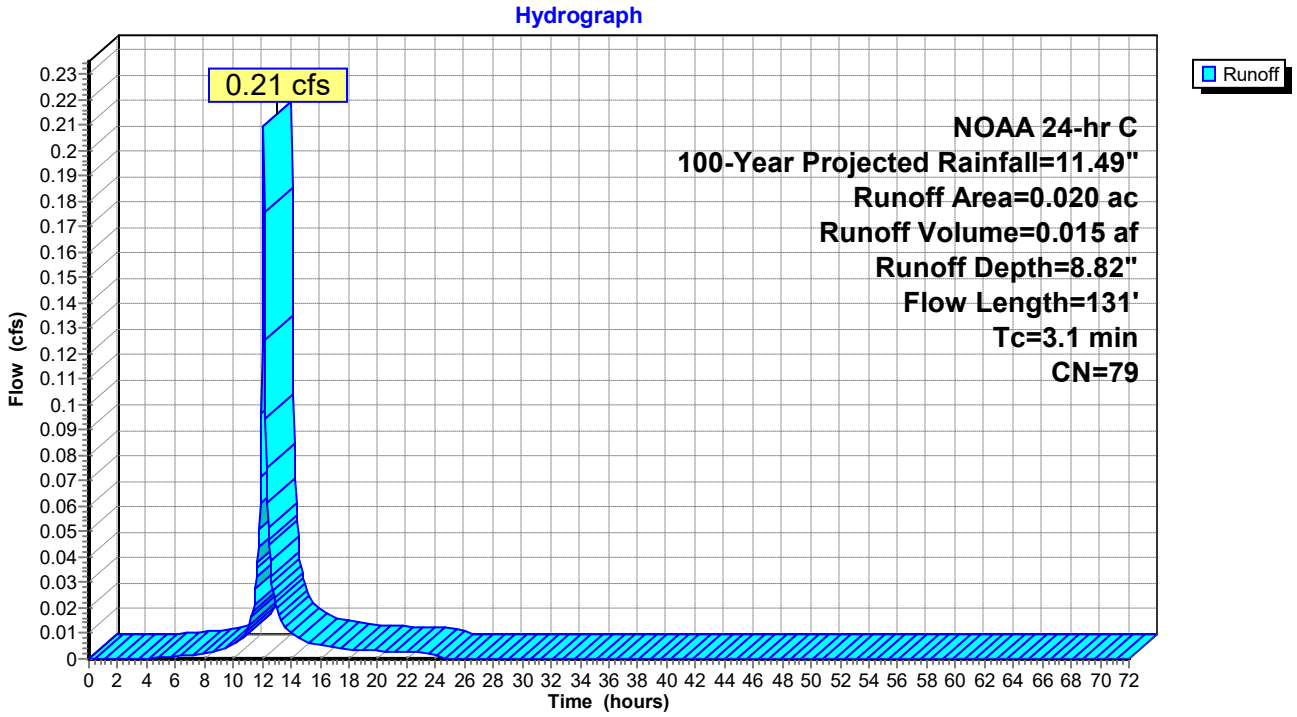
Runoff = 0.21 cfs @ 12.10 hrs, Volume= 0.015 af, Depth= 8.82"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.00	0.00
5.00	0.73	0.01	0.00
6.00	0.91	0.05	0.00
7.00	1.12	0.11	0.00
8.00	1.38	0.20	0.00
9.00	1.68	0.35	0.00
10.00	2.09	0.58	0.01
11.00	2.76	1.01	0.01
12.00	5.48	3.22	**0.12**
13.00	8.73	6.19	**0.02**
14.00	9.40	6.82	0.01
15.00	9.81	7.21	0.01
16.00	10.11	7.50	0.01
17.00	10.37	7.74	0.00
18.00	10.58	7.95	0.00
19.00	10.76	8.12	0.00
20.00	10.93	8.28	0.00
21.00	11.08	8.43	0.00
22.00	11.23	8.57	0.00
23.00	11.36	8.70	0.00
24.00	**11.49**	**8.82**	0.00
25.00	11.49	8.82	0.00
26.00	11.49	8.82	0.00
27.00	11.49	8.82	0.00
28.00	11.49	8.82	0.00
29.00	11.49	8.82	0.00
30.00	11.49	8.82	0.00
31.00	11.49	8.82	0.00
32.00	11.49	8.82	0.00
33.00	11.49	8.82	0.00
34.00	11.49	8.82	0.00
35.00	11.49	8.82	0.00
36.00	11.49	8.82	0.00
37.00	11.49	8.82	0.00
38.00	11.49	8.82	0.00
39.00	11.49	8.82	0.00
40.00	11.49	8.82	0.00
41.00	11.49	8.82	0.00
42.00	11.49	8.82	0.00
43.00	11.49	8.82	0.00
44.00	11.49	8.82	0.00
45.00	11.49	8.82	0.00
46.00	11.49	8.82	0.00
47.00	11.49	8.82	0.00
48.00	11.49	8.82	0.00
49.00	11.49	8.82	0.00
50.00	11.49	8.82	0.00
51.00	11.49	8.82	0.00
52.00	11.49	8.82	0.00
53.00	11.49	8.82	0.00
54.00	11.49	8.82	0.00
55.00	11.49	8.82	0.00
56.00	11.49	8.82	0.00
57.00	11.49	8.82	0.00
58.00	11.49	8.82	0.00
59.00	11.49	8.82	0.00
60.00	11.49	8.82	0.00
61.00	11.49	8.82	0.00
62.00	11.49	8.82	0.00
63.00	11.49	8.82	0.00
64.00	11.49	8.82	0.00
65.00	11.49	8.82	0.00
66.00	11.49	8.82	0.00
67.00	11.49	8.82	0.00
68.00	11.49	8.82	0.00
69.00	11.49	8.82	0.00
70.00	11.49	8.82	0.00
71.00	11.49	8.82	0.00
72.00	11.49	8.82	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

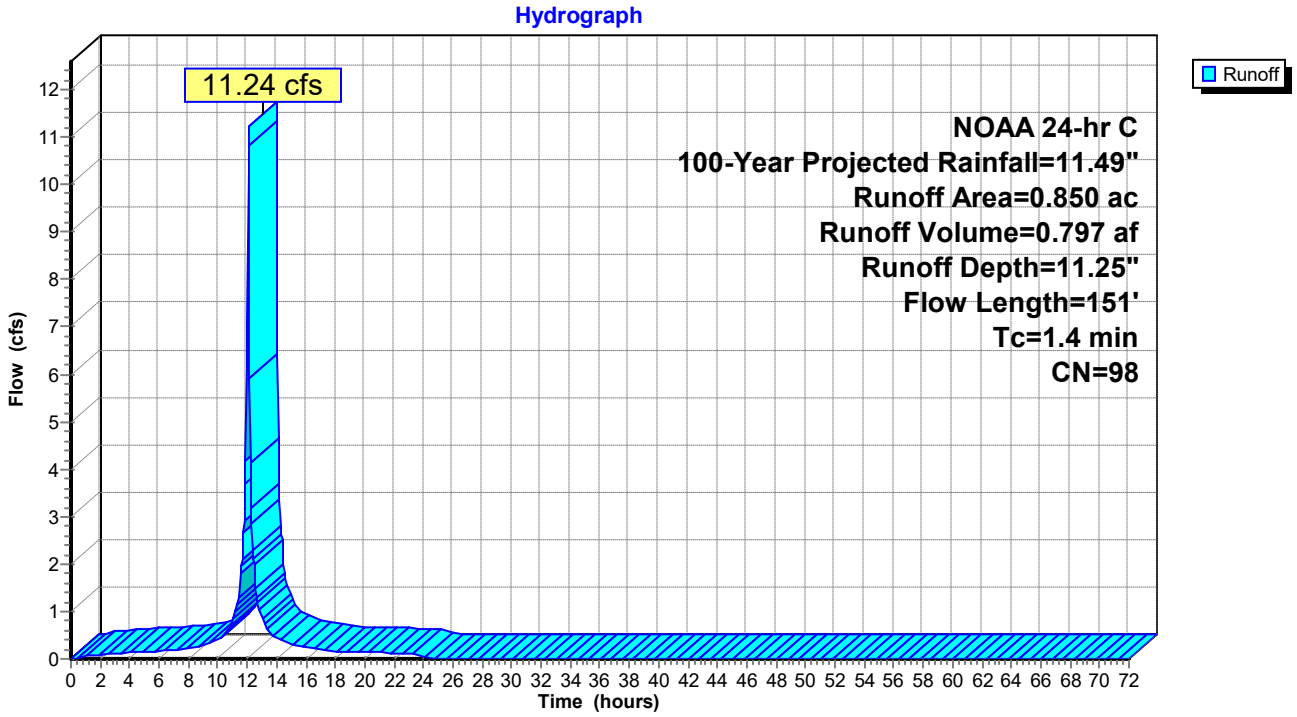
Runoff = 11.24 cfs @ 12.08 hrs, Volume= 0.797 af, Depth=11.25"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.05
2.00	0.26	0.11	0.09
3.00	0.41	0.23	0.11
4.00	0.56	0.37	0.13
5.00	0.73	0.53	0.14
6.00	0.91	0.70	0.15
7.00	1.12	0.91	0.19
8.00	1.38	1.16	0.23
9.00	1.68	1.46	0.27
10.00	2.09	1.87	0.42
11.00	2.76	2.53	0.78
12.00	5.48	5.24	**7.12**
13.00	8.73	8.49	**0.88**
14.00	9.40	9.15	0.44
15.00	9.81	9.57	0.29
16.00	10.11	9.87	0.24
17.00	10.37	10.13	0.20
18.00	10.58	10.34	0.16
19.00	10.76	10.52	0.15
20.00	10.93	10.69	0.14
21.00	11.08	10.84	0.13
22.00	11.23	10.99	0.12
23.00	11.36	11.12	0.11
24.00	**11.49**	**11.25**	0.12
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

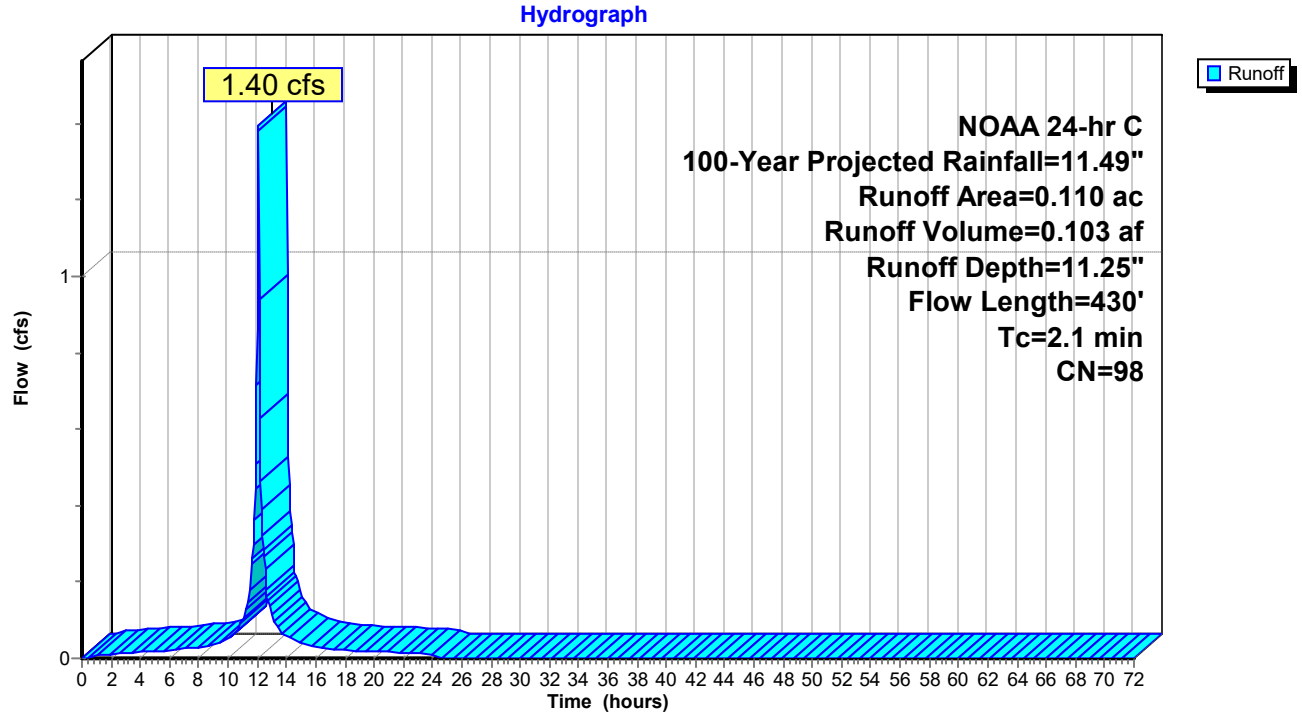
Runoff = 1.40 cfs @ 12.09 hrs, Volume= 0.103 af, Depth=11.25"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.01
2.00	0.26	0.11	0.01
3.00	0.41	0.23	0.01
4.00	0.56	0.37	0.02
5.00	0.73	0.53	0.02
6.00	0.91	0.70	0.02
7.00	1.12	0.91	0.02
8.00	1.38	1.16	0.03
9.00	1.68	1.46	0.04
10.00	2.09	1.87	0.05
11.00	2.76	2.53	0.10
12.00	5.48	5.24	**0.86**
13.00	8.73	8.49	**0.12**
14.00	9.40	9.15	0.06
15.00	9.81	9.57	0.04
16.00	10.11	9.87	0.03
17.00	10.37	10.13	0.03
18.00	10.58	10.34	0.02
19.00	10.76	10.52	0.02
20.00	10.93	10.69	0.02
21.00	11.08	10.84	0.02
22.00	11.23	10.99	0.02
23.00	11.36	11.12	0.01
24.00	**11.49**	**11.25**	0.02
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

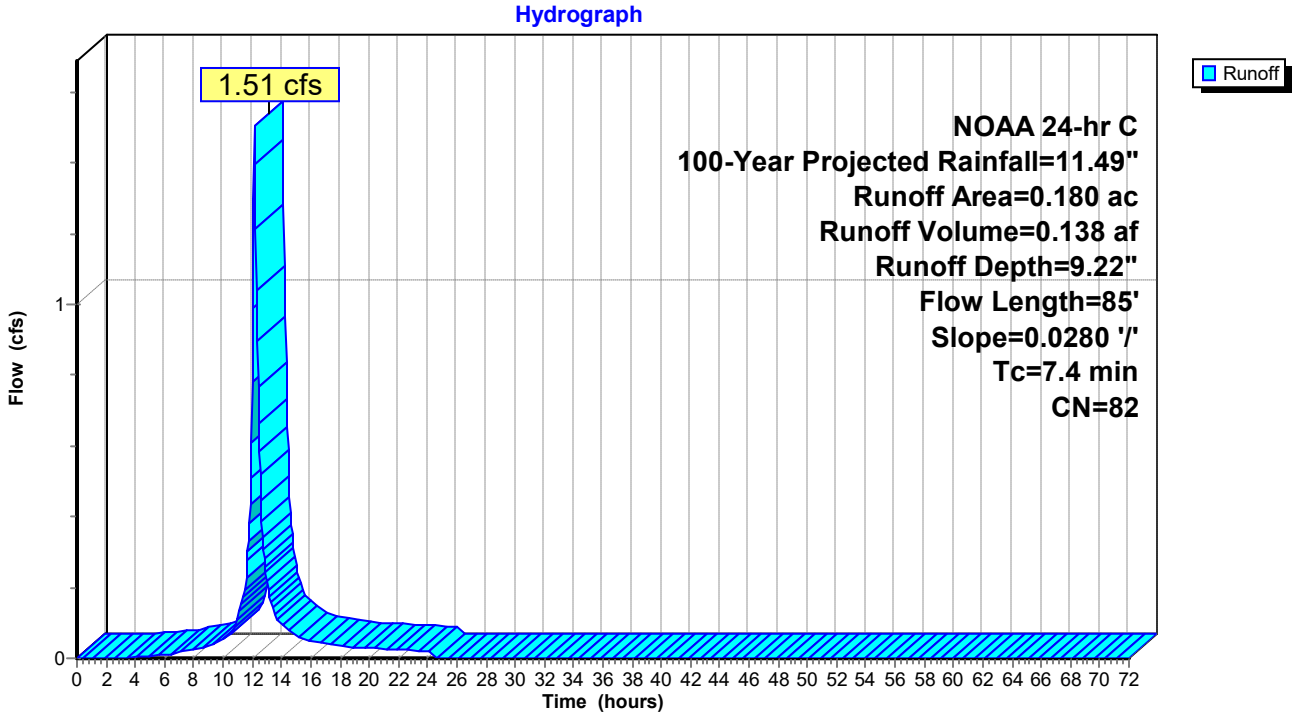
Runoff = 1.51 cfs @ 12.16 hrs, Volume= 0.138 af, Depth= 9.22"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.01	0.00
5.00	0.73	0.03	0.01
6.00	0.91	0.08	0.01
7.00	1.12	0.16	0.02
8.00	1.38	0.28	0.02
9.00	1.68	0.45	0.03
10.00	2.09	0.71	0.06
11.00	2.76	1.19	0.11
12.00	5.48	3.51	**0.78**
13.00	8.73	6.56	**0.21**
14.00	9.40	7.19	0.09
15.00	9.81	7.59	0.06
16.00	10.11	7.89	0.05
17.00	10.37	8.13	0.04
18.00	10.58	8.34	0.03
19.00	10.76	8.51	0.03
20.00	10.93	8.67	0.03
21.00	11.08	8.83	0.03
22.00	11.23	8.97	0.03
23.00	11.36	9.10	0.02
24.00	**11.49**	**9.22**	0.02
25.00	11.49	9.22	0.00
26.00	11.49	9.22	0.00
27.00	11.49	9.22	0.00
28.00	11.49	9.22	0.00
29.00	11.49	9.22	0.00
30.00	11.49	9.22	0.00
31.00	11.49	9.22	0.00
32.00	11.49	9.22	0.00
33.00	11.49	9.22	0.00
34.00	11.49	9.22	0.00
35.00	11.49	9.22	0.00
36.00	11.49	9.22	0.00
37.00	11.49	9.22	0.00
38.00	11.49	9.22	0.00
39.00	11.49	9.22	0.00
40.00	11.49	9.22	0.00
41.00	11.49	9.22	0.00
42.00	11.49	9.22	0.00
43.00	11.49	9.22	0.00
44.00	11.49	9.22	0.00
45.00	11.49	9.22	0.00
46.00	11.49	9.22	0.00
47.00	11.49	9.22	0.00
48.00	11.49	9.22	0.00
49.00	11.49	9.22	0.00
50.00	11.49	9.22	0.00
51.00	11.49	9.22	0.00
52.00	11.49	9.22	0.00
53.00	11.49	9.22	0.00
54.00	11.49	9.22	0.00
55.00	11.49	9.22	0.00
56.00	11.49	9.22	0.00
57.00	11.49	9.22	0.00
58.00	11.49	9.22	0.00
59.00	11.49	9.22	0.00
60.00	11.49	9.22	0.00
61.00	11.49	9.22	0.00
62.00	11.49	9.22	0.00
63.00	11.49	9.22	0.00
64.00	11.49	9.22	0.00
65.00	11.49	9.22	0.00
66.00	11.49	9.22	0.00
67.00	11.49	9.22	0.00
68.00	11.49	9.22	0.00
69.00	11.49	9.22	0.00
70.00	11.49	9.22	0.00
71.00	11.49	9.22	0.00
72.00	11.49	9.22	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

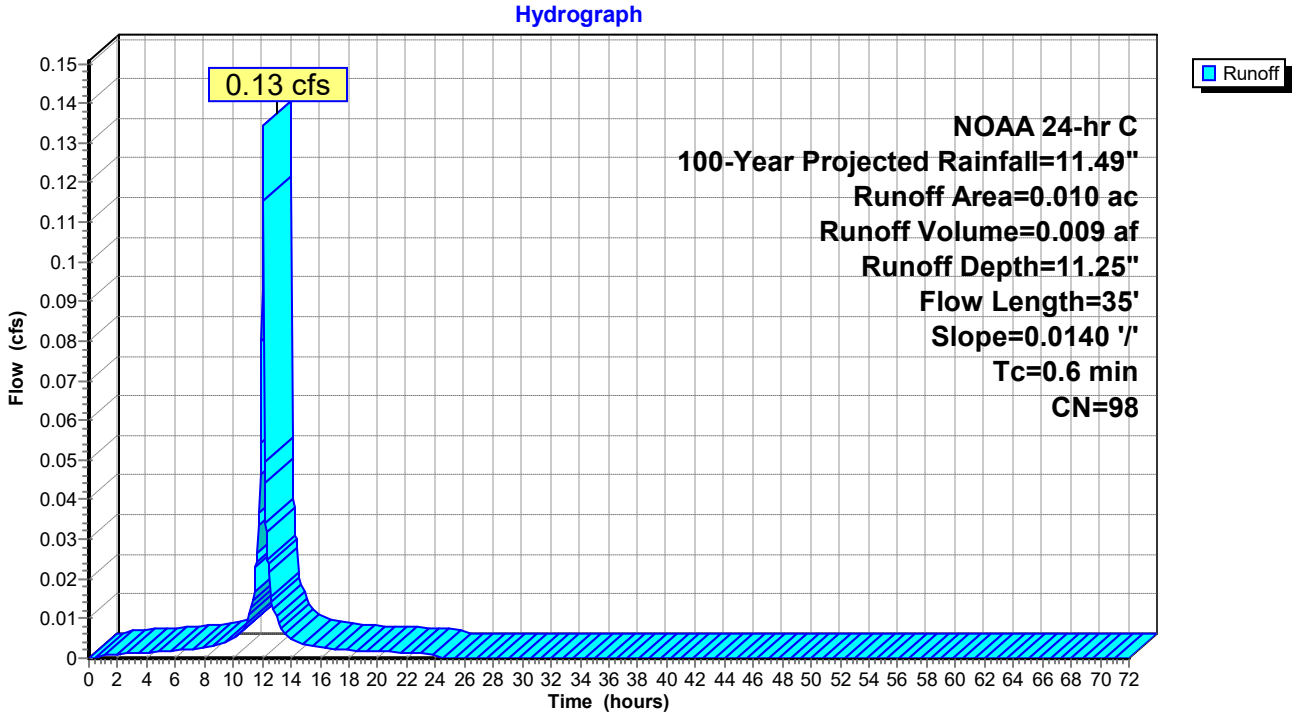
Runoff = 0.13 cfs @ 12.06 hrs, Volume= 0.009 af, Depth=11.25"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.02	0.00
2.00	0.26	0.11	0.00
3.00	0.41	0.23	0.00
4.00	0.56	0.37	0.00
5.00	0.73	0.53	0.00
6.00	0.91	0.70	0.00
7.00	1.12	0.91	0.00
8.00	1.38	1.16	0.00
9.00	1.68	1.46	0.00
10.00	2.09	1.87	0.00
11.00	2.76	2.53	0.01
12.00	5.48	5.24	**0.09**
13.00	8.73	8.49	**0.01**
14.00	9.40	9.15	0.01
15.00	9.81	9.57	0.00
16.00	10.11	9.87	0.00
17.00	10.37	10.13	0.00
18.00	10.58	10.34	0.00
19.00	10.76	10.52	0.00
20.00	10.93	10.69	0.00
21.00	11.08	10.84	0.00
22.00	11.23	10.99	0.00
23.00	11.36	11.12	0.00
24.00	**11.49**	**11.25**	0.00
25.00	11.49	11.25	0.00
26.00	11.49	11.25	0.00
27.00	11.49	11.25	0.00
28.00	11.49	11.25	0.00
29.00	11.49	11.25	0.00
30.00	11.49	11.25	0.00
31.00	11.49	11.25	0.00
32.00	11.49	11.25	0.00
33.00	11.49	11.25	0.00
34.00	11.49	11.25	0.00
35.00	11.49	11.25	0.00
36.00	11.49	11.25	0.00
37.00	11.49	11.25	0.00
38.00	11.49	11.25	0.00
39.00	11.49	11.25	0.00
40.00	11.49	11.25	0.00
41.00	11.49	11.25	0.00
42.00	11.49	11.25	0.00
43.00	11.49	11.25	0.00
44.00	11.49	11.25	0.00
45.00	11.49	11.25	0.00
46.00	11.49	11.25	0.00
47.00	11.49	11.25	0.00
48.00	11.49	11.25	0.00
49.00	11.49	11.25	0.00
50.00	11.49	11.25	0.00
51.00	11.49	11.25	0.00
52.00	11.49	11.25	0.00
53.00	11.49	11.25	0.00
54.00	11.49	11.25	0.00
55.00	11.49	11.25	0.00
56.00	11.49	11.25	0.00
57.00	11.49	11.25	0.00
58.00	11.49	11.25	0.00
59.00	11.49	11.25	0.00
60.00	11.49	11.25	0.00
61.00	11.49	11.25	0.00
62.00	11.49	11.25	0.00
63.00	11.49	11.25	0.00
64.00	11.49	11.25	0.00
65.00	11.49	11.25	0.00
66.00	11.49	11.25	0.00
67.00	11.49	11.25	0.00
68.00	11.49	11.25	0.00
69.00	11.49	11.25	0.00
70.00	11.49	11.25	0.00
71.00	11.49	11.25	0.00
72.00	11.49	11.25	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

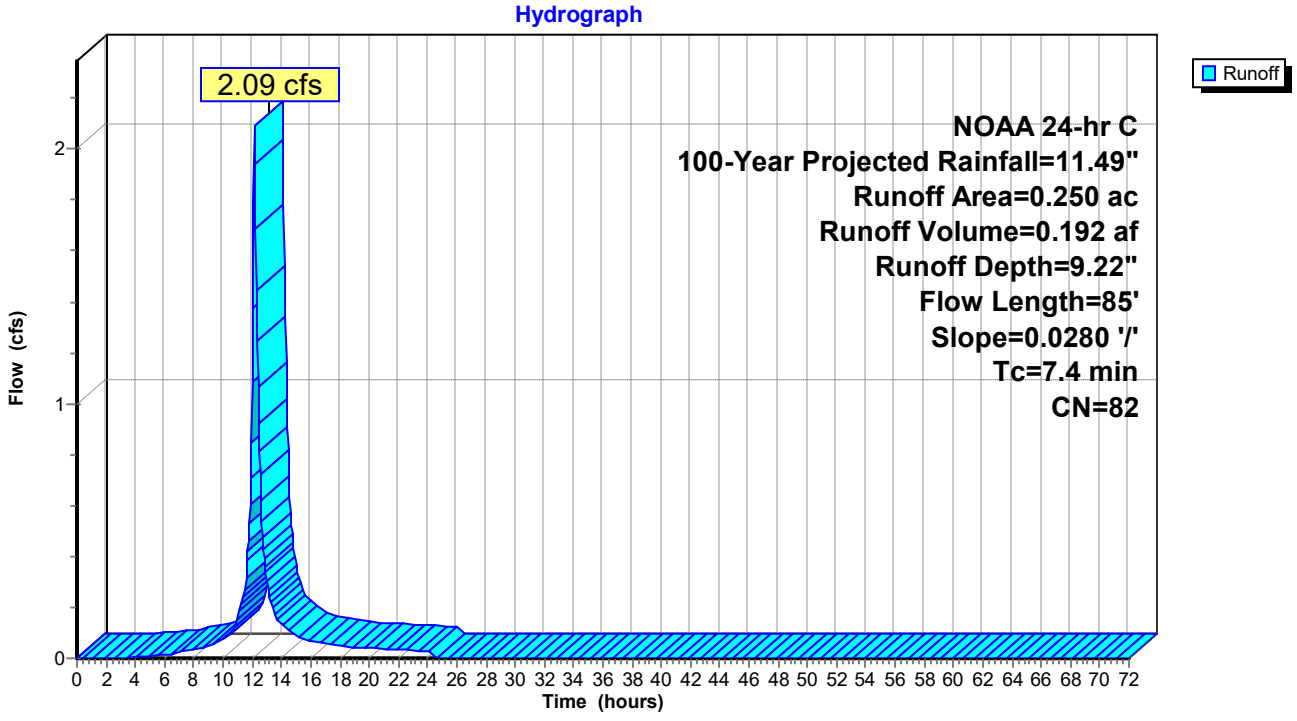
Runoff = 2.09 cfs @ 12.16 hrs, Volume= 0.192 af, Depth= 9.22"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NOAA 24-hr C 100-Year Projected Rainfall=11.49"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.13	0.00	0.00
2.00	0.26	0.00	0.00
3.00	0.41	0.00	0.00
4.00	0.56	0.01	0.00
5.00	0.73	0.03	0.01
6.00	0.91	0.08	0.01
7.00	1.12	0.16	0.02
8.00	1.38	0.28	0.03
9.00	1.68	0.45	0.05
10.00	2.09	0.71	0.08
11.00	2.76	1.19	0.15
12.00	5.48	3.51	**1.08**
13.00	8.73	6.56	**0.30**
14.00	9.40	7.19	0.13
15.00	9.81	7.59	0.09
16.00	10.11	7.89	0.07
17.00	10.37	8.13	0.06
18.00	10.58	8.34	0.05
19.00	10.76	8.51	0.04
20.00	10.93	8.67	0.04
21.00	11.08	8.83	0.04
22.00	11.23	8.97	0.03
23.00	11.36	9.10	0.03
24.00	**11.49**	**9.22**	0.03
25.00	11.49	9.22	0.00
26.00	11.49	9.22	0.00
27.00	11.49	9.22	0.00
28.00	11.49	9.22	0.00
29.00	11.49	9.22	0.00
30.00	11.49	9.22	0.00
31.00	11.49	9.22	0.00
32.00	11.49	9.22	0.00
33.00	11.49	9.22	0.00
34.00	11.49	9.22	0.00
35.00	11.49	9.22	0.00
36.00	11.49	9.22	0.00
37.00	11.49	9.22	0.00
38.00	11.49	9.22	0.00
39.00	11.49	9.22	0.00
40.00	11.49	9.22	0.00
41.00	11.49	9.22	0.00
42.00	11.49	9.22	0.00
43.00	11.49	9.22	0.00
44.00	11.49	9.22	0.00
45.00	11.49	9.22	0.00
46.00	11.49	9.22	0.00
47.00	11.49	9.22	0.00
48.00	11.49	9.22	0.00
49.00	11.49	9.22	0.00
50.00	11.49	9.22	0.00
51.00	11.49	9.22	0.00
52.00	11.49	9.22	0.00
53.00	11.49	9.22	0.00
54.00	11.49	9.22	0.00
55.00	11.49	9.22	0.00
56.00	11.49	9.22	0.00
57.00	11.49	9.22	0.00
58.00	11.49	9.22	0.00
59.00	11.49	9.22	0.00
60.00	11.49	9.22	0.00
61.00	11.49	9.22	0.00
62.00	11.49	9.22	0.00
63.00	11.49	9.22	0.00
64.00	11.49	9.22	0.00
65.00	11.49	9.22	0.00
66.00	11.49	9.22	0.00
67.00	11.49	9.22	0.00
68.00	11.49	9.22	0.00
69.00	11.49	9.22	0.00
70.00	11.49	9.22	0.00
71.00	11.49	9.22	0.00
72.00	11.49	9.22	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 10.94" for 100-Year Projected event
Inflow = 2.05 cfs @ 12.07 hrs, Volume= 0.146 af
Outflow = 0.28 cfs @ 12.56 hrs, Volume= 0.133 af, Atten= 87%, Lag= 28.9 min
Primary = 0.28 cfs @ 12.56 hrs, Volume= 0.133 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.46' @ 12.56 hrs Surf.Area= 0.118 ac Storage= 0.077 af

Plug-Flow detention time= 276.9 min calculated for 0.133 af (91% of inflow)
Center-of-Mass det. time= 231.5 min (971.1 - 739.6)

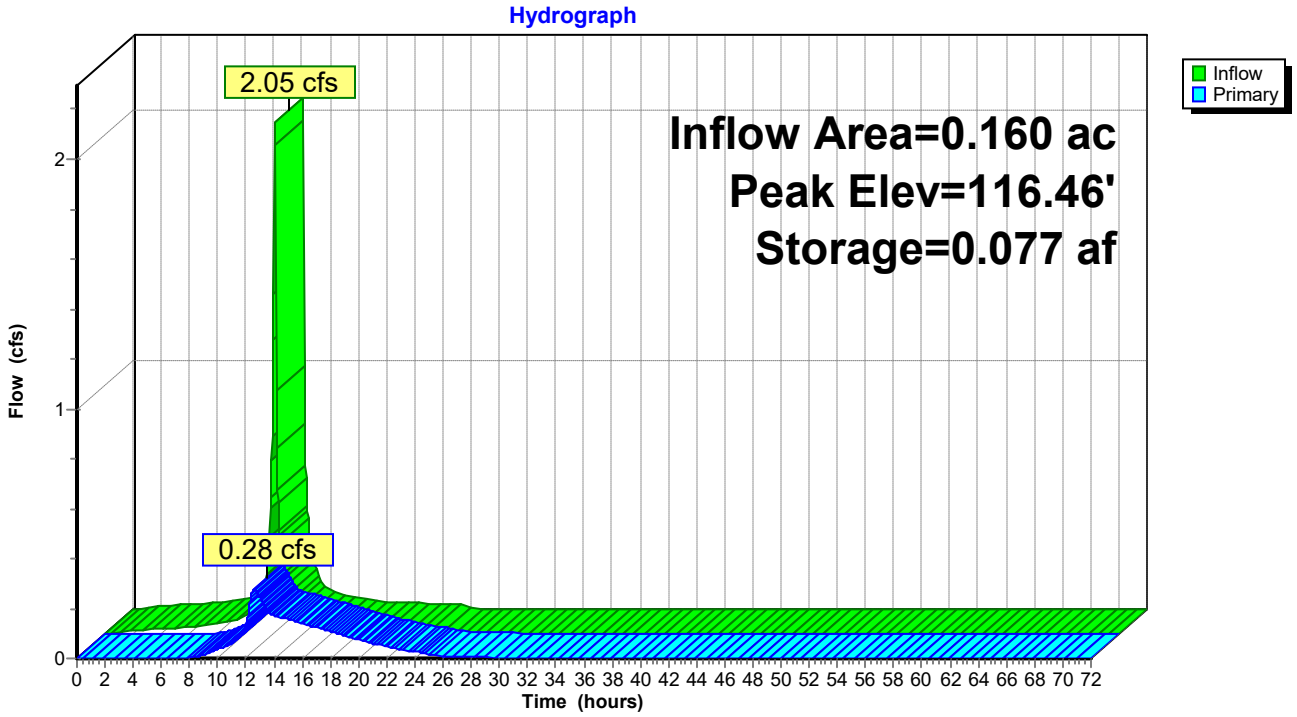
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.27 cfs @ 12.56 hrs HW=116.46' TW=115.15' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.27 cfs of 6.75 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.19 cfs @ 5.44 fps)
3=Orifice/Grate (Orifice Controls 0.09 cfs @ 1.56 fps)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.82	0.00
2.50	0.02	0.002	114.86	0.00
5.00	0.02	0.006	114.95	0.00
7.50	0.04	0.012	115.08	0.00
10.00	**0.08**	0.020	115.24	0.04
12.50	**0.36**	**0.077**	**116.46**	**0.27**
15.00	0.05	**0.060**	**116.09**	**0.16**
17.50	0.03	0.041	115.68	0.12
20.00	0.03	0.027	115.39	0.07
22.50	0.02	0.020	115.25	0.04
25.00	0.00	0.017	115.18	0.02
27.50	0.00	0.015	115.13	0.01
30.00	0.00	0.014	115.12	0.00
32.50	0.00	0.014	115.11	0.00
35.00	0.00	0.013	115.10	0.00
37.50	0.00	0.013	115.10	0.00
40.00	0.00	0.013	115.10	0.00
42.50	0.00	0.013	115.09	0.00
45.00	0.00	0.013	115.09	0.00
47.50	0.00	0.013	115.09	0.00
50.00	0.00	0.013	115.09	0.00
52.50	0.00	0.013	115.09	0.00
55.00	0.00	0.013	115.09	0.00
57.50	0.00	0.013	115.09	0.00
60.00	0.00	0.013	115.09	0.00
62.50	0.00	0.013	115.09	0.00
65.00	0.00	0.013	115.09	0.00
67.50	0.00	0.013	115.09	0.00
70.00	0.00	0.013	115.09	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 11.25" for 100-Year Projected event
Inflow = 3.64 cfs @ 12.06 hrs, Volume= 0.253 af
Outflow = 3.24 cfs @ 12.09 hrs, Volume= 0.230 af, Atten= 11%, Lag= 2.1 min
Primary = 3.24 cfs @ 12.09 hrs, Volume= 0.230 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 117.12' @ 12.09 hrs Surf.Area= 0.043 ac Storage= 0.065 af

Plug-Flow detention time= 147.0 min calculated for 0.230 af (91% of inflow)
Center-of-Mass det. time= 98.4 min (831.3 - 732.9)

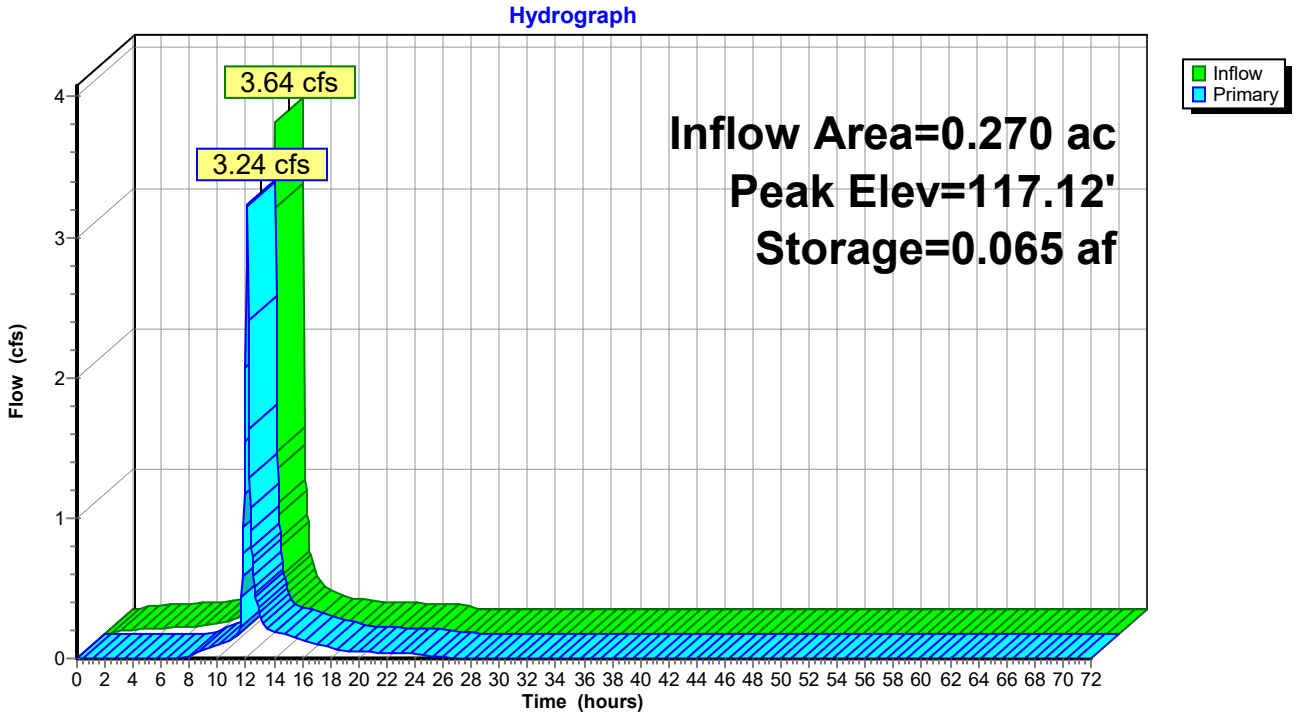
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.15 cfs @ 12.09 hrs HW=117.10' TW=114.36' (Dynamic Tailwater)
↑**1=Culvert** (Passes 3.15 cfs of 9.79 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.47 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 2.89 cfs @ 2.54 fps)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	114.63	0.00
2.50	0.03	0.004	114.85	0.00
5.00	0.04	0.012	115.28	0.00
7.50	0.07	0.023	115.68	0.00
10.00	**0.13**	**0.032**	**115.97**	**0.09**
12.50	**0.57**	**0.053**	**116.67**	**0.67**
15.00	0.09	0.042	116.29	0.16
17.50	0.06	0.031	115.95	0.09
20.00	0.04	0.028	115.86	0.05
22.50	0.04	0.028	115.84	0.04
25.00	0.00	0.026	115.77	0.01
27.50	0.00	0.024	115.73	0.00
30.00	0.00	0.024	115.71	0.00
32.50	0.00	0.024	115.71	0.00
35.00	0.00	0.024	115.70	0.00
37.50	0.00	0.024	115.70	0.00
40.00	0.00	0.024	115.70	0.00
42.50	0.00	0.024	115.70	0.00
45.00	0.00	0.024	115.70	0.00
47.50	0.00	0.023	115.70	0.00
50.00	0.00	0.023	115.70	0.00
52.50	0.00	0.023	115.70	0.00
55.00	0.00	0.023	115.70	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 11.19" for 100-Year Projected event
Inflow = 11.45 cfs @ 12.08 hrs, Volume= 0.811 af
Outflow = 1.33 cfs @ 12.61 hrs, Volume= 0.735 af, Atten= 88%, Lag= 31.7 min
Primary = 1.33 cfs @ 12.61 hrs, Volume= 0.735 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 116.40' @ 12.61 hrs Surf.Area= 0.410 ac Storage= 0.455 af

Plug-Flow detention time= 379.3 min calculated for 0.735 af (91% of inflow)
Center-of-Mass det. time= 328.8 min (1,064.1 - 735.3)

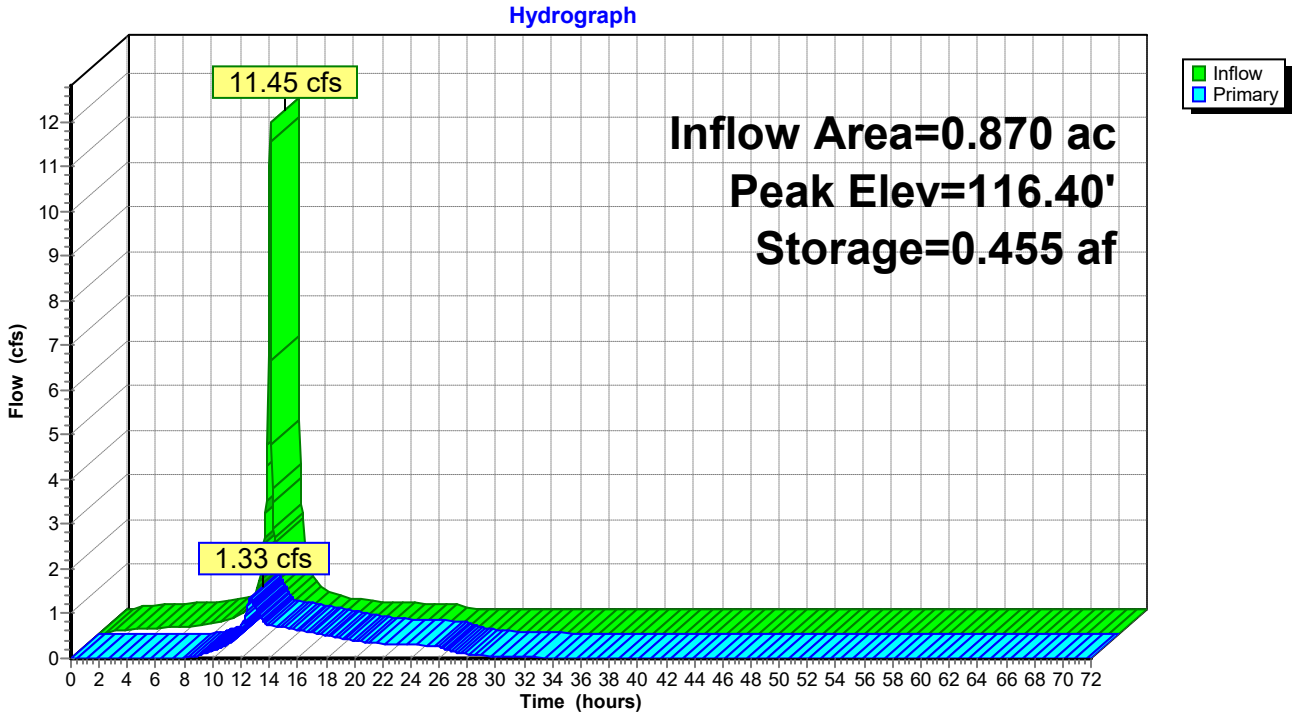
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.33 cfs @ 12.61 hrs HW=116.40' TW=115.15' (Dynamic Tailwater)
↑**1=Culvert** (Passes 1.33 cfs of 9.48 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.73 cfs @ 5.37 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 0.59 cfs @ 1.37 fps)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	113.62	0.00
2.50	0.10	0.012	113.69	0.00
5.00	0.14	0.037	113.85	0.00
7.50	0.21	0.072	114.06	0.00
10.00	**0.43**	0.120	114.35	0.18
12.50	**1.99**	**0.453**	**116.38**	**1.26**
15.00	0.30	**0.396**	**116.03**	**0.70**
17.50	0.19	0.315	115.54	0.55
20.00	0.14	0.250	115.15	0.40
22.50	0.12	0.205	114.87	0.32
25.00	0.00	0.156	114.57	0.29
27.50	0.00	0.111	114.29	0.12
30.00	0.00	0.095	114.20	0.05
32.50	0.00	0.089	114.16	0.02
35.00	0.00	0.085	114.14	0.01
37.50	0.00	0.083	114.13	0.01
40.00	0.00	0.081	114.12	0.01
42.50	0.00	0.080	114.11	0.00
45.00	0.00	0.080	114.10	0.00
47.50	0.00	0.079	114.10	0.00
50.00	0.00	0.078	114.10	0.00
52.50	0.00	0.078	114.10	0.00
55.00	0.00	0.078	114.09	0.00
57.50	0.00	0.077	114.09	0.00
60.00	0.00	0.077	114.09	0.00
62.50	0.00	0.077	114.09	0.00
65.00	0.00	0.077	114.09	0.00
67.50	0.00	0.076	114.09	0.00
70.00	0.00	0.076	114.09	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 10.01" for 100-Year Projected event
Inflow = 7.01 cfs @ 12.10 hrs, Volume= 1.393 af
Outflow = 3.11 cfs @ 12.60 hrs, Volume= 1.377 af, Atten= 56%, Lag= 29.9 min
Primary = 3.11 cfs @ 12.60 hrs, Volume= 1.377 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.15' @ 12.60 hrs Surf.Area= 0.127 ac Storage= 0.316 af

Plug-Flow detention time= 220.9 min calculated for 1.377 af (99% of inflow)
Center-of-Mass det. time= 203.9 min (1,160.8 - 956.9)

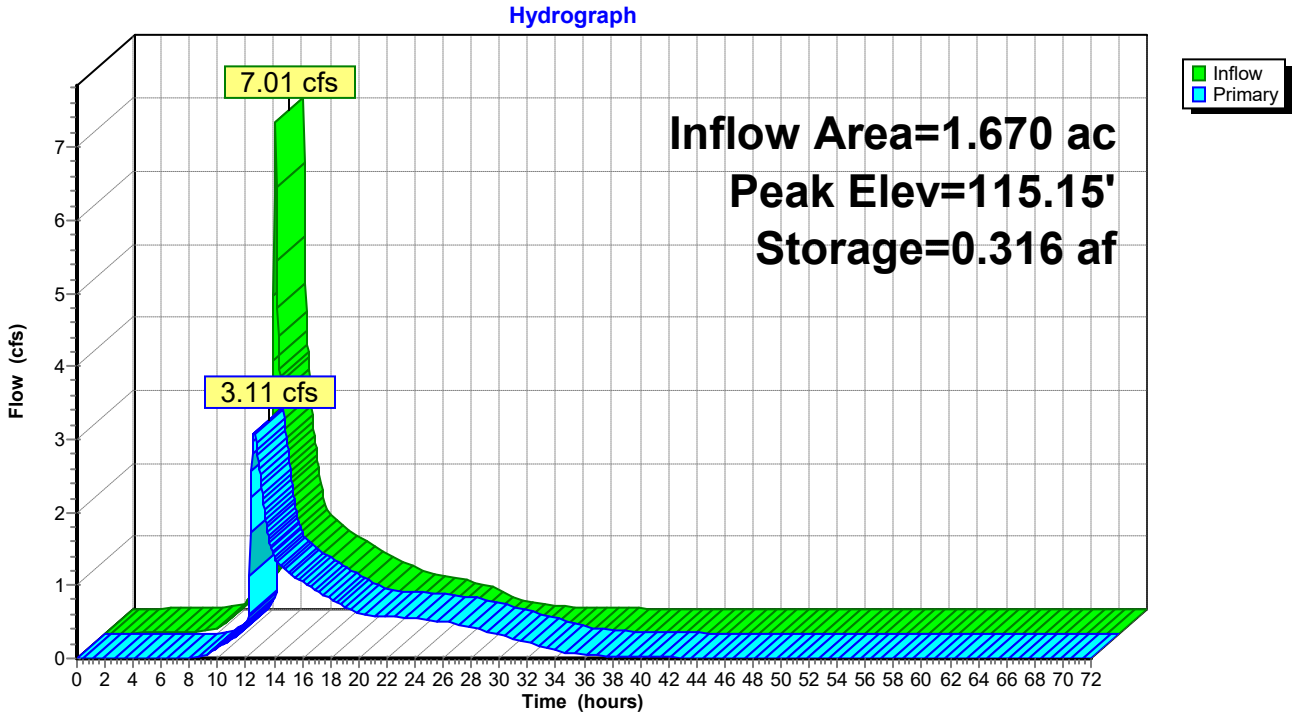
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.10 cfs @ 12.60 hrs HW=115.15' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 3.10 cfs of 16.31 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.65 cfs @ 7.41 fps)
  └**3=Sharp-Crested Rectangular Weir** (Weir Controls 2.46 cfs @ 2.08 fps)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

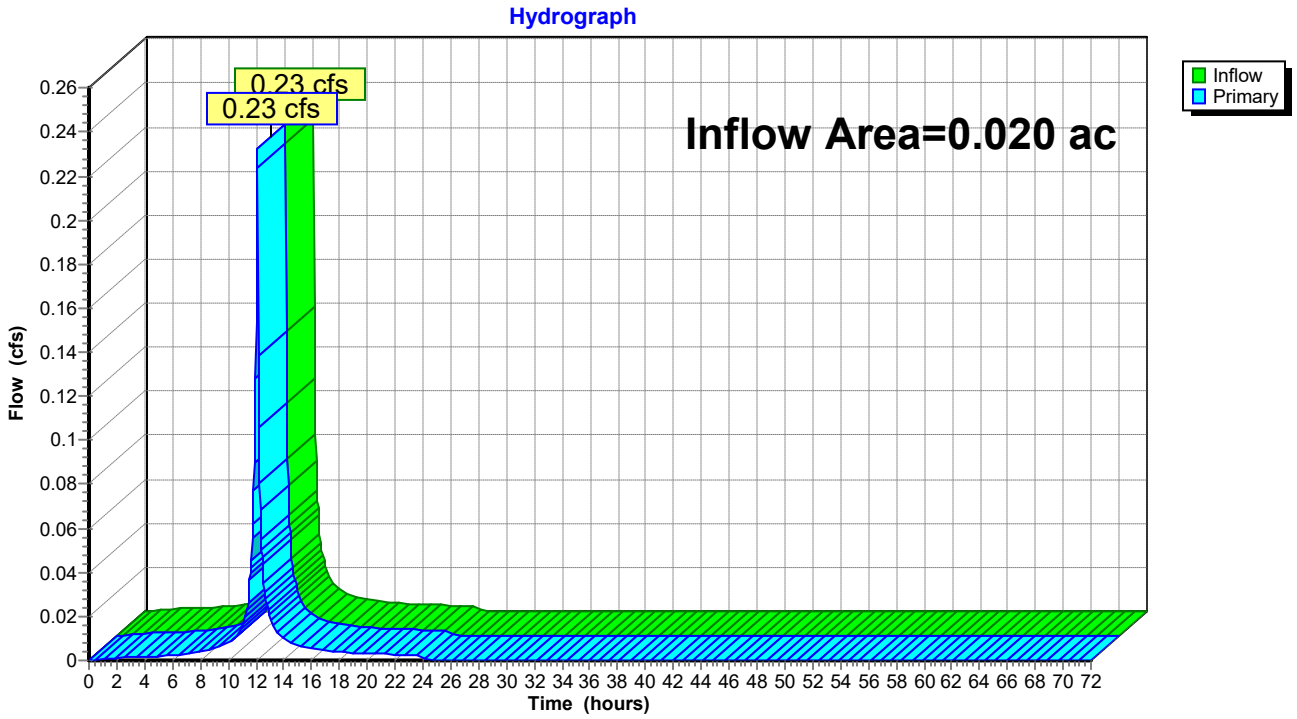
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.01	0.002	112.51	0.00
5.00	0.02	0.005	112.54	0.00
7.50	0.05	0.012	112.61	0.00
10.00	**0.43**	0.046	112.91	0.15
12.50	**3.44**	**0.314**	**115.14**	**2.98**
15.00	1.15	**0.284**	**114.90**	**1.19**
17.50	0.83	0.276	114.84	0.87
20.00	0.58	0.268	114.77	0.63
22.50	0.45	0.250	114.63	0.57
25.00	0.32	0.218	114.37	0.53
27.50	0.13	0.165	113.93	0.45
30.00	0.05	0.101	113.39	0.33
32.50	0.02	0.055	112.99	0.19
35.00	0.01	0.034	112.80	0.07
37.50	0.01	0.026	112.74	0.03
40.00	0.01	0.023	112.71	0.02
42.50	0.01	0.021	112.69	0.01
45.00	0.00	0.020	112.68	0.01
47.50	0.00	0.019	112.67	0.01
50.00	0.00	0.019	112.67	0.01
52.50	0.00	0.018	112.66	0.00
55.00	0.00	0.018	112.66	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.017	112.65	0.00
62.50	0.00	0.017	112.65	0.00
65.00	0.00	0.016	112.65	0.00
67.50	0.00	0.016	112.65	0.00
70.00	0.00	0.016	112.64	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 10.03" for 100-Year Projected event
Inflow = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af
Primary = 0.23 cfs @ 12.08 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

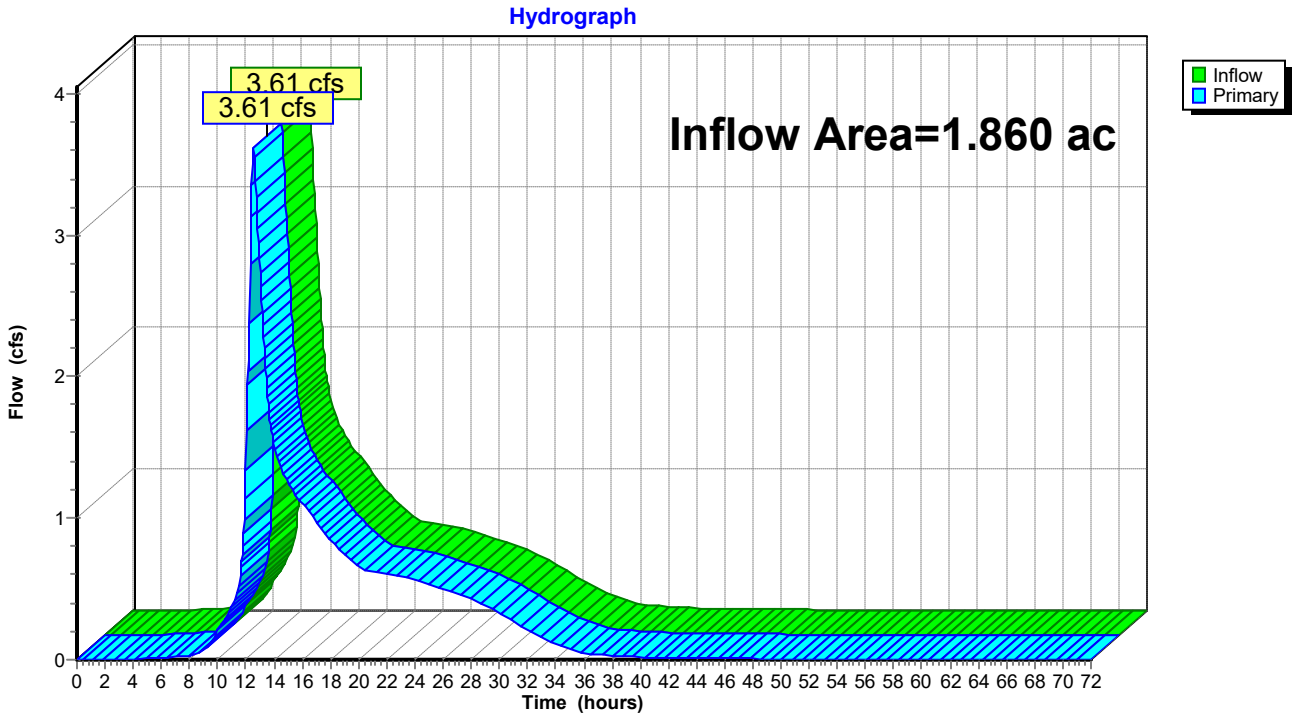
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	0.00	0.00	0.00	53.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00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

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth > 9.83" for 100-Year Projected event
Inflow = 3.61 cfs @ 12.54 hrs, Volume= 1.524 af
Primary = 3.61 cfs @ 12.54 hrs, Volume= 1.524 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

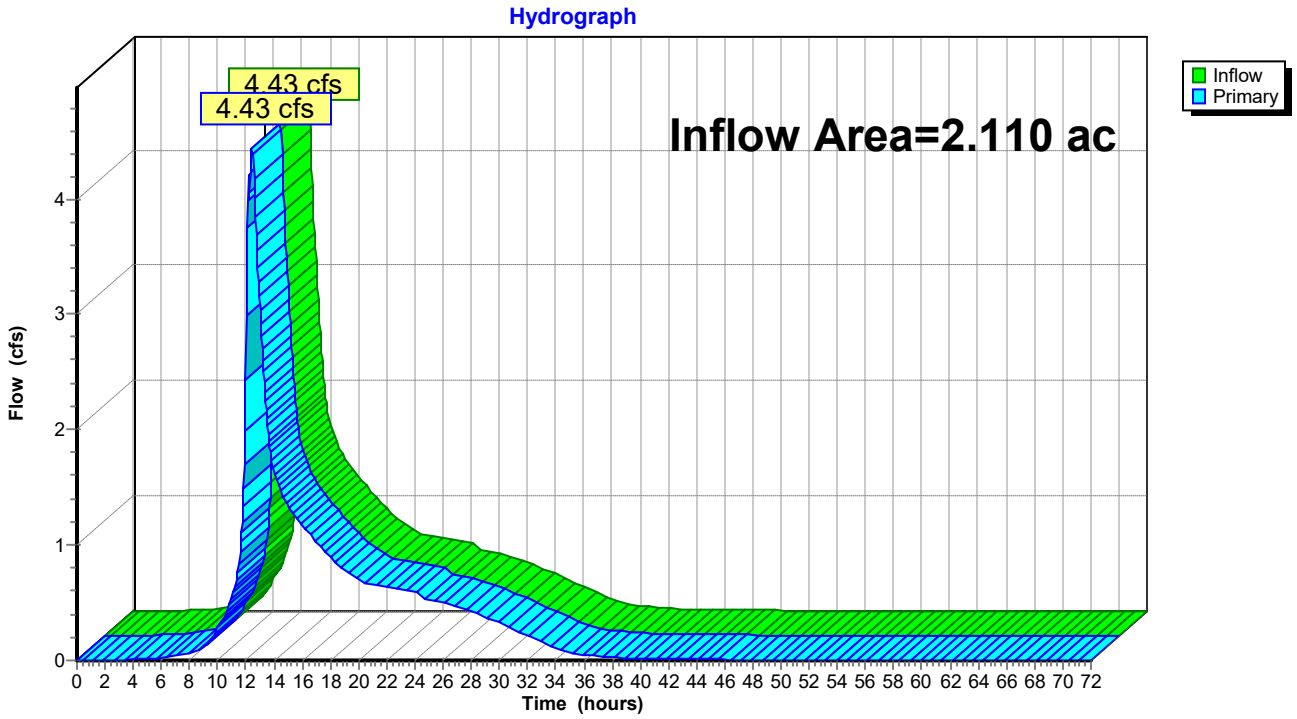
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.01	0.00	0.01
6.00	0.01	0.00	0.01
7.00	0.02	0.00	0.02
8.00	0.03	0.00	0.03
9.00	0.07	0.00	0.07
10.00	0.21	0.00	0.21
11.00	0.38	0.00	0.38
12.00	**1.34**	0.00	**1.34**
13.00	**2.74**	0.00	**2.74**
14.00	1.49	0.00	1.49
15.00	1.26	0.00	1.26
16.00	1.10	0.00	1.10
17.00	0.97	0.00	0.97
18.00	0.85	0.00	0.85
19.00	0.74	0.00	0.74
20.00	0.66	0.00	0.66
21.00	0.62	0.00	0.62
22.00	0.60	0.00	0.60
23.00	0.59	0.00	0.59
24.00	0.57	0.00	0.57
25.00	0.53	0.00	0.53
26.00	0.50	0.00	0.50
27.00	0.47	0.00	0.47
28.00	0.43	0.00	0.43
29.00	0.38	0.00	0.38
30.00	0.33	0.00	0.33
31.00	0.27	0.00	0.27
32.00	0.22	0.00	0.22
33.00	0.16	0.00	0.16
34.00	0.11	0.00	0.11
35.00	0.07	0.00	0.07
36.00	0.05	0.00	0.05
37.00	0.04	0.00	0.04
38.00	0.03	0.00	0.03
39.00	0.02	0.00	0.02
40.00	0.02	0.00	0.02
41.00	0.02	0.00	0.02
42.00	0.01	0.00	0.01
43.00	0.01	0.00	0.01
44.00	0.01	0.00	0.01
45.00	0.01	0.00	0.01
46.00	0.01	0.00	0.01
47.00	0.01	0.00	0.01
48.00	0.01	0.00	0.01
49.00	0.01	0.00	0.01
50.00	0.01	0.00	0.01
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth > 9.76" for 100-Year Projected event
Inflow = 4.43 cfs @ 12.42 hrs, Volume= 1.716 af
Primary = 4.43 cfs @ 12.42 hrs, Volume= 1.716 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	0.00	0.00	0.00
2.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00
4.00	0.01	0.00	0.01
5.00	0.02	0.00	0.02
6.00	0.03	0.00	0.03
7.00	0.04	0.00	0.04
8.00	0.06	0.00	0.06
9.00	0.11	0.00	0.11
10.00	0.28	0.00	0.28
11.00	0.54	0.00	0.54
12.00	**2.42**	0.00	**2.42**
13.00	**3.03**	0.00	**3.03**
14.00	1.62	0.00	1.62
15.00	1.34	0.00	1.34
16.00	1.17	0.00	1.17
17.00	1.03	0.00	1.03
18.00	0.90	0.00	0.90
19.00	0.78	0.00	0.78
20.00	0.70	0.00	0.70
21.00	0.65	0.00	0.65
22.00	0.64	0.00	0.64
23.00	0.62	0.00	0.62
24.00	0.60	0.00	0.60
25.00	0.53	0.00	0.53
26.00	0.50	0.00	0.50
27.00	0.47	0.00	0.47
28.00	0.43	0.00	0.43
29.00	0.38	0.00	0.38
30.00	0.33	0.00	0.33
31.00	0.27	0.00	0.27
32.00	0.22	0.00	0.22
33.00	0.16	0.00	0.16
34.00	0.11	0.00	0.11
35.00	0.07	0.00	0.07
36.00	0.05	0.00	0.05
37.00	0.04	0.00	0.04
38.00	0.03	0.00	0.03
39.00	0.02	0.00	0.02
40.00	0.02	0.00	0.02
41.00	0.02	0.00	0.02
42.00	0.01	0.00	0.01
43.00	0.01	0.00	0.01
44.00	0.01	0.00	0.01
45.00	0.01	0.00	0.01
46.00	0.01	0.00	0.01
47.00	0.01	0.00	0.01
48.00	0.01	0.00	0.01
49.00	0.01	0.00	0.01
50.00	0.01	0.00	0.01
51.00	0.00	0.00	0.00
52.00	0.00	0.00	0.00
53.00	0.00	0.00	0.00
54.00	0.00	0.00	0.00
55.00	0.00	0.00	0.00
56.00	0.00	0.00	0.00
57.00	0.00	0.00	0.00
58.00	0.00	0.00	0.00
59.00	0.00	0.00	0.00
60.00	0.00	0.00	0.00
61.00	0.00	0.00	0.00
62.00	0.00	0.00	0.00
63.00	0.00	0.00	0.00
64.00	0.00	0.00	0.00
65.00	0.00	0.00	0.00
66.00	0.00	0.00	0.00
67.00	0.00	0.00	0.00
68.00	0.00	0.00	0.00
69.00	0.00	0.00	0.00
70.00	0.00	0.00	0.00
71.00	0.00	0.00	0.00
72.00	0.00	0.00	0.00

Summary for Subcatchment 1: PDA #1 PERVIOUS

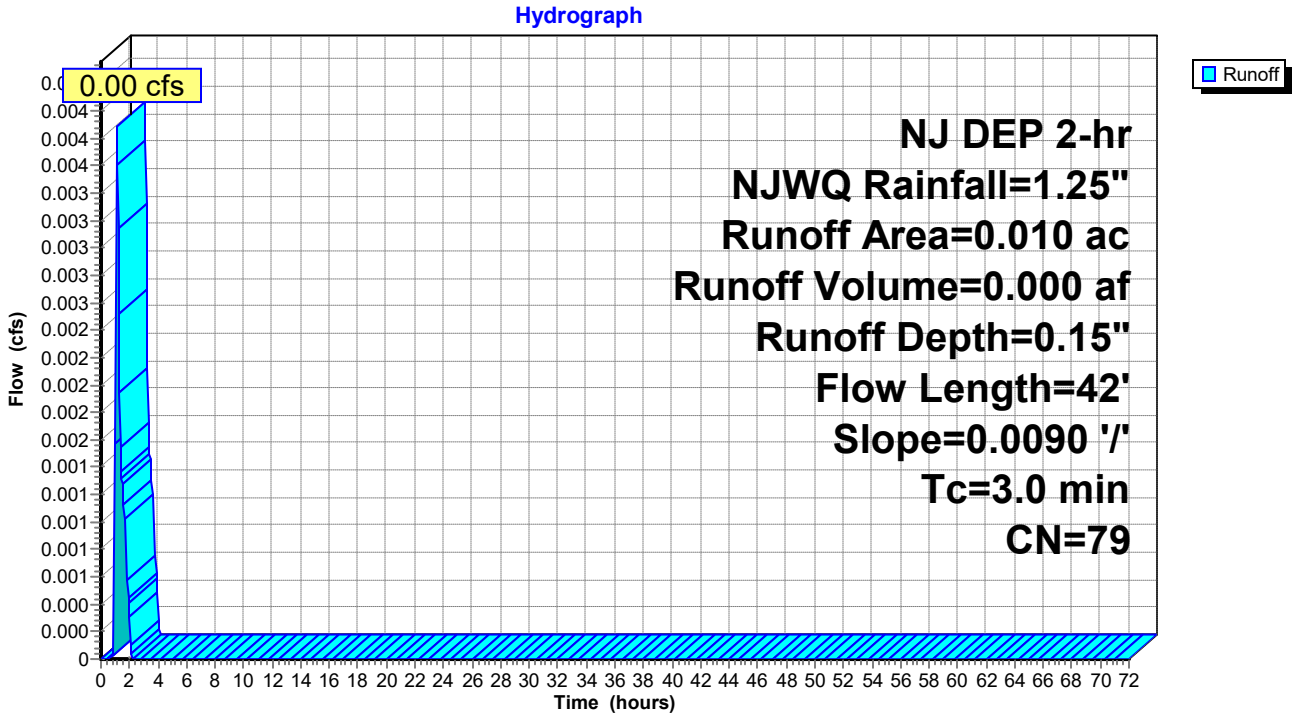
Runoff = 0.00 cfs @ 1.12 hrs, Volume= 0.000 af, Depth= 0.15"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

Area (ac)	CN	Description
0.010	79	<50% Grass cover, Poor, HSG B
0.010		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.4	12	0.0090	0.08		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	30	0.0090	0.80		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
3.0	42	Total			

Subcatchment 1: PDA #1 PERVIOUS



Hydrograph for Subcatchment 1: PDA #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.00	**0.00**
2.00	**1.25**	**0.15**	**0.00**
3.00	1.25	0.15	0.00
4.00	1.25	0.15	0.00
5.00	1.25	0.15	0.00
6.00	1.25	0.15	0.00
7.00	1.25	0.15	0.00
8.00	1.25	0.15	0.00
9.00	1.25	0.15	0.00
10.00	1.25	0.15	0.00
11.00	1.25	0.15	0.00
12.00	1.25	0.15	0.00
13.00	1.25	0.15	0.00
14.00	1.25	0.15	0.00
15.00	1.25	0.15	0.00
16.00	1.25	0.15	0.00
17.00	1.25	0.15	0.00
18.00	1.25	0.15	0.00
19.00	1.25	0.15	0.00
20.00	1.25	0.15	0.00
21.00	1.25	0.15	0.00
22.00	1.25	0.15	0.00
23.00	1.25	0.15	0.00
24.00	1.25	0.15	0.00
25.00	1.25	0.15	0.00
26.00	1.25	0.15	0.00
27.00	1.25	0.15	0.00
28.00	1.25	0.15	0.00
29.00	1.25	0.15	0.00
30.00	1.25	0.15	0.00
31.00	1.25	0.15	0.00
32.00	1.25	0.15	0.00
33.00	1.25	0.15	0.00
34.00	1.25	0.15	0.00
35.00	1.25	0.15	0.00
36.00	1.25	0.15	0.00
37.00	1.25	0.15	0.00
38.00	1.25	0.15	0.00
39.00	1.25	0.15	0.00
40.00	1.25	0.15	0.00
41.00	1.25	0.15	0.00
42.00	1.25	0.15	0.00
43.00	1.25	0.15	0.00
44.00	1.25	0.15	0.00
45.00	1.25	0.15	0.00
46.00	1.25	0.15	0.00
47.00	1.25	0.15	0.00
48.00	1.25	0.15	0.00
49.00	1.25	0.15	0.00
50.00	1.25	0.15	0.00
51.00	1.25	0.15	0.00
52.00	1.25	0.15	0.00
53.00	1.25	0.15	0.00
54.00	1.25	0.15	0.00
55.00	1.25	0.15	0.00
56.00	1.25	0.15	0.00
57.00	1.25	0.15	0.00
58.00	1.25	0.15	0.00
59.00	1.25	0.15	0.00
60.00	1.25	0.15	0.00
61.00	1.25	0.15	0.00
62.00	1.25	0.15	0.00
63.00	1.25	0.15	0.00
64.00	1.25	0.15	0.00
65.00	1.25	0.15	0.00
66.00	1.25	0.15	0.00
67.00	1.25	0.15	0.00
68.00	1.25	0.15	0.00
69.00	1.25	0.15	0.00
70.00	1.25	0.15	0.00
71.00	1.25	0.15	0.00
72.00	1.25	0.15	0.00

Summary for Subcatchment 2: PDA #1 IMPERVIOUS

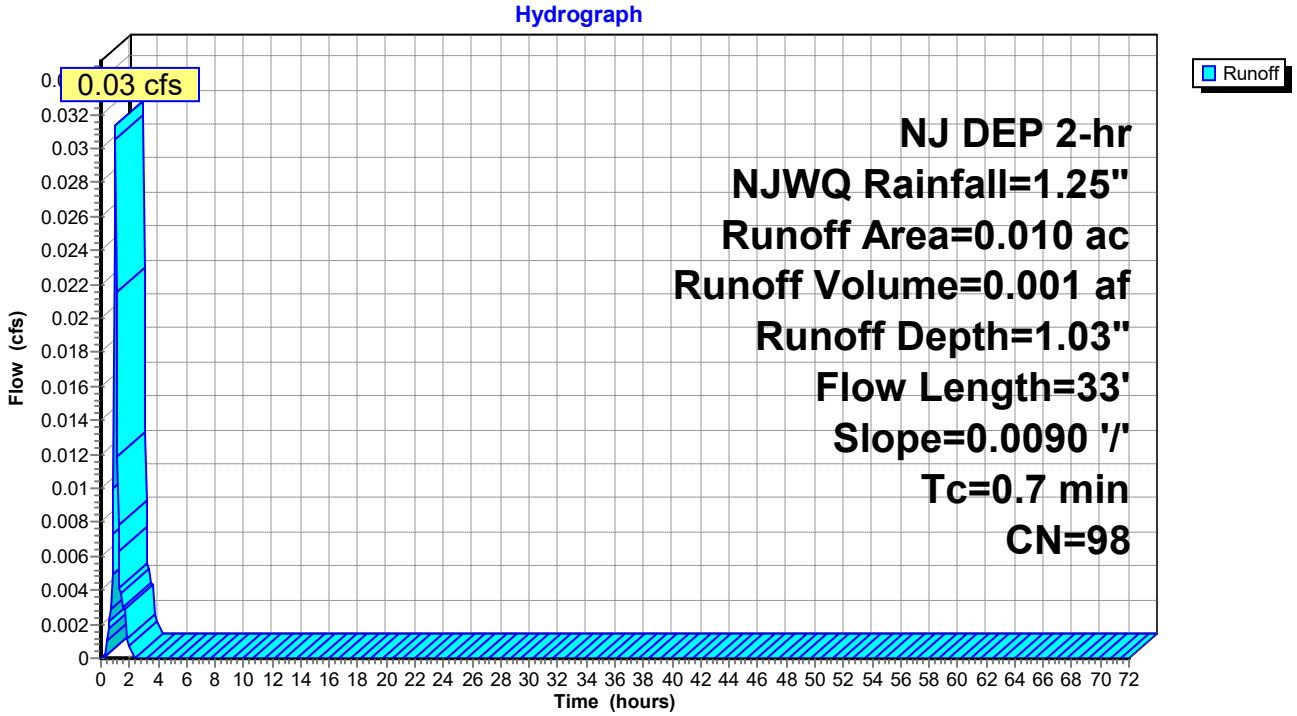
Runoff = 0.03 cfs @ 1.03 hrs, Volume= 0.001 af, Depth= 1.03"
Routed to Link 16 : POA #1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	33	0.0090	0.81		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 2: PDA #1 IMPERVIOUS



Hydrograph for Subcatchment 2: PDA #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.43	**0.03**
2.00	**1.25**	**1.03**	**0.00**
3.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00
22.00	1.25	1.03	0.00
23.00	1.25	1.03	0.00
24.00	1.25	1.03	0.00
25.00	1.25	1.03	0.00
26.00	1.25	1.03	0.00
27.00	1.25	1.03	0.00
28.00	1.25	1.03	0.00
29.00	1.25	1.03	0.00
30.00	1.25	1.03	0.00
31.00	1.25	1.03	0.00
32.00	1.25	1.03	0.00
33.00	1.25	1.03	0.00
34.00	1.25	1.03	0.00
35.00	1.25	1.03	0.00
36.00	1.25	1.03	0.00
37.00	1.25	1.03	0.00
38.00	1.25	1.03	0.00
39.00	1.25	1.03	0.00
40.00	1.25	1.03	0.00
41.00	1.25	1.03	0.00
42.00	1.25	1.03	0.00
43.00	1.25	1.03	0.00
44.00	1.25	1.03	0.00
45.00	1.25	1.03	0.00
46.00	1.25	1.03	0.00
47.00	1.25	1.03	0.00
48.00	1.25	1.03	0.00
49.00	1.25	1.03	0.00
50.00	1.25	1.03	0.00
51.00	1.25	1.03	0.00
52.00	1.25	1.03	0.00
53.00	1.25	1.03	0.00
54.00	1.25	1.03	0.00
55.00	1.25	1.03	0.00
56.00	1.25	1.03	0.00
57.00	1.25	1.03	0.00
58.00	1.25	1.03	0.00
59.00	1.25	1.03	0.00
60.00	1.25	1.03	0.00
61.00	1.25	1.03	0.00
62.00	1.25	1.03	0.00
63.00	1.25	1.03	0.00
64.00	1.25	1.03	0.00
65.00	1.25	1.03	0.00
66.00	1.25	1.03	0.00
67.00	1.25	1.03	0.00
68.00	1.25	1.03	0.00
69.00	1.25	1.03	0.00
70.00	1.25	1.03	0.00
71.00	1.25	1.03	0.00
72.00	1.25	1.03	0.00

Summary for Subcatchment 3: BASIN A PERVIOUS

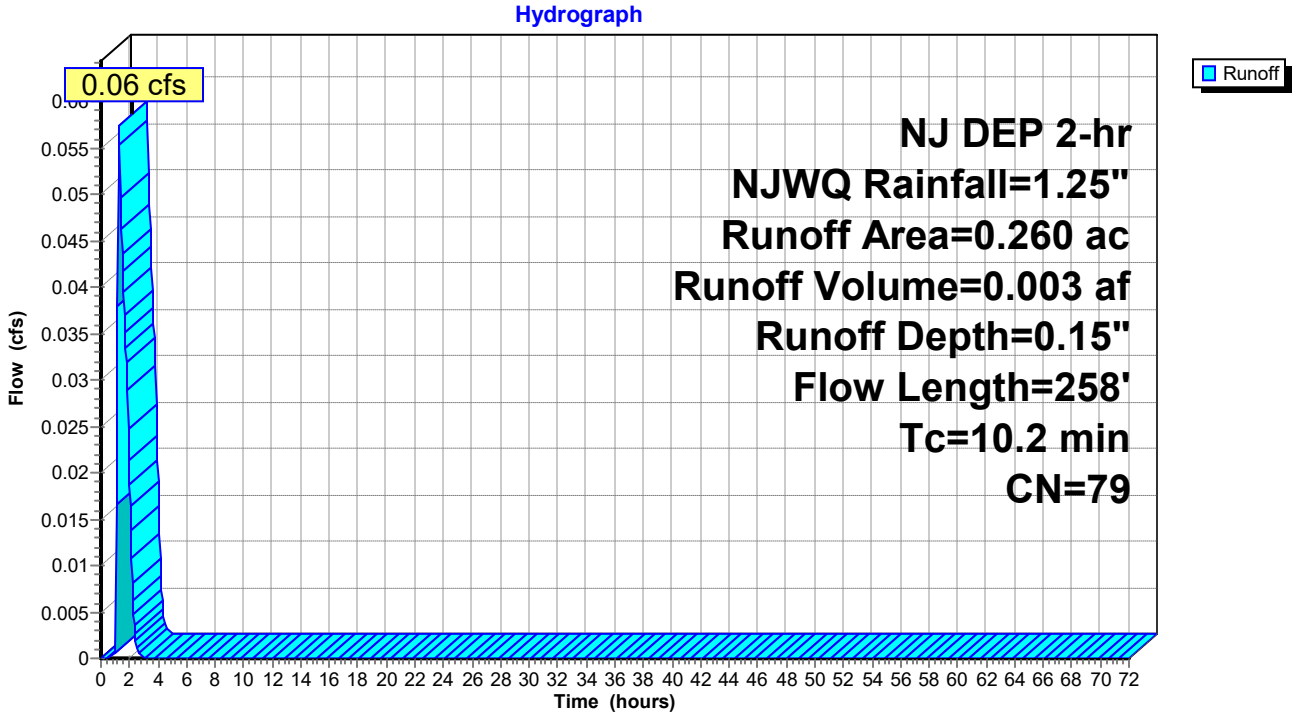
Runoff = 0.06 cfs @ 1.27 hrs, Volume= 0.003 af, Depth= 0.15"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

Area (ac)	CN	Description
0.260	79	<50% Grass cover, Poor, HSG B
0.260		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	68	0.0100	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.9	190	0.0050	3.47	2.73	**Pipe Channel, Pipe Flow** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.012
10.2	258	Total			

Subcatchment 3: BASIN A PERVIOUS



Hydrograph for Subcatchment 3: BASIN A PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.00	**0.00**
2.00	**1.25**	**0.15**	**0.02**
3.00	1.25	0.15	0.00
4.00	1.25	0.15	0.00
5.00	1.25	0.15	0.00
6.00	1.25	0.15	0.00
7.00	1.25	0.15	0.00
8.00	1.25	0.15	0.00
9.00	1.25	0.15	0.00
10.00	1.25	0.15	0.00
11.00	1.25	0.15	0.00
12.00	1.25	0.15	0.00
13.00	1.25	0.15	0.00
14.00	1.25	0.15	0.00
15.00	1.25	0.15	0.00
16.00	1.25	0.15	0.00
17.00	1.25	0.15	0.00
18.00	1.25	0.15	0.00
19.00	1.25	0.15	0.00
20.00	1.25	0.15	0.00
21.00	1.25	0.15	0.00
22.00	1.25	0.15	0.00
23.00	1.25	0.15	0.00
24.00	1.25	0.15	0.00
25.00	1.25	0.15	0.00
26.00	1.25	0.15	0.00
27.00	1.25	0.15	0.00
28.00	1.25	0.15	0.00
29.00	1.25	0.15	0.00
30.00	1.25	0.15	0.00
31.00	1.25	0.15	0.00
32.00	1.25	0.15	0.00
33.00	1.25	0.15	0.00
34.00	1.25	0.15	0.00
35.00	1.25	0.15	0.00
36.00	1.25	0.15	0.00
37.00	1.25	0.15	0.00
38.00	1.25	0.15	0.00
39.00	1.25	0.15	0.00
40.00	1.25	0.15	0.00
41.00	1.25	0.15	0.00
42.00	1.25	0.15	0.00
43.00	1.25	0.15	0.00
44.00	1.25	0.15	0.00
45.00	1.25	0.15	0.00
46.00	1.25	0.15	0.00
47.00	1.25	0.15	0.00
48.00	1.25	0.15	0.00
49.00	1.25	0.15	0.00
50.00	1.25	0.15	0.00
51.00	1.25	0.15	0.00
52.00	1.25	0.15	0.00
53.00	1.25	0.15	0.00
54.00	1.25	0.15	0.00
55.00	1.25	0.15	0.00
56.00	1.25	0.15	0.00
57.00	1.25	0.15	0.00
58.00	1.25	0.15	0.00
59.00	1.25	0.15	0.00
60.00	1.25	0.15	0.00
61.00	1.25	0.15	0.00
62.00	1.25	0.15	0.00
63.00	1.25	0.15	0.00
64.00	1.25	0.15	0.00
65.00	1.25	0.15	0.00
66.00	1.25	0.15	0.00
67.00	1.25	0.15	0.00
68.00	1.25	0.15	0.00
69.00	1.25	0.15	0.00
70.00	1.25	0.15	0.00
71.00	1.25	0.15	0.00
72.00	1.25	0.15	0.00

Summary for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

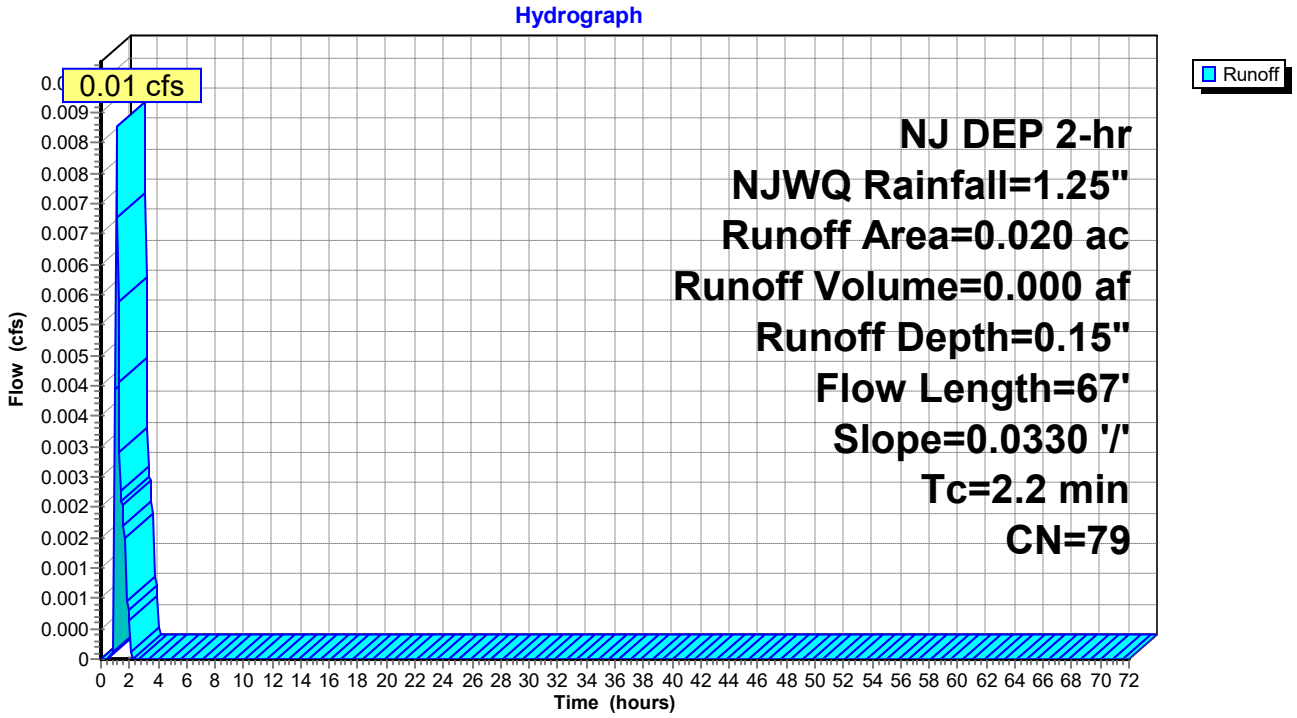
Runoff = 0.01 cfs @ 1.11 hrs, Volume= 0.000 af, Depth= 0.15"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	14	0.0330	0.14		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
0.6	53	0.0330	1.51		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
2.2	67	Total			

Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS



Hydrograph for Subcatchment 4: POROUS PAVEMENT #1 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.00	**0.00**
2.00	**1.25**	**0.15**	**0.00**
3.00	1.25	0.15	0.00
4.00	1.25	0.15	0.00
5.00	1.25	0.15	0.00
6.00	1.25	0.15	0.00
7.00	1.25	0.15	0.00
8.00	1.25	0.15	0.00
9.00	1.25	0.15	0.00
10.00	1.25	0.15	0.00
11.00	1.25	0.15	0.00
12.00	1.25	0.15	0.00
13.00	1.25	0.15	0.00
14.00	1.25	0.15	0.00
15.00	1.25	0.15	0.00
16.00	1.25	0.15	0.00
17.00	1.25	0.15	0.00
18.00	1.25	0.15	0.00
19.00	1.25	0.15	0.00
20.00	1.25	0.15	0.00
21.00	1.25	0.15	0.00
22.00	1.25	0.15	0.00
23.00	1.25	0.15	0.00
24.00	1.25	0.15	0.00
25.00	1.25	0.15	0.00
26.00	1.25	0.15	0.00
27.00	1.25	0.15	0.00
28.00	1.25	0.15	0.00
29.00	1.25	0.15	0.00
30.00	1.25	0.15	0.00
31.00	1.25	0.15	0.00
32.00	1.25	0.15	0.00
33.00	1.25	0.15	0.00
34.00	1.25	0.15	0.00
35.00	1.25	0.15	0.00
36.00	1.25	0.15	0.00
37.00	1.25	0.15	0.00
38.00	1.25	0.15	0.00
39.00	1.25	0.15	0.00
40.00	1.25	0.15	0.00
41.00	1.25	0.15	0.00
42.00	1.25	0.15	0.00
43.00	1.25	0.15	0.00
44.00	1.25	0.15	0.00
45.00	1.25	0.15	0.00
46.00	1.25	0.15	0.00
47.00	1.25	0.15	0.00
48.00	1.25	0.15	0.00
49.00	1.25	0.15	0.00
50.00	1.25	0.15	0.00
51.00	1.25	0.15	0.00
52.00	1.25	0.15	0.00
53.00	1.25	0.15	0.00
54.00	1.25	0.15	0.00
55.00	1.25	0.15	0.00
56.00	1.25	0.15	0.00
57.00	1.25	0.15	0.00
58.00	1.25	0.15	0.00
59.00	1.25	0.15	0.00
60.00	1.25	0.15	0.00
61.00	1.25	0.15	0.00
62.00	1.25	0.15	0.00
63.00	1.25	0.15	0.00
64.00	1.25	0.15	0.00
65.00	1.25	0.15	0.00
66.00	1.25	0.15	0.00
67.00	1.25	0.15	0.00
68.00	1.25	0.15	0.00
69.00	1.25	0.15	0.00
70.00	1.25	0.15	0.00
71.00	1.25	0.15	0.00
72.00	1.25	0.15	0.00

Summary for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

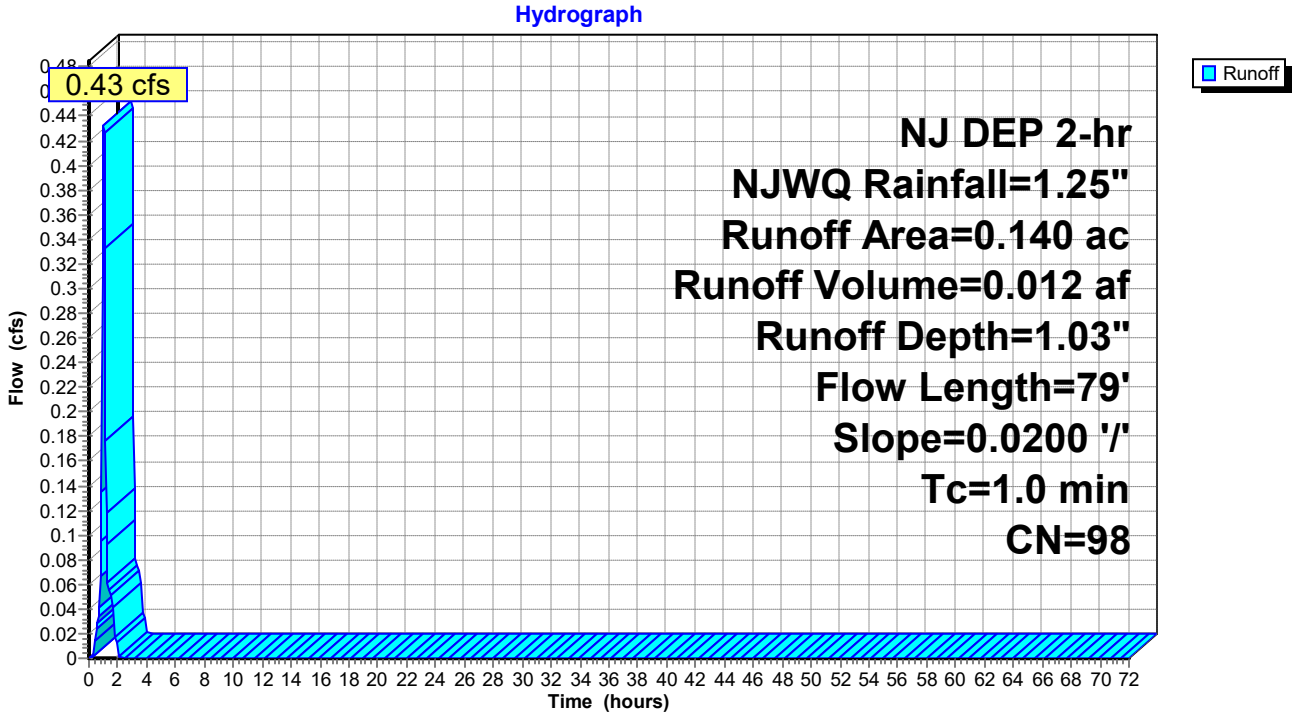
Runoff = 0.43 cfs @ 1.03 hrs, Volume= 0.012 af, Depth= 1.03"
Routed to Pond 12 : POROUS ASPHALT BASIN A WITH UNDERDRAIN

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

	Area (ac)	CN	Description
*	0.040	98	Porous Asphalt
*	0.100	98	Impervious
	0.140	98	Weighted Average
	0.140		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	79	0.0200	1.33		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS



Hydrograph for Subcatchment 5: POROUS PAVEMENT #1 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.43	**0.41**
2.00	**1.25**	**1.03**	**0.01**
3.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00
22.00	1.25	1.03	0.00
23.00	1.25	1.03	0.00
24.00	1.25	1.03	0.00
25.00	1.25	1.03	0.00
26.00	1.25	1.03	0.00
27.00	1.25	1.03	0.00
28.00	1.25	1.03	0.00
29.00	1.25	1.03	0.00
30.00	1.25	1.03	0.00
31.00	1.25	1.03	0.00
32.00	1.25	1.03	0.00
33.00	1.25	1.03	0.00
34.00	1.25	1.03	0.00
35.00	1.25	1.03	0.00
36.00	1.25	1.03	0.00
37.00	1.25	1.03	0.00
38.00	1.25	1.03	0.00
39.00	1.25	1.03	0.00
40.00	1.25	1.03	0.00
41.00	1.25	1.03	0.00
42.00	1.25	1.03	0.00
43.00	1.25	1.03	0.00
44.00	1.25	1.03	0.00
45.00	1.25	1.03	0.00
46.00	1.25	1.03	0.00
47.00	1.25	1.03	0.00
48.00	1.25	1.03	0.00
49.00	1.25	1.03	0.00
50.00	1.25	1.03	0.00
51.00	1.25	1.03	0.00
52.00	1.25	1.03	0.00
53.00	1.25	1.03	0.00
54.00	1.25	1.03	0.00
55.00	1.25	1.03	0.00
56.00	1.25	1.03	0.00
57.00	1.25	1.03	0.00
58.00	1.25	1.03	0.00
59.00	1.25	1.03	0.00
60.00	1.25	1.03	0.00
61.00	1.25	1.03	0.00
62.00	1.25	1.03	0.00
63.00	1.25	1.03	0.00
64.00	1.25	1.03	0.00
65.00	1.25	1.03	0.00
66.00	1.25	1.03	0.00
67.00	1.25	1.03	0.00
68.00	1.25	1.03	0.00
69.00	1.25	1.03	0.00
70.00	1.25	1.03	0.00
71.00	1.25	1.03	0.00
72.00	1.25	1.03	0.00

Summary for Subcatchment 6: ROOF IMPERVIOUS

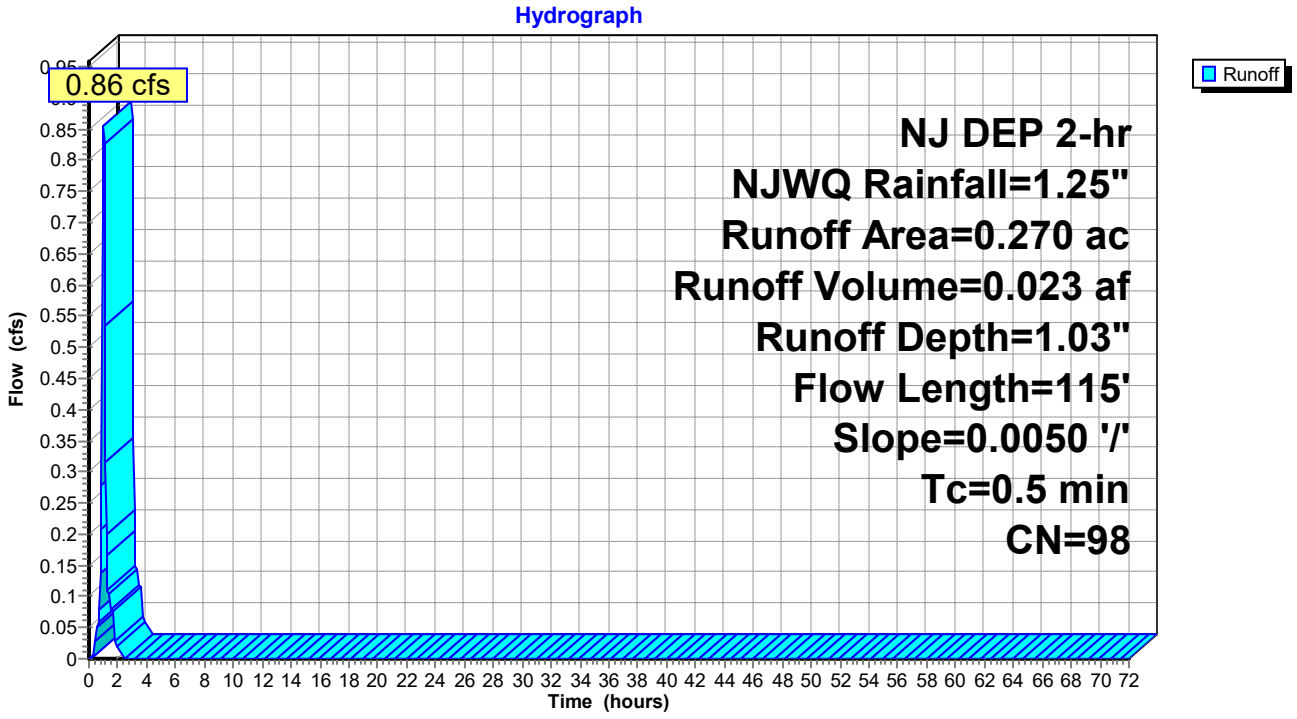
Runoff = 0.86 cfs @ 1.03 hrs, Volume= 0.023 af, Depth= 1.03"
Routed to Pond 13 : UNDERGROUND BASIN B WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

	Area (ac)	CN	Description
*	0.270	98	Roof Area
	0.270		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	115	0.0050	4.03	4.95	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012

Subcatchment 6: ROOF IMPERVIOUS



Hydrograph for Subcatchment 6: ROOF IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.43	**0.81**
2.00	**1.25**	**1.03**	**0.02**
3.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00
22.00	1.25	1.03	0.00
23.00	1.25	1.03	0.00
24.00	1.25	1.03	0.00
25.00	1.25	1.03	0.00
26.00	1.25	1.03	0.00
27.00	1.25	1.03	0.00
28.00	1.25	1.03	0.00
29.00	1.25	1.03	0.00
30.00	1.25	1.03	0.00
31.00	1.25	1.03	0.00
32.00	1.25	1.03	0.00
33.00	1.25	1.03	0.00
34.00	1.25	1.03	0.00
35.00	1.25	1.03	0.00
36.00	1.25	1.03	0.00
37.00	1.25	1.03	0.00
38.00	1.25	1.03	0.00
39.00	1.25	1.03	0.00
40.00	1.25	1.03	0.00
41.00	1.25	1.03	0.00
42.00	1.25	1.03	0.00
43.00	1.25	1.03	0.00
44.00	1.25	1.03	0.00
45.00	1.25	1.03	0.00
46.00	1.25	1.03	0.00
47.00	1.25	1.03	0.00
48.00	1.25	1.03	0.00
49.00	1.25	1.03	0.00
50.00	1.25	1.03	0.00
51.00	1.25	1.03	0.00
52.00	1.25	1.03	0.00
53.00	1.25	1.03	0.00
54.00	1.25	1.03	0.00
55.00	1.25	1.03	0.00
56.00	1.25	1.03	0.00
57.00	1.25	1.03	0.00
58.00	1.25	1.03	0.00
59.00	1.25	1.03	0.00
60.00	1.25	1.03	0.00
61.00	1.25	1.03	0.00
62.00	1.25	1.03	0.00
63.00	1.25	1.03	0.00
64.00	1.25	1.03	0.00
65.00	1.25	1.03	0.00
66.00	1.25	1.03	0.00
67.00	1.25	1.03	0.00
68.00	1.25	1.03	0.00
69.00	1.25	1.03	0.00
70.00	1.25	1.03	0.00
71.00	1.25	1.03	0.00
72.00	1.25	1.03	0.00

Summary for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

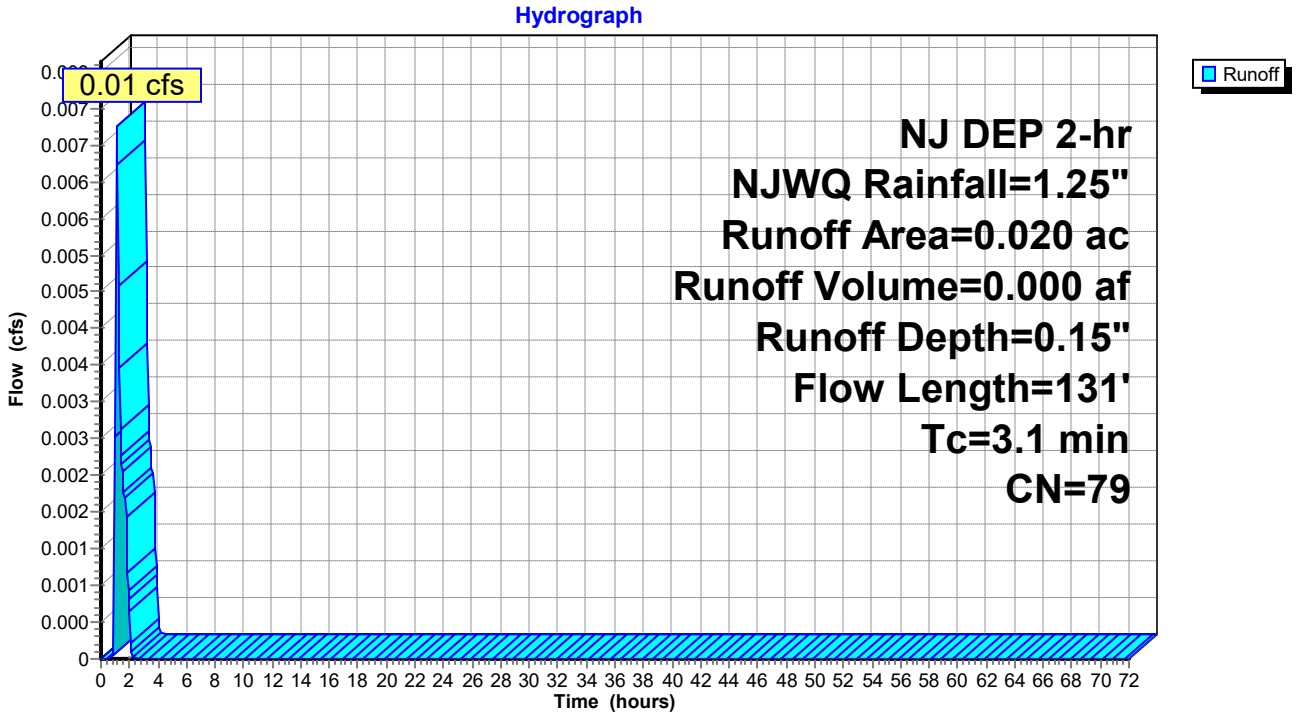
Runoff = 0.01 cfs @ 1.13 hrs, Volume= 0.000 af, Depth= 0.15"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

Area (ac)	CN	Description
0.020	79	<50% Grass cover, Poor, HSG B
0.020		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.9	14	0.0238	0.13		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"
1.0	86	0.0238	1.46		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.2	31	0.0180	2.72		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
3.1	131	Total			

Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS



Hydrograph for Subcatchment 7: POROUS PAVEMENT #2 PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.00	**0.00**
2.00	**1.25**	**0.15**	**0.00**
3.00	1.25	0.15	0.00
4.00	1.25	0.15	0.00
5.00	1.25	0.15	0.00
6.00	1.25	0.15	0.00
7.00	1.25	0.15	0.00
8.00	1.25	0.15	0.00
9.00	1.25	0.15	0.00
10.00	1.25	0.15	0.00
11.00	1.25	0.15	0.00
12.00	1.25	0.15	0.00
13.00	1.25	0.15	0.00
14.00	1.25	0.15	0.00
15.00	1.25	0.15	0.00
16.00	1.25	0.15	0.00
17.00	1.25	0.15	0.00
18.00	1.25	0.15	0.00
19.00	1.25	0.15	0.00
20.00	1.25	0.15	0.00
21.00	1.25	0.15	0.00
22.00	1.25	0.15	0.00
23.00	1.25	0.15	0.00
24.00	1.25	0.15	0.00
25.00	1.25	0.15	0.00
26.00	1.25	0.15	0.00
27.00	1.25	0.15	0.00
28.00	1.25	0.15	0.00
29.00	1.25	0.15	0.00
30.00	1.25	0.15	0.00
31.00	1.25	0.15	0.00
32.00	1.25	0.15	0.00
33.00	1.25	0.15	0.00
34.00	1.25	0.15	0.00
35.00	1.25	0.15	0.00
36.00	1.25	0.15	0.00
37.00	1.25	0.15	0.00
38.00	1.25	0.15	0.00
39.00	1.25	0.15	0.00
40.00	1.25	0.15	0.00
41.00	1.25	0.15	0.00
42.00	1.25	0.15	0.00
43.00	1.25	0.15	0.00
44.00	1.25	0.15	0.00
45.00	1.25	0.15	0.00
46.00	1.25	0.15	0.00
47.00	1.25	0.15	0.00
48.00	1.25	0.15	0.00
49.00	1.25	0.15	0.00
50.00	1.25	0.15	0.00
51.00	1.25	0.15	0.00
52.00	1.25	0.15	0.00
53.00	1.25	0.15	0.00
54.00	1.25	0.15	0.00
55.00	1.25	0.15	0.00
56.00	1.25	0.15	0.00
57.00	1.25	0.15	0.00
58.00	1.25	0.15	0.00
59.00	1.25	0.15	0.00
60.00	1.25	0.15	0.00
61.00	1.25	0.15	0.00
62.00	1.25	0.15	0.00
63.00	1.25	0.15	0.00
64.00	1.25	0.15	0.00
65.00	1.25	0.15	0.00
66.00	1.25	0.15	0.00
67.00	1.25	0.15	0.00
68.00	1.25	0.15	0.00
69.00	1.25	0.15	0.00
70.00	1.25	0.15	0.00
71.00	1.25	0.15	0.00
72.00	1.25	0.15	0.00

Summary for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

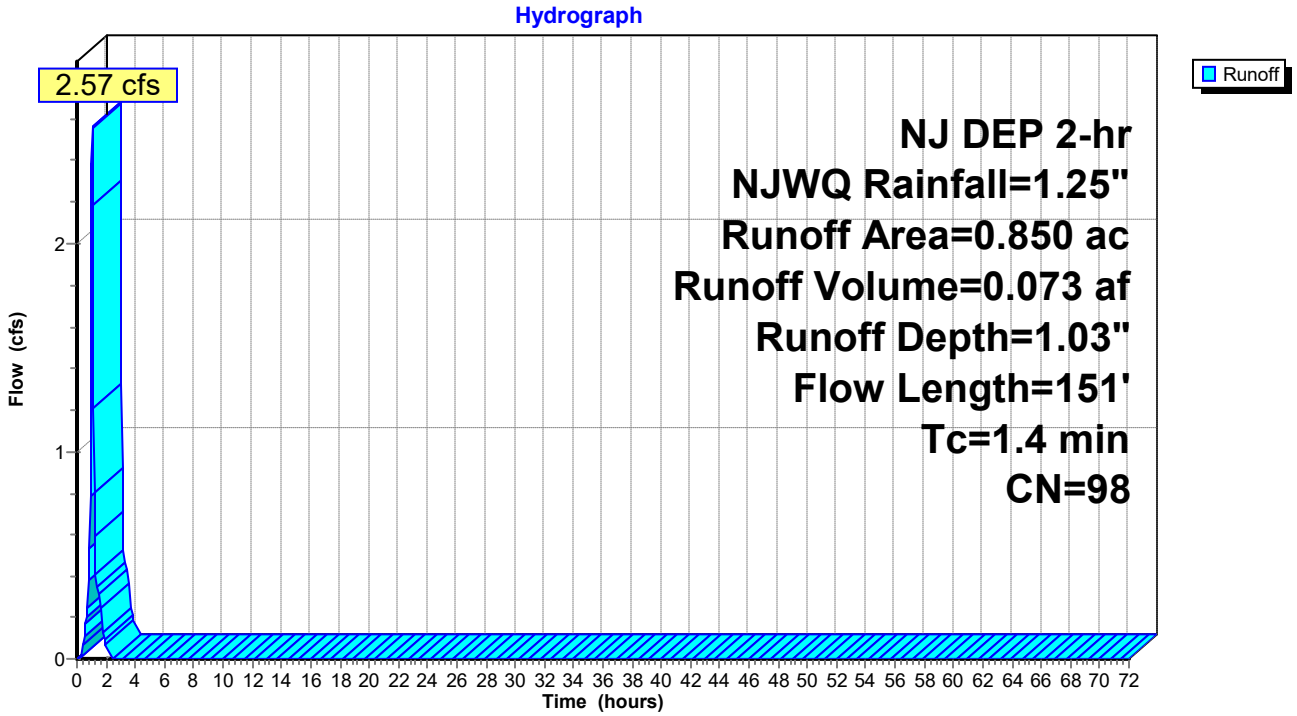
Runoff = 2.57 cfs @ 1.04 hrs, Volume= 0.073 af, Depth= 1.03"
Routed to Pond 14 : POROUS ASPHALT BASIN C WITH INFILTRATION

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

	Area (ac)	CN	Description
*	0.270	98	Porous Asphalt
*	0.580	98	Impervious
	0.850	98	Weighted Average
	0.850		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	100	0.0261	1.56		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
0.3	51	0.0200	2.87		**Shallow Concentrated Flow, Impervious** Paved Kv= 20.3 fps
1.4	151	Total			

Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS



Hydrograph for Subcatchment 8: POROUS PAVEMENT #2 IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.43	**2.39**
2.00	**1.25**	**1.03**	**0.08**
3.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00
22.00	1.25	1.03	0.00
23.00	1.25	1.03	0.00
24.00	1.25	1.03	0.00
25.00	1.25	1.03	0.00
26.00	1.25	1.03	0.00
27.00	1.25	1.03	0.00
28.00	1.25	1.03	0.00
29.00	1.25	1.03	0.00
30.00	1.25	1.03	0.00
31.00	1.25	1.03	0.00
32.00	1.25	1.03	0.00
33.00	1.25	1.03	0.00
34.00	1.25	1.03	0.00
35.00	1.25	1.03	0.00
36.00	1.25	1.03	0.00
37.00	1.25	1.03	0.00
38.00	1.25	1.03	0.00
39.00	1.25	1.03	0.00
40.00	1.25	1.03	0.00
41.00	1.25	1.03	0.00
42.00	1.25	1.03	0.00
43.00	1.25	1.03	0.00
44.00	1.25	1.03	0.00
45.00	1.25	1.03	0.00
46.00	1.25	1.03	0.00
47.00	1.25	1.03	0.00
48.00	1.25	1.03	0.00
49.00	1.25	1.03	0.00
50.00	1.25	1.03	0.00
51.00	1.25	1.03	0.00
52.00	1.25	1.03	0.00
53.00	1.25	1.03	0.00
54.00	1.25	1.03	0.00
55.00	1.25	1.03	0.00
56.00	1.25	1.03	0.00
57.00	1.25	1.03	0.00
58.00	1.25	1.03	0.00
59.00	1.25	1.03	0.00
60.00	1.25	1.03	0.00
61.00	1.25	1.03	0.00
62.00	1.25	1.03	0.00
63.00	1.25	1.03	0.00
64.00	1.25	1.03	0.00
65.00	1.25	1.03	0.00
66.00	1.25	1.03	0.00
67.00	1.25	1.03	0.00
68.00	1.25	1.03	0.00
69.00	1.25	1.03	0.00
70.00	1.25	1.03	0.00
71.00	1.25	1.03	0.00
72.00	1.25	1.03	0.00

Summary for Subcatchment 9: BASIN A IMPERVIOUS

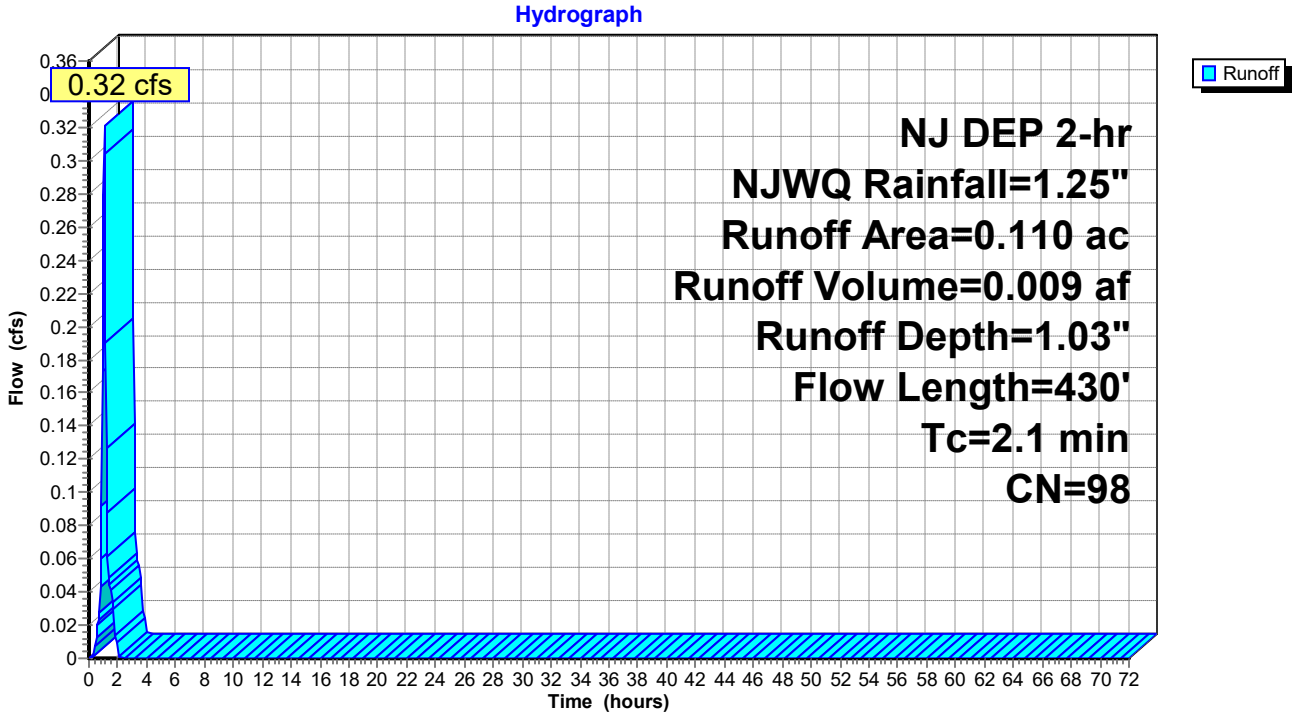
Runoff = 0.32 cfs @ 1.06 hrs, Volume= 0.009 af, Depth= 1.03"
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

	Area (ac)	CN	Description
*	0.110	98	Impervious
	0.110		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	40	0.0300	1.37		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"
1.6	390	0.0050	4.03	4.95	**Pipe Channel, Pipe Flow** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.012
2.1	430	Total			

Subcatchment 9: BASIN A IMPERVIOUS



Hydrograph for Subcatchment 9: BASIN A IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.43	**0.28**
2.00	**1.25**	**1.03**	**0.01**
3.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00
22.00	1.25	1.03	0.00
23.00	1.25	1.03	0.00
24.00	1.25	1.03	0.00
25.00	1.25	1.03	0.00
26.00	1.25	1.03	0.00
27.00	1.25	1.03	0.00
28.00	1.25	1.03	0.00
29.00	1.25	1.03	0.00
30.00	1.25	1.03	0.00
31.00	1.25	1.03	0.00
32.00	1.25	1.03	0.00
33.00	1.25	1.03	0.00
34.00	1.25	1.03	0.00
35.00	1.25	1.03	0.00
36.00	1.25	1.03	0.00
37.00	1.25	1.03	0.00
38.00	1.25	1.03	0.00
39.00	1.25	1.03	0.00
40.00	1.25	1.03	0.00
41.00	1.25	1.03	0.00
42.00	1.25	1.03	0.00
43.00	1.25	1.03	0.00
44.00	1.25	1.03	0.00
45.00	1.25	1.03	0.00
46.00	1.25	1.03	0.00
47.00	1.25	1.03	0.00
48.00	1.25	1.03	0.00
49.00	1.25	1.03	0.00
50.00	1.25	1.03	0.00
51.00	1.25	1.03	0.00
52.00	1.25	1.03	0.00
53.00	1.25	1.03	0.00
54.00	1.25	1.03	0.00
55.00	1.25	1.03	0.00
56.00	1.25	1.03	0.00
57.00	1.25	1.03	0.00
58.00	1.25	1.03	0.00
59.00	1.25	1.03	0.00
60.00	1.25	1.03	0.00
61.00	1.25	1.03	0.00
62.00	1.25	1.03	0.00
63.00	1.25	1.03	0.00
64.00	1.25	1.03	0.00
65.00	1.25	1.03	0.00
66.00	1.25	1.03	0.00
67.00	1.25	1.03	0.00
68.00	1.25	1.03	0.00
69.00	1.25	1.03	0.00
70.00	1.25	1.03	0.00
71.00	1.25	1.03	0.00
72.00	1.25	1.03	0.00

Summary for Subcatchment 10: BYPASS PERVIOUS

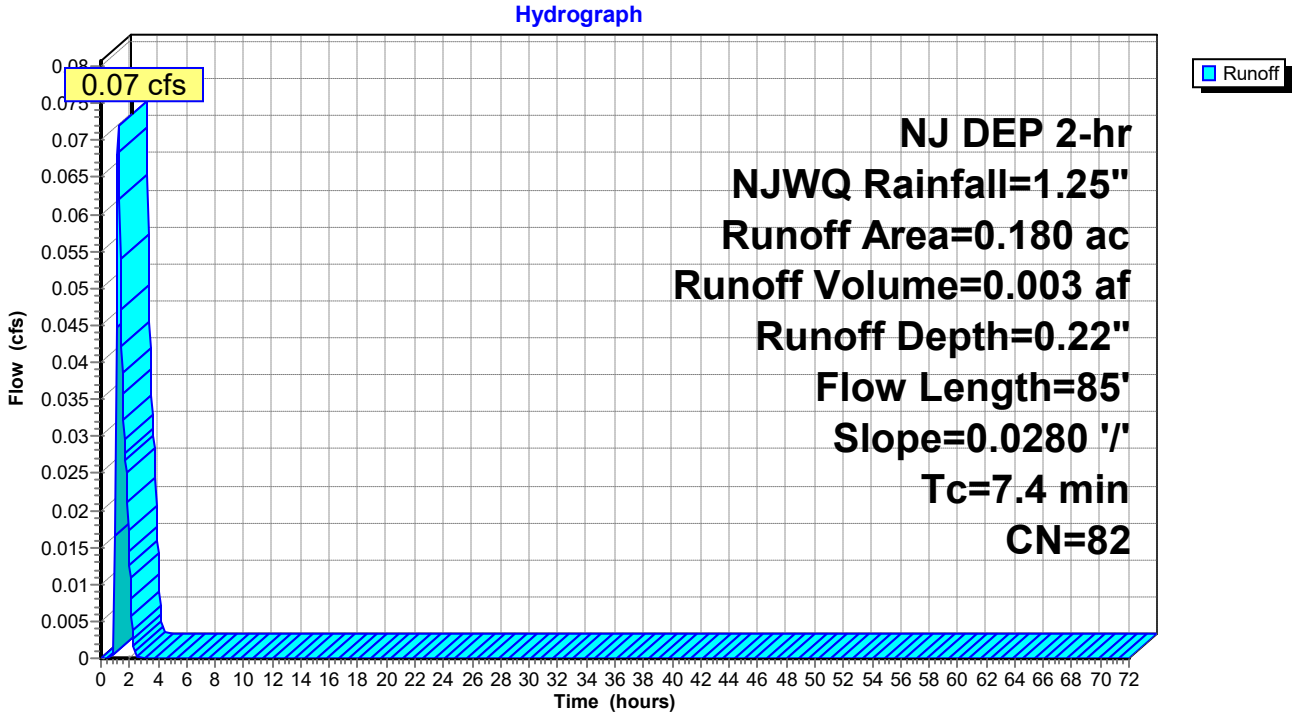
Runoff = 0.07 cfs @ 1.20 hrs, Volume= 0.003 af, Depth= 0.22"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

Area (ac)	CN	Description
0.110	79	<50% Grass cover, Poor, HSG B
0.070	86	<50% Grass cover, Poor, HSG C
0.180	82	Weighted Average
0.180		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 10: BYPASS PERVIOUS



Hydrograph for Subcatchment 10: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.01	**0.00**
2.00	**1.25**	**0.22**	**0.01**
3.00	1.25	0.22	0.00
4.00	1.25	0.22	0.00
5.00	1.25	0.22	0.00
6.00	1.25	0.22	0.00
7.00	1.25	0.22	0.00
8.00	1.25	0.22	0.00
9.00	1.25	0.22	0.00
10.00	1.25	0.22	0.00
11.00	1.25	0.22	0.00
12.00	1.25	0.22	0.00
13.00	1.25	0.22	0.00
14.00	1.25	0.22	0.00
15.00	1.25	0.22	0.00
16.00	1.25	0.22	0.00
17.00	1.25	0.22	0.00
18.00	1.25	0.22	0.00
19.00	1.25	0.22	0.00
20.00	1.25	0.22	0.00
21.00	1.25	0.22	0.00
22.00	1.25	0.22	0.00
23.00	1.25	0.22	0.00
24.00	1.25	0.22	0.00
25.00	1.25	0.22	0.00
26.00	1.25	0.22	0.00
27.00	1.25	0.22	0.00
28.00	1.25	0.22	0.00
29.00	1.25	0.22	0.00
30.00	1.25	0.22	0.00
31.00	1.25	0.22	0.00
32.00	1.25	0.22	0.00
33.00	1.25	0.22	0.00
34.00	1.25	0.22	0.00
35.00	1.25	0.22	0.00
36.00	1.25	0.22	0.00
37.00	1.25	0.22	0.00
38.00	1.25	0.22	0.00
39.00	1.25	0.22	0.00
40.00	1.25	0.22	0.00
41.00	1.25	0.22	0.00
42.00	1.25	0.22	0.00
43.00	1.25	0.22	0.00
44.00	1.25	0.22	0.00
45.00	1.25	0.22	0.00
46.00	1.25	0.22	0.00
47.00	1.25	0.22	0.00
48.00	1.25	0.22	0.00
49.00	1.25	0.22	0.00
50.00	1.25	0.22	0.00
51.00	1.25	0.22	0.00
52.00	1.25	0.22	0.00
53.00	1.25	0.22	0.00
54.00	1.25	0.22	0.00
55.00	1.25	0.22	0.00
56.00	1.25	0.22	0.00
57.00	1.25	0.22	0.00
58.00	1.25	0.22	0.00
59.00	1.25	0.22	0.00
60.00	1.25	0.22	0.00
61.00	1.25	0.22	0.00
62.00	1.25	0.22	0.00
63.00	1.25	0.22	0.00
64.00	1.25	0.22	0.00
65.00	1.25	0.22	0.00
66.00	1.25	0.22	0.00
67.00	1.25	0.22	0.00
68.00	1.25	0.22	0.00
69.00	1.25	0.22	0.00
70.00	1.25	0.22	0.00
71.00	1.25	0.22	0.00
72.00	1.25	0.22	0.00

Summary for Subcatchment 11: BYPASS IMPERVIOUS

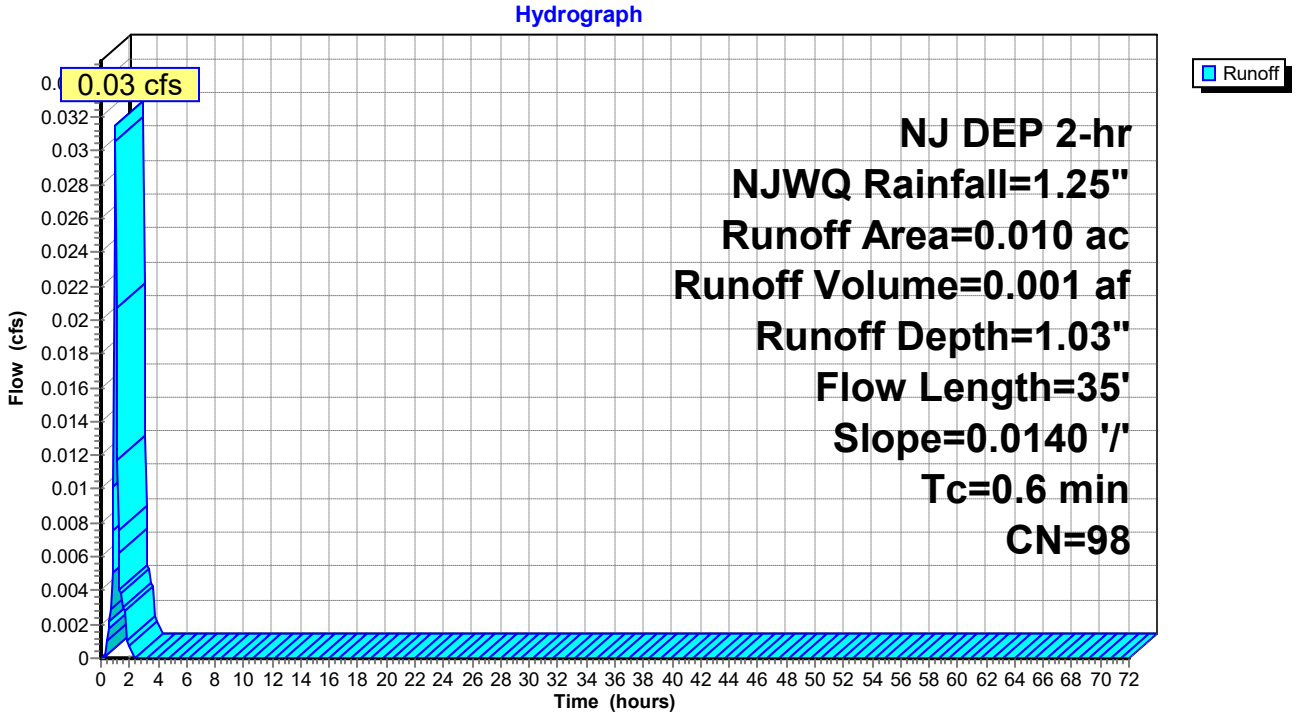
Runoff = 0.03 cfs @ 1.03 hrs, Volume= 0.001 af, Depth= 1.03"
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

	Area (ac)	CN	Description
*	0.010	98	Impervious
	0.010		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	35	0.0140	0.98		**Sheet Flow, Impervious** Smooth surfaces n= 0.011 P2= 3.31"

Subcatchment 11: BYPASS IMPERVIOUS



Hydrograph for Subcatchment 11: BYPASS IMPERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.43	**0.03**
2.00	**1.25**	**1.03**	**0.00**
3.00	1.25	1.03	0.00
4.00	1.25	1.03	0.00
5.00	1.25	1.03	0.00
6.00	1.25	1.03	0.00
7.00	1.25	1.03	0.00
8.00	1.25	1.03	0.00
9.00	1.25	1.03	0.00
10.00	1.25	1.03	0.00
11.00	1.25	1.03	0.00
12.00	1.25	1.03	0.00
13.00	1.25	1.03	0.00
14.00	1.25	1.03	0.00
15.00	1.25	1.03	0.00
16.00	1.25	1.03	0.00
17.00	1.25	1.03	0.00
18.00	1.25	1.03	0.00
19.00	1.25	1.03	0.00
20.00	1.25	1.03	0.00
21.00	1.25	1.03	0.00
22.00	1.25	1.03	0.00
23.00	1.25	1.03	0.00
24.00	1.25	1.03	0.00
25.00	1.25	1.03	0.00
26.00	1.25	1.03	0.00
27.00	1.25	1.03	0.00
28.00	1.25	1.03	0.00
29.00	1.25	1.03	0.00
30.00	1.25	1.03	0.00
31.00	1.25	1.03	0.00
32.00	1.25	1.03	0.00
33.00	1.25	1.03	0.00
34.00	1.25	1.03	0.00
35.00	1.25	1.03	0.00
36.00	1.25	1.03	0.00
37.00	1.25	1.03	0.00
38.00	1.25	1.03	0.00
39.00	1.25	1.03	0.00
40.00	1.25	1.03	0.00
41.00	1.25	1.03	0.00
42.00	1.25	1.03	0.00
43.00	1.25	1.03	0.00
44.00	1.25	1.03	0.00
45.00	1.25	1.03	0.00
46.00	1.25	1.03	0.00
47.00	1.25	1.03	0.00
48.00	1.25	1.03	0.00
49.00	1.25	1.03	0.00
50.00	1.25	1.03	0.00
51.00	1.25	1.03	0.00
52.00	1.25	1.03	0.00
53.00	1.25	1.03	0.00
54.00	1.25	1.03	0.00
55.00	1.25	1.03	0.00
56.00	1.25	1.03	0.00
57.00	1.25	1.03	0.00
58.00	1.25	1.03	0.00
59.00	1.25	1.03	0.00
60.00	1.25	1.03	0.00
61.00	1.25	1.03	0.00
62.00	1.25	1.03	0.00
63.00	1.25	1.03	0.00
64.00	1.25	1.03	0.00
65.00	1.25	1.03	0.00
66.00	1.25	1.03	0.00
67.00	1.25	1.03	0.00
68.00	1.25	1.03	0.00
69.00	1.25	1.03	0.00
70.00	1.25	1.03	0.00
71.00	1.25	1.03	0.00
72.00	1.25	1.03	0.00

Summary for Subcatchment 18: BYPASS PERVIOUS

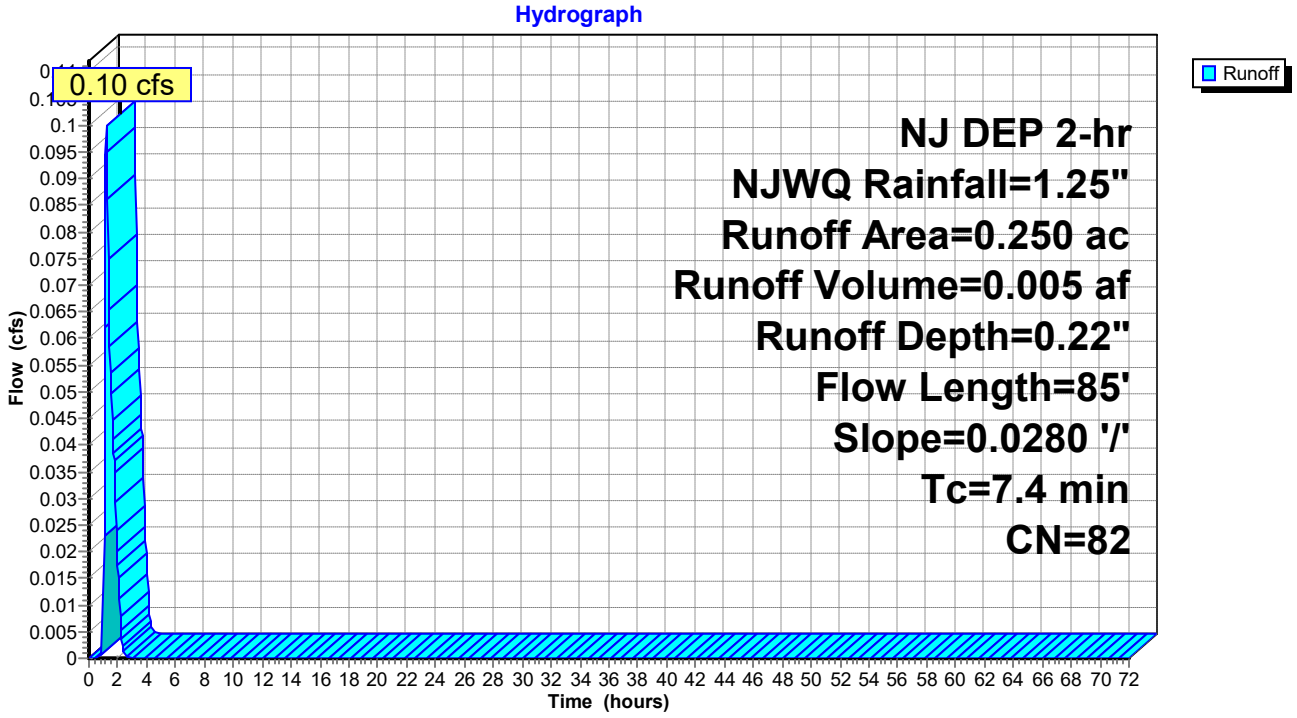
Runoff = 0.10 cfs @ 1.20 hrs, Volume= 0.005 af, Depth= 0.22"
Routed to Link 20 : POA #2 (TOTAL)

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
NJ DEP 2-hr NJWQ Rainfall=1.25"

Area (ac)	CN	Description
0.140	79	<50% Grass cover, Poor, HSG B
0.110	86	<50% Grass cover, Poor, HSG C
0.250	82	Weighted Average
0.250		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	85	0.0280	0.19		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.31"

Subcatchment 18: BYPASS PERVIOUS



Hydrograph for Subcatchment 18: BYPASS PERVIOUS

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00
1.00	0.63	0.01	**0.00**
2.00	**1.25**	**0.22**	**0.02**
3.00	1.25	0.22	0.00
4.00	1.25	0.22	0.00
5.00	1.25	0.22	0.00
6.00	1.25	0.22	0.00
7.00	1.25	0.22	0.00
8.00	1.25	0.22	0.00
9.00	1.25	0.22	0.00
10.00	1.25	0.22	0.00
11.00	1.25	0.22	0.00
12.00	1.25	0.22	0.00
13.00	1.25	0.22	0.00
14.00	1.25	0.22	0.00
15.00	1.25	0.22	0.00
16.00	1.25	0.22	0.00
17.00	1.25	0.22	0.00
18.00	1.25	0.22	0.00
19.00	1.25	0.22	0.00
20.00	1.25	0.22	0.00
21.00	1.25	0.22	0.00
22.00	1.25	0.22	0.00
23.00	1.25	0.22	0.00
24.00	1.25	0.22	0.00
25.00	1.25	0.22	0.00
26.00	1.25	0.22	0.00
27.00	1.25	0.22	0.00
28.00	1.25	0.22	0.00
29.00	1.25	0.22	0.00
30.00	1.25	0.22	0.00
31.00	1.25	0.22	0.00
32.00	1.25	0.22	0.00
33.00	1.25	0.22	0.00
34.00	1.25	0.22	0.00
35.00	1.25	0.22	0.00
36.00	1.25	0.22	0.00
37.00	1.25	0.22	0.00
38.00	1.25	0.22	0.00
39.00	1.25	0.22	0.00
40.00	1.25	0.22	0.00
41.00	1.25	0.22	0.00
42.00	1.25	0.22	0.00
43.00	1.25	0.22	0.00
44.00	1.25	0.22	0.00
45.00	1.25	0.22	0.00
46.00	1.25	0.22	0.00
47.00	1.25	0.22	0.00
48.00	1.25	0.22	0.00
49.00	1.25	0.22	0.00
50.00	1.25	0.22	0.00
51.00	1.25	0.22	0.00
52.00	1.25	0.22	0.00
53.00	1.25	0.22	0.00
54.00	1.25	0.22	0.00
55.00	1.25	0.22	0.00
56.00	1.25	0.22	0.00
57.00	1.25	0.22	0.00
58.00	1.25	0.22	0.00
59.00	1.25	0.22	0.00
60.00	1.25	0.22	0.00
61.00	1.25	0.22	0.00
62.00	1.25	0.22	0.00
63.00	1.25	0.22	0.00
64.00	1.25	0.22	0.00
65.00	1.25	0.22	0.00
66.00	1.25	0.22	0.00
67.00	1.25	0.22	0.00
68.00	1.25	0.22	0.00
69.00	1.25	0.22	0.00
70.00	1.25	0.22	0.00
71.00	1.25	0.22	0.00
72.00	1.25	0.22	0.00

Summary for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Inflow Area = 0.160 ac, 87.50% Impervious, Inflow Depth = 0.92" for NJWQ event
Inflow = 0.44 cfs @ 1.03 hrs, Volume= 0.012 af
Outflow = 0.00 cfs @ 2.20 hrs, Volume= 0.000 af, Atten= 100%, Lag= 69.9 min
Primary = 0.00 cfs @ 2.20 hrs, Volume= 0.000 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.08' @ 2.20 hrs Surf.Area= 0.118 ac Storage= 0.012 af

Plug-Flow detention time= 2,023.2 min calculated for 0.000 af (0% of inflow)
Center-of-Mass det. time= 1,979.2 min (2,045.8 - 66.6)

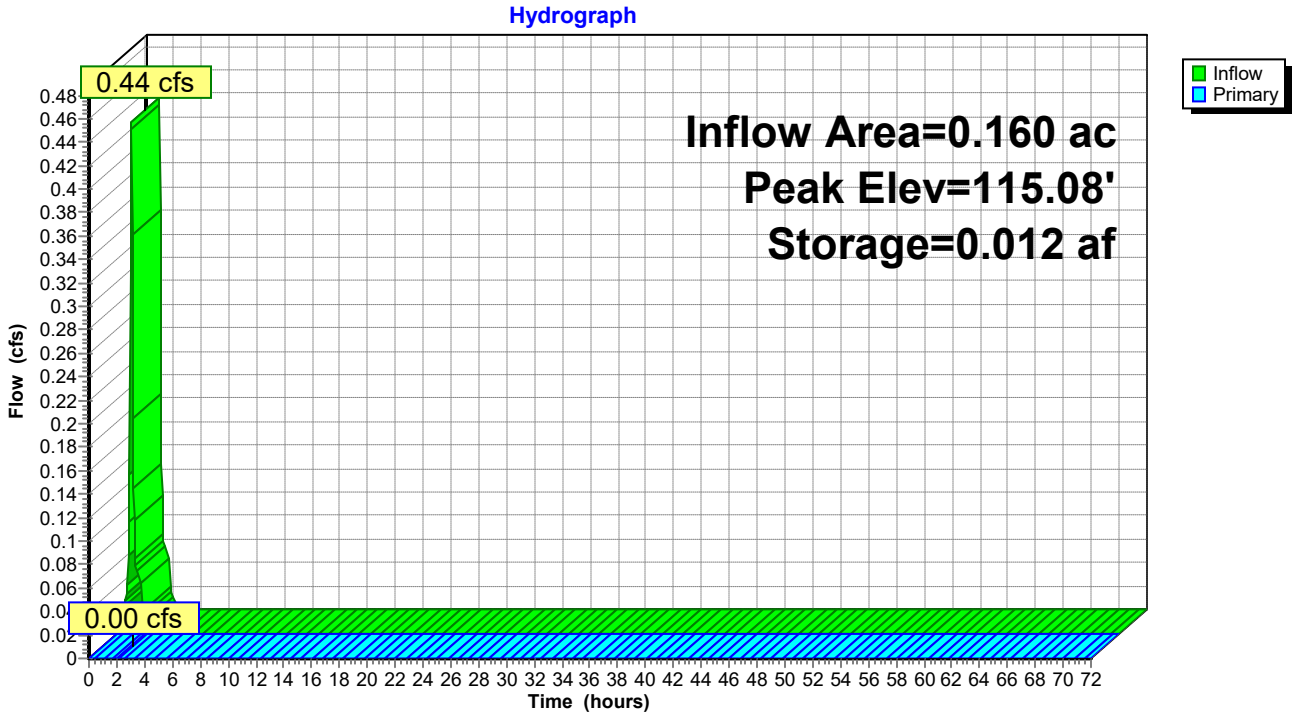
Volume	Invert	Avail.Storage	Storage Description
#1	114.82'	0.094 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.236 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.82	0.118	0.000	0.000
116.82	0.118	0.236	0.236

Device	Routing	Invert	Outlet Devices
#1	Primary	113.30'	**15.0" Round Culvert** L= 42.0' Ke= 0.500 Inlet / Outlet Invert= 113.30' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.08'	**2.5" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.25'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 2.20 hrs HW=115.08' TW=112.61' (Dynamic Tailwater)
↑**1=Culvert** (Passes 0.00 cfs of 6.29 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.11 fps)
3=Orifice/Grate (Controls 0.00 cfs)

Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN



Hydrograph for Pond 12: POROUS ASPHALT BASIN A WITH UNDERDRAIN

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**0.000**	**114.82**	**0.00**
2.50	**0.00**	**0.012**	**115.08**	**0.00**
5.00	0.00	0.012	115.08	0.00
7.50	0.00	0.012	115.08	0.00
10.00	0.00	0.012	115.08	0.00
12.50	0.00	0.012	115.08	0.00
15.00	0.00	0.012	115.08	0.00
17.50	0.00	0.012	115.08	0.00
20.00	0.00	0.012	115.08	0.00
22.50	0.00	0.012	115.08	0.00
25.00	0.00	0.012	115.08	0.00
27.50	0.00	0.012	115.08	0.00
30.00	0.00	0.012	115.08	0.00
32.50	0.00	0.012	115.08	0.00
35.00	0.00	0.012	115.08	0.00
37.50	0.00	0.012	115.08	0.00
40.00	0.00	0.012	115.08	0.00
42.50	0.00	0.012	115.08	0.00
45.00	0.00	0.012	115.08	0.00
47.50	0.00	0.012	115.08	0.00
50.00	0.00	0.012	115.08	0.00
52.50	0.00	0.012	115.08	0.00
55.00	0.00	0.012	115.08	0.00
57.50	0.00	0.012	115.08	0.00
60.00	0.00	0.012	115.08	0.00
62.50	0.00	0.012	115.08	0.00
65.00	0.00	0.012	115.08	0.00
67.50	0.00	0.012	115.08	0.00
70.00	0.00	0.012	115.08	0.00

Summary for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Inflow Area = 0.270 ac,100.00% Impervious, Inflow Depth = 1.03" for NJWQ event
Inflow = 0.86 cfs @ 1.03 hrs, Volume= 0.023 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 115.69' @ 2.10 hrs Surf.Area= 0.043 ac Storage= 0.023 af

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

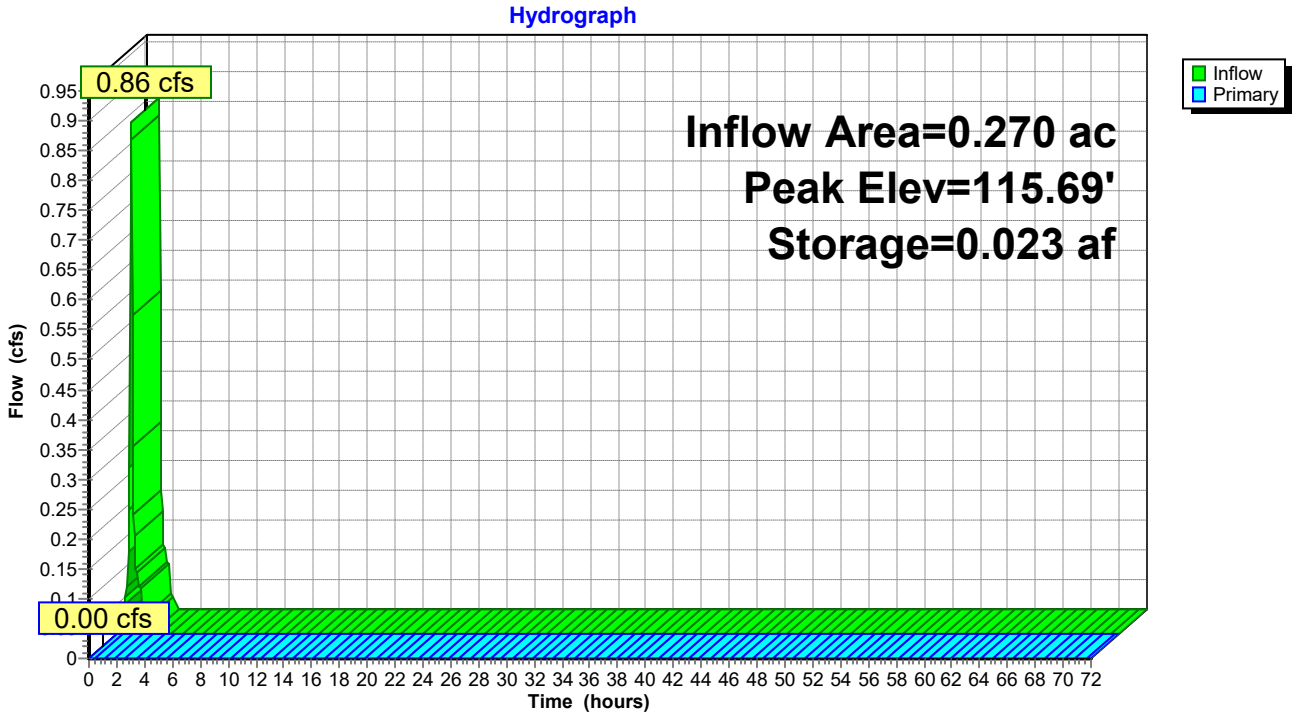
Volume	Invert	Avail.Storage	Storage Description
#1	115.13'	0.037 af	**24.0" Round Pipe Storage** x 6 Inside #2 L= 85.0'
#2	114.63'	0.037 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 0.129 af Overall - 0.037 af Embedded = 0.092 af x 40.0% Voids
		0.074 af	Total Available Storage

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
114.63	0.043	0.000	0.000
117.63	0.043	0.129	0.129

Device	Routing	Invert	Outlet Devices
#1	Primary	113.71'	**15.0" Round Culvert** L= 35.0' Ke= 0.500 Inlet / Outlet Invert= 113.71' / 113.54' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	115.69'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.50'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.63' TW=112.50' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.00 cfs of 2.41 cfs potential flow)
  ├**2=Orifice/Grate** (Controls 0.00 cfs)
  └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13: UNDERGROUND BASIN B WITH INFILTRATION



Hydrograph for Pond 13: UNDERGROUND BASIN B WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**0.000**	**114.63**	**0.00**
2.50	**0.00**	**0.023**	**115.69**	0.00
5.00	0.00	0.023	115.69	0.00
7.50	0.00	0.023	115.69	0.00
10.00	0.00	0.023	115.69	0.00
12.50	0.00	0.023	115.69	0.00
15.00	0.00	0.023	115.69	0.00
17.50	0.00	0.023	115.69	0.00
20.00	0.00	0.023	115.69	0.00
22.50	0.00	0.023	115.69	0.00
25.00	0.00	0.023	115.69	0.00
27.50	0.00	0.023	115.69	0.00
30.00	0.00	0.023	115.69	0.00
32.50	0.00	0.023	115.69	0.00
35.00	0.00	0.023	115.69	0.00
37.50	0.00	0.023	115.69	0.00
40.00	0.00	0.023	115.69	0.00
42.50	0.00	0.023	115.69	0.00
45.00	0.00	0.023	115.69	0.00
47.50	0.00	0.023	115.69	0.00
50.00	0.00	0.023	115.69	0.00
52.50	0.00	0.023	115.69	0.00
55.00	0.00	0.023	115.69	0.00
57.50	0.00	0.023	115.69	0.00
60.00	0.00	0.023	115.69	0.00
62.50	0.00	0.023	115.69	0.00
65.00	0.00	0.023	115.69	0.00
67.50	0.00	0.023	115.69	0.00
70.00	0.00	0.023	115.69	0.00

Summary for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Inflow Area = 0.870 ac, 97.70% Impervious, Inflow Depth = 1.01" for NJWQ event
Inflow = 2.58 cfs @ 1.04 hrs, Volume= 0.074 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Pond 15 : SAND BOTTOM INFILTRATION BASIN D

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.07' @ 2.40 hrs Surf.Area= 0.410 ac Storage= 0.074 af

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

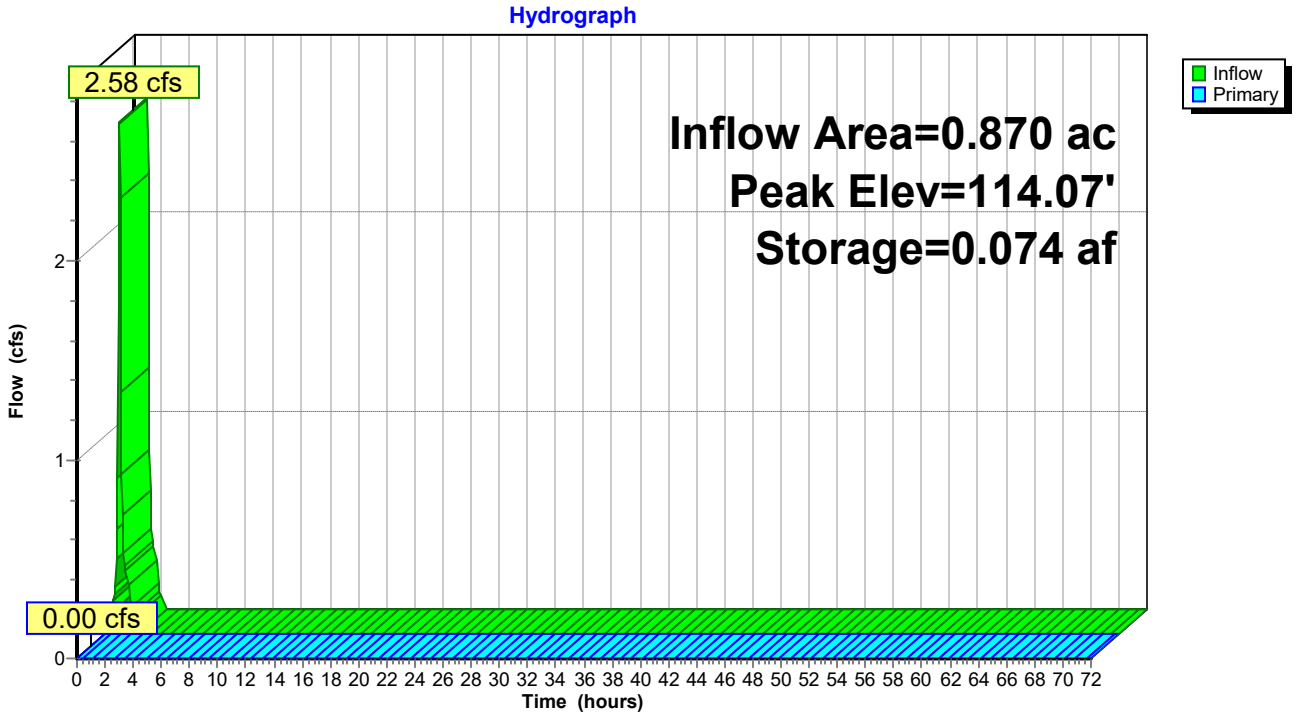
Volume	Invert	Avail.Storage	Storage Description
#1	113.62'	0.492 af	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1.230 af Overall x 40.0% Voids

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
113.62	0.410	0.000	0.000
116.62	0.410	1.230	1.230

Device	Routing	Invert	Outlet Devices
#1	Primary	113.44'	**18.0" Round Culvert** L= 56.0' Ke= 0.500 Inlet / Outlet Invert= 113.44' / 112.88' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	114.07'	**5.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	116.22'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=113.62' TW=112.50' (Dynamic Tailwater)
↑└**1=Culvert** (Passes 0.00 cfs of 0.17 cfs potential flow)
↑ ├**2=Orifice/Grate** (Controls 0.00 cfs)
↑ └**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION



Hydrograph for Pond 14: POROUS ASPHALT BASIN C WITH INFILTRATION

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	**0.000**	**113.62**	**0.00**
2.50	**0.00**	**0.074**	**114.07**	0.00
5.00	0.00	0.074	114.07	0.00
7.50	0.00	0.074	114.07	0.00
10.00	0.00	0.074	114.07	0.00
12.50	0.00	0.074	114.07	0.00
15.00	0.00	0.074	114.07	0.00
17.50	0.00	0.074	114.07	0.00
20.00	0.00	0.074	114.07	0.00
22.50	0.00	0.074	114.07	0.00
25.00	0.00	0.074	114.07	0.00
27.50	0.00	0.074	114.07	0.00
30.00	0.00	0.074	114.07	0.00
32.50	0.00	0.074	114.07	0.00
35.00	0.00	0.074	114.07	0.00
37.50	0.00	0.074	114.07	0.00
40.00	0.00	0.074	114.07	0.00
42.50	0.00	0.074	114.07	0.00
45.00	0.00	0.074	114.07	0.00
47.50	0.00	0.074	114.07	0.00
50.00	0.00	0.074	114.07	0.00
52.50	0.00	0.074	114.07	0.00
55.00	0.00	0.074	114.07	0.00
57.50	0.00	0.074	114.07	0.00
60.00	0.00	0.074	114.07	0.00
62.50	0.00	0.074	114.07	0.00
65.00	0.00	0.074	114.07	0.00
67.50	0.00	0.074	114.07	0.00
70.00	0.00	0.074	114.07	0.00

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth = 0.09" for NJWQ event
Inflow = 0.33 cfs @ 1.07 hrs, Volume= 0.013 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link 17 : POA #2 (ONSITE REDUCTION)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 112.62' @ 72.00 hrs Surf.Area= 0.112 ac Storage= 0.013 af

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

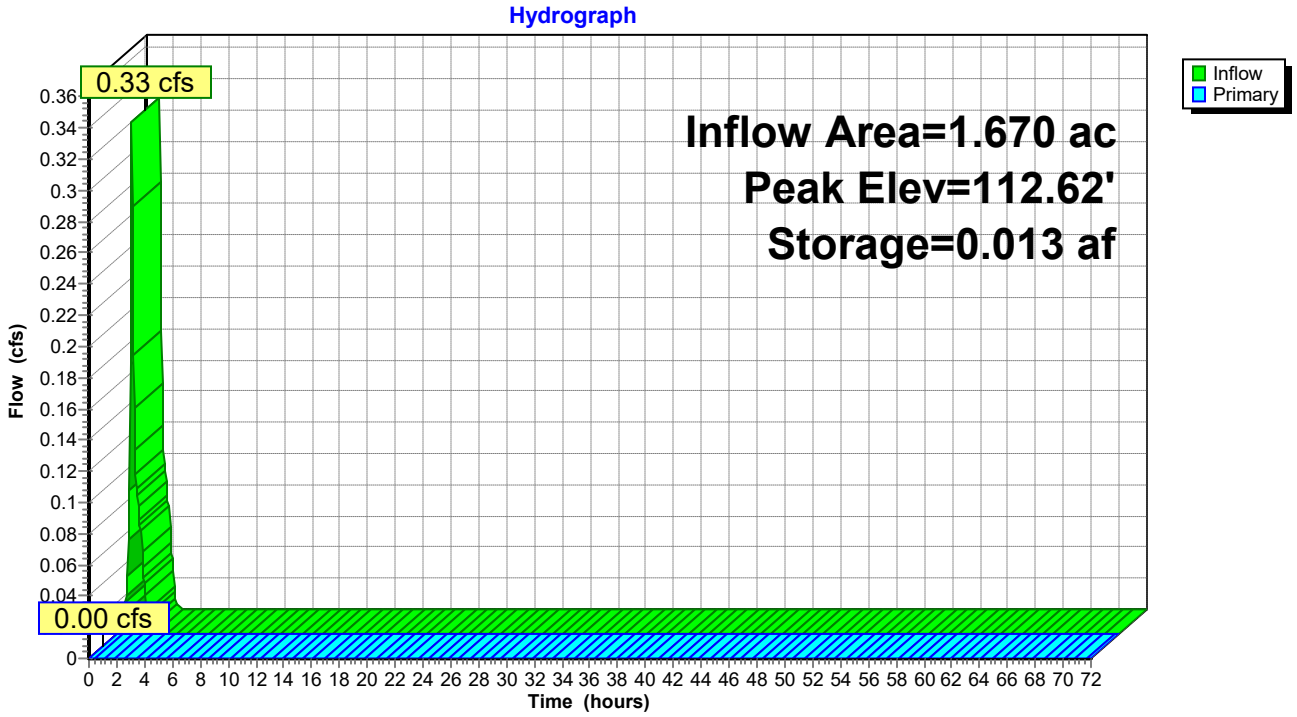
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 456.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=112.50' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.00 cfs of 0.73 cfs potential flow)
  ├─**2=Orifice/Grate** (Controls 0.00 cfs)
  └─**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15: SAND BOTTOM INFILTRATION BASIN D



Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

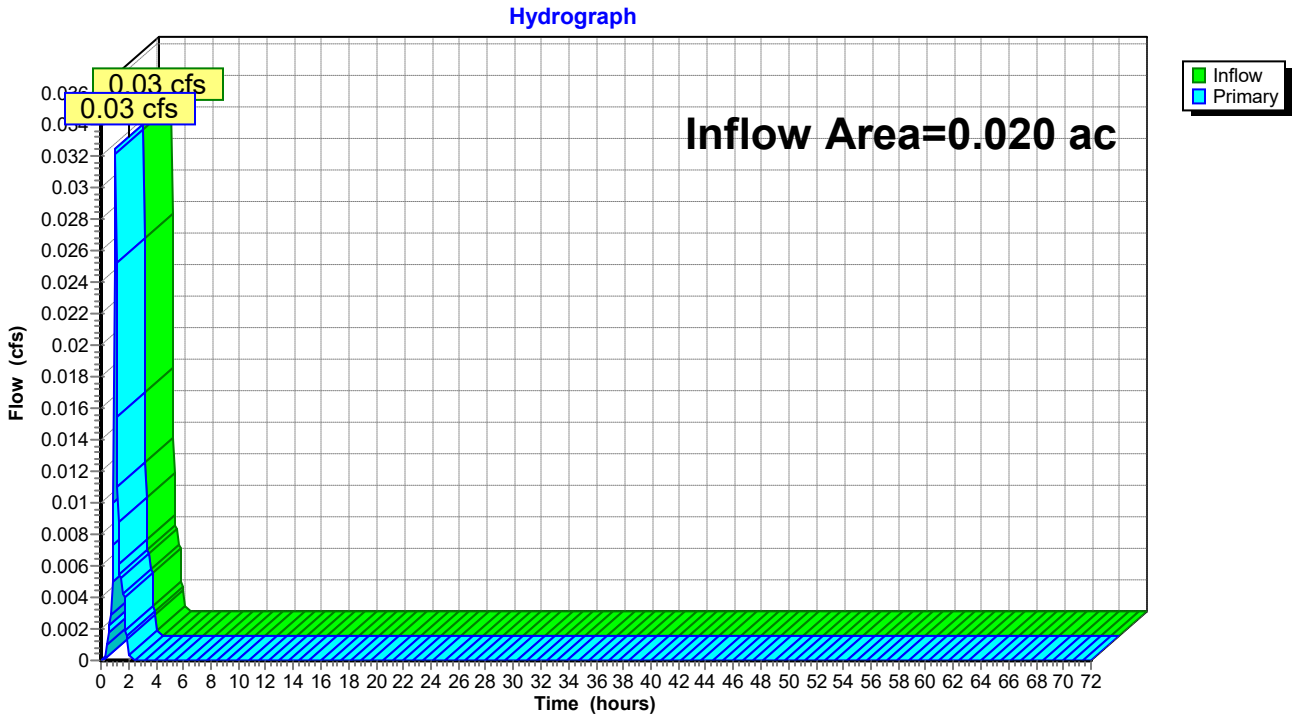
Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	**0.00**	0.000	112.50	**0.00**
2.50	**0.00**	0.013	112.61	0.00
5.00	0.00	0.013	112.61	0.00
7.50	0.00	0.013	112.61	0.00
10.00	0.00	0.013	112.61	0.00
12.50	0.00	0.013	112.61	0.00
15.00	0.00	0.013	112.61	0.00
17.50	0.00	0.013	112.61	0.00
20.00	0.00	0.013	112.61	0.00
22.50	0.00	0.013	112.61	0.00
25.00	0.00	0.013	112.61	0.00
27.50	0.00	0.013	112.61	0.00
30.00	0.00	0.013	112.61	0.00
32.50	0.00	0.013	112.61	0.00
35.00	0.00	0.013	112.61	0.00
37.50	0.00	0.013	112.61	0.00
40.00	0.00	0.013	112.61	0.00
42.50	0.00	0.013	112.61	0.00
45.00	0.00	0.013	112.61	0.00
47.50	0.00	0.013	112.61	0.00
50.00	0.00	0.013	112.61	0.00
52.50	0.00	0.013	112.61	0.00
55.00	0.00	0.013	112.61	0.00
57.50	0.00	0.013	112.62	0.00
60.00	0.00	0.013	112.62	0.00
62.50	0.00	0.013	112.62	0.00
65.00	0.00	0.013	112.62	0.00
67.50	0.00	0.013	112.62	0.00
70.00	0.00	**0.013**	**112.62**	0.00

Summary for Link 16: POA #1

Inflow Area = 0.020 ac, 50.00% Impervious, Inflow Depth = 0.59" for NJWQ event
Inflow = 0.03 cfs @ 1.04 hrs, Volume= 0.001 af
Primary = 0.03 cfs @ 1.04 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

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

Link 16: POA #1



Hydrograph for Link 16: POA #1

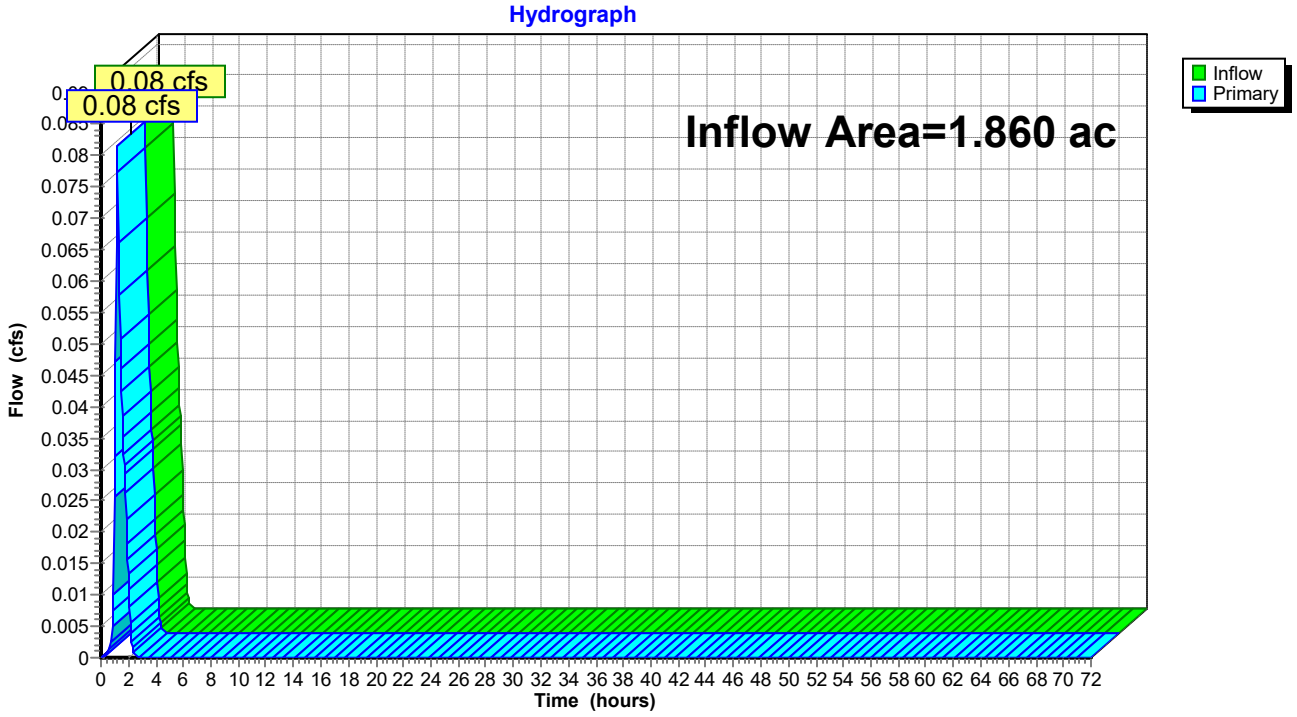
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00	52.00	0.00	0.00	0.00
1.00	**0.03**	0.00	**0.03**	53.00	0.00	0.00	0.00
2.00	**0.00**	0.00	**0.00**	54.00	0.00	0.00	0.00
3.00	0.00	0.00	0.00	55.00	0.00	0.00	0.00
4.00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

Summary for Link 17: POA #2 (ONSITE REDUCTION)

Inflow Area = 1.860 ac, 74.19% Impervious, Inflow Depth = 0.03" for NJWQ event
Inflow = 0.08 cfs @ 1.17 hrs, Volume= 0.004 af
Primary = 0.08 cfs @ 1.17 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
Routed to Link 20 : POA #2 (TOTAL)

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

Link 17: POA #2 (ONSITE REDUCTION)



Hydrograph for Link 17: POA #2 (ONSITE REDUCTION)

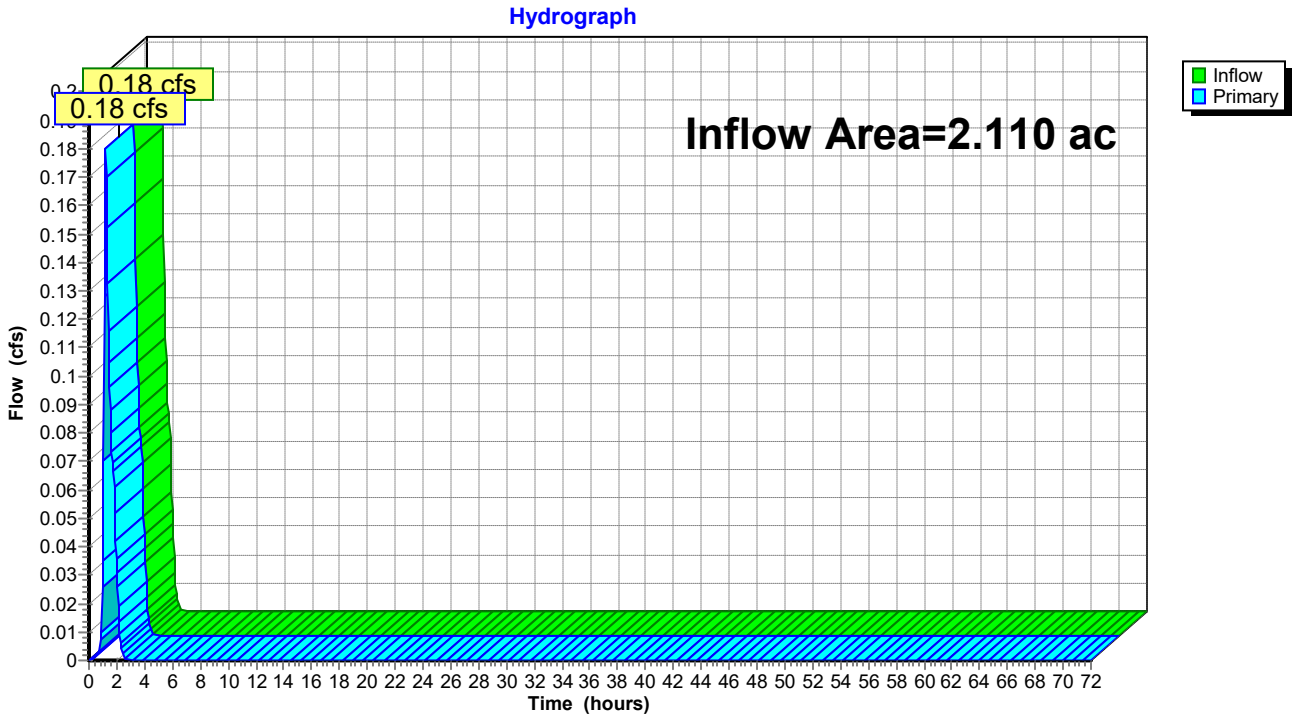
Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00	**0.00**	0.00
1.00	**0.03**	0.00	**0.03**
2.00	**0.01**	0.00	**0.01**
3.00	0.00	0.00	0.00
4.00	0.00	0.00	0.00
5.00	0.00	0.00	0.00
6.00	0.00	0.00	0.00
7.00	0.00	0.00	0.00
8.00	0.00	0.00	0.00
9.00	0.00	0.00	0.00
10.00	0.00	0.00	0.00
11.00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

Summary for Link 20: POA #2 (TOTAL)

Inflow Area = 2.110 ac, 65.40% Impervious, Inflow Depth = 0.05" for NJWQ event
Inflow = 0.18 cfs @ 1.19 hrs, Volume= 0.009 af
Primary = 0.18 cfs @ 1.19 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min

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

Link 20: POA #2 (TOTAL)



Hydrograph for Link 20: POA #2 (TOTAL)

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

New Jersey Groundwater Recharge Spreadsheet Version 2.0 November 2003

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓	Average Annual P (in)	Climatic Factor
MERCER CO., HAMILTON TWP	44.9	1.43

Project Name:	Robbinsville Heights
Description:	24002939A
Analysis Date:	05/11/26

Pre-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.3	Impervious areas	Sassafras	0.0	-
2	0.72	Woods	Sassafras	13.3	34,692
3	0.88	Meadow, Pasture, Grassland or range	Sassafras	13.4	42,765
4	0.08	Woods	Mattapex	10.6	3,069
5	0.16	Meadow, Pasture, Grassland or range	Mattapex	10.5	6,110
6					
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	2.1			Total Annual Recharge (in)	Total Annual Recharge (cu-ft)
				11.2	86,636

Post-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	1.39	Impervious areas	Sassafras	0.0	-
2	0.57	Open space	Sassafras	13.2	27,342
3	0.18	Open space	Mattapex	10.4	6,823
4					
5					
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	2.1			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				4.4	34,165

Annual Recharge Requirements Calculation ↓		Total Impervious Area (sq.ft)	60,548
% of Pre-Developed Annual Recharge to Preserve =	100%		
Post-Development Annual Recharge Deficit=	*52,471*	(cubic feet)	

Recharge Efficiency Parameters Calculations (area averages)

RWC=	#N/A	(in)	DRWC=	#N/A	(in)
ERWC =	#N/A	(in)	EDRWC=	#N/A	(in)

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

Project Name	Description	Analysis Date	BMP or LID Type
Robbinsville Heights	24002939A	05/11/26	Underground Basin B with Infiltration

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	1883.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	5.1	in
Upper level of the BMP surface (negative if above ground)	dBMPu	35.3	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	48.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	1	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.81	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	0.82	in
Inches of Rainfall to capture	Pdesign	1.00	in
Recharge Provided Avg. over Imp. Area		28.6	in
Runoff Captured Avg. over imp. Area		28.6	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.16	unitless
BMP Volume	VBMP	800	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge
dBMP Check---> OK
dEXC Check---> OK
BMP Location---> OK

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	52,471	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	11,761	sq.ft
Root Zone Water Capacity	RWC	2.83	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.43	no units
Average Annual P	Pavg	44.9	in
Recharge Requirement over Imp. Area	dr	10.4	in

System Performance Calculated Parameters

Annual BMP Recharge Volume		28,060	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		77.7%	%
%Runoff Infiltrated		82.0%	%
%Runoff Recharged		15.9%	%
%Rainfall Recharged		12.4%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

Project Name	Description	Analysis Date	BMP or LID Type
Robbinsville Heights	24002939A	05/11/26	Porous Asphalt Basin C with Infiltration

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	11529.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	2.2	in
Upper level of the BMP surface (negative if above ground)	dBMPu	36.6	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	42.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	1	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.81	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	0.82	in
Inches of Rainfall to capture	Pdesign	1.00	in
Recharge Provided Avg. over Imp. Area		28.6	in
Runoff Captured Avg. over imp. Area		28.6	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.31	unitless
BMP Volume	VBMP	2,114	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge
dBMP Check---> OK
dEXC Check---> OK
BMP Location---> OK

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	52,471	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	37,110	sq.ft
Root Zone Water Capacity	RWC	2.83	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.43	no units
Average Annual P	Pavg	44.9	in
Recharge Requirement over Imp. Area	dr	10.4	in

System Performance Calculated Parameters

Annual BMP Recharge Volume		171,802	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		77.7%	%
%Runoff Infiltrated		159.2%	%
%Runoff Recharged		97.5%	%
%Rainfall Recharged		75.8%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

Project Name	Description	Analysis Date	BMP or LID Type
Robbinsville Heights	24002939A	05/11/26	Sand Bottom Infiltration Basin D

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	4737.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	1.4	in
Upper level of the BMP surface (negative if above ground)	dBMPu	-34.5	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	36.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	2	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	1.60	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	0.82	in
Inches of Rainfall to capture	Pdesign	1.00	in
Recharge Provided Avg. over Imp. Area		28.6	in
Runoff Captured Avg. over imp. Area		28.6	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.92	unitless
BMP Volume	VBMP	553	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge
dBMP Check---> OK
dEXC Check---> OK
BMP Location---> OK

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	52,471	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	5,136	sq.ft
Root Zone Water Capacity	RWC	5.60	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.43	no units
Average Annual P	Pavg	44.9	in
Recharge Requirement over Imp. Area	dr	10.4	in

System Performance Calculated Parameters

Annual BMP Recharge Volume		70,589	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		77.7%	%
%Runoff Infiltrated		472.5%	%
%Runoff Recharged		40.1%	%
%Rainfall Recharged		31.2%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

Underground Basin B

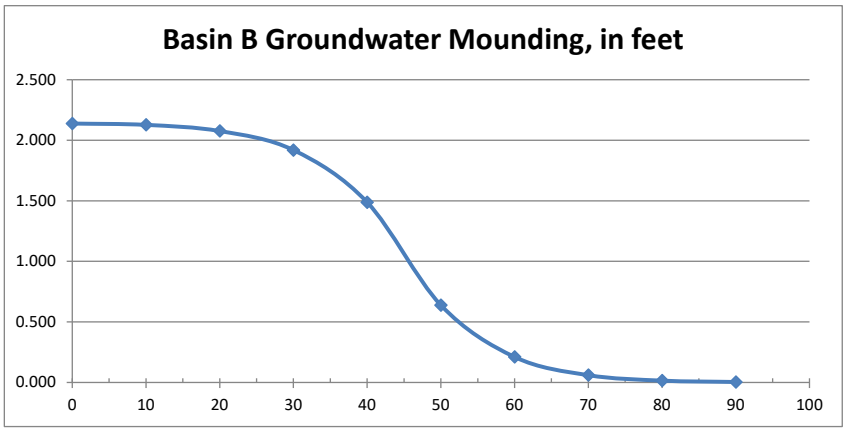
Input Values

1.47	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
7.35	Kh	Kh = 5xRecharge Rate (R) in the costal plan; Kh=R outside the coastal plan
44.665	x	1/2 length of basin (x direction, in feet)
10.540	y	1/2 width of basin (y direction, in feet)
4.34	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

12.138	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
2.138	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
2.138	0
2.127	10
2.076	20
1.919	30
1.488	40
0.638	50
0.211	60
0.060	70
0.015	80
0.004	90

Re-Calculate Now



Disclaimer

This spreadsheet solving the Hantush (1967) equation for ground-water mounding beneath an infiltration basin is made available to the general public as a convenience for those wishing to replicate values documented in the USGS Scientific Investigations Report 2010-5102 "Groundwater mounding beneath hypothetical stormwater infiltration basins" or to calculate values based on user-specified site conditions. Any changes made to the spreadsheet (other than values identified as user-specified) after transmission from the USGS could have unintended, undesirable consequences. These consequences could include, but may not be limited to: erroneous output, numerical instabilities, and violations of underlying assumptions that are inherent in results presented in the accompanying USGS published report. The USGS assumes no responsibility for the consequences of any changes made to the spreadsheet. If changes are made to the spreadsheet, the user is responsible for documenting the changes and justifying the results and conclusions.

Porous Asphalt Basin C

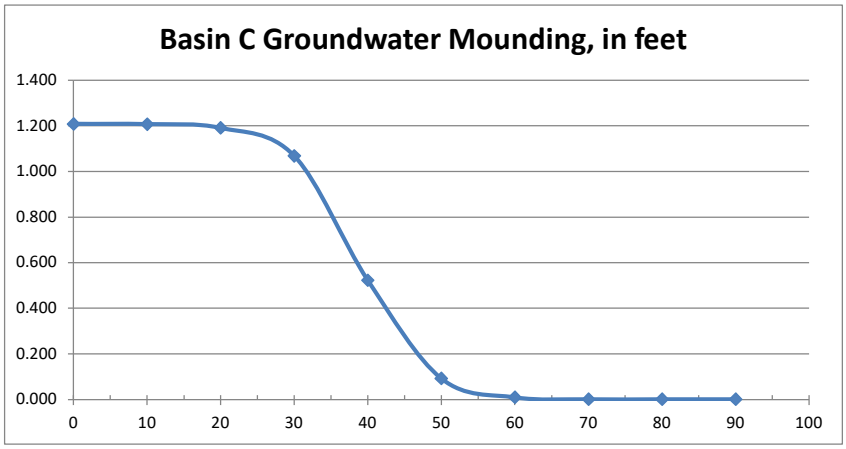
Input Values

1.34	*R*	Recharge rate (permeability rate) (in/hr)
		Specific yield, Sy (dimensionless)
0.150	Sy	default value is 0.15; max value is 0.2 provided that a lab test data is submitted
		Horizontal hydraulic conductivity (in/hr)
6.70	Kh	Kh = 5xRecharge Rate (R) in the costal plan; Kh=R outside the coastal plan
39.000	x	1/2 length of basin (x direction, in feet)
114.000	y	1/2 width of basin (y direction, in feet)
1.62	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

11.208	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
1.208	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
1.208	0
1.207	10
1.191	20
1.068	30
0.523	40
0.092	50
0.009	60
0.001	70
0.000	80
0.000	90

Re-Calculate Now



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Sand Bottom Infiltration Basin D

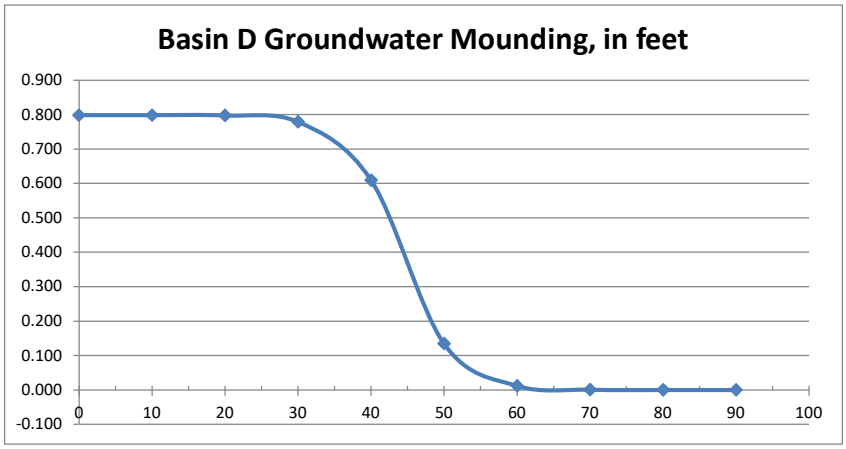
Input Values

0.59	*R*	Recharge rate (permeability rate) (in/hr)
0.150	Sy	Specific yield, Sy (dimensionless) default value is 0.15; max value is 0.2 provided that a lab test data is submitted
3.30	Kh	Horizontal hydraulic conductivity (in/hr) Kh = 5xRecharge Rate (R) in the costal plan; Kh=R outside the coastal plan
44.185	x	1/2 length of basin (x direction, in feet)
28.250	y	1/2 width of basin (y direction, in feet)
2.44	t	Duration of infiltration period (hours)
10.00	hi(0)	Initial thickness of saturated zone (feet)

10.798	h(max)	Maximum thickness of saturated zone (beneath center of basin at end of infiltration period)
0.798	Δh(max)	Maximum groundwater mounding (beneath center of basin at end of infiltration period)

Ground-water Mounding, in feet	Distance from center of basin in x direction, in feet
0.798	0
0.798	10
0.797	20
0.779	30
0.610	40
0.135	50
0.012	60
0.001	70
0.000	80
0.000	90

Re-Calculate Now



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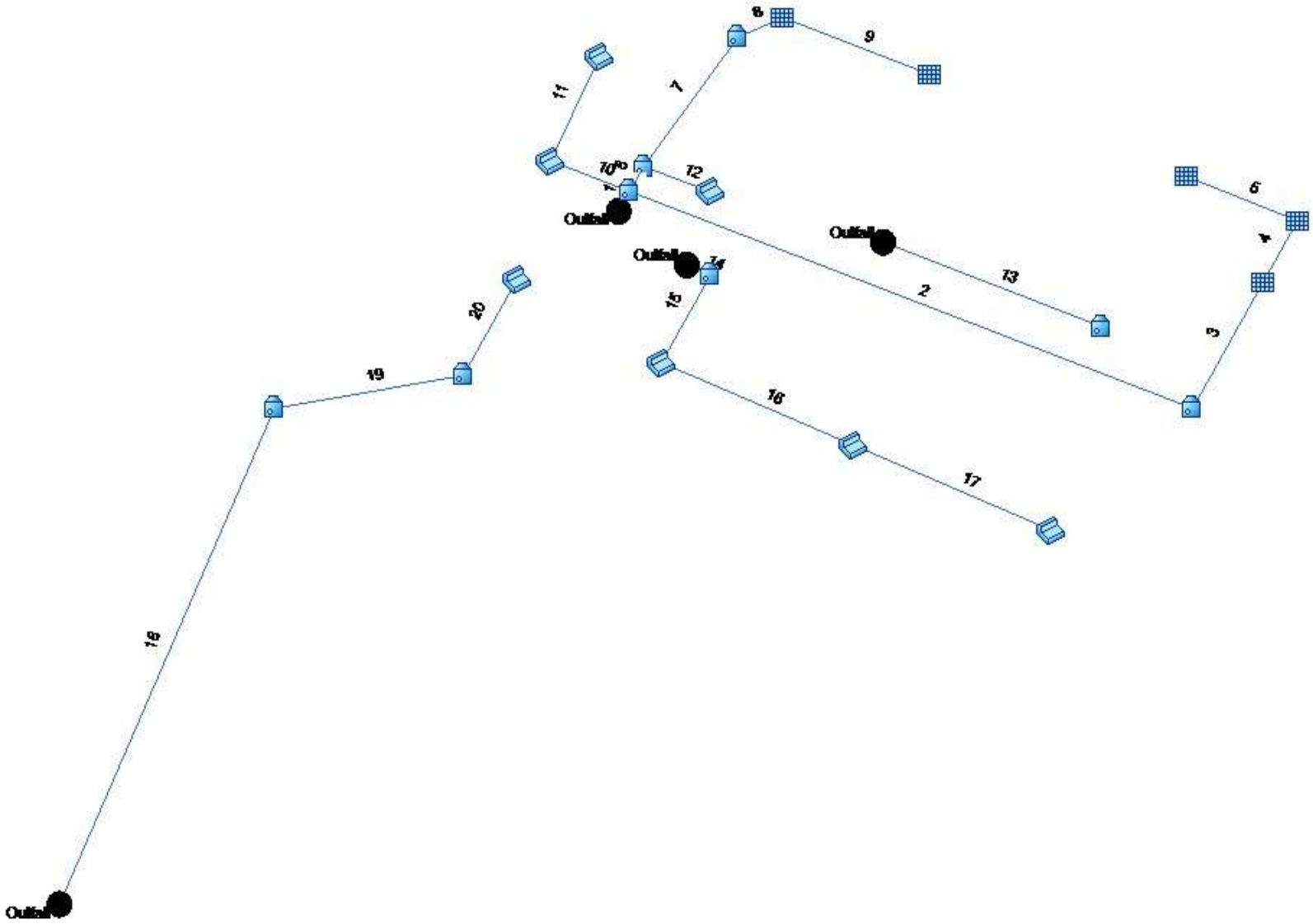
Colliers
Engineering
& Design

Appendix D | Stormwater Conveyance

Pipe and Inlet Calculations
Roof Leader, Underdrain, and Orifice Flow Calculations

Storm Sewer
Pipe Calculation Report



j = hyd. jump

Project No.: 24002939A
Design Storm: 25 YR
State: NJ

Storm Sewer
Pipe Calculation Report

Colliers Engineering & Design

Project Name: Robbinsville Heights
Municipality: Robbinsville Township

Line No.	Inlet ID	Drainage Area	Runoff Coeff	i Inlet	Tc	i Sys	QCaptured	Total Runoff	Known Q	Flow Rate	Capacity Full	Vel Ave	Line Type	n-value Pipe	Line Size	Line Slope	Line Length	Invert Up	Invert Dn	Grnd/Rim Elev Up	Grnd/Rim Elev Dn	HGLUp	HGLDn	Cover Up	Cover Dn
		(ac)	(C)	(in/hr)	(min)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/s)			(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
1	A-101	0.00	0.95	0.00	21.5	5.16	....	1.86	0.00	5.40	11.58	4.90	Cir	0.012	18	1.04	12.550	112.63	112.50	118.87	115.13	113.53 j	113.40	4.74	1.13
2	A-117	0.00	0.95	0.00	15.1	6.01	....	0.74	0.00	0.74	7.00	3.25	Cir	0.012	15	1.00	297.024	116.61	113.64	120.25	118.87	116.95	113.92	2.39	3.98
3	A-118	0.10	0.95	7.94	13.4	6.29	0.75	0.78	0.00	0.78	4.95	2.87	Cir	0.012	15	0.50	80.047	117.01	116.61	120.63	120.25	117.35	116.95	2.37	2.39
4	A-119	0.01	0.95	7.94	11.1	6.71	0.08	0.19	0.00	0.19	2.76	2.01	Cir	0.012	12	0.51	39.007	117.46	117.26	121.84	120.63	117.64	117.44	3.38	2.37
5	A-120	0.02	0.95	7.94	6.0	7.94	0.15	0.15	0.00	0.15	2.71	1.72	Cir	0.012	12	0.49	58.935	117.75	117.46	121.10	121.84	117.91 j	117.64	2.35	3.38
6	A-106	0.00	0.95	0.00	10.4	6.86	....	0.59	0.00	3.83	4.97	4.47	Cir	0.012	15	0.50	15.853	113.54	113.46	119.03	118.87	114.36	114.28	4.24	4.16
7	A-107	0.00	0.95	0.00	8.7	7.24	....	0.62	0.00	0.62	2.74	2.80	Cir	0.012	12	0.50	87.134	116.16	115.72	119.36	119.03	116.49	116.04	2.20	2.31
8	A-108	0.03	0.95	7.94	8.2	7.35	0.23	0.63	0.00	0.63	2.72	2.80	Cir	0.012	12	0.50	24.213	116.28	116.16	118.86	119.36	116.61	116.49	1.58	2.20
9	A-109	0.06	0.95	7.94	6.0	7.94	0.45	0.45	0.00	0.45	2.74	2.27	Cir	0.012	12	0.50	77.241	116.67	116.28	119.67	118.86	116.95	116.61	2.00	1.58
10	A-102	0.00	0.95	0.00	7.1	7.64	0.30	1.16	0.30	1.46	7.00	2.84	Cir	0.012	15	1.00	41.980	113.30	112.88	118.61	118.87	113.78 j	113.53	4.06	4.74
11	A-103	0.16	0.95	7.94	6.0	7.94	1.21	1.21	0.00	1.21	4.92	3.26	Cir	0.012	15	0.49	64.745	114.45	114.13	117.41	118.61	114.88	114.55	1.71	3.23
12	A-110	0.00	0.95	0.00	6.0	0.00	3.24	0.00	3.24	3.24	4.88	2.91	Cir	0.012	15	0.49	34.932	113.71	113.54	118.77	119.03	114.72	114.67	3.81	4.24
13	A-114	0.27	0.95	7.94	6.0	7.94	....	2.04	0.00	2.04	4.96	3.75	Cir	0.012	15	0.50	115.269	115.71	115.13	120.23	119.46	116.28	115.70	3.27	3.08
14	A-201	0.00	0.95	0.00	9.8	7.00	....	5.78	0.00	7.13	19.70	5.50	Cir	0.012	18	3.00	12.670	112.88	112.50	117.84	115.13	113.91	113.53	3.46	1.13
15	A-202	0.44	0.95	7.94	9.5	7.04	4.67	5.82	1.35	7.17	11.38	5.52	Cir	0.012	18	1.00	56.001	113.44	112.88	117.20	117.84	114.48	113.91	2.26	3.46
16	A-203	0.33	0.95	7.94	8.9	7.20	2.49	2.94	0.00	2.94	4.95	4.21	Cir	0.012	15	0.50	103.806	114.76	114.24	117.73	117.20	115.45 j	114.93	1.72	1.71
17	A-204	0.10	0.95	7.94	6.0	7.94	0.75	0.75	0.00	0.75	4.94	1.83	Cir	0.012	15	0.50	06.31	115.29	114.76	118.26	117.73	15.63	115.59	1.72	1.72
18	A-301	0.00	0.95	0.00	8.6	0.00	....	0.00	0.00	3.11	14.49	3.67	Cir	0.012	24	0.35	03.20	111.56	110.50	115.31	113.75	112.20	111.12	1.75	1.25
19	A-302	0.00	0.95	0.00	7.0	0.00	....	0.00	0.00	3.11	14.42	3.17	Cir	0.012	24	0.35	92.455	111.88	111.56	115.63	115.31	12.50	112.38	1.75	1.75
20	A-303	0.00	0.95	0.00	6.0	0.00	3.11	0.00	3.11	3.11	14.36	3.10	Cir	0.012	24	0.34	61.166	112.09	111.88	115.50	115.63	112.73	112.68	1.41	1.75

Line contains hyd. jump

j = hyd. jump

Roof Leader Sizing:

			25 yr - 5 min	Area:			
	Q	C	I (in/hr)	Square Feet	A acres	Slope	HDPE Pipe Size
Roof Leader Sizing	0.416	0.99	7.32	2500	0.057	0.01	6"
Trunk Roof Leader into MH A-112	1.248	0.99	7.32	7500	0.172	0.01	8"

Note:
Roof Leaders have all been sized based on a maximum roof area of 2500 SF per leader.

OCS Inflow Orifice Capacity: **$Q = Cd * A * \sqrt{(2 * g * h)}$**

Porous Asphalt Basin C (OCS A-202):

100-yr Peak Outflow =	1.33	cfs	Diameter of Orifice:	6	inches
Orifice Peak Outflow (Qmax) =	1.47	cfs	Area of Orifice:	0.20	ft²
Cd =	0.61				
A =	0.196	ft²	Elev. of 100-yr storm:	116.4	
g =	32.2	ft/s²	Elev. of Orifice:	114.07	
h =	2.33	ft	Head Height (h) =	2.33	

Porous Asphalt Basin A (OCS A-102):

100-yr Peak Outflow =	0.28	cfs	Diameter of Orifice:	8	inches
Orifice Peak Outflow (Qmax) =	2.01	cfs	Area of Orifice:	0.35	ft²
Cd =	0.61				
A =	0.349	ft²	Elev. of 100-yr storm:	116.46	
g =	32.2	ft/s²	Elev. of Orifice:	115.08	
h =	1.38	ft	Head Height (h) =	1.38	

Flow Rate through Perforated Pipe: **Q = L * B * Cd * A * √(2 * g * h)**

Porous Asphalt Basin C (OCS A-202):

(Stub Pipe for Basin Inflow)

Orifice Peak Outflow (Qmax) =	1.47				
Perforated Pipe Inflow (Qmax) =	1.54				
L =	15	ft			
B =	1	Clogging			
Cd =	0.61				
A =	0.014	ft²/ft	Open Area 6" PVC Pipe:	1.98	in²/ft
g =	32.2	ft/s²		0.014	ft²/ft
h =	2.33	ft			

Porous Asphalt Basin A (OCS A-102):

(Perforated Underdrain)

Orifice Peak Outflow (Qmax) =	2.01				
Perforated Pipe Inflow (Qmax) =	7.06				
L =	93	ft			
B =	1	Clogging			
Cd =	0.61				
A =	0.013	ft²/ft	Open Area 8" PVC Pipe:	1.9	in²/ft
g =	32.2	ft/s²		0.013	ft²/ft
h =	1.38	ft			

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Appendix E | Rip-Rap Calculations

Rip Rap Calculations
Scour Hole Calculations
Spillway Calculations

PROJECT- Robbinsville Heights
NUMBER- 24002939A
BY- AI
DATE- 5/11/2026

CONDUIT OUTLET PROTECTION CALCULATIONS

TAILWATER < 0.5 x Do

18 " HDPE WW A-100

D_O = 1.50
$Q_{(100)}$ = 6.00 CFS
TW = 0.30 (0.2 Do ASSUMED)
W_o = 1.50 (Width of culvert @ widest point)
q= 4.00 CFS/ft (Q/Wo)

LENGTH OF APRON

$$L_a = \frac{1.8 \times q}{D_o^{1/2}} + 7 \times (Do) = 16.38 \text{ FEET}$$

USE 17.0 FEET

WIDTH OF APRON

W = (3 x Wo) + La = 20.88 FEET

USE 21.0 FEET

RIPRAP SIZE

$$D_{(50)} = \frac{0.016}{Tw} q^{4/3} = 4.06 \text{ INCHES}$$

USE 8.0 INCHES

APRON THICKNESS

T = 2 x D (50) w/ FILTER FABRIC = 1.33 FEET
USE [X]

T = 3 x D (50) = 2.00 FEET
USE [ ]

RIP RAP QUANTITY VOLUME = $\frac{(1/2)(3Wo+W)(La)(T)}{27}$ =

= 11 CUBIC YARDS = 16 CUBIC YARDS

PROJECT- Robbinsville Heights
NUMBER- 24002939A
BY- OKW
DATE- 12/22/2025

CONDUIT OUTLET PROTECTION CALCULATIONS

TAILWATER < 0.5 x Do

18 " HDPE WW A-200

D_O = 1.50
$Q_{(100)}$ = 8.44 CFS
TW = 0.30 (0.2 Do ASSUMED)
W_o = 1.50 (Width of culvert @ widest point)
q= 5.63 CFS/ft (Q/Wo)

LENGTH OF APRON

$$L_a = \frac{1.8 \times q}{D_o^{1/2}} + 7 \times (Do) = 18.77 \text{ FEET}$$

USE 19.0 FEET

WIDTH OF APRON

W = (3 x Wo) + La = 23.27 FEET

USE 24.0 FEET

RIPRAP SIZE

$$D_{(50)} = \frac{0.016}{Tw} q^{4/3} = 6.40 \text{ INCHES}$$

USE 8.0 INCHES

APRON THICKNESS

T = 2 x D (50) w/ FILTER FABRIC = 1.33 FEET

USE [X]

T = 3 x D (50) = 2.00 FEET

USE [ ]

RIP RAP QUANTITY VOLUME = $\frac{(1/2)(3Wo+W)(La)(T)}{27}$ =

= 13 CUBIC YARDS = 20 CUBIC YARDS

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PROJECT- Robbinsville Mixed Use
NUMBER- 24002939A
BY- AI
DATE- 5/11/2026

SCOUR HOLE CALCULATIONS

24 " HDPE WW A-300

Do = 2.00
Wo = 2.00 (CIRCULAR SAME AS Do)
TW = 0.40 (0.2 Do ASSUMED)
Q(100) = 3.11 CFS MAX. FLOW BASED ON HW
Y = DEPTH OF SCOUR HOLE BELOW INVERT
q= 1.56 CFS/FT (Q/Wo)

CASE 1 - RIPRAP SIZE FOR Y = 1/2 Do

$$D(50) = \frac{0.0125}{TW} (q/Do)^{4/3} = 0.68 \text{ INCHES}$$

USE 4.0 INCHES

CASE 2 - RIPRAP SIZE FOR Y = Do

$$D(50) = \frac{0.0082}{TW} (q/Do)^{4/3} = 0.44 \text{ INCHES}$$

USE 3.0 INCHES

USE CASE 1 RIPRAP SIZE = 4.0 INCHES

Y = 1 FEET

APRON THICKNESS

CASE 1 - WITH FILTER FABRIC

T = 2 x D (50) = 0.67 FEET

USE 0.67 FEET

CASE 2 - W/O FILTER FABRIC

T = 3 x D (50) = 0.17 FEET

USE 1.00 FEET

USE CASE 1

WIDTH OF HOLE BOTTOM

W(H) = 2 x Wo = 4.00 FEET

LENGTH OF HOLE BOTTOM

L(H) = 3 x Do = 6.00 FEET

OVERALL WIDTH

W = W(H) + 2 (3 * Y) = 10.0 FEET

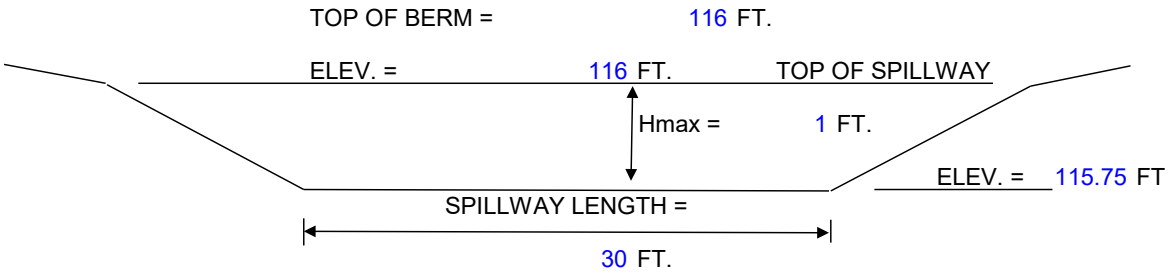
OVERALL LENGTH

L = L(H) + 2 (3 * Y) = 12.0 FEET

RIP RAP QUANTITY

= WLT/27 = 3 CUBIC YARDS

EMERGENCY SPILLWAY CALCULATIONS
BASIN D



- **Spillway Capacity:**

Spillway calculation based on weir equation: Q = CLH**3/2

'C' = weir coefficient: Use 3

Qmax through spillway = 90.0

Spillway designed to pass 100 year flow

100 year flow = 7.0 CFS HEADWATER DEPTH = 0.18

ALLOWABLE HEADWATER DEPTH = 1 FT.

Spillway Velocity, 100-YR

Velocity=
Flow= 7.03 CFS
Area= 5.48 SF
Velocity= 1.28 FT/SEC Velocity Less Than 2.0 FT/S

1000 Waterview Drive, Suite 201
Hamilton, New Jersey 08691
Main: 877 627 3772

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Offsite Stability

Project: Robbinsville Heights

CED Project #: 24002939A

Date: February 9, 2026

Offsite stability has been designed in accordance with Chapter 21 of the "Standards for Soil Erosion and Sediment Control in New Jersey." At the point of discharge, WW A-300 achieves stability via Point of Discharge – Methods for Achieving Stability "Section 1. No well-defined waterway below the point of discharge," as outlined in Chapter 21.

The stability requirements for the outfalls are summarized below with each roman numeral corresponding to the requirements outlined in Chapter 21 "Stability Criteria (in conjunction with Table 21-1). The design responses are **bold.**

Maximum Stable Slope for Point Discharges for Various Soils:

Outfall	Soil Type	Maximum Slope	Design Slope
WW A-300	Sandy Loam	2.0%	1.81%

i. The maximum discharge rate shall be 10 cfs or less for the twenty-five (25) year storm.

The maximum discharge flow rate of WW A-300 for the 25-year storm, as determined using the TR-55 method of analysis when modeling with HydroCAD software is 0.58 cfs. The 25-year flow rate of 0.58 cfs is less than 10 cfs, therefore, the design complies.

ii. Multiple outlets may be utilized to reduce individual outlet flow rates to levels below the thresholds noted above. Outlets should be spaced no closer than 50 ft horizontally to avoid remixing of flows.

Multiple outlets are not proposed, as individual outlet flows were satisfied in the above condition, therefore, the design complies.

iii. Flow over the outlet area shall be less than 0.5 cfs/ft. Designers shall not design excessive widths which will cause flows to concentrate.

The maximum discharge flow rate of WW A-300 for the 25-year storm as determined using the TR-55 method of analysis when modeling with HydroCAD software is 0.58 cfs. 0.58 cfs over a width of 23' yields 0.03 cfs/ft flow over the outlet area. 0.03 cfs/ft is less than 0.5 cfs/ft; therefore, the design complies.

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iv. Conduit outlet protection shall be provided in accordance with that Standard and may include: flat aprons, performed scour holes, impact basins, stilling wells, plunge pools, etc. Level spreaders are not an acceptable design.

Conduit outlet protection has been provided at the concentrated flow location; therefore, the design complies.

v. Topography shows broad uniform outlet area where flow will not concentrate.

Immediately downstream of the proposed outfall, the topography shows a broad uniform outlet area. Therefore, the design and location of the proposed swale is in compliance with this standard.

vi. Discharge locations shall contain perennial, erosion resistant vegetation.

The swale and discharge area below the swale will be planted with a perennial lawn grass mix, therefore, the design complies.

vii. Peak discharge velocities (in the last pipe section) do not exceed 2 fps. (10-yr)

The peak discharge velocity in the last pipe section is 0.18 fps, which is less than the 2-fps maximum, therefore, the design complies.

viii. The maximum length of slope below the outlet(s) is 100 feet.

All outfalls are discharging either directly into, or within 100’ of a wetland or its associated buffer.

Summary for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Inflow Area = 1.670 ac, 82.04% Impervious, Inflow Depth > 5.02" for 25 Year event
Inflow = 3.71 cfs @ 12.11 hrs, Volume= 0.698 af
Outflow = 0.58 cfs @ 15.57 hrs, Volume= 0.682 af, Atten= 84%, Lag= 207.5 min
Primary = 0.58 cfs @ 15.57 hrs, Volume= 0.682 af
Routed to Link 17 : POA #2

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 114.68' @ 15.57 hrs Surf.Area= 0.124 ac Storage= 0.256 af

Plug-Flow detention time= 294.6 min calculated for 0.682 af (98% of inflow)
Center-of-Mass det. time= 266.4 min (1,228.2 - 961.8)

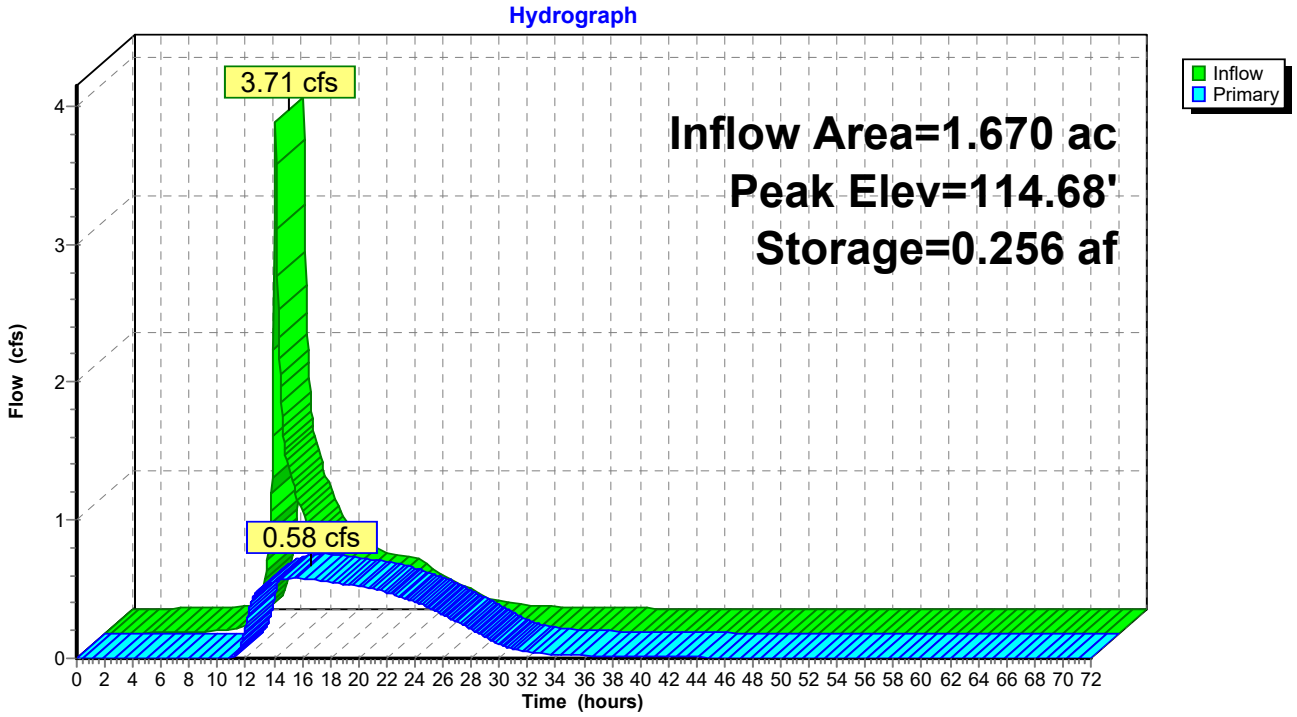
Volume	Invert	Avail.Storage	Storage Description
#1	112.50'	0.360 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
112.50	0.111	0.000	0.000
113.00	0.114	0.056	0.056
114.00	0.120	0.117	0.173
115.00	0.126	0.123	0.296
115.50	0.129	0.064	0.360

Device	Routing	Invert	Outlet Devices
#1	Primary	112.09'	**24.0" Round Culvert** L= 449.0' Ke= 0.500 Inlet / Outlet Invert= 112.09' / 110.50' S= 0.0035 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	112.62'	**4.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	114.75'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.58 cfs @ 15.57 hrs HW=114.68' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 0.58 cfs of 15.76 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.58 cfs @ 6.62 fps)
└**3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 15: SAND BOTTOM INFILTRATION BASIN D

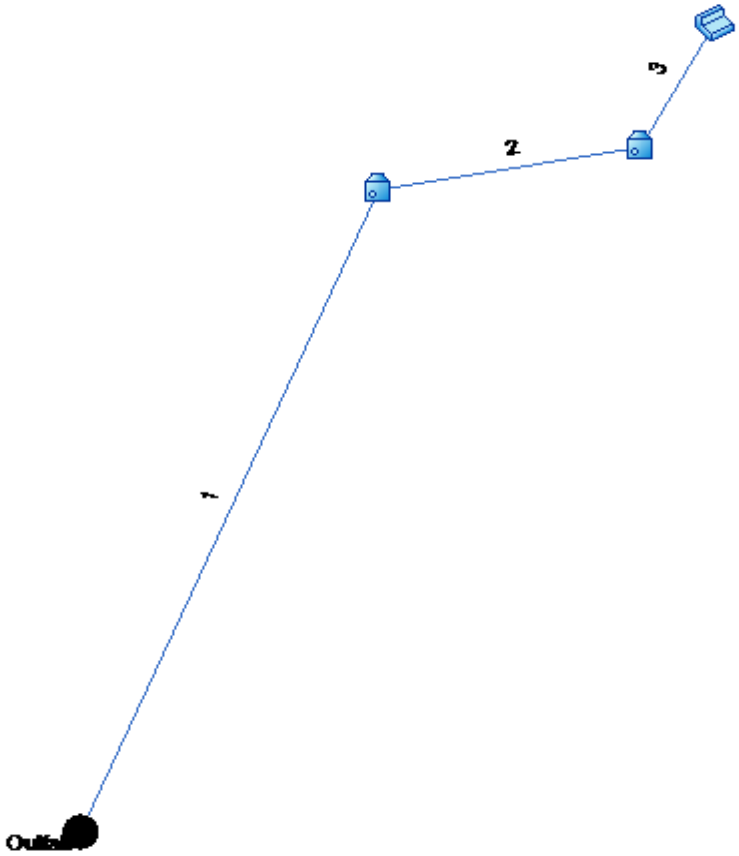


Hydrograph for Pond 15: SAND BOTTOM INFILTRATION BASIN D

Time (hours)	Inflow (cfs)	Storage (acre-feet)	Elevation (feet)	Primary (cfs)
0.00	0.00	0.000	112.50	0.00
2.50	0.01	0.001	112.50	0.00
5.00	0.01	0.002	112.52	0.00
7.50	0.02	0.005	112.54	0.00
10.00	**0.05**	0.011	112.60	0.00
12.50	**1.79**	0.156	113.85	0.43
15.00	0.67	**0.254**	**114.66**	**0.58**
17.50	0.43	**0.243**	**114.57**	**0.56**
20.00	0.37	0.212	114.32	0.52
22.50	0.22	0.172	113.99	0.46
25.00	0.09	0.119	113.54	0.36
27.50	0.04	0.068	113.10	0.24
30.00	0.02	0.039	112.85	0.10
32.50	0.01	0.029	112.76	0.04
35.00	0.01	0.024	112.72	0.02
37.50	0.01	0.022	112.70	0.01
40.00	0.00	0.021	112.68	0.01
42.50	0.00	0.020	112.68	0.01
45.00	0.00	0.019	112.67	0.01
47.50	0.00	0.018	112.66	0.00
50.00	0.00	0.018	112.66	0.00
52.50	0.00	0.017	112.66	0.00
55.00	0.00	0.017	112.65	0.00
57.50	0.00	0.017	112.65	0.00
60.00	0.00	0.017	112.65	0.00
62.50	0.00	0.016	112.65	0.00
65.00	0.00	0.016	112.65	0.00
67.50	0.00	0.016	112.64	0.00
70.00	0.00	0.016	112.64	0.00

Project No.: 24002939A
Design Storm: 10 YR
State: NJ

Storm Sewer
Pipe Calculation Report



j = hyd. jump

Project No.: 24002939A
Design Storm: 10 YR
State: NJ

Storm Sewer
Pipe Calculation Report

Colliers Engineering & Design

Project Name: Robbinsville Heights
Municipality: Robbinsville Township

Line No.	Line ID	Inlet ID	Drainage Area	Runoff Coeff	Tc	i Sys	QCaptured	Total Runoff	Known Q	Flow Rate	Capacity Full	Vel Ave	Line Type	n-value Pipe	Line Size	Line Slope	Line Length	Invert Up	Invert Dn	Grnd/Rim Elev Up	Grnd/Rim Elev Dn	HGLUp	HGLDn	Cover Up	Cover Dn
			(ac)	(C)	(min)	(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/s)			(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
1	P-301A	A-301	0.00	0.95	20.6	0.00	....	0.00	0.00	0.55	14.49	0.18	Cir	0.012	24	0.35	303	111.56	110.50	115.31	113.75	113.40	113.40	1.75	1.25
2	P-302A	A-302	0.00	0.95	11.8	0.00	....	0.00	0.00	0.55	14.42	0.20	Cir	0.012	24	0.35	92	111.88	111.56	115.63	115.31	113.40	113.40	1.75	1.75
3	P-303A	A-303	0.00	0.95	6.0	0.00	0.55	0.00	0.55	0.55	14.36	0.23	Cir	0.012	24	0.34	61	112.09	111.88	115.50	115.63	113.40	113.40	1.41	1.75

j = hyd. jump

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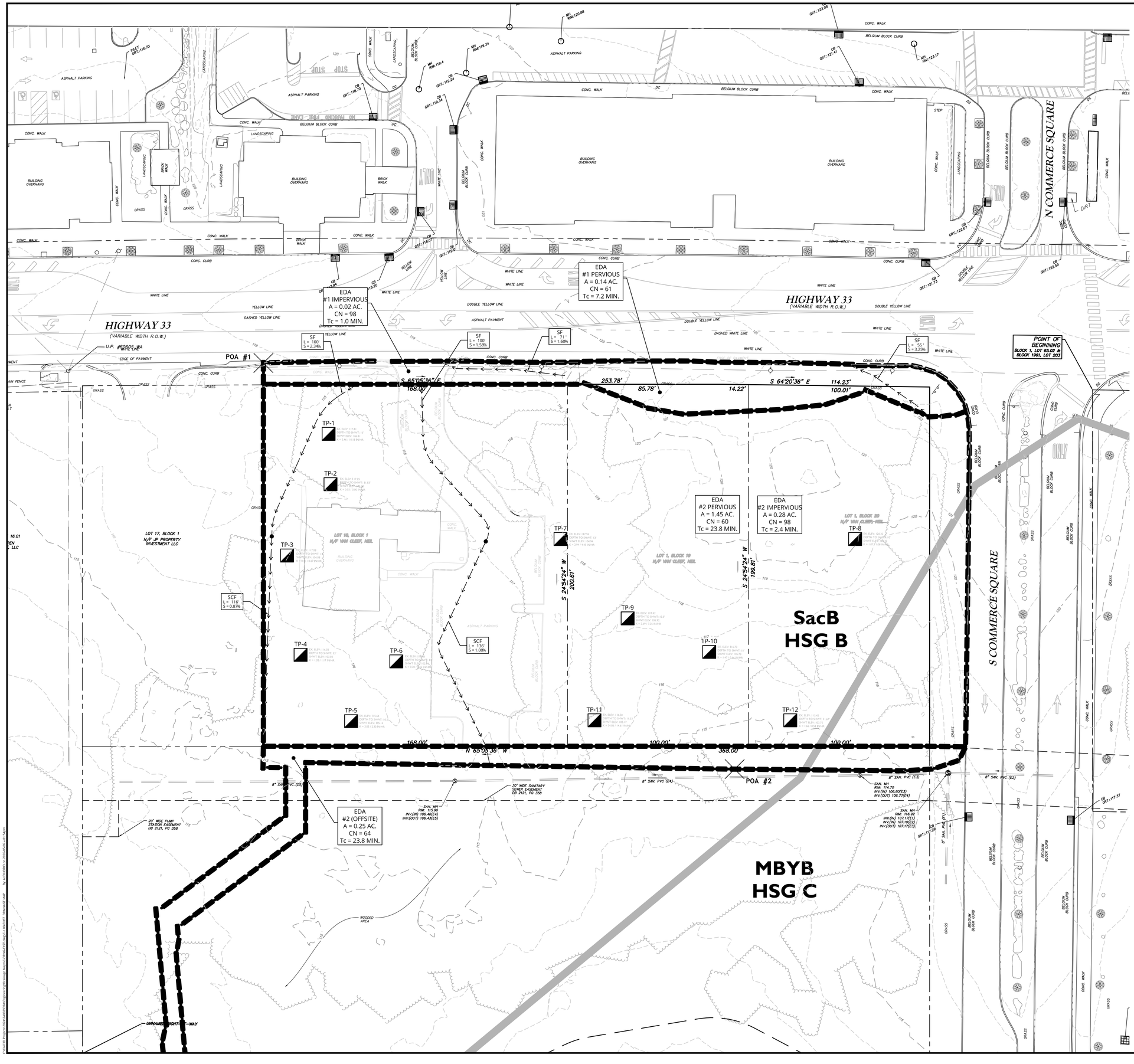
Appendix F | Drainage Area Maps

Existing Drainage Area Map
Proposed Drainage Area Map
Inlet Drainage Area Map



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Doing Business as

REV	DATE	DESCRIPTION
1	02/09/26	REVISED PER SCD REVIEW LETTER DATED 01/15/26.
2	5/11/26	REVISED PER ARH ASSOCIATES LETTER DATED 1/18/26

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE45561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN	DRAWN BY: SLD
DESIGNED BY: SLD	REVIEWED BY: MJJ
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

EXISTING DRAINAGE MAP

DRAWING NUMBER:

1.00

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

PDA #1 IMP.
A = 0.02 AC.
CN = 98
Tc = 0.6 MIN.

PDA #1 PER.
A = 0.01 AC.
CN = 79
Tc = 2.6 MIN.

HIGHWAY 33
(VARIABLE WIDTH R.O.W.)

POA #1

SCF
L = 29'
S = 1.00%

PDA #2 BASIN A IMP
A = 0.26 AC.
CN = 79
Tc = 10.2 MIN.

SF
L = 68'
S = 1.00%

PIPE FLOW

PDA #2 BASIN A PER
A = 0.26 AC.
CN = 79
Tc = 10.2 MIN.

POINT OF BEGINNING
BLOCK 1, LOT 85.02 &
BLOCK 1901, LOT 303

S 85°05'36" E 263.78'

S 64°20'36" E 114.23'

100.01'

SF
L = 33'
S = 1.00%

SF
L = 10'
S = 1.00%

SF
L = 40'
S = 3.00%

PDA #2 BYPASS PER.
A = 0.18 AC.
CN = 82
Tc = 7.4 MIN.

LIMIT OF POROUS STORAGE BED (TYP.)
L = 67' (TYP.)
S = 3.30%

PROPOSED 4-STORY BUILDING
11,716 S.F. BUILDING FOOTPRINT
53,047 S.F. GFA
FFE: VARIES

PDA #2 ROOF IMP.
A = 0.27 AC.
CN = 98
Tc = 0.5 MIN.

PDA #2 PP#1 PER.
A = 0.02 AC.
CN = 79
Tc = 2.2 MIN.

PDA #2 PP#1 IMP.
A = 0.14 AC.
CN = 98
Tc = 1 MIN.

GAS/WATER

FIRE/ELEC

BUILDING OVERHANG

SF
L = 88'
S = 2.80%

TP-100

PIPE FLOW

LIMIT OF POROUS STORAGE BED (TYP.)

SF
L = 79'
S = 2.00%

SF
L = 100'
S = 2.61%

SF
L = SEE NOTE 1
S = 2.38%

PDA #2 PP#2 PER.
A = 0.02 AC.
CN = 79
Tc = 3.1 MIN.

PDA #2 PP#2 IMP.
A = 0.85 AC.
CN = 98
Tc = 1.4 MIN.

OCS A-102
GR: 118.61
INV.(IN): 114.13 (P-103A)
INV.(OUT): 113.30 (P-102A)

LIMIT OF POROUS STORAGE BED (TYP.)

SacB
HSG B

COMMERCE SQUARE

SF
L = 35'
S = 1.40%

SCF
L = 31'
S = 1.80%

SCF
L = 51'
S = 2.00%

PDA #2 BYPASS IMP.
A = 0.01 AC.
CN = 98
Tc = 0.6 MIN.

POA #2

30' WIDE SANITARY SEWER EASEMENT DB 2121, PG 358

SAN. MH
RIM: 114.70
INV.(IN): 106.80(E3)
INV.(OUT): 106.77(E4)

SAN. MH
RIM: 115.96
INV.(IN): 106.46(E4)
INV.(OUT): 106.43(E5)

SAN. MH
RIM: 116.55
INV.(IN): 107.17(E2)
INV.(IN): 107.18(E2)
INV.(OUT): 107.17(E3)

PDA #2 (OFFSITE)
A = 0.25 AC.
CN = 82
Tc = 7.4 MIN.

20' WIDE PUMP STATION EASEMENT DB 2121, PG 358

PROPOSED 20' UTILITY EASEMENT

MBYB
HSG C

DEP W-1

DEP W-2

DEP W-3

DEP W-4

DEP W-5

C-35

C-36

C-37A

SLC WELLED WATER

RIP RAP APRON
W/ FILTER FABRIC
L = 17.5'MIN.
D50 = 8", TH = 16"

INSET
SCALE: 1" = 40'

SCALE : 1" = 20'

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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2	5/11/26	REVISED PER ARH ASSOCIATES LETTER DATED 1/18/26

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE45561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
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Hamilton, NJ 08691
Phone: 609.587.8200
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PROPOSED DRAINAGE MAP

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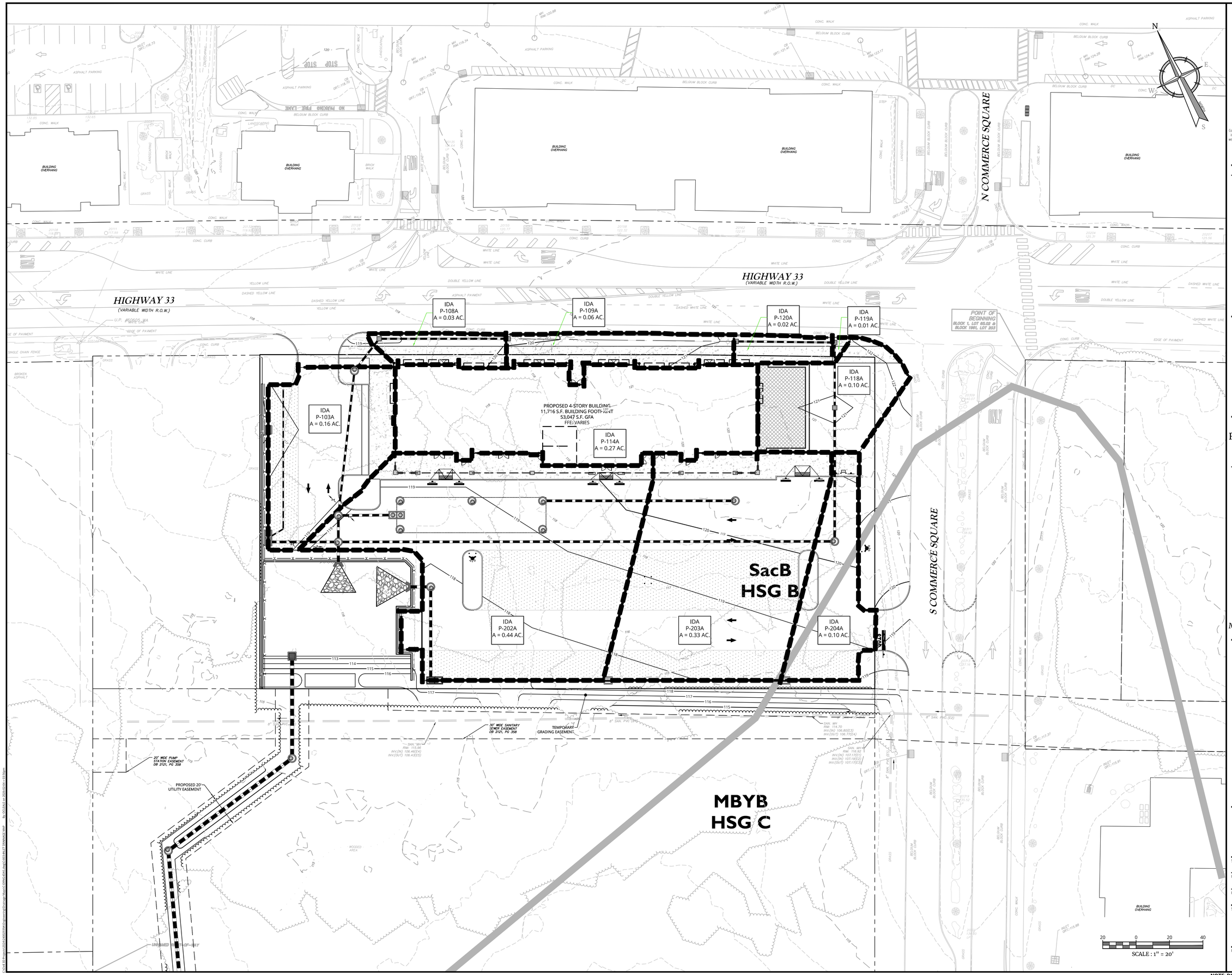

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HIGHWAY 33
(VARIABLE WIDTH R.O.W.)

N COMMERCE SQUARE

S COMMERCE SQUARE

PROPOSED 4-STORY BUILDING
11,716 S.F. BUILDING FOOTPRINT
53,047 S.F. GFA

PROPOSED 3' RIGHT OF WAY DEDICATION

POINT OF BEGINNING
BLOCK 1, LOT 69.02 &
BLOCK 1901, LOT 303

LANDSCAPE BLAND TO BE RECONSTRUCTED WITH FLUSH CURB AND CONC. SIDEWALK

CROSSWALK (TYP.)

MEET EXISTING CURB

4" VERTICAL NJDOT CURB

24' WIDE STOP BAR (TYP)

5' PARKING SETBACK

10' SIDE YARD SETBACK

VARIABLE WIDTH CONCRETE SIDEWALK (TYP.)

GAS/WATER

FIRE/ELEC.

BUILDING OVERHANG

BOLLARD (4 TYP.)

SAND BOTTOM INFILTRATION BASIN D

BASIN BOTTOM (TYP.)

50' REAR YARD SETBACK

NEW CURB CUT FOR MASTER PLAN ROAD

CONSTRUCT A PORTION OF THE MASTER PLAN ROAD

TEMPORARY GRADING EASEMENT

30' WIDE SANITARY SEWER EASEMENT DB 2121, PG 358

20' WIDE PUMP STATION EASEMENT DB 2121, PG 358

PROPOSED 20' UTILITY EASEMENT

UNNAMED RIGHT-OF-WAY

LOT 17, BLOCK 1
N/F JP PROPERTY INVESTMENT LLC

1, BLOCK 16.01
/F ROMSPEN
BINSVILLE, LLC

S 85°05'36" E 253.78'

N 65°05'36" W 368.00'

S 64°20'35" E 114.23'

LEGEND

EXISTING		PROPOSED
12+00 PI 13+00	TRAVERSE LINE, CENTER LINE OR BASELINE (LABEL AS SUCH)	12+00 13+00
	RIGHT OF WAY LINE	
	PROPERTY LINE	
	EDGE OF PAVEMENT	
FACE / BACK	CURB	FACE / BACK
	DEPRESSED CURB	
	SIDEWALK	
X X	FENCES	X X
	TREELINE	
	ROADWAY SIGNS	
	WETLAND LINE	
	MUNICIPAL BOUNDARY LINE	
	STALL COUNT	(10)
	ADA ACCESSIBLE STALL	V
	DEPRESSED CURB AND ADA RAMP	HC
	DIRECTION OF TRAFFIC FLOW	

20 0 20 40
SCALE : 1" = 20'

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LIBERTY STREET
CONCEPT PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

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SU-30 TRUCK TURNING PLAN

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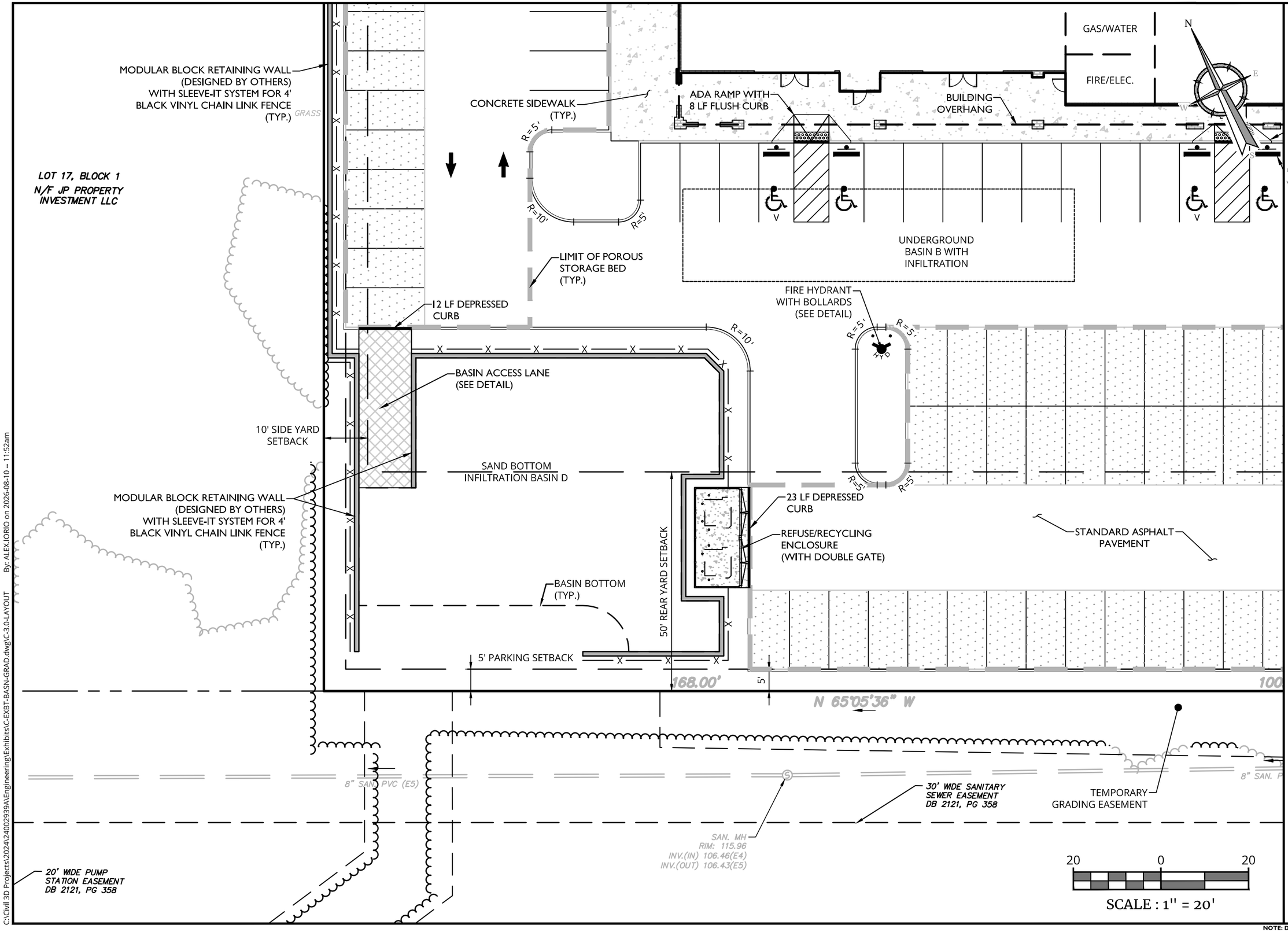

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ROBBINSVILLE HEIGHTS LLC

BASIN ACCESS DRIVE EXHIBIT

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY
NEW JERSEY

Mark J. Janiszewski
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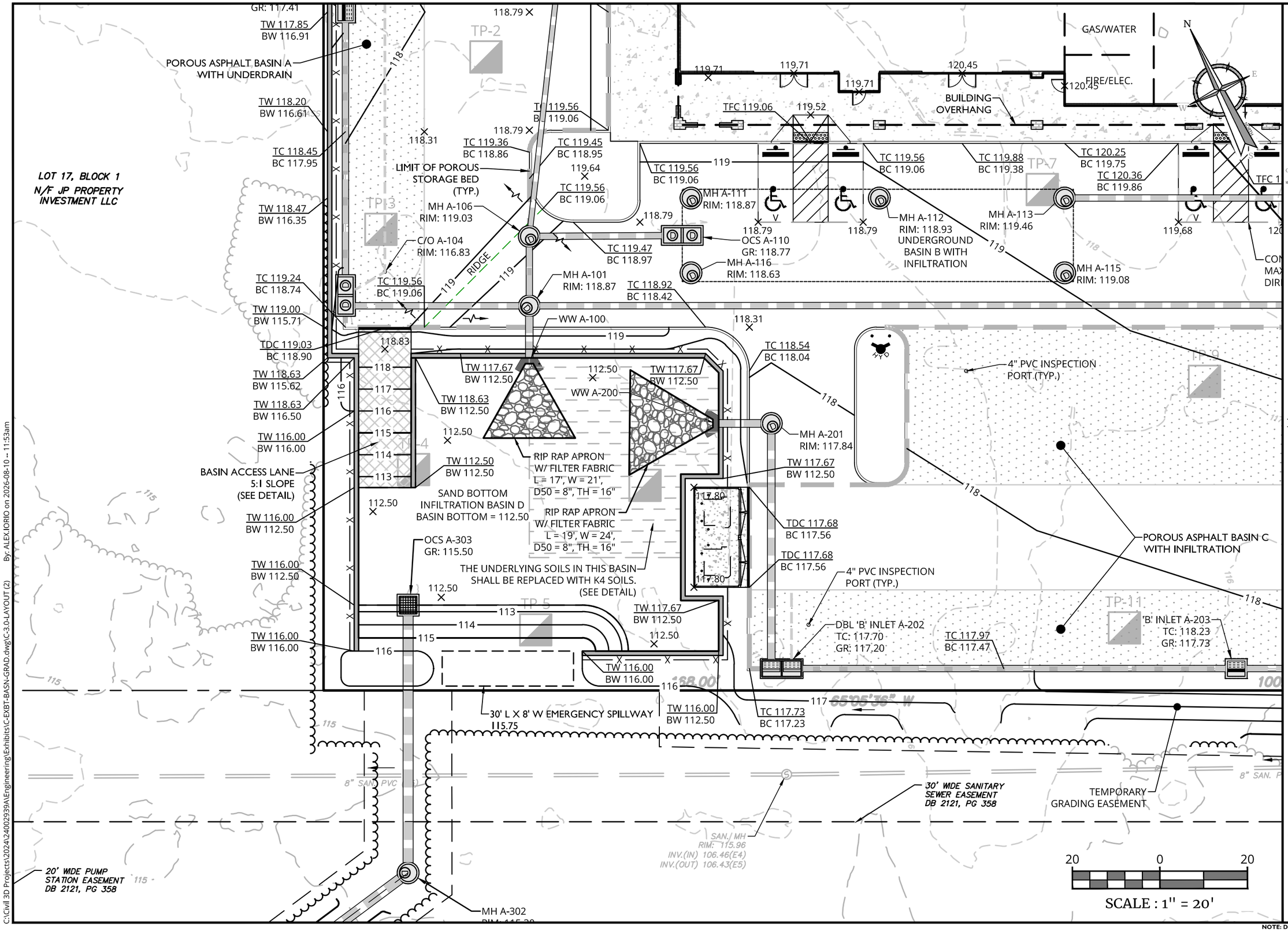

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BASIN ACCESS DRIVE EXHIBIT

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY
NEW JERSEY

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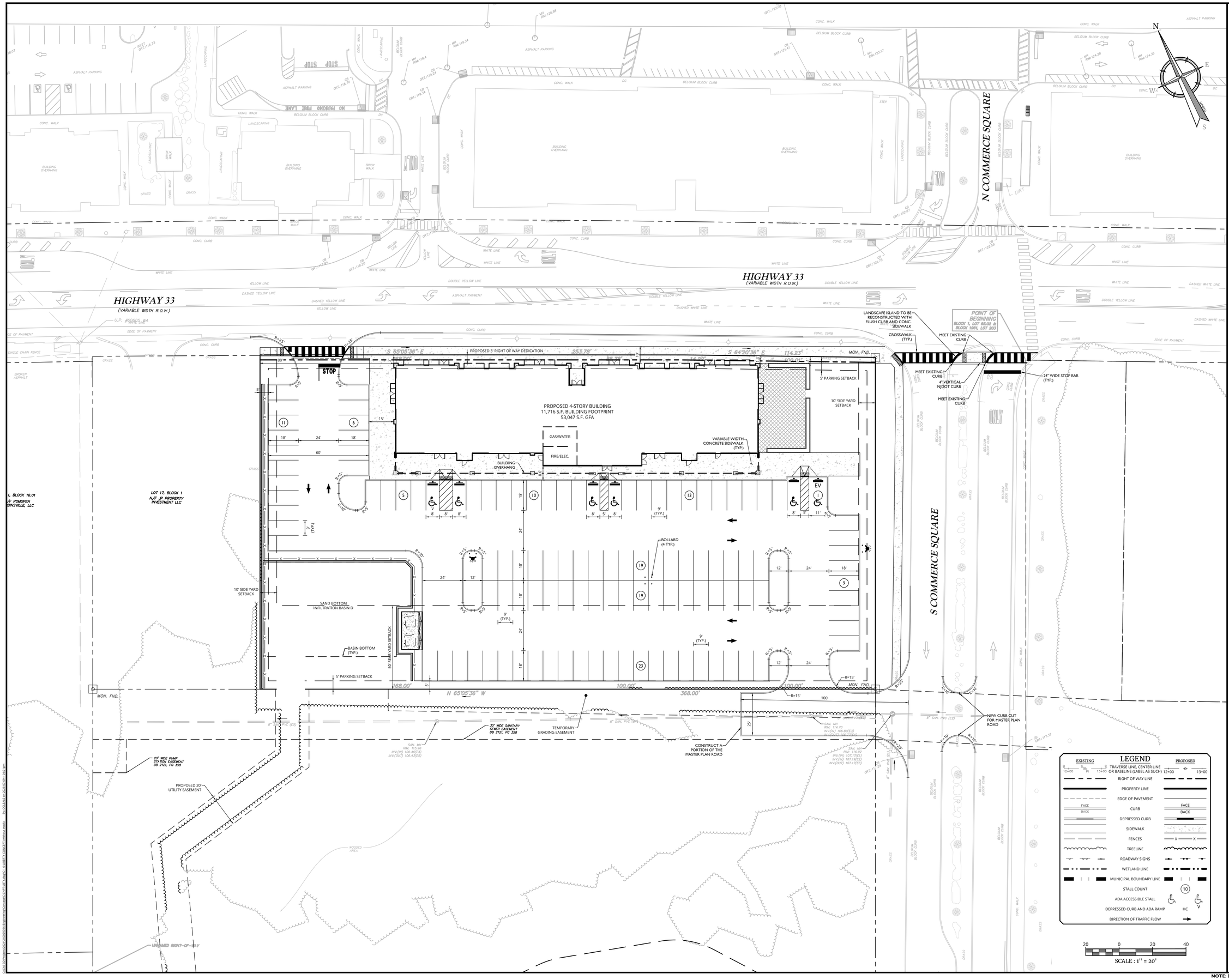

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LIBERTY STREET CONCEPT PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
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Water Report

December 22, 2025

Robbinsville Heights

Block 1, Lots 18, 19 & 20
Township of Robbinsville, Mercer County, NJ

Prepared for:

Robbinsville Heights, LLC
96 Overbrook Avenue
Edison, NJ 08817

Prepared by:

Mark Janiszewski, P.E.
New Jersey Professional Engineer
License No. 45561

Colliers Engineering & Design
1000 Waterview Drive Suite 201
Hamilton, New Jersey 08691
Main: 877 627 3772
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Project No. 24002939A

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Average Daily Demand *2*
Peak Daily Demand *2*

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Appendix B |Existing Mapping

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Executive Summary

The applicant, Robbinsville Heights, LLC, is proposing improvements to Block 1, Lots 18, 19 & 20, located at 2345, 2347 and 2349 NJ Route 33, which consists of approximately 1.69 acres of land. The site is presently developed with an abandoned office building to be demolished (Lot 18), and two (2) single family homes (Lots 19 & 20) that were recently demolished. The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd, and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor. The subject property is located in the Suburban Planning Area (PA 2).

As per §142-19 of the Township of Robbinsville Land Use Ordinance and the Amended and Restated Redevelopment Plan dated September 11, 2025, prepared by ARH Associates, the development will qualify as a principal permitted use within the TC-2, Town Center 2 Zoning District, in which mixed-use developments are permitted uses.

This report summarizes the development's anticipated water demands and method of connection to the public water system.

Water Supply

Existing Water Supply

The project is located within the Aqua New Jersey, Inc. service area. A Will Serve Letter was obtained from Aqua New Jersey on October 8, 2025 (See Appendix A). A 12" cast iron water main is present within NJ Route 33. This 12" cast iron water main then traverses east down main street. At the Route 33 and South Commerce Square intersection, a 12" ductile iron water main connects to the 12" cast iron main. The 12" ductile iron main services Project Freedom housing development. At the southern terminus of South Commerce Square, a stub of the 12" ductile iron main exists.

Proposed Water Supply

The proposed mixed-use development will be serviced by a connection to the existing 12" water main within South Commerce Square. An 8" DIP water main traverse into the site to feed the building and two fire hydrants.

Water Demand Calculations

Average Daily Demand

The proposed development will utilize public water supply. The property will connect to an existing water line along South Commerce Square, which is owned and operated by Aqua New Jersey, Inc.

Establishment Type	Unit of Measurement	# of Measurement Units	Gallons per Day per Unit	Shifts	Water Demand (GPD)
Liquor Store/Retail/Office	Sq. Ft.	6339	0.125		793 gpd
Restaurant	Seats	75	10	2	1,500 gpd
Bar/Lounge	Seats	75	10	2	1,500 gpd
1 BR Residential Unit	Units	3	95		285 gpd
2 BR Residential Unit	Units	20	140		2,800 gpd
3 BR Residential Unit	Units	5	215		1,075 gpd
Existing Commercial Space (TBR)	*Sq. Ft.*	*4,568*	*0.125*		*(571) gpd*
3 BR Single Family Home (TBR)	*Units*	*2*	*225*		*(450) gpd*
			Total Estimated GPD		**6,931 GPD**

The increase in water demand generated by the proposed development is not anticipated to significantly impact Aqua New Jersey, Inc. The calculations above include a deduction from the previous developments shown in *italics.*

Therefore, the total Average Daily Demand (ADD) is:
6,931 gallons per day (gpd) or
0.007 million gallons per day (MGD) or
4.81 gallons per minute (gpm).

Peak Daily Demand

The Peak Daily Demand (PDD) is determined by applying a peaking factor of 3 times the average daily demand as outlined in the Safe Water Drinking Act Rules (N.J.A.C. 7:10-11.5(f) as follows:

PDD = 3 x ADD
PDD = 6,931 gpd x 3
PDD = 20,793 gpd (0.020 mgd)
Or
PDD = 14.44 gpm

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Appendix

Appendix A | Will Serve Letter

Jodi Westhead
Colliers Engineering & Design
1000 Waterview Drive Suite 201
Hamilton, New Jersey 08691

October 8, 2025

Re: Will Serve Letter
Robbinsville Heights
Block 1, Lot 18-20
Robbinsville Township, Mercer County, New Jersey

Dear Ms. Westhead:

By this letter we confirm that Aqua New Jersey (ANJ) is willing and able to provide water service to the above referenced project/property. We are unaware of any moratorium in Robbinsville Township at this time.

The proposed project will require a main extension. Enclosed is the New Business Package to assist you in the process. Please fill out and return all necessary forms within the package and provide the most up to date utility plan.

This will serve is good for one year after the date of this letter. We cannot guarantee service after that. If you have any questions or would like to discuss this matter further, please contact me at (609) 587-4080 x56519.

Sincerely,
Aqua New Jersey, Inc.

Brielle Bianchini
Engineering Tech

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Appendix B |Existing Mapping

Existing Water Supply Mapping from Aqua New Jersey, Inc.

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Environmental Impact Assessment

December 2025

Robbinsville Heights

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

Prepared for:

Robbinsville Heights LLC
96 Overbrook Avenue
Edison, NJ 08817

Colliers Engineering & Design
101 Crawfords Corner Road
Suite 3400
Holmdel, NJ 07733
Main: 732-383-1950
Colliersengineering.com

CED Project No. 24002939A

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Figure 7: Bedrock Geology Map
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Site Photographs

Appendix C
Natural Heritage Program Correspondence

Appendix D
Qualifications of Preparers

Introduction

Purpose of Document

This report has been prepared in accordance with the Environmental Impact Assessment Requirements of the Township of Robbinsville Land Use Ordinance (Chapter 142-77), which requires the preparation and submittal of an Environmental Impact Assessment (EIA) for certain applications which come before the Planning and Zoning Boards.

The property for which the approval of a mixed-use development is requested currently contains 1.7± acres of land known as Block 1, Lots 18, 19, & 20 in the Township of Robbinsville, Mercer County, New Jersey. The property is situated within the Township's 'Town Center South – Redevelopment Area' (TCS-RA) Zone.

The proposed project is shown on a site plan set entitled, "Preliminary and Final Major Site Plans for Robbinsville Heights LLC 2345-2349 Route 33, Block 1, Lots 18, 19, & 20, Township of Robbinsville, Mercer County, New Jersey", dated August 25, 2025, and prepared by Colliers Engineering & Design.

This EIA documents environmental resources on the project site, potential impacts to these resources resulting from the proposed mixed-use development, and measures to avoid or reduce impacts.

Methods

Various sources of background information including databases, maps, plans, and reports referenced herein were utilized in preparing the EIA. The New Jersey Department of Environmental Protection's (NJDEP) NJ-GeoWeb (NJDEP, 2025) database was an important source of information in this EIA. Background information was supplemented with observations from Colliers Engineering & Design (CED) staff regarding site characteristics and biological resources observed during field visits. Land use related areas of investigation include, but are not limited to, natural resources, community resources, water quality (stormwater management), and assessment of impacts from the proposed redevelopment of the subject property.

Staff from CED visited the subject property on June 25, 2025 to make field observations regarding site character and biological resources. Information gathered during this site visit was used in the preparation of this EIA. The site visit included photographing the environmental setting, recording information on the flora and fauna, making incidental observations regarding geology, soils, and habitat types, and evaluating potential impacts. The project description and information gathered from these and other sources listed earlier were used to develop the descriptions, analyses, and interpretations provided herein. Report figures including maps are presented in **Appendix A**; photographs are presented in **Appendix B**; the Natural Heritage Program correspondence is included in **Appendix C**; and the qualifications of preparers are in **Appendix D.**

Site Location and Characteristics

The subject property is located at 2345-2349 Route 33 in Robbinsville Township, Mercer County, New Jersey. The subject property, consisting of 1.7± acres, is known as Block 1, Lots 18, 19, & 20 and is situated along Route 33. The site currently contains an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished. The subject property is in an area characterized mainly by residential and commercial properties, as well as vacant land. See **Figures 1-3** in Appendix A for site location.

A site plan approval is requested for the subject property to permit the mixed-use redevelopment along with appurtenant site improvements such as lighting, landscaping, parking, and stormwater management facilities. An aerial map of the site has been included in Appendix A **(Figure 4).**

Zoning

The property is contained within the Township's 'Town Center South – Redevelopment Area' (TCS-RA) Zone **(Figure 5).** The proposed mixed-use development in this redevelopment zone is a permitted use.

Compatibility with State Plan

The State Planning Area map layer (NJDEP NJ-GeoWeb) depicts the site as entirely within Suburban Planning Area (PA-2) **(See Figure 6).** According to the *New Jersey State Development and Redevelopment Plan,* the Suburban Planning Area promotes the following:

- provide for much of the state's future development;
- promote growth in Centers and other compact forms;
- protect the character of existing stable communities;
- protect natural resources;
- redesign areas of sprawl;
- reverse the current trend toward further sprawl; and
- revitalize cities and towns

Licenses and Permits

Permits or approvals from Local, State, and/or Federal departments or agencies be required for the proposed project at this time:

Granting Authority	License, Permit, or Approval	Status
Township of Robbinsville Planning Board	• Preliminary and Final Site Plan Approval	• Subject of Application
Mercer County Planning Board	• Land Development Application	• To be submitted
Mercer Soil Conservation District	• Soil Erosion and Sediment Control Plan Certification	• To be submitted
NJDEP	Treatment Works Approval	• To be submitted

Project Description

Reasons for Project

As previously discussed, the property is currently contained within the Town Center South Redevelopment Zone, in which the proposed mixed-used development is a permitted use. The site is currently developed and contains an abandoned office building to be demolished and two (2) single-family homes that were recently demolished. The site in a redevelopment area and is compatible with the *New Jersey State Development and Redevelopment Plan.*

Description of Proposed Operations

The site currently contains an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished.

The project is a proposed 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd, and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor, along with typical appurtenant site improvements such as lighting, landscaping, parking, and stormwater management.

Sanitary Sewage

Per the NJ-GeoWeb, sewer service is currently provided to the subject property by Hamilton Township Water Pollution Control (WPC) Facility.

Potable Water Supply

Per the NJ-GeoWeb, potable water is currently provided to the subject property by Aqua NJ - Hamilton Square System.

Stormwater Management Facilities and Plan

As shown on the Site Plans, one (1) stormwater retention basin is being proposed for the project in the southwest portion of the site. The proposed stormwater management system will be designed in accordance with the standards described in the NJDEP's Stormwater Management Rules.

Utilities Plan

Telephone, electric and gas lines will be installed underground.

Solid Waste Plan

Solid waste and recyclables will be serviced by a private carrier.

Environmental Setting

The environmental setting of a region is the sum of the physical and biological features and processes that characterize the region. The physical conditions including the location, topography, geology, soils, water resources, etc. directly influence the overlying biotic communities that occur in an area. The constraints on the property resulting from the interaction of physical and biological features directly influence the design of the development plan proposed for the site and analyzed herein. Photographs of the subject property can be found in **Appendix B.**

Physical Resources and Conditions

Physiographic Landscape

Areas that have similar rock types, geologic structures, landforms, and histories are organized into regions called Physiographic Provinces. New Jersey has five provinces, which make it a rather complex state for its small size. From northwest to southeast across the State, the provinces are (1) Ridge and Valley, (2) Highlands, (3) Piedmont, (4) Inner Coastal Plain, and (5) Outer Coastal Plain. The project area is situated within the Inner Coastal Plain Physiographic Province of New Jersey. The Inner Coastal Plain geologically consists typically of clays, sands, silts and gravels (Collins and Anderson 1994).

Topography

The topography of the site is relatively flat to gently sloping with elevations ranging from 114 ft. to 122 ft. on site. The subject property gently slopes downhill in a general north to south direction as elevations in the northern portion of the subject property generally range between 117 ft. and 122 ft. while the elevation in the southern portion of the site is 114 ft.

Geology

The bedrock geology of the subject property is characterized by the Merchantville Formation (Kmv) **(Figure 7).** The geologic formations in this portion of New Jersey date from the Lower Campanian age (72-83 mya) in the Upper Cretaceous Period of the Mesozoic Era. The Merchantville Formation is comprised of coarse constituents of sand, glauconite, massive to thick bedded, and very clayey and silty. Fine constituents consist of clay and silt.

Soils

Based on a review of the USDA NRCS Web Soil Survey, the subject property is characterized by two (2) soil types which are described below **(Figure 8).**

Mattapex and Bertie Loams (MBYB), 0 to 5% slopes: This loam soil occupies a small portion of the site, in the southeast corner of the site. These soils have a parent material of silty eolian deposits over marine deposits and/or coarse fluviomarine deposits; and are moderately well drained. The depth to the water table is 18 to 42 inches and depth to the restrictive feature is more than 80 inches from the surface. This soil type has a Land Capability Class of ***2w*** with a hydrologic soil group of ***B.*** (Web Soil Survey 2025)

Sassafras sandy loam (**SacB), 2 to 5% Slopes:** This soil occupies most of the subject property. These soils have a parent material of loamy fluvio-marine deposits and are well drained. The depth to the water table is more than 80 inches and depth to the restrictive feature is more than 80 inches from the surface. This soil type has a Land Capability Class of ***2e*** with a hydrologic soil group of ***B.*** (Web Soil Survey 2025)

Prime Farmland Soils

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive land forming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes (Kirkham 1989).

In the capability system, soils are generally grouped at three levels - capability class, subclass, and unit. *Capability classes*, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

- Class I soils have slight limitations that restrict their use.

- Class II soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.
- Class III soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.
- Class IV soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.
- Class V soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class VI soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.
- Class VII soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.
- Class VIII soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or aesthetic purposes (Kirkham 1989).

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry (Kirkham 1989).

Prime Farmlands include those soils in Land Capability Class I and selected soils from Land Capability Class II. Prime Farmland is considered those lands with the combination of physical and chemical properties that produce the highest yield of crops. Prime Farmland does not include those soils that are excessively wet, excessively dry, or are highly erodible.

Based upon the Land Capability Classes listed above and NRCS (1990), one (1) of the soils within the proposed area of disturbance is considered to be Prime Farmland soil, which is Sassafras sandy loam (SacB).

Hydrology and Drainage

The site is situated within the Pond Run sub-watershed of the Assunpink Creek (below Shipetauken Creek) watershed **(Figure 9).** There are no wetlands, streams, or waterbodies located on site **(Figure 10).**

Groundwater Quality and Quantity

Groundwater is all water within the soil and subsurface strata that is not at the surface of the land. It includes water that is within the earth that supplies wells and springs. It includes groundwater basis and water in perched water tables that lies above impervious subsurface layers. Groundwater resources are often functionally linked to overlying land areas and surface water bodies; groundwater is often recharged through "outcrop" areas at the land surface and ground water discharges ("seeps") may contribute to base flows of streams and rivers.

The groundwater yields of any particular geological formation or soil horizon are a function of the porosity and permeability of the material comprising the formation (consolidated rock or unconsolidated deposits and soils). Porosity describes the water-containing spaces between individual mineral grains, while permeability is the ease or difficulty with which water is transmitted through interconnecting spaces in the formation. Formations lacking open spaces between the mineral grains have both low porosity and low permeability. Weathering and cracking of the parent bedrock can induce secondary porosity in the formation; water can accumulate and move through these fractures in the primary rock formation.

Per the NJ-GeoWeb review, Merchantville-Woodbury confining unit (Mewcu) aquifer is mapped for the subject property **(Figure 11).** The Merchantville-Woodbury confining unit aquifer of the Coastal Basin consists of silt, clay, and thin layers of sand. The water is generally good but may require chemical treatment locally. (Herman 1998).

New Jersey aquifers are ranked based on their ability to yield groundwater to high-capacity wells, including water supply, irrigation and industrial supply wells. The Merchantville-Woodbury confining unit aquifer is assigned a value of "E" on a scale of "A" through "E", with a rank of "A" yielding the greatest amount of groundwater and a rank of "E" yielding a minimal amount of groundwater. Aquifers with a rank of "E" have a low yield of less than 25 gpm (gallons per minute). The Merchantville-Woodbury confining unit aquifer is not very productive in terms of its ability to yield to high-capacity wells.

The NJ-GeoWeb Groundwater Recharge layer ranks the project site in terms of groundwater recharge as "C" with 8 to 10 inches per year (**Figure 12).**

Surface Water Quality

The NJDEP GeoWeb does not depict any streams or watercourses on site. The project site is more than 1,000 feet from any stream or watercourse. The nearest stream, an un-coded tributary, is designated as a FW2-NT water. Per the NJDEP Surface Water Quality Standards (N.J.A.C. 7:9B), a FW2-NT water is freshwater that does not contain trout.

Air Quality

Since the passage of the Clean Air Act in 1970, New Jersey's air quality has significantly improved, to the point where New Jersey is in compliance with all National Ambient Air Quality Standards (NAAQS) (NJDEP 2018). The Federal Clean Air Act requires each state to attain and maintain specified air quality standards. Ambient Air Quality Standards have been promulgated by the federal government and by New Jersey for total suspended particulate (TSP), sulfur dioxide (SO2), carbon monoxide (CO), nitrogen dioxide (NO2), lead and ozone. The New Jersey standards are generally the same as the federal standards for these pollutants. Primary air quality standards are set to protect human health and secondary standards are set to protect human welfare.

The following air quality assessment is taken from the 2023 Annual Air Quality Report published by the NJDEP Bureau of Air Monitoring. In 2023, there were 178 "Good" days, 167 were "Moderate," 14 were "Unhealthy for Sensitive Groups," 5 were "Unhealthy" and 1 was "Very Unhealthy." This indicates that air quality in New Jersey is mostly good or moderate (49% and 46% of days, respectively); however, air pollution was still bad enough in 2023 to adversely affect sensitive groups about 4% of the time and potentially affect everyone on less than 2% of days.

The air quality sampling stations closest to the project site are in Trenton and at Rider University. The Trenton station monitors particulate matter whereas the Rider University station monitors particulate matter and ozone (NJDEP Bureau of Air Monitoring 2023). While other air pollutants such as sulfur dioxide (SO2), carbon monoxide (CO), nitrogen dioxide (NO2) are measured at other stations in the State, this section of the EIA will only identify levels of pollutants recorded for stations near the project site, which are limited to particulate matter measured at Trenton and Rider University and ozone measured at Rider University.

At ground level, ozone is considered an air pollutant that can have serious health effects. Ground-level ozone is created when nitrogen oxides and volatile organic compounds (VOCs) react in the presence of sunlight and heat (NJDEP 2023). Nitrogen oxides are primarily emitted by motor vehicles, power plants, and other sources of combustion. VOCs are emitted from motor vehicles, chemical plants, factories, consumer and commercial products, and natural sources. Because ozone needs sunlight and heat to form, it is mainly a daytime problem during the summer. Ozone (O_3) is measured at Rider University. Maximum Daily 1-Hour levels averaged 0.118 ppm. The State's Maximum Daily 1-Hour Average Primary Standard of 0.12 ppm was not exceeded. The highest 8-Hour average was 0.098 at Rider University. The New Jersey 8-Hour standard is 0.070 ppm.

Particulate air pollution consists of solid particles and liquid droplets suspended in the atmosphere. They can be emitted directly, or they can form in the atmosphere from gaseous emissions. Airborne particles can harm vegetation and aquatic ecosystems and can cause damage to painted surfaces and buildings (NJDEP 2023). Fine particulate matter (PM2.5) was measured at multiple stations throughout New Jersey. Fine particulate matter ($PM_{2.5}$) was measured in Trenton and Rider University. The highest daily concentration was 169.3 $\mu g/m^3$ at the Trenton station and 152.8 at the Rider University station. The annual mean concentrations were 10 and 9.8$\mu g/m^3$ for Trenton and Rider University respectively. None of the $PM_{2.5}$ annual average standards were exceeded (NJDEP 2023). However, per the Air Quality Report, there were 9 days in 2023 that exceed the 24-hour average standard of

35 µg/m^3, with the highest concentrations measured on June 7th. This is due to the smoke from Canadian forest fires during the months of June and July (NJDEP, 2023).

Noise

Sound is what we hear. Noise is unwanted sound. The difference between sound and noise depends upon the listener and the circumstances. Sound is produced by vibrating objects and reaches the listener's ears as waves in the air or other media. The kinetic energy of sound waves can be quantified in decibels (dBA). The decibel (dBA) scale ranges from 0 for the threshold of perception of sound to approximately 130 dBA for the threshold of pain at the ear; a quiet residential street may have sound levels in the 5-60 dBA range, while heavy trucks generate sound levels in the 85-95 dBA range.

Transportation noise is among the most pervasive noise sources in our environment today, particularly for people who live within 500 feet of heavily traveled highways or within 100 to 200 feet of lightly traveled roads (Washington County Task Force, July 2005).

Robbinsville Township's noise ordinance states, "It shall be unlawful for any person to make, continue or cause to be made or continued and allowed unnecessary or unusual noise or any noise which either annoys, disturbs, injures or endangers the comfort, repose, health, peace or safety or others within the limits of the Township." (Robbinsville Township Code Chapter 166-3). With certain exceptions, maximum permissible A-weighted sound levels when measured outdoors are 50 dB at night and 65 dB during the day; and when measured indoors maximums are 40 dB at night and 55 dB during the day. The project site is presumed to be within the range of moderate street traffic due to its frontage off Route 33 with sound levels in the 5-60 dBA range (NJDOT, 2004)

Biological Resources

Information on the biological resources of the project area was compiled from previous reports, database searches, and personal observation. Site visits for the purpose of the EIA were conducted by Staff from CED during a site inspection of the subject property on June 25, 2025.

Vegetation

The vegetation of the site reflects the geographic location (New Jersey Coastal Plain), topography and exposure, bedrock geology and soils, landscape processes, hydrogeology (i.e., the streams, ponds, high water tables, etc.), and land use history. The project site reflects the influences of each of these factors.

Based on the June 25, 2025 site visit, it was observed that the site is a disturbed, naturalized landscape dominated by early successional species. The overall tree health is poor with many

species exhibiting vines and/or simply dying or already dead. The following species were observed on site:

- Black locust (*Robinia psuedoacacia*)
- Black cherry (*Prunus serotina*)
- Red maple (*Acer rubrum*)
- White ash (*Fraxinus americana*)
- Mulberry (*Morus sp.)*
- Catalpa (*Catalpa speciosa*)
- Norway spruce (*Picea abies*)

Zoological Resources

As previously mentioned, the site is a disturbed, naturalized landscape dominated by early successional species exhibiting poor tree health. The remainder of the property is developed and contains limited habitat value for wildlife. Zoological resources evaluated include terrestrial and aquatic animals, primarily vertebrates, with consideration to both common and rare species.

Aquatic Biota

No Streams or watercourses were observed to be on the subject property.

Wildlife

Dozens of species of native mammals are known to reside in New Jersey of which includes common mammals (Gray Squirrel, White-footed Mouse, Eastern Chipmunk, Woodchuck, Raccoon, Opossum, Eastern Cottontail, and White-tail deer) and birds (Red-tailed Hawk, Black-capped Chickadee, House Wren, Robin, Cardinal, American crow, Blue Jay, Canada Goose, Starling, Turkey buzzard, Barn swallow, Cedar waxwing, Wild turkey, Eastern phoebe, Chipping sparrow, Red-bellied woodpecker, Downy woodpecker and Wood thrush).

Based on the disturbed nature of the site and surrounding disturbances associated with roadways and development, wildlife species that may utilize the site are expected to be common and somewhat tolerant of human disturbances. Examples of common wildlife that could potentially use the site are identified below.

The Environmental Resource Inventory for the Township of Robbinsville prepared by the Delaware Valley Regional Planning Commission (DVRPVC, 2012) identifies common mammals found in Robbinsville Township which include but not limited to: cottontail rabbit, skunk, Eastern grey squirrel, opossum, raccoon, white-tailed deer, and sightings of foxes and black bears. Some birds that are very numerous or are common and frequently seen include ducks, geese, swallows, jays, robins, grackles, warblers, wrens, sparrows and some hawks. Some common herpetological species that have been documented in Robbinsville Township include the bullfrog, eastern box turtle,

spotted turtle, and Fowler's toad. Fish that may occur in the freshwater streams of Robbinsville include: redbreasted sunfish, blue gill sunfish, green sunfish, white sucker, chain pickerel, pumpkinseed, eastern mudminnow, common shiner, golden shiner, creek chub, small madtom catfish, largemouth bass, trout, tessellated darter, white crappie, and the American eel.

Rare Species and Species of Special Concern

A request was made to the NHP to search its database for rare, threatened and endangered species that may be present on and/or in the vicinity of the project site.

A review of the NJDEP's Geoweb Landscape Project Mapping indicates that there are no rare wildlife species and/or their habitat mapped for the property **(Figure 13).** The NHP Response Letter **(Appendix C)** also confirms no rare wildlife species on the subject property.

Critical Environmental Resources and Features

Critical or "sensitive" environmental resources and features are those that either have more inherent environmental value, or are more susceptible to perturbation, or both. These resources and features include those with special ecosystem functions such as wetlands; those with special regulatory status such as endangered species; those with special permitting needs such as steep slopes to be graded or floodplains planned for development; and those with special socio-economic value such as long- established trails for public access and view sheds. No such critical resources or features exist on the site.

Wetlands and Waters

Wetlands are those areas that are inundated or saturated with surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. Wetlands are recognized for their many important ecosystem functions and socio-economic values and are provided protection pursuant to the New Jersey Freshwater Wetlands Protection Act of 1987.

Freshwater Wetlands and waters were not observed on the project site.

Critical Wildlife Habitats

The New Jersey Landscape Project uses geographic information system (GIS) technology to map critical wildlife habitat throughout the State based on species location data, land cover data and species life history and habitat requirements. Habitat patches are assigned a numbered rank based on the criteria listed below.

Rank 5 is assigned to patches containing one or more occurrences of at least one wildlife species listed as endangered or threatened on the Federal list of endangered and threatened species.

Rank 4 is assigned to patches with one or more occurrences of at least one State endangered species.

Rank 3 is assigned to patches containing one or more occurrences of at least one State threatened species.

Rank 2 is assigned to patches containing one or more occurrences of species considered to be species of special concern.

Rank 1 is assigned to patches that meet habitat-specific suitability requirements such as minimum size criteria for endangered, threatened or priority wildlife species, but that do not intersect with any confirmed occurrences of such species.

The New Jersey Landscape Project data accessed through the NJ-GeoWeb indicates an absence of habitat patches on the subject property**.**

Stands of Mature Vegetation

The site does not contain stands of mature vegetation as the site is a disturbed, naturalized landscape dominated by early successional species. The overall tree health is poor with many species exhibiting vines and/or simply dying or already dead.

Floodplains/Riparian Zones

The geomorphic area inundated by flood waters of rivers or streams is the floodplain, which has a series of structural subdivisions defined largely by elevation, position, and the periodicity of inundation. Floodplains provide important ecosystem functions and socio-economic values including the dissipation of flood waters, groundwater recharge, water quality improvement, wildlife habitat, etc.

The Flood Insurance Rate Map (FIRM) No. 34021C0234F dated effective July 20, 2016, was reviewed to determine the approximate extent of floodplains on the subject property **(Figure 14).** There are no mapped flood hazard areas that would encroach onto the subject property nor was there any regulated watercourse onsite or in the vicinity. The site is located within Zone X, an area of minimal flood hazard. The project site is located more than 300 feet from a body of water. Therefore, there are no riparian zones associated with this proposed development.

Aquifer Recharge Areas

Per the NJDEP NJ-GeoWeb, Merchantville-Woodbury confining unit (Mewcu) aquifer is mapped for the site. The NJDEP's mapping of groundwater recharge shows that the project site is ranked "C" with 8 to 10 inches of groundwater recharge per year.

Areas of High-Water Table

Two (2) soil types are present on the project site, Mattapex and Bertie Loams (MBYB), and Sassafras sandy loam (SacB). Sassafras sandy loam occupies most of the site, which has an 80+ inch depth to the water table. The depth to the water table for Mattapex and Bertie Loams is 18 to 42 inches from the surface. Areas with a high-water table are usually associated with wetlands. No wetlands occur on this property. Therefore, minimal impacts, if any, to areas with high water tables are expected as a result of this project.

Critical Geological Areas

A review of the NJDEP's GeoWeb identifies the bedrock geology underlying the subject property is Merchantville Formation (Kmv). The Merchantville Formation is comprised of coarse constituents of sand, glauconite, massive to thick bedded, and very clayey and silty. Fine constituents consist of clay and silt. No critical geologic areas are indicated on this mapping as being present on the property.

Steep Slopes

Steep slopes are defined herein as areas with 15% slopes or greater. The topography of the site is relatively flat to gently sloping with elevations ranging from 114 ft. to 122 ft. on site. The subject property gently slopes downhill in a general north to south direction as elevations in the northern portion of the subject property generally range between 117 ft. and 122 ft. while the elevation in the southern portion of the site is 114 ft.

Based on the NRCS Web Soil Survey, most of the site is occupied by soil unit SacB which has a 2 to 5 % slope. A small area of land in the southeast portion of the site is occupied by soil unit MBYB which has a 0 to 5 % slope. Based on the site topography and soil survey data, steep slopes do not occur on the subject property.

Hydric, Acidic or Highly Erodible Soils

The soils on-site are not identified as hydric soils on the USDA NRCS State Hydric Soils List and the USDA NRCS Web Soil Survey. There are also no highly erodible soils on the subject property.

Per the NJ-GeoWeb, the project site is underlain by Merchantville Formation which appears to be a geologic formation associated with potential acid producing soil. Merchantville Formation is shown on the map of Coastal Plain Formations of New Jersey with Acid-Producing Soils, contained in the Soil and Sediment Control Standards (NJDEP, 1999). Should acid soils be encountered during construction, the guidelines recommended by the Soil Conservation Service will be followed when handling these soils.

Cultural and Aesthetic Resources

Historic and Archaeological Resources

The NJDEP *New Jersey* & *National Registers of Historic Places for Mercer County* (last updated December

2024) identifies the following sites for Robbinsville Township:

- Brown-Gordon-Mahon House Site (ID#4453)
- Camden and Amboy Railroad Main Line Historic District (ID#2970)
- Cole House Site (ID#4455)
- Cubberly-Combs Farmstead (ID#4451)
- Hammell-Hullick Farmstead [Site] (ID#4454)
- John Henry House Site (28-Me-300) (ID#4242)
- Hutchinson House (ID#4109)
- Hutchinson House Historic Archaeological Site (28-Me-235) (ID#1810)
- Imlay-Busby Farm (ID#4599)
- Melrose Diner (ID#4448)
- Mount House Complex (ID#1666)
- Robbins House (ID#4970)
- Robbinsville First Baptist Church (ID#4450)
- Safe Parachute Jump Company (ID#5998)
- Totten-Van Ness House (ID#4449)
- Willkens-Silver-Mitchell Farmstead (ID#4452)
- Windsor Historic District (ID#1812)
- Windswept Prehistoric Site (28-Me-82) (ID#1813)

Based on the NJ-GeoWeb mapping, the subject property lies within historic archaeological site grid CU158 **(Figure 15).** The project site does not contain documented historic sites, structures, or districts; therefore, impacts to historic and cultural resources are not anticipated.

Aesthetic Features

The site currently contains an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished. The site is a disturbed, naturalized landscape dominated by early successional species. The overall tree health is poor with many species exhibiting vines and/or simply dying/dead. Aesthetic resources such as scenic vistas or parkland are not present and will not be impacted. The proposed use is consistent with existing, surrounding land uses of commercial development.

Community Resources and Conditions

Traffic and Transit

The site is situated off Route 33. Traffic in the vicinity of the subject site is typically related to the residential and commercial development found within the Township, as well as commuter traffic related to the close proximity of the site to major highways. Access to the site is proposed via one (1) full-movement driveway along Route 33 and one (1) right-in/right-out only driveway along South Commerce Square.

Significant adverse impacts to traffic movement are not anticipated. Please refer to the Traffic Impact Study prepared by Colliers Engineering & Design for additional information pertaining to traffic conditions under existing and proposed conditions.

Schools

The proposed project consists of mixed-use development which will not generate any school age children. This commercial facility will contribute to the Township tax base which is anticipated to provide additional tax revenue that could be allocated to the school system or other community resources. The project will not negatively impact the Township's school system.

Public Safety

Minimal to no impacts are anticipated for police, fire and rescue services.

Assessment of Environmental Impacts

The proposed development will result in some temporary and permanent impacts to existing land covers/land uses and natural resources. Sensitive resources and features have not been observed on the subject property, thus the potential for environmental impacts to the property is not considered to be significant. Potential impacts are identified below according to specific site characteristics set forth in the previous sections of this document. Mitigation measures to avoid or minimize these impacts are identified for the construction and operational phases of the proposed project and are also summarized in the following section on steps to minimize environmental impacts.

Impacts to Physical Conditions

Topography, Geology and Soils

Under existing conditions, the topography of the site is relatively flat to gently sloping with elevations ranging from 114 ft. to 122 ft. on site. The subject property gently slopes downhill in a general north to south direction as elevations in the northern portion of the subject property generally range between 117 ft. and 122 ft. while the elevation in the southern portion of the site is 114 ft.

The proposed construction of the mixed-use development on the property will result in alterations to the existing topography of the property. The site was previously developed and currently contains an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished.

As previously discussed, there should be no intrusions below the water table since no hydric soils occur on the subject property. Should acid soils be encountered during construction, the guidelines recommended by the Soil Conservation Service will be followed when handling these soils. The soils underlying the project site are not known to have severe erosion hazards; however, erosion is a main hazard associated with Sassafras soils which occur on the project site. The implementation of a

Soil Erosion and Sediment Control Plan during the construction phase followed by the placement of either impervious surface or grass cover will reduce the potential for erosion.

Considering the geographic location of the site on the Coastal plain of New Jersey, no bedrock outcrops exist on the site. The NJ-GeoWeb does not show any bedrock outcrop existing onsite; therefore, impacts to these features are not anticipated.

Impacts to topography, soil and geology, as a result of the development, are expected to be minor and typical of this type of development project.

Hydrology/Water Quality

Potential impacts to surface and groundwater and water quality include short-term impacts related to the construction phase, and long-term impacts related to the operation of the development. A construction period stormwater management plan, including use of erosion reduction/prevention techniques, materials, and plantings will be prepared and implemented to prevent impacts to water quality from sedimentation and construction-related stormwater runoff.

The proposed development will alter the current hydrology of the site, as the development will increase impervious cover on-site, which will in turn increase the amount of stormwater runoff generated by the site. Stormwater management is proposed. The stormwater management facility will be designed to meet the NJDEP's stormwater quality standards as required by the NJDEP's Stormwater Management Rules (N.J.A.C. 7:8). Based on the project implementation of a Stormwater Management Plan developed in accordance with the NJDEP's Stormwater Management Rules and implementation of a Soil Erosion and Sediment Control Plan, no adverse impacts to existing hydrology or water quality are anticipated.

Groundwater

As previously discussed, the stormwater management design will need to meet the standards as set forth by N.J.A.C 7:8 (stormwater quantity, quality and groundwater recharge) and the standards as enforced by the Mercer County Soil Conservation District (soil erosion and sediment control). The proposed development will utilize public water supply; therefore, impacts to groundwater quantity as a result of private wells are not expected.

Sound

Construction activities on the site will cause temporary increases in sound levels in the vicinity of the site. These sound levels will be comparable to normal sound levels for construction. The major sound generating activities associated with residential use will occur during the construction of the project due to the heavy equipment use, truck traffic, and general noise generated by construction activities. These noise levels and times of construction will be monitored by the Township in accordance with the Township's Noise Ordinance. Maximum A-weighted outdoor sound levels during construction should not exceed 65 dB during the day and when measured indoors should not exceed 40 dB at night and 55 dB during the

day. Traffic associated noises will be the major noise source after construction of the project and should fall within the limits described above for the Township's Noise Ordinance.

Air Quality

The proposed project does not include industrial manufacturing uses or other types of significant point sources of air pollution. The only other source of emissions from the proposed project will be the exhaust from motor vehicle usage in and around the site during construction and traffic use associated with the mixed-use development. During construction, air quality near the project will be slightly affected by exhaust emissions and dust from construction vehicles and equipment in the immediate vicinity of the site. However, as a result of the Federal Emission Control Standards, the level of pollutants emitted from vehicle exhaust has decreased over the years. All modern-day vehicles also have to meet USEPA emission standards. Carbon monoxide and ozone are pollutants associated with motor vehicles. Idling of vehicles will not be permitted during the construction and operation phases of the project to help reduce air pollution resulting from the project. Use of water trucks will help diminish the amount of dust generated during construction.

Impacts to Biological Resources

Vegetation and Flora

The subject property has been previously disturbed. The proposed project involves the construction of mixed-use development along with associated parking, lighting, landscaping, and stormwater management facilities. The site is a disturbed, naturalized landscape dominated by early successional species. The overall tree health is poor with many species exhibiting vines and/or simply dying or already dead.

The proposed project will result in an increase of impervious cover on site. A landscape plan has been prepared for the pervious portions of the project site that includes trees, shrubs, and lawn areas.

Wildlife

Dozens of species of native mammals are known to reside in New Jersey. Based on the partially disturbed nature of the site and surrounding disturbances associated with roadways and development, wildlife species that may utilize the site are expected to be common and somewhat tolerant of human disturbances.

Significant impacts to wildlife species are not expected as a result of the proposed site redevelopment but some habitat for common wildlife species will be lost. Wildlife species such as passerine birds may be displaced but the displacement is not considered significant since they are common to New Jersey and may find refuge in surrounding habitats.

Rare Wildlife Species

A request was submitted to the New Jersey Natural Heritage program (NHP) for a list of rare species that may occur on, or within the vicinity of the project site.

The response dated July 31, 2025 **(Appendix C)** indicated there are no threatened or endangered species on-site nor within the immediate vicinity of the site. Great Blue Heron (Special Concern) is identified as foraging within the immediate vicinity of the site.

Impacts to Critical Environmental Resources

Wetlands

The property does not contain any wetlands or wetland transition areas on site. Therefore, there are no impacts to wetland and/or wetland transition areas anticipated.

Critical Wildlife Habitat

The NJ-GeoWeb Landscape Project Mapping indicated an absence of habitat patches on the site and therefore, does not contain any threatened or endangered species or critical wildlife habitat.

Stands of Mature Vegetation

The site is a disturbed, naturalized landscape dominated by early successional species. The overall tree health is poor with many species exhibiting vines and/or simply dying or already dead. It is not anticipated there will be impacts to mature vegetation associated with this project. The proposed mixed-use development will include a landscaping plan that will include trees, shrubs and lawn grasses.

Floodplains/Riparian Zones

There are no flood hazard areas occurring on the property. Therefore, no impacts to flood hazard areas will occur as a result of this project. The project site is located more than 300 feet from a body of water. Therefore, there are no riparian zones associated with this proposed development and no riparian zones will be disturbed.

Aquifer Recharge Areas

As previously discussed, the Merchantville-Woodbury confining unit (Mewcu) aquifer is mapped for the site by the NJDEP NJ-GeoWeb. The NJ-GeoWeb Groundwater Recharge layer ranks the project site in terms of groundwater recharge as “C” with 8 to 10 inches per year.

Since impervious cover will be increased on the site, a decrease in aquifer recharge would result from the proposed development. To compensate for this decrease, groundwater recharge will be provided in accordance with the NJDEP’s Stormwater Management Rules (N.J.A.C. 7:8) with the implementation of stormwater management measures as part of the stormwater management plan for the project.

Areas of High-Water Table

Areas with a high-water table are usually associated with wetlands. No wetlands occur on this property. Therefore, minimal impacts, if any, to areas with high water tables are expected as a result of this project.

Critical Geological Areas

There are no critical geological areas observed on the project site. Therefore, no impacts to critical geological areas are anticipated.

Steep Slopes

As previously discussed, the subject property does not contain any steep slopes, therefore, the project will not impact areas of steep slopes.

Hydric, Acidic or Highly Erodible Soils

No hydric soils occur on the subject property. Excavation below the water table will also be avoided. A construction period soil erosion and sediment control plan, approved by the Mercer Soil Conservation District, will be implemented to reduce construction effects of the project related to erosion and sedimentation.

The project site is underlain by Merchantville Formation which appears to be a geologic formation associated with potential acid producing soil, according to the NJ-GeoWeb (2025). Should acid soils be encountered during construction, the guidelines recommended by the Soil Conservation Service will be followed when handling these soils. There are no hydric soils and there are no highly erodible soils located on the subject property.

Impacts to Cultural Resources

The NJDEP's GeoWeb Historic Preservation Mapping identifies the subject property within Historic Archaeological Site Grid CU158. The mapping does not identify any historic districts or properties on site. Should historic/cultural resources be found to exist onsite during construction, the State Historic Preservation Office will be notified. Impacts to cultural or historical resources are not anticipated from the proposed mixed-use redevelopment on site.

Impacts to Aesthetic Resources

The site currently contains an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished. The site is a disturbed, naturalized landscape dominated by early successional species. The overall tree health is poor with many species exhibiting vines and/or simply dying/dead.

Aesthetic resources such as scenic vistas or parkland are not present and will not be impacted. The proposed use is consistent with existing, surrounding land uses of commercial development.

A Landscape and Lighting Plan has been included to demonstrate how the design will mitigate for aesthetic impacts during the operational phase. Proper site construction sequences and proper maintenance of the site during the construction phase will be implemented to avoid adverse visual impacts during construction.

Potable Water Supply

The proposed development will utilize public water supply. The property will connect to an existing water line along South Commerce Square, which is owned and operated by Aqua New Jersey, Inc.

Establishment Type	Unit of Measurement	# of Measurement Units	Gallons per Day per Unit	Shifts	Water Demand (GPD)
Liquor Store/Retail/Office	Sq. Ft.	6339	0.125		793 gpd
Restaurant	Seats	75	10	2	1,500 gpd
Bar/Lounge	Seats	75	10	2	1,500 gpd
1 BR Residential Unit	Units	3	95		285 gpd
2 BR Residential Unit	Units	20	140		2,800 gpd
3 BR Residential Unit	Units	5	215		1,075 gpd
Existing Commercial Space (TBR)	*Sq. Ft.*	*4,568*	*0.125*		*(571) gpd*
3 BR Single Family Home (TBR)	*Units*	*2*	*225*		*(450) gpd*
				Total Estimated GPD	**6,931 GPD**

The increase in water demand generated by the proposed development is not anticipated to significantly impact Aqua New Jersey, Inc. The calculations above include a deduction from the previous developments shown in *italics.*

Therefore, the total Average Daily Demand (ADD) is:
6,931 gallons per day (gpd) or
0.007 million gallons per day (MGD) or
4.81 gallons per minute (gpm).

Peak Daily Demand

The Peak Daily Demand (PDD) is determined by applying a peaking factor of 3 times the average daily demand as outlined in the Safe Water Drinking Act Rules (N.J.A.C. 7:10-11.5(f) as follows:

PDD = 3 x ADD
PDD = 6,931 gpd x 3
PDD = 20,793 gpd (0.020 mgd)
Or
PDD = 14.44 gpm

Sewerage Facilities

The proposed development will utilize public sewer service. Sanitary flows will discharge via a gravity line into a manhole within South Commerce Square which is owned and operated by the Township of Robbinsville Sewer Department. The anticipated flows are as follows:

Establishment Type	Unit of Measurement	# of Measurement Units	Gallons per Day per Unit	Projected Flow GPD
Liquor Store/Retail/Office	Sq. Ft.	6,339	0.10	634 gpd
Restaurant	Seats	75	35	2,625 gpd
Bar/Lounge	Seats	75	20	1,500 gpd
1 BR Residential Unit	Units	3	150	450 gpd
2 BR Residential Unit	Units	20	225	4,500 gpd
3 BR Residential Unit	Units	5	300	1,500 gpd
Existing Commercial Space (TBR)	*Sq. Ft.*	*4,568*	*0.10*	*(457) gpd*
3 BR Single Family Home (TBR)	*Units*	*2*	*300*	*(600) gpd*
			Total Estimated GPD	**10,152 GPD**

Deductions of flows are shown in *italics* from the pervious developments on the site.

The project will require NJDEP Treatment Works Approval as the flows exceed 8,000 GPD.

Steps to Minimize Environmental Impacts

Planning Phase Measures

The planning phase is perhaps the most important aspect of proposing measures or controls that will minimize or eliminate negative impacts. The proposed project includes a series of design features included to adhere to the zoning requirements. These include but are not limited to the following:

- Appropriate setbacks and dimensional requirements are being adhered to
- A Landscape Plan has been prepared as part of the proposed Site Plan
- Grading and drainage plans have been prepared in accordance with the requirements for the Site Plan
- A Stormwater Management Plan has been prepared in accordance with State rules and guidelines.
- Obtain Soil Erosion and Sediment Control Plan certification
- Preparation of a Traffic Impact Statement

Construction Phase Measures

Construction phase impacts include noise, dust, traffic, environmental safety, and other short-term potential impacts. The project will adopt the following measures to reduce construction phase impacts:

- Construction in accordance with local ordinances and requirements, including work hours
- Noise level control techniques will be utilized when feasible to reduce noise in sensitive areas such as residential neighborhoods.
- Implementation of best management practices regarding erosion and sedimentation control.
- Implementation of dust control measures
- Designated construction vehicle access routes
- A no vehicular idling policy within the project area to reduce noise and air pollution.
- Adherence to all OSHA protocols and standards.
- If any historic or archaeological resources are discovered during excavations and grading of the site, the State Historic Preservation Office will be contacted for guidance.

Operational Phase Measures

Operation phase impacts include traffic, noise, environmental health and safety, landscape maintenance, and other long-term potential impacts. The project will adopt the following measures:

- Conduct routine maintenance and repair activities, except for emergencies, during weekday business hours, between 8:00 AM and 5:00 PM.
- Maintain all landscaping, setbacks, and buffers for the maximum aesthetic effect including replacement of landscape and buffer trees and other plantings as needed.
- Implementation of Stormwater Management Plan Operations and Maintenance Manual

Unavoidable Adverse Environmental Impacts

Unavoidable adverse impacts are those residual impacts that remain after the implementation design control measures and specific mitigation measures, as listed and discussed herein, to reduce or eliminate, as feasible, the identified adverse impacts. Such adverse environmental, cultural, and community impacts can be short- or long-term. Unavoidable adverse environmental impacts related to the Site Plan include the alteration of soils, topography and vegetation, loss of wildlife habitat, and loss of prime farmland soil. Other than these impacts, no significant or long-term adverse impacts to environmental resources are anticipated from the construction of the mixed-use development.

Implementation of a Soil Erosion and Sediment Control Plan and a Stormwater Management Plan will protect soil and water and prevent significant impacts related to water quality and quantity. The Landscape Plan will provide mitigation for the loss of vegetation, aesthetic values, and loss of wildlife habitat. Short-term impacts to air quality may occur during the construction phase of the project.

Beneficial Environmental Impacts

The proposed project will bolster the local economy by providing tax ratables. The economic and fiscal benefits to the local economy will also be realized during the construction and operational phases of the project. The construction phase will generate short term job opportunities which will stimulate the local economy. Due to the short duration of the construction phase of the project, construction workers will likely not seek permanent housing and therefore not result in long-term or permanent changes to the demographics of the community. However, construction workers are expected to contribute to the local economy on a short-term basis through procurement of goods and services from the local community, examples of which may include the purchase of short-term housing, food and entertainment, construction equipment, and building materials.

The operational phase will generate long-term job opportunities. Operational workers will contribute to the local economy on a long-term basis through procurement of goods and services from the local community, examples of which may include the purchase of housing, food, and entertainment.

Alternatives

The proposed mixed-use development is an approved use within the 'Town Center South – Redevelopment Area' (TCS-RA) Zoning District. Since the property has been previously disturbed and was designated by the Municipality for this type of use, no development alternatives were considered. Other feasible land uses are anticipated to require a similar commitment of resources and would be anticipated to have potential impacts of the same nature as the currently proposed development. A reduction in the project scale/scope would have a neutral impact on the subject site when compared to the proposed development as currently proposed.

A No-Build Alternative would eliminate the proposed development and maintain what currently exists on-site which is an abandoned office building (to be demolished) and two (2) single-family homes (which were recently demolished), along with dying/dead trees on site as previously discussed. The no-building alternative would result in adverse social and economic impacts such as elimination of a source of income/revenue to suppliers and trade persons, elimination of a source of tax revenue to the Township, and elimination of a source of stimulus to the local and regional economy.

Conclusion

The proposed development consists of a 4-story mixed-use building which consists of a liquor store/bar, restaurant, retail and outdoor seating, residential units, and a rooftop bar. Appurtenant site improvements are also proposed which includes lighting, landscaping, parking, and stormwater management. The proposed project has been designed in accordance with all local, state and

federal regulations and current nationally recognized site engineering standards and meet or exceed the regulations adopted by the Township of Robbinsville, NJ.

Unavoidable adverse impacts to environmental resources as a result of the project include short term impacts to air quality during construction; increase in runoff rates and pollutants due to increase in impervious surfaces; minor loss of vegetation and coincidentally non-critical wildlife habitat; short term increase in soil erosion and sedimentation during construction; and increase in demand for water and sewer service.

However, there are no anticipated significant impacts to schools and emergency service providers as the project will not add a significant number of new residents to the Township. The proposed development is also not anticipated to adversely impact regulated areas such as wetlands, wetland transition areas, waters, flood hazard areas, or rare wildlife species/habitat.

None of the aforementioned adverse impacts are significant as they are short term and will be mitigated for through planning, construction, and operational measures, most notable the implementation of a Soil Erosions and Sediment Control Plan, Stormwater Management Plan, and Landscape Plan.

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Appendix A

Site Location Maps

Figure 1: Parcel Map
Figure 2: Road Map
Figure 3: USGS Map
Figure 4: Aerial Map
Figure 5: Zoning Map
Figure 6: State Planning Area Map
Figure 7: Bedrock Geology Map
Figure 8: Soil Map
Figure 9: HUC-14 & C1 Waters Map
Figure 10: Wetlands & Waters Map
Figure 11: Bedrock Aquifer Map
Figure 12: Groundwater Recharge Map
Figure 13: Species Based Habitat Map
Figure 14: FEMA Flood Map
Figure 15: Historic Resources Map

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Figure 1: Parcel Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

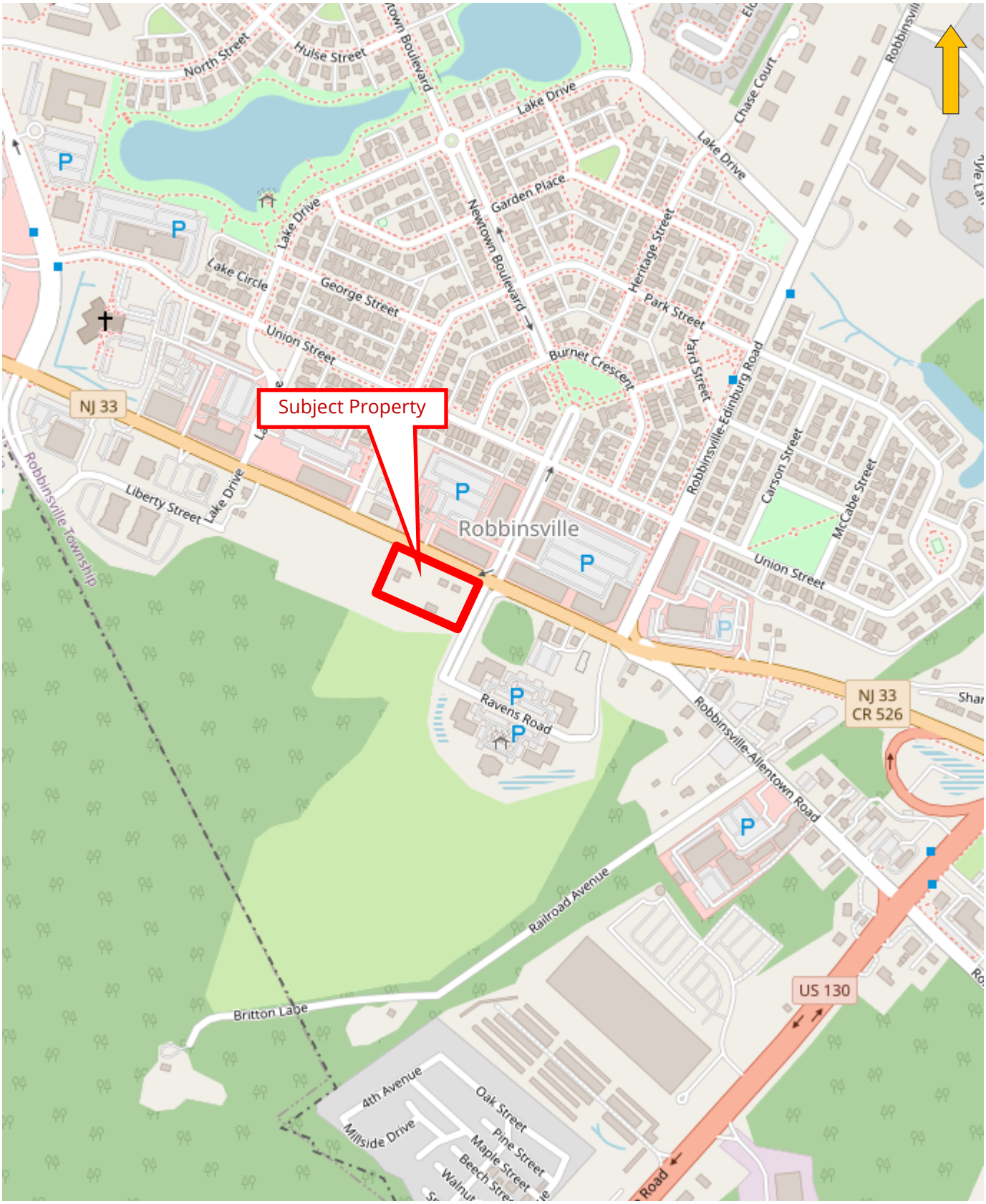

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Figure 2: Road Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

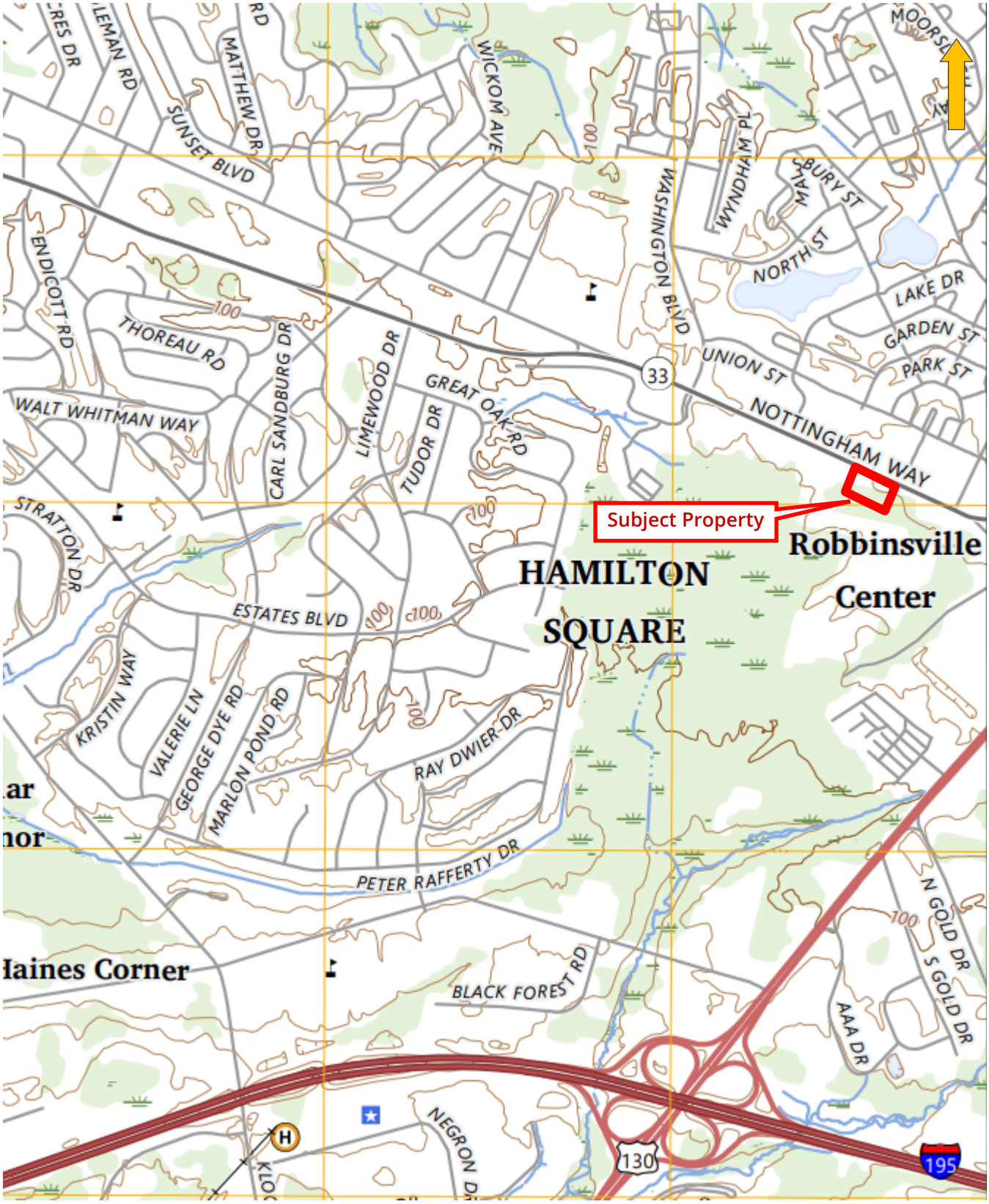

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Figure 3: USGS Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: USGS Trenton East, NJ, PA Quadrangle 2023

Scale: Not to Scale

Date: July 1, 2025

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Figure 4: Aerial Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: Google Earth

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

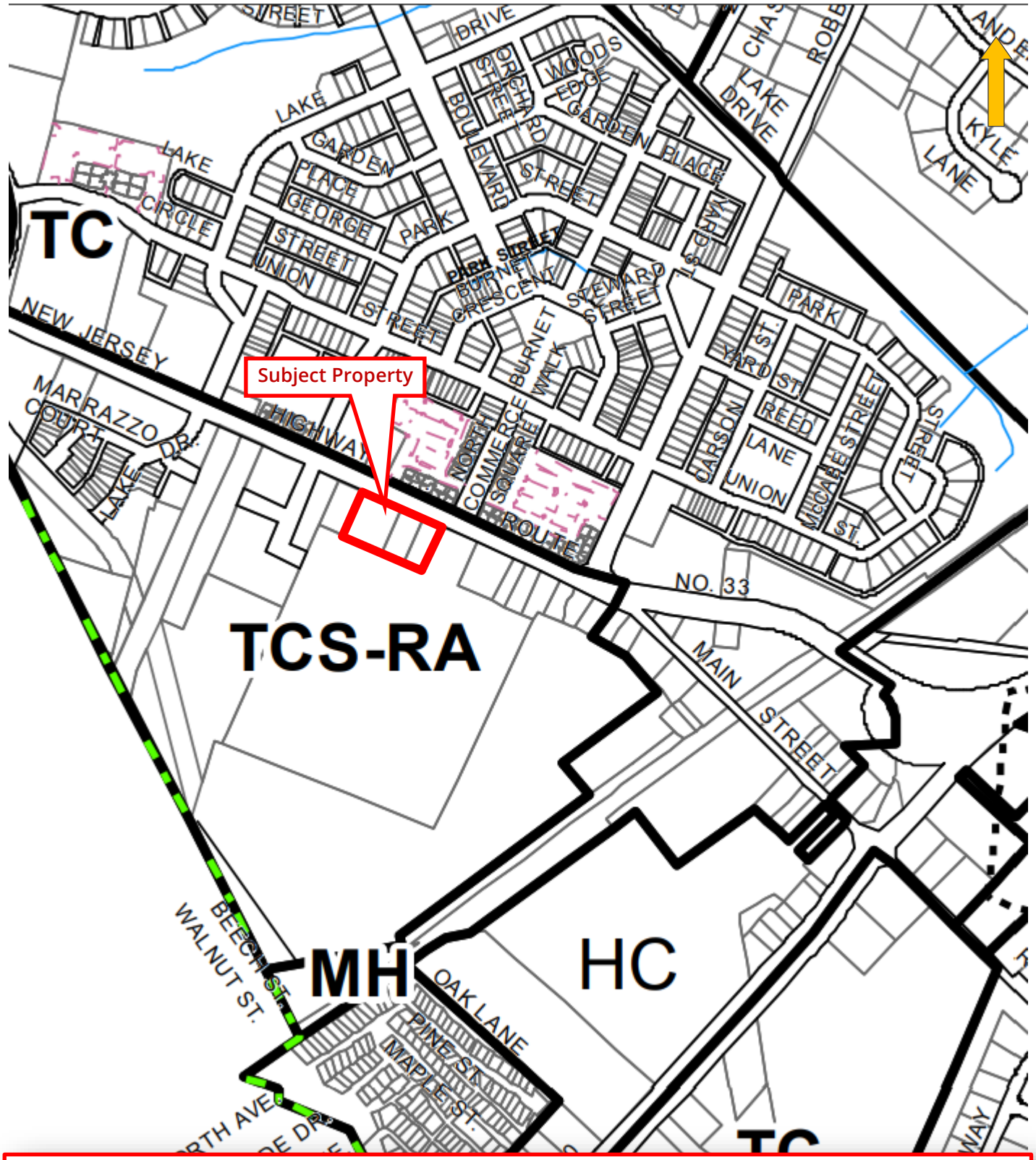

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Figure 5: Zoning Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: Robbinsville Township Zoning Map (rev. 2016)

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

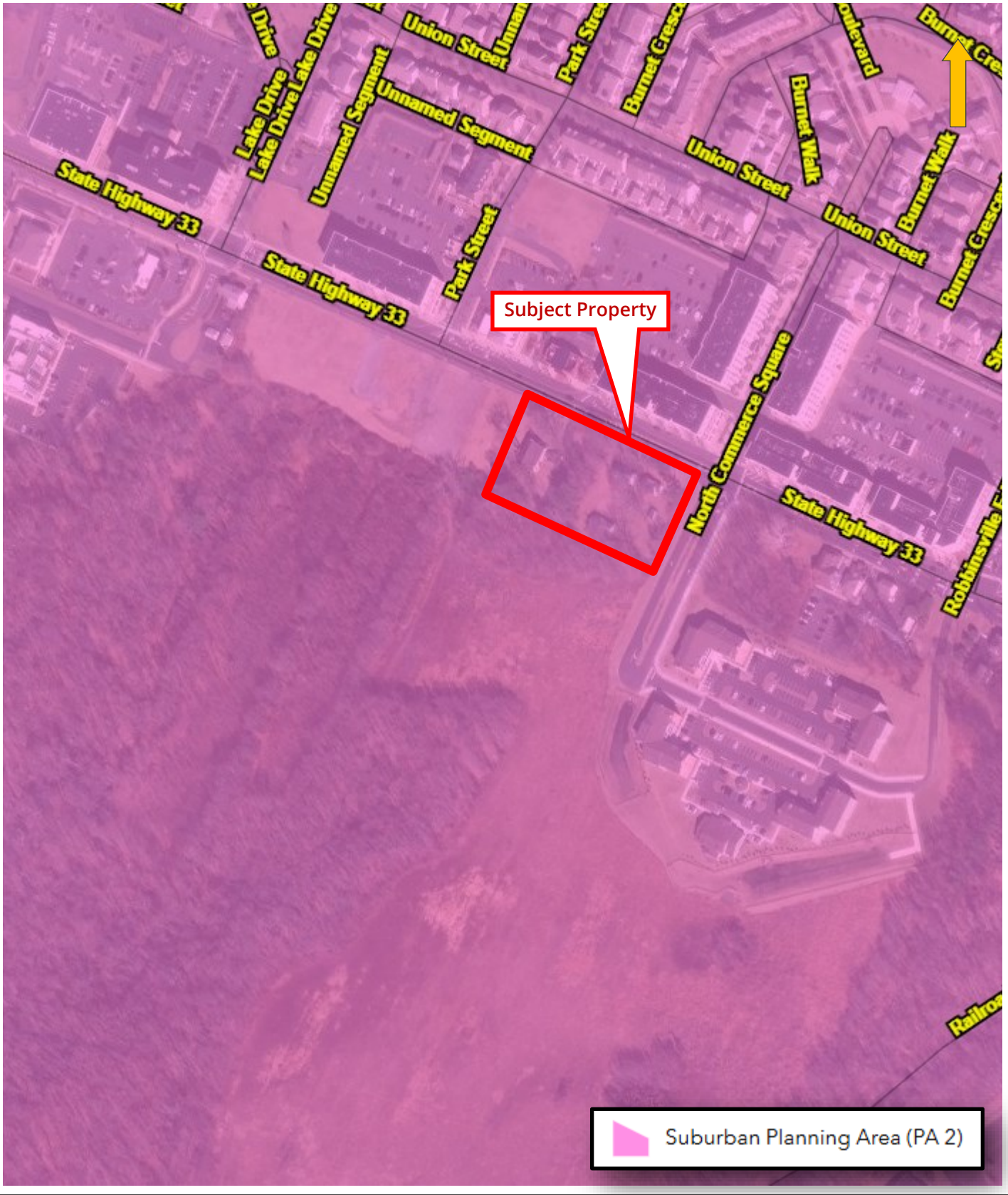

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Figure 6: State Planning Area Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

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Figure 7: Bedrock Geology Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

Map Unit Symbol	Map Unit Name
MBYB	Mattapex and Bertie loams, 0 to 5 percent slopes
SacB	Sassafras sandy loam, 2 to 5 percent slopes, Northern Coastal Plain

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Figure 8: Soil Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: USDA NRCS Web Soil Survey

Scale: Not to Scale

Date: July 1, 2025

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Figure 9: HUC-14 & C1 Waters Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

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Figure 10: Wetlands & Waters Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

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Figure 11: Bedrock Aquifer Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

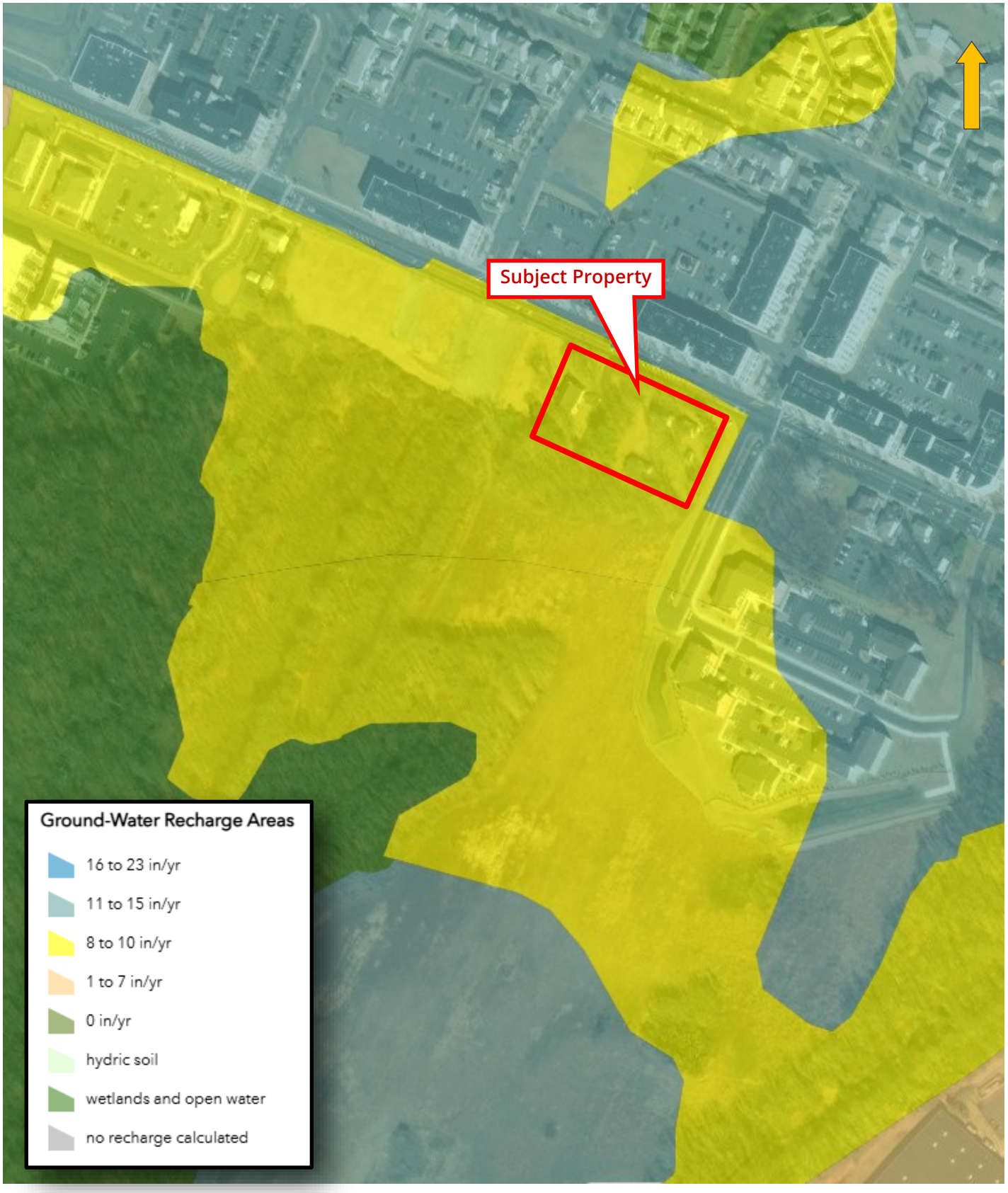

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Figure 12: Groundwater Recharge Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

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Figure 13: Species Based Habitat Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

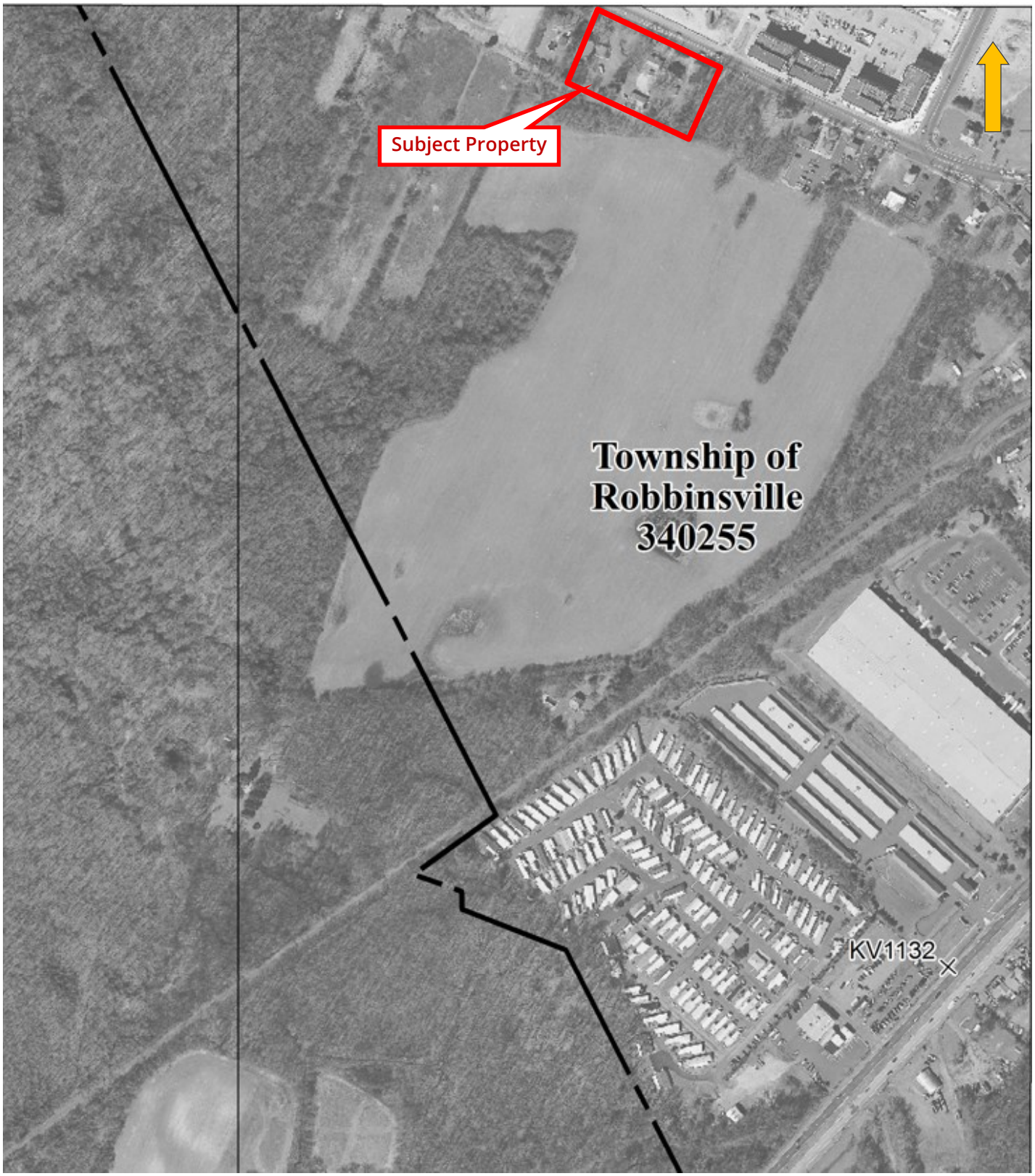

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Figure 14: FEMA Flood Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: FIRM Map 34021C0234F effective 7/20/2016

Scale: Not to Scale

Date: July 1, 2025

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Figure 15: Historic Resources Map

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, NJ

Source: NJ-GeoWeb

Scale: Not to Scale

Date: July 1, 2025

CED Project No. 24002939A

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Appendix B

Site Photographs

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 1: View of Site, facing South from NJ Highway 33 (Image from Google Earth)

Photo 2: View of Site, facing South from NJ Highway 33 (Image from Google Earth)

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

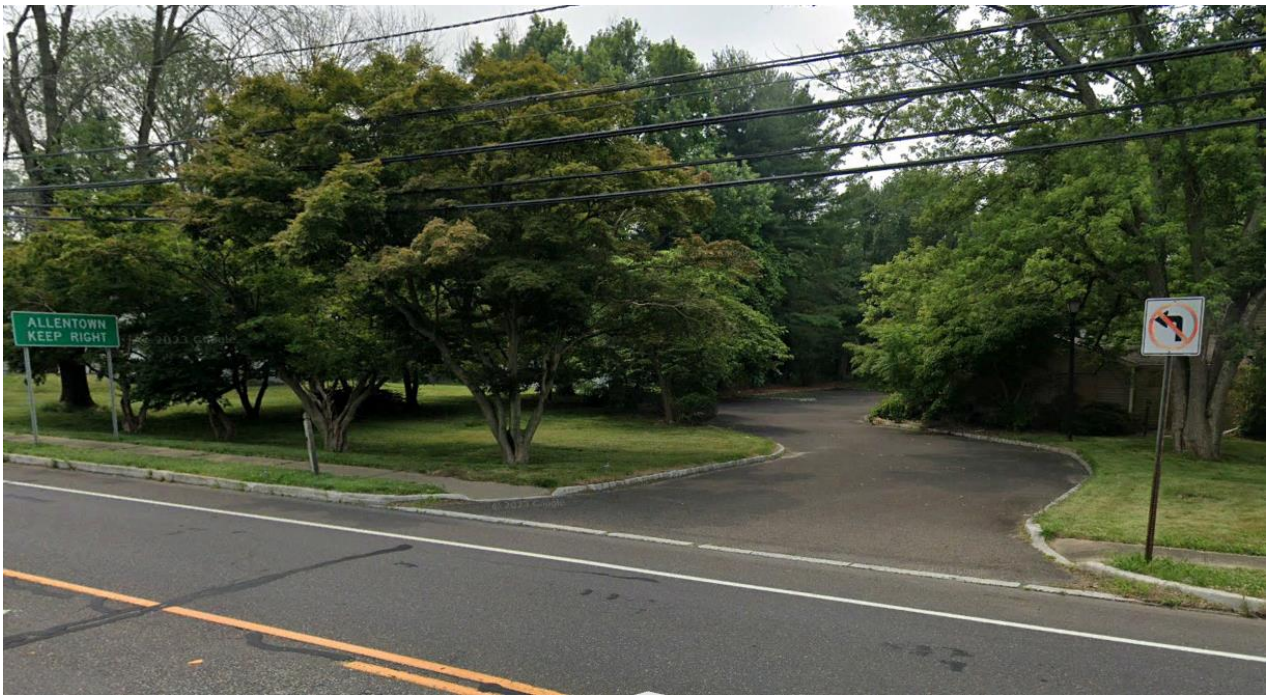

Photo 3: View of Site entrance, facing South from NJ Highway 33 (Image from Google Earth)

Photo 4: View of Site, facing South from NJ Highway 33 (Image from Google Earth)

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

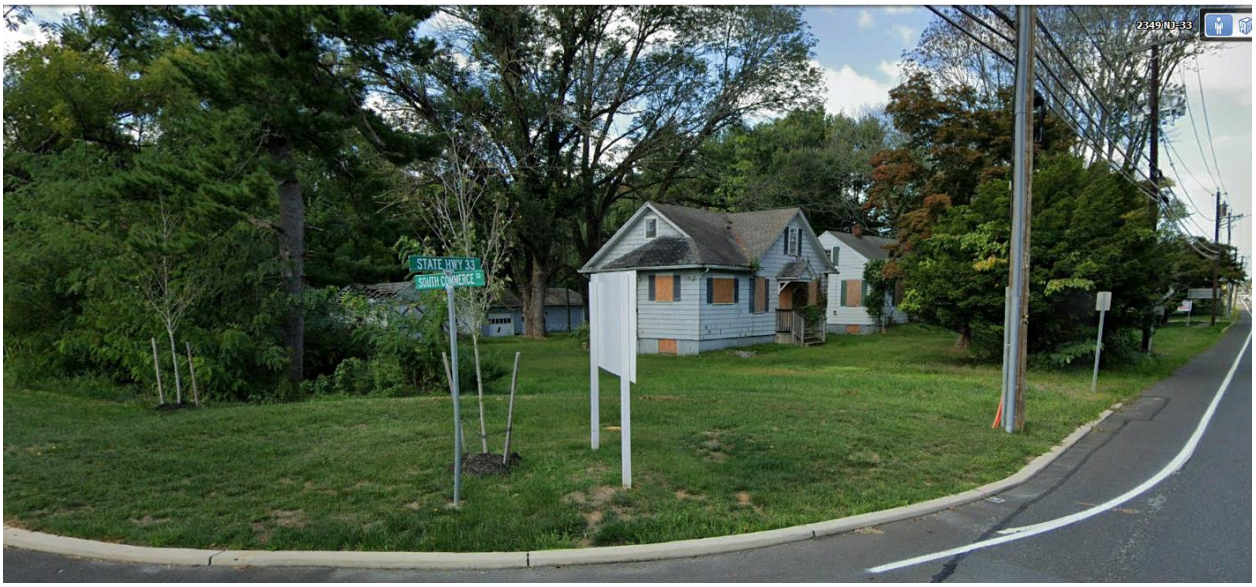

Photo 5: Northeastern portion of Site, view from S Commerce Sq/NJ Highway 33 (Image from Google Earth)

Photo 6: View characterizing the vegetation on Site

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 7: View characterizing the vegetation on Site

Photo 8: View characterizing the vegetation on Site

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 9: View characterizing the vegetation on Site, facing North towards NJ Highway 33

Photo 10: View characterizing the vegetation on Site, facing North towards NJ Highway 33

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 11: View characterizing the vegetation on Site, facing West towards Driveway/Site Entrance

Photo 12: Facing West on Site towards Driveway/Site Entrance

Site Photographs

Block 1, Lots 18, 19, & 20
Robbinsville Township, Mercer County, New Jersey

CED Project No. 24002939A

Photo 13: Taken from Site driveway, facing West

Photo 14: Taken from Site driveway, facing West

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Appendix C

Natural Heritage Program Correspondence

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE PARKS, FORESTS & HISTORIC SITES
OFFICE OF NATURAL LANDS MANAGEMENT
501 East State Street
P.O. Box 420, Mail Code 501-04
Trenton, New Jersey 08625-0420
Tel. (609) 984-1339 * Fax (609) 984-1427
https://www.nj.gov/dep/parksandforests/natural/index.html

PHILIP D. MURPHY
Governor

TAHESHA L. WAY
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

July 31, 2025

Courtney Rybak
Colliers Engineering & Design
101 Crawfords Corner Road, Suite 3400
Holmdel, New Jersey 07733

Re: 2345-2349 Route 33
Block(s) - 1, Lot(s) - 18, 19, 20
Robbinsville Township, Mercer County

Courtney Rybak:

Thank you for your data request regarding rare species information for the above referenced project site.

Searches of the Natural Heritage Database and the Landscape Project (Version 3.4) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the map(s) submitted with the Natural Heritage Data Request Form into our GIS. We do not typically verify that your project bounds are accurate or check them against other sources.

We have checked the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat on the referenced site. The Natural Heritage Biotics Database was searched for occurrences of rare plant species or ecological communities that may be on the project site. Please refer to Table 1 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented on site. A detailed report is provided for each category coded as 'Yes' in Table 1.

We have also checked the Landscape Project habitat mapping for occurrences of rare wildlife species or wildlife habitat in the immediate vicinity (within ¼ mile) of the referenced site. Additionally, the Natural Heritage Biotics Database was checked for occurrences of rare plant species or ecological communities within ¼ mile of the site. Please refer to Table 2 (attached) to determine if any rare plant species, ecological communities, or rare wildlife species or wildlife habitat are documented within the immediate vicinity of the site. Detailed reports are provided for all categories coded as 'Yes' in Table 2. These reports may include species that have also been documented on the project site.

We have also checked the Landscape Project habitat mapping for all occurrences of rare wildlife species or wildlife habitat within one mile of the referenced site. Please refer to Table 3 (attached) to determine if any rare wildlife species or wildlife habitat is documented within one mile of the project site. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on the project site.

For requests submitted in order to make a riparian zone width determination as part of a Flood Hazard Area Control Act (FHACA) rule application, we report records for all rare plant species and ecological communities tracked by the Natural Heritage Program that may be on, or in the immediate vicinity of, your project site. A subset of these plant species is also covered by the FHACA rules when the records are located within one mile of the project site. One-mile searches for FHACA plant species will only report precisely located occurrences for those wetland plant species identified under the FHACA regulations as being critically dependent on the watercourse. Please refer to Table 3 (attached) to determine if any

precisely located rare wetland plant species covered by the FHACA rules have been documented. Detailed reports are provided for each category coded as 'Yes' in Table 3. These reports may include species that have also been documented on, or in the immediate vicinity of, the project site.

The Natural Heritage Program reviews its data periodically to identify priority sites for natural diversity in the State. Included as priority sites are some of the State's best habitats for rare and endangered species and ecological communities. Please refer to Tables 1, 2 and 3 (attached) to determine if any priority sites are located on, in the immediate vicinity, or within one mile of the project site.

A list of rare plant species and ecological communities that have been documented from the county (or counties), referenced above, can be downloaded from https://nj.gov/dep/parksandforests/natural/heritage/database.html. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from https://nj.gov/dep/parksandforests/natural/docs/nhpcodes_2010.pdf.

Beginning January 6, 2025, the Natural Heritage Program reports for wildlife species will utilize data from Landscape Project Version 3.4. If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive web application at the following URL, https://dep.nj.gov/njfw/landscapeapp/, or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292-9400.

Occurrences of Bald Eagle nest and roost habitat have "special concern" rank and are included in Landscape Project Version 3.4. The DEP also recognizes that the U.S. Fish & Wildlife Service maintains additional jurisdiction pursuant to the Bald and Golden Eagle Protection Act (BGEPA). They provide guidance to avoid negative impacts in the "National Bald Eagle Management Guidelines" document found at https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf. They also provide a screening tool to help identify activities that may require a Federal permit, at https://www.fws.gov/media/northeast-bald-eagle-project-screening-form.

For occurrences of Osprey nests and other bird nests that persist year to year, active nests continue to be protected from disturbance that can result in "take" (i.e., disturbance that can cause abandonment or loss) pursuant to the NJ Endangered and Nongame Species Conservation Act (ENSCA) and the Federal Migratory Bird Treaty Act. As a result of delisting of Osprey to "stable" conservation status, Osprey nests are not represented in Landscape Project maps, but nest locations are available online at www.Osprey-Watch.org.

For additional information regarding any Federally listed plant or animal species, please contact the U.S. Fish & Wildlife Service, New Jersey Field Office at http://www.fws.gov/northeast/njfieldoffice/endangered/consultation.html.

Information supplied by the Natural Heritage Program summarizes existing data known to the program at the time of the request regarding the biological elements (species and/or ecological communities) or their locations. They should never be regarded as final statements on the elements or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Robert J. Cartica
Administrator

c: NHP File No. 25-4007426-34221

Table 1: On Site Data Request Search Results (6 Possible Reports)

Report Name	Included	Number of Pages
1. Possibly on Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites On Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.4 Species Based Patches	No	0 pages included
4. Vernal Pool Habitat on the Project Site Based on Search of Landscape Project 3.4	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat on the Project Site Based on Search of Landscape Project 3.4 Stream Habitat File	No	0 pages included

Table 2: Vicinity Data Request Search Results (6 possible reports)

Report Name	Included	Number of Pages
1. Immediate Vicinity of the Project Site Based on Search of Natural Heritage Database: Rare Plant Species and Ecological Communities Currently Recorded in the New Jersey Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites within the Immediate Vicinity	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.4 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat In the Immediate Vicinity of Project Site Based on Search of Landscape Project 3.4	No	0 pages included
5. Rare Wildlife Species or Wildlife Habitat In the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.4 Stream Habitat File	No	0 pages included

Rare Wildlife Species or Wildlife Habitat Within the Immediate Vicinity of the Project Site Based on Search of Landscape Project 3.4 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Aves								
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N

Table 3: Within 1 Mile for Riparian Zone Width Determination
(6 possible reports)

Report Name	**Included**	**Number of Pages**
1. Rare Plant Species Occurrences for Riparian Zone Width Determination (Flood Hazard Area Control Act Rule Appplication) - Within One Mile of the Project Site Based on Search of Natural Heritage Database	No	0 pages included
2. Natural Heritage Priority Sites for Riparian Zone Width Determination - Within One Mile of the Project Site	No	0 pages included
3. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.4 Species Based Patches	Yes	1 page(s) included
4. Vernal Pool Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.4	Yes	1 page(s) included
5. Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination - Within One Mile of the Project Site Based on Search of Landscape Project 3.4 Stream Habitat File	Yes	1 page(s) included

Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.4 Species Based Patches

Class	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank
Amphibia								
	Spotted Salamander	Ambystoma maculatum	Occupied Habitat	2	NA	Special Concern	G5	S3
	Spotted Salamander	Ambystoma maculatum	Vernal Pool Breeding	2	NA	Special Concern	G5	S3
Aves								
	Bald Eagle	Haliaeetus leucocephalus	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Great Blue Heron	Ardea herodias	Foraging	2	NA	Special Concern	G5	S3B,S4N
	Wood Thrush	Hylocichla mustelina	Breeding Sighting	2	NA	Special Concern	G4	S3B,S4N
Mammalia								
	Big Brown Bat	Eptesicus fuscus	Maternity Colony	2	NA	Special Concern	G5	S3
	Bobcat	Lynx rufus	Live Individual Sighting	3	NA	State Threatened	G5	S2
	Northern Myotis	Myotis septentrionalis	Roost Site	5	Federally Listed Endangered	State Endangered	G2G3	S1
	Silver-haired Bat	Lasionycteris noctivagans	Inactive Season Sighting	2	NA	Special Concern	G3G4	S3

Vernal Pool Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.4

Vernal Pool Habitat Type	Vernal Pool Habitat ID
Vernal habitat area	3119
Potential vernal habitat area	1104
Potential vernal habitat area	1113

Total number of records: 3

Rare Wildlife Species or Wildlife Habitat for Riparian Zone Width Determination
Within One Mile of the Project Site
Based on Search of Landscape Project 3.4 Stream Habitat File

Link ID	Common Name	Scientific Name	Feature Type	Rank	Federal Protection Status	State Protection Status	Grank	Srank	Last Observed	Count
120634	Triangle Floater	Alasmidonta undulata	Live Individual Sighting	3	NA	State Threatened	G4	S2	2002	1

Total number of records: 1

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Appendix D

Qualifications of Preparers

Resume

Joseph P. Layton

Principal Associate | Discipline Leader | Natural Resources

Colliers Engineering & Design

Education

B.S. Environmental Planning and Natural Resource Management, Rutgers University, Cook College, 1992

Professional Certifications

NJDEP Certified Subsurface Evaluator, License #229606

NJDEP Certified Underground Storage Tank Closure

Environmental Assessment Association - Certified Environmental Specialist

Certified Remediation Specialist

Radon Measurement Specialist #MES11066

40 Hr NJ/EPA Model Lead Inspector/Risk Assessor

OSHA 40 Hr HAZWOPER Training

8-Hour OSHA HAZWOPER Refresher Training

Affiliations & Memberships

Ecological Society of America

Society of Wetland Scientists

Experience

Mr. Layton is an Environmental Scientist with over 24 years of experience including an extensive background and expertise in environmental sciences. His expertise includes an emphasis on wetland delineation, regulatory permitting and compliance, environmental assessment, environmental impact analysis, and soil evaluation. His diversified experience also includes natural resource evaluations, ecological research, watershed management, subsurface explorations, underground storage tank exploration and removal, soil classification systems, and environmental sampling design and protocol in accordance with State and Federal regulations. He utilizes Geographic Information Systems (GIS) and Global Positioning Systems (GPS) in environmental sampling and studies, including site remediation design and sampling, groundwater and surface water quality monitoring and management, and lake rehabilitation and restoration.

As Assistant Department Manager, Mr. Layton has utilized the aforementioned experience and technical skills to successfully assist clients with litigation support and regulatory compliance and has been deemed an expert in the field by various Planning and Zoning Boards while providing testimony regarding the same. His proven dedication to client satisfaction has resulted in long standing professional relationships. His client base includes private development and redevelopment companies, municipalities, county governments, infrastructure authorities, daycare facilities, higher education institutions, financial institutions, utility companies, and law firms.

Representative Projects

Groundwater Quality Monitoring/ Management

Responsible for designing, implementing, and preparing groundwater monitoring and management plans. A sampling of representative projects includes the following:

- **New Jersey National Golf Club Groundwater Quality Monitoring Plan**
  Township of Bernards, Somerset County, NJ
  Responsible for determining location and depth of monitoring wells; coordinating and supervising well installation; sampling and analyzing results; and determining groundwater flow and fate of contaminants.
- **Leisure Glen Retirement Community**
  Township of Manchester, Ocean County, NJ
  Responsible for determining the location, depth and sampling parameters of groundwater monitoring wells in a 2,500-unit retirement and 18-hole golf course community widening, complete

resurfacing of all 13 miles of existing roadway, safety improvements and implementation, as well as construction of IVHS systems in this corridor.

- **Trump National Hudson Valley Golf Club Groundwater Quality Monitoring Plan**
  Township of Bernards, Somerset County, NJ
  Responsible for determining location and depth of monitoring wells; coordinating and supervising well installation; sampling and analyzing results; and determining groundwater flow and fate of contaminants.

Watershed Management /Lake Restoration
Responsible for determining sources of non-point pollution using available mapping and field reconnaissance, determining watershed boundaries, and preparing best management practices manuals.

- **The Great Swamp National Wildlife Refuge Watershed Management Study, Morris & Somerset Counties, NJ**
- **Wemaconk Lake Restoration, Borough of Englishtown, Monmouth County, NJ**

Wetland Delineation
Involved in the identification and delineation of numerous freshwater and tidal wetlands (over 10,500 acres) in New Jersey and New York. The assessment of wetland value (resource classification) was involved for many of these wetlands.

- **Runyon Interceptor Trunk Sanitary Sewer Line Alignment**
  Township of Old Bridge, Middlesex County, NJ
  Determined alignment of two miles of sanitary sewer on a 400-acre+ site using aerial photography and site inspections minimizing impacts to numerous wetland communities.
- **Oakwood at Old Bridge**
  Township of Old Bridge, Middlesex County, NJ
  Delineated freshwater wetlands on a 235-acre site, half of which was wetlands.
- **Ashland/Former Hercules Plant**
  Parlin, Middlesex County, NJ
  Delineated freshwater wetlands on a 300-acre site formerly utilized as a munitions plant in 1930s-1960s.
- **MEC Power Generating Facility**
  Sayreville Borough, Middlesex County, NJ
  Delineated freshwater and tidal wetlands on a 40-acre site formerly utilized as a landfill. Site recently delisted as a Superfund site and will be developed as an electric power generating facility.
- **Gates Landfill**
  Jersey City, Hudson County, NJ
  Delineated freshwater and tidal wetlands on a 60-acre site formerly utilized as a fly-ash landfill of a PSEG power generating facility. Site recently delisted as a Superfund site and will be developed as an electric power generating facility.

Permit Applications
Prepared environmental permits for private residential, commercial and industrial projects. This has included U.S. Army Corps of Engineers Permits and New Jersey Department of Environmental Protection

Freshwater Wetland Permits, Freshwater Wetland Transition Area Waivers, Individual Permits, Waterfront Development Permits, and CAFRA Permits.

- **National Lead Redevelopment**
  Borough of Sayreville, Middlesex County, NJ
  Determined alignment of two miles of sanitary sewer on a 400-acre+ site using aerial photography and site reconnaissance minimizing impacts to numerous wetland communities.
- **Transcontinental Gas Pipeline Armoring**
  Township of Hopewell, Mercer County, NJ
  Prepared and obtained an Individual Permit from the NJDEP-LURP to permanently disturb a stream and its associated wetland to construct armoring to protect a Transcontinental Gas Pipeline.
- **The Hills Development**
  Township of Bernards, Somerset County, NJ
  Prepared and obtained majority of wetland permitting for a 5,300 residential unit, 400,000 SF of commercial and professional office space and an 18-hole golf course planned development in an environmentally sensitive ecosystem.
- **Apple Cove Development Township of Middletown,**
  Monmouth County, NJ
  Prepared and obtained freshwater wetland and CAFRA permits for single-family, residential subdivision located along a tidally influenced watercourse.
- **Trump National Pine Hill Golf Club**
  Pine Hill, Camden County, NJ
  Prepared and obtained freshwater wetland Individual permits for redeveloping a former amusement park into a premier golf course. Rehabilitating/reconstructing the only remaining native Brook trout stream in southern New Jersey was required as part of permit approval.
- **Frenchtown Nishisakawick Creek Stream Bank Restoration**
  Borough of Frenchtown, Hunterdon County, NJ
  Through funding by the U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), the Borough of Frenchtown sought to restore and stabilize eroded streambanks along Nishisakawick Creek, a highly protected water in the state of New Jersey. Mr. Layton provided oversight and management of the ecological team. The scope included delineation of wetlands and open waters, restoration design oversight, and prepared applications to the NJDEP for a Freshwater Wetlands Individual Permit and Flood Hazard Area Individual Permit.

Environmental Assessments/Regulatory Compliance

Prepared and conducted Environmental Phase I Assessments for residential, commercial, and industrial property transfers in accordance with ASTM and Fannie Mae guidelines. Also prepared and conducted Preliminary Assessments, Site Investigations, Remedial Investigations, and Remedial Action Work Plans in accordance with N.J.A.C. 7:26E.

- **Heavenly Farms**
  Township of East Brunswick, Middlesex County, NJ
  Prepared and performed Preliminary Remedial Investigation/Action to obtain a “Letter of No Further Action” for a 230-acre farm with contaminated soils for development of recreational fields.

- **Marlboro Psychiatric State Hospital**
  Marlboro Township, Monmouth County, NJ
  Consultant to the Township of Marlboro regarding the municipality purchasing a 411-acre State-owned psychiatric hospital. Responsible for identifying areas of environmental concern, review of environmental investigation and remediation reporting generated by State contractors and making recommendations to the municipality regarding environmental concerns and purchase of the property.
- **Columbian Chemicals Mapico Iron Oxide Plant**
  South Brunswick Township, Middlesex County, NJ
  Prepared and performed preliminary assessment/site investigation, remedial Investigation/Action and Baseline Ecological Evaluation to obtain a "Letter of No Further Action" from the NJDEP to develop an 86-acre former chemical plant in a residential land use. Extensive soil and groundwater contamination was remediated.
- **The Villas at Shoregate**
  City of South Amboy, Middlesex County, NJ
  Prepared and performed Preliminary Assessment/Site investigation to obtain a "Letter of No Further Action" for a 16-acre, former dredge disposal area adjacent to the Raritan Bay.
- **Rolling Acres Subdivision**
  Monroe Township, Middlesex County, NJ
  Prepared and performed Preliminary Assessment, Site Investigation, and Remedial Investigation/Action to obtain a "Letter of No Further Action" for a 168-acre farm with contaminated soils.
- **Stewart International Airport**
  Town of New Windsor, Orange County, NY
  Consultant to potential leaseholders to the Port Authority New York and New Jersey to determine potential environmental areas of concern to development. This included Phase I and Phase II investigations in accordance with ASTM standards.

Subsurface Exploration/Evaluation
Capable of evaluating soils in accordance with NJDEP's Chapter 199 for subsurface sewage disposal systems. Able to establish depth of water tables, evaluate suitability of sites for subsurface disposal systems, perform percolation tests, basin flood tests, pit bail tests and tube permeameter tests. Capable of evaluating subsurface conditions utilizing the Burmister classification system, USDA Soil Taxonomy terminology and the Unified classification system.

Environmental Impact Assessment
Prepared numerous environmental impact statements and assessments for a wide variety of projects, including residential and commercial developments for both the public and private sector.

- **Taconic Homes Site Bog Turtle Survey and Wildlife Inventory**
  Village of Pleasant Valley, Dutchess County, NY
  Performed survey for bog turtle on a 76± acre tract using Phase II survey methods. Also performed a limited wildlife inventory during the spring season. This work was performed to satisfy lead agency requirements under the NY SEQRA.

- **Middlesex County Educational Services Commission Special Education Facility**
  Borough of Sayreville, Middlesex County, NJ
  Provided environmental services to conduct a Phase I environmental assessment associated with professional engineering services for a 65,000 SF special education facility with a pool, a future building, associated parking lot, and a playground. Tasks included a historical review of project site, industrial / commercial historical review, site visit to identify obvious visual signs of contamination and use of hazardous materials, project approval status review, review of existing, local, state and federal records, review of adjacent lands, preparation of site location map, and report preparation.
- **Capodagli Property Company Phase I Assessment**
  North Arlington Borough, Bergen County, NJ
  Provided environmental services to delineate wetlands, prepare an application for a Letter of Interpretation to the New Jersey Department of Environmental Protection, and prepare a Phase I Environmental Assessment for the property that is between .5 to 1.0 acres and adjacent to the Passaic River, and regulatory permitting (NJDEP upland waterfront development and waterfront development, NJDEP tidelands conveyance, and US Army Corps of Engineers Section 10 – installation of outfall structure).
- **New Gregory Elementary School (NJSCC Funded)**
  City of Long Branch, Monmouth County, NJ
  Provided site design, civil, and environmental engineering services for a proposed three-story, 45,000 SF elementary school to accommodate children from pre-kindergarten through 5th grade located on a six-acre tract of land. Environmental services included wetlands evaluation, preliminary assessment (PA), site investigation (SI), and environmental impact statement (EIS)/ EO 215), and environmental regulatory permitting (NJDEP statewide general, and NJDEP treatment and water works). The preliminary assessment (PA) report indicated four areas of Concern (AOC). Three UST's, waste piles (plastic bottles, plastic bags, aluminum cans, etc.), one pole mounted electrical transformer and capacitor, and a former railroad easement adjacent to property with inactive rail lines with possible polynuclear aromatic hydrocarbons (PAHs). A site investigation (SI) will be performed to evaluate the presence or absence of soil and groundwater impact associated with UST's and the former railroad easement. A report will be prepared containing all lab results and recommendations for further investigation and/or remedial action as well as projected cost estimates for remedial investigation and cleanup.
- **Diversified Developers, LLC – Retail Store and Day Care Facility**
  Jackson Township, Ocean County, NJ
  Provided environmental services to conduct a Phase I environmental assessment associated with the site design and civil engineering services associated with the development of a 35,000 SF retail facility including a day care facility along with typical appurtenant site improvements on approximately 3.8-acres of land. Services included historical review to evaluate past conditions of sites as they relate to existing and proposed uses, industrial/commercial historical review, site visit to identify all obvious visual signs of contamination and the use of hazardous materials, review existing local, State, and federal records, review of adjacent lands, prepared site location map depicting the approximate parcel boundaries, and an area of at least one-mile radius around the site.

- **Thomas Associates – Site Assessment Proposed School Site**
  City of Bordentown, Burlington County, NJ
  Provided environmental services for a Phase I Environmental Assessment for a 75-acre parcel of land previously historically farmed for a proposed new school facility. Services included preliminary assessment, SI & RI historical review, industrial and commercial historical review, review of existing local, state and federal records, review of adjacent lands, preparation site location map, preliminary soil screening, delineation of wetlands and LOI and regulatory permitting (stream encroachment, land use regulations freshwater wetlands and soil erosion and sediment control), Colonial Pipeline Crossing/Encroachment and Environmental Impact Statement (EIS).

Continuing Education

Methodology for Delineating Wetlands, Cook College

Vegetation Identification for Wetland Delineation, Cook College

Hydrology of Wetlands, Cook College

Endangered & Threatened Species of New Jersey, Cook College

Lake Management, Cook College

Soils and Site Evaluation for Septic Disposal Systems & Stormwater BMP's , Cook College

Site Remediation Basics, Cook College

Remedial Decision Making, Cook College

Ecological Risk Management, Cook College

Resume

Courtney Rybak

Environmental Technician | Natural Resources

Colliers Engineering & Design

Education

B.S. Biological Sciences, minor in Environmental Science, Rowan University, 2019

Professional Certifications

Wetland Delineation Certification, Rutgers University, The New Jersey Agricultural Experiment Station Office of Continuing Professional Education, 2021

Internship & Volunteer Experience

Aquatic Turtle Population Structure Research, Rowan University, (2018-2019)

Manalapan Township Environmental Commission Projects (2018-2019)

Affiliations & Memberships

Member of Association of State Wetland Managers

Speaking Engagements

Rowan University's Student Scholars Symposium (RUSSS). Rowan University, Glassboro, New Jersey. *Effects of Urbanization on Aquatic Turtle Population Structure in Southern New Jersey*; 2019.

Experience

Ms. Rybak is an Environmental Technician with 4 years of experience in ecological and regulatory consulting. She specializes in wetland assessment and delineation, environmental impact analyses, and environmental permitting and compliance at the local, state, and federal levels.

As an Environmental Technician, Ms. Rybak has prepared applications to secure permit authorizations for public and private residential, commercial, and industrial projects. This includes U.S. Army Corps of Engineers Permits, and New Jersey Department of Environmental Protection Freshwater Wetland Permits, Freshwater Wetland Transition Area Waivers, Individual Permits, Waterfront Development Permits and CAFRA Permits. She has hands-on ecological field experience surveying suitable bog turtle habitat and previously working as a student research assistant at Rowan University studying the effects of urbanization on aquatic turtle populations.

With the aforementioned experience and technical skills acquired, Ms. Rybak has successfully assisted clients with regulatory compliance.

Representative Projects

Wetland Investigations & Delineation Projects

Wetland Delineations, Various Clients
Locations visited in NJ include Spotswood, West Caldwell, Monroe, Vernon, Hazlet, Hamilton, Sewaren, Howell, Mansfield
Assisted in the identification and delineation of freshwater wetlands and waters throughout New Jersey to obtain general permitting compliance. The assessment of wetland value (resource classification) was involved for many of these wetlands.

Permitting & Compliance Projects

Wildwood Boardwalk Rehabilitation
City of Wildwood, Cape May County, NJ
Prepared NJDEP CAFRA Individual Permit application for the proposed boardwalk rehabilitation from East Oak Avenue to East 26th Avenue.

Point Pleasant Wildlife Management Area Boat Ramp & Fishing Access
Borough of Point Pleasant, Ocean County, NJ
Prepared NJDEP CAFRA Individual Permit and Waterfront Development Individual Permit application along with a U.S. Army Corps of Engineers Permit application for proposed boat ramp and fishing access improvements.

Mosquito Landing - Tuckahoe Wildlife Management Area
Township of Upper, Cape May County, NJ

Resume

Prepared NJDEP CAFRA Individual Permit and Waterfront Development Individual Permit application and U.S. Army Corps of Engineers Permit application for the replacement of the existing boat ramp and bulkhead and construction of a new barrier free dock and fishing access improvements.

Residences at Bancroft
Borough of Haddonfield, Camden County, NJ
Prepared NJDEP Freshwater Wetlands General Permits and Transition Area Waivers application for residential redevelopment consisting of 90 townhomes including 10 affordable housing units.

White Street Bridge D4.108
Township of Mount Holly, Burlington County, NJ
Prepared NJDEP Waterfront Development Individual Permit, Freshwater Wetland General Permit and Flood Hazard Area Individual Permit application and U.S. Army Corps of Engineers Permit application for the rehabilitation of the historic bridge that has been classified as in poor condition.

Threatened & Endangered Species

Bog Turtle Surveying
2602 NY-17M - Town of Goshen, Orange County, NY
2300 NY-300 - Town of Wallkill, Ulster County, NY
Provided pre-construction surveying services for proposed commercial/industrial development within freshwater wetlands that were determined to be suitable habitat for bog turtle in accordance with freshwater wetland permit conditions.

Environmental Impact Statements and Assessments

Commercial Development
Township of Hamilton, Mercer County, NJ
Prepared Environmental Impact Assessment (EIA) and site location maps for the development of a 245,670 SF single-loaded warehouse building located on property containing approximately 35.7 acres of land.

Residential Development
Township of Jackson, Ocean County, NJ
Prepared Environmental Impact Statement (EIS) along with site location maps for the development of 465 residential townhome units located on property containing approximately 117.8 acres of land.

Commercial Development
Borough of Tinton Falls, Monmouth County, NJ
Prepared Environmental Impact Report (EIS) along with site location maps for the development of 29 buildings, consisting of 6-18 units, along with a 4,500 SF clubhouse located on approximately 47.3 acres of land.

Training/Continuing Education

Vegetation Identification for Wetland Delineation – North, Rutgers University.
Methodology for Delineating Wetlands, Rutgers University.

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Traffic Impact Study

January 6, 2026

Robbinsville Heights

Block 1, Lots 18, 19, & 20
Township of Robbinsville, Mercer County, New Jersey

Prepared for:

Robbinsville Heights, LLC.
96 Overbrook Avenue
Edison, New Jersey 08817

Prepared by:

Jeffrey Fiore
NJ Professional Engineer
License No. 46428

Michelle Briehof
NJ Professional Engineer
License No. 51939

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Project No. 24002939A

Colliers Engineering & Design

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Colliers Engineering & Design

Introduction

The following report has been prepared for Robbinsville Heights, LLC ("Applicant") in association with the proposed mixed-use development ("Project") within the Township of Robbinsville, Mercer County, New Jersey. The site is currently developed with an abandoned office building and previously contained two (2) single-family residential homes that were recently demolished. The Applicant proposes to raze the site and construct a four-story building consisting of 12,943 SF of commercial space and 28 multifamily residential units. The site is bounded by Route 33 to the north, South Commerce Square to the east, and undeveloped land to the south and west. The site is designated as Block 1, Lots 18, 19, & 20 on the Township of Robbinsville Maps and is located within the Town Center South – Redevelopment Area (TCS-RA) Zoning District. A Site Location Map is included as **Figure 1** in **Appendix A**.

Access to the site is proposed via one (1) full-movement driveway along Route 33 and one (1) full-movement driveway along South Commerce Square. The proposed Dimension Plan is provided as **Figure 2** in **Appendix A**.

This study presents an evaluation of the current and future traffic conditions in the vicinity of the Project. Specific elements included in this study are:

- An inventory of the roadway facilities in the vicinity of the Project, including the existing physical and traffic operating characteristics;
- Determination of the Existing Condition;
- Site Generated Trips as described in the ITE *Trip Generation Manual, 12th Edition*;
- Trip Distribution and Assignment;
- Forecast of the 2028 No-Build Traffic Volumes;
- Peak Hour Capacity Analysis for the 2028 No-Build Condition;
- Forecast of the 2028 Build Traffic Volumes;
- Peak Hour Capacity Analysis for the 2028 Build Condition;
- Site Access and Parking Assessment; and
- Summary and Conclusions.

Existing Roadway Conditions

A field investigation was conducted adjacent to the project site to obtain an inventory of existing roadway conditions, posted traffic controls, adjacent land uses, lane configurations, and existing vehicular/pedestrian traffic patterns.

Roadways

Route 33 is an urban principal arterial roadway under New Jersey Department of Transportation (NJDOT) jurisdiction with a general east-west orientation. The roadway provides one (1) travel lane in each direction with a two-way-left-turn lane median. The posted speed limit is 45 mph within the vicinity of the project site.

Commerce Square is an urban local roadway under the Township of Robbinsville jurisdiction with a general north-south orientation. The roadway provides one (1) travel lane in each direction. The speed limit is not posted.

Unsignalized Intersections

Route 33 & Commerce Square is an unsignalized four-leg intersection with the northbound and southbound approaches of Commerce Square under stop control. The northbound and southbound approaches of Commerce Square each provide one (1) dedicated right-turn lane. The eastbound and westbound approaches of Route 33 each provide one (1) dedicated left-turn lane and one (1) shared through/right-turn lane.

Route 33 & Town Center Driveway is an unsignalized three-leg intersection with the southbound approach of Town Center Driveway under stop control. The southbound approach of Town Center Driveway provides one (1) dedicated right-turn lane. The westbound approach of Route 33 provides one (1) two-way-left-turn lane, one (1) dedicated through lane, and one (1) dedicated right-turn lane.

Existing Traffic Conditions

Traffic volume data was collected within the study area to gain an understanding of the existing roadway conditions and operations through turning movement counts ("TMC") conducted on Tuesday, June 10, 2025, from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, and on Saturday, June 21, 2025, from 11:00 AM to 2:00 PM, at the following intersections:

- Route 33 & Town Center Driveway; and
- Route 33 & Commerce Square.

The data collection efforts are detailed in **Table 1**. The processed TMC data is provided in **Appendix B**.

Table 1 – Data Collection Efforts and Observed Peak Hours

Peak Period	Date Collected	Traffic Count Time Frame	Observed Peak Hour
Weekday Morning	Tuesday, June 10, 2025	7:00 AM – 9:00 AM	7:45 AM – 8:45 AM
Weekday Evening		4:00 PM – 6:00 PM	4:15 PM – 5:15 PM
Saturday Midday	Saturday, June 21, 2025	11:00 AM – 2:00 PM	11:45 AM – 12:45 PM

The observed traffic volumes were balanced between intersections in an upward fashion to provide a conservative analysis. A Volume Flow Diagram illustrating the Existing Condition is provided as **Figure 3** in **Appendix A**.

Trip Generation and Distribution

Trip Generation

The site generated trips associated with the proposed development were estimated in accordance with standard methodology found within the Institute of Transportation Engineers' (ITE) publication, *Trip Generation Manual, 12th Edition.* This ITE publication sets forth trip generation rates based on traffic counts conducted at research sites throughout the country. Land Use Codes 220 – Multifamily Housing (Low-Rise), 822 – Strip Retail Plaza (<40k), 932 – High-Turnover (Sit-Down) Restaurant, and 975 – Drinking Place were utilized to estimate the trip generation of the proposed development. **Table 2** summarizes the trip generation estimates for the Project.

Table 2 – Trip Generation Summary

Land Use	Size	AM Peak			PM Peak			SAT Peak		
		Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
LUC 220 – Multifamily Housing (Low-Rise)	28 units	5	18	23	13	8	21	5	9	14
LUC 822 - Strip Retail Plaza (< 40k)	6,167 SF	13	11	24	19	20	39	21	20	41
LUC 932 - High-Turnover (Sit-Down) Restaurant	2,681 SF	13	11	24	15	10	25	15	15	30
LUC 975 – Drinking Place	4,095 SF	-	-	-	17	9	26	-	-	-
Total		**31**	**40**	**71**	**64**	**47**	**111**	**41**	**44**	**85**

Trip Distribution

Trip distribution methodology is developed based on a variety of factors. These factors include the existing travel patterns within the adjacent roadway network, adjacent land uses, proposed land uses, development locations, driveway locations, and the proximity of major arterials within the project vicinity. The following trip distribution pattern was established:

- To/From Route 33, East of Site – 70%; and
- To/From Route 33, West of Site – 30%.

Volume Flow Diagrams illustrating the Trip Distribution and the Site Generated Trips are provided as **Figures 4** and **5** in **Appendix A**.

Future Traffic Conditions

To determine the traffic impact of the proposed development, an estimation of the operational traffic characteristics at the Build date, without the construction of the Project (or "No-Build" condition), is made. The existing volumes have been projected to the build year of 2028.

Background Growth

The NJDOT Annual Background Growth Table recommends growth rates to account for general increases in traffic due to regional population and employment growth by the build year. Within Mercer County, the table recommends rates of 3.00% for urban principal arterial roadways and 1.00% for local roadways. A growth rate of 3.00% was utilized to provide a conservative analysis.

Adjacent Development

The following development is planned in the vicinity of the project site and has been determined to impact the study area of this report.

- **Autumn at Robbinsville** – Block 1, Lot 65.02 – The site is located along South Commerce Square, south of the Freedom Village residential development. It is planned to develop the site with 250 senior adult multifamily housing units. The site generated trips were included in accordance with the Traffic Impact Study, prepared by Colliers Engineering & Design, dated October 29, 2025. A Volume Flow Diagram illustrating the site generated trips of the adjacent development is enclosed as **Figure 6** in **Appendix A**.

2028 No-Build Condition

The 2028 No-Build traffic volumes were forecasted by applying the background growth rate to the existing traffic volumes before adding the site generated trips of the adjacent development. A Volume Flow Diagram illustrating the 2028 No-Build Condition is provided as **Figure 7** in **Appendix A**.

2028 Build Condition

The 2028 Build traffic volumes were forecasted by adding the site generated traffic to the 2028 No-Build traffic volumes within the roadway network. A Volume Flow Diagram illustrating the 2028 Build Condition is provided as **Figure 8** in **Appendix A**.

HCM Capacity Analysis

The peak hour traffic operations within the project vicinity were evaluated at the study intersections. The analyses were performed using the latest version of *Synchro Trafficware*, a traffic analysis and simulation program. The results of these analyses provide Levels of Service ("LOS"), volume/capacity descriptions, and average seconds of delay for the intersection movements.

The efficiency with which an intersection operates is a function of volume and capacity. The capacity of an intersection is the volume of vehicles it can accommodate during a given time period. LOS is a qualitative measure describing operational conditions within a traffic stream in terms of traffic characteristics, such as freedom to maneuver, traffic interruption, comfort, and convenience. Six (6) LOS are defined for each type of facility with analysis procedures available. Levels of Service range from "A" through "F," with Level "A" representing excellent conditions with no delays, and failure and deficient operations denoted by Level "F." The HCM LOS criteria for unsignalized intersections are summarized in **Table 3**.

Table 3 – HCM LOS/Delay Criteria

Level of Service	Average Control Delay (sec/veh)
	Unsignalized Intersections
A	≤ 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

The Levels of Service for the 2028 No-Build and 2028 Build Conditions are detailed in **Table 4**. The capacity analysis calculation worksheets are provided in **Appendix D**.

Table 4 – Level of Service Summary

Intersection	Movement		2028 No-Build						2028 Build					
			AM Peak		PM Peak		SAT Peak		AM Peak		PM Peak		SAT Peak	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Route 33 (EB/WB) & South Commerce Square (NB)/North Commerce Square (SB)	EB	L	A	9.9	A	9.5	A	9.4	A	9.9	A	9.5	A	9.4
	WB	L	A	9.7	B	10.7	A	9.9	A	9.9	B	11.1	B	10.1
	NB	R	C	17.1	C	21.5	C	16.8	C	18.4	C	24.1	C	18.1
	SB	R	C	16.1	C	15.4	B	14.3	C	16.2	C	15.5	B	14.4
Route 33 (EB/WB) & Town Center Driveway (SB)	EB	L	A	9.7	A	9.5	A	9.2	A	9.8	A	9.5	A	9.2
	SB	R	C	15.9	C	15.1	B	13.8	C	15.9	C	15.2	B	13.8
Route 33 (EB/WB) & Site Driveway (NB)	WB	L	-	-	-	-	-	-	A	9.5	B	10.9	A	10.0
	NB	LR	-	-	-	-	-	-	C	19.8	C	24.7	C	20.4
South Commerce Square (NB/SB) & Site Driveway (EB)	EB	LR	-	-	-	-	-	-	A	9.3	A	9.7	A	9.4
	NB	L	-	-	-	-	-	-	A	7.4	A	7.5	A	7.4

Route 33 & Commerce Square

2028 No-Build Analysis

Under the No-Build condition, all intersection movements will operate at Levels of Service "C" or better during all peak hours studied.

2028 Build Analysis

Under the Build condition, all intersection movements will continue to operate at or near No-Build Levels of Service during all peak hours studied.

Route 33 & Town Center Driveway

2028 No-Build Analysis

Under the No-Build condition, all intersection movements will operate at Levels of Service "C" or better during all peak hours studied.

2028 Build Analysis

Under the Build condition, all intersection movements will continue to operate at or near No-Build Levels of Service during all peak hours studied.

Route 33 & Site Driveway

2028 Build Analysis

Under the Build condition, all intersection movements will operate at Levels of Service "C" or better during all peak hours studied. The calculated 95th percentile queue lengths of approximately one (1) vehicle or less can be accommodated within the layout of the site.

South Commerce Square & Site Driveway

2028 Build Analysis

Under the Build condition, the eastbound movements will operate at a Level of Service "A" during all peak hours studied. The calculated 95th percentile queue lengths of approximately one (1) vehicle or less can be accommodated within the layout of the site.

Site Access and Parking Assessment

Site Access

Access to the site is proposed via one (1) full-movement driveway along Route 33 and one (1) full-movement driveway along Commerce Square. The proposed site plan will provide 24-foot-wide drive aisles for two-way traffic circulation. The layout of site provides sufficient circulation for the anticipated design vehicles to efficiently maneuver through the site.

Parking Assessment

The Town Center South Redevelopment Area chapter 9.3.1.B states that the New Jersey Residential Site Improvement Standards (RSIS) and the most recent edition of the ITE publication, *Parking Generation Manual*, will govern the parking requirements. It is noted that Section 5:21-4.14(c)1 of the RSIS states that "Reviewers may allow fewer parking spaces, when warranted. Factors that may affect parking include the following: household characteristics; access to mass transit; geographic location; and offsite parking resources." Section 5:21-4.14(e) states that "When housing is included in mixed-use development, a shared parking approach to the provision of parking shall be permitted." Per RSIS standards, 57 parking spaces would be required for the proposed 28 residential units. Per ITE data, the 28 residential units would generate a parking demand of 33 spaces. Given the project site's location within a Town Center and the provisions set forth in the RSIS for site-specific adjustments, it is our opinion that the estimated residential parking demand of 33 spaces is more accurate for the Project. For the proposed 12,943 SF of commercial space, the estimated parking demand is 79 spaces. In total, the proposed parking supply of 117 spaces will exceed the estimated demand of 112 spaces. **Table 5** details the off-street parking requirements, with a comparison of the RSIS and ITE parking demand estimates for the residential units.

Table 5 – Off-Street Parking Requirements

Land Use	Size	ITE Estimate		Proposed Parking Supply
Residential (RSIS) – Garden Apartment	3 units	0.68 spaces per 1-bedroom unit (LUC 218)	2 spaces	**117 spaces**
	20 units	1.23 spaces per 2 & 2+ bedroom units (LUC 221)	31 spaces	
	5 units			
LUC 822 – Strip Retail Plaza (< 40k)	6,167 SF	2.79 spaces per 1,000 SF of GFA	18 spaces	
LUC 932 – High-Turnover (Sit-Down) Restaurant	6,776 SF	8.97 spaces per 1,000 SF of GFA	61 spaces	
Total		**112 spaces**		

While a strict application of industry standards implies a higher parking requirement, the actual peak demand for this development is projected to be significantly lower due to its mixed-use nature and location within the Washington Town Center. The proposed parking supply of 117 spaces is expected to be sufficient when accounting for two (2) key transportation efficiencies inherent to this environment: Shared Parking dynamics and Internal Trip Capture.

Shared Parking: The integration of residential and commercial uses on the same site creates complementary parking patterns where peak demands typically do not coincide. Residential parking demand generally peaks overnight, a time when the proposed retail and restaurant components are closed or operating at reduced capacity. Conversely, the commercial peak demand occurs during the daytime and evening hours, periods when many residents have commuted off-site for work or other activities. This temporal distribution allows individual parking spaces to serve multiple uses effectively throughout the day, maximizing efficiency and reducing the total inventory required compared to single-use developments.

Internal Trip Capture & Walkability: As a core component of the Town Center South Redevelopment Area, the site benefits from a walkable, interconnected environment that naturally reduces vehicular dependency. A portion of the patrons visiting the restaurant and retail establishments are expected to be 'captured' trips, which are visitors arriving on foot from the on-site residential units, adjacent housing, or neighboring commercial businesses. These patrons are already parked within the Town Center ecosystem or have walked from home, eliminating the need for a dedicated parking spot for that specific trip. Fostering this reduction in vehicular trips is a fundamental goal of Town Center planning, allowing for more efficient land use and reduced impervious coverage.

Further, the portion of the Town Center, north of Route 33, between Park Street and Robbinsville Edinburg Road (CR 526), contains 65,301 SF of commercial space and 222 non-residential parking spaces. This equates to a ratio of 3.40 parking spaces per 1,000 SF of commercial space. Assuming 57 parking spaces for the residential units, per RSIS, the project site proposes 60 parking spaces for 12,943 SF of commercial space. This equates to a ratio of 4.64 parking spaces per 1,000 SF of commercial space, which is approximately 36% greater than what is provided in the existing Town Center.

Summary and Conclusions

The Traffic Impact Study evaluated the proposed development within the Township of Robbinsville, Mercer County, New Jersey. The findings of the Traffic Impact Study are summarized as follows:

1. The site is currently developed with an abandoned office building. The Applicant proposes to raze the site and construct a four-story building consisting of 12,943 SF of commercial space and 28 multifamily residential units.

2. Access to the site is proposed via one (1) full-movement driveway along Route 33 and one (1) full-movement driveway along South Commerce Square.

3. Under the Build condition, all movements at the intersection of Route 33 & Commerce Square will continue to operate at or near No-Build Levels of Service.

4. Under the Build condition, all movements at the intersection of Route 33 & Town Center Driveway will continue to operate at or near No-Build Levels of Service.

5. Under the Build condition, all movements at the intersection of Route 33 & Site Driveway will operate at a Level of Service "C" or better during all peak hours studied. The calculated 95th percentile queue lengths of approximately one (1) vehicle or less can be accommodated within the layout of the site.

6. Under the Build condition, all movements at the proposed Site Driveway & South Commerce Square will operate at a Level of Service "A" during all peak hours studied. The calculated 95th percentile queue lengths of approximately one (1) vehicle or less can be accommodated within the layout of the site.

7. The proposed parking supply of 117 spaces will be sufficient based on the projected parking demand and will exceed existing parking supply of adjacent developments.

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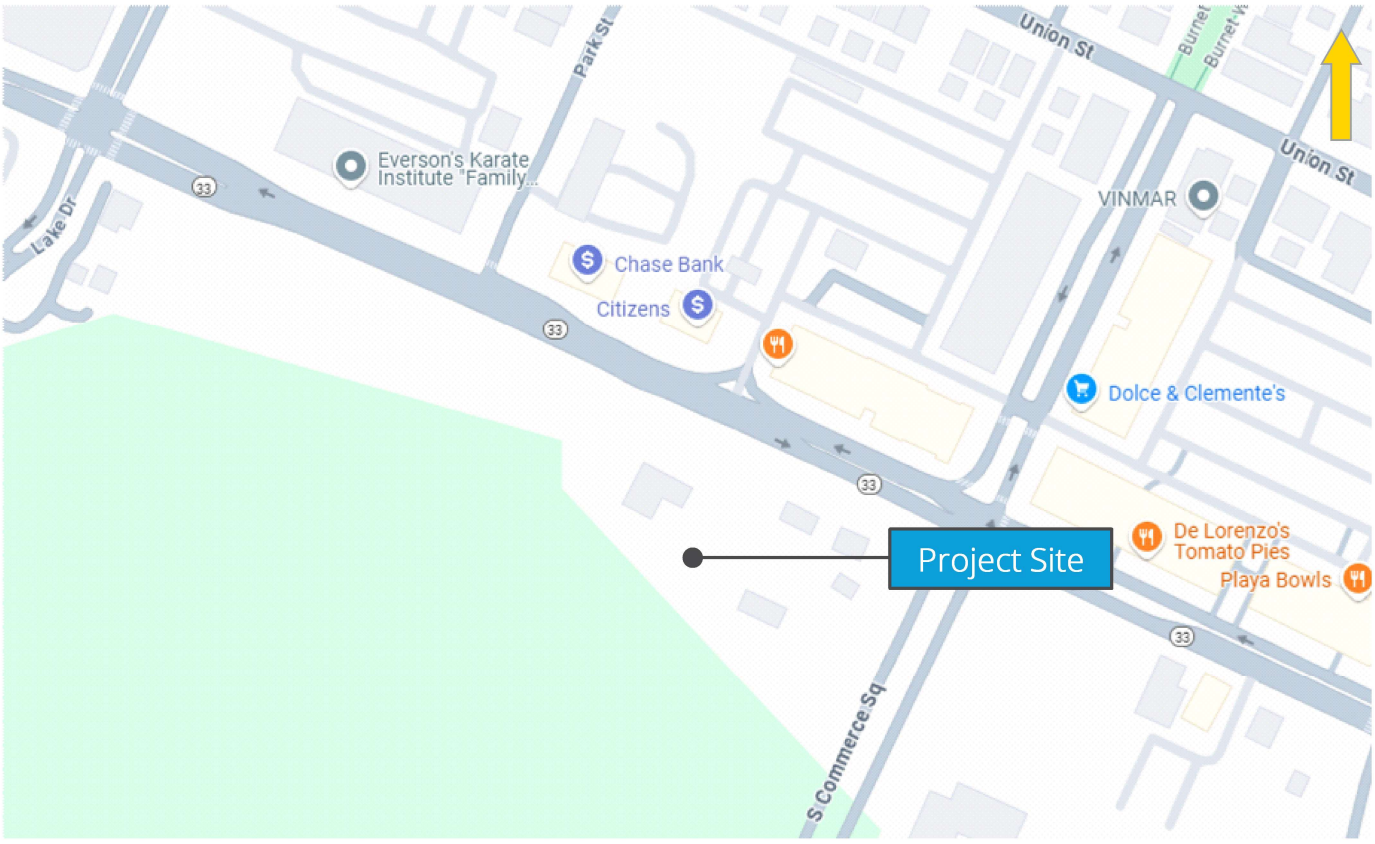
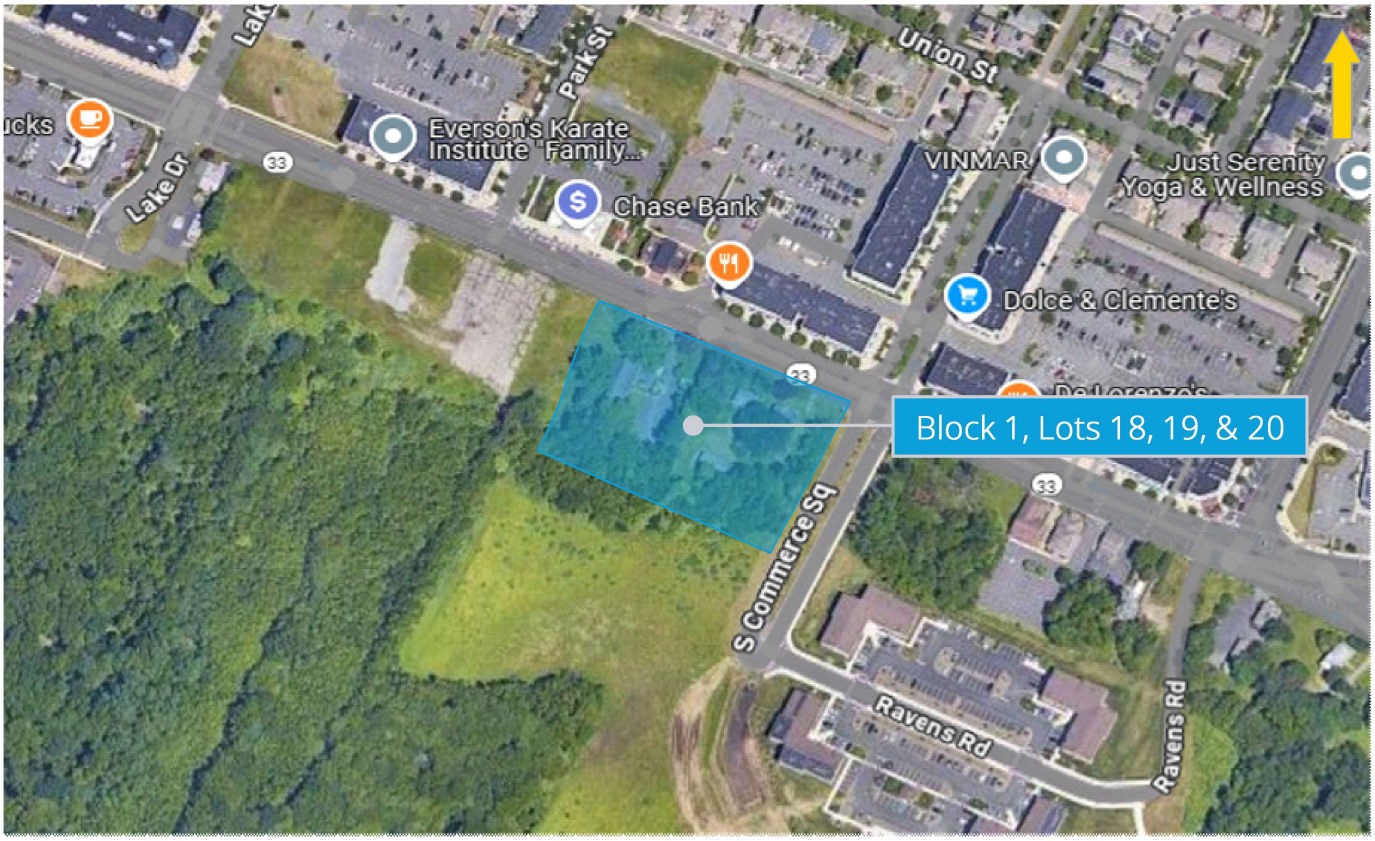
Colliers Engineering & Design

Traffic Impact Study

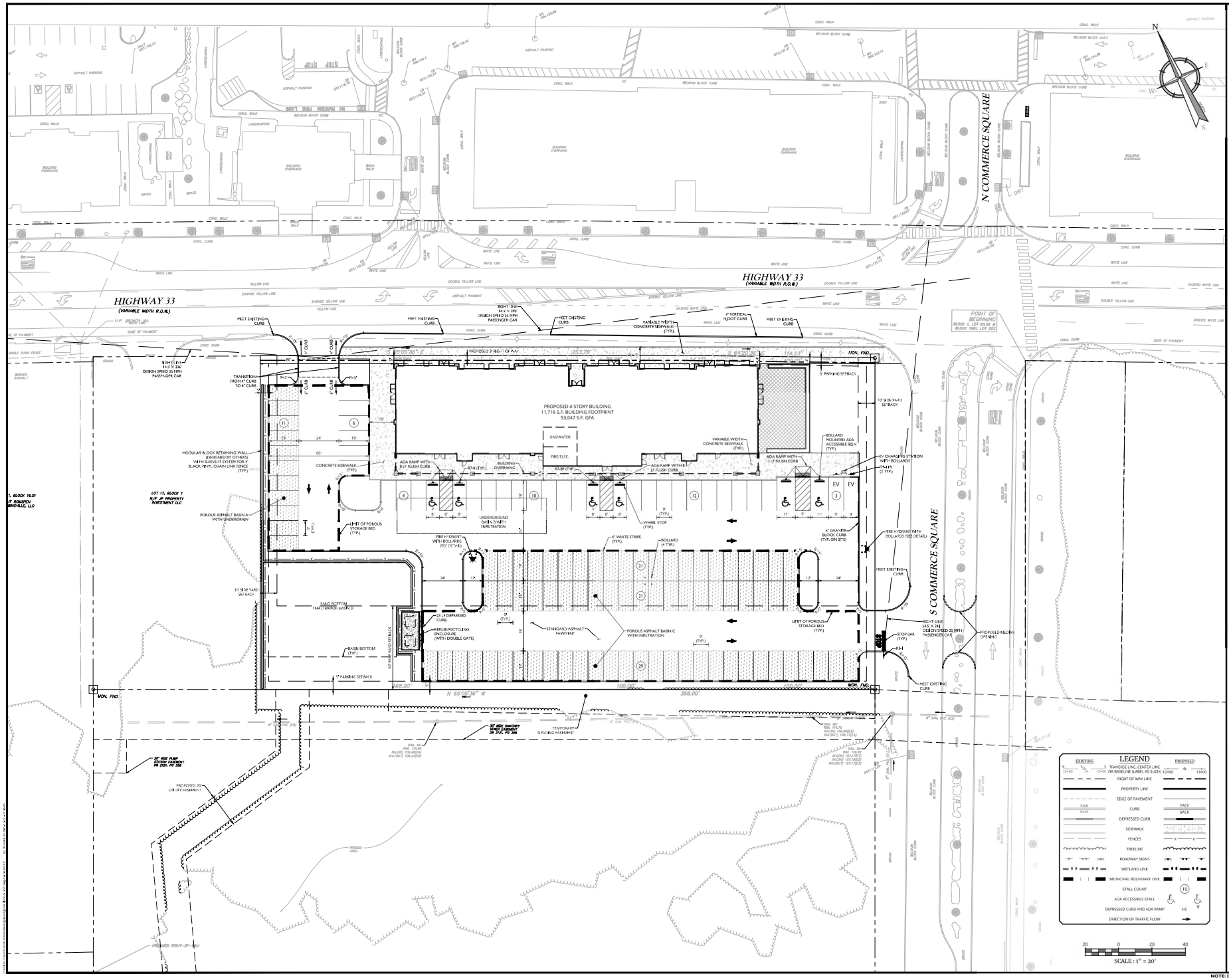
Appendix A | Traffic Figures





Colliers Engineering & Design	Robbinsville Heights	**Figure 1**
	Project No. 24002939A	
	Township of Robbinsville, Mercer County, New Jersey	**Site Location Map**

FIGURE 2



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PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER GE-55561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. # 24GA27880300

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COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MAIER CONSULTING

SCALE:	AS SHOWN
DRAWN BY:	RM
DESIGNED BY:	SLD
REVIEWED BY:	MKB
DATE ISSUED:	12/22/25
PROJECT NUMBER:	24002939A

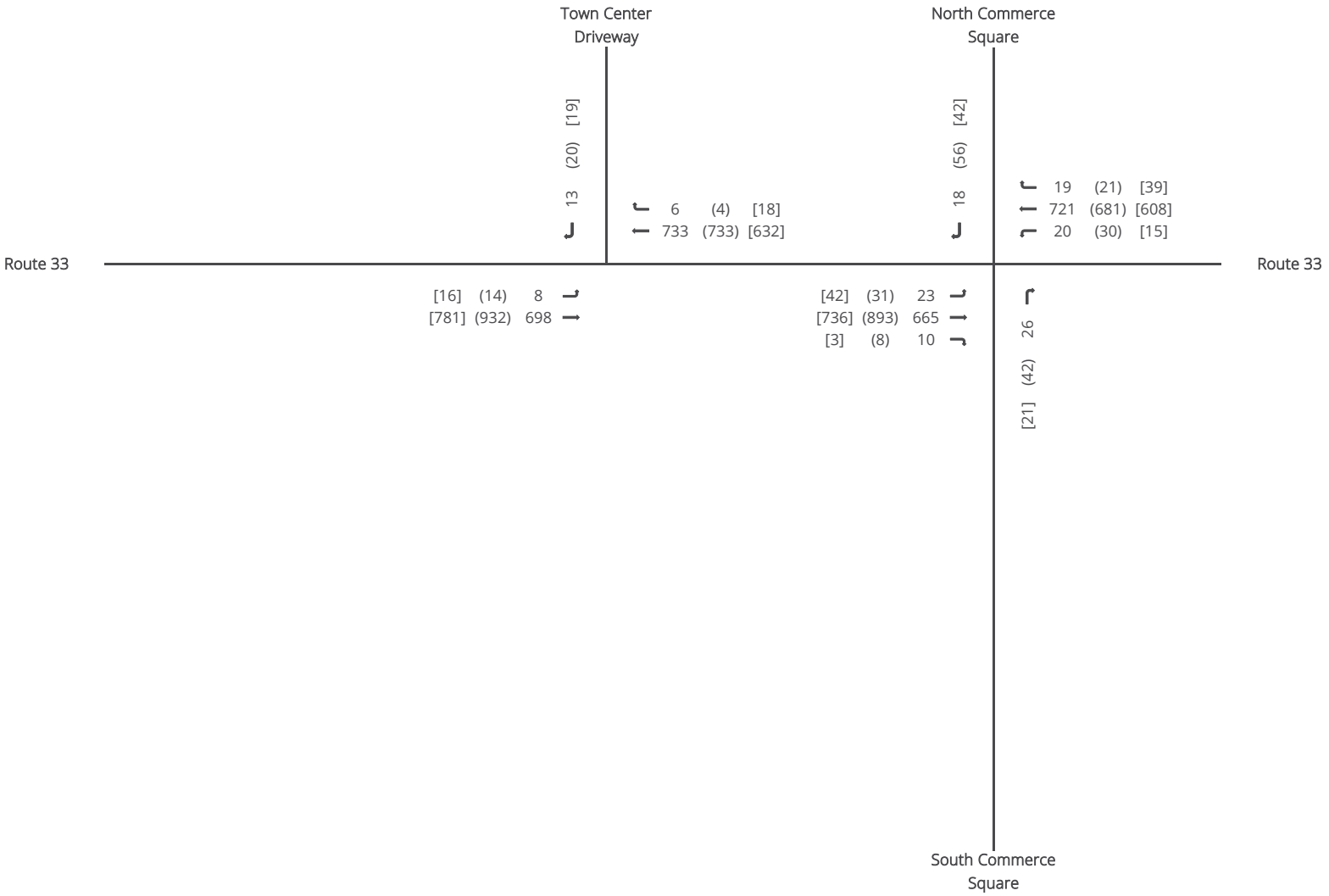
SHEET NAME:

DIMENSION PLAN

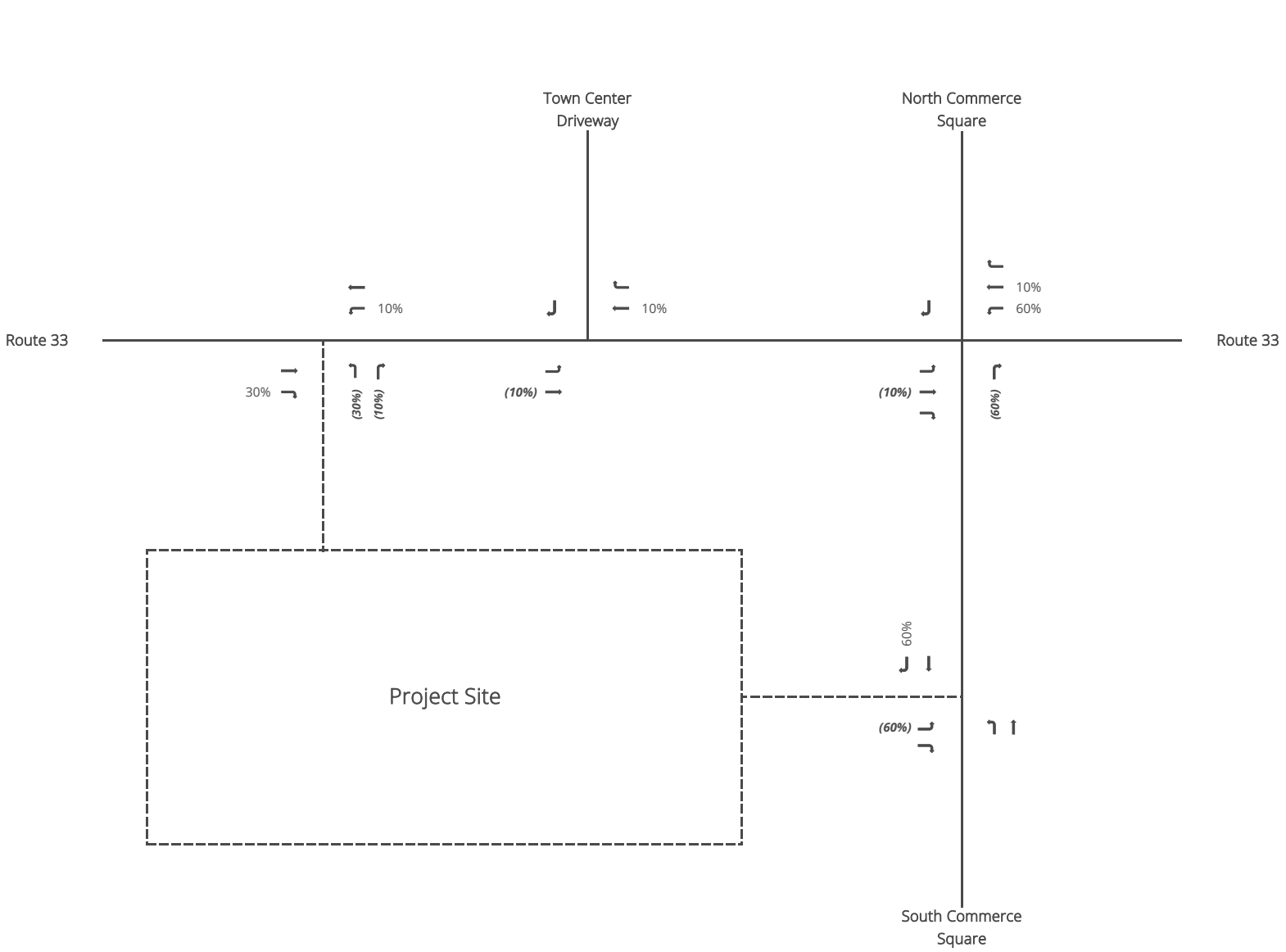
DRAWING NUMBER:

3.0

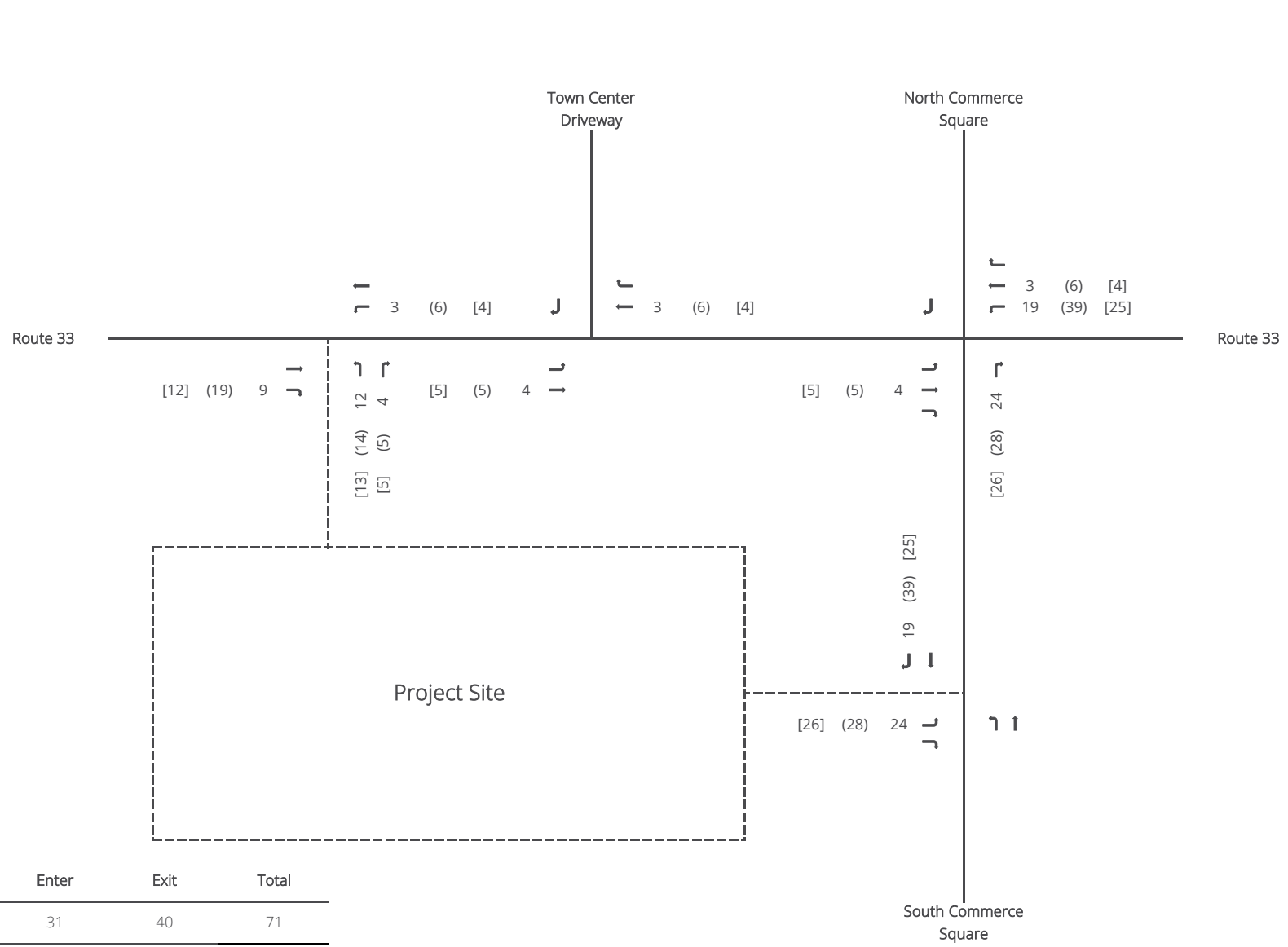
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



Colliers Engineering & Design	Robbinsville Heights Project No. 24002939A Township of Robbinsville, Mercer County, New Jersey	Legend AM Peak Hour: ### Through Movement: PM Peak Hour: (###) Turning Movement: SAT Peak Hour: [###] Signalized Intersection:	**Figure 3** **Existing Condition** **AM, PM, & SAT Peak Hours**



Colliers Engineering & Design	Robbinsville Heights Project No. 24002939A Township of Robbinsville, Mercer County, New Jersey	Legend Entering: ##% Through Movement: Exiting: *(##%)* Turning Movement: Signalized Intersection:	**Figure 4** **Trip Distribution** **AM, PM, & SAT Peak Hours**



Peak Hour	Enter	Exit	Total
AM	31	40	71
PM	64	47	111
SAT	41	44	85

Colliers Engineering & Design

Robbinsville Heights

Project No. 24002939A

Township of Robbinsville, Mercer County, New Jersey

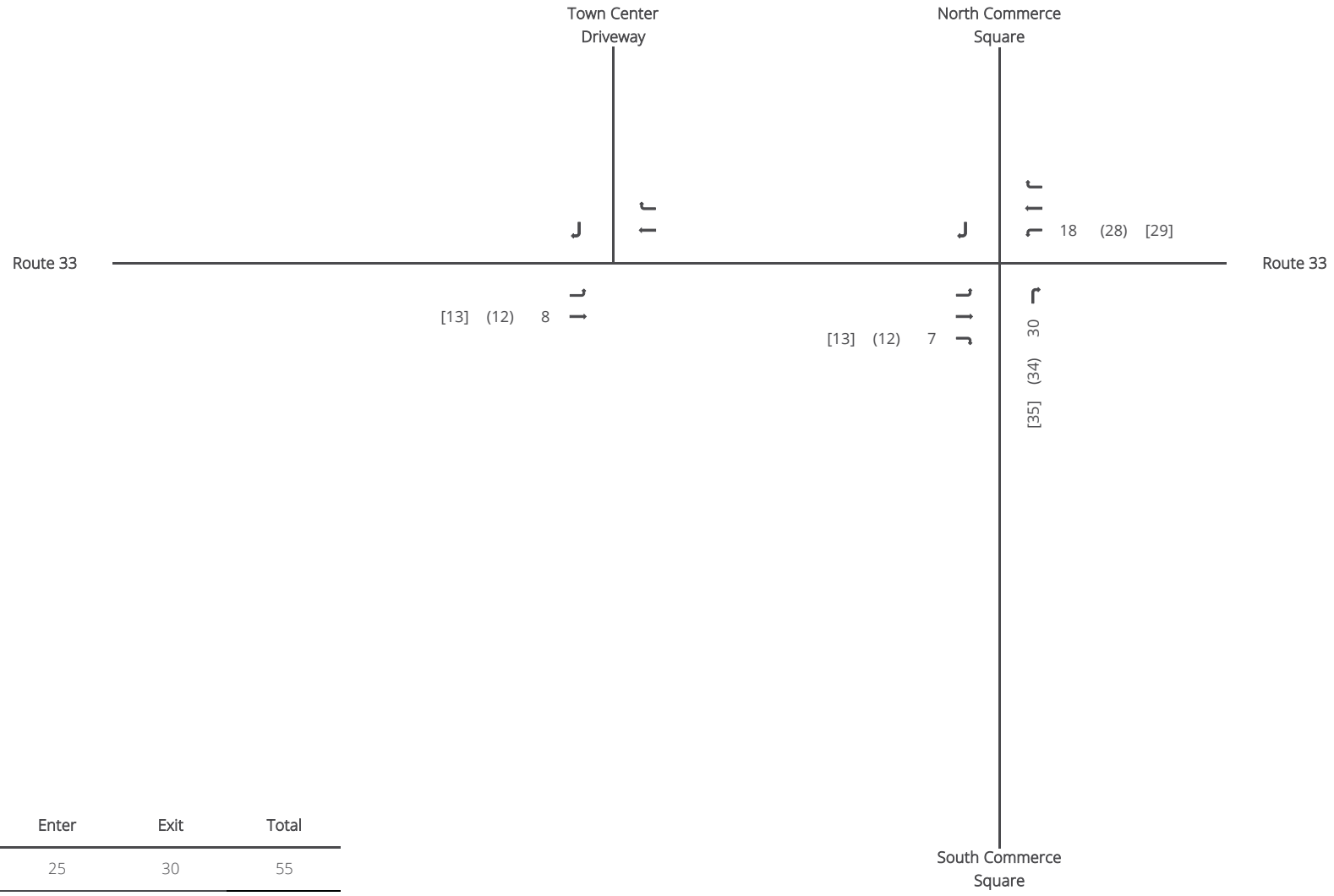
Legend

AM Peak Hour: ###
PM Peak Hour: (###)
SAT Peak Hour: [###]
Through Movement:
Turning Movement:
Signalized Intersection:

Figure 5

Site Generated Trips

AM, PM, & SAT Peak Hours



Peak Hour	Enter	Exit	Total
AM	25	30	55
PM	40	34	74
SAT	42	35	77

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Robbinsville Heights

Project No. 24002939A

Township of Robbinsville, Mercer County, New Jersey

Legend

AM Peak Hour: ### Through Movement:

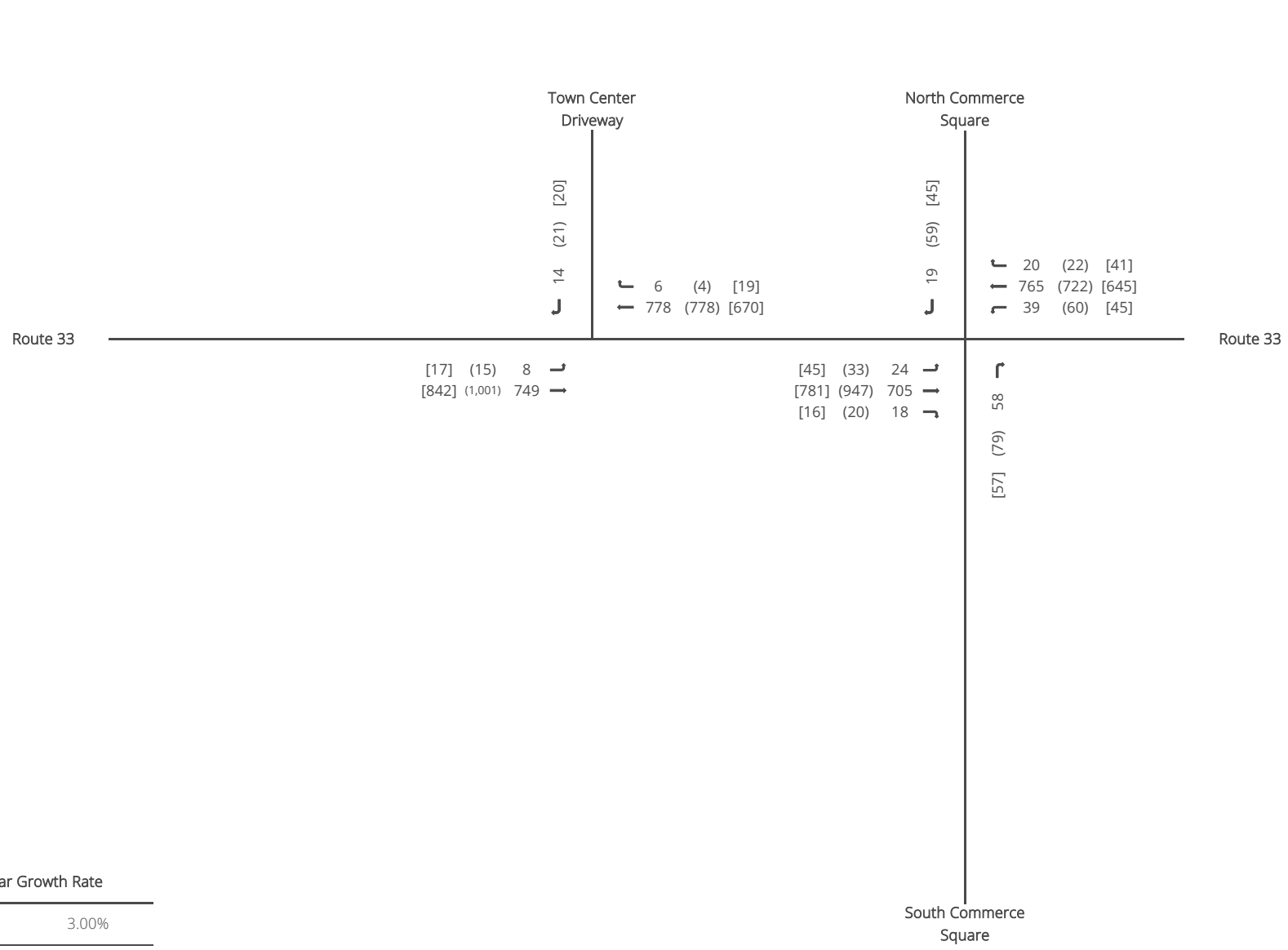
PM Peak Hour: (###) Turning Movement:

SAT Peak Hour: [###] Signalized Intersection:

Figure 6

Adjacent Development Trips

AM, PM, & SAT Peak Hours



Build-Year Growth Rate	
Growth Rate:	3.00%
Years:	2
Growth Factor:	1.061

Colliers Engineering & Design

Robbinsville Heights

Project No. 24002939A

Township of Robbinsville, Mercer County, New Jersey

Legend

AM Peak Hour: ### Through Movement:

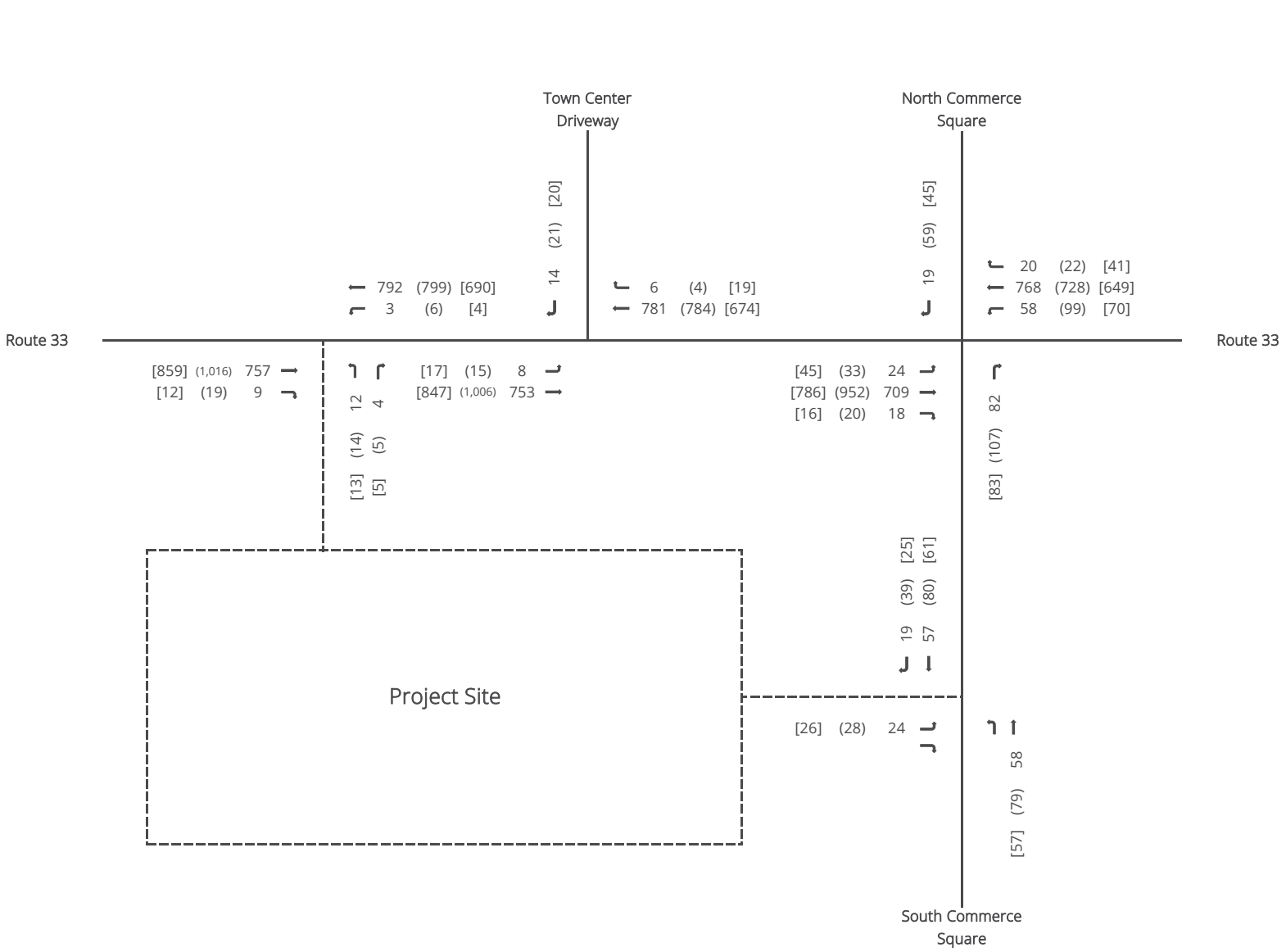
PM Peak Hour: (###) Turning Movement:

SAT Peak Hour: [###] Signalized Intersection:

Figure 7

2028 No-Build Condition

AM, PM, & SAT Peak Hours



Colliers Engineering & Design	Robbinsville Heights Project No. 24002939A Township of Robbinsville, Mercer County, New Jersey	Legend AM Peak Hour: ### Through Movement: PM Peak Hour: (###) Turning Movement: SAT Peak Hour: [###] Signalized Intersection:	**Figure 8** **2028 Build Condition** **AM, PM, & SAT Peak Hours**

Colliers Engineering & Design

Traffic Impact Study

Appendix B | Traffic Count Data

1. Route 33 & Town Center Driveway - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Tue Jun 10, 2025
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1309217, Location: 40.218755, -74.629048, Site Code: 1

Leg	Town Center Driveway					Route 33					Route 33					
Direction	Southbound					Eastbound					Westbound					
Time	L	R	U	**App**	Ped*	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	**Int**
2025-06-10 7:00AM	0	1	0	**1**	1	0	152	0	**152**	0	106	1	0	**107**	0	**260**
7:15AM	0	2	0	**2**	0	2	157	0	**159**	0	127	2	0	**129**	0	**290**
7:30AM	0	3	0	**3**	0	6	140	0	**146**	0	174	1	1	**176**	0	**325**
7:45AM	0	1	0	**1**	0	1	208	0	**209**	0	200	0	0	**200**	0	**410**
Hourly Total	0	7	0	**7**	1	9	657	0	**666**	0	607	4	1	**612**	0	**1285**
8:00AM	0	2	0	**2**	0	2	182	0	**184**	0	178	2	0	**180**	0	**366**
8:15AM	0	5	0	**5**	0	1	151	0	**152**	0	181	2	0	**183**	0	**340**
8:30AM	0	5	0	**5**	0	4	157	0	**161**	0	169	2	0	**171**	0	**337**
8:45AM	0	1	0	**1**	0	5	161	0	**166**	0	173	5	0	**178**	0	**345**
Hourly Total	0	13	0	**13**	0	12	651	0	**663**	0	701	11	0	**712**	0	**1388**
4:00PM	0	5	0	**5**	1	5	233	0	**238**	0	165	0	0	**165**	0	**408**
4:15PM	0	5	0	**5**	1	1	215	0	**216**	0	191	1	0	**192**	0	**413**
4:30PM	0	7	0	**7**	0	5	242	0	**247**	0	173	2	0	**175**	0	**429**
4:45PM	1	2	0	**3**	2	4	227	0	**231**	0	183	1	0	**184**	0	**418**
Hourly Total	1	19	0	**20**	4	15	917	0	**932**	0	712	4	0	**716**	0	**1668**
5:00PM	0	5	0	**5**	3	4	248	0	**252**	0	184	0	0	**184**	0	**441**
5:15PM	0	3	0	**3**	4	3	224	0	**227**	0	183	2	0	**185**	0	**415**
5:30PM	0	5	0	**5**	0	6	233	0	**239**	0	179	3	0	**182**	0	**426**
5:45PM	0	6	0	**6**	0	5	173	0	**178**	0	168	1	0	**169**	0	**353**
Hourly Total	0	19	0	**19**	7	18	878	0	**896**	0	714	6	0	**720**	0	**1635**
Total	1	58	0	**59**	12	54	3103	0	**3157**	0	2734	25	1	**2760**	0	**5976**
% Approach	1.7%	98.3%	0%	**-**	-	1.7%	98.3%	0%	**-**	-	99.1%	0.9%	0%	**-**	-	-
% Total	0%	1.0%	0%	**1.0%**	-	0.9%	51.9%	0%	**52.8%**	-	45.7%	0.4%	0%	**46.2%**	-	-
Lights	1	58	0	**59**	-	53	3037	0	**3090**	-	2693	25	1	**2719**	-	5868
% Lights	100%	100%	0%	**100%**	-	98.1%	97.9%	0%	**97.9%**	-	98.5%	100%	100%	**98.5%**	-	98.2%
Articulated Trucks	0	0	0	**0**	-	0	14	0	**14**	-	6	0	0	**6**	-	20
% Articulated Trucks	0%	0%	0%	**0%**	-	0%	0.5%	0%	**0.4%**	-	0.2%	0%	0%	**0.2%**	-	0.3%
Buses and Single-Unit Trucks	0	0	0	**0**	-	1	52	0	**53**	-	35	0	0	**35**	-	88
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	-	1.9%	1.7%	0%	**1.7%**	-	1.3%	0%	0%	**1.3%**	-	1.5%
Pedestrians	-	-	-	-	11	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	91.7%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	8.3%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Route 33 & Town Center Driveway - TMC

Tue Jun 10, 2025
AM Peak (7:45 AM - 8:45 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1309217, Location: 40.218755, -74.629048, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Leg	Town Center Driveway					Route 33					Route 33					
Direction	Southbound					Eastbound					Westbound					
Time	L	R	U	**App**	Ped*	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	**Int**
2025-06-10 7:45AM	0	1	0	**1**	0	1	208	0	**209**	0	200	0	0	**200**	0	**410**
8:00AM	0	2	0	**2**	0	2	182	0	**184**	0	178	2	0	**180**	0	**366**
8:15AM	0	5	0	**5**	0	1	151	0	**152**	0	181	2	0	**183**	0	**340**
8:30AM	0	5	0	**5**	0	4	157	0	**161**	0	169	2	0	**171**	0	**337**
Total	0	13	0	**13**	0	8	698	0	**706**	0	728	6	0	**734**	0	**1453**
% Approach	0%	100%	0%	**-**	-	1.1%	98.9%	0%	**-**	-	99.2%	0.8%	0%	**-**	-	-
% Total	0%	0.9%	0%	**0.9%**	-	0.6%	48.0%	0%	**48.6%**	-	50.1%	0.4%	0%	**50.5%**	-	-
PHF	-	0.650	-	**0.650**	-	0.500	0.839	-	**0.844**	-	0.910	0.750	-	**0.918**	-	0.886
Lights	0	13	0	**13**	-	8	669	0	**677**	-	713	6	0	**719**	-	1409
% Lights	0%	100%	0%	**100%**	-	100%	95.8%	0%	**95.9%**	-	97.9%	100%	0%	**98.0%**	-	97.0%
Articulated Trucks	0	0	0	**0**	-	0	5	0	**5**	-	1	0	0	**1**	-	6
% Articulated Trucks	0%	0%	0%	**0%**	-	0%	0.7%	0%	**0.7%**	-	0.1%	0%	0%	**0.1%**	-	0.4%
Buses and Single-Unit Trucks	0	0	0	**0**	-	0	24	0	**24**	-	14	0	0	**14**	-	38
% Buses and Single-Unit Trucks	0%	0%	0%	**0%**	-	0%	3.4%	0%	**3.4%**	-	1.9%	0%	0%	**1.9%**	-	2.6%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Route 33 & Town Center Driveway - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Tue Jun 10, 2025
Forced Peak (4:15 PM - 5:15 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1309217, Location: 40.218755, -74.629048, Site Code: 1

Leg	Route 33					Route 33					Town Center Driveway					
Direction	Eastbound					Westbound					Southbound					
Time	L	T	U	**App**	Ped*	T	R	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2025-06-10 4:15PM	1	215	0	**216**	0	191	1	0	**192**	0	0	5	0	**5**	1	**413**
4:30PM	5	242	0	**247**	0	173	2	0	**175**	0	0	7	0	**7**	0	**429**
4:45PM	4	227	0	**231**	0	183	1	0	**184**	0	1	2	0	**3**	2	**418**
5:00PM	4	248	0	**252**	0	184	0	0	**184**	0	0	5	0	**5**	3	**441**
Total	14	932	0	**946**	0	731	4	0	**735**	0	1	19	0	**20**	6	**1701**
% Approach	1.5%	98.5%	0%	**-**	-	99.5%	0.5%	0%	**-**	-	5.0%	95.0%	0%	**-**	-	-
% Total	0.8%	54.8%	0%	**55.6%**	-	43.0%	0.2%	0%	**43.2%**	-	0.1%	1.1%	0%	**1.2%**	-	-
PHF	0.700	0.940	-	**0.938**	-	0.957	0.500	-	**0.957**	-	0.250	0.679	-	**0.714**	-	0.964
Lights	14	925	0	**939**	-	726	4	0	**730**	-	1	19	0	**20**	-	1689
% Lights	100%	99.2%	0%	**99.3%**	-	99.3%	100%	0%	**99.3%**	-	100%	100%	0%	**100%**	-	99.3%
Articulated Trucks	0	2	0	**2**	-	0	0	0	**0**	-	0	0	0	**0**	-	2
% Articulated Trucks	0%	0.2%	0%	**0.2%**	-	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	0.1%
Buses and Single-Unit Trucks	0	5	0	**5**	-	5	0	0	**5**	-	0	0	0	**0**	-	10
% Buses and Single-Unit Trucks	0%	0.5%	0%	**0.5%**	-	0.7%	0%	0%	**0.7%**	-	0%	0%	0%	**0%**	-	0.6%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	6	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

2. Route 33 & Commerce Square - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Tue Jun 10, 2025
Full Length (7 AM-9 AM, 4 PM-6 PM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1309220, Location: 40.218309, -74.62802, Site Code: 2

Leg	South Commerce Square						Town Center Driveway						Route 33						Route 33						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2025-06-10 7:00AM	0	0	4	0	**4**	2	1	0	4	0	**5**	0	4	147	0	0	**151**	0	2	103	1	0	**106**	0	**266**
7:15AM	0	0	9	0	**9**	0	0	0	6	0	**6**	0	2	152	3	0	**157**	0	4	122	4	0	**130**	0	**302**
7:30AM	0	0	9	0	**9**	0	0	0	7	0	**7**	0	3	139	0	0	**142**	0	7	168	5	0	**180**	0	**338**
7:45AM	0	0	7	0	**7**	0	0	0	5	0	**5**	1	10	194	4	0	**208**	0	5	199	2	0	**206**	0	**426**
Hourly Total	0	0	29	0	**29**	2	1	0	22	0	**23**	1	19	632	7	0	**658**	0	18	592	12	0	**622**	0	**1332**
8:00AM	0	0	5	0	**5**	0	0	0	3	0	**3**	0	4	175	1	0	**180**	0	3	176	9	0	**188**	0	**376**
8:15AM	0	0	3	0	**3**	0	0	0	4	0	**4**	0	1	144	3	0	**148**	0	4	182	8	0	**194**	0	**349**
8:30AM	0	1	10	0	**11**	0	0	0	6	0	**6**	0	8	146	2	0	**156**	0	8	164	0	0	**172**	0	**345**
8:45AM	1	2	12	0	**15**	0	0	0	12	0	**12**	0	2	152	1	0	**155**	0	9	168	5	0	**182**	0	**364**
Hourly Total	1	3	30	0	**34**	0	0	0	25	0	**25**	0	15	617	7	0	**639**	0	24	690	22	0	**736**	0	**1434**
4:00PM	0	1	10	0	**11**	0	0	0	10	0	**10**	1	14	213	6	0	**233**	0	8	157	9	0	**174**	1	**428**
4:15PM	0	0	13	0	**13**	0	0	1	12	0	**13**	3	5	208	2	0	**215**	0	8	177	7	1	**193**	2	**434**
4:30PM	0	1	10	0	**11**	0	6	0	9	0	**15**	0	9	237	2	0	**248**	0	5	166	7	0	**178**	0	**452**
4:45PM	0	0	10	0	**10**	0	0	0	10	0	**10**	0	10	220	1	0	**231**	0	10	177	3	0	**190**	0	**441**
Hourly Total	0	2	43	0	**45**	0	6	1	41	0	**48**	4	38	878	11	0	**927**	0	31	677	26	1	**735**	3	**1755**
5:00PM	1	0	7	0	**8**	0	0	0	18	0	**18**	2	7	226	3	0	**236**	1	6	161	4	0	**171**	0	**433**
5:15PM	0	0	4	0	**4**	0	1	0	11	0	**12**	0	8	214	5	0	**227**	0	10	167	8	0	**185**	0	**428**
5:30PM	0	1	11	0	**12**	0	0	0	11	0	**11**	2	10	221	4	0	**235**	0	2	171	5	0	**178**	0	**436**
5:45PM	0	1	7	0	**8**	0	0	0	8	0	**8**	1	5	167	2	0	**174**	0	6	157	3	0	**166**	0	**356**
Hourly Total	1	2	29	0	**32**	0	1	0	48	0	**49**	5	30	828	14	0	**872**	1	24	656	20	0	**700**	0	**1653**
Total	2	7	131	0	**140**	2	8	1	136	0	**145**	10	102	2955	39	0	**3096**	1	97	2615	80	1	**2793**	3	**6174**
% Approach	1.4%	5.0%	93.6%	0%	**-**	-	5.5%	0.7%	93.8%	0%	**-**	-	3.3%	95.4%	1.3%	0%	**-**	-	3.5%	93.6%	2.9%	0%	**-**	-	-
% Total	0%	0.1%	2.1%	0%	**2.3%**	-	0.1%	0%	2.2%	0%	**2.3%**	-	1.7%	47.9%	0.6%	0%	**50.1%**	-	1.6%	42.4%	1.3%	0%	**45.2%**	-	-
Lights	2	7	123	0	**132**	-	8	1	136	0	**145**	-	101	2893	35	0	**3029**	-	94	2575	76	1	**2746**	-	6052
% Lights	100%	100%	93.9%	0%	**94.3%**	-	100%	100%	100%	0%	**100%**	-	99.0%	97.9%	89.7%	0%	**97.8%**	-	96.9%	98.5%	95.0%	100%	**98.3%**	-	98.0%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	13	0	0	**13**	-	0	6	2	0	**8**	-	21
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0.4%	0%	0%	**0.4%**	-	0%	0.2%	2.5%	0%	**0.3%**	-	0.3%
Buses and Single-Unit Trucks	0	0	8	0	**8**	-	0	0	0	0	**0**	-	1	49	4	0	**54**	-	3	34	2	0	**39**	-	101
% Buses and Single-Unit Trucks	0%	0%	6.1%	0%	**5.7%**	-	0%	0%	0%	0%	**0%**	-	1.0%	1.7%	10.3%	0%	**1.7%**	-	3.1%	1.3%	2.5%	0%	**1.4%**	-	1.6%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	9	-	-	-	-	-	1	-	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	90.0%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	10.0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

2. Route 33 & Commerce Square - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Tue Jun 10, 2025
AM Peak (7:45 AM - 8:45 AM)
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1309220, Location: 40.218309, -74.62802, Site Code: 2

Leg	South Commerce Square						Town Center Driveway						Route 33						Route 33						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2025-06-10 7:45AM	0	0	7	0	**7**	0	0	0	5	0	**5**	1	10	194	4	0	**208**	0	5	199	2	0	**206**	0	**426**
8:00AM	0	0	5	0	**5**	0	0	0	3	0	**3**	0	4	175	1	0	**180**	0	3	176	9	0	**188**	0	**376**
8:15AM	0	0	3	0	**3**	0	0	0	4	0	**4**	0	1	144	3	0	**148**	0	4	182	8	0	**194**	0	**349**
8:30AM	0	1	10	0	**11**	0	0	0	6	0	**6**	0	8	146	2	0	**156**	0	8	164	0	0	**172**	0	**345**
Total	0	1	25	0	**26**	0	0	0	18	0	**18**	1	23	659	10	0	**692**	0	20	721	19	0	**760**	0	**1496**
% Approach	0%	3.8%	96.2%	0%	**-**	-	0%	0%	100%	0%	**-**	-	3.3%	95.2%	1.4%	0%	**-**	-	2.6%	94.9%	2.5%	0%	**-**	-	-
% Total	0%	0.1%	1.7%	0%	**1.7%**	-	0%	0%	1.2%	0%	**1.2%**	-	1.5%	44.1%	0.7%	0%	**46.3%**	-	1.3%	48.2%	1.3%	0%	**50.8%**	-	-
PHF	-	0.250	0.625	-	**0.591**	-	-	-	0.750	-	**0.750**	-	0.575	0.849	0.625	-	**0.832**	-	0.625	0.906	0.528	-	**0.922**	-	0.878
Lights	0	1	22	0	**23**	-	0	0	18	0	**18**	-	23	632	8	0	**663**	-	20	707	16	0	**743**	-	1447
% Lights	0%	100%	88.0%	0%	**88.5%**	-	0%	0%	100%	0%	**100%**	-	100%	95.9%	80.0%	0%	**95.8%**	-	100%	98.1%	84.2%	0%	**97.8%**	-	96.7%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	4	0	0	**4**	-	0	1	2	0	**3**	-	7
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0.6%	0%	0%	**0.6%**	-	0%	0.1%	10.5%	0%	**0.4%**	-	0.5%
Buses and Single-Unit Trucks	0	0	3	0	**3**	-	0	0	0	0	**0**	-	0	23	2	0	**25**	-	0	13	1	0	**14**	-	42
% Buses and Single-Unit Trucks	0%	0%	12.0%	0%	**11.5%**	-	0%	0%	0%	0%	**0%**	-	0%	3.5%	20.0%	0%	**3.6%**	-	0%	1.8%	5.3%	0%	**1.8%**	-	2.8%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

2. Route 33 & Commerce Square - TMC

Tue Jun 10, 2025
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1309220, Location: 40.218309, -74.62802, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Leg	South Commerce Square						Town Center Driveway						Route 33						Route 33						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2025-06-10 4:15PM	0	0	13	0	**13**	0	0	1	12	0	**13**	3	5	208	2	0	**215**	0	8	177	7	1	**193**	2	**434**
4:30PM	0	1	10	0	**11**	0	6	0	9	0	**15**	0	9	237	2	0	**248**	0	5	166	7	0	**178**	0	**452**
4:45PM	0	0	10	0	**10**	0	0	0	10	0	**10**	0	10	220	1	0	**231**	0	10	177	3	0	**190**	0	**441**
5:00PM	1	0	7	0	**8**	0	0	0	18	0	**18**	2	7	226	3	0	**236**	1	6	161	4	0	**171**	0	**433**
Total	1	1	40	0	**42**	0	6	1	49	0	**56**	5	31	891	8	0	**930**	1	29	681	21	1	**732**	2	**1760**
% Approach	2.4%	2.4%	95.2%	0%	**-**	-	10.7%	1.8%	87.5%	0%	**-**	-	3.3%	95.8%	0.9%	0%	**-**	-	4.0%	93.0%	2.9%	0.1%	**-**	-	-
% Total	0.1%	0.1%	2.3%	0%	**2.4%**	-	0.3%	0.1%	2.8%	0%	**3.2%**	-	1.8%	50.6%	0.5%	0%	**52.8%**	-	1.6%	38.7%	1.2%	0.1%	**41.6%**	-	-
PHF	0.250	0.250	0.769	-	**0.808**	-	0.250	0.250	0.681	-	**0.778**	-	0.775	0.940	0.667	-	**0.938**	-	0.725	0.962	0.750	0.250	**0.948**	-	0.973
Lights	1	1	39	0	**41**	-	6	1	49	0	**56**	-	30	885	8	0	**923**	-	29	676	21	1	**727**	-	1747
% Lights	100%	100%	97.5%	0%	**97.6%**	-	100%	100%	100%	0%	**100%**	-	96.8%	99.3%	100%	0%	**99.2%**	-	100%	99.3%	100%	100%	**99.3%**	-	99.3%
Articulated Trucks	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	2	0	0	**2**	-	0	0	0	0	**0**	-	2
% Articulated Trucks	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	0.2%	0%	0%	**0.2%**	-	0%	0%	0%	0%	**0%**	-	0.1%
Buses and Single-Unit Trucks	0	0	1	0	**1**	-	0	0	0	0	**0**	-	1	4	0	0	**5**	-	0	5	0	0	**5**	-	11
% Buses and Single-Unit Trucks	0%	0%	2.5%	0%	**2.4%**	-	0%	0%	0%	0%	**0%**	-	3.2%	0.4%	0%	0%	**0.5%**	-	0%	0.7%	0%	0%	**0.7%**	-	0.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	80.0%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	20.0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Colliers
Engineering & Design

Traffic Impact Study

Appendix C | Trip Generation Calculations

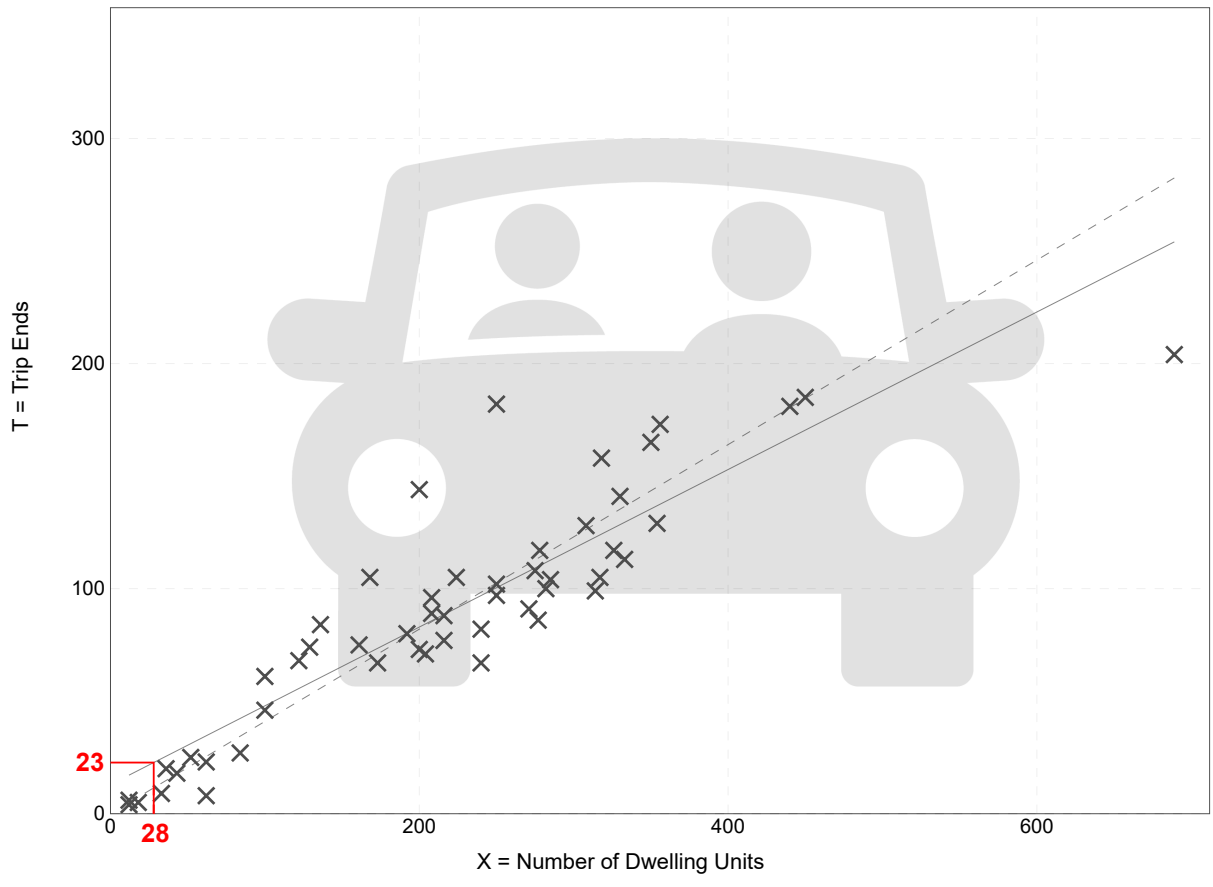
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 51
Avg. Num. of Dwelling Units: 219
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.13 - 0.73	0.10

Data Plot and Equation



Fitted Curve Equation: T = 0.35(X) + 12.93

R^2= 0.81

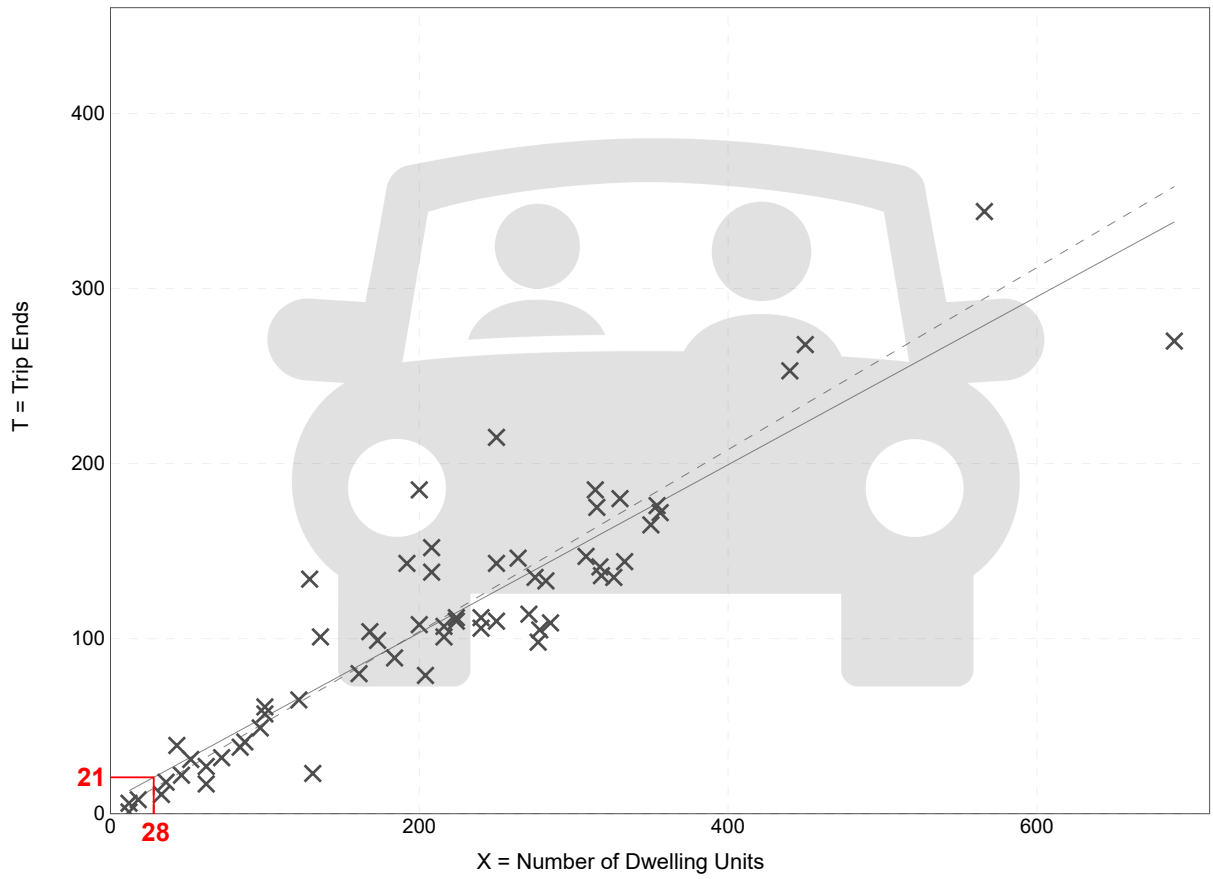
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 61
Avg. Num. of Dwelling Units: 215
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.48(X) + 7.35

R^2= 0.83

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

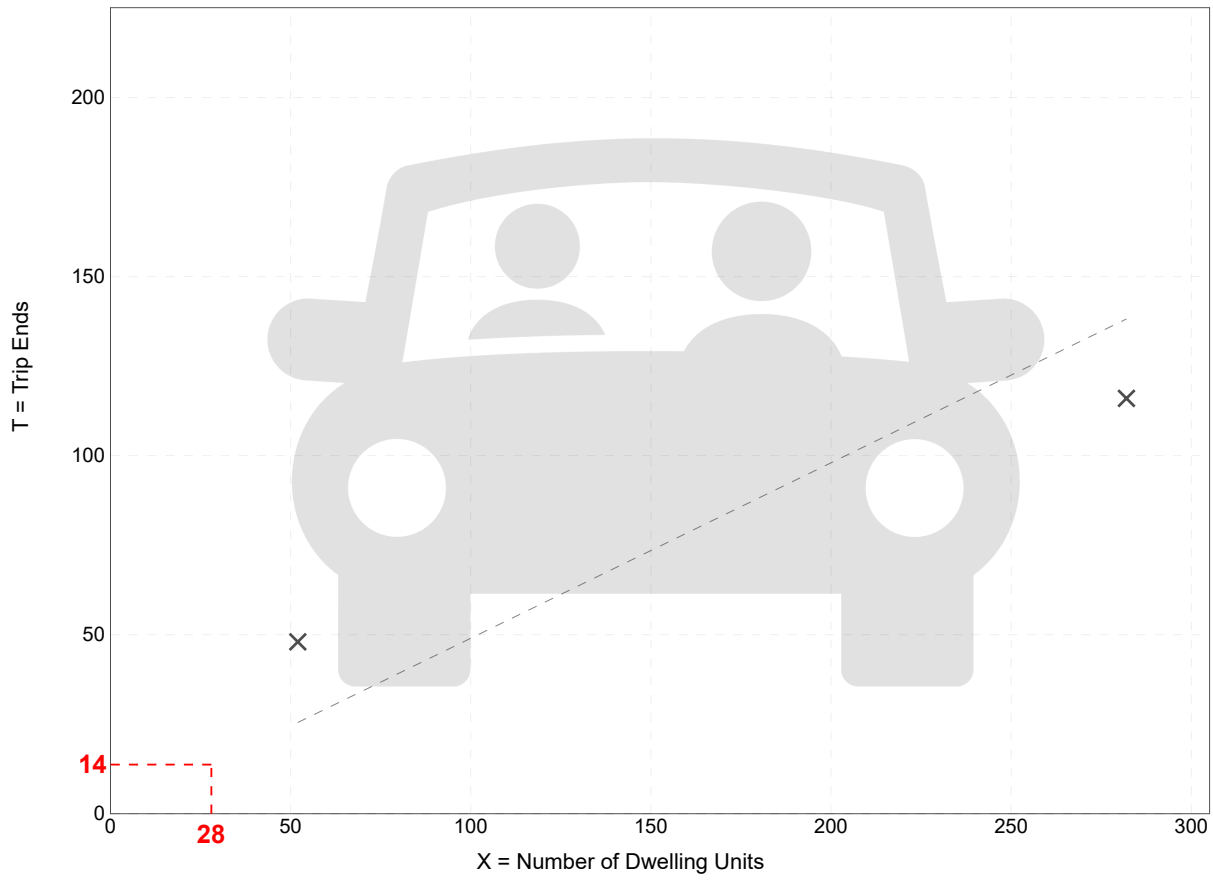
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
Avg. Num. of Dwelling Units: 167
Directional Distribution: 38% entering, 62% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.49	0.41 - 0.92	*

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= **

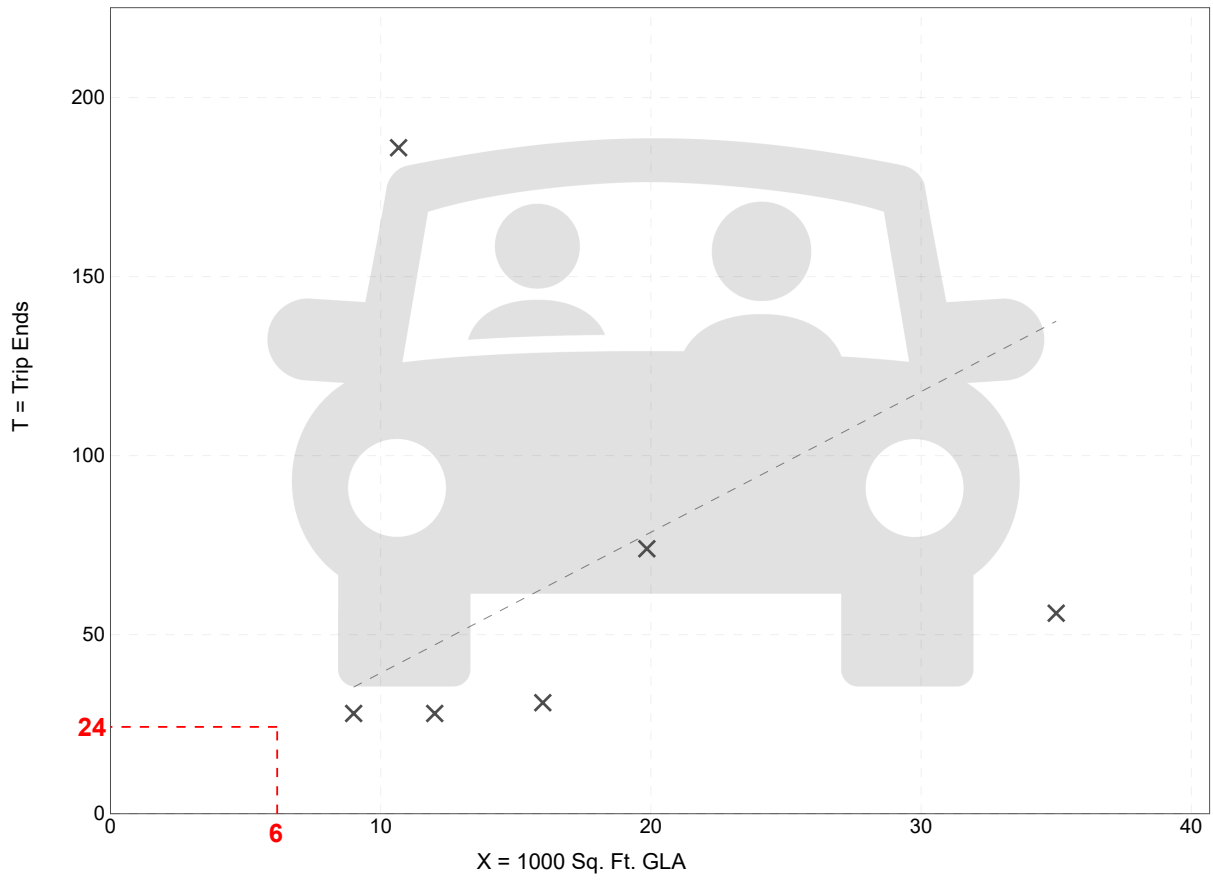
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GLA: 17
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.93	1.60 - 17.44	5.12

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

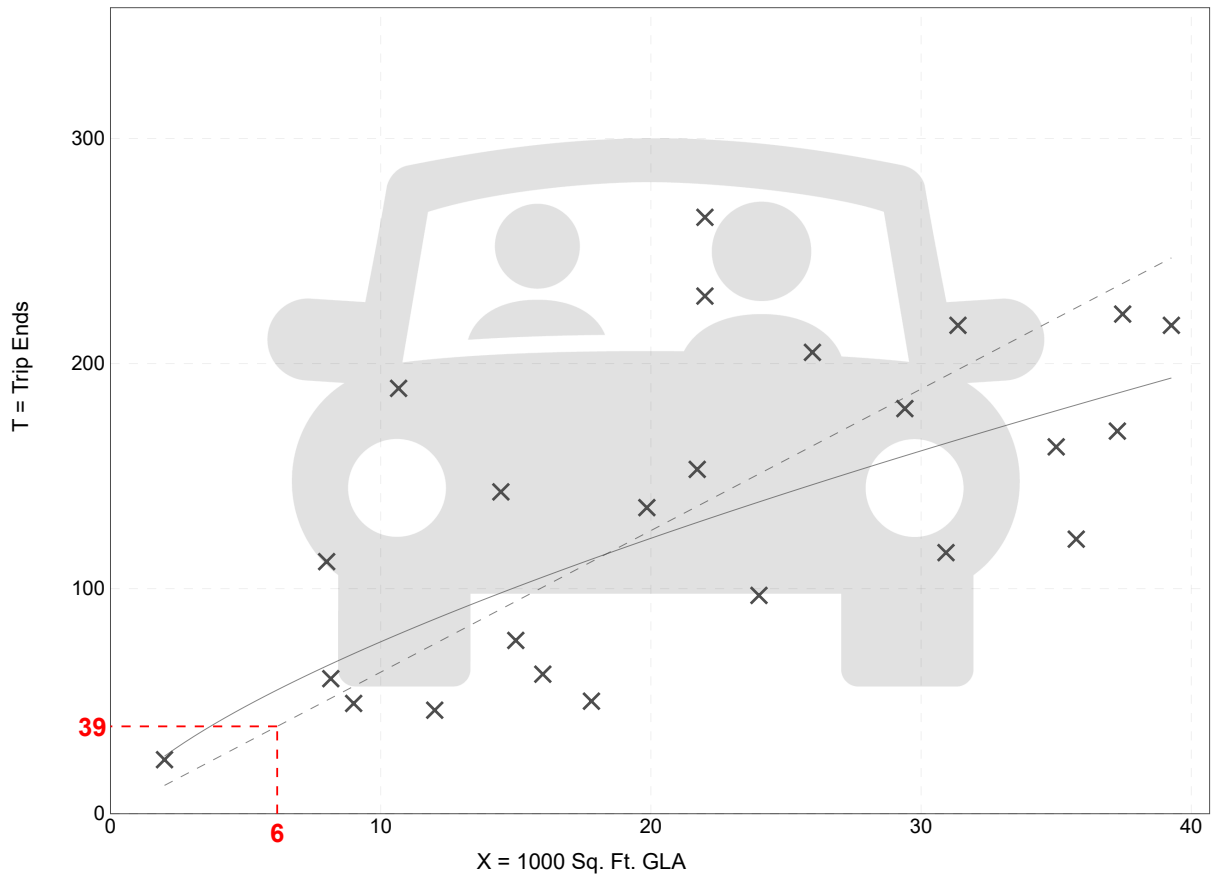
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 24
Avg. 1000 Sq. Ft. GLA: 22
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.29	2.81 - 17.72	3.02

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.68 Ln(X) + 2.77

R^2= 0.54

Strip Retail Plaza (<40k)
(822)

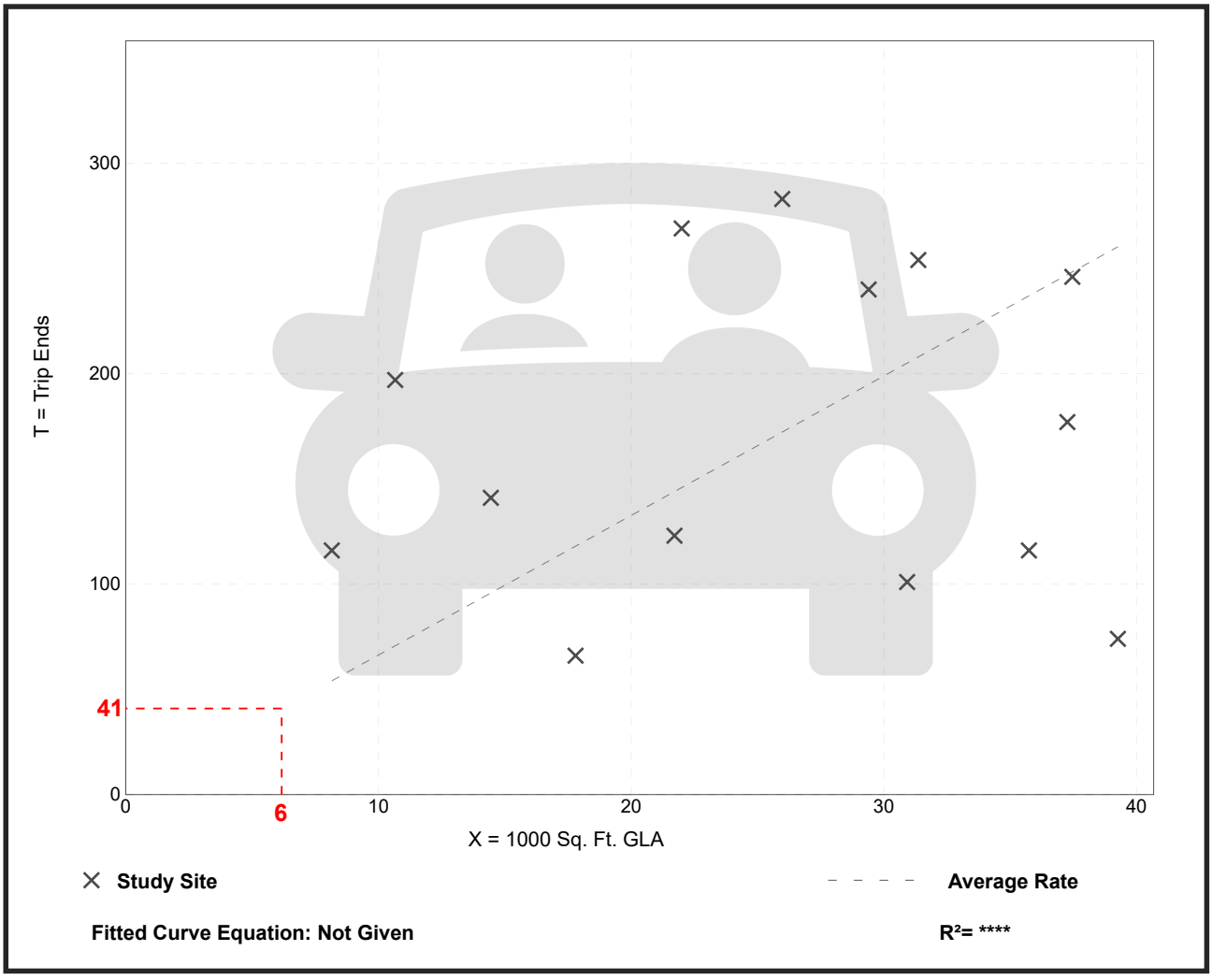
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 14
Avg. 1000 Sq. Ft. GLA: 26
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.63	1.88 - 18.48	3.99

Data Plot and Equation



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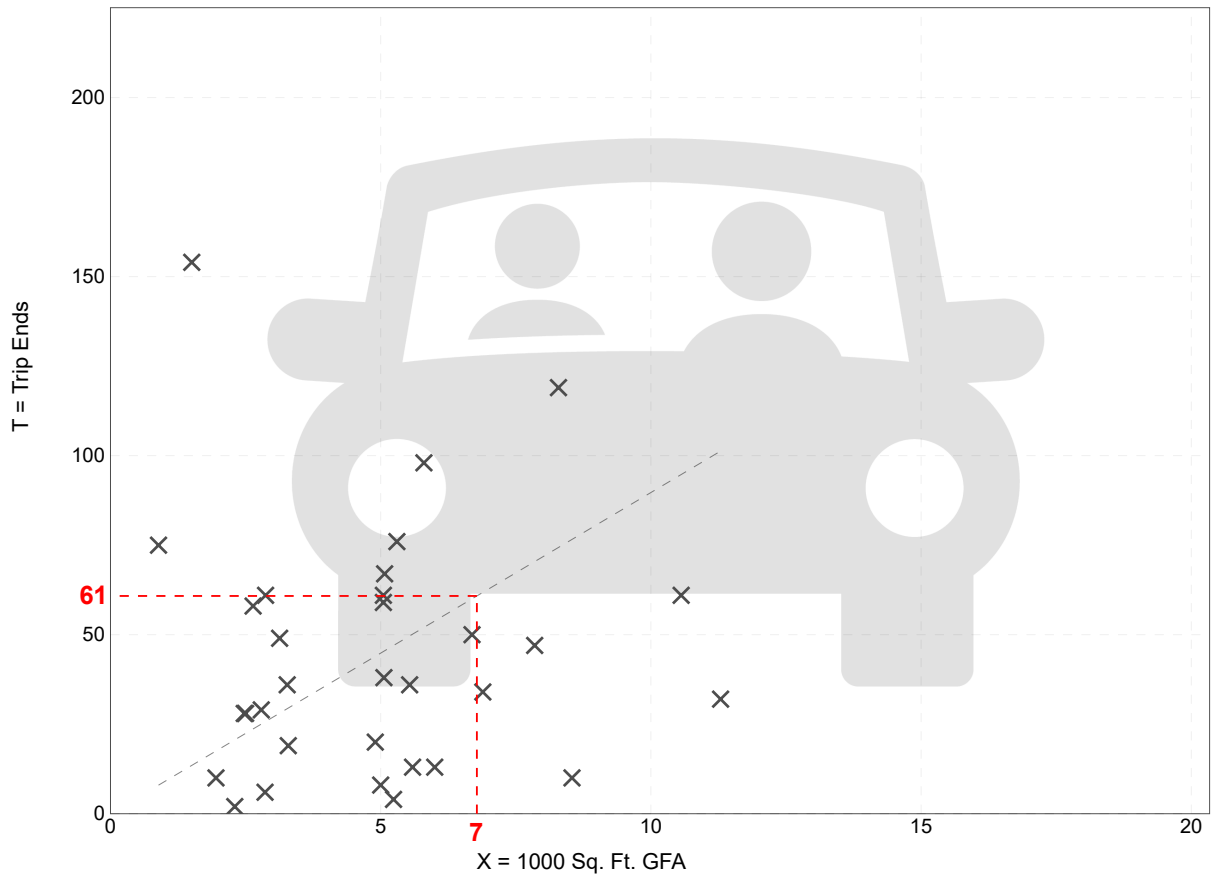
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 32
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
8.97	0.76 - 102.39	12.35

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

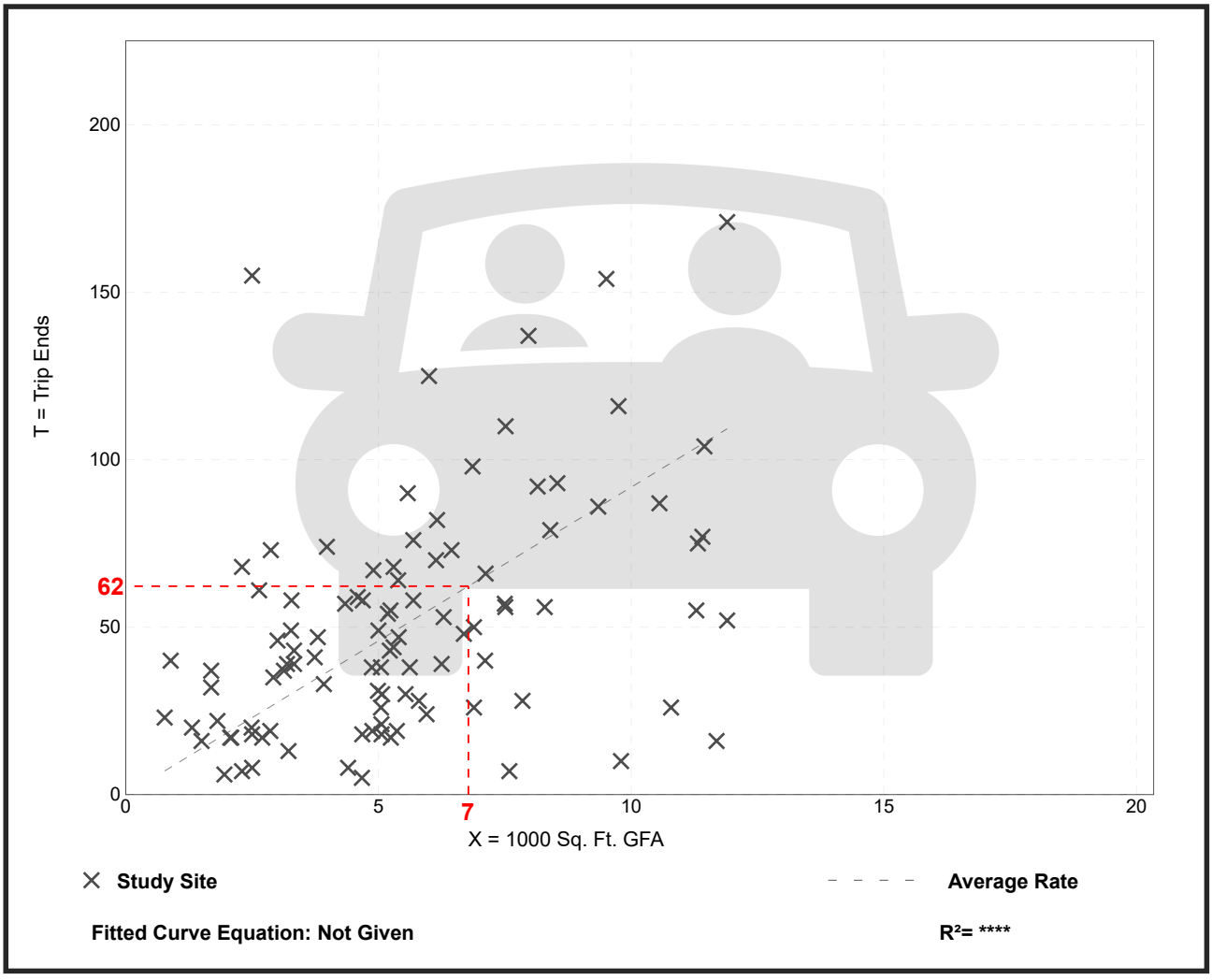
High-Turnover (Sit-Down) Restaurant
(932)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 100
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 61% entering, 39% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.18	0.92 - 62.00	6.36

Data Plot and Equation



High-Turnover (Sit-Down) Restaurant
(932)

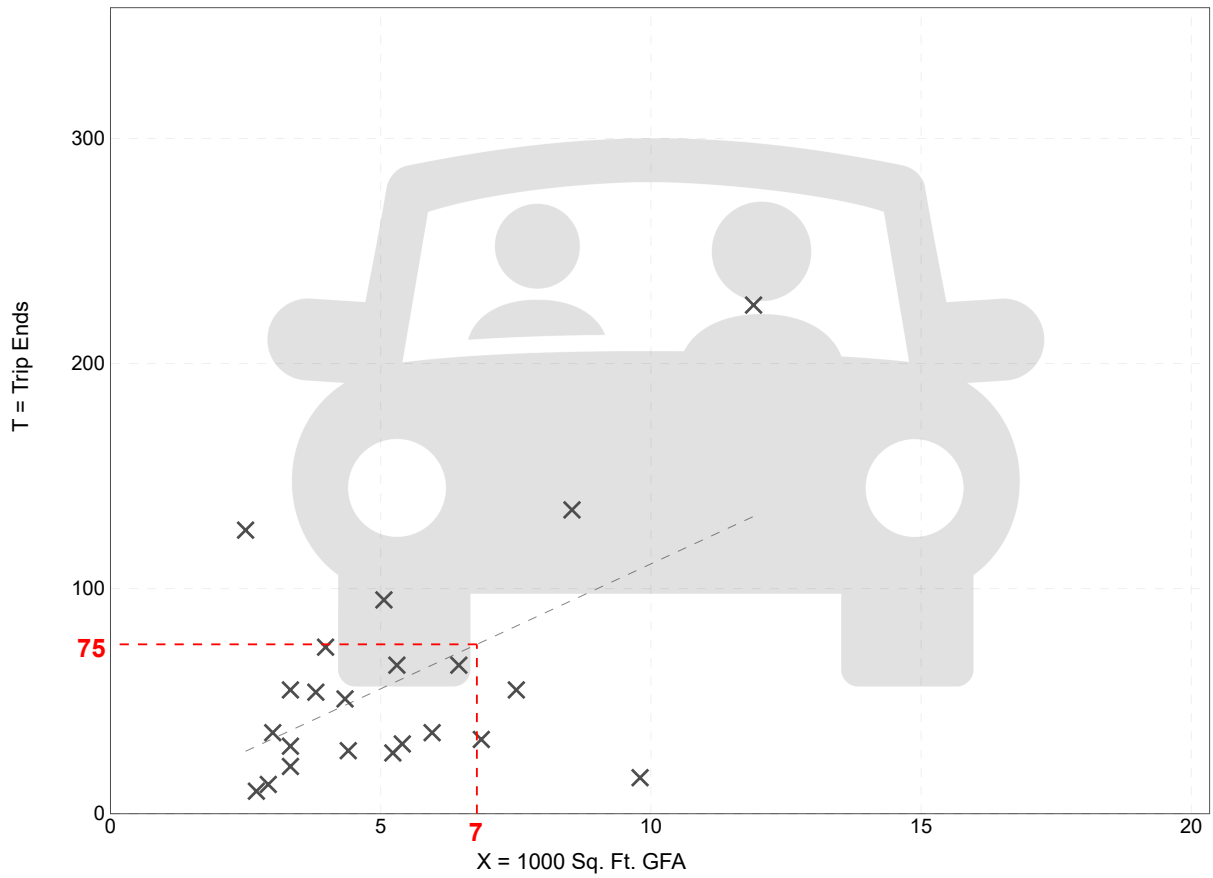
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Saturday, Peak Hour of Generator**

Setting/Location: **General Urban/Suburban**
Number of Studies: 22
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
11.10	1.63 - 50.40	8.34

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= ****

Drinking Place
(975)

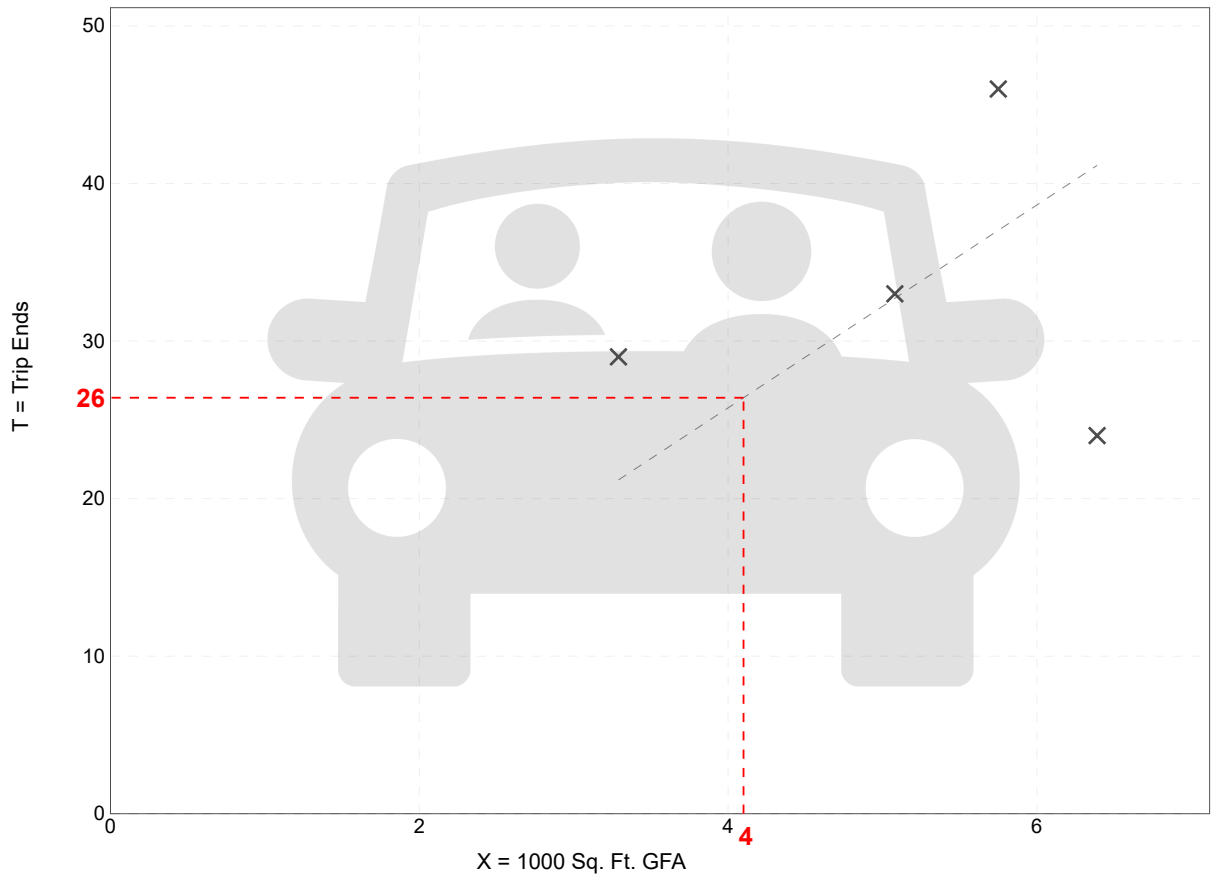
Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	4
Avg. 1000 Sq. Ft. GFA:	5
Directional Distribution:	66% entering, 34% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
6.44	3.76 - 8.81	2.26

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

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Colliers Engineering & Design

Traffic Impact Study

Appendix D | Capacity Analysis

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	705	19	40	765	20	0	0	58	0	0	19
Future Vol, veh/h	24	705	19	40	765	20	0	0	58	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	4	20	2	2	16	2	2	12	2	2	2
Mvmt Flow	27	801	22	45	869	23	0	0	66	0	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	892	0	0	823	0	0	-	-	812	-	-	881
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	-	6.32	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	-	3.408	-	-	3.318
Pot Cap-1 Maneuver	760	-	-	807	-	-	0	0	364	0	0	346
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	760	-	-	807	-	-	-	-	364	-	-	346
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.32	0.47	17.07	16.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	364	760	-	-	807	-	-	346
HCM Lane V/C Ratio	0.181	0.036	-	-	0.056	-	-	0.062
HCM Ctrl Dly (s/v)	17.1	9.9	-	-	9.7	-	-	16.1
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.2	-	-	0.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	749	778	6	0	14
Future Vol, veh/h	8	749	778	6	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	25	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	4	2	2	2	2
Mvmt Flow	9	842	874	7	0	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	881	0	-	0	-	878
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	767	-	-	-	0	347
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	767	-	-	-	-	347
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.1	0	15.85
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	767	-	-	-	347
HCM Lane V/C Ratio	0.012	-	-	-	0.045
HCM Ctrl Dly (s/v)	9.7	-	-	-	15.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	947	20	60	722	22	0	0	79	0	0	59
Future Vol, veh/h	33	947	20	60	722	22	0	0	79	0	0	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	2	2	2	2	2	2	2	3	2	2	2
Mvmt Flow	34	976	21	62	744	23	0	0	81	0	0	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	767	0	0	997	0	0	-	-	987	-	-	756
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	4.12	-	-	-	-	6.23	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	-	-	3.327	-	-	3.318
Pot Cap-1 Maneuver	842	-	-	694	-	-	0	0	299	0	0	408
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	842	-	-	694	-	-	-	-	299	-	-	408
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.31	0.8	21.48	15.36
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	299	842	-	-	694	-	-	408
HCM Lane V/C Ratio	0.272	0.04	-	-	0.089	-	-	0.149
HCM Ctrl Dly (s/v)	21.5	9.5	-	-	10.7	-	-	15.4
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0.3	-	-	0.5

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	1001	778	4	0	21
Future Vol, veh/h	15	1001	778	4	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	25	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	1043	810	4	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	815	0	-	0	-	813
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	813	-	-	-	0	379
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	813	-	-	-	-	379
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.14	0	15.09
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	813	-	-	-	379
HCM Lane V/C Ratio	0.019	-	-	-	0.058
HCM Ctrl Dly (s/v)	9.5	-	-	-	15.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	781	16	45	645	41	0	0	57	0	0	45
Future Vol, veh/h	45	781	16	45	645	41	0	0	57	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	831	17	48	686	44	0	0	61	0	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	730	0	0	848	0	0	-	-	839	-	-	708
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	-	6.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	-	3.318	-	-	3.318
Pot Cap-1 Maneuver	874	-	-	790	-	-	0	0	365	0	0	435
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	874	-	-	790	-	-	-	-	365	-	-	435
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.5	0.61	16.8	14.3
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	365	874	-	-	790	-	-	435
HCM Lane V/C Ratio	0.166	0.055	-	-	0.061	-	-	0.11
HCM Ctrl Dly (s/v)	16.8	9.4	-	-	9.9	-	-	14.3
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0.2	-	-	0.2	-	-	0.4

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	842	670	19	0	20
Future Vol, veh/h	17	842	670	19	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	25	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	6	2	2
Mvmt Flow	18	886	705	20	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	725	0	-	0	-	715
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	878	-	-	-	0	431
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	878	-	-	-	-	431
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.18	0	13.79
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	878	-	-	-	431
HCM Lane V/C Ratio	0.02	-	-	-	0.049
HCM Ctrl Dly (s/v)	9.2	-	-	-	13.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	709	19	59	768	20	0	0	82	0	0	19
Future Vol, veh/h	24	709	19	59	768	20	0	0	82	0	0	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	4	20	2	2	16	2	2	12	2	2	2
Mvmt Flow	27	806	22	67	873	23	0	0	93	0	0	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	895	0	0	827	0	0	-	-	816	-	-	884
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	-	6.32	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	-	3.408	-	-	3.318
Pot Cap-1 Maneuver	758	-	-	804	-	-	0	0	362	0	0	344
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	758	-	-	804	-	-	-	-	362	-	-	344
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.32	0.69	18.37	16.15
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	362	758	-	-	804	-	-	344
HCM Lane V/C Ratio	0.258	0.036	-	-	0.083	-	-	0.063
HCM Ctrl Dly (s/v)	18.4	9.9	-	-	9.9	-	-	16.2
HCM Lane LOS	C	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1	0.1	-	-	0.3	-	-	0.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	753	781	6	0	14
Future Vol, veh/h	8	753	781	6	0	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	25	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	4	2	2	2	2
Mvmt Flow	9	846	878	7	0	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	884	0	-	0	-	881
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	765	-	-	-	0	346
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	765	-	-	-	-	346
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.1	0	15.91
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	765	-	-	-	346
HCM Lane V/C Ratio	0.012	-	-	-	0.045
HCM Ctrl Dly (s/v)	9.8	-	-	-	15.9
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	757	9	3	792	12	4
Future Vol, veh/h	757	9	3	792	12	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	823	10	3	861	13	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	833	0	1695	828
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	867	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	800	-	102	371
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	411	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	800	-	102	371
Mov Cap-2 Maneuver	-	-	-	-	238	-
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	409	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.04	19.77
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	261	-	-	800	-
HCM Lane V/C Ratio	0.067	-	-	0.004	-
HCM Ctrl Dly (s/v)	19.8	-	-	9.5	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	1	1	58	59	19
Future Vol, veh/h	24	1	1	58	59	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	1	1	63	64	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	140	74	85	0	-	0
Stage 1	74	-	-	-	-	-
Stage 2	65	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	853	987	1512	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	957	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	987	1512	-	-	-
Mov Cap-2 Maneuver	853	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.34	0.13	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	31	-	857	-	-
HCM Lane V/C Ratio	0.001	-	0.032	-	-
HCM Ctrl Dly (s/v)	7.4	0	9.3	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	952	20	99	728	22	0	0	107	0	0	59
Future Vol, veh/h	33	952	20	99	728	22	0	0	107	0	0	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	3	2	2	2	2	2	2	2	3	2	2	2
Mvmt Flow	34	981	21	102	751	23	0	0	110	0	0	61

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	773	0	0	1002	0	0	-	-	992	-	-	762
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.13	-	-	4.12	-	-	-	-	6.23	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.227	-	-	2.218	-	-	-	-	3.327	-	-	3.318
Pot Cap-1 Maneuver	838	-	-	691	-	-	0	0	297	0	0	405
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	838	-	-	691	-	-	-	-	297	-	-	405
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.31	1.3	24.11	15.46
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	297	838	-	-	691	-	-	405
HCM Lane V/C Ratio	0.371	0.041	-	-	0.148	-	-	0.15
HCM Ctrl Dly (s/v)	24.1	9.5	-	-	11.1	-	-	15.5
HCM Lane LOS	C	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	1.7	0.1	-	-	0.5	-	-	0.5

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	15	1006	784	4	0	21
Future Vol, veh/h	15	1006	784	4	0	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	25	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	1048	817	4	0	22

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	821	0	-	0	-	819
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	808	-	-	-	0	376
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	808	-	-	-	-	376
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.14	0	15.18
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	808	-	-	-	376
HCM Lane V/C Ratio	0.019	-	-	-	0.058
HCM Ctrl Dly (s/v)	9.5	-	-	-	15.2
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1016	19	6	799	14	5
Future Vol, veh/h	1016	19	6	799	14	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1104	21	7	868	15	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1125	0	1996	1115
Stage 1	-	-	-	-	1115	-
Stage 2	-	-	-	-	882	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	621	-	66	253
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	405	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	621	-	65	253
Mov Cap-2 Maneuver	-	-	-	-	190	-
Stage 1	-	-	-	-	314	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.08	24.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	203	-	-	621	-
HCM Lane V/C Ratio	0.102	-	-	0.011	-
HCM Ctrl Dly (s/v)	24.7	-	-	10.9	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	1	1	79	79	39
Future Vol, veh/h	28	1	1	79	79	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	1	1	86	86	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	195	107	128	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	88	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	794	947	1458	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	935	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	793	947	1458	-	-	-
Mov Cap-2 Maneuver	793	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.7	0.09	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	23	-	798	-	-
HCM Lane V/C Ratio	0.001	-	0.04	-	-
HCM Ctrl Dly (s/v)	7.5	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	786	16	70	649	41	0	0	83	0	0	45
Future Vol, veh/h	45	786	16	70	649	41	0	0	83	0	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Stop	-	-	Stop
Storage Length	100	-	-	100	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	48	836	17	74	690	44	0	0	88	0	0	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	734	0	0	853	0	0	-	-	845	-	-	712
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	4.12	-	-	-	-	6.22	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	-	-	3.318	-	-	3.318
Pot Cap-1 Maneuver	871	-	-	786	-	-	0	0	363	0	0	432
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	871	-	-	786	-	-	-	-	363	-	-	432
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.5	0.93	18.08	14.36
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	363	871	-	-	786	-	-	432
HCM Lane V/C Ratio	0.243	0.055	-	-	0.095	-	-	0.111
HCM Ctrl Dly (s/v)	18.1	9.4	-	-	10.1	-	-	14.4
HCM Lane LOS	C	A	-	-	B	-	-	B
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0.3	-	-	0.4

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	17	847	674	19	0	20
Future Vol, veh/h	17	847	674	19	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	25	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	6	2	2
Mvmt Flow	18	892	709	20	0	21

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	729	0	-	0	-	719
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	-	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	-	3.318
Pot Cap-1 Maneuver	874	-	-	-	0	428
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	874	-	-	-	-	428
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.18	0	13.84
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	874	-	-	-	428
HCM Lane V/C Ratio	0.02	-	-	-	0.049
HCM Ctrl Dly (s/v)	9.2	-	-	-	13.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	859	12	4	690	13	5
Future Vol, veh/h	859	12	4	690	13	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	25	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	934	13	4	750	14	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	947	0	1699	940
Stage 1	-	-	-	-	940	-
Stage 2	-	-	-	-	759	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	725	-	101	320
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	462	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	725	-	101	320
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	380	-
Stage 2	-	-	-	-	460	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.06	20.36
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	254	-	-	725	-
HCM Lane V/C Ratio	0.077	-	-	0.006	-
HCM Ctrl Dly (s/v)	20.4	-	-	10	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	1	1	57	61	25
Future Vol, veh/h	26	1	1	57	61	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	1	1	62	66	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	144	80	93	0	-	0
Stage 1	80	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	849	980	1501	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	848	980	1501	-	-	-
Mov Cap-2 Maneuver	848	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.38	0.13	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	31	-	852	-	-
HCM Lane V/C Ratio	0.001	-	0.034	-	-
HCM Ctrl Dly (s/v)	7.4	0	9.4	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

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PROPERTY OWNERS WITHIN 200 FT.

TOWNSHIP OF ROBBINSVILLE
BLOCK 1, LOTS 18, 19 & 20

BLOCK	LOT	OWNER
3.41	1	SHARBELL WASHINGTON, INCORPORATED 1 UNION STREET SUITE 208 ROBBINSVILLE, NJ 08691
3.41	7.01	2340 ROUTE 33, LLC 12 PERRINE ROAD MONMOUTH JUNCTION, NJ 08852
3.41	6	SHARBELL WASHINGTON, INCORPORATED 1 UNION STREET SUITE 208 ROBBINSVILLE, NJ 08691
1	16.01	ROMSPEN ROBBINSVILLE, LLC 162 CUMBERLAND STREET SUITE 300 TORONTO, ONTARIO M5R 3N5
1	17	JP PROPERTY INVESTMENT, LLC 42 ROBBINS-EDINBURG ROAD ROBBINSVILLE, NJ 08691
1	18	ROBBINSVILLE HEIGHTS, LLC 96 OVERBROOK AVENUE EDISON, NJ 08817
1	19	ROBBINSVILLE HEIGHTS, LLC 96 OVERBROOK AVENUE EDISON, NJ 08817
1	20	ROBBINSVILLE HEIGHTS, LLC 96 OVERBROOK AVENUE EDISON, NJ 08817
1	65.02	TOWNSHIP OF ROBBINSVILLE 2298 ROUTE 33 ROBBINSVILLE, NJ 08691
1	65.01	PROJECT FREEDOM AT ROBBINS URBAN REDEVELOPMENT 1 FREEDOM BOULEVARD LAWRENCEVILLE, NJ 08648
1	21	CASANO EGNAZIO 29 BURHOLME DRIVE HAMILTON, NJ 08691
3.24	1	SHARBELL WASHINGTON, INCORPORATED 1 UNION STREET SUITE 208 ROBBINSVILLE, NJ 08691

UTILITIES

MERCER COUNTY PLANNING BOARD
640 SOUTH BROAD STREET, ROOM 420
TRENTON, NJ 08650

RANDY N. GOOD
OUTSIDE PLANT SUPERVISOR MANAGER
CABLEVISION
2137 HAMILTON AVENUE
HAMILTON, NJ 08619

JAMES BARBATO, PE
REGIONAL MANAGER
AQUA NJ, INCORPORATED
10 BLACK FOREST ROAD
HAMILTON, NJ 08691

VERIZON
WILLIAM HIGGINS, SENIOR RIGHT-OF-WAY AGENT
175 WEST MAIN STREET
FREEHOLD, NJ 07728

TOWNSHIP OF ROBBINSVILLE
DIVISION OF UTILITIES
56 ROBBINSVILLE-ALLENTOWN ROAD
ROBBINSVILLE, NJ 08691

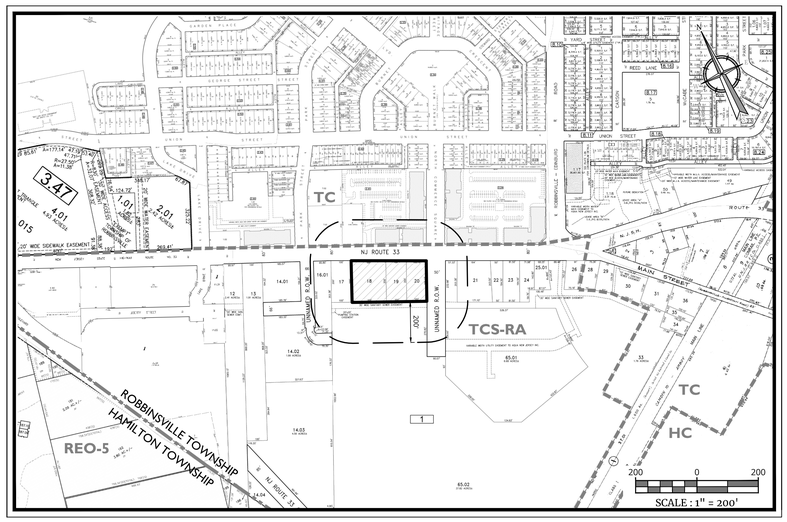
NJ DEPARTMENT OF TRANPORTATION
P.O. BOX 600
TRENTON, NJ 08625

PUBLIC SERVICE ELECTRIC & GAS
MANAGER - CORPORATE PROPERTIES
80 PARK PLAZA, T6B
NEWARK, NJ 07102

ROBERT R. ERICKSEN, PE, CCIM
AT&T
ONE AT&T WAY
ROOM 3B216G
BEDMINSTER, NJ 07921

DONALD OLIVO, REAL ESTATE DEPARTMENT
JERSEY CENTRAL POWER & LIGHT
300 MADISON AVENUE, P.O. BOX 1911
MORRISTOWN, NJ 07962

PRELIMINARY AND FINAL MAJOR SITE PLANS
FOR
ROBBINSVILLE HEIGHTS LLC
2345-2349 ROUTE 33
BLOCK 1, LOTS 18, 19 & 20
TOWNSHIP OF ROBBINSVILLE
MERCER COUNTY, NEW JERSEY



KEY & ZONING MAP

SOURCE: OFFICIAL TAX MAPS OF THE TOWNSHIP OF ROBBINSVILLE

ZONE LEGEND

MUNICIPAL BOUNDARY LINE
ZONE BOUNDARY LINE

ROBBINSVILLE TOWNSHIP:
TC - TOWN CENTER
TCS-RA - TOWN CENTER SOUTH - REDEVELOPMENT AREA
HC - HIGHWAY COMMERICAL

HAMILTON TOWNSHIP:
REO-5 - RESEARCH ENGINEERING OFFICE

INDEX OF SHEET

DESCRIPTION	SHT. No.
COVER SHEET	1.0
EXISTING CONDITIONS & DEMOLITION PLAN	2.0
DIMENSION PLAN	3.0
GRADING PLAN	4.0
UTILITIES PLAN	5.0
PROFILES	6.0
PROFILES	6.1
PROFILES	6.2
SOIL EROSION & SEDIMENT CONTROL PLAN	7.0
SOIL MANAGEMENT & PREPARATION PLAN	7.1
SOIL EROSION & SEDIMENT CONTROL NOTES	7.2
SOIL EROSION & SEDIMENT CONTROL DETAILS	7.3
LANDSCAPE PLAN	8.0
LANDSCAPE DETAILS	8.1
TREE INVENTORY PLAN	8.2
LIGHTING PLAN	9.0
LIGHTING DETAILS	9.1
PAVEMENT PLAN & DETAILS	10.0
FURNISHING PLAN	11.0
FURNISHING DETAILS	11.1
FURNISHING DETAILS	11.2
CONSTRUCTION DETAILS	12.0
CONSTRUCTION DETAILS	12.1
CONSTRUCTION DETAILS	12.2
CONSTRUCTION DETAILS	12.3
CONSTRUCTION DETAILS	12.4
TOTAL SHEETS	26

I HEREBY CERTIFY THAT I AM THE OWNER OF RECORD OF THE SITE HEREIN DEPICTED AND THAT I CONCUR WITH THE SUBMISSION.

OWNER _____ DATE _____

APPROVED BY THE PLANNING BOARD OF THE TOWNSHIP OF ROBBINSVILLE AT THE REGULAR MEETING OF _____.
DATE

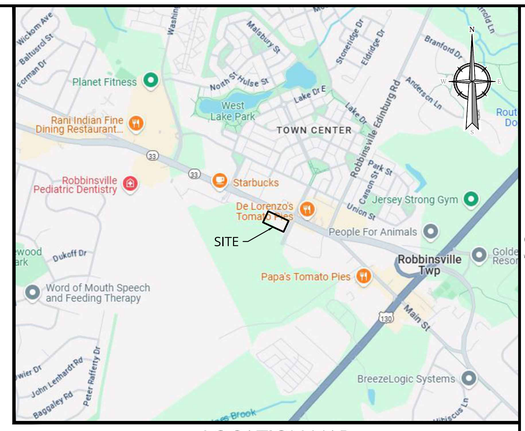
BOARD CHAIRMAN _____ DATE _____

BOARD SECRETARY _____ DATE _____

TOWNSHIP ENGINEER _____ DATE _____

OFF-STREET PARKING REQUIREMENTS

LAND USE	SIZE	REQUIRED PARKING		PROPOSED PARKING SUPPLY
RESIDENTIAL (RSIS) - GARDEN APARTMENT	3 UNITS	0.68 SPACES PER 1-BEDROOM UNIT (LUC 218)	2 SPACES	**117 SPACES**
	20 UNITS	1.23 SPACES PER 2 & 2+ BEDROOM UNITS (LUC 221)	31 SPACES	
	5 UNITS			
LUC 822 - STRIP RETAIL PLAZA (< 40k)	6,167 S.F.	2.79 SPACES PER 1,000 SF OF GFA	18 SPACES	
LUC 932 - HIGH TURNOVER (SIT-DOWN) RESTAURANT	6,776 S.F.	8.97 SPACES PER 1,000 SF OF GFA	61 SPACES	
TOTAL		**112 SPACES**		



LOCATION MAP

SCALE: 1" : 1,000'

GENERAL NOTES

1. THE SUBJECT PROPERTY IS KNOWN AS LOTS 18, 19 & 20 IN BLOCK 1 AS SHOWN ON SHEET 1.30 OF THE OFFICIAL TAX MAP OF THE TOWNSHIP OF ROBBINSVILLE, MERCER COUNTY, NEW JERSEY, DATED NOVEMBER 29, 2018 AND REVISED THROUGH JANUARY 22, 2021.
2. THE PROPERTY IS LOCATED IN THE TOWN CENTER SOUTH REDEVELOPMENT AREA AND CONTAINS A TOTAL TRACT AREA OF 73,514 SF, 1.69 ACRES.

   OWNER: **ROBBINSVILLE HEIGHTS LLC**
   96 OVERBROOK AVENUE
   EDISON, NJ 08817
   (631) 415-8540

   APPLICANT: **ROBBINSVILLE HEIGHTS LLC**
   96 OVERBROOK AVENUE
   EDISON, NJ 08817
   (631) 415-8540
3. THE SUBJECT PROPERTY IS PRESENTLY DEVELOPED WITH AN ABANDONED OFFICE BUILDING TO BE DEMOLISHED (LOT 18) AND TWO (2) SINGLE-FAMILY HOMES (LOTS 19 & 20) THAT WERE RECENTLY DEMOLISHED. THE APPLICANT PROPOSES TO **CONSTRUCT A 4-STORY MIXED-USE BUILDING WITH A ROOFTOP BAR AND OUTDOOR SEATING.**
4. ZONE DATA: **TOWN CENTER SOUTH REDEVELOPMENT AREA (TCS-RA)**

	REQUIRED*	EXISTING	PROPOSED
REDEVELOPMENT STANDARDS			
MINIMUM PARCEL SIZE	N/A	73,520 SF±	72,416 SF±
MINIMUM PARCEL WIDTH	N/A		
MINIMUM PARCEL DEPTH	N/A		
MINIMUM SETBACK FROM ROUTE 33	0 FT		0 FT
MINIMUM SETBACK FROM LIBERTY STREET	40 FT	N/A	N/A
SETBACK FROM REMAINING PROPERTY LINES	15 FT		> 15 FT
MAXIMUM BUILDING HEIGHT	4.5 STORIES 60 FT + ARCHITECTURAL FEATURES		4.5 STORIES 48 FT + ARCHITECTURAL FEATURES
MAXIMUM IMPERVIOUS SURFACE COVERAGE	90%		73.54%
MINIMUM DWELLING UNIT SIZE	650 SF		832 SF
MAXIMUM FAR	1.3		0.64
TC-2 TOWN CENTER DISTRICT STANDARDS			
SIDE YARD SETBACK	10 FT		69 FT
REAR YARD SETBACK	50 FT		133.6FT
PARKING BUFFER (ALL LOT LINES)	5 FT		5 FT

(E) = PRE-EXISTING NON-CONFORMING CONDITION
(V) = VARIANCE REQUIRED

5. THE FOLLOWING VARIANCES AND/OR DESIGN WAIVERS MAY BE REQUIRED FROM THE FOLLOWING ORDINANCE SECTIONS IF DETERMINED BY THE **PLANNING** BOARD:
   A. ORDINANCE SECTION 142-47.D(3): A WAIVER IS REQUESTED TO PROPOSE ISLAND SPACING THAT EXCEEDS THE MINIMUM REQUIREMENT OF ONE PLANTING ISLAND EQUIVALENT TO NINE FEET WIDE BY 18 FEET DEEP PER FIVE PARKING SPACES.
   B. ORDINANCE SECTION 142-37.A(9)(d): A WAIVER IS REQUESTED TO PROVIDE LIGHT LEVELS AT PROPERTY LINE THAT EXCEED THE 0.2 FOOTCANDLE MAXIMUM REQUIREMENT.
6. BOUNDARY SURVEY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS TAKEN FROM A PLAN ENTITLED "**BOUNDARY AND TOPOGRAPHIC SURVEY FOR ROBBINSVILLE REDEVELOPMENT, BLOCK 1, LOTS 12, 13, 14.01, 14.02, 14.03, 14.04, 16.01, 17, 18, 19, 20 & 65.02 (ROBBINSVILLE) BLOCK 1961, LOT 203 (HAMILTON), ROBBINSVILLE & HAMILTON TOWNSHIP, MERCER COUNTY, NEW JERSEY**", PREPARED BY **COLLIERS ENGINEERING & DESIGN, DATED AUGUST 16, 2021 AND LAST REVISED ON SEPTEMBER 20, 2022.**
7. THE HORIZONTAL DATUM IS RELATIVE TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM AND ADJUSTED TO **NAD1983**. THE VERTICAL DATUM IS RELATIVE TO **NAVD 1988**.
8. BENCHMARK REFERENCE: **301**, ELEVATION: 118.56 FEET **NAVD 1988**.
9. NO FRESHWATER WETLANDS ARE KNOWN TO EXIST ON THE SITE AS PER GIS MAPPING.

   LIMITS OF OFFSITE FRESHWATER WETLANDS FOR BLOCK 1, LOT 65.02, SHOWN HEREON WERE FIELD DELINEATED BY COLLIERS ENGINEERING & DESIGN AND VERIFIED BY THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION WITH A LETTER OF INTERPRETATION DATED: MARCH 6, 2025 (FILE NO. 1100-04-0002.4 FWW240001).
10. NO 100 YEAR FLOOD PLAINS ARE KNOWN TO EXIST ON THE SITE PER THE FLOOD INSURANCE RATE MAP FOR THE **MERCER COUNTY, NEW JERSEY**, DATED JULY 20, 2016 PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
11. GEOTECHNICAL INFORMATION AND SOIL TEST PIT LOCATIONS SHOWN HEREON ARE AS PRESENTED IN A REPORT ENTITLED "**REPORT OF PRELIMINARY INFILTRATION EVALUATION**", DATED SEPTEMBER 16, 2025, PREPARED BY COLLIERS ENGINEERING & DESIGN.
12. THIS SET OF PLANS IS NOT DEPICTING ENVIRONMENTAL CONDITIONS OR A CERTIFICATION/WARRANTY REGARDING THE PRESENCE OR ABSENCE OF ENVIRONMENTALLY IMPACTED SITE CONDITIONS. MASER CONSULTING HAS PERFORMED NO EXPLORATORY OR TESTING SERVICES, INTERPRETATIONS, CONCLUSIONS OR OTHER SITE ENVIRONMENTAL SERVICES RELATED TO THE DETERMINATION OF THE POTENTIAL FOR CHEMICAL, TOXIC, RADIOACTIVE OR OTHER TYPE OF CONTAMINANTS AFFECTING THE PROPERTY AND THE UNDERSIGNED PROFESSIONAL IS NOT QUALIFIED TO DETERMINE THE EXISTENCE OF SAME. SHOULD ENVIRONMENTAL CONTAMINATION OR WASTE BE DISCOVERED, THE OWNER AND CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LAWS AND REGULATIONS.
13. THIS IS A SITE DEVELOPMENT PLAN AND UNLESS SPECIFICALLY NOTED ELSEWHERE HEREON, IS NOT A SURVEY.
14. DO NOT SCALE DRAWINGS AS THEY PERTAIN TO ADJACENT AND SURROUNDING PHYSICAL CONDITIONS, BUILDINGS, STRUCTURES, ETC. THEY ARE SCHEMATIC ONLY, EXCEPT WHERE DIMENSIONS ARE SHOWN THERETO.
15. THIS SET OF PLANS HAS BEEN PREPARED FOR THE PURPOSES OF MUNICIPAL AND AGENCY REVIEW AND APPROVAL. THIS SET OF PLANS SHALL NOT BE UTILIZED AS CONSTRUCTION DOCUMENTS UNTIL ALL APPROVALS REQUIRED HAVE BEEN OBTAINED, ALL CONDITIONS OF APPROVAL HAVE BEEN SATISFIED AND THE DRAWINGS HAVE BEEN STAMPED "ISSUED FOR CONSTRUCTION". THIS SHALL INCLUDE APPROVAL OF ALL CATALOG CUTS. SHOP DRAWINGS AND/OR DESIGN CALCULATIONS AS REQUIRED BY THE PROJECT OWNER AND/OR MUNICIPAL ENGINEER.
16. THE CONTRACTOR IS RESPONSIBLE FOR PROJECT SAFETY, INCLUDING PROVISION OF ALL APPROPRIATE SAFETY DEVICES AND TRAINING REQUIRED.
17. PRIOR TO ANY EXCAVATION, THE CONTRACTOR MUST CALL 811 TO REQUEST A UTILITY MARKOUT.
18. CONTRACTOR IS ADVISED THAT WHEN INDICATED ON THE PLANS AND/OR IN THE SPECIFICATIONS, REQUIRED BY THE MUNICIPAL/COUNTY/STATE/FEDERAL AGENCY/UTILITY COMPANIES, OR DEEMED NECESSARY BY THE RESIDENT ENGINEER OR DESIGN ENGINEER AS ASSIGNED BY THE CLIENT AND OR APPROVING AGENCY, THE CONTRACTOR MUST SUBMIT SHOP DRAWINGS FOR REVIEW AND RECEIVE APPROVAL PRIOR TO FABRICATION OF THE RESPECTIVE ITEM.

SITE NOTES

1. BUILDING FOOTPRINT DIMENSIONS SHOWN HEREON ARE APPROXIMATE. FINAL BUILDING FOOTPRINT DIMENSIONS FOR EACH **BUILDING** SHALL BE FURNISHED ON THE INDIVIDUAL **ARCHITECTURAL PLANS** AT THE TIME OF APPLICATION FOR A BUILDING PERMIT. ALL STRUCTURES SHALL CONFORM TO THE APPROVED BULK ZONING REQUIREMENTS.
2. CURB RAMPS ARE TO BE CONSTRUCTED FLUSH WITH THE FINISHED PAVEMENT SURFACE. ACCESSIBLE CURB RAMPS INSTALLED WITHIN THE PUBLIC RIGHT OF WAY ARE TO HAVE DETECTABLE WARNING SURFACES COMPLIANT WITH FEDERAL ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT OF WAY.
3. TRAFFIC SIGNAGE AND STRIPING SHALL CORRESPOND TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
4. REFUSE AND RECYCLABLES SHALL BE STORED WITHIN **OUTSIDE SCREENED TRASH ENCLOSURES** AS NOTED ON THE PLANS, AND PICKED UP BY PRIVATE WASTE DISPOSAL HAULER.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL WASTE MATERIALS IN ACCORDANCE WITH GOVERNING REGULATIONS AND AGENCIES.
6. THE OWNER SHALL BE RESPONSIBLE FOR OPERATIONS AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES ONSITE AND ASSOCIATED STORMWATER STRUCTURES DISCHARGING ON LOT 65.02, BLOCK 1.
7. THERE SHALL BE NO ON-SITE BURIAL OF CONSTRUCTION MATERIALS, TREE BRANCHES, STUMPS, OR OTHER DELETERIOUS MATERIALS.
8. MATERIALS, WORKMANSHIP, AND CONSTRUCTION FOR THE SITE IMPROVEMENTS SHOWN HEREON SHALL BE IN ACCORDANCE WITH:
   A. **RESIDENTIAL SITE IMPROVEMENT STANDARDS (N.J.A.C. 5:21).**
   B. **NEW JERSEY DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", 2019, AS SUPPLEMENTED.**
   C. CURRENT PREVAILING MUNICIPAL, COUNTY, AND/OR STATE AGENCY SPECIFICATIONS, STANDARDS, CONDITIONS, AND REQUIREMENTS.
   D. CURRENT PREVAILING UTILITY COMPANY/AUTHORITY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   E. CURRENT MANUFACTURER SPECIFICATIONS, STANDARDS, AND REQUIREMENTS.
   F. CURRENT BUILDING CODES.
   G. FEDERAL PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PROWAG).

UTILITY NOTES

1. EXISTING UTILITY INFORMATION SHOWN HEREON HAS BEEN COLLECTED FROM VARIOUS SOURCES AND IS NOT GUARANTEED AS TO ACCURACY OR COMPLETENESS. THE CONTRACTOR MUST VERIFY ALL INFORMATION TO HIS SATISFACTION PRIOR TO EXCAVATION. WHERE EXISTING UTILITIES ARE TO BE CROSSED BY PROPOSED CONSTRUCTIONS, TEST PITS MUST BE DUG BY THE CONTRACTOR PRIOR TO CONSTRUCTION TO ASCERTAIN EXISTING INVERTS, MATERIALS, AND SIZES. TEST PIT INFORMATION SHALL BE GIVEN TO THE ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS REQUIRED TO AVOID CONFLICTS. THE CONTRACTOR SHALL NOTIFY THE UNDER SIGNED PROFESSIONAL IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER MATERIALLY FROM THOSE REPRESENTED HEREON. SUCH CONDITIONS COULD RENDER THE DESIGNS HEREON INAPPROPRIATE OR INEFFECTIVE.
2. UTILITY RELOCATIONS SHOWN HEREON, IF ANY, ARE FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REPRESENT ALL REQUIRED UTILITY RELOCATIONS. THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING AND/OR COORDINATING ALL REQUIRED UTILITY RELOCATIONS IN COOPERATION WITH THE RESPECTIVE UTILITY COMPANY/AUTHORITIES.
3. STORM SEWERS SHALL BE CLASS III (OR HIGHER IF NOTED) REINFORCED CONCRETE PIPE (RCP) WITH "O" RING GASKETS OR INTERNALLY PRELUBRICATED GASKET (TYLOX SUPERSEAL OR EQUIVALENT, ADS N-12 HIGH DENSITY POLYETHYLENE PIPE (HDPEP), AS NOTED ON THE PLAN, OR APPROVED EQUAL. PROPER PIPE COVERAGE SHALL BE MAINTAINED DURING ALL PHASES OF CONSTRUCTION. PIPE LENGTHS SHOWN HEREON ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
4. CONTRACTOR IS RESPONSIBLE TO DETERMINE WHEN SPECIAL OR OVERSIZED DRAINAGE STRUCTURES ARE REQUIRED. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ALL SPECIAL (OVERSIZED) DRAINAGE STRUCTURES TO THE TOWNSHIP ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
5. WATER SERVICE TO BE PROVIDED FROM THE EXISTING WATER MAIN LINE ON **SOUTH COMMERCE SQUARE**, OWNED AND OPERATED BY AQUA NJ. PROPOSED WATER MAIN EXTENSIONS AND FIRE HYDRANT LOCATIONS ARE SUBJECT TO MUNICIPAL REVIEW AND APPROVAL, ACCORDING TO THE NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS, AMERICAN WATERWORKS ASSOCIATION STANDARDS, AND IN THE PINELANDS AREA, THE STANDARDS OF THE PINELANDS COMPREHENSIVE MANAGEMENT PLAN. PIPE MATERIALS SHALL BE **CEMENT LINED DUCTILE IRON PIPE, CLASS 52, WITH ASPHALTIC EPOXY TYPE COATING** AS NOTED ON THE PLANS. WATER MAINS SHALL BE INSTALLED TO PROVIDE A MINIMUM **4 FEET** OF COVER FROM THE TOP OF PIPE TO THE PROPOSED GRADE.
6. SANITARY SEWER SERVICE SHALL BE PROVIDED BY GRAVITY (FORCE MAIN) CONNECTION TO EXISTING SEWER MAIN ON **SOUTH COMMERCE SQUARE**, OWNED AN OPERATED BY HAMILTON TOWNSHIP WATER POLLUTION CONTROL. PROPOSED SEWER MAIN EXTENSIONS AND MANHOLE LOCATIONS ARE SUBJECT TO MUNICIPAL REVIEW AND APPROVAL, ACCORDING TO NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION REGULATIONS. PIPE MATERIALS SHALL BE **PVC SDR-35**, EXCEPT AS NOTED OTHERWISE ON THE PLANS. EXCEPT WHERE SHALLOWER DEPTHS ARE PERMITTED BY THE MUNICIPALITY OR UTILITY AUTHORITY, SEWER LINES, INCLUDING FORCE MAINS AND LATERALS, SHALL BE INSTALLED TO PROVIDE A MINIMUM **3 FEET** OF COVER FROM THE TOP OF PIPE TO PROPOSED GRADE.
7. ALL WATER MAINS SHOULD BE SEPARATED FROM SANITARY SEWER AND INDUSTRIAL DISCHARGE LINES BY A MINIMUM HORIZONTAL DISTANCE OF 10 FEET. IF SUCH HORIZONTAL SEPARATION IS NOT POSSIBLE, THE WATER AND SEWER LINES SHALL BE IN SEPARATE TRENCHES (STEP TRENCHES ARE PROHIBITED) WITH THE TOP OF THE SEWER LINE AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN OR WITH SUCH SEPARATION EXPRESSLY APPROVED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
8. AT THE CROSSINGS OF SEWER LINES AND WATER MAINS, THE TOP OF THE SEWER LINES SHALL BE AT LEAST 18 INCHES BELOW THE BOTTOM OF THE WATER MAIN (SEWER SERVICE LATERALS ARE NOT SUBJECT TO THIS REQUIREMENT). IF SUCH VERTICAL SEPARATION IS NOT POSSIBLE, THE SEWER LINE SHALL BE OF WATERTIGHT CONSTRUCTION (THAT IS **DUCTILE IRON** PIPE WITH **MECHANICAL RESTRAINT JOINTS**), WITH WATERTIGHT JOINTS THAT IS A MINIMUM OF 10 FEET FROM THE WATER MAIN. CONTRACTOR SHALL USE TRANSITION COUPLING, **POWER SEAL MODEL #3501-OR** EQUIVALENT AT DIP/PVC JOINTS.
9. GAS, ELECTRIC, LIGHTING, CABLE TELEVISION, AND ELECTRICAL SERVICE PLANS, IF REQUIRED, SHALL BE PREPARED BY THE RESPECTIVE UTILITY COMPANIES THAT SERVICE THE AREA PRIOR TO SITE CONSTRUCTION AND SHALL BE INSTALLED PER ORDINANCE OR LOCAL UTILITY COMPANIES REQUIREMENTS.
10. TELEPHONE, ELECTRIC, AND GAS LINES WILL BE INSTALLED UNDERGROUND. CROSSINGS OF PROPOSED PAVEMENTS WILL BE INSTALLED PRIOR TO THE CONSTRUCTION OF PAVEMENT BASE COURSE.

ADA SITE STANDARD NOTES TO CONTRACTOR TO ALL SHEETS IN THIS SET.

1. CONTRACTOR MUST EXERCISE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION OF ADA (HANDICAPPED) ACCESSIBLE COMPONENTS FOR THE SITE/PROJECT. THESE COMPONENTS, AS CONSTRUCTED, MUST COMPLY WITH THE LATEST FEDERAL ADA STANDARDS FOR ACCESSIBLE DESIGN, AND CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY MUST COMPLY WITH THE LATEST FEDERAL PROPOSED "ASSESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG).
2. FINISHED SURFACES ALONG THE ACCESSIBLE ROUTE OF TRAVEL FROM PARKING SPACE, PUBLIC TRANSPORTATION, PEDESTRIAN ACCESS, INTER-BUILDING ACCESS, TO POINTS OF ACCESSIBLE BUILDING ENTRANCE/EGRESS, MUST COMPLY WITH THESE ADA CODE REQUIREMENTS AND ANY SUPPLEMENTAL STATE REQUIREMENTS. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

   (NOTE: THIS LIST IS NOT INTENDED TO CAPTURE EVERY APPLICABLE FEDERAL, STATE AND LOCAL RULE AND REGULATION. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE LAW, WHETHER OR NOT STATED SPECIFICALLY HEREIN):

   A. PARKING SPACES AND PARKING AISLES - SLOPE MUST NOT EXCEED 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) IN ANY DIRECTION.
   B. CURB RAMPS- SLOPES MUST NOT EXCEED 1:12 (8.3%).
   C. LANDINGS
      i. LANDINGS AT CURB RAMPS - MUST BE 4 FT. MIN., X 4 FT. MIN. AND ARE TO BE INCREASED TO 5 FEET WHERE THE LANDING SPACE (TURNING SPACE) IS CONSTRAINED AT THE BACK OF THE SIDEWALK.
      ii. LANDINGS AT RAMPS - MUST BE 5 FT MIN. IN THE DIRECTION OF TRAVEL AND BE PROVIDED AT EACH END OF THE RAMP. MUST PROVIDE POSITIVE DRAINAGE (1 % MIN.), AND MUST NOT EXCEED 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) IN ANY DIRECTION. WHEN LANDING IS ALSO A TURNING SPACE, IT MUST BE A MINIMUM 5 FT X 5 FT.
      iii. LANDINGS AT DOORWAYS - SEE NOTE F BELOW.
   D. PATH OF TRAVEL ALONG ON-SITE ACCESSIBLE ROUTE - MUST PROVIDE A 36 INCH (EXCLUDING THE CURB) OR GREATER UNOBSTRUCTED WIDTH OF TRAVEL, (CAR OVERHANGS MUST NOT REDUCE THIS MINIMUM WIDTH). IN A PUBLIC RIGHT-OF-WAY, THE MINIMUM WIDTH EXCLUDING THE CURB IS 4 FT. THE SLOPE MUST BE NO GREATER THAN 1:20 (5.0%) IN THE DIRECTION OF TRAVEL AND MUST NOT EXCEED 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) IN CROSS SLOPE.
   E. WHERE PATH OF TRAVEL WILL BE GREATER THAN 1:20 (5.0%), AN ADA RAMP, WITH A MAXIMUM SLOPE OF 1:12 (8.3%), FOR A MAXIMUM RISE OF 30 INCHES, MUST BE PROVIDED. THE RAMP MUST HAVE A MINIMUM. CLEAR WIDTH OF 36 INCHES, HAVE ADA HAND RAILS AND LANDINGS (MIN. 5 FT. LONG IN THE DIRECTION OF TRAVEL) ON EACH END THAT ARE SLOPED A MIN. 1 % AND NO MORE THAN 1:48 (1/4" PER FOOT OR NOMINALLY 2.0%) FOR POSITIVE DRAINAGE.
   F. EXTERIOR DOORWAYS - MUST HAVE A "LEVEL" LANDING AREA ON THE EXTERIOR SIDE OF THE DOOR THAT IS SLOPED NO MORE THAN 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) FOR POSITIVE DRAINAGE. THIS LANDING AREA IS GENERALLY 5 FT X 5 FT, EXCEPT WHERE OTHERWISE PERMITTED BY ADA STANDARDS. (SEE APPLICABLE CODE SECTIONS).
3. IT IS RECOMMENDED THAT THE CONTRACTOR REVIEW THE INTENDED CONSTRUCTION WITH THE LOCAL BUILDING CODE OFFICIAL, INCLUDING WHETHER OR NOT FALL PROTECTION IS REQUIRED.
4. IT IS RECOMMENDED THAT THE CONTRACTOR CHECK THE SLOPE OF FORMWORK FOR COMPLIANCE WITH ADA STANDARDS PRIOR TO POURING CONCRETE.

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE05561
COLLIERS ENGINEERING & DESIGN, INC.
NJ. C.O.A. #: 24GA28086500

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SHEET NAME: COVER SHEET

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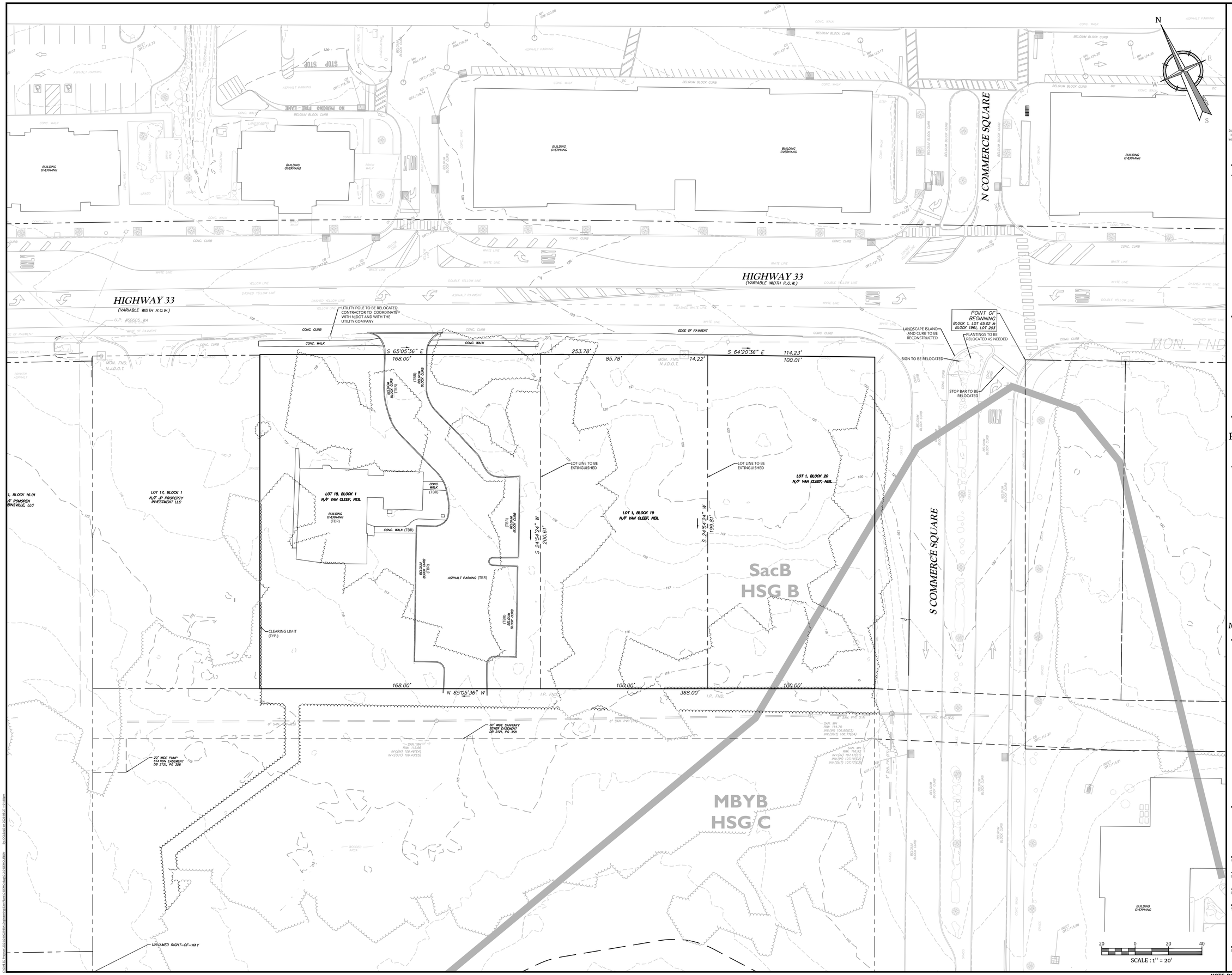

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SHEET NAME:

EXISTING CONDITIONS & DEMOLITION PLAN

DRAWING NUMBER:

2.0

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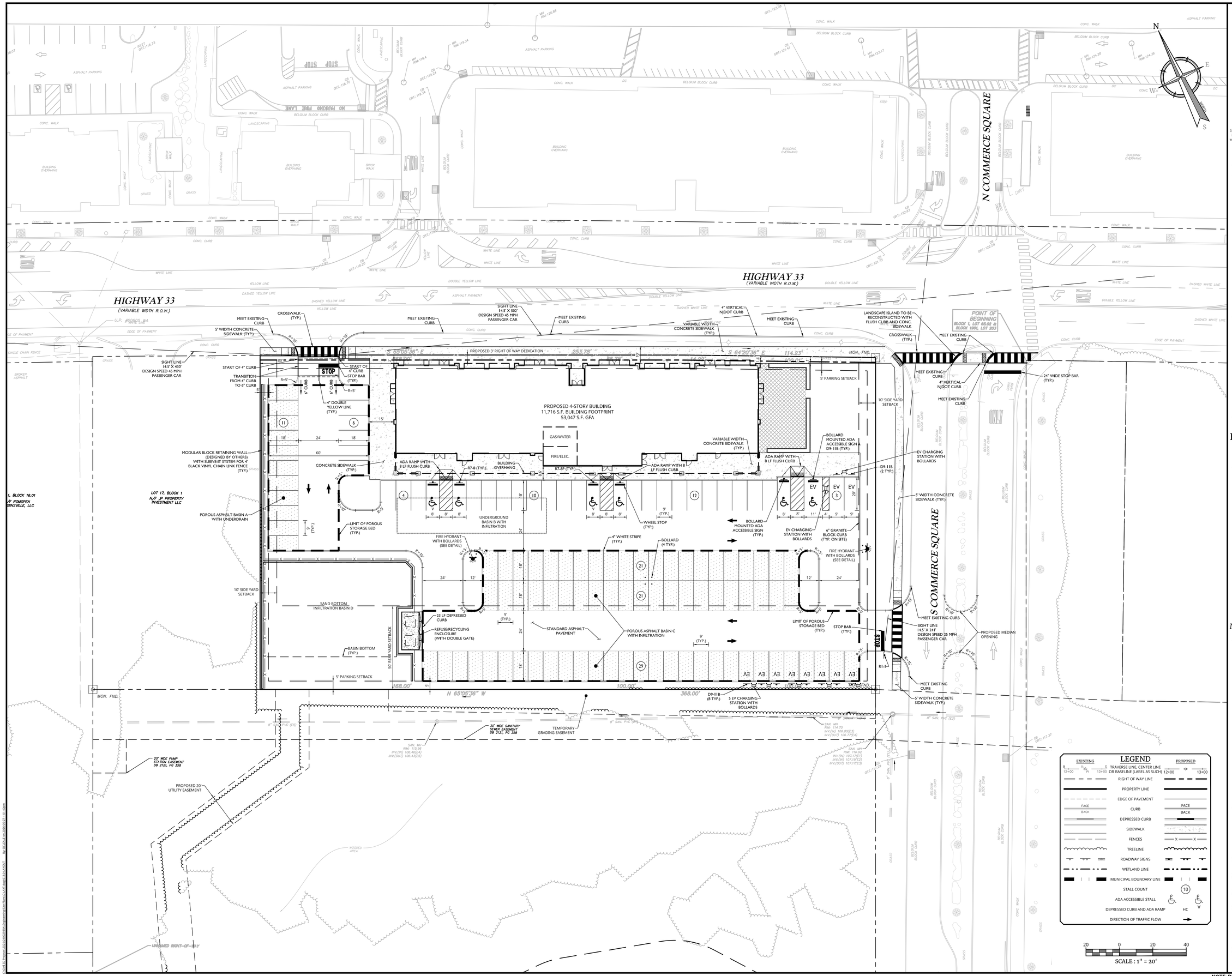

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DRAWING NUMBER: 3.0	

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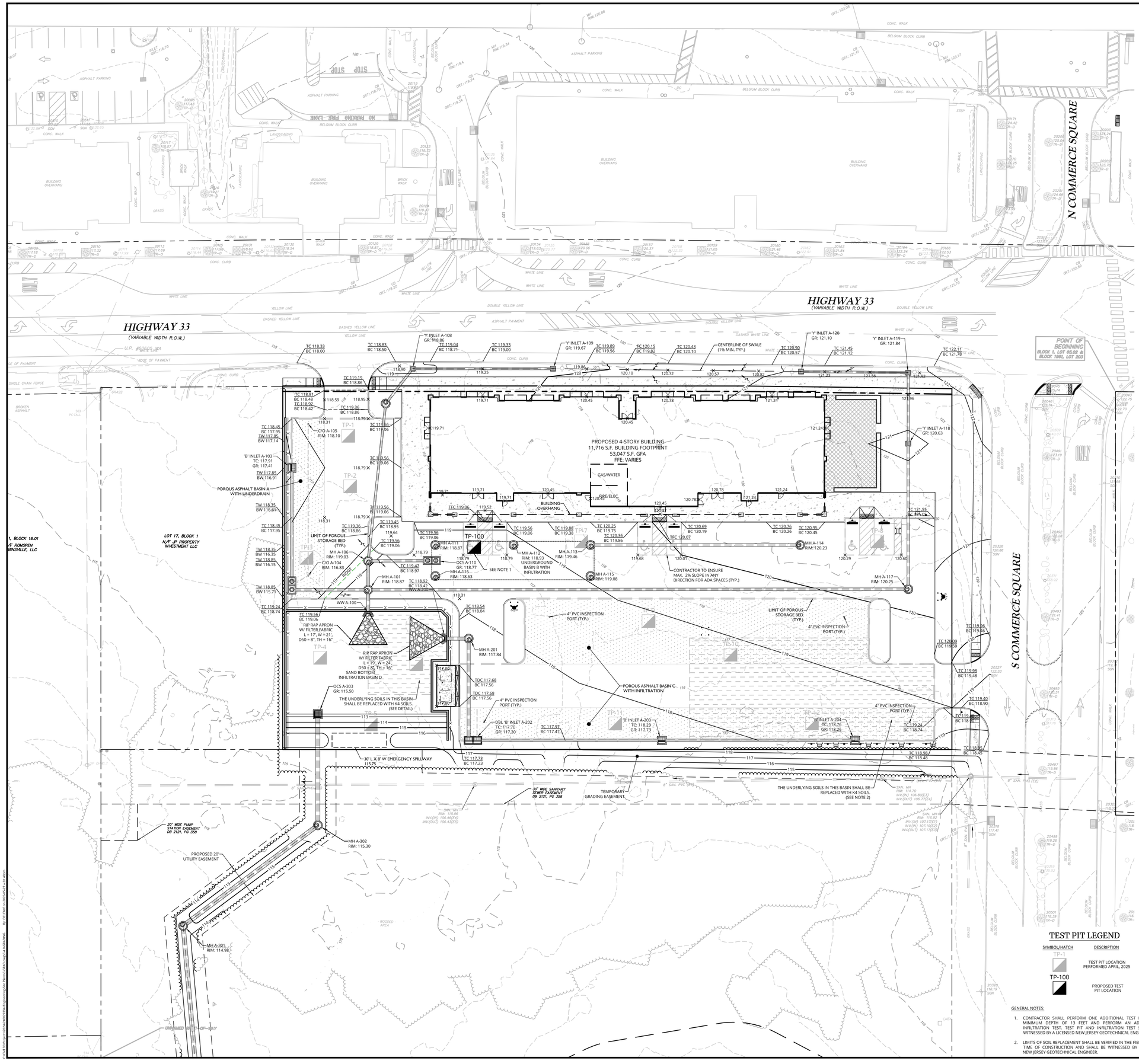
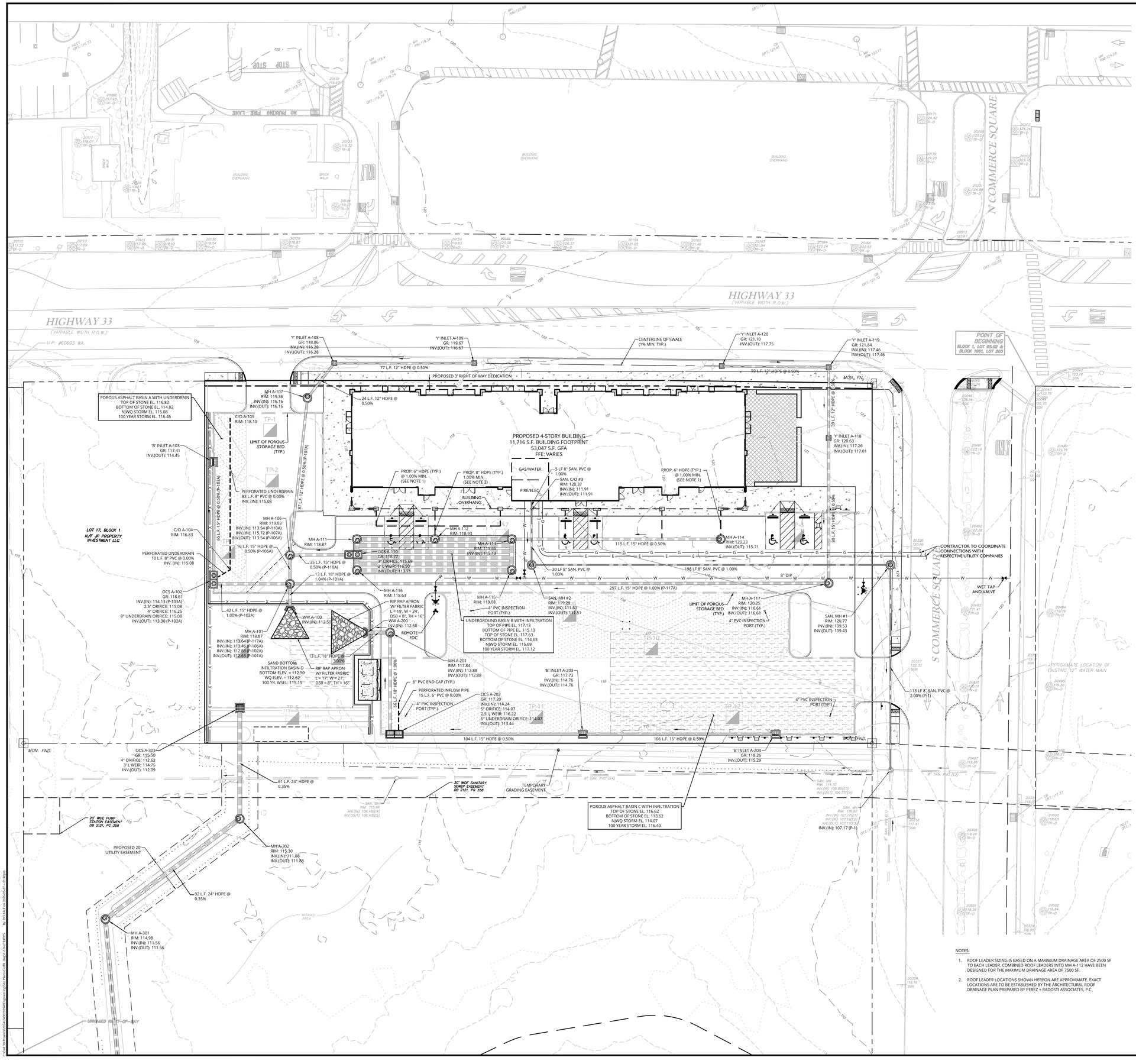
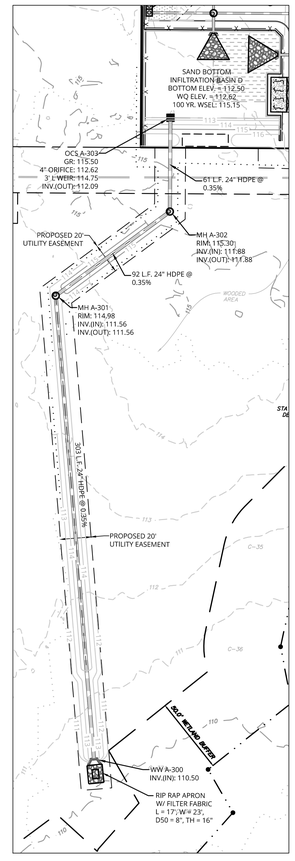

HIGHWAY 33
(VARIABLE WIDTH R.O.W.)
N COMMERCE SQUARE
S COMMERCE SQUARE
POINT OF BEGINNING
BLOCK 1, LOT 69.02 &
BLOCK 1901, LOT 303
PROPOSED 4-STORY BUILDING
11,716 S.F. BUILDING FOOTPRINT
53,047 S.F. GFA
FFE: VARIES
GAS/WATER
FIRE/ELEC
BUILDING OVERHANG
CENTERLINE OF SWALE (1% MIN. TYP.)
'Y' INLET A-108 GR: 118.86
'Y' INLET A-109 GR: 119.67
'Y' INLET A-120 GR: 121.10
'Y' INLET A-119 GR: 121.84
'Y' INLET A-118 GR: 120.63
'B' INLET A-103 TC: 117.91 GR: 117.41
'B' INLET A-203 TC: 118.23 GR: 117.73
'B' INLET A-204 TC: 118.76 GR: 118.26
DBL 'B' INLET A-202 TC: 117.70 GR: 117.20
POROUS ASPHALT BASIN A WITH UNDERDRAIN
POROUS ASPHALT BASIN C WITH INFILTRATION
LIMIT OF POROUS STORAGE BED (TYP.)
RIP RAP APRON W/ FILTER FABRIC L = 17, W = 21', D50 = 8", TH = 16"
RIP RAP APRON W/ FILTER FABRIC L = 19', W = 24', D50 = 8", TH = 16"
SAND BOTTOM INFILTRATION BASIN D
OCS A-303 GR: 115.50
THE UNDERLYING SOILS IN THIS BASIN SHALL BE REPLACED WITH K4 SOILS. (SEE DETAIL)
THE UNDERLYING SOILS IN THIS BASIN SHALL BE REPLACED WITH K4 SOILS. (SEE NOTE 2)
4" PVC INSPECTION PORT (TYP.)
CONTRACTOR TO ENSURE MAX. 2% SLOPE IN ANY DIRECTION FOR ADA SPACES (TYP.)
SEE NOTE 1
30' L X 8' W EMERGENCY SPILLWAY
TEMPORARY GRADING EASEMENT
30' WIDE SANITARY SEWER EASEMENT DB 2121, PG 358
30' WIDE PUMP STATION EASEMENT DB 2121, PG 358
PROPOSED 20' UTILITY EASEMENT
MH A-301 RIM: 114.98
MH A-302 RIM: 115.30
MH A-303 RIM: 115.30
MH A-304 RIM: 115.30
MH A-305 RIM: 115.30
MH A-306 RIM: 115.30
MH A-307 RIM: 115.30
MH A-308 RIM: 115.30
MH A-309 RIM: 115.30
MH A-310 RIM: 115.30
MH A-311 RIM: 115.30
MH



NOTES:

1. ROOF LEADER SIZING IS BASED ON A MAXIMUM DRAINAGE AREA OF 2500 SF TO EACH LEADER. COMBINED ROOF LEADERS INTO MH A-112 HAVE BEEN DESIGNED FOR THE MAXIMUM DRAINAGE AREA OF 7500 SF.
2. ROOF LEADER LOCATIONS SHOWN HEREON ARE APPROXIMATE. EXACT LOCATIONS ARE TO BE ESTABLISHED BY THE ARCHITECTURAL ROOF DRAINAGE PLAN PREPARED BY PEREZ + RADOSTI ASSOCIATES, P.C.



INSET

SCALE: 1" = 40'

LEGEND

EXISTING		PROPOSED
12+00 PI 13+00	TRAVERSE LINE, CENTER LINE OR BASELINE (LABEL AS SUCH)	12+00 13+00
	RIGHT OF WAY LINE	
	PROPERTY LINE	
	EDGE OF PAVEMENT	
FACE / BACK	CURB	FACE / BACK
	DEPRESSED CURB	
	SIDEWALK	
X X	FENCES	X X
	TREELINE	
	ROADWAY SIGNS	
	WETLAND LINE	
	MUNICIPAL BOUNDARY LINE	
	TYPE 'B' INLET	
	TYPE 'C', 'D', 'E' INLET	
	STORM MANHOLE	D
S	SANITARY MANHOLE	S
	FLARED END SECTION	
	HEADWALL	
	HYDRANT	
	POLE MOUNTED LIGHT	
CATV	CABLE TV CONDUIT	CATV
W	WATER MAIN	W
G	GAS MAIN	G
T	TELEPHONE CONDUIT	T
E	ELECTRIC CONDUIT	E
	SANITARY PIPE	
	STORM PIPE	

20 0 20 40

SCALE : 1" = 20'

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SHEET NAME:

UTILITIES PLAN

DRAWING NUMBER:

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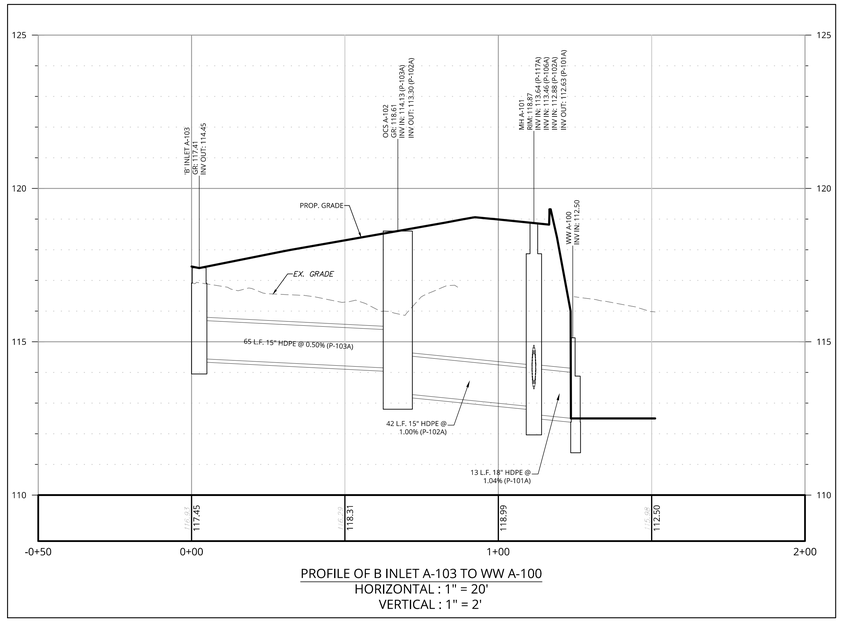
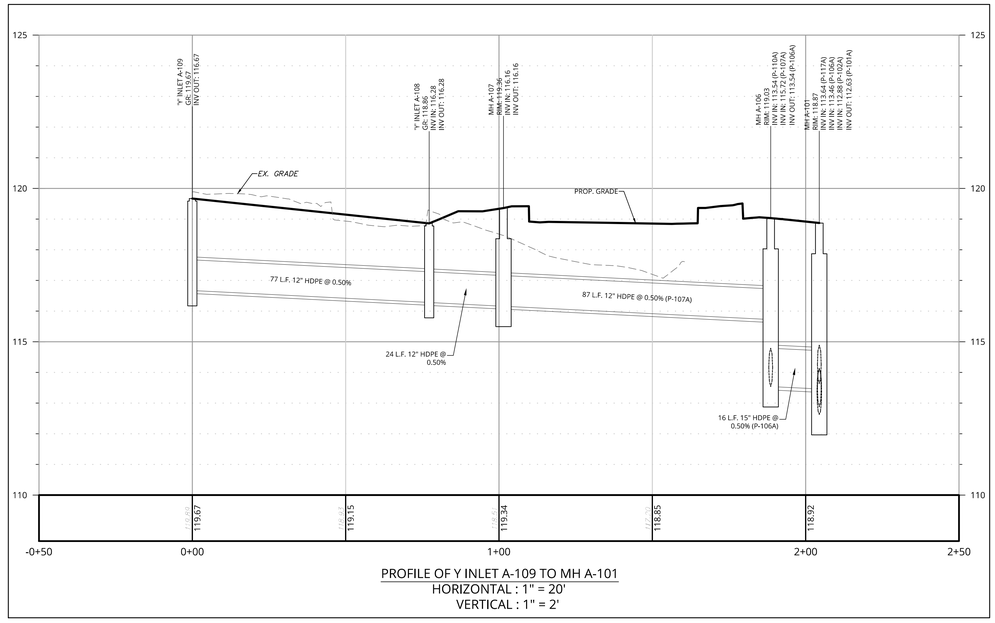
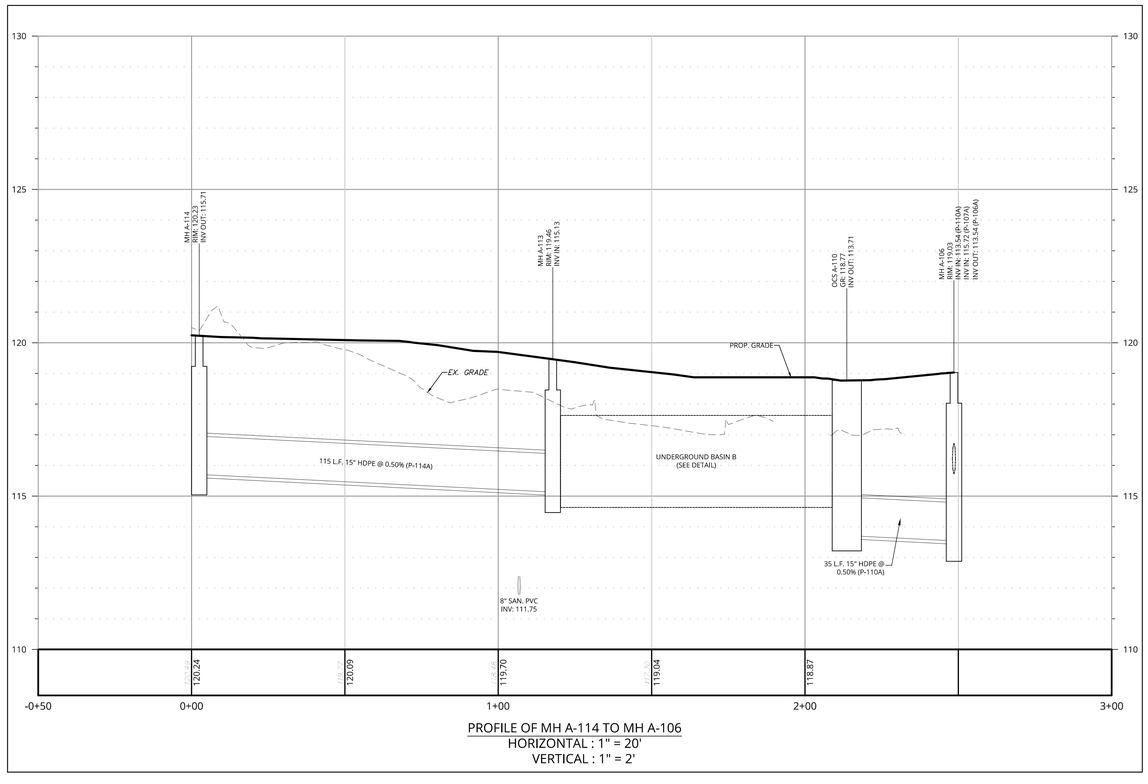


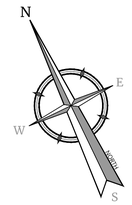
PROFILE OF B INLET A-103 TO WW A-100
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'

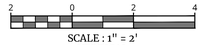


PROFILE OF Y INLET A-109 TO MH A-101
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



PROFILE OF MH A-114 TO MH A-106
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'





SCALE : 1" = 2'
VERTICAL

SCALE : 1" = 20'
HORIZONTAL

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE45961
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27996500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

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DESIGNED BY: SLD	REVIEWED BY: MJJ
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

PROFILES

DRAWING NUMBER:

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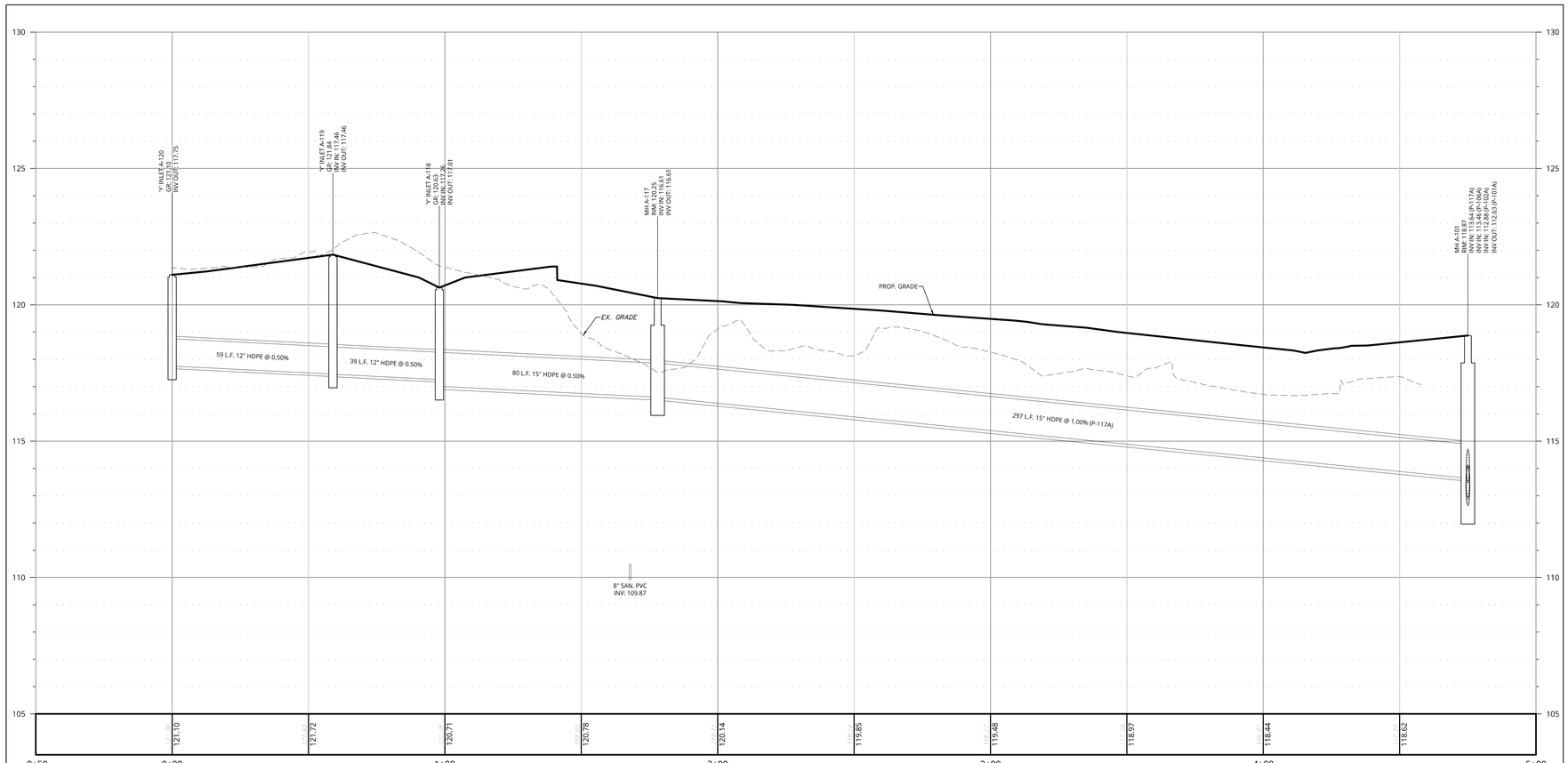
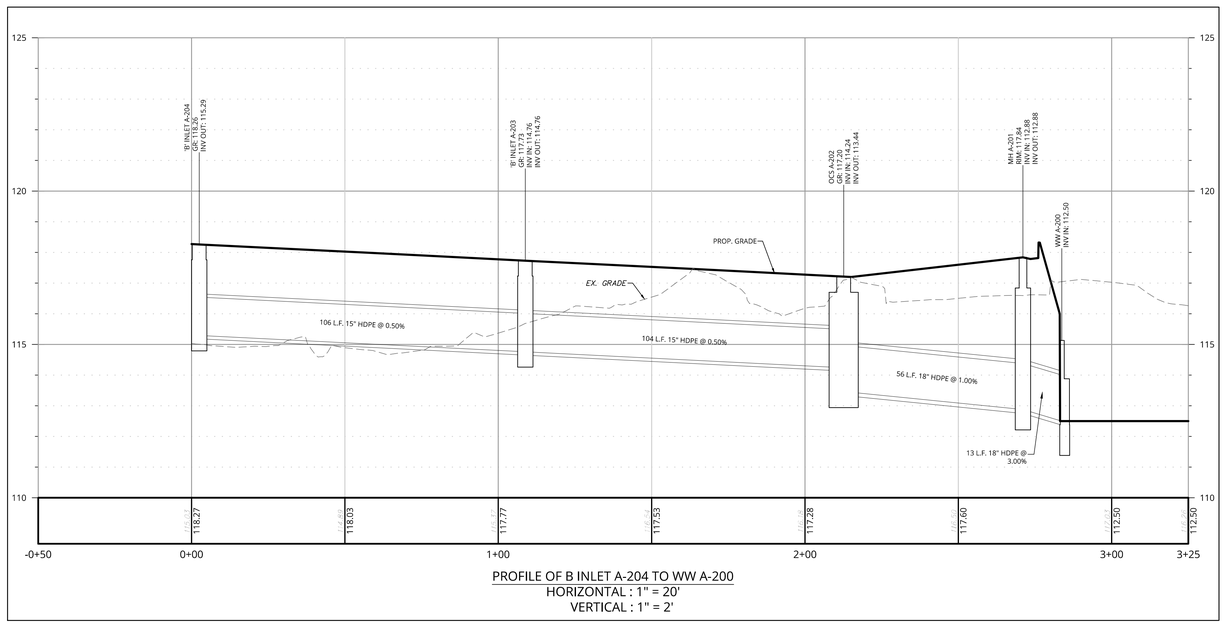
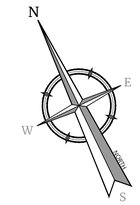
Last Saved by: sdavis on 12/22/2025 at 2:05:25 PM By: SDAVIS Filename: C:\Revit Projects\24002939A Robbinsville Heights_Block 1, Lots 18, 19 & 20_central_SDAVIS.rvt



PROFILE OF Y INLET A-120 TO MH A-101
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



PROFILE OF B INLET A-204 TO WW A-200
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



2 0 2 4
SCALE : 1" = 2'
VERTICAL

20 0 20 40
SCALE : 1" = 20'
HORIZONTAL

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE055561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA28086500

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SHEET NAME:

PROFILES

DRAWING NUMBER:

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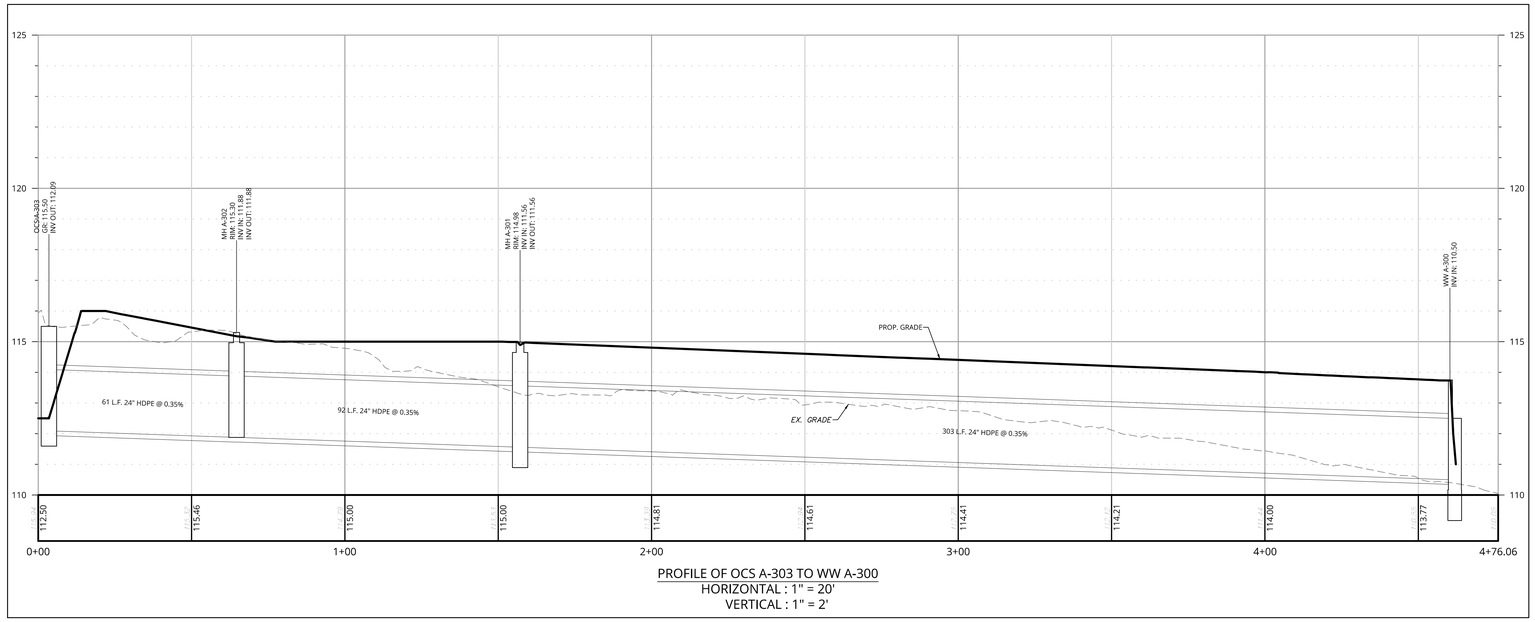
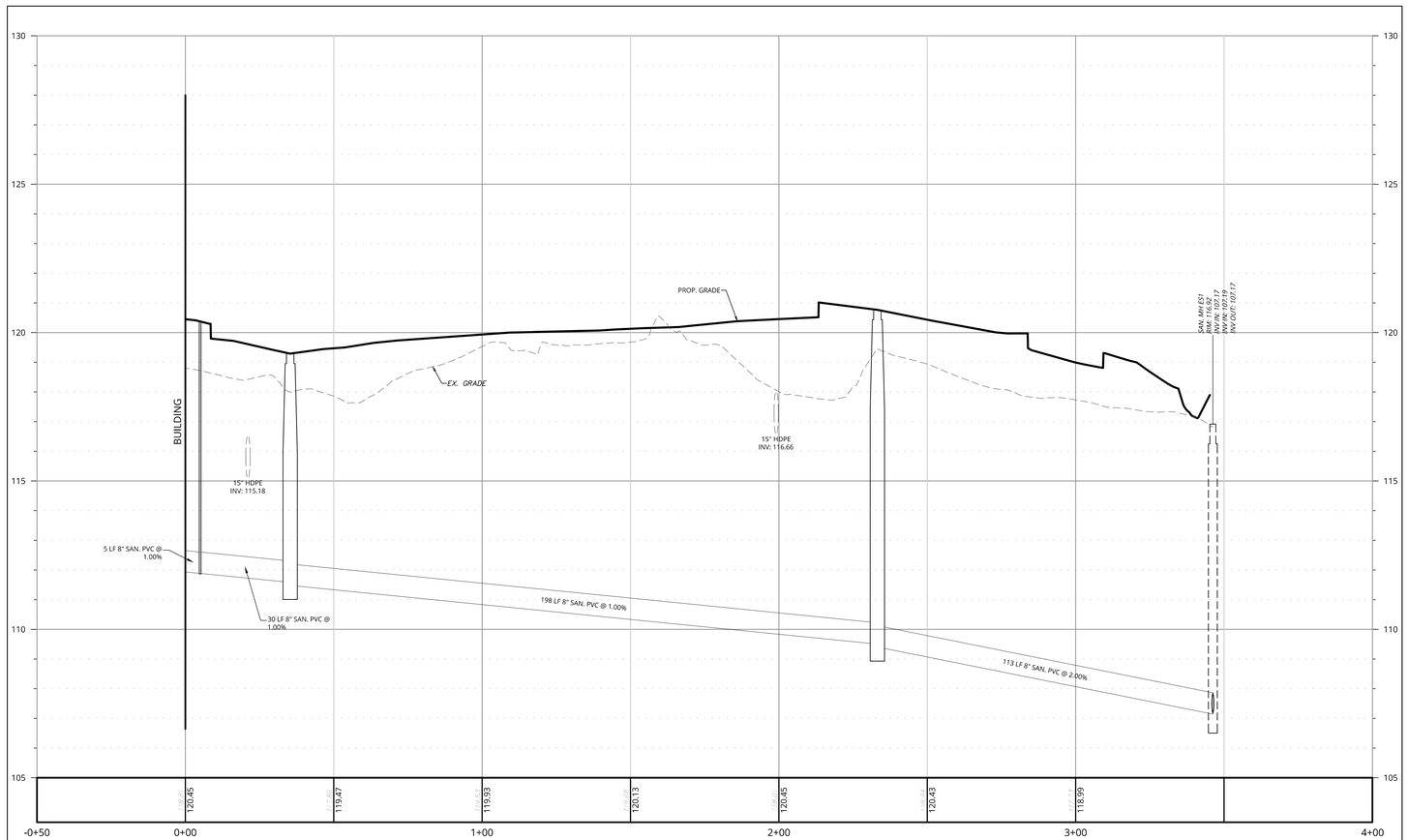
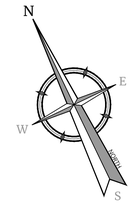


PROFILE OF OCS A-303 TO WW A-300
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



PROFILE OF SANITARY NETWORK
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



2 0 2 4
SCALE : 1" = 2'
VERTICAL

20 0 20 40
SCALE : 1" = 20'
HORIZONTAL

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DESIGNED BY: SLD	REVIEWED BY: MJJ
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

PROFILES

DRAWING NUMBER:

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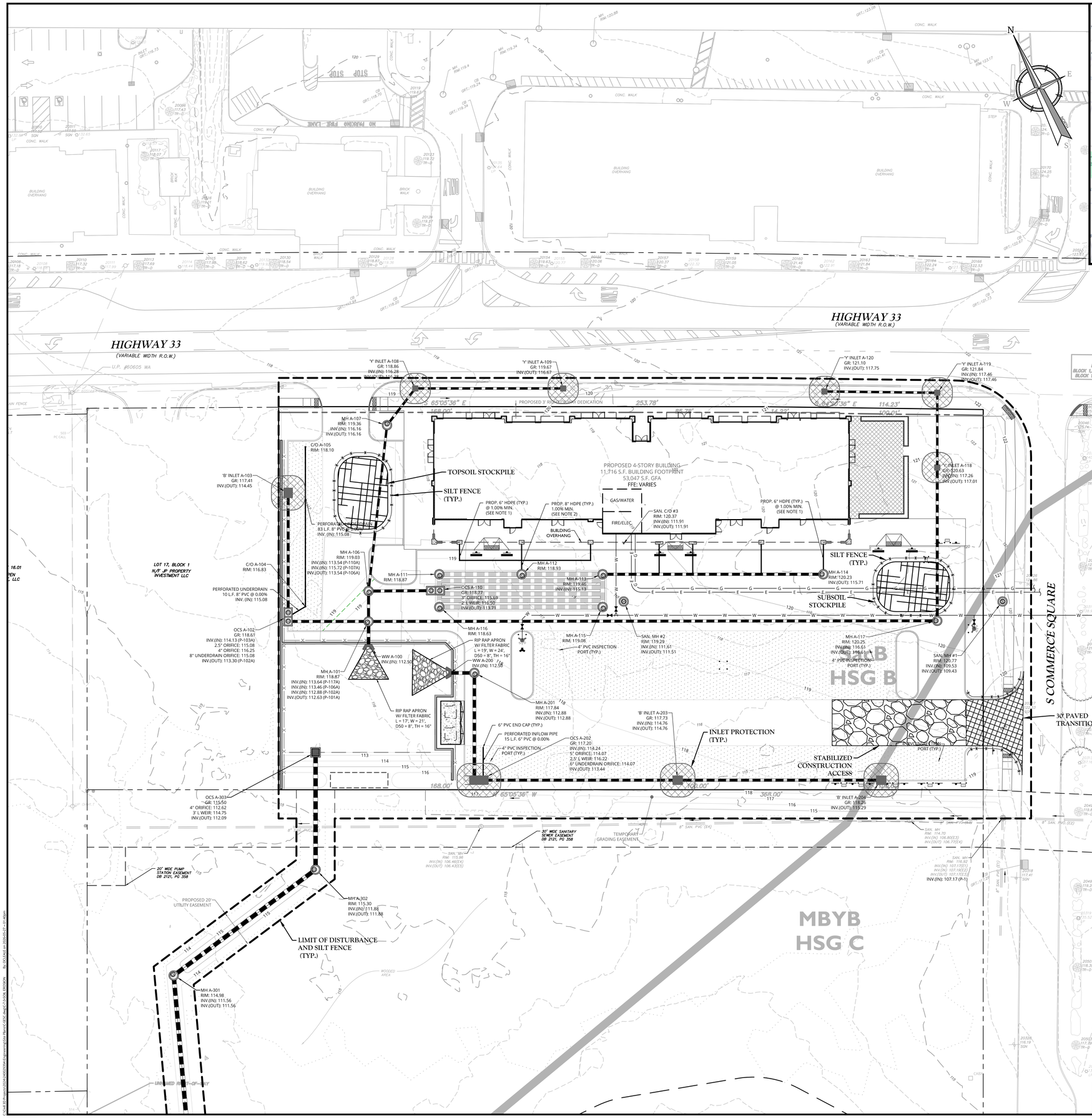
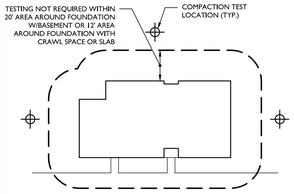

HIGHWAY 33
(VARIABLE WIDTH R.O.W.)
U.P. #60605 WA
HIGHWAY 33
(VARIABLE WIDTH R.O.W.)
N 65°05'36" E
253.78'
168.00'
114.23'
102.01'
PROPOSED 3' RIGHT-OF-WAY DEDICATION
PROPOSED 4-STORY BUILDING
11,716 S.F. BUILDING FOOTPRINT
53,047 S.F. GFA
FFE: VARIES
GAS/WATER
FIRE/ELEC.
BUILDING OVERHANG
TOPSOIL STOCKPILE
SILT FENCE (TYP.)
SUBSOIL STOCKPILE
INLET PROTECTION (TYP.)
STABILIZED CONSTRUCTION ACCESS
30' PAVED TRANSITION
LIMIT OF DISTURBANCE AND SILT FENCE (TYP.)
PROPOSED 20' UTILITY EASEMENT
20' WIDE PUMP STATION EASEMENT DB 2121, PG 358
30' WIDE SANITARY SEWER EASEMENT DB 2121, PG 358
TEMPORARY GRADING EASEMENT
UNIMPROVED RIGHT-OF-WAY
LOT 17, BLOCK 1
N/F JP PROPERTY INVESTMENT LLC
S COMMERCE SQUARE
MBYB
HSG C
HSG B
WOODED AREA
'Y' INLET A-108
GR: 118.86
INV.(IN): 116.28
INV.(OUT): 116.28
'Y' INLET A-109
GR: 119.67
INV.(OUT): 116.67
'Y' INLET A-120
GR: 121.10
INV.(OUT): 117.75
'Y' INLET A-119
GR: 121.84
INV.(IN): 117.46
INV.(OUT): 117.46
'Y' INLET A-118
GR: 120.63
INV.(IN): 117.26
INV.(OUT): 117.01
'B' INLET A-103
GR: 117.41
INV.(OUT): 114.45
'B' INLET A-203
GR: 117.72
INV.(IN): 114.76
INV.(OUT): 114.76
'B' INLET A-204
GR: 118.26
INV.(OUT): 115.29
MH A-107
RIM: 119.36
INV.(IN): 116.16
INV.(OUT): 116.16
MH A-106
RIM: 119.03
INV.(IN): 113.54 (P-110A)
INV.(IN): 115.72 (P-107A)
INV.(OUT): 113.54 (P-106A)
MH A-111
RIM: 118.87
MH A-112
RIM: 118.93
MH A-113
RIM: 119.06
INV.(IN): 115.13
MH A-114
RIM: 120.23
INV.(OUT): 115.71
MH A-115
RIM: 119.08
MH A-116
RIM: 118.63
MH A-117
RIM: 120.25
INV.(IN): 116.61
INV.(OUT): 116.61
MH A-201
RIM: 117.84
INV.(IN): 112.88
INV.(OUT): 112.88
C/O A-105
RIM: 118.10
C/O A-104
RIM: 116.83
OCS A-110
CR: 118.77
3" ORIFICE: 115.69
2" L WEIR: 116.50
INV.(OUT): 113.71
OCS A-102
GR: 118.61
INV.(IN): 114.13 (P-103A)
2.5" ORIFICE: 115.08
4" ORIFICE: 116.25
8" UNDERDRAIN ORIFICE: 115.08
INV.(OUT): 113.30 (P-102A)
OCS A-303
GR: 115.50
4" ORIFICE: 112.62
3" L WEIR: 114.75
INV.(OUT): 112.09
OCS A-202
GR: 117.20
INV.(IN): 114.24
5" ORIFICE: 114.07
2.5" L WEIR: 116.22
8" UNDERDRAIN ORIFICE: 114.07
INV.(OUT): 113.44
MH A-302
RIM: 115.30
INV.(IN): 111.88
INV.(OUT): 111.88
MH A-301
RIM: 114.98
INV.(IN): 111.56
INV.(OUT): 111.56
SAN. MH #2
RIM: 119.29
INV.(IN): 111.61
INV.(OUT): 111.51
SAN. MH #1
RIM: 120.77
INV.(IN): 109.53
INV.(OUT): 109.43
SAN. MH
RIM: 114.70
INV.(IN): 106.80(E3)
INV.(OUT): 106.77(E4)
SAN. MH
RIM: 116.92
INV.(IN): 107.17(E1)
INV.(IN): 107.19(E2)
INV.(OUT): 107.17(E3)
INV.(IN): 107.17 (P-1)
SAN. "SB"
RIM: 115.95
INV.(IN): 106.46(E4)
INV.(OUT): 106.43(E5)
WW A-100
INV.(IN): 112.50
WW A-200
INV.(IN): 112.50
WW A-300
INV.(IN): 110.50
RIP RAP APRON W/ FILTER FABRIC
L = 19', W = 24',
D50 = 8", TH = 16"
RIP RAP APRON W/ FILTER FABRIC
L = 17', W = 21',
D50 = 8", TH = 16"
6" PVC END CAP (TYP.)
PERFORATED INFLOW PIPE
15 L.F. 6" PVC @ 0.00%
4" PVC INSPECTION PORT (TYP.)
PERFORATED UNDERDRAIN
83 L.F. 8" PVC @ 0.00%
INV. (IN): 115.08
PERFORATED UNDERDRAIN
10 L.F. 8" PVC @ 0.00%
INV. (IN): 115.08
PROP. 6" HDPE (TYP.)
@ 1.00% MIN.
(SEE NOTE 1)
PROP. 8" HDPE (TYP.)
@ 1.00% MIN.
(SEE NOTE 2)
SAN. C/O #3
RIM: 120.37
INV.(IN): 111.91
INV.(OUT): 111.91
BUILDING OVERHANG
SILT FENCE (TYP.)
4" PVC INSPECTION PORT (TYP.)
SILT REMOVED WATER
POINT OF BEGINNING
BLOCK 1, LOT 65.02 &
BLOCK 1901, LOT 203
NO PARKING FIRE LANE
STOP
ONLY
CONC. WALK
BUILDING OVERHANG
BRICK WALK
SIGN
INLET
MH
CB
SAN
STEP
GRT.: 118.23
GRT.: 118.56
GRT.: 119.24
GRT.: 119.54
GRT.: 121.41
GRT.: 123.17
GRT.: 123.08
GRT.: 122.87
GRT.: 122.57
GRT.: 118.20
GRT.: 112.32
GRT.: 121.73
RIM: 120.86
RIM: 119.34
RIM: 119.4
RIM: 123.17
INV.(IN): 111.91
INV.(OUT): 111.91
INV.(IN): 111.61
INV.(OUT): 111.51
INV.(IN): 109.53
INV.(OUT): 109.43
INV.(IN): 116.61
INV.(OUT): 116.61
INV.(IN): 115.13
INV.(OUT): 113.71
INV.(IN): 112.88
INV.(OUT): 112.88
INV.(IN): 114.24
INV.(OUT): 113.44
INV.(IN): 114.76
INV.(OUT): 114.76
INV.(IN): 107.17 (P-1)
INV.(IN): 112.50
INV.(OUT): 112.50
INV.(IN): 110.50
INV.(OUT): 115.71
INV.(OUT): 115.69
INV.(OUT): 111.88
INV.(OUT): 111.56
INV.(OUT): 112.09
INV.(OUT): 115.29
INV.(OUT): 114.07
INV.(OUT): 113.44
INV.(OUT): 112.09
INV.(OUT): 111.88
INV.(OUT): 111.56
INV.(OUT): 107.17(E3)
INV.(OUT): 106.77(E4)
INV.(OUT): 106.43(E5)
INV.(OUT): 106.46(E4)
INV.(OUT): 106.80(E3)
INV.(OUT): 107.17(E3)
INV.(OUT): 107.19(E2)
INV.(OUT): 107.17(E1)
INV.(OUT): 112.63 (P-101A)
INV.(OUT): 113.30 (P-102A)
INV.(OUT): 113.46 (P-106A)
INV.(OUT): 113.64 (P-117A)
INV.(OUT): 113.54 (P-107A)
INV.(OUT): 113.54 (P-106A)
INV.(IN): 113.64 (P-117A)
INV.(IN): 113.46 (P-106A)
INV.(IN): 112.88 (P-102A)
INV.(IN): 114.13 (P-103A)
INV.(IN): 115.72 (P-107A)
INV.(IN): 115.08
INV.(IN): 116.16
INV.(OUT): 116.16
INV.(IN): 116.28
INV.(OUT): 116.28
INV.(IN): 119.67
INV.(OUT): 116.67
INV.(IN): 121.10
INV.(OUT): 117.75
INV.(IN): 117.46
INV.(OUT): 117.46
INV.(IN): 117.26
INV.(OUT): 117.01
INV.(IN): 117.72
INV.(IN): 114.76
INV.(OUT): 114.76
INV.(IN): 118.26
INV.(OUT): 115.29
INV.(IN): 115.30
INV.(IN): 111.88
INV.(OUT): 111.88
INV.(IN): 114.98
INV.(IN): 111.56
INV.(OUT): 111.56
INV.(IN): 120.25
INV.(IN): 116.61
INV.(OUT): 116.61
INV.(IN): 117.84
INV.(IN): 112.88
INV.(OUT): 112.88
INV.(IN): 119.03
INV.(IN): 113.54 (P-110A)
INV.(IN): 115.72 (P-107A)
INV.(OUT): 113.54 (P-106A)
INV.(IN): 118.93
INV.(IN): 115.13
INV.(IN): 120.23
INV.(OUT): 115.71
INV.(IN): 119.08
INV.(IN): 118.63
INV.(IN): 118.87
INV.(IN): 113.64 (P-117A)
INV.(IN): 113.46 (P-106A)
INV.(IN): 112.88 (P-102A)
INV.(OUT): 112.63 (P-101A)
INV.(IN): 118.10
INV.(IN): 116.83
INV.(IN): 115.08
INV.(IN): 115.08
INV.(IN): 114.13 (P-103A)
2.5" ORIFICE: 115.08
4" ORIFICE: 116.25
8" UNDERDRAIN ORIFICE: 115.08
INV.(OUT): 113.30 (P-102A)
INV.(IN): 117.41
INV.(OUT): 117.41
INV.(IN): 115.95
INV.(IN): 106.46(E4)
INV.(OUT): 106.43(E5)
INV.(IN): 116.92
INV.(IN): 107.17(E1)
INV.(IN): 107.19(E2)
INV.(OUT): 107.17(E3)
INV.(IN): 107.17 (P-1)
INV.(IN): 114.70
INV.(IN): 106.80(E3)
INV.(OUT): 106.77(E4)
INV.(IN): 115.30
INV.(IN): 111.88
INV.(OUT): 111.88
INV.(IN): 114.98
INV.(IN): 111.56
INV.(OUT): 111.56
INV.(IN): 117.72
INV.(IN): 114.76
INV.(OUT): 114.76
INV.(IN): 118.26
INV.(OUT): 115.29

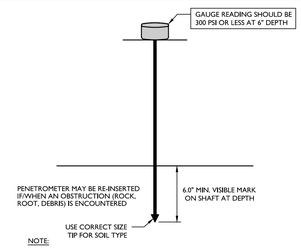


NOTES:

1. SOIL COMPACTION TESTING LOCATIONS IDENTIFIED ARE RECOMMENDED LOCATIONS FOR GRADED/DISTURBED AREAS WITHIN THE VICINITY OF BUILDINGS AND STRUCTURES OR ON INDIVIDUAL LOTS. MINIMUM TWO (2) TEST PITS PER LOT UP TO 1 ACRE OF DISTURBANCE.
2. FOR GRADED/DISTURBED AREAS WITHIN OPEN OR COMMON SPACES, SOIL COMPACTION TESTING SHALL BE PERFORMED AT TWO (1) TEST PITS PER ACRE OF OVERALL LIMIT OF DISTURBANCE, EVENLY DISTRIBUTED.

TYPICAL SOIL COMPACTION TESTING LOCATIONS DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-2802 12/01/17



NOTE:

1. SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURE USED TO ADVANCE THE PROBE. PROBE MUST PENETRATE AT LEAST 6" WITH LESS THAN 300 PSI READING ON THE GAUGE.
2. USE 1/2" TIP FOR FIRM SOIL, 3/4" TIP FOR SOFT SOIL.

HANDHELD SOIL PENETROMETER TEST DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-2801 12/01/17

NOTES:

1. SOIL SHOULD BE MOIST BUT NOT SATURATED. DO NOT TEST WHEN SOIL IS EXCESSIVELY DRY OR SUBJECT TO FREEZING TEMPERATURES. SLOW, STEADY DOWNWARD PRESSURE USED TO ADVANCE THE WIRE.
2. RECORD THE DEPTH OF PENETRATION WHEN WIRE IS DEFORMED.

PROBING WIRE TEST DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-2800 12/01/17

SOIL DECOMPACTION AND TESTING REQUIREMENTS

MCNJ-SOIL-NOTE-2000 05/01/18

A. SOIL COMPACTION TESTING REQUIREMENTS

1. SUBGRADE SOILS **PRIOR TO THE APPLICATION OF TOPSOIL** "STANDARD FOR VEGETATIVE COVER" NOTES SHALL BE FREE OF EXCESSIVE COMPACTION TO A **DEPTH OF 6.0 INCHES** TO ENHANCE THE ESTABLISHMENT OF PERMANENT VEGETATIVE COVER (SEE "STANDARD FOR VEGETATIVE COVER" NOTES FOR TOPSOIL REQUIREMENTS).
2. AREAS OF THE SITE WHICH ARE SUBJECT TO COMPACTION TESTING AND/OR MITIGATION ARE **GRAPHICALLY DENOTED** ON THE SOIL EROSION CONTROL PLAN. MINIMUM 2 TESTS FOR LIMIT OF DISTURBANCE UP TO 1 ACRE, PLUS 2 TESTS PER ACRE OF LIMIT OF DISTURBANCE THEREAFTER, SPACED EVENLY THROUGHOUT THE SITE.
3. COMPACTION TESTING LOCATIONS ARE DENOTED ON THE PLAN. A COPY OF THE PLAN SHALL BE USED TO MARK THE LOCATIONS OF TESTS AND ATTACHED TO THE **COMPACTION REMEDIATION FORM**, AVAILABLE FROM THE LOCAL SOIL CONSERVATION DISTRICT. THIS FORM MUST BE FILLED OUT AND SUBMITTED PRIOR TO RECEIVING A CERTIFICATE OF COMPLIANCE FROM THE DISTRICT.
4. IN THE EVENT THAT TESTING INDICATES COMPACTION IN EXCESS OF THE MAXIMUM THRESHOLDS INDICATED FOR THE PROBING OR PENETRATION TESTING METHODS (SEE DETAILS), THE CONTRACTOR/OWNER SHALL HAVE THE OPTION TO PERFORM EITHER (1) COMPACTION MITIGATION OVER THE ENTIRE MITIGATION AREA DENOTED ON THE PLAN (EXCLUDING EXEMPT AREAS), OR (2) PERFORM ADDITIONAL DENSITY TESTING TO ESTABLISH THE LIMITS OF EXCESSIVE COMPACTION WHEREUPON ONLY THE EXCESSIVELY COMPACTED AREAS WOULD REQUIRE COMPACTION MITIGATION. ADDITIONAL DENSITY TESTING SHALL BE PERFORMED BY A TRAINED, LICENSED PROFESSIONAL.

B. COMPACTION TESTING METHODS

1. PROBING WIRE TEST (SEE DETAIL)
2. HANDHELD PENETROMETER TEST (SEE DETAIL).
3. TUBE BULK DENSITY TEST (LICENSED PROFESSIONAL ENGINEER REQUIRED)
4. NUCLEAR DENSITY TEST (LICENSED PROFESSIONAL ENGINEER REQUIRED)
5. ADDITIONAL TESTING METHODS WHICH CONFORM TO ASTM STANDARDS AND SPECIFICATIONS, AND WHICH PRODUCE A DRY WEIGHT, SOIL BULK DENSITY MEASUREMENT MAY BE ALLOWED SUBJECT TO DISTRICT APPROVAL.

NOTE: SOIL COMPACTION TESTING IS NOT REQUIRED IF/WHEN SUBSOIL COMPACTION MITIGATION IS PROPOSED AS PART OF THE SEQUENCE OF CONSTRUCTION. FOR ADDITIONAL REQUIREMENTS AND EXEMPTIONS SEE SECTION 19 "STANDARD FOR LAND GRADING" OF THE STANDARD.

C. PROCEDURES FOR SOIL COMPACTION MITIGATION

1. PROCEDURES SHALL BE USED TO MITIGATE EXCESSIVE SOIL COMPACTION PRIOR TO PLACEMENT OF TOPSOIL AND ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
2. **RESTORATION OF COMPACTED SOILS SHALL BE THROUGH DEEP SCARIFICATION/TILLAGE (6" MINIMUM DEPTH)** WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
3. IN THE ALTERNATIVE, ANOTHER METHOD AS SPECIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER MAY BE SUBSTITUTED SUBJECT TO DISTRICT APPROVAL.

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER GE45561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
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COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN	DRAWN BY: SLD
DESIGNED BY: SLD	REVIEWED BY: MJJ
DATE ISSUED: 2/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

SOIL MANAGEMENT & PREPARATION PLAN

DRAWING NUMBER:

7.1

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

G:\EP Projects\2024\24002939A\Engineering\SPDs\PSP_Sheet 7.1 SOIL MANAGEMENT & PREP PLAN - By: CHRISTIAN DEMARCO - 2/22/2025 - 12:43pm

MERCER COUNTY SOIL CONSERVATION DISTRICT NOTES

MCNJ-SOIL-NOTE-1010 05/01/17

1. THE MERCER COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED 48 HOURS PRIOR TO STARTING LAND DISTURBANCE ACTIVITY. NOTICE MAY BE MAILED, FAXED OR EMAILED TO:
   MCSCD, 508 HUGHES DRIVE, HAMILTON SQUARE, NJ 08690
   PHONE: 609-586-9603 FAX: 609-586-1117
   EMAIL: MERCERSOIL@AOL.COM
2. IF APPLICABLE TO THIS PROJECT, THE OWNER SHOULD BE AWARE OF HIS OR HER OBLIGATION TO FILE FOR A NJPDES CONSTRUCTION ACTIVITY STORMWATER 5G3 PERMIT (NJG0088313) VIA THE NJDEP ONLINE PERMITTING SYSTEM (WWW.NJ.GOV/DEP/ONLINE) AND TO MAINTAIN THE ASSOCIATED BEST MANAGEMENT PRACTICES AND STORMWATER POLLUTION PREVENTION PLAN SELF-INSPECTION LOGBOOK ONSITE AT ALL TIMES. THIS PERMIT MUST BE FILED PRIOR TO THE START OF SOIL DISTURBANCE THE ONLINE APPLICATION PROCESS WILL REQUIRE ENTRY OF AN SCD CERTIFICATION CODE, WHICH IS PROVIDED BY THE SOIL CONSERVATION DISTRICT UPON CERTIFICATION OF THE SOIL EROSION AND SEDIMENT CONTROL PLAN.
3. THE MERCER COUNTY SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
4. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, INCLUDING AN INCREASE IN THE LIMIT OF DISTURBANCE, WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RECERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
5. A COPY OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON SITE AT ALL TIMES.
6. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AS OUTLINED WITHIN THE SEQUENCE OF CONSTRUCTION ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CURRENT STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NJ. IF LANGUAGE CONTAINED WITHIN ANY OTHER PERMIT FOR THIS PROJECT IS MORE RESTRICTIVE THAN (BUT NOT CONTRADICTORY TO) WHAT IS CONTAINED WITHIN THESE NOTES OR ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, THEN THE MORE RESTRICTIVE PERMIT REQUIREMENTS SHALL BE FOLLOWED.
8. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A 1½" TO 2½" CLEAN STONE TRACKING PAD AT ALL CONSTRUCTION DRIVEWAYS IMMEDIATELY AFTER INITIAL SITE DISTURBANCE, WHETHER IDENTIFIED ON THE CERTIFIED PLAN OR NOT. THE WIDTH SHALL SPAN THE FULL WIDTH OF EGRESS, AND LENGTH SHALL BE 50 FT, OR MORE, DEPENDING ON SITE CONDITIONS AND AS REQUIRED BY THE FIELD STANDARD. THIS SHALL INCLUDE INDIVIDUAL LOT ACCESS POINTS WITHIN RESIDENTIAL SUBDIVISIONS. IF THE EGRESS IS TO A COUNTY ROAD, THEN A 20 FT. LONG PAVED TRANSITION SHALL BE PROVIDED BETWEEN THE EDGE OF PAVEMENT AND THE STONE PADS.
9. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OF PRELIMINARY GRADING, PROVIDED THAT ALL OTHER REQUIREMENTS RELATED TO DETENTION BASINS, SWALES AND THE SEQUENCE OF CONSTRUCTION HAVE BEEN MET.
10. ANY STOCKPILES OR DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN **FOURTEEN (14) DAYS** AND NOT SUBJECT TO CONSTRUCTION ACTIVITY WILL IMMEDIATELY RECEIVE TEMPORARY STABILIZATION. IF THE SEASON PREVENTS ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER, OR IF THE AREA IS NOT TOPSOILED, THEN THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO STATE STANDARDS. SLOPED AREAS IN EXCESS OF 3H:1V SHALL BE PROVIDED WITH EROSION CONTROL BLANKETS THAT ARE SUITABLE TO EROSION (I.E. STEEP SLOPES, ROADWAY EMBANKMENTS, ENVIRONMENTALLY SENSITIVE AREAS) WILL RECEIVE TEMPORARY STABILIZATION IMMEDIATELY AFTER INITIAL DISTURBANCE OR ROUGH GRADING
11. ANY STEEP SLOPES (I.E. SLOPES GREATER THAN 3:1) RECEIVING PIPELINE OR UTILITY INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS.
12. PERMANENT VEGETATION SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING AND TOPSOILING. ALL AGRONOMIC REQUIREMENTS CONTAINED WITHIN THE STANDARDS AND ON THE CERTIFIED PLAN SHALL BE EMPLOYED. MULCH WITH BINDER, IN ACCORDANCE WITH THE STANDARDS, SHALL BE USED ON ALL SEEDED AREAS. SAVE ALL TAGS AND/OR BAGS USED FOR SEED, LIME AND FERTILIZER, AND PROVIDE THEM TO THE DISTRICT INSPECTOR TO VERIFY THAT MIXTURES AND RATES MEET THE STANDARDS.
13. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER, SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, THEN NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
14. DURING THE COURSE OF CONSTRUCTION, SOIL COMPACTION MAY OCCUR WITHIN HAUL ROUTES, STAGING AREAS AND OTHER PROJECT AREAS. IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING, COMPACTED SURFACES SHOULD BE SCARIFIED 6" TO 12" IMMEDIATELY PRIOR TO TOPSOIL APPLICATION. THIS WILL HELP ENSURE A GOOD BOND BETWEEN THE TOPSOIL AND SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
15. PRIOR TO SEEDING, TOPSOIL SHALL BE WORKED TO PREPARE A PROPER SEEDBED. THIS SHALL INCLUDE RAKING OF THE TOPSOIL AND REMOVAL OF DEBRIS AND STONES, ALONG WITH OTHER REQUIREMENTS OF THE STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION.
16. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE BURIED WITH LIMESTONE IN ACCORDANCE WITH THE STANDARD AND BE COVERED WITH A MINIMUM OF 12" OF SOIL HAVING A PH OF 5 OR MORE PRIOR TO TOPSOIL APPLICATION AND SEEDBED PREPARATION. IF THE AREA IS TO RECEIVE TREE OR SHRUB PLANTINGS, OR IS LOCATED ON A SLOPE, THEN THE AREA SHALL BE COVERED WITH A MINIMUM OF 24" OF SOIL HAVING A PH OF 5 OR MORE.
17. MULCHING TO THE STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONAL ROC'S ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING. PERMANENT STABILIZATION MUST THEN BE COMPLETED DURING THE OPTIMUM SEEDING SEASON IMMEDIATELY FOLLOWING THE CONDITIONAL ROC, OR THE COMPLETION OF WORK IN A GIVEN AREA.
18. HYDROSEEDING IS A TWO-STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIME, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED-TO-SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE. UPON COMPLETION OF THE SEEDING OPERATION, HYDROMULCH SHOULD BE APPLIED AT A MINIMUM RATE OF 1500 LBS. PER ACRE IN SECOND STEP, THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE STANDARDS. THE USE OF HYDROMULCH ON SLOPED AREAS IS DISCOURAGED.
19. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF THE CONSTRUCTION PROJECT. ALL SEDIMENT WASHED, DROPPED, TRACKED OR SPILLED ONTO PAVED SURFACES SHALL BE IMMEDIATELY REMOVED.
20. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION, AND FOR EMPLOYING ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AT THE REQUEST OF THE MERCER COUNTY SOIL CONSERVATION DISTRICT.
21. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
22. ALL DETENTION / RETENTION BASINS MUST BE FULLY CONSTRUCTED (INCLUSIVE OF ALL STRUCTURAL COMPONENTS AND LINERS) AND PERMANENTLY STABILIZED PRIOR TO PAVING OR PRIOR TO THE ADDITION OF ANY IMPERVIOUS SURFACES. PERMANENT STABILIZATION INCLUDES, BUT MAY NOT BE LIMITED TO: TOPSOIL, SEED, STRAW MULCH AND BINDERS OR EROSION CONTROL BLANKETS ON ALL SEEDING, ALL AGRONOMIC REQUIREMENTS AS SPECIFIED ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN, INSTALLATION OF THE OUTFLOW CONTROL STRUCTURES AND DISCHARGE STORM DRAINAGE PIPING, LOW FLOW CHANNELS, CONDUIT OUTLET PROTECTION, EMERGENCY SPILLWAYS, AND LAP RING PROTECTION.
23. THE RIDING SURFACE OF ALL UTILITY TRENCHES WITHIN PAVED AREAS SHALL BE 3/4" CLEAN STONE OR BASE PAVEMENT UNTIL SUCH TIME AS FINAL PAVEMENT HAS BEEN INSTALLED. TEMPORARY SOIL RIDING SURFACES ARE PROHIBITED.
24. ALL CONSTRUCTION DEWATERING (TRENCHES, EXCAVATIONS, ETC.) MUST BE DONE THROUGH AN INLET OR OUTLET FILTER IN ACCORDANCE WITH THE STANDARD FOR DEWATERING OR AS DEPICTED ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN. DISCHARGE LOCATIONS FOR THE DEWATERING OPERATION MUST CONTAIN PERENNIAL VEGETATION OR SIMILAR STABLE SURFACE.
25. ALL SWALES OR CHANNELS THAT WILL RECEIVE RUNOFF FROM PAVED SURFACES MUST BE PERMANENTLY STABILIZED PRIOR TO THE INSTALLATION OF PAVEMENT. IF THE SEASON PROHIBITS THE ESTABLISHMENT OF PERMANENT STABILIZATION, THE SWALES OR CHANNELS MAY BE TEMPORARILY STABILIZED IN ACCORDANCE WITH THE STANDARDS.
26. NJSA 4:24-39 ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY OR TEMPORARY CERTIFICATE OF OCCUPANCY BE ISSUED BY THE MUNICIPALITY BEFORE THE PROVISIONS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN HAVE BEEN SATISFIED. THEREFORE, ALL SITE WORK FOR SITE PLANS AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS MUST BE COMPLETED BEFORE THE DISTRICT ISSUES A REPORT OF COMPLIANCE OR CONDITIONAL REPORT OF COMPLIANCE, WHICH MUST BE FORWARDED TO THE MUNICIPALITY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY OR TEMPORARY CERTIFICATE OF OCCUPANCY, RESPECTIVELY.

MERCER COUNTY SOIL CONSERVATION DISTRICT
508 HUGHES DRIVE
HAMILTON SQUARE, NJ. 08690

BASIN COMPACTION NOTES (FOR ABOVE-GROUND INFILTRATION OR DETENTION BASIN)

MCNJ-SOIL-NOTE-1600 05/01/17

1. IMMEDIATELY PRIOR TO SEEDING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" INCHES WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
2. INSPECT SITE JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED IN ACCORDANCE WITH ABOVE.
3. IMMEDIATELY PRIOR TO TOPSOILING, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" INCHES WHERE THERE HAS BEEN SOIL COMPACTION. THIS WILL HELP INSURE A GOOD BOND BETWEEN THE TOPSOIL AND SUBSOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.).
4. SOIL COMPACTION RESULTING FROM LAND GRADING ACTIVITIES CAN IMPACT THE INFILTRATION RATE OF THE SOIL. RESTORATION OF COMPACTED SOILS THROUGH DEEP TILLAGE (6" TO 12") AND THE ADDITION OF ORGANIC MATTER MAY BE REQUIRED IN PLANNED PERVIOUS AREAS TO ENHANCE THE INFILTRATION RATE OF THE DISTURBED SOIL. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLE, IRRIGATION SYSTEMS, ETC.).
5. TO PREVENT COMPACTION OF THE SUBSOIL WHICH WILL REDUCE ITS INFILTRATION CAPACITY, BASINS SHOULD BE EXCAVATED WITH LIGHT EARTH MOVING EQUIPMENT, PREFERABLY WITH TRACKS OR SUPER-SQUEEZE TIRES RATHER THAN THE NORMAL RUBBER TIRES. ONCE THE FINAL CONSTRUCTION PHASE IS REACHED, THE FLOOR OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND SMOOTHED OVER WITH A LEVELING DRAG OR EQUIVALENT GRADING EQUIPMENT.
6. FOR BASINS, ANNUAL TILLING OPERATIONS MAINTAIN INFILTRATION CAPACITY. THESE TILLED AREAS SHOULD BE RE-VEGETATED IMMEDIATELY TO PREVENT EROSION. DEEP TILLING CAN BE USED TO BREAKUP CLOGGED SURFACE LAYERS FOLLOWED BY REGRADING AND LEVELING. SAND OR ORGANIC MATTER CAN BE TILLED INTO THE BASIN FLOOR TO PROMOTE A RESTORED INFILTRATION CAPACITY. SEDIMENT REMOVAL PROCEDURES SHOULD NOT BE UNDERTAKEN UNTIL THE BASIN IS THOROUGHLY DRY. THE TOP LAYER SHOULD BE REMOVED BY LIGHT EQUIPMENT TO PREVENT COMPACTION. THE REMAINING SOIL CAN BE RETILED AND DISTURBED VEGETATION REPLANTED.

SPPP REQUIRED INSPECTIONS AND REPORTS

MCNJ-SOIL-NOTE-1201 09/01/17

A COPY OF THE AUTHORIZATION SHALL BE POSTED ONSITE AT A SAFE, PUBLICLY ACCESSIBLE LOCATION IN CLOSE PROXIMITY OF THE CONSTRUCTION SITE AT ALL TIMES UNTIL A NOTICE OF COMPLETION HAS BEEN ISSUED. THE PERMITTEE SHALL POST THE NJDEP HOTLINE NUMBER (1-877-WARN-DEP) WITH THE COPY OF THE AUTHORIZATION.

I. ROUTINE INSPECTIONS

A. THE PERMITTEE SHALL CONDUCT AND DOCUMENT WEEKLY (MINIMUM) INSPECTIONS OF THE FACILITY TO IDENTIFY AREAS CONTRIBUTING TO THE STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT AND EVALUATE WHETHER THE STORMWATER POLLUTION PREVENTION PLAN (SPPP) IDENTIFIED UNDER E.I. OF THE CONSTRUCTION ACTIVITY STORMWATER (CSP) PART 5 NARRATIVE REQUIREMENTS, INCLUDING THIS SOIL EROSION AND SEDIMENT CONTROL PLAN IS BEING PROPERLY IMPLEMENTED AND MAINTAINED, OR WHETHER ADDITIONAL MEASURES ARE NEEDED TO IMPLEMENT THE SPPP.

B. ONCE INSTALLATION OF ANY REQUIRED OR OPTIONAL EROSION CONTROL DEVICE OR MEASURE HAS BEEN IMPLEMENTED, ROUTINE INSPECTIONS, MINIMUM WEEKLY, OF EACH MEASURE SHALL BE PERFORMED BY THE CONTRACTOR'S INSPECTION PERSONNEL AND THE RESULTS RECORDED TO INVENTORY AND REPORT THE CONDITION OF EACH MEASURE TO ASSIST IN MAINTAINING THE EROSION AND SEDIMENT CONTROL MEASURES IN GOOD WORKING ORDER.

C. THESE REPORT FORMS SHALL BECOME AN INTEGRAL PART OF THE SPPP AND SHALL BE MADE READILY ACCESSIBLE TO GOVERNMENTAL INSPECTION OFFICIALS, THE OPERATOR'S ENGINEER, AND THE OPERATOR FOR REVIEW UPON REQUEST DURING VISITS TO THE PROJECT SITE. IN ADDITION, COPIES OF THE REPORTS SHALL BE PROVIDED TO ANY OF THESE PERSONS, UPON REQUEST, VIA MAIL OR FACSIMILE TRANSMISSION.

D. OTHER RECORD-KEEPING REQUIREMENTS

THE CONTRACTOR SHALL KEEP THE FOLLOWING RECORDS RELATED TO CONSTRUCTION ACTIVITIES AT THE SITE:

- DATES WHEN MAJOR GRADING ACTIVITIES OCCUR AND THE AREAS WHICH WERE GRADED
- DATES AND DETAILS CONCERNING THE INSTALLATION OF STRUCTURAL CONTROLS
- DATES WHEN CONSTRUCTION ACTIVITIES CEASE IN AN AREA
- DATES WHEN AREAS IS STABILIZED EITHER TEMPORARILY OR PERMANENTLY
- DATES OF RAINFALL AND THE AMOUNT OF RAINFALL
- DATES AND DESCRIPTIONS OF THE CHARACTER AND AMOUNT OF AN SPILLS OF HAZARDOUS MATERIALS
- RECORDS OF REPORTS FILED WITH REGULATORY AGENCIES IF REPORTABLE QUANTITIES OF HAZARDOUS MATERIALS SPILLED

2. STORMWATER POLLUTION PREVENTION PLAN (SPPP)

A. CONSTRUCTION ACTIVITY THAT MAY RESULT IN A STORMWATER DISCHARGE AUTHORIZED BY THIS PERMIT SHALL BE EXECUTED ONLY IN ACCORDANCE WITH A SPPP THAT CONSISTS OF THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN AND (WHERE APPLICABLE) THE CONSTRUCTION SITE WASTE CONTROL COMPONENT SET FORTH IN ATTACHMENT B TO THE GENERAL PERMIT. A COPY OF THIS SPPP SHALL BE RETAINED BY THE PERMITTEE FOR A PERIOD OF AT LEAST FIVE (5) YEARS AFTER THE COMPLETION OF CONSTRUCTION. THIS PERIOD MAY BE EXTENDED BY WRITTEN REQUEST OF THE DEPARTMENT AT ANY TIME (SEE N.J.A.C. 7:14A-6.6):

3. REPORTS OF NONCOMPLIANCE

A. ALL INSTANCES OF NONCOMPLIANCE NOT REPORTED UNDER N.J.A.C. 7:14A-6.10 SHALL BE REPORTED TO THE DEPARTMENT ANNUALLY.

4. NOTIFICATION OF COMPLETION

A. THE SOIL CONSERVATION DISTRICT WILL PROVIDE THE DEPARTMENT A COPY OF THE REPORT OF COMPLIANCE ISSUED UNDER N.J.A.C. 2:90-3 FOR COMPLETED CONSTRUCTION ACTIVITIES, EXCEPT SINGLE FAMILY HOME CONSTRUCTION UNDER B. BELOW. THE REPORT OF COMPLIANCE SHALL SERVE AS THE NOTIFICATION OF COMPLETION

B. THE BUILDER OF A SINGLE FAMILY HOME THAT IS AUTHORIZED UNDER THIS PERMIT, BUT NOT WITHIN THE DEFINITION OF "PROJECT AT N.J.S.A. 4:24-41G, SHALL SEND A COPY OF THE FINAL CERTIFICATE OF OCCUPANCY TO THE SOIL CONSERVATION DISTRICT. THE SOIL CONSERVATION DISTRICT WILL PROVIDE A COPY OF THE FINAL CERTIFICATE OF OCCUPANCY TO THE DEPARTMENT, WHICH WILL SERVE AS NOTIFICATION OF COMPLETION.

C. THE DOT SHALL PROVIDE WRITTEN NOTIFICATION TO THE DEPARTMENT WHEN DOT CERTIFIED PROJECTS ARE COMPLETED.

5. COPIES OF ALL OF THE ABOVE, INCLUDING THE SPPP (WITH THE CERTIFIED PLAN), THE CERTIFICATION, AUTHORIZATION UNDER NJPDES CONSTRUCTION ACTIVITY STORMWATER GENERAL PERMIT, ALL CORRESPONDENCE AND NOTES TO AND FROM THE NJDEP AND SOIL CONSERVATION DISTRICT (OR DESIGNATED MUNICIPALITY) SHALL BE MAINTAINED ON-SITE.

MERCER COUNTY PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

MCNJ-SOIL-NOTE-1101 02/01/19

1. TOPSOIL STRIPPING AND STOCKPILING

A. FIELD EXPLORATION SHOULD BE MADE TO DETERMINE WHETHER QUANTITY AND/OR QUALITY OF SURFACE SOIL JUSTIFIES STRIPPING.

B. A 6-INCH STRIPPING DEPTH IS TYPICAL, BUT MAY VARY DEPENDING ON THE PARTICULAR SOIL STRUCTURE OR PRE-EXISTING USE.

C. STOCKPILES SHOULD BE LOCATED SO AS NOT TO OBSTRUCT NATURAL DRAINAGE OR CAUSE OFF-SITE ENVIRONMENTAL DAMAGE, AND SHALL BE DELINEATED ON THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN AND BE CONSTRUCTED IN ACCORDANCE WITH THE TOPSOIL STOCKPILE DETAIL.

D. STOCKPILES SHOULD BE TEMPORARILY STABILIZED ACCORDING TO THE STANDARDS.

2. SITE PREPARATION

A. INSTALL EROSION CONTROL MEASURES AND FACILITIES SUCH AS SILT FENCE, DIVERSIONS, SEDIMENT BASINS, AND CHANNEL STABILIZATION.

B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, AND MULCH ANCHORING. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING, 19-1.

3. SEEDBED PREPARATION

A. TOPSOIL REQUIRED
MIN. DEPTH: 5" (UNSETTLED)
PH: 6.0 TO 8.0
ORGANIC MATTER CONTENT: 2.75% MIN
NITRATE ND: 50 LBS/ACRE (50% WATER INSOLUBLE)
PHOSPHORUS: 100 LBS/ACRE
POTASSIUM: 50 LBS/ACRE

B. THE CONTRACTOR SHOULD BE AWARE OF THE POSSIBILITY, DEPENDING UPON THE SITE CONDITIONS, THAT ALL TOPSOIL MAY HAVE TO BE PROVIDED FROM AN OFF-SITE SOURCE.

C. TOPSOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO AN AVERAGE DEPTH OF 5 INCHES, MINIMUM OF 4 INCHES, FIRMED IN PLACE IS REQUIRED. ALTERNATIVE DEPTHS MAY BE CONSIDERED WHERE SPECIAL REGULATORY AND/OR INDUSTRY DESIGN STANDARDS ARE APPROPRIATE SUCH AS ON GOLF COURSES, SPORTS FIELDS, LANDFILL CAPPING ETC. TOPSOIL SHALL BE AMENDED WITH ORGANIC MATTER, AS NEEDED, IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING.

D. APPLY A UNIFORM 5 INCHES (UNSETTLED) OF TOPSOIL ON ALL DISTURBED AREAS. SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM DEPTH OF 12 INCHES OF SOIL HAVING A PH OF 5.0 OR MORE AND THE TOPSOIL MUST BE INCORPORATED TO TOPSOIL STANDARD AND SHALL BE LIMED ACCORDING TO THE SPECIFICATIONS.

E. IF THE TOPSOIL BECOMES COMPACTED, THE SURFACE MUST BE SCARIFIED 6" TO 12" TO PROVIDE GOOD SEED-TO-SOIL BOND

F. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS UNIVERSITY COOPERATIVE EXTENSION. IF SOIL TESTING IS NOT FEASIBLE, FERTILIZER (10-20-10) WITH 50% WATER INSOLUBLE NITROGEN SHOULD BE APPLIED AT THE TYPICAL RATE OF 500 LBS/ACRE OR 11 LBS/1,000 SQUARE FEET.

G. APPLY LIMESTONE EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDES (PULVERIZED DOLOMITIC LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK - TRENTON FALL LINE) AS FOLLOWS:

SOIL TEXTURE	TONS/ACRE	LBS/1,000 SQ. FT.
CLAY, CLAY LOAM, HIGH ORGANIC	3	135
SANDY LOAM,OAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

H. WORK LIME AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES. THE FINAL HARROWING OR DISC OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A UNIFORM, FINE SEEDBED IS PREPARED.

I. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION, AND OTHER OBJECTIONABLE STONES OR DEBRIS SUCH AS WIRE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS OR OTHER UNSUITABLE MATERIAL.

4. SEEDING

A. SELECT A SEED MIXTURE APPROVED BY THE MERCER COUNTY SCD.

B. APPLY SEED UNIFORMLY BY HAND, CYCLONES, DROP SEEDER, DRILL CULTIPACKER, OR HYDROSEEDER. THE LATTER MAY BE JUSTIFIABLE FOR LARGE, STEEP AREAS WHERE CONVENTIONAL APPLICATIONS ARE NOT FEASIBLE. HYDROSEEDING SHALL BE A TWO-STEP PROCESS: MULCH SHALL NOT BE MIXED WITH THE SEED. THE SEED MUST BE APPLIED FIRST TO ASSURE PROPER SEED TO SOIL CONTACT. THE HYDROMULCH IS THEN SPRAYED OVER THE SEEDING. FOR OPTIMUM RESULTS, THE SEED SHOULD BE INCORPORATED INTO THE SOIL TO A DEPTH OF ¼ TO ½ INCH DEPENDING UPON SPECIES.

* THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE STANDARDS.

C. AFTER SEEDING, THE SOIL SHOULD BE PACKED WITH A CORRUGATED ROLLER, WHEN PERFORMED ON THE CONTOUR, ROLLING WILL MINIMIZE SHEET EROSION AND MAXIMIZE WATER CONSERVATION.

5. MULCHING

A. UNROTTED STRAW, HAY FREE OF SEEDS, OR SALT HAY IS REQUIRED ON ALL SEEDING AT A RATE OF 1.5 TO 2 TONS/ACRE, (70 TO 90 LBS./1,000 SQUARE FEET), EXCEPT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER, THEN THE RATE OF APPLICATION IS 3 TONS PER ACRE.

B. MULCH ANCHORING SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS DUE TO WIND OR WATER. THIS MAY BE DONE ACCORDING TO THE FOLLOWING METHODS:

1. WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 LBS/ACRE APPLIED BY THE HYDROSEEDER. USE IS LIMITED TO ONLY THE OPTIMUM SEEDING SEASON
2. SYNTHETIC OR ORGANIC BINDERS
3. PEG AND TWINE, MULCH NETTING, AND MECHANICAL CRIMPING
4. CRIMPING REQUIRES A HIGHER MULCH RATE (3 TONS/ACRE)

NOTE:
1) ONE BALE OF HAY WEIGHS 40-60 LBS DEPENDING ON HOW IT WAS BALED
2) 1,500 GALLON TANK OF HYDROMULCH COVERS 0.5 ACRES

C. THE QUALITY OF PERMANENT VEGETATION RESTS WITH THE CONTRACTOR. THE TIMING OF SEEDING, PREPARING THE SEEDBED, APPLYING NUTRIENTS, MULCH AND OTHER MANAGEMENT ARE ESSENTIAL. THE SEED APPLICATION RATES IN TABLE 4-3 OF THE STANDARDS ARE REQUIRED WHEN A REPORT OF COMPLIANCE IS REQUESTED PRIOR TO ACTUAL ESTABLISHMENT OF PERMANENT VEGETATION. (UP TO 50% REDUCTION IS APPLICATION RATES MAY BE USED WHEN PERMANENT VEGETATION IS ESTABLISHED PRIOR TO REQUESTING A REPORT OF COMPLIANCE FROM THE DISTRICT. THESE RATES APPLY TO ALL METHODS OF SEEDING. ESTABLISHING A PERMANENT VEGETATION MEANS 80% EVENLY DISTRIBUTED VEGETATIVE COVER (OF THE SEEDED SPECIES) AND MOWED ONCE.

6. TEMPORARY SEEDING MIXES

MIX: EARLY SPRING/ LATE SUMMER TO EARLY FALL
100% PERENNIAL RYEGRASS
RATE: 100 LBS/ACRE

MIX: LATE FALL
100% CEREAL RYE
RATE: 112 LBS/ACRE

MIX: MID-SUMMER
40% PEARL MILLET
40% MILLET (GERMAN OR HUNGARIAN)
20% WEEPING LOVEGRASS
RATE: 100 LBS/ACRE

7. RECOMMENDED PERMANENT SEEDING MIXES

OPTIMUM SEEDING DATES:
MARCH 1 TO MAY 15 AND AUGUST 15 TO OCTOBER 15

LAWNS - RATE 200 LBS/ACRE

MERCER CO. SCD PREFERRED MIX FOR LAWNS AND DETENTION BASINS
70% TURF TYPE TALL FESCUE *#
20% PERENNIAL RYEGRASS
10% KENTUCKY BLUEGRASS

MIX: LAWNS - LOW MAINTENANCE, DROUGHTY & HEAVY TRAFFIC
80% TALL FESCUE TURF TYPE (LOW GROWING VARIETIES) *#
10% PERENNIAL RYEGRASS (LOW GROWING VARIETIES)

MIX: SHADE
65% HARD, CHEWINGS, OR CREEPING RED FESCUE *
20% KENTUCKY BLUEGRASS
15% PERENNIAL RYEGRASS

MIX: LAWNS - QUALITY SUN AND SHADE
20% PERENNIAL RYEGRASS
30% CHEWINGS FESCUE
35% CREEPING RED FESCUE
15% KENTUCKY BLUEGRASS

MIX: MOIST DETENTION BASIN BOTTOMS
40% FLAT PEA (WITH PROPER INOCULANT)
25% PERENNIAL RYEGRASS
25% TALL FESCUE OR STRONG CREEPING RED FESCUE
10% REDTOP*
(USE THE ABOVE MIX FOR INFREQUENT MOWING, FOR A REGULAR MOWING REGIME, SUBSTITUTE ROUGH BLUEGRASS AND/OR TALL FESCUE FOR THE FLAT PEA).

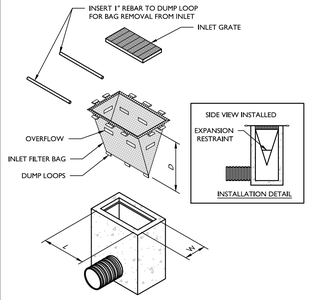
** INCLUDE AT LEAST THREE VARIETIES IN MIX*
 # EXCLUDE K-31

8. CONSERVATION PLANTINGS

MIX: RECLAMATION, EROSION CONTROL & ACID SOILS
RATE: 150 LBS/ACRE
40% SWITCHGRASS
25% SERICEA LESPEDEZA OR FLAT PEA
15% TALL FESCUE OR CREEPING RED FESCUE
15% BIRDSFOOT TREFOIL
5% BIRDSFOOT TREFOIL

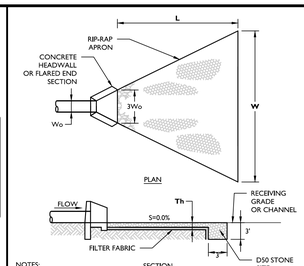
MIX: WILDFLOWER MEADOW

RATE: 50 LBS/ACRE
72% HARD OR SHEEPS FESCUE
22%



INLET PROTECTION (FILTER BAG) DETAIL

NOT TO SCALE | MCNJ-SOIL-EROS-1500 | 09/01/17

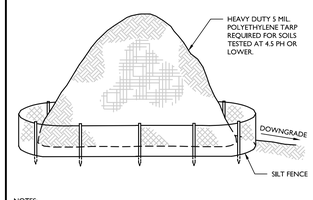


NOTES:

1. SEE PLAN FOR APRON DIMENSIONS.
2. SIDE SLOPE SHALL BE 2:1 OR FLATTER, THE BOTTOM GRADE SHALL BE LEVEL (0% SLOPE), THERE SHALL BE NO FALL AT THE END OF APRON TO THE RECEIVING SURFACE.

CONDUIT OUTLET PROTECTION DETAIL

NOT TO SCALE | MCNJ-SOIL-EROS-1600 | 05/01/17

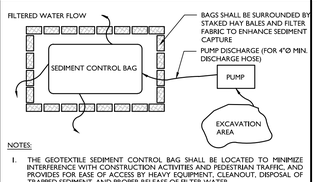


NOTES:

1. ALL STOCKPILES SHALL NOT TO BE LOCATED WITHIN 50 FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY.

STOCKPILE DETAIL

NOT TO SCALE | MCNJ-SOIL-EROS-2500 | 11/01/24

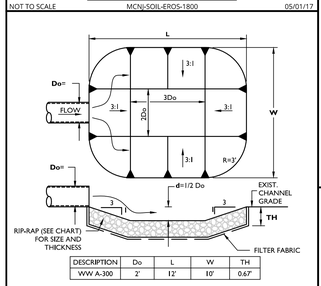


NOTES:

1. THE GEOTEXTILE SEDIMENT CONTROL BAG SHALL BE LOCATED TO MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES AND PEDESTRIAN TRAFFIC, AND PROVIDES FOR EASE OF ACCESS BY HEAVY EQUIPMENT, CLEANOUT, DISPOSAL OF TRAPPED SEDIMENT, AND PROPER RELEASE OF FILTER WATER.
2. THE FILTER BAG SHALL BE LOCATED MINIMUM 50 FEET AWAY FROM ALL WETLANDS, STREAM AND SURFACE WATERS.
3. THE BAG SHALL BE PLACED IN A LOCATION THAT IS VEGETATED THAT IS RELATIVELY LEVEL, OR ON A 2" THICK GRAVEL PAD, OR ON A 4" THICK STRAW MAT, TO ALLOW WATER TO FLOW OUT OF BAG IN ALL DIRECTIONS, AND PROPER RELEASE OF FILTER WATER.
4. BAG SHALL BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS BASED ON THE PUMP DISCHARGE RATE. WHEN THE REMAINING BAG FLOW AREA HAS BEEN REDUCED BY 75%, REPLACE WITH A NEW BAG.
5. DISPOSE THE SEDIMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. SPREAD THE SEDIMENT IN THE APPROPRIATE UPLAND AREA.

SEDIMENT CONTROL BAG FOR DEWATERING DETAIL

NOT TO SCALE | MCNJ-SOIL-EROS-1800 | 05/01/17



DESCRIPTION	Do	L	W	TH
WW A-300	2'	12'	10'	0.67'

PREFORMED SCOUR HOLE DETAIL

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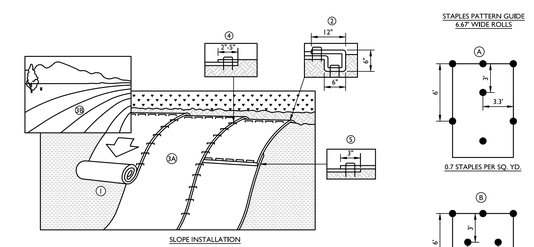

NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER AND SEED.
   * WHEN USING MATTING WITH SEED, DO NOT SEED THE AREA. FOLLOW MANUFACTURER'S RECOMMENDATIONS.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP x 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL THE RECPS (A.) DOWN OR (B.) HORIZONTALLY STEP BY STEP ACROSS THE SLOPE TAMPERING IT DOWN ALONG THE WAY. RECPS SHALL UNROLL WITH APPROPRIATE SIDE TIGHTLY AGAINST THE SOIL SURFACE. RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP'S MUST BE STAKED WITH APPROXIMATELY 3" TO 5" OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP'S WIDTH.
   * IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECPS.

EROSION MATTING (CURLEX ENFORCER I) DETAIL

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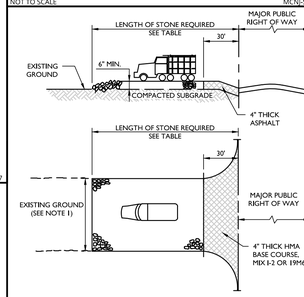


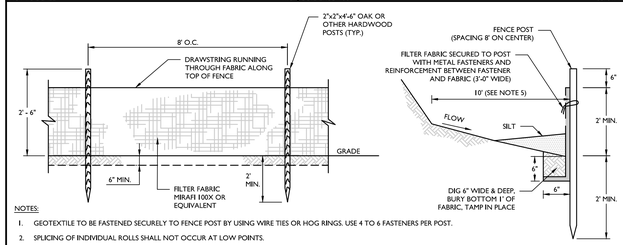
NOTES:

1. THE WIDTH OF CONSTRUCTION ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF POINTS OF INGRESS OR EGRESS, OR AS SHOWN ON THE PLAN.
2. THICKNESS SHOWN IS FOR STONE CONSTRUCTION ENTRANCE ONLY.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS.
4. THE ENTRANCE SHALL BE PERIODICALLY TOP DRESSED WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS ON-SITE CONDITIONS REQUIRE.
5. SPILLED, DROPPED, WASHED, OR TRACKED SEDIMENT ONTO ROADWAYS OR OTHER IMPERVIOUS SURFACES SHALL BE REMOVED IMMEDIATELY.
6. WHERE ACCUMULATION OF DUST AND SEDIMENT IS INADEQUATELY CLEANED OR REMOVED BY CONVENTIONAL METHODS, A POWER BROOM OR STREET SWEEPER SHALL BE USED TO CLEAN PAVED AREAS.
7. ALL OTHER ACCESS POINTS TO THE SITE WHICH DO NOT CONTAIN A CONSTRUCTION ACCESS PAD SHALL BE BLOCKED OFF.
8. STONE SIZE PER ASTM C-33, SIZE #2 (2 ½" TO 1 ½") OR #3 (2" TO 1") STONE.
9. INDIVIDUAL INTERIOR LOT INGRESS/EGRESS CONSTRUCTION ACCESS SHALL HAVE # 3 (1" TO 2") STONE, MINIMUM 10' (L) X 10' (W) AND 6" THICK.

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0% TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200 FT
> 5%	ENTIRE SURFACE STABILIZED WITH HOT MIX ASPHALT BASE COURSE, MIX I-2	

STABILIZED CONSTRUCTION ACCESS (WITH PAVEMENT) DETAIL

NOT TO SCALE | MCNJ-SOIL-EROS-1001 | 05/01/17



NOTES:

1. GEOTEXTILE TO BE FASTENED SECURELY TO FENCE POST BY USING WIRE TIES OR HOG RINGS. USE 4 TO 6 FASTENERS PER POST.
2. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
3. ALL SILT FENCE TO BE INSPECTED AND REMEDIAL MAINTENANCE PERFORMED BY THE CONTRACTOR WITHIN 24 HOURS AFTER EACH RAINFALL. REMOVE THE SILT ACCUMULATION WHEN IT REACHES 1/3 OF THE FENCE FABRIC HEIGHT.
4. FOR EVERY 100 FEET OF SILT FENCE, OR 1/4 ACRE OF DRAINAGE AREA, PROVIDE AN OVERFLOW POINT TO REDUCE PONDING IN FRONT OF THE FENCE.
5. IF SPACE PERMITTED, LOCATE SILT FENCE 10' AWAY FROM TOE OF SLOPE IF THE SLOPE IS STEEPER THAN 1:1.

SILT FENCE DETAIL

NOT TO SCALE | MCNJ-SOIL-EROS-1100 | 11/01/18

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Doing Business as

REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE45561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA28086500

Colliers Engineering & Design
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COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

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AS SHOWN	SLD
DESIGNED BY:	REVIEWED BY:
SLD	MJJ
DATE ISSUED:	PROJECT NUMBER:
12/22/25	24002939A

SHEET NAME:

SOIL EROSION & SEDIMENT CONTROL DETAILS

DRAWING NUMBER:

7.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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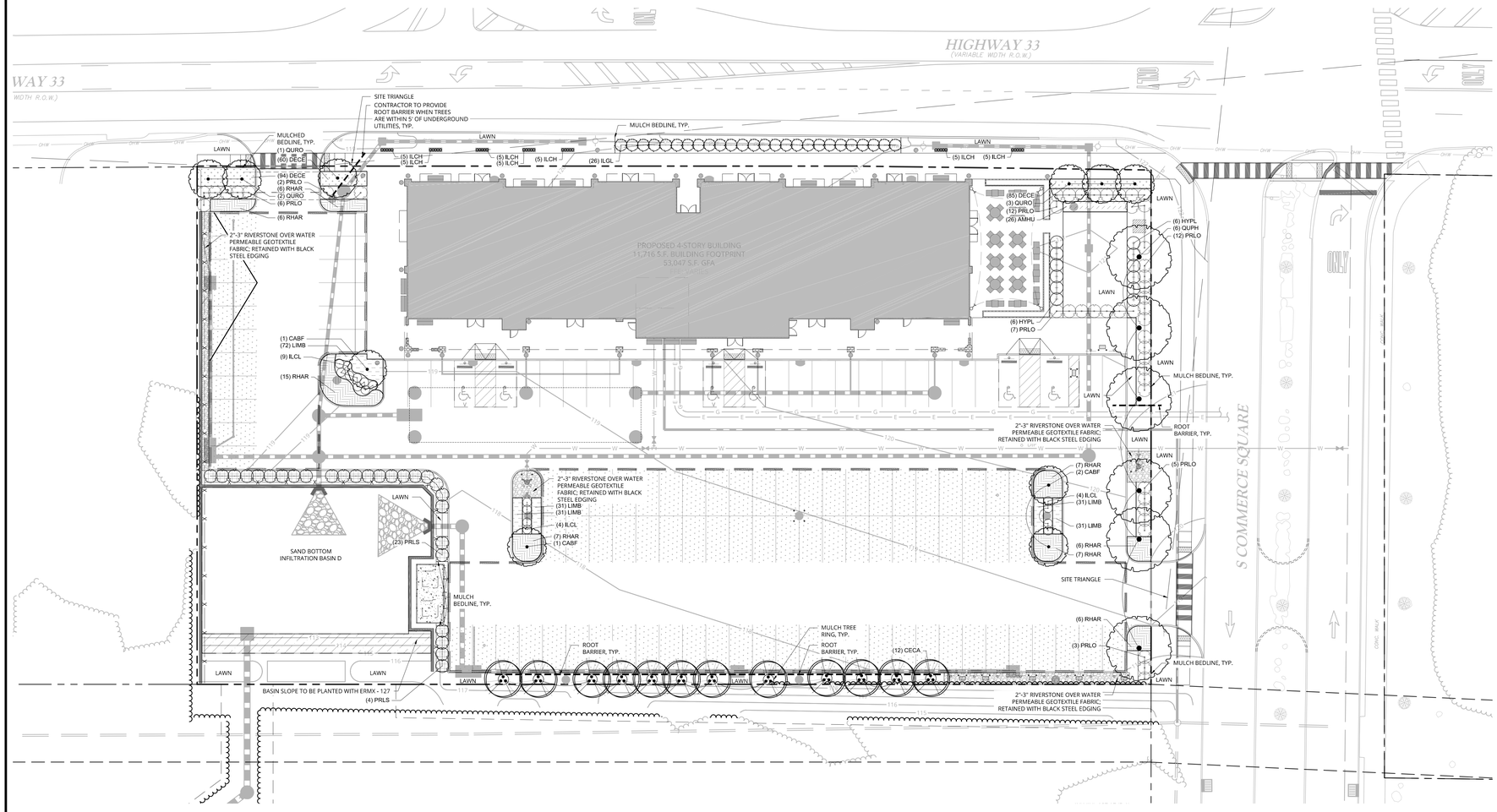


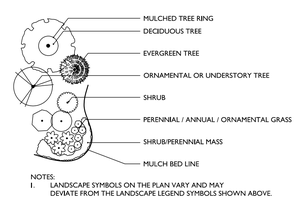
GENERAL NOTES

1. THIS SHEET IS TO BE USED FOR LANDSCAPE PURPOSES ONLY.
2. REFER TO CIVIL SITE PLANS FOR ADDITIONAL GENERAL NOTES.

LANDSCAPE PLAN NOTES

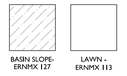
1. REFER TO SHEET **8.1** FOR GENERAL PLANTING NOTES AND LANDSCAPE DETAILS.
2. REFER TO THIS SHEET FOR PLANT SCHEDULES.
3. PLANT LOCATIONS INDICATED ON THE LANDSCAPE PLAN ARE APPROXIMATE; ACTUAL LOCATION OF PLANT MATERIAL IS SUBJECT TO SITE CONDITIONS.
4. THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THE PLANT SCHEDULE SHOULD ANY PLANT MATERIAL DISCREPANCIES OCCUR.
5. LAWN AREAS SHALL BE STABILIZED WITH SEED UNLESS OTHERWISE INDICATED ON THE PLAN. REFER TO THE LAWN SEED MIX NOTES ON THE LANDSCAPE DETAILS SHEET AND THE SOIL EROSION AND SEDIMENT CONTROL PLAN FOR APPROVED SEED MIXTURES.
6. SOD SHALL BE A BLEND OF TURFGRASS SPECIES SUITABLE TO THE PROJECT LOCATION AND LOCALLY AVAILABLE.
7. ALL SHADE TREES PLANTED ADJACENT TO PEDESTRIAN WALKWAYS, VEHICLE ACCESSES, OR WITHIN A SIGHT TRIANGLE OR SIGHT EASEMENT SHALL BE BRANCHED A MINIMUM OF 7'-00" ABOVE GRADE AND/OR APPROPRIATELY PRUNED TO BE 7'-00" ABOVE GRADE. ALL SHRUBS WITHIN A SIGHT TRIANGLE OR SIGHT EASEMENT SHALL NOT EXCEED 30" ABOVE THE ELEVATION OF THE ADJACENT CURB AND ARE TO BE APPROPRIATELY PRUNED.
8. ALL GROUND-LEVEL HVAC UNITS AND UTILITY BOXES SHALL BE SCREENED WITH EVERGREEN TREES AND SHRUBS, SUBJECT TO THE REVIEW AND SATISFACTION OF THE TOWNSHIP PROFESSIONALS.
9. ALL GENERATORS SHALL BE SCREENED WITH EVERGREEN TREES AND SHRUBS, SUBJECT TO THE REVIEW AND SATISFACTION OF THE TOWNSHIP PROFESSIONALS.
10. ROOT BARRIER SHALL BE PLACED ALONG UTILITIES FOR ALL ROOT BALLS PLACED WITHIN TEN FEET OF AN UNDERGROUND UTILITY.

LANDSCAPE LEGEND



NOTES:
1. LANDSCAPE SYMBOLS ON THE PLAN VARY AND MAY DEVIATE FROM THE LANDSCAPE LEGEND SYMBOLS SHOWN ABOVE.

HATCH & SEED MIX KEY



PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	MAT. HT.	MAT. SPRD.	INSTL. HT.	MIN. CAL.	COND.	REMARKS
DECIDUOUS TREES									
CABF	4	CARPINUS BETULUS 'FASTIGIATA'	COLUMNAR HORNBEAM	30' - 40'	20' - 30'	12' - 14'	2.5" - 3" CAL.	B&B	STRAIGHT, SYMMETRICAL, FULL, LOW BRANCHED
QUPH	6	QUERCUS PHELLOS	WILLOW OAK	40' - 70'	25' - 50'	14' - 16'	2.5" - 3" CAL.	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN
QURO	6	QUERCUS ROBUR X WAREI 'REGAL PRINCE'	HYBRID REGAL PRINCE COLUMNAR OAK	40' - 60'	20' - 25'	12' - 14'	2.5" - 3" CAL.	B&B	STRAIGHT, SYMMETRICAL, FULL CROWN, LOW BRANCHED
ORNAMENTAL TREES									
CECA	12	CERCIS CANADENSIS	EASTERN REDBUD	20' - 30'	25' - 35'	9' - 10'	2.5" - 3" CAL.	B&B	STRAIGHT, SYMMETRICAL, FULL, LOW BRANCHED
CODE	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**MAT. HT.**	**MAT. SPRD.**	**INSTL. HT.**	**INSTL. SPRD.**	**COND.**	**REMARKS**
DECIDUOUS SHRUBS									
HYPL	12	HYDRANGEA PANICULATA `LIMELIGHT`	LIMELIGHT HYDRANGEA	6' - 8'	6' - 8'	30" - 36"	30" - 36"	5 GAL.	DENSE, SYMMETRICAL, WELL FURNISHED
EVERGREEN SHRUBS									
ILCH	35	ILEX CRENATA `HELLERI`	`HELLERI` HOLLY	2' - 4'	3' - 5'	12" - 18"	12" - 18"	1 GAL.	DENSE, SYMMETRICAL, WELL FURNISHED
ILCL	17	ILEX CRENATA `HELLERI`	`HELLERI` HOLLY	2' - 4'	3' - 5'	18" - 24"	24" - 30"	3 GAL.	DENSE, SYMMETRICAL, WELL FURNISHED
ILGL	26	ILEX GLABRA	INKBERRY HOLLY	5' - 8'	5' - 8'	2.5' - 3'	24" - 30"	3 GAL.	DENSE, SYMMETRICAL, WELL FURNISHED
PRLO	47	PRUNUS LAUROCERASUS `OTTO LUYKEN`	OTTO LUYKENS CHERRYLAUREL	3' - 4'	6' - 8'	18"-24"	24" - 30"	3 GAL.	DENSE, SYMMETRICAL, WELL FURNISHED
PRLS	27	PRUNUS LAUROCERASUS `SCHIPKAENSIS`	SCHIPKA LAUREL	10' - 15'	5' - 7'	3,5' - 4'	3' - 3.5'	B&B	DENSE, SYMMETRICAL, WELL FURNISHED
GROUND COVERS									
LIMB	196	LIRIOPE MUSCARI `BIG BLUE`	BIG BLUE LILYTURF	1' - 2'	1' - 2'	8" - 10"	8" - 10"	1 GAL.	SPACED 16" O.C., DENSE, WELL ROOTED, FULL
RHAR	60	RHUS AROMATICA `GRO-LOW`	GRO-LOW FRAGRANT SUMAC	1.5' - 2'	6' - 8'	12" - 15"	24"-30"	3 GAL.	SPACED 48" O.C., DENSE, SYMMETRICAL, WELL FURNISHED
GRASSES									
DECE	239	DESCHAMPSIA CESPITOSA	TUFTED HAIR GRASS	2' - 3'	1' - 2'	10" - 12"	10" - 12"	1 GAL.	SPACED 16" O.C., HEAVY, CLUMP, WELL ROOTED
PERENNIALS									
AMHU	26	AMSONIA HUBRICHTII	ARKANSAS BLUESTAR	2' - 3'	2' - 3'	12" - 18"	12" - 18"	1 GAL.	SPACED 24" O.C., DENSE, WELL FURNISHED, SYMMETRICAL

ERNST SEEDS

Ernst Conservation Seeds
8884 Mercer Pike
Meadville, PA 16335
(800) 873-3321 Fax (814) 336-5191
www.ernstseed.com

Date: October 28, 2025

Commercial Conservation Mix - ERNMX-113

Botanical Name	Common Name	Price/Lb
25.00 % *Festuca rubra*	Creeping Red Fescue	3.58
25.00 % *Lolium multiflorum*	Annual Ryegrass	1.30
25.00 % *Lolium perenne, 'Black Sparrow'*	Perennial Ryegrass, 'Black Sparrow' (turf type)	3.38
25.00 % *Lolium perenne, 'Blackcat II'*	Perennial Ryegrass, 'Blackcat II' (turf type)	3.38
100.00 %	**Mix Price/Lb Bulk:**	**$2.91**

Seeding Rate: 75-150 lb per acre, or 3-5 lb per 1,000 sq ft

Grasses & Grass-like Species - Herbaceous Perennial; Lawn & Turfgrass Sites

Durable and drought resistant, the ryegrass will stay greener in hot weather. The red fescue will work well in dry to wet shaded areas and a variety of soil conditions. An ideal, inexpensive lawn mix for high-traffic areas. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

ERNST SEEDS

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Date: October 28, 2025

Retention Basin Wildlife Mix - ERNMX-127

Botanical Name	Common Name	Price/Lb
30.00 % *Panicum clandestinum, Tioga*	Deertongue, Tioga	23.67
29.70 % *Carex vulpinoidea, PA Ecotype*	Fox Sedge, PA Ecotype	33.80
20.00 % *Elymus virginicus, Madison-NY Ecotype*	Virginia Wildrye, Madison-NY Ecotype	11.22
14.00 % *Carex lurida, PA Ecotype*	Lurid Sedge, PA Ecotype	78.00
1.60 % *Heliopsis helianthoides, PA Ecotype*	Oxeye Sunflower, PA Ecotype	36.40
1.50 % *Juncus effusus*	Soft Rush	52.00
1.00 % *Verbena hastata, PA Ecotype*	Blue Vervain, PA Ecotype	41.60
0.80 % *Asclepias incarnata, PA Ecotype*	Swamp Milkweed, PA Ecotype	192.40
0.50 % *Agrostis perennans, Albany Pine Bush-NY Ecotype*	Autumn Bentgrass, Albany Pine Bush-NY Ecotype	23.40
0.30 % *Scirpus cyperinus, PA Ecotype*	Woolgrass, PA Ecotype	124.80
0.10 % *Aster laevis, NY Ecotype*	Smooth Blue Aster, NY Ecotype	364.00
0.10 % *Aster pilosus, PA Ecotype*	Heath Aster, PA Ecotype	286.00
0.10 % *Aster puniceus, PA Ecotype*	Purplestem Aster, PA Ecotype	520.00
0.10 % *Lobelia siphilitica, PA Ecotype*	Great Blue Lobelia, PA Ecotype	416.00
0.10 % *Lycopus americanus, PA Ecotype*	American Water Horehound, PA Ecotype	104.00
0.10 % *Mimulus ringens, PA Ecotype*	Square Stemmed Monkeyflower, PA Ecotype	260.00
100.00 %	**Mix Price/Lb Bulk:**	**$36.06**

Seeding Rate: 20 lbs per acre, or 0.5-1 lb/1,000 sq ft with a cover crop. For a cover crop use one of the following: grain rye (1 Sep to 30 Apr; 30 lbs/acre), Japanese millet (1 May to 31 Aug; 10 lbs/acre), or barnyard grass (1 May to 31 Aug; 10 lbs/acre).

Grasses & Grass-like Species - Herbaceous Perennial; Herbaceous Flowering Species - Herbaceous Perennial; Stormwater Management; Wildlife Habitat & Food Plots

The grasses, grass-like species and forbs provide a diverse cover in retention basins where mowing is not anticipated. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Colliers
Engineering & Design
www.colliersengineering.com

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Doing Business as

REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Christopher R. Gammons
NEW JERSEY LICENSED LANDSCAPE ARCHITECT
LICENSE NUMBER: AS01132
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN	DRAWN BY: RM
DESIGNED BY: SLD	REVIEWED BY: MKB
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

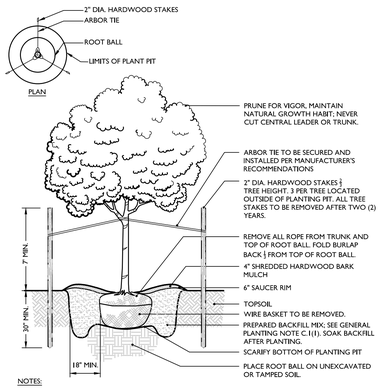
LANDSCAPE PLAN

DRAWING NUMBER:

8.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

C:\24 Projects\24002939A\CAD\Site\Engineering\Site Plans\LANDSCAPE\24002939A-LANDSCAPE 8.0.DWG 12/22/2025 - 10:19:47am By: RCOSTALES on 12/22/2025

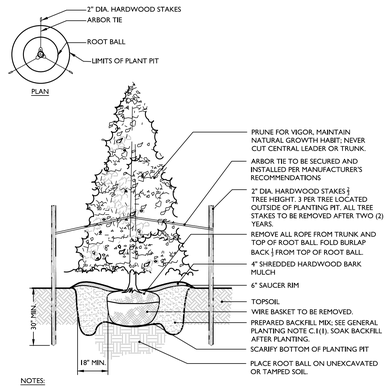


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.
3. WHEN TAGGING TREES AT THE NURSERY MARK THE NORTH SIDE OF THE TREE AND WHEN INSTALLING ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE.

1 DECIDUOUS TREE PLANTING DETAIL

NOT TO SCALE — CELS-PLNT-TREE-1000 — 05/01/25

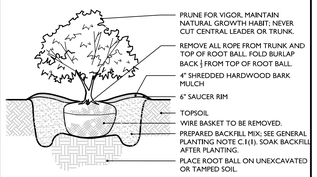


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.
3. WHEN TAGGING TREES AT THE NURSERY MARK THE NORTH SIDE OF THE TREE AND WHEN INSTALLING ROTATE TREE TO FACE NORTH WHENEVER POSSIBLE.

2 EVERGREEN TREE PLANTING DETAIL

NOT TO SCALE — CELS-PLNT-TREE-1100 — 05/01/25

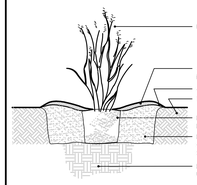


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

3 SHRUB PLANTING DETAIL

NOT TO SCALE — CELS-PLNT-SHRB-1000 — 05/01/25

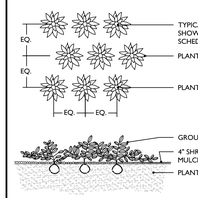


NOTES:

1. NO SOIL OR MULCH SHALL BE PLACED AGAINST ROOT COLLAR OF PLANT.
2. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

4 ORNAMENTAL GRASS PLANTING DETAIL

NOT TO SCALE — CELS-PLNT-SHRB-1100 — 05/01/25

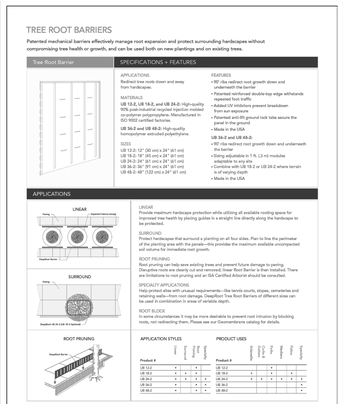


NOTES:

1. PLANTING DEPTH SHALL BE THE SAME OR HIGHER AS GROWN IN NURSERY.

5 GROUNDCOVER/PERENNIAL PLANTING DETAIL

NOT TO SCALE — CELS-PLNT-SHRB-1300 — 05/21/25



6 ROOT BARRIER DETAIL

NOT TO SCALE — GNRL-DTLS-STND-GRID

GENERAL PLANT MAINTENANCE RECOMENDATIONS

TREES, SHRUBS, PERENNIALS

FERTILIZATION:
- TREES AND SHRUBS: ONCE PER YEAR (USUALLY LATE FALL-EARLY WINTER.
- PERENNIALS: TWICE PER YEAR (USUALLY EARLY SPRING AND LATE SPRING/EARLY SUMMER).
- EVERGREENS: ONCE PER YEAR, AS NEEDED.

SOIL TESTING:
- ONCE PER YEAR FROM AT LEAST (3) AREAS ACROSS SITE, USUALLY IN EARLY SPRING DURING THE ESTABLISHMENT PERIOD (2 GROWING SEASONS). SOIL TESTS AFTER THE ESTABLISHMENT PERIOD AS NECESSARY.

WEED CONTROL:
- MULCHED TREE RINGS, MULCHED SHRUB AND PERENNIAL BEDS: WEED ENTIRE SITE ONCE EVERY (2) WEEKS. WEEDING SHOULD BE DONE ALL AT ONCE.

PEST/DISEASE CONTROL:
- MONITOR THE SITE MONTHLY FOR DISEASE AND PEST INFESTATIONS.
- ANY TREATMENTS SHOULD BE CONSIDERED AN ALTERNATE (ONLY NEEDED AS NECESSARY)

PRUNING:
- ANY TREE OR SHRUB PRUNING SHOULD BE IN ACCORDANCE WITH THE PRUNING SECTION OF THE GENERAL NOTES.
- ORNAMENTAL GRASSES SHOULD BE CUT BACK IN LATE WINTER/EARLY SPRING.

MULCH:
- MULCH BEDS TO 4" IN DEPTH AS NOTED IN THE PLANTING DETAILS. INSTALL NEW MULCH AS NECESSARY TO MAINTAIN A 4" DEPTH.
- MULCHING SHOULD TAKE PLACE IN SPRING, ONCE A YEAR.
- PULL MULCH AWAY FROM SHRUB, PERENNIAL AND GRASS CROWNS AS WELL AS AWAY FROM TREE TRUNKS PER PLANTING DETAILS.

BED EDGING:
- BEDS AND TREE MULCH RINGS SHOULD BE EDGED AT THE TIME OF SPRING MULCHING.

WINTER PROTECTION:
- APPLY ANTI DESICCANT TO EVERGREENS MONTHLY DURING WINTER - UP TO 4 APPLICATIONS (PER RUTGERS COOPERATIVE EXTENSION).

EARLY SPRING START UP
- CLEAN UP MISCELLANEOUS PLANT DEBRIS.
- PRUNE DEAD WOOD OUT OF PLANT MATERIAL
- DEADHEAD ANY PERENNIALS LEFT STANDING OVER WINTER.
- REMOVE ANY PLANT THAT APPEAR DISEASED OR UNHEALTHY AND REPLACE WITH SAME SPECIES, PER PLANTING SCHEDULE.
- REPLACE PLANTS THAT HAVE DIED OVER WINTER; FILL SPOTS IN PLANT BEDS APPEARING BARE, PER PLANTING SCHEDULE.

LAWN CARE

FERTILIZATION:
- (2) TIMES A YEAR; GENERALLY SPRING AND FALL (PER THE PENN STATE EXTENSION OFFICE).

MOWING:
- MOW WHEN TURF REACHES 2"-3" TALL IN SPRING AND FALL, 3" TALL IN SUMMER; MOWING SHOULD TYPICALLY TAKE PLACE FROM MARCH THROUGH EARLY NOVEMBER. (PER THE PENN STATE EXTENSION OFFICE).

WEED CONTROL:
- (1) PRE-EMERGENT HERBICIDE APPLICATION IN MARCH TO MID-APRIL FOR CRABGRASS AND OTHER ANNUAL GRASS WEED CONTROL AND (1) PRE-EMERGENT APPLICATION IN APRIL FOR ANNUAL BROADLEAF WEED CONTROL (PER THE PENN STATE EXTENSION OFFICE).
- (2) POST-EMERGENT BROADLEAF HERBICIDE APPLICATIONS: IN SPRING (MID-MARCH THROUGH MID-MAY) AND AGAIN IN FALL (LATE AUGUST THROUGH OCTOBER) FOR BROADLEAF WEEDS (PER THE PENN STATE EXTENSION OFFICE).

PEST/DISEASE CONTROL:
- MONITOR THE SITE MONTHLY FOR DISEASE AND PEST INFESTATIONS
- ANY TREATMENTS SHOULD BE CONSIDERED AN ALTERNATE (ONLY NEEDED AS NECESSARY).

MISCELLANEOUS LAWN CARE:
- RESEED: RESEED ANY BARE LAWN AREAS IN SEPTEMBER THROUGH EARLY OCTOBER.
- DETHATCH: DETHATCH LAWN EVERY (2) YEARS IN EITHER EARLY SPRING OR FALL.
- AERATE: AERATE LAWNS EVERY (2) YEARS IN BOTH SPRING AND FALL.
- LIME: APPLY LIME ANY TIME OF THE YEAR BUT ONLY IF A SOIL TEST SHOW pH IS LOWER THAN 6.0; SOIL TESTS WILL GIVE SPECIFIC RECOMMENDATIONS FOR AMOUNT OF LIME NEEDED.

ROBBINSVILLE, NJ TREE REMOVAL COMPLIANCE CHART:

PER CODE §241-4J	TO BE REMOVED (GOOD HEALTH)	TO BE REMOVED (DEAD/DYING)	REQUIRED TO BE PLANTED
REPLANT 1 TREE WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 2.5" (FOR STREET TREES) OR 6" (FOR NON-STREET TREES TO 12.99"	31 TREES	8 TREES	31 TREES
REPLANT 2 TREES WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 13" TO 22.99"	17 TREES	6 TREES	34 TREES
REPLANT 3 TREES WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 23" TO 32.99"	6 TREES	4 TREES	18 TREES
REPLANT 4 TREES WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 33"+	2 TREES	2 TREES	8 TREES
TOTAL AMOUNT	56 TREES	20 TREES	91 TREES

NEW JERSEY LANDSCAPE PLAN NOTES

CELS-NOTE-GNRL-1100

MOD: 10/28/25
05/01/25

A. GENERAL

1. THIS PLAN SHALL BE USED FOR LANDSCAPE PLANTING PURPOSES ONLY. EXAMINE ALL ENGINEERING DRAWINGS AND FIELD CONDITIONS FOR SPECIFIC LOCATIONS OF UTILITIES AND STRUCTURES. NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES OR LOCATION CONFLICTS PRIOR TO PLANTING INSTALLATION.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UTILITIES MARKOUTS AND COMPLIANCE WITH ALL FEDERAL, STATE, OR LOCAL CODES, LAWFUL ORDERS OR REGULATIONS GOVERNING UPON THIS WORK.
3. OWNER OR HIS/HER REPRESENTATIVE SHALL BE NOTIFIED PRIOR TO BEGINNING PLANTING OPERATIONS.

B. PLANT MATERIAL

1. PLANT MATERIAL:
   - 1.1. PLANT MATERIAL SHALL CONFORM WITH THE STANDARDS SET FORTH IN THE 'ANSI Z60.1(LATEST ADDITION) 'AMERICAN STANDARD FOR NURSERY STOCK' AS PUBLISHED BY AMERICANHORT IN REGARD TO QUALITY, SIZE OF PLANTING, SPREAD OF ROOTS, SIZE OF ROOTBALL, AND BRANCHING PATTERN AND SHALL CONSTITUTE MINIMUM QUALITY REQUIREMENTS FOR PLANT MATERIAL;
   - 1.2. PLANTS SHALL BE TYPICAL OF THEIR SPECIES AND VARIETY, HAVE NORMAL GROWTH HABITS, WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS, AND FREE FROM DEFECTS, INJURY, DISEASE, AND/OR INFESTATION, WITH ROOT BALLS INTACT.
   - 1.3. ALL PLANTS MUST BE HARDY UNDER CLIMATE CONDITIONS THAT EXIST AT THE PROJECT SITE AND GROWN AT NURSERY AT SAME HARDINESS ZONE AS THE PROJECT LOCATION.
   - 1.4. ALL PLANT MATERIAL SHALL BEAR THE SAME RELATION TO FINISHED GRADE AT THE NURSERY. THE PLANT MATERIAL SHALL BE PLANTED AT THE SAME LEVEL WHEN PLANTED.
   - 1.5. PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY TO THE SITE. IN THE EVENT THIS IS NOT POSSIBLE, THE CONTRACTOR SHALL TAKE APPROPRIATE STEPS TO PROTECT THE PLANT MATERIAL FROM DAMAGE PRIOR TO INSTALLATION.
   - 1.6. THE LANDSCAPE ARCHITECT OR OWNER SHALL HAVE THE RIGHT, AT ANY STAGE OF THE OPERATION, TO REJECT ANY AND ALL PLANT MATERIAL WHICH IN THEIR OPINION DOES NOT MEET THE REQUIREMENTS OF THESE PLANS.
2. PLANT QUANTITIES: THE LANDSCAPE PLAN SHOULD TAKE PRECEDENCE OVER THE PLANT SCHEDULE IF ANY PLANT DISCREPANCIES OCCUR. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT OF ANY PLANT QUANTITY DISCREPANCIES PRIOR TO PLACING ORDERS.
3. PLANT SIZE: THE CONTRACTOR SHALL FURNISH PLANT MATERIAL IN THE CALIPER, HEIGHT, SIZE OR SPREAD INDICATED IN THE PLANT SCHEDULE.
4. SUBSTITUTIONS: NO PLANT SUBSTITUTIONS SHALL BE PERMITTED WITH REGARD TO SIZE, SPECIES, OR VARIETY WITHOUT WRITTEN PERMISSIONS OF THE TOWNSHIP LANDSCAPE ARCHITECT. WRITTEN PROOF OF THE PLANT MATERIAL UNAVAILABILITY MUST BY DOCUMENTED BY THE CONTRACTOR.
5. GUARANTEE: PLANT MATERIAL SHALL BE GUARANTEED FOR **ONE (2) YEAR** AFTER THE DATE OF FINAL ACCEPTANCE. ANY PLANT MATERIAL THAT IS DEAD, DYING, DEFOLIATING, AND/OR LOST MORE THAN 50% OF ITS NATURAL FORM WITHIN THAT TIME PERIOD SHALL BE REMOVED, INCLUDING STUMP, AND REPLACED WITH A SIMILAR SIZE AND SPECIES AT THE EXPENSE OF THE CONTRACTOR WITHIN **ONE YEAR OR ONE GROWING SEASON**. TREE STAKES AND ARBOR TIES SHALL BE REMOVED AT THE END OF THE GUARANTEE PERIOD. THE CONTRACTOR IS RESPONSIBLE FOR FULLY MAINTAINING ALL PLANT MATERIALS, LAWN, AND SEEDING AREAS (INCLUDING, BUT NOT LIMITED TO: WATERING, SPRAYING, MULCHING, FERTILIZING, AND REMOVAL OF STAKES) UNTIL FINAL ACCEPTANCE BY THE OWNER.

C. TOPSOIL REQUIREMENTS:

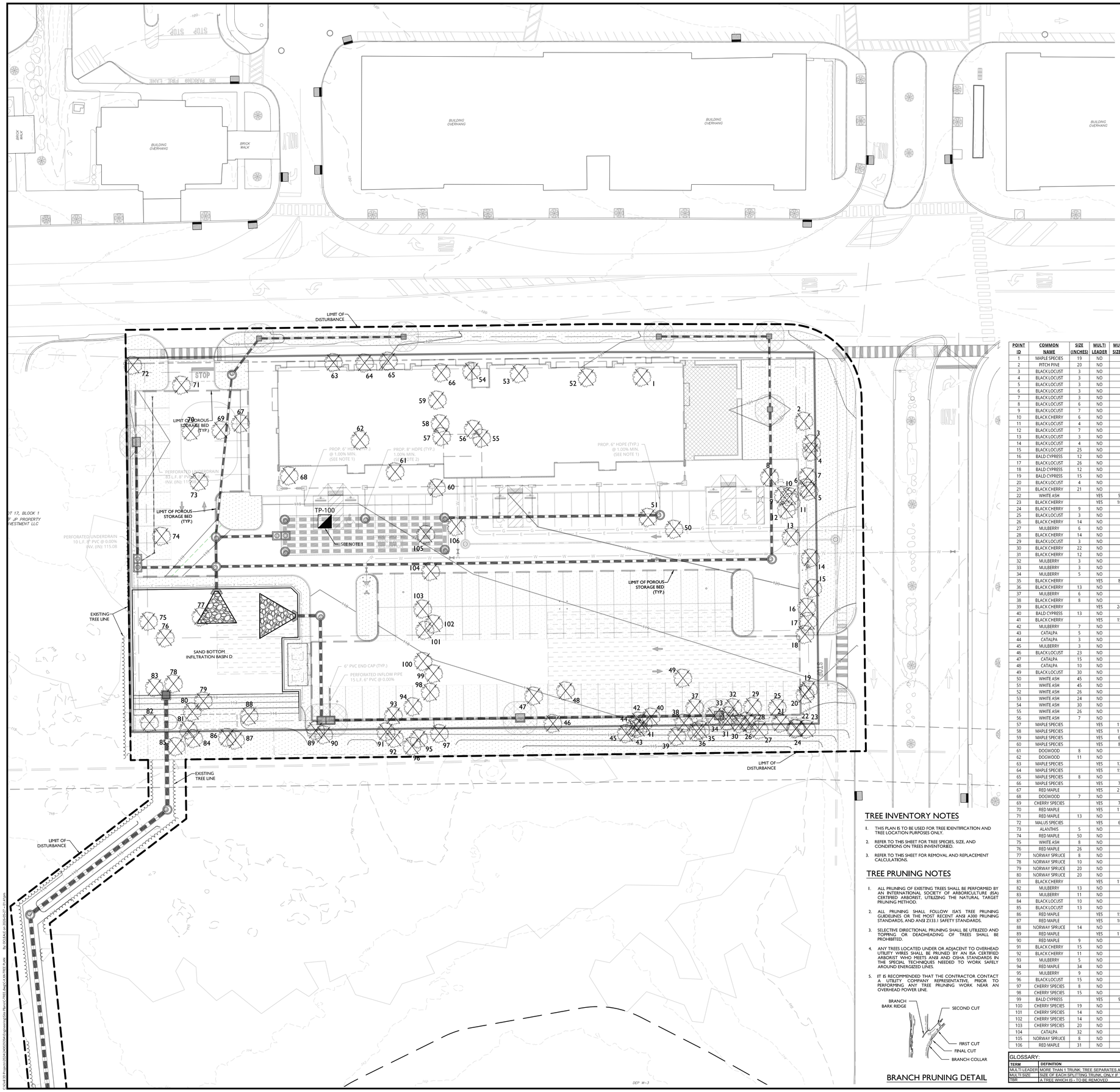
1. TOPSOIL REQUIREMENTS: SEE **NJDOT SECTION 917** FOR REFERENCE AND SOIL ADDITIVES.
   - 1.1. UNACCEPTABLE TOPSOIL SOURCES: DO NOT OBTAIN TOPSOIL FROM THE FOLLOWING SOURCES: AREAS CONTAINING CHEMICALLY CONTAMINATED SOILS; AREAS FROM WHICH THE ORIGINAL SURFACE HAS BEEN STRIPPED OR COVERED OVER, SUCH AS BORROW PITS, OPEN MINES, DEMOLITION SITES, DUMPS, LANDFILLS. NO TOPSOIL FROM WET EXCAVATION OR ACID PRODUCING SOILS.
   - 1.2. TOPSOIL SHALL BE UNIFORM QUALITY, FREE FROM HARD CLODS, STIFF CLAY, HARD PAN, SODS, LARGE STONE, CEMENT, ASH, SLAG, CONCRETE, TAR, BOARDS, CHIPS, MULCH, OR ANY OTHER UNDESIRABLE MATERIALS. NO TOPSOIL SHALL BE DELIVERED IN A FROZEN OR MUDDY CONDITION.
   - 1.3. TOPSOIL PH REQUIREMENTS ARE AS FOLLOWS: PH < 4.1 TOPSOIL IS UNACCEPTABLE. 4.1 ≤ PH < 5.8 ADD PULVERIZED LIME TO INCREASE THE PH TO 6.5 BEFORE USE. 5.8 ≤ PH < 7.0 TOPSOIL IS ACCEPTABLE. NO REMEDIATION NEEDED. 7.0 ≤ PH < 7.2 DECREASE PH TO AT LEAST 6.8 BEFORE USE. PH ≥ 7.2 TOPSOIL IS UNACCEPTABLE.
   - 1.4. ORGANIC CONTENT. ENSURE THAT TOPSOIL HAS A MINIMUM ORGANIC CONTENT OF 2.75% BY WEIGHT. IF THE ORGANIC CONTENT IS LESS THAN 2.75%, INCREASE THE ORGANIC CONTENT BY ADDING SOIL ADDITIVES AT A RATE NECESSARY TO ATTAIN THE MINIMUM ORGANIC CONTENT. THE ORGANIC CONTENT SHALL NOT EXCEED 8% BY WEIGHT AND SHALL BE SAMPLED IN ACCORDANCE WITH THE ASSOCIATION OF AGRICULTURAL CHEMISTS.
   - 1.5. GRADATION/PARTICLE SIZE. PROVIDE TOPSOIL CONFORMING TO THE PARTICLE SIZE REQUIREMENTS IN TABLE **917.01-2** AND THAT HAS NO MORE THAN 20 PERCENT RETAINED ON A NO. 10 SIEVE WHEN MECHANICALLY GRADED. THE DEPARTMENT WILL DETERMINE THE PARTICLE SIZE DISTRIBUTION FOR THE PORTION OF THE TOPSOIL PASSING THE NO. 10 SIEVE USING HYDROMETER ANALYSIS ACCORDING TO AASHTO T 88. SAND (2.0 MM TO 0.05 MM) 40 - 80% COMPOSITION. SILT (0.05 MM TO 0.005 MM) 0 - 30% COMPOSITION. CLAY (0.005 MM AND SMALLER) 10 - 30% COMPOSITION.
2. PREPARATION OF SUBGRADE:
   - 2.1. HOLLOWS, DEPRESSIONS, AND GULLIES SHALL BE FILLED WITH ACCEPTABLE SANDY LOAM AS OUTLINED ABOVE OR SOIL AS DESCRIBED HEREON: SOIL TO BE ONE PART EACH OF TOPSOIL, MOISTENED PEAT MOSS, AND PARENT MATERIAL.
   - 2.2. LOOSEN SUBSOIL BY SCARIFYING, RIPPING OR TILLING USING DISKS, HARROWS OR OTHER SUITABLE EQUIPMENT TO A DEPTH OF 4"-6" IMMEDIATELY BEFORE PLACING ANY TOPSOIL. REPEAT IN AREAS WHERE SEED OR PLANTINGS ARE PROPOSED AND THERE HAS BEEN COMPACTED SOIL.
3. TESTING AND APPROVAL OF SOILS:
   - 3.1. THE CONTRACTOR SHALL SUBMIT A CERTIFIED REPORT SHOWING THE ANALYSIS OF REPRESENTATIVE SAMPLES OF TOPSOIL. TESTING SHALL BE PERFORMED BY **RUTGERS COOPERATIVE RESEARCH & EXTENSION TESTING LABORATORIES** OR EQUIVALENT AS APPROVED BY STATE AND LOCAL REGULATIONS. PRICE BID SHALL INCLUDE ALL INSPECTION AND LABORATORY FEES.

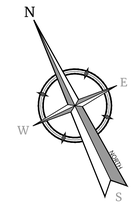
D. PLANTING PROCEDURES

1. PLANTING BEDS:
   - 1.1. PROVIDE PLANTING PITS AS INDICATED ON PLANTING DETAILS. BACKFILL PLANTING PITS WITH SOILS AS OUTLINED IN SECTION C PRIOR. BACKFILL SOIL TO BE AT MINIMUM ONE PART EACH OF TOPSOIL, MOISTENED PEAT MOSS, AND PARENT MATERIAL.
   - 1.2. PLANTING BEDS SHALL RECEIVE **FOUR (4) INCHES** OF DOUBLE SHREDDED HARDWOOD MULCH AND TREATED WITH A PRE-EMERGENT HERBICIDE. NO MULCH SHALL COME IN DIRECT CONTACT WITH ROOT FLARE/COLLAR. UNDER NO CIRCUMSTANCES SHALL THE ROOT CROWN BE BURIED.
   - 1.3. MULCH SHALL BE DOUBLE SHREDDED GROUND HARDWOOD BARK MULCH, SHALL BE AGED A MINIMUM OF ONE (1) YEAR FOR PARTIAL DECOMPOSITION, SHALL BE SCREENED TO EXCLUDE PARTICLES LARGER THAN ONE (1) INCH IN DIAMETER, SHALL BE COMPOSED OF BARK AND HAVE A LOW WOOD CONTENT WITH NO HIDDEN WOODS FROM CONSTRUCTION DEBRIS, PALLETS, AND/OR PRESSURE TREATED LUMBER, AND BE FREE OF WEEDS, SEEDS, AND GREEN LEAF MATTER. IT SHALL BE NATURALLY DARK BROWN IN COLOR. NO DIED MULCH WILL BE ACCEPTED.
   - 1.4. SHRUB MASSES SHALL BE PLANTED IN CONTINUOUS MULCHED BEDS.
2. PLANT LOCATIONS: THE LOCATION OF ALL PLANT MATERIAL INDICATED ON THE LANDSCAPE PLANS ARE APPROXIMATE. THE FINAL LOCATION OF ALL PLANT MATERIAL AND PLANTING BEDLINES SHALL BE DETERMINED IN THE FIELD AT THE TIME OF INSTALLATION FOLLOWING THE BASIC INTENT OF THE APPROVED PLANS, UNLESS THERE IS A SPECIFIC DIMENSION OR LOCATION SHOWN.
3. PLANTING DATES: PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICES. PLANTING SEASONS ARE DEFINED AS MARCH 15 THROUGH MAY 15 AND SEPT 15 THROUGH NOV 15. PLANTING IS ACCEPTABLE DURING THE WINTER MONTHS IF WEATHER PERMITS AND THE GROUND IS NOT FROZEN, AND IN THE SUMMER IF SUPPLEMENTAL WATERING IS PROVIDED. SOIL MUST BE FROST FREE, FRIABLE, AND NOT MUDDY AT TIME OF PLANTING.
4. PLANTING METHODS:
   - 4.1. TREES SHALL BE SUPPORTED IMMEDIATELY AFTER PLANTING. PLANT MATERIAL SHALL BE PROPERLY SECURED, STAKED, AND PLANTED IN CONFORMANCE WITH THE TYPICAL PLANTING DETAILS.
     - 4.1.1. STAKES SHALL BE EIGHT TO TEN FEET LONG, OF SOUND, DURABLE UNFINISHED LUMBER CAPABLE OF WITHSTANDING ABOVEGROUND AND UNDERGROUND CONDITIONS DURING THE PERIOD OF GUARANTEE WITH TOP AND BOTTOM DIMENSIONS OF TWO INCHES BY TWO INCHES IN DIAMETER
     - 4.1.2. THREE STAKES SHALL BE EQUALLY SPACED ABOUT THE TREE IN A TRIANGULAR FASHION AND SHALL BE DRIVEN VERTICALLY INTO THE GROUND 2 ½ TO 3 FEET IN A MANNER THAT DOES NOT INJURE THE ROOT BALL.
     - 4.1.3. TREES SHALL BE FASTENED TO EACH STAKE AT A HEIGHT OF FIVE FEET BY MEANS OF ARBOR TIE TREE TIE ½" WIDE RECOMMENDED FOR TREES UP TO 2 ½ INCHES IN CALIPER).
   - 4.2. SET PLANTS PLUMB AND STRAIGHT. SET AT SUCH LEVEL THAT AFTER SETTLEMENT A NORMAL OR NATURAL RELATIONSHIP TO THE CROWN OF THE PLANT WITH THE GROUND SURFACE WILL BE ESTABLISHED. LOCATE PLANTS IN CENTER OF PIT.
   - 4.3. AT TIME OF INSTALLATION, THE CONTRACTOR SHALL WATER NEWLY INSTALLED PLANT MATERIAL. THE CONTRACTOR SHALL PROVIDE REGULAR WATERING TO ENSURE THE ESTABLISHMENT, GROWTH, AND SURVIVAL OF ALL PLANTS.
   - 4.4. B&B PLANTS SHALL BE HANDLED FROM THE BOTTOM OF THE ROOTBALL ONLY. PLANTS WITH BROKEN, SPLIT, OR DAMAGED ROOTBALLS SHALL BE REJECTED.
   - 4.5. CORD BINDING OF ALL B&B PLANTS SHALL BE CUT AND REMOVED, ALONG WITH THE BURLAP OF THE UPPER ⅓ OF THE ROOT BALL. ALL WIRE BASKETS ARE TO BE REMOVED PRIOR TO BACKFILLING PLANTING PIT.

LANDSCAPE COMPLIANCE CHART

ORDINANCE TOWNSHIP OF ROBBINSVILLE, NJ	
§ 142-47. LANDSCAPING AND LANDSCAPE ARCHITECTURE	
D(1) PARKING AREAS MUST BE SCREENED FROM PUBLIC VIEW.	**COMPLIANT ALONG THE STREET; THE SITE DOES NOT ABUT A DIFFERING ZONING DISTRICT.**
D(2) CONFIGURATION OF PARKING ISLANDS MUST ACCOMMODATE THE PLANTING OF LARGE SHADE TREES AND SHRUBS WITH A MINIMUM WIDTH OF NINE FEET WHERE ANY SHADE TREE IS PROPOSED.	**COMPLIANT**
D(3) A MINIMUM OF ONE PLANTING ISLAND EQUIVALENT TO NINE FEET WIDE BY 18 FEET DEEP IS REQUIRED PER FIVE PARKING SPACES.	**WAIVER REQUESTED DUE TO ISLAND SPACING EXCEEDING ONE PER FIVE PARKING SPACES.**
D(4) A MINIMUM OF ONE TREE PER 10 PARKING SPACES SHALL BE PROVIDED.	**COMPLIANT; (14) SHADE TREES PROVIDED; (117) SURFACE PARKING SPOTS / 10 = (12) REQUIRED TREES**
D(5) ALL PLANTING ISLANDS MUST BE LANDSCAPED WITH SHRUBS AND GROUND COVER PLANTINGS WITH NO MORE THAN 25% OF ALL LANDSCAPE ISLANDS BEING COVERED BY GRASS. PEDESTRIAN PASSAGES MUST BE PROVIDED AT LEAST EVERY 50 FEET BY LEAVING GAPS IN THE SHRUBS AND PROVIDING A WALKABLE SURFACE OF BRICK, FLAGSTONE OR STONE DUST.	**N/A; ALL PLANTING ISLANDS ARE COVERED WITH SHRUBS AND GROUNDCOVERS. COMPLIANT FOR PEDESTRIAN PASSAGES**
D(6) LOADING AREAS MUST BE SCREENED FROM PUBLIC VIEW.	**COMPLIANT; LOADING AREA INTERNAL TO THE SITE AND NOT VISIBLE FROM PUBLIC STREET**
D(7) ANY PARKING AND LOADING AREA WHICH, EITHER SINGLY OR IN COMBINATION, CONTAINS MORE THAN 10 PARKING SPACES SHALL HAVE CURBS, AND SHALL HAVE CURBED LANDSCAPED ISLANDS OR	**COMPLIANT**
E. SIGHT TRIANGLES. ANY PLANT MATERIAL PLACED WITHIN A SIGHT TRIANGLE MUST BE KEPT PERMANENTLY CLEAR OF LIMBS BETWEEN 30 INCHES AND SIX FEET ABOVE GRADE.	**COMPLIANT**
F(1)(b) STREET TREES SHALL BE PLANTED AT 40 FEET ON CENTER IN ALL ZONE DISTRICTS ALONG THE FRONTAGE OF ANY LOT, AND ON BOTH SIDES OF FRONTAGE ROADS ON THE SITE OR PROVIDED ACCESS TO A SITE.	**COMPLIANT;** **S COMMERCE ST - (5) TREES PROVIDED; (175 LF) ROAD LENGTH / (40 LF) TREE SPACING = (5) TREES REQUIRED** **ROUTE 33 - (9) TREES PROVIDED; (344 LF) ROAD LENGTH / (40 LF) TREE SPACING = (9)**
F(4) STREET TREES SHALL BE A MINIMUM OF 2 1/2 INCHES AT TIME OF PLANTING AND SHALL BE B&B.	**COMPLIANT; ALL STREET TREES SPECIFIED AT 2.5"-3" CALIPER. PLEASE REFER TO PLAN SPECIFICATIONS ON SHEET 8.0**
H(1)(e) DECIDUOUS TREES SHALL BE AT LEAST 2 1/2 INCHES IN CALIPER MEASURED AT SIX INCHES ABOVEGROUND, BALLED AND BURLAPPED, AT THE TIME OF PLANTING.	**COMPLIANT; NOTED ON SHEET 8.0**
H(1)(g) LANDSCAPE BUFFERS AND SCREENING SHOULD NOT BE A DETRIMENT TO PUBLIC SAFETY AND SHALL BE BROKEN AT POINTS OF VEHICULAR AND PEDESTRIAN ACCESS TO ENSURE A CLEAR SIGHT	**COMPLIANT**
H(2)(b)[4][a] THE BUFFER ALONG THE ZONE BOUNDARY SHALL BE PLANTED TO PROVIDE A YEAR-ROUND VISUAL SCREEN. THE PLANTED SCREEN MAY INCLUDE FENCING, BERMS, OR WALLS AS WELL AS EXISTING VEGETATION. THE PLANTED SCREEN WITHIN THE BUFFER SHALL BE AT LEAST 50 FEET WIDE AND CONTAIN A VARIETY OF PLANT MATERIAL SUITED TO LOCAL CONDITIONS, INCLUDING EVERGREEN	**COMPLIANT**
H(2)(b)[4][b] WHERE THE BUFFER IS TO BE PROVIDED ON TWO ADJOINING PROPERTIES, EACH PROPERTY SHALL PROVIDE A PLANTED WIDTH THAT IS 1/2 OF THEIR REQUIRED RESPECTIVE BUFFER WIDTH EXTENDING FROM THE COMMON LOT LINE.	**N/A; THE SITE DOES NOT ABUT A DIFFERING ZONING DISTRICT.**
H(3)(a) SCREENING SHALL BE PROVIDED TO REDUCE THE VISUAL IMPACT OF UNSIGHTLY ELEMENTS, SUCH AS HVAC UNITS, UTILITY BOX





LEGEND

- 10 — POINT I.D.
- 10 — TREE IDENTIFIED
- TREE TO BE REMOVED
- PROPERTY BOUNDARY

ROBBINSVILLE, NJ TREE REMOVAL COMPLIANCE CHART:

PER CODE §241-4.J	TO BE REMOVED (GOOD HEALTH)	TO BE REMOVED (DEAD/DYING)	REQUIRED TO BE PLANTED
REPLANT 1 TREE WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 2.5" (FOR STREET TREES) OR 6" (FOR NON-STREET TREES TO 12.99"	31 TREES	8 TREES	31 TREES
REPLANT 2 TREES WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 13" TO 22.99"	17 TREES	6 TREES	34 TREES
REPLANT 3 TREES WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 23" TO 32.99"	6 TREES	4 TREES	18 TREES
REPLANT 4 TREES WITH A MINIMUM TREE CALIPER OF 1.5" FOR EACH TREE REMOVED WITH A DBH OF 33"+	2 TREES	2 TREES	8 TREES
TOTAL AMOUNT	56 TREES	20 TREES	91 TREES

TREE INVENTORY

POINT ID	COMMON NAME	SIZE (INCHES)	MULTI LEADER	MULTI SIZE -1	MULTI SIZE -2	MULTI SIZE -3	MULTI SIZE -4	MULTI SIZE -5	MULTI SIZE -6	QUALITY FORM	REMARKS	ADDITIONAL COMMENTS
1	MAPLE SPECIES	19	NO									TBR
2	PITCH PINE	20	NO									TBR
3	BLACK LOCUST	3	NO									TBR
4	BLACK LOCUST	3	NO									TBR
5	BLACK LOCUST	3	NO									TBR
6	BLACK LOCUST	3	NO									TBR
7	BLACK LOCUST	3	NO									TBR
8	BLACK LOCUST	6	NO								VINES	TBR
9	BLACK LOCUST	7	NO								VINES	TBR
10	BLACK CHERRY	6	NO									TBR
11	BLACK LOCUST	4	NO									TBR
12	BLACK LOCUST	7	NO								VINES	TBR
13	BLACK LOCUST	3	NO									TBR
14	BLACK LOCUST	4	NO									TBR
15	BLACK LOCUST	25	NO									TBR
16	BALD CYPRESS	12	NO									TBR
17	BLACK LOCUST	26	NO									TBR
18	BALD CYPRESS	12	NO									TBR
19	BALD CYPRESS	15	NO									DEAD;TBR
20	BLACK LOCUST	4	NO								VINES	TBR
21	BLACK CHERRY	21	NO								VINES	TBR
22	WHITE ASH		YES	5	3							OUT OF PROPERTY;TBR
23	BLACK CHERRY		YES	10	8						VINES	OUT OF PROPERTY;TBR
24	BLACK CHERRY	9	NO									DEAD;TBR
25	BLACK LOCUST	3	NO									TBR
26	BLACK CHERRY	14	NO								VINES	OUT OF PROPERTY;TBR
27	MULBERRY	6	NO								VINES	OUT OF PROPERTY;TBR
28	BLACK CHERRY	14	NO								VINES	TBR
29	BLACK LOCUST	3	NO									TBR
30	BLACK CHERRY	22	NO								VINES	TBR
31	BLACK CHERRY	12	NO								VINES	TBR
32	MULBERRY	3	NO									TBR
33	MULBERRY	3	NO									TBR
34	MULBERRY	5	NO									TBR
35	BLACK CHERRY		YES	8	6							DYING;TBR
36	BLACK CHERRY	13	NO									DEAD;TBR
37	MULBERRY	6	NO									TBR
38	BLACK CHERRY	8	NO									TBR
39	BLACK CHERRY		YES	24	11					POOR		OUT OF PROPERTY;TBR
40	BALD CYPRESS	13	NO									TBR
41	BLACK CHERRY		YES	15	18							TBR
42	MULBERRY	7	NO									TBR
43	CATALPA	5	NO									OUT OF PROPERTY;TBR
44	CATALPA	3	NO									OUT OF PROPERTY;TBR
45	MULBERRY	3	NO									OUT OF PROPERTY;TBR
46	BLACK LOCUST	23	NO								VINES	TBR
47	CATALPA	15	NO									TBR
48	CATALPA	10	NO									TBR
49	BLACK LOCUST	30	NO									TBR
50	WHITE ASH	45	NO									DEAD;TBR
51	WHITE ASH	45	NO									DEAD;TBR
52	WHITE ASH	26	NO									DEAD;TBR
53	WHITE ASH	24	NO									DEAD;TBR
54	WHITE ASH	30	NO									DEAD;TBR
55	WHITE ASH	26	NO									DEAD;TBR
56	WHITE ASH	7	NO									DEAD;TBR
57	MAPLE SPECIES		YES	11	9							TBR
58	MAPLE SPECIES		YES	11	6							TBR
59	MAPLE SPECIES		YES	6	7	5						TBR
60	MAPLE SPECIES		YES	8	9							TBR
61	DOGWOOD	8	NO									TBR
62	DOGWOOD	11	NO									TBR
63	MAPLE SPECIES		YES	12	14	6						TBR
64	MAPLE SPECIES		YES	15	11							TBR
65	MAPLE SPECIES	8	NO									TBR
66	MAPLE SPECIES		YES	7	6							TBR
67	RED MAPLE		YES	21	16	15	14	21				TBR
68	DOGWOOD	7	NO									TBR
69	CHERRY SPECIES		YES	7	6							TBR
70	RED MAPLE		YES	11	18	18						TBR
71	RED MAPLE	13	NO									TBR
72	MALUS SPECIES		YES	6	7	5	4					TBR
73	ALANTHIS	5	NO									TBR
74	RED MAPLE	50	NO								VINES	TBR
75	WHITE ASH	8	NO									DEAD;TBR
76	RED MAPLE	26	NO								VINES	DYING;TBR
77	NORWAY SPRUCE	8	NO									DYING;TBR
78	NORWAY SPRUCE	10	NO								VINES	TBR
79	NORWAY SPRUCE	20	NO									TBR
80	NORWAY SPRUCE	20	NO									TBR
81	BLACK CHERRY		YES	11	5	10						DYING;TBR
82	MULBERRY	13	NO									DEAD;TBR
83	MULBERRY	11	NO								VINES	DEAD;TBR
84	BLACK LOCUST	10	NO									OUT OF PROPERTY;TBR
85	BLACK LOCUST	13	NO									OUT OF PROPERTY;TBR
86	RED MAPLE		YES	15	13							OUT OF PROPERTY;TBR
87	RED MAPLE		YES	10	20	7					VINES	DEAD;TBR
88	NORWAY SPRUCE	14	NO									TBR
89	RED MAPLE		YES	11	4	14	8	8	10			DYING;TBR
90	RED MAPLE	9	NO									OUT OF PROPERTY;TBR
91	BLACK CHERRY	15	NO								VINES	DEAD;TBR
92	BLACK CHERRY	11	NO									OUT OF PROPERTY;TBR
93	MULBERRY	5	NO									DEAD;TBR
94	RED MAPLE	34	NO									TBR
95	MULBERRY	9	NO									OUT OF PROPERTY;TBR
96	BLACK LOCUST	15	NO									OUT OF PROPERTY;TBR
97	CHERRY SPECIES	8	NO									OUT OF PROPERTY;TBR
98	CHERRY SPECIES	15	NO									TBR
99	BALD CYPRESS		YES	9	6						VINES	TBR
100	CHERRY SPECIES	19	NO								VINES	TBR
101	CHERRY SPECIES	14	NO									TBR
102	CHERRY SPECIES	14	NO								VINES	TBR
103	CHERRY SPECIES	20	NO								VINES	TBR
104	CATALPA	32	NO									TBR
105	NORWAY SPRUCE	8	NO									TBR
106	RED MAPLE	31	NO									TBR

TREE INVENTORY NOTES

1. THIS PLAN IS TO BE USED FOR TREE IDENTIFICATION AND TREE LOCATION PURPOSES ONLY.
2. REFER TO THIS SHEET FOR TREE SPECIES, SIZE, AND CONDITIONS ON TREES INVENTORIED.
3. REFER TO THIS SHEET FOR REMOVAL AND REPLACEMENT CALCULATIONS.

TREE PRUNING NOTES

1. ALL PRUNING OF EXISTING TREES SHALL BE PERFORMED BY AN INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST, UTILIZING THE NATURAL TARGET PRUNING METHOD.
2. ALL PRUNING SHALL FOLLOW ISA'S TREE PRUNING GUIDELINES OR THE MOST RECENT ANSI A300 PRUNING STANDARDS, AND ANSI Z133.1 SAFETY STANDARDS.
3. SELECTIVE DIRECTIONAL PRUNING SHALL BE UTILIZED AND TOPPING OR DEADHEADING OF TREES SHALL BE PROHIBITED.
4. ANY TREES LOCATED UNDER OR ADJACENT TO OVERHEAD UTILITY WIRES SHALL BE PRUNED BY AN ISA CERTIFIED ARBORIST WHO MEETS ANSI AND OSHA STANDARDS IN THE SPECIAL TECHNIQUES NEEDED TO WORK SAFELY AROUND ENERGIZED LINES.
5. IT IS RECOMMENDED THAT THE CONTRACTOR CONTACT A UTILITY COMPANY REPRESENTATIVE, PRIOR TO PERFORMING ANY TREE PRUNING WORK NEAR AN OVERHEAD POWER LINE.

BRANCH PRUNING DETAIL

GLOSSARY:	
TERM	DEFINITION
MULTI LEADER	MORE THAN 1 TRUNK; TREE SEPARATES AT THE BOTTOM.
MULTI SIZE:	SIZE OF EACH SPLITTING TRUNK, ONLY IF YES TO MULTI LDR.
TBR	A TREE WHICH IS - TO BE REMOVED

20 0 20 40

SCALE : 1" = 20'

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Christopher R. Gammons
NEW JERSEY LICENSED LANDSCAPE ARCHITECT
LICENSE NUMBER: ASO1132
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone:609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DRAWN BY:
AS SHOWN	SLD
DESIGNED BY:	REVIEWED BY:
SLD	MJJ
DATE ISSUED:	PROJECT NUMBER:
12/22/25	24002939A

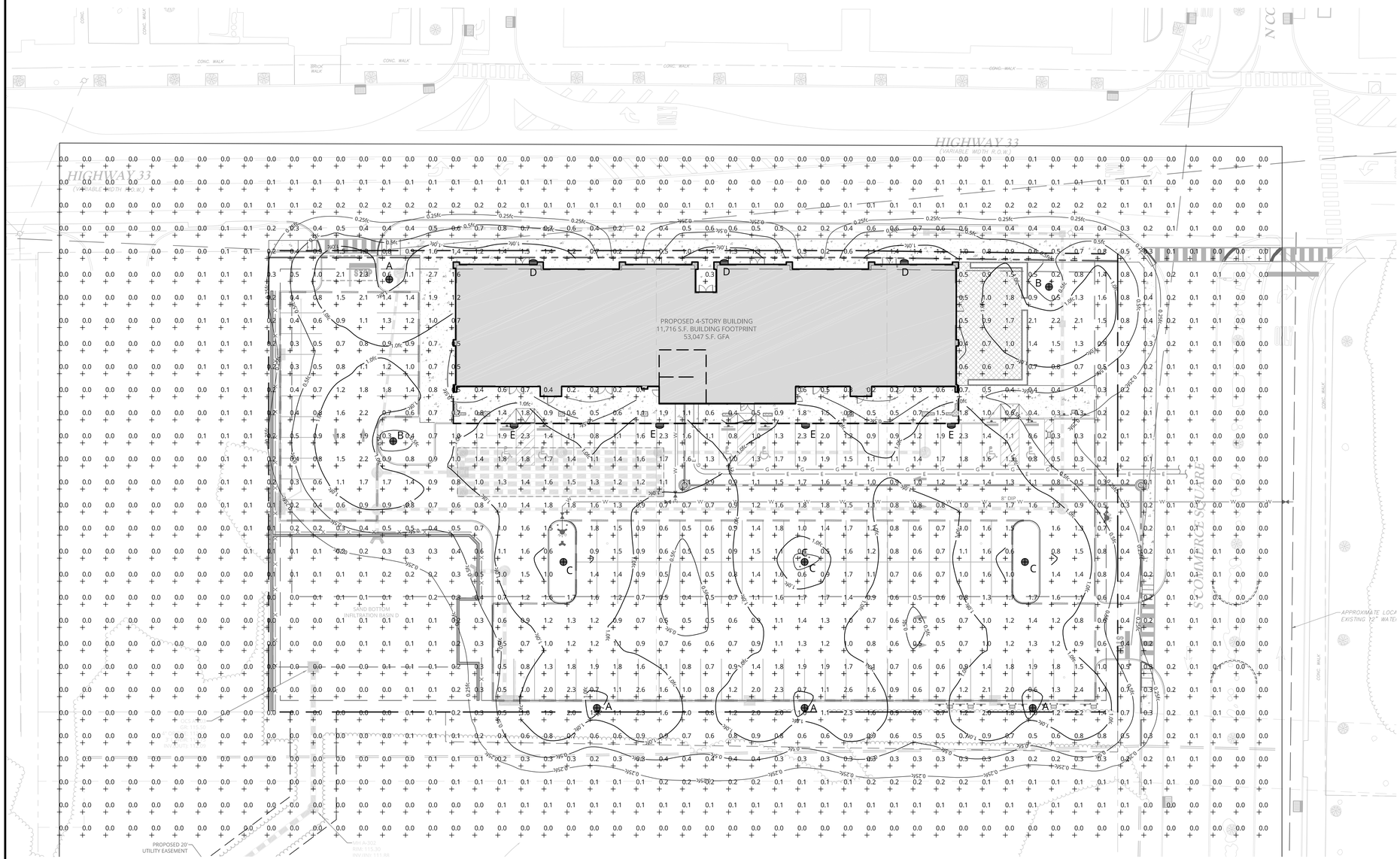
SHEET NAME:

TREE INVENTORY PLAN

DRAWING NUMBER:

8.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



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GENERAL NOTES

1. THIS SHEET IS TO BE USED FOR LIGHTING PURPOSES ONLY.
2. REFER TO CIVIL SHEETS FOR GENERAL NOTES.

LIGHTING PLAN NOTES

1. REFER TO SHEET 9.1 FOR LIGHTING DETAILS AND ORDERING INFORMATION.
2. LIGHT LEVELS ON PLAN REPRESENT AVERAGE MAINTAINED FOOTCANDLE LEVELS AT FINISHED EXTERIOR GRADE.
3. ALL MOUNTING HEIGHTS ARE MEASURED FROM FINISHED EXTERIOR GRADE TO LIGHT SOURCE.
4. POLE LOCATIONS MAY VARY DUE TO SITE CONDITIONS. CONTRACTOR TO FIELD VERIFY POLE LOCATIONS PRIOR TO INSTALLATION TO ACCOMMODATE UTILITIES, PAVEMENTS, FENCES, ETC.
5. UNDERGROUND CONDUIT LOCATIONS SHALL BE COORDINATED WITH THE PROPOSED TREE LOCATIONS.
6. CONCRETE FOOTING FOR POLE MOUNTED LIGHTS TO BE DESIGNED BY OTHERS. FOOTING DETAIL TO BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
7. ELECTRICAL WIRING DESIGN FOR SITE LIGHTING TO BE DESIGNED BY OTHERS.
8. ARCHITECTURAL LIGHTING FOR BUILDINGS TO BE DESIGNED BY OTHERS. COORDINATE ALL BUILDING-MOUNTED FIXTURES AND LOCATIONS WITH ARCHITECT AND ARCHITECTURAL ELEVATION DRAWINGS.
9. SITE LIGHTING SUBSTITUTIONS WILL NOT BE PERMITTED UNLESS SUBSTITUTIONS ARE SUBMITTED AND APPROVED.
10. LUMINAIRES AND POLES TO BE MANUFACTURED BY HADCO LIGHTING, LITHONIA LIGHTING OR EQUIVALENT AS APPROVED BY LANDSCAPE ARCHITECT.
11. LUMINAIRES AND POLE FINISHES TO BE AS NOTED ON SHEET C-9.1.
12. PROPOSED LIGHTS SHALL BE EQUIPPED WITH SENSORS, TIMERS, OR THE MANUFACTURER CONTROL SYSTEM SO THE PROPOSED LIGHTS CAN BE DIMMED OR TURNED OFF AFTER OCCUPATION HOURS. ONLY SPECIFIC LIGHTING FOR SECURITY PURPOSES SHALL REMAIN ON AFTER OCCUPATION HOURS. SECURITY LIGHTING SHALL BE DETERMINED BY THE OWNER AND CONTRACTOR.

LIGHTING LEGEND

POST TOP LUMINAIRE

WALL MOUNT LUMINAIRE

1.00 FOOTCANDLE

0.5 FOOTCANDLE

0.25 FOOTCANDLE

ORDINANCE COMPLIANCE CHART

§ 142-37. LIGHTING.
ALL SITE PLANS AND MAJOR SUBDIVISIONS SHALL INCLUDE A LIGHTING PLAN.

A. SUCH PLANS SHALL INCLUDE THE LOCATION, TYPE OF LIGHT, RADIUS OF LIGHT, MANUFACTURER'S SPECIFICATION SHEET AND THE INTENSITY IN FOOTCANDLES. THE FOLLOWING DESIGN STANDARDS SHALL BE OBSERVED FOR ALL COMMERCIAL, PUBLIC, QUASI-PUBLIC, OFFICE, INDUSTRIAL, APARTMENT OR TOWNHOUSE USES EXCEPT FOR THE TOWN CENTER WHICH HAS ITS SPECIFIC LIGHTING STANDARDS:

7. THE MAXIMUM HEIGHT OF FREESTANDING LIGHTS SHALL BE THAT OF THE FREESTANDING BUILDING, BUT IN NO CASE GREATER THAN 24 FEET, MEASURED FROM THE GROUND TO THE CENTER LINE OF THE LIGHT SOURCE, AND SHALL BE SPACED A DISTANCE NOT TO EXCEED FOUR TIMES THE MOUNTING HEIGHT.	**COMPLIANT; FREE STANDING LIGHTS HEIGHT AT 18.5'**
9. THE FOLLOWING LIGHT INTENSITY, IN FOOTCANDLES, SHALL BE PROVIDED: (a) NONRESIDENTIAL PARKING LOTS AND ACCESS DRIVES: AN AVERAGE OF ONE FOOTCANDLE THROUGHOUT. (d) MAXIMUM AT ANY PROPERTY LINE: 0.2 FOOTCANDLE. (f) IN ANY AREA REQUIRED TO BE ILLUMINATED, THE MINIMUM LIGHT INTENSITY PROVIDED AT GROUND LEVEL SHALL BE 0.2 FOOTCANDLE.	**COMPLIANT; PARKING LOTS & ACCESS DRIVE: AVG 1.1 FC** **WAIVER REQUESTED; LIGHT LEVELS AT PROPERTY LINE EXCEED 0.2 FC** **COMPLIANT; MINIMUM LIGHT LEVELS: 0.2 FC**
10. ALL LIGHTING, INCLUDING ILLUMINATED SIGNS AND DISPLAYS, SHALL BE SHIELDED TO RESTRICT THE MAXIMUM APEX ANGLE OF THE CONE OF ILLUMINATION TO 100°. ALL LIGHTING, INCLUDING ILLUMINATED SIGNS AND DISPLAYS, PROPOSED TO BE LOCATED WITHIN 100 FEET OF A RESIDENTIAL ZONE OR USE SHALL BE FURTHER SHIELDED TO DIRECT THE ANGLE OF LIGHT AWAY FROM SAID RESIDENTIAL ZONE OR USE. ALL LIGHT FIXTURES AND SIGNS MUST BE SHIELDED TO PREVENT GLARE OR LIGHT SPILL ONTO ADJACENT PROPERTY. NO LIGHTING FIXTURES SHALL BE DIRECTED AT ROADWAYS AND CAUSE GLARE FOR MOTORISTS.	**COMPLIANT; FIXTURES SELECTED ARE DOWNWARD FACING AND/OR DARK SKY CERTIFIED**

OVERALL LIGHTING STATISTICS

AREA DESCRIPTION	SYMBOL	AVERAGE	MAXIMUM	MINIMUM	MAX/MIN	AVG/MIN
OVERALL SITE	+	0.5 FC	2.7 FC	0.0 FC	N/A	N/A
DRIVES & PARKING AREAS	+	1.1 FC	2.6 FC	0.2 FC	13.0 : 1.0	5.67 : 1.0
PEDESTRIAN WALKS	+	0.8 FC	2.7 FC	0.2 FC	13.5 : 1.0	4.2 : 1.0
INTERSECTIONS	+	0.3 FC	0.5 FC	0.2 FC	2.5 : 1.0	1.72 : 1.0

OVERALL LIGHTING SCHEDULE

SYMBOL	LABEL	QTY	CATALOG NUMBER	LAMP	LUMENS PER LAMP	WATTAGE	LLF	MOUNT HT.	POLE
	A	4	HADCO TX03C-196-G2-2-830-I6	196 LED	6231	75	0.9	18.5'	P5065 16 A T G
	B	2	HADCO TX03C-196-G2-3-830-I6	196 LED	6761	75	0.9	18.5'	P5065 16 A T G
	C	3	HADCO TX03C-196-G2-5-830-I6	196 LED	7302	75	0.9	18.5'	P5065 16 A T G
	D	3	LITHONIA WDGE2 LED P1 30K 70CRI T1S	LED	1157	11	0.9	14'	WALL MOUNT
	E	4	LITHONIA WDGE2 LED P3 30K 70CRI TFTM	LED	3015	32	0.9	14'	WALL MOUNT

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Christopher R. Gammons
NEW JERSEY LICENSED LANDSCAPE ARCHITECT
LICENSE NUMBER: AS01132
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design

HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN	DRAWN BY: FG
DESIGNED BY: SLD	REVIEWED BY: MKB
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

LIGHTING PLAN

DRAWING NUMBER:

9.0

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

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HADCO

Urban

Hagerstown

TX03-C Post top w/comfort optic

Hadco's Hagerstown LED post top gives you the ability to create a unique style through our modular post top concepts to blend into any residential and historic urban settings. With the latest LED technology you can seamlessly replace traditional HID technology to maximize energy savings and significantly reduce total cost of ownership. The Hagerstown luminaire provides excellent uniformity, traditional customizable look, with the benefits of modern technology. These post tops are now available with comfort optics, providing a low glare solution for pedestrian applications.

Project:
Location:
Cat. No.:
Type:
Lamps: Qty:
Notes:

Ordering guide

Example: TX03C 196 G2 B C HQ A 1 A 3 N 730 A 6 N SP1

Series	LEDs	Gen.	Pods	Roof	Cage/Band	Finials	Fasteners	Finish	Optics
TX03C									
TX03C Hagerstown LED post top	**196** 196 LEDs	G2 Gen. 2	B Round fitter w/ scalloped petals H Round contemporary fitter	C Tall Spun D Short Spun	HQ Smooth band HP Ribbed band	A A finial B B finial C C finial D D finial E E finial F F finial G G finial H H finial N No finial	1 Hex head bolts 2 Allen head bolts	A Black B White G Verde H Bronze J Green	1 Type 1 2 Type 2 3 Type 3 4 Type 4 5 Type 5

Photo Control Receptacle	Future-Proof Control Receptacle	Color Temp	Voltages	Currents	Integral Controls	Surge protection
Button eye photo controls **E** 120 VAC **H** 208/240/277 VAC **K** 347 VAC **R** Twist-lock receptacle **N** No photo control	**R[2]** Future Proof Photo Control 7-pin Receptacle **N** None	**830*** 3000K (80CRI) **840** 4000K (80CRI)	**A** 120-277 VAC[1] **B** 347-480 VAC	**4** 450mA **6** 650 mA **11** 1150mA **16** 1675mA **21** 2100mA	**DL[3,4]** Compatible with DALI **SRD[1]** Sensor ready driver, standard configuration **SRD1[1]** Sensor ready driver, alternate configuration **N** None	**SP1** 10kV/10kA **SP2** (standard) 20kV/20kA (optional)

1. Not available with B (347-480) voltage
2. DL not available with 4 (450mA) and 6 (650mA) drive currents
3. R7 is located on top of the roof. N No Finial is required
4. Only 3000K CCT and warmer/below are IDA International DarkSky Approved

TX03-C Hagerstown

Post top

LED Performance

Predicted lumen depreciation data				
Ambient Temperature (°C)	Driver mA	Calculated L_{70} hours	L_{70} per TM-21	Lumen Maintenance % @ 60,000 hours
25	up to 2100 mA	>100,000	>60,000	86.5%

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions. $L70$ is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L70 hours limited to 6 times actual LED test hours.

LED Wattage and Lumen Values

LED Module: 3000K

Ordering Code	LED QTY	LED Current (mA)	Avg System Wattage	Type 1 Delivered Lumens[1]	Type 1 BUG Rating	Type 1 Efficacy (LPW)	Type 2 Delivered Lumens[1]	Type 2 BUG Rating	Type 2 Efficacy (LPW)	Type 3 Delivered Lumens[1]	Type 3 BUG Rating	Type 3 Efficacy (LPW)	Type 4 Delivered Lumens[1]	Type 4 BUG Rating	Type 4 Efficacy (LPW)	Type 5 Delivered Lumens[1]	Type 5 BUG Rating	Type 5 Efficacy (LPW)
TX03C-196-G2-x-830-4	196	450	21	1800	B1-U0-G1	86	1821	B1-U0-G1	87	1976	B1-U0-G1	94	1999	B1-U0-G1	95	2134	B1-U0-G1	102
TX03C-196-G2-x-830-6	196	650	30	2545	B1-U0-G1	85	2575	B1-U0-G1	86	2794	B1-U0-G1	93	2827	B1-U0-G1	94	3018	B2-U0-G1	101
TX03C-196-G2-x-830-11	196	1150	52	4448	B2-U0-G2	86	4500	B2-U0-G2	87	4883	B2-U0-G2	94	4940	B2-U0-G2	95	5273	B3-U0-G2	101
TX03C-196-G2-x-830-16	196	1675	75	6159	B3-U0-G3	82	6231	B3-U0-G3	83	6761	B3-U0-G2	90	6840	B2-U0-G2	91	7302	B3-U0-G2	97
TX03C-196-G2-x-830-21	196	2100	94	7514	B3-U0-G3	80	7601	B3-U0-G3	81	8248	B3-U0-G3	88	8344	B2-U0-G2	89	8908	B3-U0-G2	95

LED Module: 4000K

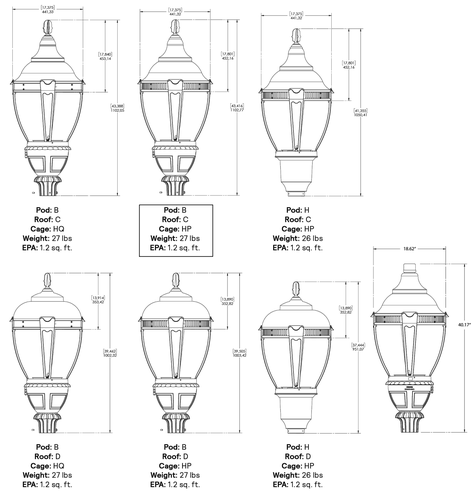
Ordering Code	LED QTY	LED Current (mA)	Avg System Wattage	Type 1 Delivered Lumens[1]	Type 1 BUG Rating	Type 1 Efficacy (LPW)	Type 2 Delivered Lumens[1]	Type 2 BUG Rating	Type 2 Efficacy (LPW)	Type 3 Delivered Lumens[1]	Type 3 BUG Rating	Type 3 Efficacy (LPW)	Type 4 Delivered Lumens[1]	Type 4 BUG Rating	Type 4 Efficacy (LPW)	Type 5 Delivered Lumens[1]	Type 5 BUG Rating	Type 5 Efficacy (LPW)
TX03C-196-G2-x-840-4	196	450	21	1872	B1-U0-G1	89	1894	B1-U0-G1	90	2055	B1-U0-G1	98	2079	B1-U0-G1	99	2219	B2-U0-G1	106
TX03C-196-G2-x-840-6	196	650	30	2647	B2-U0-G2	88	2678	B1-U0-G1	89	2906	B1-U0-G1	97	2940	B1-U0-G1	98	3138	B2-U0-G1	105
TX03C-196-G2-x-840-11	196	1150	52	4626	B2-U0-G2	89	4680	B2-U0-G2	90	5078	B2-U0-G2	98	5137	B2-U0-G2	99	5484	B3-U0-G2	105
TX03C-196-G2-x-840-16	196	1675	75	6405	B3-U0-G3	85	6480	B3-U0-G3	86	7031	B2-U0-G2	94	7113	B2-U0-G2	95	7594	B3-U0-G2	101
TX03C-196-G2-x-840-21	196	2100	94	7814	B3-U0-G3	83	7905	B3-U0-G3	84	8578	B3-U0-G3	91	8678	B3-U0-G3	92	9264	B3-U0-G2	99

Values from photometric tests performed in accordance with IESNA LM-79 and are representative of the configurations shown. Actual performance may vary due to installation and environmental variables. LED and driver tolerances, and field measurement considerations. It is highly recommended to confirm performance with a photometric report.
Note: Some data may be scaled based on tests of similar (but not identical) luminaires. Contact factory for configurations not shown.

TX03-C Hagerstown

Post top

Dimensions



Pod: B
Roof: C
Cage: HQ
Weight: 27 lbs
EPA: 1.2 sq. ft.

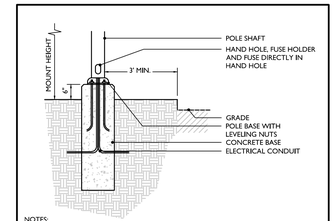
Pod: B
Roof: C
Cage: HP
Weight: 27 lbs
EPA: 1.2 sq. ft.

Pod: H
Roof: C
Cage: HP
Weight: 26 lbs
EPA: 1.2 sq. ft.

Pod: B
Roof: D
Cage: HQ
Weight: 27 lbs
EPA: 1.2 sq. ft.

Pod: B
Roof: D
Cage: HP
Weight: 27 lbs
EPA: 1.2 sq. ft.

Pod: H
Roof: D
Cage: HP
Weight: 26 lbs
EPA: 1.2 sq. ft.



NOTES:
1. FOOTING SHOWN IS SCHEMATIC ONLY.
2. SHOP DRAWINGS AND CALCULATIONS FOR THE DESIGN AND SIZING OF THE CONCRETE FOOTING SHALL BE PREPARED BY A LICENSED ENGINEER, AND SHALL BE PROVIDED BY THE CONTRACTOR FOR THE APPROVAL PRIOR TO CONSTRUCTION.
3. SITE ELECTRICAL CONTRACTOR TO COORDINATE LOCATED OF EASEMENTS, UNDERGROUND UTILITIES, AND DRAINAGE AREAS BEFORE DRILLING POLE BASES.

CONCRETE FOOTING
SCHEMATIC DETAIL

NOT TO SCALE CEL5-LTNG-FTNG-1200 05/01/25

LIGHTING FIXTURES A, B & C

WDGE2 LED

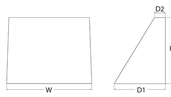
Architectural Wall Sconce
Precision Refractive Optic

Catalog Number
Notes
Type

*Fit the tab key or mouse over the page to see all interactive elements.

Specifications

Depth (D1): 7"
Depth (D2): 1.5"
Height: 9"
Width: 11.5"
Weight: (without options) 13.5 lbs



Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE2 with industry leading precision refractive optics provides great uniform distribution and optical control. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

design select — Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect. *See ordering tree for details

WDGE LED Family Overview

Luminaire	Optics	Standard Eff., 0° C	Cold Eff., -20°C	Sensor	Approximate Lumens (4000K, 80CRI) P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	12W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE1 LED	Precision Refractive	15W	18W	Standalone / nLight	--	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE2 LED P3 40K 80CRI T3M MVOLT SRM DDBXD

Series	Package	Color Temperature	CRI	Distribution	Voltage	Mounting
WDGE2 LED	P0*	27K 2700K	70CRI*	T1S Type I Short	MVOLT	**Shipped included**
	P1	30K 3000K	80CRI	T2M Type II Medium	347*	SRM Surface mounting bracket
	P2	35K 3500K		T3M Type III Medium	480*	ICW Indirect Canopy/Ceiling Washer bracket (ship separately; use when there is no junction box available)
	P3	40K 4000K		T4M Type IV Medium		**Shipped separately**
	P4	50K 5000K		TFTM Forward Throw Medium		AWS 3/8inch Architectural wall spacer
	P5	AMBP Amber				PBBW Surface-mounted back box (top, M/E, right conduit entry). Use when there is no junction box available
	P6*	LW* Limited Wavelength				

Options		Finish
E10WH Emergency battery backup, Certified in CA Title 20 MAEDBS (10W, 5°C min)	PIR Bi-level (100/35%) motion sensor for 8-15' mounting heights. Intended for use on switched circuits with external dusk to dawn switching	DDBXD Dark bronze
E20WL Emergency battery backup, Certified in CA Title 20 MAEDBS (18W, -20°C min)	PIRH Bi-level (100/35%) motion sensor for 15-30' mounting heights. Intended for use on switched circuits with external dusk to dawn switching	DBLXD Black
PE Photocell, Button Type*	PIR1FC3V Bi-level (100/35%) motion sensor for 8-15' mounting heights with photocell pre-programmed for dusk to dawn operation.	DNAXD Natural aluminum
DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)*	PIRH1FC3V Bi-level (100/35%) motion sensor for 15-30' mounting heights with photocell pre-programmed for dusk to dawn operation.	DWHXD White
BCE Bottom conduit entry for back box (PBBW). Total of 4 entry points.	**Networked Sensors/Controls**	DSSXD Sandstone
CCE Coastal Construction*	NLTAIR2 PIR Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights.	DDBTXD Textured dark bronze
	NLTAIR2 PIRH Embedded wireless controls by nLight with Passive Infrared Occ sensor and on/off photocell for 15-30' mounting heights.	DBLBXD Textured black
	NLTAIRE2 PIR Embedded wireless controls by nLight with UL924 listed emergency operation, Passive Infrared Occ sensor and on/off photocell for 8-15' mounting heights	DNATXD Textured natural aluminum
	NLTAIRE2 PIRH Embedded wireless controls by nLight with UL924 listed emergency operation, Passive Infrared Occ sensor and on/off photocell for 15-30' mounting heights.	DWHGXD Textured white
	See page 4 for out of box functionality	DSSTXD Textured sandstone

WALL MOUNTED FIXTURES "D" & "E"

Accessories
Ordered and shipped separately.

WDGEAWS DDBXD U WDGE 3/8inch Architectural Wall Spacer (specify finish)
WDGEPBBW DDBXD U WDGE2 surface-mounted back box (specify finish)

NOTES
1 P0 option not available with sensors/controls.
2 P1-P4 not available with AMB and UW.
3 AMB and UW always go together.
4 70CRI only available with TJM and T4M.
5 347V and 480V not available with ETSWH or E20WC.
6 Not qualified for DLC. Not available with emergency battery backup or sensors/controls.
7 For PBBW and AWS with CCE option, require an RFA.
8 PE not available in 480V or with sensors/controls.
9 DMG option not available with sensors/controls.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Dist. Type	27K (2700K, 80 CRI) Lumens	LPW	B	U	G	30K (3000K, 80 CRI) Lumens	LPW	B	U	G	40K (4000K, 80 CRI) Lumens	LPW	B	U	G	50K (5000K, 80 CRI) Lumens	LPW	B	U	G	Amber (Limited Wavelength) Lumens	LPW	B	U	G
P0	7W	T1S	436	92	0	0	0	466	97	0	0	0	499	101	0	0	1	491	100	0	0	1	712	47	0	0	1
		T2M	662	96	0	0	0	693	101	0	0	0	728	106	0	0	0	719	104	0	0	0	741	48	0	0	0
		T3M	662	96	0	0	0	693	101	0	0	0	728	106	0	0	0	719	104	0	0	0	741	48	0	0	0
		T4M	648	94	0	0	0	679	98	0	0	0	712	103	0	0	0	704	102	0	0	0	726	47	0	0	0
		TFTM	652	95	0	0	0	683	99	0	0	0	717	104	0	0	0	708	103	0	0	0	730	48	0	0	1
P1	11W	T1S	1,105	99	0	0	1	1,157	104	0	0	1	1,213	109	0	0	1	1,200	107	0	0	1					
		T2M	1,130	101	0	0	1	1,184	106	0	0	1	1,244	111	0	0	1	1,249	112	0	0	1					
		T3M	1,130	101	0	0	1	1,185	106	0	0	1	1,245	111	0	0	1	1,230	110	0	0	1					
		T4M	1,106	101	0	0	1	1,159	106	0	0	1	1,218	111	0	0	1	1,223	110	0	0	1					
		TFTM	1,113	101	0	0	1	1,166	106	0	0	1	1,245	113	0	0	1	1,218	110	0	0	1					
P2	19W	T1S	1,801	95	1	0	1	1,886	99	1	0	1	1,983	104	1	0	1	1,957	103	1	0	1					
		T2M	1,875	99	1	0	1	1,963	103	1	0	1	2,061	109	1	0	1	2,037	107	1	0	1					
		T3M	1,876	99	1	0	1	1,964	103	1	0	1	2,062	109	1	0	1	2,038	107	1	0	1					
		T4M	1,836	97	1	0	1	1,922	101	1	0	1	2,018	106	1	0	1	1,994	105	1	0	1					
		TFTM	1,847	97	1	0	1	1,934	102	1	0	1	2,030	107	1	0	1	2,006	106	1	0	1					
P3	32W	T1S	2,809	87	1	0	1	2,942	92	1	0	1	3,089	96	1	0	1	3,052	95	1	0	1					
		T2M	2,924	91	1	0	1	3,062	95	1	0	1	3,215	100	1	0	1	3,176	99	1	0	1					
		T3M	2,925	91	1	0	1	3,063	95	1	0	1	3,216	100	1	0	1	3,177	99	1	0	1					
		T4M	2,862	89	1	0	1	2,997	93	1	0	1	3,147	98	1	0	1	3,110	97	1	0	1					
		TFTM	2,880	90	1	0	1	3,016	94	1	0	1	3,166	99	1	0	1	3,128	97	1	0	1					
P4	47W	T1S	3,729	80	1	0	1	3,904	84	1	0	1	4,099	88	1	0	1	4,051	87	1	0	1					
		T2M	3,881	83	1	0	1	4,063	87	1	0	1	4,267	91	1	0	1	4,216	90	1	0	1					
		T3M	3,882	83	1	0	1	4,065	87	1	0	1	4,268	91	1	0	1	4,217	90	1	0	1					
		T4M	3,799	81	1	0	1	3,978	85	1	0	1	4,177	90	1	0	1	4,127	88	1	0	1					
		TFTM	3,822	82	1	0	1	4,002	86	1	0	1	4,202	90	1	0	1	4,152	89	1	0	1					

Performance Package	System Watts	Dist. Type	27K (2700K, 70 CRI) Lumens	LPW	B	U	G	30K (3000K, 70 CRI) Lumens	LPW	B	U	G	40K (4000K, 70 CRI) Lumens	LPW	B	U	G	50K (5000K, 70 CRI) Lumens	LPW	B	U	G
P0	7W	T1M	717	107	0	0	0	763	111	0	0	0	822	119	0	0	0	832	121	0	0	1
		T4M	721	105	0	0	0	766	108	0	0	0	804	117	0	0	1	814	118	0	0	1
P1	11W	T1M	1,289	115	0	0	1	1,325	119	0	0	1	1,427	128	1	0	1	1,441	129	1	0	1
		T4M	1,253	112	0	0	1	1,297	116	0	0	1	1,397	125	0	0	1	1,415	127	0	0	1
P2	19W	T1M	2,087	110	1	0	1	2,160	114	1	0	1	2,327	123	1	0	1	2,327	124	1	0	1
		T4M	2,042	108	1	0	1	2,114	111	1	0	1	2,278	120	1	0	1	2,306	121	1	0	1
P3	32W	T1M	3,254	101	1	0	1	3,368	105	1	0	1	3,629	113	1	0	1	3,675	114	1	0	1
		T4M	3,185	99	1	0	1	3,297	103	1	0	1	3,552	111	1	0	1	3,597	112	1	0	1
P4	47W	T1M	4,139	93	1	0	1	4,471	96	1	0	1	4,817	103	1	0	2	4,878	105	1	0	2
		T4M	4,227	91	1	0	1	4,376	94	1	0	2	4,714	101	1	0	2	4,774	102	1	0	2

HADCO by signify

Outdoor

Poles and Brackets

P5065 Straight Round Fluted

5" Straight Flat Fluted w/3" tenon

Project:
Location:
Cat. No.:
Type:
Lamps: Qty:
Notes:

Order guide

example: P5065 12 A T D

Product Code	Pole Height	Finish	Outlet Location	Outlet Options
P5065				
P5065	12' 14' 16' OR	A Black B White G Verde H Bronze I Gray J Green	T 12" Down from Top - Aligned with House Side B 4" Up from Top of Base - Aligned with House Side	D Standard Duplex G GFI Duplex

EPA values based on destructive break testing. For AASHTO ratings, contact factory.

Pole Data

Pole Model	Pole Shape	Pole Type	Shaft Dimension	Pole Fluted	Anchor Base Shape	Bolt Circle	Base Dim (in)	Hand Hole Dim (in)
P5065	Round	Straight	5	Fluted	round	8 to 13	17 x 21	4.5 x 5

Pole Family	Catalog Number	Nominal Height (ft)	Tenon Section (in)	Wall Thickness (in)	EPA Rating 80 MPH (sq. ft)	EPA Rating 100 MPH (sq. ft)	Anchor Bolts (in)
P5065	P5065-12	12	3	0.188 - 0.267	28.22	16.70	3/4-19 bs
P5065	P5065-14	14	3	0.188 - 0.267	19.29	11.26	3/4-19 bs
P5065	P5065-16	16	3	0.188 - 0.267	16.00	8.89	3/4-19 bs
P5065	P5065-18	18	3	0.188 - 0.267	13.99	7.60	3/4-19 bs

Specifications

HOUSING:
356 HM high-strength, low-copper, proprietary cast aluminum alloy. 6005-T5 extruded aluminum. Anchor rods are hot dipped galvanized steel. Tenon is 356 HM sand cast aluminum.

FINISH:
A durable polyurethane enamel finish is applied after assemblies are shot blasted to create a surface profile which allows for the highest level of paint adhesion. Laboratory tested for superior weatherability and fade resistance in accordance with ASTM B-117-64 and ANSI/ASTM G53-77 specifications. For larger projects where a custom color is required, contact the factory for more information.

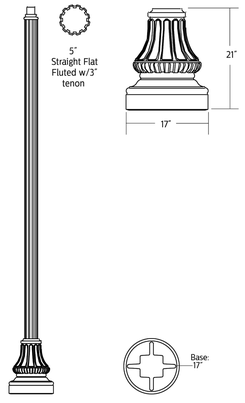
WARRANTY:
Please visit **www.signify.com/warranties** for more details on structural and finish warranty.

CERTIFICATIONS:
Manufactured to ISO 9001:2008 Standards.

OUTLET:
Standard Duplex Outlet has universal metal weatherproof cover. Weatherproof while in use. Heavy-duty all-metal construction. Lockable security cover. Meets NEC 406.9 (B). Weather resistant. GFI Duplex Outlet has dual-function indicator light, universal metal weatherproof cover. Weatherproof while in use. Heavy-duty all-metal construction. Lockable security cover. Meets NEC 406.9 (B). Weather resistant.

P5065 Poles and Brackets

Straight Round Fluted



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POLE FOR FIXTURES "A", "B" & "C"

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

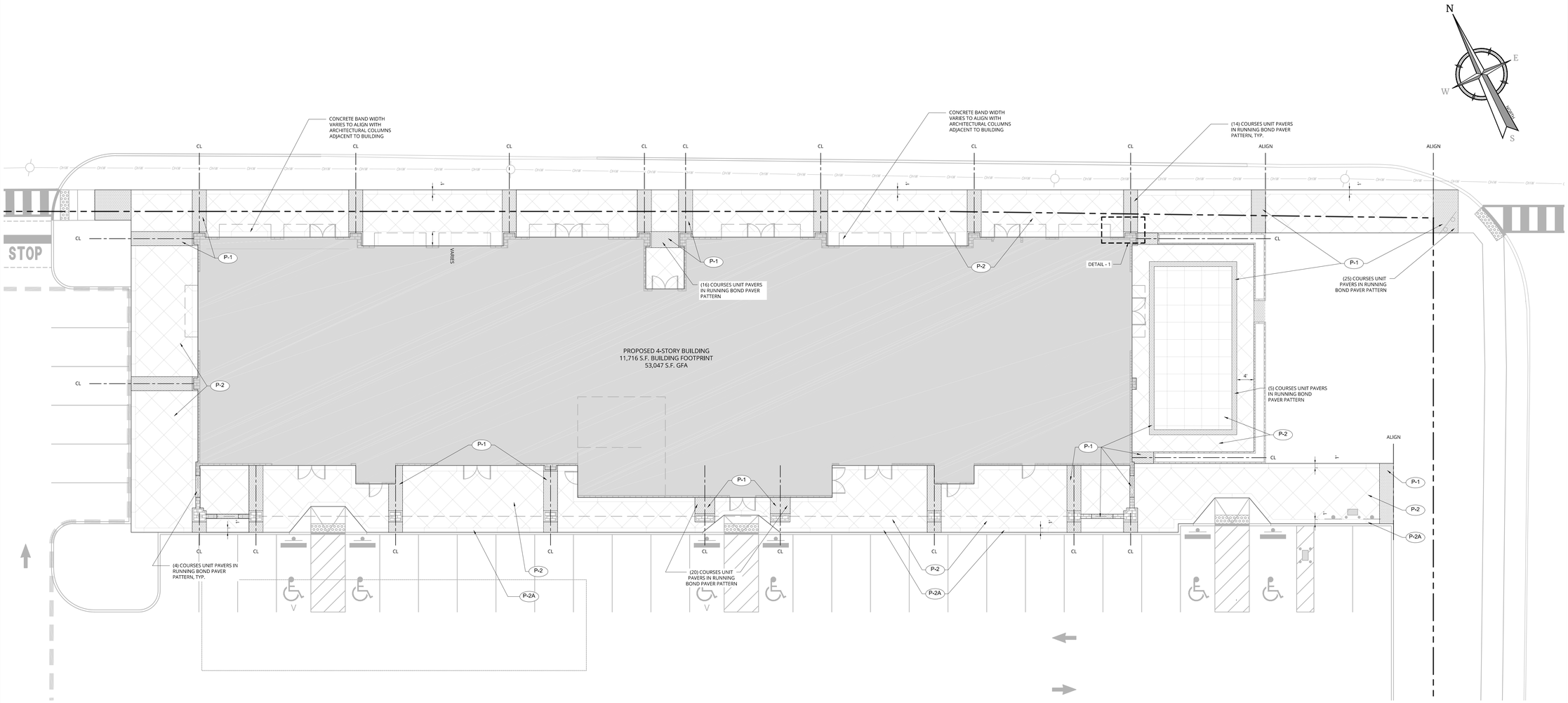
Christopher R. Gammons
NEW JERSEY LICENSED LANDSCAPE ARCHITECT
LICENSE NUMBER: AS01132
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN
DRAWN BY: FG
DESIGNED BY: SLD
REVIEWED BY: MKB
DATE ISSUED: 12/22/25
PROJECT NUMBER: 24002939A
SHEET NAME: LIGHTING DETAILS
DRAWING NUMBER: 9.1

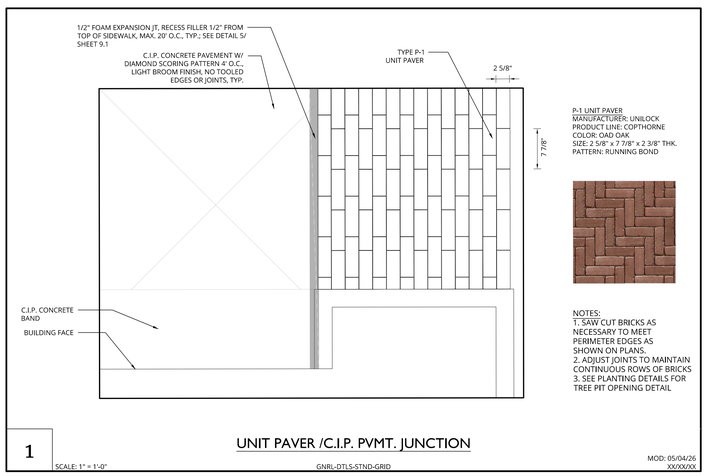
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Do not scale drawings. Verify all dimensions and conditions prior to construction. Report any discrepancies to the Engineer. Do not proceed with work in question until discrepancies are resolved. Contractor is responsible for all dimensions and conditions on the job site and this office must be notified of any variations from the dimensions and conditions shown by these plans. Contractor is responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work. Contractor is responsible for compliance with all applicable laws, codes, rules and regulations. Contractor is responsible for jobsite safety. Contractor is responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work. Contractor is responsible for compliance with all applicable laws, codes, rules and regulations. Contractor is responsible for jobsite safety.



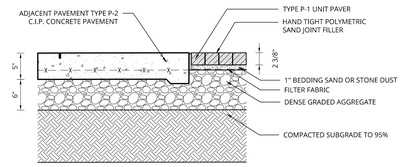
PAVEMENT SCHEDULE

HATCH	TAG ID	MATERIAL	NOTES
	P-1	UNIT PAVER	COPTHORNE PAVER FROM UNILOCK PAVERS, OLD OAK COLOR.
	P-2	C.I.P CONCRETE	SEE CONSTRUCTION DETAILS
	P-2A	C.I.P. CONCRETE BAND	SEE CONSTRUCTION DETAILS

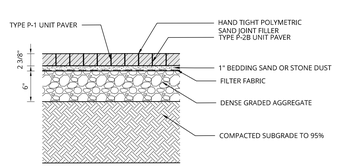


NOTES:
1. SAW CUT BRICKS AS NECESSARY TO MEET PERIMETER EDGES AS SHOWN ON PLANS.
2. ADJUST JOINTS TO MAINTAIN CONTINUOUS ROWS OF BRICKS
3. SEE PLANTING DETAILS FOR TREE PIT OPENING DETAIL

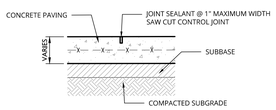
1 UNIT PAVER /C.I.P. PVMT. JUNCTION
SCALE: 1" = 1'-0" GNRL-DTLS-STND-GRID MOD: 05/04/26 XX/XX/XX



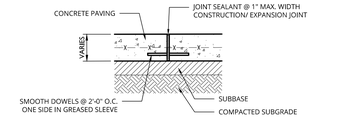
2 UNIT PAVER /C.I.P. PVMT. JUNCTION DETAIL
SCALE: 1" = 1'-0" GNRL-DTLS-STND-GRID MOD: 05/04/26 XX/XX/XX



3 TYPE P-1 UNIT PAVER DETAIL
SCALE: 1" = 1'-0" GNRL-DTLS-STND-GRID MOD: 05/04/26 XX/XX/XX



4 CONTROL JOINT TYP.
SCALE: 1" = 1'-0" GNRL-DTLS-STND-GRID MOD: 05/04/26 XX/XX/XX



5 EXPANSION JOINT TYP.
SCALE: 1" = 1'-0" GNRL-DTLS-STND-GRID MOD: 05/04/26 XX/XX/XX

10 0 10 20
SCALE : 1" = 10'

PAVING PLAN NOTES

1. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT & OWNER OF ANY DISCREPANCIES BETWEEN PLAN AND SITE CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
2. DO NOT SCALE DRAWINGS. REFER TO CIVIL SHEETS FOR DIMENSIONS.
3. LAYOUT AND ALIGNMENT OF ARBORS, COLUMNS, FENCING, FIXED SEATING, EDGING AND OTHER STRUCTURAL ELEMENTS ASSOCIATED WITH LANDSCAPE TO BE VERIFIED IN THE FIELD AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
4. CONTRACTOR IS RESPONSIBLE FOR ENGAGING NJ LICENSED STRUCTURAL ENGINEER TO REVIEW, STAMP, AND SIGN ALL SHOP DRAWINGS RELATED TO STRUCTURAL ELEMENTS.

GENERAL NOTES:

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2. DO NOT SCALE DRAWINGS, USE DIMENSIONS SHOWN.
3. ALL DIMENSIONS TO BE VERIFIED IN FIELD
4. ALL DIMENSIONS ARE TAKEN PARALLEL TO OR PERPENDICULAR FROM FEATURES SHOWN UNLESS OTHERWISE NOTED.
5. LAYOUT AND ALIGNMENT OF ARBORS, COLUMNS, FENCING, FIXED SEATING, EDGING AND OTHER STRUCTURAL ELEMENTS ASSOCIATED WITH LANDSCAPE TO BE VERIFIED IN THE FIELD AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR ENGAGING NJ LICENSED STRUCTURAL ENGINEER TO REVIEW, STAMP, AND SIGN ALL SHOP DRAWINGS RELATED TO STRUCTURAL ELEMENTS.

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DESIGNED BY: SLD	REVIEWED BY: MKB
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

PAVEMENT PLAN & DETAILS

DRAWING NUMBER:

10.0

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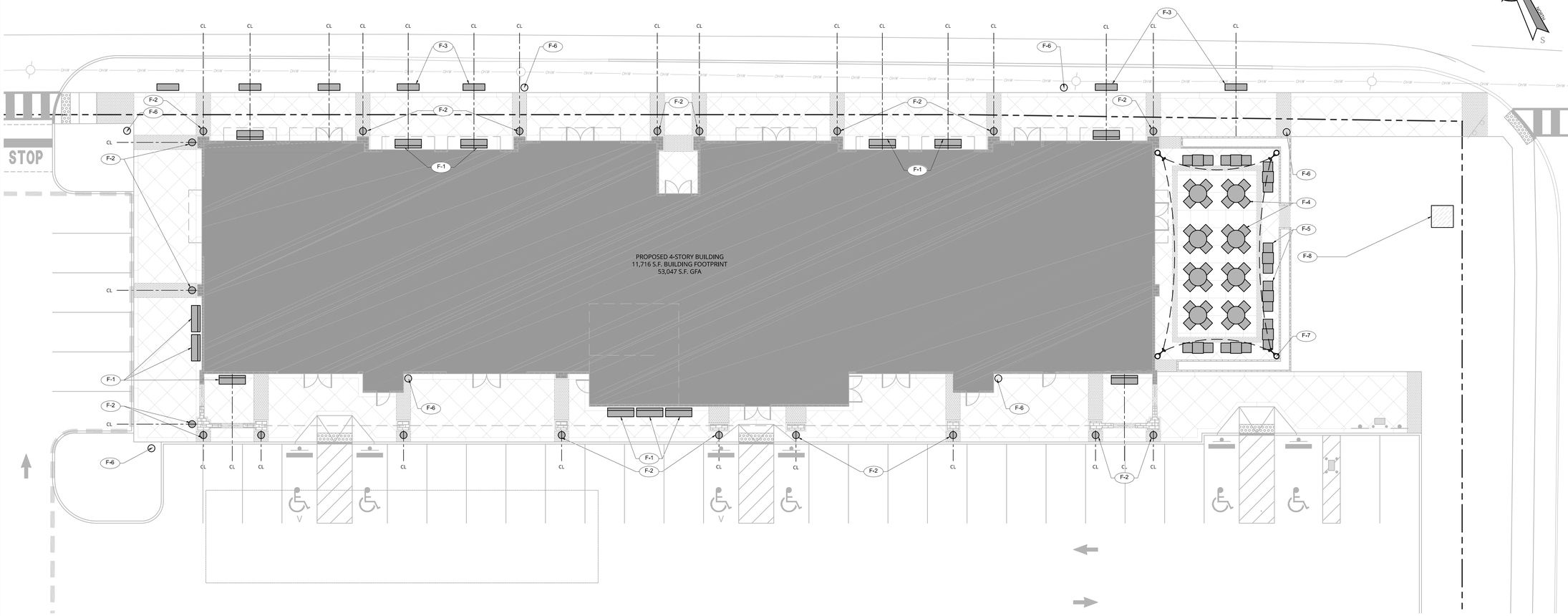
C:\CAD STD Projects\2024\24002939A\Engineering\Site Plans\24002939A-PAVEMENT PLAN & DETAILS - By: JCastaldi on 05/04/26 at - 10:43pm



10 0 10 20

SCALE : 1" = 10'

GENERAL FURNISHING NOTES

1. THIS SHEET IS TO BE USED FOR SITE FURNISHINGS PURPOSES ONLY.
2. REFER TO CIVIL SHEETS FOR GENERAL NOTES.

FURNISHING PLAN NOTES

1. REFER TO SHEETS **10.1** AND **10.2** FOR FURNISHING DETAILS AND ORDERING INFORMATION.
2. CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT & OWNER OF ANY DISCREPANCIES BETWEEN PLAN AND SITE CONDITIONS PRIOR TO COMMENCEMENT OF WORK.
3. DO NOT SCALE DRAWINGS, USE DIMENSIONS SHOWN.
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7. CONTRACTOR IS RESPONSIBLE FOR ENGAGING NJ LICENSED STRUCTURAL ENGINEER TO REVIEW, STAMP, AND SIGN ALL SHOP DRAWINGS RELATED TO STRUCTURAL ELEMENTS.

FURNISHING SCHEDULE

TAG ID	MATERIAL	QTY	NOTES
F-1	BENCH	13	SEE DETAIL 1/10.1
F-2	CIRCULAR PLANTER	20	SEE DETAIL 2/10.1
F-3	RECTANGULAR PLANTER	7	SEE DETAIL 2/10.1
F-4	TABLE AND (4) SEATS	8	SEE DETAIL 5 & 6/10.1
F-5	TABLE AND (2) SEATS	8	SEE DETAIL 5 & 6/10.1
F-6	TRASH RECEPTACLES	7	SEE DETAIL 7/10.1
F-7	PERGOLA	1	SEE DETAIL 8/10.1
F-8	SCULPTURE	1	SEE DETAIL 4/10.1

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DESIGNED BY: SLD	REVIEWED BY: MKB
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME: FURNISHING PLAN

DRAWING NUMBER: 11.0

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C:\24 Projects\2024\24002939A\Engineering\Site Plans\Cad\Robbinsville Heights LLC Site Plan.dwg, 11.0 FURNISHING PLAN, By: CRG, Last Saved on: 2026-05-27 - 10:18:19 am

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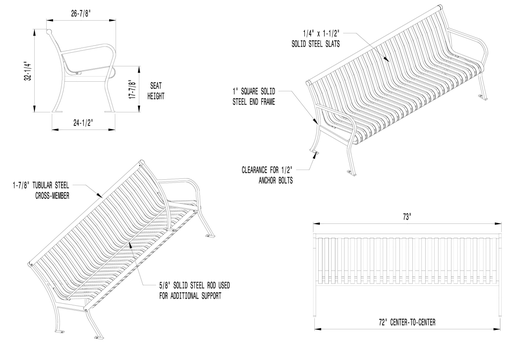
* ALL DIMENSIONS ARE IN INCHES *



MANUFACTURER: VICTOR STANLEY (OR APPROVED EQUAL)
PRODUCT: PRS -127 BENCH
PRODUCT ID: PRS-127 6 FT LENGTH WITHOUT MIDDLE ARMREST
FINISHES: BLACK POWDER COATED OR TO BE DEFINED BY MUNICIPALITY
MOUNTING: SURFACE MOUNTED TO PAVEMENT.

AVAILABLE OPTIONS:
POWDER COATING
10 STANDARD COLORS, 2 OPTIONAL METALLIC COLORS,
CUSTOM COLORS (INCLUDING THE RAL RANGE)
INTERMEDIATE & CENTER ARMRESTS (BOLT-ON)
4', 6', & 8' AVAILABLE WITH OPTIONAL ARMRESTS

LENGTHS
STANDARD 4'
STANDARD 6' (AS SHOWN)
STANDARD 8'

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING FILM. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. IT IS NOT RECOMMENDED TO LOCATE ANCHOR BOLTS UNTIL BENCH IS IN PLACE. THIS VICTOR STANLEY, INC. PRODUCT MUST BE PERMANENTLY AFFIXED TO THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
4. ANCHOR BOLTS NOT PROVIDED BY VICTOR STANLEY, INC.
5. FOR HIGH SALT ABUSIVE CLIMATES, HOT-DIP GALVANIZING BEFORE POWDER COATING IS AVAILABLE. HOT-DIP GALVANIZING IS PERFORMED FOR VICTOR STANLEY, INC. BY AN EXPERIENCED QUALIFIED FIRM TO WHICH PRODUCTS ARE SHIPPED FOR GALVANIZING. HOT-DIP GALVANIZING INCLUDES AN AGGRESSIVE PRE-TREATMENT AND IMMERSION IN A TANK OF CHARGED LIQUID ZINC AT OR AROUND 860°F (460°C). THE RESULTING SURFACE IS RESISTANT TO RUST BUT HAS SOME UNEVENNESS RESULTING FROM THE BONDING OF THE ZINC TO THE STEEL SURFACE. AS A RESULT, THE POWDER-COATING SURFACE FINISH OVER THAT GALVANIZED SURFACE MAY EXHIBIT BUMPS, UNEVENNESS, AND MAY NOT BE AS SMOOTH AS THE STANDARD FINISH; THIS UNEVEN AND INCONSISTENT FINISH IS NORMAL FOR GALVANIZING. CONTACT MANUFACTURER FOR DETAILS.
6. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
7. THIS PRODUCT IS SHIPPED PARTIALLY UNASSEMBLED.

PRS-127
PRODUCTION
CONTOURED ALL-STEEL BENCH
SHOWN: STANDARD 6-FOOT LENGTH

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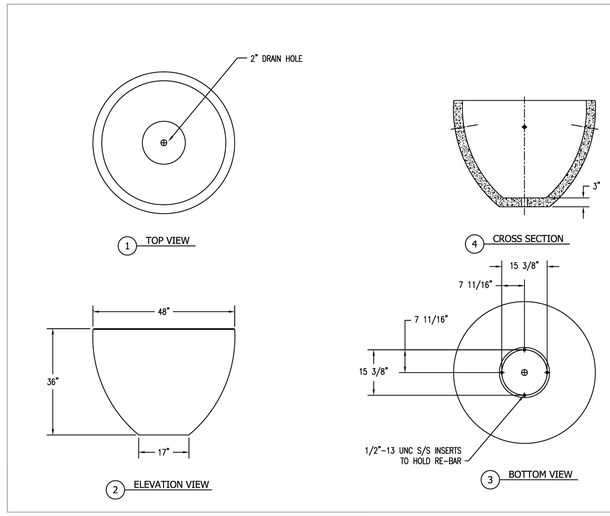
1 NOT TO SCALE

BENCH DETAILS

MOD: 05/04/26



WAUSAU TILE
P.O. BOX 1520 WAUSAU, WI 54402-1520
800-388-8746
E-MAIL: WE@WAUSAUTILE.COM
WEB SITE: WWW.WAUSAUTILE.COM

REVISIONS

MARK	DATE	NOTES
1	xx-xx-xxxx	xxxx
2	xx-xx-xxxx	xxxx
3	xx-xx-xxxx	xxxx
4	xx-xx-xxxx	xxxx
5	xx-xx-xxxx	xxxx
6	xx-xx-xxxx	xxxx
7	xx-xx-xxxx	xxxx
8	xx-xx-xxxx	xxxx

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JOB NAME
ADDRESS
CITY, STATE ZIP

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS ±1/8"

DRAWN BY: SK
DATE: 7/14/15
CO NUMBER: ?
WEIGHT: 1,220 LBS

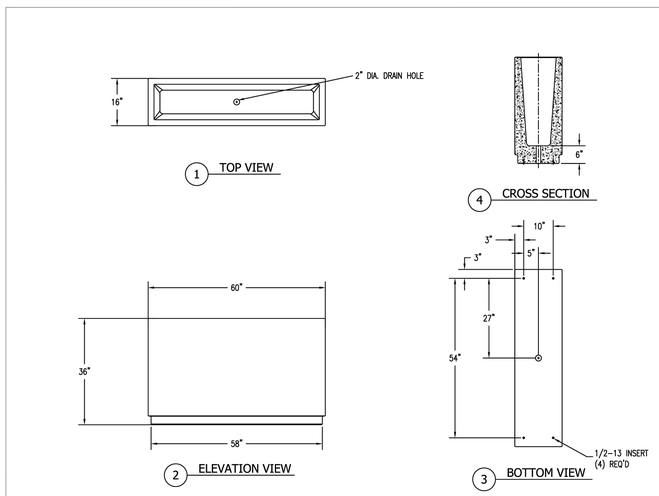
PRODUCT NO.
TF 4122

MANUFACTURER: WAUSAU TILE (OR APPROVED EQUAL)
PRODUCT: TF 1422 PLANTER
PRODUCT ID: TF4122 VCC SERIES ROUND CONCRETE PLANTER
FINISHES: ACID WASH WHITE OR TO BE DEFINED BY MUNICIPALITY

2 NOT TO SCALE

PLANTER DETAILS

MOD: 05/04/26



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E-MAIL: WE@WAUSAUTILE.COM
WEB SITE: WWW.WAUSAUTILE.COM

REVISIONS

MARK	DATE	NOTES
1	xx-xx-xxxx	xxxx
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3	xx-xx-xxxx	xxxx
4	xx-xx-xxxx	xxxx
5	xx-xx-xxxx	xxxx
6	xx-xx-xxxx	xxxx
7	xx-xx-xxxx	xxxx
8	xx-xx-xxxx	xxxx

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JOB NAME
ADDRESS
CITY, STATE ZIP

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS ±1/8"

DRAWN BY: SK
DATE: 8/7/15
CO NUMBER: ?
WEIGHT: 1,630 LBS

PRODUCT NO.
TF 4357

MANUFACTURER: WAUSAU TILE (OR APPROVED EQUAL)
PRODUCT: TF 4357 PLANTER
PRODUCT ID: TF4357 RECTANGULAR CONCRETE PLANTER
FINISHES: ACID WASH WHITE OR TO BE DEFINED BY MUNICIPALITY

3 NOT TO SCALE

PLANTER DETAILS

MOD: 05/04/26

Mantle II comes in four sizes, with larger sizes available on request. They are lit with a warm white LED.

AVAILABLE STANDARD SIZE
Mantle II come in sizes 30 inches, 39 inches, 47 inches and 55 inches. Other sizes are available on request.

AVAILABLE FINISHES
Bronze and gold leaf, stainless steel, mild steel

EXAMPLE SCALE
30 inches, 47 inches and 79 inches
(Model scale: 71 inches)

MANUFACTURER: DAVID HARBER (OR APPROVED EQUAL)
PRODUCT: MANTLE II
FINISHES: OXIDIZED STEEL OR TO BE DEFINED BY MUNICIPALITY
MOUNTING: SURFACE MOUNTED TO CONCRETE PAD.

4 NOT TO SCALE

SCULPTURE DETAILS

MOD: 05/04/26

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DRAWING NUMBER:
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PLOT BY: Rmammon 12/24/2025 9:07:07 AM Plotted with a Marvin CAMAN Image 11 x 17 (ARCH B) SHT DETAILS

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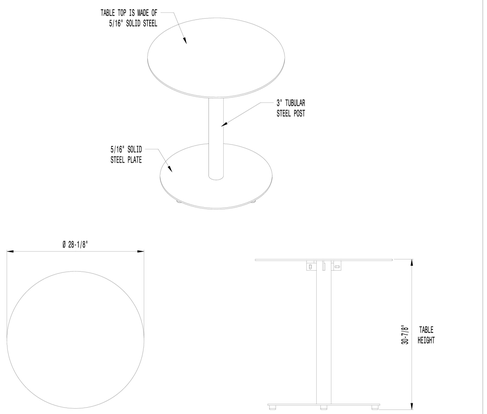
* ALL DIMENSIONS ARE IN INCHES *



AVAILABLE OPTIONS:
- POWDER COATING
  - STANDARD COLORS, OPTIONAL SATIN COLORS & METALLIC COLORS
  - CUSTOM COLORS (INCLUDING THE RAL RANGE)
- TABLE TOP
  - AVAILABLE WITH OPTIONAL SKIRT EDGE OR TUBE EDGE

MOUNTING
- STANDARD FREESTANDING WITH GLIDES (AS SHOWN)
- AVAILABLE WITH OPTIONAL SURFACE MOUNT AND FREESTANDING WITH ADJUSTABLE GLIDES

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING THICKNESS. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
4. THIS PRODUCT IS SHIPPED PARTIALLY UNASSEMBLED.

CEU-30R
MILAN
CENTRA UNA CAFE TABLE
SHOWN: STANDARD FREESTANDING WITH GLIDES

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REV. 7/30/24 DRAWN V.F.T. 2024-466

MANUFACTURER: VICTOR STANLEY (OR APPROVED EQUAL)
PRODUCT: CEU-30R TABLE
PRODUCT ID: CEU-30R CLEAN EDGE TABLETOP
FINISHES: RED POWDER COATED OR TO BE DEFINED BY MUNICIPALITY
MOUNTING: SURFACE MOUNTED TO PAVEMENT.

5 NOT TO SCALE

TABLE DETAILS

MOD: 05/04/26

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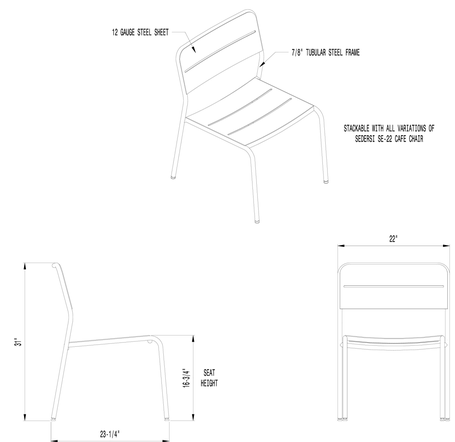

AVAILABLE OPTIONS:
- POWDER COATING
  - STANDARD COLORS, OPTIONAL SATIN COLORS & METALLIC COLORS
  - CUSTOM COLORS (INCLUDING THE RAL RANGE)

MOUNTING
- STANDARD FREESTANDING WITH GLIDES (AS SHOWN)
- AVAILABLE WITH OPTIONAL SURFACE MOUNT TABS

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING THICKNESS. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
4. THIS PRODUCT IS SHIPPED FULLY ASSEMBLED.

SE-22NA-S
MILAN
SEDERSI CAFE CHAIR
SHOWN: STANDARD FREESTANDING WITH GLIDES

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REV. 7/22/24 DRAWN V.F.T. 2024-390

MANUFACTURER: VICTOR STANLEY (OR APPROVED EQUAL)
PRODUCT: CEU-30R TABLE
PRODUCT ID: CEU-30R CLEAN EDGE TABLETOP
FINISHES: RED POWDER COATED OR TO BE DEFINED BY MUNICIPALITY
MOUNTING: SURFACE MOUNTED TO PAVEMENT.

6 NOT TO SCALE

CHAIR DETAILS

MOD: 05/04/26

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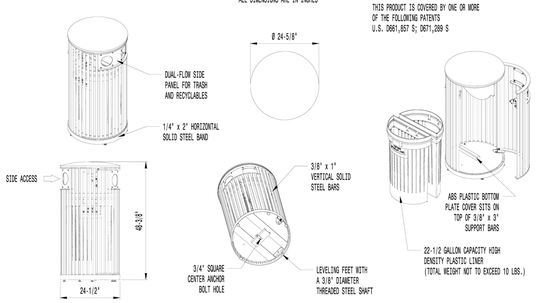
TEL (301) 855-8300 - FAX (410) 257-7579
WEB SITE: HTTP://WWW.VICTORSTANLEY.COM

THIS PRODUCT IS COVERED BY ONE OR MORE OF THE FOLLOWING PATENTS
U.S. D661,857 S; D671,699 S

* ALL DIMENSIONS ARE IN INCHES *



AVAILABLE OPTIONS:
- POWDER COATING
  - 10 STANDARD COLORS, 2 OPTIONAL METALLIC COLORS,
  - CUSTOM COLORS (INCLUDING THE RAL RANGE)
- CUSTOM PLAQUES & DECALS
  - AVAILABLE WITH STEEL PLAQUES IN VARIOUS SIZES AND PRESSURE SENSITIVE VINYL OUTDOOR DECALS

LIDS
- AVAILABLE WITH CONVEX LID WITH DIVIDER (AS SHOWN) AND CONVEX LID WITH DIVIDER AND STAINLESS STEEL ASHTRAY. ASHTRAY AVAILABLE WITH OPTIONAL ASHTRAY COVER.

SECURITY
- AVAILABLE WITH STANDARD INTERIOR LATCH (AS SHOWN), OPTIONAL KEYED LOCK BOX. LID BOLTED IN PLACE. AVAILABLE WITH OPTIONAL MOUNT WITH 3 IN-LINE ANCHOR HOLES. STANDARD BOTTOM PLATE COVER (AS SHOWN).

NOTES:
1. DRAWINGS NOT TO SCALE. DO NOT SCALE DRAWINGS.
2. ALL FABRICATED METAL COMPONENTS ARE STEEL SHOTBLASTED, ETCHED, PHOSPHATIZED, PREHEATED, AND ELECTROSTATICALLY POWDER-COATED WITH T.G.I.C. POLYESTER POWDER COATINGS. PRODUCTS ARE FULLY CLEANED AND PRETREATED, PREHEATED AND COATED WHILE HOT TO FILL CREVICES AND BUILD COATING THICKNESS. COATED PARTS ARE THEN FULLY CURED TO COATING MANUFACTURER'S SPECIFICATIONS. THE THICKNESS OF THE RESULTING FINISH AVERAGES 8-10 MILS (200-250 MICRONS).
3. DIL IMPREGNATED BRONZE BUSHINGS AND STAINLESS STEEL PIVOT PINS FOR DOOR MOVEMENT, STANDARD 3/16" SOLID STEEL LATCH ASSEMBLY OR OPTIONAL PATENTED STAINLESS STEEL KEYED LOCK ASSEMBLY.
4. THIS VICTOR STANLEY, INC. PRODUCT MUST BE PERMANENTLY AFFIXED TO THE GROUND. CONSULT YOUR LOCAL CODES FOR REGULATIONS.
5. VICTOR STANLEY, INC., PLASTIC INNER LINERS ARE MOLDED ON TOOLING DESIGNED FOR AND OWNED BY VICTOR STANLEY, INC. THEY OFFER MAXIMUM CAPACITY AND STRENGTH WITH LIGHTWEIGHT CONSTRUCTION USING CRITICAL MOLDED RIBS, INTEGRAL HANDHOLDS, AND HIGH-STRENGTH MATERIALS. THIS MINIMIZES HANDLING DIFFICULTY AND FACILITATES EASY EMPTYING AND STORAGE WHILE AFFORDING LONG SERVICE LIFE.
6. ANCHOR BOLT NOT PROVIDED BY VICTOR STANLEY, INC.
7. FOR HIGH SALT ABSORBTIVE CLIMATES, HOT-DIP GALVANIZING BEFORE POWDER COATING IS AVAILABLE. HOT-DIP GALVANIZING IS PERFORMED FOR VICTOR STANLEY, INC. BY AN EXPERIENCED QUALIFIED FIRM TO WHICH PRODUCTS ARE SHIPPED FOR GALVANIZING. HOT-DIP GALVANIZING INCLUDES AN AGGRESSIVE PRE-TREATMENT AND IMMERSION IN A TANK OF CHARGED LIQUID ZINC AT OR AROUND 860°F (460°C). THE RESULTING SURFACE IS RESISTANT TO RUST BUT HAS SOME UNEVENNESS RESULTING FROM THE BONDING OF THE ZINC TO THE STEEL SURFACE. AS A RESULT, THE POWDER-COATING SURFACE FINISH OVER THAT GALVANIZED SURFACE MAY EXHIBIT BUMPS, UNEVENNESS, AND MAY NOT BE AS SMOOTH AS THE STANDARD FINISH; THIS UNEVEN AND INCONSISTENT FINISH IS NORMAL FOR GALVANIZING. CONTACT MANUFACTURER FOR DETAILS.
8. ALL SPECIFICATIONS ARE SUBJECT TO CHANGE. CONTACT MANUFACTURER FOR DETAILS.
9. THIS PRODUCT IS SHIPPED FULLY ASSEMBLED.

RSDC-45
STEELSITES™
45-GALLON SIDE-DOOR-OPENING RECYCLING STATION WITH SIDE ACCESS
SHOWN: STANDARD CONVEX LID WITH DIVIDER
STANDARD HALF-MOON LINERS AND ABS BOTTOM PLATE WITH DIVIDER
STANDARD INTERIOR LATCH

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REV. 9/17/18 DRAWN V.F.T. 2018-235

MANUFACTURER: VICTOR STANLEY (OR APPROVED EQUAL)
PRODUCT: RSDC-45
PRODUCT ID: RSDC-45 STEELSITES
FINISHES: BLACK POWDER COATED OR TO BE DEFINED BY MUNICIPALITY
MOUNTING: SURFACE MOUNTED TO PAVEMENT.

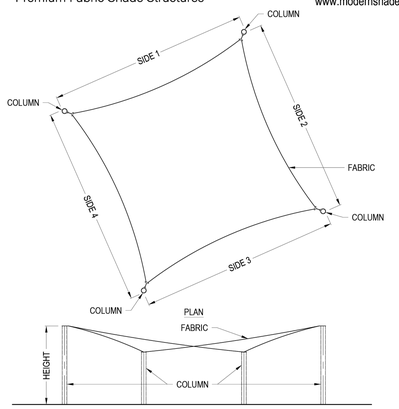
7 NOT TO SCALE

TRASH RECEPTACLE DETAILS

MOD: 05/04/26

Modern Shade LLC
Premium Fabric Shade Structures

MODERN SHADE LLC
4213 FELTER LN
AUSTIN, TX 78744
TOLL FREE: 1-877-385-3444
PHONE: (512) 385-4100
www.modernshadellc.com



SPECIFICATIONS
- **HYPAR:** 2 DIAGONAL HIGH POSTS & 2 DIAGONAL LOW POSTS CREATING A BEAUTIFUL HYPERBOLIC OR "TWISTED" SHAPE
- STANDARD SIZES ARE 15' X 15' WITH 8' & 11' POSTS UP TO 40' X 40' WITH 12' & 18' POSTS
- CUSTOM SIZES, SHAPES AND HEIGHTS ARE AVAILABLE FOR COLUMNS PLACED ANYWHERE WITHIN 40' OF EACH OTHER
- SQUARE AND RECTANGLE SHAPED SAILS ATTACHING TO 4 POSTS WITH VARYING HEIGHTS, TYPICALLY PROVIDE MORE SHADE AND BETTER VALUE THAN A SINGLE 3 POINT TRIANGLE SAIL

MANUFACTURER NOTES:
1. PLEASE SEE MANUFACTURER WEBSITE FOR COLOR OPTIONS.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. DO NOT SCALE DRAWING.
4. THIS DRAWING IS INTENDED FOR USE BY ARCHITECTS, ENGINEERS, CONTRACTORS, CONSULTANTS AND DESIGN PROFESSIONALS FOR PLANNING PURPOSES ONLY. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION.
5. ALL INFORMATION CONTAINED HEREIN WAS CURRENT AT THE TIME OF DEVELOPMENT BUT MUST BE REVIEWED AND APPROVED BY THE PRODUCT MANUFACTURER TO BE CONSIDERED ACCURATE.
6. CONTRACTOR'S NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT www.CADdetails.com/info AND ENTER REFERENCE NUMBER 5417-026.

COMMERCIAL PRODUCTS
SAILS - 4 POINT HYPAR SAIL

5417-026 REVISION DATE 07/07/2021

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MANUFACTURER: MODERN SHADE LLC (OR APPROVED EQUAL)
PRODUCT: SHADE SAILS
PRODUCT ID: 4-POINT HYPAR SHADE SAILS
FINISHES: LIGHT IVORY OR TO BE DEFINED BY MUNICIPALITY
MOUNTING: SURFACE MOUNTED TO PAVEMENT.

8 NOT TO SCALE

CANOPY DETAILS

MOD: 05/04/26

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Engineering & Design

www.colliersengineering.com

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Doing Business as

REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

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FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM

ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Christopher R. Gammons
NEW JERSEY LICENSED LANDSCAPE ARCHITECT
LICENSE NUMBER: AS01132
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MASER CONSULTING

SCALE:	DRAWN BY:
AS SHOWN	RM
DESIGNED BY:	REVIEWED BY:
SLD	MKB
DATE ISSUED:	PROJECT NUMBER:
12/22/25	24002939A

SHEET NAME:

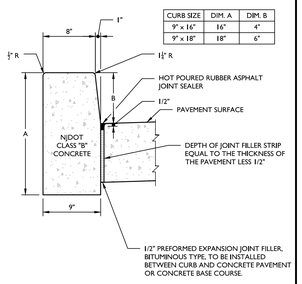
FURNISHING DETAILS

DRAWING NUMBER:

11.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

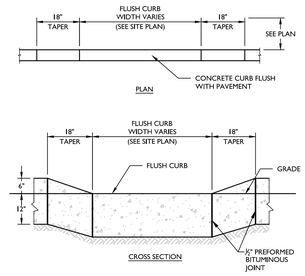
2024 Colliers\2024\24002939A\Engineering\Site Plans\CAD\Sheets\11.2 FURNISHING DETAILS - By: CSTEALE on 12/22/2025 - 10:41pm



CURB SIZE	DIM. A	DIM. B
9" x 16"	16"	4"
9" x 18"	18"	6"

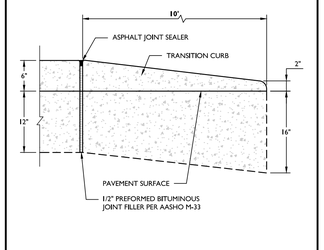
NJDOT VERTICAL CURB (CONCRETE PAVEMENT) DETAIL

NOT TO SCALE MCNJ-SITE-CURB-1100 05/01/17



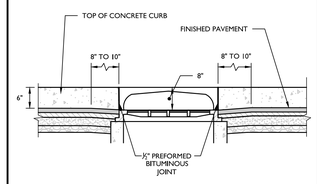
CONCRETE FLUSH CURB DETAIL

NOT TO SCALE MCNJ-SITE-CURB-1400 05/01/17



CURB TAPER DETAIL

NOT TO SCALE MCNJ-SITE-CURB-2000 05/01/23

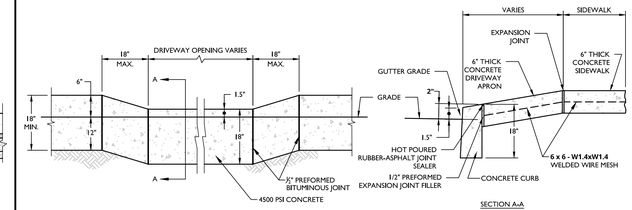


NOTES:

1. 2" LOCAL PAVEMENT SURFACE TRANSITION IN 8" TO 10" EACH SIDE OF INLET (INLET DEPRESSION).
2. APPLIES TO ALL TYPE "B" AND DOUBLE "B" INLETS WHERE SHOWN ON PLAN.
3. PROVIDE 8" CURB PIECE.

DEPRESSED TYPE 'B' INLET CONCRETE CURB TRANSITION DETAIL

NOT TO SCALE MCNJ-SITE-CURB-2200 05/01/17

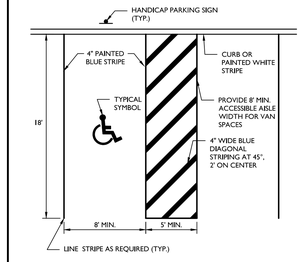


NOTES:

1. DEPRESSED VERTICAL CURB AT DRIVEWAY AND RAMP AREAS SHALL BE FULL DEPTH OF 18".

DEPRESSED CONCRETE CURB DETAIL

NOT TO SCALE MCNJ-SITE-CURB-18001 11/01/24



ACCESSIBLE PARKING LINE STRIPE STALL DETAIL

NOT TO SCALE MCNJ-SITE-MRKG-1801 03/01/18

ADA INSTRUCTIONS TO CONTRACTOR

NOTES:

1. CONTRACTOR MUST EXERCISE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION OF ADA (HANDICAPPED) ACCESSIBLE COMPONENTS FOR THE SITE/PROJECT. THESE COMPONENTS, AS CONSTRUCTED, MUST COMPLY WITH THE LATEST FEDERAL ADA STANDARDS FOR ACCESSIBLE DESIGN, AND CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY MUST COMPLY WITH THE LATEST FEDERAL PROPOSED "ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG).
2. FINISHED SURFACES ALONG THE ACCESSIBLE ROUTE OF TRAVEL FROM PARKING SPACE, PUBLIC TRANSPORTATION, PEDESTRIAN ACCESS, INTER-BUILDING ACCESS, TO POINTS OF ACCESSIBLE BUILDING ENTRANCE/EGRESS, MUST COMPLY WITH THESE ADA CODE REQUIREMENTS AND ANY SUPPLEMENTAL STATE REQUIREMENTS. THESE INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

   (NOTE: THIS LIST IS NOT INTENDED TO CAPTURE EVERY APPLICABLE FEDERAL, STATE AND LOCAL RULE AND REGULATION. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THE LAW, WHETHER OR NOT STATED SPECIFICALLY HEREIN):

   A. PARKING SPACES AND PARKING AISLES - SLOPE MUST NOT EXCEED 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) IN ANY DIRECTION.

   B. CURB RAMPS- SLOPES MUST NOT EXCEED 1:12 (8.3%).

   C. LANDINGS

      i. LANDINGS AT CURB RAMPS - MUST BE 4 FT. MIN., X 4 FT. MIN. AND ARE TO BE INCREASED TO 5 FEET WHERE THE LANDING SPACE (TURNING SPACE) IS CONSTRAINED AT THE BACK OF THE SIDEWALK.

      ii. LANDINGS AT RAMPS - MUST BE 5 FT MIN. IN THE DIRECTION OF TRAVEL AND BE PROVIDED AT EACH END OF THE RAMP. MUST PROVIDE POSITIVE DRAINAGE (1 % MIN.), AND MUST NOT EXCEED 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) IN ANY DIRECTION. WHEN LANDING IS ALSO A TURNING SPACE, IT MUST BE A MINIMUM 5 FT X 5 FT.

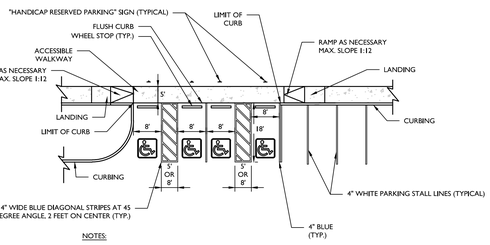
      iii. LANDINGS AT DOORWAYS - SEE NOTE F BELOW.

   D. PATH OF TRAVEL ALONG ON-SITE ACCESSIBLE ROUTE - MUST PROVIDE A 36 INCH (EXCLUDING THE CURB) OR GREATER UNOBSTRUCTED WIDTH OF TRAVEL. (CAR OVERHANGS MUST NOT REDUCE THIS MINIMUM WIDTH). IN A PUBLIC RIGHT-OF-WAY, THE MINIMUM WIDTH EXCLUDING THE CURB IS 4 FT. THE SLOPE MUST BE NO GREATER THAN 1:20 (5.0%) IN THE DIRECTION OF TRAVEL AND MUST NOT EXCEED 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) IN CROSS SLOPE.

   E. WHERE PATH OF TRAVEL WILL BE GREATER THAN 1:20 (5.0%), AN ADA RAMP, WITH A MAXIMUM SLOPE OF 1:12 (8.3%), FOR A MAXIMUM RISE OF 30 INCHES, MUST BE PROVIDED. THE RAMP MUST HAVE A MINIMUM CLEAR WIDTH OF 36 INCHES, HAVE ADA HAND RAILS AND LANDINGS (MIN. 5 FT. LONG IN THE DIRECTION OF TRAVEL) ON EACH END THAT ARE SLOPED A MIN. 1 % AND NO MORE THAN 1:48 (1/4" PER FOOT OR NOMINALLY 2.0%) FOR POSITIVE DRAINAGE.

   F. EXTERIOR DOORWAYS - MUST HAVE A "LEVEL" LANDING AREA ON THE EXTERIOR SIDE OF THE DOOR THAT IS SLOPED NO MORE THAN 1:48 (1/4" PER FOOT OR NORMALLY 2.0%) FOR POSITIVE DRAINAGE. THE LANDING AREA IS GENERALLY 5 FT X 5 FT, EXCEPT WHERE OTHERWISE PERMITTED BY ADA STANDARDS. (SEE APPLICABLE CODE SECTIONS).

3. IT IS RECOMMENDED THAT THE CONTRACTOR REVIEW THE INTENDED CONSTRUCTION WITH THE LOCAL BUILDING CODE OFFICIAL, INCLUDING WHETHER OR NOT FALL PROTECTION IS REQUIRED.
4. IT IS RECOMMENDED THAT THE CONTRACTOR CHECK THE SLOPE OF FORMWORK FOR COMPLIANCE WITH ADA STANDARDS PRIOR TO POURING CONCRETE.

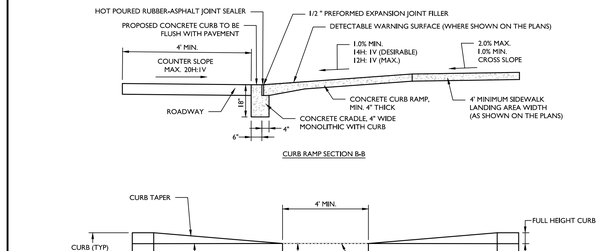


NOTES:

1. PROVIDE 8' WIDE STRIPED ISLAND FOR VAN ACCESSIBLE SPACES.
2. THE VAN ACCESSIBLE SPACE MUST BE SIGNED WITH VAN ACCESSIBLE PLAQUE BELOW THE HANDICAP RESERVED PARKING SIGN.

TYPICAL ACCESSIBLE PARKING LAYOUT (WITH SIDEWALK) DETAIL

NOT TO SCALE MCNJ-SITE-MRKG-1900 02/01/19

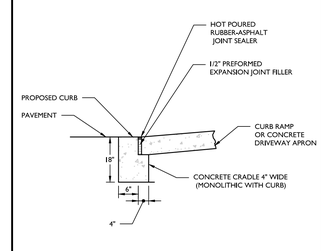


NOTES:

1. FLUSH CURB AT DETECTABLE WARNING SURFACE (WHERE SHOWN ON PLAN) IS TO BE A SMOOTH LEVEL SURFACE THAT IS FLUSH WITH THE ADJOINING PAVEMENT. NO BUMPS OR ROUGH SURFACE ARE ALLOWED. SUCH UNEVENNESS MUST BE MILLED OR GRINDED SMOOTH.
2. CURB TO BE FLUSH WITH ROADWAY PAVEMENT AND CONSTRUCTED WITH CONCRETE REGARDLESS OF THE CURB MATERIAL WHERE AS 1.0% USED THROUGHOUT THE SITE.
3. POSITIVE DRAINAGE IS TO BE MAINTAINED AT RAMP. RAMP IS TO SLOPE TOWARDS PAVEMENT NO PONDING OF WATER IS PERMITTED AT CURB RAMP. PAVEMENT GRADES TO BE ADJUSTED AS NECESSARY TO PROVIDE POSITIVE GUTTER DRAINAGE.
4. AS CONSTRUCTED GUTTER DRAINAGE GRADE ALONG FLUSH CURB AND WITHIN THE CROSSWALK AREA TO BE 1.0% MINIMUM, 2.00% MAXIMUM, WHERE AS 0.5% ABSOLUTE MINIMUM IF DUE TO SITE CONSTRAINTS.
5. DEVIATION FROM THIS DETAIL REQUIRES THE WRITTEN APPROVAL OF THE UNDERSIGNED PROFESSIONAL.

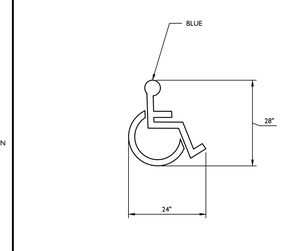
CURB RAMP SECTIONS DETAIL

NOT TO SCALE MCNJ-SITE-HADA-2000 07/01/20



FLUSH CURB AND CRADLE DETAIL

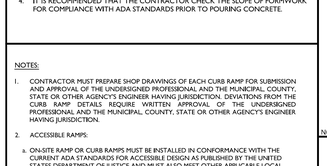
NOT TO SCALE MCNJ-SITE-HADA-2300 05/01/17



STROKE WIDTH: MINIMUM/STANDARD = 3"

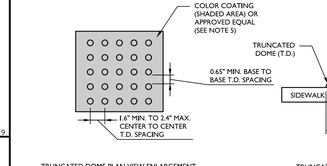
ADA SYMBOL DETAIL

NOT TO SCALE MCNJ-SITE-MRKG-2000 05/01/17



BOLLARD DETAIL

NOT TO SCALE MCCM-SITE-FNCE-23001 07/01/19

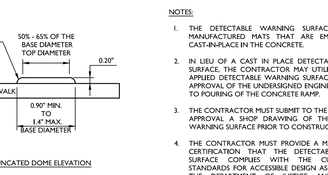


NOTES:

1. TO BE UTILIZED WHEN OPTIONAL CONCRETE SIDE FLARE IS NOT SHOWN ON PLAN.

CURB RAMP CURB TAPER DETAIL

NOT TO SCALE MCNJ-SITE-HADA-2301 05/01/17



NOTES:

1. CONCRETE SHALL BE NJDOT CLASS "B".
2. UNIT TO BE PINNED TO SURFACE WITH (3) 5/8" DIA. GALVANIZED STEEL RODS, 12" MINIMUM LENGTH.
3. ALL BEVELS TO BE 1/2". ALL ANGLES TO BE 45°

PRECAST CONCRETE BUMPER CURB WHEEL STOP (FOR CARS) DETAIL

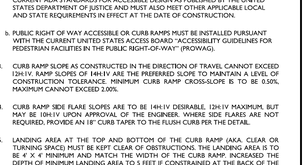
NOT TO SCALE MCNJ-SITE-CURB-2301 05/01/17

NOTES:

1. INSTALL SIGN WHERE NOTED ON PLAN.
2. THE BOTTOM OF THE LOWEST SIGN SHALL BE MOUNTED 60" ABOVE THE PARKING LOT OR SIDEWALK SURFACE WHEN THE SIGN IS PARALLEL TO THE SIDEWALK AND 72" ABOVE THE PARKING LOT OR SIDEWALK WHEN THE SIGN IS PERPENDICULAR TO THE SIDEWALK.

ACCESSIBLE PARKING SIGN DETAIL

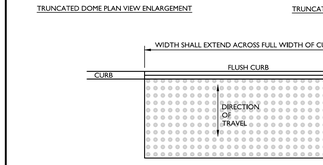
NOT TO SCALE MCNJ-SITE-HADA-2700 07/01/19



COLORS:
LEGEND = GREEN (RETROREFLECTIVE)
HANDICAP SYMBOL= BLUE (RETROREFLECTIVE)
BACKGROUND = WHITE (RETROREFLECTIVE)

R7-8X SIGN DETAIL

NOT TO SCALE MCCM-SIGN-REGU-R7-8 07/01/21



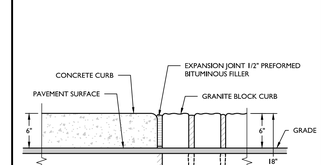
NOTES:

1. THE DETECTABLE WARNING SURFACE IS TO BE MANUFACTURED MATS THAT ARE EMBEDDED AND CAST-IN-PLACE IN THE CONCRETE.
2. IN LIEU OF A CAST IN PLACE DETECTABLE WARNING SURFACE, THE CONTRACTOR MAY UTILIZE A SURFACE APPLIED DETECTABLE WARNING SURFACE WITH PRIOR APPROVAL OF THE UNDERSIGNED ENGINEER AND PRIOR TO POURING OF THE CONCRETE RAMP.
3. THE CONTRACTOR MUST SUBMIT TO THE ENGINEER FOR APPROVAL A SHOP DRAWING OF THE DETECTABLE WARNING SURFACE PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR MUST PROVIDE A MANUFACTURER CERTIFICATION THAT THE DETECTABLE WARNING SURFACE COMPLIES WITH THE CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN AS PUBLISHED BY THE DEPARTMENT OF JUSTICE AND THE ADA STANDARDS AS SUPPORTED BY THE UNITED STATES ACCESS BOARD, AND THE STATE AND/OR LOCAL ADA STANDARDS.
5. **SAFETY RED** AS APPROVED BY THE LOCAL JURISDICTION PRIOR TO INSTALLATION. DETECTABLE WARNING SURFACES MUST CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. ALTERNATIVE COLOR MAY BE USED PROVIDED SUCH COLOR COMPLIES WITH CURRENT ADA STANDARDS.
6. DETECTABLE WARNINGS ARE TO CONSIST OF A SURFACE OF TRUNCATED DOMES.
7. TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE MUST HAVE A BASE DIAMETER OF 0.9 INCH (23 mm) MINIMUM AND 1.4 INCHES (36 mm) MAXIMUM. A TOP DIAMETER OF 50 PERCENT OF THE BASE DIAMETER MINIMUM TO 65 PERCENT OF THE BASE DIAMETER MAXIMUM, AND A HEIGHT OF 0.2 INCH (5.1 mm).
8. TRUNCATED DOMES IN DETECTABLE WARNING SURFACE MUST HAVE A CENTER-TO-CENTER SPACING OF 1.6 INCHES (41 mm) MINIMUM AND 2.4 INCHES (61 mm) MAXIMUM, AND A BASE-TO-BASE SPACING OF 0.65 INCH (17 mm) MINIMUM, MEASURED BETWEEN THE MOST ADJACENT DOMES ON A SQUARE GRID.
9. SOME DETECTABLE WARNING PRODUCTS REQUIRE A CONCRETE BORDER FOR PROPER INSTALLATION WHERE REQUIRED BY THE MANUFACTURER, THE CONCRETE BORDER MUST NOT EXCEED 2 INCHES (51 mm).
10. DETECTABLE WARNING SURFACES ARE NOT BE PLACED ON PAVING OR EXPANSION JOINTS AT CURB RAMPS. THE ROWS OF TRUNCATED DOMES IN DETECTABLE WARNING SURFACES ARE TO BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET SO PEDESTRIANS WHO USE WHEELCHAIRS CAN "TRACK" BETWEEN THE DOMES.
11. ON PERPENDICULAR CURB RAMPS, DETECTABLE WARNING SURFACES ARE TO BE PLACED AS FOLLOWS:
    a. WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE IN FRONT OF THE BACK OF CURB, DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE BACK OF CURB.
    b. WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 50 FT OR LESS, DETECTABLE WARNING SURFACES ARE TO BE PLACED ON THE RAMP RUN WITHIN CONE DOME SPACING OF THE BOTTOM GRADE BREAK.
    c. WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS MORE THAN 50 FT, DETECTABLE WARNING SURFACES ARE TO BE PLACED ON THE LOWER LANDING AT THE BACK OF CURB.
12. ON PARALLEL CURB RAMPS, DETECTABLE WARNING SURFACES ARE TO BE PLACED ON THE TURNING SPACE AT THE FLUSH TRANSITION BETWEEN THE STREET AND SIDEWALKS.
13. ON BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE BACK OF CURB. WHERE RAISED PEDESTRIAN STREET CROSSINGS, DEPRESSED CORNERS OR OTHER LEVEL PEDESTRIAN STREET CROSSINGS ARE PROVIDED, DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE FLUSH TRANSITION BETWEEN THE STREET AND THE SIDEWALK.

DETECTABLE WARNING SURFACE DETAIL

MCNJ-SITE-HADA-2100

NOT TO SCALE 07/01/20



NOTES:

1. ALL CONCRETE MUST BE PROPERLY CURED.
2. CONTRACTOR TO NOTIFY OWNER'S ENGINEER 24 HOURS PRIOR TO POURING.
3. EXPANSION JOINTS THROUGH AND ADJACENT TO THE CURB MUST BE INCLUDED IN THE UNIT PRICE OF THE CURB, WHEN UNIT PRICING IS USED.

GRANITE BLOCK CURB DETAIL

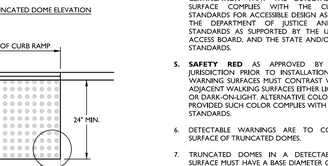
NOT TO SCALE MCNJ-SITE-CURB-1200 11/01/24

TRANSITION BETWEEN GRANITE BLOCK & CONCRETE DETAIL

NOT TO SCALE MCNJ-SITE-CURB-1900 05/01/17

TYPICAL STOP BAR DETAIL

NOT TO SCALE MCNJ-SITE-MRKG-1100 05/01/17



NOTE:

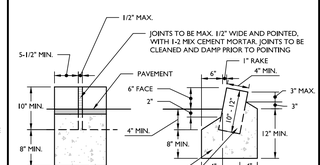
1. SEE CURB RAMP NOTES.

CURB RAMP TYPE 1 DETAIL

NOT TO SCALE MCNJ-SITE-HADA-1000 07/01/20

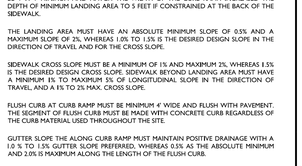
STANDARD ASPHALT PAVEMENT (RSIS) DETAIL

NOT TO SCALE MCNJ-SITE-PVMT-1000 11/01/24



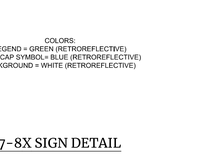
TYPICAL PARKING STALL DETAIL

NOT TO SCALE MCNJ-SITE-MRKG-1000 05/01/17



"LEFT OR RIGHT" PAVEMENT ARROW DETAIL

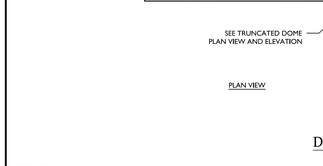
NOT TO SCALE MCNJ-SITE-MRKG-1201 05/01/17



COLORS:
LEGEND = GREEN (RETROREFLECTIVE)
BACKGROUND = WHITE (RETROREFLECTIVE)

R7-8P SIGN DETAIL

NOT TO SCALE MCCM-SIGN-REGU-R7-8P 07/01/21



STRAIGHT PAVEMENT ARROW DETAIL

NOT TO SCALE MCNJ-SITE-MRKG-1200 05/01/17

CURB RAMP NOTES

NOTES:

1. CONTRACTOR MUST PREPARE SHOP DRAWINGS OF EACH CURB RAMP FOR SUBMISSION AND APPROVAL OF THE UNDERSIGNED PROFESSIONAL AND THE MUNICIPAL, COUNTY, STATE OR OTHER AGENCY'S ENGINEER HAVING JURISDICTION. DEVIATIONS FROM THE CURB RAMP DETAILS REQUIRE WRITTEN APPROVAL OF THE UNDERSIGNED PROFESSIONAL AND THE MUNICIPAL, COUNTY, STATE OR OTHER AGENCY'S ENGINEER HAVING JURISDICTION.
2. ACCESSIBLE RAMPS:
   a. ON-SITE RAMP OR CURB RAMPS MUST BE INSTALLED IN CONFORMANCE WITH THE CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN AS PUBLISHED BY THE UNITED STATES DEPARTMENT OF JUSTICE AND MUST ALSO MEET OTHER APPLICABLE LOCAL AND STATE REQUIREMENTS IN EFFECT AT THE DATE OF CONSTRUCTION.
   b. PUBLIC RIGHT OF WAY ACCESSIBLE OR CURB RAMPS MUST BE INSTALLED PURSUANT WITH THE CURRENT UNITED STATES ACCESS BOARD "ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" (PROWAG).
3. CURB RAMP SLOPE AS CONSTRUCTED IN THE DIRECTION OF TRAVEL CANNOT EXCEED 12H:1V. RAMP SLOPES OF 14H:1V ARE THE PREFERRED SLOPE TO MAINTAIN A LEVEL OF CONSTRUCTION TOLERANCE. MINIMUM CURB RAMP CROSS-SLOPE IS TO BE 0.50%, MAXIMUM CANNOT EXCEED 2.00%.
4. CURB RAMP SIDE FLARE SLOPES ARE TO BE 14H:1V DESIRABLE, 12H:1V MAXIMUM, BUT MAY BE 10H:1V UPON APPROVAL OF THE ENGINEER. WHERE SIDE FLARES ARE NOT REQUIRED, PROVIDE AN 18" CURB TAPER TO THE FLUSH CURB PER THE DETAIL.
5. LANDING AREA AT THE TOP AND BOTTOM OF THE CURB RAMP (AKA. CLEAR OR TURNING SPACE) MUST BE KEPT CLEAR OF OBSTRUCTIONS. THE LANDING AREA IS TO BE 4' X 4' MINIMUM AND MATCH THE WIDTH OF THE CURB RAMP, INCREASED THE DEPTH OF MINIMUM LANDING AREA TO 5 FEET IF CONSTRAINED AT THE BACK OF THE SIDEWALK.
6. THE LANDING AREA MUST HAVE AN ABSOLUTE MINIMUM SLOPE OF 0.5% AND A MAXIMUM SLOPE OF 2%, WHEREAS 1.0% TO 1.5% IS THE DESIRED DESIGN SLOPE IN THE DIRECTION OF TRAVEL AND FOR THE CROSS SLOPE.
7. SIDEWALK CROSS SLOPE MUST BE A MINIMUM OF 1% AND MAXIMUM 2%, WHEREAS 1.5% IS THE DESIRED DESIGN CROSS SLOPE. SIDEWALK BEYOND LANDING AREA MUST HAVE A MINIMUM 1% TO MAXIMUM 5% OF LONGITUDINAL SLOPE IN THE DIRECTION OF TRAVEL, AND A 1% TO 2% MAX. CROSS SLOPE.
8. FLUSH CURB AT CURB RAMP MUST BE MINIMUM 4' WIDE AND FLUSH WITH PAVEMENT. THE SEGMENT OF FLUSH CURB MUST BE MADE WITH CONCRETE CURB REGARDLESS OF THE CURB MATERIAL USED THROUGHOUT THE SITE.
9. GUTTER SLOPE THE ALONG CURB RAMP MUST MAINTAIN POSITIVE DRAINAGE WITH A 1.0 % TO 1.5% GUTTER SLOPE PREFERRED, WHEREAS 0.5% AS THE ABSOLUTE MINIMUM AND 2.0% IS MAXIMUM ALONG THE LENGTH OF THE FLUSH CURB.
10. CROSSWALKS AND PAVEMENT MARKINGS MUST BE INSTALLED AS DENOTED ON SITE PLAN. CURB RAMP MUST BE WHOLLY CONTAINED WITHIN THE CROSSWALK CROSSING.
11. THE RAMP SURFACE MUST HAVE A SLIP RESISTANT, BROOM FINISH PERPENDICULAR TO THE PATH OF TRAVEL.
12. CONCRETE EXPANSION JOINTS MUST HAVE A FIRM SURFACE WITH ½" BEVELED CONCRETE EDGES. THE JOINT SURFACE SHALL NOT BE MORE THAN ¼" BELOW THE ADJOINING CONCRETE SURFACE.
13. DETECTABLE WARNING SURFACES ARE TO BE PROVIDED AT CURB RAMPS, BLENDED TRANSITION AT PEDESTRIAN STREET CROSSINGS AND PEDESTRIAN REFUGE ISLANDS WHEN THOSE ARE WITHIN THE PUBLIC RIGHT-OF-WAY, AND WHERE AS SHOWN ON THE PLANS.
14. SEE SEPARATE DETAILS FOR "DETECTABLE WARNING SURFACE" AND "CURB RAMP SECTIONS".

CURB RAMP NOTES

CAD ID: P:\Projects\2024\24002939A\Engineering\Civil\Plans\CAD\SITE\24002939A1.dwg By: DESTEFANO on 2025-12-22 - 07:41:47am

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Doing Business as

REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

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ROBBINSVILLE HEIGHTS LLC

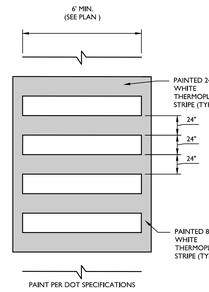
PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

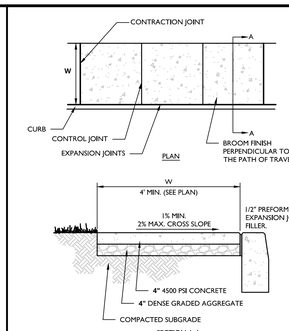
Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER GE55561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

Colliers Engineering & Design
HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINE



PEDESTRIAN CROSSWALK DETAIL

NOT TO SCALE | MCNJ-SITE-MRKG-1401 | 05/01/17

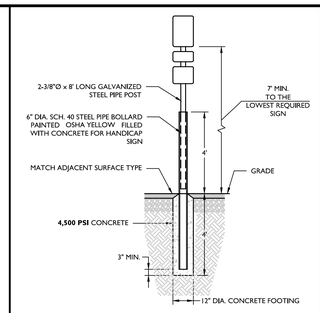


NOTES:

1. EXPANSION JOINT: ½" WIDE FILLER INSTALLED BETWEEN THE CURB AND CONCRETE SIDEWALK. RECESS TO ½" FROM THE TOP OF SIDEWALK.
2. CONTRACTION JOINTS: ½" WIDE FILLER INSTALLED AT AN INTERVAL 24 TO 30 TIMES THE THICKNESS OF THE SLAB (IN FEET), 20' MAX. ON CENTER, TO A DEPTH OF ¼ OF THE THICKNESS OF THE SLAB. RECESS TO ½" FROM THE TOP OF SIDEWALK, FOR THE FULL WIDTH OF THE SIDEWALK.
3. CONTROL JOINTS: SCORE A ½" WIDE, ¼" DEEP GROOVE ACROSS THE SIDEWALK, EVENLY SPACED BETWEEN THE CONTRACTION JOINTS. SPACING IS TYPICALLY THE WIDTH OF THE SIDEWALK.
4. JOINT FILLER IS TO CONFORM TO AASHTO M-33. SURFACE OF CONCRETE SHALL BE BROOM FINISH. ROUND EDGES USING AN EDGING TOOL WITH A ½" RADIUS.
5. CONCRETE SIDEWALK MUST BE CONSTRUCTED PER THE LATEST ADA REQUIREMENTS.

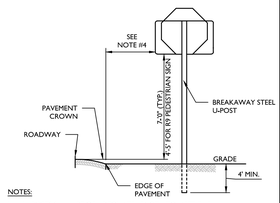
CONCRETE SIDEWALK (NEXT TO CURB) DETAIL

NOT TO SCALE | MCNJ-SITE-PVMT-2000 | 09/01/24



BOLLARD MOUNTED SIGN DETAIL

NOT TO SCALE | MCCM-SIGN-POST-1000 | 07/01/19



NOTES:

1. ALL POSTS SHALL BE OF ADEQUATE LENGTH TO MEET THE REQUIREMENTS FOR ERECTION, AS STATED IN THE CURRENT MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES" FOR STREETS AND HIGHWAYS.
2. ALL POSTS SHALL BE EMBEDDED 4' MINIMUM.
3. ALL POSTS TO BE BREAKAWAY STEEL U-POSTS IN CONFORMANCE WITH CURRENT ASTM SPECIFICATION A123 AND STANDARDS.
4. IN AREAS WITHOUT CURBING, THE OUTER EDGE OF SIGN TO BE 2'-0" MINIMUM TO 12'-0" MAXIMUM FROM EDGE OF CURB, AS DIRECTED.

SINGLE POST SIGN MOUNTING DETAIL

NOT TO SCALE | MCCM-SIGN-POST-1100 | 07/01/19

24" x 24"

COLORS:
LEGEND = WHITE (RETROREFLECTIVE)
BACKGROUND = BLUE (RETROREFLECTIVE)

D9-11B SIGN DETAIL

NOT TO SCALE | MCCM-SIGN-REGU-D9-11B | 10/01/22

30" x 30"

COLORS:
LEGEND = WHITE (RETROREFLECTIVE)
BACKGROUND = RED (RETROREFLECTIVE)

R1-1 SIGN DETAIL

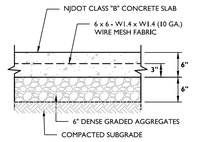
NOT TO SCALE | MCCM-SIGN-REGU-R1-1 | 12/01/20

12" x 18"

COLORS:
LEGEND = GREEN (RETROREFLECTIVE)
HANDICAP SYMBOL= BLUE (RETROREFLECTIVE)
BACKGROUND = WHITE (RETROREFLECTIVE)

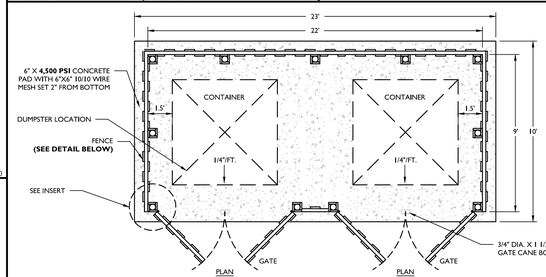
R7-8X SIGN DETAIL

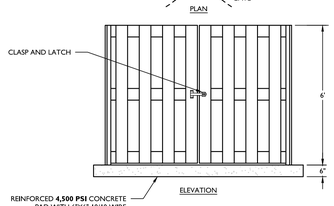
NOT TO SCALE | MCCM-SIGN-REGU-R7-8 | 07/01/21

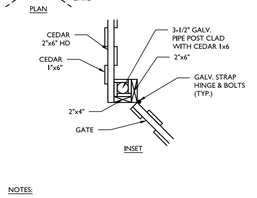


TRASH ENCLOSURE CONCRETE PAD DETAIL

NOT TO SCALE | MCNJ-SITE-PVMT-2100 | 08/01/20



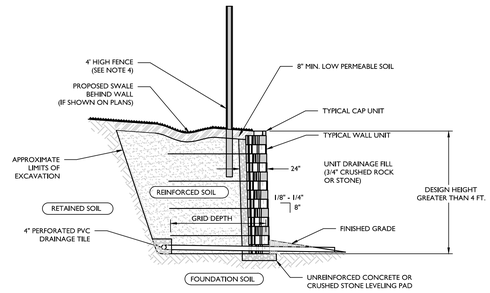




NOTES:

1. VERIFY THE DUMPSTER SIZE WITH TENANTS. ADJUST THE FINAL FENCE ENCLOSURE SIZE ACCORDINGLY.
2. ROLL OUT DUMPSTER OPENINGS ARE PROPOSED TO ACCOMMODATE ACCESS TO ALL DUMPSTERS.
3. GATE TO REMAIN CLOSED WHEN NOT IN USE. HINGES TO INCLUDE SELF-CLOSING MECHANISM.

TRASH ENCLOSURE DETAIL

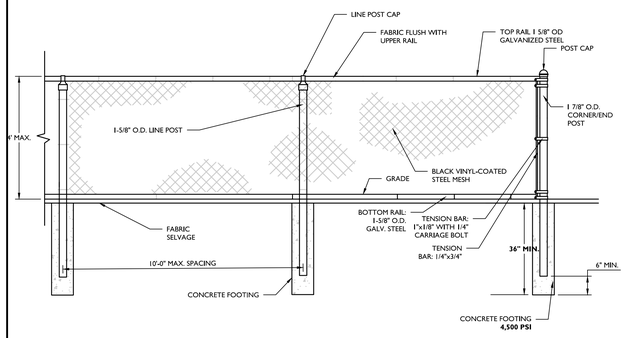


NOTES:

1. THIS DETAIL IS A SCHEMATIC REPRESENTATION FOR MUNICIPAL AND/OR AGENCY APPROVALS AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION.
2. CONTRACTOR TO PROVIDE SITE-SPECIFIC SHOP DRAWINGS AND STRUCTURAL DESIGN CALCULATIONS FOR EACH RETAINING WALL PREPARED BY A STATE LICENSED PROFESSIONAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. MODULAR CONCRETE BLOCK WALL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. A SAFETY BARRIER (FENCING) IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

TYPICAL REINFORCED WALL SECTION (NEAR VERTICAL SETBACK) DETAIL

NOT TO SCALE | MCCM-SITE-WALL-11031 | 10/01/19

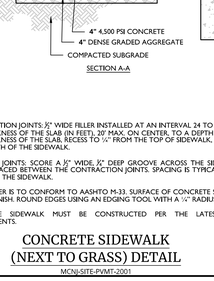


NOTES:

1. WIRE MESH SHALL BE 1" MESH, 11 GAUGE POWDER COATED STEEL CHAIN LINK FABRIC, WITH KNUCKLED SELVAGE (KK) ON BOTH TOP AND BOTTOM.
2. FENCE FRAMEWORK RAIL AND POST SHALL BE ASTM GROUP 1A, HOT DIP GALVANIZED STEEL PIPE, 16 GAUGE, CLASS 1 ZINC COATED, REGULAR STRENGTH GRADE ASTM 1083, 30,000 PSI YIELD STEEL SCHEDULE 40 ROUND PIPE.
3. BAR LENGTH AND POST HEIGHT ABOVE GRADE PER FENCE HEIGHT AND MANUFACTURER'S SPECIFICATIONS.
4. COLOR OF THE WIRE MESH TO BE BLACK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
5. END AND CORNER POST TOP SHALL BE DOME SHAPE.
6. FOOTING WIDTH TO BE (4) X POST WIDTH, MINIMUM DEPTH **36"**, **4,500 PSI** CONCRETE OR AS PER MANUFACTURER'S RECOMMENDATIONS FOR INSTALLING ABOVE THE RETAINING WALL.

4' HIGH CHAIN LINK FENCE DETAIL

NOT TO SCALE | MCCM-SITE-FNCE-12011 | 07/01/19

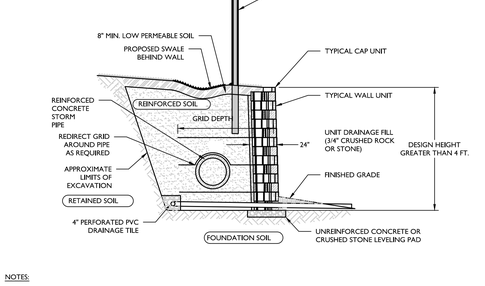


NOTES:

1. CONTRACTION JOINTS: ½" WIDE FILLER INSTALLED AT AN INTERVAL 24 TO 30 TIMES THE THICKNESS OF THE SLAB (IN FEET), 20' MAX. ON CENTER, TO A DEPTH OF ¼ OF THE THICKNESS OF THE SLAB. RECESS TO ½" FROM THE TOP OF SIDEWALK, FOR THE FULL WIDTH OF THE SIDEWALK.
2. CONTROL JOINTS: SCORE A ½" WIDE, ¼" DEEP GROOVE ACROSS THE SIDEWALK, EVENLY SPACED BETWEEN THE CONTRACTION JOINTS. SPACING IS TYPICALLY THE WIDTH OF THE SIDEWALK.
3. JOINT FILLER IS TO CONFORM TO AASHTO M-33. SURFACE OF CONCRETE SHALL BE BROOM FINISH. ROUND EDGES USING AN EDGING TOOL WITH A ½" RADIUS.
4. CONCRETE SIDEWALK MUST BE CONSTRUCTED PER THE LATEST ADA REQUIREMENTS.

CONCRETE SIDEWALK (NEXT TO GRASS) DETAIL

NOT TO SCALE | MCNJ-SITE-PVMT-2001 | 09/01/24

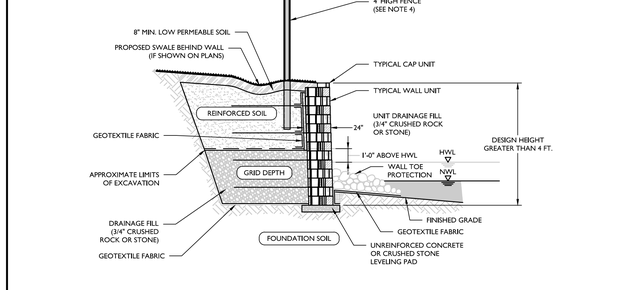


NOTES:

1. THIS DETAIL IS A SCHEMATIC REPRESENTATION FOR MUNICIPAL AND/OR AGENCY APPROVALS AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION.
2. CONTRACTOR TO PROVIDE SITE-SPECIFIC SHOP DRAWINGS AND STRUCTURAL DESIGN CALCULATIONS FOR EACH RETAINING WALL PREPARED BY A STATE LICENSED PROFESSIONAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. MODULAR CONCRETE BLOCK WALL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. A SAFETY BARRIER (FENCING) IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

WALL SECTION WITH PIPE IN REINFORCED ZONE (NEAR VERTICAL SETBACK) DETAIL

NOT TO SCALE | MCCM-SITE-WALL-11200 | 10/01/19

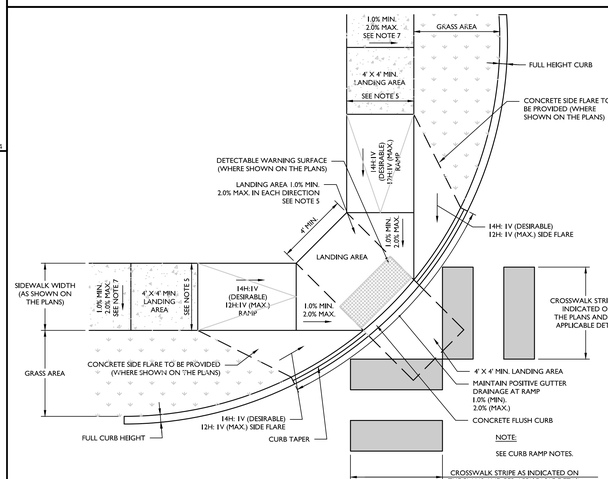


NOTES:

1. THIS DETAIL IS A SCHEMATIC REPRESENTATION FOR MUNICIPAL AND/OR AGENCY APPROVALS AND IS NOT INTENDED TO BE USED FOR CONSTRUCTION.
2. CONTRACTOR TO PROVIDE SITE-SPECIFIC SHOP DRAWINGS AND STRUCTURAL DESIGN CALCULATIONS FOR EACH RETAINING WALL PREPARED BY A STATE LICENSED PROFESSIONAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. MODULAR CONCRETE BLOCK WALL TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
4. A SAFETY BARRIER (FENCING) IS REQUIRED ON ALL WALLS WHERE THE WALL HEIGHT EXCEEDS 30". PLACEMENT AND INSTALLATION METHOD OF THE PROPOSED FENCING TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

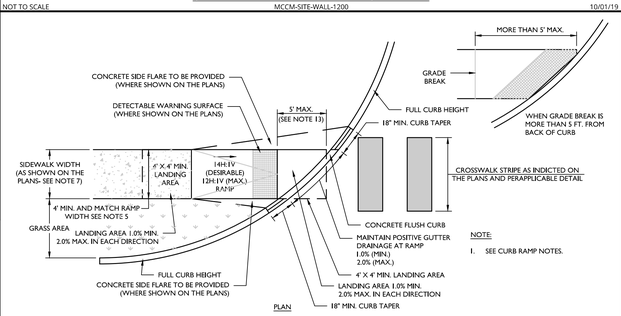
TYPICAL REINFORCED WATER WALL SECTION (POND) DETAIL

NOT TO SCALE | MCCM-SITE-WALL-11021 | 10/01/19



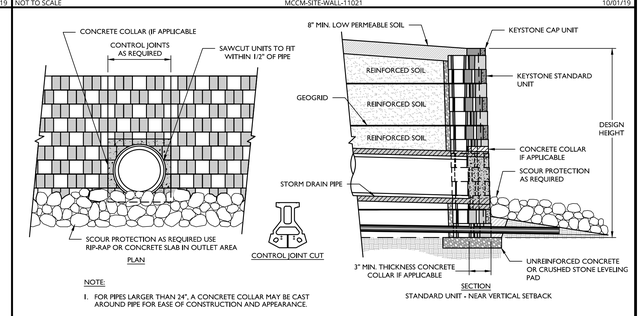
CURB RAMP TYPE 6 DETAIL

NOT TO SCALE | MCNJ-SITE-HADA-1500 | 07/01/20



CURB RAMP TYPE 5 DETAIL

NOT TO SCALE | MCNJ-SITE-HADA-1400 | 07/01/20



NOTE:

1. FOR PIPES LARGER THAN 24", A CONCRETE COLLAR MAY BE CAST AROUND PIPE FOR EASE OF CONSTRUCTION AND APPEARANCE.

TYPICAL PIPE OUTLET DETAIL

NOT TO SCALE | MCCM-SITE-WALL-1300 | 07/01/19

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REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

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ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Jansiewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE45561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A.: 24GA27986500

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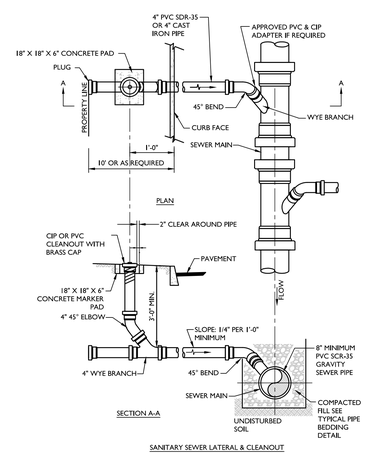
SCALE: AS SHOWN	DRAWN BY: SLD
DESIGNED BY: SLD	REVIEWED BY: MJJ
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A
SHEET NAME: CONSTRUCTION DETAILS	
DRAWING NUMBER: 12.1	

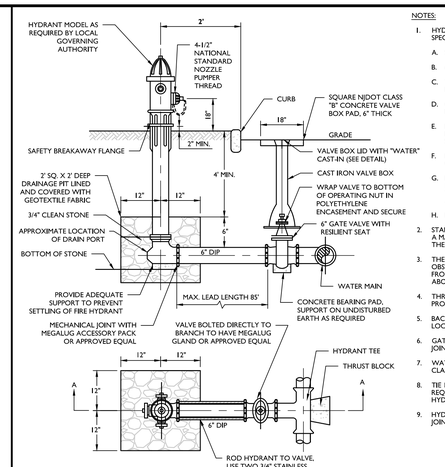
C:\Cad Projects\24002939A\Drawings\Site Plans\CRTL Layer\12.1 DETAILS.dwg By: CKOLAS on 2026-05-29 at 1:47:41pm

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



SANITARY SEWER LATERAL & CLEANOUT DETAIL

NOT TO SCALE | MCNJ-UTIL-SSWR-1801 | 05/01/17

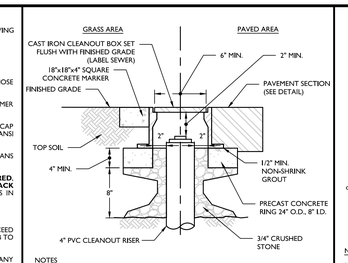


NOTES:

1. HYDRANT IS TO BE DESIGNED WITH THE FOLLOWING SPECIFICATION.
   A. SAFETY COUPLED STANDPIPE.
   B. 6" MECHANICAL JOINT INLET CONNECTION
   C. TWO 2-1/2" NATIONAL STANDARD THREAD HOSE NOZZLES.
   D. ONE 4-1/2" NATIONAL STANDARD THREAD STEAMER NOZZLE, FACING THE ROAD.
   E. HYDRANT OPERATORS AND HYDRANT NOZZLE CAP NUTS MUST BE IN ACCORDANCE WITH AWWA/ANSI STANDARD C503.
   F. HYDRANT HOSE CAPS MUST BE ATTACHED BY MEANS OF CHAINS.
   G. HYDRANT BARRELS ARE TO BE PAINTED - **RED**, BONNETS - **YELLOW**, AND NOZZLE CAPS - **BLACK**, TO INDICATE THE AVAILABLE FIRE FLOW OR AS IN ACCORDANCE WITH THE LOCAL REQUIREMENTS.
   H. HYDRANTS ARE TO OPEN COUNTER CLOCKWISE.
2. STANDPIPE (BREAK-AWAY) COUPLING MUST NOT EXCEED A MAXIMUM OF 5 INCHES FROM THE TOP OF THE CURB TO THE BOTTOM OF COUPLING.
3. THE DRAIN VALVE MUST BE CLEAR OF ANY OBSTRUCTIONS, AND 3/4" CLEAN GRAVEL BE PLACED FROM THE BOTTOM OF THE HYDRANT TO A POINT 6" ABOVE THE HYDRANT LATERAL PIPE.
4. THRUST BLOCKS ARE TO BE MADE OF 4500 PSI CONCRETE, PROVIDED BEHIND THE HYDRANT SHOE.
5. BACKFILL MATERIAL MUST BE IN ACCORDANCE WITH THE LOCAL JURISDICTION.
6. GATE VALVES ARE TO BE RESILIENT SEALED MECHANICAL JOINT END (RIGHT HAND).
7. WATER LATERAL MUST BE 6" DUCTILE IRON CEMENT LINED CLASS 52 PIPE.
8. TIE ROD IS TO BE 3/4" DIAMETER WITH EYE BOLTS - TWO REQUIRED (SIDE VIEW SHOWN). RESTRAIN ALL JOINTS ON HYDRANT TEE, VALVE, AND HYDRANT LEAD.
9. HYDRANT TEE MUST BE DUCTILE IRON, MECHANICAL JOINT.

FIRE HYDRANT (VALVE IN PAVEMENT) DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1001 | 07/01/25

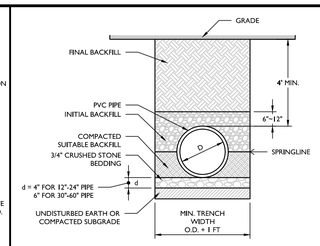


NOTES

1. ALL PVC CLEANOUTS TO HAVE CAST IRON FRAME AND COVER PROTECTION BOX. DESIGN FOR H20 LOADING.

CLEANOUT PROTECTION BOX DETAIL

NOT TO SCALE | MCNJ-UTIL-SSWR-1601 | 05/01/17

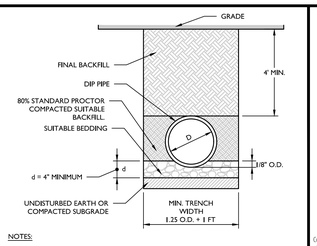


NOTES:

1. ALL PVC GRAVITY PIPE SYSTEMS MUST BE INSTALLED IN ACCORDANCE WITH ASTM D3321.
2. GRAVITY SANITARY PIPE IS TO BE PVC SDR 35 PER ASTM D3034 OR AS REQUIRED BY THE GOVERNING AUTHORITY.

PVC SANITARY PIPE BEDDING (GRAVITY) DETAIL

NOT TO SCALE | MCNJ-UTIL-SSWR-2803 | 11/01/24



NOTES:

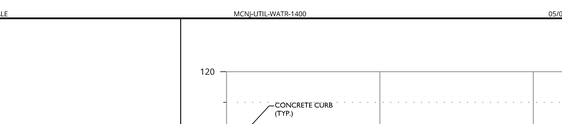
1. ALL PIPE SYSTEMS AND BACKFILL SHALL BE INSTALLED IN ACCORDANCE WITH ANSI/AWWA C600.
2. WATER MAIN PIPE SHALL BE CEMENT LINED DUCTILE IRON PIPE (DIP) PRESSURE **CLASS 150**, THICKNESS **CLASS 52** WITH ASPHALTIC EPOXY TYPE COATING.
3. SUITABLE BACKFILL MATERIAL SHALL BE SAND, GRAVEL, OR 3/4" CRUSHED STONE.

DIP WATER PIPE BEDDING (TYPE 4) DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1900 | 05/01/17

MINIMUM SIZE OF CONCRETE THRUST BLOCKS																	
d	A	B	C	d	A	B	C	d	A	B	C	d	A	B	C	d x e	A	B
6"	2'-0"	8"	1'-3"	6"	2'-6"	8"	1'-3"	6"	1'-6"	6"	1'-3"	8"	1'-6"	8"	1'-3"	6" x 4"	1'-6"	1'-0"
8"	2'-6"	8"	1'-6"	8"	3'-0"	8"	1'-6"	8"	1'-6"	8"	1'-9"	8"	1'-9"	8"	1'-9"	8" x 4"	2'-0"	1'-0"
10"	3'-0"	10"	2'-0"	10"	3'-6"	10"	2'-0"	10"	2'-3"	10"	2'-0"	10"	2'-0"	10"	2'-0"	10" x 6"	2'-4"	1'-3"
12"	3'-6"	10"	2'-6"	12"	3'-9"	10"	2'-9"	12"	2'-6"	10"	2'-6"	12"	2'-6"	10"	2'-6"	10" x 8"	2'-6"	1'-6"

TEES & CROSSES | 90° BENDS | 45° BENDS | 22½° & 11¼° BENDS | REDUCERS



NOTES:

1. ALL HORIZONTAL BENDS SHALL HAVE CONCRETE THRUST BLOCKS WITH MINIMUM BEARING AREAS AGAINST UNDISTURBED SOIL AND NO JOINT SHALL BE COVERED WITH CONCRETE.
2. BEARING AREAS ARE BASED UPON UNDISTURBED SOIL WITH A MINIMUM BEARING CAPACITY OF 0.5 TONS PER SQUARE FOOT. FOR A LESSER SOIL BEARING CAPACITY THESE AREAS SHALL BE INCREASED ACCORDINGLY.
3. THRUST BLOCKS SHALL BE POURED DIRECTLY AGAINST TRENCH WALLS AND SHALL BE NJDOT CLASS "B" CONCRETE.
4. DETAILS FOR SUPPORTS AND BRACING FOR VERTICAL BENDS FOR 12" DIAMETER OR LARGER SHALL BE APPROVED BY THE AUTHORITY PRIOR TO CONSTRUCTION.

THRUST BLOCKS DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1400 | 05/01/17

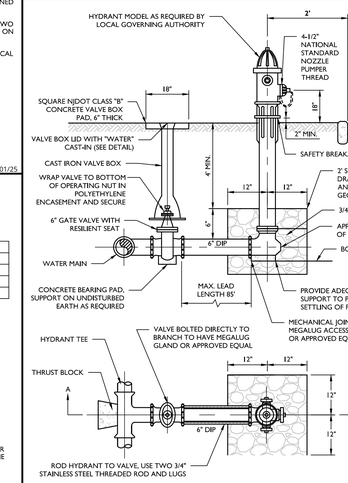
MECHANICAL JOINTS			
ANGLE	D =	R =	L =
45°	T x 1.414	T x 1.000	D-2A
22.5°	T x 2.613	T x 2.414	D-2A
11.25°	T x 5.126	T x 5.027	D-2A

NOTES:

1. WATER MAIN MAY CROSS ABOVE OBSTRUCTION IF 4' MINIMUM COVER IS MAINTAINED ABOVE THE WATER MAIN AND FINISH GRADE.
2. MINIMUM VERTICAL SEPARATION BETWEEN SANITARY OR STORM SEWER TO WATER MAIN SHALL BE 18" IF THE HORIZONTAL SEPARATION IS LESS THAN 10'. BETWEEN WATER MAIN AND OTHER UTILITIES, THE MINIMUM VERTICAL SEPARATION SHALL BE 12".
3. WATER MAIN SHALL BE SIZE AND MATERIAL SPECIFIED ON THE PLAN, WITH MECHANICAL JOINT OR PUSH-ON AND ALL FITTINGS BE CAST IRON MECHANICALLY JOINT.
4. OFFSETS MAY BE SUBSTITUTED FOR A "T" OF UP TO 24" IF APPROVED BY THE ENGINEER.
5. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AT ALL BENDS OR OTHER POINTS OF PIPE DIRECTION CHANGE.
6. TIE RODS SHALL BE UTILIZED TO RESTRAIN PIPE JOINTS IF THRUST BLOCK IS NOT USED. DETAILS OF THE TIE ROD ASSEMBLY SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. TIE RODS SHALL BE SUFFICIENT TO RESTRAIN THE THRUST DEVELOPED AT 100 PSI WORKING PRESSURE. MEGALUG RESTRAINT ALSO ACCEPTABLE IN PLACE OF TIE RODS.

WATER CROSSING UNDER UTILITY DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1300 | 05/01/17

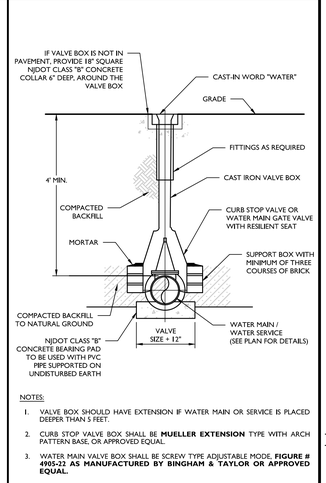


NOTES:

1. HYDRANT IS TO BE DESIGNED WITH THE FOLLOWING SPECIFICATION.
   A. SAFETY COUPLED STANDPIPE.
   B. 6" MECHANICAL JOINT INLET CONNECTION
   C. TWO 2-1/2" NATIONAL STANDARD THREAD HOSE NOZZLES.
   D. ONE 4-1/2" NATIONAL STANDARD THREAD STEAMER NOZZLE, FACING THE ROAD.
   E. HYDRANT OPERATORS AND HYDRANT NOZZLE CAP NUTS MUST BE IN ACCORDANCE WITH AWWA/ANSI STANDARD C502.
   F. HYDRANT HOSE CAPS MUST BE ATTACHED BY MEANS OF CHAINS.
   G. HYDRANT BARRELS ARE TO BE PAINTED - **RED**, BONNETS - **YELLOW**, AND NOZZLE CAPS - **BLACK**, TO INDICATE THE AVAILABLE FIRE FLOW OR AS IN ACCORDANCE WITH THE LOCAL REQUIREMENTS.
   H. HYDRANTS ARE TO OPEN COUNTER CLOCKWISE.
2. STANDPIPE (BREAK-AWAY) COUPLING MUST NOT EXCEED A MAXIMUM OF 5 INCHES FROM THE TOP OF THE CURB TO THE BOTTOM OF COUPLING.
3. THE DRAIN VALVE MUST BE CLEAR OF ANY OBSTRUCTIONS, AND 3/4" CLEAN GRAVEL BE PLACED FROM THE BOTTOM OF THE HYDRANT TO A POINT 6" ABOVE THE HYDRANT LATERAL PIPE.
4. THRUST BLOCKS ARE TO BE MADE OF 4500 PSI CONCRETE, PROVIDED BEHIND THE HYDRANT SHOE.
5. BACKFILL MATERIAL MUST BE IN ACCORDANCE WITH THE LOCAL JURISDICTION.
6. GATE VALVES ARE BE RESILIENT SEALED MECHANICAL JOINT END (RIGHT HAND).
7. WATER LATERAL MUST BE 6" DUCTILE IRON CEMENT LINED CLASS 52 PIPE.
8. TIE ROD IS TO BE 3/4" DIAMETER WITH EYE BOLTS - TWO REQUIRED (SIDE VIEW SHOWN). RESTRAIN ALL JOINTS ON HYDRANT TEE, VALVE, AND HYDRANT LEAD.
9. HYDRANT TEE MUST BE DUCTILE IRON, MECHANICAL JOINT.

FIRE HYDRANT (VALVE IN GRASS) DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1000 | 07/01/25

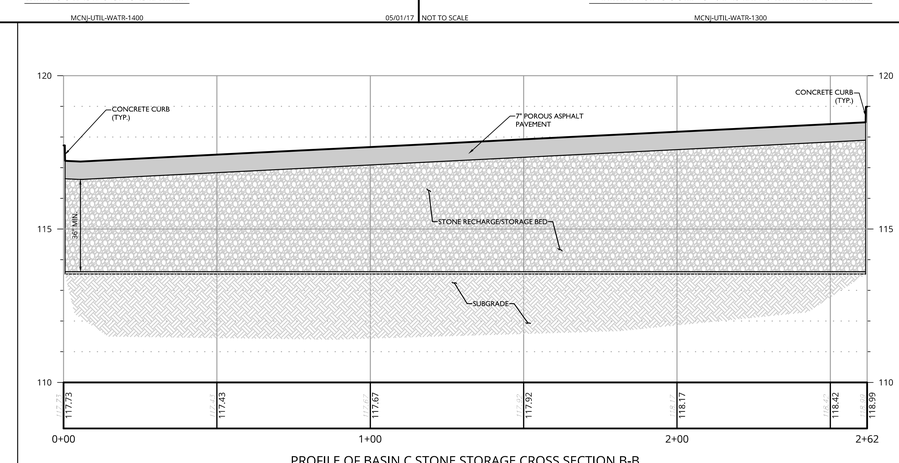


NOTES:

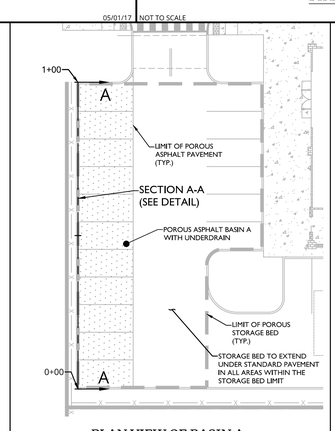
1. VALVE BOX SHOULD HAVE EXTENSION IF WATER MAIN OR SERVICE IS PLACED DEEPER THAN 5 FEET.
2. CURB STOP VALVE BOX SHALL BE **MUELLER EXTENSION** TYPE WITH ARCH PATTERN BASE, OR APPROVED EQUAL.
3. WATER MAIN VALVE BOX SHALL BE SCREW TYPE ADJUSTABLE MODE. **FIGURE # 4905-22 AS MANUFACTURED BY BINGHAM & TAYLOR OR APPROVED EQUAL.**

WATER VALVE BOX DETAIL

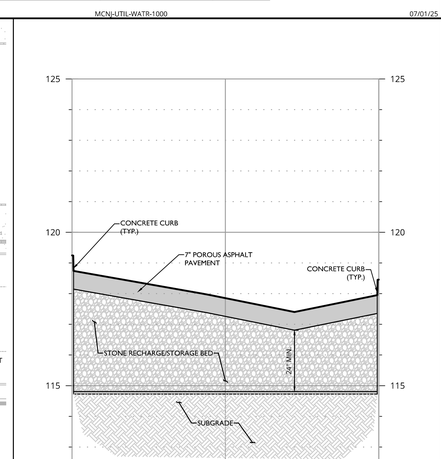
NOT TO SCALE | MCNJ-UTIL-WATR-1600 | 07/01/25



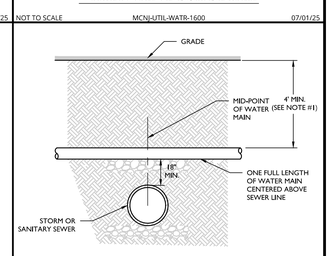
PROFILE OF BASIN C STONE STORAGE CROSS SECTION B-B
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



PLAN VIEW OF BASIN A SECTION A-A



PROFILE OF BASIN A STONE STORAGE CROSS SECTION A-A
HORIZONTAL : 1" = 20'
VERTICAL : 1" = 2'



NOTES:

1. WATER MAIN MAY CROSS ABOVE OBSTRUCTION IF 4' MINIMUM COVER IS MAINTAINED ABOVE THE WATER MAIN TO FINISH GRADE AND 18" MINIMUM VERTICAL SEPARATION IS OBTAINED.

WATER CROSSING OVER SEWER DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1301 | 05/01/17

NUMBER AND SIZE OF RODS REQUIRED AND PIPE LENGTH IN FEET TO BE RESTRAINED									
PIPE SIZE IN INCHES	90° TEE OR DEAD END PLUG			45° BEND			22½° BEND		
	No.	SIZE	L*	No.	SIZE	L*	No.	SIZE	L*
4	2	¾"	30'	2	¾"	10'	2	¾"	5'
6	2	¾"	40'	2	¾"	10'	2	¾"	5'
8	4 or 2	¾" or ⅞"	50'	2	¾"	15'	2	¾"	5'
10	4 or 2	¾" or 1"	60'	2	¾"	20'	2	¾"	5'
12	4	⅞"	70'	2	¾"	20'	2	¾"	5'
14	4	1"	80'	2	¾"	25'	2	¾"	5'
16	4	1"	80'	2	¾"	25'	2	¾"	5'

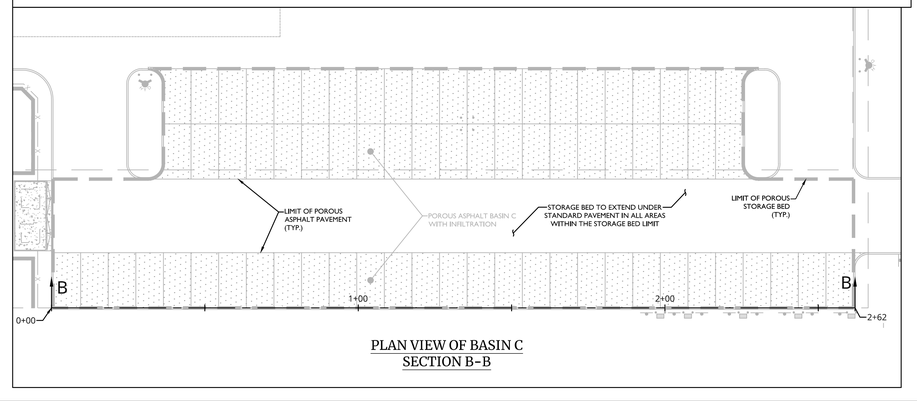
L* = LENGTH OF PIPE TO BE RESTRAINED IS FOR EACH SIDE OF BEND

NOTES:

1. USE OF MECHANICAL JOINT RETAINER GLANDS SHALL PROVIDE A THRUST RESTRAINT SYSTEM EQUIVALENT TO THAT LISTED IN THE TABLE FOR CLAMPS AND RODS.
2. LENGTHS ARE BASED ON THE FOLLOWING CRITERIA: 150 PSI MAXIMUM PRESSURE AND 3'-6" OF COVER. TABLE IS FOR USE WITH CAST IRON PIPE OR DUCTILE IRON PIPE ONLY. IF TEST CONDITIONS ARE MORE SEVERE OR LARGER PIPES ARE PROPOSED, THEN SPECIAL COMPUTATIONS MUST BE PROVIDED BY LICENSED PROFESSIONAL ENGINEER.

JOINT RESTRAINT SCHEDULE DETAIL

NOT TO SCALE | MCNJ-UTIL-WATR-1500 | 05/01/17



PLAN VIEW OF BASIN C SECTION B-B

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REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

PROTECT YOURSELF
ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN ANY STATE
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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
LICENSE NUMBER: GE055561
COLLIERS ENGINEERING & DESIGN, INC.
N.J. C.O.A. #: 24GA27986500

HAMILTON
1000 Waterview Drive, Suite 201
Hamilton, NJ 08691
Phone: 609.587.8200
COLLIERS ENGINEERING & DESIGN, INC. DOING BUSINESS AS MAISER CONSULTING

SCALE: AS SHOWN	DRAWN BY: SLD
DESIGNED BY: SLD	REVIEWED BY: MJJ
DATE ISSUED: 12/22/25	PROJECT NUMBER: 24002939A

SHEET NAME:

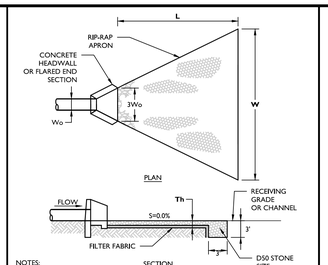
CONSTRUCTION DETAILS

DRAWING NUMBER:

12.2

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

Plotted By: CHRISTOPHER.SCHMIDT on 2026-05-29 - 2:41:58pm
I:\Civil 3D Projects\2024\24002939A\Engineering\Site Plans\CAD\12.2 DETAILS.dwg



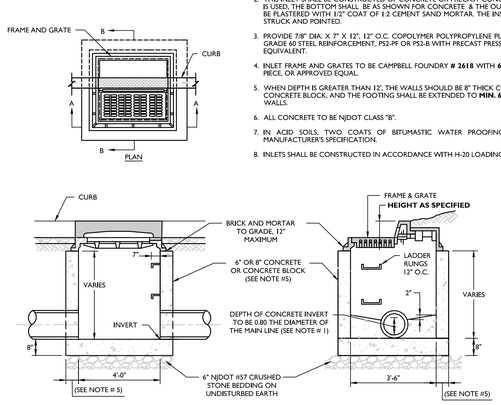
NOTES:

1. SEE PLAN FOR APRON DIMENSIONS.
2. SIDE SLOPE SHALL BE 2:1 OR FLATTER. THE BOTTOM GRADE SHALL BE LEVEL (0% SLOPE). THERE SHALL BE NO FALL AT THE END OF APRON TO THE RECEIVING SURFACE.

DESCRIPTION	W_o (FT)	L (FT)	W (FT)	D50 (IN)	TH (FT)
WW A-100	1.5	17	21	8	1.33
WW A-200	1.5	19	24	8	1.33
WW A-300	2	17	23	8	1.33

CONDUIT OUTLET PROTECTION DETAIL

NOT TO SCALE

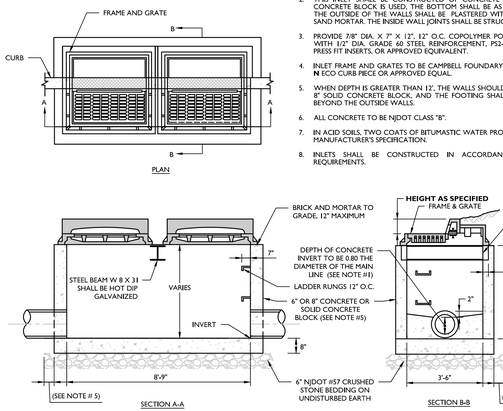


NOTES:

1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS, BOTTOMS SHALL BE DISHED AND SLOPED TOWARDS THE OUTLET PIPE AT A RATE OF GRADE OF 2 INCHES PER FOOT.
2. THIS INLET SHALL BE CONSTRUCTED OF CONCRETE OR PRECAST CONCRETE. IF CONCRETE BLOCK IS USED, THE BOTTOM SHALL BE AS SHOWN FOR CONCRETE & THE OUTSIDE OF THE WALLS SHALL BE PLASTERED WITH 1/2" COAT OF 1:2 CEMENT SAND MORTAR. THE INSIDE WALL JOINTS SHALL BE STRUCK AND POINTED.
3. PROVIDE 7/8" DIA. X 7" X 12", 12" O.C. COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY **# 2618** WITH **6"** OR **8"** TYPE **N** ECO CURB PIECE, OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12', THE WALLS SHOULD BE 8" THICK CONCRETE OR SOLID CONCRETE BLOCK, AND THE FOOTING SHALL BE EXTENDED TO **MIN. 6"** BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.

TYPE 'B' INLET DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-1100 10/01/24



NOTES:

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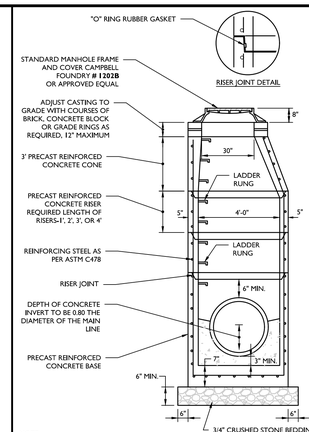
3. PROVIDE 7/8" DIA. X 7" X 12", 12" O.C. COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRADE 60 STEEL REINFORCEMENT, PS2-PF OR PS2-B WITH PRECAST PRESS FIT INSERTS, OR APPROVED EQUIVALENT.
4. INLET FRAME AND GRATES TO BE CAMPBELL FOUNDRY **# 2618** WITH **6"** OR **8"** TYPE **N** ECO CURB PIECE OR APPROVED EQUAL.
5. WHEN DEPTH IS GREATER THAN 12', THE WALLS SHOULD BE 8" THICK CONCRETE OR 8" SOLID CONCRETE BLOCK, AND THE FOOTING SHALL BE EXTENDED TO MIN. **6"** BEYOND THE OUTSIDE WALLS.
6. ALL CONCRETE TO BE NJDOT CLASS "B".
7. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
8. INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH H-20 LOADING REQUIREMENTS.

TYPE "DOUBLE B" INLET DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-1101 10/01/24

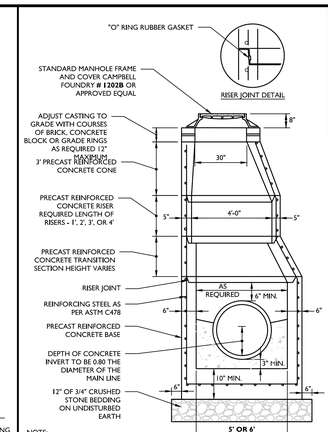


NOTE:

1. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
2. ALL CONCRETE TO BE 4500 PSI.
3. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH **HS-20** LOADING REQUIREMENTS.

PRECAST CONCRETE STORM MANHOLE 4' DIA. DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-1600 07/01/25

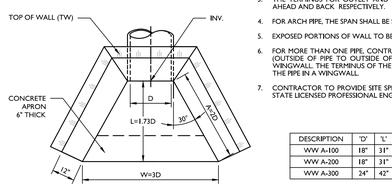


NOTE:

1. IN ACID SOILS, TWO COATS OF BITUMASTIC WATER PROOFING SHALL BE APPLIED PER MANUFACTURER'S SPECIFICATION.
2. ALL CONCRETE TO BE 4500 PSI.
3. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH **HS-20** LOADING REQUIREMENTS.

PRECAST CONCRETE STORM MANHOLE (OVERSIZED) DETAIL

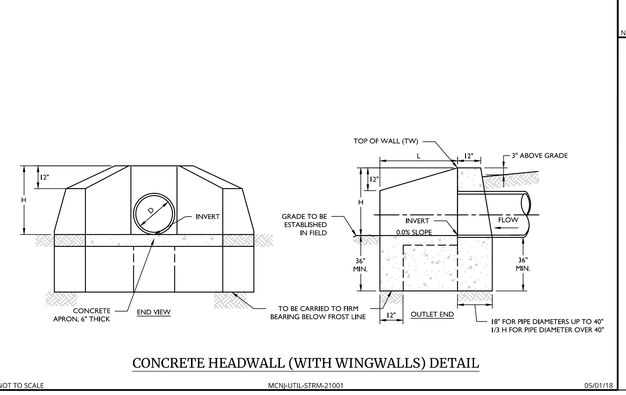
NOT TO SCALE MCNJ-UTIL-STRM-1601 07/01/25



NOTES:

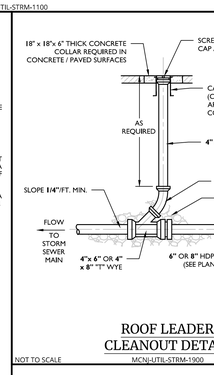
1. ALL EDGES TO BE CHAMFERED 1 INCH.
2. CONCRETE TO BE NJDOT CLASS "B".
3. THE TERMINUS FOR OUTLET AND INLET APRONS SHALL BE SET BY EXTENDING THE PIPE GRADE AHEAD AND BACK RESPECTIVELY.
4. FOR ARCH PIPE, THE SPAN SHALL BE SUBSTITUTED FOR "D".
5. EXPOSED PORTIONS OF WALL TO BE RUBBED AND FLOATED TO REMOVE FORM MARKS.
6. FOR MORE THAN ONE PIPE, CONTRACTOR TO SET THE PIPES AT A MINIMUM OF ONE FOOT APART (OUTSIDE OF PIPE TO OUTSIDE OF PIPE). THERE SHALL BE 12" ABOVE THE TOP OF A PIPE IN A WINGWALL. THE TERMINUS OF THE WINGWALL SHALL BE 2 X DIAMETER FROM THE CENTERLINE OF THE PIPE IN A WINGWALL.
7. CONTRACTOR TO PROVIDE SITE SPECIFIC SHOP DRAWINGS FOR EACH HEADWALL PREPARED BY A STATE LICENSED PROFESSIONAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

DESCRIPTION	'D'	'L'	'W'	'A'	'H'	INV.	TOP OF WALL EL.
WW A-100	18"	31"	54"	36"	30"	112.50	115.13
WW A-200	18"	31"	54"	36"	30"	112.50	115.13
WW A-300	24"	42"	72"	48"	36"	110.50	113.75



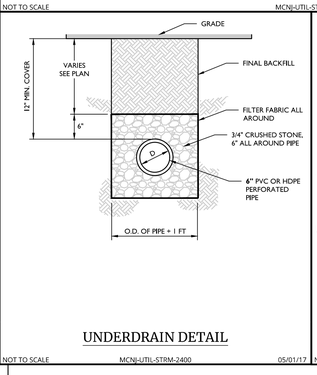
CONCRETE HEADWALL (WITH WINGWALLS) DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-21001 05/01/18



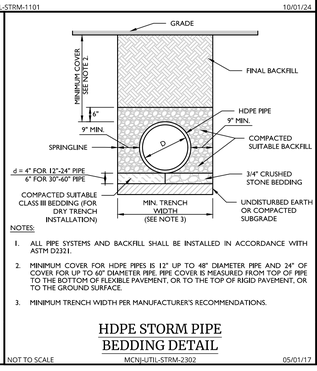
ROOF LEADER CLEANOUT DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-1900 05/01/17



UNDERDRAIN DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-2400 05/01/17

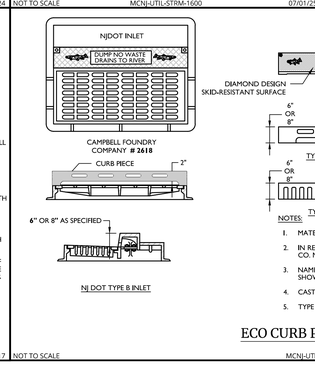


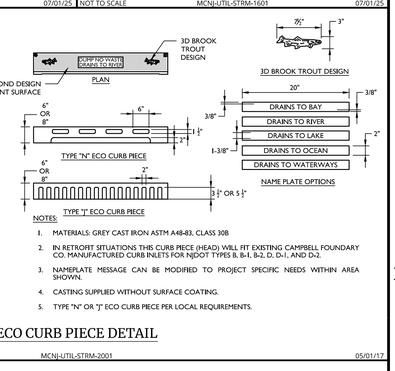
NOTES:

1. ALL PIPE SYSTEMS AND BACKFILL SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321.
2. MINIMUM COVER FOR HDPE PIPES IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR UP TO 60" DIAMETER PIPE. PIPE COVER IS MEASURED FROM TOP OF PIPE TO THE BOTTOM OF FLEXIBLE PAVEMENT, OR TO THE TOP OF RIGID PAVEMENT, OR TO THE GROUND SURFACE.
3. MINIMUM TRENCH WIDTH PER MANUFACTURER'S RECOMMENDATIONS.

HDPE STORM PIPE BEDDING DETAIL

NOT TO SCALE MCNJ-UTIL-STRM-2302 05/01/17



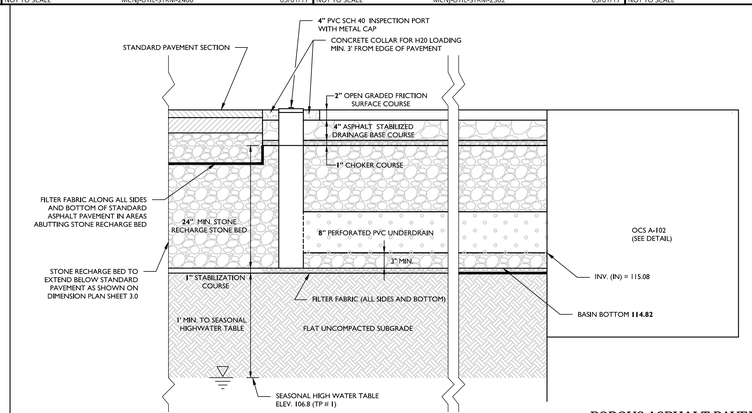


NOTES:

1. MATERIALS: GREY CAST IRON ASTM A48-83, CLASS 30B
2. IN RETROFIT SITUATIONS THIS CURB PIECE (HEAD) WILL FIT EXISTING CAMPBELL FOUNDARY CO. MANUFACTURED CURB INLETS FOR NJDOT TYPES B, B-1, B-2, D, D-1, AND D-2.
3. NAMEPLATE MESSAGE CAN BE MODIFIED TO PROJECT SPECIFIC NEEDS WITHIN AREA SHOWN.
4. CASTING SUPPLIED WITHOUT SURFACE COATING.
5. TYPE "N" OR "J" ECO CURB PIECE PER LOCAL REQUIREMENTS.

ECO CURB PIECE DETAIL

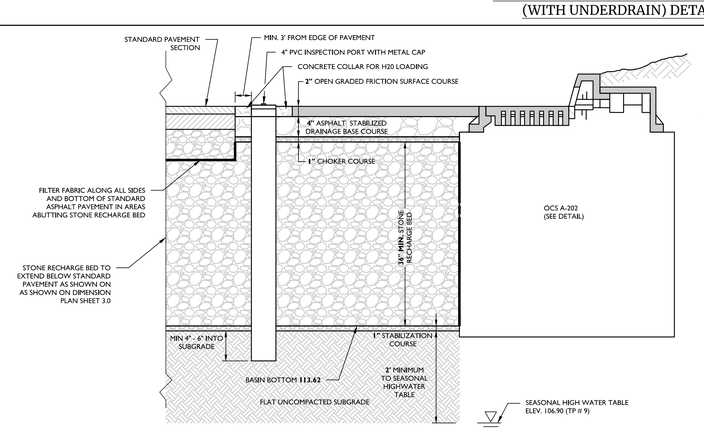
NOT TO SCALE MCNJ-UTIL-STRM-2001 05/01/17



NOTES:

1. **ASPHALT SURFACE COURSE** - OPEN GRADED FRICTION COURSE (OGFC) WITH POLYMER-MODIFIED BINDER 64E-22. (NJDOT SPECIFICATION 902.03)
2. **ASPHALT BASE COURSE** - ASPHALT STABILIZED DRAINAGE COURSE (ASDC) (NJDOT SPECIFICATION 902.06)
3. **CHOKER COURSE** - CLEAN, WASHED BROKEN STONE (AASHTO NO. 57; NJDOT SPECIFICATION 901.3)
4. **STONE STORAGE RESERVOIR BED** - 1.5" TO 3" CLEAN, WASHED, UNIFORMLY-GRADED CRUSHED STONE (AASHTO NO. 2, 3 OR 4; NJDOT SPECIFICATION 901.03)
5. **UNDERDRAIN** - SCHEDULE 40 PERFORATED PVC PIPE WRAP WITH FILTER FABRIC CONNECTING TO THE NEAREST DRAINAGE STRUCTURE.
6. **STABILIZATION COURSE** - ½" STONE (AASHTO NO. 7; NJDOT SPECIFICATION 901.03). USED WHEN POTENTIAL FOR SUBGRADE TO COMPRESS OR SUBJECT TO LATERAL MOVEMENT DURING CONSTRUCTION.
7. **INSPECTION PORTS** - PVC SCHEDULE 40 PIPE, LOCATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE UNDERDRAIN SYSTEM, 3' AWAY FROM ANY EDGE. INSPECTION PORT IS TO BE CAPPED WITH A REMOVABLE METAL CAP, SET FLUSH WITH THE PAVEMENT SURFACE.
8. **FILTER FABRIC** - NON-WOVEN GEOTEXTILE FABRIC, SUCH AS MIRAFI 140N, AMOCO 4547, GEOTEX 451, OR APPROVED EQUAL (AASHTO M288 CLASS 2; NJDOT SPECIFICATION 919.01). FILTER FABRIC MUST BE OVERLAPPED BY MINIMUM 16" AT THE SEAM AND EXTEND BY 4' TO WRAP OVER THE TOP OF THE RECHARGE BED.
9. SUBGRADE TO BE FLAT AND NOT COMPACTED.
10. POROUS PAVEMENT AREAS MUST BE PROTECTED FROM SEDIMENT-LADEN RUNOFF AND EXCESSIVE COMPACTION FROM CONSTRUCTION TRAFFIC DURING AND AFTER CONSTRUCTION TO PREVENT PAVEMENT CLOGGING.
11. POROUS ASPHALT PAVEMENT MUST BE CONSTRUCTED PER NJDOT SPECIFICATION 402. NO PAVING OF SURFACE COURSE UNDER 50°F AMBIENT TEMPERATURE. USE STATIC ROLLER ONLY.
12. NO VEHICULAR TRAFFIC FOR 48 HOURS AFTER PAVEMENT INSTALLATION.
13. POST CONSTRUCTION TESTING MUST BE PERFORMED PER ASTM C1781. AT LEAST 3 TEST LOCATIONS EVENLY SPACED ACROSS THE POROUS PAVEMENT SYSTEM CHECK FOR PERMEABILITY AFTER CONSTRUCTION (NJDEP BMP = 6.4 IN/HR FOR WATER QUALITY CONTROL OR 20 IN/HR FOR RUNOFF REDUCTION).
14. ROCK SCREEN MUST BE STAINLESS STEEL WITH OPENINGS LESS THAN OR EQUAL TO ½ INCH, FOR COVERING THE OVERFLOW OPENING.

POROUS ASPHALT PAVEMENT BASIN A (WITH UNDERDRAIN) DETAIL



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3. **CHOKER COURSE** - CLEAN, WASHED BROKEN STONE (AASHTO NO. 57; NJDOT SPECIFICATION 901.3)
4. **STONE STORAGE RESERVOIR BED** - 1.5" TO 3" CLEAN, WASHED, UNIFORMLY-GRADED CRUSHED STONE (AASHTO NO. 2, 3 OR 4; NJDOT SPECIFICATION 901.03)
5. **STABILIZATION COURSE** - ½" STONE (AASHTO NO. 7; NJDOT SPECIFICATION 901.03). USED WHEN POTENTIAL FOR SUBGRADE TO COMPRESS OR SUBJECT TO LATERAL MOVEMENT DURING CONSTRUCTION.
6. **INSPECTION PORTS** - PVC SCHEDULE 40 PIPE, LOCATED AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE UNDERDRAIN SYSTEM, 3' AWAY FROM ANY EDGE, EXTEND 4" TO 6" INTO SUBBASE. PORT TO BE CAPPED WITH A REMOVABLE METAL CAP, SET FLUSH WITH THE PAVEMENT SURFACE.
7. **FILTER FABRIC** – NON-WOVEN GEOTEXTILE FABRIC, SUCH AS MIRAFI 140N, AMOCO 4547, GEOTEX 451, OR APPROVED EQUAL (AASHTO M288 CLASS 2; NJDOT SPECIFICATION 919.01) FILTER FABRIC MUST BE OVERLAPPED BY MINIMUM 16" AT THE SEAM AND EXTEND BY 4' TO WRAP OVER THE TOP OF THE RECHARGE BED.
8. PRIOR TO THE INSTALLATION OF THE FILTER FABRIC AND THE STONE LAYER, THE PERMEABILITY RATE OF THE UNDERLAYING OR REPLACEMENT SOILS MUST BE CONFIRMED AND CERTIFIED BY A NEW JERSEY PROFESSIONAL ENGINEER TO MEET THE MINIMUM TESTED PERMEABILITY RATE OF 2.69 IN/HR FOR A DESIGN PERMEABILITY OF 1.34 IN/HR (HALF THE TESTED RATE).
9. SUBGRADE TO BE FLAT AND NOT COMPACTED.
10. POROUS PAVEMENT AREAS MUST BE PROTECTED FROM SEDIMENT-LADEN RUNOFF AND EXCESSIVE COMPACTION FROM CONSTRUCTION TRAFFIC DURING AND AFTER CONSTRUCTION TO PREVENT PAVEMENT CLOGGING.
11. POROUS ASPHALT PAVEMENT MUST BE CONSTRUCTED PER NJDOT SPECIFICATION 402. NO PAVING OF SURFACE COURSE UNDER 50°F AMBIENT TEMPERATURE. USE STATIC ROLLER ONLY.
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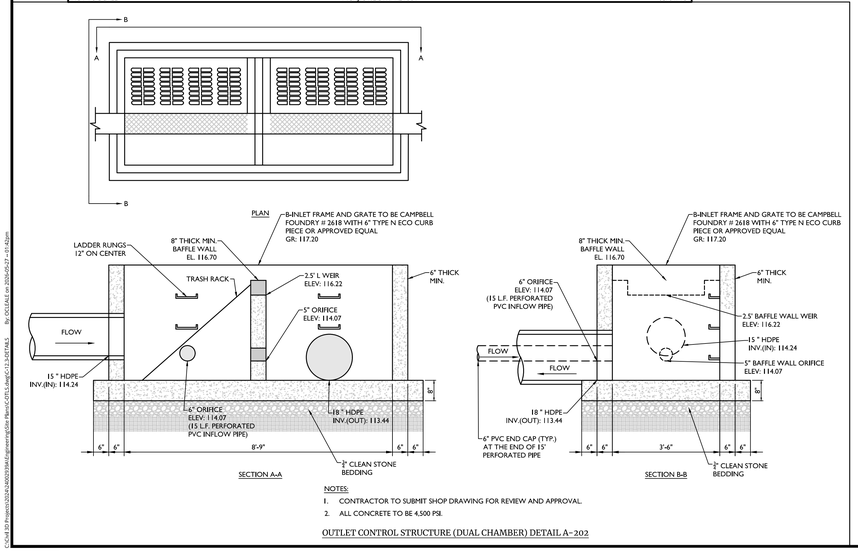
13. POST CONSTRUCTION TESTING MUST BE PERFORMED PER ASTM C1781. AT LEAST 3 TEST LOCATIONS EVENLY SPACED ACROSS THE POROUS PAVEMENT SYSTEM CHECK FOR PERMEABILITY AFTER CONSTRUCTION (NJDEP BMP = 6.4 IN/HR FOR WATER QUALITY CONTROL OR 20 IN/HR FOR RUNOFF REDUCTION.

POROUS ASPHALT PAVEMENT BASIN C (NO UNDERDRAIN) DETAIL



NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWING FOR REVIEW AND APPROVAL.
2. ALL CONCRETE TO BE 4,500 PSI.

OUTLET CONTROL STRUCTURE (DUAL CHAMBER) DETAIL A-202

Last Edited by mjanis on 12/22/2025 at 2:39:29 PM By: C:\Colliers\Projects\24002939A\Engineering\Site Plans\12 DETAILS.dwg

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Doing Business as

REV	DATE	DESCRIPTION
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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Mark J. Janiszewski
NEW JERSEY LICENSED PROFESSIONAL ENGINEER
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SCALE:	DRAWN BY:
AS SHOWN	SLD
DESIGNED BY:	REVIEWED BY:
SLD	MJJ
DATE ISSUED:	PROJECT NUMBER:
12/22/25	24002939A

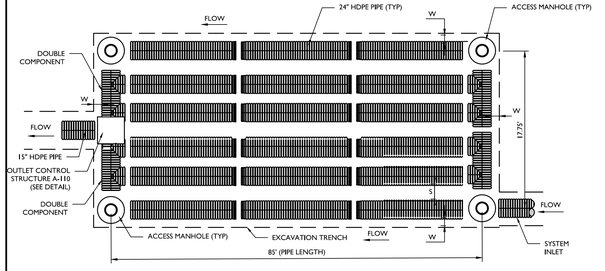
SHEET NAME:

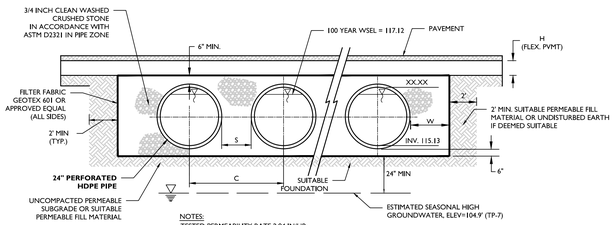
CONSTRUCTION DETAILS

DRAWING NUMBER:

12.3

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





NOTES:
TESTED PERMEABILITY RATE 2.94 IN/HR
DESIGN PERMEABILITY RATE 1.47 IN/HR

NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	TYPICAL SPACING "C"	TYPICAL SIDE WALL "W"	H (MIN. PIPE COVER) (TRAFFIC)
15" (375 MM)	18" (457 MM)	12" (292 MM)	28.9 (734 MM)	8" (203 MM)	12" (292 MM)
18" (450 MM)	21" (533 MM)	13" (330 MM)	33.9" (862 MM)	9" (229 MM)	12" (292 MM)
24" (600 MM)	28" (711 MM)	13" (330 MM)	40.7" (1034 MM)	10" (254 MM)	12" (292 MM)
30" (750 MM)	36" (914 MM)	18" (457 MM)	53.1" (1347 MM)	18" (457 MM)	12" (292 MM)
36" (900 MM)	42" (1067 MM)	22" (559 MM)	63" (1600 MM)	18" (457 MM)	12" (292 MM)
42" (1050 MM)	48" (1219 MM)	24" (610 MM)	71.9" (1826 MM)	18" (457 MM)	24" (610 MM)
48" (1200 MM)	54" (1372 MM)	25" (635 MM)	78.5" (1994 MM)	18" (457 MM)	24" (610 MM)
60" (1500 MM)	67" (1702 MM)	24" (610 MM)	90" (2286 MM)	18" (457 MM)	24" (610 MM)

NOTES:
1. SEE ABOVE CHART SPECIFIC TO MATERIAL/PIPE SIZES PER MANUFACTURER'S SPECIFICATIONS.
2. (H) FOR FLEXIBLE PAVEMENT MAY INCLUDE THE PAVEMENT SUBBASE THICKNESS AS MINIMUM COVER.
3. CLASS 1A BACKFILL MATERIAL PER ASTM 2321 REQUIRED FOR PIPES 60" DIAMETER OR LARGER.

UNDERGROUND INFILTRATION & DETENTION BASIN (OPEN SYSTEM) DETAIL

NOT TO SCALE | MCNJ-UTIL-STMW-1500 | 02/01/19

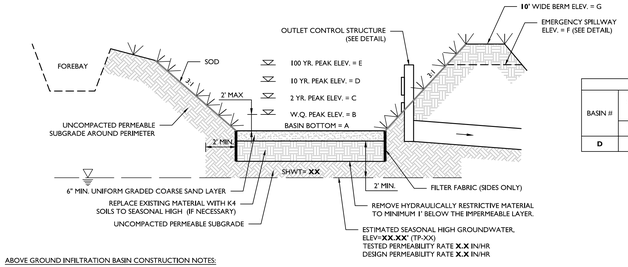
UNDERGROUND INFILTRATION BASIN CONSTRUCTION NOTES:

PRE-CONSTRUCTION:
1. CONTRACTOR SHALL PROCURE THE SERVICES OF A NEW JERSEY LICENSED PROFESSIONAL ENGINEER TO PERFORM REGULAR OVERSIGHT OF THE CONSTRUCTION OF THE UNDERGROUND INFILTRATION BASIN TO ENSURE ITS EFFECTIVENESS. THE FOLLOWING REQUIRED OVERSIGHT ACTIVITIES INCLUDING, BUT NOT LIMITED TO:
   a. PARTICIPATION BY THE ENGINEER AND CONTRACTOR AT A PRE-CONSTRUCTION MEETING TO REVIEW THE CONTRACTOR'S FAMILIARITY WITH CONSTRUCTION OF THE UNDERGROUND INFILTRATION BASIN/BMP.
   b. THE CONTRACTOR SHALL IDENTIFY THE CONSTRUCTION EQUIPMENT TO BE USED FOR THE BASIN/BMP CONSTRUCTION AND THE CONSTRUCTION TECHNIQUES THAT WILL BE USED TO MINIMIZE COMPACTION OF THE INFILTRATION AREA.
   c. ENSURING THAT EARTHWORK DOES NOT OCCUR WITHIN THE LIMITS OF THE BASIN/BMP WHEN THE SOIL MOISTURE CONTENT IS ABOVE THE LOWER PLASTIC LIMIT AND THAT THE SPECIFICATIONS OF THE REPLACEMENT SOIL ARE MET.
   d. TESTING EACH SOIL LAYER WHERE THE PERMEABILITY RATE IS CRITICAL PRIOR TO THE PLACEMENT OF THE HDPE PIPES TO ENSURE THAT THE PERMEABILITY RATE OF THE SUBSOIL HAS BEEN RETAINED.
   e. THE CONTRACTOR SHALL ENSURE THAT PROPER PRECAUTIONS ARE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE INFILTRATION AREA DURING CONSTRUCTION.
2. THE CONTRACTOR SHALL NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF SOIL CONDITIONS ENCOUNTERED IN THE FIELD DIFFER FROM WHAT IS SHOWN HEREON. SUCH CONDITIONS COULD RENDER THE DESIGN HEREON INAPPROPRIATE OR INEFFECTIVE.
3. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO ORDERING MATERIALS.

DURING CONSTRUCTION:
1. ALL EARTHWORK OPERATIONS, INCLUDING EXCAVATION, GRADING AND BACKFILL OPERATIONS SHALL BE CONDUCTED UNDER THE SUPERVISION OF A NEW JERSEY LICENSED PROFESSIONAL ENGINEER.
2. DURING CLEARING AND GRADING OF THE SITE, MEASURES MUST BE TAKEN TO ELIMINATE SOIL COMPACTION AT THE LOCATION OF THE PROPOSED INFILTRATION BASIN/BMP.
3. THE LOCATION OF THE PROPOSED INFILTRATION BASIN/BMP MUST BE CORDONED OFF DURING CONSTRUCTION TO PREVENT COMPACTION OF THE SUBSOIL BY CONSTRUCTION EQUIPMENT OR STOCKPILES. EXCAVATION AND CONSTRUCTION OF THE INFILTRATION BASIN MUST BE PERFORMED USING EQUIPMENT PLACED OUTSIDE THE LIMITS OF THE BASIN.
4. PRIOR TO INSTALLATION OF STONE BEDDING, THE PERMEABILITY RATE OF THE UNDERLYING OR REPLACEMENT SOILS SHALL BE CONFIRMED AND CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER THAT IT MEETS THE MINIMUM DESIGN PERMEABILITY RATE. RESULTS OF THE PERMEABILITY TESTS SHALL BE PROVIDED TO THE DESIGN ENGINEER IN WRITING PRIOR TO THE PLACEMENT OF THE STONE BEDDING AND HDPE PIPES.
5. UNSUITABLE MATERIALS SHALL BE REMOVED. EXCAVATIONS TO REMOVE HYDRAULICALLY RESTRICTIVE MATERIAL SHALL EXTEND A MINIMUM OF 1' BELOW THE IMPERMEABLE LAYER AND REMOVAL OF THE MATERIAL SHALL BE WITNESS AND CERTIFIED BY A PROFESSIONAL ENGINEER.
6. THE REPLACEMENT MATERIAL MUST MEET ALL SPECIFICATIONS FOR CLEAN COARSE SAND IN ACCORDANCE WITH AASHTO M-6 OR ASTM C-33, MEETING AGGREGATE GRADATION SIZE No. 10 (AASHTO M-43) AND THE MINIMUM TESTED PERMEABILITY RATE IS 8 INCHES PER HOUR, AS CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL ENGINEER. CONTRACTOR SHALL PROVIDE THE DESIGN ENGINEER WITH A SUBMITTAL CONFIRMING THE REQUIREMENTS ARE MET.
7. THE CONTRIBUTING DRAINAGE AREA MUST BE COMPLETELY STABILIZED PRIOR TO INFILTRATION BASIN/BMP PUT INTO OPERATION.

PERMEABILITY TESTING REQUIREMENTS:
1. PERMEABILITY TESTING MUST BE PERFORMED ON THE UNDERLYING SOIL BEFORE STONE BEDDING AND HDPE PIPE INSTALLATION IN ACCORDANCE WITH THE CONSTRUCTION AND POST-CONSTRUCTION OVERSIGHT AND SOIL PERMEABILITY TESTING SECTION IN THE "NJDEP BMP MANUAL, APPENDIX E: SOIL TESTING CRITERIA".
2. AS REQUIRED BY APPENDIX E OF THE NJDEP BMP MANUAL, MINIMUM OF XX PERMEABILITY TESTS SHALL BE PERFORMED WITHIN THE BASIN BOTTOM. THE MINIMUM TESTED PERMEABILITY RATE OF EACH TEST PIT SHALL BE ___ INCHES PER HOUR.
3. IF THE PERMEABILITY RATES DO NOT MEET THE REQUIRED DESIGN RATE NOTED ABOVE, REMEDIAL ACTION MAY BE REQUIRED BY THE CONTRACTOR. THE SOILS BELOW THE INFILTRATION BMP MUST BE EXCAVATED AND REPLACED AND THEN RE-TESTED UNTIL THE REQUIRED DRAIN TIME IS ACHIEVED. ALL POST-CONSTRUCTION SOIL PERMEABILITY TEST RESULTS SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER.

POST-CONSTRUCTION:
1. UPON COMPLETION OF THE BASIN/BMP, THE CONTRACTOR SHALL PROVIDE THE DESIGN ENGINEER WITH A PHOTO DOCUMENTATION OF THE UNDERGROUND SYSTEM BEFORE BACKFILL AND AN AS-BUILT SURVEY AFTER THE COMPLETION OF THE UNDERGROUND BASIN/BMP, PREPARED BY A NEW JERSEY LICENSED PROFESSIONAL SURVEYOR. THE SURVEY SHALL BOTTOM OF BASIN/BMP ELEVATIONS, AND ALL INFORMATION PERTAINING TO THE OUTLET CONTROL STRUCTURE INCLUDING ORIFICE AND WEIR SIZES AND ELEVATIONS. THE OUTLET PIPE AND NEXT DOWN-STREAM DRAINAGE STRUCTURE SHALL BE SURVEYED.
2. THE PROFESSIONAL ENGINEER THAT WITNESSES THE BASIN/BMP CONSTRUCTION AND PERFORMED THE SOIL PERMEABILITY TESTS SHALL PROVIDE A SIGNED AND SEALED LETTER TO THE DESIGN ENGINEER WITH THE RESULTS OF THE PERMEABILITY TESTS.



ABOVE GROUND INFILTRATION BASIN CONSTRUCTION NOTES:

A. PRE-CONSTRUCTION:
1. CONTRACTOR SHALL PROCURE THE SERVICES OF A NEW JERSEY LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER TO PERFORM REGULAR OVERSIGHT OF THE CONSTRUCTION OF THE INFILTRATION BASIN TO ENSURE ITS EFFECTIVENESS. THE FOLLOWING REQUIRED OVERSIGHT ACTIVITIES INCLUDING, BUT NOT LIMITED TO:
   a. PARTICIPATION BY THE ENGINEER AND CONTRACTOR AT A PRE-CONSTRUCTION MEETING TO REVIEW THE CONTRACTOR'S FAMILIARITY WITH CONSTRUCTION OF THE BASIN.
   b. THE CONTRACTOR MUST IDENTIFY THE CONSTRUCTION EQUIPMENT TO BE USED FOR THE BASIN CONSTRUCTION AND THE CONSTRUCTION TECHNIQUES THAT WILL BE USED TO MINIMIZE COMPACTION OF THE INFILTRATION AREA.
   c. ENSURE THAT EARTHWORK DOES NOT OCCUR WITHIN THE LIMITS OF THE BASIN WHEN THE SOIL MOISTURE CONTENT IS ABOVE THE LOWER PLASTIC LIMIT.
   d. ENSURE THAT THE SPECIFICATIONS OF THE REPLACEMENT SOIL ARE MET.
   e. TEST EACH SOIL LAYER AT WHERE THE PERMEABILITY RATE IS CRITICAL, PRIOR TO THE PLACEMENT OF A NEW LAYER TO ENSURE THAT THE PERMEABILITY RATE MEETS OR EXCEEDS THE DESIGN RATES.
   f. CONTRACTOR MUST BRING SAMPLE BATCH TO SITE, INSTALL 18" DEPTH IN TEST AREA AND FIELD TEST TO CONFIRM MATERIAL MEETS OR EXCEEDS THE DESIGN RATES.
   g. THE CONTRACTOR MUST ENSURE THAT PROPER PRECAUTIONS ARE TAKEN TO PREVENT SEDIMENT FROM ENTERING THE INFILTRATION AREA DURING CONSTRUCTION.
2. THE CONTRACTOR MUST NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF SOIL CONDITIONS ENCOUNTERED IN THE FIELD DIFFER FROM WHAT IS SHOWN HEREON. SUCH CONDITIONS COULD RENDER THE DESIGN HEREON INAPPROPRIATE OR INEFFECTIVE.

B. DURING CONSTRUCTION:
1. DURING CLEARING AND GRADING OF THE SITE, MEASURES MUST BE TAKEN TO ELIMINATE SOIL COMPACTION AT THE LOCATION OF THE PROPOSED INFILTRATION BASIN.
2. THE LOCATION OF THE PROPOSED INFILTRATION BASIN MUST BE CORDONED OFF DURING CONSTRUCTION TO PREVENT COMPACTION OF THE SUBSOIL BY CONSTRUCTION EQUIPMENT OR STOCKPILES. EXCAVATION AND CONSTRUCTION OF THE INFILTRATION BASIN MUST BE PERFORMED USING EQUIPMENT PLACED OUTSIDE THE LIMITS OF THE BASIN. IF THE SIZE THE BASIN PRECLUDES THIS APPROACH, EXCAVATION SHALL BE PERFORMED FROM THE INSIDE OUT SUCH THAT ALL EQUIPMENT UTILIZED WITHIN THE BASIN IS AT LEAST 2 FEET ABOVE THE FINAL EXCAVATION DEPTH.
3. EXCAVATION FOR THE INFILTRATION BASIN MUST BE AT LEAST 6 INCHES ABOVE THE FINAL EXCAVATION DEPTH IF IMPORTED SAND IS TO BE UTILIZED FOR THE ENGINEERED SAND LAYER. EXCAVATION MAY BE TO THE DESIGN ELEVATION OF THE INFILTRATION BASIN BOTTOM IF IN-SITU SAND MEETS THE SPECIFICATIONS AND IS TO BE UTILIZED FOR THE ENGINEERED SAND LAYER.
4. THE USE OF THE LOCATION PROPOSED FOR AN INFILTRATION BASIN AS A SEDIMENT BASIN DURING CONSTRUCTION IS DISCOURAGED. HOWEVER WHEN UNAVOIDABLE, EXCAVATION FOR THE SEDIMENT CONTROL BASIN MUST BE AT LEAST 2 FEET ABOVE THE FINAL DESIGN ELEVATION OF THE BASIN BOTTOM.
5. THE BASIN BOTTOM MUST BE CLEARED OF SEDIMENT AND UNSUITABLE MATERIALS MUST BE REMOVED PERIODICALLY AS NECESSARY AND PRIOR TO FINAL EXCAVATION. THE EXCAVATION TO FINAL SUBSOIL DEPTH AND INSTALLATION OF THE ENGINEERED SAND LAYER OR IF APPLICABLE TO THE FINAL DESIGN ELEVATION OF THE INFILTRATION BASIN BOTTOM MAY ONLY OCCUR AFTER ALL SITE CONSTRUCTION WITHIN ITS DRAINAGE AREA IS COMPLETED AND THE DRAINAGE AREA, INCLUDING THE BASIN SIDE SLOPES, IS COMPLETELY STABILIZED.
6. IF CONSTRUCTION OF THE INFILTRATION BASIN CANNOT BE DELAYED BY INSTALLING TEMPORARY STORMWATER MANAGEMENT MEASURES, SEDIMENT BARRIERS MUST BE PLACED AROUND THE ENTIRE PERIMETER OF THE BASIN BOTTOM DURING ALL PHASES OF CONSTRUCTION TO DIVERT ALL FLOWS AWAY FROM THE BASIN. INLET FOREBAYS (CONSTRUCTED USING SEDIMENT BARRIERS) MUST BE PLACED AROUND ALL BASIN INLET PIPES CONDUIT OUTLET PROTECTION. THE SEDIMENT BARRIERS REQUIRED HEREIN MAY NOT BE REMOVED UNTIL ALL SITE CONSTRUCTION WITHIN THE BASIN DRAINAGE AREA IS COMPLETED, AND THE DRAINAGE AREA, INCLUDING THE BASIN SIDE SLOPES, IS COMPLETELY STABILIZED.
7. ALL EARTHWORK OPERATIONS, INCLUDING EXCAVATION, GRADING AND BACKFILL OPERATIONS MUST BE CONDUCTED UNDER THE SUPERVISION OF A NEW JERSEY LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER. IF APPLICABLE, EXCAVATIONS TO REMOVE HYDRAULICALLY RESTRICTIVE MATERIAL SHALL EXTEND A MINIMUM OF 1' BELOW THE IMPERMEABLE LAYER AND REMOVAL OF THE MATERIAL SHALL BE WITNESS AND CONFIRMED BY A PROFESSIONAL GEOTECHNICAL ENGINEER.
8. WHEN OVER EXCAVATION IS NECESSARY, THE CONTRACTOR IS REQUIRED TO PROVIDE AN AS-BUILT SURVEY TO DOCUMENT THE CONDITIONS BEFORE AND AFTER THE REMOVAL OF THE RESTRICTIVE LAYER, IN ORDER TO VERIFY THE ELEVATION AND VOLUME OF THE MATERIAL REMOVED.
9. ENGINEERING SAND LAYER OR THE REPLACEMENT MATERIAL MUST MEET ALL SPECIFICATIONS FOR CLEAN, COARSE SAND IN ACCORDANCE WITH AASHTO M-6 OR ASTM C-33 MEETING AGGREGATE SIZE GRADATION SIZE NO. 10 (AASHTO M-43), AND THE MINIMUM TESTED PERMEABILITY RATE IS 8 INCHES PER HOUR, AS CERTIFIED BY A NEW JERSEY LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER. CONTRACTOR MUST PROVIDE THE DESIGN ENGINEER WITH A SUBMITTAL CONFIRMING THE REQUIREMENTS ARE MET.
10. PRIOR TO INSTALLATION OF THE ENGINEERED SAND LAYER, THE PERMEABILITY RATE OF THE IN-SITU UNDERLYING OR REPLACEMENT SOILS MUST BE CONFIRMED BY A NEW JERSEY LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER TO MEET THE MINIMUM DESIGN PERMEABILITY RATE.
11. THE BASIN INFILTRATION RATE SHALL BE CONFIRMED BY A NEW JERSEY LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER, THAT IT MEETS THE MINIMUM DESIGN PERMEABILITY RATE. RESULTS OF THE PERMEABILITY TESTS MUST BE PROVIDED TO THE DESIGN ENGINEER IN WRITING PRIOR TO THE PLACEMENT OF THE SAND LAYER. SEE PERMEABILITY TESTING REQUIREMENTS BELOW.
12. ONCE THE FINAL GRADING PHASE OF A SURFACE INFILTRATION BASIN IS REACHED, THE BOTTOM OF THE BASIN SHALL BE DEEPLY TILLED WITH A ROTARY TILLER OR DISC HARROW AND THEN SMOOTHED OUT WITH A LEVELING DRAG OR EQUIVALENT GRADING EQUIPMENT. THESE PROCEDURES SHOULD PREFERABLY BE PERFORMED WITH EQUIPMENT LOCATED OUTSIDE THE BASIN BOTTOM IF THIS IS NOT POSSIBLE IT SHOULD BE PERFORMED WITH LIGHT-WEIGHT, RUBBER-TIRED EQUIPMENT.
13. SOD PLACEMENT ON THE SIDE SLOPES SHALL BE EXTENDED TO THE TOP OF BERM. SOD SHOULD BE PLACED FIRST TO STABILIZE THE EMBANKMENT BEFORE PREPARING THE BASIN BOTTOM FOR SAND PLACEMENT.
14. THE GATE VALVE (IF ANY) WITHIN THE OUTLET STRUCTURE SHALL REMAIN CLOSED AT ALL TIMES, EXCEPT FOR PERIODS OF MAINTENANCE.

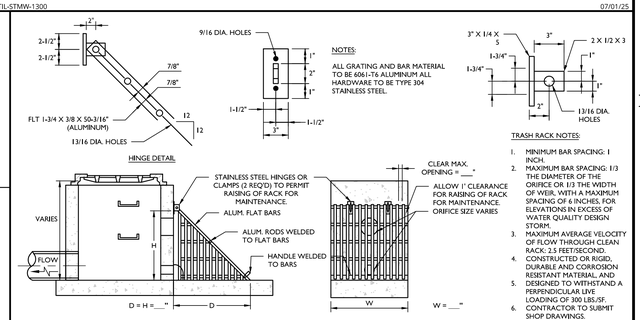
C. PERMEABILITY TESTING REQUIREMENTS:
1. PERMEABILITY TESTING MUST BE PERFORMED ON THE AS-BUILT INFILTRATION BASIN IN ACCORDANCE WITH THE CONSTRUCTION AND POST-CONSTRUCTION OVERSIGHT AND SOIL PERMEABILITY TESTING SECTION IN THE "NJDEP BMP MANUAL CHAPTER 12: SOIL TESTING CRITERIA".
2. AS REQUIRED BY CHAPTER 12 OF THE NJDEP BMP MANUAL, THE MINIMUM NUMBER OF PERMEABILITY TESTS SHALL BE A FUNCTION OF THE BASIN BOTTOM INFILTRATION AREA. THE MINIMUM PERMEABILITY RATE OF EACH TEST PIT SHALL BE 1.0 INCHES PER HOUR. MINIMUM TESTED SAND LAYER PERMEABILITY RATE = 20 INCHES/HR.
3. IF THE FIELD-TESTED PERMEABILITY RATES DO NOT CONFIRM THE BASIN'S ABILITY TO TOTALLY DRAIN WITHIN 72 HOURS AFTER THE CESSATION OF THE DESIGN STORM, THE DESIGN ENGINEER, IN CONSULTATION WITH THE OWNER AND ANY AGENCY HAVING JURISDICTION, MAY ACCEPT THE BASIN DESIGN. THE CONTRACTOR HAS THE OPTION TO DEMONSTRATE THAT THE INFILTRATION BASIN, WHEN FLOODED WITH WATER, EITHER ARTIFICIALLY OR NATURALLY BY RAIN EVENT, PERFORMS AS DESIGNED FOR INFILTRATION.
4. IF NEITHER THE TESTING NOR FLOODING OF THE BASIN WORKS, WHERE THE PERMEABILITY RATES DO NOT MEET THE REQUIRED DESIGN RATE NOTED ABOVE BY SHOWING A LONGER DRAIN TIME THAN DESIGNED, REMEDIAL/CORRECTIVE ACTION MUST BE TAKEN BY THE CONTRACTOR. THE SOILS BELOW THE INFILTRATION BASIN MUST BE REMEDIATED OR REPLACED AND THEN RE-TESTED UNTIL THE REQUIRED DRAIN TIME IS ACHIEVED. ALL POST-CONSTRUCTION SOIL PERMEABILITY TEST RESULTS MUST BE REVIEWED AND ACCEPTED BY A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER.

D. POST-CONSTRUCTION:
1. UPON COMPLETION OF THE BASIN, THE CONTRACTOR MUST PROVIDE THE DESIGN ENGINEER WITH A TOPOGRAPHIC SURVEY OF THE BASIN PREPARED BY A NEW JERSEY LICENSED PROFESSIONAL SURVEYOR. THE SURVEY SHALL INCLUDE 1 FOOT CONTOURS OF THE ENTIRE BASIN, TOP OF BERM ELEVATIONS, BOTTOM OF BASIN ELEVATIONS AND ALL INFORMATION PERTAINING TO THE OUTLET CONTROL STRUCTURE, INCLUDING ORIFICE AND WEIR SIZES AND ELEVATIONS. THE OUTLET PIPE AND NEXT DOWN-STREAM DRAINAGE STRUCTURE MUST ALSO BE SURVEYED.
2. THE PROFESSIONAL ENGINEER WHO WITNESSES THE BASIN CONSTRUCTION AND PERFORMED THE SOIL INFILTRATION TESTS MUST PROVIDE A SIGNED AND SEALED LETTER TO THE DESIGN ENGINEER WITH THE RESULTS OF THE INFILTRATION TESTS.

INFILTRATION BASIN DATA												
BASIN #	SEASONAL HIGH WATER TABLE		SAND DEPTH	BASIN BOTTOM ELEV	WQ ELEV	2-YR ELEV	10-YR ELEV	100-YR ELEV	SPILLWAY ELEV	TOP OF BERM ELEV	DESIGN PERMEABILITY RATE	TESTED PERMEABILITY RATE	
	ELEV.	TP #	IN	A	B	C	D	E	F	G	IN/HR	IN/HR	TP #
D	105.1	(TP-5)	6	112.50	112.62	113.59	114.51	115.15	115.75	116.00	0.59	1.17	TP-4

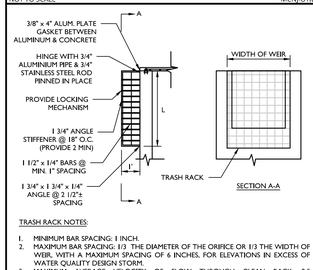
INFILTRATION AND EXTENDED DETENTION BASIN DETAIL

NOT TO SCALE | MCNJ-UTIL-STMW-1300 | 07/01/25



SLANTED TRASH RACK DETAIL

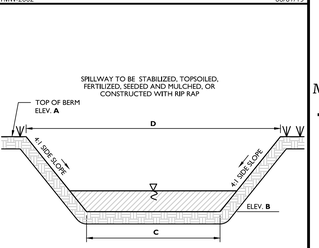
NOT TO SCALE | MCNJ-UTIL-STMW-2002 | 06/01/19



TRASH RACK NOTES:
1. MINIMUM BAR SPACING: 1 INCH.
2. MAXIMUM BAR SPACING: 1/3 THE DIAMETER OF THE ORIFICE OR 1/3 THE WIDTH OF WEIR, WITH A MAXIMUM SPACING OF 6 INCHES, FOR ELEVATIONS IN EXCESS OF WATER QUALITY DESIGN STORM.
3. MAXIMUM AVERAGE VELOCITY OF FLOW THROUGH CLEAN RACK: 2.5 FEET/SECOND.
4. CONSTRUCTED OR RIGID, DURABLE AND CORROSION RESISTANT MATERIAL, AND
5. DESIGNED TO WITHSTAND A PERPENDICULAR LIVE LOADING OF 300 LBS./SF.
6. CONTRACTOR TO SUBMIT SHOP DRAWINGS.

FLAT TRASH RACK DETAIL

NOT TO SCALE | MCNJ-UTIL-STMW-2000 | 05/01/17

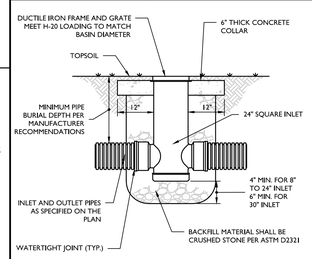


BASIN #	A	B	C	D
A	114.00	113.00	35 FT	43 FT
C	115.00	114.00	20 FT	28 FT
D	116.00	115.00	40 FT	48 FT
E	116.00	115.00	25FT	33 FT
F	115.00	114.00	35 FT	43 FT

NOTES:
1. 0% SLOPE ACROSS EMERGENCY SPILLWAY.
2. SPILLWAY SURFACE TO BE STABILIZED AS SHOWN ON THE PLANS.

EMERGENCY SPILLWAY DETAIL

NOT TO SCALE | MCNJ-UTIL-STMW-23001 | 05/01/17



YARD DRAIN (NYLOPLAST) DETAIL

NOT TO SCALE | MCNJ-UTIL-STRM-1800 | 05/01/17

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Doing Business as

REV	DATE	DESCRIPTION
1	05/29/26	REVISED PER VARIOUS REVIEW LETTERS.

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ROBBINSVILLE HEIGHTS LLC

PRELIMINARY & FINAL MAJOR SITE PLAN

ROBBINSVILLE HEIGHTS

BLOCK 1, LOTS 18, 19 & 20
ROBBINSVILLE TOWNSHIP
MERCER COUNTY, NEW JERSEY

Principals
Richard Rehmann, GISP
Richard Heggan, PLS, PP
Jeffery MacPhee, PLS
Carolyn A. Feigin, CME, PE, PP

August 21, 2026

Mrs. Tianna Thompson, Land Use Administrator
Robbinsville Township Land Use Board
2298 Route 33
Robbinsville, New Jersey 08691

Subj: Board Report #1: Application No. R25-07-01
Preliminary & Final Site Plan
Robbinsville Heights, LLC
2345-2349 N.J. Route 33 (Block 1, Lots 18, 19, 20)
(ARH File: 1510034.01)

Dear Mrs. Thompson:

ARH ASSOCIATES has received the above-captioned Application for review. Applicant seeks approval to construct a 4-story mixed use building consisting of bar/restaurant space, retail space, and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 and 3-bedroom residential units are proposed on the 2nd, 3rd and 4th floors; and a rooftop bar/lounge is proposed on the 4th floor.

The Subject property is an approximately 1.69-acre parcel with an abandoned office building (Lot 18) and two single-family homes (Lots 19 & 20) located on N.J.S.H [Route] 33 and South Commerce Square, and is subject to the *Amended & Restated Redevelopment Plan, Town Center South Redevelopment Area Robbinsville Township, Mercer County, New Jersey* (adopted September 11, 2025, ~ collectively referred to herein as "RDP").

This report consists of our review of the Subject Application for conformance with the RDP and the applicable sections of the Robbinsville Land Use Code (Chapter 142), and is limited to Planning, Civil Engineering issues. Traffic, Sanitary Sewer, Architecture, Landscape Architecture, Legal and other issues shall be reviewed by the Board's other Professionals.

Comments are limited to the information presented to date. Applicant may present additional information and testimony at the Board hearing.

I. OWNER & APPLICANT INFORMATION

OWNER & APPLICANT
Robbinsville Heights, LLC Rajeshkumar Patel 96 Overbrook Avenue Edison, NJ 08817

II. SUBMITTALS

TITLE / DESCRIPTION	PREPARED / SIGNED / SEALED BY	DATE	DATE LAST REVISED
Application Distribution Sheet	Tianna Tompson Land Use Coordinator	1/27/2026	6/2/2026
Colliers Submittal Letter	Jodi Westhead	1/8/2026	
Rider to Application of Robbinsville Heights	Unsigned	Undated	
Waiver/Variance Request Form		Undated	

Title / Description	Prepared / Signed / Sealed By	Date	Date Last Revised
Applicant's Disclosure Statement	Unsigned	Undated	
Preliminary Site Plan Checklist		Undated	
Final Site Plan Checklist		Undated	
Fee Computation Schedule		Undated	
Tax & Utility Assessment Certification		Undated	
General Land Use Application	Rajeshkumar Patel	12/23/2025	
Affidavit of Ownership		12/13/2025	
Consent to Entry		12/13/2025	
Escrow Agreement		12/13/2025	
Escrow Account Contact Information		12/13/2025	
W-9 Form		12/23/2025	
Certification / Affidavit of Operations		1/7/2026	
Addendum A – Design & Checklist Waiver Requests	Colliers Engineering & Design	Undated	
Addendum B-List of Outside Agency Approvals & Anticipated Developer Contributions Robbinsville Heights Preliminary ad Final Site Plan Block 1, Lots 18, 19, 20 Township of Robbinsville, Mercer County, New Jersey CED Project No.: 24002939A		1/2026	
Site Photographs Block 1, Lots 18, 19, 20 Robbinsville Township, Mercer County, New Jersey		7/1/2025	
Verizon Will Serve	Robert Sasse	10/5/2025	
AQUA Will Serve	Brielle Bianchini	10/8/2025	
Jersey Central Power & Light	George F. Salazar	10/8/2025	
PSEG Will Serve	Unsigned	10/9/2025	
Sewer Utility Will Serve	Carmela Roberts, PE, CME	11/17/2025	
Stormwater Management Facilities Maintenance Manual	Mark J. Janlszewski, PE Colliers Engineering & Design	12/22/2025	5/29/2026
Sanitary Sewer Report		12/22/2025	5/29/2026
Stormwater Management Report		12/22/2025	5/29/2026
Water Report		12/22/2025	
Sewer Service Area Map 2345-2349 Route 33 Block 1, lots 18, 19, 20 2345-2349 Route 33 Township of Robbinsville Mercer County Nj		12/11/2025	
Preliminary & Final Major Site Plan Robbinsville Heights Block 1, Lots 18, 19 & 20 Robbinsville Township, Mercer County, New Jersey	Colliers Engineering & Design		
Fire Truck Turn Plan: Sheet #1	Mark J. Janlszewski, PE	12/22/2025	5/29/2026
Garbage Truck Turn Plan: Sheet #2		12/22/2025	5/29/2026
Delivery Truck Turn Plan: Sheet #3		12/22/2025	5/29/2026
Reports of Preliminary Infiltration Evaluation	Megan Nugent, PE James J. Serpico JR, PE Colliers Engineering & Design	9/16/2025	
Environmental Impact Assessment	Colliers Engineering & Design	12/2025	

TITLE / DESCRIPTION	PREPARED / SIGNED / SEALED BY	DATE	DATE LAST REVISED
Traffic Impact Statement	Jeffrey Fiore, PE Michelle Briehof, PE Colliers Engineering & Design	1/6/2026	
Preliminary And Final Major Site Plans for Robbinsville Heights LLC 2345-2349 Route 33 Block 1, Lots 18,19 & 20 Township of Robbinsville, Mercer County, New Jersey	Colliers Engineering & Design		
Cover Sheet: Sheet #1.0	Mark J. Janiszewski, PE	12/22/2025	5/29/2026
Existing Conditions & Demolition Plan: Sheet #2.0		12/22/2025	5/29/2026
Dimension Plan: Sheet #3.0		12/22/2025	5/29/2026
Grading Plan: Sheet #4.0		12/22/2025	5/29/2026
Utilities Plan: Sheet #5.0		12/22/2025	5/29/2026
Profiles: Sheet #6.0		12/22/2025	5/29/2026
Profiles: Sheet #6.1		12/22/2025	5/29/2026
Profiles: Sheet #6.2		12/22/2025	5/29/2026
Soil Erosion & Sediment Control Plan: Sheet #7.0		12/22/2025	5/29/2026
Soil Management & Preparation Plan: Sheet #7.1		12/22/2025	5/29/2026
Soil Erosion & Sediment Control Notes: Sheet #7.2		12/22/2025	5/29/2026
Soil Erosion & Sediment Control Details: Sheet #7.3		12/22/2025	5/29/2026
Landscape Plan: Sheet #8.0		12/22/2025	5/29/2026
Landscape Details: Sheet #8.1		12/22/2025	5/29/2026
Lighting Plan: Sheet #9.0		12/22/2025	5/29/2026
Lighting Details: Sheet #9.1		12/22/2025	5/29/2026
Pavement Plan & Details: Sheet #10.0		12/22/2025	5/29/2026
Furnishing Plan: Sheet #11.0		12/22/2025	5/29/2026
Furnishing Details: Sheet #11.1		12/22/2025	5/29/2026
Furnishing Details: Sheet #11.2		12/22/2025	5/29/2026
Construction Details: Sheet #12.0		12/22/2025	5/29/2026
Construction Details: Sheet #12.1		12/22/2025	5/29/2026
Construction Details: Sheet #12.2		12/22/2025	5/29/2026
Construction Details: Sheet #12.3		12/22/2025	5/29/2026
Construction Details: Sheet #12.4		12/22/2025	5/29/2026
Boundary And Topographic Survey for Hati Patel Block 1 Lots 18, 19 & 20 Robbinsville Township, Mercer County, New Jersey	Robert W. Telschow, JR, PLS	7/15/2024	
Proposed Rental / Apartment Building For: Robbinsville Heights, LLC US Highway 33 & South Commerce Square Robbinsville, NJ	Perez + Radosti associates, p.c.		
Floor & Unit Plans: SK-1.4	Ricardo Perez, AIA	1/7/2026	5/29/2026
Front & Left Side elevations: SK-2.4		1/7/2026	5/29/2026
Rear & Right Side Elevations: SK-3.4		1/7/2026	5/29/2026
NJDEP Freshwater Wetlands Letter of Interpretation Request Letter	Rebecca Grike	3/6/2025	
NJDEP Freshwater Wetlands Letter of Interpretation Response Letter		4/28/2026	
Response Letter	Mark Janiszewski, PE	5/29/2026	

Title / Description	Prepared / Signed / Sealed By	Date	Date Last Revised
Basin Access Drive Exhibit Robbinsville Heights Block 1, Lots 18,19, & 20 Robbinsville Township, Mercer County, New Jersey	Colliers Engineering & Design		
Basin Access Dimensional Plan: Sheet #1	Mark J. Janiszewski, PE	8/10/2026	
Basin Access Grading Plan: Sheet #2		8/10/2026	
Traffic Report Response Letter	Mark J. Janiszewski, PE Colliers Engineering & Design	8/12/2026	
Liberty Street Concept Plan Robbinsville Heights Block 1, Lots 18,19, & 20 Robbinsville Township, Mercer County, New Jersey (Sheet 1 of 1)	Colliers Engineering & Design	7/7/2026	
Liberty Street Concept Plan Robbinsville Heights Block 1, Lots 18,19, & 20 Robbinsville Township, Mercer County, New Jersey SU-30 Truck Turning Point Plan (Sheet 1 of 1)		7/7/2026	

III. Completeness Review

The following addresses conformance with the Board's Checklist(s) only and does not reflect adequacy of submissions for review purposes. The correct number of copies (including the digital copy) and the correct Fees and Escrow deposits are presumed to have been submitted.

Failure to provide all data required on this Checklist will render the Application INCOMPLETE.

Column entries reflect the Application as received by this office. Items which have been confirmed as having been submitted, items that are clearly "not applicable" have been eliminated from this review for brevity.

Required submission items that have not been received by this office and items that are more appropriately addressed by the Board's other professionals are ***footnoted in bold.*** Applicant is entitled to request waivers from any of the required details based upon unique or particular conditions pertaining to the property or intended use.

A Submission Waiver is required for all Checklist items considered by Applicant to be "Not Applicable" ("N/A"). Written rationale for considering an item "Not Applicable" is required.

All Submission Waiver requests must be accompanied by written justification for such request on the required Waiver / Variance Request Form. Failure to apply for the appropriate Submission Waivers, or failure to provide such rationale, will render the Application INCOMPLETE.

This office recommends that this Application may be deemed Complete for scheduling. Applicant is asked to address the bold footnoted items detailed below:

	Preliminary Site Plan Checklist	Waiver Requested	Not Submitted / Waiver Not Requested
I.	Administrative		
12.	"Zoning Permit Denial" or "Notice of Violation" (N.O.V.) from Zoning, Code or Construction Official.	1	

[1] Applicant requests a waiver, stating "Not Applicable for this project". This office has no objection to this request.

	PRELIMINARY SITE PLAN CHECKLIST	WAIVER REQUESTED	NOT SUBMITTED / WAIVER NOT REQUESTED
13.	Resolution(s) for all previous Planning/Zoning Board approvals.	[2]	
15.	Certification by the Applicants Engineer that proposal is consistent with Wastewater Management Plan of the Township of Robbinsville.		[3]
23.	List of any anticipated developer contributions, fees, fair-share payments, anticipated payments in lieu for waivers requested, etc. to be paid to the Township, per current Codes or Ordinance.		[4]
24.	Community Impact Statement/Study, signed.	[5]	
25.	Environmental Impact Statement/Study, signed and sealed.		[6]
26.	Traffic Impact Assessment/Study, signed and sealed.		[7]
28.	Water Quality Test Reports by NJDEP certified laboratory for existing on-site wells.	[8]	
31.	Sanitary Sewer Engineer's Report, signed and sealed, bearing a common date of issue or revision with the plans and specifications; projected flow calculations; specifications and details on any equipment or structure to be installed which may have an effect on the sanitary sewer flows.		[3]
II.	HEALTH		
36.	Plan shall show location of all existing sewage disposal systems on the site in question and within 200' of the total tract boundary of the site plan pursuant to current Codes and Statutes.	[8]	
37.	Provide certification by a New Jersey Licensed Professional Engineer regarding adequacy of any and all existing on-site sewage disposal systems. Potential reserve areas for modification of existing systems shall be shown on the plan. Application will be declared incomplete should failing or unsatisfactory conditions be noted, certified, or found to exist.	[8]	
38.	Submission of groundwater quality test report for all existing on-site wells or potable water supplies. Application will be declared incomplete	[9]	

[2] Applicant requests a waiver, stating "Not Applicable – no previous approvals for this site have been obtained". This office has no objection to this request.

[3] ***Satisfaction of this requirement is deferred to the Board Sewer Engineer.***

[4] ***Satisfaction of this requirement is deferred to the Board Land Use Coordinator.***

[5] Applicant requests a waiver, stating "The mixed-use development is consistent with the Town Cener South Redevelopment Plan". This office concurs with this analysis and does not object to this request.

[6] ***Applicant is asked to describe the proposed energy sources for the project and identify conservation measures that may be utilized per Township Environment Impact Statement Requirements #3 Energy.***

[7] ***Satisfaction of this requirement is deferred to the Board Traffic Engineer.***

[8] Applicant requests a waiver, stating "Not Applicable. No existing on-site sewage disposal systems". ***Satisfaction of this request is deferred to the Board Sewer Engineer.***

[9] Applicant requests a waiver stating, "Not Applicable. No existing on-site wells or potable water supplies". Our office takes no objection to this waiver request.

	PRELIMINARY SITE PLAN CHECKLIST	WAIVER REQUESTED	NOT SUBMITTED / WAIVER NOT REQUESTED
	should failing or unsatisfactory conditions be noted, certified, or found to exist.		
39.	Soils Tests shall be provided for primary and reserve septic areas. Test results submitted which are invalid because of expiration dates or do not comply with all provisions of the current Codes and Statutes shall render the application incomplete.	8	
40.	The Location and results of all complete, incomplete, unacceptable and unwitnessed profile pits, permeability tests, basin, floods and percolation tests. All results shall be shown on a separate plan(s) entitled "Sewage Disposal and Water Supply Plan". All dimensioned to all proposed and existing: lot lines, watercourses, easements, wetland limits, sewage disposal and water supply systems within 200' of the tests.	8	
41.	Submission of individual soil test reports by soil log or test number for each test location in numerical ascending order shall be provided. Each report shall be signed and sealed by a NJPE and coordinated with each lot number shown on the plan.	8	
42.	Submission of Treatment Works or NJPDES permits for sewage systems not in compliance with current Statutes.	10	
III.	ENGINEERING / PLANNING		
61.	Plans and centerline profiles shall be provided for widening of all existing roadways.	11	
62.	Half cross sections, 50' on center, shall be provided along the side of all widened existing roadways. Each section shall include the location and NAVD 88 elevation of all existing and proposed physical centerline; right-of-way centerline; edge of pavements, right-of-way lines, sidewalk centerlines, sidewalk widths. In addition, the existing and proposed contours 25' from the proposed right-of -way line shall be shown.	11	
74.	Community Impact Statement/Study shall be prepared in accordance with the current Code Requirements.	5	
76.	Traffic Impact Analysis/Study shall include, but not limited to, existing and background peak hour traffic volumes and distribution patterns; peak hour on-site generated traffic volumes and distribution patterns; existing and proposed traffic composition; analysis of adequacy of proposed on-site circulation patterns including adequacy of truck and automobile turning radii; analysis of need for number of loading bays; existing and proposed levels of service and volume/capacity ratios; adequacy of proposed sight distances; analysis of need for acceleration/deceleration lanes; analysis of need for roadway striping, signage of reflectorization; need for signalization and a summary recommendation and conclusions for the analysis. The study area shall include the site as proposed by this application; the site as proposed by a master development plan; the existing and proposed roadway frontages of the site, and the nearest intersection of public		7

[10] Applicant requests a waiver, stating "Not Applicable. Proposed sewage system has been designed in accordance with current statutes. A Treatment Works Approval will be sought by the applicant after Township approval". Our office requests a copy of the Treatment Works Approval as a condition of approval.

[11] Applicant requests a waiver, stating "Not Applicable. The project does not involve widening existing roads". This office has no objection to the waiver request.

	PRELIMINARY SITE PLAN CHECKLIST		WAIVER REQUESTED	NOT SUBMITTED / WAIVER NOT REQUESTED
	roadways as measured away from the site in opposite directions. The roadways approaching the site shall be generally reviewed for adequacy to support site generated traffic. The capacity of off-street parking shall be provided and compared to the parking demands for the proposed use(s) for the overall site. Traffic and pedestrian safety shall be addressed. This report shall be prepared by a N.J. Licensed Professional Engineer qualified to make the analysis as required.			
77.	Plan shall provide a data table of existing, required and proposed parking spaces, Electric Vehicle charging stations and loading areas.			7
IV. Architecture & Landscaping				
80.	Architectural drawings shall be clearly labeled and shall include:			
	b.	North arrow on plans.		12
	h.	Clear and detailed reference to screening of ground mounted and/or roof mounted equipment.		12
82.	Site Plan shall provide clear reference or delineation of any sustainable design features.			12
86.	Tree Save/Tree Clear Plan indicating the area to be cleared, including trees with a trunk diameter of 8" or greater, measured 4.5' above ground level. Plan should include species, size and general health conditions of any trees to be cleared. Area of disturbance shall be indicated.			13
87.	Aerial extent of forest and tree cover, which includes the outside perimeter of individual trees and with a depiction of trees to remain, be removed, or relocated.			14
88.	Plan shall show existing and proposed geography, screened.			13
89.	Surveyed location of all trees located within 25' of the limit of disturbance.			13
91.	Plan shall contain a chart showing the following:			
	e.	Planting notes, including a specification that the plants must conform to the American Standard for Nursery Stock, latest edition.		15
	f.	Delineation showing which areas to be irrigated.		15
	g.	Maintenance specifications (including irrigation).		15
	h.	Planting details conforming to current cultural horticultural practices.		15
93.	Plantings, buffer areas, re-forestation areas shown to meet the Township Code (contributions may apply to waivers granted).			15

[12] ***Satisfaction of this submission is deferred to the Board Architect.***

[13] ***Township policy waives this requirement for Redevelopment Projects.***

[14] This office recommends that a Google Earth or similar aerial photograph may be accepted in lieu of this requirement.

[15] ***Satisfaction of this requirement is deferred to the Board Landscape Architect.***

FINAL SITE PLAN CHECKLIST		WAIVER REQUESTED	NOT SUBMITTED / WAIVER NOT REQUESTED
REQUIREMENTS ADDRESSED IN THE PRELIMINARY CHECKLIST ARE OMITTED FOR BREVITY.			
I. ADMINISTRATIVE			
14.	Copy of Signed Preliminary Site Plan and Affidavit that all Conditions of the Preliminary Site Plan Resolution of Approval have been met.	16	
II. HEALTH			
24.	Compliance with any and all conditions of Preliminary Site Plan approval and the Preliminary Site Plan Checklist.	16	
III. ENGINEERING / PLANNING			
29.	An estimate of all construction quantities for all on-site and off-tract improvements. This estimate shall include all construction quantities for all site improvements shown on the approved Preliminary Site Plan and shall be signed, sealed and dated by a New Jersey Professional Engineer.	17	
31.	Metes and bounds descriptions for all right-of-way dedications, sight triangle easements; drainage; detention; or conservation easement; and common driveway easements.	18	
33.	A developer's agreement approved and executed by the Robbinsville Township Committee when improvements to public property or improvements shall be dedicated to the public or a Homeowners Association.	19	
38.	Plantings, buffer areas, re-forestation areas shown to meet the Township Code (contributions may apply to waivers granted).		20

IV. PLANNING ANALYSIS

A. Use

Lots 18, 19 and 20 are located in the Mixed-Use Parcel as established by the RDP.

The proposed mixed use building consisting of a liquor store, restaurant, and retail space on the 1st floor and residential apartments on floors 2, 3, and 4 are permitted within the Mixed-Use Parcel.

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[16] Applicant requests a waiver, stating "Not Applicable. This application requests Preliminary and Final Site Plan Approval simultaneously". This office has no objection to the waiver request.

[17] Applicant requests a waiver stating, "Not Applicable. A cost estimate will be provided as a condition of approval". This office has no objection to deferring this item.

[18] Applicant requests a waiver stating, "Descriptions will be prepared as a condition of site plan approval". This office has no objection to deferring this item.

[19] Applicant requests a wavier stating, "If required, the Applicant will enter into a developer's agreement as a condition of site plan approval". ***Applicant is asked to confirm that a Redevelopment Agreement has been executed for this Redevelopment Project.***

[20] As specified under RDP §7.2.1 B.2, the action of entering into a Redevelopment Agreement with the Redeveloper served as the Township Council's final approval of the Project Concepts and Description of Project Elements, and as its final certification of the Project's consistency with the RDP.

Such action was required in order for this Application to be heard by the Board under RDP §7.2.1 C.

B. Building Limit Controls

REGULATION		REQUIREMENT	PROPOSED LOT 1.01	STATUS
Min. Parcel Size		**No Minimum Established** The geometry of this Parcel shall constitute the Minimum Parcel Size, Width and Depth.	73,520 s.f.	N/A
Min. Parcel Width				
Min. Parcel Depth				
Max. Impervious Coverage		90%	73.54%	Conforms
Max. Floor Area Ratio		1.3	0.64	Conforms
Max. Residential Density		**No Maximum Established** Residential Density shall be as agreed upon by the Redeveloper and the Twp. as part of a negotiated Redevelopment Agreement	16.6 Units/Acre	N/A
Principal Structures (RDP §7.4.5)				
Min. Setbacks	Route 33[21]	0'	0'	Conforms
	Liberty Street	40'	N/A	N/A
	Remaining Property Lines	15'	E: 70'	Conforms
			W: 81'	Conforms
			S: 120'	Conforms
Min. Dwelling Unit Size.		650 s.f.	832 s.f.	Conforms
Max. Building Height		4.5 Stories	4.5 Stories	Conforms
		60' + Architectural Features	48' + Architectural Features	Conforms
Off Street Parking (RDP §9.3)				
Min. Screening Height[22]		4.5'	4'	*Deviation Required*[23]
Min. Shade Trees[24]		1 Decid. Shade Tree / 5 Spaces @ 117 Spaces = 23.4 = 24 Trees	29 Trees	Conforms
Min. Parking Area Setback		3'	10'	Conforms

[21] Sidewalks servicing commercial and Mixed-Use Projects on the south side of Route 33 shall be consistent in width and treatment as on the north side of Route 33.

[22] Per RDP §9.3.4B: Parking lot layout, landscaping, buffering and screening shall be provided to minimize direct views of parked vehicles from streets and sidewalks; avoid spillover light, glare, noise, or exhaust fumes from the parking areas; and provide the parking area with a reasonable measure of shade. In order to achieve these objectives, parking lots exposed to view shall be surrounded by a minimum of a 4½'-high, year-round visually impervious screen, hedge or wall, the height of which shall decrease where driveways approach sidewalks or walkways in order to provide adequate visibility of pedestrians from motor vehicles, and not interfere with clear sight triangle requirements.

[23] Applicant's parking lot is screened on the north and eastern side by shrubs identified as PRLO. ***Efficacy of the visual screening and why shrubs are not proposed on the southern side of parking area are deferred to the Board's Landscape Architect.***

20% Deviation permitted. Deviation calculates to 11.11%

[24] Per RDP §9.3.4C: Parking lots with 11 or more spaces require 1 deciduous shade tree per 5 parking spaces. A 6' planting diamond, or equivalent planter, is required for each tree. Choice of plant materials, buffer width, type of screening, location and frequency of tree planting shall be appropriate to the architecture of the Project to which the parking lot is intended to serve.

REGULATION	REQUIREMENT	PROPOSED LOT 1.01	STATUS
Signage[25]			
Sign Area	No Requirement	Sign #1: 28.5 s.f.	*Board Concurrence Required*
		Sign #2: 29.5 s.f.	
		Sign #3: 29.5 s.f.	
		Sign #4: 29.5 s.f.	
		Sign #5: 30 s.f.	
	No Requirement	Sign #6: 30.75 s.f.	*Board Concurrence Required*
		Sign #7: 30.75 s.f.	
		Sign #8: 30.75 s.f.	
		Sign #9: 33 s.f.	
		Sign #10: 33 s.f.	

C. Additional Planning Comments

1. Architectural Compatibility (RDP §8.2.3)

   New construction fronting Route 33 shall relate and be architecturally and aesthetically compatible with the Route 33-fronting buildings in Town Center North. New construction for the balance of the Redevelopment Area generally relate to the Design Vocabulary established herein.

2. Building Massing (RDP §8.3.4)

   Buildings shall define the streetscape through the use of uniform setbacks and massing. Streetscapes shall be reinforced by lines of uniformly spaced street trees, which shall be generally continued across side yards (where present) by landscaping.

3. Façade Treatment (RDP §8.4.2)

   Corner buildings and buildings with more than one facade facing a Right-of-Way, internal open space or internal parking lot, are considered significant structures since they have more than 1 visibly-exposed facade. Such buildings should be designed with enhanced facade treatments (architectural embellishments) to emphasize such locations. Major front façade architectural features shall be continued around all visibly-exposed sides of buildings. Additional height is permitted at the discretion of the Township Council.

4. Colors (RDP §8.9.1)

   Colors are to be from the Benjamin Moore Historical Color Collection or equivalent. Applicant shows inconsistencies between architectural plans and renderings.

[25] Per RDP §8.18: A Signage Plan, in sufficient scale and detail to clearly depict the size, placement, height, style, lettering, color, illumination and method of installation for all Project signage, shall be submitted as part of the Review & Approval process. Such Plan shall include ~ to the extent known at the time ~ all text and iconographic elements proposed for all signs, as well as for the entirety of the site surrounding each building within the Project. While the Signage Plan shall generally conform with the requirements of §5A.19 of the Town Center Plan, the Redevelopment Plan recognized that such signage regulations had not proven adequate for the type of development constructed on Town Center North and may not provide adequate for the needs of the Redevelopment Area.

5. Heating, Air Conditioning & Telecommunications (RDP §8.15)

   HVAC systems, exhaust pipes or stacks, elevator housing, satellite dishes and other telecommunications receiving devices shall be so located or otherwise screened so as not to be visible from the public Right-of-Way or from adjacent properties by use of walls, fencing, roof elements, penthouse-type screening devices and/or landscaping.

   Items 1 – 5 are deferred to the Board Architect.

6. Pedestrian Crosswalks (RDP §9.3.4D)

   Parking lot layout shall include pedestrian crosswalks, distinguished by textured paving, pavers or similar material, or by paint, and shall be integrated into the wider network of pedestrian walkways.

7. Streetscaping (RDP §11.3)

   a. Per §11.3.2: Streetscaping shall address the decorative treatment of all impervious surfaces, both internal to a Redevelopment Project and within any public or private Right-of-Way adjacent to a Project, in order to demarcate public spaces and help the Project blend in with the surrounding built ~ and where appropriate, natural ~ environment. Elements shall be appropriate to the Project proposed and shall be constructed of non-reflective materials.

   b. Per §11.3.3: Streetscaping elements may include, but need not be limited to, such functional and ornamental elements as decorative (textured) paving materials; benches, trash and recycling receptacles, and other street furniture; fountains or other water features; trellises, pergolas, gazebos; fences and walls; decorative lighting (both pedestrian and architectural); and like and similar features.

   Items 6 and 7 are deferred to the Board's Landscape Architect.

8. Environmental Protection Measures (RDP §11.6)

   Environmental protection measures are required when and where necessary.

   Applicant is asked to address disturbance of wetlands (if proposed).

V. Engineering Analysis

A. Circulation, Parking & Loading Plan (RDP §9.0)

1. ***Applicant is asked to provide more information regarding the proposed median cut-through within the municipal ROW, including but not limited to dimensions, curb radii, landscaping modifications, proposed grading, drainage area analysis, etc. While our office ultimately defers to the Board Traffic Engineer for review and approval of the layout, we are concerned with the grading and drainage impacts within the municipal ROW.***

2. ***The property fronts N.J.S.H Route 33 which is under NJDOT jurisdiction. Our office defers to NJDOT for review and approval, as well as the maintenance and ownership of the yard inlets proposed in the ROW. Any other improvements, including sidewalk, curb, sight triangles, etc., shall also fall under the NJDOT's jurisdiction and have not been reviewed by this office. Furthermore, the Applicant shall provide approval from the NJDOT for the balconies protruding into their ROW. The NJDOT Major Access Permit is requested upon receipt.***

3. ***Applicant is asked to comply with "ADA Technical Assistance Document – Design Recommendations for Accessible Electric Vehicle Charging Stations" as provided by the U.S. Access Board to the maximum extent feasible. EV spaces shall not be accounted for in the ADA parking stall count and these required accessible EV spaces shall be "Use Last".***

B. Floodplain, Wetlands & Stormwater Management (RDP §10.2)

Applicant is asked to:

1. ***Include the maintenance/responsibility of the "Y" Inlet located in the NJDOT ROW within the Stormwater Management Operation and Maintenance Manual.***

2. ***Revise the underdrain system to include a non-perforated manifold or a perforated underdrain network of pipes leading to such manifold as required by NJBMP Manual Chapter 9.6.***

3. ***Provide additional soil testing for underground basin B. as required by NJBMP Manual Chapter 12, Soil Testing Criteria. The only testing near the BMP is TP-7.***
4. ***Provide a roof drainage area map verifying the roof areas utilized for the pipe capacity calculations. As underground basin B only takes runoff from the building's roof and not the overhang, this should be depicted in the architectural plans and roof drainage plans, or revise accordingly.***

5. ***Provide an access drive for basin D***

6. ***Address the concerns of our office regarding the pavement / porous pavement's close proximity to the retaining wall to ensure that the pavement and/or stone storage bed do not conflict with the geogrid for the retaining wall. Generally demonstrate no conflicts between the pavement and geogrid.***

7. ***Revise the outfall receiving area to be labeled as a scour hole not a rip rap apron.***

C. Miscellaneous Engineering Comments

Applicant is asked to:

1. ***Fix text overlaps within the notes on the Cover Sheet.***

2. ***Provide a consistent tree line on the survey and the existing condition & demolition plans.***

3. ***Provide spot grades at the northeast corner of the site, in the vicinity of "Y" Inlet A-118.***

4. ***Provide high point elevations along drainage divide lines on the grading plan.***

5. ***Provide top and bottom of wall spot elevations for the onsite basin's wall.***

6. ***Clarify if longer wing walls are required for the offsite discharge area as proposed grading into wing walls is steeper than 3:1..***

7. ***Provide documentation of permission from the owner of Lot 65.02, Block 1 authorizing the creation of the proposed 20' utility easement. In addition, provide metes and bounds descriptions for the proposed easement.***

Applicant states that they will provide as a condition of approval. This office does not object to this deferment.

8. ***Address the status of all proposed easements and/or dedications.***

9. ***Our office did not perform a technical review of the Basin Access Drive Exhibit and the Liberty Street Concept Plan. Our office will perform a technical review of the proposed revisions in these documents as a condition of approval after they are incorporated into the full site plan set.***

VI. Departures, Deviations & Design Waivers

A. Applicant Requires a Deviation for:

- Minimum Screening Height.

B. Applicant requires Board concurrence / approval for Off Street Parking Spaces and Signage.

C. Pending confirmation, Applicant may require Design Waivers for: Architectural Compatibility, Building Massing, Façade Treatment, Colors, Heating, Air Conditioning & Telecommunications, Pedestrian Crosswalks, Streetscaping, and Environmental Protection Measures.

D. Pending clarification of the issues raised in this report, additional relief may be required.

The RDP does not recognize the 'bulk ('c') variance' process under the Municipal Land Use Law (N.J.S.A. 40:55D-70c). The processes for deviating from specific Building Limit Controls and other design regulations follow:

1. Deviations

With the exception of regulations pertaining to Maximum Building Height, the Land Use Board may, at time of Review & Approval and without formal amendment to the RDP, approve departures from the Building Limit Controls and the quantifiable requirements of the Architectural Controls, Circulation, Parking & Loading Plan, Infrastructure Controls and the Landscaping, Streetscaping & Lighting Provisions of this RDP as may be requested by a Redeveloper, to a maximum of 10% deviation from the subject regulation.

Deviations shall only be granted for a Project whose totality of architecture exhibits ~ in the sole opinion of the Land Use Board, superior design and quality, and further provided that such departure(s) are, in the sole opinion of the Board, consistent with the intent of the RDP.

Requests for such relief shall require clear justification as to why the standard should be relaxed. Such justification shall generally conform with the requirements for Variance relief under N.J.S.A. 40:55D-70c., which otherwise would be required were the Project not developed under this RDP.

In reviewing such requests, the Land Use Board shall have the flexibility to consider the request on the totality of its merits and not on the rigid requirements of the Positive and Negative Criteria required for Variance relief. Requests beyond 10% require a formal Plan amendment.

2. Design Waivers

   A Redeveloper may petition the Land Use Board for departure(s) from the non-quantifiable provisions of the Architectural Controls; Circulation, Parking & Loading Plan; Infrastructure Controls; and the Landscaping, Streetscaping & Lighting Provisions of this Redevelopment Plan in the form of Design Waivers requested at time of Review & Approval. Requests for such relief shall require clear justification as to why the standard should be relaxed.

   Design Waivers shall only be granted for a Project whose totality of architecture exhibits ~ in the sole opinion of the Land Use Board, superior design and quality, and further provided that such departure(s) are, in the opinion of the Board, consistent with the intent of this Redevelopment Plan.

   In reviewing any such requests, the Land Use Board shall consider any individual request on the totality of its merits within the context of all such Waivers requested.

VII. Post Approval Considerations

Should the Board grant the desired approvals for this Application, Applicant, and/or its professionals must, to the extent applicable:

A. ***Make all appropriate plan revisions as directed by the Board.***

B. ***Contact the Board Secretary to reconcile any outstanding review escrow accounts prior to Final Plan Certification, Signature or the issuance of building permits, as applicable.***

C. ***Address all necessary bonds, inspection escrows and related items.***

D. ***Provide an estimate of cost for all onsite improvements prepared by a New Jersey Licensed Professional Engineer.***

E. ***Submit to the Township Zoning Department and this office evidence (if not already provided) of the following outside agency approvals prior to the Final Plan Certification or Signature:***

   1. ***Mercer County Planning Board.***
   2. ***Mercer County Soil Conservation District.***
   3. ***Robbinsville Township.***
   4. ***Aqua, NJ***
   5. ***New Jersey Department of Environmental Protection (if required)***
   6. ***Any others as may be necessary.***

F. ***Additionally, Applicant is advised that any damage caused to existing Township-owned facilities (i.e., roadways, utilities, etc.) during construction shall be repaired and/or replaced in kind to the satisfaction of the Township Engineer.***

Any resubmissions in response to this report should be accompanied by a point-by-point response to all items. In order to facilitate the Board's decision-making process, Applicants are strongly encouraged to resolve as many items as possible prior to the hearing on this matter.

All resubmissions must be made as one comprehensive submission, not under separate cover.

Respectfully Submitted,
ARH ASSOCIATES
By

Stuart B. Wiser, PP/AICP
Vice President of Planning & Environmental Services

Carolyn A. Feigin, CME, PE, PP
Principal Associate Engineer

SBW/CAF/LM/JB

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Roberts
ENGINEERING GROUP LLC

1670 Whitehorse-Hamilton Square Rd.
Hamilton, New Jersey 08690
609-586-1141 fax 609-586-1143
www.RobertsEngineeringGroup.com

June 11, 2026

Tianna Thompson, Land Use Coordinator
Planning/Zoning /Engineering Office
Robbinsville Township
2298 Route 33
Robbinsville, New Jersey 08691
Email: tthompson@robbinsville.net

Re: Sanitary Sewer Review No. 2
Preliminary & Final Major Site Plans
Applicant: Robbinsville Heights LLC
Project: Robbinsville Heights
Location: 2345-2349 N.J. Route 33
Block 1, Lots 18, 19, & 20
Our File No.: RTLU250701

Dear Ms. Thompson:

As requested, Roberts Engineering Group, LLC, has reviewed the submitted plans and documents regarding sanitary sewer engineering design for the above-referenced project. The subject properties are located at 2345-2349 N.J. Route 33. The site is approximately 1.69 acres in size and is presently developed with an abandoned office building to be demolished (Lot 18) and two (2) single-family homes (Lots 19 & 20) that were recently demolished.

The proposed project consists of the demolition of the existing office building on site, and the construction of a mixed-use building along Route 33 frontage. The proposed 4-story mixed-use building will consist of bar/restaurant space, retail space, and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd, and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor. Additional improvements include lighting, landscaping, utilities, parking, stormwater management facilities, and associated site improvements.
The following documents were utilized in our Sanitary Sewer Review:

1. Copy of a plan distribution memorandum from Tianna Thompson, Land Use Coordinator dated June 2, 2026;

2. Copy of Township of Robbinsville General Land Use Application, signed and dated December 13, 2025;

3. Copy of Township of Robbinsville Preliminary & Final Site Plan Checklists, signed and dated December 22, 2025;

4. Copy of Site Plans entitled, “Preliminary & Final Major Site Plans for Robbinsville Heights LLC, 2345-2349 Route 33, Block 1, Lots 18, 19, & 20, Township of Robbinsville, Mercer County, New Jersey,”, prepared by Colliers Engineering & Design, dated December 22, 2025, last revised May 29, 2026, consisting of 26 sheets;

5. Copy of Architectural plans entitled, “Proposed Retail/Apartment Building for: Robbinsville Heights, LLC, US Highway 33 & South Commerce Square, Robbinsville, NJ” prepared by Perez & Radosti Associates, P.C., dated May 29, 2026, consisting of 3 sheets;

6. Copy of Sanitary Sewer Report prepared by Colliers Engineering & Design, dated December 22, 2025, last revised May 29, 2026;

7. Copy of Environmental Impact Assessment prepared by Colliers Engineering & Design, dated December 2025;

8. Copy of Operations Statement prepared by Rajeshkumar Patel, dated January 7, 2026;

9. Copy of document entitled, "Addendum B - List of Outside Agency Approvals & Anticipated Developer Contributions" dated January 2026;

10. Copy of point-by-point response letter prepared by the Applicant's Engineer, Mark Janiszewski, PE, prepared by Colliers Engineering & Design, dated May 29,2026, addressing a February 18, 2026 review letter from Roberts Engineering Group, LLC, pages 34 thru 36.

We have reviewed the documents and plans submitted in support of the Preliminary/Final Major Site Plan application and find the plans are COMPLETE for sanitary sewer review.

The proposed sanitary sewer system is designed to flow to the existing Route 33 Pump Station that will be decommissioned following the completion of the new Route 130 Pump Station. Ultimately the flow from this site will be directed to the new Route 130 pump station. Off-site improvements or off-tract contributions may be required in order to discharge to the Township sanitary sewer system and will be determined at a later date by the Township.

We offer the following comments at this time:

<u>Site Plans and General Comments</u>

1. Lots 18, 19, & 20, Block 1 are located entirely within an existing Sewer Service Area, as delineated on the current Robbinsville Township Sanitary Sewer System Plan and within the Town Center South Redevelopment Area of Robbinsville Township.

2. The subject property fronts on N.J. Route 33. Township records indicate the presence of an 8-inch diameter gravity sewer main running west along the southern property line to the existing Route 33 Pump Station. The sewer main is located within a 30-foot-wide sanitary sewer easement.

   The existing Rt. 33 Pump Station that serves this area is scheduled to be decommissioned upon the operation of the Proposed Route 130 Pump Station. This portion of the sewer service area will eventually flow south to the new Route 130 Pump Station, instead of flowing west to the Route 33 Pump Station.

3. The Applicant proposes to construct an 8" diameter PVC lateral that exits the south side of the building and connects to an 8" diameter sanitary sewer on the site. The plans include one (1) new manhole on-site and one (1) new manhole in the Right-of-Way of S. Commerce Square. The proposed 8" sanitary sewer then connects to the existing Robbinsville Township sewer main located along the southern property line.

   We have the following comments:

   a. As designed, the building is served by an 8" lateral with 8" diameter sewer main. We suggest that the engineer reconsider the sizing of the 8" lateral. Based on the sewer flow calculations provided in the Engineer's Report, it appears that a standard 6" diameter lateral would be adequate to serve the proposed building. However, the minimum diameter for the sewer main shall remain 8" diameter.

   b. Off-tract improvements or off-tract improvement fees may be required in order to discharge to the Township sanitary sewer system. The Township will make this determination at a later date.

4. The Applicant is required to provide an electronic copy of the sanitary improvements as a condition of Board approval so that the Township's overall sanitary sewer map can be updated.

5. As per N.J.A.C. 7:14A-23-3(a), the proposed flows are based upon the projected appropriate flow criteria as follows:

   a. **Proposed Liquor Store/Retail/Office (6,339 SF)**

Office Buildings (gross area) = 0.10 GPD/SF		
6,339 SF x 0.10 GPD/SF	=	634 GPD
Proposed Restaurant		
Restaurants (per seat) = 35 GPD		
75 seats x 35 GPD/seat	=	2,625 GPD
Proposed Bar/Lounge		
Bar/Cocktail Lounges (per seat) = 20 GPD		
75 seats x 20 GPD/seat	=	1,500 GPD

Proposed Multi-Unit Residential Dwellings (28 Apartments)

1 Bedroom Unit	=	150 GPD per Dwelling
2 Bedroom Unit	=	225 GPD per Dwelling
3 Bedroom Unit	=	300 GPD per Dwelling

3 – 1-Bedroom Units x 150 GPD/Dwelling	=	450 GPD
20 – 2-Bedroom Units x 225 GPD/Dwelling	=	4,500 GPD
5 – 3-Bedroom Unit x 300 GPD/Dwelling	=	1,500 GPD
Apartment Unit Total Flow	=	6,450 GPD
Total Projected Daily Average Sewerage Flow	**=**	**11,209 GPD**

6. It should be noted that the existing office building has already been disconnected from utilities and condemned. There is currently no existing sanitary sewer flow from this site.

7. The projected total daily average sewage flow exceeds 8,000 gpd and therefore requires a Treatment Works Approval (TWA) from NJDEP per N.J.A.C. 7:14A-22. The TWA permit application must be submitted for review by this office prior to submission.

8. A Sanitary Sewer Connection Fee will be required for this site, and is calculated based on the following:

Commercial/Industrial Effluent	=	*15.11 per gallon of estimated Average daily flow*
Restaurant, Diner, Tavern, Luncheonette		
Up to 20 seating capacity	=	*$3,030.00*
Each additional 20 seating capacity or part thereof	=	*$3,030.00*
Multi-Unit Residential Dwelling	=	*$3,030.00 per unit*

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   a. **Proposed Connection Fees:**

1. 6,339 SF Commercial (Liquor Store/Retail/Office)		
Commercial/Industrial Effluent	=	*$15.11 per gallon*
634 gpd x $15.11/gallon	=	$9,579.74

2.	*Restaurant*		
	Restaurant, diner, tavern, luncheonette		
	Up to 20 seating capacity	=	$3,030.00
	For each additional 20 seating capacity or part thereof	=	$3,030.00
	(75 seats/20) x $3,030	=	$11,362.50
3.	*Bar/Cocktail Lounge*		
	Restaurant, diner, tavern, luncheonette		
	Up to 20 seating capacity	=	$3,030.00
	For each additional 20 seating capacity or part thereof	=	$3,030.00
	(75 seats/20) x $3,030	=	$11,362.50
4.	*3- 1 Bedroom Apartments*		
	Multi-Unit Residential Dwelling, *Per Unit*	=	*$3,030.00*
	3 Unit x $3,030.00/unit	=	$9,090.00
5.	*20- 2 Bedroom Apartments*		
	Multi-Unit Residential Dwelling, *Per Unit*	=	*$3,030.00*
	20 Unit x $3,030.00/unit	=	$60,600.00
6.	*5- 3 Bedroom Apartments*		
	Multi-Unit Residential Dwelling, *Per Unit*	=	*$3,030.00*
	5 Unit x $3,030.00/unit	=	$15,150.00
	Total Cost of Connection Fees for Proposed Buildings	=	**$117,144.74**

We will continue our review of the proposed sanitary sewer facilities upon submission of revised plans and the requested information.

If you have any additional questions, please do not hesitate to contact me.

Very truly yours,

Cameron Corini, PE, CME, CPWM
Township Sewer Utility Engineer

cc: Chris English, Director of Community Development
John Nunziato, PE, PP, CME, Township Engineer
Justin Streleckis, PE, Roberts Engineering Group, LLC
Ama Nimako, Roberts Engineering Group, LLC

YOUR GOALS. OUR MISSION.

ROBB-R0019

August 20, 2026
Via Email

Robbinsville Land Use Board
2298 Route 33
Robbinsville, New Jersey 08691

Re: Robbinsville Heights, LLC (Application #R25-07-01)
Proposed Mixed-Use Development
Block 1, Lots 18, 19, & 20
Township of Robbinsville, Mercer County, NJ
Traffic Engineering Review No. 3

Dear Board Members,

T&M Associates has completed a traffic related review of the Land Use Application for the Proposed Mixed-Use Development located at Block 1, Lots 18, 19, & 20 in Robbinsville Township, New Jersey. The following documents were included as part of this review:

- Traffic Impact Study, dated January 6, 2026, prepared by Colliers Engineering & Design
- Preliminary & Final Major Site Plans, dated December 12, 2025, last revised May 29, 2026, prepared by Colliers Engineering & Design
- Architectural Plans, dated January 7, 2026, prepared by Perez & Radosti Associates
- Amended & Restated Redevelopment Plan, dated September 11, 2025, prepared by ARH Associates
- Applicant's Response Letter, dated **August 12, 2026**, prepared by Colliers Engineering & Design
- Truck Circulation Plans, dated 5/29/2026, prepared by Colliers Engineering & Design
  - **Supplemental Truck Circulation Plan, dated 7/7/2026, prepared by Colliers Engineering & Design.**
- **Liberty Street Concept Plan, dated 7/7/2026, prepared by Colliers Engineering & Design.**

Based on our review, we offer the following comments for consideration:

Site Description

The project site is located in the southwest quadrant of the intersection of Route 33 & South Commerce Square in Robbinsville Township, New Jersey. The Applicant is proposing to construct a mixed-use development consisting of 28 Multifamilty Housing Units, 6,167 SF of Retail space, 2,681 SF of Restaurant space, and 4,095 SF of Bar/Lounge space. Access to the proposed site will be accommodated via two full-access driveways, one along Route 33 and one along South Commerce

To: Robbinsville Land Use Board
Re: **Robbinsville Heights, LLC (Application #R25-07-01)**
Proposed Mixed-Use Development
Township of Robbinsville, Mercer County, NJ
Traffic Engineering Review No. 3

Square. Off-street parking spaces will be supplied through at-grade parking areas located throughout the site.

Traffic Impact

3. The Architectural Plans indicate a 6,305 SF Bar/Lounge area plus a covered patio space on the 4th floor, whereas the TIS indicates the Drinking Place area will be 4,095 SF. Please clarify the size of the Drinking Place.

   The Applicant has clarified the Bar/Lounge will consist of 4,095 SF interior space plus 2,210 SF exterior patio space for a total area of 6,305 SF.
   Confirmed and addressed.

4. The Architectural Plans indicate a 2,681 SF Restuarant area on the ground floor, plus covered and open patio spaces. Please provide information on the anticipated times of year the patio will be open, including if it will be covered or provide outdoor heaters.

   The Applicant has clarified that the Restaurant patio area will be uncovered, with heaters, and open during the spring, summer, and fall, weather permitting. Since the patio space will be utilized as additional restaurant area during the majority of the year, the Traffic Report shall be revised to include the trip generation and parking demand for the outdoor patio area.

   Continuing Comment. The applicant has indicated the outdoor dining functions as an alternative seating choice, not an additive generator. Patrons shift from the indoor tables to the outdoor tables, while total kitchen throughput and overall seating capacity remain functionally bounded. The applicant shall provide testimony regarding this statement.

5. It is understood that the Drinking Place site component would not be open during the AM peak hour, however it is our understanding that this use will be open on weekends. The Applicant shall clarify why a SAT trip generation was not provided for LUC 975 – Drinking Place and revise Table 2 as necessary. Testimony shall be provided to confirm that these additional SAT trips will not change the conclusions of the traffic analysis.

   Continuing comment. The Applicant has indicated testimony would be provided, however revisions to the traffic impact study are required to account for trips associated with the bar/lounge rooftop patio area as well as anticipated operations during the Saturday peak hour. For reference, the proposed 6,305 LUC 975 – Drinking Place is estimated to generate 57 trips during the SAT peak hour based on current ITE Trip Generation Manual 12th Edition rates.

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Re: **Robbinsville Heights, LLC (Application #R25-07-01)**
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Saturday Trip Generation for the Bar/Lounge shall be added to the project trip generation tables and LOS results presented in the report

6. The Traffic Report indicates that the proposed site will generate 71 trips during the AM peak hour, 111 trips during the PM peak hour, and 85 trips during the SAT peak hour. The trip generation calculations are consistent with the rates presented in the current ITE Trip Generation Manual, 12th Edition however, updates to the trip generation for the project may be required based on comments #3, 4 & 5 above.

   Continuing comment. Trip generation estimates shall be updated, consistent with the comments identified above. **The applicant has indicated a revised trip generation table will be submitted. The revised table shall consider comments 4 & 5 above.**

14. In accordance with Section 1.4.3 of the Redevelopment Plan, Liberty Street will be realigned to run along the southern boundary of the proposed site and intersect with South Commerce Square approximately 25' south of the proposed South Commerce Square Site Driveway. The Applicant shall clarify how site access be accomplished or modified with the completion of Liberty Street.

    Continuing comment. Information on how the site will interact with Liberty Street shall be provided. **The applicant has provided a concept plan depicting the construction of 100 LF of Liberty Street, with site access along this segment. The applicant shall present this plan and provide testimony regarding the proposed access and circulation associated with this revised concept. Additional testimony shall be provided regarding the proximity of the site access driveway as it relates to the intersection with South Commerce Square, considering the future extension of Liberty Street and the associated increase in traffic at the South Commerce Square and Liberty Street intersection.**

15. The proposed Route 33 Site Driveway provides full-access however, all other nearby driveways along Route 33 prohibit left-turn egress movements. In accordance with Section 9.2.1 of the Redevelopment Plan, potential improvements to the Route 33 right-of-way may include measures to regulate left-turn movements. Allowing left-turn egress at this location would likely introduce cut-through traffic from adjacent developments that share access via Liberty Street and South Commerce Square. This concern will become more significant once the Route 130 connector road is constructed. Please provide justification for the current full-access driveway configuration or revise the access scheme accordingly. If the access configuration is revised, the supporting traffic analysis must be updated accordingly.

    Continuing comment. We recommend the access configuration be revised to prohibit left turns out of the site consistent with the Redevelopment Plan. **The applicant has provided**

several statements related to their position regarding left-turn access and shall provide testimony supporting their response. There is still concern related to cut-through traffic from South Commerce Square, where significant residential units exist and are currently planned. The intersection of South Commerce Square at Route 33 does not allow left-turn egress toward Route 33 west. Left turn access at this site will provide an opportunity for South Commerce Square vehicles to access Route 33 westbound directly.

16. Site access is proposed along Route 33 and therefore, a NJDOT Highway Access Permit will be required. The Applicant shall provide the Township with an update on the status of the NJDOT review and approval process.

    Continuing comment. The Applicant has indicated testimony would be provided. **The Applicant has indicated the NJDOT is pending and will provide a copy of the submission documents to the Board, along with a copy of the permit when received.**

Parking and Loading

17. A total of 134 (28 guest) parking spaces are required per Section 9.3.1 of the Amended Redevelopment Plan. The parking space requirement calculations are provided below for reference:

    Amended Redevelopment Plan, Section 9.3.1 Requirements:
    All parking within the Redevelopment Area shall be governed by the New Jersey Residential Site Improvement Standards and the schedules contained in Parking Generation (most recent edition) published by the Institute of Transportation of Engineers:

    RSIS Requirement:
    Garden Apartment
    1.8 spaces per 1-bedroom unit = 1.8 * 3 units = 5.4 spaces
    2.0 spaces per 2-bedroom unit = 2.0 * 20 units = 40 spaces
    2.1 spaces per 3-bedroom unit = 2.1 * 5 units = 10.5 spaces

    Required guest parking provisions provided in common areas
    0.5 spaces per unit = 0.5 * 28 units = 5 spaces

    Subtotal = 56 (28 guest) spaces

    ITE Parking Generation Manual, 6th Edition (Average Demand):
    LU 822 – Strip Retail Plaza (< 40k)
    2.79 spaces per 1,000 SF GFA = 2.79 * (6,167 SF / 1,000) = 17.2 spaces

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Re: **Robbinsville Heights, LLC (Application #R25-07-01)**
Proposed Mixed-Use Development
Township of Robbinsville, Mercer County, NJ
Traffic Engineering Review No. 3

LU 932 – High Turnover (Sit-Down) Restuarant
8.97 spaces per 1,000 SF GFA = 8.97 * ((2,681 SF + 4,095 SF) / 1,000) = 60.8 spaces

Subtotal = 78 Spaces

Total Parking Required = 134 (28 guest) spaces

EV Credit
A parking space prepared with electric vehicle supply equipment or Make-Ready equipment pursuant to this section shall count as at least two parking spaces for the purpose of complying with a minimum parking space requirement. This subsection shall result in a reduction of no more than 10 percent of the total required parking.

EV Parking Required = 11 spaces (see calculation in subsequent comment)
Maximum allowed reduction = 134 spaces * 0.10 = 14 spaces
11 space credit < 14 space max. reduction

Allowable EV Credit = 11 spaces

The Site Plan provides 117 (117 guest) physical parking spaces with an applied 11 EV-space credit for a total effective parking supply of 128 (117 guest) spaces for compliance purposes. This effective parking space supply does not satisfy the Amended Redevelopment Plan requirement of 134 (28 guest) parking spaces, with a 6-space deficit.

The Applicant shall provide testimony to justify the proposed parking deficit. There is concern that peak-period parking demands may overlap between the residential and non-residential components of the project. Residential parking demand typically peaks during the evening hours, which coincides with the peak demand period for restaurant and drinking-place uses, potentially intensifying overall site demand.
In addition, consistent with comments #3, & 4 above, please clarify the size of the Restaurant and Drinking Place and revise the parking calculations accordingly.

Continuing comment. The proposed parking supply and parking requirement calculations shall be revised to account for the bar/lounge rooftop patio area and restaurant outdoor patio area, consistent with previous comments. **The applicant has provided several statements related to their position regarding sufficiency of the on-site parking supply and shall provide testimony supporting their response. Consistent with Comment #4, the applicant shall provide testimony regarding the impact on parking demand associated with**

To: Robbinsville Land Use Board
Re: **Robbinsville Heights, LLC (Application #R25-07-01)**
Proposed Mixed-Use Development
Township of Robbinsville, Mercer County, NJ
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outdoor patios (Bar and Restaurant) and the concern that this will draw more patrons during the evening (Weekday and Saturday) peak periods.

20. In accordance with Section 9.5 of the Redevelopment Plan, loading and deliveries, including removal of refuse and recycling material, shall be accommodated via loading areas of such size and number of spaces as may be appropriate for the uses such spaces are intended to serve and loading areas shall be oriented in such a fashion as to create the least possible interference with traffic movement, both internal and external to a Redevelopment Project. The current Site Plan does not delineate any loading spaces. The Applicant shall clarify how loading operations will be accommodated to satisfy this Redevelopment Plan requirement.
Continuing comment. The applicant has indicated deliveries will be restricted to off-peak hours (early morning) and will utilize the "designated wide internal drive aisles adjacent to the commercial entrances for active unloading, ensuring zero interference with primary vehicular circulation". It is unclear where this area is, the applicant shall provide testimony regarding delivery operations.

Site Plan

21. A R1-1 "STOP" sign and stop bar shall be installed at the Route 33 Site Driveway approach.

    Partially addressed. A R1-1 "STOP" sign shall be installed at the Route 33 Site Driveway approach.

    Applicant has indicated the plans have been revised accordingly, revised plan have not been submitted.

Access and Circulation

28. A sight triangle with 241' for right-turn egress movements is shown at the South Commerce Square Site Driveway approach. If configured as a full-access driveway, an additional sight triangle shall be provided for left-turn egress movements at this location. Note, vegetation/landscape clearing may be necessary within the South Commerce Square median to accommodate the required sight distance.

    Comment is no longer applicable for the proposed site driveway, considering the revised access scheme along Liberty Street. However, this comment sill applies to the Liberty Street intersection with South Commerce Square.

29. Intersection sight easements shall be established at the South Commerce Square Site Driveway in accordance with Section 142-36.F of the Township's Ordinance.

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Re: **Robbinsville Heights, LLC (Application #R25-07-01)**
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The Applicant has agreed to comply. We defer further coordination regarding sight easements to the Board Engineer.

30. The Applicant shall provide a statement describing how building deliveries will be managed, including where the drop-off area will be located and the largest type of delivery vehicle anticipated. The proposed site does not appear to designate a delivery area.
Continuing comment. See response to comment #20.

31. The Applicant shall provide a statement describing the trash collection process for the building. A safe accessible route shall be provided between the building and all trash collection areas.
Testimony shall be provided.

32. Design Vehicle Circulation Plans have been provided. The following shall be addressed:
    c. Delivery Truck (SU-40 or largest anticipated) – Provide an additional circulation plan which shows the vehicle entering the site, accessing the designated loading area(s), and exiting the site in one continuous movement. Loading operations shall not be permitted within access aisles.

       Continuing Comment. The Delivery Vehicle turning template shows the vehicle encroaching into the full width of the Route 33 Site Driveway egress lane when entering the site, which is not acceptable. If a vehicle is occupying the driveway while attempting to exit, the Delivery Vehicle would be forced to stop within Route 33. Similarly, the Delivery Vehicle encroaches into the full width of the South Commerce Square Site Driveway ingress lane when exiting the site, creating the same operational concern. The Applicant shall revise the driveway geometry and Delivery Vehicle access path to eliminate these driveway-approach lane encroachments. **Considering the new access point and Liberty Street extension, all turning templates shall be revised utilizing this access point.**

<u>Transportation Improvement Plan (TIP) Fee for Route 130 & Voelbel Road</u>

33. The Applicant is required to pay a fair share contribution (TIP fee) for roadway improvements in accordance with Section 142-90.C.2.a.3 of the Municipal Code. The calculation is based on the following:
    a. Add the <u>total</u> proposed Site Generated peak hour traffic for AM, PM, & Weekend trips
    b. Multiply the total trips by the anticipated percent distribution of traffic utilizing the intersection of Route 130 & Voelbel Road
    c. Multiply the resultant number of trips by 2025 base fee of $731.31, then adjust this fee as appropriate for the current year based on the "rate of interest charged on judgments docketed with the Superior Court of New Jersey", which is established as 4.5% for 2026.

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The TIP fee calculation is as follows:

TIP Fee = (___ AM + ___ PM + ___ SAT[1] "new" trips) x 20% distribution x ($731.31 x 1.045 rate of interest) = $___
Consistent with prior comments, the Applicant shall confirm the square footage of and provide SAT peak hour trip generation for the drinking place component. The TIP Fee will be calculated once the Trip Generation has been revised accordingly.

Continuing comment. The Applicant has agreed to address the required TIP Fee as part of the Developer's Agreement however, revisions to the trip generation are required, consistent with previous comments.

Specifically, the trip generation shall be revised to include the bar/lounge rooftop patio area, restaurant outdoor patio area, and SAT trip generation associated with the bar/lounge component. A TIP Fee will be calculated once the Trip Generation has been revised.

If you have any questions or require additional information, please do not hesitate to call.

Very truly yours,
T&M ASSOCIATES

BRUCE P. KLEIN, P.E., P.T.O.E.
ROBBINSVILLE L.U. BOARD TRAFFIC ENGINEER

BPK:CJD:jaf

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MEMORANDUM REPORT

To: Planning Board

From: Steve Leone, AIA, LEED ap
Township Architectural Consultant (Spiezle)

Date: June 23, 2026

RE:

Application:	**R25-07-01**
Application for:	**Preliminary and Final Site Plan Res/Non-Res**
Applicant:	**Robbinsville Heights, LLC**
Project:	**Robbinsville Heights, LLC**
Block:	**Block 1 – Lot/s 18, 19, & 20**
Zone:	**TCS-RA (Town Center South – Redevelopment)**
REVIEW #2	
Escrow Account:	**R250701**

Summary

This review is based on our experience and the architectural design requirements referenced in the Robbinsville Township Ordinance (T.O.). In connection with the above-referenced project, we have reviewed the following documents on which we make our subsequent recommendations:

Documents Reviewed

- Response letter prepared by Colliers Engineering & Design dated May 29, 2026
- Site/Civil engineering drawings (26 sheets), prepared by Colliers Engineering & Design and dated 05/29/26
- Architectural drawings (3 sheets), prepared by Perez + Radosti associates, p.c. dated 05/29/26

Project Description

Applicant is proposing a 4-story mixed use building consisting of bar/restaurant space, retail space and residential units. A liquor store, restaurant and additional retail space is proposed on the 1st floor; 1, 2 & 3-bedroom residential units are proposed on the 2nd, 3rd and 4th floors; and a rooftop bar/lounge is also proposed on the 4th floor. (28) proposed apartments.

Architectural Design

1. The Applicant is proposing a new mixed use development as noted. Generally the design is fitting with the zone and neighboring context. Building proportions and material usage also works well with existing neighboring buildings. The following comments should be addressed:

   Original Comment

   a. *We noticed a considerable degree of mis-coordination on the notations, dimensions, and finish key legend on the elevations. Applicant is asked to coordinate and resubmit.*
   b. *Vertical dimensions on the elevations shall be better delineated. Some dimensions run floor to floor while others leave an unspecified gap for the floor construction. There is no way to confirm the math on the height of the building.*
   c. *Applicant shall better clarify the material noted for the storefront/doors. Applicant shall confirm whether the material will be aluminum with factory coloring of white. Also the patterning of the storefronts is odd in that there is a smaller pane along the bottom that traditionally occurs as a transom at the top of the storefront. Applicant is asked to reconsider.*
   d. *Front (North) Elevation identifies circular cap element on the fourth floor as a light fixture. This appears to be mislabeled. Applicant shall confirm.*
   e. *Primary central entrance on the Front (North) Elevation does not appear to align with the floor plan. Applicant is asked to reconcile.*

   Current Comment

   Applicant has updated and coordinated documents. All items are closed.

   Original Comment

2. *Piers and other areas on the elevations that are illustrated as large stone in pattern are noted as being EIFS. This office believes that this is a poor material with respect to being prone to being easily damaged and dirty. Applicant is asked to reconsider and utilize a more durable product.*

   Applicant Response

   Proposed EIFS at the lower level is proposed to be high impact type. It is designed for durability.

   Current Comment

   Applicant has increased the strength of the design of the system for better durability. This office has no further comment.

   Original Comment

3. *Applicant shall confirm the exterior wall finishes of the covered patio on the Fourth Floor.*

   Current Comment

   Applicant has updated and coordinated documents. Item is closed.

   Original Comment

4. *Applicant shall submit an exterior finish sample board for visual confirmation of actual colors and textures.*

   Applicant Response

   Sample board to be provided at meeting.

Current Comment

This office defers to the Board Meeting.

Original Comment

5. *Applicant shall better articulate the color and material of the P-Tac Grilles. The grilles fall within different materials of different color and type.*

Applicant Response

Grilles will be painted to match the nearest background color. Additional notes have been added to the drawings.

Current Comment

Drawing note number 8 in the finish legend shall be revised to Color to match immediately adjacent material.

Original Comment

6. *Applicant shall submit all building mounted light fixtures with style and color specifications. Elevations do not seem to reconcile with singular wall pack light shown on civil drawings.*

Applicant Response

Exterior light fixture specifications have been added to the drawings.

Current Comment

Drawing note number 8 in the finish legend shall be revised to Color to match immediately adjacent material.

Original Comment

7. *Awnings on all facades are noted as being red. We strongly urge the Applicant to consider a different dark color tone such as black or Navy blue. Red is considered one of the most distracting colors to pedestrians and motorists. Red is also a color that is subject to a higher degree of fading.*

Applicant Response

Canopy color has been changed to blue. See revised drawings.

Current Comment

Applicant shall specify a specific (dark) blue color.

Original Comment

8. *Applicant shall confirm that the roof will be drained via internal drains and leaders.*

Applicant Response

Roof will be drained, via internal drains.

Current Comment

This item is closed.

Original Comment

9. *We noted that the civil drawings include a four foot high chain link fence however it is not clear whether or not that is for the trash enclosure. Applicant shall reconcile and provide additional details regarding the trash enclosure. Additionally, chain link is prohibited by the Township ordinance.*

Applicant Response

Trash Enclosure Detail is shown on Construction Details Sheet 12.1. The trash enclosure will have a 6' high board-on-board fence for screening purposes. The 4' high chain link fence is proposed around the top of the retaining walls for safety purposes. The chain link fence will be black vinyl clad and will therefore blend in with its surroundings. The applicant requests a waiver to permit this fence.

Current Comment

This office takes no further issue with the trash enclosure however defers to the Board with regard to the waiver request.

Original Comment

10. *We note that there are no street trees illustrated on the landscape plan which does not align with the neighboring area or the TC ordinance. We suggest inclusion of street trees as well as additional landscaping along the rear or southerly property line to create a better screen from future development.*

Applicant Response

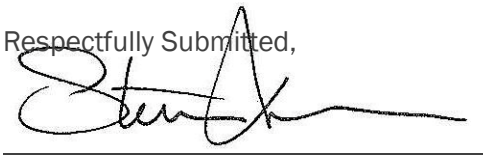
Street trees are not proposed along Route 33 as there are low hanging utility wires and poles. Street trees are proposed along the southern property line. Additional screening is not proposed as the land directly to the south of the site will be a master plan road in the future.

Current Comment

This item remains open and referred to other Township Professionals for consensus.

The above comments are relative to architectural design and site layout only and do not address issues such as, but not limited to, structural design, construction details, building code/NJUCC compliance, compliance with the Americans with Disabilities Act, or technical site considerations such as lighting levels, landscaping selections, and/or traffic engineering. Please feel free to contact me if there are any questions regarding the above.

Respectfully Submitted,



Steve Leone, AIA, LEED BD+C
Principal
SPIEZLE ARCHITECTURAL GROUP, INC.

DESIGN FOR GENERATIONS LLC

June 11, 2026

Planning, Zoning, Engineering Office
Township of Robbinsville
2298 Route 33
Robbinsville, NJ 08691
Attn: Tianna Thompson
Land Use Coordinator

Re: Robbinsville Heights, LLC
2345-2349 NJ RT 33 & South Commerce Square
Block 1, Lots 18. 19 & 20
Twp File – R25-07-011
DFG File – PB-2026-10
Preliminary & Final Major Site Plan – 2nd Review

Dear Board Members:

This office received revised Preliminary & Final Major Site Plans for Robbinsville Heights, LLC located at 2345-2349 NJ RT 33 & South Commerce Square on June 2, 2026. The application indicates the development of an 11,716 s.f. four-story mixed-use building on 1.69-acre parcel, including parking and stormwater management facility. The proposed retail building includes a restaurant/bar, liquor store and two retail spaces. The second and third floors include residential apartments. The fourth floor will include residential apartments and a rooftop bar/lounge with an open patio.

The Site Plans have been prepared by Mark J. Janiszewski, PE of Colliers Engineering & Design, Hamilton, NJ, dated 12-22-25 and revised 5-29-26. The Landscape Plan has been prepared by Christopher R. Gammons, LLA of Colliers Engineering & Design, Hamilton, NJ, dated 12-22-25 and revised 5-29-26.

<u>Landscape Plan Review</u>

1. "A Landscaping, Streetscaping, Lighting and Open Space Plan. Prepared by a NJ Licensed Landscape Architect shall be submitted as part of the Review and Approval process" (Town Center South Redevelopment Area 11.1.1).
Response: The plan has been revised to indicate the Landscape Architect, Christopher R. Gammons, LLA.

3. The Plan “shall address the aesthetic treatment for all publicly visible portions of each Redevelopment parcel, including open space, sidewalks, parking lots and stormwater management elements” (TCSRA 11.1.1). The applicant shall be prepared to indicate how the street frontage of the retail stores corresponds to the design of the Main Street concept, including sidewalks, street trees, lighting, and benches.
   Response: The Furnishing Plan (Sh. 11.0) indicates the location of various site amenities, including planter pots; benches; tables & chairs; ornamental plantings, etc.

4. “All lands within the Redevelopment Area not covered by buildings, parking lots or other improvements shall either retain their natural features or be extensively landscaped and/or streetscaped with such natural and manmade materials as may be appropriate to the type and scale of the Redevelopment Project” (TCSRA 11.1.2). The Landscape Plan indicates grass being planted between the sidewalk and curb. There are no trees and/or shrub plantings along the front of the building. The plan should be revised to indicate medium height shade trees between the sidewalk and curb. The front of the building facing Main Street does not indicate any foundation and/or street-side plantings. The proposed grass area between the sidewalk and curb indicates drain inlets. This area should be planted with ornamental trees, shrubs and perennials.
   Response: The Landscape Plan and Furnishing Plan indicate site amenities, ab described in the above comment. The existing utilities prohibit street trees. The plan reflects lower plantings that are appropriate to the site’s constraints.

5. “Features should be compatible with those installed in Town Center North in order to unify the different sections of the Town Center but may be sufficiently different to denote Town Center South” (TCSRA 11.1.3). The applicant should be prepared to address how light posts, street trees, pavements, benches and similar features relate to the overall Town Center North design.
   Response: The proposed streetscape elements are appropriate for the design of the building and site. The existing utilities prohibit street trees and other taller plantings.

7. “To the extent practical, natural vegetation shall be preserved and may be augmented with new plant material” (TCSRA 11.2.4.A). The plan indicates that all existing vegetation is to be removed.
   Response: The applicants professionals have indicated that the vegetation removal conflicts with the proposed utility infrastructure.

10 “Streetscaping elements may include decorative paving materials; benches; trash and recycling receptacles; fountains, trellises; pergolas; fences and walls; decorative lighting and similar features (TCSRA 11.3.3). The plan should be revised to include decorative benches, lights and pavements at a minimum.
   Response: The proposed design includes decorative paving, furniture, trash & recycling receptacles, fountains, a pergola, decorative lighting and similar elements.

11 “Sidewalks shall be pedestrian friendly and shall be lined with street trees to provide shade, aesthetics and cohesion” (TCSRA 11.3.4). The plan does not indicate street trees in front of the retail building. There are overhead utility lines along the street. However, medium height ornamental trees, located between the sidewalk and curb, should be specified.
   Response: The design includes plantings and planting containers between the sidewalk and curb. The existing utilities restrict the incorporation of larger street trees.

12 “Open air gathering places are strongly encouraged throughout the Redevelopment Area (TCSRA 11.3.5). The plan indicates a ground level outdoor lawn area on the east side of the building. However, this area does not appear to be designed as an ‘gathering’ area. The applicant should be prepared to indicate the use of this area.
Response: The applicant has indicated that the lawn area is intended as an active open air gathering space. There is outdoor seating with shade covering for a restaurant.

16. Landscape maintenance and guarantee:
    a. All landscape plantings must be maintained for a period of two (2) years from the time of planting. The plan should be revised to indicate conformance.
    Response: The plan has been revised accordingly.
    b. A landscape maintenance schedule, specifications, and an executed maintenance agreement must be on file before a certificate of occupancy is issued. It is recommended that this information should be provided before final Site Plan approval.
    Response: The plan has been revised accordingly.

17. Screening shall generally be provided to reduce the visual impact of unsightly elements, such as HVAC units, utility boxes, trash enclosures, and similar ‘improvements. The plan should indicate the location of ground level HVAC units and utility boxes. Planting around the trash enclosure is limited due to the position of the basin.
    Response: A note has been added to the Landscape Plan (Sh. 8) that all ground level HVAC units and utility boxes shall be screened with evergreen trees and shrubs.

19. The use of native plant species and landscape forms indigenous to the area is encouraged (142-47.A.3). The plan indicates Quercus palustris (Pin oak) which has drooping lower branches. We recommend substituting Tilia americana (Basswood) or Quercus phellos (Willow oak).
    Response: Quercus phellos (Willow Oak) have been indicated to replace the Pin Oak trees.

20. Trees shall be staked for two (2) years (142-47.H.1.f). The Planting detail (Sheet 8.1) indicates one (1) year). The plan shall be revised to indicate two (2) years. conformance.
    Response: The note has been added to the Landscape Details (Sh. 8.1).

21. The Planting Specifications (Plant Material) indicate that plant substitutions shall be approved by the Township Landscape Architect.
    Response: The note has been added to the Landscape Details (Sh. 8.1).

22. A minimum of one planting island equivalent to nine (9) feet wide by 18 feet deep is required per five (5) parking spaces. Islands may be set aside individually or grouped into larger islands, depending upon individual circumstances” (142-47.D.3). The plan does not conform indicating long rows of parking spaces. A waiver is required.
    Response: A waiver is requested.

25. Street trees shall be planted 40’ on center (142-47.F.1.b). The plan complies for South Commerce Square. The plan does not indicate the required street trees for RT 33 and should be revised to indicate conformance.

Response: Street tree spacing conforms for South Commerce Square. The utilities along the RT 33 frontage prohibit the use of street trees.

26. Street trees shall be a minimum of 2.5" caliper at the time of planting (142-47.F.4). The plan conforms for the trees along S. Commerce Square. The plan should indicate conformance for the trees along RT 33.
    Response: Street tree spacing conforms for South Commerce Square. The utilities along the RT 33 frontage prohibit the use of street trees.

27. The location of generators should be indicated on the plans and the appropriate screening provided (142-47.H.3.a). If the locations are not known at this time, a note shall be added to the Landscape Plan that all generators should be screened with evergreen trees and shrubs to the satisfaction of the Township professionals.
    Response: A note has been added to the Landscape Plan (Sh. 8) that all ground level HVAC units and utility boxes shall be screened with evergreen trees and shrubs.

29. In the event that basins are not reforested, basins should be screened from view of adjacent properties and roadways (142-47.I.3). The plan should be revised to indicate the Skip Laurel evergreen screen along the south and west sides of the basin.
    Response: The applicants professionals have indicated that site constraints prohibit evergreen tree screening along the south and west sides of the basin..

30. The applicant should submit a Tree Preservation/Replacement Plan (241-3.B.1-2). The following information shall be provided:
    a. The application indicates an Existing Conditions & Demolition Plan" which indicates the 'wooded areas'. A separate plan should be prepared by a Landscape Architect or Certified Forester.
       Response: A Tree Inventory Plan (Sh. 8.2) has been included.
    b. The Tree Preservation/Replacement Plan should indicate the locations and genius and species of all trees having a DPM of four (4) inches or more and are indicated on the plan. Trees with four (4) inches or greater should be identified.
       Response: A Tree Inventory Plan (Sh. 8.2) has been included.
    c. The plan indicates the exiting wooded areas. The limits of clearing, indicated on Sheet 4, indicate that all of the trees are to be removed. The limits of clearing are the property lines.
       Response: A Tree Inventory Plan (Sh. 8.2) has been included.

31. A Tree Replacement Plan shall be submitted (241-5.B). The plan shall indicate where the replacement trees will be located.
    Response: A Tree Inventory Plan (Sh. 8.2) has been included. The plan indicates a total of 91 replacement trees are required. The plans indicate that 28 trees are to be considered replacement trees. However, these trees are required as per parking lot and street tree requirements. The applicant should confirm that the 91 shade trees will be provided by fee in lieu of on=site planting.

32. It is important in the selection of the genus and species of replacement trees to consider appropriate species native to the mid-Atlantic region (241-5.F). The Plant List should include native species.
    Response: The plan conforms.

33. The Tree Replacement Requirements Table shall be indicated (241-5.J). The Chart shall indicate the total number of trees to be removed, as well as the calculations for replacement trees are to be provided.
    Response: The information has been provided on the Tree Replacement Plan.

34. Replacement trees shall be located on the site. If the trees cannot be accommodated on the site, then an equivalent cash payment of the value of the tree shall be placed in the Landscaping Plant Fund pursuant to 142-00-2 (241-5.C). The applicant should be prepared to indicate where, on-site, the trees will be planted or if payment will be provided.
    Response : The plan indicates a total of 91 replacement trees are required. The plans indicate that 28 trees are to be considered replacement trees. However, these trees are required as per parking lot and street tree requirements. The applicant should confirm that the 91 shade trees will be provided by fee in lieu of on=site planting.

38. Lighting shall be provided along all streets and driveways and within parking areas, at intersections and crosswalks and wherever vehicular and/or pedestrian circulation systems intersect (142-37.6). The plan indicates pole mounted lights within the parking lot area. Wall mounted lights are indicated along the front of the façade. Pole-mounted lights should be included to maintain the existing streetscape as depicted on the north side of RT 33.
    Response: Utility conflicts along RT 33 restrict standard street lighting. Architectural lighting is proposed. The plan indicates three (3) wall mounted lights along the front façade (RT 33) side of the building. The plan indicates an average of 0.8 FC along the sidewalk. The applicant should confirm that adequate lighting is provided along the sidewalk with the combination of proposed building façade lights and existing pole mounted streetlights.

Please do not hesitate to inquire should there be any questions. Thank you.

Very truly yours,

Jack Carman, LLA, FASLA
NJ LLA - 21AS00065800

Cc: John Nunziato, PE, PP; Nick Passo, PE (via. Electronic transmission)

Robbinsville Township
Board of Health

Mercer County
2298 Route 33, Robbinsville, New Jersey 08691
Telephone (609) 936-8400, Fax (609) 799-2136

Memorandum

To: Tianna Thompson, Land Use Coordinator

From: Greg Guttadora, Senior REHS

RE: R25-07-01 Robbinsville Heights, Block 1 Lot 18.19 and 20

Date: 2/18/26

The Robbinsville Health Department has reviewed the Site Plan application proposal for the above referenced site, and offers the following comments:

1. Since the application does not involve retail food, underground sewage disposal systems or on-site wells, the Health Department does not oppose the waiver requests sought on the Prelim Site Plan Checklist (items #28, 36,37,38,39,40, 41 and 42), and the waiver requests for the Final Site Plan Checklist (items #24,25,26.)
2. The applicant should be advised that in the event the retail food spaces are developed, a formal retail food design plan review would be required.
3. Any existing septic tanks and wells serving the existing, or previously existing structures will need to be appropriately abandoned under the supervision of the Robbinsville Township Health Department.

These comments neither stated nor implied, guarantees the approval of this application and does not relieve the applicant from seeking or gaining any other necessary approvals from other Agencies, Departments or Boards

Robbinsville TOWNSHIP
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Planning/Zoning/Engineering Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1120 e-mail BoardSecretary@robbinsville.net

DISTRIBUTION OF PLANS

To:		REVIEWS RECEIVED
	Patrick Varga, Esq.	FYI Only
	Michael Herbert, Esq.	FYI Only
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	Carolyn Feigin, PP, PE, Engineering Consultant	
	Carmela Roberts, PE, CME, Sewer Consultant	
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	Steven Leone, AIA, Architectural Consultant	
	Jack Carmen, LA, Landcape Arch. Consultant	
	Environmental Commission	
	Board of Health	
	Fire Company	
	Construction Official	
	Public Works	
	Police Department	
	Tax Assessor	
	Affordable Housing	
	Township Attorney	

Date: January 27, 2026

From: Planning/Zoning Board Secretary

Re:
Application #: **R25-07-01**
Application for: **Preliminary and Final Site Plan Res/Non-Res**
Applicant: **Robbinsville Heights, LLC**
Project: **Robbinsville Heights, LLC**
Block: **Block 1, Lot(s)18, 19, & 20** **2345-2349 Rt.33**
Zone: **TCS-RA (Town Center South -Redevelopment)**
REVIEW #1
Escrow Account: **R250701**

Description: A 4 story mixed use building consisting of a bar/restaurant space , retail space and residential units. A liquor store, restaurant, and additional retail space is proposed on the 1st floor. 1, 2 & 3 bedroom residential units are proposed on the 2nd, 3rd, and 4th floors, and a rooftop bar/ lounge is also proposed on the 4th floor. (28) proposed apartments.

The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **February 17, 2026 as this application has been tentatively scheduled for TRC on 2/24/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments:
(Congestion, water run-off, pollution, soil
Traffic, Parking not enough Space. (Deliveries, service vehicles.)
Noise, lighting, Hours of operation
Restaurant (grease traps)

Signature: J Thompson Date: 2/2/26
Print name and Title:

Attachment(s)

Cc: Application File

Robbinsville
TOWNSHIP
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Planning/Zoning/Engineering Office
2300 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1122 e-mail tthompson@robbinsville.net

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	Nick Papasso, EIT, Assistant Township Engineer	FYI Only
	Stuart Wiser, AICP, PP, Planning Consultant	
	Carolyn Feigin, PP, PE, Engineering Consultant	
	Justin Streleckis, PE, Sewer Consultant	
	Bruce Klein PP, PTOE, Traffic Consultant	
	Steven Leone, AIA, Architectural Consultant	
	Jack Carmen, LA, Landcape Arch. Consultant	
	Fire Company	
	Board of Health	
	Township Attorney	

Date: June 2, 2026

From: Planning/Zoning Board Secretary

Re:
Application #: **R25-07-01**
Application for: **Preliminary and Final Site Plan Res/Non-Res**
Applicant: **Robbinsville Heights, LLC**
Project: **Robbinsville Heights, LLC**
Block: **Block 1, Lot(s)18, 19, & 20 2345-2349 Rt.33**
Zone: **TCS-RA (Town Center South -Redevelopment)**
REVIEW #2
Escrow Account: **R250701**

Description: A 4 story mixed use building consisting of a bar/restaurant space , retail space and residential units. A liquor store, restaurant, and additional retail space is proposed on the 1st floor. 1, 2 & 3 bedroom residential units are proposed on the 2nd, 3rd, and 4th floors, and a rooftop bar/ lounge is also proposed on the 4th floor. (28) proposed apartments.

The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **June 26, 2026 as this application has been tentatively scheduled for TRC on 6/30/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments: No Additional Comments for this Application

Signature: Brian F. Johnson Date: 6/26/26
Print name and Title: Brian F. Johnson Fire Official

Attachment(s)

Cc: Application File

Robbinsville
TOWNSHIP
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Planning/Zoning/Engineering Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1120 e-mail BoardSecretary@robbinsville.net

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	Jack Carmen, LA, Landcape Arch. Consultant	
	Environmental Commission	
	Board of Health	
	Fire Company	
	Construction Official	
	Public Works	
	Police Department	
	Tax Assessor	
	Affordable Housing	
	Township Attorney	

Date: January 27, 2026

From: Planning/Zoning Board Secretary

Re:
Application #: **R25-07-01**
Application for: **Preliminary and Final Site Plan Res/Non-Res**
Applicant: **Robbinsville Heights, LLC**
Project: **Robbinsville Heights, LLC**
Block: **Block 1, Lot(s)18, 19, & 20** **2345-2349 Rt.33**
Zone: **TCS-RA (Town Center South -Redevelopment)**
REVIEW #1
Escrow Account: **R250701**

Description: A 4 story mixed use building consisting of a bar/restaurant space , retail space and residential units. A liquor store, restaurant, and additional retail space is proposed on the 1st floor. 1, 2 & 3 bedroom residential units are proposed on the 2nd, 3rd, and 4th floors, and a rooftop bar/ lounge is also proposed on the 4th floor. (28) proposed apartments.

The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **February 17, 2026 as this application has been tentatively scheduled for TRC on 2/24/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments:

Apply for permits after approved.

Signature: Date: 2-17-26
Print name and Title: Peggy Lee

Attachment(s)

Cc: Application File

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL
Planning/Zoning/Engineering Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1120 e-mail BoardSecretary@robbinsville.net

DISTRIBUTION OF PLANS

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	Jack Carmen, LA, Landcape Arch. Consultant	
	Environmental Commission	
	Board of Health	
	Fire Company	
	Construction Official	
	Public Works	
	Police Department	
	Tax Assessor	
	Affordable Housing	
	Township Attorney	

Date: January 27, 2026

From: Planning/Zoning Board Secretary

Re:
Application #: **R25-07-01**
Application for: **Preliminary and Final Site Plan Res/Non-Res**
Applicant: **Robbinsville Heights, LLC**
Project: **Robbinsville Heights, LLC**
Block: **Block 1, Lot(s)18, 19, & 20** **2345-2349 Rt.33**
Zone: **TCS-RA (Town Center South -Redevelopment)**
REVIEW #1
Escrow Account: **R250701**

Description: A 4 story mixed use building consisting of a bar/restaurant space , retail space and residential units. A liquor store, restaurant, and additional retail space is proposed on the 1st floor. 1, 2 & 3 bedroom residential units are proposed on the 2nd, 3rd, and 4th floors, and a rooftop bar/ lounge is also proposed on the 4th floor. (28) proposed apartments.

The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **February 17, 2026 as this application has been tentatively scheduled for TRC on 2/24/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments:
No Comment

Signature: Chris Rupp Date: 2/10/26
Print name and Title: Chris Rupp DPW Director

Attachment(s)

Cc: Application File

Robbinsville
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Planning/Zoning/Engineering Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1120 e-mail BoardSecretary@robbinsville.net

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	Jack Carmen, LA, Landcape Arch. Consultant	
	Environmental Commission	
	Board of Health	
	Fire Company	
	Construction Official	
	Public Works	
	Police Department	WH BS
	Tax Assessor	
	Affordable Housing	
	Township Attorney	

Date: January 27, 2026

From: Planning/Zoning Board Secretary

Re:
Application #: R25-07-01
Application for: Preliminary and Final Site Plan Res/Non-Res
Applicant: Robbinsville Heights, LLC
Project: Robbinsville Heights, LLC
Block: Block 1, Lot(s)18, 19, & 20 2345-2349 Rt.33
Zone: TCS-RA (Town Center South -Redevelopment)
REVIEW #1
Escrow Account: R250701

Description: A 4 story mixed use building consisting of a bar/restaurant space , retail space and residential units. A liquor store, restaurant, and additional retail space is proposed on the 1st floor. 1, 2 & 3 bedroom residential units are proposed on the 2nd, 3rd, and 4th floors, and a rooftop bar/ lounge is also proposed on the 4th floor. (28) proposed apartments.

The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **February 17, 2026 as this application has been tentatively scheduled for TRC on 2/24/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments: NO COMMENT AT THIS TIME.

Signature: Sgt. Wayne Hough Date: 2-10-2026
Print name and Title: Sgt. Wayne Hough

Attachment(s)

Cc: Application File

Robbinsville
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Planning/Zoning/Engineering Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1120 e-mail BoardSecretary@robbinsville.net

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	Carolyn Feigin, PP, PE, Engineering Consultant	
	Carmela Roberts, PE, CME, Sewer Consultant	
	Bruce Klein PP, PTOE, Traffic Consultant	
	Steven Leone, AIA, Architectural Consultant	
	Jack Carmen, LA, Landcape Arch. Consultant	
	Environmental Commission	
	Board of Health	
	Fire Company	
	Construction Official	
	Public Works	
	Police Department	
	Tax Assessor	
	Affordable Housing	
	Township Attorney	

Date: January 27, 2026

From: Planning/Zoning Board Secretary

Re:
Application #: **R25-07-01**
Application for: **Preliminary and Final Site Plan Res/Non-Res**
Applicant: **Robbinsville Heights, LLC**
Project: **Robbinsville Heights, LLC**
Block: **Block 1, Lot(s)18, 19, & 20** **2345-2349 Rt.33**
Zone: **TCS-RA (Town Center South -Redevelopment)**
REVIEW #1
Escrow Account: **R250701**

Description: A 4 story mixed use building consisting of a bar/restaurant space , retail space and residential units. A liquor store, restaurant, and additional retail space is proposed on the 1st floor. 1, 2 & 3 bedroom residential units are proposed on the 2nd, 3rd, and 4th floors, and a rooftop bar/ lounge is also proposed on the 4th floor. (28) proposed apartments.

The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **February 17, 2026 as this application has been tentatively scheduled for TRC on 2/24/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments:

No comments at this time

Signature: _____ Date: 1/25/26
Print name and Title: Craig Bust

Attachment(s)

Cc: Application File

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL
Planning/Zoning/Engineering Office
2298 Route 33, Robbinsville, NJ 08691
Phone (609) 259-3600, ext. 1120 e-mail BoardSecretary@robbinsville.net

DISTRIBUTION OF PLANS

To:		REVIEWS RECEIVED
	Patrick Varga, Esq.	FYI Only
	Michael Herbert, Esq.	FYI Only
	John Nunziato, PE, PP, Township Engineer	FYI Only
	Nick Papasso, EIT, Assistant Township Engineer	FYI Only
	Stuart Wiser, AICP, PP, Planning Consultant	
	Carolyn Feigin, PP, PE, Engineering Consultant	
	Carmela Roberts, PE, CME, Sewer Consultant	
	Bruce Klein PP, PTOE, Traffic Consultant	
	Steven Leone, AIA, Architectural Consultant	
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REVIEW #1
Escrow Account: **R250701**

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The Land Use Board has received the attached development proposal for its consideration. Please prepare a FULL TECHNICAL REVIEW and COMPLETENESS REVIEW for your discipline. Please submit your review letter no later than **February 17, 2026 as this application has been tentatively scheduled for TRC on 2/24/26.** You may provide your comments below or on a separate page. Thank you.

I have reviewed the above-referenced plans and have the following comments:
Pursuant to ordinance 2017-29 section e. Non-Residential Developers Fees 2a: The non-residential portion of a mixed use inclusionary or market rate development shall be subject to the 2 ½ percent development fee, unless otherwise exempted below. and section d.The Residential Developers Fees 1a: Within all residential districts, residential developers, except for developers of the types of development specifically exempted below, shall pay a fee of 1.5% of the equalized assessed value for residential development provided no increased density is permitted.

Signature: _____ Date: 02/05/2026

Print name and Title: Cheressa DiNatale, MHL/AA

Attachment(s)

Cc: Application File

AN ORDINANCE OF THE TOWNSHIP OF ROBBINSVILLE IN MERCER COUNTY, NEW JERSEY, AMENDING THE AFFORDABLE HOUSING DEVELOPMENT FEE PROVISIONS OF CHAPTER 142, "LAND USE", OF THE CODE OF THE TOWNSHIP OF ROBBINSVILLE

NOW THEREFORE, BE IT ORDAINED by the Township Council of the Township of Robbinsville, Mercer County, New Jersey, that the Land Use Ordinance of the Township of Robbinsville, as codified in the Code of the Township of Robbinsville ("Code"), be amended as follows:

Section 1. Chapter 142, Article XI "Developer Contributions", Sections 142-100, is repealed and replaced with the following:

142-100. AFFORDABLE HOUSING DEVELOPMENT FEES

a. Purpose:

1. In Holmdel Builder's Association V. Holmdel Township, 121 N.J. 550 (1990), the New Jersey Supreme Court determined that mandatory development fees are authorized by the Fair Housing Act of 1985 (the Act), N.J.S.A. 52:27d-301 et seq., and the State Constitution, subject to the Council on Affordable Housing's (COAH's) adoption of rules; and,

2. Pursuant to P.L.2008, c.46 section 8 (C. 52:27D-329.2) and the Statewide Non-Residential Development Fee Act (C. 40:55D-8.1 through 8.7), COAH is authorized to adopt and promulgate regulations necessary for the establishment, implementation, review, monitoring and enforcement of municipal affordable housing trust funds and corresponding spending plans. Municipalities that are under the jurisdiction of the ~~Council or~~ Court of competent jurisdiction and have a ~~COAH~~ Court-approved spending plan may retain fees collected from non-residential development; and,

3. This ordinance establishes standards for the collection, maintenance, and expenditure of development fees pursuant to COAH's regulations and in accordance P.L.2008, c.46, Sections 8 and 32-38. Fees collected pursuant to this ordinance shall be used for the sole purpose of providing low- and moderate-income housing. This ordinance shall be interpreted within the framework of COAH's rules on development fees, codified at N.J.A.C. 5:97-8,

b. Basic requirements

1. This ordinance shall not be effective until approved by ~~COAH~~ the Court pursuant to *N.J.A.C.* 5:96-5.1.

2. Robbinsville Township shall not spend development fees until ~~COAH~~ the Court has approved a plan for spending such fees in conformance with *N.J.A.C.* 5:97-8.10 and *N.J.A.C.* 5:96-5.3.

c. Definitions

1. The following terms, as used in this ordinance, shall have the following meanings:

(a) "Affordable housing development" means a development included in the Housing Element and Fair Share Plan, and includes, but is not limited to, an inclusionary development, a municipal construction project or a 100 percent affordable development.

(b) "COAH" or the "Council" means the New Jersey Council on Affordable Housing established under the Act which ~~has~~ had primary jurisdiction for the administration of housing obligations in accordance with sound regional planning consideration in the State.

(c) "Development fee" means money paid by a developer for the improvement of property as permitted in *N.J.A.C.* 5:97-8.3.

(d) "Developer" means the legal or beneficial owner or owners of a lot or of any land proposed to be included in a proposed development, including the holder of an option or contract to purchase, or other person having an enforceable proprietary interest in such land.

(e) "Equalized assessed value" means the assessed value of a property divided by the current average ratio of assessed to true value for the municipality in which the property is situated, as determined in accordance with sections 1, 5, and 6 of P.L.1973, c.123 (C.54:1-35a through C.54:1-35c).

(f) "Green building strategies" means those strategies that minimize the impact of development on the environment, and enhance the health, safety and well-being of residents by producing durable, low-maintenance, resource-efficient housing while making optimum use of existing infrastructure and community services.

d. Residential Development fees

1. Imposed fees

(a) Within all residential districts, residential developers, except for developers of the types of development specifically exempted below, shall pay a fee of one and a half percent of the equalized assessed value for residential development provided no increased density is permitted.

(b) When an increase in residential density pursuant to N.J.S.A. 40:55D-70d(5) (known as a "d" variance) has been permitted, developers are required to pay a development fee of six percent of the equalized assessed value for each additional unit that may be realized. However, if the zoning on a site has changed during the two-year period preceding the filing of such a variance application, the base density for the purposes of calculating the bonus development fee shall be the highest density permitted by right during the two-year period preceding the filing of the variance application.

Example: If an approval allows four units to be constructed on a site that was zoned for two units, the fees could equal 1.5 percent of the equalized assessed value on the first two units; and the specified higher percentage up to six percent of the equalized assessed value for the two additional units, provided zoning on the site has not changed during the two-year period preceding the filing of such a variance application.

2. Eligible exactions, ineligible exactions and exemptions for residential development

(a) Affordable housing developments and developments where the developer has made a payment in lieu of on-site construction of affordable units shall be exempt from development fees.

(b) Developments that have received preliminary or final site plan approval prior to the adoption of a municipal development fee ordinance shall be exempt from development fees, unless the developer seeks a substantial change in the approval. Where a site plan approval does not apply, a zoning and/or building permit shall be synonymous with preliminary or final site plan approval for this purpose. The fee percentage shall be vested on the date that the building permit is issued.

(c) Development fees shall be imposed and collected when an existing structure undergoes a change to a more intense use, is demolished and replaced, or is expanded, if the expansion is not otherwise exempt from the development fee requirement. The development fee shall be calculated on the increase in the equalized assessed value of the improved structure.

(d) Developers of residential structures demolished and replaced by the same owner as the result of a natural disaster such as fire and flooding and green buildings shall be exempt from paying a development fee.

(e) Developments by the Township and Board of Education are exempt from the fee. The sanctuary of a house of worship is exempt from the fee but any ancillary use such as a day care center or community center/auditorium that triggers an ~~growth share~~ affordable housing obligation is not exempt.

e. Non-residential Development fees

1. Imposed fees

(a) Within all zoning districts, non-residential developers, except for developers of the types of development specifically exempted, shall pay a fee equal to two and one-half (2.5) percent of the equalized assessed value of the land and improvements, for all new non-residential construction on an unimproved lot or lots.

(b) Non-residential developers, except for developers of the types of development specifically exempted, shall also pay a fee equal to two and one-half (2.5) percent of the increase in equalized assessed value resulting from any additions to existing structures to be used for non-residential purposes.

(c) Development fees shall be imposed and collected when an existing structure is demolished and replaced. The development fee of two and a half percent (2.5%) shall be calculated on the difference between the equalized assessed value of the pre-existing land and improvement and the equalized assessed value of the newly improved structure, i.e. land and improvement, at the time final certificate of occupancy is issued. If the calculation required under this section results in a negative number, the non-residential development fee shall be zero.

2. Eligible exactions, ineligible exactions and exemptions for non-residential development

(a) The non-residential portion of a mixed-use inclusionary or market rate development shall be subject to the two and a half (2.5) percent development fee, unless otherwise exempted below.

(b) The 2.5 percent fee shall not apply to an increase in equalized assessed value resulting from alterations, change in use within existing footprint, reconstruction, renovations and repairs.

(c) Non-residential developments shall be exempt from the payment of non-residential development fees in accordance with the exemptions required pursuant to P.L.2008, c.46, as specified in the Form N-RDF "State of New Jersey Non-Residential Development Certification/Exemption" Form.

Any exemption claimed by a developer shall be substantiated by that developer.

(d) A developer of a non-residential development exempted from the non-residential development fee pursuant to P.L.2008, c.46 shall be subject to it at such time the basis for the exemption no longer applies, and shall make the payment of the non-residential development fee, in that event, within three years after that event or after the issuance of the final certificate of occupancy of the non-residential development, whichever is later.

(e) If a property which was exempted from the collection of a non-residential development fee thereafter ceases to be exempt from property taxation, the owner of the property shall remit the fees required pursuant to this section within 45 days of the termination of the property tax exemption. Unpaid non-residential development fees under these circumstances may be enforceable by Robbinsville as a lien against the real property of the owner.

f. Collection procedures

1. Upon the granting of a preliminary, final or other applicable approval, for a development, the applicable approving authority shall direct its staff to notify the construction official responsible for the issuance of a building permit.

2. For non-residential developments only, the developer shall also be provided with a copy of Form N-RDF "State of New Jersey Non-Residential Development Certification/Exemption" to be completed as per the instructions provided. The Developer of a non-residential development shall complete Form N-RDF as per the instructions provided. The construction official shall verify the information submitted by the non-residential developer as per the instructions provided in the Form N-RDF. The Tax assessor shall verify exemptions and prepare estimated and final assessments as per the instructions provided in Form N-RDF.

3. The construction official responsible for the issuance of a building permit shall notify the local tax assessor of the issuance of the first building permit for a development which is subject to a development fee.

4. Within 90 days of receipt of that notice, the municipal tax assessor, based on the plans filed, shall provide an estimate of the equalized assessed value of the development.

5. The construction official responsible for the issuance of a final certificate of occupancy notifies the local assessor of any and all requests for the scheduling of a final inspection on property which is subject to a development fee.

6. Within 10 business days of a request for the scheduling of a final inspection, the municipal assessor shall confirm or modify the previously estimated equalized assessed value of the improvements of the development; calculate the development fee; and thereafter notify the developer of the amount of the fee.

7. Should Robbinsville fail to determine or notify the developer of the amount of the development fee within 10 business days of the request for final inspection, the developer may estimate the amount due and pay that estimated amount consistent with the dispute process set forth in subsection b. of section 37 of P.L.2008, c.46 (C.40:55D-8.6).

8. The developer shall pay 100 percent of the calculated development fee amount prior to the municipal issuance of a temporary certificate of occupancy for the subject property.

9. Appeal of development fees.

   (a) A developer may challenge residential development fees imposed by filing a challenge with the County Board of Taxation. Pending a review and determination by the Board, collected fees shall be placed in an interest bearing escrow account by Robbinsville. Appeals from a determination of the Board may be made to the tax court in accordance with the provisions of the State Tax Uniform Procedure Law, R.S.54:48-1 et seq., within 90 days after the date of such determination. Interest earned on amounts escrowed shall be credited to the prevailing party.

   (b) A developer may challenge non-residential development fees imposed by filing a challenge with the Director of the Division of Taxation. Pending a review and determination by the Director, which shall be made within 45 days of receipt of the challenge, collected fees shall be placed in an interest bearing escrow account by Robbinsville. Appeals from a determination of the Director may be made to the tax court in accordance with the provisions of the State Tax Uniform Procedure Law, R.S.54:48-1 et seq., within 90 days after the date of such determination. Interest earned on amounts escrowed shall be credited to the prevailing party.

g. Affordable Housing trust fund

1. There is hereby created a separate, interest-bearing housing trust fund to be maintained by the chief financial officer for the purpose of depositing development fees collected from residential and non-residential developers and proceeds from the sale of units with extinguished controls.

2. The following additional funds shall be deposited in the Affordable Housing Trust Fund and shall at all times be identifiable by source and amount:

(a) Payments in lieu of on-site construction of affordable units;

(b) Developer contributed funds to make ten percent (10%) of the adaptable entrances in a townhouse or other multistory attached development accessible;

(c) Rental income from municipally operated units;

(d) Repayments from affordable housing program loans;

(e) Recapture funds;

(f) Proceeds from the sale of affordable units; and

(g) Any other funds collected in connection with Robbinsville's affordable housing program.

~~3. Within seven days from the opening of the trust fund account, Robbinsville provided COAH with written authorization, in the form of a three-party escrow agreement between the municipality, the bank and COAH to permit COAH to direct the disbursement of the funds as provided for in N.J.A.C. 5:97-8.13(b).~~

3. All interest accrued in the housing trust fund shall only be used on eligible affordable housing activities approved by ~~COAH~~ the Court.

h. Use of funds

1. The expenditure of all funds shall conform to a spending plan approved by ~~COAH~~ the Court. Funds deposited in the housing trust fund may be used for any activity approved by ~~COAH~~ the Court to address Robbinsville's fair share obligation and may be set up as a grant or revolving loan program. Such activities include, but are not limited to: preservation or purchase of housing for the purpose of maintaining or implementing affordability controls, rehabilitation, new construction of affordable housing units and related costs, accessory apartment, market to affordable, or regional housing partnership programs, conversion of existing non-residential buildings to create new affordable units, green building strategies designed to be cost saving and in accordance with accepted national or state standards, purchase of land for affordable housing, improvement of land to be used for affordable housing, extensions or improvements of roads and infrastructure to affordable housing sites, financial assistance designed to increase affordability, administration necessary for implementation of the Housing Element and Fair Share Plan, or any other activity as permitted pursuant to N.J.A.C. 5:97-8.7 through 8.9 and specified in the approved spending plan.

2. Funds shall not be expended to reimburse Robbinsville for past housing activities.

3. At least 30 percent of all development fees collected and interest earned shall be used to provide affordability assistance to low- and moderate-income households in affordable units included in the municipal Fair Share Plan. One-third of the affordability assistance portion of development fees collected shall be used to provide affordability assistance to those households earning 30 percent or less of median income by region.

   (a) Affordability assistance programs may include down payment assistance, security deposit assistance, low interest loans, rental assistance, assistance with homeowners association or condominium fees and special assessments, and assistance with emergency repairs.

   (b) Affordability assistance to households earning 30 percent or less of median income may include buying down the cost of low or moderate income units in the municipal Fair Share Plan to make them affordable to households earning 30 percent or less of median income. The use of development fees in this manner shall entitle Robbinsville to bonus credits pursuant to N.J.A.C. 5:97-3.7.

   (c) Payments in lieu of constructing affordable units on site and funds from the sale of units with extinguished controls shall be exempt from the affordability assistance requirement.

4. Robbinsville may contract with a private or public entity to administer any part of its Housing Element and Fair Share Plan, including the requirement for affordability assistance, in accordance with N.J.A.C. 5:96-18.

5. No more than 20 percent of all revenues collected from development fees, may be expended on administration, including, but not limited to, salaries and benefits for municipal employees or consultant fees necessary to develop or implement a new construction program, a Housing Element and Fair Share Plan, and/or an affirmative marketing program. In the case of a rehabilitation program, no more than 20 percent of the revenues collected from development fees shall be expended for such administrative expenses. Administrative funds may be used for income qualification of households, monitoring the turnover of sale and rental units, and compliance with ~~COAH's~~ the Court's monitoring requirements. Legal or other fees related to litigation opposing affordable housing sites or objecting to the Council's regulations and/or action are not eligible uses of the affordable housing trust fund.

i. Monitoring. Robbinsville shall complete and return to ~~COAH~~ Fair Share Housing Center (FSHC) all monitoring forms included in monitoring requirements related to the collection of development fees from residential and non-residential developers, payments in lieu of constructing affordable units on site, funds from the sale of units with extinguished controls, barrier free escrow funds, rental income, repayments from affordable housing program loans, and any other funds collected in connection with Robbinsville's housing program, as well as to the expenditure of revenues and implementation of the plan ~~certified by COAH~~ approved by the Court. All monitoring reports shall be completed on forms designed by COAH.

j. Ongoing collection of fees. The ability for Robbinsville to impose, collect and expend development fees shall expire with its ~~substantive certification~~ Judgement of Compliance and Repose unless Robbinsville has filed an adopted Housing Element and Fair Share Plan with ~~COAH~~ the Court, has petitioned for ~~substantive certification~~ the Court for review and approval, and has received ~~COAH's~~ the Court's approval of its development fee ordinance. ~~If Robbinsville fails to renew its ability to impose and collect development fees prior to the expiration of substantive certification the Court for review and approval, it may be subject to forfeiture of any or all funds remaining within its municipal trust fund. Any funds so forfeited shall be deposited into the "New Jersey Affordable Housing Trust Fund" established pursuant to section 20 of P.L.1985, c.222 (C.52:27D-320).~~ Robbinsville shall not impose a residential development fee on a development that receives preliminary or final site plan approval after the expiration of its ~~substantive certification~~ Judgement of Compliance and Repose, nor shall Robbinsville retroactively impose a development fee on such a development. Robbinsville shall not expend development fees after the expiration of its ~~substantive certification or j~~Judgment of eCompliance.

Section 2. Severability. If any portion of this Ordinance is found to be invalid for any reason by any court of competent jurisdiction, such judgment shall be limited in its effect only to that portion of the ordinance actually invalidated and shall not be deemed to affect the operation of any other portion thereof.

Section 3. Effective Date. This ordinance shall take effect upon its passage and publication, as required by law, and upon approval by the ~~Council on Affordable Housing pursuant to *N.J.A.C.* 5:96-5.1~~ Court.

PASSED: October 12, 2017

ADOPTED: 10-17-2017

Michele Seigfried, Municipal Clerk

David Fried, Mayor

c. *SHYPM LLC – 15%*
   (i) *Hetal Patel 33 1/3%*
   (ii) *Jyoti Patel 33 1/3%*
   (iii) *Aditi Patel 33 1/3%*

Robbinsville Heights LLC is a single purpose entity created to own and develop the site. Its principals, Rajeshkumar Patel and Hari Patel have over ten (10) years of experience in the development industry as set forth in attached ***Exhibit A****.*

2. Financial Capability.

The redeveloper is the owner of the Property and is an operator and developer with over ten (10) years of experience in its industry including redevelopment of other facilities with the wherewithal to obtain the private financing required.

3. Previous Development & Operations Experience.

See information set forth in 1. and 2. above including ***Exhibit A****.*

4. Organization and Management Structure.

See 1. above.

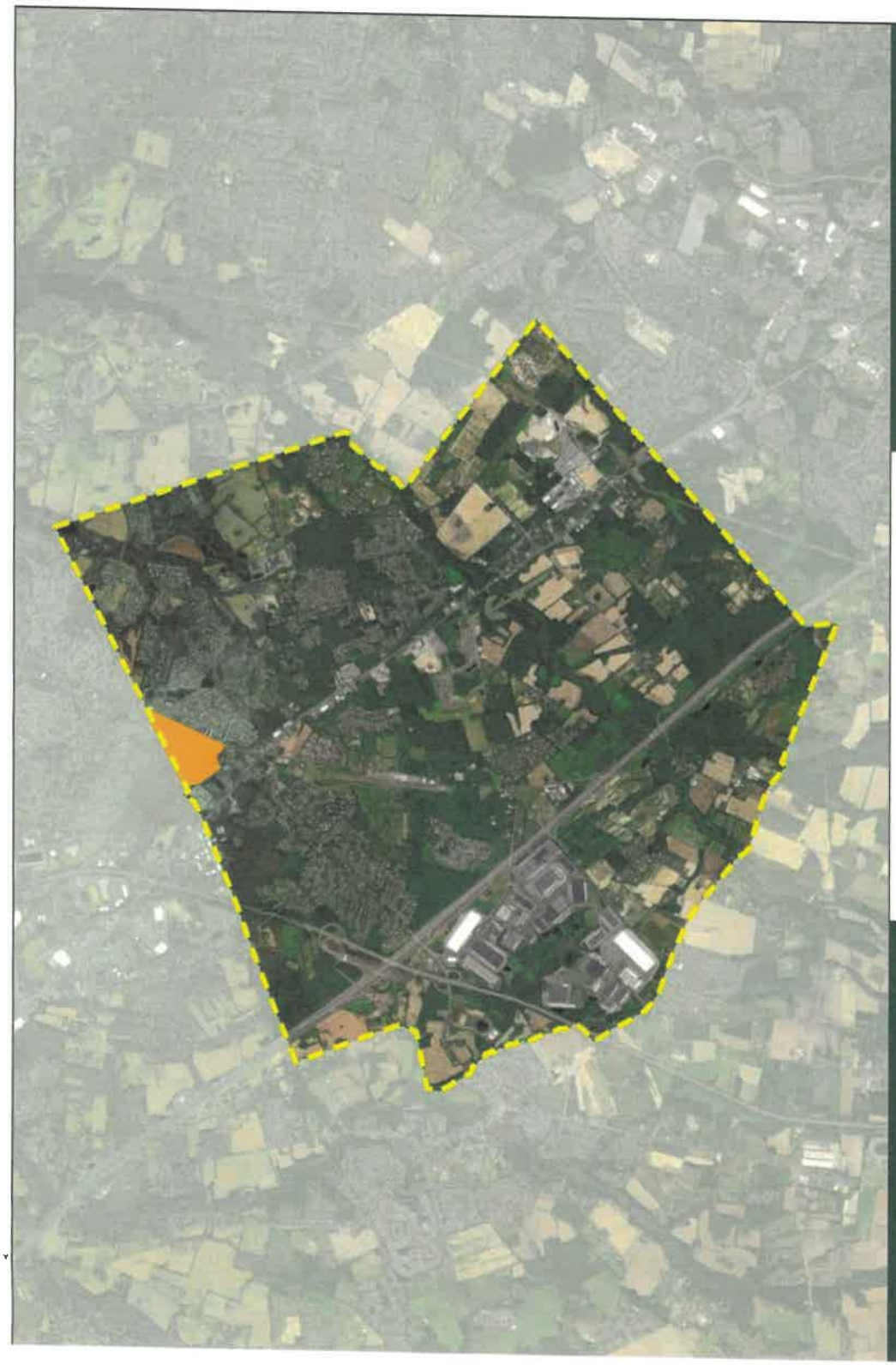
5. Project Concept.

Shall consist of a four (4) story mixed use residential and commercial building on approximately 1.7 acres. The building footprint is approximately 11,716 square feet and the total gross floor area is 46,864. The first floor is proposed commercial space and a proposed patio area. The second and third floors shall consist of all residential units. The fourth floor shall contain residential units and amenity space such as an open and covered patio. The proposed number of units is twenty eight (28) currently consisting of 3 - one bedroom, 20 - two bedroom and 5 - three bedroom units.

See plan entitled "Concept Plan for 2345-2349 Route 33 Block 1, Lots 18, 19 & 20" prepared by Colliers Engineering & Design consisting of one (1) sheet, attached hereto as ***Exhibit B****. A 24" x 36" print is also made part of this submission.*

See plan entitled "Proposed Retail/Apartment Building for : Robbinsville Heights " prepared by Perez + Radosti Associates, P.C., consisting of four (4) sheet attached hereto as ***Exhibit C****.*

6. Project Schedule



AMENDED & RESTATED REDEVELOPMENT PLAN

TOWN CENTER SOUTH REDEVELOPMENT AREA

Robbinsville Township,
Mercer County, New Jersey

September 11, 2025
ARH Project No. 1500020.02

PREPARED BY:

ARH ASSOCIATES

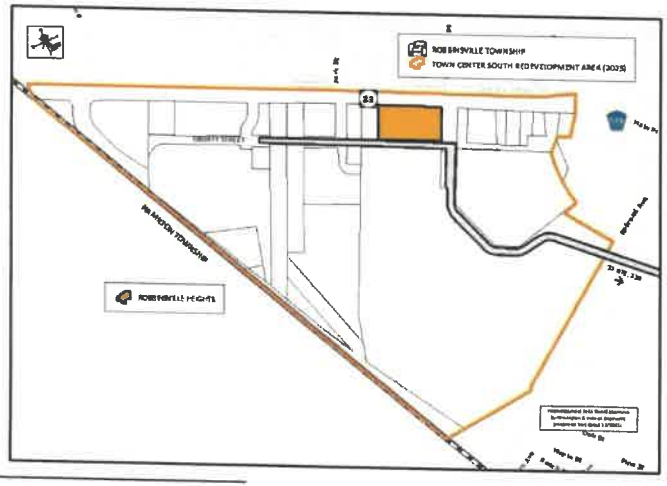
PREPARED FOR:

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL

C. In undertaking their due diligence, Capodagli and the Township identified revisions to the Redevelopment Plan as being necessary and appropriate to achieve the Project Concept as submitted. Such revisions are contained in this Amended & Restated Redevelopment Plan.

1.4.2 ROBBINSVILLE HEIGHTS

A. In July 2025, the Township received an Expression of Interest from Robbinsville Heights, LLC of Edison, New Jersey[34], proposing a Mixed-Use Redevelopment Project on the (approximately 1.7-acre) Route 33-fronting Block 1, Lots 18, 19 and 20 in the Redevelopment Area.



Robbinsville Heights' Expression of Interest highlights its position as *"dynamic and results-oriented real estate investors / developers with more than 8 years of experience in identifying, acquiring, developing, managing and optimizing real estate investment properties ... Their Project Leaders and business strategists [have] over 15 years of experience leading global teams in project management, workforce planning, and operations optimization"*. Past Projects include small to mid-sized residential developments in Edison, North Bergen, New Brunswick, North Brunswick, East Windsor ~ all in New Jersey.

B. The Project as proposed will consist of an (approximately) 15,000 s.f., 4-story building hosting 28 residential units[35] on the upper floors over ground floor retail, along with associated parking and site amenities. A 4th floor bar / lounge with potential outdoor seating is also anticipated.

C. Robbinsville Heights' Expression of Interest reflects a Project which is designed to achieve the Municipal Goals & Objectives of the Redevelopment Plan[36], and provides

[34] "Robbinsville Heights"

[35] 5 one bedroom units, 40 two bedroom units and 11 three bedroom units.

[36] §4.0 herein.

the Township with demonstrated evidence of its experience and qualifications in developing the type, size and scope of Project proposed.

Township Council designated Robbinsville Heights as Redeveloper Candidate for the property in August 2025, subject to the negotiation and execution of a Redevelopment Agreement setting forth the respective rights and obligations of the parties in connection with such redevelopment.

In undertaking its due diligence, Robbinsville Heights and the Township identified certain revisions to the Redevelopment Plan as necessary and appropriate to the development. Such revisions, to the extent known, are addressed at §7.4.6 herein.

1.4.3 ADDITIONAL PROVISIONS

A. Liberty Street

This Amended & Restated Redevelopment Plan[37] realigns Liberty Street to facilitate a seamless connection:

- From the existing, improved Liberty Street at the General Commercial Parcel; then
- Extending east to the Freedom Village Parcel at South Commerce Square; then
- South of the Freedom Village Parcel to the eastern boundary of the Redevelopment Area (a.k.a., the western boundary of the Route 130 South Redevelopment Area); then
- Through an existing easement on Block 1, Lot 53 to U.S. Route 130.

B. Public Recreation

This Amended & Restated Redevelopment Plan provides for a public active and passive recreation area to the northwest of Autumn @ Robbinsville and to the south of Robbinsville Heights. This area is to be owned, constructed, operated, and maintained by the Township[38].

At Publication of this Plan, amenities are thought to be a combination of open lawn, a gazebo, pickleball courts, public parking, a gym a dog park, an outdoor pavilion and bocce courts.

[37] §8.0 herein.

[38] Reserved

AMENDED & RESTATED REDEVELOPMENT PLAN

TOWN CENTER SOUTH REDEVELOPMENT AREA

Robbinsville Township,
Mercer County, New Jersey

September 11, 2025
ARH Project No. 1500020.02

PREPARED BY:

ARH ASSOCIATES

PREPARED FOR:

Robbinsville TOWNSHIP
BE AT THE CENTER OF IT ALL

The Town Center South was designated In Need of Redevelopment prior to the 2013 amendments to the *Redevelopment Law*. As such, the Township retains the power of eminent domain for Redevelopment purposes.

13.5.2 The *Redevelopment Law*[262] requires that a Redevelopment Plan include *"adequate provision for the temporary and permanent relocation, as necessary, of residents in the project area, including an estimate of the extent to which decent, safe and sanitary dwelling units affordable to displaced residents will be available to them in the existing local housing market"*.

The Housing Element & Fair Share Plan adopted by the Township in June 2025 contains information similar to that required under the *Redevelopment Law*. Accordingly, this Amended & Restated Redevelopment Plan shall rely on the Township's Fair Share Plan in satisfaction of this requirement.

13.5.3 The above notwithstanding, pursuant to applicable New Jersey Statutes regarding the use of eminent domain,[265] owners of properties taken by such action are entitled to Fair Market Value for their property. Full-time, permanent occupants of such properties are entitled to certain Relocation Assistance or Moving Expenses.

Prior to displacing any occupants as a result of eminent domain action, a Workable Relocation Assistance Plan[266] must be filed with and approved by the New Jersey Department of Community Affairs. Accordingly, if and when the Township is in a position to exercise its powers of eminent domain in such a way as to affect an eligible occupant of a property to be acquired, a WRAP will be prepared and filed with NJDCA.

NO ACTION TO DISPLACE ANY SUCH ELIGIBLE OCCUPANT SHALL OCCUR UNTIL SUCH WRAP HAS BEEN APPROVED.

13.5.4 THE ABOVE FURTHER NOTWITHSTANDING, THE TOWNSHIP SHALL TAKE NO ACTION TO ACQUIRE ANY PROPERTY THAT HAS BEEN REDEVELOPED UNDER THE REDEVELOPMENT PLAN OR ANY AMENDMENT THERETO.

[265] C. 20:3-1 et seq.

[266] "WRAP"

The Town Center South was designated In Need of Redevelopment prior to the 2013 amendments to the *Redevelopment Law*. As such, the Township retains the power of eminent domain for Redevelopment purposes.

13.5.2 The *Redevelopment Law*[262] requires that a Redevelopment Plan include "*adequate provision for the temporary and permanent relocation, as necessary, of residents in the project area, including an estimate of the extent to which decent, safe and sanitary dwelling units affordable to displaced residents will be available to them in the existing local housing market*".

The Housing Element & Fair Share Plan adopted by the Township in June 2025 contains information similar to that required under the *Redevelopment Law*. Accordingly, this Amended & Restated Redevelopment Plan shall rely on the Township's Fair Share Plan in satisfaction of this requirement.

13.5.3 The above notwithstanding, pursuant to applicable New Jersey Statutes regarding the use of eminent domain,[265] owners of properties taken by such action are entitled to Fair Market Value for their property. Full-time, permanent occupants of such properties are entitled to certain Relocation Assistance or Moving Expenses.

Prior to displacing any occupants as a result of eminent domain action, a Workable Relocation Assistance Plan[266] must be filed with and approved by the New Jersey Department of Community Affairs. Accordingly, if and when the Township is in a position to exercise its powers of eminent domain in such a way as to affect an eligible occupant of a property to be acquired, a WRAP will be prepared and filed with NJDCA.

NO ACTION TO DISPLACE ANY SUCH ELIGIBLE OCCUPANT SHALL OCCUR UNTIL SUCH WRAP HAS BEEN APPROVED.

13.5.4 THE ABOVE FURTHER NOTWITHSTANDING, THE TOWNSHIP SHALL TAKE NO ACTION TO ACQUIRE ANY PROPERTY THAT HAS BEEN REDEVELOPED UNDER THE REDEVELOPMENT PLAN OR ANY AMENDMENT THERETO.

[265] C. 20:3-1 et seq.

[266] "WRAP"

- *Growth management mechanisms, such as density transfers into the Town Center, are being established.*

As detailed, while certain specific land uses and development regulations of the Redevelopment Plan differed from those in place under the Town Center Plan,, the overall character of development proposed for the Redevelopment Area did not materially differ from the overall character of development envisioned for this section of the Township under TC-2 zoning.

This Amended & Restated Redevelopment Plan does not materially alter the land uses and development regulations of the Redevelopment Plan. Accordingly, there is no change in the relationship of this Amended & Restated Redevelopment Plan to the Mercer County Master Plan beyond that which existed prior to the adoption of this Plan.

13.8 INVENTORY OF EXISTING AFFORDABLE HOUSING UNITS TO BE REMOVED[271]

The *Redevelopment Law* requires that a Redevelopment Plan include:

As of the date of the adoption of the resolution finding the area to be In Need of Redevelopment, an inventory of all housing units affordable to low and moderate income households, as defined pursuant to ... C.52:27D-304, that are to be removed as a result of implementation of the Redevelopment Plan, whether as a result of subsidies or market conditions, listed by affordability level, number of bedrooms, and tenure.

At time of adoption of the resolution finding Town Center South to be In Need of Redevelopment, there were no residential uses existing in the Area. Any affordable housing now existing has been the result of the Redevelopment activities under the Redevelopment Plan and the various Amendments thereto. Such units are not to be removed under this Amended & Restated Redevelopment Plan.

This requirement is therefore not appliable.

13.9 PLAN FOR AFFORDABLE REPLACEMENT HOUSING[272]

The *Redevelopment Law* requires that Redevelopment Plan include:

[271] N.J.S.A. 40A:12A-7a.(6)

[272] N.J.S.A. 40A:12A-7a.(7)

[a] plan for the provision of one comparable, affordable replacement housing unit for each affordable housing unit that has been occupied at any time within the last 18 months, that is subject to affordability controls and that is identified as to be removed as a result of implementation of the Redevelopment Plan.

At time of adoption of the Redevelopment Plan, there were no residential uses existing in the Redevelopment Area. Any affordable housing now existing has been the result of the Redevelopment activities under the Redevelopment Plan and the various Amendments thereto. Such units are not to be removed under this Amended & Restated Redevelopment Plan.

This requirement is therefore not appliable.

13.10 PROVISION OF AFFORDABLE HOUSING[273]

In March 2024, Governor Murphy signed an array of new affordable housing legislation which overhauled the Fair Housing Act[274] and replaced the [then current] processes with a new body of regulations attendant to municipal obligations for the realistic provision of affordable housing under New Jersey's "Mount Laural Doctrine"[275].

In June 2025, the Township adopted an amended Housing Element & Fair Share Plan[276], which established rules and procedures for Robbinsville's "Round IV" affordable housing obligation. The approved HE&FSP was then filed for certification (approval) by NJDCA.

Issues related to the provision of affordable housing in the Redevelopment Area shall be negotiated within the context of the Redevelopment Agreement between the Township and each Redeveloper Candidate.

13.11 ZERO-EMISSION VEHICLE FUELING & CHARGING INFRASTRUCTURE[277]

The *Redevelopment Law* requires that Redevelopment Plan include:

[273] N.J.S.A. 40A:12A-7b.

[274] N.J.S.A. 52:27D-301 et seq.

[275] *In the Matter of the Adoption of N.J.A.C. 5:96 and 5:97* (221 N.J. 1 [2015] – a.k.a. "Mount Laurel IV").

[276] "HE&FSP"

[277] N.J.S.A. 40A:12A-7a(8)

For the purposes of this Redevelopment Plan, Zero Emission Fueling and Charing Stations shall have the same meaning as Electric Vehicle Charging Stations.