

Village of Mukwonago
Notice of Meeting and Agenda

PLAN COMMISSION MEETING
Tuesday, October 10, 2023

Time: **6:30 pm**

Place: **Mukwonago Municipal Building, Board Room, 440 River Crest Ct**

1. Call to Order

2. Roll Call

3. Comments from the Public

Please be advised, per Wisconsin Statute Sec. 19.84(2), information and comment will be received from the public by the Plan Commission. The Public Comment Session is granted to the public at the start of each Plan Commission meeting. The Public Comment Session shall last no longer than fifteen (15) minutes and individual presentations are limited to three (3) minutes per speaker. However, these time limits may be extended at the discretion of the Chief Presiding Officer. The Plan Commission may not respond to or have any discussion on information received during the public comment session unless it is placed upon the Agenda for a subsequent meeting. Public comments should be addressed to the Plan Commission as a body. Presentations shall not deal in personalities personal attacks on members of the Plan Commission, the applicant for any project or Village Employees. Comments shall not be used to engage others in a debate in this forum. All comments, questions and concerns should be presented in a respectful professional manner. Any questions to an individual member of the Plan Commission or Staff will be deemed out of order by the Presiding Officer.

4. Approval of Minutes

- 4.1 Approval of minutes from September 12, 2023 meeting.
[20230912 PlanCommissionMinutesdraft.pdf](#)

5. Public Hearings

All persons interested in making comments about any of the public hearing items will be heard. Formal petitions and written comments regarding any of the public hearing items may be submitted tonight. During the public hearing(s), if you wish to be heard, the Plan Commission asks that you begin by stating your name and address, speak for no more than three minutes and attempt to avoid duplication. Each person speaking at the public hearing must sign the Public Hearing Appearance sign-in sheet before speaking. The sign-in sheet is available on the table located at the back of the room.

- 5.1 Public Hearing for Comprehensive Plan 2035 Amendment for the future land use of the Small Farm Road Lot 26 from Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II and Primary Environmental Corridor, located at the Northwest Corner of Small Farm Road and Holz Parkway (MUKV 1971-139-002), submitted by applicant and owner, Abdulaziz Sanqur.
[Comp Plan Amend PH - Small Farm Rd Lot 26.pdf](#)
- 5.2 Public Hearing for rezoning of the Small Farm Road Lot 26 from M-1 Limited Industrial to R-1 Single-Family Medium Lot and a Planned Unit Development overlay, located at the Northwest Corner of Small Farm Road and Holz Parkway (MUKV 1971-139-002), submitted by applicant and owner, Abdulaziz Sanqur.

[Rezoning PH - Small Farm Rd Lot 26.pdf](#)

- 5.3 Public Hearing for rezoning to develop a 4-Unit (4-Lot) PUD on land currently zoned R-1 single-family residential with a minimum lot size of 15,000 square feet within new or existing neighborhoods designated within the Update to Comprehensive Plan 2035 as medium lot single family II.
[Honeywell Rd PUD Notice.pdf](#)

6. New Business

Discussion and Possible Action on the Following Items

- 6.1 Discussion and possible recommendation to the Village Board for **ORDINANCE 1023** for a Comprehensive Plan Map Amendment from Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II and Primary Environmental Corridor at the northwest corner of Small Farm Road and Holz Parkway; Parcel MUKV 1971-139-002; Abdulaziz Sanqur, applicant.
[Staff - Small Farm Lt 26 - Comp Plan Amend.pdf](#)
[ORDINANCE 1023 - Comp Plan Amend Small Farm Lt 26.pdf](#)
- 6.2 Discussion and possible recommendation to the Village Board on **ORDINANCE 1024** for a Zoning Map Amendment from M-1 Light Industrial to R-1 Single Family Medium Lot Residential District and PUD-Planned Unit Development Overlay at the northwest corner of Small Farm Road and Holz Parkway; Parcel MUKV 1971-139-002; Abdulaziz Sanqur, applicant.
[Staff - Small Farm Lt 26 - Rezoning.pdf](#)
[ORDINANCE 1024 - Small Farm Lot 26 Rezoning.pdf](#)
- 6.3 Discussion and possible recommendation to the Village Board for a Planned Unit Development at 1271 Honeywell Road; Parcels MUKV 2011-990 and MUKV 2011-992-013; Warren Hansen, applicant.
[Staff - FDP PUD New - Honeywell Rd.pdf](#)
[Honeywell PUD Plan.pdf](#)
[Honeywell PUD SWMP.pdf](#)
- 6.4 Discussion and possible recommendation to the Village Board for **RESOLUTION 2023-55** for an Extraterritorial Review of a Certified Survey Map at N9022 Army Lake Road in the Town of East Troy; Parcel P ET 1000009; V2G Surveying, applicant; Dennis DeGrave/Francis DeGrave Life Estate, owner.
[Staff - Degrave ETZ.pdf](#)
[Town Resolution DeGrave.pdf](#)
[RESOLUTION 2023-55 Degrave ETZ.pdf](#)
[ETZ - CSM DEGRAVE.pdf](#)
- 6.5 EMC Sign Compliance Update
[Cover Memo - EMC Sign Updates.pdf](#)
- 6.6 Community and Economic Development Department Process Improvements and Updates to Website.

[Cover Memo Process Updates.pdf](#)

[CED Department Presentation.pptx](#)

7. Adjournment

Membership:

Eric Brill, John Meiners, Karl Kettner, Mark Penzkover, Tim Rutenbeck, Jason Wamser, Fred Winchowky, and Village Planner Erin Scharf (Advisory)

It is possible that a quorum of, members of other governmental bodies of the municipality may be in attendance at the above stated meeting to gather information. No action will be taken by any governmental body at the above stated meeting other than the governmental body specifically referred to above in this notice. Please note, upon reasonable notice, efforts will be made to accommodate the needs of individuals with disabilities through appropriate aids and services. For additional information or to request this service, contact the Municipal Clerk's Office, (262) 363-6420.

MINUTES OF THE PLAN COMMISSION MEETING

Tuesday, September 12, 2023

Call to Order

Deputy Clerk Gourdoux called the meeting to order at 6:30 p.m. located in the Board Room of the Mukwonago Municipal Building, 440 River Crest Ct.

Roll Call

Commissioners present: Mark Penzkover
Jason Wamser
Eric Brill
Tim Rutenbeck

Excused: Karl Kettner
Fred Winchowky, Chairman
John Meiners

Also present: Erin Scharf, Community Planner/Zoning Administrator
Linda Gourdoux, Deputy Clerk/Treasurer

In the Absence of the Chair, Gourdoux asked for a motion to nominate Chair Pro Tem.
Motion by Wamser/Penzkover to nominate Trustee Brill as Chair Pro Tem, carried.

Comments from the Public

Opened at 6:32 pm
Jeff Searl, Milwaukee Tool, thanked Village for their support, gave overview of project.
Kyle Kasprzyk, Milwaukee Tool, thanked Village for their support.
Closed at 6:36 pm

Approval of Minutes

Motion by Penzkover/Wamser to approve minutes from July 11, 2023 regular meeting, carried.

New Business

Discussion and possible recommendation to the Village Board for approval of RESOLUTION 2023-48 for a Certified Survey Map for Empire/Milwaukee Tool; 929 Empire Drive; Parcels MUKV 1969-988-006 and MUKV 1969-988-001.

Scharf gave overview of project.

Motion Penzkover/Rutenbeck to recommend to the Village Board for approval of **RESOLUTION 2023-48** for a Certified Survey Map for Empire/Milwaukee Tool; 929 Empire Drive; Parcels MUKV 1969-988-006 and MUKV 1969-988-001 with the removal of item #2, carried.

Discussion and possible approval for PC-RESOLUTION 2023-09 for Site Plan and Architectural Review for a parking lot at Empire/Milwaukee Tool; 929 Empire Drive; Parcels MUKV 1969-988-006 and MUKV 1969-988-001.

Scharf gave overview of project.

Motion by Penzkover/Rutenbeck to approve **PC-RESOLUTION 2023-09** for Site Plan and Architectural Review for a parking lot at Empire/Milwaukee Tool; 929 Empire Drive; Parcels MUKV 1969-988-006 and MUKV 1969-988-001, carried.

Discussion and possible recommendation to the Village Board for approval of RESOLUTION 2023-49 for an Extraterritorial Review of a Four-Lot Certified Survey Map located at N9033 and N9025 Army Lake Road in the Town of East Troy.

Scharf gave overview of project.

Motion by Penzkover/Rutenbeck to recommend to the Village Board for approval of **RESOLUTION 2023-49** for an Extraterritorial Review of a Four-Lot Certified Survey Map located at N9033 and N9025 Army Lake Road in the Town of East Troy, carried.

Adjournment

Meeting adjourned at 6:44 p.m.

Respectfully Submitted,
Linda Gourdoux, WCMC
Deputy Clerk/Treasurer

NOTICE OF PUBLIC HEARINGS
VILLAGE OF MUKWONAGO PLAN COMMISSION

The Village of Mukwonago Plan Commission will conduct a public hearing on Tuesday, October 10, 2023, for the following:

Comprehensive Plan 2035 Amendment for the future land use of the Small Farm Road Lot 26 from Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II and Primary Environmental Corridor, located at the Northwest Corner of Small Farm Road and Holz Parkway (MUKV1971139002), submitted by applicant and owner (Abdulaziz Sanqur).

The meeting will be held in the Board Room of the Village Hall located at 440 River Crest Court, Mukwonago, Waukesha and Walworth counties. The meeting starts at 6:30 pm and the public hearings will be conducted in the order listed on the meeting agenda.

For information regarding these public hearings, contact the Village Planner/Zoning Administrator, at planner@villageofmukwonago.gov or 262-363-6420 *2111 during regular office hours. All interested parties will be heard.

Notice was sent to property owners within 250 feet of the property and surrounding municipality Clerk's within 1000 feet of the Village of Mukwonago boundary.

Upon reasonable notice, efforts will be made to accommodate the needs of individuals with disabilities through appropriate aids and services. For additional information or to request this service, please contact, Diana Dykstra, at 262-363-6420.

VILLAGE OF MUKWONAGO
Diana Dykstra, Clerk-Treasurer

Legal notice to be published in the *Waukesha Freeman* on September 9, 2023

NOTICE OF PUBLIC HEARING
VILLAGE OF MUKWONAGO PLAN COMMISSION

The Village of Mukwonago Plan Commission will conduct a public hearing on Tuesday, October 10, 2023, for the following:

Rezoning of the Small Farm Road Lot 26 from M-1 Limited Industrial to R-1 Single-Family Medium Lot and a Planned Unit Development overlay, located at the Northwest Corner of Small Farm Road and Holz Parkway (MUKV1971139002), submitted by applicant and owner (Abdulaziz Sanqur).

The meeting will be held in the Board Room of the Village Hall located at 440 River Crest Court, Mukwonago, Waukesha and Walworth counties. The meeting starts at 6:30 pm and the public hearings will be conducted in the order listed on the meeting agenda.

For information regarding these public hearings, contact the Village Planner/Zoning Administrator, at planner@villageofmukwonago.gov or 262-363-6420 *2111 during regular office hours. All interested parties will be heard.

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VILLAGE OF MUKWONAGO
Diana Dykstra, Clerk-Treasurer

Legal notice to be published in the *Waukesha Freeman* on September 26, and October 3, 2023

NOTICE OF PUBLIC HEARING

VILLAGE OF MUKWONAGO PLAN COMMISSION

Please take notice there will be a public hearing before the Plan Commission of the Village of Mukwonago in the Board Room of Village Hall, 440 River Crest Court, Mukwonago, Waukesha and Walworth Counties, on Tuesday, October 10, 2023 commencing at 6:30 P.M. to consider the following matter:

PUBLIC HEARING: Planned Unit Development

TAX KEY: MUKV2011990 and MUKV2011992013

LOCATION: 1271 Honeywell Rd and Adjacent Vacant Parcel

LEGAL DESCRIPTION: PT SW1/4 SEC 35 T5N R18E N 134 FT OF COM S1/4 COR N 878 FT THE BGN N 268 FT W 325 FT S 268 FT E 325 FT TO BGN R2053/133 **AND** LOT 2 CSM #8365 VOL 73/167 REC AS DOC #2251326 PT SW1/4 SEC 35 T5N R18E & PT NW1/4 SEC 2 T4N R18E :: DOC #4367705

PROPERTY OWNER: PANKOWSKI REVOCABLE TRUST and NT3, LLC

APPLICANT: Warren Hansen of
Farris, Hansen, and Associates, Inc.
Elkhorn, WI 53121

REGARDING: Applicant seeks to develop a 4-Unit (4-Lot) PUD on land currently zoned R-1 single-family medium lot residential district is intended to provide for single-family residential with a minimum lot size of 15,000 square feet within new or existing neighborhoods designated within the Update to Comprehensive Plan 2035 as medium lot single family II.

Each lot will have a single-family home with a 3-car garage (current home to be removed), located on a private road with water and sewer which will be outlined in a future developer's agreement. A CSM will also be required, and review/approval shall come before the Village Plan Commission and Village Board separate from this application.

The meeting will be held in the Board Room of the Village Hall located at 440 River Crest Court, Mukwonago, Waukesha and Walworth counties. The meeting starts at 6:30 pm and the public hearings will be conducted in the order listed on the meeting agenda.

For information regarding these public hearings, contact the Village Planner/Zoning Administrator, at planner@villageofmukwonago.gov or 262-363-6420 *2111 during regular office hours. All interested parties will be heard.

Notice was sent to property owners within 250 feet of the property and surrounding municipality Clerk's within 1000 feet of the Village of Mukwonago boundary.

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VILLAGE OF MUKWONAGO

Diana Dykstra, Clerk-Treasurer

Legal notice to be published in the *Waukesha Freeman* on September 26 and October 3, 2023



PLANNING COMMISSION

October 10, 2023, at 6:30 pm
Mukwonago, WI

COMPHENSIVE PLAN AMENDMENT MUKV 1971-139-002

Project Summary

Request:	Comprehensive Plan Map Amendment
Applicant:	Abdulaziz Sanqur (Owner: Salwa Mohsen Hussain Aljaafar, Mother)
Location:	Northwest corner of Small Farm Rd and Holz Pkwy
Acreage:	5.5284 acres
Current Use:	Industrial
Future Use:	Open Space/Recreational
Zoning Classification:	M-1 Limited Industrial District

Planning Staff Review

Comp Plan Amendment The applicant is petitioning to amend the 2035 Land Use for the parcel (Lot 26) at the Northwest corner of Small Farm Rd and Holz Pkwy from the proposed future land use of Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II and Primary Environmental Corridor. The request to amend the 2035 Comp Plan Map of these parcel (Lot 26) aligns with the surrounding lands current and future land use plan. The Village collaborated with Waukesha County Planning office to determine that Residential Use would be less disruptive and have a smaller footprint in the Environmental Corridor than Manufacturing or Commercial development.



Zoned M-1

Zoned R-1 currently and can
build on a couple of acres.

Recommendation:

Recommend approval to the Village Board for the proposed Comp Plan Amendment of the parcel at the Northwest corner of Small Farm Rd and Holz Pkwy from Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II/Primary Environmental Corridor as set forth in Ordinance 1023 (as drafted OR as amended).

Attachments

1. Draft Ordinance 1023

**VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES**

ORDINANCE NO. 1023

**ORDINANCE AMENDING THE “COMPREHENSIVE PLAN 2035” FOR THE
VILLAGE OF MUKWONAGO**

WHEREAS, the Village Board is authorized by state law to adopt a comprehensive plan as defined in Sections 66.1001(1)(a) and 66.1001(2), Wis. Stats.; and

WHEREAS, the Village Board, upon recommendation of the Village Plan Commission, adopted a comprehensive plan on October 6, 2009 and amended/adopted on November 29, 2016; and

WHEREAS, the Village Board is authorized to amend the adopted comprehensive plan from time to time, upon recommendation of the Village Plan Commission; and

WHEREAS, the Village Board adopted a public participation plan that describes the way in which Village residents and other interested parties can participate in the revision of the adopted comprehensive plan; and

WHEREAS, the owner Abdulaziz Sanqur submitted a petition to the Village to amend the future land use map (Map 9) of the adopted comprehensive plan by changing the classification of the property at the Northwest corner of Small Farm Rd (MUKV 1971-139-002) and Holz Pkwy from Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II and Primary Environmental Corridor; and

WHEREAS, the petitioner's request constitutes a minor amendment as set forth in the adopted public participation plan; and

WHEREAS, the Village Plan Commission at their meeting on October 10, 2023 determined that additional opportunities for public participation (aside from the public hearing to be conducted by the Village Board) are not needed for this minor amendment owing to the limited nature of the request; and

WHEREAS, the Village Plan Commission reviewed the petitioner's request at their meeting on October 10, 2023, and found it to be a desirable change, recommending approval of the same; and

WHEREAS, the Village Plan Commission determined that the adopted comprehensive plan, with the proposed amendment, contains all required elements as required in Section 66.1001 (2) of Wisconsin Statutes.

NOW, THEREFORE, BE IT RESOLVED, the Village of Mukwonago Village Board does ordain as follows:

SECTION 1

The designation of the property located at the Northwest corner of Small Farm Rd (MUKV 1971-139-002) and Holz Pkwy on the future land use map (Map 9) is changed from Open Space/Recreational and Primary Environmental Corridor to Medium Lot Single Family II and Primary Environmental Corridor.

SECTION 2

All Ordinances or parts of Ordinances contravening the terms and conditions of this Ordinance are hereby to that extent repealed.

SECTION 3

The several sections of this Ordinance shall be considered severable. If any section shall be considered by a court of competent jurisdiction to be invalid, such a decision shall not affect the validity of the other portions of the Ordinance.

SECTION 4

This Ordinance shall take effect upon passage and publication as approved by law.

PASSED AND ADOPTED by the Village Board this 19th day of October 2023.

APPROVED:

Fred Winchowky, Village President

Countersigned:

Diana Dykstra, Village Clerk/Treasurer



PLANNING COMMISSION

October 10, 2023, at 6:30 pm
Mukwonago, WI

ZONING MAP AMENDMENT

MUKV 1971-139-002

Project Summary

Request:	Zoning Map Amendment
Applicant:	Abdulaziz Sanqur (Owner: Salwa Mohsen Hussain Aljaafar, Mother)
Location:	Northwest corner of Small Farm Rd and Holz Pkwy
Acreage:	5.5284 acres
Current Use:	Industrial
Future Use:	Open Space/Recreational
Zoning Classification:	M-1 Limited Industrial District

Planning Staff Review

Comp Plan Amendment The applicant is petitioning to amend the Official Zoning Map for the Village (Map 9) for the parcel (MUKV 1971-139-002) at the Northwest corner of Small Farm Rd and Holz Pkwy from the M-1 Light Industrial R-1 Single Family Medium Lot Residential District and PUD-Planned Unit Development Overlay. The request to amend the Official Zoning Map of the parcel (MUK V1971-139-002) aligns with the surrounding lands current zoning of R-1. The Village collaborated with Waukesha County Planning office to determine that Residential Use would be less disruptive and have a smaller footprint in the Environmental Corridor than Manufacturing or Commercial development.



Recommendation:

Recommend approval to the Village Board for the proposed Official Zoning Map Amendment of the parcel (MUKV 1971-139-002) at the Northwest corner of Small Farm Rd and Holz Pkwy from M-1 Light Industrial R-1 Single Family Medium Lot Residential District and PUD-Planned Unit Development Overlay as set forth in Ordinance 1024 (as drafted OR as amended).

Attachments

1. Draft Ordinance 1024

**VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES**

ORDINANCE NO. 1024

**AN ORDINANCE TO AMEND THE DISTRICT ZONING MAP OF THE VILLAGE OF
MUKWONAGO ON BEHALF OF THE VILLAGE OF MUKWONAGO FOR THE PROPERTY
LOCATED AT THE NW CORNER OF SMALL FARM RD AND HOLZ PKWY, PARCEL:
MUKV 1971-139-002**

THE VILLAGE BOARD of the Village of Mukwonago, Waukesha and Walworth Counties, Wisconsin, do ordain as follows:

SECTION I. Pursuant to the provision of Section 100.856 of the Municipal Code of the Village of Mukwonago, having received the recommendation of the Village Plan Commission, and after a public hearing duly called and held on the 10th day of October, 2023, the following legally described property is amended on the Village of Mukwonago Zoning District Map from M-1 Light Industrial District to R-1 Single Family Medium Lot Residential District and PUD-Planned Unit Development Overlay.

LOT 2 CSM #10415 VOL 99/78 REC AS DOC #3497172 BEING REDIV LOT 26 BLK 5 MEADOW PARK ESTATES ADDITION NO 3 PT SW1/4 SEC 25 T5N R18E

#MUKV 1971-139-002

SECTION II: The above referenced legal descriptions is graphically provided within attached Exhibit A.

SECTION III. All Ordinances or parts of Ordinances contravening the terms and conditions of this Ordinance are hereby to that extent repealed.

SECTION IV. Severability. If any portion of this Ordinance is invalid or unconstitutional, or the application of this Ordinance to any person or circumstances is invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the other provisions or applications of this Ordinance which can be given effect without the invalid or unconstitutional provisions or applications.

SECTION V. Effective Date. This Ordinance shall take effect upon passage and publication as provided by law.

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PASSED AND ADOPTED by the Village Board this 18th day of October 2023.

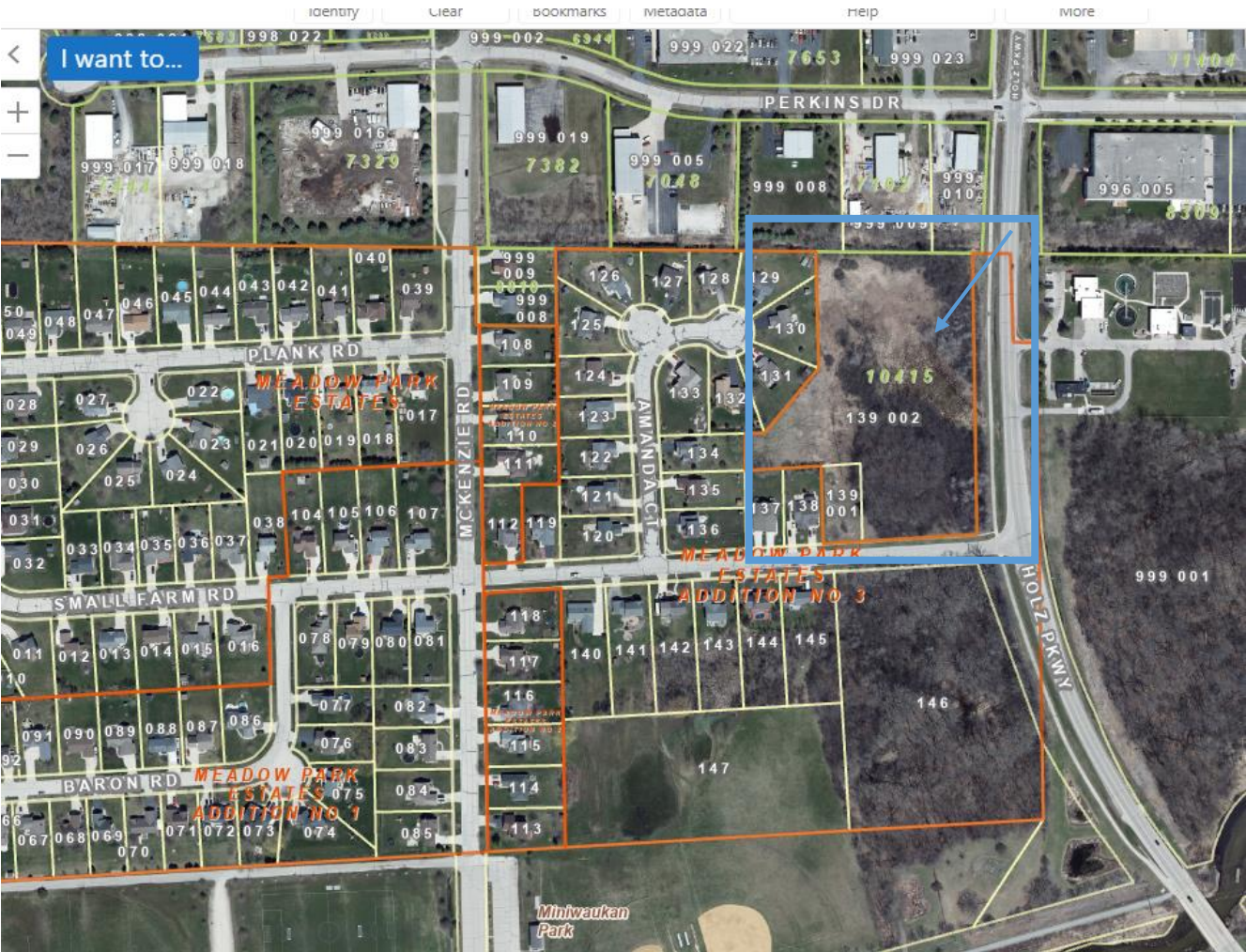
APPROVED:

Fred Winchowky, Village President

Countersigned:

Diana Dykstra, Village Clerk/Treasurer

EXHIBIT A





PLANNING COMMISSION

October 10, 2023 at 6:30pm

Mukwonago, WI

FINAL DEVELOPMENT PLAN REVIEW AS A PLANNED UNIT DEVELOPMENT

1271 HONEYWELL RD
MUKV 2011-990 AND MUKV 2011-992-013

Case Summary

Parcel Data

Proposal:	PUD – 4 Single Family Lots
Applicant:	Warren Hansen (Applicant)
Request:	Final Development Plan - PUD
Staff Recommendation:	Deny

Parcel Characteristics / Conditions

Acreage:	0.9743 and 0.8755
Current Use:	Single-Family Residential
Proposed Use:	Single-Family Residential
Reason for Request:	New PUD
Land Use Classification:	Single-Family Residential
Zoning Classification:	R-1 - Single-Family Medium Lot Residential
Census Tract:	2039.01

Project Summary / Plan of Operation

Warren Hansen and Associates is requesting a 4-Lot Planned Unit Development off Honeywell Rd. The proposal is to create 4 new lots from the two that currently exist. There will be a private road with private sewer and water connections.

Staff Review

Staff has received and reviewed the Site Plan along with the Storm Water Management Plan – comments below.

Further Items Needed:

- 1) The Village Attorney will review a new Developer's Agreement upon submittal from the Applicant and submit to the board for approval.
- 2) The developer will also be required to have a Certified Survey Map completed if they acquire the project and move forward with the development.

Engineering R&M: “I noticed that they are not meeting the peak discharge requirements for the 100-year storm event as outlined in Village Ordinance § 34-110(d)(1). Village Ordinance requires that the 100-year post construction discharge rate be equal to or less than the 10-year pre-development peak discharge rate and they are not achieving this.

Additionally, the infiltration basins are very close to Units 1 and 3 and don’t appear to meet the requirement of a 50-ft setback for Ordinance Section § 34-110(d)(6)i.2, which requires a 50-ft setback for any structure containing a basement, from a basin that permanently or temporarily holds water during the 100-year storm event. 50-ft set-back is measured from the elevation of the 100-year peak water level if that water level is 1-ft or deeper (which it appears to be in both). The scanned PDF plan is not scalable for me, so I can’t verify to 100% certainty, but I am basing it off scales of other dimensions that are shown on the plans.

It also looks like Unit 3 has a walk-out at elevation 852.70 and the peak 100-year elevation of that infiltration basin right next to it is 851.00, so that doesn’t meet the 2-ft elevation difference required in Ordinance Section § 34-110(d)(6)i.1.

Based on the above, I will hold off on performing a more in-depth review and recommend that this project **not** be approved at this time. There may be a need for site layout modifications to meet the ordinance requirements and I’d hate to see Plan Commission approve a site and then have the site get completely modified and have to go back to plan commission to re-review.”

Public Works Director:

Utilities Director:

1. Need to move/extend a couple things per notes I made on the plans.
2. Existing house will need to connect per Village ordinance, see plans.
3. Water and sewer within PUD shall be private per current plans.
4. Developer will need to follow Village Construction Specs for all Utilities public or private. We will also require utility as-builts.

Police: No Concerns at this time

Fire Chief Comments:

- 120’ width for cul de sacs for the WB-50 template.
- Look at the 300’ hydrant spacing required by the village.

Building Inspection: Concerns with the setbacks of current home – lot 1. Potential issues with wanting to remain on well and septic while the other 3 lots connect.

Planning: If the current home is demolished in the future, any future development shall meet the dimensional standards of the other 3 lots. The developer would like to follow the same deed restrictions The Orchards Subdivision have in place. R-1 dimensional standards below.

Category	Standard
Minimum Lot Area	15,000 square feet
Minimum Lot Width	100 feet interior lot/120 feet corner lot
Maximum Building Coverage on Lot — Principal Building	25% of total lot size, not including any public right-of-way
Maximum Building Coverage on Lot — Accessory Building	5% of total lot size, not including any public right-of-way
Minimum Greenspace*	60% of total lot size, not including any public right-of-way
Minimum Building Setbacks**	Street Yard: 35 feet
	Interior Side Yard:
	a. One-story dwellings: 15 feet each side
	b. Other dwellings: 20 feet one side, 15 feet other side
	Rear Yard: 40 feet
Maximum Building Height, principal building	35 feet
Maximum Height, accessory building***	15 feet
Minimum Floor Area per Dwelling Unit	Total: 1,800 square feet
	1st floor of bi-level or 2-story: 1,200 square feet
	Each other floor of bi-level or 2-story: 600 square feet



Recommendation

Staff recommends the Plan Commission recommend the Village Board deny the application for the proposed 4-Lot PUD and the applicant is to resubmit a plan based on the above staff comments.

Attachments

1. Site Plan
2. SWMP

BEING LOT 2 OF CERTIFIED SURVEY MAP NO. 8365 & UNPLATTED LANDS (TAX KEY MUKV2011990) LOCATED IN PART OF THE SE 1/4 OF THE SW 1/4 OF SECTION 35, TOWN 5 NORTH, RANGE 18 EAST, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

SITE SUMMARY

ZONING: SINGLE FAMILY DEVELOPMENT

LAND AREA: 76,030 SQ.FT. (1.74 ACRES)

NUMBER OF LOTS=4

HOUSES: 1 EXISTING AND 3 PROPOSED (2 HOMES)

POOR FLOOR: 40' WIDE WITH 100' CULDESAC (LENGTH 240')

CULDESAC: 100' DIAMETER

90' PAVEMENT

40' DIAMETER LANDSCAPE CENTER

FREE ACCESS OFF ORCHARD CIRCLE

NOTE: A LANDSCAPING BUDGET OF \$6,000 FOR EACH OF THE UNITS 1, 2, 3 AND 4 ON UNIT 2 SHALL BE REMOVED FROM MAIL BOXES WILL BE OFF HONEYWELL MAIL BOXES WILL BE MATCHING AND LOCATED TO THE RIGHT OF THE DRIVEWAY ENTRANCE. GARAGE AND RECYCLE CONTAINERS TO BE SET OUT AT DRIVEWAY ENTRANCE.

NOTE: CONDOMINIUM WILL BE CREATED WITH NO RESTRICTIONS TO CLOSELY FOLLOW THE ORCHARD OF MUKONO.

AVERAGE LOT SIZE=16,595 SQ.FT.

○	IRON PIPE FOUND 1 3/4" O.D.	—	PROPOSED FINISHED GRADE/ELEVATION
⊙	PIPE FOUND 3/4" O.D.	—	EXISTING GROUND ELEVATION
⊕	BENCHMARK	—	EXISTING LAND CONTOURS
⊗	WELL	—	PROPOSED LAND CONTOURS
⊙	SOIL BORING	—	DIRECTION OF WATER FLOW
[XXX]	RECORDED AS	—	PROPOSED 3' CROWN THE MAPLE (4)
TF	TOP OF FOUNDATION ELEVATION	—	EXISTING 16" TREE (16)
FF	FIRST FLOOR ELEVATION	—	PROPOSED 16" TREE TO BE REMOVED
GE	GRADE ELEVATION	—	
LL	LOW LEVEL ELEVATION	—	
LO	BASEMENT WINDOW LOOK OUT	—	
—	BURIED ELECTRICAL LINE	—	
—	BURIED GAS LINE	—	
—	STORM WATER DRAIN PIPE	—	
—	SANITARY SEWER	—	
—	WATERMAIN	—	
—	SILT FENCE	—	
—	EXISTING GROUND ELEVATION	—	
—	EXISTING LAND CONTOURS	—	
—	PROPOSED LAND CONTOURS	—	
—	DIRECTION OF WATER FLOW	—	
—	PROPOSED 3' CROWN THE MAPLE (4)	—	
—	EXISTING 16" TREE (16)	—	
—	PROPOSED 16" TREE TO BE REMOVED	—	

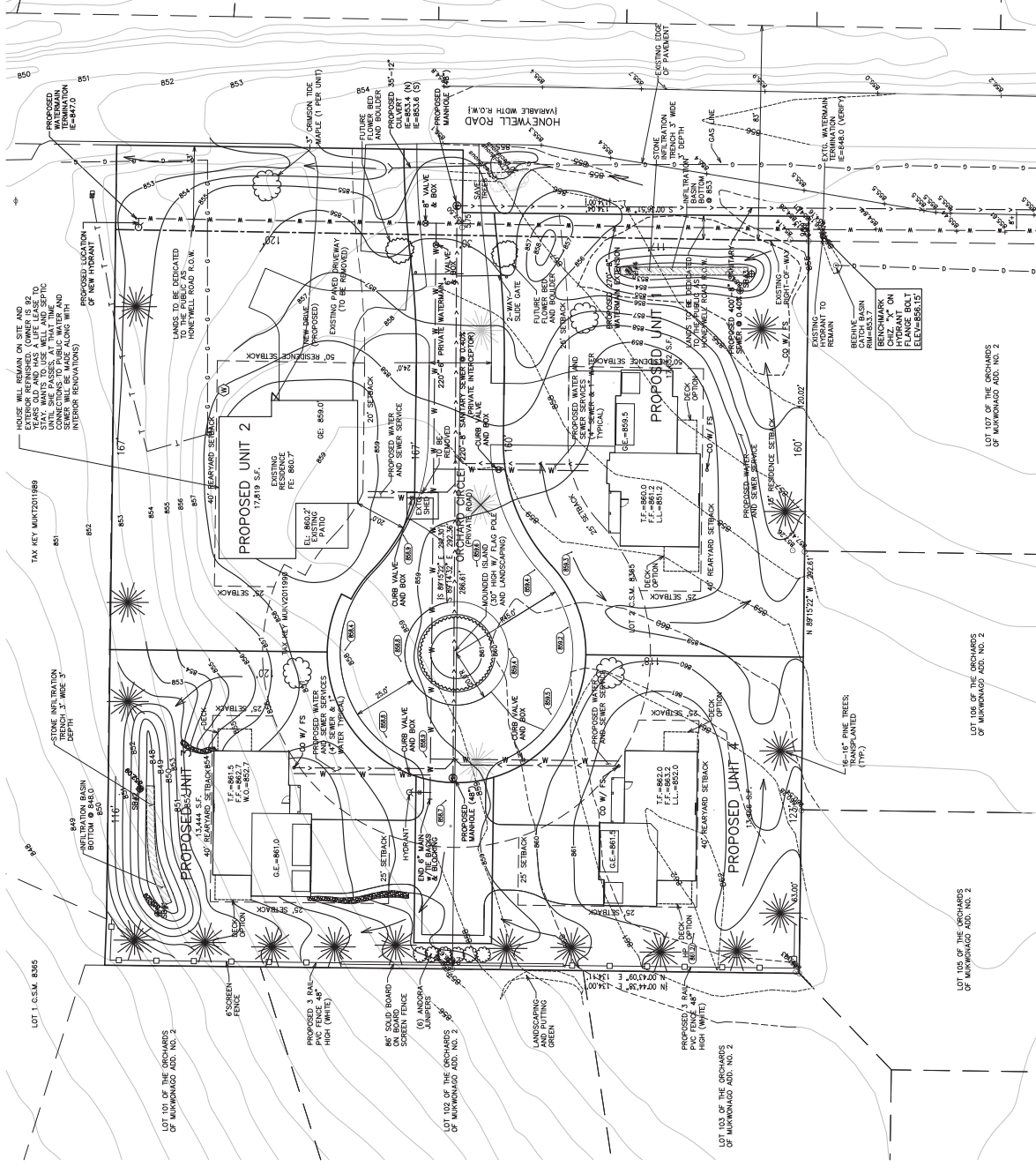
SOIL BORINGS

SB#1: 6" TOPSOIL
10" CLAY LOAM
17" GRAVELLY SANDY CLAY LOAM
84" GRAVELLY LOAM

SB#2: 8" TOPSOIL
16" CLAY LOAM
12" GRAVELLY SANDY CLAY LOAM
60" GRAVELLY LOAM

SB#3: 9" TOPSOIL
21" CLAY LOAM
15" GRAVELLY SANDY CLAY LOAM
62" GRAVELLY SILTY LOAM

SB#4: 8" TOPSOIL
18" CLAY LOAM
9" GRAVELLY SANDY CLAY LOAM



NOTE: BOUNDARY OF TAX KEY MUKV2011990 AND TOPOGRAPHY SHOWN THEREON TAKEN FROM WAUKESHA COUNTY GIS. FOR REFERENCE ONLY.
RESIDENCE & DRIVEWAY SHOWN ON TAX KEY MUKV2011990 TRACED FROM ORTHOPHOTOGRAPHY. FOR REFERENCE ONLY.
LAND DIVISION SHALL BE DONE BY SEPARATE INSTRUMENT (CERTIFIED SURVEY MAP).

ASSIGNED THE SOUTHERLY BOUNDARY OF LOT 2
N 89°15'22" W PER RECORD C.S.M.

STORMWATER MANAGEMENT PLAN

**4-UNIT SINGLE FAMILY PUD
VILLAGE OF MUCKWANAGO, WAUKESHA
COUNTY, WISCONSIN
AUGUST 2023**

**PREPARED FOR:
NT3 C/O TOM DEMUTH
6130 N. BERKELY BOULEVARD
WHITEFISH BAY, WI 53217**

Prepared By:

Farris, Hansen & Associates, Inc.
Engineers, Architects & Surveyors
7 Ridgway Court, P.O. Box 437
Elkhorn, WI 53121

Project No.: 10046

TABLE OF CONTENTS

	PAGE
LOCATION AND PURPOSE	1
EXISTING DRAINAGE CONDITIONS	1
PROPOSED DRAINAGE CONDITIONS	1
METHOD OF DRAINAGE ANALYSIS	2
RESULTS.....	3
CONCLUSIONS	4
LIMITATIONS	4
COMPLIANCE WITH THE DEPARTMENT OF NATURAL RESOURCES CHAPTER NR 151.5	
Total Suspended Solids	5
Peak Discharge.....	5
Infiltration.....	5
Protective Areas	5
Fueling and Vehicle Maintenance Areas	5
Site Drainage	6
SUMMARY	6

Exhibits

Exhibit 1	Site Location Map
Exhibit 2	Custom Soils Report
Exhibit 3	Existing Conditions Drainage Area Map
Exhibit 4	Proposed Conditions Drainage Area Map

Appendix A Existing 1, 2, 10, and 100-Year TR-20 Hydrologic Model

Appendix B Proposed 1, 2, 10, and 100-Year TR-20 Hydrologic Model

Appendix C Source Loading and Management Model (SLAMM)

Appendix D Operation and Maintenance Plan

LOCATION AND PURPOSE

The ± 1.74 -acre development is located within the limits of the Village of Mukwonago, and consists of an undeveloped grass lot and an existing residence. The surrounding properties are used for residential purposes. The project is located just east of the intersection of Regees Rd and Honeywell Rd refer to Exhibit 1 (Site Location Map).

The purpose of this report is to evaluate the existing 1, 2, 10, and 100-year watershed discharges and the proposed 1, 2, 10, and 100-year watershed discharges to support little or no increase in proposed downstream discharges. We accomplished this by analyzing the pre- and post-development conditions onsite using HydroCAD, which utilizes the SCS TR-20 methodology, and storing part of the runoff in two (2) infiltration basins on-site and releasing the water at a rate that would not exceed the existing conditions. Farris, Hansen & Associates has completed the Proposed Development Plans for the buildings and additional site improvements.

In order to evaluate the impact of the proposed site improvements, existing conditions were first considered. The attached Existing and Proposed Drainage Conditions Maps provide a breakdown of the drainage sub-catchment areas for the existing and proposed conditions drainage models. The HydroCAD Drainage Diagrams, display the setup/routing of the existing and proposed condition models. Based on comparison of the pre- vs. post-development exhibits, it is estimated that there will be a net increase in impervious area on-site of approximately ± 0.54 acres. In order to evaluate this, the overall watershed has been divided into sub-catchments which represent the runoff area of the site. The runoff is analyzed at the “analysis point” which is the furthest downstream points for runoff from any proposed drainage area modifications. The Analysis Point for this project is effectively the westerly ditch line.

EXISTING DRAINAGE CONDITIONS

The entire watershed is ± 1.34 acres consist of the undeveloped grass lot refer to exhibit 3 existing conditions drainage area map.

Upon review of the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey (See Exhibit 2), soils located on site are Hocheim loam (HmC2), and Theresa silt loam (Thb). Hocheim loam is characterized by the United States Department of Agriculture (USDA) as well drained, and belonging to hydrologic soil group D Theresa silt loam is characterized as well drained and belongs to hydrologic soil group C. There are no soils classified as prime, state-important or unique by USDA.

PROPOSED DRAINAGE CONDITIONS

For the proposed conditions or post-development hydrologic analysis, the storm water model as a single sub-catchment to appropriately model the proposed improvements and design. The project improvements to the site consist of an approximately 0.4 acres of impervious improvements including buildings, and paved drives and parking. In order to mitigate the increase in runoff that may be expected from the proposed improvements to the site, two (2) infiltration basins were sized in accordance with WDNR guidelines. See Exhibit 4 (Proposed Conditions Drainage Area Plan) for location of the sub-catchment area.

METHOD OF DRAINAGE ANALYSIS

The Existing and Proposed Conditions Stormwater runoff has been analyzed using the HydroCAD Stormwater modeling computer program. This program utilizes the Natural Resource Conservation Service (formerly Soil Conservation Service, or SCS) method of analysis techniques outlined in Technical Release No. 20 (TR-20) to predict Stormwater runoff for given design storms. Evaluations were performed based upon a WI NRCS MSE3, 24-hour storm for the 1-, 2-, 10-, and 100-year storm events. The SCS method of hydrology analysis utilizes the drainage area, hydraulic length, terrain slope, and soil conditions of a watershed or as input data to calculate peak flows and total volume of runoff for specific synthetic rain events. The analysis is performed by modeling the drainage area as sub-catchments, reaches and ponds. A sub-catchment is an area of land that produces runoff that drains to a reach or a pond. A reach is generally a uniform stream or concentrated storm flow and is often used as an analysis evaluation point. A pond is generally defined as either a pond, swamp or dam which impounds water from one or more sources.

Model Sub-catchments have been delineated using Soil Conservation Service methods. Curve Numbers based upon the type of development and soil classifications were used to estimate the runoff volumes. The time of concentration for each of the sub-catchments, coupled with the runoff characteristics, were used to estimate the peak stormwater runoff for each area. The 1-year, 2-year, 10-year, and 100-year statistical rain events were modeled for both the pre- and post-earth removal conditions. The total rainfall per a 24-hour period for the 1, 2, 10 and 100-year statistical rain events are 2.42", 2.72", 3.83" and 6.18" respectively. The statistical rainfall for the area is considered an WI NRCS MSE3 distribution. Rainfall Data for Waukesha County was input into the program. Refer to Appendices A and B for details.

RESULTS

Table 1 represents the existing storm water peak runoff from sub-catchments 1S, 2s and AP as shown on the Existing Conditions Drainage Area Map for the specified storm events. The discharge rates for these sub-catchments will be used to compare computer-modeling results of storm water runoff for existing and proposed conditions. (See HydroCAD results)

TABLE 1
Estimated Pre-Construction Runoff Peak Discharges

Area (ID)	Area (Ac)	Tc (Min.)	CN	Q1 (CFS)	Q2 (CFS)	Q10 (CFS)	Q100 (CFS)	Remarks
1S	0.63	10	61	0.06	0.14	0.60	2.01	Tributary Area
2S	0.71	10	61	0.07	0.15	0.67	2.24	Tributary area
AP	-	-	-	0.13	0.29	1.26	4.24	Analysis Point (total site runoff)

Table 2 represents the proposed storm water peak runoff from sub-catchments 1S, 2S, Infiltration Basins 1P, 2P and Analysis the point AP as shown on the Proposed Conditions Drainage Area Map for the specified storm events. The discharge rates for the sub-catchments will be used to compare computer-modeling results of storm water runoff for existing and proposed conditions. (See HydroCAD results)

TABLE 2
Estimated Post-Construction Runoff Peak Discharges

Area (ID)	Area (Ac)	Tc (Min.)	CN	Q1 (CFS)	Q2 (CFS)	Q10 (CFS)	Q100 (CFS)	Remarks
1S	0.63	10	74	0.50	0.67	1.41	3.21	Tributary area
2S	0.71	10	70	0.37	0.53	1.27	3.16	Tributary area
1P	-	-	-	0.00	0.00	0.00	1.75	Infiltration basin
2P	-	-	-	0.00	0.00	0.00	2.67	Infiltration basin
AP	-	-	-	0.00	0.00	0.00	3.30	Analysis Point (total site runoff)

The development of the site is based upon providing the construction of the infiltration basins. The existing and proposed peak discharges for the 2, 10, and 100-year storms are listed in Table 3. Table 4 shows an overall decrease in peak flows caused by the proposed site improvements.

TABLE 3
Existing and Proposed Watershed Peak Discharge

AREA (ID)	Existing Peak Discharge (cfs)				Proposed Peak Discharge (cfs)				Remarks
	1-yr	2-yr	10-yr	100-yr	1-yr	2-yr	10-yr	100-yr	
AP-1	0.13	0.29	1.26	4.24	0.00	0.00	0.00	3.30	Total Site Discharge

TABLE 4
Net Watershed Peak Discharge

AREA (ID)	Peak Discharge (cfs)				Remarks
	1-yr	2-yr	10-yr	100-yr	
AP-1	-0.13	-0.29	-1.26	-0.94	Total Site Discharge

CONCLUSIONS

From review of Table 4 and HydroCAD results, it can be seen that the watershed peak discharges post construction are less than existing discharges for the all storm event.

The modeling results assume that the storm water system will be constructed as shown on the proposed Development Plans, prepared by Farris, Hansen & Associates. In addition, it is also assumed that system maintenance and cleaning or removal of leaves and other debris occurs on an as-needed basis to ensure proper operation.

LIMITATIONS

The stormwater analysis was performed in accordance with standard civil engineering practice, and relies on information provided by others as well as published information. Areas of potential runoff analysis were limited to those areas within the bounds of property owned or believed to impact the property of concern or be part of a specific watershed or catchment.

In addition, Farris, Hansen & Associates shall not be responsible for construction or installation not conforming to the plans, nor shall Farris, Hansen & Associates be responsible for maintenance of the proposed Storm Water Management System.

It shall also be understood that the SCS Time Lag Method of drainage analysis was originally formulated to assist with the development of farmland and crop production. The SCS method has become one standard method of hydrologic analysis within the civil engineering community, yet may be conservative for use on very small areas of modern development and provide runoff results that are greater or more conservative than actual conditions (pre or post construction).

COMPLIANCE WITH THE DEPARTMENT OF NATURAL RESOURCES CHAPTER NR 151

Chapter NR 151 sets forth specific Storm water management performance standards. The pertinent performance standards and the proposed project's compliance with these standards have been documented as follows:

Total Suspended Solids

Water quality calculations for the post-development drainage areas were performed using the Source Loading and Management Model, SLAMM. Solid reduction was accomplished by modeling the grassed swales leading to the infiltration basins. The particulate solids reduction for project site was established at 89.50 percent. This reduction is greater than the 80 percent reduction required under NR151.121.

Peak Discharge

As noted in the report above, the total peak discharges for the site post construction are less than the pre-construction peak discharges. The overall decrease in runoff for the rain events is due to the incorporation of the infiltration basin in addition, the Operation and Maintenance Plan included in Appendix D will be utilized on-site to ensure the proposed system functions as designed.

Infiltration

Infiltration will be provided by the two-infiltration basin.

Protective Areas

No protective areas are located on or in the general vicinity of the site.

Fueling and Vehicle Maintenance Areas

No fueling or vehicle maintenance areas will be located on-site so no additional best management practices are specified.

Site Drainage

Site grading has been performed according to acceptable engineering practices and standards to ensure proper site drainage, prevent property damage, and protect the public health and safety. Positive flows away from all buildings, and parking lots have been included as part of the proposed design. The practices implemented reduce the peak discharge for the site from the existing conditions.

SUMMARY

As discussed in detail within the preceding sections of this Plan, the BMPs and structural controls proposed for this site development project include: two (2) infiltration basin. In addition, an appropriate Operation and Maintenance Plan is proposed. Altogether, the stormwater system is designed to mitigate peak storm flow rates and to provide Stormwater Treatment to the required levels.

Through the implementation of recognized Stormwater Best Management Practices, compliance with Department of Natural Resources Chapter NR 151 is expected.

EXHIBITS

1. SITE LOCATION MAP

2. CUSTOM SOILS REPORT

3. EXISTING CONDITIONS DRAINAGE AREA PLAN

4. PROPOSED CONDITIONS DRAINAGE AREA PLAN

EXHIBIT 1
SITE LOCATION MAP



- Legend**
- Municipal Boundary_2K
 - Parcel_Dimension_2K
 - Note_Text_2K
 - Lots_2K
 - Lot
 - Unit
 - General Common Element
 - Outlot
 - Simultaneous Conveyance
 - Assessor Plat
 - CSM
 - Condominium
 - Subdivision
 - Cartoline_2K
 - EA-Easement_Line
 - PL-DA
 - PL-Extended_Tie_line
 - PL-Meander_Line
 - PL-Note
 - PL-Tie
 - PL-Tie_Line
 - <all other values>
 - Railroad_2K

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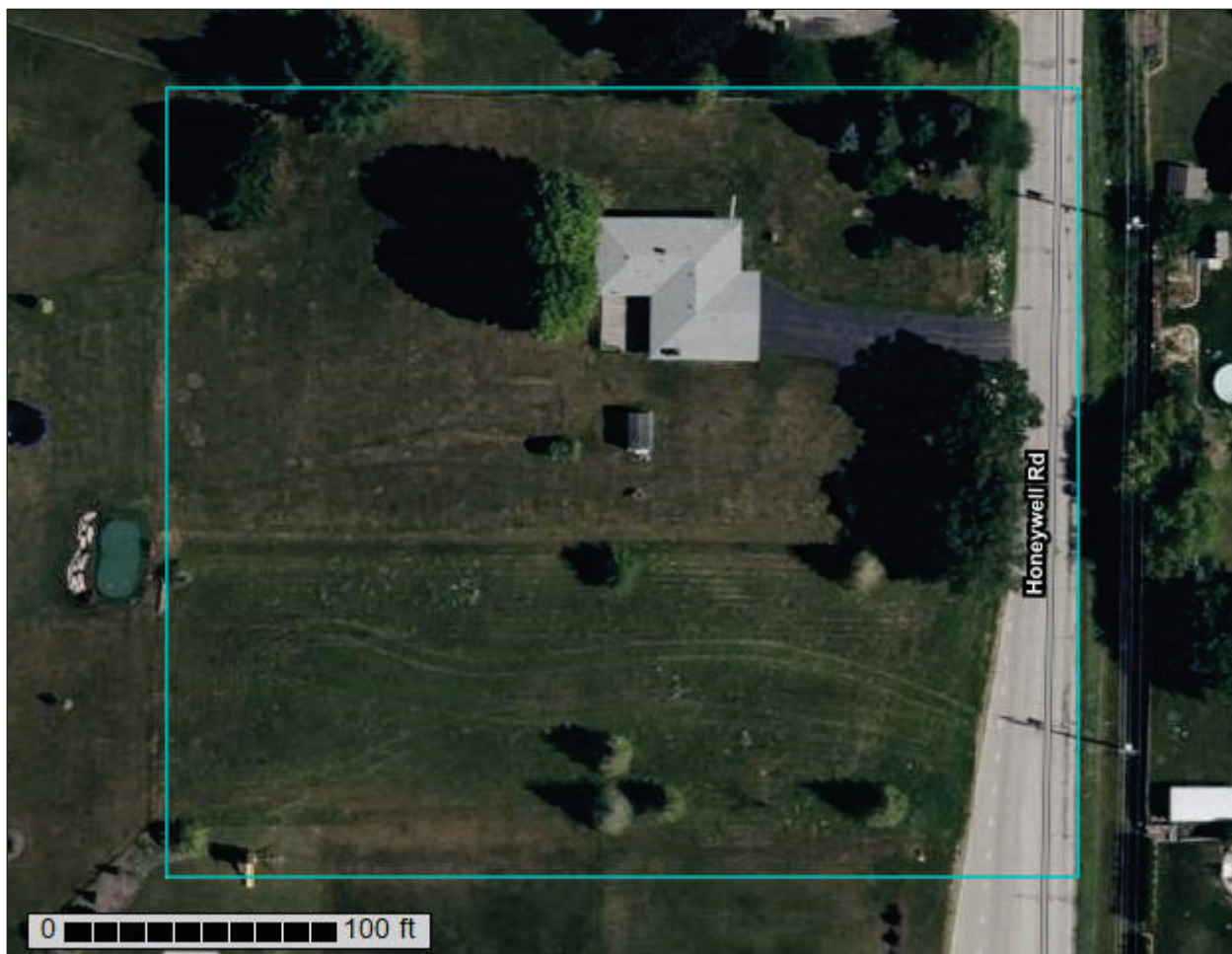
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Notes:

Printed: 8/25/2023

EXHIBIT 2
CUSTOM SOILS REPORT

Custom Soil Resource Report for Milwaukee and Waukesha Counties, Wisconsin



Preface

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

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

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

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

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

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

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Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	12
Map Unit Descriptions.....	12
Milwaukee and Waukesha Counties, Wisconsin.....	14
HmC2—Hochheim loam, 6 to 12 percent slopes, eroded.....	14
ThB—Theresa silt loam, 2 to 6 percent slopes.....	15
References	17

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

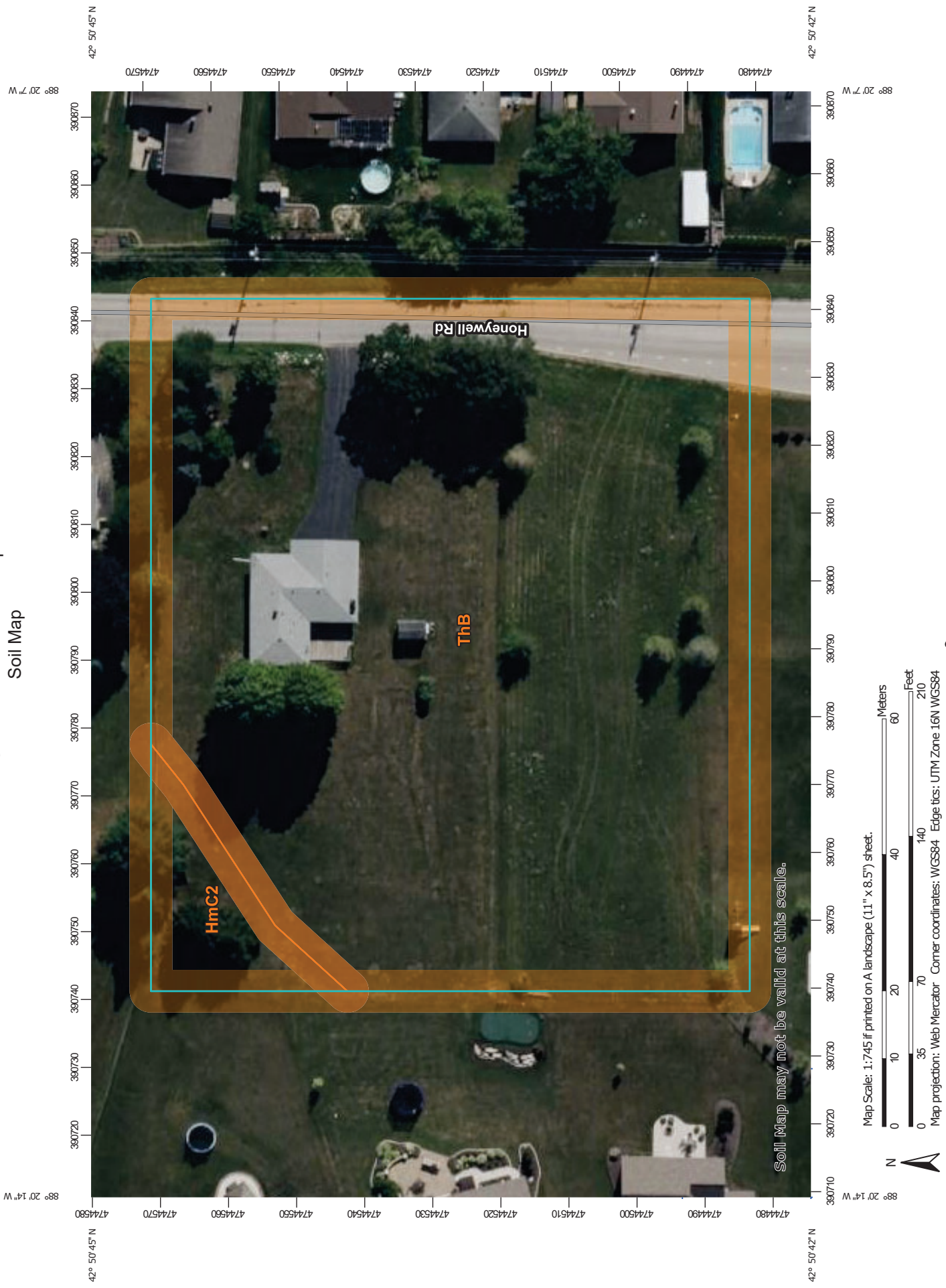
Custom Soil Resource Report

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

Soil Map

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

Custom Soil Resource Report
Soil Map



MAP LEGEND

MAP INFORMATION

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0.1	5.4%
ThB	Theresa silt loam, 2 to 6 percent slopes	2.1	94.6%
Totals for Area of Interest		2.2	100.0%

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Milwaukee and Waukesha Counties, Wisconsin

HmC2—Hochheim loam, 6 to 12 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2t03r

Elevation: 900 to 1,340 feet

Mean annual precipitation: 31 to 33 inches

Mean annual air temperature: 43 to 46 degrees F

Frost-free period: 135 to 175 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Hochheim, eroded, and similar soils: 90 percent

Minor components: 10 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hochheim, Eroded

Setting

Landform: Drumlins

Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Side slope, crest

Down-slope shape: Convex

Across-slope shape: Linear

Parent material: Loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 7 inches: loam

Bt - 7 to 16 inches: clay loam

C - 16 to 33 inches: gravelly sandy loam

Cd - 33 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 6 to 12 percent

Depth to restrictive feature: 20 to 40 inches to densic material

Drainage class: Well drained

Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 60 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: D

Ecological site: F095XB007WI - Loamy Upland with Carbonates

Forage suitability group: Mod AWC, adequately drained (G095BY005WI)

Other vegetative classification: Mod AWC, adequately drained (G095BY005WI)

Hydric soil rating: No

Minor Components

Theresa

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Hochheim

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Head slope, side slope
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XB006WI - Shallow Upland
Hydric soil rating: No

ThB—Theresa silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2szd9
Elevation: 700 to 1,240 feet
Mean annual precipitation: 31 to 35 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Theresa and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Theresa

Setting

Landform: Drumlins
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loess over loamy till and/or calcareous, dense loamy till

Typical profile

Ap - 0 to 8 inches: silt loam
BE - 8 to 14 inches: silt loam

Custom Soil Resource Report

Bt1 - 14 to 18 inches: silty clay loam
2Bt2 - 18 to 34 inches: clay loam
2Cd - 34 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: 32 to 35 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 60 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Forage suitability group: Mod AWC, adequately drained with limitations (G095BY006WI)
Other vegetative classification: Mod AWC, adequately drained with limitations (G095BY006WI)
Hydric soil rating: No

Minor Components

Hochheim

Percent of map unit: 10 percent
Landform: Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: F095XB006WI - Shallow Upland
Hydric soil rating: No

Lamartine

Percent of map unit: 5 percent
Landform: Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Hydric soil rating: No

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

EXHIBIT 3
EXISTING CONDITIONS DRAINAGE AREA MAP

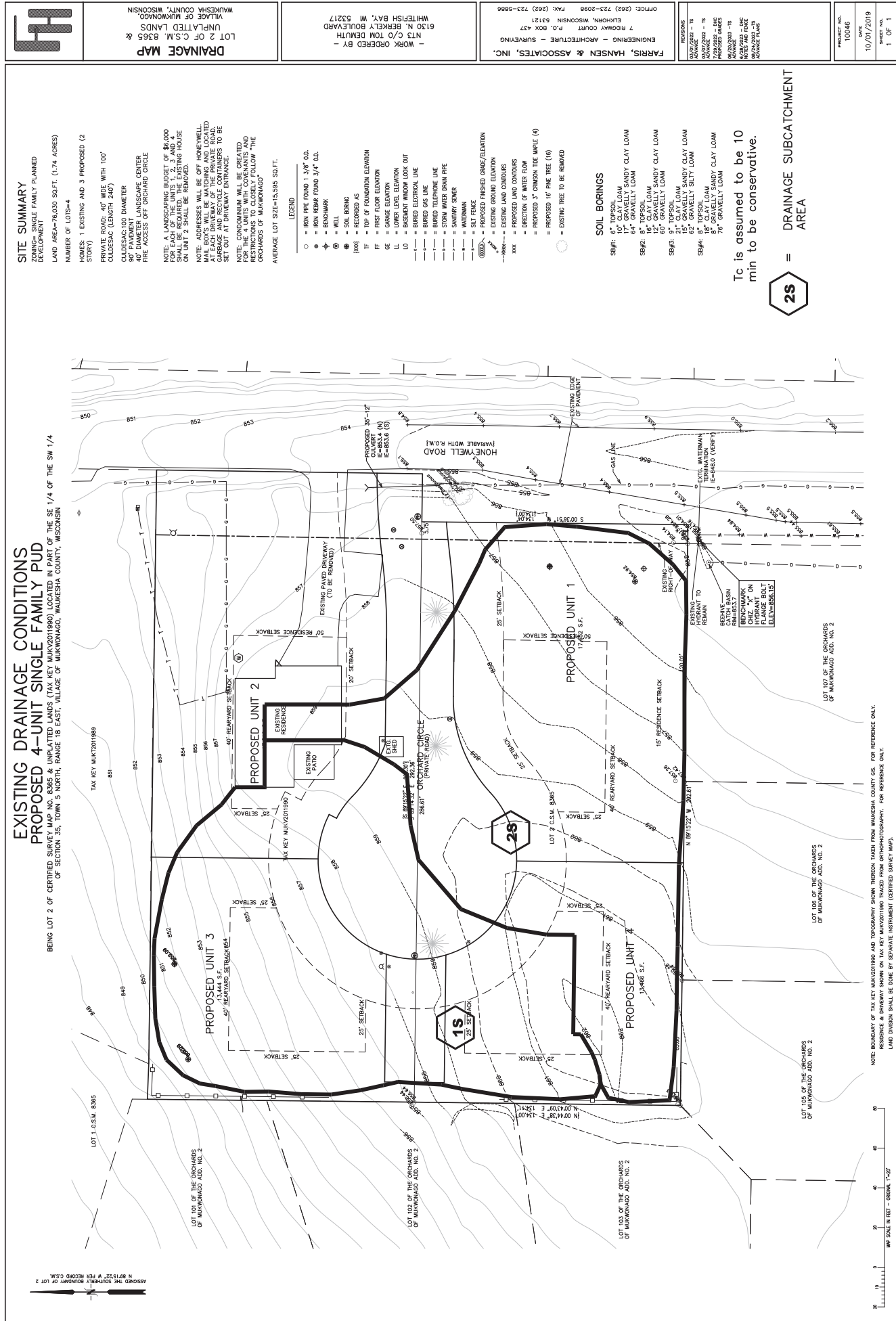
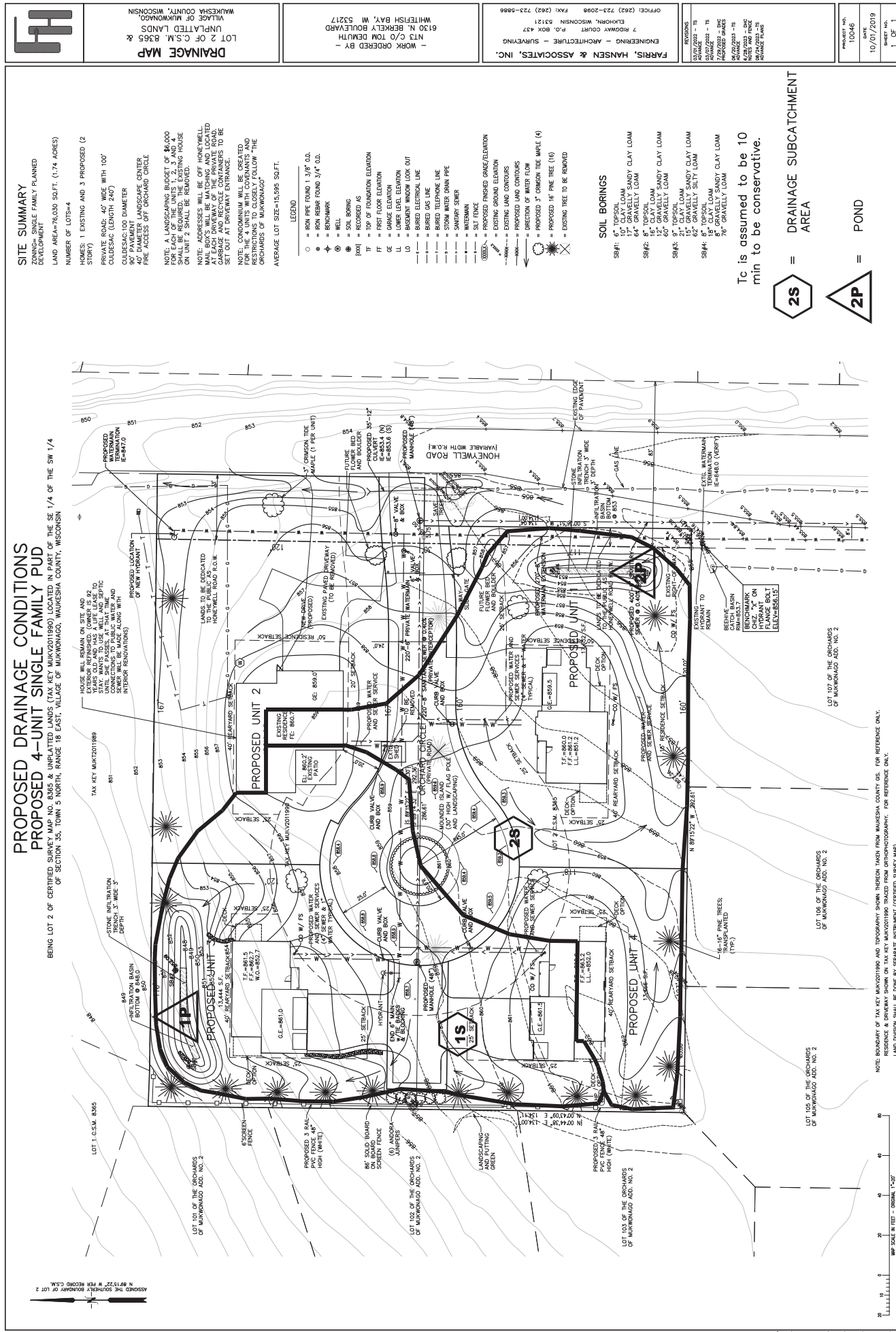
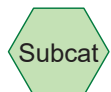
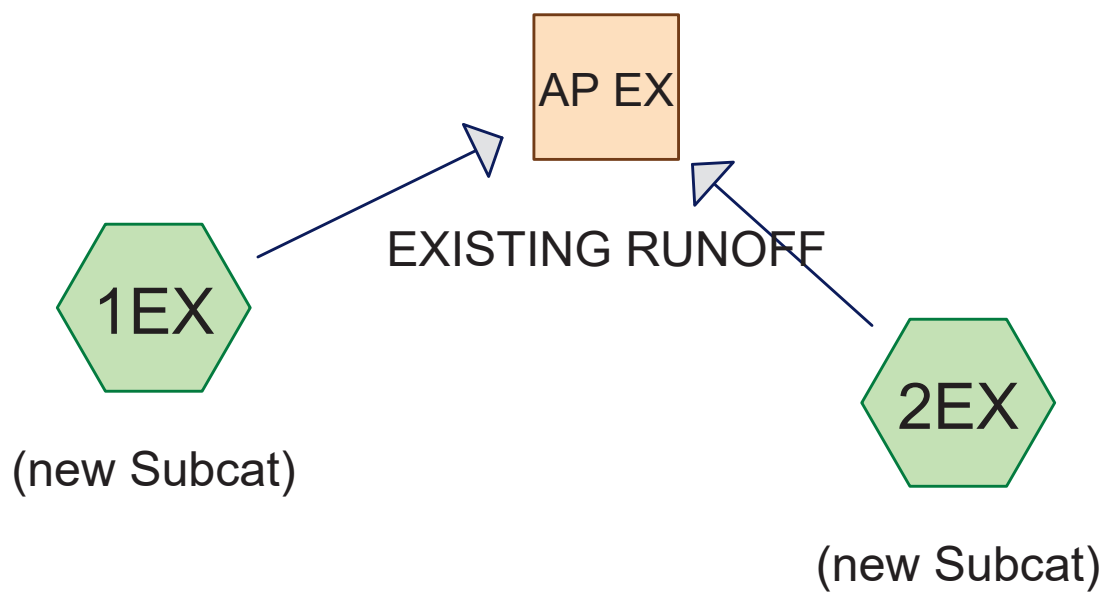


EXHIBIT 4
PROPOSED CONDITIONS DRAINAGE AREA MAP



APPENDIX A

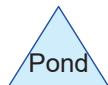
EXISTING 1, 2, 10, AND 100-YEAR HYDROCAD MODEL



Subcat



Reach



Pond



Link

Routing Diagram for 10046 EX

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	MSE 24-hr	3	Default	24.00	1	2.42	2
2	2-Year	MSE 24-hr	3	Default	24.00	1	2.72	2
3	10-Year	MSE 24-hr	3	Default	24.00	1	3.83	2
4	100-Year	MSE 24-hr	3	Default	24.00	1	6.18	2

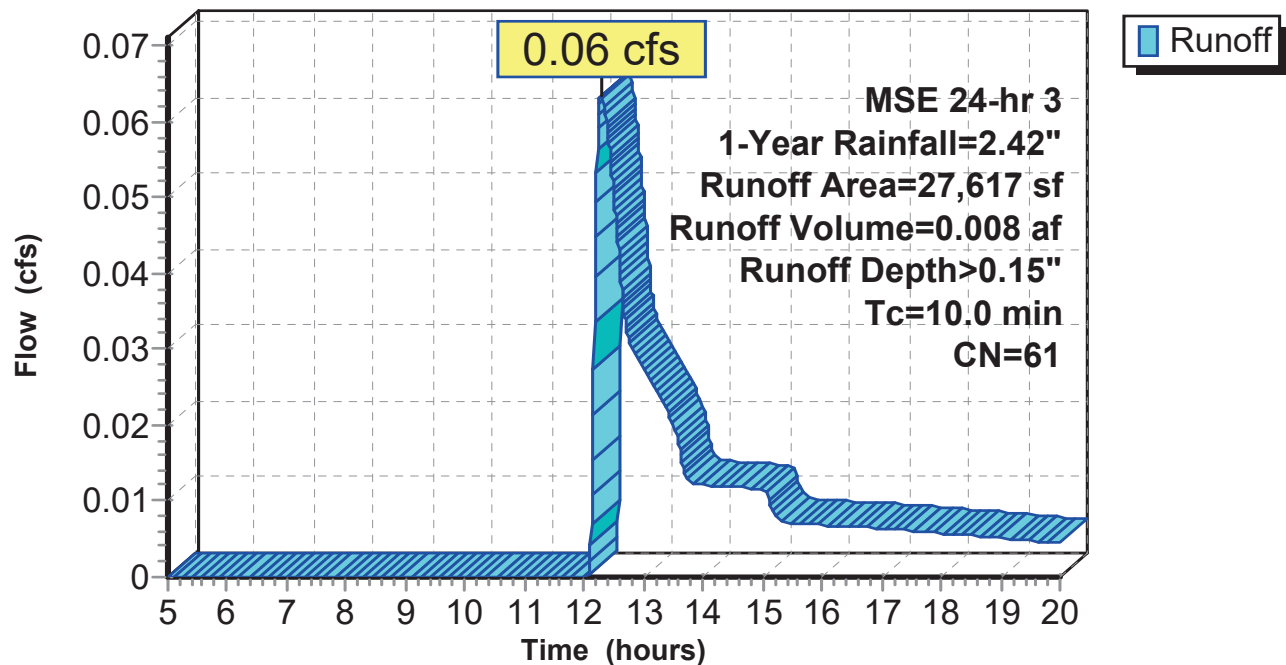
Summary for Subcatchment 1EX: (new Subcat)

Runoff = 0.06 cfs @ 12.28 hrs, Volume= 0.008 af, Depth> 0.15"
 Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 1-Year Rainfall=2.42"

Area (sf)	CN	Description
27,617	61	>75% Grass cover, Good, HSG B
27,617		100.00% Pervious Area

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

Subcatchment 1EX: (new Subcat)**Hydrograph**

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MSE 24-hr 3 1-Year Rainfall=2.42"

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Page 4

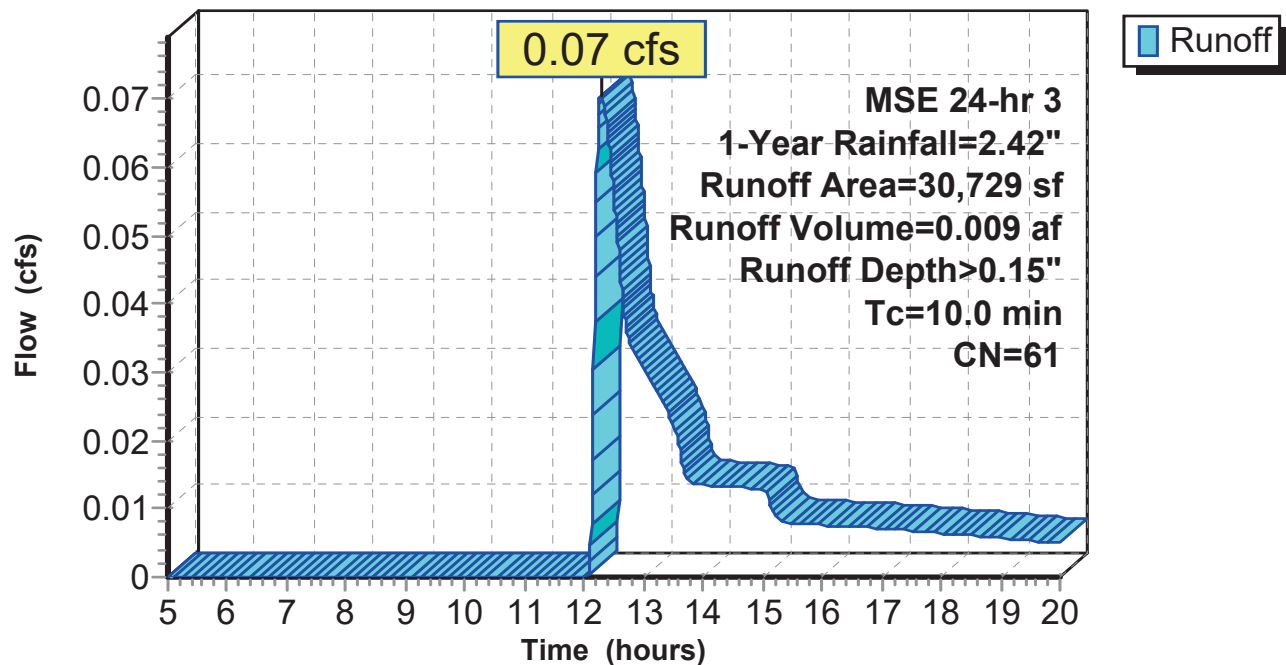
Summary for Subcatchment 2EX: (new Subcat)

Runoff = 0.07 cfs @ 12.28 hrs, Volume= 0.009 af, Depth> 0.15"
Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 1-Year Rainfall=2.42"

Area (sf)	CN	Description
30,729	61	>75% Grass cover, Good, HSG B
30,729		100.00% Pervious Area

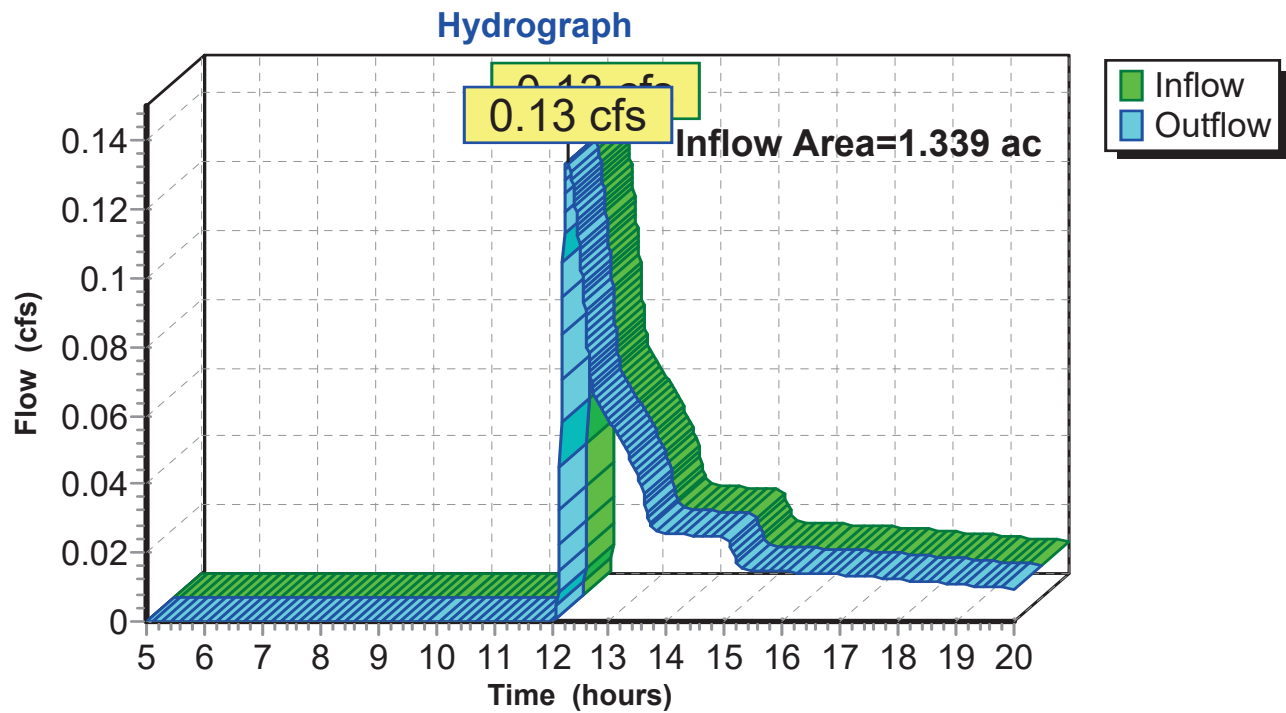
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2EX: (new Subcat)**Hydrograph**

Summary for Reach AP EX: EXISTING RUNOFF

Inflow Area = 1.339 ac, 0.00% Impervious, Inflow Depth > 0.15" for 1-Year event
Inflow = 0.13 cfs @ 12.28 hrs, Volume= 0.017 af
Outflow = 0.13 cfs @ 12.28 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP EX: EXISTING RUNOFF

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MSE 24-hr 3 2-Year Rainfall=2.72"

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Page 6

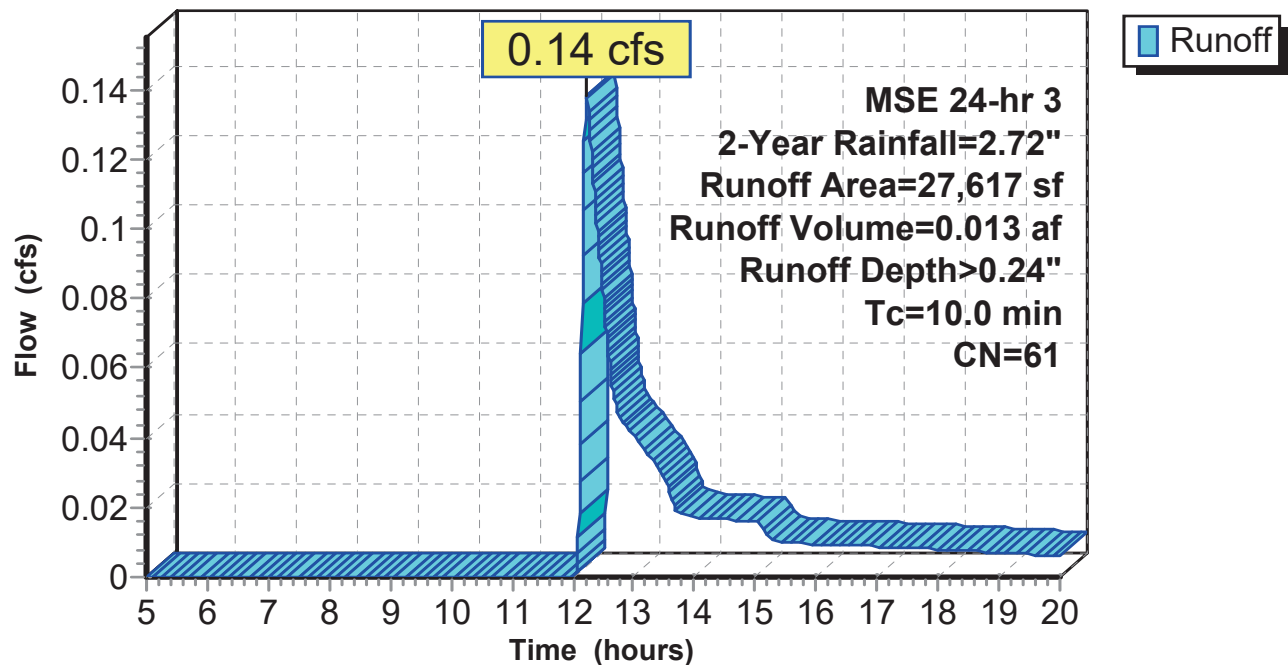
Summary for Subcatchment 1EX: (new Subcat)

Runoff = 0.14 cfs @ 12.23 hrs, Volume= 0.013 af, Depth> 0.24"
Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.72"

Area (sf)	CN	Description
27,617	61	>75% Grass cover, Good, HSG B
27,617		100.00% Pervious Area

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

Subcatchment 1EX: (new Subcat)**Hydrograph**

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MSE 24-hr 3 2-Year Rainfall=2.72"

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Page 7

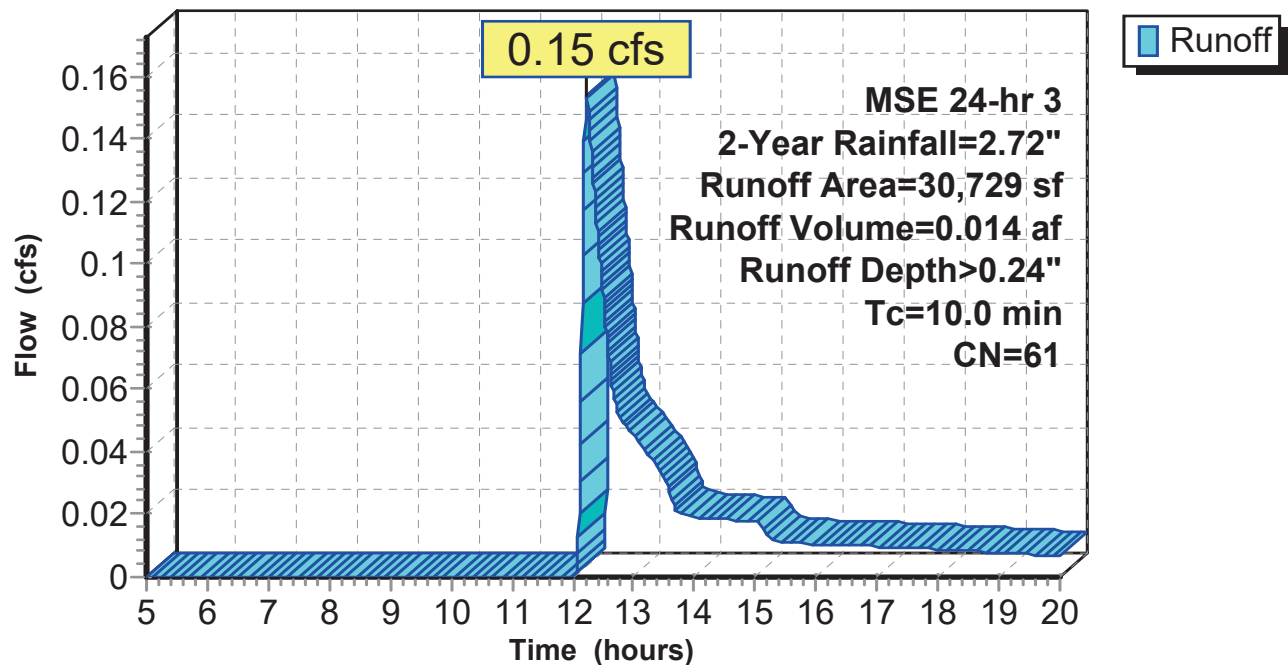
Summary for Subcatchment 2EX: (new Subcat)

Runoff = 0.15 cfs @ 12.23 hrs, Volume= 0.014 af, Depth> 0.24"
Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 2-Year Rainfall=2.72"

Area (sf)	CN	Description
30,729	61	>75% Grass cover, Good, HSG B
30,729		100.00% Pervious Area

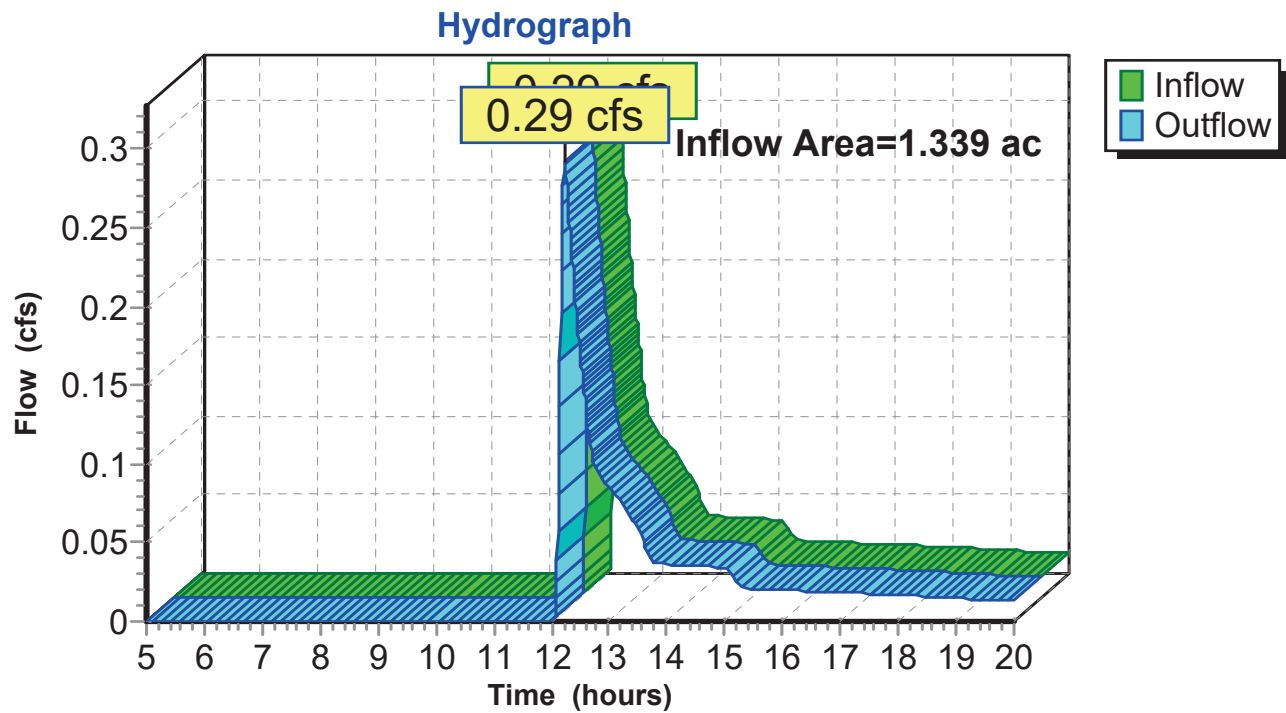
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2EX: (new Subcat)**Hydrograph**

Summary for Reach AP EX: EXISTING RUNOFF

Inflow Area = 1.339 ac, 0.00% Impervious, Inflow Depth > 0.24" for 2-Year event
Inflow = 0.29 cfs @ 12.23 hrs, Volume= 0.027 af
Outflow = 0.29 cfs @ 12.23 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP EX: EXISTING RUNOFF

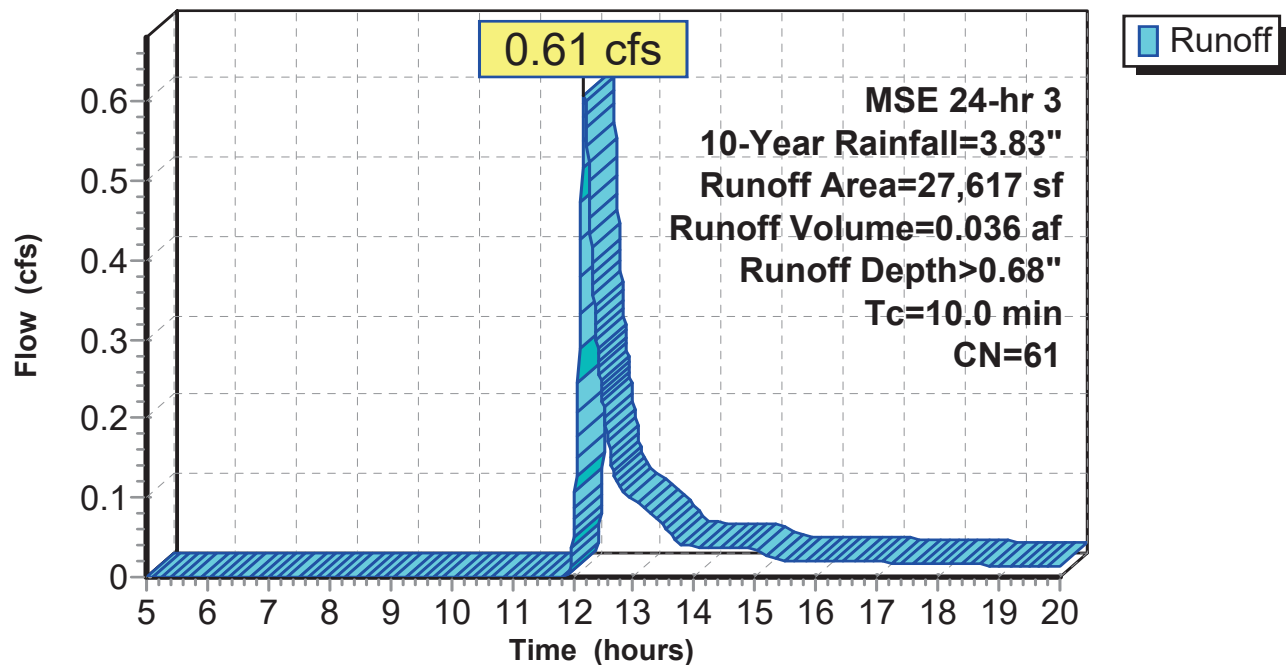
Summary for Subcatchment 1EX: (new Subcat)

Runoff = 0.61 cfs @ 12.19 hrs, Volume= 0.036 af, Depth> 0.68"
 Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=3.83"

Area (sf)	CN	Description
27,617	61	>75% Grass cover, Good, HSG B
27,617		100.00% Pervious Area

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

Subcatchment 1EX: (new Subcat)**Hydrograph**

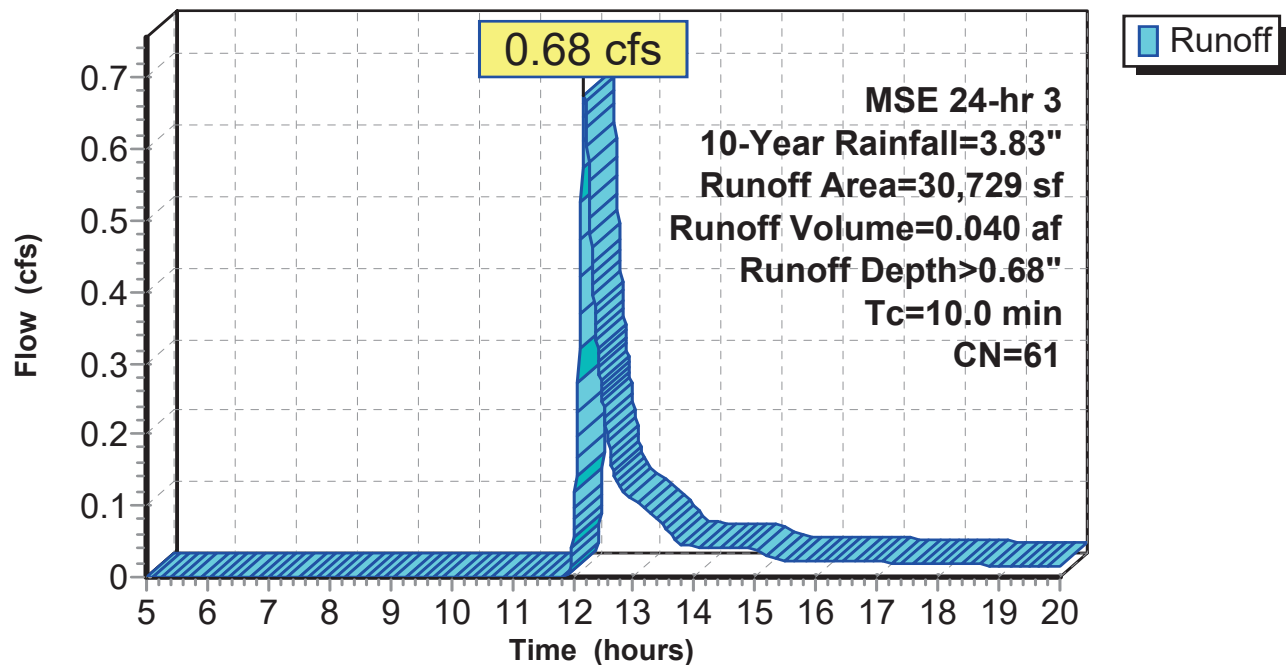
Summary for Subcatchment 2EX: (new Subcat)

Runoff = 0.68 cfs @ 12.19 hrs, Volume= 0.040 af, Depth> 0.68"
 Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=3.83"

Area (sf)	CN	Description
30,729	61	>75% Grass cover, Good, HSG B
30,729		100.00% Pervious Area

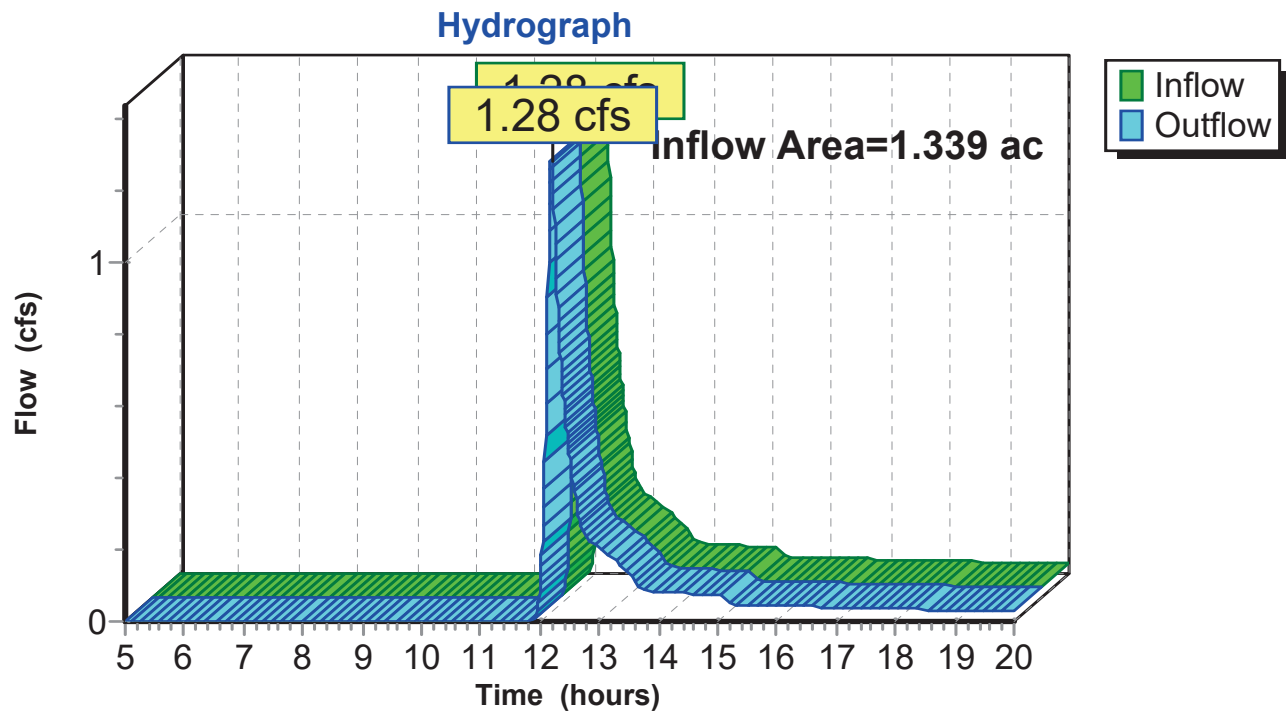
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2EX: (new Subcat)**Hydrograph**

Summary for Reach AP EX: EXISTING RUNOFF

Inflow Area = 1.339 ac, 0.00% Impervious, Inflow Depth > 0.68" for 10-Year event
Inflow = 1.28 cfs @ 12.19 hrs, Volume= 0.076 af
Outflow = 1.28 cfs @ 12.19 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP EX: EXISTING RUNOFF

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MSE 24-hr 3 100-Year Rainfall=6.18"

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Page 12

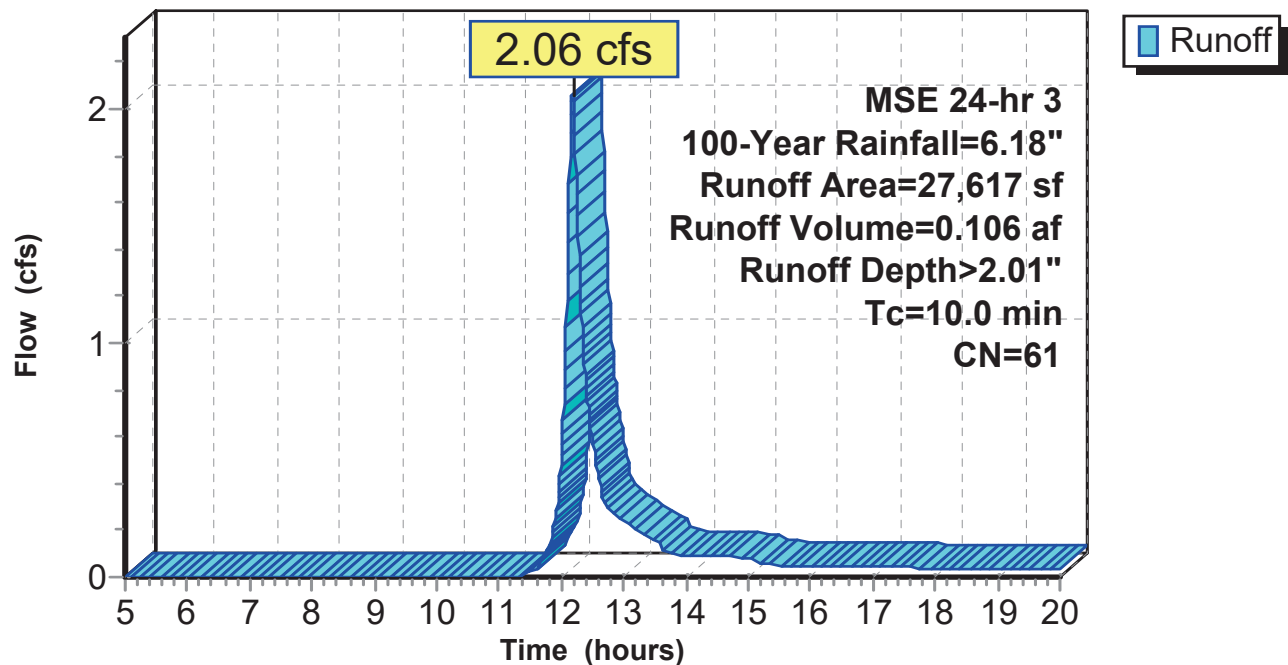
Summary for Subcatchment 1EX: (new Subcat)

Runoff = 2.06 cfs @ 12.18 hrs, Volume= 0.106 af, Depth> 2.01"
Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=6.18"

Area (sf)	CN	Description
27,617	61	>75% Grass cover, Good, HSG B
27,617		100.00% Pervious Area

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

Subcatchment 1EX: (new Subcat)**Hydrograph**

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MSE 24-hr 3 100-Year Rainfall=6.18"

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Page 13

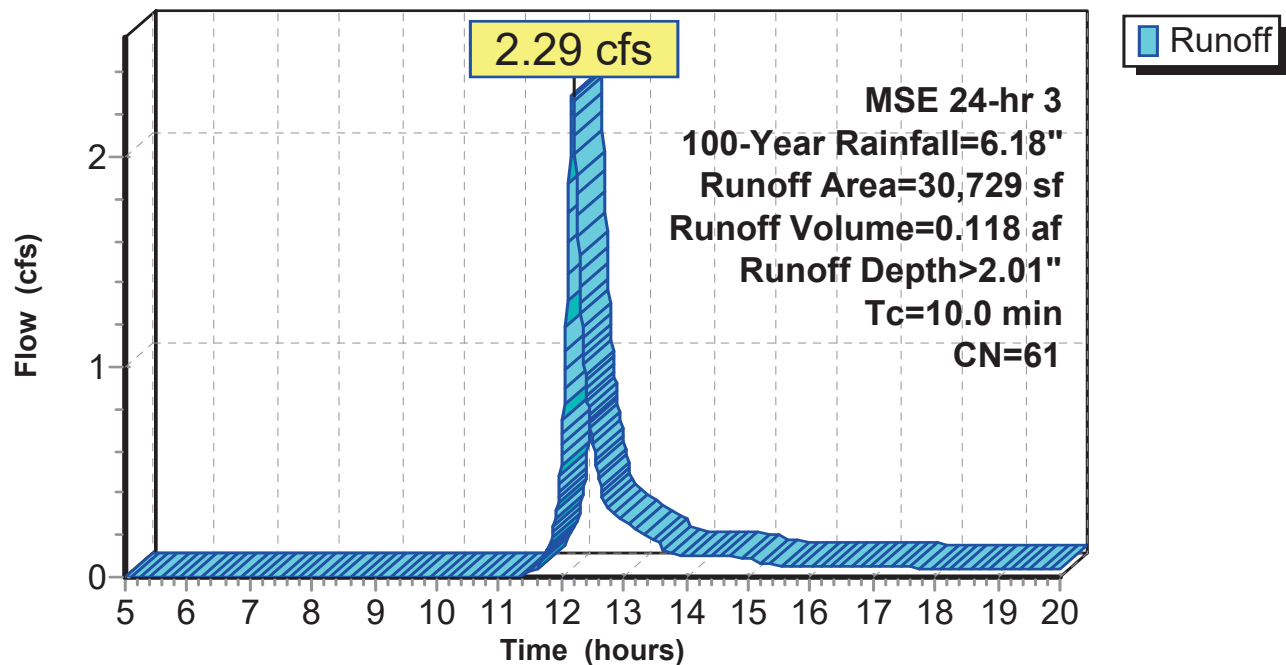
Summary for Subcatchment 2EX: (new Subcat)

Runoff = 2.29 cfs @ 12.18 hrs, Volume= 0.118 af, Depth> 2.01"
Routed to Reach AP EX : EXISTING RUNOFF

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
MSE 24-hr 3 100-Year Rainfall=6.18"

Area (sf)	CN	Description
30,729	61	>75% Grass cover, Good, HSG B
30,729		100.00% Pervious Area

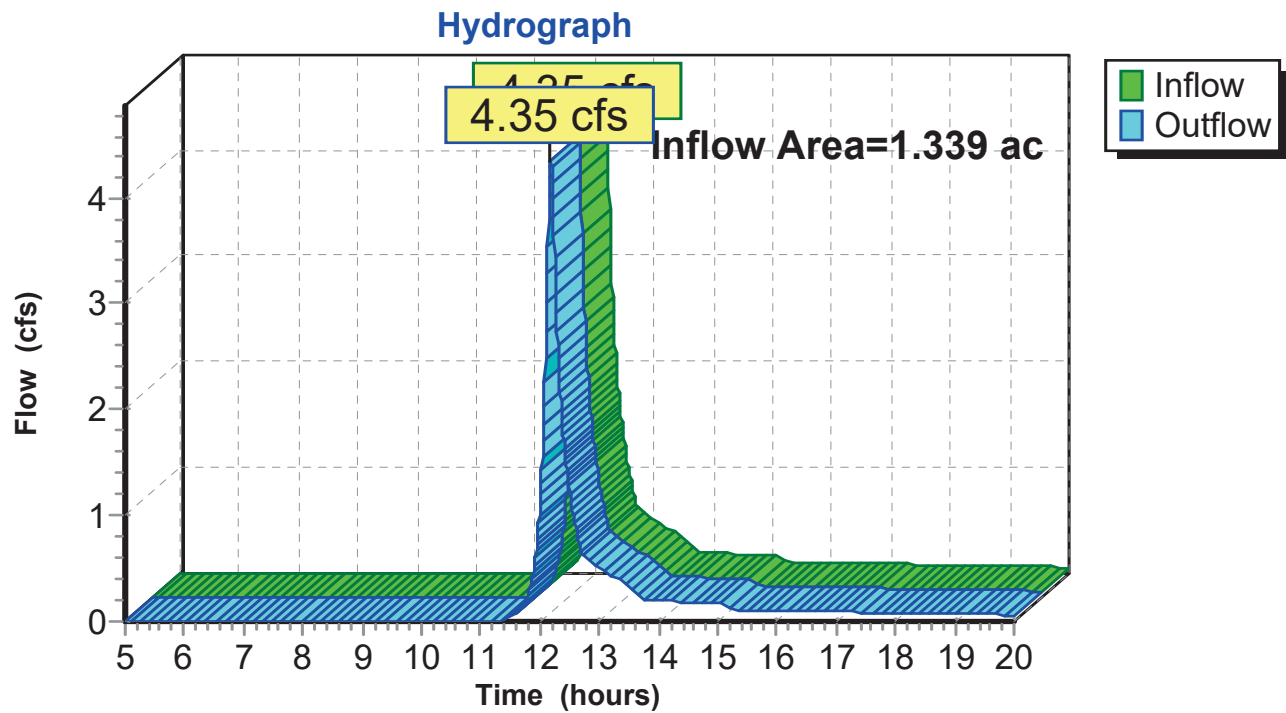
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2EX: (new Subcat)**Hydrograph**

Summary for Reach AP EX: EXISTING RUNOFF

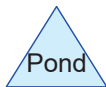
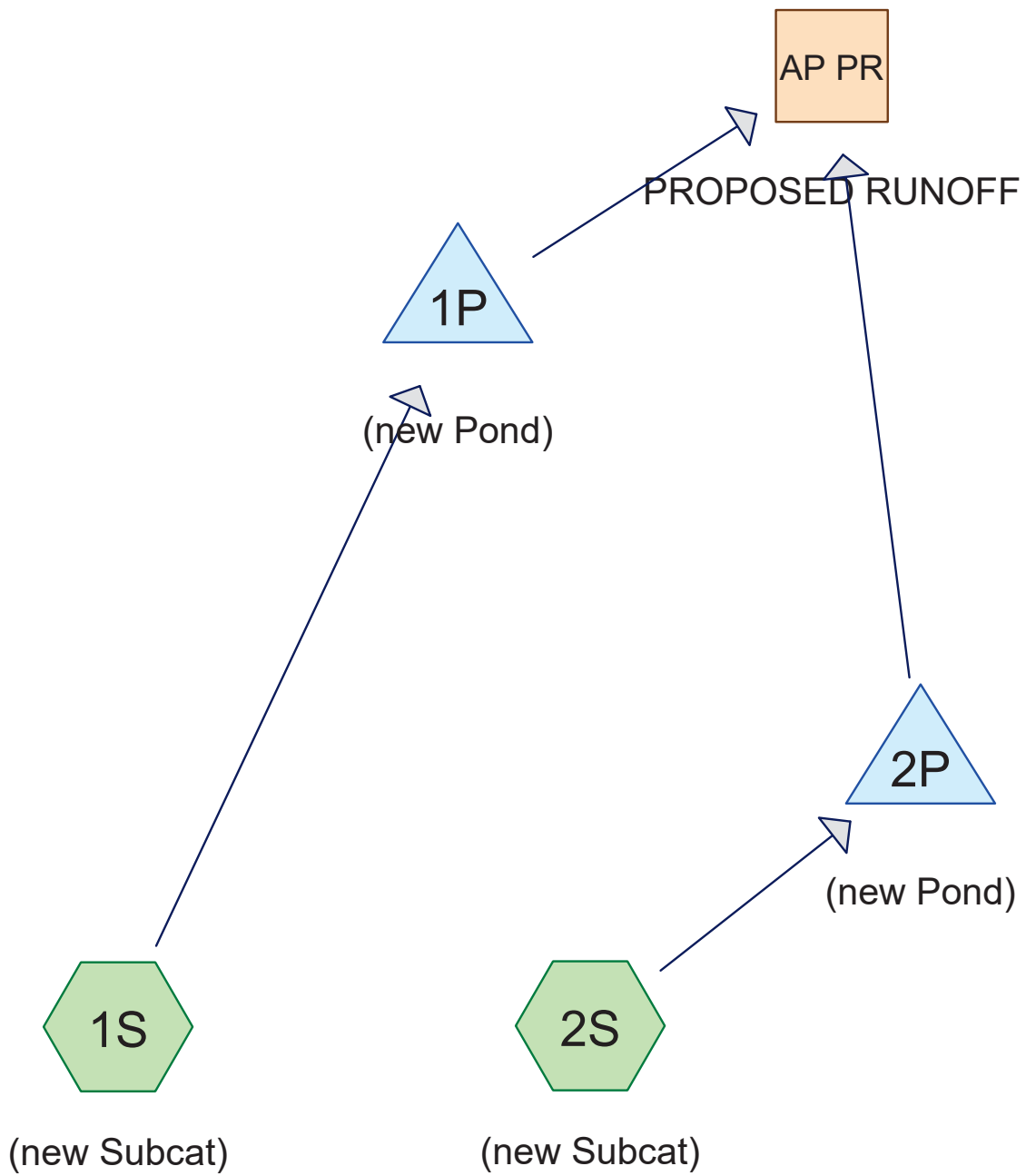
Inflow Area = 1.339 ac, 0.00% Impervious, Inflow Depth > 2.01" for 100-Year event
Inflow = 4.35 cfs @ 12.18 hrs, Volume= 0.225 af
Outflow = 4.35 cfs @ 12.18 hrs, Volume= 0.225 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP EX: EXISTING RUNOFF

APPENDIX B

PROPOSED 1, 2, 10, AND 100-YEAR HYDROCAD MODEL



Routing Diagram for 10046 PR
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10046 PR

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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	MSE 24-hr	3	Default	24.00	1	2.42	2
2	2-Year	MSE 24-hr	3	Default	24.00	1	2.72	2
3	10-Year	MSE 24-hr	3	Default	24.00	1	3.83	2
4	100-Year	MSE 24-hr	3	Default	24.00	1	6.18	2

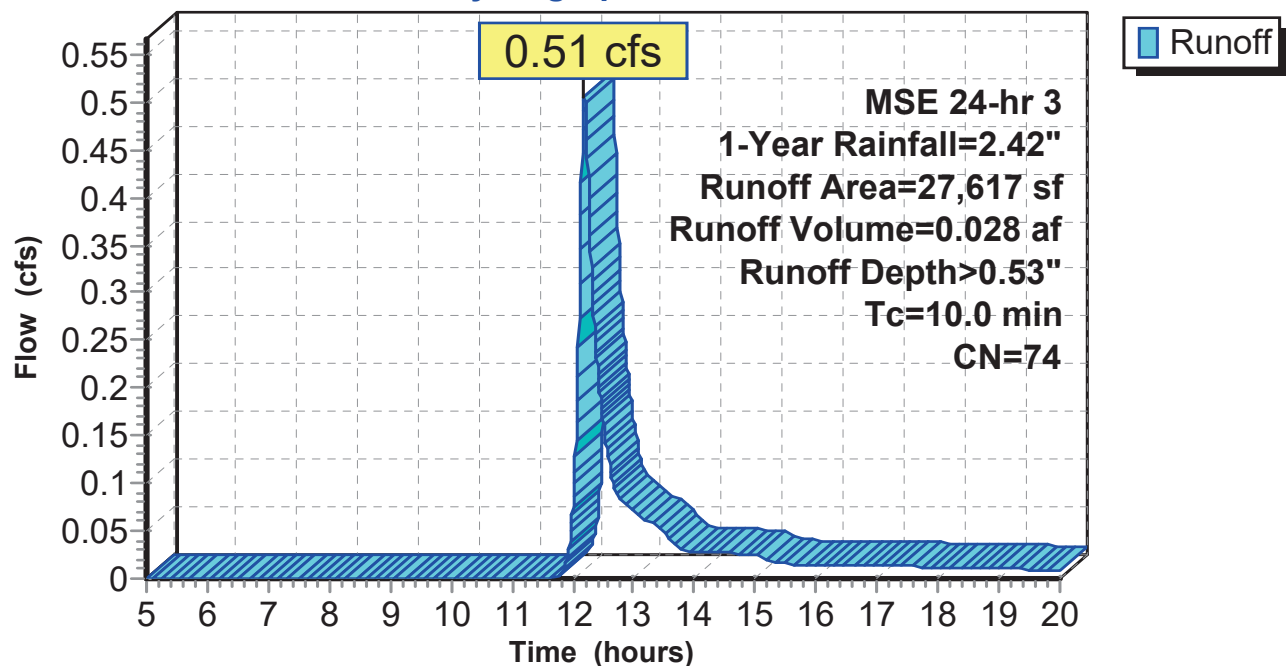
Summary for Subcatchment 1S: (new Subcat)

Runoff = 0.51 cfs @ 12.19 hrs, Volume= 0.028 af, Depth> 0.53"
 Routed to Pond 1P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 1-Year Rainfall=2.42"

Area (sf)	CN	Description
2,911	98	Roofs, HSG B
7,164	98	Paved parking, HSG B
17,542	61	>75% Grass cover, Good, HSG B
27,617	74	Weighted Average
17,542		63.52% Pervious Area
10,075		36.48% Impervious Area

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

Subcatchment 1S: (new Subcat)**Hydrograph**

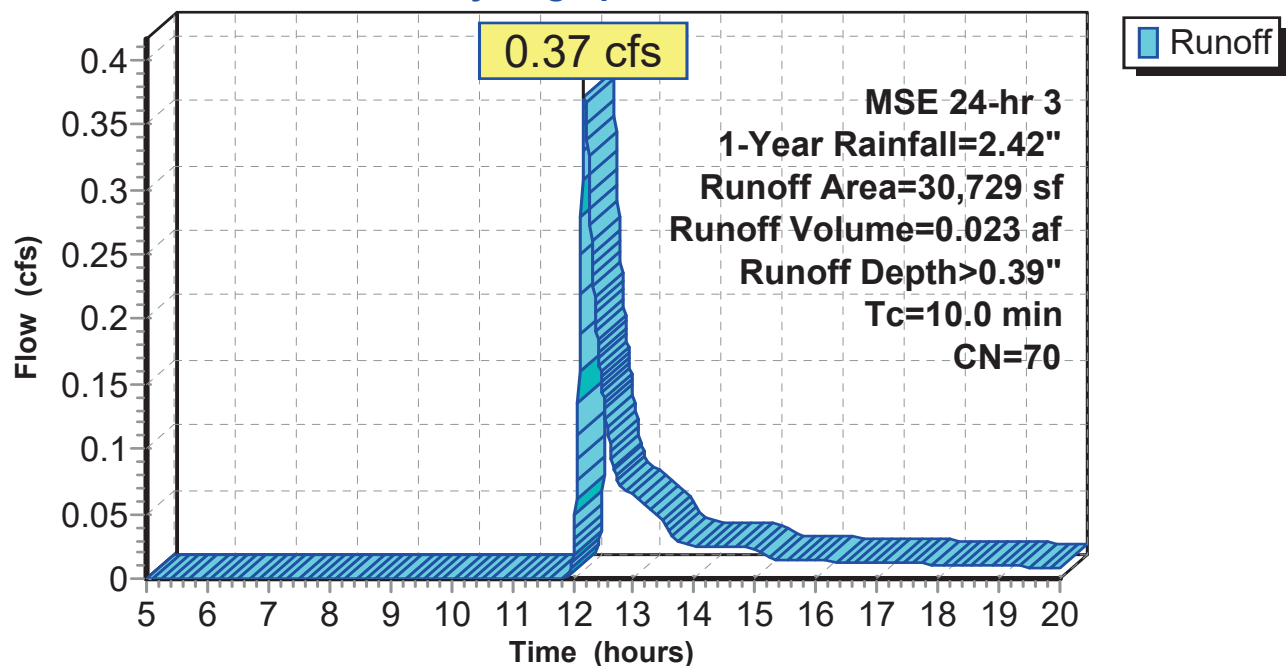
Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.37 cfs @ 12.20 hrs, Volume= 0.023 af, Depth> 0.39"
 Routed to Pond 2P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 1-Year Rainfall=2.42"

Area (sf)	CN	Description
2,602	98	Roofs, HSG B
4,924	98	Paved parking, HSG B
23,203	61	>75% Grass cover, Good, HSG B
30,729	70	Weighted Average
23,203		75.51% Pervious Area
7,526		24.49% Impervious Area

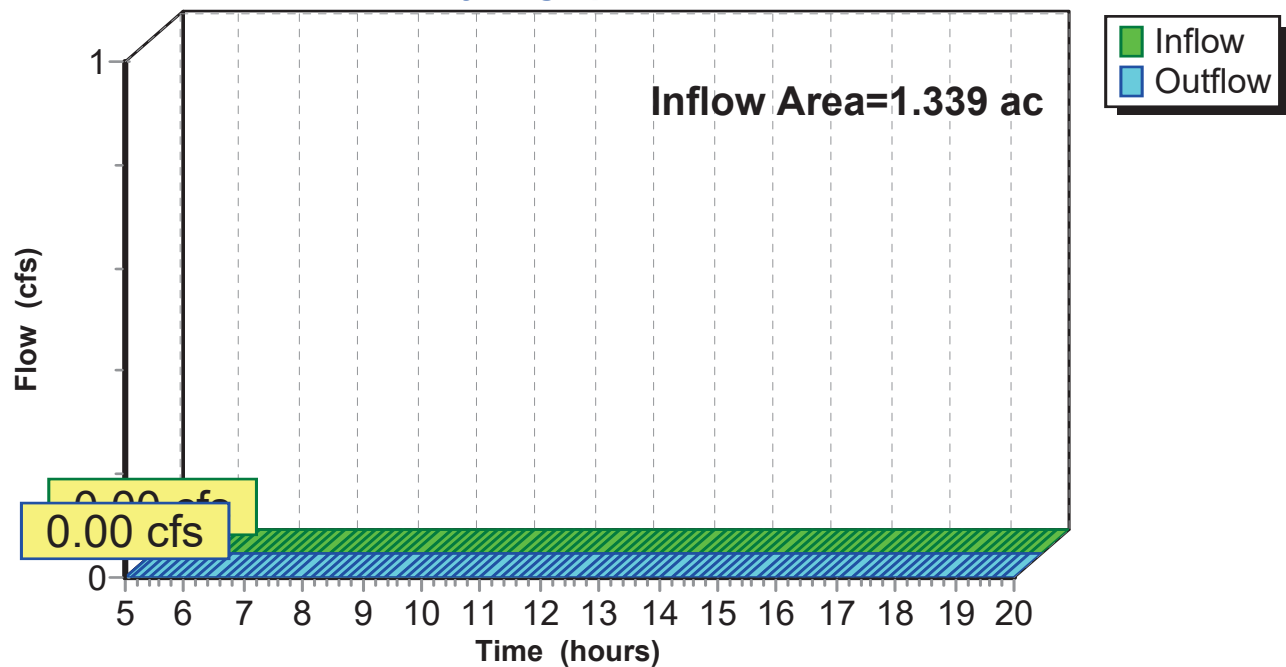
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2S: (new Subcat)**Hydrograph**

Summary for Reach AP PR: PROPOSED RUNOFF

Inflow Area = 1.339 ac, 30.17% Impervious, Inflow Depth = 0.00" for 1-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP PR: PROPOSED RUNOFF**Hydrograph**

Summary for Pond 1P: (new Pond)

Inflow Area = 0.634 ac, 36.48% Impervious, Inflow Depth > 0.53" for 1-Year event
 Inflow = 0.51 cfs @ 12.19 hrs, Volume= 0.028 af
 Outflow = 0.04 cfs @ 13.65 hrs, Volume= 0.020 af, Atten= 93%, Lag= 87.7 min
 Discarded = 0.04 cfs @ 13.65 hrs, Volume= 0.020 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach AP PR : PROPOSED RUNOFF

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 848.86' @ 13.65 hrs Surf.Area= 704 sf Storage= 675 cf

Plug-Flow detention time= 200.7 min calculated for 0.020 af (71% of inflow)
 Center-of-Mass det. time= 135.6 min (951.5 - 816.0)

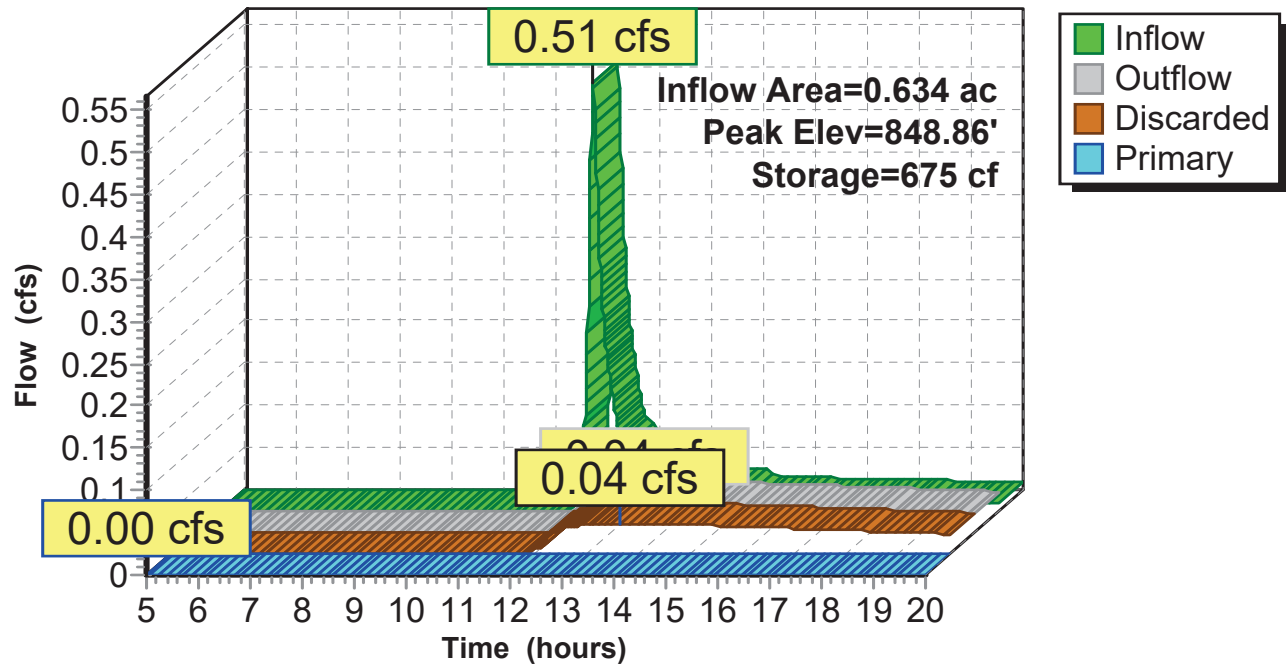
Volume	Invert	Avail.Storage	Storage Description
#1	845.00'	3,453 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
845.00	140	0.0	0	0	140
847.99	140	60.0	251	251	265
848.00	300	100.0	2	253	425
849.00	782	100.0	522	775	914
850.00	1,332	100.0	1,045	1,820	1,476
851.00	1,953	100.0	1,633	3,453	2,113

Device	Routing	Invert	Outlet Devices
#0	Primary	851.00'	Automatic Storage Overflow (Discharged without head)
#1	Discarded	845.00'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'

Discarded OutFlow Max=0.04 cfs @ 13.65 hrs HW=848.86' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=845.00' (Free Discharge)

Pond 1P: (new Pond)**Hydrograph**

Summary for Pond 2P: (new Pond)

Inflow Area = 0.705 ac, 24.49% Impervious, Inflow Depth > 0.39" for 1-Year event
 Inflow = 0.37 cfs @ 12.20 hrs, Volume= 0.023 af
 Outflow = 0.02 cfs @ 14.33 hrs, Volume= 0.014 af, Atten= 93%, Lag= 128.3 min
 Discarded = 0.02 cfs @ 14.33 hrs, Volume= 0.014 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach AP PR : PROPOSED RUNOFF

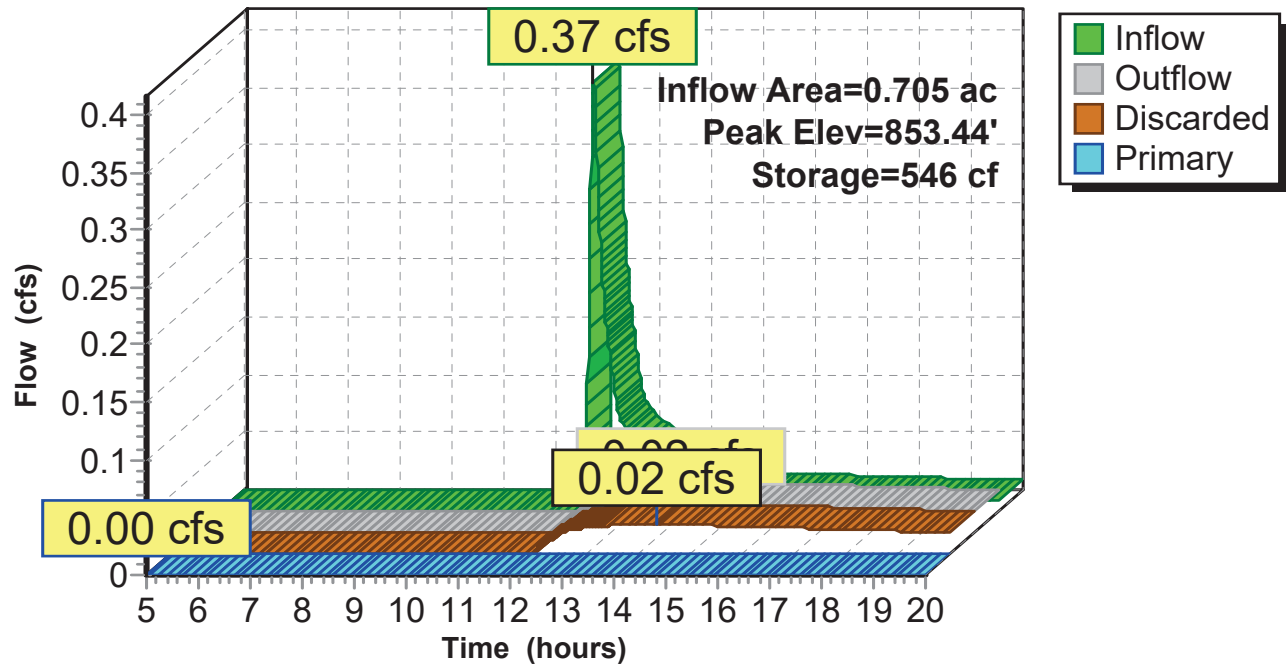
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 853.44' @ 14.33 hrs Surf.Area= 451 sf Storage= 546 cf

Plug-Flow detention time= 209.7 min calculated for 0.014 af (63% of inflow)
 Center-of-Mass det. time= 132.7 min (959.5 - 826.8)

Volume	Invert	Avail.Storage	Storage Description		
#1	849.50'	2,706 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
849.50	150	0.0	0	0	150
852.50	150	60.0	270	270	280
853.00	306	100.0	112	382	438
854.00	678	100.0	480	862	818
855.00	1,136	100.0	897	1,759	1,288
855.50	2,774	100.0	948	2,706	2,928
Device	Routing	Invert	Outlet Devices		
#0	Primary	855.50'	Automatic Storage Overflow (Discharged without head)		
#1	Discarded	849.50'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'		

Discarded OutFlow Max=0.02 cfs @ 14.33 hrs HW=853.44' (Free Discharge)
 ↑ **1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=849.50' (Free Discharge)

Pond 2P: (new Pond)**Hydrograph**

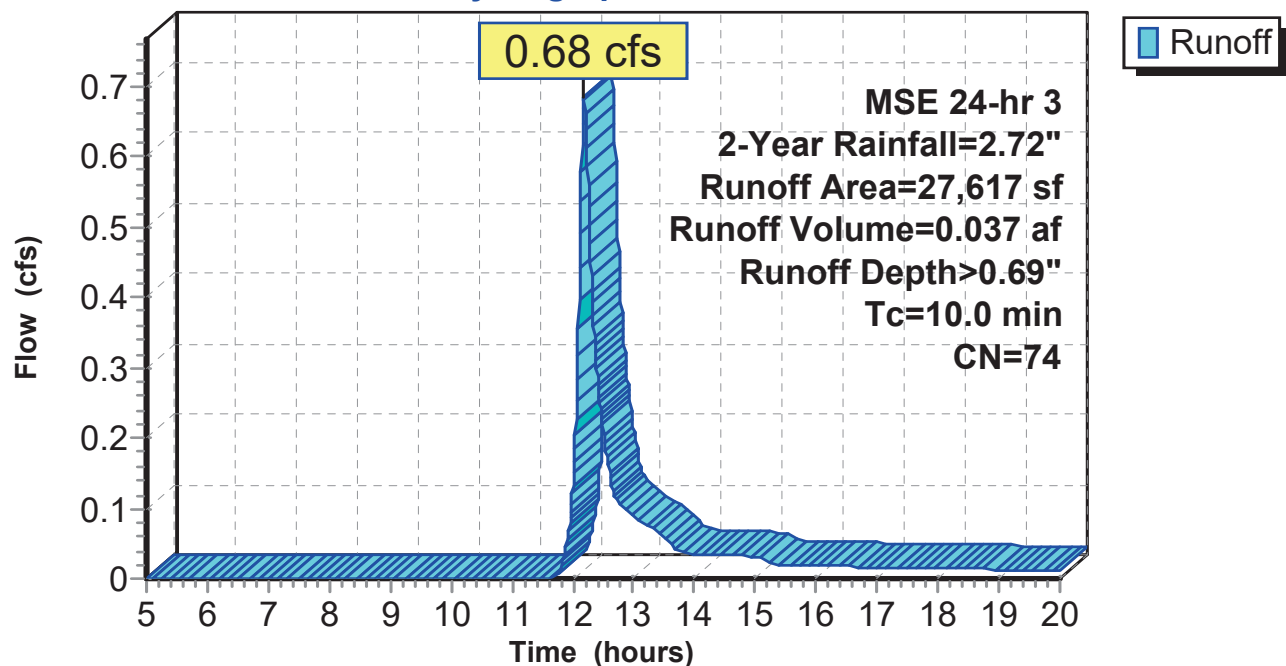
Summary for Subcatchment 1S: (new Subcat)

Runoff = 0.68 cfs @ 12.19 hrs, Volume= 0.037 af, Depth> 0.69"
 Routed to Pond 1P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.72"

Area (sf)	CN	Description
2,911	98	Roofs, HSG B
7,164	98	Paved parking, HSG B
17,542	61	>75% Grass cover, Good, HSG B
27,617	74	Weighted Average
17,542		63.52% Pervious Area
10,075		36.48% Impervious Area

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

Subcatchment 1S: (new Subcat)**Hydrograph**

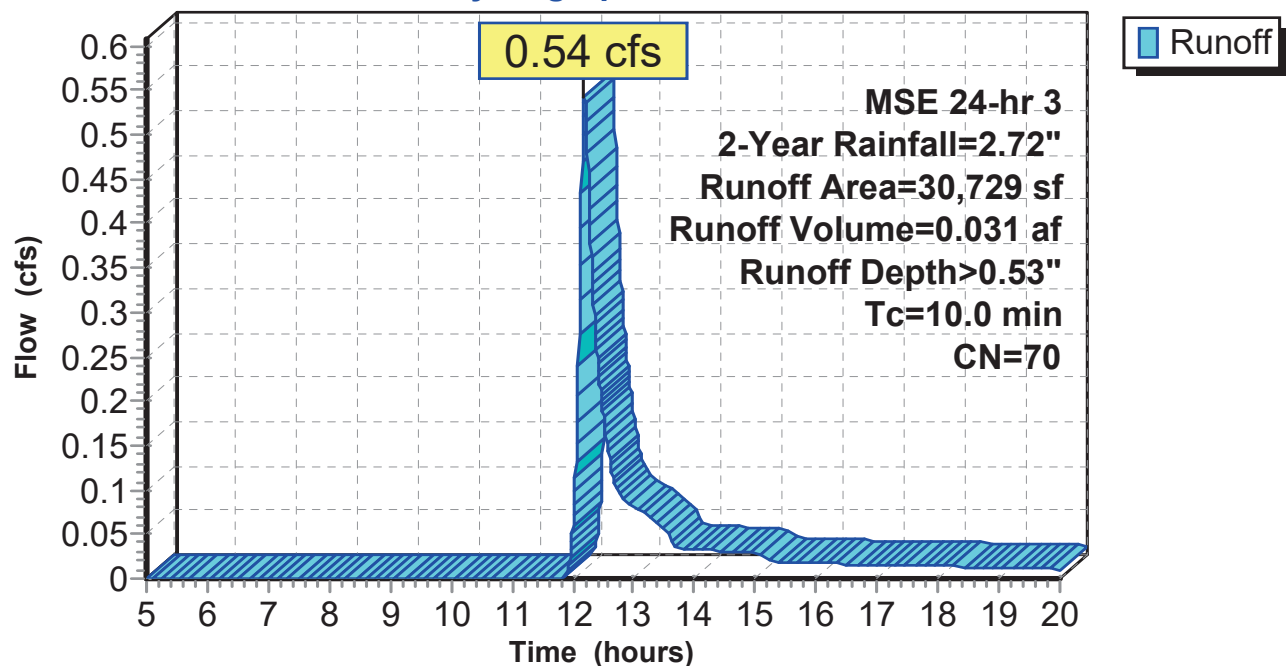
Summary for Subcatchment 2S: (new Subcat)

Runoff = 0.54 cfs @ 12.19 hrs, Volume= 0.031 af, Depth> 0.53"
 Routed to Pond 2P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 2-Year Rainfall=2.72"

Area (sf)	CN	Description
2,602	98	Roofs, HSG B
4,924	98	Paved parking, HSG B
23,203	61	>75% Grass cover, Good, HSG B
30,729	70	Weighted Average
23,203		75.51% Pervious Area
7,526		24.49% Impervious Area

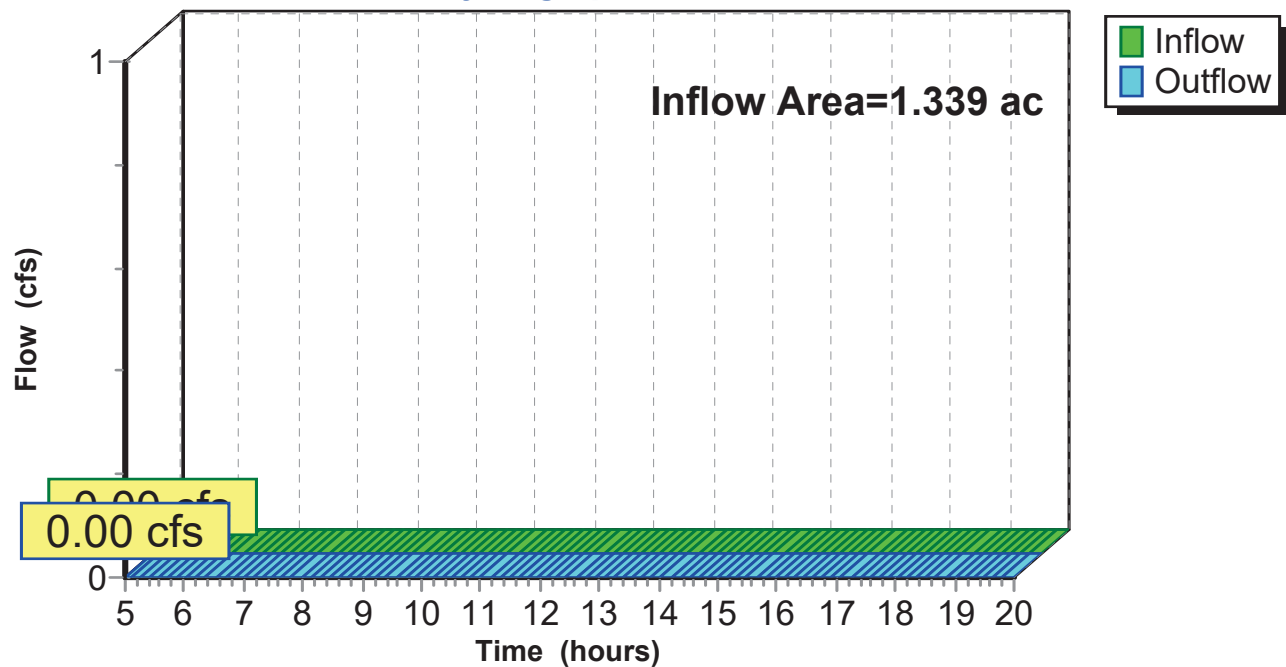
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2S: (new Subcat)**Hydrograph**

Summary for Reach AP PR: PROPOSED RUNOFF

Inflow Area = 1.339 ac, 30.17% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP PR: PROPOSED RUNOFF**Hydrograph**

Summary for Pond 1P: (new Pond)

Inflow Area = 0.634 ac, 36.48% Impervious, Inflow Depth > 0.69" for 2-Year event
 Inflow = 0.68 cfs @ 12.19 hrs, Volume= 0.037 af
 Outflow = 0.04 cfs @ 13.66 hrs, Volume= 0.025 af, Atten= 94%, Lag= 88.5 min
 Discarded = 0.04 cfs @ 13.66 hrs, Volume= 0.025 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach AP PR : PROPOSED RUNOFF

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 849.18' @ 13.66 hrs Surf.Area= 871 sf Storage= 925 cf

Plug-Flow detention time= 209.0 min calculated for 0.025 af (67% of inflow)
 Center-of-Mass det. time= 142.4 min (953.2 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	845.00'	3,453 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
845.00	140	0.0	0	0	140
847.99	140	60.0	251	251	265
848.00	300	100.0	2	253	425
849.00	782	100.0	522	775	914
850.00	1,332	100.0	1,045	1,820	1,476
851.00	1,953	100.0	1,633	3,453	2,113

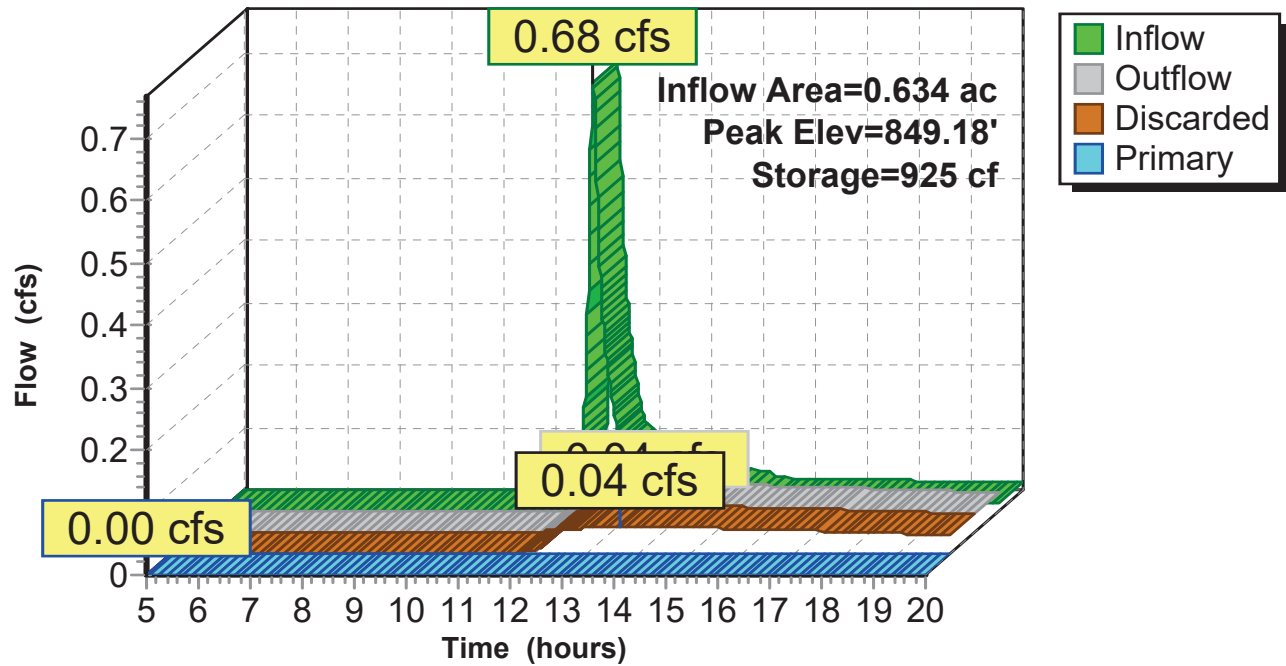
Device	Routing	Invert	Outlet Devices
#0	Primary	851.00'	Automatic Storage Overflow (Discharged without head)
#1	Discarded	845.00'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'

Discarded OutFlow Max=0.04 cfs @ 13.66 hrs HW=849.18' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=845.00' (Free Discharge)

Pond 1P: (new Pond)

Hydrograph



Summary for Pond 2P: (new Pond)

Inflow Area = 0.705 ac, 24.49% Impervious, Inflow Depth > 0.53" for 2-Year event
 Inflow = 0.54 cfs @ 12.19 hrs, Volume= 0.031 af
 Outflow = 0.03 cfs @ 14.15 hrs, Volume= 0.019 af, Atten= 94%, Lag= 117.5 min
 Discarded = 0.03 cfs @ 14.15 hrs, Volume= 0.019 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach AP PR : PROPOSED RUNOFF

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 853.87' @ 14.15 hrs Surf.Area= 620 sf Storage= 776 cf

Plug-Flow detention time= 215.3 min calculated for 0.019 af (60% of inflow)
 Center-of-Mass det. time= 139.3 min (959.4 - 820.1)

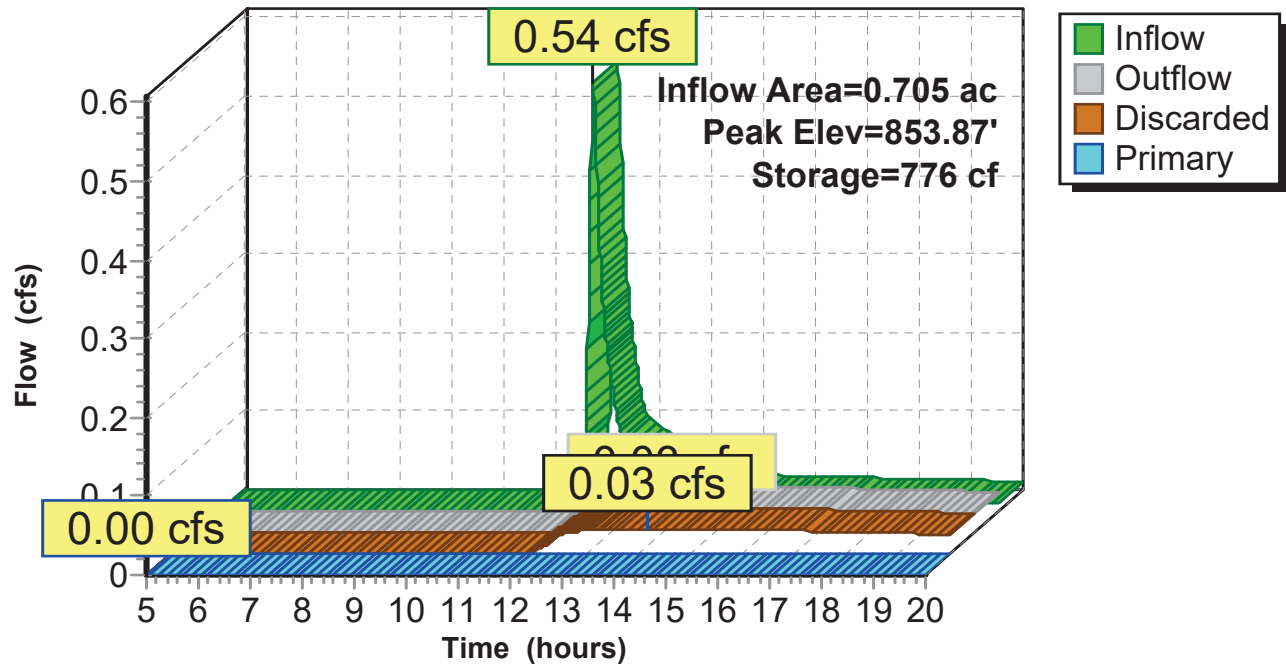
Volume	Invert	Avail.Storage	Storage Description		
#1	849.50'	2,706 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
849.50	150	0.0	0	0	150
852.50	150	60.0	270	270	280
853.00	306	100.0	112	382	438
854.00	678	100.0	480	862	818
855.00	1,136	100.0	897	1,759	1,288
855.50	2,774	100.0	948	2,706	2,928
Device	Routing	Invert	Outlet Devices		
#0	Primary	855.50'	Automatic Storage Overflow (Discharged without head)		
#1	Discarded	849.50'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'		

Discarded OutFlow Max=0.03 cfs @ 14.15 hrs HW=853.87' (Free Discharge)
 ↑ **1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=849.50' (Free Discharge)

Pond 2P: (new Pond)

Hydrograph



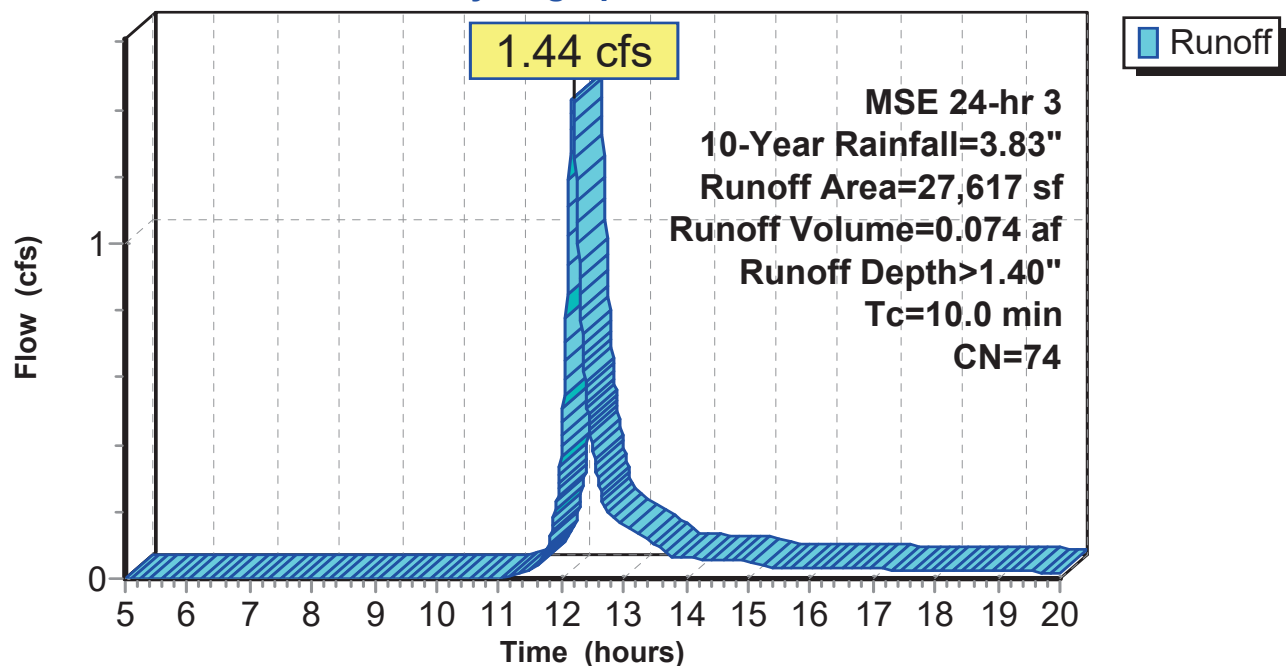
Summary for Subcatchment 1S: (new Subcat)

Runoff = 1.44 cfs @ 12.18 hrs, Volume= 0.074 af, Depth> 1.40"
 Routed to Pond 1P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=3.83"

Area (sf)	CN	Description
2,911	98	Roofs, HSG B
7,164	98	Paved parking, HSG B
17,542	61	>75% Grass cover, Good, HSG B
27,617	74	Weighted Average
17,542		63.52% Pervious Area
10,075		36.48% Impervious Area

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

Subcatchment 1S: (new Subcat)**Hydrograph**

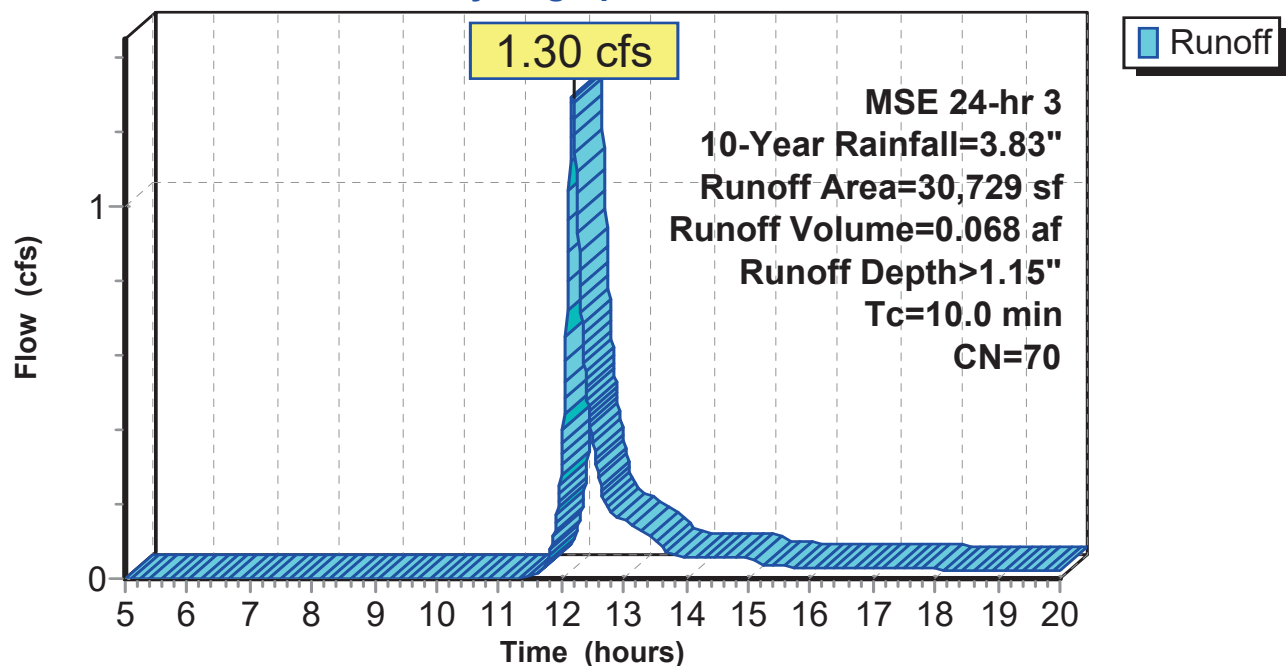
Summary for Subcatchment 2S: (new Subcat)

Runoff = 1.30 cfs @ 12.18 hrs, Volume= 0.068 af, Depth> 1.15"
 Routed to Pond 2P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 10-Year Rainfall=3.83"

Area (sf)	CN	Description
2,602	98	Roofs, HSG B
4,924	98	Paved parking, HSG B
23,203	61	>75% Grass cover, Good, HSG B
30,729	70	Weighted Average
23,203		75.51% Pervious Area
7,526		24.49% Impervious Area

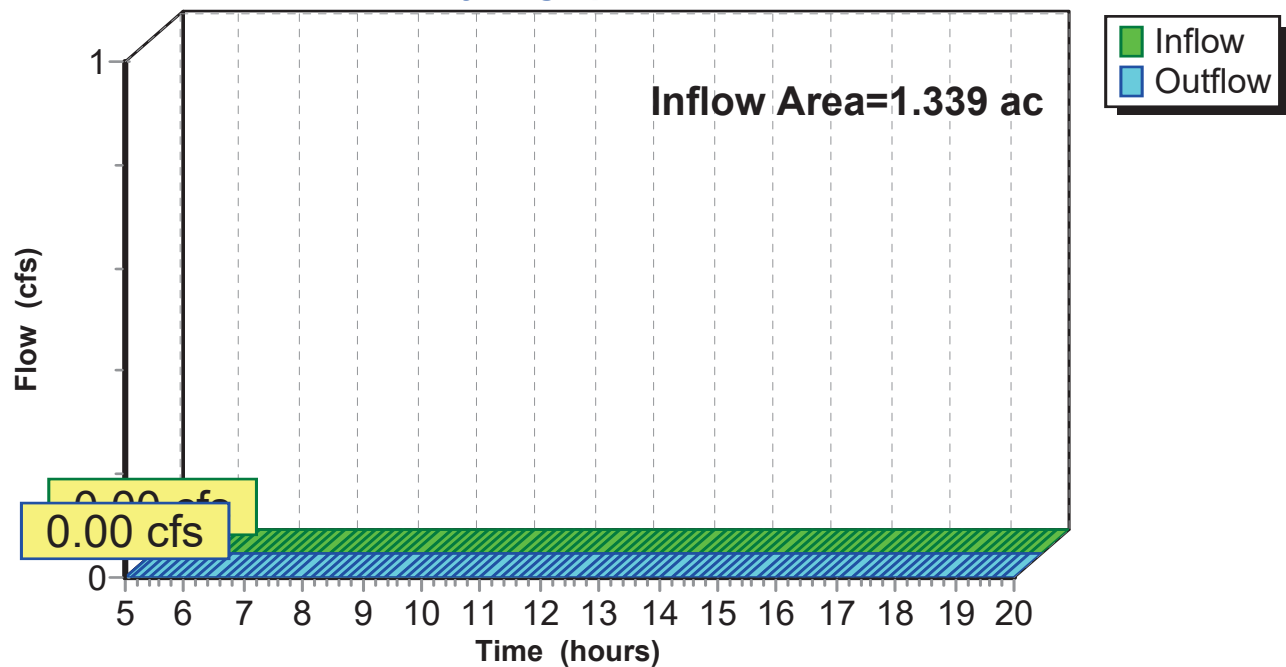
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2S: (new Subcat)**Hydrograph**

Summary for Reach AP PR: PROPOSED RUNOFF

Inflow Area = 1.339 ac, 30.17% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP PR: PROPOSED RUNOFF**Hydrograph**

Summary for Pond 1P: (new Pond)

Inflow Area = 0.634 ac, 36.48% Impervious, Inflow Depth > 1.40" for 10-Year event
 Inflow = 1.44 cfs @ 12.18 hrs, Volume= 0.074 af
 Outflow = 0.07 cfs @ 13.72 hrs, Volume= 0.041 af, Atten= 95%, Lag= 92.3 min
 Discarded = 0.07 cfs @ 13.72 hrs, Volume= 0.041 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach AP PR : PROPOSED RUNOFF

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 850.18' @ 13.72 hrs Surf.Area= 1,434 sf Storage= 2,066 cf

Plug-Flow detention time= 224.2 min calculated for 0.041 af (56% of inflow)
 Center-of-Mass det. time= 156.8 min (955.3 - 798.4)

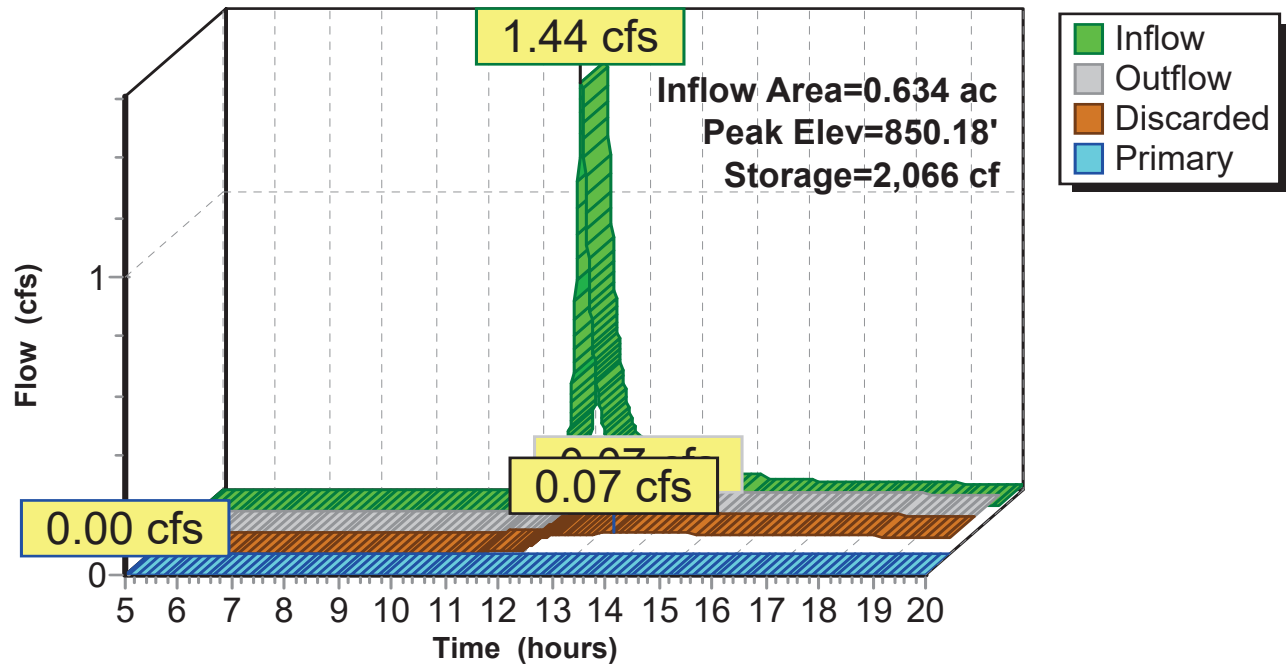
Volume	Invert	Avail.Storage	Storage Description
#1	845.00'	3,453 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
845.00	140	0.0	0	0	140
847.99	140	60.0	251	251	265
848.00	300	100.0	2	253	425
849.00	782	100.0	522	775	914
850.00	1,332	100.0	1,045	1,820	1,476
851.00	1,953	100.0	1,633	3,453	2,113

Device	Routing	Invert	Outlet Devices
#0	Primary	851.00'	Automatic Storage Overflow (Discharged without head)
#1	Discarded	845.00'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'

Discarded OutFlow Max=0.07 cfs @ 13.72 hrs HW=850.18' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.07 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=845.00' (Free Discharge)

Pond 1P: (new Pond)**Hydrograph**

Summary for Pond 2P: (new Pond)

Inflow Area = 0.705 ac, 24.49% Impervious, Inflow Depth > 1.15" for 10-Year event
 Inflow = 1.30 cfs @ 12.18 hrs, Volume= 0.068 af
 Outflow = 0.06 cfs @ 13.78 hrs, Volume= 0.035 af, Atten= 95%, Lag= 95.9 min
 Discarded = 0.06 cfs @ 13.78 hrs, Volume= 0.035 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach AP PR : PROPOSED RUNOFF

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 855.09' @ 13.78 hrs Surf.Area= 1,372 sf Storage= 1,869 cf

Plug-Flow detention time= 223.0 min calculated for 0.035 af (52% of inflow)
 Center-of-Mass det. time= 150.8 min (956.0 - 805.2)

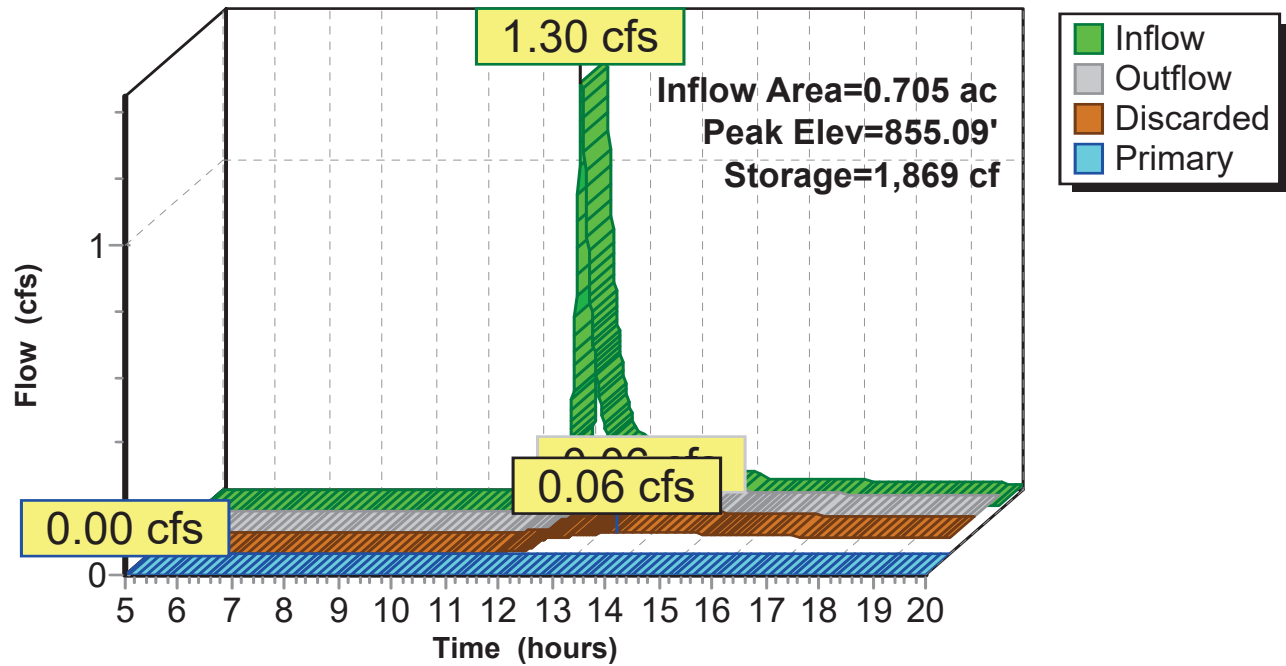
Volume	Invert	Avail.Storage	Storage Description
#1	849.50'	2,706 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
849.50	150	0.0	0	0	150
852.50	150	60.0	270	270	280
853.00	306	100.0	112	382	438
854.00	678	100.0	480	862	818
855.00	1,136	100.0	897	1,759	1,288
855.50	2,774	100.0	948	2,706	2,928

Device	Routing	Invert	Outlet Devices
#0	Primary	855.50'	Automatic Storage Overflow (Discharged without head)
#1	Discarded	849.50'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'

Discarded OutFlow Max=0.06 cfs @ 13.78 hrs HW=855.09' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=849.50' (Free Discharge)

Pond 2P: (new Pond)**Hydrograph**

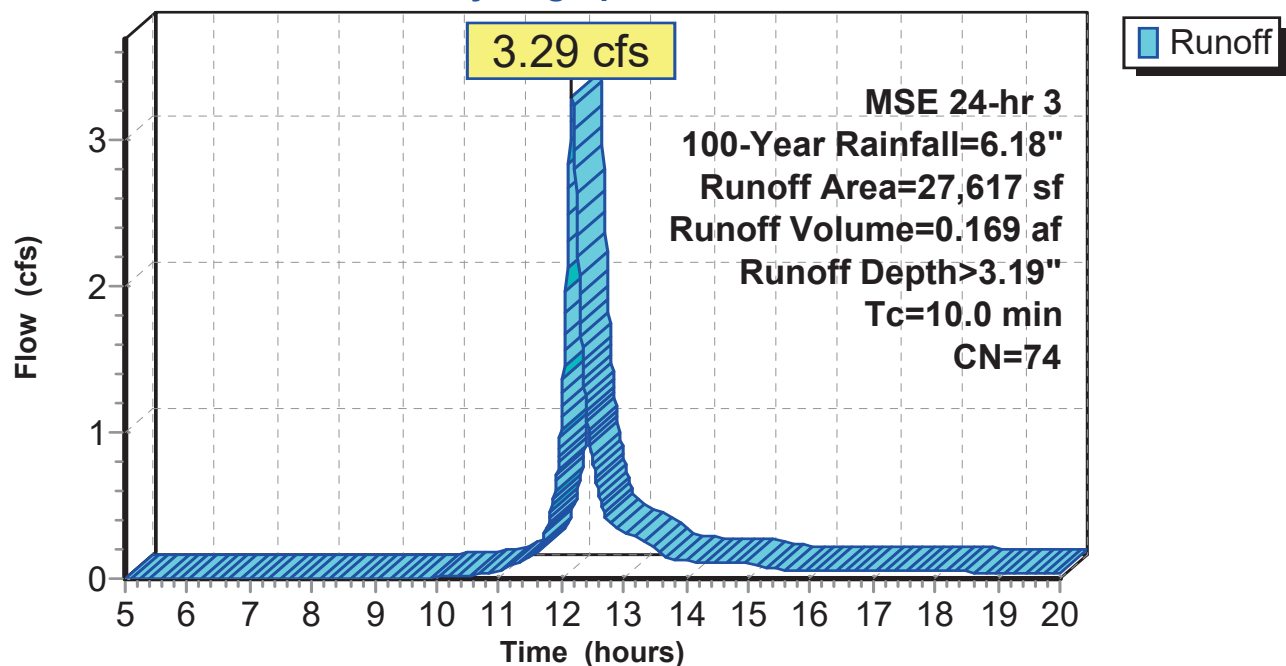
Summary for Subcatchment 1S: (new Subcat)

Runoff = 3.29 cfs @ 12.18 hrs, Volume= 0.169 af, Depth> 3.19"
 Routed to Pond 1P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.18"

Area (sf)	CN	Description
2,911	98	Roofs, HSG B
7,164	98	Paved parking, HSG B
17,542	61	>75% Grass cover, Good, HSG B
27,617	74	Weighted Average
17,542		63.52% Pervious Area
10,075		36.48% Impervious Area

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

Subcatchment 1S: (new Subcat)**Hydrograph**

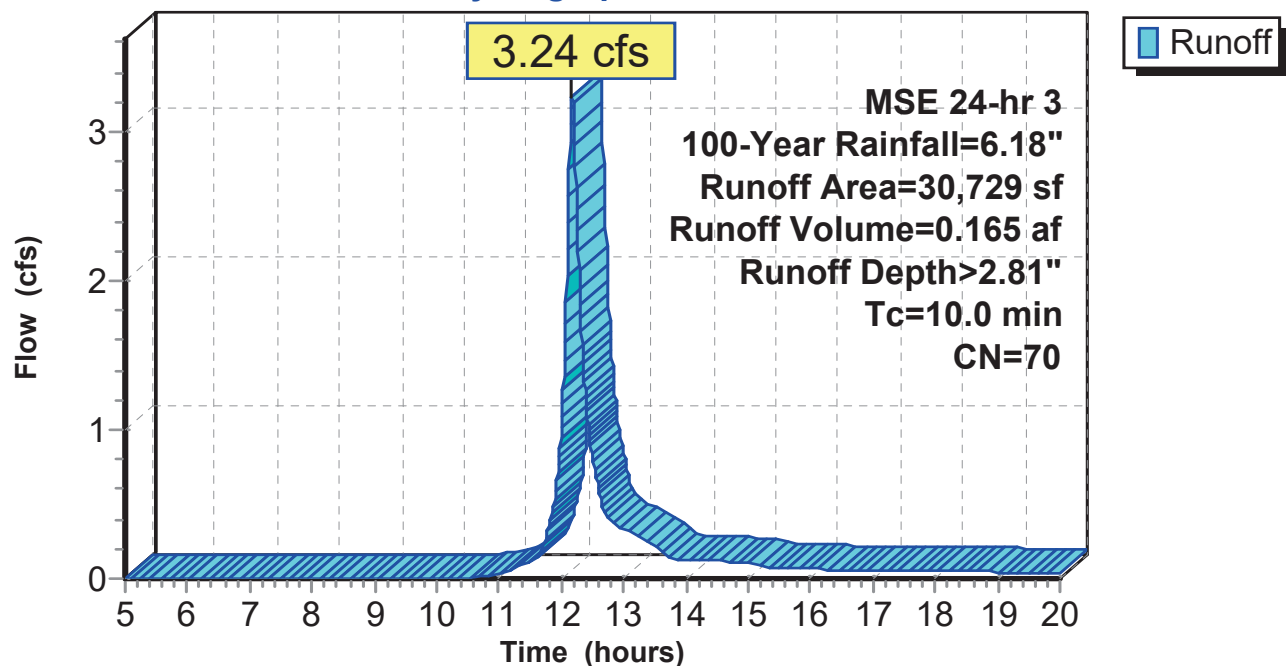
Summary for Subcatchment 2S: (new Subcat)

Runoff = 3.24 cfs @ 12.18 hrs, Volume= 0.165 af, Depth> 2.81"
 Routed to Pond 2P : (new Pond)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 MSE 24-hr 3 100-Year Rainfall=6.18"

Area (sf)	CN	Description
2,602	98	Roofs, HSG B
4,924	98	Paved parking, HSG B
23,203	61	>75% Grass cover, Good, HSG B
30,729	70	Weighted Average
23,203		75.51% Pervious Area
7,526		24.49% Impervious Area

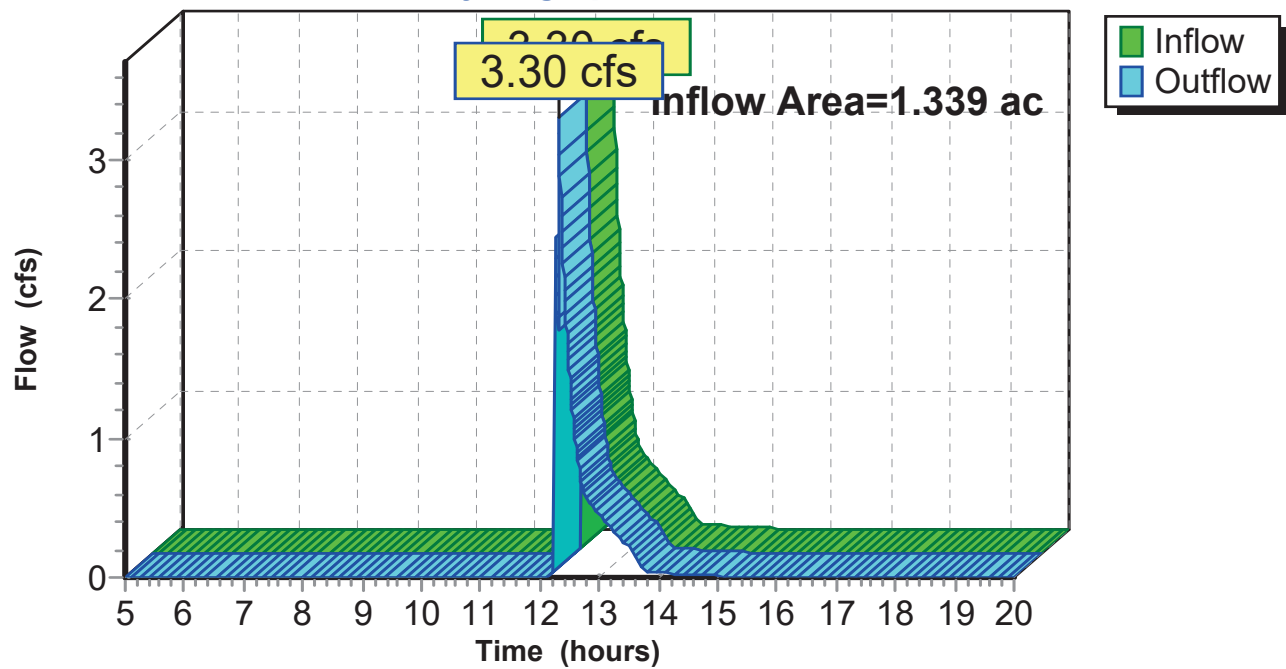
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Subcatchment 2S: (new Subcat)**Hydrograph**

Summary for Reach AP PR: PROPOSED RUNOFF

Inflow Area = 1.339 ac, 30.17% Impervious, Inflow Depth = 0.85" for 100-Year event
Inflow = 3.30 cfs @ 12.32 hrs, Volume= 0.095 af
Outflow = 3.30 cfs @ 12.32 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs

Reach AP PR: PROPOSED RUNOFF**Hydrograph**

Summary for Pond 1P: (new Pond)

Inflow Area = 0.634 ac, 36.48% Impervious, Inflow Depth > 3.19" for 100-Year event
 Inflow = 3.29 cfs @ 12.18 hrs, Volume= 0.169 af
 Outflow = 1.84 cfs @ 12.32 hrs, Volume= 0.104 af, Atten= 44%, Lag= 8.9 min
 Discarded = 0.09 cfs @ 12.31 hrs, Volume= 0.061 af
 Primary = 1.75 cfs @ 12.32 hrs, Volume= 0.043 af
 Routed to Reach AP PR : PROPOSED RUNOFF

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 851.00' @ 12.31 hrs Surf.Area= 1,953 sf Storage= 3,453 cf

Plug-Flow detention time= 147.5 min calculated for 0.104 af (62% of inflow)
 Center-of-Mass det. time= 88.1 min (873.0 - 784.9)

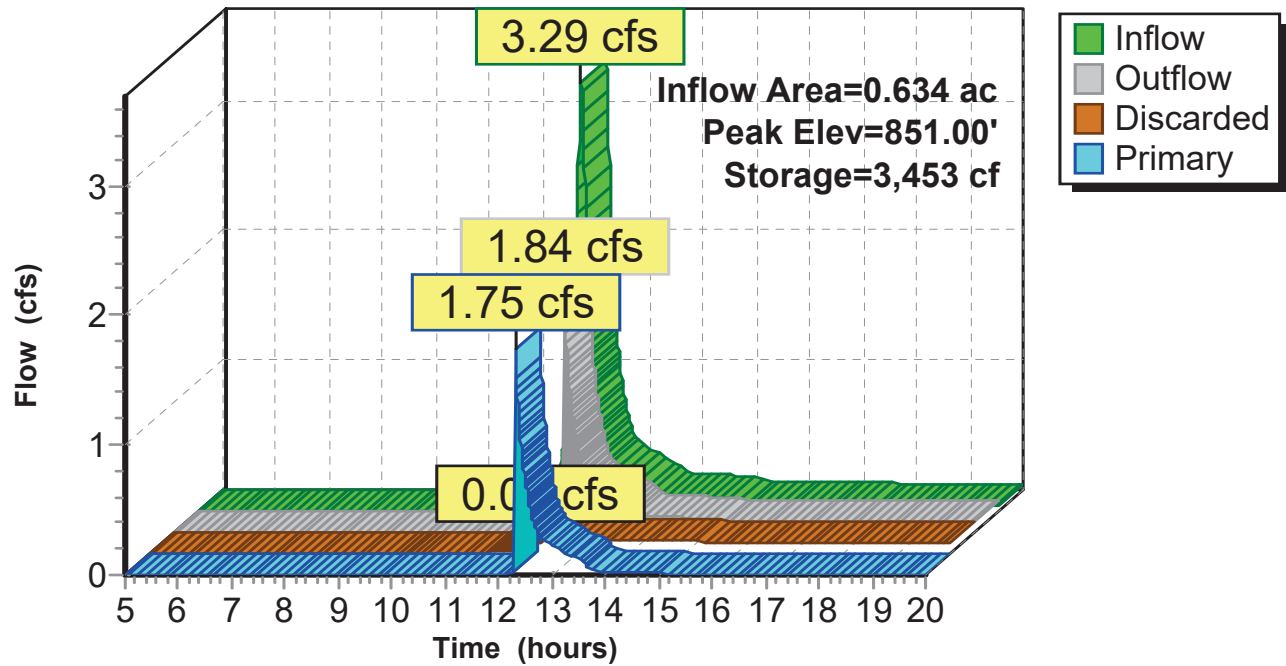
Volume	Invert	Avail.Storage	Storage Description
#1	845.00'	3,453 cf	Custom Stage Data (Conic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
845.00	140	0.0	0	0	140
847.99	140	60.0	251	251	265
848.00	300	100.0	2	253	425
849.00	782	100.0	522	775	914
850.00	1,332	100.0	1,045	1,820	1,476
851.00	1,953	100.0	1,633	3,453	2,113

Device	Routing	Invert	Outlet Devices
#0	Primary	851.00'	Automatic Storage Overflow (Discharged without head)
#1	Discarded	845.00'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'

Discarded OutFlow Max=0.09 cfs @ 12.31 hrs HW=851.00' (Free Discharge)
 ↑**1=Exfiltration** (Controls 0.09 cfs)

Primary OutFlow Max=0.00 cfs @ 12.32 hrs HW=851.00' (Free Discharge)

Pond 1P: (new Pond)**Hydrograph**

Summary for Pond 2P: (new Pond)

Inflow Area = 0.705 ac, 24.49% Impervious, Inflow Depth > 2.81" for 100-Year event
 Inflow = 3.24 cfs @ 12.18 hrs, Volume= 0.165 af
 Outflow = 2.79 cfs @ 12.25 hrs, Volume= 0.120 af, Atten= 14%, Lag= 4.6 min
 Discarded = 0.12 cfs @ 12.24 hrs, Volume= 0.069 af
 Primary = 2.67 cfs @ 12.25 hrs, Volume= 0.051 af
 Routed to Reach AP PR : PROPOSED RUNOFF

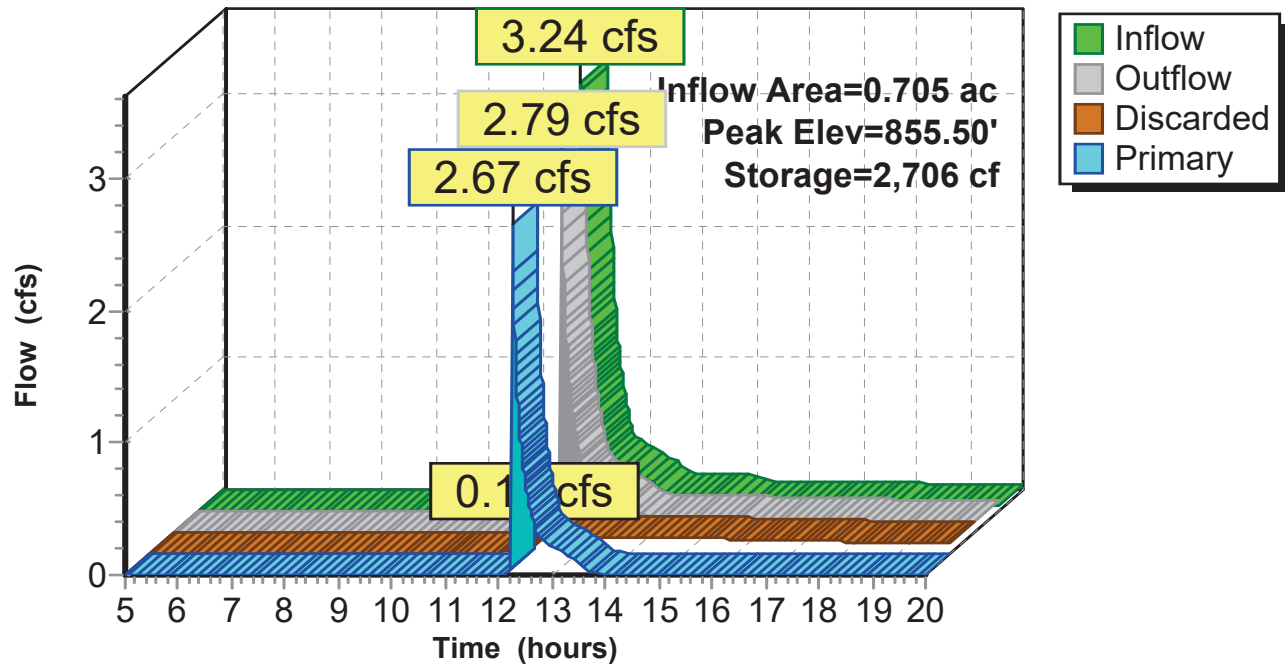
Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.01 hrs
 Peak Elev= 855.50' @ 12.24 hrs Surf.Area= 2,774 sf Storage= 2,706 cf

Plug-Flow detention time= 126.0 min calculated for 0.120 af (72% of inflow)
 Center-of-Mass det. time= 71.1 min (861.3 - 790.2)

Volume	Invert	Avail.Storage	Storage Description		
#1	849.50'	2,706 cf	Custom Stage Data (Conic) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
849.50	150	0.0	0	0	150
852.50	150	60.0	270	270	280
853.00	306	100.0	112	382	438
854.00	678	100.0	480	862	818
855.00	1,136	100.0	897	1,759	1,288
855.50	2,774	100.0	948	2,706	2,928
Device	Routing	Invert	Outlet Devices		
#0	Primary	855.50'	Automatic Storage Overflow (Discharged without head)		
#1	Discarded	849.50'	1.630 in/hr Exfiltration over Wetted area Conductivity to Groundwater Elevation = 835.00'		

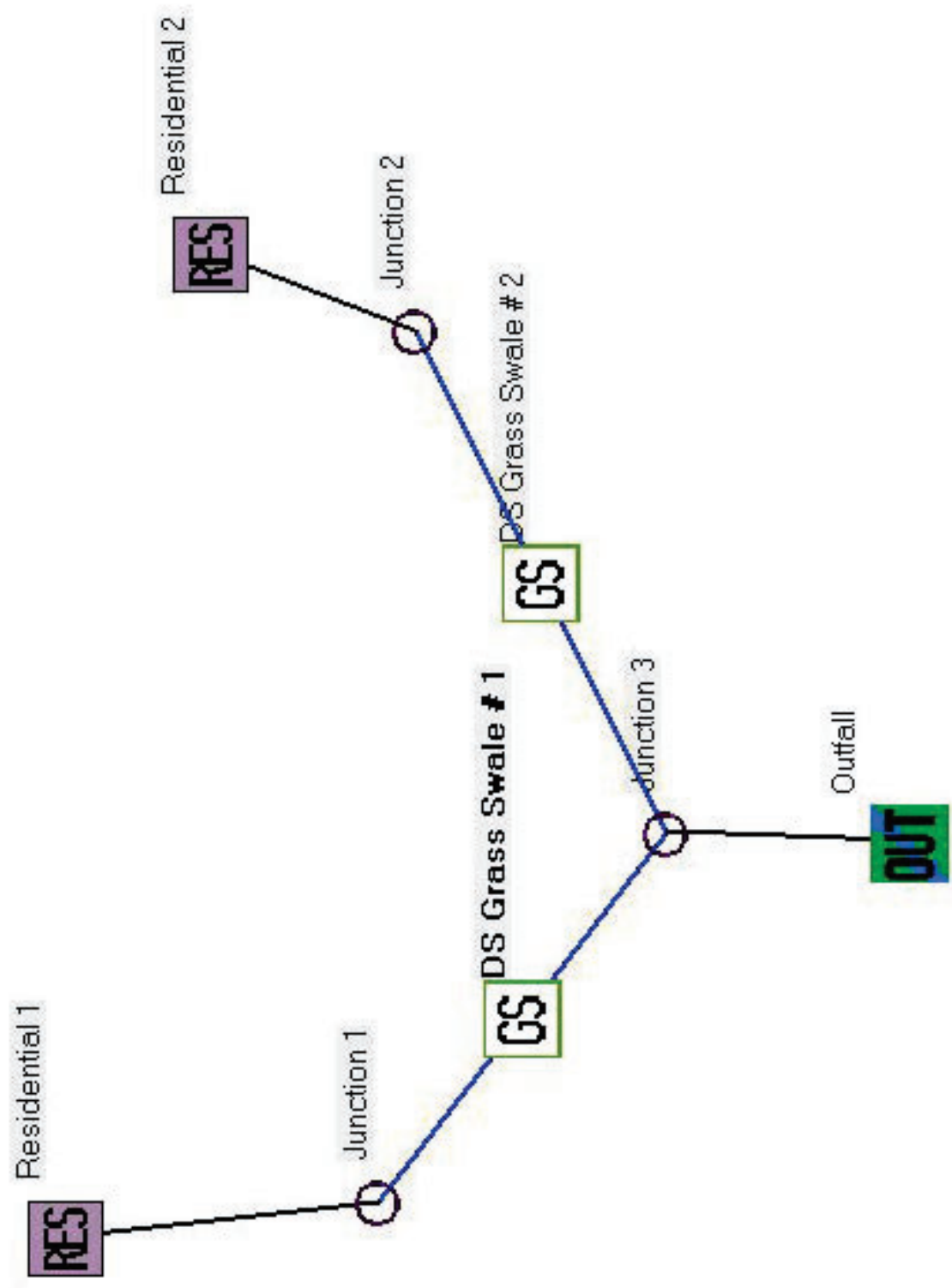
Discarded OutFlow Max=0.12 cfs @ 12.24 hrs HW=855.50' (Free Discharge)
 ↑ **1=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 12.25 hrs HW=855.50' (Free Discharge)

Pond 2P: (new Pond)**Hydrograph**

APPENDIX C

SOURCE LOADING AND MANAGEMENT MODEL (SLAMM)



Data file name: X:\Projects\10046\Drainage\SLAMM\FHA 10046 SLAMM.mdb
WinSLAMM Version 10.3.4
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_GEO03.ppdX
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 01/05/69 Study period ending date: 12/31/69
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 08-29-2023 Time: 09:08:18
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 0.634
1 - Roofs 1: 0.067 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.164 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.403 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: Residential 2 Total area (ac): 0.706
1 - Roofs 1: 0.060 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.113 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
45 - Large Landscaped Areas 1: 0.533 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Grass Swale CP# 1 (DS) - DS Grass Swale # 1

Total drainage area (acres)= 0.634
Fraction of drainage area served by swales (ac) = 1.00
Swale density (ft/ac) = 299.68
Total swale length (ft) = 190
Average swale length to outlet (ft)= 190
Typical bottom width (ft) = 10.0
Typical swale side slope (H:1V) = 0.0
Typical longitudinal slope (ft.H/ft.V) = 0.040
Swale retardance factor: D
Typical grass height (in) = 4.0
Swale dynamic infiltration rate (in/hr)= 1.250
Typical swale depth (ft) for cost analysis (optional) = 0.0

Particle size distribution file name: Not needed - calculated by program
Use total swale length instead of swale density for infiltration calculations: True

Control Practice 2: Grass Swale CP# 2 (DS) - DS Grass Swale # 2

Total drainage area (acres)= 0.706
Fraction of drainage area served by swales (ac) = 1.00
Swale density (ft/ac) = 354.11
Total swale length (ft) = 250
Average swale length to outlet (ft)= 250
Typical bottom width (ft) = 10.0
Typical swale side slope (H:1V) = 0.0
Typical longitudinal slope (ft.H/ft.V) = 0.040
Swale retardance factor: D
Typical grass height (in) = 4.0
Swale dynamic infiltration rate (in/hr)= 1.250
Typical swale depth (ft) for cost analysis (optional) = 0.0
Particle size distribution file name: Not needed - calculated by program
Use total swale length instead of swale density for infiltration calculations: True

Data file name: X:\Projects\10046\Drainage\SLAMM\FHA 10046 SLAMM.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM
Files\WinSLAMM_rain_parameter_files\Version10_ParameterFiles\WI_GEO03.ppdxd
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69
Date of run: 08-29-2023 Time of run: 09:09:07
Total Area Modeled (acres): 1.340
Years in Model Run: 0.99

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction	
Total of all Land Uses without Controls:	39541	-	112.4	277.4	-	
Outfall Total with Controls:	4595	88.38%	101.6	29.14	89.50%	
Annualized Total After Outfall Controls:	4659			29.55		

APPENDIX D

OPERATION AND MAINTENANCE PLAN



PLANNING COMMISSION

October 10, 2023, at 6:30 pm
Mukwonago, WI

EXTRATERRITORIAL REVIEW OF A CERTIFIED SURVEY MAP LOCATED N9022 ARMY LAKE RD IN THE TOWN OF EAST TROY, WALWORTH COUNTY

Project Summary

Request:	Extraterritorial review of a certified survey map
Applicant:	V2G Surveying (Dennis DeGrave/Francis DeGrave Life Estate, owner)
Location:	N9022 Army Lake Rd (Town of East Troy)
Parcel number:	P ET1000009 (Walworth County)

Planning Staff Review

CSM Request for N9022 Army Lake Rd., PET1000009, Daniel DeGrave – owner, Michael Greeson – applicant. This parcel is located off County Hwy ES in the Town of East Troy and they have submitted a certified survey map to create Lot 1. The Village is reviewing this survey in the Town because it is within the Village's extraterritorial review area. The Town of East Troy and Walworth County have already approved the certified survey map.



Potential Plan Commission Motion:

Recommend to the Village Board the approval of the proposed certified survey map as set forth in Resolution 2023-55 (as drafted OR as amended)

Attachments

1. Certified survey map & Town Resolution

2. Draft Resolution 2023-55

TOWN OF EAST TROY

N9330 Stewart School Road • P.O. Box 872
East Troy, Wisconsin 53120
Telephone (262) 642-5386
Fax (262) 642-9701

RESOLUTION APPROVING PETITION CSM/REZONE REQUEST

Whereas, the Planning Commission for the Town of East Troy convened on August 2, 2023; and

Whereas the applicant, Daniel DeGrave, Owner / Michael Greeson, Applicant, Parcel No. P ET 1000009 applied for a CSM / Rezone Request to separate five acres of land between highway ES and I 43 on the north east side of the storage units. The applicant would like to rezone the separated five acres from A3 to B3 in order to create a 40x80 or 40x100 steel building which will house a woodworking club; and

Whereas the Planning Commission noted that according to the 2050 plan this land is designated as a part of the business corridor and as non-conforming (under 20acres) the B3 designation would not become an issue. The applicant specified that the remainder of the land will be kept as A3 property and county zoning would prefer that a small triangle of land on the south west of the remainder of the property will have a lot line adjustment to absorb it into the one lot. The family is open to this change in the future; and

Whereas the owner gave a brief description of his business plan consisting of a 24-hour access wood shop that is operated much like a gym membership giving access to shop equipment to members by using a cell phone code or key fob. The applicant discussed the indoor and outdoor video surveillance system that he would use for security as well as the intention to have the building well insulated as to prevent noise issues, noting that his parents are the closest neighbors which will give him the unique ability to monitor for noise issues in real time; and

Whereas, the Planning Commission voted 5 yes with one recusal due to nepotism to approve the applicants' CSM / Rezone Request on August 2, 2023;

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission requests a motion by the Town of East Troy, Town Board to APPROVE the CSM / Rezone Request at N9022 Army Lake Road East Troy, WI 53120, Parcel No. P ET 1000009

STATE OF WISCONSIN

SS

COUNTY OF WALWORTH

I, JENNIFER OLSON do hereby certify that I am the duly elected, qualified and acting Secretary of the Town of East Troy, Planning Commission and that the foregoing is a true and correct copy of a resolution duly adopted at a meeting of the Planning Commission, of the Town of East Troy held in said Town on the 2nd day of August, 2023, at which meeting a quorum was present and that said resolution is duly recorded in the minutes of said meeting.

IN WITNESS WHEREOF, I have affixed my name as Secretary on this 8th day of August, 2023.


JENNIFER OLSON,
PLANNING COMMISSION SECRETARY
Town of East Troy

VILLAGE OF MUKWONAGO RESOLUTION 2023-55

**RESOLUTION APPROVING A CERTIFIED SURVEY FOR A PROPERTY LOCATED AT
N9022 ARMY LAKE ROAD IN THE TOWN OF EAST TROY, WALWORTH COUNTY**

WHEREAS, Mike Greeson (applicant/surveyor) on behalf of the Dennis DeGrave/Francis DeGrave Life Estate, this property located at N9022 in the Town of East Troy and has submitted a certified survey map to the Village for review; and

WHEREAS, the property is located in the Village's extraterritorial review area and is therefore subject to the review by the Village; and

WHEREAS, the Village Plan Commission reviewed the petitioner's request at their meeting on October 10, 2023, and recommended approval of the same as set forth in this resolution; and

NOW, THEREFORE, BE IT RESOLVED, the Village Board of the Village of Mukwonago approves the proposed certified survey map subject to the following conditions:

1. The surveyor's seal, signature, and date must appear on all sheets of the final CSM. The same revision date must also be noted on each sheet.
2. The certified survey map must comply with the Town of East Troy's approval which was granted on August 8, 2023.
3. The property owner must pay all fees and charges that are owed to the Village.

The Village President is authorized to sign the original certified survey map when the above conditions have been satisfied as determined by the Village Planner.

Passed and dated this 18th day of October 2023.

VILLAGE OF MUKWONAGO

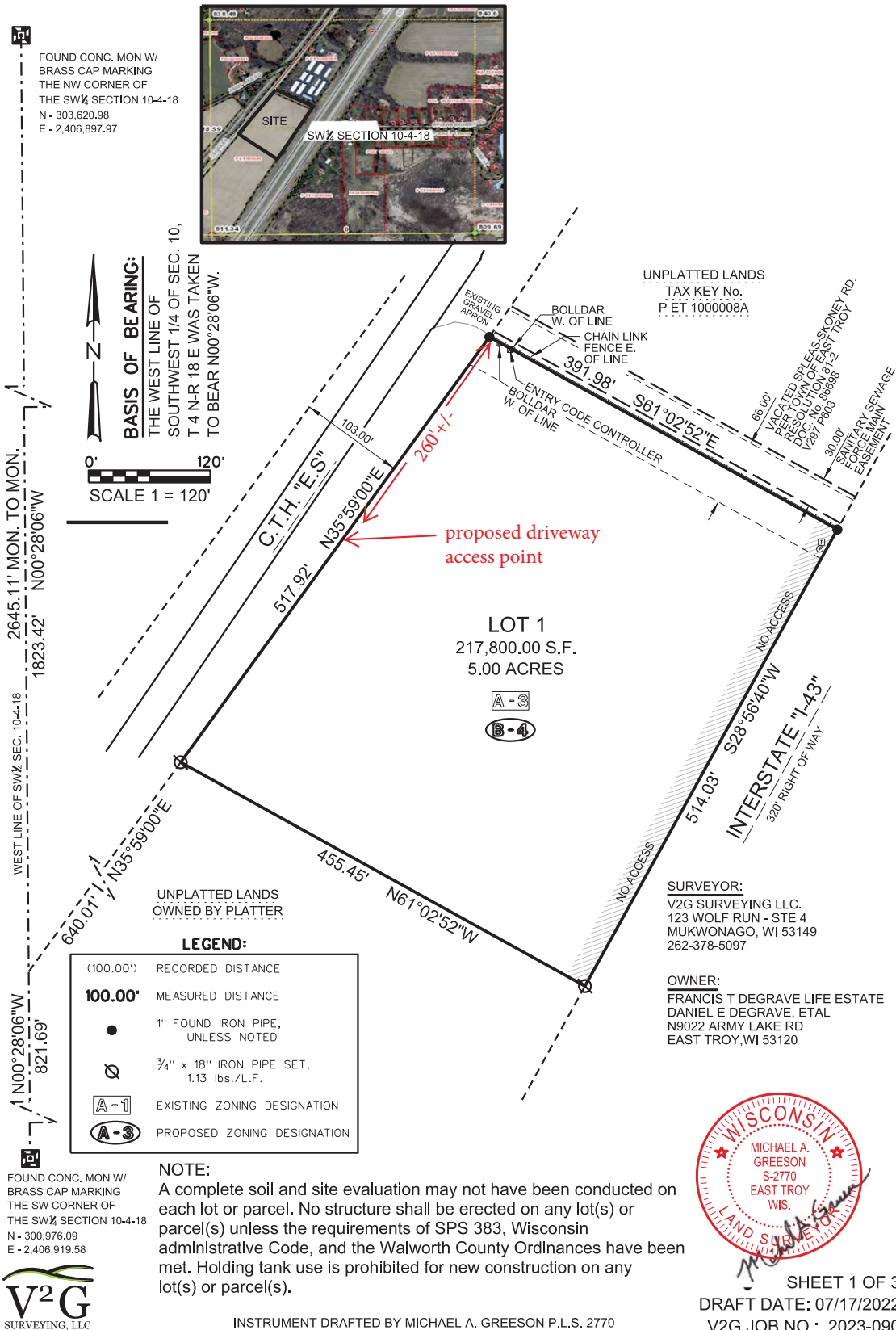
By: _____
Fred Winchowky, Village President

Attest: _____
Diana Dykstra, Village Clerk

PRELIMINARY

CERTIFIED SURVEY MAP NO. _____

PART OF THE SOUTHWEST 1/4 AND NORTHWEST 1/4 OF THE SOUTHWEST 1/4,
SECTION 10, TOWNSHIP 4 NORTH, RANGE 18 EAST, TOWN OF EAST TROY,
WALWORTH COUNTY, WISCONSIN.



PRELIMINARY

CERTIFIED SURVEY MAP NO. _____

PART OF THE SOUTHWEST 1/4 AND NORTHWEST 1/4 OF THE
SOUTHWEST 1/4, SECTION 10, TOWNSHIP 4 NORTH, RANGE 18
EAST, TOWN OF EAST TROY, WALWORTH COUNTY, WISCONSIN.

SURVEYORS CERTIFICATE:

I, MICHAEL A. GREESON, PROFESSIONAL LAND SURVEYOR, HEREBY CERTIFY THAT I HAVE SURVEYED,
DIVIDED AND MAPPED THE FOLLOWING LAND BOUNDED AND DESCRIBED AS FOLLOWS:

I, MICHAEL A. GREESON, PROFESSIONAL LAND SURVEYOR, HERBY CERTIFY: THAT IN FULL COMPLIANCE WITH
THE PROVISIONS OF SECTION 236.34 OF THE WISCONSIN STATUTES AND THE SUBDIVISION REGULATIONS OF
THE TOWN OF EAST TROY AND THE COUNTY OF WALWORTH, AND UNDER THE DIRECTION OF FRANCIS T DEGRAVE
LIFE ESTATE, I HAVE SURVEYED, DIVIDED, AND MAPPED THIS CERTIFIED SURVEY MAP; THAT SUCH MAP
CORRECTLY REPRESENTS ALL EXTERIOR BOUNDARIES AND THE SUBDIVISION OF THE LAND SURVEYED; AND THAT
THIS LAND IS LOCATED IN PART OF GOVERNMENT LOT 2, OF SECTION 11, TOWNSHIP 4 NORTH, RANGE 18
EAST, TOWN OF EAST TROY, WALWORTH COUNTY, WISCONSIN, BEING MORE PARTICULARLY DESCRIBED AS:

COMMENCING AT A FOUND CONCRETE MONUMENT WITH BRASS CAP MARKING THE SOUTHWEST CORNER OF THE
SOUTHWEST 1/4, SECTION 10, TOWNSHIP 4 NORTH, RANGE 18 EAST; THENCE N00°28'06"W ALONG THE WEST
LINE OF SAID SOUTHWEST 1/4, 821.69' TO A POINT; THENCE N35°59'00"E, 640.01' TO THE POINT OF
BEGINNING; THENCE CONTINUING N35°59'00"E, 517.92' TO A FOUND 1" IRON PIPE; THENCE S61°02'52"E,
391.98' TO A FOUND 1" IRON PIPE ON THE NORTHWESTERLY RIGHT OF WAY FOR "INTERSTATE-43"; THENCE
S28°56'40"W ALONG SAID RIGHT OF WAY, 514.03' TO A POINT; THENCE N61°02'52"W, 455.45' TO THE
POINT OF BEGINNING.

SAID PARCEL CONTAINING 5.00 ACRES MORE OR LESS.

SAID PARCEL SUBJECT TO ALL RIGHTS, RESERVATIONS, RESTRICTIVE COVENANTS AND EASEMENTS EITHER
RECORDED OR UNRECORDED.

THIS 17 TH DAY OF JULY, 2023.

MICHAEL A. GREESON, P.L.S. #2770

OWNERS CERTIFICATE:

I DANIEL E. DEGRAVE, ETAL (FRANCIS DEGRAVE LIFE ESTATE), HEREBY CERTIFY THAT I HAVE CAUSED THE
LAND DESCRIBED ABOVE TO BE SURVEYED, DIVIDED, AND MAPPED AS REPRESENTED ON THIS CERTIFIED
SURVEY MAP IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 236.34 OF THE WISCONSIN STATE
STATUTES, THE TOWN OF EAST TROY AND WALWORTH COUNTY. WE ALSO CERTIFY THAT THIS CERTIFIED SURVEY
MAP IS REQUIRED TO BE SUBMITTED TO THE FOLLOWING FOR APPROVAL. (TOWN OF EAST TROY, VILLAGE OF
MUKWONAGO EXTRA TERRITORIAL AND WALWORTH COUNTY ZONING)

WITNESS THE HAND AND SEAL OF SAID OWNERS THIS ____ DAY OF _____, 2023.

DANIEL E. DEGRAVE, ETAL (FRANCIS T. DEGRAVE LIFE ESTATE)

STATE OF WISCONSIN)
) ss.
_____, COUNTY)

PERSONALLY CAME BEFORE ME THIS ____ DAY OF _____, 2023, THE ABOVE NAMED DANIEL
E. DEGRAVE ETAL (FRANCIS T. DEGRAVE LIFE ESTATE), TO ME KNOWN TO BE THE PERSONS
WHO EXECUTED THE FOREGOING INSTRUMENT AND ACKNOWLEDGED THE SAME.

NOTARY PUBLIC, _____ COUNTY, WISCONSIN.

MY COMMISSION EXPIRES _____.



INSTRUMENT DRAFTED BY MICHAEL A. GREESON



SHEET 2 OF 3
DRAFT DATE: 07/17/2023
V2G JOB NO.: 2023-090

PRELIMINARY

CERTIFIED SURVEY MAP NO. _____

PART OF THE SOUTHWEST 1/4 AND NORTHWEST 1/4 OF THE
SOUTHWEST 1/4, SECTION 10, TOWNSHIP 4 NORTH, RANGE 18
EAST, TOWN OF EAST TROY, WALWORTH COUNTY, WISCONSIN.

TOWN OF EAST TROY BOARD APPROVAL CERTIFICATE:

THIS CERTIFIED SURVEY MAP IS HEREBY APPROVED BY THE TOWN BOARD OF THE TOWN OF EAST TROY,

ON THIS _____ DAY OF _____, 2023.

JOSEPH KLARKOWSKI, CHAIRMAN

KIM BUCHANAN, CLERK

WALWORTH COUNTY ZONING AGENCY APPROVAL CERTIFICATE:

THIS CERTIFIED SURVEY MAP IS HEREBY APPROVED BY THE WALWORTH COUNTY ZONING
AGENCY, ON

THIS _____ DAY OF _____, 2023.

RYAN SIMONS, CHAIRMAN

VILLAGE BOARD OF MUKWONAGO APPROVAL (EXTRA-TERRITORIAL)

THIS CERTIFIED SURVEY MAP LOCATED WITHIN THE EXTRA- TERRITORIAL JURISDICTION OF THE VILLAGE OF
MUKWONAGO IS HEREBY APPROVED BY THE VILLAGE OF MUKWONAGO BOARD

THIS _____ DAY OF _____, 2023.

FRED WINCHOWKY, PRESIDENT

DIANA DYKSTRA, CLERK-TREASURER

VILLAGE BOARD OF EAST TROY APPROVAL (EXTRA-TERRITORIAL)

THIS CERTIFIED SURVEY MAP LOCATED WITHIN THE EXTRA- TERRITORIAL JURISDICTION OF THE VILLAGE OF
MUKWONAGO IS HEREBY APPROVED BY THE VILLAGE OF MUKWONAGO BOARD

THIS _____ DAY OF _____, 2023.

MATT JOHNSON, PRESIDENT

EILEEN SUHM, ADMINISTRATOR/TREASURER



INSTRUMENT DRAFTED BY MICHAEL A. GREESON



SHEET 3 OF 3
DRAFT DATE: 07/17/2023
V2G JOB NO.: 2023-090



Village of Mukwonago

440 River Crest Court Mukwonago, WI 53149 | Tel. (262) 363-6420 | Fax: (262)363-6425

DATE: September 12, 2023

TO: Plan Commission

FROM: Erin Scharf, Community Planner/Zoning Administrator

RE: EMC Sign Compliance Update

BACKGROUND

Earlier this year our Community and Economic Development team was tasked with responding to brightness complaints on a few business signs in the Village.

We took an inventory of the EMC signs in the Village and found 24 total signs with an EMC feature. 4 were compliant at that time. We started by making sure our Village owned signs were compliant, and then sent a letter explaining the code and how this as not well enforced in the past.

Our Team took the time to talk with the businesses you had questions and explained how our code is written in the best lemans terms possible.

Our Inspectors took the average of 3 readings of the lumens projecting the signs and accounting for ambient light to determine if the signs' brightness was in compliance or not. This was done after dusk during initial and reinspection.

The other issue at hand was some flashing/movement on some of the signs, and the amount of time a message was static on the screen. The code requires a minimum of 60 seconds. These issues were all resolved.

For the future we are making sure that both the owner and contractor are better aware of what is allowed by incorporating the code language on the sign approvals. Lastly, the inspections for any EMC signs will be completed after dusk to ensure the proper readings are taken before the permit is closed/finaled.

SUGGESTED ACTION

No Action required; this is for Information Only.



Village of Mukwonago

440 River Crest Court Mukwonago, WI 53149 | Tel. (262) 363-6420 | Fax: (262)363-6425

DATE: August 4, 2023
TO: Village Board, Plan Commission, Department Heads
FROM: Community and Economic Development Department
RE: Process Improvements and Updates to Website

BACKGROUND

A little less than a year ago the Community and Economic Development Department was formed to create a cohesive and seamless operation between Building Inspections, Economic Development, and Planning/Zoning.

It was evident from feedback from Board Members, Village Staff, and other Stakeholders that our processes needed improvement. We needed to better define our customer's journey through our development system and outline what exactly was required by code, state statutes, and other planning/building best practices. We also identified the "pain points" along the customer journey and reduced them.

Our department has done a lot of things to provide clarity, collaborate and refine our process to ensure important items during different stages of development are not missed. In doing so, our goal to better serve the community will be addressed.

Items Completed:

- Defined a new Department.
- Define our Vision and Mission.
- Set forth Goals and Objectives
- Mapped All our processes, grounded in our Municipal Code.
- Developed Informational Checklists for all Planning/Zoning Projects
- Developed Informational Narratives for all Building Inspection Permits/Services
- Developed a Six-Step Checklist for Opening a Business in Mukwonago
- Moved the above Checklists and Narratives to the Website
- Moved all applications to Online Permitting and Planning Projects Portal-which is now being fully utilized for internal and external users.
- Mapped Code Enforcement Processes across Departments to Clearly Identify the Processes and help to beautify our community.
- Processes/Flow Charts Created by staff are now Codified in a Procedural Manual

Village of Mukwonago

440 River Crest Court Mukwonago, WI 53149 | Tel. (262) 363-6420 | Fax: (262)363-6425

NEXT STEPS

- Share Changes with Staff and Board – Ask for Help Going Forward
- Seek Opportunities for Process Refinement from Staff & Board
- Validate our Processes & Procedures
- Provide a Mechanism for Simplifying our Processes & Procedures
- Review Flow Charts and Eliminate Unnecessary Requirements/Ordinances

OTHER ACTIVITIES

- BS&A Training – Learning and Using BS&A to its Full Functionality
- Learning & Utilizing SharePoint as our Department's Document Platform
- Active engagement of occupancy permits to ensure an accurate list of business
- Closing out outstanding Building Permits in a Timely Manner;
- Ensuring Proper Staffing of Committees

IN THE WORKS

- Shifting to a more proactive code compliance system
- Create an easy to use, single CED Department webpage
- Define the Department's Economic Development Engagement processes and Activities
- Developing a monthly reporting mechanism
- Developing customer surveys
- Seek Opportunities to invite input from our customers
- Determine if BS&A system best meets the Department's needs
- Filter all complaints through CED Department/Robin; create a "Report a concern" Button staffed by the CED

Community & Economic Development Department Update



FRED SCHNOOK, DIRECTOR - COMMUNITY AND ECONOMIC
DEVELOPMENT DEPARTMENT

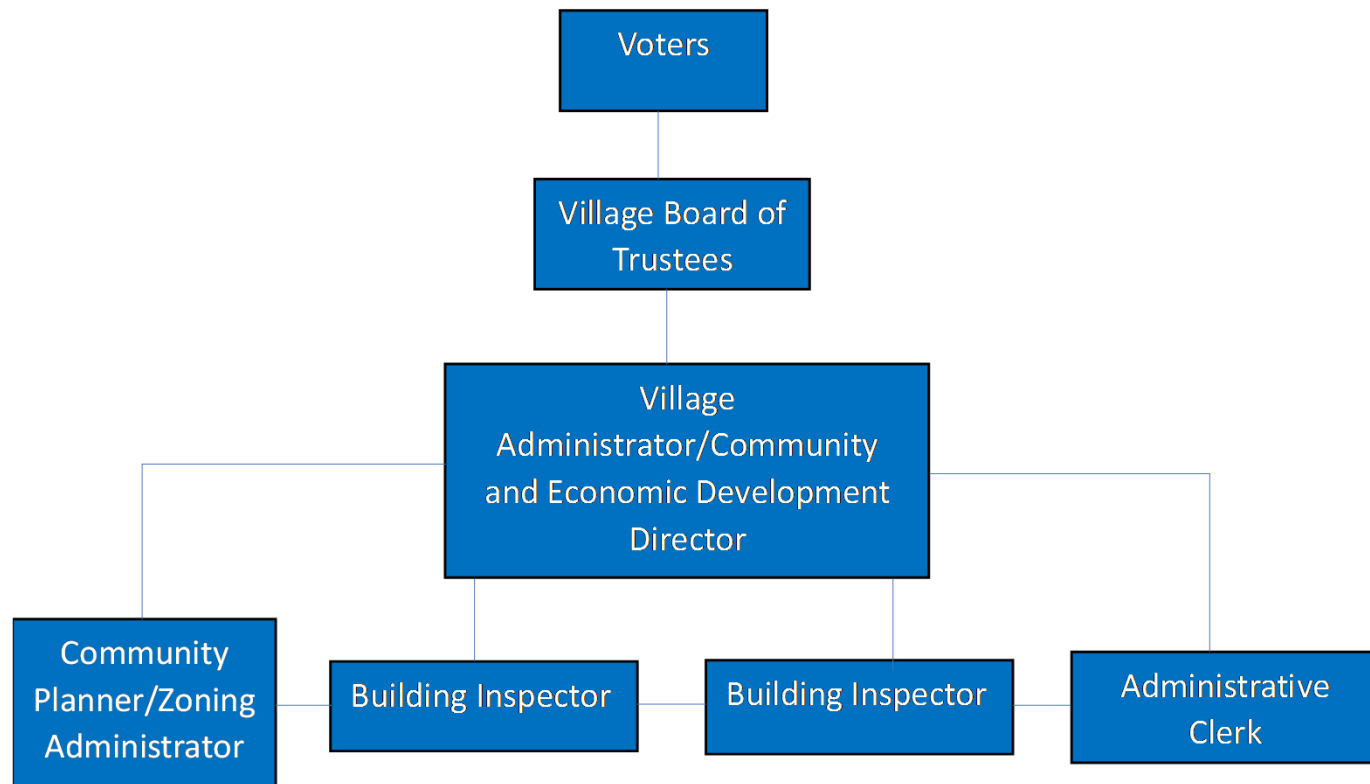


Our Challenge:

“I would never recommend starting a business in Mukwonago.”

- Mukwonago Business Owner and Trustee

Community and Economic Development Organizational Chart



Vision and Mission

Functions:

- Building Inspection,
- Planning, Zoning,
- Code Enforcement
- Economic Development

In one department

Improving our Mukwonago community's quality of life and property values through sound community planning and sustainable economic development.

We are the Village's Development Concierge, providing professional, empathetic customer assistance to people to help with their development ideas."



Four Goals

Twenty-Four Objectives

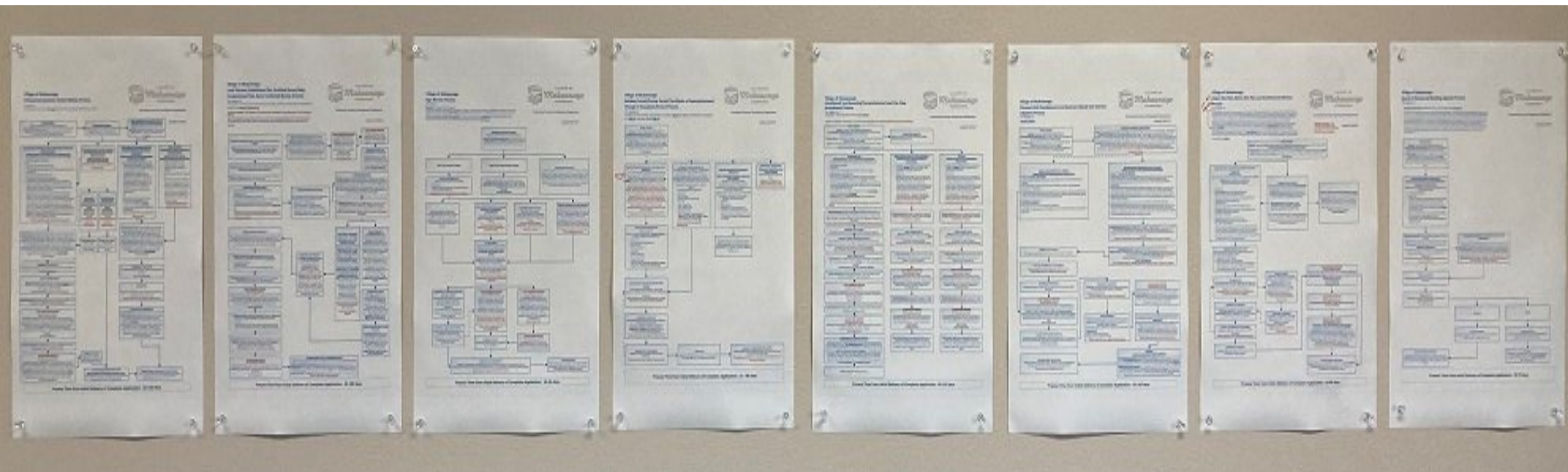
1. Create a common understanding of the development system and process
2. Develop measurable success indicators
3. Clean Up
4. Sharpen the Saw



Business Approval Process Checklist

1. Prepare a **Business Summary** or develop a business plan that describes what service your business will perform.
2. Submit a **Zoning Review Application** with the Planner/Zoning Administrator to discuss your business plan, proposed location, and zoning. [Planning and Zoning Email](#)
3. Submit an **Occupancy Permit Application** and one time inspection fee and impact fee, then schedule a date for inspections in order to open on time!
4. Based on the **Zoning Review**, the operations of the business or work to be performed, the following may or may not apply:
 - **Conditional Use** - Submit application(s) and review fee to the Planner/Zoning Administrator. (If applicable)
 - **Site Plan and/or Architectural Review** - Submit application with plans and review fee to the Planning and Zoning. (If applicable)
 - **Submit Building Permit Application and Fees to Building Inspection. (If applicable)** *Impact fee worksheet required for new, additions, and alterations.* [Building Inspection Email](#)
 - **Signage Permits** - Submit application plans and fees to the Planner/Zoning Administrator in order to receive signage approval, along with Sign Permit after Review from Zoning has been completed.
 - **License Review and Approval** – If applicable, submit applications directly through the Village Clerk's Office for license review and approval from the Village Board. [Clerk-Treasurer Page](#)
 - **Food Related Establishment Approval** -If applicable, consult with the [Waukesha County Environmental Health](#) for food related establishment approvals.
5. Do you have your approvals and inspections completed?
6. **Open Your Business!**





Mapping-out Mukwonago's Development Processes



VILLAGE OF MUKWONAGO HISTORIC PRESERVATION REVIEW REQUIREMENTS

- ☐ **Application Completeness:** See page 2 for complete list of submittals.
- ☐ **Preliminary Meeting:** Available upon request.
- ☐ **Application Submission:**
 - ☐ **Applications must be submitted electronically** through the Village on-line permit system. The system may be accessed through this [link](#).
 - ☐ If you are a new user, you will need to start by creating a "Contractor" account. A "Contractor" is a non-owner (Business Owner, Design Professional, etc). If you are the property AND business owner, you may apply as a "Homeowner".
 - ☐ Once you arrive to the site you will need to apply for a "Planning, Zoning, or Engineering Process". This link can be found on the left side of the screen under Planning and Zoning page of the Village website. The program will allow you search by the address, apply for appropriate application, input various information, and upload documents.
 - ☐ **Fees:** Fees may be paid in one of three ways.
 1. You may pay your fee online. After the application is submitted staff has received and reviewed the application an email will be sent to the applicant (email that is provided) letting you know that you can pay the fee online. There is an additional fee associated with this option.
 2. You may pay with cash or a check by mailing or bring the check to Village Hall. There is not a transaction fee associated with this option.
 3. You may pay with a credit card at Village Hall during normal hours and in person. There is a transaction fee association with this option.
 - ☐ **Meeting Dates:** Historic Preservation Commission meets on the first Thursday of each month (AS NEEDED) at 6:30 p.m.
 - ☐ **Application Deadlines:** Applications deadlines are approximately 5 weeks prior to the scheduled meeting.
 - ☐ **Building Permits requiring Historic Preservation Commission Review:**
 - ☐ Anything requiring a permit within the Pearl Ave and Grand Ave District.
 - ☐ Any new designations for a historic property or district (PUBLIC HEARING).

PROCEDURAL CHECKLIST FOR HISTORIC PRESERVATION REVIEW AND APPROVAL

This form is designed to be a guide for submitting a complete application for HISTORIC PRESERVATION.

Application Submittal Requirements for Village and Applicant Use (Check off List)

Application:

- ☐ Online Application Completed
- ☐ Application fee:
 - ☐ Review Fee - \$20
 - ☐ All other Building Permit Fees once approved.
- ☐ Agreement for Reimbursable Services (separate attachment)

Required site drawings:

- ☐ Site Plan with sign layout and setbacks
- ☐ All building elevations and/or rendering of materials (i.e. fences, sheds)
- ☐ Existing Photos of Buildings on the site.

Other Documents:

- ☐ Electronic Submittals are required. All documents need to be uploaded into the BS&A Software.
- ☐ Any additional information as determined by Village Staff.



Next Steps in Mapping our Processes

- Share Changes with Staff and Board – Ask for Help Going Forward
- Seek Opportunities for Process Refinement from Staff & Board
- Validate our Processes & Procedures
- Provide a Mechanism for Simplifying our Processes & Procedures
- Review Flow Charts and Eliminate Unnecessary Requirements/Ordinances



Other Activities

- BS&A Training – Learning and Using BS&A to its Full Functionality
- Learning & Utilizing SharePoint as our Department's Document Platform
- Active engagement of occupancy permits to ensure an accurate list of business
- Closing out outstanding Building Permits in a Timely Manner;
- Ensuring Proper Staffing of Committees



In The Works

- Shifting to a more proactive code compliance system
- Create an easy to use, single CED Department webpage
- Define the Department's Economic Development Engagement processes and Activities
- Developing a monthly reporting mechanism
- Developing customer surveys
- Determine if BS&A system best meets the Department's needs
- Filter all complaints through CED Department/Robin; create a "Report a concern" Button staffed by the CED



Questions?

Thank you!

