LANDMARKS COMMISSION APPLICATION

LC

Complete all sections of this application, making sure to note the requirements on the accompanying checklist (reverse).

If you need an interpreter, translator, materials in alternate formats or other accommodations to access these forms, please call (608) 266-4635

City of Madison
Planning Division
215 Martin Luther King Jr Blvd, Ste 017
PO Box 2985
Madison, WI 53701-2985
(608) 266-4635

1. LOCATION

Project Address: 3701 Council Crest, Madison WI 53711 **Alder District:** 10

2. PROJECT

Project Title/Description: New Home Construction

This is an application for: *(check all that apply)*

☑ **New Construction/Alteration/Addition in a Local Historic District or Designated Landmark** *(specify)*:
- ☐ Mansion Hill
- ☐ Third Lake Ridge
- ☐ First Settlement
- ☐ University Heights
- ☐ Marquette Bungalows
- ☑ Landmark

☐ **Land Division/Combination in a Local Historic District or to Designated Landmark Site** *(specify)*:
- ☐ Mansion Hill
- ☐ Third Lake Ridge
- ☐ First Settlement
- ☐ University Heights
- ☐ Marquette Bungalows
- ☐ Landmark

☐ **Demolition**

☐ **Development adjacent to a Designated Landmark**

☐ **Variance from the Historic Preservation Ordinance (Chapter 41)**

☐ **Landmark Nomination/Rescission or Historic District Nomination/Amendment**
(Please contact the Historic Preservation Planner for specific Submission Requirements.)

☐ **Informational Presentation**

☐ **Other** *(specify)*:

DPCED USE ONLY

Legistar #:

DATE STAMP

3. APPLICANT

Applicant's Name: Jon and Brenda Furlow **Company:**

Address: 2120 Girard Ave S, Minneapolis, MN 55405
Street City State Zip

Telephone: 608.852.4506 **Email:** jon.furlow@gmail.com

Property Owner *(if not applicant)*:

Address:
Street City State Zip

Property Owner's Signature: **Date:** July 21, 2023

NOTICE REGARDING LOBBYING ORDINANCE: If you are seeking approval of a development that has over 40,000 square feet of non-residential space, or a residential development of over 10 dwelling units, or if you are seeking assistance from the City with a value of $10,000 (including grants, loans, TIF or similar assistance), then you likely are subject to Madison's lobbying ordinance (Sec. 2.40, MGO). You are required to register and report your lobbying. Please consult the City Clerk's Office for more information. Failure to comply with the lobbying ordinance may result in fines.

4. APPLICATION SUBMISSION REQUIREMENTS *(see checklist on reverse)*

All applications must be filed by 12:00pm on the submission date with the Preservation Planner. Applications submitted after the submission date *or* incomplete applications will be postponed to the next scheduled filing time. Submission deadlines can be viewed here: https://www.cityofmadison.com/dpced/planning/documents/LC_Meeting_Schedule_Dates.pdf

Jon and Brenda Furlow
2120 Girard Ave S, Minneapolis, MN 55405
jon.furlow@gmail.com 608.852.4506
bsfurlow71@gmail.com 608.692.0175

July 21, 2023

Dear Landmarks Commission:

Thank you for the opportunity to submit this letter of intent for new construction of a home at 3701 Council Crest, which is a designated landmark lot adjacent to the Old Spring Tavern. Brenda and I lived in Nakoma on Oneida Place for 22 years, were very active in the neighborhood and raised our family there. In 2015, we relocated to Minneapolis for job-related reasons, and are now in a position to return to Madison. We purchased this lot so could return to the Nakoma neighborhood.

We have been closely following the controversy over the lot division to better understand and address concerns about building a home. We have been working with archeologists, arborists, as well as our builder, professional engineer and landscape professional to find a solution that is consistent with the Tavern and Nakoma area, is reasonable and addresses both the concerns raised during the land division hearings, and more recently the concerns raised when we filed our prior March application, that we withdrew.

This Application includes the following items for your consideration:

1. Architectural drawings, including dimensioned site plans, elevations, and floor plan and roof plan.
2. Perspective renderings.
3. Engineering plans for stormwater management.
4. Initial landscape plans.
5. Photographic supplement.

As long time Nakoma residents, we are interested in proposing a home that fits within the neighborhood. Since last September, we have devoted countless hours and significant resources to plan and design a home that is consistent with existing homes in Nakoma, and addresses the concerns raised by neighbors.

Here are some of the considerations that we worked with as we planned this project:

1. **Respecting Native American Heritage**. Long ago there were some artifacts found at this site, but they were removed to the Wisconsin Historical Society.[1] Since then, there has been significant site excavation for landscaping purposes. And as part of the land division hearings, a full archeological study and report was completed and submitted for this site. The

[1] Bruce Allison. *Every Root and Anchor, Wisconsin's Famous and Historic Trees* (Wisconsin Historical Society Press 2005), 20.

archeologist found no evidence of burials, mounds or other Native American use of the property and no evidence of deposits or features associated with the historic Old Spring Tavern. Rather, the burial mounds in the area were located across Spring Trail at the property now known as 3622 Nakoma Road.

2. **The Landmark Site Has Been Altered and Developed Over Time.** Historically, this site was open space populated by oak trees and a large black walnut tree. The oak trees were cut down years ago perhaps to build the Tavern (Allison 2005, 22), and the black walnut tree remains. Since then, the site has been heavily landscaped with gardens and the construction of various retaining walls. Similarly, the Tavern itself has been changed with the addition of large porches, the construction of a driveway and large parking pad, patio area, as well as a garage complex and shed:

View east toward Tavern from Council Crest

View west from Tavern toward Council Crest

3. **Preserving the Black Walnut Tree.** While some estimate that the black walnut tree is 300 years old, dating based on forestry methods[2] age the tree at about 234 years. The average lifespan of a black walnut is 250 years based on the DNR Handbook of Silverculture (Chpt. 45), and that can be reduced by up to 20% to 200 years for urban trees according to the Illinois Horticultural Extension. It's reasonable to conclude that this tree is nearing the end of its years.

   Still, we understand the strong interest in maintaining this tree, so we have no plans to cut the tree down. Instead, we have modified the plans for our home to preserve the tree. We have worked with arborists to configure and reduce (*i.e.* notch in) the foundation footprint to mitigate root impacts. And we are planning steps during construction to minimize root impacts. Of course, nothing is guaranteed but we are taking reasonable steps to preserve this tree.

4. **Preserving Existing Site Elements**. The site is bordered by a black iron fence with a gate, and contains a large number of stones that were used to construct various retaining walls. We are planning to retain the fence around the site after construction, and repurpose the existing stone work as part of the final landscaping work.

[2] The standard method calculates age based upon diameter at breast height (DBH) x 4.5, which is the growth factor for black walnut trees. DNH (52") x 4.5 = 234.

5. **Planning for a Smaller Second Floor to Reduce The Profile.** We are sensitive to the concerns during the lot division hearings that a house would be built on the site that is out of scale with the Tavern and neighborhood, so we planned a house consistent with the immediate area. Like many lots in Nakoma, our lot is on a hill. And like many homes in Nakoma on hills we will have an exposed basement that exposes three full floors. The Tavern is an example of this:

Nakoma Road Tavern View – Three Floors with an Exposed Basement

To reduce the size of our house looking up from the Tavern, we did not add a full second floor, but limited the size of the second-floor area to about 35% of the first-floor area. Limiting the size of the second floor also reduces the profile from the Council Crest side. Put differently, rather than propose a full two-story house on Council Crest, which from the Tavern would appear as three full floors, we incorporated a smaller second floor that reduces the size from the Tavern side.

6. **Our Planned Home is Consistent in Scale with the Tavern Residence.** To better understand our proposed home in the context of the Tavern home, we prepared side by side comparison of elevations using the actual dimensions from our submitted plans, and actual dimensions from the Design Coalition drawings of the Tavern dated September 2000 when the garage and other structures were added to the Tavern. Of course, there are differences in the structures, but from an overall perspective, they are consistent in scale, with the Tavern about 2 feet taller and about 3 feet wider than our planned home.

7. **Our Planned Home is Consistent with Adjacent Development**. There has been a lot of adjacent and nearby development since the Tavern was built in 1854. There were additions to the Tavern itself in 2000, including the garage complex, driveway and shed.

Tavern Driveway and Parking Area

Tavern Garage Complex

Next door to the Tavern, there is a contemporary looking house at 3714 Nakoma Road. And looking from the rear patio of the Tavern, there is a contemporary two-story house at 3705 Council Crest with a full exposed basement, making it three levels from the Tavern view.

View from Nakoma Road – 3714 Nakoma Road Adjacent to Tavern

View from Corner of Tavern Lot to House at 3705 Council Crest

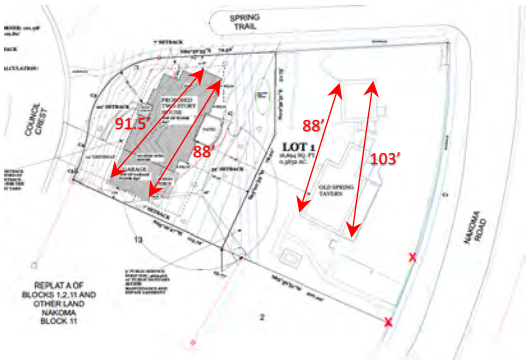
8. **Our Planned Home is Consistent in Style and Scale With Nakoma Development**. Our proposed house is a stucco, Tudor-style house which is common in Nakoma. Although on the larger side for Nakoma, there are a number of larger homes in the neighborhood, including some on the adjacent streets. This is demonstrated by a comparison of our proposed house to others in Nakoma using three different measurements from the Madison property tax records.

   We first compared houses by "living area" sq./ft as reported by Madison property tax records (1st, 2nd, 3rd floor). Using this measure, there are at least 20 houses in Nakoma (and at least

two on the surrounding blocks) that are larger than our proposed house.[3] We next compared houses by total sq./ft (all floors, porches, patios and basement). Using this measure, there are 10 homes, including the Tavern, that measure over 5000 square feet and 7 of those are larger than our proposed home.[4] And third, we compared houses by looking at total sq./ft (all floors, porches, patios and basement) as a percentage of lot size. Using this measure, there are 10 houses larger than our proposed house, including 5 on the adjacent streets.[5]

Our proposed home is consistent in size with the Tavern, with a slightly larger footprint (left diagram), but slightly smaller in overall length from a street perspective. (right diagram).

Site Plan, with Tavern Superimposed Over Our Proposed Home Footprint



Site Plan, Comparing Lengths of Both Homes from Street Level Perspective

Our proposed footprint is slightly larger because we reduced the size of our second floor to about 35% of the overall footprint to address viewshed concerns. We could have planned a house with a footprint closer in size with the Tavern by including a full sized second floor. But that didn't make sense to us since the overall house would then look larger both from the Tavern view (two full floors, plus a full exposed basement) and the Council Crest view (two full floors).

9. **We Have Reduced Drainage Toward the Tavern**. The approved CSM creating the lot includes a drainage easement, and we have discussed drainage concerns with the Tavern owners in part because of prior water seepage into the Tavern basement. To address concerns, we retained an engineering firm and have submitted with our application an Erosion Control and Stormwater Management Plan, which includes plans for grading and various improvements including a rain garden, and is supported by before and after run-off

[3] 734 Huron Hill, 726 Oneida Pl, 822 Miami Pass, 3833 Council Crest, 3810 Council Crest, 701 Ottawa Trail, 802 Huron Hill, 745 Miami Pass, 821 Miami Pass, 737 Oneida Pl, 3710 Council Crest, 809 Ottawa Trail, 741 Oneida Pl, 3614 Spring Trail, 722 Huron Hill, 713 Ottawa Trail, 722 Miami Pass, 833 Miami Pass, 3841 Nakoma Road, 3914 Cherokee Drive and 702 Oneida Pl.

[4] 809 Ottawa Trail, 745 Miami Pass, 822 Miami Pass, 701 Ottawa Trail, 3614 Spring Trail, 3833 Council Crest, 802 Huron Hill, 3706 Nakoma Road, 726 Oneida Pl, and 734 Huron Hill.

[5] 3629 Spring Trail, 3618 Nakoma Road, 3630 Spring Trail, 726 Oneida Pl, 4010 Naheda Trail, 737 Oneida Pl, 745 Miami Pass, 3621 Spring Trail, 3736 Nakoma Road and 821 Hiawatha Drive.

calculations demonstrating that we have properly managed drainage away from the Tavern. Specifically, the Stormwater Runoff Summary demonstrates that the plan for our proposed home has ***reduced*** the run-off toward the Tavern property in every case from a 1-Year, 24hr event to a 500-Year, 24hr event.

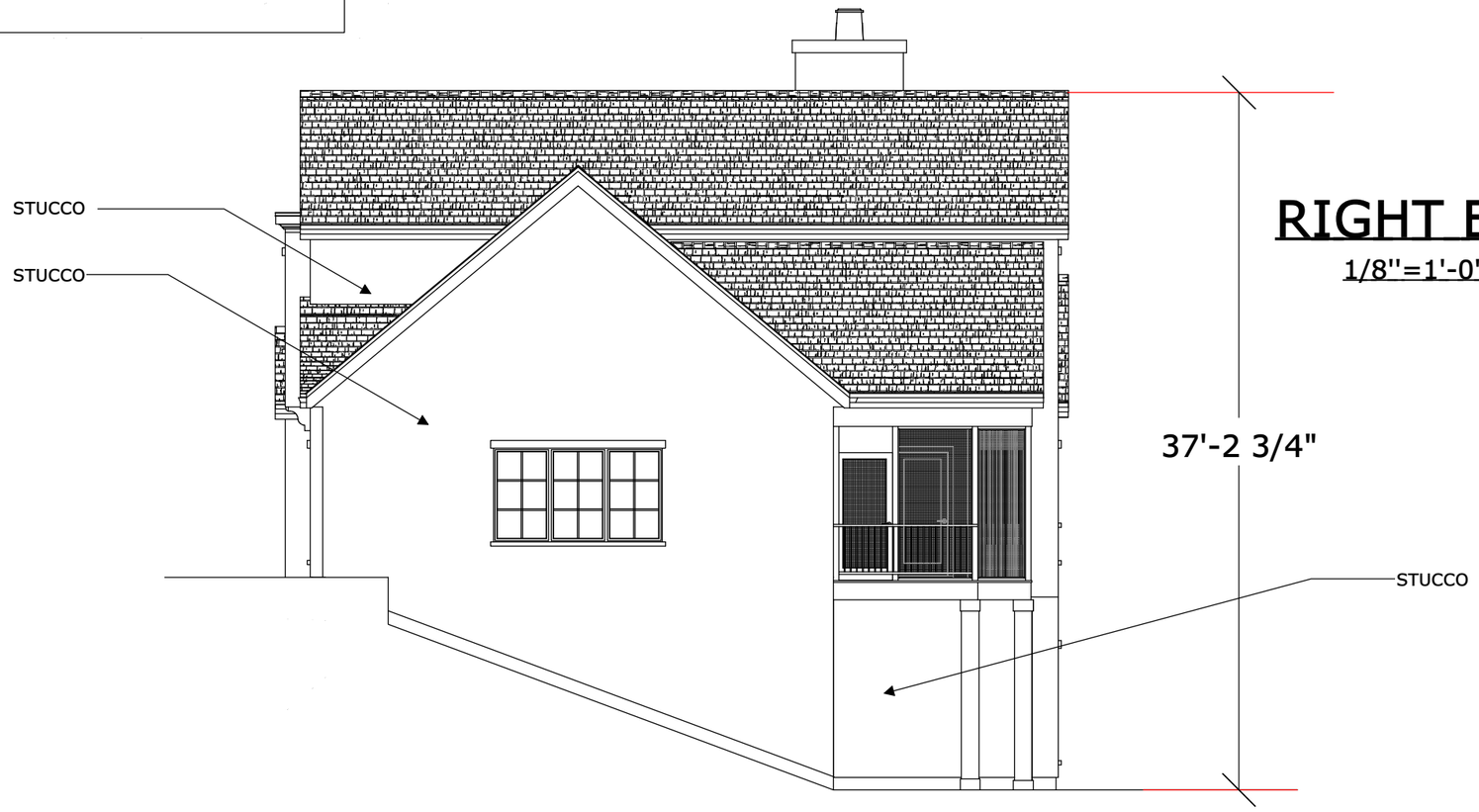
Thank you again for considering our Application.

Jon and Brenda Furlow

FRONT ELEVATION

1/8"=1'-0"

AVG HT. (4 SIDES): 34.855'



RIGHT ELEVATION

1/8"=1'-0"

LOWER LEVEL FINISHED PLAN	= 1482 SQ. FT.
MAIN LEVEL FINISHED PLAN	= 2156 SQ. FT.
UPPER LEVEL FINISHED PLAN	= 812 SQ. FT.
TOTAL FINISHED	= 4450 SQ. FT.
LOWER LEVEL UNFINISHED	= 674 SQ. FT.
SCREEN PORCH	= 182 SQ. FT.
GARAGE	= 617 SQ. FT.
COVERED FRONT PORCH	= 63 SQ. FT.
DECK	= 46 SQ. FT.

NEW HOME FOR:
FURLOW RESIDENCE
3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY
NOT FOR CONSTRUCTION

ELEVATIONS

DATE: 7/21/2023

SCALE: SCALE: 1/8" = 1'-0"

REVISION	SHEET
VER. 5	1

BACK ELEVATION

1/8"=1'-0"

LEFT ELEVATION

1/8"=1'-0"

LOWER LEVEL FINISHED PLAN	= 1482 SQ. FT.
MAIN LEVEL FINISHED PLAN	= 2156 SQ. FT.
UPPER LEVEL FINISHED PLAN	= 812 SQ. FT.
TOTAL FINISHED	= 4450 SQ. FT.
LOWER LEVEL UNFINISHED	= 674 SQ. FT.
SCREEN PORCH	= 182 SQ. FT.
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NEW HOME FOR:

FURLOW RESIDENCE

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LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY

NOT FOR CONSTRUCTION

ELEVATIONS

DATE: 7/21/2023

SCALE: SCALE: 1/8" = 1'-0"

REVISION: VER. 5

SHEET: 2

LOWER LEVEL FINISHED PLAN	= 1482 SQ. FT.
MAIN LEVEL FINISHED PLAN	= 2156 SQ. FT.
UPPER LEVEL FINISHED PLAN	= 812 SQ. FT.
TOTAL FINISHED	= 4450 SQ. FT.
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SCREEN PORCH	= 182 SQ. FT.
GARAGE	= 617 SQ. FT.
COVERED FRONT PORCH	= 63 SQ. FT.
DECK	= 46 SQ. FT.

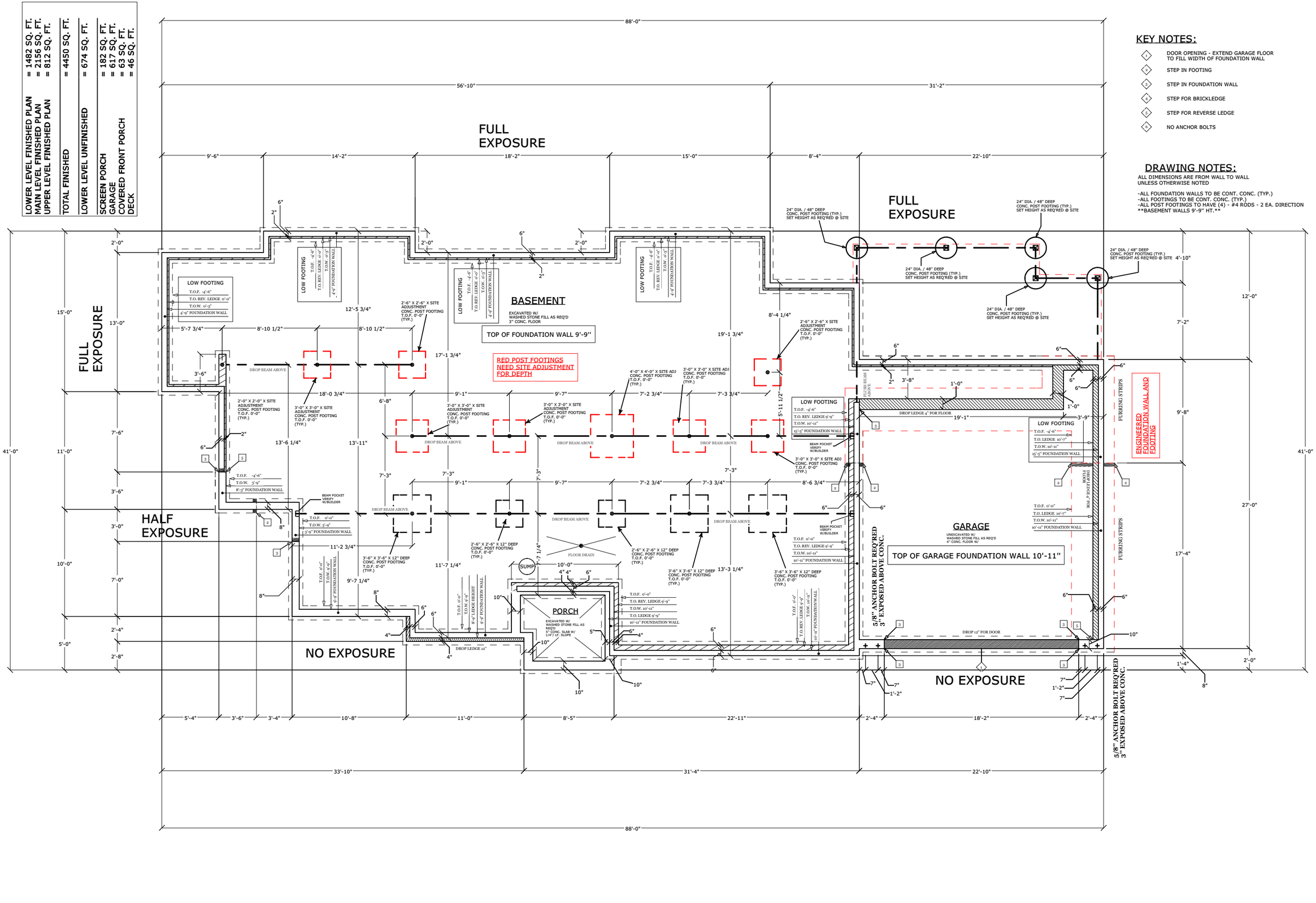
KEY NOTES:

1. DOOR OPENING - EXTEND GARAGE FLOOR TO FILL WIDTH OF FOUNDATION WALL
2. STEP IN FOOTING
3. STEP IN FOUNDATION WALL
4. STEP FOR BRICKLEDGE
5. STEP FOR REVERSE LEDGE
6. NO ANCHOR BOLTS

DRAWING NOTES:

ALL DIMENSIONS ARE FROM WALL TO WALL
UNLESS OTHERWISE NOTED

-ALL FOUNDATION WALLS TO BE CONT. CONC. (TYP.)
-ALL FOOTINGS TO BE CONT. CONC. (TYP.)
-ALL POST FOOTINGS TO HAVE (4) - #4 RODS - 2 EA. DIRECTION
BASEMENT WALLS 9'-9" HT.



NEW HOME FOR:

FURLOW RESIDENCE

3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY

NOT FOR CONSTRUCTION

FOUNDATION

DATE: 7/21/2023

SCALE: SCALE: 1/8" = 1'-0"

REVISION	SHEET
VER. 5	3

LOWER LEVEL FINISHED PLAN	= 1482 SQ. FT.
MAIN LEVEL FINISHED PLAN	= 2156 SQ. FT.
UPPER LEVEL FINISHED PLAN	= 812 SQ. FT.
TOTAL FINISHED	= 4450 SQ. FT.
LOWER LEVEL UNFINISHED	= 674 SQ. FT.
SCREEN PORCH	= 182 SQ. FT.
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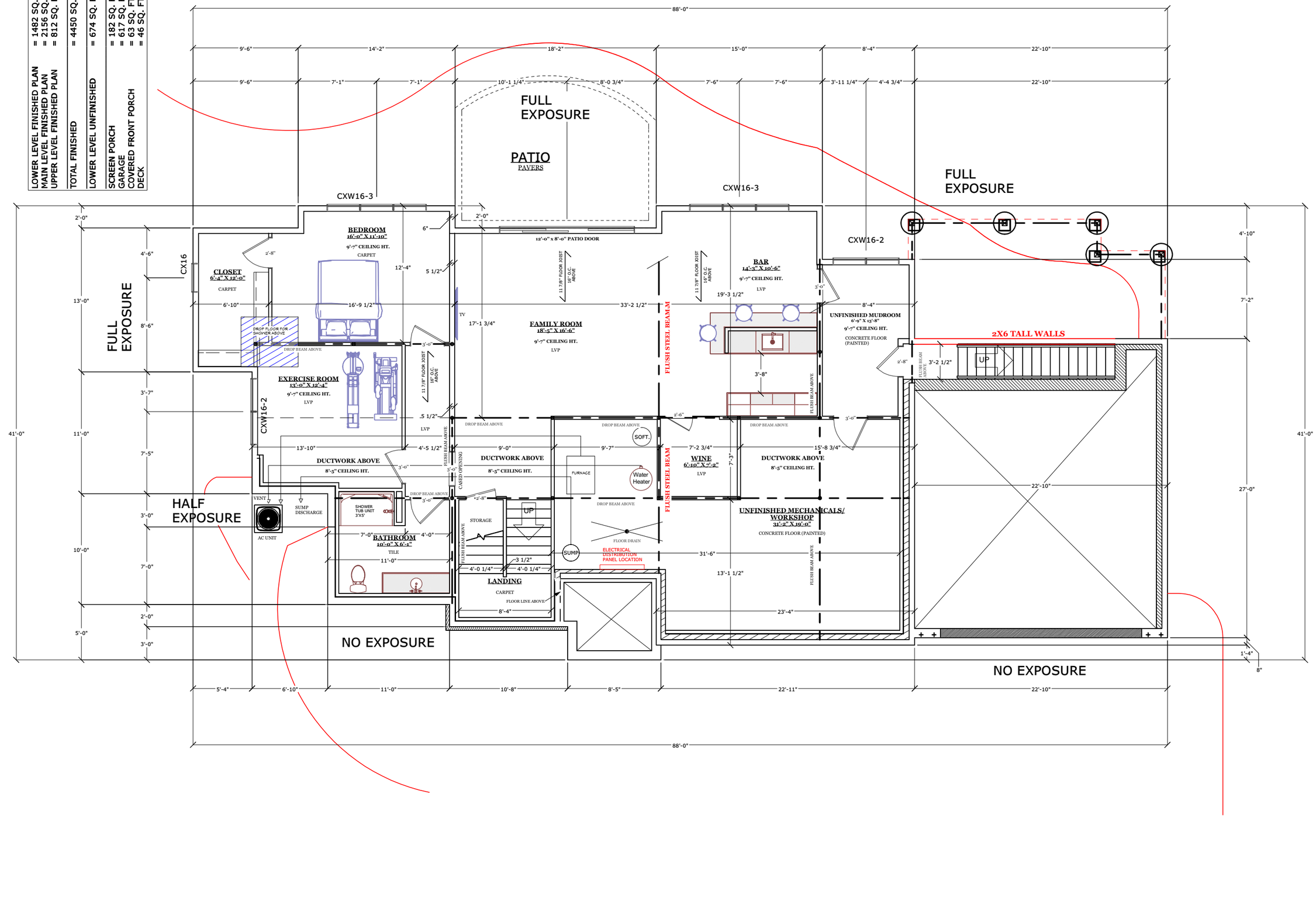

NEW HOME FOR:

FURLOW RESIDENCE

3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY

NOT FOR CONSTRUCTION

LOWER LEVEL

DATE: 7/21/2023

SCALE: SCALE: 1/8" = 1'-0"

REVISION: VER. 5

SHEET: 4

LOWER LEVEL FINISHED PLAN	= 1482 SQ. FT.
MAIN LEVEL FINISHED PLAN	= 2156 SQ. FT.
UPPER LEVEL FINISHED PLAN	= 812 SQ. FT.
TOTAL FINISHED	= 4450 SQ. FT.
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SCREEN PORCH	= 182 SQ. FT.
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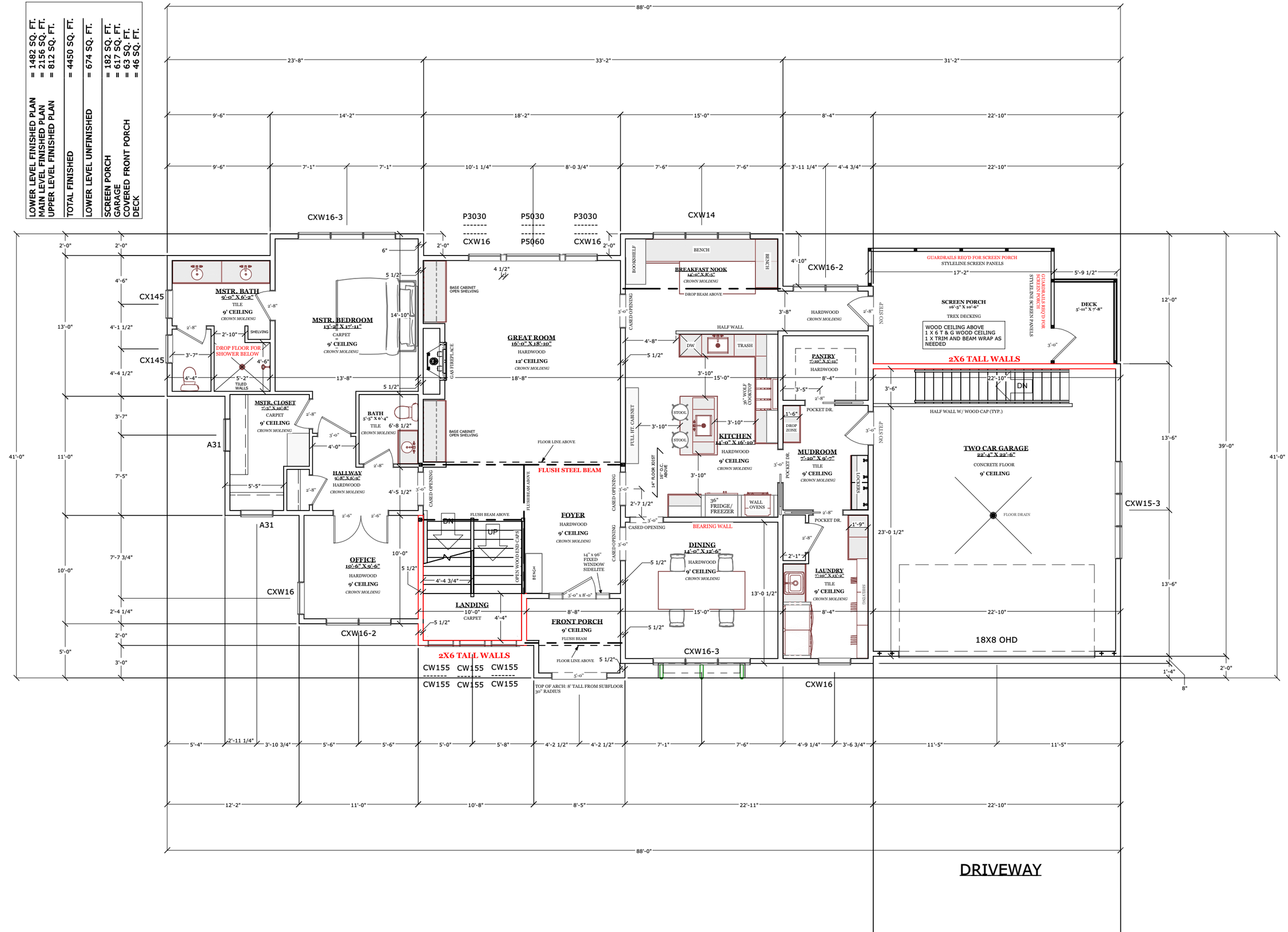

NEW HOME FOR:

FURLOW RESIDENCE

3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY
NOT FOR CONSTRUCTION

MAIN LEVEL

DATE: 7/21/2023

SCALE: SCALE: 1/8" = 1'-0"

REVISION	SHEET
VER. 5	5

LOWER LEVEL FINISHED PLAN	= 1482 SQ. FT.
MAIN LEVEL FINISHED PLAN	= 2156 SQ. FT.
UPPER LEVEL FINISHED PLAN	= 812 SQ. FT.
TOTAL FINISHED	= 4450 SQ. FT.
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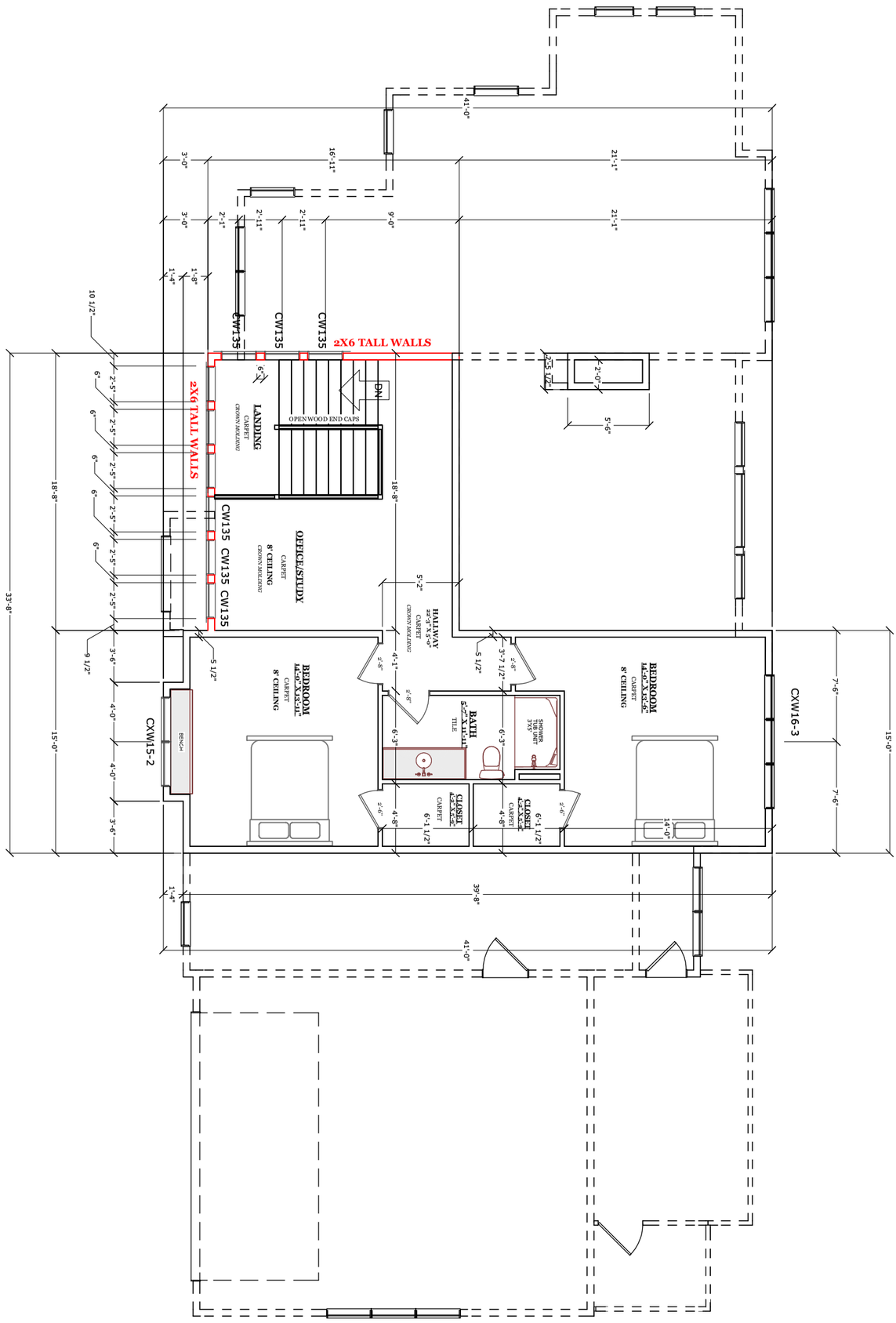


UPPER LEVEL	
DATE	7/21/2023
SCALE	SCALE: 1/8" = 1'-0"
REVISION	VER. 5
SHEET	6

PRELIMINARY DRAWINGS ONLY

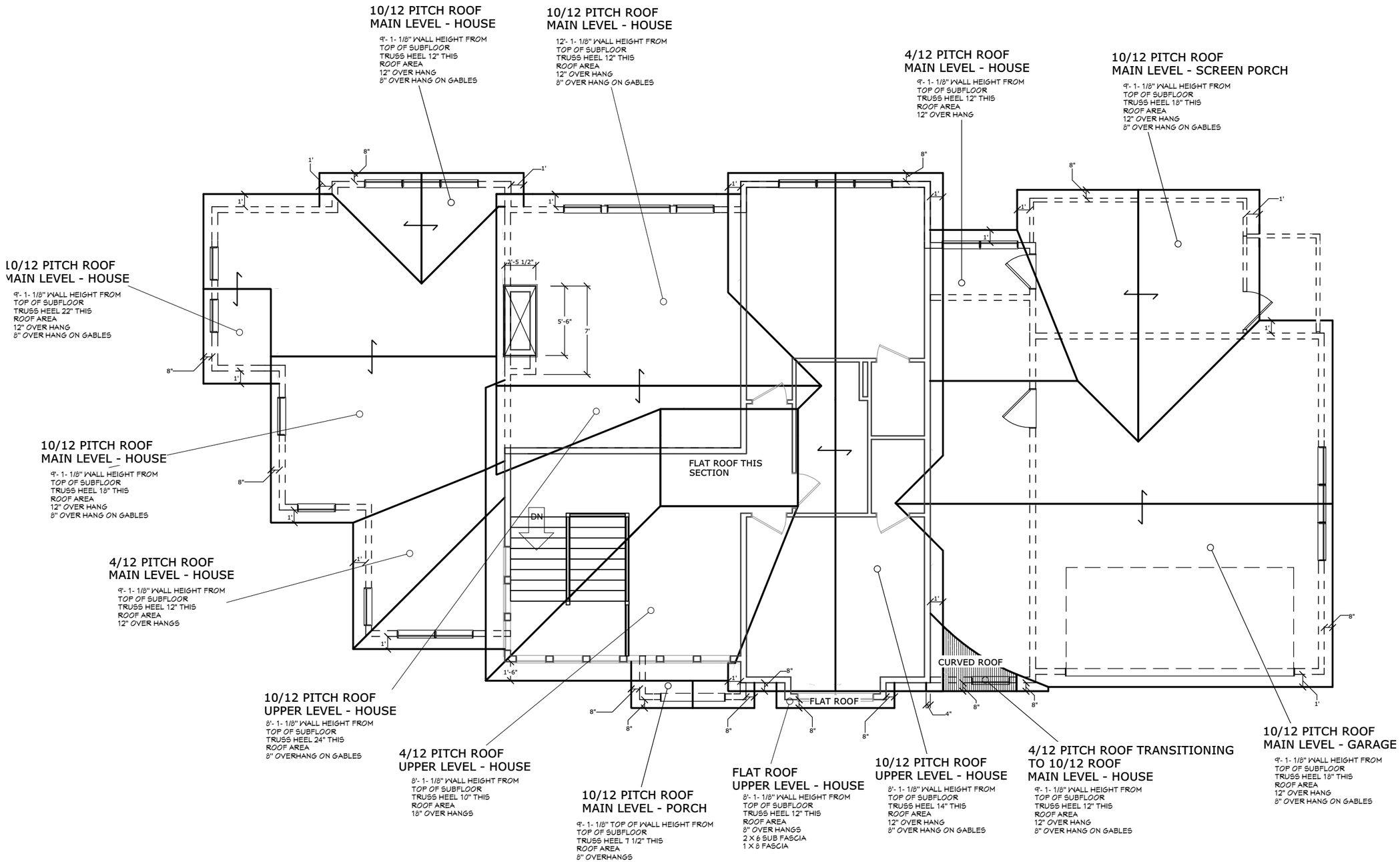
NOT FOR CONSTRUCTION

HART DENOBLE BUILDERS

NEW HOME FOR:

FURLOW RESIDENCE

3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN



NEW HOME FOR:

FURLOW RESIDENCE

3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY

NOT FOR CONSTRUCTION

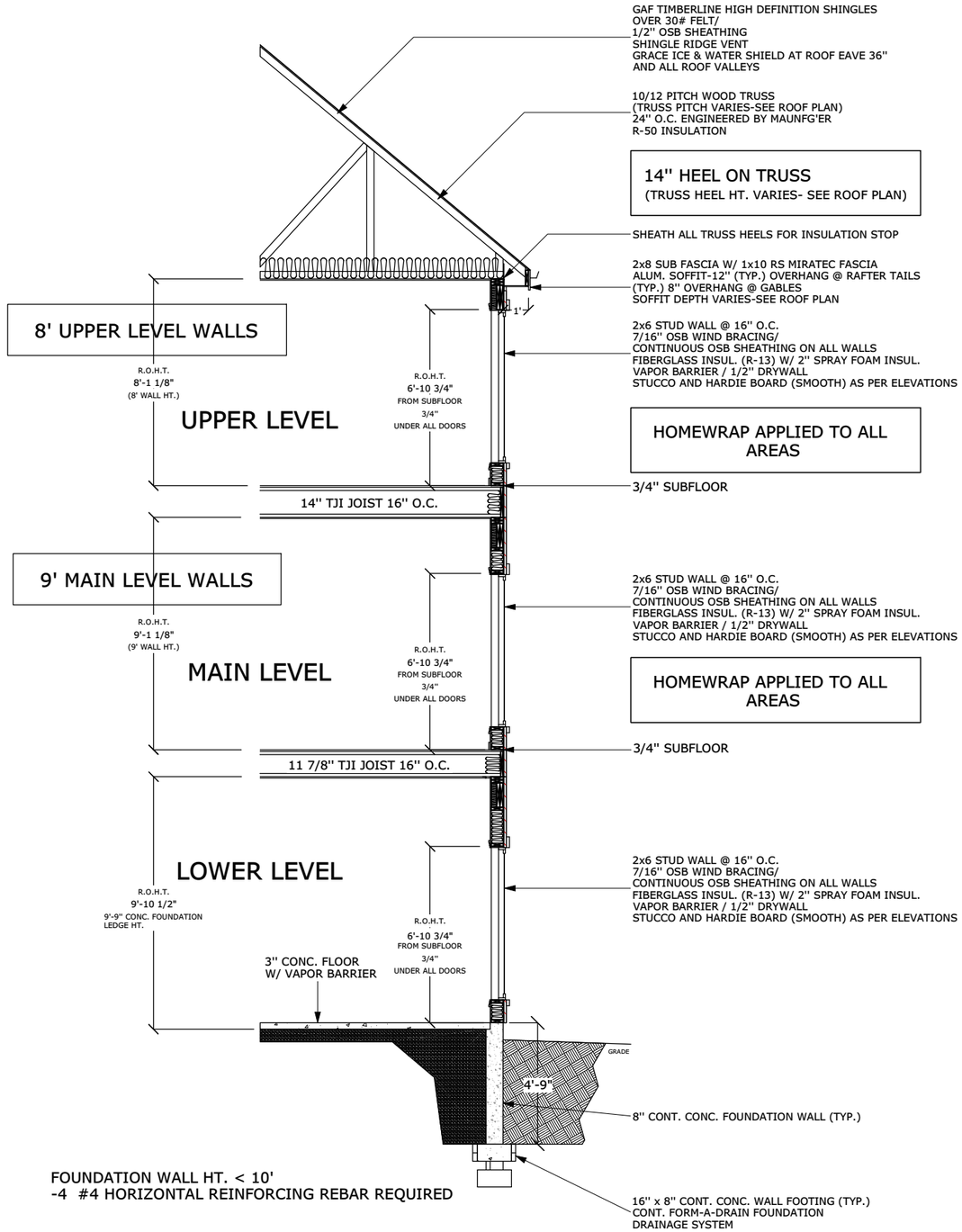
ROOF PLAN

DATE: 7/21/2023

SCALE: SCALE: 1/8" = 1'-0"

REVISION: VER. 5

SHEET: 7



FOUNDATION WALL HT. < 10'
-4 #4 HORIZONTAL REINFORCING REBAR REQUIRED

NEW HOME FOR:

FURLOW RESIDENCE

3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY

NOT FOR CONSTRUCTION

CROSS SECTION

DATE: 7/21/2023

SCALE: SCALE: 3/16'' = 1'-0''

REVISION: VER. 5

SHEET: 8

SCALE: 1" = 25'

LOT 2

10,832 SQ. FT.
0.2487 AC.

REAR YARD SETBACK CALCULATION:
DEPTH MEASUREMENT TO REAR YARD CORNER: 101.98'
DEPTH MEASUREMENT MIDDLE OF LOT: 109.80'
AVERAGE OF THE TWO: 105.89 '
105.89' X 30% OF AVERAGE: 31.77'
ROUNDED UP TO 32' FOR REAR YARD SETBACK

LOT COVERAGE/IMPERVIOUS SURFACE CALCULATION:
TOTAL SURFACE: 3940 SQ. FT.
TOTAL LOT AREA: 10832 SQ FT.
PERCENTAGE OF LOT COVERAGE: 36.4%

PLEASE REFER TO BURSE ENGINEERINGS PLAN/REPORT FOR STORM WATER MITIGATION

ALLEY
19
20
SPRING TRAIL
7' SETBACK
N86°56'53"E 72.52'
SIDEWALK
9.08'
DOWNSPOUT
889.17'
29.44'
C5
20' SETBACK
FRONT PORCH
39.94'
885.66
PROPOSED TWO-STORY HOUSE
TOP OF FLOOR 897'
PROPOSED RAIN GARDEN
51.75'
N00°32'51"E
PATIO
C4
22' DRIVEWAY
NO STEP INTO HOUSE
GARAGE
TOP OF GARAGE FLOOR 897'
SCREEN PORCH
DECK
77.76'
42.32'
32' SETBACK
78.00'
S25°00'59"W
48"
7.84'
C3
DERIVED 20' SETBACK FROM ARC CHORD OF C3 ARC. 20' SETBACK LINE IS USED FOR THE ENTIRE FRONT YARD SETBACK
7' SETBACK
N65°19'47"W 115.72'
13
5' PUBLIC SERVICE STRIP DOC. 463246A
10' PUBLIC SANITARY ACCESS MAINTENANCE AND REPAIR EASEMENT
13.77'
N65°50'31"W 100.00'
2
COUNCIL CREST
REPLAT A OF BLOCKS 1,2,11 AND OTHER LAND NAKOMA BLOCK 11
N

LOT 1

16,694 SQ. FT.
0.3832 AC.

OLD SPRING TAVERN
SIDEWALK
C1
NAKOMA ROAD

NEW HOME FOR:
FURLOW RESIDENCE
3701 Council Crest
LOT 2
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS

PRELIMINARY DRAWINGS ONLY
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SITE PLAN	
DATE: 7/21/2023	
SCALE: SCALE: 1" = 25'	
REVISION: VER. 5	SHEET: 9

Jon and Brenda Furlow
2120 Girard Ave S, Minneapolis, MN 55405
jon.furlow@gmail.com 608.852.4506
bsfurlow71@gmail.com 608.692.0175

July 21, 2023

Dear Landmarks Commission:

Please accept this as a photographic supplement to our July 21 letter of intent for new construction of a home at 3701 Council Crest, which is a designated landmark lot adjacent to the Old Spring Tavern.

Our July 21 letter of intent included comparative elevations as well as data from the Madison property tax records showing that our proposed home was consistent in style and size with the Tavern and development in the Nakoma neighborhood. We are now providing photographs showing homes in the immediate area to visually provide a sense of style and scale.

Overview of Proposed Home In Context of Neighboring Nakoma Homes

As noted in our July 21 letter of intent, our planned home is consistent in scale with the Tavern as shown by the diagram on the right that compares the Tavern elevations as drawn by Design Coalition for the September 2000 renovations, and the elevations of our home that we submitted with this application.

To add context, below is a map of surrounding houses from Madison Property Look-Up, and next to that is a Google Earth view of the same area. We have included photographs of individual properties below that provide visual context.

Area Homes Surrounding the Old Spring Tavern – 3706 Nakoma Road

Overhead View of Tavern, Lot and Area Homes

Tavern Driveway, Entrance and Parking Pad off Spring Trail

Home at 3714 Nakoma Road Next to Tavern

View Looking at Backyards of Council Crest Homes

View from Spring Trail of Tavern Garage and Entrance

View from Tavern Driveway at 3622 Spring Trail Home

The Style and Size of Homes Around Our Proposed Home

Home Across Council Crest from Our Proposed House (3702 Council Crest)

View from Our Lot Across Council Crest

Street View from Council Crest

Home Across Spring Trail from Our Proposed Home (3710 Spring Trail)

View Up and Across Spring Trail to 3610 Spring Trail

View Showing Context With Proposed Home and Tavern

Home Next Door to Our Proposed Home (3705 Council Crest)

Front View from Council Crest

Rear View with Exposed Basement from Back of Our Lot

House Kitty-Corner NW from Our Proposed Home (3614 Spring Trail)	
	
East Overhead View of 3614 Spring Trail	View Showing Context With Our Lot and Tavern

Home Kitty-Corner SW from Our Proposed Home (3706 Council Crest)	
	
View from Our Lot Across Council Crest	Overhead View

Three Houses Down from Our Proposed Home, And Across Council Crest (3710 Council Crest)	
	
View from Council Crest	Overhead View in Context with Nearby Homes

EROSION CONTROL AND STORMWATER MANAGEMENT REPORT

3701 COUNCIL CREST
MADISON, DANE COUNTY, WISCONSIN

JULY 20, 2023

PREPARED FOR:
HART DENOBLE BUILDERS, INC
7923 AIRPORT RD
MIDDLETON, WI 53562

PREPARED BY:
Burse Surveying and Engineering, Inc.
2801 International Lane, Suite 101
Madison, WI 53704
(608) 250-9263

BSEI FN: BSE2589

EROSION CONTROL NOTES/SPECIFICATIONS:

1. EROSION CONTROL DEVICES AND/OR STRUCTURES SHALL BE INSTALLED PRIOR TO CLEARING AND GRUBBING OPERATIONS. THESE SHALL BE PROPERLY MAINTAINED FOR MAXIMUM EFFECTIVENESS UNTIL VEGETATION IS RE-ESTABLISHED.

2. EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECOGNIZING AND CORRECTING ALL EROSION CONTROL PROBLEMS THAT ARE THE RESULT OF CONSTRUCTION ACTIVITIES. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE DEVELOPER'S ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

3. ALL EROSION CONTROL MEASURES AND STRUCTURES SERVING THE SITE MUST BE INSPECTED AT LEAST WEEKLY OR WITHIN 24 HOURS OF THE TIME 0.5 INCHES OF RAIN IS PRODUCED. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS. INSPECTION SCHEDULE AND RECORD KEEPING SHALL COMPLY WITH NR 216.46(9), WIS. ADM. CODE.

4. CONSTRUCTION ENTRANCES – PROVIDE A STONE TRACKING PAD AT EACH POINT OF ACCESS. INSTALL ACCORDING TO WDNR STANDARD 1057. REFER TO WDNR'S STORMWATER WEB PAGE OF TECHNICAL STANDARDS AT: HTTP://DNR.WI.GOV/TOPIC/STORMWATER/STANDARDS/CONST_STANDARDS.HTML. THE TRACKING PAD MUST BE MAINTAINED IN A CONDITION THAT PREVENTS THE TRACKING OF MATERIAL ONTO THE PUBLIC STREET.

5. SOIL STOCKPILES – A ROW OF SILT FENCE PLACED DOWNSLOPE AND AT LEAST 10 FEET AWAY FROM THE STOCKPILE SHALL PROTECT ALL STOCKPILES. SOIL STOCKPILES THAT ARE INACTIVE FOR MORE THAN 14 CONSECUTIVE DAYS SHALL BE STABILIZED WITH SEED & MULCH, EROSION MAT, POLYMER, OR COVERED WITH TARPS OR SIMILAR MATERIAL. NO STOCKPILE SHALL BE PLACED WITHIN 20 FEET OF A DRAINAGE WAY.

6. DEWATERING – WATER PUMPED FROM THE SITE SHALL BE TREATED BY USING A TEMPORARY SEDIMENTATION BASIN, PORTABLE DEWATERING BASIN, GEOTEXTILE BAG, OR AN EQUIVALENT DEVICE. SHOW ON THE PLAN THE ANTICIPATED LOCATIONS OF DEWATERING ACTIVITY, AND PROVIDE AN ENGINEERING DETAIL OF THE DEWATERING SYSTEM. DEVISES SHALL COMPLY WITH WDNR TECHNICAL STANDARD 1061 FOUND AT: HTTP://DNR.WI.GOV/TOPIC/STORMWATER/STANDARDS/CONST_STANDARDS.HTML THIS WATER SHALL BE DISCHARGED IN A MANNER THAT DOES NOT INDUCE EROSION OF THE SITE OR ADJACENT PROPERTY.

PUMP SIZE (MAX GPM)	TYPE I BAG SIZE (SQ-FT)
50	25
100	50
150	75

7. STORM SEWER INLETS – PROVIDE WDOT TYPE D "CATCHALL" INLET PROTECTION OR EQUIVALENT. REFER TO WDOT PRODUCT ACCEPTABILITY LIST AT: HTTP://WWW.DOT.WISCONSIN.GOV/BUSINESS/ENGRSERV/PAL.HTM. INLET PROTECTION SHALL BE INSTALLED PRIOR TO THE STORM SEWER SYSTEM RECEIVING SITE RUNOFF. OTHER THAN FOR PERFORMING MAINTENANCE, THESE DEVICES SHALL NOT BE REMOVED UNTIL PLAT-LEVEL STABILIZATION IS COMPLETE.

8. BUILDING AND WASTE MATERIALS SHALL BE PREVENTED FROM RUNNING-OFF THE SITE AND ENTERING WATERS OF THE STATE IN CONFORMANCE WITH NR151.12(6M).

9. NO SOLID MATERIAL SHALL BE DISCHARGED OR DEPOSITED INTO WATERS OF THE STATE IN VIOLATION OF CH. 30 OR 31 OF THE WISCONSIN STATE STATUTES OR 33 USC 1344 PERMITS.

10. EROSION CONTROL DEVICES SHALL ADHERE TO THE TECHNICAL STANDARDS FOUND AT: HTTP://DNR.WI.GOV/RUNOFF/STORMWATER/TECHSTDS.HTM AND COMPLY WITH ALL CITY OF MADISON ORDINANCES.

11. ALL DEBRIS TRACKED ONTO PUBLIC STREETS SHALL BE BE SWEPT OR SCRAPED CLEAN BY THE END OF EACH WORKDAY.

12. ALL BUILDING AND WASTE MATERIAL SHALL BE HANDLED PROPERLY TO PREVENT RUNOFF OF THESE MATERIALS OFF OF THE SITE.

13. ALL DISTURBED AREAS SHALL BE SEEDED IMMEDIATELY AFTER GRADING ACTIVITIES HAVE BEEN COMPLETED.

14. ALL DISTURBED AREAS, EXCEPT PAVED AREAS, SHALL RECEIVE A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, FERTILIZER, SEED, AND MULCH. SEED MIXTURES SHALL BE SELECTED APPROPRIATE TO THE INTENDED FUNCTION. A QUALIFIED LANDSCAPING CONTRACTOR, LANDSCAPE ARCHITECT OR NURSERY CAN BE CONSULTED FOR RECOMMENDATIONS. SEEDING RATES SHALL BE BASED ON POUNDS OR OUNCES OF PURE LIVE SEED PER ACRE AND SHALL BE PROVIDED BY THE SEED SUPPLIER. FERTILIZER CAN BE APPLIED TO HELP PROMOTE GROWTH, BUT A SOIL TEST IS RECOMMENDED TO DETERMINE THE TYPE AND AMOUNT OF FERTILIZER TO BE APPLIED. ALL SEEDING AND RESTORATION SHALL BE IN CONFORMANCE TO WDNR TECHNICAL STANDARD 1059 FOUND AT HTTP://DNR.WI.GOV/TOPIC/STORMWATER/STANDARDS/CONST_STANDARDS.HTML. SEEDING AND SODDING MAY ONLY BE USED FROM MAY 1ST TO SEPTEMBER 15TH OF ANY YEAR. TEMPORARY SEED SHALL BE USED AFTER SEPTEMBER 15. IF TEMPORARY SEEDING IS USED, A PERMANENT COVER SHALL ALSO BE REQUIRED AS PART OF THE FINAL SITE STABILIZATION.

15. FOR THE FIRST SIX (6) WEEKS AFTER THE INITIAL STABILIZATION OF A DISTURBED AREA, WATERING SHALL BE PERFORMED WHENEVER MORE THAN SEVEN (7) DAYS OF DRY WEATHER ELAPSE.

EMERGENCY CONTACT

SCHEDULE:

OCTOBER 16, 2023	INSTALL SILT SOCK, SILT FENCE AND CONSTRUCTION ENTRANCE AND INLET FILTERS.
DECEMBER 16, 2024	PROJECT SUBSTANTIALLY COMPELE.
MAY 31, 2024	SEED AND MULCH ALL DISTURBED AREAS THAT ARE NOT HARD SURFACED.
JULY 31, 2024	VEGETATION ESTABLISHED

GENERAL NOTES:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF UNDERGROUND UTILITIES. UTILITIES WERE LOCATED BY OBSERVED EVIDENCE, MARKINGS PROVIDED BY DIGGER'S HOTLINE, AND RECORD DRAWINGS FROM THE CITY OF MADISON.

2. CONTRACTOR SHALL VERIFY THE SIZE, TYPE, SLOPE, AND INVERTS OF ALL EXISTING STORM AND SANITARY LATERALS CALLED OUT TO BE CONNECTED TO. CONTRACTOR SHALL SUBMIT THE INFORMATION ON THE PIPES TO THE CITY INSPECTOR AND PROJECT CIVIL ENGINEER.

3. ANY SIDEWALK, CURB, OR OTHER PUBLIC PROPERTY DAMAGED AS PART OF THE CONSTRUCTION OF THE UTILITIES AND BUILDING SHALL BE REPLACED IN-KIND PER THE CITY OF MADISON STANDARD SPECIFICATIONS.

4. THE RIGHT-OF-WAY IS THE SOLE JURISDICTION OF THE CITY OF MADISON AND IS SUBJECT TO CHANGE AT ANY TIME PER THE RECOMMENDATION/PLAN OF THE CITY.

5. CONTRACTOR SHALL INSTALL TREE PROTECTION FENCING IN THE AREA BETWEEN THE CURB AND SIDEWALK AND EXTEND IT AT LEAST 5 FEET FROM BOTH SIDES OF THE TREE ALONG THE LENGTH OF THE TERRACE. NO EXCAVATION IS PERMITTED WITHIN 5 FEET OF THE OUTSIDE EDGE OF A TREE TRUNK. IF EXCAVATION WITHIN 5 FEET OF ANY TREE IS NECESSARY, CONTRACTOR SHALL CONTACT CITY FORESTRY (266-4816) PRIOR TO EXCAVATION TO ASSESS THE IMPACT TO THE TREE AND ROOT SYSTEM. TREE PRUNING SHALL BE COORDINATED WITH CITY FORESTRY PRIOR TO THE START OF CONSTRUCTION. TREE PROTECTION SPECIFICATIONS CAN BE FOUND IN SECTION 107.13 OF CITY OF MADISON STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION http://www.cityofmadison.com/business/pw/documents/stdspecs/2018/part1.pdf. ANY TREE REMOVALS THAT ARE REQUIRED FOR CONSTRUCTION AFTER THE DEVELOPMENT PLAN IS APPROVED WILL REQUIRE AT LEAST A 72 HOUR WAIT PERIOD BEFORE A TREE REMOVAL PERMIT CAN BE ISSUED BY FORESTRY, TO NOTIFY THE ALDER OF THE CHANGE IN THE TREE PLAN.

SITE PLAN NOTES:

1. PAVEMENT DESIGN SHALL BE PER THE RECOMMENDATION OF THE SOILS CONSULTANT.

2. TRAFFIC CONTROL SIGNAGE SHALL BE IN ACCORDANCE WITH FEDERAL, STATE, COUNTY, CITY, AND LOCAL CODE, WHICHEVER HAS JURISDICTION.

3. NEW APRONS SHALL BE CONSTRUCTED AND PLACED IN CONFORMANCE WITH THE CITY OF MADISON STANDARD DETAIL 3.02 FOR COMMERCIAL OPENINGS.

GRADING PLAN NOTES:

1. ALL GRADES ARE FINISH ELEVATION UNLESS NOTED OTHERWISE.

UTILITY PLAN NOTES:

1. ALL WORK WITHIN THE CITY RIGHT OF WAY AND EASEMENTS SHALL BE COMPLIANT WITH THE CITY OF MADISON STANDARD SPECIFICATIONS CURRENT AT THE TIME OF CONSTRUCTION.

2. UTILITY INSTALLATION SHALL BE COORDINATED WITH ENGINEER AT LEAST 4 WEEKS PRIOR TO INSTALLATION TO ENSURE BUILDING INSPECTION APPROVAL IS OBTAINED.

DEMOLITION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION, REMOVAL, AND DISPOSING IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES, OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING DRIVES, DRAINAGE, STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS.

2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.

3. THE CONTRACTOR SHALL COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY FORCING ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE DEVELOPER IS RESPONSIBLE FOR PAYING ALL FEES AND CHARGES.

4. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

5. ALL EXISTING SEWERS, PIPING, AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES BEFORE PROCEEDING WITH THE WORK. UTILITIES DETERMINED TO BE ABANDONED AND LEFT IN PLACE SHALL BE GROUTED IF UNDER BUILDINGS.

6. ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE, AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICE.

7. CONTRACTOR SHALL PROTECT THE PUBLIC AT ALL TIMES WITH FENCING, BARRICADES, ENCLOSURES, COVERED WALKWAYS, ETC. CONTRACTOR SHALL SUBMIT THEIR STREET OCCUPANCY PLAN TO TRAFFIC ENGINEERING FOR APPROVAL.

8. PRIOR TO DEMOLITION OCCURRING, ALL APPLICABLE EROSION CONTROL DEVICES ARE TO BE INSTALLED.

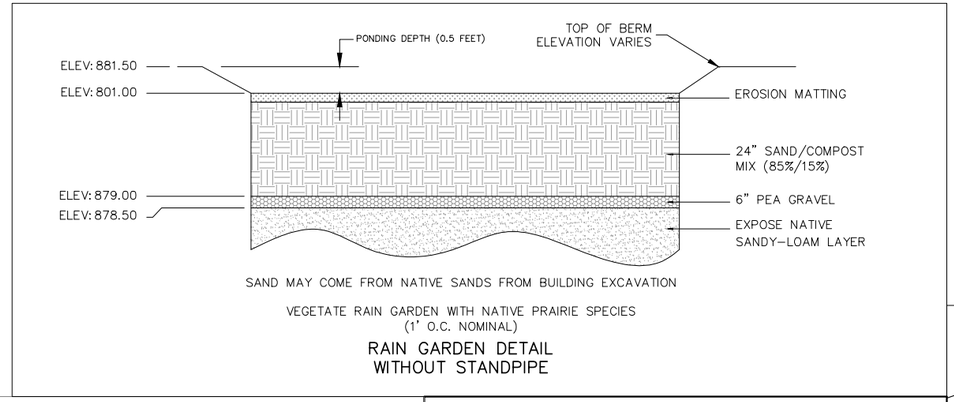
9. THE CONTRACTOR MAY LIMIT SAWCUT AND PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE IT IS REQUIRED AS SHOWN ON THESE CONSTRUCTION PLANS, BUT IF ANY DAMAGE IS INCURRED ON ANY OF THE SURROUNDING PAVEMENT, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR IN KIND.

10. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

11. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR THE SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF THE EXISTING FACILITIES.

LEGEND/ ABBREVIATIONS

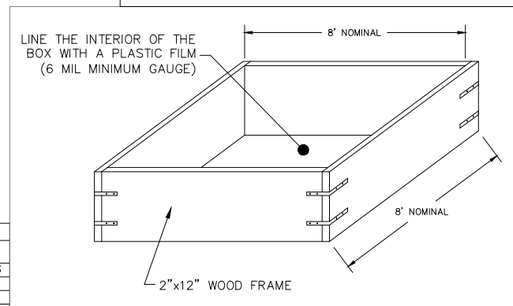
	ACCESSIBLE ROUTE
	EXISTING EASEMENT
	PROPERTY BOUNDARY
#	PARKING STALL COUNT
L.S.	LANDSCAPED AREA
BIT.	BITUMINOUS PAVEMENT
CONC.	CONCRETE PAVEMENT
1041.02	SPOT GRADE
FG	FINISH GRADE
EG	EXISTING GRADE
SW	SIDEWALK
EP	EDGE OF PAVEMENT
FL	FLOW LINE
LP	LOW POINT
HP	HIGH POINT
TC	TOP OF CURB
TW	TOP OF WALL
BW	BOTTOM OF WALL
BOW	BACK OF WALK
FOW	FRONT OF WALK
EXP	EXPOSURE
SAN	PROPOSED SANITARY SEWER
ST	PROPOSED STORM SEWER
WM	PROPOSED WATER LATERAL
	UTILITY LINE DEMOLITION
	TREE REMOVAL
1041	EXISTING MINOR CONTOUR
1040	EXISTING MAJOR CONTOUR
1041	PROPOSED MINOR CONTOUR
1040	PROPOSED MAJOR CONTOUR
	PROPOSED RIDGE LINE
	PROPOSED SWALE/DITCH
	ACCESSIBLE PARKING SIGN
	VISION TRIANGLE (NO VISUAL OBSTRUCTIONS BETWEEN HEIGHTS OF 30" AND 10')
	RIPRAP
	CONSTRUCTION ENTRANCE
x	SAW CUT / REMOVAL LIMITS
	DISTURBANCE LIMITS
	SILT FENCE
	CHECK DAM
	DIVERSION BERM
	INLET PROTECTION
	USLE FLOW PATH



SAND MAY COME FROM NATIVE SANDS FROM BUILDING EXCAVATION

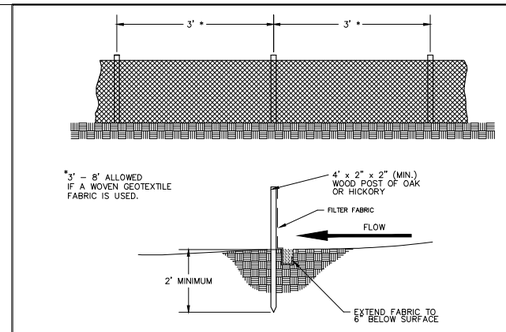
VEGETATE RAIN GARDEN WITH NATIVE PRAIRIE SPECIES (1' O.C. NOMINAL)

RAIN GARDEN DETAIL
WITHOUT STANDPIPE

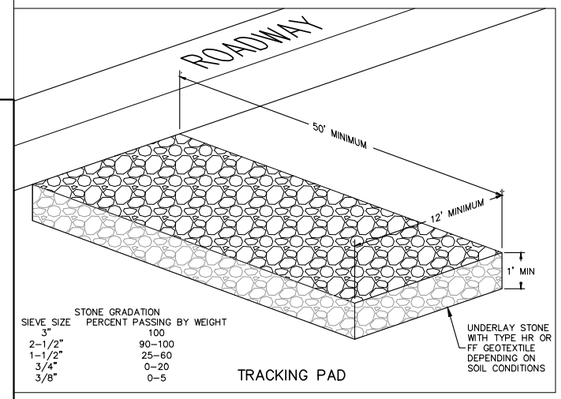


CONTENTS OF WASHOUT BOX SHALL BE DISPOSED OF OFF-SITE

CONCRETE WASHOUT BOX DETAIL



SILT FENCE CONSTRUCTION



TRACKING PAD

NOT FOR CONSTRUCTION

DIGGERS HOTLINE
Dial 811 or (800) 242-8511
www.DiggersHotline.com

CIVIL SHEET INDEX

SHEET NUMBER	SHEET TITLE
C-001	CIVIL NOTES & DETAILS
C-100	EXISTING CONDITIONS
C-200	CIVIL SITE PLAN
C-300	GRADING PLAN
C-400	EROSION CONTROL PLAN

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Madison, WI 53704
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www.burseserveyengr.com

APPROVALS		
PROJECT ENG:	MLB	
DESIGNED BY:	DRH	
DRAWN BY:	DRH	
CHECKED BY:	PDF	
APPROVED:		MLB

FURLOW RESIDENCE
3701 COUNCIL CREST
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS, INC.
7923 AIRPORT RD.
MIDDLETON, WI 53562

PROJECT #: BSE2589
PLOT DATE: 07/20/2023

REVISION DATES:

ISSUE DATES:
07/20/2023

CIVIL NOTES & DETAILS

DRAWING NUMBER
C-001

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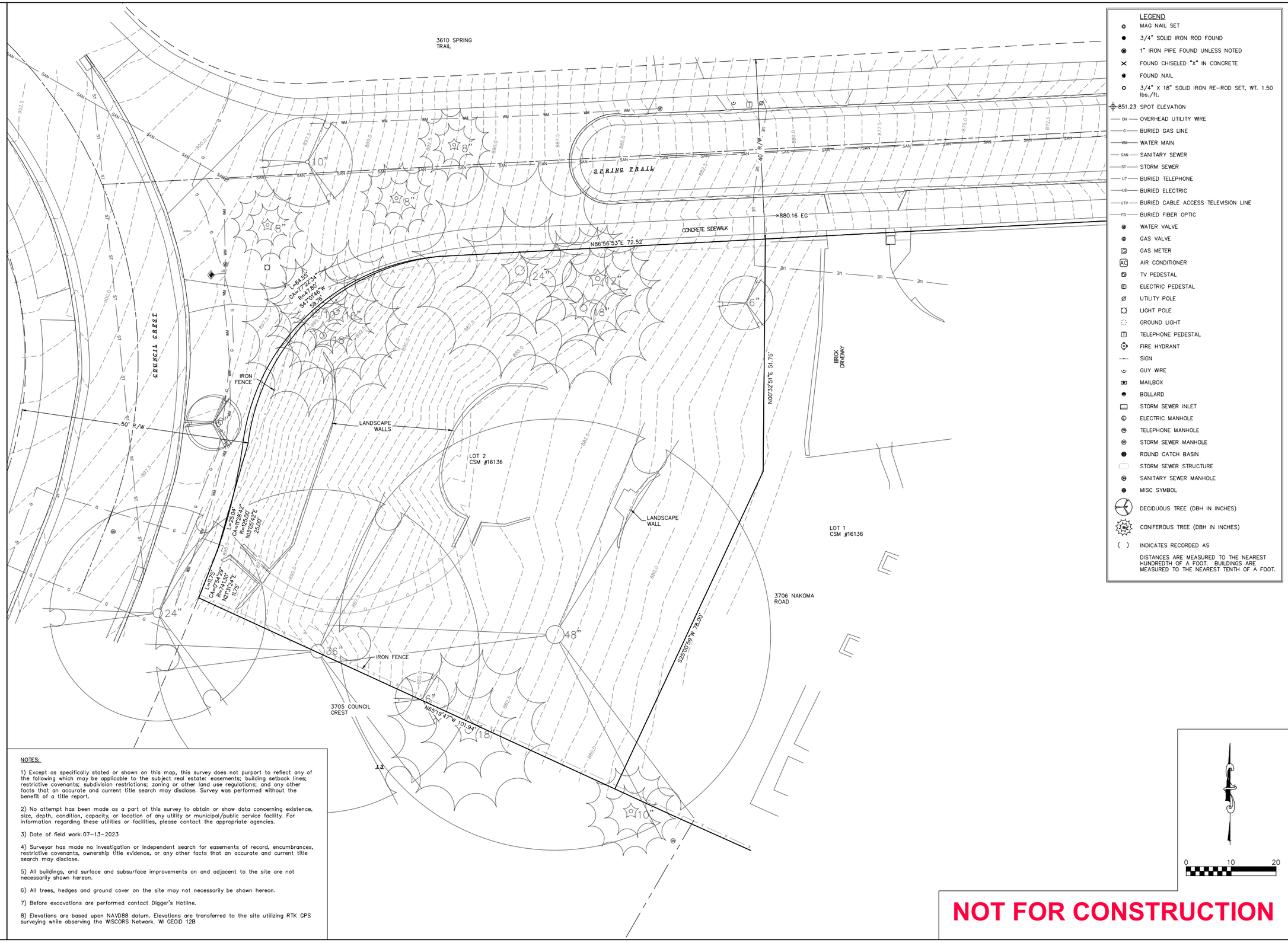

LEGEND

- MAG NAIL SET
- 3/4" SOLID IRON ROD FOUND
- 1" IRON PIPE FOUND UNLESS NOTED
- FOUND CHISELED "X" IN CONCRETE
- FOUND NAIL
- 3/4" X 18" SOLID IRON RE-ROD SET, WT. 1.50 lbs./ft.
- 851.23 SPOT ELEVATION
- OH — OVERHEAD UTILITY WIRE
- G — BURIED GAS LINE
- WM — WATER MAIN
- SAN — SANITARY SEWER
- ST — STORM SEWER
- UT — BURIED TELEPHONE
- UE — BURIED ELECTRIC
- UTV — BURIED CABLE ACCESS TELEVISION LINE
- FO — BURIED FIBER OPTIC
- WATER VALVE
- GAS VALVE
- GAS METER
- AC — AIR CONDITIONER
- TV PEDESTAL
- ELECTRIC PEDESTAL
- UTILITY POLE
- LIGHT POLE
- GROUND LIGHT
- TELEPHONE PEDESTAL
- FIRE HYDRANT
- SIGN
- GUY WIRE
- MAILBOX
- BOLLARD
- STORM SEWER INLET
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- STORM SEWER MANHOLE
- ROUND CATCH BASIN
- STORM SEWER STRUCTURE
- SANITARY SEWER MANHOLE
- MISC SYMBOL
- DECIDUOUS TREE (DBH IN INCHES)
- CONIFEROUS TREE (DBH IN INCHES)
- ( ) INDICATES RECORDED AS

DISTANCES ARE MEASURED TO THE NEAREST HUNDREDTH OF A FOOT. BUILDINGS ARE MEASURED TO THE NEAREST TENTH OF A FOOT.

NOTES:

1) Except as specifically stated or shown on this map, this survey does not purport to reflect any of the following which may be applicable to the subject real estate: easements; building setback lines; restrictive covenants; subdivision restrictions; zoning or other land use regulations; and any other facts that an accurate and current title search may disclose. Survey was performed without the benefit of a title report.

2) No attempt has been made as a part of this survey to obtain or show data concerning existence, size, depth, condition, capacity, or location of any utility or municipal/public service facility. For information regarding these utilities or facilities, please contact the appropriate agencies.

3) Date of field work: 07-13-2023

4) Surveyor has made no investigation or independent search for easements of record, encumbrances, restrictive covenants, ownership title evidence, or any other facts that an accurate and current title search may disclose.

5) All buildings, and surface and subsurface improvements on and adjacent to the site are not necessarily shown hereon.

6) All trees, hedges and ground cover on the site may not necessarily be shown hereon.

7) Before excavations are performed contact Digger's Hotline.

8) Elevations are based upon NAVD88 datum. Elevations are transferred to the site utilizing RTK GPS surveying while observing the WISCORS Network. WI GEOID 12B

0 10 20

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07/20/2023

EXISTING CONDITIONS

DRAWING NUMBER
C-100

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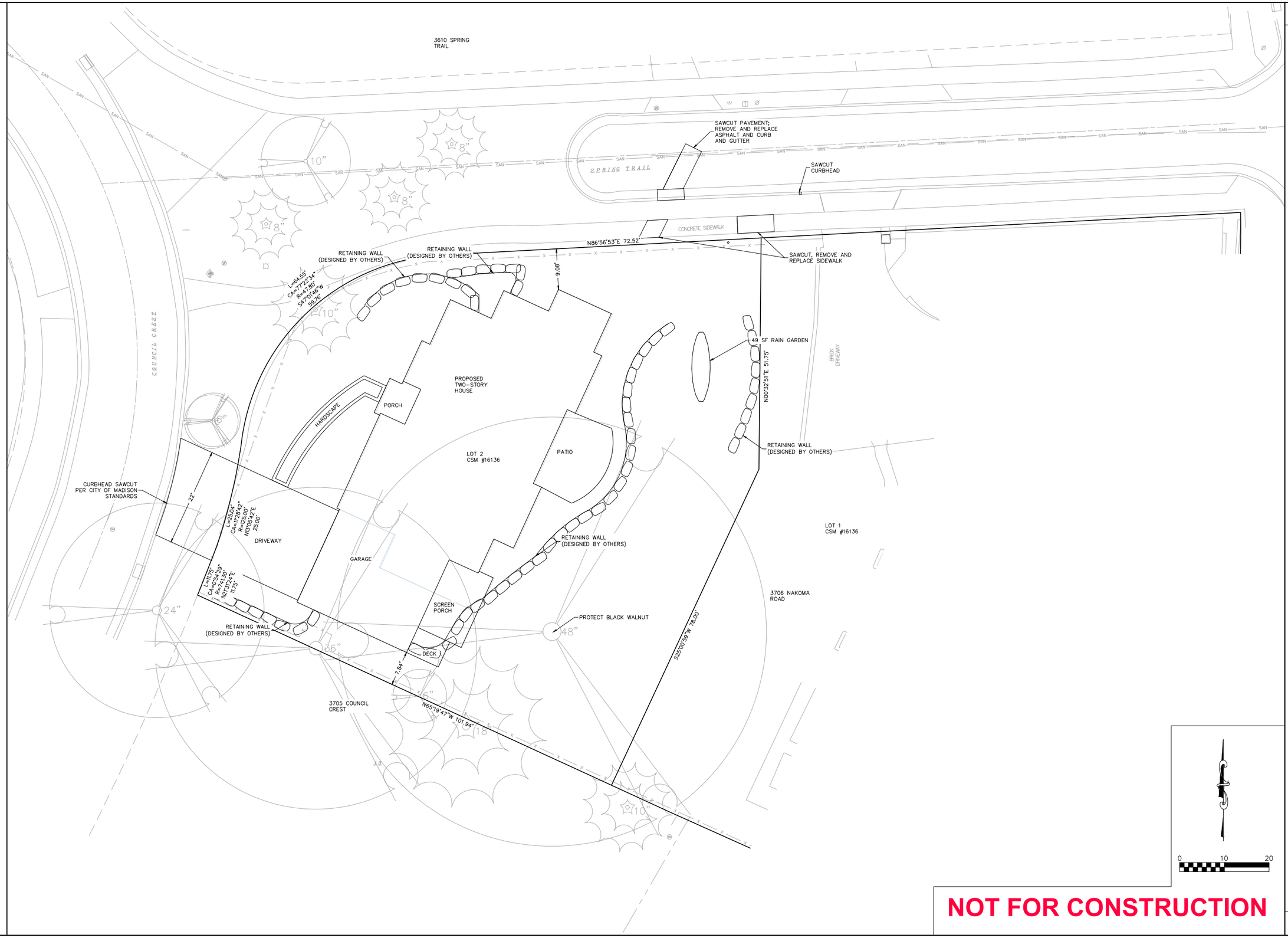

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ISSUE DATES:
07/20/2023

CIVIL SITE PLAN

DRAWING NUMBER
C-200

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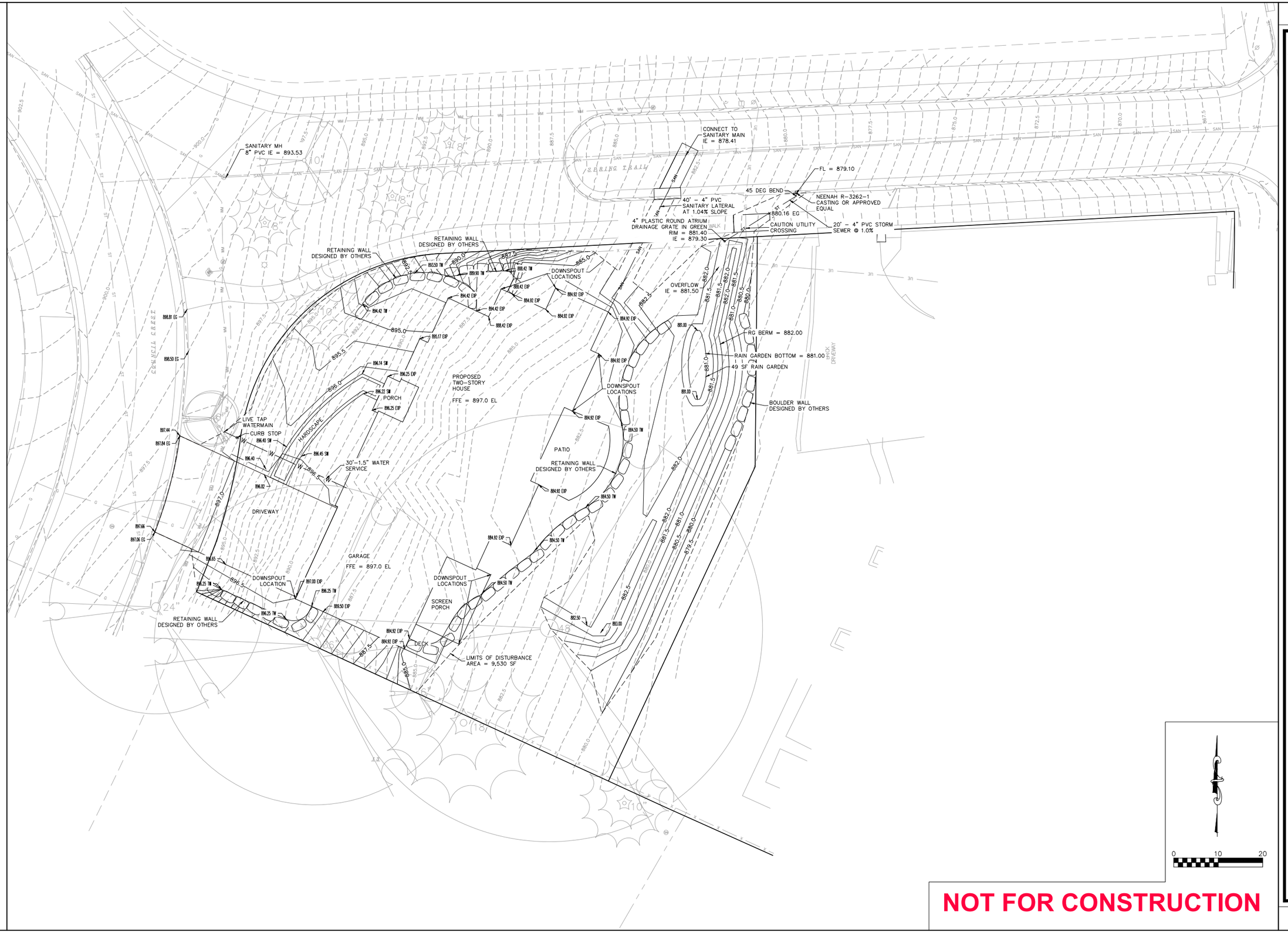

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07/20/2023

GRADING & UTILITY PLAN

DRAWING NUMBER
C-300

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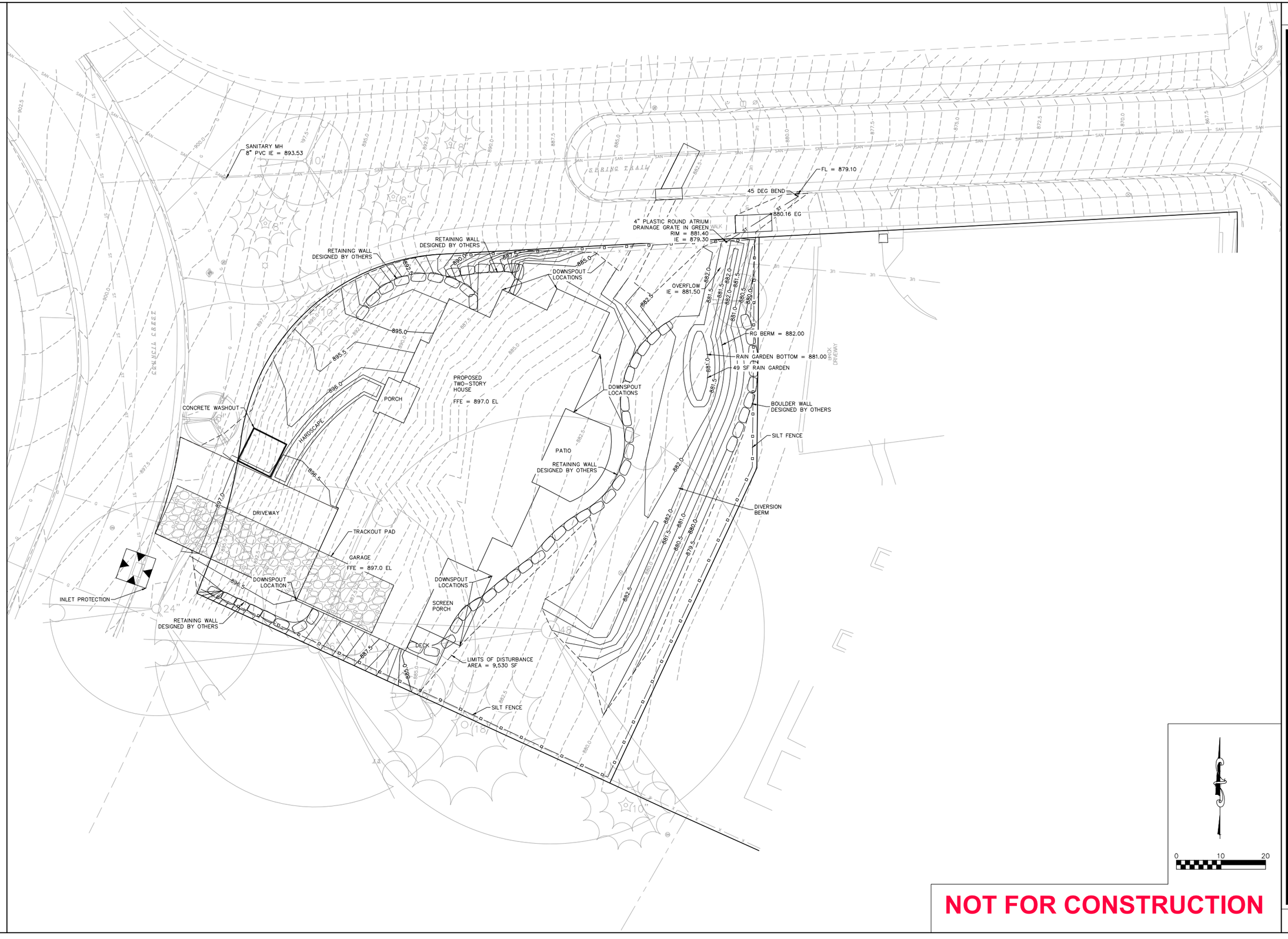

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MADISON, DANE COUNTY, WISCONSIN

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07/20/2023

EROSION CONTROL PLAN

DRAWING NUMBER
C-400

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Furlow Residence

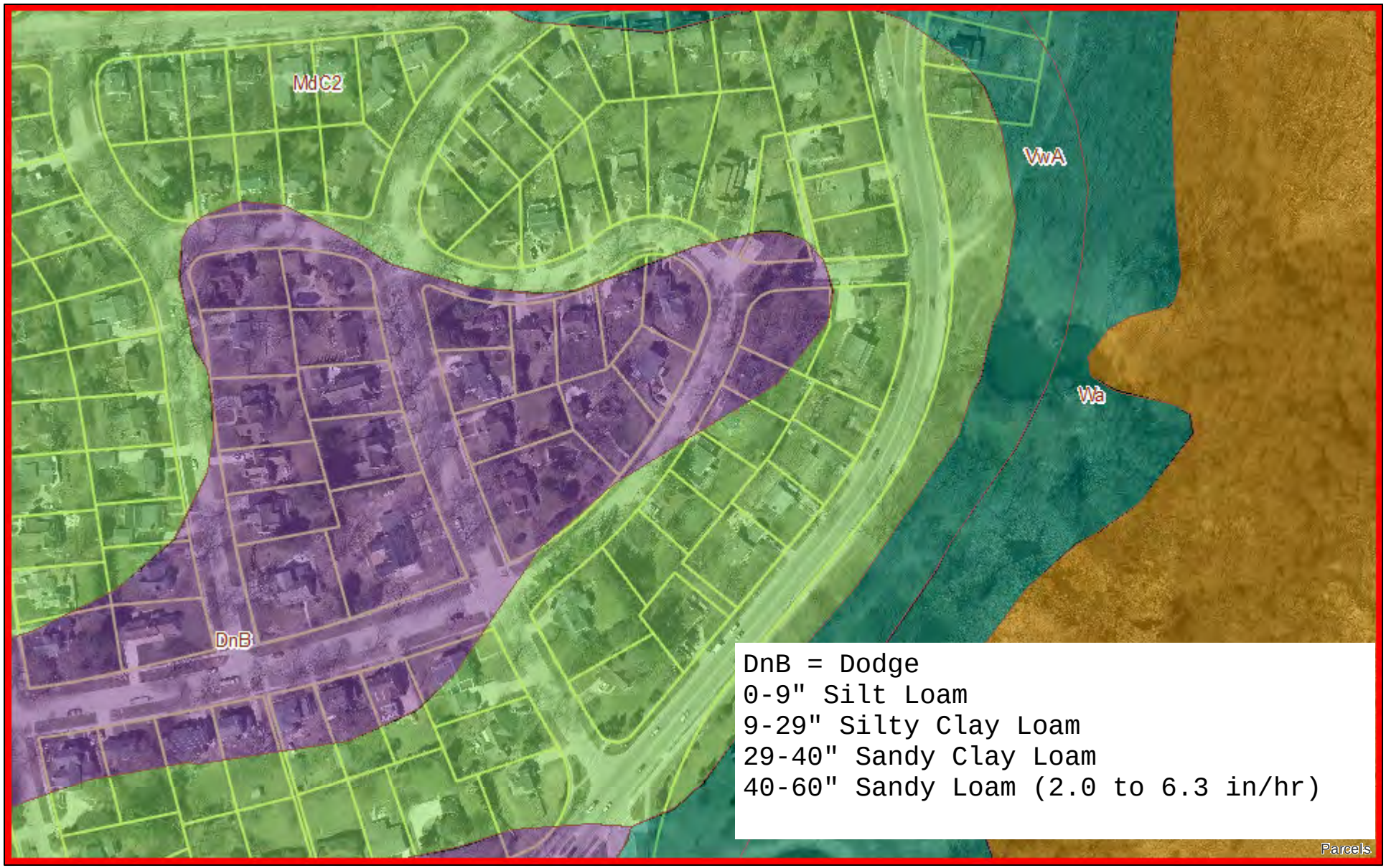
Stormwater Runoff Summary

Project: BSE2589
Job Name: Furlow Residence
Task: Peak Flow Calcs
By: DRH
Date: 7/20/2023
Checked: PDF

Storm Event	Predevelopment	Post Developed Undetained	Post Development w/Rain Garden	Post Development w/o Rain Garden
	(CFS)	(CFS)	(CFS)	(CFS)
1-Year, 24hr	0.32	0.24	0.62	0.66
2-Year, 24hr	0.42	0.29	0.76	0.80
5-Year, 24hr	0.60	0.38	1.00	1.04
10-Year, 24hr	0.81	0.48	1.26	1.31
25-Year, 24hr	1.13	0.62	1.63	1.69
100-Year, 24hr	1.74	0.87	2.30	2.36
200-Year, 24hr	2.07	1.00	2.65	2.72
500-Year, 24hr	2.62	1.21	3.22	3.30

NOTES: The predevelopment rates are the current flow rates to the 3706 Nakoma Road Property
The post developed undetained rates are the post construction flow to the 3706 Nakoma Road Property

Dane County Map



July 17, 2023

Soils

Hydrologic Soil Group

A/D

B

B/D

C

Parcels

0 120 240 480 Feet

N

NOT FOR CONSTRUCTION

Burse
Surveying and Engineering, Inc.
2801 International Lane, Suite 101
Madison, WI 53704
Phone: 608-250-9263
Fax: 608-250-9266
e-mail: Mburse@BSE-INC.net
www.bursesurveyengr.com

APPROVALS	
PROJECT ENG:	MLB
DESIGNED BY:	DRH
DRAWN BY:	DRH
CHECKED BY:	PDF
APPROVED:	MLB

FURLOW RESIDENCE

3701 COUNCIL CREST
MADISON, DANE COUNTY, WISCONSIN

HART DENOBLE BUILDERS, INC.
7923 AIRPORT RD.
MIDDLETON, WI 53562

PROJECT #: BSE2589
PLOT DATE: 07/20/2023

REVISION DATES:

ISSUE DATES:
07/20/2023

POST DEVELOPED
DRAINAGE AREA MAP

DRAWING NUMBER

EXHIBIT-1

Printed: Jul 20, 2023 - 4:04pm Printed By: Survey
M:\BSE2589\2023\dwg\Engineering\BSE2589 Eng v2018.dwg

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APPROVALS	
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FURLOW RESIDENCE

3701 COUNCIL CREST
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PROJECT #: BSE2589
PLOT DATE: 07/20/2023

REVISION DATES:

ISSUE DATES:
07/20/2023

POST DEVELOPED
DRAINAGE AREA MAP

DRAWING NUMBER

EXHIBIT 2

Printed: Jul 20, 2023 - 4:04pm Printed By: Survey

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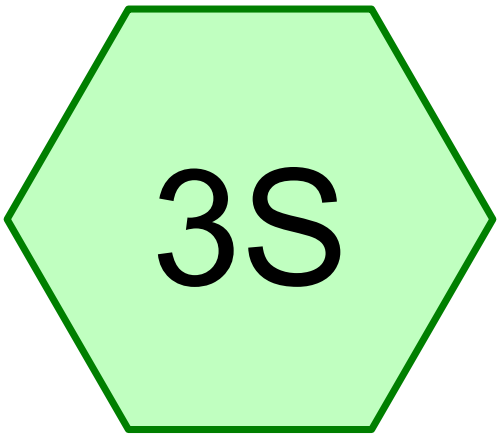
Furlow Residence

Stormwater Runoff Summary

Project: BSE2589
Job Name: Furlow Residence
Task: Peak Flow Calcs
By: DRH
Date: 7/20/2023
Checked: PDF

Storm Event	Predevelopment	Post Developed Undetained	Post Development w/Rain Garden	Post Development w/o Rain Garden
	(CFS)	(CFS)	(CFS)	(CFS)
1-Year, 24hr	0.32	0.24	0.62	0.66
2-Year, 24hr	0.42	0.29	0.76	0.80
5-Year, 24hr	0.60	0.38	1.00	1.04
10-Year, 24hr	0.81	0.48	1.26	1.31
25-Year, 24hr	1.13	0.62	1.63	1.69
100-Year, 24hr	1.74	0.87	2.30	2.36
200-Year, 24hr	2.07	1.00	2.65	2.72
500-Year, 24hr	2.62	1.21	3.22	3.30

NOTES: The predevelopment rates are the current flow rates to the 3706 Nakoma Road Property
The post developed undetained rates are the post construction flow to the 3706 Nakoma Road Property



Predeveloped

Subcat Reach Pond Link

Routing Diagram for BSE2589 Stormwater Predeveloped Model
Prepared by Burse Surveying and Engineering Inc., Printed 7/18/2023

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	MSE 24-hr	4	Default	24.00	1	2.49	2
2	2-yr	MSE 24-hr	4	Default	24.00	1	2.84	2
3	5-yr	MSE 24-hr	4	Default	24.00	1	3.45	2
4	10-yr	MSE 24-hr	4	Default	24.00	1	4.09	2
5	25-yr	MSE 24-hr	4	Default	24.00	1	5.02	2
6	100-yr	MSE 24-hr	4	Default	24.00	1	6.66	2
7	200-yr	MSE 24-hr	4	Default	24.00	1	7.53	2
8	500-yr	MSE 24-hr	4	Default	24.00	1	8.94	2

Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=0.70"
Flow Length=128' Tc=4.3 min CN=71 Runoff=0.32 cfs 0.016 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.016 af Average Runoff Depth = 0.70"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

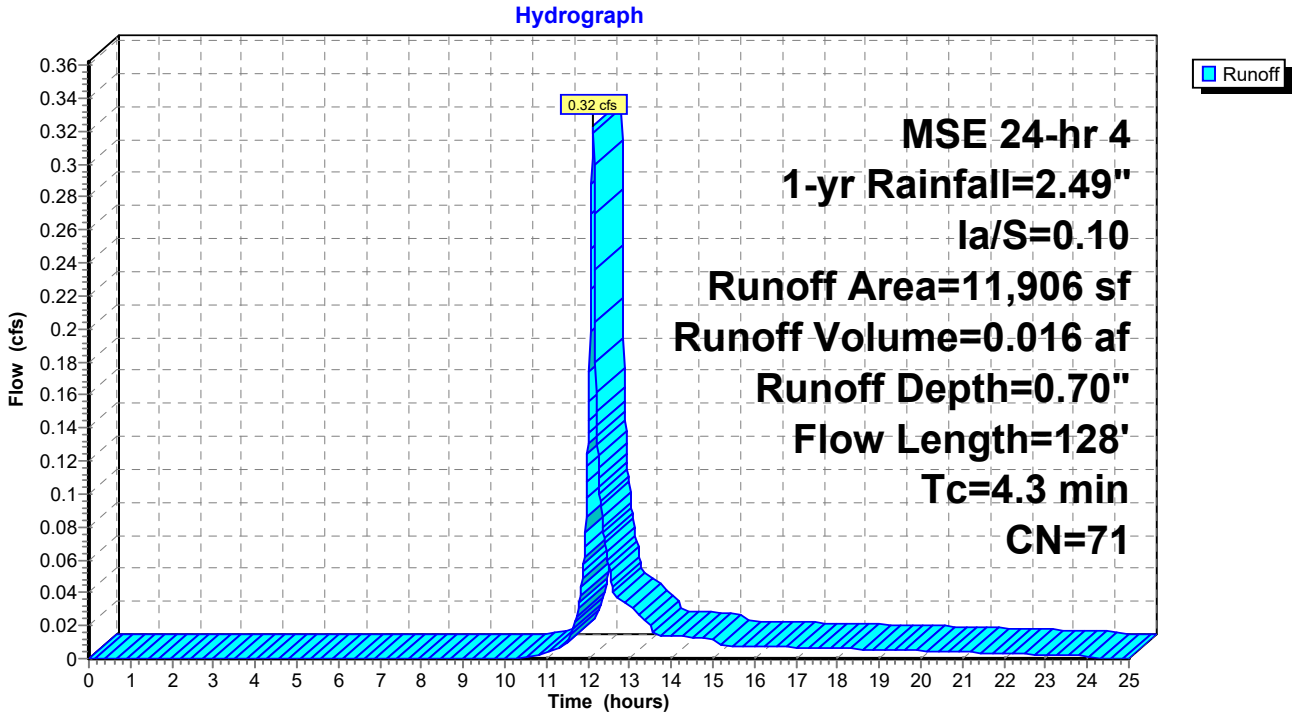
Runoff = 0.32 cfs @ 12.12 hrs, Volume= 0.016 af, Depth= 0.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 1-yr Rainfall=2.49", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=0.91"
Flow Length=128' Tc=4.3 min CN=71 Runoff=0.42 cfs 0.021 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.021 af Average Runoff Depth = 0.91"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

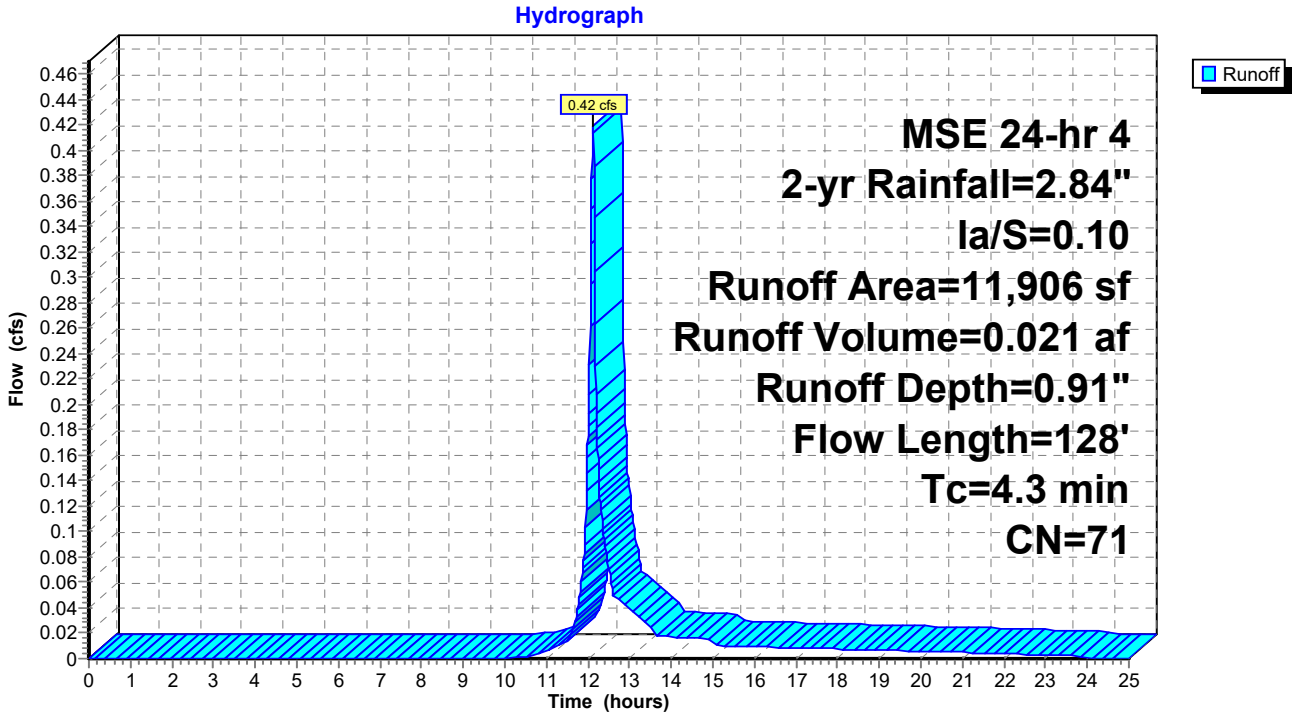
Runoff = 0.42 cfs @ 12.12 hrs, Volume= 0.021 af, Depth= 0.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 2-yr Rainfall=2.84", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=1.30"
Flow Length=128' Tc=4.3 min CN=71 Runoff=0.60 cfs 0.030 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.030 af Average Runoff Depth = 1.30"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

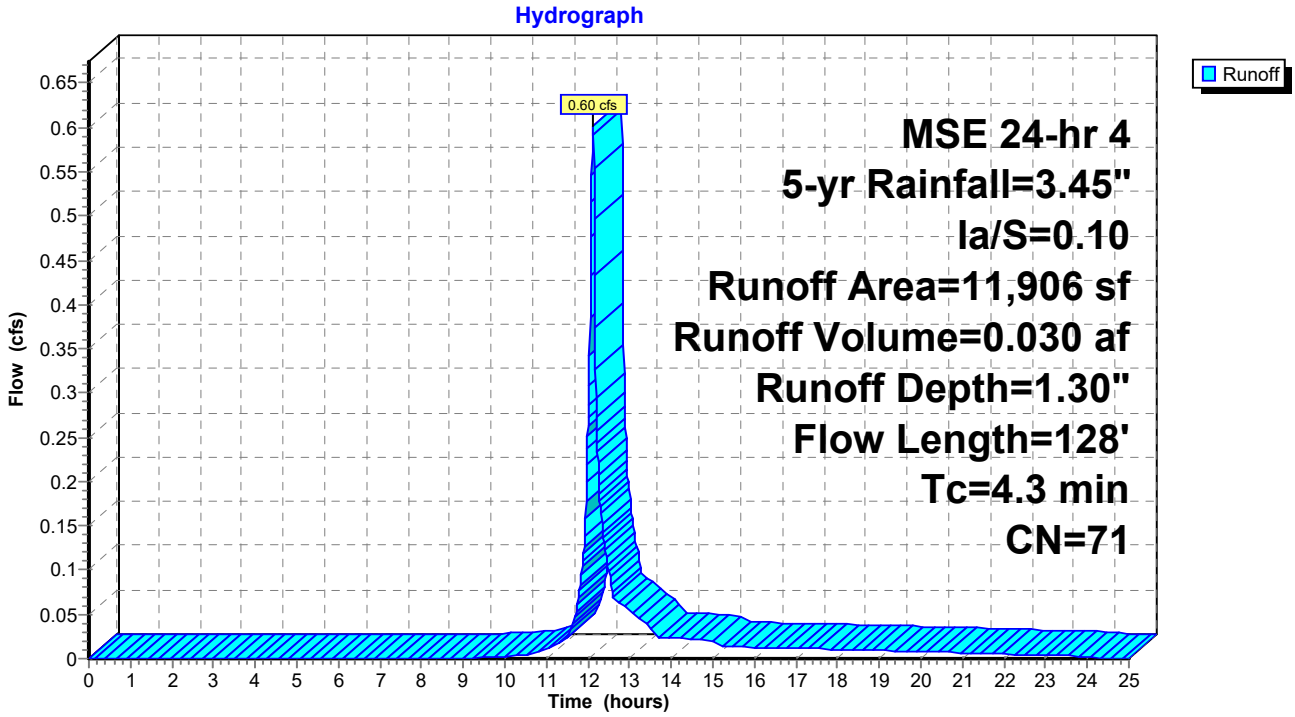
Runoff = 0.60 cfs @ 12.12 hrs, Volume= 0.030 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 5-yr Rainfall=3.45", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=1.75"
Flow Length=128' Tc=4.3 min CN=71 Runoff=0.81 cfs 0.040 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.040 af Average Runoff Depth = 1.75"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

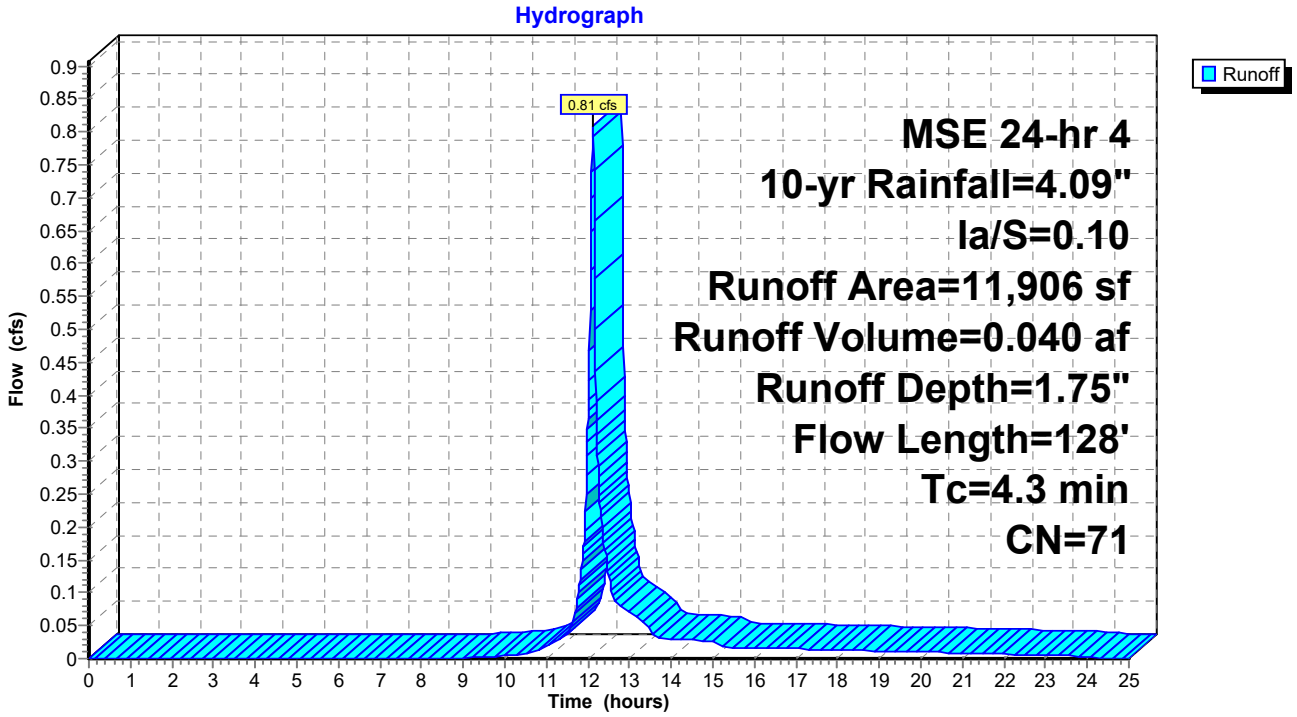
Runoff = 0.81 cfs @ 12.12 hrs, Volume= 0.040 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 10-yr Rainfall=4.09", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=2.45"
Flow Length=128' Tc=4.3 min CN=71 Runoff=1.13 cfs 0.056 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.056 af Average Runoff Depth = 2.45"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

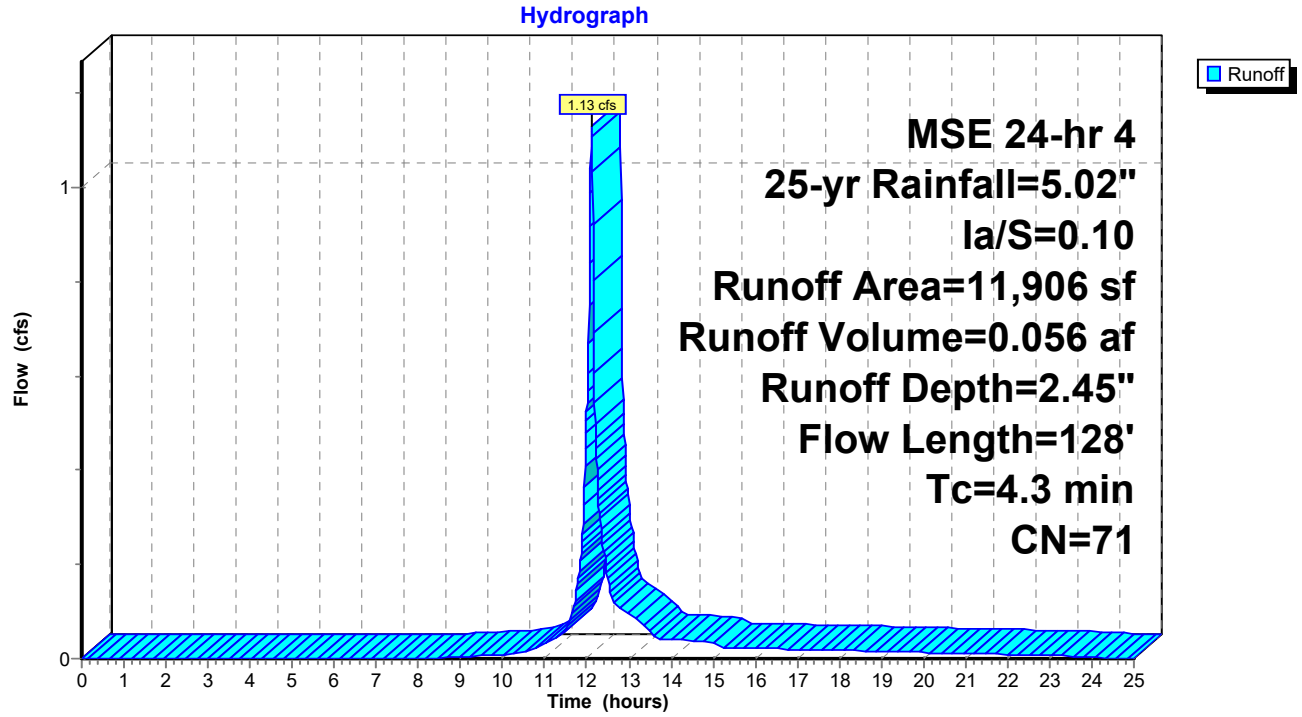
Runoff = 1.13 cfs @ 12.12 hrs, Volume= 0.056 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 25-yr Rainfall=5.02", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=3.78"
Flow Length=128' Tc=4.3 min CN=71 Runoff=1.74 cfs 0.086 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.086 af Average Runoff Depth = 3.78"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

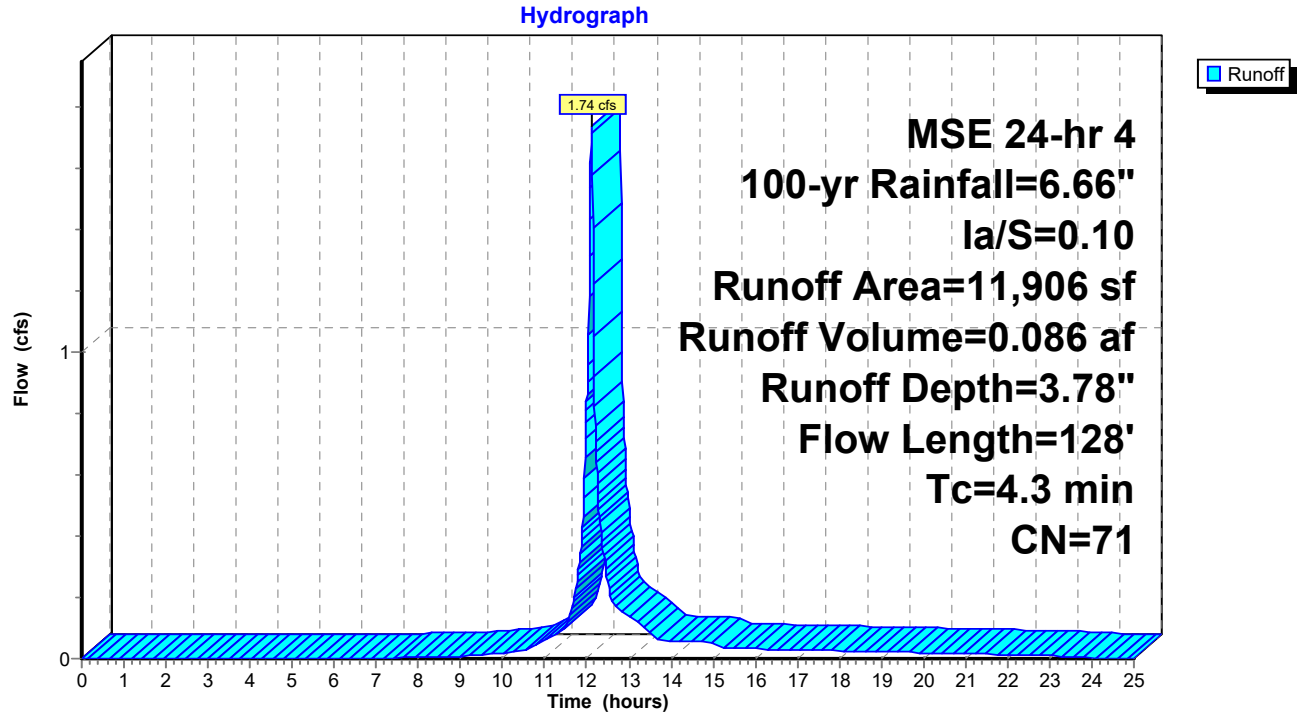
Runoff = 1.74 cfs @ 12.12 hrs, Volume= 0.086 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 100-yr Rainfall=6.66", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=4.53"
Flow Length=128' Tc=4.3 min CN=71 Runoff=2.07 cfs 0.103 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.103 af Average Runoff Depth = 4.53"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

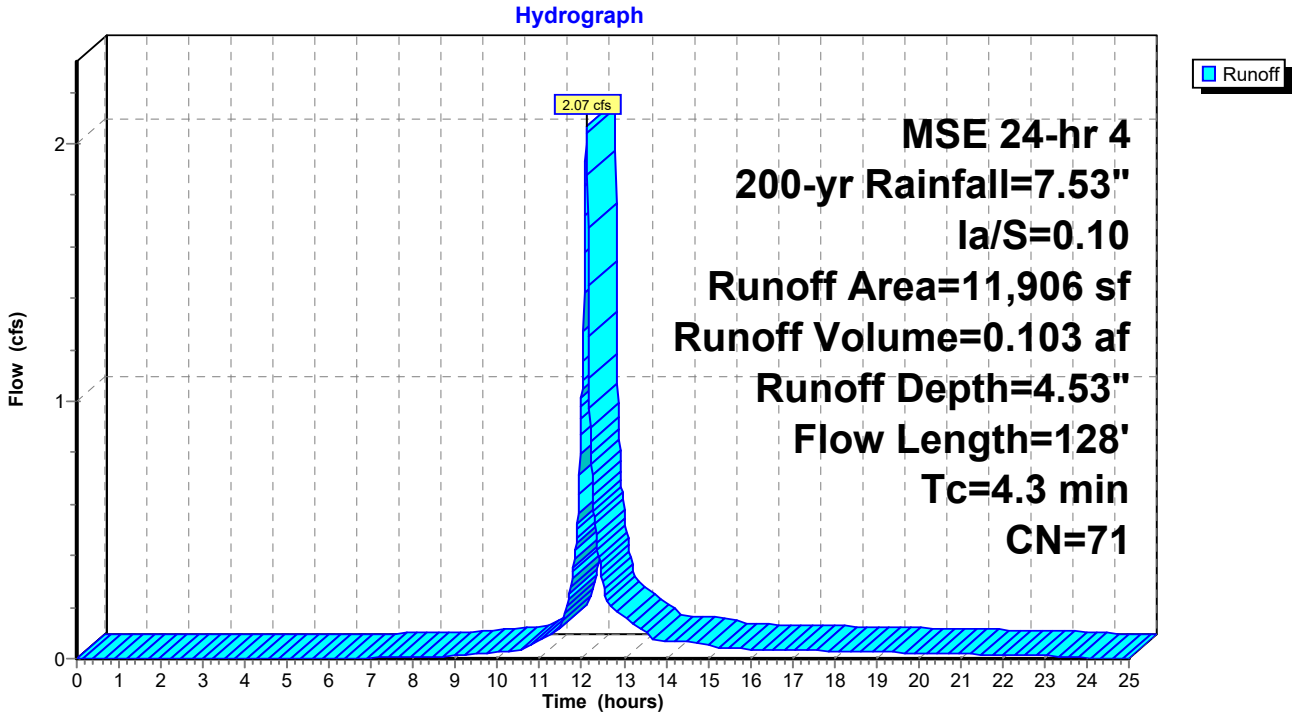
Runoff = 2.07 cfs @ 12.12 hrs, Volume= 0.103 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 200-yr Rainfall=7.53", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 3S: Predeveloped Runoff Area=11,906 sf 1.84% Impervious Runoff Depth=5.77"
Flow Length=128' Tc=4.3 min CN=71 Runoff=2.62 cfs 0.131 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.131 af Average Runoff Depth = 5.77"
98.16% Pervious = 0.268 ac 1.84% Impervious = 0.005 ac

Summary for Subcatchment 3S: Predeveloped

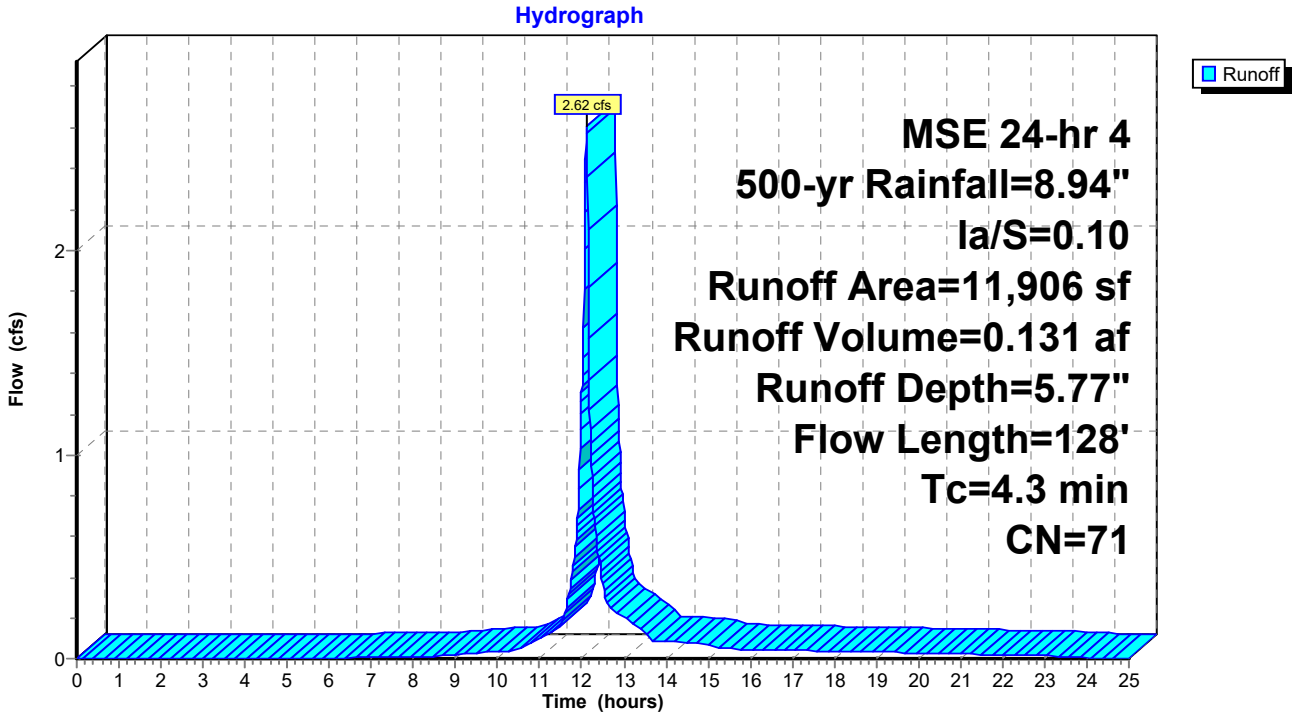
Runoff = 2.62 cfs @ 12.12 hrs, Volume= 0.131 af, Depth= 5.77"

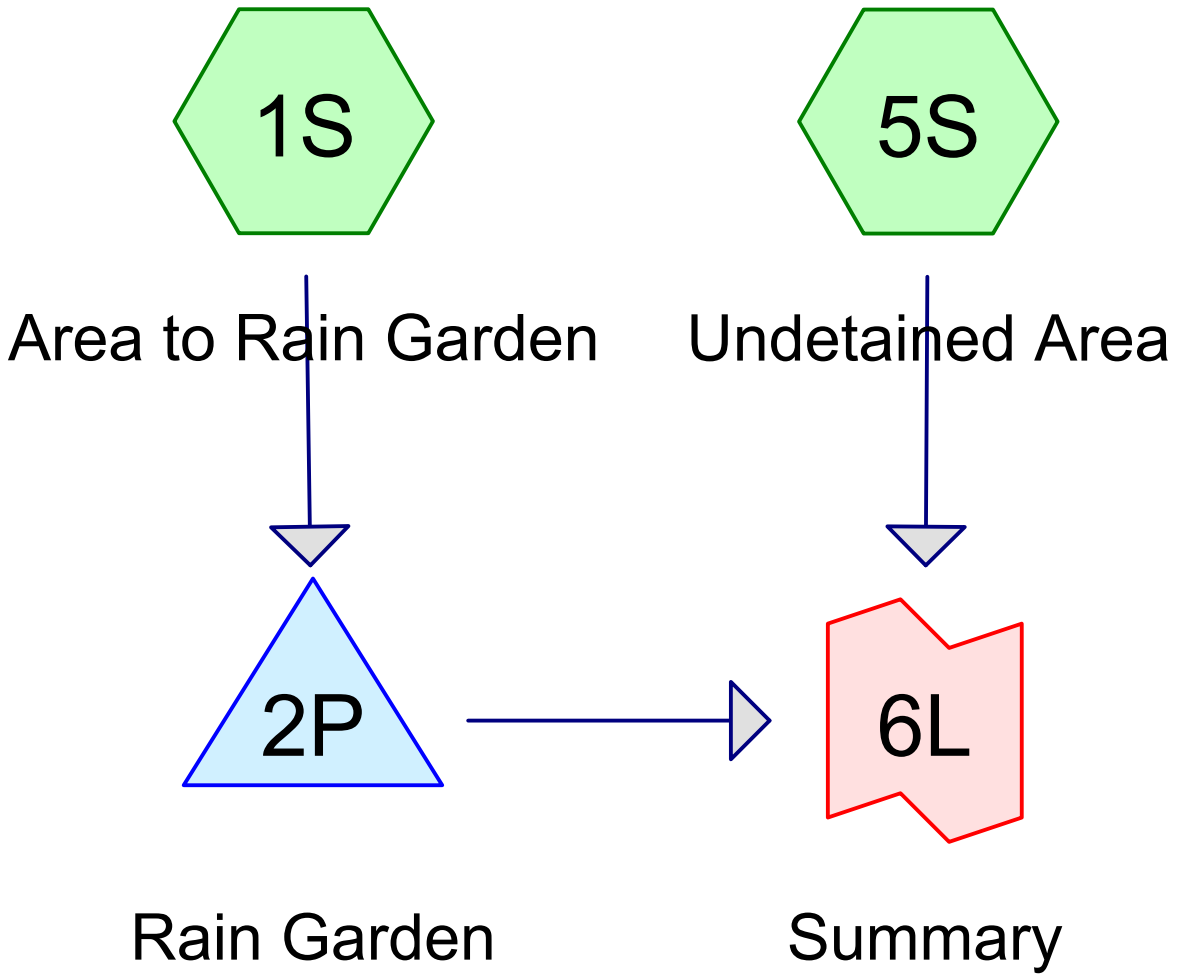
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 500-yr Rainfall=8.94", Ia/S=0.10

	Area (sf)	CN	Description
*	11,687	71	LS (HSG C)
*	219	98	Impervious
	11,906	71	Weighted Average
	11,687	71	98.16% Pervious Area
	219	98	1.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	65	0.0880	4.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
4.1	63	0.2140	0.26		**Sheet Flow,** Grass: Dense n= 0.240 P2= 2.84"
4.3	128	Total			

Subcatchment 3S: Predeveloped





Subcat Reach Pond Link

Routing Diagram for BSE2589 Stormwater Post Developed Model
Prepared by Burse Surveying and Engineering Inc., Printed 7/21/2023
HydroCAD® 10.10-7a s/n 08315 © 2021 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	MSE 24-hr	4	Default	24.00	1	2.49	2
2	2-yr	MSE 24-hr	4	Default	24.00	1	2.84	2
3	5-yr	MSE 24-hr	4	Default	24.00	1	3.45	2
4	10-yr	MSE 24-hr	4	Default	24.00	1	4.09	2
5	25-yr	MSE 24-hr	4	Default	24.00	1	5.02	2
6	100-yr	MSE 24-hr	4	Default	24.00	1	6.66	2
7	200-yr	MSE 24-hr	4	Default	24.00	1	7.53	2
8	500-yr	MSE 24-hr	4	Default	24.00	1	8.94	2

Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=1.37"
Flow Length=157' Tc=2.7 min CN=86 Runoff=0.42 cfs 0.020 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=1.31"
Flow Length=52' Tc=0.7 min CN=85 Runoff=0.24 cfs 0.011 af

Pond 2P: Rain Garden Peak Elev=881.67' Storage=189 cf Inflow=0.42 cfs 0.020 af
Discarded=0.02 cfs 0.010 af Primary=0.39 cfs 0.008 af Outflow=0.41 cfs 0.018 af

Link 6L: Summary Inflow=0.62 cfs 0.019 af
Primary=0.62 cfs 0.019 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.031 af Average Runoff Depth = 1.35"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

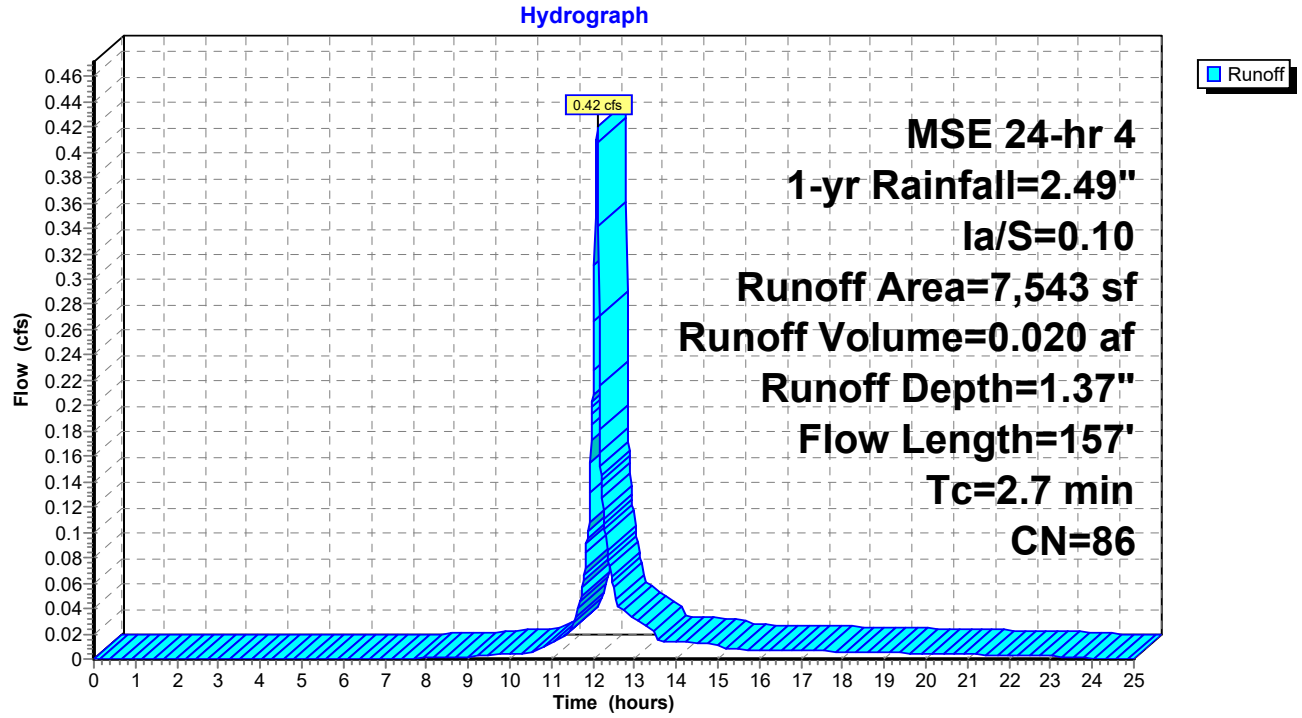
Runoff = 0.42 cfs @ 12.11 hrs, Volume= 0.020 af, Depth= 1.37"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 1-yr Rainfall=2.49", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

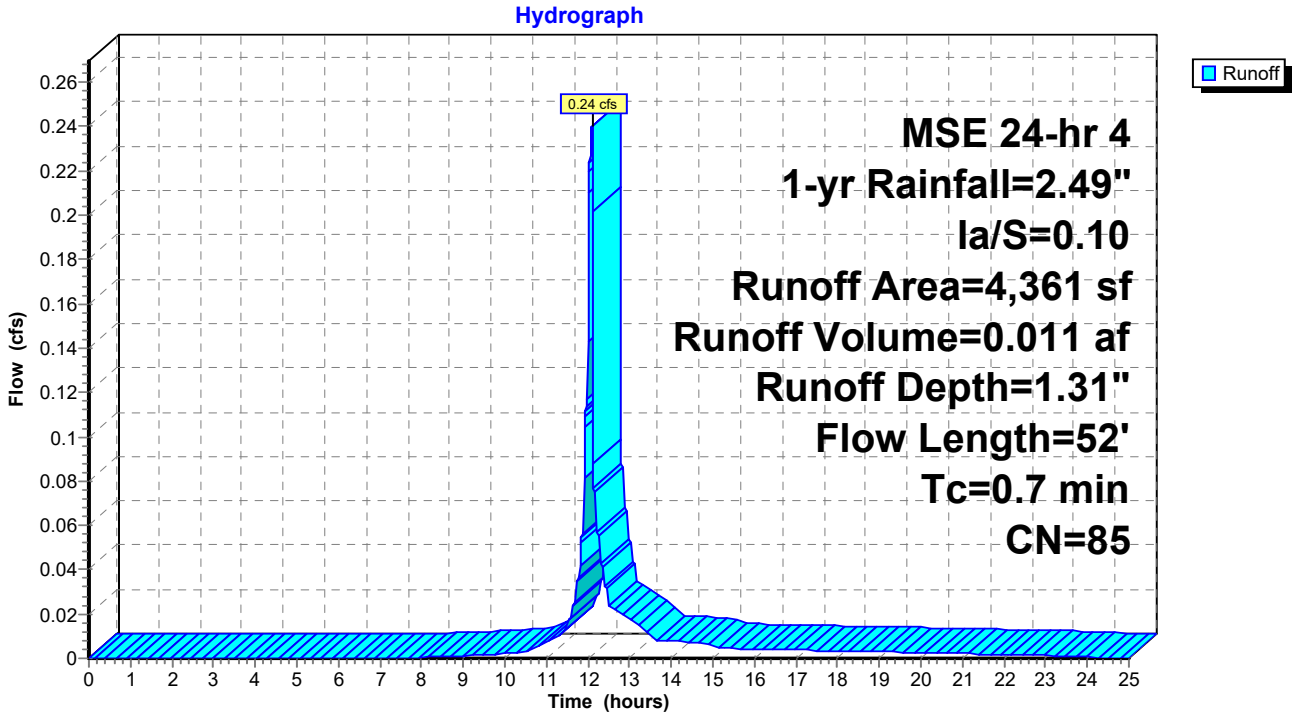
Runoff = 0.24 cfs @ 12.10 hrs, Volume= 0.011 af, Depth= 1.31"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 1-yr Rainfall=2.49", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 1.37" for 1-yr event
Inflow = 0.42 cfs @ 12.11 hrs, Volume= 0.020 af
Outflow = 0.41 cfs @ 12.12 hrs, Volume= 0.018 af, Atten= 3%, Lag= 0.6 min
Discarded = 0.02 cfs @ 12.12 hrs, Volume= 0.010 af
Primary = 0.39 cfs @ 12.12 hrs, Volume= 0.008 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.67' @ 12.12 hrs Surf.Area= 229 sf Storage= 189 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 71.2 min (874.9 - 803.7)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

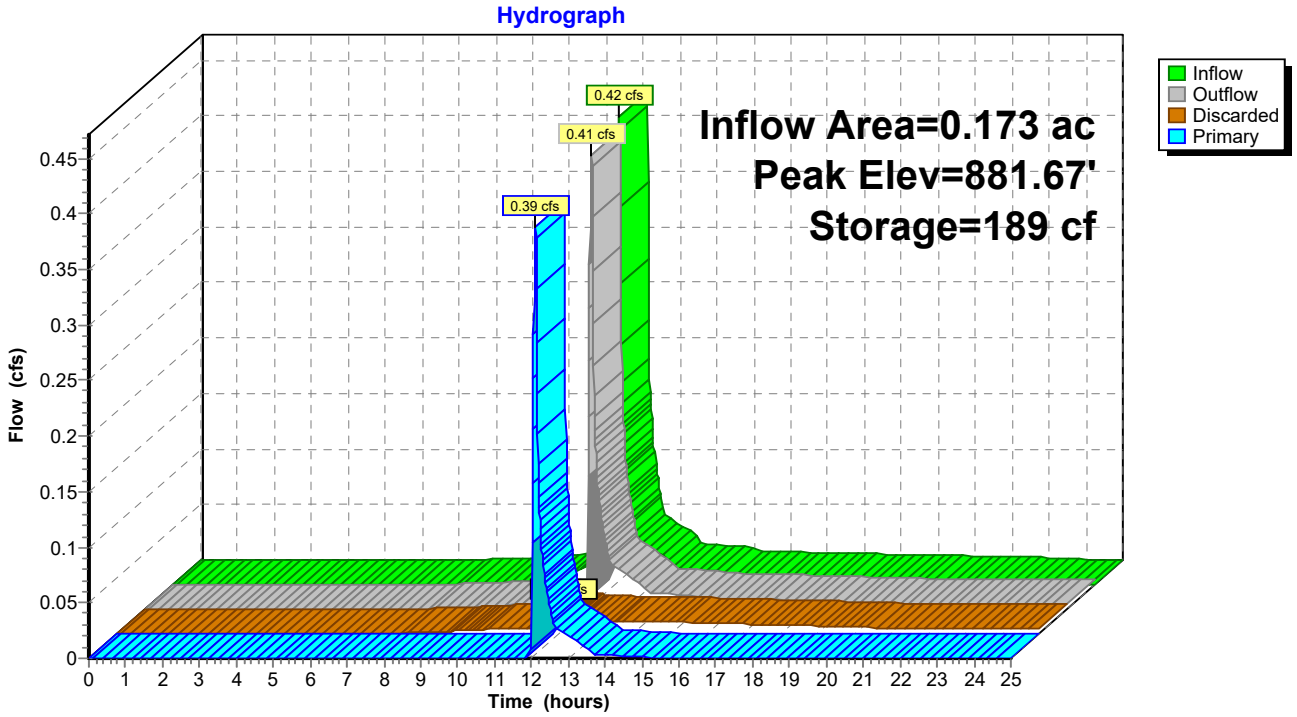
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.02 cfs @ 12.12 hrs HW=881.67' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.39 cfs @ 12.12 hrs HW=881.67' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.39 cfs @ 1.07 fps)

Pond 2P: Rain Garden

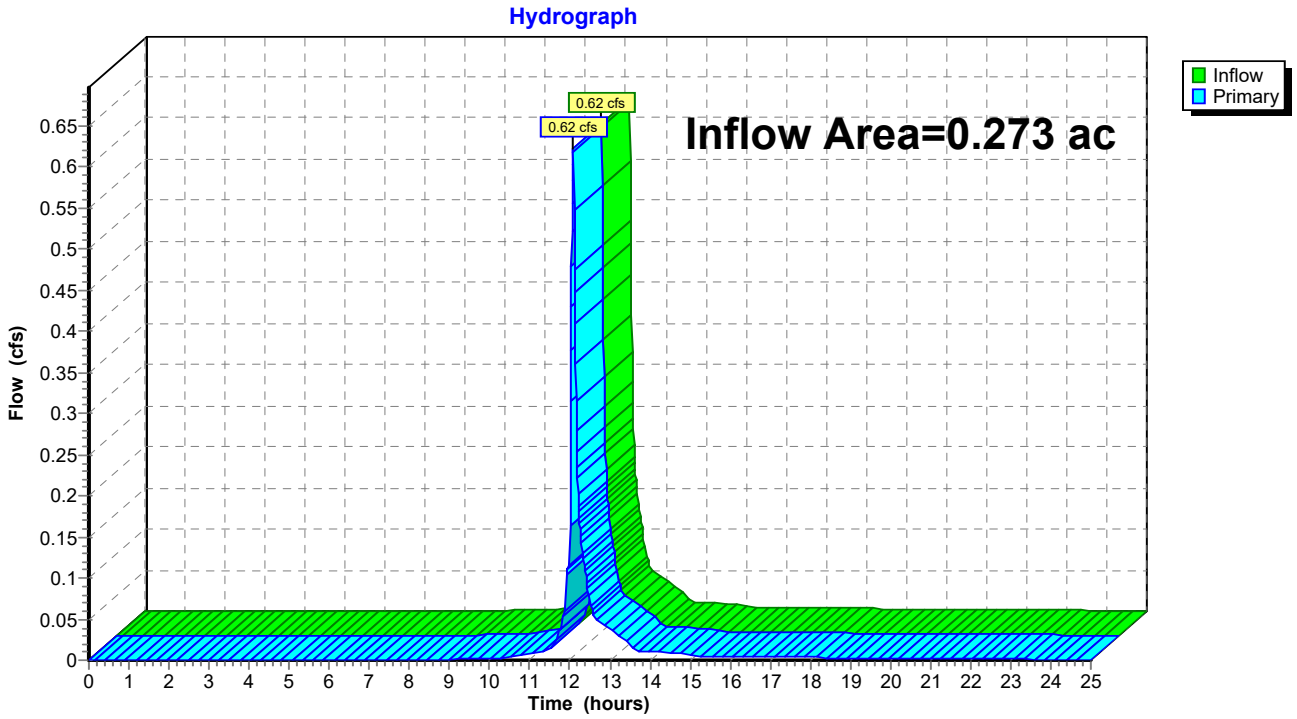


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 0.85" for 1-yr event
Inflow = 0.62 cfs @ 12.10 hrs, Volume= 0.019 af
Primary = 0.62 cfs @ 12.10 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=1.66"
Flow Length=157' Tc=2.7 min CN=86 Runoff=0.51 cfs 0.024 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=1.60"
Flow Length=52' Tc=0.7 min CN=85 Runoff=0.29 cfs 0.013 af

Pond 2P: Rain Garden Peak Elev=881.69' Storage=195 cf Inflow=0.51 cfs 0.024 af
Discarded=0.02 cfs 0.011 af Primary=0.47 cfs 0.012 af Outflow=0.50 cfs 0.022 af

Link 6L: Summary Inflow=0.76 cfs 0.025 af
Primary=0.76 cfs 0.025 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.037 af Average Runoff Depth = 1.64"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

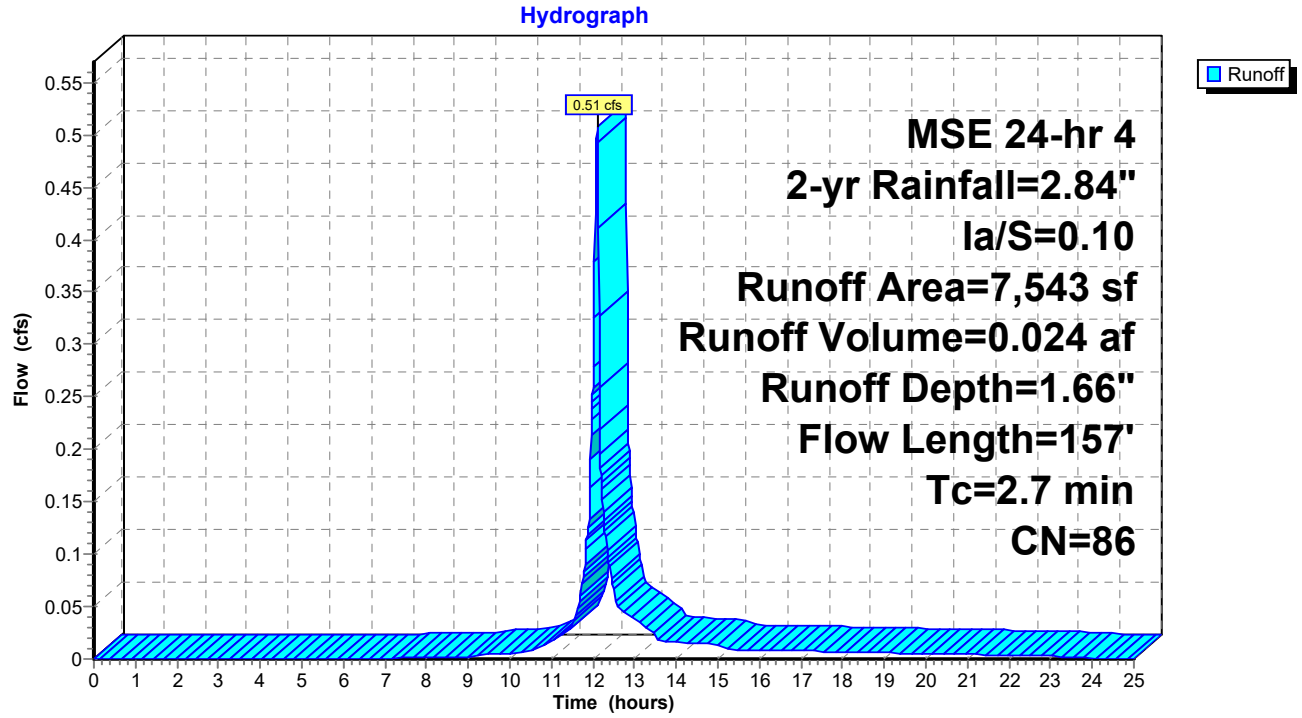
Runoff = 0.51 cfs @ 12.11 hrs, Volume= 0.024 af, Depth= 1.66"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 2-yr Rainfall=2.84", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

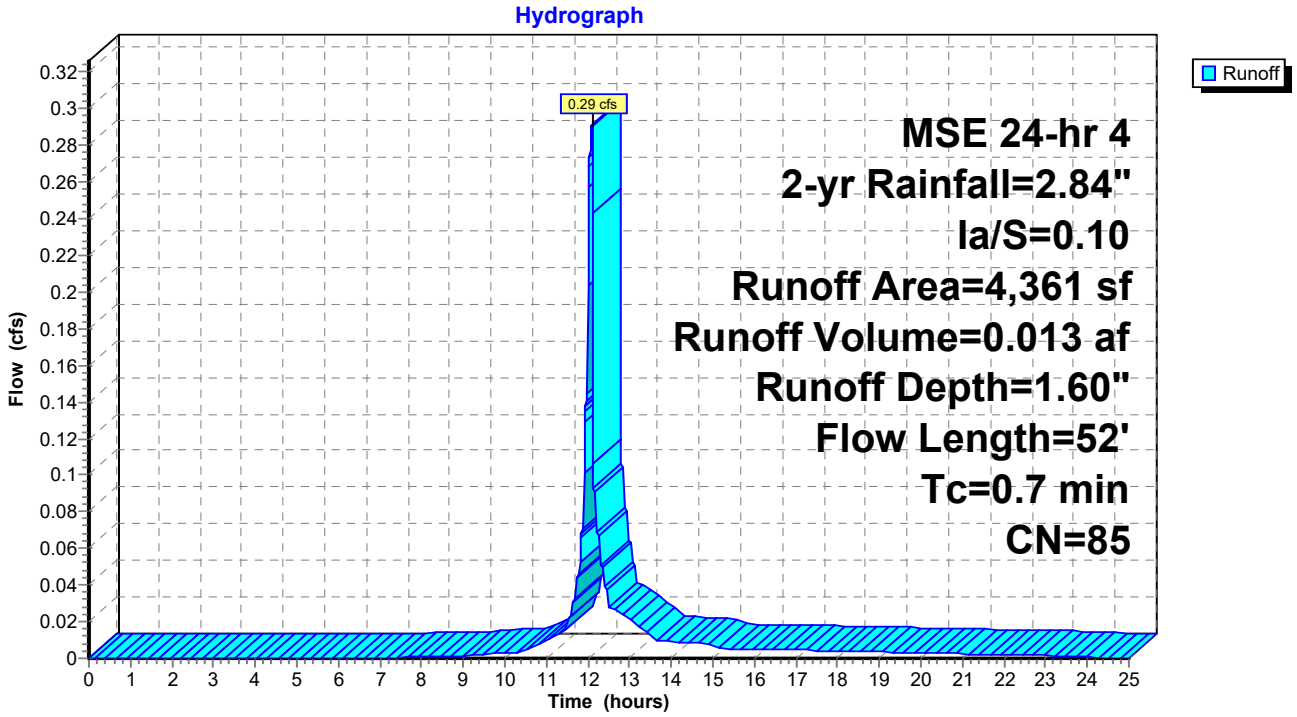
Runoff = 0.29 cfs @ 12.10 hrs, Volume= 0.013 af, Depth= 1.60"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 2-yr Rainfall=2.84", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 1.66" for 2-yr event
Inflow = 0.51 cfs @ 12.11 hrs, Volume= 0.024 af
Outflow = 0.50 cfs @ 12.12 hrs, Volume= 0.022 af, Atten= 3%, Lag= 0.6 min
Discarded = 0.02 cfs @ 12.12 hrs, Volume= 0.011 af
Primary = 0.47 cfs @ 12.12 hrs, Volume= 0.012 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.69' @ 12.12 hrs Surf.Area= 246 sf Storage= 195 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 57.3 min (857.0 - 799.7)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

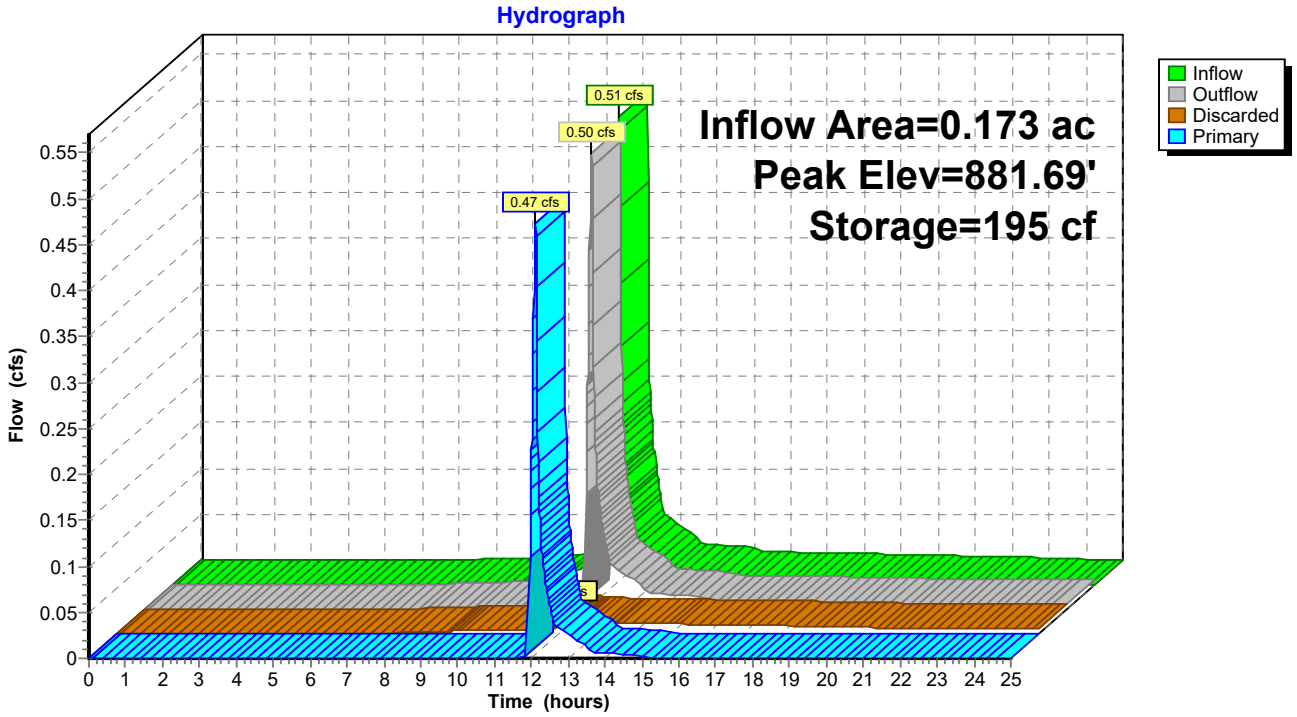
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.02 cfs @ 12.12 hrs HW=881.69' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.47 cfs @ 12.12 hrs HW=881.69' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.47 cfs @ 1.14 fps)

Pond 2P: Rain Garden

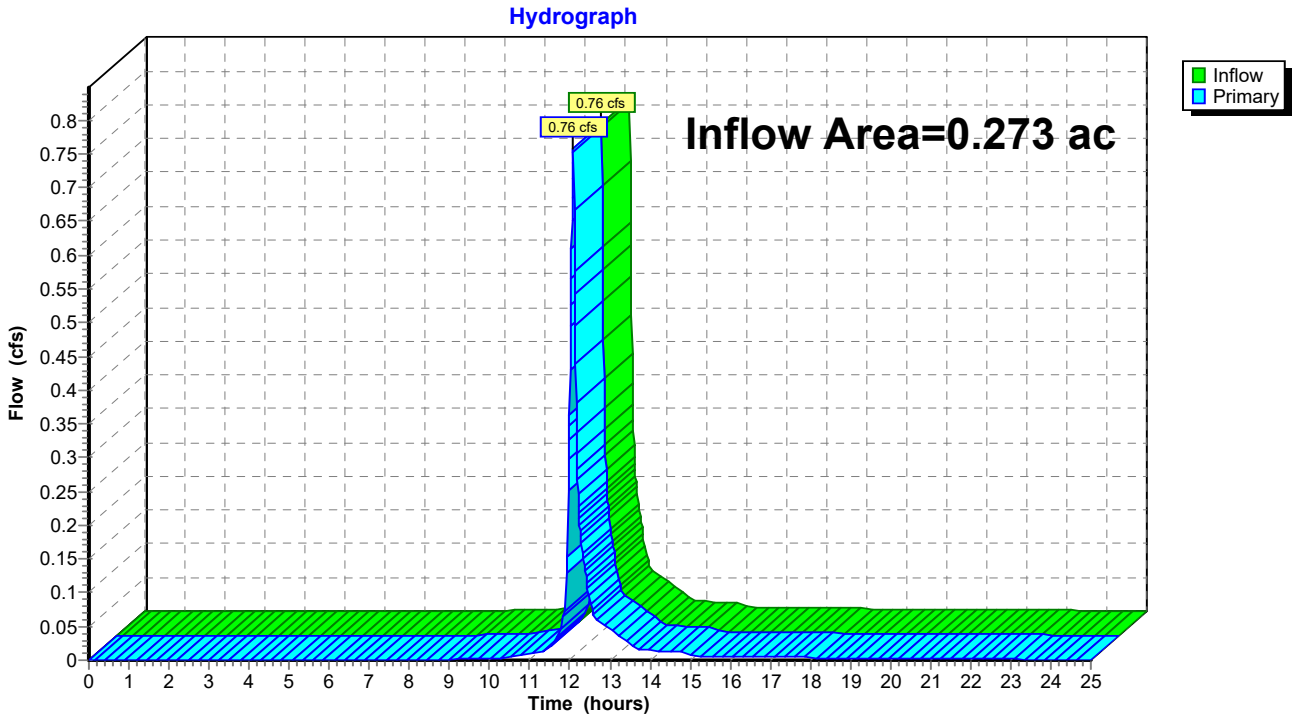


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 1.10" for 2-yr event
Inflow = 0.76 cfs @ 12.10 hrs, Volume= 0.025 af
Primary = 0.76 cfs @ 12.10 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=2.20"
Flow Length=157' Tc=2.7 min CN=86 Runoff=0.66 cfs 0.032 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=2.13"
Flow Length=52' Tc=0.7 min CN=85 Runoff=0.38 cfs 0.018 af

Pond 2P: Rain Garden Peak Elev=881.72' Storage=204 cf Inflow=0.66 cfs 0.032 af
Discarded=0.02 cfs 0.012 af Primary=0.62 cfs 0.018 af Outflow=0.65 cfs 0.030 af

Link 6L: Summary Inflow=1.00 cfs 0.035 af
Primary=1.00 cfs 0.035 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.049 af Average Runoff Depth = 2.17"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

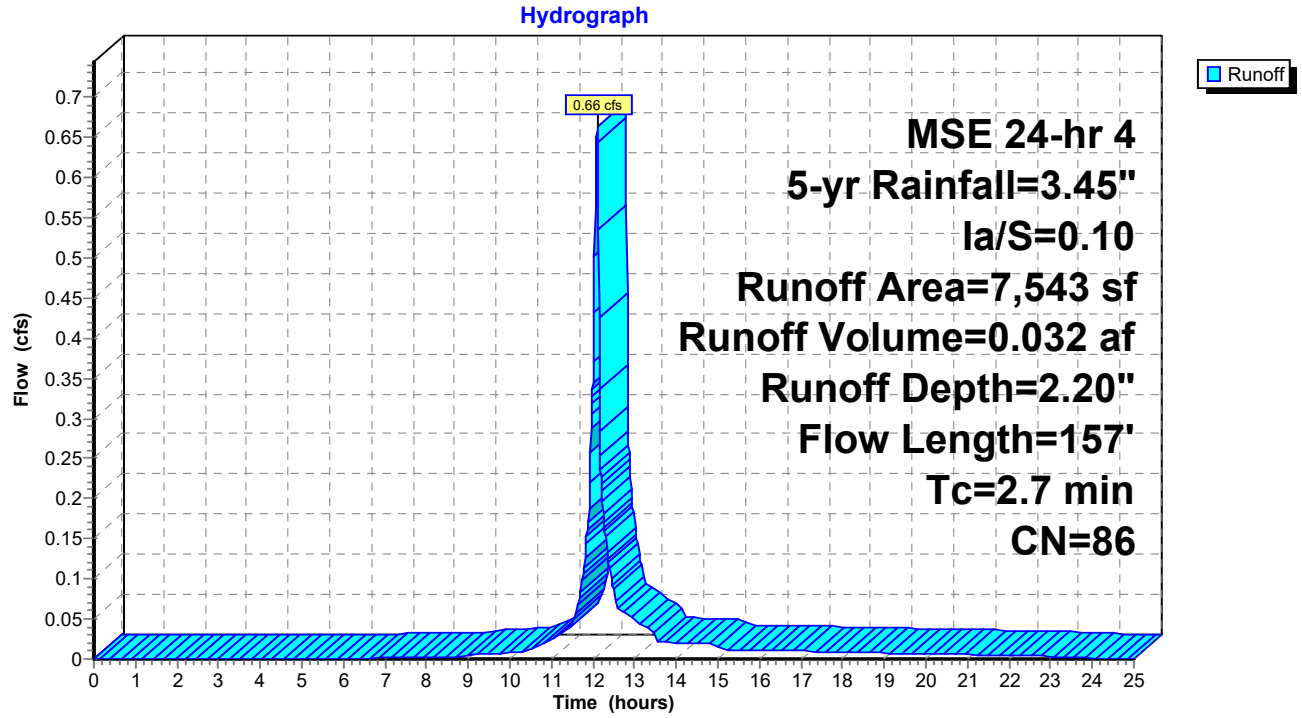
Runoff = 0.66 cfs @ 12.11 hrs, Volume= 0.032 af, Depth= 2.20"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 5-yr Rainfall=3.45", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

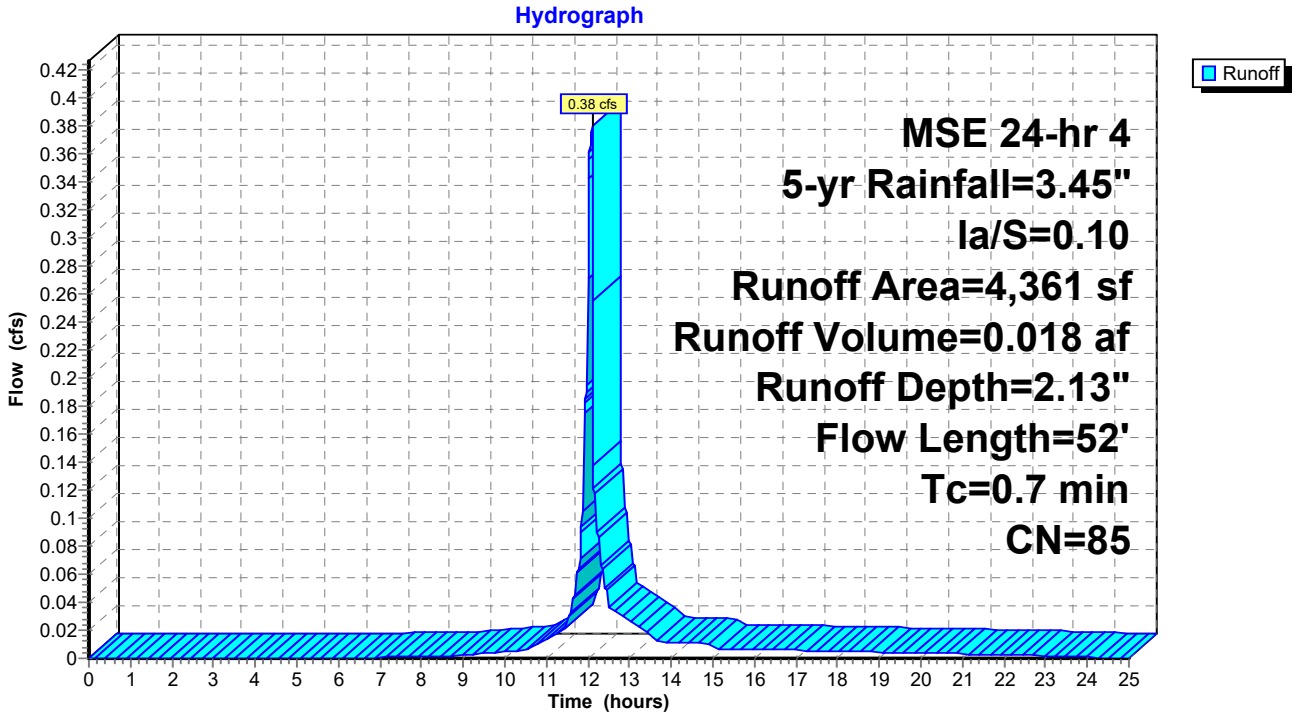
Runoff = 0.38 cfs @ 12.10 hrs, Volume= 0.018 af, Depth= 2.13"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 5-yr Rainfall=3.45", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 2.20" for 5-yr event
Inflow = 0.66 cfs @ 12.11 hrs, Volume= 0.032 af
Outflow = 0.65 cfs @ 12.11 hrs, Volume= 0.030 af, Atten= 3%, Lag= 0.5 min
Discarded = 0.02 cfs @ 12.11 hrs, Volume= 0.012 af
Primary = 0.62 cfs @ 12.11 hrs, Volume= 0.018 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.72' @ 12.11 hrs Surf.Area= 272 sf Storage= 204 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 43.6 min (837.5 - 793.9)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

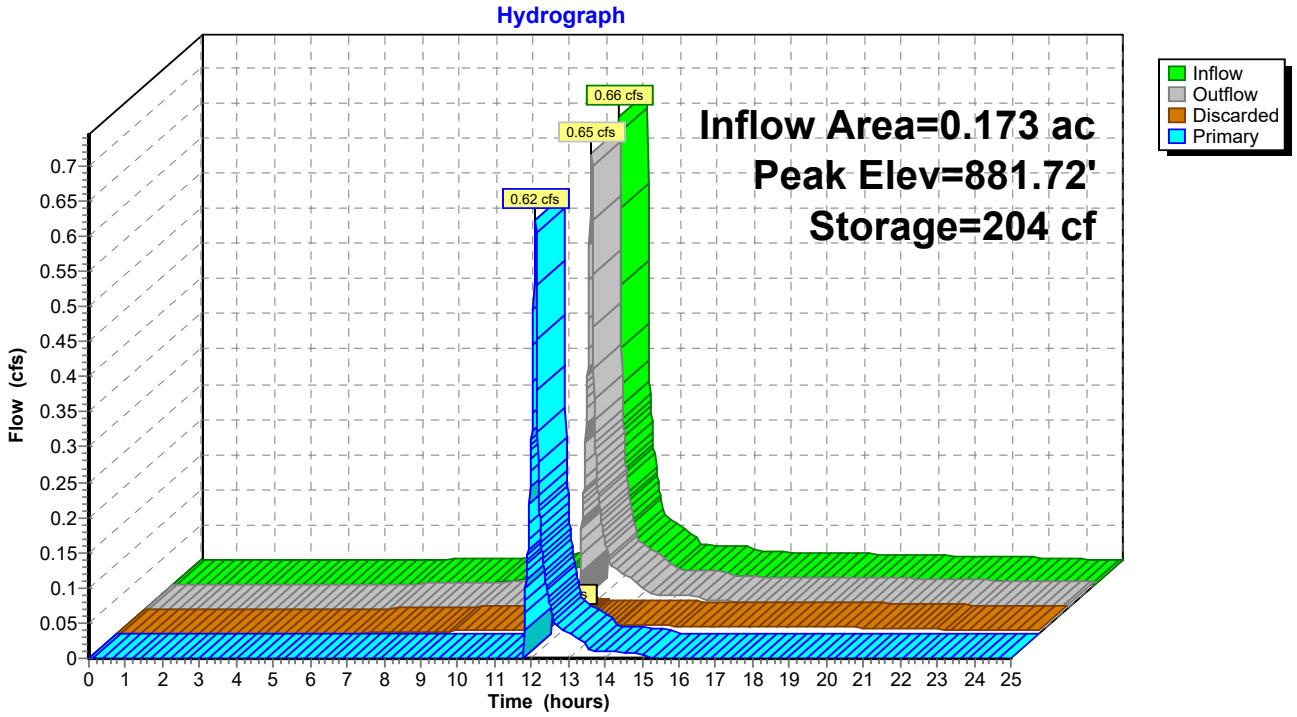
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.02 cfs @ 12.11 hrs HW=881.72' (Free Discharge)
↑**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.62 cfs @ 12.11 hrs HW=881.72' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.62 cfs @ 1.24 fps)

Pond 2P: Rain Garden

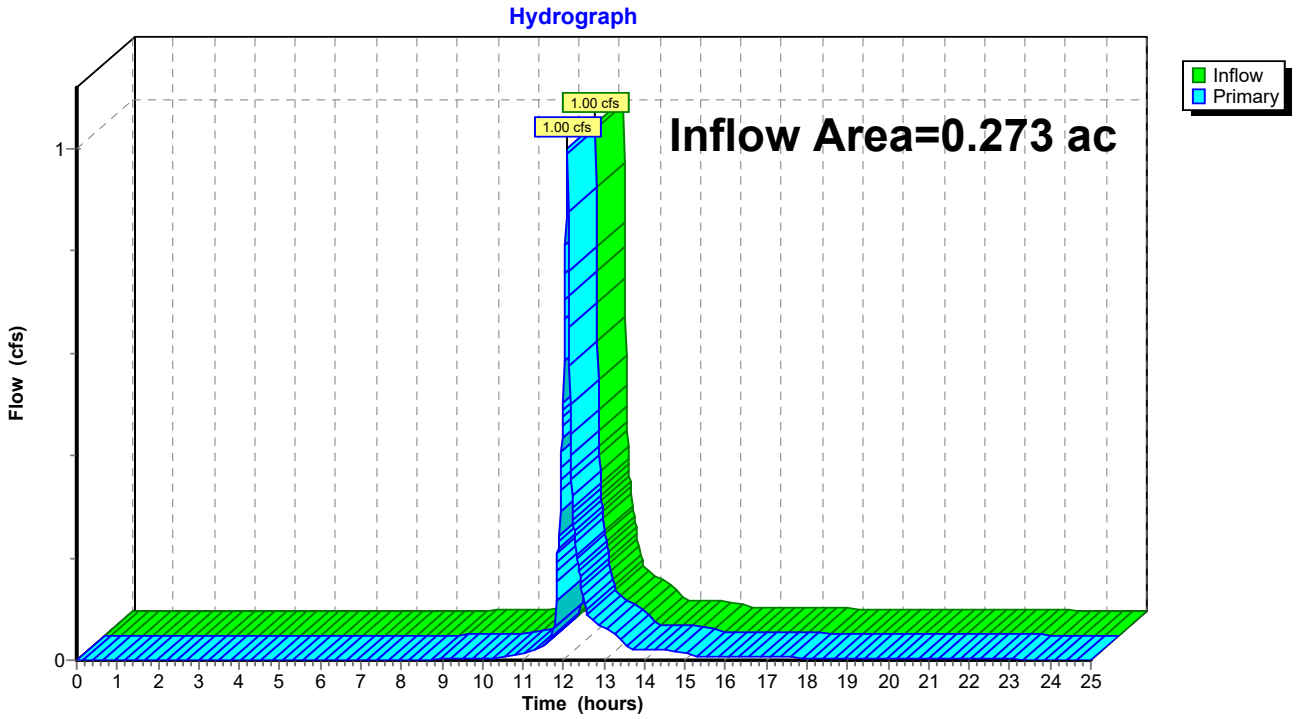


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 1.56" for 5-yr event
Inflow = 1.00 cfs @ 12.10 hrs, Volume= 0.035 af
Primary = 1.00 cfs @ 12.10 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=2.78"
Flow Length=157' Tc=2.7 min CN=86 Runoff=0.83 cfs 0.040 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=2.70"
Flow Length=52' Tc=0.7 min CN=85 Runoff=0.48 cfs 0.023 af

Pond 2P: Rain Garden Peak Elev=881.76' Storage=214 cf Inflow=0.83 cfs 0.040 af
Discarded=0.03 cfs 0.013 af Primary=0.78 cfs 0.025 af Outflow=0.81 cfs 0.038 af

Link 6L: Summary Inflow=1.26 cfs 0.047 af
Primary=1.26 cfs 0.047 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.063 af Average Runoff Depth = 2.75"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

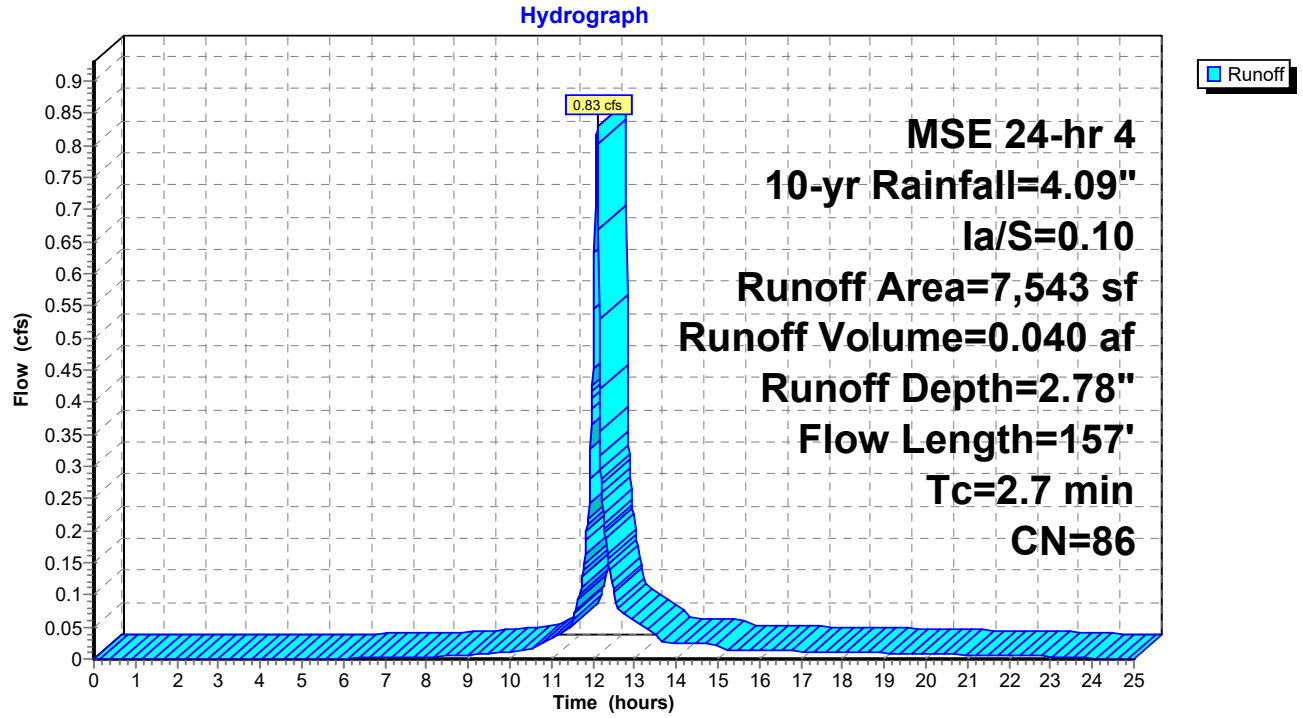
Runoff = 0.83 cfs @ 12.11 hrs, Volume= 0.040 af, Depth= 2.78"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 10-yr Rainfall=4.09", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

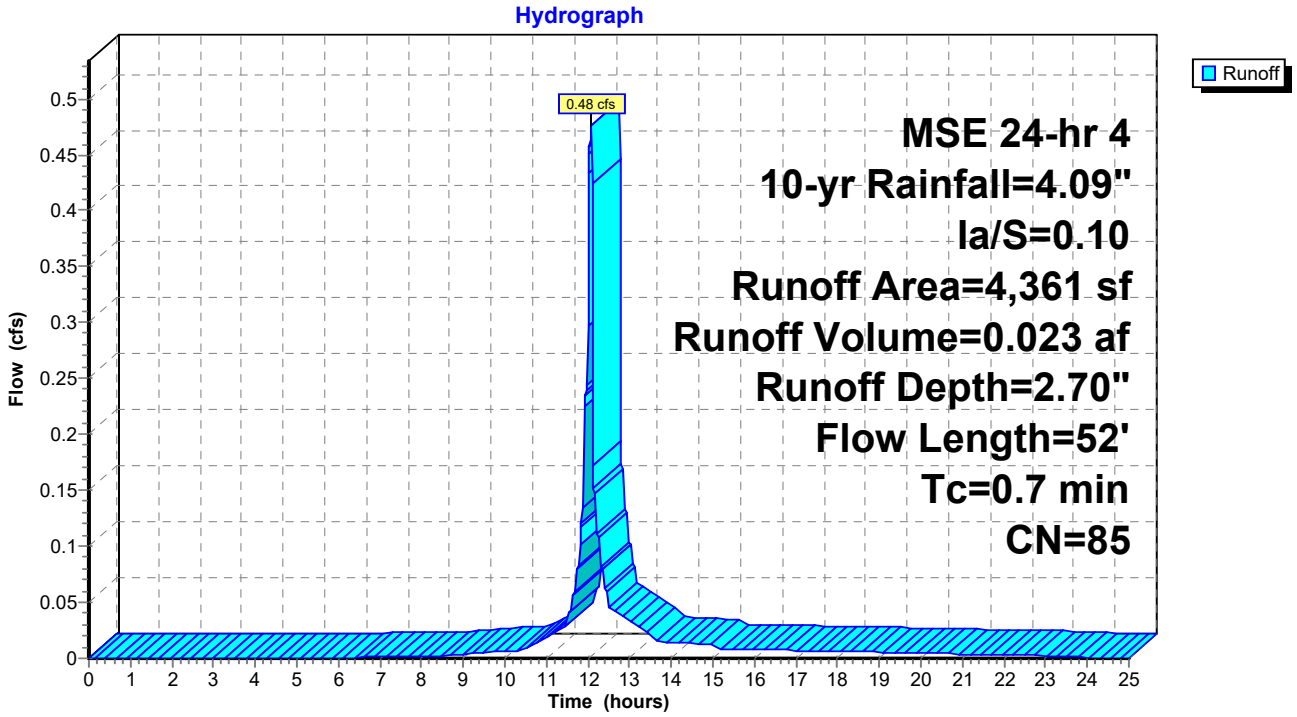
Runoff = 0.48 cfs @ 12.09 hrs, Volume= 0.023 af, Depth= 2.70"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 10-yr Rainfall=4.09", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 2.78" for 10-yr event
Inflow = 0.83 cfs @ 12.11 hrs, Volume= 0.040 af
Outflow = 0.81 cfs @ 12.11 hrs, Volume= 0.038 af, Atten= 3%, Lag= 0.5 min
Discarded = 0.03 cfs @ 12.11 hrs, Volume= 0.013 af
Primary = 0.78 cfs @ 12.11 hrs, Volume= 0.025 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.76' @ 12.11 hrs Surf.Area= 298 sf Storage= 214 cf

Plug-Flow detention time= 64.4 min calculated for 0.038 af (94% of inflow)
Center-of-Mass det. time= 35.0 min (824.0 - 789.0)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

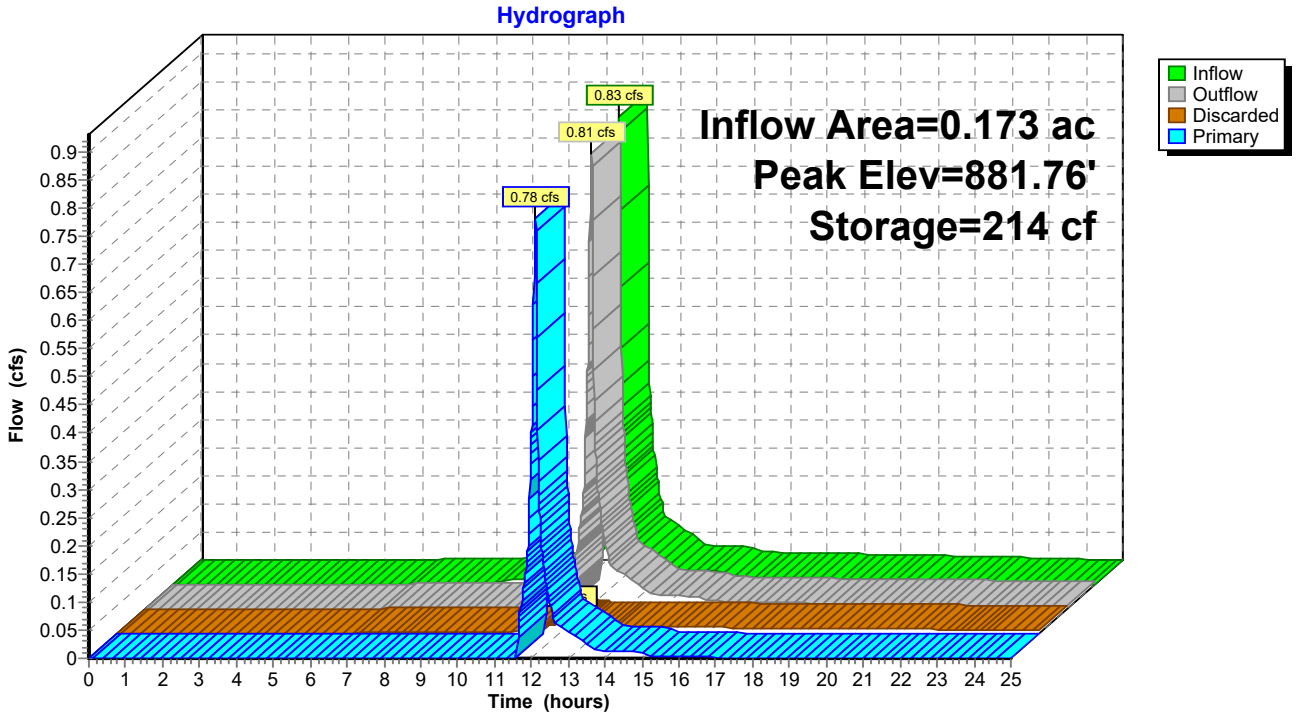
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.03 cfs @ 12.11 hrs HW=881.76' (Free Discharge)
1=Exfiltration (Controls 0.03 cfs)

Primary OutFlow Max=0.78 cfs @ 12.11 hrs HW=881.76' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 0.78 cfs @ 1.34 fps)

Pond 2P: Rain Garden

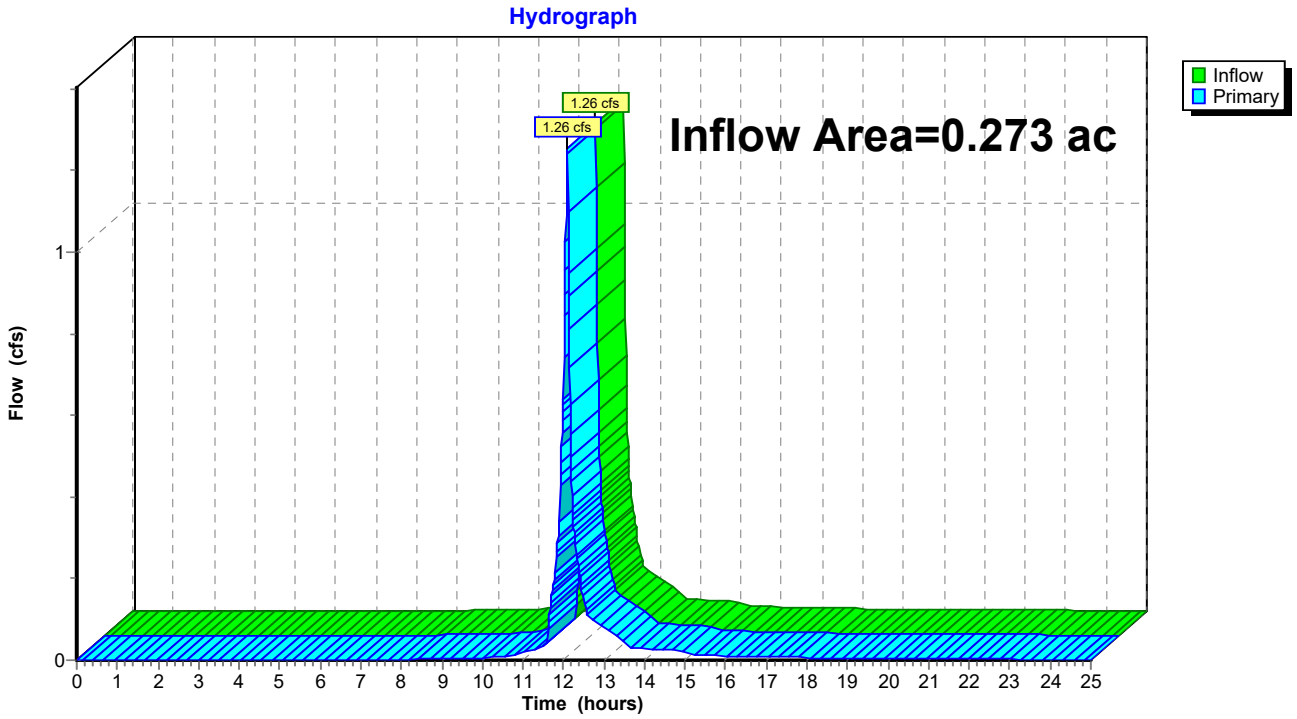


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 2.07" for 10-yr event
Inflow = 1.26 cfs @ 12.10 hrs, Volume= 0.047 af
Primary = 1.26 cfs @ 12.10 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=3.64"
Flow Length=157' Tc=2.7 min CN=86 Runoff=1.07 cfs 0.052 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=3.55"
Flow Length=52' Tc=0.7 min CN=85 Runoff=0.62 cfs 0.030 af

Pond 2P: Rain Garden Peak Elev=881.81' Storage=228 cf Inflow=1.07 cfs 0.052 af
Discarded=0.03 cfs 0.015 af Primary=1.02 cfs 0.035 af Outflow=1.05 cfs 0.050 af

Link 6L: Summary Inflow=1.63 cfs 0.065 af
Primary=1.63 cfs 0.065 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.082 af Average Runoff Depth = 3.61"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

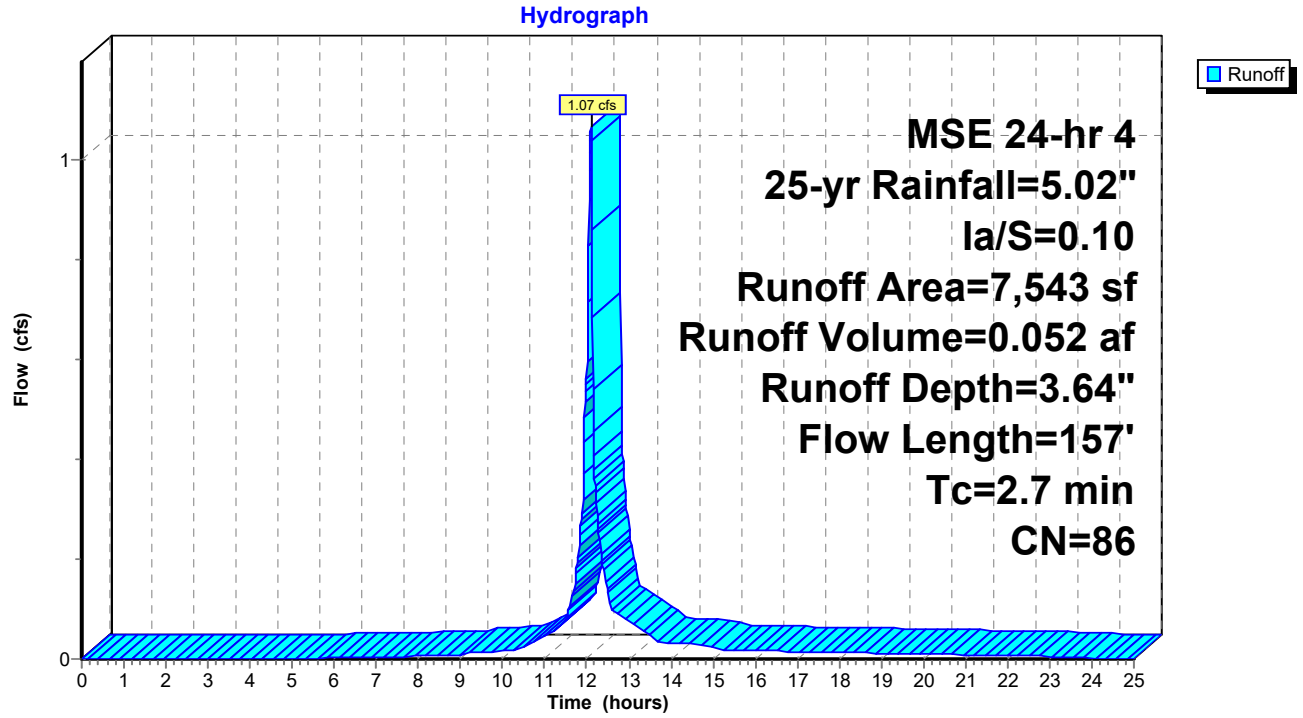
Runoff = 1.07 cfs @ 12.10 hrs, Volume= 0.052 af, Depth= 3.64"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 25-yr Rainfall=5.02", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

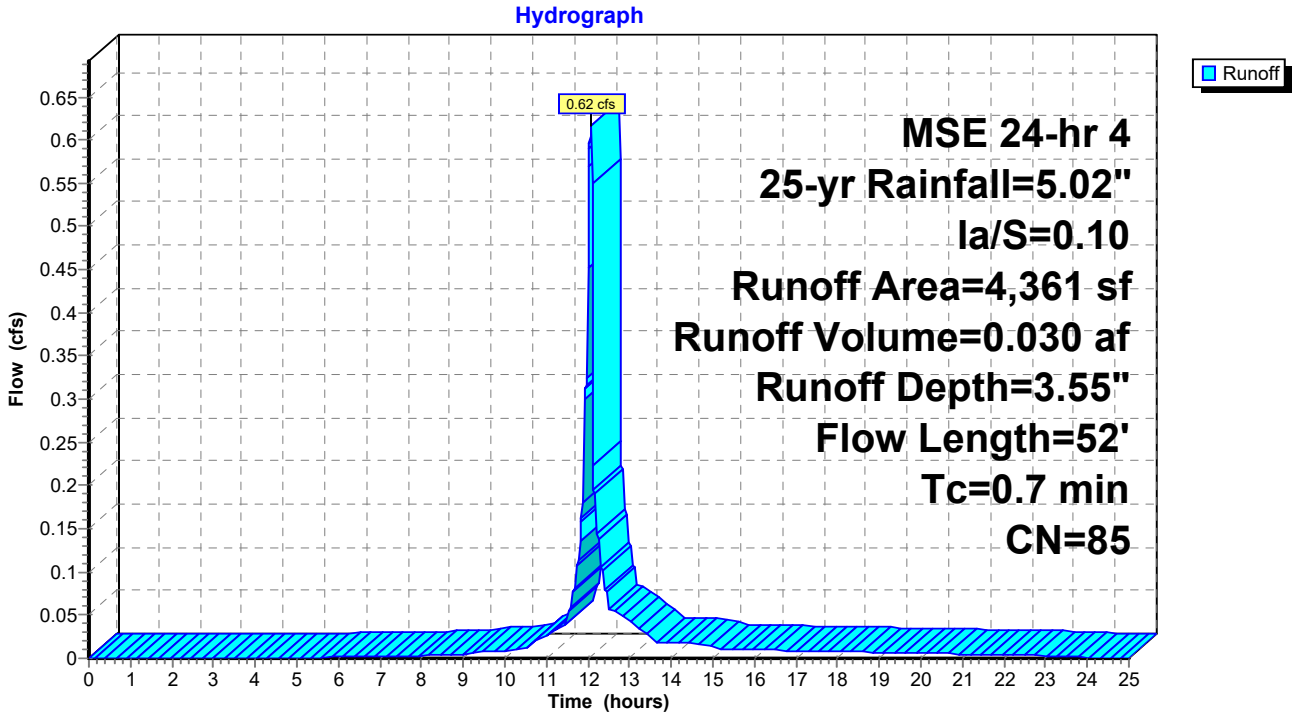
Runoff = 0.62 cfs @ 12.09 hrs, Volume= 0.030 af, Depth= 3.55"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 25-yr Rainfall=5.02", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 3.64" for 25-yr event
Inflow = 1.07 cfs @ 12.10 hrs, Volume= 0.052 af
Outflow = 1.05 cfs @ 12.11 hrs, Volume= 0.050 af, Atten= 2%, Lag= 0.5 min
Discarded = 0.03 cfs @ 12.11 hrs, Volume= 0.015 af
Primary = 1.02 cfs @ 12.11 hrs, Volume= 0.035 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.81' @ 12.11 hrs Surf.Area= 332 sf Storage= 228 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 27.8 min (811.2 - 783.4)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

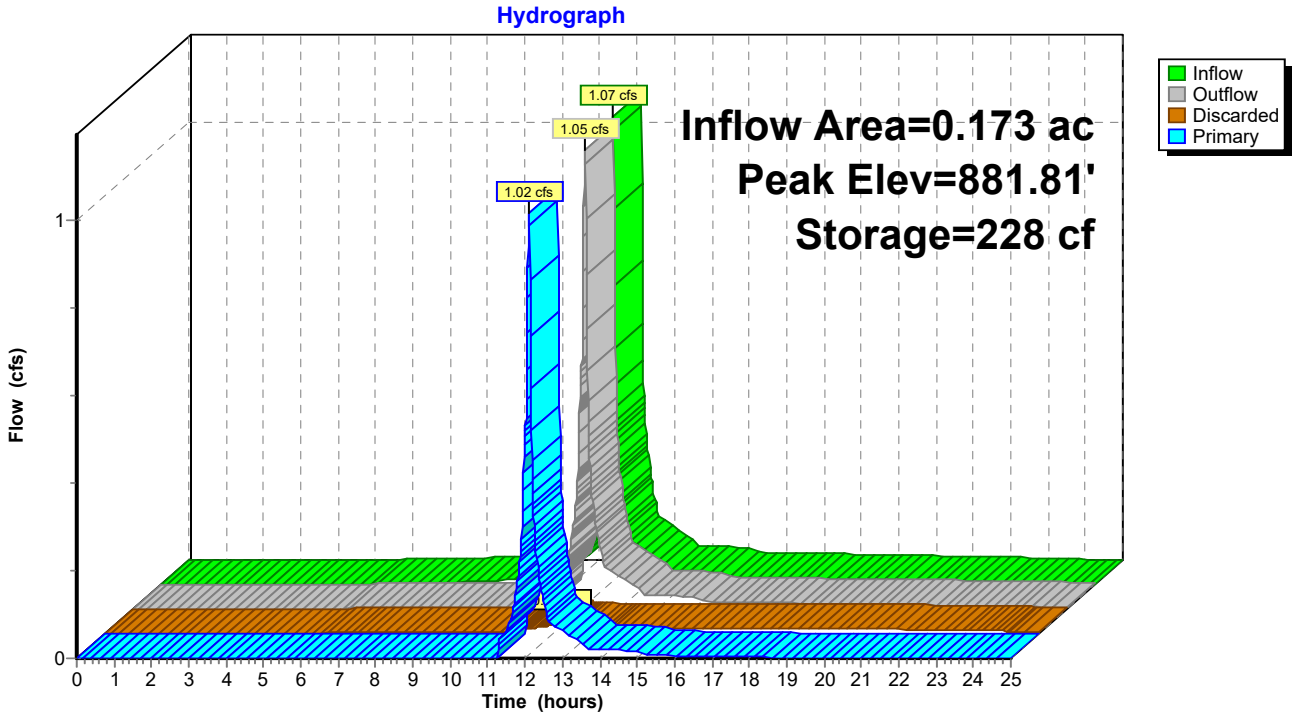
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.03 cfs @ 12.11 hrs HW=881.80' (Free Discharge)
1=Exfiltration (Controls 0.03 cfs)

Primary OutFlow Max=1.02 cfs @ 12.11 hrs HW=881.80' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 1.02 cfs @ 1.45 fps)

Pond 2P: Rain Garden

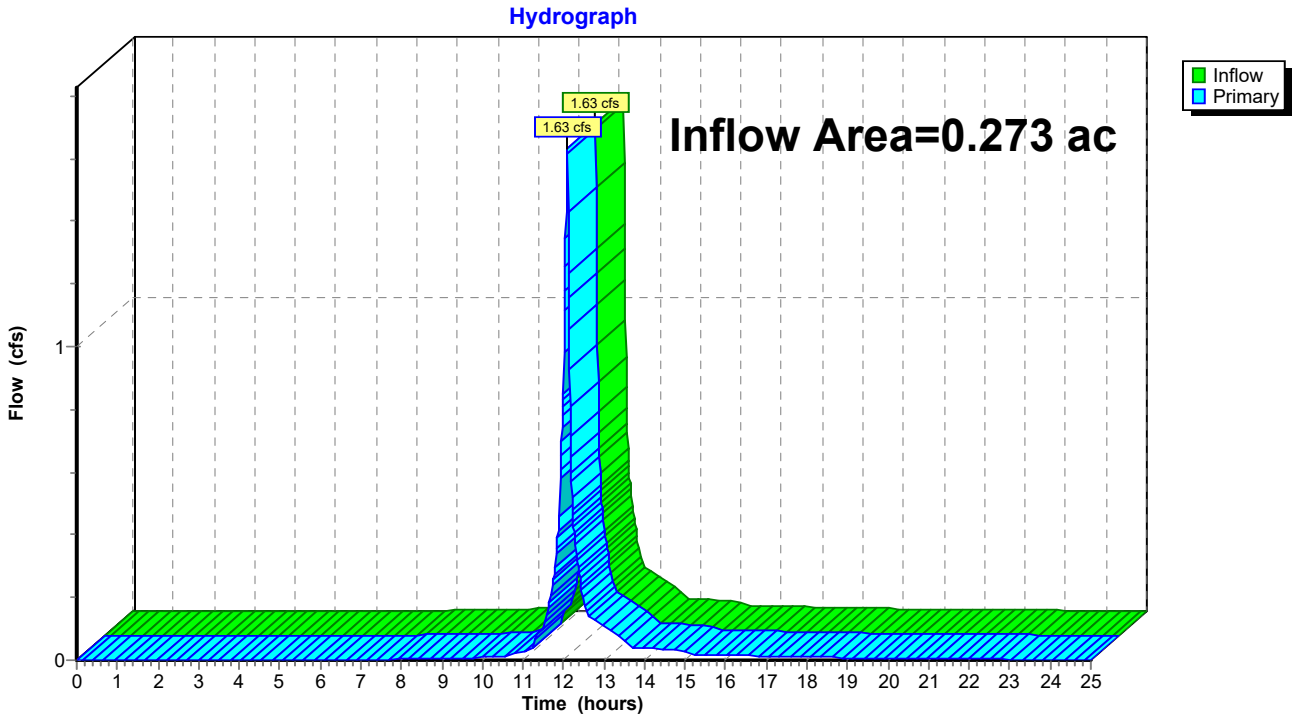


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 2.86" for 25-yr event
Inflow = 1.63 cfs @ 12.10 hrs, Volume= 0.065 af
Primary = 1.63 cfs @ 12.10 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=5.20"
Flow Length=157' Tc=2.7 min CN=86 Runoff=1.49 cfs 0.075 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=5.10"
Flow Length=52' Tc=0.7 min CN=85 Runoff=0.87 cfs 0.043 af

Pond 2P: Rain Garden Peak Elev=881.88' Storage=254 cf Inflow=1.49 cfs 0.075 af
Discarded=0.03 cfs 0.016 af Primary=1.43 cfs 0.056 af Outflow=1.47 cfs 0.072 af

Link 6L: Summary Inflow=2.30 cfs 0.098 af
Primary=2.30 cfs 0.098 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.117 af Average Runoff Depth = 5.16"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

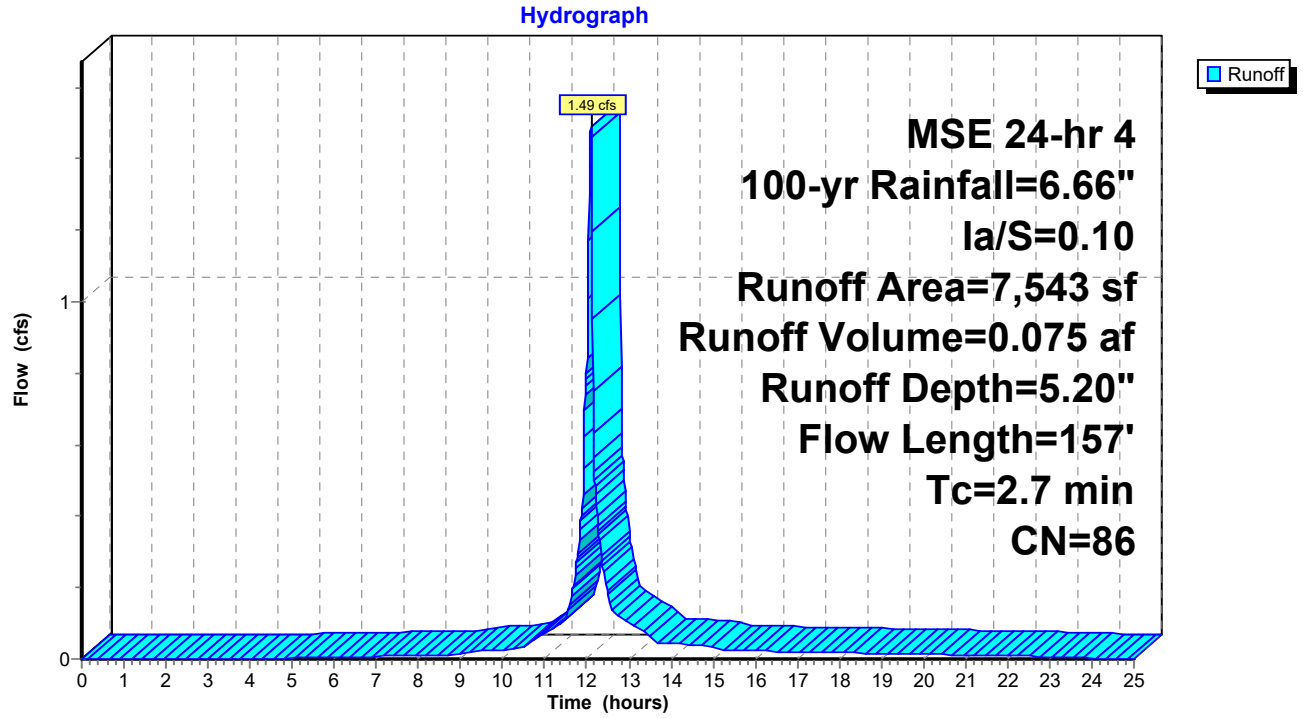
Runoff = 1.49 cfs @ 12.10 hrs, Volume= 0.075 af, Depth= 5.20"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 100-yr Rainfall=6.66", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

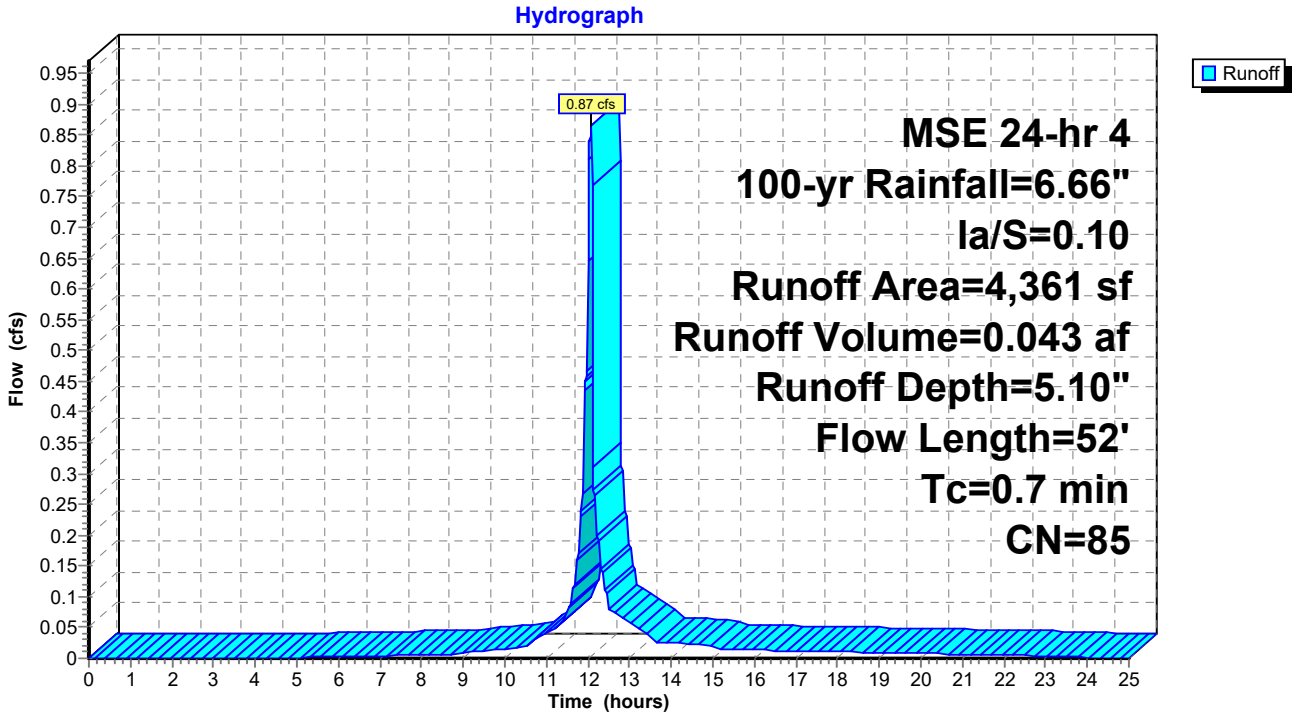
Runoff = 0.87 cfs @ 12.09 hrs, Volume= 0.043 af, Depth= 5.10"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 100-yr Rainfall=6.66", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 5.20" for 100-yr event
Inflow = 1.49 cfs @ 12.10 hrs, Volume= 0.075 af
Outflow = 1.47 cfs @ 12.11 hrs, Volume= 0.072 af, Atten= 2%, Lag= 0.6 min
Discarded = 0.03 cfs @ 12.11 hrs, Volume= 0.016 af
Primary = 1.43 cfs @ 12.11 hrs, Volume= 0.056 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.88' @ 12.11 hrs Surf.Area= 385 sf Storage= 254 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 21.4 min (797.4 - 776.0)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

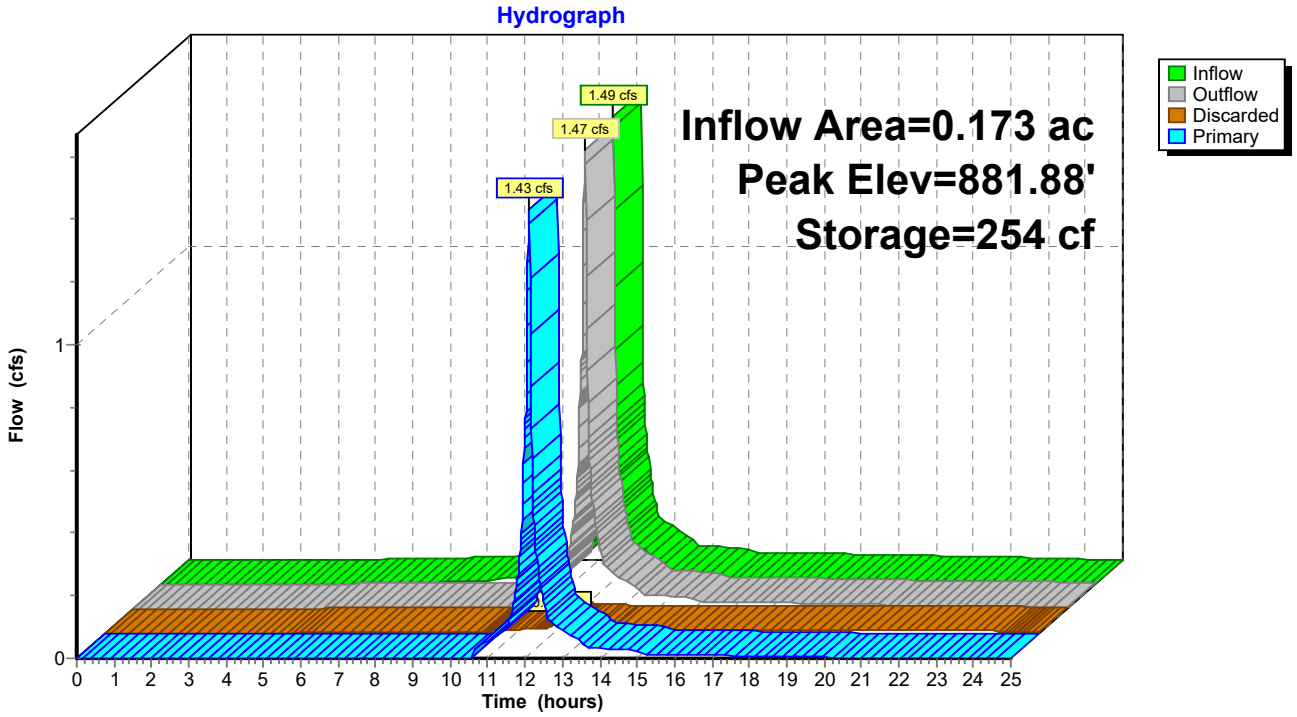
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.03 cfs @ 12.11 hrs HW=881.88' (Free Discharge)
↑**1=Exfiltration** (Controls 0.03 cfs)

Primary OutFlow Max=1.43 cfs @ 12.11 hrs HW=881.88' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.43 cfs @ 1.60 fps)

Pond 2P: Rain Garden

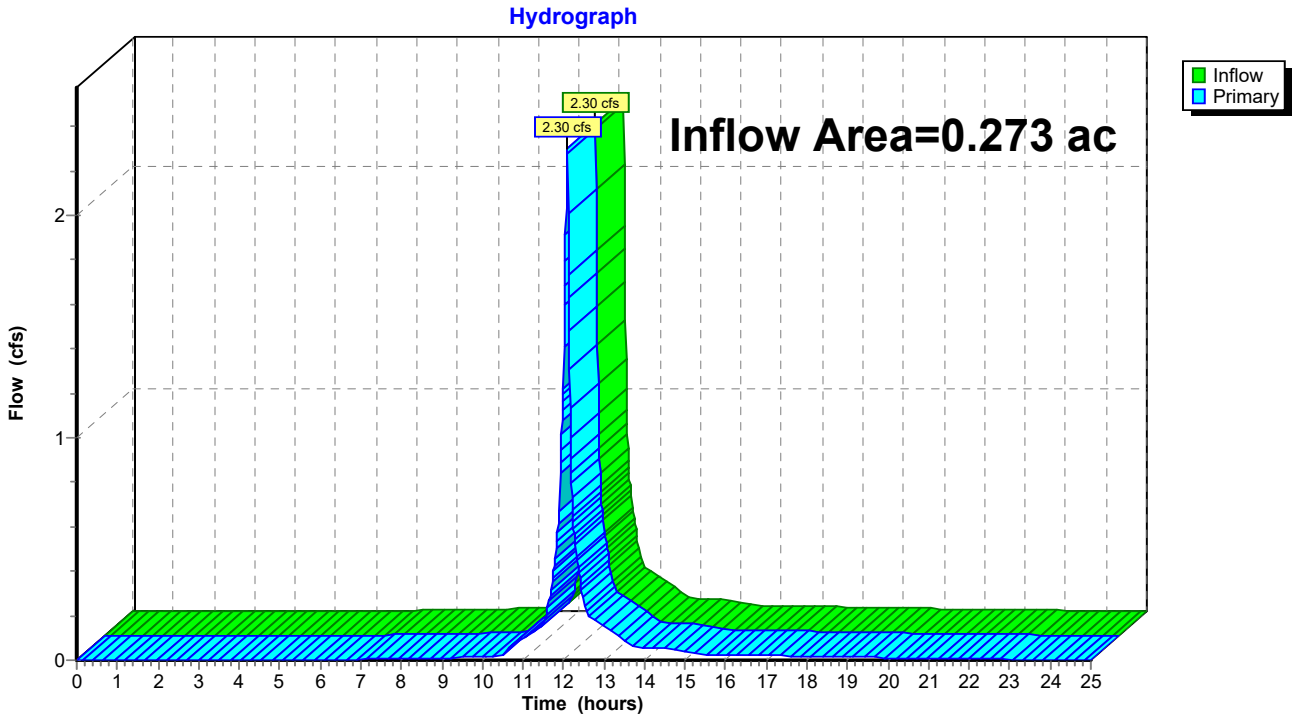


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 4.32" for 100-yr event
Inflow = 2.30 cfs @ 12.10 hrs, Volume= 0.098 af
Primary = 2.30 cfs @ 12.10 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=6.03"
Flow Length=157' Tc=2.7 min CN=86 Runoff=1.72 cfs 0.087 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=5.93"
Flow Length=52' Tc=0.7 min CN=85 Runoff=1.00 cfs 0.049 af

Pond 2P: Rain Garden Peak Elev=881.91' Storage=267 cf Inflow=1.72 cfs 0.087 af
Discarded=0.04 cfs 0.017 af Primary=1.65 cfs 0.067 af Outflow=1.69 cfs 0.084 af

Link 6L: Summary Inflow=2.65 cfs 0.116 af
Primary=2.65 cfs 0.116 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.137 af Average Runoff Depth = 6.00"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

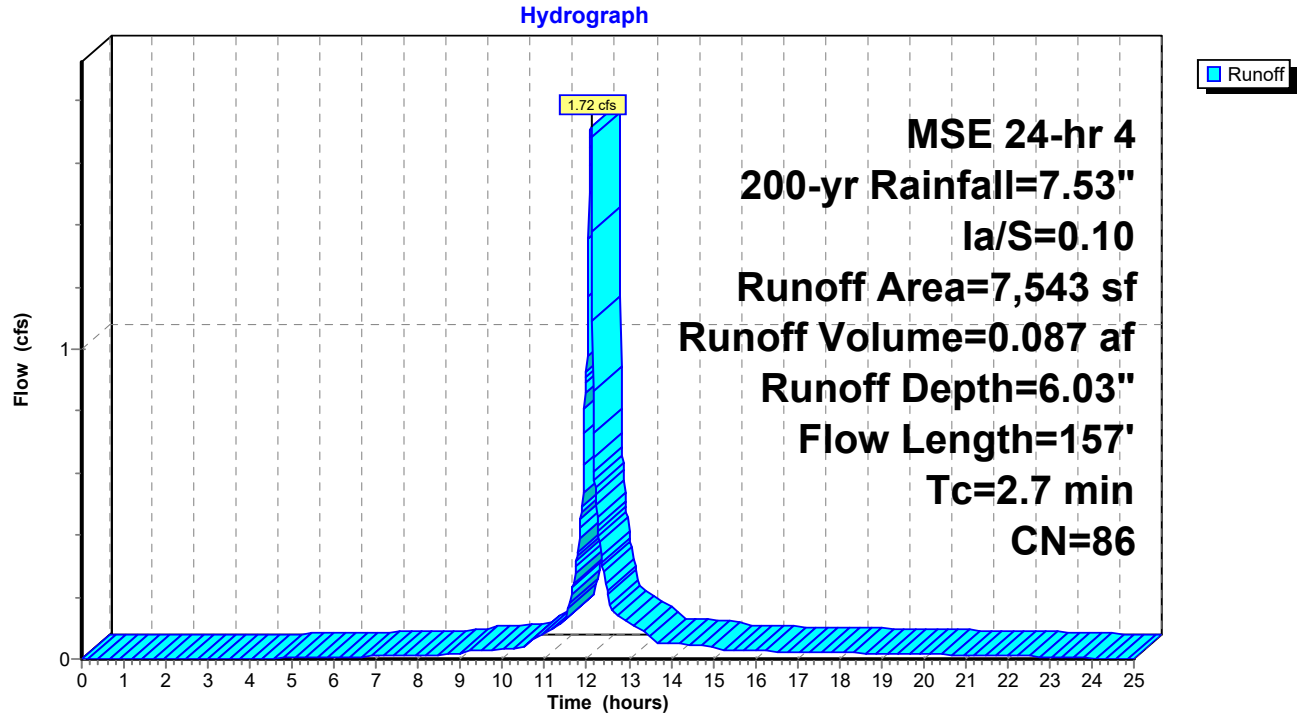
Runoff = 1.72 cfs @ 12.10 hrs, Volume= 0.087 af, Depth= 6.03"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 200-yr Rainfall=7.53", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

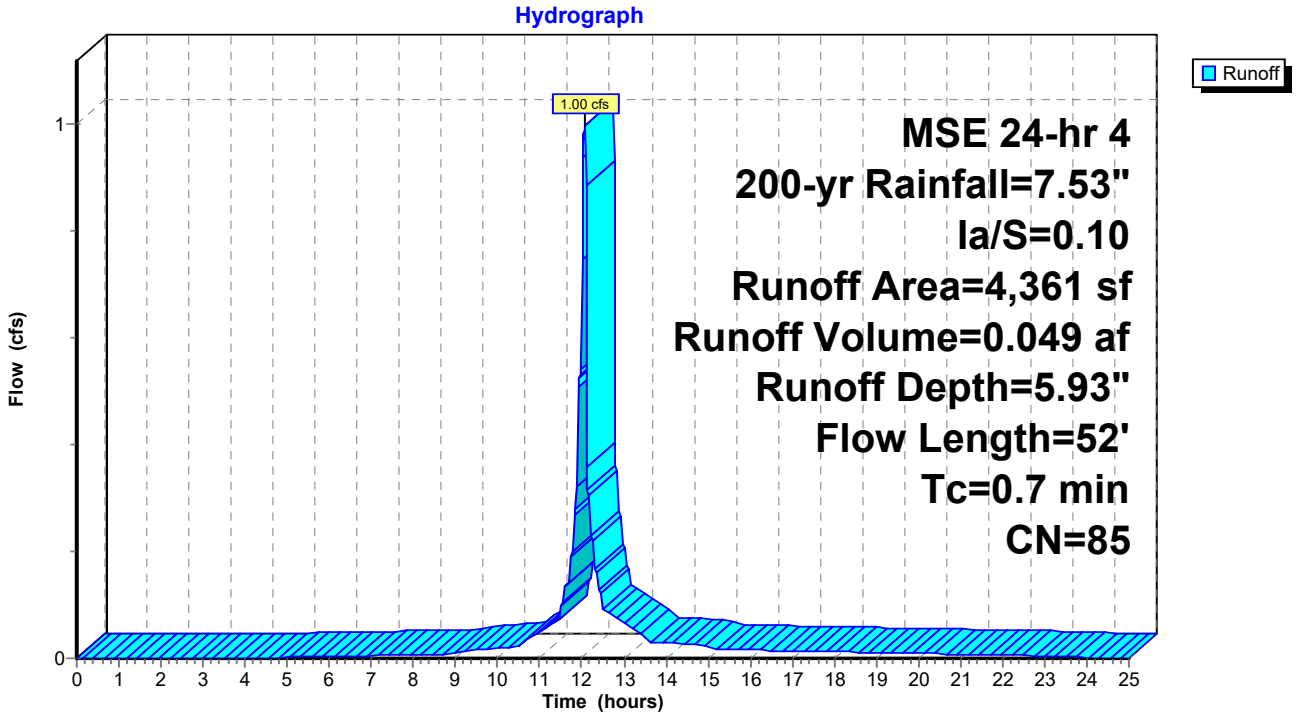
Runoff = 1.00 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 5.93"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 200-yr Rainfall=7.53", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 6.03" for 200-yr event
Inflow = 1.72 cfs @ 12.10 hrs, Volume= 0.087 af
Outflow = 1.69 cfs @ 12.11 hrs, Volume= 0.084 af, Atten= 2%, Lag= 0.6 min
Discarded = 0.04 cfs @ 12.11 hrs, Volume= 0.017 af
Primary = 1.65 cfs @ 12.11 hrs, Volume= 0.067 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.91' @ 12.11 hrs Surf.Area= 410 sf Storage= 267 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 19.4 min (792.3 - 772.9)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

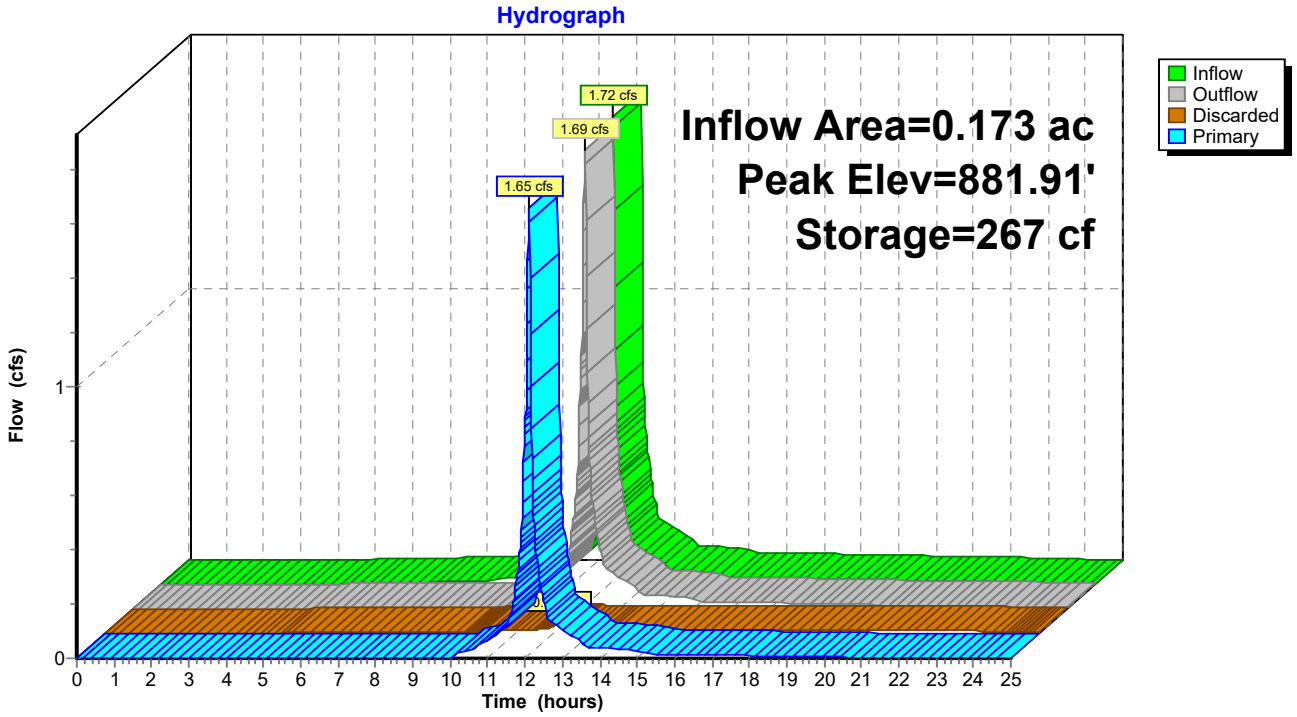
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.04 cfs @ 12.11 hrs HW=881.91' (Free Discharge)
↑**1=Exfiltration** (Controls 0.04 cfs)

Primary OutFlow Max=1.65 cfs @ 12.11 hrs HW=881.91' TW=0.00' (Dynamic Tailwater)
↑**2=Broad-Crested Rectangular Weir** (Weir Controls 1.65 cfs @ 1.67 fps)

Pond 2P: Rain Garden

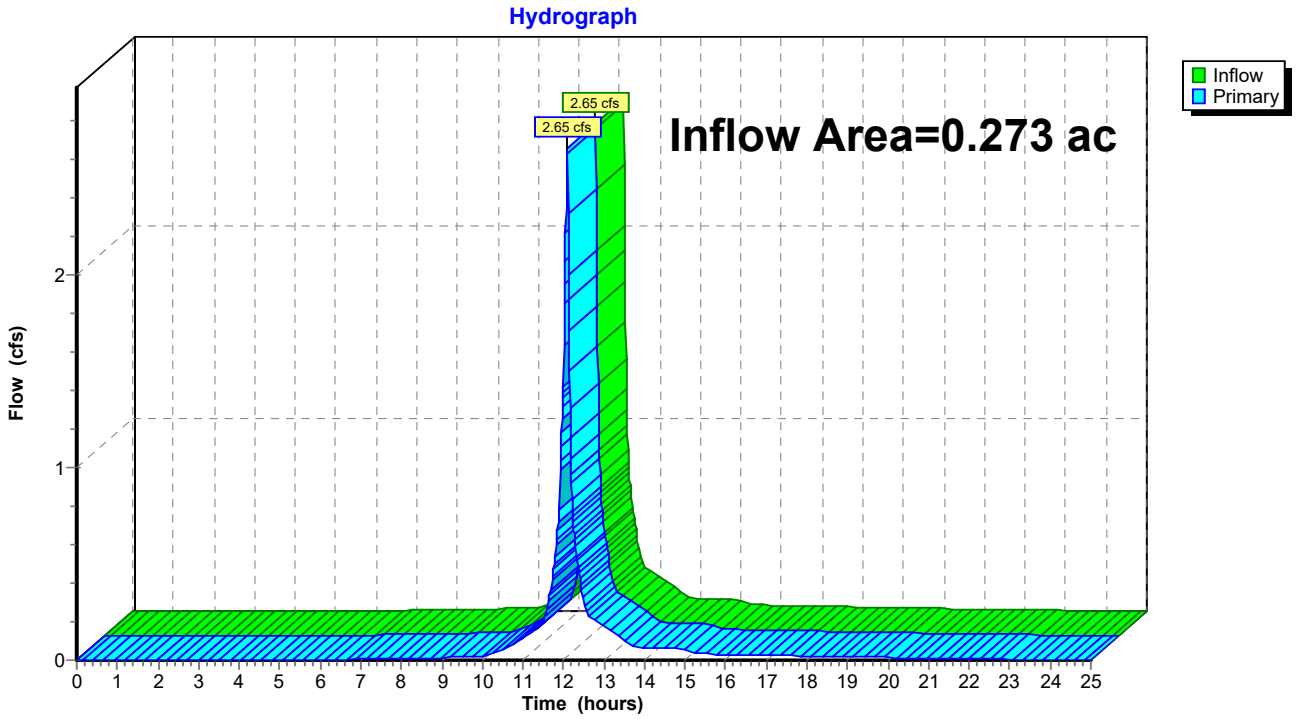


Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 5.11" for 200-yr event
Inflow = 2.65 cfs @ 12.10 hrs, Volume= 0.116 af
Primary = 2.65 cfs @ 12.10 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary



Time span=0.00-25.00 hrs, dt=0.01 hrs, 2501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Area to Rain Garden Runoff Area=7,543 sf 37.56% Impervious Runoff Depth=7.40"
Flow Length=157' Tc=2.7 min CN=86 Runoff=2.09 cfs 0.107 af

Subcatchment 5S: Undetained Area Runoff Area=4,361 sf 33.23% Impervious Runoff Depth=7.29"
Flow Length=52' Tc=0.7 min CN=85 Runoff=1.21 cfs 0.061 af

Pond 2P: Rain Garden Peak Elev=881.96' Storage=289 cf Inflow=2.09 cfs 0.107 af
Discarded=0.04 cfs 0.019 af Primary=2.01 cfs 0.085 af Outflow=2.05 cfs 0.104 af

Link 6L: Summary Inflow=3.22 cfs 0.146 af
Primary=3.22 cfs 0.146 af

Total Runoff Area = 0.273 ac Runoff Volume = 0.168 af Average Runoff Depth = 7.36"
64.03% Pervious = 0.175 ac 35.97% Impervious = 0.098 ac

Summary for Subcatchment 1S: Area to Rain Garden

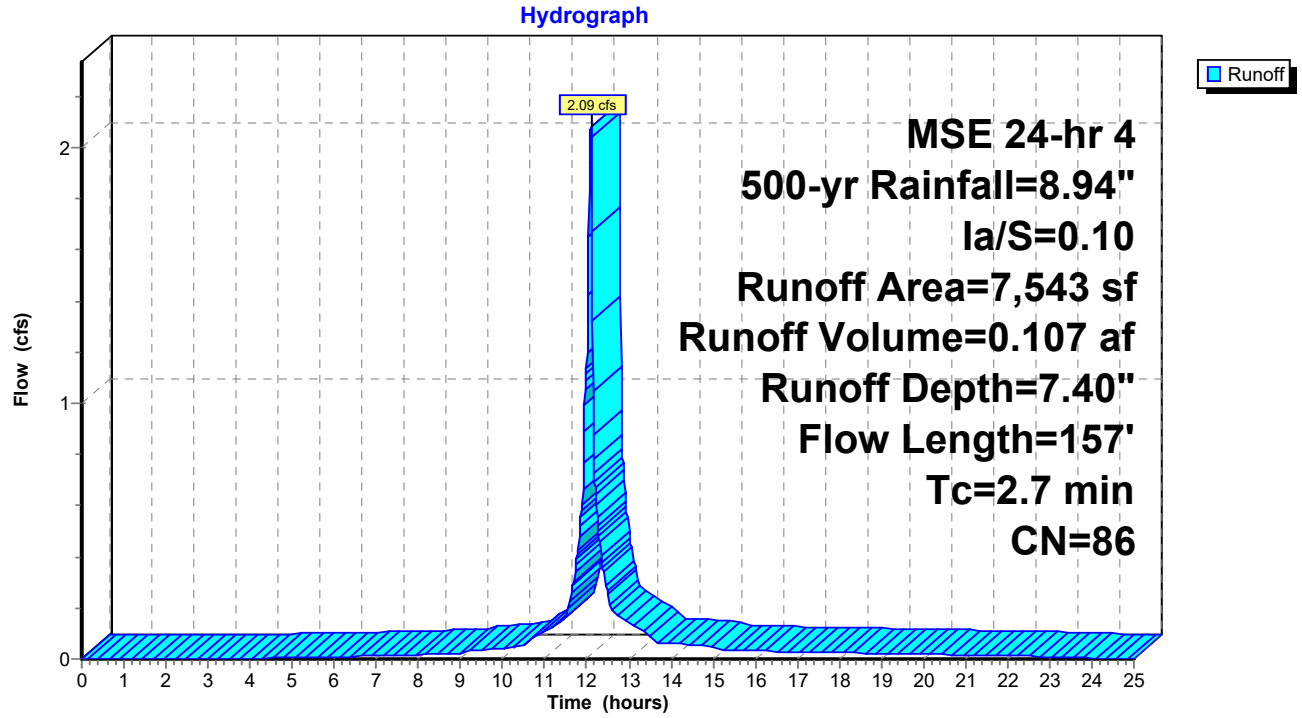
Runoff = 2.09 cfs @ 12.10 hrs, Volume= 0.107 af, Depth= 7.40"
Routed to Pond 2P : Rain Garden

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 500-yr Rainfall=8.94", Ia/S=0.10

	Area (sf)	CN	Description
*	4,710	78	LS (HSG D one higher than existing)
*	2,415	98	Roof
*	369	98	SW
*	49	100	Rain Garden
	7,543	86	Weighted Average
	4,710	78	62.44% Pervious Area
	2,833	98	37.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	125	0.1240	5.28		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
2.2	18	0.0333	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.84"
2.7	157	Total			

Subcatchment 1S: Area to Rain Garden



Summary for Subcatchment 5S: Undetained Area

[49] Hint: Tc<2dt may require smaller dt

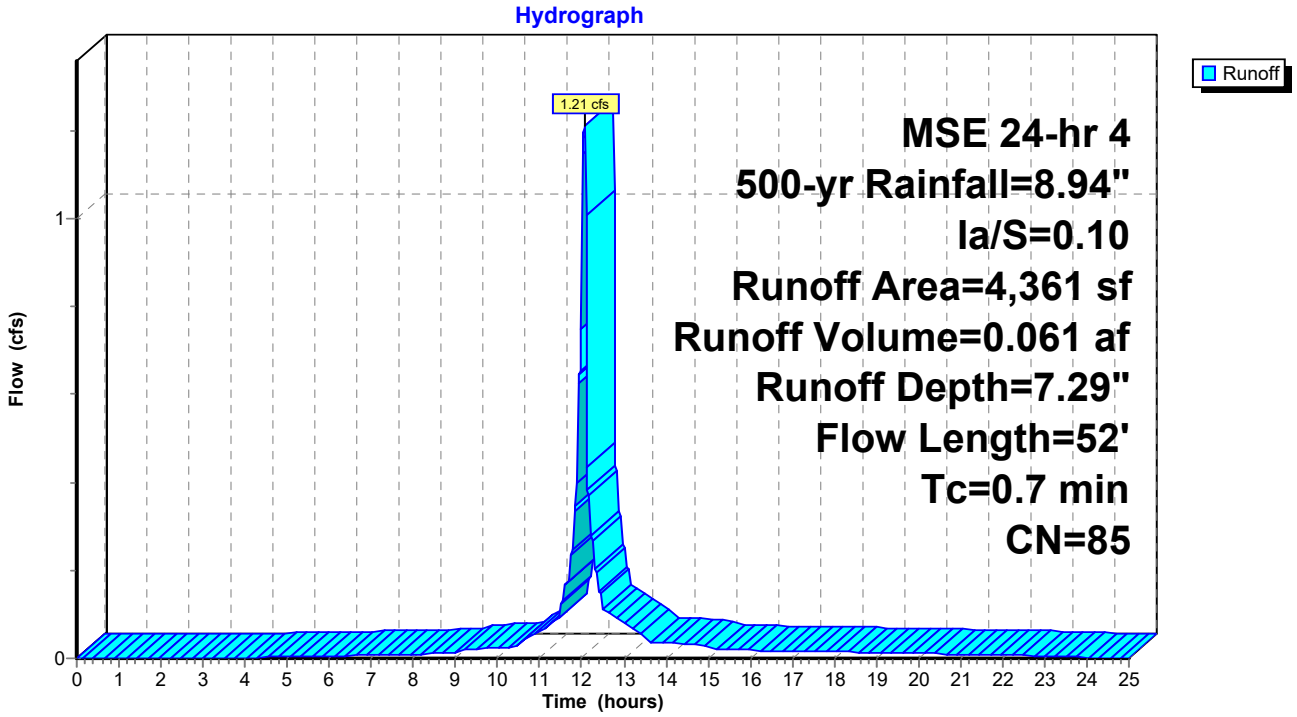
Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 7.29"
Routed to Link 6L : Summary

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
MSE 24-hr 4 500-yr Rainfall=8.94", Ia/S=0.10

	Area (sf)	CN	Description
*	2,912	78	LS (HSG D one higher than existing)
*	646	98	Roof
*	803	98	Pavement
	4,361	85	Weighted Average
	2,912	78	66.77% Pervious Area
	1,449	98	33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0	10	0.3150	8.42		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	14	1.0000	4.18		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.6	28	0.0130	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.84"
0.7	52	Total			

Subcatchment 5S: Undetained Area



Summary for Pond 2P: Rain Garden

Inflow Area = 0.173 ac, 37.56% Impervious, Inflow Depth = 7.40" for 500-yr event
Inflow = 2.09 cfs @ 12.10 hrs, Volume= 0.107 af
Outflow = 2.05 cfs @ 12.11 hrs, Volume= 0.104 af, Atten= 2%, Lag= 0.6 min
Discarded = 0.04 cfs @ 12.11 hrs, Volume= 0.019 af
Primary = 2.01 cfs @ 12.11 hrs, Volume= 0.085 af
Routed to Link 6L : Summary

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs
Peak Elev= 881.96' @ 12.11 hrs Surf.Area= 448 sf Storage= 289 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 17.1 min (785.9 - 768.8)

Volume	Invert	Avail.Storage	Storage Description
#1	878.49'	307 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

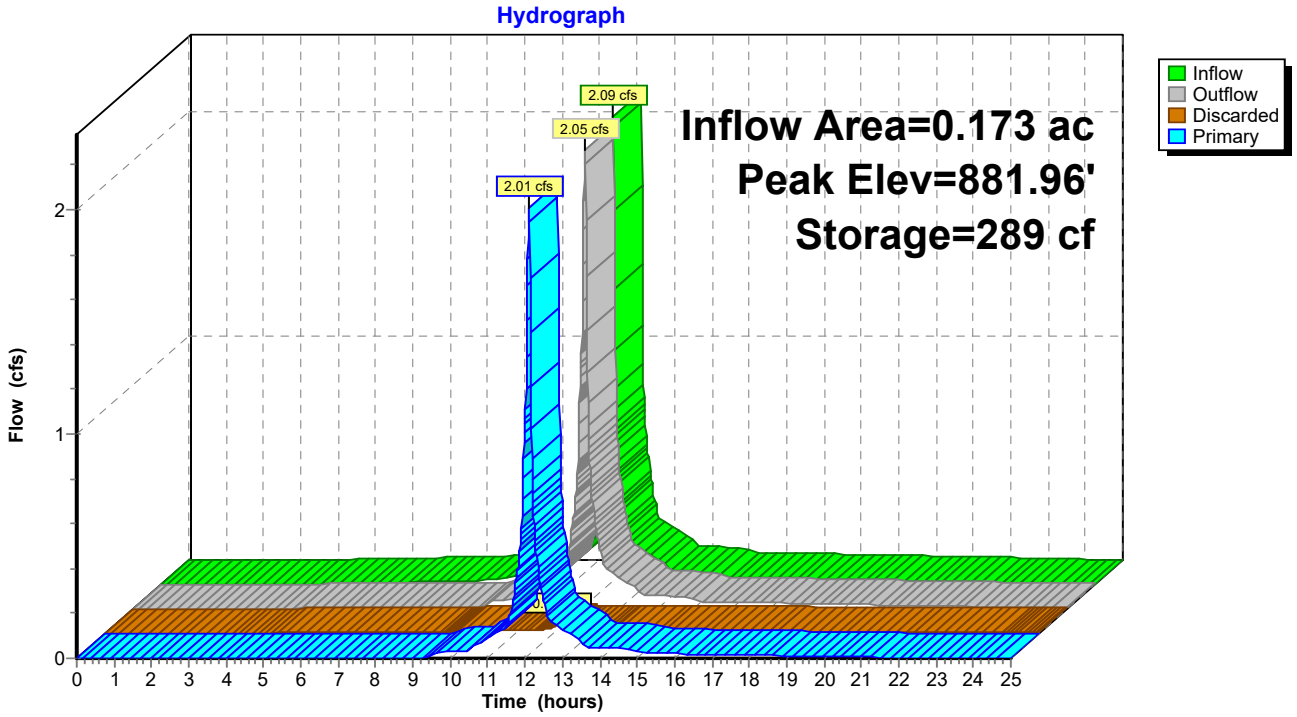
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
878.49	49	0.0	0	0
878.50	49	27.0	0	0
881.00	49	100.0	123	123
881.50	106	100.0	39	161
882.00	476	100.0	146	307

Device	Routing	Invert	Outlet Devices
#1	Discarded	878.49'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 871.00'
#2	Primary	881.50'	**2.0' long + 1.0 '/' SideZ x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=0.04 cfs @ 12.11 hrs HW=881.96' (Free Discharge)
1=Exfiltration (Controls 0.04 cfs)

Primary OutFlow Max=2.01 cfs @ 12.11 hrs HW=881.96' TW=0.00' (Dynamic Tailwater)
2=Broad-Crested Rectangular Weir (Weir Controls 2.01 cfs @ 1.77 fps)

Pond 2P: Rain Garden



Summary for Link 6L: Summary

Inflow Area = 0.273 ac, 35.97% Impervious, Inflow Depth = 6.42" for 500-yr event
Inflow = 3.22 cfs @ 12.10 hrs, Volume= 0.146 af
Primary = 3.22 cfs @ 12.10 hrs, Volume= 0.146 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-25.00 hrs, dt= 0.01 hrs

Link 6L: Summary