Planning and Zoning Department
616 Germantown Pike, Lafayette Hill, PA 19444-1821
484-594-2625
www.whitemarshtwp.org

Subdivision and Land Development Cover Page for SLD # 04-23

Project Name: The Miquon School

Address: 2025 Harts Lane

Date: March 24, 2023

Status: Heard at Planning Commission 05.09.2023
Submitted Preliminary/Final Plans (see new application)

Updates:

Fire Marshal Review – March 31, 2023
Updated Fire Marshal Review Letter – April 12, 2023
Zoning Ordinance Compliance Review Letter – April 25, 2023
Montgomery County Planning Commission Review – May 2, 2023
Township Engineer Review #1 – May 4, 2023
Updated Fire Marshal Review Letter #2 – August 3, 2023
Preliminary/ Final Plans – August 4, 2023
Stormwater Management Report – August 4, 2023
Revised Plans – August 31, 2023
Stormwater Management Report – September 5, 2023
MCPC Review – September 6, 2023

WHITEMARSH TOWNSHIP
SUBDIVISION and/or LAND DEVELOPMENT APPLICATION

The applicant, or applicant's authorized agent, for the Township to accept submission of the application, must complete each Application Item and each Application Submission Checklist item.

RECEIVED
MAR 24 2023
WHITEMARSH TOWNSHIP
ZONING & ENGINEERING

Application Type: (check one) ☐ Minor Subdivision ☐ Minor Land Development
☐ Major Subdivision ☐ Major Land Development
☐ Land Development Waiver

Plan Type: ☒ Sketch ☐ Preliminary ☐ Final

INSERT "N/A" FOR NOT APPLICABLE WHERE APPROPRIATE

Name of Subdivision/Land Development: The Miquon School — Heart of Campus Improvements

Location of Subdivision/Land Development: 2025 Harts Lane
(Primary Access Roadway Name)

Between: Paddock Lane (Roadway Name) **and** River Rd. (Roadway Name)

Number of Parcels: 1 **Block Number(s):** 6A **Unit Number(s):** 11

Parcel Number(s): DBV 5510 PG 1664

Acreage: 9.5362 **Total Lots Proposed:** 1 (0 new) **Zoning District:** AAAA Residential/ Institutional Overlay

Water Service Proposed: ☒ Public ☐ Private Sewer Service Proposed: ☐ Public ☒ Private

Applicant Name: The Miquon School **Contact Name:** Charlotte Boulay

Phone #: (734) 717 – 2672 Fax #: Email: charlotteb@miquon.org

Address: 2025 Harts Lane, Conshohocken, PA 19428

Owner of Record Name (if Different):

Phone #: Fax #: Email:

Address:

Engineer Name: Thomas J. Halliwell **Firm Name:** Grist, LLC

Phone #: (267) 332 – 8282 Fax #: Email: tjh@gristdesign.com

Address: 50 E. Sedgwick St., Phialdelphia, PA 19119

Fees and plans showing all public improvements are submitted with this application. Any additional plan information required by the Township Engineer will be submitted to the Director of Planning and Zoning for distribution. The undersigned applicant agrees to comply with all the provisions of Chapter 105 of the Code of the Township of Whitemarsh, as amended, and agrees to obtain all necessary permits in connection with the proposed subdivision and/or land development.

Whitemarsh Township employees, or township-authorized agents, are hereby granted permission to enter upon the land, if necessary, for site inspections.

Original preliminary and/or original final subdivision and/or land development applications submitted by 4:00pm on the last business day of the month will be reviewed by the Whitemarsh Township Planning Commission at a regular meeting two (2) months following the date of submission or other appropriate meeting date depending upon the results of Township reviews.

I hereby certify, as the undersigned applicant, that I am familiar with the provisions of: [1] Chapter 105, "Subdivision and Land Development", [2] Chapter 58, "Grading, Erosion Control, Stormwater Management and Best Management Practices", and [3] Chapter 55, "Tree Protection Standards" of the Code of the Township of Whitemarsh, as amended, and, to the best of my knowledge and belief, this application and the submitted plans conform to those provisions.

Date of Submission: 3/24/2023

Signature: _____

(Original Signature must be submitted)

Printed Name: CHARLOTTE BOULAY

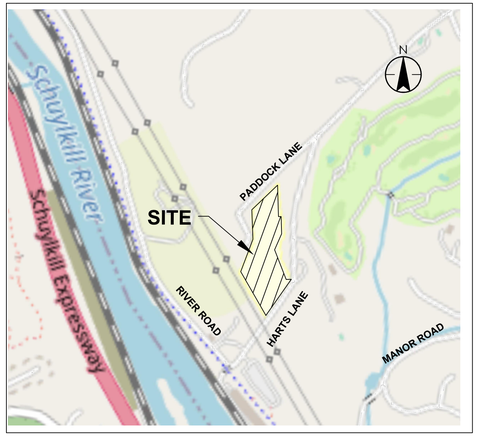
I, (name) CHARLOTTE BOULAY **(title)** DIR. OF DEVELOPMENT of

(entity submitting application) THE MIQUON SCHOOL do hereby affirm

that I am authorized by the applicant to affix my signature to this application.

Date: 3/24/2023 Signature: _____

(Original Signature must be submitted)



SITE LOCATION MAP

SCALE: 1" = 800'

NOTES:

1. THIS PLAN IS FOR SKETCH PLAN REVIEW BY WHITEMARSH TOWNSHIP. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
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7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYP. OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
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17. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- ZONING DISTRICT / OVERLAY (AAAA RESIDENTIAL / INSTITUTIONAL OVERLAY)
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- SOIL TYPE / BOUNDARY LINE (Ch)
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- EXISTING / PROPOSED CONTOUR (160)
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET

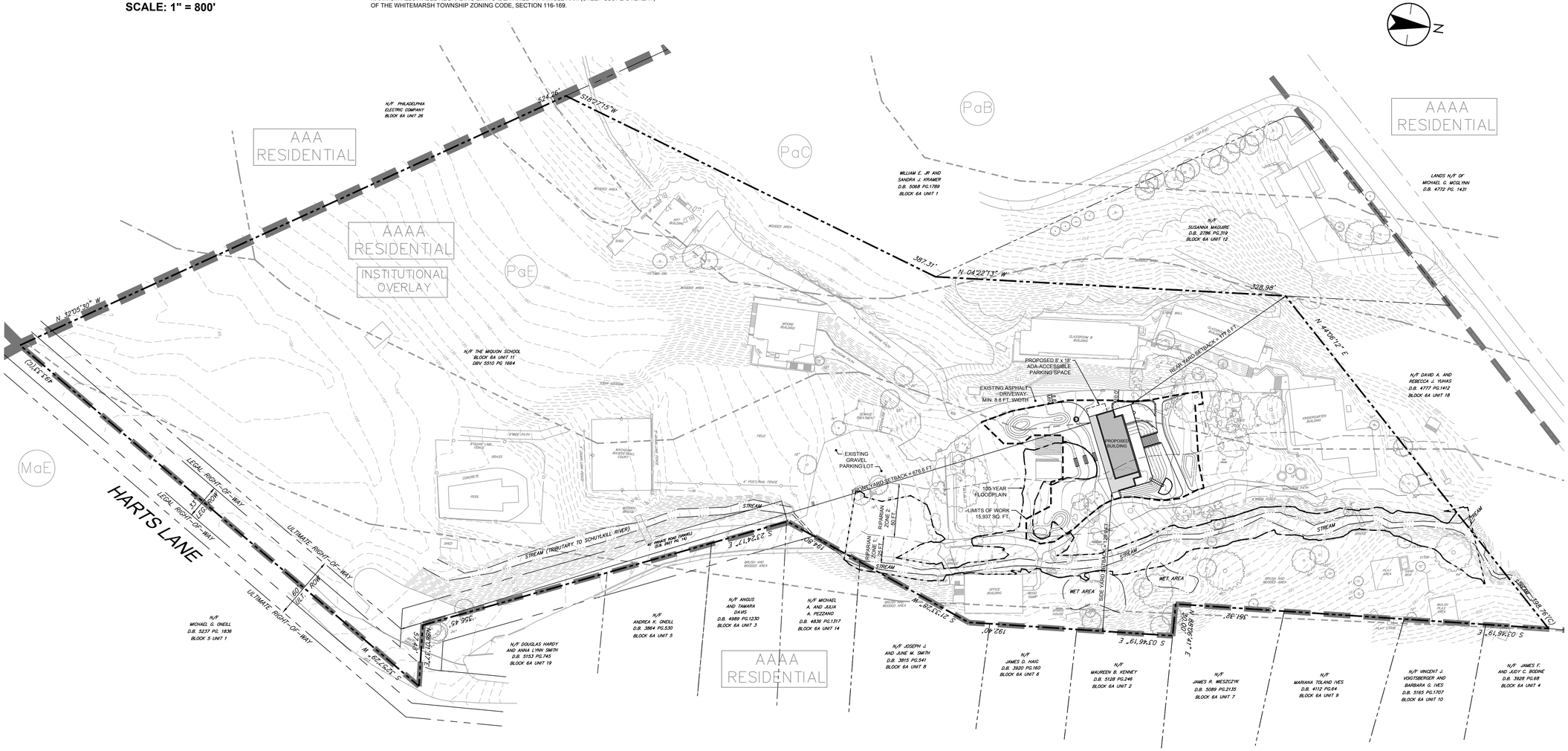
Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	675.97 ft.
Side Yard (min.)	50 ft.	129.89 ft.
Rear Yard (min.)	50 ft.	177.58 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space, forestry, and streambank stabilization	Rain garden
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building and associated improvements**

Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Private recreational uses, such as parks and nature preserves	Rain garden

* - Existing nonconformity

** - Variance required



Soils Summary Table			
Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
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0 50' 75' 100'

SCALE: 1" = 50'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

LANDSCAPE ARCHITECT
GROUND RECONSIDERED
915 Spring Garden Street, Suite 403
Philadelphia, PA 19123
215-790-0727

CIVIL ENGINEER
GRIST
50 East Sedgwick Street
Philadelphia, PA 19119
267-332-8282

STRUCTURAL ENGINEER
ANN ROTHMAN STRUCTURAL ENGINEERING
100 East Lancaster Avenue, Suite 203
Wayne, Pennsylvania 19087
610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH Checked: TJH Approved: TJH

Job Number: 764

File:

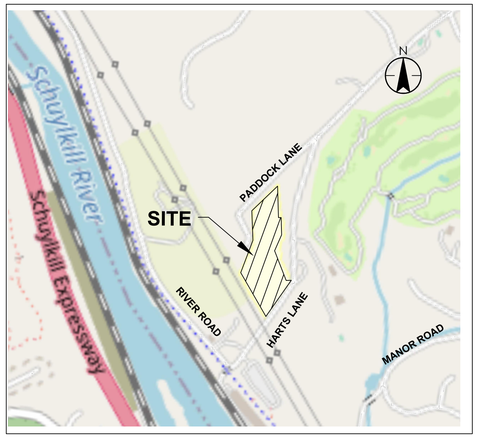
Date: 03/24/2023

Drawing Set: SKETCH PLAN

Drawing Title: SITE PLAN

Drawing Number: C10.0

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- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 / 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET
- STEEP SLOPES, 15-25% / MORE THAN 25%

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	675.97 ft.
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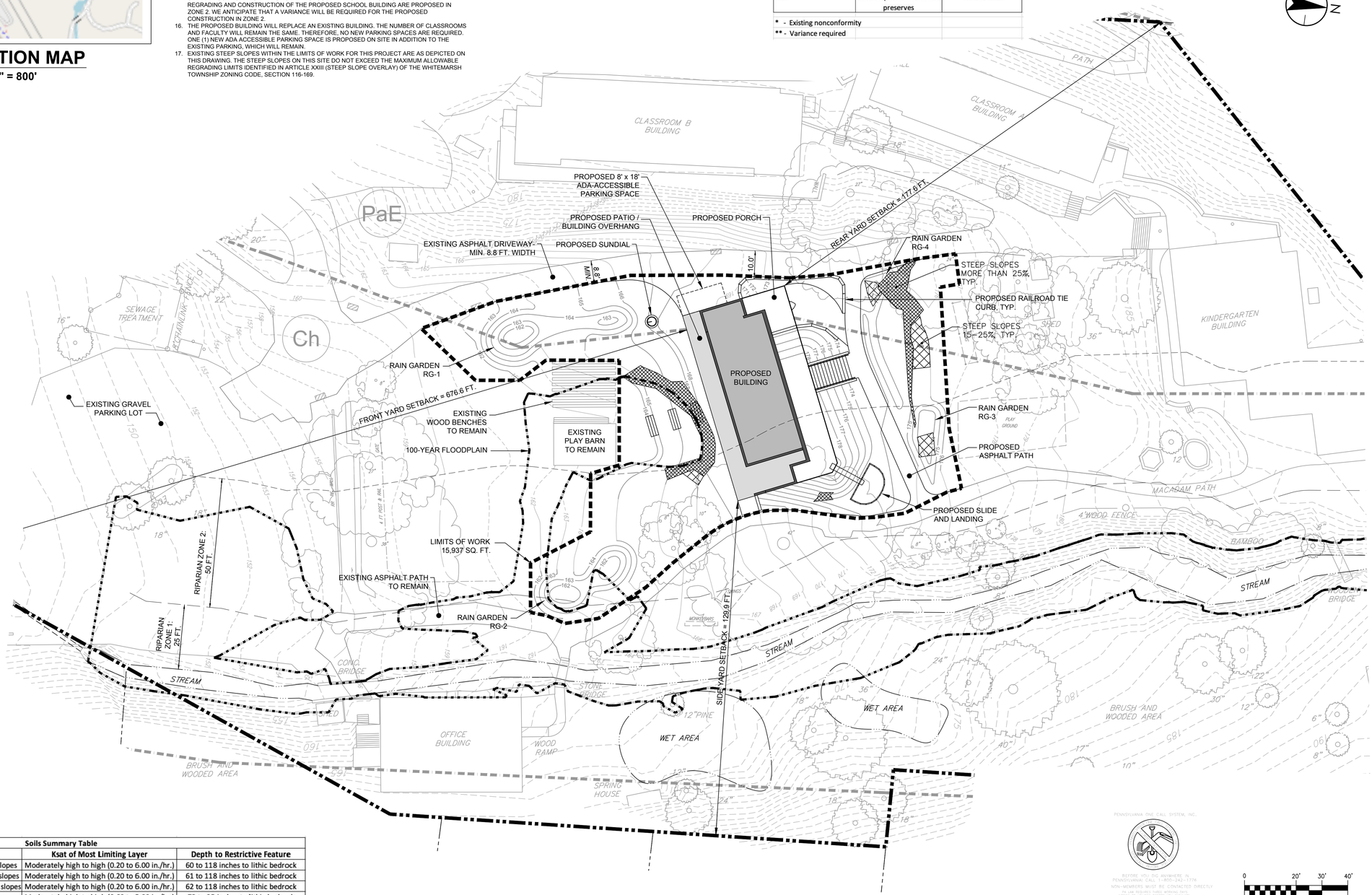
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Zoning District	Floodplain Conservation Overlay District	
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Use	Private recreational uses, such as parks and nature preserves	Rain garden

* - Existing nonconformity

** - Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%



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No.	Date	Revisions

Seal: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — THOMAS J. HALLIWELL — ENGINEER PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

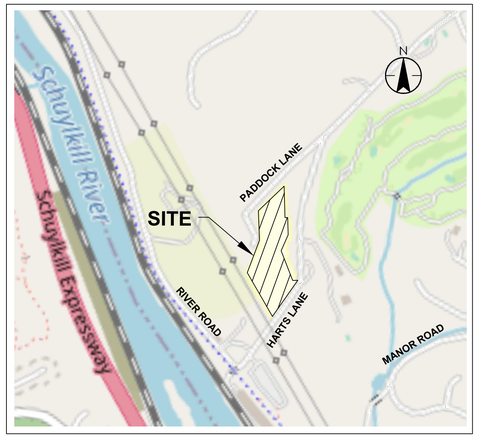
Date: 03/24/2023

Drawing Set: SKETCH PLAN

Drawing Title: PROJECT SITE PLAN

Drawing Number: C10.1

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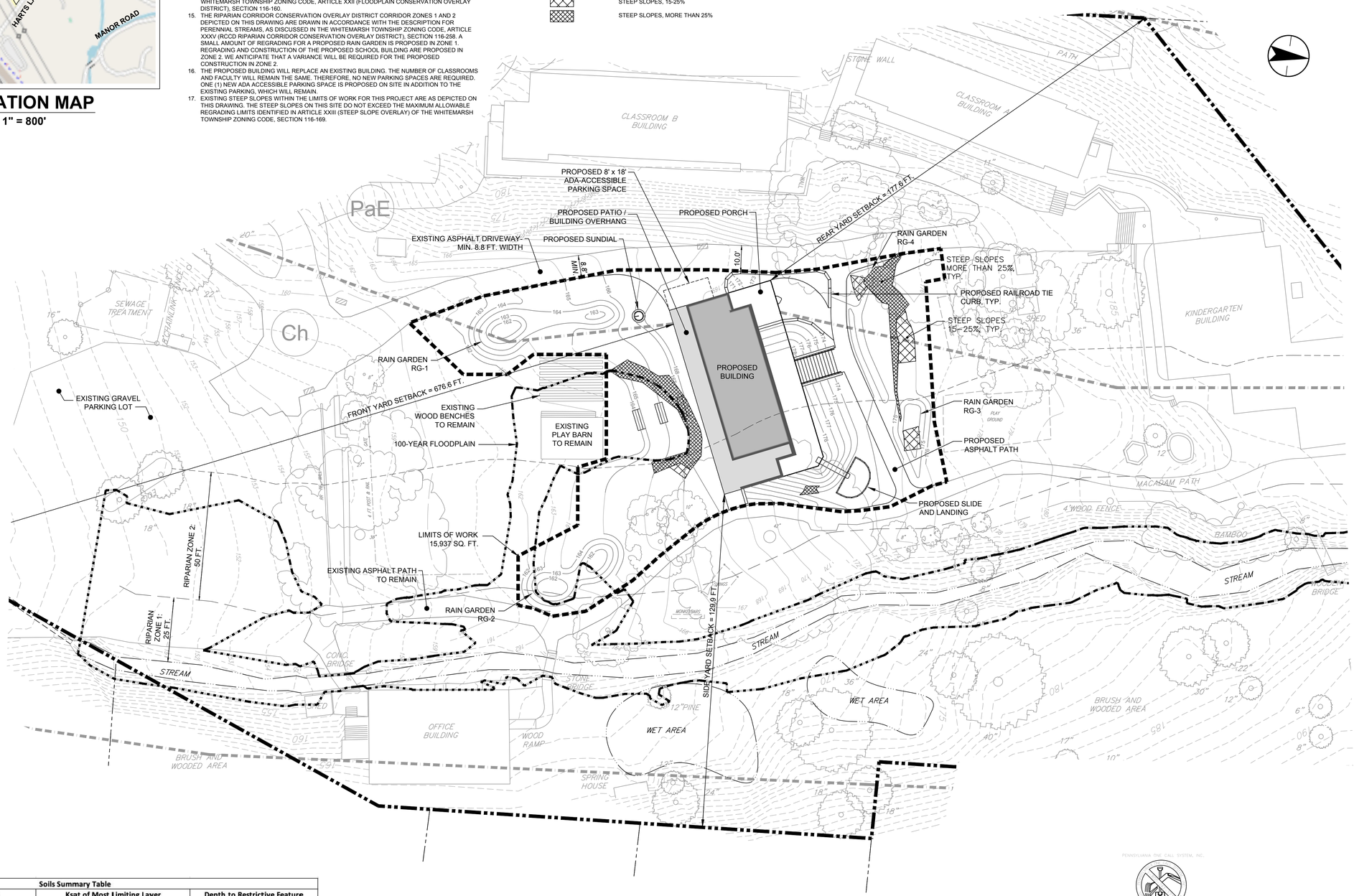
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- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 / 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET
- STEEP SLOPES, 15-25%
- STEEP SLOPES, MORE THAN 25%

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%



Soils Summary Table			
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0 20' 30' 40'

SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

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610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal:

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

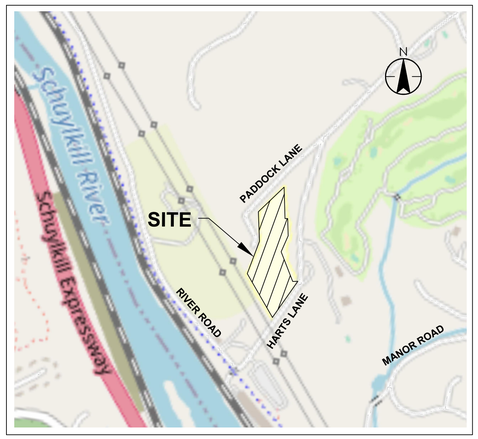
Date: 03/24/2023

Drawing Set: SKETCH PLAN

Drawing Title: EXISTING STEEP SLOPES SUMMARY

Drawing Number: FIG-1

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SITE LOCATION MAP

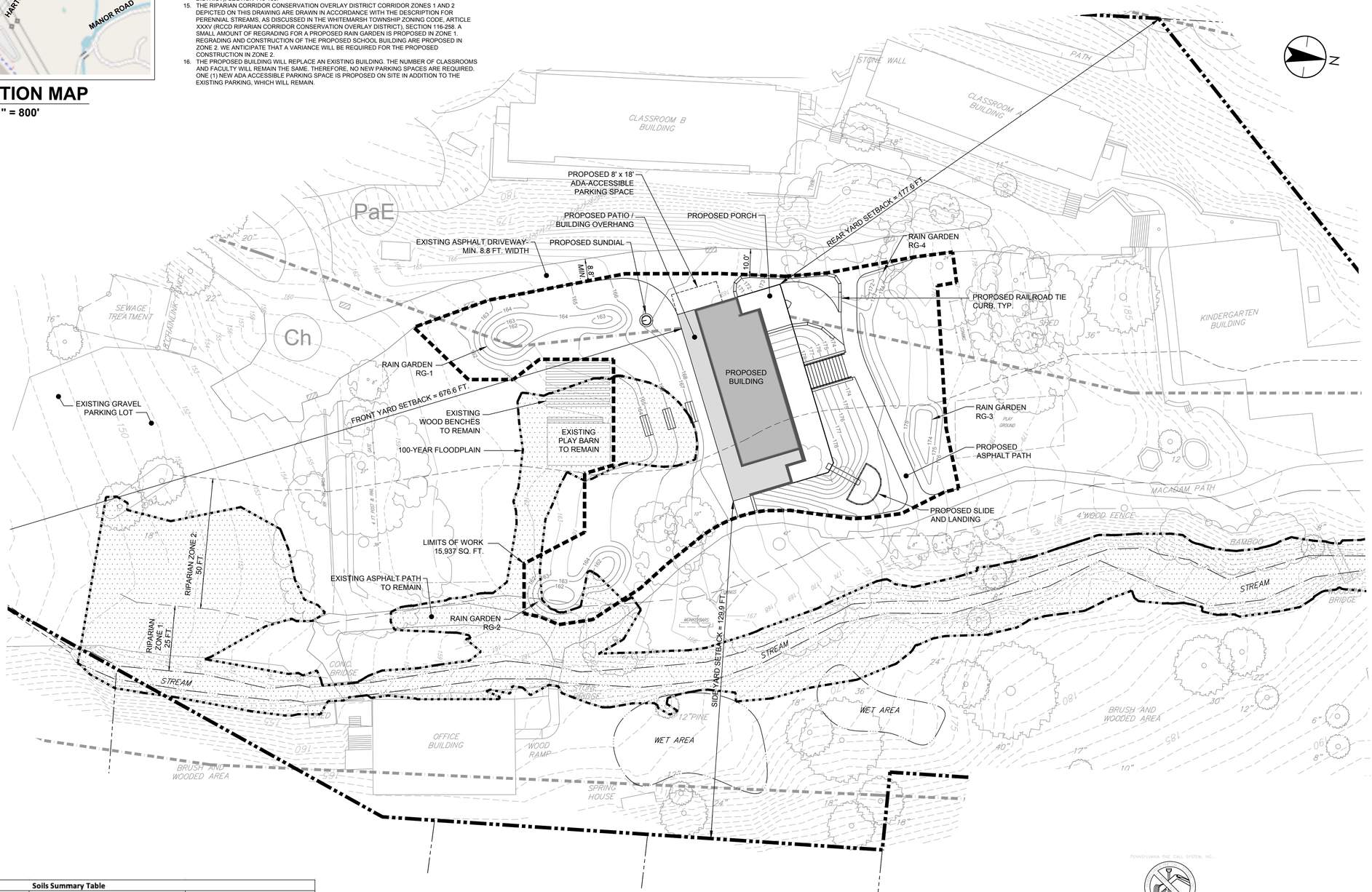
SCALE: 1" = 800'

NOTES:

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6. NO NEW PUBLIC STREETS ARE PROPOSED.
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LEGEND

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HEART OF THE CAMPUS

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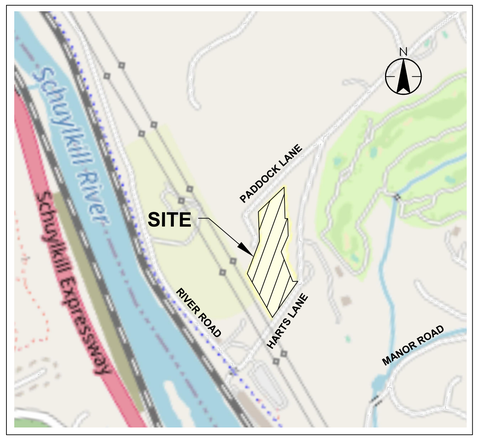
Date: 03/24/2023

Drawing Set: SKETCH PLAN

Drawing Title: 100 YEAR FLOODPLAIN

Drawing Number: FIG-2

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SITE LOCATION MAP

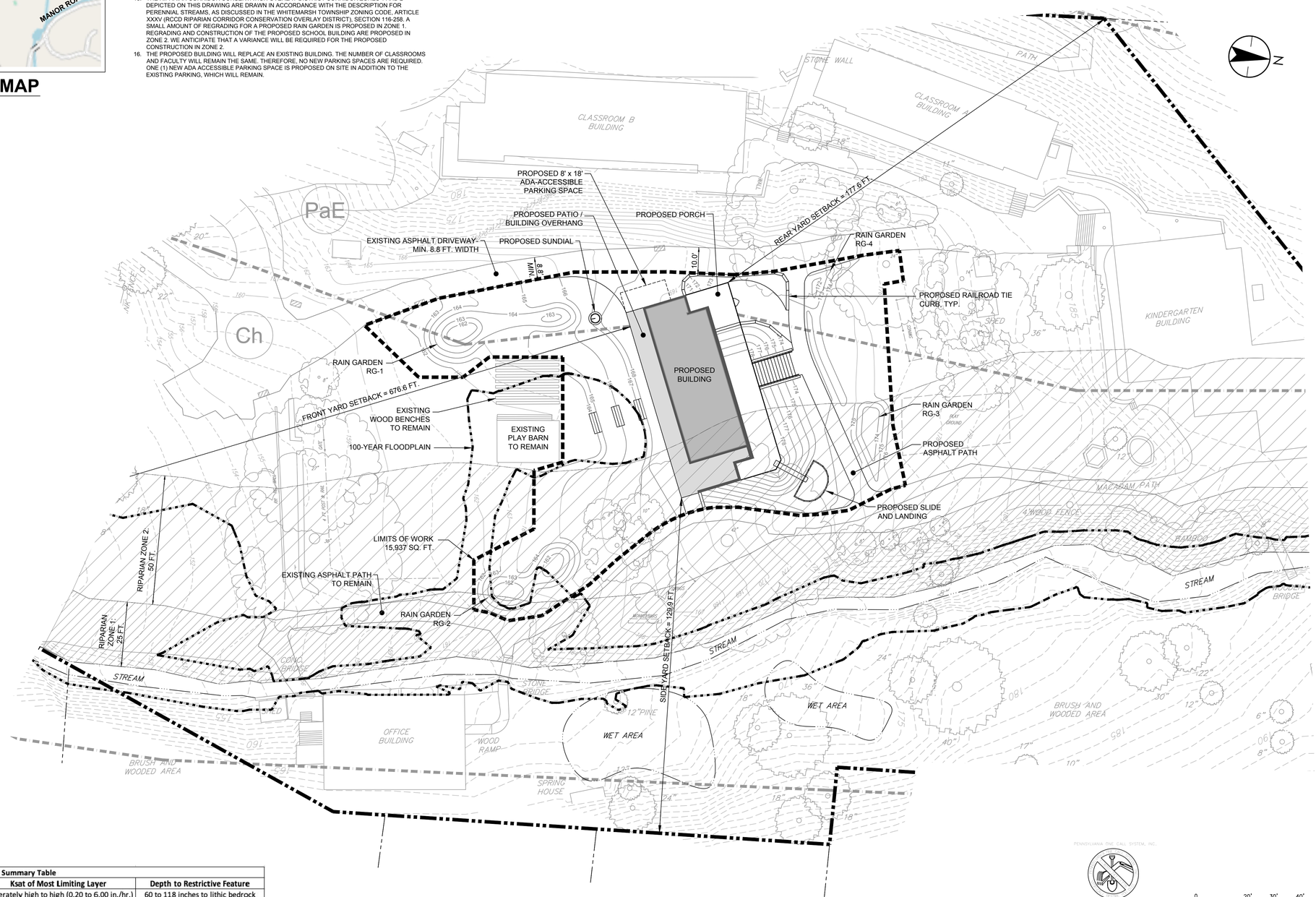
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No.	Date	Revisions

Seal:

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 03/24/2023

Drawing Set: SKETCH PLAN

Drawing Title: RIPARIAN ZONES

Drawing Number: FIG-3

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UPDATES

KEYSTONE
Municipal Services, Inc.
801 Yale Avenue, Suite 622, Swarthmore, PA 19081
Phone: (610) 328-4830 | Fax: (610) 328-4836 | Email: keystonems@comcast.net

March 31, 2023

Whitemarsh Township
616 Germantown Pike
Lafayette Hill, PA 194444

RE: SLD#04-23 The Miquon School (Sketch Plan)

Charles Guttenplan;

I have reviewed the Sketch Plans for The Miquon School. The plan was reviewed using the 2018 International Fire Code and Whitemarsh Township ordinance # 1012. The following items that were not indicated on the sketch plan shall be conformed to:

1. The plan shall be in accordance with Appendix C section C101 of the 2018 International Fire Code "Fire Hydrant Locations and Distribution". The submitted plan does not indicate any on-site fire hydrants.
2. The plan shall be in accordance with Appendix D section D101 of the 2018 International Fire Code "Fire Apparatus Access Roads". The submitted sketch plan does not indicate minimum specifications for fire apparatus access roads.

If you should have any questions or require additional information, please contact me at 267-249-2064.

Bill Oettinger
Fire Code Official
Keystone Municipal Services, Inc.

KEYSTONE
Municipal Services, Inc.
801 Yale Avenue, Suite 622, Swarthmore, PA 19081
Phone: (610) 328-4830 | Fax: (610) 328-4836 | Email: keystonems@comcast.net

April 12, 2023

Whitemarsh Township
616 Germantown Pike
Lafayette Hill, PA 194444

RE: SLD#04-23 The Miquon School (Sketch Plan)

Charles Guttenplan;

I have reviewed the Sketch Plans for The Miquon School. The plan was reviewed using the 2018 International Fire Code and Whitemarsh Township ordinance # 1012. The following items that were not indicated on the sketch plan were addressed by the applicants Civil Engineer (Grist) Thomas Halliwell on 4/10/2023. With these items corrected the plan is approved as submitted.

1. The plan shall be in accordance with Appendix C section C101 of the 2018 International Fire Code "Fire Hydrant Locations and Distribution". The submitted plan does not indicate any on-site fire hydrants.

   4/10/2023 The applicant will provide a on site fire hydrant within 500 feet of the building.

2. The plan shall be in accordance with Appendix D section D101 of the 2018 International Fire Code "Fire Apparatus Access Roads". The submitted sketch plan does not indicate minimum specifications for fire apparatus access roads.

   4/10/2023 The applicant will provide a minimum width driveway of 10 feet to the new building.

If you should have any questions or require additional information, please contact me at 267-249-2064.

Bill Oettinger
Fire Code Official
Keystone Municipal Services, Inc.

Whitemarsh TOWNSHIP
616 GERMANTOWN PIKE - LAFAYETTE HILL, PA 19444-1821
TEL: 610-825-3535 FAX: 610-825-9416
www.whitemarshtwp.org

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Jacy Toll – Vice Chair
Vincent Manuele
Laura Boyle Nester
Patrice Turenne

Richard L. Mellor, Jr.
Township Manager

April 25, 2023

Miquon School
c/o Charlotte Boulay
2025 Harts Lane
Conshohocken PA 19148

RE: SLD#04-23/ Miquon School Heart of Campus Improvements
Sketch Plan
Zoning Ordinance Compliance Review Letter

Dear Ms. Boulay:

Please accept this review of the Zoning Ordinance Compliance issues for the above referenced sketch plan. We reviewed three environmental features sheets, a site plan for the full site, and a site plan for the project site, all prepared by SMP Architects and all dated March 24, 2023 with no revisions. No architectural plans were included in the current submission. The plan depicts the construction of a new building in the center of the school site with associated improvements. The parcel is in the AAAA Residential District with the Institutional Overlay District, the latter of which is the governing district based upon the school use. The site is also impacted by the Riparian Corridor Overlay Conservation District, the Floodplain Conservation Overlay District, and the Steep Slope Overlay District.

The following items are issues that must be addressed in order to comply with Chapter 116, Zoning, of the Whitemarsh Township Code.

1. **§116-11.** The definition of 'parking space' indicates that such shall be not less than 9 feet wide with an area of not less than 162 square feet. This definition also indicates that dimensions for handicapped accessible (ADA) spaces shall be based upon current building code and ANSI standards. The ADA space shown on the plan is 8 feet wide by 18 feet long with an area of 144 square feet. (See related Comment #'s 6 and 7.)

2. **§116-22.** A note should be added to all future plans indicating that the permanent removal of topsoil from the Township is prohibited.

3. **§116-28.A.(2)** If there will be an increased use of water, the applicant shall furnish a letter from the appropriate authority indicating the availability and supply of water for the proposed project with any preliminary plan submission.

4. **§116-29.** If there will be an increased need for sanitary sewage disposal, the applicant must provide documentation regarding how capacity will be provided with any preliminary plan submission.

5. **§116-165.** A portion of rain garden RG-2 is within the floodplain. This is not a permitted use there and therefore a variance must be sought.

6. **§116-184.A.** As in the definition of 'parking space' (ref. Comment #1), the introductory paragraph to this section indicates that ADA spaces shall meet the requirements of the current building code and ANSI standards.

   Also with respect to required parking for the new building, Note #16 on the site plans indicates that no additional parking is required because a building is being removed and the number of faculty and classrooms is the same. However, the plans do not show the location of the building being removed, nor do they list the number of classrooms or faculty. It should also be noted that the parking requirement also factors in area used for offices.

7. **§116-184.E.** This section stipulates that no parking shall occur within 10 feet of any structure except the entrance to an approved garage. The proposed ADA space is shown against the end wall of the proposed building, with no space between the space and the building. As shown, a variance for this parking location would have to be sought.

8. **§116-259.A.** This section requires that there be a setback from the Riparian Corridor Conservation Overlay District (RCCD) equal to one-half of the setback applicable on that portion of the lot (half of the applicable side yard setback in this case). Since the building is partially within Zone 2 of he RCCD, a variance from this section must be sought. (See related Comment #10.)

9. **§116-260.A.** Clearing of existing vegetation in the Riparian Corridor Conservation Overlay District is prohibited in accordance with this section. We are unable to determine whether any vegetation clearing is proposed within this area based on the submitted plans; if there is clearing proposed, a variance would have to be sought.

10. **§116-260.F.** In accordance with this section, any type of permanent structure is prohibited within the Riparian Corridor Conservation Overlay District (except those associated with uses permitted in said district). A portion of the proposed building (including a portion of the porch and patio), the proposed slide and landing, as well as a portion of the proposed asphalt trail, are all located within the Riparian Corridor Conservation Overlay District. Variance to allow these uses here must be sought; the need for such variance is noted in the Zoning Summary Table on the plans .

11. **§116-260.I.** This section prohibits stormwater basins, including necessary berms and outfall facilities, from being located with the Riparian Corridor Conservation Overlay District. A variance must be sought from this section to allow rain garden RG-2, partially with Zone 1 and Zone 2, and to allow rain garden RG-3, located in Zone 2, to be constructed as proposed.

Additional Comments

12. All future submittals should include a depiction of existing conditions, including the location of all existing buildings, in order to most effectively evaluate the proposed development.

13. Keystone Municipal Services, Inc., in its capacity as the Township's Fire Code Official, has issued a separate review dated April 12, 2023 concerning fire protection and access, which was previously provided by this office.

Should you have any questions, please do not hesitate to contact me.

Very truly yours,

Charles L. Guttenplan, AICP
Director of Planning and Zoning/Zoning Officer

cc: Richard L. Mellor, Jr., Township Manager
Craig McAnally, Interim Township Assistant Manager
Robert A. Sztubinski, B.C.O., Director of Building and Codes
Office of Township Fire Marshal
Sean P. Kilkenny, Esq., Township Solicitor
Krista Heinrich, P.E., Township Engineer
Thomas J. Hallwell, Grist, LLC, Applicant's Engineer

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PLANNING COMMISSION

MONTGOMERY COUNTY COURTHOUSE • PO BOX 311
NORRISTOWN, PA 19404-0311
610-278-3722 • FAX: 610-278-3941
WWW.MONTCOPA.ORG

SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

May 2, 2023

Mr. Charles L. Guttenplan, AICP
Director of Planning & Zoning Officer
Whitemarsh Township
616 Germantown Pike
Lafayette Hill, Pennsylvania 19444

Re: MCPC #23-0057-001
Plan Name: The Miquon School-Heart of Campus Improvements
4,032 sq. ft. building/ comprising 9.53 acre parcel
Situate: 2025 Hart Lane between Paddock Lane and River Rd. (north)
Whitemarsh Township

Dear Mr. Guttenplan:

We have reviewed the above-referenced subdivision proposal in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on March 23, 2023. We forward this letter as a report of our review.

BACKGROUND

The Miquon School, the applicant, has submitted a sketch plan for review that proposes the construction of a new campus building within the existing campus. The proposed 4,032 sq. ft. building includes an adjacent covered patio, related site amenities and several rain gardens for stormwater management. The development plan shows the proposed disturbance will impact approximately 15,937 sq. ft. of a 9.53 acre parcel.

The sketch plan shows an office building, several classroom buildings, access driveways, outdoor classroom areas and connecting asphalt pathways. An un-named perennial stream, a tributary to the Schuylkill River, lies along the eastern boundary of the tract and the access driveway from Harts Lane to the campus crosses the stream. The applicant's site is within the township's Institutional Overlay District and in the Riparian Corridor Conservation District. The plan shows a large area of disturbance and various improvements within Zone 2 of the Riparian Corridor Conservation Overlay District. A small area of the development footprint is within Riparian Area Zone 1. The applicant's sketch plan as presented will require a number of variances, including several from the township's Riparian Corridor Conservation Overlay District- Section 116.259. Permitted Uses.

CONSISTENCY WITH OMPREHENSIVE PLANS

The proposal for a new school building on The Miquon School campus appears consistent with *Montco 2040: A Shared Vison*, the Montgomery County Comprehensive Plan, 2015. The investment by the Miquon School in a new campus building supports the county's goal of reinvestment in areas where infrastructure already exists. The plan appears consistent with the Whitemarsh Selective Comprehensive Plan Update, adopted in November 2020. The plan designates this area as a 'Residential-Conservation' Character Area. The future land use vision for this character area is to promote a healthy balance between residential development and open space preservation and amenities.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's sketch plan for the new campus building addition. In the course of our review we have identified several issues involving the site development and the Riparian Corridor Conservation District (RCCD) regulations that we believe merit consideration by the township when evaluating this proposal. These issues are discussed below.

COMMENTS

1. *Riparian Corridor Conservation District* (RCCD) regulations
   The sketch plan proposes the regrading and construction of the new school building in Zone 2 of the RCCD, and the regrading of a small area in Zone 1 to develop a rain garden. We acknowledge that the site is constrained with steep slopes and existing buildings that pre-date the RCCD regulations. Nonetheless, we believe that the applicant's land development plan should provide to the greatest extent feasible a robust riparian landscape buffer for the area adjacent to the perennial stream (Zone 1 & 2). An effective riparian buffer with the appropriate native plantings should be provided and is needed, given the regrading and site disturbance proposed for this area.

2. Stream Crossing Standards- *§116-265- Riparian Corridor Conservation District*
   The driveway providing access from Harts Lane to the new school building and core of the school campus crosses the perennial stream and is regulated by *§116-265- Riparian Corridor Conservation District*. It is our understanding from staff visits to the campus with township officials that the crossing sometimes floods and vehicular access to the campus is restricted. The township should ensure that access to the site is not restricted during heavy rainfall events and that the land development submission fully addresses the crossing standards. Therefore, we recommend the applicant assess the crossing to ensure that standards are addressed and that the pipe is made of the appropriate material and adequately sized so that stormwater is managed by the culvert, and that vehicular access is not restricted.

3. Stormwater Management Improvements
   The development site lies downstream from a residential community development and a golf course that generates runoff to the applicant's perennial stream and its riparian corridor. In planning for the next phase of land development, we believe that stormwater improvements beyond the minimum would benefit both this development and the township's management of stormwater in this area. We recommend the applicant explore stormwater management improvement that would manage a greater volume of stormwater than required, given the greater frequency of flooding events that occur.

CONCLUSION

Please note that any review comment and recommendation contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Please be aware that the MCPC #23-0057-001 has been set aside for the applicant' plan. If any subsequent plans are submitted for final recording, this MCPC number should appear on the applicant sheets within the plans in the box reserved for the seal of this agency.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files.

Sincerely,

Barry W. Jeffries

Barry W Jeffries, ASLA, Senior Design Planner
bjeffrie@montcopa.org - 610-278-3444

c: Aaron Kostyk, Chair, Township Planning Commission
Krista Heinrich, PE, Township Engineer
David Sander, Esq., Township Solicitor

Attachments
Aerial of the site & Sketch plan

ATTACHMENTS A & B

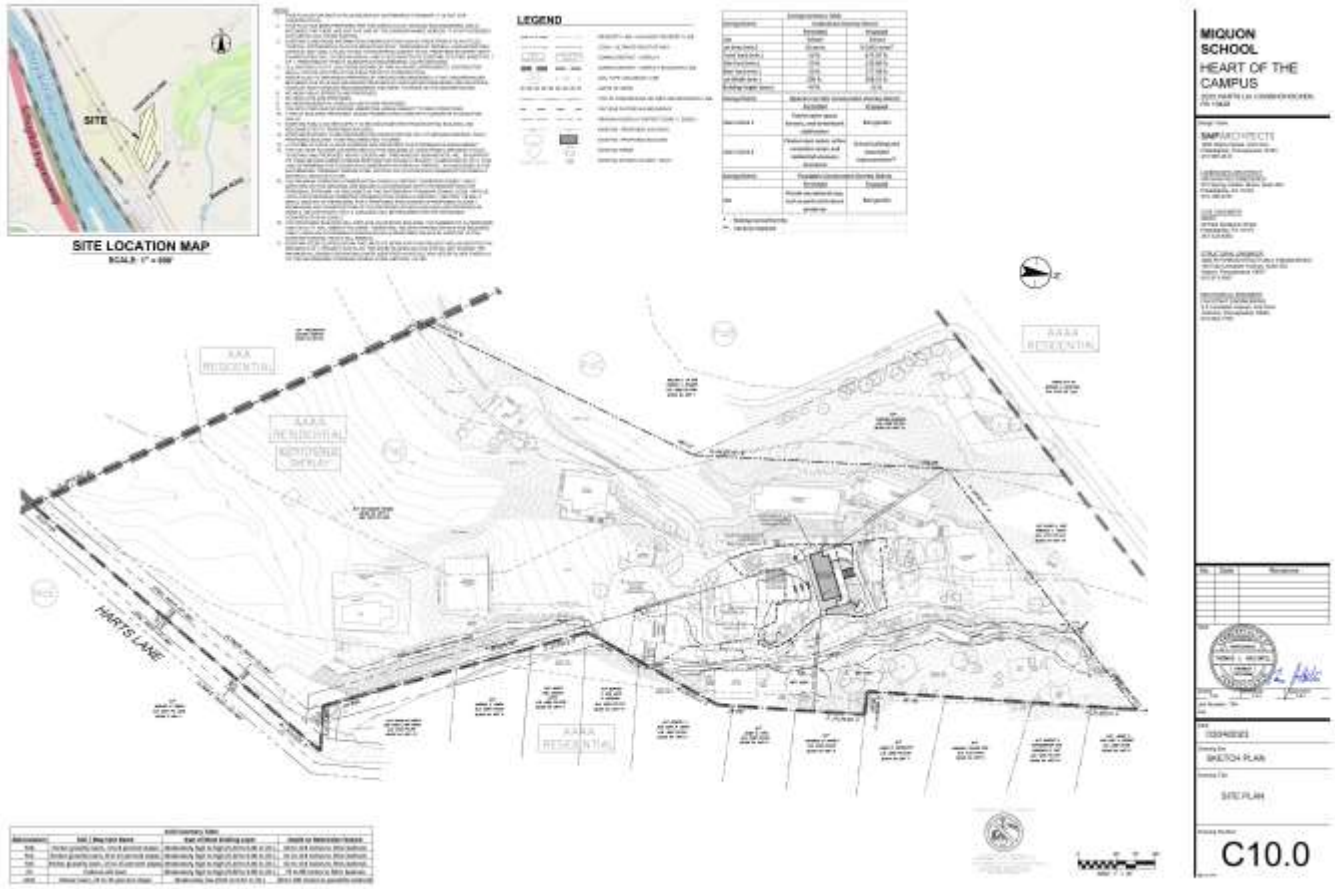


The Miquon School - Heart of Campus
MCPC#230057001

Montgomery County Planning Commission

0 150 300 600 Feet

N


SITE
SITE LOCATION MAP
LEGEND
MIQUON SCHOOL
HEART OF THE CAMPUS
HARTS LANE
SKETCH PLAN
SITE PLAN
C10.0

GILMORE & ASSOCIATES, INC.
ENGINEERING & CONSULTING SERVICES

May 4, 2024

Mr. Richard L. Mellor, Jr. - Township Manager
Whitemarsh Township Municipal Building
616 Germantown Pike
Lafayette Hill, PA 19444

RE: Sketch Plan Review
2025 Harts Lane - Miquon School
Whitemarsh Township, Montgomery County, PA
S/LD # 04-23
Our Project Number 2023-03088

Dear Mr. Mellor:

As requested, we have reviewed plans for the above referenced Plan Submission consisting of a 4-Sheet Plan set prepared by Grist, LLC and dated March 24, 2023, with no noted revisions. The following comments are offered for your consideration:

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

	Section	Description
1.	105-20(A)(12), 105-21(B)(1)(n)	These sections of the ordinance require the plans to show existing principal buildings (and their respective uses) and driveways on the peripheral strip. Sewer lines, storm drains, culverts, bridges, utility easements, quarries, railroads, and other significant man-made features within 500 feet of and within the site, including properties across streets.
2.	105-20(A)(19)	The plans must be revised to show parking areas with dimensions and number of parking spaces.
3.	105-20(A)(21)	This section of the ordinance requires the plans to show existing topographic, physical, and cultural features including but not limited to fields, pastures, meadows, woodland, trees with a dbh of six inches or more, hedgerows and other significant vegetation, steep slopes, rock outcrops, soil types, ponds, ditches, drains, storage tanks, streams within 200 feet of the tract, and existing rights-of-way and easements, and historical and cultural features such as all structures, foundations, walls, wells, trails, and abandoned roads.
4.	105-20(B)(2), 105-20(B)(3)	The boundaries of the Floodplain Conservation District must be revised to include areas adjoining any watercourse, drainage course, or body of water, or the presence of floodplain soils, including Codorus silt loam (Ch).

	Section	Description

5. 105-21(B)(13) The Preliminary Plan submission shall include an Existing Resources and Site Analysis Plan (ERSAP) consistent with the requirements of this section of the ordinance.

6. 105-21(B)(15) The Preliminary Plan submission shall include a Preliminary Resource Impact and Conservation Plan (the "Preliminary Impact Plan") consistent with the requirements of this section of the ordinance.

7. 105-21(B)(16) The Preliminary Plan submission shall include a 'Preliminary Improvements Plan' consistent with the requirements of this section of the ordinance.

8. 105-21.1(K)(2) Within the South Transportation Service Area an impact fee in the amount of Two Thousand Five Hundred and Twenty-Nine Dollars ($2,529.00) per anticipated peak hour trip must be provided by the applicant. The applicant must indicate whether there will be an increase in number of students/staff as a result of the proposed improvements, in order to facilitate evaluation of any potential trip generation and traffic impact fees

9. 105-30 As defined by Section 105-29(C) and 105-30(A), streets adjacent to the site are subject to the following requirements:

Street Name	Classification	Required Ultimate R.O.W	Required Cartway Width	Curbs	Sidewalks	Tree Zone
Harts Lane	Minor Collector	60 feet	40 feet	Required	Required	Required

The plans must be revised in order to demonstrate compliance with the requirements of this section of the ordinance, or a waiver must be requested to allow the existing cartways to be remain less than 40 feet in width, and to not require curbing, sidewalk and/or street trees along the street frontage.

10. 105-38(A) The plans must be revised to include dimensions for parking areas, in order to demonstrate compliance with the requirements of this section of the ordinance.

11. 105-38(B) The width of entrance and exit drives shall be:
    (1) A minimum of 12 feet for one-way use only
    (2) A minimum of 25 feet of two-way use
    (3) A maximum of 35 feet at the street line

Dimensions must be added to the plans which demonstrate compliance with the requirements of this section of the ordinance.

12. 105-38(C) This section of the ordinance requires curves/turns in entrance and exit drives and all internal parking lot aisles necessary for providing access for fire protection equipment to have a minimum inside turning radius of 25 feet and a minimum outside turning radius of 50 feet. The applicant shall submit plans using truck turning templates showing the required turning radii are provided for access to each building.

13. 105-38(C), 105-76 The applicant must obtain a letter of approval from the Township Fire Marshal to ensure that adequate fire protection is provided.

14. 105-38(E) This section of the ordinance requires that all parking spaces shall be marked so as to provide for orderly and safe parking.

	Section	Description
15.	105-38(F)	This section of the ordinance requires that all all parking areas shall be confined by curbing.
16.	105-38(K)	This section of the ordinance requires that parking lots with less than 30 spaces not have a grade exceeding 5% and that parking lots with more than 30 spaces not have grades that exceed 3%. There are several locations in the existing parking area that have slopes in excess of 5% and 3%.
17.	105-38(U)	All common parking areas shall be adequately lighted during after-dark operating hours and all lights shall be located on raised parking islands, not on the parking surface. A Lighting Plan which indicates an adequate level of illumination in all parking areas must be submitted to the Township.
18.	105-41 (A)	This section of the ordinance requires that the proposed Stormwater Management Plan be reviewed for compliance with Chapter 58 of the Whitemarsh Township Code, entitled 'Grading, Erosion Control, Stormwater Management and Best Management Practices'.
19.	105-42 (A)	No subdivision or land development plan shall be approved unless there has been an erosion and sedimentation control plan approved by the Township Engineer consistent with the requirements of Chapter 58 of the Whitemarsh Township Code, entitled 'Grading, Erosion Control, Stormwater Management and Best Management Practices'.
20.	105-46	Curbs shall be provided in all subdivisions and land developments in accordance with Sections 105-30, and 105-74. The plans must be revised, or a waiver must be obtained.
21.	105-47(A)	Sidewalks shall be provided along the street frontage in accordance with sections 105-30, 105-47 and 105-73 of the Whitemarsh Township Code. The plans must be revised, or a waiver must be obtained.
22.	105-48	This section of the ordinance requires the installation of street trees along all streets where suitable trees do not exist. The plans must be revised, or a waiver must be obtained.
23.	105-52	All landscaping plans are subject to the review and approval of the Shade Tree Commission.
24.	105-52	Buffer yards are required between land developments to soften visual impact, to screen glare, and to create a visual barrier between conflicting land uses. The plans must be revised to provide a table detailing the buffer yard requirements, in accordance with Section 105-52.B as well as the actual buffers provided.
25.	105-53(D)	This section of the ordinance requires the dedication of land in the amount of 10% of the total Site Area for Park and/or Recreational use. The applicant has the option of offering a fee in lieu of dedicating actual land area and can also provide a combination of a fee in lieu and dedication of land. All offers of land and/or fees in lieu of dedication must meet the requirements of this section of the ordinance.

	Section	Description
26.	105-78	The applicant must obtain the approval of the Whitemarsh Township Authority with regard to any proposed sanitary sewerage facilities.
27.	105-81	All electric, telephone and communication service facilities, both main and service lines, shall be provided by underground cables, installed in accordance with the prevailing standards and practices of the utility and other companies providing such service. Final plans shall show locations of all utilities and shall be coordinated with landscaping.
28.	105-89	The developer shall enter into a written agreement with the Township in the manner and form approved by the Solicitor wherein the developer shall agree, to construct or cause to be constructed at his own expense all proposed improvements shown on the approved land development plan, all in strict accordance with the standards and specifications of the Township and within the time specified in said agreement, and to deposit with the Township financial security in an amount sufficient to cover the cost of all subdivision or land development improvements, including both public and private improvements.

CHAPTER 55 - TREE PROTECTION STANDARDS

	Section	Description
29.	55-4(C)	This section of the ordinance requires the preparation of a tree survey plan and a landscape plan which shall be reviewed by the Shade Tree Commission in a public meeting.
30.	55-4(D)	The plans must be revised to include provisions for tree protection to preserve healthy trees and shrubs on site in accordance with this section of the ordinance.
31.	55-4(D)(2)	A note must be added to the plans requiring a pre-construction conference with the Township Shade Tree Commission prior to start of construction.

GRADING, EROSION CONTROL, STORMWATER MANAGEMENT AND BEST MANAGEMENT PRACTICES ORDINANCE:

The plans will be reviewed for grading, erosion & sedimentation control, stormwater management and best management practices following the submission of an Erosion and Sedimentation Control Plan and Stormwater Management Calculations. Please note that we have incorporated selected applicable comments related to the requirements of Chapter 58 of the Whitemarsh Township Code into this review to provide the applicant guidance in the preparation of future plan submissions. These comments do not fully address stormwater management or erosion control on the site.

	Section	Description
32.	58-12	No regulated activities shall commence until the Township issues written approval of an stormwater management site plan, which demonstrates compliance with the requirements of this chapter.

	Section	Description
33.	58-12(K)	The stormwater calculations must apply rainfall intensities based on NOAA rainfall data for the area.
34.	58-14(A)	Water volume controls shall be implemented using the Design Storm Method (CG-1 in the PaDEP BMP Manual) in Subsection A described in this section of the ordinance.
35.	58-15(A)(1)	Post-development discharge rates shall not exceed the predevelopment discharge rates for the one-, two-, five-, ten-, twenty-five-, fifty-, and 100-year, twenty-four-hour storm events. The applicant shall provide controls as necessary to satisfy the peak rate of discharge requirement.
36.	58-17(A)(2)(o)	The plans must be revised to show the size, location and construction details of all existing and proposed impervious ground cover.
37.	58-17(A)(2)(p)	The plan must be revised to show the size, location and construction details of all existing and proposed storm drainage facilities.
38.	58-17(A)(2)(q)	The plan must be revised to include an estimated development schedule and construction sequence for the site.
39.	58-17(A)(2)(t)	A statement, signed by the landowner, acknowledging that any stormwater BMPs are fixtures that can be altered or removed only after approval by the Township shall be added to the plans.
40.	58-17(A)(2)(s)	The following signature block must be added to the plans: “(Design Engineer)”, on this date (Signature, date), has reviewed and hereby certifies that the Stormwater Management Site Plan meets all design standards and criteria of Chapter 58, " Grading, Erosion Control, Stormwater Management and Best Management Practices"."
41.	58-17(A)(4), 58-28(D)(7)	This section of the ordinance requires provisions be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development of the site. The applicant must submit plans and supporting calculations detailing proposed stormwater drainage and stormwater management systems required by regulations adopted pursuant to this chapter.
42.	58-17(A)(5)	The applicant must submit plans and written procedures for minimizing erosion and sedimentation.
43.	58-17(A)(12)	The applicant must submit plans and supporting documentation verifying compliance with the tree preservation, protection and replacement requirements of the Whitemarsh Township Code.
44.	58-23(A)	An as-built survey of all stormwater BMPs must be submitted to the Township in paper and digital (dwg) formats. A note must be added to the plans stating an as-built survey will be completed and submitted in both formats to the Township.

	Section	Description
45.	58-24(K)(2)	Stormwater facilities shall be accessible to permit periodic maintenance and an access easement shall be provided to permit such access. The following blanket stormwater easement note, must be added to the plan: *'Stormwater facilities shall be owned and maintained by the property owner in perpetuity. The property owner shall provide a blanket stormwater access easement to the Township for the purpose of access to the stormwater facilities. If, in the judgment of the Township Engineer, the owner has failed to maintain the stormwater facilities in such a manner as to ensure their proper functioning, the Township after providing a written notice, shall have the right to enter upon the lands of the owner and to make any repairs as may be necessary to the stormwater facilities to ensure that such facilities function and perform in accordance with the design specifications. Any and all costs incurred by the Township for such repairs and/or maintenance shall be paid in full by the owner. A lien or liens may be placed against the property if the owner fails to remit payment within sixty (60) days.'*
46.	58-29(A)	This section of the ordinance states that the proposed excavation may not create a slope with a cut face steeper than three (3) horizontal to one (1). The proposed grading must be revised or the material in which excavation is made is sufficiently stable to sustain a slope of steeper than a ratio of three horizontal to one vertical. A written statement to that effect from a registered professional engineer licensed by the Commonwealth of Pennsylvania and experienced in geotechnical engineering and erosion control, shall be submitted to the Township Engineer, and approved by them. The statement shall affirm that the site has been inspected and a deviation from the slope shall not result in injury to persons or damage to property.
47.	58-29(A)	Detailed plans and calculations, including all factors of safety, for all of the proposed retaining walls that are prepared, signed and sealed by a professional engineer licensed in the Commonwealth of Pennsylvania must be submitted to the Township for review. Constructible details and elevation views of all proposed retaining walls as well as the top and bottom of wall elevations must be added to the plans.
48.	58-30(A)(8)	If in the course of reviewing the stormwater management plan, the Township Engineer determines that off-site improvements are necessary to satisfactorily control the stormwater from the site, the applicant shall be responsible for such off-site improvements.
49.	58-32(A)(2)	The increased runoff from the proposed development must be controlled by permanent runoff control measures. All runoff control measures shall be evaluated for their effectiveness during the one hundred year storm. The required stormwater management calculations must demonstrate compliance with the requirements of this section of the ordinance.
50.	58-32(A)(3)	All plans and designs for stormwater management systems and facilities submitted to the Township for approval shall determine stormwater peak discharge and runoff by use of the Soil Cover Complex Method as set forth in the U.S. Department of Agriculture, Soil Conservation Service Publication entitled, "Urban Hydrology for Small Watersheds," Technical Release #55 or latest edition thereof.

	Section	Description
51.	58-35(C)(3)(e)	A detailed soils evaluation of the project site shall be performed to determine the suitability of infiltration BMPs. The evaluation shall be performed by a Registered Professional Engineer experienced in geotechnical engineering or a Certified Professional Soil Scientist and at a minimum, address soil permeability, depth to bedrock, susceptibility to sinkhole formation, and subgrade stability. A copy of the results of the soils evaluation must be submitted to the Township.
52.	58-35(C)(3)(h)	Any infiltration BMP shall be capable of completely infiltrating the impounded water within 96 hours. The applicant should verify the required infiltration is provided by the use of on site perc tests at the proposed BMP locations.
53.	58-32(E)(4)	The following note shall be attached to all drainage plans and signed and sealed by the applicant's Registered Professional Engineer experienced in geotechnical and soil engineering: *"I certify that the proposed facility is/is not underlain by limestone."*
54.	58-35(A)	No regulated earth disturbance activities within the Township shall proceed until approval by the Township of a BMP operations and maintenance plan, which describes how the permanent stormwater BMPs will be properly operated and maintained.

Any future submission of the design plans for this project must be accompanied by a letter, prepared by the applicant's engineer, which addresses each of the comments contained in this report. Should you have any questions regarding this matter, please do not hesitate to contact me at this office.

Sincerely,

Krista Heinrich, PE
Township Engineer

c: Craig T. McAnally – Acting Assistant Township Manager
Charles L. Guttenplan, AICP – Director of Planning and Zoning
Robert A. Sztubinski, B.C.O. - Director of Building & Codes
Office of Township Fire Marshal
Sean Kilkenny, Esq.; The Law Offices of Sean Kilkenny, LLC – Township Solicitor *(via email)*
Charlotte Boulay – The Miquon School
Thomas J. Halliwell, PE, LEED-AP – Grist, LLC, Applicant's Engineer

WHITEMARSH TOWNSHIP

To: Lauren Leonard LEL & Associates, LLC

From: **Andrew G. Thomas, Fire Marshal**

Subject: SLD#04-23 The Miquon School (sketch plan) Memo:

Date: 08/03/2023

After reviewing the Sketch Plan for The Miquon School, the following items must be addressed.

1. The plan shall be in accordance with the International Fire Code in section 507.5. Fire hydrant systems. Fire hydrant systems shall comply with Sections 507.5.1 through 507.5.6 and Whitemarsh Township Ordinance 1012.
    a. 507.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet (122 m) from a hydrant on a fire apparatus access road, as measured by an *approved* route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the *fire code official*.
        Exceptions:
        1. For Group R-3 and Group U occupancies, the distance requirement shall be 600 feet (183m).
        2. For buildings equipped throughout with an *approved automatic sprinkler system* installed in accordance with Section 903.3.1.1 or 903.3.1.2, the distance requirement shall be 600 feet (183 m).
    b. 507.5.1.1 Hydrant for standpipe systems. Buildings equipped with a standpipe system installed in accordance with Section 905 shall have a fire hydrant within 100 feet (30 480 mm) of the fire department connections.
        Exception: The distance shall be permitted to exceed 100 feet (30 480 mm) where *approved* by the *fire code official.*
    c. 507.5.2 Inspection, testing and maintenance. Fire hydrant systems shall be subject to periodic tests as required by the *fire code official*. Fire hydrant systems shall be maintained in an operative condition at all times and shall be repaired where defective. Additions, repairs, *alterations* and servicing shall comply with *approved* standards. Records of tests and required maintenance shall be maintained.
    d. 507.5.3 Private fire service mains and water tanks. Private fire service mains and water tanks shall be periodically inspected, tested and maintained in accordance with
        NFPA 25 at the following intervals:
        1. 1. Private fire hydrants of all types: Inspection annually and after each operation; flow test and maintenance annually.
        2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.
        3. Fire service main piping strainers: Inspection and maintenance after each use.

Andrew G. Thomas
Fire Marshal, Emergency Management Coordinator
616 Germantown Pike
Lafayette Hill, PA 19444
Phone: 610-825-3535 ext. 2614
Email: athomas@whitemarshtwp.org

Records of inspections, testing and maintenance shall be maintained.

e. 507.5.4 Obstruction. Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants.
f. 507.5.5 Clear space around hydrants. A 3-foot (914 mm) clear space shall be maintained around the circumference of fire hydrants, except as otherwise required or *approved*.
g. 507.5.6 Physical protection. Where fire hydrants are subject to impact by a motor vehicle, guard posts or other *approved* means shall comply with Section 312.
h. Whitemarsh Township Ordinance 1012 accepted on April 14, 2022 section 507.5.7. Fire hydrants. Specifications. Fire hydrants shall have National Standard Threads and be *approved* by the Fire Official. The following criteria shall be required regarding installation:
    1. The hard-suction connection shall face the street, access driveway or fire walkway with the side outlets parallel to the cartway or walkway edge.
    2. A minimum clearance of 20 inches, measured from the bottom of the lowest outlet to final grade of ground or pavement, shall be provided. In no case shall said clearance be more than 26 inches.
    3. Fire hydrants shall be appropriately spaced so as not to exceed 500 feet between hydrants.
    4. Fire hydrants required to be located outside a street right-of-way shall not be accepted as public fire hydrants by the Township.
    5. Fire hydrants shall be located within five feet of paved streets, access driveways or fire walkways."

The applicant will provide a onsite fire hydrant within 400 feet of the building and per the conditions set forth by the Whitemarsh Township Zoning Hearing Board. The condition states that "The Applicant shall comply with all requirements of the Fire Marshal with respect to type and location of the proposed fire hydrant."

The fire hydrant must be installed, tested, and in working order with the ability to flow at minimum 1,500 gallons per minute prior to any issuance of building permits, other than foundation work.

2. The plan shall be in accordance with Whitemarsh Township Ordinance 1012 accepted on April 14, 2022 Section 503.2.1 Dimensions and International Fire Code Section 5031.1 Buildings and facilities.
    a. Dimensions. Fire Apparatus access roads shall have an unobstructed width of 24 feet, exclusive of shoulders, except for *approved* security gates in accordance with Section 503.6, and an unobstructed vertical clearance of 14 feet. No access driveway shall be located closer than five feet to a structure.
    b. 503.1.1 Buildings and facilities. *Approved* fire apparatus access roads shall be provided for every facility, building or portion of a building hereafter constructed or moved into or within the jurisdiction. The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the *exterior walls* of the first story of the building as measured by an *approved* route around the exterior of the building or facility.

In conclusion, the applicant will provide a one lane access road with a minimum unobstructed width of 12 feet and to not exceed 150 feet otherwise the dimensions increase. The fire apparatus access road shall extend to within 150 feet (45 720 mm) of all portions of the facility and all portions of the *exterior walls* of the first story of the building as measured by an *approved* route around the exterior of the building or facility.

THE MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

PRELIMINARY AND FINAL LAND DEVELOPMENT
WHITEMARSH TOWNSHIP, PA
08/04/2023

DRAWING LIST:

GENERAL

CS	COVER SHEET

LANDSCAPE ARCHITECTURAL

L1.0	EXISTING CONDITIONS PLAN
L1.1	TREE PROTECTION & DEMOLITION PLAN
L2.0	MATERIALS PLAN
L2.1	PAVEMENT ENLARGEMENT
L2.2	MATERIALS PLAN - HYDRANT
L3.0	LAYOUT PLAN
L4.0	GRADING PLAN
L5.0	SITE SECTIONS
L6.0	TREE PLANTING PLAN
L6.1	UNDERSTORY PLANTING PLAN
L6.2	RAIN GARDEN PLANTING PLAN
L7.0	SITE DETAILS
L7.1	SITE DETAILS
L7.2	PLANTING DETAILS

CIVIL

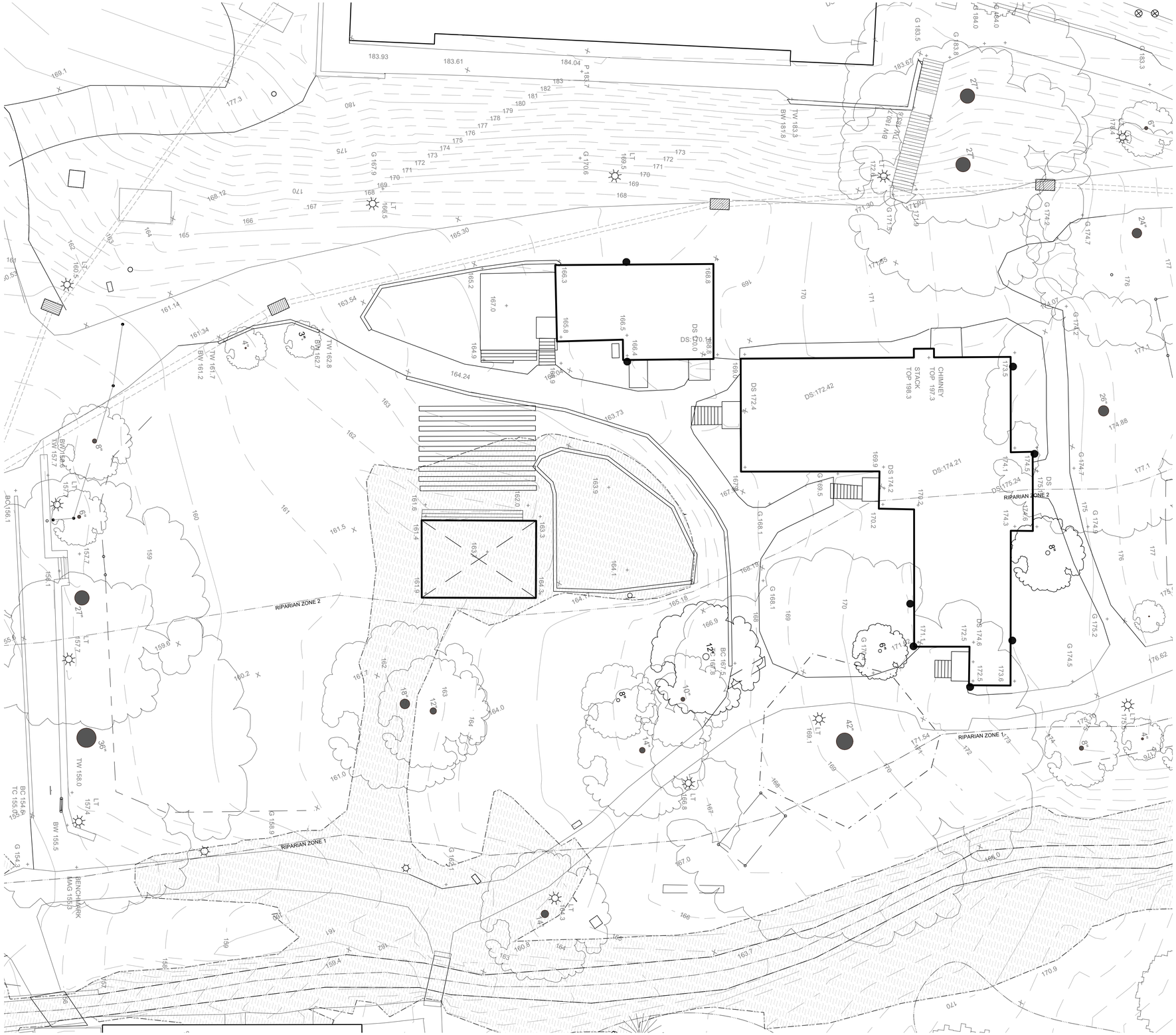
C5.1	EXISTING RESOURCES AND SITE ANALYSIS PLAN
C5.2	PRELIMINARY IMPACT PLAN
C5.3	PRELIMINARY IMPROVEMENTS PLAN
C10.0	SITE PLAN
C10.1	PROJECT SITE PLAN
C10.2	TRUCK TURNING PLAN
C20.1	STORMWATER MANAGEMENT PLAN
C30.1	EROSION AND SEDIMENT CONTROL PLAN
C30.2	EROSION AND SEDIMENT CONTROL DETAILS
C40.1	UTLITY PLAN
C40.2	FIRE HYDRANT PLAN
C50.2	STORMWATER DETAILS

LANDSCAPE ARCHITECT

GROUND RECONSIDERED
915 Spring Garden St, Suite 403,
Philadelphia, PA
215-790-0727

CIVIL ENGINEER

GRIST
50 East Sedgwick Street,
Philadelphia, PA 19119
267-332-8282



LEGEND

- LIMIT OF DISTURBANCE / SITE ENCLOSURE FENCE
- TREE PROTECTION FENCE
- SURFACE DRAIN INLET & STORMWATER DRAIN BELOW SURFACE
- 100 YEAR FLOODPLAIN

EXISTING CONDITIONS ARE BASED ON THE FOLLOWING SURVEYS PROVIDED:

PARTIAL TOPOGRAPHIC PLAN
BY MCNEILL LAND SURVEYING, LLC
DATED MAY 31, 2022

TOPOGRAPHIC SURVEY PLAN
BY BARRY ISETT & ASSOCIATES, INC
DATED APRIL 14, 2014
WITH REVISION: STREAM NOTES ADDED JUNE 6, 2014

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

LANDSCAPE ARCHITECT
GROUND RECONSIDERED
915 Spring Garden Street, Suite 403
Philadelphia, PA 19123
215-790-0727

CIVIL ENGINEER
GRIST DESIGN
50 East Sedgwick Street
Philadelphia, PA 19119
267-332-8282

STRUCTURAL ENGINEER
ANN ROTHMAN STRUCTURAL ENGINEERING
100 East Lancaster Avenue, Suite 203
Wayne, Pennsylvania 19087
610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal:

PENNSYLVANIA REGISTERED LANDSCAPE ARCHITECT

Drawn:	Checked:	Approved:
LHS	JB	

Job Number: 2121
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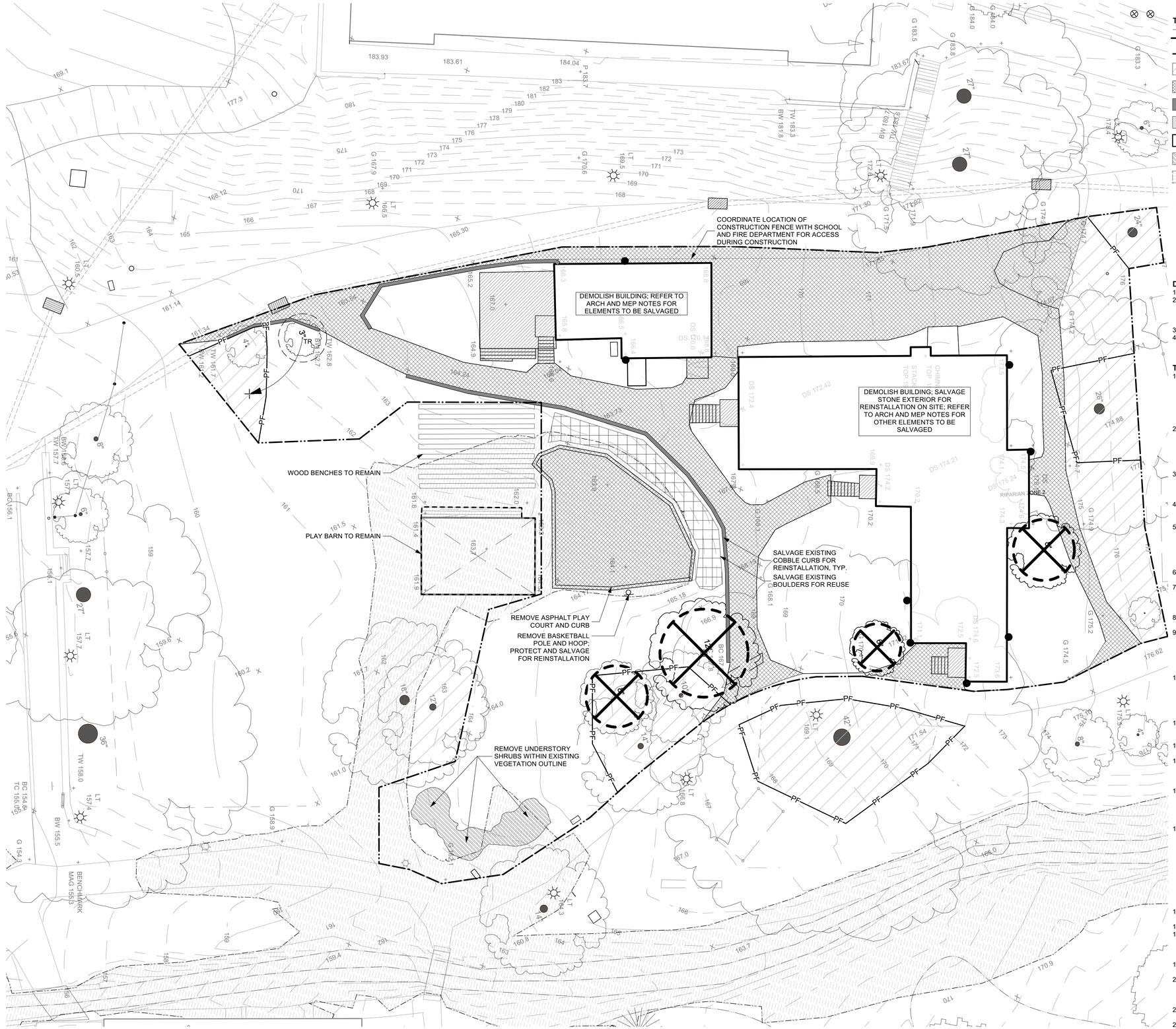
Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
EXISTING CONDITIONS PLAN

Drawing Number:
L1.0

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TREE PROTECTION & DEMOLITION LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- PF TREE PROTECTION FENCE–DTL 4/L7.2
- TREE PROTECTION ZONE
- ASPHALT PAVEMENT AND ASSOCIATED SUBBASE TO BE REMOVED
- COBBLESTONE CURB & SUBBASE TO BE REMOVED
- WOOD STAIRS & DECKING & ASSOCIATED FOUNDATIONS TO BE REMOVED
- BLDG TO BE DEMOLISHED
- EXISTING SHRUBS TO BE REMOVED
- 100 YEAR FLOODPLAIN
- TREE TO BE REMOVED
- RDI REMOVE DRAIN INLET
- TR EXISTING TREE TO BE TRANSPLANTED
- NEW LOCATION

DEMOLITION NOTES

1. NOTIFY OWNER AND RECEIVE APPROVAL PRIOR TO REMOVAL OF SIGNS.
2. REMOVE ALL PAVEMENT, BASE MATERIALS AND/OR CONSTRUCTION DEBRIS AND EXCAVATE REMAINING SOIL/FILL TO A MINIMUM OF 24" BELOW EXISTING GRADE IN ALL AREAS WHERE EXISTING PAVEMENTS ARE TO BE REMOVED AND REPLACED WITH LAWN AND/OR PLANTING.
3. REMOVE ROOTS OF TREES AND SHRUBS TO 24" BELOW GRADE MINIMALLY.
4. CONTRACTOR TO SCHEDULE PRE-CONSTRUCTION CONFERNCE WITH TOWNSHIP SHADE TREE COMMISSION PRIOR TO START OF CONSTRUCTION.

TREE PROTECTION NOTES

1. CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS OF EXISTING TREES AND PLANTINGS INDICATED TO REMAIN WITH DIGITAL PHOTOS AND/OR VIDEO, WHICH ESTABLISHES PRECONSTRUCTION CONDITIONS THAT MIGHT BE MISCONTRUED AS DAMAGE CAUSED BY CONSTRUCTION ACTIVITY. INCLUDE PLANS AND NOTATIONS TO INDICATE SPECIFIC WOUNDS AND DAMAGE CONDITIONS OF EACH TREE OR OTHER PLANTS DESIGNATED TO REMAIN.
2. LOCATE AND CLEARLY IDENTIFY TREES, SHRUBS AND OTHER VEGETATION TO REMAIN. FLAG EACH TREE TO REMAIN AT A HEIGHT OF 6-FEET +/- WITH DISTINCTIVE, HIGHLY VISIBLE COLOR FLAGGING TAPE. SUPERVISING CONTRACTOR AND/OR SITE FOREMAN IS RESPONSIBLE TO INSTRUCT AND MONITOR ALL LABORERS AND WORKERS ABOUT THE TREE PROTECTION REQUIREMENTS.
3. BRING ANY UNFORESEEN SITE CONDITIONS, SUCH AS STRUCTURAL ROOTS, THAT WILL IMPACT NEW CONSTRUCTION TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. DO NOT PROCEED WITH WORK WITHOUT WRITTEN AUTHORIZATION.
4. PROTECTION FENCING MUST BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WITH ANY DEMOLITION OR CONSTRUCTION WORK.
5. INSTALL PROTECTION FENCING BEFORE INSTALLING EROSION AND SEDIMENTATION CONTROLS. SILT FENCE IS PROHIBITED WITHIN PROTECTION ZONE. TRENCHING IS PROHIBITED IN TREE PROTECTION ZONES. FLOWS OF WATER REDIRECTED FROM CONSTRUCTION AREAS OR GENERATED BY CONSTRUCTION ACTIVITY ARE PROHIBITED FROM ENTERING OR CROSS PROTECTION ZONES.
6. WORK WITHIN PROTECTION FENCING, UNLESS NOTED HEREIN, MUST BE APPROVED BY AND SUPERVISED BY OWNER'S REPRESENTATIVE.
7. WHEN WORKING WITHIN TREE PROTECTION ZONES, USE CARE TO AVOID DAMAGE TO TREE TRUNKS AND ROOTS SUCH AS, BUT NOT LIMITED TO, IMPACT WOUNDS CAUSED BY EQUIPMENT. CONSULT A CERTIFIED ARBORIST IS DAMAGED TO AN PROTECTED TREE OCCURS.
8. LIMIT EXTENT OF EXCAVATION WITHIN PROTECTION ZONES TO THE GREATEST EXTENT FEASIBLE.
9. WHERE EXCAVATION IS REQUIRED IN PROTECTION ZONES TO INSTALL UTILITIES, HAND EXCAVATE AND/OR AIR-SPADE AROUND TREE ROOTS OR TUNNEL UNDER ROOTS BY DRILLING, AUGER BORING, OR PIPE JACKING. DO NOT CUT MAIN LATERIAL TREE ROOTS OR TAPROOTS. CUTTING OF SMALLER ROOTS BY A CERTIFIED ARBORIST THAT INTERFERE WITH INSTALLATION OF UTILITIES IS PERMITTED.
10. TRENCHING OR EXCAVATION WITHIN THE DRIPLINE OF EXISTING TREES SHALL BE COMPLETED WITH EXTREME CARE AND UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. USE HAND TOOLS ONLY. ARBORIST SHALL BE PRESENT DURING ALL WORK DONE WITHIN DRIPLINE OF EXISTING TREES. NOTIFY OWNER PRIOR TO COMMENCEMENT OF WORK WITHIN DRIPLINE OF TREES.
11. WHERE EXSITING ROOTS OF TREES TO REMAIN ARE ENCOUNTERED WITHIN EXCAVATION AREAS, DO NOT ALLOW EXPOSED ROOTS TO DRY OUT PRIOR TO PLACING PERMANENT BACKFILL.
12. EXERCISE EXTREME CAUTION IN REMOVING PAVEMENT WITHIN DRIPLINE OF EXISTING TREES TO REMAIN.
13. MAINTAIN EXISTING GRADES WITHIN THE PROTECTION ZONE TO THE GREATEST EXTENT FEASIBLE. DO NOT LOWER OR RAISE GRADES MORE THAN 2-INCHES WITHIN PROTECTION ZONE. HAND-GRADE TO REQUIRED FINISHED ELEVATIONS WITH PROTECTION ZONES.
14. WHEN DIRECTED BY CERTIFIED ARBORIST, AERATE SURFACE SOIL COMPACTED DURING CONSTRUCTION. AERATE TO EXTENT AS DIRECTED BY ARBORIST AND NO CLOSER THAN 36-INCHES TO TREE TRUNK. DRILL 2-INCH DIAMETER HOLES A MINIMUM OF 12-INCHES DEEP AT 24-INCHES ON CENTER. BACKFILL HOLES WITH APPROVED COMPOST.
15. REPLACE TREES, SHRUBS AND OTHER VEGETATION INDICATED TO REMAIN THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY THE OWNER'S REPRESENTATIVE WHEN GREATER THAN OR EQUAL TO 25% OF THE PLANT IS DEAD OR IN AN UNHEALTHY CONDITION AND OWNER'S REPRESENTATIVE DETERMINES ARE INCAPABLE OF RESTORING TO NORMAL GROWTH. PROVIDE NEW TREES OF THE SAME SIZE AND APPROVED SPECIES FOR EACH TREE THAT MEASURES 6-INCHES IN CALIPER SIZE OR SMALLER. WHERE THE TREE TO BE REPLACED EXCEEDS 6-INCHES IN CALIPER, PROVIDE TWO (2) 8-INCH CALIPER TREES OF AN APPROVED SPECIES AT A LOCATION DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
16. PROTECT ROOT SYSTEMS FROM PONDING, ERODING, OR EXCESSIVE WETTING CAUSED BY DEWATERING OPERATIONS.
17. DO NOT PARK VEHICLES OR EQUIPMENT WITH PROTECTION ZONES.
18. CERTIFIED ARBORIST MAY REQUIRE CROWN PRUNING TO COMPENSATE FOR ROOT LOSS CAUSED BY DAMAGING OR CUTTING OF THE ROOT SYSTEM. PROVIDE SUBSEQUENT MAINTENANCE DURING CONTRACT PERIOD AS RECOMMENDED BY ARBORIST.
19. OWNER'S REPRESENTATIVE MAY REQUIRE ADDITIONAL PROTECTION FENCING OR RELOCATION OF FENCING AS WORK PROGRESSES.
20. AVOID DAMAGING EXISTING TREES. DAMAGE INCLUDES BUT IS NOT LIMITED TO: CUTTING, BREAKING, SKINNING OR COMPACTING OF ROOTS, SKINNING AND BRUISING OF BARK AND BREAKING OF BRANCHES AND LIMBS.
21. DO NOT ATTACH SIGNS TO OR AROUND TREES OR PLANTS TO REMAIN UNLESS OTHERWISE INDICATED.
22. DO NOT ALLOW ROOTS TO DRY OUT BEFORE PLACING PERMANENT BACKFILL. PROVIDE TEMPORARY EARTH COVER AND/OR WRAP WITH MOIST BURLAP. WATER AND MAINTAIN IN MOIST CONDITION. TEMPORARILY SUPPORT AND PROTECT ROOTS FROM DAMAGE UNTIL THEY ARE PERMANENTLY RELOCATED AND/OR COVERED WITH SOIL.
23. PROTECTION-ZONE SIGNAGE: "TREE PROTECTION AREA - DO NOT ENTER" 3-INCH HIGH MINIMUM LETTER SIZE, RED CHARACTERS ON WHITE BACKGROUND. INSTALL ALONG TOP OF PROTECTION FENCING SPACED EVERY 50-FEET AND/OR EACH SIDE OF PROTECTION ZONE.

MIQUON SCHOOL

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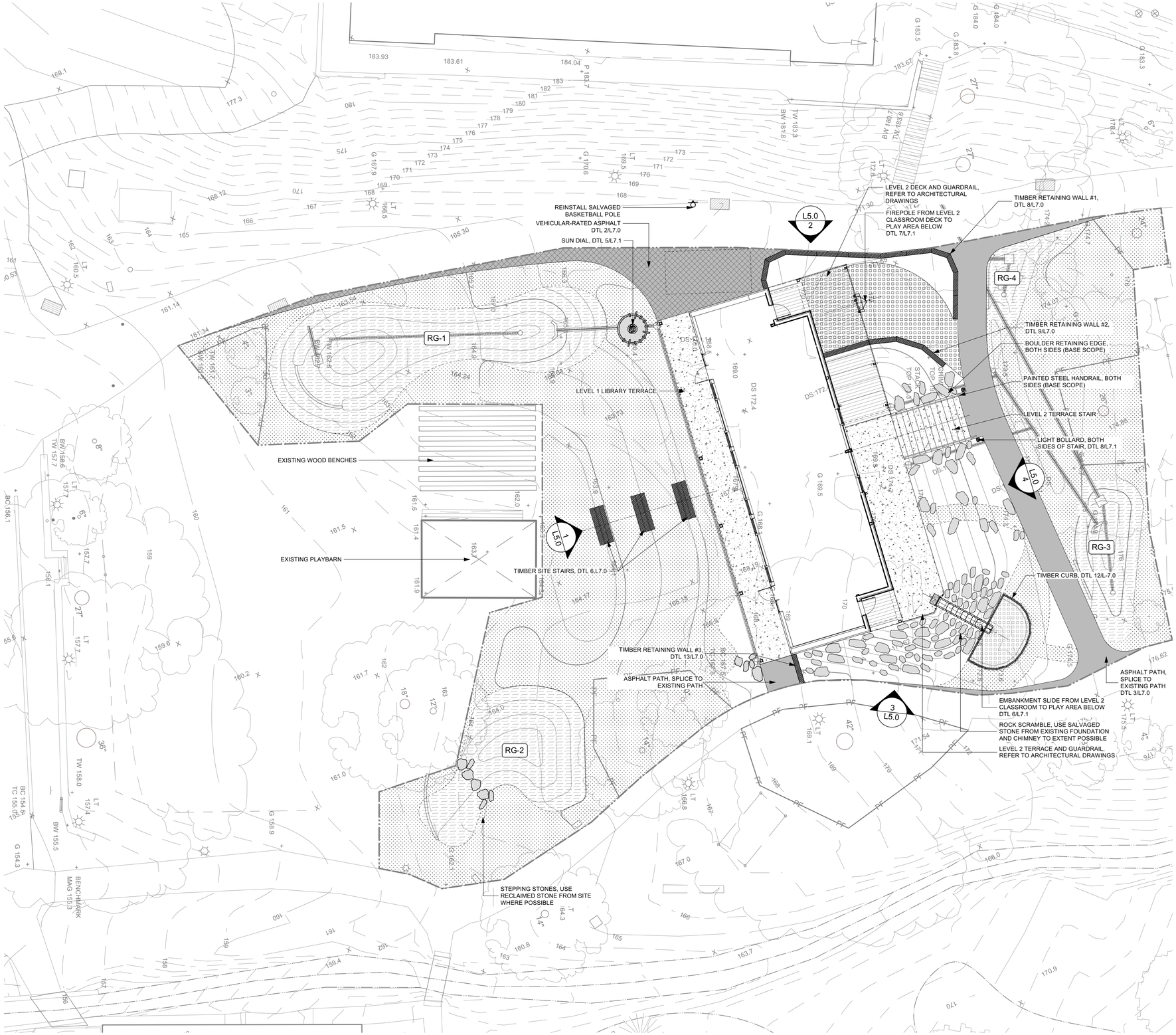
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Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
TREE PROTECTION & DEMOLITION PLAN

Drawing Number:
L1.1

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MATERIALS LEGEND

- LIMIT OF WORK / SITE ENCLOSURE FENCE
- ASPHALT PAVING, VEHICULAR RATED, DTL 2/L7.0
- ASPHALT PAVING, PEDESTRIAN RATED, DTL 2/L7.0
- ENGINEERED WOOD FIBER PLAY SURFACE, DTL 11/L7.0
- DECKING ON POSTS, SEE ARCH DRAWINGS
- WOOD CHIPS
- CIP PAVING, 1/L7.0
- RAINGARDENS, SEE CIVIL DRAWINGS

MATERIAL NOTES

1. BOULDERS SHOWN ON DRAWINGS ARE INTENDED TO BE SALVAGED AND RELOCATED WITHIN THE PROJECT AREA.
2. ASSUME SOME QUANTITY OF NEW BOULDERS WILL BE NEEDED

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. THE CONTRACTOR SHALL VERIFY ALL INVERTS, DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH WORK. DISCREPANCIES BETWEEN THE DOCUMENTS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK.
3. DRAWINGS FOR DESIGN INTENT ONLY. FIELD ADJUSTMENTS MAY BE REQUIRED WITH WRITTEN AUTHORIZATION BY OWNER.
4. THE CONTRACTOR SHALL NOTFIY THE LANDSCAPE ARHITECT OF UNFORESEEN CONDITIONS THAT ARE UNCOVERED OR EXPOSED DURING THE WORK.
5. FIELD CHANGES REQUIRE OWNER, OWNER REPRESENTATIVE AND DESIGN PROFESSIONAL REVIEW. WRITTEN CONFIRMATION IS REQUIRE TO PROCEED WITH FIELD CHANGES.
6. THE CONTRACTOR SHALL HAVE ALL REQUIRED SUBMITTAL APPROVALS PRIOR TO BEGINNING THE WORK OR ORDERING MATERIALS.
7. THE CONTRACTOR SHALL PROVIDE THE LAYOUT, LINE AND GRADE UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY, PROCEDURES, MEANS AND METHODS, SEQUENCING, SCHEDULE AND COORDINATION FOR WORK SHOWN IN THE DOCUMENTS.
9. MAINTAIN FIRE DEPARTMENT ACCESS TO ALL FIRE DEPARTMENT CONNECTIONS AND HYDRANTS AT ALL TIMES.
10. PROVIDE AND MAINTAIN PROTECTION FOR PEDESTRIAN AND VEHICULAR TRAFFIC.
11. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE CLEARING OR DEMOLITION ACTIVITIES. SEE EROSION AND SEDIMENT CONTROL PLANS.
12. DO NOT DRIVE OR PARK, STORE MATERIAL OR DEBRIS ON THE SITE EXCEPT IN AREAS APPROVED BY OWNER. STAGING AREAS SHALL BE APPROVED BY OWNER. DO NOT STAGE MATERIALS IN AREAS OTHER THAN THOSE THAT ARE PREVIOUSLY DESIGNATED BY THE OWNER.
13. DISPOSE OF OR RECYCLE ALL DEMOLITION MATERIALS IN A PERMITTED, REGULATED FACILITY IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATION.
14. REMOVE EXISTING SOIL TO DEPTHS REQUIRED FOR NEW WORK INCLUDING FULL DEPTH REPLACEMENT OF PLANTING IN NEW BEDS.
15. PRESERVE AND PROTECT ALL EXISTING FEATURES TO REMAIN: STRUCTURES, LIGHTING, SURFACE MATERIALS, ABOVE AND BELOW GRADE UTILITIES, FOOTING AND VEGETATION WITHIN AND ADJACENT TO CONSTRUCTION AREA DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION.
16. REMOVE AND SALVAGE SITE FURNITURE AS INDICATED. PROTECT SITE FURNITURE AGAINST DAMAGE AND TRANSPORT TO LOCATION AS DIRECTED BY OWNER.
17. MEET ALL EXISTING GRADES AT ALL EDGES OF PROJECT WITHIN GRADING REQUIREMENTS.
18. NOTIFY OWNER ONE WEEK PRIOR TO REMOVING EXISTING PLANTS FROM PLANT BEDS.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT TO ANY SIDEWALK, LAWN, TREES, PAVING, AND OTHER IMPROVEMENTS DISTURBED OR DAMAGED BY THE CONSTRUCTION OR DEMOLITION ACTIVITIES PROPOSED HEREIN.

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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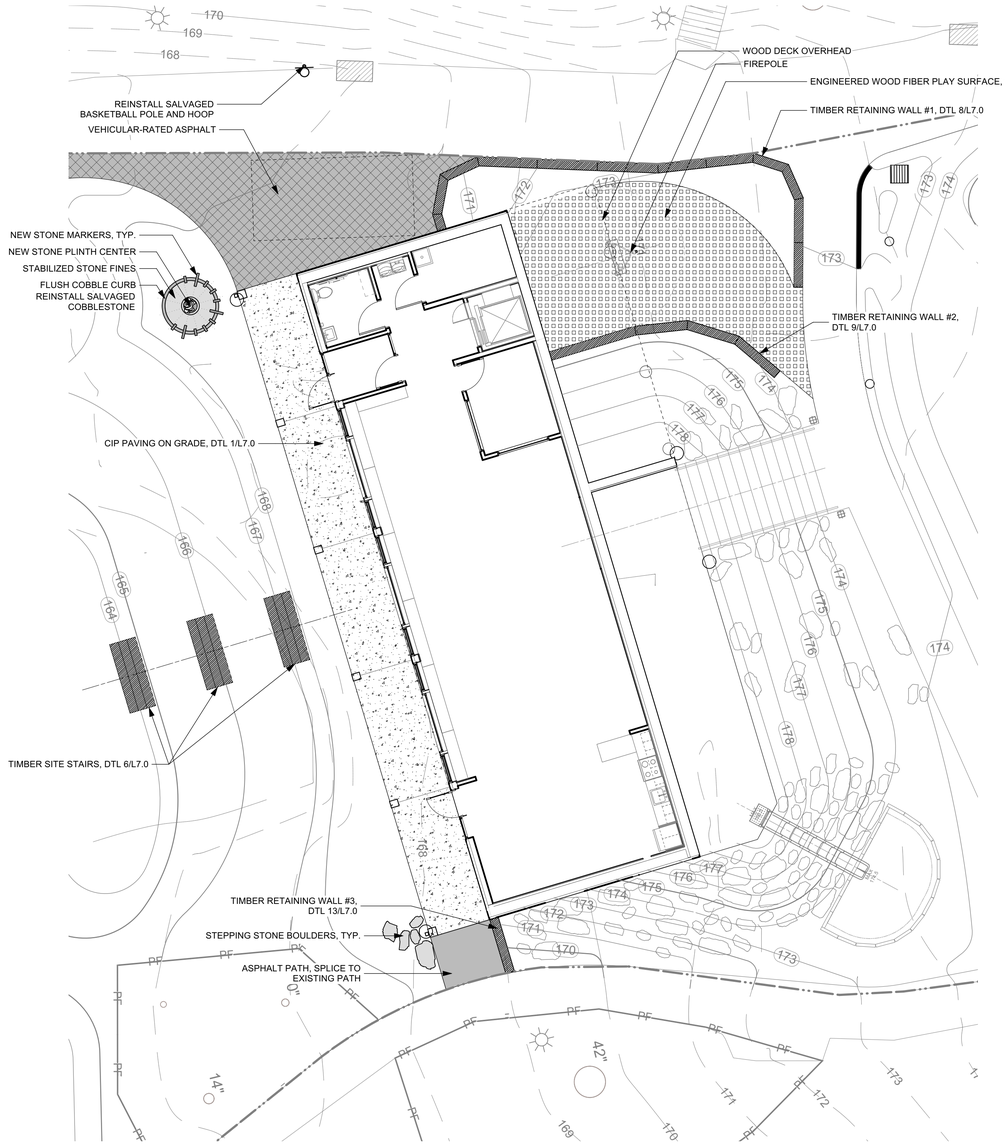
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MATERIALS PLAN

Drawing Number:
L2.0

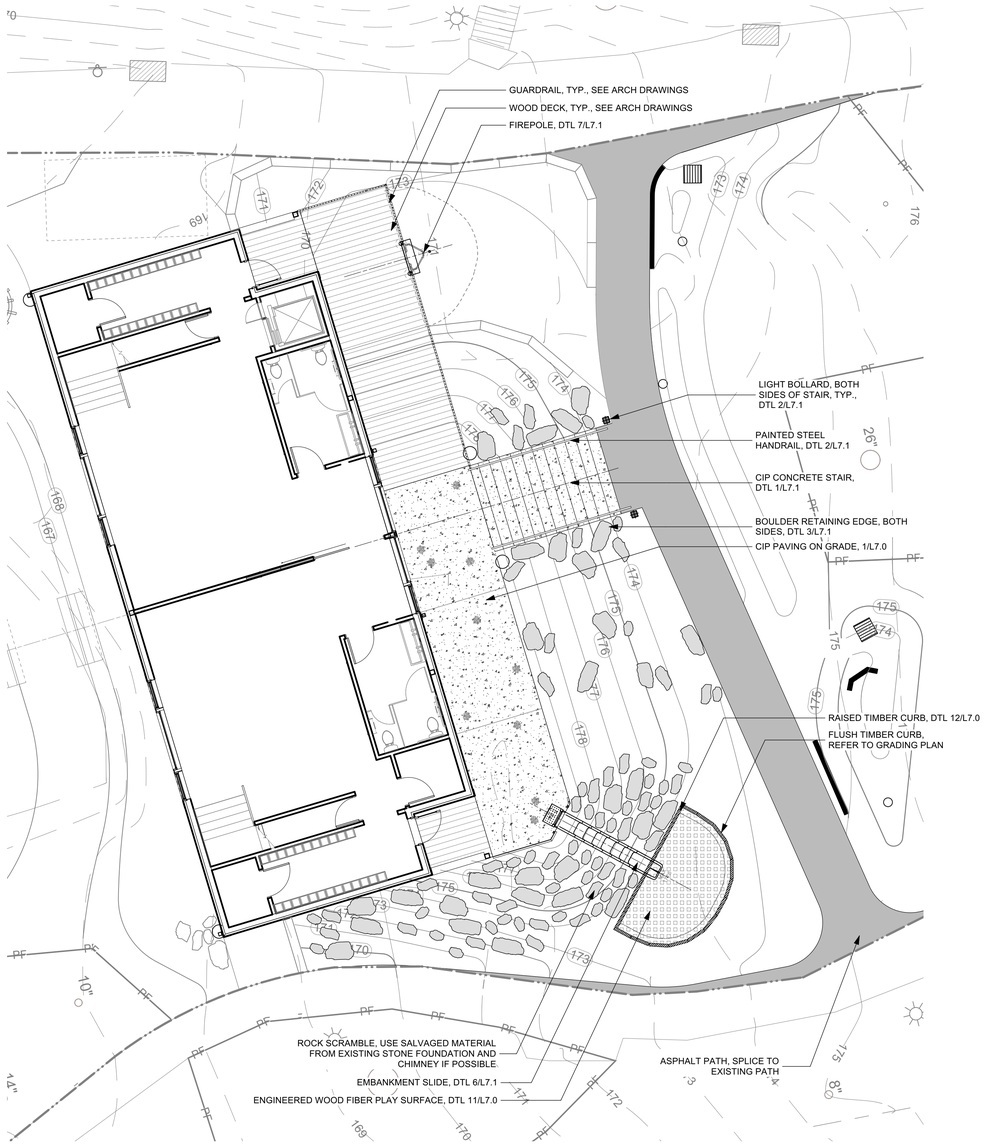
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MATERIALS LEGEND

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- ASPHALT PAVING, PEDESTRIAN RATED, DTL 2/L7.0
- ENGINEERED WOOD FIBER PLAY SURFACE, DTL 11/L7.0
- DECKING ON POSTS, SEE ARCH DRAWINGS



1 L2.1 LEVEL 01 PAVEMENT PLAN
Scale: 1/8" = 1'-0"



2 L2.1 LEVEL 02 PAVEMENT PLAN
Scale: 1/8" = 1'-0"

0 8 16 32 FT

N

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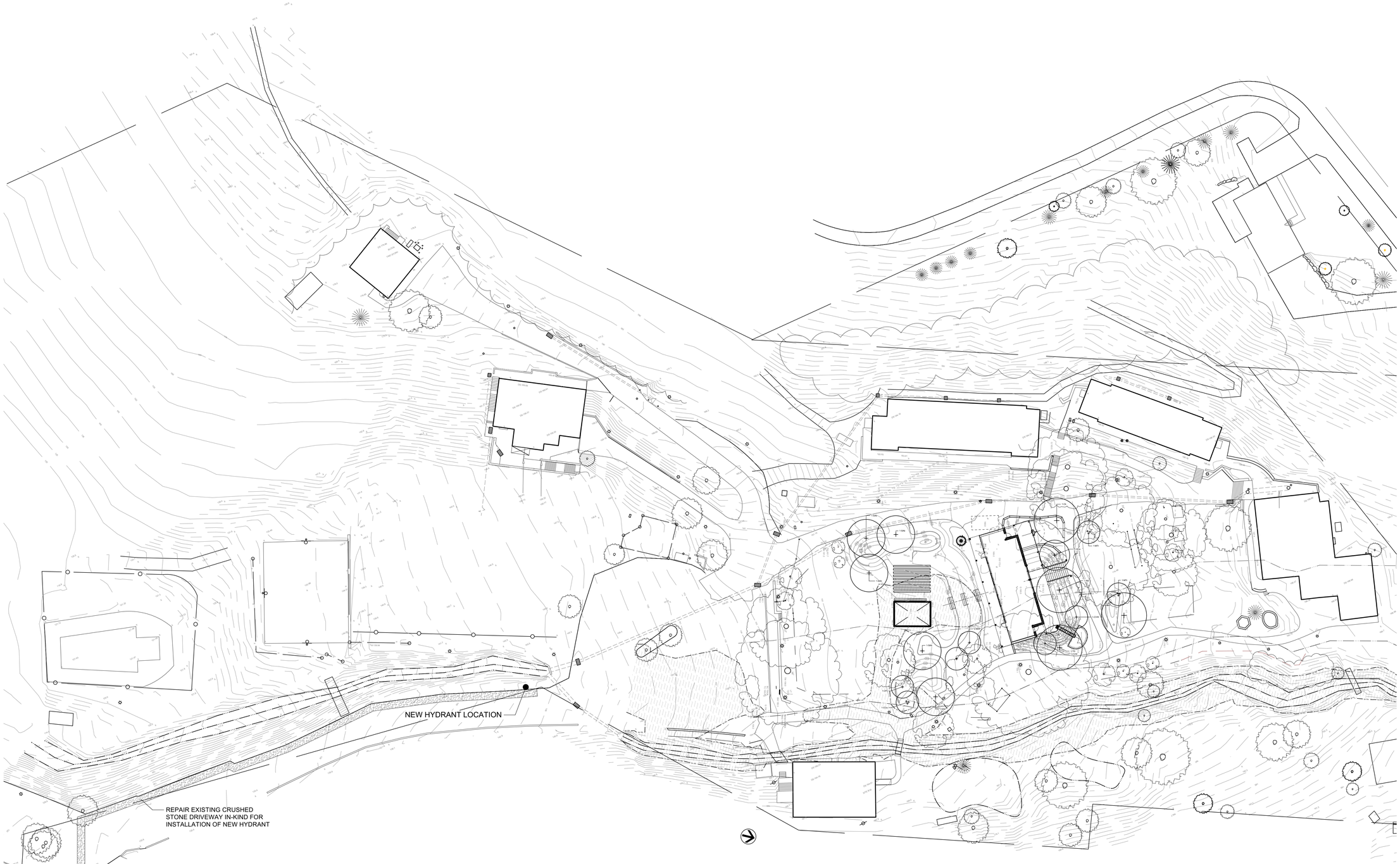
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PAVEMENT ENLARGEMENT

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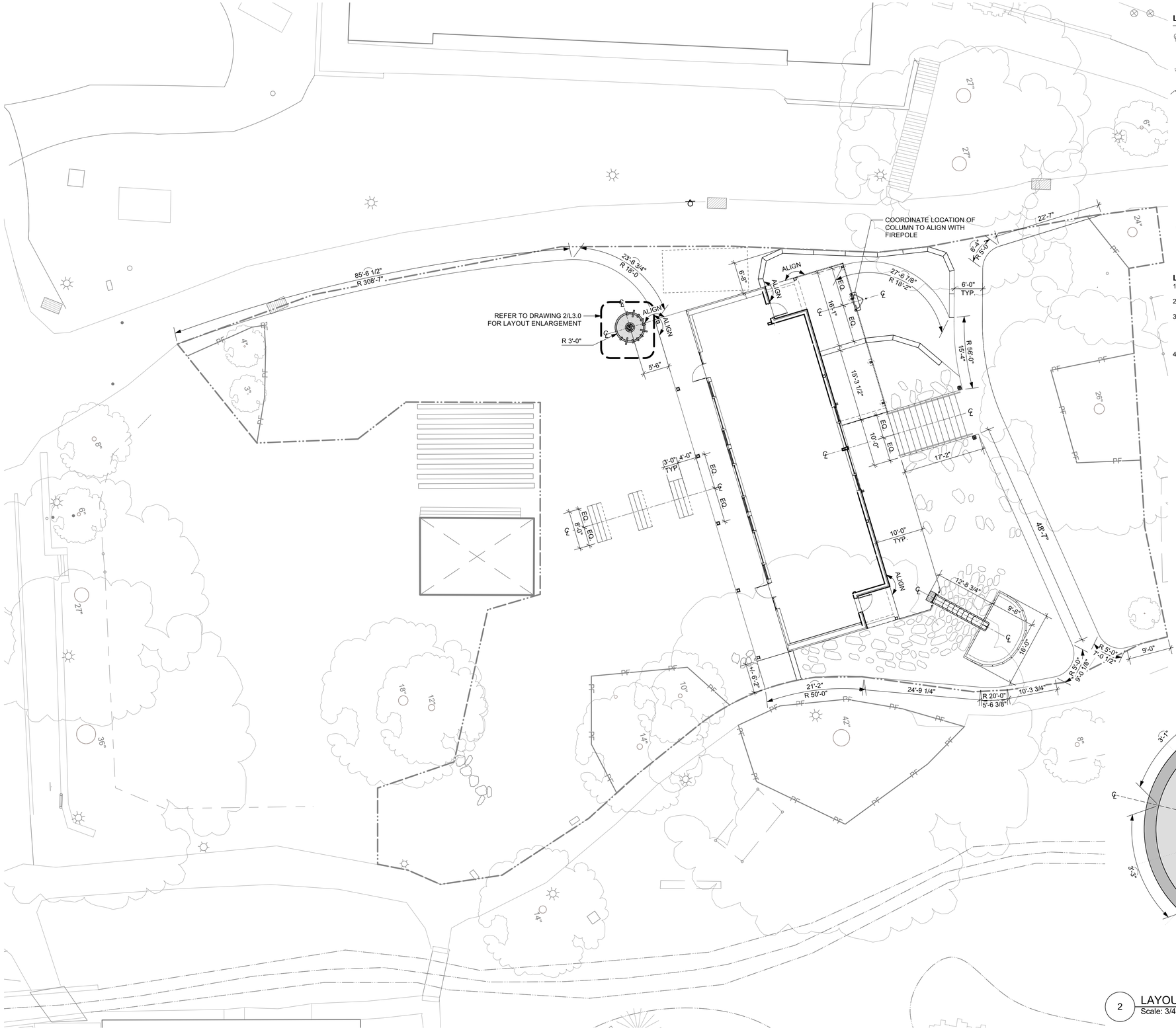
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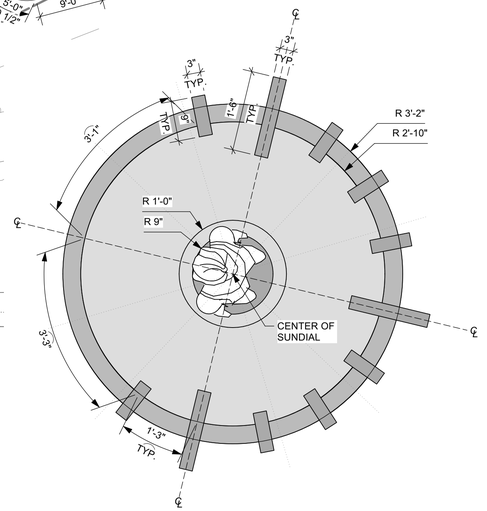
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MATERIALS PLAN - HYDRANT

Drawing Number:
L2.2

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LAYOUT LEGEND

- CENTER LINE
- REFERENCE LINE
- x'-x" — LINEAR LENGTH
- x'-x" — RADIAL LENGTH
- x' — ANGLE
- R x'-x" — RADIUS
- P.O.B. — POINT OF BEGINNING
- POINT OF CURVATURE
- ALIGN

LAYOUT NOTES

1. ALL LINES ARE PARALLEL OR PERPENDICULAR UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE SHOWN TO FACE OF MATERIALS, UNLESS SHOWN OTHERWISE.
3. V.I.F. = VERIFY IN FIELD: VERIFY ALL DIMENSIONS FROM FIELD MEASUREMENTS. VERIFY LAYOUT OF ALL PROPOSED WORK WITH EXISTING CONDITIONS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH ANY WORK.
4. PROVIDE STAKED LAYOUT FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORK.

3 LAYOUT PLAN
Scale: 1" = 10'-0"

0 10 20 30 FT

2 LAYOUT ENLARGEMENT PLAN: SUNDIAL
Scale: 3/4" = 1'-0"

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LAYOUT PLAN

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GRADING LEGEND

SITE ENCLOSURE FENCE / LIMIT OF WORK	
PF	TREE PROTECTION FENCE
× 0.00	EXISTING SPOT ELEVATION
+ 0.00	PROPOSED SPOT ELEVATION
+ TW0.00	TOP OF WALL
+ BW0.00	BOTTOM OF WALL
+ TW0.00	TOP OF STEP
+ BS0.00	BOTTOM OF STEP
+ HP0.00	HIGH POINT
◂ 0.0%	PERCENT SLOPE
0	CONTOUR
V.I.F.	VERIFY IN FIELD

GRADING NOTES

1. REFER TO CIVIL ENGINEERING PLAN FOR LOCATIONS OF INLETS.
2. ANY DISCREPANCY BETWEEN FIELD CONDITIONS AND DOCUMENTED EXISTING OR PROPOSED CONDITIONS SHALL BE REPORTED TO OWNER IN WRITING.
3. FINISH GRADES OF PAVEMENTS AND SOIL ALONG BOTTOM OF CURBS AND WALLS SHALL HAVE A CONSTANT SLOPE UNLESS INDICATED BY SPOT ELEVATIONS.
4. ADJUST TOPS OF ALL MANHOLE LIDS, EXISTING UTILITY STRUCTURES, ETC. TO MEET PROPOSED GRADES.
5. REFER TO CIVIL DRAWINGS FOR RAINGARDEN UTILITY COMPONENTS, INCLUDING BUT NOT LIMITED TO, ENDWALL AND RIPRAP, CLEANOUT, OVERFLOW STRUCTURE, AND CURB LEVEL SPREADER.

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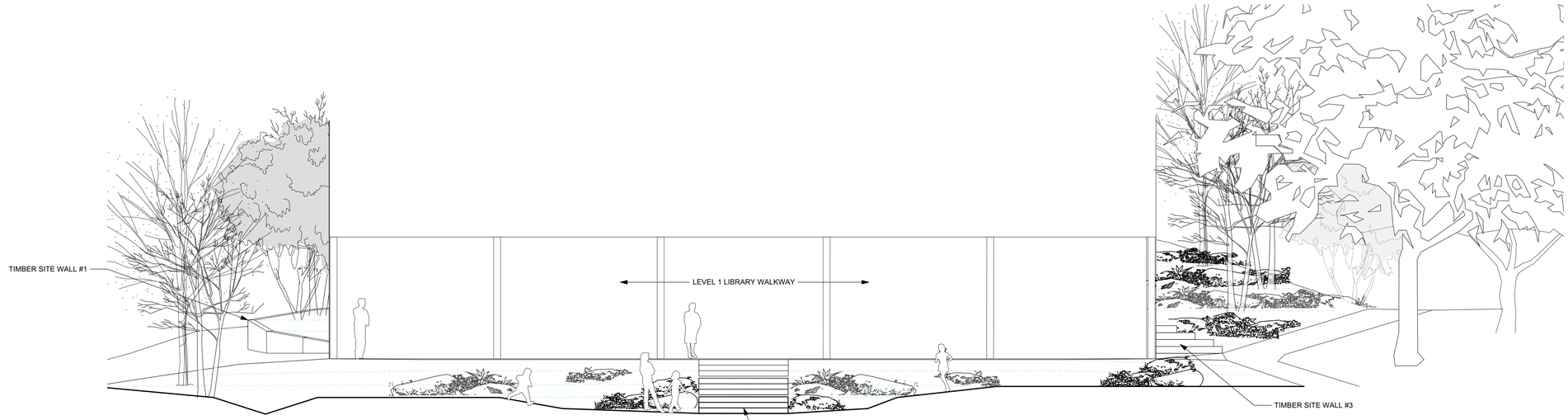
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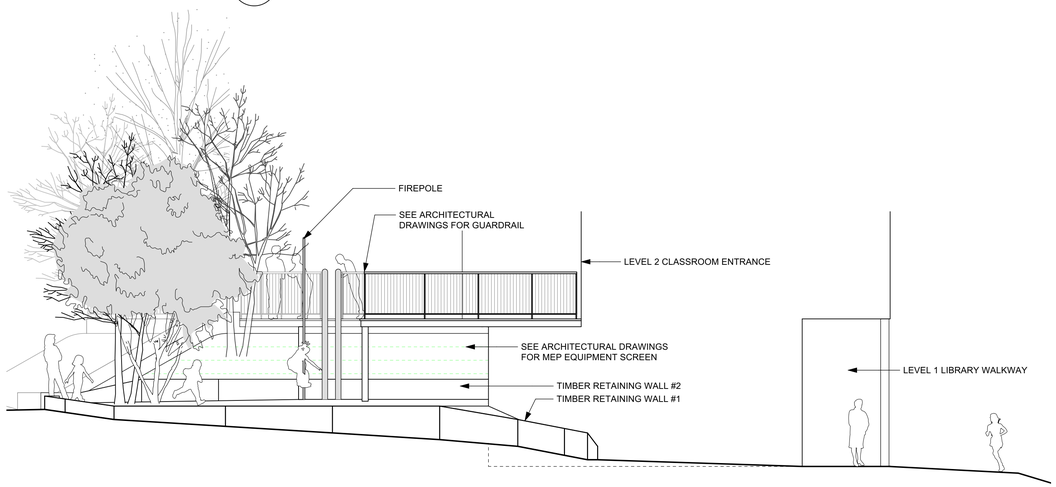
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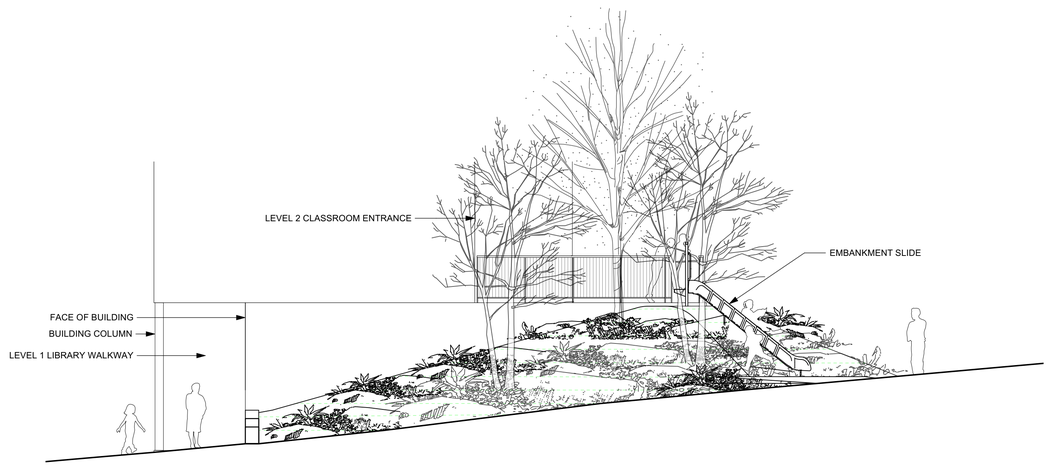
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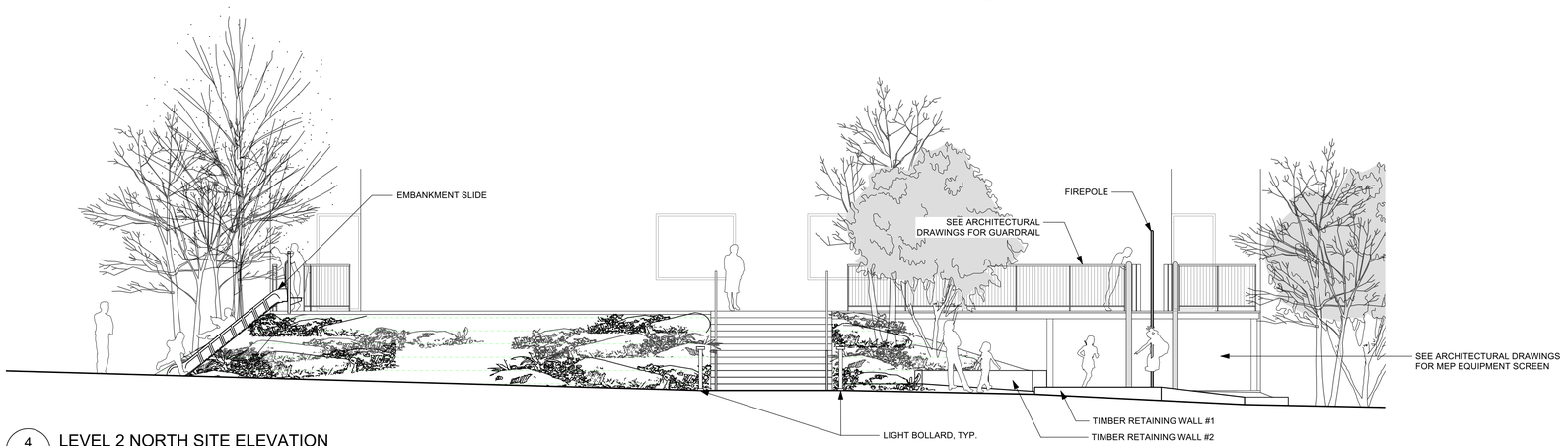
1 L5.0 LEVEL 1 SOUTH SITE ELEVATION
Scale: 3/16" = 1'-0"



2 L5.0 EAST SITE ELEVATION
Scale: 3/16" = 1'-0"



3 L5.0 EAST SITE ELEVATION
Scale: 3/16" = 1'-0"



4 L5.0 LEVEL 2 NORTH SITE ELEVATION
Scale: 3/16" = 1'-0"

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions

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Job Number: 2121
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Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

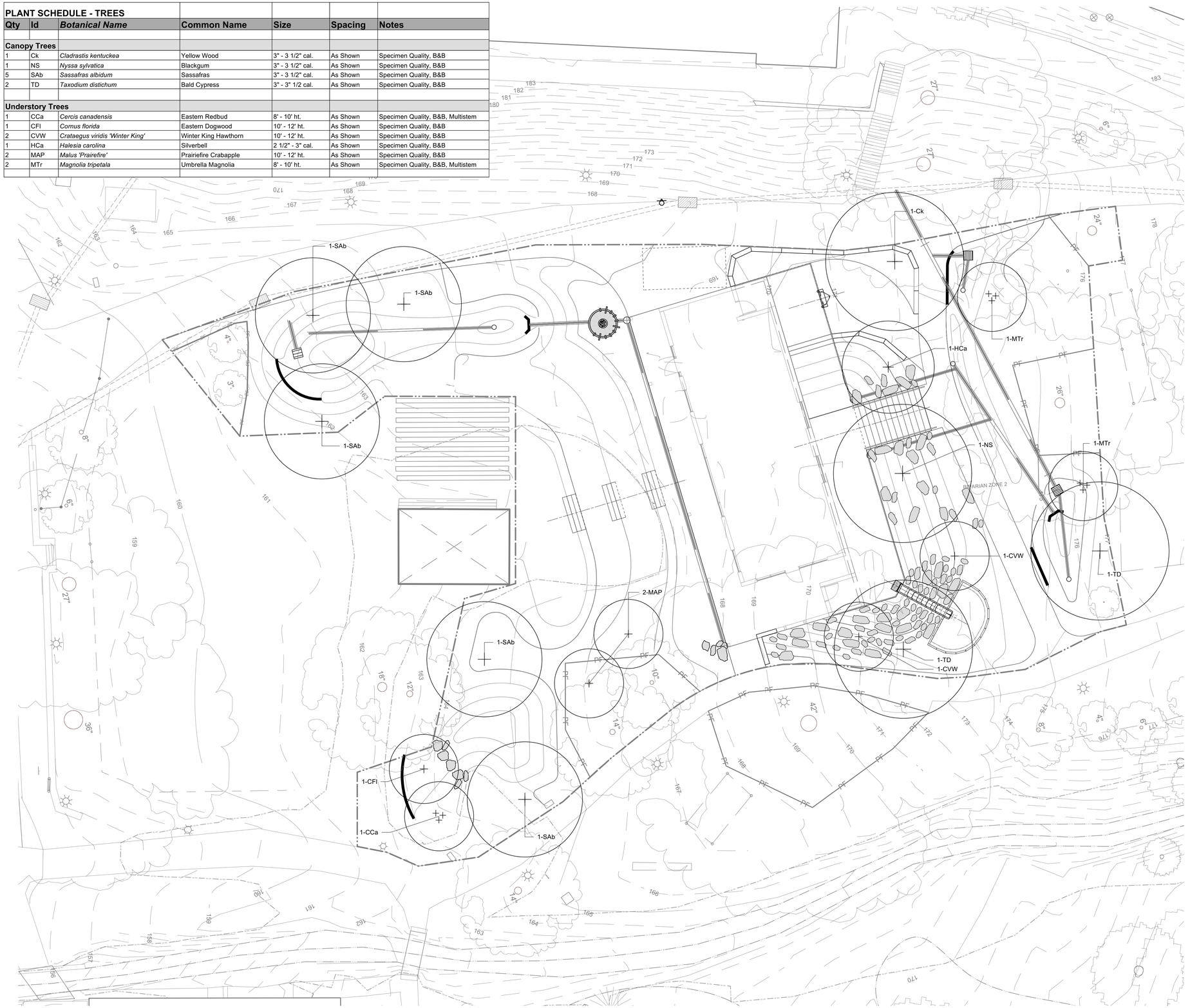
Drawing Title:
SITE SECTIONS

Drawing Number:
L5.0

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PLANT SCHEDULE - TREES

Qty	Id	*Botanical Name*	Common Name	Size	Spacing	Notes
Canopy Trees						
1	Ck	*Cladrastis kentuckea*	Yellow Wood	3" - 3 1/2" cal.	As Shown	Specimen Quality, B&B
1	NS	*Nyssa sylvatica*	Blackgum	3" - 3 1/2" cal.	As Shown	Specimen Quality, B&B
5	SAb	*Sassafras albidum*	Sassafras	3" - 3 1/2" cal.	As Shown	Specimen Quality, B&B
2	TD	*Taxodium distichum*	Bald Cypress	3" - 3" 1/2 cal.	As Shown	Specimen Quality, B&B
Understory Trees						
1	CCa	*Cercis canadensis*	Eastern Redbud	8' - 10' ht.	As Shown	Specimen Quality, B&B, Multistem
1	CFl	*Cornus florida*	Eastern Dogwood	10' - 12' ht.	As Shown	Specimen Quality, B&B
2	CVW	*Crataegus viridis 'Winter King'*	Winter King Hawthorn	10' - 12' ht.	As Shown	Specimen Quality, B&B
1	HCa	*Halesia carolina*	Silverbell	2 1/2" - 3" cal.	As Shown	Specimen Quality, B&B
2	MAP	*Malus 'Prairefire'*	Prairiefire Crabapple	10' - 12' ht.	As Shown	Specimen Quality, B&B
2	MTr	*Magnolia tripetala*	Umbrella Magnolia	8' - 10' ht.	As Shown	Specimen Quality, B&B, Multistem



PLANTING LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- TREE PROTECTION FENCE
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED DECIDUOUS CANOPY TREE
- PROPOSED UNDERSTORY OR EVERGREEN TREE

PLANTING NOTES

1. ASSUME 18" NEW PLANTING SOIL DEPTH IN ALL PLANT BEDS. ASSUME 30" NEW PLANTING SOIL DEPTH AT ALL NEW TREES.
2. ASSUME ALL SLOPES WILL HAVE EROSION CONTROL FABRIC PER SPECIFICATION

MIQUON SCHOOL

HEART OF THE CAMPUS

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PRELIMINARY AND FINAL PLAN

Drawing Title:

TREE PLANTING PLAN

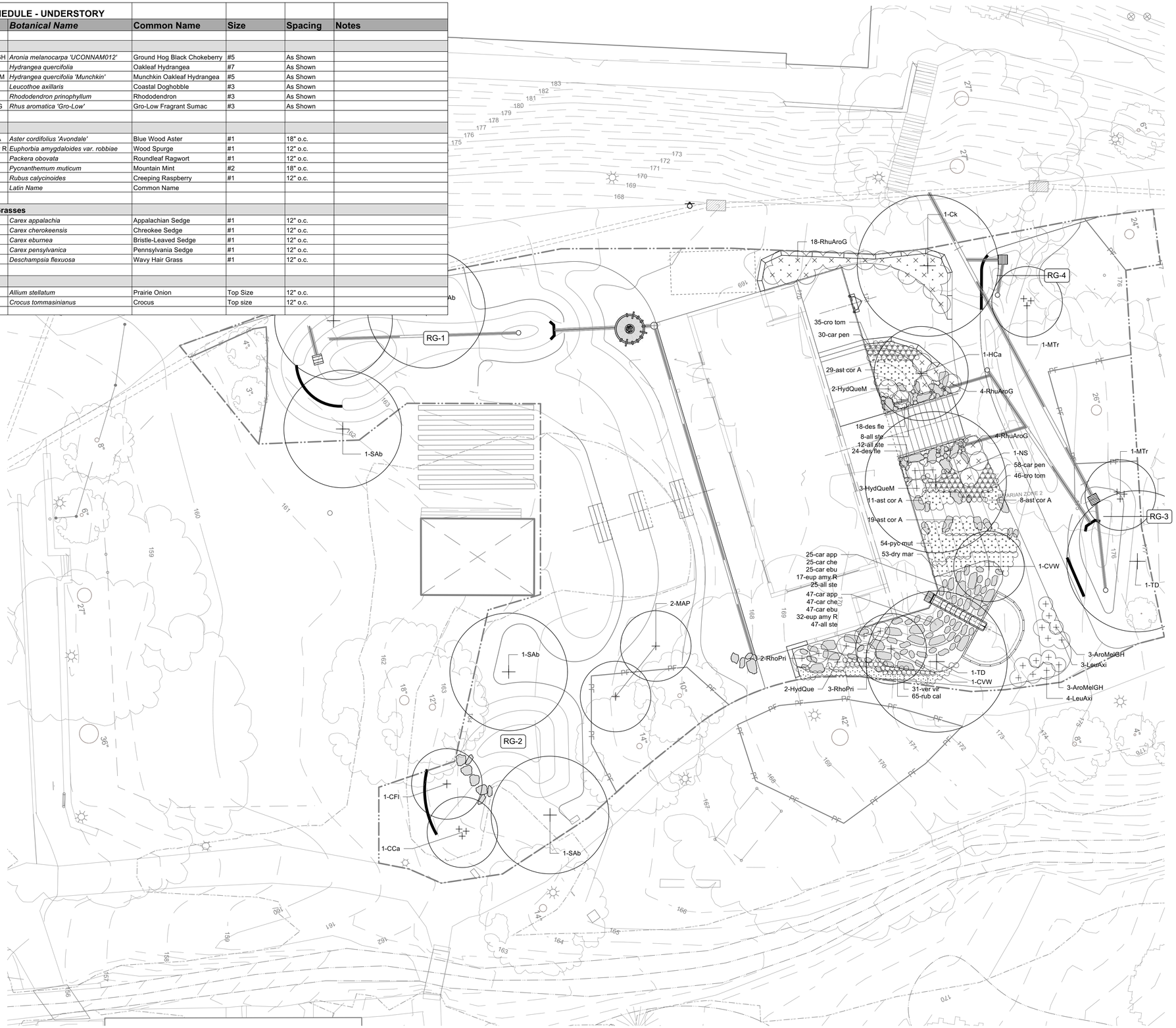
Drawing Number:

L6.0

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PLANT SCHEDULE - UNDERSTORY

Qty	Id	*Botanical Name*	Common Name	Size	Spacing	Notes
Shrubs						
6	AroMelGH	*Aronia melanocarpa 'UCONNAM012'*	Ground Hog Black Chokeberry	#5	As Shown	
2	HydQue	*Hydrangea quercifolia*	Oakleaf Hydrangea	#7	As Shown	
5	HydQueM	*Hydrangea quercifolia 'Munchkin'*	Munchkin Oakleaf Hydrangea	#5	As Shown	
7	LeuAxi	*Leucothoe axillaris*	Coastal Doghobble	#3	As Shown	
5	RhoPri	*Rhododendron prinophyllum*	Rhododendron	#3	As Shown	
26	RhuAroG	*Rhus aromatica 'Gro-Low'*	Gro-Low Fragrant Sumac	#3	As Shown	
Perennials						
67	ast cor A	*Aster cordifolius 'Avondale'*	Blue Wood Aster	#1	18" o.c.	
49	eup amy R	*Euphorbia amygdaloides var. robbiae*	Wood Spurge	#1	12" o.c.	
1	pac obo	*Packera obovata*	Roundleaf Ragwort	#1	12" o.c.	
54	pyc mut	*Pycnanthemum muticum*	Mountain Mint	#2	18" o.c.	
65	rub cal	*Rubus calycinoides*	Creeping Raspberry	#1	12" o.c.	
31	ver vir	*Latin Name*	Common Name			
Ornamental Grasses						
72	car app	*Carex appalachia*	Appalachian Sedge	#1	12" o.c.	
72	car che	*Carex cherokeensis*	Chreokee Sedge	#1	12" o.c.	
72	car ebu	*Carex eburnea*	Bristle-Leaved Sedge	#1	12" o.c.	
88	car pen	*Carex pensylvanica*	Pennsylvania Sedge	#1	12" o.c.	
42	des fle	*Deschampsia flexuosa*	Wavy Hair Grass	#1	12" o.c.	
Bulbs						
92	all ste	*Allium stellatum*	Prairie Onion	Top Size	12" o.c.	
81	cro tom	*Crocus tommasinianus*	Crocus	Top size	12" o.c.	



PLANTING LEGEND

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- TREE PROTECTION FENCE
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED DECIDUOUS CANOPY TREE
- PROPOSED UNDERSTORY OR EVERGREEN TREE

PLANTING NOTES

1. ASSUME 18" NEW PLANTING SOIL DEPTH IN ALL PLANT BEDS. ASSUME 30" NEW PLANTING SOIL DEPTH AT ALL NEW TREES.
2. ASSUME ALL SLOPES WILL HAVE EROSION CONTROL FABRIC PER SPECIFICATION

ALL PLANTING, ASSUME:
10% SHRUBS, 7 GAL., 4 FT ON CENTER
30% SHRUBS, 5 GAL., 3 FT ON CENTER
60% PERENNIALS, 1 GAL., 18 IN ON CENTER
50% GROUNDCOVER, 1 QT., 12 IN ON CENTER

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Drawing Title:

UNDERSTORY
PLANTING PLAN

Drawing Number:

L6.1

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PLANT SCHEDULE - RAIN GARDEN 01

Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
19	AroMelGH	*Aronia melanocarpa 'UCONNAM012'*	Ground Hog Black Chokeberry	#5	As Shown
31	CleAlnH	*Clethra alnifolia 'Hummingbird'*	Hummingbird Summersweet	#3	As Shown
3	LinBen	*Lindera benzoin*	Spicebush	#5	As Shown
Perennials					
13	ast bel	*Aster novae-belgii*	New York Aster	#1	24" o.c.
68	eup coe	*Eupatorium coelestinum*	Blue Mistflower	#1	18" o.c.
267	pac obo	*Packera obovata*	Roundleaf Ragwort	#1	12" o.c.
68	phy vir M	*Physostegia virginiana 'Miss Manners'*	Miss Manners Obedient Plant	#2	12" o.c.
Ornamental Grasses					
70	car str	*Carex stricta*	Tussock Sedge	#1	18" o.c.
78	muh rev	*Muhlenbergia reverchonii 'Undaunted'*	Ruby Muhly Grass	#3	24" o.c.

PLANT SCHEDULE - RAIN GARDEN 04

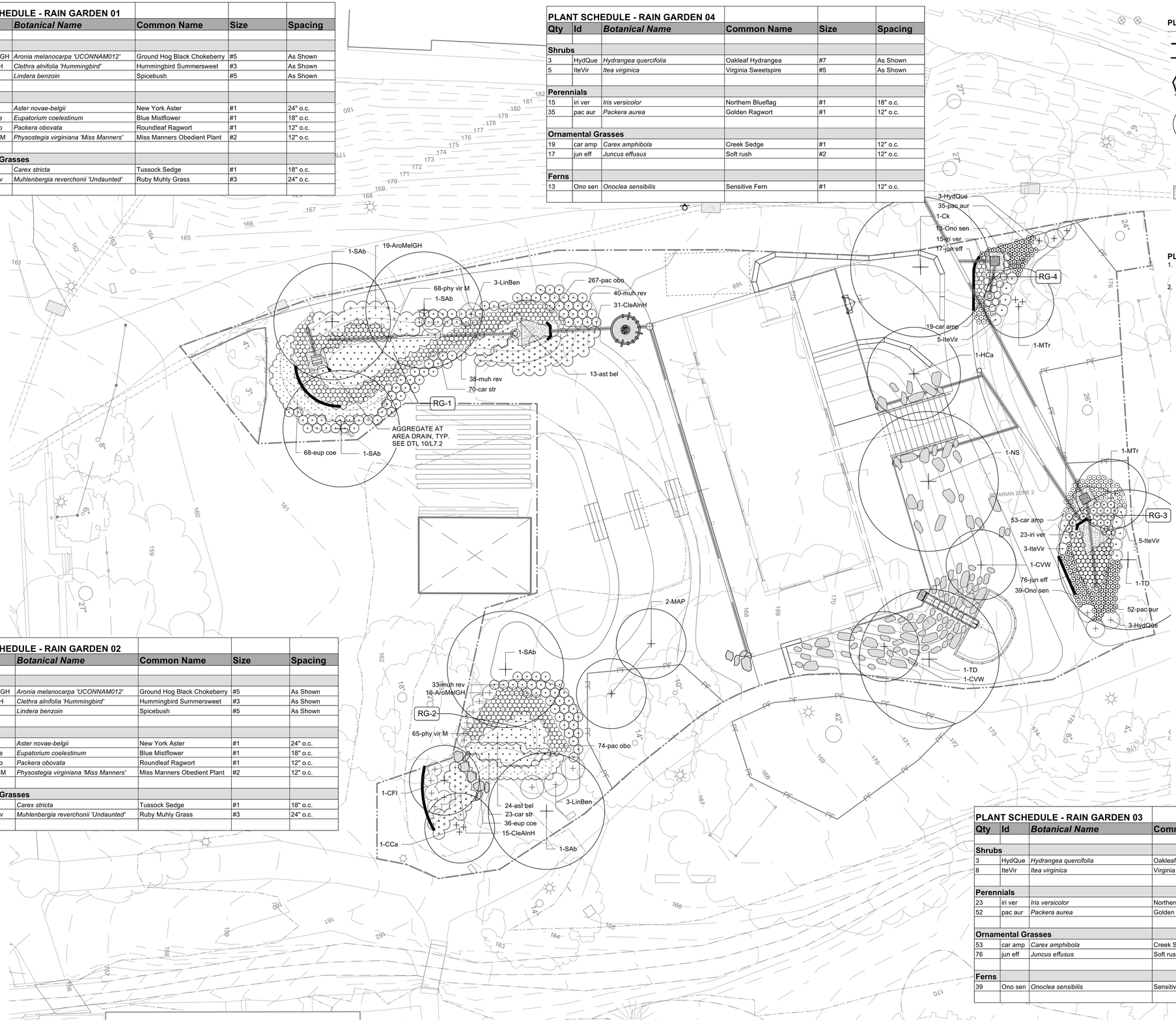
Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
3	HydQue	*Hydrangea quercifolia*	Oakleaf Hydrangea	#7	As Shown
5	IteVir	*Itea virginica*	Virginia Sweetspire	#5	As Shown
Perennials					
15	iri ver	*Iris versicolor*	Northern Blueflag	#1	18" o.c.
35	pac aur	*Packera aurea*	Golden Ragwort	#1	12" o.c.
Ornamental Grasses					
19	car amp	*Carex amphibola*	Creek Sedge	#1	12" o.c.
17	jun eff	*Juncus effusus*	Soft rush	#2	12" o.c.
Ferns					
13	Ono sen	*Onoclea sensibilis*	Sensitive Fern	#1	12" o.c.

PLANT SCHEDULE - RAIN GARDEN 02

Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
10	AroMelGH	*Aronia melanocarpa 'UCONNAM012'*	Ground Hog Black Chokeberry	#5	As Shown
15	CleAlnH	*Clethra alnifolia 'Hummingbird'*	Hummingbird Summersweet	#3	As Shown
3	LinBen	*Lindera benzoin*	Spicebush	#5	As Shown
Perennials					
24	ast bel	*Aster novae-belgii*	New York Aster	#1	24" o.c.
36	eup coe	*Eupatorium coelestinum*	Blue Mistflower	#1	18" o.c.
74	pac obo	*Packera obovata*	Roundleaf Ragwort	#1	12" o.c.
65	phy vir M	*Physostegia virginiana 'Miss Manners'*	Miss Manners Obedient Plant	#2	12" o.c.
Ornamental Grasses					
23	car str	*Carex stricta*	Tussock Sedge	#1	18" o.c.
33	muh rev	*Muhlenbergia reverchonii 'Undaunted'*	Ruby Muhly Grass	#3	24" o.c.

PLANT SCHEDULE - RAIN GARDEN 03

Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
3	HydQue	*Hydrangea quercifolia*	Oakleaf Hydrangea	#7	As Shown
8	IteVir	*Itea virginica*	Virginia Sweetspire	#5	As Shown
Perennials					
23	iri ver	*Iris versicolor*	Northern Blueflag	#1	18" o.c.
52	pac aur	*Packera aurea*	Golden Ragwort	#1	12" o.c.
Ornamental Grasses					
53	car amp	*Carex amphibola*	Creek Sedge	#1	12" o.c.
76	jun eff	*Juncus effusus*	Soft rush	#1	12" o.c.
Ferns					
39	Ono sen	*Onoclea sensibilis*	Sensitive Fern	#1	12" o.c.



PLANTING LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- TREE PROTECTION FENCE
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED DECIDUOUS CANOPY TREE
- PROPOSED UNDERSTORY OR EVERGREEN TREE
- ORNAMENTAL AGGREGATE

PLANTING NOTES

1. ASSUME 18" NEW PLANTING SOIL DEPTH IN ALL PLANT BEDS. ASSUME 30" NEW PLANTING SOIL DEPTH AT ALL NEW TREES.
2. ASSUME ALL SLOPES WILL HAVE EROSION CONTROL FABRIC PER SPECIFICATION

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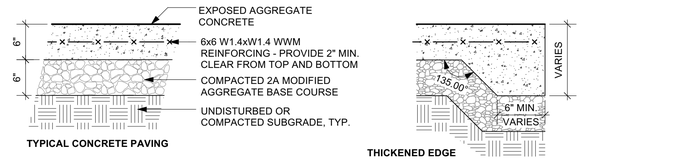
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: RAIN GARDEN PLANTING PLAN

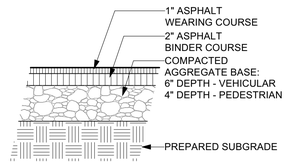
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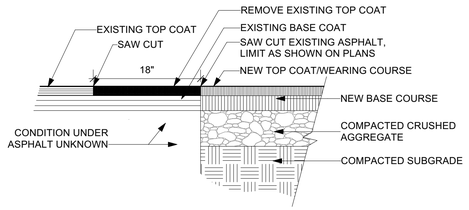


1 L7.0 CIP CONCRETE PAVEMENT, TYP.
Scale: 1" = 1'-0"

NOTE:
REFER TO DETAIL 3/L7.0 FOR ASPHALT SPLICE. DO THIS AT ALL AREAS WHERE PROPOSED ASPHALT MEETS EXISTING.

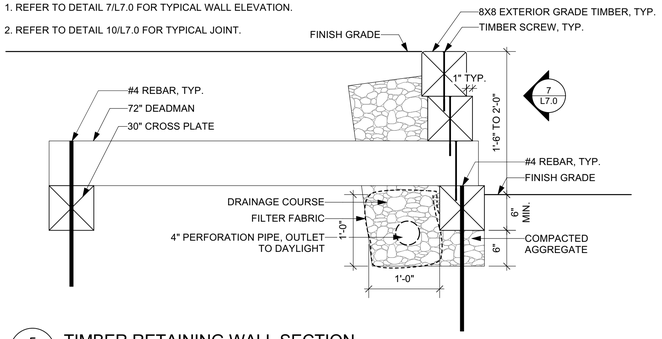


2 L7.0 ASPHALT PAVEMENT, TYP.
Scale: 1" = 1'-0"

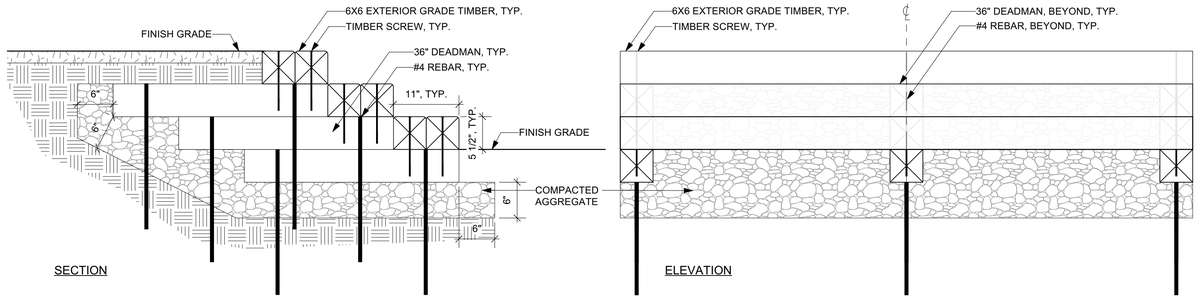


3 L7.0 ASPHALT SPLICE
Scale: 1" = 1'-0"

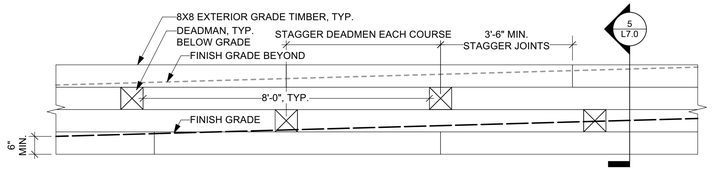
NOTES:
1. REFER TO DETAIL 7/L7.0 FOR TYPICAL WALL ELEVATION.
2. REFER TO DETAIL 10/L7.0 FOR TYPICAL JOINT.



5 L7.0 TIMBER RETAINING WALL SECTION
Scale: 1" = 1'-0"

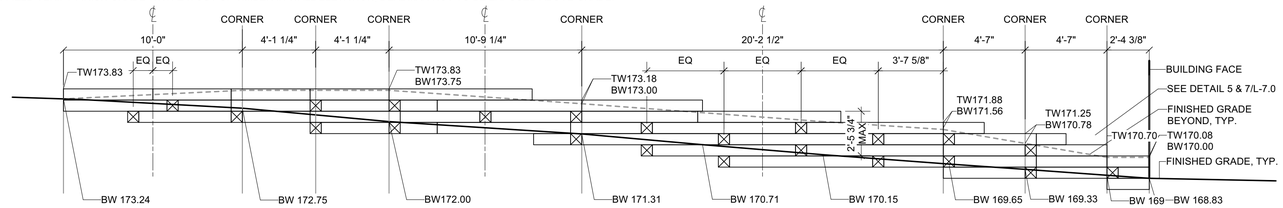


6 L7.0 TIMBER SITE STAIRS
Scale: 1" = 1'-0"



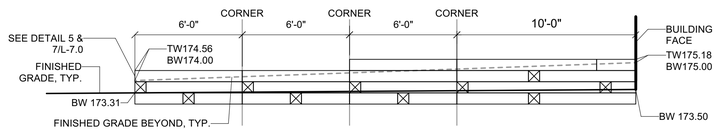
7 L7.0 TIMBER RETAINING WALL ELEVATION, TYP.
Scale: 1/2" = 1'-0"

NOTES:
1. CUT WOOD AS NECESSARY TO ACCOMMODATE CORNERS. PROVIDE TIMBER SCREWS AT JOINTS.
2. TOP OF WALL NOT TO EXCEED 2'-5 3/4" HEIGHT.
3. FIELD VERIFY FINISH GRADE WITH LAYOUT OF TIMBER IN WALL ELEVATION; DEADMAN NOT TO BE EXPOSED ABOVE GRADE.



8 L7.0 TIMBER RETAINING WALL #1
Scale: 1/4" = 1'-0"

NOTES:
1. CUT WOOD AS NECESSARY TO ACCOMMODATE CORNERS. PROVIDE TIMBER SCREWS AT JOINTS.
2. MAX WALL HEIGHT NOT TO EXCEED 2'-5 3/4".



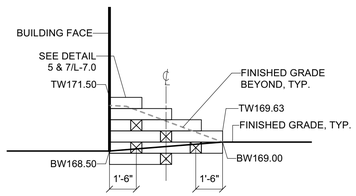
9 L7.0 TIMBER RETAINING WALL #2
Scale: 1/4" = 1'-0"

NOTE:

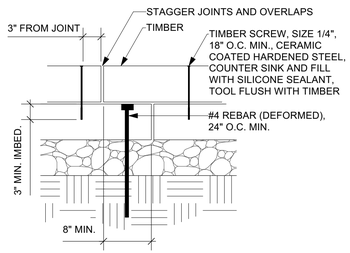
1. INSTALL RUBBER SAFETY MAT PER MANUFACTURER'S INSTALLATION GUIDELINES.

2. INSTALL ENGINEERED WOOD FIBER SAFETY SURFACE OVER RUBBER MAT TO SPECIFIED HEIGHT.

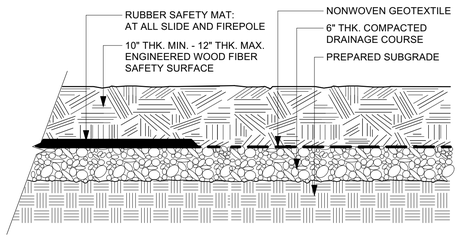
3. REFER TO DETAIL 12/L7.0 FOR TIMBER CURB EDGE AT SAFETY SURFACE.



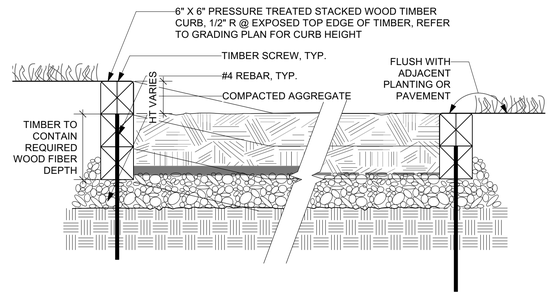
13 L7.0 TIMBER RETAINING WALL #3
Scale: 1/4" = 1'-0"



10 L7.0 TIMBER JOINTS
Scale: 1" = 1'-0"



11 L7.0 ENGINEERED WOOD FIBER SAFETY SURFACE, TYP
Scale: 1" = 1'-0"



12 L7.0 TIMBER CURB
Scale: 1" = 1'-0"

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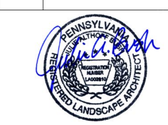
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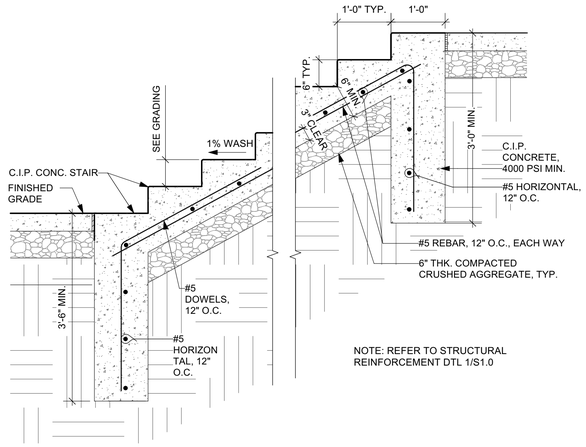
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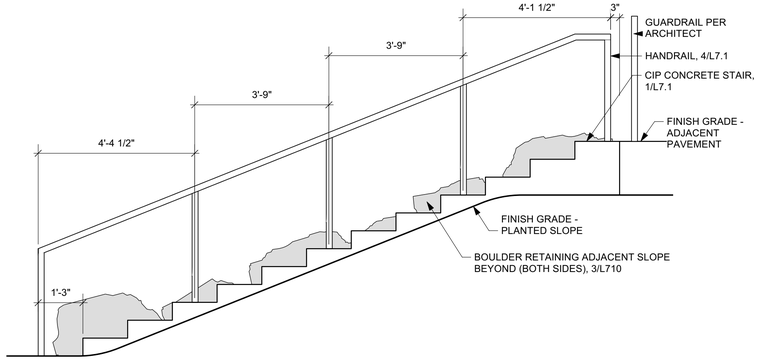
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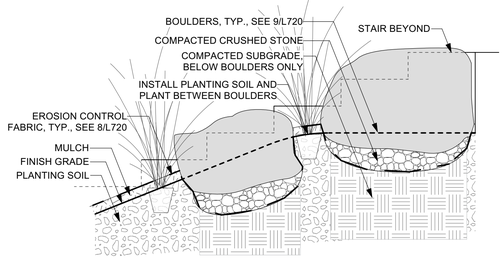
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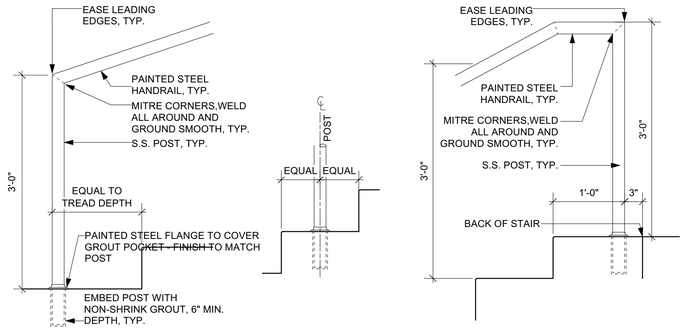
1 L7.1 **CONCRETE STAIR**
Scale: 3/4" = 1'-0"



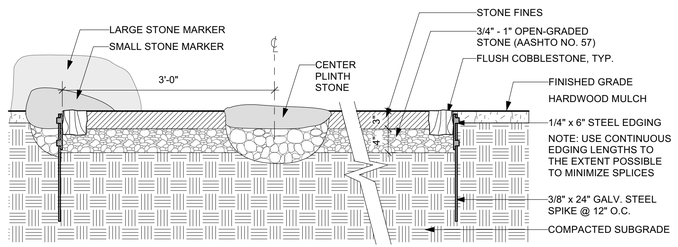
2 L7.1 **STAIR HANDRAIL**
Scale: 1/2" = 1'-0"



3 L7.1 **BOULDER RETAINING EDGE AT STAIR**
Scale: 3/4" = 1'-0"

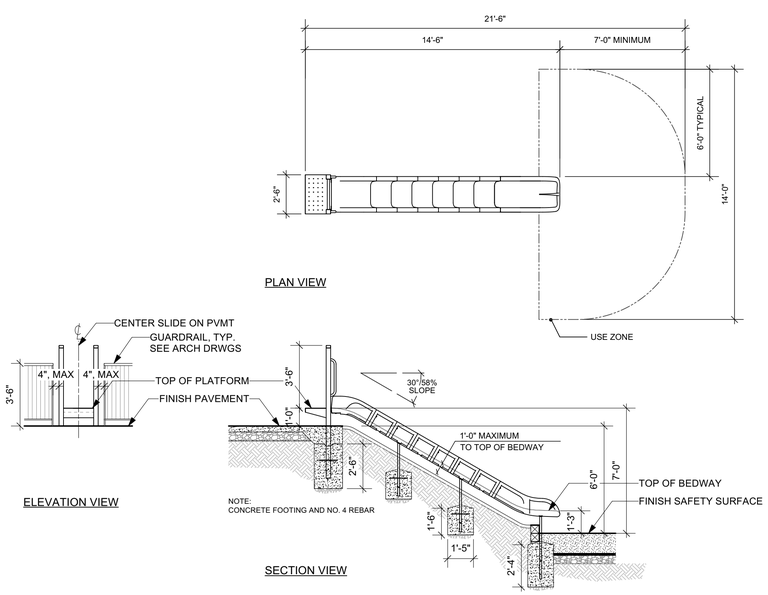


POST AT END OF STAIR **INTERMEDIATE POST** **POST AT TOP OF STAIR**

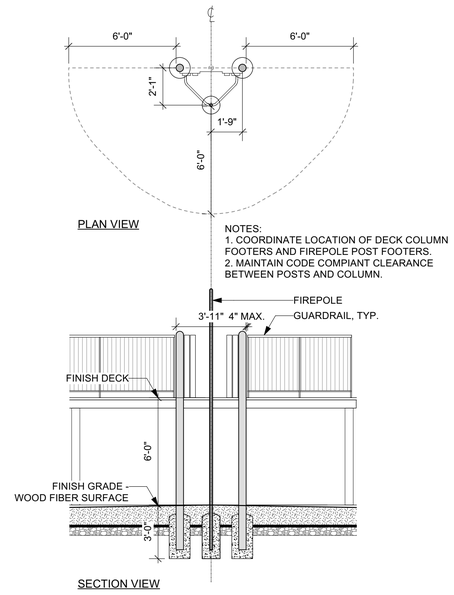


4 L7.1 **HANDRAIL**
Scale: 1" = 1'-0"

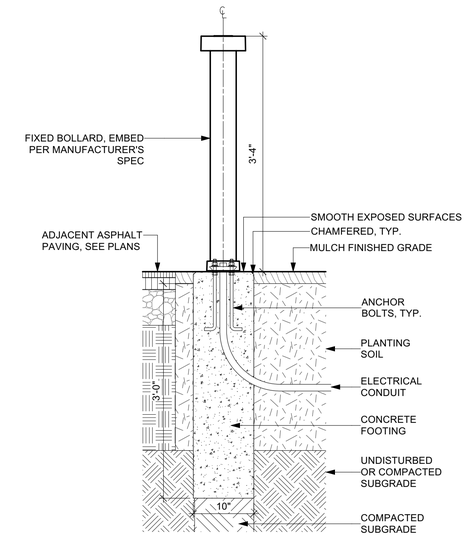
5 L7.1 **SUN DIAL: STABILIZED STONE FINES AND COBBLESTONE EDGE**
Scale: 1" = 1'-0"



6 L7.1 **SLIDE**
Scale: 1/4" = 1'-0"



7 L7.1 **FIREPOLE**
Scale: 1/4" = 1'-0"



8 L7.1 **LIGHT BOLLARD**
Scale: 1" = 1'-0"

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions

Seal:



Drawn:	Checked:	Approved:
LHS	JB	

Job Number: 2121
File:

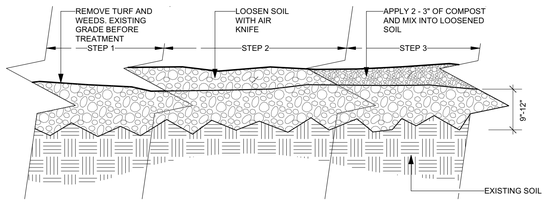
Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
SITE DETAILS

Drawing Number:
L7.1

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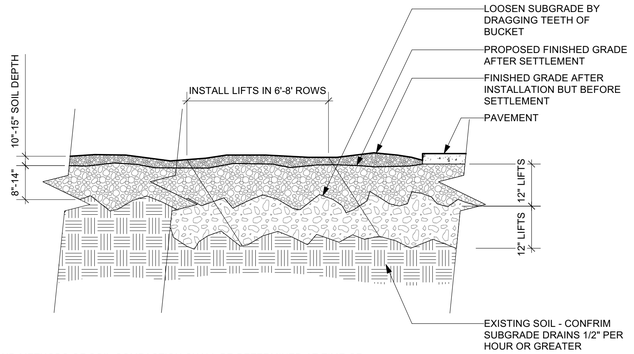


NOTES:

1. PRIOR TO THE START OF WORK REMOVE ALL THATCH, SOD, AND/OR WEEDS.
2. LOOSEN SOIL WITH AIR KNIFE OR APPROVED EQUAL TO A DEPTH OF 9 - 12" AND WORK AROUND ENCOUNTERED ROOTS.
3. APPLY 2 - 3" OF COMPOST OVER LOOSENED SOIL. USING AN AIR KNIFE MIX COMPOST INTO LOOSENED SOIL.
4. WATER ENTIRE ROOT ZONE AT END OF EACH WORK DAY.
5. SEE PLANTING SOIL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

1 L7.2 MODIFIED EXISTING SOIL - COMPACTED SOIL IN TREE DRIPLINE, TYP.

Scale: 3/4" = 1'-0"

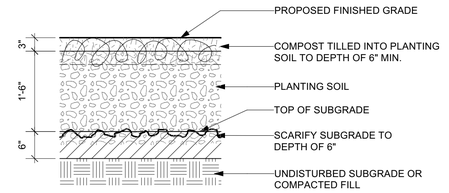


NOTES:

1. MEANS AND METHODS OF SOIL COMPACTION SHALL BE DETERMINED AT TIME OF SOIL MOCK UP.
2. SOIL COMPACTION AFTER INSTALLATION SHALL BE 75 - 250 PSI AT SOIL MOISTURE BETWEEN FIELD CAPACITY AND WILTING POINT.
3. FOR SOIL DEPTHS SEE CIVIL DRAWINGS AND DETAILS.
4. SEE PLANTING SOIL SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

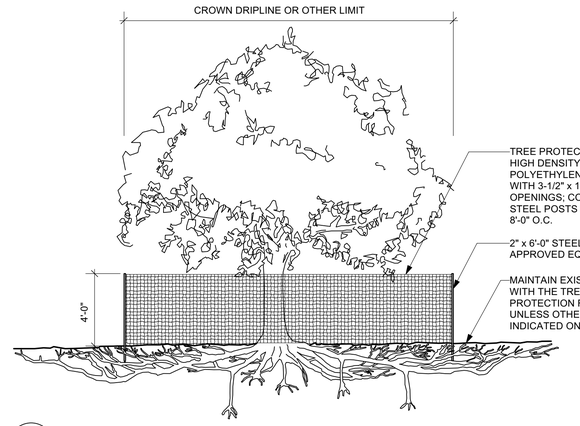
2 L7.2 BIORETENTION SOIL

Scale: 1/2" = 1'-0"



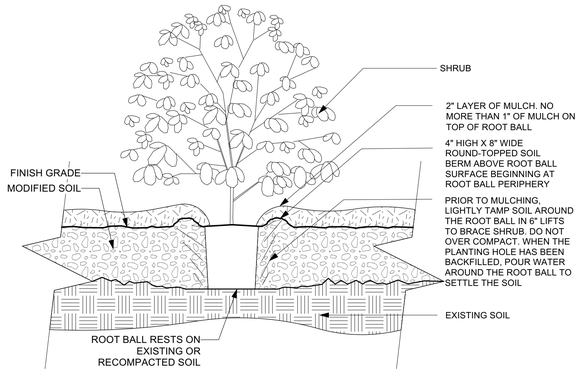
3 L7.2 SOIL PROFILE: MULCHED PLANT BEDS

Scale: 3/4" = 1'-0"



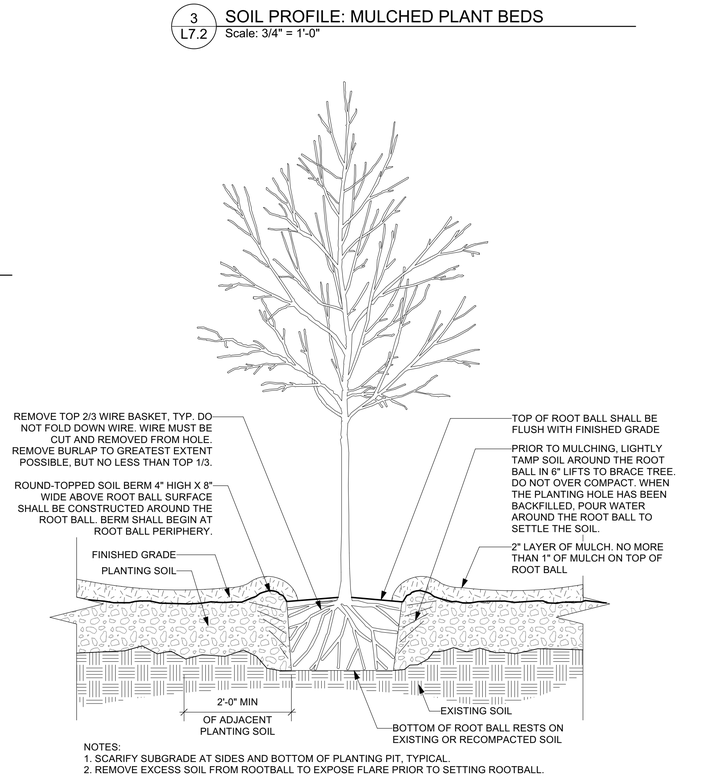
4 L7.2 TREE PROTECTION FENCING, TYP.

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



5 L7.2 SHRUB PLANTING, TYP.

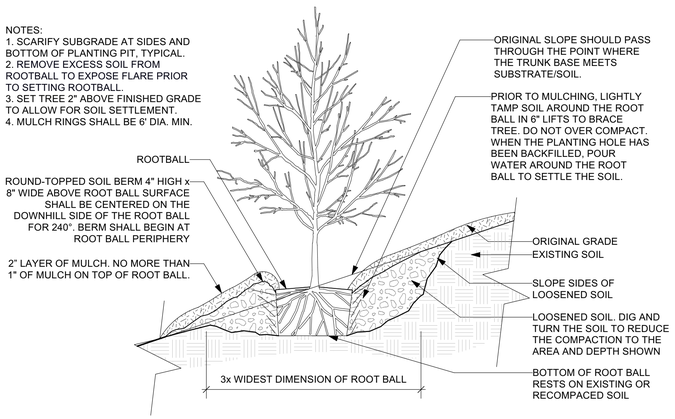
Scale: 3/4" = 1'-0"



NOTES:
1. SCARIFY SUBGRADE AT SIDES AND BOTTOM OF PLANTING PIT, TYPICAL.
2. REMOVE EXCESS SOIL FROM ROOTBALL TO EXPOSE FLARE PRIOR TO SETTING ROOTBALL.

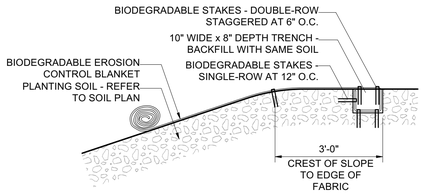
6 L7.2 TREE PLANTING, TYP.

Scale: 3/4" = 1'-0"



7 L7.2 TREE/SHRUB PLANTING ON SLOPE

Scale: 1/2" = 1'-0"

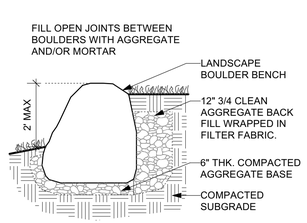


NOTE:

1. OVERLAP SEAMS 4" AND STAKE ALONG ENTIRE LENGTH AT 3' O.C.
2. EXTEND BEYOND TOP AND BOTTOM OF SLOPE BY 3'-0" AND STAKE AT 12" O.C. ALONG LENGTH OF BLANKET.
3. STAKE AT 12" O.C. AT TANGENT OF GRADE CHANGES, TOP AND BOTTOM OF SLOPE.

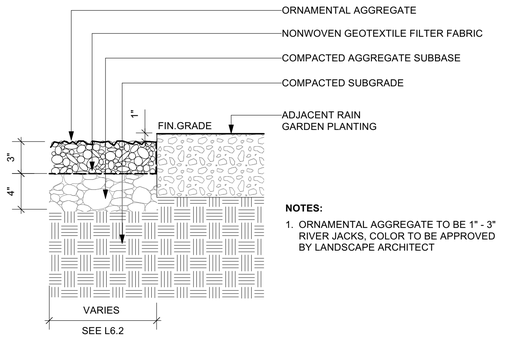
8 L7.2 EROSION CONTROL FABRIC

Scale: 1/2" = 1'-0"



9 L7.2 BOULDER - RETAINING SLOPE

Scale: 1/2" = 1'-0"



NOTES:

1. ORNAMENTAL AGGREGATE TO BE 1" - 3" RIVER JACKS. COLOR TO BE APPROVED BY LANDSCAPE ARCHITECT

10 L7.2 ORNAMENTAL AGGREGATE

Scale: 1 1/2" = 1'-0"

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions

Seal:



Drawn:	Checked:	Approved:
LHS	JB	

Job Number: 2121

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PLANTING DETAILS

Drawing Number: L7.2

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AERIAL VIEW
SCALE: 1" = 400'



VIEW INTO SITE FROM HARTS LANE
SCALE: NTS

NOTES:
1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
6. THE SITE LIES IN THE SCHUYLKILL RIVER WATERSHED.
7. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
8. THE RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT CORRIDOR ZONES 1 AND 2 DEPICTED ON THIS DRAWING ARE DRAWN IN ACCORDANCE WITH THE DESCRIPTION FOR PERENNIAL STREAMS, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXXV (RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT), SECTION 116-258. VARIANCES FOR THE CONSTRUCTION OF THE PROPOSED SCHOOL BUILDING AND ASSOCIATED SITE IMPROVEMENTS INCLUDING TWO (2) RAIN GARDENS PROPOSED IN ZONE 2 WERE GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
9. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
10. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- ZONING DISTRICT / OVERLAY (AAAA RESIDENTIAL; INSTITUTIONAL OVERLAY)
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- SOIL TYPE / BOUNDARY LINE (Ch)
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- EXISTING CONTOUR (160)
- EXISTING BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%

Soils Summary Table			
Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

MIQUON SCHOOL

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No.	Date	Revisions

Seal: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — THOMAS J. HALLIWELL — ENGINEER — PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

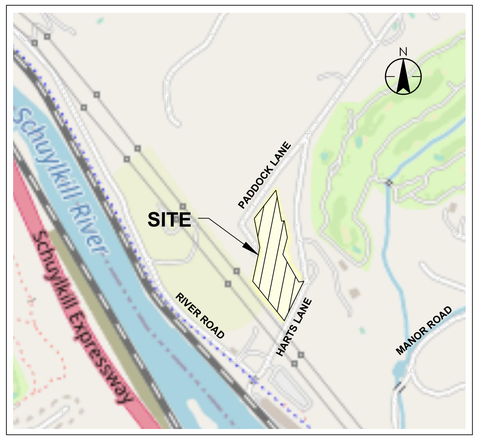
Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: EXISTING RESOURCES AND SITE ANALYSIS PLAN

Drawing Number: C5.1

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SCALE: 1" = 50'



SITE LOCATION MAP

SCALE: 1" = 800'

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5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. NO NEW PUBLIC STREETS ARE PROPOSED.
7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. EXISTING PUBLIC WATER SUPPLY TO BE DISCONNECTED FROM EXISTING BUILDING AND RECONNECTED TO PROPOSED BUILDING.
12. EXISTING BUILDING TO BE DISCONNECTED FROM EXISTING ON-LOT SEWAGE DISPOSAL FIELD. PROPOSED BUILDING TO BE RECONNECTED TO SAME.
13. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
14. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
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16. THE PROPOSED BUILDING WILL REPLACE TWO (2) EXISTING BUILDINGS. THE NUMBER OF CLASSROOMS, OFFICE SPACE, COMMON AREAS, AND FACULTY WILL REMAIN THE SAME. THEREFORE, NO NEW PARKING SPACES ARE REQUIRED. ONE (1) NEW ADA ACCESSIBLE PARKING SPACE IS PROPOSED ON SITE IN ADDITION TO THE EXISTING PARKING, WHICH WILL REMAIN. A VARIANCE TO CONSTRUCT THE PARKING SPACE WITHIN 10 FEET OF THE PROPOSED BUILDING WAS GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
17. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
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- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- Ch — SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,225 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,016 SQ. FT.**

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

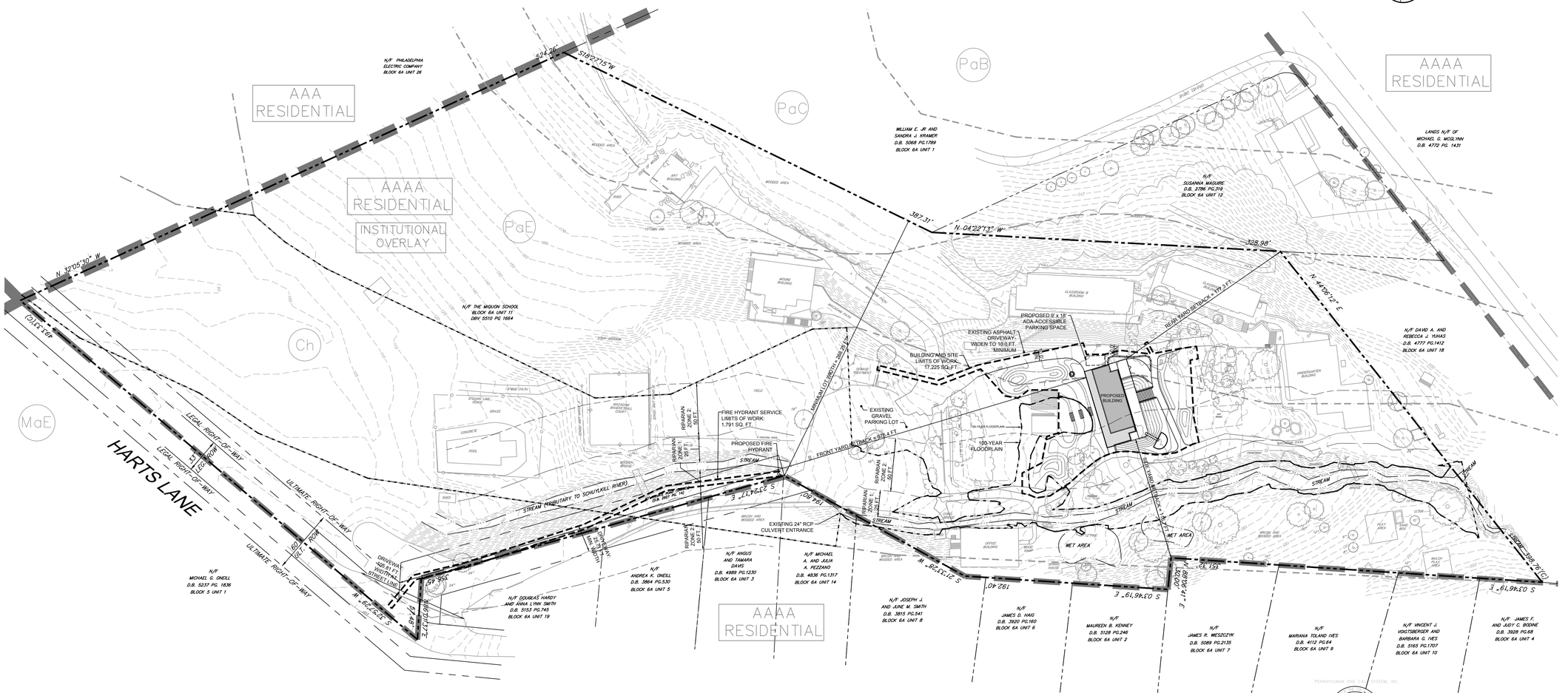
Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%

PRELIMINARY IMPACT PLAN NOTES:

1. LIMITS OF EARTH DISTURBANCE FOR THIS PROJECT ARE AS DEPICTED ON THIS PLAN. THE REMAINING AREAS OF THE SITE ARE NOT TO BE DISTURBED.
2. THE STORMWATER MANAGEMENT DESIGN FOR THIS PROJECT IS BASED UPON AN INVESTIGATION OF POTENTIAL STORMWATER INFILTRATION STUDY PERFORMED BY VERDANTAS, LLC, DESCRIBED IN THEIR REPORT DATED DECEMBER 13, 2022.
3. A FENCE WILL ENCLOSE THE LIMITS OF EARTH DISTURBANCE DURING CONSTRUCTION. AREAS TO BE PRESERVED, INCLUDING ALL WOODLANDS, VEGETATION, SLOPES, VIEWS, AND OTHER RESOURCES WILL BE PROTECTED FROM DAMAGE BY FENCING.
4. LARGE TREES OUTSIDE THE LIMITS OF EARTH DISTURBANCE WHOSE ROOT ZONES MAY EXTEND INTO THE PROPOSED LIMITS OF EARTH DISTURBANCE WILL BE PRESERVED BY TREE PROTECTION FENCING, AS SHOWN ON SHEET L1.1, TREE PROTECTION & DEMOLITION PLAN, PREPARED BY GROUND RECONSIDERED.
5. PROPOSED AREAS FOR STORMWATER MANAGEMENT HAVE BEEN SELECTED BASED UPON MAXIMUM POTENTIAL CAPTURE AND INFILTRATION SUITABILITY. THE PROPOSED STORMWATER MANAGEMENT DESIGN IS SHOWN ON SHEET C20.1, STORMWATER MANAGEMENT PLAN.
6. LIMITS OF SITE DISTURBANCE AND RESOURCES APPLICABLE PROVISIONS OF ZONING, CHAPTER 116 REQUIREMENTS OF THE WHITEMARSH TOWNSHIP CODE ARE DESCRIBED ON THIS DRAWING AND ON SHEET C10.0, SITE PLAN.
7. ALL EXISTING BUILDINGS ON SITE, OTHER THAN THE EXISTING LIBRARY AND AFTER-CARE BUILDINGS, ARE TO BE PROTECTED AND REMAIN.
8. THE PROPOSED BUILDING IS ORIENTED TOWARD THE SOUTH TO MAXIMIZE PASSIVE SOLAR GAIN.
9. THE PROPOSED BUILDING AREA IS AN AREA OF THE SITE THAT CONTAINS TWO (2) EXISTING BUILDINGS, TO BE DEMOLISHED. THIS AREA OF THE SITE HAS BEEN SET ASIDE FOR DEVELOPMENT.
10. WATER SERVICE AND WASTEWATER SERVICES ARE TO BE DISCONNECTED FROM THE EXISTING BUILDINGS TO BE DEMOLISHED, AND RECONNECTED TO THE PROPOSED BUILDING. REFER ALSO TO SHEET C40.1, UTILITY PLAN.


AAA RESIDENTIAL
AAAA RESIDENTIAL
INSTITUTIONAL OVERLAY
PaB
PaC
PaE
Ch
MaE
HARTS LANE
LEGAL RIGHT-OF-WAY
ULTIMATE RIGHT-OF-WAY
N 32°05'10" W
701.39'
624.26'
S18°27'15"W
N-04°22'13"-W
387.31'
328.98'
N 44°06'12" E
N/F THE MIQUON SCHOOL BLOCK 6A UNIT 17 DBV 5510 PG 1664
N/F PHILADELPHIA ELECTRIC COMPANY BLOCK 6A UNIT 26
WILLIAM E. JR AND SANDRA J. KRAMER D.B. 5068 PG.1789 BLOCK 6A UNIT 1
SUSANNA MAGUIRE D.B. 3786 PG.319 BLOCK 6A UNIT 12
LANDS N/F OF MICHAEL G. MCGLYNN D.B. 4772 PG. 1431
N/F DAVID A. AND REBECCA J. YUHAS D.B. 4777 PG.1412 BLOCK 6A UNIT 18
PROPOSED 9' x 18' ADA-ACCESSIBLE PARKING SPACE
EXISTING ASPHALT DRIVEWAY - WIDEN TO 16.0 FT. MINIMUM
REAR YARD SETBACK = 177.3 FT.
BUILDING AND SITE LIMITS OF WORK: 17,225 SQ.FT.
PROPOSED BUILDING
EXISTING GRAVEL PARKING LOT
FIRE HYDRANT SERVICE LIMITS OF WORK: 1,791 SQ. FT.
PROPOSED FIRE HYDRANT
MINIMUM LOT WIDTH = 200.00 FT.
FRONT YARD SETBACK = 676.4 FT.
SIDE YARD SETBACK = 116.7 FT.
100-YEAR FLOODPLAIN
RIPARIAN ZONE 1
RIPARIAN ZONE 2
STREAM
STREAM TRIBUTARY TO SCHUYLKILL RIVER
EXISTING 24" RCP CULVERT ENTRANCE
WET AREA
N/F MICHAEL G. ONEILL D.B. 5237 PG. 1836 BLOCK 5 UNIT 1
N/F ANDREA K. ONEILL D.B. 3864 PG.530 BLOCK 6A UNIT 5
N/F ANGUS AND TAMARA DAVIS D.B. 4989 PG.1230 BLOCK 6A UNIT 3
N/F MICHAEL A. AND JULIA A. PEZZANO D.B. 4636 PG.1317 BLOCK 6A UNIT 14
N/F DOUGLAS HARDY AND ANNA LYNN SMITH D.B. 5153 PG.745 BLOCK 6A UNIT 19
N/F JOSEPH J. AND JUNE M. SMITH D.B. 3815 PG.541 BLOCK 6A UNIT 8
N/F JAMES D. HAIG D.B. 3920 PG.160 BLOCK 6A UNIT 6
N/F MAUREEN B. KENNEY D.B. 5128 PG.246 BLOCK 6A UNIT 2
N/F JAMES R. WESZCZYK D.B. 5089 PG.2135 BLOCK 6A UNIT 7
N/F MARIANA TOLAND IVES D.B. 4112 PG.64 BLOCK 6A UNIT 9
N/F VINCENT J. VOGTSBERGER AND BARBARA G. IVES D.B. 5165 PG.1707 BLOCK 6A UNIT 10
N/F JAMES F. AND JUDY C. BODINE D.B. 3926 PG.68 BLOCK 6A UNIT 4
S 03°46'19" E
192.40'
S 21°33'28" W
102.04'
S 68°26'41" E
100.00'
S 03°46'19" E
382.76'(C)
S 21°33'28" W
102.04'
N 68°26'41" W
100.00'
DRIVEWAY WIDTH FT. STREET LINE
50' R.O.W.
24' MIN. WIDTH
S 68°26'41" E
97.49'
N 68°26'41" W
97.49'
S 21°33'19" E
124.80'
N 21°33'19" W
124.80'
S 21°33'19" E
124.80'
S 21°33'19" E
124.80'
S 21°33'19" E

NOTES:

1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
11. UPON COMPLETION OF CONSTRUCTION, THE SITE IS TO BE INSPECTED, AND A DEVIATION IN GRADING FROM THE PROPOSED GRADING DESIGN SHALL BE EVALUATED TO CONFIRM THAT THE CONSTRUCTED GRADING SHALL NOT RESULT IN INJURY TO PERSONS OR DAMAGE TO PROPERTY.

LEGEND

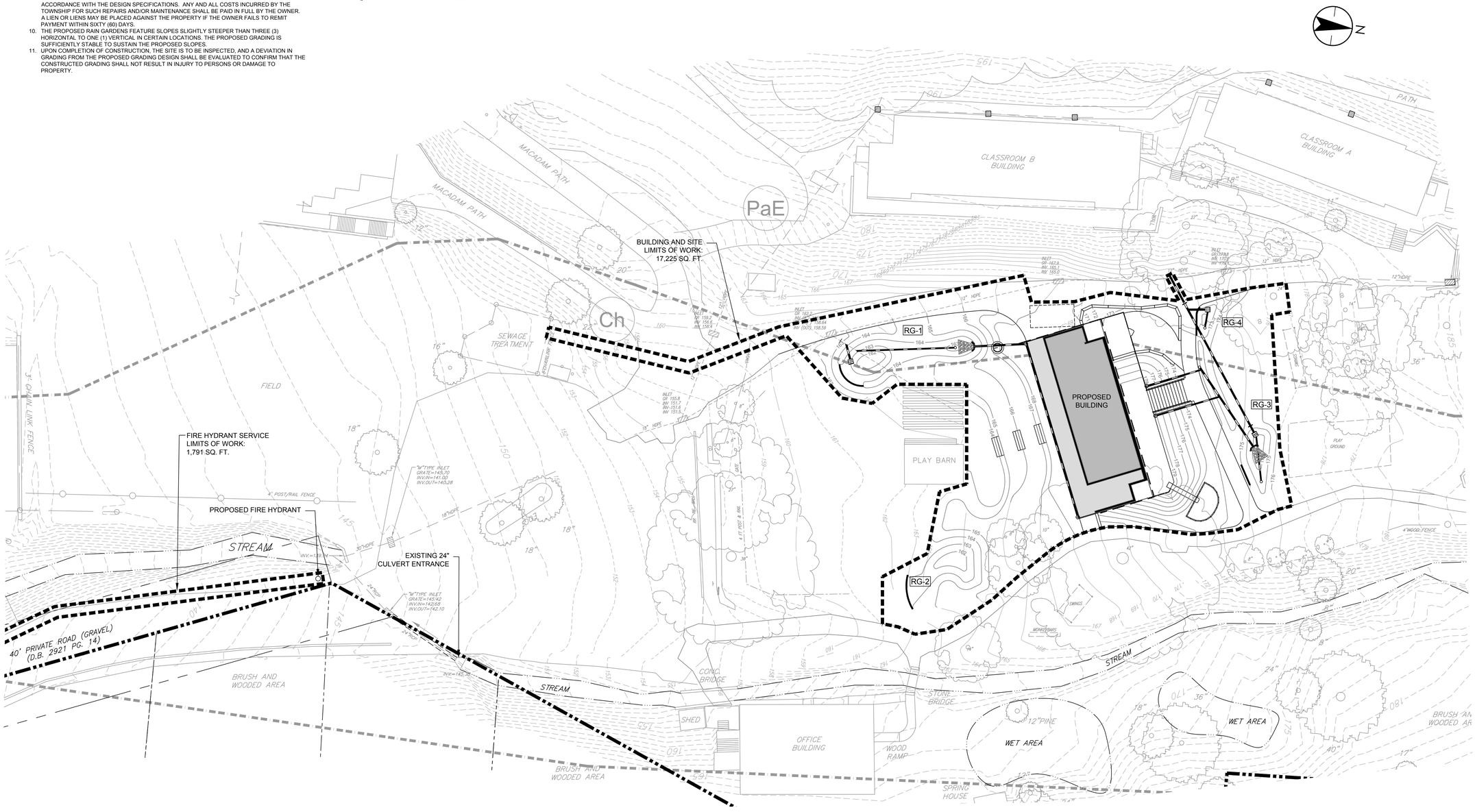
- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING STORM INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED CONCRETE CURB LEVEL SPREADER
- PROPOSED RIPRAP APRON
- PROPOSED DOWNSPOUT / CLEANOUT
- PROPOSED DRAINAGE DIRECTION

PRELIMINARY IMPROVEMENTS PLAN NOTES:

1. REFER TO SHEET 5.1, EXISTING RESOURCES SITE ANALYSIS PLAN, FOR EXISTING SITE FEATURES, LOT LINES, AND EASEMENTS ON THE PROPERTY.
2. NO NEW STREETS ARE PROPOSED.
3. PROPOSED STORMWATER MANAGEMENT FEATURES ARE AS SHOWN ON THIS SHEET, AND SHEET C20.1, STORMWATER MANAGEMENT PLAN.
4. PROPOSED SEWER AND WATER SERVICES ARE AS SHOWN ON THIS SHEET, AND SHEET C40.1, UTILITY PLAN, AND SHEET C40.2, FIRE HYDRANT PLAN.
5. REFER TO SHEET L6.0, TREE PLANTING PLAN, PREPARED BY GROUND RECONSIDERED, FOR PROPOSED TREES AND CALIPER SIZES.

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,225 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,016 SQ. FT.**



Soils Summary Table			
Abbreviation	**Soil / Map Unit Name**	**Ksat of Most Limiting Layer**	**Depth to Restrictive Feature**
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

APPROVED

WHITEMARSH TOWNSHIP BOARD OF SUPERVISORS
S/LD #04-23

MONTGOMERY COUNTY PLANNING COMMISSION
MCPC #23-0057-001

PENNSYLVANIA ONE CALL SYSTEM, INC.
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NON-MEMBERS MUST BE CONTACTED DIRECTLY.
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0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

LANDSCAPE ARCHITECT
GROUND RECONSIDERED
915 Spring Garden Street, Suite 403
Philadelphia, PA 19123
215-790-0727

CIVIL ENGINEER
GRIST
50 East Sedgwick Street
Philadelphia, PA 19119
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STRUCTURAL ENGINEER
ANN ROTHMAN STRUCTURAL ENGINEERING
100 East Lancaster Avenue, Suite 203
Wayne, Pennsylvania 19087
610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

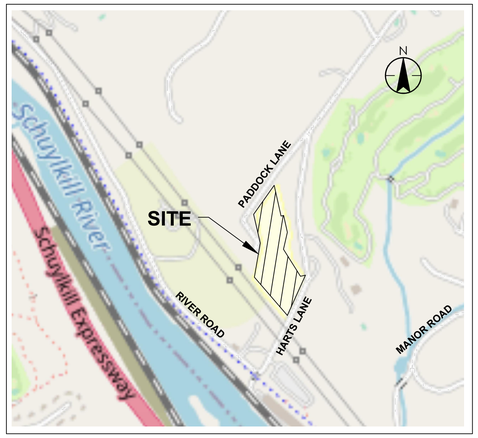
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PRELIMINARY IMPROVEMENTS PLAN

Drawing Number: C5.3

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SITE LOCATION MAP

SCALE: 1" = 800'

NOTES:

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6. NO NEW PUBLIC STREETS ARE PROPOSED.
7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. EXISTING PUBLIC WATER SUPPLY TO BE DISCONNECTED FROM EXISTING BUILDING AND RECONNECTED TO PROPOSED BUILDING.
12. EXISTING BUILDING TO BE DISCONNECTED FROM EXISTING ON-LOT SEWAGE DISPOSAL FIELD. PROPOSED BUILDING TO BE RECONNECTED TO SAME.
13. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
14. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
15. THE RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT CORRIDOR ZONES 1 AND 2 DEPICTED ON THIS DRAWING ARE DRAWN IN ACCORDANCE WITH THE DESCRIPTION FOR PERENNIAL STREAMS, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXXV (RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT), SECTION 116-258. VARIANCES FOR THE CONSTRUCTION OF THE PROPOSED SCHOOL BUILDING AND ASSOCIATED SITE IMPROVEMENTS INCLUDING TWO (2) RAIN GARDENS PROPOSED IN ZONE 2 WERE GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
16. THE PROPOSED BUILDING WILL REPLACE TWO (2) EXISTING BUILDINGS. THE NUMBER OF CLASSROOMS, OFFICE SPACE, COMMON AREAS, AND FACULTY WILL REMAIN THE SAME. THEREFORE, NO NEW PARKING SPACES ARE REQUIRED. ONE (1) NEW ADA ACCESSIBLE PARKING SPACE IS PROPOSED ON SITE IN ADDITION TO THE EXISTING PARKING, WHICH WILL REMAIN. A VARIANCE TO CONSTRUCT THE PARKING SPACE WITHIN 10 FEET OF THE PROPOSED BUILDING WAS GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
17. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
18. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- AAA RESIDENTIAL / INSTITUTIONAL OVERLAY — ZONING DISTRICT / OVERLAY
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- Ch — SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 / 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET
- STEEP SLOPES, 15-25% / MORE THAN 25%

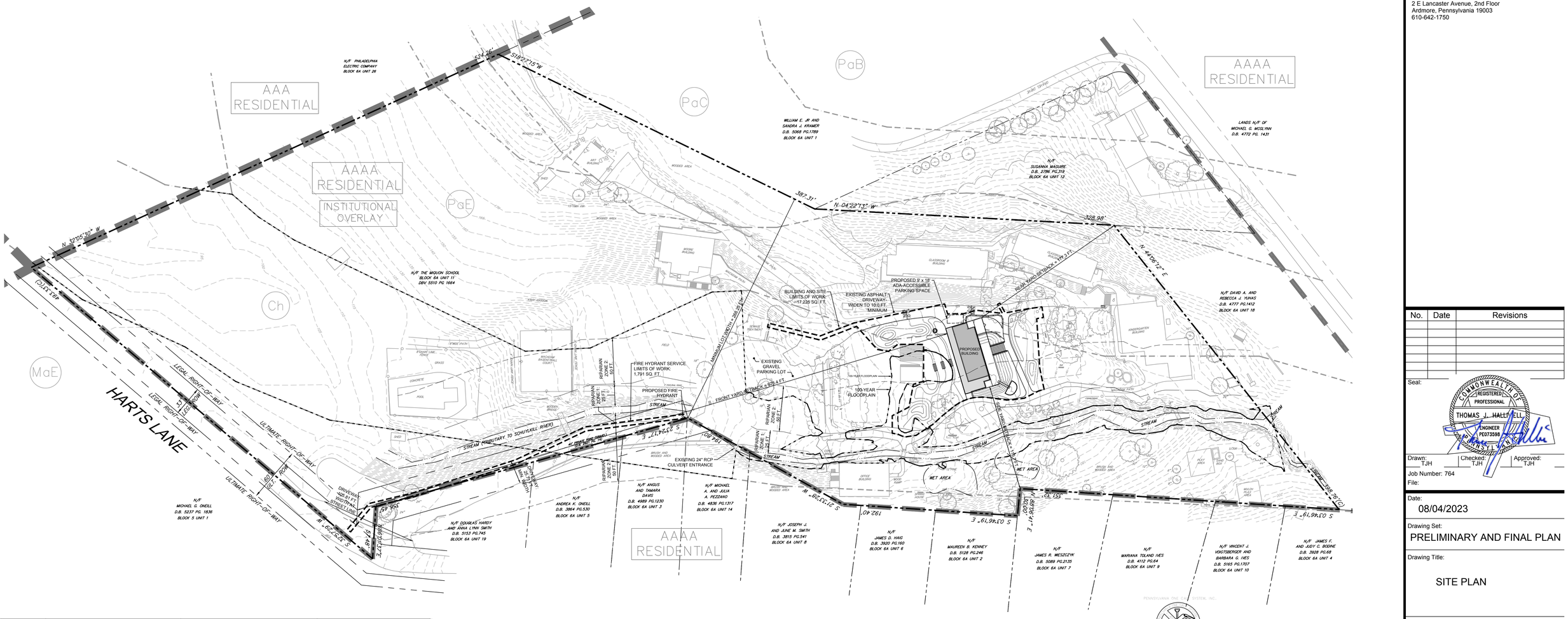
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Zoning District	**Riparian Corridor Conservation Overlay District**	
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Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**
Zoning District	**Floodplain Conservation Overlay District**	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
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EXISTING STEEP SLOPE SUMMARY		
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0 50' 75' 100'
SCALE: 1" = 50'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
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GROUND RECONSIDERED
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MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — THOMAS J. HALLIWELL — ENGINEER PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

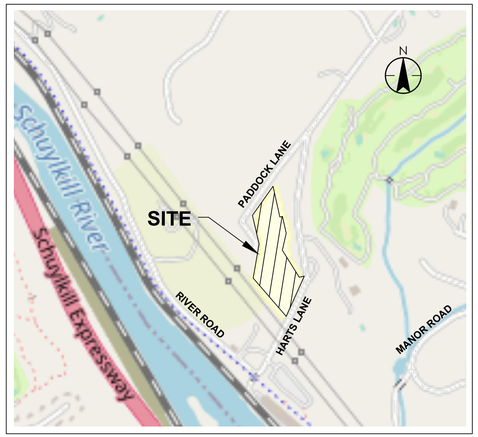
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: SITE PLAN

Drawing Number: C10.0

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SITE LOCATION MAP

SCALE: 1" = 800'

NOTES:

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5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. NO NEW PUBLIC STREETS ARE PROPOSED.
7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. EXISTING PUBLIC WATER SUPPLY TO BE DISCONNECTED FROM EXISTING BUILDING AND RECONNECTED TO PROPOSED BUILDING.
12. EXISTING BUILDING TO BE DISCONNECTED FROM EXISTING ON-LOT SEWAGE DISPOSAL FIELD. PROPOSED BUILDING TO BE RECONNECTED TO SAME.
13. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
14. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
15. THE RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT CORRIDOR ZONES 1 AND 2 DEPICTED ON THIS DRAWING ARE DRAWN IN ACCORDANCE WITH THE DESCRIPTION FOR PERENNIAL STREAMS, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXXV (RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT), SECTION 116-258. VARIANCES FOR THE CONSTRUCTION OF THE PROPOSED SCHOOL BUILDING AND ASSOCIATED SITE IMPROVEMENTS INCLUDING TWO (2) RAIN GARDENS PROPOSED IN ZONE 2 WERE GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
16. THE PROPOSED BUILDING WILL REPLACE TWO (2) EXISTING BUILDINGS. THE NUMBER OF CLASSROOMS, OFFICE SPACE, COMMON AREAS, AND FACULTY WILL REMAIN THE SAME. THEREFORE, NO NEW PARKING SPACES ARE REQUIRED. ONE (1) NEW ADA ACCESSIBLE PARKING SPACE IS PROPOSED ON SITE IN ADDITION TO THE EXISTING PARKING, WHICH WILL REMAIN. A VARIANCE TO CONSTRUCT THE PARKING SPACE WITHIN 10 FEET OF THE PROPOSED BUILDING WAS GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
17. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
18. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- AAAA RESIDENTIAL / INSTITUTIONAL OVERLAY — ZONING DISTRICT / OVERLAY
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- Ch — SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET
- STEEP SLOPES, 15-25% / MORE THAN 25%

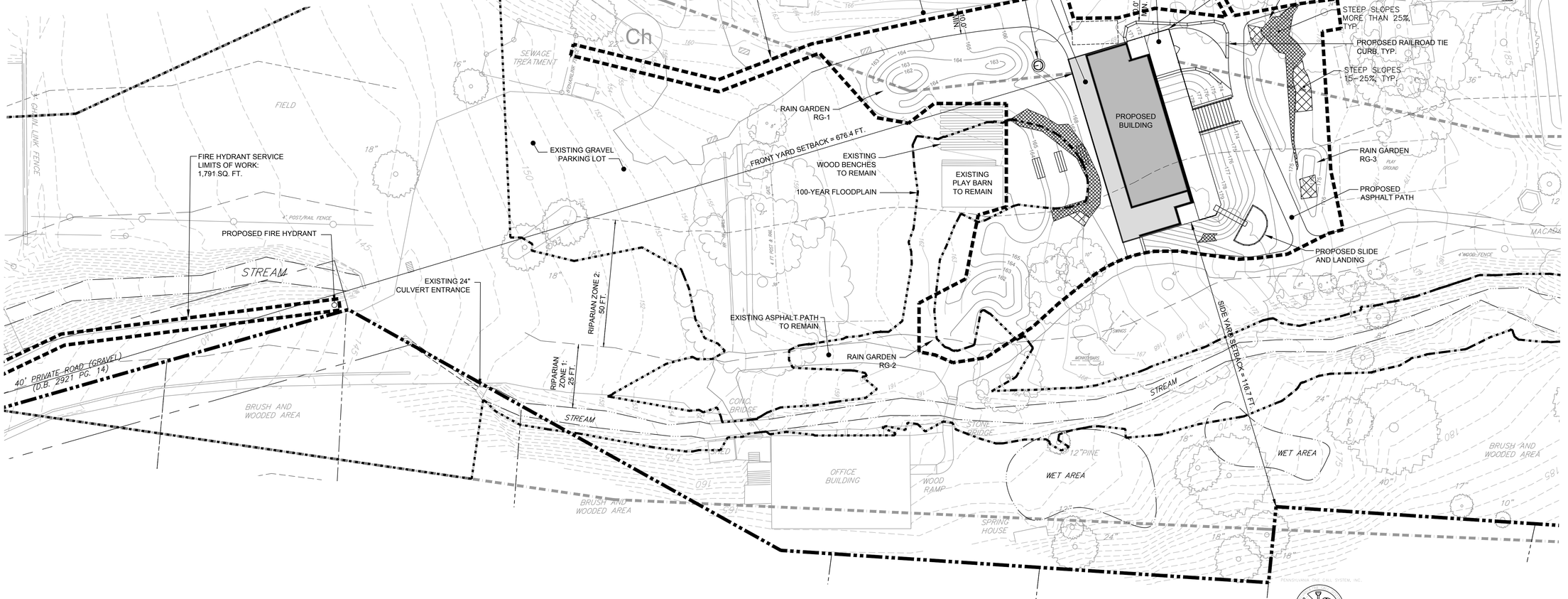
PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,225 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,016 SQ. FT.**

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**
Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**
Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%



Soils Summary Table			
Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

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NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE. CALL 811 OR 1-800-242-1776
PENNSYLVANIA ONE CALL SYSTEM, INC.

0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

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GROUND RECONSIDERED
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Philadelphia, PA 19123
215-790-0727

CIVIL ENGINEER
GRIST
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Philadelphia, PA 19119
267-332-8282

STRUCTURAL ENGINEER
ANN ROTHMAN STRUCTURAL ENGINEERING
100 East Lancaster Avenue, Suite 203
Wayne, Pennsylvania 19087
610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — THOMAS J. HALLIWELL — ENGINEER — PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PROJECT SITE PLAN

Drawing Number: C10.1

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NOTES:

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6. NO NEW PUBLIC STREETS ARE PROPOSED.
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8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

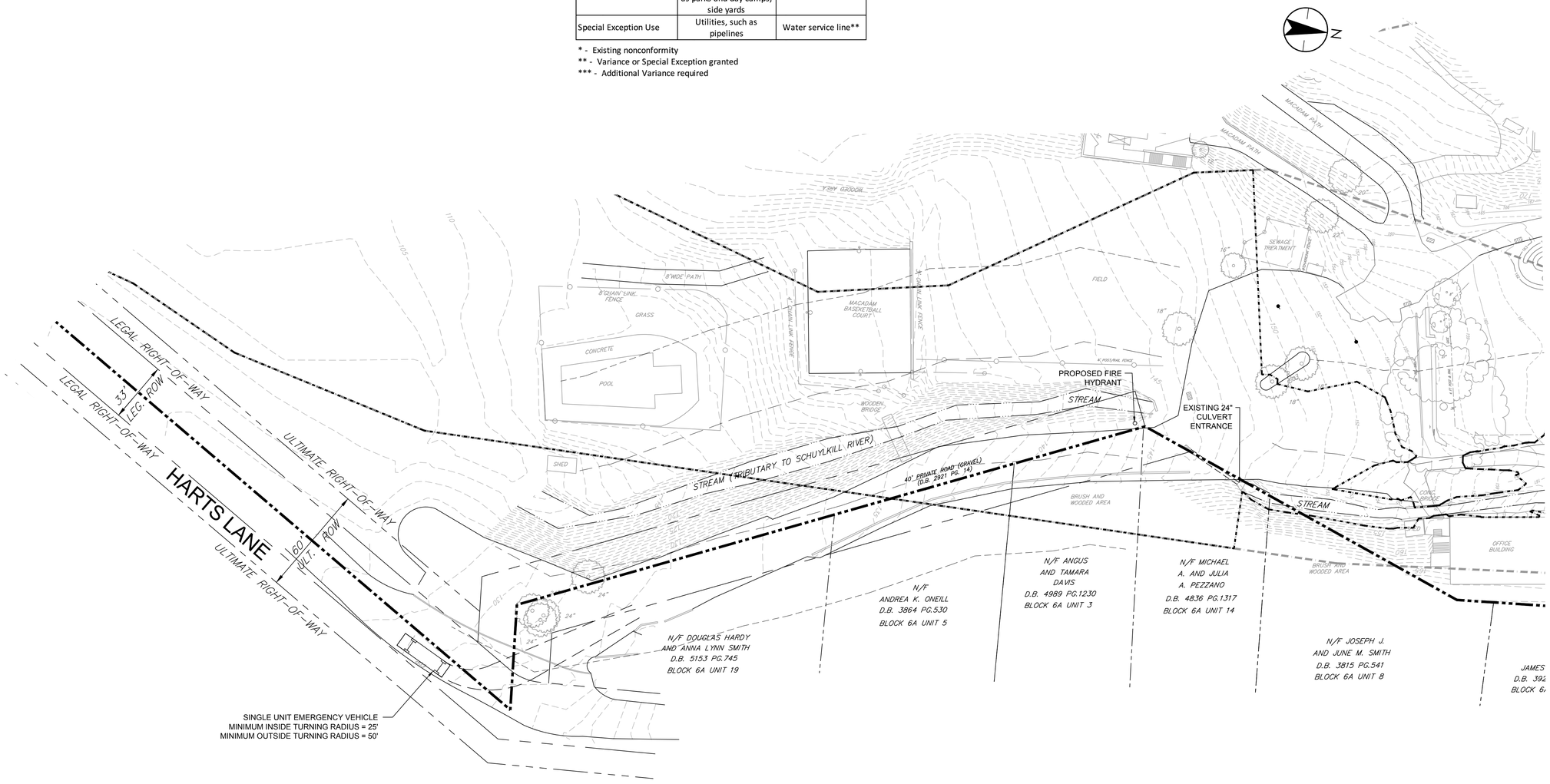
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- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 — 160 — EXISTING / PROPOSED CONTOUR
- EXISTING STORM CULVERT / INLET
- VEHICLE PATH

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

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MIQUON SCHOOL

HEART OF THE CAMPUS

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No.	Date	Revisions

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: TRUCK TURNING PLAN

Drawing Number: C10.2

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NOTES:

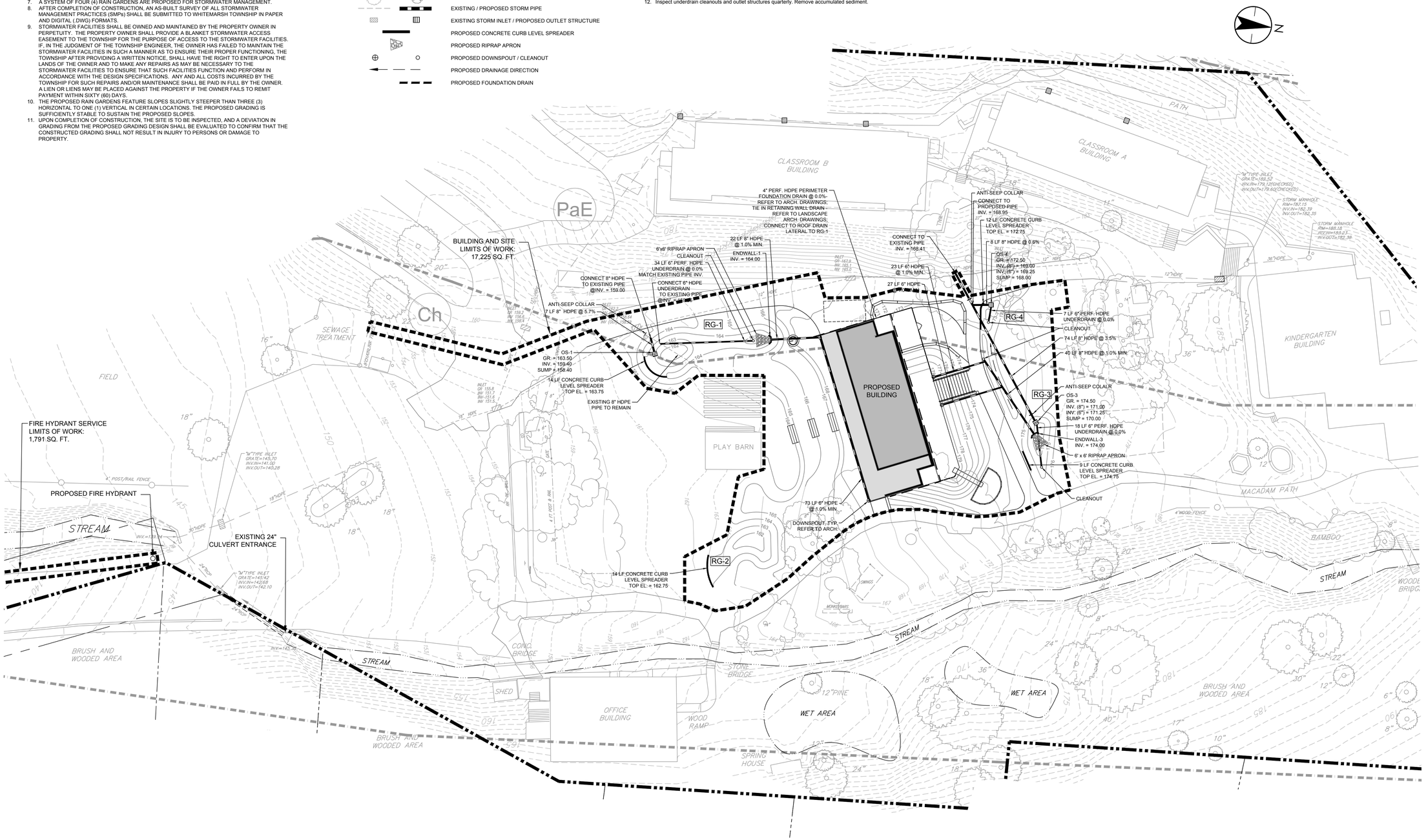
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6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
11. UPON COMPLETION OF CONSTRUCTION, THE SITE IS TO BE INSPECTED, AND A DEVIATION IN GRADING FROM THE PROPOSED GRADING DESIGN SHALL BE EVALUATED TO CONFIRM THAT THE CONSTRUCTED GRADING SHALL NOT RESULT IN INJURY TO PERSONS OR DAMAGE TO PROPERTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING STORM INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED CONCRETE CURB LEVEL SPREADER
- PROPOSED RIPRAP APRON
- PROPOSED DOWNSPOUT / CLEANOUT
- PROPOSED DRAINAGE DIRECTION
- PROPOSED FOUNDATION DRAIN

SMP MAINTENANCE NOTES:

1. Water vegetation at the end of each day for two weeks after planting is completed.
2. Water vegetation regularly to ensure successful establishment after planting. Water every four days during periods of four or more days without rain, June through August for the first year after installation.
3. Inspect inlet controls, outlet structures, and storage areas for trash and sediment accumulation monthly for the first year after installation. Remove debris and sediment as necessary.
4. Remulch void areas semiannually during growing season.
5. Inspect vegetation for signs of disease or distress every two weeks for the first year after installation and quarterly thereafter. Treat diseased trees and shrubs or replace as necessary.
6. Inspect for invasive vegetation monthly during the growing season. Remove invasive vegetation by hand.
7. Thin overgrown areas of vegetation monthly during the growing season.
8. Keep overflow free and clear of leaves. Inspect and remove leaves monthly during the growing season and in the fall.
9. Inspect soil and repair eroded areas monthly.
10. Inspect trees and shrubs quarterly to evaluate health. Replace diseased or damaged trees or shrubs if necessary.
11. Inspect earthen berms and riprap aprons quarterly. Ensure riprap aprons are sufficient to dissipate flow. Check for downstream erosion. Repair any eroded areas and replace riprap as necessary.
12. Inspect underdrain cleanouts and outlet structures quarterly. Remove accumulated sediment.



Soils Summary Table			
Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
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MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn:	Checked:	Approved:
TJH	TJH	TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: STORMWATER MANAGEMENT PLAN

Drawing Number: C20.1

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NOTES:

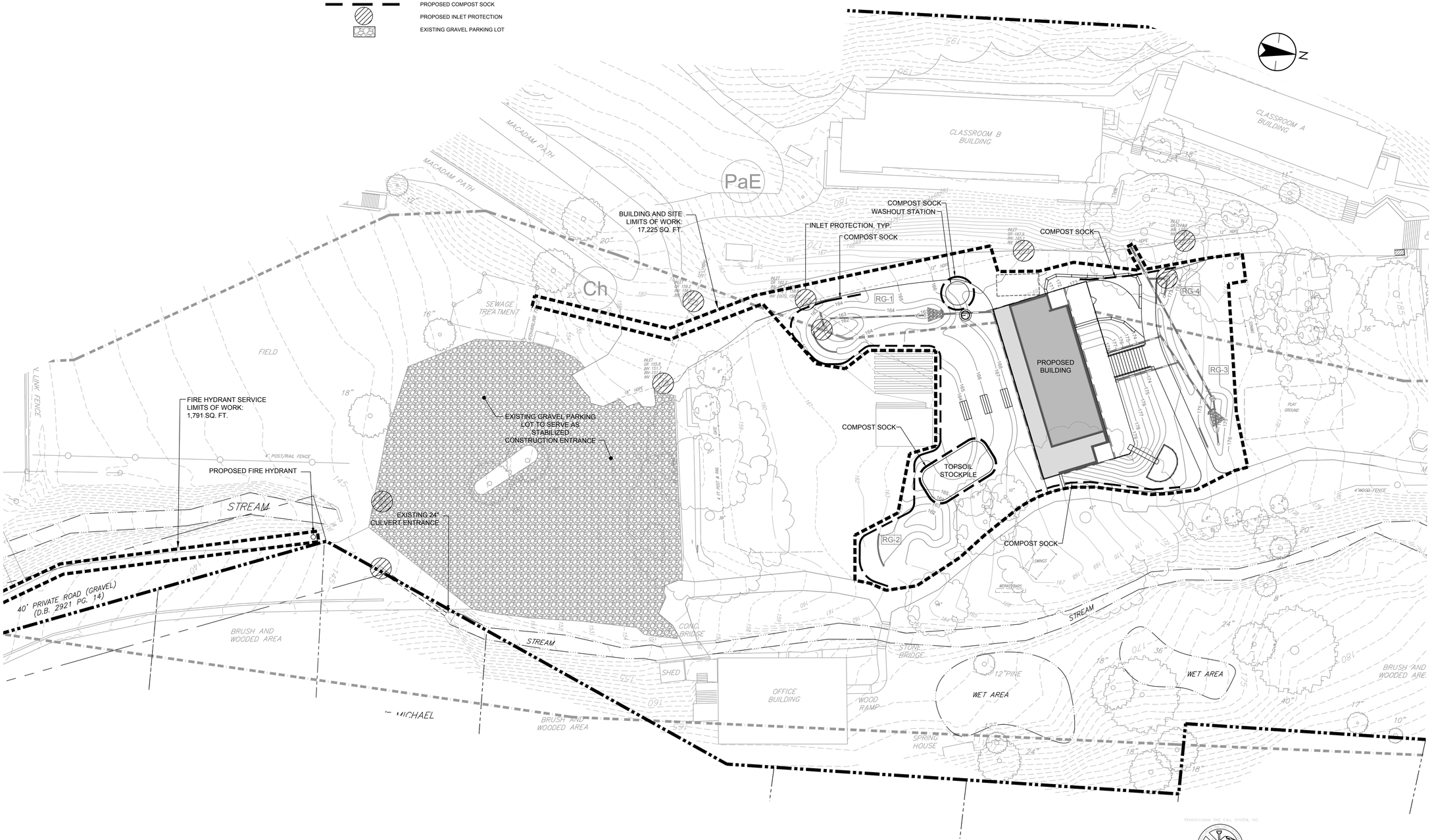
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6. REFER TO DRAWING L1.1, PREPARED BY GROUND RECONSIDERED, FOR TREE PROTECTION AND DEMOLITION.
7. REFER TO DRAWING L4.0, PREPARED BY GROUND RECONSIDERED, FOR GRADING.
8. REFER TO DRAWINGS L6.0 AND L7.2, PREPARED BY GROUND RECONSIDERED, FOR PLANTING DESIGN AND DETAILS.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
11. REFER ALSO TO NOTES ON DRAWING C30.2, EROSION AND SEDIMENT CONTROL DETAILS.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED CONCRETE CURB LEVEL SPREADER
- PROPOSED RIPRAP APRON
- PROPOSED COMPOST SOCK
- PROPOSED INLET PROTECTION
- EXISTING GRAVEL PARKING LOT

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,225 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,016 SQ. FT.**



Soils Summary Table

Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

PENNSYLVANIA ONE CALL SYSTEM, INC.
SERIAL NUMBER IS ... PENNSYLVANIA CALL 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTICE, EXCLUDING SATURDAY, SUNDAY, ALL DAY ON SUNDAY

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

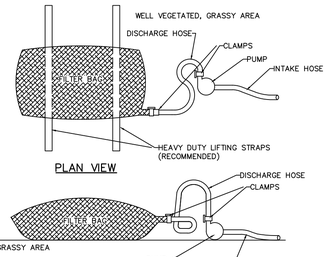
Drawing Title: EROSION AND SEDIMENT CONTROL PLAN

Drawing Number: C30.1

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EROSION AND SEDIMENT CONTROL NOTES:

1. All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S Plan. A copy of the approved Drawings (stamped, signed, and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
2. At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on-site preconstruction meeting.
3. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the PA One Call System, Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
4. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage of the construction sequence. General site clearing, grubbing, and topsoil stripping may not commence in any stage or phase of the project until the E&S BMPs specified in the sequence for that stage have been installed and are functioning as described in the plan.
5. Contractor is responsible any cleaning or repairs needed on existing infrastructure due to failure of any erosion and sediment control practices.
6. Inspection and maintenance of all erosion and sediment control best management practices shall occur on a weekly basis, before any anticipated precipitation events, and after all precipitation events.
7. Topsoil required for the establishment of vegetation shall be stockpiled at the location shown on the plans in the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. Each stockpile shall be protected in the manner shown on the plan drawings. Stockpile heights shall not exceed 20 feet. Stockpile slopes shall be 2H:1V or flatter.
8. The gravel parking lot area shall serve as the stabilized rock construction entrance. The gravel parking thickness shall be constantly maintained on-site. A stockpile shall be maintained on-site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.
9. Any compost sock section which has been undermined or topped must be immediately replaced with a new compost sock. Sediment must be removed when accumulations reach 1/3 the height of the sock.
10. Erosion control blanketing shall be installed on all slopes 3H:1V or steeper within 50 feet of a surface water and on all other disturbed areas specified on the plan maps and/or detail sheets.
11. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the Grist Engineer, Montgomery County Conservation District and PADEP.
12. Until the site is stabilized, all E&S Best Management Practices (BMPs) shall be maintained properly. Maintenance shall include inspections of all E&S BMPs prior to any anticipated storm event, after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and renetting, must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed, will be required.
13. All earth disturbances, including clearing and grubbing, as well as cuts and fills, shall be done in accordance with the approved E&S Plan. A copy of the Plan must be available at the project site at all times. The Grist Engineer shall be notified of any changes to the approved plan prior to implementation of those changes. The Grist engineer may require a written submittal of those changes for review and approval at its discretion.
14. All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing by the Grist Engineer prior to implementation.
15. Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, and other objectionable material.
16. At no time shall construction vehicles be allowed to enter areas outside the Limit of Work boundaries shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.
17. A log showing dates that E&S BMPs were inspected as well as any deficiencies found and the date they were corrected shall be maintained on the site and be made available to the Grist Engineer upon request.
18. All sediment removed from BMPs shall be disposed of, offsite, by the contractor, in accordance with all applicable laws, regulations, and best practices.
19. Areas which are to be topsoiled shall be scarified to a minimum depth of three to five inches — six to 12 inches on compacted soils — prior to placement of topsoil. Areas to be vegetated shall have a minimum four inches of topsoil in place prior to seeding and mulching. Fill outslopes shall have a minimum of two inches of topsoil.
20. All fill shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc. shall be compacted in accordance with local requirements or codes.
21. All earthen fill shall be placed in compacted layers not to exceed nine inches in thickness.
22. Fill materials shall be free of frozen particles, brush, roots, sod, or other foreign or objectionable materials that would interfere with or prevent construction of satisfactory fills.
23. Frozen materials or soft, mucky, or highly compressible materials shall not be incorporated into fills.
24. Fill shall not be placed on saturated or frozen surfaces.
25. Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for subsurface drain or other method approved by the Grist Engineer.
26. All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.
27. Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within one year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within one year shall be stabilized in accordance with the permanent stabilization specifications.
28. Permanent stabilization is defined as a minimum uniform, perennial 70% vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.
29. E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the Grist Engineer and Montgomery County Conservation District.
30. After final site stabilization has been achieved, temporary E&S BMPs must be removed. Areas disturbed during removal or conversion of the E&S BMPs shall be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions are to be done only during the germinating season.
31. Sediment basins and/or traps shall be kept free of all construction waste, wash water, and other debris having potential to clog the basin/trap outlet structures and/or pollute the surface waters.
32. During construction, the selected contractor is expected to follow the Post Construction Stormwater Management Plan (PCSMP). No change or deviation from the PCSMP is permitted without prior approval from the Grist Engineer.
33. All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the PADEP's Solid Waste Management Regulations at 25 PA Code 260.1 et seq., 271.1, and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
34. Pumped water filter bag, when used, must be placed on a well-vegetated, grassy (stabilized) surface prior to pumping.
35. All off-site waste and borrow areas must have an E&S Plan approved by the local conservation district or PADEP fully implemented prior to being activated.
36. The contractor is responsible for ensuring that any material brought to the site is clean fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as clean fill due to analytical testing.
37. Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the local conservation district to schedule a final inspection.
38. Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties bein instituted by PADEP, as defined in Section 602 of the PA Clean Streams Law. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

PUMPED WATER FILTER BAG
SCALE: N.T.S.

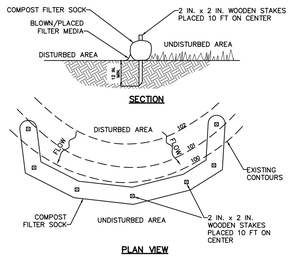
SEQUENCE OF CONSTRUCTION:

1. A pre-construction meeting must take place before any construction or mobilization. Contact the Grist Engineer at 267-332-8282 at least seven (7) days prior to the pre-construction meeting. The Grist Engineer must be in attendance at the pre-construction meeting. The Whitemarsh Township Shade Tree Commission must also attend the pre-construction meeting.
2. Install erosion and sediment control practices, including compost socks, prior to site clearing or grubbing, or excavation.
2. No vehicular traffic is permitted within any tree protection fence shown on the Drawings. Any compost socks that are to be installed inside the tree protection fence area are to be installed without use of mechanical equipment.
3. Refer to drawing L1.1 for tree protection and demolition information.
4. Construct building structure and paving improvements.
5. Construct Rain Gardens.
6. Block Rain Garden stormwater entrances with Compost Sock until Rain Gardens are stabilized with vegetation.
7. Stabilize site. Refer to Drawings by Ground Reconsidered for Pavements and Planting information.
8. Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the Grist Engineer at 267-332-8282 prior to removal/conversion of the E&S Best Management Practices (BMPs).

PROJECT NOTES:

1. This Drawing is for Design Development review by The Miquon School. It is not for construction.
2. This Drawing has been prepared per the direction of Ground Reconsidered and is intended for their use and the use of the owners named hereon. It is not intended for use by any other parties.
3. All existing utility locations shown on the drawings are approximate. Contractor shall locate utilities in the field prior to construction.
4. Refer also to drawings prepared by Ground Reconsidered. If any discrepancies between this Drawing and Drawings prepared by Ground Reconsidered are identified, contact both Ground Reconsidered and Grist to resolve the discrepancies.
4. The Contractor is responsible for all means and methods associated with construction of the proposed improvements.
5. This Drawing Set was made as directed by Ground Reconsidered and the Owners named heron, and is for their exclusive use. This Drawing Set is not valid for use by any other parties.
6. Water pumped from work areas should be treated for sediment removal prior to discharging.
7. Objects of considerable mass (i.e. concrete blocks, sand bags, etc.) immediately downslope of any compost socks placed on paved surfaces (at same intervals as recommended by sock manufacturer for stakes).
8. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, they must be stabilized. Cessation of activity for four (4) days or longer requires temporary stabilization.

ESTIMATED DEVELOPMENT SCHEDULE:
9/1/23 - 11/9/23: Existing building demolition
11/10/23 - 6/10/24: Building and site construction
6/11/24 - 8/1/24: Record plans and project closeout



NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

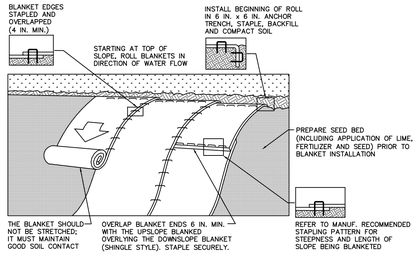
ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

COMPOST FILTER SOCK
SCALE: N.T.S.



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

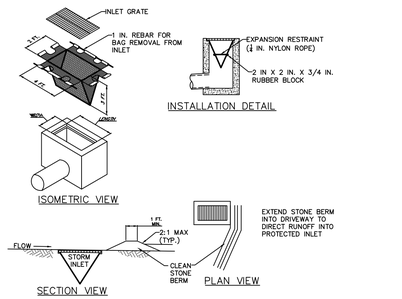
SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

EROSION CONTROL BLANKET INSTALLATION
SCALE: N.T.S.



NOTES:

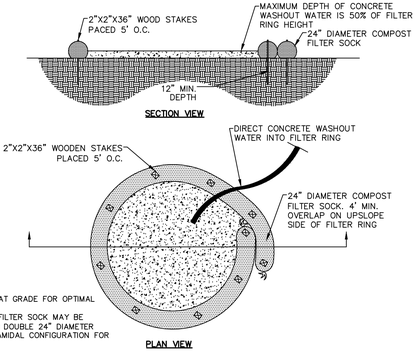
MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

FILTER BAG INLET PROTECTION
SCALE: N.T.S.



NOTES:

1. INSTALL ON FLAT GRADE FOR OPTIMAL PERFORMANCE.
2. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.

COMPOST SOCK WASHOUT STATION
SCALE: N.T.S.

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: EROSION AND SEDIMENT CONTROL DETAILS

Drawing Number: C30.2

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NOTES:

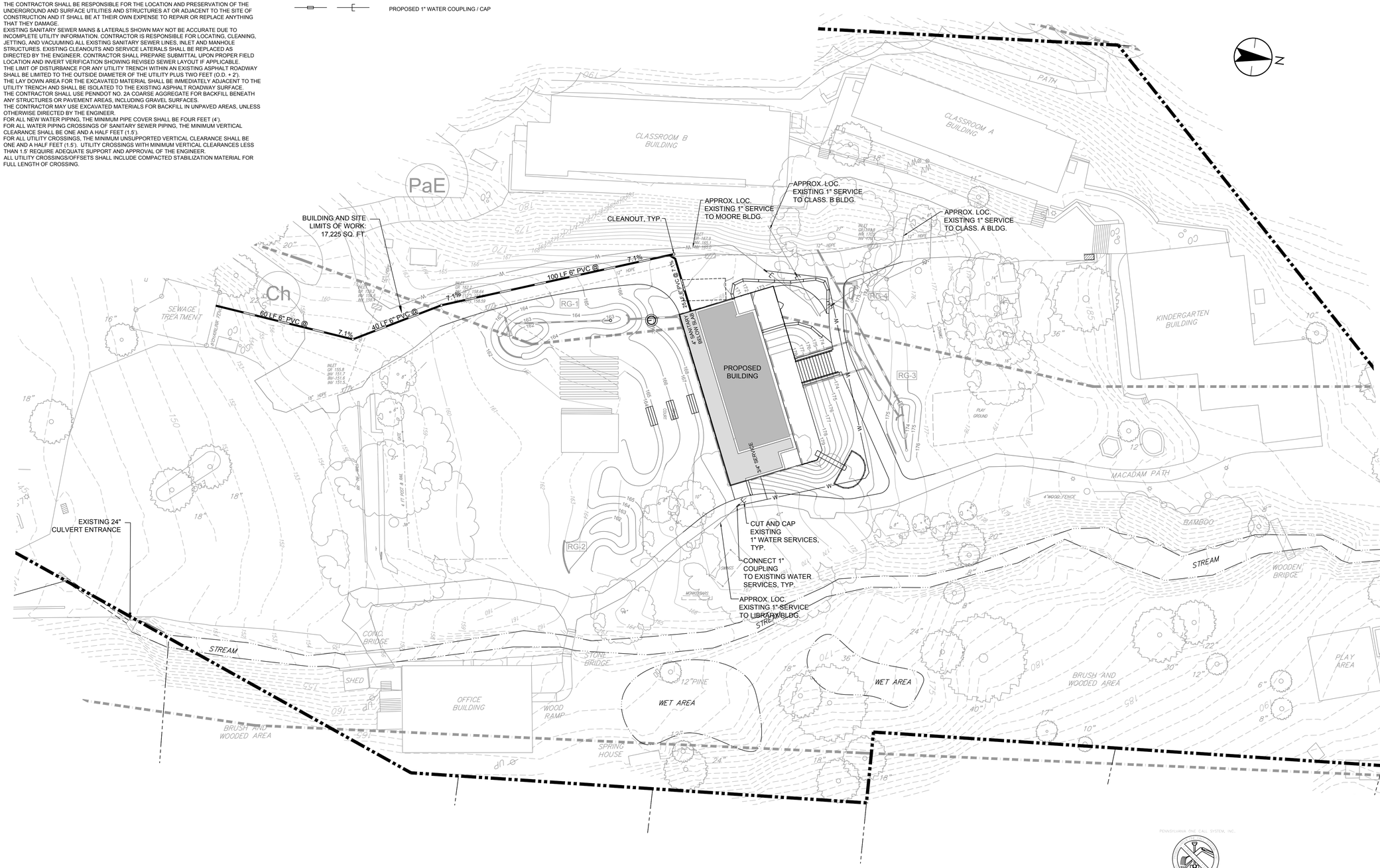
1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.

UTILITY NOTES:

1. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
2. UNLESS NOTED OTHERWISE, THE APPROXIMATE DEPTH OF ALL EXISTING WATER MAIN IS ± 4 FEET.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF THE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT THEIR OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT THEY DAMAGE.
4. EXISTING SANITARY SEWER MAINS & LATERALS SHOWN MAY NOT BE ACCURATE DUE TO INCOMPLETE UTILITY INFORMATION. CONTRACTOR IS RESPONSIBLE FOR LOCATING, CLEANING, JETTING, AND VACUUMING ALL EXISTING SANITARY SEWER LINES, INLET AND MANHOLE STRUCTURES. EXISTING CLEANOUTS AND SERVICE LATERALS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL PREPARE SUBMITTAL UPON PROPER FIELD LOCATION AND INVERT VERIFICATION SHOWING REVISED SEWER LAYOUT IF APPLICABLE.
5. THE LIMIT OF DISTURBANCE FOR ANY UTILITY TRENCH WITHIN AN EXISTING ASPHALT ROADWAY SHALL BE LIMITED TO THE OUTSIDE DIAMETER OF THE UTILITY PLUS TWO FEET (O.D. + 2').
6. THE LAY DOWN AREA FOR THE EXCAVATED MATERIAL SHALL BE IMMEDIATELY ADJACENT TO THE UTILITY TRENCH AND SHALL BE ISOLATED TO THE EXISTING ASPHALT ROADWAY SURFACE.
7. THE CONTRACTOR SHALL USE PENNDOT NO. 2A COARSE AGGREGATE FOR BACKFILL BENEATH ANY STRUCTURES OR PAVEMENT AREAS, INCLUDING GRAVEL SURFACES.
8. THE CONTRACTOR MAY USE EXCAVATED MATERIALS FOR BACKFILL IN UNPAVED AREAS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
9. FOR ALL NEW WATER PIPING, THE MINIMUM PIPE COVER SHALL BE FOUR FEET (4').
10. FOR ALL WATER PIPING CROSSINGS OF SANITARY SEWER PIPING, THE MINIMUM VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5').
11. FOR ALL UTILITY CROSSINGS, THE MINIMUM UNSUPPORTED VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5'). UTILITY CROSSINGS WITH MINIMUM VERTICAL CLEARANCES LESS THAN 1.5' REQUIRE ADEQUATE SUPPORT AND APPROVAL OF THE ENGINEER.
12. ALL UTILITY CROSSINGS/OFFSETS SHALL INCLUDE COMPACTED STABILIZATION MATERIAL FOR FULL LENGTH OF CROSSING.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED SANITARY PIPE / CLEANOUT
- EXISTING / PROPOSED WATER
- PROPOSED 1" WATER COUPLING / CAP



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EXCL. SUNDAY OR STATUTORY

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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Philadelphia, Pennsylvania 19103
215 985 4410

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No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: UTILITY PLAN

Drawing Number: C40.1

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NOTES:

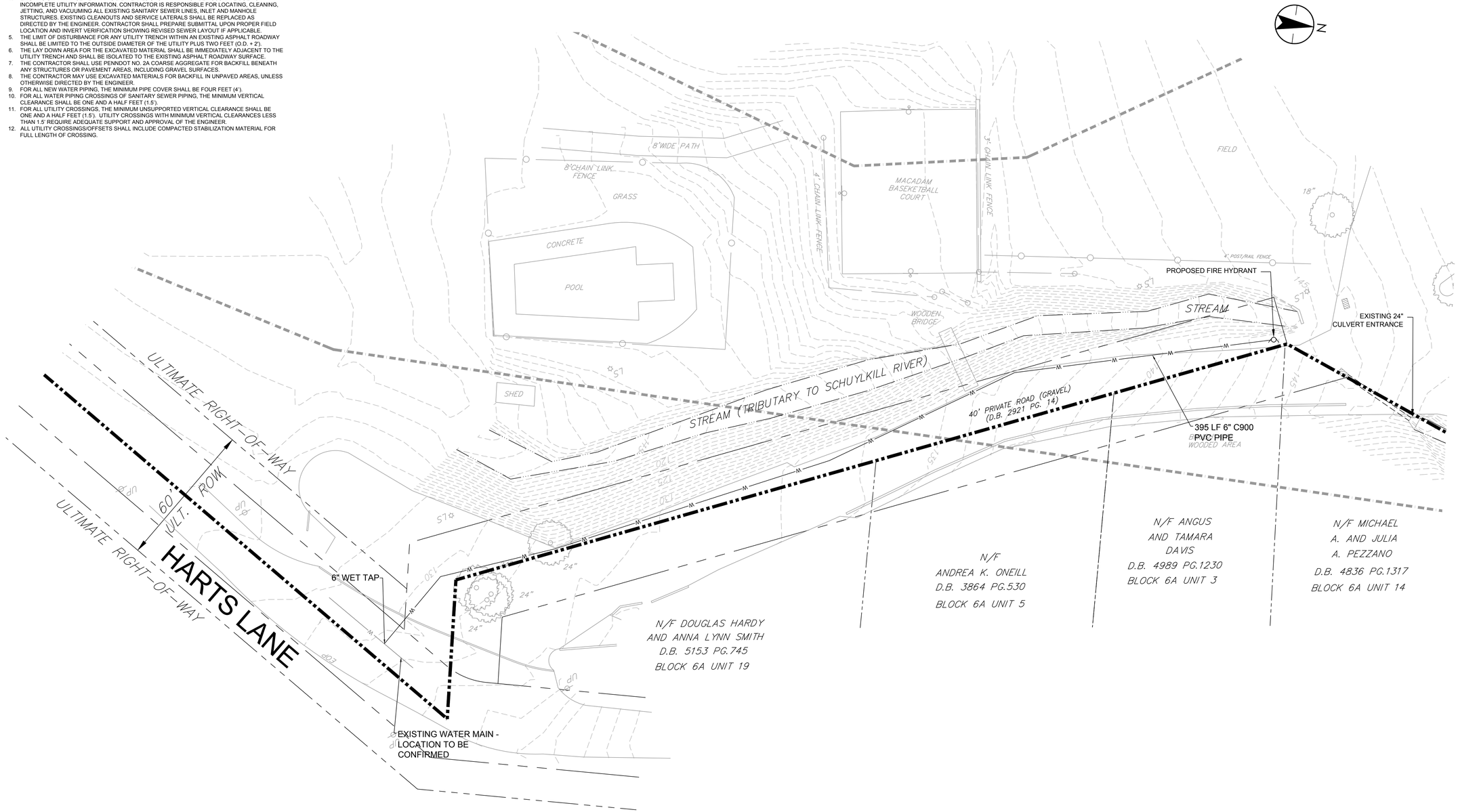
1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.

UTILITY NOTES:

1. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
2. UNLESS NOTED OTHERWISE, THE APPROXIMATE DEPTH OF ALL EXISTING WATER MAIN IS ± 4 FEET.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF THE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT THEIR OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT THEY DAMAGE.
4. EXISTING SANITARY SEWER MAINS & LATERALS SHOWN MAY NOT BE ACCURATE DUE TO INCOMPLETE UTILITY INFORMATION. CONTRACTOR IS RESPONSIBLE FOR LOCATING, CLEANING, JETTING, AND VACUUMING ALL EXISTING SANITARY SEWER LINES, INLET AND MANHOLE STRUCTURES. EXISTING CLEANOUTS AND SERVICE LATERALS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL PREPARE SUBMITTAL UPON PROPER FIELD LOCATION AND INVERT VERIFICATION SHOWING REVISED SEWER LAYOUT IF APPLICABLE.
5. THE LIMIT OF DISTURBANCE FOR ANY UTILITY TRENCH WITHIN AN EXISTING ASPHALT ROADWAY SHALL BE LIMITED TO THE OUTSIDE DIAMETER OF THE UTILITY PLUS TWO FEET (O.D. + 2').
6. THE LAY DOWN AREA FOR THE EXCAVATED MATERIAL SHALL BE IMMEDIATELY ADJACENT TO THE UTILITY TRENCH AND SHALL BE ISOLATED TO THE EXISTING ASPHALT ROADWAY SURFACE.
7. THE CONTRACTOR SHALL USE PENNDOT NO. 2A COARSE AGGREGATE FOR BACKFILL BENEATH ANY STRUCTURES OR PAVEMENT AREAS, INCLUDING GRAVEL SURFACES.
8. THE CONTRACTOR MAY USE EXCAVATED MATERIALS FOR BACKFILL IN UNPAVED AREAS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
9. FOR ALL NEW WATER PIPING, THE MINIMUM PIPE COVER SHALL BE FOUR FEET (4').
10. FOR ALL WATER PIPING CROSSINGS OF SANITARY SEWER PIPING, THE MINIMUM VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5').
11. FOR ALL UTILITY CROSSINGS, THE MINIMUM UNSUPPORTED VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5'). UTILITY CROSSINGS WITH MINIMUM VERTICAL CLEARANCES LESS THAN 1.5' REQUIRE ADEQUATE SUPPORT AND APPROVAL OF THE ENGINEER.
12. ALL UTILITY CROSSINGS/OFFSETS SHALL INCLUDE COMPACTED STABILIZATION MATERIAL FOR FULL LENGTH OF CROSSING.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED SANITARY PIPE / CLEANOUT
- EXISTING / PROPOSED WATER
- PROPOSED 1" WATER COUPLING / CAP
- PROPOSED FIRE HYDRANT



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0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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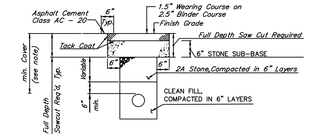
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: FIRE HYDRANT PLAN

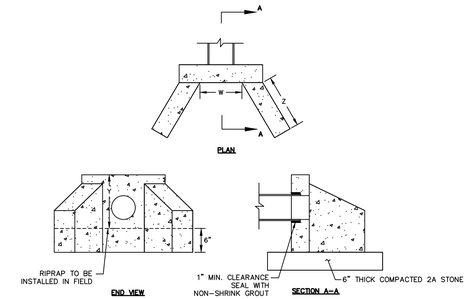
Drawing Number: C40.2

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NOTES:
1. MINIMUM COVER, NO STRUCTURES SHALL BE PLACED LESS THAN 24" BELOW THE DRIVEWAY, OR 15" BELOW THE FOOTWAY.

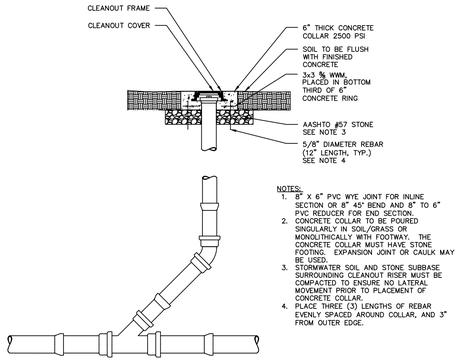
PIPE TRENCH RESTORATION
SCALE: N.T.S.



PIPE OPENING	W (IN.)	Y (IN.)	Z (IN.)
8"	14	13	18

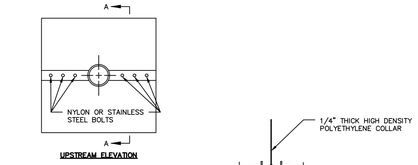
NOTES:
1. CONCRETE TO BE 3500 PSI AIR ENTRAINED.
2. REINFORCED WITH 4x4-W4.0xW4.0 WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
3. RIPRAP APRON TO BE INSTALLED IN FIELD. SEE DETAIL.
4. REMOVABLE, HYDRAULICALLY- EFFICIENT BARS OR GRATES TO BE INSTALLED OVER PIPE OPENING.

CONCRETE ENDWALL
SCALE: N.T.S.



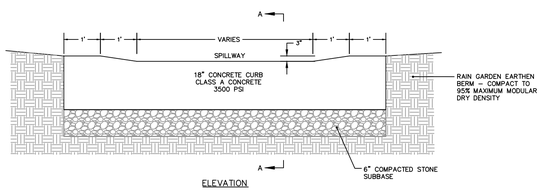
NOTES:
1. 8" X 6" PVC WYE JOINT FOR INLINE SECTION OR 8" 45° BEND AND 8" TO 6" PVC REDUCER FOR END SECTION.
2. CONCRETE COLLAR TO BE POURED SINGULARLY IN SOIL/GRASS OR MONOLITHICALLY WITH FOOTWAY. THE CONCRETE COLLAR MUST HAVE STONE FOOTING. EXPANSION JOINT OR CAULK MAY BE USED.
3. STORMWATER SOIL AND STONE SUBBASE SURROUNDING CLEANOUT RISER MUST BE COMPACTED TO ENSURE NO LATERAL MOVEMENT PRIOR TO PLACEMENT OF CONCRETE COLLAR.
4. PLACE THREE (3) LENGTHS OF REBAR EVENLY SPACED AROUND COLLAR, AND 3" FROM OUTER EDGE.

CLEANOUT
SCALE: N.T.S.



NOTES:
1. CONNECTING BAND SHALL BE SEALED AT BOTH ENDS WITH CAULK OR MASTIC.
2. COLLAR MATERIAL SHALL BE RIGID POLYETHYLENE SHEET.
3. STAINLESS STEEL SHALL BE GRADE 304 OR BETTER.
4. DIMENSION "W" SHALL BE 3 TIMES THE DIAMETER OF THE INTERSECTING PIPE.
5. ONE COLLAR WITH TWO HOLES MAY BE USED WHEN CLOSE PARALLEL PIPES ARE INSTALLED.

ANTI-SEEP COLLAR
SCALE: N.T.S.

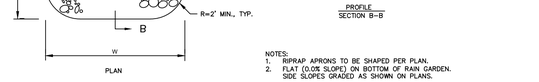


PLANTING NOTES:
1. REFER TO DRAWINGS BY GROUND RECONSIDERED.

CONSTRUCTION NOTES:
1. GRIST MUST BE PRESENT DURING EXCAVATION OF RAIN GARDENS AND INSTALLATION OF BIORETENTION SOILS. CONTRACTOR MUST CALL THE GRIST ENGINEER 267-332-8282 A MINIMUM OF TEN (10) DAYS IN ADVANCE OF RAIN GARDEN EXCAVATION AND STORMWATER SOIL PLACEMENT TO ARRANGE OBSERVATION BY ENGINEER.
2. EXISTING SOIL MUST BE FREE OF DEBRIS, CONCRETE OR BRICK FRAGMENTS, ROCK, RUBBLE, OR OTHER LARGE SOLID MATERIALS. COMPACTED SURFACE MUST BE FREE OF PROTRUSIONS. IF EXISTING SOIL IS NOT SUITABLE FOR INSTALLATION AND OF BIORETENTION SOIL, SOIL AMENDMENTS OR REPLACEMENT MAY BE NEEDED. THE ENGINEER WILL MAKE THE DETERMINATION REGARDING SOIL AMENDMENT OR REPLACEMENT IN THE FIELD.

BIORETENTION SOIL NOTES:
1. REFER TO SPECIFICATIONS BY GROUND RECONSIDERED.

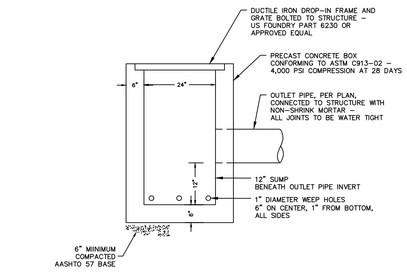
RAIN GARDEN CROSS SECTION
SCALE: N.T.S.



NOTES:
1. RIPRAP APRONS TO BE SHAPED PER PLAN.
2. FLAT (0.0% SLOPE) ON BOTTOM OF RAIN GARDEN. SIDE SLOPES GRADED AS SHOWN ON PLANS.

RIPRAP APRON NO.	L (FT.)	W (FT.)	WO (FT.)	THICKNESS (IN.)	ROCK SIZE (MIN.)
R-1	6	6	2	6	AASHTO NO. 3
R-2	6	6	2	6	AASHTO NO. 3

RIPRAP APRONS
SCALE N.T.S.

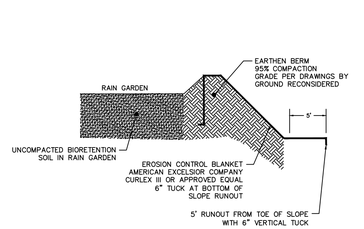


STRUCTURE No.	RAIN GARDEN No. / LOCATION	SUMP ELEVATION	GRATE ELEVATION	OUTLET PIPE DIAMETER	OUTLET PIPE ELEVATION	UNDERDRAIN ELEVATION
OS-1	RG-1	158.40	163.50	8"	159.40	N/A
OS-3	RG-3	170.00	174.50	8"	171.00	171.25
OS-4	RG-4	168.00	172.50	8"	169.00	169.25

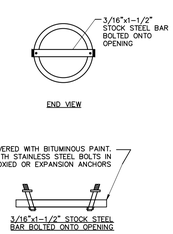
2' X 2' CONCRETE OUTLET CONTROL STRUCTURE
SCALE: NTS

RAIN GARDEN No. / LOCATION	TOP OF CURB SPILWAY EL.	LENGTH (ft.)	TOP OF BERM EL.
RG-1	163.75	14	164.00
RG-2	162.75	12	163.00
RG-3	174.75	9	175.00
RG-4	172.75	12	173.00

CONCRETE CURB LEVEL SPREADER
SCALE: NTS



RAIN GARDEN EARTHEN BERM
SCALE: NTS



OUTFALL ANIMAL GUARD
SCALE: N.T.S.

MIQUON SCHOOL
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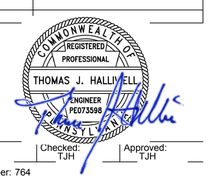
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No.	Date	Revisions

Seal:



Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: STORMWATER DETAILS

Drawing Number: C50.2

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The Miquon School
Heart of the Campus

Stormwater Management Report

August 4, 2023

Prepared by:

Grist, LLC
50 E. Sedgwick St.
Philadelphia, PA 19119

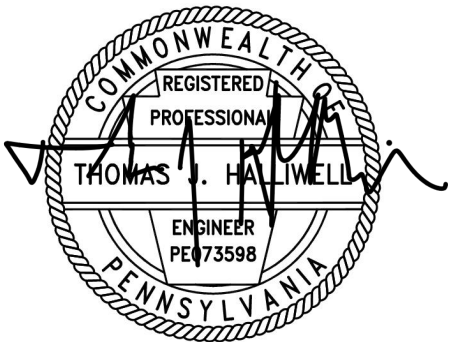


Table of Contents

TABLE OF CONTENTS **2**

I. PROJECT SUMMARY **3**

II. EXISTING CONDITIONS **3**

Site Summary 3
Existing Site Drainage 3
Soils 3

III. PROPOSED STORMWATER MANAGEMENT **4**

Applicable Whitemarsh Township Stormwater Requirements 4
Design Methodology 4
Stormwater Management Design 5
Results 5

APPENDIX A: HYDROCAD MODEL **7**

APPENDIX B: PIPE CAPACITY CALCULATIONS **8**

ATTACHMENTS:

SHEET DA-1: PRE-DEVELOPED DRAINAGE AREA MAP

SHEET DA-2: POST-DEVELOPED DRAINAGE AREA MAP

I. Project Summary

The proposed project is a redevelopment of a portion of the Miquon School campus, 2025 Harts Lane, Conshohocken, PA. Two (2) existing buildings are being demolished and replaced by a single new building. Site features including footpaths, retaining walls, and other structures are proposed to support the new building. Four (4) rain garden stormwater management practices (SMPs) are proposed. These SMPs will collectively manage 24,928 sq. ft. of drainage area, including 7,628 sq. ft. of proposed impervious surfaces. Stormwater is managed in accordance with applicable Whitemarsh Township design requirements.

II. Existing Conditions

Site Summary

Miquon is a K-6 private school, focuses on child's individuality and natural environment. Existing buildings date to the 1930's, when many were built by volunteers. These buildings have held up remarkably well over the decades. Paved paths, a gravel parking lot, and supporting structures and surfaces are interspersed throughout the campus.

The rest of the campus is wooded, with many mature canopy trees, understory trees, shrubs, and groundcover vegetation existing on site. Certain parts of the site also feature steep slopes. A perennial stream, an unnamed tributary to the Schuylkill River, runs north to south near the eastern boundary of the property.

Existing Site Drainage

The site generally drains from north to south. Wooded and improved areas sheet flow with grade from north to south to existing catch basin inlets that are connected by existing storm sewers that discharge to the stream. Groundwater flow is presumed to be from north to south as well. Refer to Drawing DA-1, Pre-Developed Drainage Area Plan, in Appendix A. Drainage areas are summarized in Table 1, below.

Table 1: Pre-Developed Drainage Area 1	
Pervious Area	**Impervious Area**
9,480 sq. ft.	15,448 sq. ft.
TOTAL	**24,928 sq. ft.**

Soils

Based upon site investigation and testing, the site has characteristics typical of this region when considering the mapped and published soil and geologic data. Variability of bedrock depth is typical of the region.

Infiltration testing was not able to be completed because double ring infiltrometers were not able to be set in the existing weathered and fractured rock. Therefore, infiltration is not recommended as a discharge mechanism. Rain gardens contain underdrains that connect to the existing site storm sewer system. However, the rain gardens will not be lined with an impermeable liner; some amount of infiltration will occur, though infiltration is not relied upon as a discharge mechanism in the proposed stormwater design.

III. Proposed Stormwater Management

Applicable Whitemarsh Township Stormwater Requirements

The following stormwater management design requirements are applicable to this project:

1. **Volume Control** (Whitemarsh Township Code, Section 58-14.A): Stormwater volume must be controlled per CG-1 of the PA Stormwater BMP Manual (2005). There must be no increase in stormwater volume discharge from pre-development to post-development conditions for all storms equal to or less than the 2-year, 24-hour storm.
2. **Rate Control** (Whitemarsh Township Code, Section 58-15.A(1)): Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storm events.
3. **Pipe Capacity** (Whitemarsh Township Code, Section 58-32.C): Pipes must be sized to handle the peak flow rate for the 100-year storm, per Hydraulic Design of Highway Culverts, by FHWA.
4. **Extended Detention** (Whitemarsh Township Code, Section 58-33.A(4)): Runoff from the 1-year, 24-hour storm must be discharged over a minimum of 24 hours.
5. **Water Quality Volume** (Whitemarsh Township Resolution 2004-8.II.F(3)(c)(1)): The Water Quality Volume (WQv) of stormwater runoff must be captured, stored, and treated. WQv is calculated per the formula: WQv= 0.17(Rv)(A),

   Where,

   A = project area in acres = 0.44 acres
   Rv = 0.05 + 0.009 (I) = 0.05 + 0.009 (0.401) = 0.053
   I = % impervious = 7,628 / 19,016 = 40.1%

   WQv = 0.17 (0.053) (0.44) = 0.004 ac.ft. = **173 cu. ft.**

Design Methodology

Stormwater volumes and peak discharge rates are calculated using the National Resources Conservation Service (NRCS) Soil Cover Complex method. In accordance with Whitemarsh Township design standards, non-forested pervious, pre-developed areas are modeled as Meadow, with a Curve Number of 58. In addition, 20 percent of existing impervious pre-developed areas are also modeled as Meadow, again with a Curve Number of 58. Precipitation amounts are based on NOAA Atlas 14, Conshohocken (Station ID: 36-1737) data. Refer to Table 2, below.

Table 2: Precipitation Data

	1-year	2-year	5-year	10-year	25-year	50-year	100-year
Precipitation (inches)	2.72	3.28	4.12	4.82	5.82	6.67	7.58

Times of Concentration of six (6) minutes were used for all post-development drainage areas. This represents a conservative assumption for the calculation of post-development peak discharge rates. Actual Times of Concentration for post-development drainage areas, if used, would be longer than six minutes, and would result in lower calculated post-development peak discharge rates.

Pipes are sized to safely convey a 100-year, 5-minute storm (8.52 inches per hour per PADOT Publication 584, Table 7A.4(b)) peak intensity using the Rational Method.

Stormwater Management Design

SMPs are designed to comply with the design requirements noted above. Roof drains from the proposed building are connected to rain gardens RG-1 and RG-3; other impervious surfaces sheet flow to rain gardens RG-1, 3, and 4. Pervious areas within the Limits of Disturbance as well as certain other pervious areas drain to all rain gardens. Certain smaller drainage areas, pervious and impervious, are not controlled.

The most notable unmanaged area is the area that is disturbed to install the proposed new water service and fire hydrant. The existing surface for this installation is impervious, and the impervious surface will be replaced in kind.

Rain Gardens RG-1, 3, and 4 are designed to statically store a certain volume of runoff below the outlet grate, which is the lowest discharge control in each. These Rain Gardens also contain perforated underdrains, to convey water that has filtered through the stormwater soil slowly out to the existing storm sewer system.

Rain Garden RG-2 collects and manages pervious runoff that sheet flows to it from adjacent areas.

The porosity of bioretention soils and sand layers used in rain gardens is 20 percent. A safe overflow for larger storms is provided by concrete curb level spreaders, which direct overflow runoff safely to the surrounding campus areas, and ultimately drain to the existing storm sewer system and creek.

Refer to Drawing DA-2, Post-Developed Drainage Area Plan, in Appendix A, and Table 3, below.

Table 3: Post-Developed Drainage Areas

Pervious		**Impervious**	
DA Number	**Area (sq. ft.)**	**DA Number**	**Area (sq. ft.)**
DAP-5	1,119	DAI-2	1,745
DAP-9	1,658	DAI-3	1,331
DAP-10	1,367	DAI-4	539
DAP-11	669	DAI-6	584
DAP-13	3,880	DAI-8	249
DAP-14	4,708	DAI-12	342
DAP-15	3,424	DAI-17	1,047
DAP-16	475	DAI-18	1,791
SUBTOTAL	**17,300**	**SUBTOTAL**	**7,628**
TOTAL	**24,928 sq. ft.**		

Results

The Whitemarsh Township design requirements discussed above are met and exceeded, as shown in the attached HydroCAD model report and summarized below.

Table 4: Volume Control Results

Pre-Developed 2-year Runoff Volume	Post-Developed 2-year Runoff Volume
2,134 cu. ft.	1,742 cu. ft.

The post-developed 2-year runoff volume is less than the pre-developed runoff volume.

Table 5: Rate Control Results

	Pre-Developed Rate (cfs)	Post-Developed Rate (cfs)
1-year	0.51	0.48
2-year	0.79	0.65
5-year	1.27	1.05
10-year	1.69	1.50
25-year	2.33	2.06
50-year	2.89	2.55
100-year	3.51	3.10

The post-developed peak rate is less than the pre-developed peak rate for all storms.

The post-developed 1-year storm discharge extends **24.08 hours**, exceeding the minimum extended detention time of 24 hours.

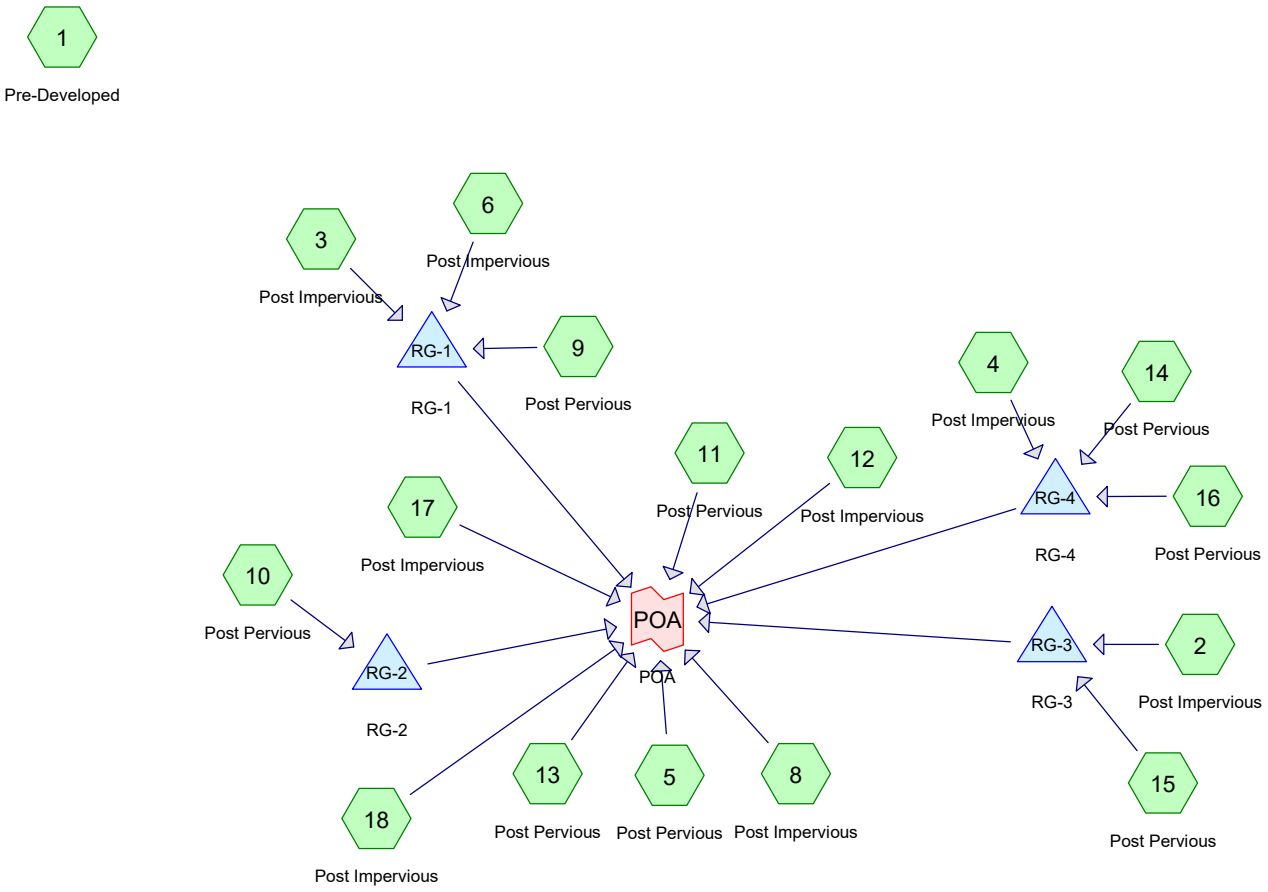
Table 6: Water Quality Volume

SMP	WQv (cu. ft.)
RG-1	996
RG-2	329
RG-3	272
RG-4	161
Total	**1,758**

The proposed WQv (1,758 cu. ft.) exceeds the required WQv (173 cu. ft.)

Pipe capacity calculations are attached in Appendix B.

Appendix A: HydroCad Model



Subcat Reach Pond Link

Routing Diagram for Miquon SWM
Prepared by Grist, Printed 8/3/2023
HydroCAD® 10.20-3c s/n 11476 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-year	Type II 24-hr		Default	24.00	1	2.72	2
2	2-year	Type II 24-hr		Default	24.00	1	3.28	2
3	5-year	Type II 24-hr		Default	24.00	1	4.12	2
4	10-year	Type II 24-hr		Default	24.00	1	4.82	2
5	25-year	Type II 24-hr		Default	24.00	1	5.82	2
6	50-year	Type II 24-hr		Default	24.00	1	6.67	2
7	100-year	Type II 24-hr		Default	24.00	1	7.58	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.071	58	20% Pre-developed impervious counted as meadow (1)
0.218	98	80% Pre-developed impervious - Roofs and paved paths (1)
0.079	61	>75% Grass cover, Good, HSG B (15)
0.092	98	Impervious driveway (6, 8, 12, 17, 18)
0.012	98	Impervious porch and path (4)
0.071	98	Impervious rooftop (2, 3)
0.602	58	Meadow, non-grazed, HSG B (1, 5, 9, 10, 11, 13, 14, 16)
1.145	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.681	HSG B	1, 5, 9, 10, 11, 13, 14, 15, 16
0.000	HSG C	
0.000	HSG D	
0.464	Other	1, 2, 3, 4, 6, 8, 12, 17, 18
1.145		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover
0.000	0.000	0.000	0.000	0.071	0.071	20% Pre-developed impervious counted as meadow
0.000	0.000	0.000	0.000	0.218	0.218	80% Pre-developed impervious - Roofs and paved paths
0.000	0.079	0.000	0.000	0.000	0.079	>75% Grass cover, Good
0.000	0.000	0.000	0.000	0.092	0.092	Impervious driveway
0.000	0.000	0.000	0.000	0.012	0.012	Impervious porch and path
0.000	0.000	0.000	0.000	0.071	0.071	Impervious rooftop
0.000	0.602	0.000	0.000	0.000	0.602	Meadow, non-grazed
0.000	**0.681**	**0.000**	**0.000**	**0.464**	**1.145**	**TOTAL AREA**

Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=0.69"
Flow Length=487' Tc=13.0 min CN=73 Runoff=0.51 cfs 0.033 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.008 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.006 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.02 cfs 0.001 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.002 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=0.27"
Tc=6.0 min CN=61 Runoff=0.02 cfs 0.002 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.005 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.009 af

Pond RG-1: RG-1 Peak Elev=162.23' Storage=347 cf Inflow=0.17 cfs 0.010 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=160.10' Storage=6 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond RG-3: RG-3 Peak Elev=174.55' Storage=162 cf Inflow=0.17 cfs 0.010 af
Outflow=0.17 cfs 0.007 af

Pond RG-4: RG-4 Peak Elev=172.51' Storage=121 cf Inflow=0.06 cfs 0.004 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.001 af Outflow=0.00 cfs 0.002 af

Link POA: POA Inflow=0.48 cfs 0.029 af
Primary=0.48 cfs 0.029 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.076 af Average Runoff Depth = 0.80"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

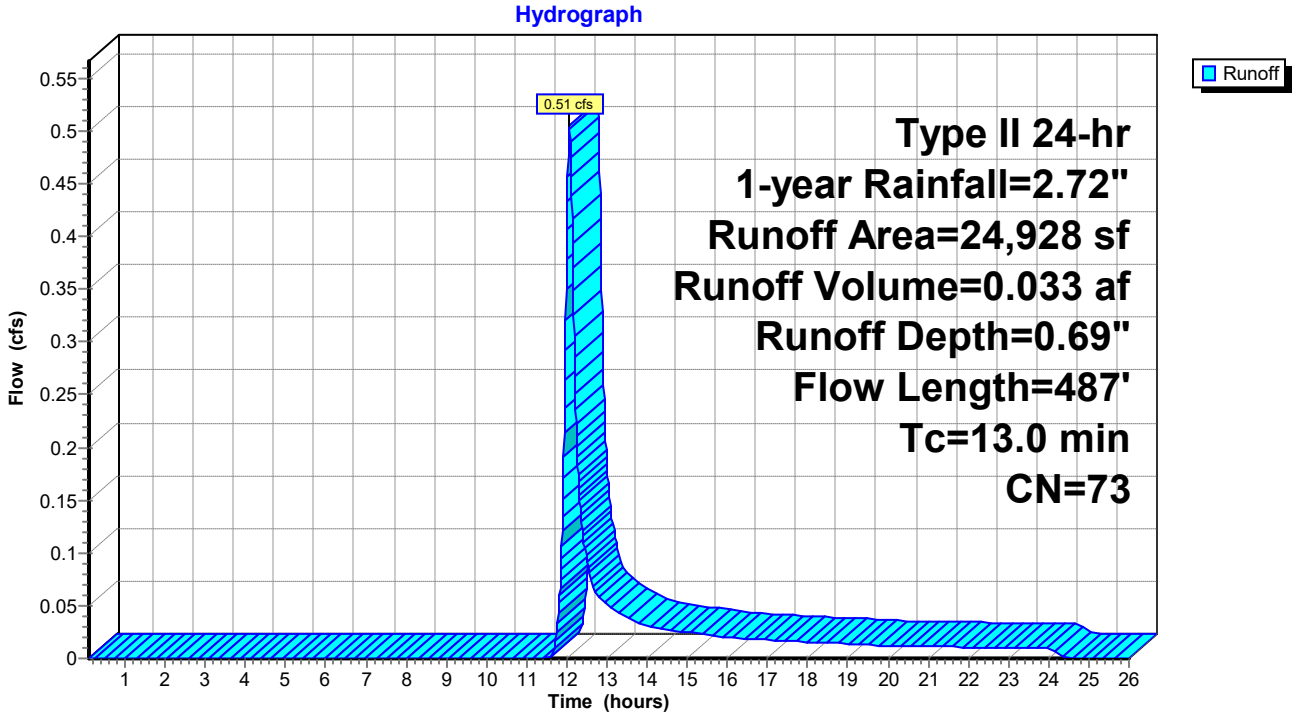
Runoff = 0.51 cfs @ 12.06 hrs, Volume= 0.033 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

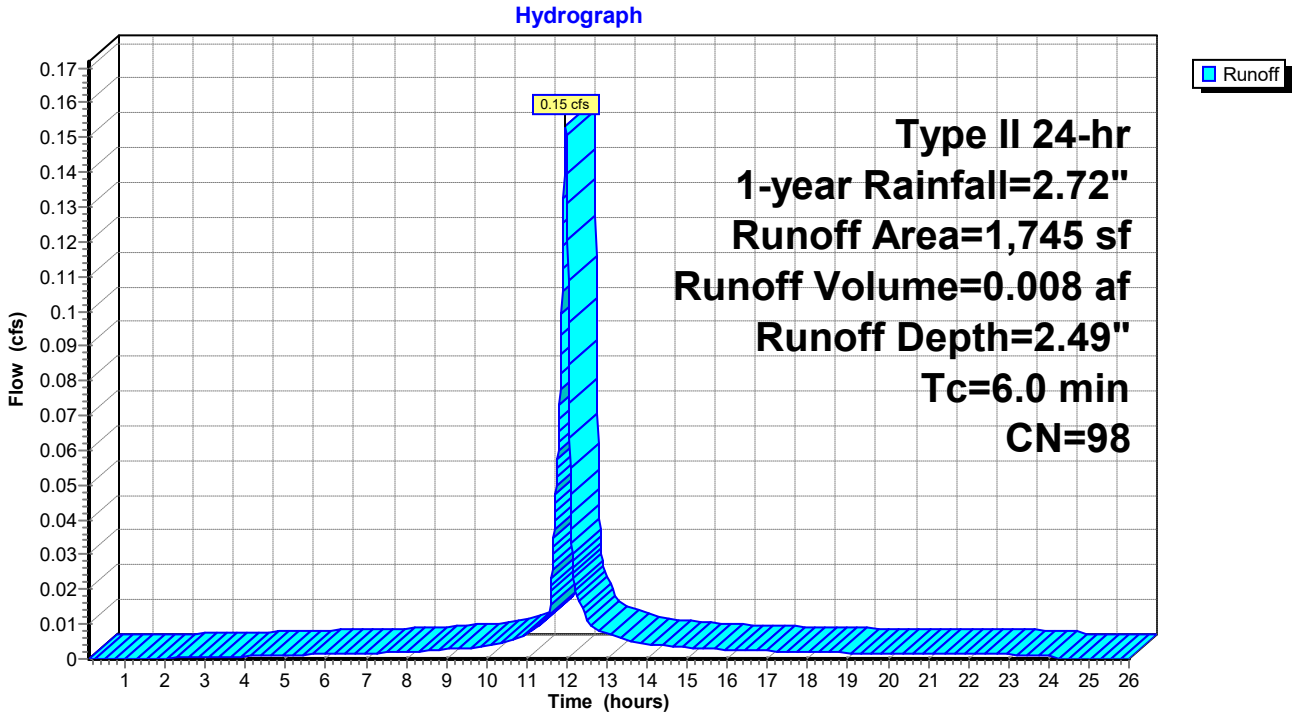
Runoff = 0.15 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 2.49"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Hydrograph for Link POA: POA

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.10	0.00	**0.00**	0.00	2.70	0.00	0.00	0.00
0.15	0.00	0.00	0.00	2.75	0.00	0.00	0.00
0.20	0.00	0.00	0.00	2.80	0.00	0.00	0.00
0.25	0.00	0.00	0.00	2.85	0.00	0.00	0.00
0.30	0.00	0.00	0.00	2.90	0.00	0.00	0.00
0.35	0.00	0.00	0.00	2.95	0.00	0.00	0.00
0.40	0.00	0.00	0.00	3.00	0.00	0.00	0.00
0.45	0.00	0.00	0.00	3.05	0.00	0.00	0.00
0.50	0.00	0.00	0.00	3.10	0.00	0.00	0.00
0.55	0.00	0.00	0.00	3.15	0.00	0.00	0.00
0.60	0.00	0.00	0.00	3.20	0.00	0.00	0.00
0.65	0.00	0.00	0.00	3.25	0.00	0.00	0.00
0.70	0.00	0.00	0.00	3.30	0.00	0.00	0.00
0.75	0.00	0.00	0.00	3.35	0.00	0.00	0.00
0.80	0.00	0.00	0.00	3.40	0.00	0.00	0.00
0.85	0.00	0.00	0.00	3.45	0.00	0.00	0.00
0.90	0.00	0.00	0.00	3.50	0.00	0.00	0.00
0.95	0.00	0.00	0.00	3.55	0.00	0.00	0.00
1.00	0.00	0.00	0.00	3.60	0.00	0.00	0.00
1.05	0.00	0.00	0.00	3.65	0.00	0.00	0.00
1.10	0.00	0.00	0.00	3.70	0.00	0.00	0.00
1.15	0.00	0.00	0.00	3.75	0.00	0.00	0.00
1.20	0.00	0.00	0.00	3.80	0.00	0.00	0.00
1.25	0.00	0.00	0.00	3.85	0.00	0.00	0.00
1.30	0.00	0.00	0.00	3.90	0.00	0.00	0.00
1.35	0.00	0.00	0.00	3.95	0.00	0.00	0.00
1.40	0.00	0.00	0.00	4.00	0.00	0.00	0.00
1.45	0.00	0.00	0.00	4.05	0.00	0.00	0.00
1.50	0.00	0.00	0.00	4.10	0.00	0.00	0.00
1.55	0.00	0.00	0.00	4.15	0.00	0.00	0.00
1.60	0.00	0.00	0.00	4.20	0.00	0.00	0.00
1.65	0.00	0.00	0.00	4.25	0.00	0.00	0.00
1.70	0.00	0.00	0.00	4.30	0.00	0.00	0.00
1.75	0.00	0.00	0.00	4.35	0.00	0.00	0.00
1.80	0.00	0.00	0.00	4.40	0.00	0.00	0.00
1.85	0.00	0.00	0.00	4.45	0.00	0.00	0.00
1.90	0.00	0.00	0.00	4.50	0.00	0.00	0.00
1.95	0.00	0.00	0.00	4.55	0.00	0.00	0.00
2.00	0.00	0.00	0.00	4.60	0.00	0.00	0.00
2.05	0.00	0.00	0.00	4.65	0.00	0.00	0.00
2.10	0.00	0.00	0.00	4.70	0.00	0.00	0.00
2.15	0.00	0.00	0.00	4.75	0.00	0.00	0.00
2.20	0.00	0.00	0.00	4.80	0.00	0.00	0.00
2.25	0.00	0.00	0.00	4.85	0.00	0.00	0.00
2.30	0.00	0.00	0.00	4.90	0.00	0.00	0.00
2.35	0.00	0.00	0.00	4.95	0.00	0.00	0.00
2.40	0.00	0.00	0.00	5.00	0.00	0.00	0.00
2.45	0.00	0.00	0.00	5.05	0.00	0.00	0.00
2.50	0.00	0.00	0.00	5.10	0.00	0.00	0.00
2.55	0.00	0.00	0.00	5.15	0.00	0.00	0.00
2.60	0.00	0.00	0.00	5.20	0.00	0.00	0.00
2.65	0.00	0.00	0.00	5.25	0.00	0.00	0.00

Hydrograph for Link POA: POA (continued)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
5.30	0.00	0.00	0.00	7.90	0.00	0.00	0.00
5.35	0.00	0.00	0.00	7.95	0.00	0.00	0.00
5.40	0.00	0.00	0.00	8.00	0.00	0.00	0.00
5.45	0.00	0.00	0.00	8.05	0.00	0.00	0.00
5.50	0.00	0.00	0.00	8.10	0.00	0.00	0.00
5.55	0.00	0.00	0.00	8.15	0.01	0.00	0.01
5.60	0.00	0.00	0.00	8.20	0.01	0.00	0.01
5.65	0.00	0.00	0.00	8.25	0.01	0.00	0.01
5.70	0.00	0.00	0.00	8.30	0.01	0.00	0.01
5.75	0.00	0.00	0.00	8.35	0.01	0.00	0.01
5.80	0.00	0.00	0.00	8.40	0.01	0.00	0.01
5.85	0.00	0.00	0.00	8.45	0.01	0.00	0.01
5.90	0.00	0.00	0.00	8.50	0.01	0.00	0.01
5.95	0.00	0.00	0.00	8.55	0.01	0.00	0.01
6.00	0.00	0.00	0.00	8.60	0.01	0.00	0.01
6.05	0.00	0.00	0.00	8.65	0.01	0.00	0.01
6.10	0.00	0.00	0.00	8.70	0.01	0.00	0.01
6.15	0.00	0.00	0.00	8.75	0.01	0.00	0.01
6.20	0.00	0.00	0.00	8.80	0.01	0.00	0.01
6.25	0.00	0.00	0.00	8.85	0.01	0.00	0.01
6.30	0.00	0.00	0.00	8.90	0.01	0.00	0.01
6.35	0.00	0.00	0.00	8.95	0.01	0.00	0.01
6.40	0.00	0.00	0.00	9.00	0.01	0.00	0.01
6.45	0.00	0.00	0.00	9.05	0.01	0.00	0.01
6.50	0.00	0.00	0.00	9.10	0.01	0.00	0.01
6.55	0.00	0.00	0.00	9.15	0.01	0.00	0.01
6.60	0.00	0.00	0.00	9.20	0.01	0.00	0.01
6.65	0.00	0.00	0.00	9.25	0.01	0.00	0.01
6.70	0.00	0.00	0.00	9.30	0.01	0.00	0.01
6.75	0.00	0.00	0.00	9.35	0.01	0.00	0.01
6.80	0.00	0.00	0.00	9.40	0.01	0.00	0.01
6.85	0.00	0.00	0.00	9.45	0.01	0.00	0.01
6.90	0.00	0.00	0.00	9.50	0.01	0.00	0.01
6.95	0.00	0.00	0.00	9.55	0.01	0.00	0.01
7.00	0.00	0.00	0.00	9.60	0.01	0.00	0.01
7.05	0.00	0.00	0.00	9.65	0.01	0.00	0.01
7.10	0.00	0.00	0.00	9.70	0.01	0.00	0.01
7.15	0.00	0.00	0.00	9.75	0.01	0.00	0.01
7.20	0.00	0.00	0.00	9.80	0.01	0.00	0.01
7.25	0.00	0.00	0.00	9.85	0.01	0.00	0.01
7.30	0.00	0.00	0.00	9.90	0.01	0.00	0.01
7.35	0.00	0.00	0.00	9.95	0.01	0.00	0.01
7.40	0.00	0.00	0.00	10.00	0.01	0.00	0.01
7.45	0.00	0.00	0.00	10.05	0.01	0.00	0.01
7.50	0.00	0.00	0.00	10.10	0.01	0.00	0.01
7.55	0.00	0.00	0.00	10.15	0.01	0.00	0.01
7.60	0.00	0.00	0.00	10.20	0.01	0.00	0.01
7.65	0.00	0.00	0.00	10.25	0.01	0.00	0.01
7.70	0.00	0.00	0.00	10.30	0.01	0.00	0.01
7.75	0.00	0.00	0.00	10.35	0.01	0.00	0.01
7.80	0.00	0.00	0.00	10.40	0.01	0.00	0.01
7.85	0.00	0.00	0.00	10.45	0.01	0.00	0.01

Hydrograph for Link POA: POA (continued)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
10.50	0.01	0.00	0.01	13.10	0.03	0.00	0.03
10.55	0.01	0.00	0.01	13.15	0.03	0.00	0.03
10.60	0.01	0.00	0.01	13.20	0.03	0.00	0.03
10.65	0.01	0.00	0.01	13.25	0.03	0.00	0.03
10.70	0.01	0.00	0.01	13.30	0.03	0.00	0.03
10.75	0.01	0.00	0.01	13.35	0.02	0.00	0.02
10.80	0.01	0.00	0.01	13.40	0.02	0.00	0.02
10.85	0.01	0.00	0.01	13.45	0.02	0.00	0.02
10.90	0.01	0.00	0.01	13.50	0.02	0.00	0.02
10.95	0.01	0.00	0.01	13.55	0.02	0.00	0.02
11.00	0.01	0.00	0.01	13.60	0.02	0.00	0.02
11.05	0.02	0.00	0.02	13.65	0.02	0.00	0.02
11.10	0.02	0.00	0.02	13.70	0.02	0.00	0.02
11.15	0.02	0.00	0.02	13.75	0.02	0.00	0.02
11.20	0.02	0.00	0.02	13.80	0.02	0.00	0.02
11.25	0.02	0.00	0.02	13.85	0.02	0.00	0.02
11.30	0.02	0.00	0.02	13.90	0.02	0.00	0.02
11.35	0.02	0.00	0.02	13.95	0.02	0.00	0.02
11.40	0.02	0.00	0.02	14.00	0.02	0.00	0.02
11.45	0.02	0.00	0.02	14.05	0.02	0.00	0.02
11.50	0.02	0.00	0.02	14.10	0.02	0.00	0.02
11.55	0.03	0.00	0.03	14.15	0.02	0.00	0.02
11.60	0.04	0.00	0.04	14.20	0.02	0.00	0.02
11.65	0.06	0.00	0.06	14.25	0.02	0.00	0.02
11.70	0.08	0.00	0.08	14.30	0.02	0.00	0.02
11.75	0.10	0.00	0.10	14.35	0.02	0.00	0.02
11.80	0.13	0.00	0.13	14.40	0.02	0.00	0.02
11.85	0.17	0.00	0.17	14.45	0.02	0.00	0.02
11.90	0.23	0.00	0.23	14.50	0.02	0.00	0.02
11.95	**0.38**	0.00	**0.38**	14.55	0.02	0.00	0.02
12.00	**0.46**	0.00	**0.46**	14.60	0.02	0.00	0.02
12.05	0.30	0.00	0.30	14.65	0.02	0.00	0.02
12.10	0.15	0.00	0.15	14.70	0.02	0.00	0.02
12.15	0.10	0.00	0.10	14.75	0.02	0.00	0.02
12.20	0.08	0.00	0.08	14.80	0.02	0.00	0.02
12.25	0.07	0.00	0.07	14.85	0.02	0.00	0.02
12.30	0.06	0.00	0.06	14.90	0.02	0.00	0.02
12.35	0.06	0.00	0.06	14.95	0.02	0.00	0.02
12.40	0.06	0.00	0.06	15.00	0.02	0.00	0.02
12.45	0.05	0.00	0.05	15.05	0.02	0.00	0.02
12.50	0.05	0.00	0.05	15.10	0.02	0.00	0.02
12.55	0.04	0.00	0.04	15.15	0.02	0.00	0.02
12.60	0.04	0.00	0.04	15.20	0.02	0.00	0.02
12.65	0.04	0.00	0.04	15.25	0.02	0.00	0.02
12.70	0.04	0.00	0.04	15.30	0.02	0.00	0.02
12.75	0.03	0.00	0.03	15.35	0.02	0.00	0.02
12.80	0.03	0.00	0.03	15.40	0.02	0.00	0.02
12.85	0.03	0.00	0.03	15.45	0.02	0.00	0.02
12.90	0.03	0.00	0.03	15.50	0.02	0.00	0.02
12.95	0.03	0.00	0.03	15.55	0.02	0.00	0.02
13.00	0.03	0.00	0.03	15.60	0.02	0.00	0.02
13.05	0.03	0.00	0.03	15.65	0.02	0.00	0.02

Hydrograph for Link POA: POA (continued)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
15.70	0.02	0.00	0.02	18.30	0.01	0.00	0.01
15.75	0.02	0.00	0.02	18.35	0.01	0.00	0.01
15.80	0.02	0.00	0.02	18.40	0.01	0.00	0.01
15.85	0.02	0.00	0.02	18.45	0.01	0.00	0.01
15.90	0.02	0.00	0.02	18.50	0.01	0.00	0.01
15.95	0.01	0.00	0.01	18.55	0.01	0.00	0.01
16.00	0.01	0.00	0.01	18.60	0.01	0.00	0.01
16.05	0.01	0.00	0.01	18.65	0.01	0.00	0.01
16.10	0.01	0.00	0.01	18.70	0.01	0.00	0.01
16.15	0.01	0.00	0.01	18.75	0.01	0.00	0.01
16.20	0.01	0.00	0.01	18.80	0.01	0.00	0.01
16.25	0.01	0.00	0.01	18.85	0.01	0.00	0.01
16.30	0.01	0.00	0.01	18.90	0.01	0.00	0.01
16.35	0.01	0.00	0.01	18.95	0.01	0.00	0.01
16.40	0.01	0.00	0.01	19.00	0.01	0.00	0.01
16.45	0.01	0.00	0.01	19.05	0.01	0.00	0.01
16.50	0.01	0.00	0.01	19.10	0.01	0.00	0.01
16.55	0.01	0.00	0.01	19.15	0.01	0.00	0.01
16.60	0.01	0.00	0.01	19.20	0.01	0.00	0.01
16.65	0.01	0.00	0.01	19.25	0.01	0.00	0.01
16.70	0.01	0.00	0.01	19.30	0.01	0.00	0.01
16.75	0.01	0.00	0.01	19.35	0.01	0.00	0.01
16.80	0.01	0.00	0.01	19.40	0.01	0.00	0.01
16.85	0.01	0.00	0.01	19.45	0.01	0.00	0.01
16.90	0.01	0.00	0.01	19.50	0.01	0.00	0.01
16.95	0.01	0.00	0.01	19.55	0.01	0.00	0.01
17.00	0.01	0.00	0.01	19.60	0.01	0.00	0.01
17.05	0.01	0.00	0.01	19.65	0.01	0.00	0.01
17.10	0.01	0.00	0.01	19.70	0.01	0.00	0.01
17.15	0.01	0.00	0.01	19.75	0.01	0.00	0.01
17.20	0.01	0.00	0.01	19.80	0.01	0.00	0.01
17.25	0.01	0.00	0.01	19.85	0.01	0.00	0.01
17.30	0.01	0.00	0.01	19.90	0.01	0.00	0.01
17.35	0.01	0.00	0.01	19.95	0.01	0.00	0.01
17.40	0.01	0.00	0.01	20.00	0.01	0.00	0.01
17.45	0.01	0.00	0.01	20.05	0.01	0.00	0.01
17.50	0.01	0.00	0.01	20.10	0.01	0.00	0.01
17.55	0.01	0.00	0.01	20.15	0.01	0.00	0.01
17.60	0.01	0.00	0.01	20.20	0.01	0.00	0.01
17.65	0.01	0.00	0.01	20.25	0.01	0.00	0.01
17.70	0.01	0.00	0.01	20.30	0.01	0.00	0.01
17.75	0.01	0.00	0.01	20.35	0.01	0.00	0.01
17.80	0.01	0.00	0.01	20.40	0.01	0.00	0.01
17.85	0.01	0.00	0.01	20.45	0.01	0.00	0.01
17.90	0.01	0.00	0.01	20.50	0.01	0.00	0.01
17.95	0.01	0.00	0.01	20.55	0.01	0.00	0.01
18.00	0.01	0.00	0.01	20.60	0.01	0.00	0.01
18.05	0.01	0.00	0.01	20.65	0.01	0.00	0.01
18.10	0.01	0.00	0.01	20.70	0.01	0.00	0.01
18.15	0.01	0.00	0.01	20.75	0.01	0.00	0.01
18.20	0.01	0.00	0.01	20.80	0.01	0.00	0.01
18.25	0.01	0.00	0.01	20.85	0.01	0.00	0.01

Hydrograph for Link POA: POA (continued)

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
20.90	0.01	0.00	0.01	23.50	0.01	0.00	0.01
20.95	0.01	0.00	0.01	23.55	0.01	0.00	0.01
21.00	0.01	0.00	0.01	23.60	0.01	0.00	0.01
21.05	0.01	0.00	0.01	23.65	0.01	0.00	0.01
21.10	0.01	0.00	0.01	23.70	0.01	0.00	0.01
21.15	0.01	0.00	0.01	23.75	0.01	0.00	0.01
21.20	0.01	0.00	0.01	23.80	0.01	0.00	0.01
21.25	0.01	0.00	0.01	23.85	0.01	0.00	0.01
21.30	0.01	0.00	0.01	23.90	0.01	0.00	0.01
21.35	0.01	0.00	0.01	23.95	0.01	0.00	0.01
21.40	0.01	0.00	0.01	24.00	0.01	0.00	0.01
21.45	0.01	0.00	0.01	24.05	0.01	0.00	0.01
21.50	0.01	0.00	0.01	24.10	0.00	0.00	0.00
21.55	0.01	0.00	0.01	24.15	0.00	0.00	0.00
21.60	0.01	0.00	0.01	24.20	0.00	0.00	0.00
21.65	0.01	0.00	0.01	24.25	0.00	0.00	0.00
21.70	0.01	0.00	0.01	24.30	0.00	0.00	0.00
21.75	0.01	0.00	0.01	24.35	0.00	0.00	0.00
21.80	0.01	0.00	0.01	24.40	0.00	0.00	0.00
21.85	0.01	0.00	0.01	24.45	0.00	0.00	0.00
21.90	0.01	0.00	0.01	24.50	0.00	0.00	0.00
21.95	0.01	0.00	0.01	24.55	0.00	0.00	0.00
22.00	0.01	0.00	0.01	24.60	0.00	0.00	0.00
22.05	0.01	0.00	0.01	24.65	0.00	0.00	0.00
22.10	0.01	0.00	0.01	24.70	0.00	0.00	0.00
22.15	0.01	0.00	0.01	24.75	0.00	0.00	0.00
22.20	0.01	0.00	0.01	24.80	0.00	0.00	0.00
22.25	0.01	0.00	0.01	24.85	0.00	0.00	0.00
22.30	0.01	0.00	0.01	24.90	0.00	0.00	0.00
22.35	0.01	0.00	0.01	24.95	0.00	0.00	0.00
22.40	0.01	0.00	0.01	25.00	0.00	0.00	0.00
22.45	0.01	0.00	0.01	25.05	0.00	0.00	0.00
22.50	0.01	0.00	0.01	25.10	0.00	0.00	0.00
22.55	0.01	0.00	0.01	25.15	0.00	0.00	0.00
22.60	0.01	0.00	0.01	25.20	0.00	0.00	0.00
22.65	0.01	0.00	0.01	25.25	0.00	0.00	0.00
22.70	0.01	0.00	0.01	25.30	0.00	0.00	0.00
22.75	0.01	0.00	0.01	25.35	0.00	0.00	0.00
22.80	0.01	0.00	0.01	25.40	0.00	0.00	0.00
22.85	0.01	0.00	0.01	25.45	0.00	0.00	0.00
22.90	0.01	0.00	0.01	25.50	0.00	0.00	0.00
22.95	0.01	0.00	0.01	25.55	0.00	0.00	0.00
23.00	0.01	0.00	0.01	25.60	0.00	0.00	0.00
23.05	0.01	0.00	0.01	25.65	0.00	0.00	0.00
23.10	0.01	0.00	0.01	25.70	0.00	0.00	0.00
23.15	0.01	0.00	0.01	25.75	0.00	0.00	0.00
23.20	0.01	0.00	0.01	25.80	0.00	0.00	0.00
23.25	0.01	0.00	0.01	25.85	0.00	0.00	0.00
23.30	0.01	0.00	0.01	25.90	0.00	0.00	0.00
23.35	0.01	0.00	0.01	25.95	0.00	0.00	0.00
23.40	0.01	0.00	0.01	26.00	0.00	0.00	0.00
23.45	0.01	0.00	0.01				

Summary for Subcatchment 3: Post Impervious

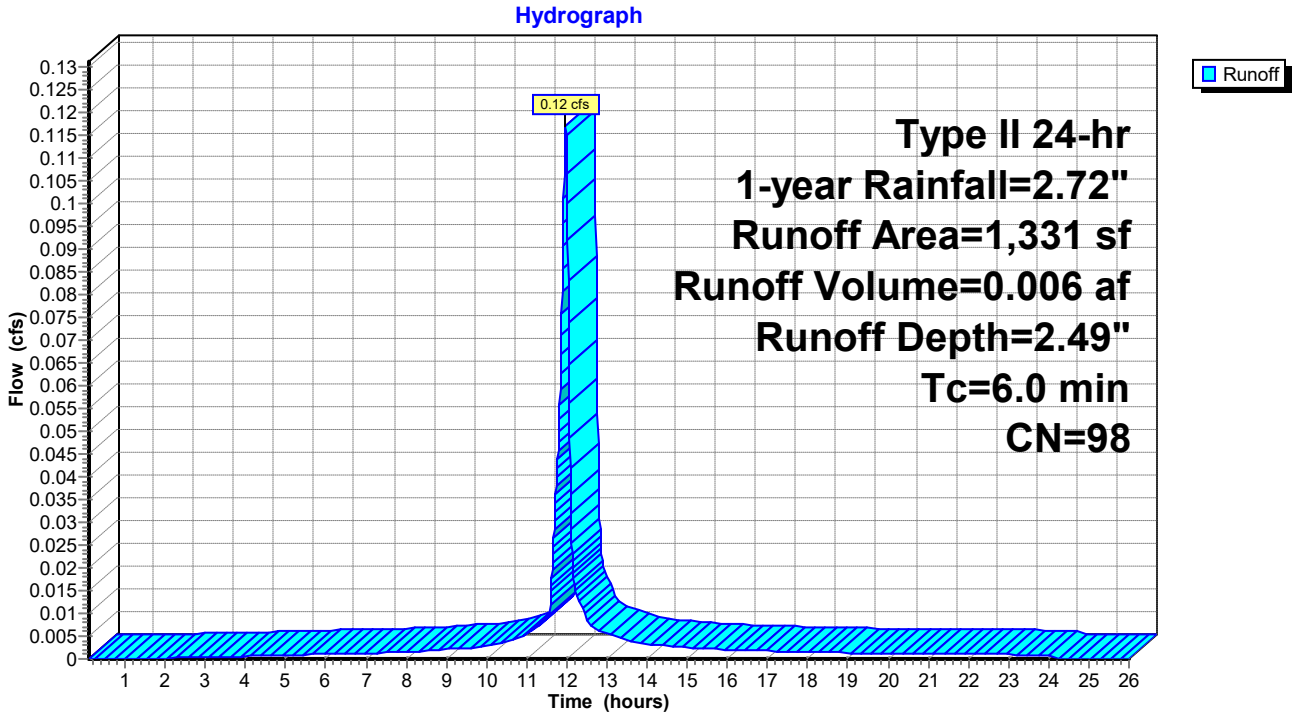
Runoff = 0.12 cfs @ 11.97 hrs, Volume= 0.006 af, Depth= 2.49"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

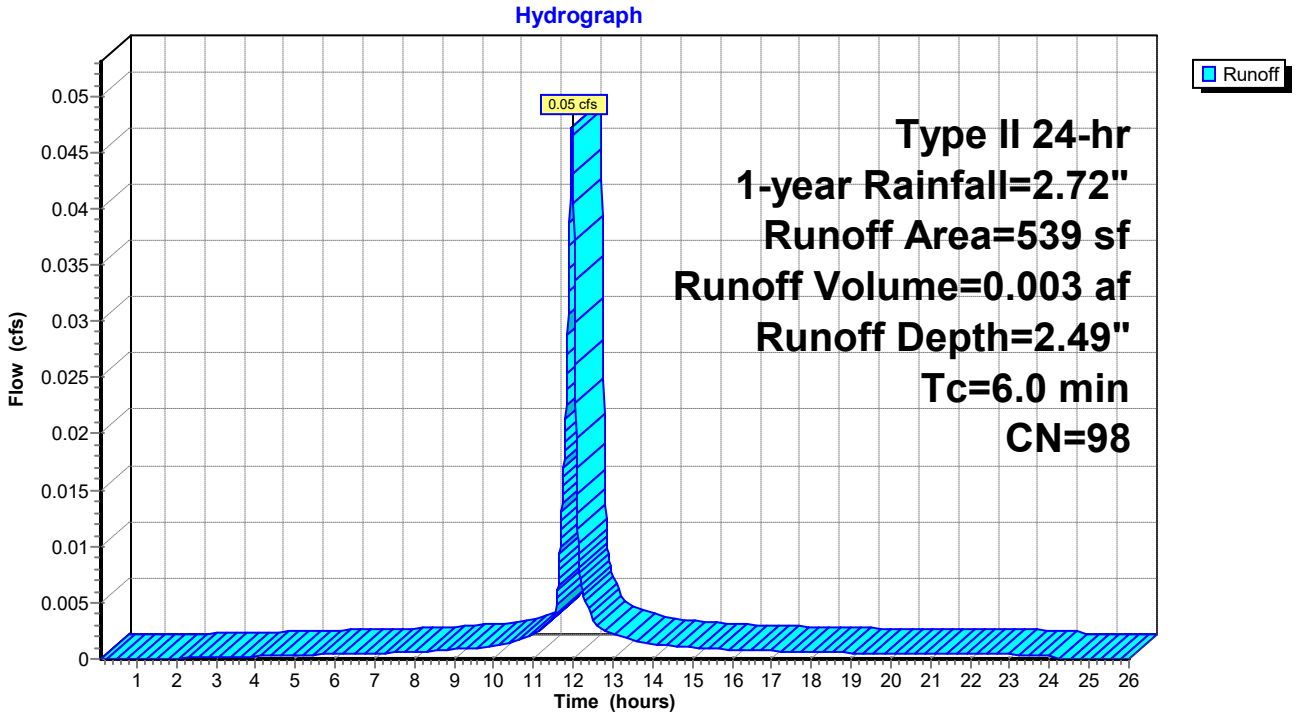
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 2.49"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

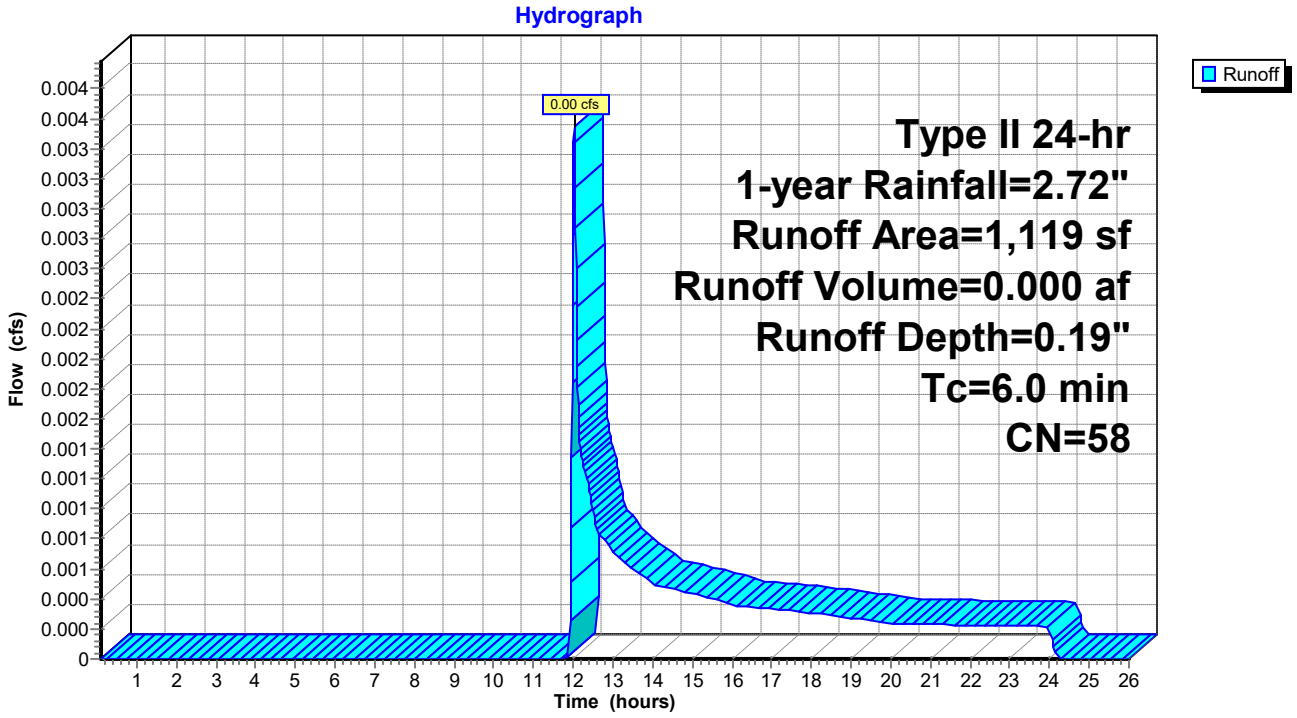
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

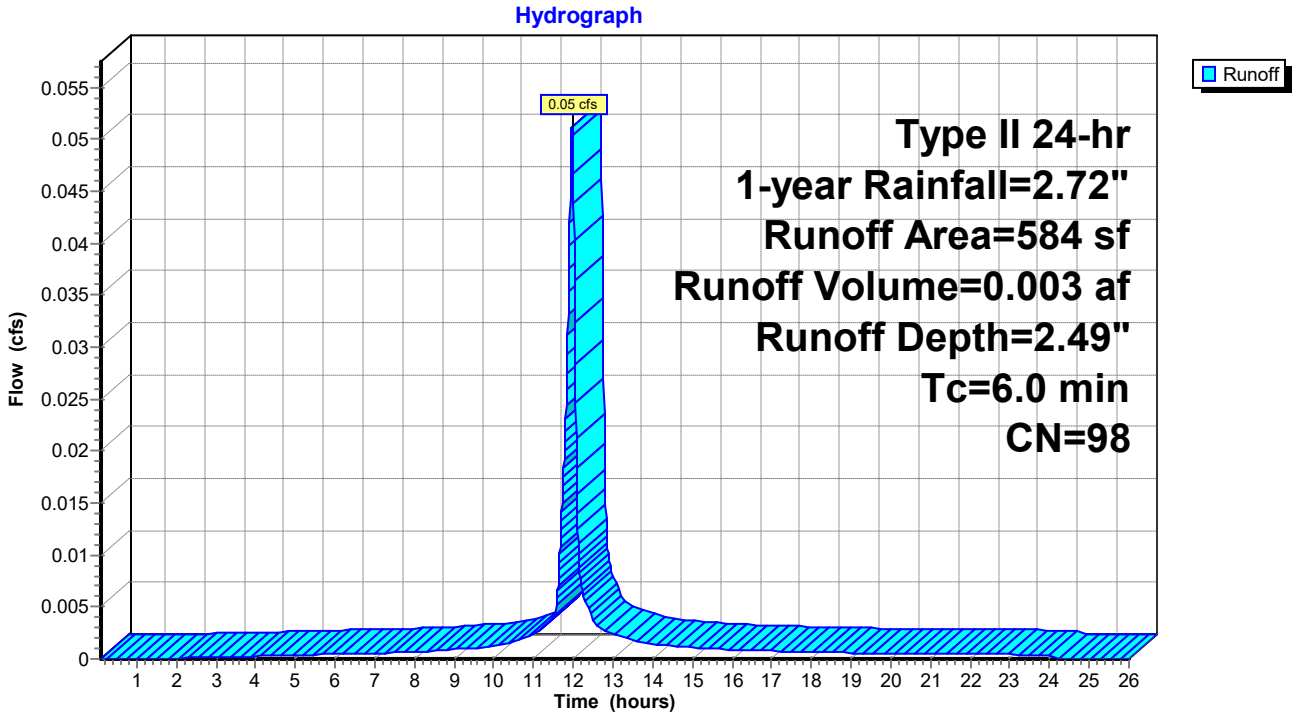
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 2.49"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

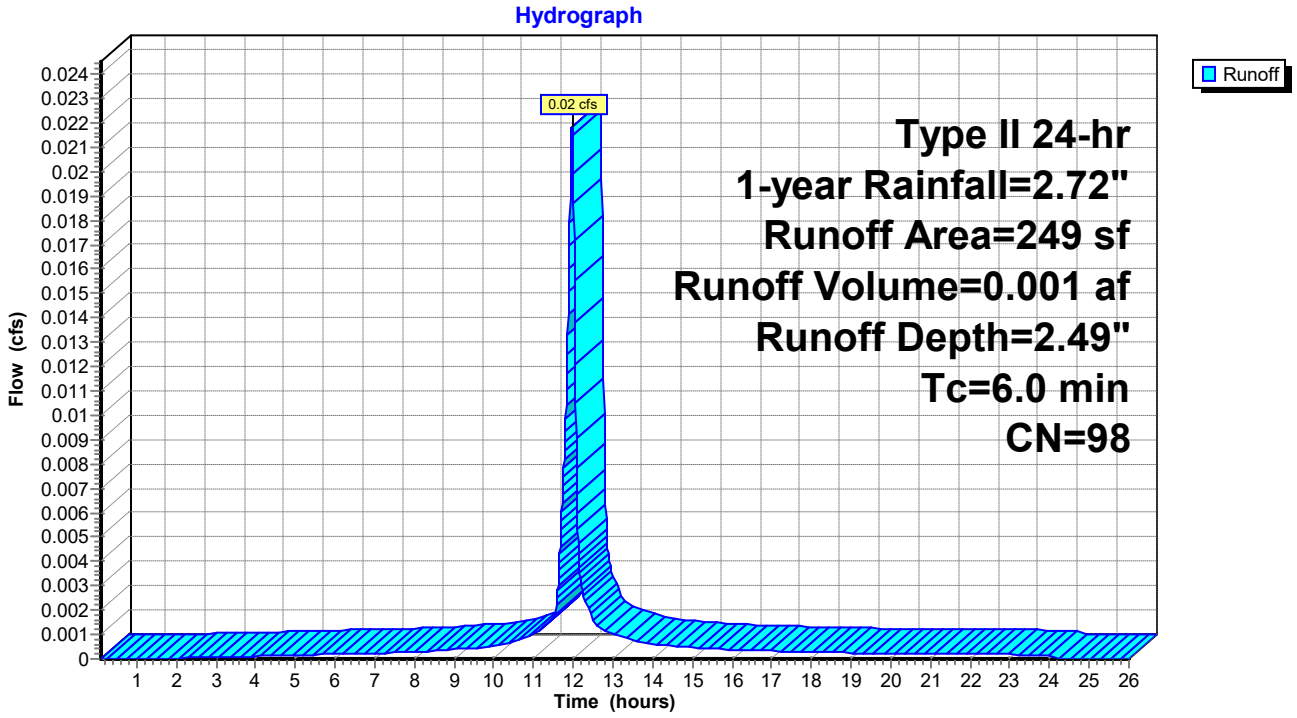
Runoff = 0.02 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

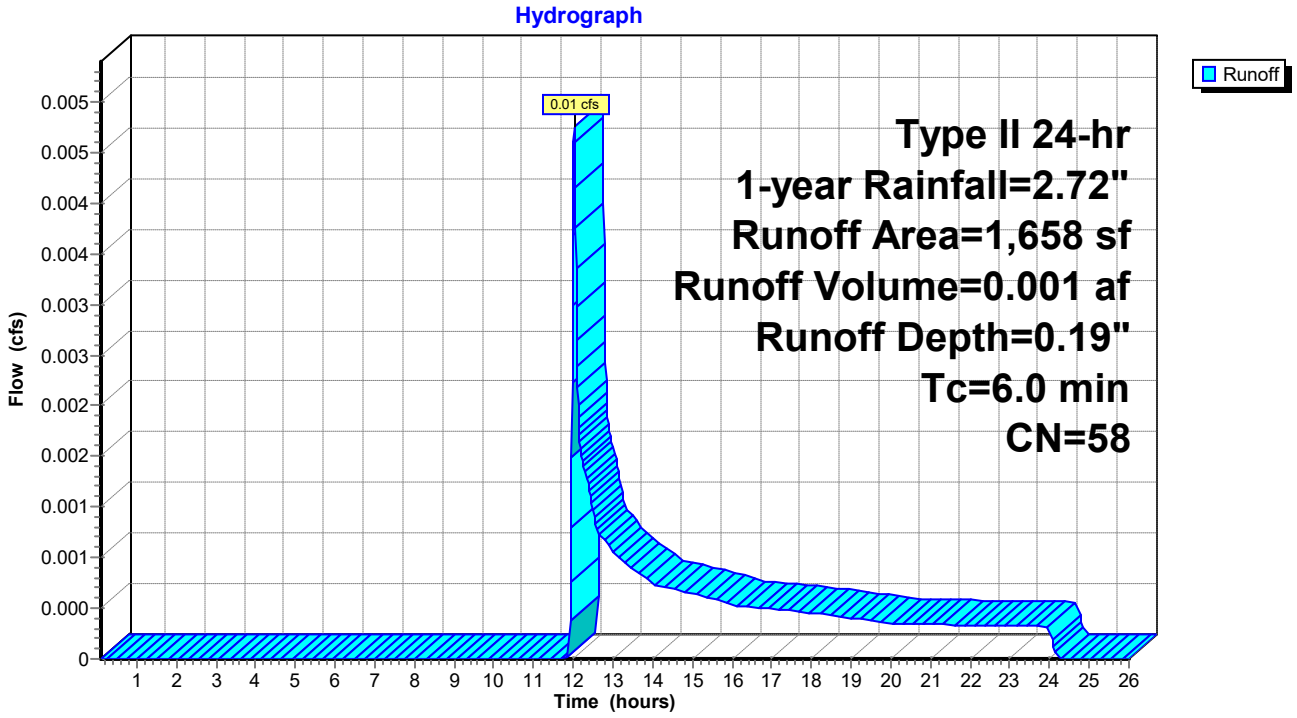
Runoff = 0.01 cfs @ 12.02 hrs, Volume= 0.001 af, Depth= 0.19"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

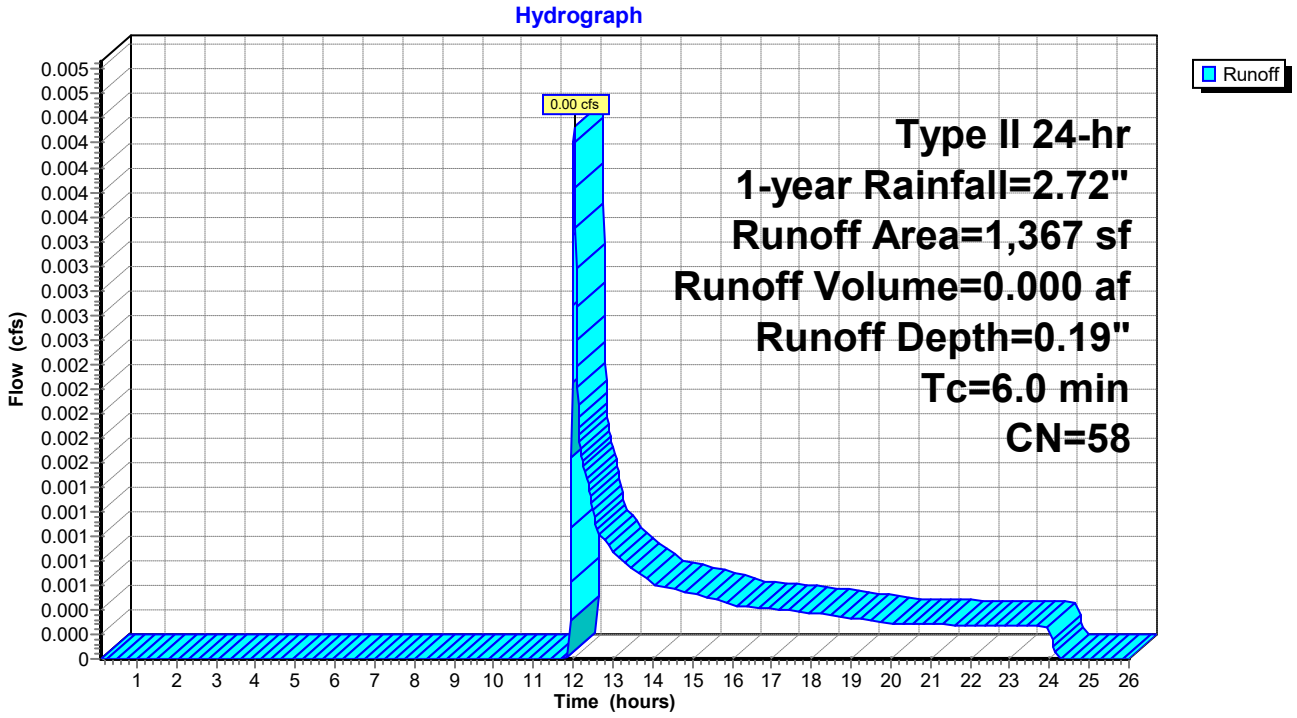
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

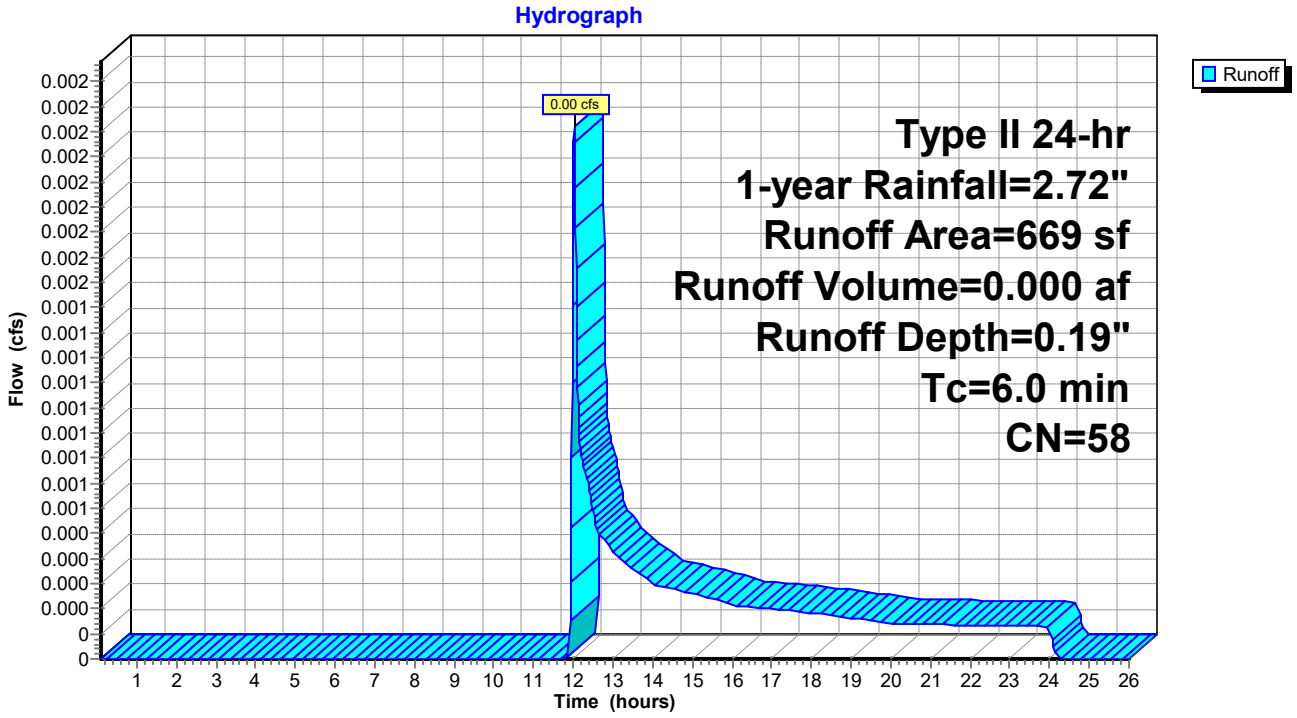
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

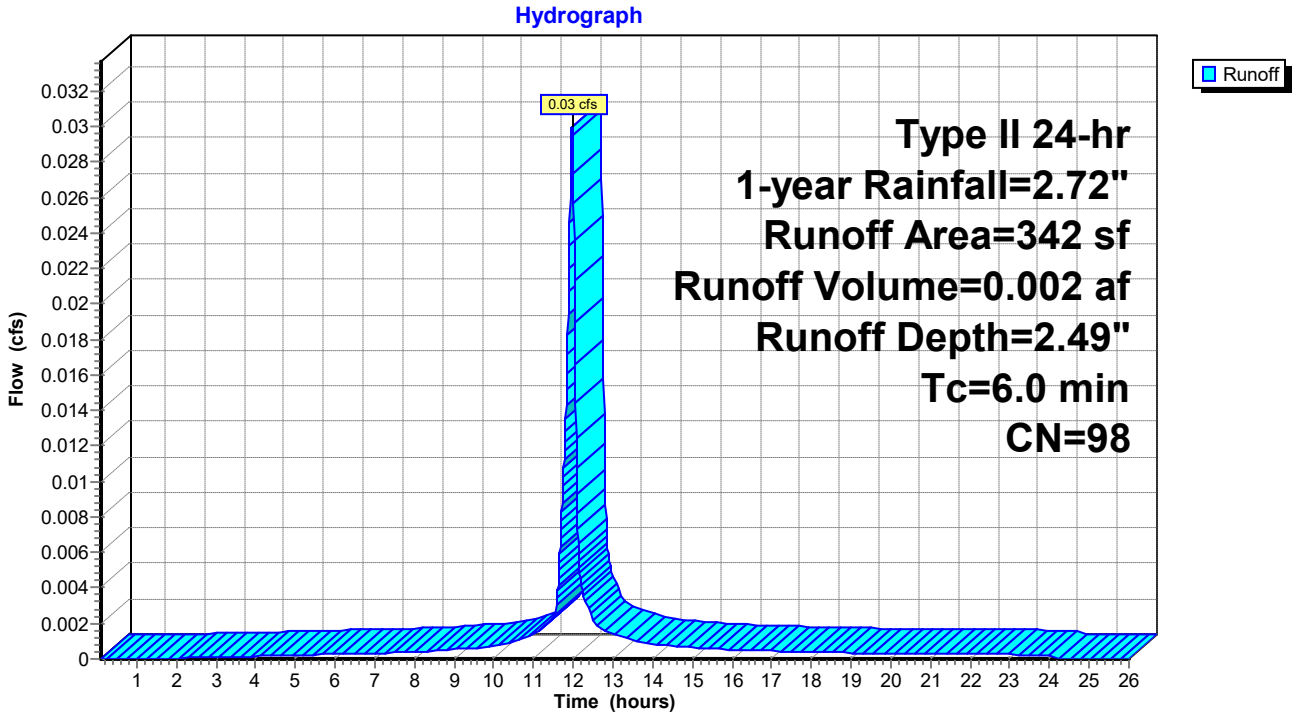
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

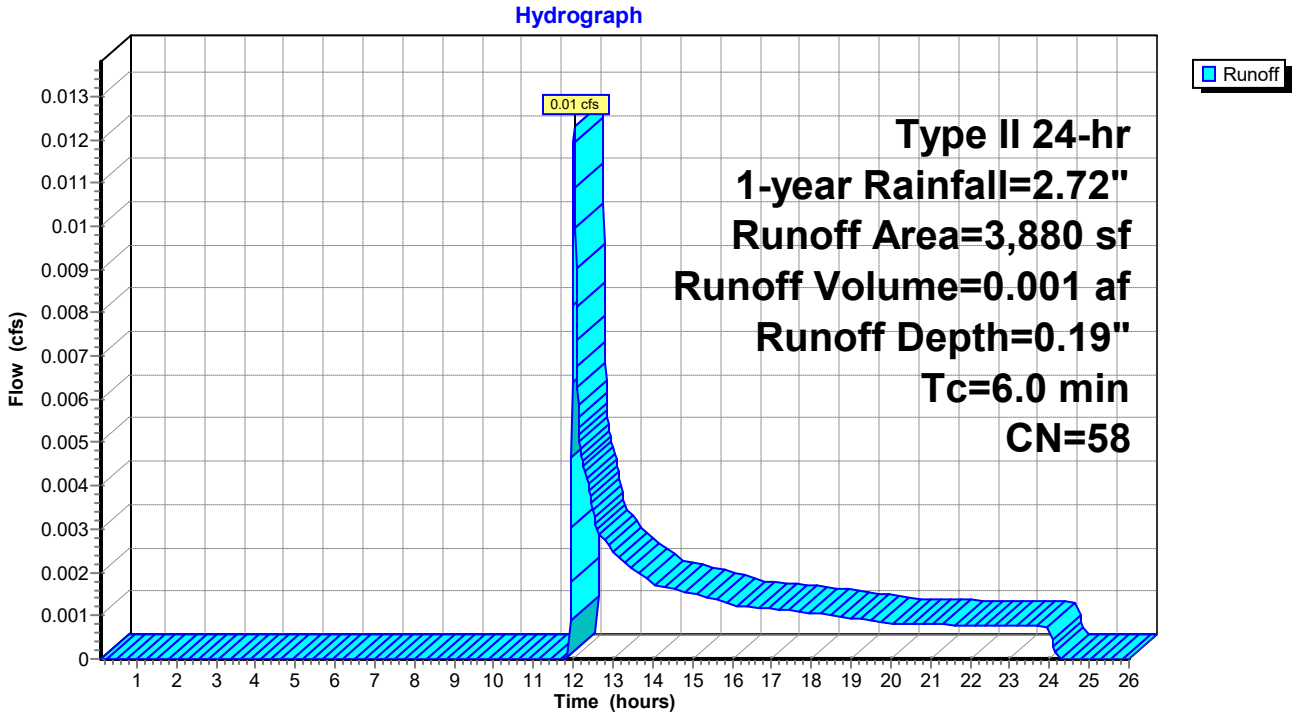
Runoff = 0.01 cfs @ 12.02 hrs, Volume= 0.001 af, Depth= 0.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

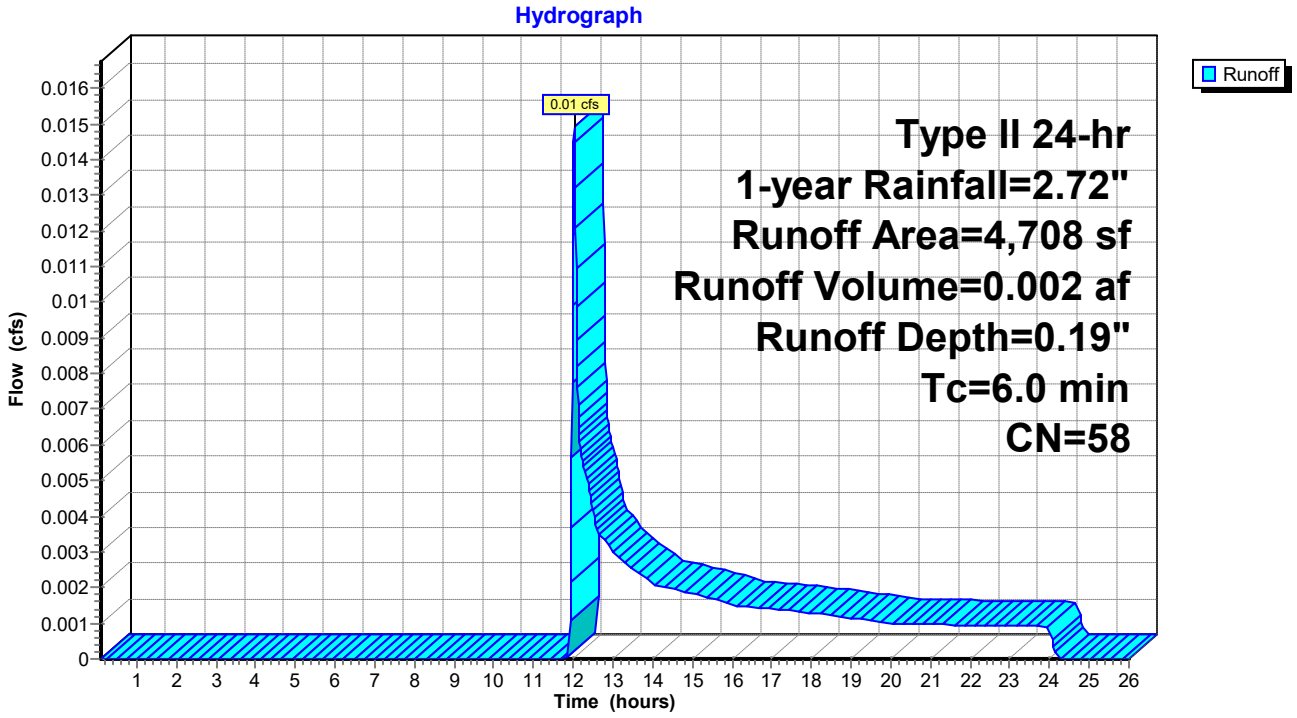
Runoff = 0.01 cfs @ 12.02 hrs, Volume= 0.002 af, Depth= 0.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

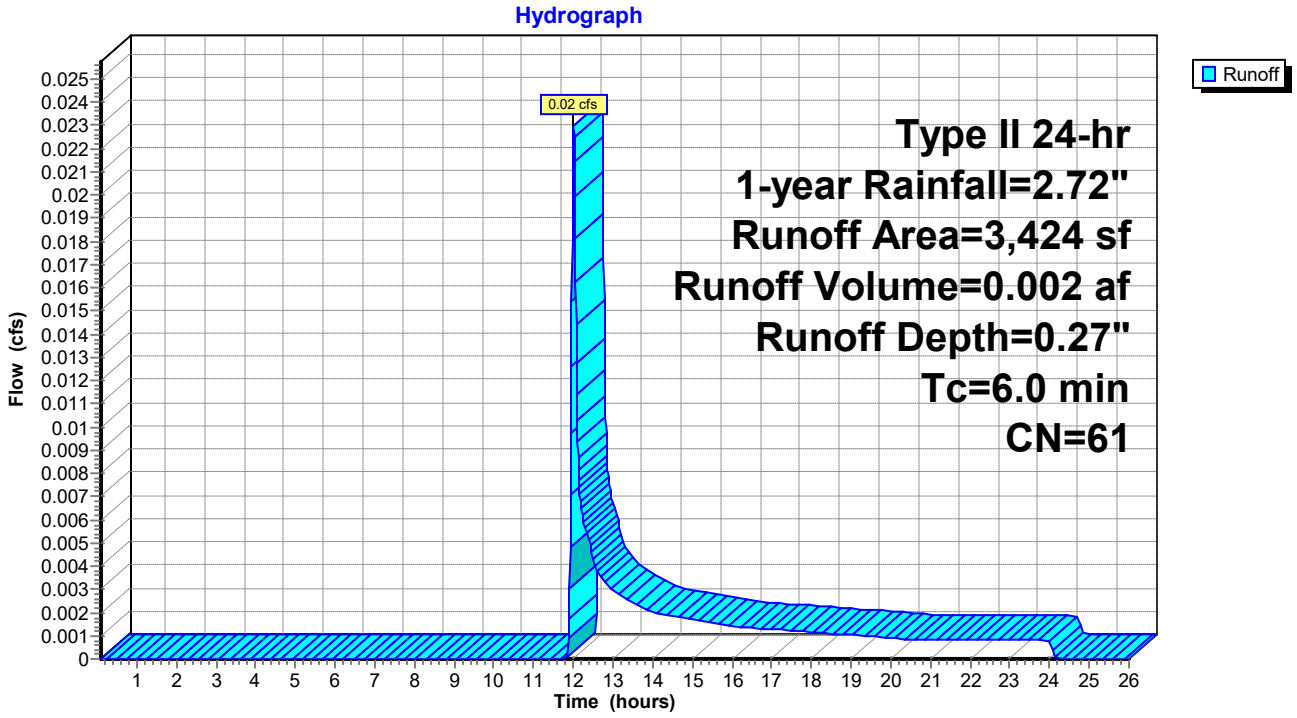
Runoff = 0.02 cfs @ 12.01 hrs, Volume= 0.002 af, Depth= 0.27"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

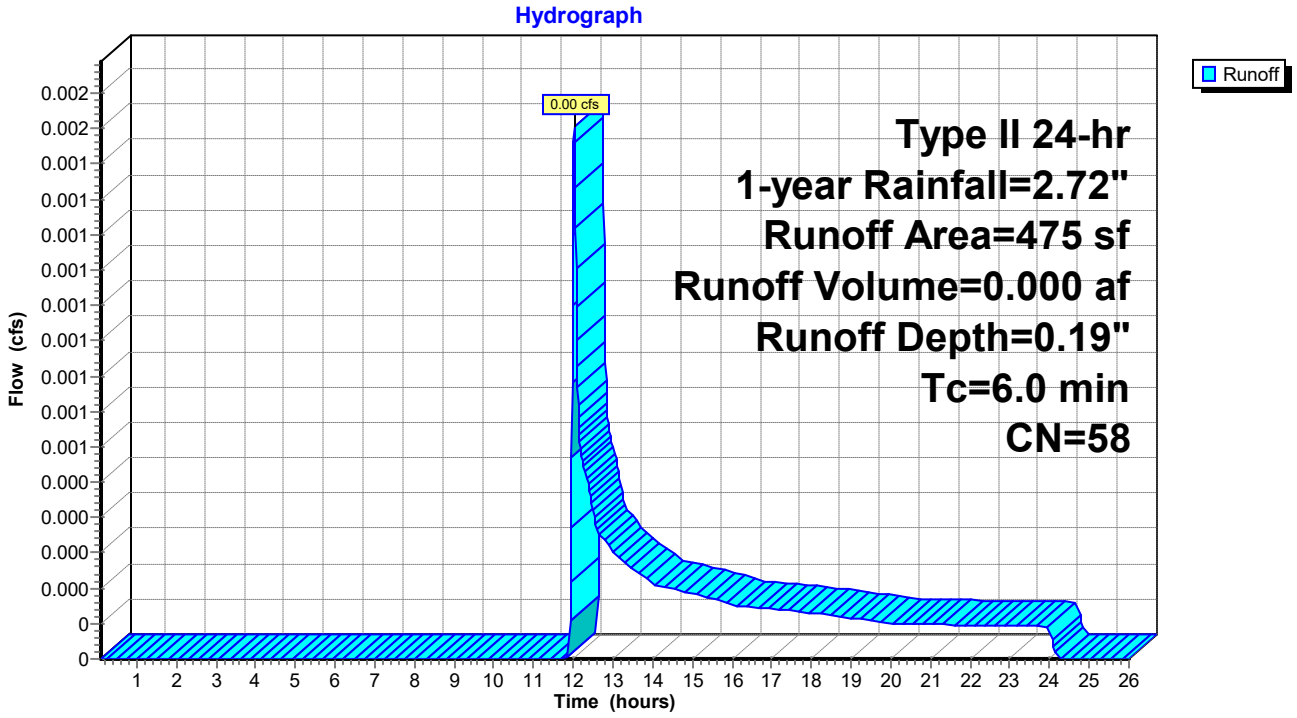
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

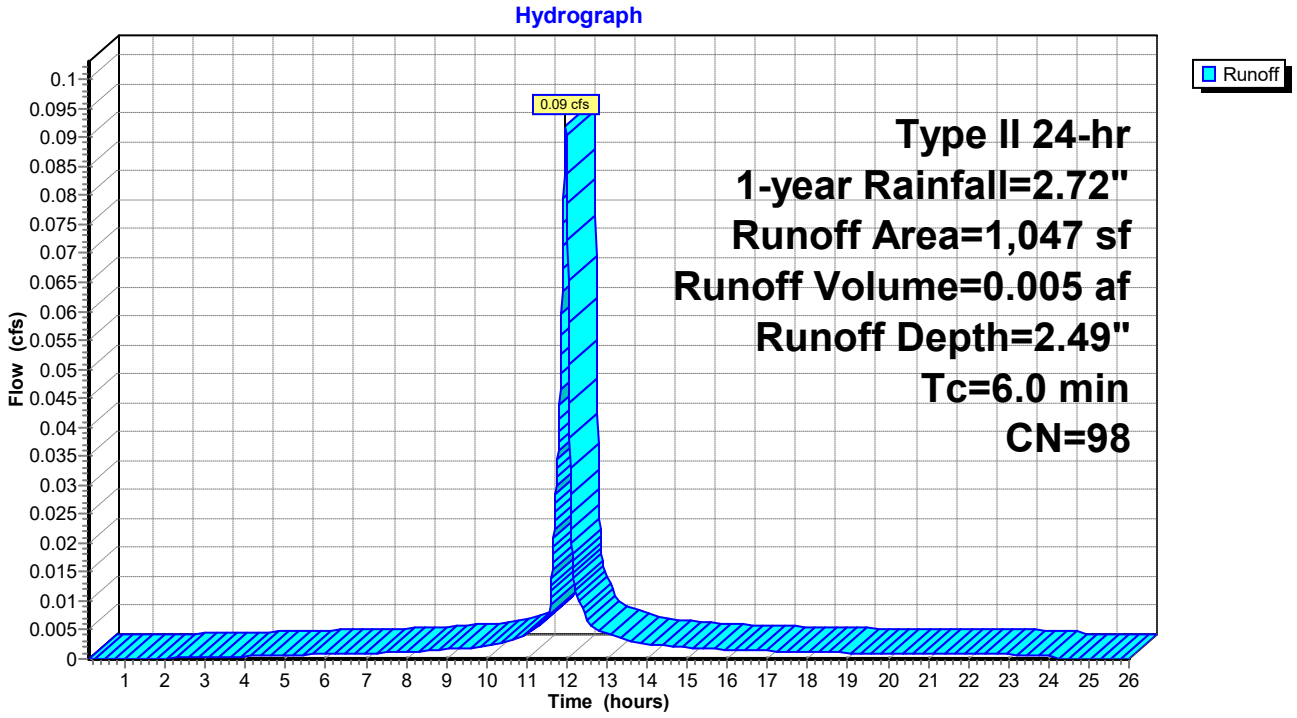
Runoff = 0.09 cfs @ 11.97 hrs, Volume= 0.005 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

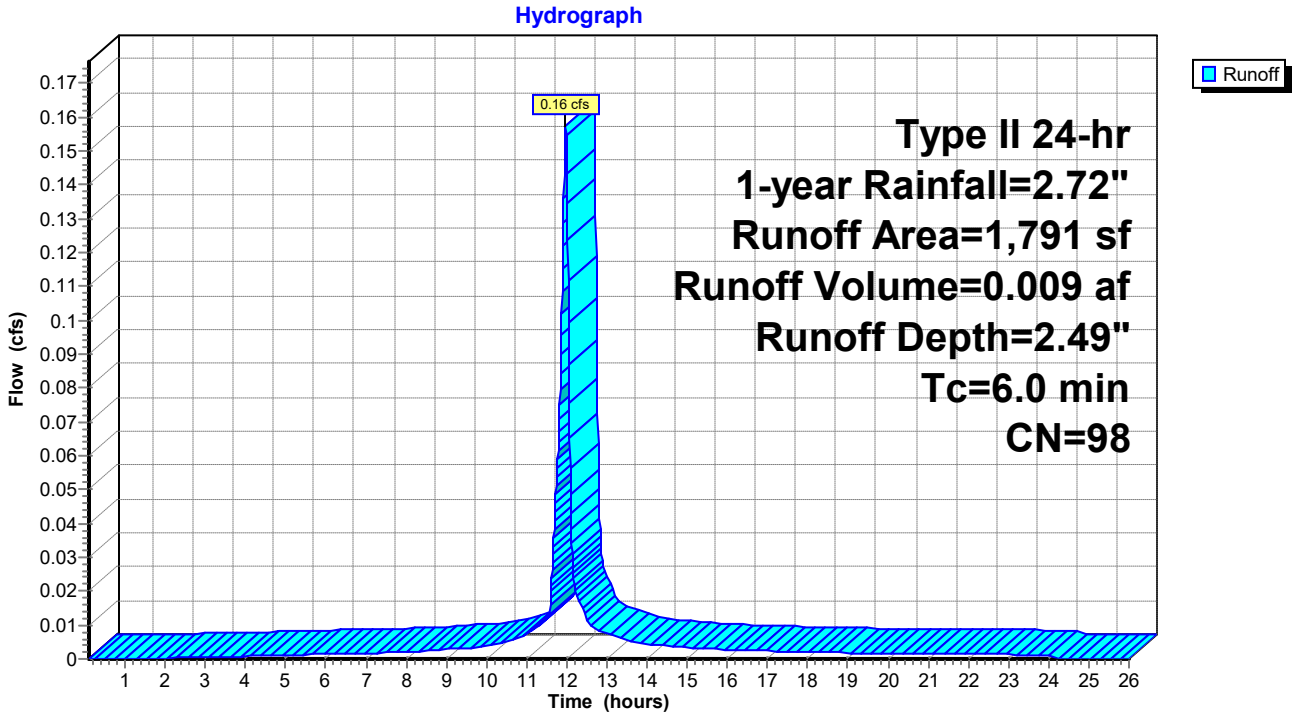
Runoff = 0.16 cfs @ 11.97 hrs, Volume= 0.009 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 1.42" for 1-year event
Inflow = 0.17 cfs @ 11.97 hrs, Volume= 0.010 af
Outflow = 0.00 cfs @ 24.06 hrs, Volume= 0.002 af, Atten= 99%, Lag= 725.3 min
Primary = 0.00 cfs @ 24.06 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.23' @ 24.06 hrs Surf.Area= 681 sf Storage= 347 cf

Plug-Flow detention time= 441.6 min calculated for 0.002 af (20% of inflow)
Center-of-Mass det. time= 205.4 min (974.6 - 769.1)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

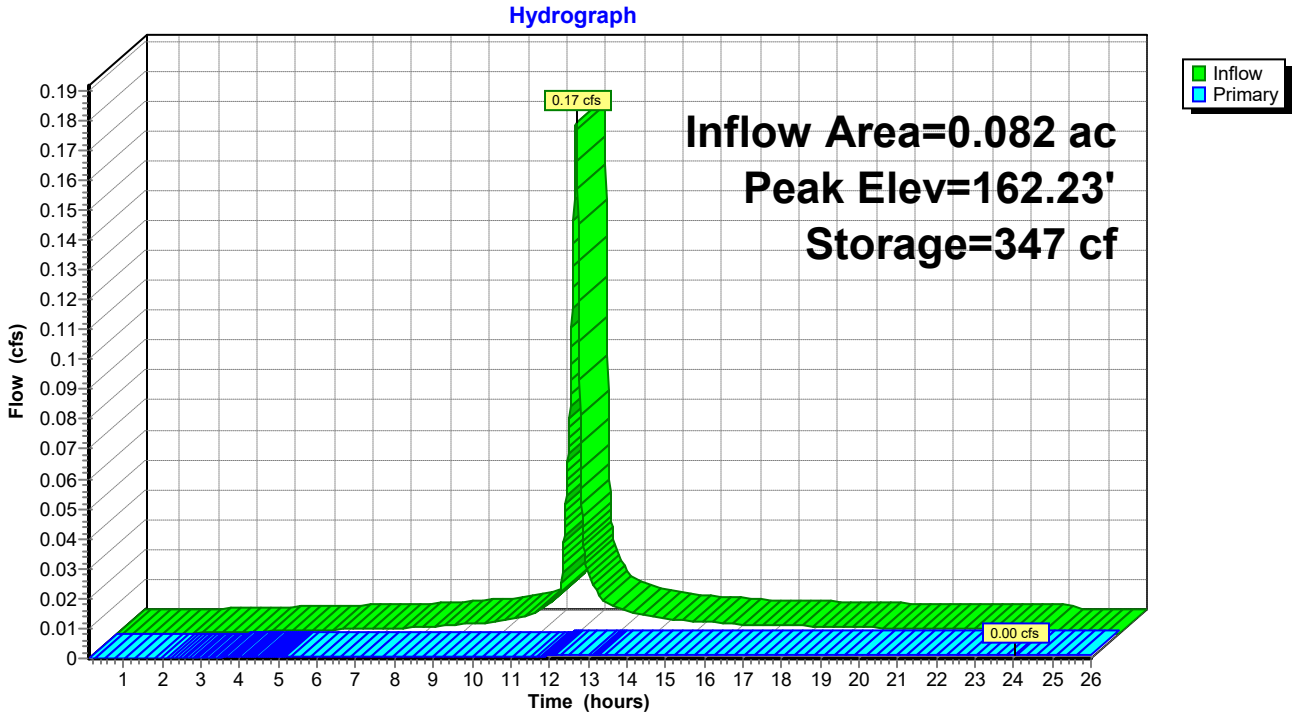
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.06 hrs HW=162.23' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.17 cfs
0.00 cfs
Inflow Area=0.082 ac
Peak Elev=162.23'
Storage=347 cf
Flow (cfs)
Time (hours)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.19" for 1-year event
Inflow = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 16.47 hrs, Volume= 0.000 af, Atten= 90%, Lag= 266.7 min
Primary = 0.00 cfs @ 16.47 hrs, Volume= 0.000 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 160.10' @ 16.47 hrs Surf.Area= 300 sf Storage= 6 cf

Plug-Flow detention time= 186.1 min calculated for 0.000 af (96% of inflow)
Center-of-Mass det. time= 167.2 min (1,133.3 - 966.1)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

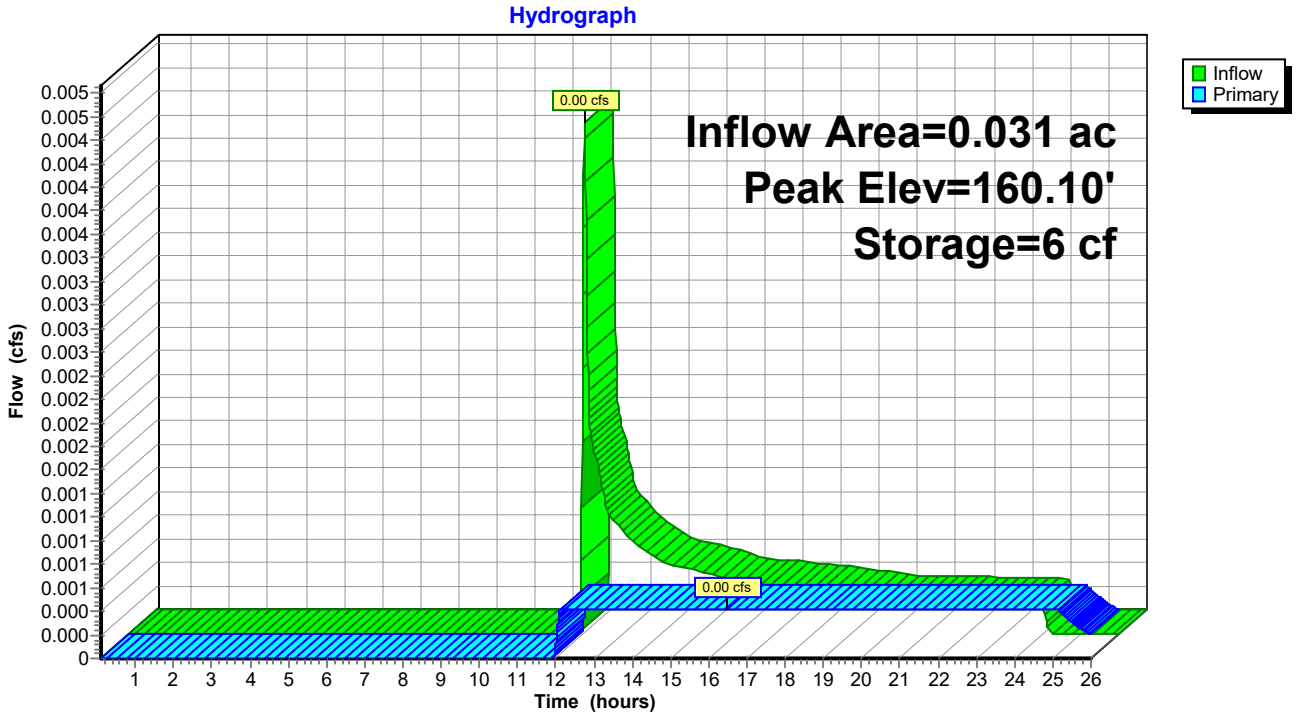
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 16.47 hrs HW=160.10' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.00 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=160.10'
Storage=6 cf
Flow (cfs)
0.005
0.005
0.004
0.004
0.004
0.004
0.004
0.003
0.003
0.003
0.003
0.003
0.002
0.002
0.002
0.002
0.002
0.001
0.001
0.001
0.001
0.001
0.000
0.000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 1.02" for 1-year event
Inflow = 0.17 cfs @ 11.98 hrs, Volume= 0.010 af
Outflow = 0.17 cfs @ 11.99 hrs, Volume= 0.007 af, Atten= 1%, Lag= 0.7 min
Primary = 0.17 cfs @ 11.99 hrs, Volume= 0.007 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.55' @ 11.99 hrs Surf.Area= 186 sf Storage= 162 cf

Plug-Flow detention time= 208.4 min calculated for 0.007 af (65% of inflow)
Center-of-Mass det. time= 89.3 min (877.1 - 787.8)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

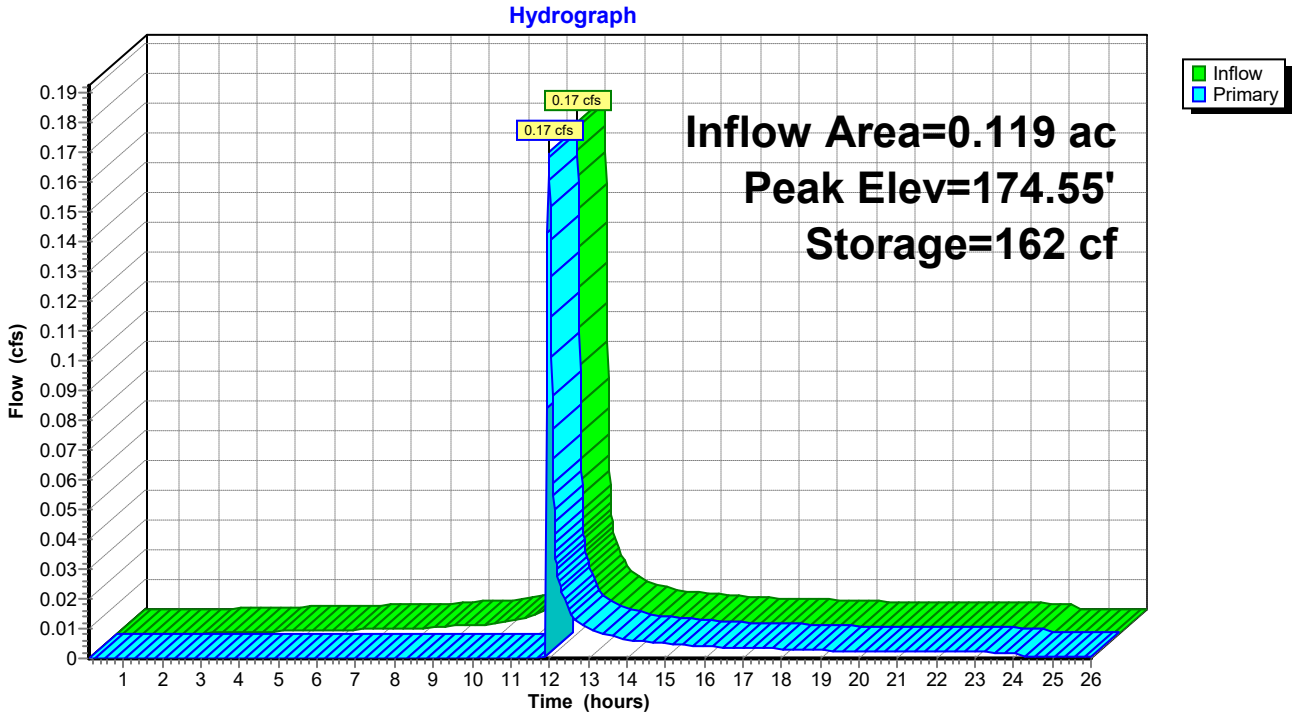
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.16 cfs @ 11.99 hrs HW=174.55' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.16 cfs @ 0.75 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.17 cfs
0.17 cfs
Inflow Area=0.119 ac
Peak Elev=174.55'
Storage=162 cf
Flow (cfs)
Time (hours)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 0.41" for 1-year event
Inflow = 0.06 cfs @ 11.99 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 14.90 hrs, Volume= 0.002 af, Atten= 95%, Lag= 174.3 min
Discarded = 0.00 cfs @ 14.90 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 14.90 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.51' @ 14.90 hrs Surf.Area= 171 sf Storage= 121 cf

Plug-Flow detention time= 406.3 min calculated for 0.002 af (39% of inflow)
Center-of-Mass det. time= 217.2 min (1,062.2 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

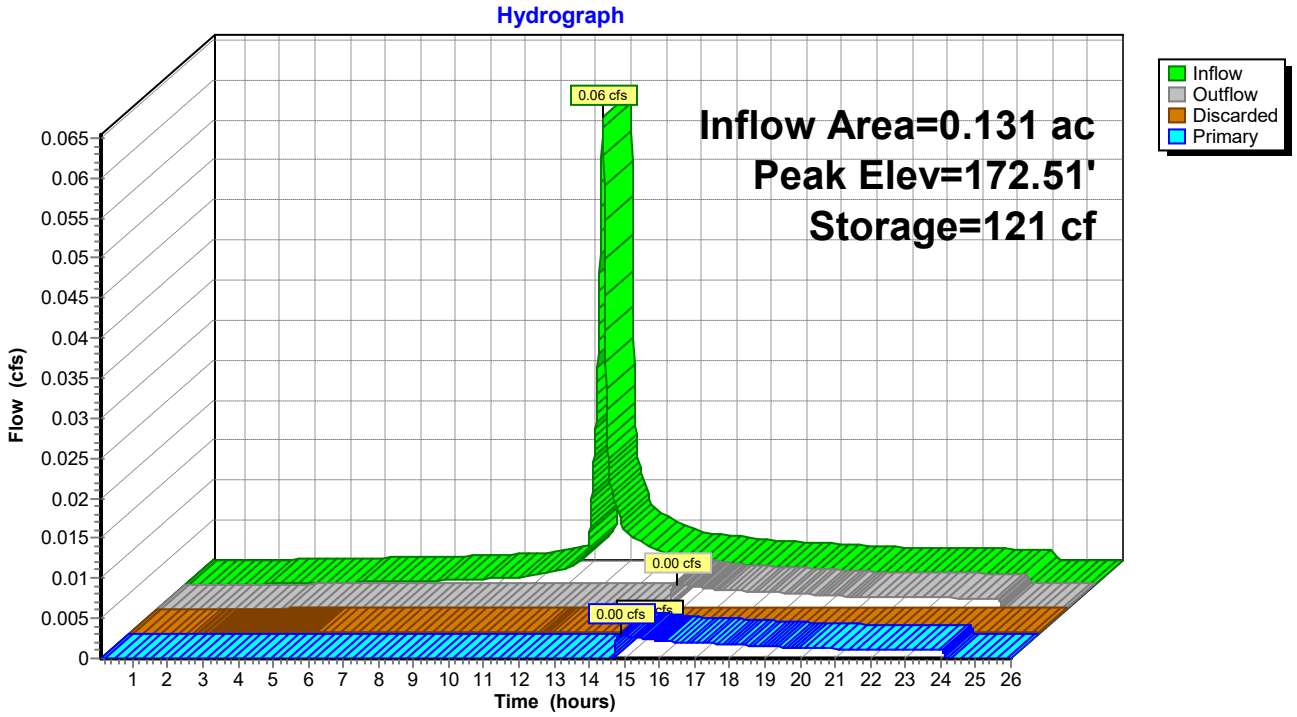
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 14.90 hrs HW=172.51' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 14.90 hrs HW=172.51' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.25 fps)

Pond RG-4: RG-4

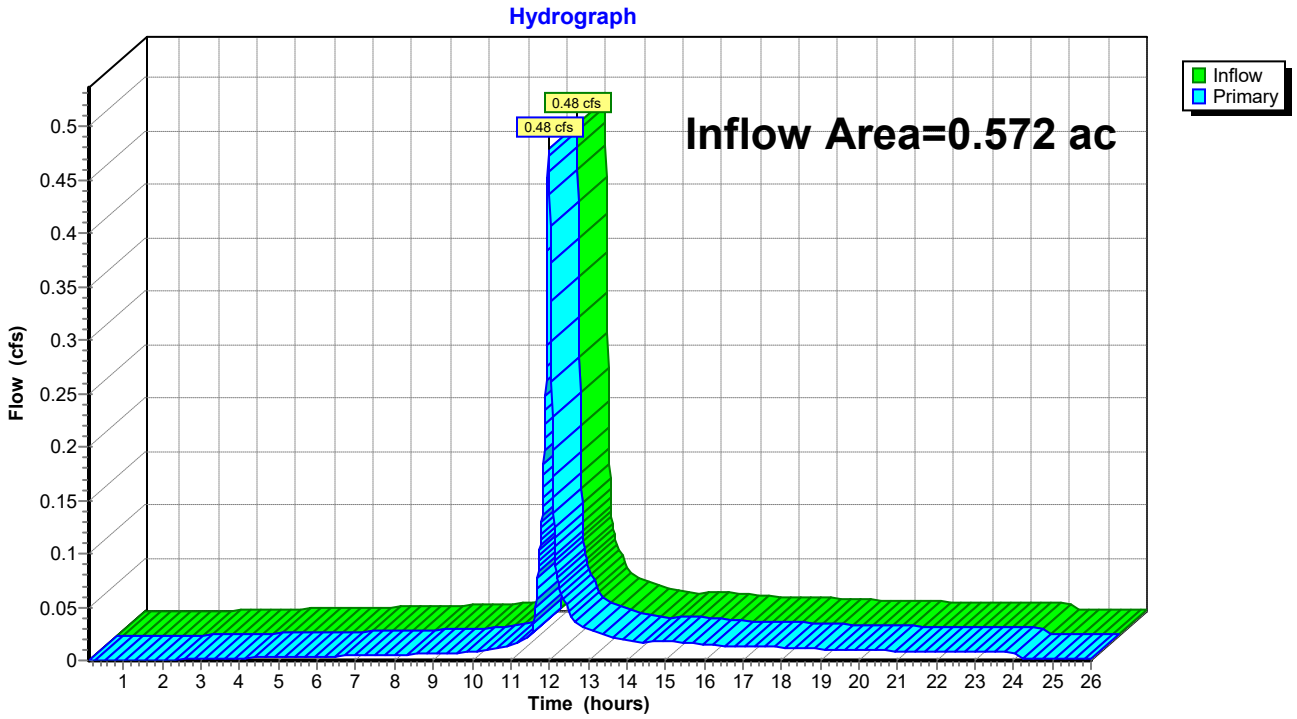

Hydrograph
Inflow
Outflow
Discarded
Primary
Inflow Area=0.131 ac
Peak Elev=172.51'
Storage=121 cf
0.06 cfs
0.00 cfs
0.00 cfs
Flow (cfs)
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 0.60" for 1-year event
Inflow = 0.48 cfs @ 11.98 hrs, Volume= 0.029 af
Primary = 0.48 cfs @ 11.98 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=1.03"
Flow Length=487' Tc=13.0 min CN=73 Runoff=0.79 cfs 0.049 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.010 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.008 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.003 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.003 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.001 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.02 cfs 0.001 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.000 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.002 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.003 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.003 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=0.48"
Tc=6.0 min CN=61 Runoff=0.05 cfs 0.003 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.000 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.006 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.010 af

Pond RG-1: RG-1 Peak Elev=162.64' Storage=455 cf Inflow=0.22 cfs 0.012 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=160.39' Storage=23 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.57' Storage=164 cf Inflow=0.24 cfs 0.013 af
Outflow=0.24 cfs 0.010 af

Pond RG-4: RG-4 Peak Elev=172.53' Storage=123 cf Inflow=0.11 cfs 0.007 af
Discarded=0.00 cfs 0.000 af Primary=0.02 cfs 0.004 af Outflow=0.02 cfs 0.004 af

Link POA: POA Inflow=0.65 cfs 0.040 af
Primary=0.65 cfs 0.040 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.107 af Average Runoff Depth = 1.12"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

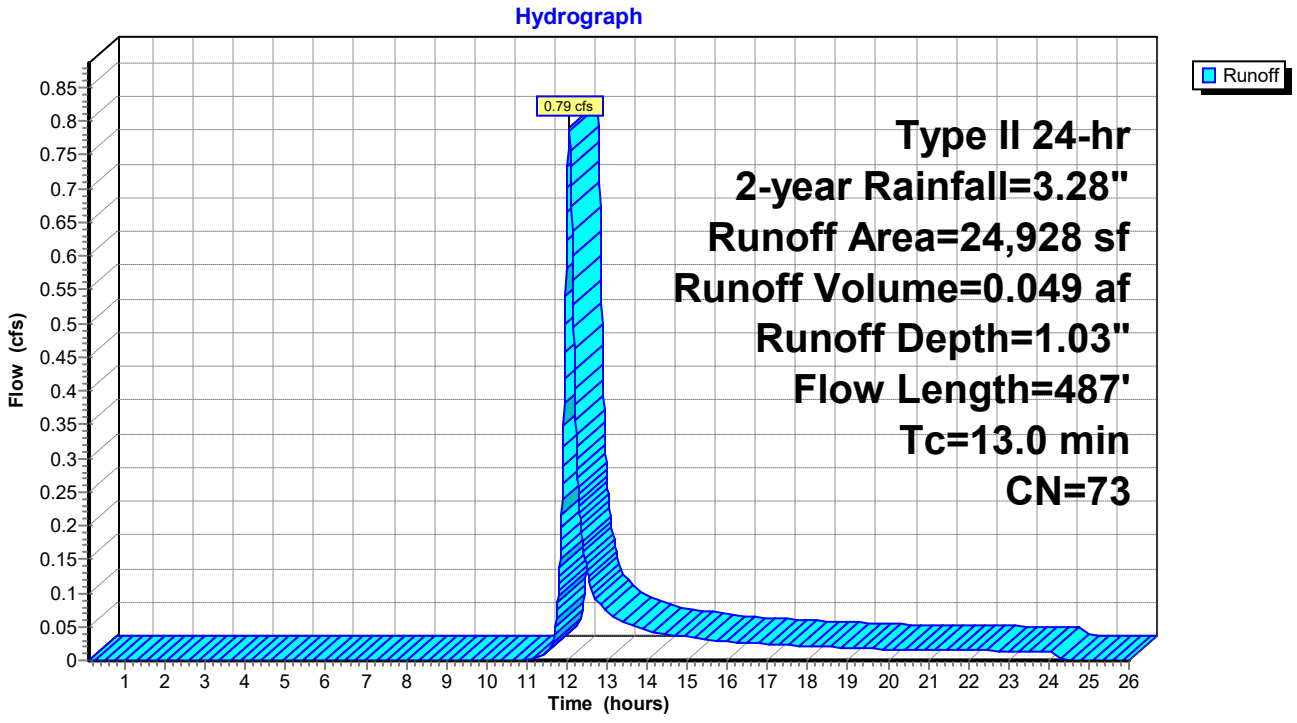
Runoff = 0.79 cfs @ 12.06 hrs, Volume= 0.049 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

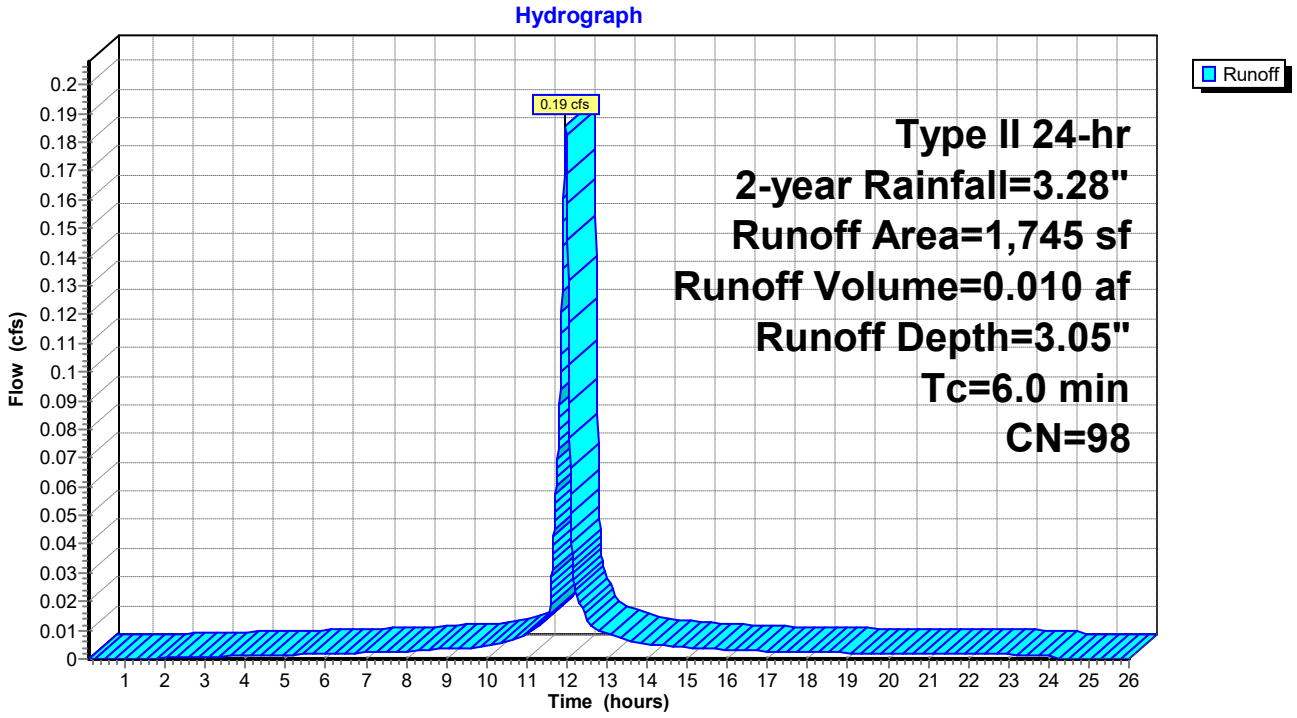
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.05"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

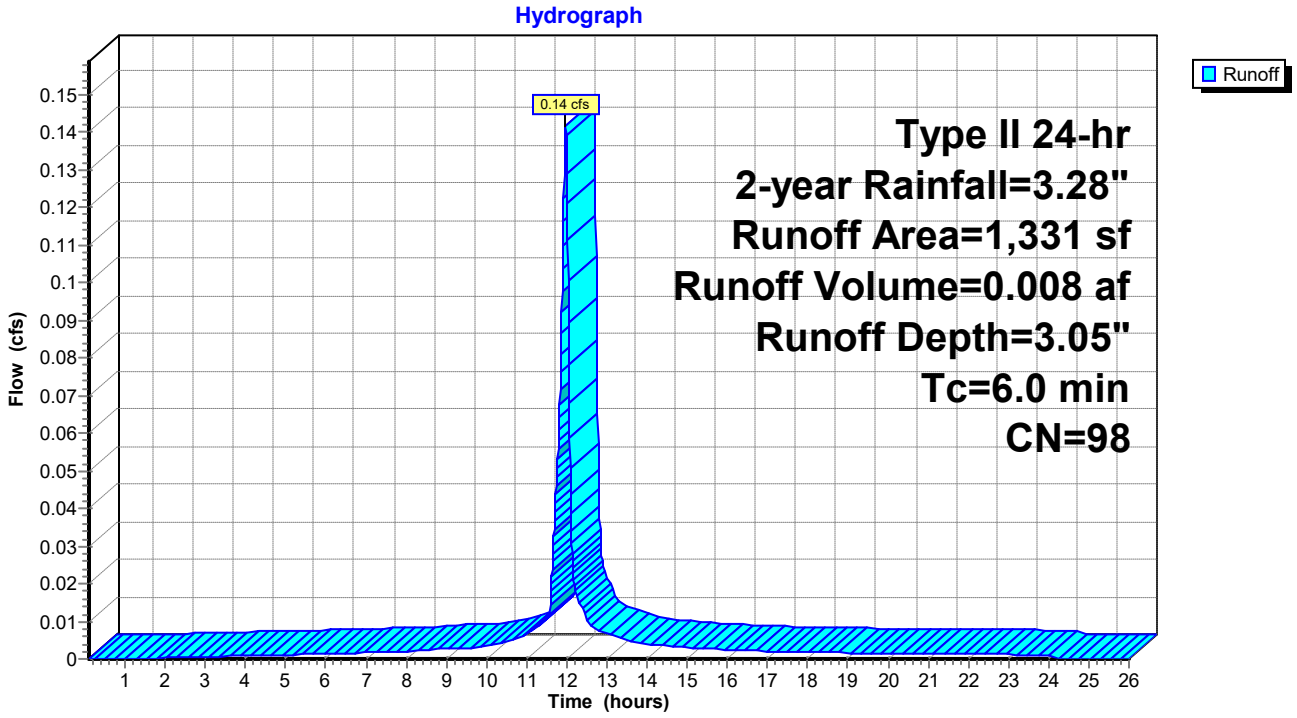
Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 3.05"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

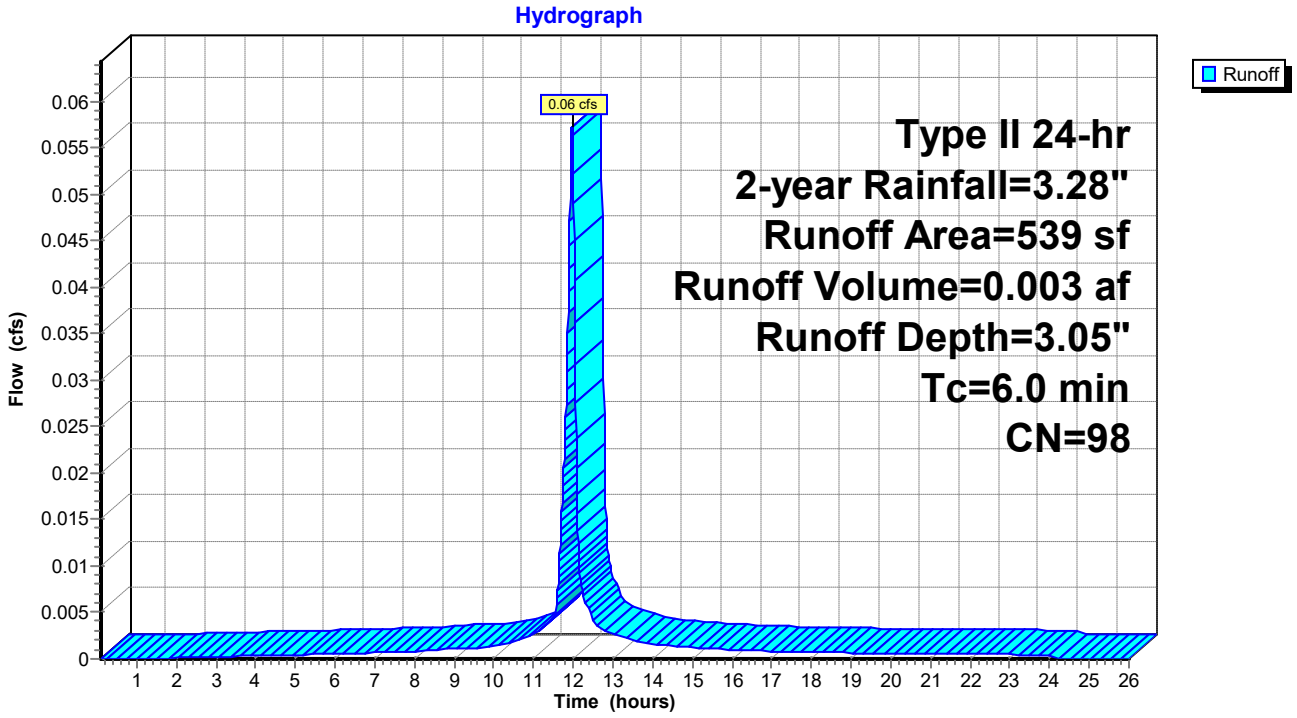
Runoff = 0.06 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 3.05"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

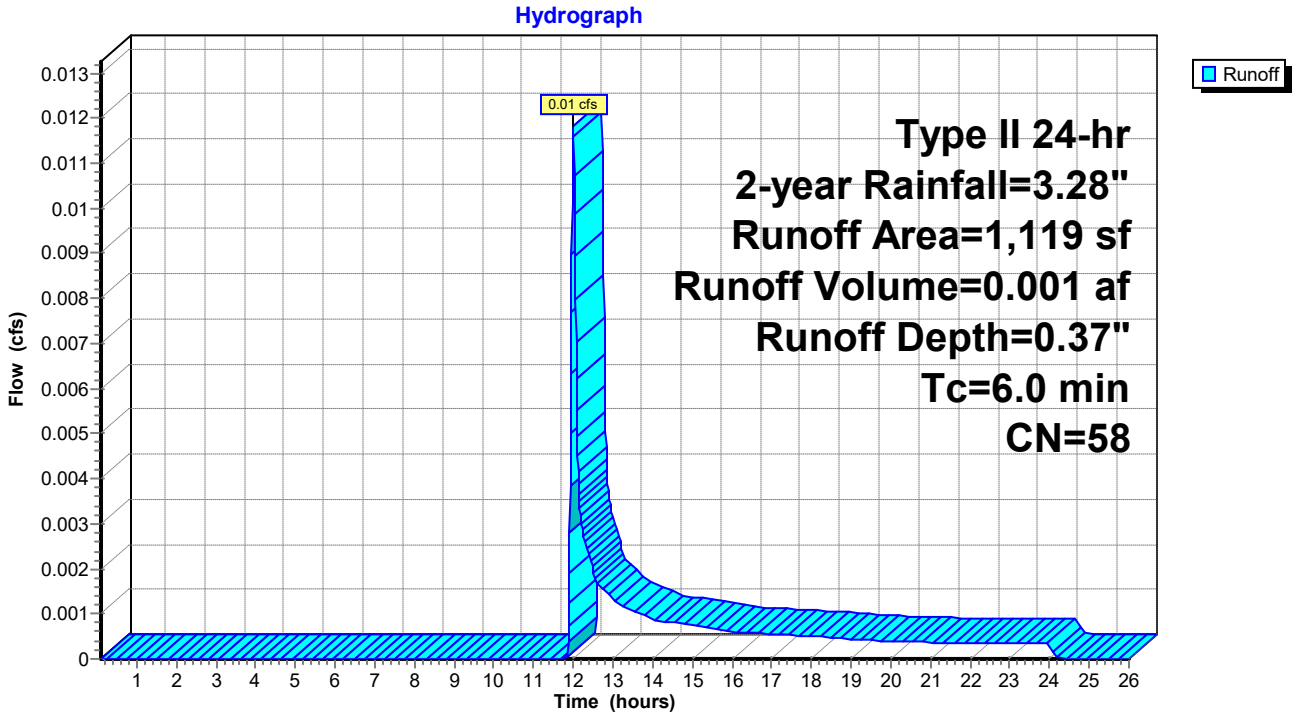
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af, Depth= 0.37"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

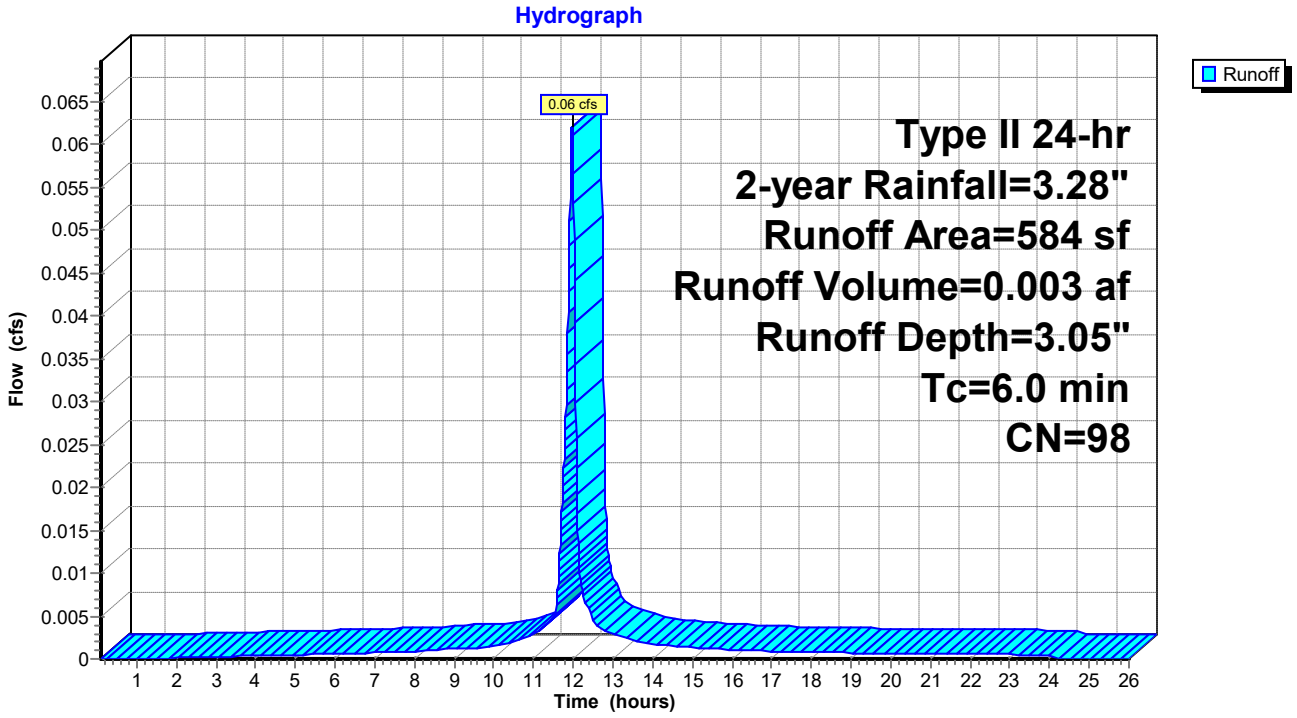
Runoff = 0.06 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 3.05"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

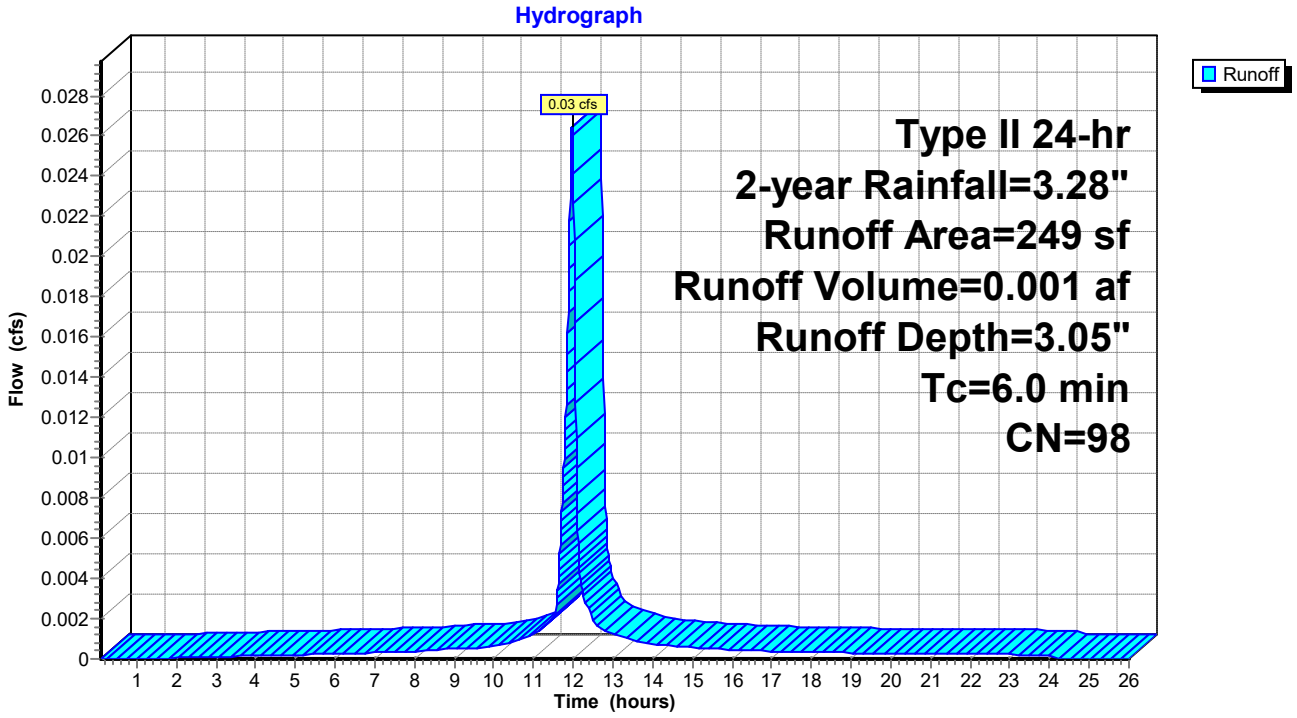
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

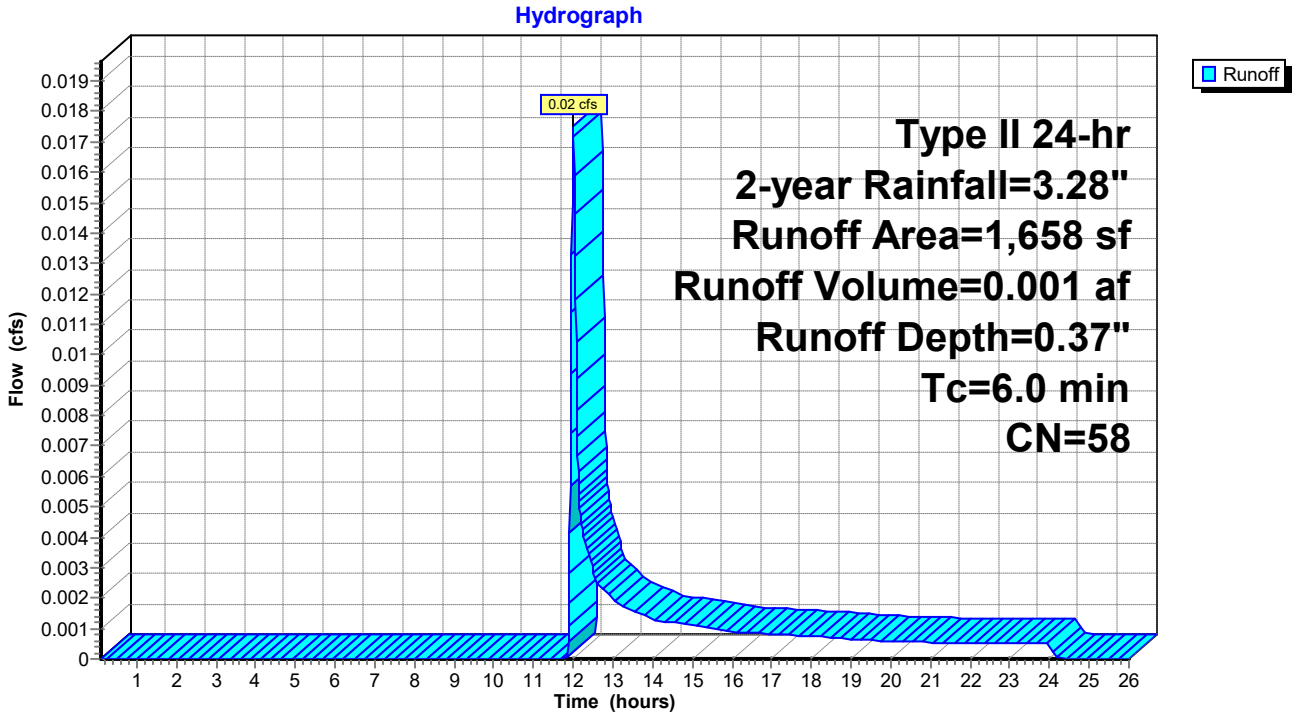
Runoff = 0.02 cfs @ 12.00 hrs, Volume= 0.001 af, Depth= 0.37"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

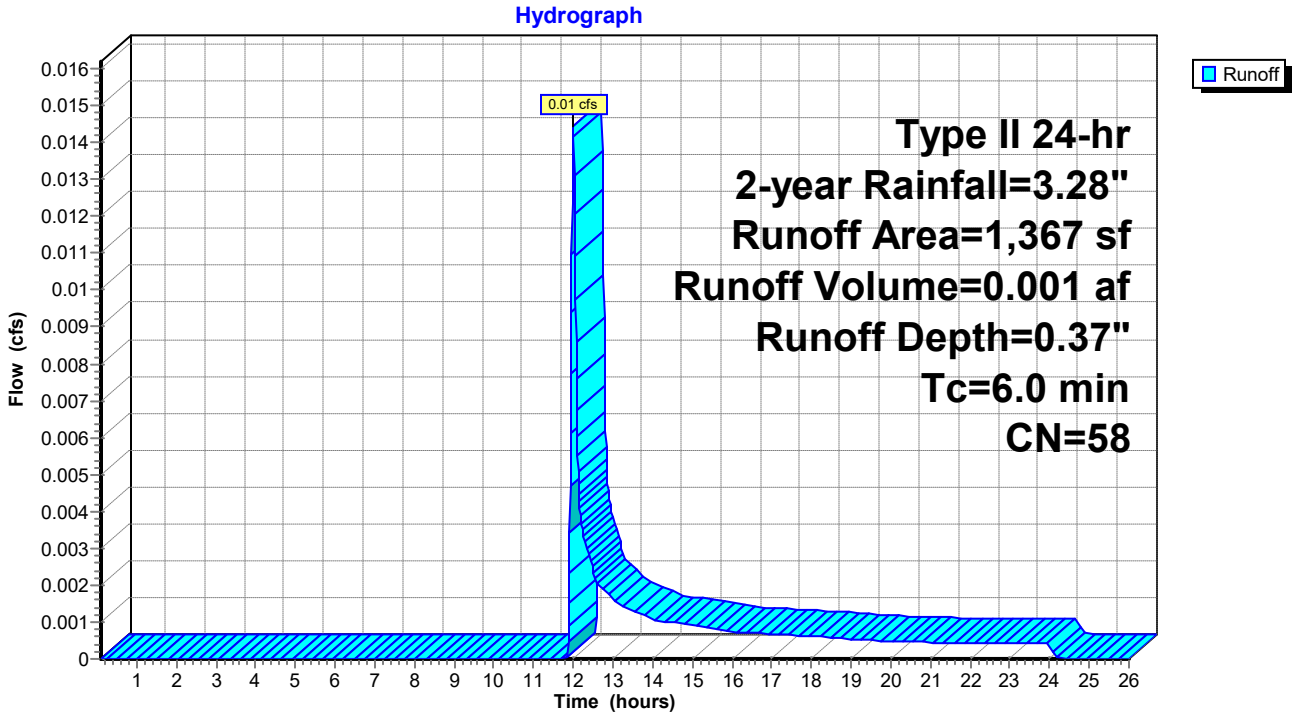
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af, Depth= 0.37"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

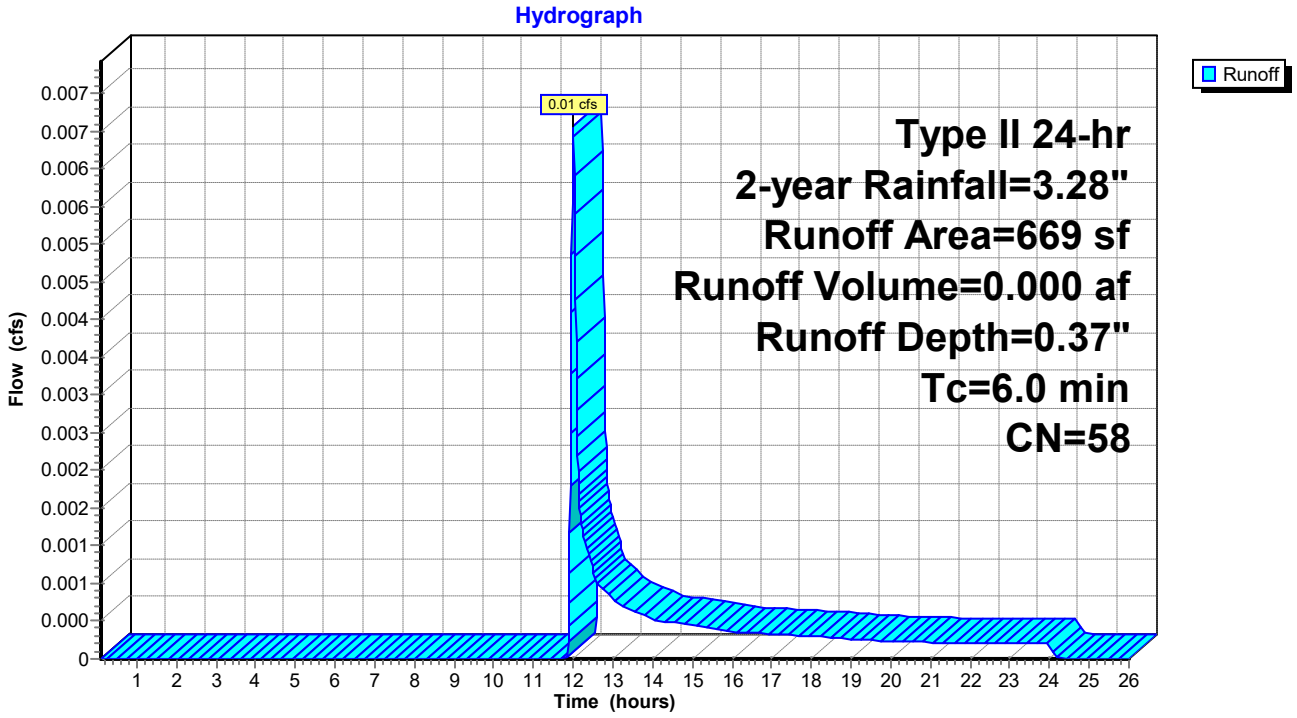
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.000 af, Depth= 0.37"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

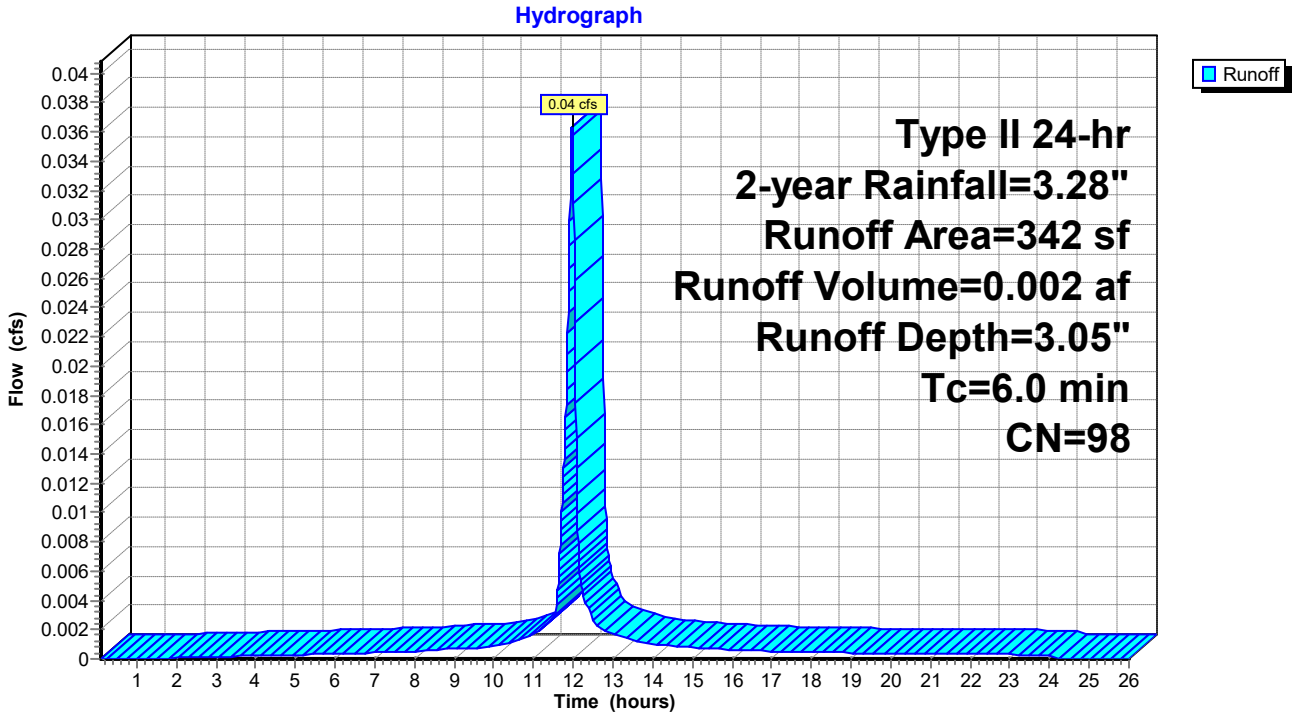
Runoff = 0.04 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

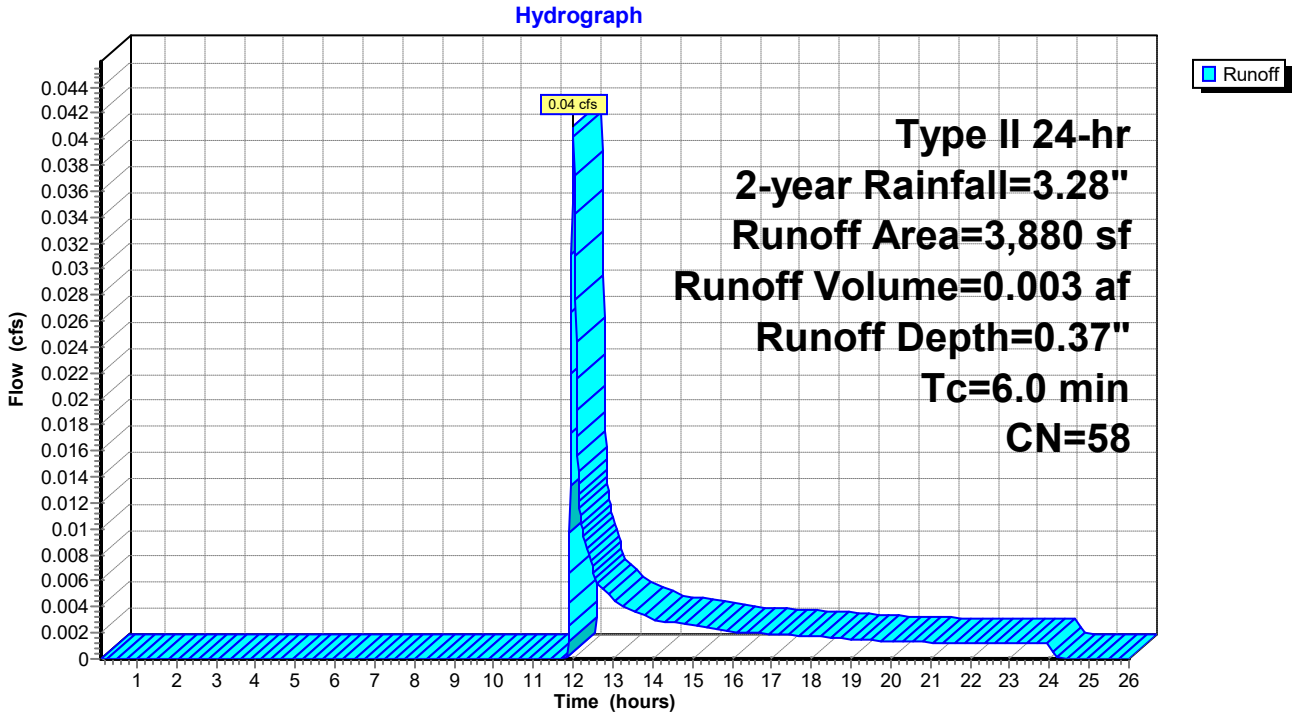
Runoff = 0.04 cfs @ 12.00 hrs, Volume= 0.003 af, Depth= 0.37"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

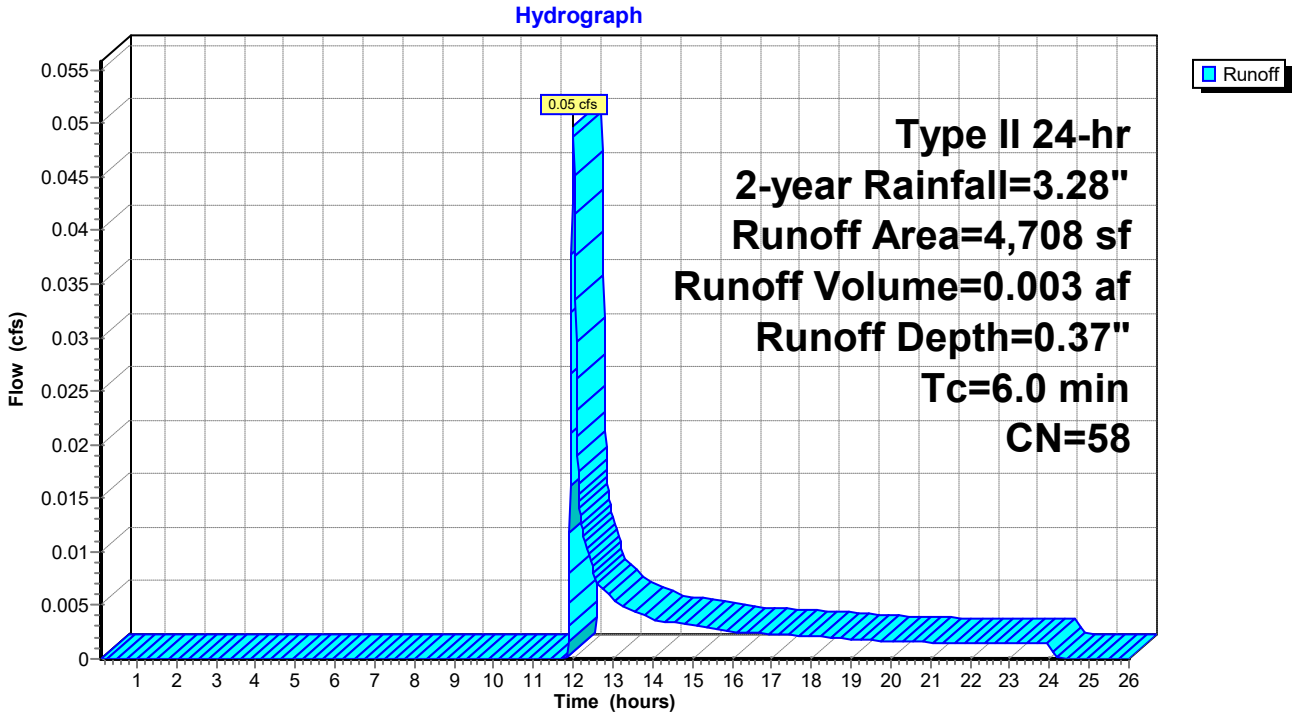
Runoff = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af, Depth= 0.37"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

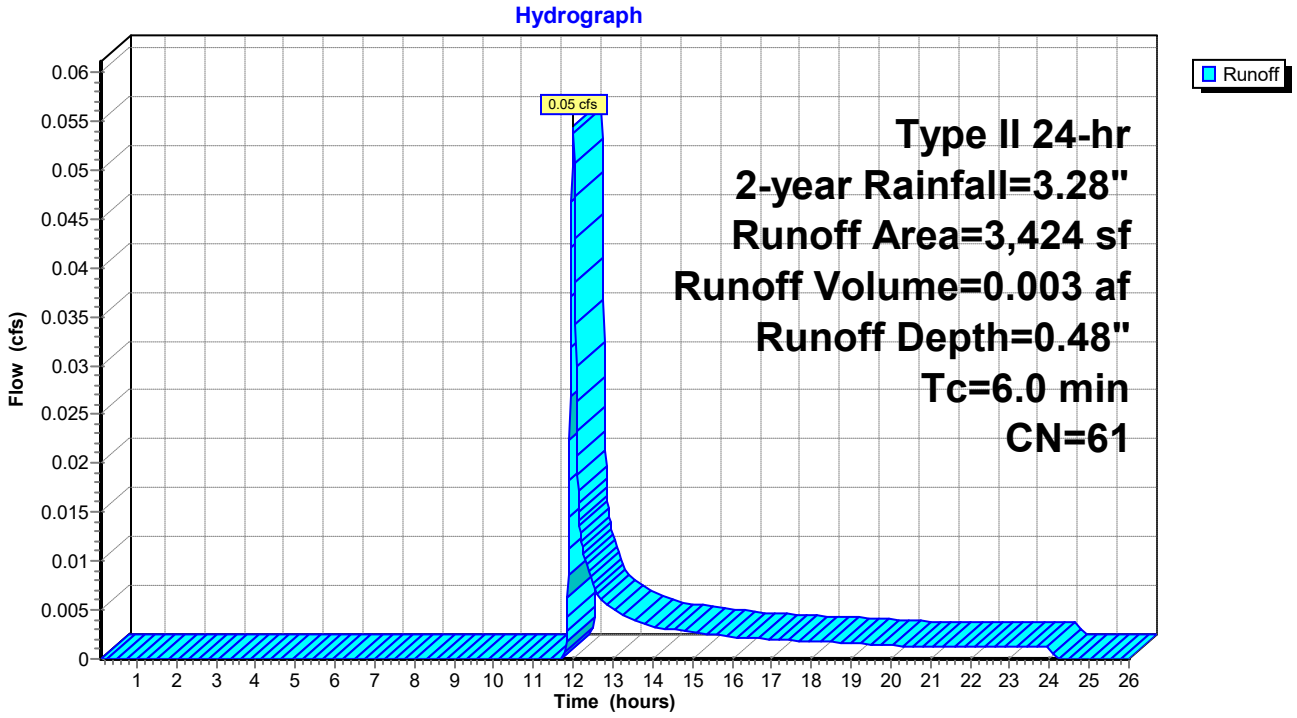
Runoff = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af, Depth= 0.48"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

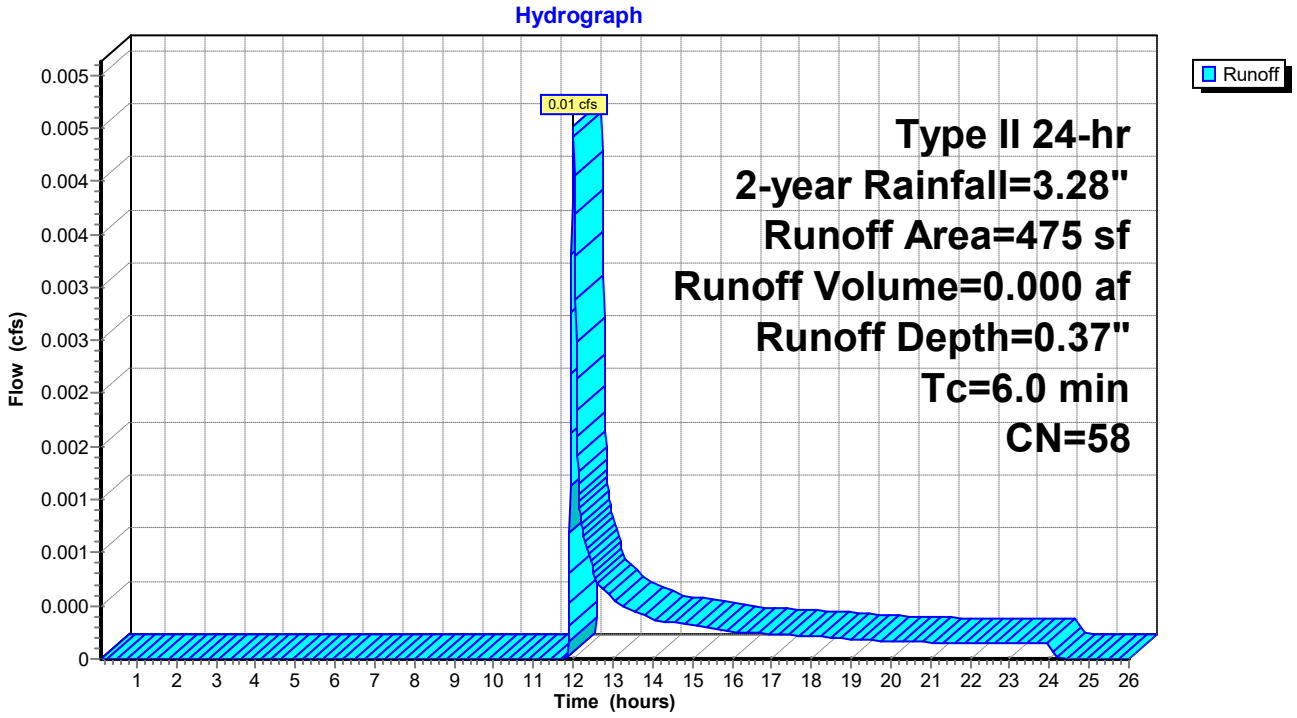
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.000 af, Depth= 0.37"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

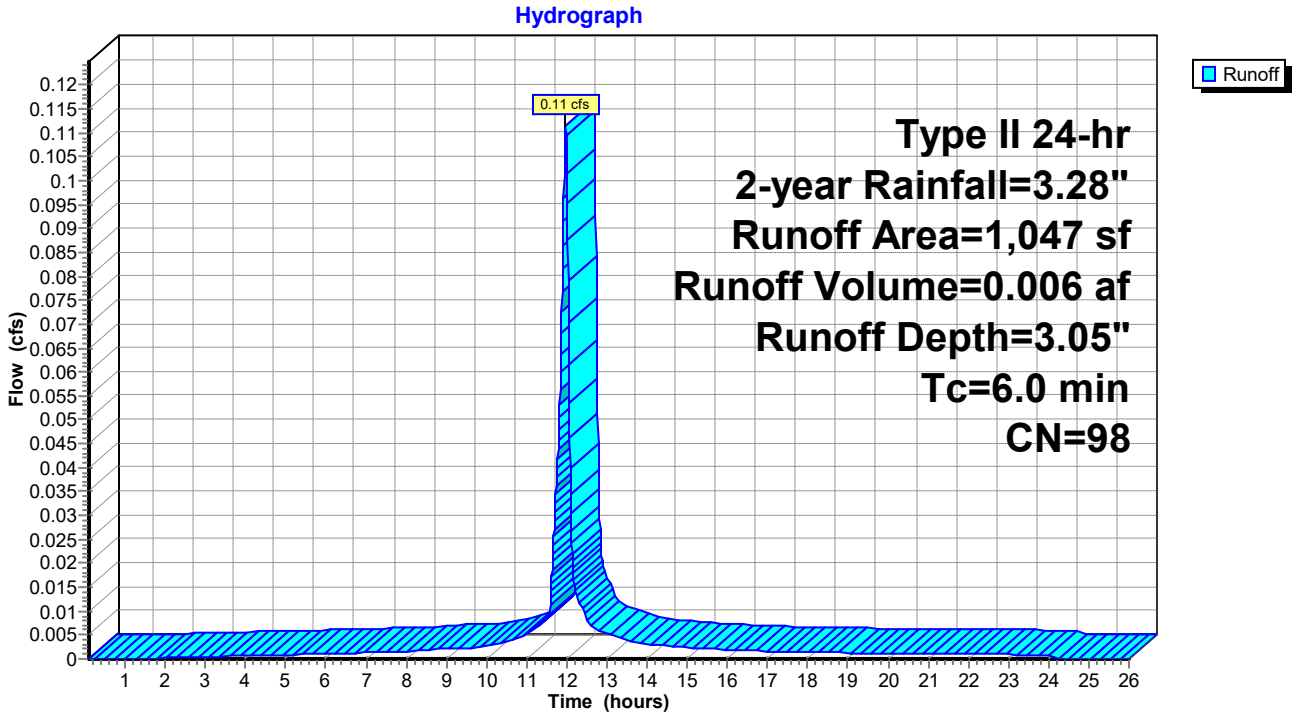
Runoff = 0.11 cfs @ 11.97 hrs, Volume= 0.006 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

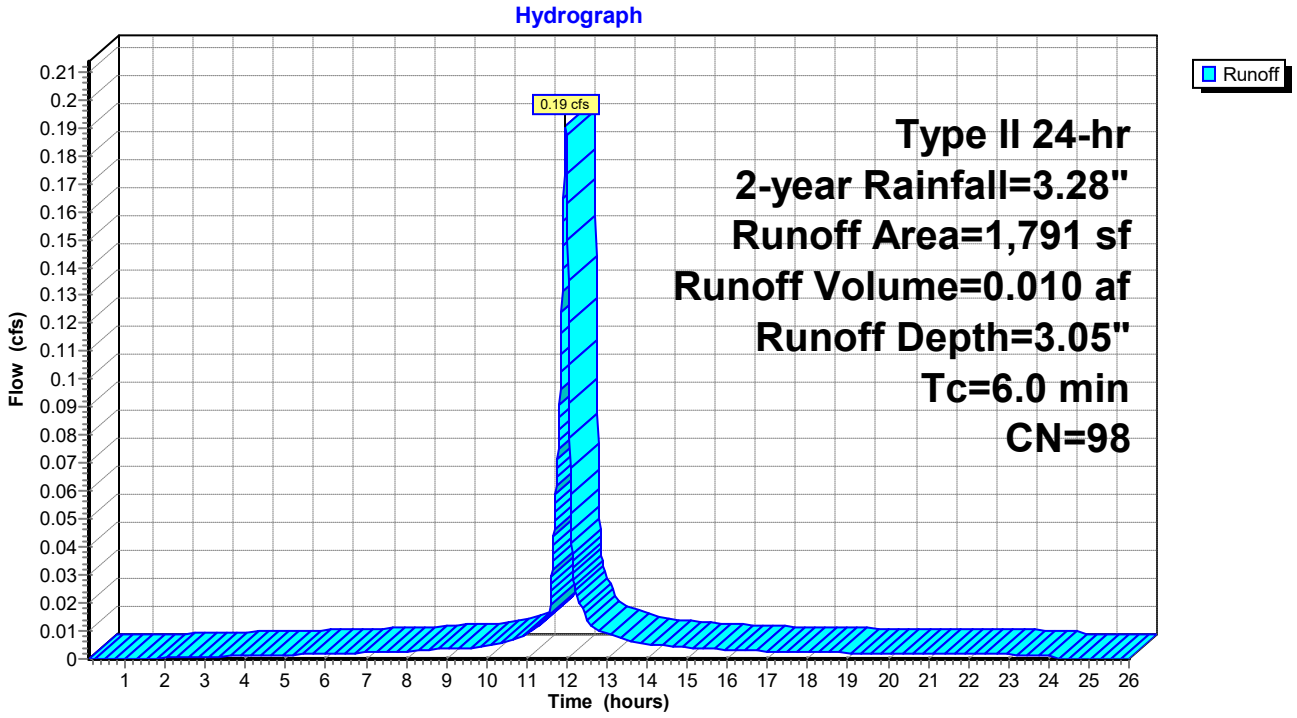
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 1.80" for 2-year event
Inflow = 0.22 cfs @ 11.97 hrs, Volume= 0.012 af
Outflow = 0.00 cfs @ 24.07 hrs, Volume= 0.002 af, Atten= 99%, Lag= 726.0 min
Primary = 0.00 cfs @ 24.07 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.64' @ 24.07 hrs Surf.Area= 681 sf Storage= 455 cf

Plug-Flow detention time= 467.4 min calculated for 0.002 af (17% of inflow)
Center-of-Mass det. time= 194.7 min (963.4 - 768.7)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

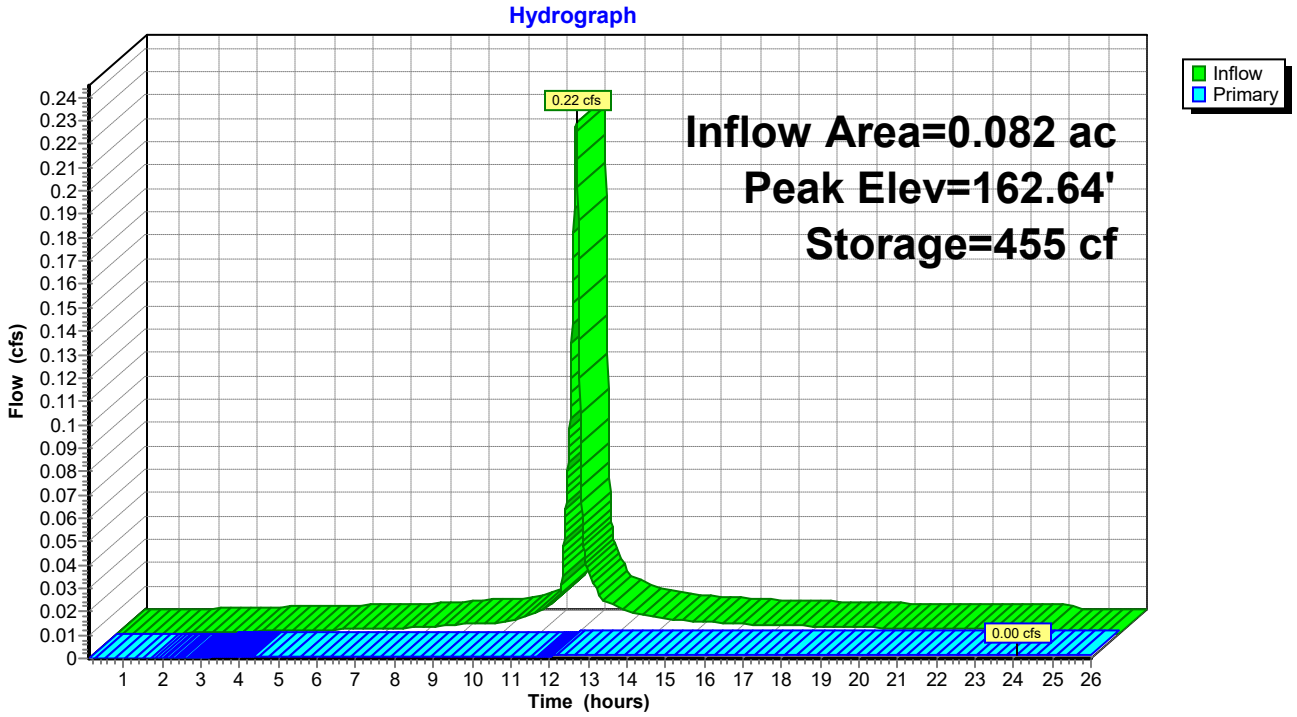
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.07 hrs HW=162.64' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.22 cfs
0.00 cfs
Inflow Area=0.082 ac
Peak Elev=162.64'
Storage=455 cf
Flow (cfs)
Time (hours)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
0.2
0.21
0.22
0.23
0.24
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.37" for 2-year event
Inflow = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 22.44 hrs, Volume= 0.001 af, Atten= 97%, Lag= 626.1 min
Primary = 0.00 cfs @ 22.44 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 160.39' @ 22.44 hrs Surf.Area= 300 sf Storage= 23 cf

Plug-Flow detention time= 380.0 min calculated for 0.001 af (52% of inflow)
Center-of-Mass det. time= 211.2 min (1,139.5 - 928.3)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

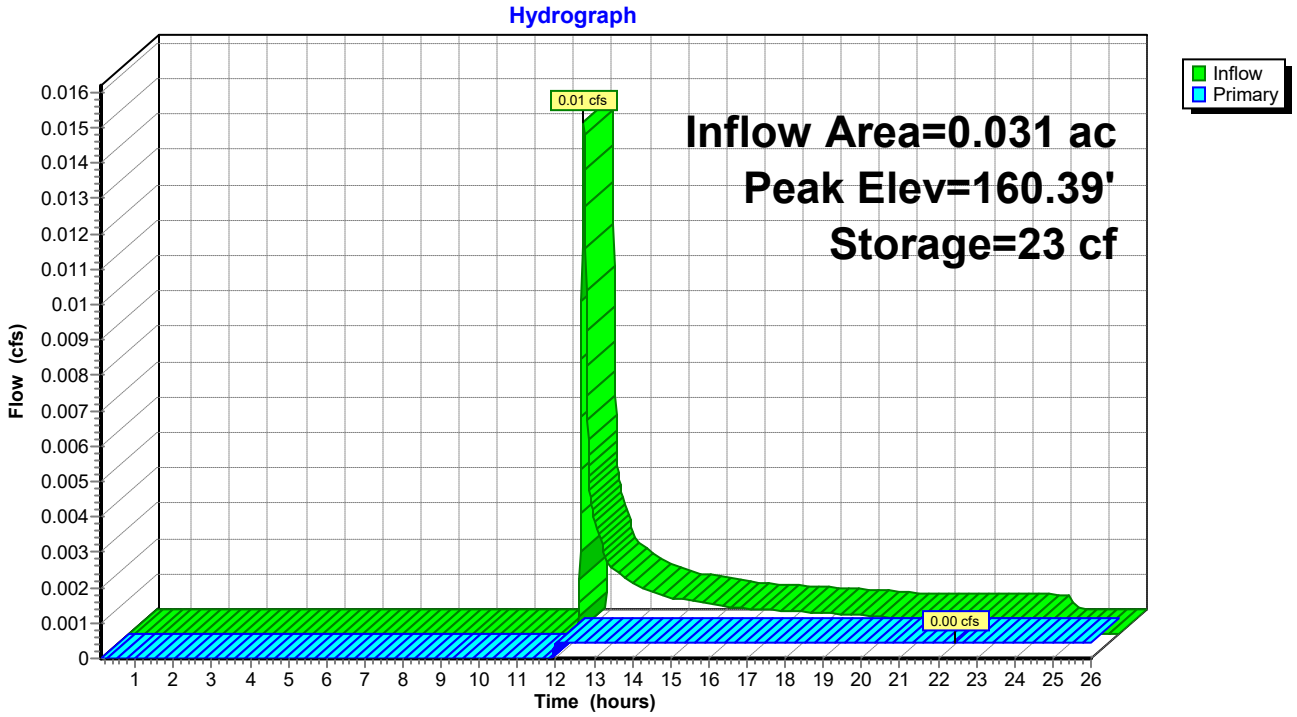
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 22.44 hrs HW=160.39' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.01 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=160.39'
Storage=23 cf
Flow (cfs)
0.016
0.015
0.014
0.013
0.012
0.011
0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 1.34" for 2-year event
Inflow = 0.24 cfs @ 11.98 hrs, Volume= 0.013 af
Outflow = 0.24 cfs @ 11.98 hrs, Volume= 0.010 af, Atten= 1%, Lag= 0.5 min
Primary = 0.24 cfs @ 11.98 hrs, Volume= 0.010 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.57' @ 11.98 hrs Surf.Area= 186 sf Storage= 164 cf

Plug-Flow detention time= 175.7 min calculated for 0.010 af (74% of inflow)
Center-of-Mass det. time= 70.8 min (859.9 - 789.1)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

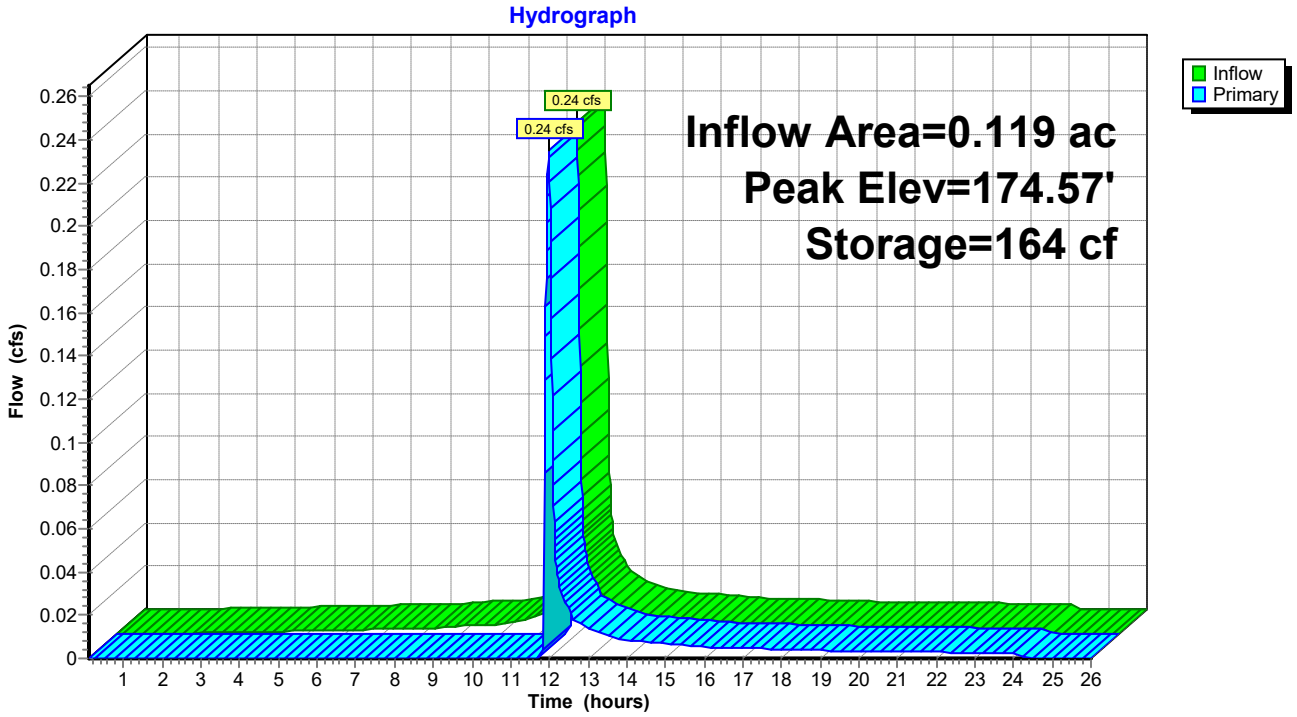
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 11.98 hrs HW=174.57' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.23 cfs @ 0.85 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.24 cfs
0.24 cfs
Inflow Area=0.119 ac
Peak Elev=174.57'
Storage=164 cf
Flow (cfs)
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 0.62" for 2-year event
Inflow = 0.11 cfs @ 11.99 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 12.35 hrs, Volume= 0.004 af, Atten= 84%, Lag= 21.7 min
Discarded = 0.00 cfs @ 12.35 hrs, Volume= 0.000 af
Primary = 0.02 cfs @ 12.35 hrs, Volume= 0.004 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.53' @ 12.35 hrs Surf.Area= 171 sf Storage= 123 cf

Plug-Flow detention time= 266.6 min calculated for 0.004 af (60% of inflow)
Center-of-Mass det. time= 118.5 min (965.4 - 846.9)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

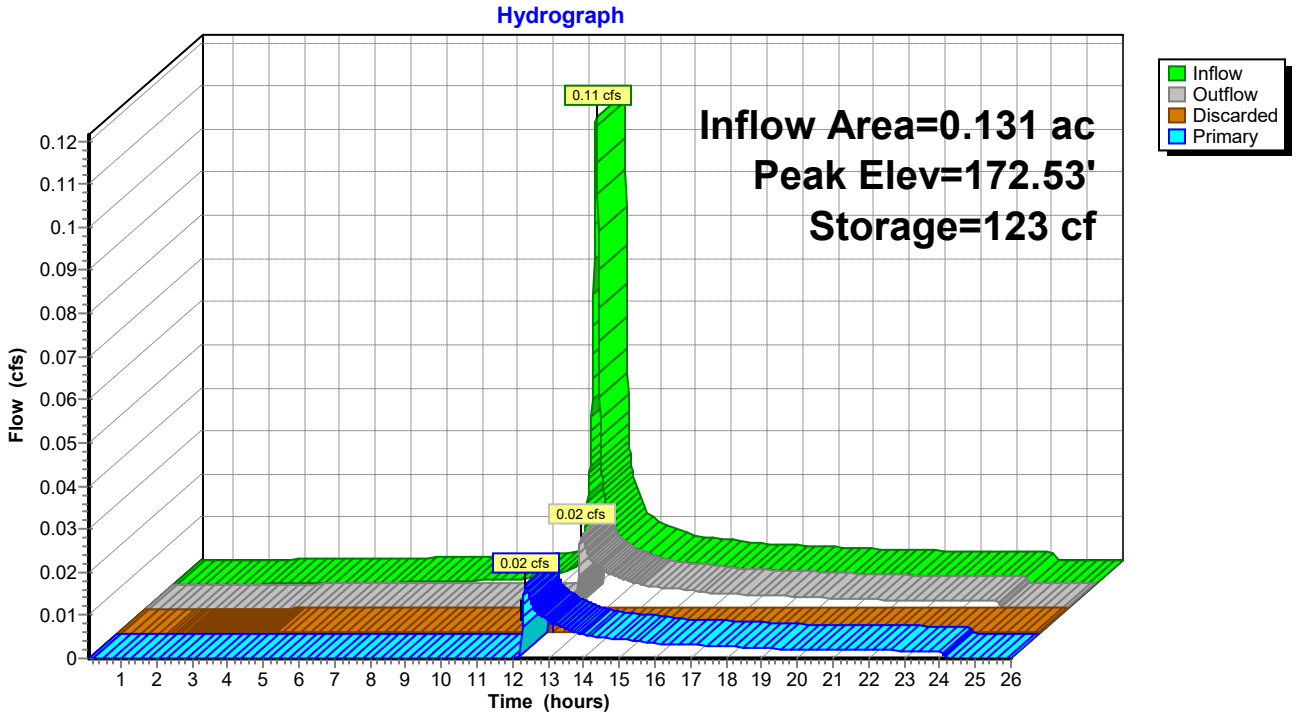
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.35 hrs HW=172.53' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.02 cfs @ 12.35 hrs HW=172.53' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.54 fps)

Pond RG-4: RG-4

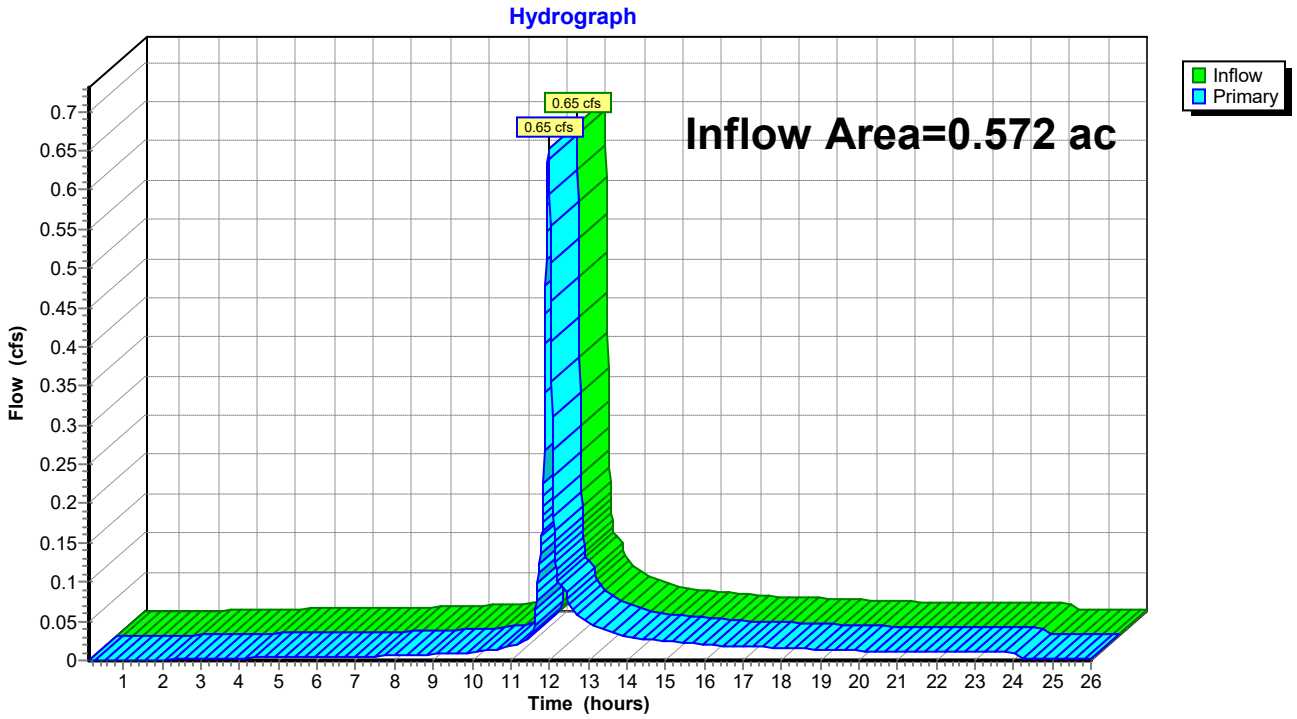

Hydrograph
Inflow
Outflow
Discarded
Primary
0.11 cfs
0.02 cfs
0.02 cfs
Inflow Area=0.131 ac
Peak Elev=172.53'
Storage=123 cf
Flow (cfs)
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 0.84" for 2-year event
Inflow = 0.65 cfs @ 11.98 hrs, Volume= 0.040 af
Primary = 0.65 cfs @ 11.98 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=1.61"
Flow Length=487' Tc=13.0 min CN=73 Runoff=1.27 cfs 0.077 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.013 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.010 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.03 cfs 0.002 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.004 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.02 cfs 0.001 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.10 cfs 0.005 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.12 cfs 0.006 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=0.87"
Tc=6.0 min CN=61 Runoff=0.11 cfs 0.006 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.008 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.013 af

Pond RG-1: RG-1 Peak Elev=163.25' Storage=629 cf Inflow=0.30 cfs 0.017 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=161.03' Storage=62 cf Inflow=0.04 cfs 0.002 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.59' Storage=167 cf Inflow=0.35 cfs 0.019 af
Outflow=0.34 cfs 0.015 af

Pond RG-4: RG-4 Peak Elev=172.65' Storage=131 cf Inflow=0.20 cfs 0.011 af
Discarded=0.00 cfs 0.001 af Primary=0.18 cfs 0.008 af Outflow=0.18 cfs 0.008 af

Link POA: POA Inflow=1.05 cfs 0.059 af
Primary=1.05 cfs 0.059 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.159 af Average Runoff Depth = 1.66"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

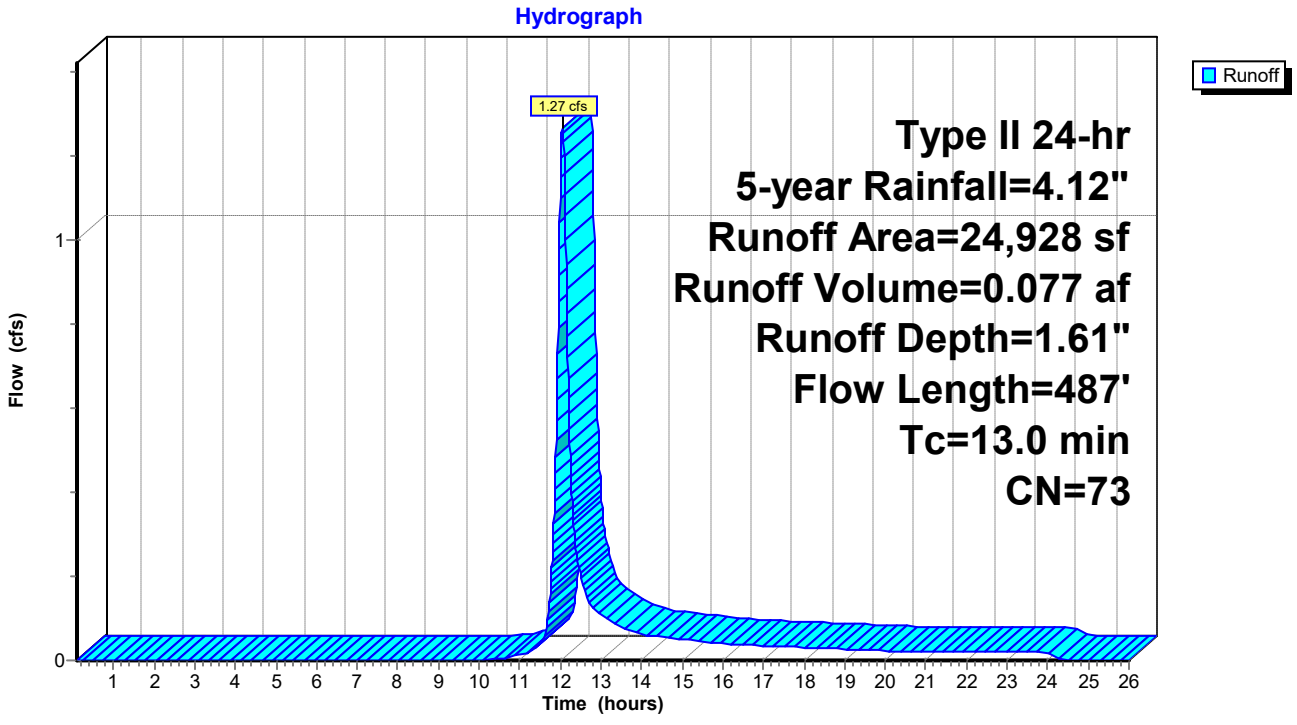
Runoff = 1.27 cfs @ 12.06 hrs, Volume= 0.077 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

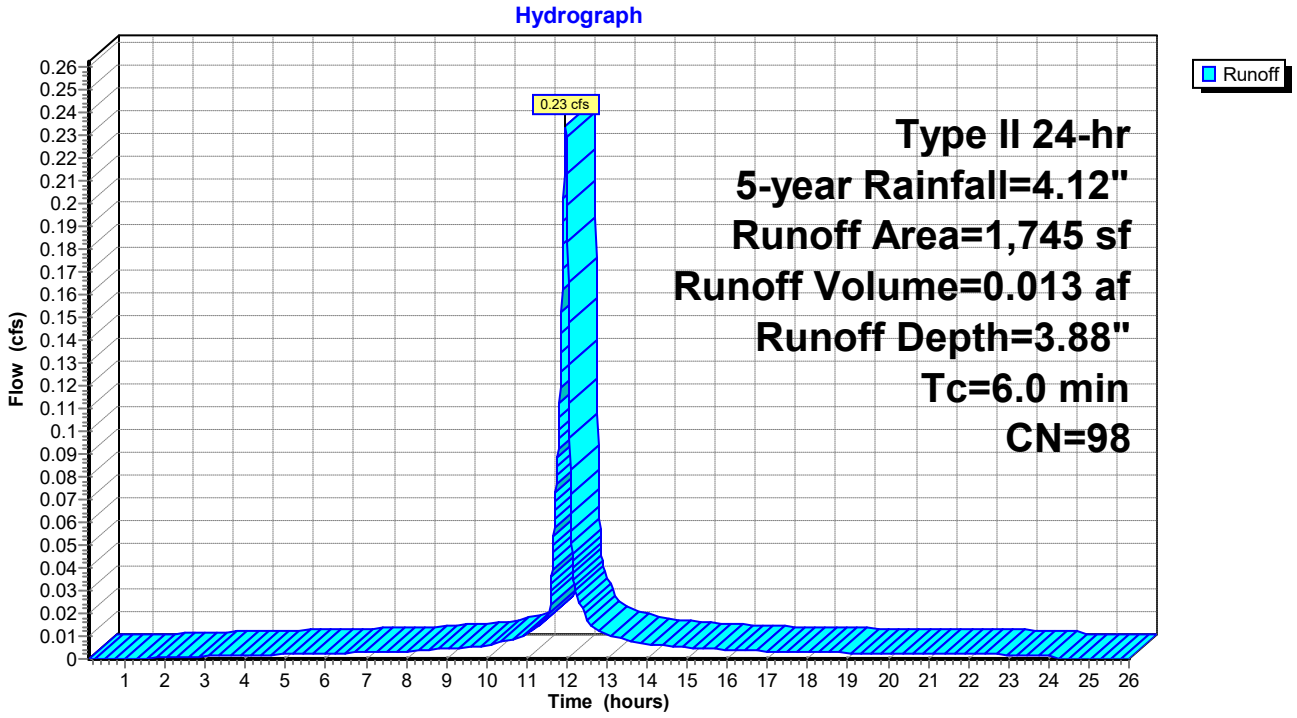
Runoff = 0.23 cfs @ 11.97 hrs, Volume= 0.013 af, Depth= 3.88"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

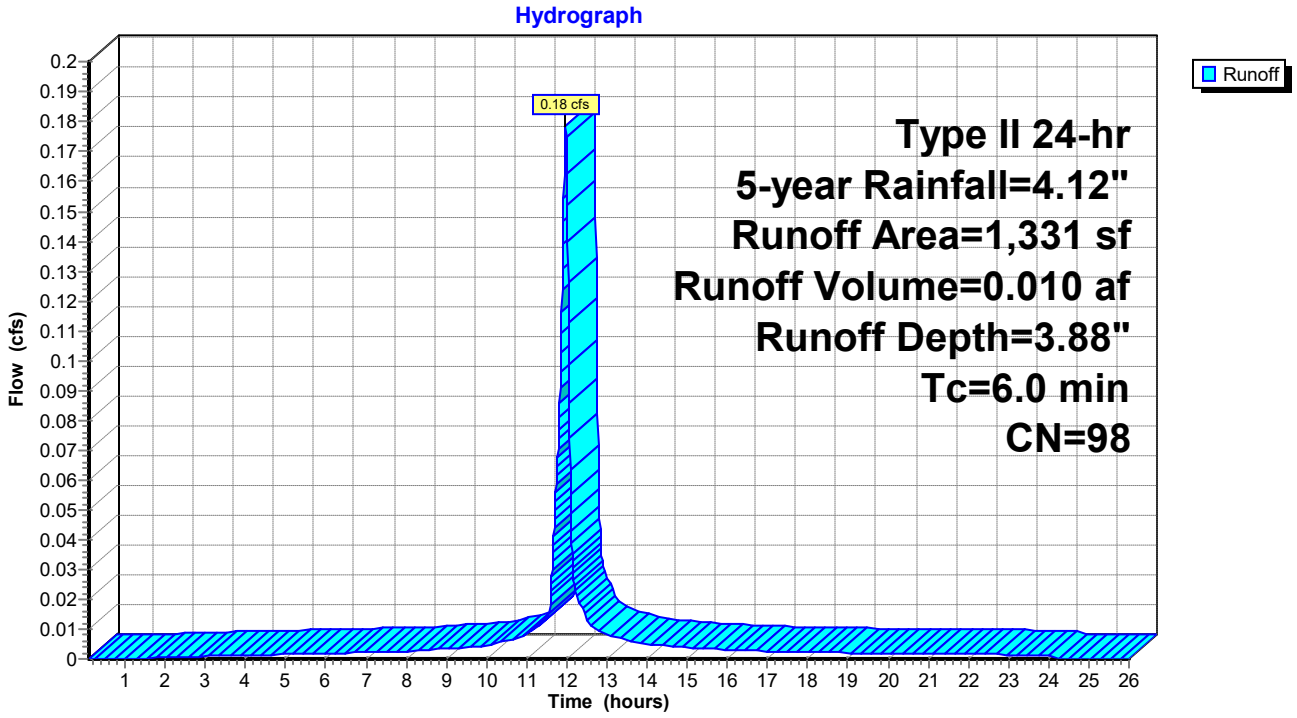
Runoff = 0.18 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.88"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

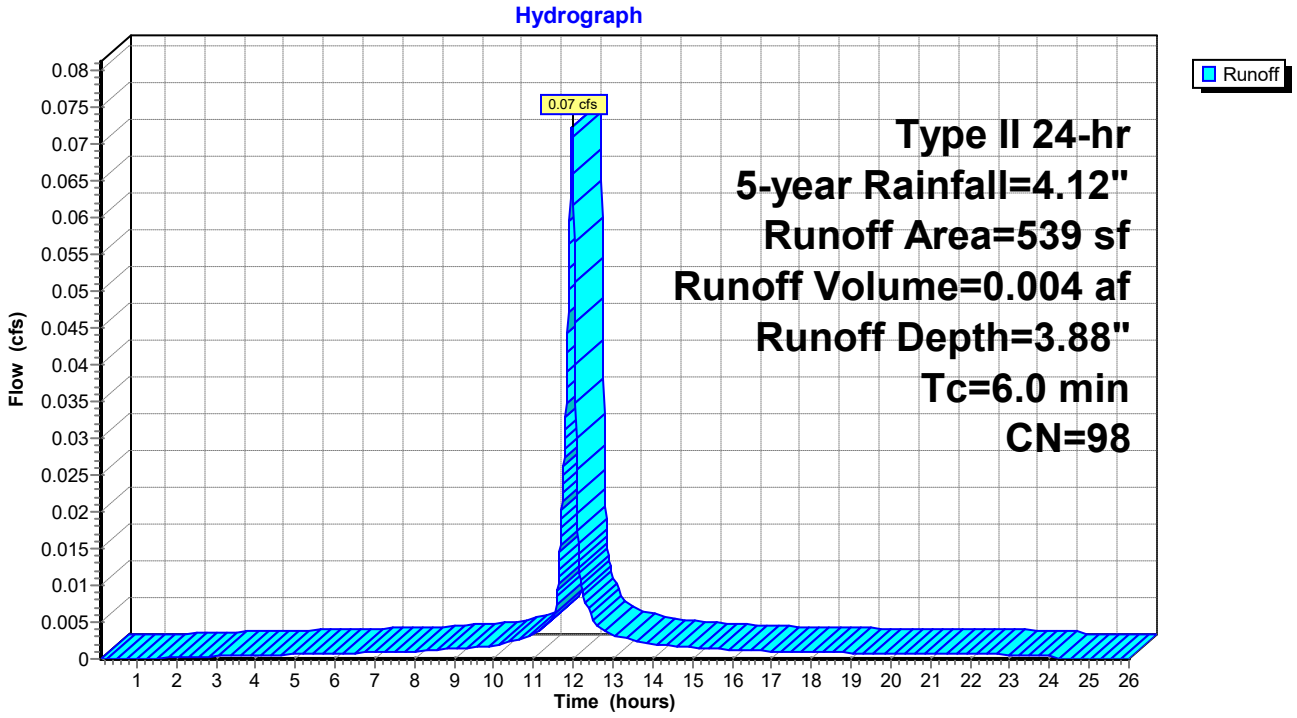
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 3.88"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

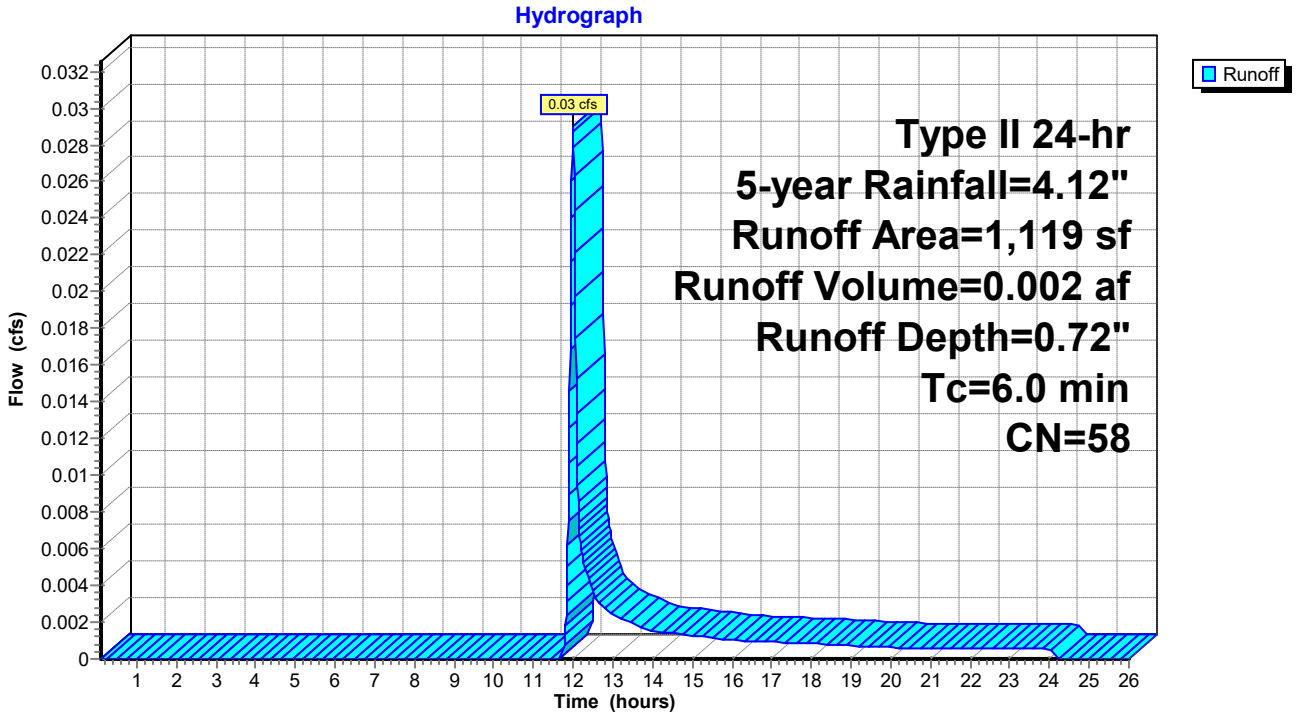
Runoff = 0.03 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 0.72"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

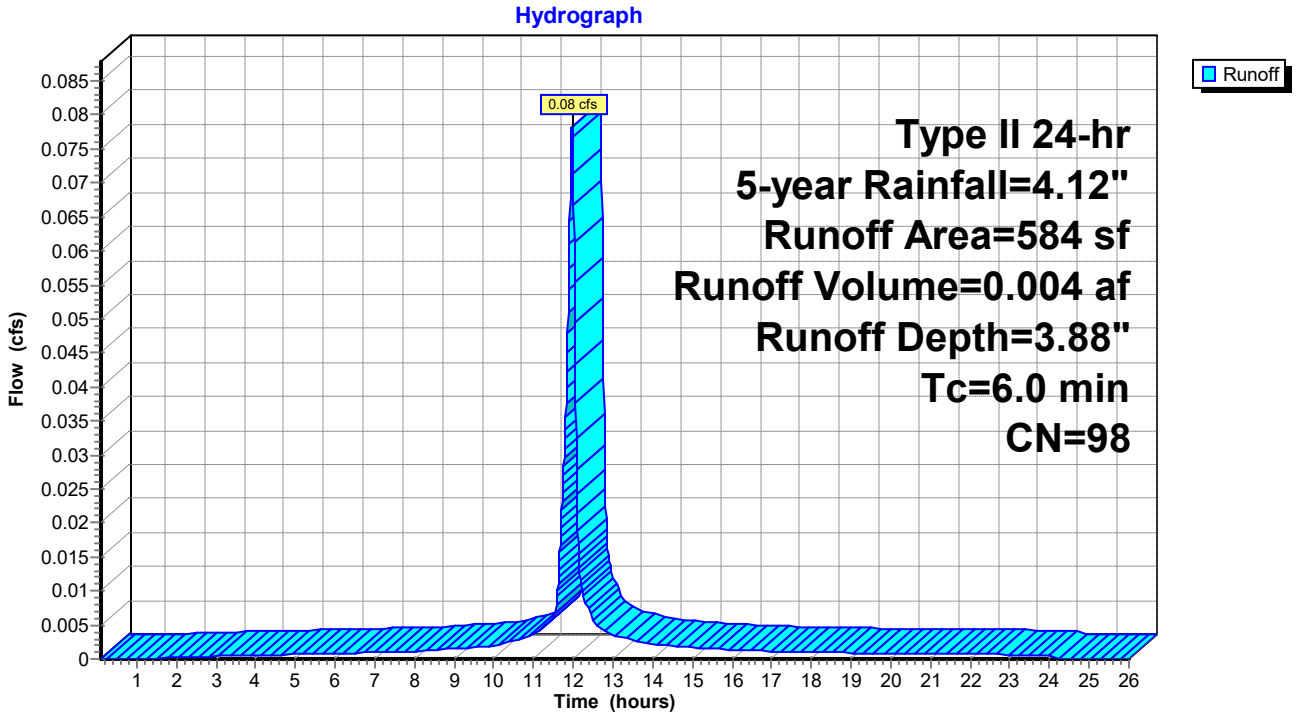
Runoff = 0.08 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 3.88"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

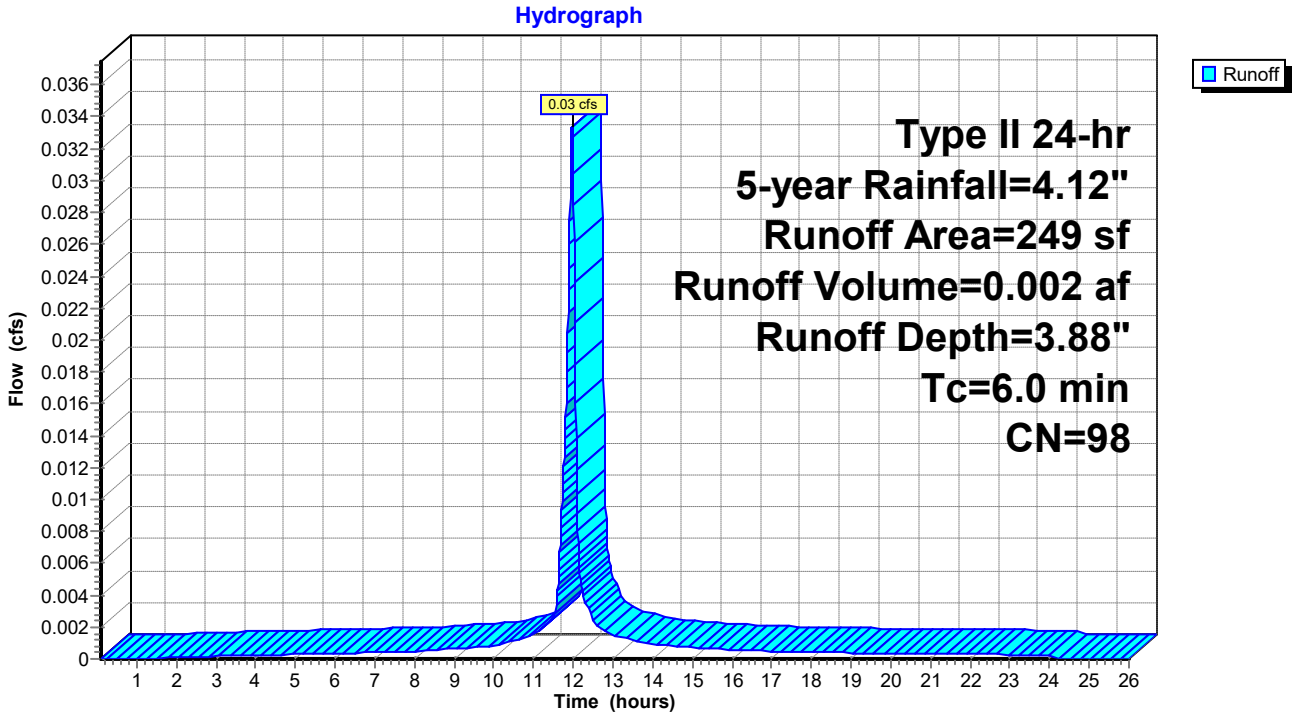
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

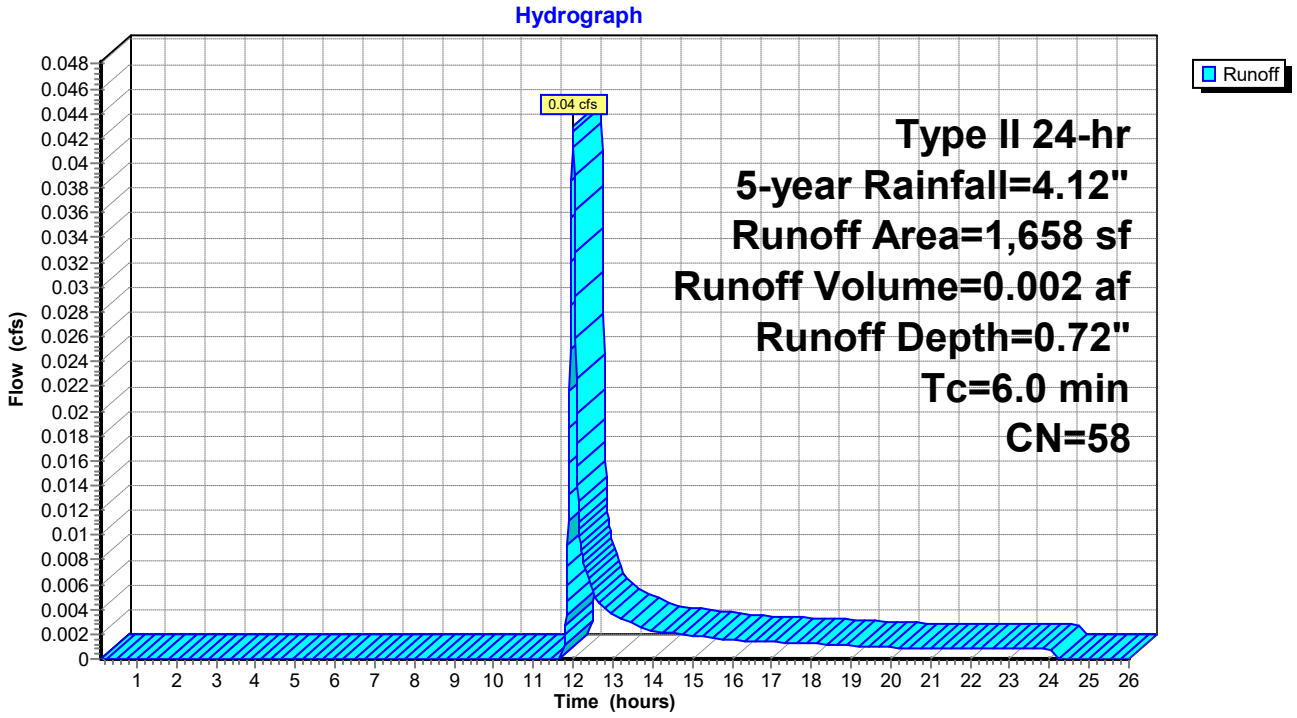
Runoff = 0.04 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 0.72"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

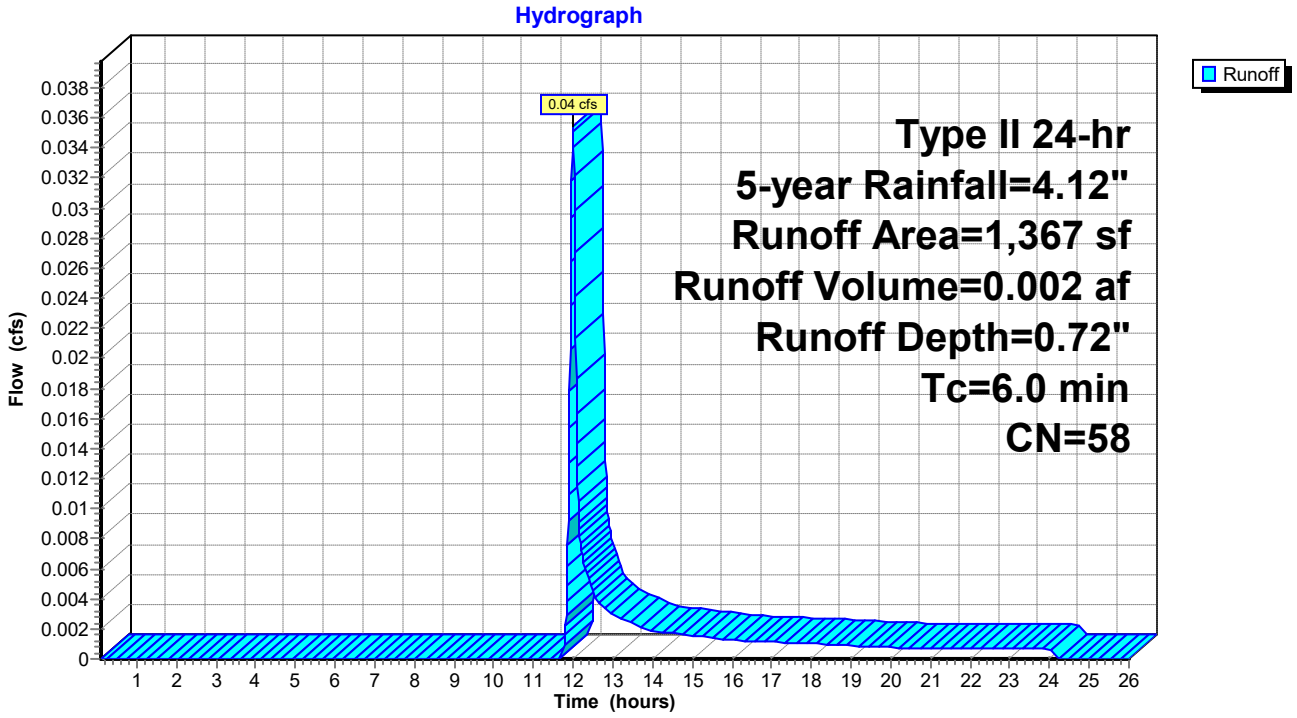
Runoff = 0.04 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 0.72"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

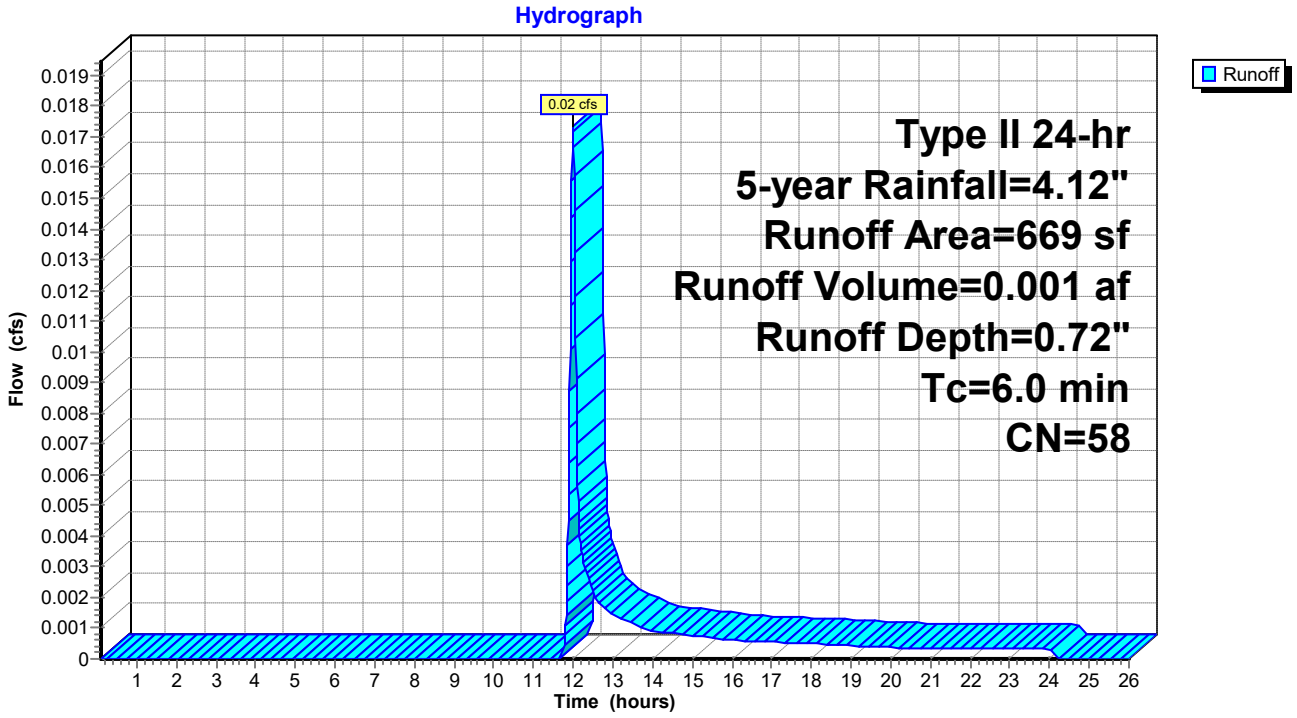
Runoff = 0.02 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 0.72"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

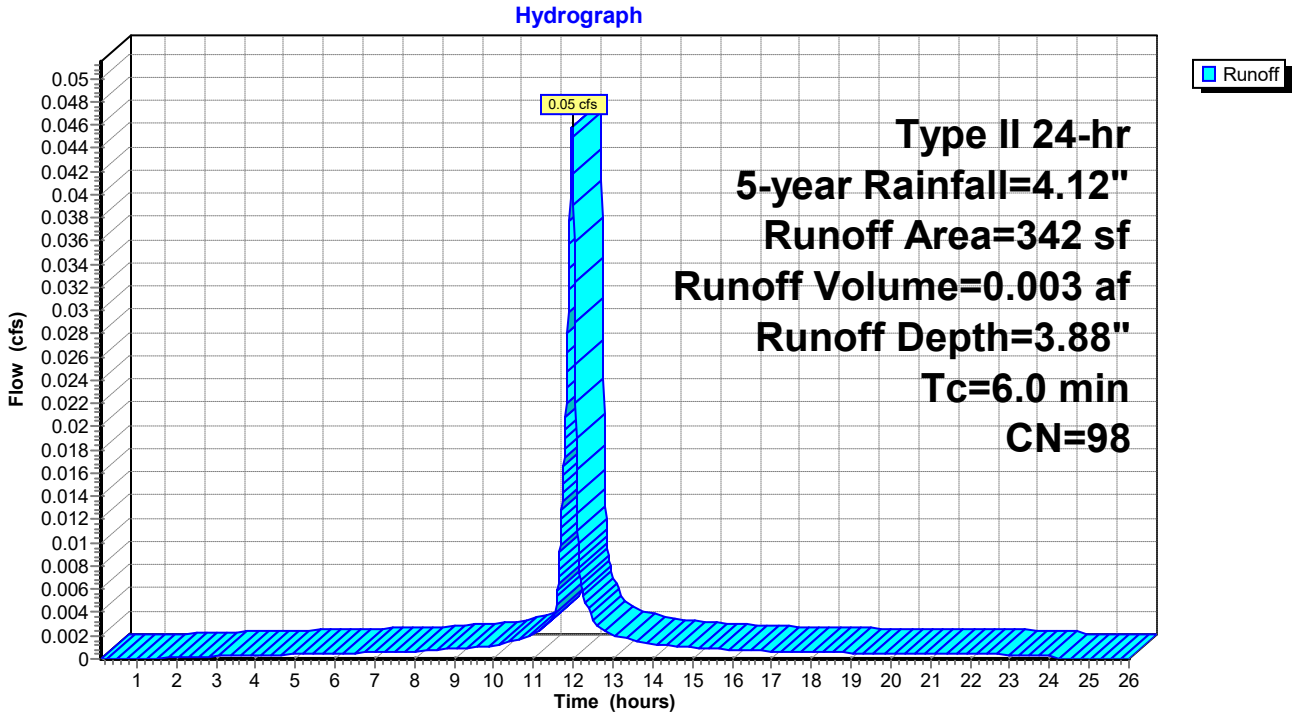
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

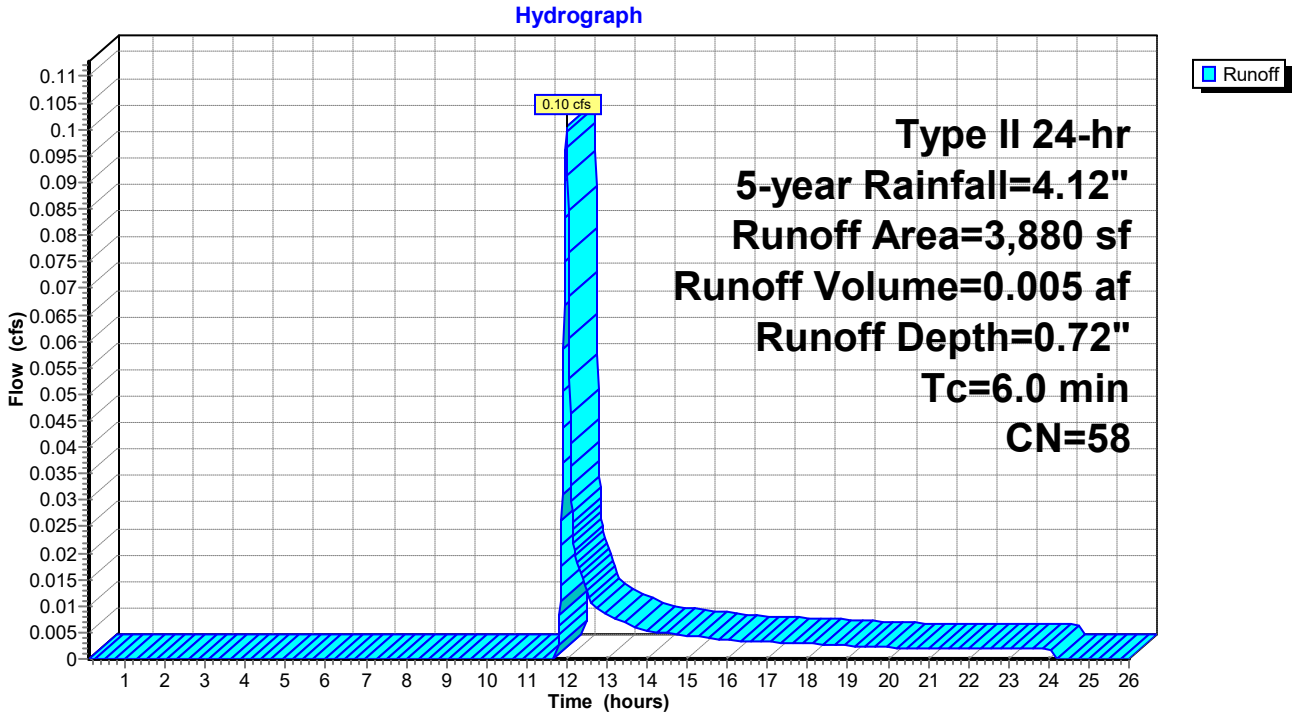
Runoff = 0.10 cfs @ 11.99 hrs, Volume= 0.005 af, Depth= 0.72"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

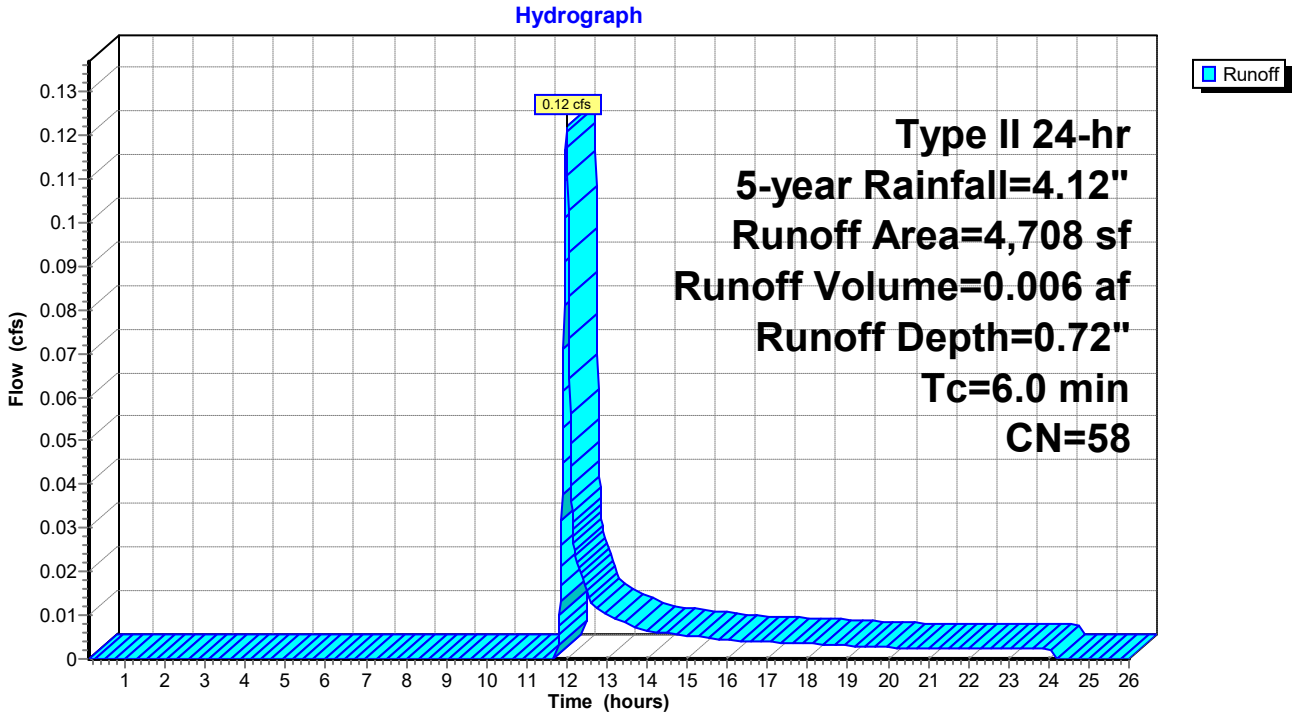
Runoff = 0.12 cfs @ 11.99 hrs, Volume= 0.006 af, Depth= 0.72"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

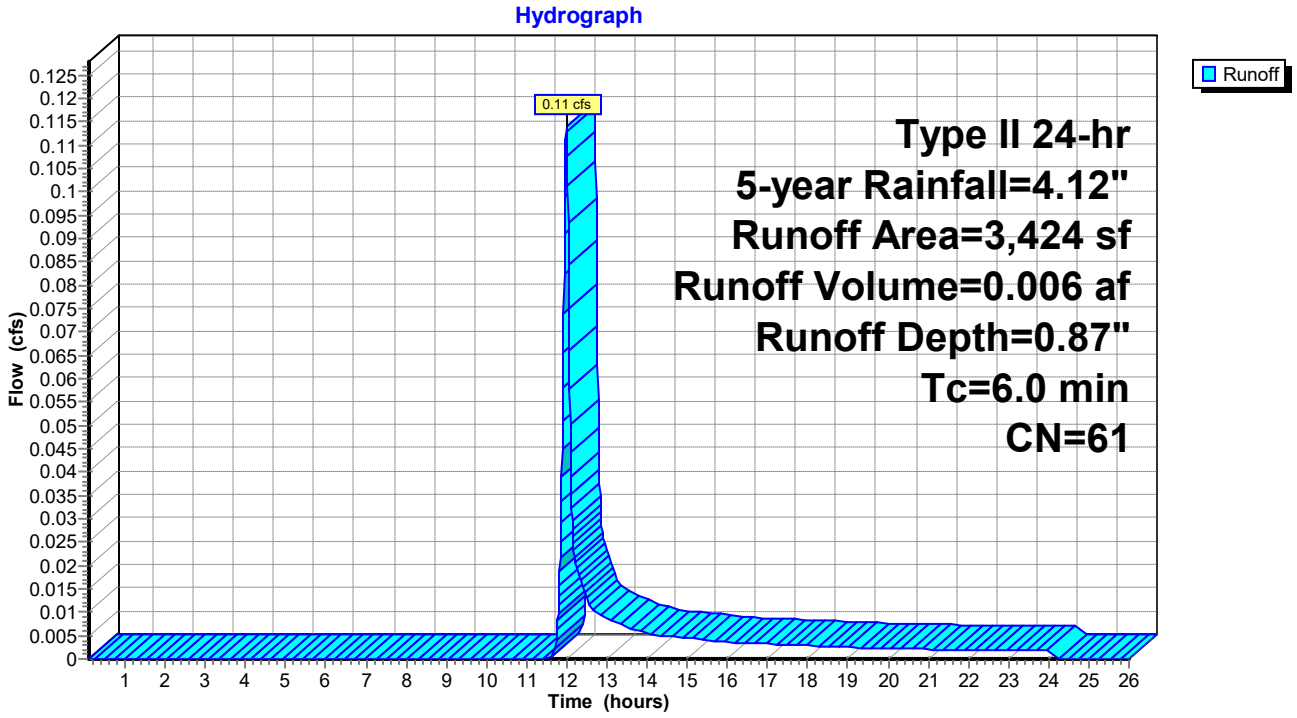
Runoff = 0.11 cfs @ 11.99 hrs, Volume= 0.006 af, Depth= 0.87"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

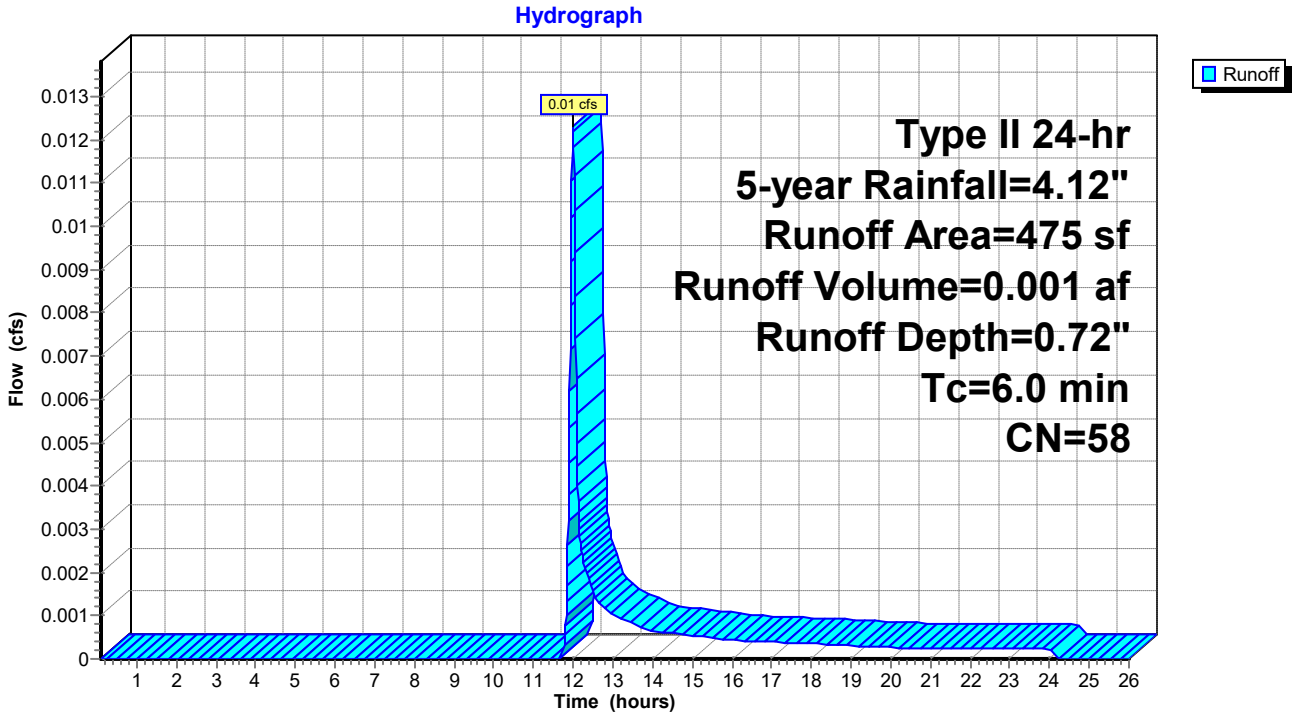
Runoff = 0.01 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 0.72"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

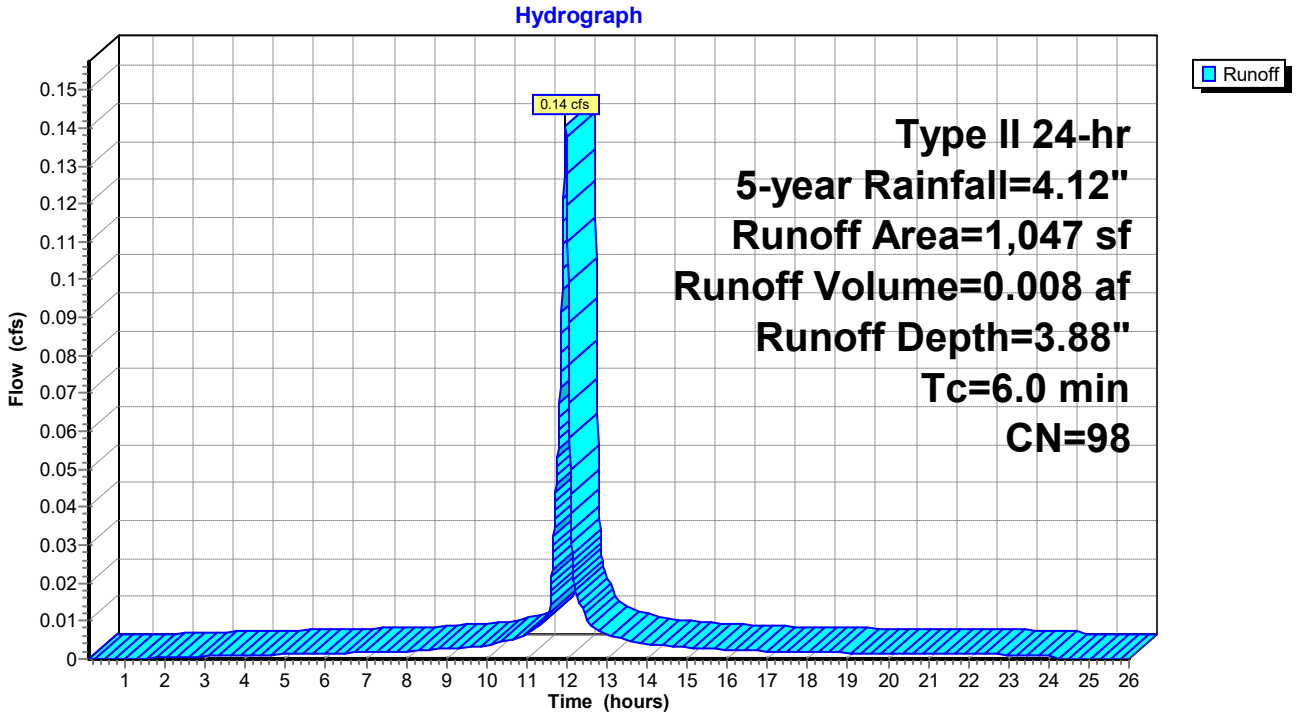
Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

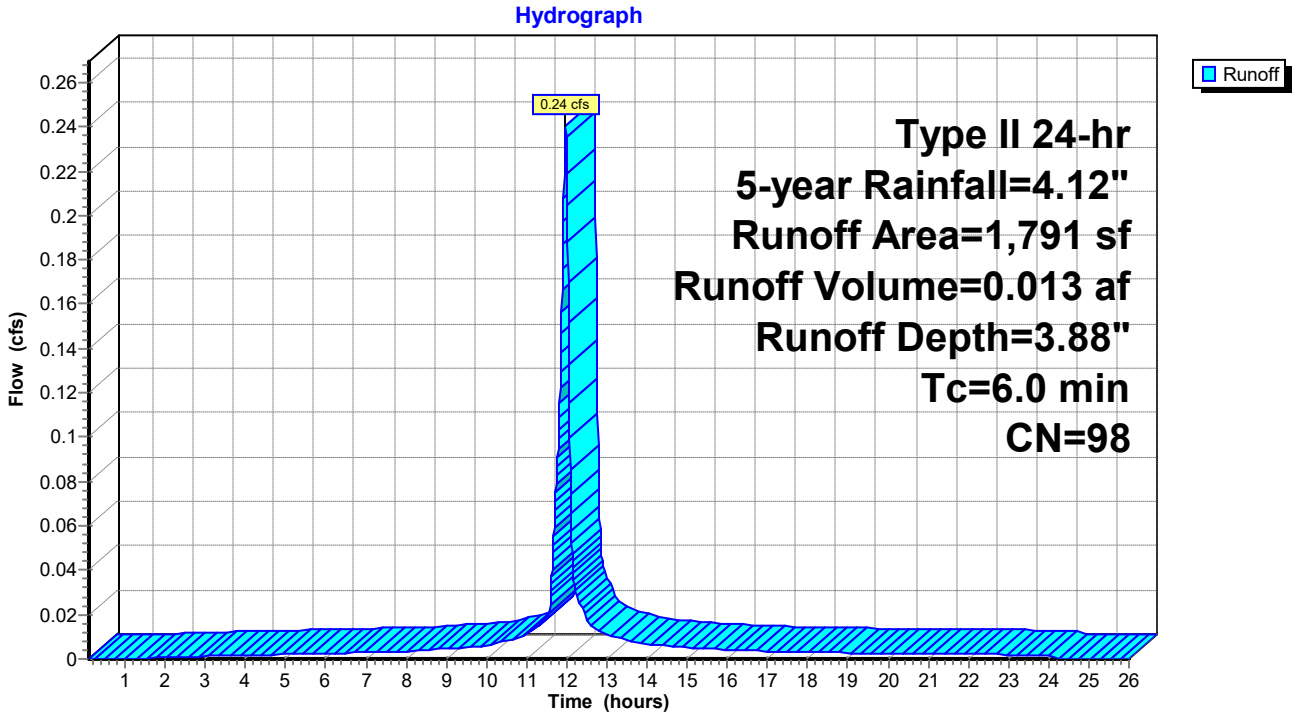
Runoff = 0.24 cfs @ 11.97 hrs, Volume= 0.013 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 2.42" for 5-year event
Inflow = 0.30 cfs @ 11.97 hrs, Volume= 0.017 af
Outflow = 0.00 cfs @ 24.08 hrs, Volume= 0.002 af, Atten= 99%, Lag= 726.5 min
Primary = 0.00 cfs @ 24.08 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.25' @ 24.08 hrs Surf.Area= 771 sf Storage= 629 cf

Plug-Flow detention time= 514.0 min calculated for 0.002 af (14% of inflow)
Center-of-Mass det. time= 199.9 min (968.1 - 768.2)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

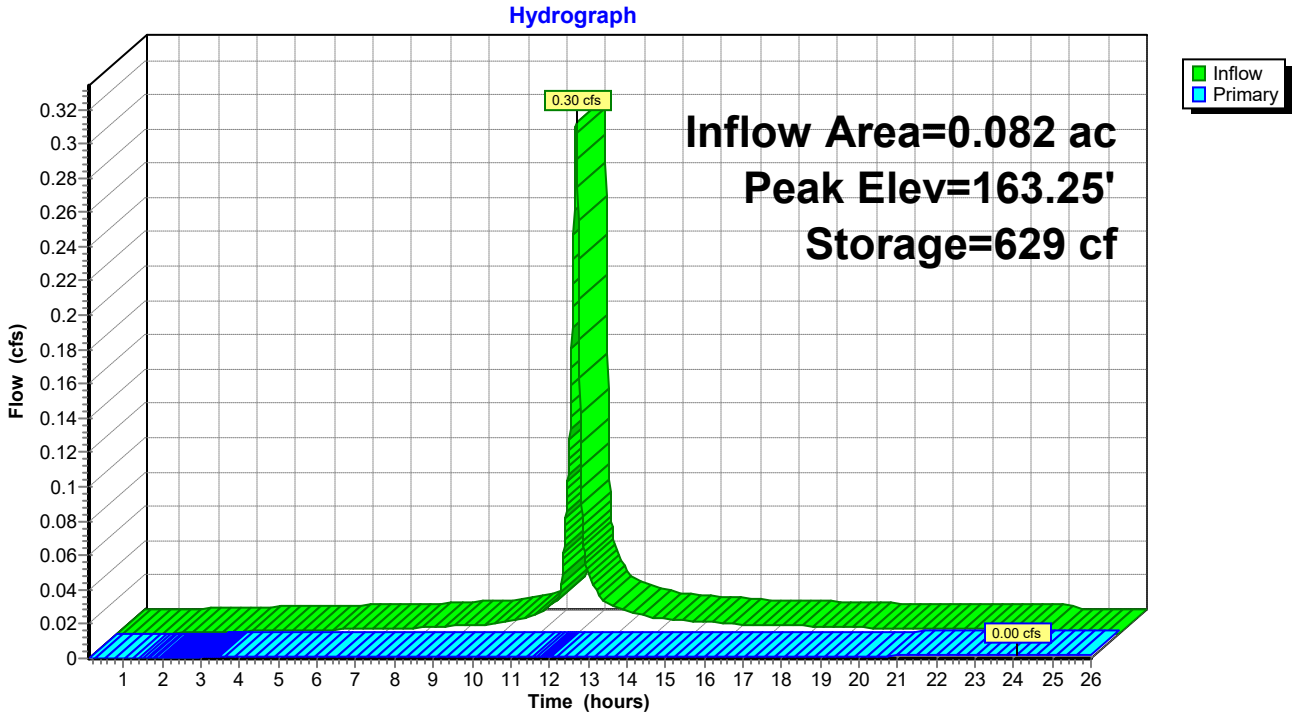
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.08 hrs HW=163.25' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.30 cfs
0.00 cfs
Inflow Area=0.082 ac
Peak Elev=163.25'
Storage=629 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
0.28
0.3
0.32
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.72" for 5-year event
Inflow = 0.04 cfs @ 11.99 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 24.07 hrs, Volume= 0.001 af, Atten= 99%, Lag= 724.6 min
Primary = 0.00 cfs @ 24.07 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 161.03' @ 24.07 hrs Surf.Area= 300 sf Storage= 62 cf

Plug-Flow detention time= 419.9 min calculated for 0.001 af (28% of inflow)
Center-of-Mass det. time= 241.8 min (1,139.4 - 897.6)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

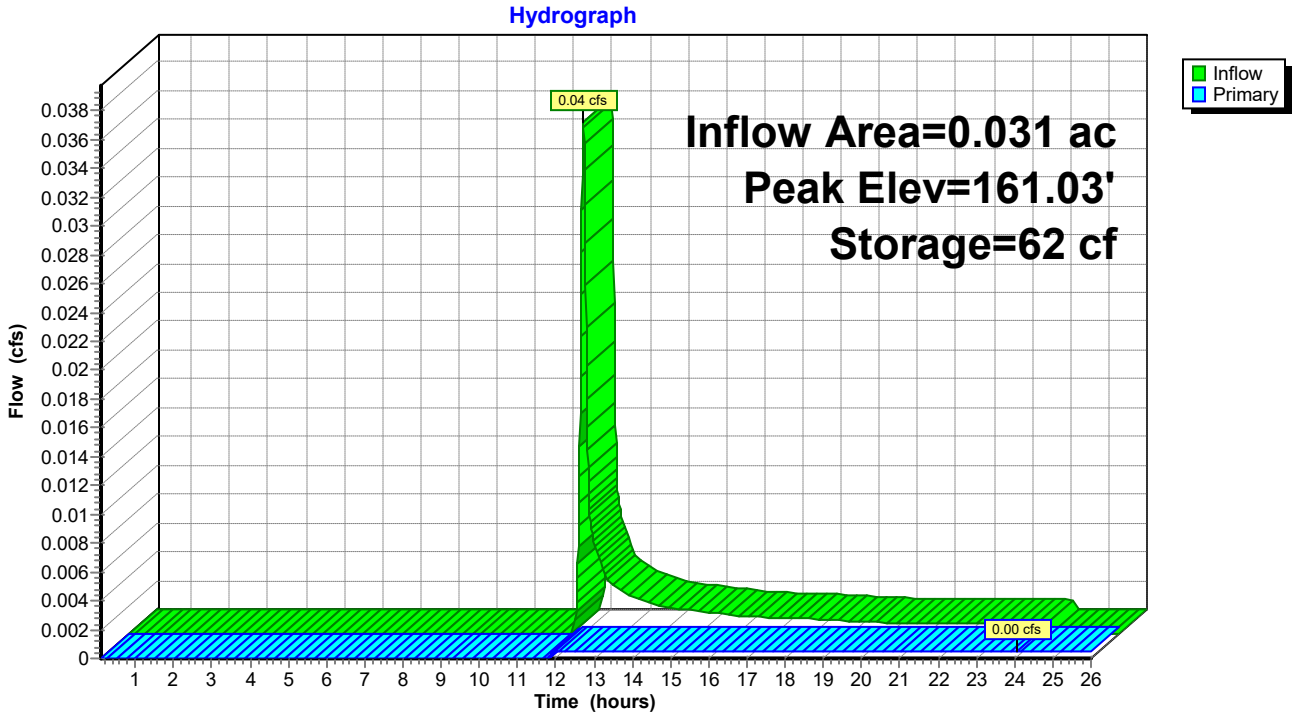
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.07 hrs HW=161.03' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.04 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=161.03'
Storage=62 cf
Flow (cfs)
0.038
0.036
0.034
0.032
0.03
0.028
0.026
0.024
0.022
0.02
0.018
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 1.89" for 5-year event
Inflow = 0.35 cfs @ 11.97 hrs, Volume= 0.019 af
Outflow = 0.34 cfs @ 11.98 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.4 min
Primary = 0.34 cfs @ 11.98 hrs, Volume= 0.015 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.59' @ 11.98 hrs Surf.Area= 186 sf Storage= 167 cf

Plug-Flow detention time= 141.6 min calculated for 0.015 af (81% of inflow)
Center-of-Mass det. time= 56.2 min (845.8 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

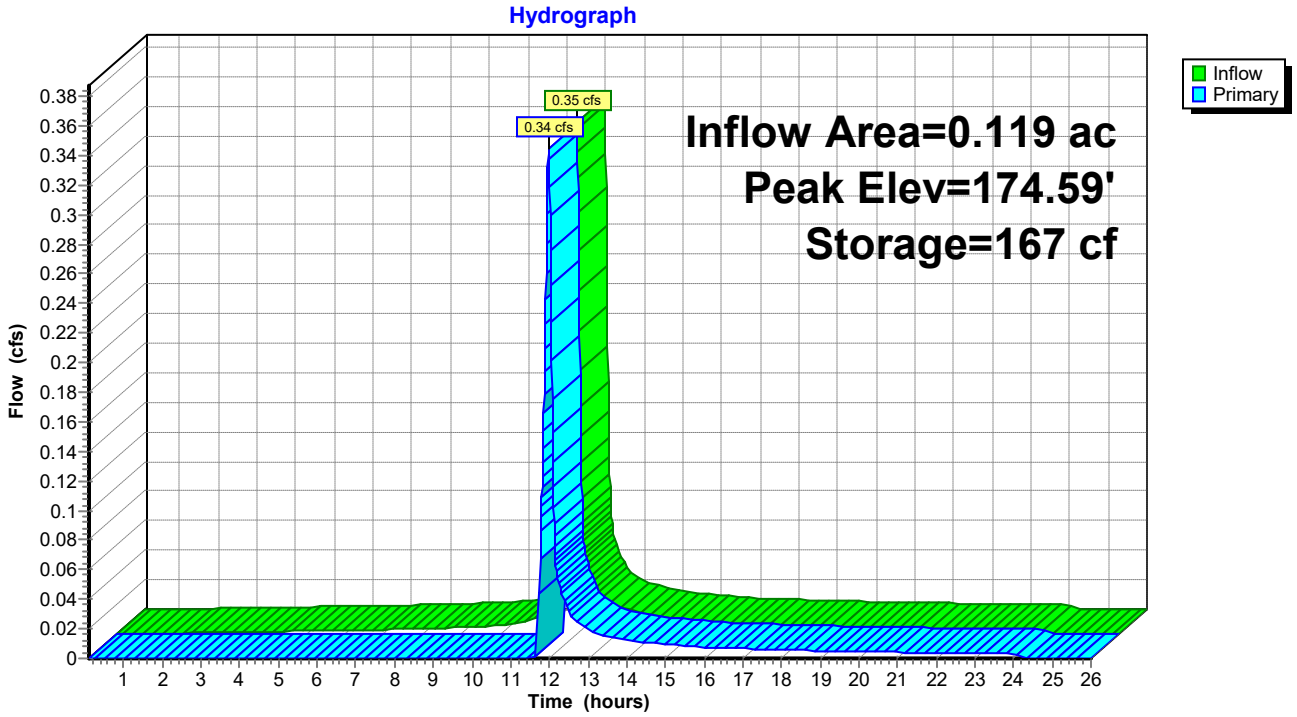
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.34 cfs @ 11.98 hrs HW=174.59' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.34 cfs @ 0.97 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.35 cfs
0.34 cfs
Inflow Area=0.119 ac
Peak Elev=174.59'
Storage=167 cf
Flow (cfs)
0.38
0.36
0.34
0.32
0.3
0.28
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 1.02" for 5-year event
Inflow = 0.20 cfs @ 11.98 hrs, Volume= 0.011 af
Outflow = 0.18 cfs @ 12.02 hrs, Volume= 0.008 af, Atten= 11%, Lag= 2.1 min
Discarded = 0.00 cfs @ 12.02 hrs, Volume= 0.001 af
Primary = 0.18 cfs @ 12.02 hrs, Volume= 0.008 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.65' @ 12.02 hrs Surf.Area= 171 sf Storage= 131 cf

Plug-Flow detention time= 170.1 min calculated for 0.008 af (76% of inflow)
Center-of-Mass det. time= 63.8 min (907.4 - 843.6)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

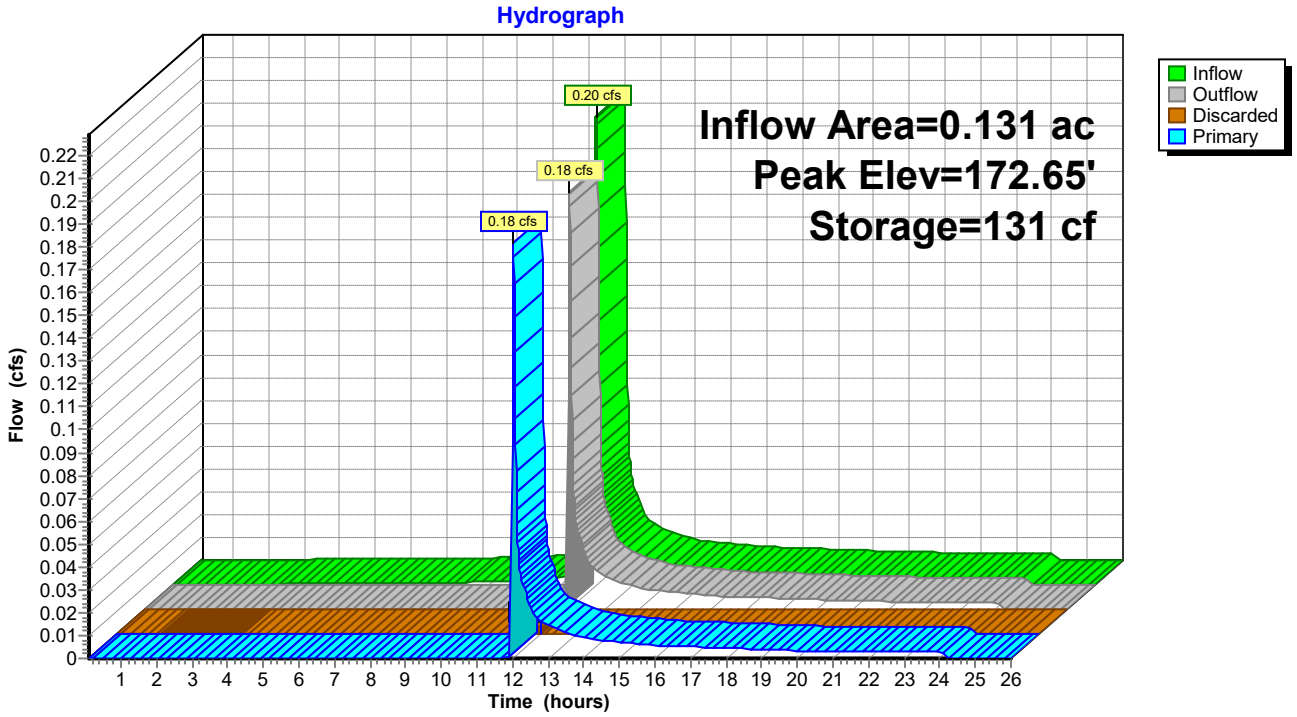
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.02 hrs HW=172.65' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.02 hrs HW=172.65' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.23 fps)

Pond RG-4: RG-4

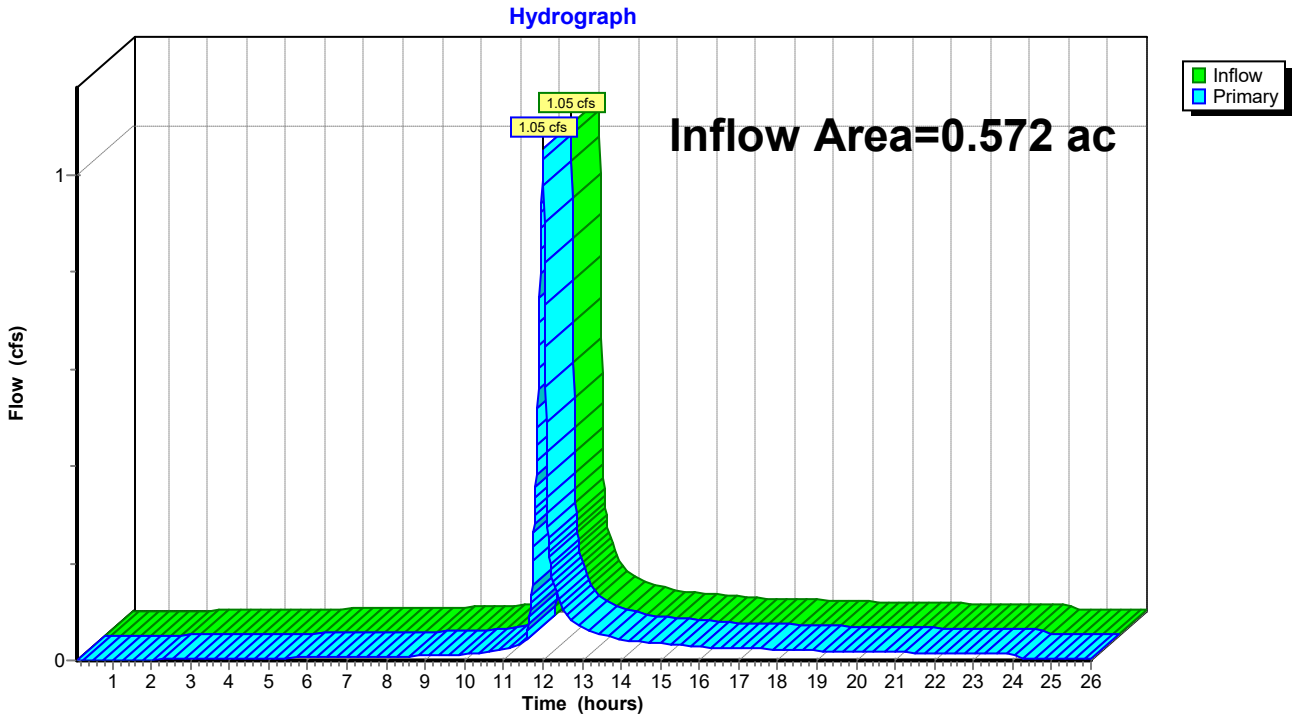

Hydrograph
Inflow
Outflow
Discarded
Primary
0.20 cfs
0.18 cfs
0.18 cfs
Inflow Area=0.131 ac
Peak Elev=172.65'
Storage=131 cf
Flow (cfs)
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.2 0.21 0.22
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 1.24" for 5-year event
Inflow = 1.05 cfs @ 12.00 hrs, Volume= 0.059 af
Primary = 1.05 cfs @ 12.00 hrs, Volume= 0.059 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=2.14"
Flow Length=487' Tc=13.0 min CN=73 Runoff=1.69 cfs 0.102 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.015 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.012 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.005 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.002 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.005 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.002 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.07 cfs 0.003 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.06 cfs 0.003 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.03 cfs 0.001 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.16 cfs 0.008 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.19 cfs 0.010 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=61 Runoff=0.17 cfs 0.008 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.02 cfs 0.001 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.009 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.016 af

Pond RG-1: RG-1 Peak Elev=163.50' Storage=730 cf Inflow=0.37 cfs 0.020 af
Outflow=0.01 cfs 0.004 af

Pond RG-2: RG-2 Peak Elev=161.68' Storage=101 cf Inflow=0.06 cfs 0.003 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.60' Storage=170 cf Inflow=0.44 cfs 0.024 af
Outflow=0.44 cfs 0.020 af

Pond RG-4: RG-4 Peak Elev=172.70' Storage=135 cf Inflow=0.30 cfs 0.015 af
Discarded=0.00 cfs 0.001 af Primary=0.29 cfs 0.012 af Outflow=0.29 cfs 0.013 af

Link POA: POA Inflow=1.50 cfs 0.078 af
Primary=1.50 cfs 0.078 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.206 af Average Runoff Depth = 2.16"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

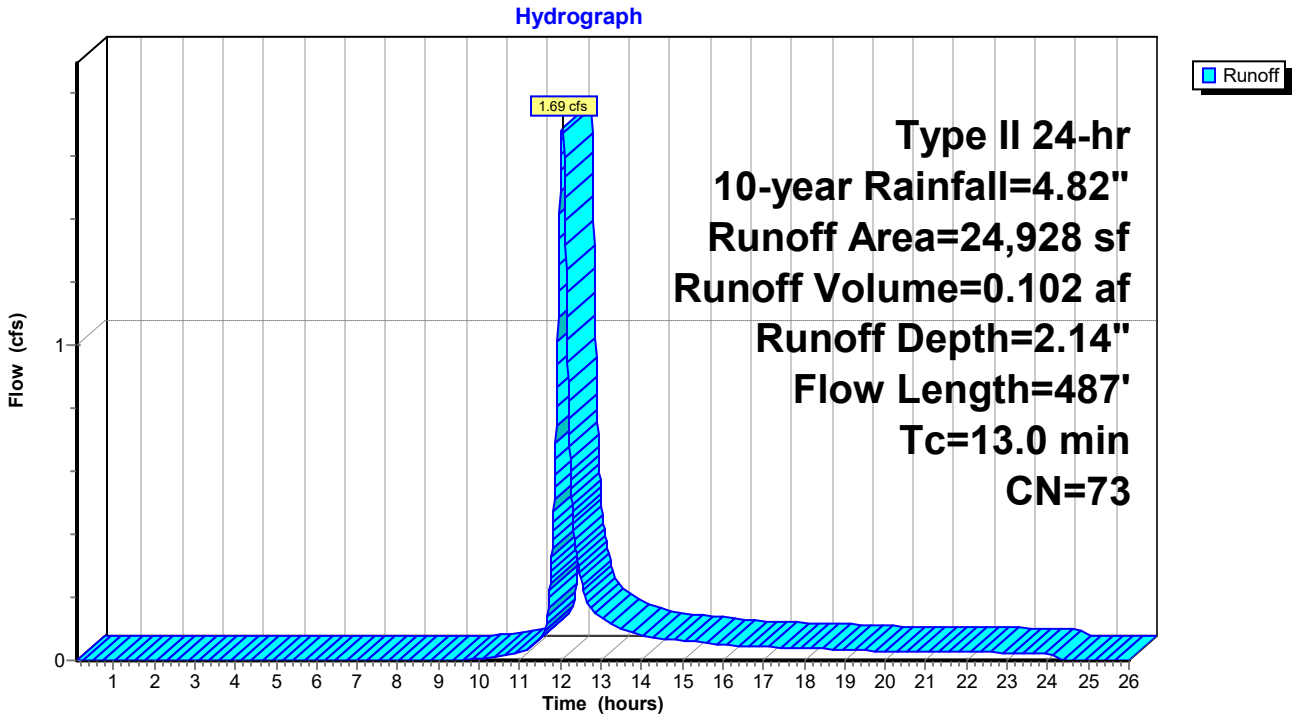
Runoff = 1.69 cfs @ 12.05 hrs, Volume= 0.102 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

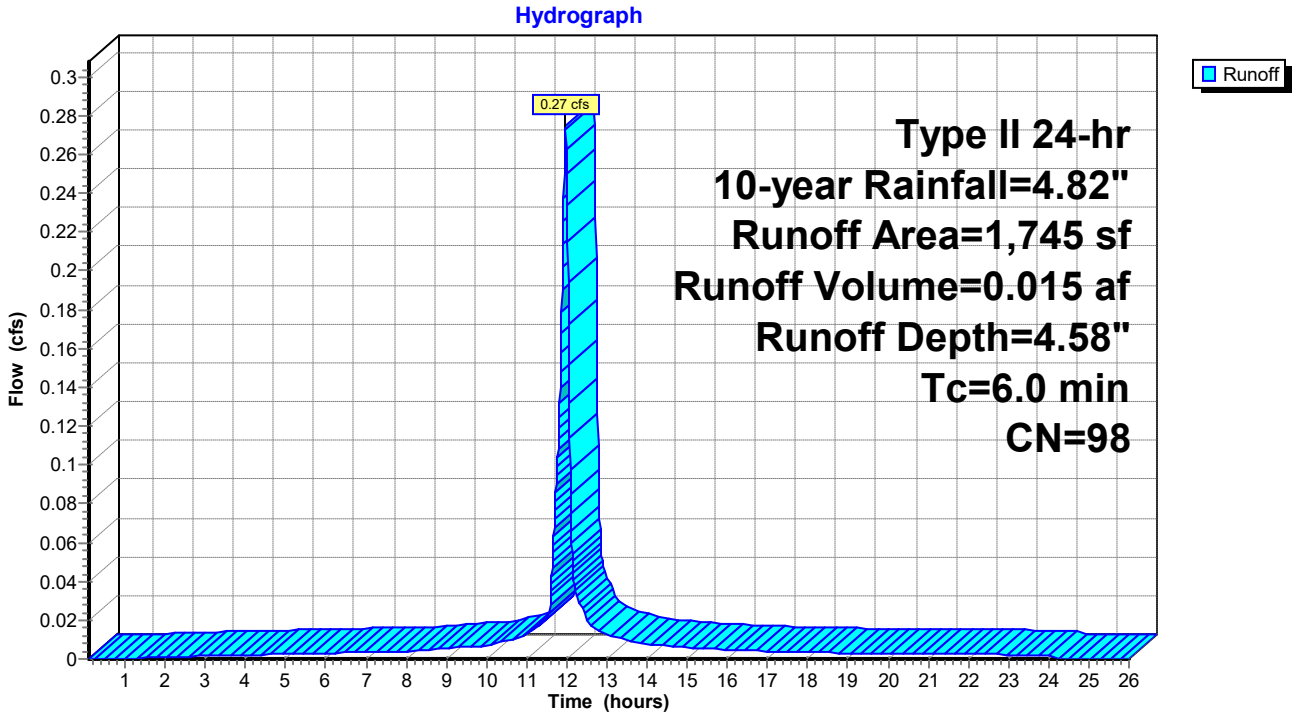
Runoff = 0.27 cfs @ 11.97 hrs, Volume= 0.015 af, Depth= 4.58"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

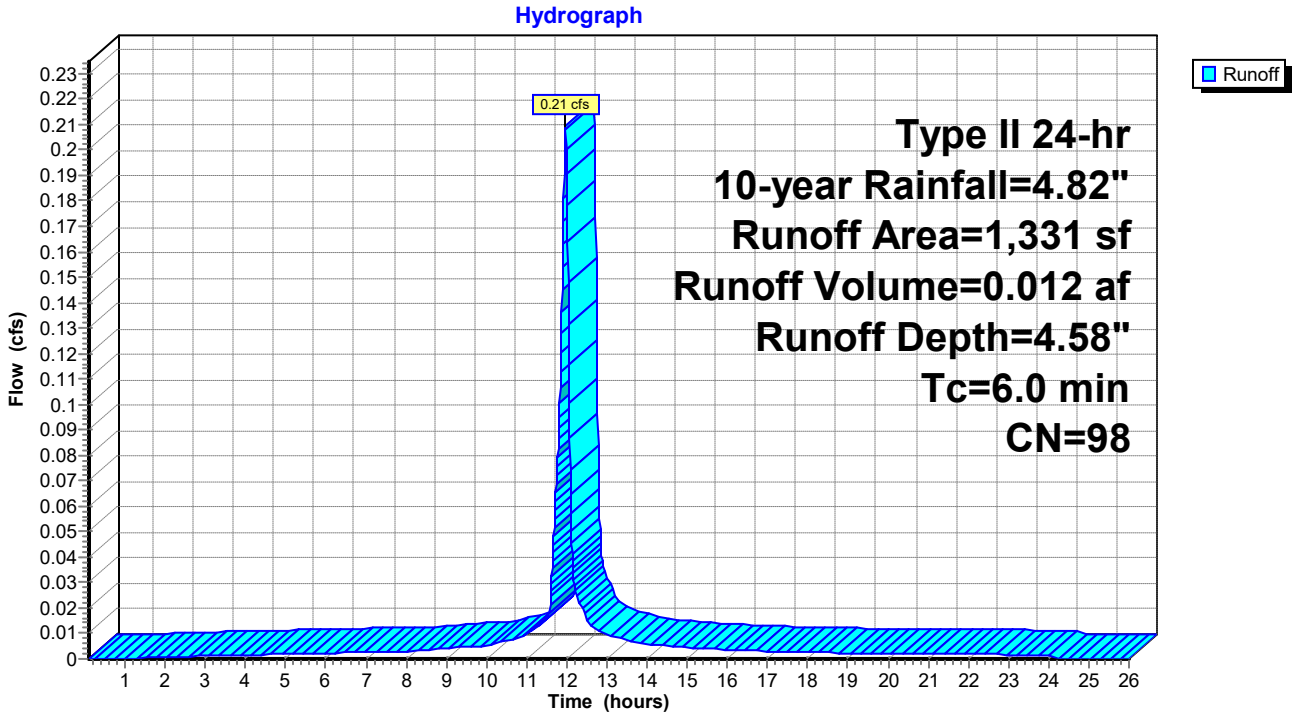
Runoff = 0.21 cfs @ 11.97 hrs, Volume= 0.012 af, Depth= 4.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

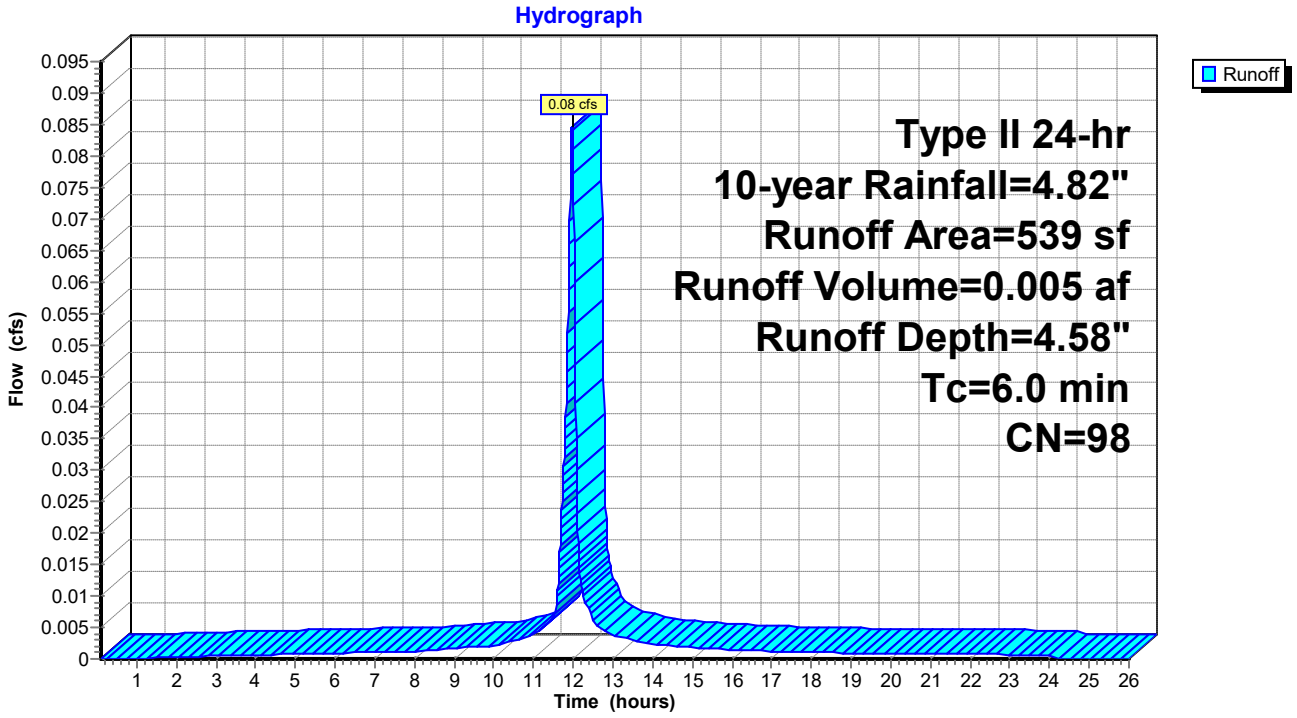
Runoff = 0.08 cfs @ 11.97 hrs, Volume= 0.005 af, Depth= 4.58"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

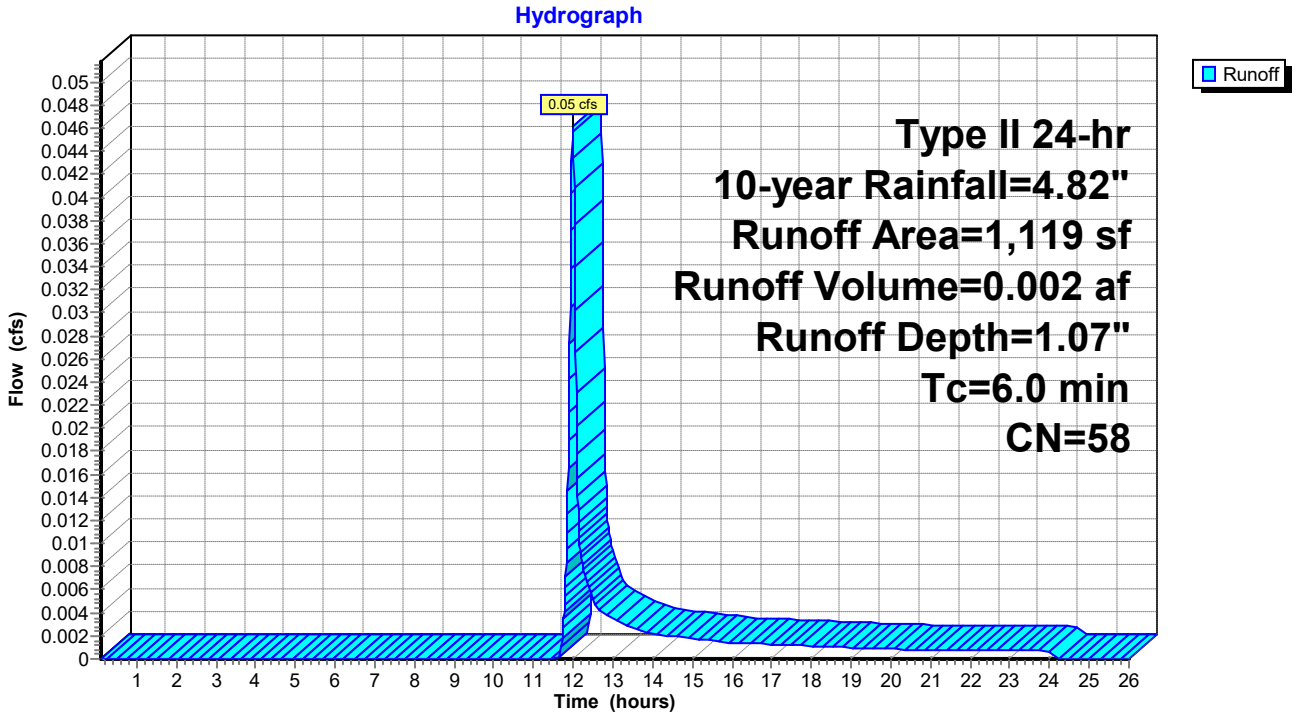
Runoff = 0.05 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 1.07"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

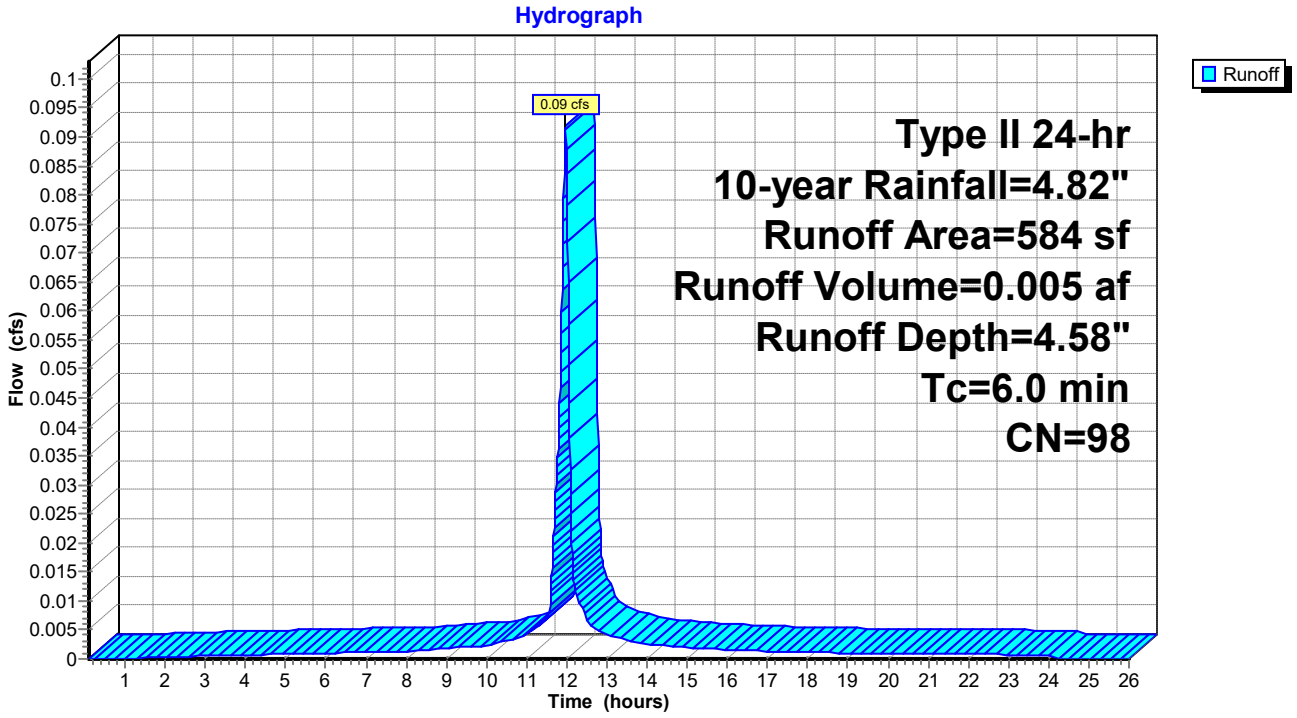
Runoff = 0.09 cfs @ 11.97 hrs, Volume= 0.005 af, Depth= 4.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

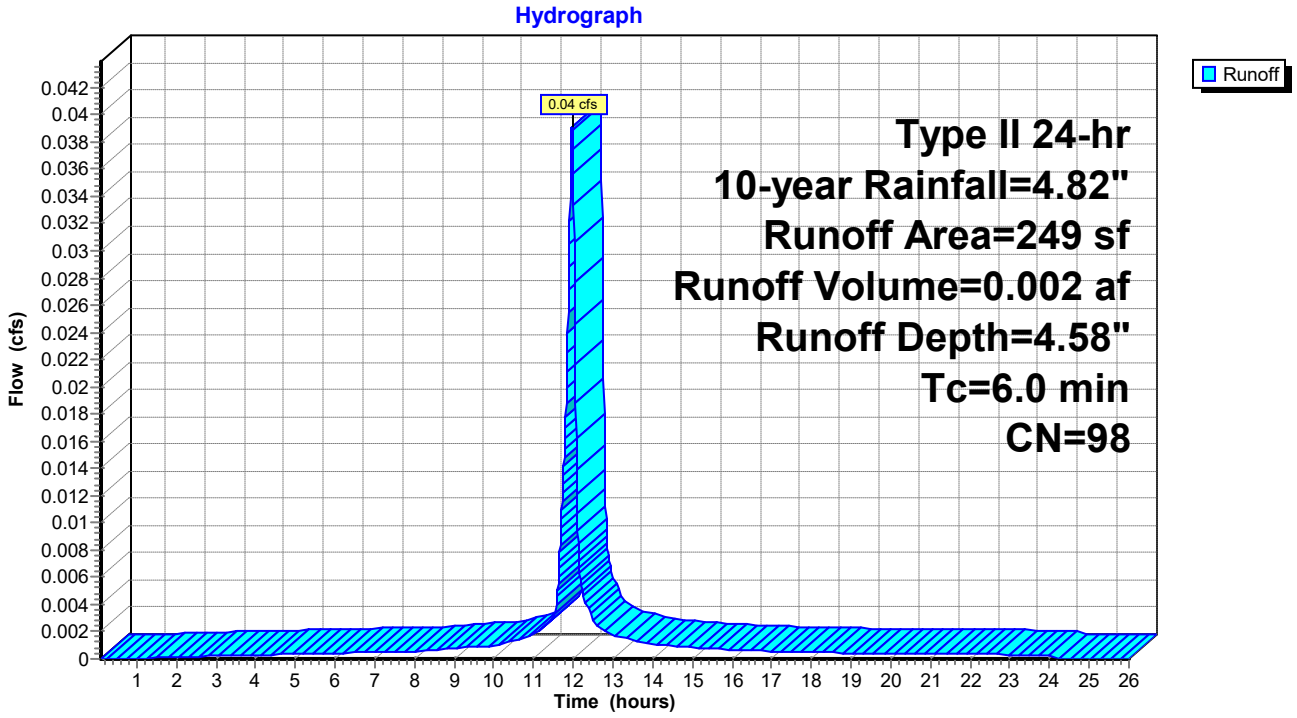
Runoff = 0.04 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

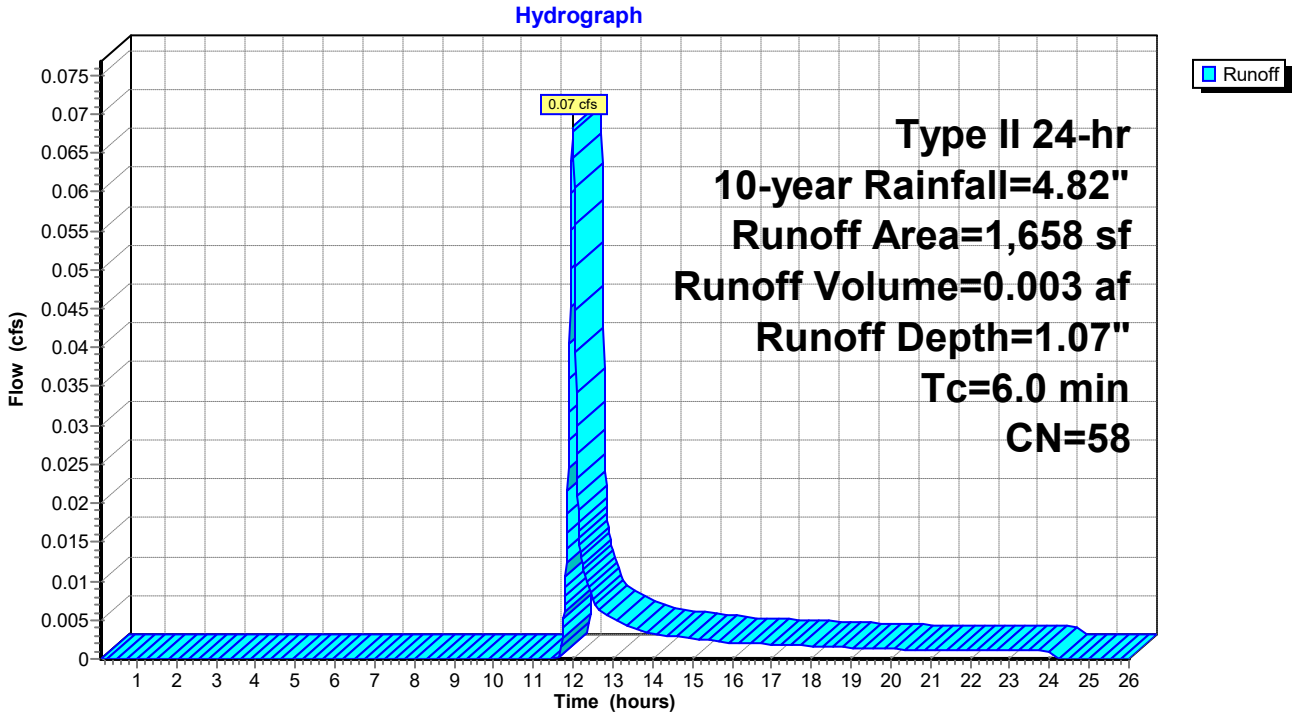
Runoff = 0.07 cfs @ 11.99 hrs, Volume= 0.003 af, Depth= 1.07"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

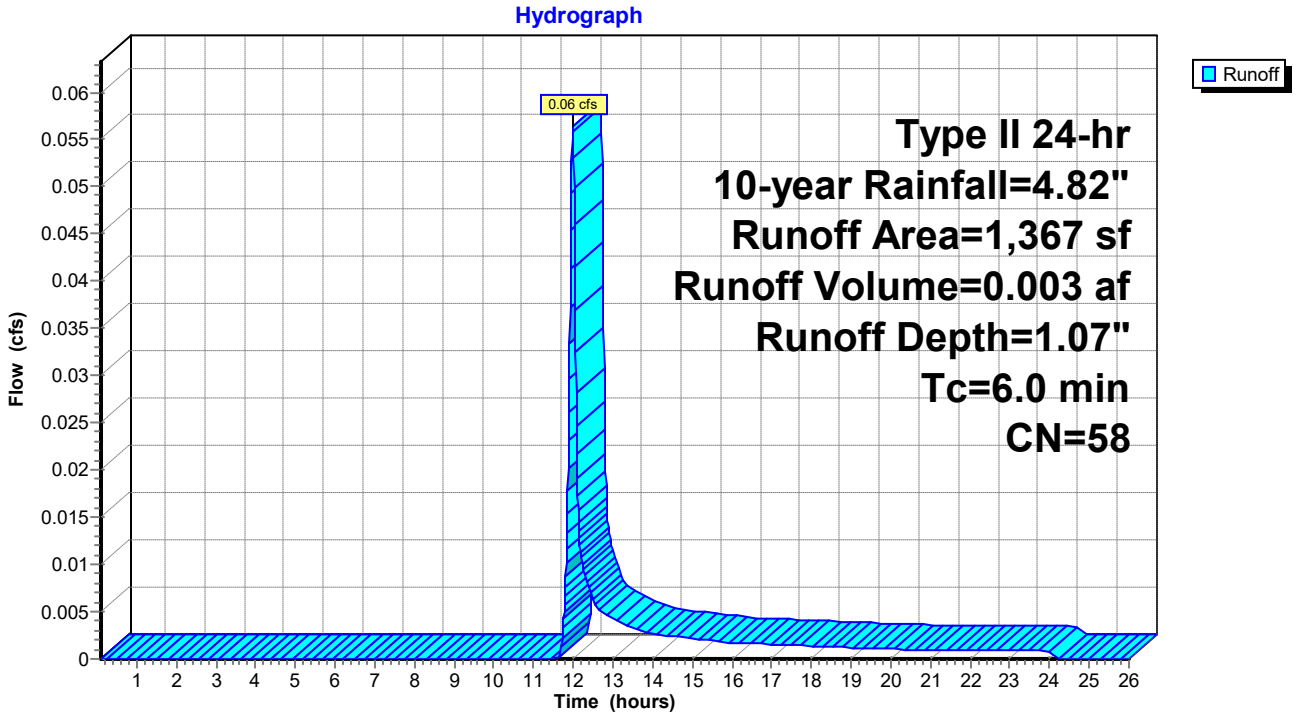
Runoff = 0.06 cfs @ 11.99 hrs, Volume= 0.003 af, Depth= 1.07"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

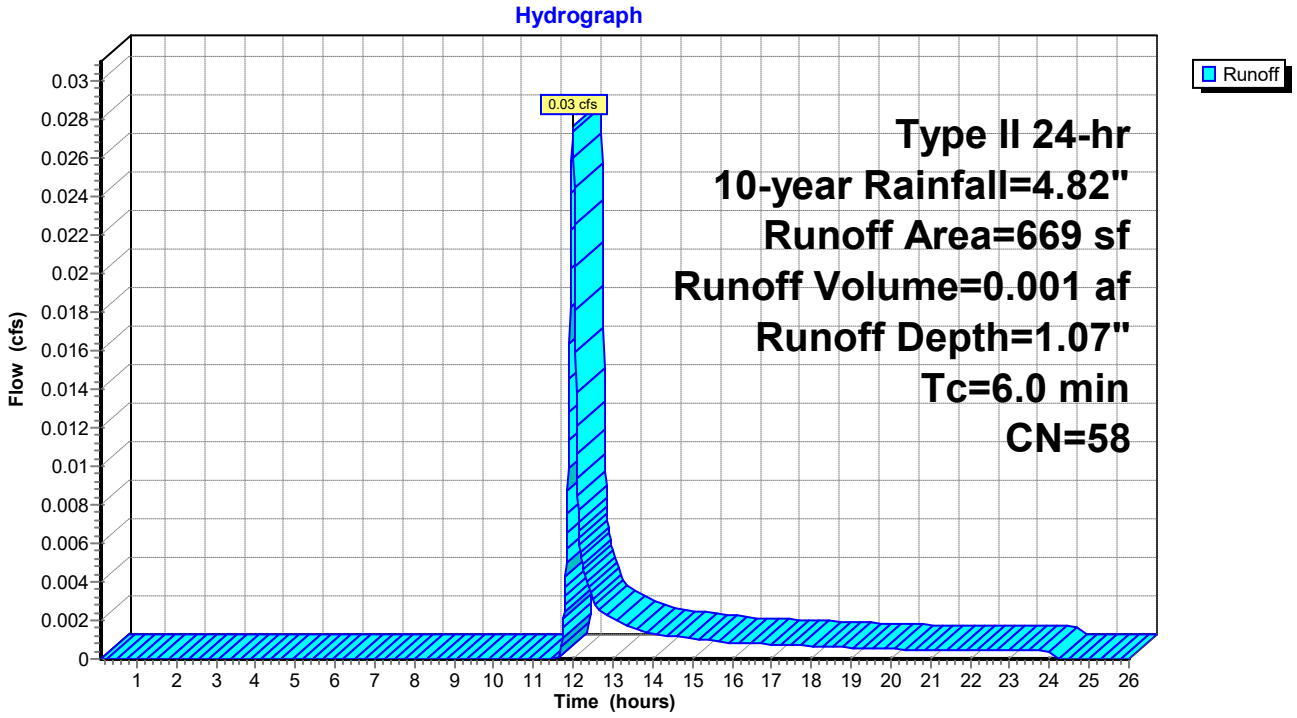
Runoff = 0.03 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 1.07"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

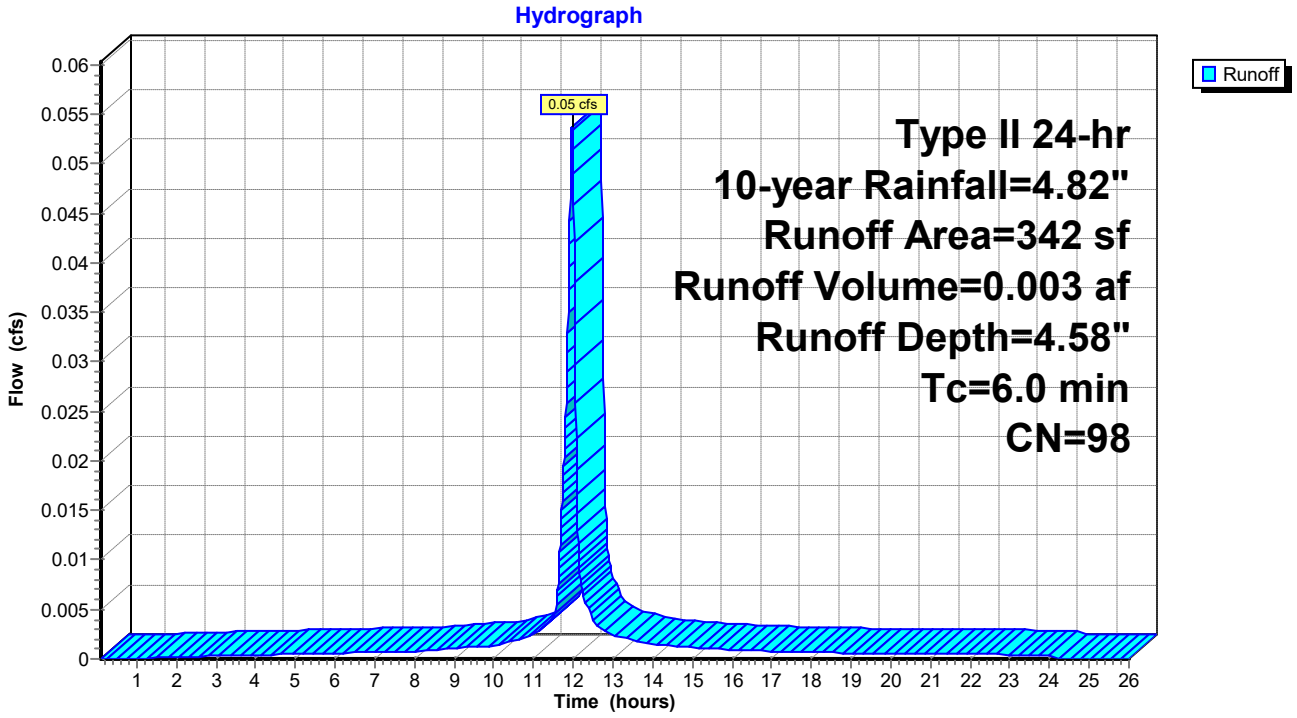
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

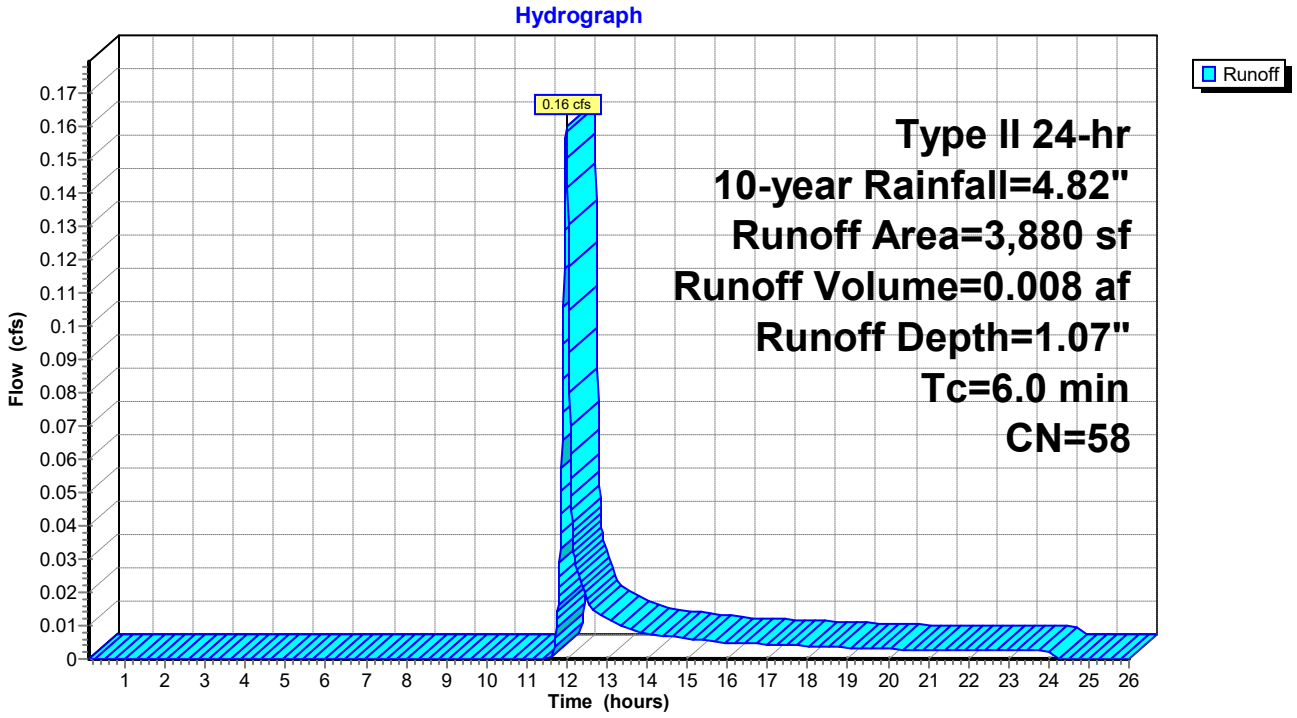
Runoff = 0.16 cfs @ 11.99 hrs, Volume= 0.008 af, Depth= 1.07"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

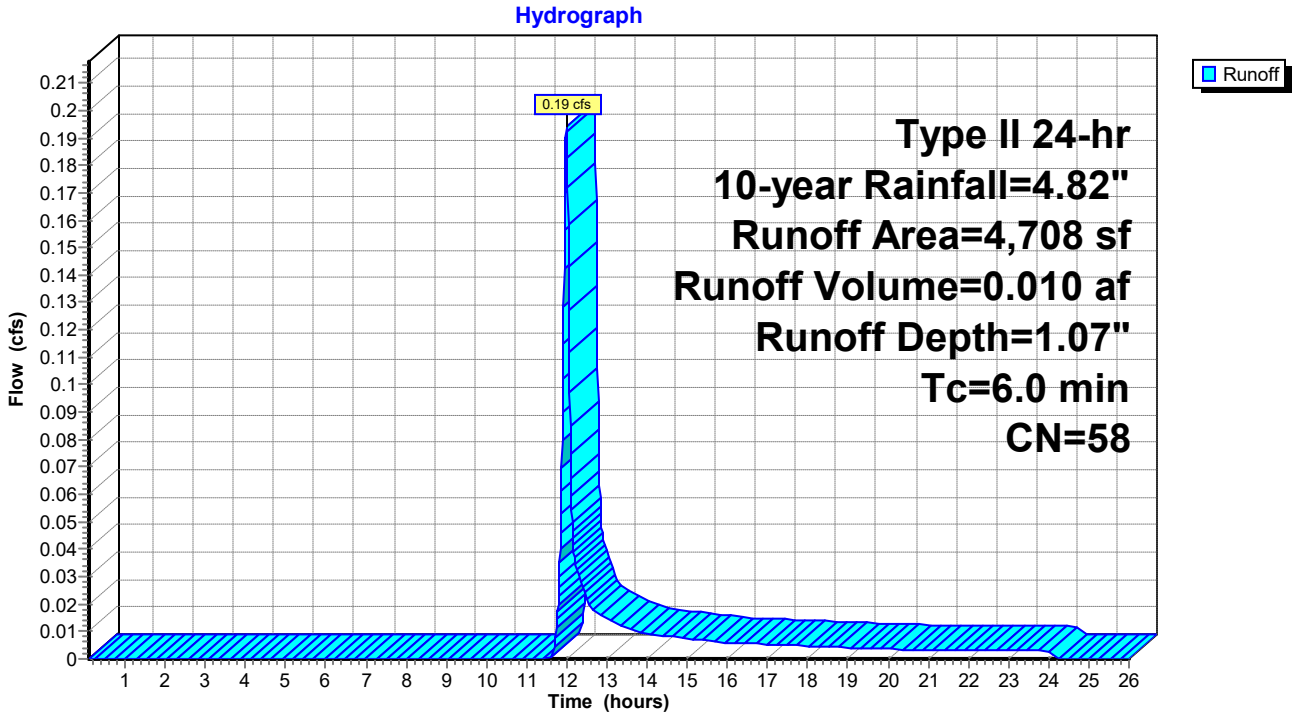
Runoff = 0.19 cfs @ 11.99 hrs, Volume= 0.010 af, Depth= 1.07"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

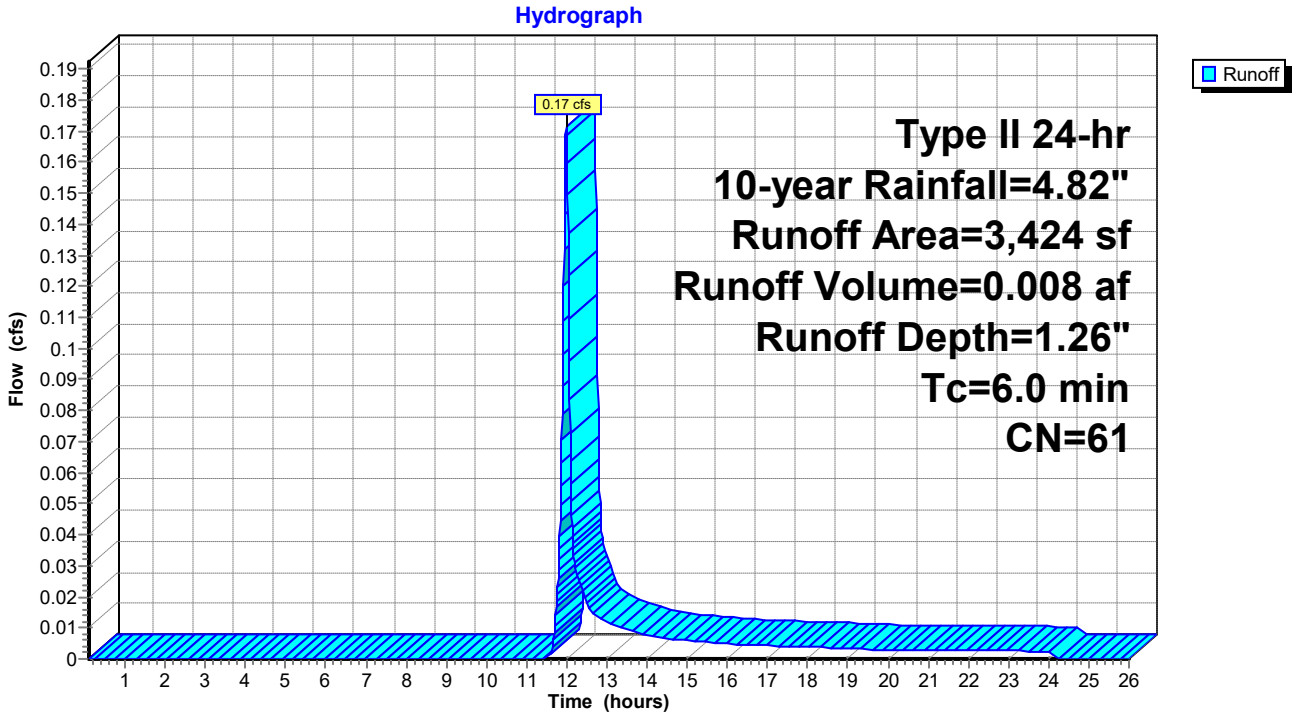
Runoff = 0.17 cfs @ 11.98 hrs, Volume= 0.008 af, Depth= 1.26"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

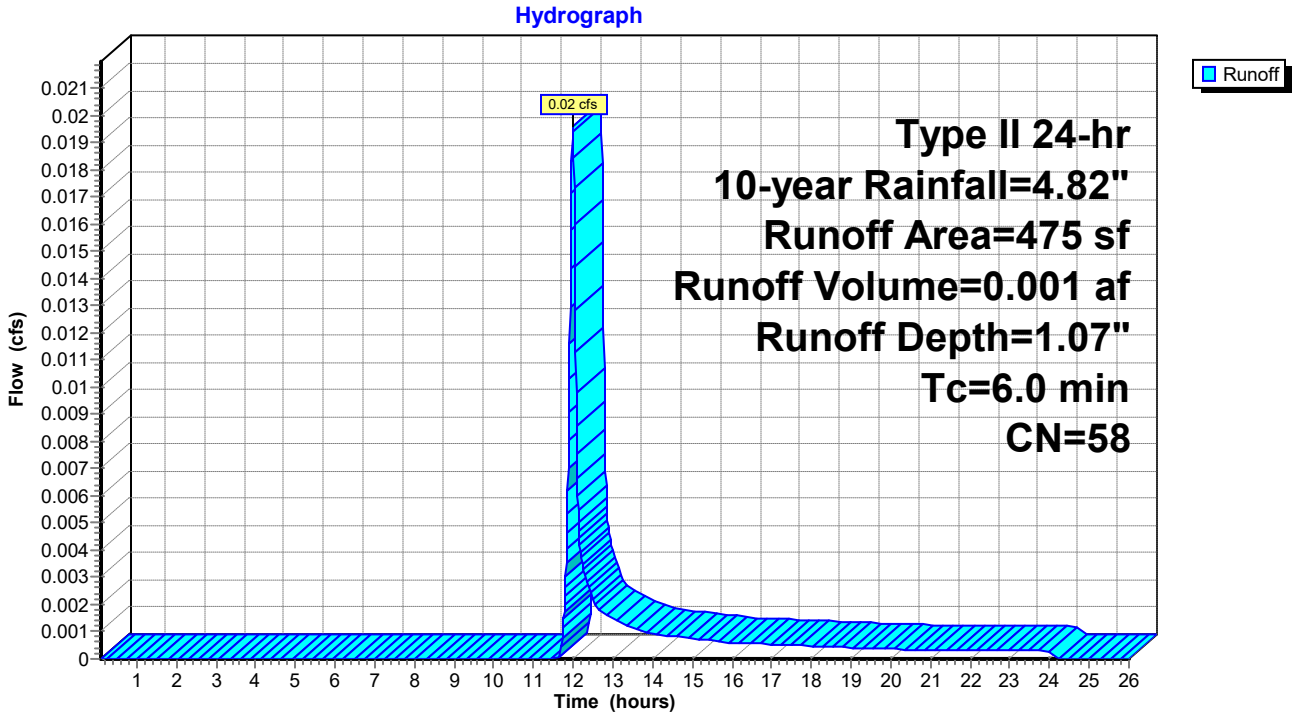
Runoff = 0.02 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 1.07"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

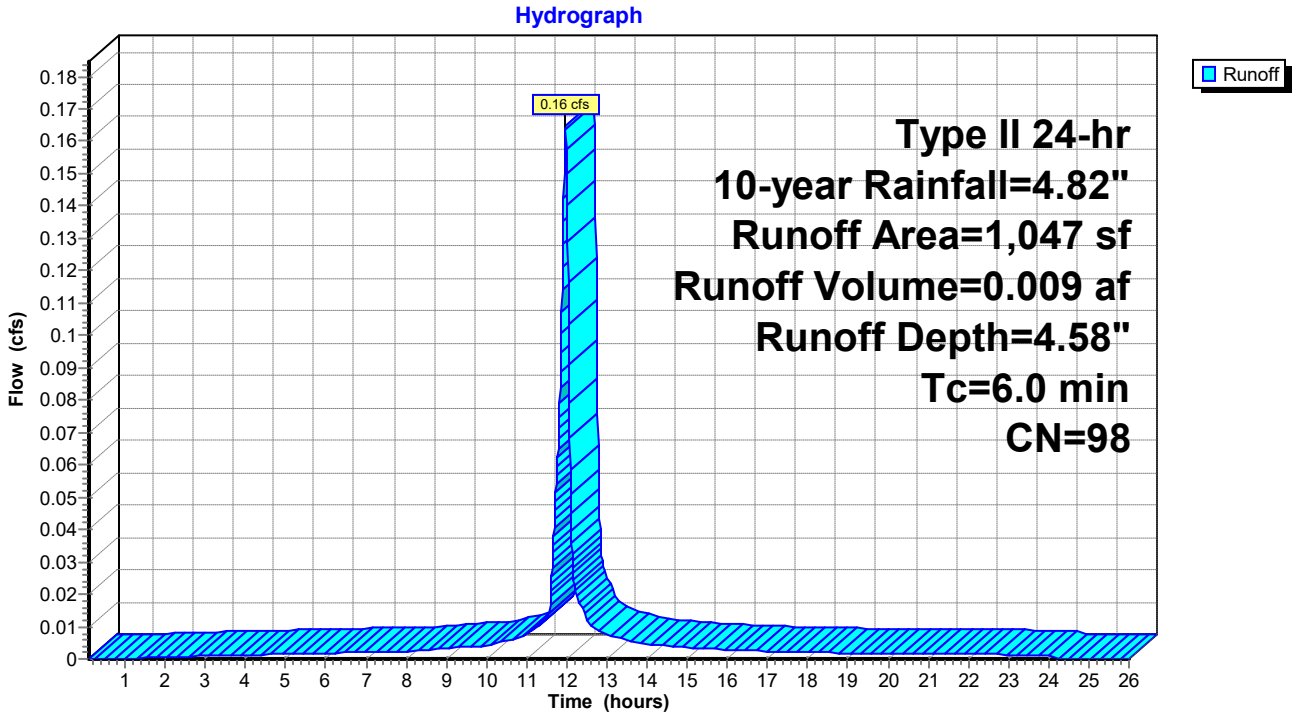
Runoff = 0.16 cfs @ 11.97 hrs, Volume= 0.009 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

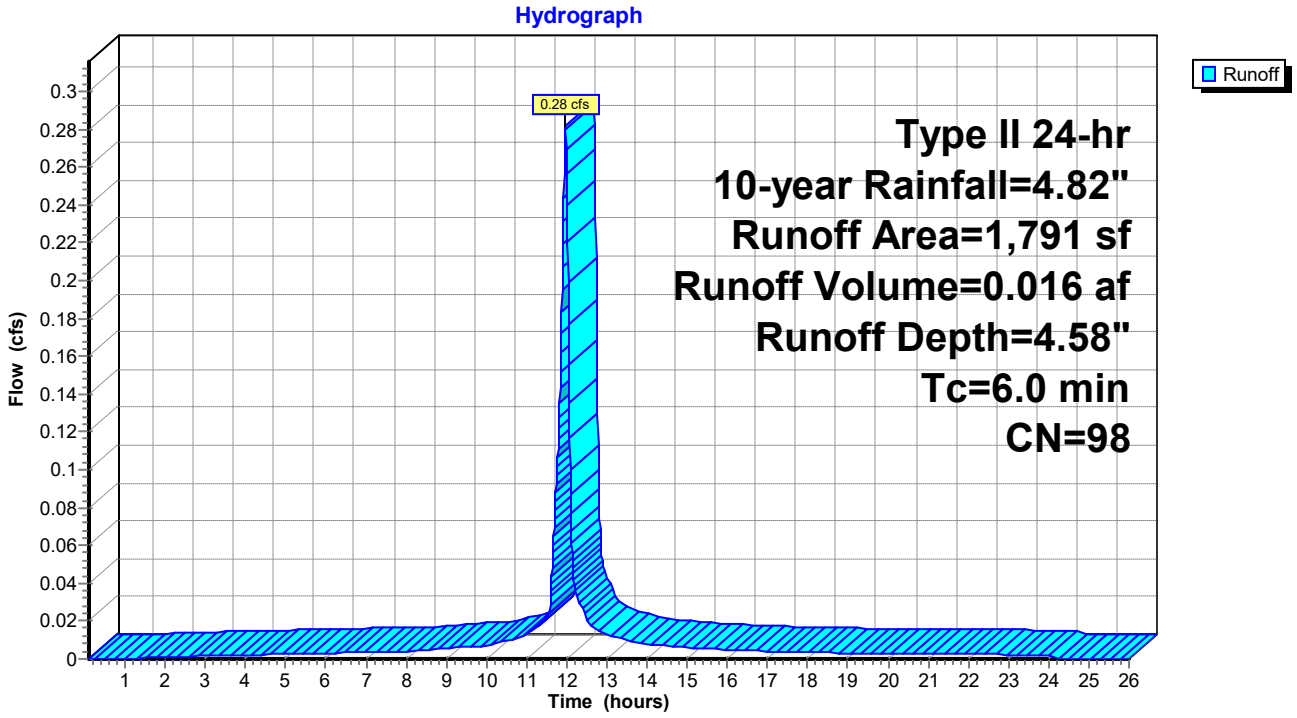
Runoff = 0.28 cfs @ 11.97 hrs, Volume= 0.016 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 2.95" for 10-year event
Inflow = 0.37 cfs @ 11.97 hrs, Volume= 0.020 af
Outflow = 0.01 cfs @ 18.39 hrs, Volume= 0.004 af, Atten= 99%, Lag= 385.1 min
Primary = 0.01 cfs @ 18.39 hrs, Volume= 0.004 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.50' @ 18.39 hrs Surf.Area= 861 sf Storage= 730 cf

Plug-Flow detention time= 558.6 min calculated for 0.004 af (18% of inflow)
Center-of-Mass det. time= 290.4 min (1,058.1 - 767.7)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

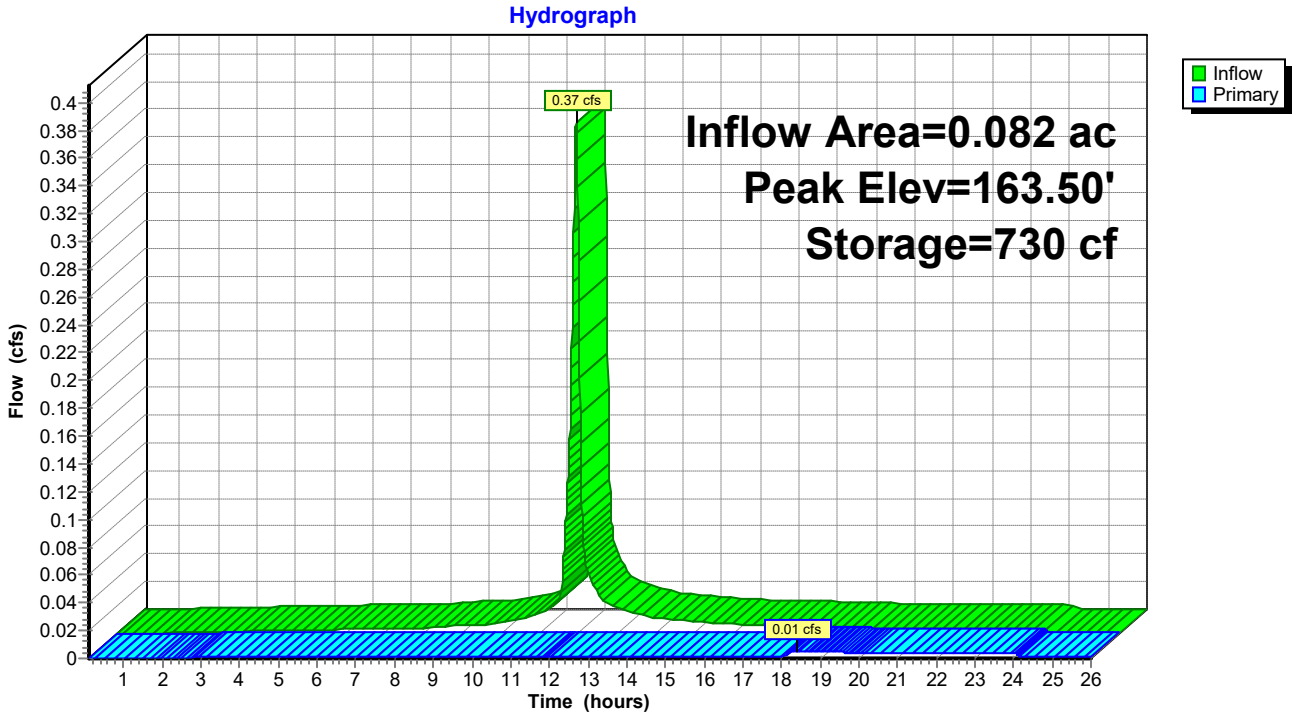
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 18.39 hrs HW=163.50' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.14 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.37 cfs
0.01 cfs
Inflow Area=0.082 ac
Peak Elev=163.50'
Storage=730 cf
Flow (cfs)
Time (hours)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
0.28
0.3
0.32
0.34
0.36
0.38
0.4
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 1.07" for 10-year event
Inflow = 0.06 cfs @ 11.99 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 24.08 hrs, Volume= 0.001 af, Atten= 99%, Lag= 725.7 min
Primary = 0.00 cfs @ 24.08 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 161.68' @ 24.08 hrs Surf.Area= 301 sf Storage= 101 cf

Plug-Flow detention time= 424.0 min calculated for 0.001 af (20% of inflow)
Center-of-Mass det. time= 257.1 min (1,139.2 - 882.1)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

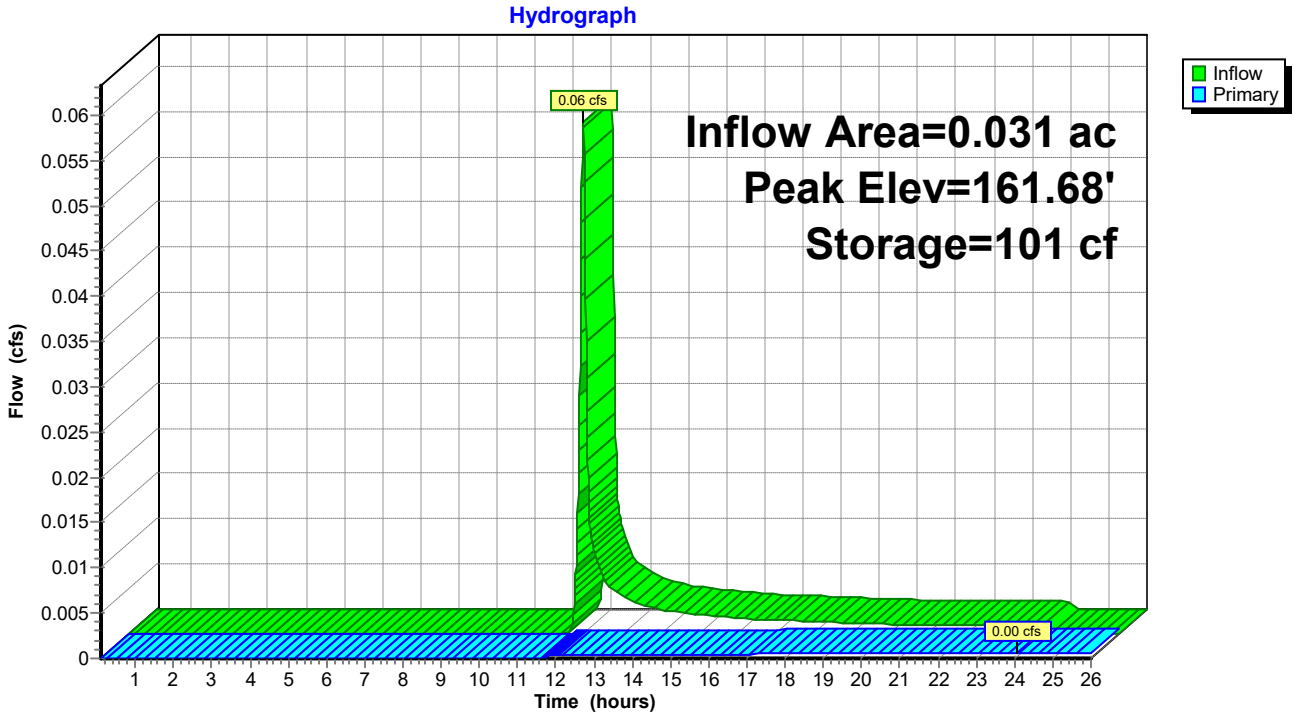
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.08 hrs HW=161.68' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.06 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=161.68'
Storage=101 cf
Flow (cfs)
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
0.045
0.05
0.055
0.06
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 2.38" for 10-year event
Inflow = 0.44 cfs @ 11.97 hrs, Volume= 0.024 af
Outflow = 0.44 cfs @ 11.98 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.4 min
Primary = 0.44 cfs @ 11.98 hrs, Volume= 0.020 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.60' @ 11.98 hrs Surf.Area= 186 sf Storage= 170 cf

Plug-Flow detention time= 121.9 min calculated for 0.020 af (85% of inflow)
Center-of-Mass det. time= 49.1 min (838.3 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

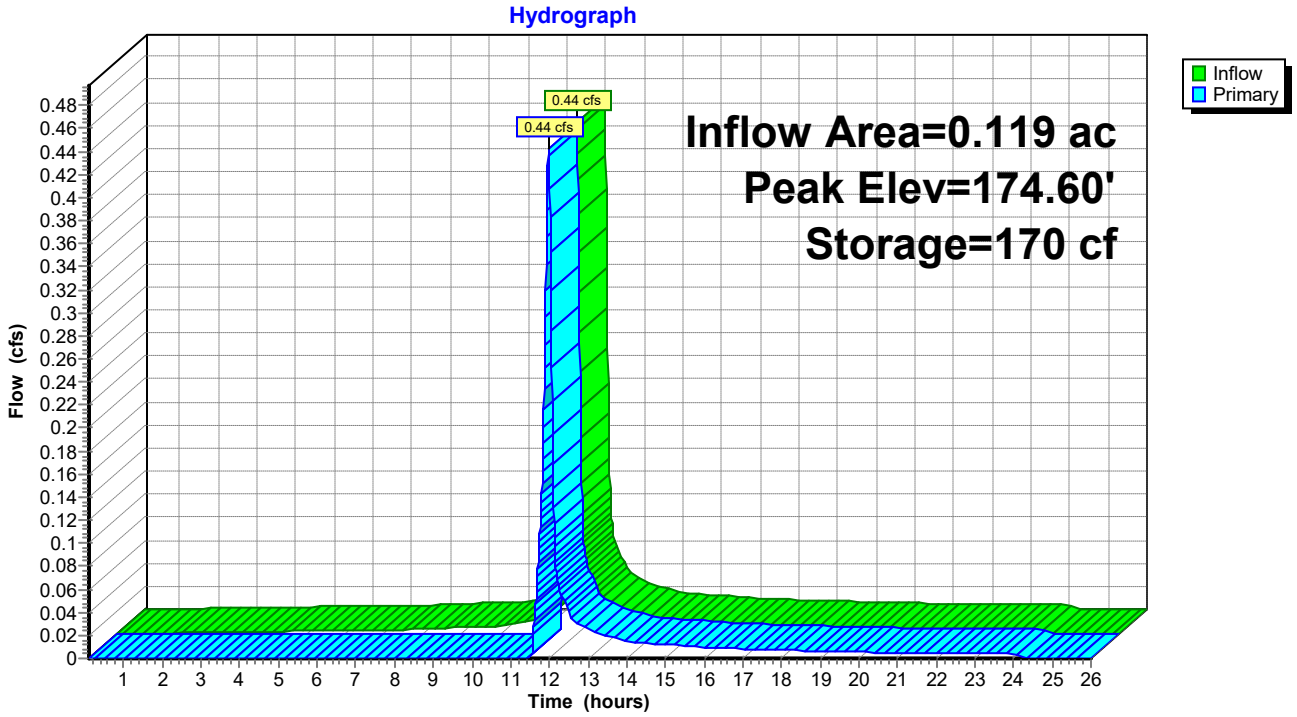
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.43 cfs @ 11.98 hrs HW=174.60' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.43 cfs @ 1.05 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.44 cfs
0.44 cfs
Inflow Area=0.119 ac
Peak Elev=174.60'
Storage=170 cf
Flow (cfs)
Time (hours)

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 1.40" for 10-year event
Inflow = 0.30 cfs @ 11.98 hrs, Volume= 0.015 af
Outflow = 0.29 cfs @ 11.99 hrs, Volume= 0.013 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.00 cfs @ 11.99 hrs, Volume= 0.001 af
Primary = 0.29 cfs @ 11.99 hrs, Volume= 0.012 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.70' @ 11.99 hrs Surf.Area= 171 sf Storage= 135 cf

Plug-Flow detention time= 129.3 min calculated for 0.013 af (82% of inflow)
Center-of-Mass det. time= 45.7 min (885.4 - 839.7)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

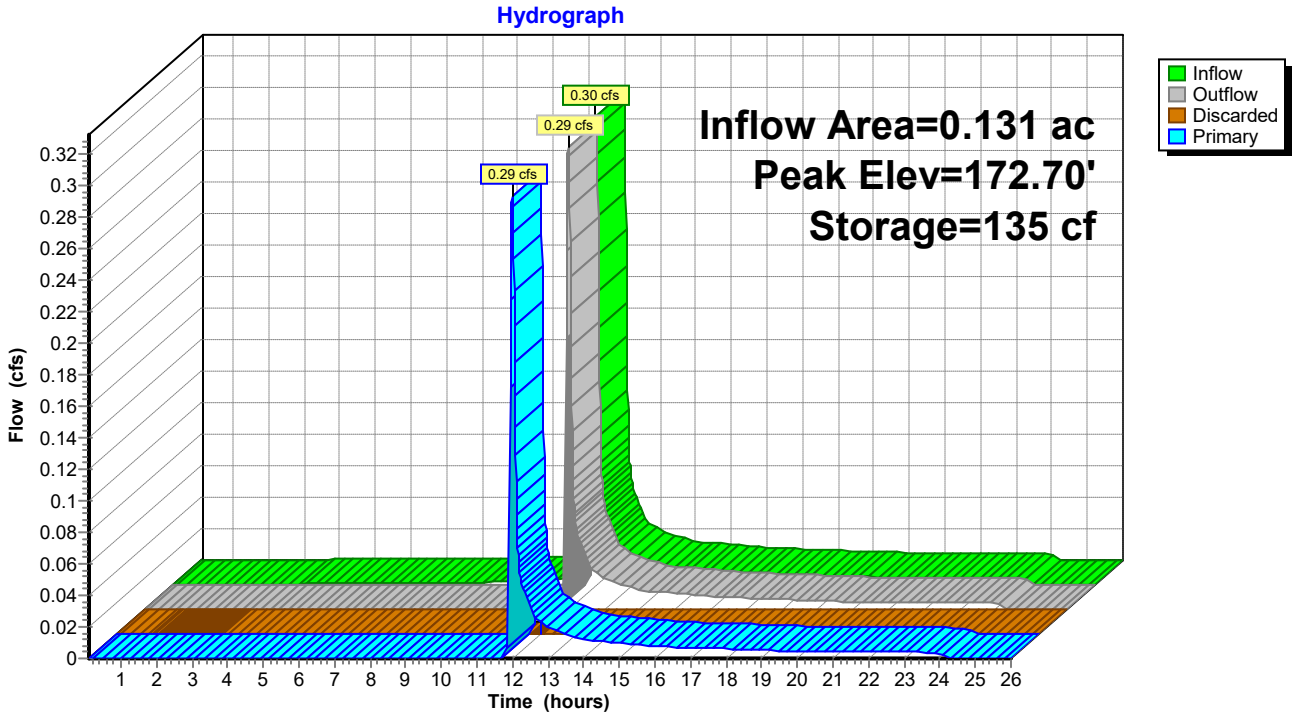
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.99 hrs HW=172.70' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.29 cfs @ 11.99 hrs HW=172.70' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.29 cfs @ 1.44 fps)

Pond RG-4: RG-4

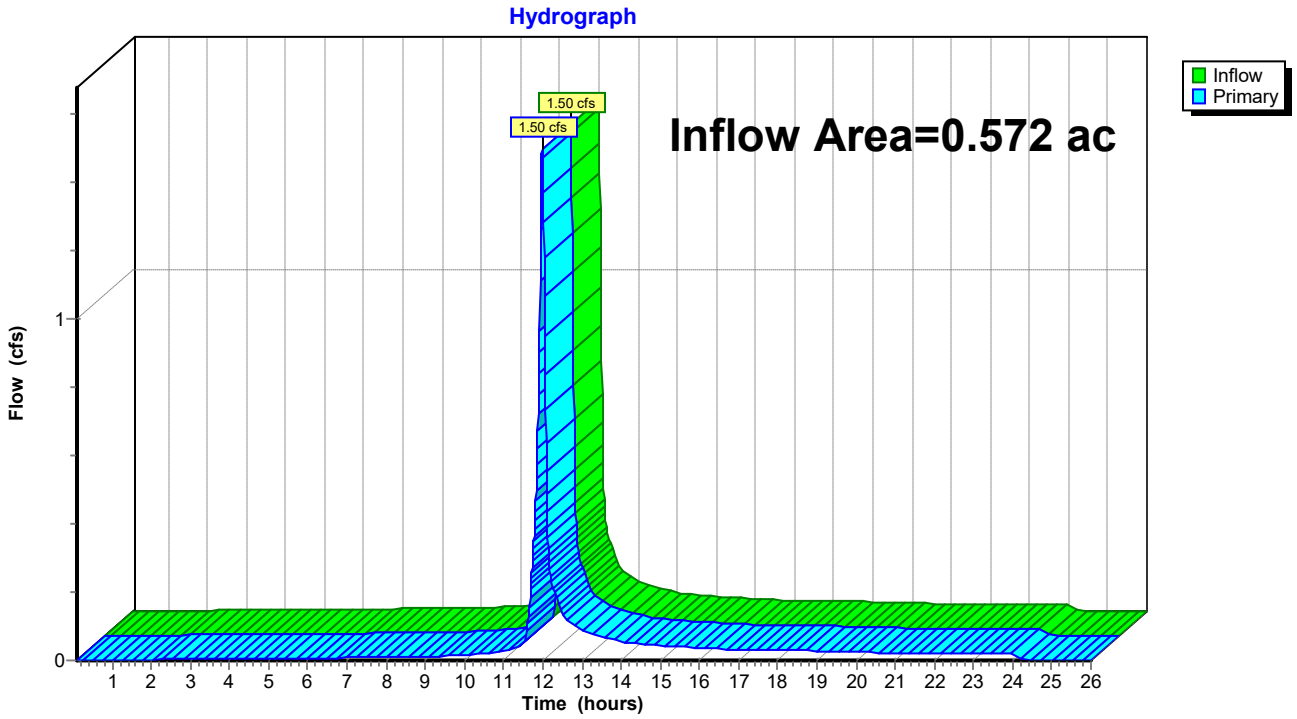

Hydrograph
Inflow
Outflow
Discarded
Primary
0.30 cfs
0.29 cfs
0.29 cfs
Inflow Area=0.131 ac
Peak Elev=172.70'
Storage=135 cf
Flow (cfs)
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2 0.22 0.24 0.26 0.28 0.3 0.32
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 1.64" for 10-year event
Inflow = 1.50 cfs @ 11.98 hrs, Volume= 0.078 af
Primary = 1.50 cfs @ 11.98 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=2.94"
Flow Length=487' Tc=13.0 min CN=73 Runoff=2.33 cfs 0.140 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.019 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.014 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.006 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.07 cfs 0.004 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.006 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.11 cfs 0.005 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.09 cfs 0.004 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.26 cfs 0.012 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.31 cfs 0.015 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=1.89"
Tc=6.0 min CN=61 Runoff=0.26 cfs 0.012 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.03 cfs 0.001 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.20 cfs 0.011 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.019 af

Pond RG-1: RG-1 Peak Elev=163.51' Storage=735 cf Inflow=0.47 cfs 0.026 af
Outflow=0.03 cfs 0.009 af

Pond RG-2: RG-2 Peak Elev=162.31' Storage=164 cf Inflow=0.09 cfs 0.004 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.63' Storage=173 cf Inflow=0.59 cfs 0.031 af
Outflow=0.59 cfs 0.027 af

Pond RG-4: RG-4 Peak Elev=172.75' Storage=140 cf Inflow=0.44 cfs 0.022 af
Discarded=0.00 cfs 0.001 af Primary=0.44 cfs 0.019 af Outflow=0.44 cfs 0.019 af

Link POA: POA Inflow=2.06 cfs 0.111 af
Primary=2.06 cfs 0.111 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.278 af Average Runoff Depth = 2.91"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

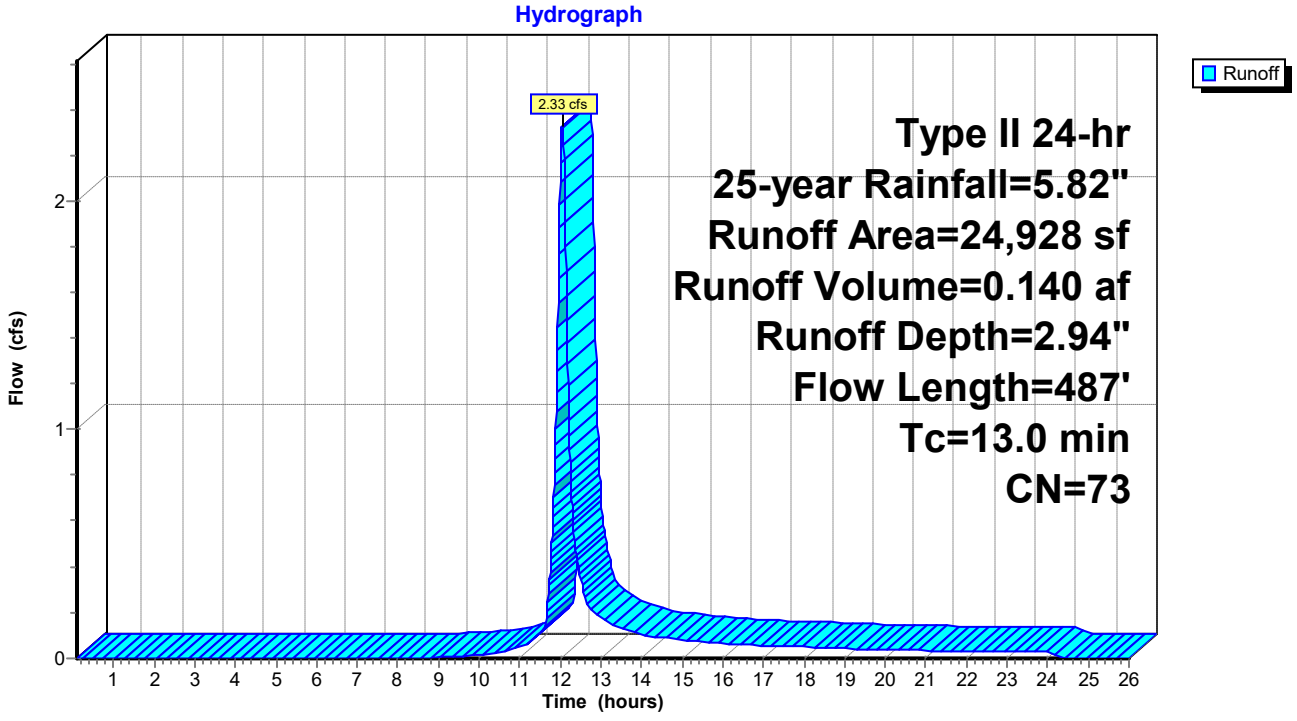
Runoff = 2.33 cfs @ 12.05 hrs, Volume= 0.140 af, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

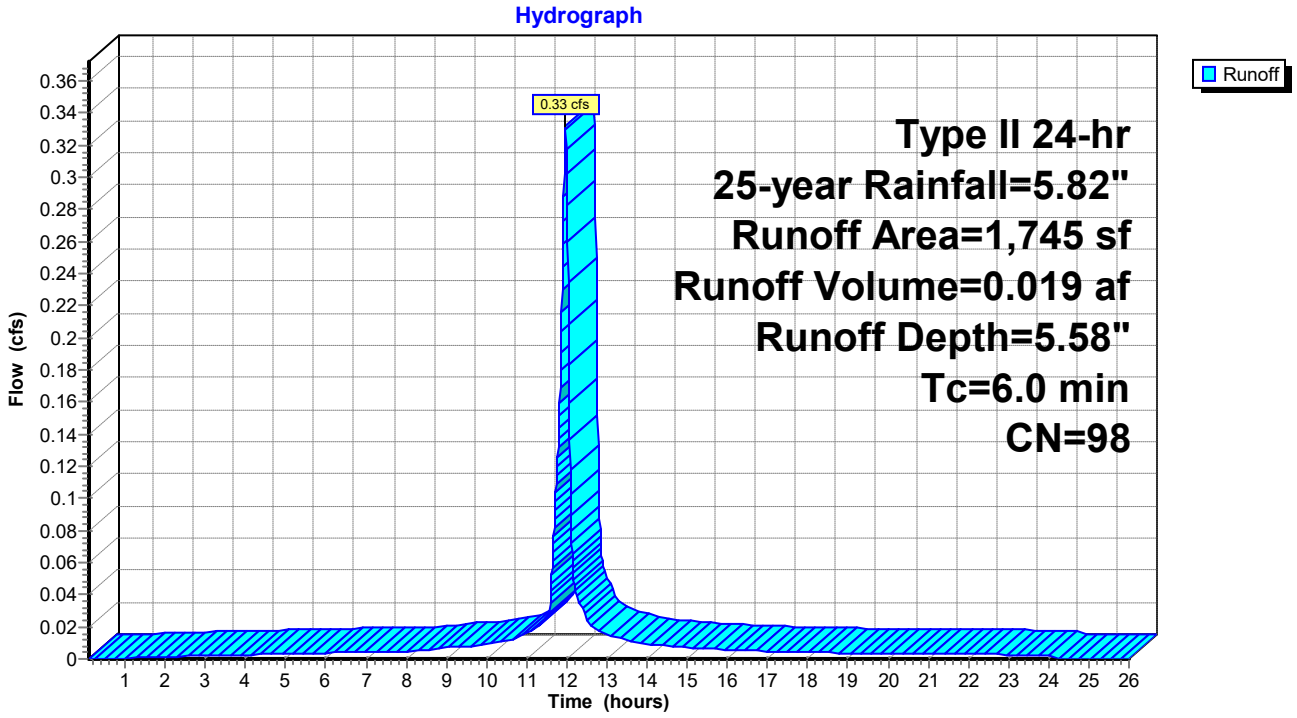
Runoff = 0.33 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 5.58"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

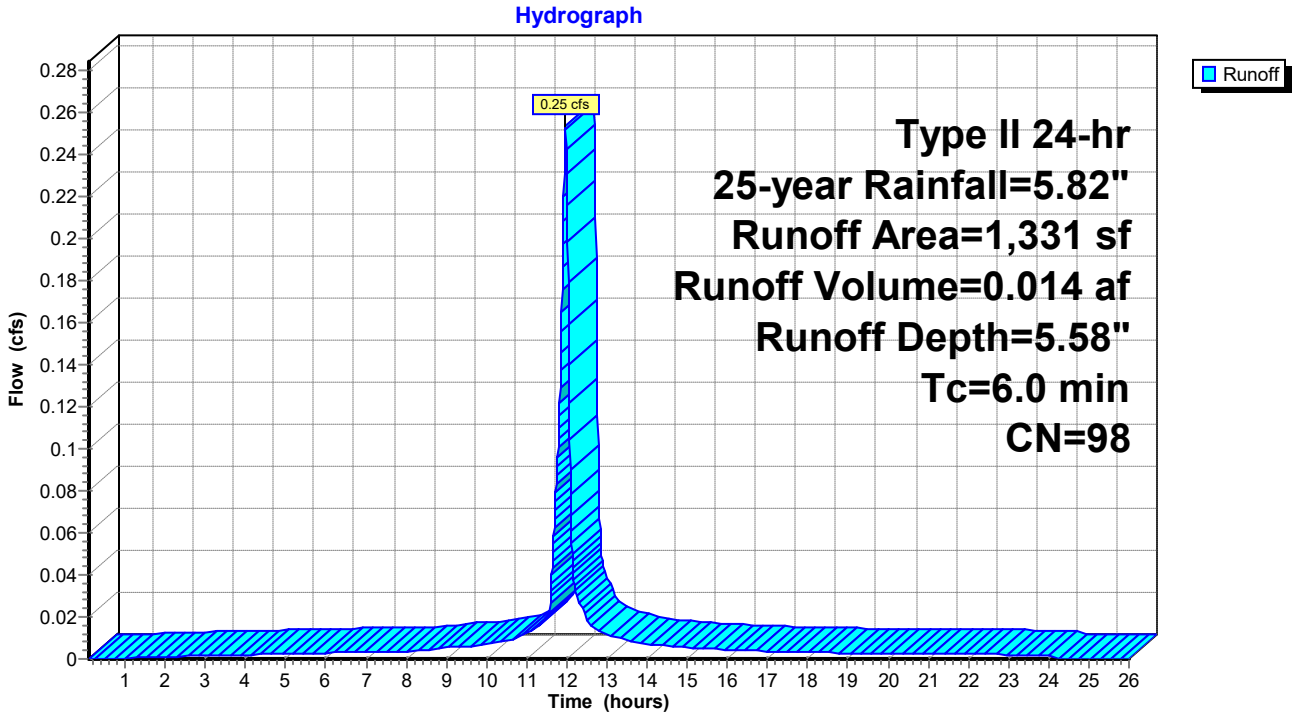
Runoff = 0.25 cfs @ 11.97 hrs, Volume= 0.014 af, Depth= 5.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

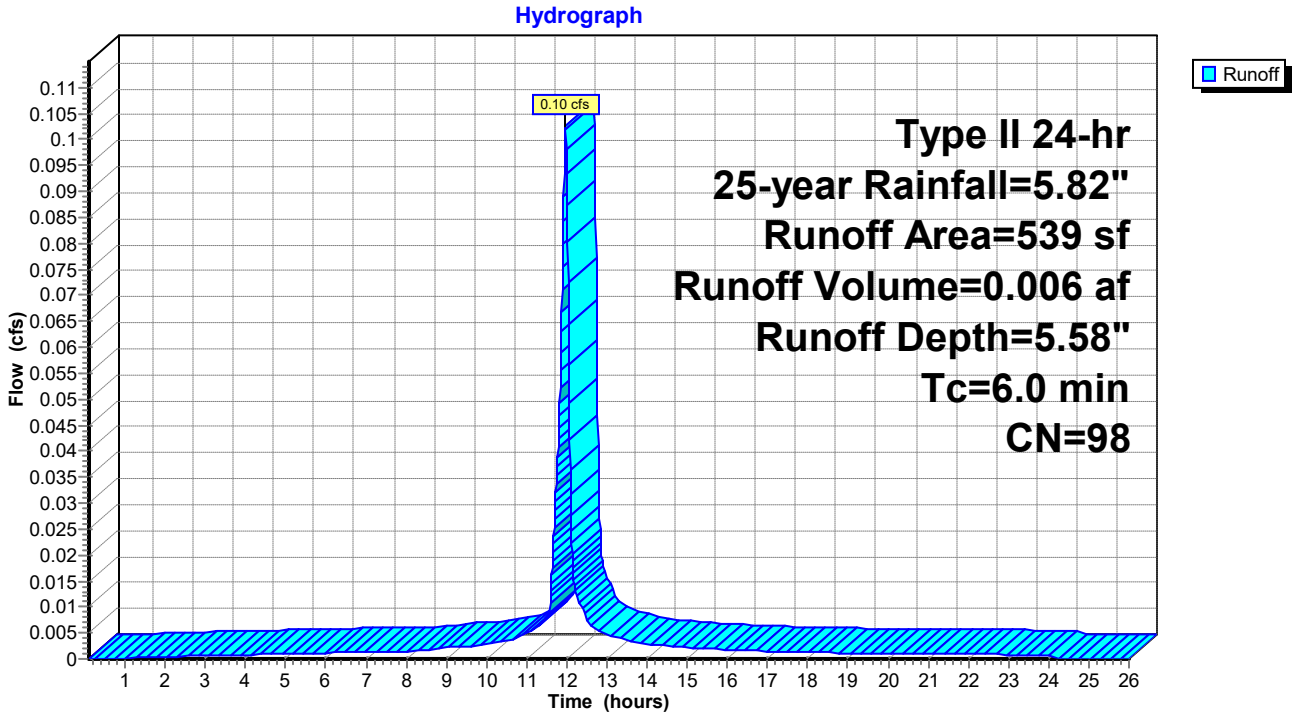
Runoff = 0.10 cfs @ 11.97 hrs, Volume= 0.006 af, Depth= 5.58"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

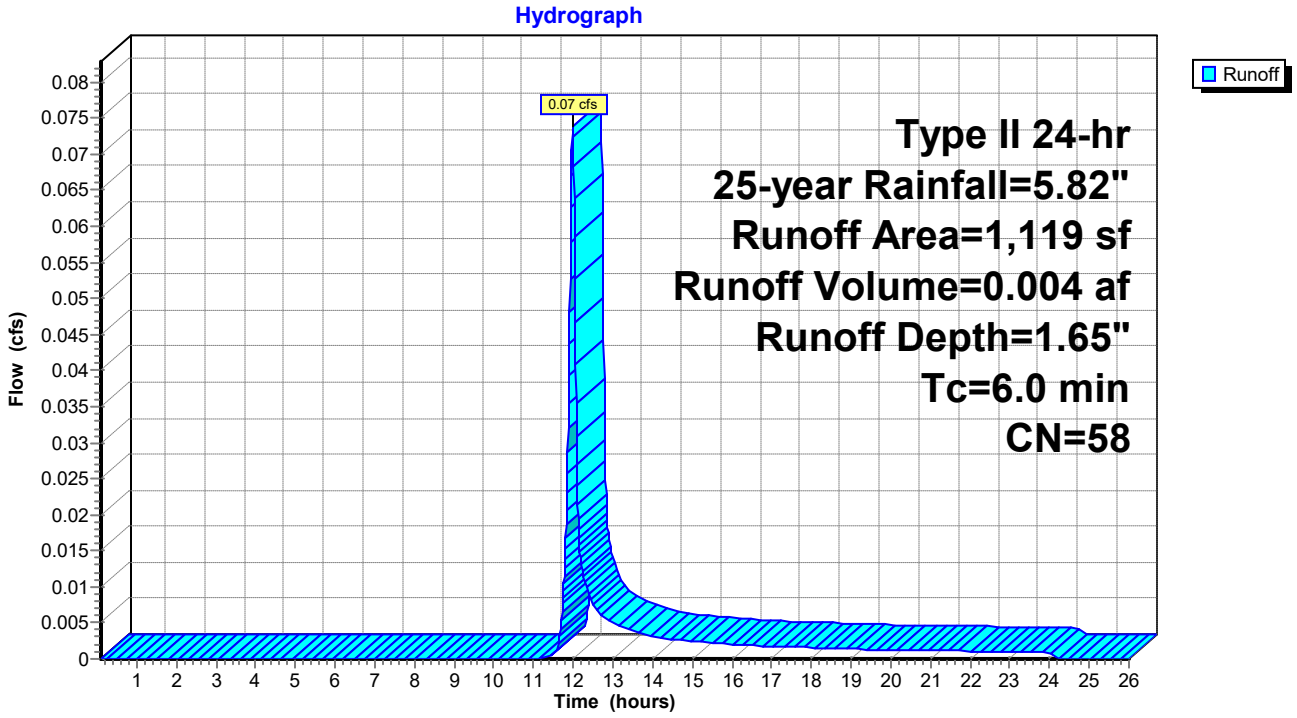
Runoff = 0.07 cfs @ 11.98 hrs, Volume= 0.004 af, Depth= 1.65"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

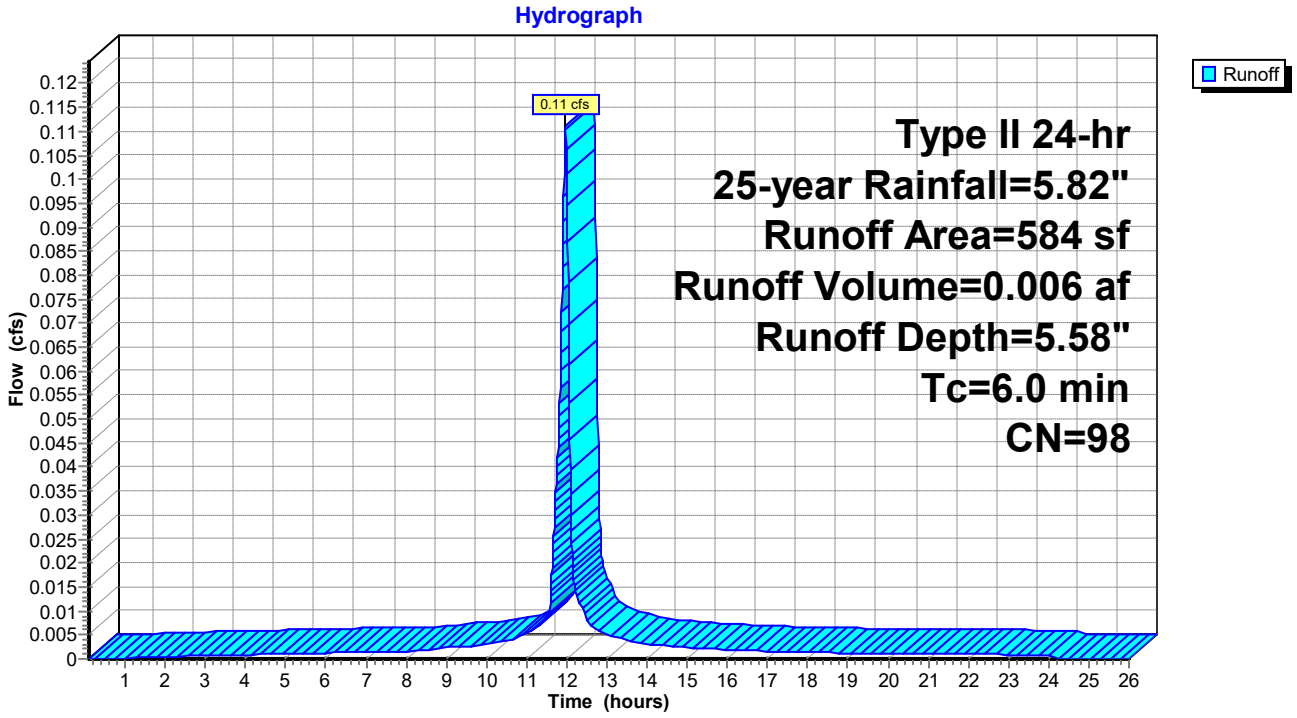
Runoff = 0.11 cfs @ 11.97 hrs, Volume= 0.006 af, Depth= 5.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

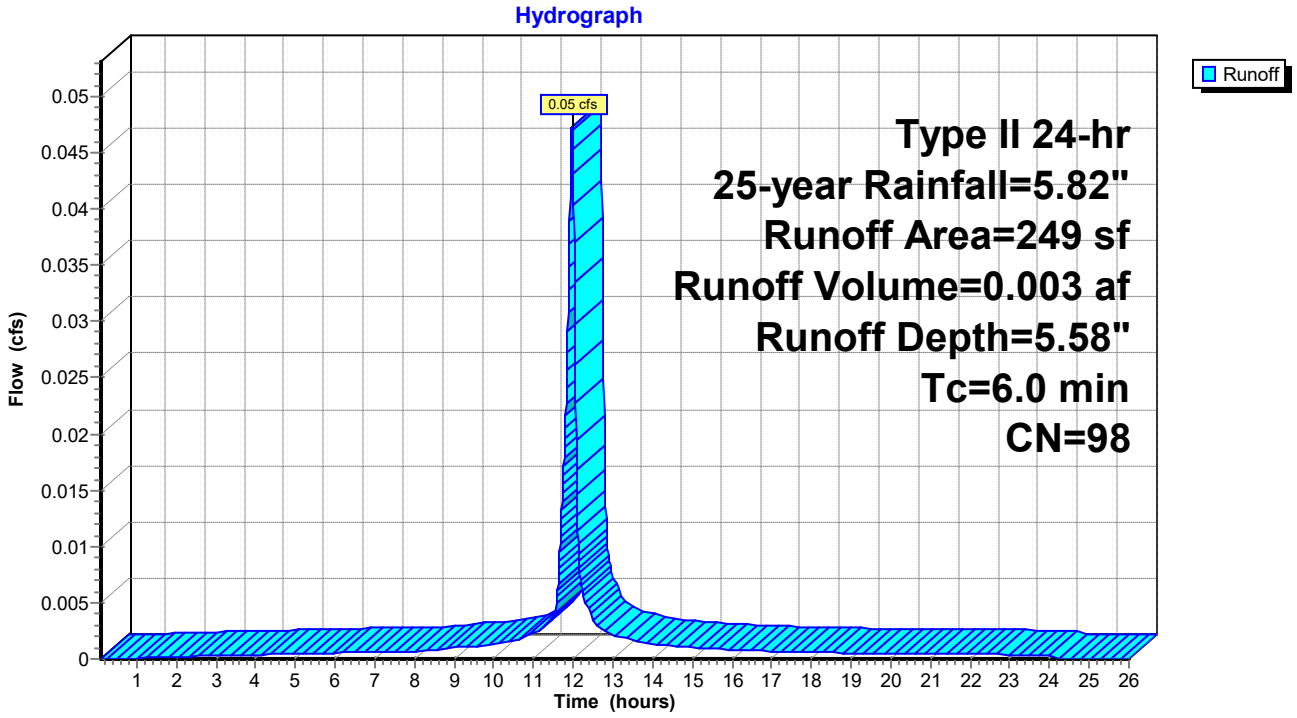
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

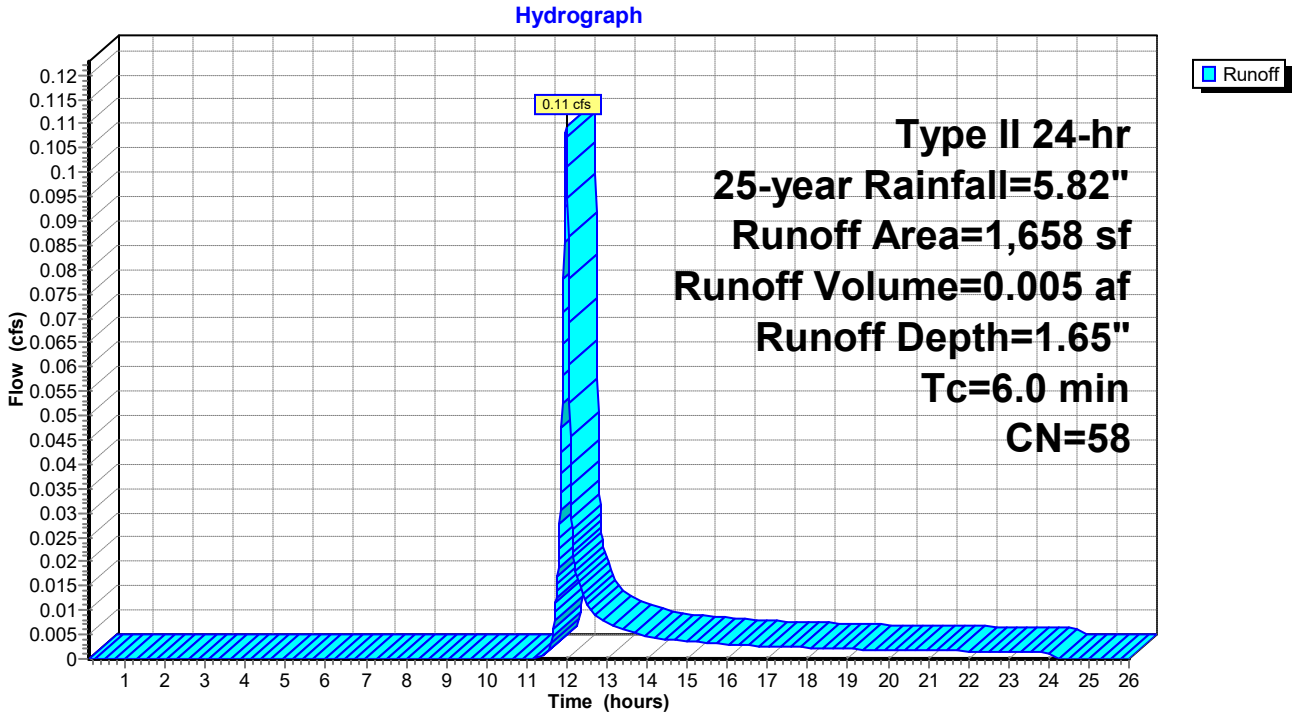
Runoff = 0.11 cfs @ 11.98 hrs, Volume= 0.005 af, Depth= 1.65"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

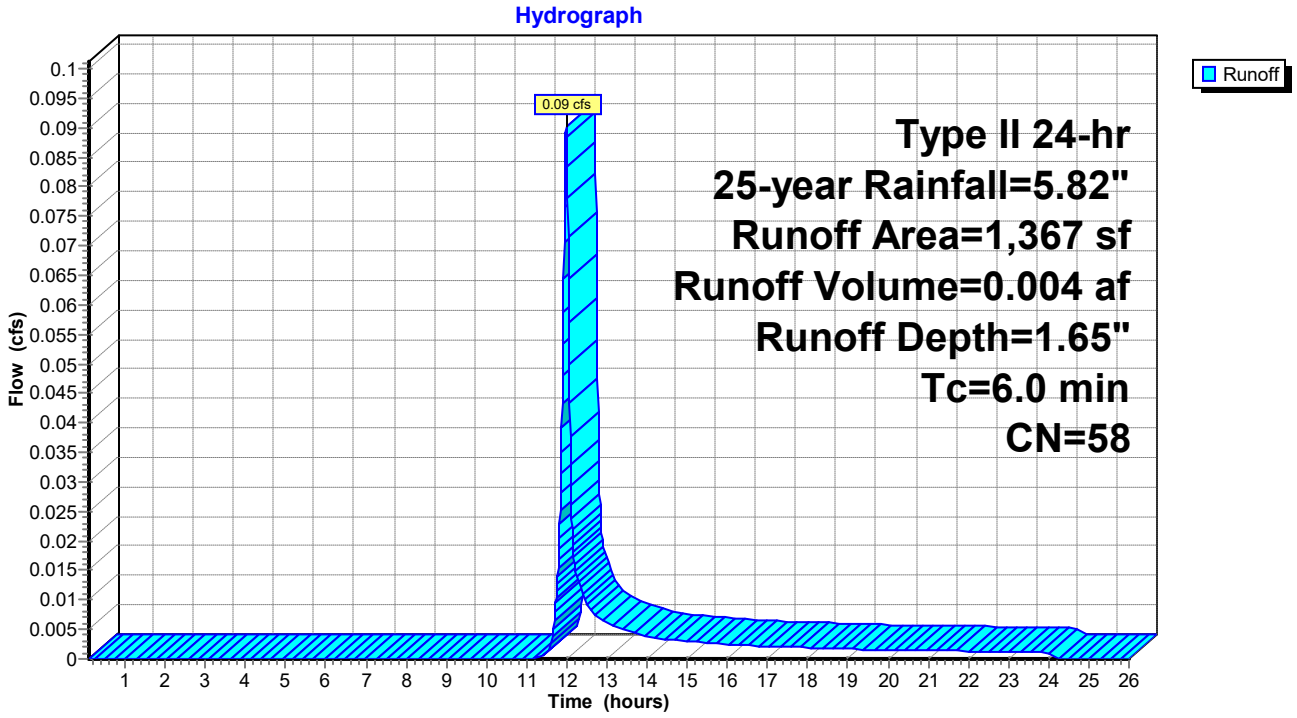
Runoff = 0.09 cfs @ 11.98 hrs, Volume= 0.004 af, Depth= 1.65"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

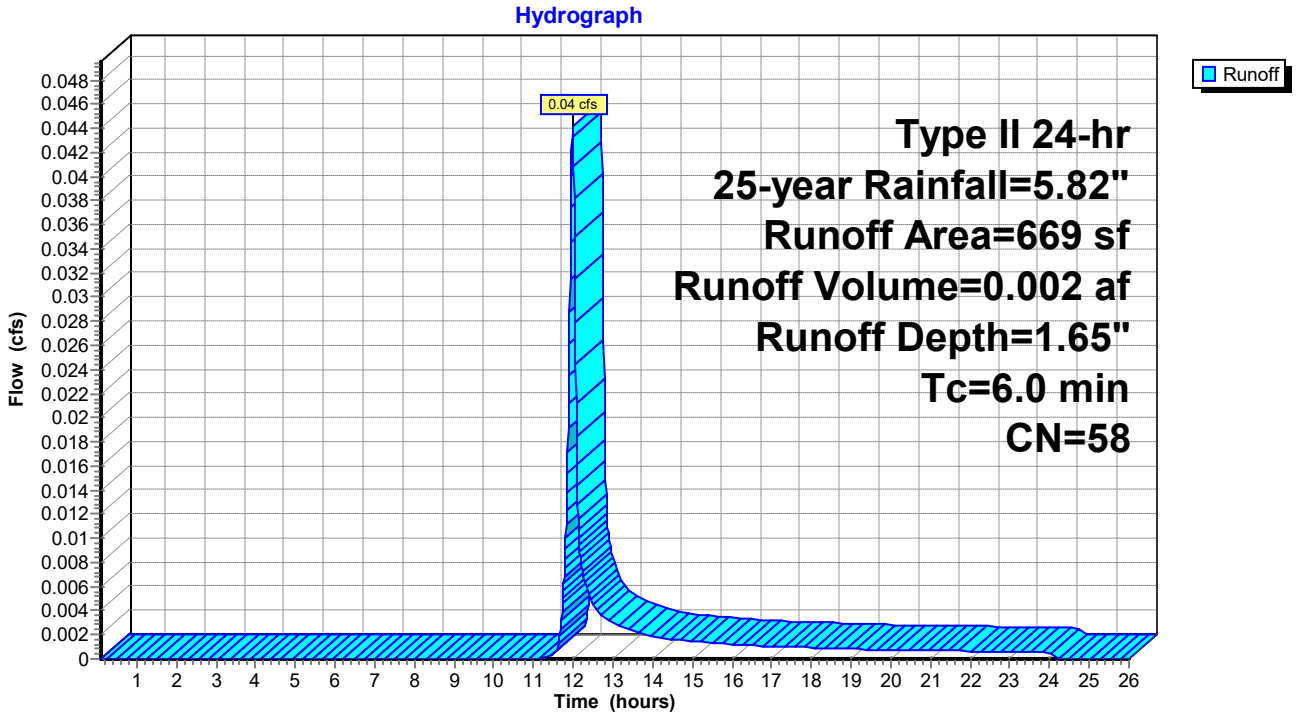
Runoff = 0.04 cfs @ 11.98 hrs, Volume= 0.002 af, Depth= 1.65"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

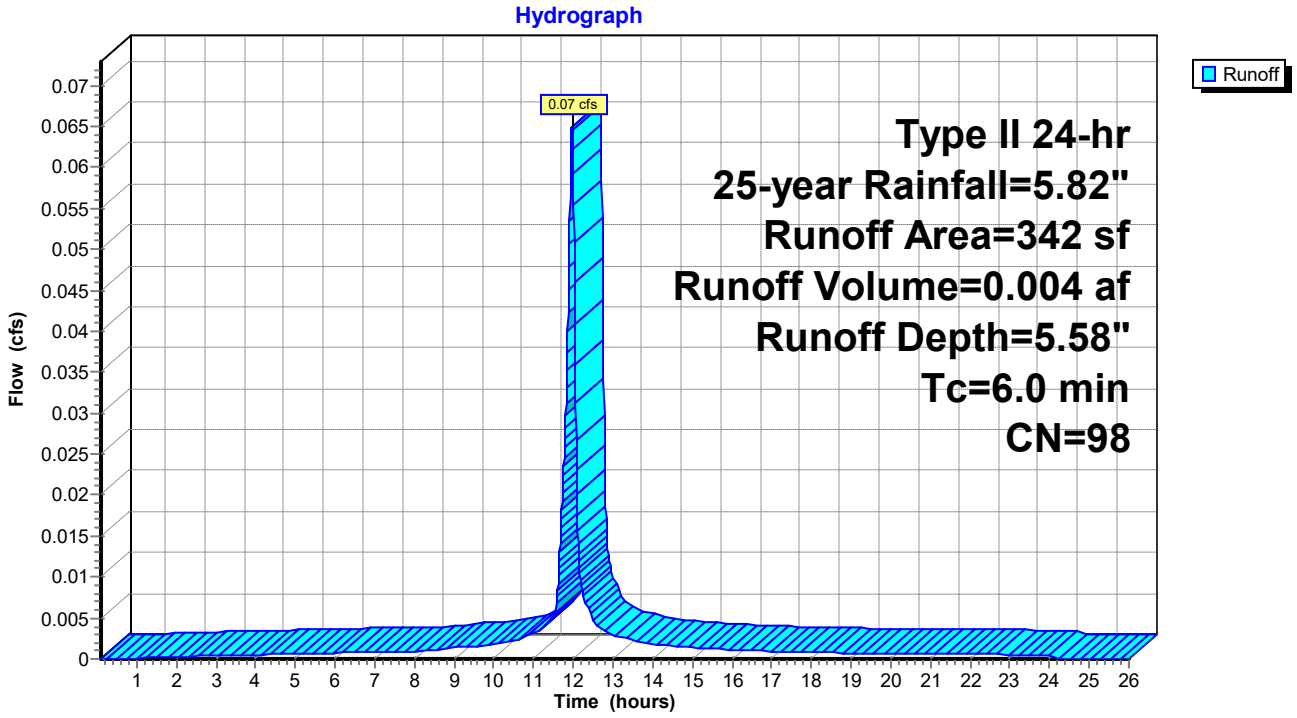
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

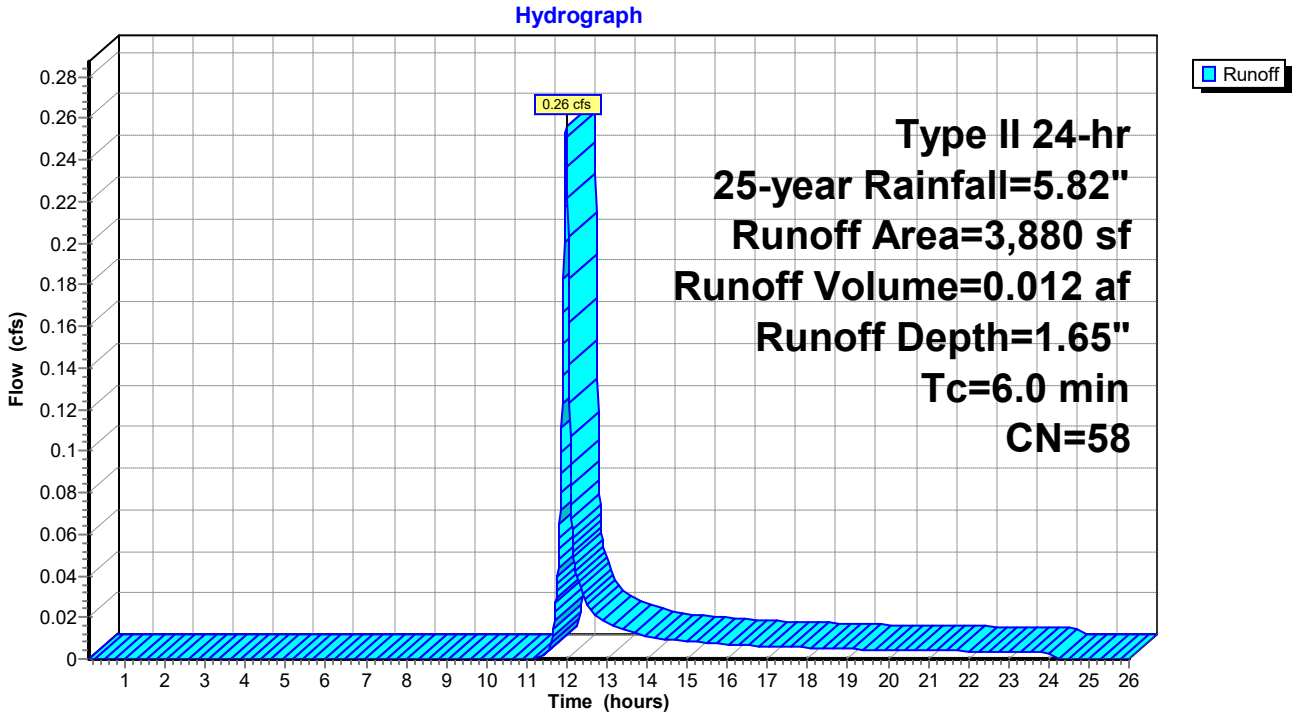
Runoff = 0.26 cfs @ 11.98 hrs, Volume= 0.012 af, Depth= 1.65"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

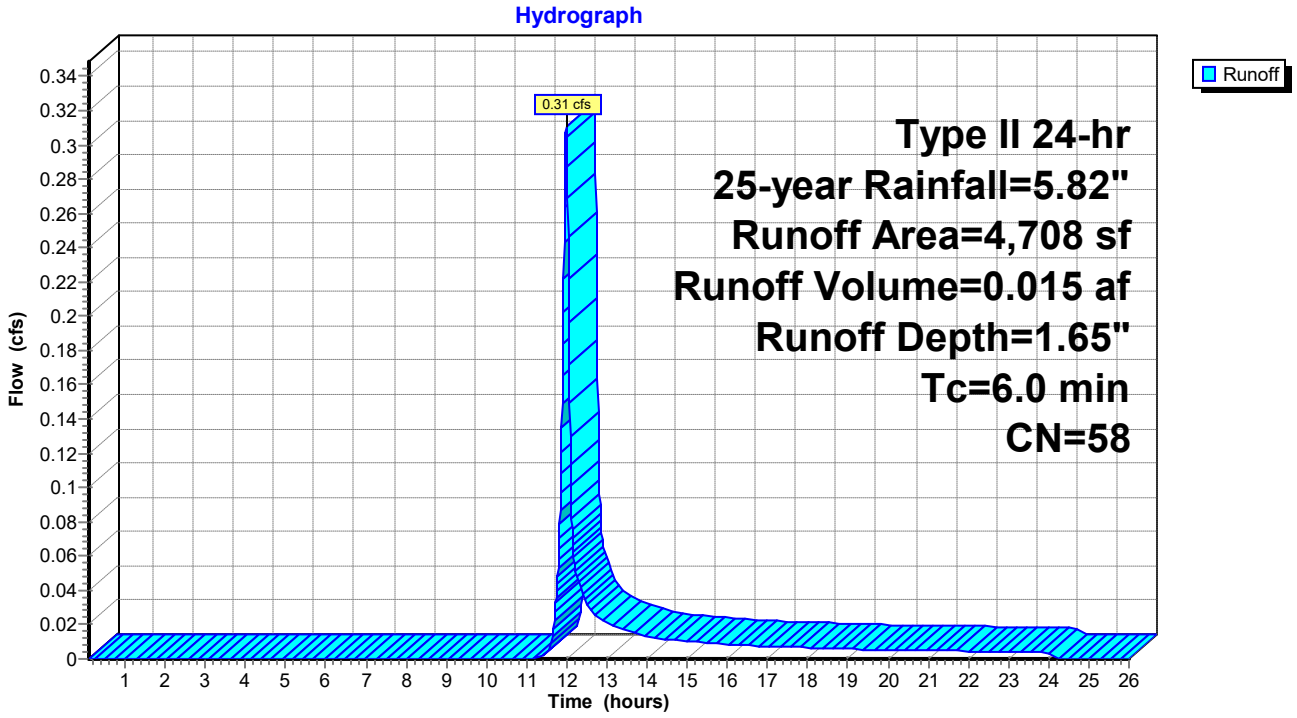
Runoff = 0.31 cfs @ 11.98 hrs, Volume= 0.015 af, Depth= 1.65"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

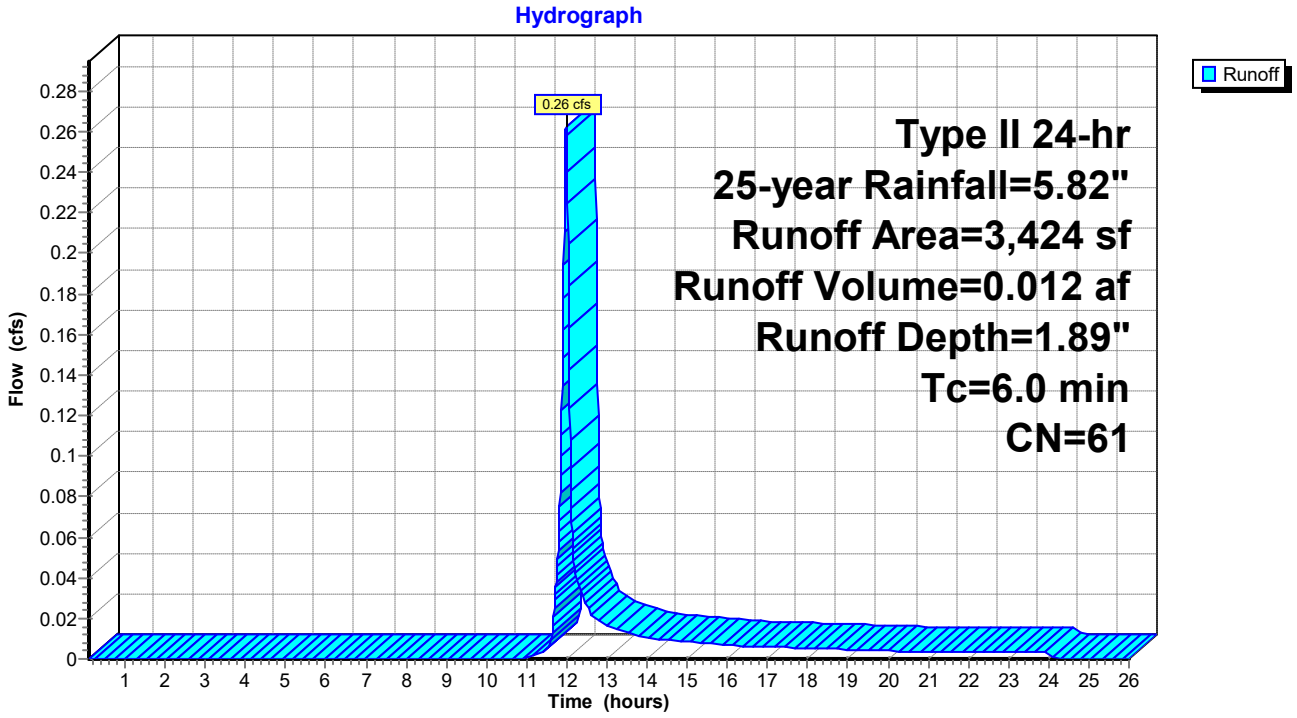
Runoff = 0.26 cfs @ 11.98 hrs, Volume= 0.012 af, Depth= 1.89"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

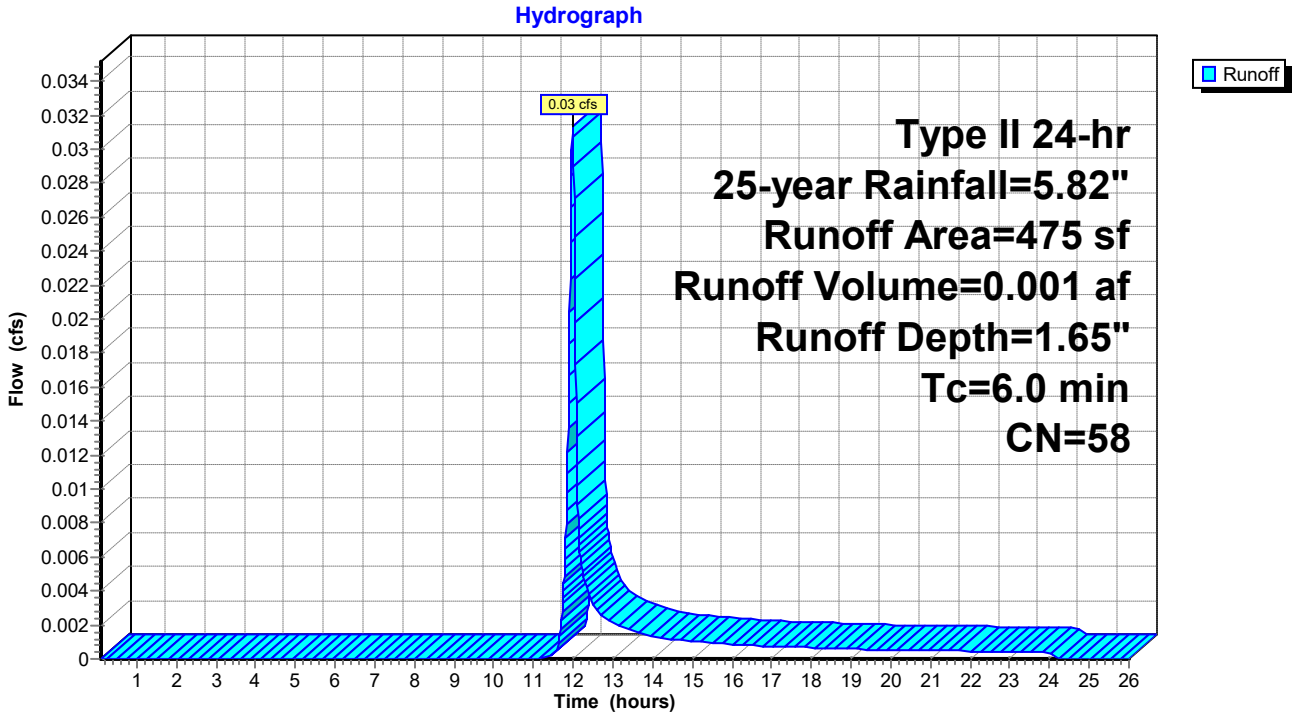
Runoff = 0.03 cfs @ 11.98 hrs, Volume= 0.001 af, Depth= 1.65"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

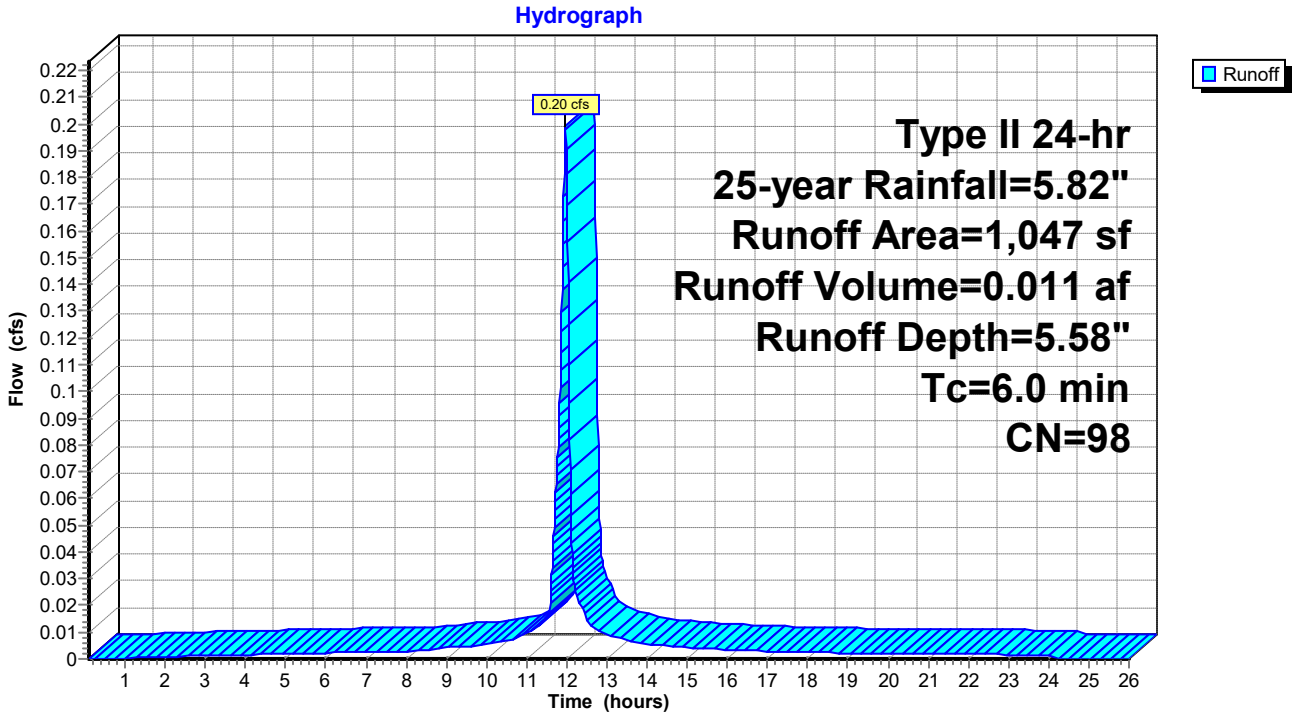
Runoff = 0.20 cfs @ 11.97 hrs, Volume= 0.011 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

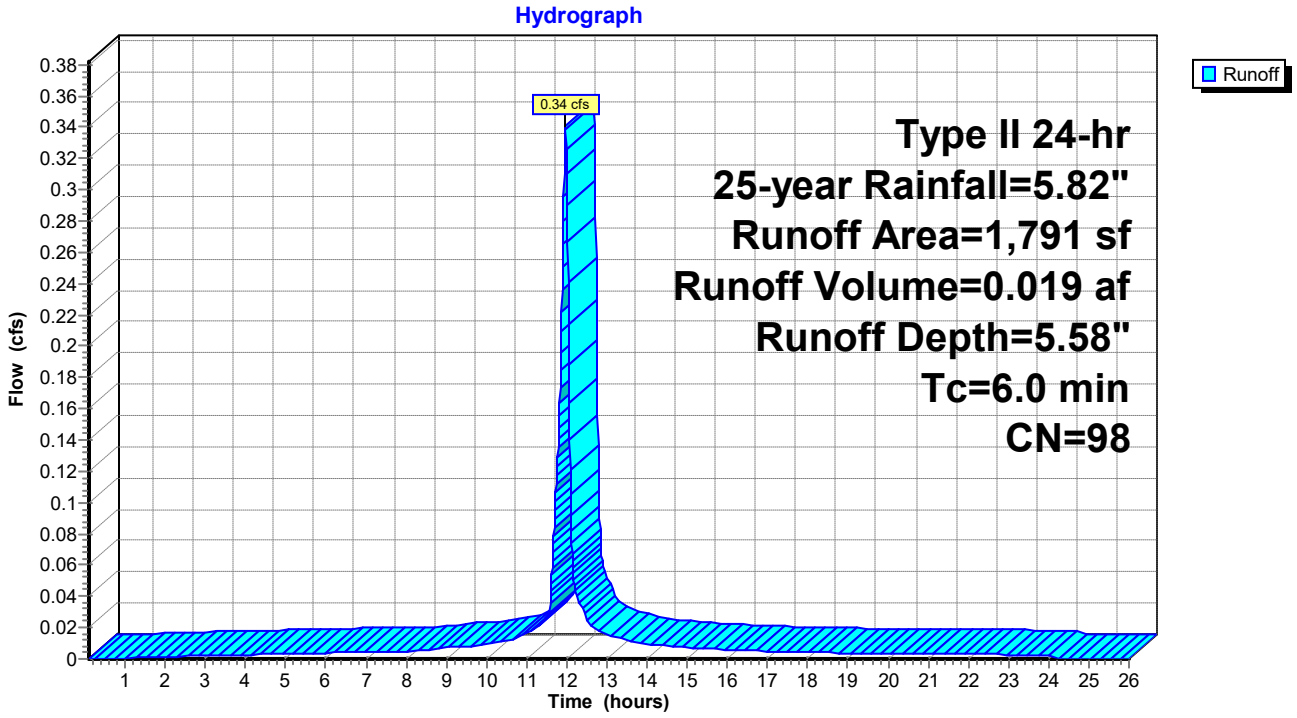
Runoff = 0.34 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 3.76" for 25-year event
Inflow = 0.47 cfs @ 11.97 hrs, Volume= 0.026 af
Outflow = 0.03 cfs @ 12.86 hrs, Volume= 0.009 af, Atten= 94%, Lag= 53.2 min
Primary = 0.03 cfs @ 12.86 hrs, Volume= 0.009 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.51' @ 12.86 hrs Surf.Area= 864 sf Storage= 735 cf

Plug-Flow detention time= 373.5 min calculated for 0.009 af (36% of inflow)
Center-of-Mass det. time= 205.1 min (972.1 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

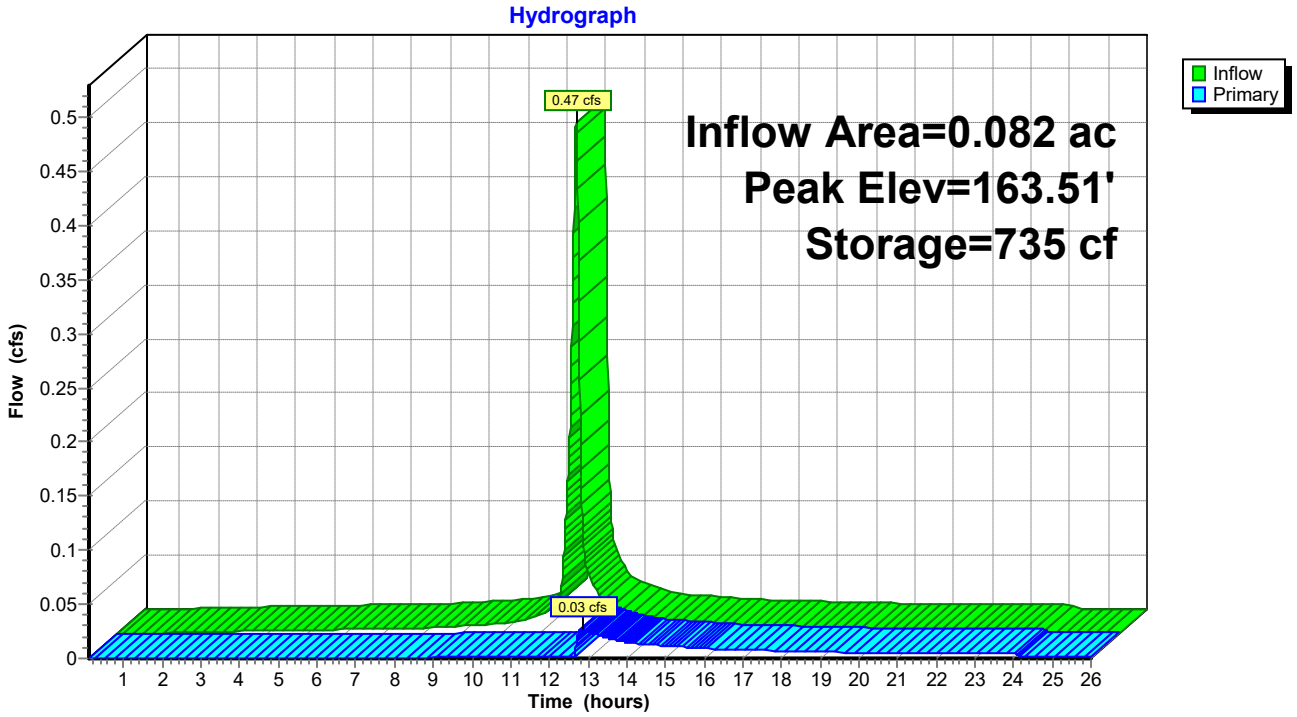
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.86 hrs HW=163.51' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.36 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.47 cfs
0.03 cfs
Inflow Area=0.082 ac
Peak Elev=163.51'
Storage=735 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 1.65" for 25-year event
Inflow = 0.09 cfs @ 11.98 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 24.09 hrs, Volume= 0.001 af, Atten= 99%, Lag= 726.6 min
Primary = 0.00 cfs @ 24.09 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.31' @ 24.09 hrs Surf.Area= 301 sf Storage= 164 cf

Plug-Flow detention time= 424.1 min calculated for 0.001 af (14% of inflow)
Center-of-Mass det. time= 267.4 min (1,134.6 - 867.2)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

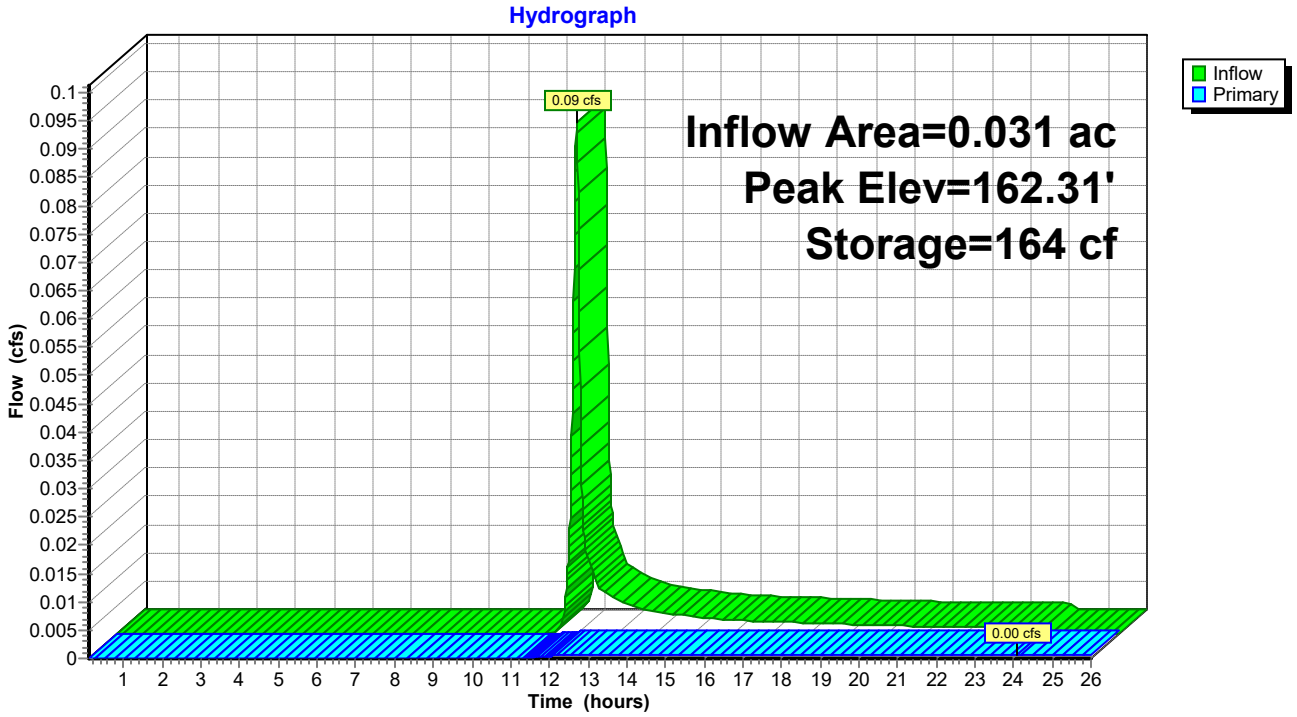
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.09 hrs HW=162.31' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.09 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=162.31'
Storage=164 cf
Flow (cfs)
0 0.005 0.01 0.015 0.02 0.025 0.03 0.035 0.04 0.045 0.05 0.055 0.06 0.065 0.07 0.075 0.08 0.085 0.09 0.095 0.1
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 3.13" for 25-year event
Inflow = 0.59 cfs @ 11.97 hrs, Volume= 0.031 af
Outflow = 0.59 cfs @ 11.98 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.3 min
Primary = 0.59 cfs @ 11.98 hrs, Volume= 0.027 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.63' @ 11.98 hrs Surf.Area= 186 sf Storage= 173 cf

Plug-Flow detention time= 101.3 min calculated for 0.027 af (89% of inflow)
Center-of-Mass det. time= 42.1 min (830.4 - 788.2)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

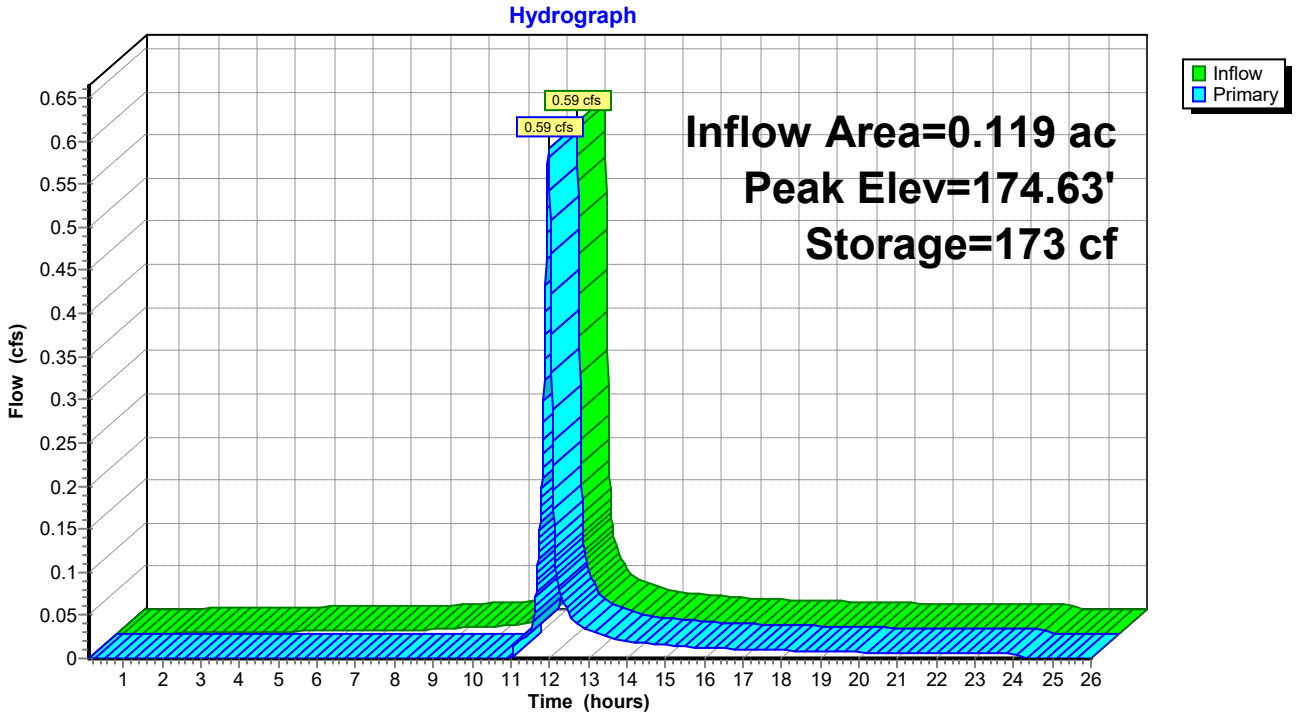
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.59 cfs @ 11.98 hrs HW=174.63' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.59 cfs @ 1.16 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.59 cfs
0.59 cfs
Inflow Area=0.119 ac
Peak Elev=174.63'
Storage=173 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 2.02" for 25-year event
Inflow = 0.44 cfs @ 11.98 hrs, Volume= 0.022 af
Outflow = 0.44 cfs @ 11.98 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 0.001 af
Primary = 0.44 cfs @ 11.98 hrs, Volume= 0.019 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.75' @ 11.98 hrs Surf.Area= 171 sf Storage= 140 cf

Plug-Flow detention time= 95.4 min calculated for 0.019 af (88% of inflow)
Center-of-Mass det. time= 32.9 min (867.2 - 834.4)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

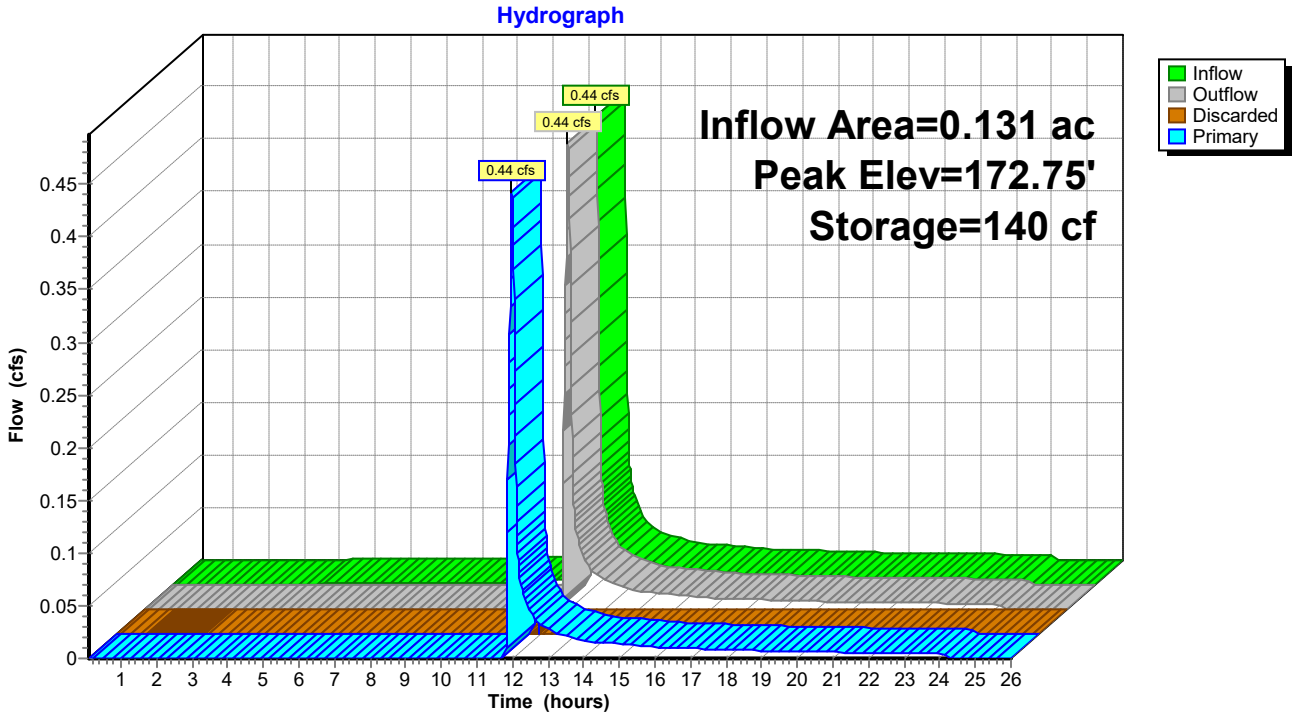
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=172.75' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.43 cfs @ 11.98 hrs HW=172.75' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.21 fps)
└**3=Orifice/Grate** (Orifice Controls 0.41 cfs @ 1.62 fps)

Pond RG-4: RG-4

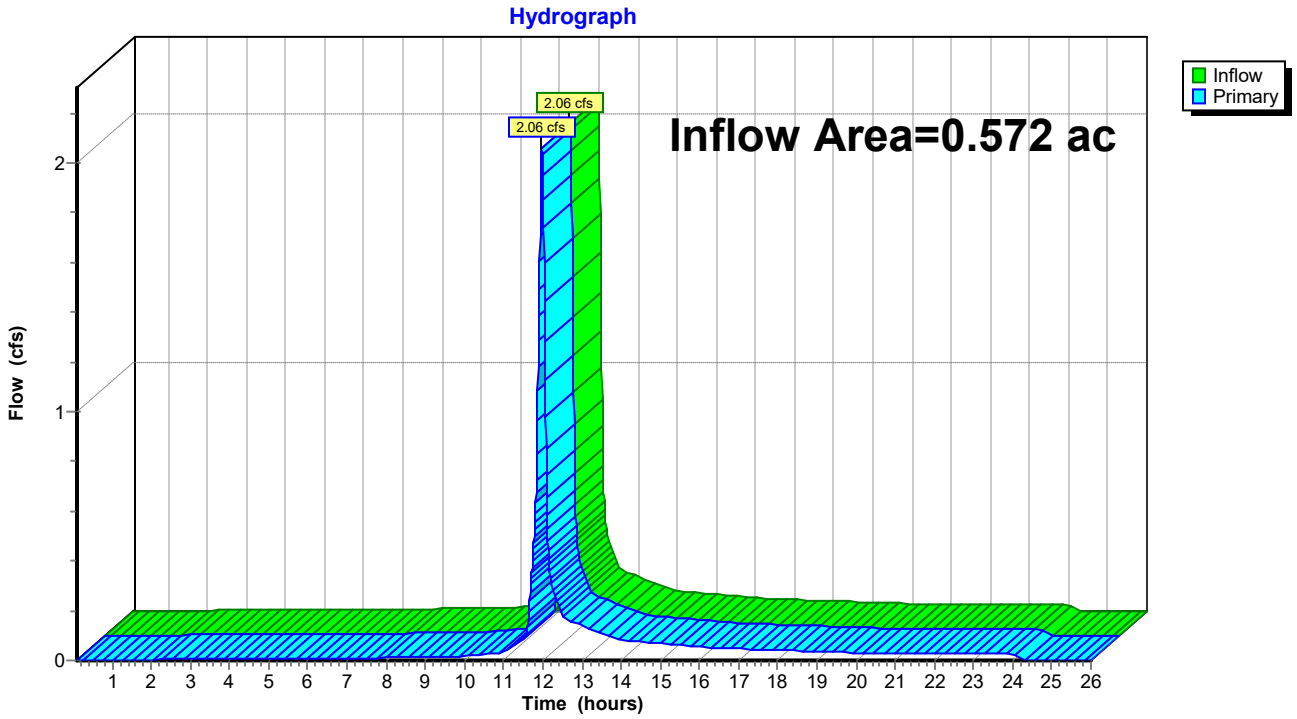

Hydrograph
Inflow Area=0.131 ac
Peak Elev=172.75'
Storage=140 cf
0.44 cfs
0.44 cfs
0.44 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 2.32" for 25-year event
Inflow = 2.06 cfs @ 11.98 hrs, Volume= 0.111 af
Primary = 2.06 cfs @ 11.98 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=3.65"
Flow Length=487' Tc=13.0 min CN=73 Runoff=2.89 cfs 0.174 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.021 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.016 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.007 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.10 cfs 0.005 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.007 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.15 cfs 0.007 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.12 cfs 0.006 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.06 cfs 0.003 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.35 cfs 0.016 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.42 cfs 0.020 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=61 Runoff=0.35 cfs 0.016 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.013 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.022 af

Pond RG-1: RG-1 Peak Elev=163.54' Storage=747 cf Inflow=0.56 cfs 0.031 af
Outflow=0.12 cfs 0.014 af

Pond RG-2: RG-2 Peak Elev=162.61' Storage=225 cf Inflow=0.12 cfs 0.006 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.64' Storage=176 cf Inflow=0.73 cfs 0.038 af
Outflow=0.72 cfs 0.034 af

Pond RG-4: RG-4 Peak Elev=172.77' Storage=141 cf Inflow=0.58 cfs 0.028 af
Discarded=0.00 cfs 0.001 af Primary=0.58 cfs 0.025 af Outflow=0.58 cfs 0.026 af

Link POA: POA Inflow=2.55 cfs 0.140 af
Primary=2.55 cfs 0.140 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.342 af Average Runoff Depth = 3.59"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

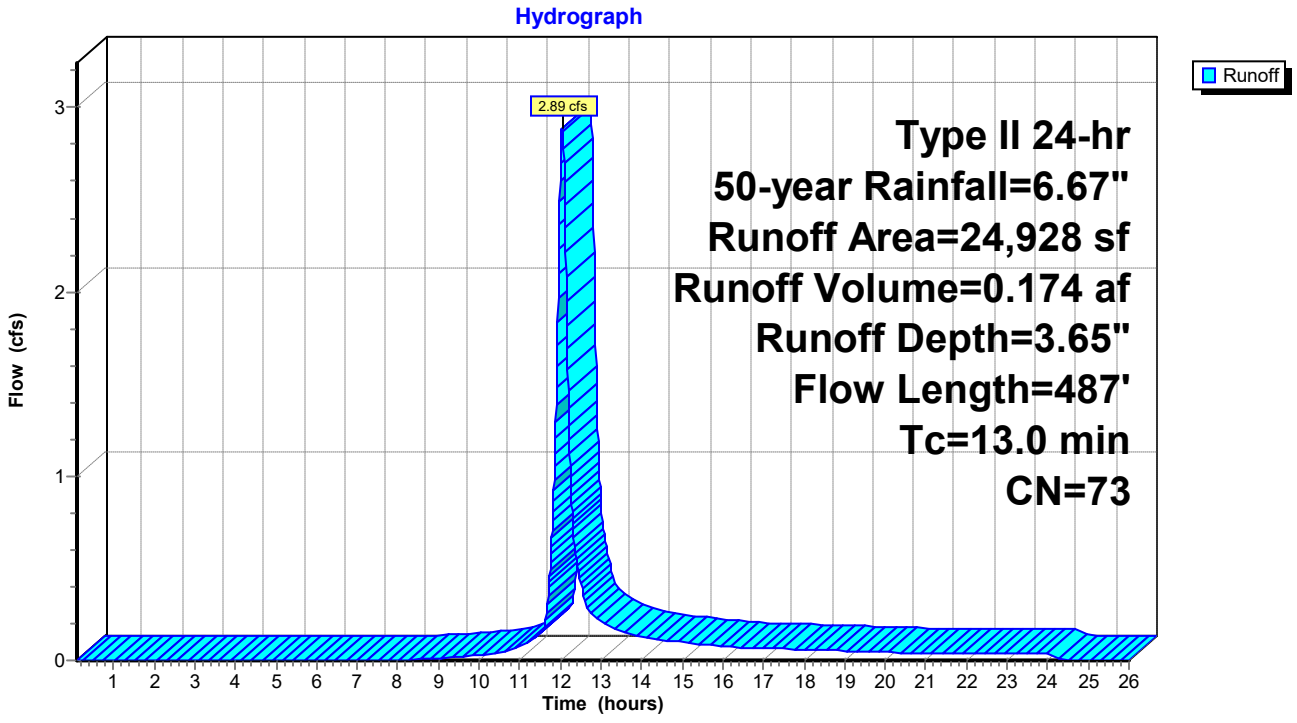
Runoff = 2.89 cfs @ 12.05 hrs, Volume= 0.174 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

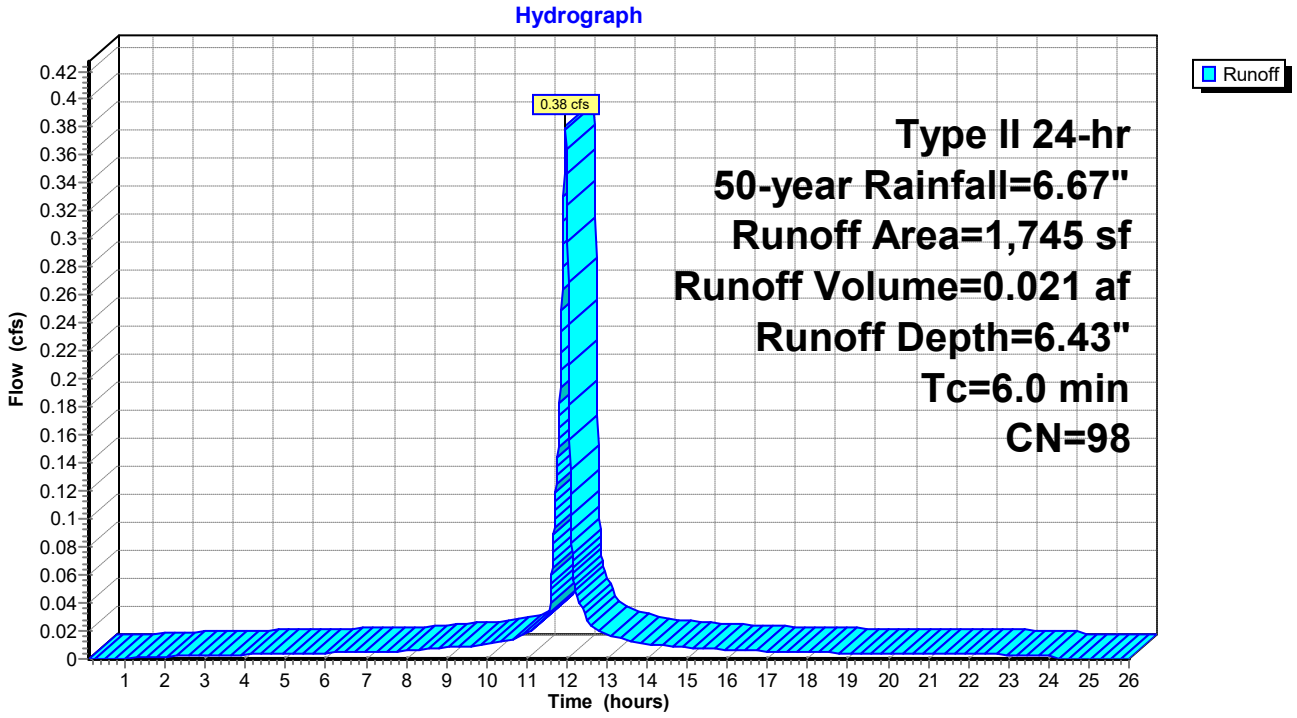
Runoff = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af, Depth= 6.43"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

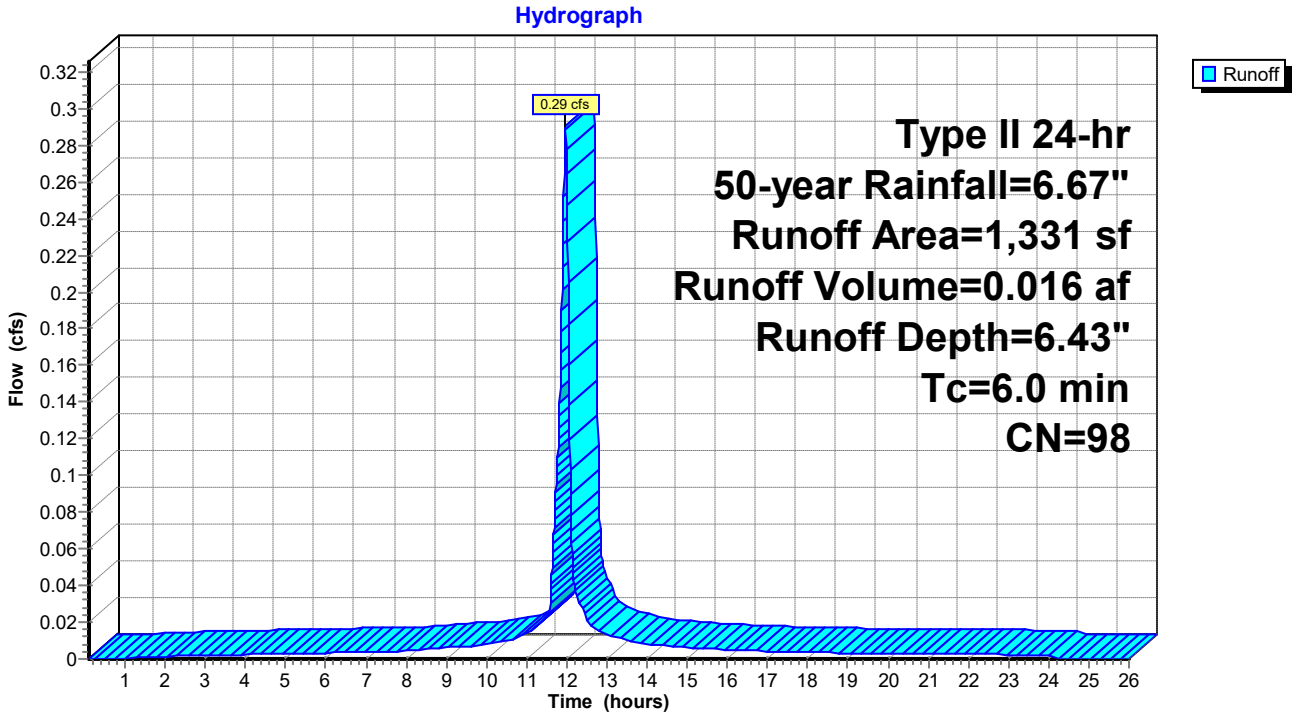
Runoff = 0.29 cfs @ 11.97 hrs, Volume= 0.016 af, Depth= 6.43"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

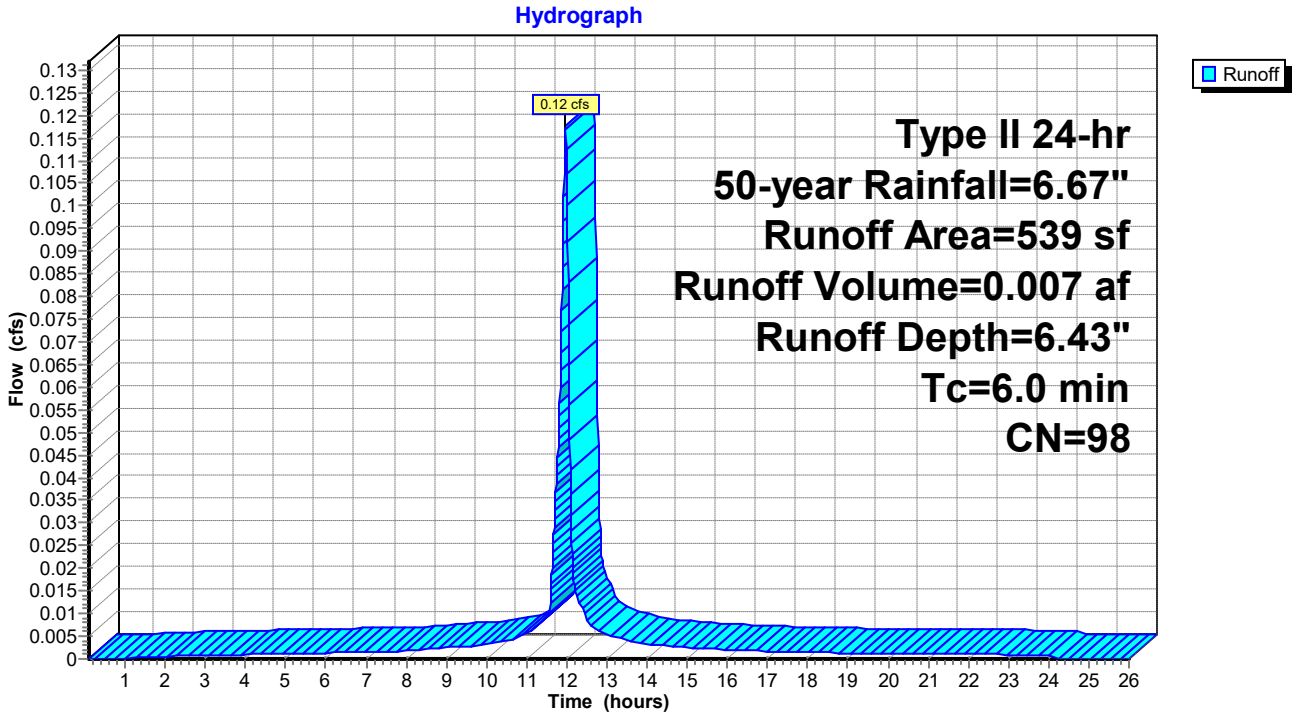
Runoff = 0.12 cfs @ 11.97 hrs, Volume= 0.007 af, Depth= 6.43"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

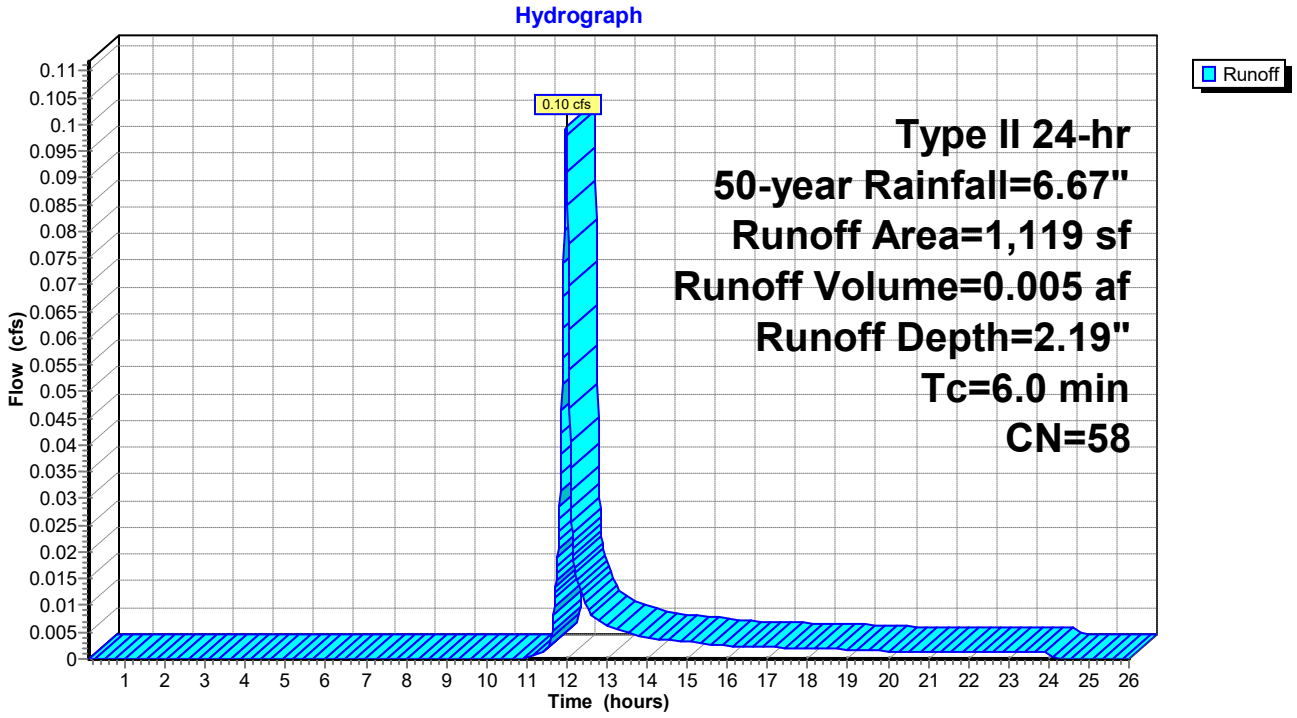
Runoff = 0.10 cfs @ 11.98 hrs, Volume= 0.005 af, Depth= 2.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

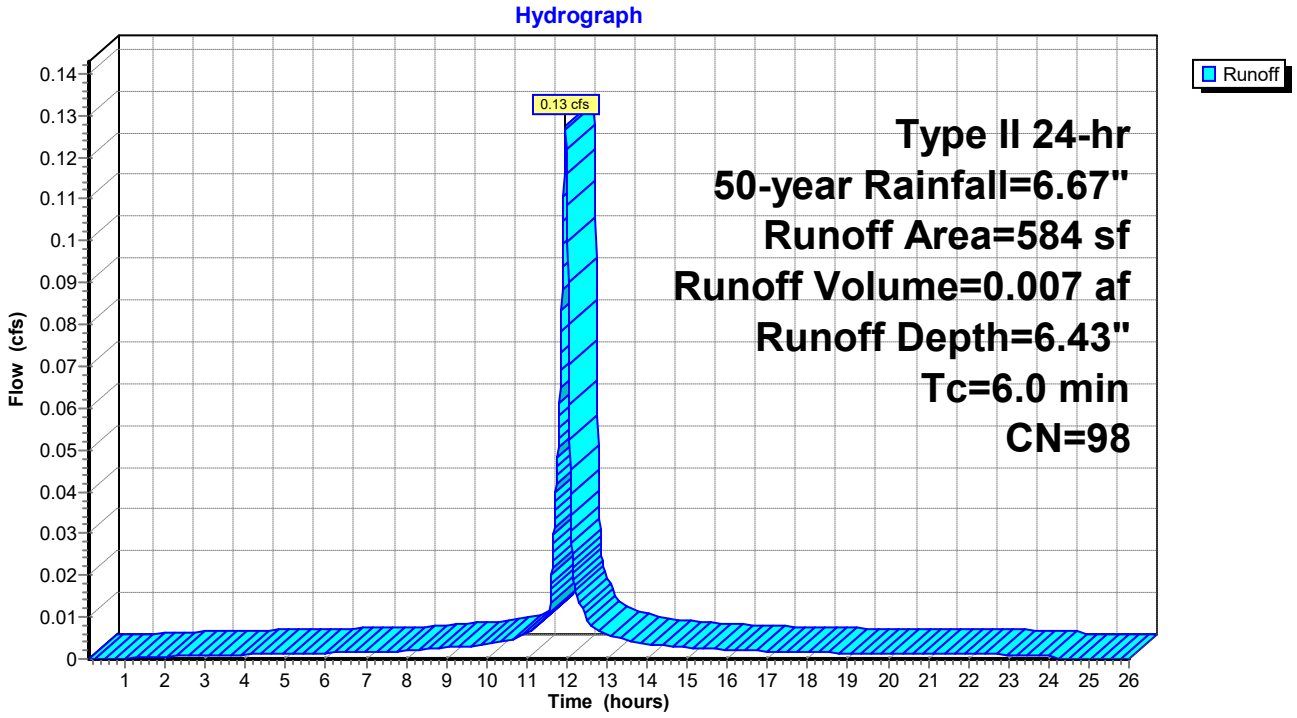
Runoff = 0.13 cfs @ 11.97 hrs, Volume= 0.007 af, Depth= 6.43"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

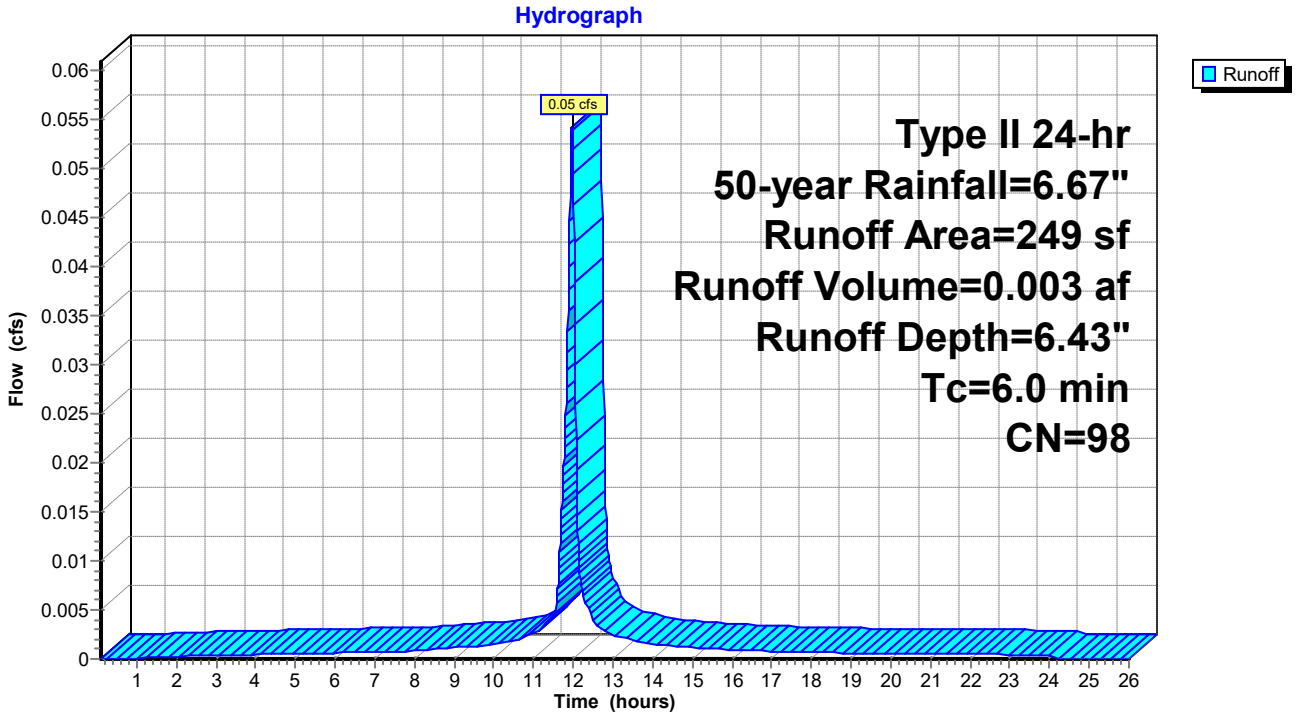
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

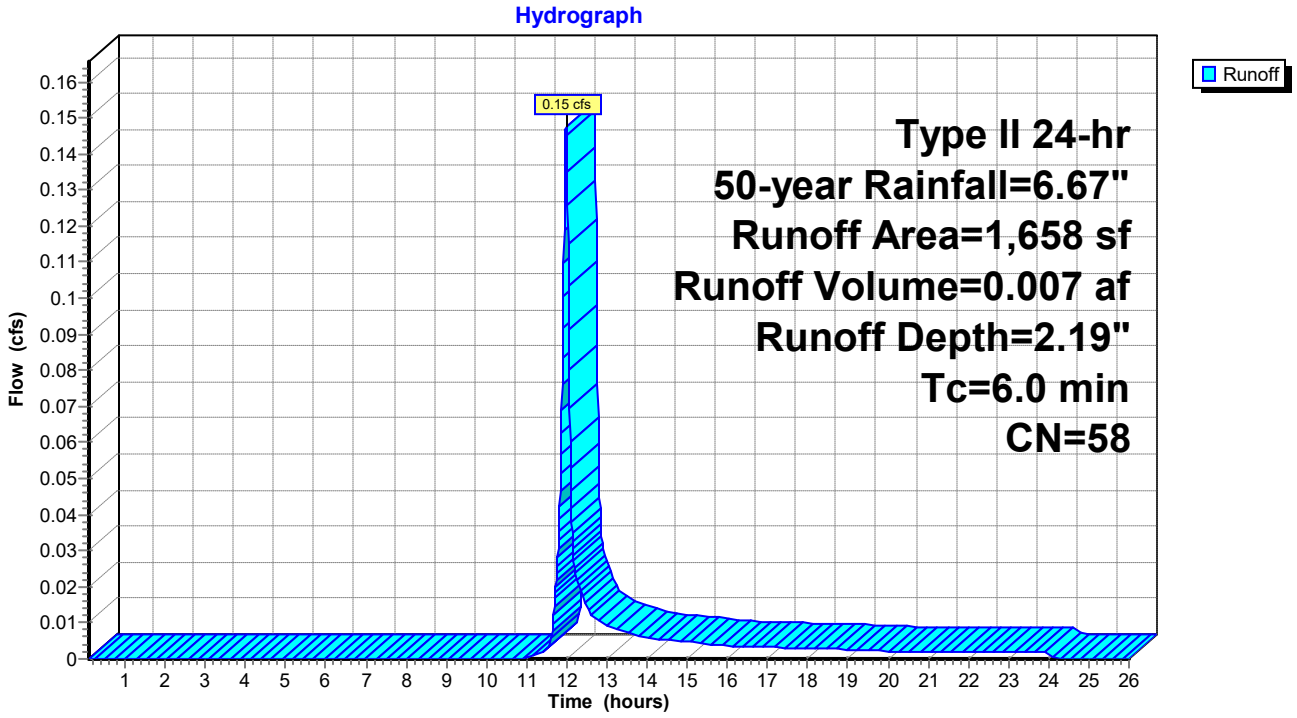
Runoff = 0.15 cfs @ 11.98 hrs, Volume= 0.007 af, Depth= 2.19"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

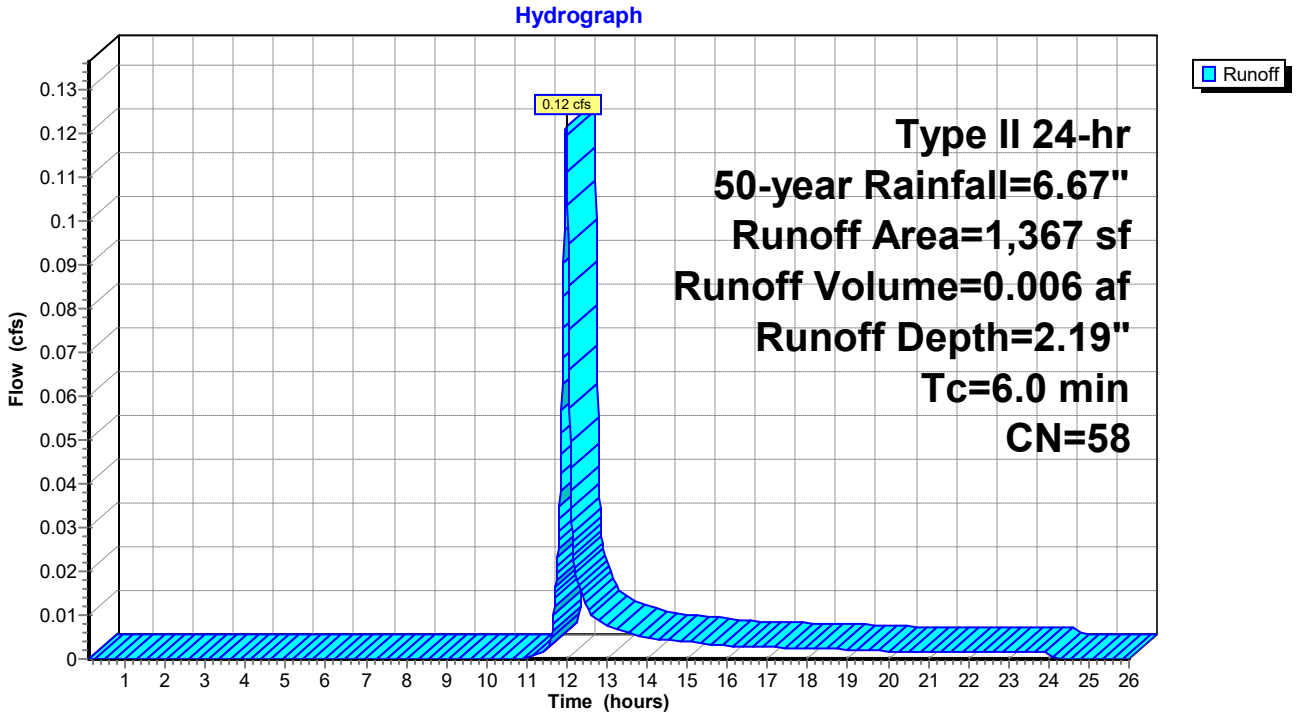
Runoff = 0.12 cfs @ 11.98 hrs, Volume= 0.006 af, Depth= 2.19"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

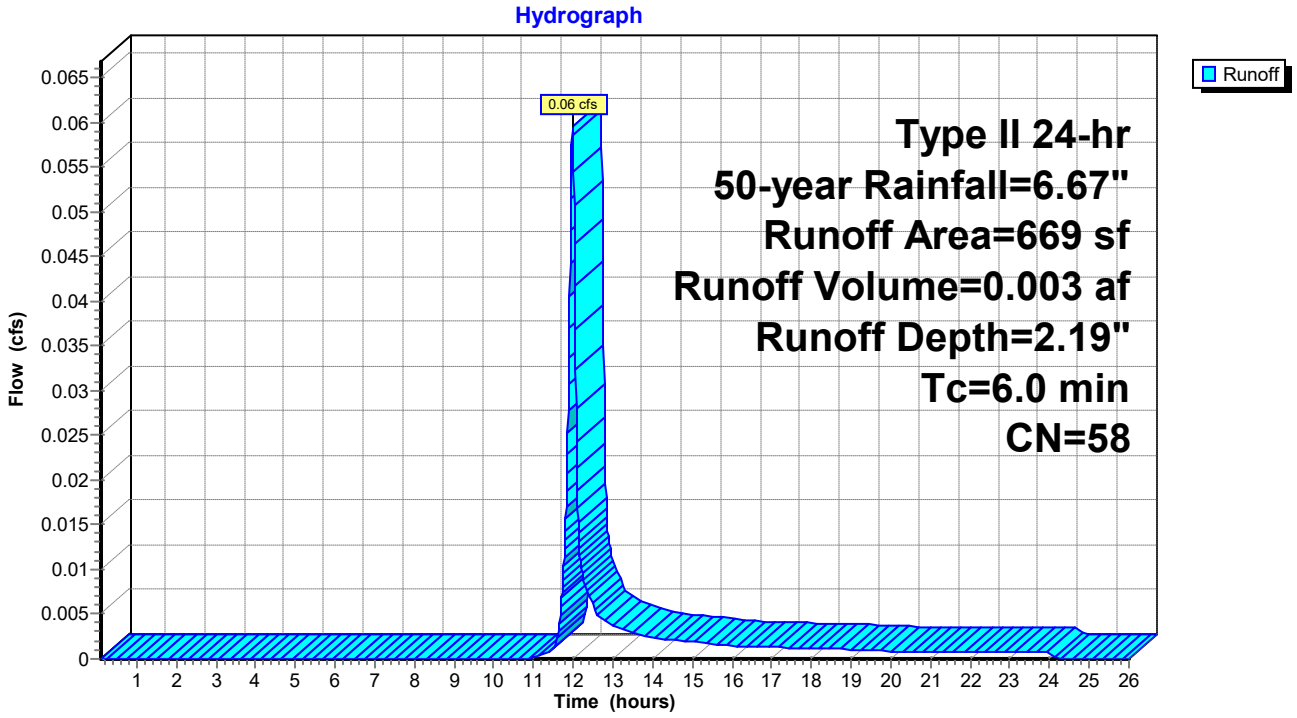
Runoff = 0.06 cfs @ 11.98 hrs, Volume= 0.003 af, Depth= 2.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

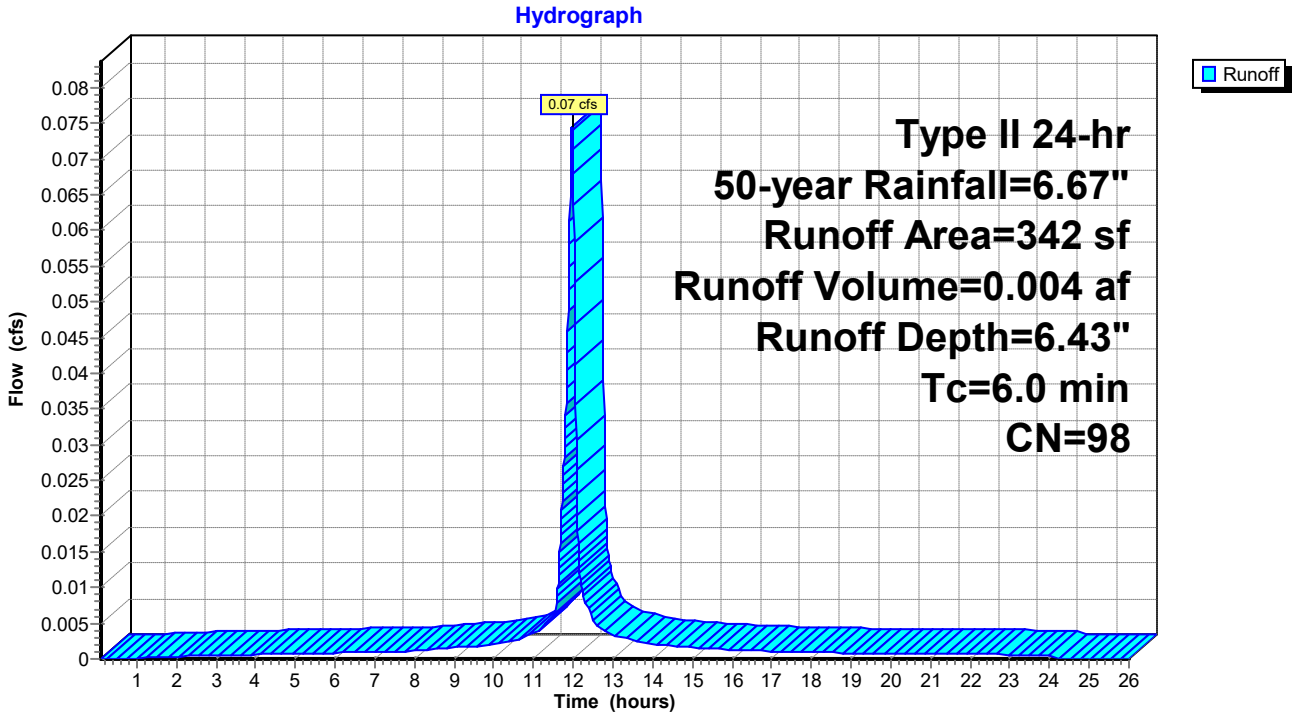
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

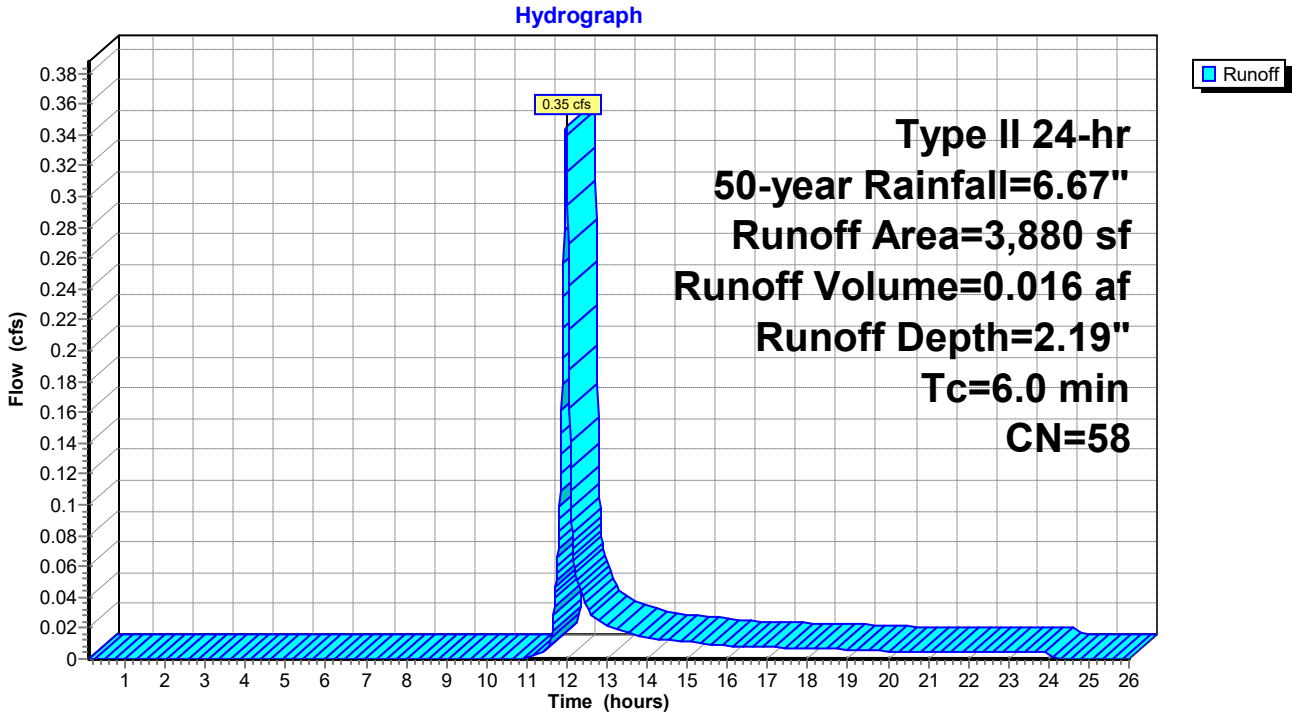
Runoff = 0.35 cfs @ 11.98 hrs, Volume= 0.016 af, Depth= 2.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

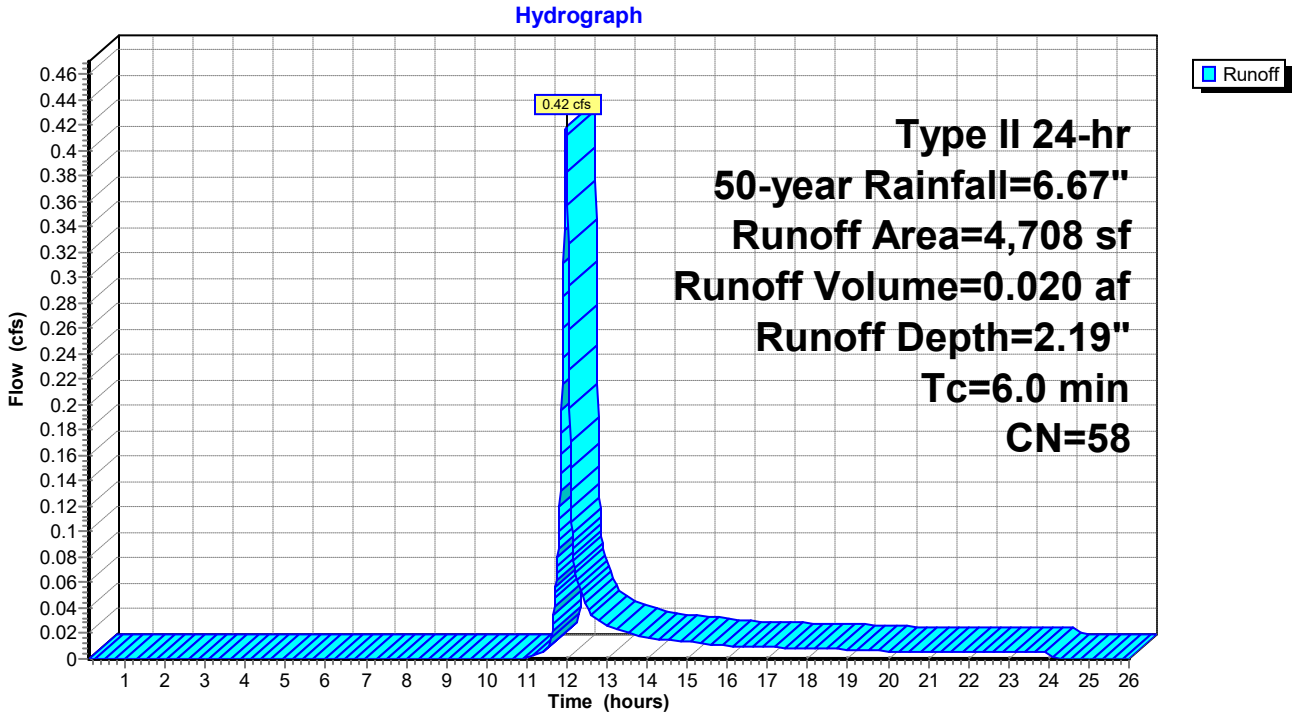
Runoff = 0.42 cfs @ 11.98 hrs, Volume= 0.020 af, Depth= 2.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

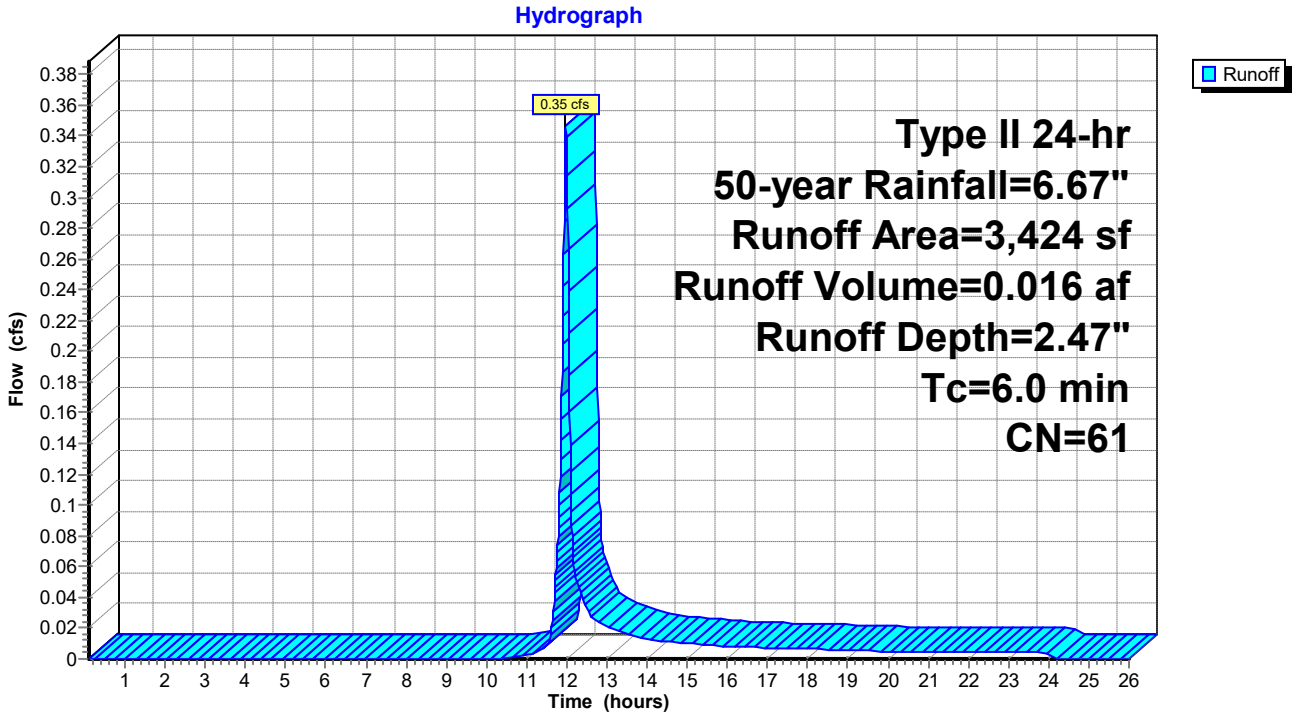
Runoff = 0.35 cfs @ 11.98 hrs, Volume= 0.016 af, Depth= 2.47"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

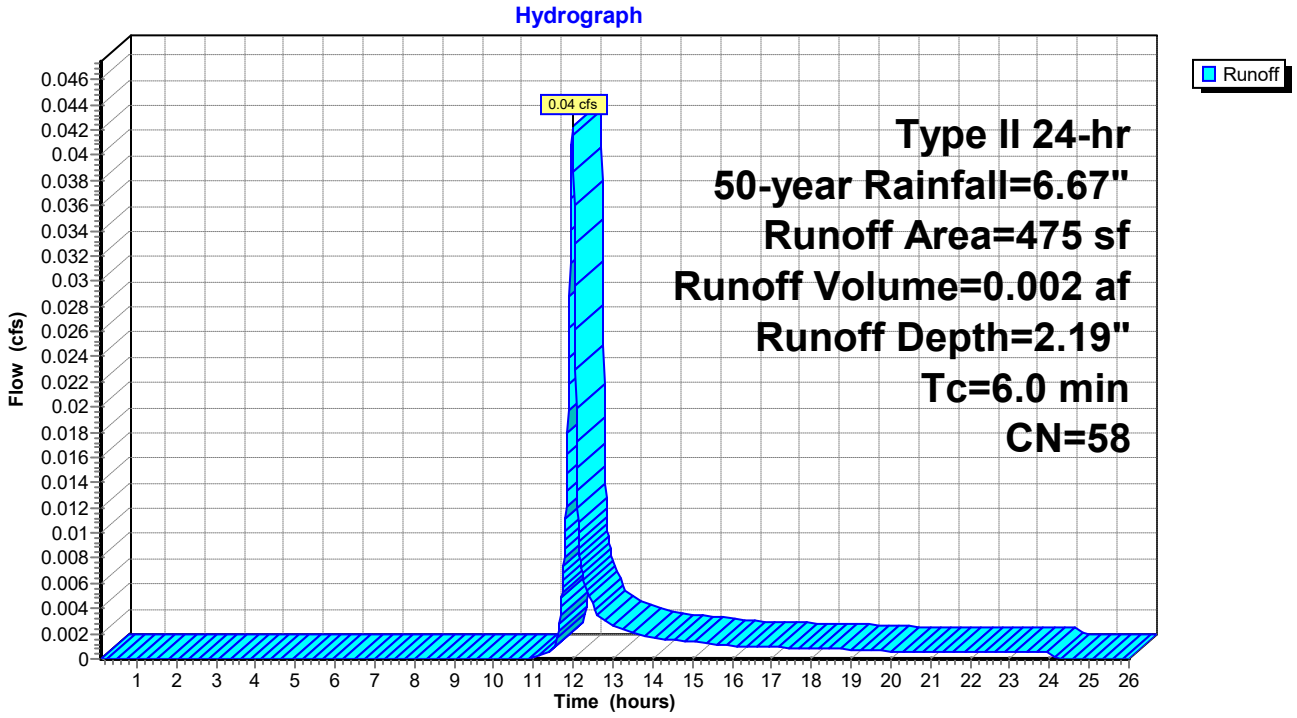
Runoff = 0.04 cfs @ 11.98 hrs, Volume= 0.002 af, Depth= 2.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

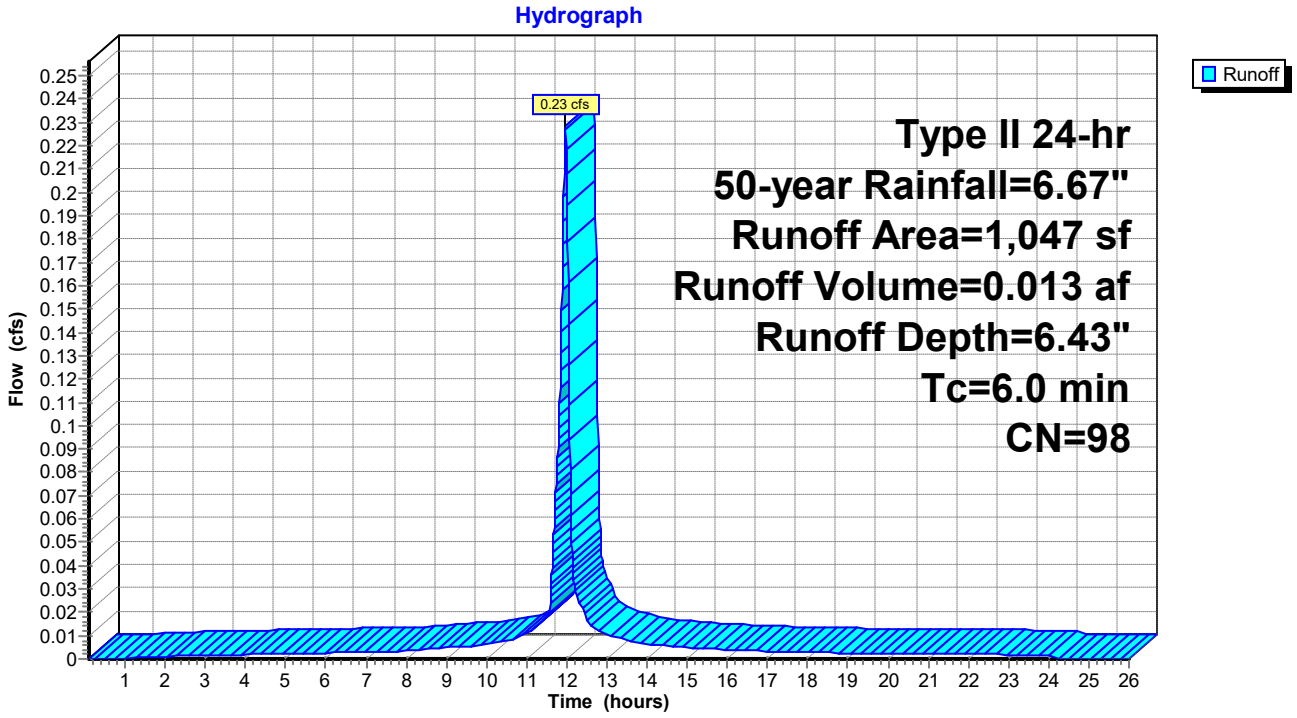
Runoff = 0.23 cfs @ 11.97 hrs, Volume= 0.013 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

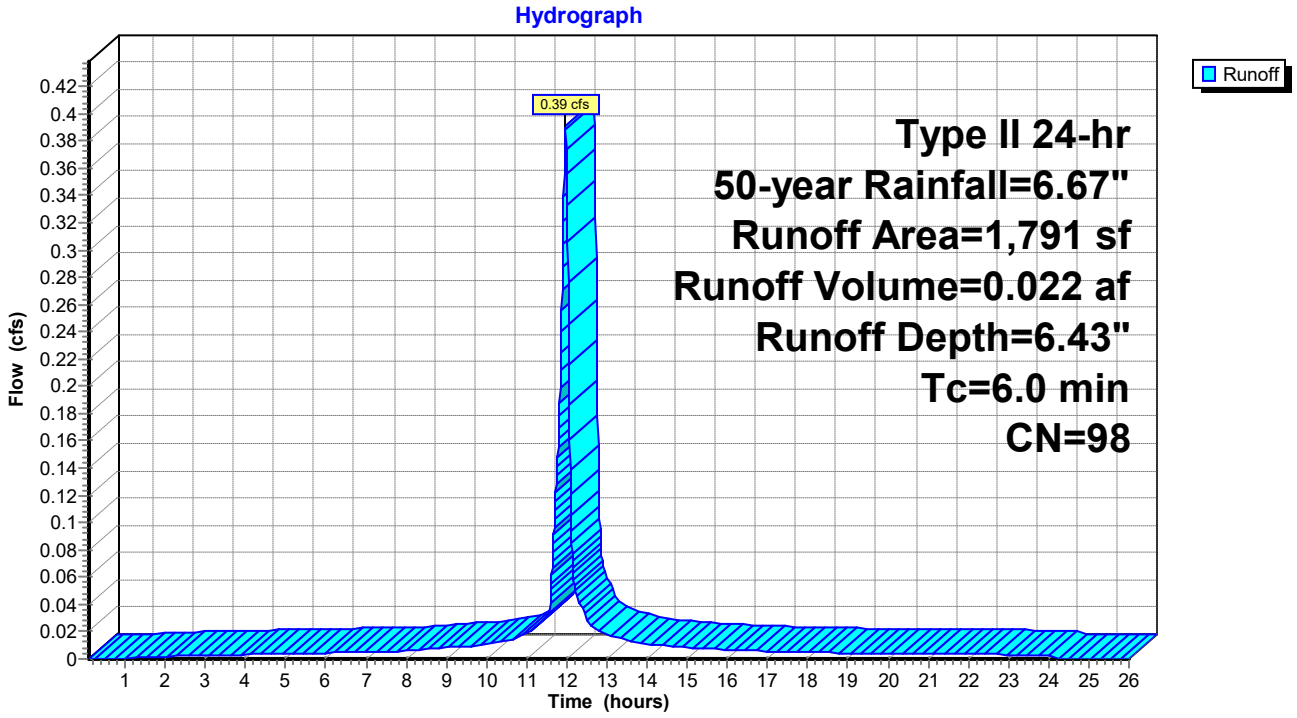
Runoff = 0.39 cfs @ 11.97 hrs, Volume= 0.022 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 4.46" for 50-year event
Inflow = 0.56 cfs @ 11.97 hrs, Volume= 0.031 af
Outflow = 0.12 cfs @ 12.13 hrs, Volume= 0.014 af, Atten= 80%, Lag= 9.8 min
Primary = 0.12 cfs @ 12.13 hrs, Volume= 0.014 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.54' @ 12.13 hrs Surf.Area= 874 sf Storage= 747 cf

Plug-Flow detention time= 295.0 min calculated for 0.014 af (46% of inflow)
Center-of-Mass det. time= 152.8 min (919.3 - 766.4)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

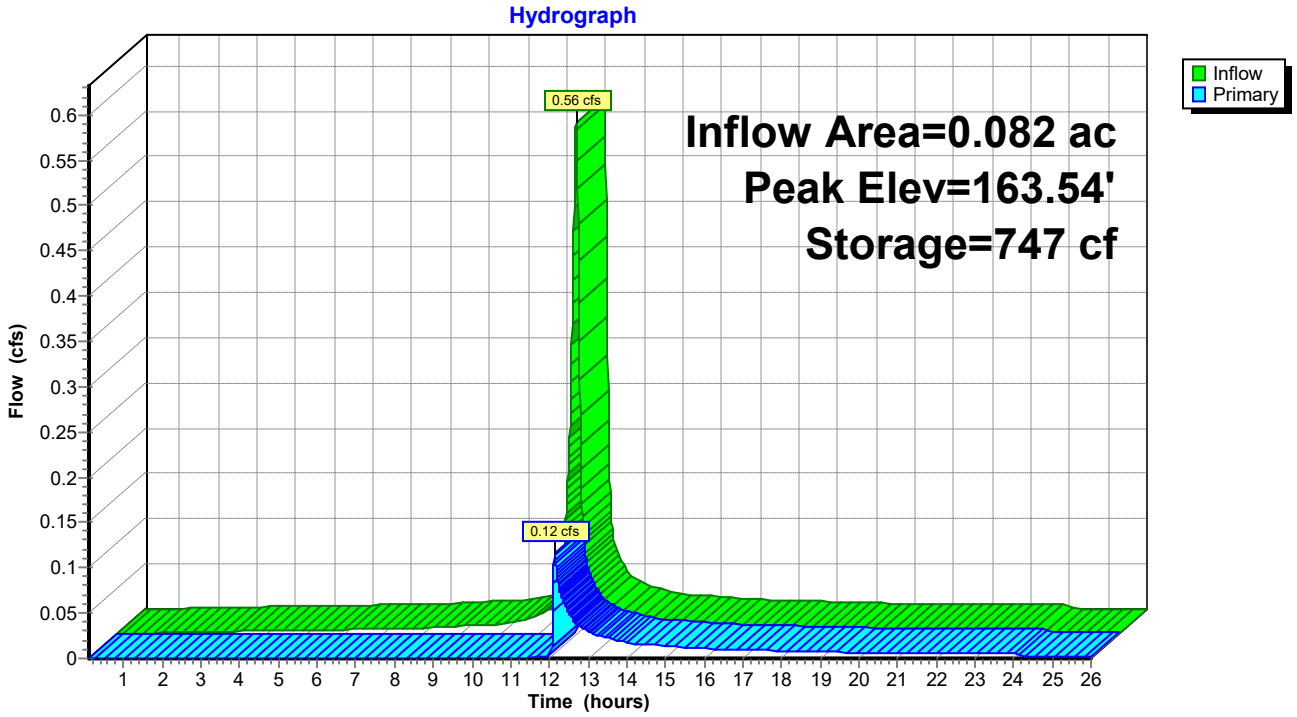
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.10 cfs @ 12.13 hrs HW=163.54' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.10 cfs @ 0.65 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.56 cfs
0.12 cfs
Inflow Area=0.082 ac
Peak Elev=163.54'
Storage=747 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 2.19" for 50-year event
Inflow = 0.12 cfs @ 11.98 hrs, Volume= 0.006 af
Outflow = 0.00 cfs @ 24.10 hrs, Volume= 0.001 af, Atten= 100%, Lag= 727.2 min
Primary = 0.00 cfs @ 24.10 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.61' @ 24.10 hrs Surf.Area= 301 sf Storage= 225 cf

Plug-Flow detention time= 421.2 min calculated for 0.001 af (11% of inflow)
Center-of-Mass det. time= 268.6 min (1,126.6 - 858.0)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

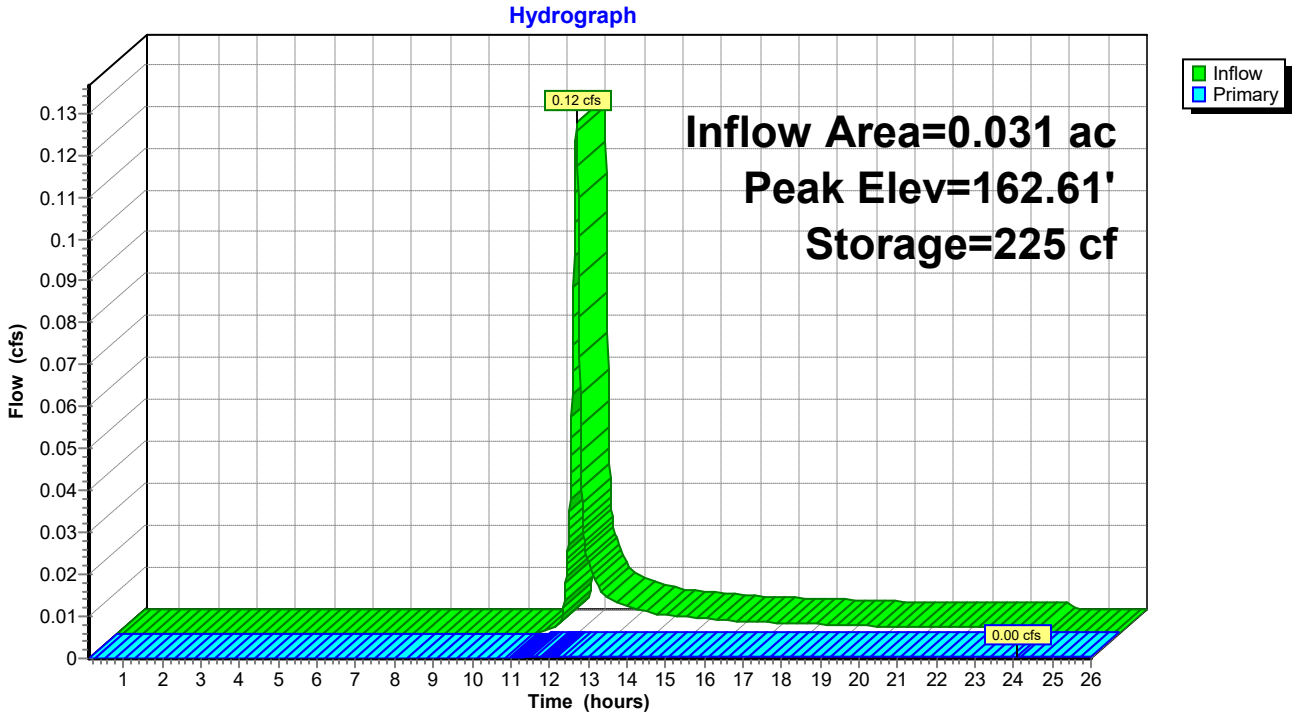
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.10 hrs HW=162.61' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.12 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=162.61'
Storage=225 cf
Flow (cfs)
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 3.80" for 50-year event
Inflow = 0.73 cfs @ 11.97 hrs, Volume= 0.038 af
Outflow = 0.72 cfs @ 11.98 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.3 min
Primary = 0.72 cfs @ 11.98 hrs, Volume= 0.034 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.64' @ 11.98 hrs Surf.Area= 186 sf Storage= 176 cf

Plug-Flow detention time= 88.5 min calculated for 0.034 af (91% of inflow)
Center-of-Mass det. time= 37.8 min (824.9 - 787.1)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

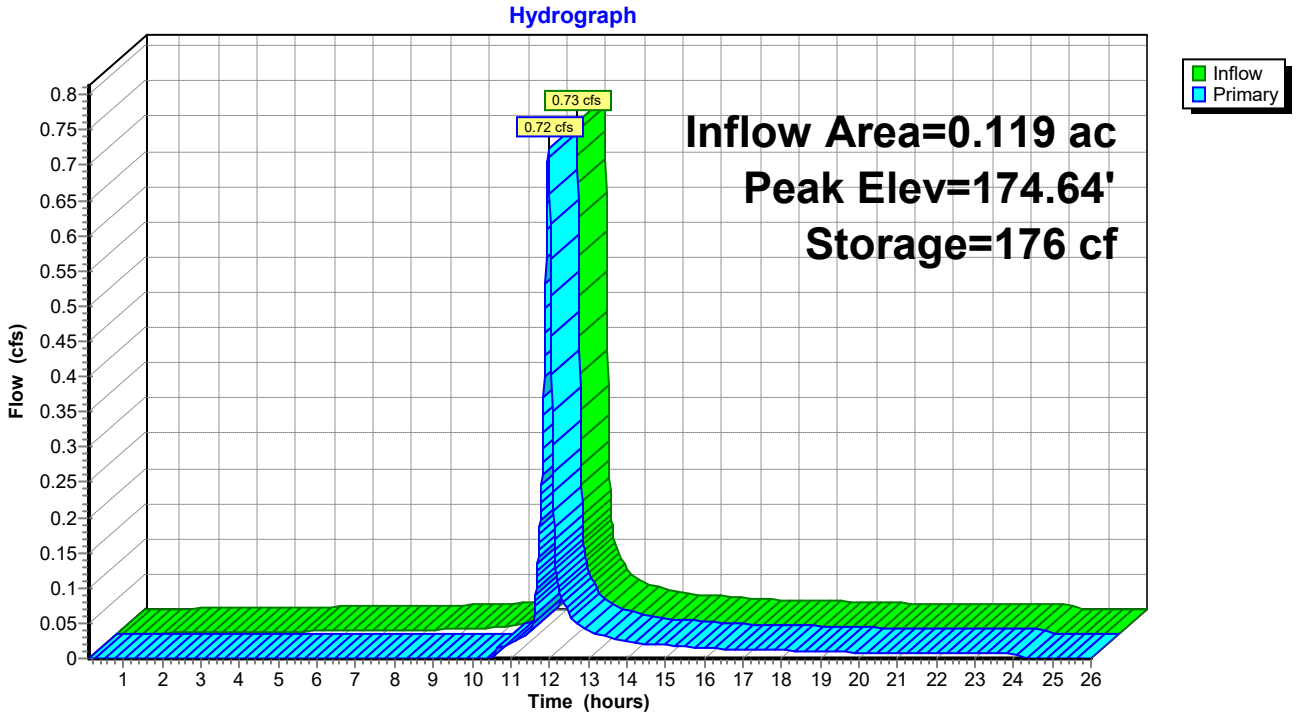
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.72 cfs @ 11.98 hrs HW=174.64' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.72 cfs @ 1.24 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.73 cfs
0.72 cfs
Inflow Area=0.119 ac
Peak Elev=174.64'
Storage=176 cf
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 2.59" for 50-year event
Inflow = 0.58 cfs @ 11.98 hrs, Volume= 0.028 af
Outflow = 0.58 cfs @ 11.98 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 0.001 af
Primary = 0.58 cfs @ 11.98 hrs, Volume= 0.025 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.77' @ 11.98 hrs Surf.Area= 171 sf Storage= 141 cf

Plug-Flow detention time= 77.6 min calculated for 0.026 af (90% of inflow)
Center-of-Mass det. time= 26.9 min (857.2 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

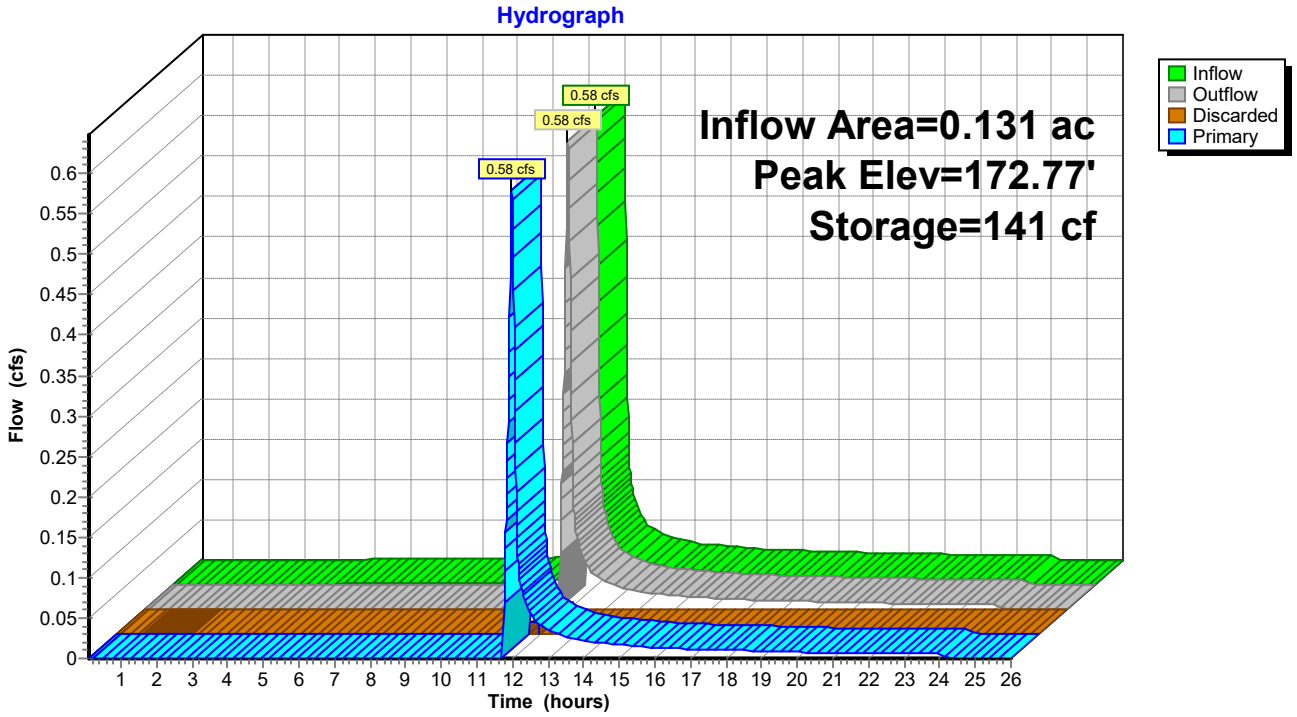
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=172.77' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.56 cfs @ 11.98 hrs HW=172.77' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.43 fps)
└**3=Orifice/Grate** (Orifice Controls 0.45 cfs @ 1.67 fps)

Pond RG-4: RG-4

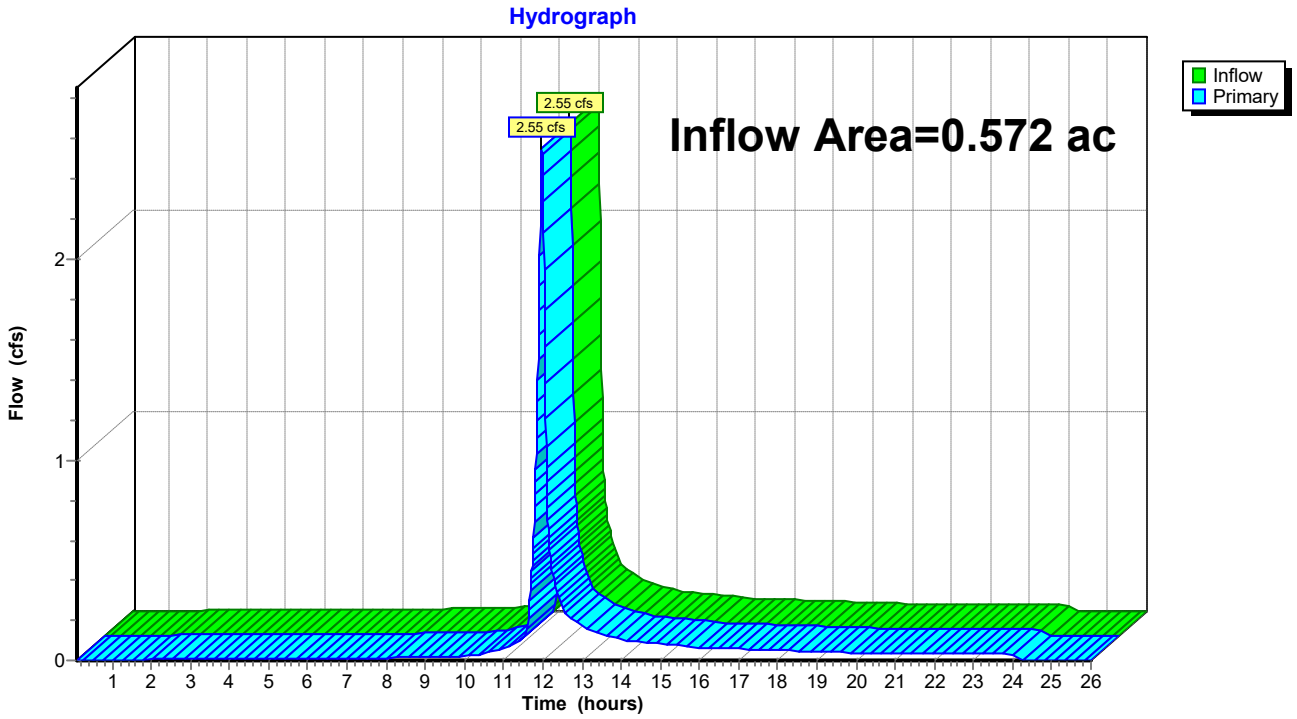

Hydrograph
Inflow Area=0.131 ac
Peak Elev=172.77'
Storage=141 cf
0.58 cfs
0.58 cfs
0.58 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 2.93" for 50-year event
Inflow = 2.55 cfs @ 11.98 hrs, Volume= 0.140 af
Primary = 2.55 cfs @ 11.98 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=24,928 sf 38.03% Impervious Runoff Depth=4.44"
Flow Length=487' Tc=13.0 min CN=73 Runoff=3.51 cfs 0.212 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.025 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.019 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.008 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.13 cfs 0.006 af

Subcatchment 6: Post Impervious Runoff Area=584 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.008 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.003 af

Subcatchment 9: Post Pervious Runoff Area=1,658 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.19 cfs 0.009 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.16 cfs 0.007 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.08 cfs 0.004 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.005 af

Subcatchment 13: Post Pervious Runoff Area=3,880 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.45 cfs 0.021 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.54 cfs 0.025 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=61 Runoff=0.44 cfs 0.020 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.003 af

Subcatchment 17: Post Impervious Runoff Area=1,047 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.015 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.025 af

Pond RG-1: RG-1 Peak Elev=163.60' Storage=776 cf Inflow=0.67 cfs 0.036 af
Outflow=0.43 cfs 0.019 af

Pond RG-2: RG-2 Peak Elev=162.75' Storage=259 cf Inflow=0.16 cfs 0.007 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.66' Storage=178 cf Inflow=0.87 cfs 0.045 af
Outflow=0.87 cfs 0.041 af

Pond RG-4: RG-4 Peak Elev=172.78' Storage=142 cf Inflow=0.73 cfs 0.035 af
Discarded=0.00 cfs 0.001 af Primary=0.73 cfs 0.032 af Outflow=0.73 cfs 0.033 af

Link POA: POA Inflow=3.10 cfs 0.173 af
Primary=3.10 cfs 0.173 af

Total Runoff Area = 1.145 ac Runoff Volume = 0.414 af Average Runoff Depth = 4.34"
65.69% Pervious = 0.752 ac 34.31% Impervious = 0.393 ac

Summary for Subcatchment 1: Pre-Developed

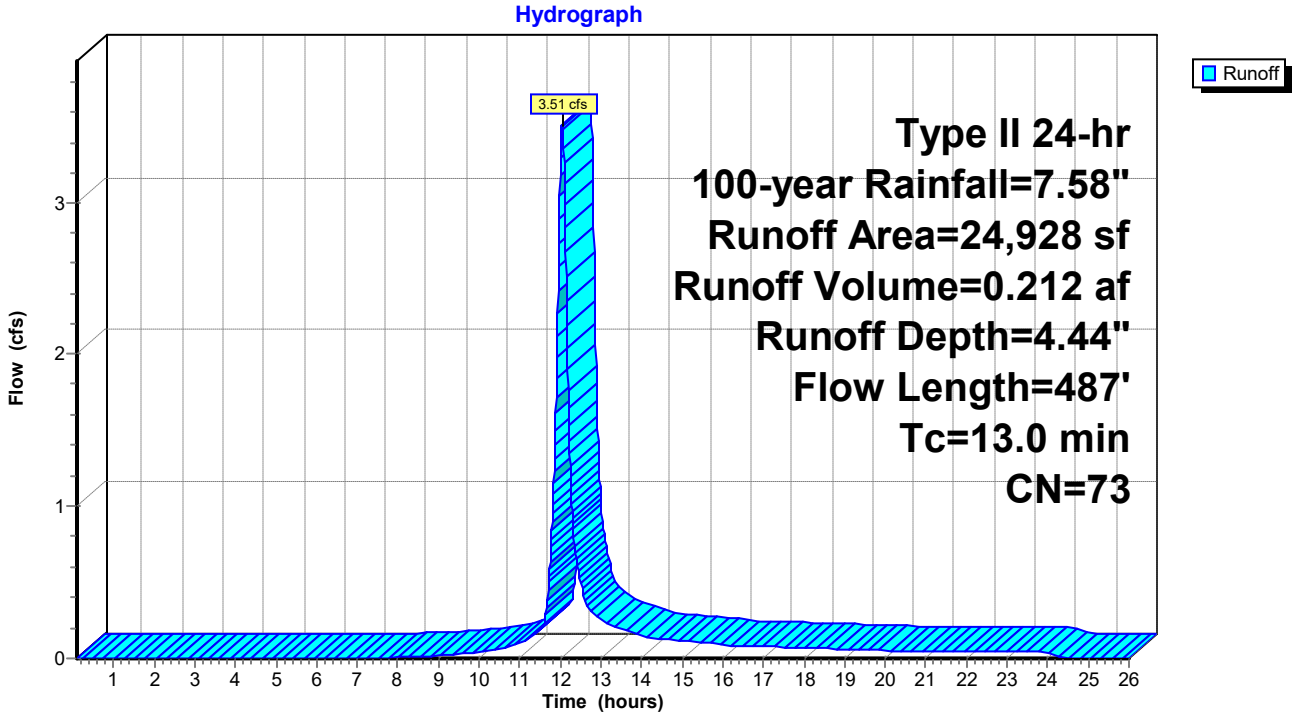
Runoff = 3.51 cfs @ 12.05 hrs, Volume= 0.212 af, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	9,480	98	80% Pre-developed impervious - Roofs and paved paths
*	3,090	58	20% Pre-developed impervious counted as meadow
	12,358	58	Meadow, non-grazed, HSG B
	24,928	73	Weighted Average
	15,448		61.97% Pervious Area
	9,480		38.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

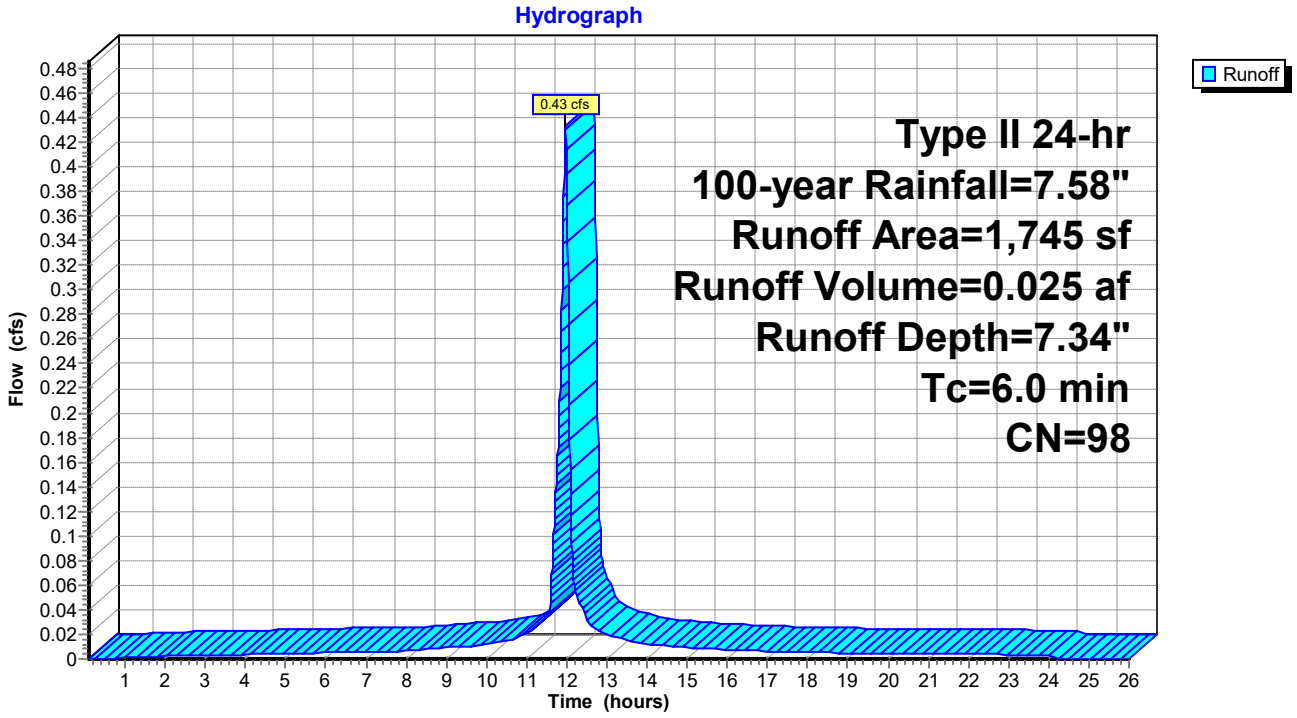
Runoff = 0.43 cfs @ 11.97 hrs, Volume= 0.025 af, Depth= 7.34"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

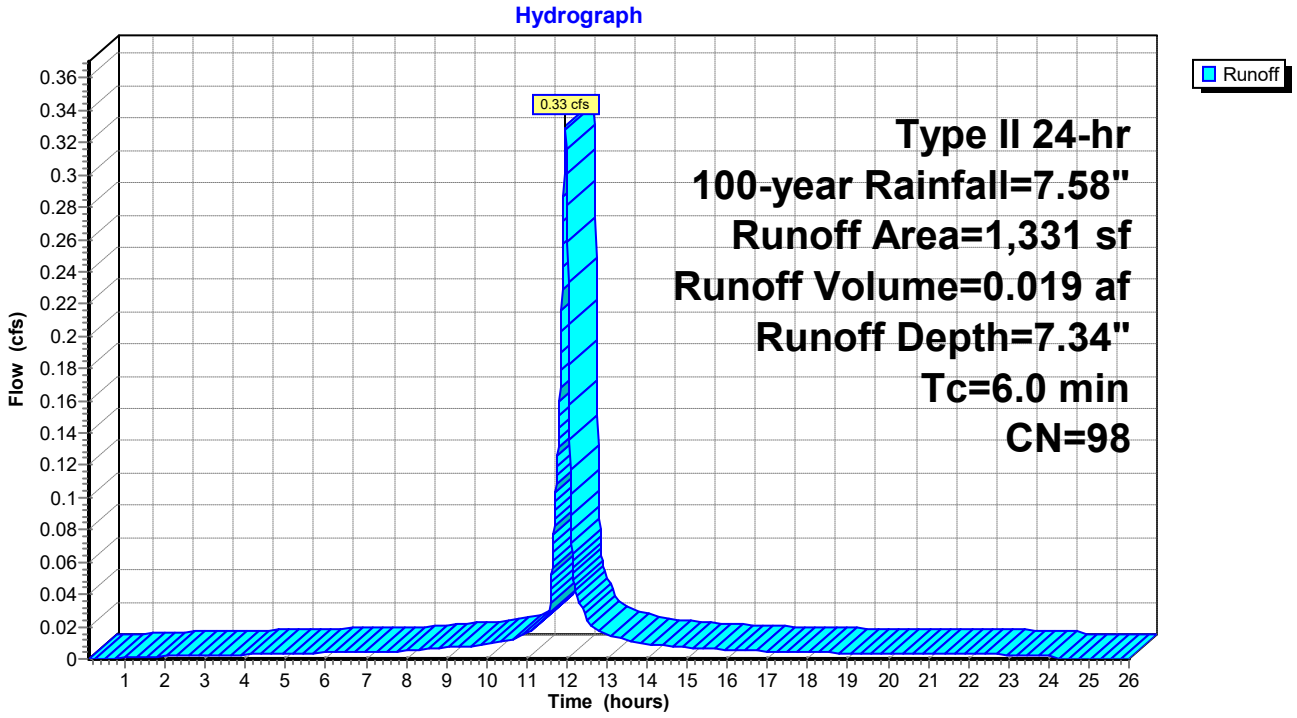
Runoff = 0.33 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 7.34"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

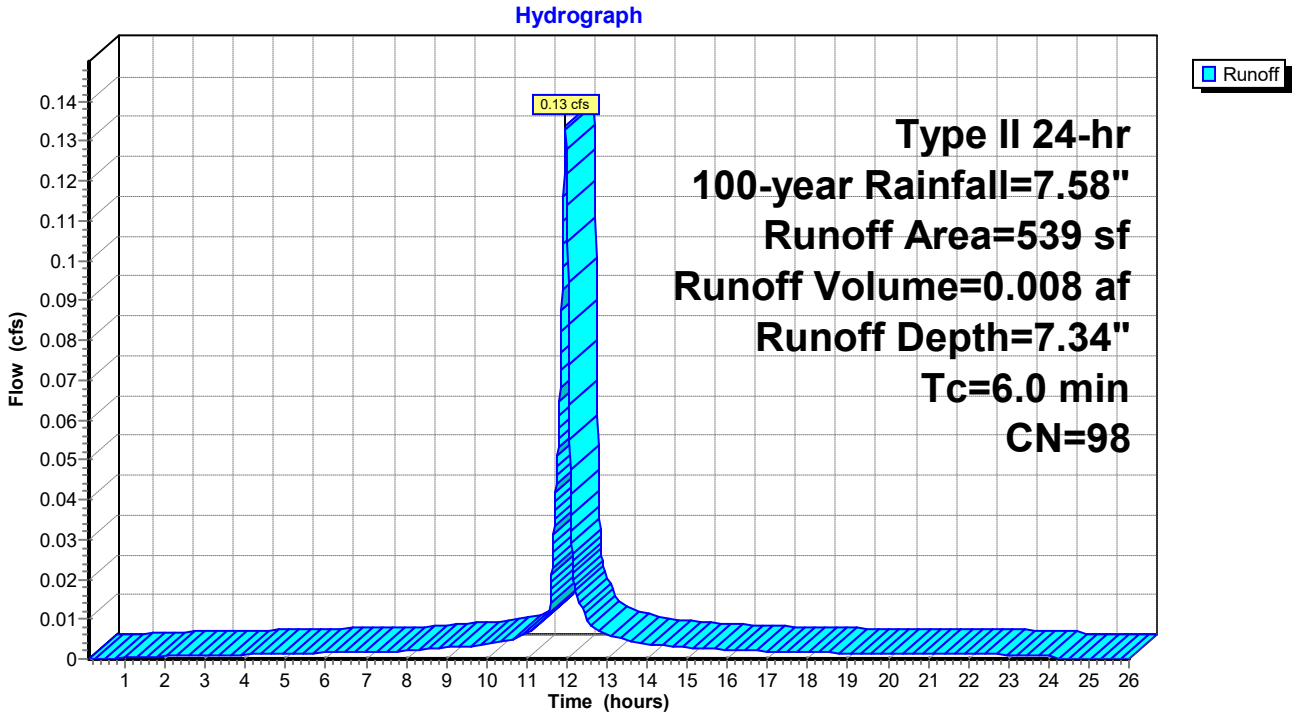
Runoff = 0.13 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 7.34"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

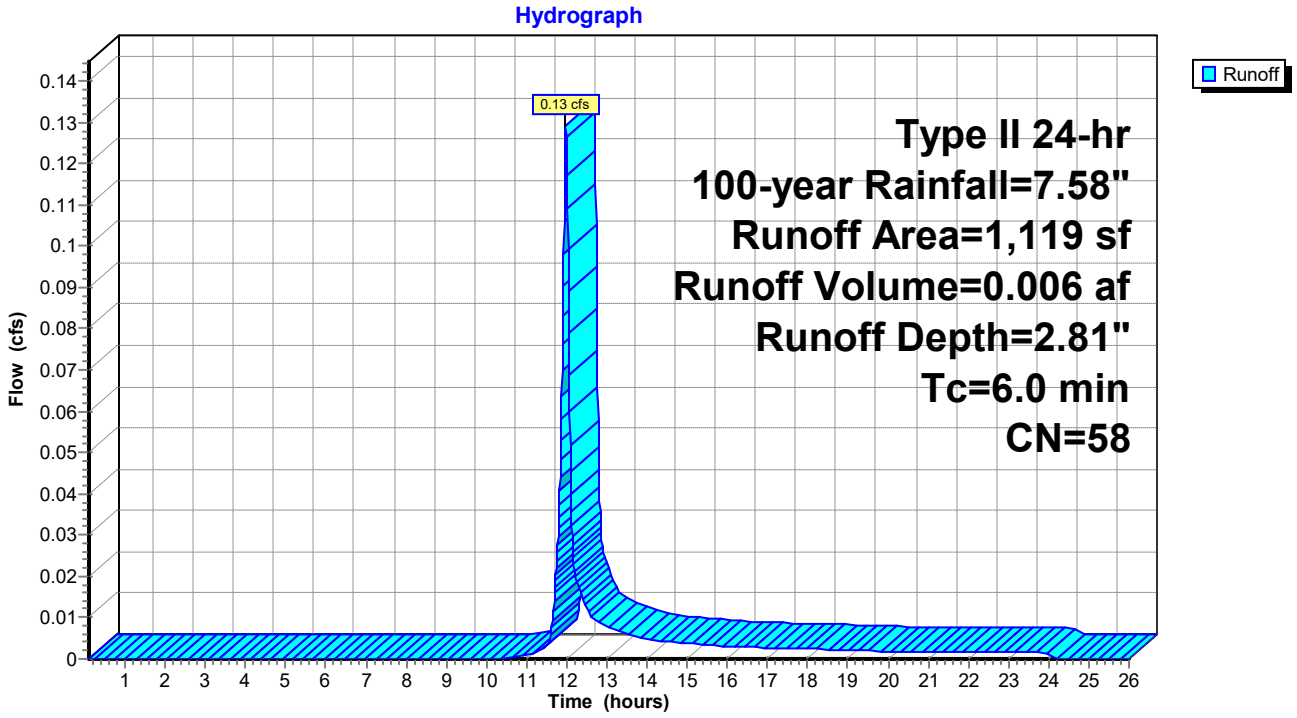
Runoff = 0.13 cfs @ 11.98 hrs, Volume= 0.006 af, Depth= 2.81"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

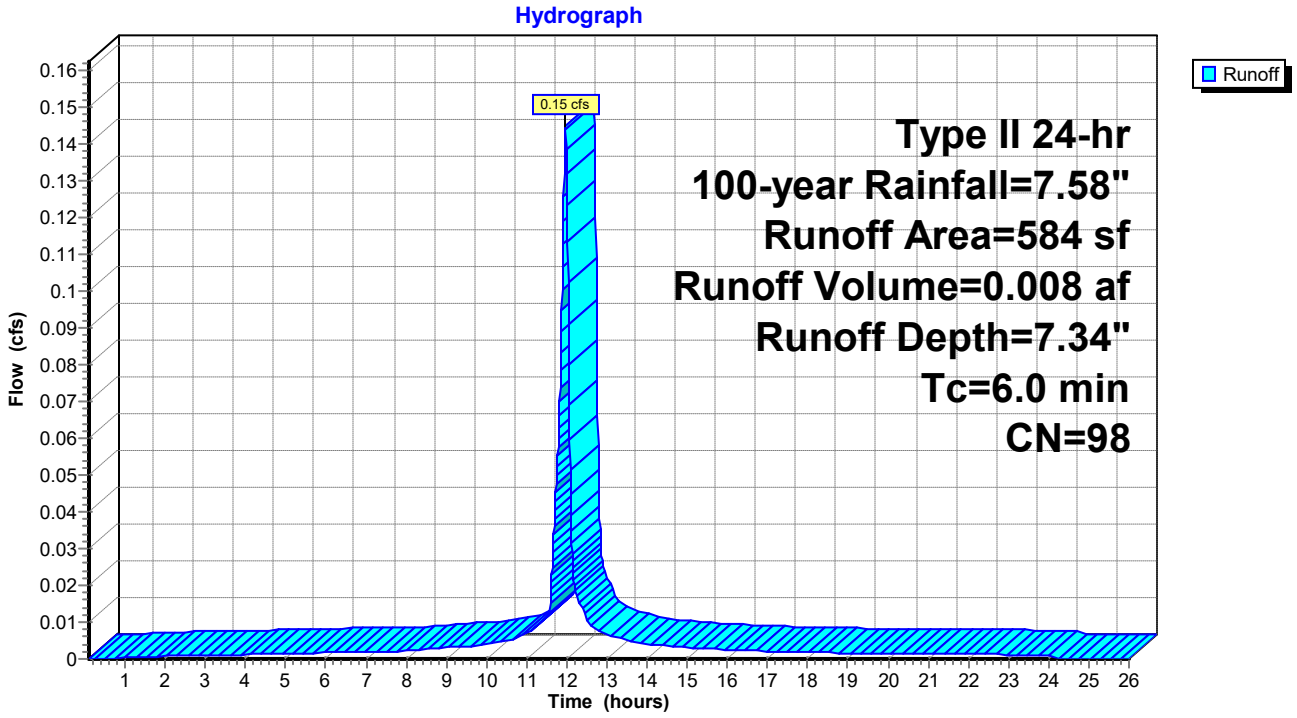
Runoff = 0.15 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 7.34"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	584	98	Impervious driveway
	584		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

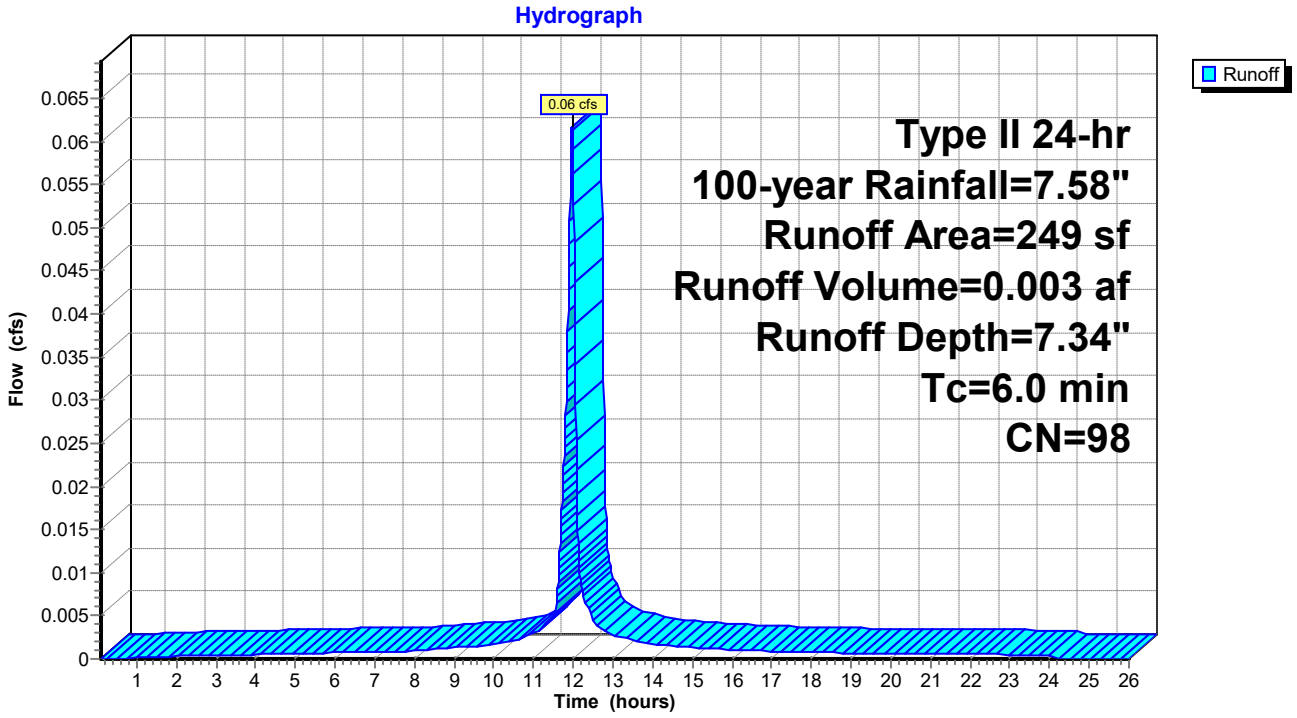
Runoff = 0.06 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

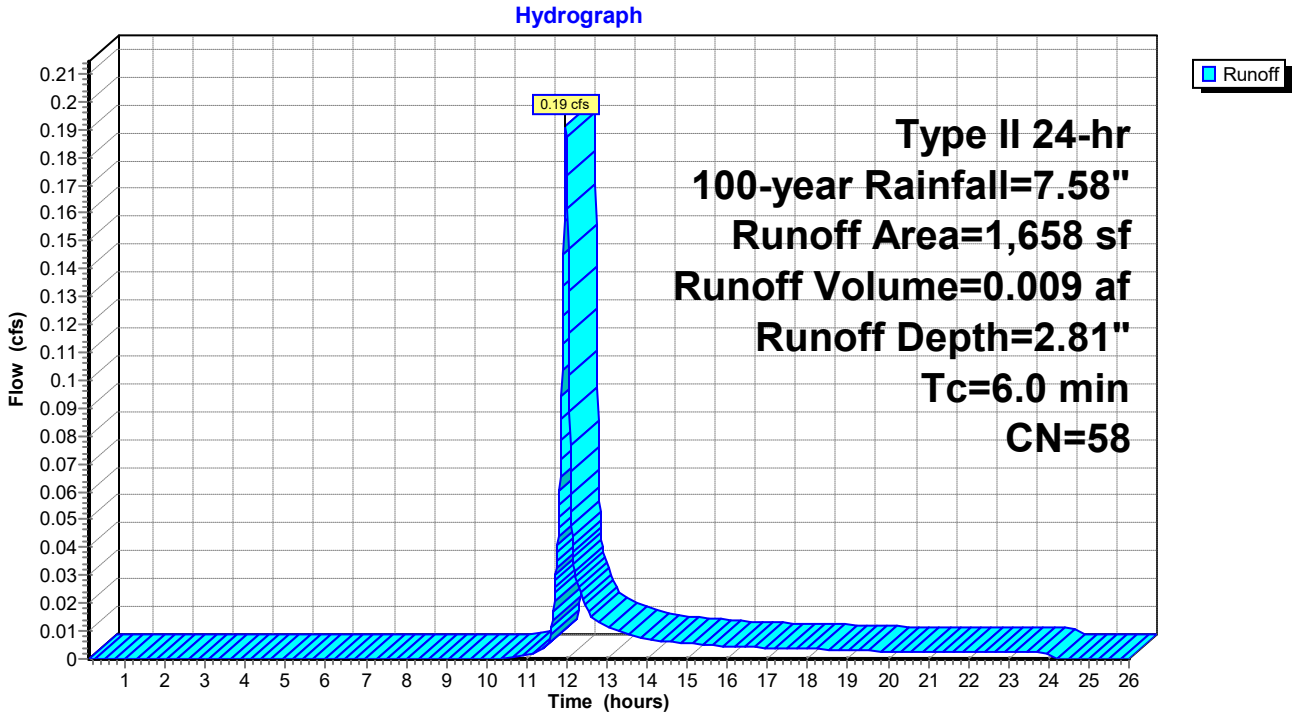
Runoff = 0.19 cfs @ 11.98 hrs, Volume= 0.009 af, Depth= 2.81"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
1,658	58	Meadow, non-grazed, HSG B
1,658		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

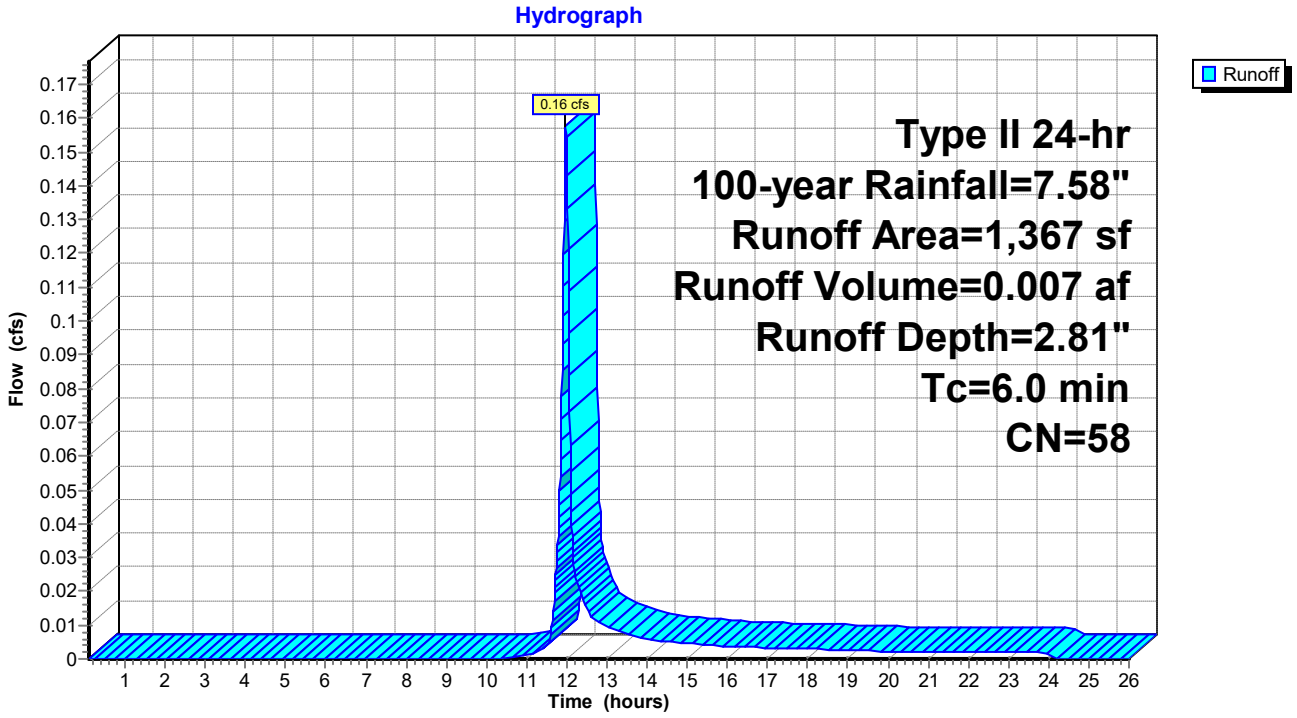
Runoff = 0.16 cfs @ 11.98 hrs, Volume= 0.007 af, Depth= 2.81"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

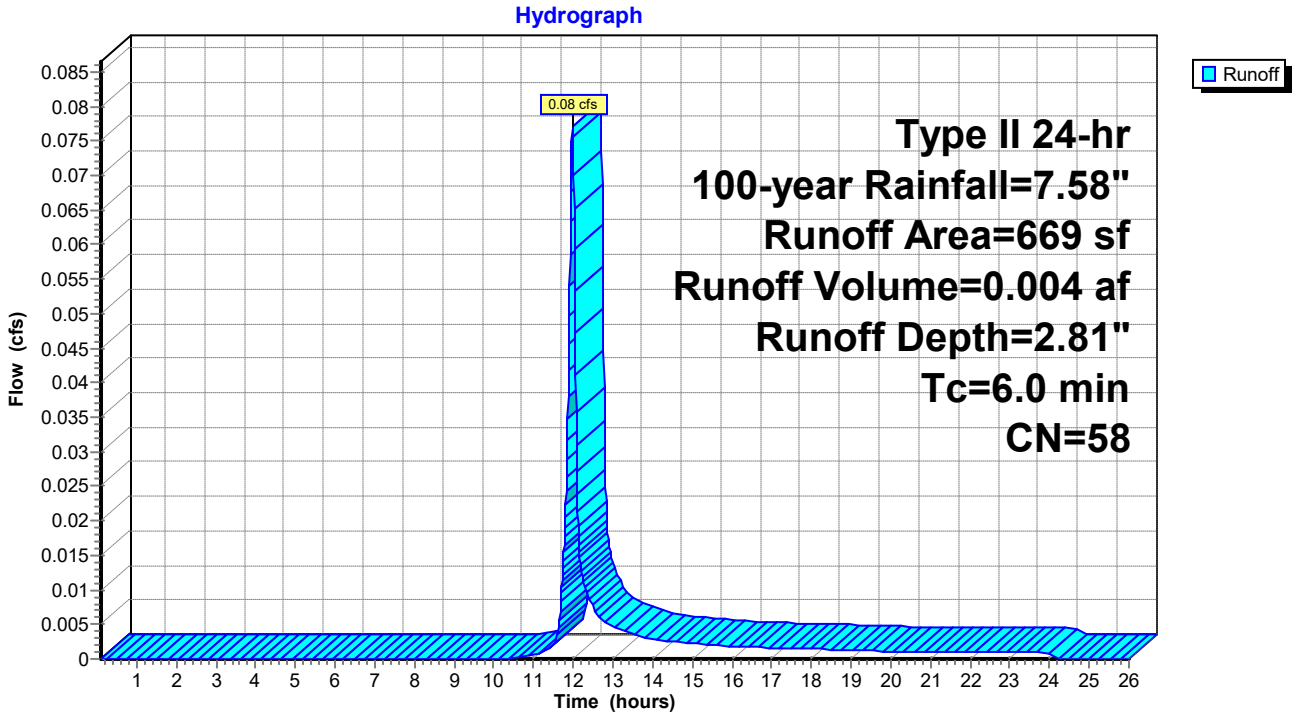
Runoff = 0.08 cfs @ 11.98 hrs, Volume= 0.004 af, Depth= 2.81"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

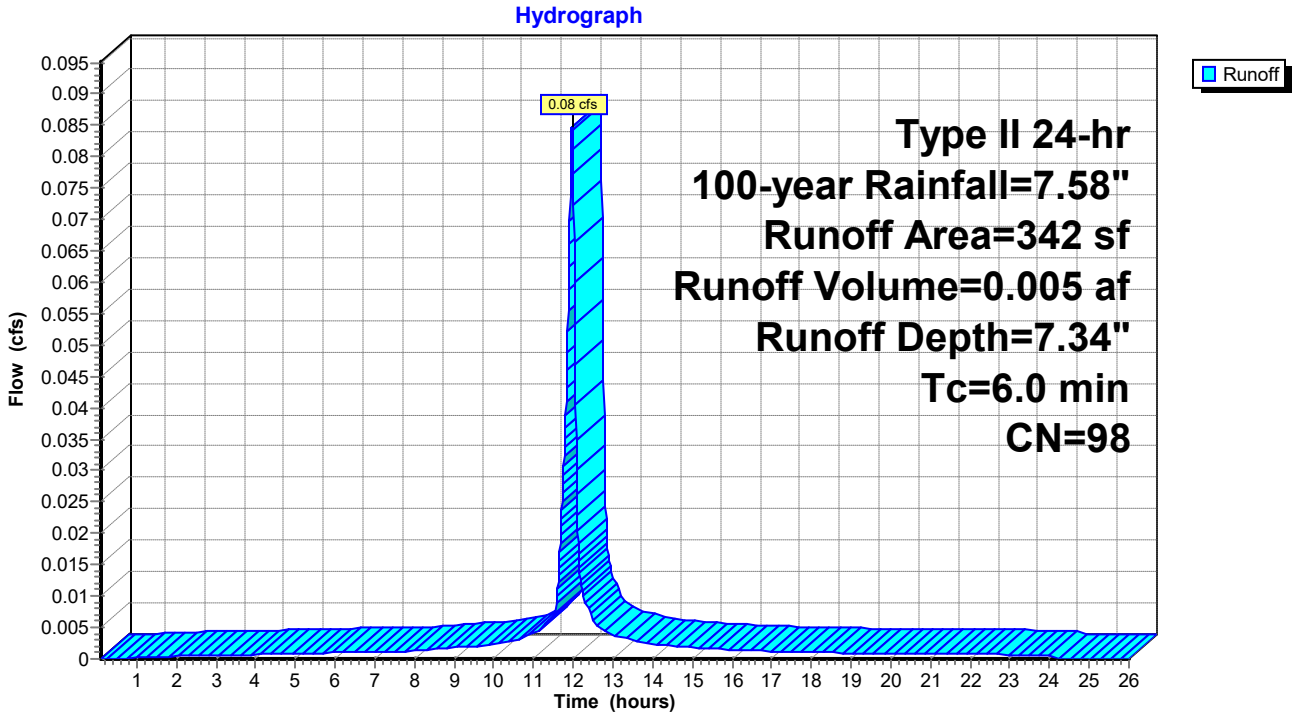
Runoff = 0.08 cfs @ 11.97 hrs, Volume= 0.005 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

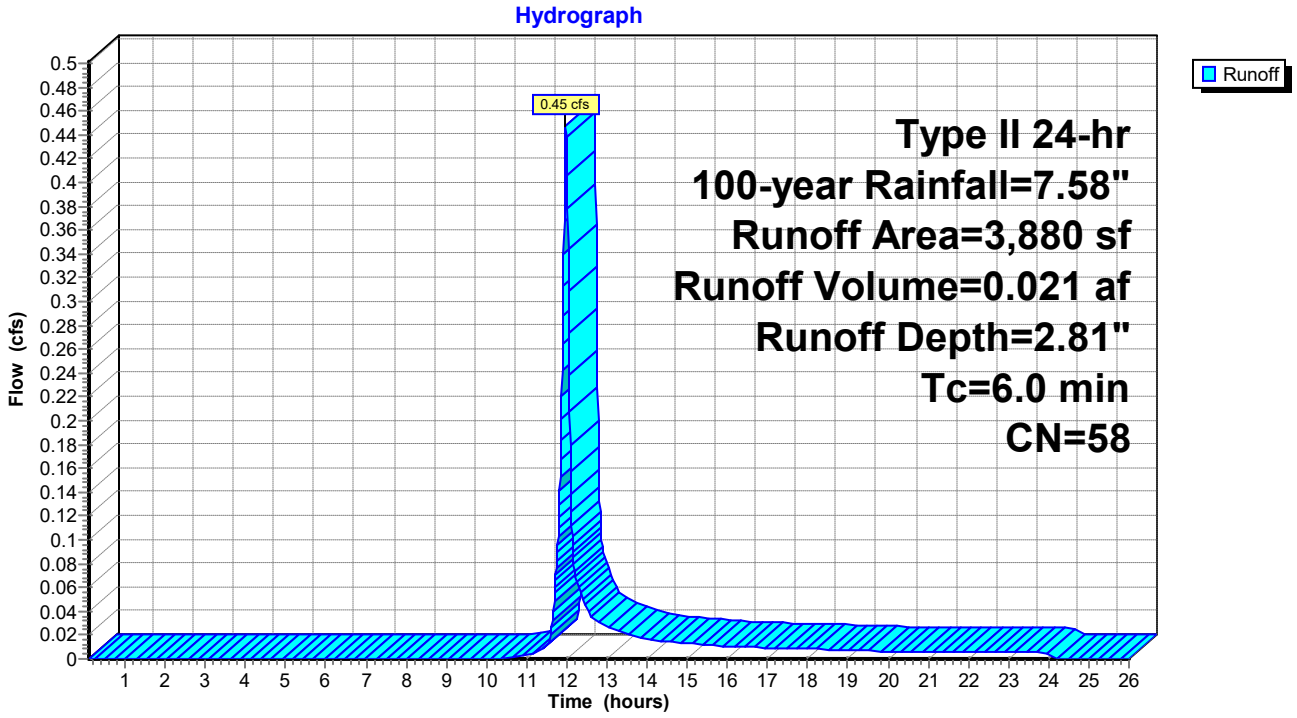
Runoff = 0.45 cfs @ 11.98 hrs, Volume= 0.021 af, Depth= 2.81"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
3,880	58	Meadow, non-grazed, HSG B
3,880		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

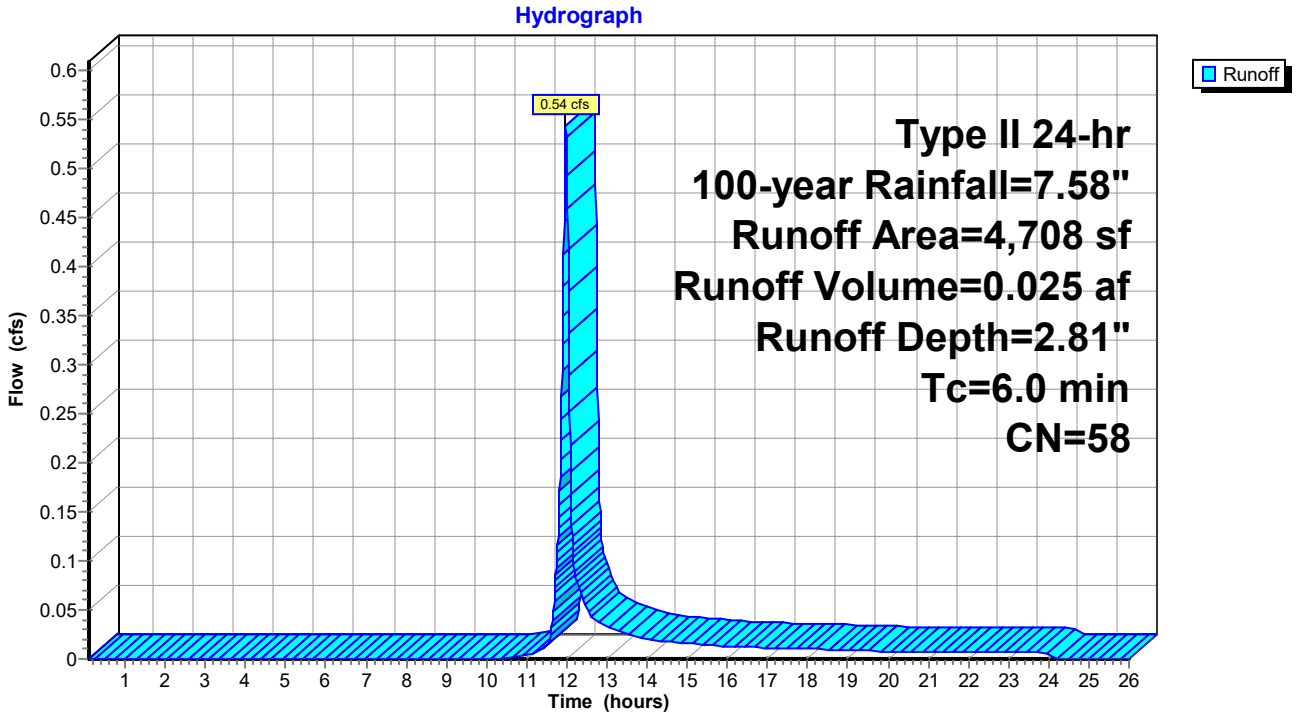
Runoff = 0.54 cfs @ 11.98 hrs, Volume= 0.025 af, Depth= 2.81"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

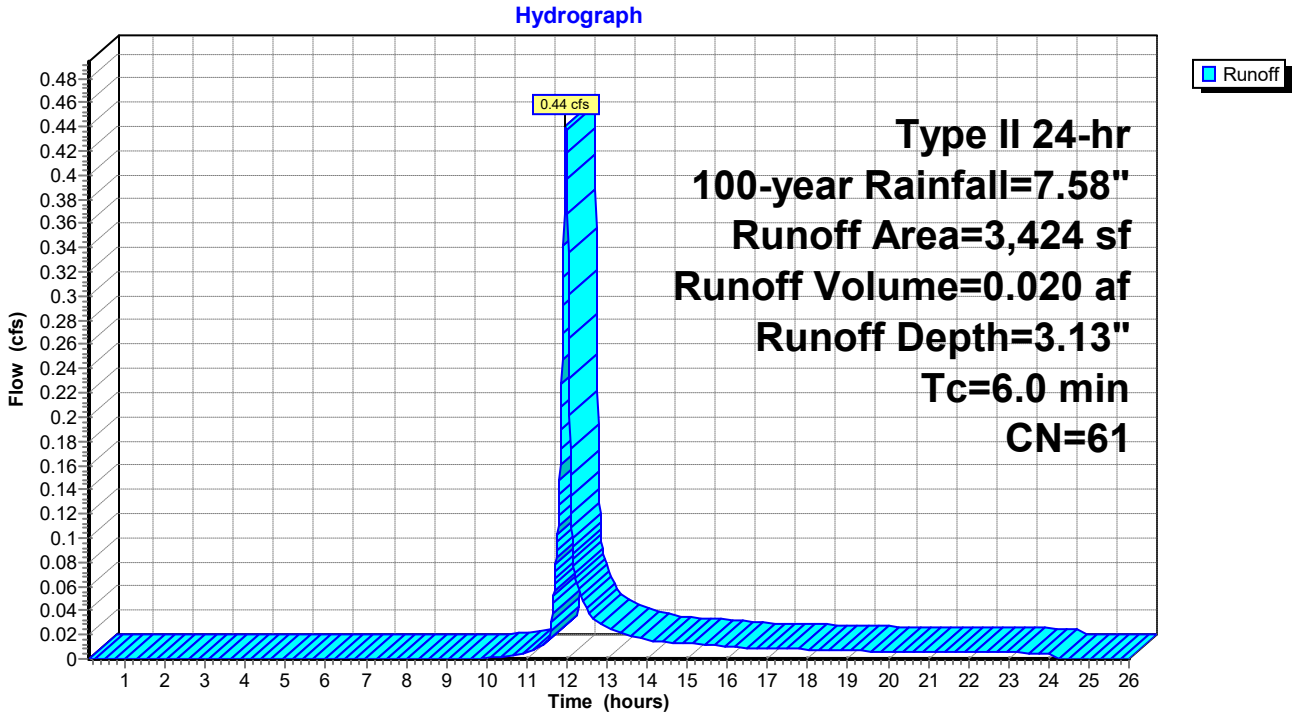
Runoff = 0.44 cfs @ 11.98 hrs, Volume= 0.020 af, Depth= 3.13"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

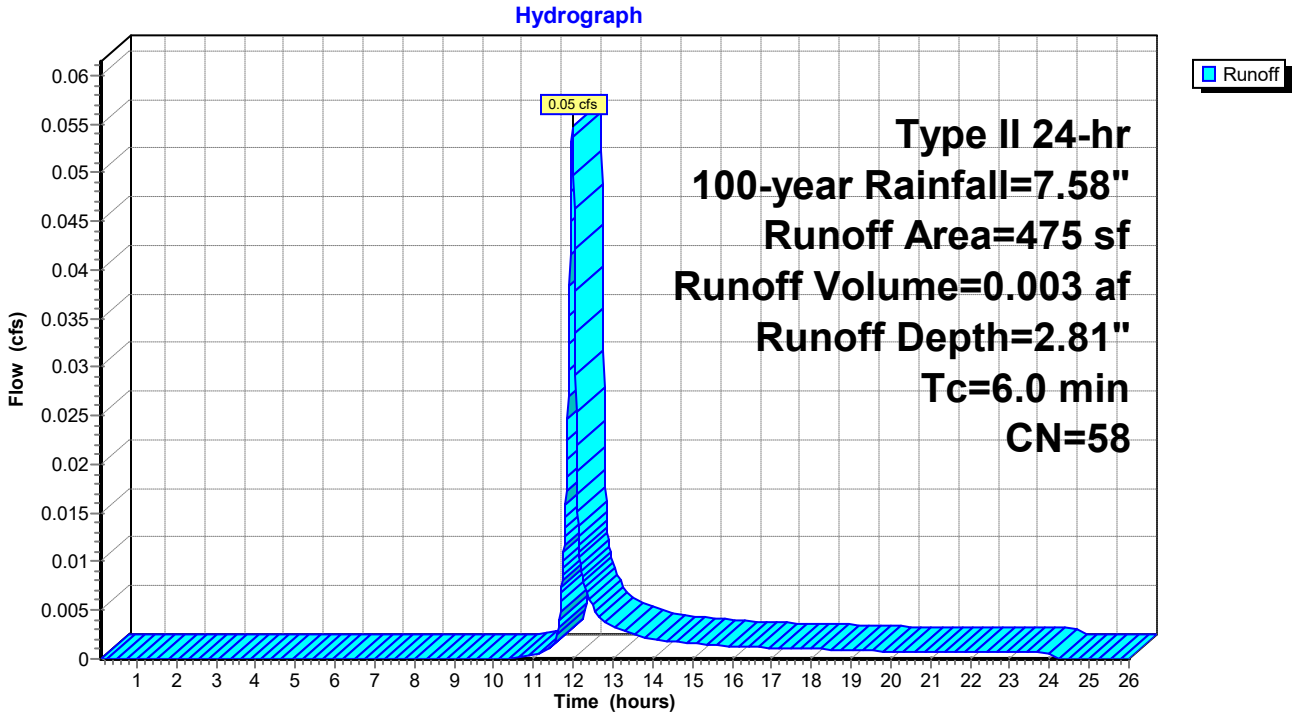
Runoff = 0.05 cfs @ 11.98 hrs, Volume= 0.003 af, Depth= 2.81"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

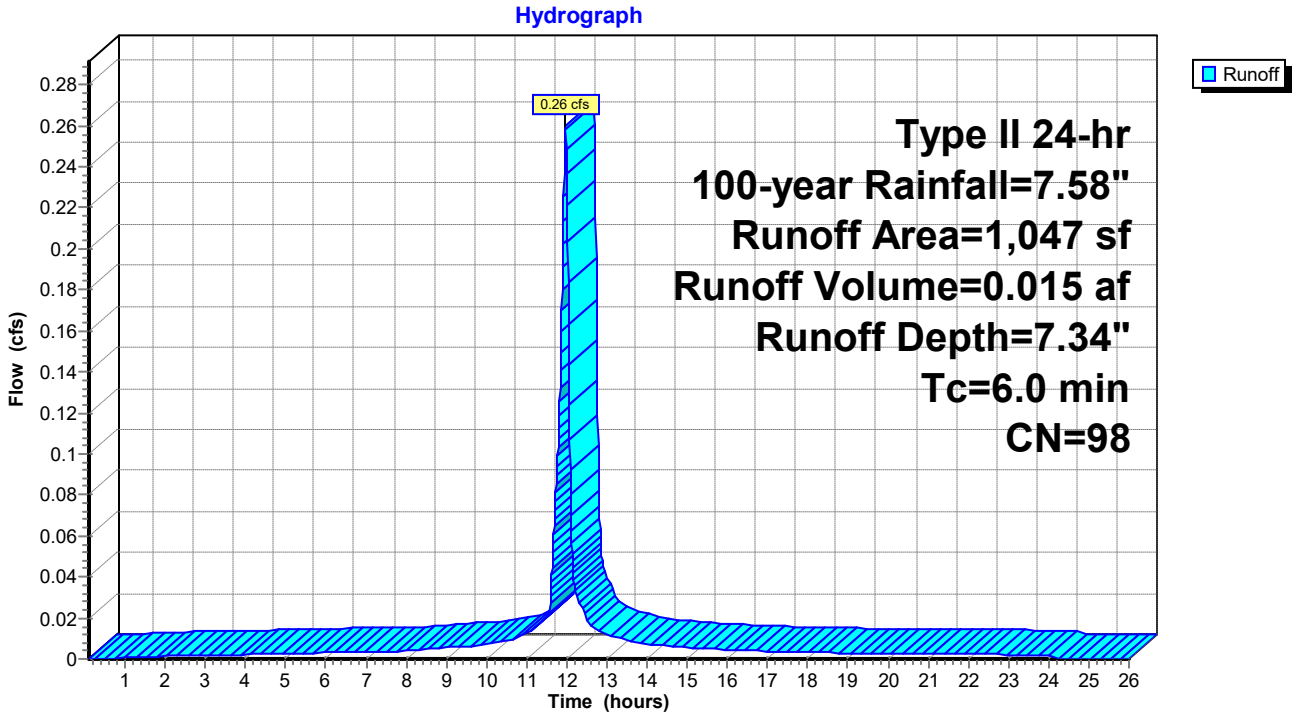
Runoff = 0.26 cfs @ 11.97 hrs, Volume= 0.015 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,047	98	Impervious driveway
	1,047		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

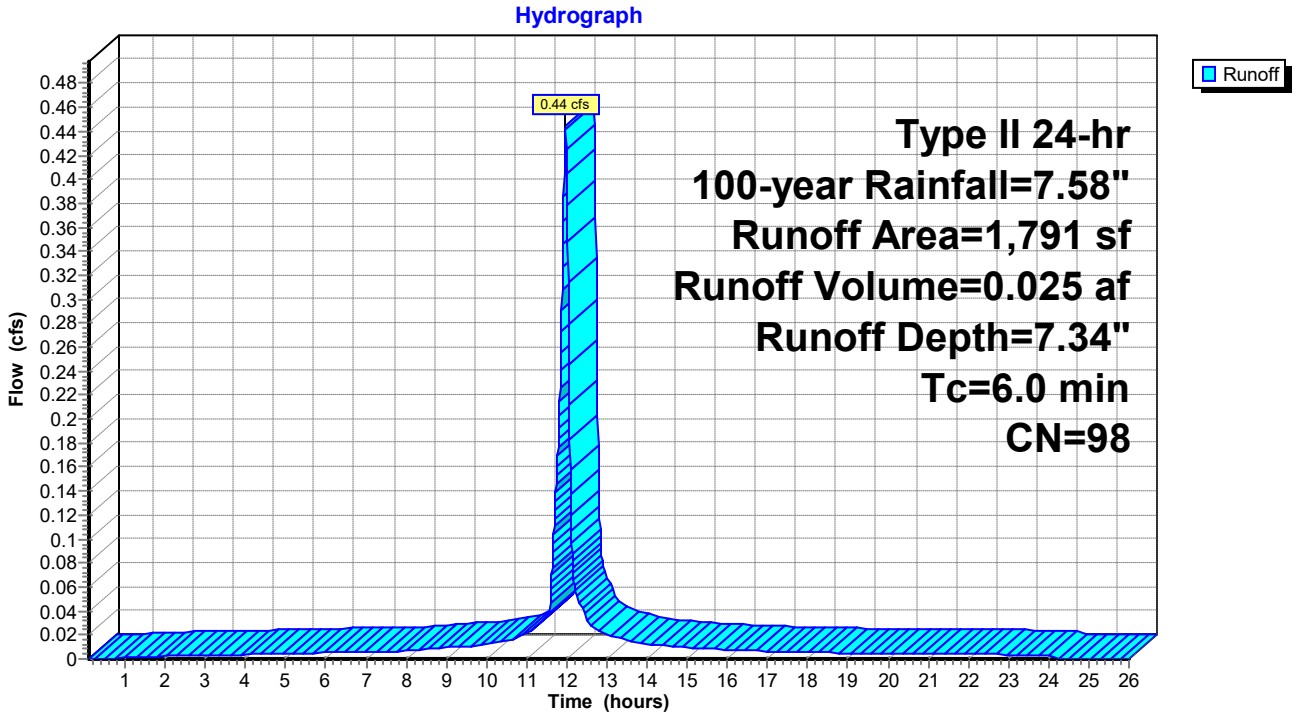
Runoff = 0.44 cfs @ 11.97 hrs, Volume= 0.025 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.082 ac, 53.60% Impervious, Inflow Depth = 5.24" for 100-year event
Inflow = 0.67 cfs @ 11.97 hrs, Volume= 0.036 af
Outflow = 0.43 cfs @ 12.04 hrs, Volume= 0.019 af, Atten= 36%, Lag= 4.3 min
Primary = 0.43 cfs @ 12.04 hrs, Volume= 0.019 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.60' @ 12.04 hrs Surf.Area= 896 sf Storage= 776 cf

Plug-Flow detention time= 250.4 min calculated for 0.019 af (54% of inflow)
Center-of-Mass det. time= 122.9 min (888.7 - 765.7)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

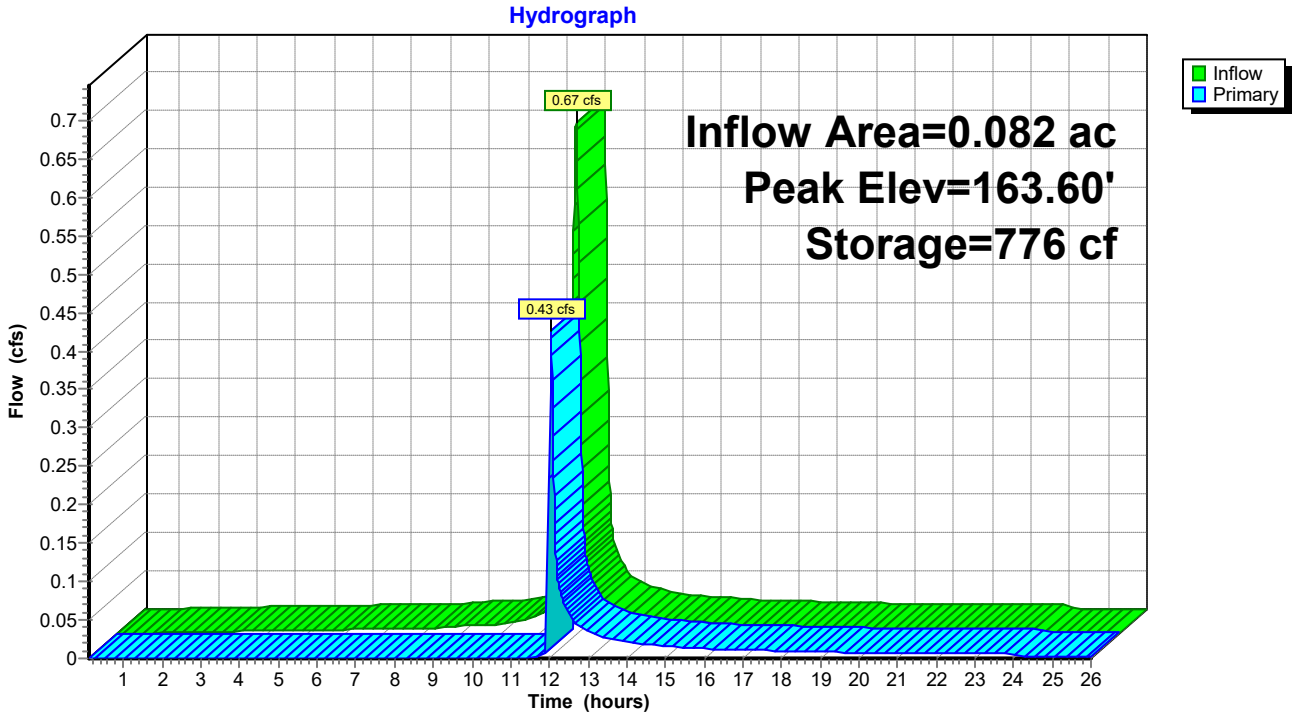
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.42 cfs @ 12.04 hrs HW=163.60' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.41 cfs @ 1.03 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.67 cfs
0.43 cfs
Inflow Area=0.082 ac
Peak Elev=163.60'
Storage=776 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 2.81" for 100-year event
Inflow = 0.16 cfs @ 11.98 hrs, Volume= 0.007 af
Outflow = 0.00 cfs @ 18.15 hrs, Volume= 0.001 af, Atten= 98%, Lag= 370.3 min
Primary = 0.00 cfs @ 18.15 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.75' @ 18.15 hrs Surf.Area= 301 sf Storage= 259 cf

Plug-Flow detention time= 481.8 min calculated for 0.001 af (20% of inflow)
Center-of-Mass det. time= 338.4 min (1,188.7 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

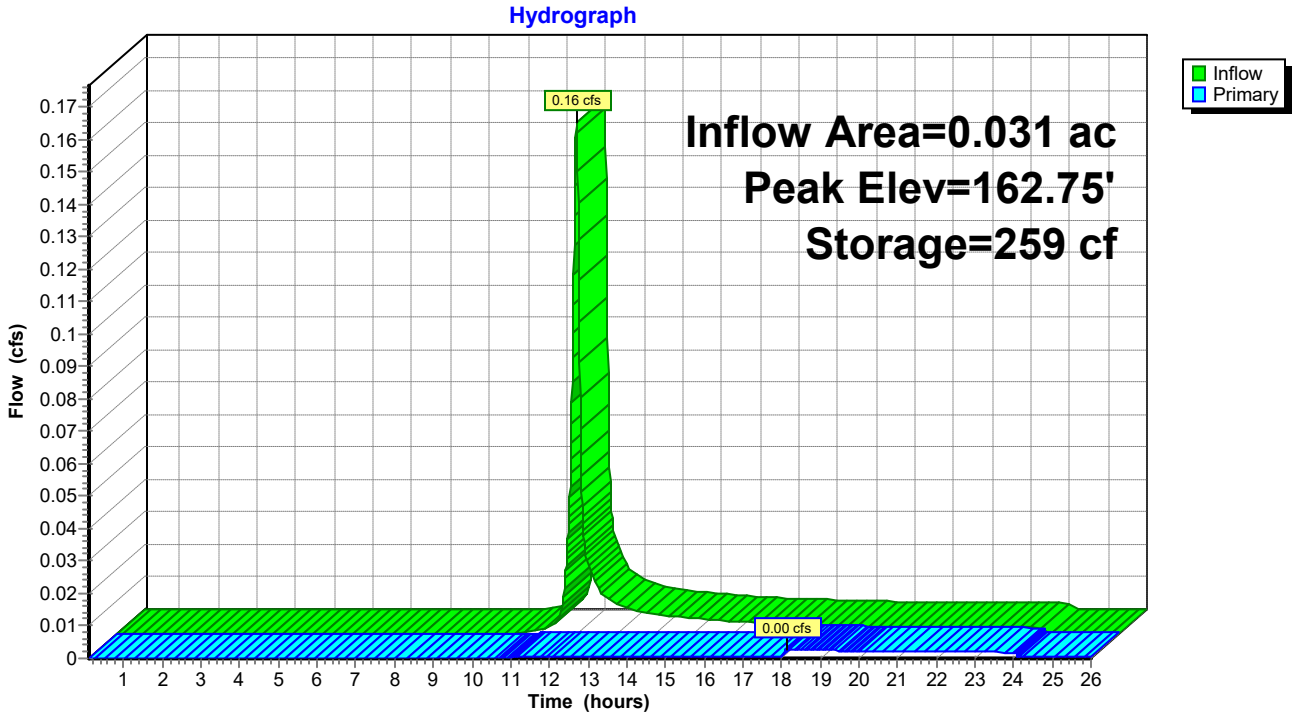
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 18.15 hrs HW=162.75' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.07 fps)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.16 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=162.75'
Storage=259 cf
Flow (cfs)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 4.55" for 100-year event
Inflow = 0.87 cfs @ 11.97 hrs, Volume= 0.045 af
Outflow = 0.87 cfs @ 11.98 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.3 min
Primary = 0.87 cfs @ 11.98 hrs, Volume= 0.041 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.66' @ 11.98 hrs Surf.Area= 186 sf Storage= 178 cf

Plug-Flow detention time= 77.7 min calculated for 0.041 af (92% of inflow)
Center-of-Mass det. time= 34.0 min (819.9 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

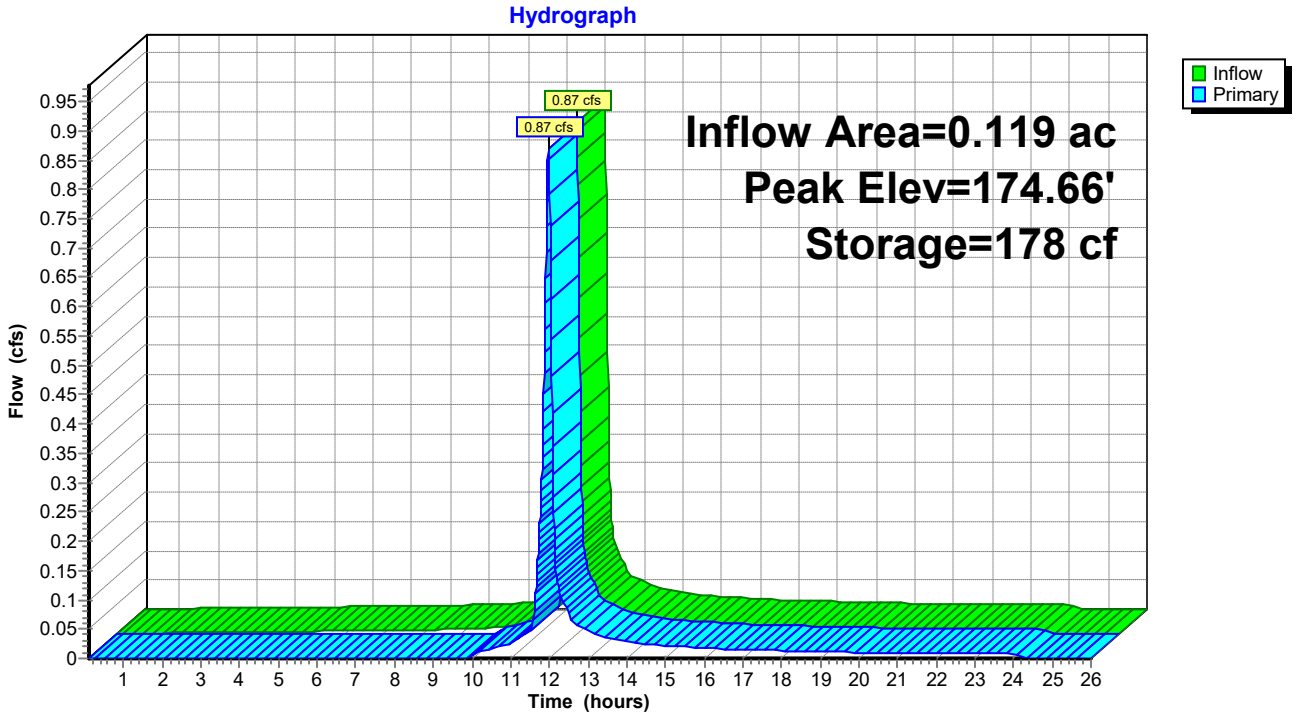
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.87 cfs @ 11.98 hrs HW=174.66' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.87 cfs @ 1.32 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.87 cfs
0.87 cfs
Inflow Area=0.119 ac
Peak Elev=174.66'
Storage=178 cf
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 3.24" for 100-year event
Inflow = 0.73 cfs @ 11.98 hrs, Volume= 0.035 af
Outflow = 0.73 cfs @ 11.98 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 0.001 af
Primary = 0.73 cfs @ 11.98 hrs, Volume= 0.032 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.78' @ 11.98 hrs Surf.Area= 171 sf Storage= 142 cf

Plug-Flow detention time= 64.9 min calculated for 0.033 af (92% of inflow)
Center-of-Mass det. time= 23.0 min (849.3 - 826.3)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

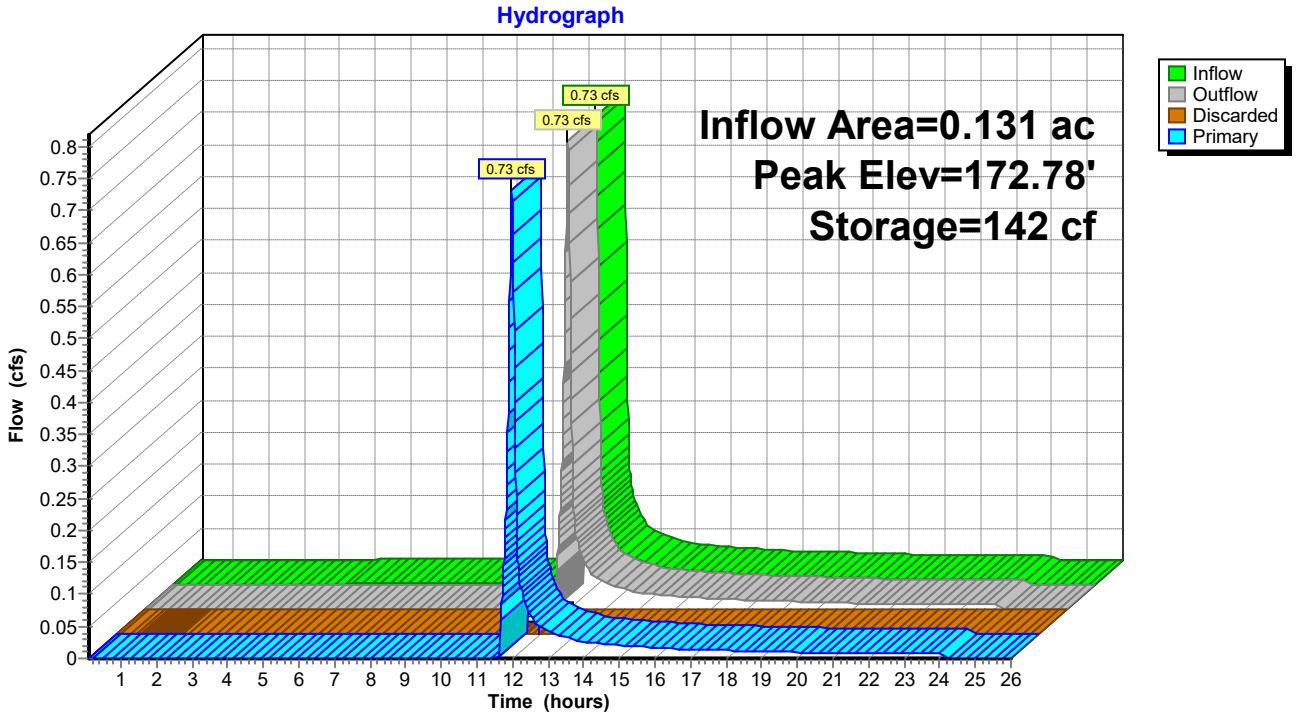
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=172.78' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.71 cfs @ 11.98 hrs HW=172.78' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.54 fps)
└**3=Orifice/Grate** (Orifice Controls 0.49 cfs @ 1.71 fps)

Pond RG-4: RG-4

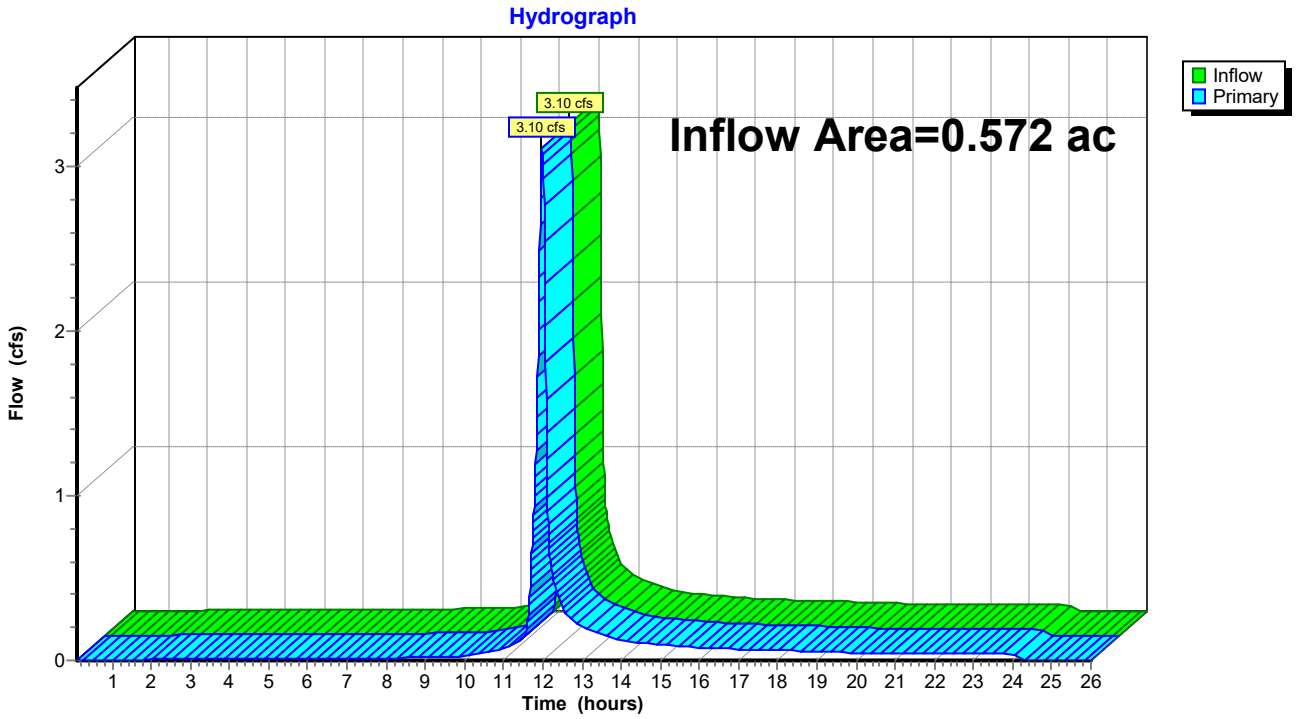

Hydrograph
Inflow Area=0.131 ac
Peak Elev=172.78'
Storage=142 cf
0.73 cfs
0.73 cfs
0.73 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.572 ac, 30.60% Impervious, Inflow Depth > 3.63" for 100-year event
Inflow = 3.10 cfs @ 11.97 hrs, Volume= 0.173 af
Primary = 3.10 cfs @ 11.97 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Appendix B: Pipe Capacity Calculations

Grist Project No.: 2203-01
The Miquon School - Heart of the Campus
Site Address: 2025 Harts Lane, Conshohocken, PA
Pipe Sizing Calculations
4-Aug-23

Pipe Segment		Drainage Area			Q (cfs)*	Pipe Diameter (in.)	Pipe Slope (ft./ft.)	Pipe Qmax (cfs)
Upstream Drainage Structure	Downstream Drainage Structure	No.	Impervious Area (sq. ft.)	Pervious Area (sq. ft.)				
DOWNSPOUT SE	DOWNSPOUT SW	1/2(DAI-3)	666	0	0.12	6	0.010	0.87
DOWNSPOUT SW	ENDWALL-1	DAI-3	1,331	0	0.25	8	0.010	1.86
OS-1	EXISTING 8" PIPE	DAI-3, DAI-6, DAP-9	N/A	N/A	0.43	8	0.057	1.86
DOWNSPOUT NW	PROPOSED 8" PIPE	1/2(DAI-2)	873	0	0.16	6	0.010	0.87
DOWNSPOUT NE	PROPOSED 8" PIPE	1/2(DAI-2)	873	0	0.16	6	0.010	0.87
DOWNSPOUT NE	ENDWALL-3	DAI-2	1,745	0	0.32	8	0.010	1.86
OS-3	EXISTING 12" PIPE	DAI-2, DAP-15	N/A	N/A	0.87	8	0.035	3.65
OS-4	PROPOSED 8" PIPE	DAI-4, DAP-14, DAP-16	N/A	N/A	0.73	8	0.006	1.41
OS-4	EXISTING 12" PIPE	DAI-2, DAP-15, DAI-4, DAP-14, DAP-16	N/A	N/A	1.60	8	0.035	3.65

For pipes collecting from drainage areas and directing runoff to SMPs:
Q=CIA, where
C = 0.95
I = 8.52 inches per hour (10-year, 5-minute peak intensity)
A = Area in acres

For pipes conveying overflow from SMPs to existing storm sewer:
Q = 100 year discharge from SMP, as calculated by HydroCAD model

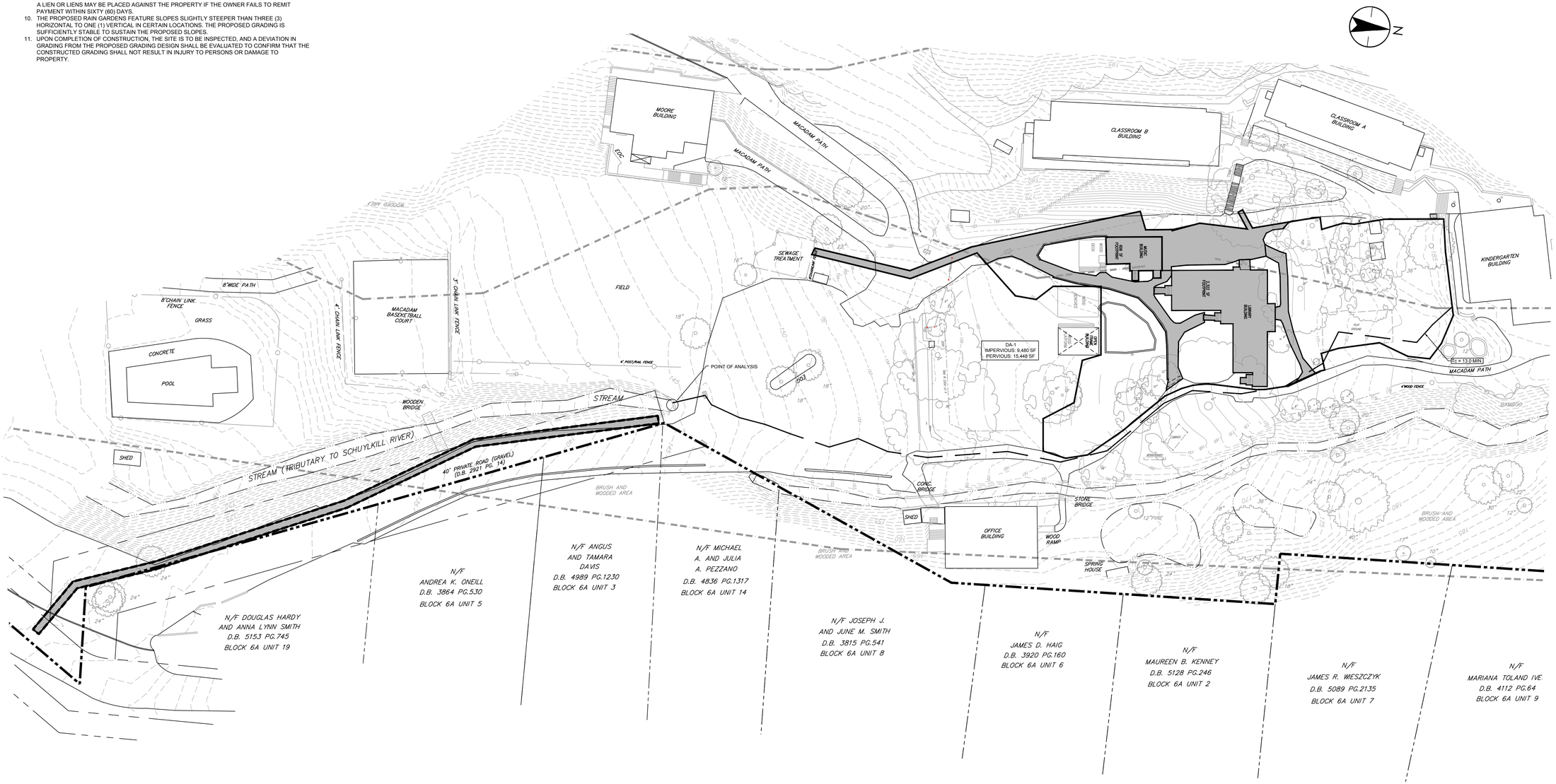
Pipe Qmax = 1.486/n*(AR^2/3)S^1/2
n = Manning's roughness = 0.012
A = Cross sectional area (sq. ft.)
R = Hydraulic radius (ft.)
S = Slope (ft./ft.)

NOTES:

1. THIS PLAN IS FOR STORMWATER MANAGEMENT DESIGN REVIEW. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022, A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
11. UPON COMPLETION OF CONSTRUCTION, THE SITE IS TO BE INSPECTED, AND A DEVIATION IN GRADING FROM THE PROPOSED GRADING DESIGN SHALL BE EVALUATED TO CONFIRM THAT THE CONSTRUCTED GRADING SHALL NOT RESULT IN INJURY TO PERSONS OR DAMAGE TO PROPERTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING CONTOUR
- DRAINAGE AREA BOUNDARY
- EXISTING PERVIOUS AREA
- EXISTING IMPERVIOUS AREA
- EXISTING TREES
- EXISTING STORM PIPE
- EXISTING STORM INLET
- TIME OF CONCENTRATION



Soils Summary Table			
Abbreviation	**Soil / Map Unit Name**	**Ksat of Most Limiting Layer**	**Depth to Restrictive Feature**
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

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0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PRE-DEVELOPED DRAINAGE AREA PLAN

Drawing Number: DA-1

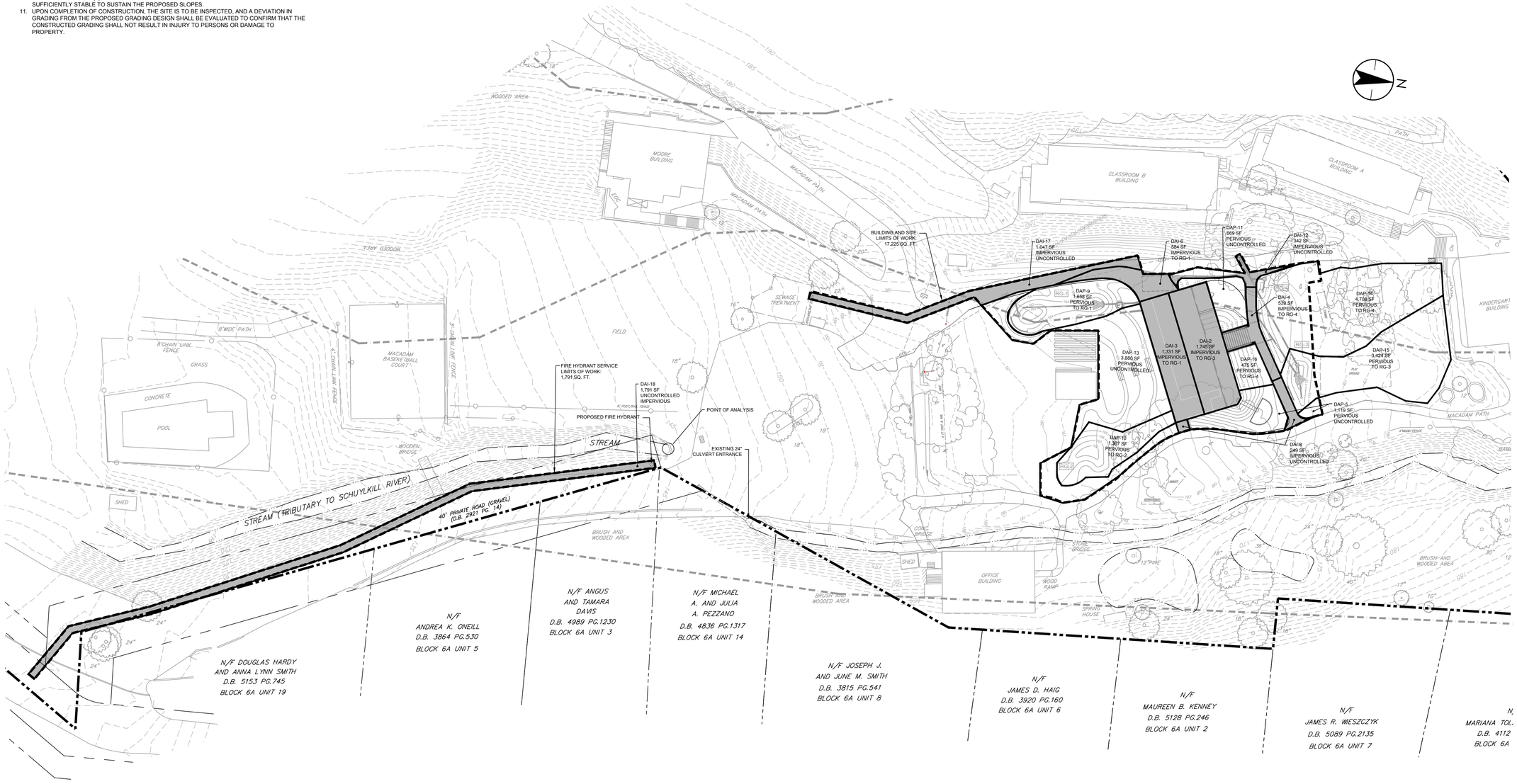
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3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
11. UPON COMPLETION OF CONSTRUCTION, THE SITE IS TO BE INSPECTED, AND A DEVIATION IN GRADING FROM THE PROPOSED GRADING DESIGN SHALL BE EVALUATED TO CONFIRM THAT THE CONSTRUCTED GRADING SHALL NOT RESULT IN INJURY TO PERSONS OR DAMAGE TO PROPERTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- DRAINAGE AREA BOUNDARY
- EXISTING / PROPOSED CONTOUR
- PERVIOUS DRAINAGE AREA
- IMPERVIOUS DRAINAGE AREA
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING STORM INLET / PROPOSED OUTLET STRUCTURE



Soils Summary Table			
Abbreviation	**Soil / Map Unit Name**	**Ksat of Most Limiting Layer**	**Depth to Restrictive Feature**
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

PENNSYLVANIA ONE CALL SYSTEM, INC.
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THE LAW REQUIRES THREE WORKING DAYS NOTICE TO UNLESS EXISTING YOU EXCAVATE, SHALL WAIT FOR START-UP

0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

LANDSCAPE ARCHITECT
GROUND RECONSIDERED
915 Spring Garden Street, Suite 403
Philadelphia, PA 19123
215-790-0727

CIVIL ENGINEER
GRIST
50 East Sedgwick Street
Philadelphia, PA 19119
267-332-8282

STRUCTURAL ENGINEER
ANN ROTHMAN STRUCTURAL ENGINEERING
100 East Lancaster Avenue, Suite 203
Wayne, Pennsylvania 19087
610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: POST-DEVELOPED DRAINAGE AREA PLAN

Drawing Number: DA-2

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THE MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

PRELIMINARY AND FINAL LAND DEVELOPMENT
WHITEMARSH TOWNSHIP, PA
08/04/2023
REVISED: 08/31/2023*

DRAWING LIST:

GENERAL

CS	COVER SHEET

LANDSCAPE ARCHITECTURAL

L1.0	EXISTING CONDITIONS PLAN
L1.1	TREE PROTECTION & DEMOLITION PLAN*
L2.0	MATERIALS PLAN*
L2.1	PAVEMENT ENLARGEMENT*
L2.2	MATERIALS PLAN - HYDRANT*
L3.0	LAYOUT PLAN*
L4.0	GRADING PLAN*
L5.0	SITE SECTIONS
L6.0	TREE PLANTING PLAN
L6.1	UNDERSTORY PLANTING PLAN
L6.2	RAIN GARDEN PLANTING PLAN
L7.0	SITE DETAILS
L7.1	SITE DETAILS
L7.2	PLANTING DETAILS

* - DENOTES REVISIONS TO SHEET

CIVIL

C5.1	EXISTING RESOURCES AND SITE ANALYSIS PLAN
C5.2	PRELIMINARY IMPACT PLAN*
C5.3	PRELIMINARY IMPROVEMENTS PLAN*
C10.0	SITE PLAN*
C10.1	PROJECT SITE PLAN*
C10.2	TRUCK TURNING PLAN
C20.1	STORMWATER MANAGEMENT PLAN*
C30.1	EROSION AND SEDIMENT CONTROL PLAN*
C30.2	EROSION AND SEDIMENT CONTROL DETAILS
C40.1	UTLITY PLAN*
C40.2	FIRE HYDRANT PLAN
C50.2	STORMWATER DETAILS

* - DENOTES REVISIONS TO SHEET

LANDSCAPE ARCHITECT

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Philadelphia, PA
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CIVIL ENGINEER

GRIST
50 East Sedgwick Street,
Philadelphia, PA 19119
267-332-8282



AERIAL VIEW
SCALE: 1" = 400'



VIEW INTO SITE FROM HARTS LANE
SCALE: NTS

NOTES:
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4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
6. THE SITE LIES IN THE SCHUYLKILL RIVER WATERSHED.
7. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
8. THE RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT CORRIDOR ZONES 1 AND 2 DEPICTED ON THIS DRAWING ARE DRAWN IN ACCORDANCE WITH THE DESCRIPTION FOR PERENNIAL STREAMS, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXXV (RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT), SECTION 116-258. VARIANCES FOR THE CONSTRUCTION OF THE PROPOSED SCHOOL BUILDING AND ASSOCIATED SITE IMPROVEMENTS INCLUDING TWO (2) RAIN GARDENS PROPOSED IN ZONE 2 WERE GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
9. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
10. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- ZONING DISTRICT / OVERLAY (AAAA RESIDENTIAL; INSTITUTIONAL OVERLAY)
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- SOIL TYPE / BOUNDARY LINE (Ch)
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- EXISTING CONTOUR (160)
- EXISTING BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%

Soils Summary Table			
Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
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MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal memo dated 08/03/2023

Seal: COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — THOMAS J. HALLIWELL — ENGINEER — PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

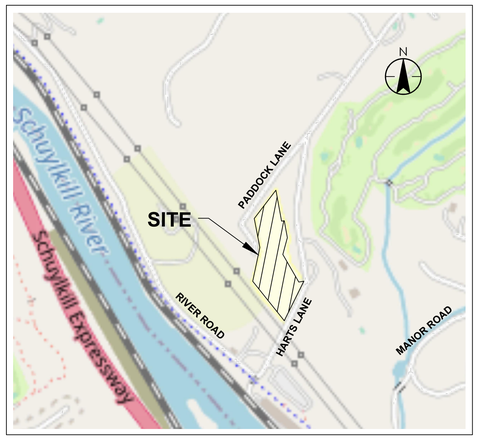
Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: EXISTING RESOURCES AND SITE ANALYSIS PLAN

Drawing Number: C5.1

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SCALE: 1" = 50'



SITE LOCATION MAP

SCALE: 1" = 800'

NOTES:

1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
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4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. NO NEW PUBLIC STREETS ARE PROPOSED.
7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. EXISTING PUBLIC WATER SUPPLY TO BE DISCONNECTED FROM EXISTING BUILDING AND RECONNECTED TO PROPOSED BUILDING.
12. EXISTING BUILDING TO BE DISCONNECTED FROM EXISTING ON-LOT SEWAGE DISPOSAL FIELD. PROPOSED BUILDING TO BE RECONNECTED TO SAME.
13. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
14. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
15. THE RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT CORRIDOR ZONES 1 AND 2 DEPICTED ON THIS DRAWING ARE DRAWN IN ACCORDANCE WITH THE DESCRIPTION FOR PERENNIAL STREAMS, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXXV (RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT), SECTION 116-258. VARIANCES FOR THE CONSTRUCTION OF THE PROPOSED SCHOOL BUILDING AND ASSOCIATED SITE IMPROVEMENTS INCLUDING TWO (2) RAIN GARDENS PROPOSED IN ZONE 2 WERE GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
16. THE PROPOSED BUILDING WILL REPLACE TWO (2) EXISTING BUILDINGS. THE NUMBER OF CLASSROOMS, OFFICE SPACE, COMMON AREAS, AND FACULTY WILL REMAIN THE SAME. THEREFORE, NO NEW PARKING SPACES ARE REQUIRED. ONE (1) NEW ADA ACCESSIBLE PARKING SPACE IS PROPOSED ON SITE IN ADDITION TO THE EXISTING PARKING, WHICH WILL REMAIN. A VARIANCE TO CONSTRUCT THE PARKING SPACE WITHIN 10 FEET OF THE PROPOSED BUILDING WAS GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
17. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
18. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
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- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- Ch — SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,765 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,556 SQ. FT.**

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

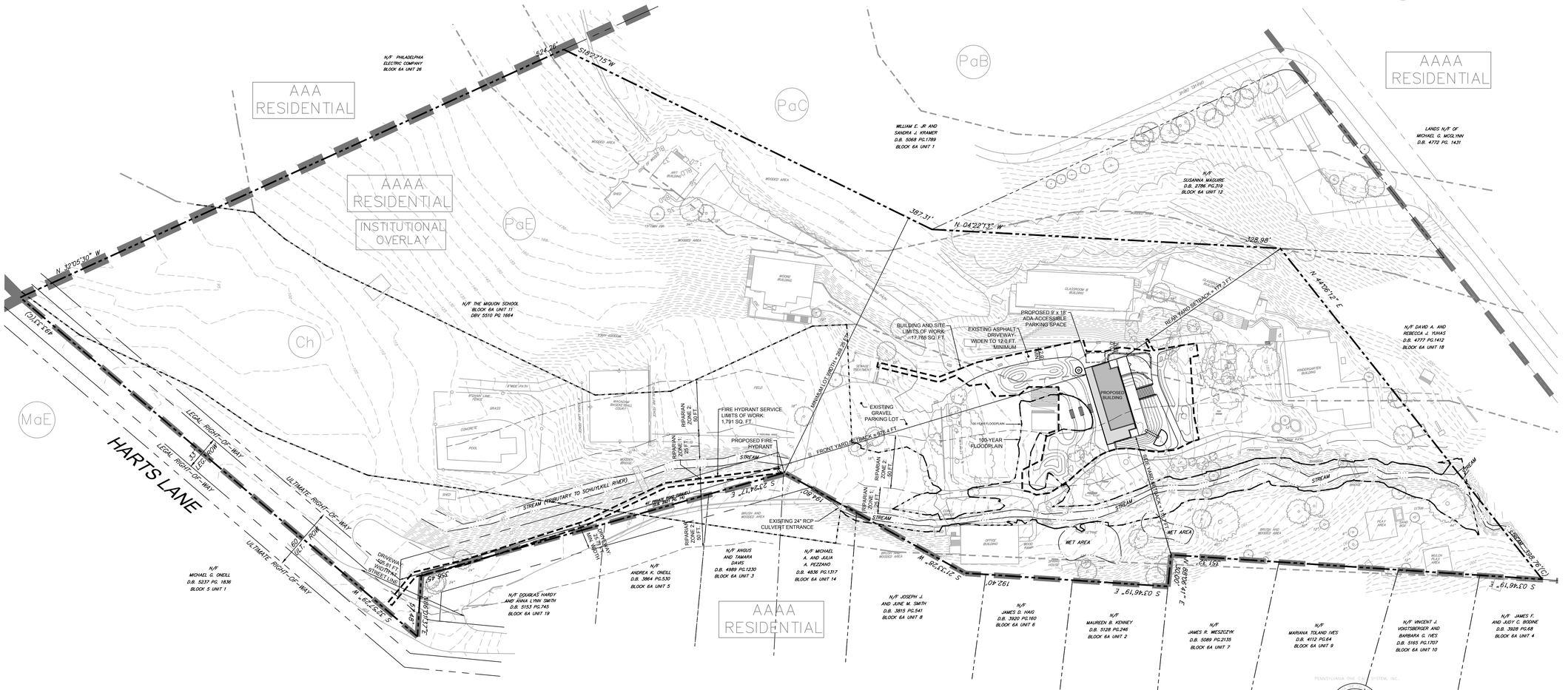
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Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%

PRELIMINARY IMPACT PLAN NOTES:

1. LIMITS OF EARTH DISTURBANCE FOR THIS PROJECT ARE AS DEPICTED ON THIS PLAN. THE REMAINING AREAS OF THE SITE ARE NOT TO BE DISTURBED.
2. THE STORMWATER MANAGEMENT DESIGN FOR THIS PROJECT IS BASED UPON AN INVESTIGATION OF POTENTIAL STORMWATER INFILTRATION STUDY PERFORMED BY VERDANTAS, LLC, DESCRIBED IN THEIR REPORT DATED DECEMBER 13, 2022.
3. A FENCE WILL ENCLOSE THE LIMITS OF EARTH DISTURBANCE DURING CONSTRUCTION. AREAS TO BE PRESERVED, INCLUDING ALL WOODLANDS, VEGETATION, SLOPES, VIEWS, AND OTHER RESOURCES WILL BE PROTECTED FROM DAMAGE BY FENCING.
4. LARGE TREES OUTSIDE THE LIMITS OF EARTH DISTURBANCE WHOSE ROOT ZONES MAY EXTEND INTO THE PROPOSED LIMITS OF EARTH DISTURBANCE WILL BE PRESERVED BY TREE PROTECTION FENCING, AS SHOWN ON SHEET L1.1, TREE PROTECTION & DEMOLITION PLAN, PREPARED BY GROUND RECONSIDERED.
5. PROPOSED AREAS FOR STORMWATER MANAGEMENT HAVE BEEN SELECTED BASED UPON MAXIMUM POTENTIAL CAPTURE AND INFILTRATION SUITABILITY. THE PROPOSED STORMWATER MANAGEMENT DESIGN IS SHOWN ON SHEET C20.1, STORMWATER MANAGEMENT PLAN.
6. LIMITS OF SITE DISTURBANCE AND RESOURCES APPLICABLE PROVISIONS OF ZONING, CHAPTER 116 REQUIREMENTS OF THE WHITEMARSH TOWNSHIP CODE ARE DESCRIBED ON THIS DRAWING AND ON SHEET C10.0, SITE PLAN.
7. ALL EXISTING BUILDINGS ON SITE, OTHER THAN THE EXISTING LIBRARY AND AFTER-CARE BUILDINGS, ARE TO BE PROTECTED AND REMAIN.
8. THE PROPOSED BUILDING IS ORIENTED TOWARD THE SOUTH TO MAXIMIZE PASSIVE SOLAR GAIN.
9. THE PROPOSED BUILDING AREA IS AN AREA OF THE SITE THAT CONTAINS TWO (2) EXISTING BUILDINGS, TO BE DEMOLISHED. THIS AREA OF THE SITE HAS BEEN SET ASIDE FOR DEVELOPMENT.
10. WATER SERVICE AND WASTEWATER SERVICES ARE TO BE DISCONNECTED FROM THE EXISTING BUILDINGS TO BE DEMOLISHED, AND RECONNECTED TO THE PROPOSED BUILDING. REFER ALSO TO SHEET C40.1, UTILITY PLAN.


AAA RESIDENTIAL
AAAA RESIDENTIAL
INSTITUTIONAL OVERLAY
PaB
PaC
PaE
Ch
MaE
N 32°05'10" W
624.26'
S18°27'15"W
387.31'
N-04°22'13" W
328.98'
N 44°06'12" E
HARTS LANE
LEGAL RIGHT-OF-WAY
ULTIMATE RIGHT-OF-WAY
50' R.O.W.
N/F PHILADELPHIA ELECTRIC COMPANY BLOCK 6A UNIT 26
N/F THE MIQUON SCHOOL BLOCK 6A UNIT 17 DBV 5510 PG 1664
N/F MICHAEL G. ONEILL D.B. 5237 PG. 1836 BLOCK 5 UNIT 1
N/F DOUGLAS HARDY AND ANNA LYNN SMITH D.B. 5153 PG.745 BLOCK 6A UNIT 19
N/F ANDREA K. ONEILL D.B. 3864 PG.530 BLOCK 6A UNIT 5
N/F ANGUS AND TAMARA DAVIS D.B. 4989 PG.1230 BLOCK 6A UNIT 3
N/F MICHAEL A. AND JULIA A. PEZZANO D.B. 4636 PG.1317 BLOCK 6A UNIT 14
N/F JOSEPH J. AND JUNE M. SMITH D.B. 3815 PG.541 BLOCK 6A UNIT 8
WILLIAM E. JR AND SANDRA J. KRAMER D.B. 5068 PG.1789 BLOCK 6A UNIT 1
N/F JAMES D. HAIG D.B. 3920 PG.160 BLOCK 6A UNIT 6
N/F MAUREEN B. KENNEY D.B. 5128 PG.246 BLOCK 6A UNIT 2
N/F JAMES R. WESZCZYK D.B. 5089 PG.2135 BLOCK 6A UNIT 7
N/F MARIANA TOLAND IVES D.B. 4112 PG.64 BLOCK 6A UNIT 9
N/F VINCENT J. VOGTSBERGER AND BARBARA G. IVES D.B. 5165 PG.1707 BLOCK 6A UNIT 10
N/F JAMES F. AND JUDY C. BODINE D.B. 3926 PG.68 BLOCK 6A UNIT 4
LANDS N/F OF MICHAEL G. MCGLYNN D.B. 4772 PG. 1431
SUSANNA MAGUIRE D.B. 3786 PG.319 BLOCK 6A UNIT 12
N/F DAVID A. AND REBECCA J. YUHAS D.B. 4777 PG.1412 BLOCK 6A UNIT 18
N/F JOHN F. AND MARY ANN SMITH D.B. 5193 PG.1 BLOCK 6A UNIT 17
BUILDING AND SITE LIMITS OF WORK: 17,765 SQ. FT.
EXISTING ASPHALT DRIVEWAY - WIDEN TO 12.0 FT. MINIMUM
PROPOSED 9' x 18' ADA-ACCESSIBLE PARKING SPACE
REAR YARD SETBACK = 177.3 FT.
PROPOSED BUILDING
EXISTING GRAVEL PARKING LOT
FIRE HYDRANT SERVICE LIMITS OF WORK: 1,791 SQ. FT.
PROPOSED FIRE HYDRANT
MINIMUM LOT WIDTH = 200.0 FT.
FRONT YARD SETBACK = 676.4 FT.
SIDE YARD SETBACK = 116.7 FT.
RIPARIAN ZONE 1
RIPARIAN ZONE 2
100-YEAR FLOODPLAIN
STREAM
STREAM TRIBUTARY TO SCHUYLKILL RIVER
EXISTING 24" RCP CULVERT ENTRANCE
WET AREA
DRIVEWAY WIDTH FT. WIDTH AT STREET LINE
MIN. 5' WIDTH
MIN. 5' WIDTH
124.80'
192.40'
102.00'
S 03°46'19" E
S 21°33'28" W
S 27°47'17" E
S 18°27'15" W
S 03°46'19" E
S 03°46'19" E
S 03°46'19" E
S 18°27'15" W
S 18°27'15" W
S 18°27'15" W

NOTES:

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2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
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6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
11. UPON COMPLETION OF CONSTRUCTION, THE SITE IS TO BE INSPECTED, AND A DEVIATION IN GRADING FROM THE PROPOSED GRADING DESIGN SHALL BE EVALUATED TO CONFIRM THAT THE CONSTRUCTED GRADING SHALL NOT RESULT IN INJURY TO PERSONS OR DAMAGE TO PROPERTY.

LEGEND

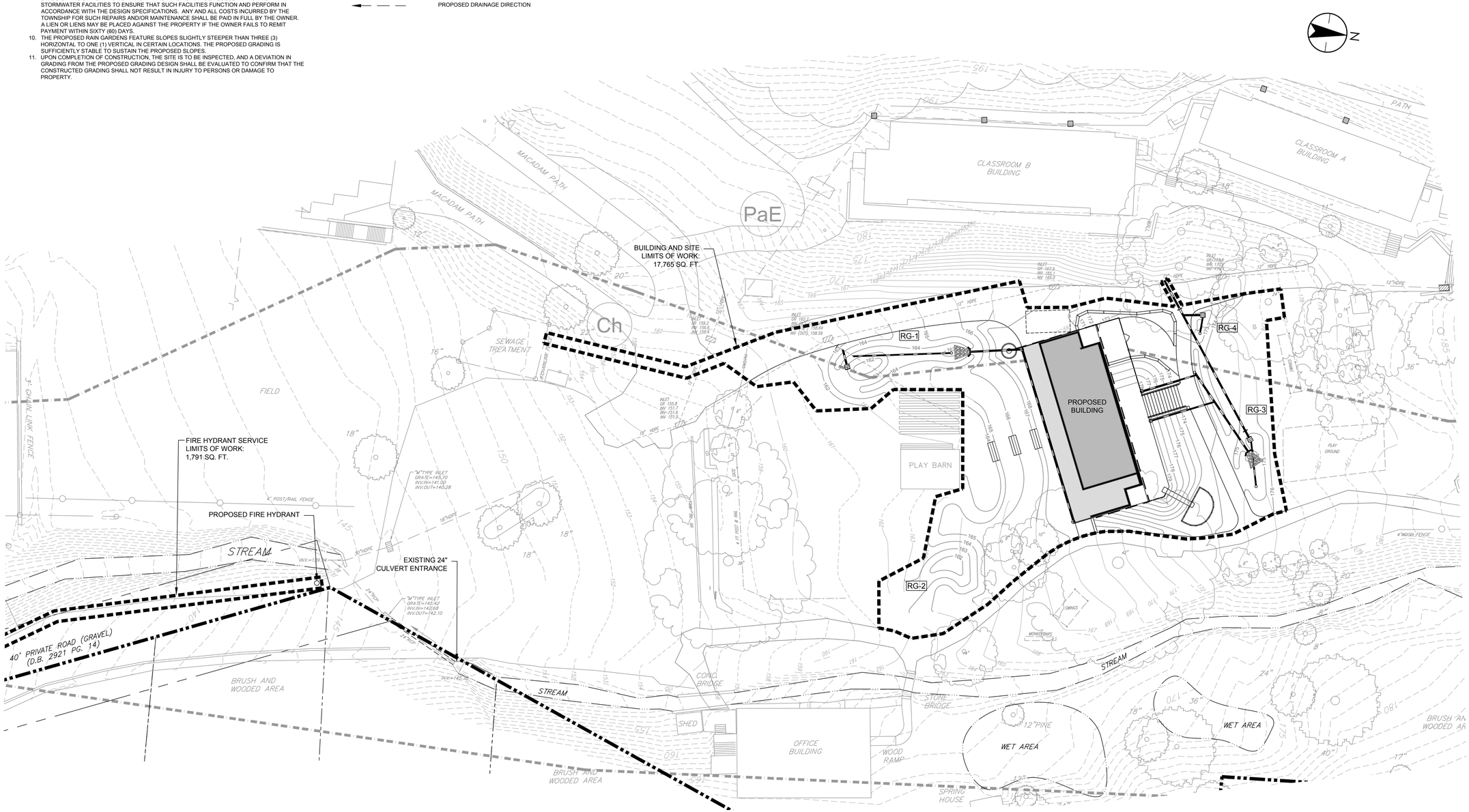
- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING STORM INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED CONCRETE CURB LEVEL SPREADER
- PROPOSED RIPRAP APPON
- PROPOSED DOWNSPOUT / CLEANOUT
- PROPOSED DRAINAGE DIRECTION

PRELIMINARY IMPROVEMENTS PLAN NOTES:

1. REFER TO SHEET 5.1, EXISTING RESOURCES SITE ANALYSIS PLAN, FOR EXISTING SITE FEATURES, LOT LINES, AND EASEMENTS ON THE PROPERTY.
2. NO NEW STREETS ARE PROPOSED.
3. PROPOSED STORMWATER MANAGEMENT FEATURES ARE AS SHOWN ON THIS SHEET, AND SHEET C20.1, STORMWATER MANAGEMENT PLAN.
4. PROPOSED SEWER AND WATER SERVICES ARE AS SHOWN ON THIS SHEET, AND SHEET C40.1, UTILITY PLAN, AND SHEET C40.2, FIRE HYDRANT PLAN.
5. REFER TO SHEET L6.0, TREE PLANTING PLAN, PREPARED BY GROUND RECONSIDERED, FOR PROPOSED TREES AND CALIPER SIZES.

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,765 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,556 SQ. FT.**



Soils Summary Table			
Abbreviation	**Soil / Map Unit Name**	**Ksat of Most Limiting Layer**	**Depth to Restrictive Feature**
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
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MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

APPROVED

WHITEMARSH TOWNSHIP BOARD OF SUPERVISORS
S/LD #04-23

MONTGOMERY COUNTY PLANNING COMMISSION
MCPC #23-0057-001

PENNSYLVANIA ONE CALL SYSTEM, INC.
BEFORE YOU DIG! 1-800-242-1776
NON-MEMBERS MUST BE CONTACTED DIRECTLY
PA LAW REQUIRES THREE WORKING DAYS NOTIFICATION PRIOR TO EXCAVATION, DRILL, BLAST OR DEMOLISH

0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
Philadelphia, Pennsylvania 19103
215 985 4410

LANDSCAPE ARCHITECT
GROUND RECONSIDERED
915 Spring Garden Street, Suite 403
Philadelphia, PA 19123
215-790-0727

CIVIL ENGINEER
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Wayne, Pennsylvania 19087
610-213-3657

MECHANICAL ENGINEER
CHESTNUT ENGINEERING
2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

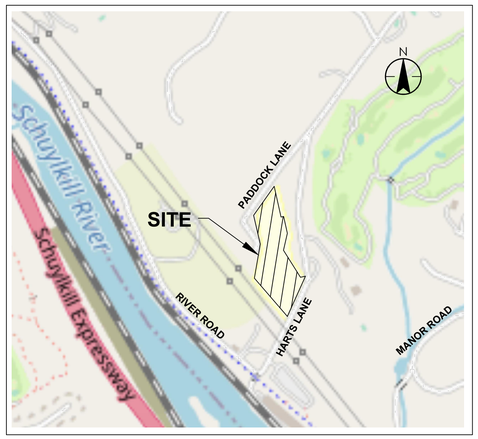
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PRELIMINARY IMPROVEMENTS PLAN

Drawing Number: C5.3

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SITE LOCATION MAP

SCALE: 1" = 800'

NOTES:

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6. NO NEW PUBLIC STREETS ARE PROPOSED.
7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. EXISTING PUBLIC WATER SUPPLY TO BE DISCONNECTED FROM EXISTING BUILDING AND RECONNECTED TO PROPOSED BUILDING.
12. EXISTING BUILDING TO BE DISCONNECTED FROM EXISTING ON-LOT SEWAGE DISPOSAL FIELD. PROPOSED BUILDING TO BE RECONNECTED TO SAME.
13. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
14. THE 100-YEAR FLOODPLAIN DEPICTED ON THIS DRAWING, NORTH OF THE ENTRANCE TO THE EXISTING 24-INCH RCP CULVERT ON SITE, IS TAKEN FROM A DRAWING TITLED "EXISTING AND PROPOSED 100YR FLOODPLAIN", PREPARED BY BIOHABITATS, INC., IN SUPPORT OF THEIR MIQUON CREEK STREAM RESTORATION PHASE II PROJECT, COMPLETED BY 2017. SOUTH OF THE ENTRANCE TO THE 24-INCH RCP CULVERT, THE FLOODPLAIN IS ESTABLISHED BY THE LIMITS OF FLOODPLAIN SOILS, AS MAPPED AND DEFINED BY THE SOIL SURVEY OF MONTGOMERY COUNTY, PREPARED BY THE USDA SOIL CONSERVATION SERVICE. THESE LINES DETERMINE THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXII (FLOODPLAIN CONSERVATION OVERLAY DISTRICT), SECTION 116-160. WE ANTICIPATE THAT A VARIANCE WILL BE REQUIRED FOR THE CONSTRUCTION OF A FIRE HYDRANT WITHIN THE FLOODPLAIN CONSERVATION OVERLAY DISTRICT.
15. THE RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT CORRIDOR ZONES 1 AND 2 DEPICTED ON THIS DRAWING ARE DRAWN IN ACCORDANCE WITH THE DESCRIPTION FOR PERENNIAL STREAMS, AS DISCUSSED IN THE WHITEMARSH TOWNSHIP ZONING CODE, ARTICLE XXXV (RCCD RIPARIAN CORRIDOR CONSERVATION OVERLAY DISTRICT), SECTION 116-258. VARIANCES FOR THE CONSTRUCTION OF THE PROPOSED SCHOOL BUILDING AND ASSOCIATED SITE IMPROVEMENTS INCLUDING TWO (2) RAIN GARDENS PROPOSED IN ZONE 2 WERE GRANTED BY THE WHITEMARSH TOWNSHIP ZONING HEARING BOARD IN THEIR PUBLIC MEETING HELD ON JULY 5, 2023.
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17. EXISTING STEEP SLOPES WITHIN THE LIMITS OF WORK FOR THIS PROJECT ARE AS DEPICTED ON DRAWING C10.1, PROJECT SITE PLAN. THE STEEP SLOPES ON THIS SITE DO NOT EXCEED THE MAXIMUM ALLOWABLE REGRADING LIMITS IDENTIFIED IN ARTICLE XXIII (STEEP SLOPE OVERLAY) OF THE WHITEMARSH TOWNSHIP ZONING CODE, SECTION 116-169.
18. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- AAA RESIDENTIAL / INSTITUTIONAL OVERLAY — ZONING DISTRICT / OVERLAY
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- Ch — SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 / 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET
- STEEP SLOPES, 15-25% / MORE THAN 25%

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,225 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,016 SQ. FT.**

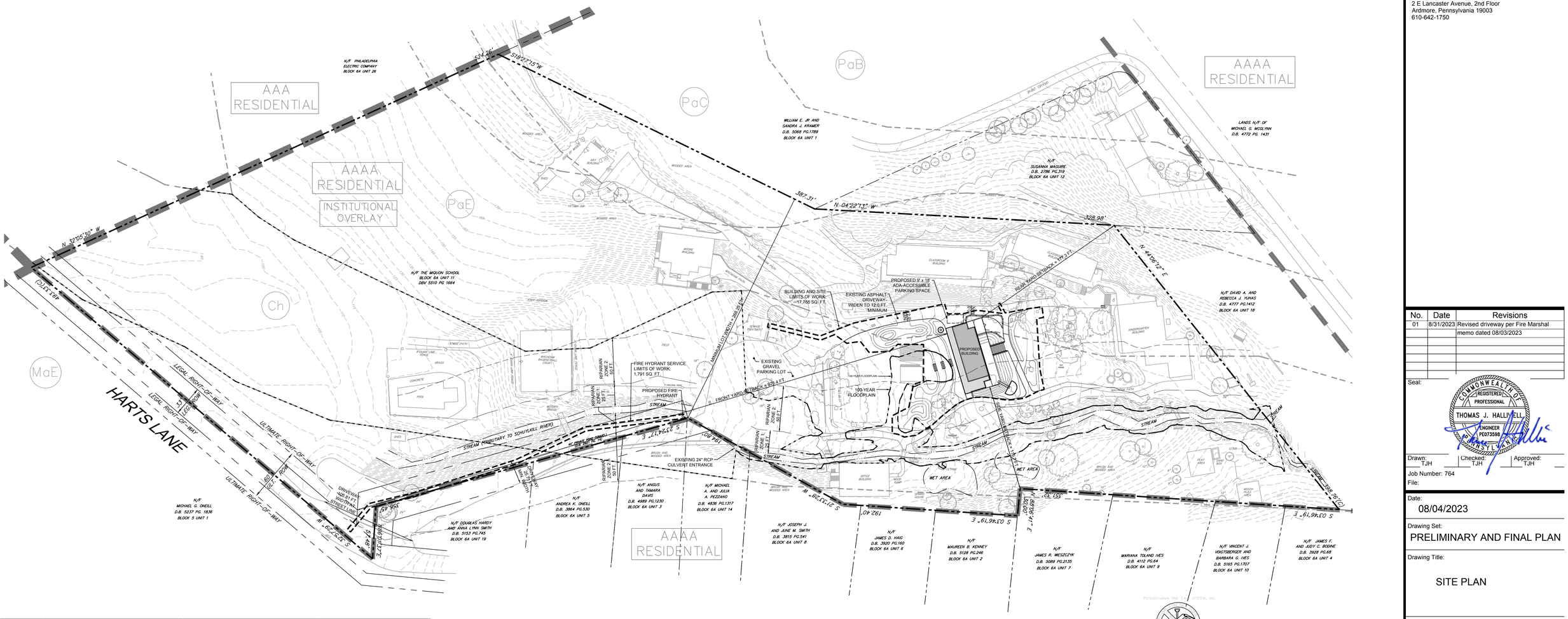
Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%



Soils Summary Table			
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MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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CHESTNUT ENGINEERING
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610-642-1750

No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal
		memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — THOMAS J. HALLIWELL — ENGINEER PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

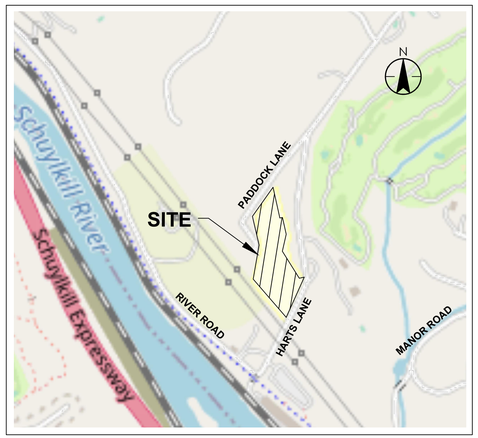
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: SITE PLAN

Drawing Number: C10.0

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SITE LOCATION MAP

SCALE: 1" = 800'

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LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- LEGAL / ULTIMATE RIGHT-OF-WAY
- AAAA RESIDENTIAL / INSTITUTIONAL OVERLAY — ZONING DISTRICT / OVERLAY
- ZONING DISTRICT / OVERLAY BOUNDARY LINE
- Ch — SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 / 160 — EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING STORM CULVERT / INLET
- STEEP SLOPES, 15-25% / MORE THAN 25%

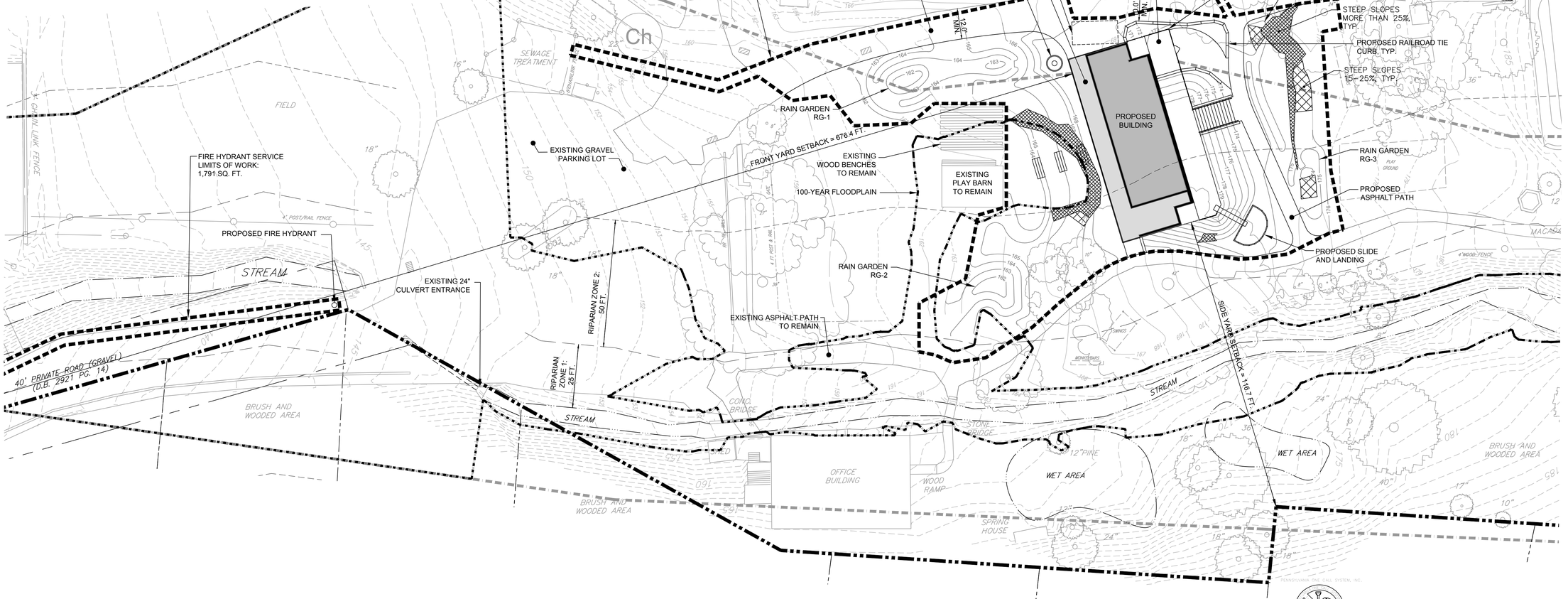
PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,765 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,556 SQ. FT.**

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**
Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**
Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

* - Existing nonconformity
** - Variance or Special Exception granted
*** - Additional Variance required

EXISTING STEEP SLOPE SUMMARY		
Slope	Area (sq. ft.)	Percent of Limits of Work Area
15-25%	880	5.5%
Greater than 25%	656	4.1%



Soils Summary Table			
Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

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NON-MEMBERS MUST BE CONTACTED DIRECTLY
ALL THE TECHNOLOGY AND TOOLS YOU NEED, ALL IN ONE SMARTER PLACE.
PENNSYLVANIA ONE CALL SYSTEM, INC.

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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215 985 4410

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MECHANICAL ENGINEER
CHESTNUT ENGINEERING
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Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PROJECT SITE PLAN

Drawing Number: C10.1

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NOTES:

1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. NO NEW PUBLIC STREETS ARE PROPOSED.
7. NO NEW LOTS ARE PROPOSED.
8. NO NEW RESIDENTIAL DWELLING UNITS ARE PROPOSED.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. TYPE OF BUILDING PROPOSED: WOOD-FRAMED STRUCTURE WITH CONCRETE FOUNDATION WALLS.
11. THERE ARE NO EASEMENTS OR OTHER ENCUMBRANCES ON THE PROPERTY THAT HAVE BEEN FILED OF RECORD WITH THE RECORDER OF DEEDS OF MONTGOMERY COUNTY.

LEGEND

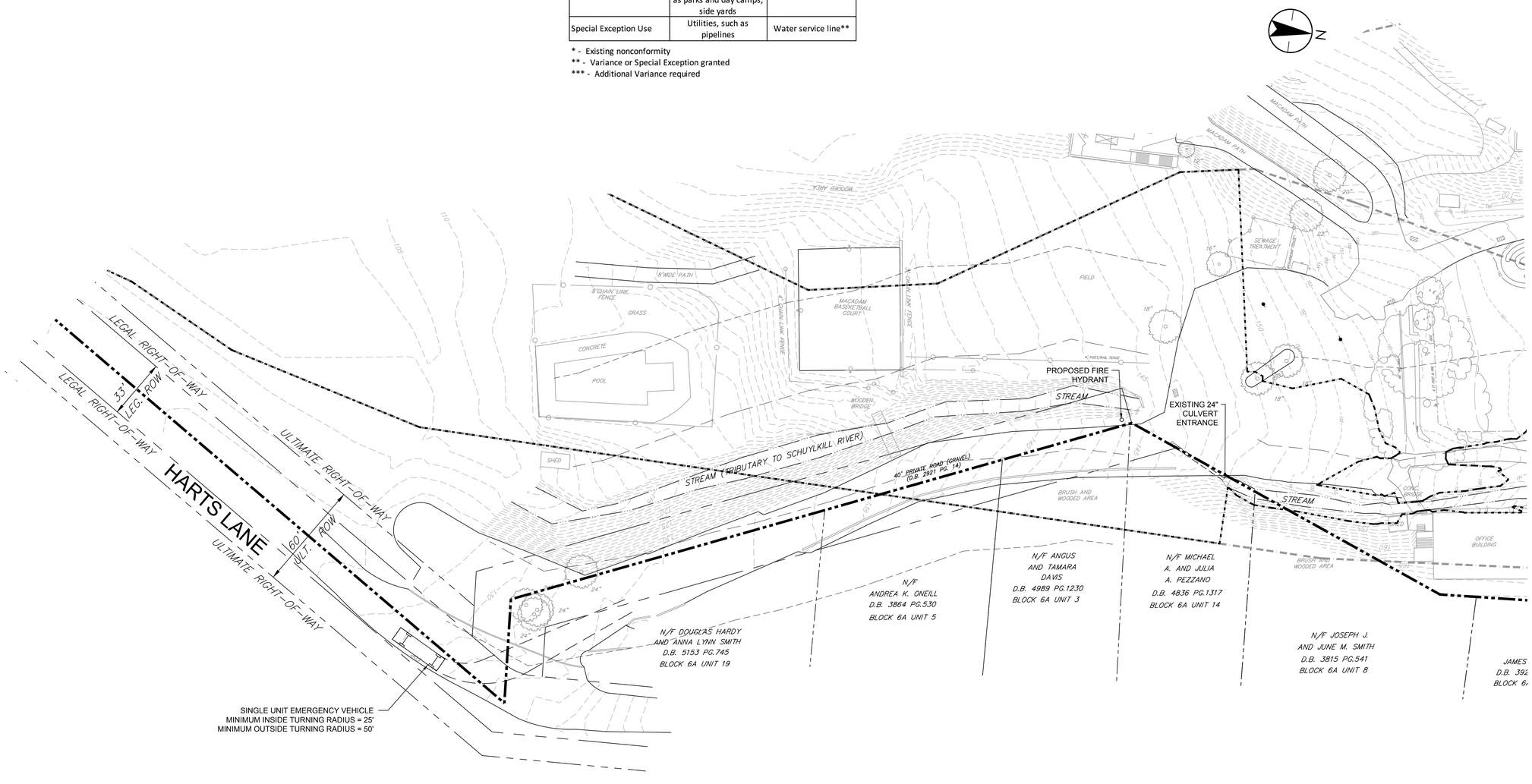
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- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- 100-YEAR FLOODPLAIN BOUNDARY
- RIPARIAN OVERLAY DISTRICT ZONE 1 / ZONE 2
- 160 — 160 — EXISTING / PROPOSED CONTOUR
- EXISTING STORM CULVERT / INLET
- VEHICLE PATH

Zoning Summary Table		
Zoning District	Institutional Overlay District	
	Permitted	Proposed
Use	School	School
Lot Area (min.)	10 acres	9.5362 acres*
Front Yard (min.)	50 ft.	676.38 ft.
Side Yard (min.)	50 ft.	116.72 ft.
Rear Yard (min.)	50 ft.	177.31 ft.
Lot Width (min.)	200 ft.	268.25 ft.
Building Height (max.)	40 ft.	22 ft.
Distance from parking space to structure (min.)	10 ft.	0 ft.**

Zoning District	Riparian Corridor Conservation Overlay District	
	Permitted	Proposed
Use in Zone 1	Passive open space	Passive open space
Use in Zone 2	Passive open space, active recreation areas, and residential accessory structures	School building, rain gardens, and associated site improvements**

Zoning District	Floodplain Conservation Overlay District	
	Permitted	Proposed
Use	Public and private recreational uses, such as parks and day camps; side yards	Fire hydrant***
Special Exception Use	Utilities, such as pipelines	Water service line**

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0 30' 45' 60'
SCALE: 1" = 30'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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No.	Date	Revisions
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		memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: TRUCK TURNING PLAN

Drawing Number: C10.2

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NOTES:

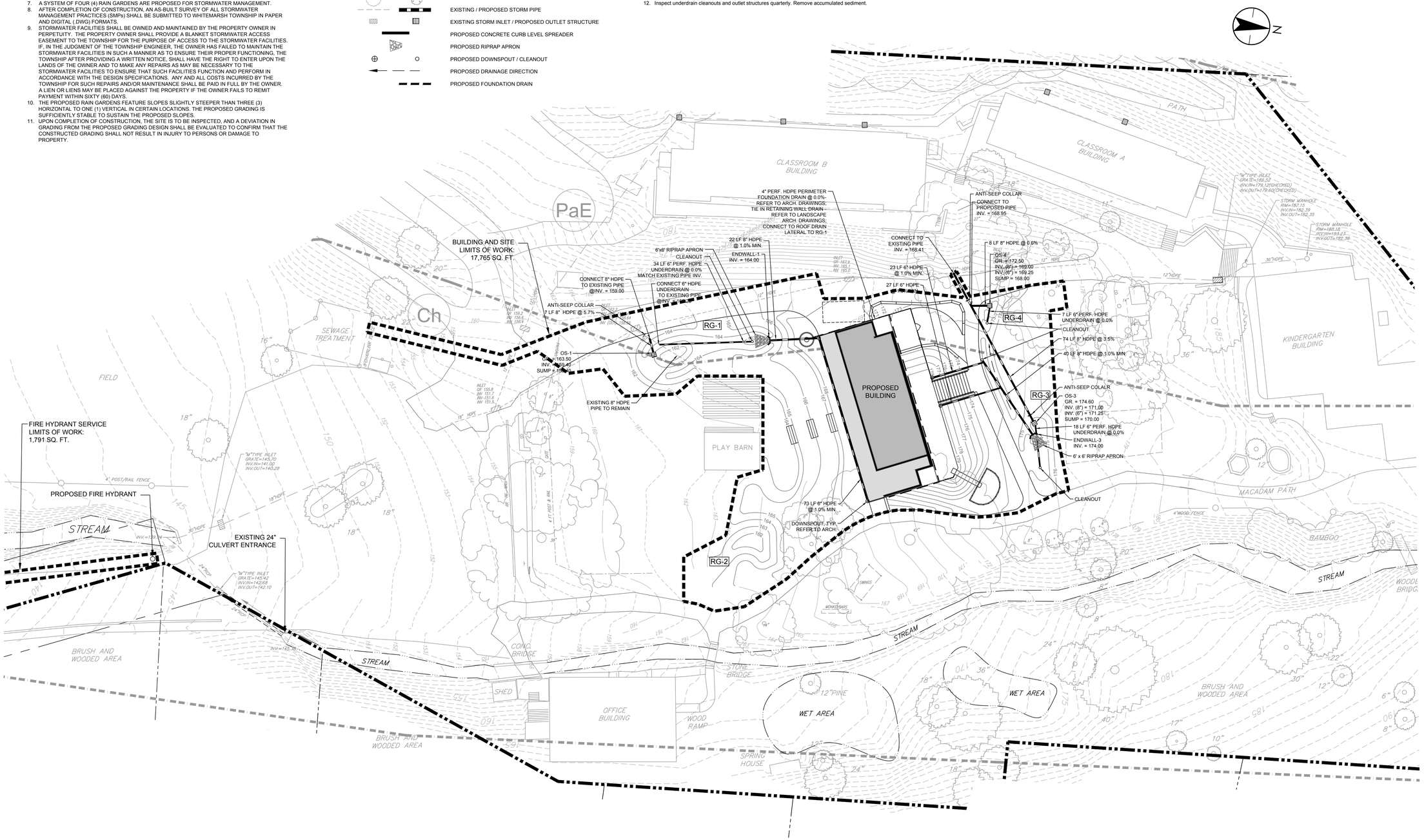
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6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
11. UPON COMPLETION OF CONSTRUCTION, THE SITE IS TO BE INSPECTED, AND A DEVIATION IN GRADING FROM THE PROPOSED GRADING DESIGN SHALL BE EVALUATED TO CONFIRM THAT THE CONSTRUCTED GRADING SHALL NOT RESULT IN INJURY TO PERSONS OR DAMAGE TO PROPERTY.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING STORM INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED CONCRETE CURB LEVEL SPREADER
- PROPOSED RIPRAP APPON
- PROPOSED DOWNSPOUT / CLEANOUT
- PROPOSED DRAINAGE DIRECTION
- PROPOSED FOUNDATION DRAIN

SMP MAINTENANCE NOTES:

1. Water vegetation at the end of each day for two weeks after planting is completed.
2. Water vegetation regularly to ensure successful establishment after planting. Water every four days during periods of four or more days without rain, June through August for the first year after installation.
3. Inspect inlet controls, outlet structures, and storage areas for trash and sediment accumulation monthly for the first year after installation. Remove debris and sediment as necessary.
4. Remulch void areas semiannually during growing season.
5. Inspect vegetation for signs of disease or distress every two weeks for the first year after installation and quarterly thereafter. Treat diseased trees and shrubs or replace as necessary.
6. Inspect for invasive vegetation monthly during the growing season. Remove invasive vegetation by hand.
7. Thin overgrown areas of vegetation monthly during the growing season.
8. Keep overflow free and clear of leaves. Inspect and remove leaves monthly during the growing season and in the fall.
9. Inspect soil and repair eroded areas monthly.
10. Inspect trees and shrubs quarterly to evaluate health. Replace diseased or damaged trees or shrubs if necessary.
11. Inspect earthen berms and riprap aprons quarterly. Ensure riprap aprons are sufficient to dissipate flow. Check for downstream erosion. Repair any eroded areas and replace riprap as necessary.
12. Inspect underdrain cleanouts and outlet structures quarterly. Remove accumulated sediment.



Soils Summary Table			
Abbreviation	**Soil / Map Unit Name**	**Ksat of Most Limiting Layer**	**Depth to Restrictive Feature**
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
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EXCL. SAT. SUN. OR HOLIDAYS

0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

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No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL THOMAS J. HALLIWELL ENGINEER PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: STORMWATER MANAGEMENT PLAN

Drawing Number: C20.1

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NOTES:

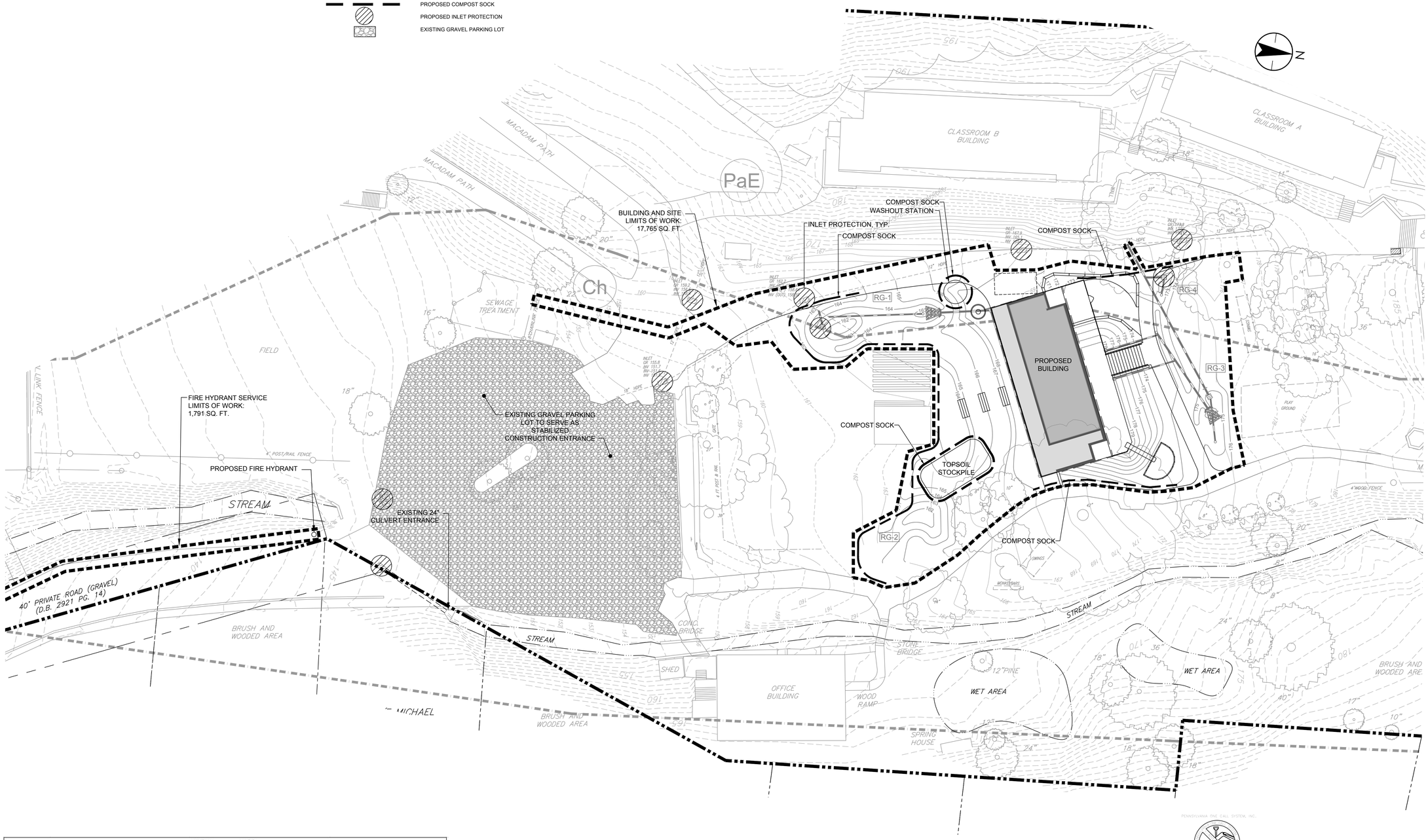
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6. REFER TO DRAWING L1.1, PREPARED BY GROUND RECONSIDERED, FOR TREE PROTECTION AND DEMOLITION.
7. REFER TO DRAWING L4.0, PREPARED BY GROUND RECONSIDERED, FOR GRADING.
8. REFER TO DRAWINGS L6.0 AND L7.2, PREPARED BY GROUND RECONSIDERED, FOR PLANTING DESIGN AND DETAILS.
9. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
10. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
11. REFER ALSO TO NOTES ON DRAWING C30.2, EROSION AND SEDIMENT CONTROL DETAILS.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED CONCRETE CURB LEVEL SPREADER
- PROPOSED RIPRAP APRON
- PROPOSED COMPOST SOCK
- PROPOSED INLET PROTECTION
- EXISTING GRAVEL PARKING LOT

PROPOSED LIMITS OF WORK

BUILDING AND SITE:	**17,765 SQ. FT.**
NEW FIRE HYDRANT SERVICE:	**1,791 SQ. FT.**
TOTAL:	**19,556 SQ. FT.**



Soils Summary Table			
Abbreviation	**Soil / Map Unit Name**	**Ksat of Most Limiting Layer**	**Depth to Restrictive Feature**
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SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

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Drawing Set: PRELIMINARY AND FINAL PLAN

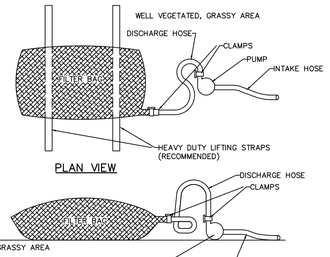
Drawing Title: EROSION AND SEDIMENT CONTROL PLAN

Drawing Number: C30.1

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EROSION AND SEDIMENT CONTROL NOTES:

1. All earth disturbances, including clearing and grubbing as well as cuts and fills shall be done in accordance with the approved E&S Plan. A copy of the approved Drawings (stamped, signed, and dated by the reviewing agency) must be available at the project site at all times. The reviewing agency shall be notified of any changes to the approved plan prior to implementation of those changes. The reviewing agency may require a written submittal of those changes for review and approval at its discretion.
2. At least 7 days prior to starting any earth disturbance activities, including clearing and grubbing, the owner and/or operator shall invite all contractors, the landowner, appropriate municipal officials, the E&S plan preparer, the PCSM plan preparer, the licensed professional responsible for oversight of critical stages of implementation of the PCSM plan, and a representative from the local conservation district to an on-site preconstruction meeting.
3. At least 3 days prior to starting any earth disturbance activities, or expanding into an area previously unmarked, the PA One Call System, Inc. shall be notified at 1-800-242-1776 for the location of existing underground utilities.
4. Clearing, grubbing, and topsoil stripping shall be limited to those areas described in each stage of the construction sequence. General site clearing, grubbing, and topsoil stripping may not commence in any stage or phase of the project until the E&S BMPs specified in the sequence for that stage have been installed and are functioning as described in the plan.
5. Contractor is responsible any cleaning or repairs needed on existing infrastructure due to failure of any erosion and sediment control practices.
6. Inspection and maintenance of all erosion and sediment control best management practices shall occur on a weekly basis, before any anticipated precipitation events, and after all precipitation events.
7. Topsoil required for the establishment of vegetation shall be stockpiled at the location shown on the plans in the amount necessary to complete the finish grading of all exposed areas that are to be stabilized by vegetation. Each stockpile shall be protected in the manner shown on the plan drawings. Stockpile heights shall not exceed 20 feet. Stockpile slopes shall be 2H:1V or flatter.
8. The gravel parking lot area shall serve as the stabilized rock construction entrance. The gravel parking thickness shall be constantly maintained on-site. A stockpile shall be maintained on-site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site. In no case shall the sediment be washed, shoveled, or swept into any roadside ditch, storm sewer, or surface water.
9. Any compost sock section which has been undermined or topped must be immediately replaced with a new compost sock. Sediment must be removed when accumulations reach 1/3 the height of the sock.
10. Erosion control blanketing shall be installed on all slopes 3H:1V or steeper within 50 feet of a surface water and on all other disturbed areas specified on the plan maps and/or detail sheets.
11. Immediately upon discovering unforeseen circumstances posing the potential for accelerated erosion and/or sediment pollution, the operator shall implement appropriate best management practices to minimize the potential for erosion and sediment pollution and notify the Grist Engineer, Montgomery County Conservation District and PADEP.
12. Until the site is stabilized, all E&S Best Management Practices (BMPs) shall be maintained properly. Maintenance shall include inspections of all E&S BMPs prior to any anticipated storm event, after each runoff event and on a weekly basis. All preventative and remedial maintenance work, including clean out, repair, replacement, regrading, reseeding, remulching, and renetting, must be performed immediately. If the E&S BMPs fail to perform as expected, replacement BMPs, or modifications of those installed, will be required.
13. All earth disturbances, including clearing and grubbing, as well as cuts and fills, shall be done in accordance with the approved E&S Plan. A copy of the Plan must be available at the project site at all times. The Grist Engineer shall be notified of any changes to the approved plan prior to implementation of those changes. The Grist engineer may require a written submittal of those changes for review and approval at its discretion.
14. All earth disturbance activities shall proceed in accordance with the sequence provided on the plan drawings. Deviation from that sequence must be approved in writing by the Grist Engineer prior to implementation.
15. Areas to be filled are to be cleared, grubbed, and stripped of topsoil to remove trees, vegetation, roots, and other objectionable material.
16. At no time shall construction vehicles be allowed to enter areas outside the Limit of Work boundaries shown on the plan maps. These areas must be clearly marked and fenced off before clearing and grubbing operations begin.
17. A log showing dates that E&S BMPs were inspected as well as any deficiencies found and the date they were corrected shall be maintained on the site and be made available to the Grist Engineer upon request.
18. All sediment removed from BMPs shall be disposed of, offsite, by the contractor, in accordance with all applicable laws, regulations, and best practices.
19. Areas which are to be topsoiled shall be scarified to a minimum depth of three to five inches — six to 12 inches on compacted soils — prior to placement of topsoil. Areas to be vegetated shall have a minimum four inches of topsoil in place prior to seeding and mulching. Fill outslopes shall have a minimum of two inches of topsoil.
20. All fill shall be compacted as required to reduce erosion, slippage, settlement, subsidence, or other related problems. Fill intended to support buildings, structures, and conduits, etc. shall be compacted in accordance with local requirements or codes.
21. All earthen fill shall be placed in compacted layers not to exceed nine inches in thickness.
22. Fill materials shall be free of frozen particles, brush, roots, sod, or other foreign or objectionable materials that would interfere with or prevent construction of satisfactory fills.
23. Frozen materials or soft, mucky, or highly compressible materials shall not be incorporated into fills.
24. Fill shall not be placed on saturated or frozen surfaces.
25. Seeps or springs encountered during construction shall be handled in accordance with the standard and specification for subsurface drain or other method approved by the Grist Engineer.
26. All graded areas shall be permanently stabilized immediately upon reaching finished grade. Cut slopes in competent bedrock and rock fills need not be vegetated. Seeded areas within 50 feet of a surface water, or as otherwise shown on the plan drawings, shall be blanketed according to the standards of this plan.
27. Immediately after earth disturbance activities cease in any area or subarea of the project, the operator shall stabilize all disturbed areas. During non-germinating months, mulch or protective blanketing shall be applied as described in the plan. Areas not at finished grade, which will be reactivated within one year, may be stabilized in accordance with the temporary stabilization specifications. Those areas which will not be reactivated within one year shall be stabilized in accordance with the permanent stabilization specifications.
28. Permanent stabilization is defined as a minimum uniform, perennial 70% vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated erosion. Cut and fill slopes shall be capable of resisting failure due to slumping, sliding, or other movements.
29. E&S BMPs shall remain functional as such until all areas tributary to them are permanently stabilized or until they are replaced by another BMP approved by the Grist Engineer and Montgomery County Conservation District.
30. After final site stabilization has been achieved, temporary E&S BMPs must be removed. Areas disturbed during removal or conversion of the E&S BMPs shall be stabilized immediately. In order to ensure rapid revegetation of disturbed areas, such removal/conversions are to be done only during the germinating season.
31. Sediment basins and/or traps shall be kept free of all construction waste, wash water, and other debris having potential to clog the basin/trap outlet structures and/or pollute the surface waters.
32. During construction, the selected contractor is expected to follow the Post Construction Stormwater Management Plan (PCSMP). No change or deviation from the PCSMP is permitted without prior approval from the Grist Engineer.
33. All building materials and wastes shall be removed from the site and recycled or disposed of in accordance with the PADEP's Solid Waste Management Regulations at 25 PA Code 260.1 et seq., 271.1, and 287.1 et seq. No building materials or wastes or unused building materials shall be burned, buried, dumped, or discharged at the site.
34. Pumped water filter bag, when used, must be placed on a well-vegetated, grassy (stabilized) surface prior to pumping.
35. All off-site waste and borrow areas must have an E&S Plan approved by the local conservation district or PADEP fully implemented prior to being activated.
36. The contractor is responsible for ensuring that any material brought to the site is clean fill. Form FP-001 must be retained by the property owner for any fill material affected by a spill or release of a regulated substance but qualifying as clean fill due to analytical testing.
37. Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the local conservation district to schedule a final inspection.
38. Failure to correctly install E&S BMPs, failure to prevent sediment-laden runoff from leaving the construction site, or failure to take immediate corrective action to resolve failure of E&S BMPs may result in administrative, civil, and/or criminal penalties bein instituted by PADEP, as defined in Section 602 of the PA Clean Streams Law. The Clean Streams Law provides for up to $10,000 per day in civil penalties, up to $10,000 in summary criminal penalties, and up to $25,000 in misdemeanor criminal penalties for each violation.



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%, FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

PUMPED WATER FILTER BAG
SCALE: N.T.S.

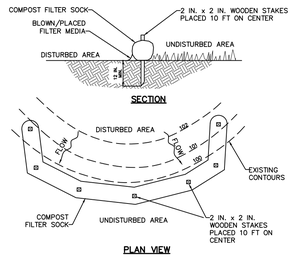
SEQUENCE OF CONSTRUCTION:

1. A pre-construction meeting must take place before any construction or mobilization. Contact the Grist Engineer at 267-332-8282 at least seven (7) days prior to the pre-construction meeting. The Grist Engineer must be in attendance at the pre-construction meeting. The Whitemarsh Township Shade Tree Commission must also attend the pre-construction meeting.
2. Install erosion and sediment control practices, including compost socks, prior to site clearing or grubbing, or excavation.
2. No vehicular traffic is permitted within any tree protection fence shown on the Drawings. Any compost socks that are to be installed inside the tree protection fence area are to be installed without use of mechanical equipment.
3. Refer to drawing L1.1 for tree protection and demolition information.
4. Construct building structure and paving improvements.
5. Construct Rain Gardens.
6. Block Rain Garden stormwater entrances with Compost Sock until Rain Gardens are stabilized with vegetation.
7. Stabilize site. Refer to Drawings by Ground Reconsidered for Pavements and Planting information.
8. Upon completion of all earth disturbance activities and permanent stabilization of all disturbed areas, the owner and/or operator shall contact the Grist Engineer at 267-332-8282 prior to removal/conversion of the E&S Best Management Practices (BMPs).

PROJECT NOTES:

1. This Drawing is for Design Development review by The Miquon School. It is not for construction.
2. This Drawing has been prepared per the direction of Ground Reconsidered and is intended for their use and the use of the owners named hereon. It is not intended for use by any other parties.
3. All existing utility locations shown on the drawings are approximate. Contractor shall locate utilities in the field prior to construction.
4. Refer also to drawings prepared by Ground Reconsidered. If any discrepancies between this Drawing and Drawings prepared by Ground Reconsidered are identified, contact both Ground Reconsidered and Grist to resolve the discrepancies.
4. The Contractor is responsible for all means and methods associated with construction of the proposed improvements.
5. This Drawing Set was made as directed by Ground Reconsidered and the Owners named heron, and is for their exclusive use. This Drawing Set is not valid for use by any other parties.
6. Water pumped from work areas should be treated for sediment removal prior to discharging.
7. Objects of considerable mass (i.e. concrete blocks, sand bags, etc.) immediately downslope of any compost socks placed on paved surfaces (at same intervals as recommended by sock manufacturer for stakes).
8. As soon as slopes, channels, ditches, and other disturbed areas reach final grade, they must be stabilized. Cessation of activity for four (4) days or longer requires temporary stabilization.

ESTIMATED DEVELOPMENT SCHEDULE:
9/1/23 - 11/9/23: Existing building demolition
11/10/23 - 6/10/24: Building and site construction
6/11/24 - 8/1/24: Record plans and project closeout



NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

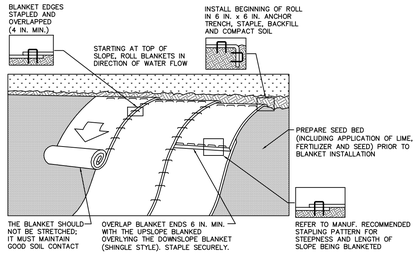
ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN.

COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

COMPOST FILTER SOCK
SCALE: N.T.S.



NOTES:

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

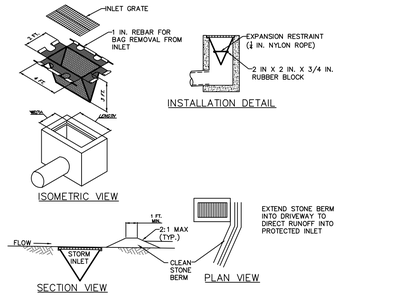
SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

EROSION CONTROL BLANKET INSTALLATION
SCALE: N.T.S.



NOTES:

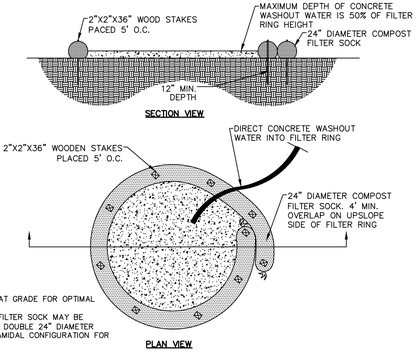
MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE OF ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

FILTER BAG INLET PROTECTION
SCALE: N.T.S.



NOTES:

1. INSTALL ON FLAT GRADE FOR OPTIMAL PERFORMANCE.
2. 18" DIAMETER FILTER SOCK MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.

COMPOST SOCK WASHOUT STATION
SCALE: N.T.S.

MIQUON SCHOOL
HEART OF THE CAMPUS
2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

SMPARCHITECTS
1600 Walnut Street, 2nd Floor
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215 985 4410

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GROUND RECONSIDERED
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No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal
		memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER
PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: EROSION AND SEDIMENT CONTROL DETAILS

Drawing Number: C30.2

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NOTES:

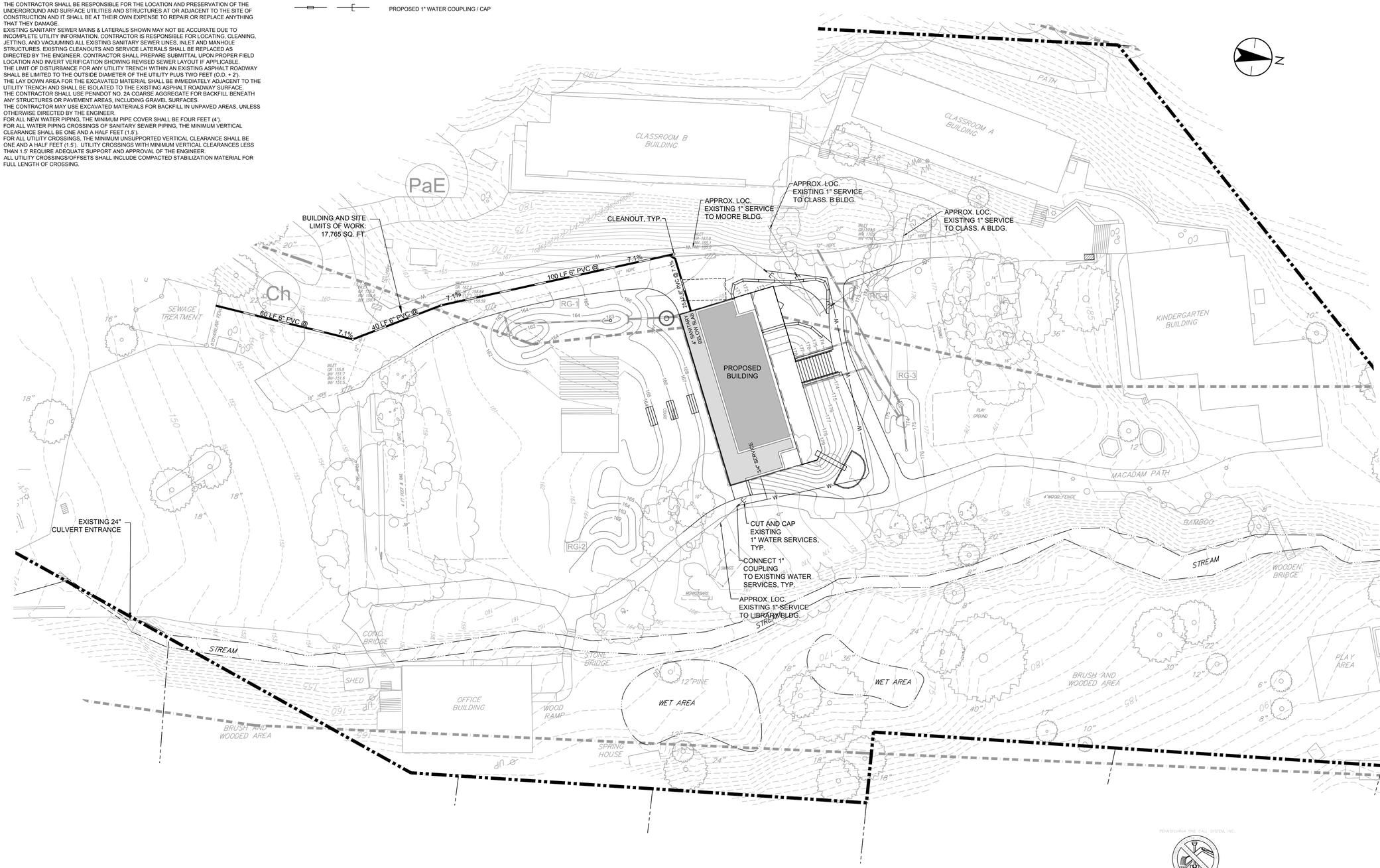
1. THIS PLAN IS FOR PRELIMINARY AND FINAL LAND DEVELOPMENT REVIEW OF A MINOR LAND DEVELOPMENT BY THE WHITEMARSH TOWNSHIP PLANNING COMMISSION. IT IS NOT FOR CONSTRUCTION.
2. THIS PLAN HAS BEEN PREPARED PER THE DIRECTION OF GROUND RECONSIDERED AND IS INTENDED FOR THEIR USE AND THE USE OF THE OWNERS NAMED HEREON. IT IS NOT INTENDED FOR USE BY ANY OTHER PARTIES.
3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022; A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
4. ALL EXISTING UTILITY LOCATIONS SHOWN ON THIS PLAN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE UTILITIES IN THE FIELD PRIOR TO CONSTRUCTION.
5. REFER ALSO TO DRAWINGS PREPARED BY GROUND RECONSIDERED. IF ANY DISCREPANCIES BETWEEN THIS PLAN AND DRAWINGS PREPARED BY GROUND RECONSIDERED ARE IDENTIFIED, CONTACT BOTH GROUND RECONSIDERED AND GRIST TO RESOLVE THE DISCREPANCIES.
6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.

UTILITY NOTES:

1. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
2. UNLESS NOTED OTHERWISE, THE APPROXIMATE DEPTH OF ALL EXISTING WATER MAIN IS ± 4 FEET.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF THE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT THEIR OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT THEY DAMAGE.
4. EXISTING SANITARY SEWER MAINS & LATERALS SHOWN MAY NOT BE ACCURATE DUE TO INCOMPLETE UTILITY INFORMATION. CONTRACTOR IS RESPONSIBLE FOR LOCATING, CLEANING, JETTING, AND VACUUMING ALL EXISTING SANITARY SEWER LINES, INLET AND MANHOLE STRUCTURES. EXISTING CLEANOUTS AND SERVICE LATERALS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL PREPARE SUBMITTAL UPON PROPER FIELD LOCATION AND INVERT VERIFICATION SHOWING REVISED SEWER LAYOUT IF APPLICABLE.
5. THE LIMIT OF DISTURBANCE FOR ANY UTILITY TRENCH WITHIN AN EXISTING ASPHALT ROADWAY SHALL BE LIMITED TO THE OUTSIDE DIAMETER OF THE UTILITY PLUS TWO FEET (O.D. + 2').
6. THE LAY DOWN AREA FOR THE EXCAVATED MATERIAL SHALL BE IMMEDIATELY ADJACENT TO THE UTILITY TRENCH AND SHALL BE ISOLATED TO THE EXISTING ASPHALT ROADWAY SURFACE.
7. THE CONTRACTOR SHALL USE PENNDOT NO. 2A COARSE AGGREGATE FOR BACKFILL BENEATH ANY STRUCTURES OR PAVEMENT AREAS, INCLUDING GRAVEL SURFACES.
8. THE CONTRACTOR MAY USE EXCAVATED MATERIALS FOR BACKFILL IN UNPAVED AREAS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
9. FOR ALL NEW WATER PIPING, THE MINIMUM PIPE COVER SHALL BE FOUR FEET (4').
10. FOR ALL WATER PIPING CROSSINGS OF SANITARY SEWER PIPING, THE MINIMUM VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5').
11. FOR ALL UTILITY CROSSINGS, THE MINIMUM UNSUPPORTED VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5'). UTILITY CROSSINGS WITH MINIMUM VERTICAL CLEARANCES LESS THAN 1.5' REQUIRE ADEQUATE SUPPORT AND APPROVAL OF THE ENGINEER.
12. ALL UTILITY CROSSINGS/OFFSETS SHALL INCLUDE COMPACTED STABILIZATION MATERIAL FOR FULL LENGTH OF CROSSING.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED SANITARY PIPE / CLEANOUT
- EXISTING / PROPOSED WATER
- PROPOSED 1" WATER COUPLING / CAP



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MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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2 E Lancaster Avenue, 2nd Floor
Ardmore, Pennsylvania 19003
610-642-1750

No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal memo dated 08/03/2023

Seal: COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER THOMAS J. HALLIWELL PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: UTILITY PLAN

Drawing Number: C40.1

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NOTES:

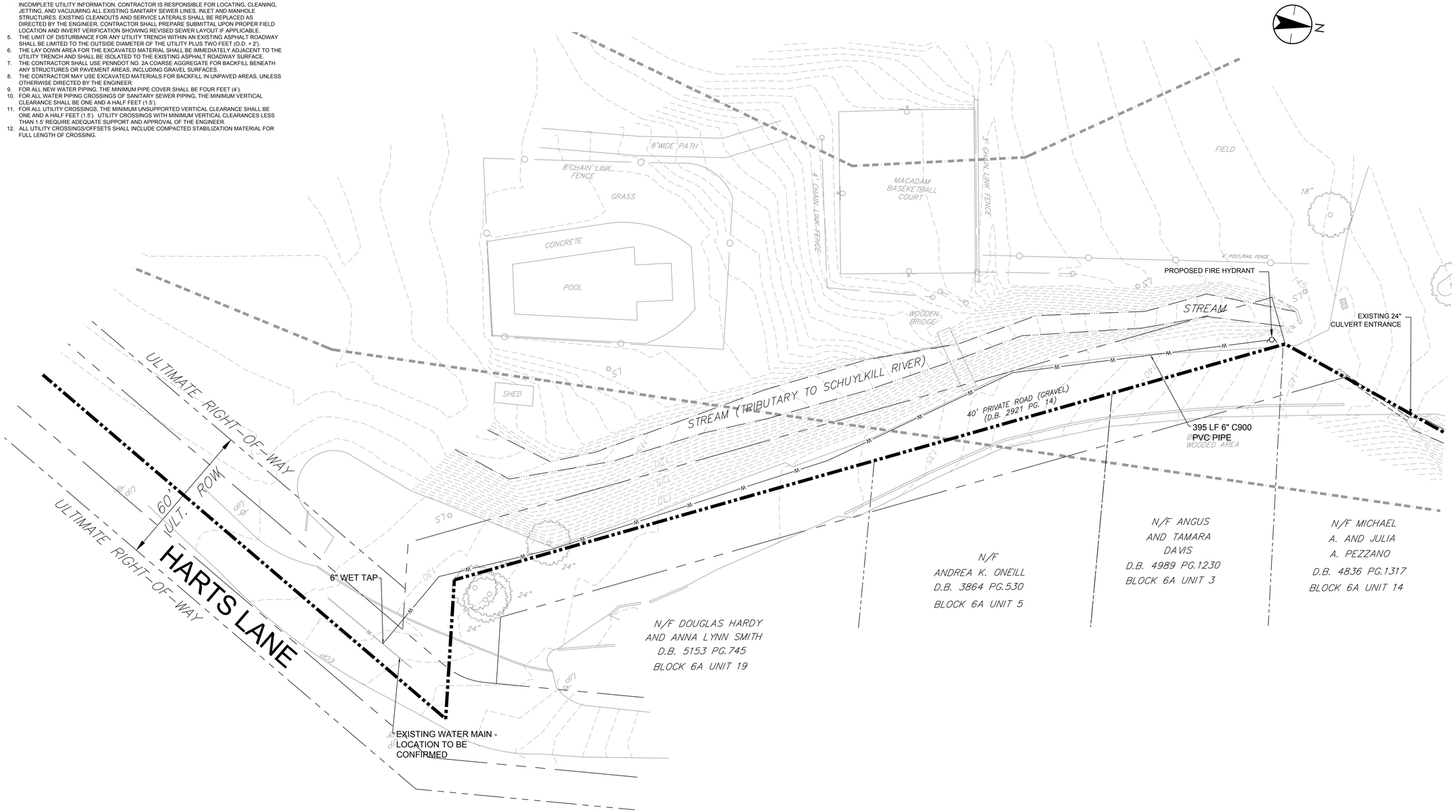
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6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.

UTILITY NOTES:

1. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE AND MUST BE VERIFIED IN THE FIELD PRIOR TO THE START OF CONSTRUCTION.
2. UNLESS NOTED OTHERWISE, THE APPROXIMATE DEPTH OF ALL EXISTING WATER MAIN IS ± 4 FEET.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PRESERVATION OF THE UNDERGROUND AND SURFACE UTILITIES AND STRUCTURES AT OR ADJACENT TO THE SITE OF CONSTRUCTION AND IT SHALL BE AT THEIR OWN EXPENSE TO REPAIR OR REPLACE ANYTHING THAT THEY DAMAGE.
4. EXISTING SANITARY SEWER MAINS & LATERALS SHOWN MAY NOT BE ACCURATE DUE TO INCOMPLETE UTILITY INFORMATION. CONTRACTOR IS RESPONSIBLE FOR LOCATING, CLEANING, JETTING, AND VACUUMING ALL EXISTING SANITARY SEWER LINES, INLET AND MANHOLE STRUCTURES. EXISTING CLEANOUTS AND SERVICE LATERALS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. CONTRACTOR SHALL PREPARE SUBMITTAL UPON PROPER FIELD LOCATION AND INVERT VERIFICATION SHOWING REVISED SEWER LAYOUT IF APPLICABLE.
5. THE LIMIT OF DISTURBANCE FOR ANY UTILITY TRENCH WITHIN AN EXISTING ASPHALT ROADWAY SHALL BE LIMITED TO THE OUTSIDE DIAMETER OF THE UTILITY PLUS TWO FEET (O.D. + 2').
6. THE LAY DOWN AREA FOR THE EXCAVATED MATERIAL SHALL BE IMMEDIATELY ADJACENT TO THE UTILITY TRENCH AND SHALL BE ISOLATED TO THE EXISTING ASPHALT ROADWAY SURFACE.
7. THE CONTRACTOR SHALL USE PENNDOT NO. 2A COARSE AGGREGATE FOR BACKFILL BENEATH ANY STRUCTURES OR PAVEMENT AREAS, INCLUDING GRAVEL SURFACES.
8. THE CONTRACTOR MAY USE EXCAVATED MATERIALS FOR BACKFILL IN UNPAVED AREAS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
9. FOR ALL NEW WATER PIPING, THE MINIMUM PIPE COVER SHALL BE FOUR FEET (4').
10. FOR ALL WATER PIPING CROSSINGS OF SANITARY SEWER PIPING, THE MINIMUM VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5').
11. FOR ALL UTILITY CROSSINGS, THE MINIMUM UNSUPPORTED VERTICAL CLEARANCE SHALL BE ONE AND A HALF FEET (1.5'). UTILITY CROSSINGS WITH MINIMUM VERTICAL CLEARANCES LESS THAN 1.5' REQUIRE ADEQUATE SUPPORT AND APPROVAL OF THE ENGINEER.
12. ALL UTILITY CROSSINGS/OFFSETS SHALL INCLUDE COMPACTED STABILIZATION MATERIAL FOR FULL LENGTH OF CROSSING.

LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
- TOP OF STREAM BANK OR WETLAND BOUNDARY LINE
- EXISTING / PROPOSED CONTOUR
- EXISTING / PROPOSED BUILDING
- EXISTING TREES
- EXISTING / PROPOSED STORM PIPE
- EXISTING INLET / PROPOSED OUTLET STRUCTURE
- PROPOSED SANITARY PIPE / CLEANOUT
- EXISTING / PROPOSED WATER
- PROPOSED 1" WATER COUPLING / CAP
- PROPOSED FIRE HYDRANT



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WHICH IS UNLESS NOTED OTHERWISE,
SHALL WAIT TEN (10) WORKING

0 20' 30' 40'

SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

Design Team:

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1600 Walnut Street, 2nd Floor
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No.	Date	Revisions
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Seal:

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
THOMAS J. HALLIWELL
ENGINEER PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

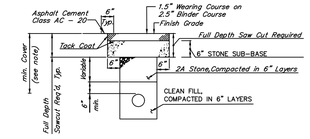
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: FIRE HYDRANT PLAN

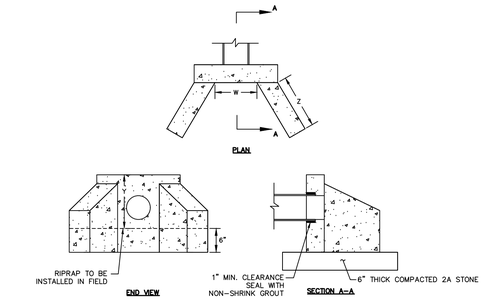
Drawing Number: C40.2

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NOTES:
1. MINIMUM COVER, NO STRUCTURES SHALL BE PLACED LESS THAN 24" BELOW THE DRIVEWAY, OR 15" BELOW THE FOOTWAY.

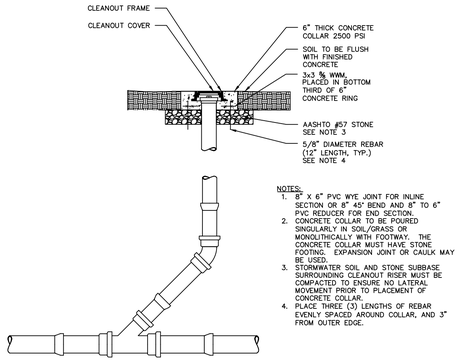
PIPE TRENCH RESTORATION
SCALE: N.T.S.



PIPE OPENING	W (IN.)	Y (IN.)	Z (IN.)
8"	14	13	18

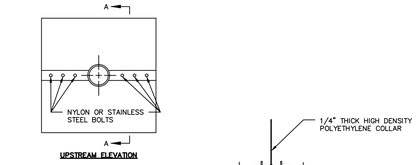
NOTES:
1. CONCRETE TO BE 3500 PSI AIR ENTRAINED.
2. REINFORCED WITH 4x4-W4.0xW4.0 WELDED WIRE FABRIC CONFORMING TO ASTM A1064.
3. RIPRAP APRON TO BE INSTALLED IN FIELD. SEE DETAIL.
4. REMOVABLE, HYDRAULICALLY- EFFICIENT BARS OR GRATES TO BE INSTALLED OVER PIPE OPENING.

CONCRETE ENDWALL
SCALE: N.T.S.



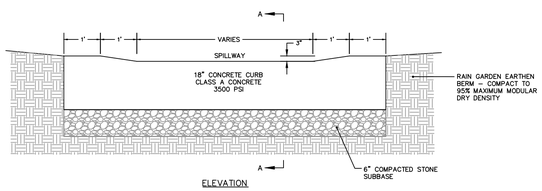
NOTES:
1. 8" X 6" PVC WYE JOINT FOR INLINE SECTION OR 8" 45° BEND AND 8" TO 6" PVC REDUCER FOR END SECTION.
2. CONCRETE COLLAR TO BE POURED SINGULARLY IN SOIL/GRASS OR MONOLITHICALLY WITH FOOTWAY. THE CONCRETE COLLAR MUST HAVE STONE FOOTING. EXPANSION JOINT OR CAULK MAY BE USED.
3. STORMWATER SOIL AND STONE SUBBASE SURROUNDING CLEANOUT RISER MUST BE COMPACTED TO ENSURE NO LATERAL MOVEMENT PRIOR TO PLACEMENT OF CONCRETE COLLAR.
4. PLACE THREE (3) LENGTHS OF REBAR EVENLY SPACED AROUND COLLAR, AND 3" FROM OUTER EDGE.

CLEANOUT
SCALE: N.T.S.



NOTES:
1. CONNECTING BAND SHALL BE SEALED AT BOTH ENDS WITH CAULK OR MASTIC.
2. COLLAR MATERIAL SHALL BE RIGID POLYETHYLENE SHEET.
3. STAINLESS STEEL SHALL BE GRADE 304 OR BETTER.
4. DIMENSION "W" SHALL BE 3 TIMES THE DIAMETER OF THE INTERSECTING PIPE.
5. ONE COLLAR WITH TWO HOLES MAY BE USED WHEN CLOSE PARALLEL PIPES ARE INSTALLED.

ANTI-SEEP COLLAR
SCALE: N.T.S.

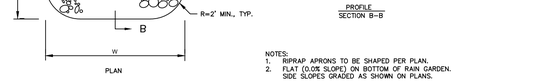


PLANTING NOTES:
1. REFER TO DRAWINGS BY GROUND RECONSIDERED.

CONSTRUCTION NOTES:
1. GRIST MUST BE PRESENT DURING EXCAVATION OF RAIN GARDENS AND INSTALLATION OF BIORETENTION SOILS. CONTRACTOR MUST CALL THE GRIST ENGINEER 267-332-8282 A MINIMUM OF TEN (10) DAYS IN ADVANCE OF RAIN GARDEN EXCAVATION AND STORMWATER SOIL PLACEMENT TO ARRANGE OBSERVATION BY ENGINEER.
2. EXISTING SOIL MUST BE FREE OF DEBRIS, CONCRETE OR BRICK FRAGMENTS, ROCK, RUBBLE, OR OTHER LARGE SOLID MATERIALS. COMPACTED SURFACE MUST BE FREE OF PROTRUSIONS. IF EXISTING SOIL IS NOT SUITABLE FOR INSTALLATION AND OF BIORETENTION SOIL, SOIL AMENDMENTS OR REPLACEMENT MAY BE NEEDED. THE ENGINEER WILL MAKE THE DETERMINATION REGARDING SOIL AMENDMENT OR REPLACEMENT IN THE FIELD.

BIORETENTION SOIL NOTES:
1. REFER TO SPECIFICATIONS BY GROUND RECONSIDERED.

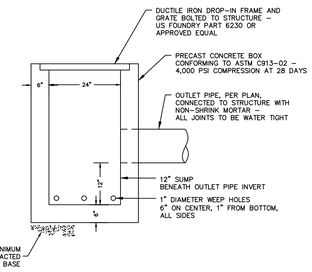
RAIN GARDEN CROSS SECTION
SCALE: N.T.S.



NOTES:
1. RIPRAP APRONS TO BE SHAPED PER PLAN.
2. FLAT (0.0% SLOPE) ON BOTTOM OF RAIN GARDEN. SIDE SLOPES GRADED AS SHOWN ON PLANS.

RIPRAP APRON NO.	L (FT.)	W (FT.)	WO (FT.)	THICKNESS (IN.)	ROCK SIZE (MIN.)
R-1	6	6	2	6	AASHTO NO. 3
R-2	6	6	2	6	AASHTO NO. 3

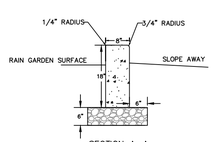
RIPRAP APRONS
SCALE N.T.S.



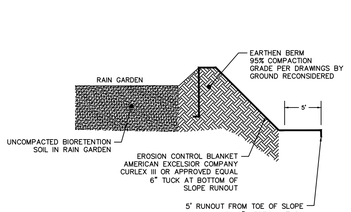
STRUCTURE No.	RAIN GARDEN No. / LOCATION	SUMP ELEVATION	GRATE ELEVATION	OUTLET PIPE DIAMETER	OUTLET PIPE ELEVATION	UNDERDRAIN ELEVATION
OS-1	RG-1	158.40	163.50	8"	159.40	N/A
OS-3	RG-3	170.00	174.50	8"	171.00	171.25
OS-4	RG-4	168.00	172.50	8"	169.00	169.25

2' X 2' CONCRETE OUTLET CONTROL STRUCTURE
SCALE: NTS

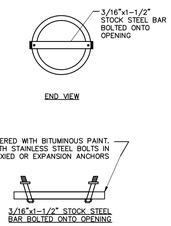
RAIN GARDEN No. / LOCATION	TOP OF CURB SPILWAY EL.	LENGTH (ft.)	TOP OF BERM EL.
RG-1	163.75	14	164.00
RG-2	162.75	12	163.00
RG-3	174.75	9	175.00
RG-4	172.75	12	173.00



CONCRETE CURB LEVEL SPREADER
SCALE: NTS



RAIN GARDEN EARTHEN BERM
SCALE: NTS



OUTFALL ANIMAL GUARD
SCALE: N.T.S.

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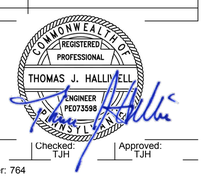
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Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: STORMWATER DETAILS

Drawing Number: C50.2

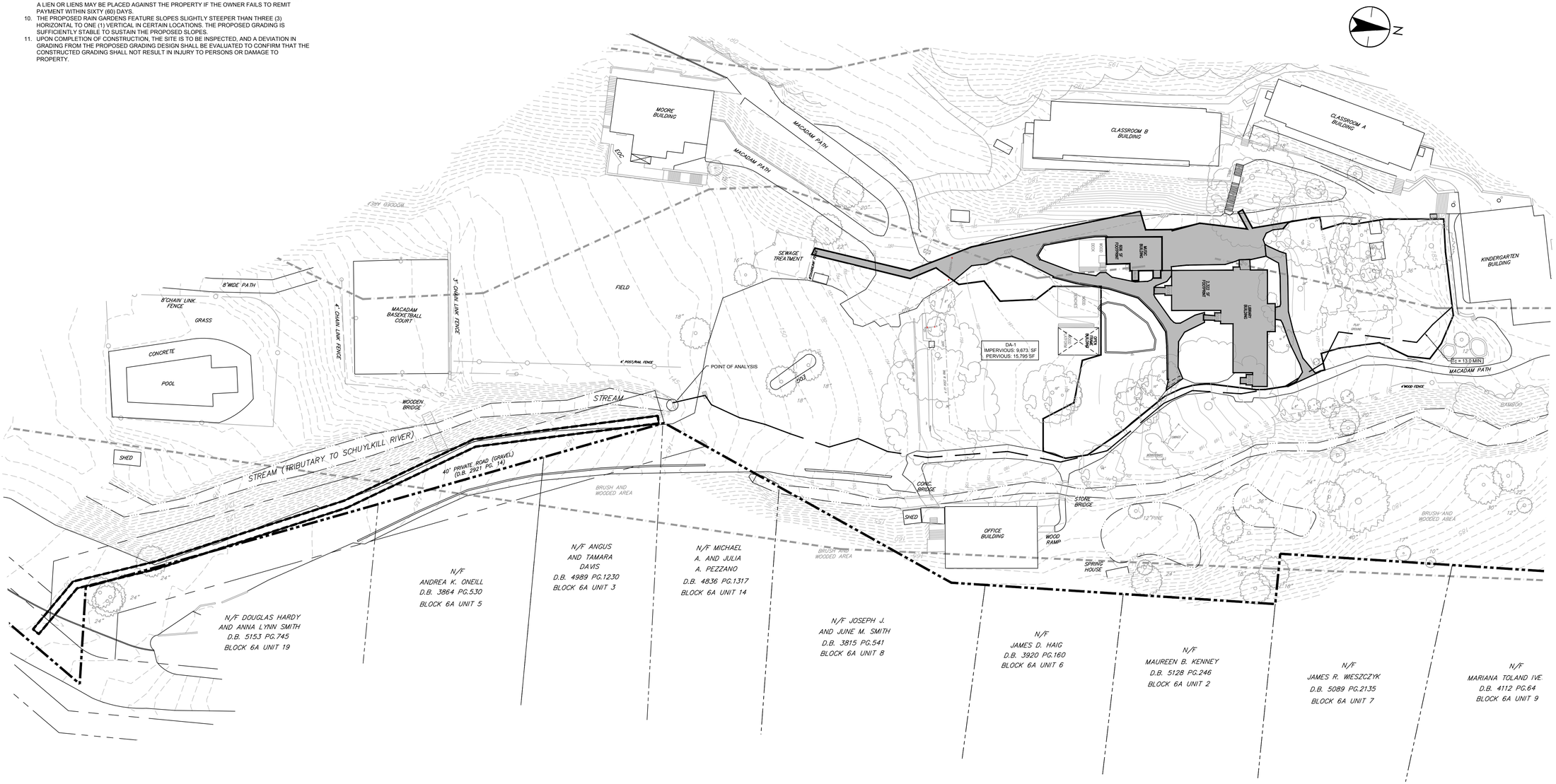
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3. EXISTING CONDITIONS INFORMATION SHOWN ON THIS PLAN IS TAKEN FROM A PLAN TITLED "PARTIAL TOPOGRAPHIC PLAN OF MIQUON SCHOOL", PREPARED BY MCNEILL LAND SURVEYING, DATED 31 MAY 2022, A PLAN TITLED "TOPOGRAPHIC SURVEY PLAN", PREPARED BY BARRY ISETT & ASSOCIATES, INC., DATED 04/14/2014; AND A FIELD SKETCH OF EXISTING UTILITIES, SHEET NO. 1 OF 1, PREPARED BY TRINITY SUBSURFACE ENGINEERING, DATED 08/16/2022.
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6. THE SITE CONTAINS NO KNOWN LIMESTONE AREAS SUBJECT TO SINK CONDITIONS.
7. A SYSTEM OF FOUR (4) RAIN GARDENS ARE PROPOSED FOR STORMWATER MANAGEMENT.
8. AFTER COMPLETION OF CONSTRUCTION, AN AS-BUILT SURVEY OF ALL STORMWATER MANAGEMENT PRACTICES (SMPs) SHALL BE SUBMITTED TO WHITEMARSH TOWNSHIP IN PAPER AND DIGITAL (.DWG) FORMATS.
9. STORMWATER FACILITIES SHALL BE OWNED AND MAINTAINED BY THE PROPERTY OWNER IN PERPETUITY. THE PROPERTY OWNER SHALL PROVIDE A BLANKET STORMWATER ACCESS EASEMENT TO THE TOWNSHIP FOR THE PURPOSE OF ACCESS TO THE STORMWATER FACILITIES. IF, IN THE JUDGMENT OF THE TOWNSHIP ENGINEER, THE OWNER HAS FAILED TO MAINTAIN THE STORMWATER FACILITIES IN SUCH A MANNER AS TO ENSURE THEIR PROPER FUNCTIONING, THE TOWNSHIP AFTER PROVIDING A WRITTEN NOTICE, SHALL HAVE THE RIGHT TO ENTER UPON THE LANDS OF THE OWNER AND TO MAKE ANY REPAIRS AS MAY BE NECESSARY TO THE STORMWATER FACILITIES TO ENSURE THAT SUCH FACILITIES FUNCTION AND PERFORM IN ACCORDANCE WITH THE DESIGN SPECIFICATIONS. ANY AND ALL COSTS INCURRED BY THE TOWNSHIP FOR SUCH REPAIRS AND/OR MAINTENANCE SHALL BE PAID IN FULL BY THE OWNER. A LIEN OR LIENS MAY BE PLACED AGAINST THE PROPERTY IF THE OWNER FAILS TO REMIT PAYMENT WITHIN SIXTY (60) DAYS.
10. THE PROPOSED RAIN GARDENS FEATURE SLOPES SLIGHTLY STEEPER THAN THREE (3) HORIZONTAL TO ONE (1) VERTICAL IN CERTAIN LOCATIONS. THE PROPOSED GRADING IS SUFFICIENTLY STABLE TO SUSTAIN THE PROPOSED SLOPES.
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LEGEND

- PROPERTY LINE / ADJACENT PROPERTY LINE
- SOIL TYPE / BOUNDARY LINE
- LIMITS OF WORK
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- EXISTING CONTOUR
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- EXISTING PERVIOUS AREA
- EXISTING IMPERVIOUS AREA
- EXISTING TREES
- EXISTING STORM PIPE
- EXISTING STORM INLET
- TIME OF CONCENTRATION



Soils Summary Table

Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

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Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PRE-DEVELOPED DRAINAGE AREA PLAN

Drawing Number: DA-1

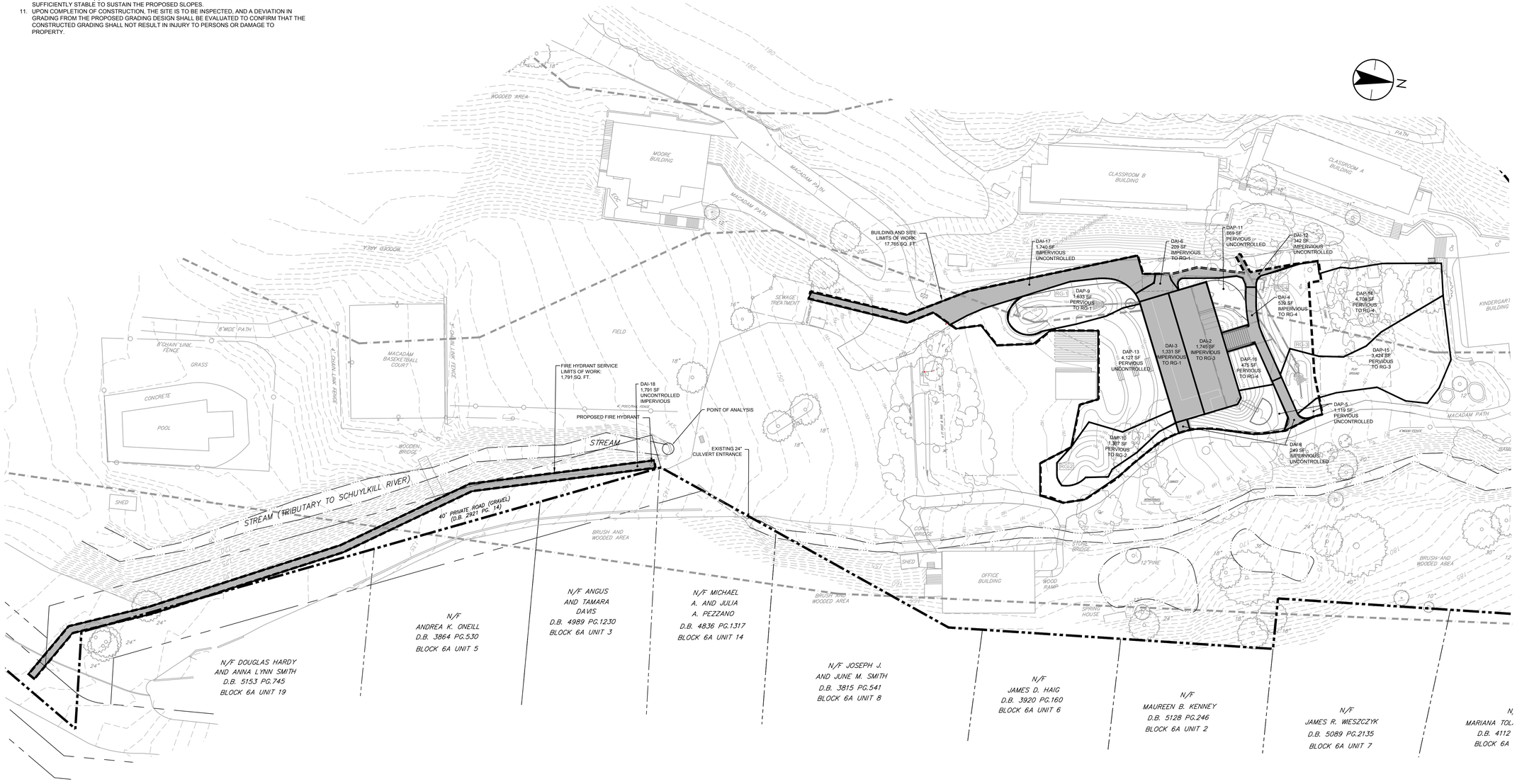
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Abbreviation	Soil / Map Unit Name	Ksat of Most Limiting Layer	Depth to Restrictive Feature
PaB	Parker gravelly loam, 3 to 8 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	60 to 118 inches to lithic bedrock
PaC	Parker gravelly loam, 8 to 15 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	61 to 118 inches to lithic bedrock
PaE	Parker gravelly loam, 15 to 25 percent slopes	Moderately high to high (0.20 to 6.00 in./hr.)	62 to 118 inches to lithic bedrock
Ch	Codorus silt loam	Moderately high to high (0.60 to 2.00 in./hr.)	72 to 99 inches to lithic bedrock
MaE	Manor loam, 25 to 35 percent slopes	Moderately low (0.01 to 0.07 in./hr.)	60 to 100 inches to paralithic bedrock

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0 20' 30' 40'
SCALE: 1" = 20'

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions
01	8/31/2023	Revised driveway per Fire Marshal
		memo dated 08/03/2023

Seal:

COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL THOMAS J. HALLIWELL ENGINEER PE073598

Drawn: TJH | Checked: TJH | Approved: TJH

Job Number: 764

File:

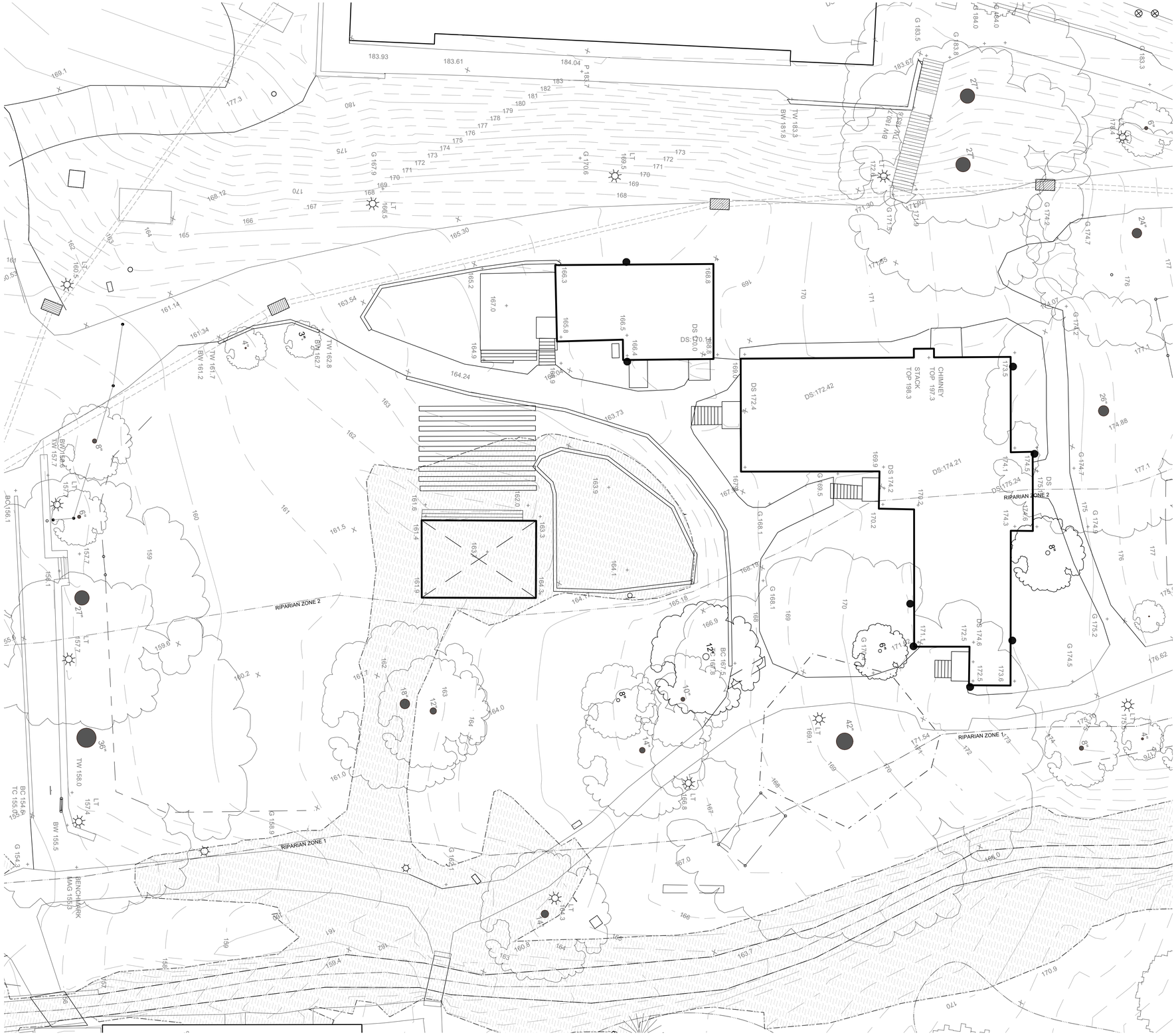
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: POST-DEVELOPED DRAINAGE AREA PLAN

Drawing Number: DA-2

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LEGEND

- LIMIT OF DISTURBANCE / SITE ENCLOSURE FENCE
- TREE PROTECTION FENCE
- SURFACE DRAIN INLET & STORMWATER DRAIN BELOW SURFACE
- 100 YEAR FLOODPLAIN

EXISTING CONDITIONS ARE BASED ON THE FOLLOWING SURVEYS PROVIDED:

PARTIAL TOPOGRAPHIC PLAN
BY MCNEILL LAND SURVEYING, LLC
DATED MAY 31, 2022

TOPOGRAPHIC SURVEY PLAN
BY BARRY ISETT & ASSOCIATES, INC
DATED APRIL 14, 2014
WITH REVISION: STREAM NOTES ADDED JUNE 6, 2014

MIQUON SCHOOL

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PENNSYLVANIA REGISTERED LANDSCAPE ARCHITECT

Drawn:	Checked:	Approved:
LHS	JB	

Job Number: 2121
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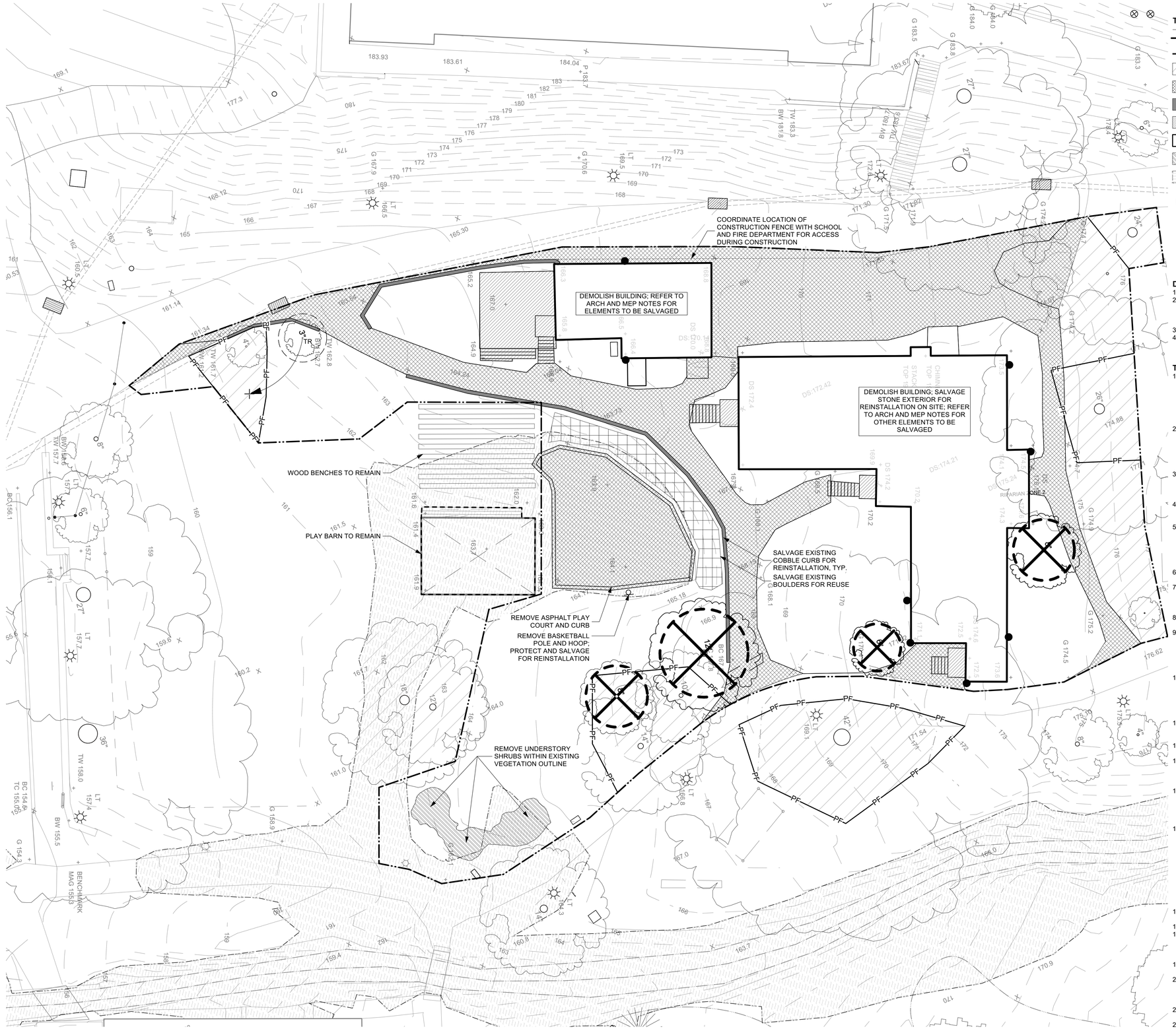
Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
EXISTING CONDITIONS PLAN

Drawing Number:
L1.0

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TREE PROTECTION & DEMOLITION LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- PF TREE PROTECTION FENCE–DTL 4/L7.2
- TREE PROTECTION ZONE
- ASPHALT PAVEMENT AND ASSOCIATED SUBBASE TO BE REMOVED
- COBBLESTONE CURB & SUBBASE TO BE REMOVED
- WOOD STAIRS & DECKING & ASSOCIATED FOUNDATIONS TO BE REMOVED
- BLDG TO BE DEMOLISHED
- EXISTING SHRUBS TO BE REMOVED
- 100 YEAR FLOODPLAIN
- TREE TO BE REMOVED
- RDI REMOVE DRAIN INLET
- TR EXISTING TREE TO BE TRANSPLANTED
- NEW LOCATION

DEMOLITION NOTES

1. NOTIFY OWNER AND RECEIVE APPROVAL PRIOR TO REMOVAL OF SIGNS.
2. REMOVE ALL PAVEMENT, BASE MATERIALS AND/OR CONSTRUCTION DEBRIS AND EXCAVATE REMAINING SOIL/FILL TO A MINIMUM OF 24" BELOW EXISTING GRADE IN ALL AREAS WHERE EXISTING PAVEMENTS ARE TO BE REMOVED AND REPLACED WITH LAWN AND/OR PLANTING.
3. REMOVE ROOTS OF TREES AND SHRUBS TO 24" BELOW GRADE MINIMALLY.
4. CONTRACTOR TO SCHEDULE PRE-CONSTRUCTION CONFERNCE WITH TOWNSHIP SHADE TREE COMMISSION PRIOR TO START OF CONSTRUCTION.

TREE PROTECTION NOTES

1. CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS OF EXISTING TREES AND PLANTINGS INDICATED TO REMAIN WITH DIGITAL PHOTOS AND/OR VIDEO, WHICH ESTABLISHES PRECONSTRUCTION CONDITIONS THAT MIGHT BE MISCONTRUED AS DAMAGE CAUSED BY CONSTRUCTION ACTIVITY. INCLUDE PLANS AND NOTATIONS TO INDICATE SPECIFIC WOUNDS AND DAMAGE CONDITIONS OF EACH TREE OR OTHER PLANTS DESIGNATED TO REMAIN.
2. LOCATE AND CLEARLY IDENTIFY TREES, SHRUBS AND OTHER VEGETATION TO REMAIN. FLAG EACH TREE TO REMAIN AT A HEIGHT OF 6-FEET +/- WITH DISTINCTIVE, HIGHLY VISIBLE COLOR FLAGGING TAPE. SUPERVISING CONTRACTOR AND/OR SITE FOREMAN IS RESPONSIBLE TO INSTRUCT AND MONITOR ALL LABORERS AND WORKERS ABOUT THE TREE PROTECTION REQUIREMENTS.
3. BRING ANY UNFORESEEN SITE CONDITIONS, SUCH AS STRUCTURAL ROOTS, THAT WILL IMPACT NEW CONSTRUCTION TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. DO NOT PROCEED WITH WORK WITHOUT WRITTEN AUTHORIZATION.
4. PROTECTION FENCING MUST BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO COMMENCING WITH ANY DEMOLITION OR CONSTRUCTION WORK.
5. INSTALL PROTECTION FENCING BEFORE INSTALLING EROSION AND SEDIMENTATION CONTROLS. SILT FENCE IS PROHIBITED WITHIN PROTECTION ZONE. TRENCHING IS PROHIBITED IN TREE PROTECTION ZONES. FLOWS OF WATER REDIRECTED FROM CONSTRUCTION AREAS OR GENERATED BY CONSTRUCTION ACTIVITY ARE PROHIBITED FROM ENTERING OR CROSS PROTECTION ZONES.
6. WORK WITHIN PROTECTION FENCING, UNLESS NOTED HEREIN, MUST BE APPROVED BY AND SUPERVISED BY OWNER'S REPRESENTATIVE.
7. WHEN WORKING WITHIN TREE PROTECTION ZONES, USE CARE TO AVOID DAMAGE TO TREE TRUNKS AND ROOTS SUCH AS, BUT NOT LIMITED TO, IMPACT WOUNDS CAUSED BY EQUIPMENT. CONSULT A CERTIFIED ARBORIST IS DAMAGED TO AN PROTECTED TREE OCCURS.
8. LIMIT EXTENT OF EXCAVATION WITHIN PROTECTION ZONES TO THE GREATEST EXTENT FEASIBLE.
9. WHERE EXCAVATION IS REQUIRED IN PROTECTION ZONES TO INSTALL UTILITIES, HAND EXCAVATE AND/OR AIR-SPADE AROUND TREE ROOTS OR TUNNEL UNDER ROOTS BY DRILLING, AUGER BORING, OR PIPE JACKING. DO NOT CUT MAIN LATERIAL TREE ROOTS OR TAPROOTS. CUTTING OF SMALLER ROOTS BY A CERTIFIED ARBORIST THAT INTERFERE WITH INSTALLATION OF UTILITIES IS PERMITTED.
10. TRENCHING OR EXCAVATION WITHIN THE DRIPLINE OF EXISTING TREES SHALL BE COMPLETED WITH EXTREME CARE AND UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. USE HAND TOOLS ONLY. ARBORIST SHALL BE PRESENT DURING ALL WORK DONE WITHIN DRIPLINE OF EXISTING TREES. NOTIFY OWNER PRIOR TO COMMENCEMENT OF WORK WITHIN DRIPLINE OF TREES.
11. WHERE EXSITING ROOTS OF TREES TO REMAIN ARE ENCOUNTERED WITHIN EXCAVATION AREAS, DO NOT ALLOW EXPOSED ROOTS TO DRY OUT PRIOR TO PLACING PERMANENT BACKFILL.
12. EXERCISE EXTREME CAUTION IN REMOVING PAVEMENT WITHIN DRIPLINE OF EXISTING TREES TO REMAIN.
13. MAINTAIN EXISTING GRADES WITHIN THE PROTECTION ZONE TO THE GREATEST EXTENT FEASIBLE. DO NOT LOWER OR RAISE GRADES MORE THAN 2-INCHES WITHIN PROTECTION ZONE. HAND-GRADE TO REQUIRED FINISHED ELEVATIONS WITH PROTECTION ZONES.
14. WHEN DIRECTED BY CERTIFIED ARBORIST, AERATE SURFACE SOIL COMPACTED DURING CONSTRUCTION. AERATE TO EXTENT AS DIRECTED BY ARBORIST AND NO CLOSER THAN 36-INCHES TO TREE TRUNK. DRILL 2-INCH DIAMETER HOLES A MINIMUM OF 12-INCHES DEEP AT 24-INCHES ON CENTER. BACKFILL HOLES WITH APPROVED COMPOST.
15. REPLACE TREES, SHRUBS AND OTHER VEGETATION INDICATED TO REMAIN THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY THE OWNER'S REPRESENTATIVE WHEN GREATER THAN OR EQUAL TO 25% OF THE PLANT IS DEAD OR IN AN UNHEALTHY CONDITION AND OWNER'S REPRESENTATIVE DETERMINES ARE INCAPABLE OF RESTORING TO NORMAL GROWTH. PROVIDE NEW TREES OF THE SAME SIZE AND APPROVED SPECIES FOR EACH TREE THAT MEASURES 6-INCHES IN CALIPER SIZE OR SMALLER. WHERE THE TREE TO BE REPLACED EXCEEDS 6-INCHES IN CALIPER, PROVIDE TWO (2) 8-INCH CALIPER TREES OF AN APPROVED SPECIES AT A LOCATION DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
16. PROTECT ROOT SYSTEMS FROM PONDING, ERODING, OR EXCESSIVE WETTING CAUSED BY DEWATERING OPERATIONS.
17. DO NOT PARK VEHICLES OR EQUIPMENT WITH PROTECTION ZONES.
18. CERTIFIED ARBORIST MAY REQUIRE CROWN PRUNING TO COMPENSATE FOR ROOT LOSS CAUSED BY DAMAGING OR CUTTING OF THE ROOT SYSTEM. PROVIDE SUBSEQUENT MAINTENANCE DURING CONTRACT PERIOD AS RECOMMENDED BY ARBORIST.
19. OWNER'S REPRESENTATIVE MAY REQUIRE ADDITIONAL PROTECTION FENCING OR RELOCATION OF FENCING AS WORK PROGRESSES.
20. AVOID DAMAGING EXISTING TREES. DAMAGE INCLUDES BUT IS NOT LIMITED TO: CUTTING, BREAKING, SKINNING OR COMPACTING OF ROOTS, SKINNING AND BRUISING OF BARK AND BREAKING OF BRANCHES AND LIMBS.
21. DO NOT ATTACH SIGNS TO OR AROUND TREES OR PLANTS TO REMAIN UNLESS OTHERWISE INDICATED.
22. DO NOT ALLOW ROOTS TO DRY OUT BEFORE PLACING PERMANENT BACKFILL. PROVIDE TEMPORARY EARTH COVER AND/OR WRAP WITH MOIST BURLAP. WATER AND MAINTAIN IN MOIST CONDITION. TEMPORARILY SUPPORT AND PROTECT ROOTS FROM DAMAGE UNTIL THEY ARE PERMANENTLY RELOCATED AND/OR COVERED WITH SOIL.
23. PROTECTION-ZONE SIGNAGE: "TREE PROTECTION AREA - DO NOT ENTER" 3-INCH HIGH MINIMUM LETTER SIZE, RED CHARACTERS ON WHITE BACKGROUND. INSTALL ALONG TOP OF PROTECTION FENCING SPACED EVERY 50-FEET AND/OR EACH SIDE OF PROTECTION ZONE.

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions
01	08/31/2023	Revised Driveway per Fire Marshal Memo dated 08/03/2023

Seal:



Drawn: LHS | Checked: JB | Approved:

Job Number: 2121

File:

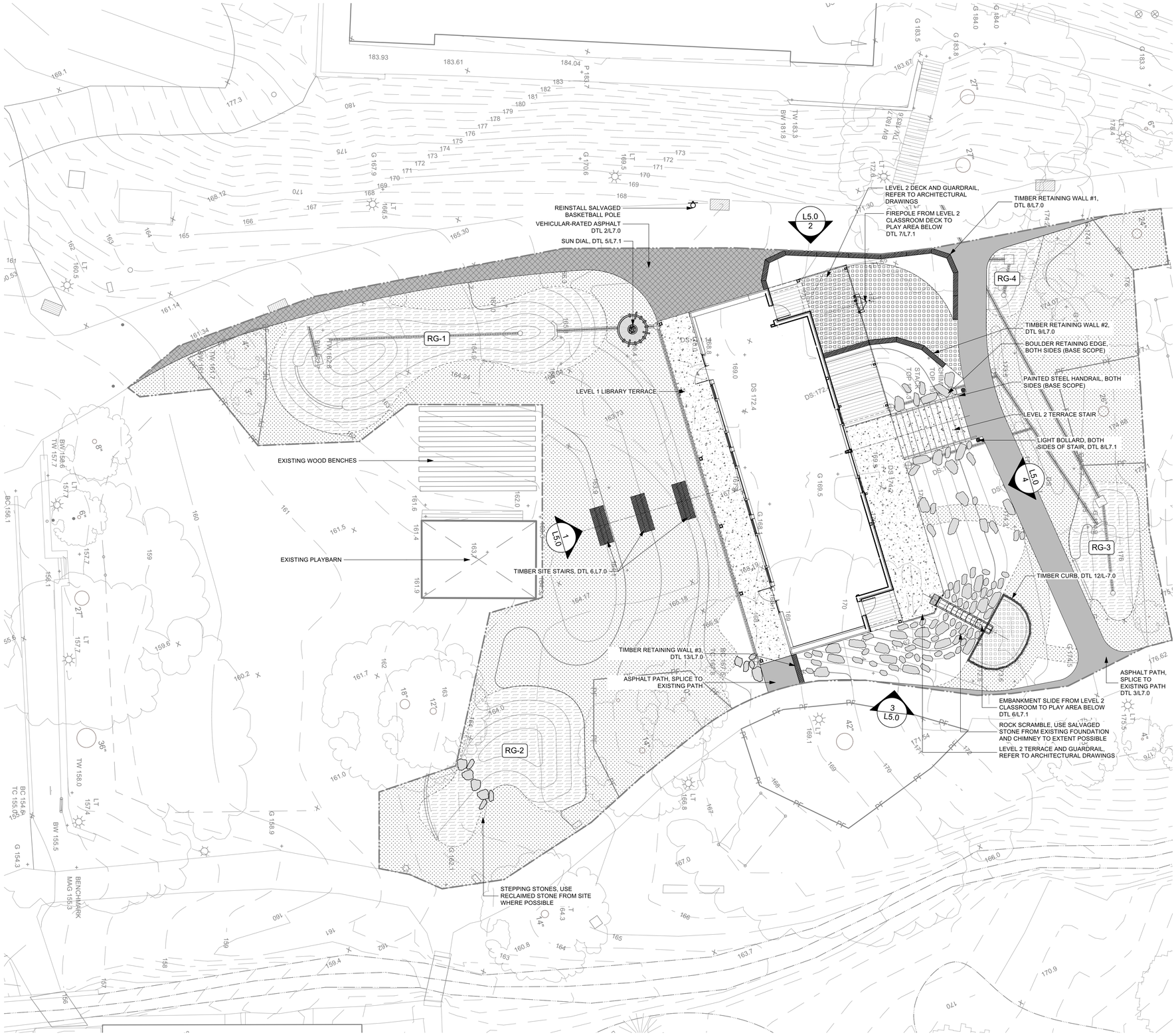
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: TREE PROTECTION & DEMOLITION PLAN

Drawing Number: L1.1

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MATERIALS LEGEND

- LIMIT OF WORK / SITE ENCLOSURE FENCE
- ASPHALT PAVING, VEHICULAR RATED, DTL 2/L7.0
- ASPHALT PAVING, PEDESTRIAN RATED, DTL 2/L7.0
- ENGINEERED WOOD FIBER PLAY SURFACE, DTL 11/L7.0
- DECKING ON POSTS, SEE ARCH DRAWINGS
- WOOD CHIPS
- CIP PAVING, 1/L7.0
- RAINGARDENS, SEE CIVIL DRAWINGS

MATERIAL NOTES

1. BOULDERS SHOWN ON DRAWINGS ARE INTENDED TO BE SALVAGED AND RELOCATED WITHIN THE PROJECT AREA.
2. ASSUME SOME QUANTITY OF NEW BOULDERS WILL BE NEEDED

GENERAL NOTES

1. DO NOT SCALE DRAWINGS.
2. THE CONTRACTOR SHALL VERIFY ALL INVERTS, DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS PRIOR TO PROCEEDING WITH WORK. DISCREPANCIES BETWEEN THE DOCUMENTS AND ACTUAL FIELD CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT AND RESOLVED PRIOR TO PROCEEDING WITH THE WORK.
3. DRAWINGS FOR DESIGN INTENT ONLY. FIELD ADJUSTMENTS MAY BE REQUIRED WITH WRITTEN AUTHORIZATION BY OWNER.
4. THE CONTRACTOR SHALL NOTFIY THE LANDSCAPE ARHITECT OF UNFORESEEN CONDITIONS THAT ARE UNCOVERED OR EXPOSED DURING THE WORK.
5. FIELD CHANGES REQUIRE OWNER, OWNER REPRESENTATIVE AND DESIGN PROFESSIONAL REVIEW. WRITTEN CONFIRMATION IS REQUIRE TO PROCEED WITH FIELD CHANGES.
6. THE CONTRACTOR SHALL HAVE ALL REQUIRED SUBMITTAL APPROVALS PRIOR TO BEGINNING THE WORK OR ORDERING MATERIALS.
7. THE CONTRACTOR SHALL PROVIDE THE LAYOUT, LINE AND GRADE UNLESS OTHERWISE NOTED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY, PROCEDURES, MEANS AND METHODS, SEQUENCING, SCHEDULE AND COORDINATION FOR WORK SHOWN IN THE DOCUMENTS.
9. MAINTAIN FIRE DEPARTMENT ACCESS TO ALL FIRE DEPARTMENT CONNECTIONS AND HYDRANTS AT ALL TIMES.
10. PROVIDE AND MAINTAIN PROTECTION FOR PEDESTRIAN AND VEHICULAR TRAFFIC.
11. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO SITE CLEARING OR DEMOLITION ACTIVITIES. SEE EROSION AND SEDIMENT CONTROL PLANS.
12. DO NOT DRIVE OR PARK, STORE MATERIAL OR DEBRIS ON THE SITE EXCEPT IN AREAS APPROVED BY OWNER. STAGING AREAS SHALL BE APPROVED BY OWNER. DO NOT STAGE MATERIALS IN AREAS OTHER THAN THOSE THAT ARE PREVIOUSLY DESIGNATED BY THE OWNER.
13. DISPOSE OF OR RECYCLE ALL DEMOLITION MATERIALS IN A PERMITTED, REGULATED FACILITY IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATION.
14. REMOVE EXISTING SOIL TO DEPTHS REQUIRED FOR NEW WORK INCLUDING FULL DEPTH REPLACEMENT OF PLANTING IN NEW BEDS.
15. PRESERVE AND PROTECT ALL EXISTING FEATURES TO REMAIN: STRUCTURES, LIGHTING, SURFACE MATERIALS, ABOVE AND BELOW GRADE UTILITIES, FOOTING AND VEGETATION WITHIN AND ADJACENT TO CONSTRUCTION AREA DURING ALL PHASES OF DEMOLITION AND CONSTRUCTION.
16. REMOVE AND SALVAGE SITE FURNITURE AS INDICATED. PROTECT SITE FURNITURE AGAINST DAMAGE AND TRANSPORT TO LOCATION AS DIRECTED BY OWNER.
17. MEET ALL EXISTING GRADES AT ALL EDGES OF PROJECT WITHIN GRADING REQUIREMENTS.
18. NOTIFY OWNER ONE WEEK PRIOR TO REMOVING EXISTING PLANTS FROM PLANT BEDS.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT TO ANY SIDEWALK, LAWN, TREES, PAVING, AND OTHER IMPROVEMENTS DISTURBED OR DAMAGED BY THE CONSTRUCTION OR DEMOLITION ACTIVITIES PROPOSED HEREIN.

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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No.	Date	Revisions
01	08/31/2023	Revised Driveway
		per Fire Marshal Memo dated 08/03/2023

Seal:



Drawn:	Checked:	Approved:
LHS	JB	

Job Number: 2121

File:

Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

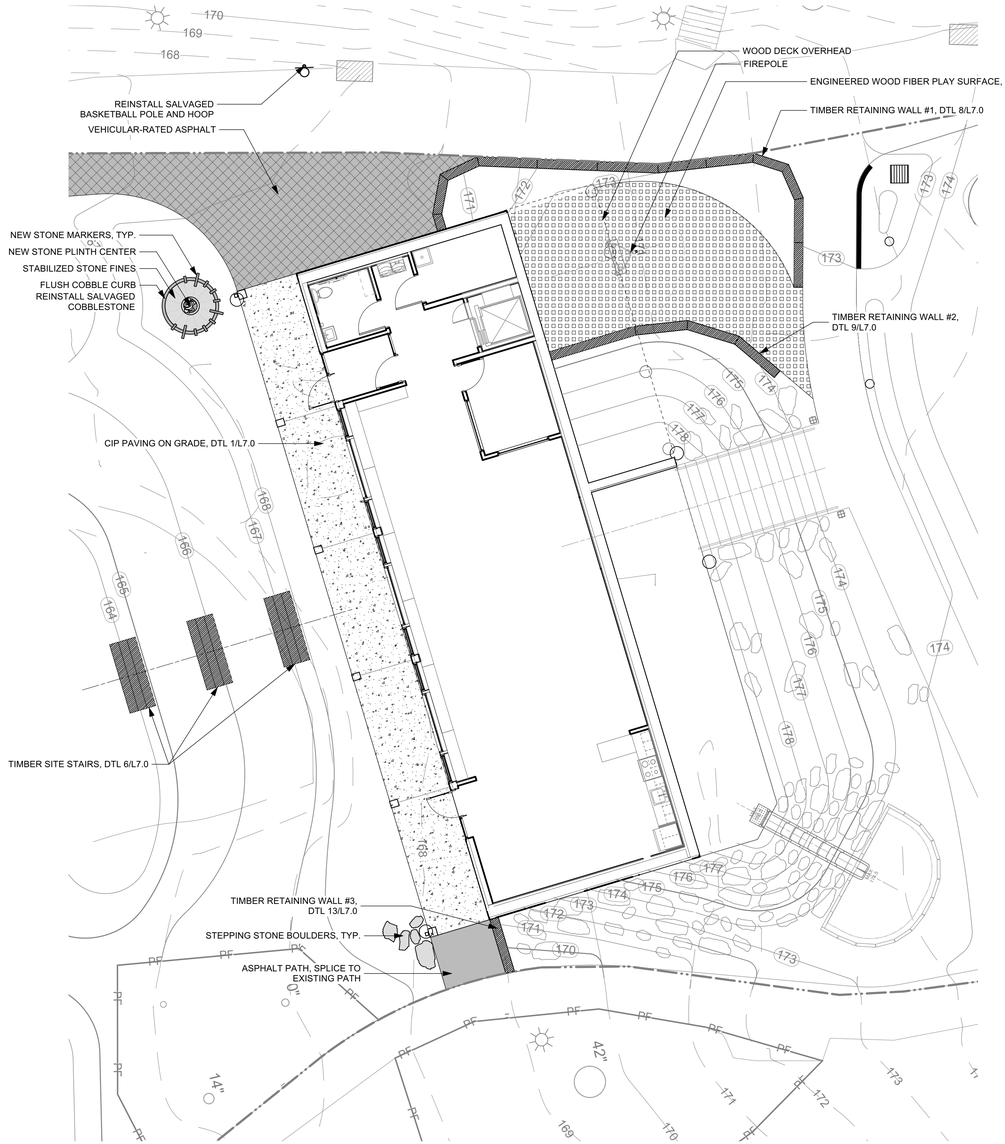
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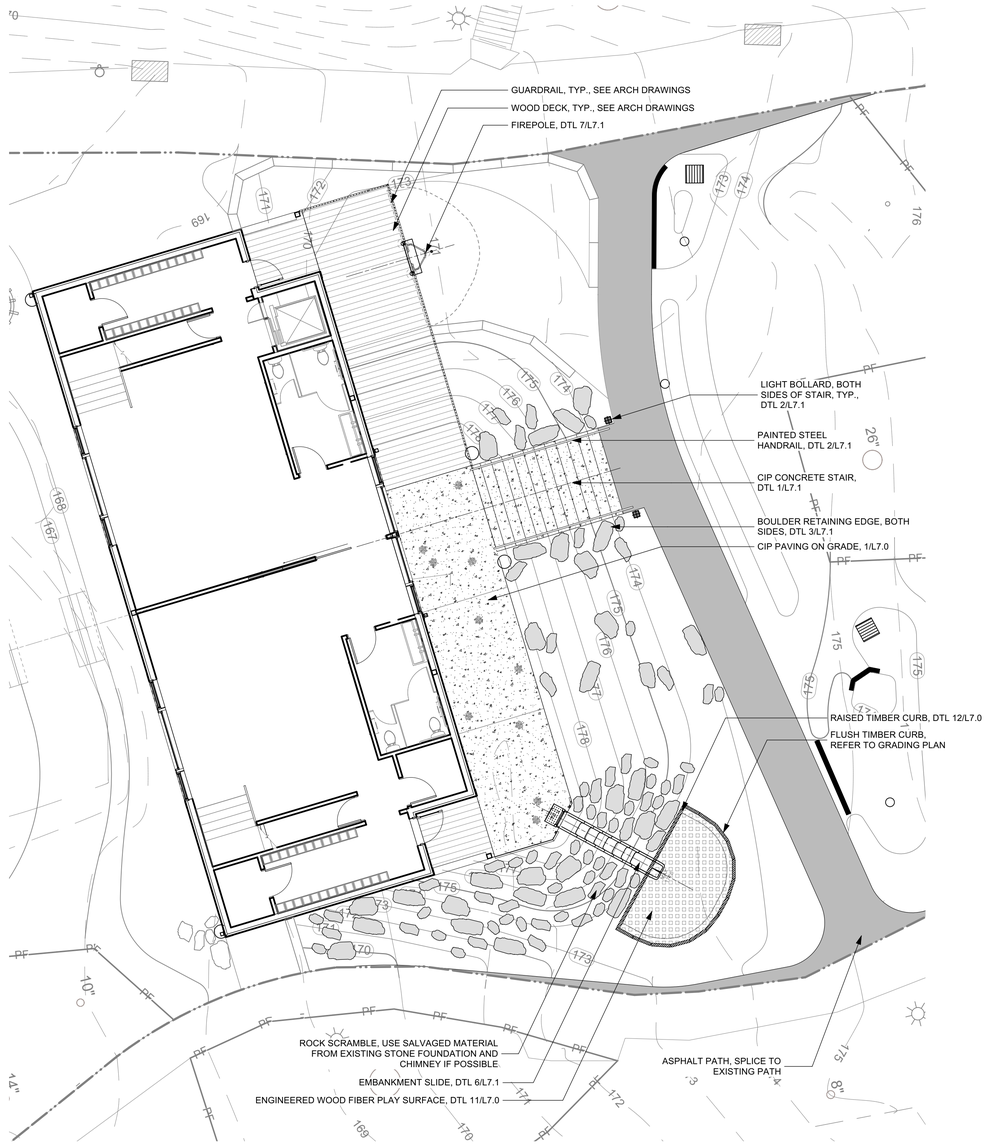
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- ENGINEERED WOOD FIBER PLAY SURFACE, DTL 11/L7.0
- DECKING ON POSTS, SEE ARCH DRAWINGS



1 L2.1 LEVEL 01 PAVEMENT PLAN
Scale: 1/8" = 1'-0"



2 L2.1 LEVEL 02 PAVEMENT PLAN
Scale: 1/8" = 1'-0"

0 8 16 32 FT

N

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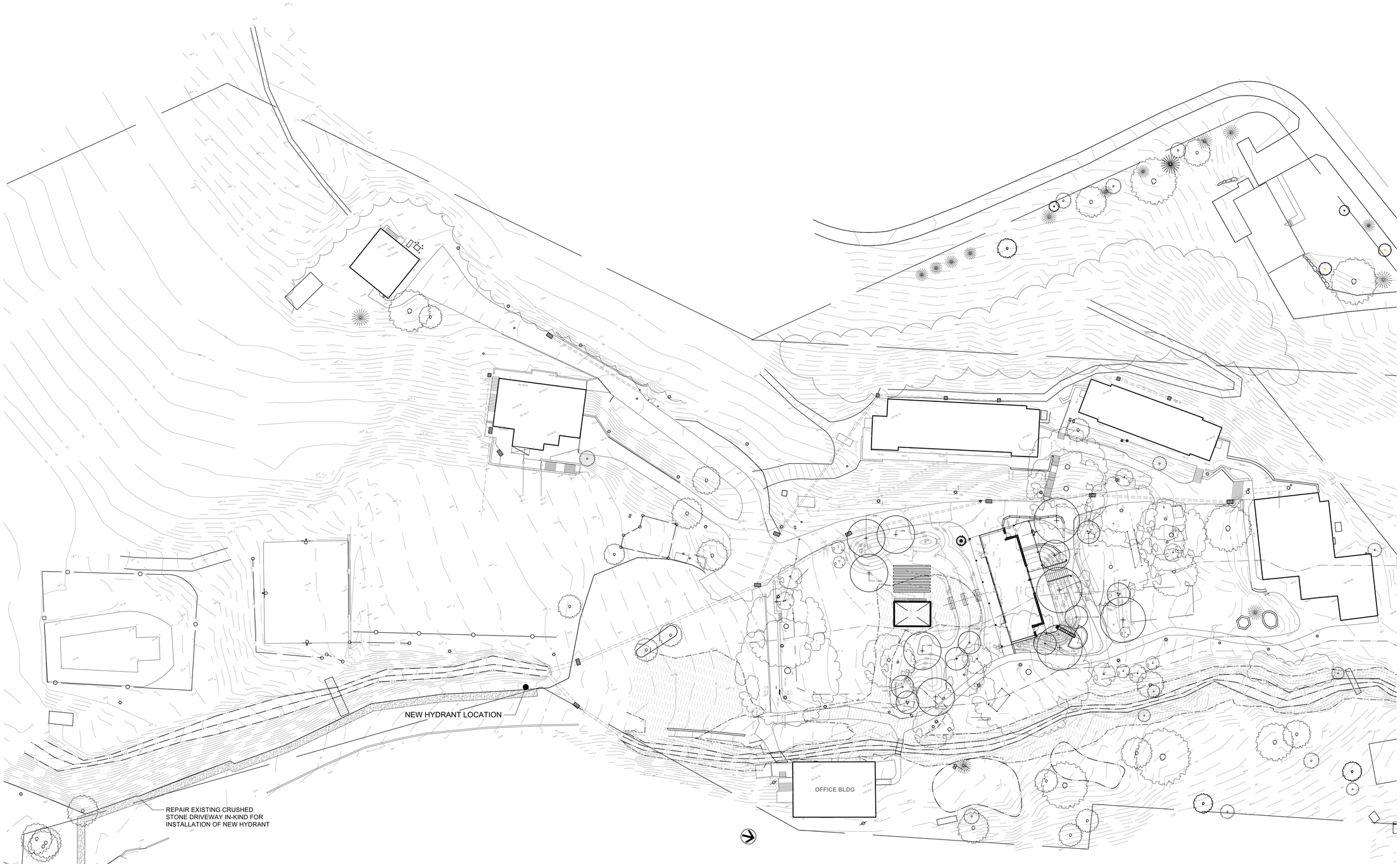
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PRELIMINARY AND FINAL PLAN

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PAVEMENT ENLARGEMENT

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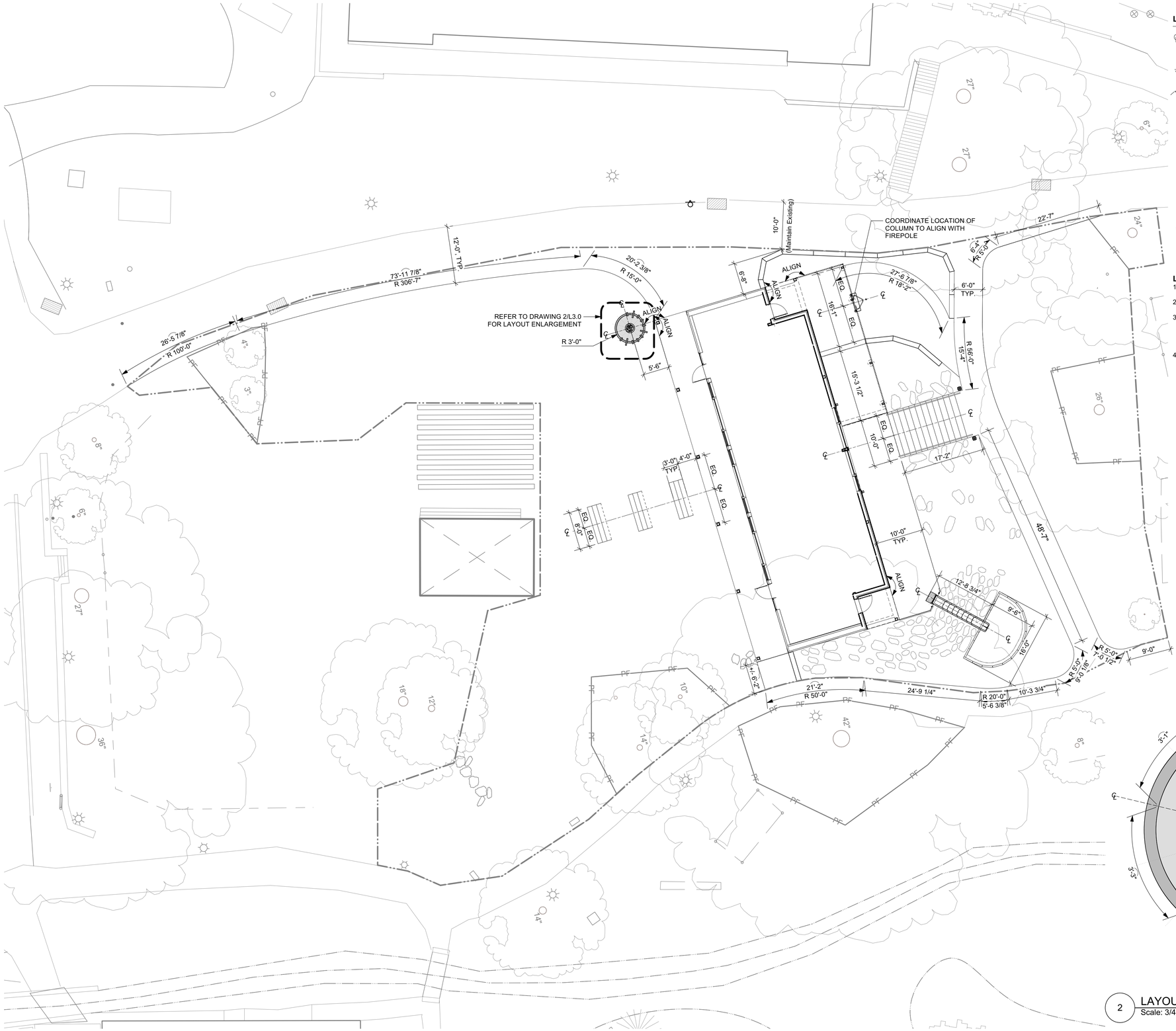
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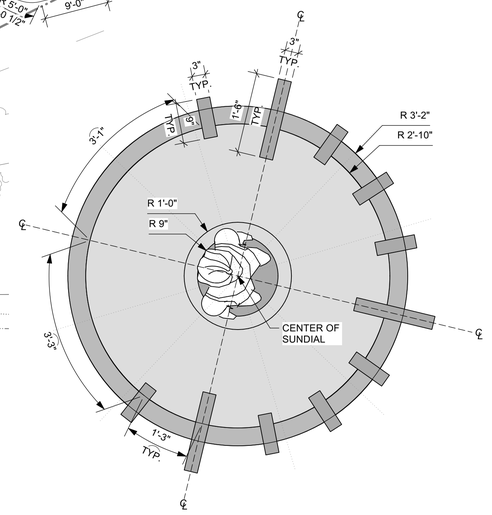
Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
MATERIALS PLAN - HYDRANT

Drawing Number:
L2.2

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2 LAYOUT ENLARGEMENT PLAN: SUNDIAL
Scale: 3/4" = 1'-0"

3 LAYOUT PLAN
Scale: 1" = 10'-0"

0 10 20 30 FT

LAYOUT LEGEND

- CENTER LINE
- REFERENCE LINE
- LINEAR LENGTH (x'-x")
- RADIAL LENGTH (x'-x")
- ANGLE (x°)
- RADIUS (R x'-x")
- P.O.B. POINT OF BEGINNING
- POINT OF CURVATURE
- ALIGN

LAYOUT NOTES

1. ALL LINES ARE PARALLEL OR PERPENDICULAR UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE SHOWN TO FACE OF MATERIALS, UNLESS SHOWN OTHERWISE.
3. V.I.F. = VERIFY IN FIELD: VERIFY ALL DIMENSIONS FROM FIELD MEASUREMENTS. VERIFY LAYOUT OF ALL PROPOSED WORK WITH EXISTING CONDITIONS. NOTIFY LANDSCAPE ARCHITECT OF ANY DISCREPANCIES BEFORE PROCEEDING WITH ANY WORK.
4. PROVIDE STAKED LAYOUT FOR REVIEW AND APPROVAL BY LANDSCAPE ARCHITECT PRIOR TO COMMENCING WORK.

MIQUON SCHOOL

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PENNSYLVANIA — JOSEPH BRADLEY — REGISTERED LANDSCAPE ARCHITECT

Drawn:	Checked:	Approved:
LHS	JB	

Job Number: 2121
File:

Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
LAYOUT PLAN

Drawing Number:
L3.0

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GRADING LEGEND

SITE ENCLOSURE FENCE / LIMIT OF WORK	
PF	TREE PROTECTION FENCE
× 0.00	EXISTING SPOT ELEVATION
+ 0.00	PROPOSED SPOT ELEVATION
+ TW0.00	TOP OF WALL
+ BW0.00	BOTTOM OF WALL
+ TW0.00	TOP OF STEP
+ BS0.00	BOTTOM OF STEP
+ HP0.00	HIGH POINT
◂ 0.0%	PERCENT SLOPE
0	CONTOUR
V.I.F.	VERIFY IN FIELD

GRADING NOTES

1. REFER TO CIVIL ENGINEERING PLAN FOR LOCATIONS OF INLETS.
2. ANY DISCREPANCY BETWEEN FIELD CONDITIONS AND DOCUMENTED EXISTING OR PROPOSED CONDITIONS SHALL BE REPORTED TO OWNER IN WRITING.
3. FINISH GRADES OF PAVEMENTS AND SOIL ALONG BOTTOM OF CURBS AND WALLS SHALL HAVE A CONSTANT SLOPE UNLESS INDICATED BY SPOT ELEVATIONS.
4. ADJUST TOPS OF ALL MANHOLE LIDS, EXISTING UTILITY STRUCTURES, ETC. TO MEET PROPOSED GRADES.
5. REFER TO CIVIL DRAWINGS FOR RAINGARDEN UTILITY COMPONENTS, INCLUDING BUT NOT LIMITED TO, ENDWALL AND RIPRAP, CLEANOUT, OVERFLOW STRUCTURE, AND CURB LEVEL SPREADER.

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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Seal:



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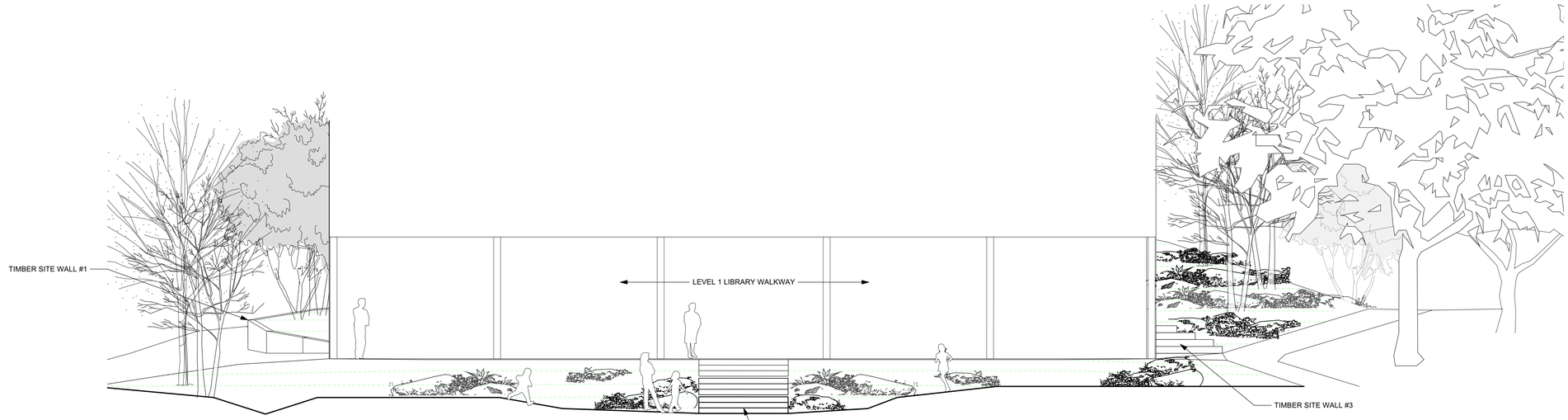
Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

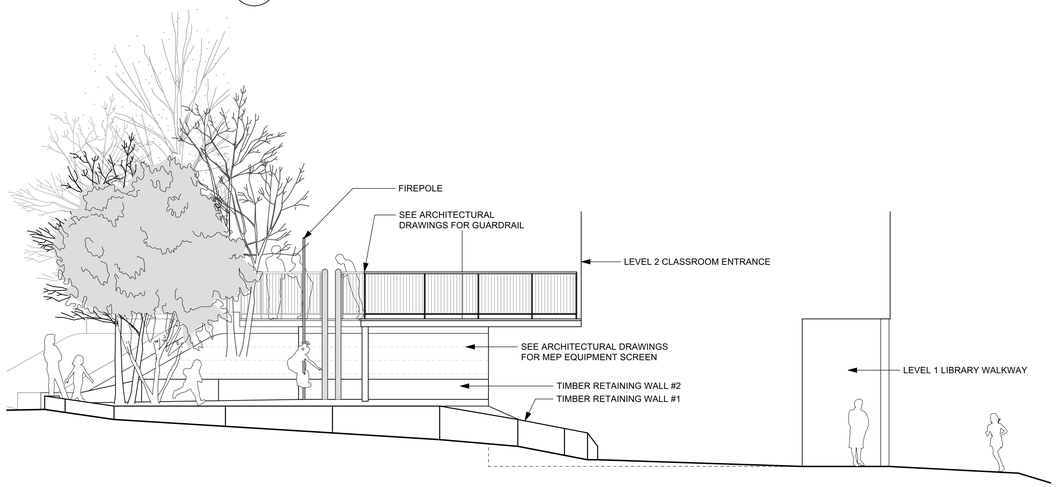
Drawing Title:
GRADING PLAN

Drawing Number:
L4.0

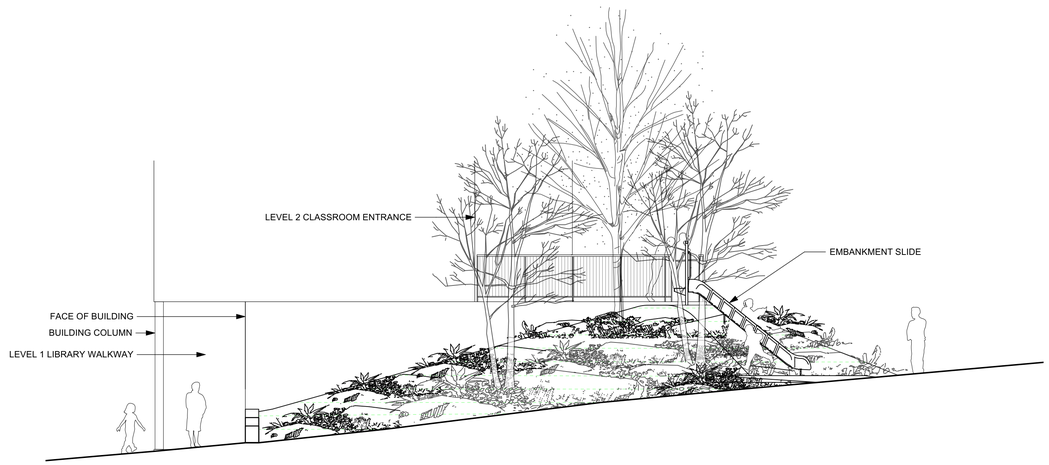
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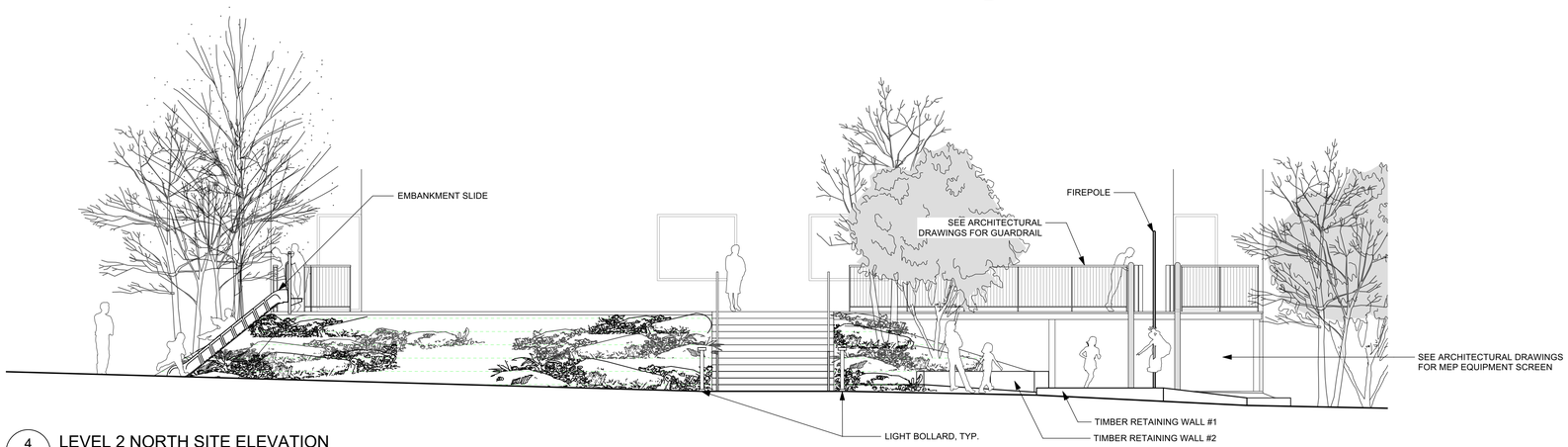
1 L5.0 LEVEL 1 SOUTH SITE ELEVATION
Scale: 3/16" = 1'-0"



2 L5.0 EAST SITE ELEVATION
Scale: 3/16" = 1'-0"



3 L5.0 EAST SITE ELEVATION
Scale: 3/16" = 1'-0"



4 L5.0 LEVEL 2 NORTH SITE ELEVATION
Scale: 3/16" = 1'-0"

MIQUON SCHOOL

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PRELIMINARY AND FINAL PLAN

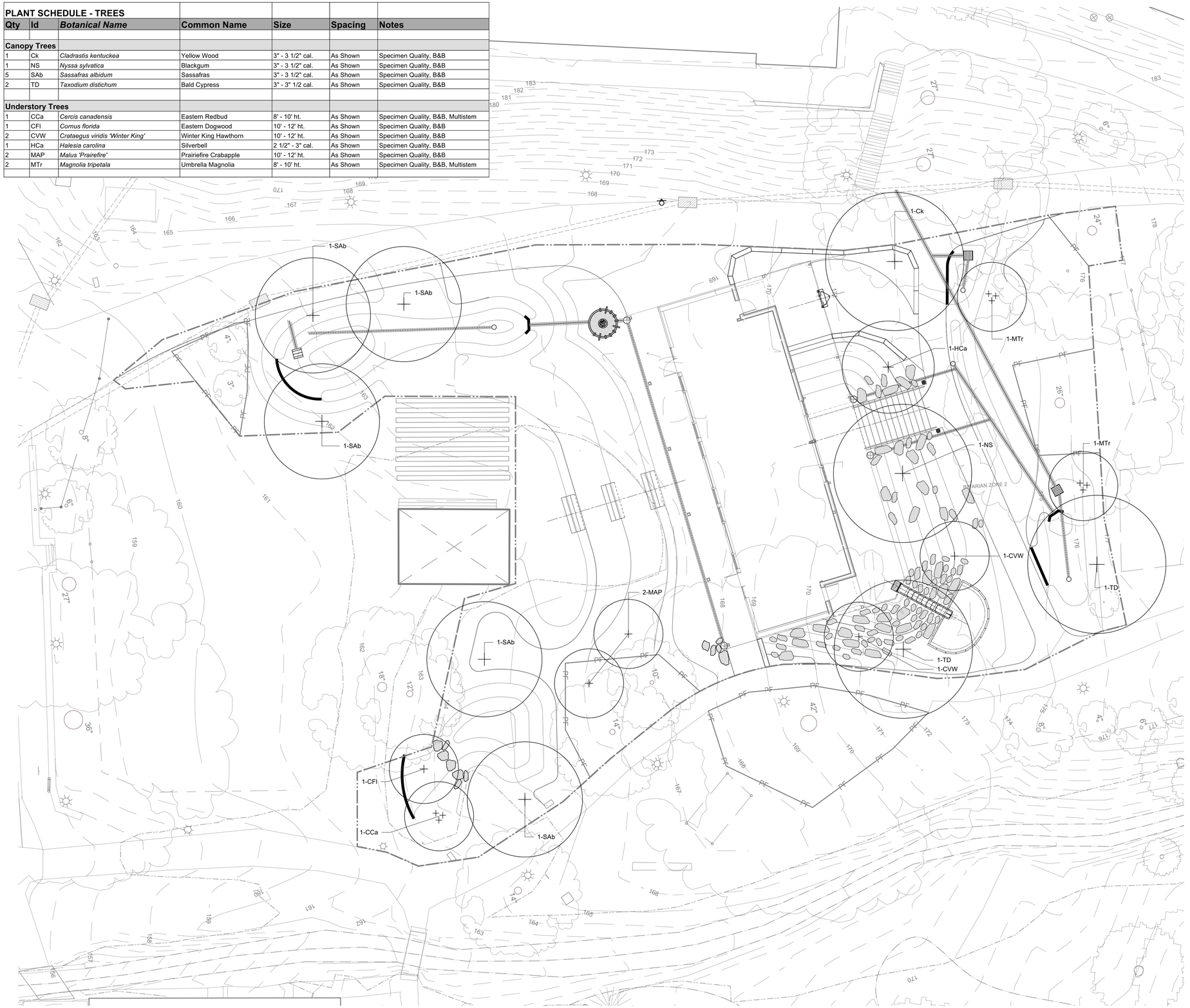
Drawing Title:
SITE SECTIONS

Drawing Number:
L5.0

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PLANT SCHEDULE - TREES

Qty	Id	*Botanical Name*	Common Name	Size	Spacing	Notes
Canopy Trees						
1	Ck	*Cladrastis kentuckea*	Yellow Wood	3" - 3 1/2" cal.	As Shown	Specimen Quality, B&B
1	NS	*Nyssa sylvatica*	Blackgum	3" - 3 1/2" cal.	As Shown	Specimen Quality, B&B
5	SAb	*Sassafras albidum*	Sassafras	3" - 3 1/2" cal.	As Shown	Specimen Quality, B&B
2	TD	*Taxodium distichum*	Bald Cypress	3" - 3" 1/2 cal.	As Shown	Specimen Quality, B&B
Understory Trees						
1	CCa	*Cercis canadensis*	Eastern Redbud	8' - 10' ht.	As Shown	Specimen Quality, B&B, Multistem
1	CFl	*Cornus florida*	Eastern Dogwood	10' - 12' ht.	As Shown	Specimen Quality, B&B
2	CVW	*Crataegus viridis 'Winter King'*	Winter King Hawthorn	10' - 12' ht.	As Shown	Specimen Quality, B&B
1	HCa	*Halesia carolina*	Silverbell	2 1/2" - 3" cal.	As Shown	Specimen Quality, B&B
2	MAP	*Malus 'Prairefire'*	Prairiefire Crabapple	10' - 12' ht.	As Shown	Specimen Quality, B&B
2	MTr	*Magnolia tripetala*	Umbrella Magnolia	8' - 10' ht.	As Shown	Specimen Quality, B&B, Multistem



0 10 20 30 FT

N

PLANTING LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- TREE PROTECTION FENCE
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED DECIDUOUS CANOPY TREE
- PROPOSED UNDERSTORY OR EVERGREEN TREE

PLANTING NOTES

1. ASSUME 18" NEW PLANTING SOIL DEPTH IN ALL PLANT BEDS. ASSUME 30" NEW PLANTING SOIL DEPTH AT ALL NEW TREES.
2. ASSUME ALL SLOPES WILL HAVE EROSION CONTROL FABRIC PER SPECIFICATION

MIQUON SCHOOL

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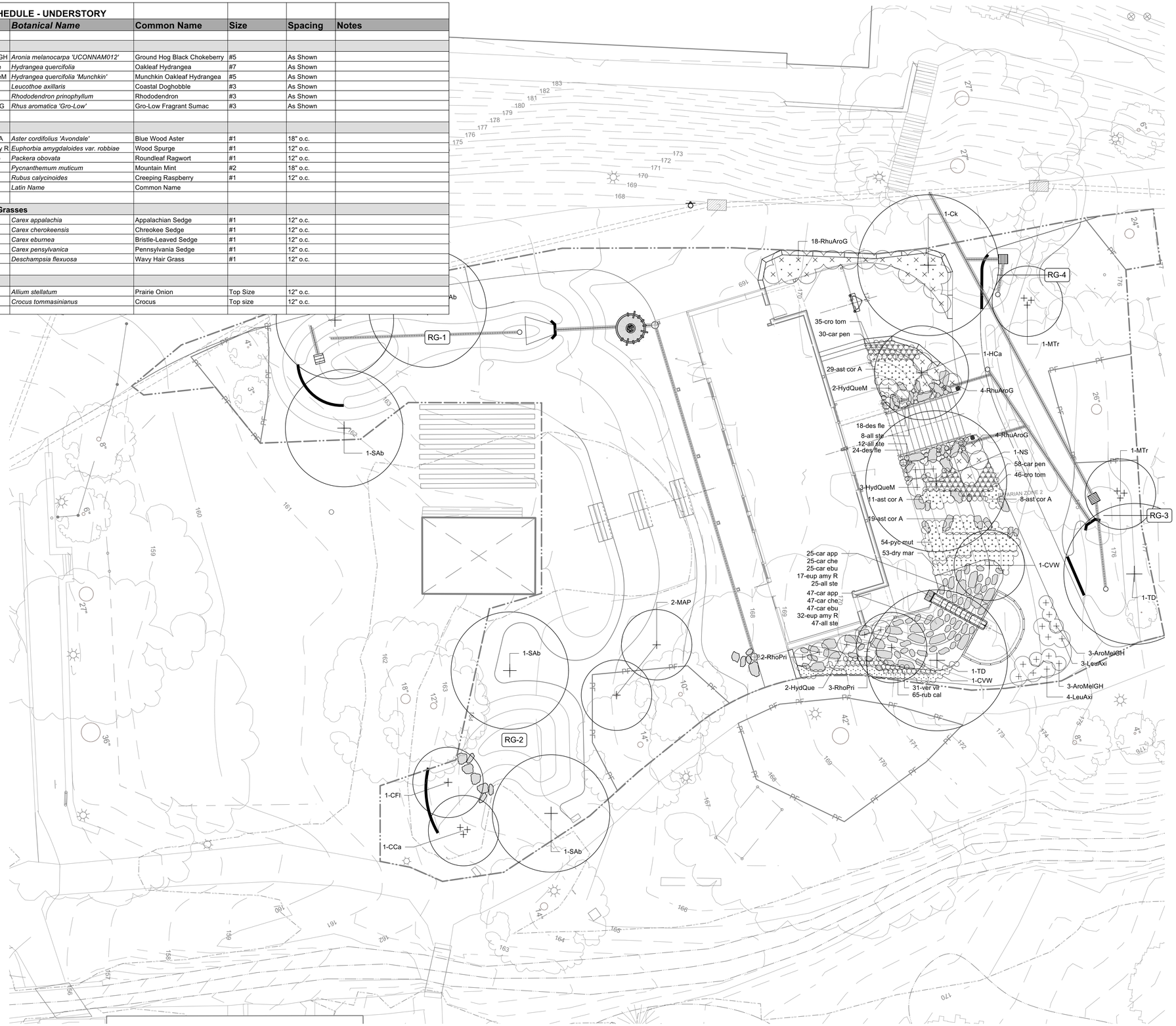
Drawing Title:
TREE PLANTING PLAN

Drawing Number:
L6.0

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PLANT SCHEDULE - UNDERSTORY

Qty	Id	*Botanical Name*	Common Name	Size	Spacing	Notes
Shrubs						
6	AroMelGH	*Aronia melanocarpa 'UCONNAM012'*	Ground Hog Black Chokeberry	#5	As Shown	
2	HydQue	*Hydrangea quercifolia*	Oakleaf Hydrangea	#7	As Shown	
5	HydQueM	*Hydrangea quercifolia 'Munchkin'*	Munchkin Oakleaf Hydrangea	#5	As Shown	
7	LeuAxi	*Leucothoe axillaris*	Coastal Doghobble	#3	As Shown	
5	RhoPri	*Rhododendron prinophyllum*	Rhododendron	#3	As Shown	
26	RhuAroG	*Rhus aromatica 'Gro-Low'*	Gro-Low Fragrant Sumac	#3	As Shown	
Perennials						
67	ast cor A	*Aster cordifolius 'Avondale'*	Blue Wood Aster	#1	18" o.c.	
49	eup amy R	*Euphorbia amygdaloides var. robbiae*	Wood Spurge	#1	12" o.c.	
1	pac obo	*Packera obovata*	Roundleaf Ragwort	#1	12" o.c.	
54	pyc mut	*Pycnanthemum muticum*	Mountain Mint	#2	18" o.c.	
65	rub cal	*Rubus calycinoides*	Creeping Raspberry	#1	12" o.c.	
31	ver vir	*Latin Name*	Common Name			
Ornamental Grasses						
72	car app	*Carex appalachia*	Appalachian Sedge	#1	12" o.c.	
72	car che	*Carex cherokeensis*	Chreokee Sedge	#1	12" o.c.	
72	car ebu	*Carex eburnea*	Bristle-Leaved Sedge	#1	12" o.c.	
88	car pen	*Carex pensylvanica*	Pennsylvania Sedge	#1	12" o.c.	
42	des fle	*Deschampsia flexuosa*	Wavy Hair Grass	#1	12" o.c.	
Bulbs						
92	all ste	*Allium stellatum*	Prairie Onion	Top Size	12" o.c.	
81	cro tom	*Crocus tommasinianus*	Crocus	Top size	12" o.c.	



PLANTING LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- TREE PROTECTION FENCE
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED DECIDUOUS CANOPY TREE
- PROPOSED UNDERSTORY OR EVERGREEN TREE

PLANTING NOTES

1. ASSUME 18" NEW PLANTING SOIL DEPTH IN ALL PLANT BEDS. ASSUME 30" NEW PLANTING SOIL DEPTH AT ALL NEW TREES.
2. ASSUME ALL SLOPES WILL HAVE EROSION CONTROL FABRIC PER SPECIFICATION

ALL PLANTING, ASSUME:
10% SHRUBS, 7 GAL., 4 FT ON CENTER
30% SHRUBS, 5 GAL., 3 FT ON CENTER
60% PERENNIALS, 1 GAL., 18 IN ON CENTER
50% GROUNDCOVER, 1 QT., 12 IN ON CENTER

MIQUON SCHOOL

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Drawing Set:
PRELIMINARY AND FINAL PLAN

Drawing Title:
UNDERSTORY
PLANTING PLAN

Drawing Number:
L6.1

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PLANT SCHEDULE - RAIN GARDEN 01

Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
19	AroMelGH	*Aronia melanocarpa 'UCONNAM012'*	Ground Hog Black Chokeberry	#5	As Shown
31	CleAlnH	*Clethra alnifolia 'Hummingbird'*	Hummingbird Summersweet	#3	As Shown
3	LinBen	*Lindera benzoin*	Spicebush	#5	As Shown
Perennials					
13	ast bel	*Aster novae-belgii*	New York Aster	#1	24" o.c.
68	eup coe	*Eupatorium coelestinum*	Blue Mistflower	#1	18" o.c.
267	pac obo	*Packera obovata*	Roundleaf Ragwort	#1	12" o.c.
68	phy vir M	*Physostegia virginiana 'Miss Manners'*	Miss Manners Obedient Plant	#2	12" o.c.
Ornamental Grasses					
70	car str	*Carex stricta*	Tussock Sedge	#1	18" o.c.
78	muh rev	*Muhlenbergia reverchonii 'Undaunted'*	Ruby Muhly Grass	#3	24" o.c.

PLANT SCHEDULE - RAIN GARDEN 04

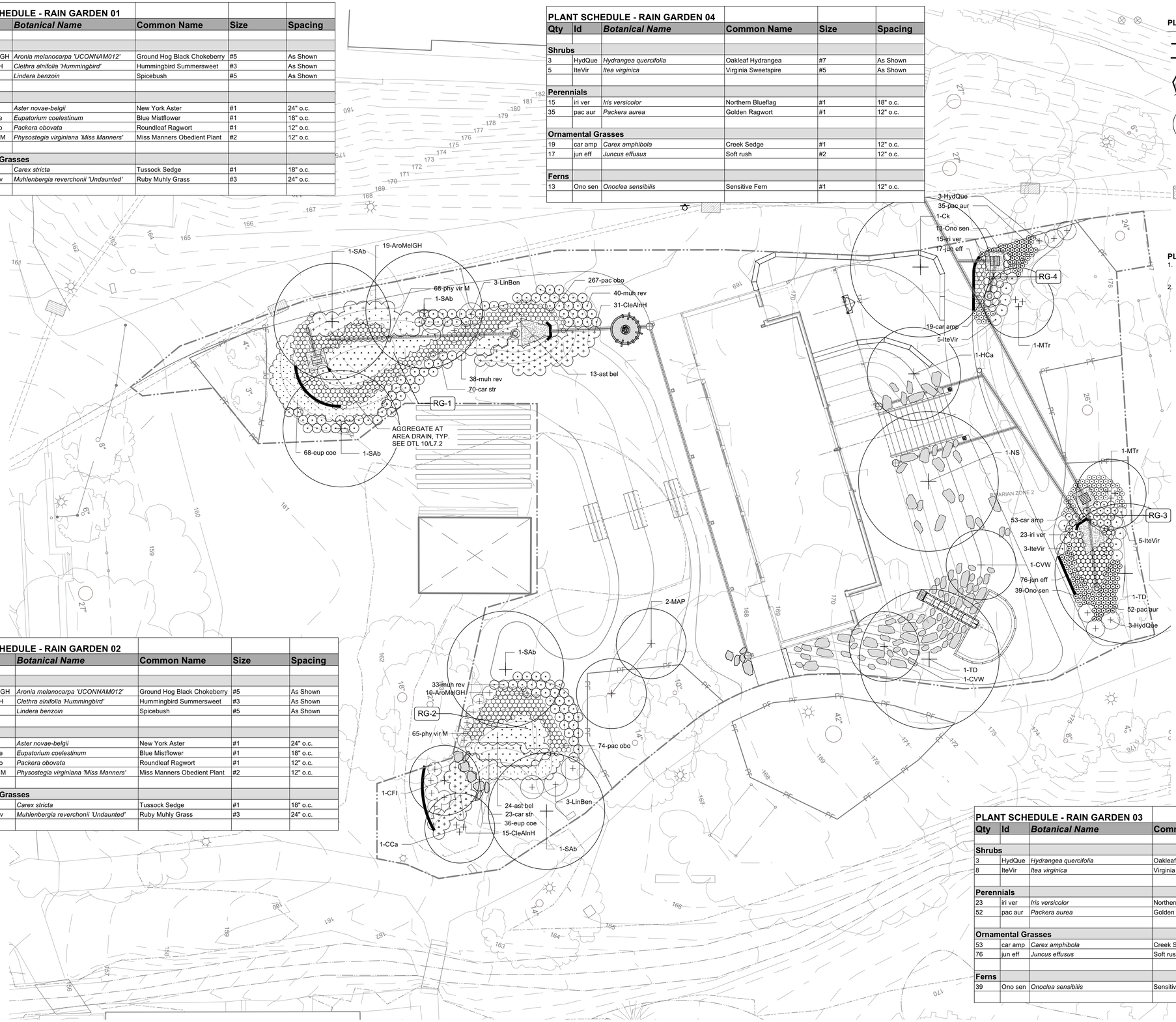
Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
3	HydQue	*Hydrangea quercifolia*	Oakleaf Hydrangea	#7	As Shown
5	IteVir	*Itea virginica*	Virginia Sweetspire	#5	As Shown
Perennials					
15	iri ver	*Iris versicolor*	Northern Blueflag	#1	18" o.c.
35	pac aur	*Packera aurea*	Golden Ragwort	#1	12" o.c.
Ornamental Grasses					
19	car amp	*Carex amphibola*	Creek Sedge	#1	12" o.c.
17	jun eff	*Juncus effusus*	Soft rush	#2	12" o.c.
Ferns					
13	Ono sen	*Onoclea sensibilis*	Sensitive Fern	#1	12" o.c.

PLANT SCHEDULE - RAIN GARDEN 02

Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
10	AroMelGH	*Aronia melanocarpa 'UCONNAM012'*	Ground Hog Black Chokeberry	#5	As Shown
15	CleAlnH	*Clethra alnifolia 'Hummingbird'*	Hummingbird Summersweet	#3	As Shown
3	LinBen	*Lindera benzoin*	Spicebush	#5	As Shown
Perennials					
24	ast bel	*Aster novae-belgii*	New York Aster	#1	24" o.c.
36	eup coe	*Eupatorium coelestinum*	Blue Mistflower	#1	18" o.c.
74	pac obo	*Packera obovata*	Roundleaf Ragwort	#1	12" o.c.
65	phy vir M	*Physostegia virginiana 'Miss Manners'*	Miss Manners Obedient Plant	#2	12" o.c.
Ornamental Grasses					
23	car str	*Carex stricta*	Tussock Sedge	#1	18" o.c.
33	muh rev	*Muhlenbergia reverchonii 'Undaunted'*	Ruby Muhly Grass	#3	24" o.c.

PLANT SCHEDULE - RAIN GARDEN 03

Qty	Id	*Botanical Name*	Common Name	Size	Spacing
Shrubs					
3	HydQue	*Hydrangea quercifolia*	Oakleaf Hydrangea	#7	As Shown
8	IteVir	*Itea virginica*	Virginia Sweetspire	#5	As Shown
Perennials					
23	iri ver	*Iris versicolor*	Northern Blueflag	#1	18" o.c.
52	pac aur	*Packera aurea*	Golden Ragwort	#1	12" o.c.
Ornamental Grasses					
53	car amp	*Carex amphibola*	Creek Sedge	#1	12" o.c.
76	jun eff	*Juncus effusus*	Soft rush	#1	12" o.c.
Ferns					
39	Ono sen	*Onoclea sensibilis*	Sensitive Fern	#1	12" o.c.



PLANTING LEGEND

- SITE ENCLOSURE FENCE / LIMIT OF WORK
- TREE PROTECTION FENCE
- EXISTING TREE TO REMAIN AND BE PROTECTED
- PROPOSED DECIDUOUS CANOPY TREE
- PROPOSED UNDERSTORY OR EVERGREEN TREE
- ORNAMENTAL AGGREGATE

PLANTING NOTES

1. ASSUME 18" NEW PLANTING SOIL DEPTH IN ALL PLANT BEDS. ASSUME 30" NEW PLANTING SOIL DEPTH AT ALL NEW TREES.
2. ASSUME ALL SLOPES WILL HAVE EROSION CONTROL FABRIC PER SPECIFICATION

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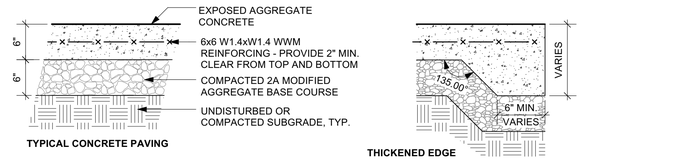
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: RAIN GARDEN PLANTING PLAN

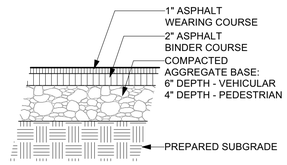
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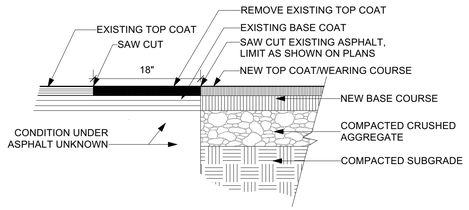


1 L7.0 CIP CONCRETE PAVEMENT, TYP.
Scale: 1" = 1'-0"

NOTE:
REFER TO DETAIL 3/L7.0 FOR ASPHALT SPLICE. DO THIS AT ALL AREAS WHERE PROPOSED ASPHALT MEETS EXISTING.

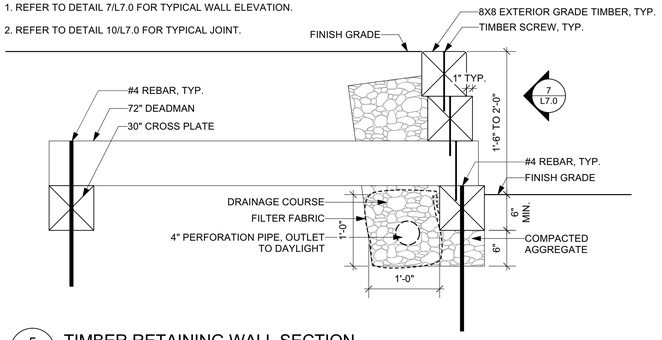


2 L7.0 ASPHALT PAVEMENT, TYP.
Scale: 1" = 1'-0"

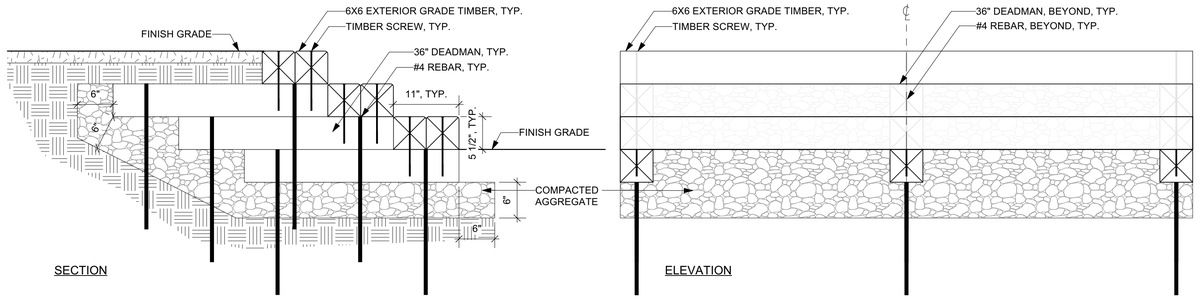


3 L7.0 ASPHALT SPLICE
Scale: 1" = 1'-0"

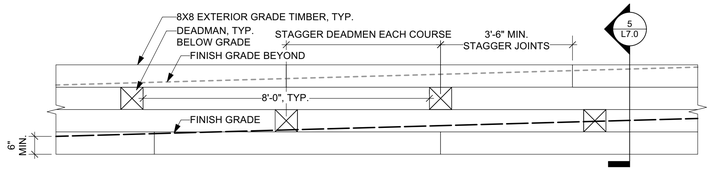
NOTES:
1. REFER TO DETAIL 7/L7.0 FOR TYPICAL WALL ELEVATION.
2. REFER TO DETAIL 10/L7.0 FOR TYPICAL JOINT.



5 L7.0 TIMBER RETAINING WALL SECTION
Scale: 1" = 1'-0"

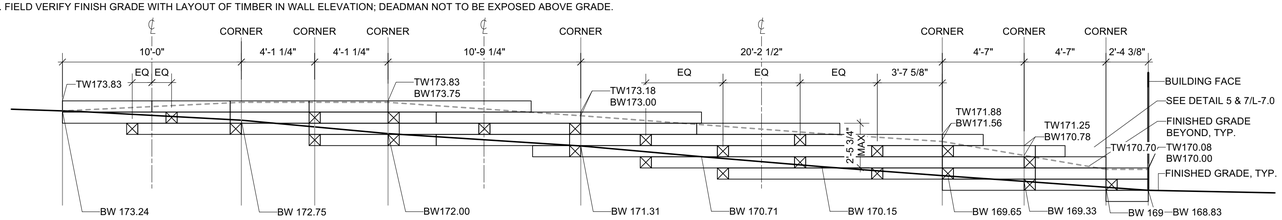


6 L7.0 TIMBER SITE STAIRS
Scale: 1" = 1'-0"



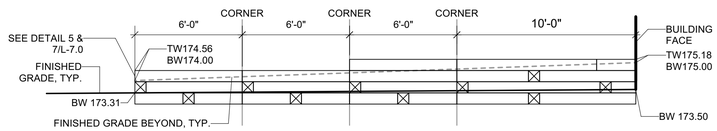
7 L7.0 TIMBER RETAINING WALL ELEVATION, TYP.
Scale: 1/2" = 1'-0"

NOTES:
1. CUT WOOD AS NECESSARY TO ACCOMMODATE CORNERS. PROVIDE TIMBER SCREWS AT JOINTS.
2. TOP OF WALL NOT TO EXCEED 2'-5 3/4" HEIGHT.
3. FIELD VERIFY FINISH GRADE WITH LAYOUT OF TIMBER IN WALL ELEVATION; DEADMAN NOT TO BE EXPOSED ABOVE GRADE.



8 L7.0 TIMBER RETAINING WALL #1
Scale: 1/4" = 1'-0"

NOTES:
1. CUT WOOD AS NECESSARY TO ACCOMMODATE CORNERS. PROVIDE TIMBER SCREWS AT JOINTS.
2. MAX WALL HEIGHT NOT TO EXCEED 2'-5 3/4".



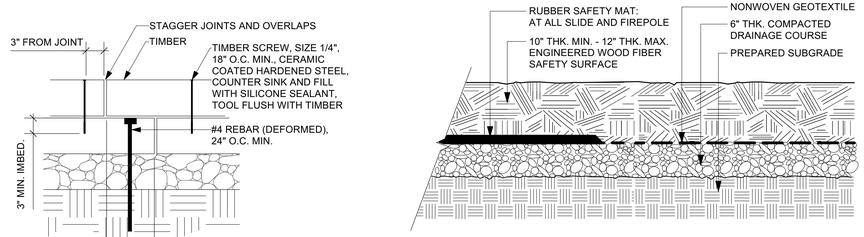
9 L7.0 TIMBER RETAINING WALL #2
Scale: 1/4" = 1'-0"

NOTE:

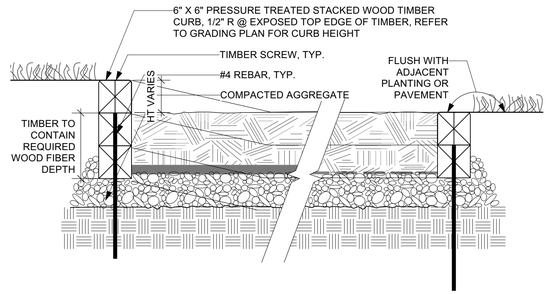
1. INSTALL RUBBER SAFETY MAT PER MANUFACTURER'S INSTALLATION GUIDELINES.

2. INSTALL ENGINEERED WOOD FIBER SAFETY SURFACE OVER RUBBER MAT TO SPECIFIED HEIGHT.

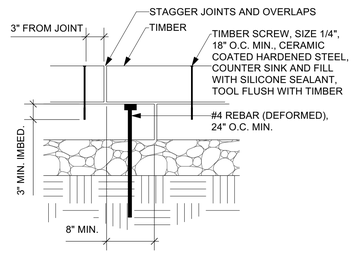
3. REFER TO DETAIL 12/L7.0 FOR TIMBER CURB EDGE AT SAFETY SURFACE.



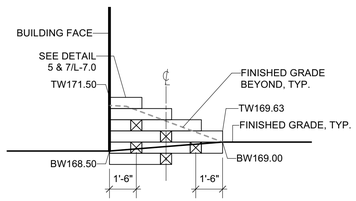
11 L7.0 ENGINEERED WOOD FIBER SAFETY SURFACE, TYP
Scale: 1" = 1'-0"



12 L7.0 TIMBER CURB
Scale: 1" = 1'-0"



10 L7.0 TIMBER JOINTS
Scale: 1" = 1'-0"



13 L7.0 TIMBER RETAINING WALL #3
Scale: 1/4" = 1'-0"

MIQUON SCHOOL

HEART OF THE CAMPUS

2025 HARTS LN, CONSHOHOCKEN, PA 19428

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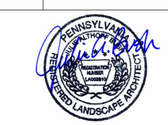
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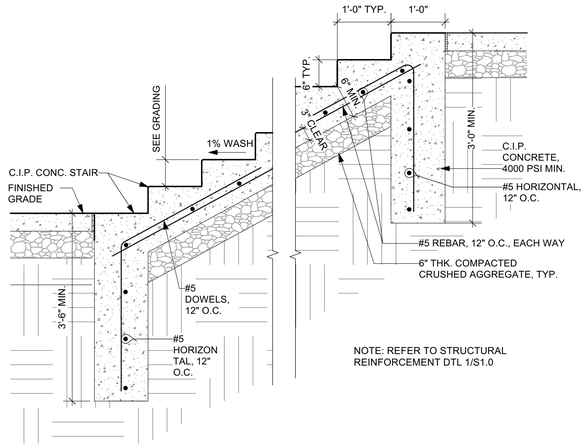
Date:
08/04/2023

Drawing Set:
PRELIMINARY AND FINAL PLAN

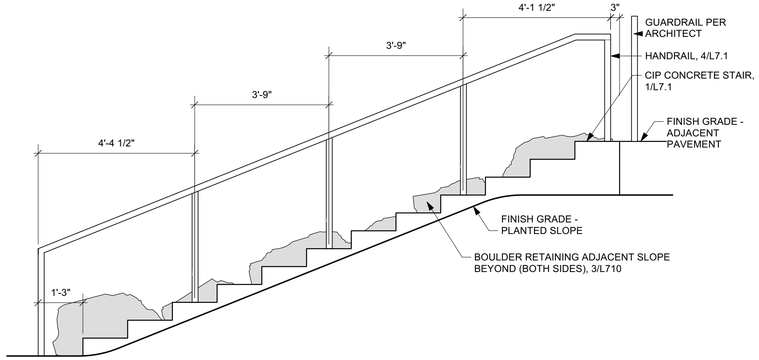
Drawing Title:
SITE DETAILS

Drawing Number:
L7.0

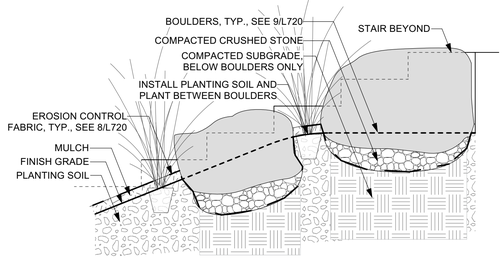
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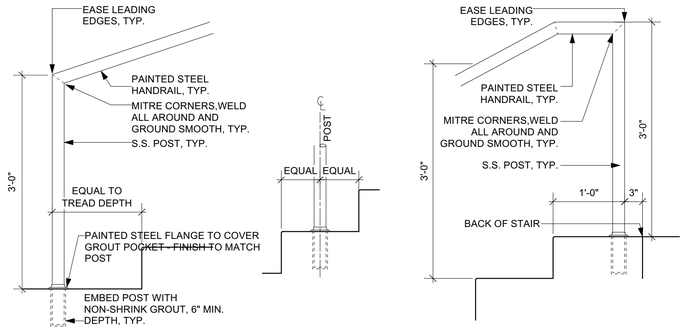
1 L7.1 **CONCRETE STAIR**
Scale: 3/4" = 1'-0"



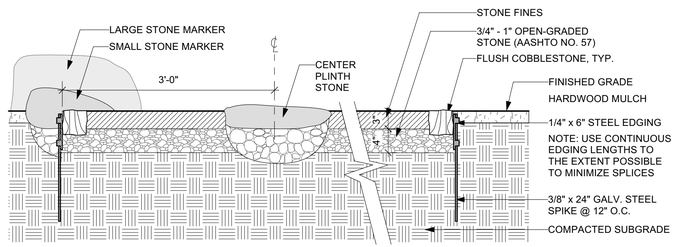
2 L7.1 **STAIR HANDRAIL**
Scale: 1/2" = 1'-0"



3 L7.1 **BOULDER RETAINING EDGE AT STAIR**
Scale: 3/4" = 1'-0"

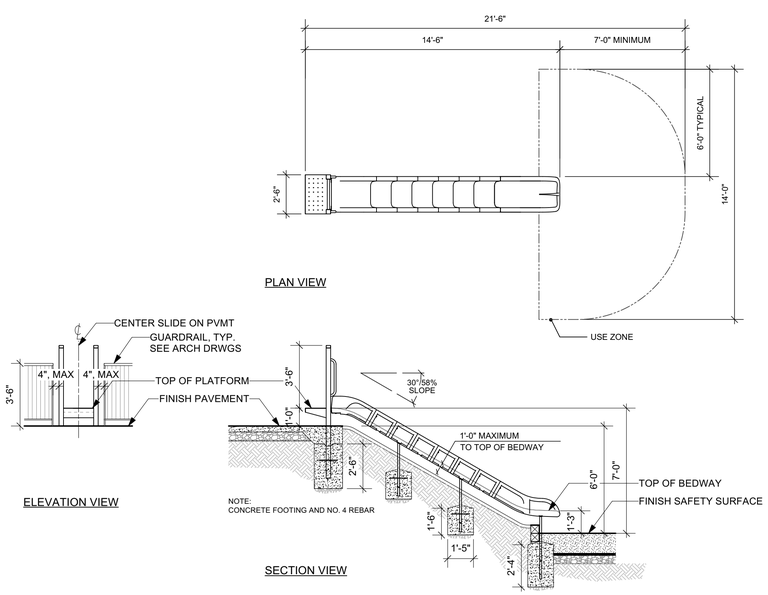


POST AT END OF STAIR **INTERMEDIATE POST** **POST AT TOP OF STAIR**

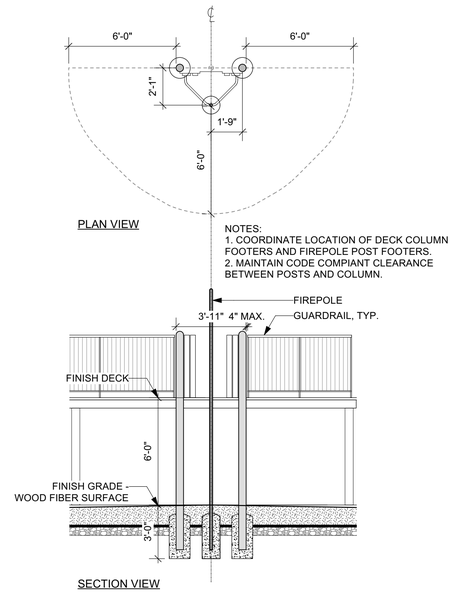


4 L7.1 **HANDRAIL**
Scale: 1" = 1'-0"

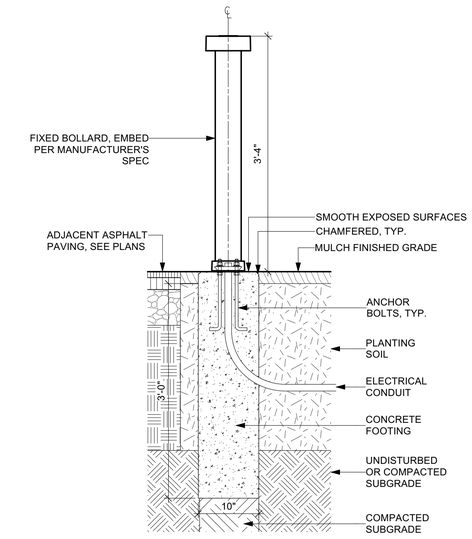
5 L7.1 **SUN DIAL: STABILIZED STONE FINES AND COBBLESTONE EDGE**
Scale: 1" = 1'-0"



6 L7.1 **SLIDE**
Scale: 1/4" = 1'-0"



7 L7.1 **FIREPOLE**
Scale: 1/4" = 1'-0"



8 L7.1 **LIGHT BOLLARD**
Scale: 1" = 1'-0"

MIQUON SCHOOL

HEART OF THE CAMPUS

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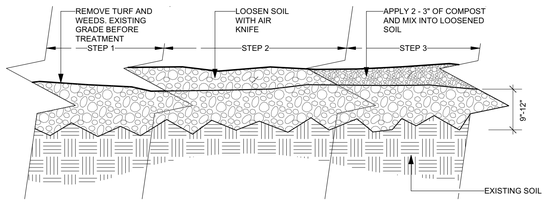
Date: 08/04/2023

Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: SITE DETAILS

Drawing Number: L7.1

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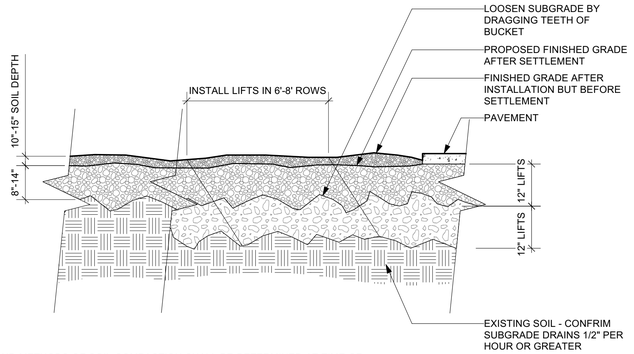


NOTES:

1. PRIOR TO THE START OF WORK REMOVE ALL THATCH, SOD, AND/OR WEEDS.
2. LOOSEN SOIL WITH AIR KNIFE OR APPROVED EQUAL TO A DEPTH OF 9 - 12" AND WORK AROUND ENCOUNTERED ROOTS.
3. APPLY 2 - 3" OF COMPOST OVER LOOSENED SOIL. USING AN AIR KNIFE MIX COMPOST INTO LOOSENED SOIL.
4. WATER ENTIRE ROOT ZONE AT END OF EACH WORK DAY.
5. SEE PLANTING SOIL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

1 L7.2 MODIFIED EXISTING SOIL - COMPACTED SOIL IN TREE DRIPLINE, TYP.

Scale: 3/4" = 1'-0"

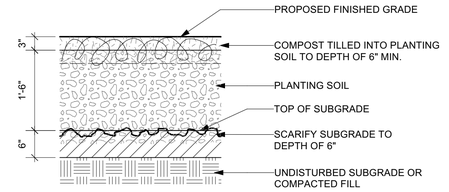


NOTES:

1. MEANS AND METHODS OF SOIL COMPACTION SHALL BE DETERMINED AT TIME OF SOIL MOCK UP.
2. SOIL COMPACTION AFTER INSTALLATION SHALL BE 75 - 250 PSI AT SOIL MOISTURE BETWEEN FIELD CAPACITY AND WILTING POINT.
3. FOR SOIL DEPTHS SEE CIVIL DRAWINGS AND DETAILS.
4. SEE PLANTING SOIL SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

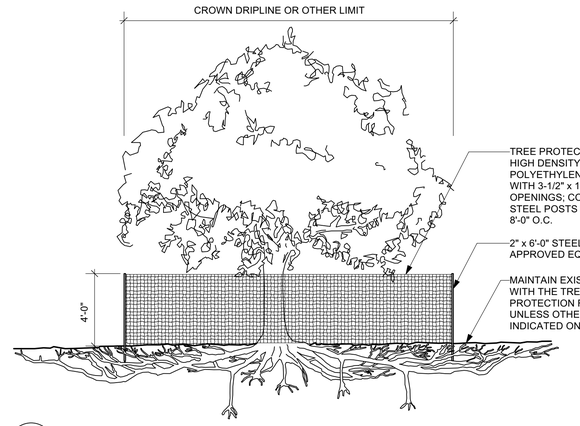
2 L7.2 BIORETENTION SOIL

Scale: 1/2" = 1'-0"



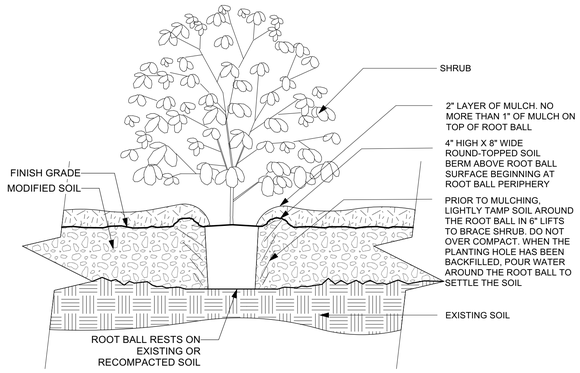
3 L7.2 SOIL PROFILE: MULCHED PLANT BEDS

Scale: 3/4" = 1'-0"



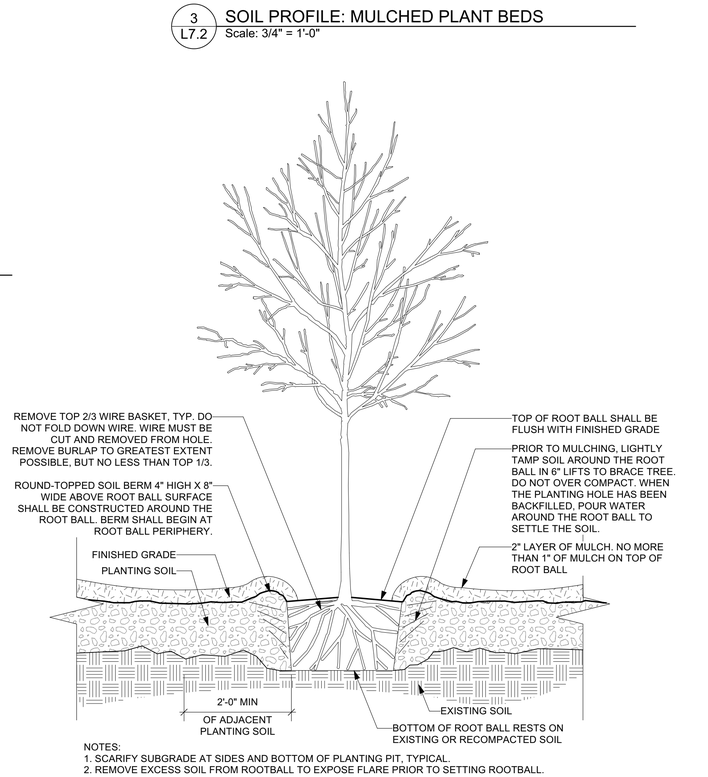
4 L7.2 TREE PROTECTION FENCING, TYP.

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



5 L7.2 SHRUB PLANTING, TYP.

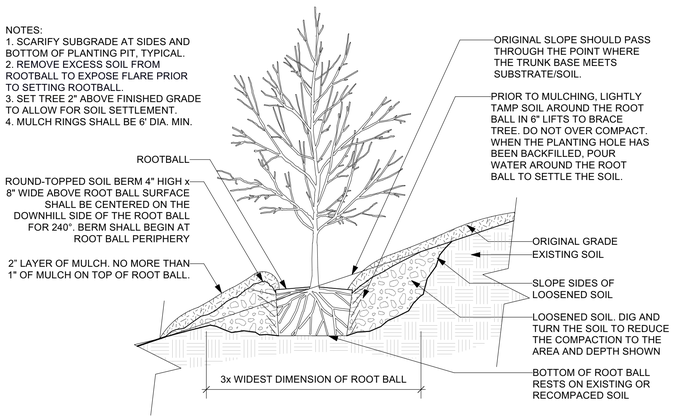
Scale: 3/4" = 1'-0"



NOTES:
1. SCARIFY SUBGRADE AT SIDES AND BOTTOM OF PLANTING PIT, TYPICAL.
2. REMOVE EXCESS SOIL FROM ROOTBALL TO EXPOSE FLARE PRIOR TO SETTING ROOTBALL.

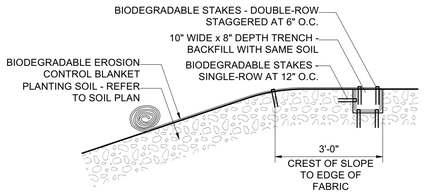
6 L7.2 TREE PLANTING, TYP.

Scale: 3/4" = 1'-0"



7 L7.2 TREE/SHRUB PLANTING ON SLOPE

Scale: 1/2" = 1'-0"

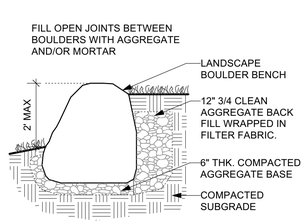


NOTE:

1. OVERLAP SEAMS 4" AND STAKE ALONG ENTIRE LENGTH AT 3' O.C.
2. EXTEND BEYOND TOP AND BOTTOM OF SLOPE BY 3'-0" AND STAKE AT 12" O.C. ALONG LENGTH OF BLANKET.
3. STAKE AT 12" O.C. AT TANGENT OF GRADE CHANGES, TOP AND BOTTOM OF SLOPE.

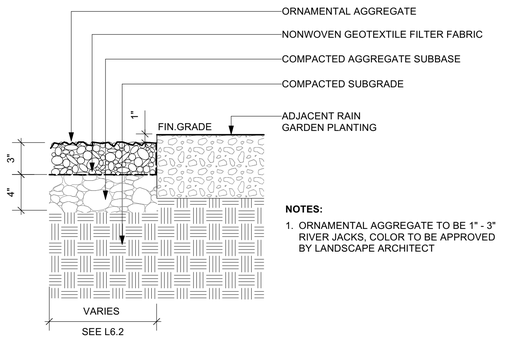
8 L7.2 EROSION CONTROL FABRIC

Scale: 1/2" = 1'-0"



9 L7.2 BOULDER - RETAINING SLOPE

Scale: 1/2" = 1'-0"



NOTES:

1. ORNAMENTAL AGGREGATE TO BE 1" - 3" RIVER JACKS. COLOR TO BE APPROVED BY LANDSCAPE ARCHITECT

10 L7.2 ORNAMENTAL AGGREGATE

Scale: 1 1/2" = 1'-0"

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Drawing Set: PRELIMINARY AND FINAL PLAN

Drawing Title: PLANTING DETAILS

Drawing Number: L7.2

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The Miquon School
Heart of the Campus

Stormwater Management Report

August 4, 2023
Revised September 5, 2023

Prepared by:

Grist, LLC
50 E. Sedgwick St.
Philadelphia, PA 19119



Table of Contents

TABLE OF CONTENTS **3**

I. PROJECT SUMMARY **4**

II. EXISTING CONDITIONS **4**

Site Summary 4
Existing Site Drainage 4
Soils 4

III. PROPOSED STORMWATER MANAGEMENT **5**

Applicable Whitemarsh Township Stormwater Requirements 5
Design Methodology 5
Stormwater Management Design 6
Results 6

APPENDIX A: HYDROCAD MODEL **8**

APPENDIX B: PIPE CAPACITY CALCULATIONS **9**

ATTACHMENTS:

SHEET DA-1: PRE-DEVELOPED DRAINAGE AREA MAP

SHEET DA-2: POST-DEVELOPED DRAINAGE AREA MAP

I. Project Summary

The proposed project is a redevelopment of a portion of the Miquon School campus, 2025 Harts Lane, Conshohocken, PA. Two (2) existing buildings are being demolished and replaced by a single new building. Site features including footpaths, retaining walls, and other structures are proposed to support the new building. Four (4) rain garden stormwater management practices (SMPs) are proposed. These SMPs will collectively manage 24,928 sq. ft. of drainage area, including 7,628 sq. ft. of proposed impervious surfaces. Stormwater is managed in accordance with applicable Whitemarsh Township design requirements.

II. Existing Conditions

Site Summary

Miquon is a K-6 private school, focuses on child's individuality and natural environment. Existing buildings date to the 1930's, when many were built by volunteers. These buildings have held up remarkably well over the decades. Paved paths, a gravel parking lot, and supporting structures and surfaces are interspersed throughout the campus.

The rest of the campus is wooded, with many mature canopy trees, understory trees, shrubs, and groundcover vegetation existing on site. Certain parts of the site also feature steep slopes. A perennial stream, an unnamed tributary to the Schuylkill River, runs north to south near the eastern boundary of the property.

Existing Site Drainage

The site generally drains from north to south. Wooded and improved areas sheet flow with grade from north to south to existing catch basin inlets that are connected by existing storm sewers that discharge to the stream. Groundwater flow is presumed to be from north to south as well. Refer to Drawing DA-1, Pre-Developed Drainage Area Plan, in Appendix A. Drainage areas are summarized in Table 1, below.

Table 1: Pre-Developed Drainage Area 1	
Pervious Area	**Impervious Area**
9,827 sq. ft.	15,641 sq. ft.
TOTAL	**25,468 sq. ft.**

Soils

Based upon site investigation and testing, the site has characteristics typical of this region when considering the mapped and published soil and geologic data. Variability of bedrock depth is typical of the region.

Infiltration testing was not able to be completed because double ring infiltrometers were not able to be set in the existing weathered and fractured rock. Therefore, infiltration is not recommended as a discharge mechanism. Rain gardens contain underdrains that connect to the existing site storm sewer system. However, the rain gardens will not be lined with an impermeable liner; some amount of infiltration will occur, though infiltration is not relied upon as a discharge mechanism in the proposed stormwater design.

III. Proposed Stormwater Management

Applicable Whitemarsh Township Stormwater Requirements

The following stormwater management design requirements are applicable to this project:

1. **Volume Control** (Whitemarsh Township Code, Section 58-14.A): Stormwater volume must be controlled per CG-1 of the PA Stormwater BMP Manual (2005). There must be no increase in stormwater volume discharge from pre-development to post-development conditions for all storms equal to or less than the 2-year, 24-hour storm.
2. **Rate Control** (Whitemarsh Township Code, Section 58-15.A(1)): Post-development discharge rates shall not exceed the predevelopment discharge rates for the 1-, 2-, 5-, 10-, 25-, 50-, and 100-year, 24-hour storm events.
3. **Pipe Capacity** (Whitemarsh Township Code, Section 58-32.C): Pipes must be sized to handle the peak flow rate for the 100-year storm, per Hydraulic Design of Highway Culverts, by FHWA.
4. **Extended Detention** (Whitemarsh Township Code, Section 58-33.A(4)): Runoff from the 1-year, 24-hour storm must be discharged over a minimum of 24 hours.
5. **Water Quality Volume** (Whitemarsh Township Resolution 2004-8.II.F(3)(c)(1)): The Water Quality Volume (WQv) of stormwater runoff must be captured, stored, and treated. WQv is calculated per the formula: WQv= 0.17(Rv)(A),

   Where,

   A = project area in acres = 0.45 acres
   Rv = 0.05 + 0.009 (I) = 0.05 + 0.009 (0.414) = 0.054
   I = % impervious = 8,092 / 19,556 = 41.4%

   WQv = 0.17 (0.054) (0.45) = 0.004 ac.ft. = **174 cu. ft.**

Design Methodology

Stormwater volumes and peak discharge rates are calculated using the National Resources Conservation Service (NRCS) Soil Cover Complex method. In accordance with Whitemarsh Township design standards, non-forested pervious, pre-developed areas are modeled as Meadow, with a Curve Number of 58. In addition, 20 percent of existing impervious pre-developed areas are also modeled as Meadow, again with a Curve Number of 58. Precipitation amounts are based on NOAA Atlas 14, Conshohocken (Station ID: 36-1737) data. Refer to Table 2, below.

Table 2: Precipitation Data

	1-year	2-year	5-year	10-year	25-year	50-year	100-year
Precipitation (inches)	2.72	3.28	4.12	4.82	5.82	6.67	7.58

Times of Concentration of six (6) minutes were used for all post-development drainage areas. This represents a conservative assumption for the calculation of post-development peak discharge rates. Actual Times of Concentration for post-development drainage areas, if used, would be longer than six minutes, and would result in lower calculated post-development peak discharge rates.

Pipes are sized to safely convey a 100-year, 5-minute storm (8.52 inches per hour per PADOT Publication 584, Table 7A.4(b)) peak intensity using the Rational Method.

Stormwater Management Design

SMPs are designed to comply with the design requirements noted above. Roof drains from the proposed building are connected to rain gardens RG-1 and RG-3; other impervious surfaces sheet flow to rain gardens RG-1, 3, and 4. Pervious areas within the Limits of Disturbance as well as certain other pervious areas drain to all rain gardens. Certain smaller drainage areas, pervious and impervious, are not controlled.

The most notable unmanaged area is the area that is disturbed to install the proposed new water service and fire hydrant. The existing surface for this installation is impervious, and the impervious surface will be replaced in kind.

Rain Gardens RG-1, 3, and 4 are designed to statically store a certain volume of runoff below the outlet grate, which is the lowest discharge control in each. These Rain Gardens also contain perforated underdrains, to convey water that has filtered through the stormwater soil slowly out to the existing storm sewer system.

Rain Garden RG-2 collects and manages pervious runoff that sheet flows to it from adjacent areas.

The porosity of bioretention soils and sand layers used in rain gardens is 20 percent. A safe overflow for larger storms is provided by concrete curb level spreaders, which direct overflow runoff safely to the surrounding campus areas, and ultimately drain to the existing storm sewer system and creek.

Refer to Drawing DA-2, Post-Developed Drainage Area Plan, in Appendix A, and Table 3, below.

Table 3: Post-Developed Drainage Areas

Pervious		**Impervious**	
DA Number	**Area (sq. ft.)**	**DA Number**	**Area (sq. ft.)**
DAP-5	1,119	DAI-2	1,745
DAP-9	1,633	DAI-3	1,331
DAP-10	1,367	DAI-4	539
DAP-11	669	DAI-6	209
DAP-13	4,127	DAI-8	249
DAP-14	4,708	DAI-12	342
DAP-15	3,424	DAI-17	1,740
DAP-16	475	DAI-18	1,791
SUBTOTAL	**17,522**	**SUBTOTAL**	**7,949**
TOTAL	**25,468 sq. ft.**		

Results

The Whitemarsh Township design requirements discussed above are met and exceeded, as shown in the attached HydroCAD model report and summarized below.

Table 4: Volume Control Results

Pre-Developed 2-year Runoff Volume	Post-Developed 2-year Runoff Volume
2,178 cu. ft.	1,917 cu. ft.

The post-developed 2-year runoff volume is less than the pre-developed runoff volume.

Table 5: Rate Control Results

	Pre-Developed Rate (cfs)	Post-Developed Rate (cfs)
1-year	0.52	0.52
2-year	0.81	0.73
5-year	1.30	1.14
10-year	1.73	1.62
25-year	2.38	2.20
50-year	2.96	2.72
100-year	3.58	3.30

The post-developed peak rate is less than or equal to the pre-developed peak rate for all storms.

The post-developed 1-year storm discharge extends **24.08 hours**, exceeding the minimum extended detention time of 24 hours.

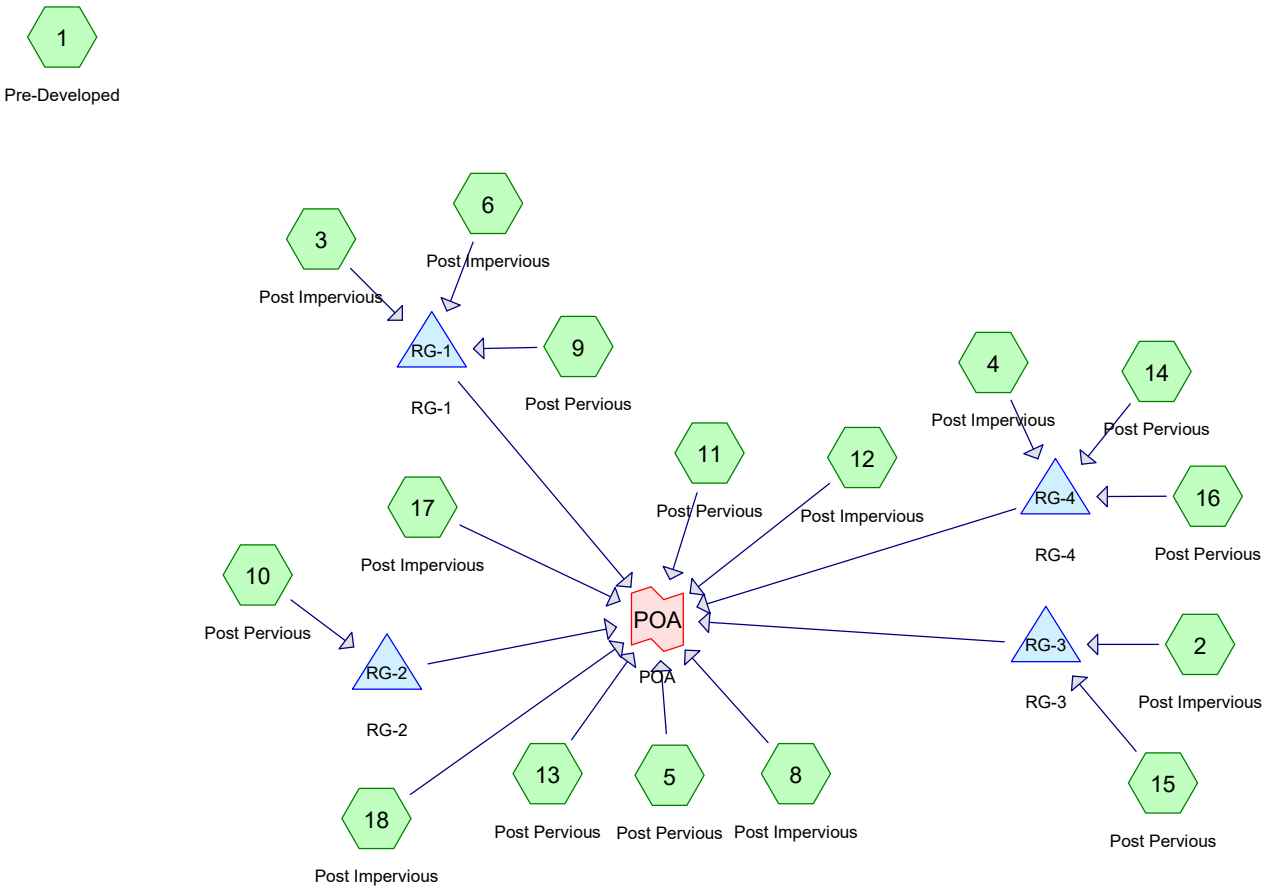
Table 6: Water Quality Volume

SMP	WQv (cu. ft.)
RG-1	729
RG-2	329
RG-3	169
RG-4	121
Total	**1,348**

The proposed WQv (1,348 cu. ft.) exceeds the required WQv (173 cu. ft.)

Pipe capacity calculations are attached in Appendix B.

Appendix A: HydroCad Model



Subcat Reach Pond Link

Routing Diagram for Miquon SWM_2023-09-05
Prepared by Grist, Printed 9/1/2023
HydroCAD® 10.20-3c s/n 11476 © 2023 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-year	Type II 24-hr		Default	24.00	1	2.72	2
2	2-year	Type II 24-hr		Default	24.00	1	3.28	2
3	5-year	Type II 24-hr		Default	24.00	1	4.12	2
4	10-year	Type II 24-hr		Default	24.00	1	4.82	2
5	25-year	Type II 24-hr		Default	24.00	1	5.82	2
6	50-year	Type II 24-hr		Default	24.00	1	6.67	2
7	100-year	Type II 24-hr		Default	24.00	1	7.58	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.073	58	20% Pre-developed impervious counted as meadow (1)
0.222	98	80% Pre-developed impervious - Roofs and paved paths (1)
0.079	61	>75% Grass cover, Good, HSG B (15)
0.099	98	Impervious driveway (6, 8, 12, 17, 18)
0.012	98	Impervious porch and path (4)
0.071	98	Impervious rooftop (2, 3)
0.614	58	Meadow, non-grazed, HSG B (1, 5, 9, 10, 11, 13, 14, 16)
1.169	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.692	HSG B	1, 5, 9, 10, 11, 13, 14, 15, 16
0.000	HSG C	
0.000	HSG D	
0.477	Other	1, 2, 3, 4, 6, 8, 12, 17, 18
1.169		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover
0.000	0.000	0.000	0.000	0.073	0.073	20% Pre-developed impervious counted as meadow
0.000	0.000	0.000	0.000	0.222	0.222	80% Pre-developed impervious - Roofs and paved paths
0.000	0.079	0.000	0.000	0.000	0.079	>75% Grass cover, Good
0.000	0.000	0.000	0.000	0.099	0.099	Impervious driveway
0.000	0.000	0.000	0.000	0.012	0.012	Impervious porch and path
0.000	0.000	0.000	0.000	0.071	0.071	Impervious rooftop
0.000	0.614	0.000	0.000	0.000	0.614	Meadow, non-grazed
0.000	**0.692**	**0.000**	**0.000**	**0.477**	**1.169**	**TOTAL AREA**

Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=0.69"
Flow Length=487' Tc=13.0 min CN=73 Runoff=0.52 cfs 0.034 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.008 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.006 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.02 cfs 0.001 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.02 cfs 0.001 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.002 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=0.27"
Tc=6.0 min CN=61 Runoff=0.02 cfs 0.002 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=0.19"
Tc=6.0 min CN=58 Runoff=0.00 cfs 0.000 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.15 cfs 0.008 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=2.49"
Tc=6.0 min CN=98 Runoff=0.16 cfs 0.009 af

Pond RG-1: RG-1 Peak Elev=161.95' Storage=280 cf Inflow=0.14 cfs 0.008 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=160.10' Storage=6 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond RG-3: RG-3 Peak Elev=174.65' Storage=177 cf Inflow=0.17 cfs 0.010 af
Outflow=0.16 cfs 0.006 af

Pond RG-4: RG-4 Peak Elev=172.51' Storage=121 cf Inflow=0.06 cfs 0.004 af
Discarded=0.00 cfs 0.000 af Primary=0.00 cfs 0.001 af Outflow=0.00 cfs 0.002 af

Link POA: POA Inflow=0.52 cfs 0.031 af
Primary=0.52 cfs 0.031 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.078 af Average Runoff Depth = 0.80"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

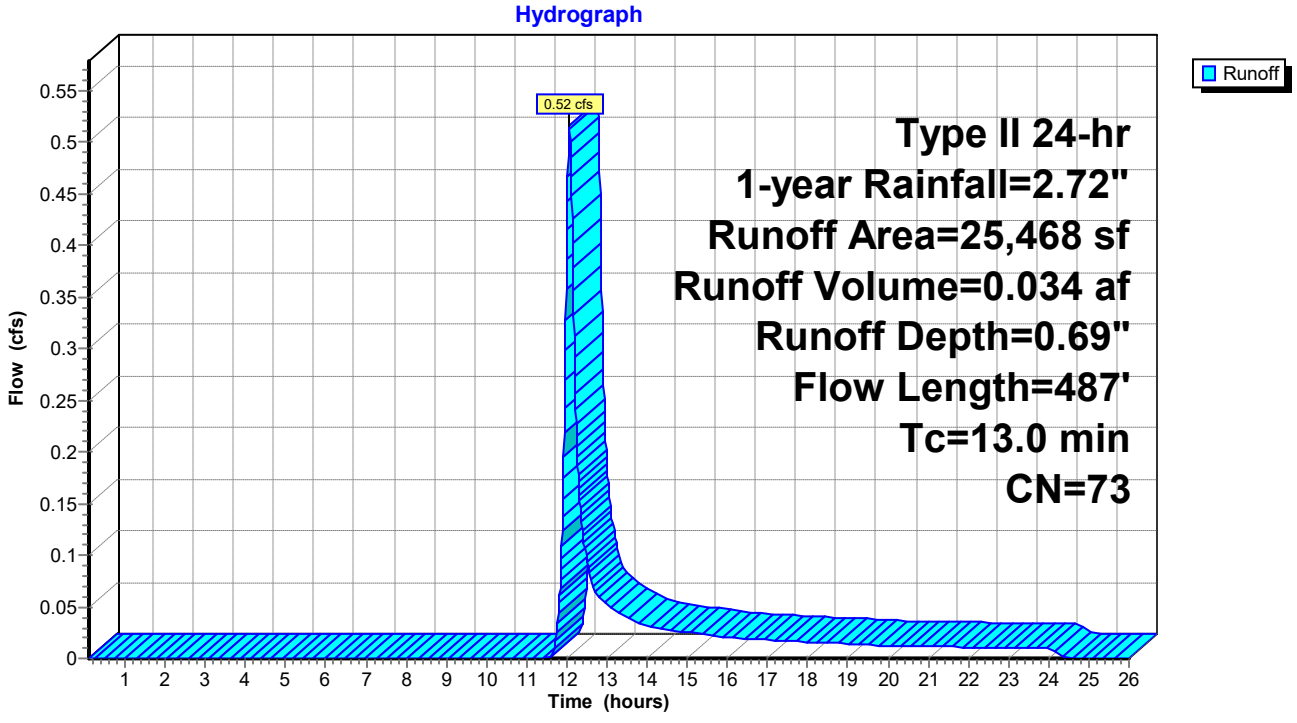
Runoff = 0.52 cfs @ 12.06 hrs, Volume= 0.034 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

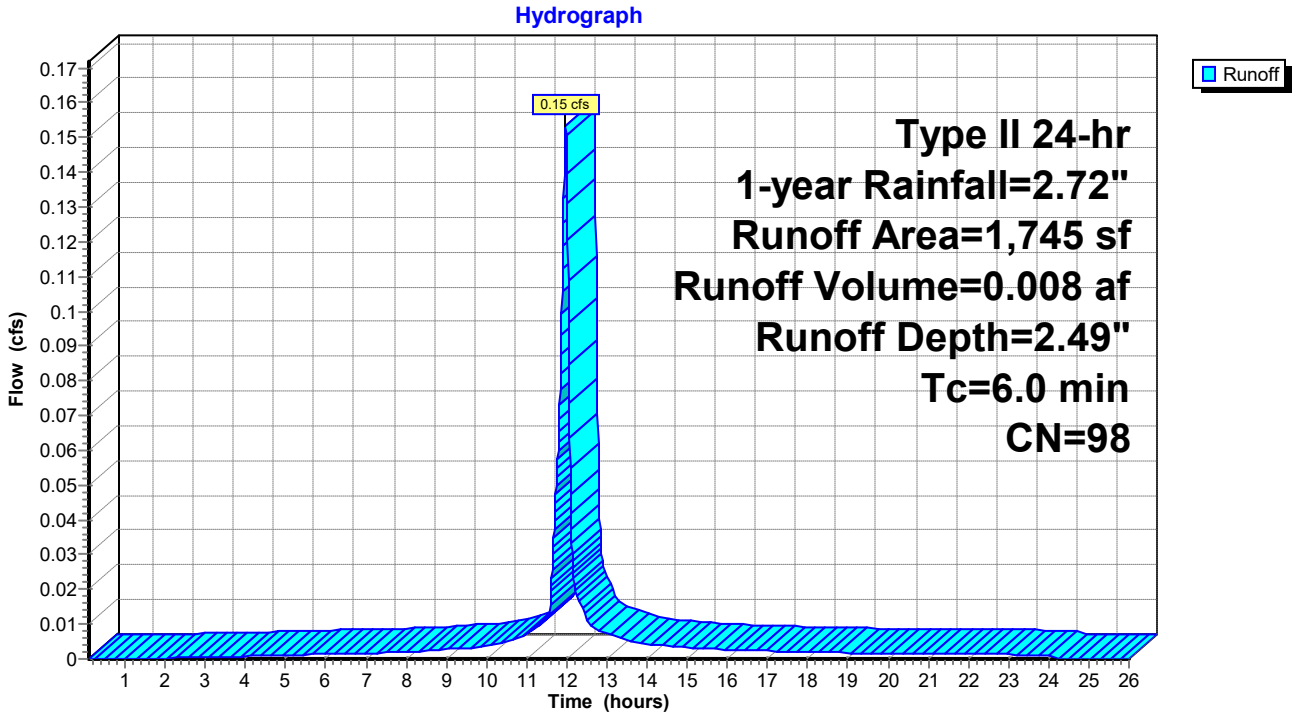
Runoff = 0.15 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 2.49"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

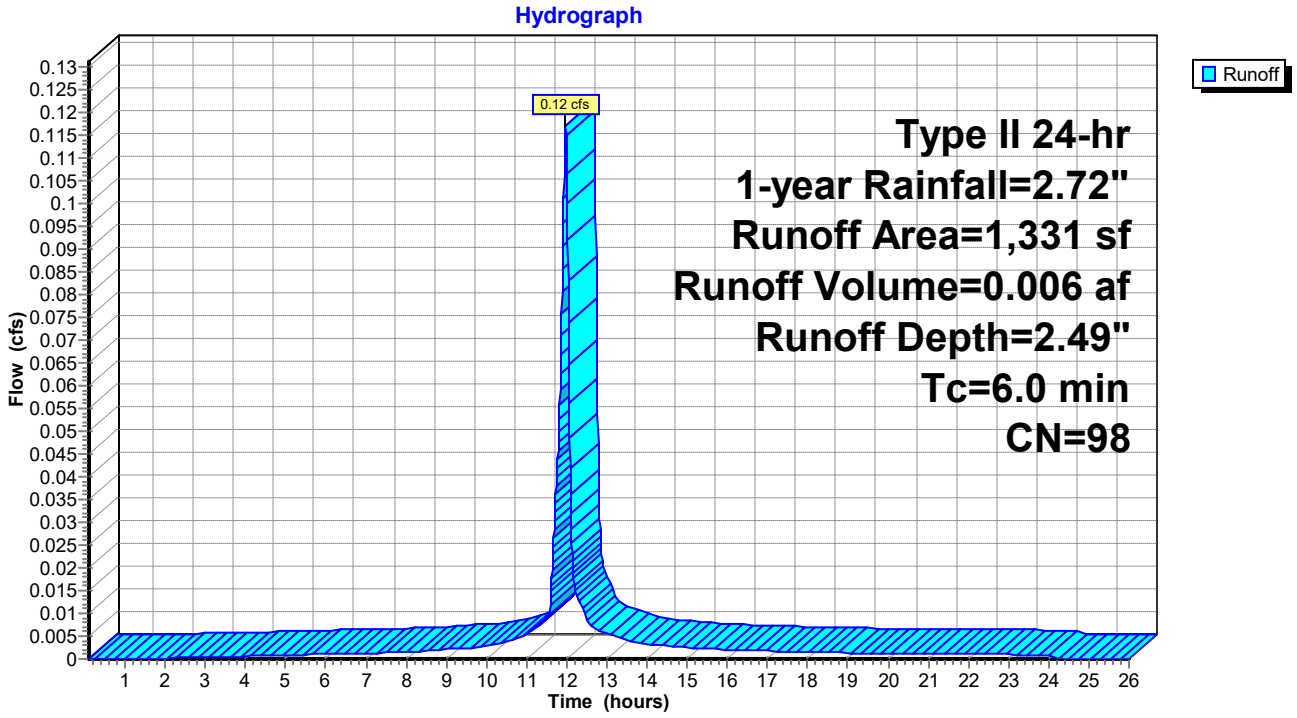
Runoff = 0.12 cfs @ 11.97 hrs, Volume= 0.006 af, Depth= 2.49"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

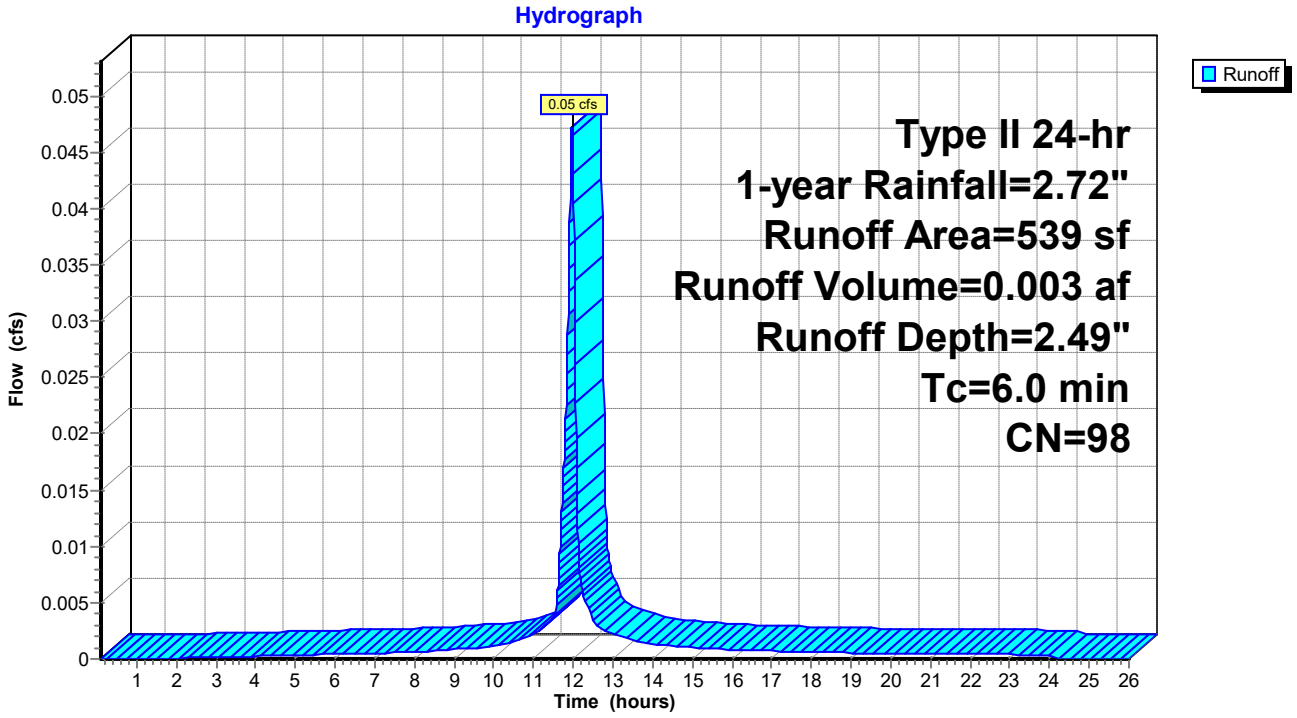
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 2.49"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

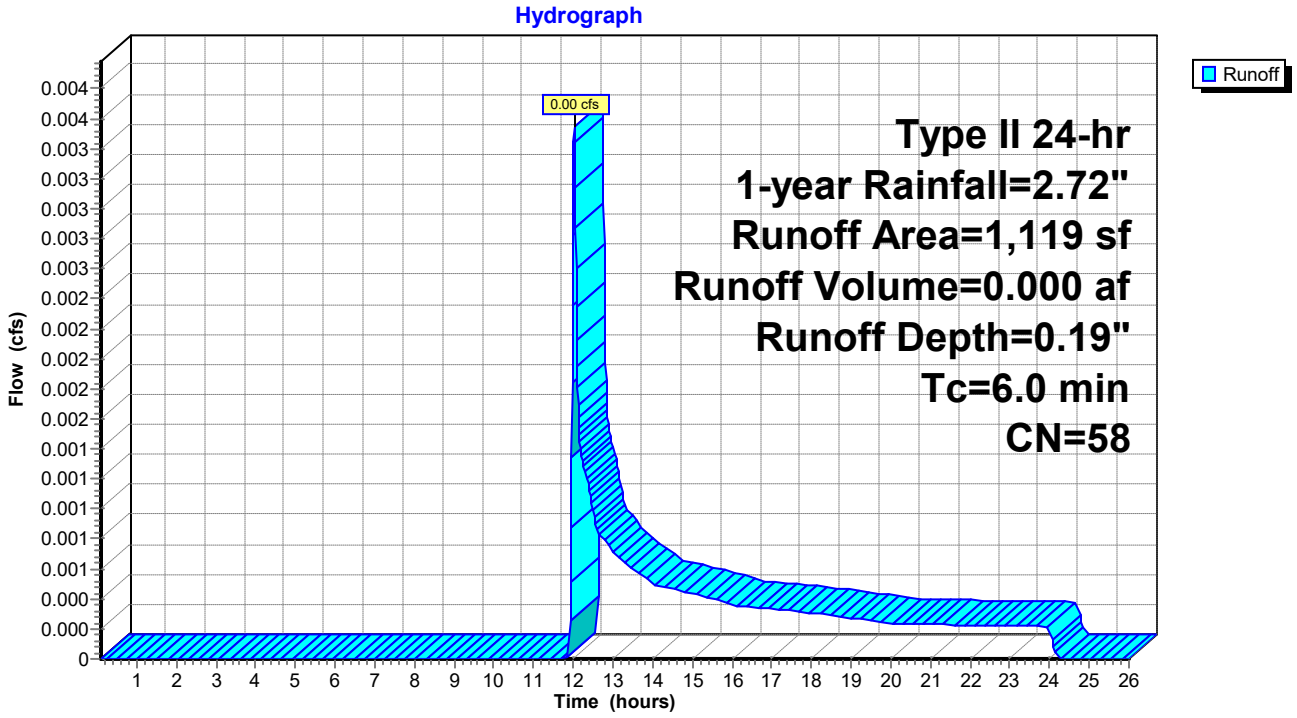
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

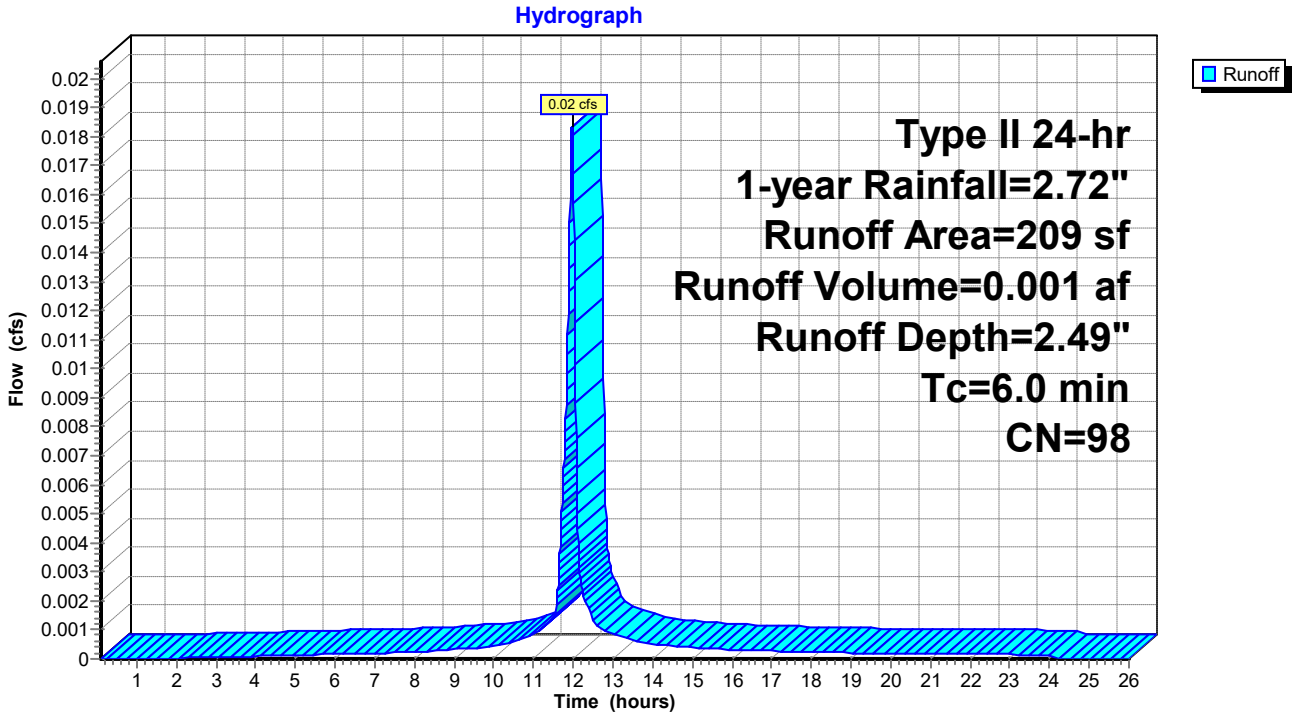
Runoff = 0.02 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 2.49"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

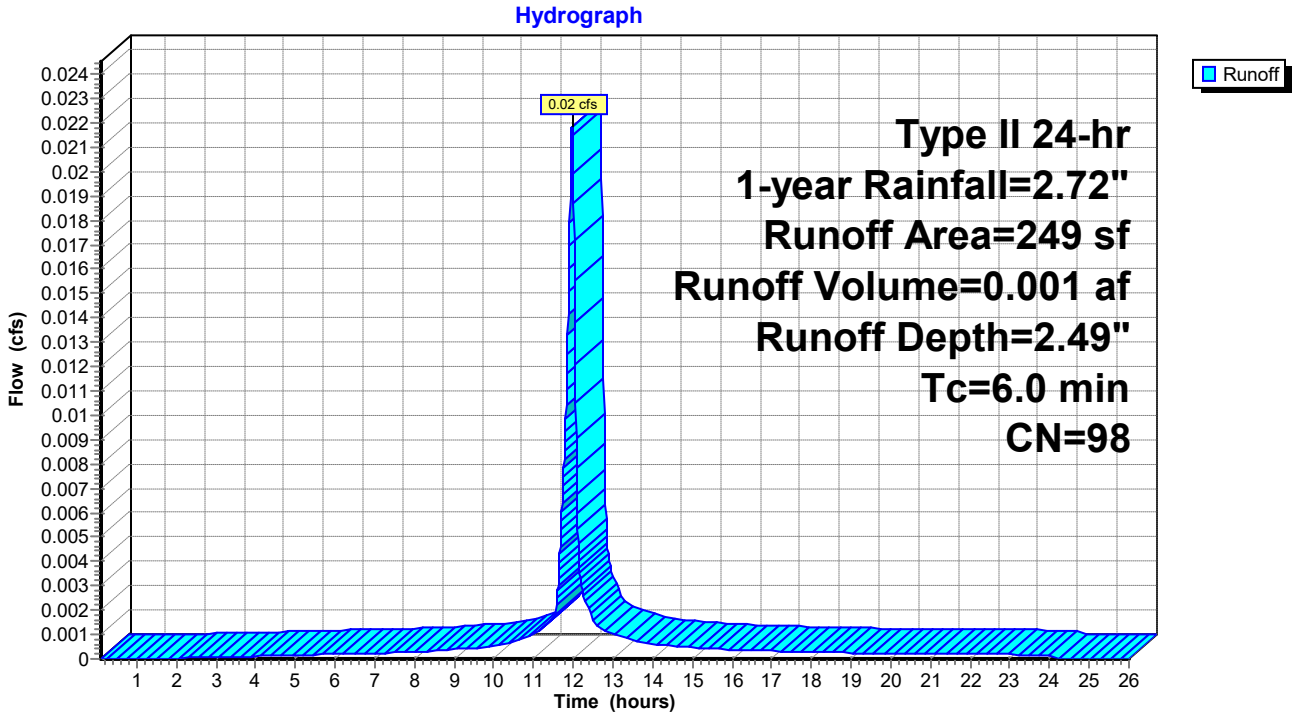
Runoff = 0.02 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

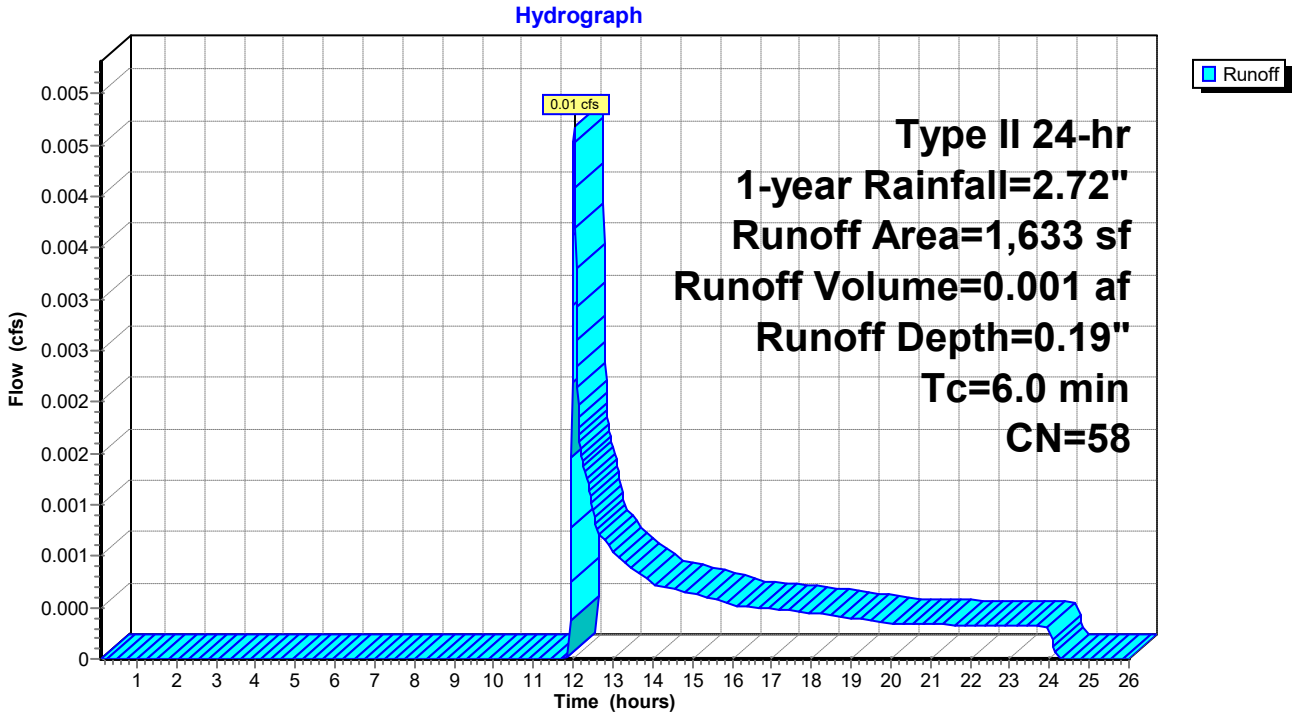
Runoff = 0.01 cfs @ 12.02 hrs, Volume= 0.001 af, Depth= 0.19"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

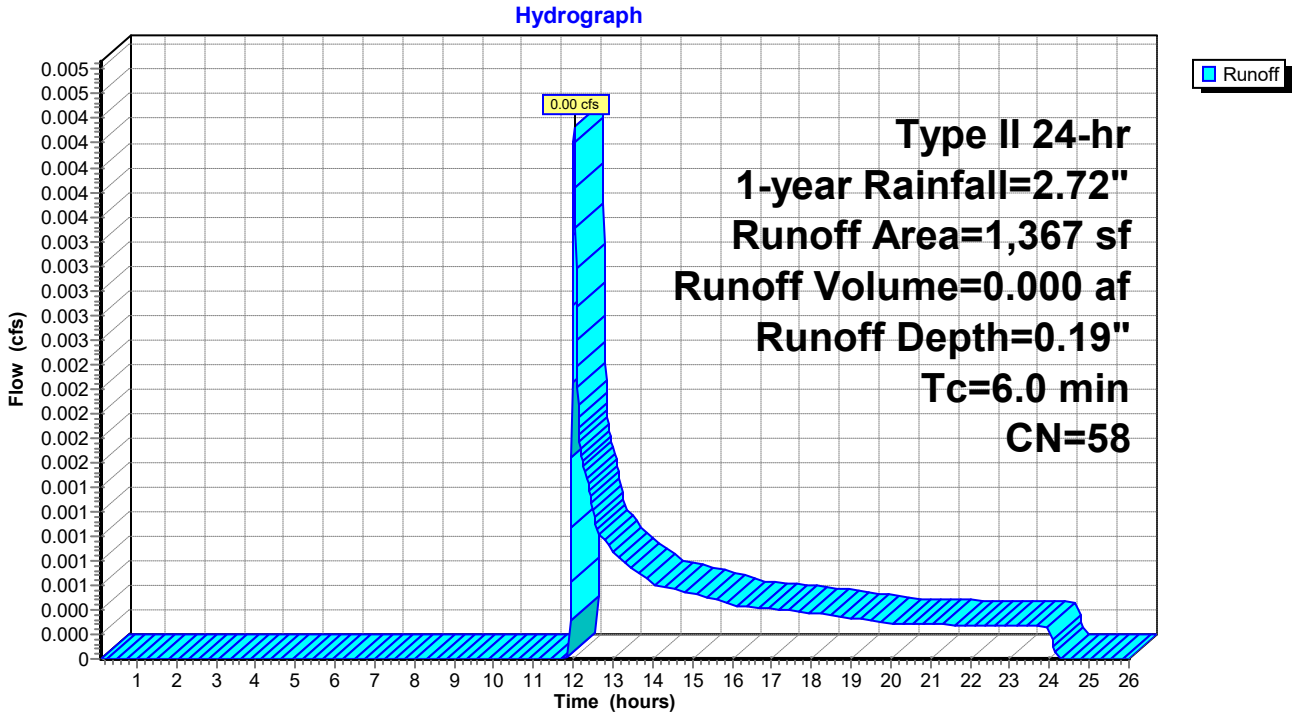
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

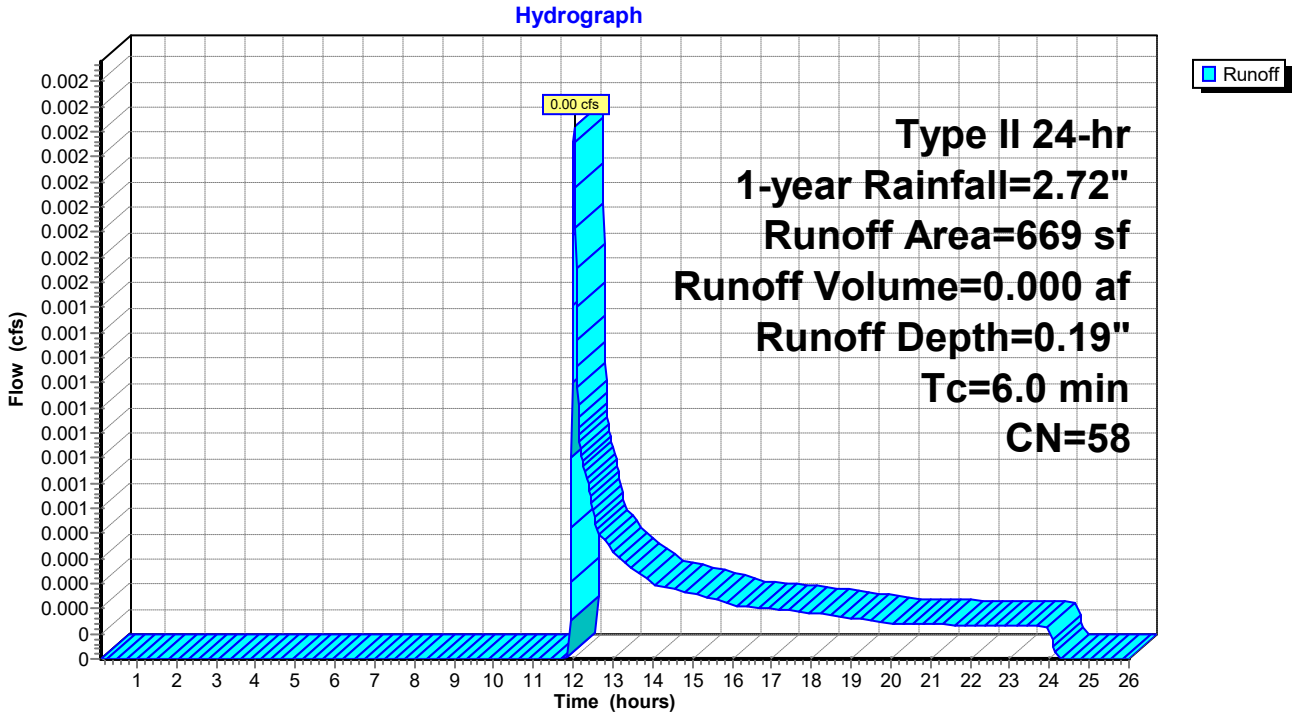
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

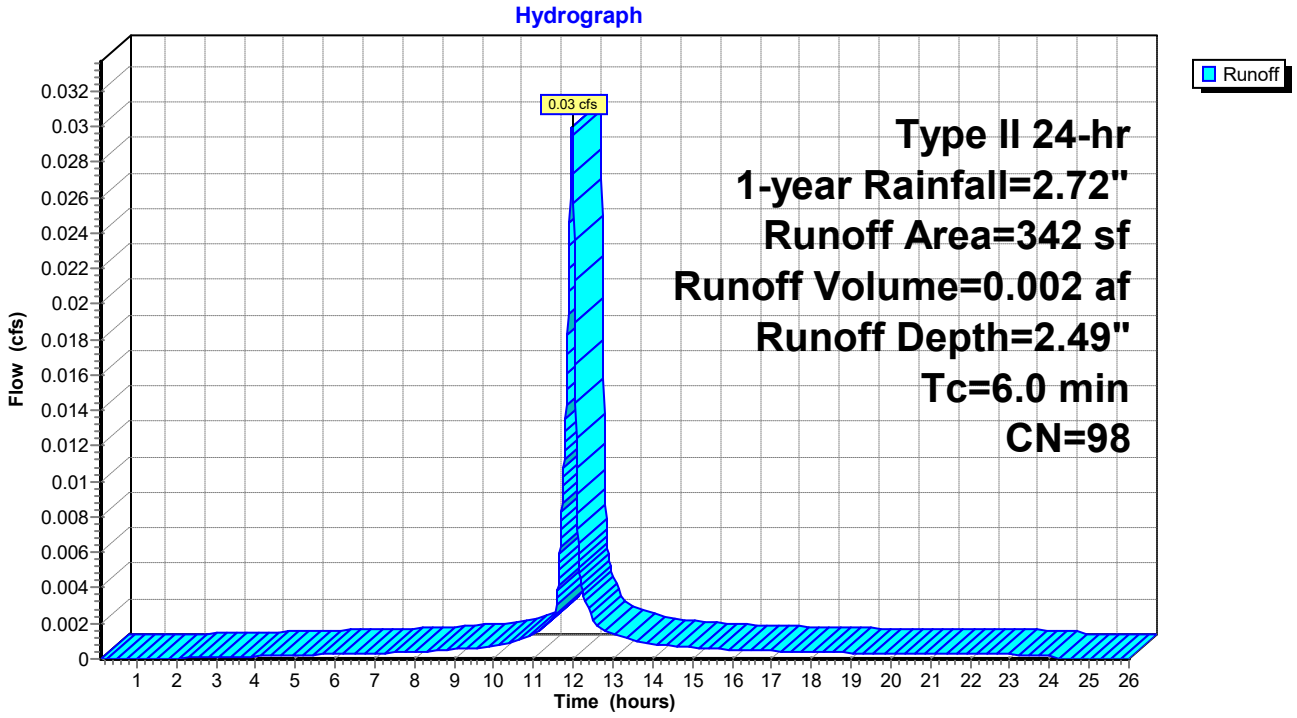
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

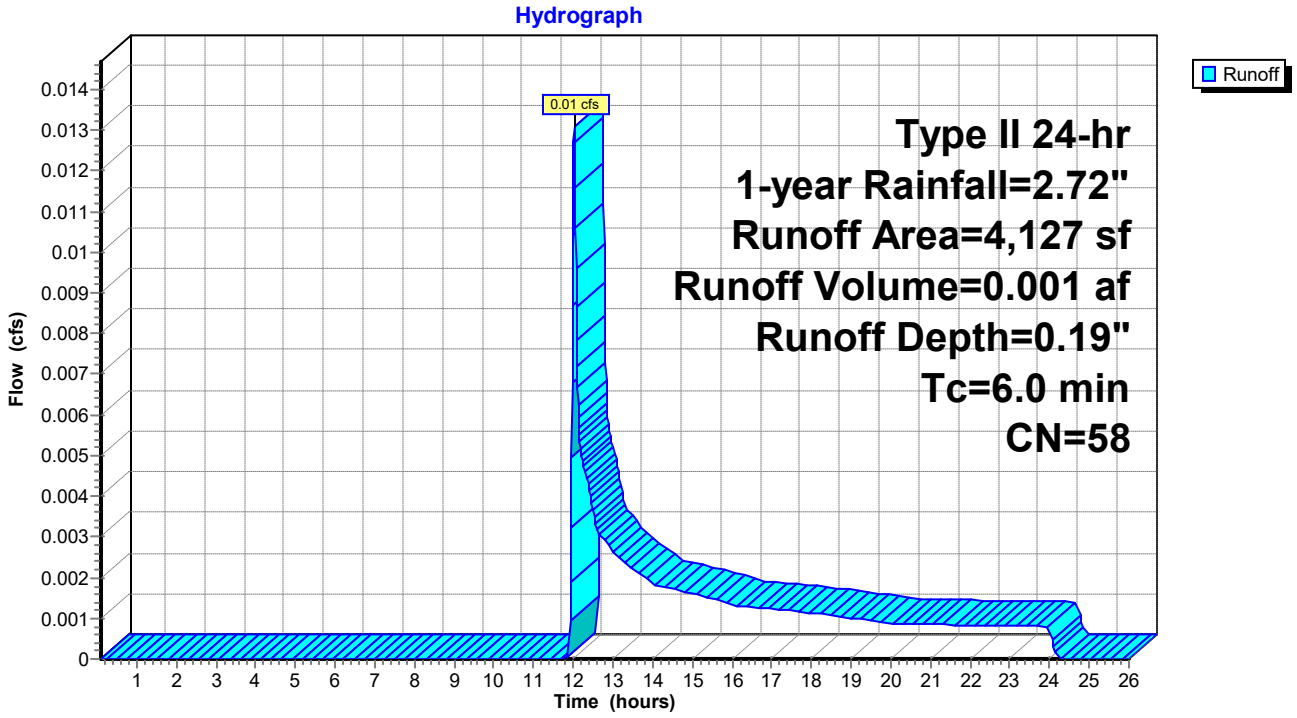
Runoff = 0.01 cfs @ 12.02 hrs, Volume= 0.001 af, Depth= 0.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

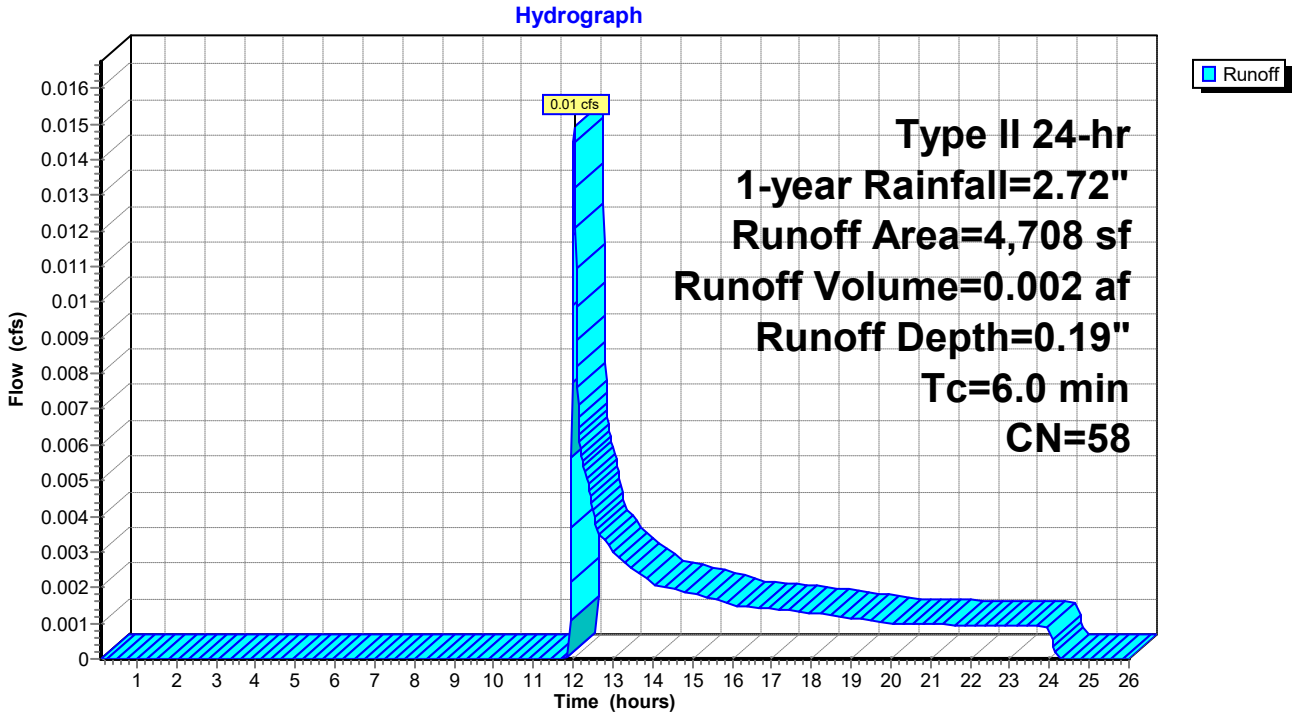
Runoff = 0.01 cfs @ 12.02 hrs, Volume= 0.002 af, Depth= 0.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

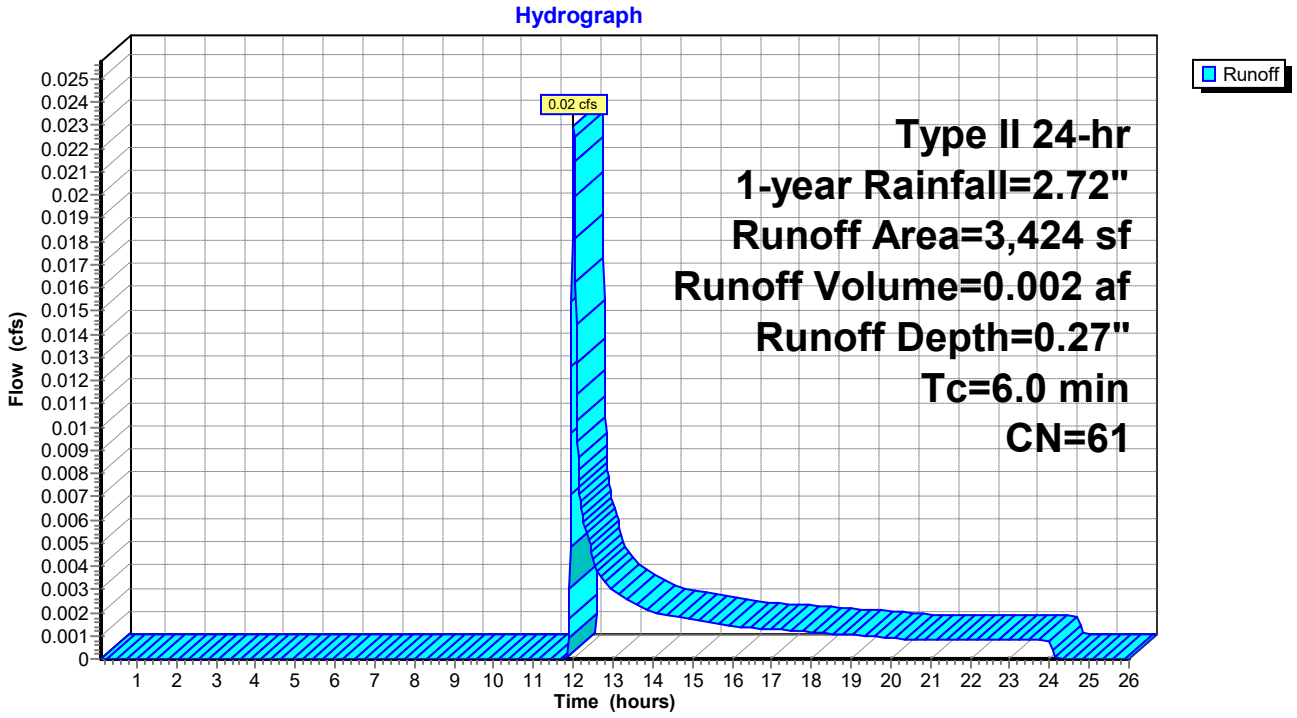
Runoff = 0.02 cfs @ 12.01 hrs, Volume= 0.002 af, Depth= 0.27"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

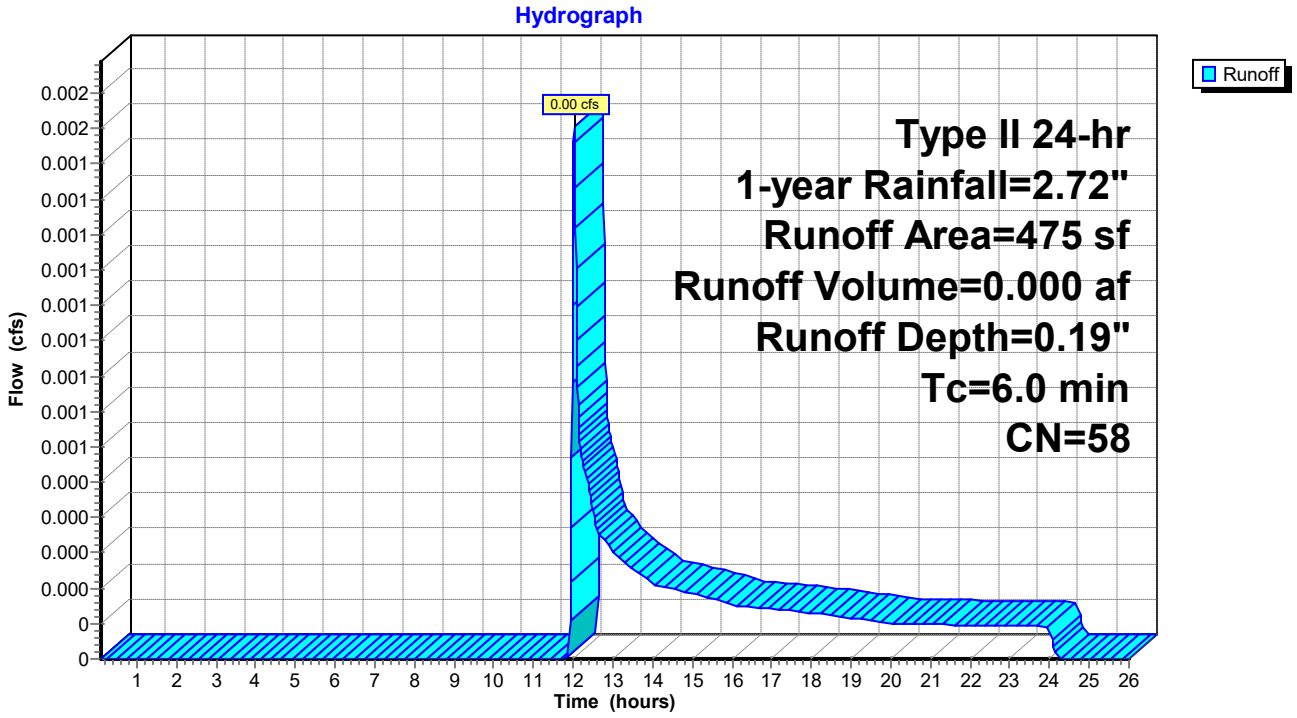
Runoff = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af, Depth= 0.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

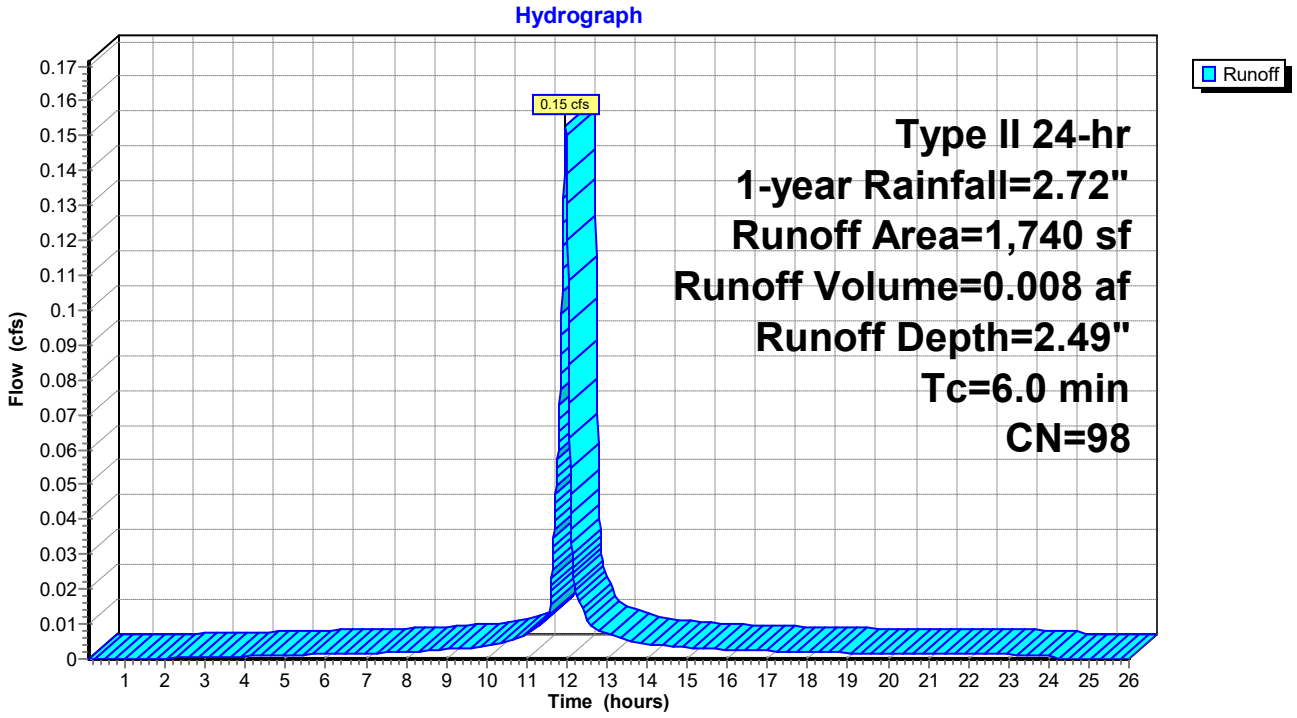
Runoff = 0.15 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

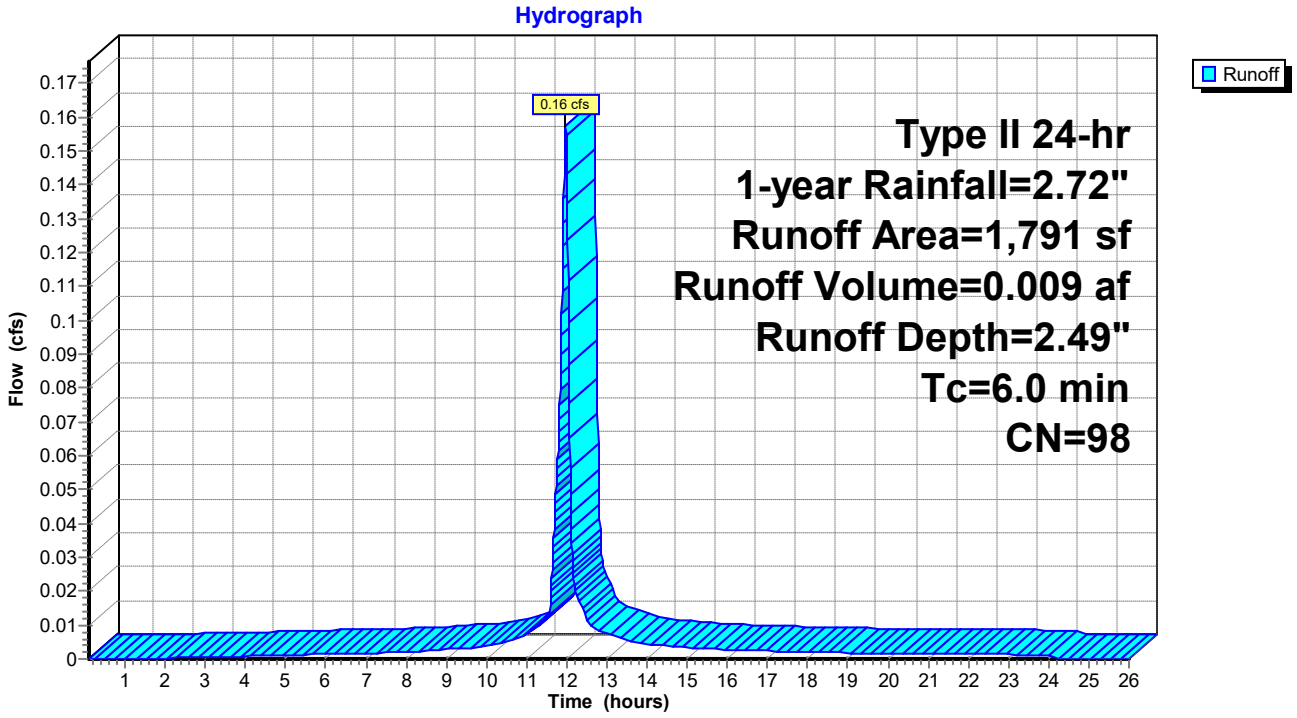
Runoff = 0.16 cfs @ 11.97 hrs, Volume= 0.009 af, Depth= 2.49"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 1-year Rainfall=2.72"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 1.31" for 1-year event
Inflow = 0.14 cfs @ 11.97 hrs, Volume= 0.008 af
Outflow = 0.00 cfs @ 24.06 hrs, Volume= 0.002 af, Atten= 99%, Lag= 725.5 min
Primary = 0.00 cfs @ 24.06 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 161.95' @ 24.06 hrs Surf.Area= 519 sf Storage= 280 cf

Plug-Flow detention time= 411.9 min calculated for 0.002 af (21% of inflow)
Center-of-Mass det. time= 179.5 min (951.4 - 771.9)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

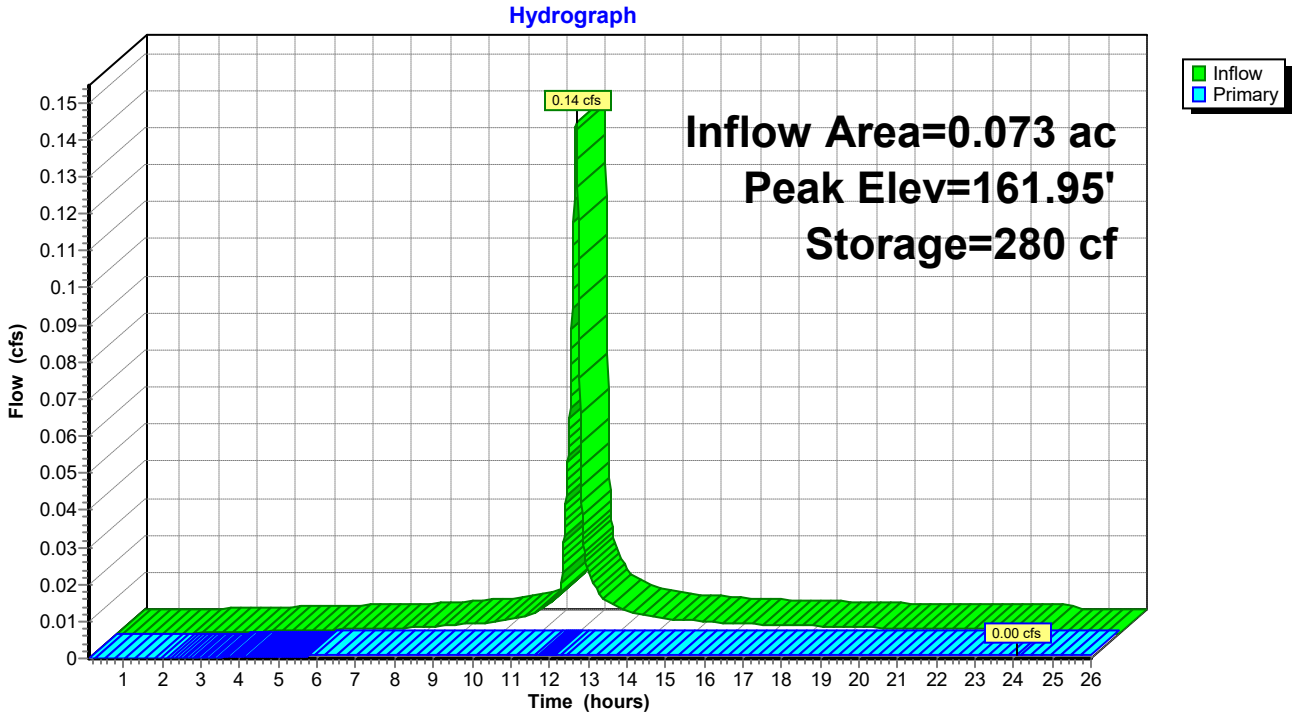
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.06 hrs HW=161.95' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.14 cfs
0.00 cfs
Inflow Area=0.073 ac
Peak Elev=161.95'
Storage=280 cf
Flow (cfs)
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.19" for 1-year event
Inflow = 0.00 cfs @ 12.02 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 16.47 hrs, Volume= 0.000 af, Atten= 90%, Lag= 266.7 min
Primary = 0.00 cfs @ 16.47 hrs, Volume= 0.000 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 160.10' @ 16.47 hrs Surf.Area= 300 sf Storage= 6 cf

Plug-Flow detention time= 186.1 min calculated for 0.000 af (96% of inflow)
Center-of-Mass det. time= 167.2 min (1,133.3 - 966.1)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

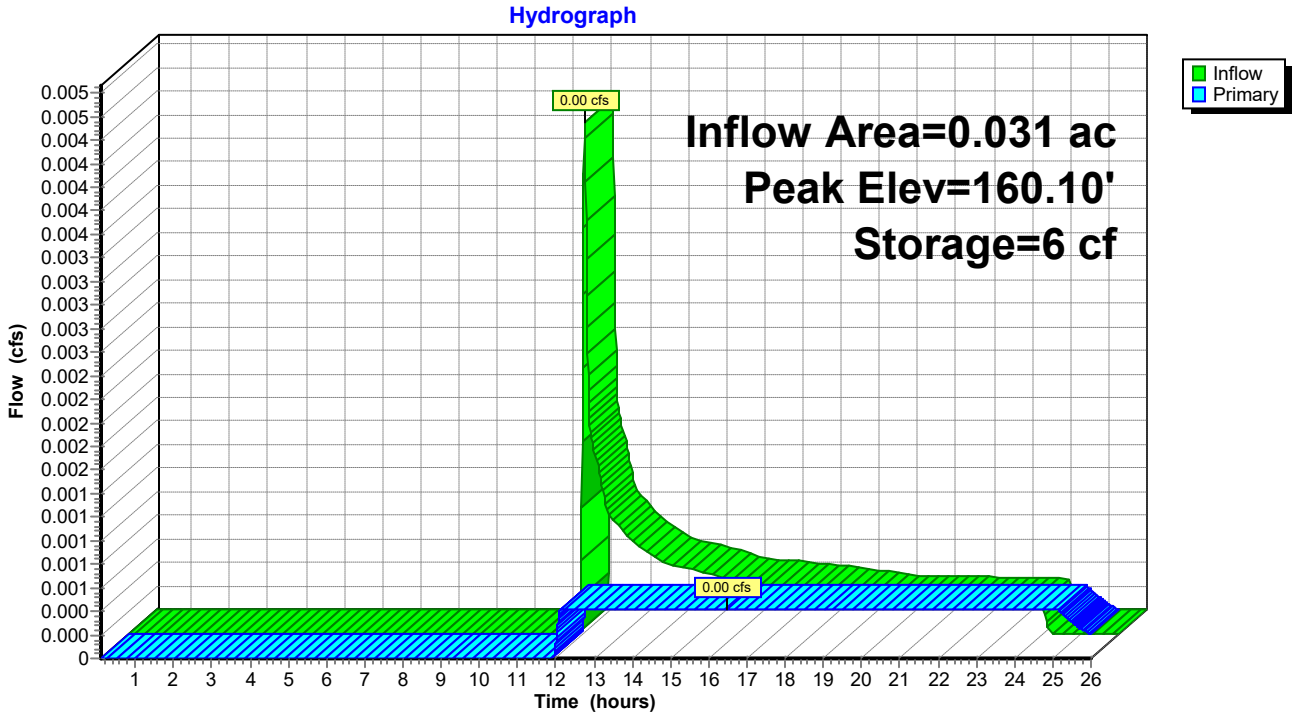
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 16.47 hrs HW=160.10' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.00 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=160.10'
Storage=6 cf
Flow (cfs)
0.005
0.005
0.004
0.004
0.004
0.004
0.004
0.003
0.003
0.003
0.003
0.003
0.002
0.002
0.002
0.002
0.002
0.001
0.001
0.001
0.001
0.001
0.000
0.000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 1.02" for 1-year event
Inflow = 0.17 cfs @ 11.98 hrs, Volume= 0.010 af
Outflow = 0.16 cfs @ 12.00 hrs, Volume= 0.006 af, Atten= 5%, Lag= 1.5 min
Primary = 0.16 cfs @ 12.00 hrs, Volume= 0.006 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.65' @ 12.00 hrs Surf.Area= 186 sf Storage= 177 cf

Plug-Flow detention time= 221.4 min calculated for 0.006 af (62% of inflow)
Center-of-Mass det. time= 97.7 min (885.5 - 787.8)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

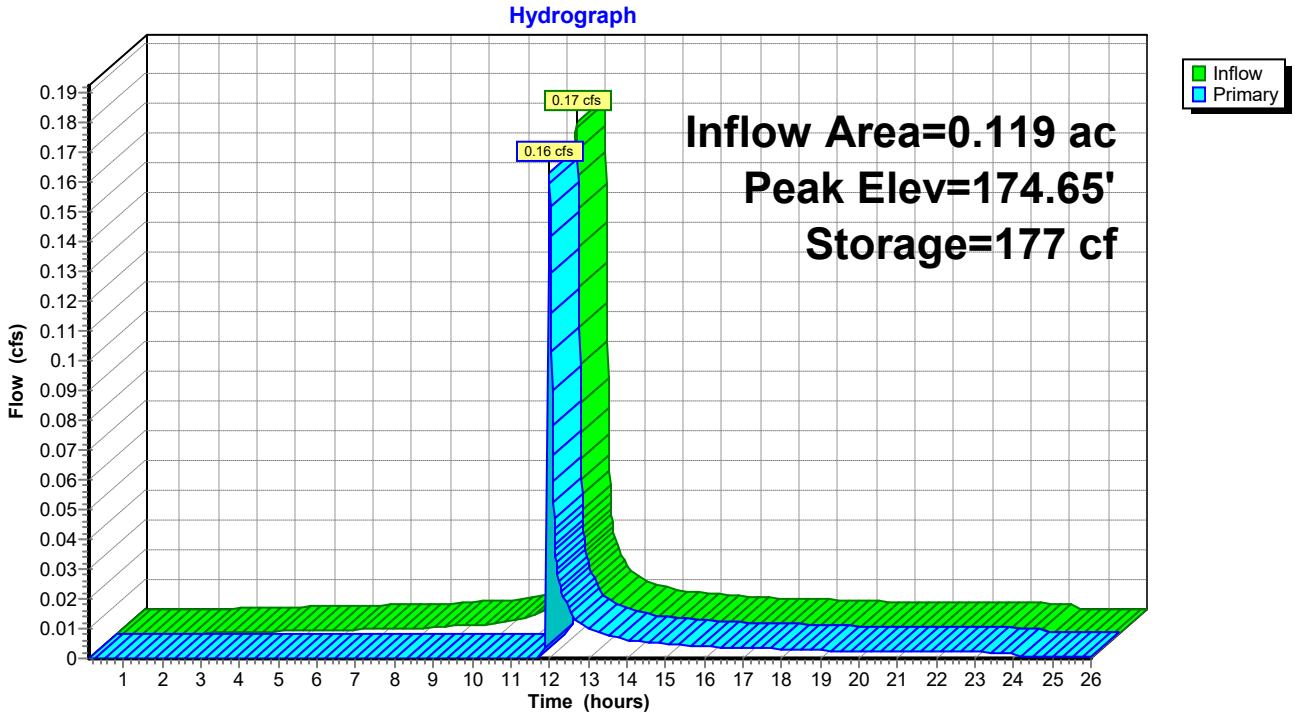
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.15 cfs @ 12.00 hrs HW=174.65' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.15 cfs @ 0.74 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.17 cfs
0.16 cfs
Inflow Area=0.119 ac
Peak Elev=174.65'
Storage=177 cf
Flow (cfs)
Time (hours)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 0.41" for 1-year event
Inflow = 0.06 cfs @ 11.99 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 14.90 hrs, Volume= 0.002 af, Atten= 95%, Lag= 174.3 min
Discarded = 0.00 cfs @ 14.90 hrs, Volume= 0.000 af
Primary = 0.00 cfs @ 14.90 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.51' @ 14.90 hrs Surf.Area= 171 sf Storage= 121 cf

Plug-Flow detention time= 406.3 min calculated for 0.002 af (39% of inflow)
Center-of-Mass det. time= 217.2 min (1,062.2 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

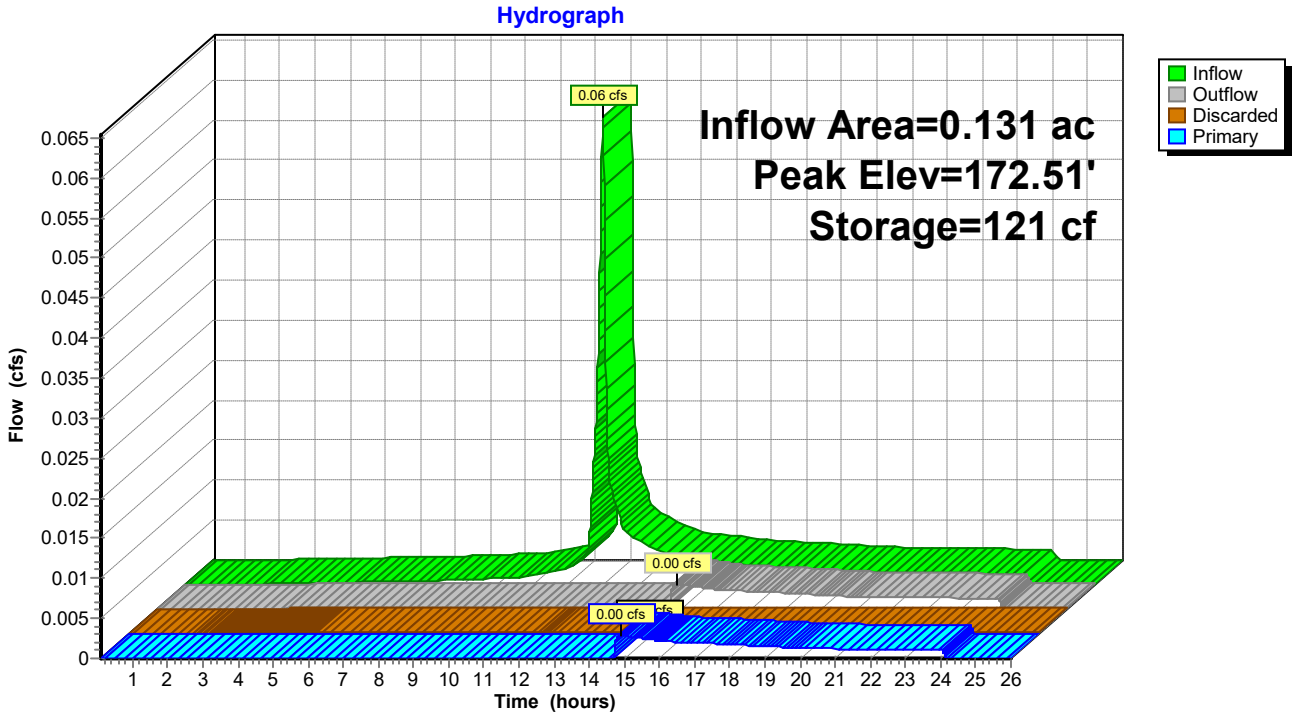
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 14.90 hrs HW=172.51' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 14.90 hrs HW=172.51' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.25 fps)

Pond RG-4: RG-4

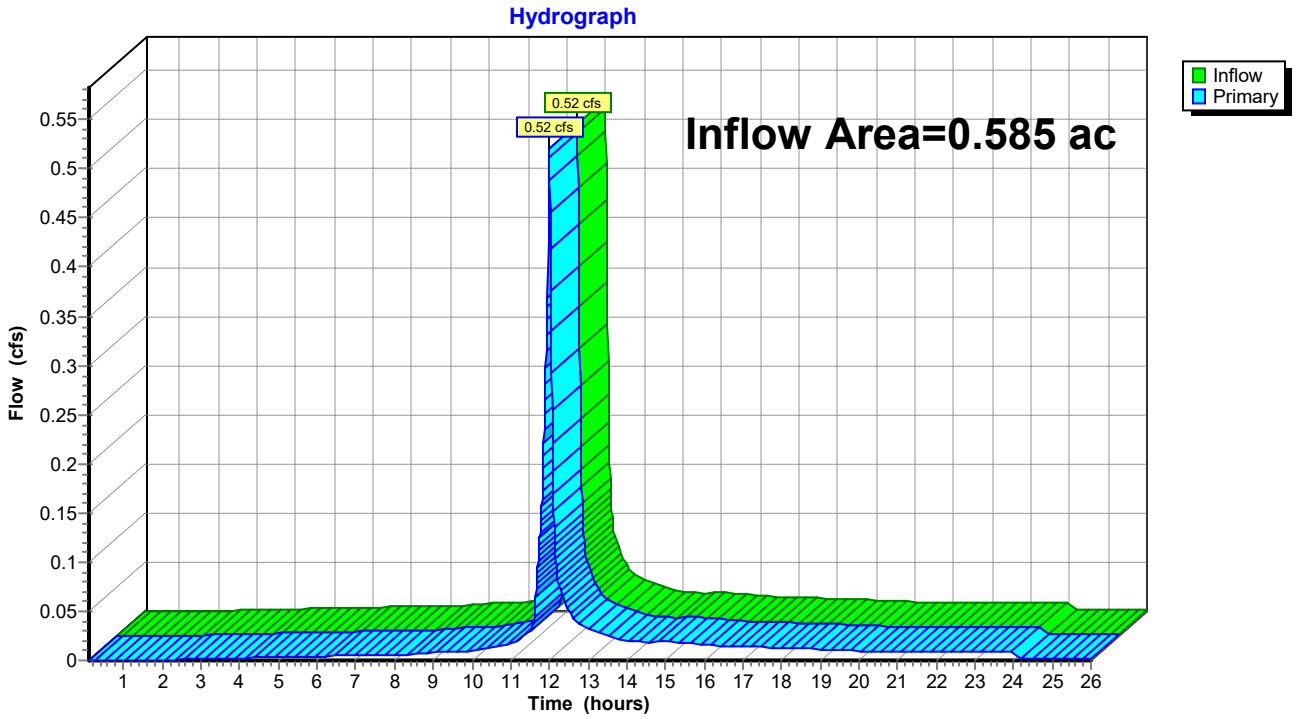

Hydrograph
Inflow Area=0.131 ac
Peak Elev=172.51'
Storage=121 cf
0.06 cfs
0.00 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0.065
0.06
0.055
0.05
0.045
0.04
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 0.64" for 1-year event
Inflow = 0.52 cfs @ 11.99 hrs, Volume= 0.031 af
Primary = 0.52 cfs @ 11.99 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=1.03"
Flow Length=487' Tc=13.0 min CN=73 Runoff=0.81 cfs 0.050 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.010 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.008 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.003 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.02 cfs 0.001 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.001 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.02 cfs 0.001 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.000 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.002 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.003 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.003 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=0.48"
Tc=6.0 min CN=61 Runoff=0.05 cfs 0.003 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=0.37"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.000 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.010 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=3.05"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.010 af

Pond RG-1: RG-1 Peak Elev=162.29' Storage=363 cf Inflow=0.18 cfs 0.010 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=160.39' Storage=23 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.67' Storage=179 cf Inflow=0.24 cfs 0.013 af
Outflow=0.23 cfs 0.009 af

Pond RG-4: RG-4 Peak Elev=172.53' Storage=123 cf Inflow=0.11 cfs 0.007 af
Discarded=0.00 cfs 0.000 af Primary=0.02 cfs 0.004 af Outflow=0.02 cfs 0.004 af

Link POA: POA Inflow=0.73 cfs 0.044 af
Primary=0.73 cfs 0.044 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.110 af Average Runoff Depth = 1.13"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

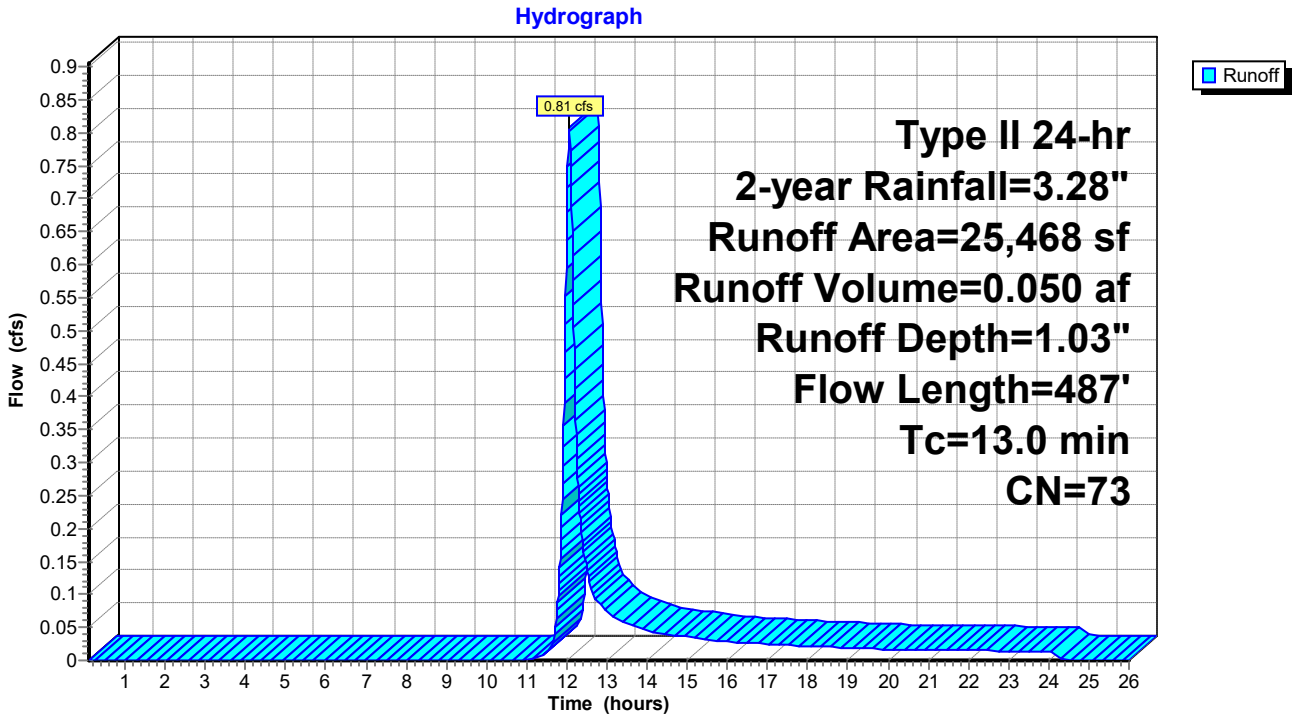
Runoff = 0.81 cfs @ 12.06 hrs, Volume= 0.050 af, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

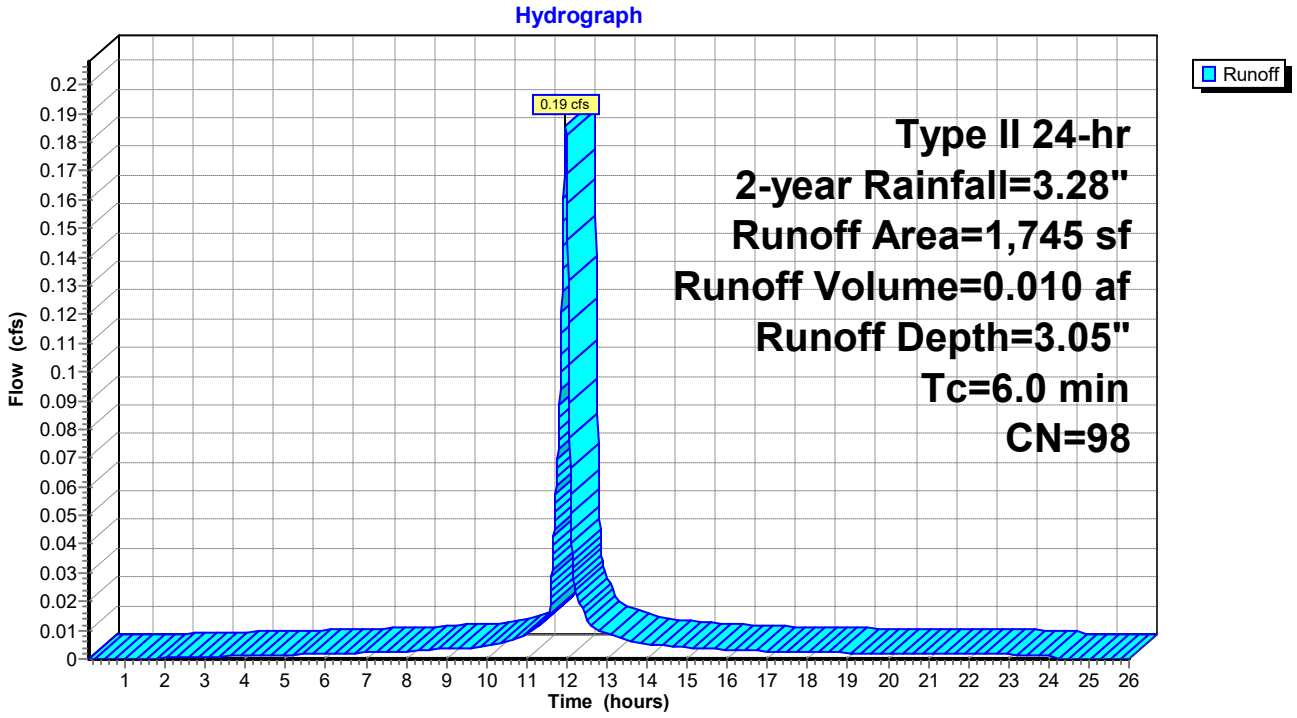
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.05"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

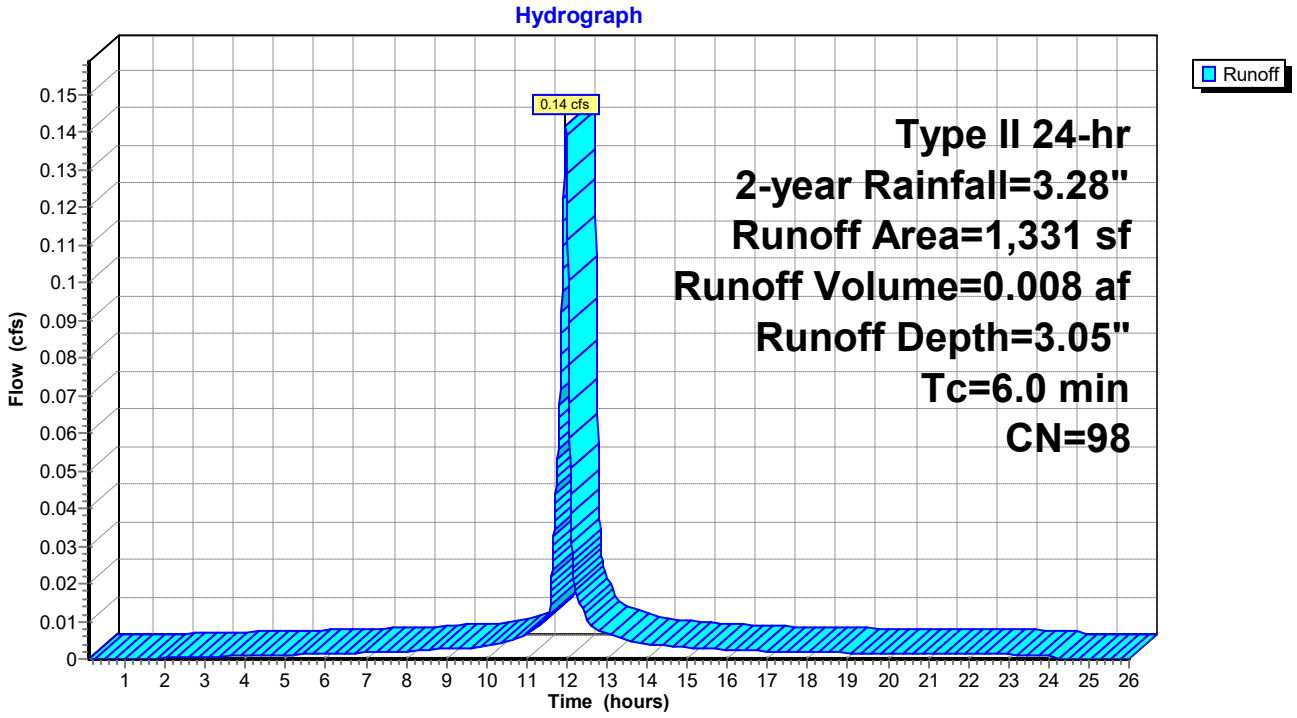
Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 3.05"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

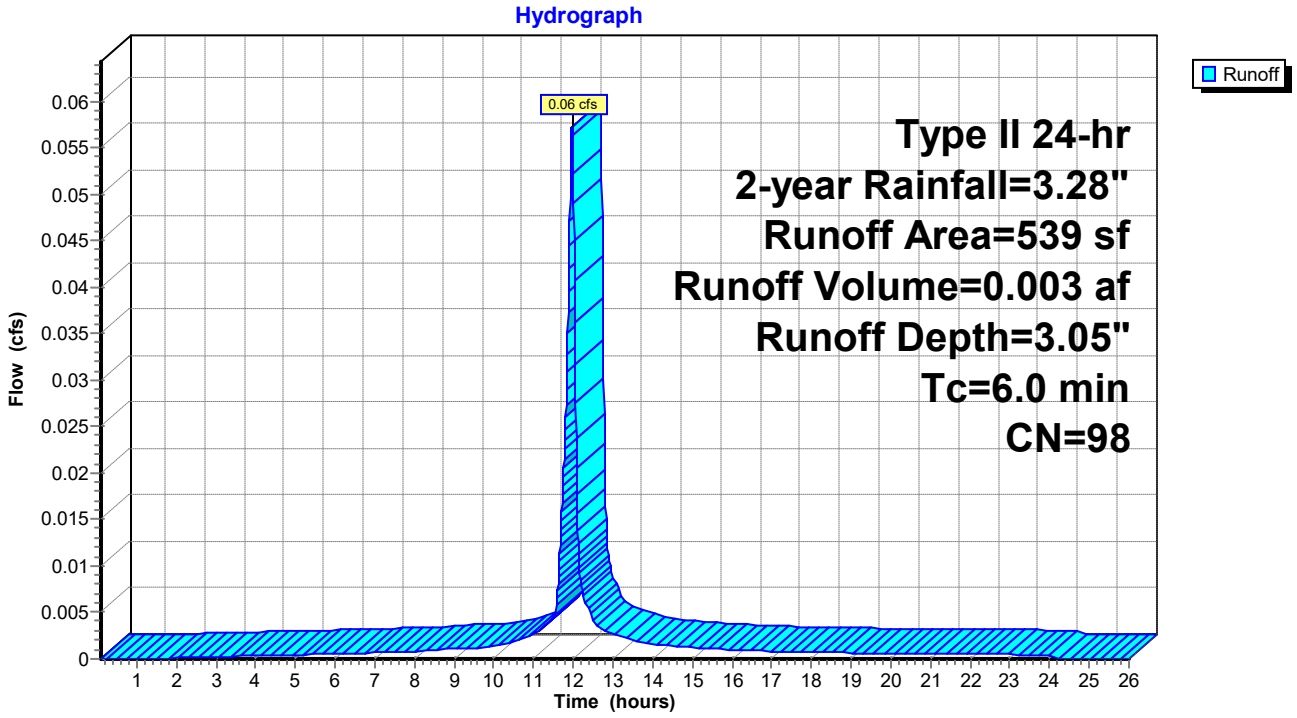
Runoff = 0.06 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 3.05"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

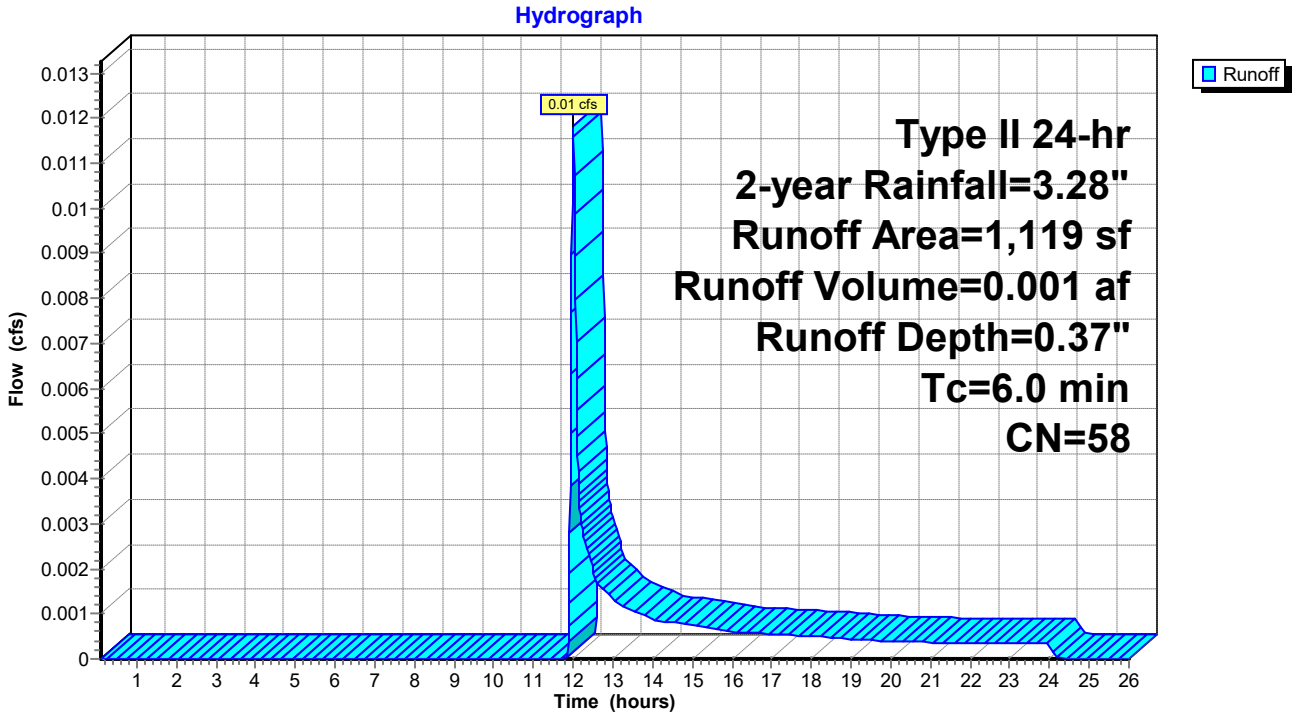
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af, Depth= 0.37"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

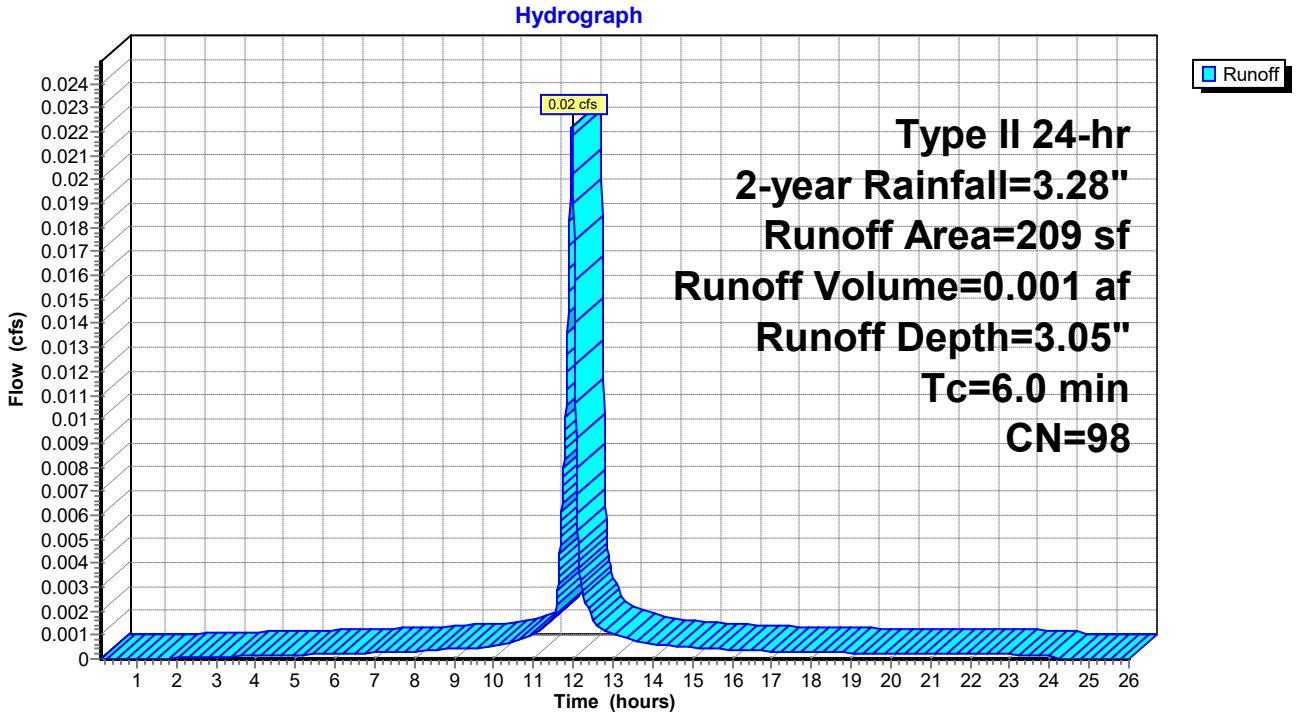
Runoff = 0.02 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 3.05"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

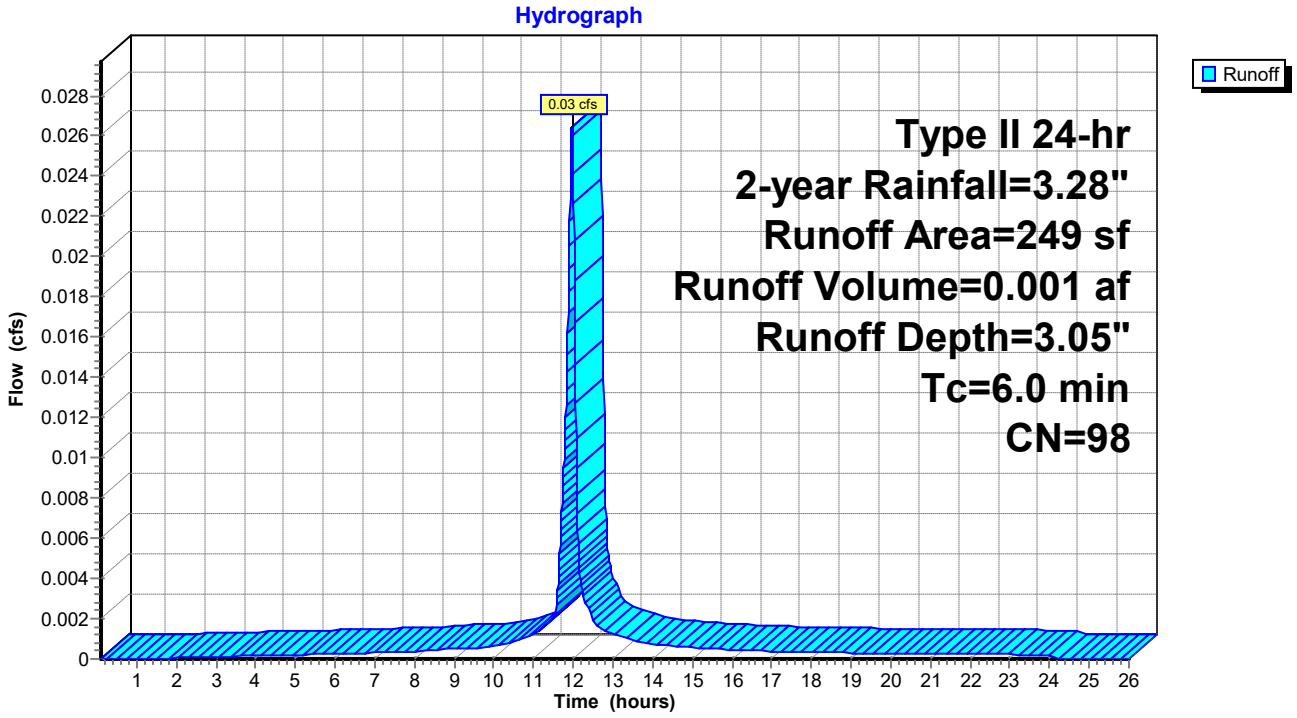
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

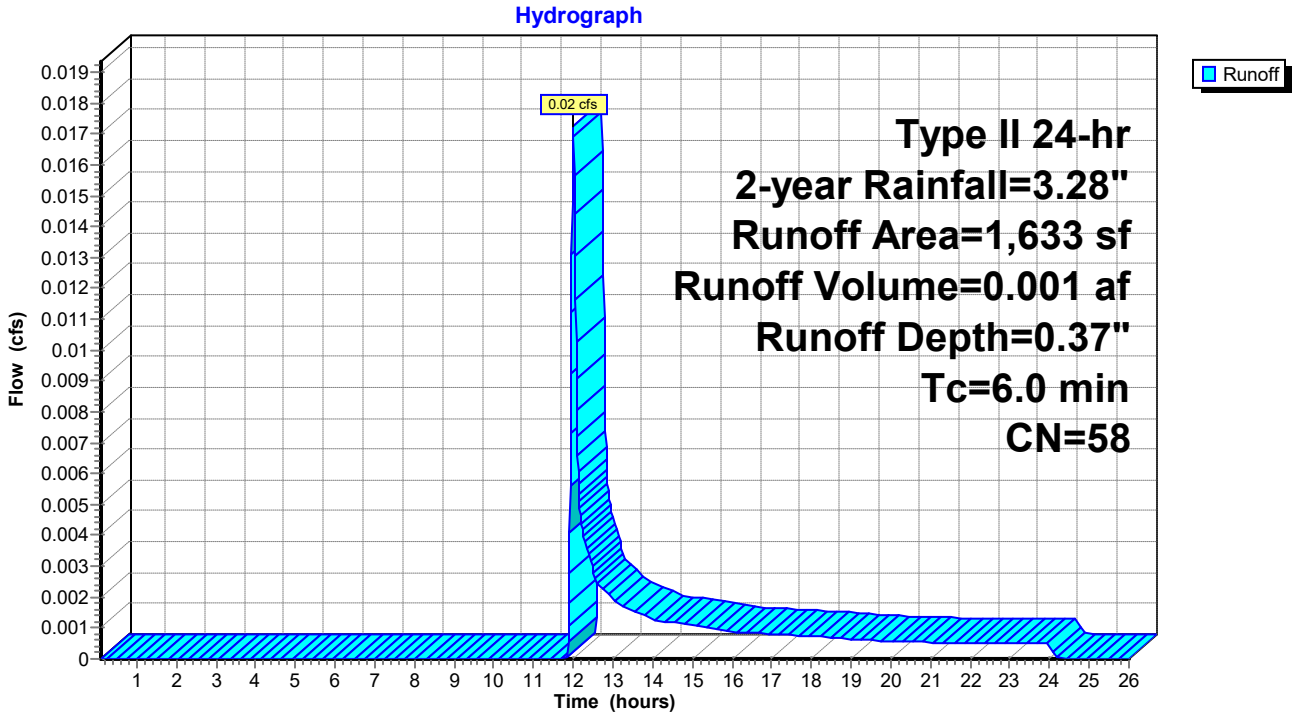
Runoff = 0.02 cfs @ 12.00 hrs, Volume= 0.001 af, Depth= 0.37"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

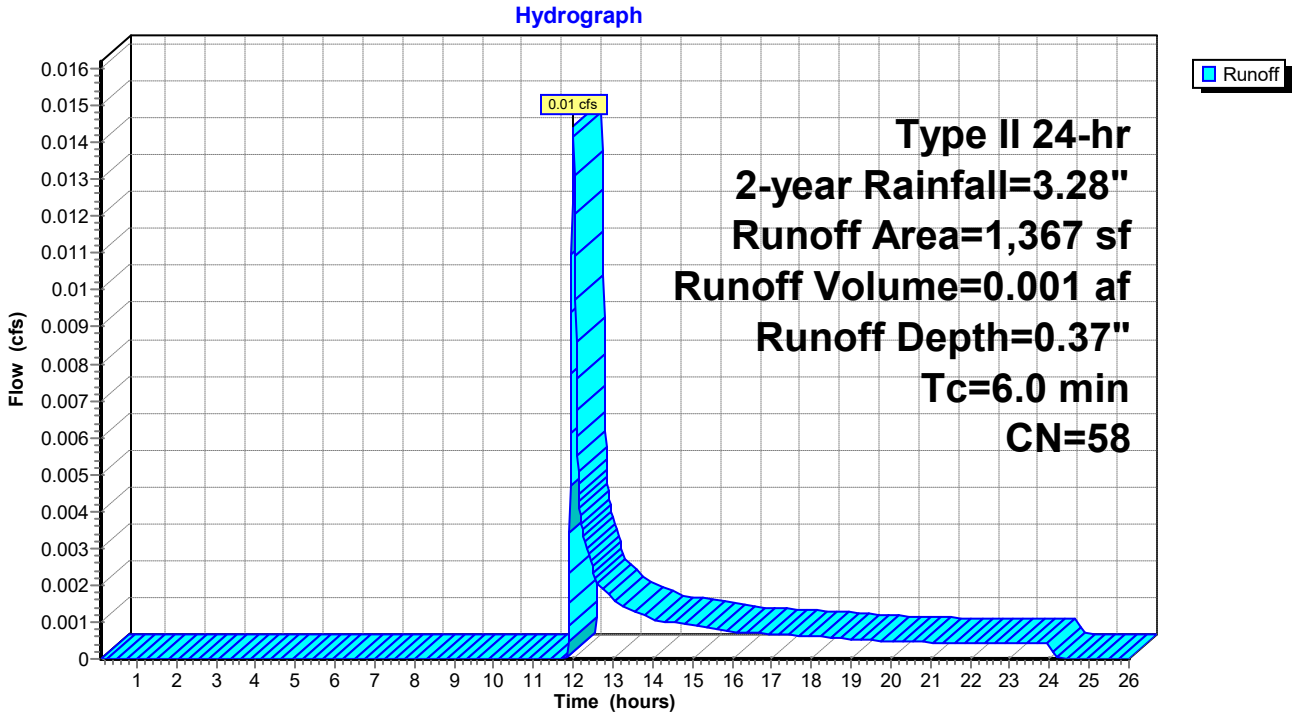
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af, Depth= 0.37"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

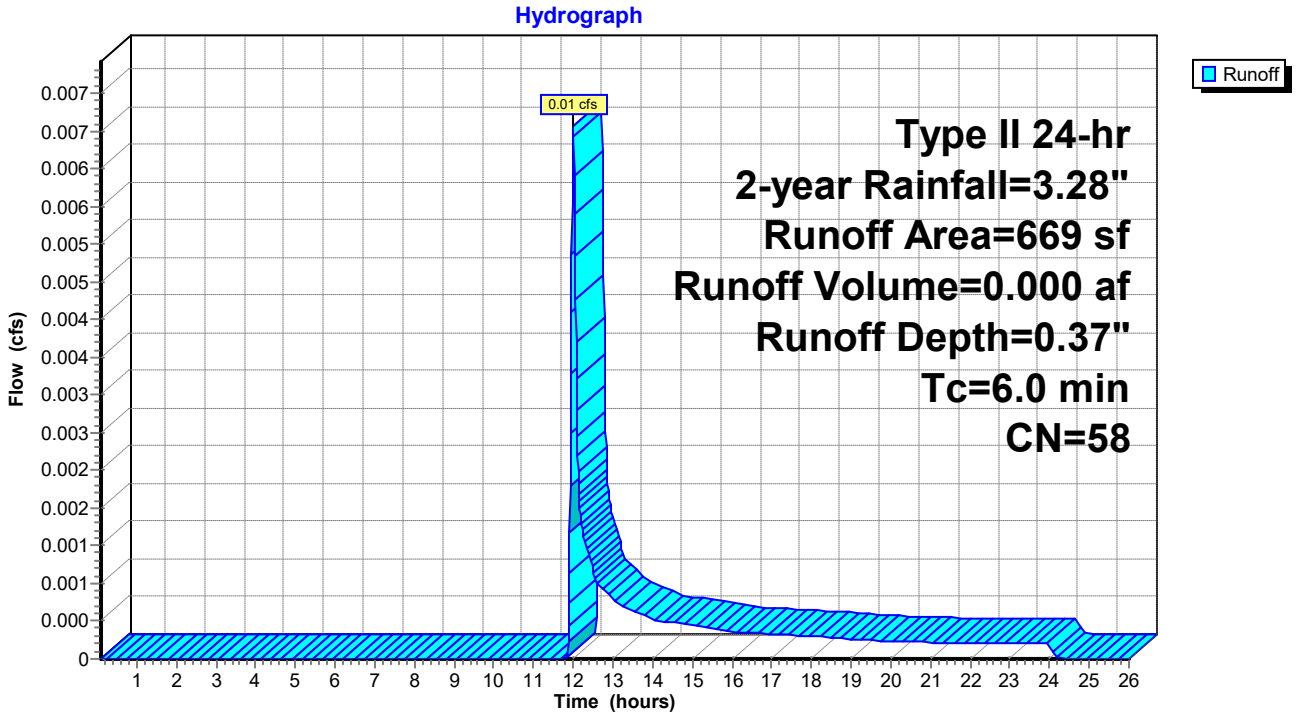
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.000 af, Depth= 0.37"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

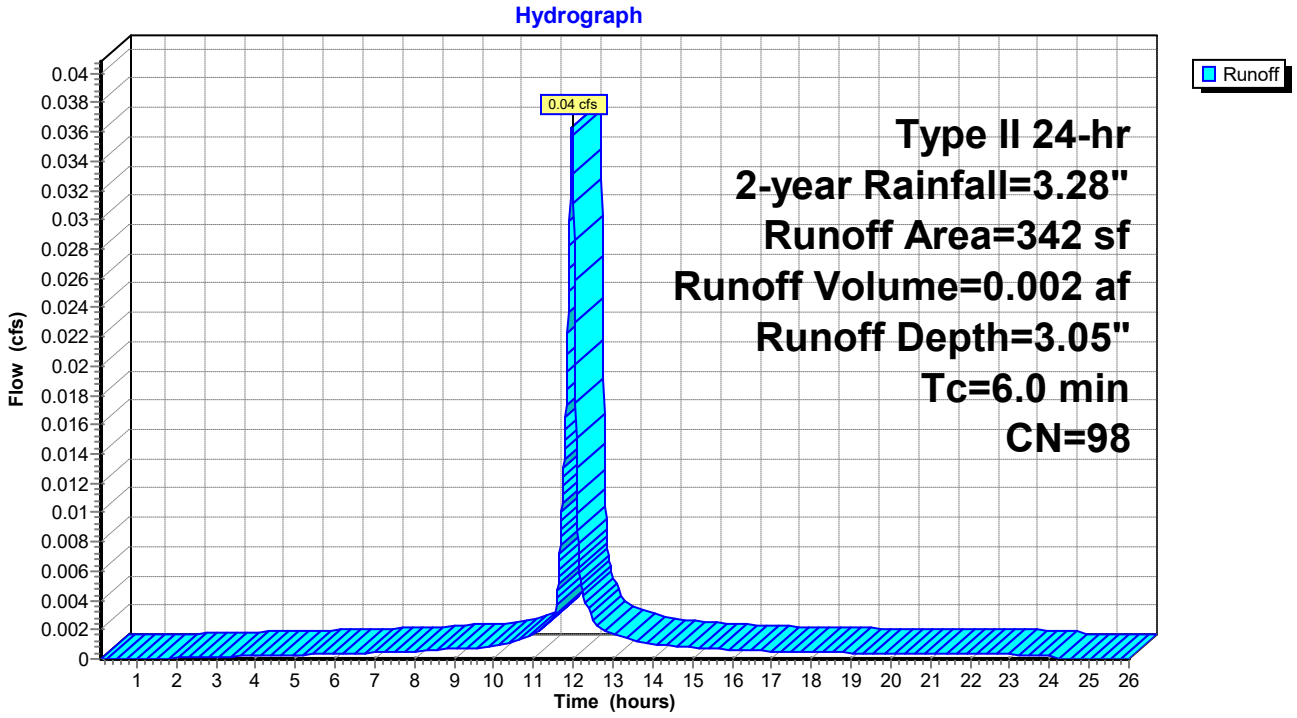
Runoff = 0.04 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

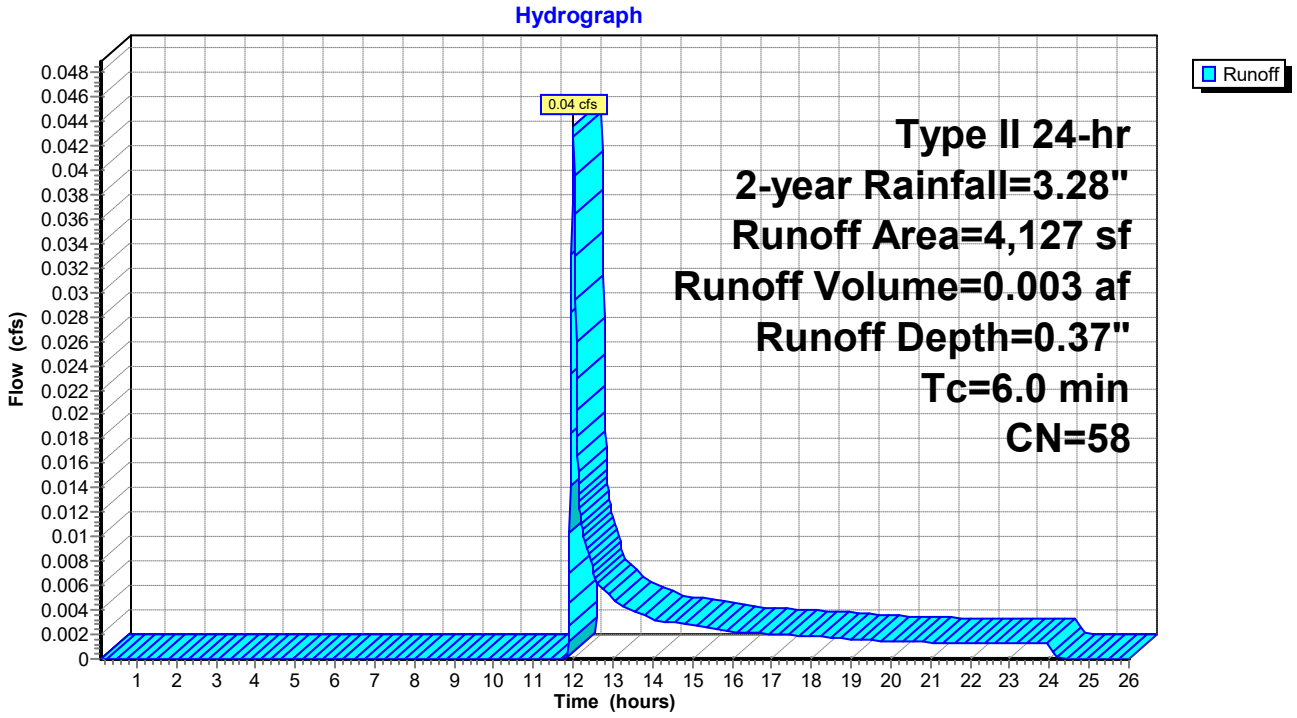
Runoff = 0.04 cfs @ 12.00 hrs, Volume= 0.003 af, Depth= 0.37"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

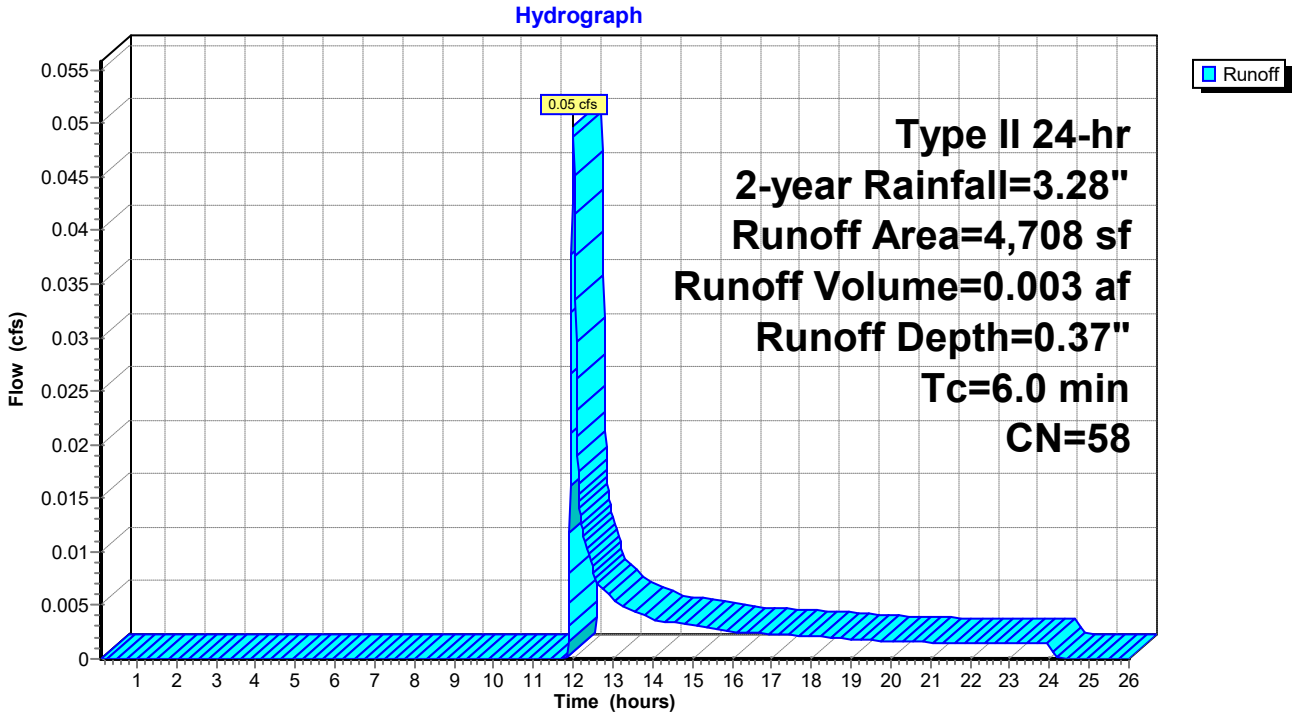
Runoff = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af, Depth= 0.37"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

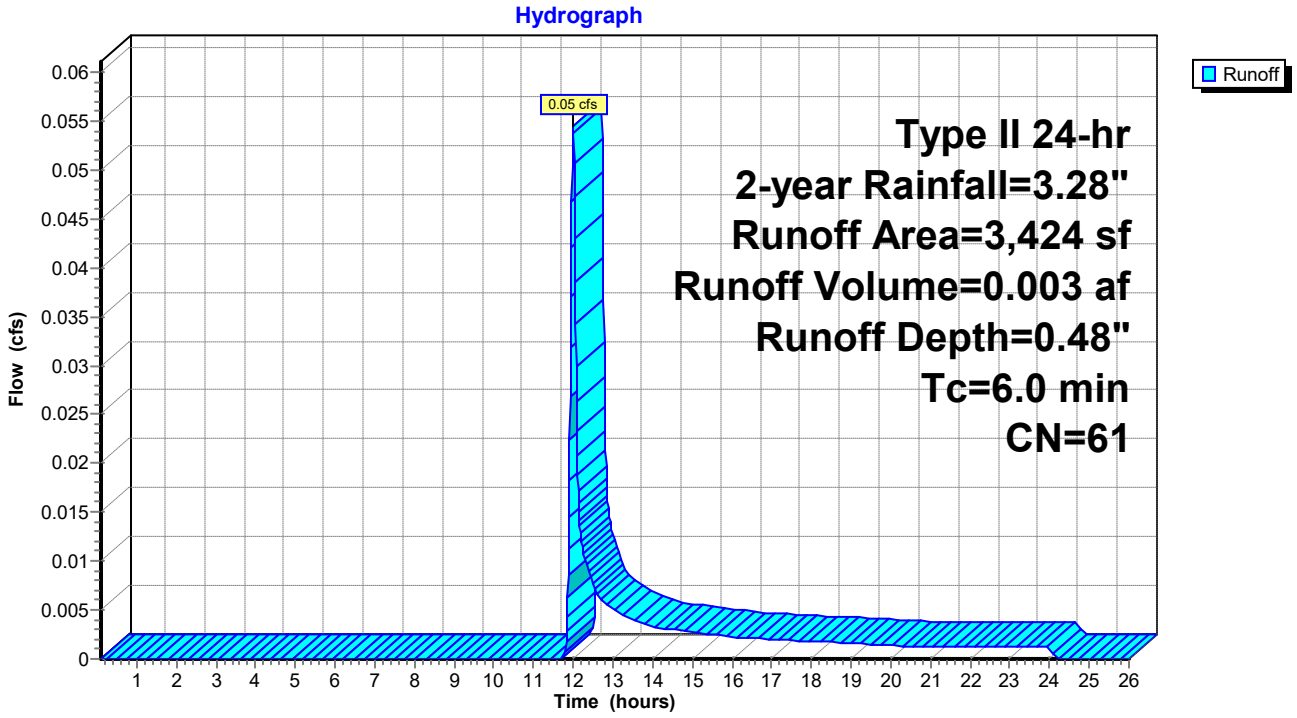
Runoff = 0.05 cfs @ 12.00 hrs, Volume= 0.003 af, Depth= 0.48"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

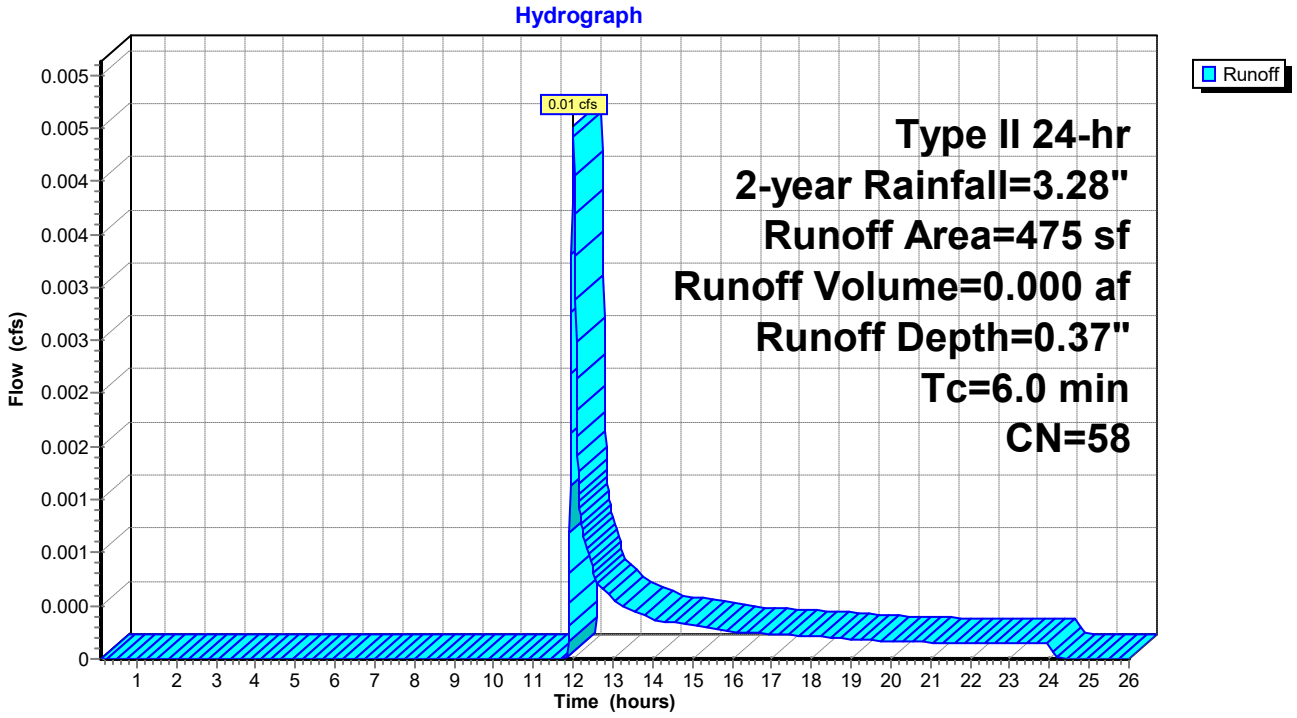
Runoff = 0.01 cfs @ 12.00 hrs, Volume= 0.000 af, Depth= 0.37"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

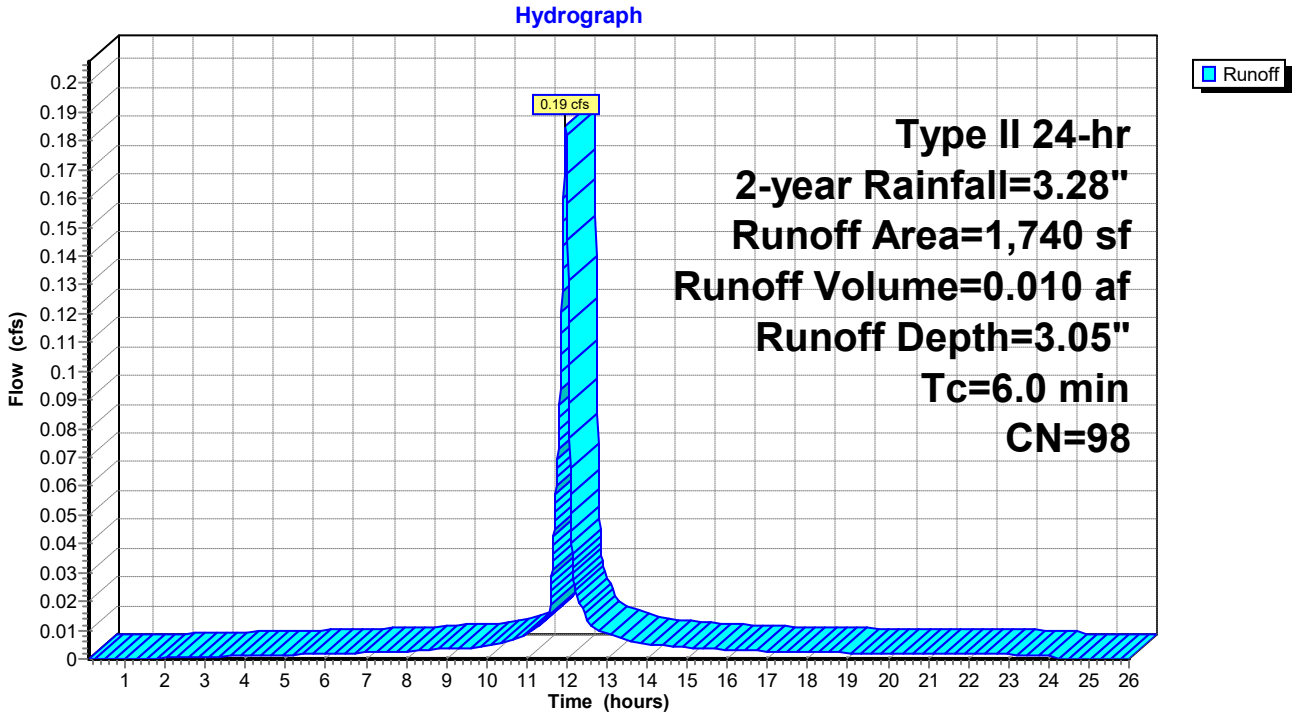
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

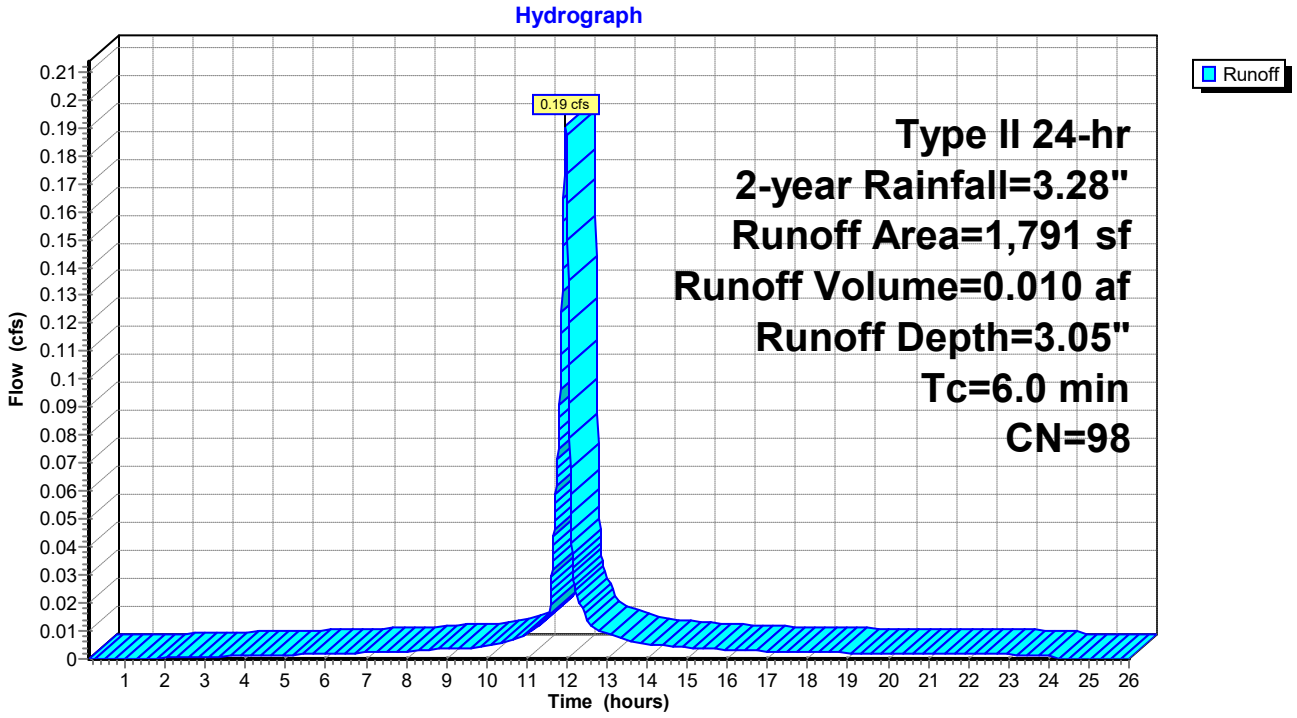
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.05"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-year Rainfall=3.28"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 1.67" for 2-year event
Inflow = 0.18 cfs @ 11.97 hrs, Volume= 0.010 af
Outflow = 0.00 cfs @ 24.06 hrs, Volume= 0.002 af, Atten= 99%, Lag= 725.5 min
Primary = 0.00 cfs @ 24.06 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.29' @ 24.06 hrs Surf.Area= 681 sf Storage= 363 cf

Plug-Flow detention time= 443.0 min calculated for 0.002 af (20% of inflow)
Center-of-Mass det. time= 195.7 min (967.8 - 772.1)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

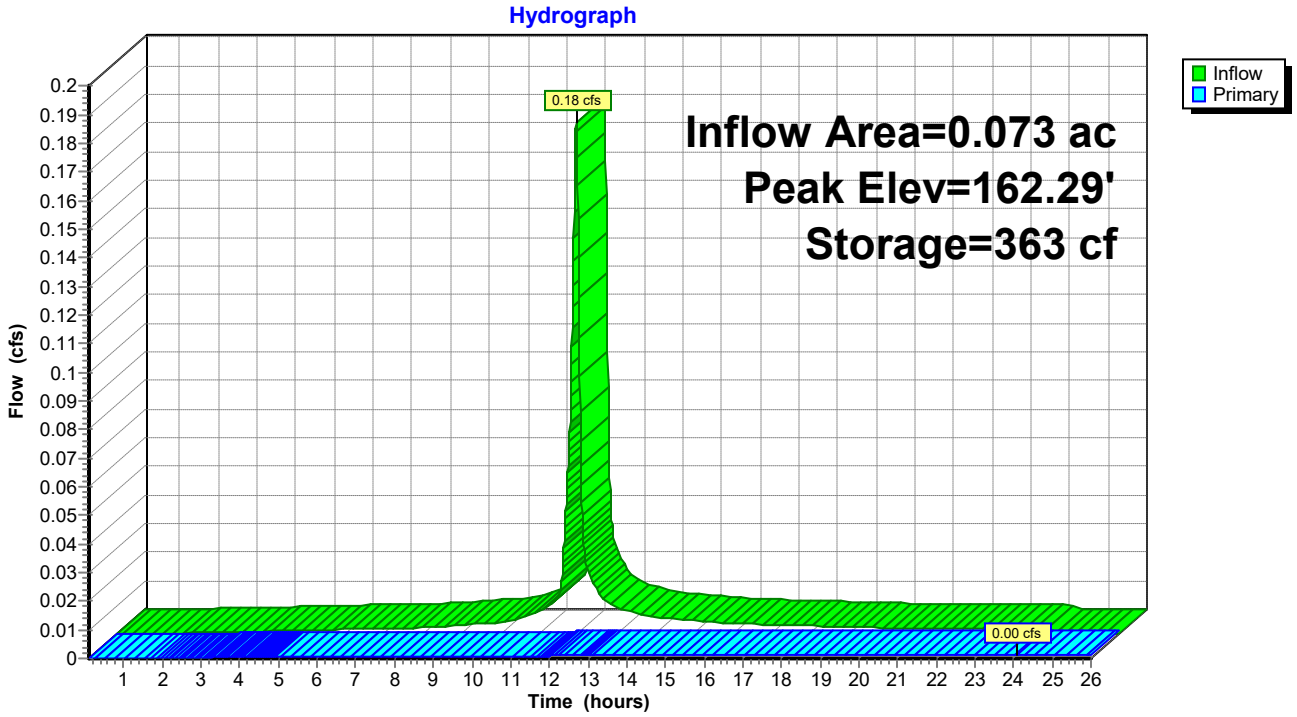
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.06 hrs HW=162.29' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.18 cfs
0.00 cfs
Inflow Area=0.073 ac
Peak Elev=162.29'
Storage=363 cf
Flow (cfs)
Time (hours)
0
0.01
0.02
0.03
0.04
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
0.16
0.17
0.18
0.19
0.2
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.37" for 2-year event
Inflow = 0.01 cfs @ 12.00 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 22.44 hrs, Volume= 0.001 af, Atten= 97%, Lag= 626.1 min
Primary = 0.00 cfs @ 22.44 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 160.39' @ 22.44 hrs Surf.Area= 300 sf Storage= 23 cf

Plug-Flow detention time= 380.0 min calculated for 0.001 af (52% of inflow)
Center-of-Mass det. time= 211.2 min (1,139.5 - 928.3)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

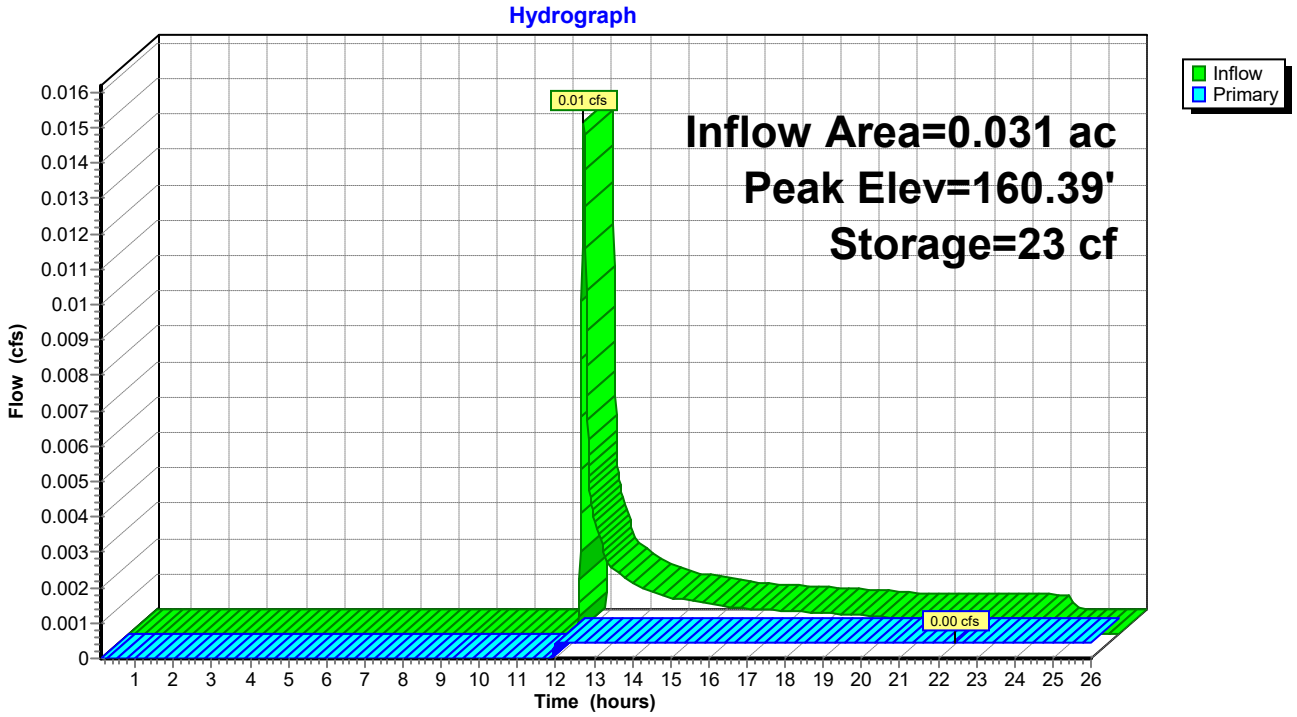
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 22.44 hrs HW=160.39' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.01 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=160.39'
Storage=23 cf
Flow (cfs)
0.016
0.015
0.014
0.013
0.012
0.011
0.01
0.009
0.008
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 1.34" for 2-year event
Inflow = 0.24 cfs @ 11.98 hrs, Volume= 0.013 af
Outflow = 0.23 cfs @ 11.98 hrs, Volume= 0.009 af, Atten= 1%, Lag= 0.6 min
Primary = 0.23 cfs @ 11.98 hrs, Volume= 0.009 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.67' @ 11.98 hrs Surf.Area= 186 sf Storage= 179 cf

Plug-Flow detention time= 185.5 min calculated for 0.009 af (71% of inflow)
Center-of-Mass det. time= 75.8 min (865.0 - 789.1)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

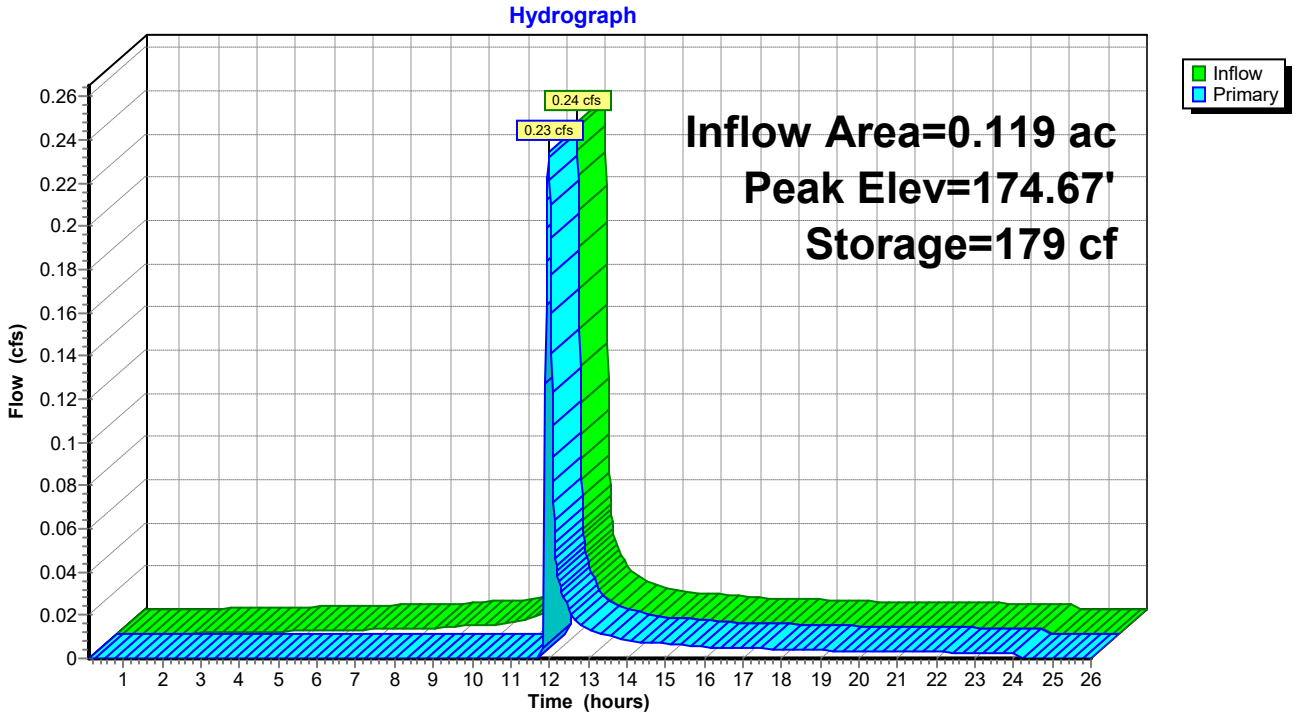
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.23 cfs @ 11.98 hrs HW=174.67' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.23 cfs @ 0.85 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.24 cfs
0.23 cfs
Inflow Area=0.119 ac
Peak Elev=174.67'
Storage=179 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 0.62" for 2-year event
Inflow = 0.11 cfs @ 11.99 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 12.35 hrs, Volume= 0.004 af, Atten= 84%, Lag= 21.7 min
Discarded = 0.00 cfs @ 12.35 hrs, Volume= 0.000 af
Primary = 0.02 cfs @ 12.35 hrs, Volume= 0.004 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.53' @ 12.35 hrs Surf.Area= 171 sf Storage= 123 cf

Plug-Flow detention time= 266.6 min calculated for 0.004 af (60% of inflow)
Center-of-Mass det. time= 118.5 min (965.4 - 846.9)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

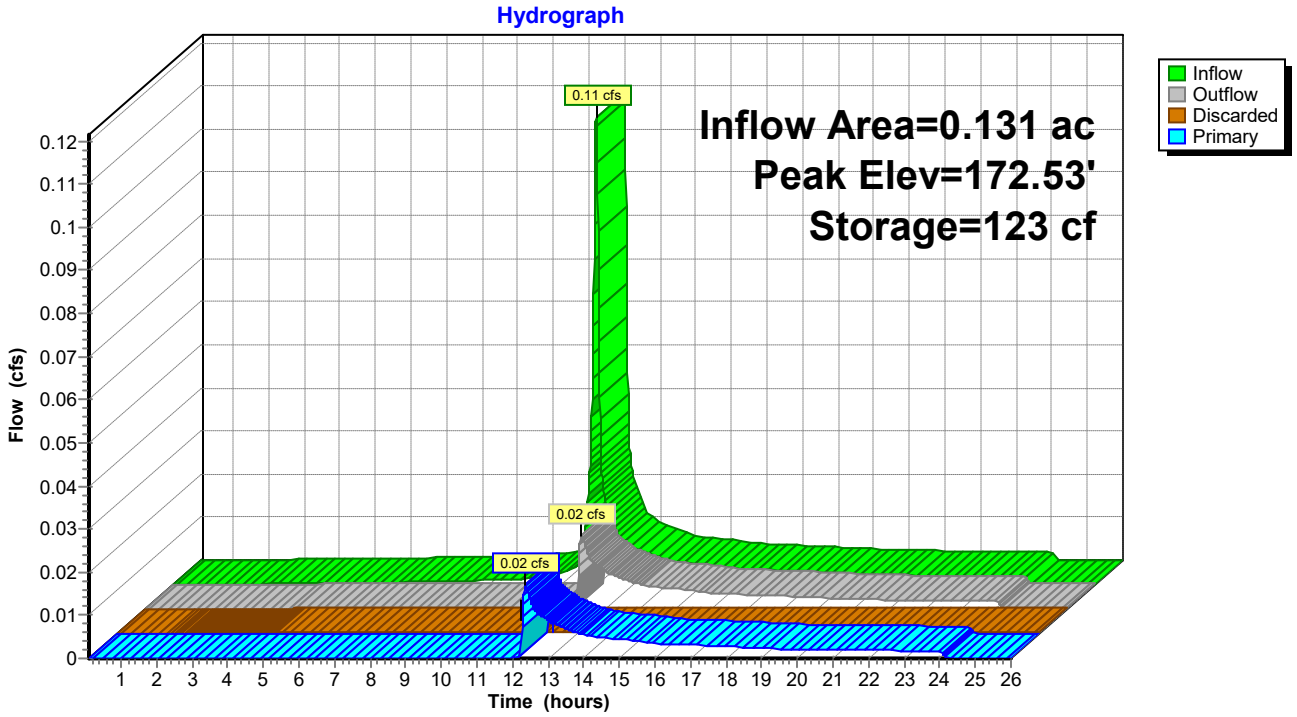
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.35 hrs HW=172.53' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.02 cfs @ 12.35 hrs HW=172.53' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.54 fps)

Pond RG-4: RG-4

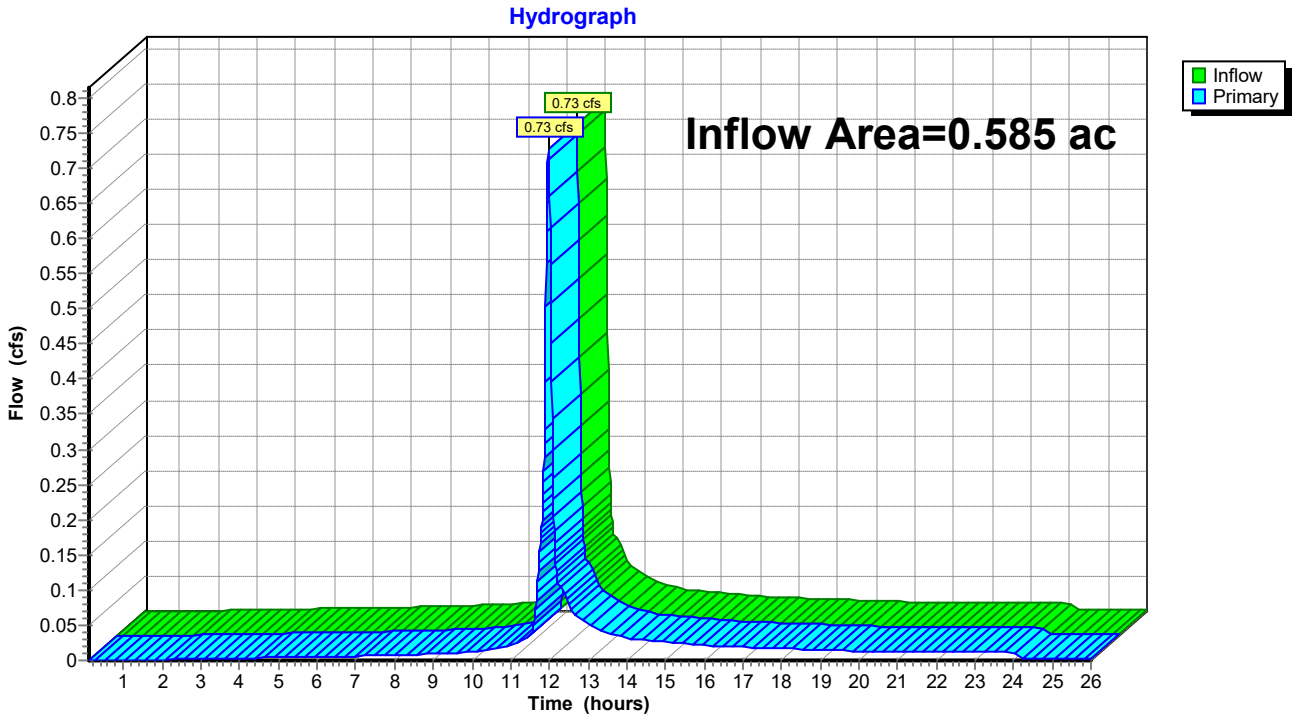

Hydrograph
Inflow
Outflow
Discarded
Primary
0.11 cfs
0.02 cfs
0.02 cfs
Inflow Area=0.131 ac
Peak Elev=172.53'
Storage=123 cf
Flow (cfs)
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 0.90" for 2-year event
Inflow = 0.73 cfs @ 11.98 hrs, Volume= 0.044 af
Primary = 0.73 cfs @ 11.98 hrs, Volume= 0.044 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=1.61"
Flow Length=487' Tc=13.0 min CN=73 Runoff=1.30 cfs 0.079 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.013 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.010 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.03 cfs 0.002 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.02 cfs 0.001 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.11 cfs 0.006 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.12 cfs 0.006 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=0.87"
Tc=6.0 min CN=61 Runoff=0.11 cfs 0.006 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=0.72"
Tc=6.0 min CN=58 Runoff=0.01 cfs 0.001 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.23 cfs 0.013 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.013 af

Pond RG-1: RG-1 Peak Elev=162.85' Storage=512 cf Inflow=0.25 cfs 0.014 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=161.03' Storage=62 cf Inflow=0.04 cfs 0.002 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.69' Storage=182 cf Inflow=0.35 cfs 0.019 af
Outflow=0.34 cfs 0.015 af

Pond RG-4: RG-4 Peak Elev=172.65' Storage=131 cf Inflow=0.20 cfs 0.011 af
Discarded=0.00 cfs 0.001 af Primary=0.18 cfs 0.008 af Outflow=0.18 cfs 0.008 af

Link POA: POA Inflow=1.14 cfs 0.064 af
Primary=1.14 cfs 0.064 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.163 af Average Runoff Depth = 1.67"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

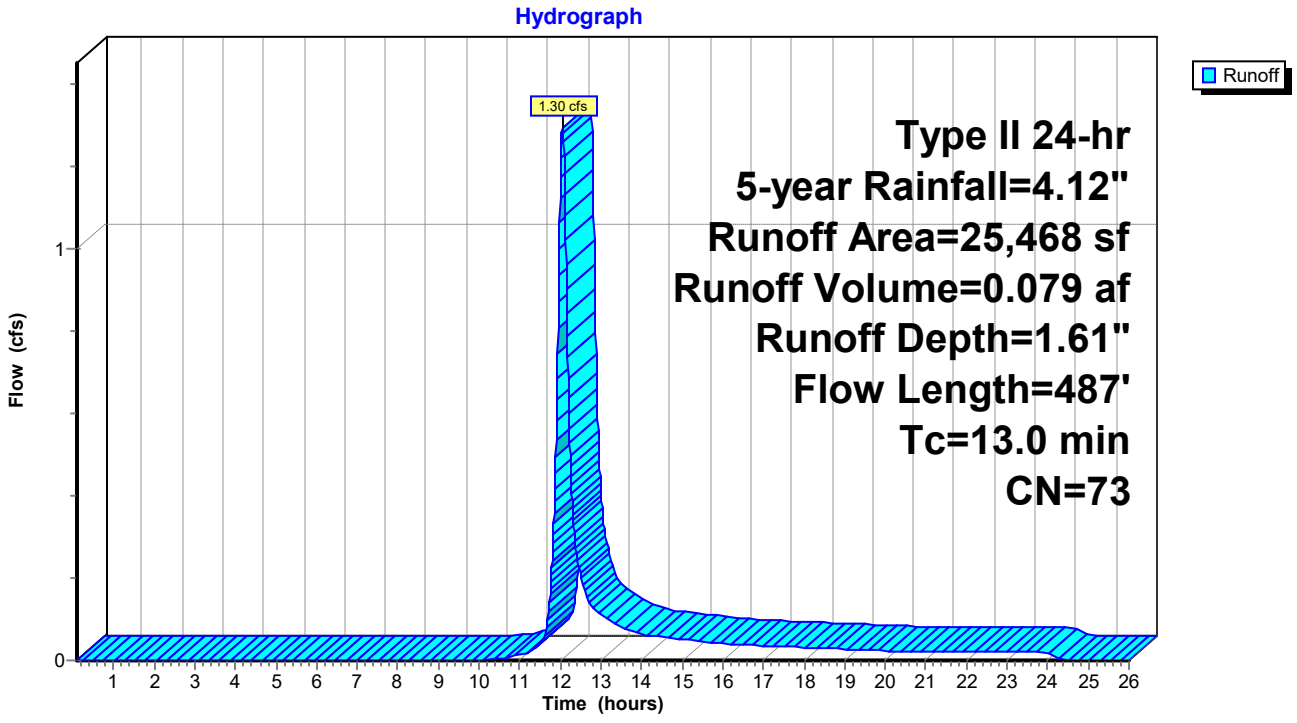
Runoff = 1.30 cfs @ 12.06 hrs, Volume= 0.079 af, Depth= 1.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

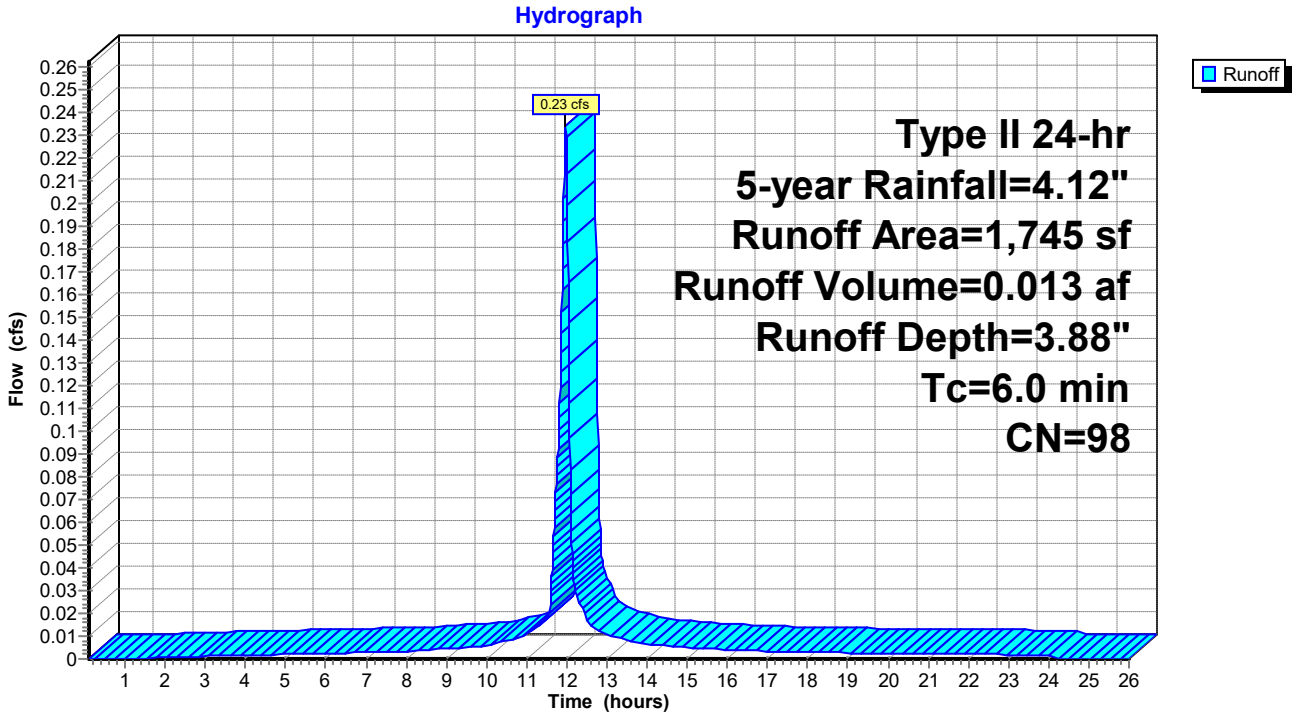
Runoff = 0.23 cfs @ 11.97 hrs, Volume= 0.013 af, Depth= 3.88"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

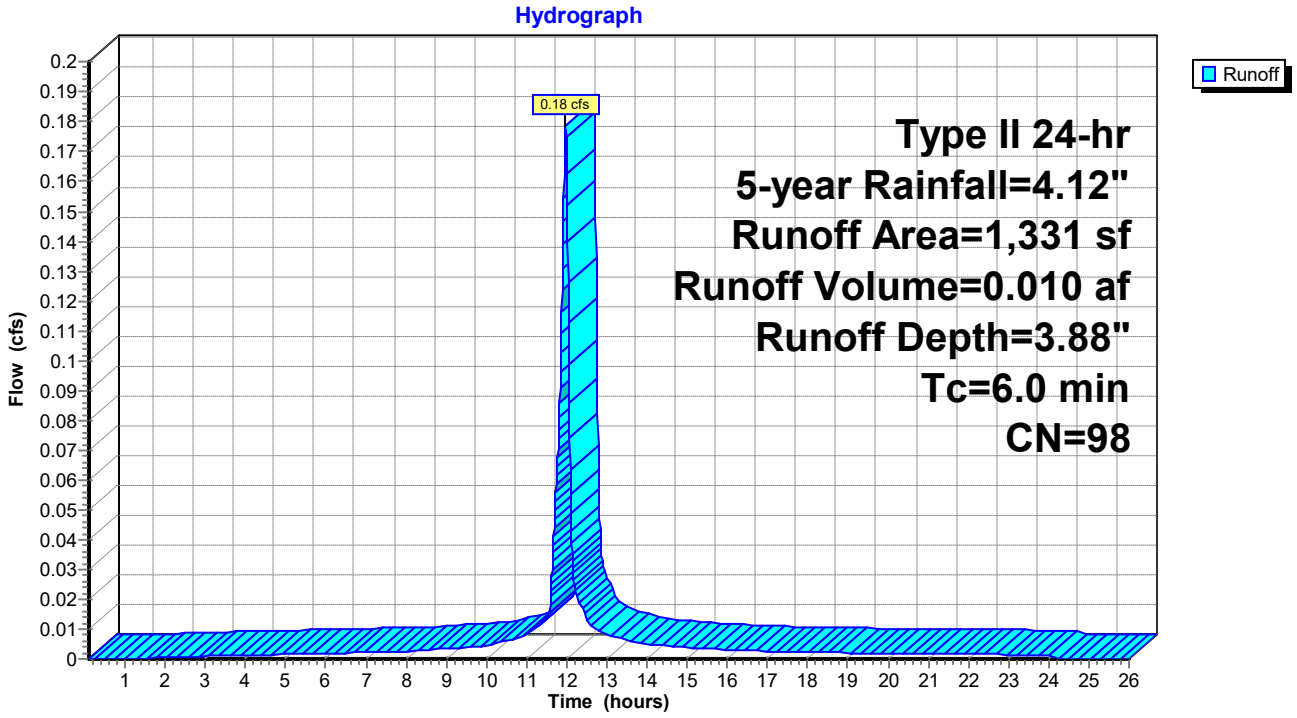
Runoff = 0.18 cfs @ 11.97 hrs, Volume= 0.010 af, Depth= 3.88"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

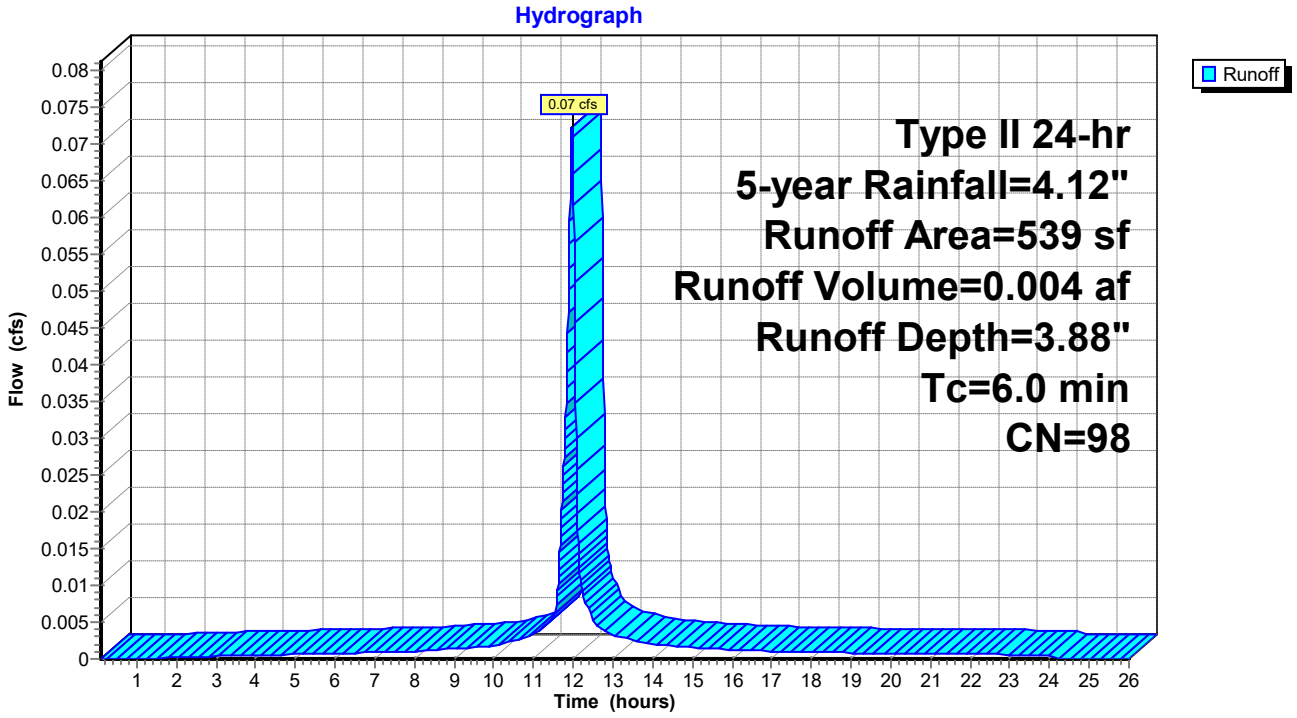
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 3.88"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

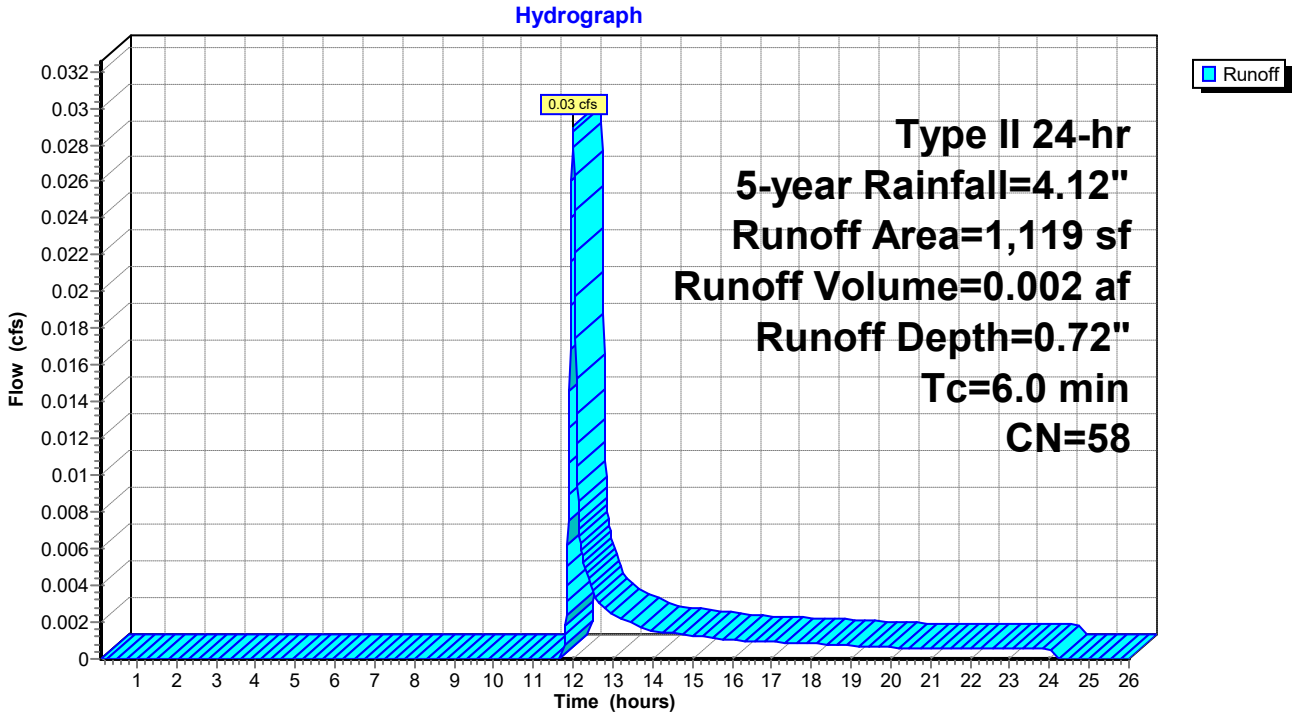
Runoff = 0.03 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 0.72"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

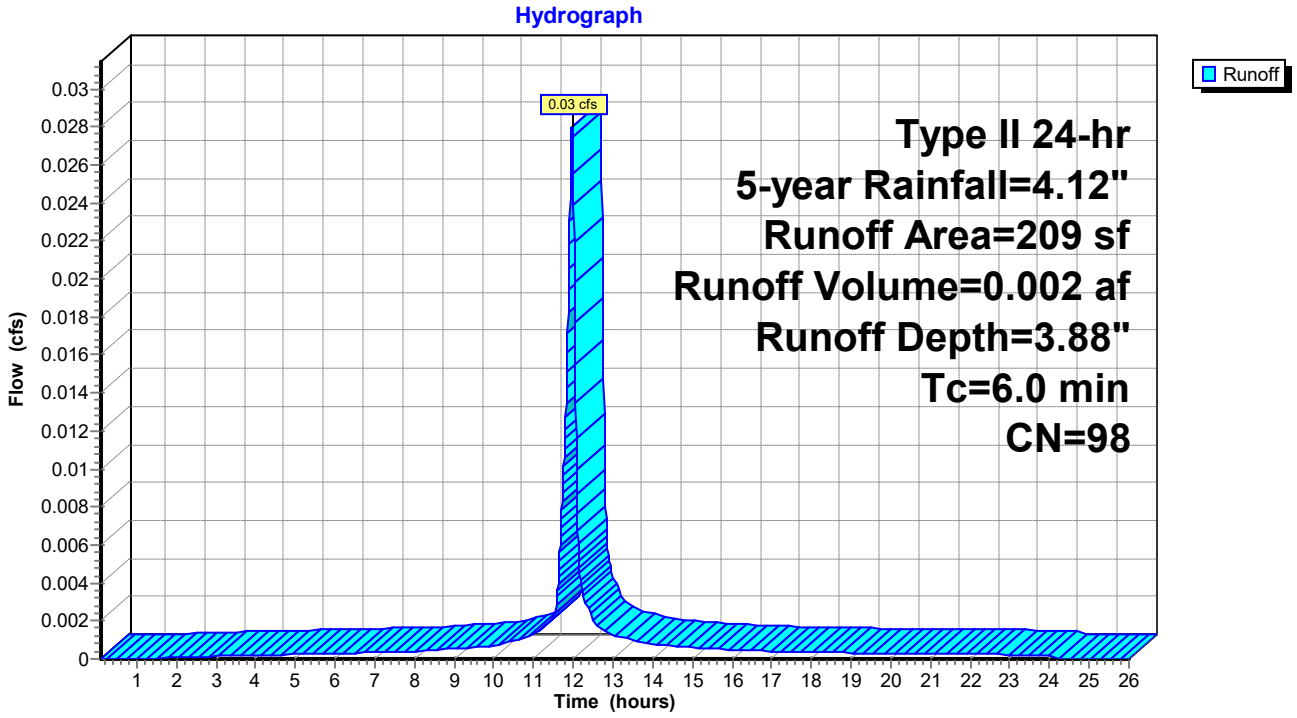
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 3.88"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

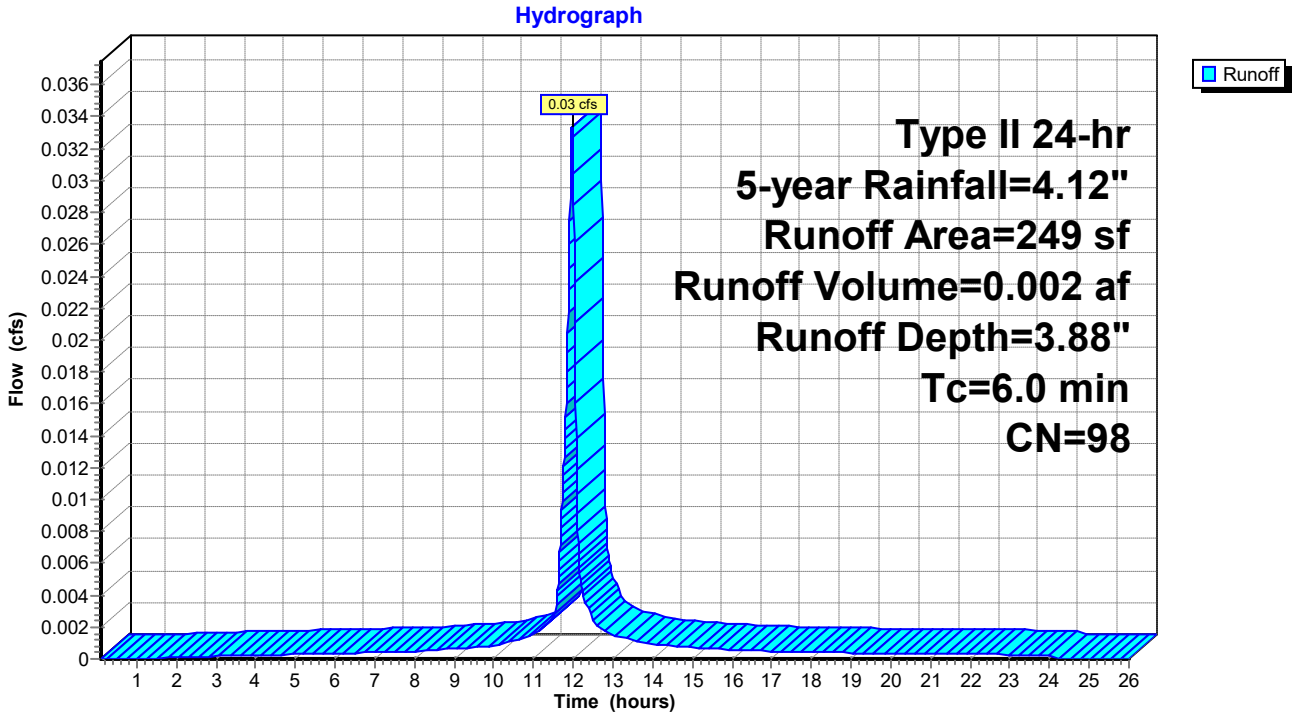
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

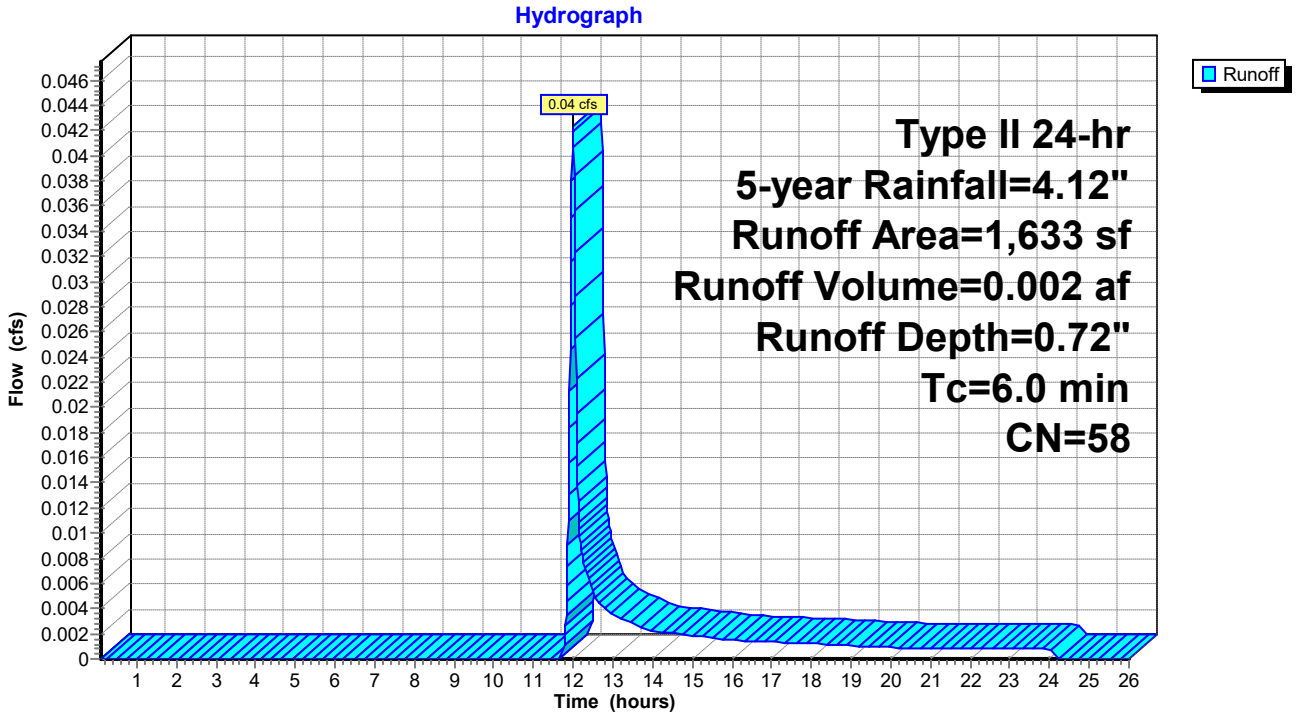
Runoff = 0.04 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 0.72"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

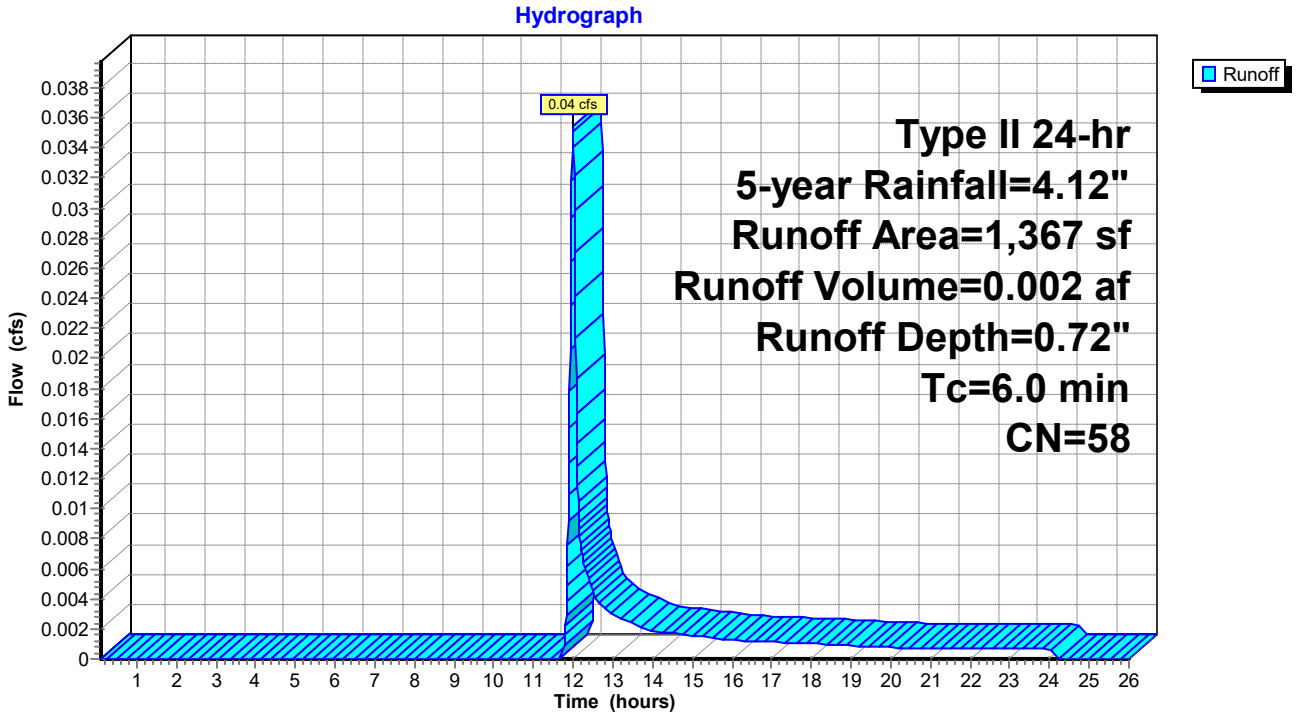
Runoff = 0.04 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 0.72"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

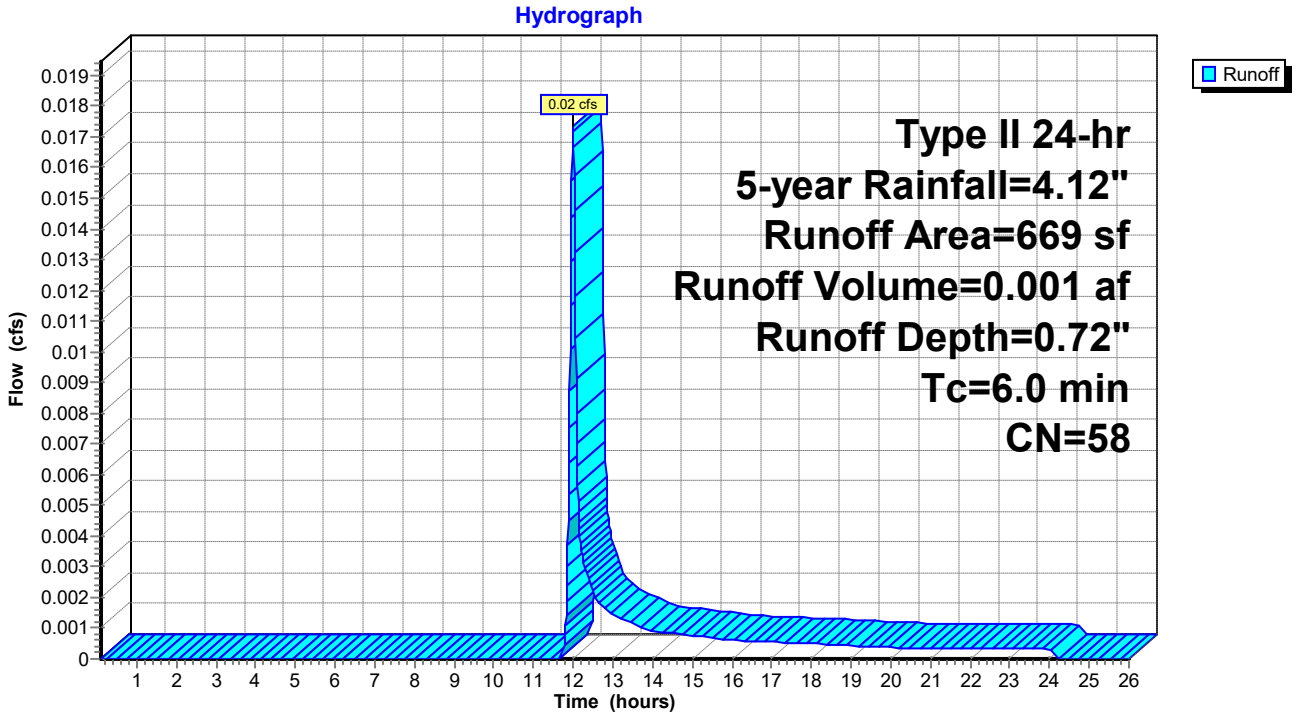
Runoff = 0.02 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 0.72"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

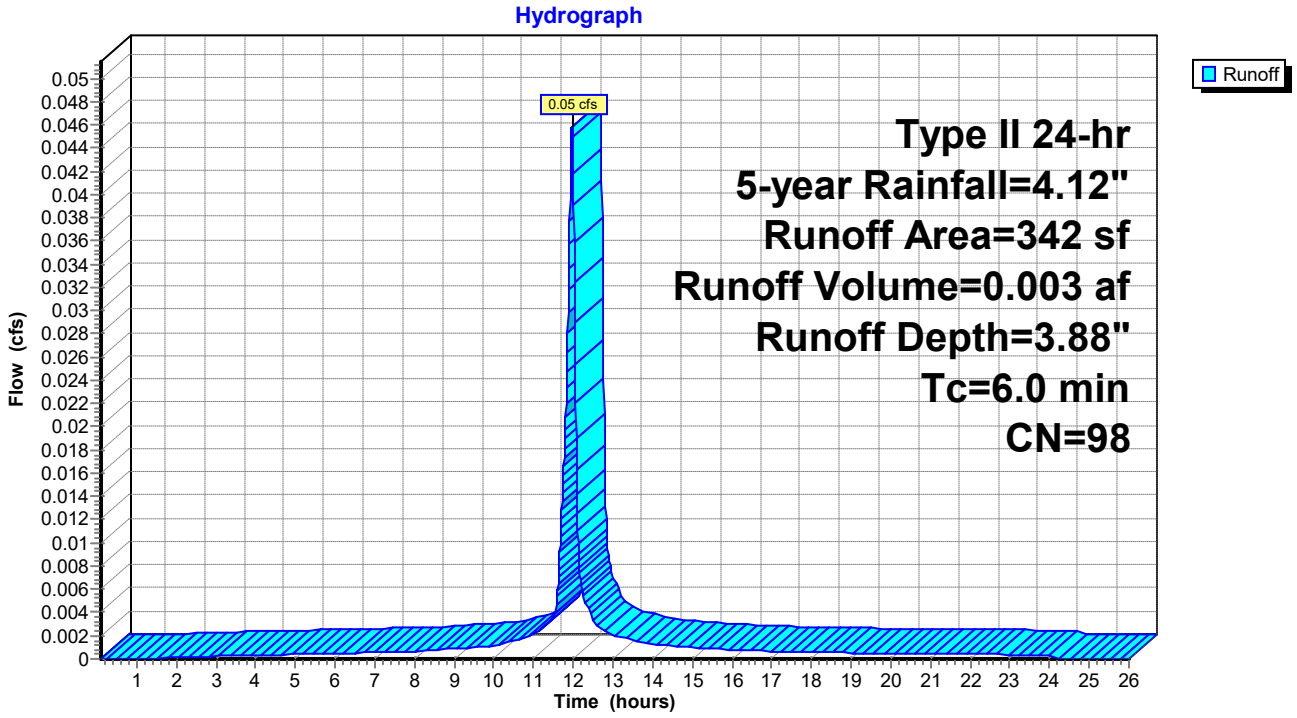
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

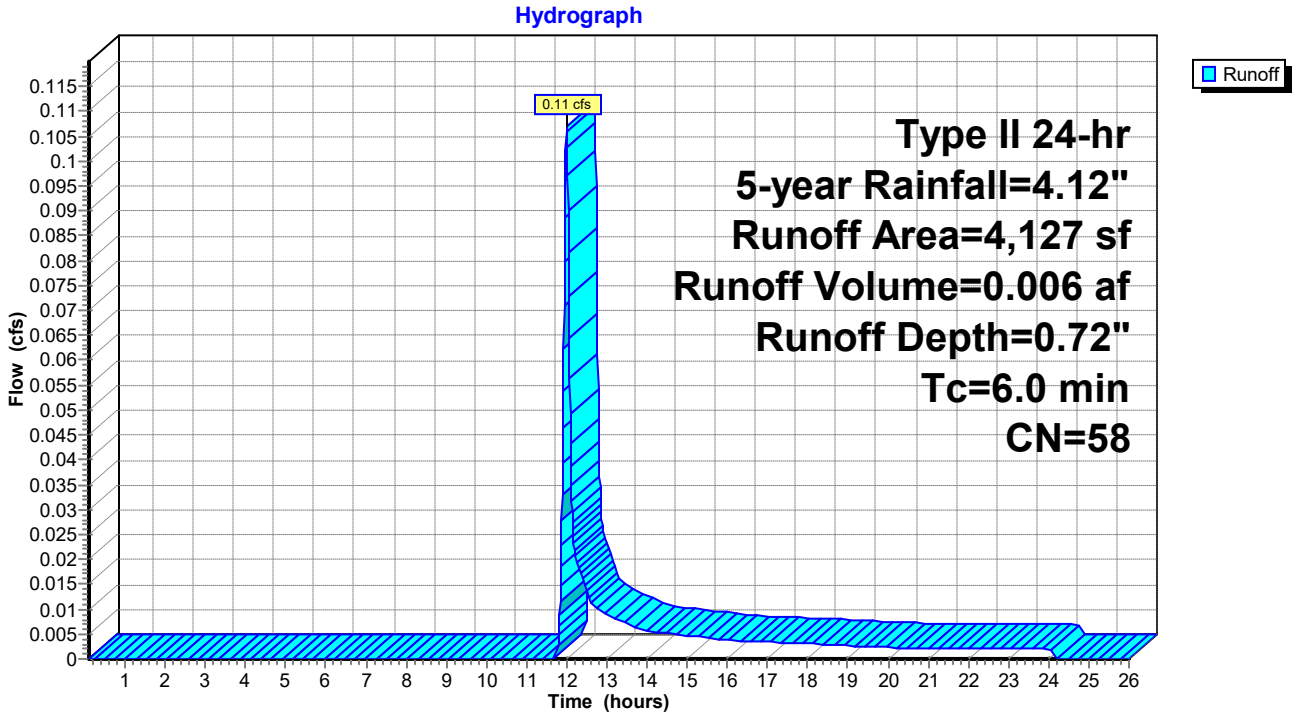
Runoff = 0.11 cfs @ 11.99 hrs, Volume= 0.006 af, Depth= 0.72"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

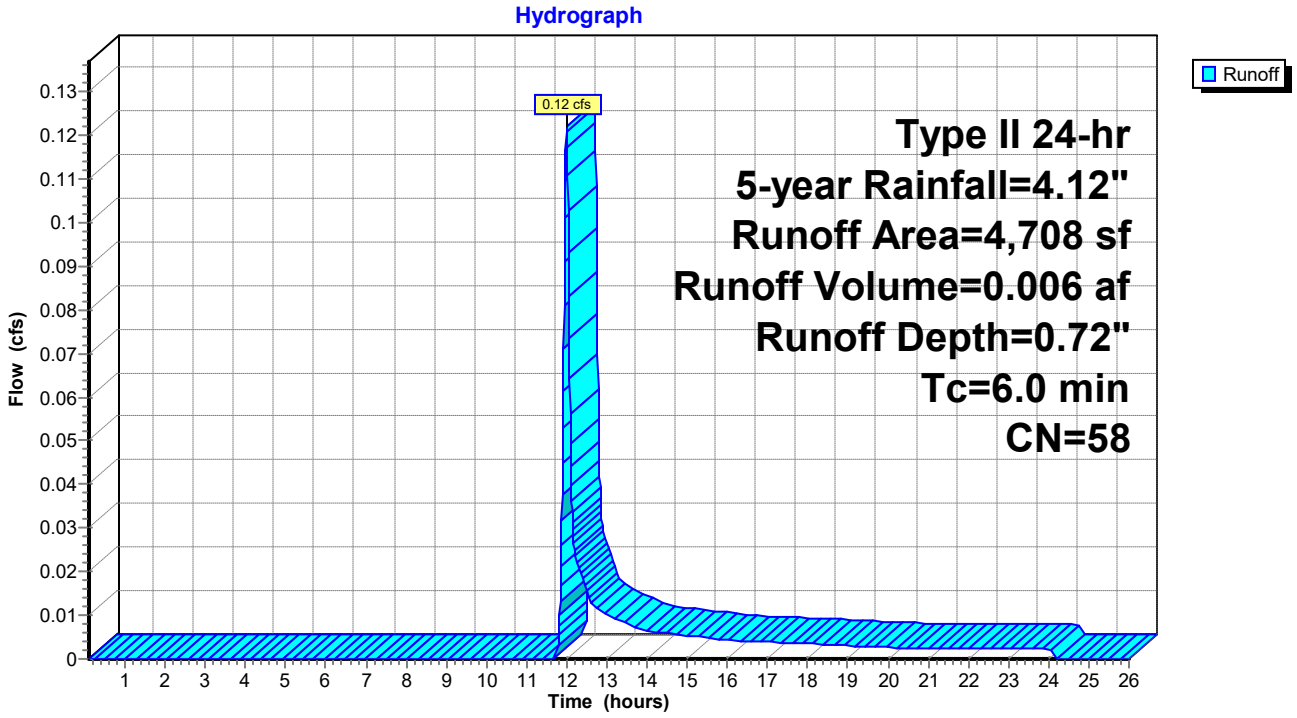
Runoff = 0.12 cfs @ 11.99 hrs, Volume= 0.006 af, Depth= 0.72"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

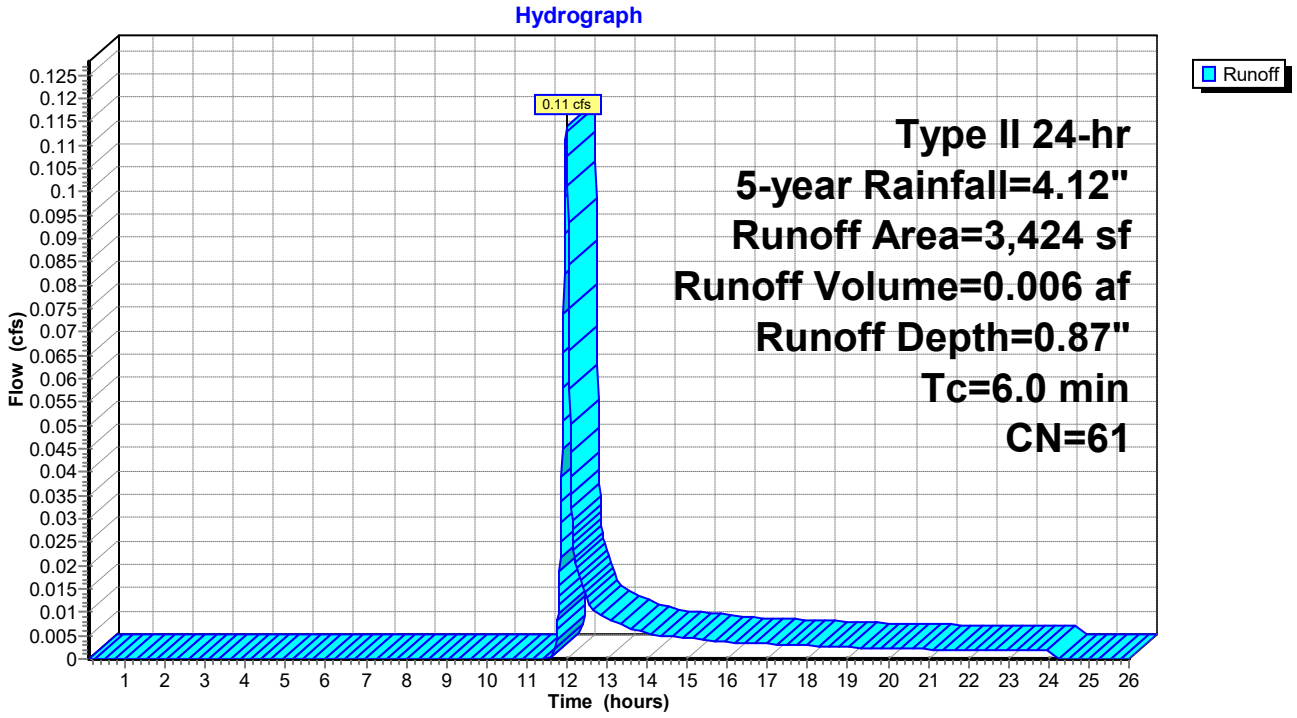
Runoff = 0.11 cfs @ 11.99 hrs, Volume= 0.006 af, Depth= 0.87"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

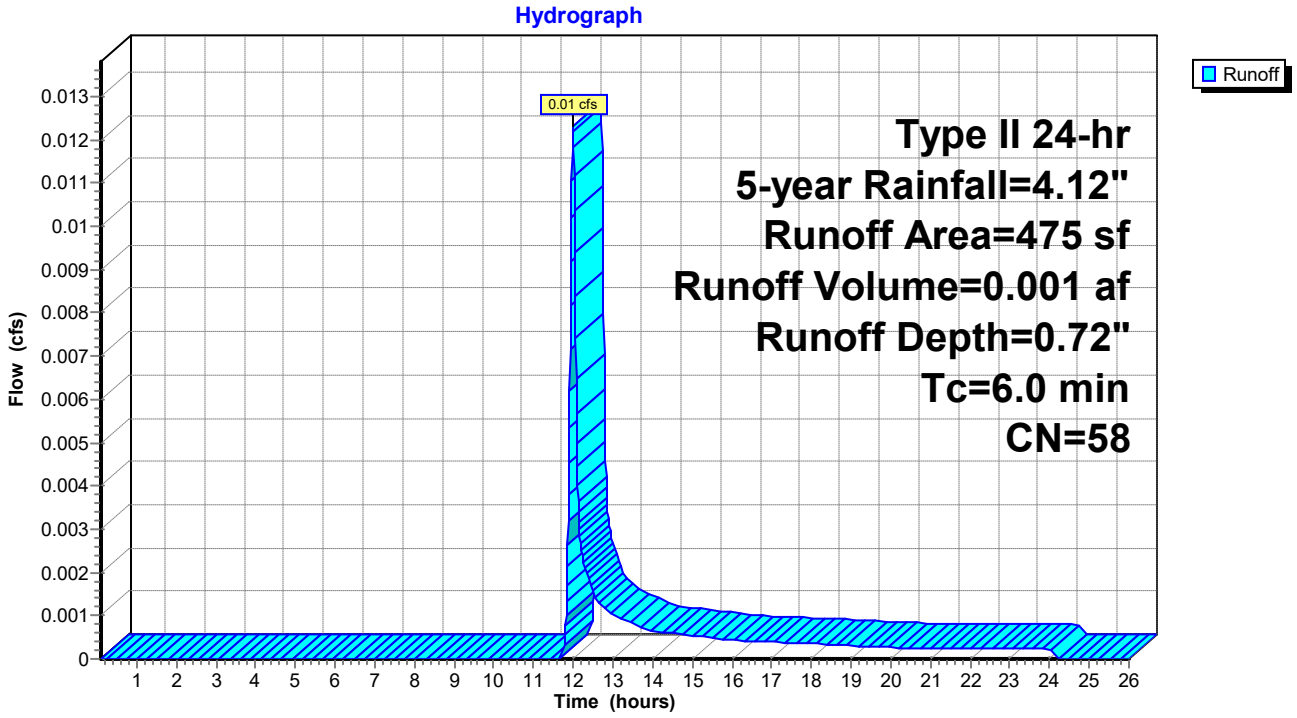
Runoff = 0.01 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 0.72"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

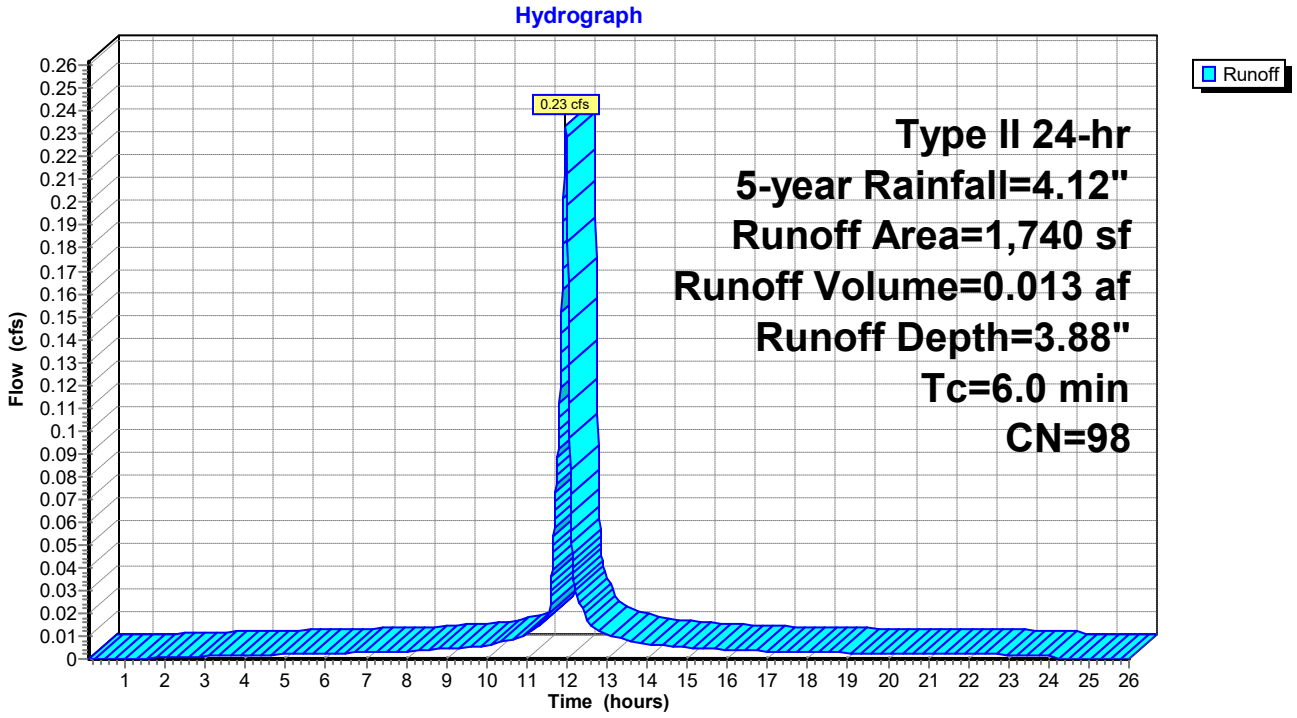
Runoff = 0.23 cfs @ 11.97 hrs, Volume= 0.013 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

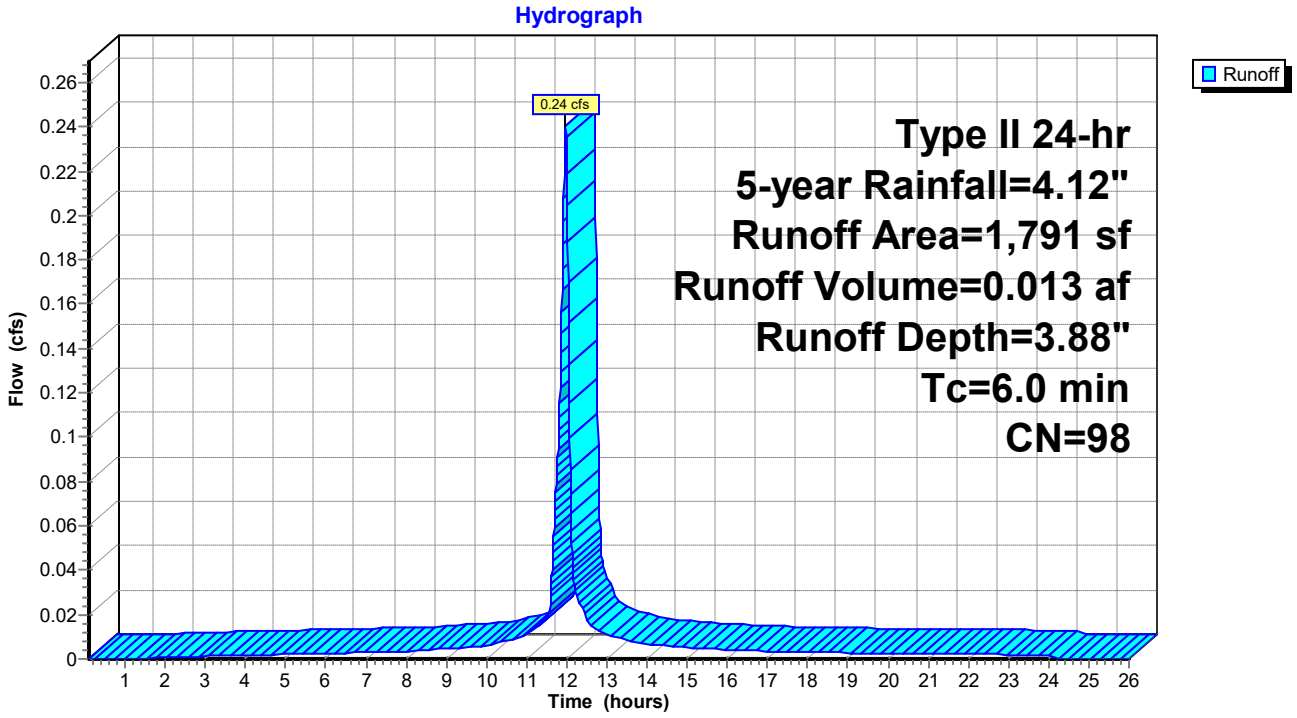
Runoff = 0.24 cfs @ 11.97 hrs, Volume= 0.013 af, Depth= 3.88"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 5-year Rainfall=4.12"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 2.26" for 5-year event
Inflow = 0.25 cfs @ 11.97 hrs, Volume= 0.014 af
Outflow = 0.00 cfs @ 24.08 hrs, Volume= 0.002 af, Atten= 99%, Lag= 726.4 min
Primary = 0.00 cfs @ 24.08 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.85' @ 24.08 hrs Surf.Area= 682 sf Storage= 512 cf

Plug-Flow detention time= 477.3 min calculated for 0.002 af (16% of inflow)
Center-of-Mass det. time= 185.4 min (957.4 - 772.1)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

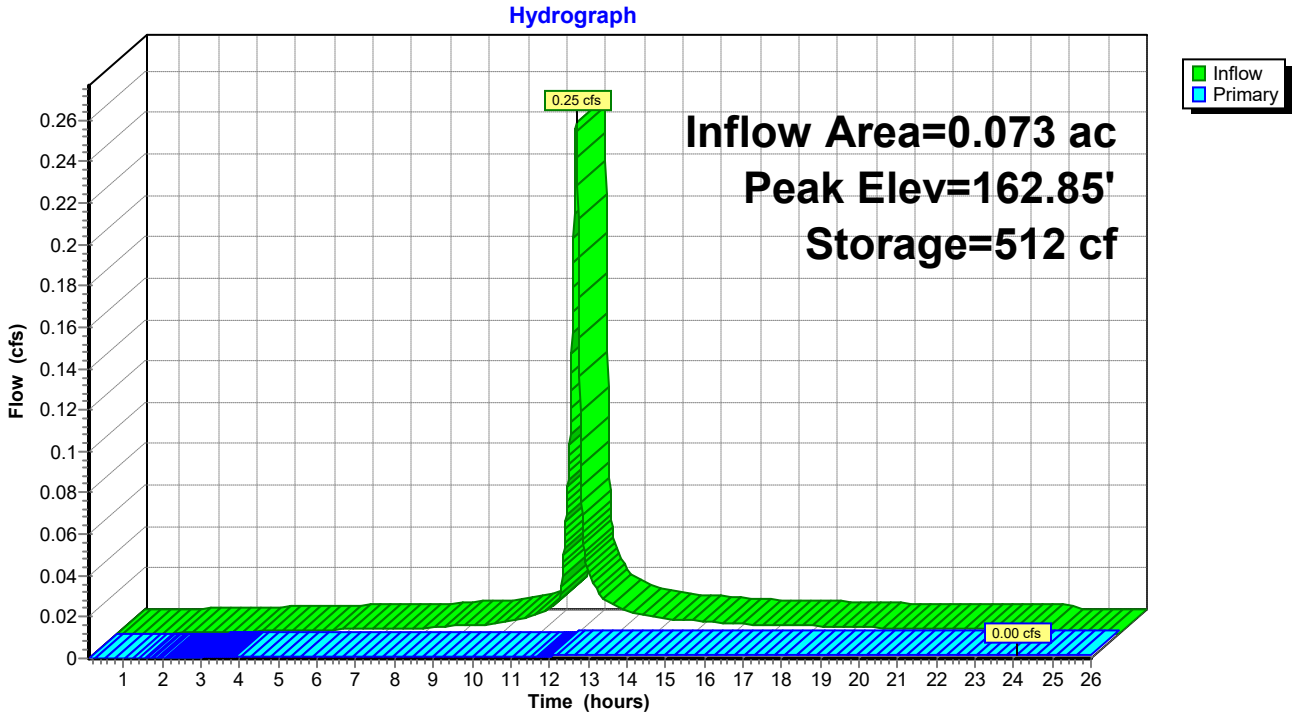
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.08 hrs HW=162.85' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.25 cfs
0.00 cfs
Inflow Area=0.073 ac
Peak Elev=162.85'
Storage=512 cf
Flow (cfs)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 0.72" for 5-year event
Inflow = 0.04 cfs @ 11.99 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 24.07 hrs, Volume= 0.001 af, Atten= 99%, Lag= 724.6 min
Primary = 0.00 cfs @ 24.07 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 161.03' @ 24.07 hrs Surf.Area= 300 sf Storage= 62 cf

Plug-Flow detention time= 419.9 min calculated for 0.001 af (28% of inflow)
Center-of-Mass det. time= 241.8 min (1,139.4 - 897.6)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

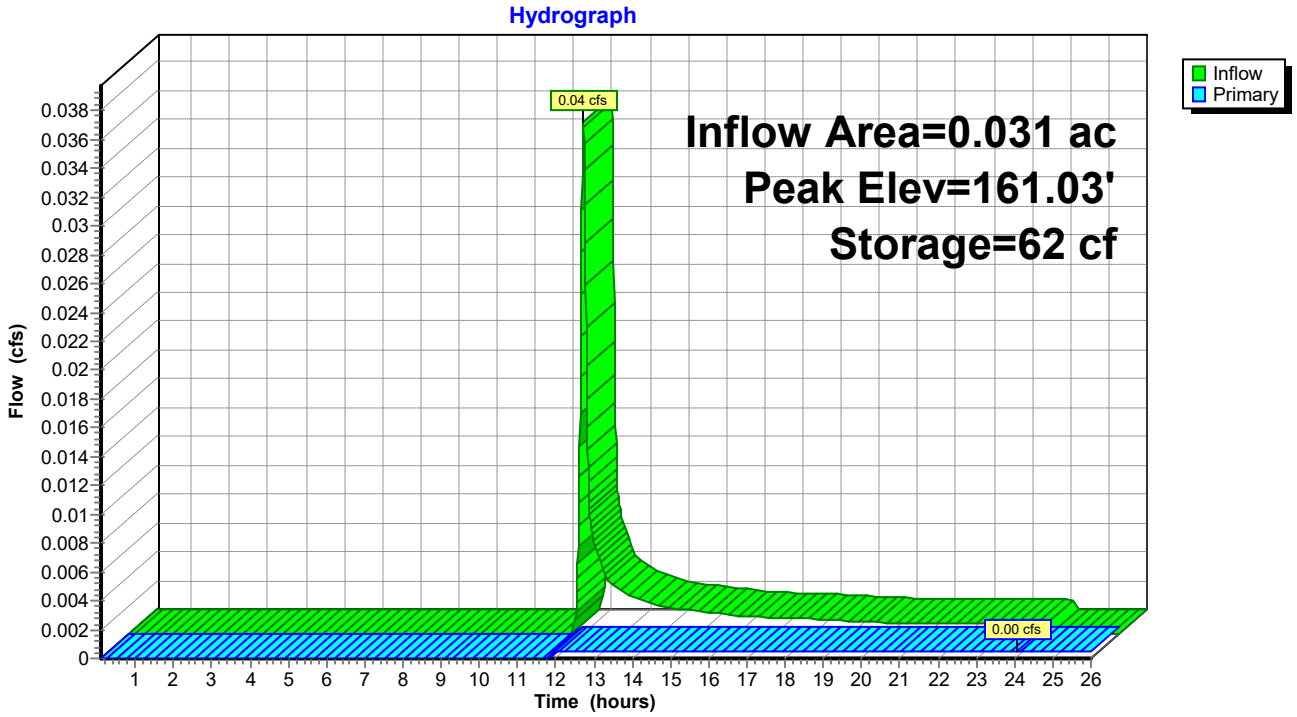
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.07 hrs HW=161.03' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.04 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=161.03'
Storage=62 cf
Flow (cfs)
0
0.002
0.004
0.006
0.008
0.01
0.012
0.014
0.016
0.018
0.02
0.022
0.024
0.026
0.028
0.03
0.032
0.034
0.036
0.038
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 1.89" for 5-year event
Inflow = 0.35 cfs @ 11.97 hrs, Volume= 0.019 af
Outflow = 0.34 cfs @ 11.98 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.4 min
Primary = 0.34 cfs @ 11.98 hrs, Volume= 0.015 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.69' @ 11.98 hrs Surf.Area= 186 sf Storage= 182 cf

Plug-Flow detention time= 149.6 min calculated for 0.015 af (79% of inflow)
Center-of-Mass det. time= 59.3 min (848.9 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

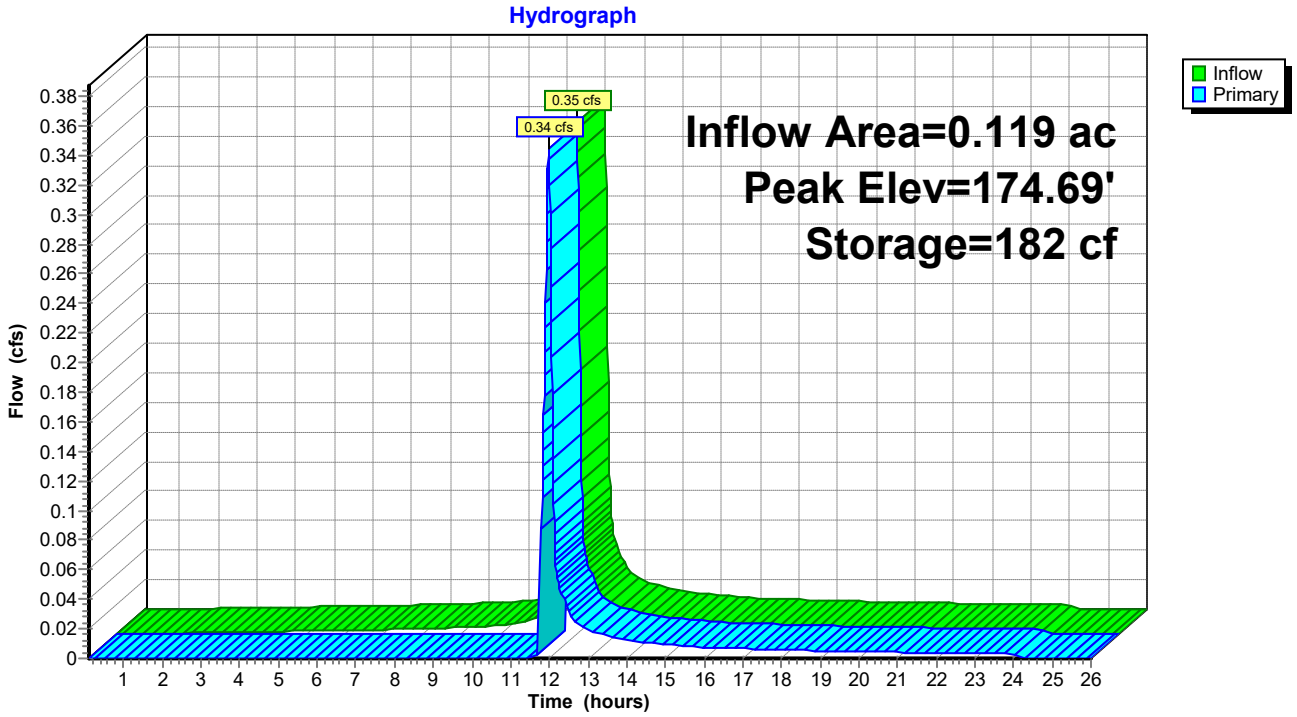
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.34 cfs @ 11.98 hrs HW=174.69' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.34 cfs @ 0.96 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.35 cfs
0.34 cfs
Inflow Area=0.119 ac
Peak Elev=174.69'
Storage=182 cf
Flow (cfs)
0.38
0.36
0.34
0.32
0.3
0.28
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 1.02" for 5-year event
Inflow = 0.20 cfs @ 11.98 hrs, Volume= 0.011 af
Outflow = 0.18 cfs @ 12.02 hrs, Volume= 0.008 af, Atten= 11%, Lag= 2.1 min
Discarded = 0.00 cfs @ 12.02 hrs, Volume= 0.001 af
Primary = 0.18 cfs @ 12.02 hrs, Volume= 0.008 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.65' @ 12.02 hrs Surf.Area= 171 sf Storage= 131 cf

Plug-Flow detention time= 170.1 min calculated for 0.008 af (76% of inflow)
Center-of-Mass det. time= 63.8 min (907.4 - 843.6)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

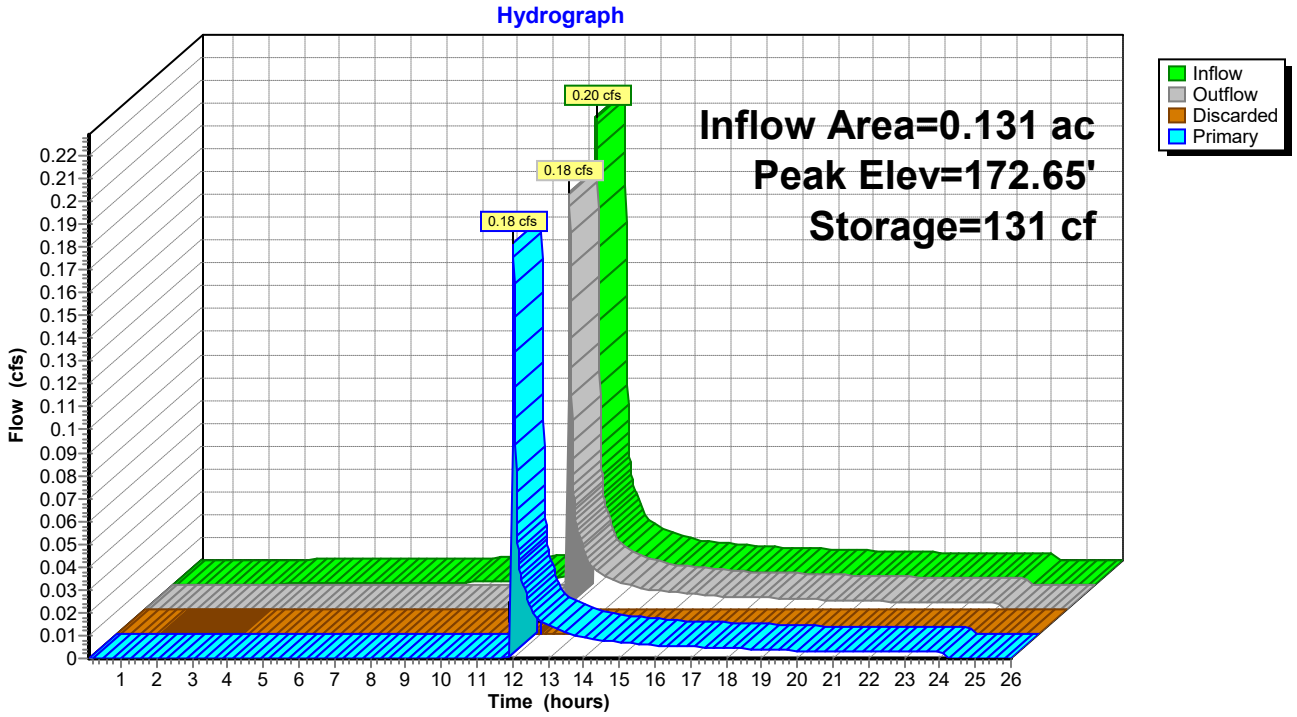
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 12.02 hrs HW=172.65' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.18 cfs @ 12.02 hrs HW=172.65' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.18 cfs @ 1.23 fps)

Pond RG-4: RG-4

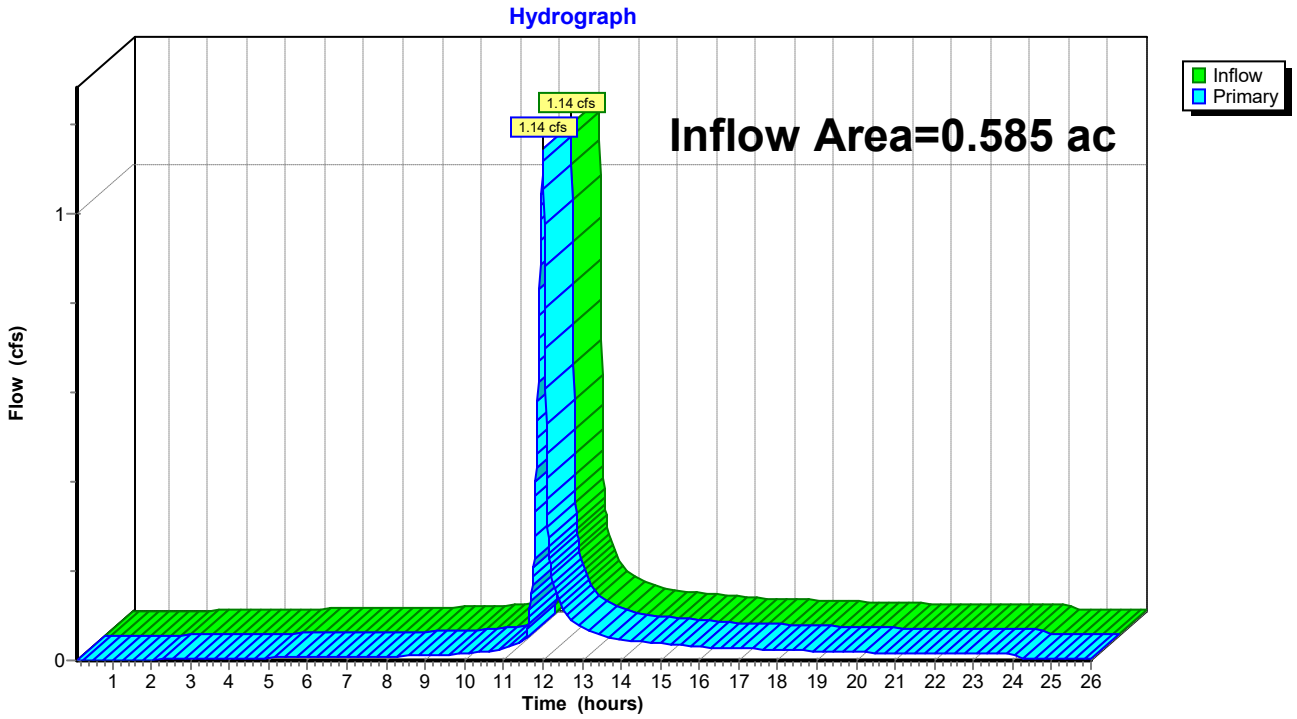

Hydrograph
Inflow
Outflow
Discarded
Primary
0.20 cfs
0.18 cfs
0.18 cfs
Inflow Area=0.131 ac
Peak Elev=172.65'
Storage=131 cf
Flow (cfs)
0 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08 0.09 0.1 0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.2 0.21 0.22
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 1.32" for 5-year event
Inflow = 1.14 cfs @ 12.00 hrs, Volume= 0.064 af
Primary = 1.14 cfs @ 12.00 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=2.14"
Flow Length=487' Tc=13.0 min CN=73 Runoff=1.73 cfs 0.104 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.015 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.21 cfs 0.012 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.005 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.002 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.002 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.07 cfs 0.003 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.06 cfs 0.003 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.03 cfs 0.001 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.17 cfs 0.008 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.19 cfs 0.010 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=1.26"
Tc=6.0 min CN=61 Runoff=0.17 cfs 0.008 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=1.07"
Tc=6.0 min CN=58 Runoff=0.02 cfs 0.001 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.27 cfs 0.015 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=4.58"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.016 af

Pond RG-1: RG-1 Peak Elev=163.29' Storage=643 cf Inflow=0.31 cfs 0.017 af
Outflow=0.00 cfs 0.002 af

Pond RG-2: RG-2 Peak Elev=161.68' Storage=101 cf Inflow=0.06 cfs 0.003 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.70' Storage=185 cf Inflow=0.44 cfs 0.024 af
Outflow=0.44 cfs 0.020 af

Pond RG-4: RG-4 Peak Elev=172.70' Storage=135 cf Inflow=0.30 cfs 0.015 af
Discarded=0.00 cfs 0.001 af Primary=0.29 cfs 0.012 af Outflow=0.29 cfs 0.013 af

Link POA: POA Inflow=1.62 cfs 0.083 af
Primary=1.62 cfs 0.083 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.211 af Average Runoff Depth = 2.17"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

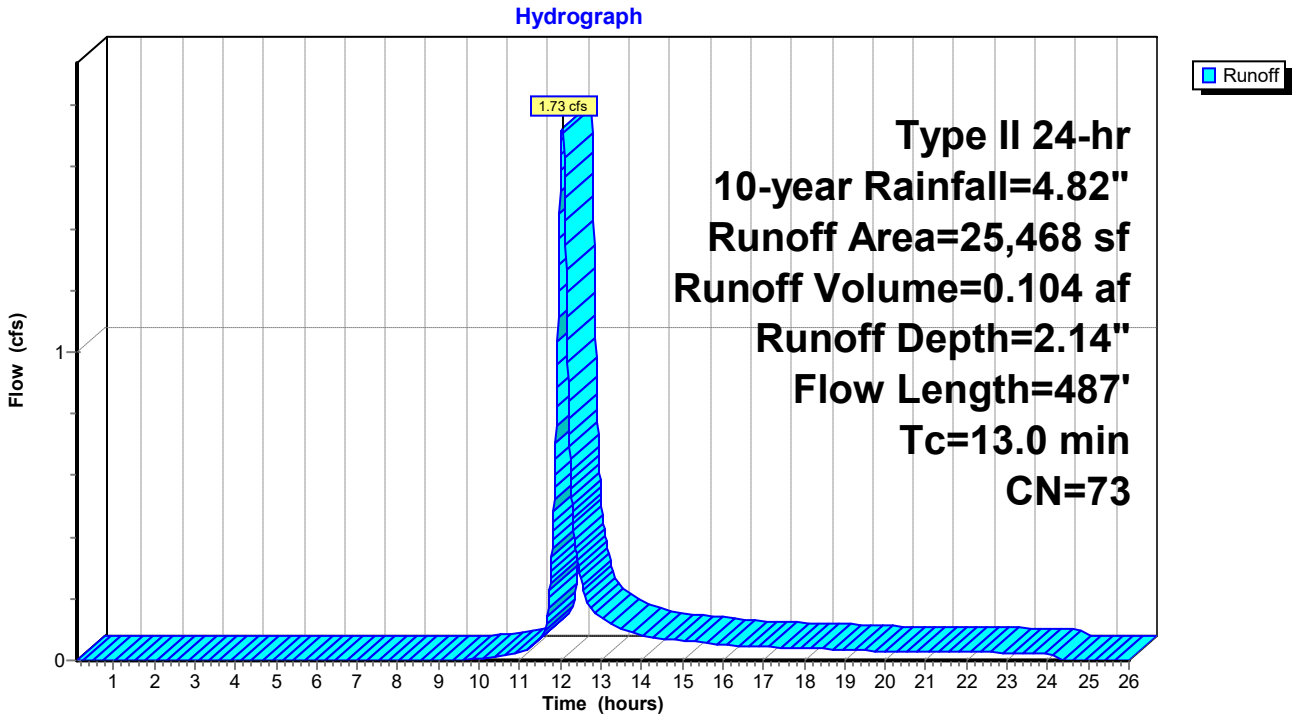
Runoff = 1.73 cfs @ 12.05 hrs, Volume= 0.104 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

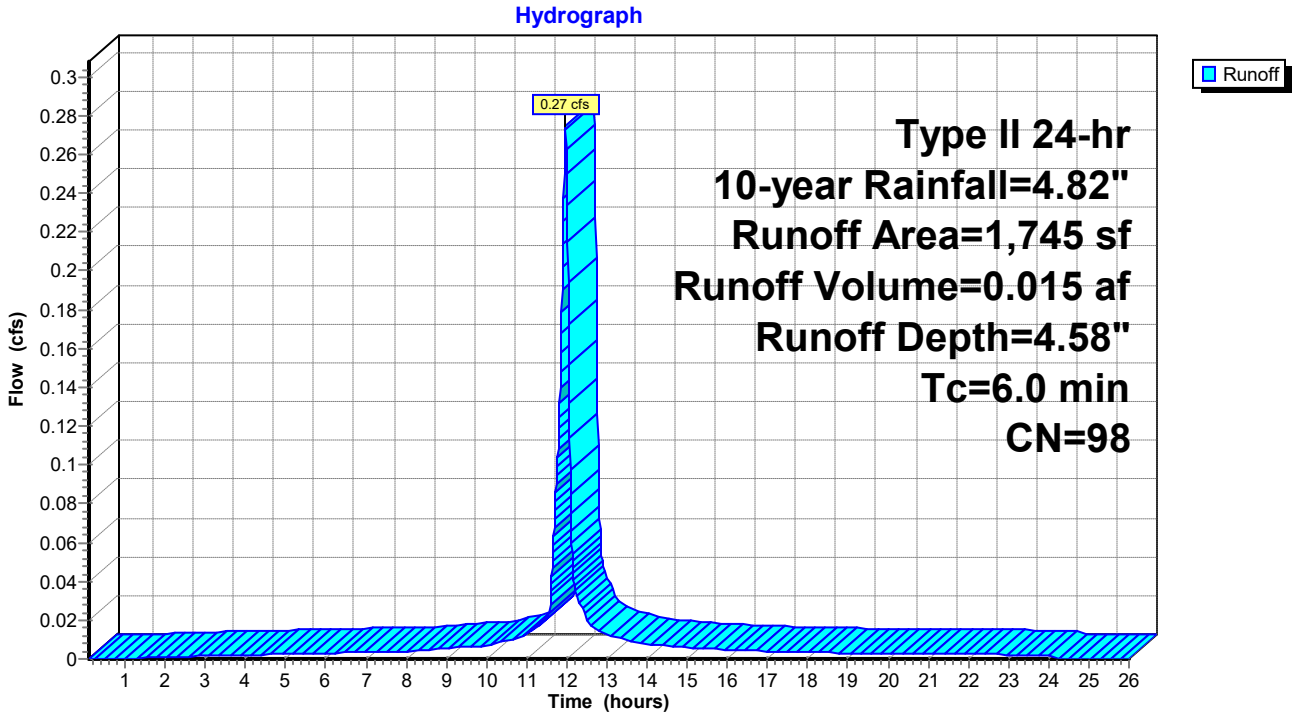
Runoff = 0.27 cfs @ 11.97 hrs, Volume= 0.015 af, Depth= 4.58"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

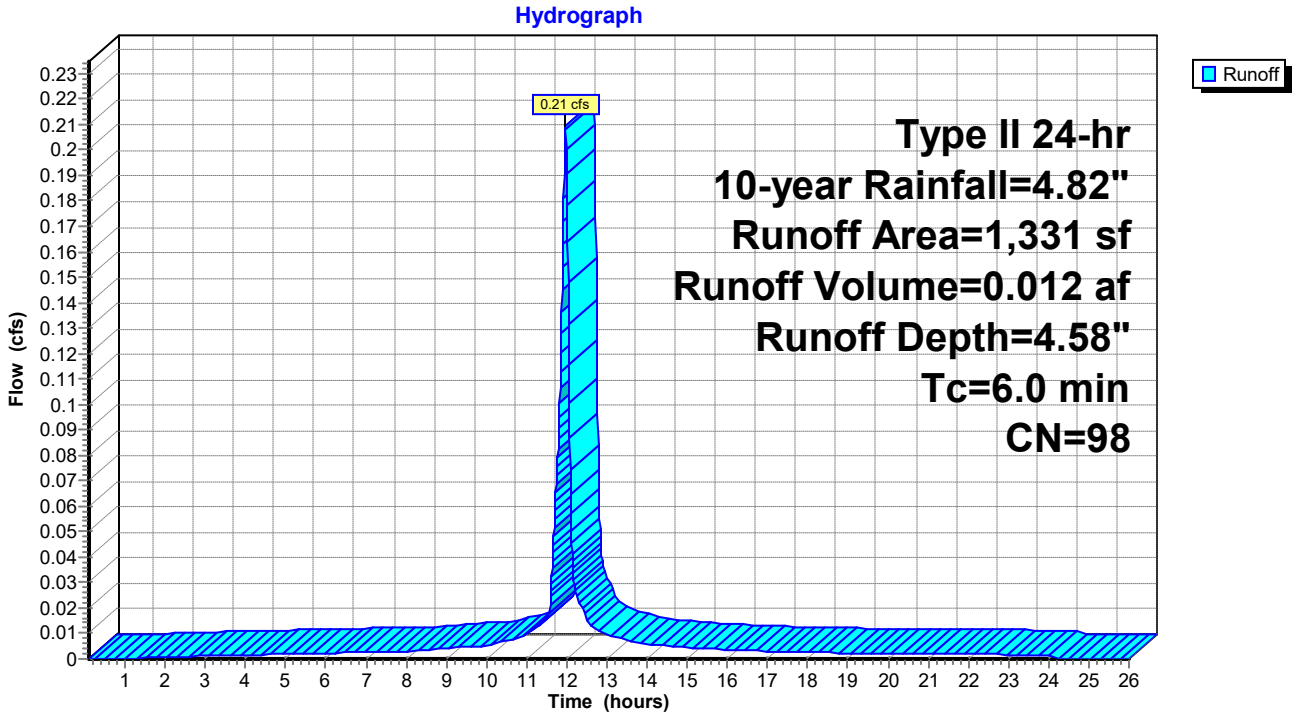
Runoff = 0.21 cfs @ 11.97 hrs, Volume= 0.012 af, Depth= 4.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

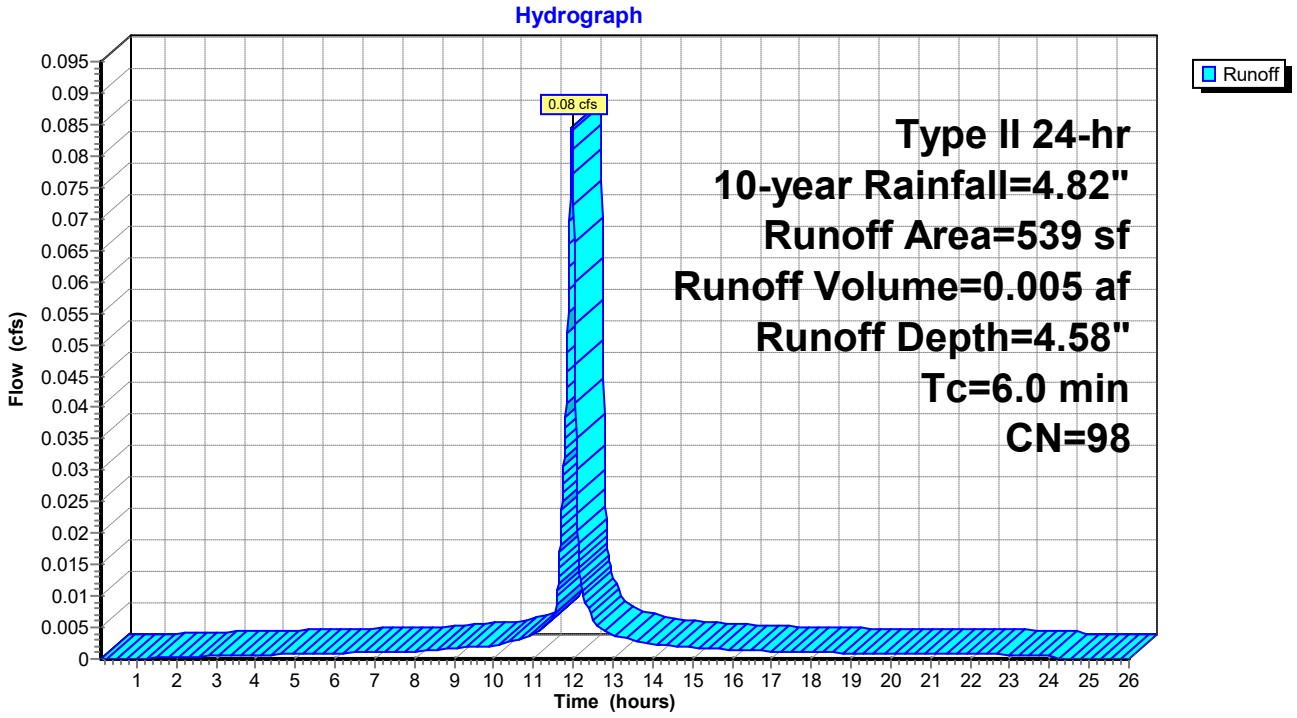
Runoff = 0.08 cfs @ 11.97 hrs, Volume= 0.005 af, Depth= 4.58"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

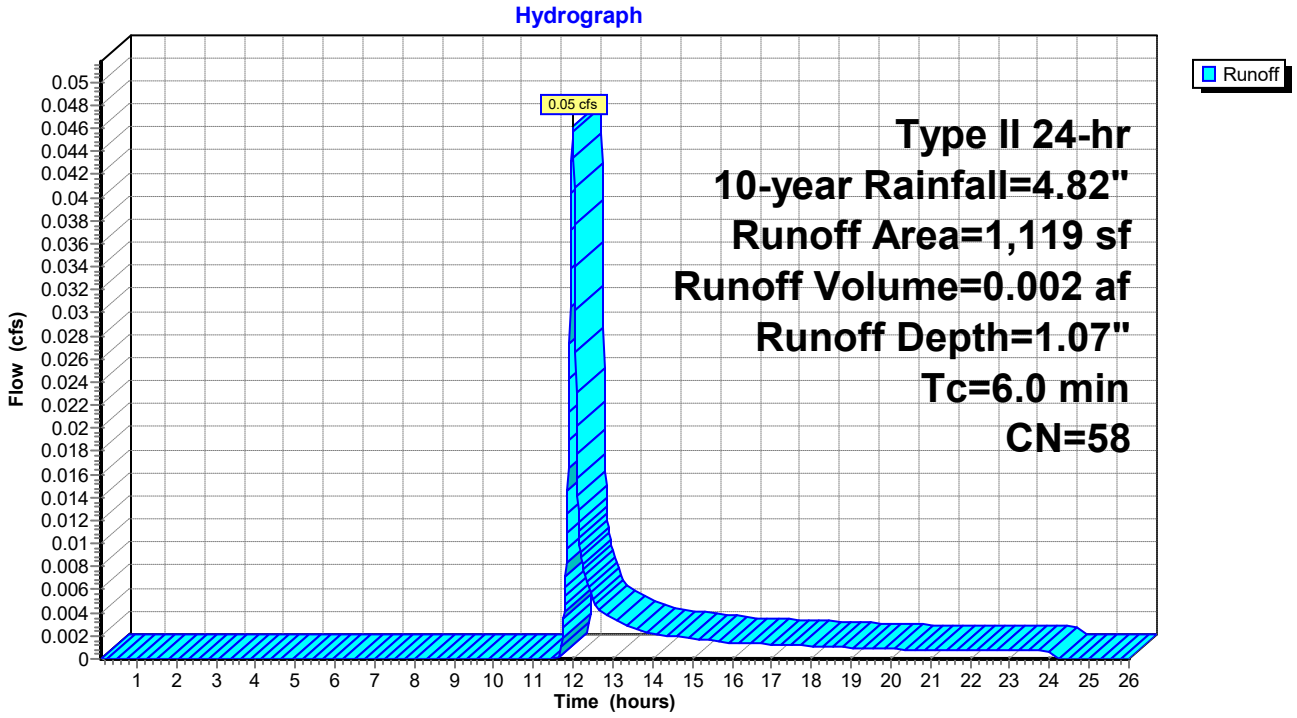
Runoff = 0.05 cfs @ 11.99 hrs, Volume= 0.002 af, Depth= 1.07"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

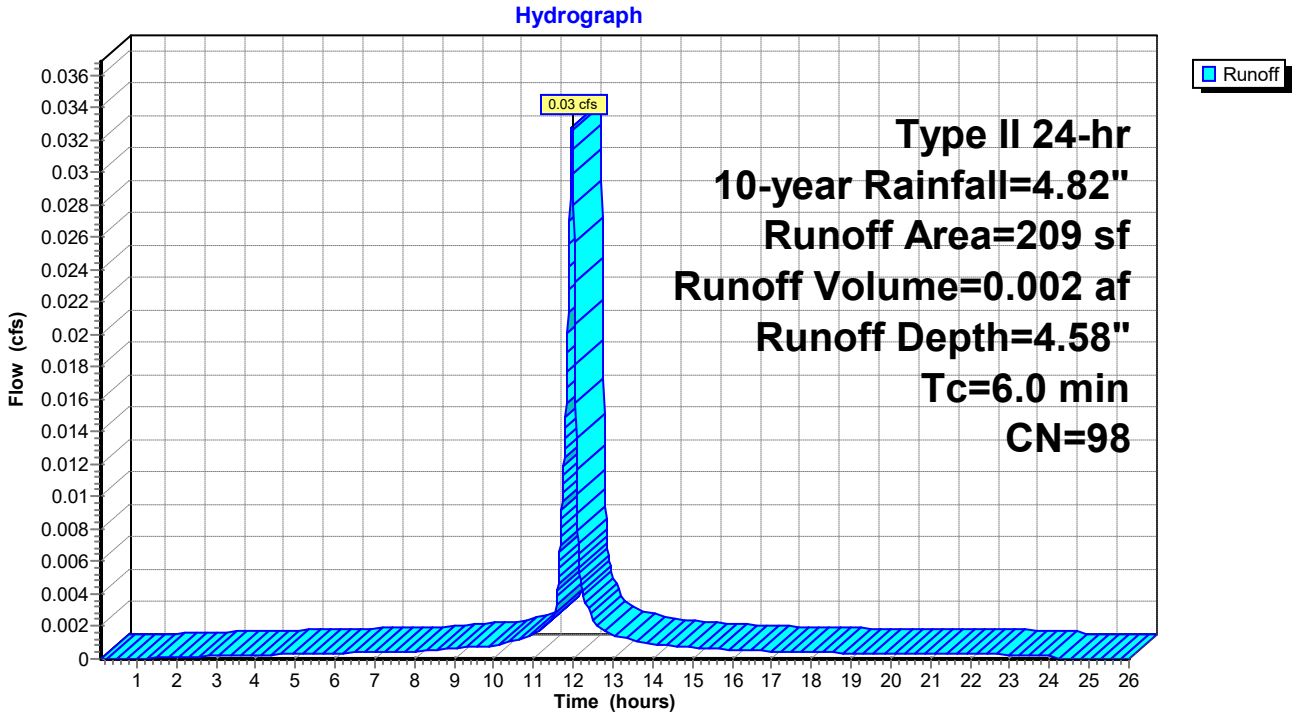
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 4.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

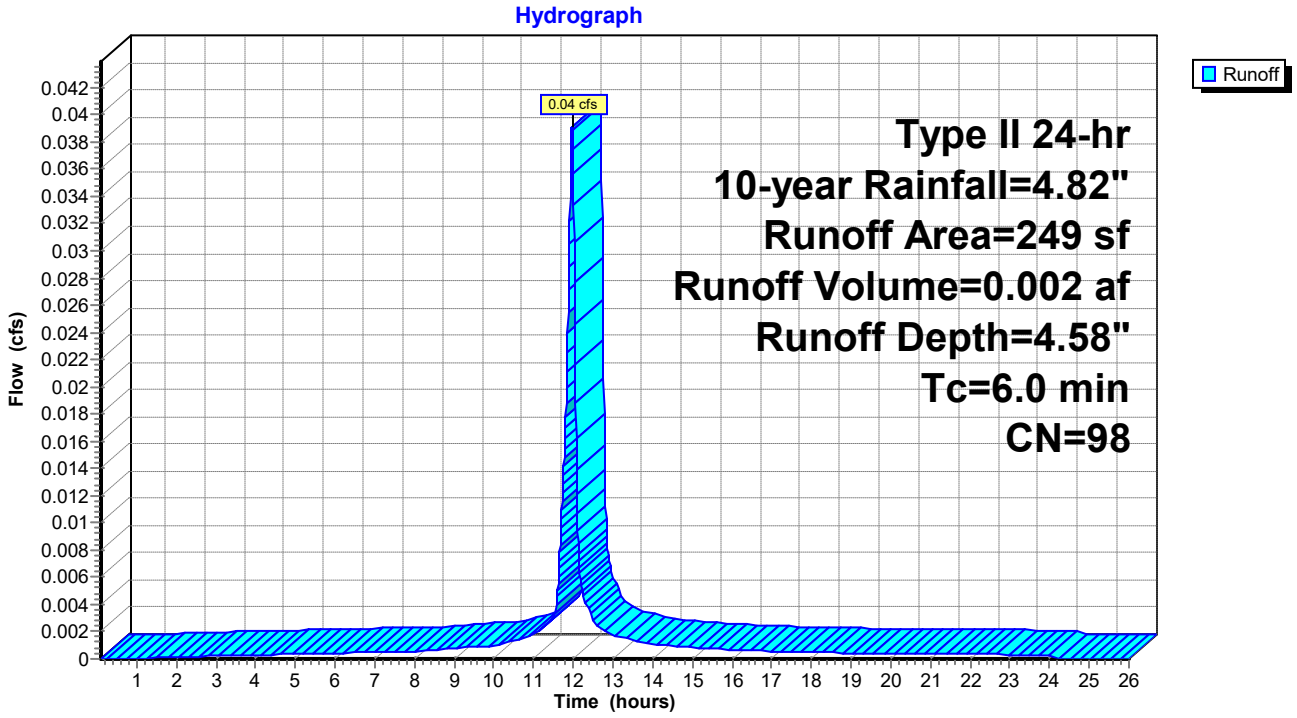
Runoff = 0.04 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

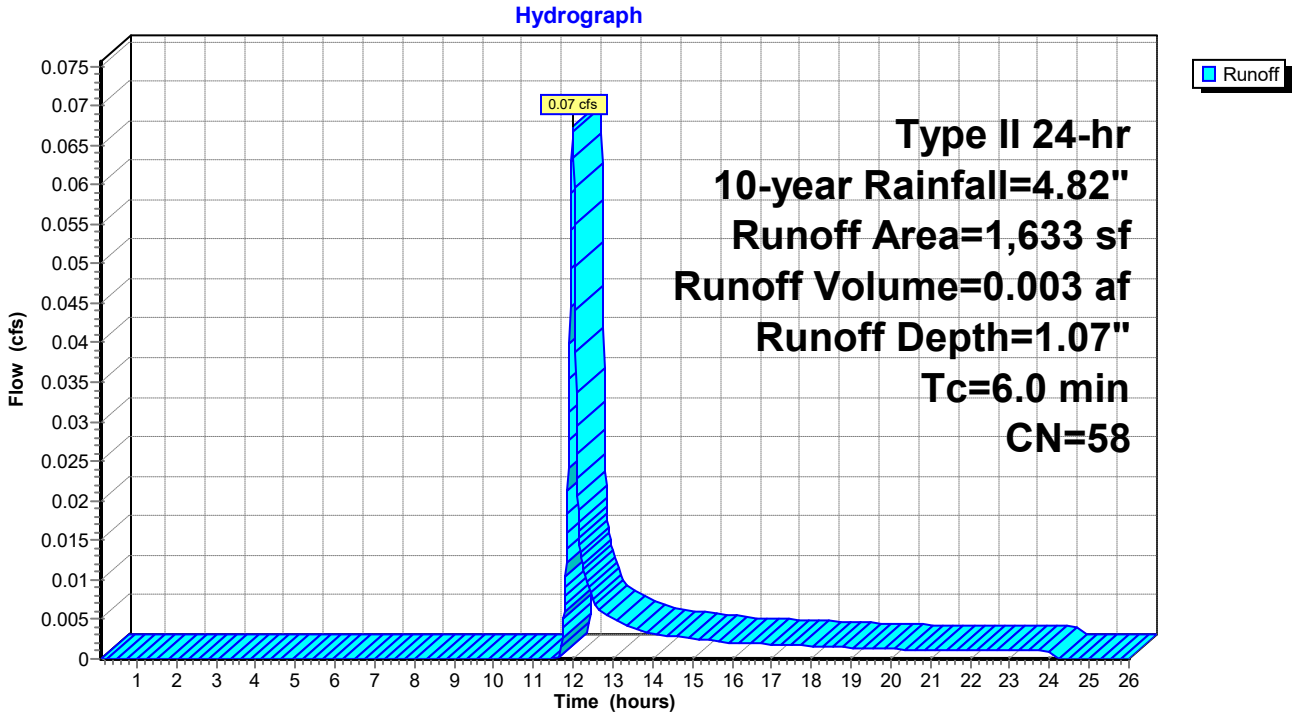
Runoff = 0.07 cfs @ 11.99 hrs, Volume= 0.003 af, Depth= 1.07"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

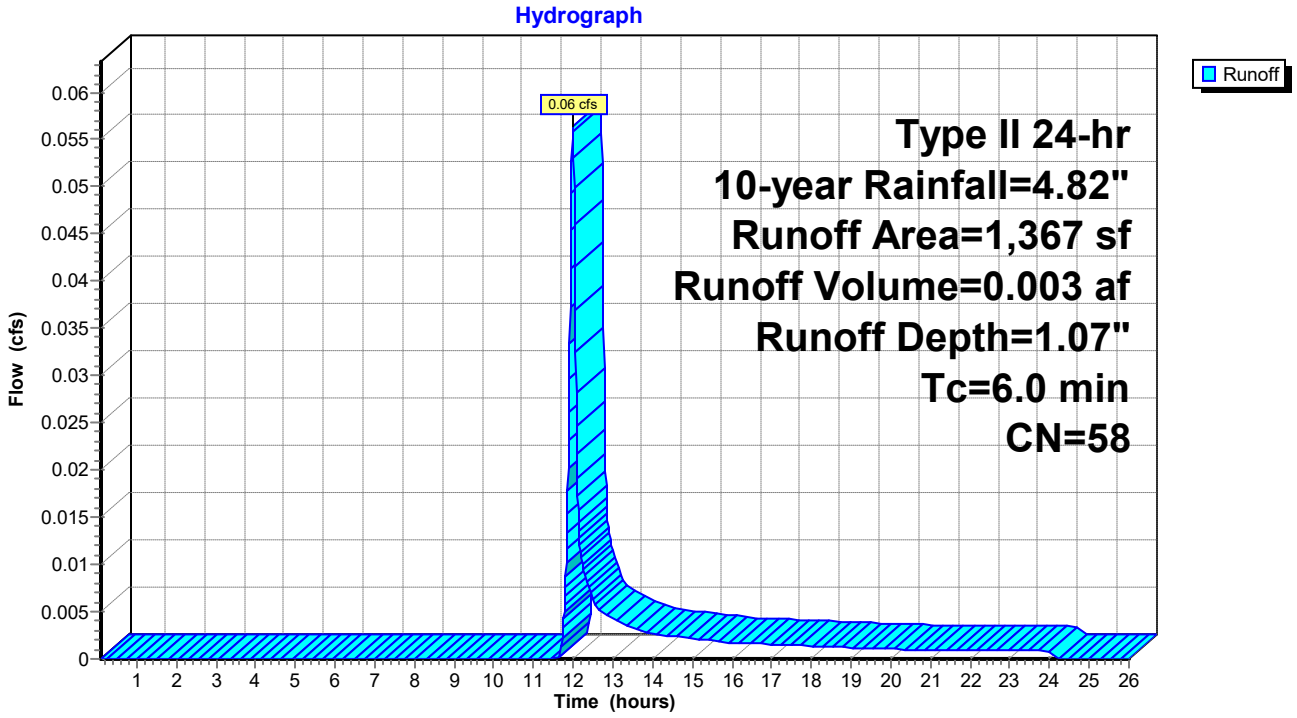
Runoff = 0.06 cfs @ 11.99 hrs, Volume= 0.003 af, Depth= 1.07"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

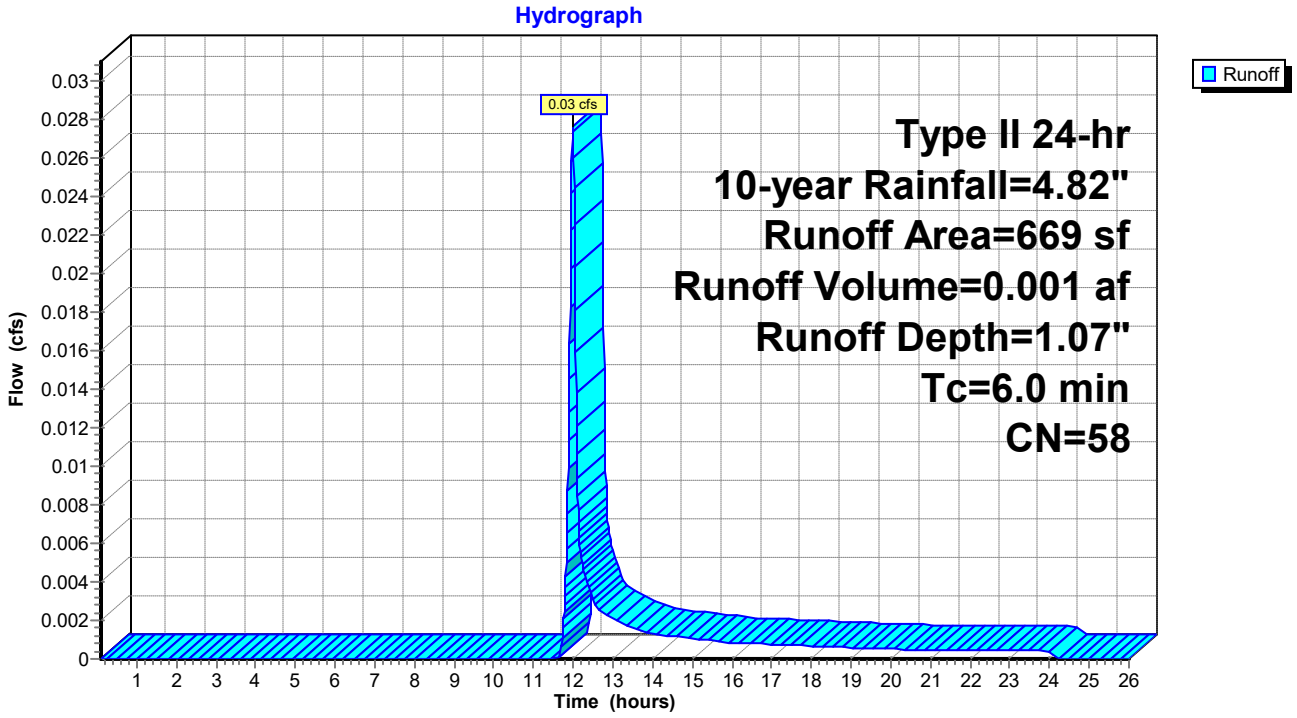
Runoff = 0.03 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 1.07"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

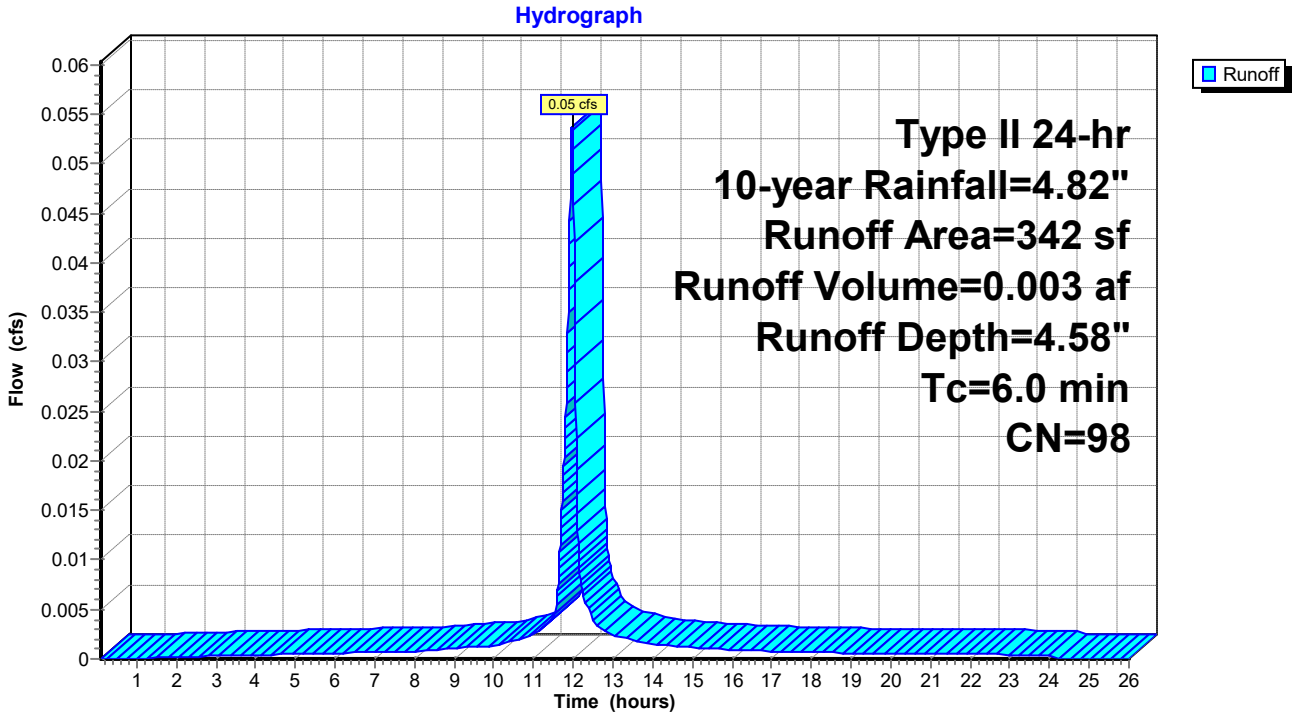
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

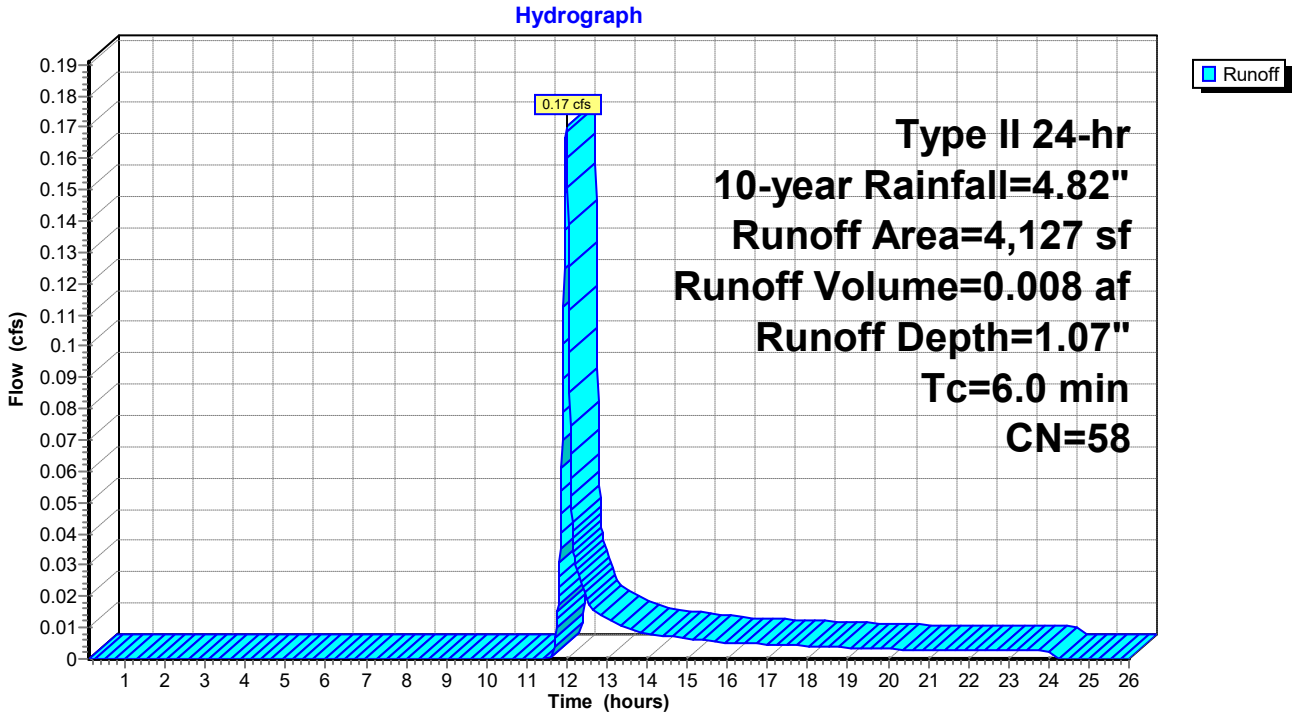
Runoff = 0.17 cfs @ 11.99 hrs, Volume= 0.008 af, Depth= 1.07"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

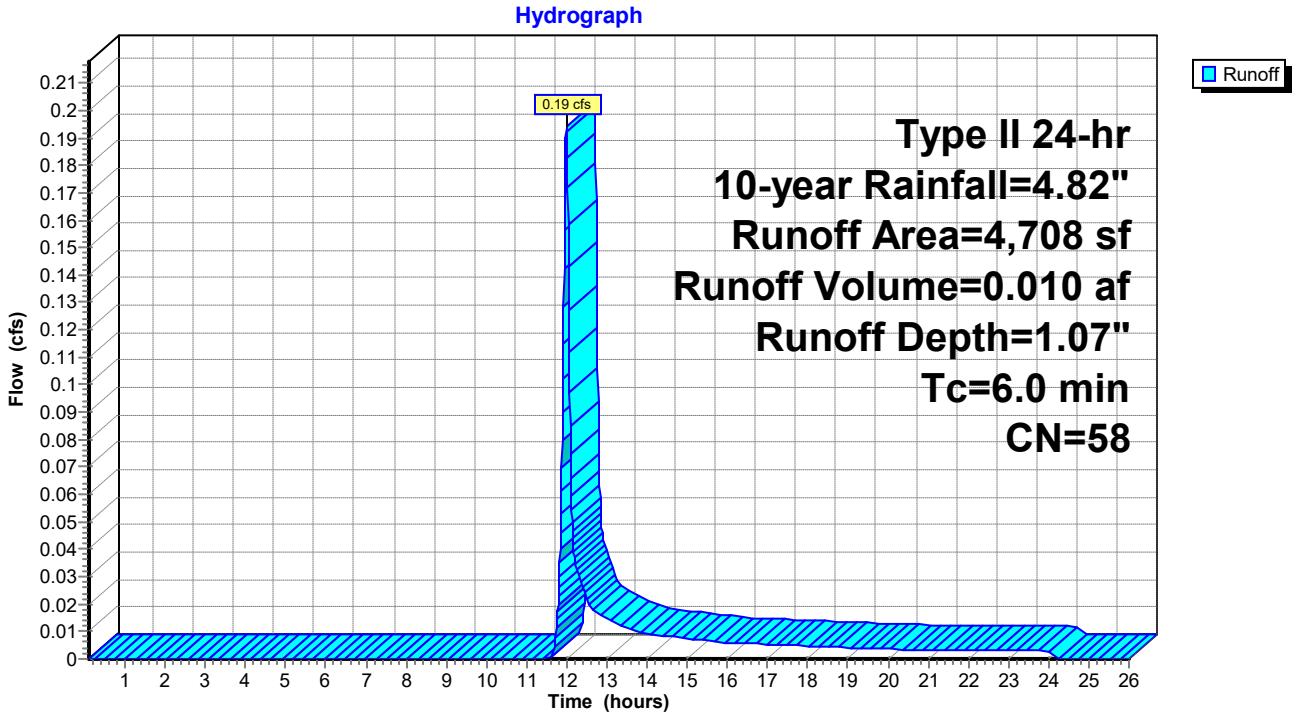
Runoff = 0.19 cfs @ 11.99 hrs, Volume= 0.010 af, Depth= 1.07"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

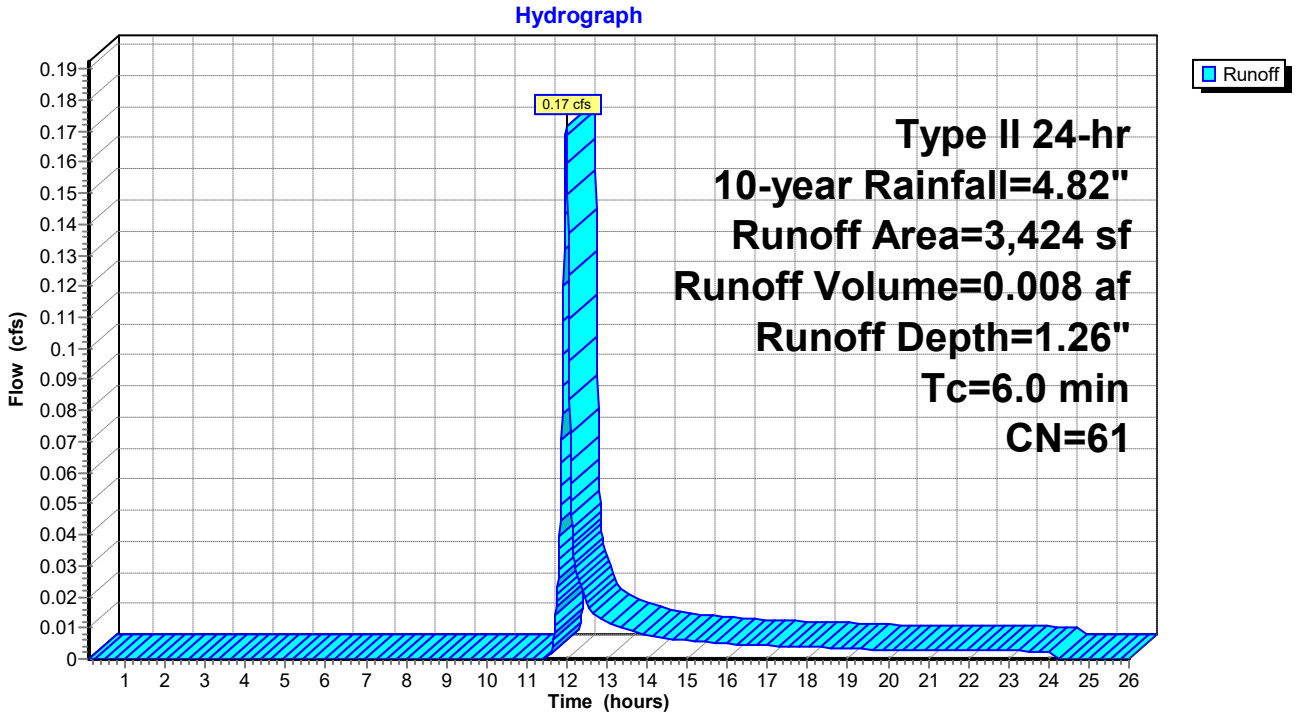
Runoff = 0.17 cfs @ 11.98 hrs, Volume= 0.008 af, Depth= 1.26"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

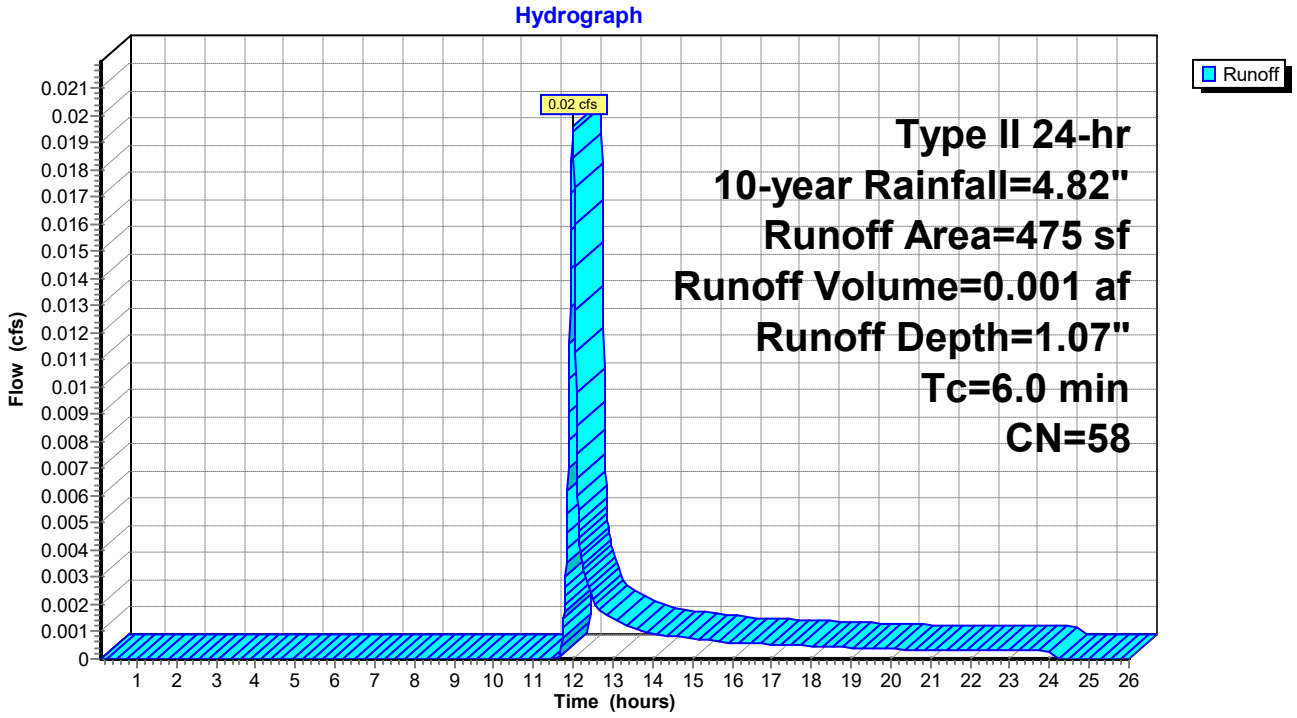
Runoff = 0.02 cfs @ 11.99 hrs, Volume= 0.001 af, Depth= 1.07"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

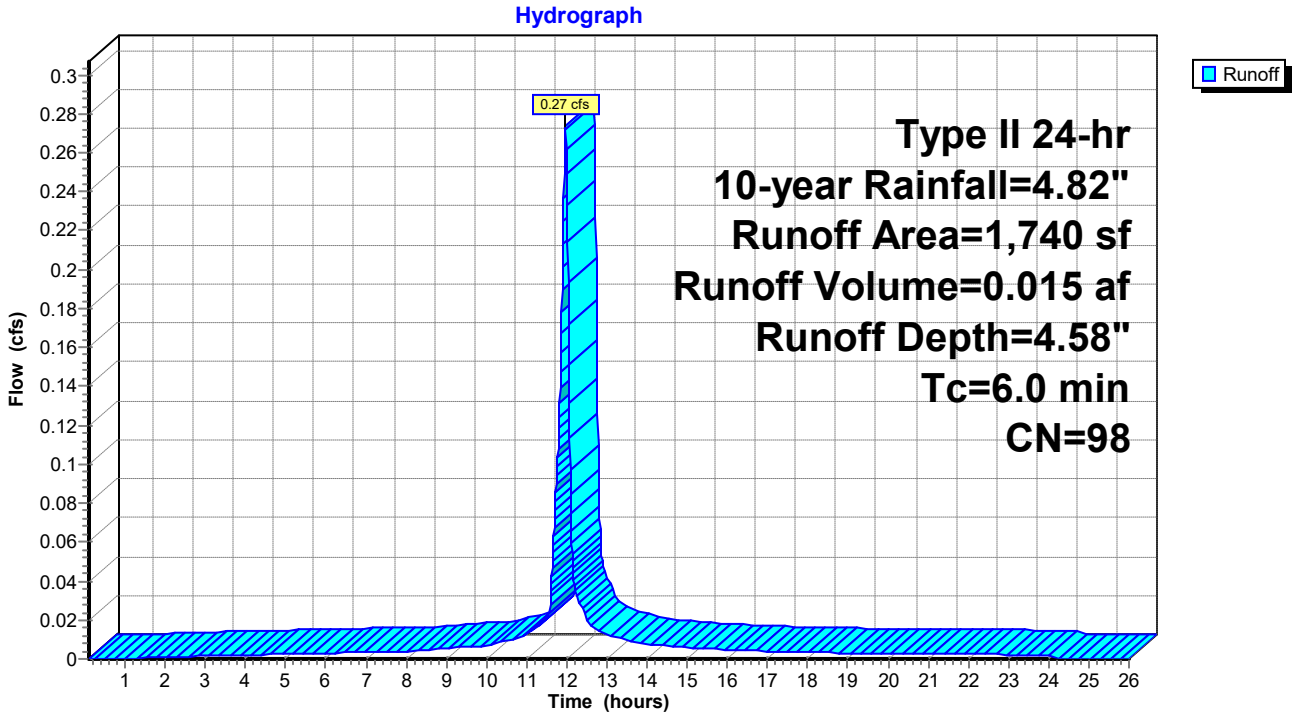
Runoff = 0.27 cfs @ 11.97 hrs, Volume= 0.015 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

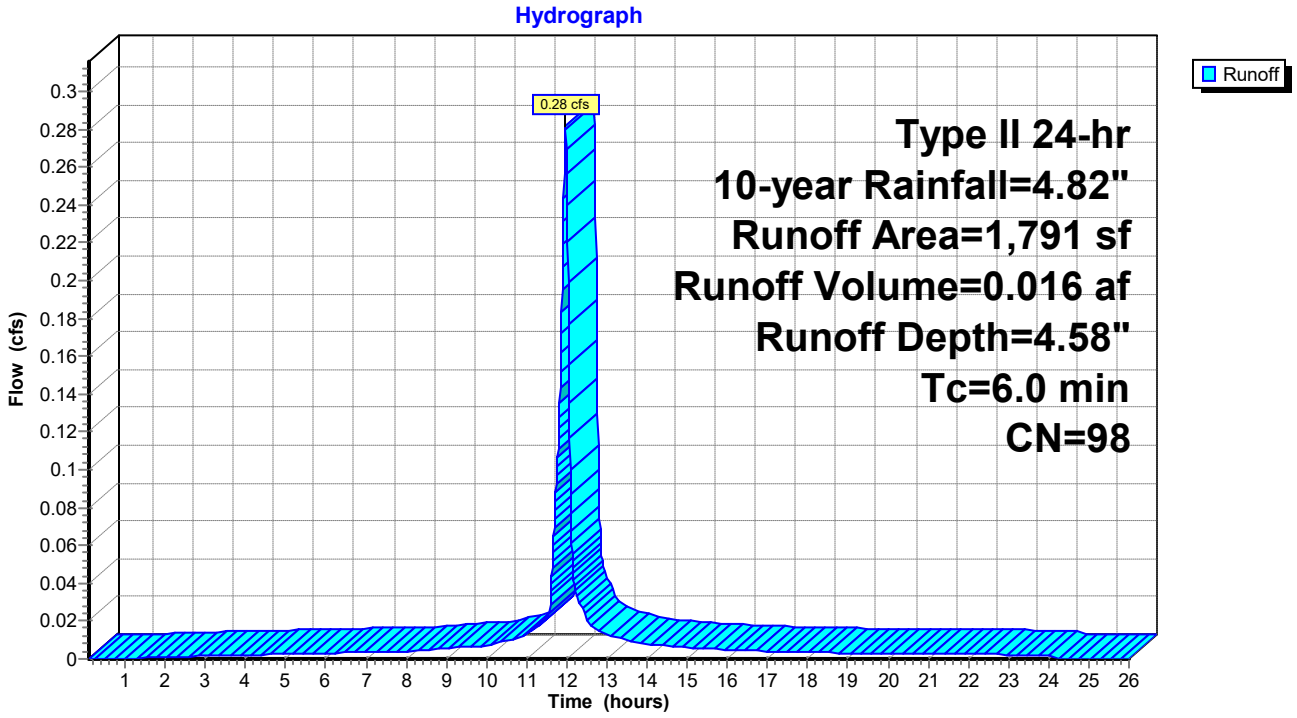
Runoff = 0.28 cfs @ 11.97 hrs, Volume= 0.016 af, Depth= 4.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-year Rainfall=4.82"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 2.78" for 10-year event
Inflow = 0.31 cfs @ 11.97 hrs, Volume= 0.017 af
Outflow = 0.00 cfs @ 24.08 hrs, Volume= 0.002 af, Atten= 99%, Lag= 726.6 min
Primary = 0.00 cfs @ 24.08 hrs, Volume= 0.002 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.29' @ 24.08 hrs Surf.Area= 784 sf Storage= 643 cf

Plug-Flow detention time= 512.2 min calculated for 0.002 af (14% of inflow)
Center-of-Mass det. time= 195.3 min (967.2 - 771.9)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

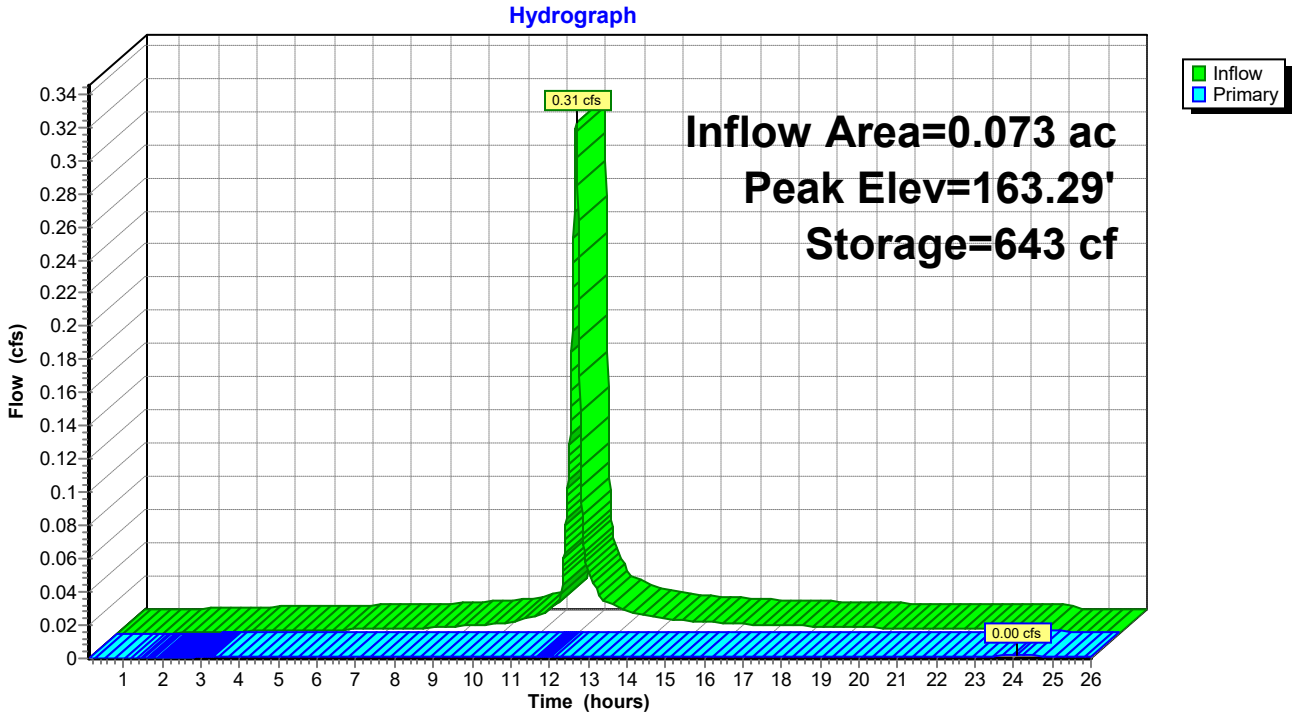
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 24.08 hrs HW=163.29' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Controls 0.00 cfs)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.31 cfs
0.00 cfs
Inflow Area=0.073 ac
Peak Elev=163.29'
Storage=643 cf
Flow (cfs)
0.34
0.32
0.3
0.28
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 1.07" for 10-year event
Inflow = 0.06 cfs @ 11.99 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 24.08 hrs, Volume= 0.001 af, Atten= 99%, Lag= 725.7 min
Primary = 0.00 cfs @ 24.08 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 161.68' @ 24.08 hrs Surf.Area= 301 sf Storage= 101 cf

Plug-Flow detention time= 424.0 min calculated for 0.001 af (20% of inflow)
Center-of-Mass det. time= 257.1 min (1,139.2 - 882.1)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

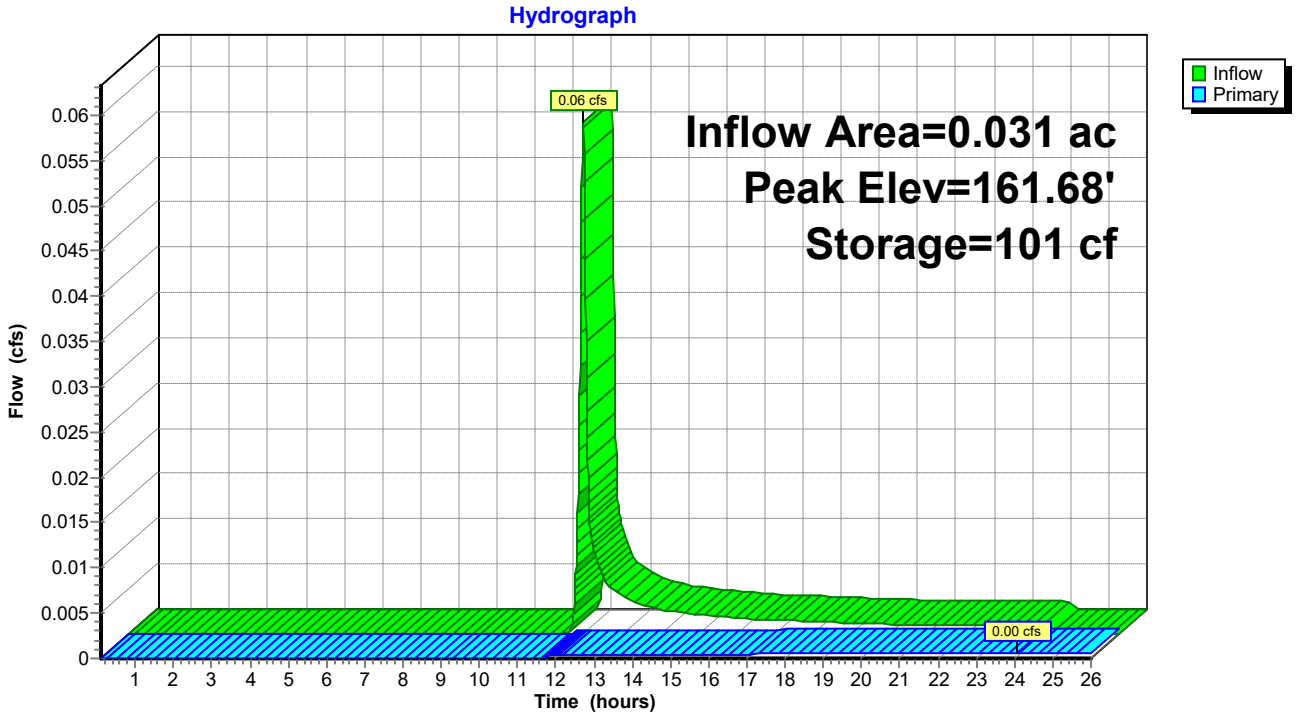
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.08 hrs HW=161.68' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.06 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=161.68'
Storage=101 cf
Flow (cfs)
0
0.005
0.01
0.015
0.02
0.025
0.03
0.035
0.04
0.045
0.05
0.055
0.06
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 2.38" for 10-year event
Inflow = 0.44 cfs @ 11.97 hrs, Volume= 0.024 af
Outflow = 0.44 cfs @ 11.98 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.4 min
Primary = 0.44 cfs @ 11.98 hrs, Volume= 0.020 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.70' @ 11.98 hrs Surf.Area= 186 sf Storage= 185 cf

Plug-Flow detention time= 128.6 min calculated for 0.020 af (84% of inflow)
Center-of-Mass det. time= 51.5 min (840.7 - 789.2)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

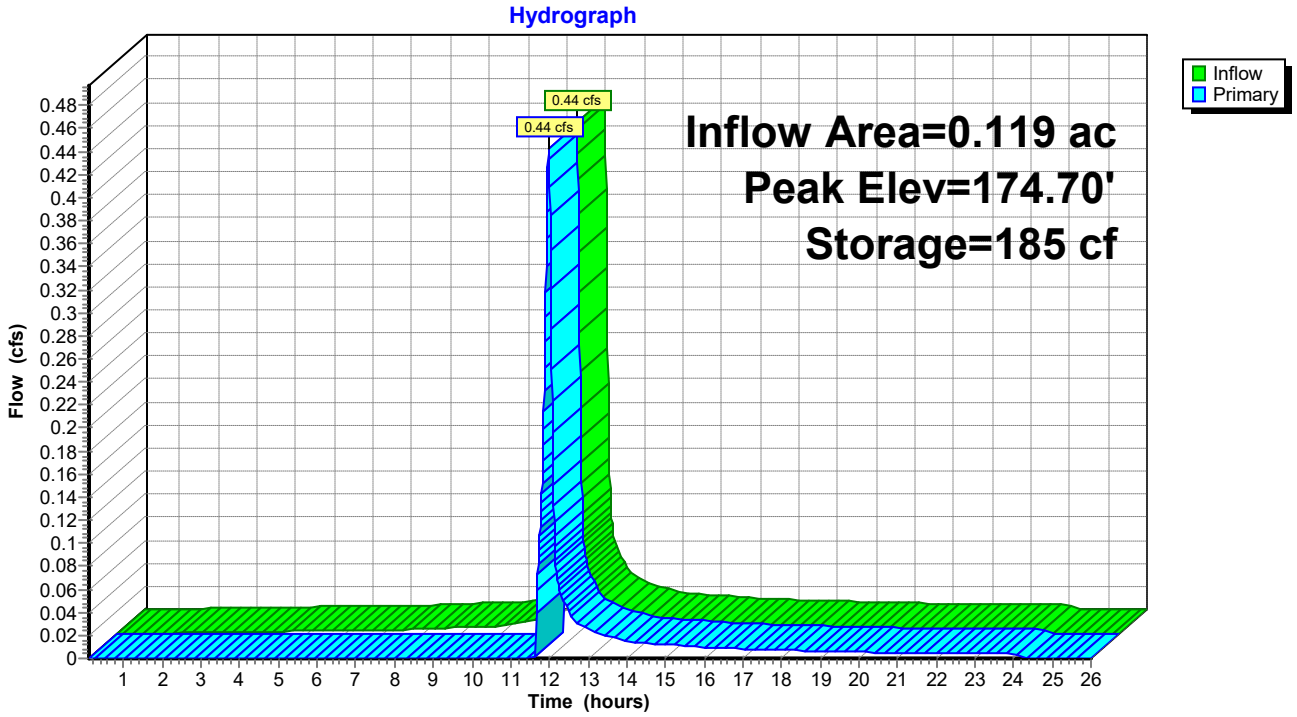
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.43 cfs @ 11.98 hrs HW=174.70' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.43 cfs @ 1.05 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.44 cfs
0.44 cfs
Inflow Area=0.119 ac
Peak Elev=174.70'
Storage=185 cf
Flow (cfs)
Time (hours)

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 1.40" for 10-year event
Inflow = 0.30 cfs @ 11.98 hrs, Volume= 0.015 af
Outflow = 0.29 cfs @ 11.99 hrs, Volume= 0.013 af, Atten= 1%, Lag= 0.6 min
Discarded = 0.00 cfs @ 11.99 hrs, Volume= 0.001 af
Primary = 0.29 cfs @ 11.99 hrs, Volume= 0.012 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.70' @ 11.99 hrs Surf.Area= 171 sf Storage= 135 cf

Plug-Flow detention time= 129.3 min calculated for 0.013 af (82% of inflow)
Center-of-Mass det. time= 45.7 min (885.4 - 839.7)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

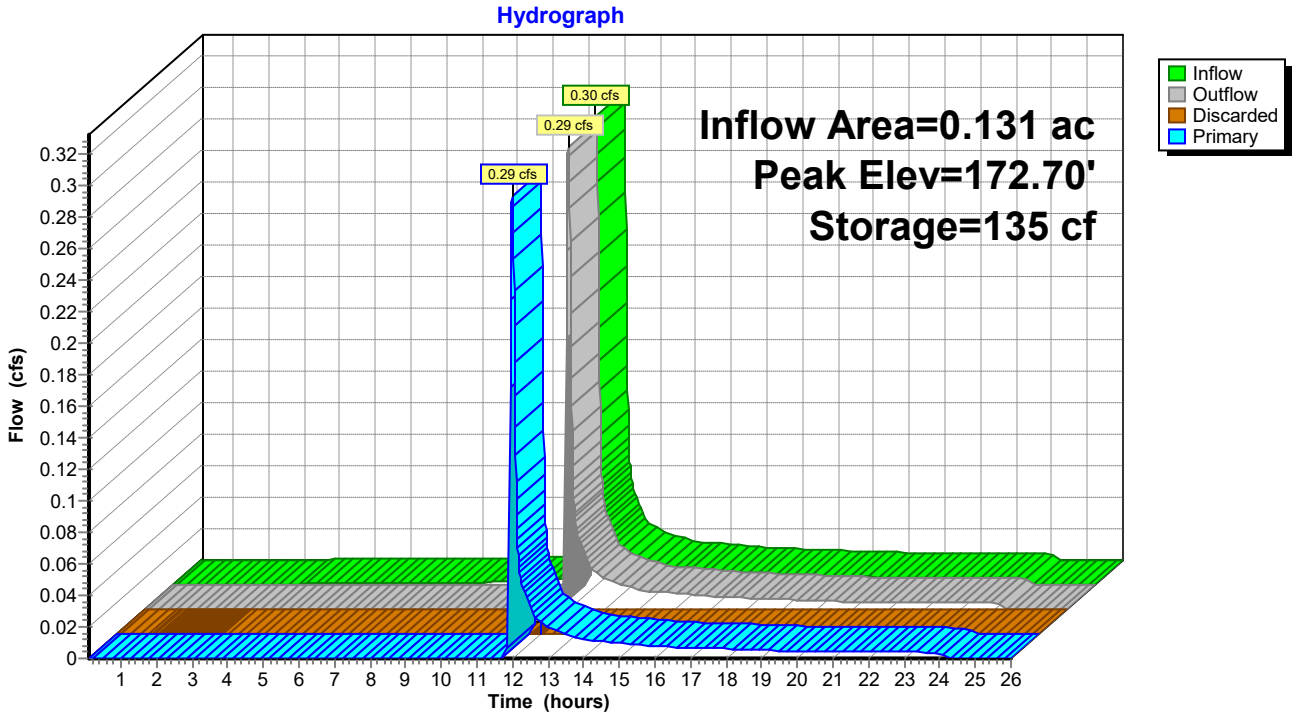
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.99 hrs HW=172.70' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.29 cfs @ 11.99 hrs HW=172.70' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Orifice Controls 0.29 cfs @ 1.44 fps)

Pond RG-4: RG-4

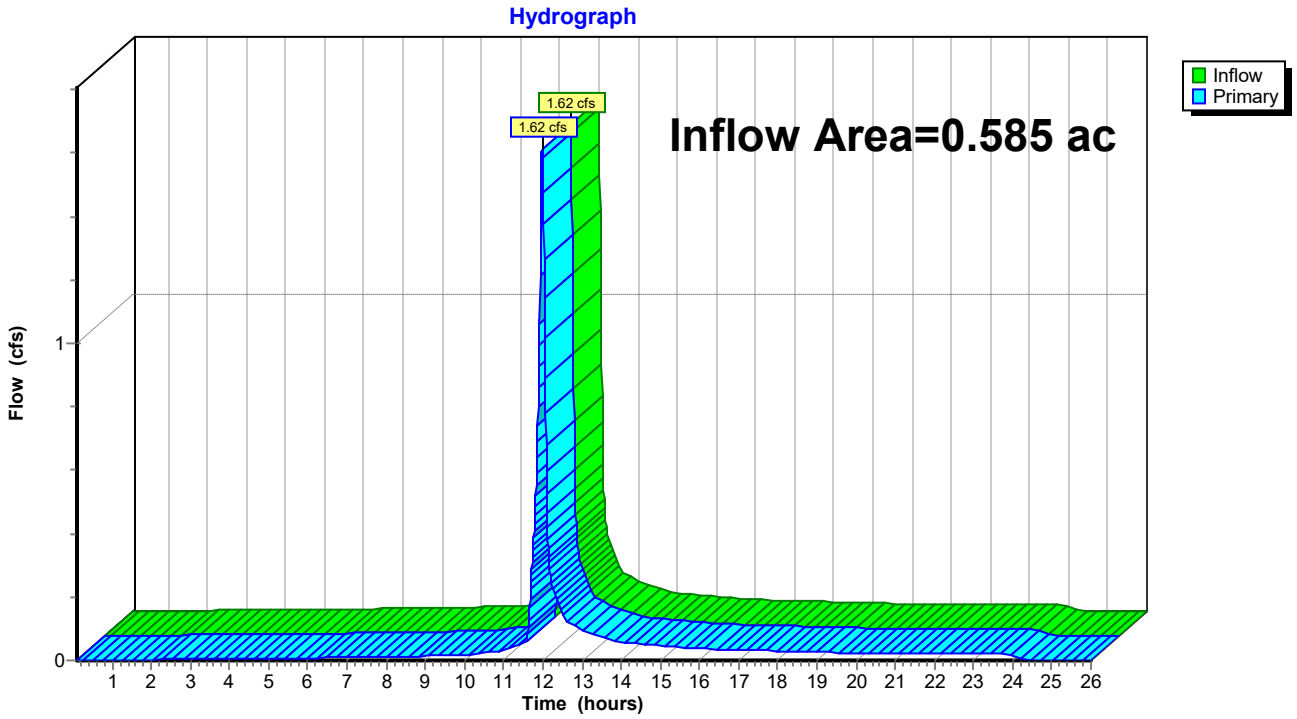

Hydrograph
Inflow
Outflow
Discarded
Primary
0.30 cfs
0.29 cfs
0.29 cfs
Inflow Area=0.131 ac
Peak Elev=172.70'
Storage=135 cf
Flow (cfs)
0 0.02 0.04 0.06 0.08 0.1 0.12 0.14 0.16 0.18 0.2 0.22 0.24 0.26 0.28 0.3 0.32
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 1.70" for 10-year event
Inflow = 1.62 cfs @ 11.98 hrs, Volume= 0.083 af
Primary = 1.62 cfs @ 11.98 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=2.94"
Flow Length=487' Tc=13.0 min CN=73 Runoff=2.38 cfs 0.143 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.019 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.014 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.10 cfs 0.006 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.07 cfs 0.004 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.04 cfs 0.002 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.11 cfs 0.005 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.09 cfs 0.004 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.27 cfs 0.013 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.31 cfs 0.015 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=1.89"
Tc=6.0 min CN=61 Runoff=0.26 cfs 0.012 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=1.65"
Tc=6.0 min CN=58 Runoff=0.03 cfs 0.001 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.019 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.019 af

Pond RG-1: RG-1 Peak Elev=163.50' Storage=731 cf Inflow=0.40 cfs 0.022 af
Outflow=0.01 cfs 0.005 af

Pond RG-2: RG-2 Peak Elev=162.31' Storage=164 cf Inflow=0.09 cfs 0.004 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.73' Storage=188 cf Inflow=0.59 cfs 0.031 af
Outflow=0.59 cfs 0.027 af

Pond RG-4: RG-4 Peak Elev=172.75' Storage=140 cf Inflow=0.44 cfs 0.022 af
Discarded=0.00 cfs 0.001 af Primary=0.44 cfs 0.019 af Outflow=0.44 cfs 0.019 af

Link POA: POA Inflow=2.20 cfs 0.114 af
Primary=2.20 cfs 0.114 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.285 af Average Runoff Depth = 2.92"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

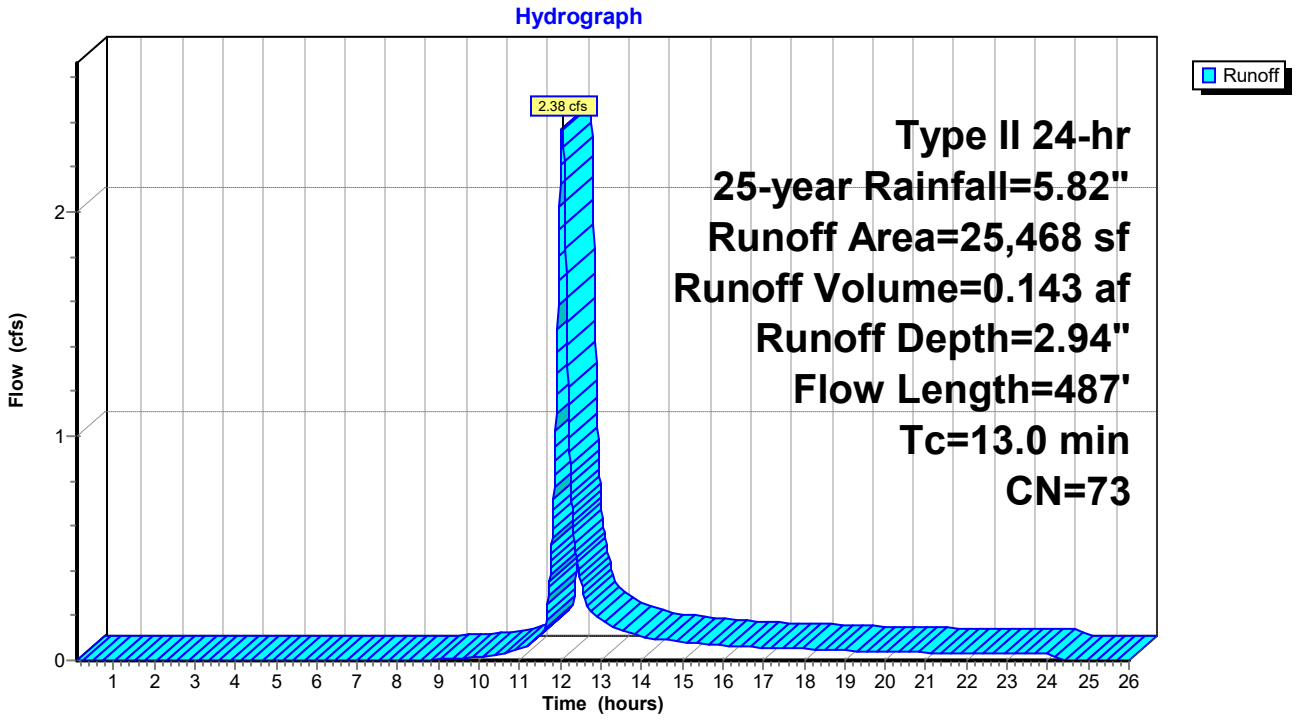
Runoff = 2.38 cfs @ 12.05 hrs, Volume= 0.143 af, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

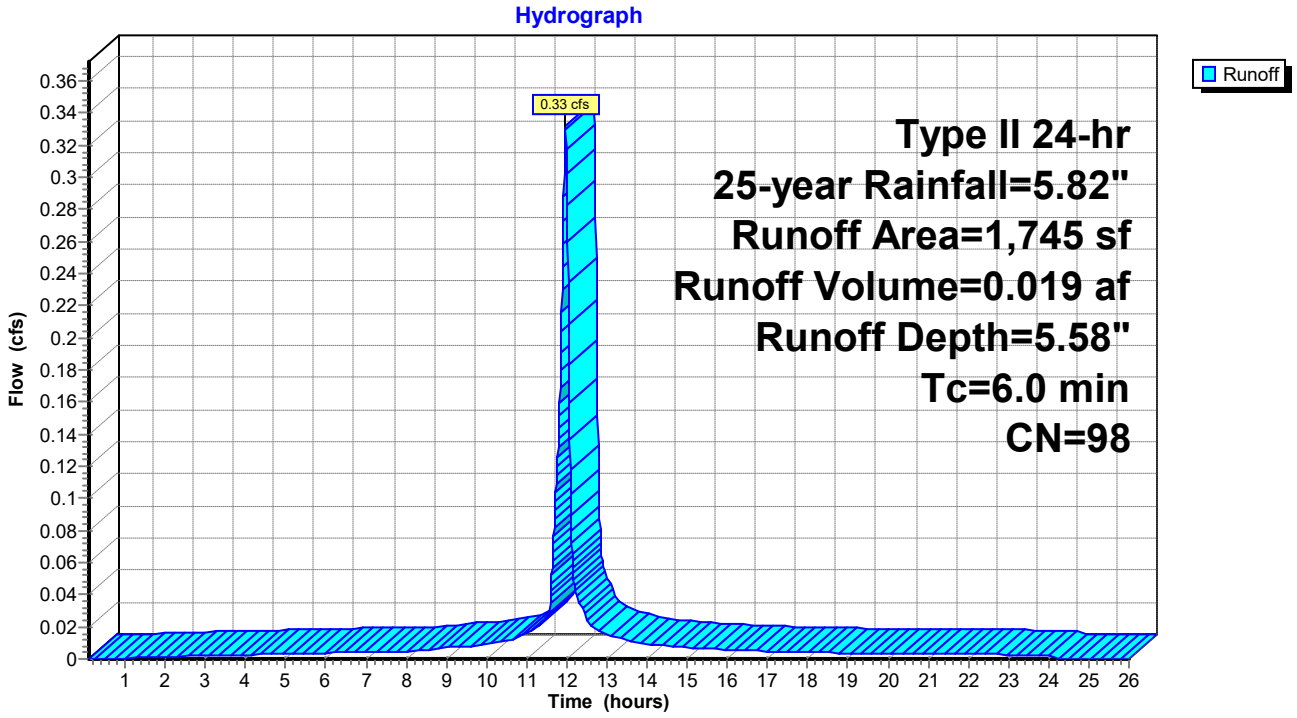
Runoff = 0.33 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 5.58"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

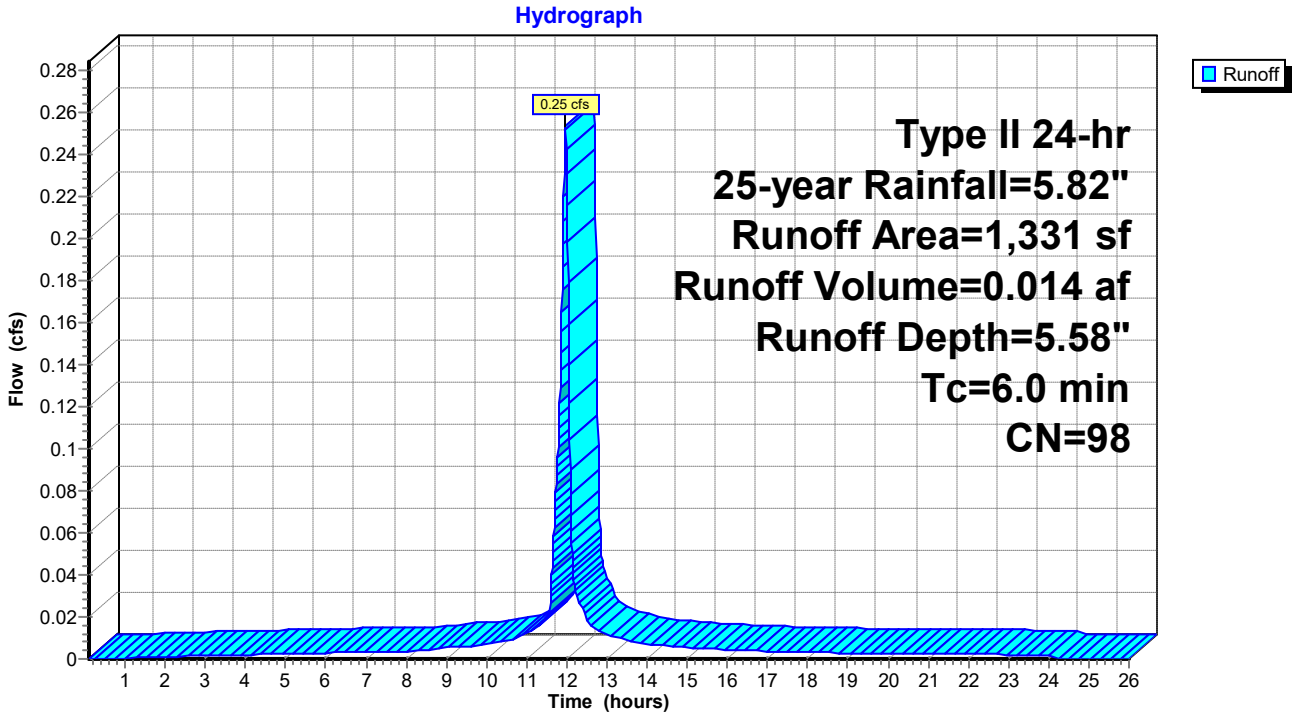
Runoff = 0.25 cfs @ 11.97 hrs, Volume= 0.014 af, Depth= 5.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

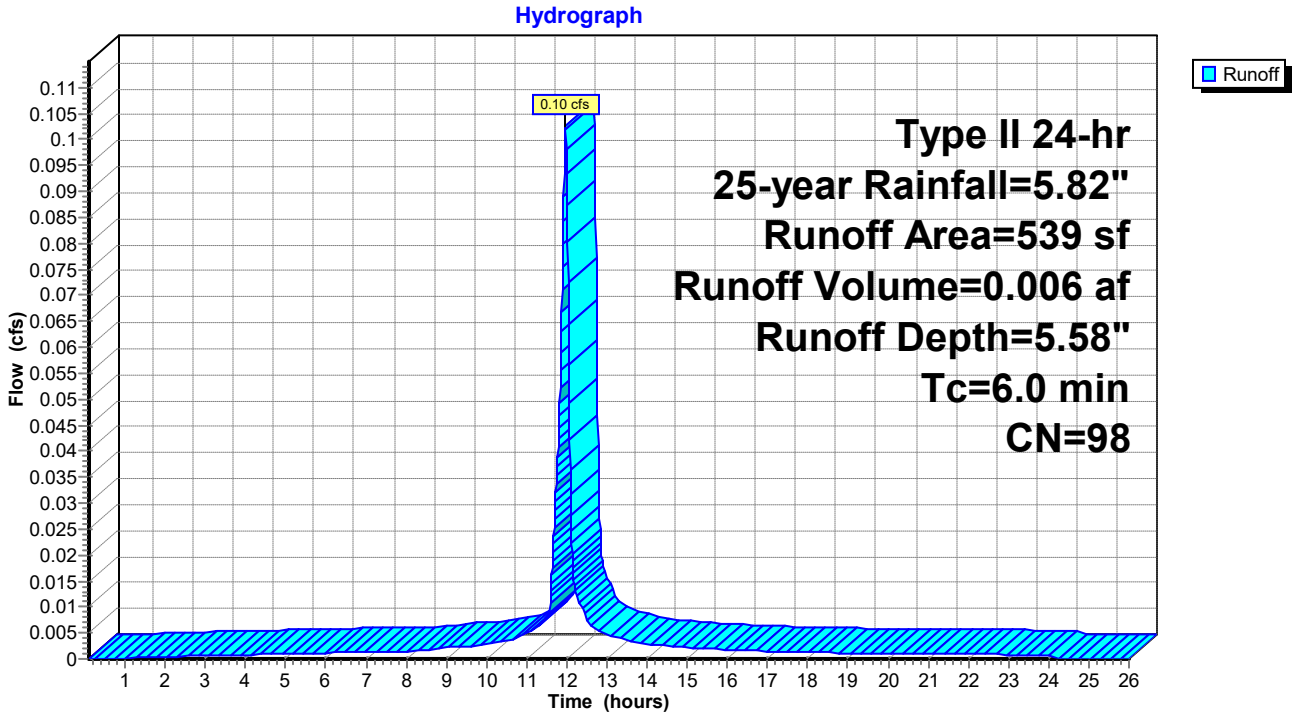
Runoff = 0.10 cfs @ 11.97 hrs, Volume= 0.006 af, Depth= 5.58"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

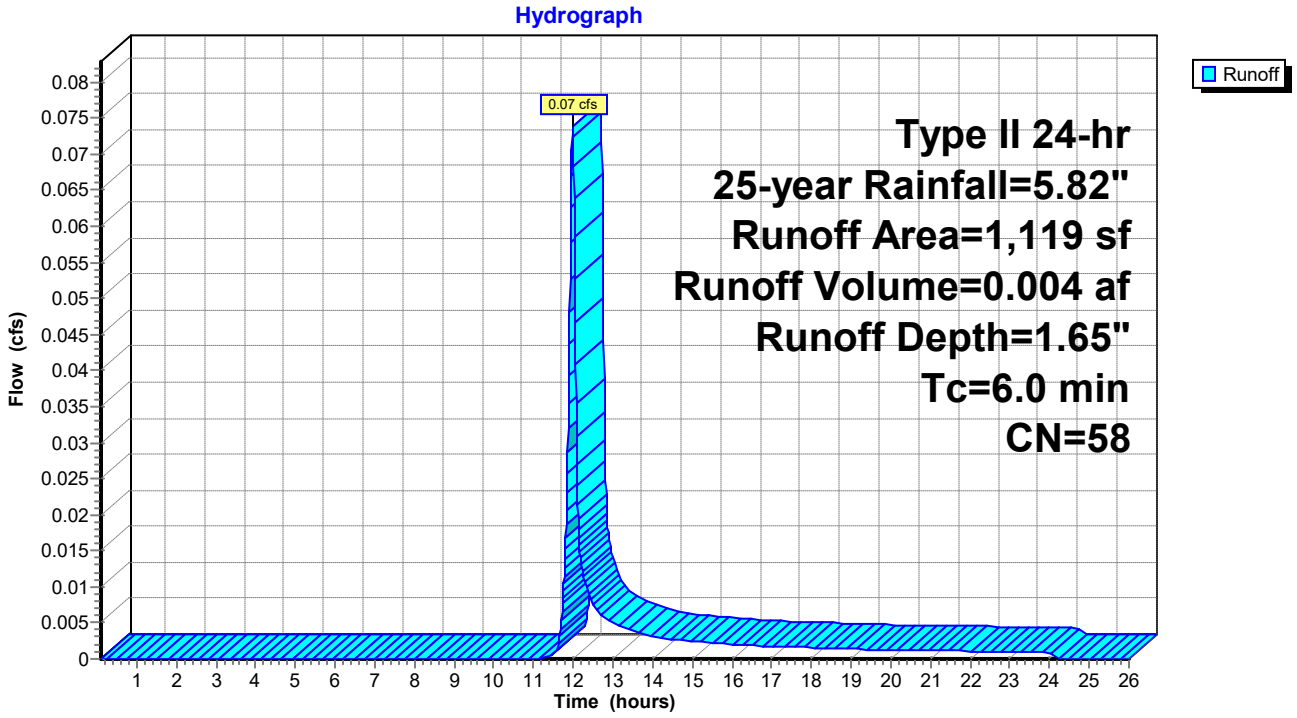
Runoff = 0.07 cfs @ 11.98 hrs, Volume= 0.004 af, Depth= 1.65"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

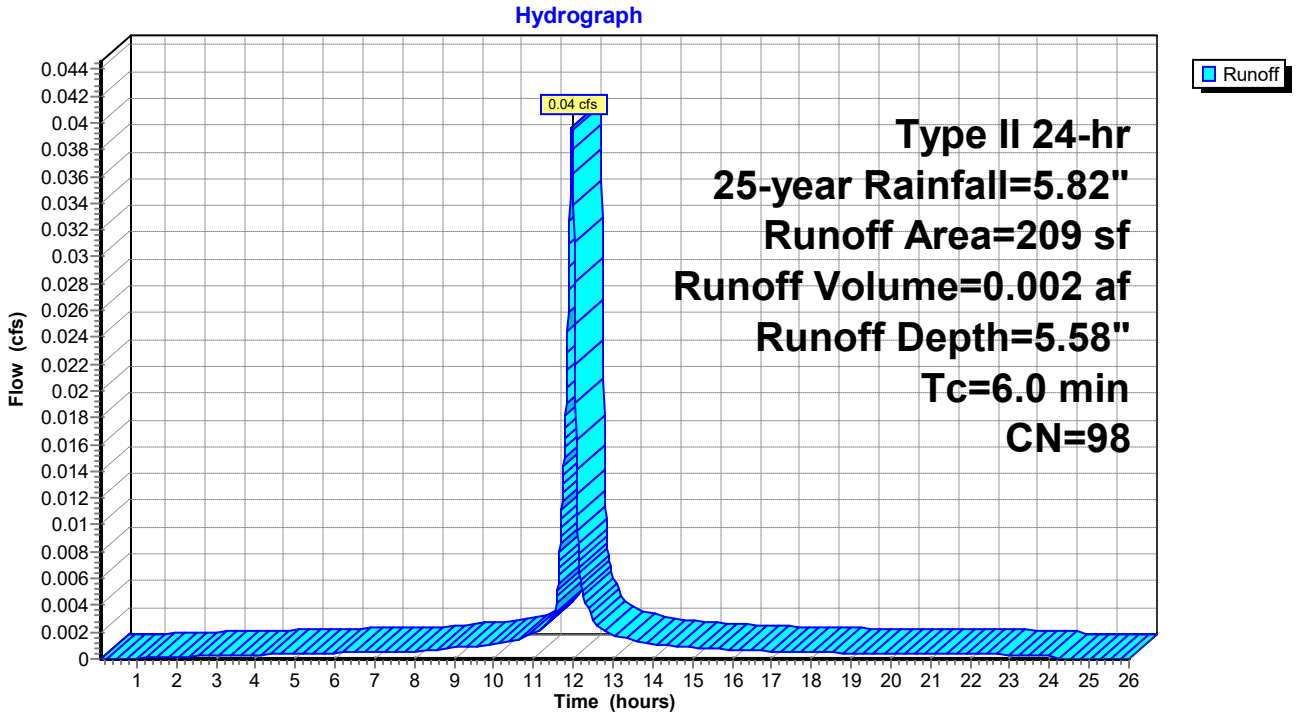
Runoff = 0.04 cfs @ 11.97 hrs, Volume= 0.002 af, Depth= 5.58"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

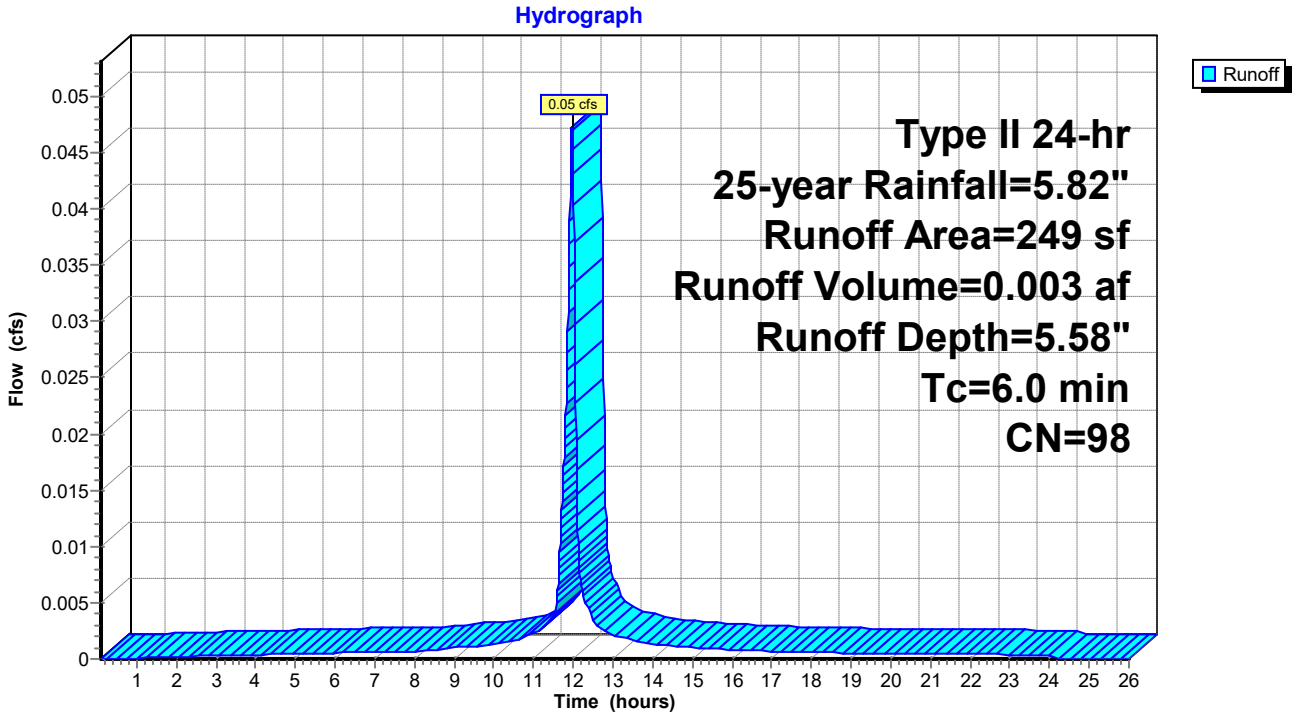
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

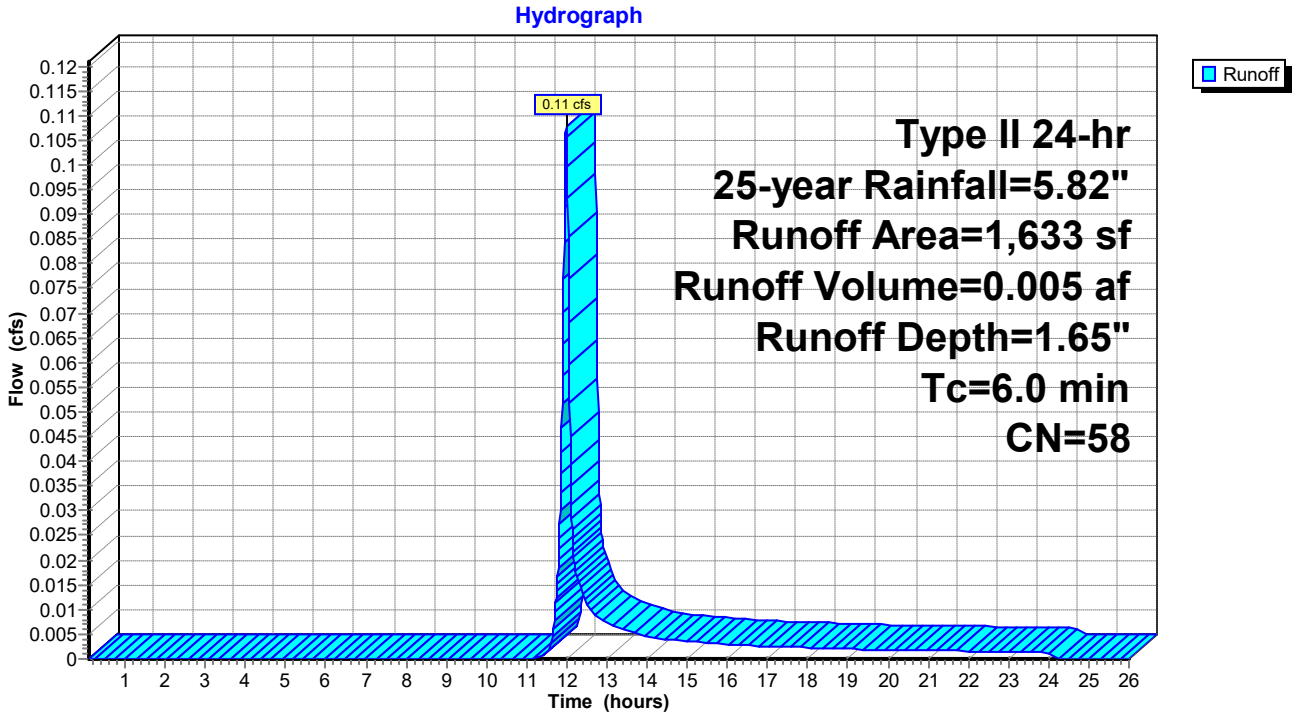
Runoff = 0.11 cfs @ 11.98 hrs, Volume= 0.005 af, Depth= 1.65"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

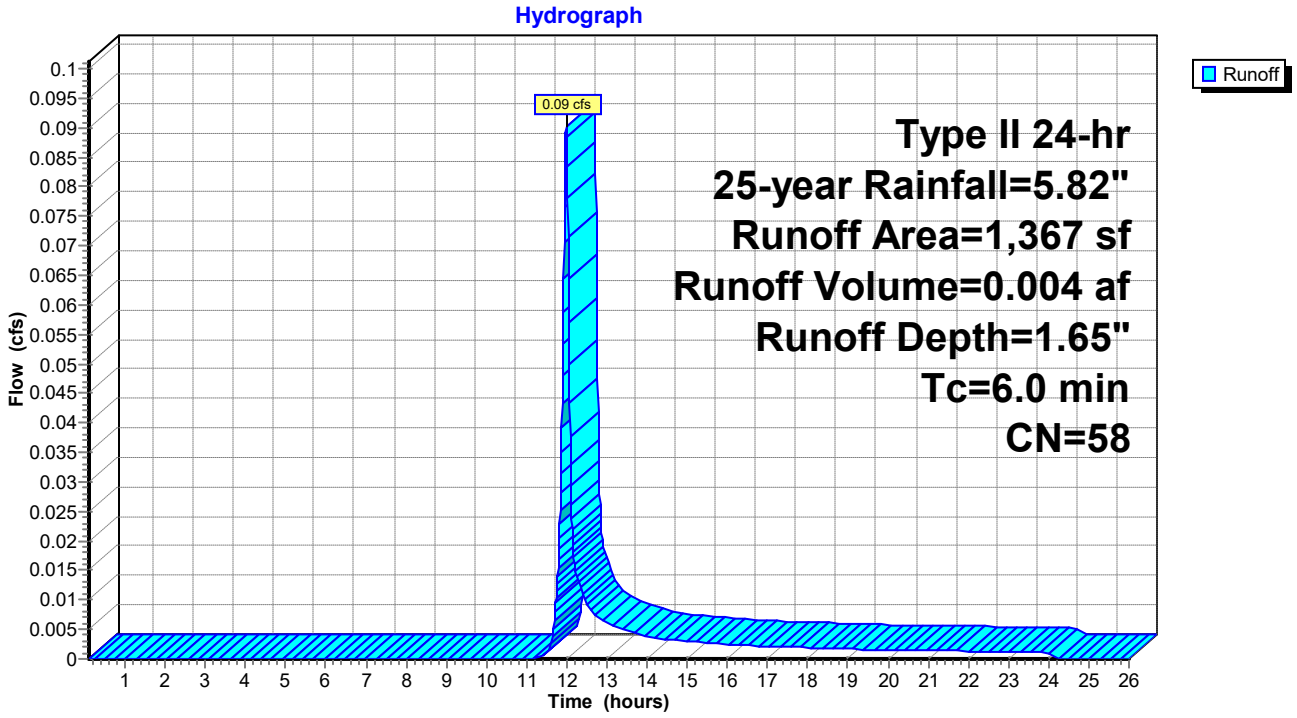
Runoff = 0.09 cfs @ 11.98 hrs, Volume= 0.004 af, Depth= 1.65"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

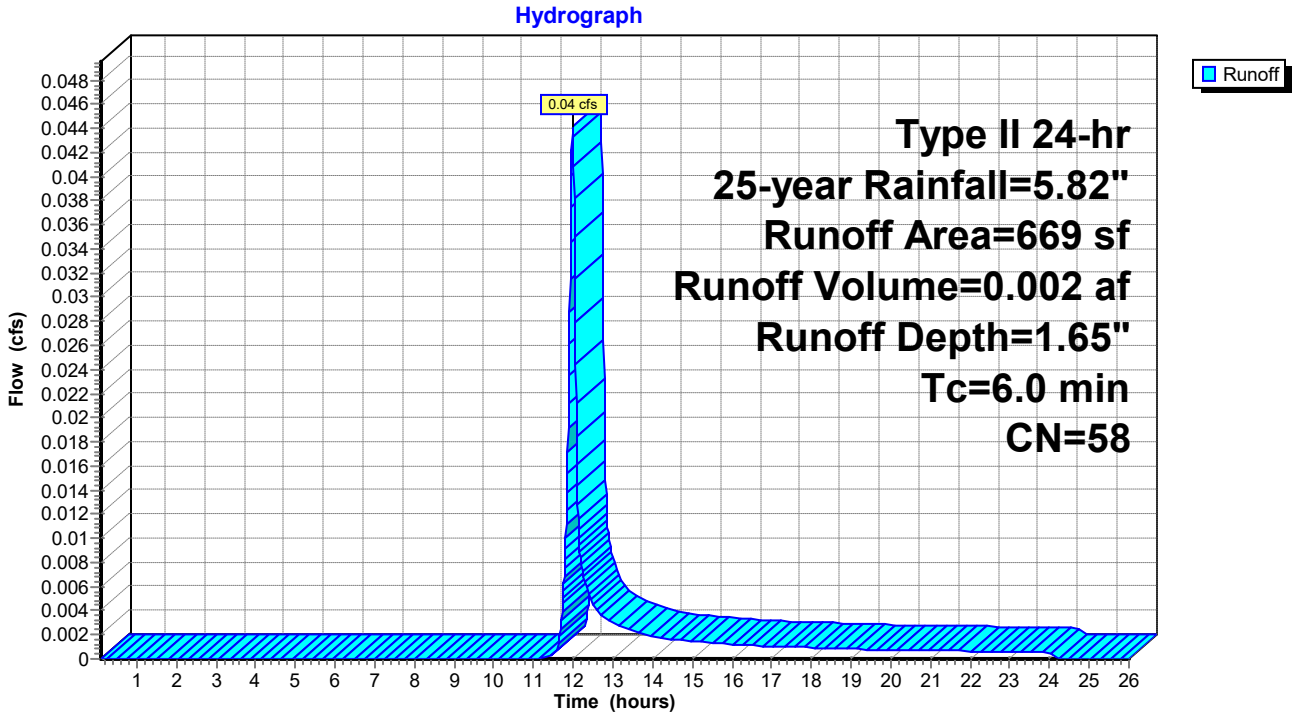
Runoff = 0.04 cfs @ 11.98 hrs, Volume= 0.002 af, Depth= 1.65"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

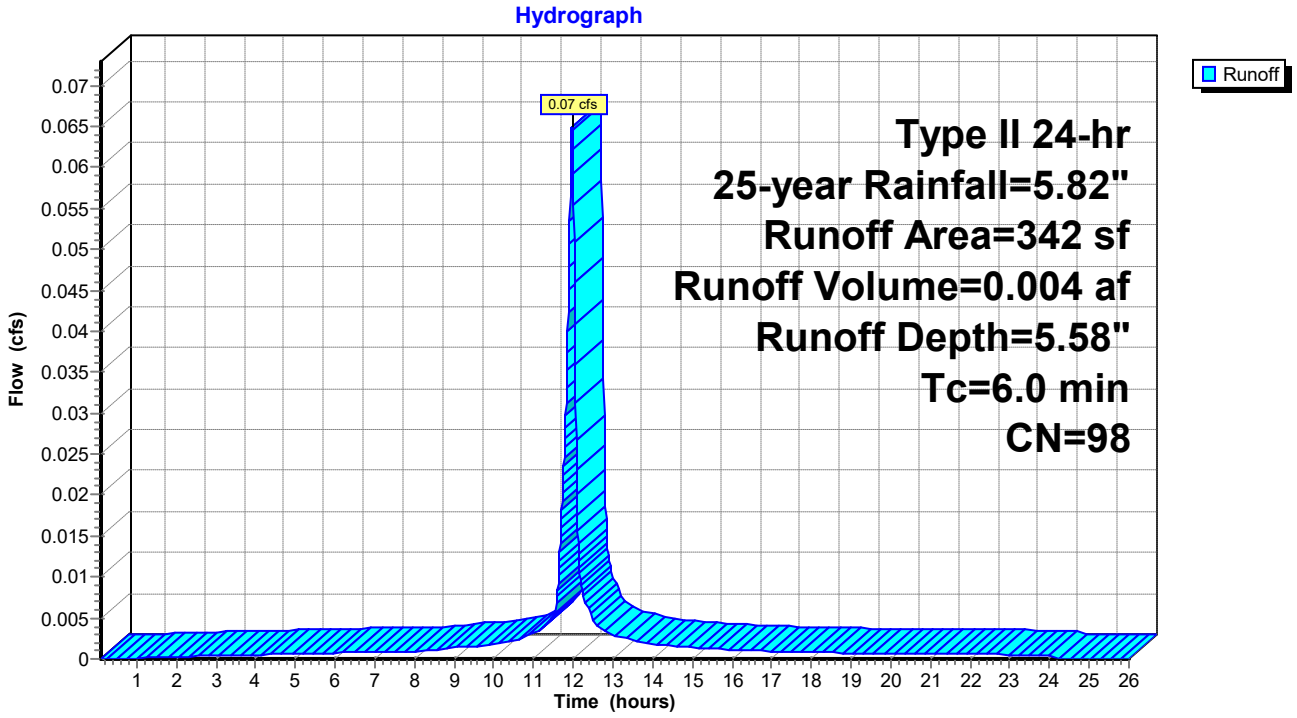
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

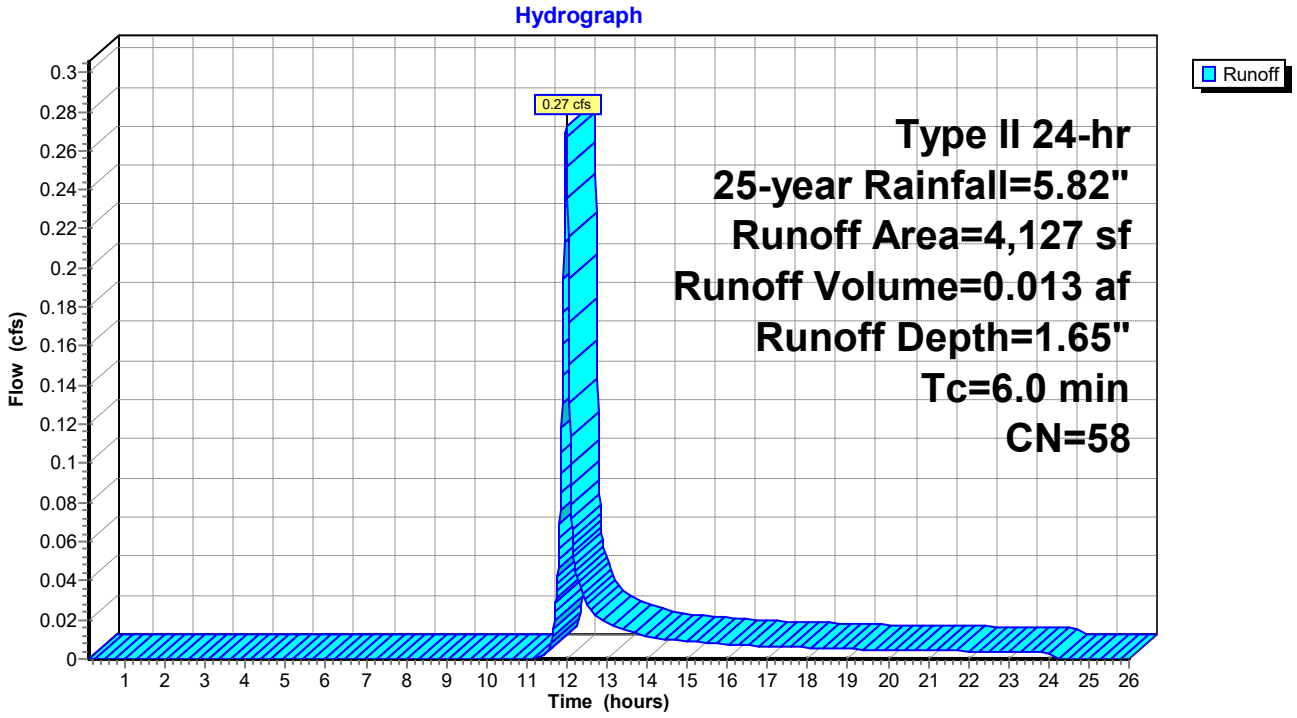
Runoff = 0.27 cfs @ 11.98 hrs, Volume= 0.013 af, Depth= 1.65"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

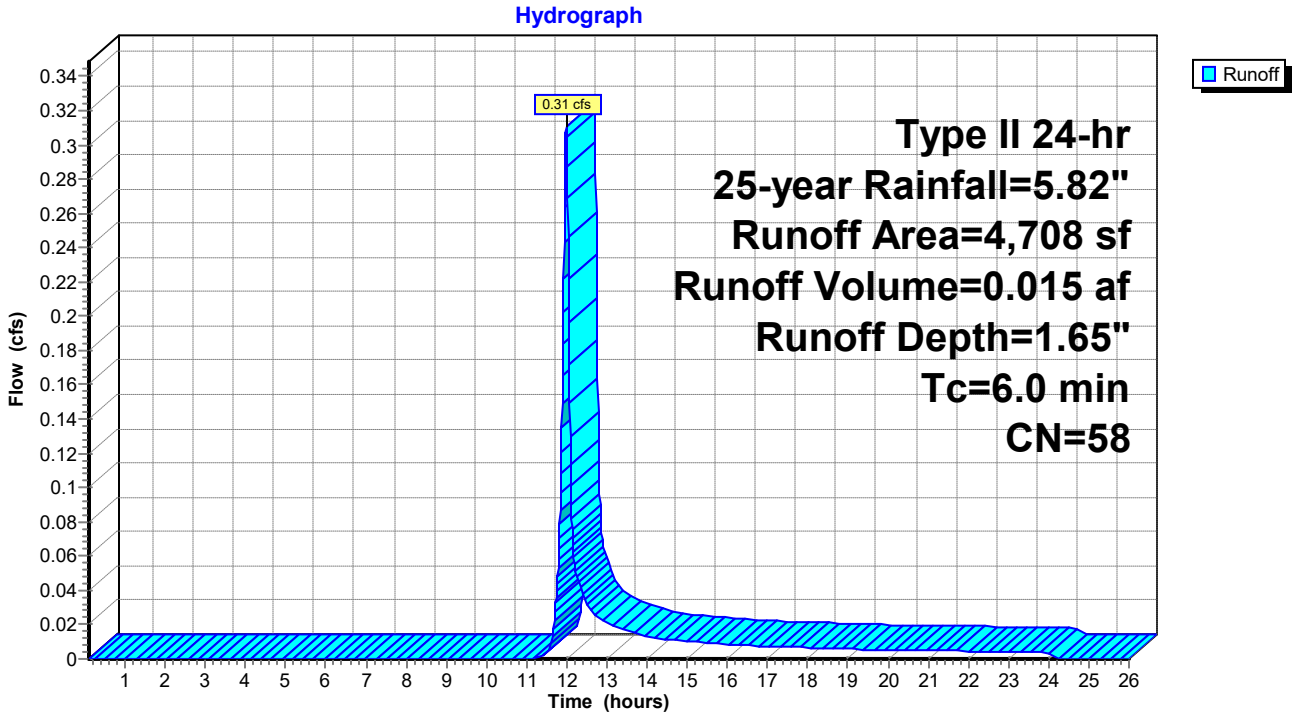
Runoff = 0.31 cfs @ 11.98 hrs, Volume= 0.015 af, Depth= 1.65"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

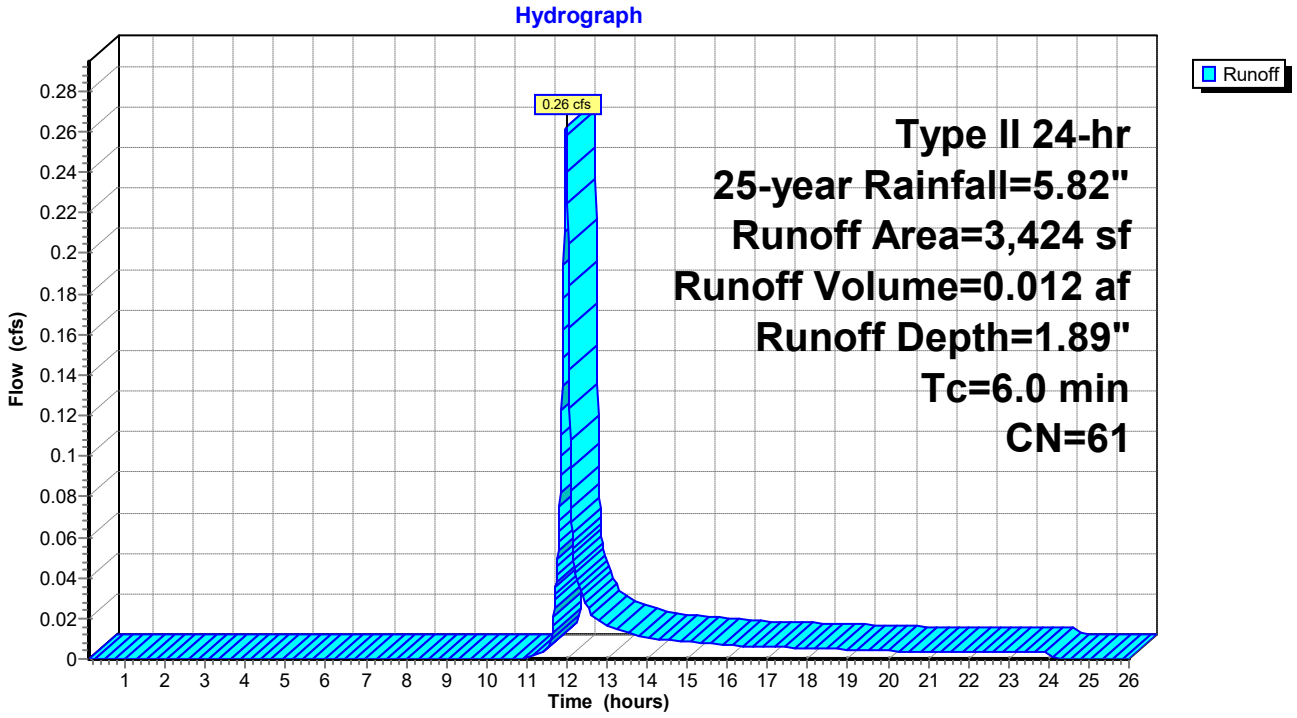
Runoff = 0.26 cfs @ 11.98 hrs, Volume= 0.012 af, Depth= 1.89"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

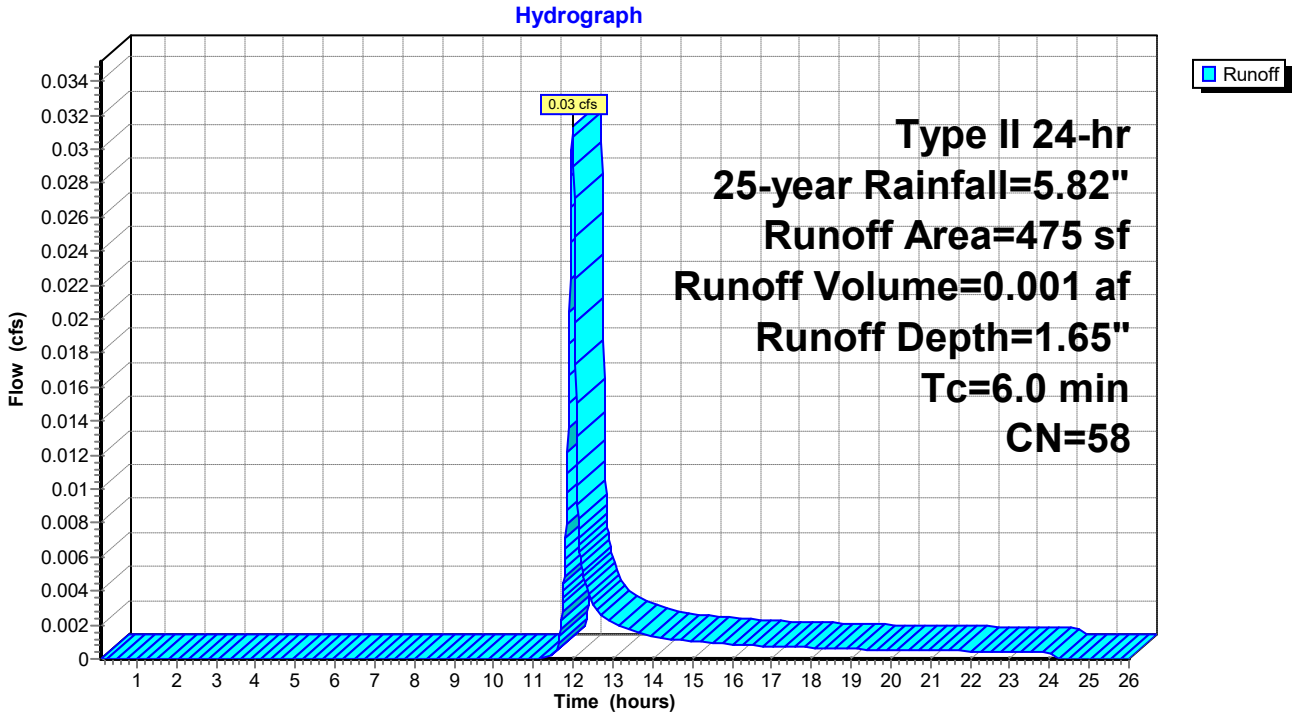
Runoff = 0.03 cfs @ 11.98 hrs, Volume= 0.001 af, Depth= 1.65"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

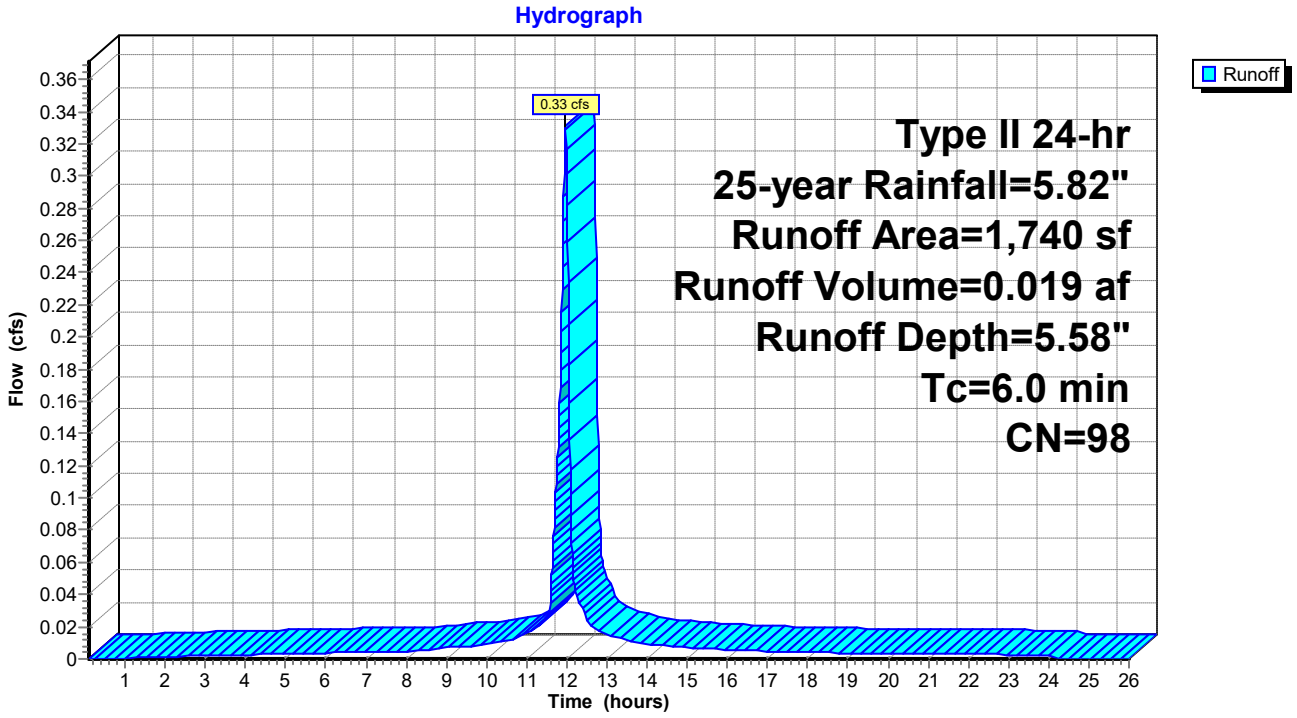
Runoff = 0.33 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

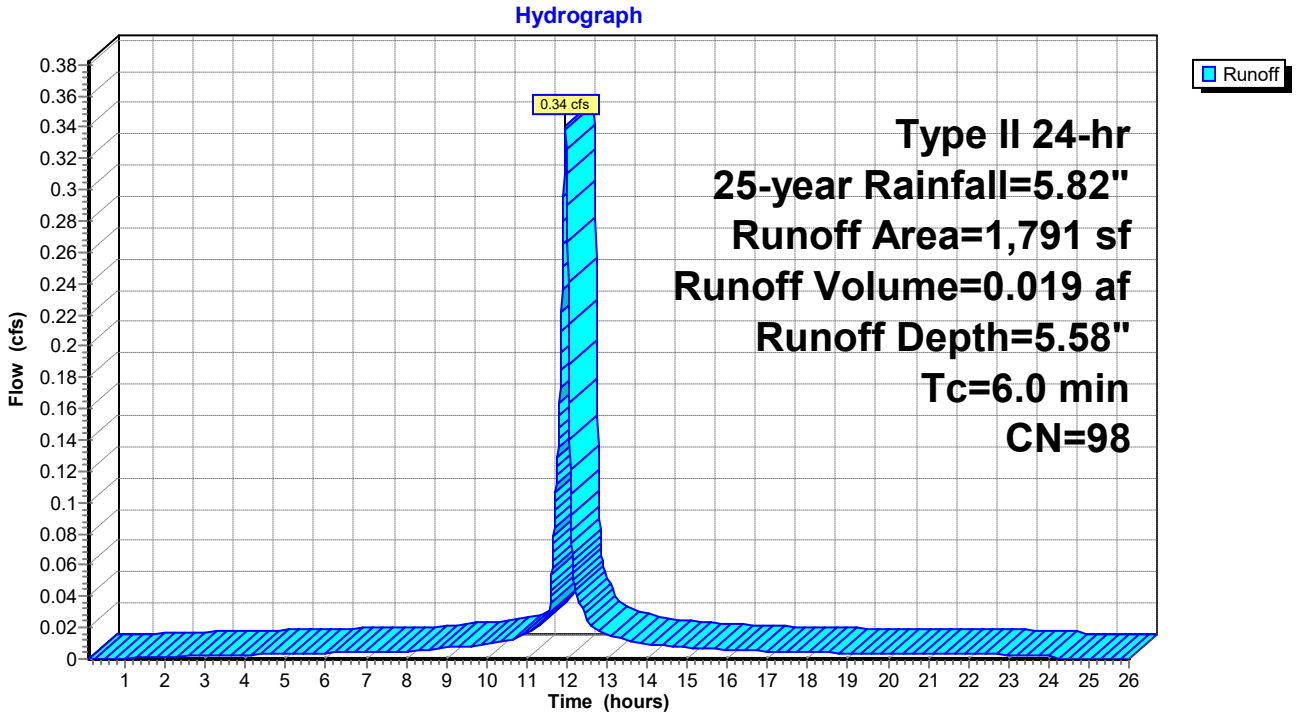
Runoff = 0.34 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 5.58"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 25-year Rainfall=5.82"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 3.56" for 25-year event
Inflow = 0.40 cfs @ 11.97 hrs, Volume= 0.022 af
Outflow = 0.01 cfs @ 15.74 hrs, Volume= 0.005 af, Atten= 98%, Lag= 226.4 min
Primary = 0.01 cfs @ 15.74 hrs, Volume= 0.005 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.50' @ 15.74 hrs Surf.Area= 861 sf Storage= 731 cf

Plug-Flow detention time= 501.6 min calculated for 0.005 af (24% of inflow)
Center-of-Mass det. time= 278.9 min (1,050.3 - 771.4)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

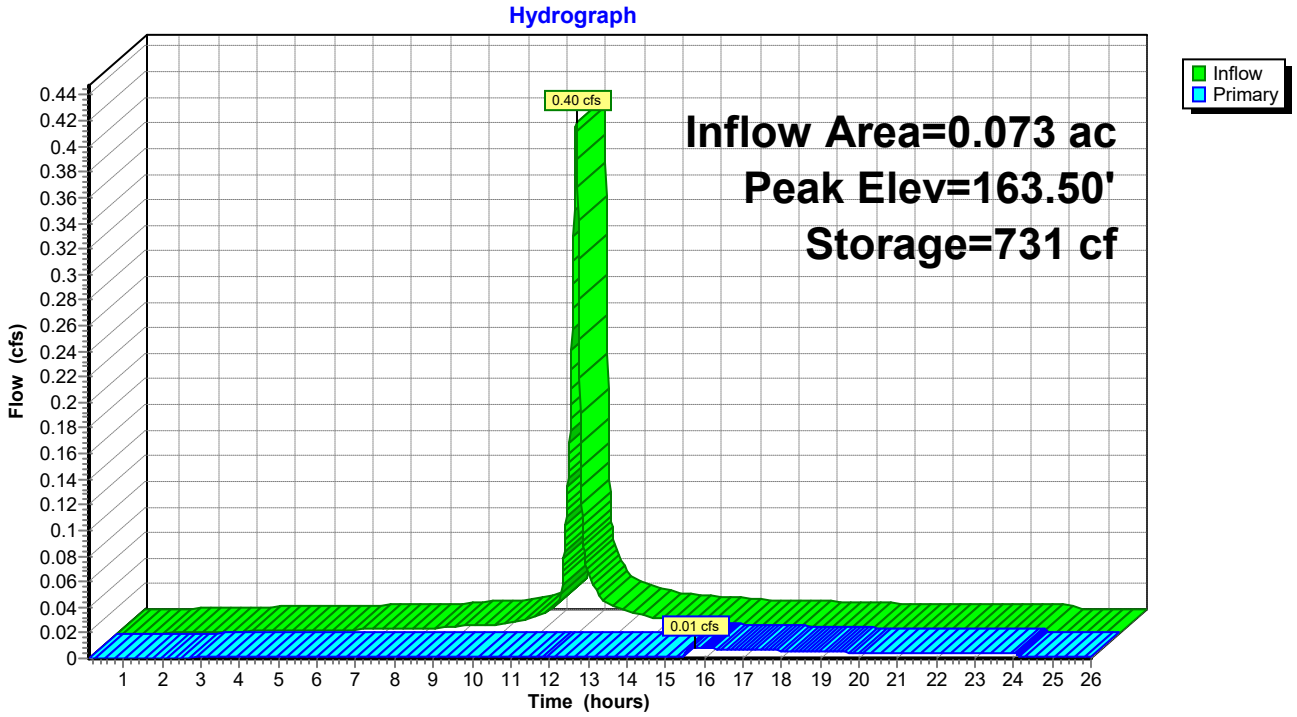
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 15.74 hrs HW=163.50' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.19 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.40 cfs
0.01 cfs
Inflow Area=0.073 ac
Peak Elev=163.50'
Storage=731 cf
Flow (cfs)
Time (hours)
0
0.02
0.04
0.06
0.08
0.1
0.12
0.14
0.16
0.18
0.2
0.22
0.24
0.26
0.28
0.3
0.32
0.34
0.36
0.38
0.4
0.42
0.44
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 1.65" for 25-year event
Inflow = 0.09 cfs @ 11.98 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 24.09 hrs, Volume= 0.001 af, Atten= 99%, Lag= 726.6 min
Primary = 0.00 cfs @ 24.09 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.31' @ 24.09 hrs Surf.Area= 301 sf Storage= 164 cf

Plug-Flow detention time= 424.1 min calculated for 0.001 af (14% of inflow)
Center-of-Mass det. time= 267.4 min (1,134.6 - 867.2)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

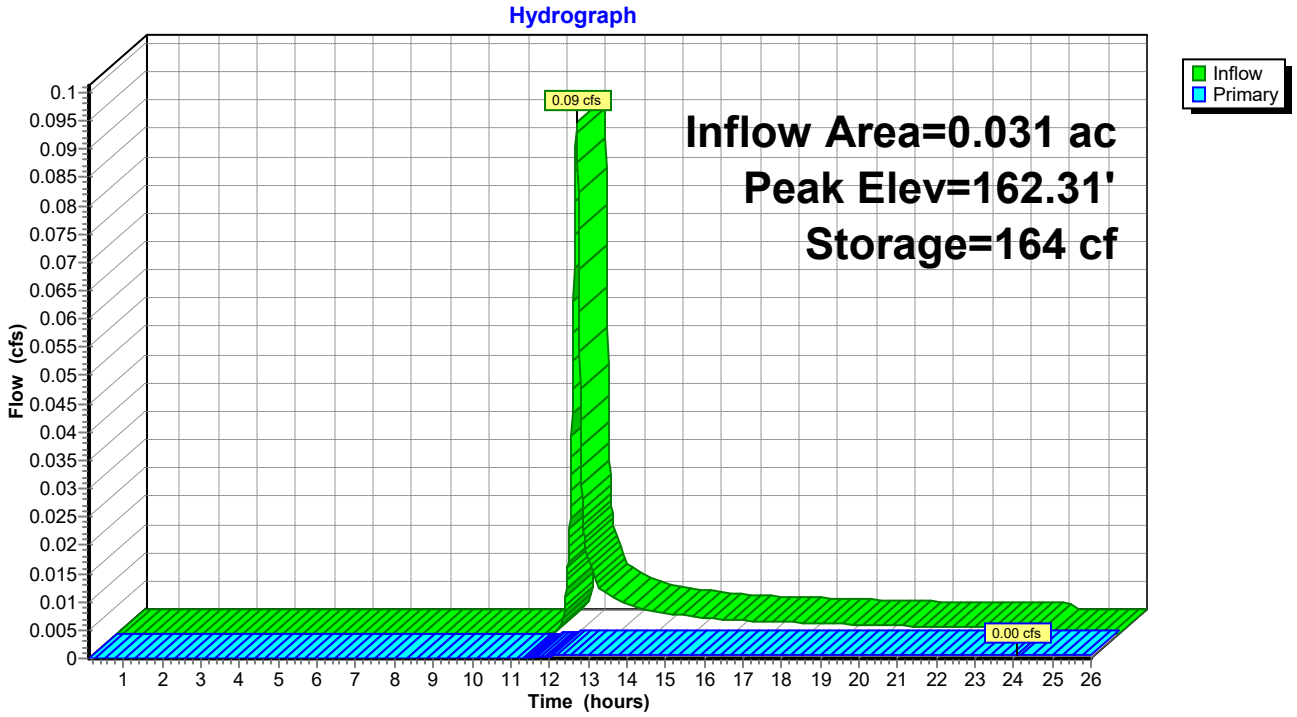
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.09 hrs HW=162.31' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.09 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=162.31'
Storage=164 cf
Flow (cfs)
0 0.005 0.01 0.015 0.02 0.025 0.03 0.035 0.04 0.045 0.05 0.055 0.06 0.065 0.07 0.075 0.08 0.085 0.09 0.095 0.1
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 3.13" for 25-year event
Inflow = 0.59 cfs @ 11.97 hrs, Volume= 0.031 af
Outflow = 0.59 cfs @ 11.98 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.4 min
Primary = 0.59 cfs @ 11.98 hrs, Volume= 0.027 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.73' @ 11.98 hrs Surf.Area= 186 sf Storage= 188 cf

Plug-Flow detention time= 107.3 min calculated for 0.027 af (88% of inflow)
Center-of-Mass det. time= 44.1 min (832.4 - 788.2)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

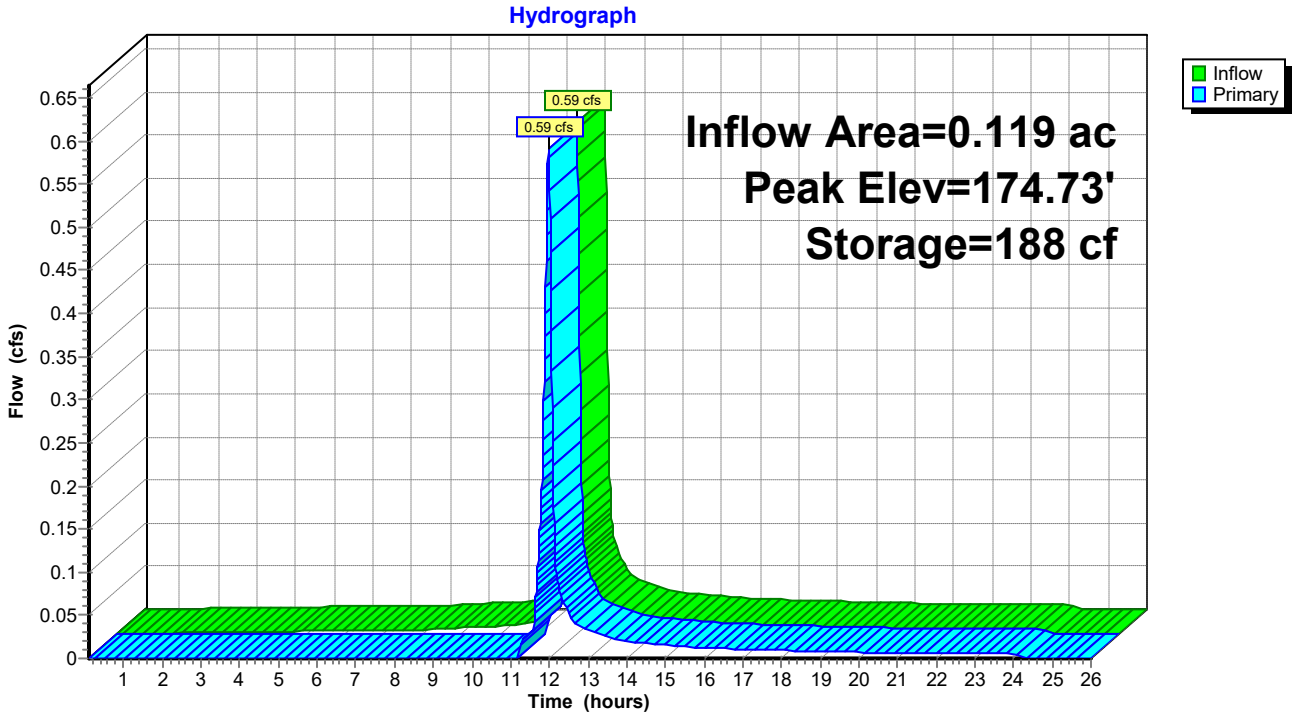
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.59 cfs @ 11.98 hrs HW=174.73' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.59 cfs @ 1.16 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.59 cfs
0.59 cfs
Inflow Area=0.119 ac
Peak Elev=174.73'
Storage=188 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 2.02" for 25-year event
Inflow = 0.44 cfs @ 11.98 hrs, Volume= 0.022 af
Outflow = 0.44 cfs @ 11.98 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 0.001 af
Primary = 0.44 cfs @ 11.98 hrs, Volume= 0.019 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.75' @ 11.98 hrs Surf.Area= 171 sf Storage= 140 cf

Plug-Flow detention time= 95.4 min calculated for 0.019 af (88% of inflow)
Center-of-Mass det. time= 32.9 min (867.2 - 834.4)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

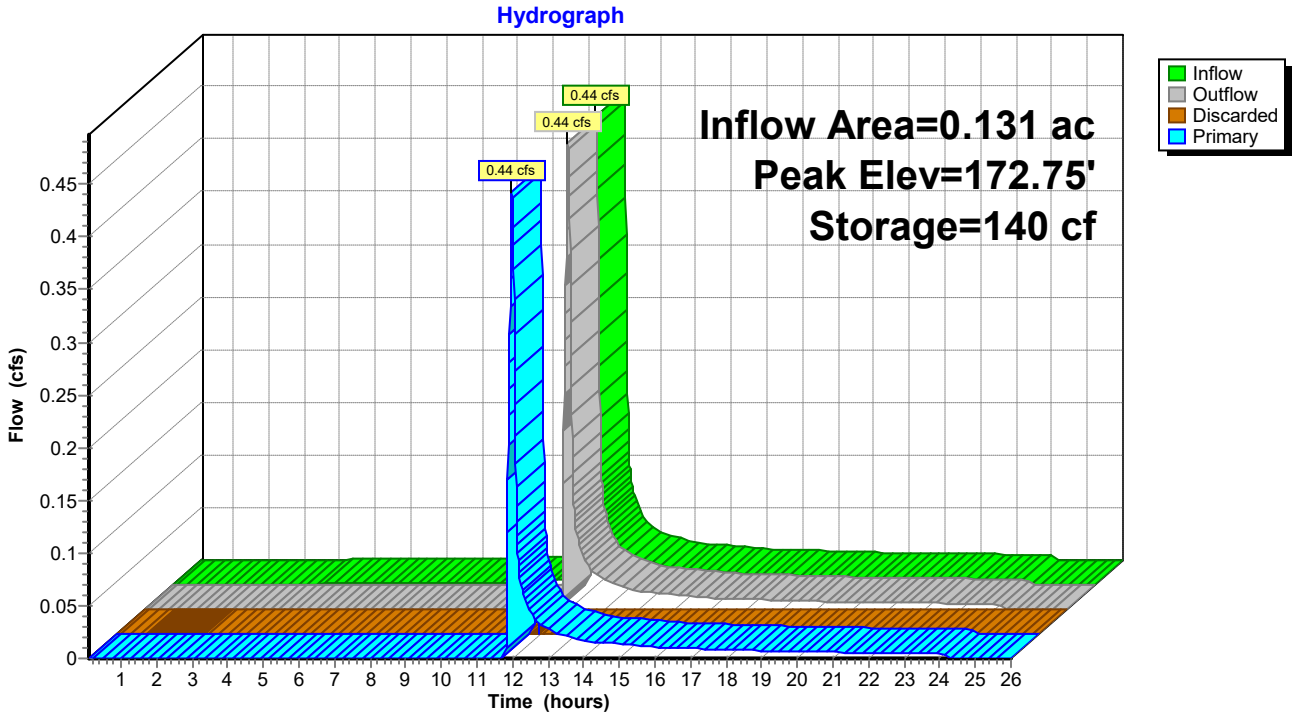
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=172.75' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.43 cfs @ 11.98 hrs HW=172.75' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.21 fps)
└**3=Orifice/Grate** (Orifice Controls 0.41 cfs @ 1.62 fps)

Pond RG-4: RG-4

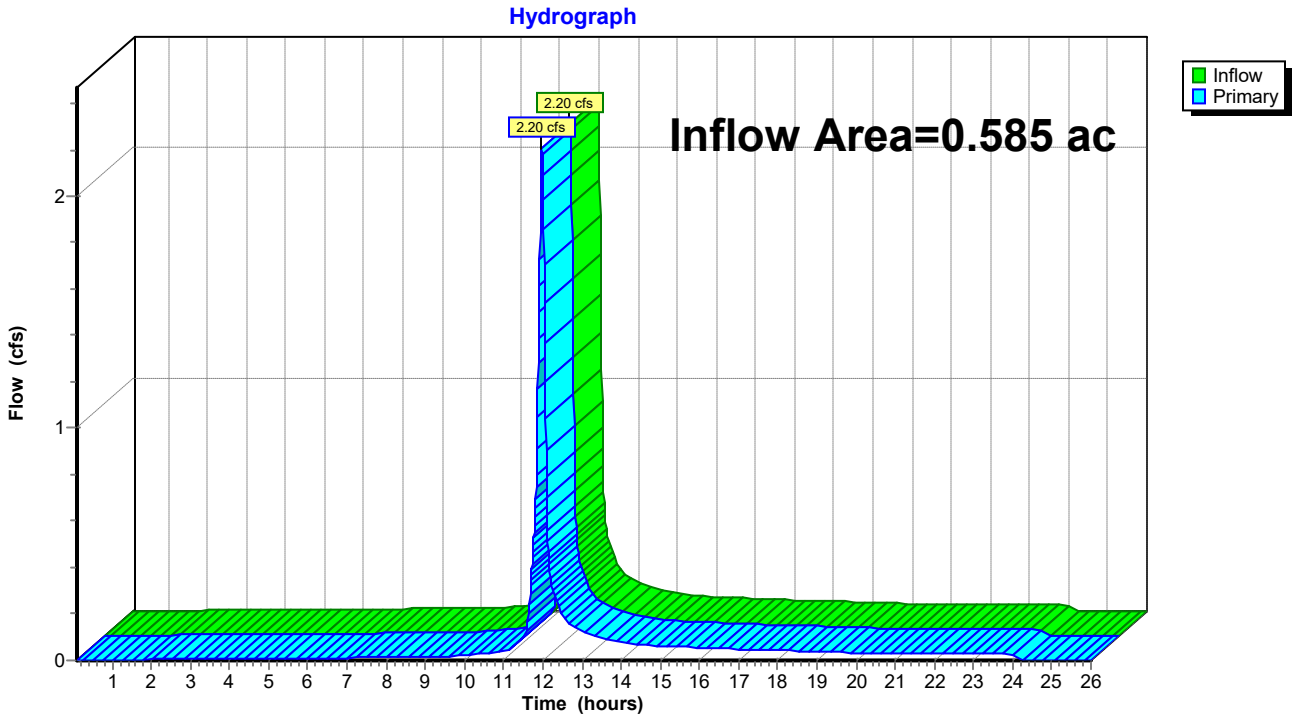

Hydrograph
Inflow Area=0.131 ac
Peak Elev=172.75'
Storage=140 cf
0.44 cfs
0.44 cfs
0.44 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 2.35" for 25-year event
Inflow = 2.20 cfs @ 11.98 hrs, Volume= 0.114 af
Primary = 2.20 cfs @ 11.98 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=3.65"
Flow Length=487' Tc=13.0 min CN=73 Runoff=2.96 cfs 0.178 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.021 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.016 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.12 cfs 0.007 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.10 cfs 0.005 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.15 cfs 0.007 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.12 cfs 0.006 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.06 cfs 0.003 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.07 cfs 0.004 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.37 cfs 0.017 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.42 cfs 0.020 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=61 Runoff=0.35 cfs 0.016 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=2.19"
Tc=6.0 min CN=58 Runoff=0.04 cfs 0.002 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.021 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=6.43"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.022 af

Pond RG-1: RG-1 Peak Elev=163.51' Storage=735 cf Inflow=0.48 cfs 0.026 af
Outflow=0.03 cfs 0.009 af

Pond RG-2: RG-2 Peak Elev=162.61' Storage=225 cf Inflow=0.12 cfs 0.006 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.74' Storage=191 cf Inflow=0.73 cfs 0.038 af
Outflow=0.72 cfs 0.034 af

Pond RG-4: RG-4 Peak Elev=172.77' Storage=141 cf Inflow=0.58 cfs 0.028 af
Discarded=0.00 cfs 0.001 af Primary=0.58 cfs 0.025 af Outflow=0.58 cfs 0.026 af

Link POA: POA Inflow=2.72 cfs 0.144 af
Primary=2.72 cfs 0.144 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.351 af Average Runoff Depth = 3.60"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

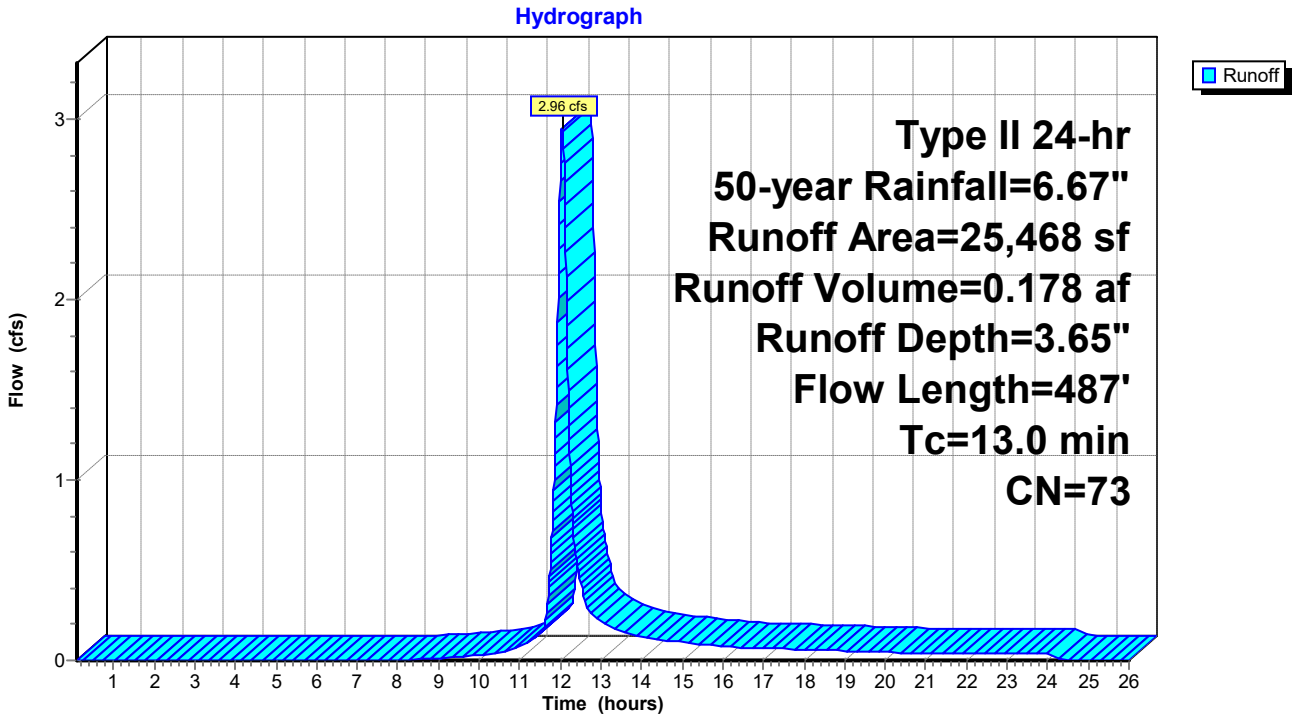
Runoff = 2.96 cfs @ 12.05 hrs, Volume= 0.178 af, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

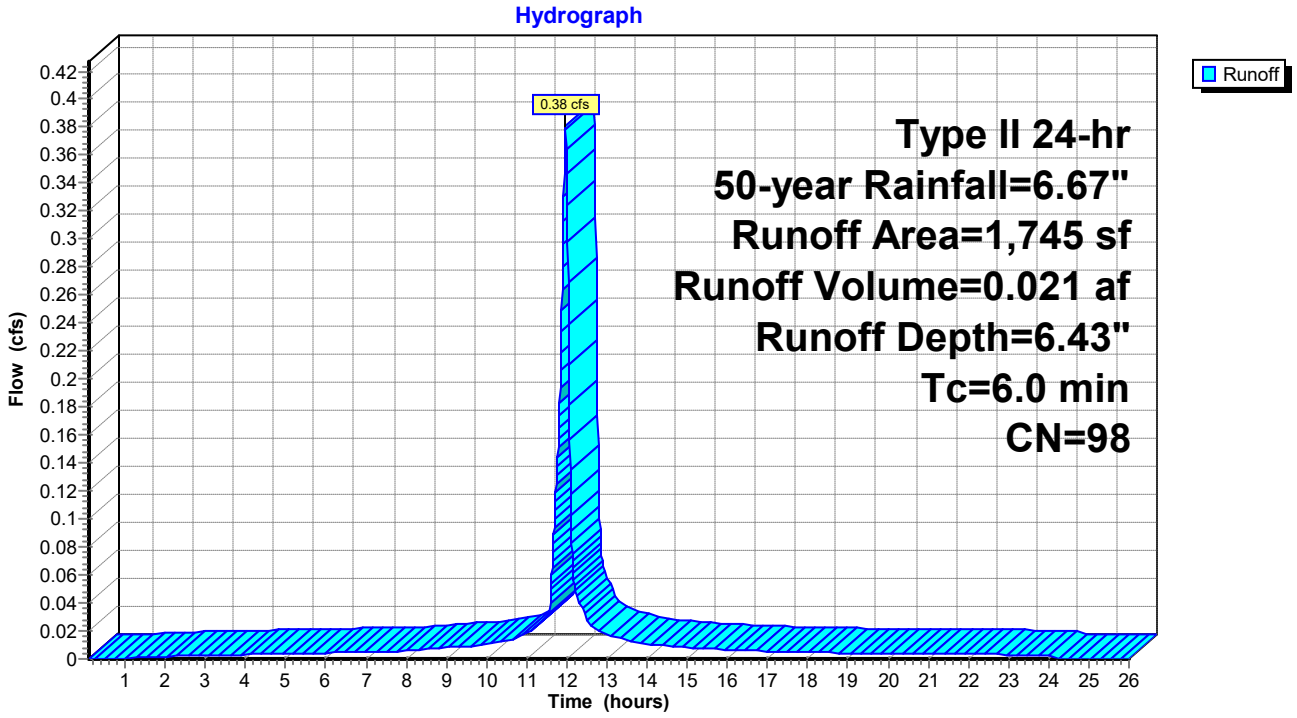
Runoff = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af, Depth= 6.43"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

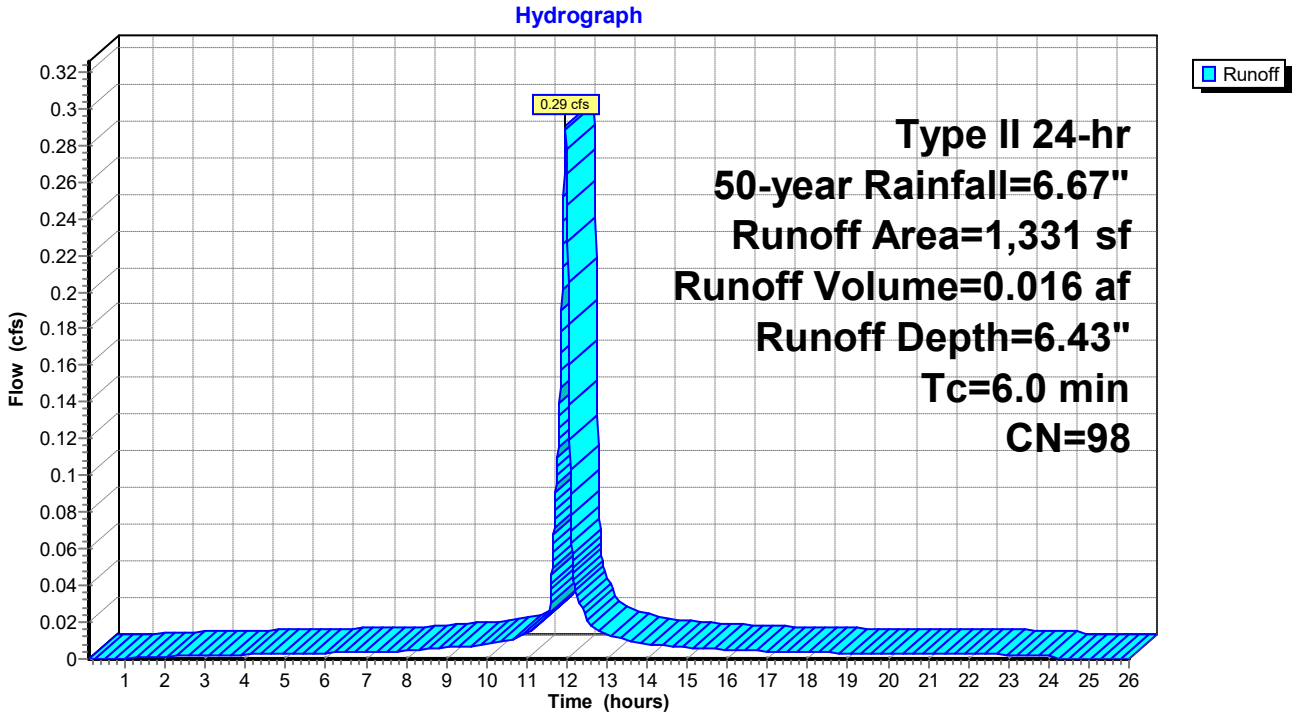
Runoff = 0.29 cfs @ 11.97 hrs, Volume= 0.016 af, Depth= 6.43"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

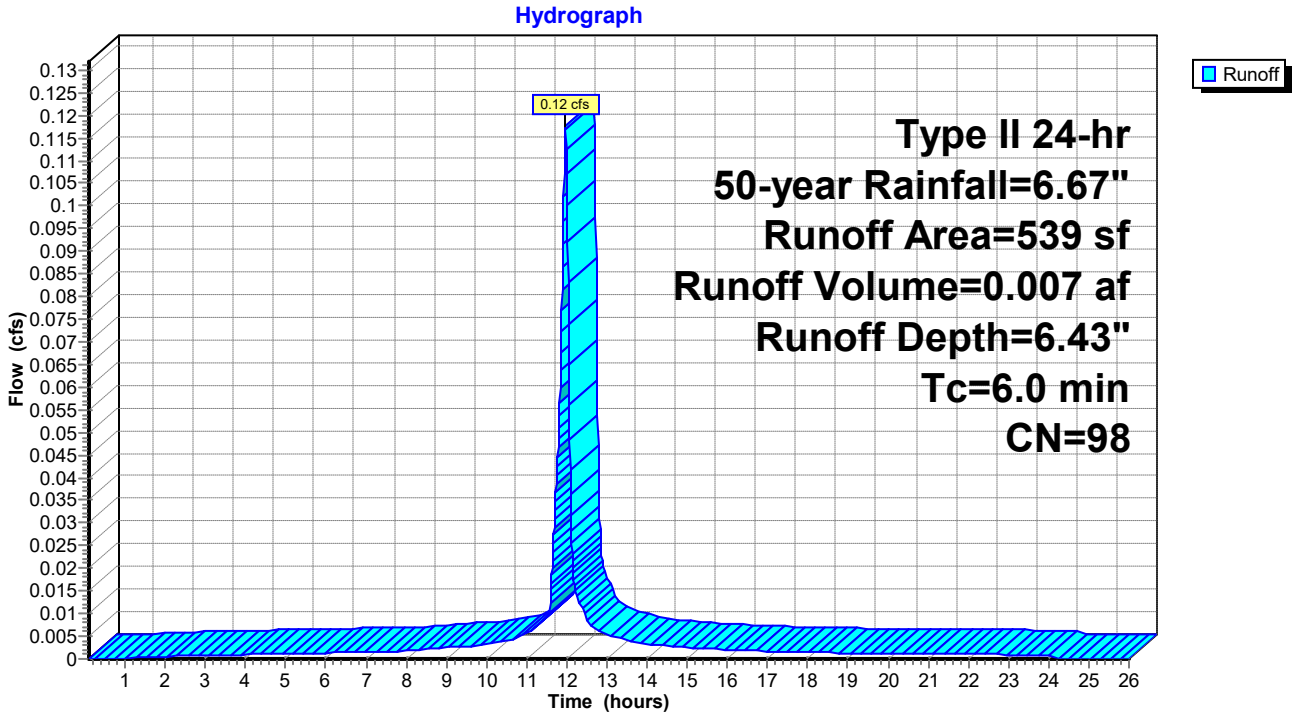
Runoff = 0.12 cfs @ 11.97 hrs, Volume= 0.007 af, Depth= 6.43"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

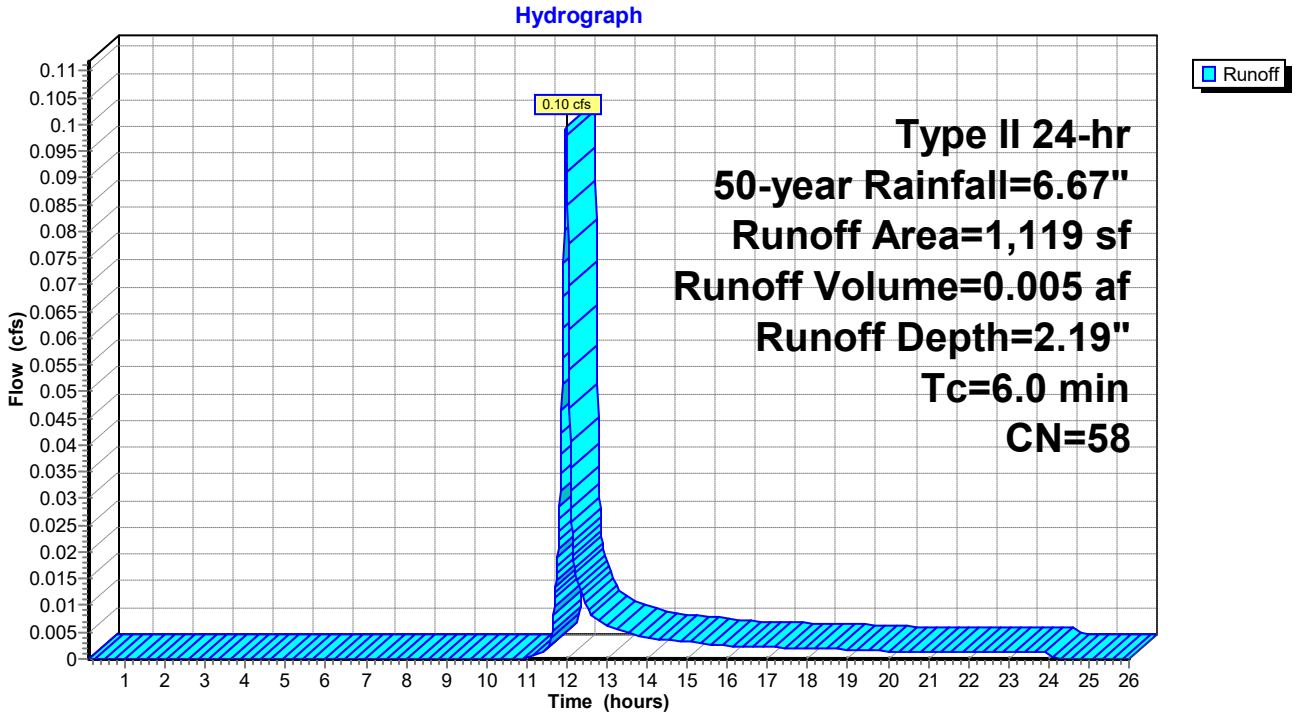
Runoff = 0.10 cfs @ 11.98 hrs, Volume= 0.005 af, Depth= 2.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

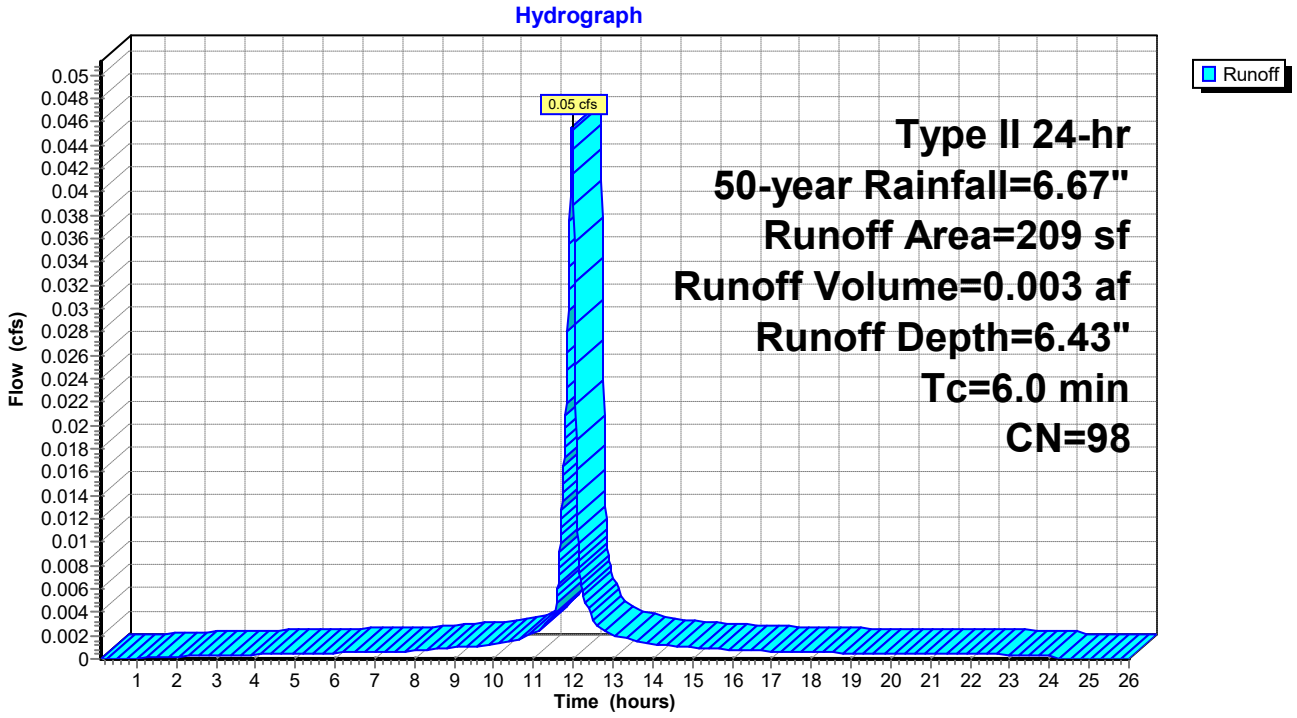
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 6.43"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

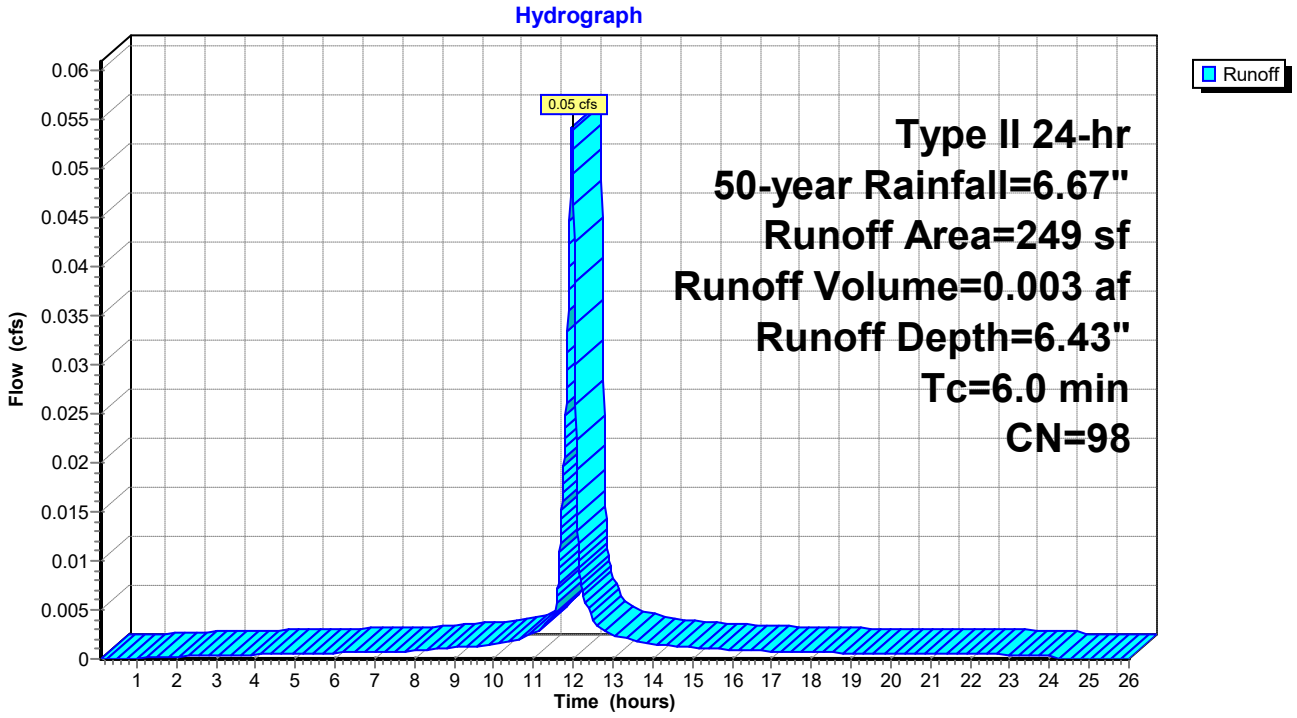
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

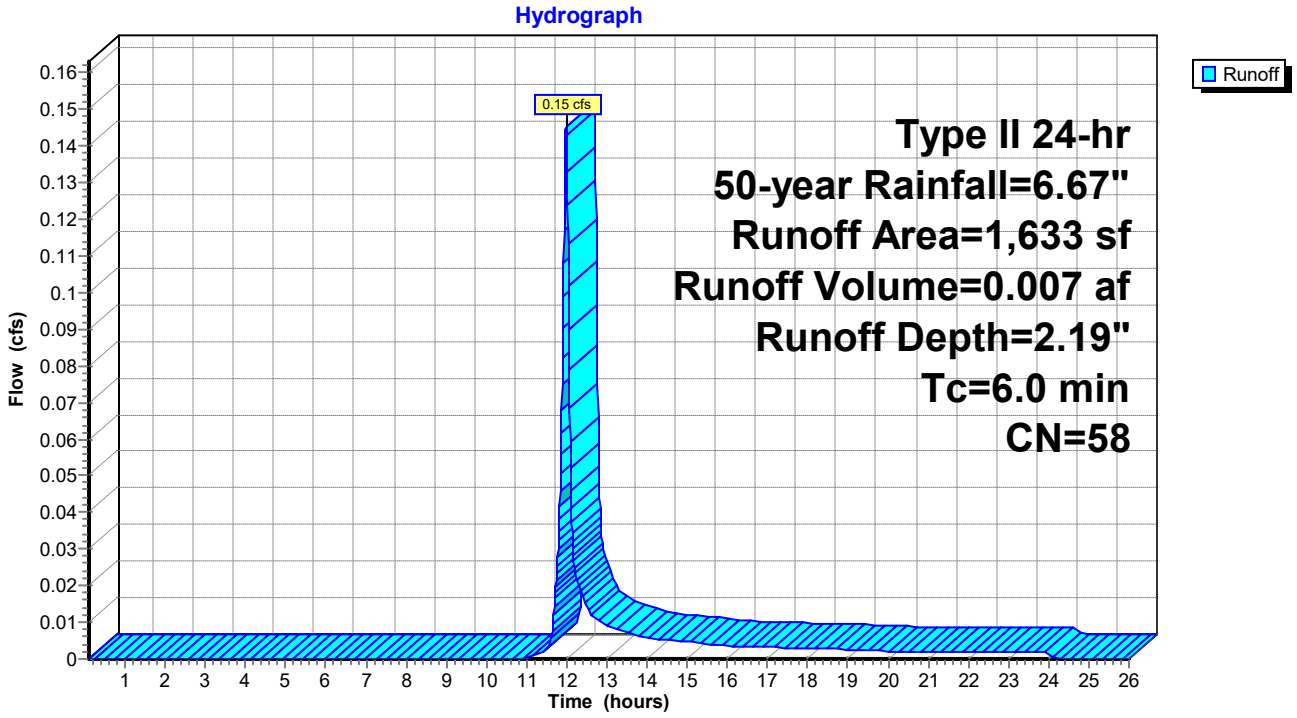
Runoff = 0.15 cfs @ 11.98 hrs, Volume= 0.007 af, Depth= 2.19"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

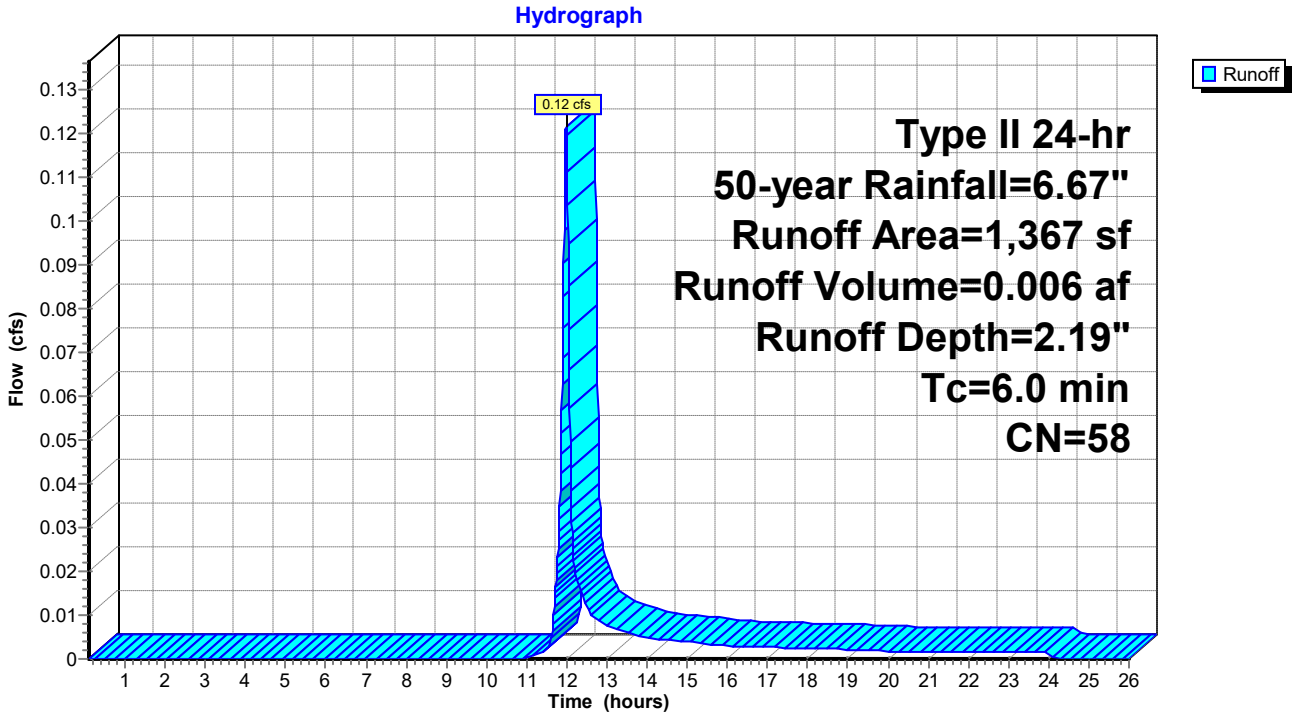
Runoff = 0.12 cfs @ 11.98 hrs, Volume= 0.006 af, Depth= 2.19"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

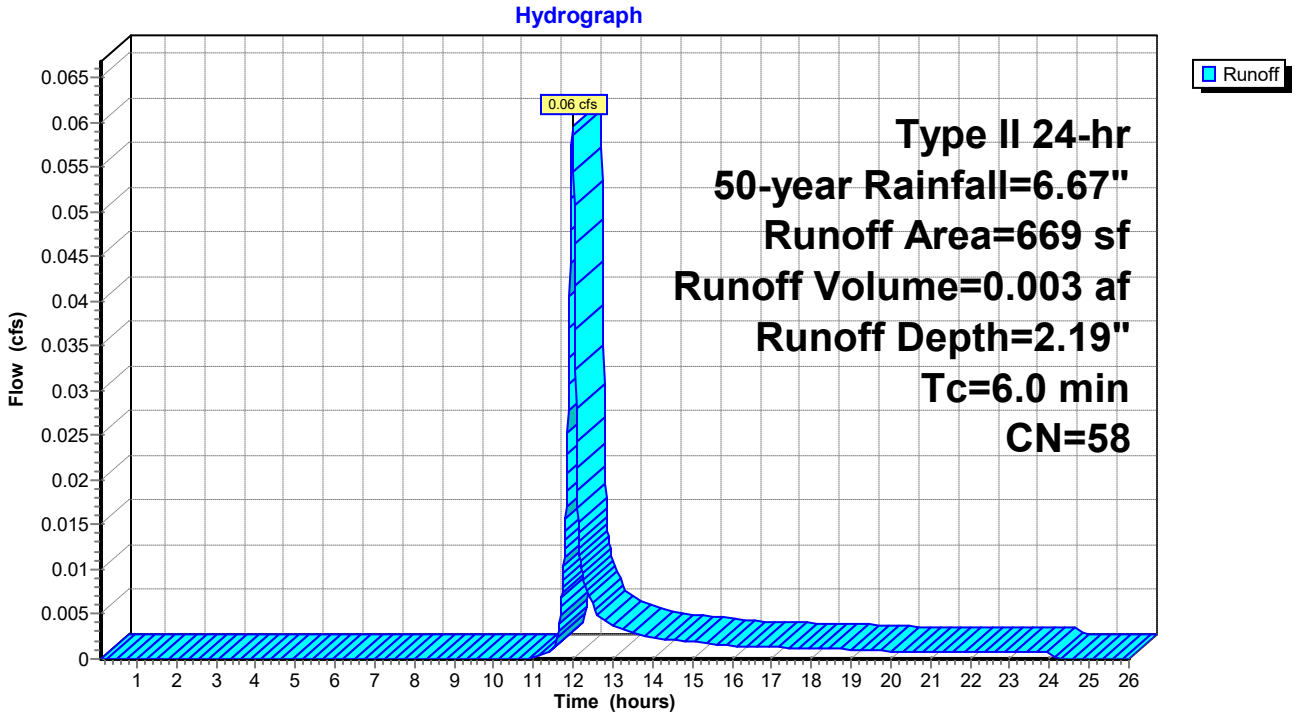
Runoff = 0.06 cfs @ 11.98 hrs, Volume= 0.003 af, Depth= 2.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

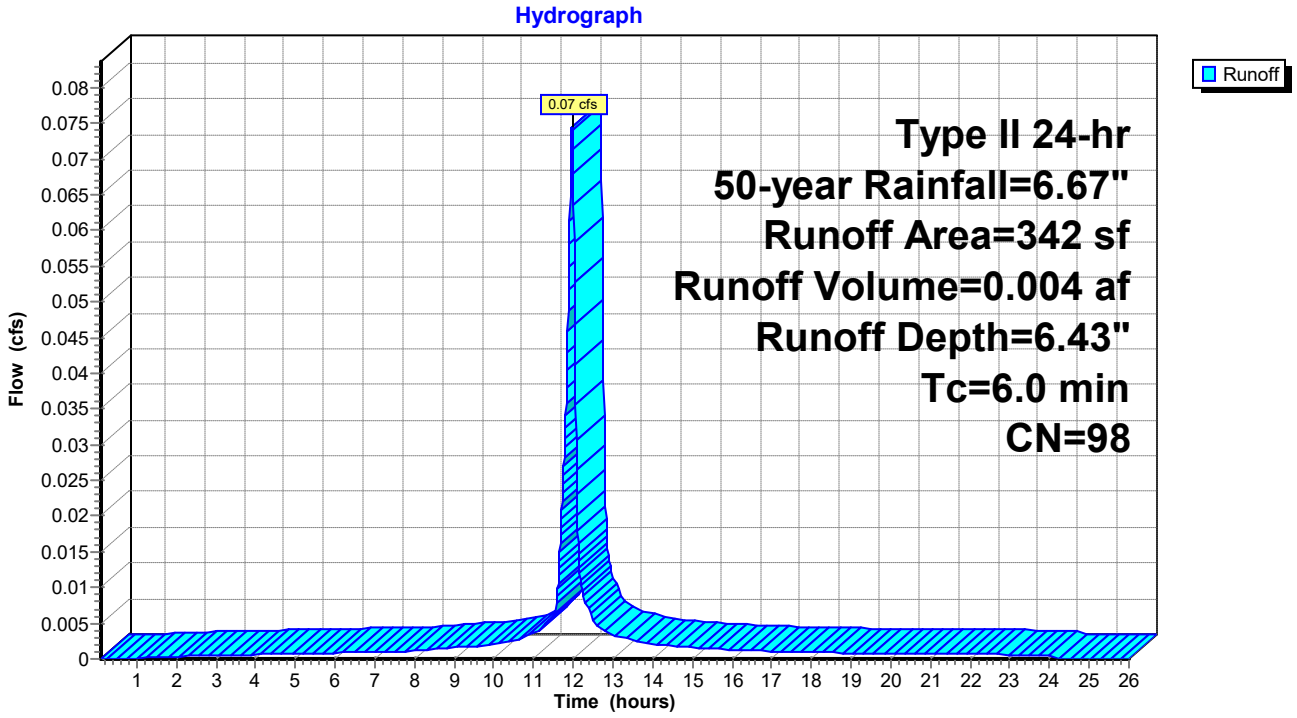
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.004 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

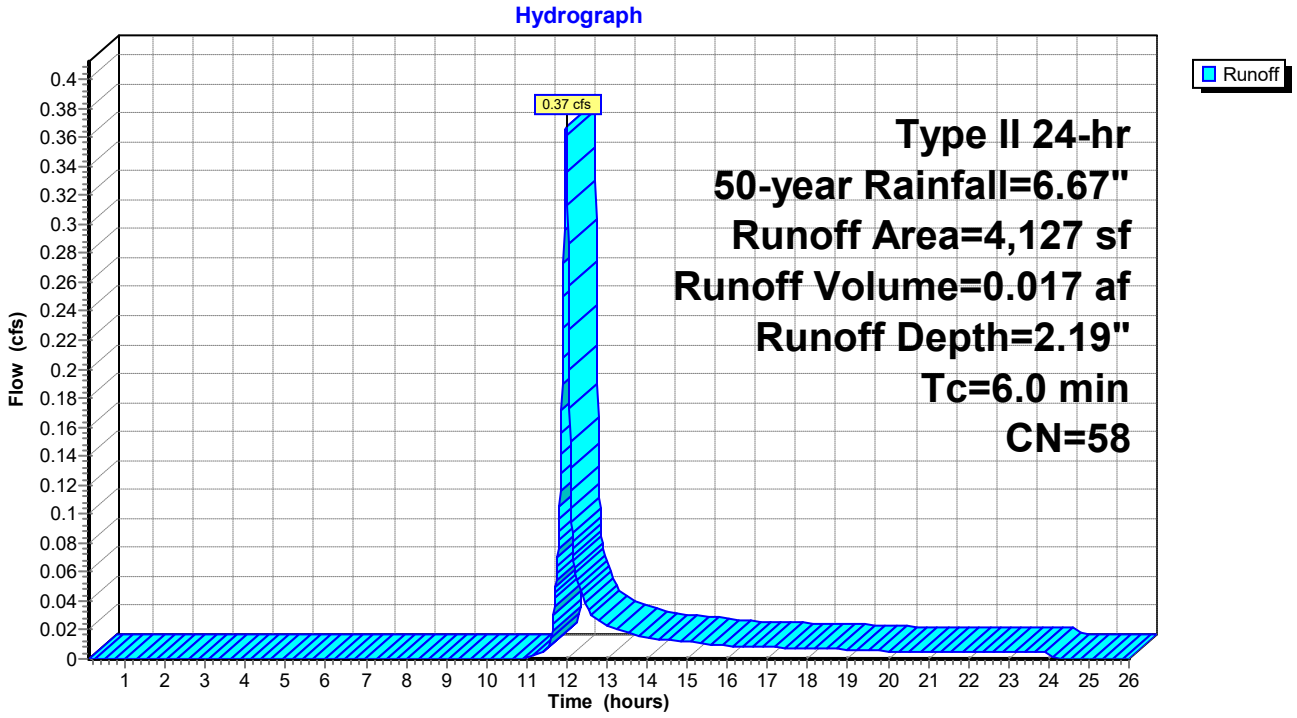
Runoff = 0.37 cfs @ 11.98 hrs, Volume= 0.017 af, Depth= 2.19"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

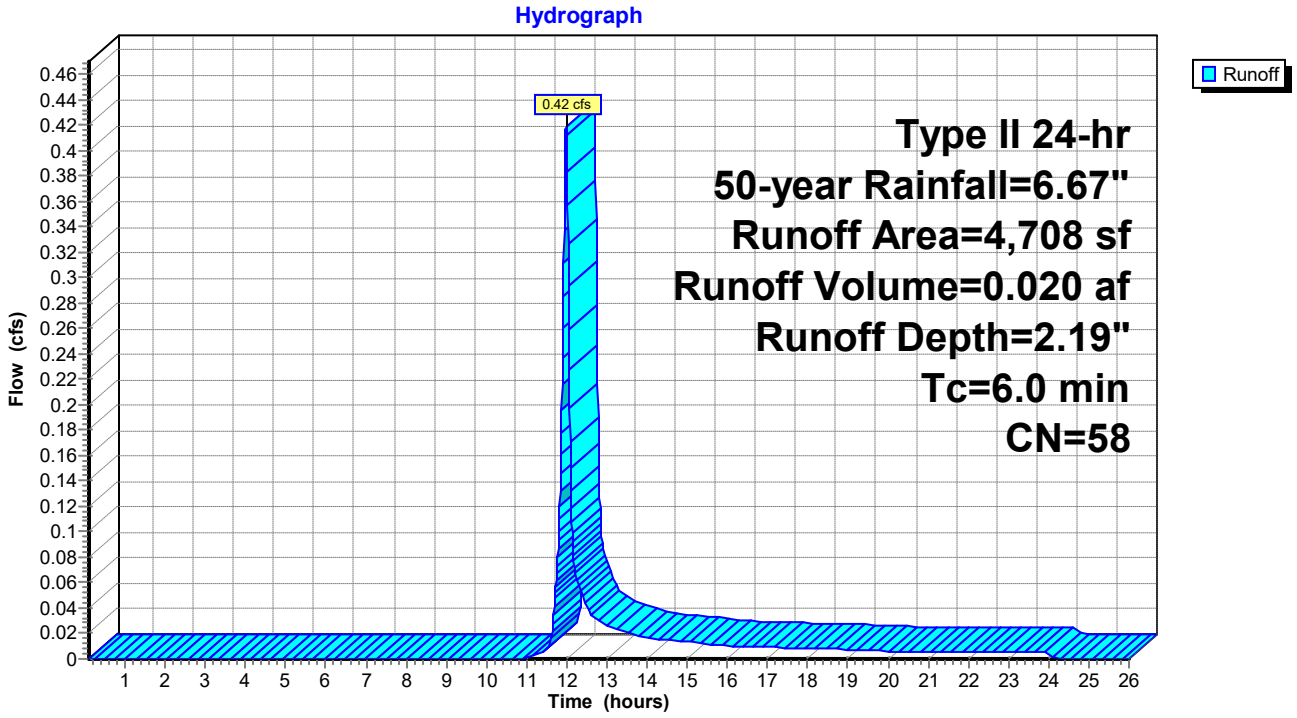
Runoff = 0.42 cfs @ 11.98 hrs, Volume= 0.020 af, Depth= 2.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

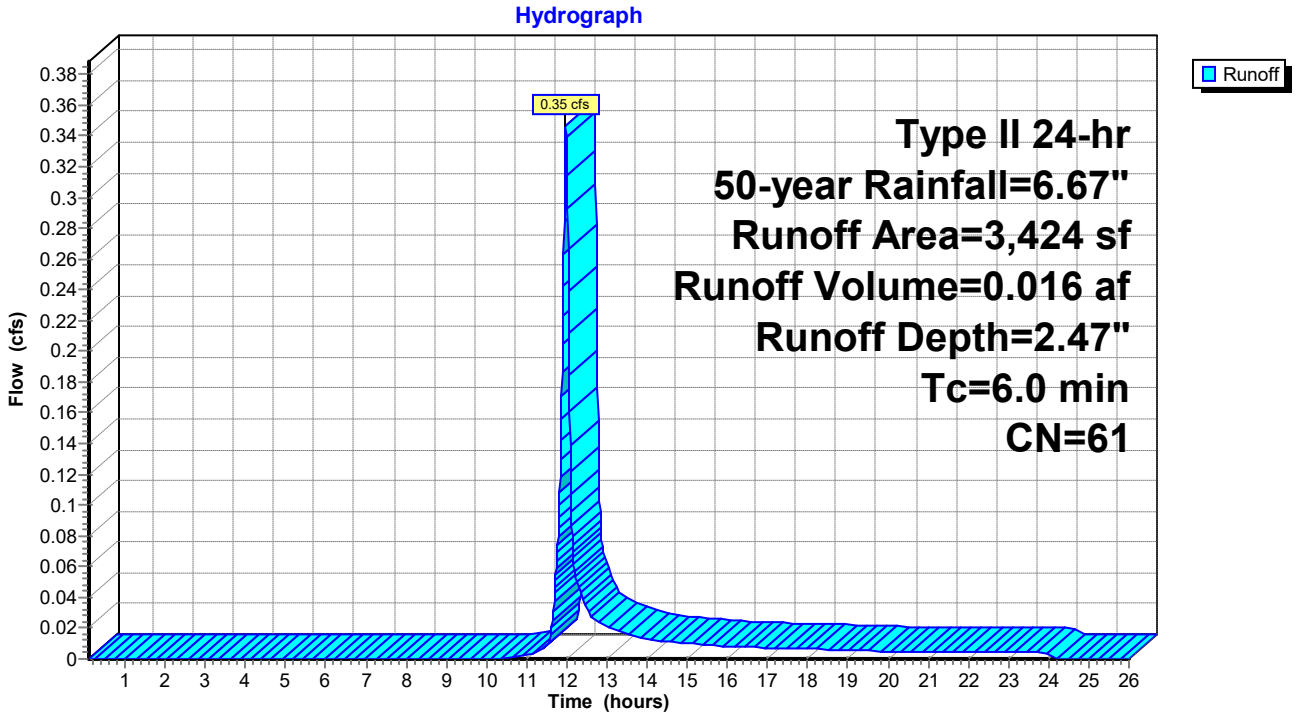
Runoff = 0.35 cfs @ 11.98 hrs, Volume= 0.016 af, Depth= 2.47"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

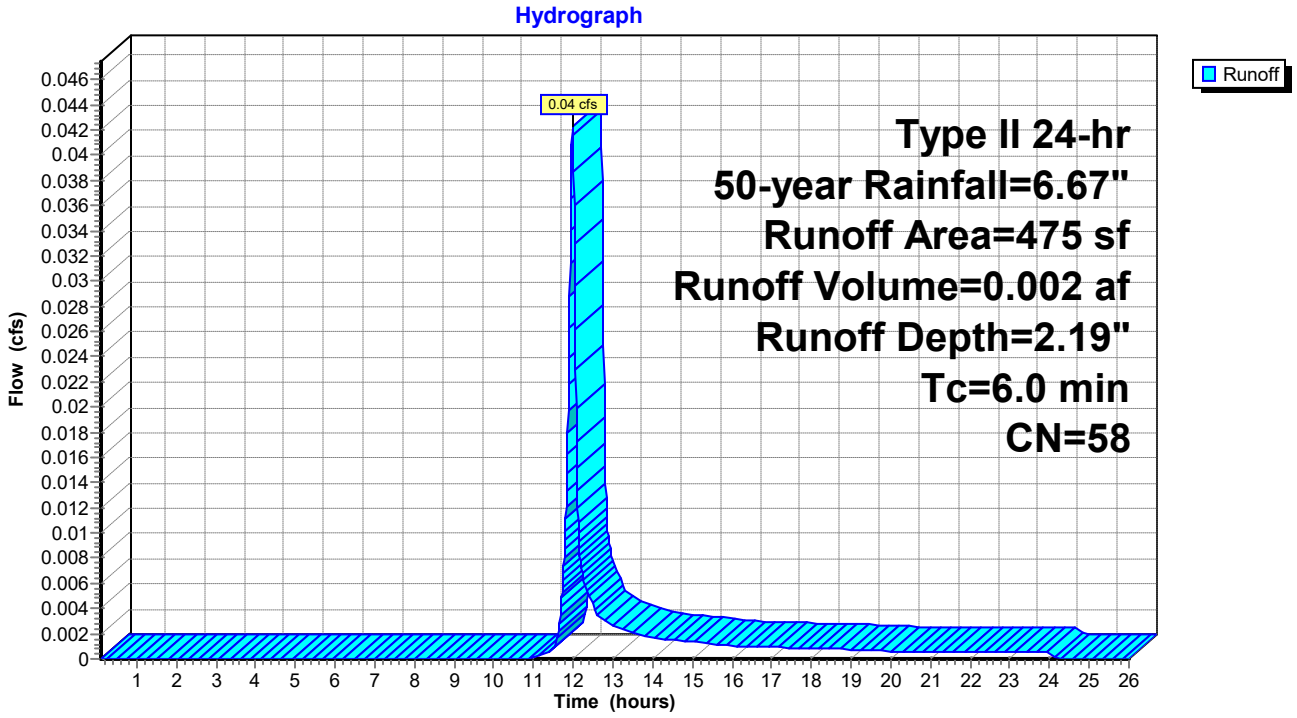
Runoff = 0.04 cfs @ 11.98 hrs, Volume= 0.002 af, Depth= 2.19"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

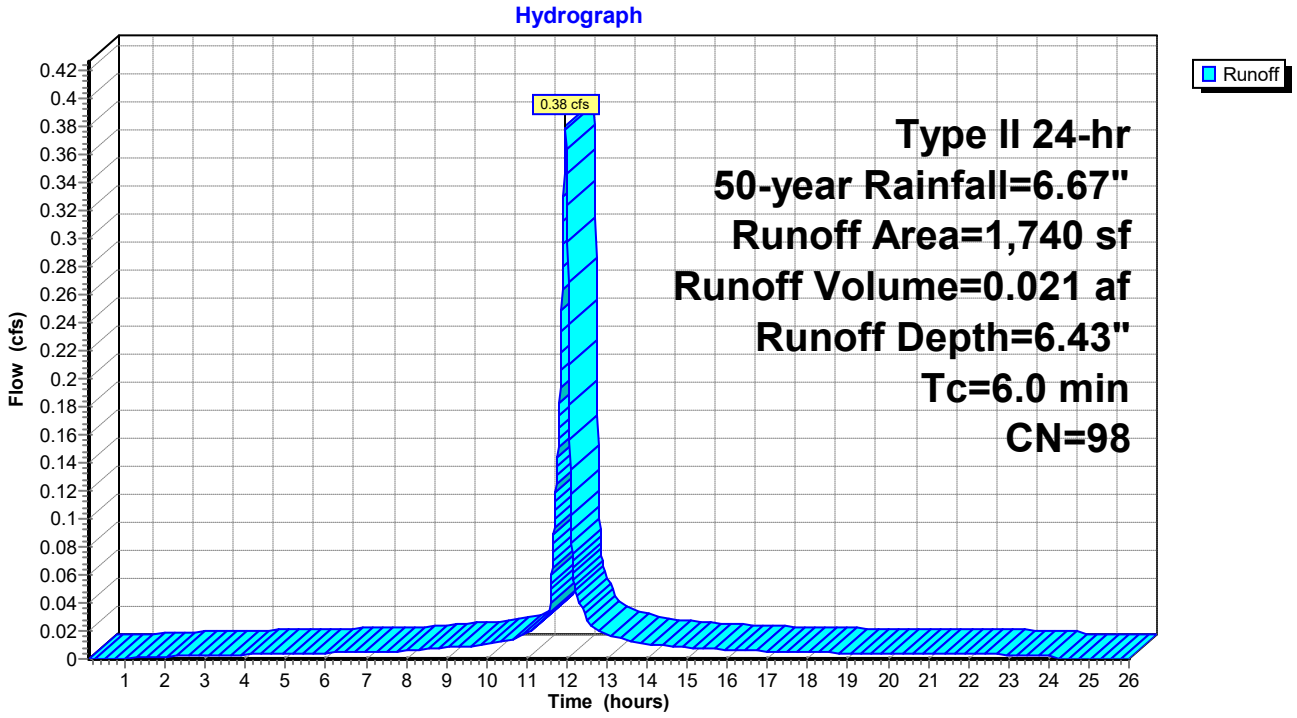
Runoff = 0.38 cfs @ 11.97 hrs, Volume= 0.021 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

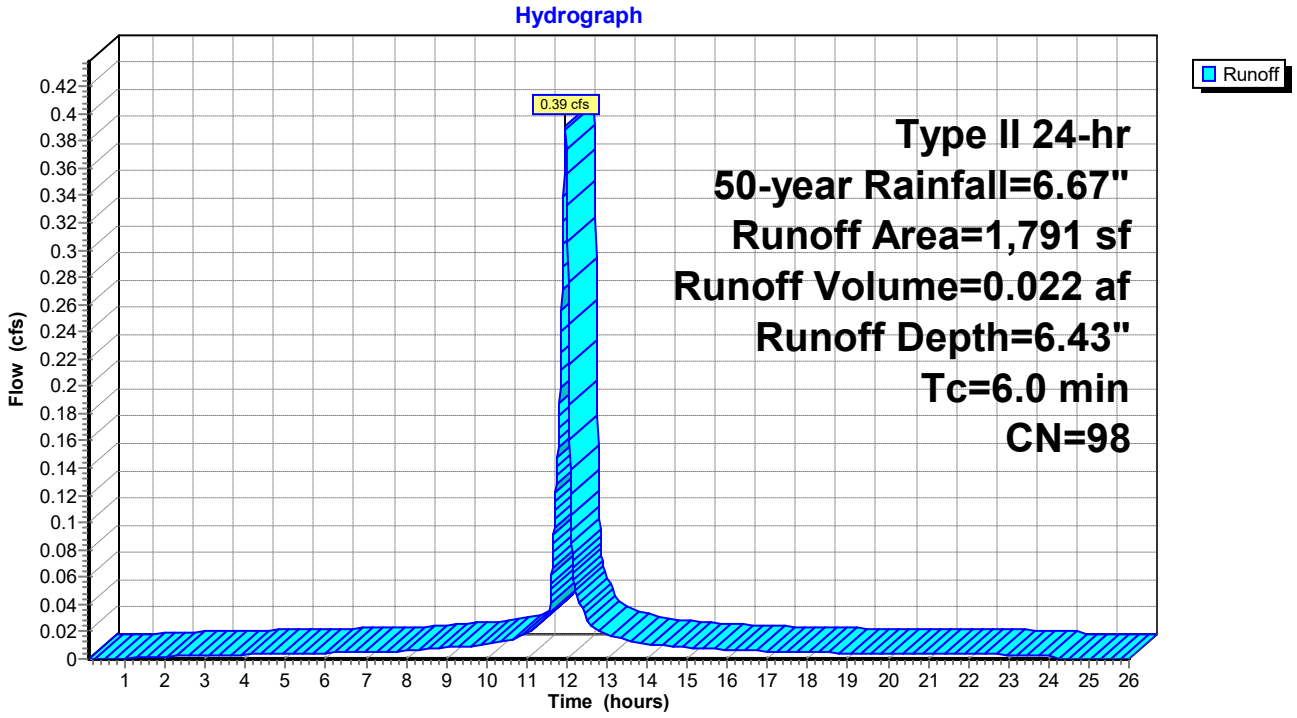
Runoff = 0.39 cfs @ 11.97 hrs, Volume= 0.022 af, Depth= 6.43"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 50-year Rainfall=6.67"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 4.25" for 50-year event
Inflow = 0.48 cfs @ 11.97 hrs, Volume= 0.026 af
Outflow = 0.03 cfs @ 12.90 hrs, Volume= 0.009 af, Atten= 94%, Lag= 55.5 min
Primary = 0.03 cfs @ 12.90 hrs, Volume= 0.009 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.51' @ 12.90 hrs Surf.Area= 864 sf Storage= 735 cf

Plug-Flow detention time= 370.1 min calculated for 0.009 af (36% of inflow)
Center-of-Mass det. time= 203.8 min (974.7 - 770.9)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

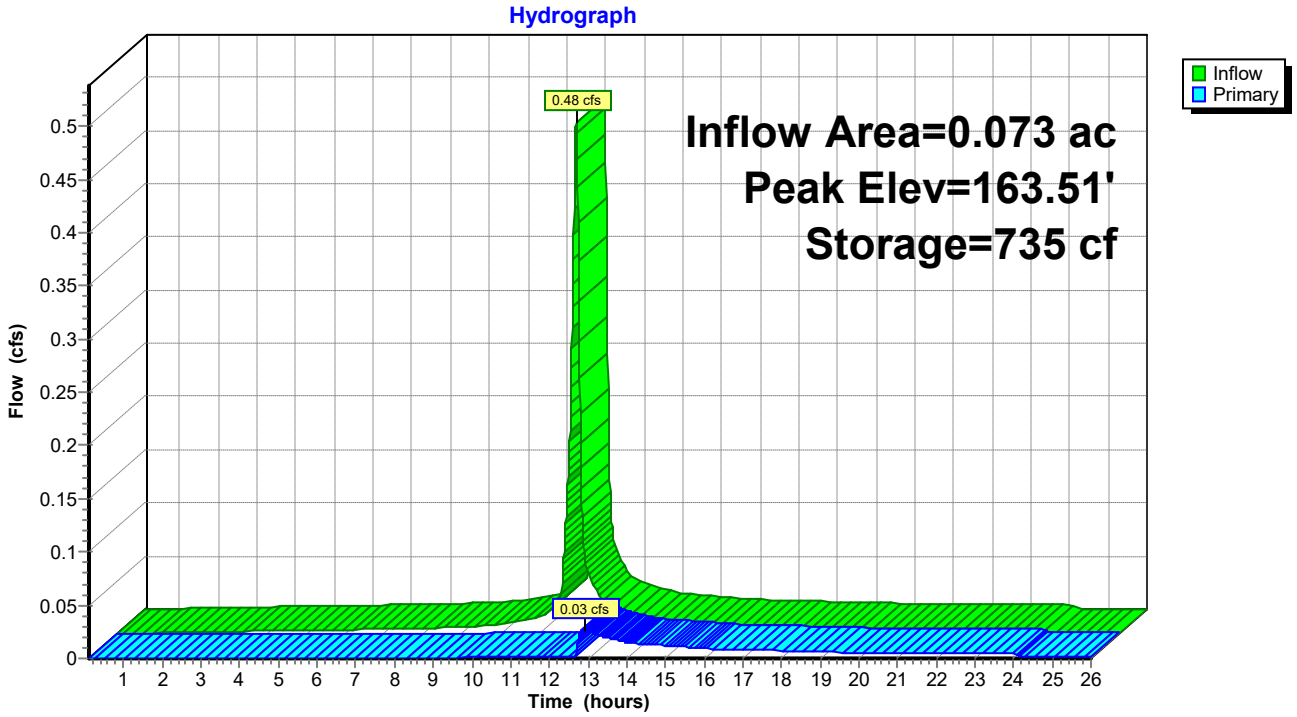
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.02 cfs @ 12.90 hrs HW=163.51' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.36 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.48 cfs
0.03 cfs
Inflow Area=0.073 ac
Peak Elev=163.51'
Storage=735 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 2.19" for 50-year event
Inflow = 0.12 cfs @ 11.98 hrs, Volume= 0.006 af
Outflow = 0.00 cfs @ 24.10 hrs, Volume= 0.001 af, Atten= 100%, Lag= 727.2 min
Primary = 0.00 cfs @ 24.10 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.61' @ 24.10 hrs Surf.Area= 301 sf Storage= 225 cf

Plug-Flow detention time= 421.2 min calculated for 0.001 af (11% of inflow)
Center-of-Mass det. time= 268.6 min (1,126.6 - 858.0)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

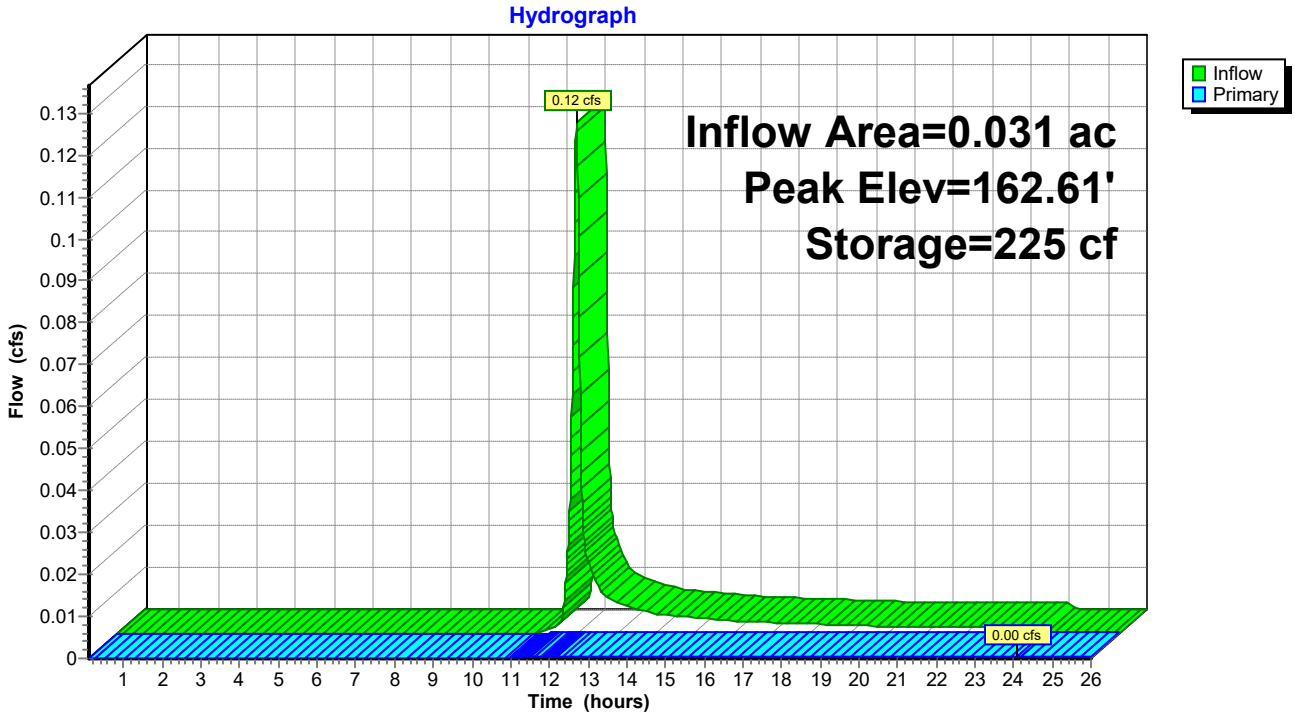
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 24.10 hrs HW=162.61' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.12 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=162.61'
Storage=225 cf
Flow (cfs)
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 3.80" for 50-year event
Inflow = 0.73 cfs @ 11.97 hrs, Volume= 0.038 af
Outflow = 0.72 cfs @ 11.98 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.4 min
Primary = 0.72 cfs @ 11.98 hrs, Volume= 0.034 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.74' @ 11.98 hrs Surf.Area= 186 sf Storage= 191 cf

Plug-Flow detention time= 93.7 min calculated for 0.034 af (90% of inflow)
Center-of-Mass det. time= 39.6 min (826.7 - 787.1)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

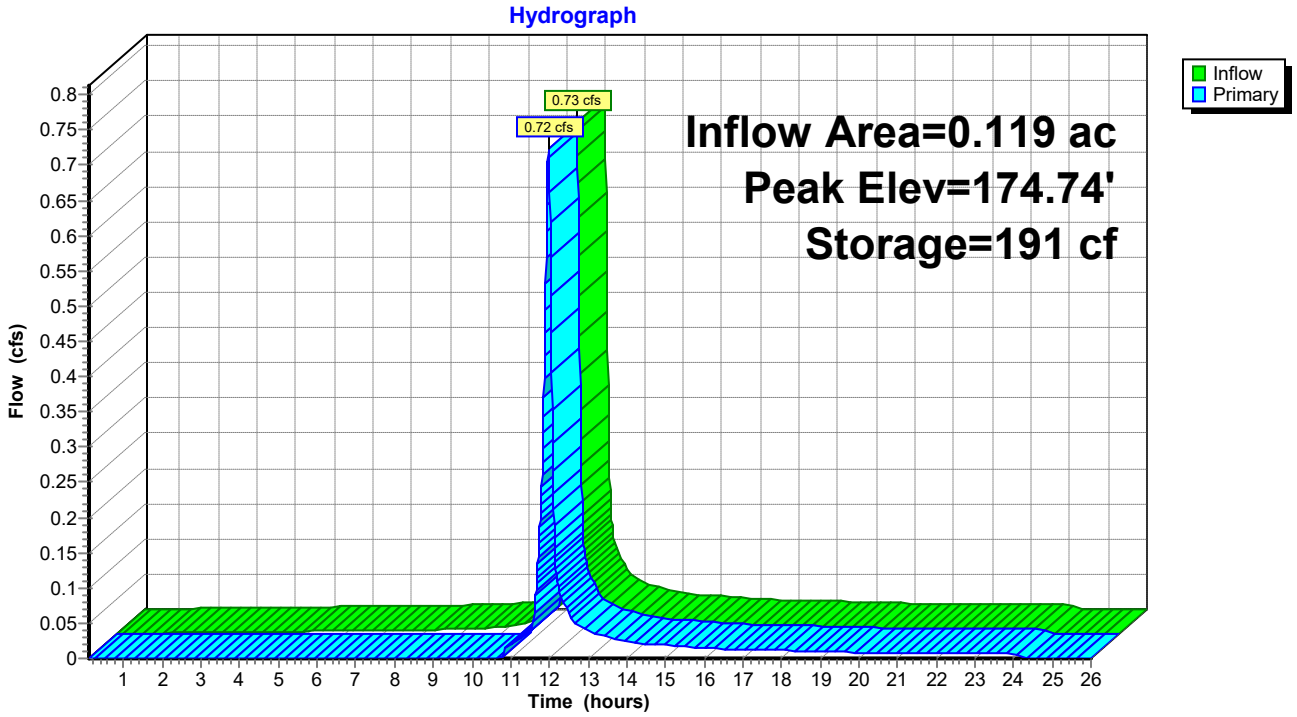
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.72 cfs @ 11.98 hrs HW=174.74' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Exfiltration** (Controls 0.00 cfs)
└**3=Orifice/Grate** (Weir Controls 0.72 cfs @ 1.24 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.73 cfs
0.72 cfs
Inflow Area=0.119 ac
Peak Elev=174.74'
Storage=191 cf
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 2.59" for 50-year event
Inflow = 0.58 cfs @ 11.98 hrs, Volume= 0.028 af
Outflow = 0.58 cfs @ 11.98 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.2 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 0.001 af
Primary = 0.58 cfs @ 11.98 hrs, Volume= 0.025 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.77' @ 11.98 hrs Surf.Area= 171 sf Storage= 141 cf

Plug-Flow detention time= 77.6 min calculated for 0.026 af (90% of inflow)
Center-of-Mass det. time= 26.9 min (857.2 - 830.3)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

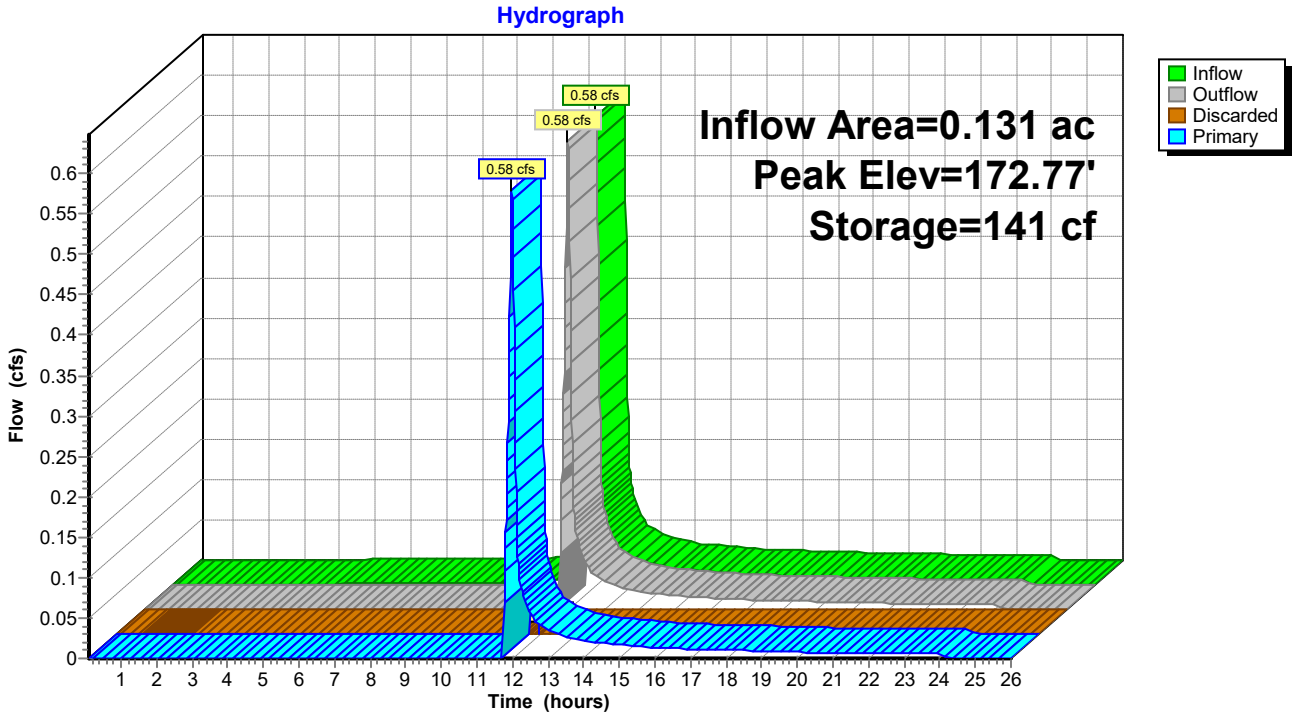
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=172.77' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.56 cfs @ 11.98 hrs HW=172.77' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 0.11 cfs @ 0.43 fps)
└**3=Orifice/Grate** (Orifice Controls 0.45 cfs @ 1.67 fps)

Pond RG-4: RG-4

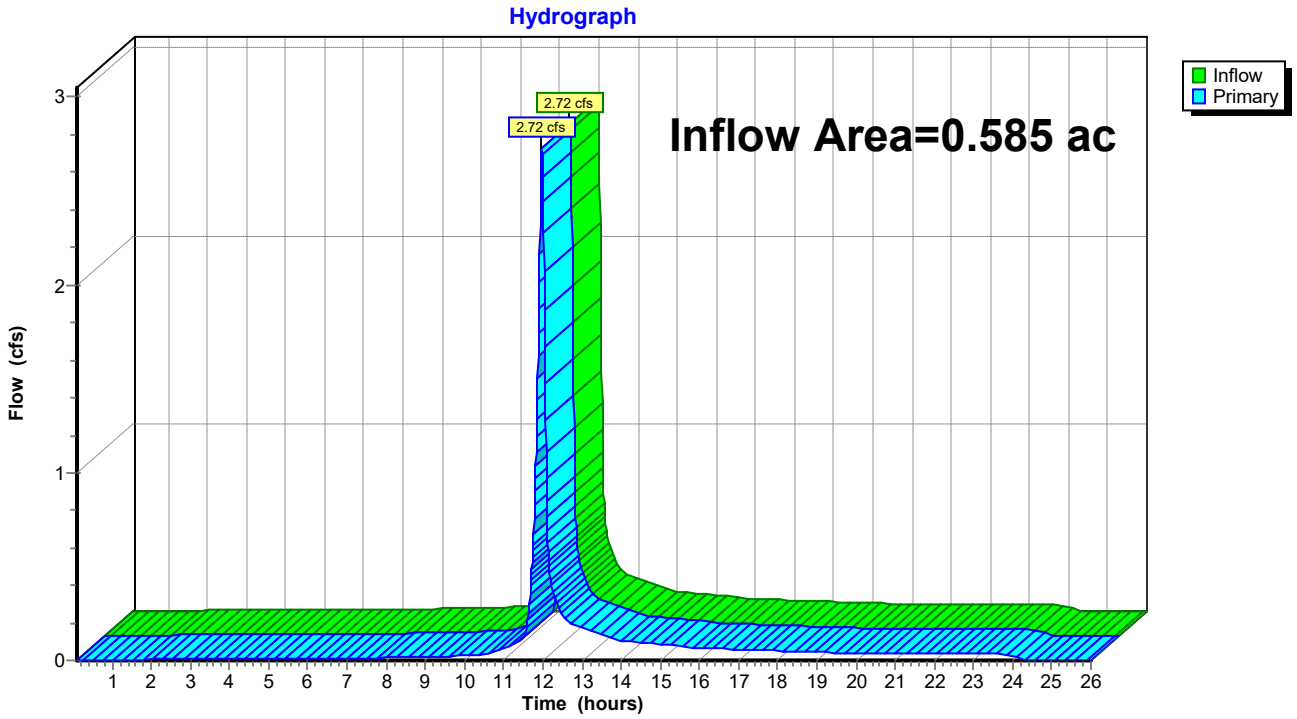

Hydrograph
Inflow
Outflow
Discarded
Primary
0.58 cfs
0.58 cfs
0.58 cfs
Inflow Area=0.131 ac
Peak Elev=172.77'
Storage=141 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 2.96" for 50-year event
Inflow = 2.72 cfs @ 11.98 hrs, Volume= 0.144 af
Primary = 2.72 cfs @ 11.98 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Time span=0.10-26.00 hrs, dt=0.01 hrs, 2591 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1: Pre-Developed Runoff Area=25,468 sf 37.98% Impervious Runoff Depth=4.44"
Flow Length=487' Tc=13.0 min CN=73 Runoff=3.58 cfs 0.216 af

Subcatchment 2: Post Impervious Runoff Area=1,745 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.025 af

Subcatchment 3: Post Impervious Runoff Area=1,331 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.019 af

Subcatchment 4: Post Impervious Runoff Area=539 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.008 af

Subcatchment 5: Post Pervious Runoff Area=1,119 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.13 cfs 0.006 af

Subcatchment 6: Post Impervious Runoff Area=209 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.05 cfs 0.003 af

Subcatchment 8: Post Impervious Runoff Area=249 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.003 af

Subcatchment 9: Post Pervious Runoff Area=1,633 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.19 cfs 0.009 af

Subcatchment 10: Post Pervious Runoff Area=1,367 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.16 cfs 0.007 af

Subcatchment 11: Post Pervious Runoff Area=669 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.08 cfs 0.004 af

Subcatchment 12: Post Impervious Runoff Area=342 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.08 cfs 0.005 af

Subcatchment 13: Post Pervious Runoff Area=4,127 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.48 cfs 0.022 af

Subcatchment 14: Post Pervious Runoff Area=4,708 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.54 cfs 0.025 af

Subcatchment 15: Post Pervious Runoff Area=3,424 sf 0.00% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=61 Runoff=0.44 cfs 0.020 af

Subcatchment 16: Post Pervious Runoff Area=475 sf 0.00% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.003 af

Subcatchment 17: Post Impervious Runoff Area=1,740 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.43 cfs 0.024 af

Subcatchment 18: Post Impervious Runoff Area=1,791 sf 100.00% Impervious Runoff Depth=7.34"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.025 af

Pond RG-1: RG-1 Peak Elev=163.54' Storage=745 cf Inflow=0.57 cfs 0.030 af
Outflow=0.10 cfs 0.014 af

Pond RG-2: RG-2 Peak Elev=162.75' Storage=259 cf Inflow=0.16 cfs 0.007 af
Outflow=0.00 cfs 0.001 af

Pond RG-3: RG-3 Peak Elev=174.76' Storage=193 cf Inflow=0.87 cfs 0.045 af
Outflow=0.87 cfs 0.041 af

Pond RG-4: RG-4 Peak Elev=172.78' Storage=142 cf Inflow=0.73 cfs 0.035 af
Discarded=0.00 cfs 0.001 af Primary=0.73 cfs 0.032 af Outflow=0.73 cfs 0.033 af

Link POA: POA Inflow=3.30 cfs 0.178 af
Primary=3.30 cfs 0.178 af

Total Runoff Area = 1.169 ac Runoff Volume = 0.424 af Average Runoff Depth = 4.35"
65.41% Pervious = 0.765 ac 34.59% Impervious = 0.404 ac

Summary for Subcatchment 1: Pre-Developed

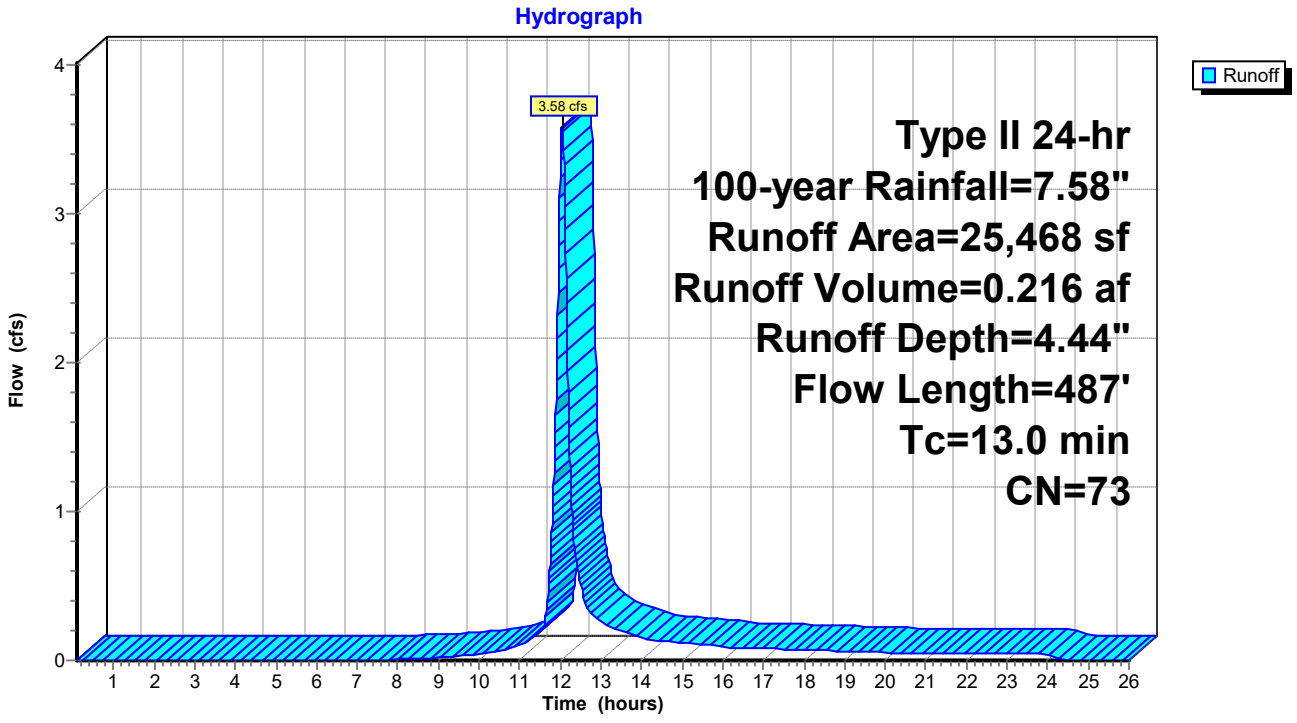
Runoff = 3.58 cfs @ 12.05 hrs, Volume= 0.216 af, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	9,673	98	80% Pre-developed impervious - Roofs and paved paths
*	3,159	58	20% Pre-developed impervious counted as meadow
	12,636	58	Meadow, non-grazed, HSG B
	25,468	73	Weighted Average
	15,795		62.02% Pervious Area
	9,673		37.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	100	0.0900	0.14		**Sheet Flow, Sheet Flow** Woods: Light underbrush n= 0.400 P2= 3.28"
1.4	387	0.0800	4.55		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
13.0	487	Total			

Subcatchment 1: Pre-Developed



Summary for Subcatchment 2: Post Impervious

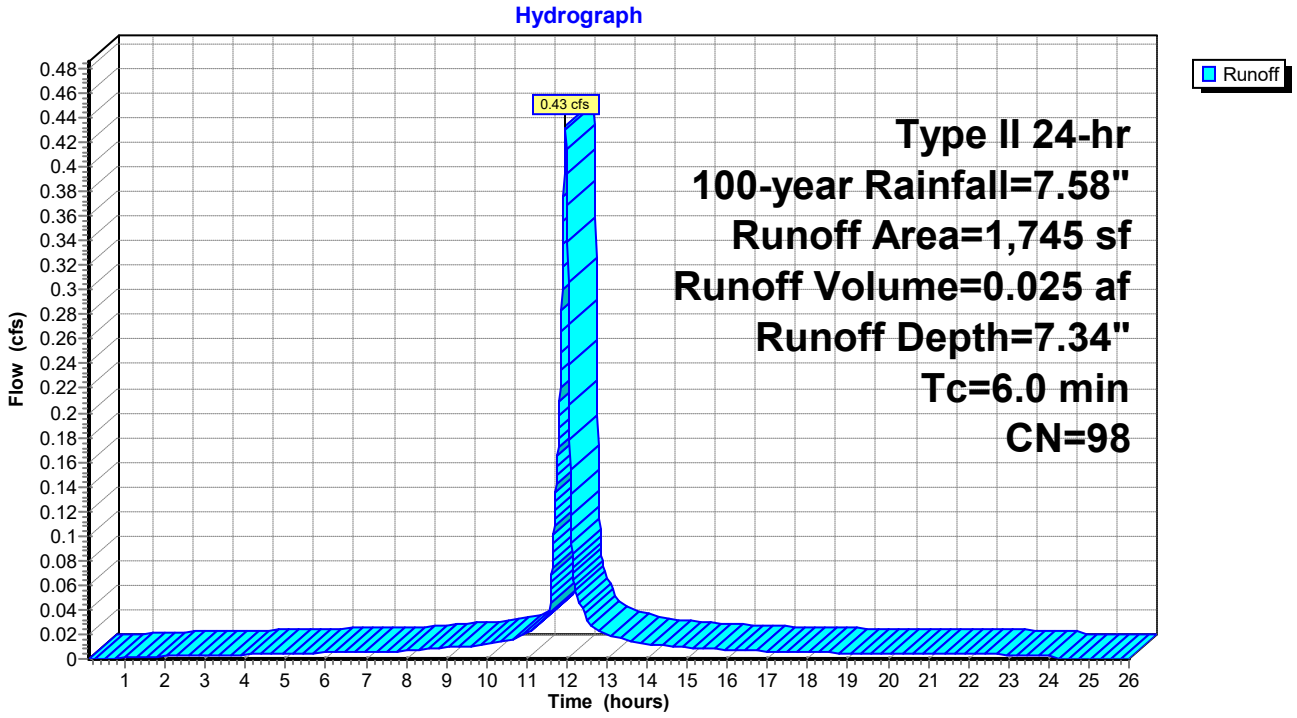
Runoff = 0.43 cfs @ 11.97 hrs, Volume= 0.025 af, Depth= 7.34"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,745	98	Impervious rooftop
	1,745		100.00% Impervious Area

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

Subcatchment 2: Post Impervious



Summary for Subcatchment 3: Post Impervious

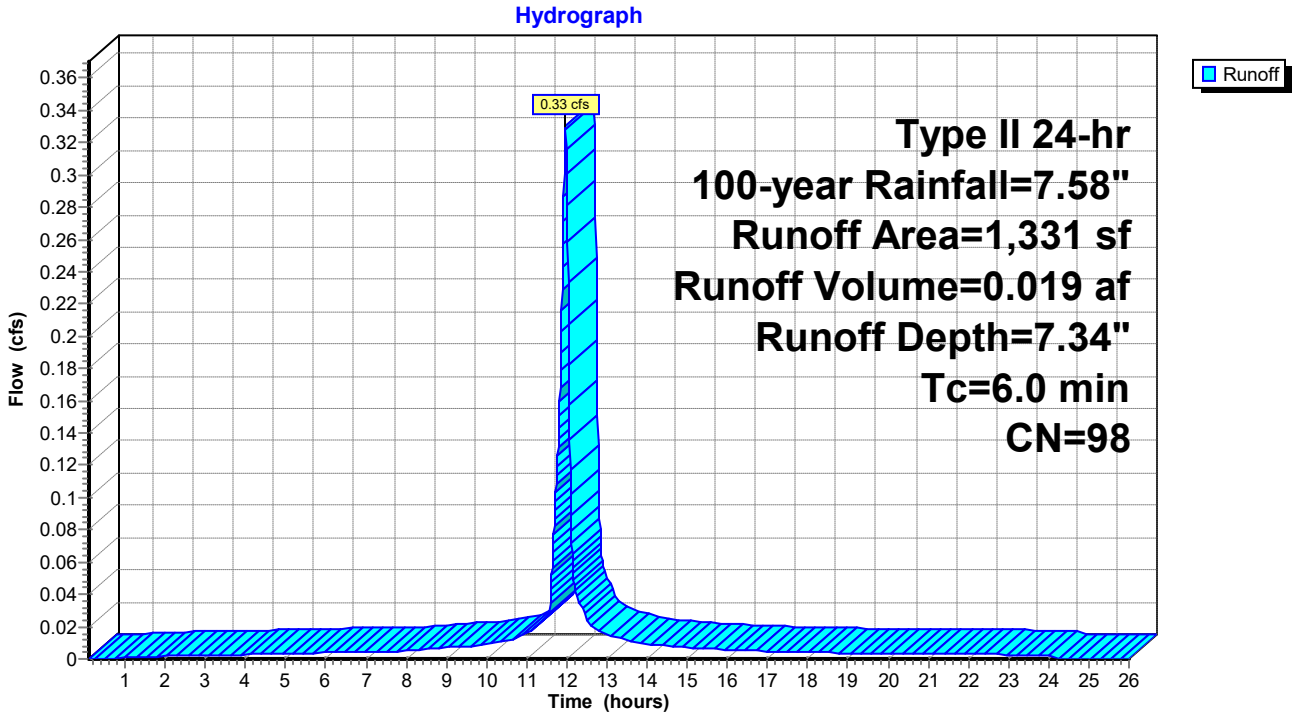
Runoff = 0.33 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 7.34"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,331	98	Impervious rooftop
	1,331		100.00% Impervious Area

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

Subcatchment 3: Post Impervious



Summary for Subcatchment 4: Post Impervious

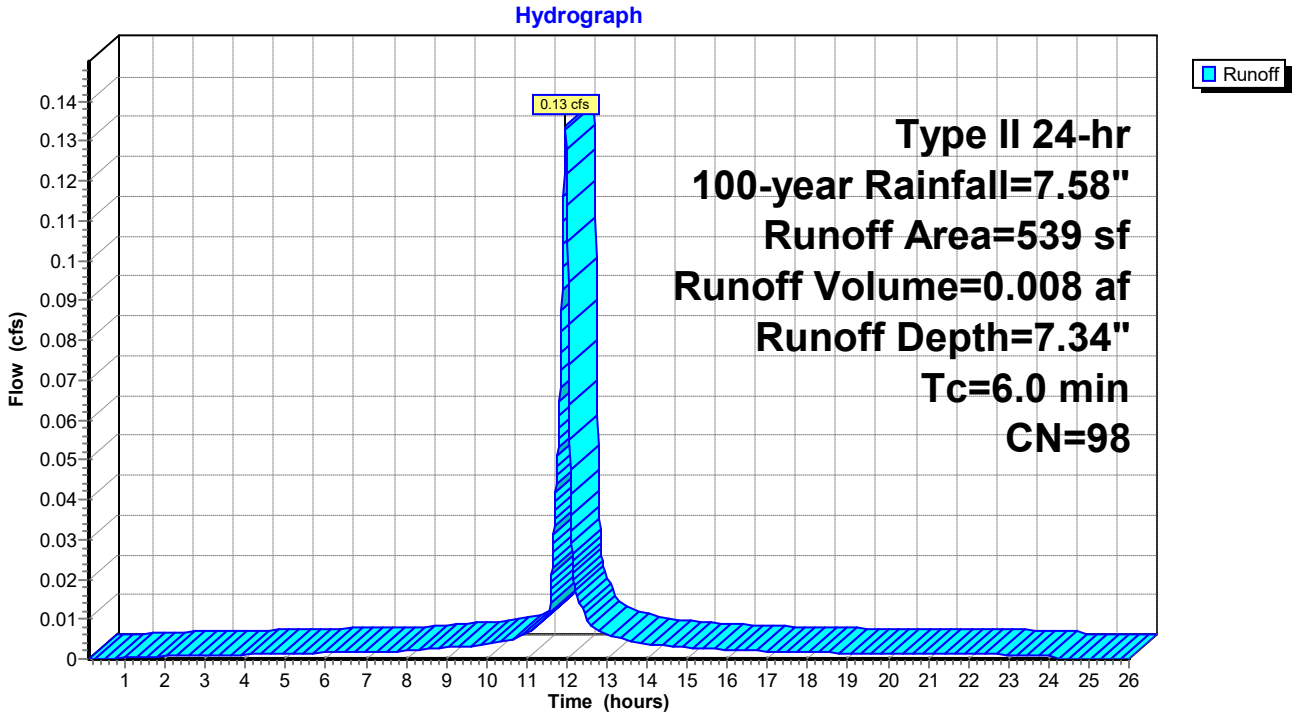
Runoff = 0.13 cfs @ 11.97 hrs, Volume= 0.008 af, Depth= 7.34"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	539	98	Impervious porch and path
	539		100.00% Impervious Area

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

Subcatchment 4: Post Impervious



Summary for Subcatchment 5: Post Pervious

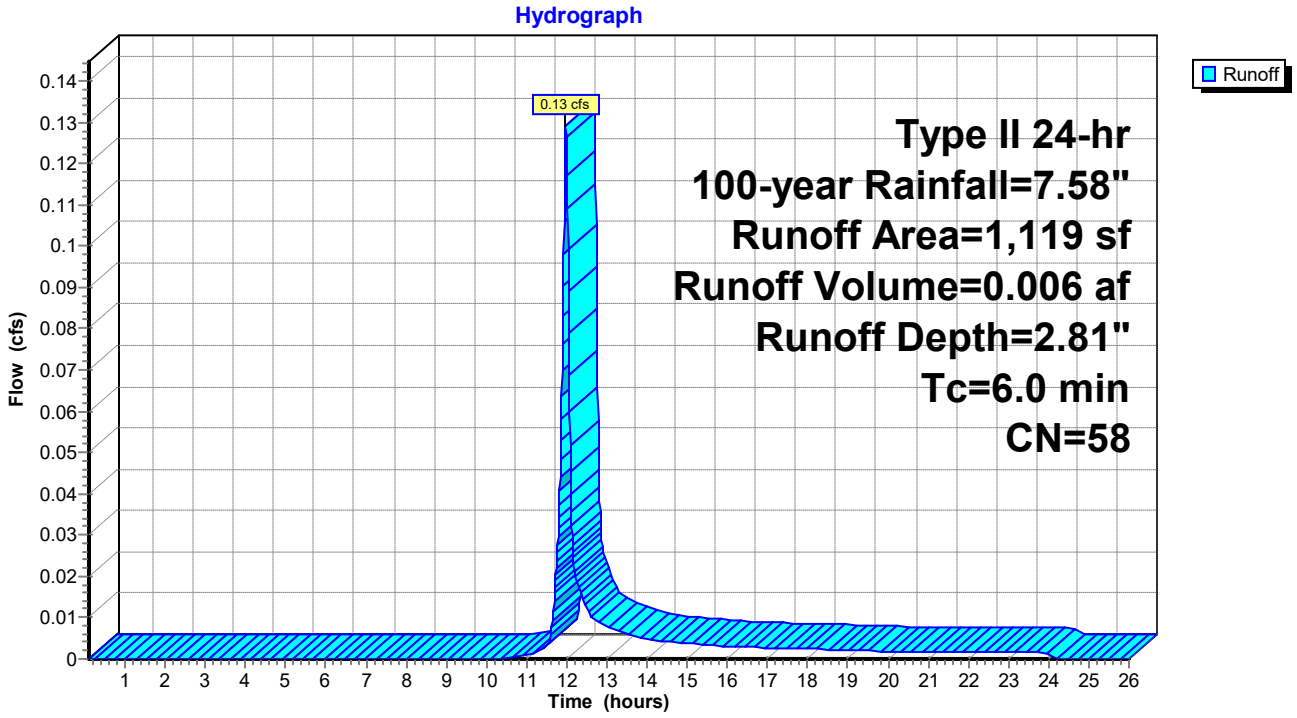
Runoff = 0.13 cfs @ 11.98 hrs, Volume= 0.006 af, Depth= 2.81"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
1,119	58	Meadow, non-grazed, HSG B
1,119		100.00% Pervious Area

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

Subcatchment 5: Post Pervious



Summary for Subcatchment 6: Post Impervious

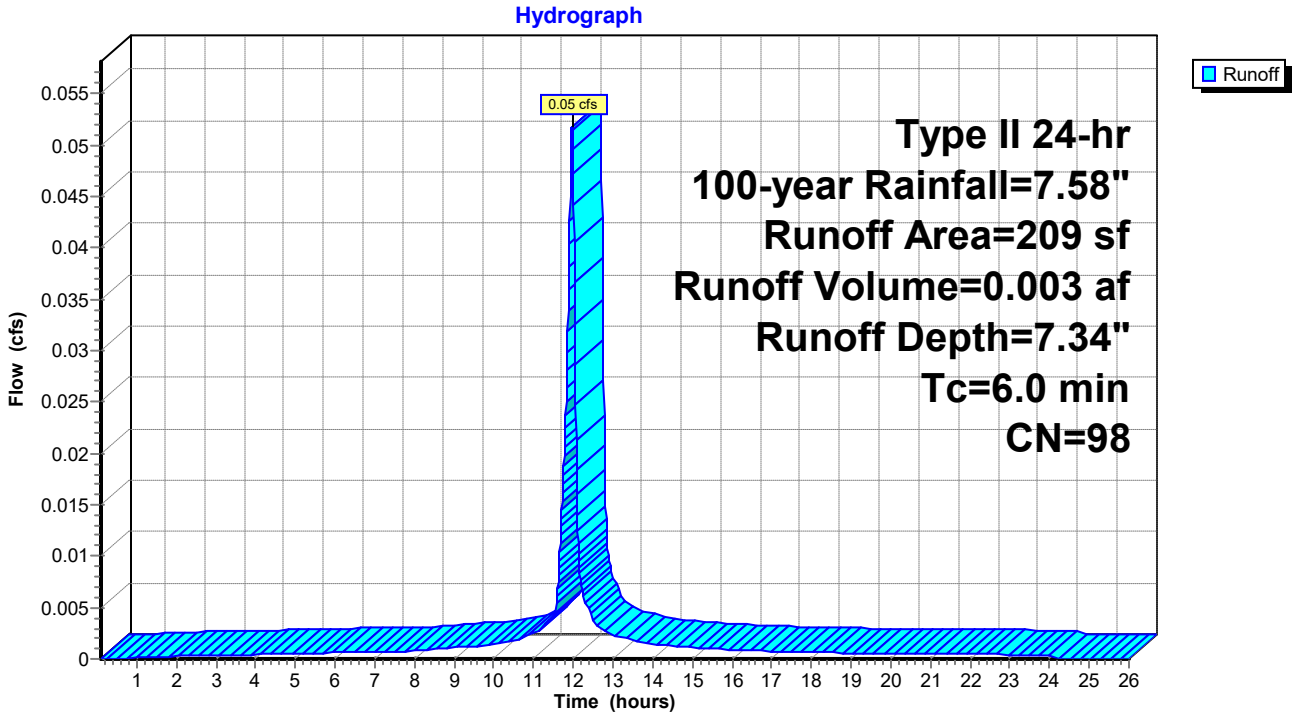
Runoff = 0.05 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 7.34"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	209	98	Impervious driveway
	209		100.00% Impervious Area

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

Subcatchment 6: Post Impervious



Summary for Subcatchment 8: Post Impervious

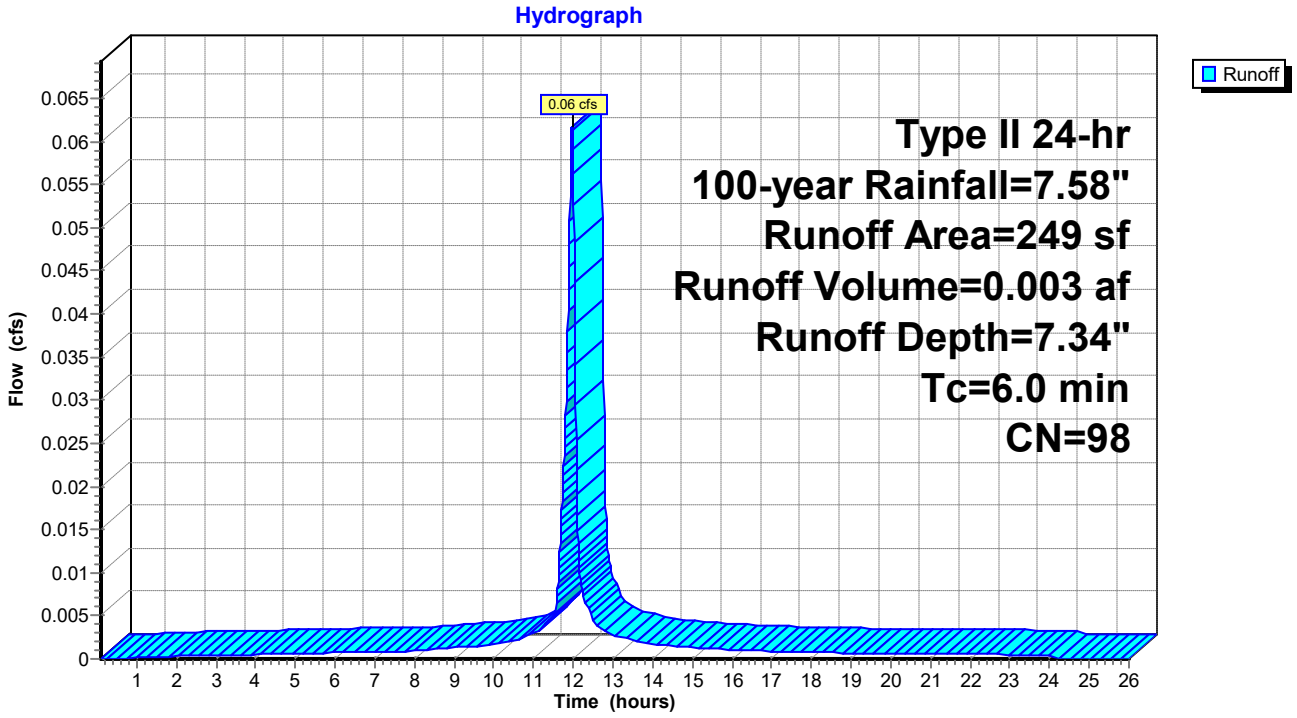
Runoff = 0.06 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	249	98	Impervious driveway
	249		100.00% Impervious Area

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

Subcatchment 8: Post Impervious



Summary for Subcatchment 9: Post Pervious

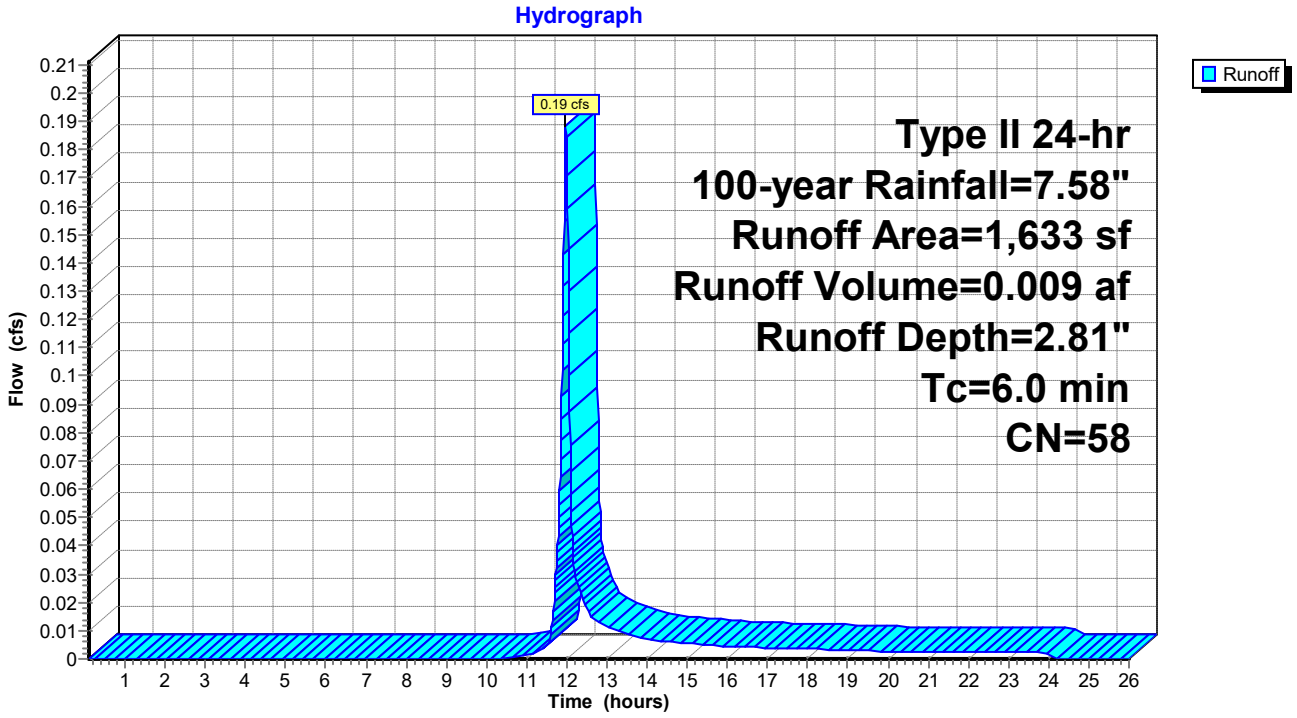
Runoff = 0.19 cfs @ 11.98 hrs, Volume= 0.009 af, Depth= 2.81"
Routed to Pond RG-1 : RG-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
1,633	58	Meadow, non-grazed, HSG B
1,633		100.00% Pervious Area

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

Subcatchment 9: Post Pervious



Summary for Subcatchment 10: Post Pervious

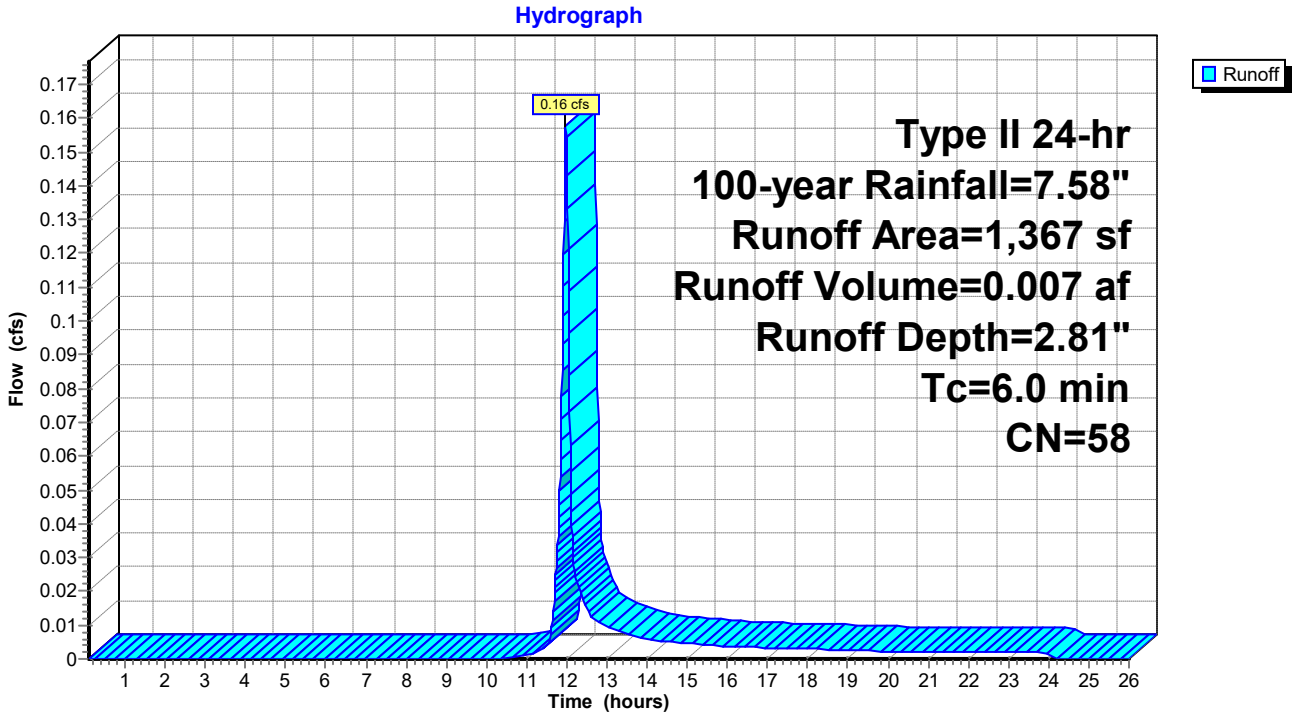
Runoff = 0.16 cfs @ 11.98 hrs, Volume= 0.007 af, Depth= 2.81"
Routed to Pond RG-2 : RG-2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
1,367	58	Meadow, non-grazed, HSG B
1,367		100.00% Pervious Area

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

Subcatchment 10: Post Pervious



Summary for Subcatchment 11: Post Pervious

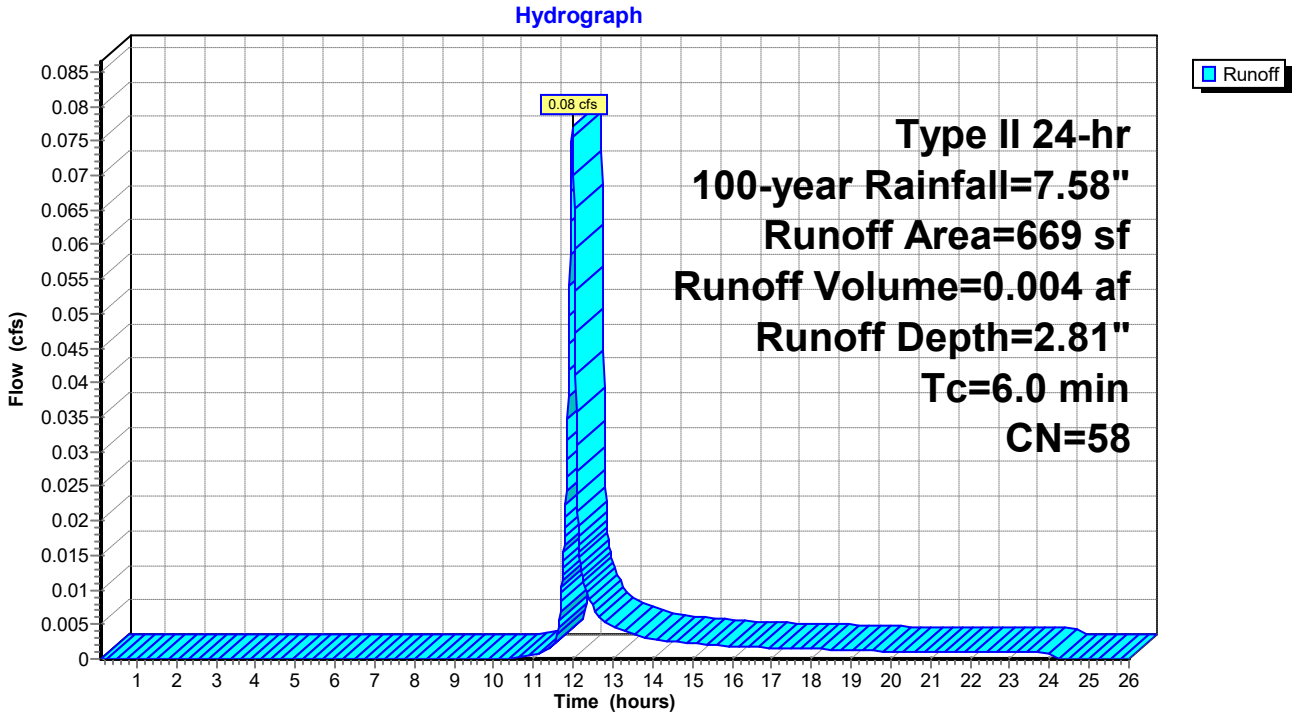
Runoff = 0.08 cfs @ 11.98 hrs, Volume= 0.004 af, Depth= 2.81"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
669	58	Meadow, non-grazed, HSG B
669		100.00% Pervious Area

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

Subcatchment 11: Post Pervious



Summary for Subcatchment 12: Post Impervious

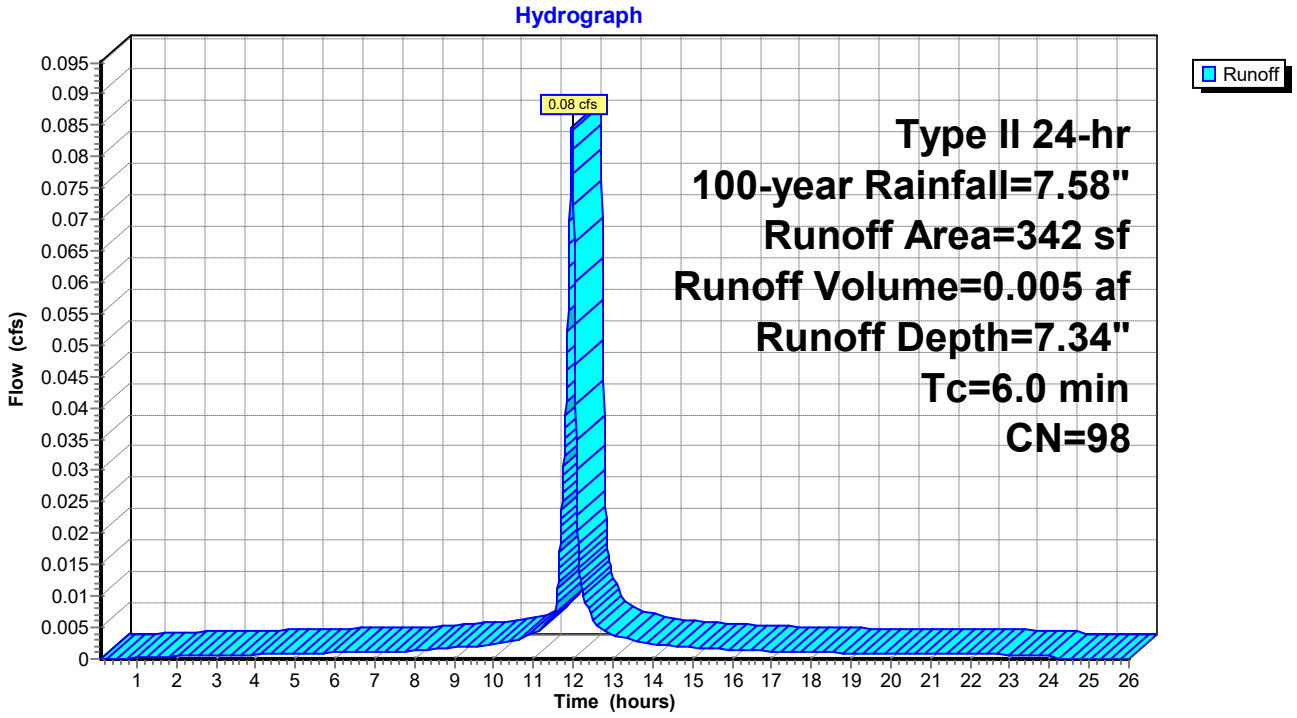
Runoff = 0.08 cfs @ 11.97 hrs, Volume= 0.005 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	342	98	Impervious driveway
	342		100.00% Impervious Area

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

Subcatchment 12: Post Impervious



Summary for Subcatchment 13: Post Pervious

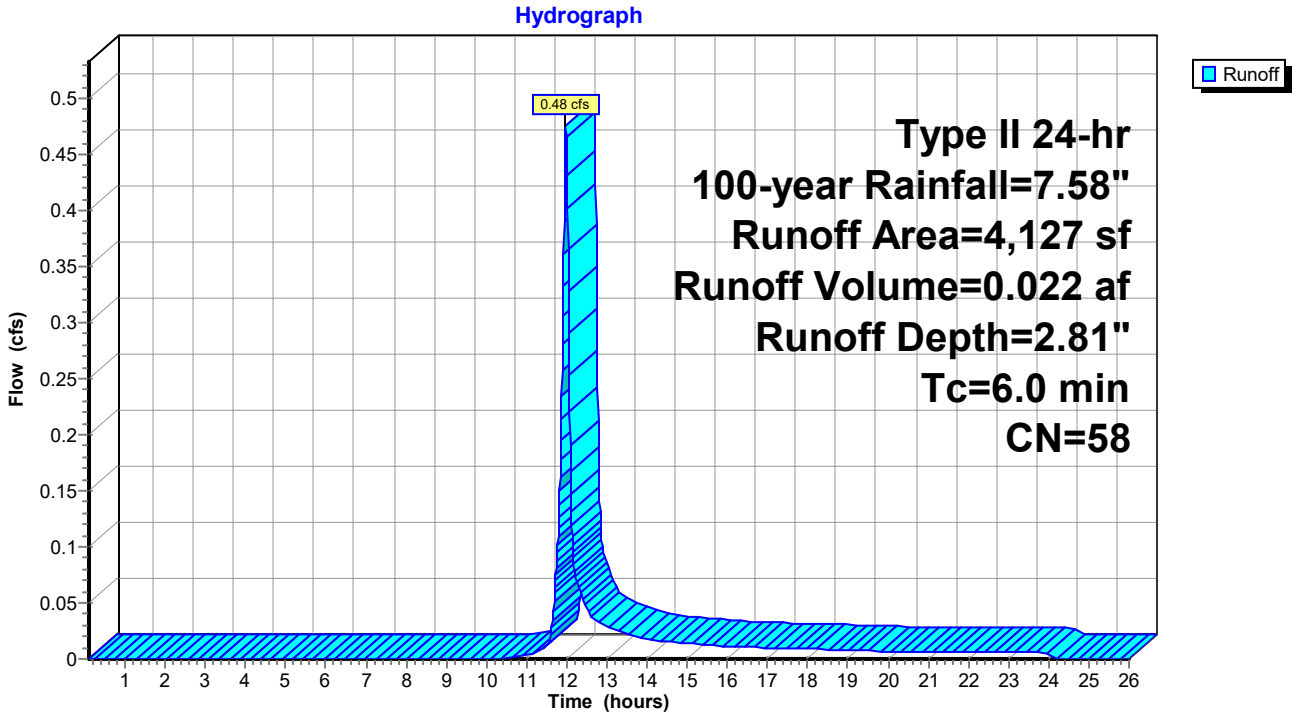
Runoff = 0.48 cfs @ 11.98 hrs, Volume= 0.022 af, Depth= 2.81"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
4,127	58	Meadow, non-grazed, HSG B
4,127		100.00% Pervious Area

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

Subcatchment 13: Post Pervious



Summary for Subcatchment 14: Post Pervious

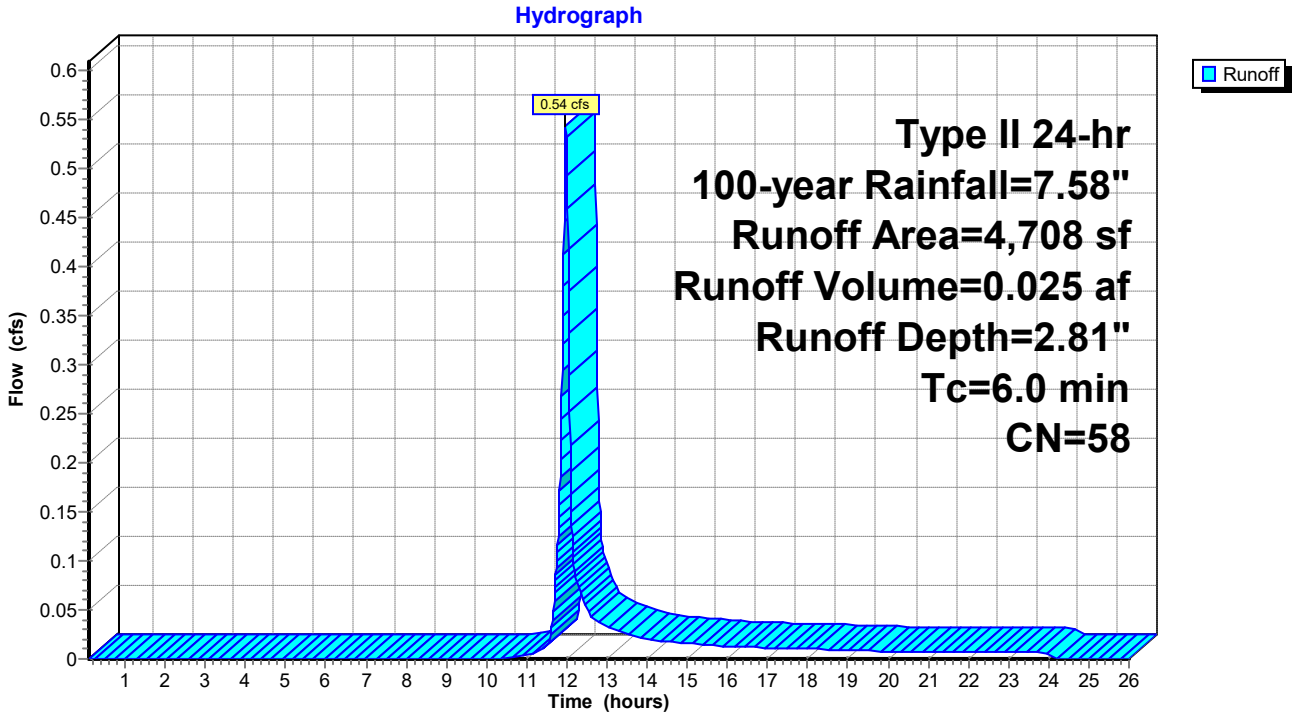
Runoff = 0.54 cfs @ 11.98 hrs, Volume= 0.025 af, Depth= 2.81"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
4,708	58	Meadow, non-grazed, HSG B
4,708		100.00% Pervious Area

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

Subcatchment 14: Post Pervious



Summary for Subcatchment 15: Post Pervious

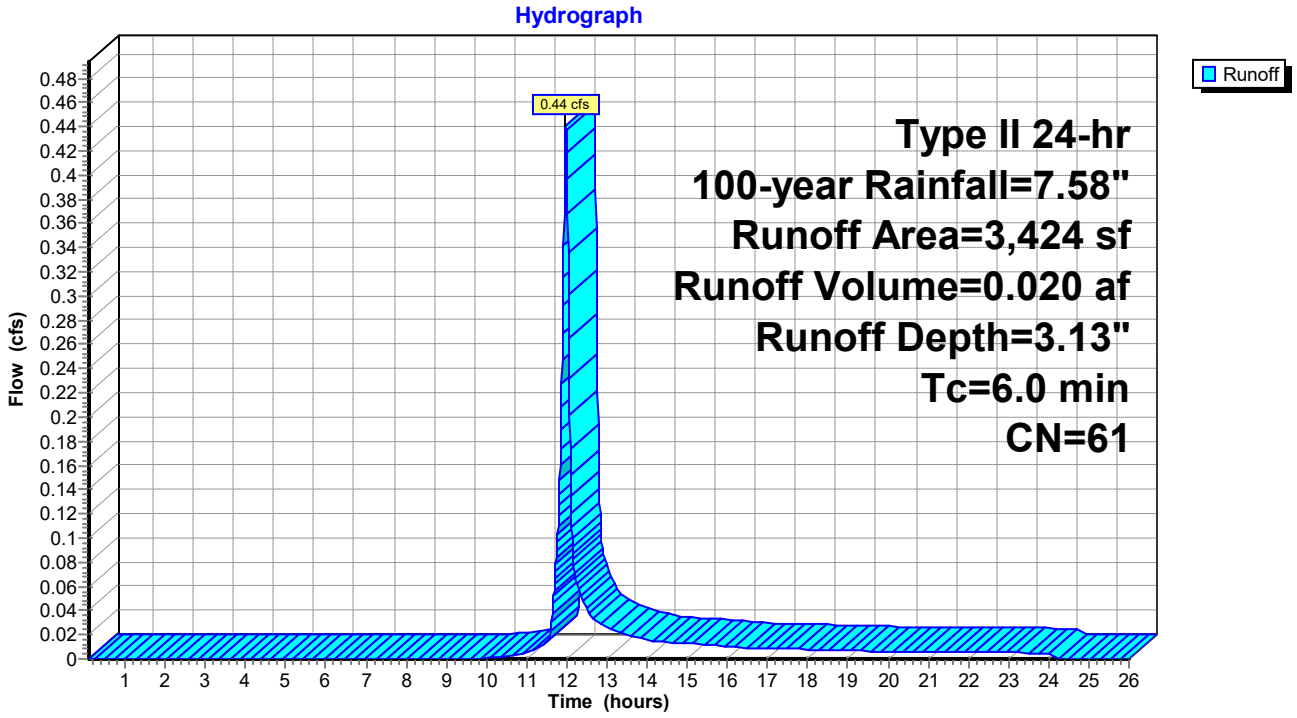
Runoff = 0.44 cfs @ 11.98 hrs, Volume= 0.020 af, Depth= 3.13"
Routed to Pond RG-3 : RG-3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
3,424	61	>75% Grass cover, Good, HSG B
3,424		100.00% Pervious Area

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

Subcatchment 15: Post Pervious



Summary for Subcatchment 16: Post Pervious

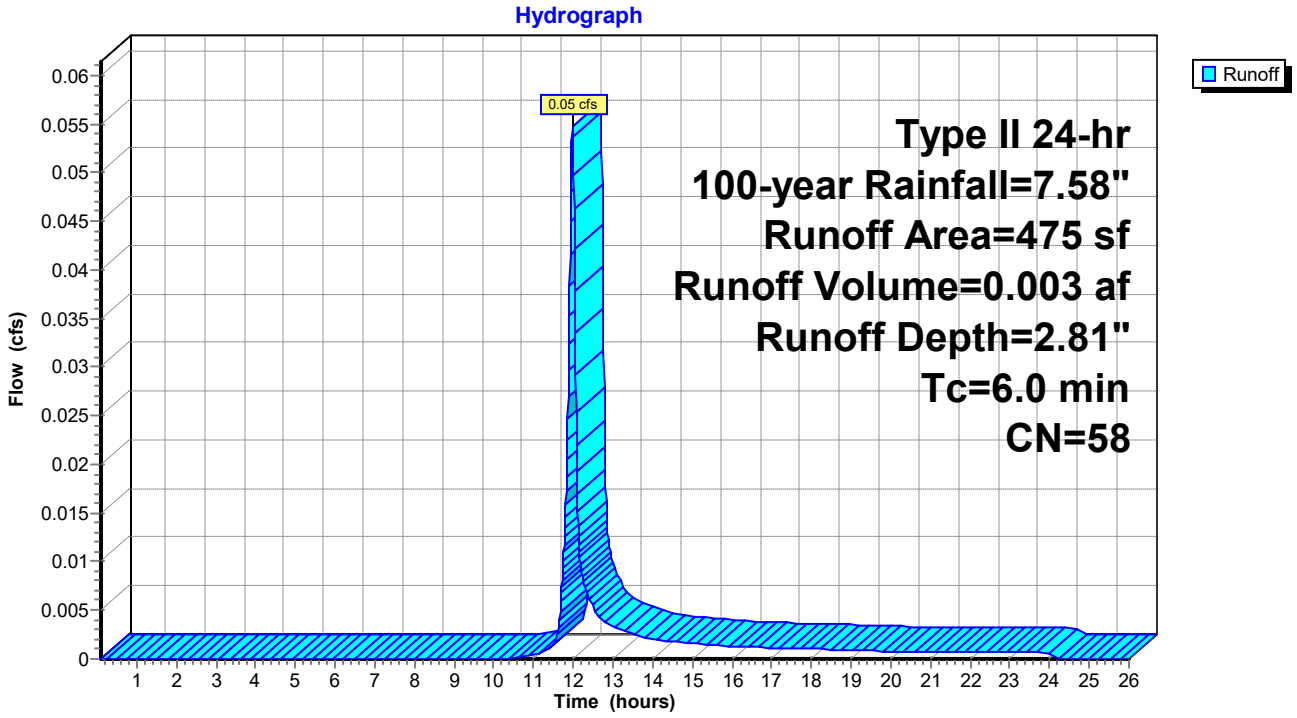
Runoff = 0.05 cfs @ 11.98 hrs, Volume= 0.003 af, Depth= 2.81"
Routed to Pond RG-4 : RG-4

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

Area (sf)	CN	Description
475	58	Meadow, non-grazed, HSG B
475		100.00% Pervious Area

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

Subcatchment 16: Post Pervious



Summary for Subcatchment 17: Post Impervious

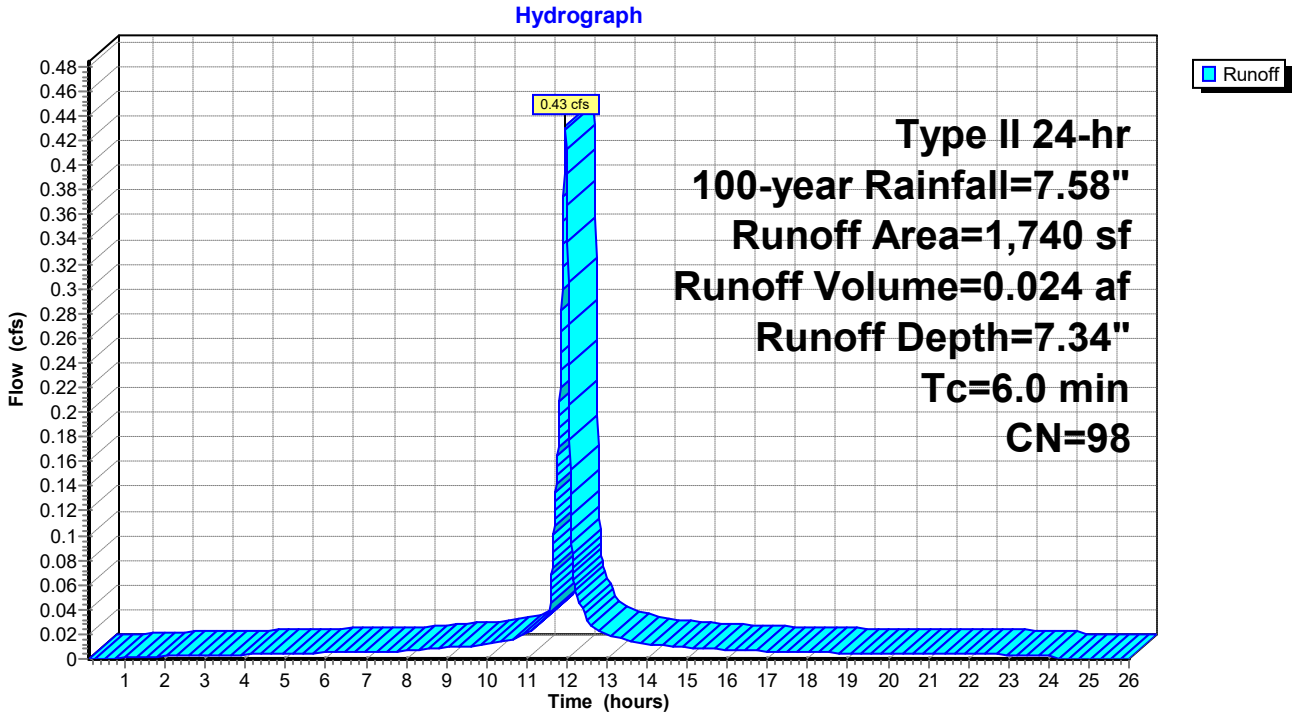
Runoff = 0.43 cfs @ 11.97 hrs, Volume= 0.024 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,740	98	Impervious driveway
	1,740		100.00% Impervious Area

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

Subcatchment 17: Post Impervious



Summary for Subcatchment 18: Post Impervious

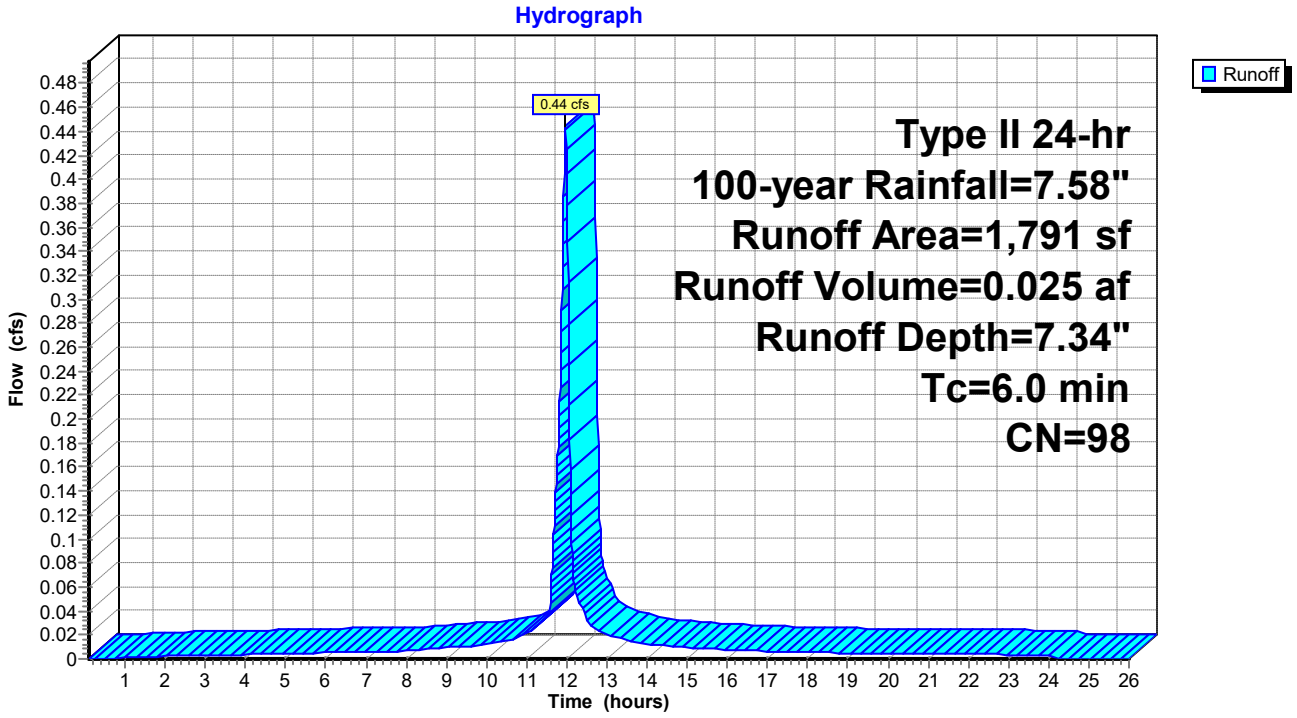
Runoff = 0.44 cfs @ 11.97 hrs, Volume= 0.025 af, Depth= 7.34"
Routed to Link POA : POA

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Type II 24-hr 100-year Rainfall=7.58"

	Area (sf)	CN	Description
*	1,791	98	Impervious driveway
	1,791		100.00% Impervious Area

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

Subcatchment 18: Post Impervious



Summary for Pond RG-1: RG-1

Inflow Area = 0.073 ac, 48.53% Impervious, Inflow Depth = 5.01" for 100-year event
Inflow = 0.57 cfs @ 11.97 hrs, Volume= 0.030 af
Outflow = 0.10 cfs @ 12.16 hrs, Volume= 0.014 af, Atten= 83%, Lag= 11.3 min
Primary = 0.10 cfs @ 12.16 hrs, Volume= 0.014 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 163.54' @ 12.16 hrs Surf.Area= 872 sf Storage= 745 cf

Plug-Flow detention time= 295.0 min calculated for 0.014 af (46% of inflow)
Center-of-Mass det. time= 153.3 min (923.5 - 770.2)

Volume	Invert	Avail.Storage	Storage Description
#1	159.25'	493 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 2,463 cf Overall x 20.0% Voids
#2	162.00'	504 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)
		996 cf	Total Available Storage

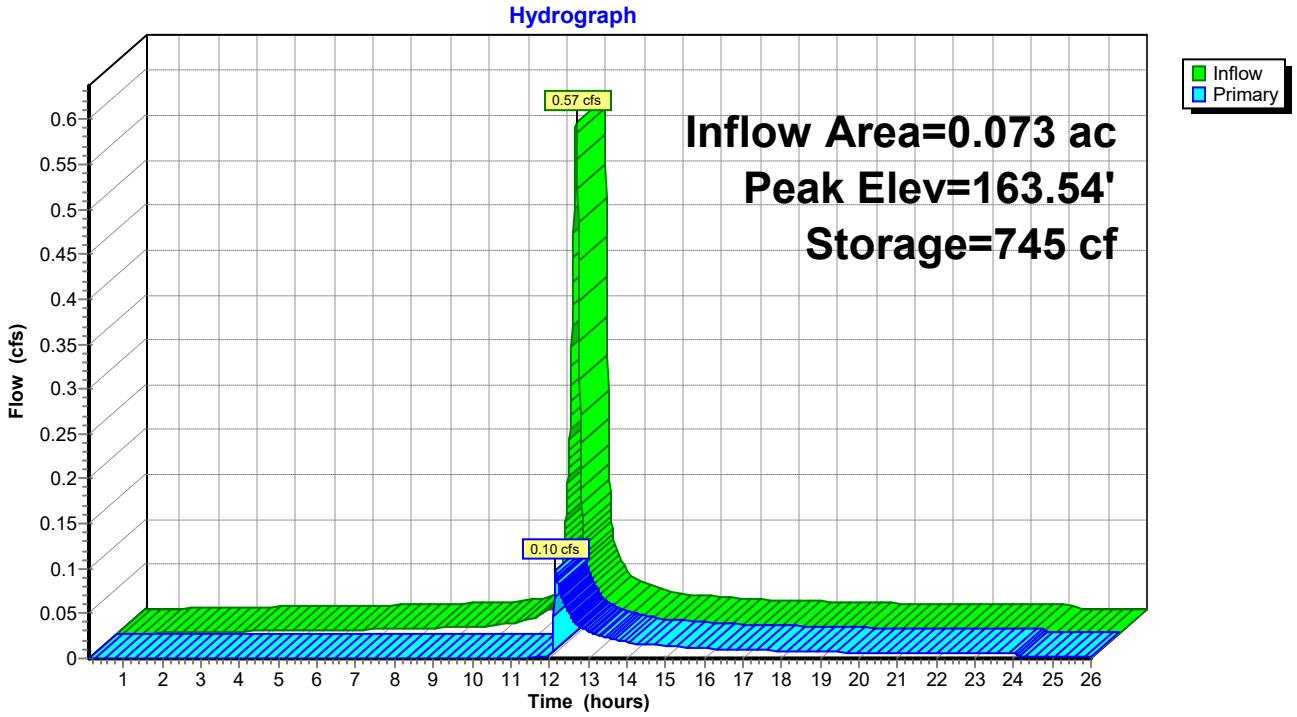
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
159.25	518	0	0
164.00	519	2,463	2,463

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	162	0	0
163.00	163	163	163
164.00	519	341	504

Device	Routing	Invert	Outlet Devices
#1	Primary	163.75'	**14.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	159.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 153.00' Phase-In= 0.01'
#3	Primary	163.50'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.09 cfs @ 12.16 hrs HW=163.54' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.61 fps)

Pond RG-1: RG-1


Hydrograph
Inflow
Primary
0.57 cfs
0.10 cfs
Inflow Area=0.073 ac
Peak Elev=163.54'
Storage=745 cf
Flow (cfs)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-2: RG-2

Inflow Area = 0.031 ac, 0.00% Impervious, Inflow Depth = 2.81" for 100-year event
Inflow = 0.16 cfs @ 11.98 hrs, Volume= 0.007 af
Outflow = 0.00 cfs @ 18.15 hrs, Volume= 0.001 af, Atten= 98%, Lag= 370.3 min
Primary = 0.00 cfs @ 18.15 hrs, Volume= 0.001 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 162.75' @ 18.15 hrs Surf.Area= 301 sf Storage= 259 cf

Plug-Flow detention time= 481.8 min calculated for 0.001 af (20% of inflow)
Center-of-Mass det. time= 338.4 min (1,188.7 - 850.3)

Volume	Invert	Avail.Storage	Storage Description
#1	160.00'	143 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 902 cf Overall - 186 cf Embedded = 716 cf x 20.0% Voids
#2	162.00'	186 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		329 cf	Total Available Storage

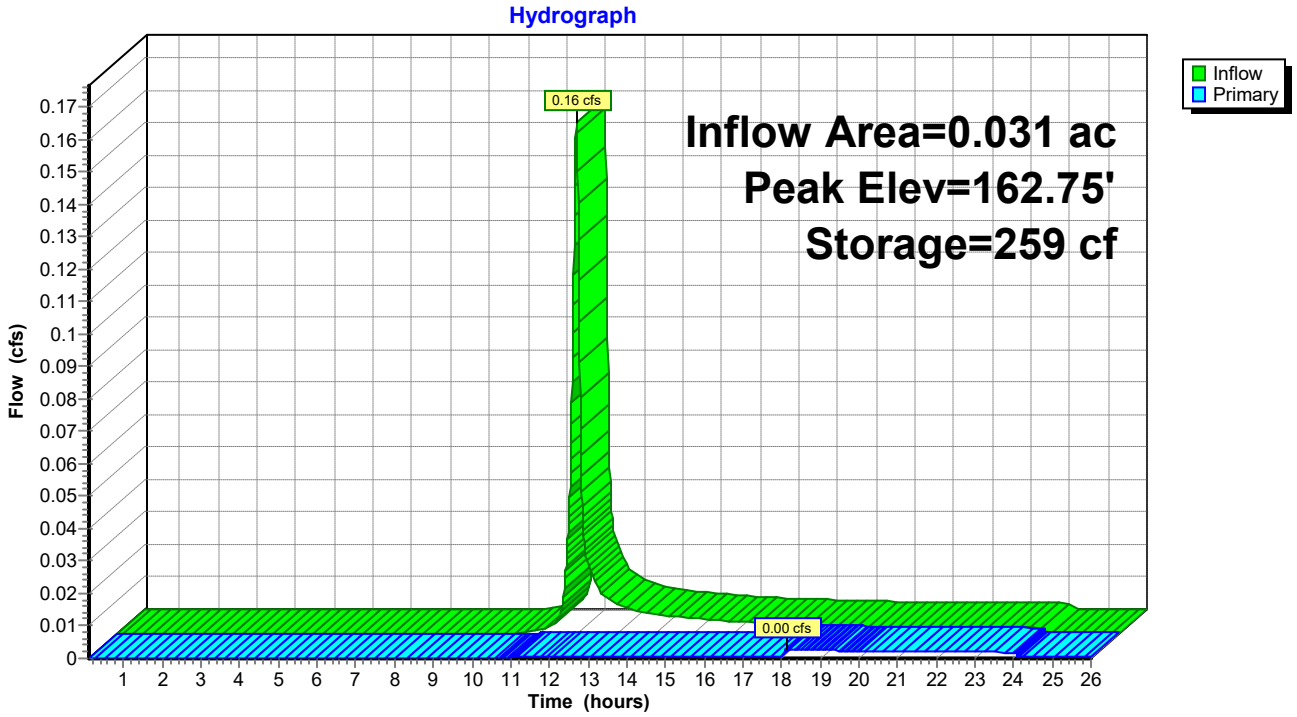
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
160.00	300	0	0
163.00	301	902	902

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
162.00	70	0	0
163.00	301	186	186

Device	Routing	Invert	Outlet Devices
#1	Primary	162.75'	**15.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	160.00'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'

Primary OutFlow Max=0.00 cfs @ 18.15 hrs HW=162.75' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.00 cfs @ 0.07 fps)
2=Exfiltration (Controls 0.00 cfs)

Pond RG-2: RG-2


Hydrograph
Inflow
Primary
0.16 cfs
0.00 cfs
Inflow Area=0.031 ac
Peak Elev=162.75'
Storage=259 cf
Flow (cfs)
0.17
0.16
0.15
0.14
0.13
0.12
0.11
0.1
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Time (hours)

Summary for Pond RG-3: RG-3

Inflow Area = 0.119 ac, 33.76% Impervious, Inflow Depth = 4.55" for 100-year event
Inflow = 0.87 cfs @ 11.97 hrs, Volume= 0.045 af
Outflow = 0.87 cfs @ 11.98 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.2 min
Primary = 0.87 cfs @ 11.98 hrs, Volume= 0.041 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 174.76' @ 11.98 hrs Surf.Area= 186 sf Storage= 193 cf

Plug-Flow detention time= 82.7 min calculated for 0.041 af (91% of inflow)
Center-of-Mass det. time= 35.8 min (821.6 - 785.8)

Volume	Invert	Avail.Storage	Storage Description
#1	171.25'	152 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 881 cf Overall - 120 cf Embedded = 761 cf x 20.0% Voids
#2	174.00'	120 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		272 cf	Total Available Storage

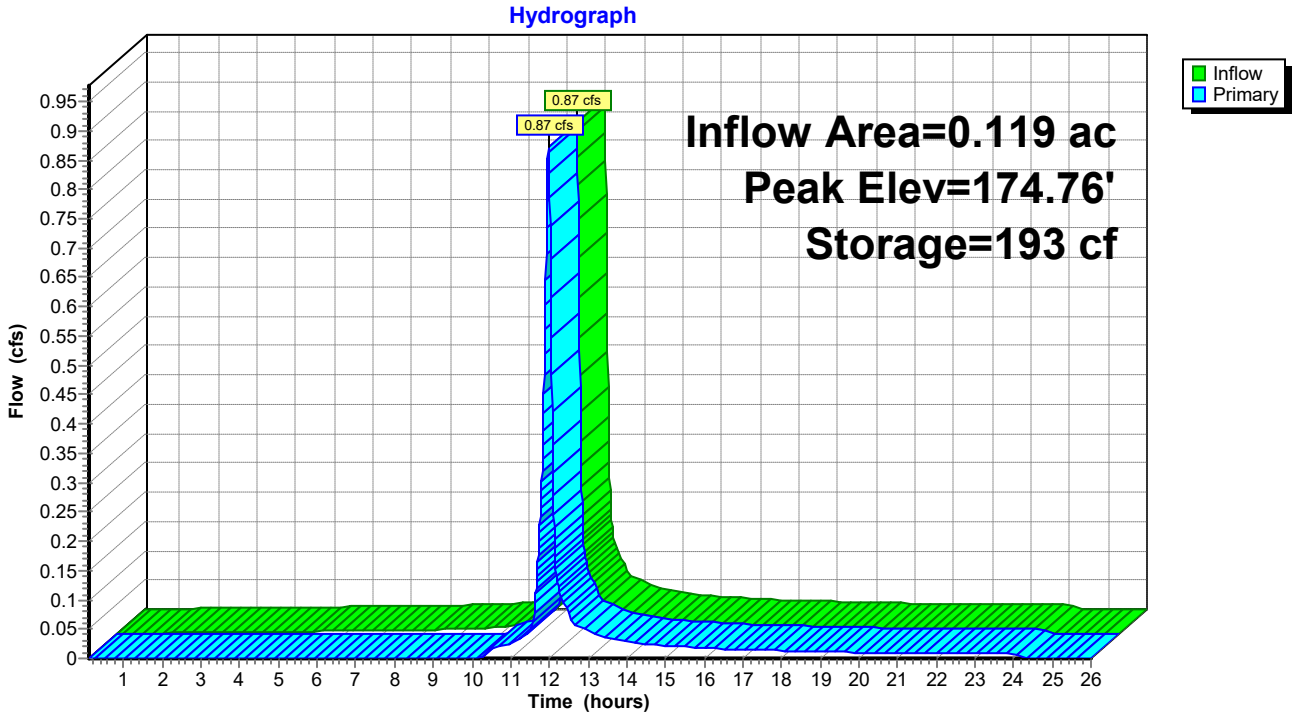
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.25	185	0	0
176.00	186	881	881

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
174.00	54	0	0
175.00	186	120	120

Device	Routing	Invert	Outlet Devices
#1	Primary	174.75'	**9.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Primary	171.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	174.60'	**12.0" x 12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.86 cfs @ 11.98 hrs HW=174.76' (Free Discharge)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.29 fps)
- **2=Exfiltration** (Controls 0.00 cfs)
- **3=Orifice/Grate** (Weir Controls 0.84 cfs @ 1.31 fps)

Pond RG-3: RG-3


Hydrograph
Inflow
Primary
0.87 cfs
0.87 cfs
Inflow Area=0.119 ac
Peak Elev=174.76'
Storage=193 cf
Flow (cfs)
Time (hours)
0
0.05
0.1
0.15
0.2
0.25
0.3
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
0.8
0.85
0.9
0.95
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Pond RG-4: RG-4

Inflow Area = 0.131 ac, 9.42% Impervious, Inflow Depth = 3.24" for 100-year event
Inflow = 0.73 cfs @ 11.98 hrs, Volume= 0.035 af
Outflow = 0.73 cfs @ 11.98 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.1 min
Discarded = 0.00 cfs @ 11.98 hrs, Volume= 0.001 af
Primary = 0.73 cfs @ 11.98 hrs, Volume= 0.032 af
Routed to Link POA : POA

Routing by Stor-Ind method, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs
Peak Elev= 172.78' @ 11.98 hrs Surf.Area= 171 sf Storage= 142 cf

Plug-Flow detention time= 64.9 min calculated for 0.033 af (92% of inflow)
Center-of-Mass det. time= 23.0 min (849.3 - 826.3)

Volume	Invert	Avail.Storage	Storage Description
#1	169.25'	119 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 639 cf Overall - 42 cf Embedded = 597 cf x 20.0% Voids
#2	172.00'	42 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) Inside #1
		161 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.25	170	0	0
173.00	171	639	639

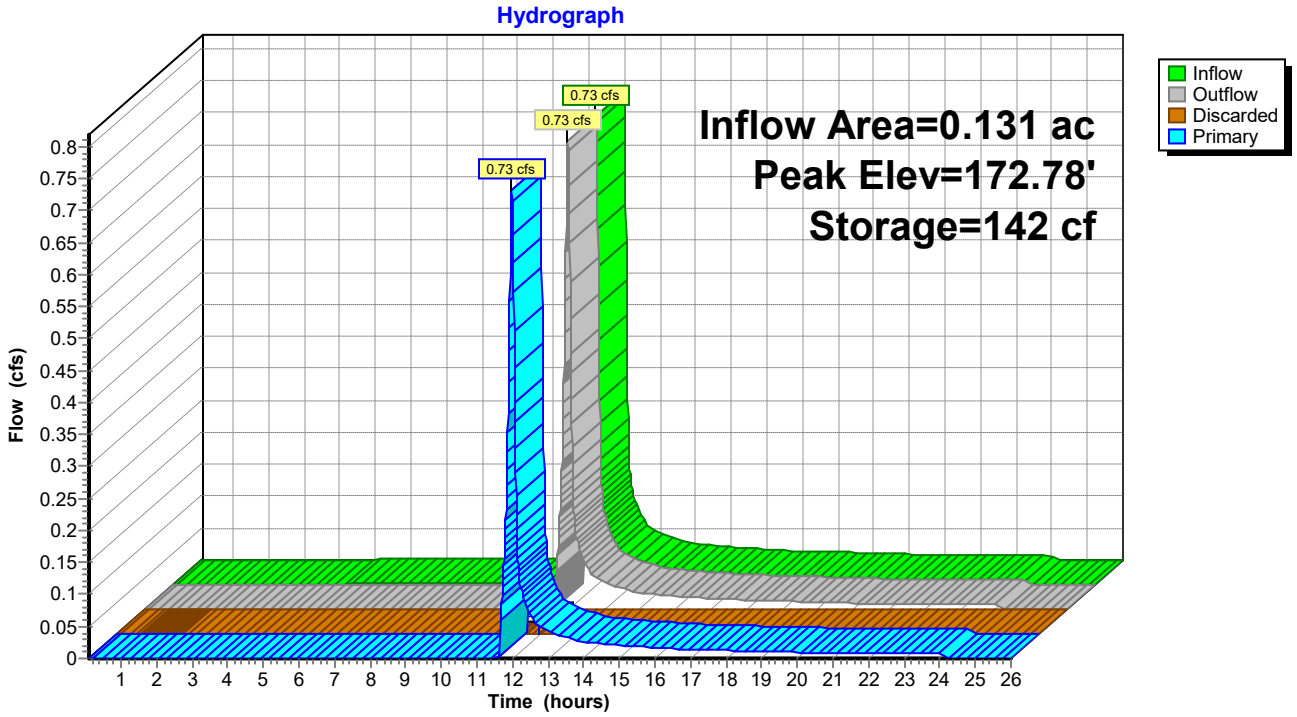
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.00	7	0	0
173.00	77	42	42

Device	Routing	Invert	Outlet Devices
#1	Primary	172.75'	**12.0' long + 1.0 '/' SideZ (Profile 1) Broad-Crested Rectangular Weir** Head (feet) 0.49 0.98 1.48 Coef. (English) 2.92 3.37 3.59
#2	Discarded	169.25'	**0.060 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 151.00' Phase-In= 0.01'
#3	Primary	172.50'	**12.0" W x 12.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.00 cfs @ 11.98 hrs HW=172.78' (Free Discharge)
└**2=Exfiltration** (Controls 0.00 cfs)

Primary OutFlow Max=0.71 cfs @ 11.98 hrs HW=172.78' (Free Discharge)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 0.23 cfs @ 0.54 fps)
└**3=Orifice/Grate** (Orifice Controls 0.49 cfs @ 1.71 fps)

Pond RG-4: RG-4

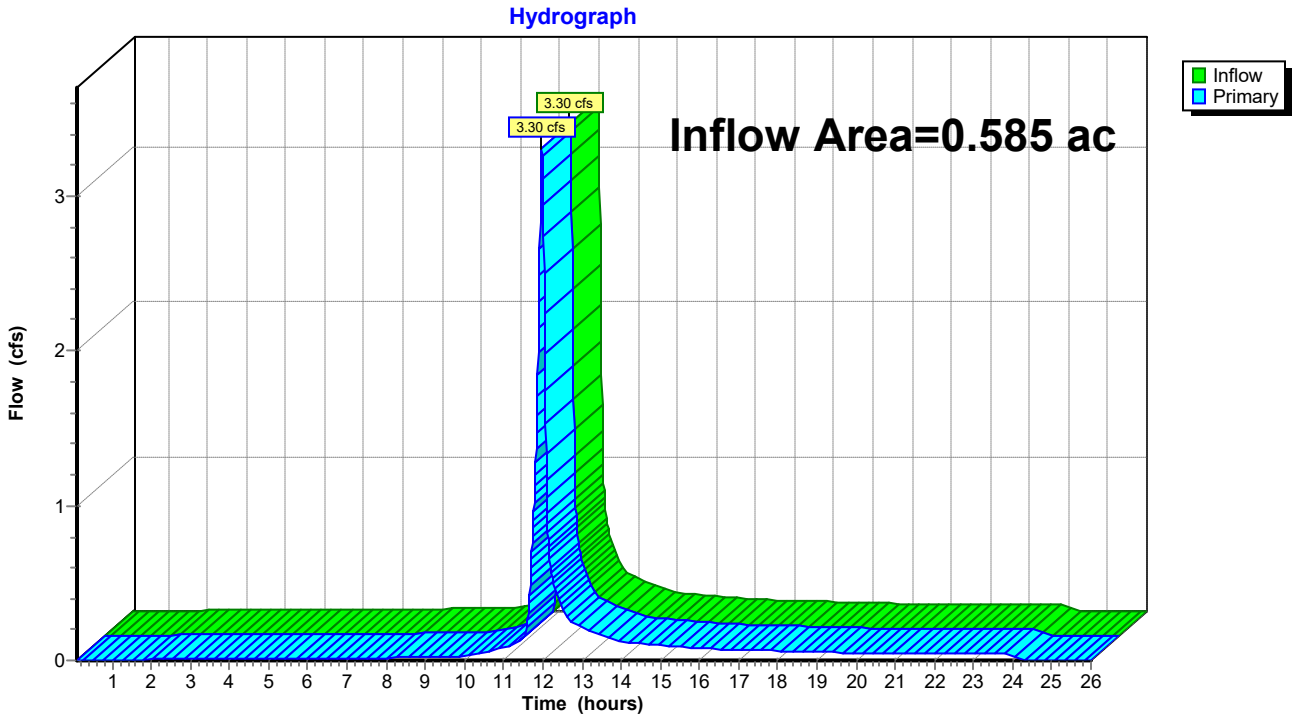

Hydrograph
Inflow
Outflow
Discarded
Primary
0.73 cfs
0.73 cfs
0.73 cfs
Inflow Area=0.131 ac
Peak Elev=172.78'
Storage=142 cf
Flow (cfs)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75 0.8
Time (hours)
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Summary for Link POA: POA

Inflow Area = 0.585 ac, 31.20% Impervious, Inflow Depth > 3.66" for 100-year event
Inflow = 3.30 cfs @ 11.97 hrs, Volume= 0.178 af
Primary = 3.30 cfs @ 11.97 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-26.00 hrs, dt= 0.01 hrs

Link POA: POA



Appendix B: Pipe Capacity Calculations

Grist Project No.: 2203-01
The Miquon School - Heart of the Campus
Site Address: 2025 Harts Lane, Conshohocken, PA
Pipe Sizing Calculations
4-Aug-23

Pipe Segment		Drainage Area			Q (cfs)*	Pipe Diameter (in.)	Pipe Slope (ft./ft.)	Pipe Qmax (cfs)
Upstream Drainage Structure	Downstream Drainage Structure	No.	Impervious Area (sq. ft.)	Pervious Area (sq. ft.)				
DOWNSPOUT SE	DOWNSPOUT SW	1/2(DAI-3)	666	0	0.12	6	0.010	0.87
DOWNSPOUT SW	ENDWALL-1	DAI-3	1,331	0	0.25	8	0.010	1.86
OS-1	EXISTING 8" PIPE	DAI-3, DAI-6, DAP-9	N/A	N/A	0.10	8	0.057	1.86
DOWNSPOUT NW	PROPOSED 8" PIPE	1/2(DAI-2)	873	0	0.16	6	0.010	0.87
DOWNSPOUT NE	PROPOSED 8" PIPE	1/2(DAI-2)	873	0	0.16	6	0.010	0.87
DOWNSPOUT NE	ENDWALL-3	DAI-2	1,745	0	0.32	8	0.010	1.86
OS-3	EXISTING 12" PIPE	DAI-2, DAP-15	N/A	N/A	0.87	8	0.035	3.65
OS-4	PROPOSED 8" PIPE	DAI-4, DAP-14, DAP-16	N/A	N/A	0.73	8	0.006	1.41
OS-4	EXISTING 12" PIPE	DAI-2, DAP-15, DAI-4, DAP-14, DAP-16	N/A	N/A	1.60	8	0.035	3.65

*** - For pipes collecting from drainage areas and directing runoff to SMPs:**
Q=CIA, where
C = 0.95
I = 8.52 inches per hour (10-year, 5-minute peak intensity)
A = Area in acres

*** - For pipes conveying overflow from SMPs to existing storm sewer:**
Q = 100 year discharge from SMP, as calculated by HydroCAD model

Pipe Qmax = 1.486/n*(AR^2/3)S^1/2
n = Manning's roughness = 0.012
A = Cross sectional area (sq. ft.)
R = Hydraulic radius (ft.)
S = Slope (ft./ft.)

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PLANNING COMMISSION

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SCOTT FRANCE, AICP
EXECUTIVE DIRECTOR

September 6, 2023

Mr. Charles L. Guttenplan, AICP
Director of Planning & Zoning Officer
Whitemarsh Township
616 Germantown Pike
Lafayette Hill, Pennsylvania 19444

Re: MCPC #23-0057-002
Plan Name: The Miquon School-Heart of Campus Improvements
4,032 sq. ft. building/ comprising 9.53 acre parcel
Situate: 2025 Hart Lane between Paddock Lane and River Rd. (north)
Whitemarsh Township

Dear Mr. Guttenplan:

We have reviewed the above-referenced subdivision proposal in accordance with Section 502 of Act 247, "The Pennsylvania Municipalities Planning Code," as you requested on August 8, 2023. We forward this letter as a report of our review.

BACKGROUND

The Miquon School, applicant, has submitted a preliminary plan for review proposing the construction of a new campus building within the existing campus. The proposed 4,032 sq. ft. building includes an adjacent covered patio, related site amenities, and several rain gardens for stormwater management. The development plan shows the proposed disturbance will impact approximately 15,937 sq. ft. of a 9.53 acre parcel. The plan shows that two existing buildings are proposed to be demolished and replaced by a single new building. The 'Heart of Campus' improvements plan includes several rain gardens, an outdoor classroom seating area, a boulder/slide play area, and a fire-pole.

The applicant's documentation states that the ". . . Miquon is a K-6 private school, . . . focus(ed) on the child's individuality and the natural environment." The campus is set within mature woodlands in which various classroom buildings are interspersed on a sloping hillside. An unimproved gravel parking area along with 10 ft. wide paved driveways and smaller asphalt pathways provide connections within the campus. An un-named perennial stream, a tributary to the Schuylkill River, lies along the eastern boundary of the tract and the access driveway from Harts Lane to the campus crosses the stream. The applicant's site is within the township's AAAA Residential- Institutional Overlay District and in the Riparian Corridor Conservation

District. The plan shows a large area of disturbance and various improvements within Zone 2 of the Riparian Corridor Conservation Overlay District. A small area of the development footprint is within Riparian Area Zone 1. As presented, the plan will require a number of variances, including several from the township's Riparian Corridor Conservation Overlay District- Section 116.259. Permitted Uses. The applicant has submitted a request for 16 waivers from the Subdivision and Land Development Ordinance.

In a review letter dated May 2, 2023, the Planning Commission provided sketch plan review comments to the township. In our review comments we recommended that, to the greatest extent feasible, the applicant address the RCCD district's requirements, and also include a robust riparian landscape buffer in the development of the project. In addition, we requested that the stream crossing's corrugated pipe be assessed for its condition, while ensuring that it is adequately sized for the stream. The applicant's consultant also provided a response letter addressing these concerns in their plan submission. In a recent conversation with the township official, we learned that the applicant plans to submit a revised site plan in which the campus driveway will be slightly widened to accommodate fire emergency response to the site.

CONSISTENCY WITH COMPREHENSIVE PLAN

The proposal for a new school building and related landscape improvements on The Miquon School campus appears consistent with *Montco 2040: A Shared Vison*, the Montgomery County Comprehensive Plan, 2015. The investment by the Miquon School in a new campus building supports the county's goal of reinvestment in areas where infrastructure already exists. The plan also appears to be consistent with the Whitemarsh Selective Comprehensive Plan Update, adopted in November 2020. The plan designates this area as a 'Residential-Conservation' Character Area. The future land use vision for this character area is to promote a healthy balance between residential development and open space preservation and amenities.

RECOMMENDATION

The Montgomery County Planning Commission (MCPC) generally supports the applicant's plan for the new campus building addition and related improvements for the site designed to improve the outdoor environment for use by students and faculty. In the course of our review we have not identified any significant planning, design or transportation issues that the township should consider in evaluating this proposal. Thus, we have no substantive comment. We recommend the township ensure that all applicable regulations be met or addressed in this proposal.

CONCLUSION

Please note that any review comment and recommendation contained in this report are advisory to the municipality and final disposition for the approval of any proposal will be made by the municipality.

Please be aware that the MCPC #23-0057-002 has been set aside for the applicant' plan. If any subsequent plans are submitted for final recording, this MCPC number should appear on the applicant sheets within the plans in the box reserved for the seal of this agency.

Should the governing body approve a final plat of this proposal, the applicant must present the plan to our office for seal and signature prior to recording with the Recorder of Deeds office. A paper copy bearing the municipal seal and signature of approval must be supplied for our files.

Sincerely,

Barry W. Jeffries

Barry W Jeffries, ASLA, Senior Design Planner
bjeffries@montogomerycountypa.org - 610-278-3444

c: Aaron Kostyk, Chair, Township Planning Commission
Krista Heinrich, PE, Township Engineer
David Sander, Esq., Township Solicitor

Attachment A: Aerial Image of Site
Attachment B: Reduced Copy of Applicant's Proposed Site Plan

ATTACHMENTS A & B

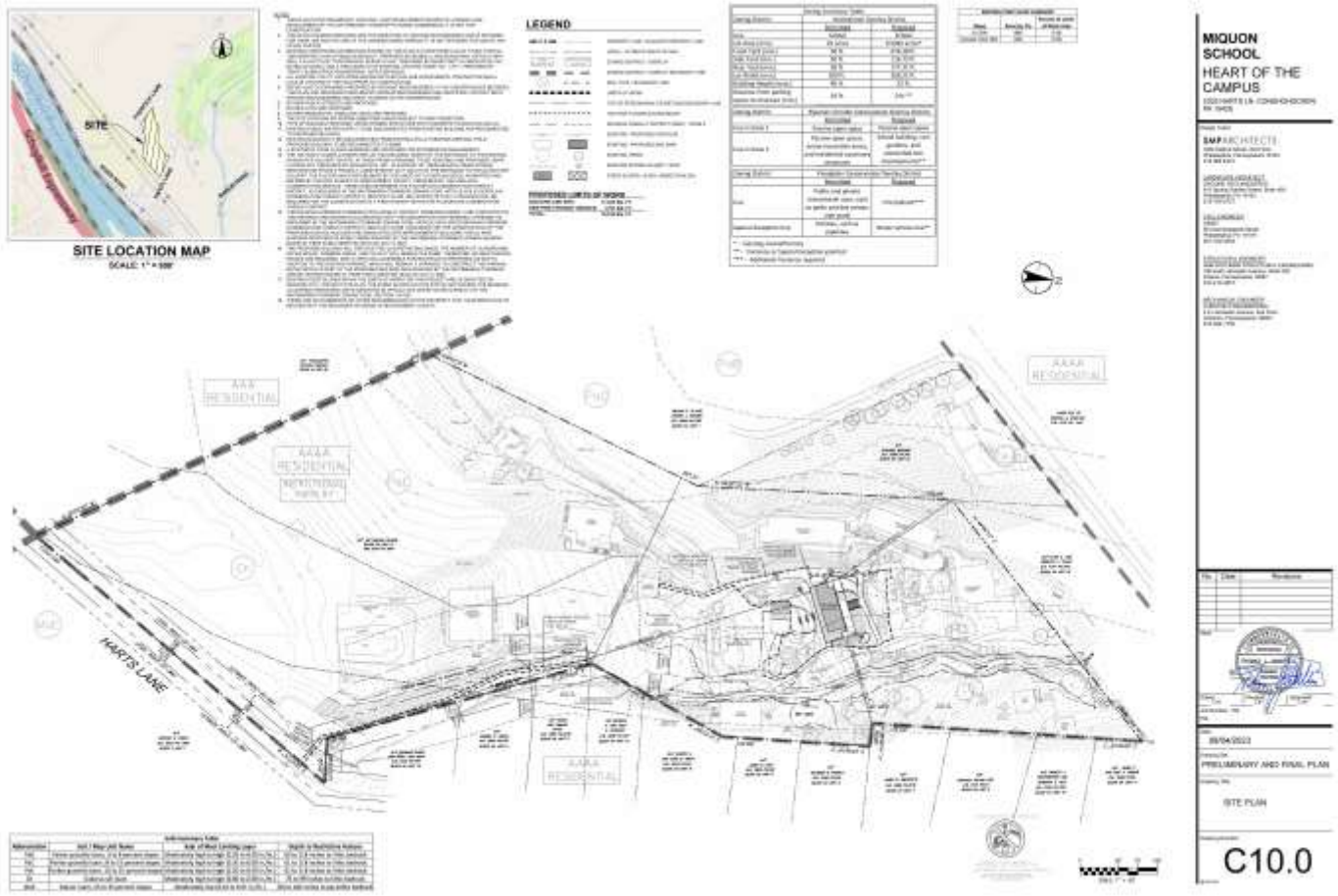


The Miquon School - Heart of Campus
MCPC#230057002

Montgomery County Planning Commission

0 150 300 600 Feet

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SITE
SITE LOCATION MAP
LEGEND
MIQUON SCHOOL
HEART OF THE CAMPUS
SAP ARCHITECTS
PRELIMINARY AND FINAL PLAN
SITE PLAN
C10.0
HARTS LANE
AAAA RESIDENTIAL