



Easton Staff Development Review MEETING AGENDA

Wednesday, April 26, 2023 - 11:00 AM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Staff Review

- a. Staff review only time: 10:00 AM - 11:00 AM

- 2. **Discussion Items** ESDR (Easton Staff Development Review) meetings are an opportunity for staff to meet with applicants to discuss our preliminary review of their application. At the ESDR meeting, staff also confirm with the applicant the next steps in the review process. This meeting will not be livestreamed or recorded, since these meetings are technical discussions only between staff and the applicant. No public comments will be taken at this meeting, but there will be opportunities for public comment at future Planning Commission and/or Town Council public hearings.

- a. **Application Number:** 2023-07
Location: 28857 Fausley Wood Court, Lot 7A
Tax Map 25, Grid 16, Parcel 0138, Lot 7A
Applicant: Lane Engineering LLC
Request: Sketch Plan Review of a proposed two-story office building; two storage buildings; and a one-story office building with associated stormwater management, parking and landscaping.
- b. **Application Number:** 2023-08
Location: 9196 Mistletoe Drive, Lot 1
Tax Map 25, Grid 16, Parcel 0138, Lot 1
Applicant: Lane Engineering LLC
Request: Sketch Site Plan review of a proposed warehouse building and a one-story office building with associated stormwater management, parking and landscaping.
- c. **Application Number:** 2022-20
Location: Camac Street
Tax Map 26, Grid 020, Parcel 0186

Applicant:

Request:

Aspire Outdoors, LLC

The application for Aspire Outdoors, LLC has been withdrawn from the April 26, 2023 Easton Staff Development Review agenda and will be rescheduled pending upon the submission of a revised Sketch Plan and a traffic study review.

d. Application Number:

Location:

2023-09

28860 Fausley Wood Ct

Tax Map 25, Grid 016, Parcel 0138, Lot 6C

Applicant:

Request:

Daniel Larian

Sketch Plan Review of a proposed warehouse and climate-controlled self-storage building with associated stormwater management, parking and landscaping.

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Site Plan, PUD, Planned Healthcare Application**Application Type**Planned Unit Development ☐Amendment ☐Health Care (HC) ☐Site Plan ☒**Subdivision Information**

Name

Original Property Size Acres Square Feet

Telephone No. Email

Site Plan Information

Property Size Acres Square Feet

Structure's Floor Area Structure's Square Feet

Area of Disturbance Number of Dwelling Units

Property Information

Address

Tax Map Grid Parcel Lot

Deed Reference: Liber Folio

Plat Reference: Liber Folio

Base Zoning District Historic Y ☐ N ☒ Planned Redevelopment Y ☐ N ☒

Source of Electricity

Owner

Name

Mailing Address

Telephone No. Email

Applicant or Agent

Name

Mailing Address

Telephone No. Email

Surveyor / Engineer

Name License No. Expiration Date

Mailing Address

Telephone No. Email

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

4/5/23

Printed Name of Applicant or Agent

BRETT EWING

For Office Use Only

Planning Commission Required	Y ☐	N ☐
Planning Commission Meeting Date		
Sketch Approval Date	Project No.	ESDR 2023-08
Prelim/Dev. Approval Date	Application No.	2023-915
Final Approval Date	Sketch Fee Paid	04/06/2023
Recordation Date	Develop. Fee Paid	

Revised 02-2019

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APR 06 2023
TOWN OF EASTON

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Easton Staff Development Review**Property Information**

Address	Tax Map 25 Parcel 138, Lot 7A						
Tax Map	25	Grid	16	Parcel	138	Lot	7A
Deed Reference:	Liber	2975	Folio	63			
Plat Reference:	Liber	89	Folio	178			
Base Zoning District	I		Historic District	Y ☐ N ☒		Planning Redevelopment	Y ☐ N ☒

Purpose of Application / Description of Work:

Proposed 2 story office building, 8,450sf storage building A, 9,600sf storage building B, and proposed one story office building B with parking.

Owner

Name	C Estates LLC		
Mailing Address	28857 Fausley Wood Ct, Easton MD 21601		
Telephone No.	-	Email	ryan@carrionelectric.com

Applicant / Agent

Name	Lane Engineering LLC C/O BRETT EWING		
Mailing Address	117 Bay Street, Easton MD 21601		
Telephone No.	410-822-8003	Email	bewing@leinc.com

Surveyor / Engineer

Name	LANE ENG	License No.	363	Expiration Date	-
Mailing Address	117 Bay Street Easton MD 21601				
Telephone No.	410-822-8003	Email	bewing@leinc.com		

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

4/5/2023

Printed Name of Applicant or Agent

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date 04/26/2023

ESDR 2023-07 / 2023-915

Completeness Check Date

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Required Y ☐ N ☐

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature

Date

RECEIVED

APR 06 2023

TOWN OF EASTON

Revised 02-2019

STORMWATER MANAGEMENT REPORT

For

**Carrion Electric
Easton, Maryland**

Developer

Carrion Electric
c/o Ryan Carrion
29739 Easton Farms Lane
Easton, MD 21601

Design Professional

Lane Engineering, LLC
117 Bay Street
Easton, Maryland 21601
410-822-8003

Date Prepared

April 4, 2023

Date Revised

Prepared by

Alec F. Chosta, E.I.T.
Civil Engineer

Approved by

Timothy W. Glass, P.E.
Principal



PROFESSIONAL CERTIFICATION: I hereby certify that this document was prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23152, Expiration Date: 7/5/23

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5. Conclusion

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APPENDIX B – Environmental Site Design Calculations
APPENDIX C – Drainage Area Maps

Carrion Electric STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

This report addresses stormwater management for development of the vacant property, Lot 7A, of the Mistletoe Hall Commerce-Business Park. The stormwater management plan incorporates the requirements of the *2000 Maryland Stormwater Design Manual Volumes I and II* (Manual) as currently updated. Development projects are required to be reviewed during the concept, preliminary site development, and final design stages. This narrative addresses the requirements pertaining to the concept design stage and meets the intent of the guidelines and methodologies presented in the MDE document *Environmental Site Design (ESD) Process & Computations* dated July 2010.

2. GENERAL SITE INFORMATION

This project is comprised of roughly 3.32-acres, zoned Industrial and is located entirely outside the Chesapeake Bay Critical Area. This vacant parcel predominantly consists of grassed meadow with onsite drainage patterns split between the surrounding regional drainage channel and swales constructed along Fausley Wood Court.



Per the USDA soil maps, site soils are a mix of Hambrook-Sassafras Complex, classified as a B soil, and Mattapex Silt Loams, Group C soils with remaining soils consisting of Othello silt loams – Group D soils.

3. PROPOSED PROJECT

The proposed improvements consist of a blend of office and warehouse space with both visitor and employee parking intermixed with an equipment storage yard.

4. STORMWATER MANAGEMENT AND ENVIRONMENTAL SITE DESIGN (ESD)

An ESD target has been developed for disturbance associated with development activity. This on-lot disturbance is 144,445 SF (3.31 ac) in Group B, C, & D soils. The proposed buildings, parking, and storage yard result in approximately 73,948 SF (1.70 acres) of impervious cover (51%). Utilizing table 5.3 and onsite soil conditions, a target P_E of 1.8" results in an ESD target volume of 11,072 cf.

In accordance with the Manual, available ESD techniques i.e. Alternative Surfaces, Non-Structural and Micro-Scale Practices were evaluated for use at the site. Considering the proposed site conditions, i.e. location, topography, facility orientation, soil properties, ground water elevation, traffic, economics, use of facility, construction constraints, neighboring properties and available stormwater discharge locations, the following ESD practices are proposed for the site:

- Submerged Gravel Wetland (SGW)

See Appendix B for calculations.

4.1 STORMWATER QUANTITY MANAGEMENT

The existing site, consisting of agricultural use, breaks into four separate drainage areas and study points. Two of the existing drainage areas generally direct water to public conveyance systems consisting of constructed swales while the remaining areas direct water onto adjacent lots. Particular attention has been paid to direct post development runoff to public channels and away from neighboring properties intended to be sold for private development.

Analysis verifies that management of the 2 and 10-year storms is achieved in the proposed submerged gravel wetland facilities. These facilities have primary outlet structures connected to a shared stormdrain system that daylight at the Fausley Wood Court swale. SWM Areas A and C have secondary weir outlets directing overflow runoff towards public lands at non-erosive velocities during the 100-year event.

	2 Year Storm (cfs)		10 Year Storm (cfs)		100 Year Storm (cfs)	
	Pre	Post	Pre	Post	Pre	Post
Study Point 1	1.98	0.71	3.71	1.63	5.83	2.85
Study Point 2	1.99	0.23	3.67	0.50	5.73	0.87
Study Point 3	1.38	0.00	2.54	0.00	3.95	0.00
Study Point 4	0.98	0.22	1.75	1.42	2.68	8.33
TOTAL	6.33	1.16	11.67	3.55	18.19	12.05
NET REDUCTION	5.17		8.12		6.14	

Please see Appendix A for HydroCAD calculations and Appendix C for Drainage Area Maps.

4.2 STORMWATER QUALITY

The proposed site is divided into three (3) Predominant Drainage Areas – each draining to a submerged gravel wetland and broken into sub-drainage areas for HydroCAD modeling of stormdrain conveyance.

Drainage Area “SWM A – Yellow ” has a target treatment volume of 1,379 cf with the proposed gravel wetland treating 2,066 cf. Drainage Area “SWM B - Purple” has a target volume of 7,156 cf with a provided treatment of 8,324 cf. Drainage Area “SWM C - Orange” has a target volume of 3,394 cf with a provided treatment of 5,765 cf. All practices utilize a shared underdrain with 29 inches of media (18” Gravel, 3” Pea Gravel, & 8” Wetland Soil) and 1 foot of temporary ponding. Per UNH and MDE guidance, void spaces within media are not counted towards ESD volumes. The total treatment provided by these features is 16,155 cf and is in excess of the site target of 11,072 cf.

See Appendix C for additional information.

4.2.1 ESD PRACTICES EVALUATION

ESD practices were evaluated for applicability to the site:

Alternative Surfaces

- Green Rooftops – Not economical for Industrial usage
- Permeable Pavements – Permeable pavements require significant maintenance and are not desirable for commercial applications or areas of repeated heavy equipment loading.
- Reinforced Turf - Reinforced turf areas are commonly used for emergency equipment access or for areas that receive minimal vehicular use. Reinforced turf is not desirable for commercial applications.

Nonstructural practices

- Disconnection of Rooftop Runoff – Insufficient greenspace onsite to meet the required design criterion.
- Disconnection of Non-Rooftop Runoff – Insufficient greenspace onsite to meet the required design criterion.
- Sheetflow to Conservation Area – The configuration of the improvements do not allow for sheetflow discharge to existing adjacent forest conservation areas.

Micro-scale practices

- Rainwater Harvesting – Opportunities for on-site reuse of harvested rainwater is limited. Irrigation is not proposed for the site. Operations and maintenance, especially during cold-weather periods, is also a concern.
- **Submerged Gravel Wetlands** – This practice is best suited for sites with a high groundwater table and poor soils. Soil mapping indicates a mix of soils as with HSG “B” and “C” representing the predominant condition. Soil, borings to be conducted, will advise as to the necessity of a liner.
- Landscape Infiltration – It is assumed there is not a significant infiltration potential within the project LOD without additional geotechnical exploration.
- Infiltration Berms – The requirements of the proposed development do not leave enough room for the implementation of this practice.
- Dry Wells – This practice is viewed as undesirable in Talbot County where many sites frequently have seasonal high ground water and other maintenance concerns. Dry wells are typically reserved for the treatment of building rooftops and would therefore require additional practices to supplement.
- Micro-Bioretenention – This practice will provide significant treatment. Maintenance for this practice is reasonable. The size of the project does not comport well with the 20,000 sf

drainage area limitation dictated by MDE. The project lacks a sufficient outfall to daylight an underdrain, which would be strongly recommended for the variation in soil types.

- Rain Gardens – This practice is better suited for residential environments.
- Bio-Swales – This practice provides the required treatment, is relatively easy to construct and maintain, and will enhance existing site drainage patterns. The project lacks a sufficient outfall to daylight an underdrain, which would be strongly recommended for the variation in soil types.

A series of **Submerged Gravel Wetlands** providing treatment and conveyance is ideal for this site. Such practices represent the most cost-effective and practical solution for quantity and quality management.

5. CONCLUSION

This stormwater management analysis indicates that the proposed design will successfully meet stormwater quality and quantity requirements.

APPENDIX A

HydroCAD Quantity Management Calculations

2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

Printed 4/2/2023

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Summary for Subcatchment 6S: Landscape Residue (Blue)

Runoff = 0.28 cfs @ 11.99 hrs, Volume= 0.017 af, Depth> 1.17"

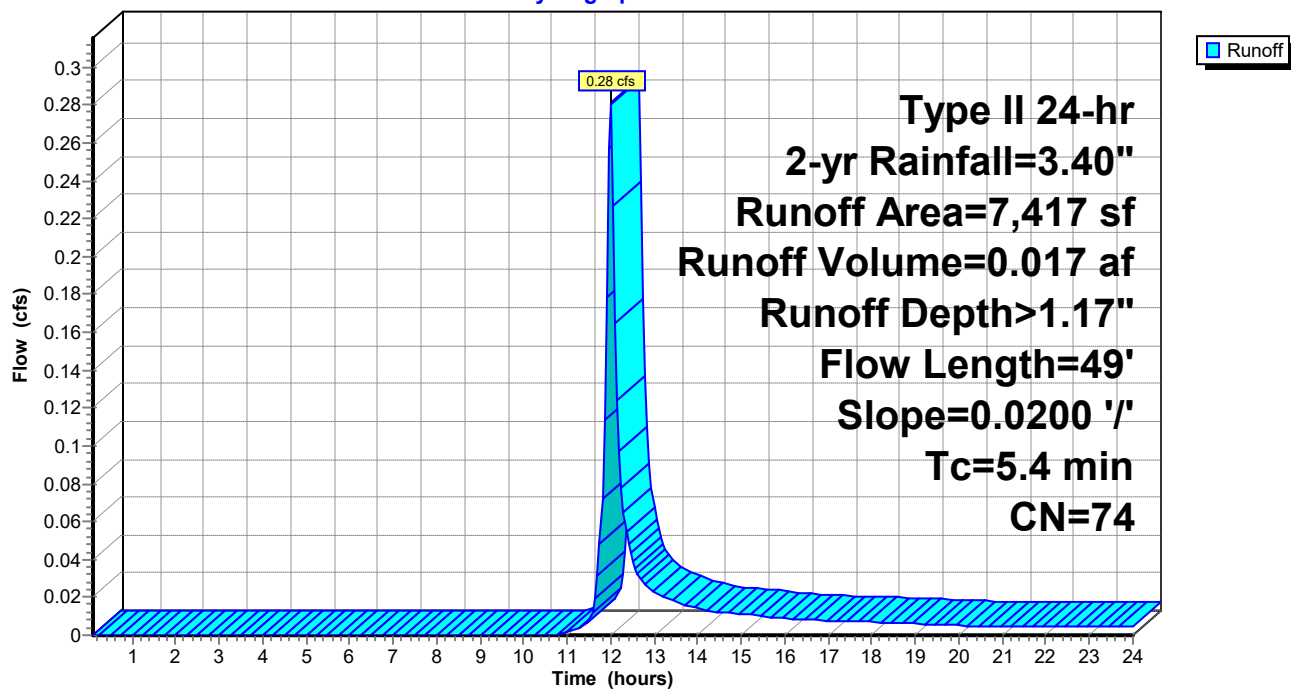
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
7,417	74	>75% Grass cover, Good, HSG C
7,417		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	49	0.0200	0.15		Sheet Flow, Landscaped Residue Grass: Short n= 0.150 P2= 3.40"

Subcatchment 6S: Landscape Residue (Blue)

Hydrograph



2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment 7S: Landscape Residue (Pink)

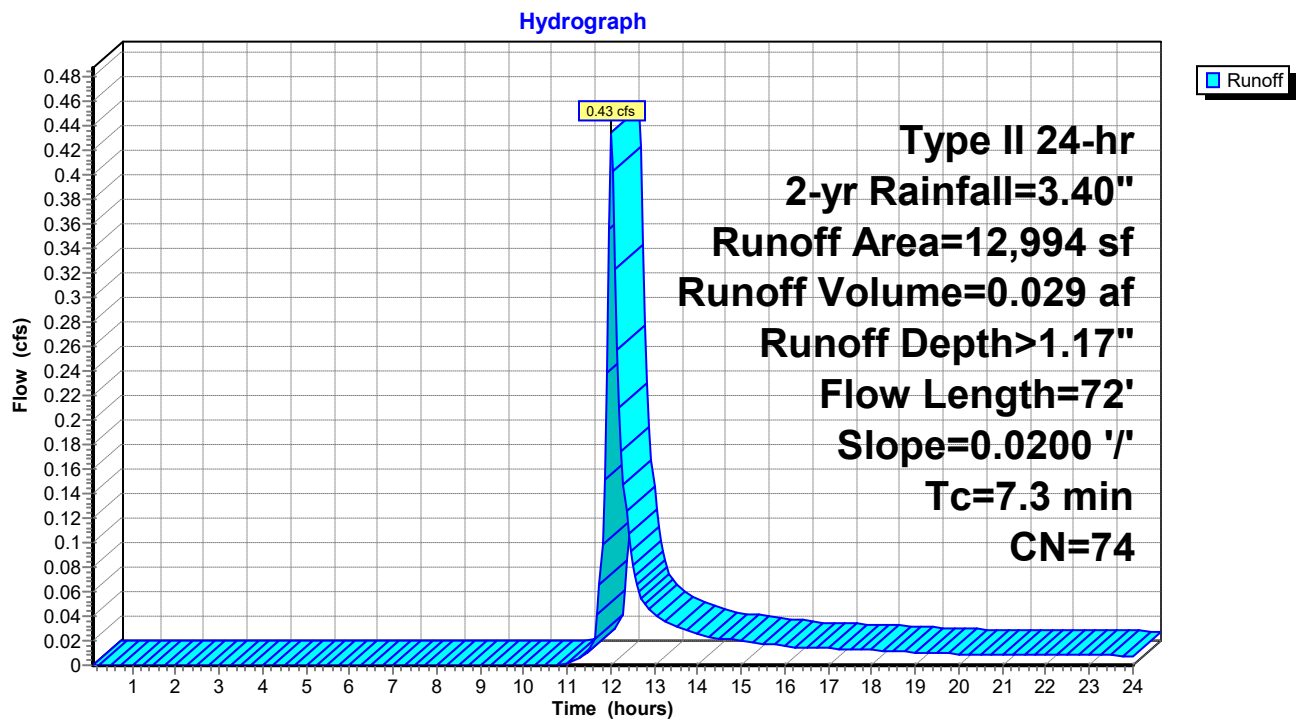
Runoff = 0.43 cfs @ 12.01 hrs, Volume= 0.029 af, Depth> 1.17"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
12,994	74	>75% Grass cover, Good, HSG C
12,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	72	0.0200	0.16		Sheet Flow, Landscape Lawn Grass: Short n= 0.150 P2= 3.40"

Subcatchment 7S: Landscape Residue (Pink)



2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment 9S: Landscape Residue (Turquoise)

Runoff = 0.23 cfs @ 11.95 hrs, Volume= 0.011 af, Depth> 1.17"

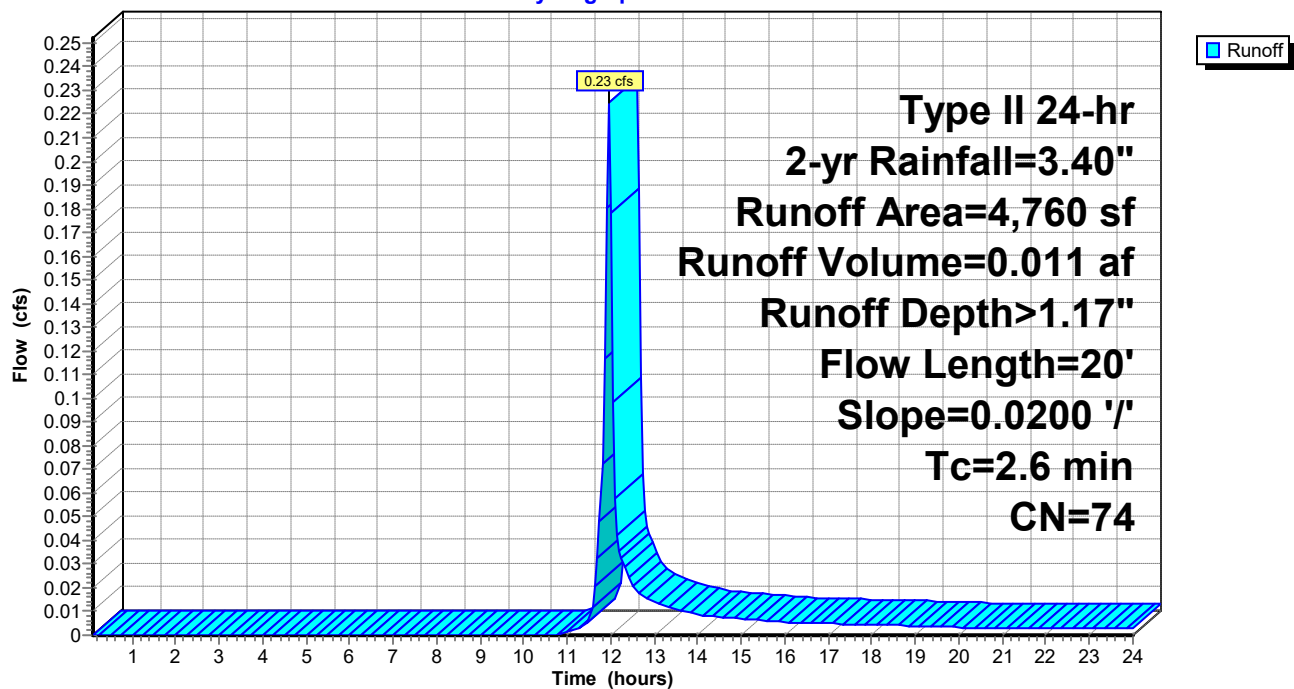
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
4,760	74	>75% Grass cover, Good, HSG C
4,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	20	0.0200	0.13		Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.40"

Subcatchment 9S: Landscape Residue (Turquoise)

Hydrograph



2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

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Type II 24-hr 2-yr Rainfall=3.40"

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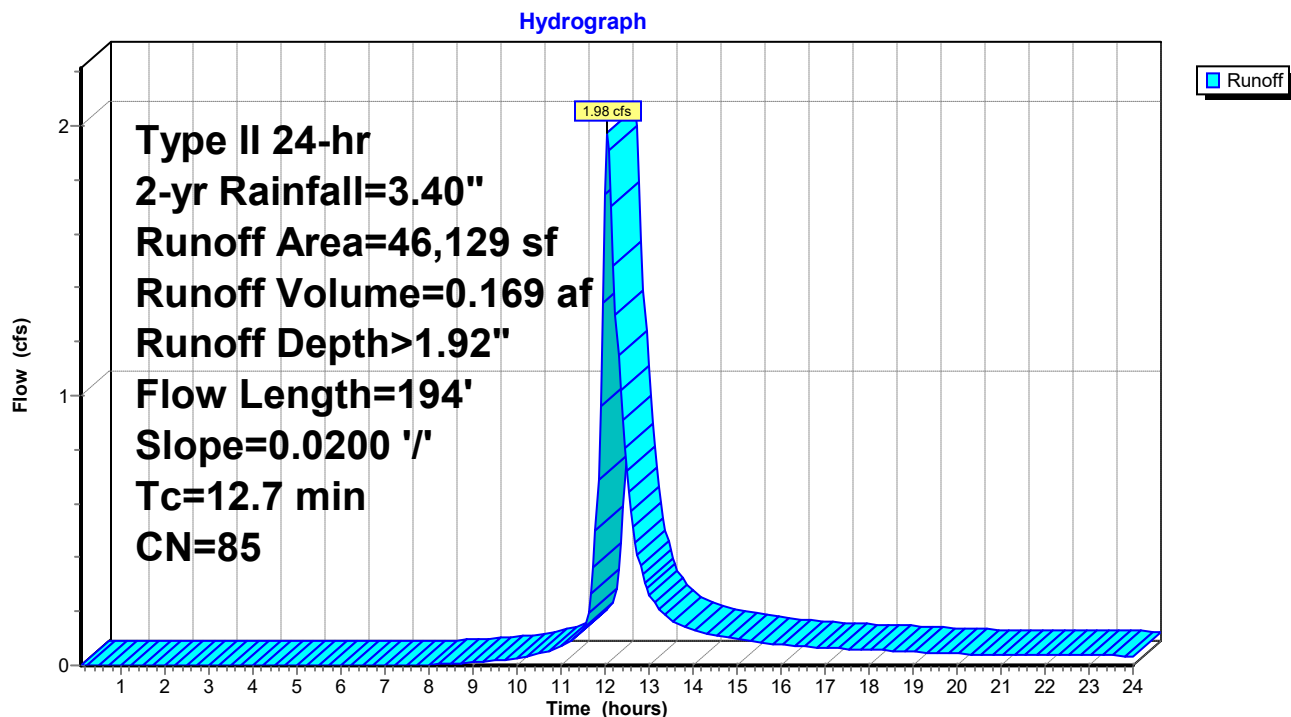
Summary for Subcatchment EX-1: POI #1 - PRE

Runoff = 1.98 cfs @ 12.06 hrs, Volume= 0.169 af, Depth> 1.92"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
30,740	83	Fallow, crop residue, Good, HSG B
11,631	90	Fallow, crop residue, Good, HSG D
3,758	88	Fallow, crop residue, Good, HSG C
46,129	85	Weighted Average
46,129		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	115	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
1.0	79	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
12.7	194	Total			

Subcatchment EX-1: POI #1 - PRE

2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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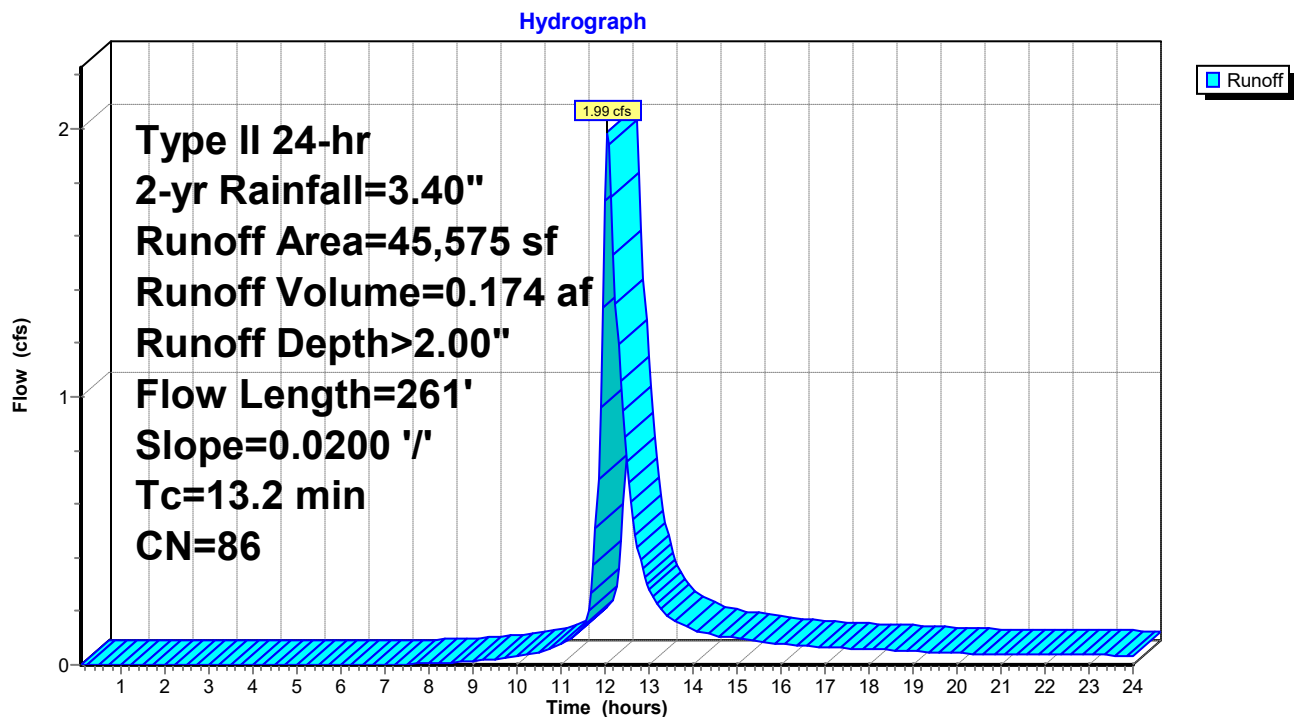
Summary for Subcatchment EX-2: EX-2

Runoff = 1.99 cfs @ 12.07 hrs, Volume= 0.174 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
16,827	83	Fallow, crop residue, Good, HSG B
28,748	88	Fallow, crop residue, Good, HSG C
45,575	86	Weighted Average
45,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	108	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
2.0	153	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
13.2	261	Total			

Subcatchment EX-2: EX-2

2023-03-03-Carrion HydroCAD

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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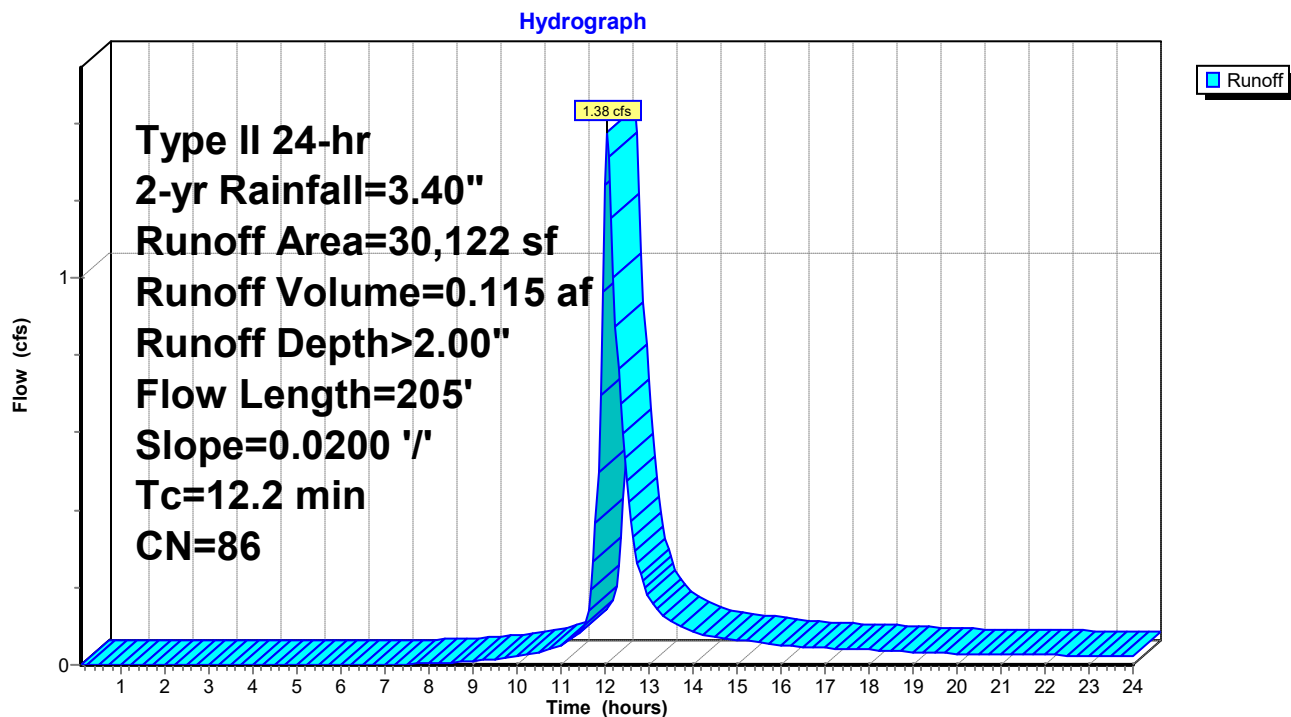
Summary for Subcatchment EX-3: EX-3

Runoff = 1.38 cfs @ 12.06 hrs, Volume= 0.115 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
9,853	83	Fallow, crop residue, Good, HSG B
20,269	88	Fallow, crop residue, Good, HSG C
30,122	86	Weighted Average
30,122		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	105	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
1.3	100	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
12.2	205	Total			

Subcatchment EX-3: EX-3

2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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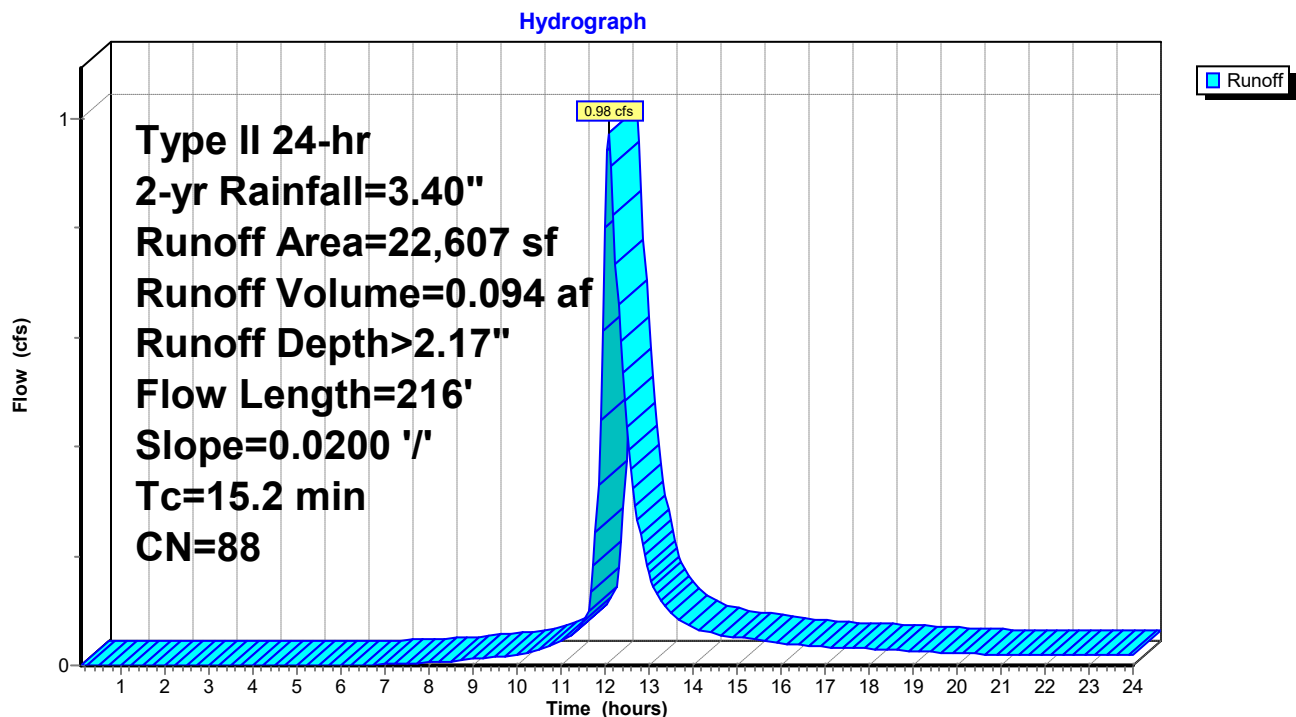
Summary for Subcatchment EX-4: EX-4

Runoff = 0.98 cfs @ 12.09 hrs, Volume= 0.094 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
19,697	88	Fallow, crop residue, Good, HSG C
2,225	90	Fallow, crop residue, Good, HSG D
685	83	Fallow, crop residue, Good, HSG B
22,607	88	Weighted Average
22,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	147	0.0200	0.17		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.9	69	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
15.2	216	Total			

Subcatchment EX-4: EX-4

2023-03-03-Carrion HydroCAD

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment O1: Half of Warehouse Roof

Runoff = 0.66 cfs @ 11.90 hrs, Volume= 0.034 af, Depth> 3.17"

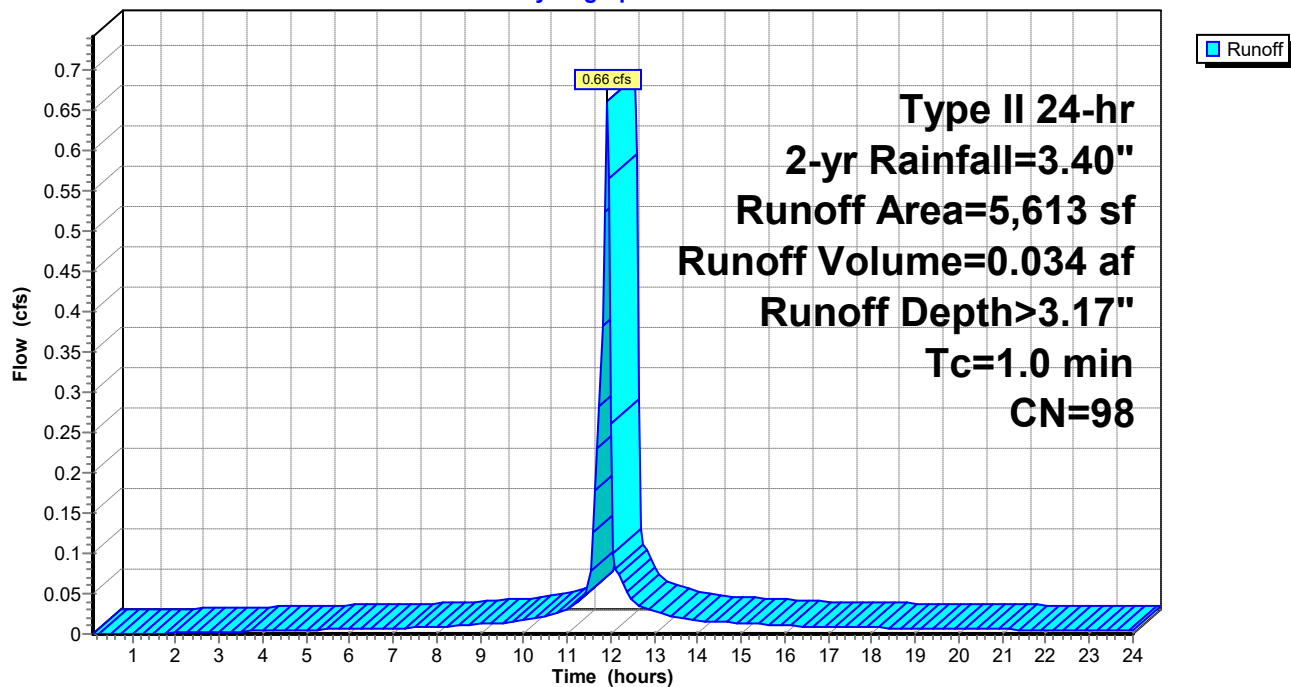
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	5,613	98	Roof
	5,613		100.00% Impervious Area

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

Subcatchment O1: Half of Warehouse Roof

Hydrograph



2023-03-03-Carrion HydroCAD

Prepared by Lane Engineering, LLC

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment O2: Half Office Roof

Runoff = 0.22 cfs @ 11.90 hrs, Volume= 0.011 af, Depth> 3.17"

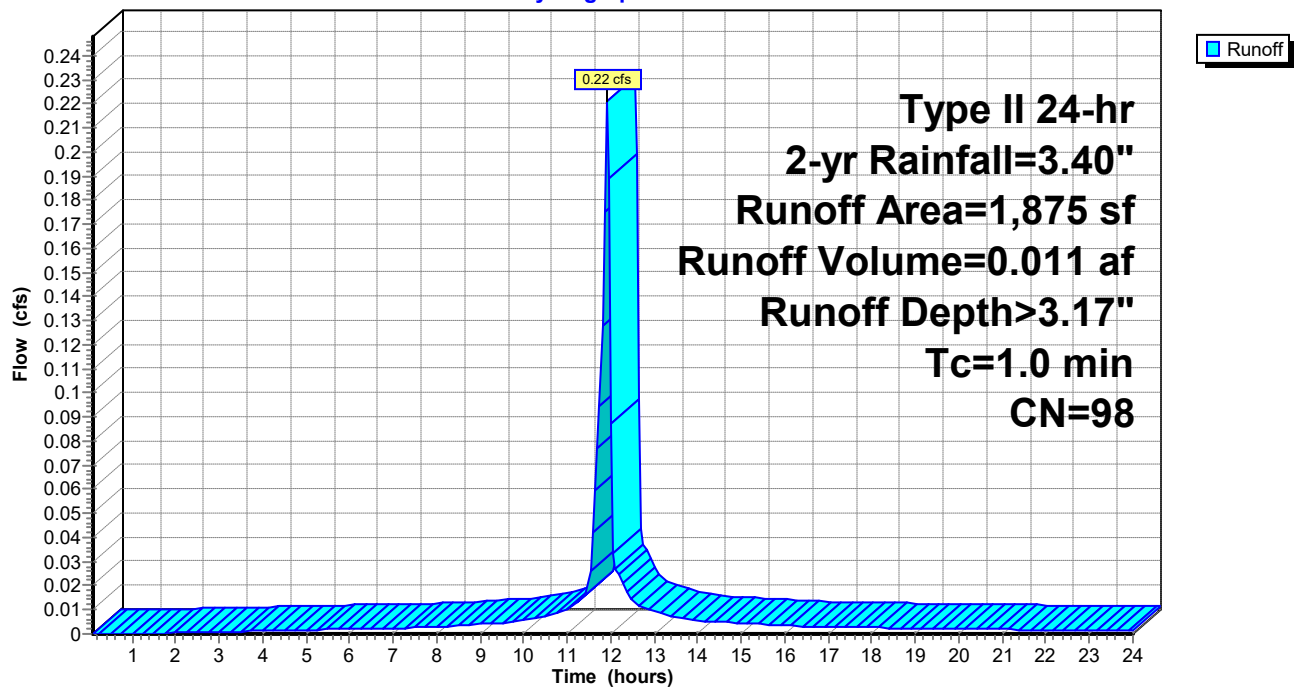
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	1,875	98	Roof
	1,875		100.00% Impervious Area

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

Subcatchment O2: Half Office Roof

Hydrograph



2023-03-03-Carrion HydroCAD

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220135 - Carrion Electric
Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment O3: Portion of Warehouse & Office Roof

Runoff = 0.36 cfs @ 11.90 hrs, Volume= 0.019 af, Depth> 3.17"

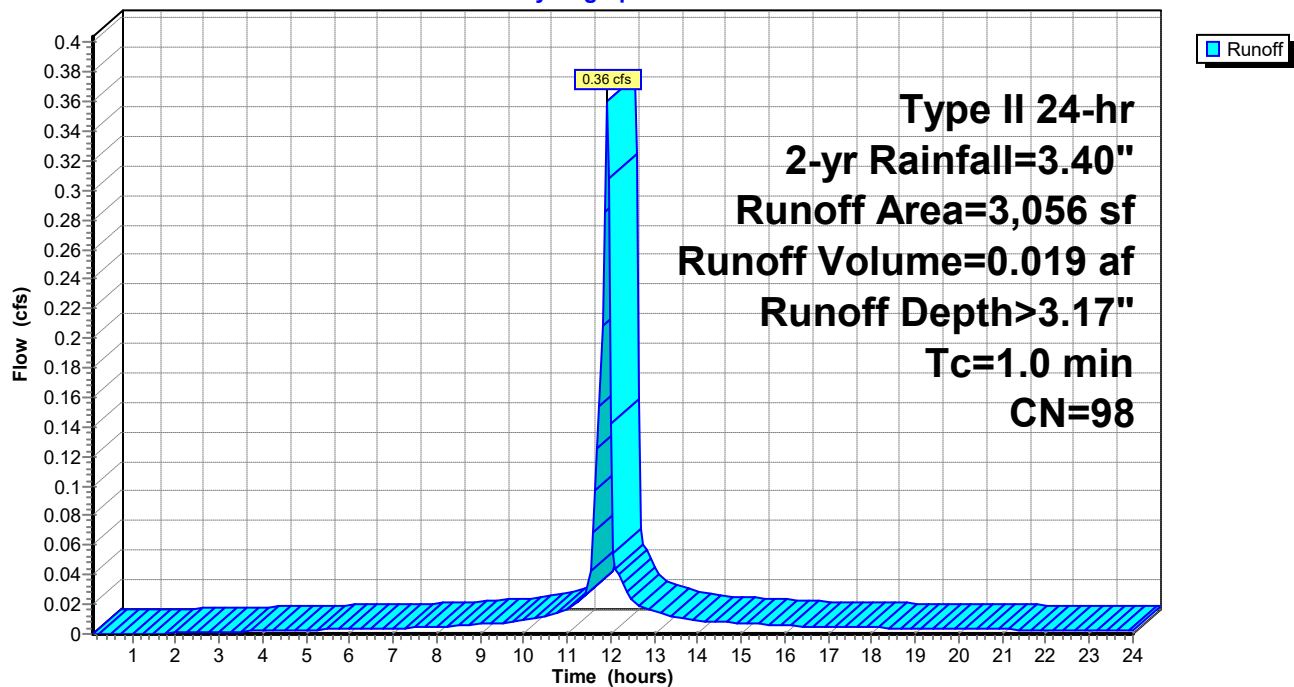
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	3,056	98	Roof
	3,056		100.00% Impervious Area

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

Subcatchment O3: Portion of Warehouse & Office Roof

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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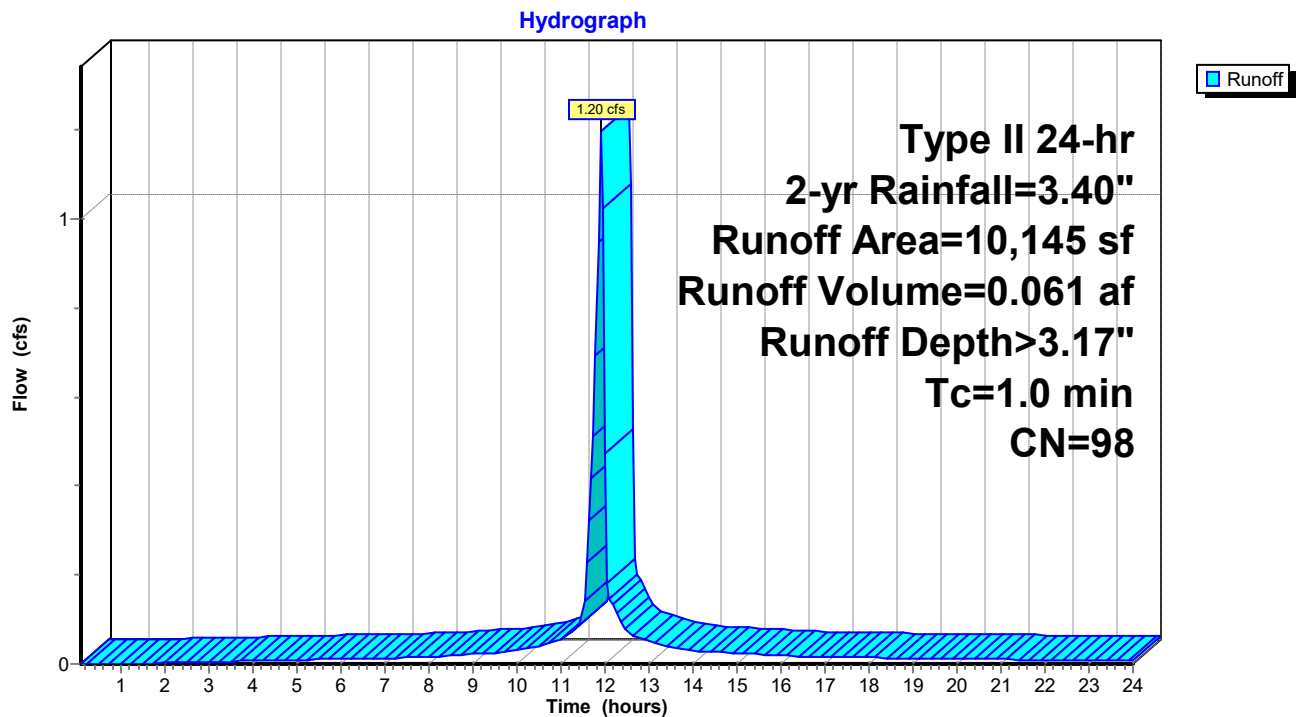
Summary for Subcatchment O4: Warehouse Yard & Parking

Runoff = 1.20 cfs @ 11.90 hrs, Volume= 0.061 af, Depth> 3.17"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	10,145	98	Asphalt
	10,145		100.00% Impervious Area

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

Subcatchment O4: Warehouse Yard & Parking

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Summary for Subcatchment O5: SWM Feature & Landscape Area

Runoff = 0.69 cfs @ 11.94 hrs, Volume= 0.031 af, Depth> 1.17"

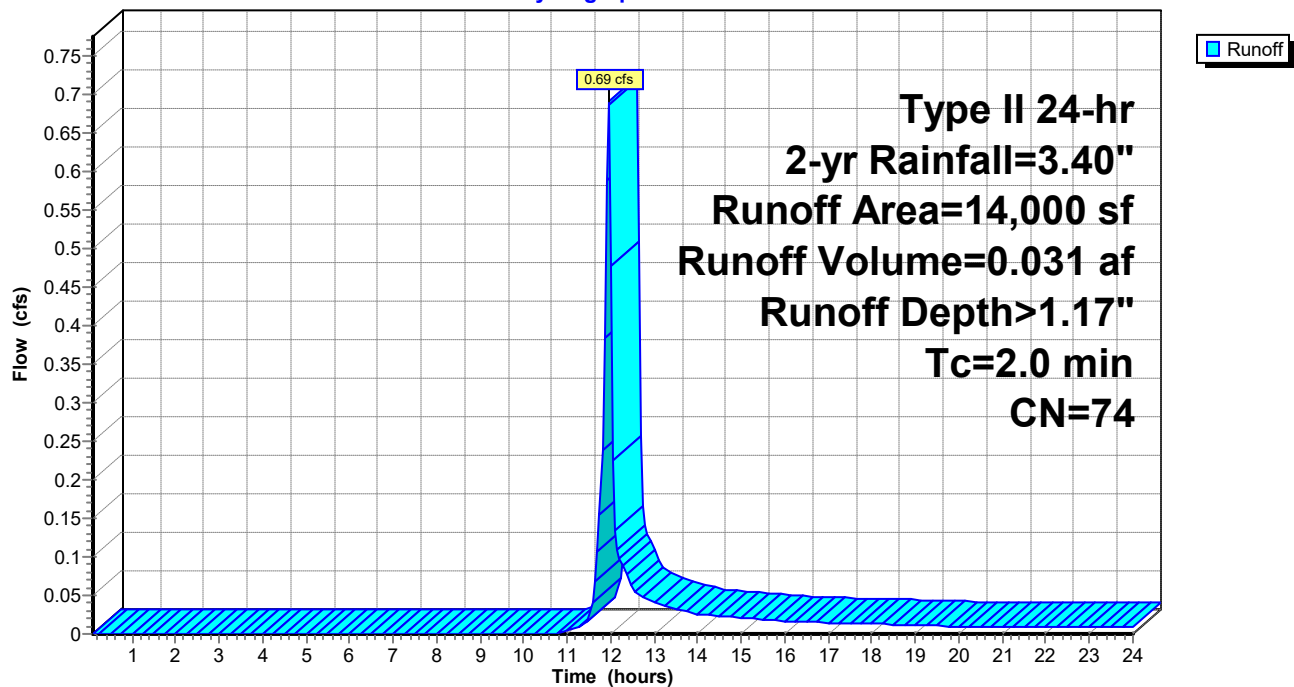
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
14,000	74	>75% Grass cover, Good, HSG C
14,000		100.00% Pervious Area

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

Subcatchment O5: SWM Feature & Landscape Area

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P1: Half Office Roof

Runoff = 0.22 cfs @ 11.90 hrs, Volume= 0.011 af, Depth> 3.17"

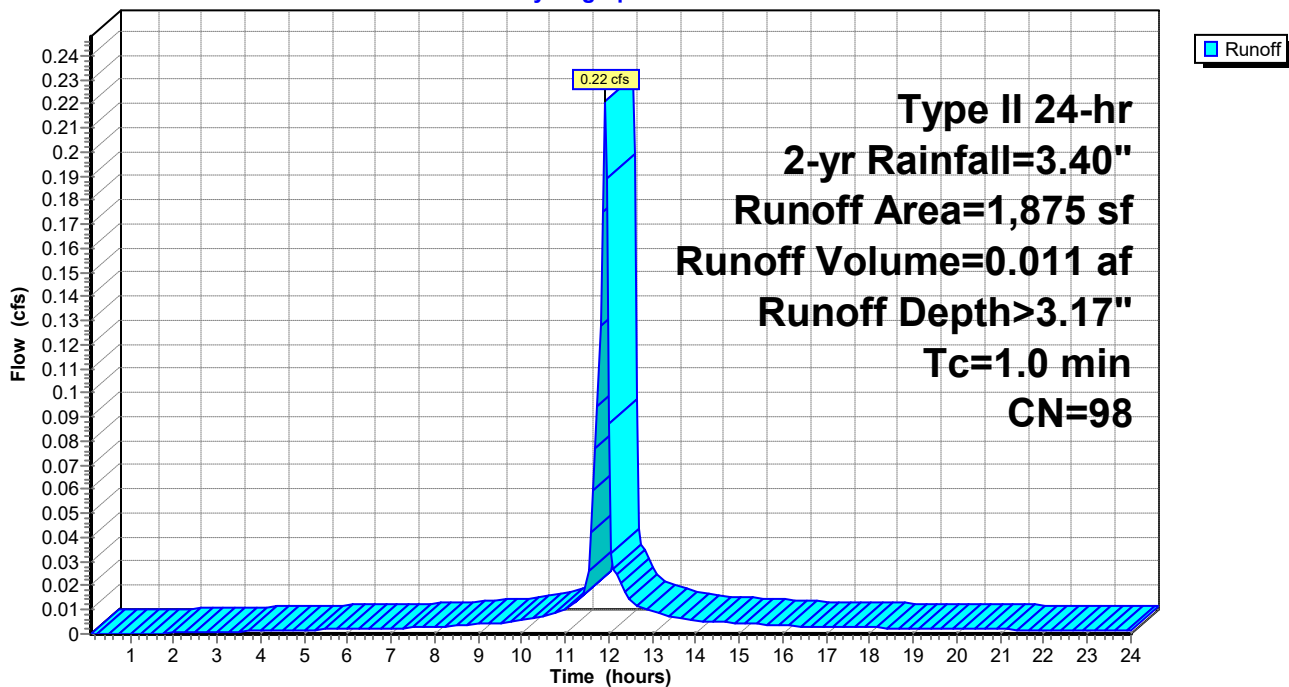
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	1,875	98	Roof
	1,875		100.00% Impervious Area

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

Subcatchment P1: Half Office Roof

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P2: Warehouse Roof

Runoff = 0.62 cfs @ 11.90 hrs, Volume= 0.032 af, Depth> 3.17"

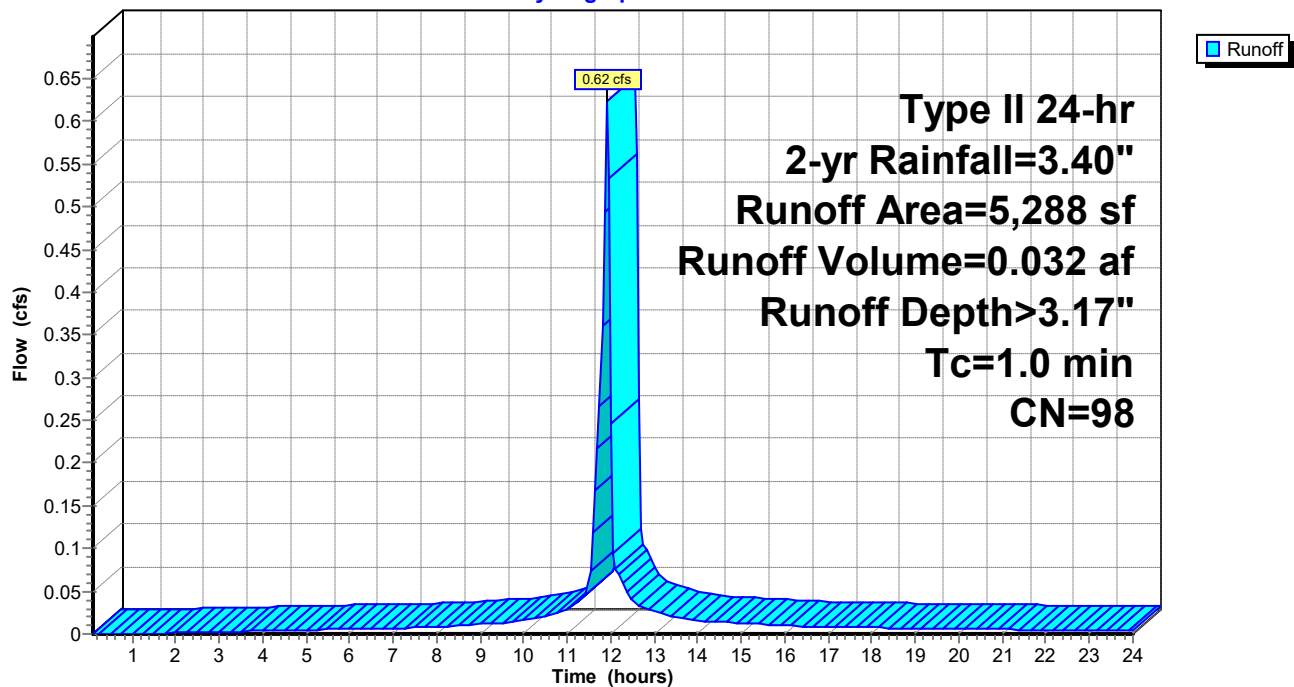
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	5,288	98	Roof
	5,288		100.00% Impervious Area

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

Subcatchment P2: Warehouse Roof

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P3: Parking Area

Runoff = 0.28 cfs @ 11.90 hrs, Volume= 0.014 af, Depth> 3.17"

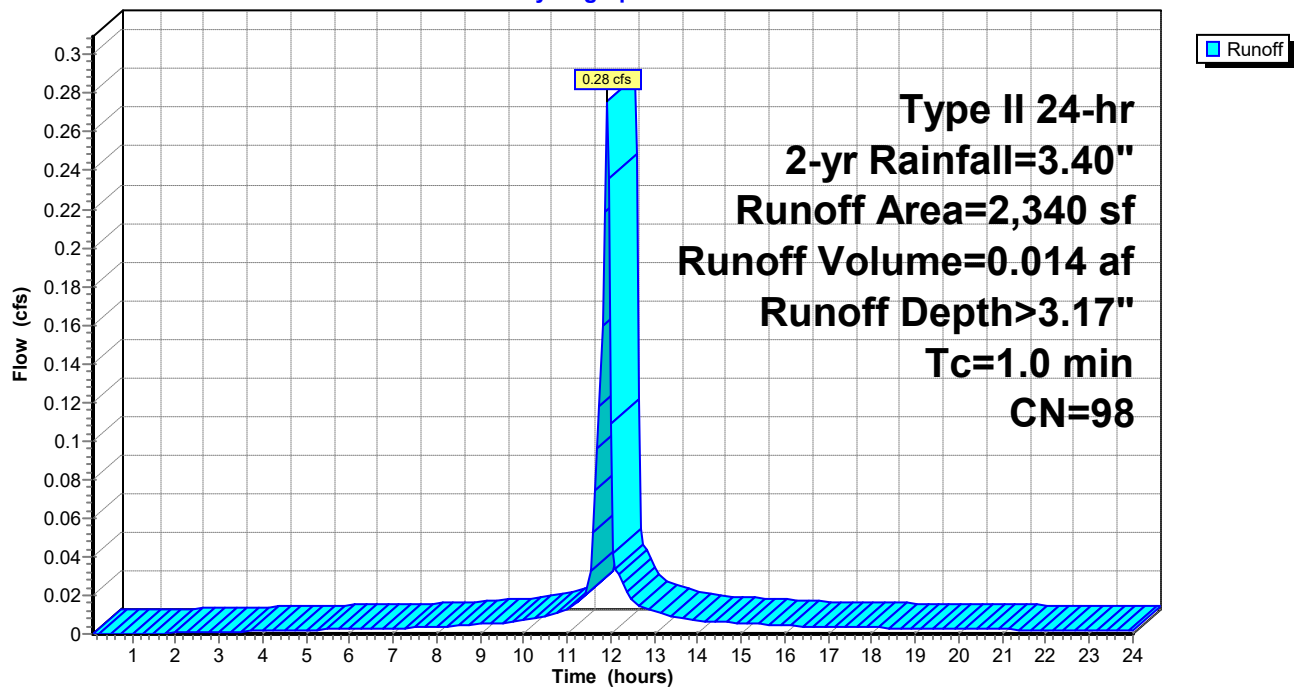
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	2,340	98	Asphalt
	2,340		100.00% Impervious Area

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

Subcatchment P3: Parking Area

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P3A: Parking Area

Runoff = 0.20 cfs @ 11.90 hrs, Volume= 0.010 af, Depth> 3.17"

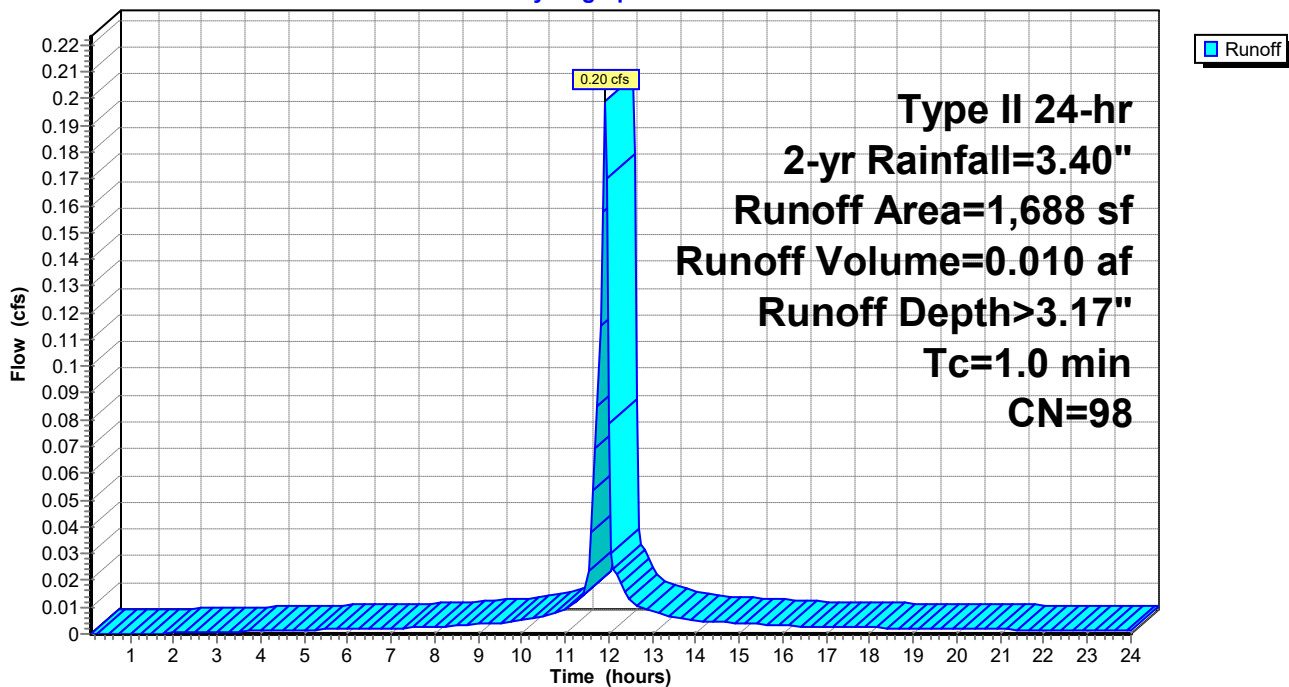
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	1,688	98	Asphalt
	1,688		100.00% Impervious Area

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

Subcatchment P3A: Parking Area

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P4: Parking Area

Runoff = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af, Depth> 3.17"

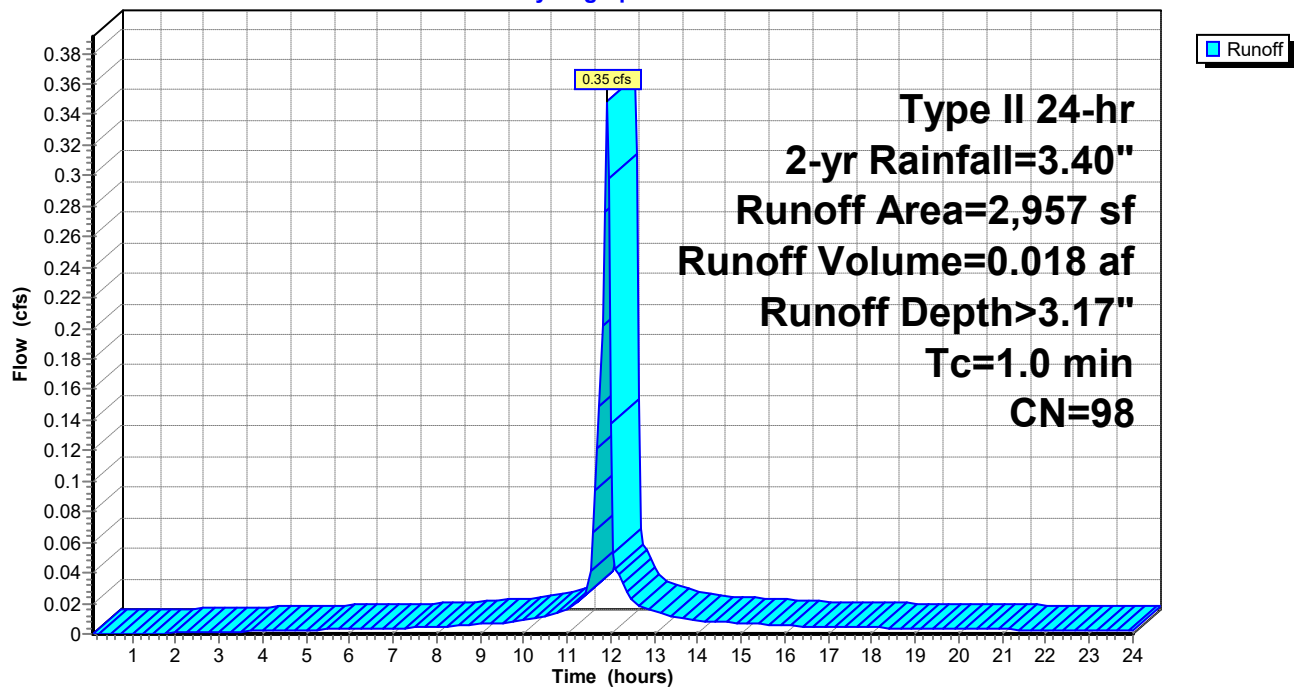
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	2,957	98	Asphalt
	2,957		100.00% Impervious Area

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

Subcatchment P4: Parking Area

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P5: Warehouse Parking Area

Runoff = 0.68 cfs @ 11.90 hrs, Volume= 0.035 af, Depth> 3.17"

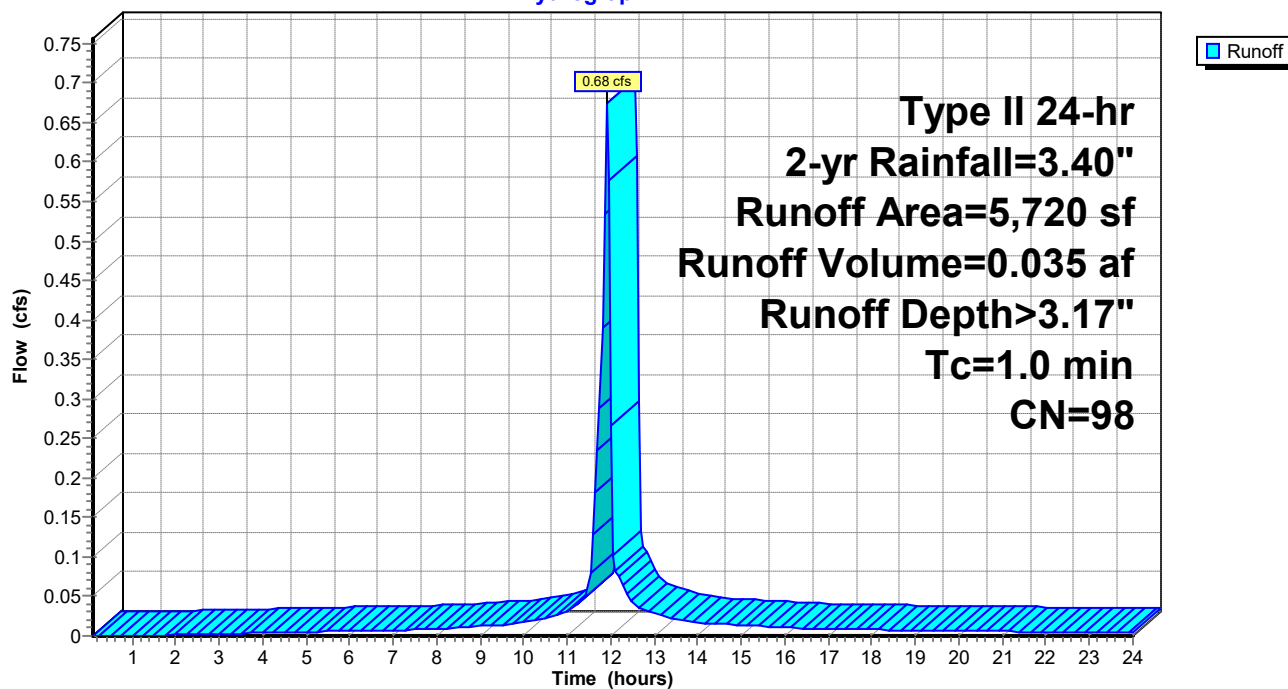
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	5,720	98	Asphalt
	5,720		100.00% Impervious Area

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

Subcatchment P5: Warehouse Parking Area

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P6: Warehouse Parking Area

Runoff = 0.68 cfs @ 11.90 hrs, Volume= 0.035 af, Depth> 3.17"

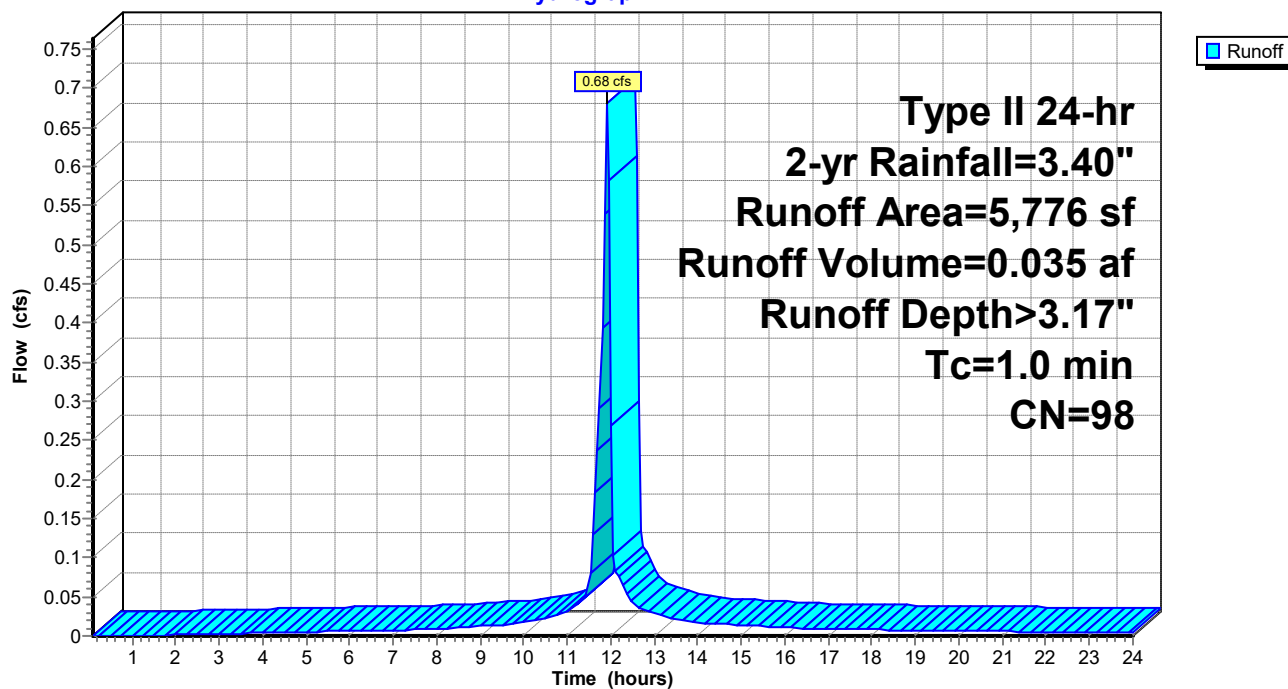
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	5,776	98	Asphalt
	5,776		100.00% Impervious Area

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

Subcatchment P6: Warehouse Parking Area

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment P7: SWM Feature, Access Aisle, & Landscape Area

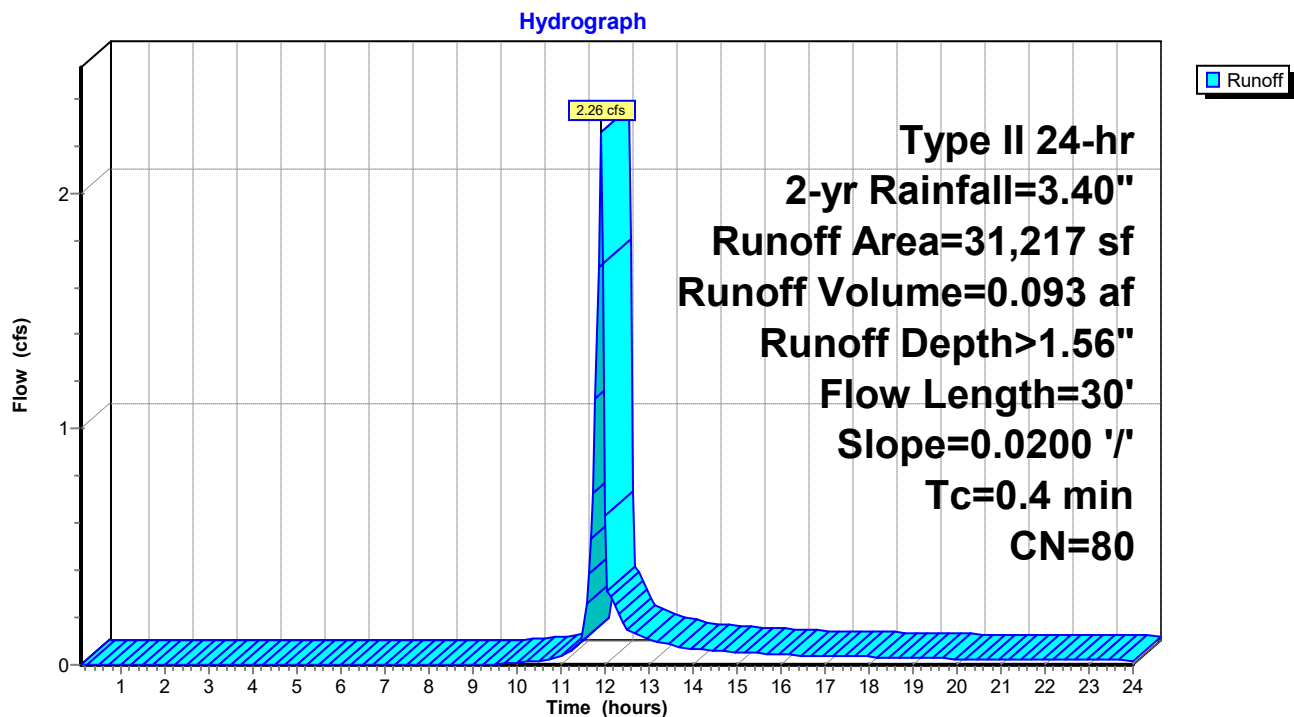
Runoff = 2.26 cfs @ 11.90 hrs, Volume= 0.093 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
23,069	74	>75% Grass cover, Good, HSG C
* 8,148	98	Access Road
31,217	80	Weighted Average
23,069		73.90% Pervious Area
8,148		26.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.11		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment P7: SWM Feature, Access Aisle, & Landscape Area



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Summary for Subcatchment P8: Half Warehouse Roof

Runoff = 0.33 cfs @ 11.90 hrs, Volume= 0.017 af, Depth> 3.17"

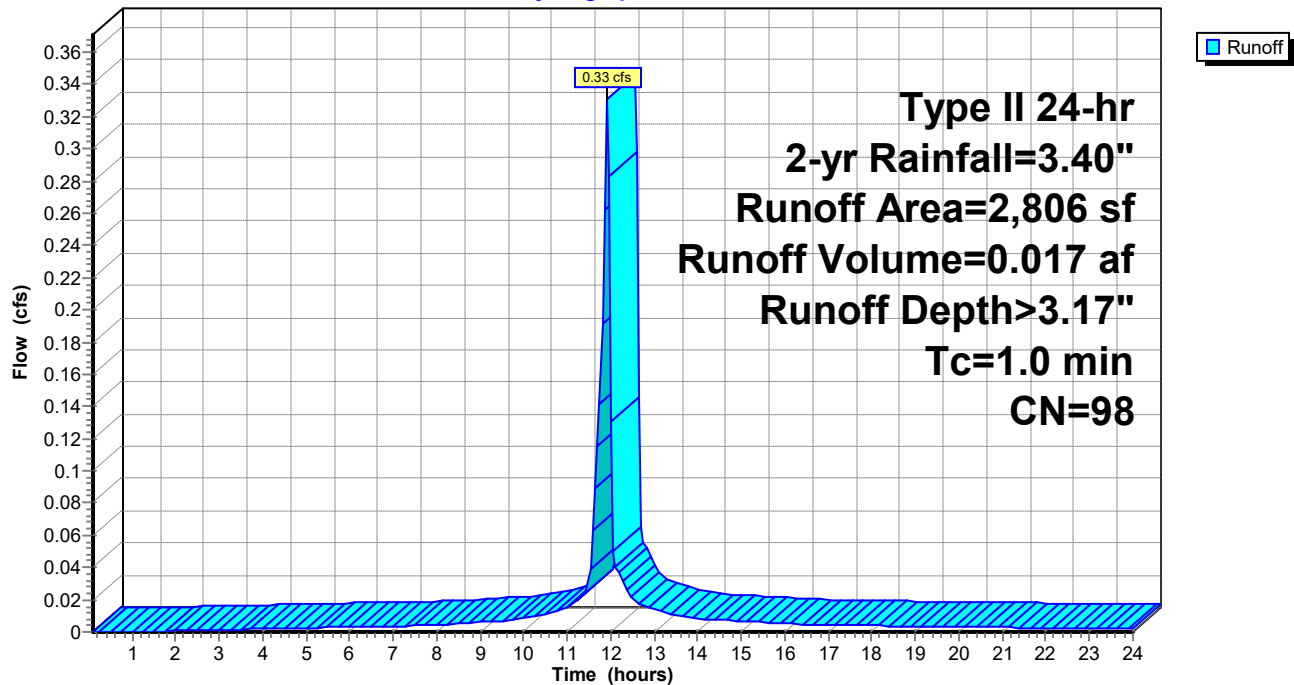
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	2,806	98	Roof
	2,806		100.00% Impervious Area

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

Subcatchment P8: Half Warehouse Roof

Hydrograph



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Summary for Subcatchment P9: Warehouse Parking

Runoff = 0.88 cfs @ 11.90 hrs, Volume= 0.045 af, Depth> 3.17"

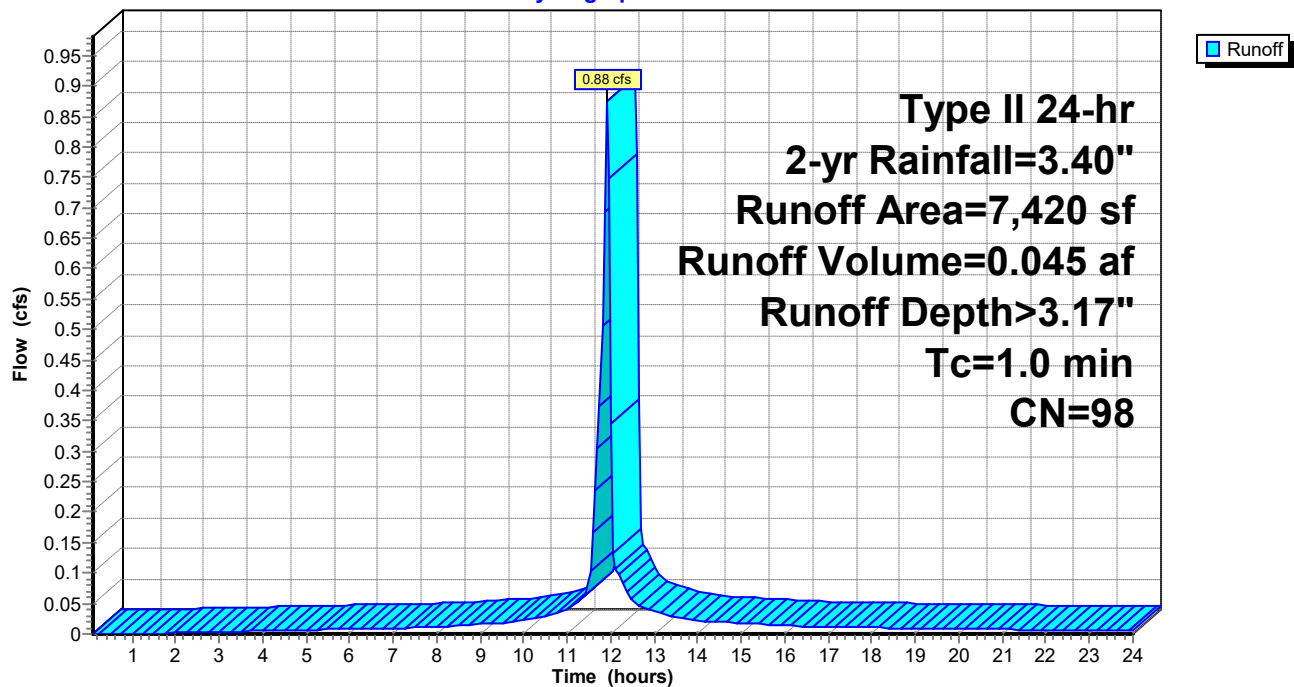
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	7,420	98	Asphalt
	7,420		100.00% Impervious Area

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

Subcatchment P9: Warehouse Parking

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment Y1: Office Parking Area & SWM Feature

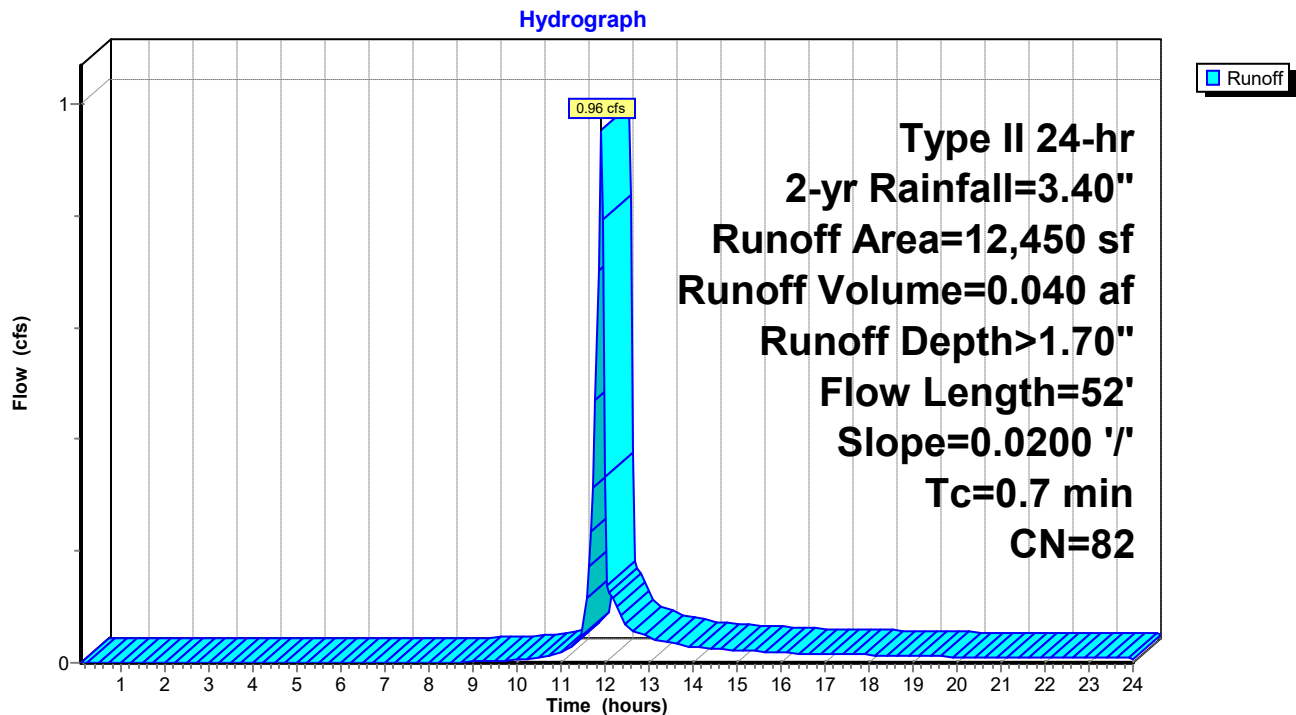
Runoff = 0.96 cfs @ 11.91 hrs, Volume= 0.040 af, Depth> 1.70"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
8,245	74	>75% Grass cover, Good, HSG C
4,205	98	Paved roads w/curbs & sewers, HSG C
12,450	82	Weighted Average
8,245		66.22% Pervious Area
4,205		33.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	52	0.0200	1.24		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment Y1: Office Parking Area & SWM Feature



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Summary for Subcatchment Y2: Half Warehouse Roof

Runoff = 0.59 cfs @ 11.90 hrs, Volume= 0.031 af, Depth> 3.17"

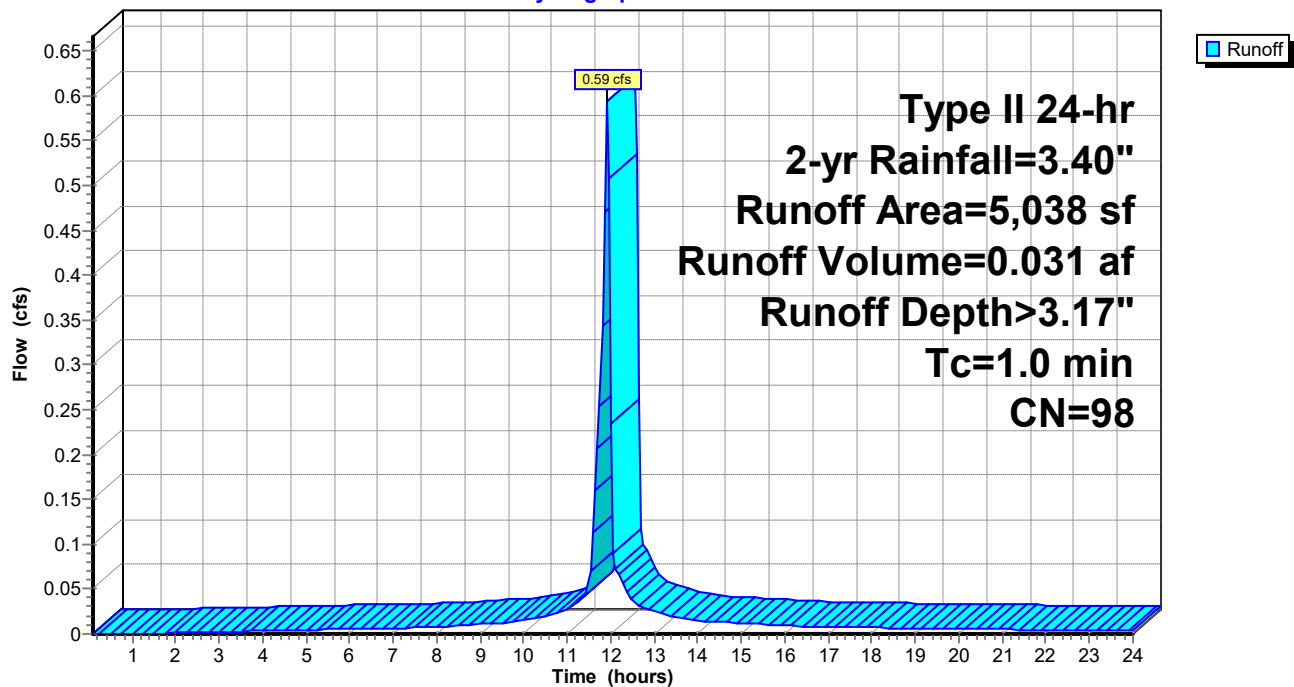
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	5,038	98	Roof
	5,038		100.00% Impervious Area

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

Subcatchment Y2: Half Warehouse Roof

Hydrograph



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Summary for Pond 1P: 15" HDPE

Inflow Area = 0.235 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 1.21 cfs @ 11.90 hrs, Volume= 0.062 af
Outflow = 1.21 cfs @ 11.90 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 11.90 hrs, Volume= 0.062 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

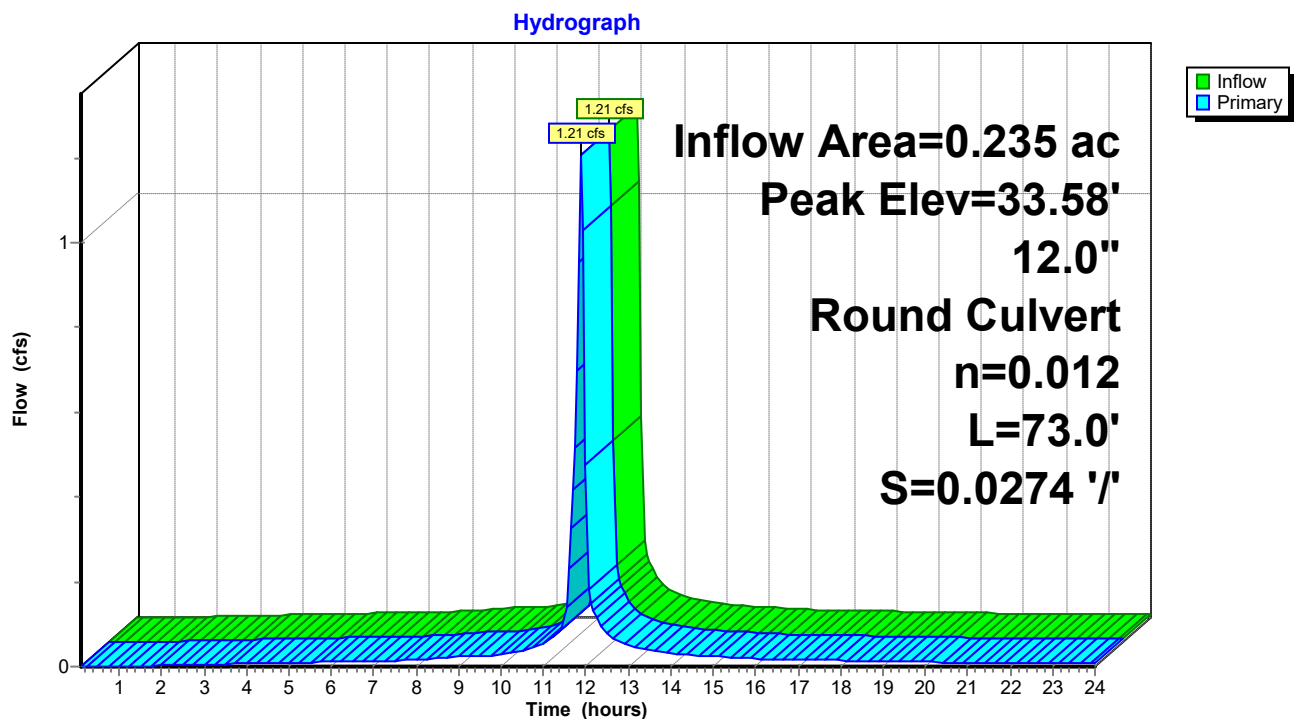
Peak Elev= 33.58' @ 11.90 hrs

Flood Elev= 35.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.00'	12.0" Round 15" Dual Wall HPDE L= 73.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.00' / 31.00' S= 0.0274 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.19 cfs @ 11.90 hrs HW=33.57' TW=31.83' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Inlet Controls 1.19 cfs @ 2.57 fps)

Pond 1P: 15" HDPE



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond 1P: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.00	0	34.02	0	35.04	0
33.02	0	34.04	0	35.06	0
33.04	0	34.06	0	35.08	0
33.06	0	34.08	0	35.10	0
33.08	0	34.10	0	35.12	0
33.10	0	34.12	0	35.14	0
33.12	0	34.14	0	35.16	0
33.14	0	34.16	0	35.18	0
33.16	0	34.18	0	35.20	0
33.18	0	34.20	0	35.22	0
33.20	0	34.22	0	35.24	0
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		
33.42	0	34.44	0		
33.44	0	34.46	0		
33.46	0	34.48	0		
33.48	0	34.50	0		
33.50	0	34.52	0		
33.52	0	34.54	0		
33.54	0	34.56	0		
33.56	0	34.58	0		
33.58	0	34.60	0		
33.60	0	34.62	0		
33.62	0	34.64	0		
33.64	0	34.66	0		
33.66	0	34.68	0		
33.68	0	34.70	0		
33.70	0	34.72	0		
33.72	0	34.74	0		
33.74	0	34.76	0		
33.76	0	34.78	0		
33.78	0	34.80	0		
33.80	0	34.82	0		
33.82	0	34.84	0		
33.84	0	34.86	0		
33.86	0	34.88	0		
33.88	0	34.90	0		
33.90	0	34.92	0		
33.92	0	34.94	0		
33.94	0	34.96	0		
33.96	0	34.98	0		
33.98	0	35.00	0		
34.00	0	35.02	0		

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Summary for Pond 4P: 10" HDPE

Inflow Area = 0.054 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.28 cfs @ 11.90 hrs, Volume= 0.014 af
Outflow = 0.28 cfs @ 11.90 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.28 cfs @ 11.90 hrs, Volume= 0.014 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 34.39' @ 11.90 hrs

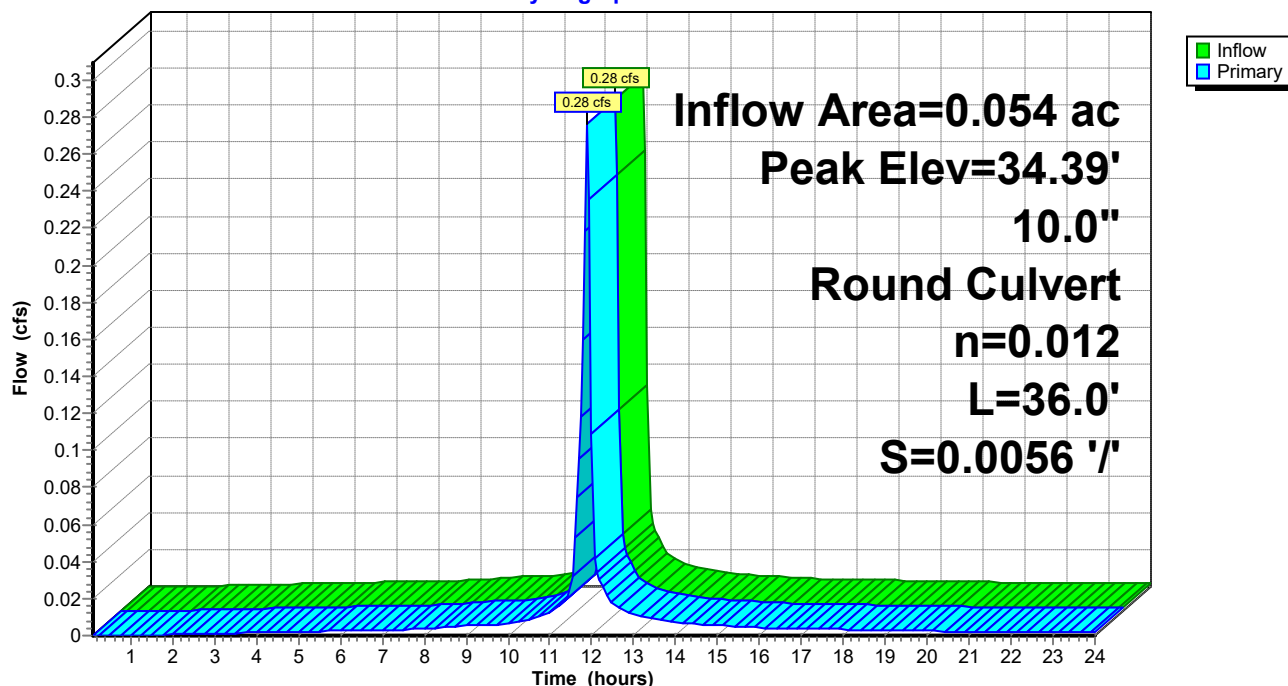
Flood Elev= 35.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.05'	10.0" Round 10" Dual Wall HDPE L= 36.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 34.05' / 33.85' S= 0.0056 '/ Cc= 0.900 n= 0.012, Flow Area= 0.55 sf

Primary OutFlow Max=0.27 cfs @ 11.90 hrs HW=34.39' TW=34.19' (Dynamic Tailwater)
↑ **1=10" Dual Wall HDPE** (Outlet Controls 0.27 cfs @ 1.92 fps)

Pond 4P: 10" HDPE

Hydrograph



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Stage-Area-Storage for Pond 4P: 10" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.05	0	34.56	0	35.07	0
34.06	0	34.57	0	35.08	0
34.07	0	34.58	0	35.09	0
34.08	0	34.59	0	35.10	0
34.09	0	34.60	0	35.11	0
34.10	0	34.61	0	35.12	0
34.11	0	34.62	0	35.13	0
34.12	0	34.63	0	35.14	0
34.13	0	34.64	0	35.15	0
34.14	0	34.65	0	35.16	0
34.15	0	34.66	0	35.17	0
34.16	0	34.67	0	35.18	0
34.17	0	34.68	0	35.19	0
34.18	0	34.69	0	35.20	0
34.19	0	34.70	0	35.21	0
34.20	0	34.71	0	35.22	0
34.21	0	34.72	0	35.23	0
34.22	0	34.73	0	35.24	0
34.23	0	34.74	0	35.25	0
34.24	0	34.75	0	35.26	0
34.25	0	34.76	0	35.27	0
34.26	0	34.77	0	35.28	0
34.27	0	34.78	0	35.29	0
34.28	0	34.79	0	35.30	0
34.29	0	34.80	0	35.31	0
34.30	0	34.81	0	35.32	0
34.31	0	34.82	0	35.33	0
34.32	0	34.83	0	35.34	0
34.33	0	34.84	0	35.35	0
34.34	0	34.85	0		
34.35	0	34.86	0		
34.36	0	34.87	0		
34.37	0	34.88	0		
34.38	0	34.89	0		
34.39	0	34.90	0		
34.40	0	34.91	0		
34.41	0	34.92	0		
34.42	0	34.93	0		
34.43	0	34.94	0		
34.44	0	34.95	0		
34.45	0	34.96	0		
34.46	0	34.97	0		
34.47	0	34.98	0		
34.48	0	34.99	0		
34.49	0	35.00	0		
34.50	0	35.01	0		
34.51	0	35.02	0		
34.52	0	35.03	0		
34.53	0	35.04	0		
34.54	0	35.05	0		
34.55	0	35.06	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond 5P: 12" HDPE

Inflow Area = 0.092 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.48 cfs @ 11.90 hrs, Volume= 0.024 af
Outflow = 0.48 cfs @ 11.90 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 11.90 hrs, Volume= 0.024 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

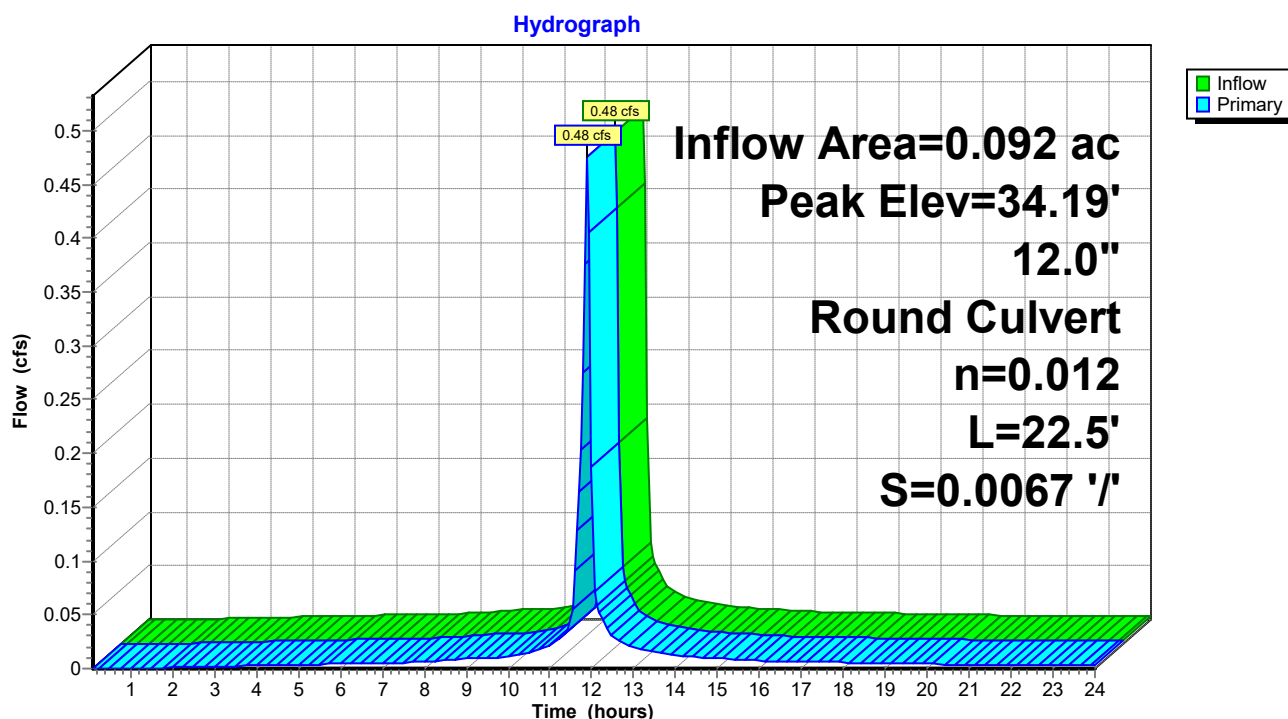
Peak Elev= 34.19' @ 11.90 hrs

Flood Elev= 35.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	12.0" Round 12" Dual Wall HDPE L= 22.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.75' / 33.60' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 11.90 hrs HW=34.19' TW=34.03' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Outlet Controls 0.47 cfs @ 2.07 fps)

Pond 5P: 12" HDPE



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond 5P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.75	0	34.77	0
33.77	0	34.79	0
33.79	0	34.81	0
33.81	0	34.83	0
33.83	0	34.85	0
33.85	0	34.87	0
33.87	0	34.89	0
33.89	0	34.91	0
33.91	0	34.93	0
33.93	0	34.95	0
33.95	0	34.97	0
33.97	0	34.99	0
33.99	0	35.01	0
34.01	0	35.03	0
34.03	0	35.05	0
34.05	0	35.07	0
34.07	0	35.09	0
34.09	0	35.11	0
34.11	0	35.13	0
34.13	0	35.15	0
34.15	0	35.17	0
34.17	0	35.19	0
34.19	0	35.21	0
34.21	0	35.23	0
34.23	0	35.25	0
34.25	0	35.27	0
34.27	0	35.29	0
34.29	0	35.31	0
34.31	0	35.33	0
34.33	0	35.35	0
34.35	0		
34.37	0		
34.39	0		
34.41	0		
34.43	0		
34.45	0		
34.47	0		
34.49	0		
34.51	0		
34.53	0		
34.55	0		
34.57	0		
34.59	0		
34.61	0		
34.63	0		
34.65	0		
34.67	0		
34.69	0		
34.71	0		
34.73	0		
34.75	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond 6P: 15" HDPE

Inflow Area = 0.332 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 1.71 cfs @ 11.90 hrs, Volume= 0.088 af
Outflow = 1.71 cfs @ 11.90 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 11.90 hrs, Volume= 0.088 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 32.67' @ 11.92 hrs

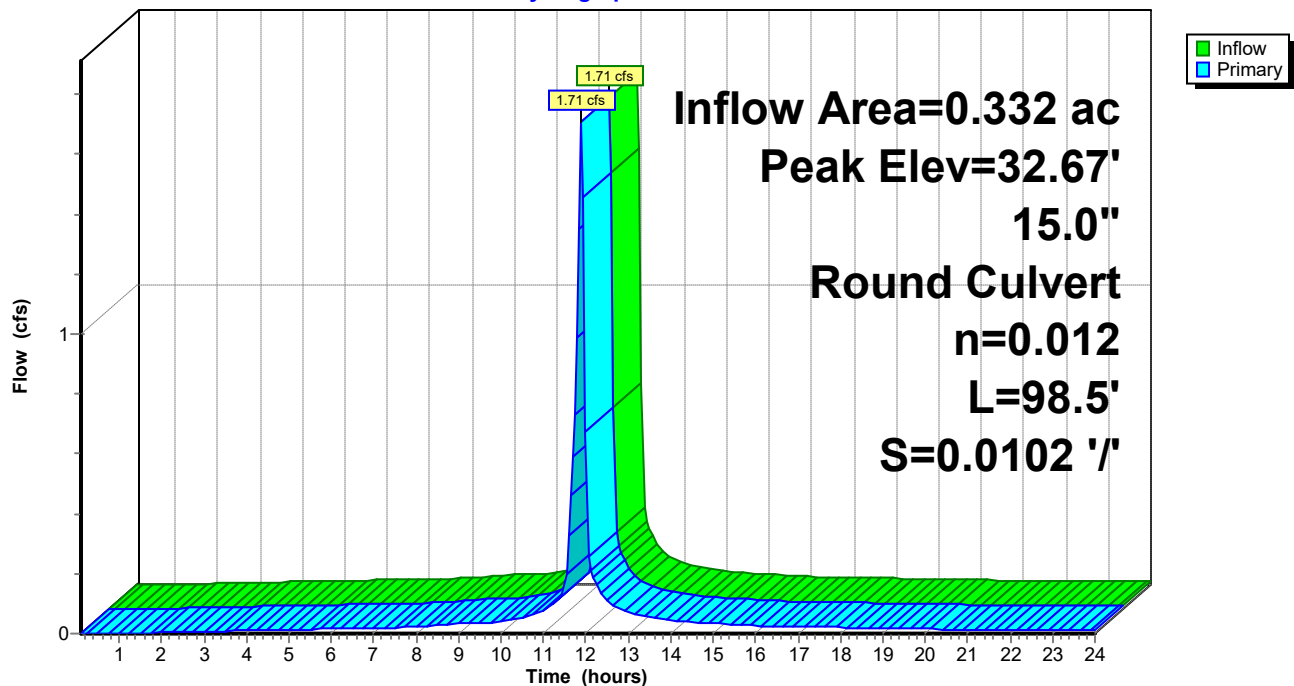
Flood Elev= 34.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round 15" Dual Wall HPDE L= 98.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0102 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.68 cfs @ 11.90 hrs HW=32.66' TW=31.83' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Outlet Controls 1.68 cfs @ 3.70 fps)

Pond 6P: 15" HDPE

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond 6P: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.00	0	33.02	0	34.04	0
32.02	0	33.04	0	34.06	0
32.04	0	33.06	0	34.08	0
32.06	0	33.08	0	34.10	0
32.08	0	33.10	0	34.12	0
32.10	0	33.12	0	34.14	0
32.12	0	33.14	0	34.16	0
32.14	0	33.16	0	34.18	0
32.16	0	33.18	0	34.20	0
32.18	0	33.20	0	34.22	0
32.20	0	33.22	0	34.24	0
32.22	0	33.24	0	34.26	0
32.24	0	33.26	0	34.28	0
32.26	0	33.28	0	34.30	0
32.28	0	33.30	0	34.32	0
32.30	0	33.32	0	34.34	0
32.32	0	33.34	0	34.36	0
32.34	0	33.36	0	34.38	0
32.36	0	33.38	0	34.40	0
32.38	0	33.40	0	34.42	0
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0		
32.50	0	33.52	0		
32.52	0	33.54	0		
32.54	0	33.56	0		
32.56	0	33.58	0		
32.58	0	33.60	0		
32.60	0	33.62	0		
32.62	0	33.64	0		
32.64	0	33.66	0		
32.66	0	33.68	0		
32.68	0	33.70	0		
32.70	0	33.72	0		
32.72	0	33.74	0		
32.74	0	33.76	0		
32.76	0	33.78	0		
32.78	0	33.80	0		
32.80	0	33.82	0		
32.82	0	33.84	0		
32.84	0	33.86	0		
32.86	0	33.88	0		
32.88	0	33.90	0		
32.90	0	33.92	0		
32.92	0	33.94	0		
32.94	0	33.96	0		
32.96	0	33.98	0		
32.98	0	34.00	0		
33.00	0	34.02	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond 7P: 12" HDPE

Inflow Area = 0.199 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 1.02 cfs @ 11.90 hrs, Volume= 0.053 af
Outflow = 1.02 cfs @ 11.90 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Primary = 1.02 cfs @ 11.90 hrs, Volume= 0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

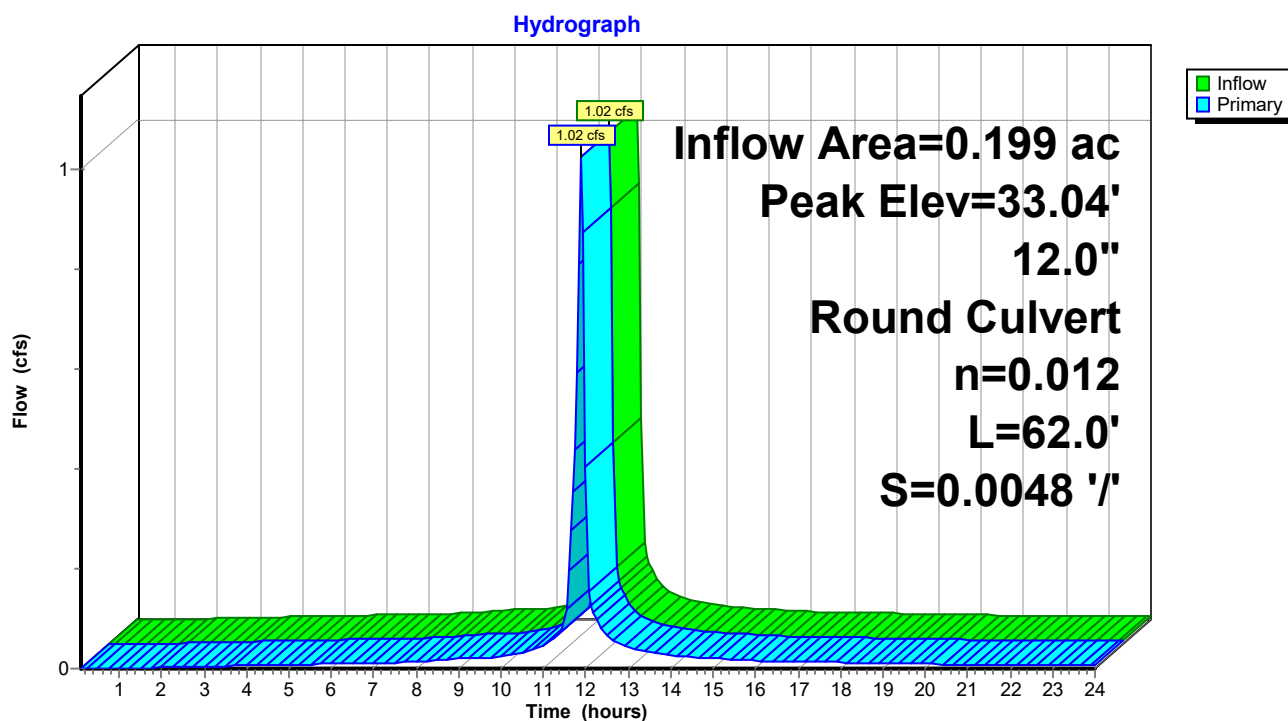
Peak Elev= 33.04' @ 11.91 hrs

Flood Elev= 34.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.40'	12.0" Round 12" Dual Wall HDPE L= 62.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 32.40' / 32.10' S= 0.0048 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 11.90 hrs HW=33.04' TW=32.66' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Outlet Controls 1.01 cfs @ 2.73 fps)

Pond 7P: 12" HDPE



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Stage-Area-Storage for Pond 7P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0	34.52	0
32.50	0	33.52	0	34.54	0
32.52	0	33.54	0	34.56	0
32.54	0	33.56	0	34.58	0
32.56	0	33.58	0	34.60	0
32.58	0	33.60	0	34.62	0
32.60	0	33.62	0	34.64	0
32.62	0	33.64	0	34.66	0
32.64	0	33.66	0	34.68	0
32.66	0	33.68	0	34.70	0
32.68	0	33.70	0	34.72	0
32.70	0	33.72	0	34.74	0
32.72	0	33.74	0		
32.74	0	33.76	0		
32.76	0	33.78	0		
32.78	0	33.80	0		
32.80	0	33.82	0		
32.82	0	33.84	0		
32.84	0	33.86	0		
32.86	0	33.88	0		
32.88	0	33.90	0		
32.90	0	33.92	0		
32.92	0	33.94	0		
32.94	0	33.96	0		
32.96	0	33.98	0		
32.98	0	34.00	0		
33.00	0	34.02	0		
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond 8P: 8" HDPE

Inflow Area = 0.068 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af
Outflow = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 33.39' @ 11.91 hrs

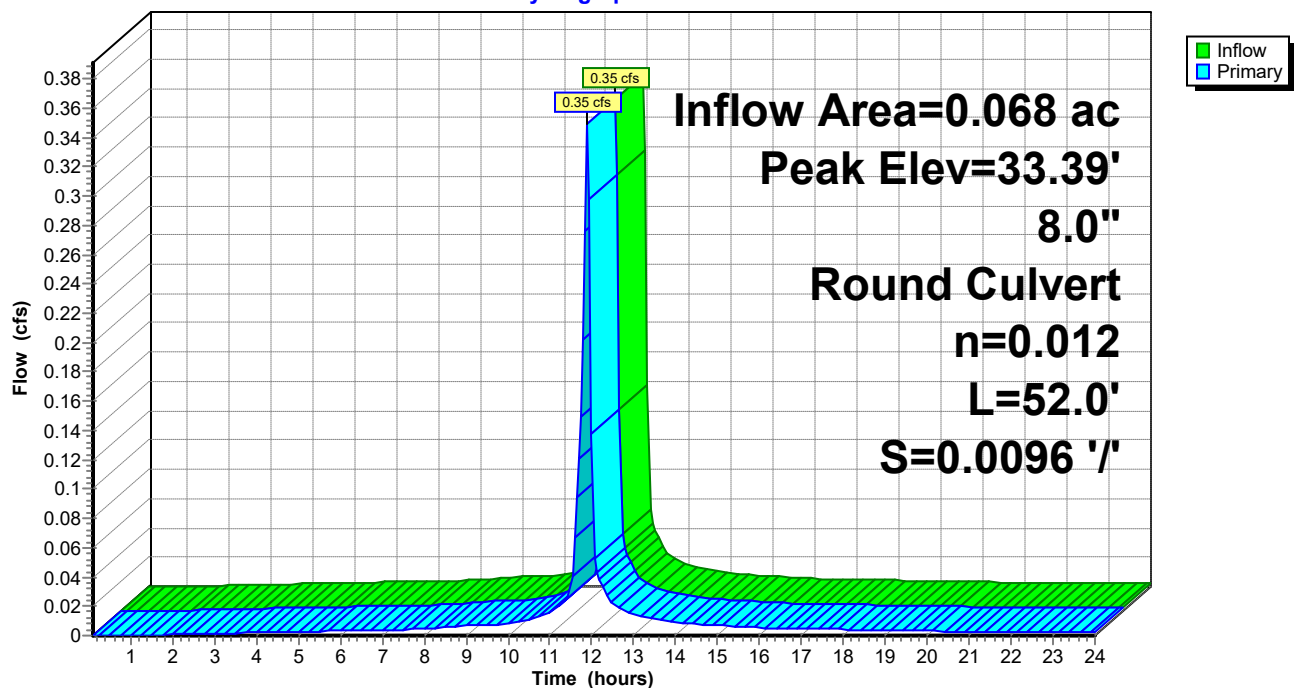
Flood Elev= 35.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.00'	8.0" Round 8" Dual Wall HPDE L= 52.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.00' / 32.50' S= 0.0096 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.34 cfs @ 11.90 hrs HW=33.39' TW=33.04' (Dynamic Tailwater)
↑ **1=8" Dual Wall HPDE** (Outlet Controls 0.34 cfs @ 2.33 fps)

Pond 8P: 8" HDPE

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond 8P: 8" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.00	0	34.02	0	35.04	0
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		
33.42	0	34.44	0		
33.44	0	34.46	0		
33.46	0	34.48	0		
33.48	0	34.50	0		
33.50	0	34.52	0		
33.52	0	34.54	0		
33.54	0	34.56	0		
33.56	0	34.58	0		
33.58	0	34.60	0		
33.60	0	34.62	0		
33.62	0	34.64	0		
33.64	0	34.66	0		
33.66	0	34.68	0		
33.68	0	34.70	0		
33.70	0	34.72	0		
33.72	0	34.74	0		
33.74	0	34.76	0		
33.76	0	34.78	0		
33.78	0	34.80	0		
33.80	0	34.82	0		
33.82	0	34.84	0		
33.84	0	34.86	0		
33.86	0	34.88	0		
33.88	0	34.90	0		
33.90	0	34.92	0		
33.92	0	34.94	0		
33.94	0	34.96	0		
33.96	0	34.98	0		
33.98	0	35.00	0		
34.00	0	35.02	0		

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Summary for Pond 9P: 12" HDPE

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.33 cfs @ 11.90 hrs, Volume= 0.017 af
Outflow = 0.33 cfs @ 11.90 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 11.90 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 34.30' @ 11.90 hrs

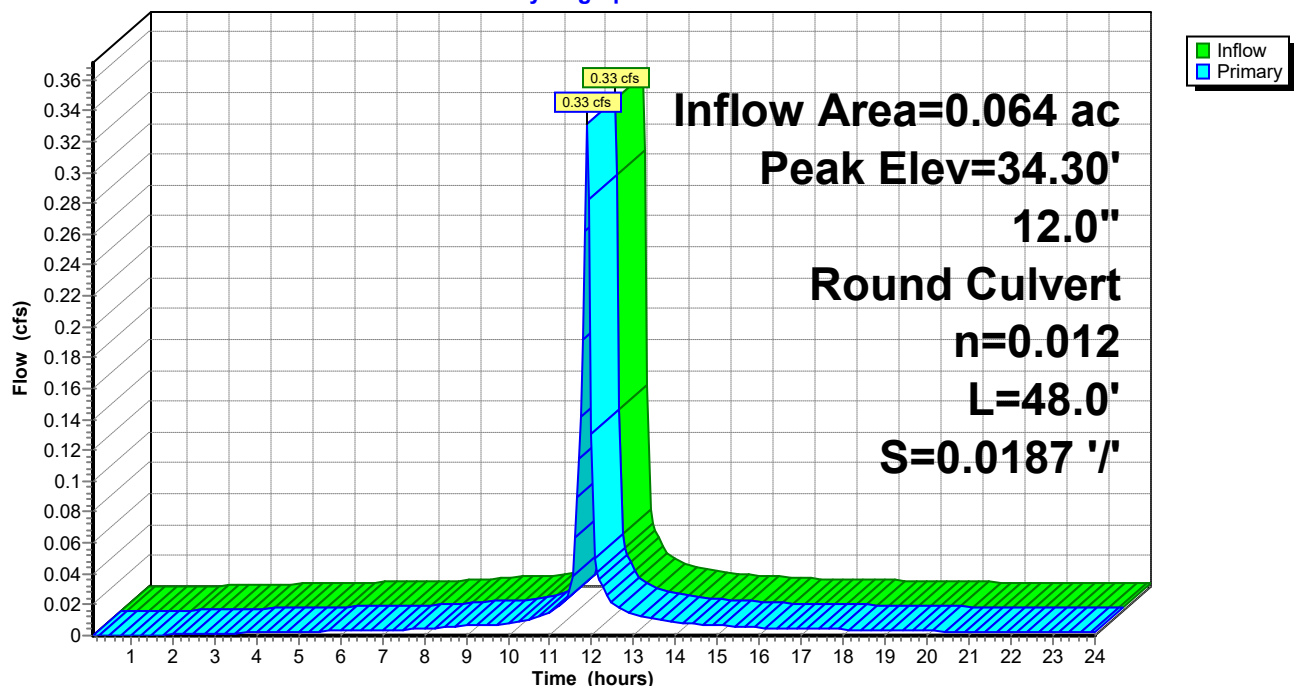
Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	12.0" Round 12" Dual Wall HPDE L= 48.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.00' / 33.10' S= 0.0187 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 11.90 hrs HW=34.30' TW=33.57' (Dynamic Tailwater)
↑ **1=12" Dual Wall HPDE** (Inlet Controls 0.33 cfs @ 1.65 fps)

Pond 9P: 12" HDPE

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond 9P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.00	0	35.02	0
34.02	0	35.04	0
34.04	0	35.06	0
34.06	0	35.08	0
34.08	0	35.10	0
34.10	0	35.12	0
34.12	0	35.14	0
34.14	0	35.16	0
34.16	0	35.18	0
34.18	0	35.20	0
34.20	0	35.22	0
34.22	0	35.24	0
34.24	0	35.26	0
34.26	0	35.28	0
34.28	0	35.30	0
34.30	0	35.32	0
34.32	0	35.34	0
34.34	0	35.36	0
34.36	0	35.38	0
34.38	0	35.40	0
34.40	0	35.42	0
34.42	0	35.44	0
34.44	0	35.46	0
34.46	0	35.48	0
34.48	0	35.50	0
34.50	0	35.52	0
34.52	0	35.54	0
34.54	0	35.56	0
34.56	0	35.58	0
34.58	0	35.60	0
34.60	0	35.62	0
34.62	0	35.64	0
34.64	0	35.66	0
34.66	0	35.68	0
34.68	0	35.70	0
34.70	0	35.72	0
34.72	0	35.74	0
34.74	0	35.76	0
34.76	0	35.78	0
34.78	0	35.80	0
34.80	0	35.82	0
34.82	0	35.84	0
34.84	0	35.86	0
34.86	0	35.88	0
34.88	0	35.90	0
34.90	0	35.92	0
34.92	0	35.94	0
34.94	0	35.96	0
34.96	0	35.98	0
34.98	0	36.00	0
35.00	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond RLa: 10" HDPE

Inflow Area = 0.116 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.59 cfs @ 11.90 hrs, Volume= 0.031 af
Outflow = 0.59 cfs @ 11.90 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.59 cfs @ 11.90 hrs, Volume= 0.031 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

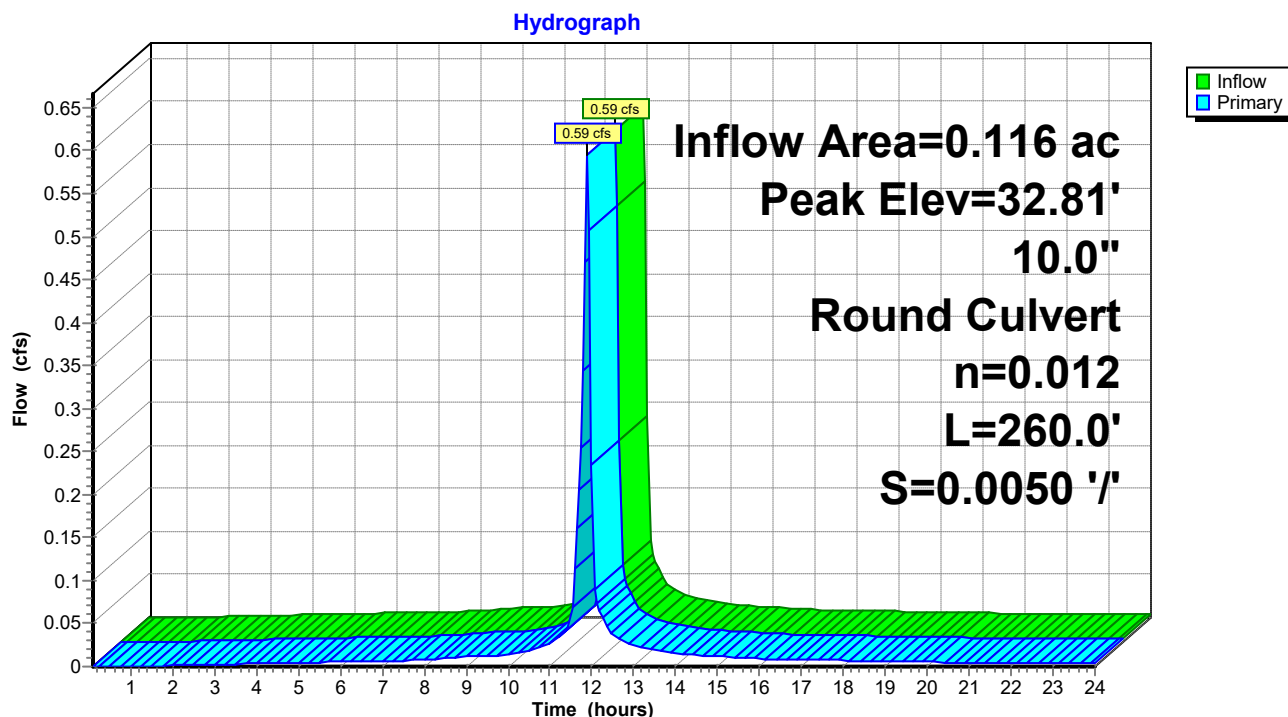
Peak Elev= 32.81' @ 11.91 hrs

Flood Elev= 35.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.30'	10.0" Round 10" Dual Wall HDPE L= 260.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.30' / 31.00' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 0.55 sf

Primary OutFlow Max=0.59 cfs @ 11.90 hrs HW=32.81' TW=31.79' (Dynamic Tailwater)
↑ **1=10" Dual Wall HDPE** (Outlet Controls 0.59 cfs @ 2.41 fps)

Pond RLa: 10" HDPE



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Stage-Area-Storage for Pond RL: 10" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.30	0	33.32	0	34.34	0
32.32	0	33.34	0	34.36	0
32.34	0	33.36	0	34.38	0
32.36	0	33.38	0	34.40	0
32.38	0	33.40	0	34.42	0
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0	34.52	0
32.50	0	33.52	0	34.54	0
32.52	0	33.54	0	34.56	0
32.54	0	33.56	0	34.58	0
32.56	0	33.58	0	34.60	0
32.58	0	33.60	0	34.62	0
32.60	0	33.62	0	34.64	0
32.62	0	33.64	0	34.66	0
32.64	0	33.66	0	34.68	0
32.66	0	33.68	0	34.70	0
32.68	0	33.70	0	34.72	0
32.70	0	33.72	0	34.74	0
32.72	0	33.74	0	34.76	0
32.74	0	33.76	0	34.78	0
32.76	0	33.78	0	34.80	0
32.78	0	33.80	0	34.82	0
32.80	0	33.82	0	34.84	0
32.82	0	33.84	0	34.86	0
32.84	0	33.86	0	34.88	0
32.86	0	33.88	0	34.90	0
32.88	0	33.90	0	34.92	0
32.90	0	33.92	0	34.94	0
32.92	0	33.94	0	34.96	0
32.94	0	33.96	0	34.98	0
32.96	0	33.98	0	35.00	0
32.98	0	34.00	0		
33.00	0	34.02	0		
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond RLb: 12" HDPE

Inflow Area = 0.043 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.22 cfs @ 11.90 hrs, Volume= 0.011 af
Outflow = 0.22 cfs @ 11.90 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 11.90 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

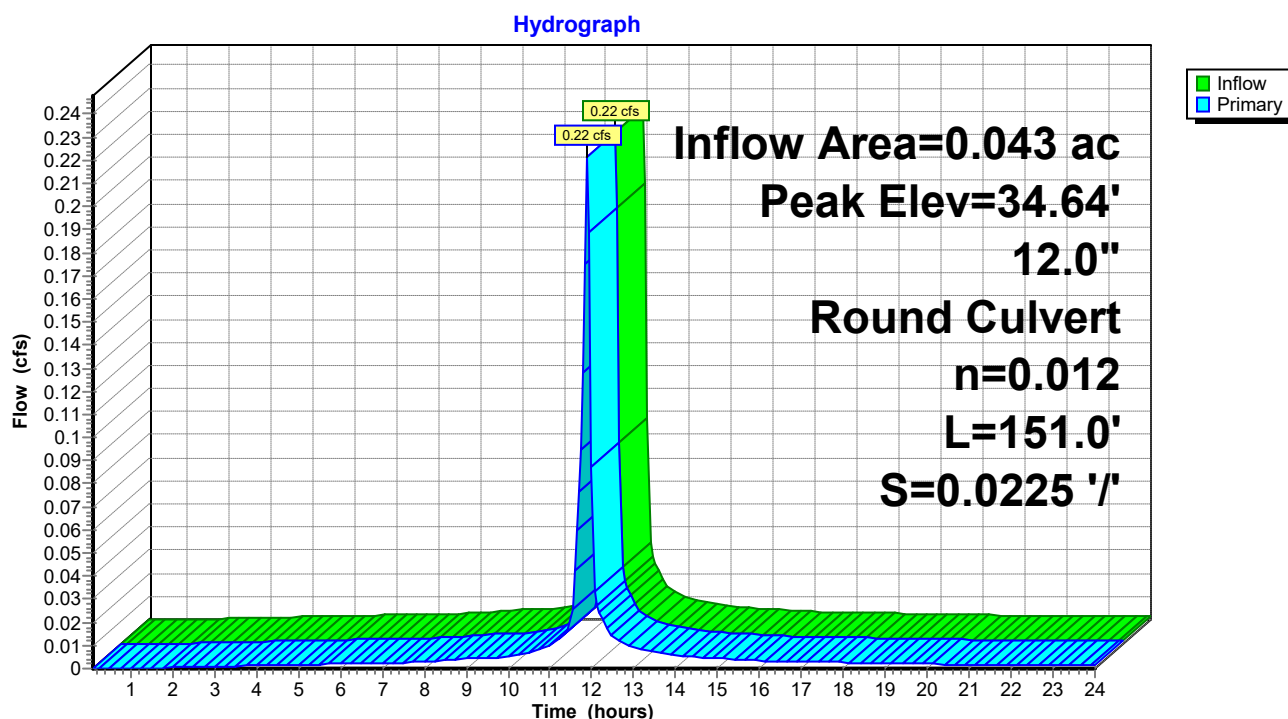
Peak Elev= 34.64' @ 11.90 hrs

Flood Elev= 35.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.40'	12.0" Round 12" Dual Wall HDPE L= 151.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.40' / 31.00' S= 0.0225 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 11.90 hrs HW=34.64' TW=31.83' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Inlet Controls 0.22 cfs @ 1.48 fps)

Pond RLb: 12" HDPE



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Stage-Area-Storage for Pond RLb: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.40	0	34.91	0
34.41	0	34.92	0
34.42	0	34.93	0
34.43	0	34.94	0
34.44	0	34.95	0
34.45	0	34.96	0
34.46	0	34.97	0
34.47	0	34.98	0
34.48	0	34.99	0
34.49	0	35.00	0
34.50	0	35.01	0
34.51	0	35.02	0
34.52	0	35.03	0
34.53	0	35.04	0
34.54	0	35.05	0
34.55	0	35.06	0
34.56	0	35.07	0
34.57	0	35.08	0
34.58	0	35.09	0
34.59	0	35.10	0
34.60	0	35.11	0
34.61	0	35.12	0
34.62	0	35.13	0
34.63	0	35.14	0
34.64	0	35.15	0
34.65	0	35.16	0
34.66	0	35.17	0
34.67	0	35.18	0
34.68	0	35.19	0
34.69	0	35.20	0
34.70	0	35.21	0
34.71	0	35.22	0
34.72	0	35.23	0
34.73	0	35.24	0
34.74	0	35.25	0
34.75	0	35.26	0
34.76	0	35.27	0
34.77	0	35.28	0
34.78	0	35.29	0
34.79	0	35.30	0
34.80	0	35.31	0
34.81	0	35.32	0
34.82	0	35.33	0
34.83	0	35.34	0
34.84	0	35.35	0
34.85	0	35.36	0
34.86	0	35.37	0
34.87	0	35.38	0
34.88	0	35.39	0
34.89	0	35.40	0
34.90	0		

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Summary for Pond RLbb: 15" HDPE

Inflow Area = 0.214 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 1.10 cfs @ 11.90 hrs, Volume= 0.056 af
Outflow = 1.10 cfs @ 11.90 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 11.90 hrs, Volume= 0.056 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

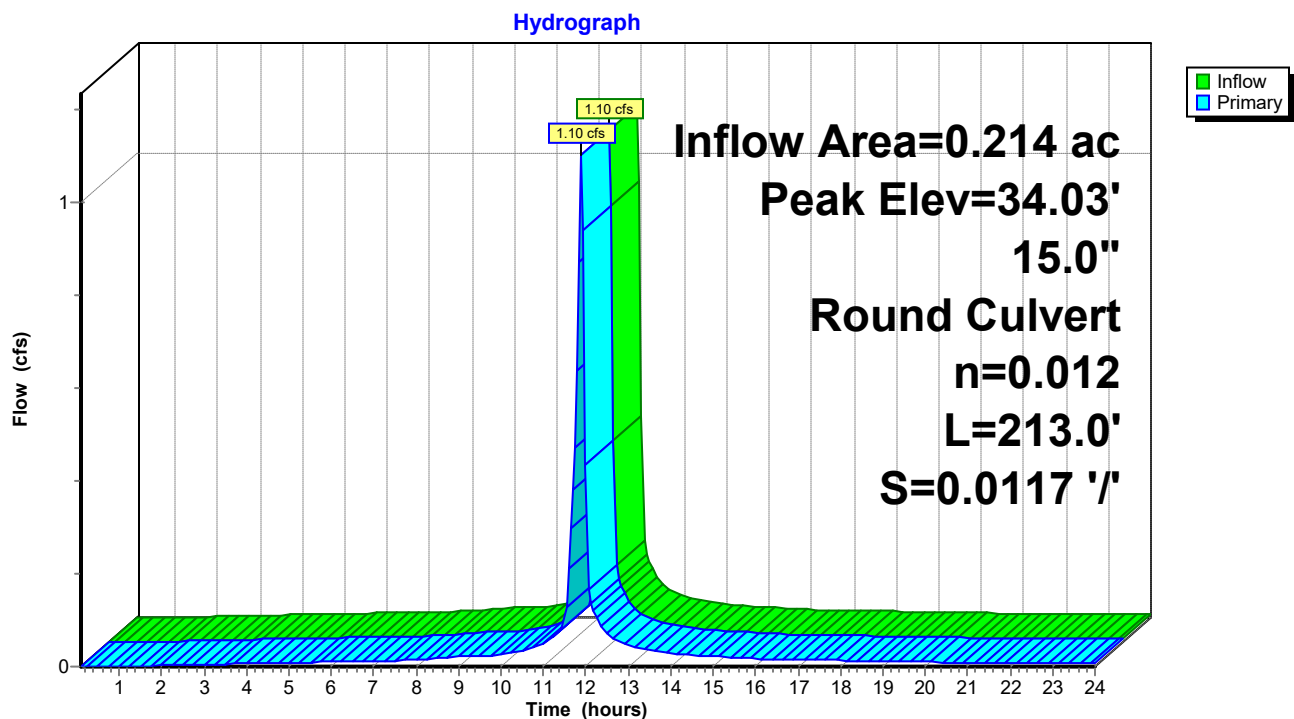
Peak Elev= 34.03' @ 11.90 hrs

Flood Elev= 35.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.50'	15.0" Round 15" Dual Wall HPDE L= 213.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 33.50' / 31.00' S= 0.0117 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.08 cfs @ 11.90 hrs HW=34.03' TW=31.83' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Inlet Controls 1.08 cfs @ 2.19 fps)

Pond RLbb: 15" HDPE



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Stage-Area-Storage for Pond RLbb: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.50	0	34.52	0
33.52	0	34.54	0
33.54	0	34.56	0
33.56	0	34.58	0
33.58	0	34.60	0
33.60	0	34.62	0
33.62	0	34.64	0
33.64	0	34.66	0
33.66	0	34.68	0
33.68	0	34.70	0
33.70	0	34.72	0
33.72	0	34.74	0
33.74	0	34.76	0
33.76	0	34.78	0
33.78	0	34.80	0
33.80	0	34.82	0
33.82	0	34.84	0
33.84	0	34.86	0
33.86	0	34.88	0
33.88	0	34.90	0
33.90	0	34.92	0
33.92	0	34.94	0
33.94	0	34.96	0
33.96	0	34.98	0
33.98	0	35.00	0
34.00	0	35.02	0
34.02	0	35.04	0
34.04	0	35.06	0
34.06	0	35.08	0
34.08	0	35.10	0
34.10	0	35.12	0
34.12	0	35.14	0
34.14	0	35.16	0
34.16	0	35.18	0
34.18	0	35.20	0
34.20	0	35.22	0
34.22	0	35.24	0
34.24	0	35.26	0
34.26	0	35.28	0
34.28	0	35.30	0
34.30	0	35.32	0
34.32	0	35.34	0
34.34	0	35.36	0
34.36	0	35.38	0
34.38	0	35.40	0
34.40	0		
34.42	0		
34.44	0		
34.46	0		
34.48	0		
34.50	0		

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Summary for Pond RLc: Roof Leader

Inflow Area = 0.129 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.66 cfs @ 11.90 hrs, Volume= 0.034 af
Outflow = 0.66 cfs @ 11.90 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.66 cfs @ 11.90 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

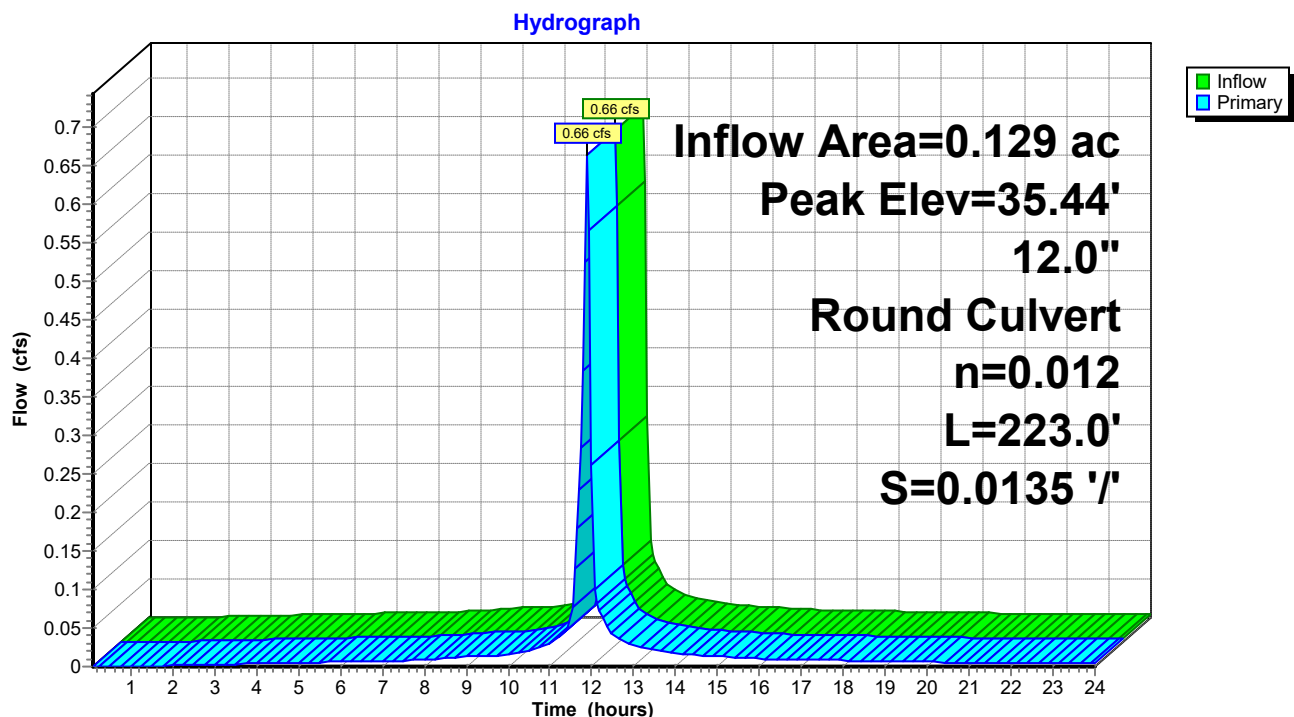
Peak Elev= 35.44' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round 12" Dual Wall HDPE L= 223.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 35.00' / 32.00' S= 0.0135 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 11.90 hrs HW=35.44' TW=32.62' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Inlet Controls 0.65 cfs @ 1.98 fps)

Pond RLc: Roof Leader



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Stage-Area-Storage for Pond RLc: Roof Leader

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	35.51	0
35.01	0	35.52	0
35.02	0	35.53	0
35.03	0	35.54	0
35.04	0	35.55	0
35.05	0	35.56	0
35.06	0	35.57	0
35.07	0	35.58	0
35.08	0	35.59	0
35.09	0	35.60	0
35.10	0	35.61	0
35.11	0	35.62	0
35.12	0	35.63	0
35.13	0	35.64	0
35.14	0	35.65	0
35.15	0	35.66	0
35.16	0	35.67	0
35.17	0	35.68	0
35.18	0	35.69	0
35.19	0	35.70	0
35.20	0	35.71	0
35.21	0	35.72	0
35.22	0	35.73	0
35.23	0	35.74	0
35.24	0	35.75	0
35.25	0	35.76	0
35.26	0	35.77	0
35.27	0	35.78	0
35.28	0	35.79	0
35.29	0	35.80	0
35.30	0	35.81	0
35.31	0	35.82	0
35.32	0	35.83	0
35.33	0	35.84	0
35.34	0	35.85	0
35.35	0	35.86	0
35.36	0	35.87	0
35.37	0	35.88	0
35.38	0	35.89	0
35.39	0	35.90	0
35.40	0	35.91	0
35.41	0	35.92	0
35.42	0	35.93	0
35.43	0	35.94	0
35.44	0	35.95	0
35.45	0	35.96	0
35.46	0	35.97	0
35.47	0	35.98	0
35.48	0	35.99	0
35.49	0	36.00	0
35.50	0		

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Summary for Pond RLcc: Roof Leader

Inflow Area = 0.070 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.36 cfs @ 11.90 hrs, Volume= 0.019 af
Outflow = 0.36 cfs @ 11.90 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 11.90 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

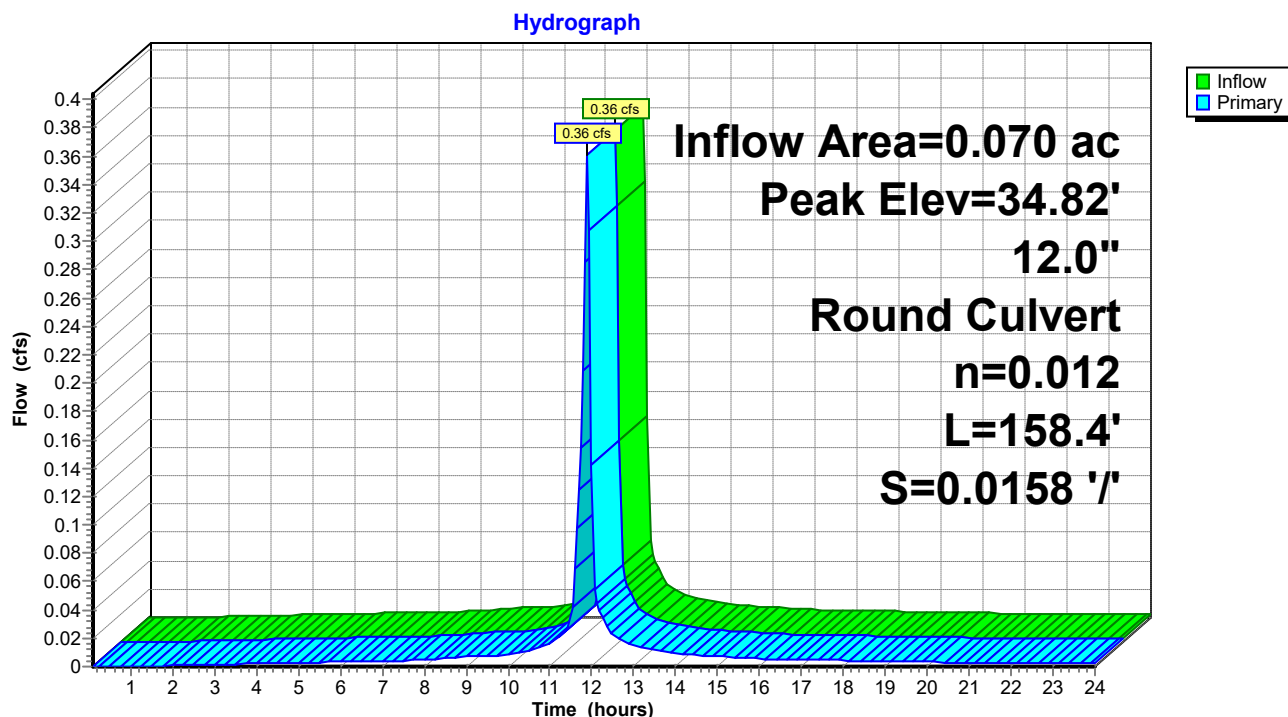
Peak Elev= 34.82' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	12.0" Round 12" Dual Wall HDPE L= 158.4' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.50' / 32.00' S= 0.0158 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 11.90 hrs HW=34.81' TW=32.62' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Inlet Controls 0.36 cfs @ 1.68 fps)

Pond RLcc: Roof Leader



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Stage-Area-Storage for Pond RLcc: Roof Leader

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.50	0	35.01	0	35.52	0
34.51	0	35.02	0	35.53	0
34.52	0	35.03	0	35.54	0
34.53	0	35.04	0	35.55	0
34.54	0	35.05	0	35.56	0
34.55	0	35.06	0	35.57	0
34.56	0	35.07	0	35.58	0
34.57	0	35.08	0	35.59	0
34.58	0	35.09	0	35.60	0
34.59	0	35.10	0	35.61	0
34.60	0	35.11	0	35.62	0
34.61	0	35.12	0	35.63	0
34.62	0	35.13	0	35.64	0
34.63	0	35.14	0	35.65	0
34.64	0	35.15	0	35.66	0
34.65	0	35.16	0	35.67	0
34.66	0	35.17	0	35.68	0
34.67	0	35.18	0	35.69	0
34.68	0	35.19	0	35.70	0
34.69	0	35.20	0	35.71	0
34.70	0	35.21	0	35.72	0
34.71	0	35.22	0	35.73	0
34.72	0	35.23	0	35.74	0
34.73	0	35.24	0	35.75	0
34.74	0	35.25	0	35.76	0
34.75	0	35.26	0	35.77	0
34.76	0	35.27	0	35.78	0
34.77	0	35.28	0	35.79	0
34.78	0	35.29	0	35.80	0
34.79	0	35.30	0	35.81	0
34.80	0	35.31	0	35.82	0
34.81	0	35.32	0	35.83	0
34.82	0	35.33	0	35.84	0
34.83	0	35.34	0	35.85	0
34.84	0	35.35	0	35.86	0
34.85	0	35.36	0	35.87	0
34.86	0	35.37	0	35.88	0
34.87	0	35.38	0	35.89	0
34.88	0	35.39	0	35.90	0
34.89	0	35.40	0	35.91	0
34.90	0	35.41	0	35.92	0
34.91	0	35.42	0	35.93	0
34.92	0	35.43	0	35.94	0
34.93	0	35.44	0	35.95	0
34.94	0	35.45	0	35.96	0
34.95	0	35.46	0	35.97	0
34.96	0	35.47	0	35.98	0
34.97	0	35.48	0	35.99	0
34.98	0	35.49	0	36.00	0
34.99	0	35.50	0		
35.00	0	35.51	0		

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Summary for Pond SDcc: 374.23 Yard Inlet

Inflow Area = 0.233 ac, 100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 1.20 cfs @ 11.90 hrs, Volume= 0.061 af
Outflow = 1.20 cfs @ 11.90 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min
Primary = 1.20 cfs @ 11.90 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

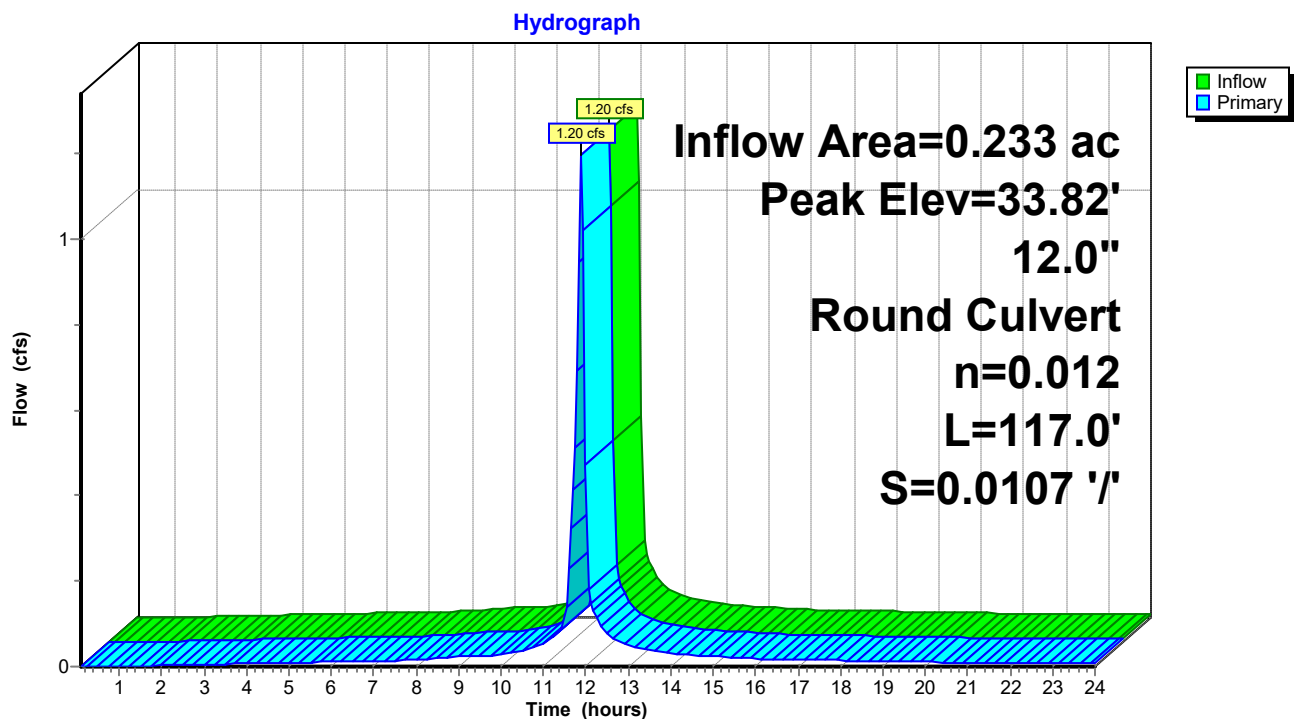
Peak Elev= 33.82' @ 11.91 hrs

Flood Elev= 35.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	12.0" Round 12" Dual Wall HDPE L= 117.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.00' S= 0.0107 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.18 cfs @ 11.90 hrs HW=33.82' TW=32.62' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Inlet Controls 1.18 cfs @ 2.57 fps)

Pond SDcc: 374.23 Yard Inlet



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Stage-Area-Storage for Pond SDcc: 374.23 Yard Inlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.25	0	34.27	0
33.27	0	34.29	0
33.29	0	34.31	0
33.31	0	34.33	0
33.33	0	34.35	0
33.35	0	34.37	0
33.37	0	34.39	0
33.39	0	34.41	0
33.41	0	34.43	0
33.43	0	34.45	0
33.45	0	34.47	0
33.47	0	34.49	0
33.49	0	34.51	0
33.51	0	34.53	0
33.53	0	34.55	0
33.55	0	34.57	0
33.57	0	34.59	0
33.59	0	34.61	0
33.61	0	34.63	0
33.63	0	34.65	0
33.65	0	34.67	0
33.67	0	34.69	0
33.69	0	34.71	0
33.71	0	34.73	0
33.73	0	34.75	0
33.75	0	34.77	0
33.77	0	34.79	0
33.79	0	34.81	0
33.81	0	34.83	0
33.83	0	34.85	0
33.85	0	34.87	0
33.87	0	34.89	0
33.89	0	34.91	0
33.91	0	34.93	0
33.93	0	34.95	0
33.95	0	34.97	0
33.97	0	34.99	0
33.99	0	35.01	0
34.01	0	35.03	0
34.03	0	35.05	0
34.05	0	35.07	0
34.07	0	35.09	0
34.09	0	35.11	0
34.11	0	35.13	0
34.13	0	35.15	0
34.15	0	35.17	0
34.17	0	35.19	0
34.19	0	35.21	0
34.21	0	35.23	0
34.23	0	35.25	0
34.25	0		

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Summary for Pond SWM-A: SGW A

Inflow Area = 0.401 ac, 52.85% Impervious, Inflow Depth > 2.12" for 2-yr event
 Inflow = 1.55 cfs @ 11.91 hrs, Volume= 0.071 af
 Outflow = 0.05 cfs @ 13.78 hrs, Volume= 0.029 af, Atten= 97%, Lag= 112.8 min
 Primary = 0.05 cfs @ 13.78 hrs, Volume= 0.029 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5
 Peak Elev= 32.20' @ 13.78 hrs Surf.Area= 2,148 sf Storage= 2,072 cf

Plug-Flow detention time= 361.1 min calculated for 0.029 af (40% of inflow)
 Center-of-Mass det. time= 227.6 min (1,019.5 - 791.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	31.00'	7,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
31.00	1,339	156.0	0	0	1,339
33.00	2,793	207.0	4,044	4,044	2,856
34.00	3,670	232.0	3,222	7,265	3,757

Device	Routing	Invert	Outlet Devices
#1	Primary	30.67'	12.0" Round 12" Dual Wall HDPE L= 54.6' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.67' / 30.26' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	32.00'	2.0" W x 12.0" H Vert. 2" Notch on Side of 374.23 C= 0.600
#3	Device 1	33.00'	10.7' long Rim 374.23 Inlet Cv= 2.62 (C= 3.28)
#4	Secondary	33.00'	30.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.05 cfs @ 13.78 hrs HW=32.20' TW=30.39' (Dynamic Tailwater)

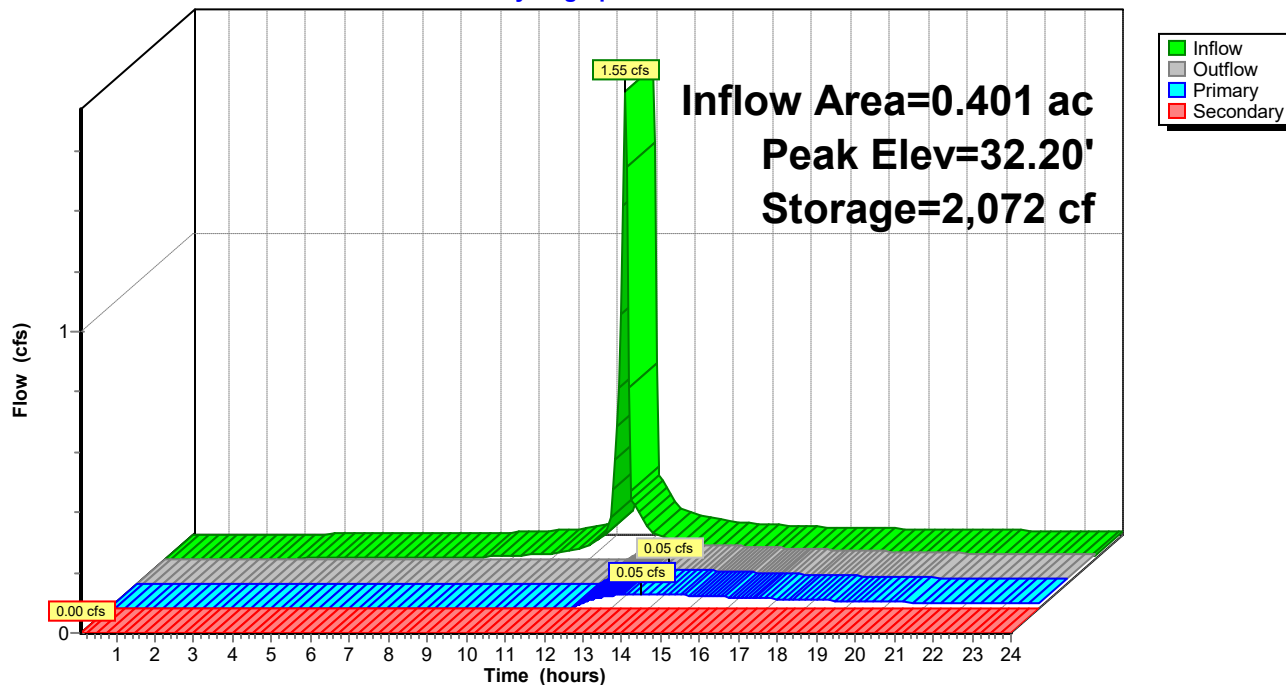
↑ **1=12" Dual Wall HDPE** (Passes 0.05 cfs of 3.55 cfs potential flow)
 ↑ **2=2" Notch on Side of 374.23** (Orifice Controls 0.05 cfs @ 1.43 fps)
 ↑ **3=Rim 374.23 Inlet** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=31.00' TW=0.00' (Dynamic Tailwater)

↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SWM-A: SGW A

Hydrograph



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Stage-Area-Storage for Pond SWM-A: SGW A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	1,339	0	33.55	3,261	5,707
31.05	1,369	68	33.60	3,305	5,871
31.10	1,399	137	33.65	3,349	6,037
31.15	1,430	208	33.70	3,394	6,206
31.20	1,461	280	33.75	3,440	6,377
31.25	1,492	354	33.80	3,485	6,550
31.30	1,523	429	33.85	3,531	6,725
31.35	1,555	506	33.90	3,577	6,903
31.40	1,588	585	33.95	3,623	7,083
31.45	1,620	665	34.00	3,670	7,265
31.50	1,653	747			
31.55	1,686	830			
31.60	1,720	915			
31.65	1,754	1,002			
31.70	1,788	1,091			
31.75	1,822	1,181			
31.80	1,857	1,273			
31.85	1,892	1,367			
31.90	1,928	1,462			
31.95	1,964	1,559			
32.00	2,000	1,658			
32.05	2,036	1,759			
32.10	2,073	1,862			
32.15	2,110	1,967			
32.20	2,148	2,073			
32.25	2,186	2,182			
32.30	2,224	2,292			
32.35	2,262	2,404			
32.40	2,301	2,518			
32.45	2,340	2,634			
32.50	2,380	2,752			
32.55	2,420	2,872			
32.60	2,460	2,994			
32.65	2,500	3,118			
32.70	2,541	3,244			
32.75	2,582	3,372			
32.80	2,624	3,502			
32.85	2,666	3,635			
32.90	2,708	3,769			
32.95	2,750	3,905			
33.00	2,793	4,044			
33.05	2,834	4,185			
33.10	2,875	4,327			
33.15	2,917	4,472			
33.20	2,959	4,619			
33.25	3,001	4,768			
33.30	3,044	4,919			
33.35	3,086	5,072			
33.40	3,129	5,228			
33.45	3,173	5,385			
33.50	3,217	5,545			

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Summary for Pond SWM-C: SGW C

Inflow Area = 0.796 ac, 59.64% Impervious, Inflow Depth > 2.36" for 2-yr event
 Inflow = 3.05 cfs @ 11.91 hrs, Volume= 0.157 af
 Outflow = 0.04 cfs @ 17.55 hrs, Volume= 0.031 af, Atten= 99%, Lag= 338.0 min
 Primary = 0.04 cfs @ 17.55 hrs, Volume= 0.031 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5
 Peak Elev= 33.09' @ 17.55 hrs Surf.Area= 5,811 sf Storage= 5,619 cf

Plug-Flow detention time= 604.0 min calculated for 0.031 af (19% of inflow)
 Center-of-Mass det. time= 369.9 min (1,138.0 - 768.1)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.00'	15,119 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
32.00	4,506	289.0	0	0	4,506
34.00	7,023	340.0	11,436	11,436	7,135
34.50	7,715	352.0	3,683	15,119	7,818

Device	Routing	Invert	Outlet Devices
#1	Primary	31.67'	15.0" Round 15" Dual Wall HPDE L= 320.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 31.67' / 30.67' S= 0.0031 ' S= 0.0031 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	33.00'	6.0" W x 6.0" H Vert. 6" Notch on side of 374.70 C= 0.600
#3	Device 1	33.50'	16.3' long Rim of 374.70 Cv= 2.62 (C= 3.28)
#4	Secondary	34.00'	10.0' long 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

Primary OutFlow Max=0.04 cfs @ 17.55 hrs HW=33.09' TW=30.88' (Dynamic Tailwater)

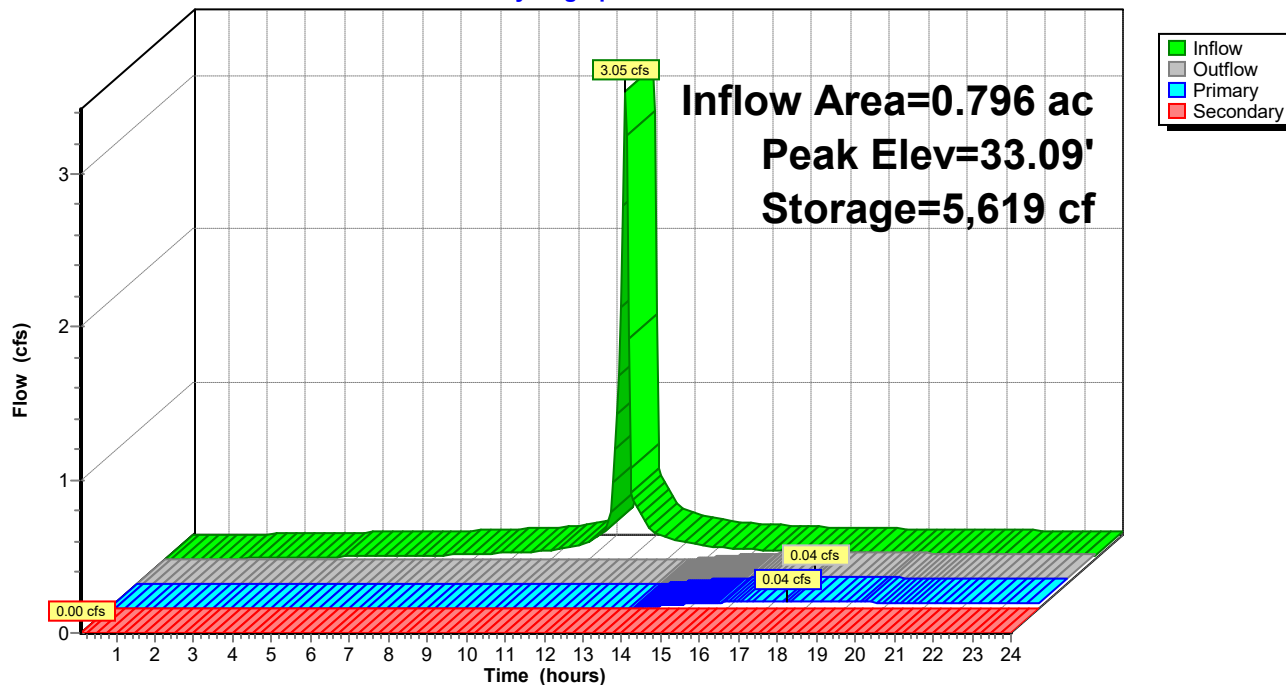
1=15" Dual Wall HPDE (Passes 0.04 cfs of 4.11 cfs potential flow)
 2=6" Notch on side of 374.70 (Orifice Controls 0.04 cfs @ 0.97 fps)
 3=Rim of 374.70 (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=32.00' TW=0.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SWM-C: SGW C

Hydrograph



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Stage-Area-Storage for Pond SWM-C: SGW C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	4,506	0
32.05	4,562	227
32.10	4,619	456
32.15	4,675	689
32.20	4,733	924
32.25	4,790	1,162
32.30	4,848	1,403
32.35	4,906	1,647
32.40	4,965	1,893
32.45	5,024	2,143
32.50	5,083	2,396
32.55	5,143	2,651
32.60	5,203	2,910
32.65	5,263	3,172
32.70	5,324	3,436
32.75	5,385	3,704
32.80	5,446	3,975
32.85	5,508	4,249
32.90	5,570	4,526
32.95	5,632	4,806
33.00	5,695	5,089
33.05	5,758	5,375
33.10	5,822	5,665
33.15	5,885	5,957
33.20	5,949	6,253
33.25	6,014	6,552
33.30	6,079	6,855
33.35	6,144	7,160
33.40	6,209	7,469
33.45	6,275	7,781
33.50	6,342	8,097
33.55	6,408	8,415
33.60	6,475	8,737
33.65	6,542	9,063
33.70	6,610	9,392
33.75	6,678	9,724
33.80	6,746	10,059
33.85	6,815	10,398
33.90	6,884	10,741
33.95	6,953	11,087
34.00	7,023	11,436
34.05	7,091	11,789
34.10	7,159	12,145
34.15	7,227	12,505
34.20	7,296	12,868
34.25	7,365	13,235
34.30	7,434	13,605
34.35	7,504	13,978
34.40	7,574	14,355
34.45	7,644	14,735
34.50	7,715	15,119

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Summary for Pond SWMB: SGW B

Inflow Area = 1.540 ac, 65.61% Impervious, Inflow Depth > 2.42" for 2-yr event
 Inflow = 6.49 cfs @ 11.90 hrs, Volume= 0.310 af
 Outflow = 0.15 cfs @ 14.65 hrs, Volume= 0.109 af, Atten= 98%, Lag= 165.0 min
 Primary = 0.15 cfs @ 14.65 hrs, Volume= 0.109 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 32.27' @ 14.65 hrs Surf.Area= 8,694 sf Storage= 9,730 cf

Plug-Flow detention time= 427.7 min calculated for 0.108 af (35% of inflow)

Center-of-Mass det. time= 275.2 min (1,047.6 - 772.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	31.00'	27,407 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
31.00	6,669	389.0	0	0	6,669
33.00	9,979	439.0	16,537	16,537	10,066
34.00	11,785	464.0	10,869	27,407	11,918

Device	Routing	Invert	Outlet Devices	
#1	Primary	32.00'	4.0" W x 18.0" H Vert. 4" Notch on side of 374.70	
#2	Primary	33.50'	16.3' long Rim of 374.23 2 End Contraction(s)	

Primary OutFlow Max=0.15 cfs @ 14.65 hrs HW=32.27' TW=30.88' (Dynamic Tailwater)

 1=4" Notch on side of 374.70 (Orifice Controls 0.15 cfs @ 1.67 fps)

2=Rim of 374.23 (Controls 0.00 cfs)

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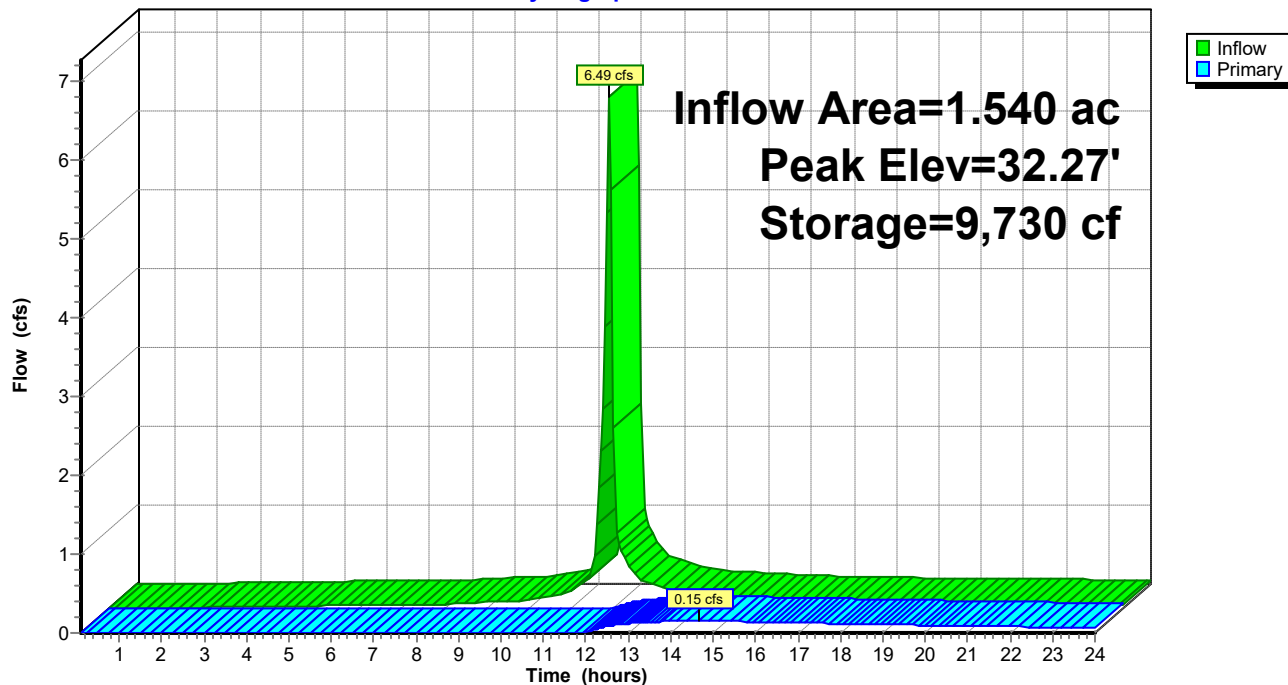
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Pond SWMB: SGW B

Hydrograph



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Stage-Area-Storage for Pond SWMB: SGW B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	6,669	0	33.55	10,954	22,292
31.05	6,744	335	33.60	11,045	22,842
31.10	6,819	674	33.65	11,136	23,396
31.15	6,894	1,017	33.70	11,227	23,955
31.20	6,970	1,364	33.75	11,319	24,519
31.25	7,046	1,714	33.80	11,412	25,087
31.30	7,123	2,068	33.85	11,505	25,660
31.35	7,200	2,427	33.90	11,598	26,238
31.40	7,278	2,788	33.95	11,691	26,820
31.45	7,356	3,154	34.00	11,785	27,407
31.50	7,434	3,524			
31.55	7,513	3,898			
31.60	7,592	4,275			
31.65	7,672	4,657			
31.70	7,752	5,043			
31.75	7,832	5,432			
31.80	7,913	5,826			
31.85	7,995	6,223			
31.90	8,076	6,625			
31.95	8,158	7,031			
32.00	8,241	7,441			
32.05	8,324	7,855			
32.10	8,407	8,273			
32.15	8,491	8,696			
32.20	8,575	9,123			
32.25	8,660	9,553			
32.30	8,745	9,989			
32.35	8,830	10,428			
32.40	8,916	10,872			
32.45	9,002	11,320			
32.50	9,089	11,772			
32.55	9,176	12,229			
32.60	9,264	12,690			
32.65	9,352	13,155			
32.70	9,440	13,625			
32.75	9,529	14,099			
32.80	9,618	14,578			
32.85	9,708	15,061			
32.90	9,798	15,548			
32.95	9,888	16,041			
33.00	9,979	16,537			
33.05	10,066	17,038			
33.10	10,153	17,544			
33.15	10,240	18,054			
33.20	10,328	18,568			
33.25	10,416	19,086			
33.30	10,505	19,609			
33.35	10,594	20,137			
33.40	10,683	20,669			
33.45	10,773	21,205			
33.50	10,863	21,746			

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Summary for Pond X1: MH-1

Inflow Area = 2.738 ac, 62.01% Impervious, Inflow Depth > 0.74" for 2-yr event
Inflow = 0.22 cfs @ 15.35 hrs, Volume= 0.168 af
Outflow = 0.22 cfs @ 15.35 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 15.35 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 30.40' @ 15.35 hrs

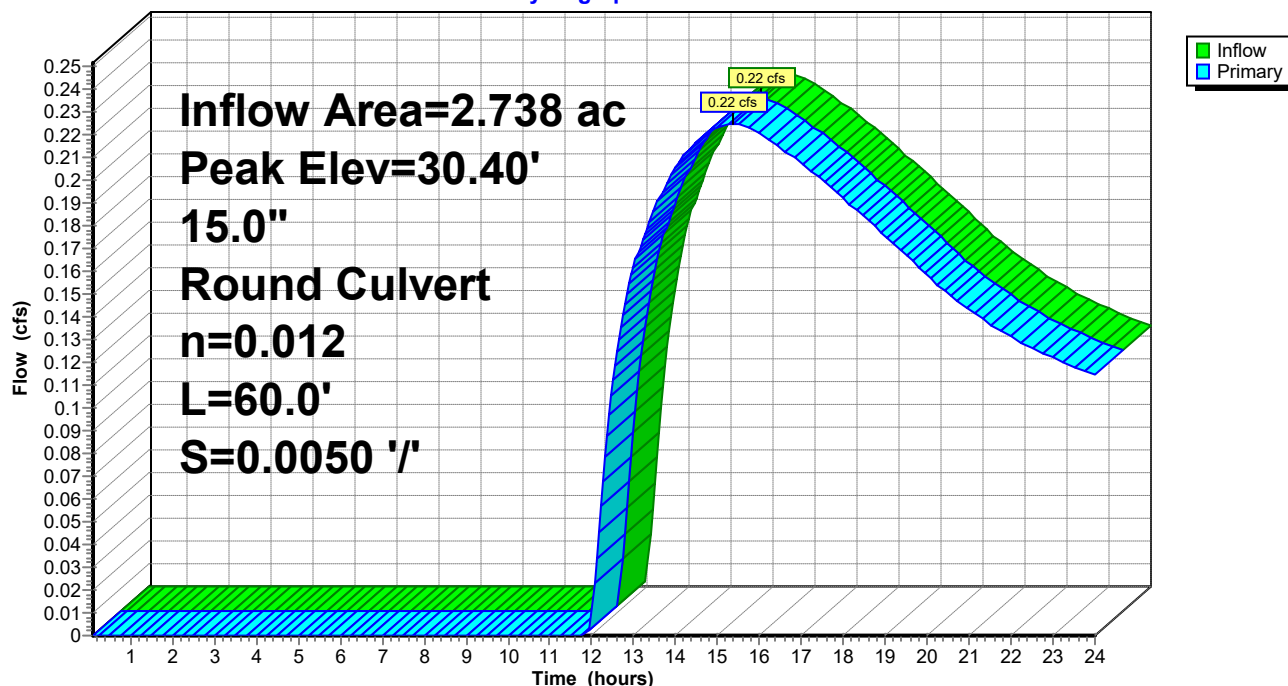
Flood Elev= 33.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.16'	15.0" Round 15" Dual Wall HPDE L= 60.0' Box, headwall w/3 rounded edges, Ke= 0.200 Inlet / Outlet Invert= 30.16' / 29.86' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.22 cfs @ 15.35 hrs HW=30.40' TW=0.00' (Dynamic Tailwater)
↑1=15" Dual Wall HPDE (Barrel Controls 0.22 cfs @ 2.01 fps)

Pond X1: MH-1

Hydrograph



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond X1: MH-1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
30.16	0	32.71	0
30.21	0	32.76	0
30.26	0	32.81	0
30.31	0	32.86	0
30.36	0	32.91	0
30.41	0	32.96	0
30.46	0	33.01	0
30.51	0	33.06	0
30.56	0	33.11	0
30.61	0	33.16	0
30.66	0	33.21	0
30.71	0	33.26	0
30.76	0	33.31	0
30.81	0	33.36	0
30.86	0	33.41	0
30.91	0	33.46	0
30.96	0	33.51	0
31.01	0	33.56	0
31.06	0	33.61	0
31.11	0	33.66	0
31.16	0	33.71	0
31.21	0	33.76	0
31.26	0		
31.31	0		
31.36	0		
31.41	0		
31.46	0		
31.51	0		
31.56	0		
31.61	0		
31.66	0		
31.71	0		
31.76	0		
31.81	0		
31.86	0		
31.91	0		
31.96	0		
32.01	0		
32.06	0		
32.11	0		
32.16	0		
32.21	0		
32.26	0		
32.31	0		
32.36	0		
32.41	0		
32.46	0		
32.51	0		
32.56	0		
32.61	0		
32.66	0		

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Summary for Pond X2: OS-B 374.70 Inlet

Inflow Area = 2.336 ac, 63.58% Impervious, Inflow Depth > 0.71" for 2-yr event
Inflow = 0.18 cfs @ 15.64 hrs, Volume= 0.139 af
Outflow = 0.18 cfs @ 15.64 hrs, Volume= 0.139 af, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 15.64 hrs, Volume= 0.139 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

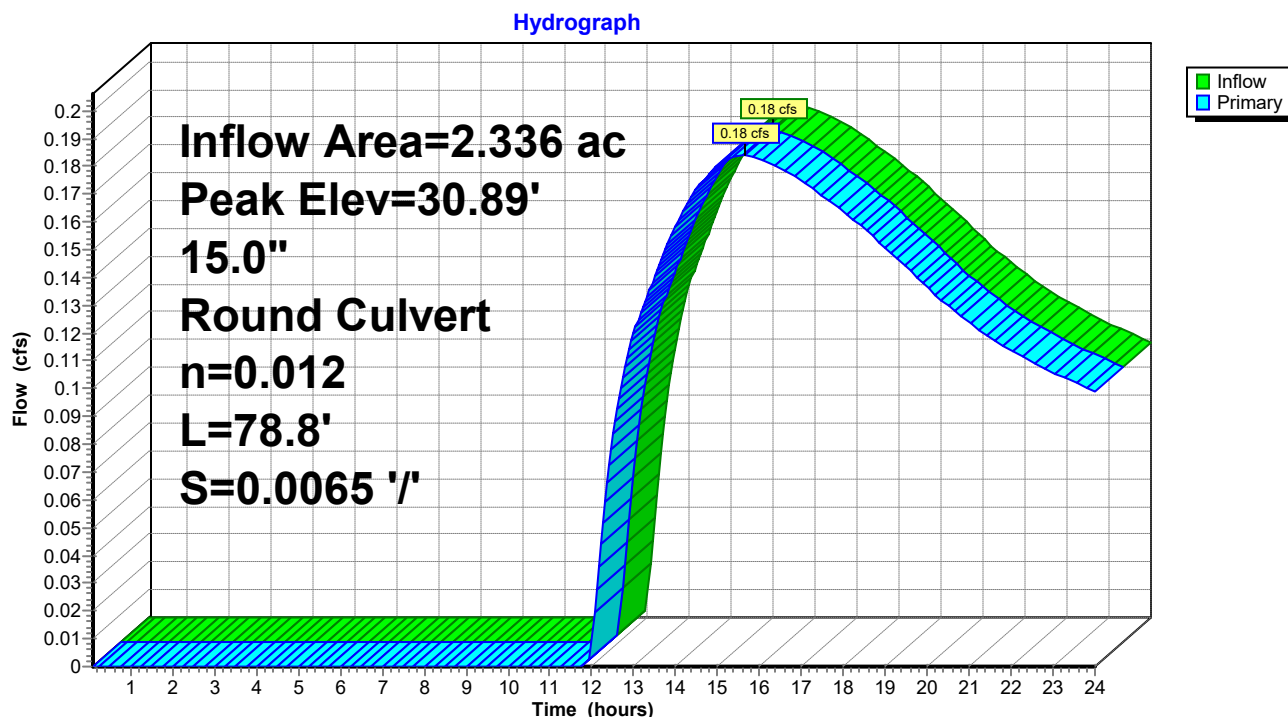
Peak Elev= 30.89' @ 15.61 hrs

Flood Elev= 33.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.67'	15.0" Round 15" Dual Wall HDPE L= 78.8' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.67' / 30.16' S= 0.0065 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.18 cfs @ 15.64 hrs HW=30.89' TW=30.40' (Dynamic Tailwater)
↑ **1=15" Dual Wall HDPE** (Outlet Controls 0.18 cfs @ 1.93 fps)

Pond X2: OS-B 374.70 Inlet



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Type II 24-hr 2-yr Rainfall=3.40"

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Stage-Area-Storage for Pond X2: OS-B 374.70 Inlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
30.67	0	31.69	0	32.71	0
30.69	0	31.71	0	32.73	0
30.71	0	31.73	0	32.75	0
30.73	0	31.75	0	32.77	0
30.75	0	31.77	0	32.79	0
30.77	0	31.79	0	32.81	0
30.79	0	31.81	0	32.83	0
30.81	0	31.83	0	32.85	0
30.83	0	31.85	0	32.87	0
30.85	0	31.87	0	32.89	0
30.87	0	31.89	0	32.91	0
30.89	0	31.91	0	32.93	0
30.91	0	31.93	0	32.95	0
30.93	0	31.95	0	32.97	0
30.95	0	31.97	0	32.99	0
30.97	0	31.99	0		
30.99	0	32.01	0		
31.01	0	32.03	0		
31.03	0	32.05	0		
31.05	0	32.07	0		
31.07	0	32.09	0		
31.09	0	32.11	0		
31.11	0	32.13	0		
31.13	0	32.15	0		
31.15	0	32.17	0		
31.17	0	32.19	0		
31.19	0	32.21	0		
31.21	0	32.23	0		
31.23	0	32.25	0		
31.25	0	32.27	0		
31.27	0	32.29	0		
31.29	0	32.31	0		
31.31	0	32.33	0		
31.33	0	32.35	0		
31.35	0	32.37	0		
31.37	0	32.39	0		
31.39	0	32.41	0		
31.41	0	32.43	0		
31.43	0	32.45	0		
31.45	0	32.47	0		
31.47	0	32.49	0		
31.49	0	32.51	0		
31.51	0	32.53	0		
31.53	0	32.55	0		
31.55	0	32.57	0		
31.57	0	32.59	0		
31.59	0	32.61	0		
31.61	0	32.63	0		
31.63	0	32.65	0		
31.65	0	32.67	0		
31.67	0	32.69	0		

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Type II 24-hr 2-yr Rainfall=3.40"

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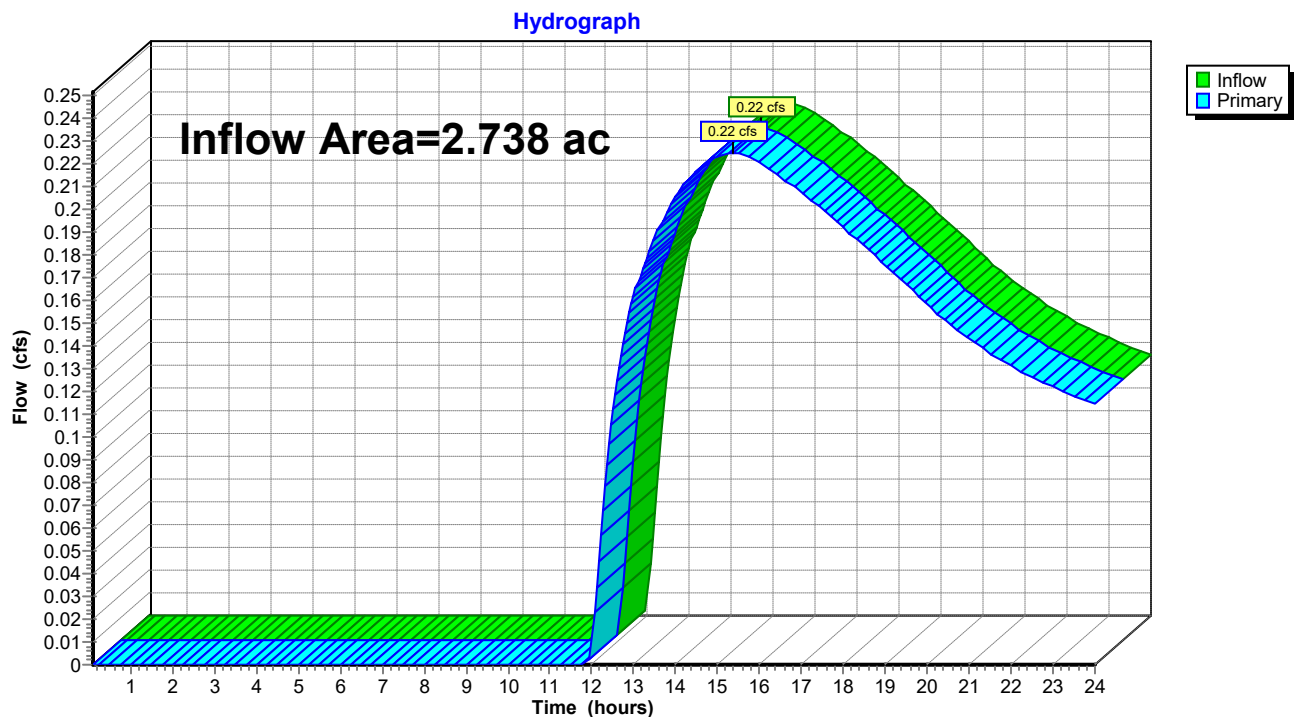
Page 65

Summary for Link 4L: POI #4 - POST

Inflow Area = 2.738 ac, 62.01% Impervious, Inflow Depth > 0.74" for 2-yr event
Inflow = 0.22 cfs @ 15.35 hrs, Volume= 0.168 af
Primary = 0.22 cfs @ 15.35 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 4L: POI #4 - POST



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Type II 24-hr 2-yr Rainfall=3.40"

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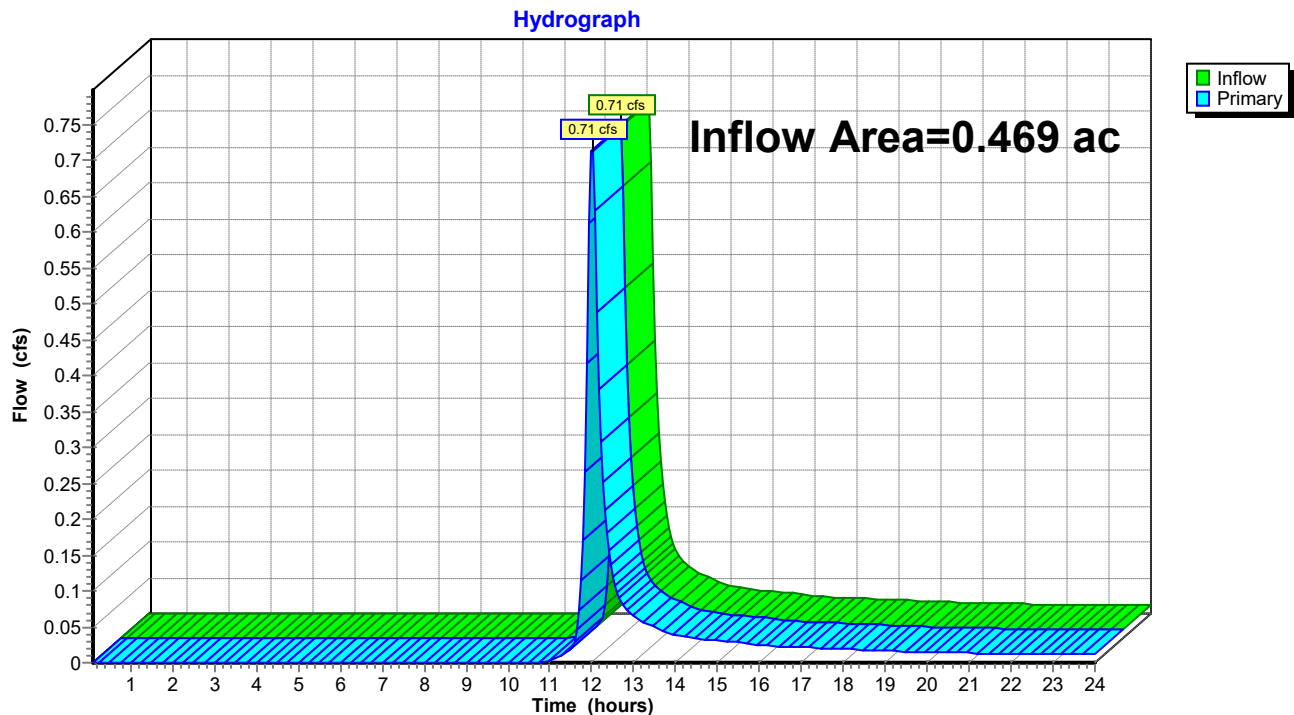
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Summary for Link 5L: POI #1 - POST

Inflow Area = 0.469 ac, 0.00% Impervious, Inflow Depth > 1.17" for 2-yr event
Inflow = 0.71 cfs @ 12.00 hrs, Volume= 0.046 af
Primary = 0.71 cfs @ 12.00 hrs, Volume= 0.046 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 5L: POI #1 - POST



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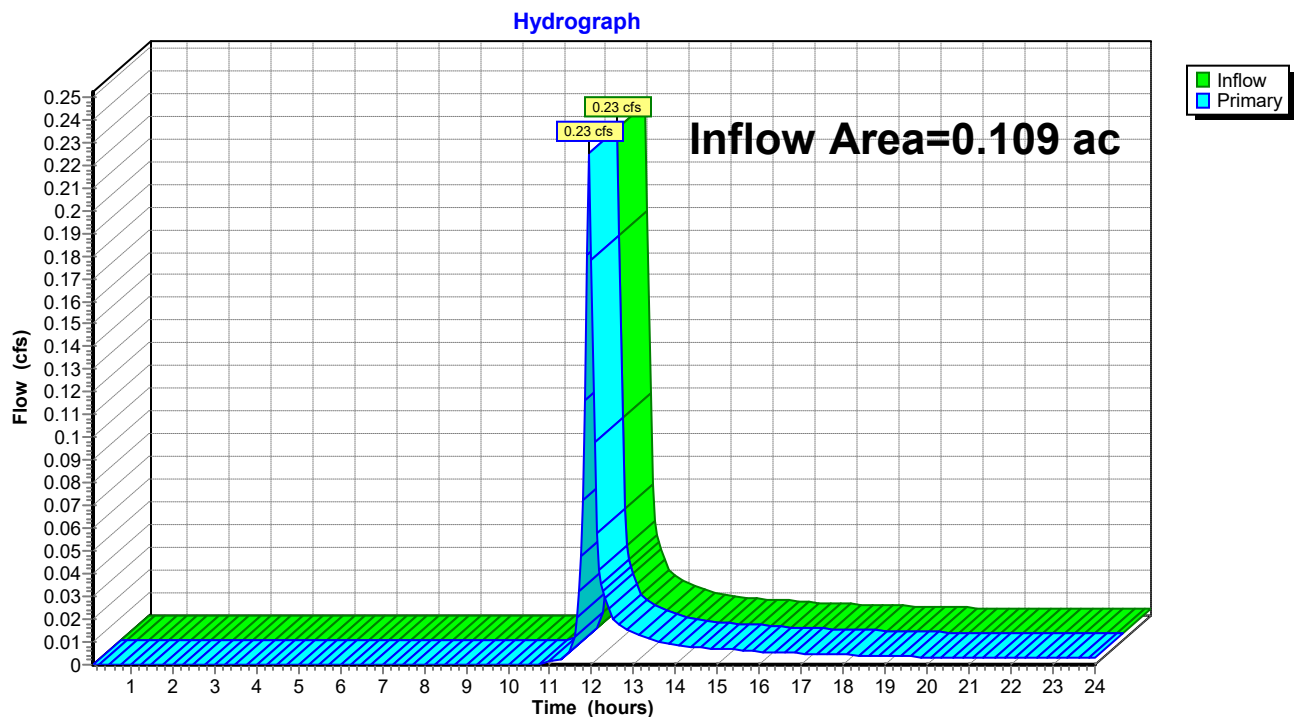
Page 67

Summary for Link 8L: POI #2 - POST

Inflow Area = 0.109 ac, 0.00% Impervious, Inflow Depth > 1.17" for 2-yr event
Inflow = 0.23 cfs @ 11.95 hrs, Volume= 0.011 af
Primary = 0.23 cfs @ 11.95 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 8L: POI #2 - POST



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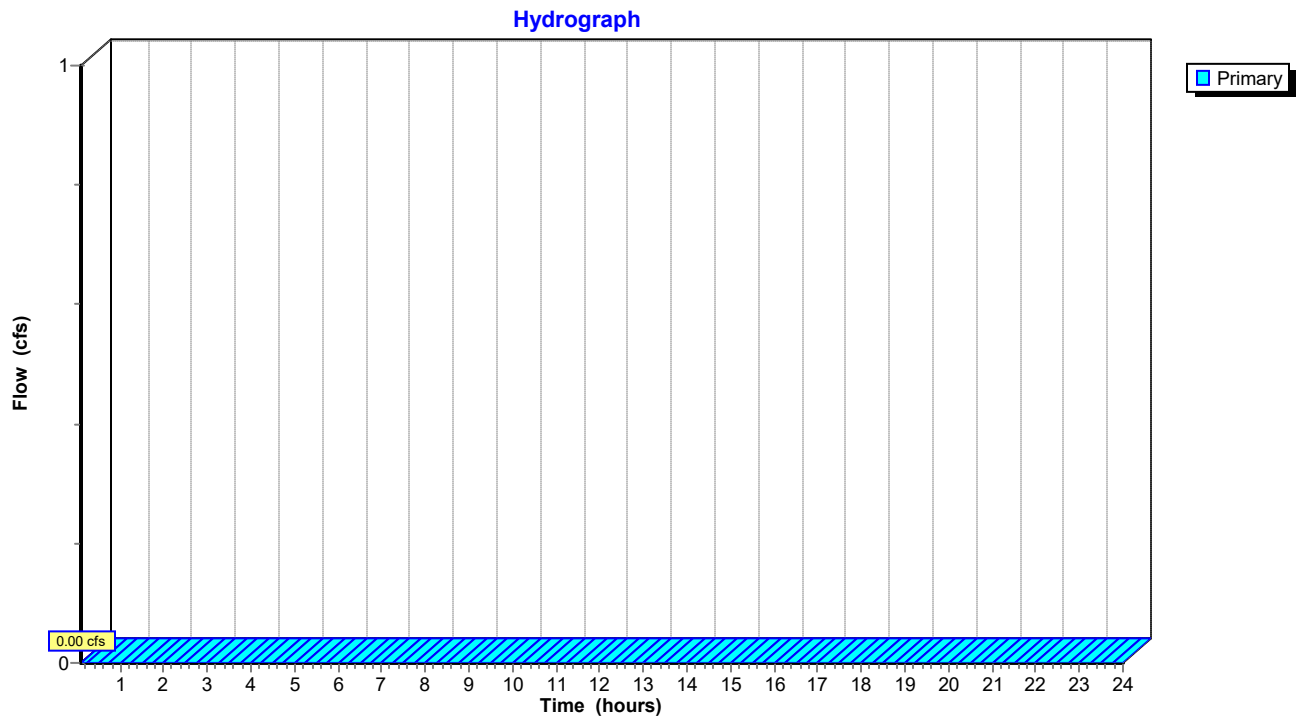
Page 68

Summary for Link 10L: POI #3 - POST

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 10L: POI #3 - POST



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment 6S: Landscape Residue (Blue)

Runoff = 0.64 cfs @ 11.98 hrs, Volume= 0.037 af, Depth> 2.60"

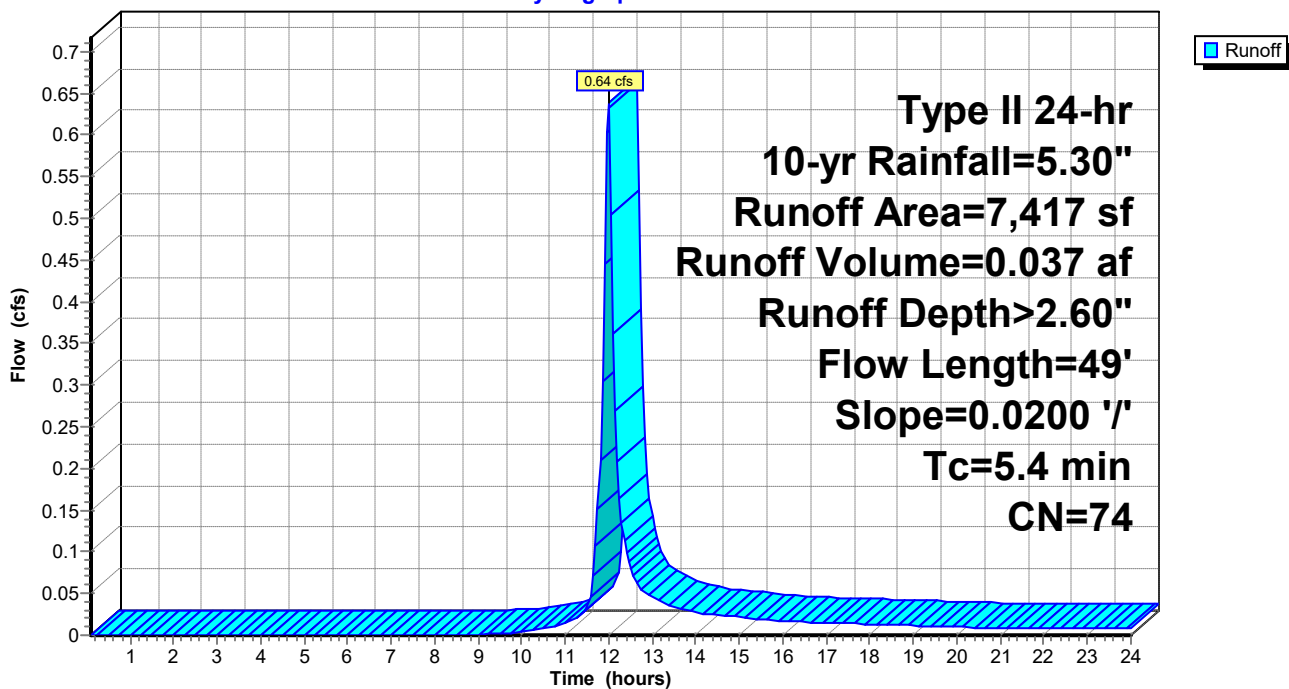
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
7,417	74	>75% Grass cover, Good, HSG C
7,417		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	49	0.0200	0.15		Sheet Flow, Landscaped Residue Grass: Short n= 0.150 P2= 3.40"

Subcatchment 6S: Landscape Residue (Blue)

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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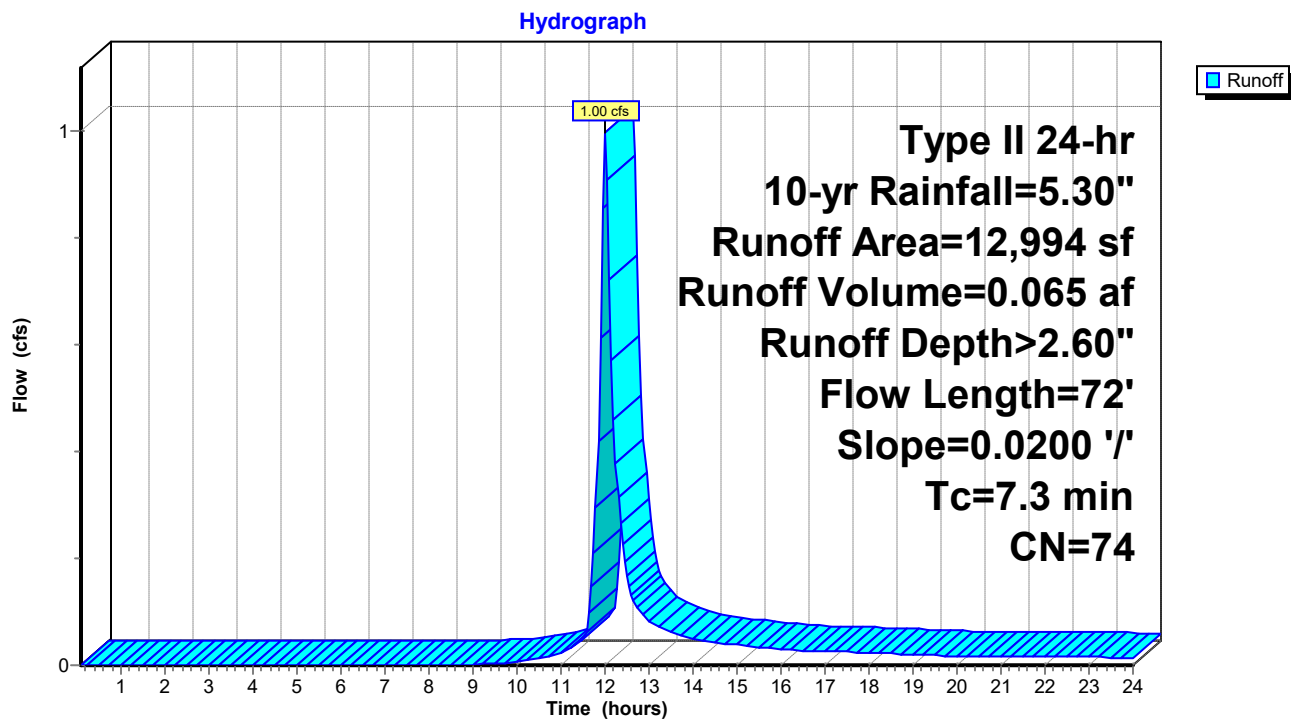
Summary for Subcatchment 7S: Landscape Residue (Pink)

Runoff = 1.00 cfs @ 12.01 hrs, Volume= 0.065 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
12,994	74	>75% Grass cover, Good, HSG C
12,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	72	0.0200	0.16		Sheet Flow, Landscape Lawn Grass: Short n= 0.150 P2= 3.40"

Subcatchment 7S: Landscape Residue (Pink)

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Type II 24-hr 10-yr Rainfall=5.30"

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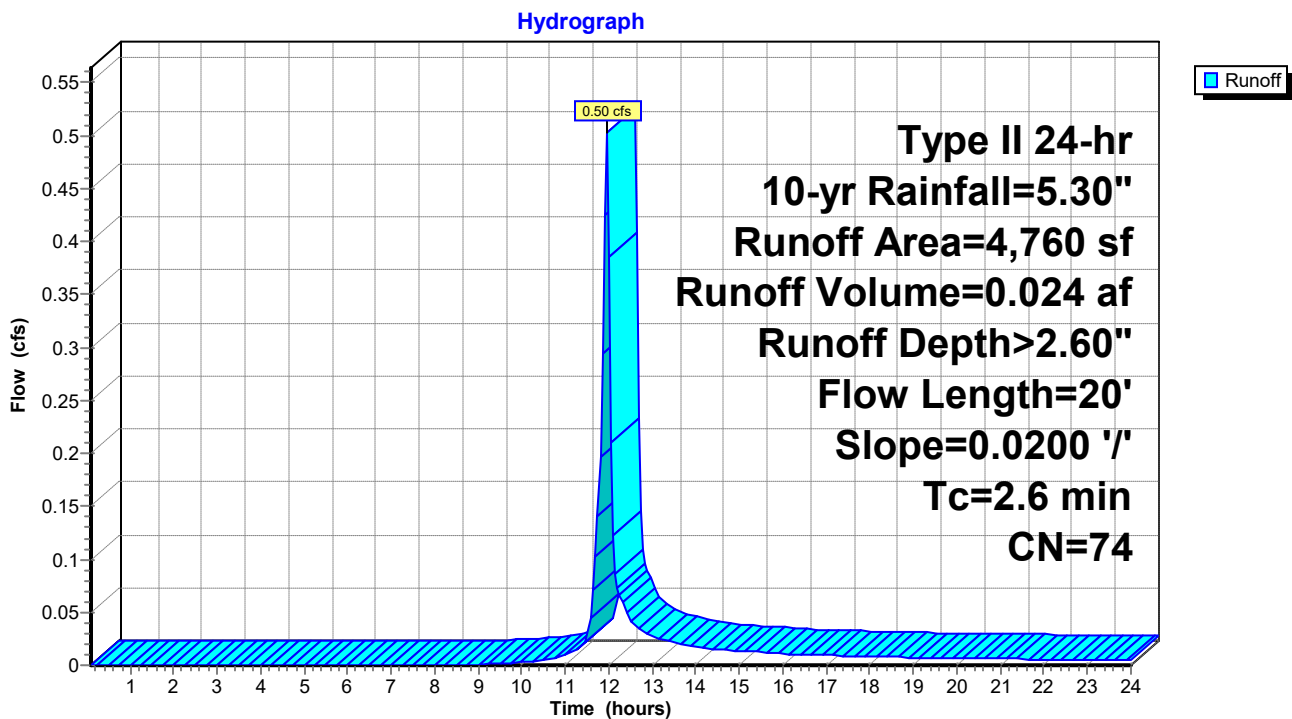
Summary for Subcatchment 9S: Landscape Residue (Turquoise)

Runoff = 0.50 cfs @ 11.95 hrs, Volume= 0.024 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
4,760	74	>75% Grass cover, Good, HSG C
4,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	20	0.0200	0.13		Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.40"

Subcatchment 9S: Landscape Residue (Turquoise)

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Type II 24-hr 10-yr Rainfall=5.30"

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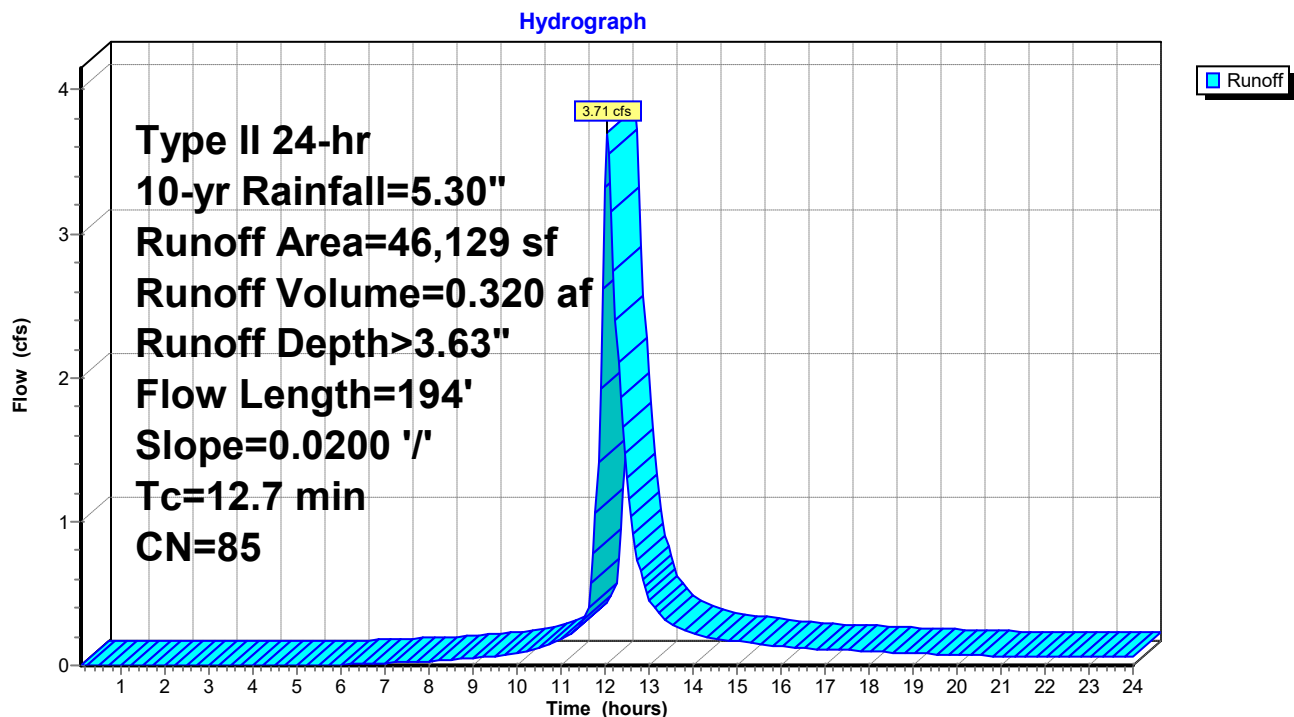
Summary for Subcatchment EX-1: POI #1 - PRE

Runoff = 3.71 cfs @ 12.06 hrs, Volume= 0.320 af, Depth> 3.63"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
30,740	83	Fallow, crop residue, Good, HSG B
11,631	90	Fallow, crop residue, Good, HSG D
3,758	88	Fallow, crop residue, Good, HSG C
46,129	85	Weighted Average
46,129		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	115	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
1.0	79	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
12.7	194	Total			

Subcatchment EX-1: POI #1 - PRE

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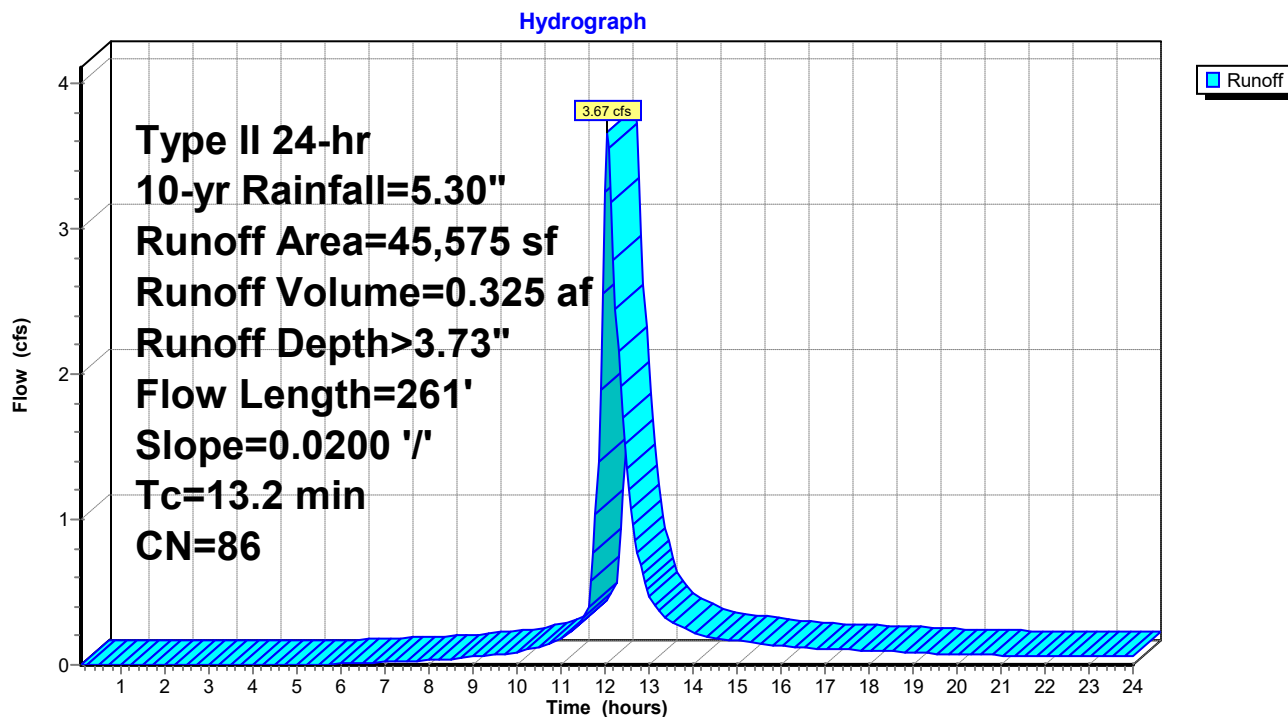
Summary for Subcatchment EX-2: EX-2

Runoff = 3.67 cfs @ 12.07 hrs, Volume= 0.325 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
16,827	83	Fallow, crop residue, Good, HSG B
28,748	88	Fallow, crop residue, Good, HSG C
45,575	86	Weighted Average
45,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	108	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
2.0	153	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
13.2	261	Total			

Subcatchment EX-2: EX-2

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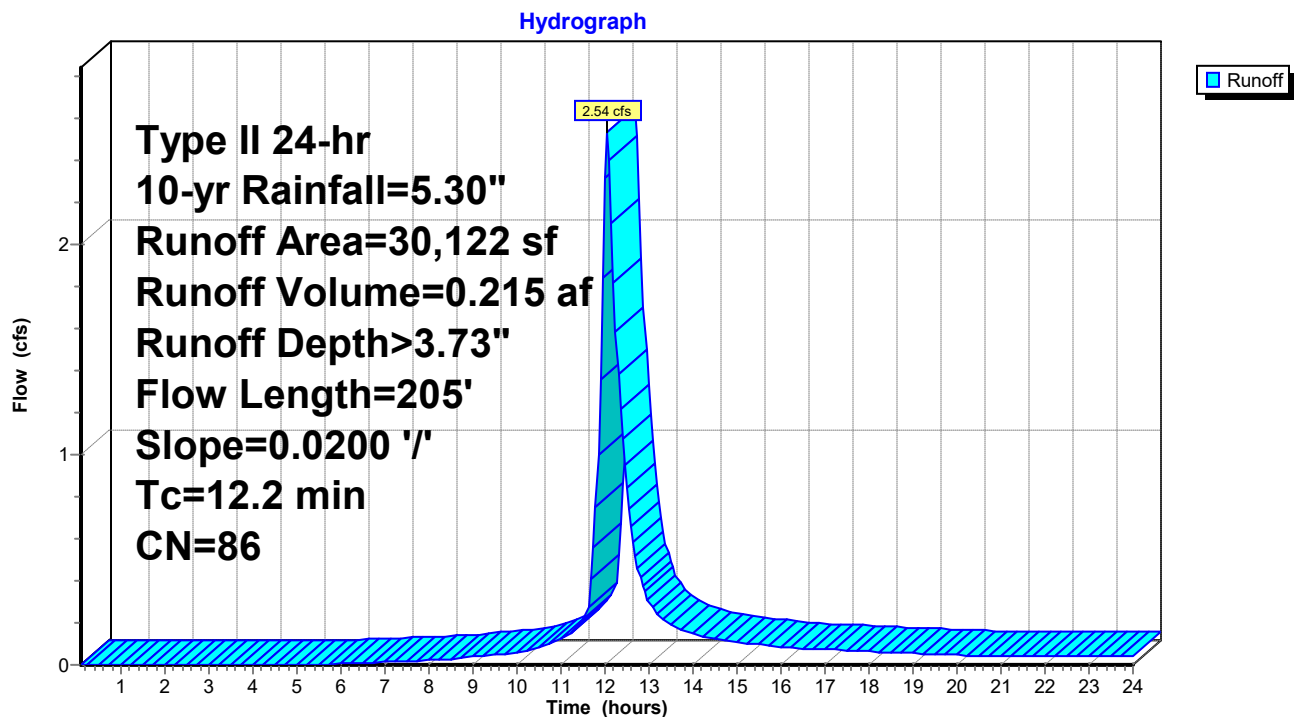
Summary for Subcatchment EX-3: EX-3

Runoff = 2.54 cfs @ 12.06 hrs, Volume= 0.215 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
9,853	83	Fallow, crop residue, Good, HSG B
20,269	88	Fallow, crop residue, Good, HSG C
30,122	86	Weighted Average
30,122		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	105	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
1.3	100	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
12.2	205	Total			

Subcatchment EX-3: EX-3

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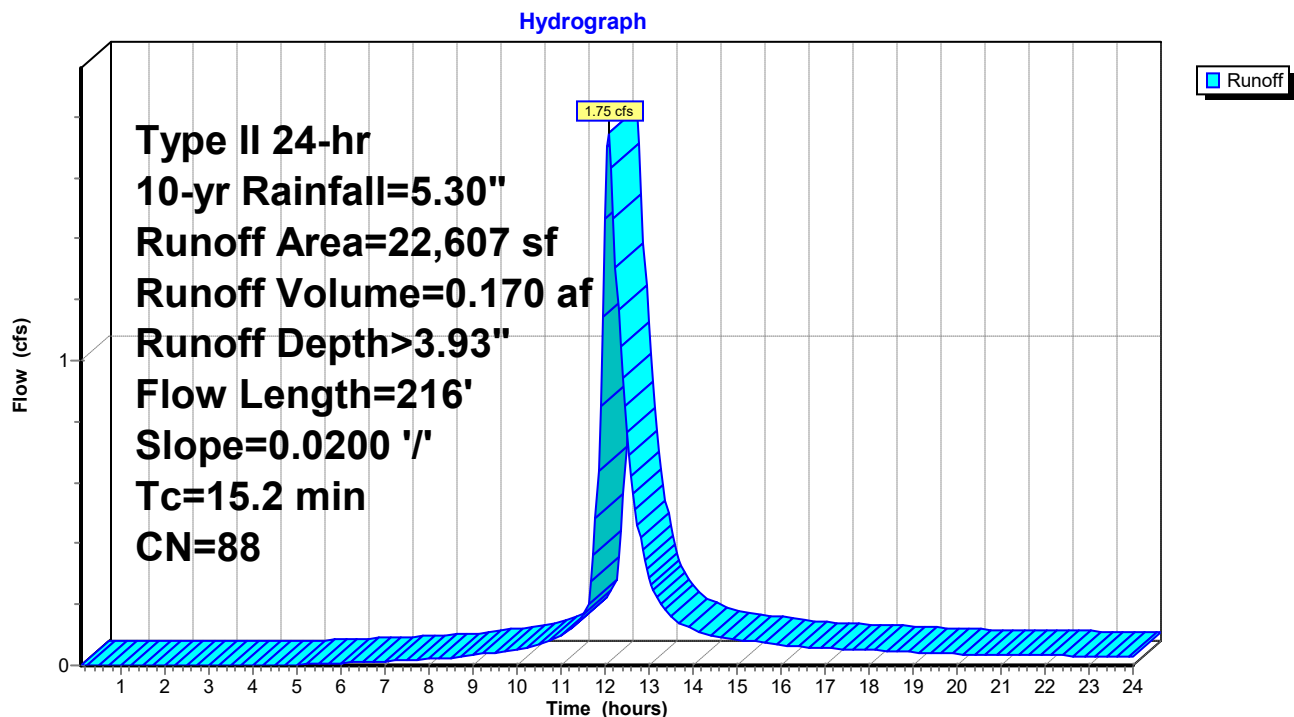
Summary for Subcatchment EX-4: EX-4

Runoff = 1.75 cfs @ 12.09 hrs, Volume= 0.170 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
19,697	88	Fallow, crop residue, Good, HSG C
2,225	90	Fallow, crop residue, Good, HSG D
685	83	Fallow, crop residue, Good, HSG B
22,607	88	Weighted Average
22,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	147	0.0200	0.17		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.9	69	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
15.2	216	Total			

Subcatchment EX-4: EX-4

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Summary for Subcatchment O1: Half of Warehouse Roof

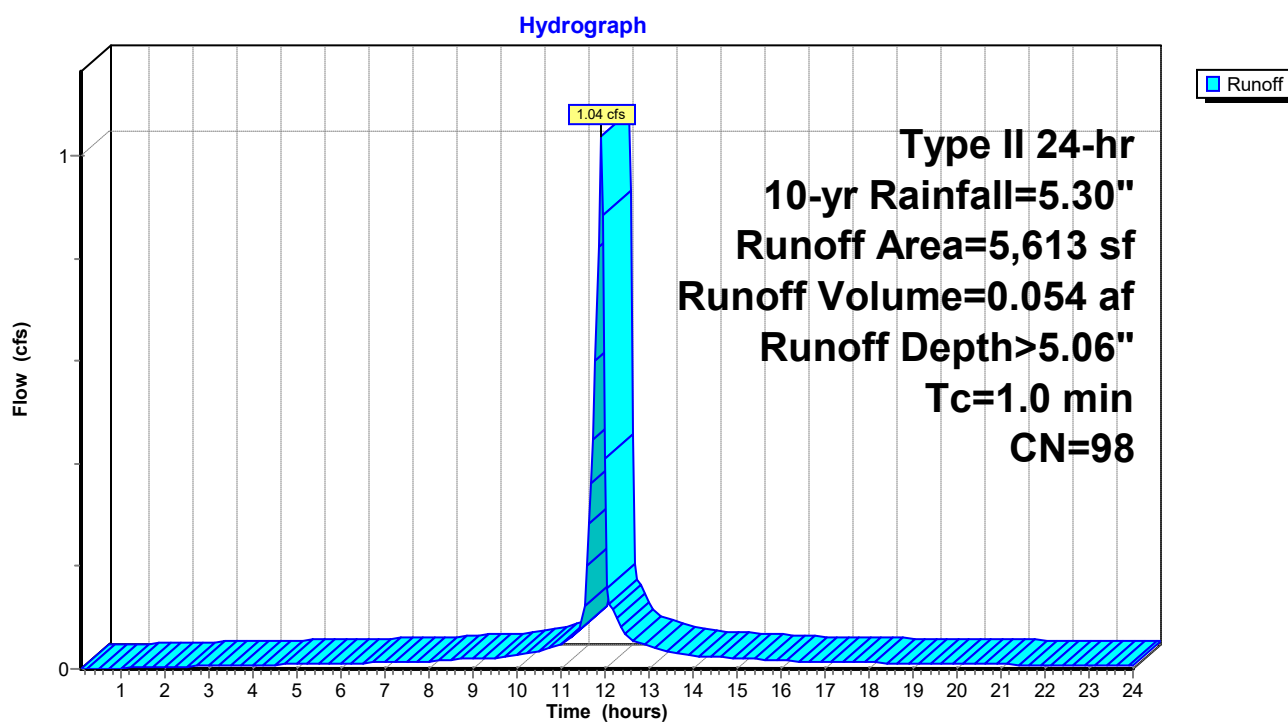
Runoff = 1.04 cfs @ 11.90 hrs, Volume= 0.054 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	5,613	98	Roof
	5,613		100.00% Impervious Area

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

Subcatchment O1: Half of Warehouse Roof



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment O2: Half Office Roof

Runoff = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af, Depth> 5.06"

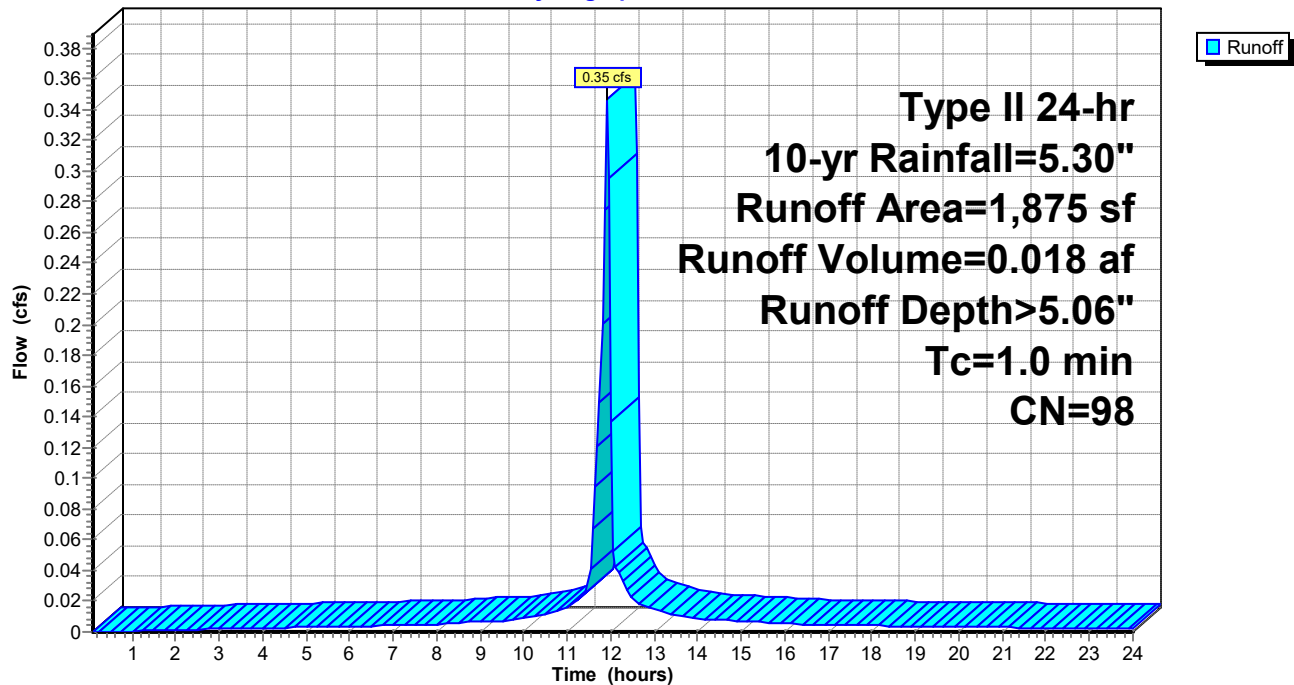
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	1,875	98	Roof
	1,875		100.00% Impervious Area

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

Subcatchment O2: Half Office Roof

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment O3: Portion of Warehouse & Office Roof

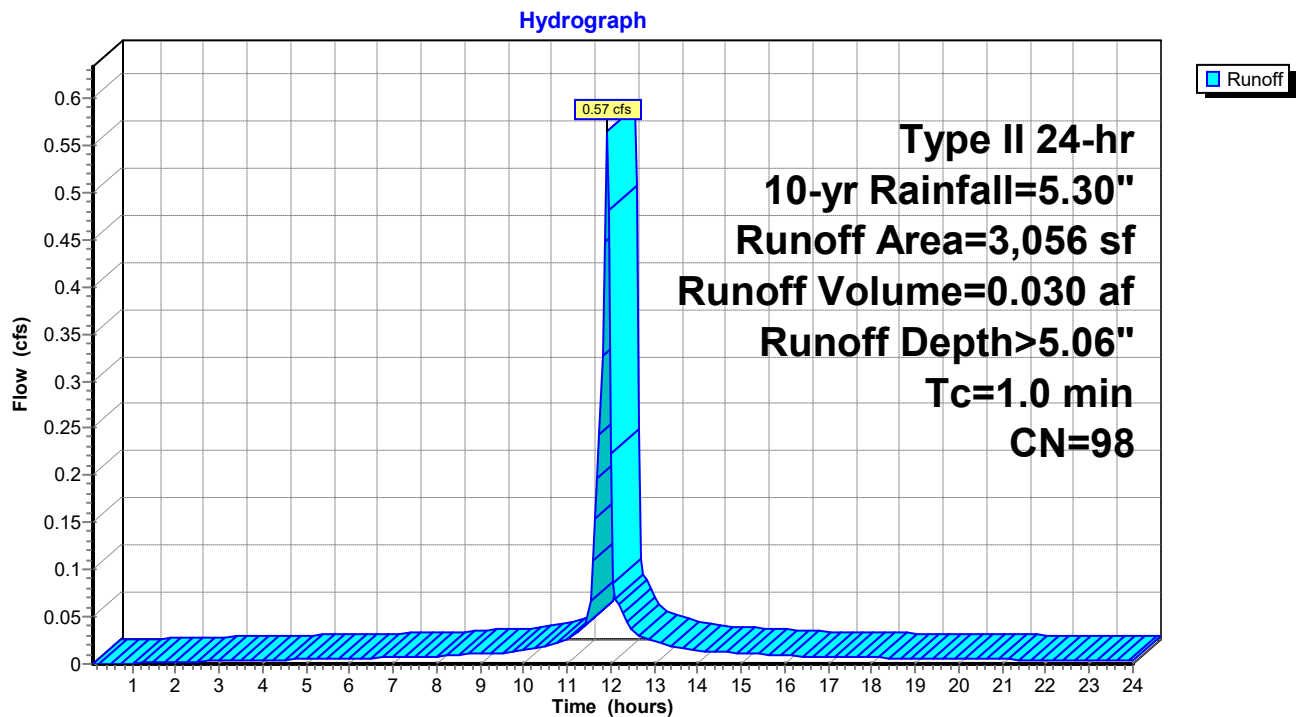
Runoff = 0.57 cfs @ 11.90 hrs, Volume= 0.030 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	3,056	98	Roof
	3,056		100.00% Impervious Area

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

Subcatchment O3: Portion of Warehouse & Office Roof



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment O4: Warehouse Yard & Parking

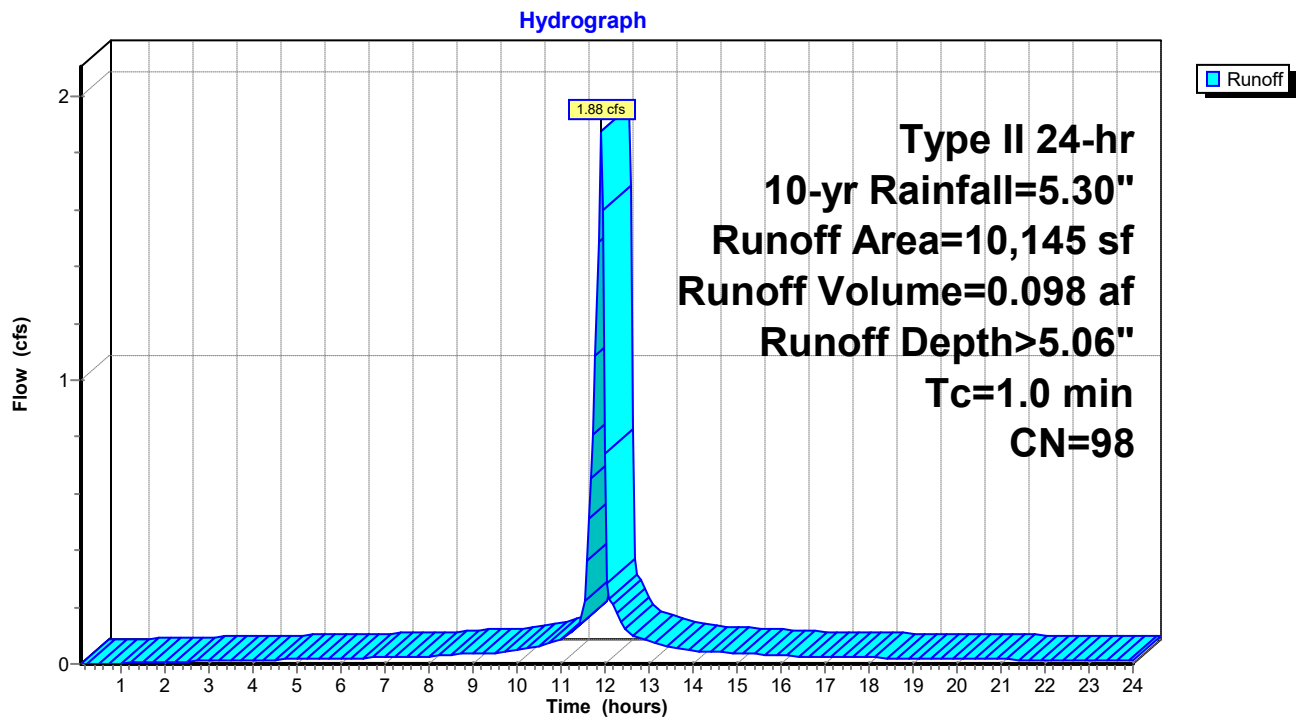
Runoff = 1.88 cfs @ 11.90 hrs, Volume= 0.098 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	10,145	98	Asphalt
	10,145		100.00% Impervious Area

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

Subcatchment O4: Warehouse Yard & Parking



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment O5: SWM Feature & Landscape Area

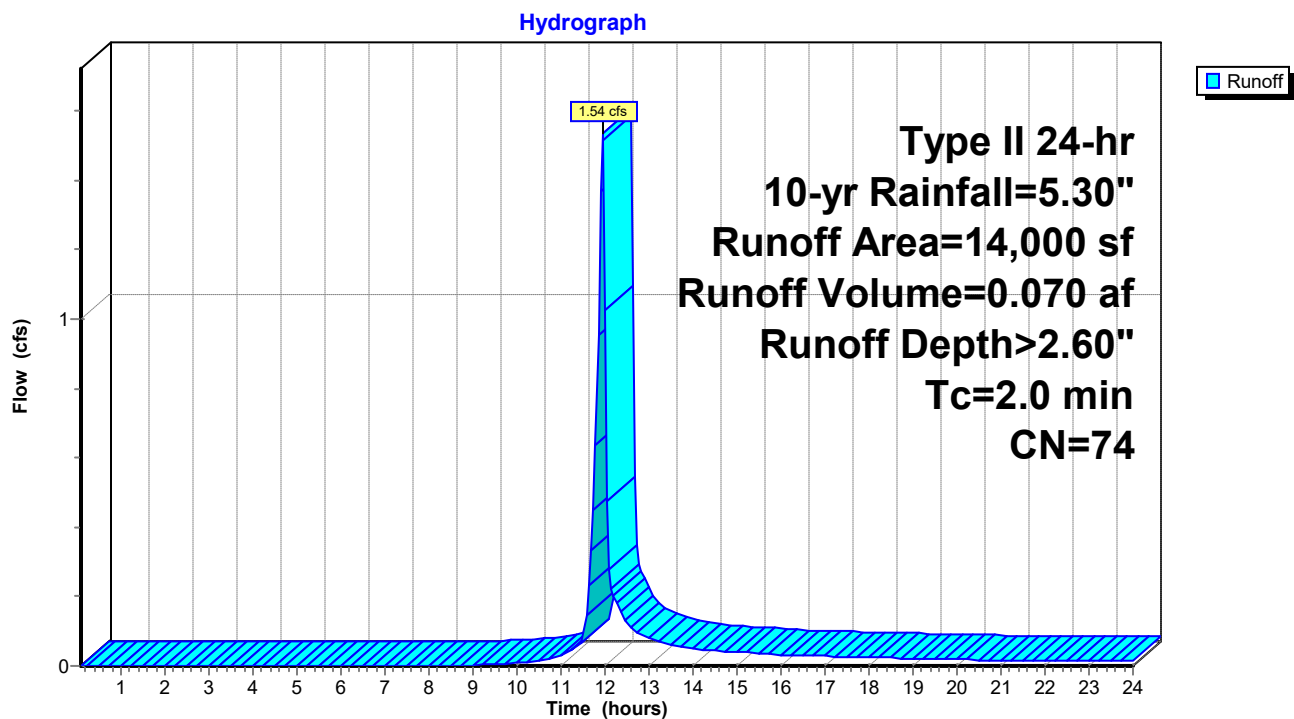
Runoff = 1.54 cfs @ 11.94 hrs, Volume= 0.070 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
14,000	74	>75% Grass cover, Good, HSG C
14,000		100.00% Pervious Area

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

Subcatchment O5: SWM Feature & Landscape Area



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment P1: Half Office Roof

Runoff = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af, Depth> 5.06"

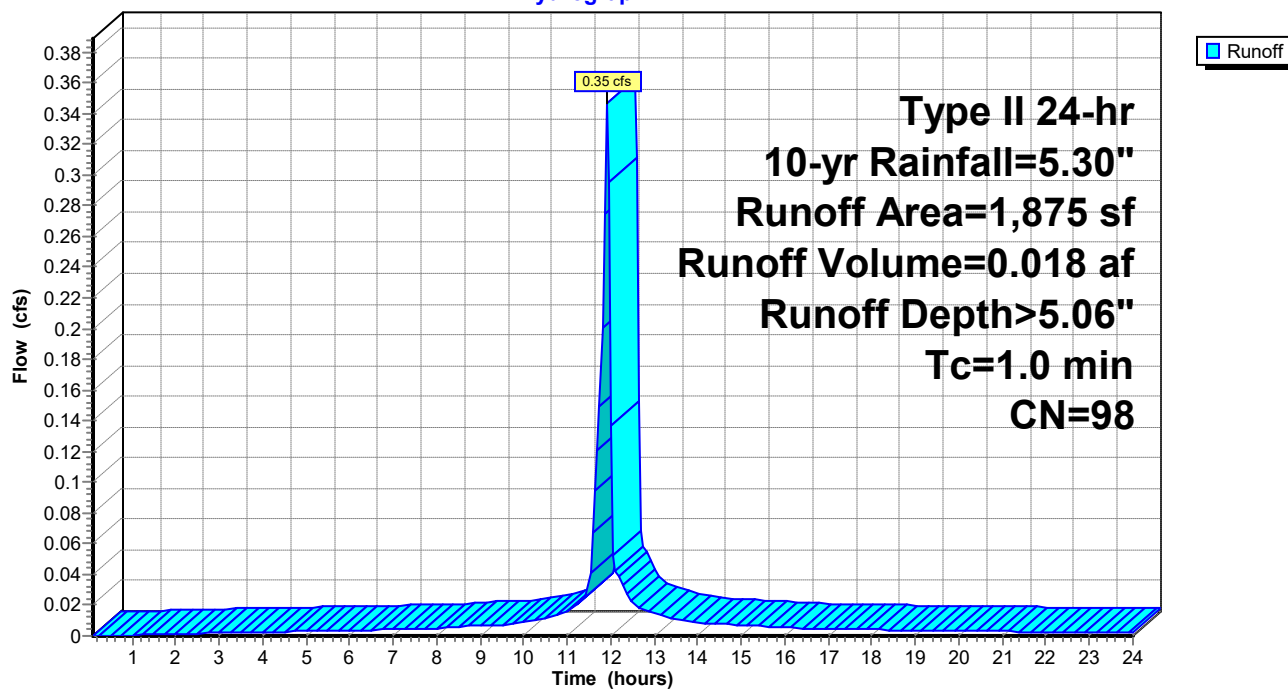
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	1,875	98	Roof
	1,875		100.00% Impervious Area

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

Subcatchment P1: Half Office Roof

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment P2: Warehouse Roof

Runoff = 0.98 cfs @ 11.90 hrs, Volume= 0.051 af, Depth> 5.06"

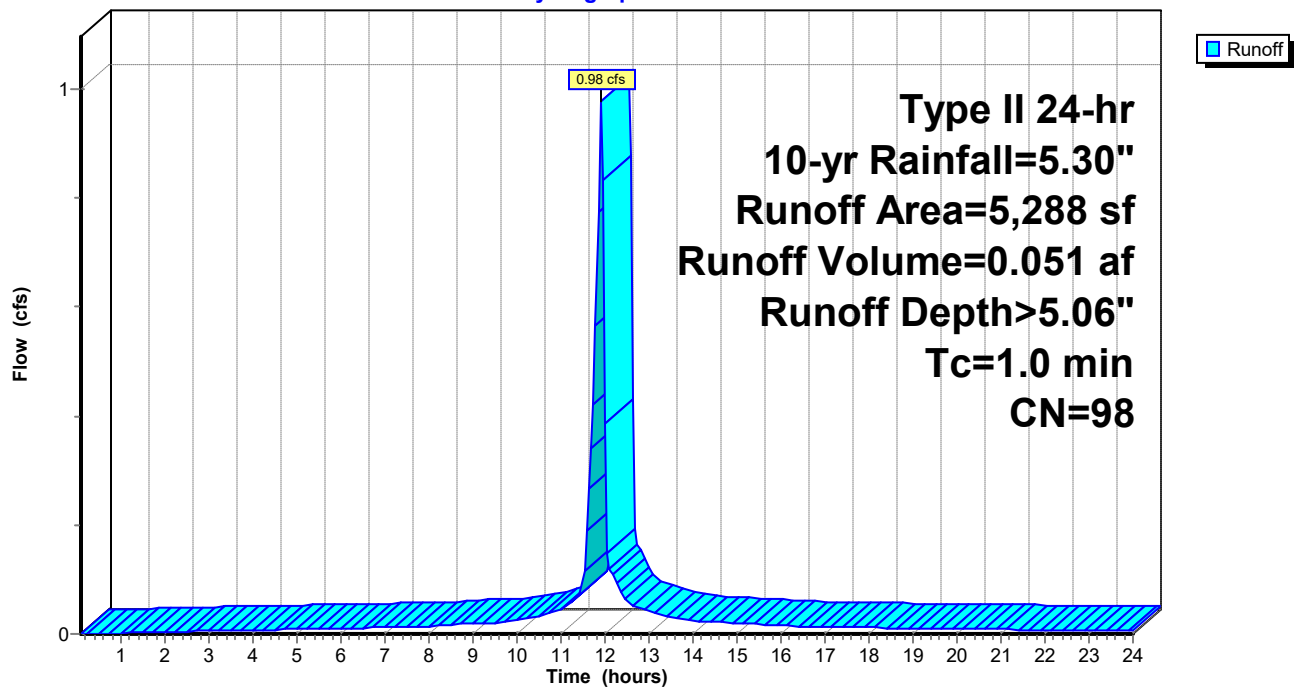
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	5,288	98	Roof
	5,288		100.00% Impervious Area

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

Subcatchment P2: Warehouse Roof

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment P3: Parking Area

Runoff = 0.43 cfs @ 11.90 hrs, Volume= 0.023 af, Depth> 5.06"

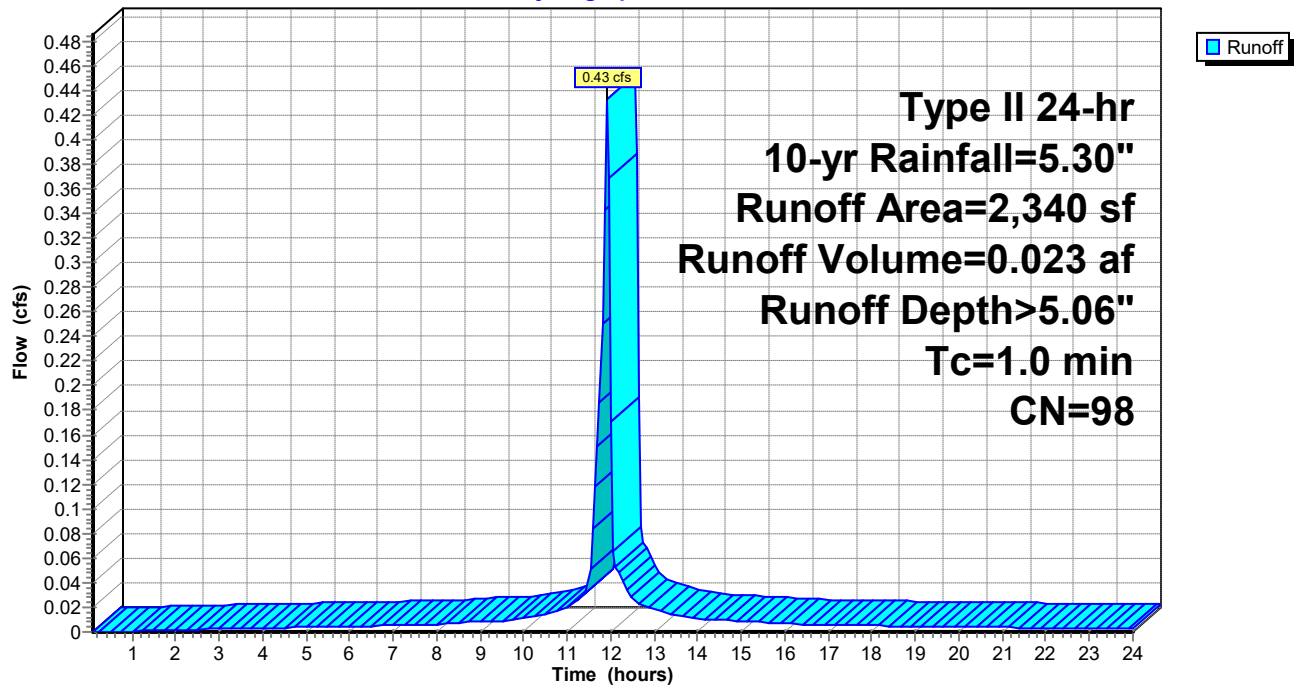
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	2,340	98	Asphalt
	2,340		100.00% Impervious Area

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

Subcatchment P3: Parking Area

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment P3A: Parking Area

Runoff = 0.31 cfs @ 11.90 hrs, Volume= 0.016 af, Depth> 5.06"

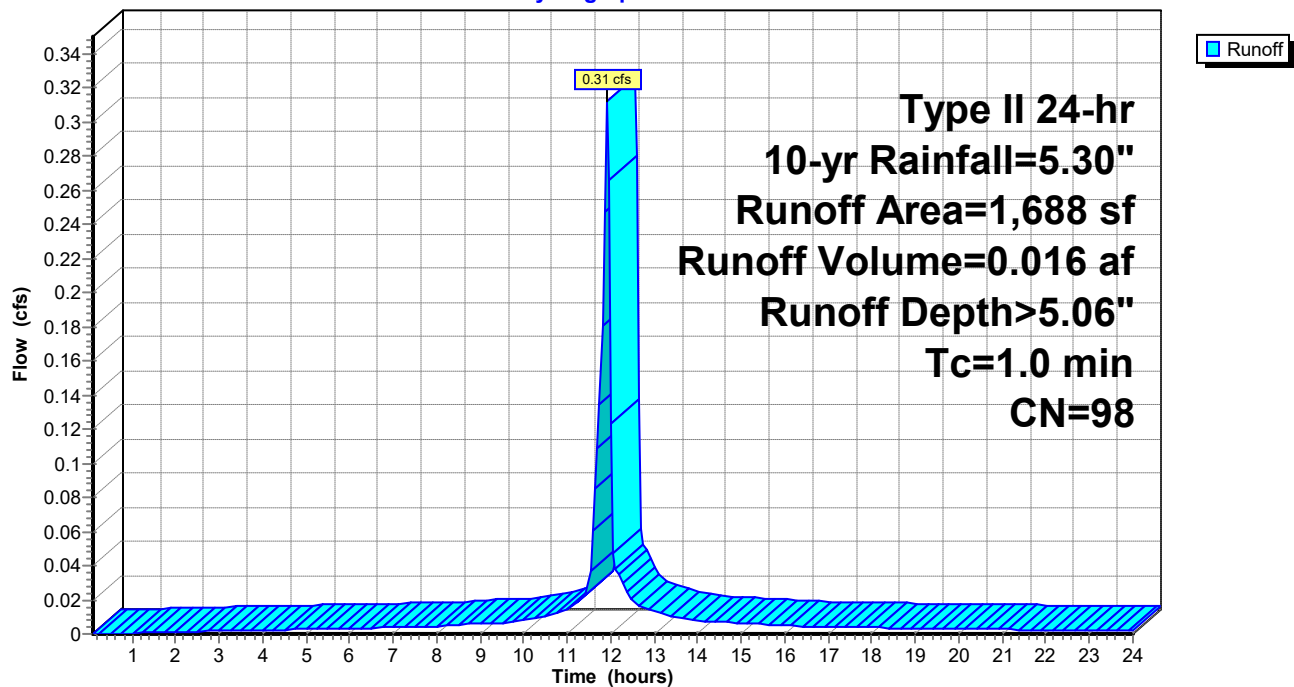
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	1,688	98	Asphalt
	1,688		100.00% Impervious Area

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

Subcatchment P3A: Parking Area

Hydrograph



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Summary for Subcatchment P4: Parking Area

Runoff = 0.55 cfs @ 11.90 hrs, Volume= 0.029 af, Depth> 5.06"

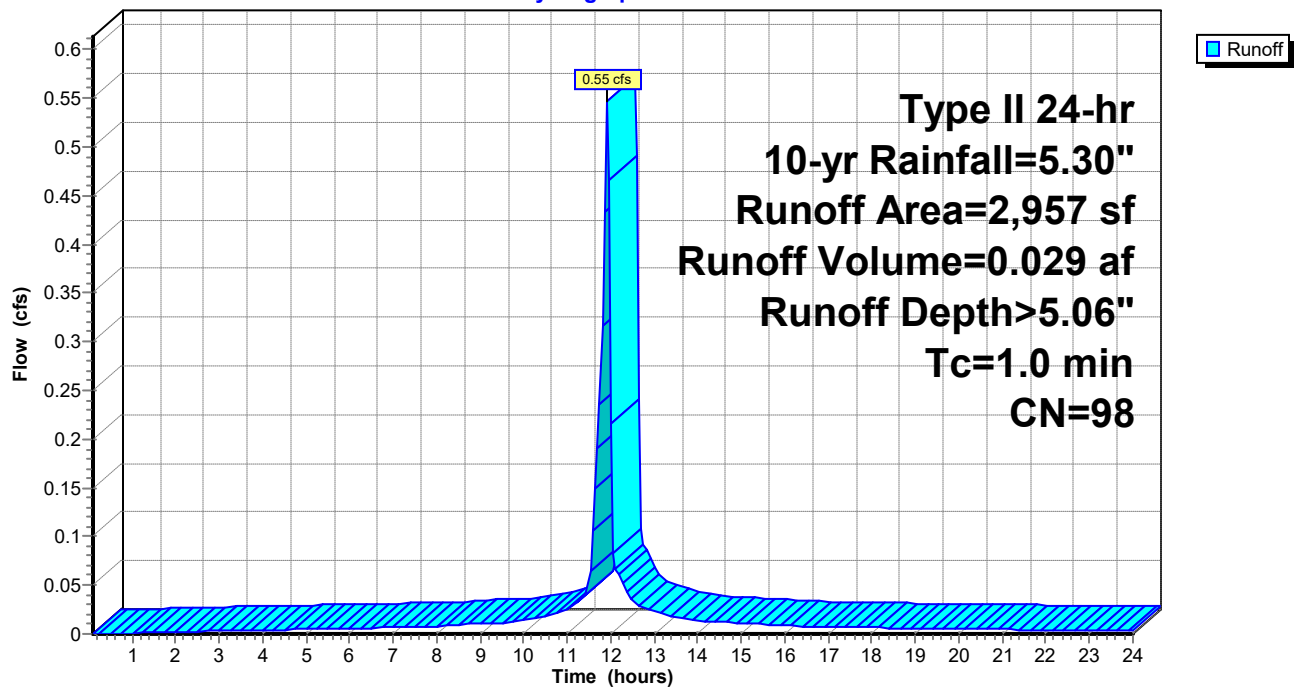
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	2,957	98	Asphalt
	2,957		100.00% Impervious Area

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

Subcatchment P4: Parking Area

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment P5: Warehouse Parking Area

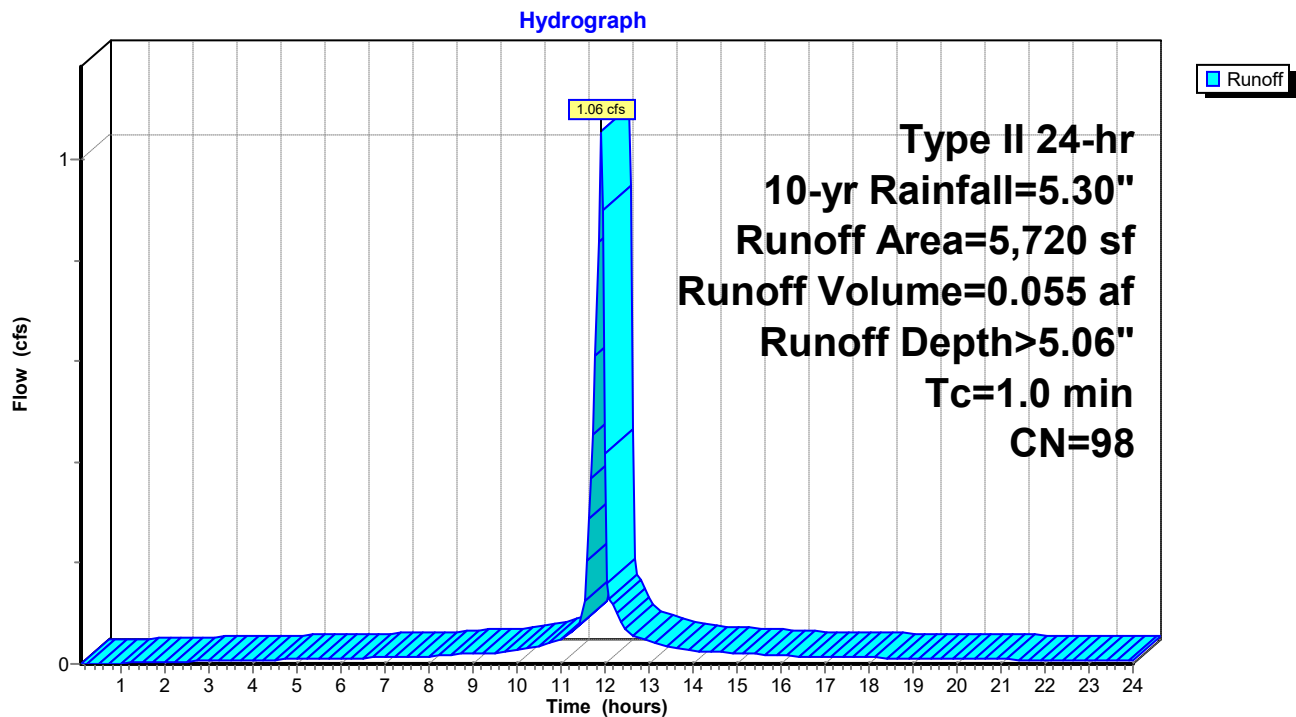
Runoff = 1.06 cfs @ 11.90 hrs, Volume= 0.055 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	5,720	98	Asphalt
	5,720		100.00% Impervious Area

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

Subcatchment P5: Warehouse Parking Area



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Summary for Subcatchment P6: Warehouse Parking Area

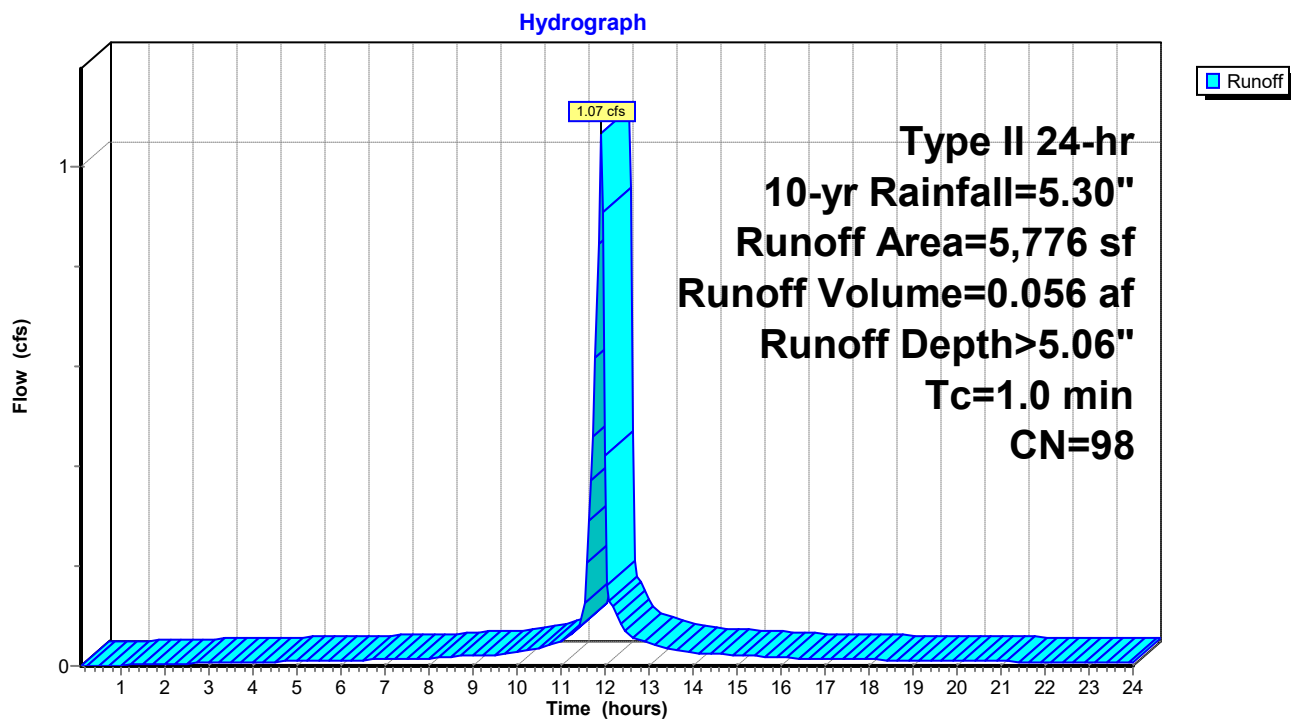
Runoff = 1.07 cfs @ 11.90 hrs, Volume= 0.056 af, Depth> 5.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	5,776	98	Asphalt
	5,776		100.00% Impervious Area

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

Subcatchment P6: Warehouse Parking Area



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Type II 24-hr 10-yr Rainfall=5.30"

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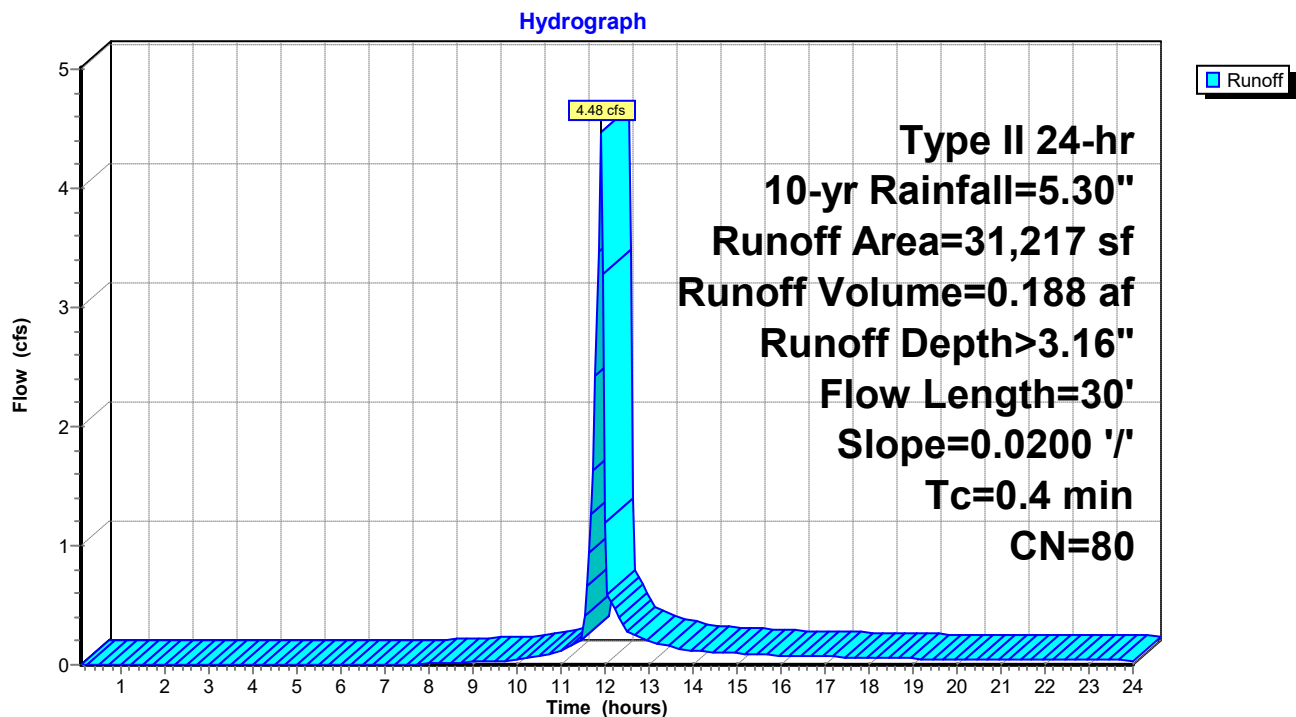
Summary for Subcatchment P7: SWM Feature, Access Aisle, & Landscape Area

Runoff = 4.48 cfs @ 11.90 hrs, Volume= 0.188 af, Depth> 3.16"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
23,069	74	>75% Grass cover, Good, HSG C
* 8,148	98	Access Road
31,217	80	Weighted Average
23,069		73.90% Pervious Area
8,148		26.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.11		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment P7: SWM Feature, Access Aisle, & Landscape Area

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment P8: Half Warehouse Roof

Runoff = 0.52 cfs @ 11.90 hrs, Volume= 0.027 af, Depth> 5.06"

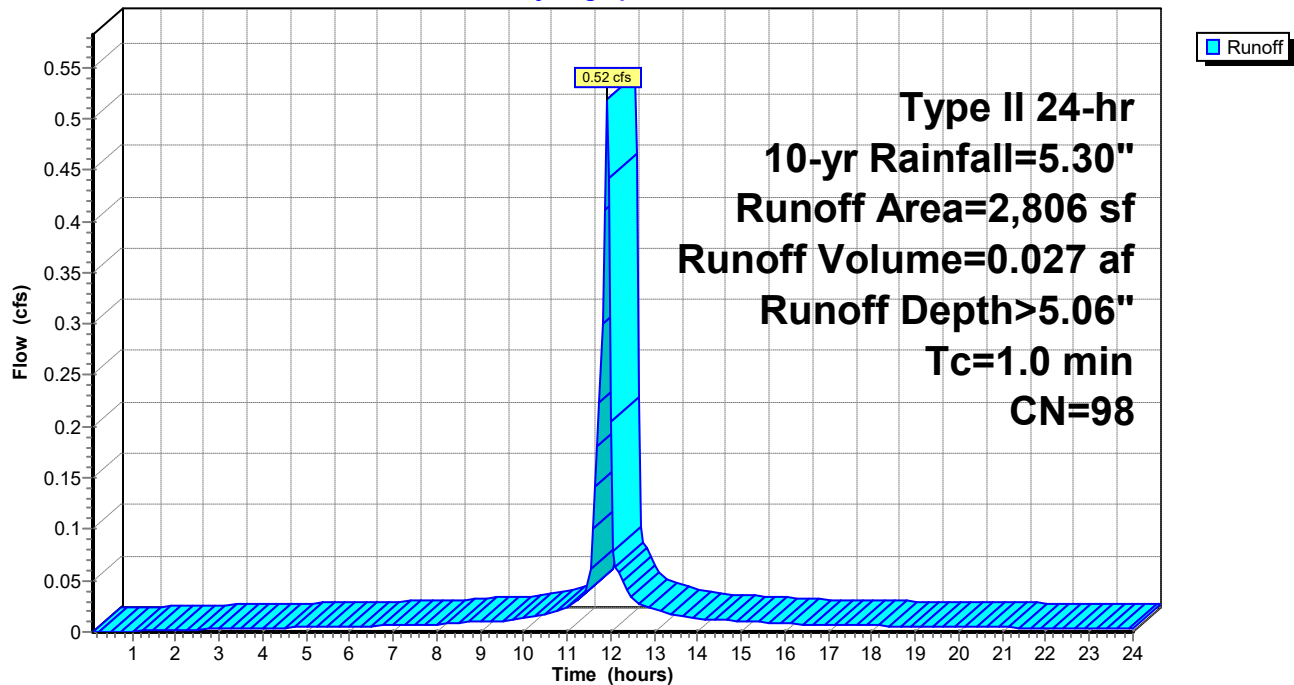
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	2,806	98	Roof
	2,806		100.00% Impervious Area

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

Subcatchment P8: Half Warehouse Roof

Hydrograph



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Summary for Subcatchment P9: Warehouse Parking

Runoff = 1.37 cfs @ 11.90 hrs, Volume= 0.072 af, Depth> 5.06"

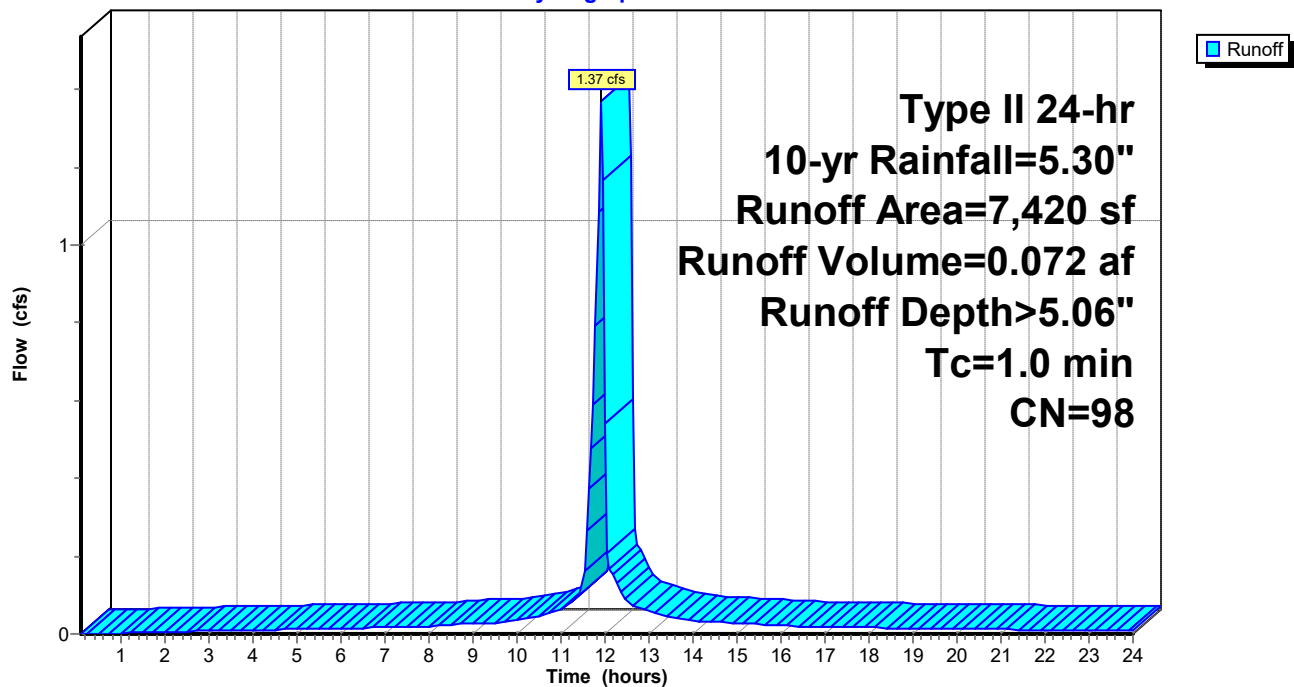
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	7,420	98	Asphalt
	7,420		100.00% Impervious Area

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

Subcatchment P9: Warehouse Parking

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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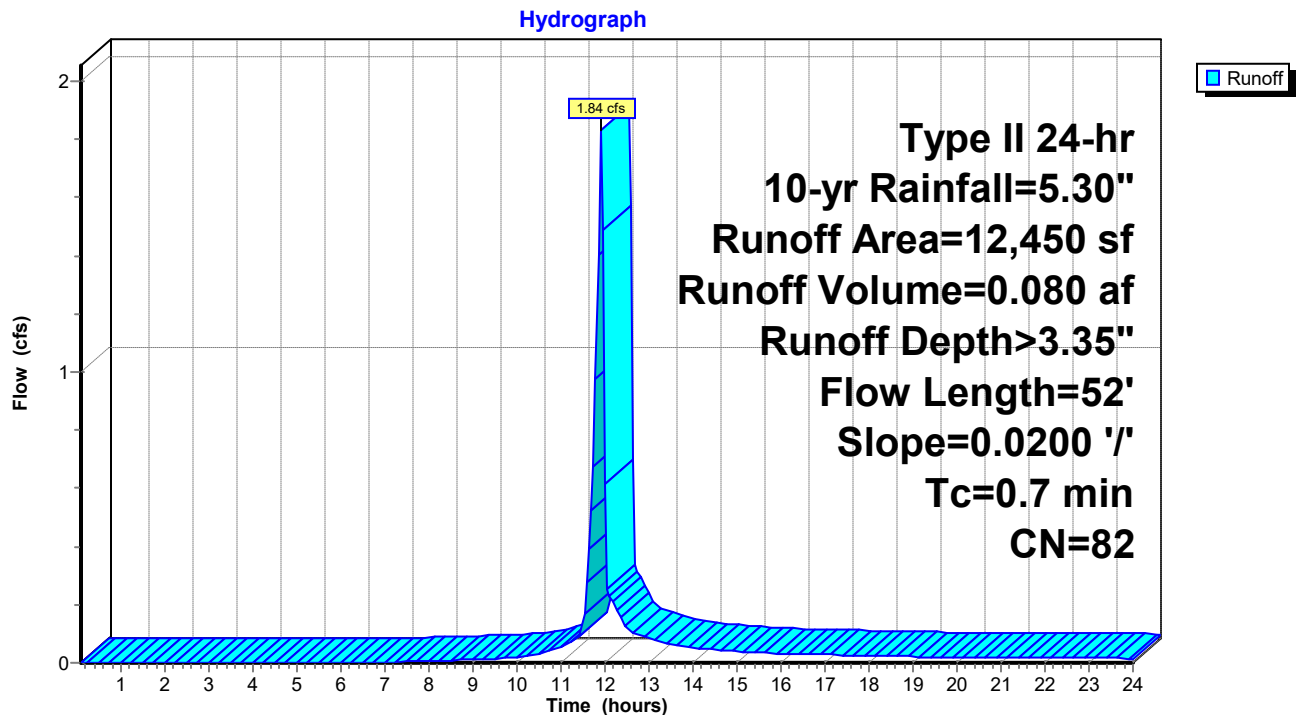
Summary for Subcatchment Y1: Office Parking Area & SWM Feature

Runoff = 1.84 cfs @ 11.90 hrs, Volume= 0.080 af, Depth> 3.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
8,245	74	>75% Grass cover, Good, HSG C
4,205	98	Paved roads w/curbs & sewers, HSG C
12,450	82	Weighted Average
8,245		66.22% Pervious Area
4,205		33.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	52	0.0200	1.24		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment Y1: Office Parking Area & SWM Feature

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment Y2: Half Warehouse Roof

Runoff = 0.93 cfs @ 11.90 hrs, Volume= 0.049 af, Depth> 5.06"

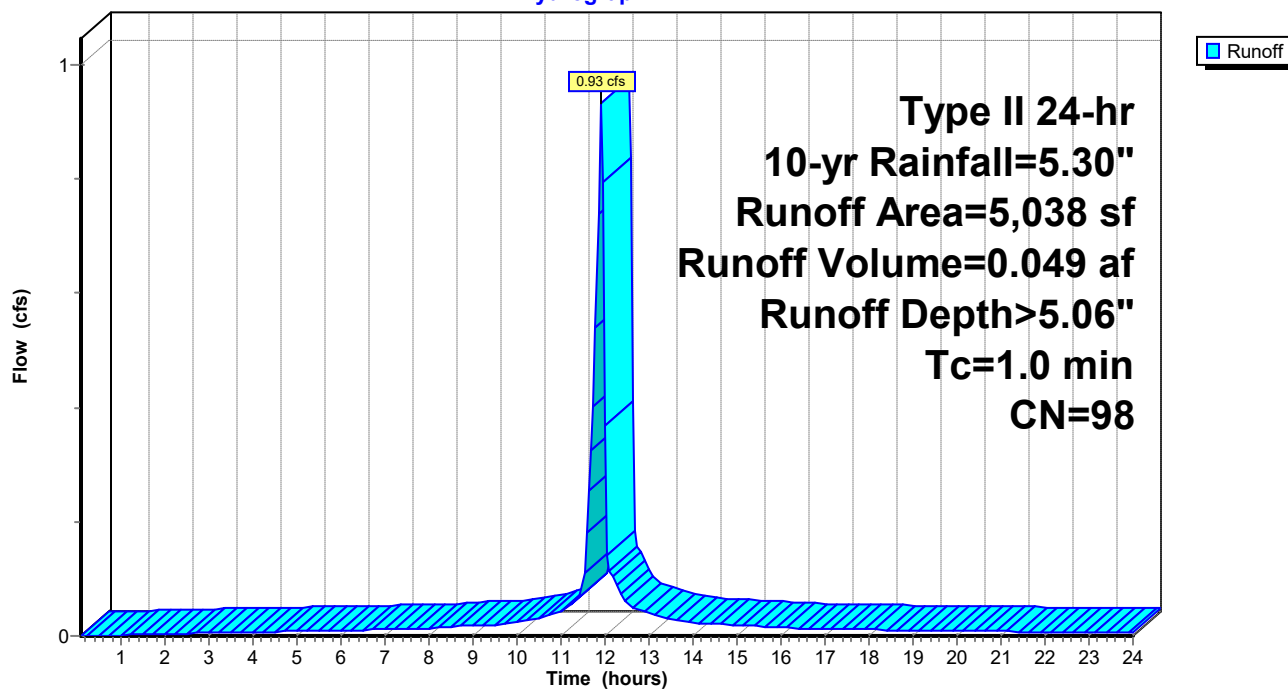
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	5,038	98	Roof
	5,038		100.00% Impervious Area

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

Subcatchment Y2: Half Warehouse Roof

Hydrograph



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Summary for Pond 1P: 15" HDPE

Inflow Area = 0.235 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 1.89 cfs @ 11.90 hrs, Volume= 0.099 af
Outflow = 1.89 cfs @ 11.90 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
Primary = 1.89 cfs @ 11.90 hrs, Volume= 0.099 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

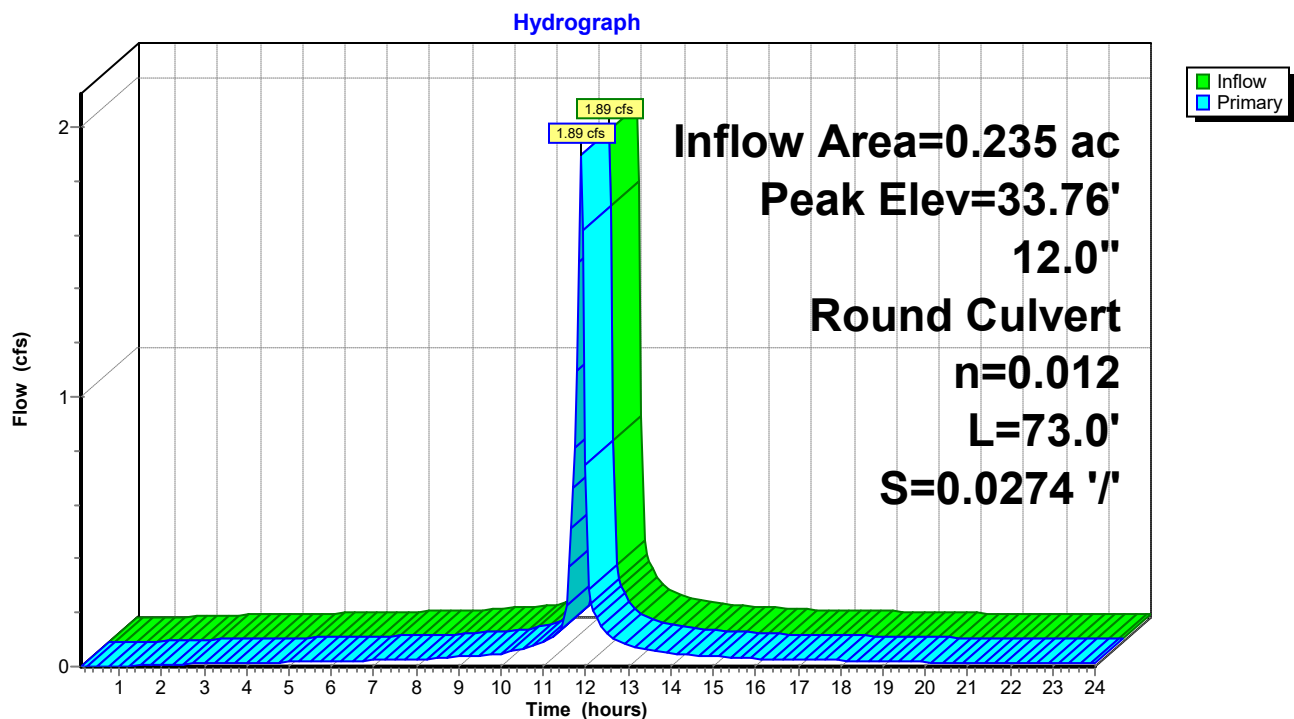
Peak Elev= 33.76' @ 11.90 hrs

Flood Elev= 35.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.00'	12.0" Round 15" Dual Wall HPDE L= 73.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.00' / 31.00' S= 0.0274 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.87 cfs @ 11.90 hrs HW=33.75' TW=32.40' (Dynamic Tailwater)
↑1=15" Dual Wall HPDE (Inlet Controls 1.87 cfs @ 2.95 fps)

Pond 1P: 15" HDPE



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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond 1P: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.00	0	34.02	0	35.04	0
33.02	0	34.04	0	35.06	0
33.04	0	34.06	0	35.08	0
33.06	0	34.08	0	35.10	0
33.08	0	34.10	0	35.12	0
33.10	0	34.12	0	35.14	0
33.12	0	34.14	0	35.16	0
33.14	0	34.16	0	35.18	0
33.16	0	34.18	0	35.20	0
33.18	0	34.20	0	35.22	0
33.20	0	34.22	0	35.24	0
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		
33.42	0	34.44	0		
33.44	0	34.46	0		
33.46	0	34.48	0		
33.48	0	34.50	0		
33.50	0	34.52	0		
33.52	0	34.54	0		
33.54	0	34.56	0		
33.56	0	34.58	0		
33.58	0	34.60	0		
33.60	0	34.62	0		
33.62	0	34.64	0		
33.64	0	34.66	0		
33.66	0	34.68	0		
33.68	0	34.70	0		
33.70	0	34.72	0		
33.72	0	34.74	0		
33.74	0	34.76	0		
33.76	0	34.78	0		
33.78	0	34.80	0		
33.80	0	34.82	0		
33.82	0	34.84	0		
33.84	0	34.86	0		
33.86	0	34.88	0		
33.88	0	34.90	0		
33.90	0	34.92	0		
33.92	0	34.94	0		
33.94	0	34.96	0		
33.96	0	34.98	0		
33.98	0	35.00	0		
34.00	0	35.02	0		

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Summary for Pond 4P: 10" HDPE

Inflow Area = 0.054 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.43 cfs @ 11.90 hrs, Volume= 0.023 af
Outflow = 0.43 cfs @ 11.90 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min
Primary = 0.43 cfs @ 11.90 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 34.52' @ 11.90 hrs

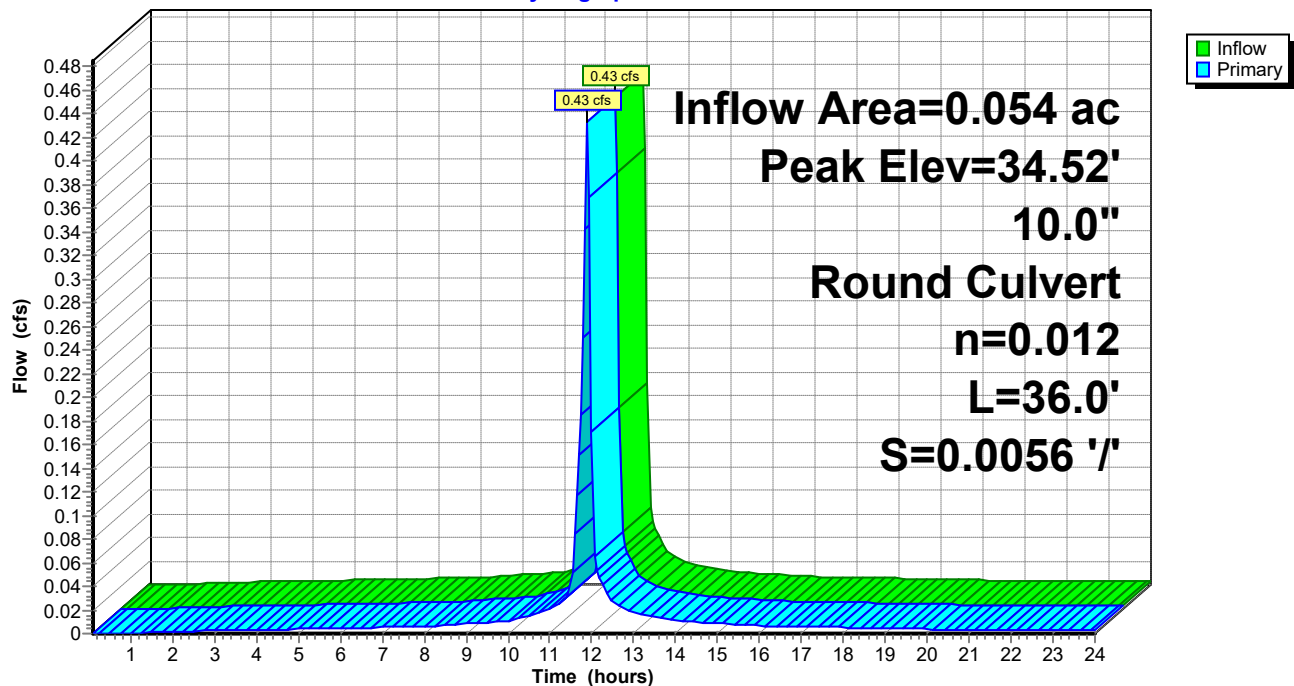
Flood Elev= 35.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.05'	10.0" Round 10" Dual Wall HDPE L= 36.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 34.05' / 33.85' S= 0.0056 '/ Cc= 0.900 n= 0.012, Flow Area= 0.55 sf

Primary OutFlow Max=0.43 cfs @ 11.90 hrs HW=34.52' TW=34.34' (Dynamic Tailwater)
↑1=10" Dual Wall HDPE (Outlet Controls 0.43 cfs @ 1.96 fps)

Pond 4P: 10" HDPE

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond 4P: 10" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.05	0	34.56	0	35.07	0
34.06	0	34.57	0	35.08	0
34.07	0	34.58	0	35.09	0
34.08	0	34.59	0	35.10	0
34.09	0	34.60	0	35.11	0
34.10	0	34.61	0	35.12	0
34.11	0	34.62	0	35.13	0
34.12	0	34.63	0	35.14	0
34.13	0	34.64	0	35.15	0
34.14	0	34.65	0	35.16	0
34.15	0	34.66	0	35.17	0
34.16	0	34.67	0	35.18	0
34.17	0	34.68	0	35.19	0
34.18	0	34.69	0	35.20	0
34.19	0	34.70	0	35.21	0
34.20	0	34.71	0	35.22	0
34.21	0	34.72	0	35.23	0
34.22	0	34.73	0	35.24	0
34.23	0	34.74	0	35.25	0
34.24	0	34.75	0	35.26	0
34.25	0	34.76	0	35.27	0
34.26	0	34.77	0	35.28	0
34.27	0	34.78	0	35.29	0
34.28	0	34.79	0	35.30	0
34.29	0	34.80	0	35.31	0
34.30	0	34.81	0	35.32	0
34.31	0	34.82	0	35.33	0
34.32	0	34.83	0	35.34	0
34.33	0	34.84	0	35.35	0
34.34	0	34.85	0		
34.35	0	34.86	0		
34.36	0	34.87	0		
34.37	0	34.88	0		
34.38	0	34.89	0		
34.39	0	34.90	0		
34.40	0	34.91	0		
34.41	0	34.92	0		
34.42	0	34.93	0		
34.43	0	34.94	0		
34.44	0	34.95	0		
34.45	0	34.96	0		
34.46	0	34.97	0		
34.47	0	34.98	0		
34.48	0	34.99	0		
34.49	0	35.00	0		
34.50	0	35.01	0		
34.51	0	35.02	0		
34.52	0	35.03	0		
34.53	0	35.04	0		
34.54	0	35.05	0		
34.55	0	35.06	0		

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Summary for Pond 5P: 12" HDPE

Inflow Area = 0.092 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.75 cfs @ 11.90 hrs, Volume= 0.039 af
Outflow = 0.75 cfs @ 11.90 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 11.90 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

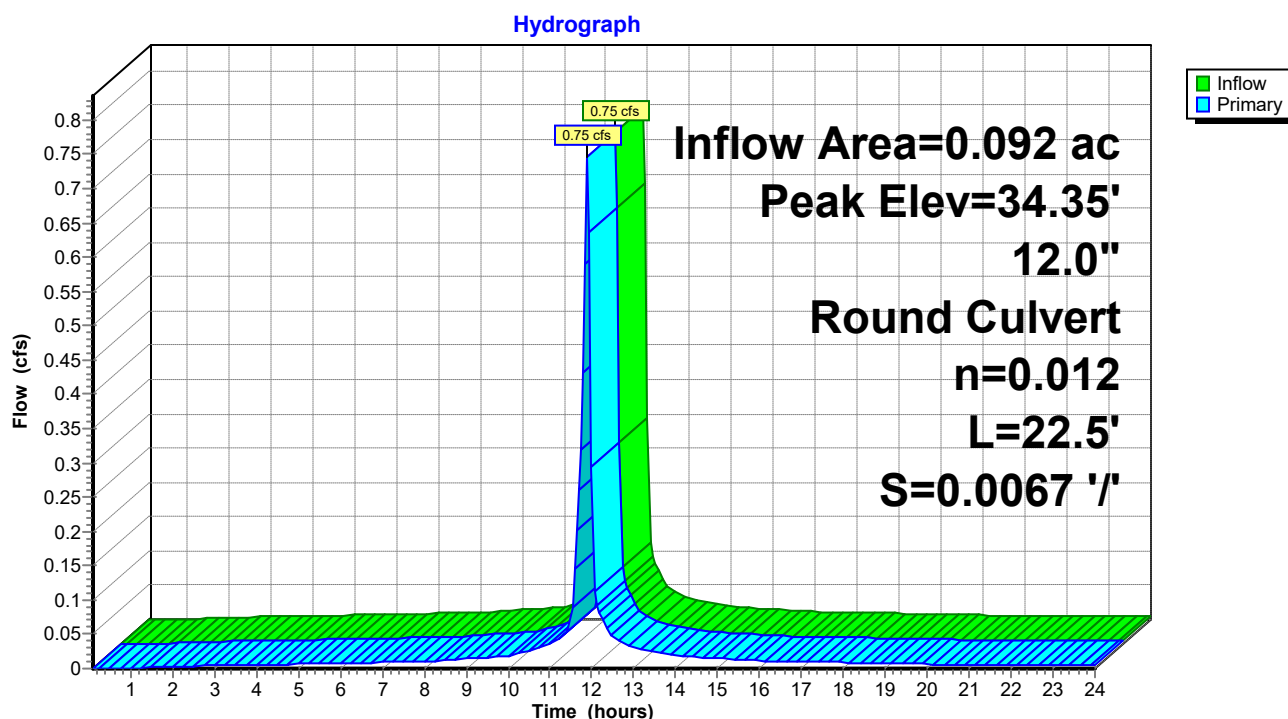
Peak Elev= 34.35' @ 11.90 hrs

Flood Elev= 35.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	12.0" Round 12" Dual Wall HDPE L= 22.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.75' / 33.60' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 11.90 hrs HW=34.34' TW=34.18' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Outlet Controls 0.74 cfs @ 2.18 fps)

Pond 5P: 12" HDPE



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Stage-Area-Storage for Pond 5P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.75	0	34.77	0
33.77	0	34.79	0
33.79	0	34.81	0
33.81	0	34.83	0
33.83	0	34.85	0
33.85	0	34.87	0
33.87	0	34.89	0
33.89	0	34.91	0
33.91	0	34.93	0
33.93	0	34.95	0
33.95	0	34.97	0
33.97	0	34.99	0
33.99	0	35.01	0
34.01	0	35.03	0
34.03	0	35.05	0
34.05	0	35.07	0
34.07	0	35.09	0
34.09	0	35.11	0
34.11	0	35.13	0
34.13	0	35.15	0
34.15	0	35.17	0
34.17	0	35.19	0
34.19	0	35.21	0
34.21	0	35.23	0
34.23	0	35.25	0
34.25	0	35.27	0
34.27	0	35.29	0
34.29	0	35.31	0
34.31	0	35.33	0
34.33	0	35.35	0
34.35	0		
34.37	0		
34.39	0		
34.41	0		
34.43	0		
34.45	0		
34.47	0		
34.49	0		
34.51	0		
34.53	0		
34.55	0		
34.57	0		
34.59	0		
34.61	0		
34.63	0		
34.65	0		
34.67	0		
34.69	0		
34.71	0		
34.73	0		
34.75	0		

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Summary for Pond 6P: 15" HDPE

Inflow Area = 0.332 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 2.68 cfs @ 11.90 hrs, Volume= 0.140 af
Outflow = 2.68 cfs @ 11.90 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min
Primary = 2.68 cfs @ 11.90 hrs, Volume= 0.140 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

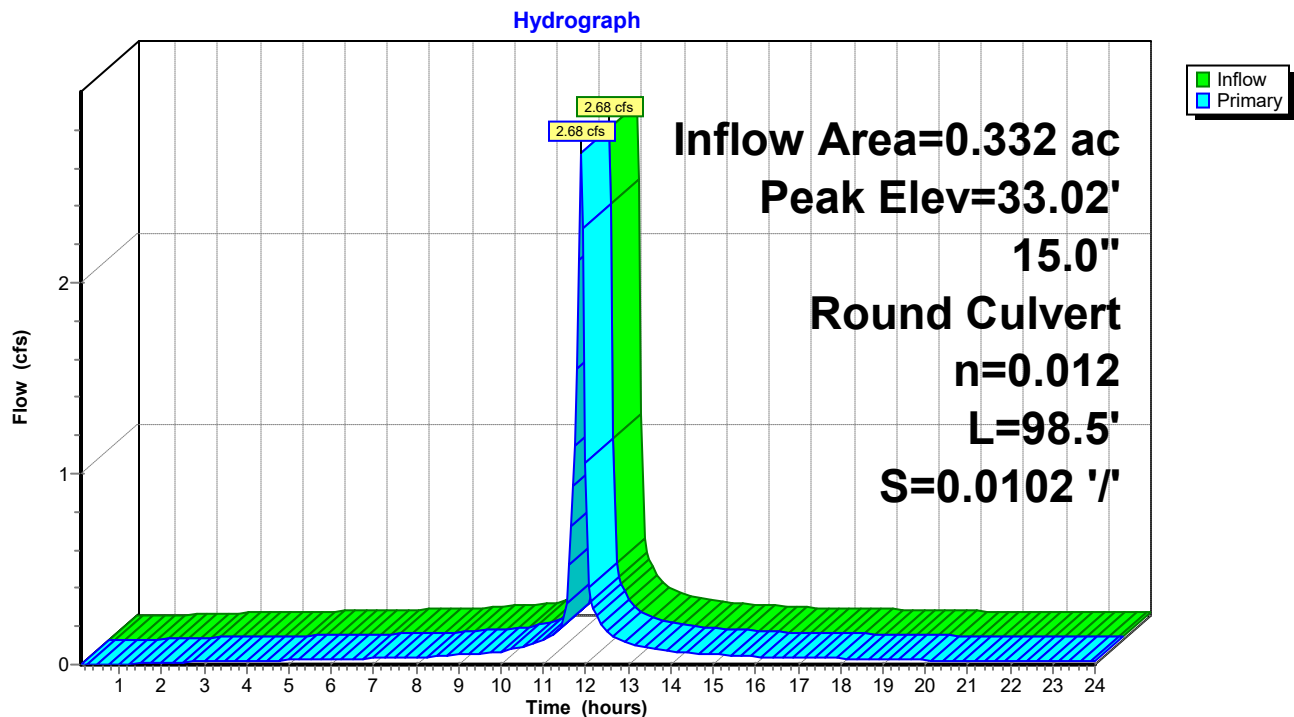
Peak Elev= 33.02' @ 11.93 hrs

Flood Elev= 34.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round 15" Dual Wall HPDE L= 98.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0102 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.64 cfs @ 11.90 hrs HW=33.00' TW=32.40' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Outlet Controls 2.64 cfs @ 3.45 fps)

Pond 6P: 15" HDPE



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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond 6P: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.00	0	33.02	0	34.04	0
32.02	0	33.04	0	34.06	0
32.04	0	33.06	0	34.08	0
32.06	0	33.08	0	34.10	0
32.08	0	33.10	0	34.12	0
32.10	0	33.12	0	34.14	0
32.12	0	33.14	0	34.16	0
32.14	0	33.16	0	34.18	0
32.16	0	33.18	0	34.20	0
32.18	0	33.20	0	34.22	0
32.20	0	33.22	0	34.24	0
32.22	0	33.24	0	34.26	0
32.24	0	33.26	0	34.28	0
32.26	0	33.28	0	34.30	0
32.28	0	33.30	0	34.32	0
32.30	0	33.32	0	34.34	0
32.32	0	33.34	0	34.36	0
32.34	0	33.36	0	34.38	0
32.36	0	33.38	0	34.40	0
32.38	0	33.40	0	34.42	0
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0		
32.50	0	33.52	0		
32.52	0	33.54	0		
32.54	0	33.56	0		
32.56	0	33.58	0		
32.58	0	33.60	0		
32.60	0	33.62	0		
32.62	0	33.64	0		
32.64	0	33.66	0		
32.66	0	33.68	0		
32.68	0	33.70	0		
32.70	0	33.72	0		
32.72	0	33.74	0		
32.74	0	33.76	0		
32.76	0	33.78	0		
32.78	0	33.80	0		
32.80	0	33.82	0		
32.82	0	33.84	0		
32.84	0	33.86	0		
32.86	0	33.88	0		
32.88	0	33.90	0		
32.90	0	33.92	0		
32.92	0	33.94	0		
32.94	0	33.96	0		
32.96	0	33.98	0		
32.98	0	34.00	0		
33.00	0	34.02	0		

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond 7P: 12" HDPE

Inflow Area = 0.199 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 1.61 cfs @ 11.90 hrs, Volume= 0.084 af
Outflow = 1.61 cfs @ 11.90 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 11.90 hrs, Volume= 0.084 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

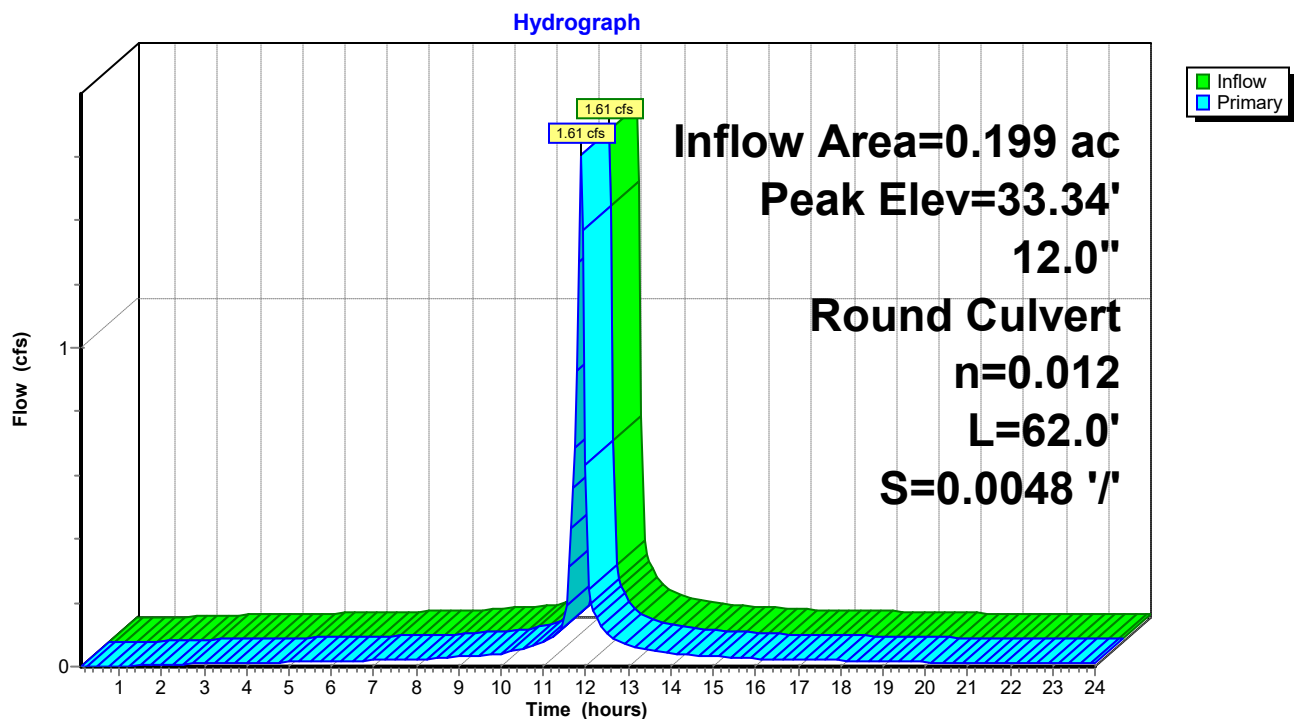
Peak Elev= 33.34' @ 11.91 hrs

Flood Elev= 34.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.40'	12.0" Round 12" Dual Wall HDPE L= 62.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 32.40' / 32.10' S= 0.0048 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 11.90 hrs HW=33.32' TW=33.00' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Outlet Controls 1.58 cfs @ 2.73 fps)

Pond 7P: 12" HDPE



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Stage-Area-Storage for Pond 7P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0	34.52	0
32.50	0	33.52	0	34.54	0
32.52	0	33.54	0	34.56	0
32.54	0	33.56	0	34.58	0
32.56	0	33.58	0	34.60	0
32.58	0	33.60	0	34.62	0
32.60	0	33.62	0	34.64	0
32.62	0	33.64	0	34.66	0
32.64	0	33.66	0	34.68	0
32.66	0	33.68	0	34.70	0
32.68	0	33.70	0	34.72	0
32.70	0	33.72	0	34.74	0
32.72	0	33.74	0		
32.74	0	33.76	0		
32.76	0	33.78	0		
32.78	0	33.80	0		
32.80	0	33.82	0		
32.82	0	33.84	0		
32.84	0	33.86	0		
32.86	0	33.88	0		
32.88	0	33.90	0		
32.90	0	33.92	0		
32.92	0	33.94	0		
32.94	0	33.96	0		
32.96	0	33.98	0		
32.98	0	34.00	0		
33.00	0	34.02	0		
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		

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Summary for Pond 8P: 8" HDPE

Inflow Area = 0.068 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.55 cfs @ 11.90 hrs, Volume= 0.029 af
Outflow = 0.55 cfs @ 11.90 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 11.90 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

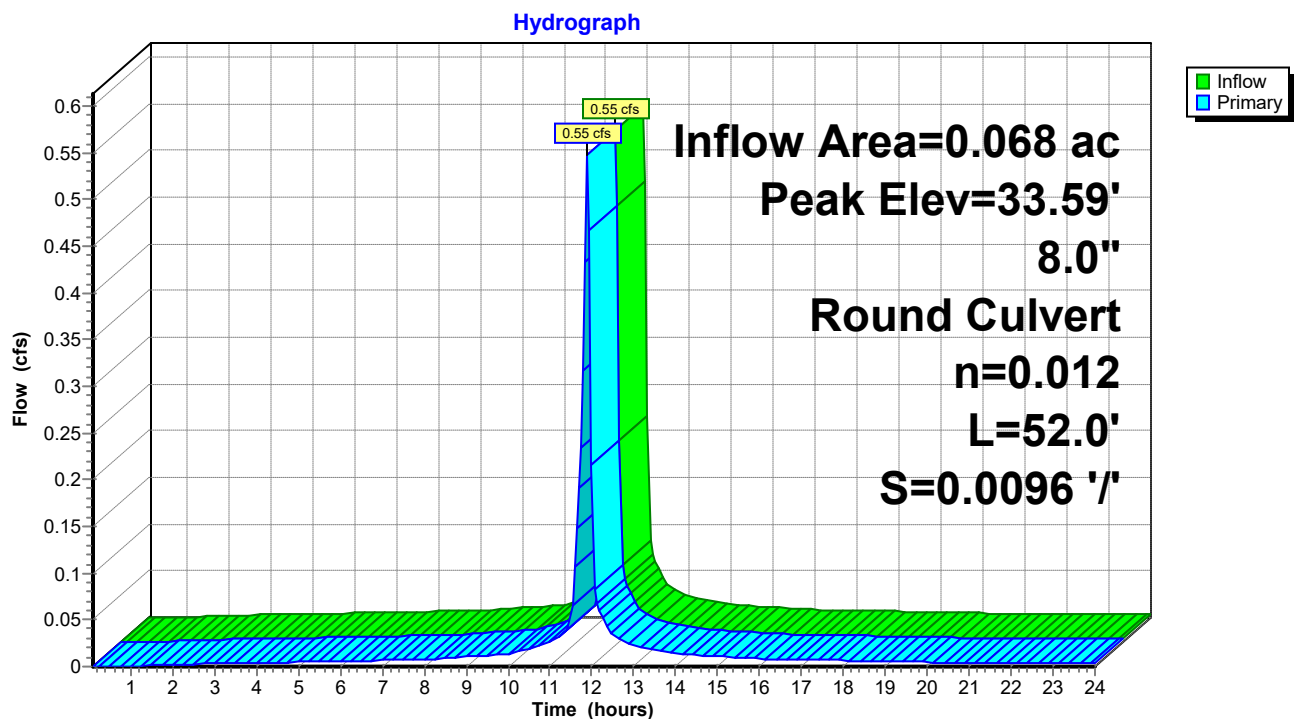
Peak Elev= 33.59' @ 11.91 hrs

Flood Elev= 35.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.00'	8.0" Round 8" Dual Wall HPDE L= 52.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.00' / 32.50' S= 0.0096 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.54 cfs @ 11.90 hrs HW=33.59' TW=33.32' (Dynamic Tailwater)
↑1=8" Dual Wall HPDE (Outlet Controls 0.54 cfs @ 2.21 fps)

Pond 8P: 8" HDPE



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Stage-Area-Storage for Pond 8P: 8" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.00	0	34.02	0	35.04	0
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		
33.42	0	34.44	0		
33.44	0	34.46	0		
33.46	0	34.48	0		
33.48	0	34.50	0		
33.50	0	34.52	0		
33.52	0	34.54	0		
33.54	0	34.56	0		
33.56	0	34.58	0		
33.58	0	34.60	0		
33.60	0	34.62	0		
33.62	0	34.64	0		
33.64	0	34.66	0		
33.66	0	34.68	0		
33.68	0	34.70	0		
33.70	0	34.72	0		
33.72	0	34.74	0		
33.74	0	34.76	0		
33.76	0	34.78	0		
33.78	0	34.80	0		
33.80	0	34.82	0		
33.82	0	34.84	0		
33.84	0	34.86	0		
33.86	0	34.88	0		
33.88	0	34.90	0		
33.90	0	34.92	0		
33.92	0	34.94	0		
33.94	0	34.96	0		
33.96	0	34.98	0		
33.98	0	35.00	0		
34.00	0	35.02	0		

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Summary for Pond 9P: 12" HDPE

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.52 cfs @ 11.90 hrs, Volume= 0.027 af
Outflow = 0.52 cfs @ 11.90 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 11.90 hrs, Volume= 0.027 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

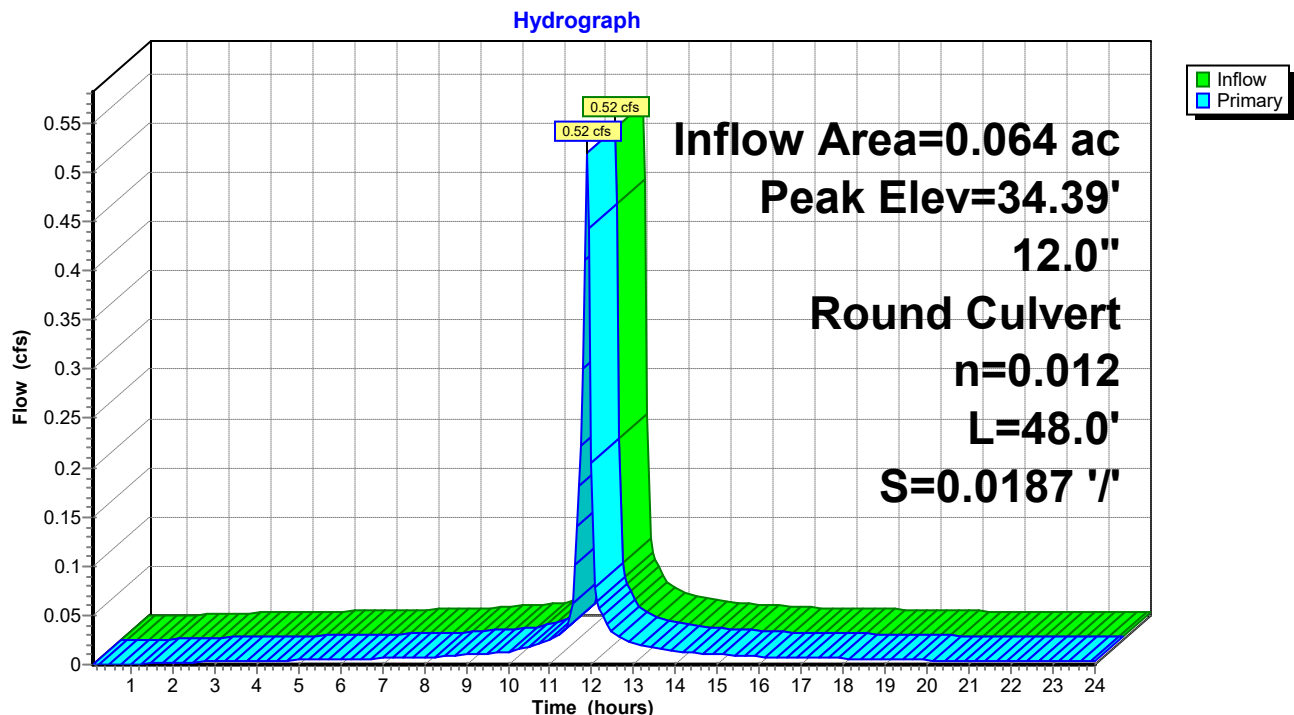
Peak Elev= 34.39' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	12.0" Round 12" Dual Wall HPDE L= 48.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.00' / 33.10' S= 0.0187 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 11.90 hrs HW=34.38' TW=33.75' (Dynamic Tailwater)
↑ **1=12" Dual Wall HPDE** (Inlet Controls 0.51 cfs @ 1.86 fps)

Pond 9P: 12" HDPE



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Stage-Area-Storage for Pond 9P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.00	0	35.02	0
34.02	0	35.04	0
34.04	0	35.06	0
34.06	0	35.08	0
34.08	0	35.10	0
34.10	0	35.12	0
34.12	0	35.14	0
34.14	0	35.16	0
34.16	0	35.18	0
34.18	0	35.20	0
34.20	0	35.22	0
34.22	0	35.24	0
34.24	0	35.26	0
34.26	0	35.28	0
34.28	0	35.30	0
34.30	0	35.32	0
34.32	0	35.34	0
34.34	0	35.36	0
34.36	0	35.38	0
34.38	0	35.40	0
34.40	0	35.42	0
34.42	0	35.44	0
34.44	0	35.46	0
34.46	0	35.48	0
34.48	0	35.50	0
34.50	0	35.52	0
34.52	0	35.54	0
34.54	0	35.56	0
34.56	0	35.58	0
34.58	0	35.60	0
34.60	0	35.62	0
34.62	0	35.64	0
34.64	0	35.66	0
34.66	0	35.68	0
34.68	0	35.70	0
34.70	0	35.72	0
34.72	0	35.74	0
34.74	0	35.76	0
34.76	0	35.78	0
34.78	0	35.80	0
34.80	0	35.82	0
34.82	0	35.84	0
34.84	0	35.86	0
34.86	0	35.88	0
34.88	0	35.90	0
34.90	0	35.92	0
34.92	0	35.94	0
34.94	0	35.96	0
34.96	0	35.98	0
34.98	0	36.00	0
35.00	0		

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond RLa: 10" HDPE

Inflow Area = 0.116 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.93 cfs @ 11.90 hrs, Volume= 0.049 af
Outflow = 0.93 cfs @ 11.90 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.93 cfs @ 11.90 hrs, Volume= 0.049 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

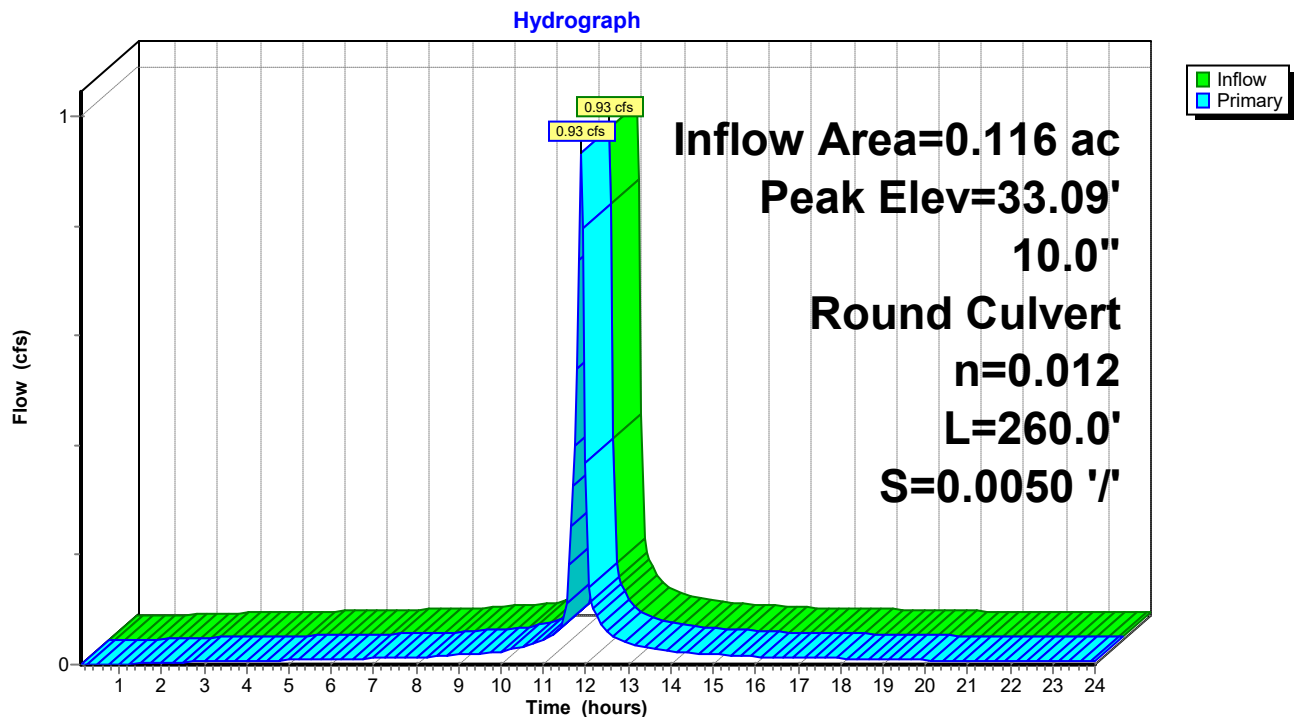
Peak Elev= 33.09' @ 11.92 hrs

Flood Elev= 35.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.30'	10.0" Round 10" Dual Wall HDPE L= 260.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.30' / 31.00' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 0.55 sf

Primary OutFlow Max=0.92 cfs @ 11.90 hrs HW=33.07' TW=32.36' (Dynamic Tailwater)
↑ **1=10" Dual Wall HDPE** (Outlet Controls 0.92 cfs @ 2.28 fps)

Pond RLa: 10" HDPE



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Stage-Area-Storage for Pond RL: 10" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.30	0	33.32	0	34.34	0
32.32	0	33.34	0	34.36	0
32.34	0	33.36	0	34.38	0
32.36	0	33.38	0	34.40	0
32.38	0	33.40	0	34.42	0
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0	34.52	0
32.50	0	33.52	0	34.54	0
32.52	0	33.54	0	34.56	0
32.54	0	33.56	0	34.58	0
32.56	0	33.58	0	34.60	0
32.58	0	33.60	0	34.62	0
32.60	0	33.62	0	34.64	0
32.62	0	33.64	0	34.66	0
32.64	0	33.66	0	34.68	0
32.66	0	33.68	0	34.70	0
32.68	0	33.70	0	34.72	0
32.70	0	33.72	0	34.74	0
32.72	0	33.74	0	34.76	0
32.74	0	33.76	0	34.78	0
32.76	0	33.78	0	34.80	0
32.78	0	33.80	0	34.82	0
32.80	0	33.82	0	34.84	0
32.82	0	33.84	0	34.86	0
32.84	0	33.86	0	34.88	0
32.86	0	33.88	0	34.90	0
32.88	0	33.90	0	34.92	0
32.90	0	33.92	0	34.94	0
32.92	0	33.94	0	34.96	0
32.94	0	33.96	0	34.98	0
32.96	0	33.98	0	35.00	0
32.98	0	34.00	0		
33.00	0	34.02	0		
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		

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Summary for Pond RLb: 12" HDPE

Inflow Area = 0.043 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af
Outflow = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 11.90 hrs, Volume= 0.018 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

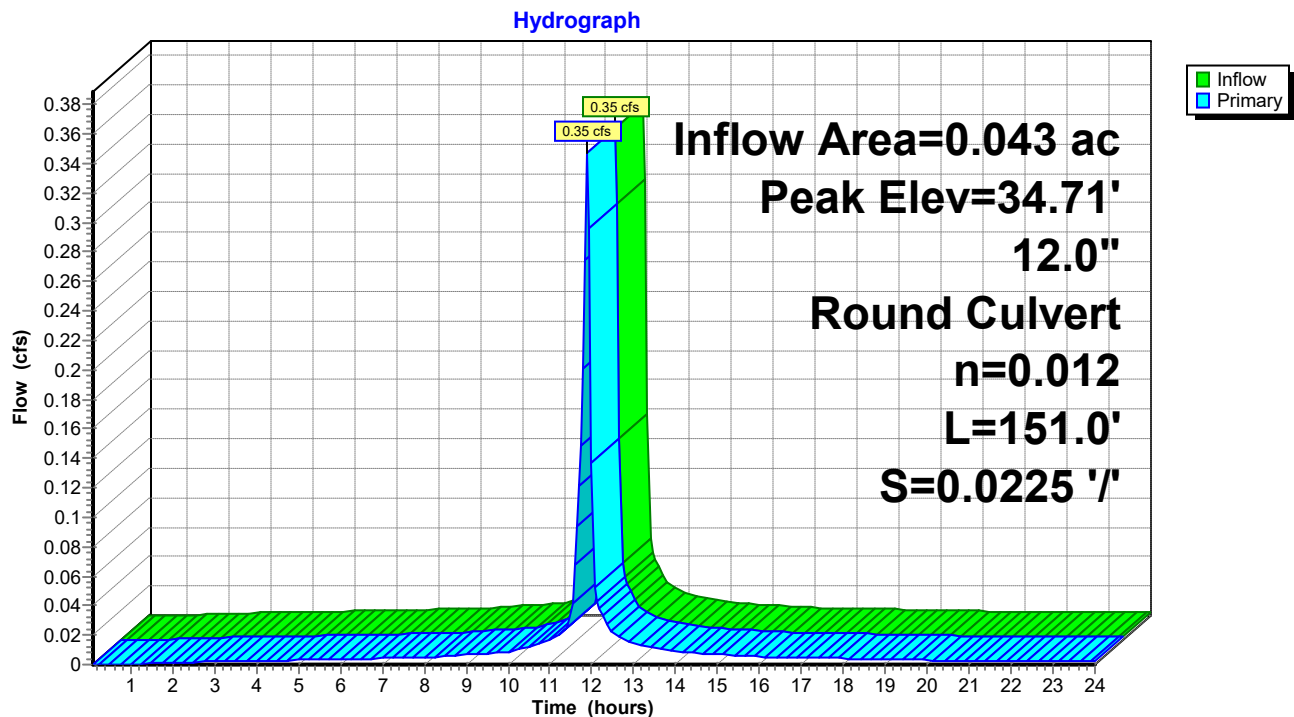
Peak Elev= 34.71' @ 11.90 hrs

Flood Elev= 35.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.40'	12.0" Round 12" Dual Wall HDPE L= 151.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.40' / 31.00' S= 0.0225 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.34 cfs @ 11.90 hrs HW=34.71' TW=32.40' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Inlet Controls 0.34 cfs @ 1.67 fps)

Pond RLb: 12" HDPE



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Stage-Area-Storage for Pond RLb: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.40	0	34.91	0
34.41	0	34.92	0
34.42	0	34.93	0
34.43	0	34.94	0
34.44	0	34.95	0
34.45	0	34.96	0
34.46	0	34.97	0
34.47	0	34.98	0
34.48	0	34.99	0
34.49	0	35.00	0
34.50	0	35.01	0
34.51	0	35.02	0
34.52	0	35.03	0
34.53	0	35.04	0
34.54	0	35.05	0
34.55	0	35.06	0
34.56	0	35.07	0
34.57	0	35.08	0
34.58	0	35.09	0
34.59	0	35.10	0
34.60	0	35.11	0
34.61	0	35.12	0
34.62	0	35.13	0
34.63	0	35.14	0
34.64	0	35.15	0
34.65	0	35.16	0
34.66	0	35.17	0
34.67	0	35.18	0
34.68	0	35.19	0
34.69	0	35.20	0
34.70	0	35.21	0
34.71	0	35.22	0
34.72	0	35.23	0
34.73	0	35.24	0
34.74	0	35.25	0
34.75	0	35.26	0
34.76	0	35.27	0
34.77	0	35.28	0
34.78	0	35.29	0
34.79	0	35.30	0
34.80	0	35.31	0
34.81	0	35.32	0
34.82	0	35.33	0
34.83	0	35.34	0
34.84	0	35.35	0
34.85	0	35.36	0
34.86	0	35.37	0
34.87	0	35.38	0
34.88	0	35.39	0
34.89	0	35.40	0
34.90	0		

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Summary for Pond RLbb: 15" HDPE

Inflow Area = 0.214 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 1.72 cfs @ 11.90 hrs, Volume= 0.090 af
Outflow = 1.72 cfs @ 11.90 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
Primary = 1.72 cfs @ 11.90 hrs, Volume= 0.090 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

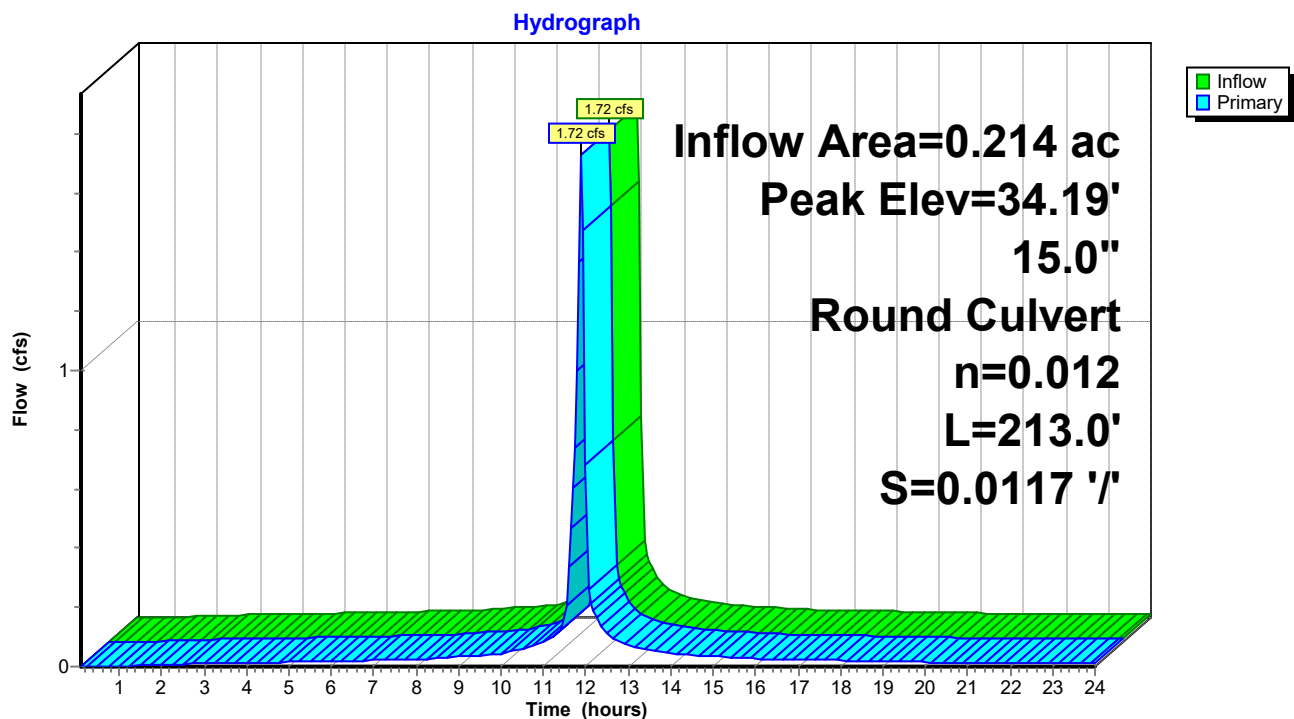
Peak Elev= 34.19' @ 11.90 hrs

Flood Elev= 35.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.50'	15.0" Round 15" Dual Wall HPDE L= 213.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 33.50' / 31.00' S= 0.0117 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.70 cfs @ 11.90 hrs HW=34.18' TW=32.40' (Dynamic Tailwater)
↑1=15" Dual Wall HPDE (Inlet Controls 1.70 cfs @ 2.48 fps)

Pond RLbb: 15" HDPE



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Stage-Area-Storage for Pond RLbb: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.50	0	34.52	0
33.52	0	34.54	0
33.54	0	34.56	0
33.56	0	34.58	0
33.58	0	34.60	0
33.60	0	34.62	0
33.62	0	34.64	0
33.64	0	34.66	0
33.66	0	34.68	0
33.68	0	34.70	0
33.70	0	34.72	0
33.72	0	34.74	0
33.74	0	34.76	0
33.76	0	34.78	0
33.78	0	34.80	0
33.80	0	34.82	0
33.82	0	34.84	0
33.84	0	34.86	0
33.86	0	34.88	0
33.88	0	34.90	0
33.90	0	34.92	0
33.92	0	34.94	0
33.94	0	34.96	0
33.96	0	34.98	0
33.98	0	35.00	0
34.00	0	35.02	0
34.02	0	35.04	0
34.04	0	35.06	0
34.06	0	35.08	0
34.08	0	35.10	0
34.10	0	35.12	0
34.12	0	35.14	0
34.14	0	35.16	0
34.16	0	35.18	0
34.18	0	35.20	0
34.20	0	35.22	0
34.22	0	35.24	0
34.24	0	35.26	0
34.26	0	35.28	0
34.28	0	35.30	0
34.30	0	35.32	0
34.32	0	35.34	0
34.34	0	35.36	0
34.36	0	35.38	0
34.38	0	35.40	0
34.40	0		
34.42	0		
34.44	0		
34.46	0		
34.48	0		
34.50	0		

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond RLc: Roof Leader

Inflow Area = 0.129 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 1.04 cfs @ 11.90 hrs, Volume= 0.054 af
Outflow = 1.04 cfs @ 11.90 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 11.90 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

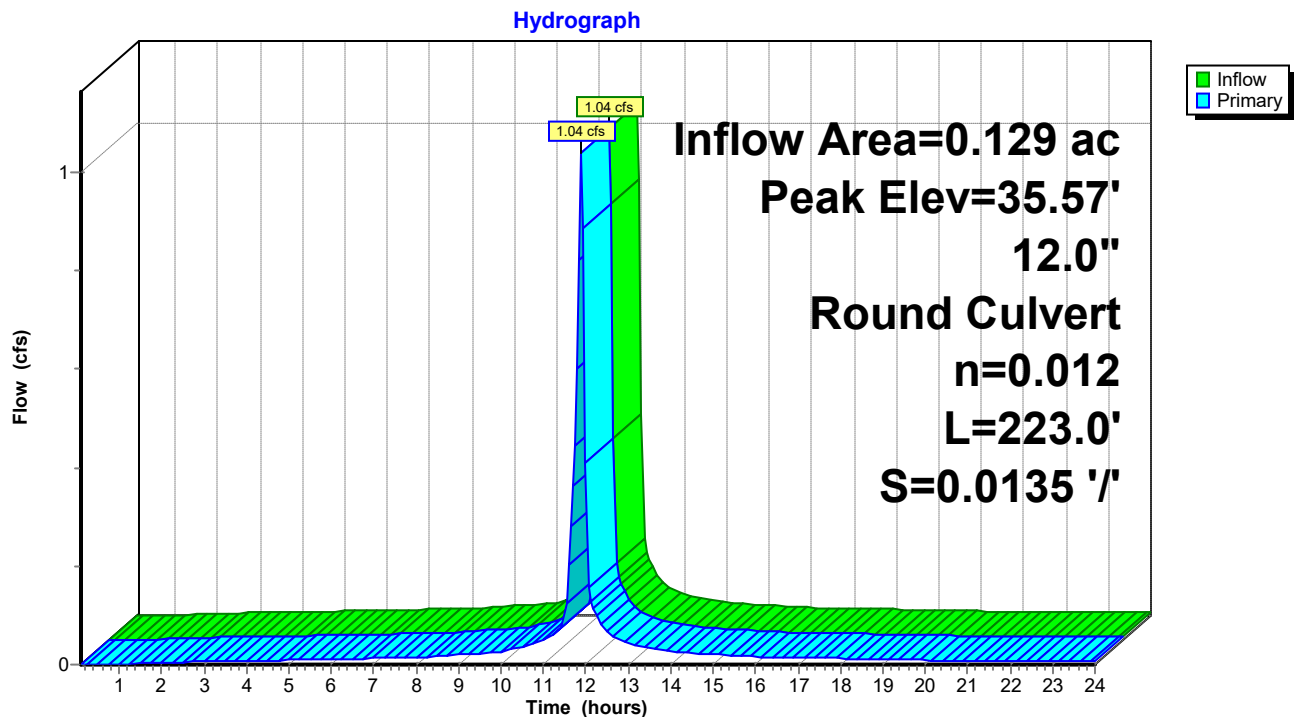
Peak Elev= 35.57' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round 12" Dual Wall HDPE L= 223.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 35.00' / 32.00' S= 0.0135 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.02 cfs @ 11.90 hrs HW=35.56' TW=33.04' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Inlet Controls 1.02 cfs @ 2.25 fps)

Pond RLc: Roof Leader



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Stage-Area-Storage for Pond RLc: Roof Leader

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	35.51	0
35.01	0	35.52	0
35.02	0	35.53	0
35.03	0	35.54	0
35.04	0	35.55	0
35.05	0	35.56	0
35.06	0	35.57	0
35.07	0	35.58	0
35.08	0	35.59	0
35.09	0	35.60	0
35.10	0	35.61	0
35.11	0	35.62	0
35.12	0	35.63	0
35.13	0	35.64	0
35.14	0	35.65	0
35.15	0	35.66	0
35.16	0	35.67	0
35.17	0	35.68	0
35.18	0	35.69	0
35.19	0	35.70	0
35.20	0	35.71	0
35.21	0	35.72	0
35.22	0	35.73	0
35.23	0	35.74	0
35.24	0	35.75	0
35.25	0	35.76	0
35.26	0	35.77	0
35.27	0	35.78	0
35.28	0	35.79	0
35.29	0	35.80	0
35.30	0	35.81	0
35.31	0	35.82	0
35.32	0	35.83	0
35.33	0	35.84	0
35.34	0	35.85	0
35.35	0	35.86	0
35.36	0	35.87	0
35.37	0	35.88	0
35.38	0	35.89	0
35.39	0	35.90	0
35.40	0	35.91	0
35.41	0	35.92	0
35.42	0	35.93	0
35.43	0	35.94	0
35.44	0	35.95	0
35.45	0	35.96	0
35.46	0	35.97	0
35.47	0	35.98	0
35.48	0	35.99	0
35.49	0	36.00	0
35.50	0		

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Summary for Pond RLcc: Roof Leader

Inflow Area = 0.070 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.57 cfs @ 11.90 hrs, Volume= 0.030 af
Outflow = 0.57 cfs @ 11.90 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 11.90 hrs, Volume= 0.030 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

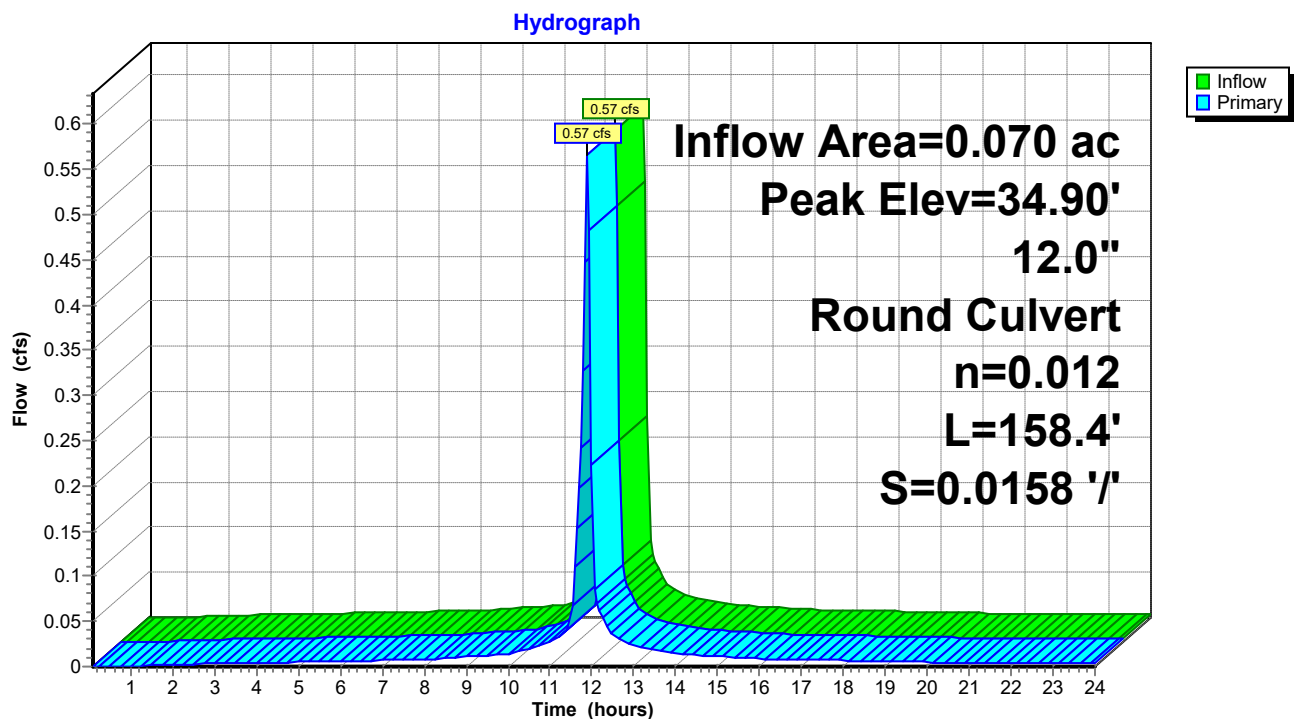
Peak Elev= 34.90' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	12.0" Round 12" Dual Wall HDPE L= 158.4' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.50' / 32.00' S= 0.0158 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.56 cfs @ 11.90 hrs HW=34.90' TW=33.04' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Inlet Controls 0.56 cfs @ 1.90 fps)

Pond RLcc: Roof Leader



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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond RLcc: Roof Leader

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.50	0	35.01	0	35.52	0
34.51	0	35.02	0	35.53	0
34.52	0	35.03	0	35.54	0
34.53	0	35.04	0	35.55	0
34.54	0	35.05	0	35.56	0
34.55	0	35.06	0	35.57	0
34.56	0	35.07	0	35.58	0
34.57	0	35.08	0	35.59	0
34.58	0	35.09	0	35.60	0
34.59	0	35.10	0	35.61	0
34.60	0	35.11	0	35.62	0
34.61	0	35.12	0	35.63	0
34.62	0	35.13	0	35.64	0
34.63	0	35.14	0	35.65	0
34.64	0	35.15	0	35.66	0
34.65	0	35.16	0	35.67	0
34.66	0	35.17	0	35.68	0
34.67	0	35.18	0	35.69	0
34.68	0	35.19	0	35.70	0
34.69	0	35.20	0	35.71	0
34.70	0	35.21	0	35.72	0
34.71	0	35.22	0	35.73	0
34.72	0	35.23	0	35.74	0
34.73	0	35.24	0	35.75	0
34.74	0	35.25	0	35.76	0
34.75	0	35.26	0	35.77	0
34.76	0	35.27	0	35.78	0
34.77	0	35.28	0	35.79	0
34.78	0	35.29	0	35.80	0
34.79	0	35.30	0	35.81	0
34.80	0	35.31	0	35.82	0
34.81	0	35.32	0	35.83	0
34.82	0	35.33	0	35.84	0
34.83	0	35.34	0	35.85	0
34.84	0	35.35	0	35.86	0
34.85	0	35.36	0	35.87	0
34.86	0	35.37	0	35.88	0
34.87	0	35.38	0	35.89	0
34.88	0	35.39	0	35.90	0
34.89	0	35.40	0	35.91	0
34.90	0	35.41	0	35.92	0
34.91	0	35.42	0	35.93	0
34.92	0	35.43	0	35.94	0
34.93	0	35.44	0	35.95	0
34.94	0	35.45	0	35.96	0
34.95	0	35.46	0	35.97	0
34.96	0	35.47	0	35.98	0
34.97	0	35.48	0	35.99	0
34.98	0	35.49	0	36.00	0
34.99	0	35.50	0		
35.00	0	35.51	0		

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond SDcc: 374.23 Yard Inlet

Inflow Area = 0.233 ac, 100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 1.88 cfs @ 11.90 hrs, Volume= 0.098 af
Outflow = 1.88 cfs @ 11.90 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 11.90 hrs, Volume= 0.098 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

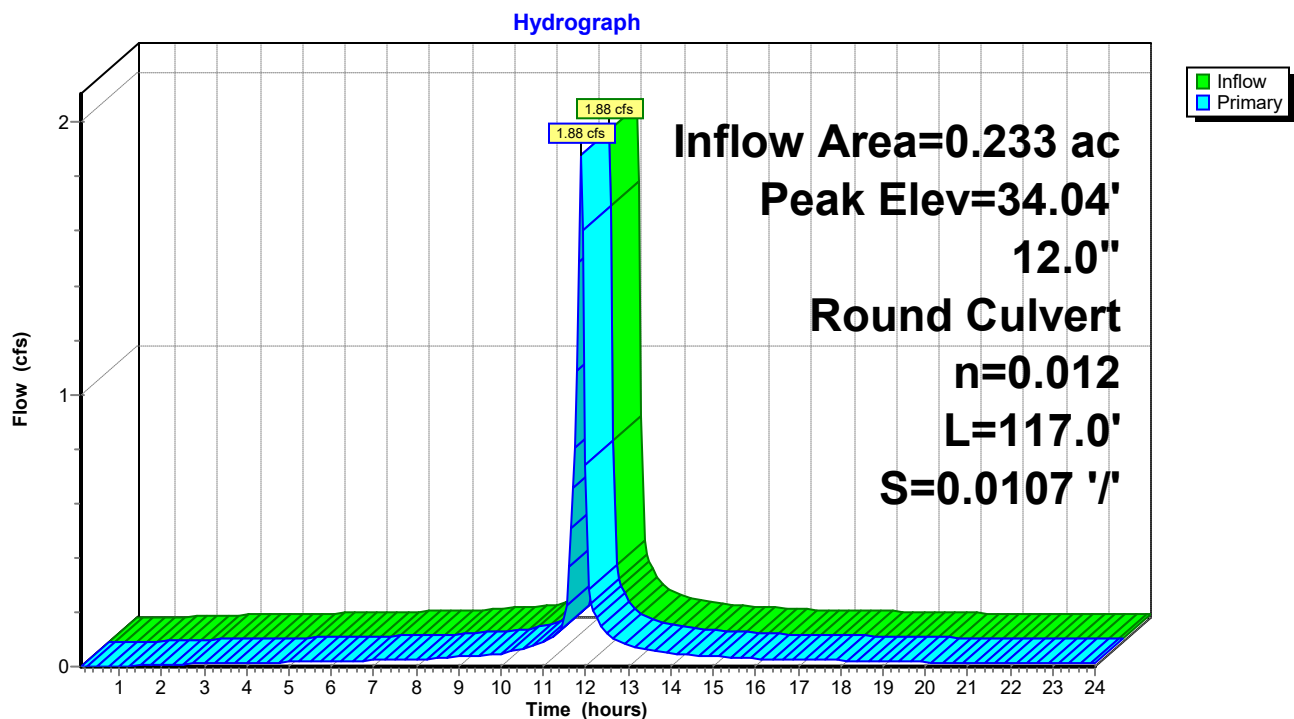
Peak Elev= 34.04' @ 11.91 hrs

Flood Elev= 35.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	12.0" Round 12" Dual Wall HDPE L= 117.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.00' S= 0.0107 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.85 cfs @ 11.90 hrs HW=34.03' TW=33.04' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Outlet Controls 1.85 cfs @ 3.87 fps)

Pond SDcc: 374.23 Yard Inlet



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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond SDcc: 374.23 Yard Inlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.25	0	34.27	0
33.27	0	34.29	0
33.29	0	34.31	0
33.31	0	34.33	0
33.33	0	34.35	0
33.35	0	34.37	0
33.37	0	34.39	0
33.39	0	34.41	0
33.41	0	34.43	0
33.43	0	34.45	0
33.45	0	34.47	0
33.47	0	34.49	0
33.49	0	34.51	0
33.51	0	34.53	0
33.53	0	34.55	0
33.55	0	34.57	0
33.57	0	34.59	0
33.59	0	34.61	0
33.61	0	34.63	0
33.63	0	34.65	0
33.65	0	34.67	0
33.67	0	34.69	0
33.69	0	34.71	0
33.71	0	34.73	0
33.73	0	34.75	0
33.75	0	34.77	0
33.77	0	34.79	0
33.79	0	34.81	0
33.81	0	34.83	0
33.83	0	34.85	0
33.85	0	34.87	0
33.87	0	34.89	0
33.89	0	34.91	0
33.91	0	34.93	0
33.93	0	34.95	0
33.95	0	34.97	0
33.97	0	34.99	0
33.99	0	35.01	0
34.01	0	35.03	0
34.03	0	35.05	0
34.05	0	35.07	0
34.07	0	35.09	0
34.09	0	35.11	0
34.11	0	35.13	0
34.13	0	35.15	0
34.15	0	35.17	0
34.17	0	35.19	0
34.19	0	35.21	0
34.21	0	35.23	0
34.23	0	35.25	0
34.25	0		

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond SWM-A: SGW A

Inflow Area = 0.401 ac, 52.85% Impervious, Inflow Depth > 3.84" for 10-yr event
 Inflow = 2.77 cfs @ 11.90 hrs, Volume= 0.129 af
 Outflow = 0.29 cfs @ 12.22 hrs, Volume= 0.084 af, Atten= 89%, Lag= 19.3 min
 Primary = 0.29 cfs @ 12.22 hrs, Volume= 0.084 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 32.67' @ 12.22 hrs Surf.Area= 2,516 sf Storage= 3,167 cf

Plug-Flow detention time= 242.3 min calculated for 0.084 af (66% of inflow)

Center-of-Mass det. time= 138.1 min (918.8 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	7,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
31.00	1,339	156.0	0	0	1,339
33.00	2,793	207.0	4,044	4,044	2,856
34.00	3,670	232.0	3,222	7,265	3,757

Device	Routing	Invert	Outlet Devices
#1	Primary	30.67'	12.0" Round 12" Dual Wall HDPE L= 54.6' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.67' / 30.26' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	32.00'	2.0" W x 12.0" H Vert. 2" Notch on Side of 374.23 C= 0.600
#3	Device 1	33.00'	10.7' long Rim 374.23 Inlet Cv= 2.62 (C= 3.28)
#4	Secondary	33.00'	30.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.29 cfs @ 12.22 hrs HW=32.67' TW=30.79' (Dynamic Tailwater)

- ↑ **1=12" Dual Wall HDPE** (Passes 0.29 cfs of 4.35 cfs potential flow)

- ↑ **2=2" Notch on Side of 374.23** (Orifice Controls 0.29 cfs @ 2.63 fps)

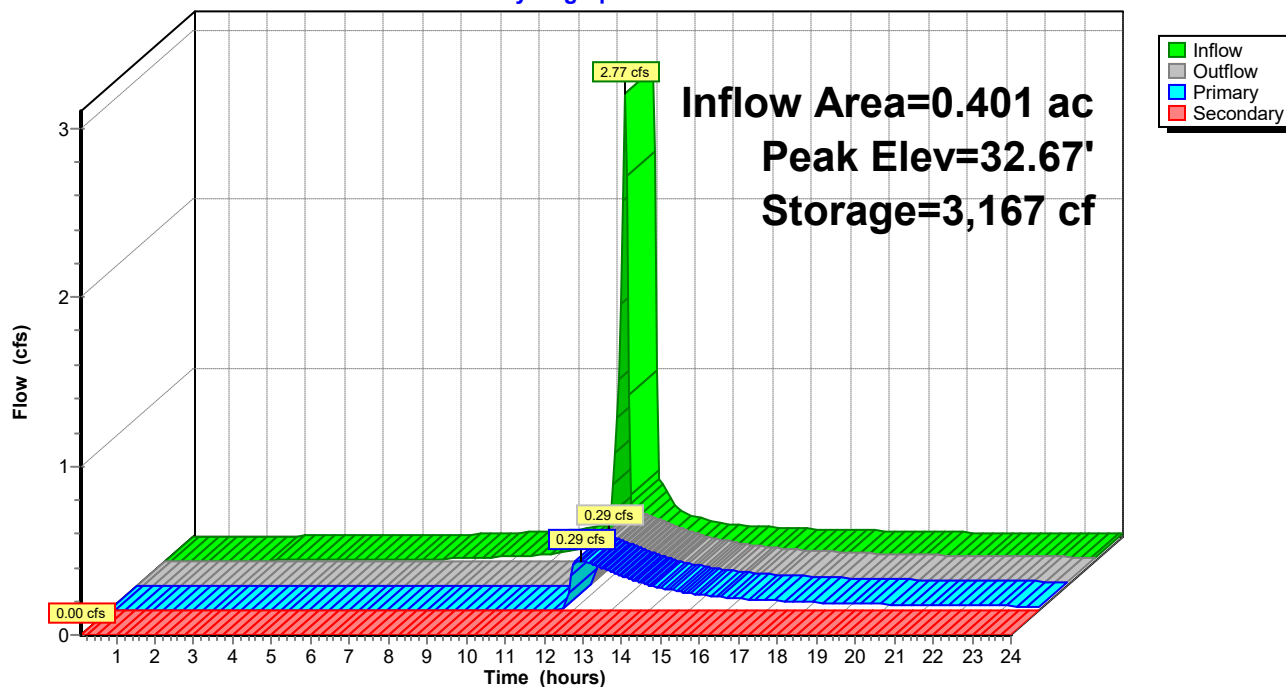
- ↑ **3=Rim 374.23 Inlet** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=31.00' TW=0.00' (Dynamic Tailwater)

- ↑ **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond SWM-A: SGW A

Hydrograph



2023-03-03-Carrion HydroCAD

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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond SWM-A: SGW A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	1,339	0	33.55	3,261	5,707
31.05	1,369	68	33.60	3,305	5,871
31.10	1,399	137	33.65	3,349	6,037
31.15	1,430	208	33.70	3,394	6,206
31.20	1,461	280	33.75	3,440	6,377
31.25	1,492	354	33.80	3,485	6,550
31.30	1,523	429	33.85	3,531	6,725
31.35	1,555	506	33.90	3,577	6,903
31.40	1,588	585	33.95	3,623	7,083
31.45	1,620	665	34.00	3,670	7,265
31.50	1,653	747			
31.55	1,686	830			
31.60	1,720	915			
31.65	1,754	1,002			
31.70	1,788	1,091			
31.75	1,822	1,181			
31.80	1,857	1,273			
31.85	1,892	1,367			
31.90	1,928	1,462			
31.95	1,964	1,559			
32.00	2,000	1,658			
32.05	2,036	1,759			
32.10	2,073	1,862			
32.15	2,110	1,967			
32.20	2,148	2,073			
32.25	2,186	2,182			
32.30	2,224	2,292			
32.35	2,262	2,404			
32.40	2,301	2,518			
32.45	2,340	2,634			
32.50	2,380	2,752			
32.55	2,420	2,872			
32.60	2,460	2,994			
32.65	2,500	3,118			
32.70	2,541	3,244			
32.75	2,582	3,372			
32.80	2,624	3,502			
32.85	2,666	3,635			
32.90	2,708	3,769			
32.95	2,750	3,905			
33.00	2,793	4,044			
33.05	2,834	4,185			
33.10	2,875	4,327			
33.15	2,917	4,472			
33.20	2,959	4,619			
33.25	3,001	4,768			
33.30	3,044	4,919			
33.35	3,086	5,072			
33.40	3,129	5,228			
33.45	3,173	5,385			
33.50	3,217	5,545			

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond SWM-C: SGW C

Inflow Area = 0.796 ac, 59.64% Impervious, Inflow Depth > 4.07" for 10-yr event
 Inflow = 5.24 cfs @ 11.91 hrs, Volume= 0.270 af
 Outflow = 0.38 cfs @ 12.47 hrs, Volume= 0.140 af, Atten= 93%, Lag= 33.6 min
 Primary = 0.38 cfs @ 12.47 hrs, Volume= 0.140 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 33.38' @ 12.47 hrs Surf.Area= 6,188 sf Storage= 7,368 cf

Plug-Flow detention time= 308.1 min calculated for 0.140 af (52% of inflow)

Center-of-Mass det. time= 184.5 min (946.6 - 762.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.00'	15,119 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
32.00	4,506	289.0	0	0	4,506
34.00	7,023	340.0	11,436	11,436	7,135
34.50	7,715	352.0	3,683	15,119	7,818

Device	Routing	Invert	Outlet Devices
#1	Primary	31.67'	15.0" Round 15" Dual Wall HPDE L= 320.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 31.67' / 30.67' S= 0.0031 ' S= 0.0031 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	33.00'	6.0" W x 6.0" H Vert. 6" Notch on side of 374.70 C= 0.600
#3	Device 1	33.50'	16.3' long Rim of 374.70 Cv= 2.62 (C= 3.28)
#4	Secondary	34.00'	10.0' long 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

Primary OutFlow Max=0.38 cfs @ 12.47 hrs HW=33.38' TW=31.27' (Dynamic Tailwater)

1=15" Dual Wall HPDE (Passes 0.38 cfs of 4.25 cfs potential flow)

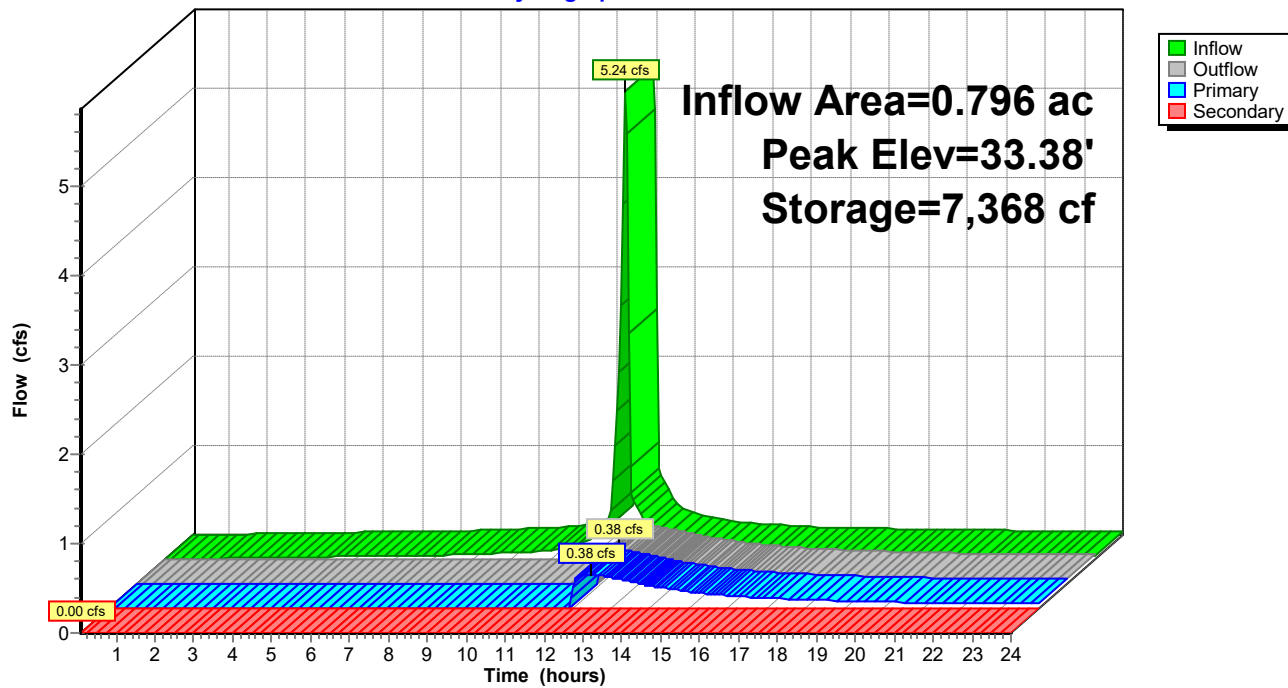

2=6" Notch on side of 374.70 (Orifice Controls 0.38 cfs @ 1.99 fps)


3=Rim of 374.70 (Controls 0.00 cfs)
Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=32.00' TW=0.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SWM-C: SGW C

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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Stage-Area-Storage for Pond SWM-C: SGW C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	4,506	0
32.05	4,562	227
32.10	4,619	456
32.15	4,675	689
32.20	4,733	924
32.25	4,790	1,162
32.30	4,848	1,403
32.35	4,906	1,647
32.40	4,965	1,893
32.45	5,024	2,143
32.50	5,083	2,396
32.55	5,143	2,651
32.60	5,203	2,910
32.65	5,263	3,172
32.70	5,324	3,436
32.75	5,385	3,704
32.80	5,446	3,975
32.85	5,508	4,249
32.90	5,570	4,526
32.95	5,632	4,806
33.00	5,695	5,089
33.05	5,758	5,375
33.10	5,822	5,665
33.15	5,885	5,957
33.20	5,949	6,253
33.25	6,014	6,552
33.30	6,079	6,855
33.35	6,144	7,160
33.40	6,209	7,469
33.45	6,275	7,781
33.50	6,342	8,097
33.55	6,408	8,415
33.60	6,475	8,737
33.65	6,542	9,063
33.70	6,610	9,392
33.75	6,678	9,724
33.80	6,746	10,059
33.85	6,815	10,398
33.90	6,884	10,741
33.95	6,953	11,087
34.00	7,023	11,436
34.05	7,091	11,789
34.10	7,159	12,145
34.15	7,227	12,505
34.20	7,296	12,868
34.25	7,365	13,235
34.30	7,434	13,605
34.35	7,504	13,978
34.40	7,574	14,355
34.45	7,644	14,735
34.50	7,715	15,119

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Summary for Pond SWMB: SGW B

Inflow Area = 1.540 ac, 65.61% Impervious, Inflow Depth > 4.18" for 10-yr event
 Inflow = 11.11 cfs @ 11.90 hrs, Volume= 0.536 af
 Outflow = 0.75 cfs @ 12.46 hrs, Volume= 0.322 af, Atten= 93%, Lag= 33.7 min
 Primary = 0.75 cfs @ 12.46 hrs, Volume= 0.322 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 32.79' @ 12.46 hrs Surf.Area= 9,601 sf Storage= 14,488 cf

Plug-Flow detention time= 301.6 min calculated for 0.321 af (60% of inflow)

Center-of-Mass det. time= 191.2 min (955.5 - 764.3)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	27,407 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
31.00	6,669	389.0	0	0	6,669
33.00	9,979	439.0	16,537	16,537	10,066
34.00	11,785	464.0	10,869	27,407	11,918

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	4.0" W x 18.0" H Vert. 4" Notch on side of 374.70 C= 0.600
#2	Primary	33.50'	16.3' long Rim of 374.23 2 End Contraction(s)

Primary OutFlow Max=0.75 cfs @ 12.46 hrs HW=32.79' TW=31.27' (Dynamic Tailwater)

1=4" Notch on side of 374.70 (Orifice Controls 0.75 cfs @ 2.85 fps)

2=Rim of 374.23 (Controls 0.00 cfs)

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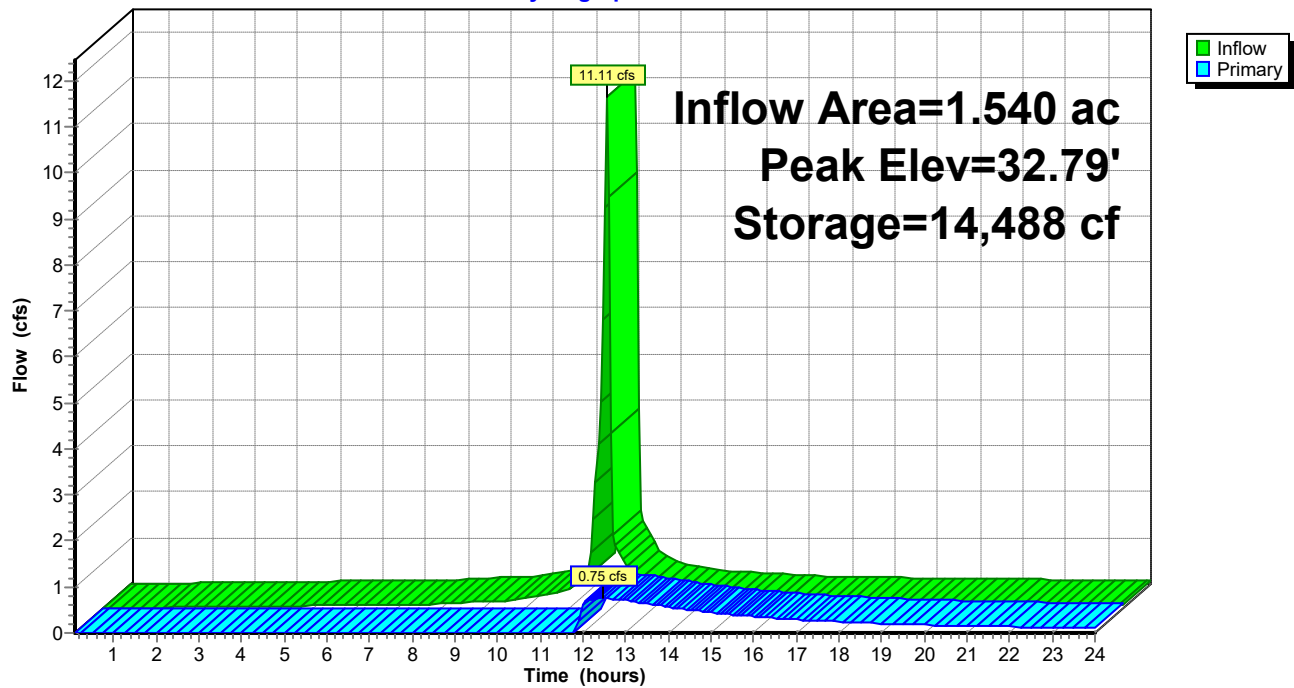
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Pond SWMB: SGW B

Hydrograph



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Stage-Area-Storage for Pond SWMB: SGW B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	6,669	0	33.55	10,954	22,292
31.05	6,744	335	33.60	11,045	22,842
31.10	6,819	674	33.65	11,136	23,396
31.15	6,894	1,017	33.70	11,227	23,955
31.20	6,970	1,364	33.75	11,319	24,519
31.25	7,046	1,714	33.80	11,412	25,087
31.30	7,123	2,068	33.85	11,505	25,660
31.35	7,200	2,427	33.90	11,598	26,238
31.40	7,278	2,788	33.95	11,691	26,820
31.45	7,356	3,154	34.00	11,785	27,407
31.50	7,434	3,524			
31.55	7,513	3,898			
31.60	7,592	4,275			
31.65	7,672	4,657			
31.70	7,752	5,043			
31.75	7,832	5,432			
31.80	7,913	5,826			
31.85	7,995	6,223			
31.90	8,076	6,625			
31.95	8,158	7,031			
32.00	8,241	7,441			
32.05	8,324	7,855			
32.10	8,407	8,273			
32.15	8,491	8,696			
32.20	8,575	9,123			
32.25	8,660	9,553			
32.30	8,745	9,989			
32.35	8,830	10,428			
32.40	8,916	10,872			
32.45	9,002	11,320			
32.50	9,089	11,772			
32.55	9,176	12,229			
32.60	9,264	12,690			
32.65	9,352	13,155			
32.70	9,440	13,625			
32.75	9,529	14,099			
32.80	9,618	14,578			
32.85	9,708	15,061			
32.90	9,798	15,548			
32.95	9,888	16,041			
33.00	9,979	16,537			
33.05	10,066	17,038			
33.10	10,153	17,544			
33.15	10,240	18,054			
33.20	10,328	18,568			
33.25	10,416	19,086			
33.30	10,505	19,609			
33.35	10,594	20,137			
33.40	10,683	20,669			
33.45	10,773	21,205			
33.50	10,863	21,746			

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Summary for Pond X1: MH-1

Inflow Area = 2.738 ac, 62.01% Impervious, Inflow Depth > 2.40" for 10-yr event
Inflow = 1.42 cfs @ 12.42 hrs, Volume= 0.546 af
Outflow = 1.42 cfs @ 12.42 hrs, Volume= 0.546 af, Atten= 0%, Lag= 0.0 min
Primary = 1.42 cfs @ 12.42 hrs, Volume= 0.546 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

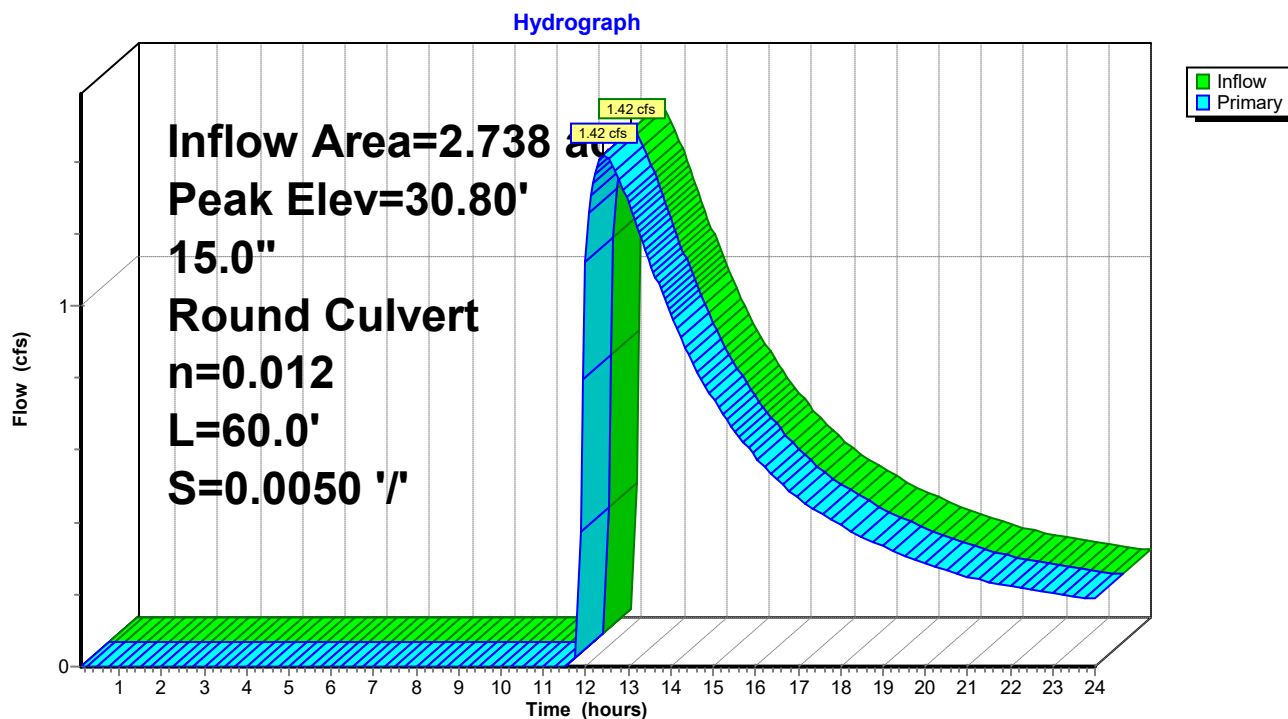
Peak Elev= 30.80' @ 12.42 hrs

Flood Elev= 33.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.16'	15.0" Round 15" Dual Wall HPDE L= 60.0' Box, headwall w/3 rounded edges, Ke= 0.200 Inlet / Outlet Invert= 30.16' / 29.86' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.42 cfs @ 12.42 hrs HW=30.80' TW=0.00' (Dynamic Tailwater)
↑1=15" Dual Wall HPDE (Barrel Controls 1.42 cfs @ 3.29 fps)

Pond X1: MH-1



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Stage-Area-Storage for Pond X1: MH-1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
30.16	0	32.71	0
30.21	0	32.76	0
30.26	0	32.81	0
30.31	0	32.86	0
30.36	0	32.91	0
30.41	0	32.96	0
30.46	0	33.01	0
30.51	0	33.06	0
30.56	0	33.11	0
30.61	0	33.16	0
30.66	0	33.21	0
30.71	0	33.26	0
30.76	0	33.31	0
30.81	0	33.36	0
30.86	0	33.41	0
30.91	0	33.46	0
30.96	0	33.51	0
31.01	0	33.56	0
31.06	0	33.61	0
31.11	0	33.66	0
31.16	0	33.71	0
31.21	0	33.76	0
31.26	0		
31.31	0		
31.36	0		
31.41	0		
31.46	0		
31.51	0		
31.56	0		
31.61	0		
31.66	0		
31.71	0		
31.76	0		
31.81	0		
31.86	0		
31.91	0		
31.96	0		
32.01	0		
32.06	0		
32.11	0		
32.16	0		
32.21	0		
32.26	0		
32.31	0		
32.36	0		
32.41	0		
32.46	0		
32.51	0		
32.56	0		
32.61	0		
32.66	0		

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Stage-Area-Storage for Pond X2: OS-B 374.70 Inlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
30.67	0	31.69	0	32.71	0
30.69	0	31.71	0	32.73	0
30.71	0	31.73	0	32.75	0
30.73	0	31.75	0	32.77	0
30.75	0	31.77	0	32.79	0
30.77	0	31.79	0	32.81	0
30.79	0	31.81	0	32.83	0
30.81	0	31.83	0	32.85	0
30.83	0	31.85	0	32.87	0
30.85	0	31.87	0	32.89	0
30.87	0	31.89	0	32.91	0
30.89	0	31.91	0	32.93	0
30.91	0	31.93	0	32.95	0
30.93	0	31.95	0	32.97	0
30.95	0	31.97	0	32.99	0
30.97	0	31.99	0		
30.99	0	32.01	0		
31.01	0	32.03	0		
31.03	0	32.05	0		
31.05	0	32.07	0		
31.07	0	32.09	0		
31.09	0	32.11	0		
31.11	0	32.13	0		
31.13	0	32.15	0		
31.15	0	32.17	0		
31.17	0	32.19	0		
31.19	0	32.21	0		
31.21	0	32.23	0		
31.23	0	32.25	0		
31.25	0	32.27	0		
31.27	0	32.29	0		
31.29	0	32.31	0		
31.31	0	32.33	0		
31.33	0	32.35	0		
31.35	0	32.37	0		
31.37	0	32.39	0		
31.39	0	32.41	0		
31.41	0	32.43	0		
31.43	0	32.45	0		
31.45	0	32.47	0		
31.47	0	32.49	0		
31.49	0	32.51	0		
31.51	0	32.53	0		
31.53	0	32.55	0		
31.55	0	32.57	0		
31.57	0	32.59	0		
31.59	0	32.61	0		
31.61	0	32.63	0		
31.63	0	32.65	0		
31.65	0	32.67	0		
31.67	0	32.69	0		

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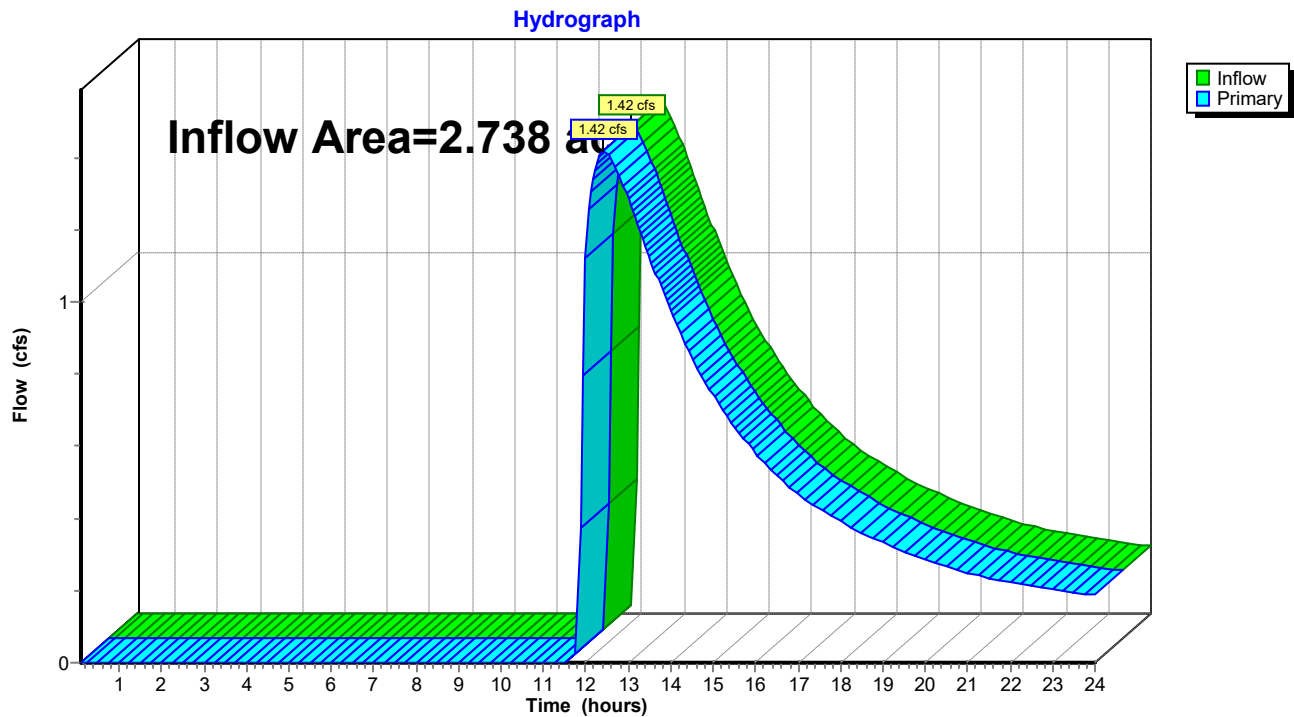
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Summary for Link 4L: POI #4 - POST

Inflow Area = 2.738 ac, 62.01% Impervious, Inflow Depth > 2.40" for 10-yr event
Inflow = 1.42 cfs @ 12.42 hrs, Volume= 0.546 af
Primary = 1.42 cfs @ 12.42 hrs, Volume= 0.546 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 4L: POI #4 - POST



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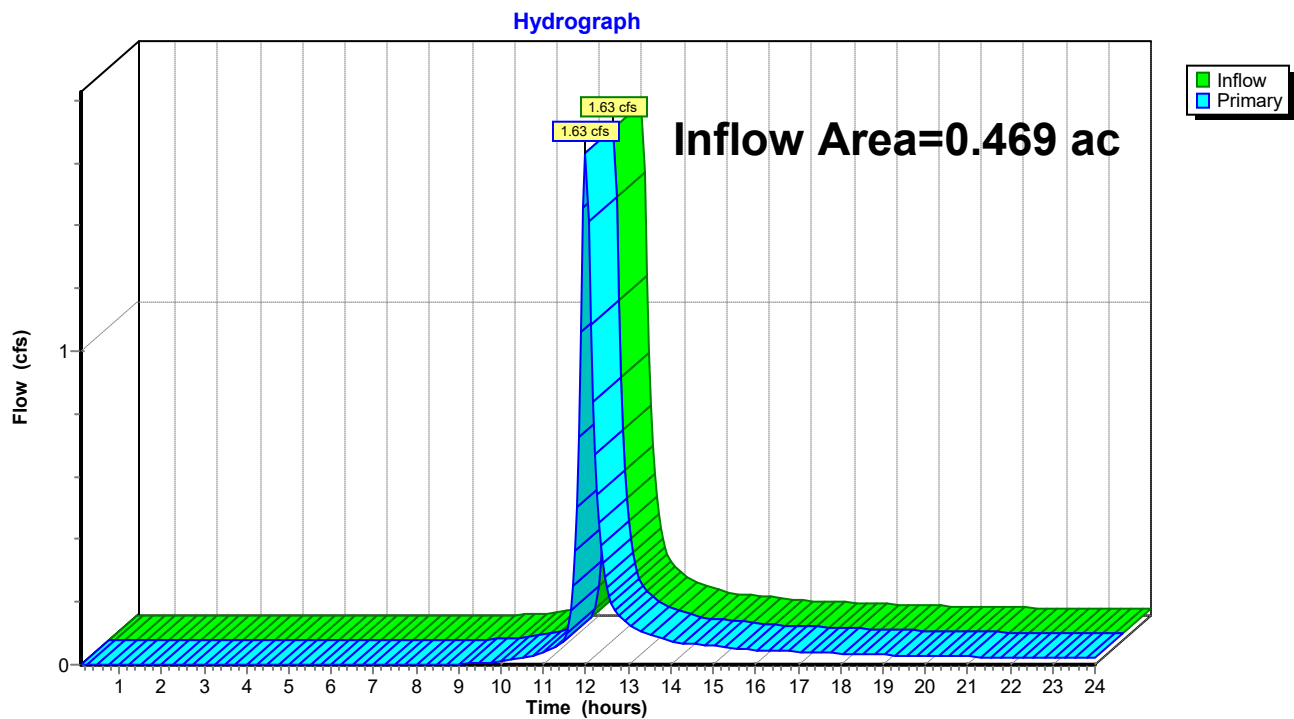
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Summary for Link 5L: POI #1 - POST

Inflow Area = 0.469 ac, 0.00% Impervious, Inflow Depth > 2.60" for 10-yr event
Inflow = 1.63 cfs @ 12.00 hrs, Volume= 0.101 af
Primary = 1.63 cfs @ 12.00 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 5L: POI #1 - POST

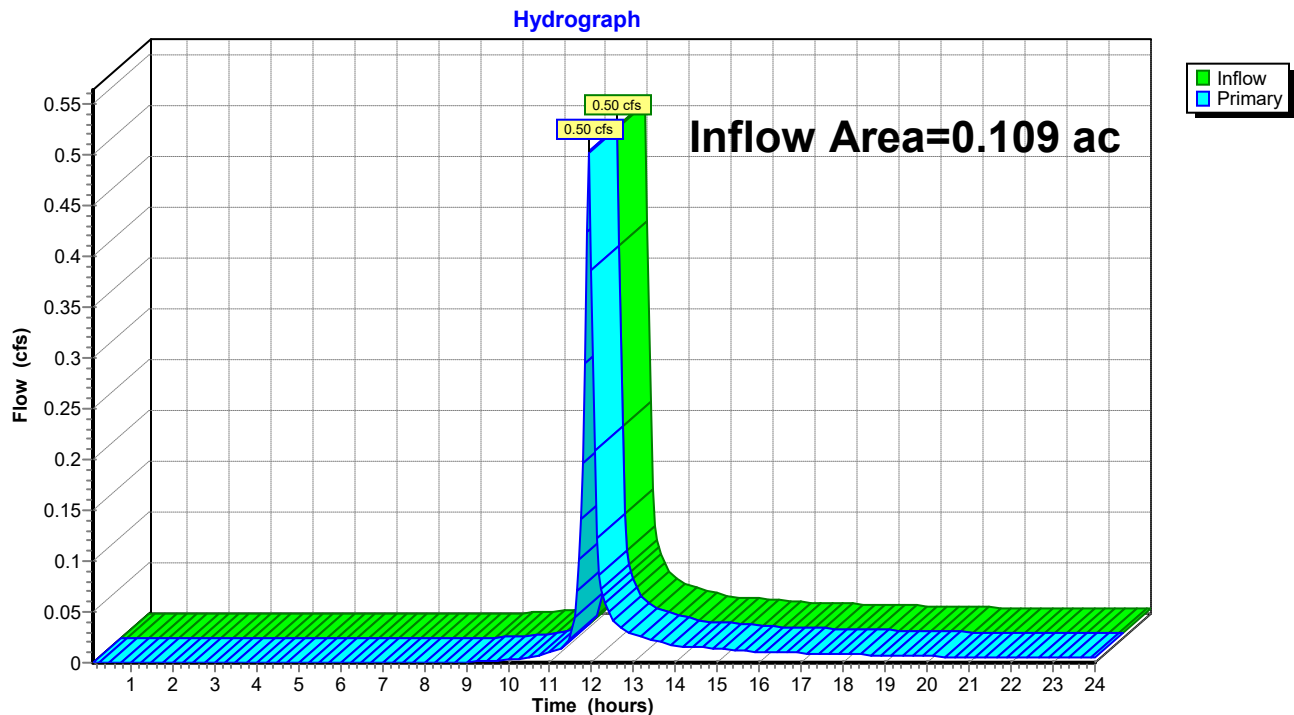


Summary for Link 8L: POI #2 - POST

Inflow Area = 0.109 ac, 0.00% Impervious, Inflow Depth > 2.60" for 10-yr event
Inflow = 0.50 cfs @ 11.95 hrs, Volume= 0.024 af
Primary = 0.50 cfs @ 11.95 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 8L: POI #2 - POST



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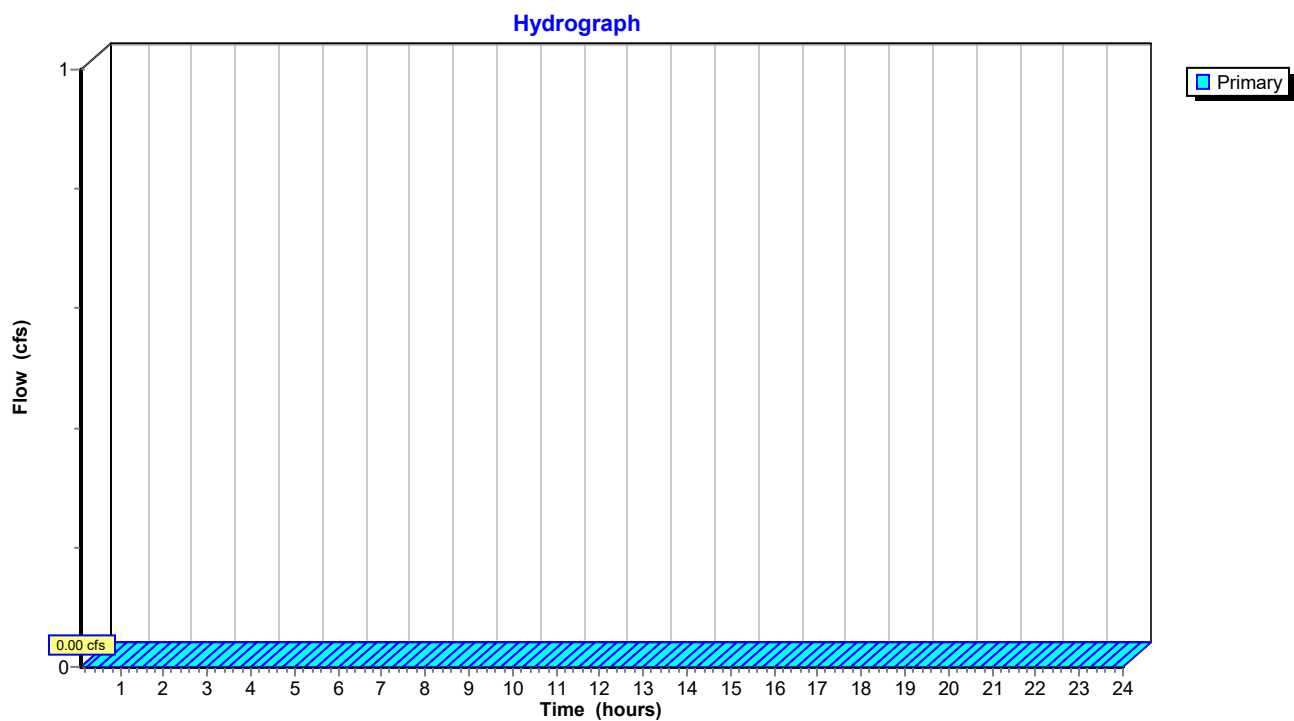
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Summary for Link 10L: POI #3 - POST

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 10L: POI #3 - POST



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Type II 24-hr 100-yr Rainfall=7.60"

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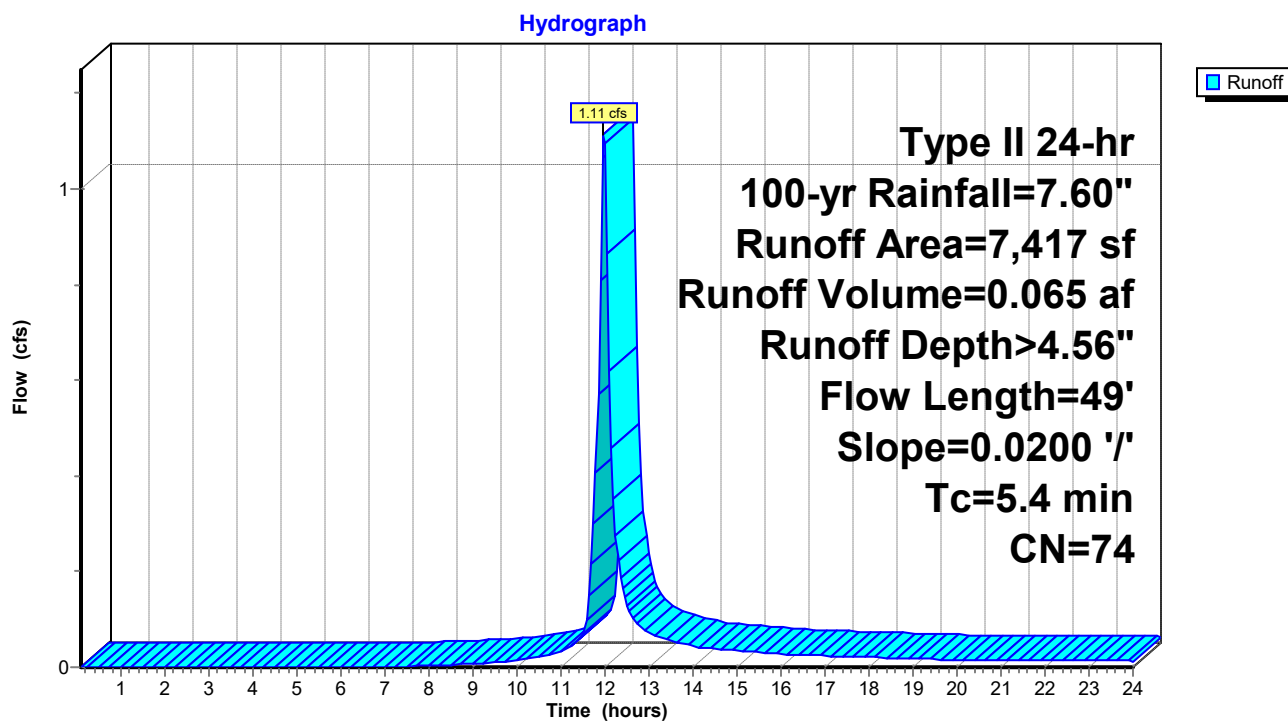
Summary for Subcatchment 6S: Landscape Residue (Blue)

Runoff = 1.11 cfs @ 11.98 hrs, Volume= 0.065 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
7,417	74	>75% Grass cover, Good, HSG C
7,417		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.4	49	0.0200	0.15		Sheet Flow, Landscaped Residue Grass: Short n= 0.150 P2= 3.40"

Subcatchment 6S: Landscape Residue (Blue)

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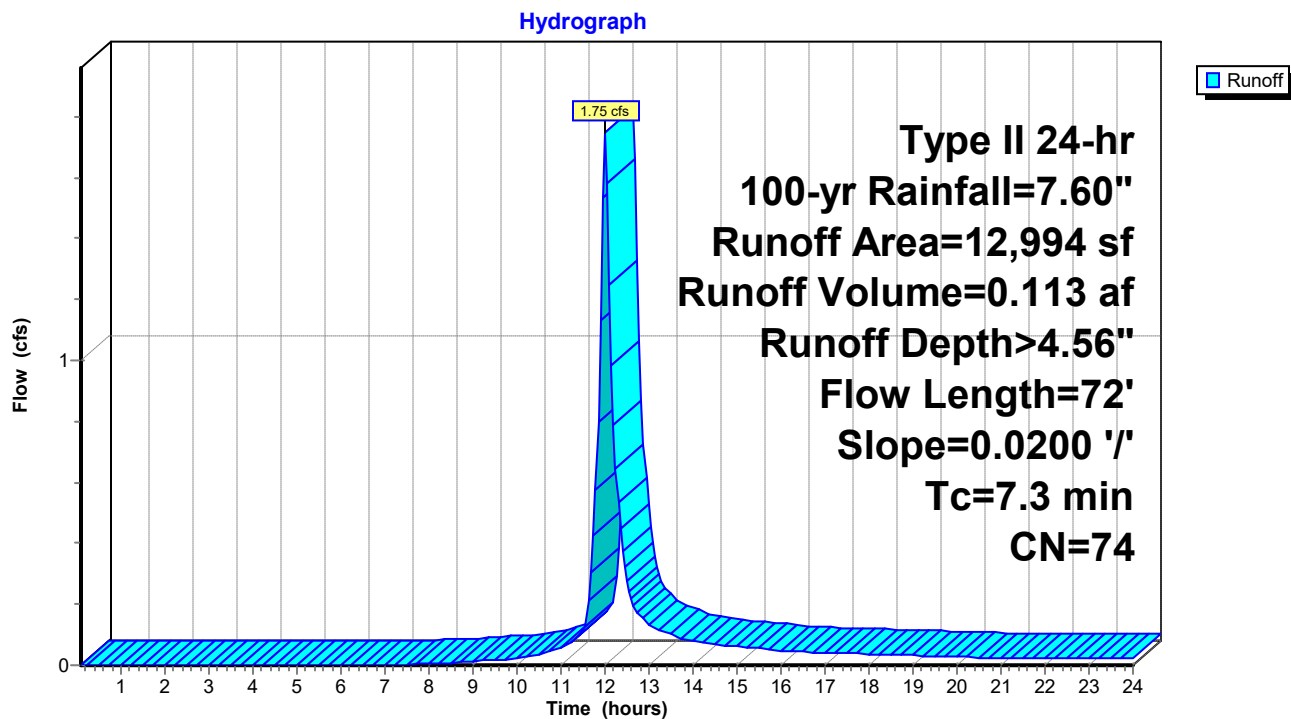
Summary for Subcatchment 7S: Landscape Residue (Pink)

Runoff = 1.75 cfs @ 12.00 hrs, Volume= 0.113 af, Depth> 4.56"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
12,994	74	>75% Grass cover, Good, HSG C
12,994		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	72	0.0200	0.16		Sheet Flow, Landscape Lawn Grass: Short n= 0.150 P2= 3.40"

Subcatchment 7S: Landscape Residue (Pink)

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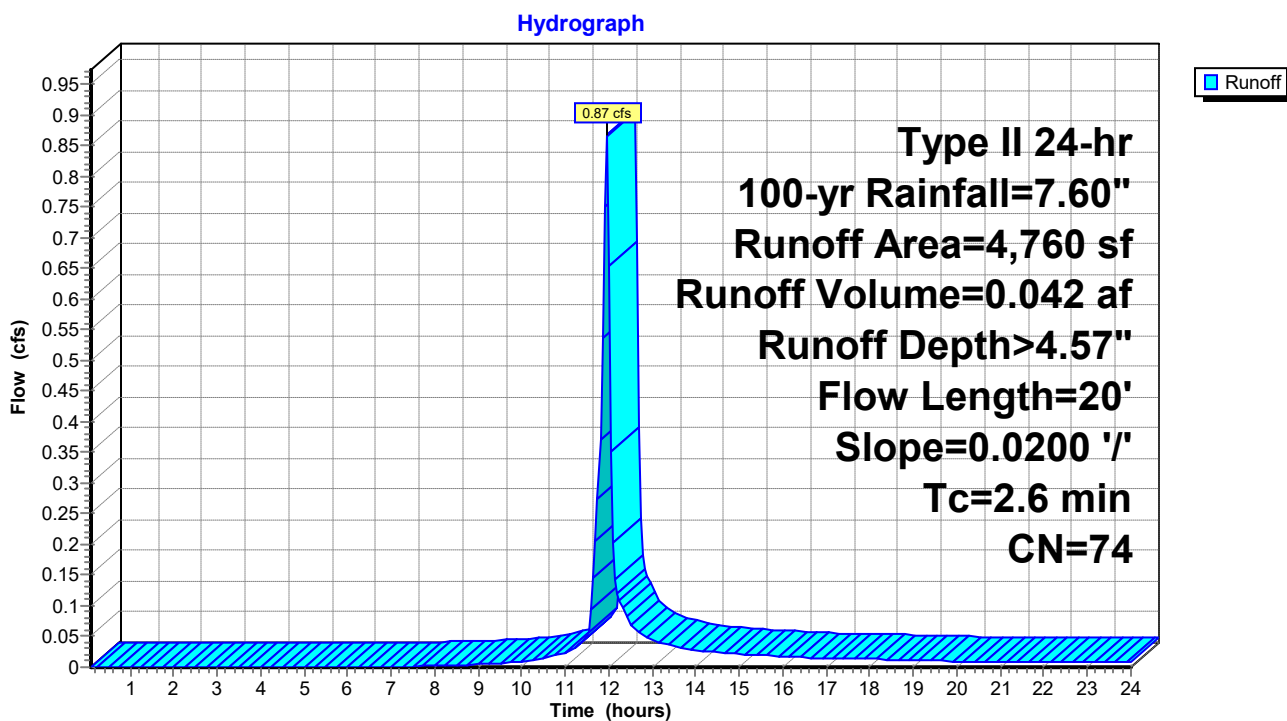
Summary for Subcatchment 9S: Landscape Residue (Turquoise)

Runoff = 0.87 cfs @ 11.94 hrs, Volume= 0.042 af, Depth> 4.57"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
4,760	74	>75% Grass cover, Good, HSG C
4,760		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.6	20	0.0200	0.13		Sheet Flow, Lawn Grass: Short n= 0.150 P2= 3.40"

Subcatchment 9S: Landscape Residue (Turquoise)

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Type II 24-hr 100-yr Rainfall=7.60"

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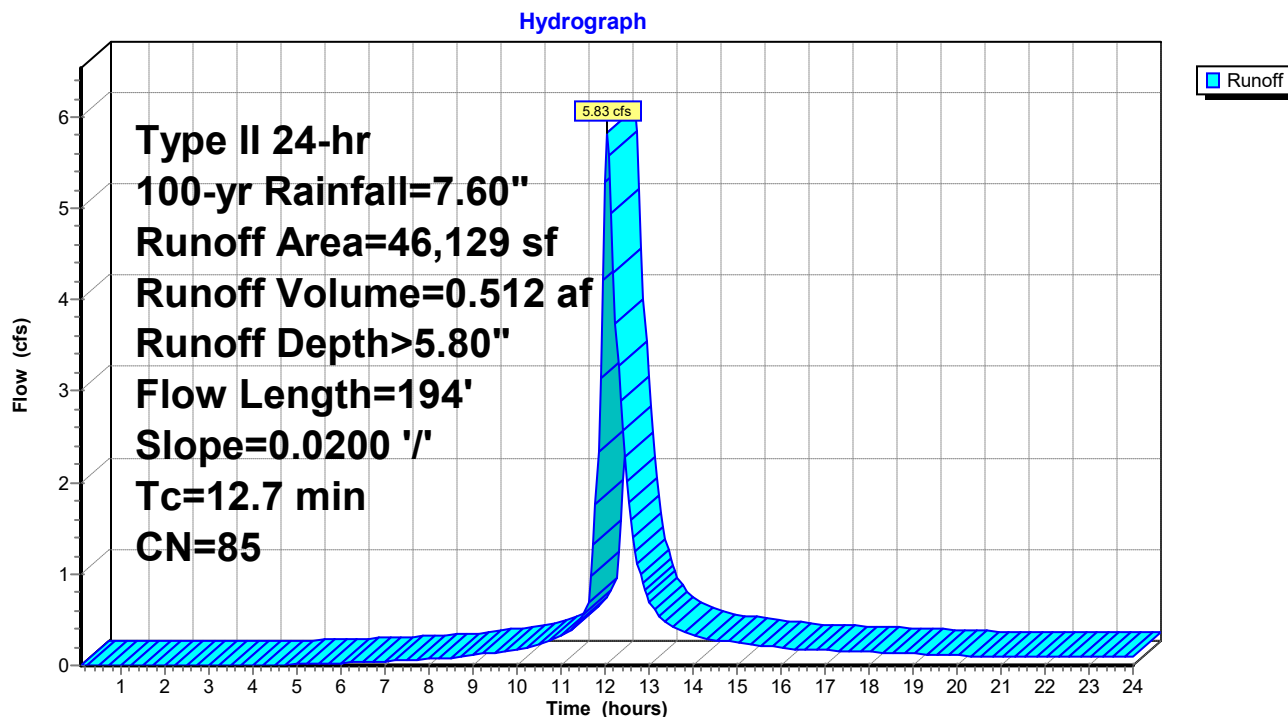
Summary for Subcatchment EX-1: POI #1 - PRE

Runoff = 5.83 cfs @ 12.06 hrs, Volume= 0.512 af, Depth> 5.80"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
30,740	83	Fallow, crop residue, Good, HSG B
11,631	90	Fallow, crop residue, Good, HSG D
3,758	88	Fallow, crop residue, Good, HSG C
46,129	85	Weighted Average
46,129		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	115	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
1.0	79	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
12.7	194	Total			

Subcatchment EX-1: POI #1 - PRE

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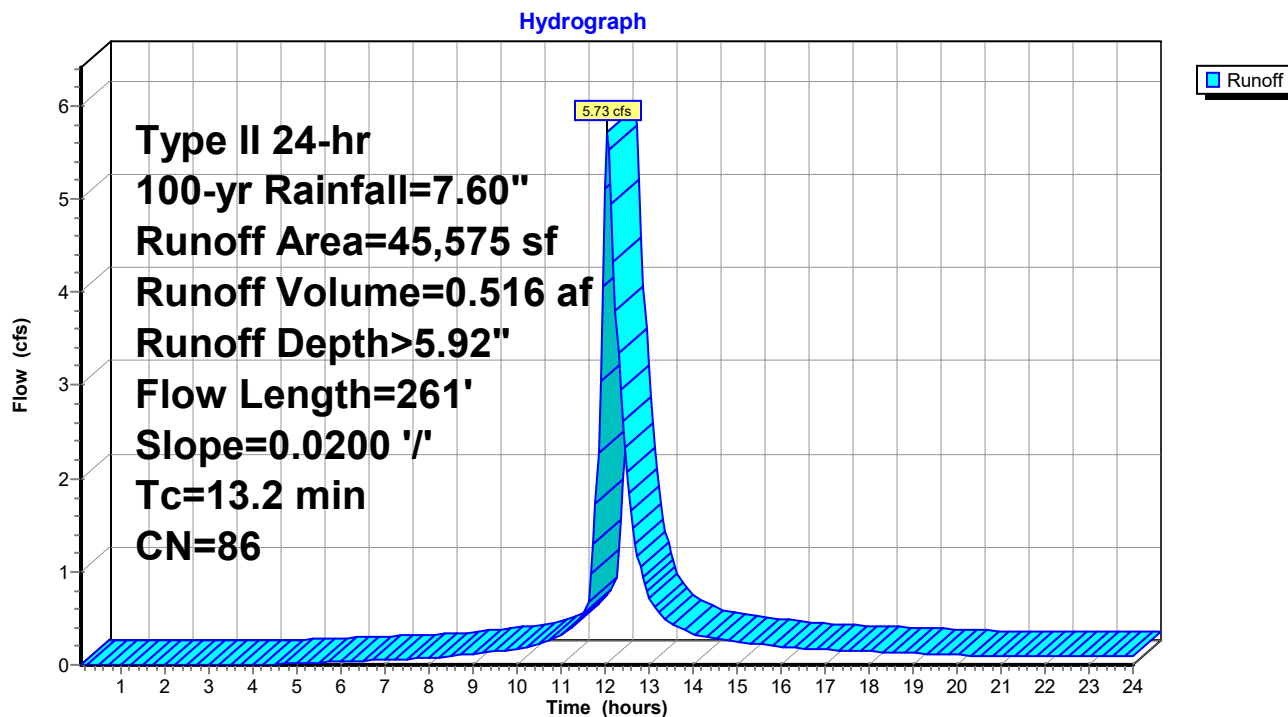
Summary for Subcatchment EX-2: EX-2

Runoff = 5.73 cfs @ 12.06 hrs, Volume= 0.516 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
16,827	83	Fallow, crop residue, Good, HSG B
28,748	88	Fallow, crop residue, Good, HSG C
45,575	86	Weighted Average
45,575		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	108	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
2.0	153	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
13.2	261	Total			

Subcatchment EX-2: EX-2

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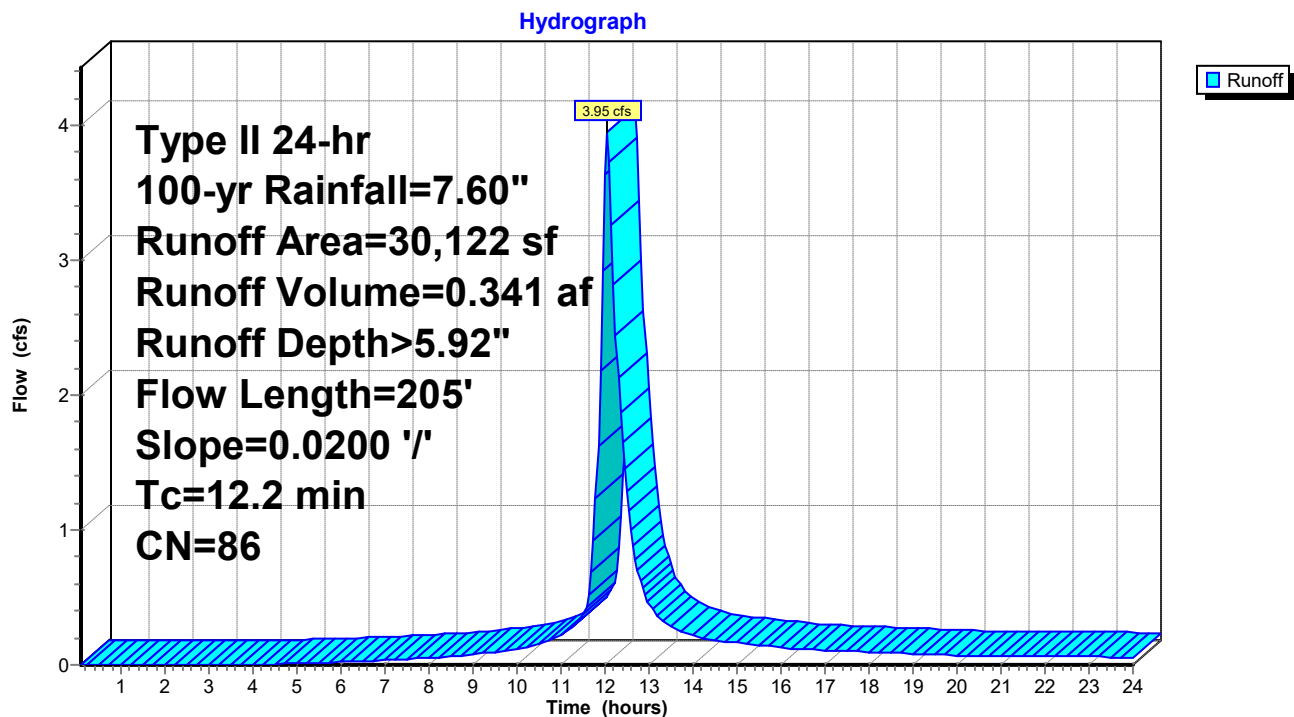
Summary for Subcatchment EX-3: EX-3

Runoff = 3.95 cfs @ 12.05 hrs, Volume= 0.341 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
9,853	83	Fallow, crop residue, Good, HSG B
20,269	88	Fallow, crop residue, Good, HSG C
30,122	86	Weighted Average
30,122		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	105	0.0200	0.16		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
1.3	100	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
12.2	205	Total			

Subcatchment EX-3: EX-3

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Type II 24-hr 100-yr Rainfall=7.60"

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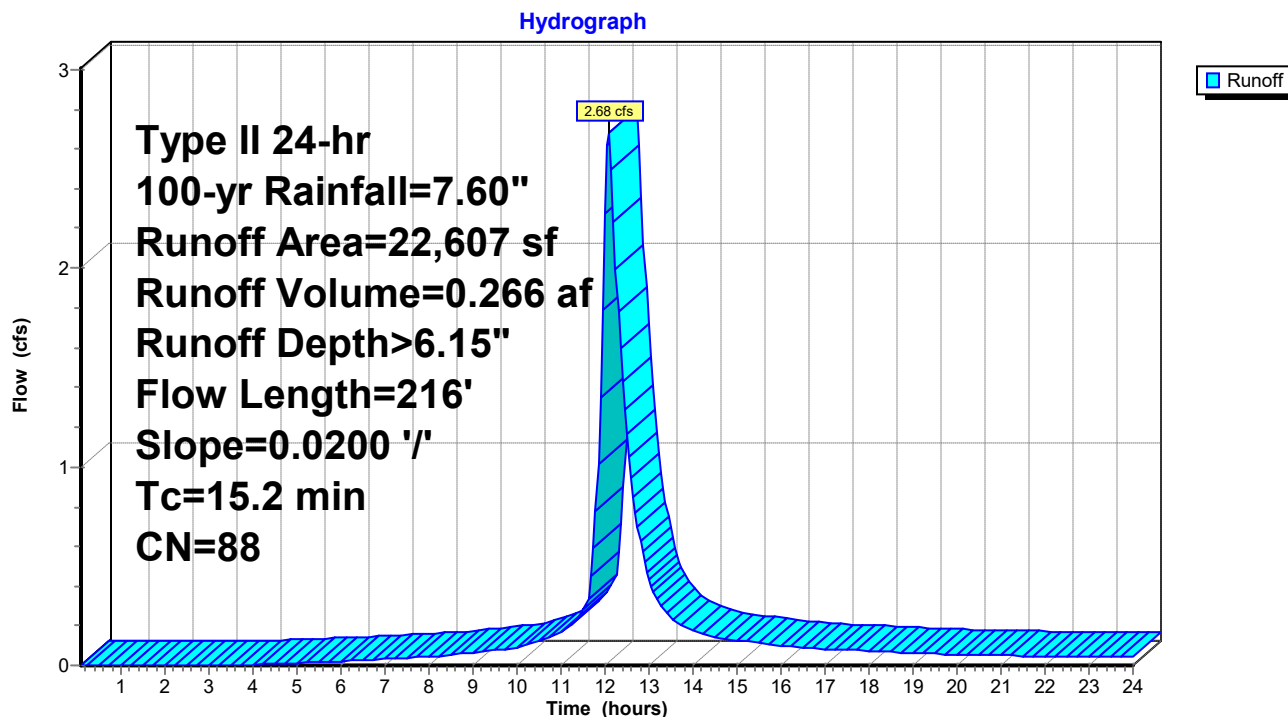
Summary for Subcatchment EX-4: EX-4

Runoff = 2.68 cfs @ 12.09 hrs, Volume= 0.266 af, Depth> 6.15"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
19,697	88	Fallow, crop residue, Good, HSG C
2,225	90	Fallow, crop residue, Good, HSG D
685	83	Fallow, crop residue, Good, HSG B
22,607	88	Weighted Average
22,607		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.3	147	0.0200	0.17		Sheet Flow, Bean Field
					Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.9	69	0.0200	1.27		Shallow Concentrated Flow, Bean Field
					Cultivated Straight Rows Kv= 9.0 fps
15.2	216	Total			

Subcatchment EX-4: EX-4

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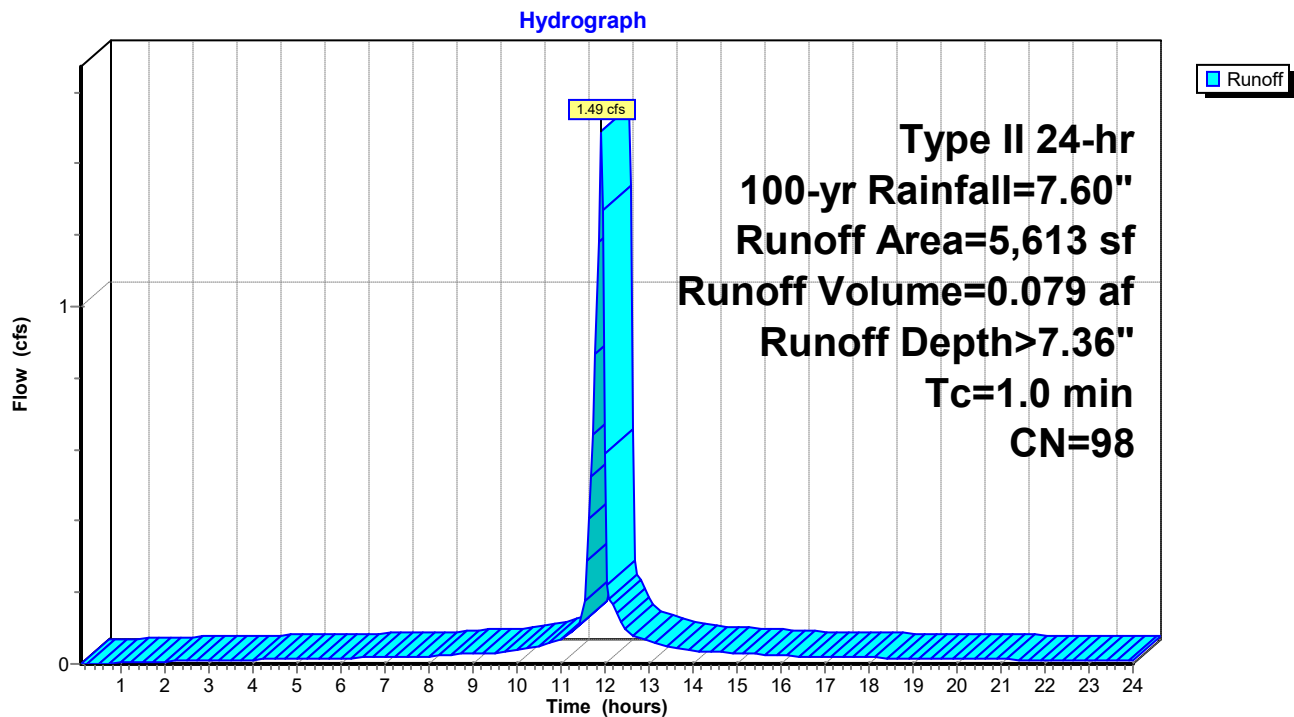
Summary for Subcatchment O1: Half of Warehouse Roof

Runoff = 1.49 cfs @ 11.90 hrs, Volume= 0.079 af, Depth> 7.36"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	5,613	98	Roof
	5,613		100.00% Impervious Area

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

Subcatchment O1: Half of Warehouse Roof

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment O2: Half Office Roof

Runoff = 0.50 cfs @ 11.90 hrs, Volume= 0.026 af, Depth> 7.36"

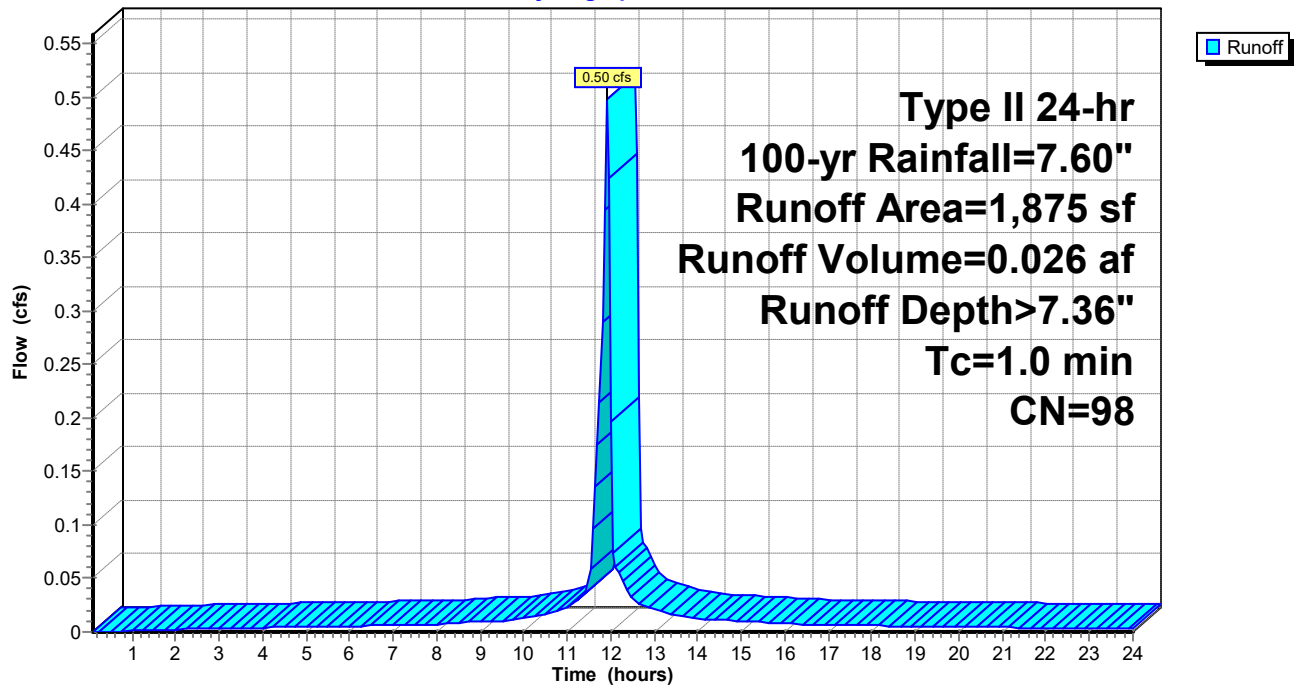
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	1,875	98	Roof
	1,875		100.00% Impervious Area

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

Subcatchment O2: Half Office Roof

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment O3: Portion of Warehouse & Office Roof

Runoff = 0.81 cfs @ 11.90 hrs, Volume= 0.043 af, Depth> 7.36"

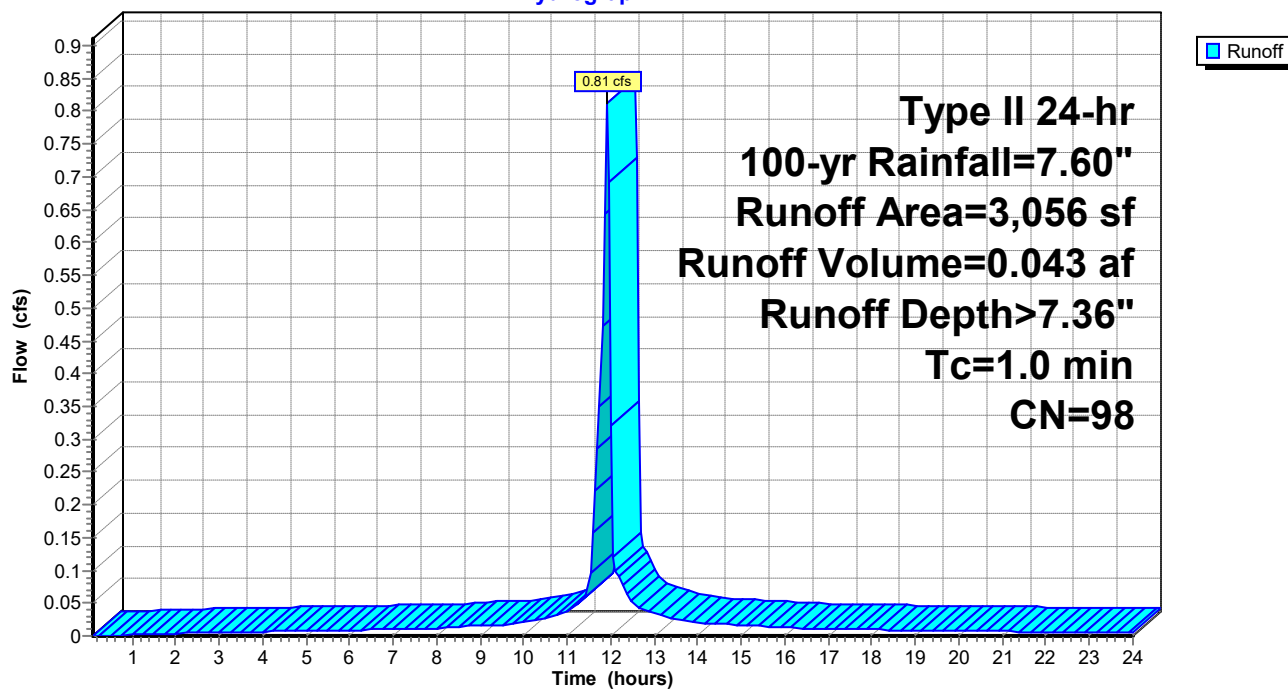
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	3,056	98	Roof
	3,056		100.00% Impervious Area

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

Subcatchment O3: Portion of Warehouse & Office Roof

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment O4: Warehouse Yard & Parking

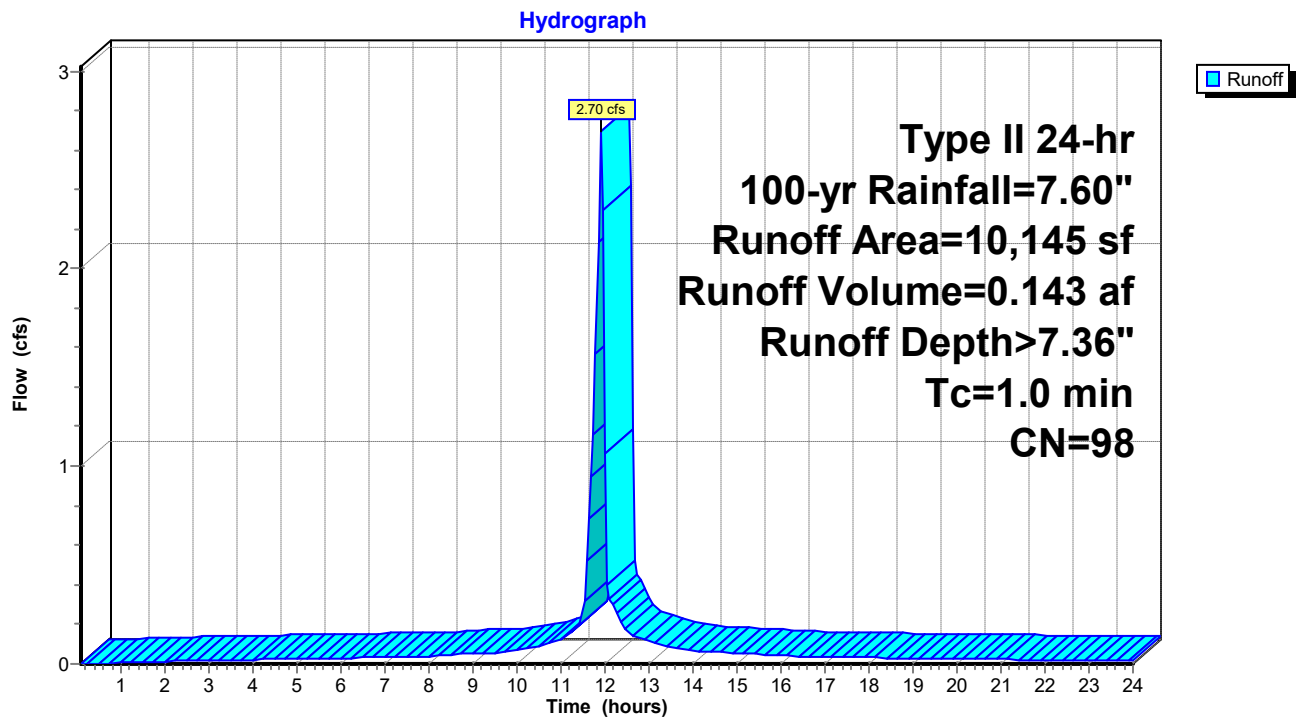
Runoff = 2.70 cfs @ 11.90 hrs, Volume= 0.143 af, Depth> 7.36"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	10,145	98	Asphalt
	10,145		100.00% Impervious Area

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

Subcatchment O4: Warehouse Yard & Parking



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment O5: SWM Feature & Landscape Area

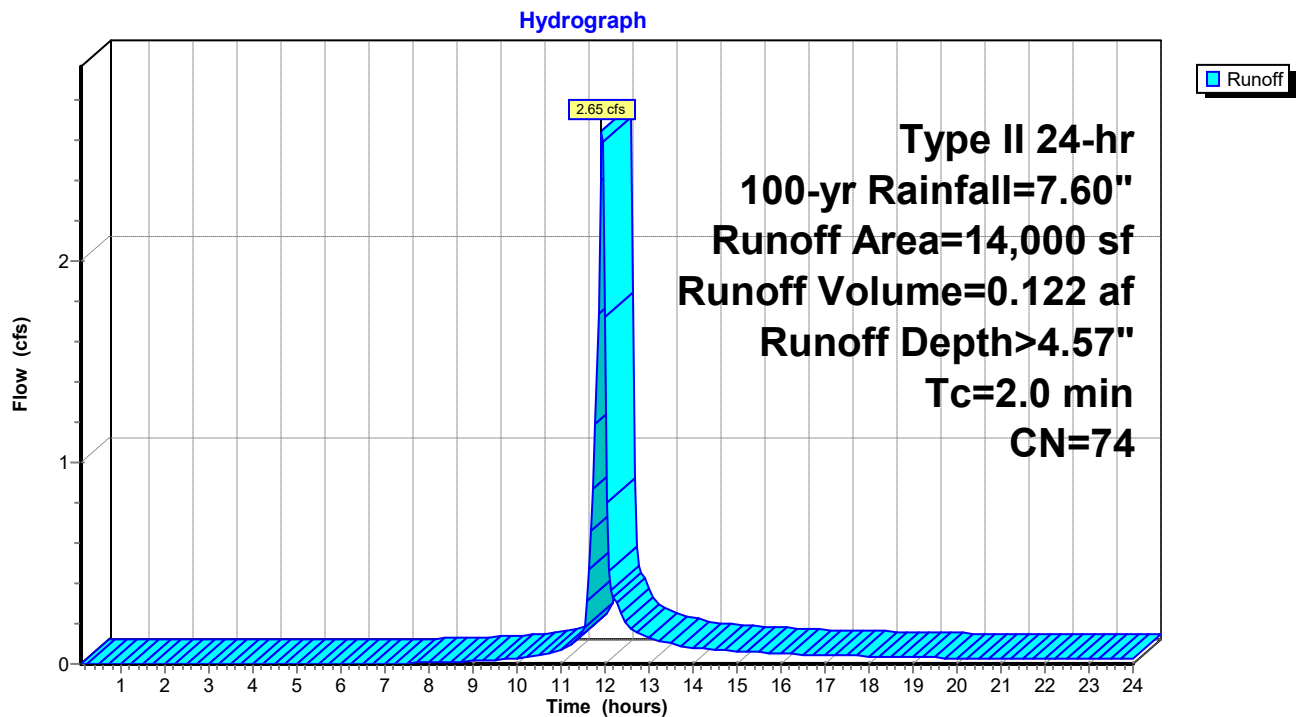
Runoff = 2.65 cfs @ 11.93 hrs, Volume= 0.122 af, Depth> 4.57"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
14,000	74	>75% Grass cover, Good, HSG C
14,000		100.00% Pervious Area

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

Subcatchment O5: SWM Feature & Landscape Area



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P1: Half Office Roof

Runoff = 0.50 cfs @ 11.90 hrs, Volume= 0.026 af, Depth> 7.36"

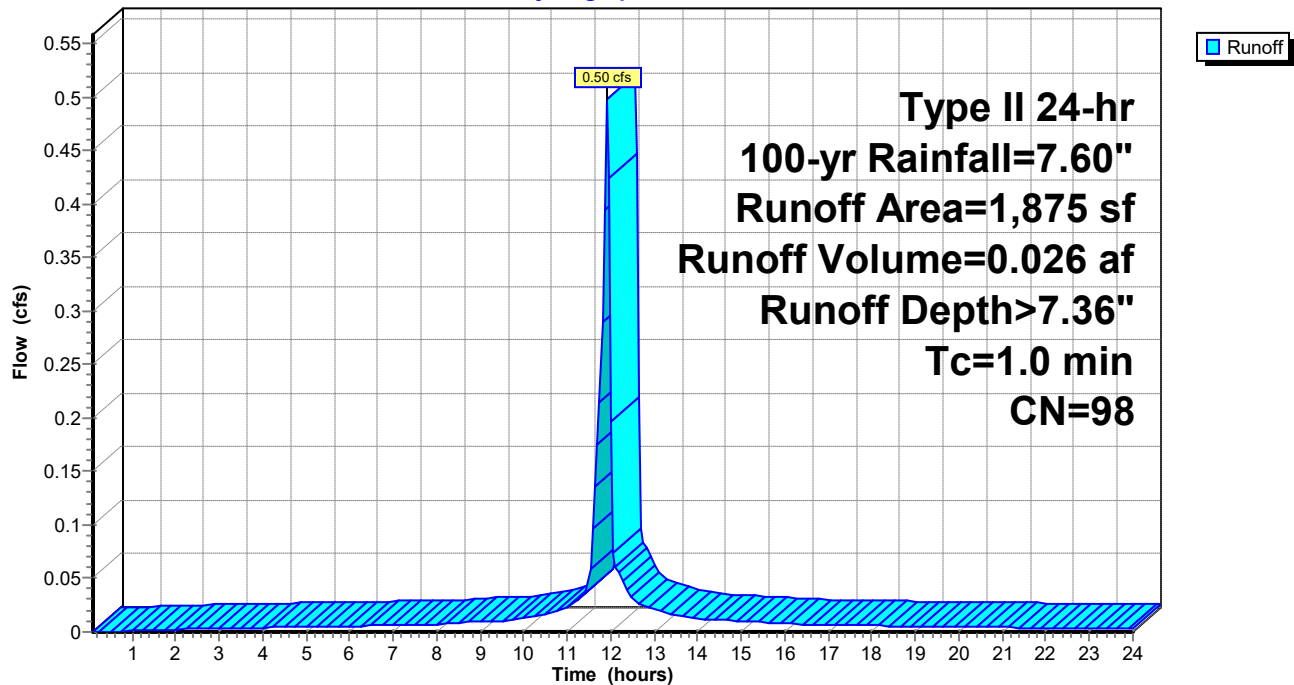
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	1,875	98	Roof
	1,875		100.00% Impervious Area

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

Subcatchment P1: Half Office Roof

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P2: Warehouse Roof

Runoff = 1.41 cfs @ 11.90 hrs, Volume= 0.074 af, Depth> 7.36"

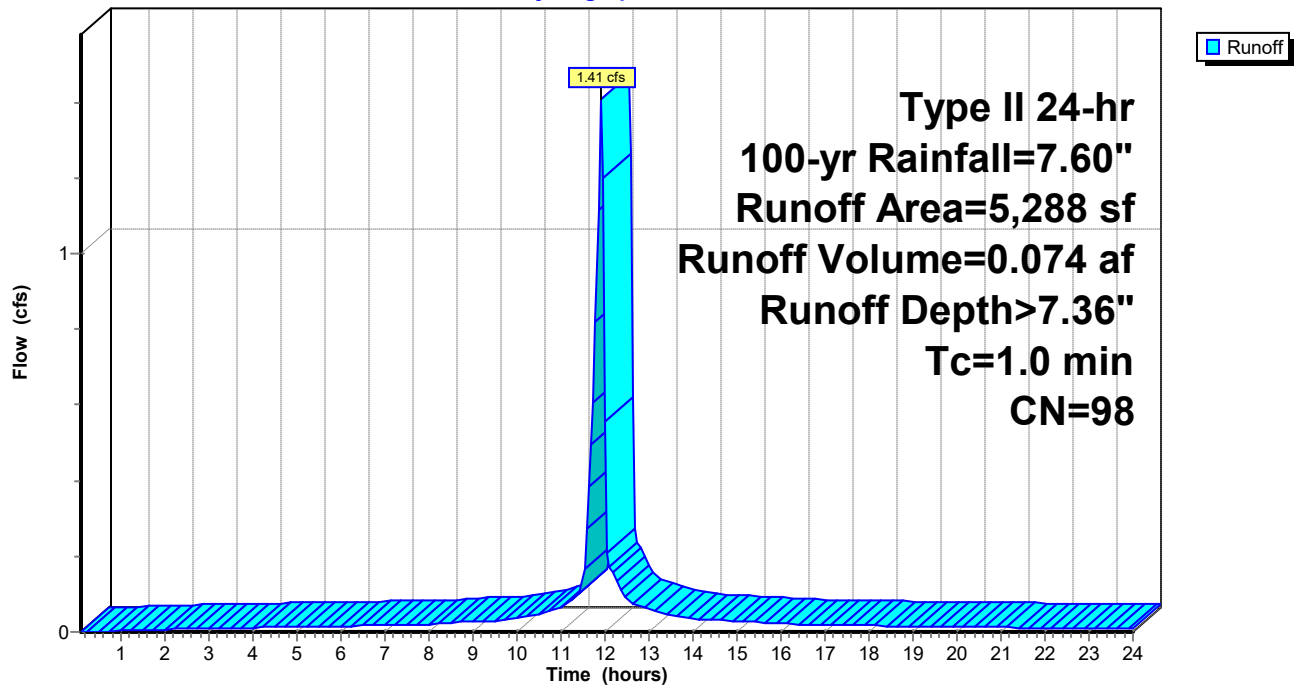
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	5,288	98	Roof
	5,288		100.00% Impervious Area

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

Subcatchment P2: Warehouse Roof

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P3: Parking Area

Runoff = 0.62 cfs @ 11.90 hrs, Volume= 0.033 af, Depth> 7.36"

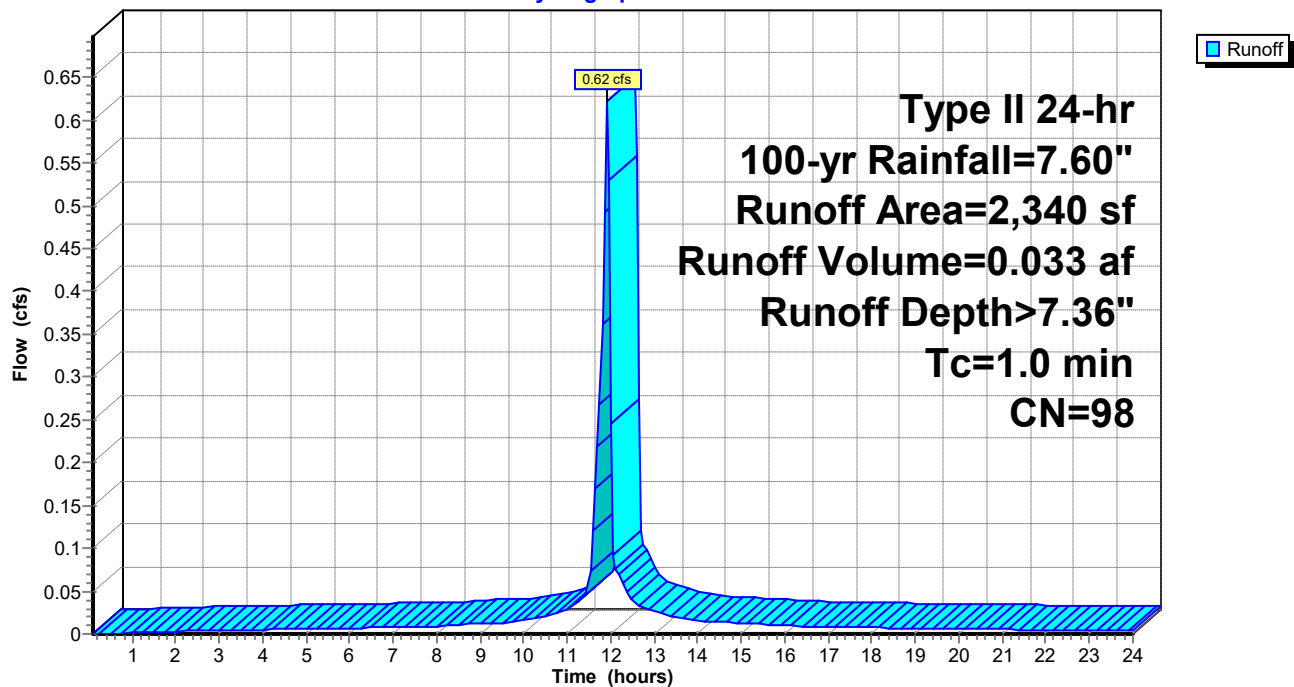
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	2,340	98	Asphalt
	2,340		100.00% Impervious Area

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

Subcatchment P3: Parking Area

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P3A: Parking Area

Runoff = 0.45 cfs @ 11.90 hrs, Volume= 0.024 af, Depth> 7.36"

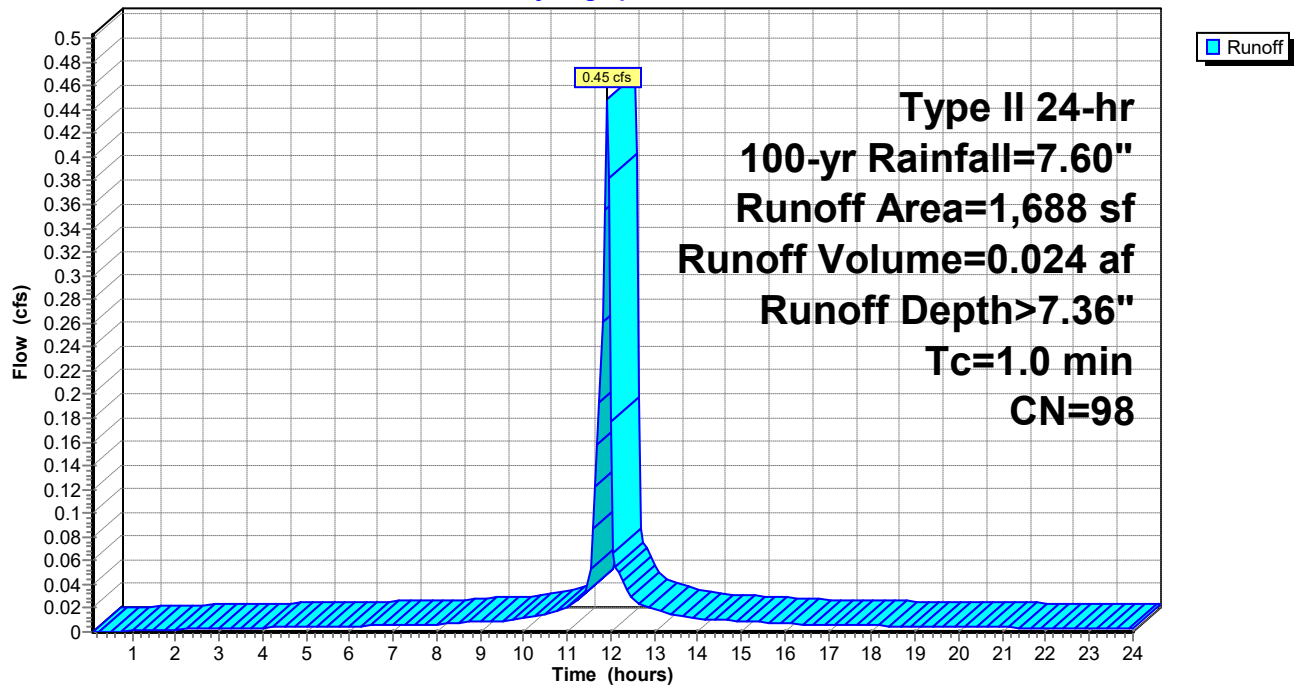
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	1,688	98	Asphalt
	1,688		100.00% Impervious Area

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

Subcatchment P3A: Parking Area

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P4: Parking Area

Runoff = 0.79 cfs @ 11.90 hrs, Volume= 0.042 af, Depth> 7.36"

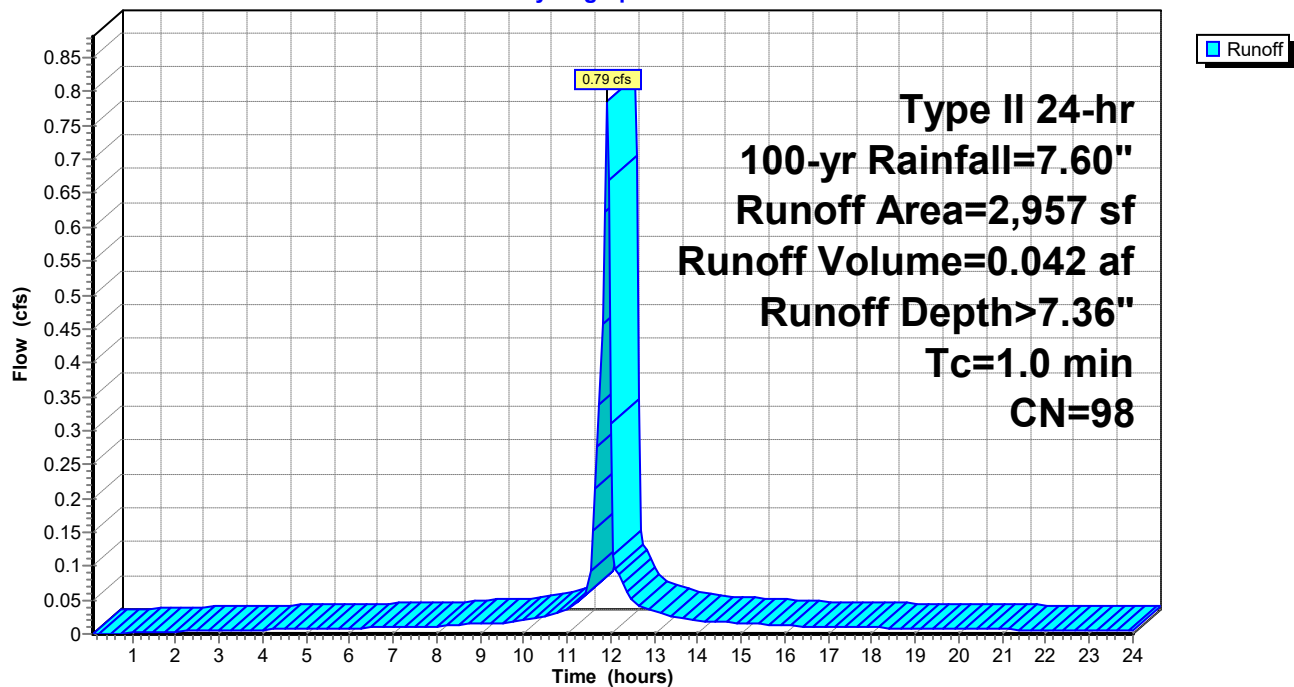
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	2,957	98	Asphalt
	2,957		100.00% Impervious Area

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

Subcatchment P4: Parking Area

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P5: Warehouse Parking Area

Runoff = 1.52 cfs @ 11.90 hrs, Volume= 0.081 af, Depth> 7.36"

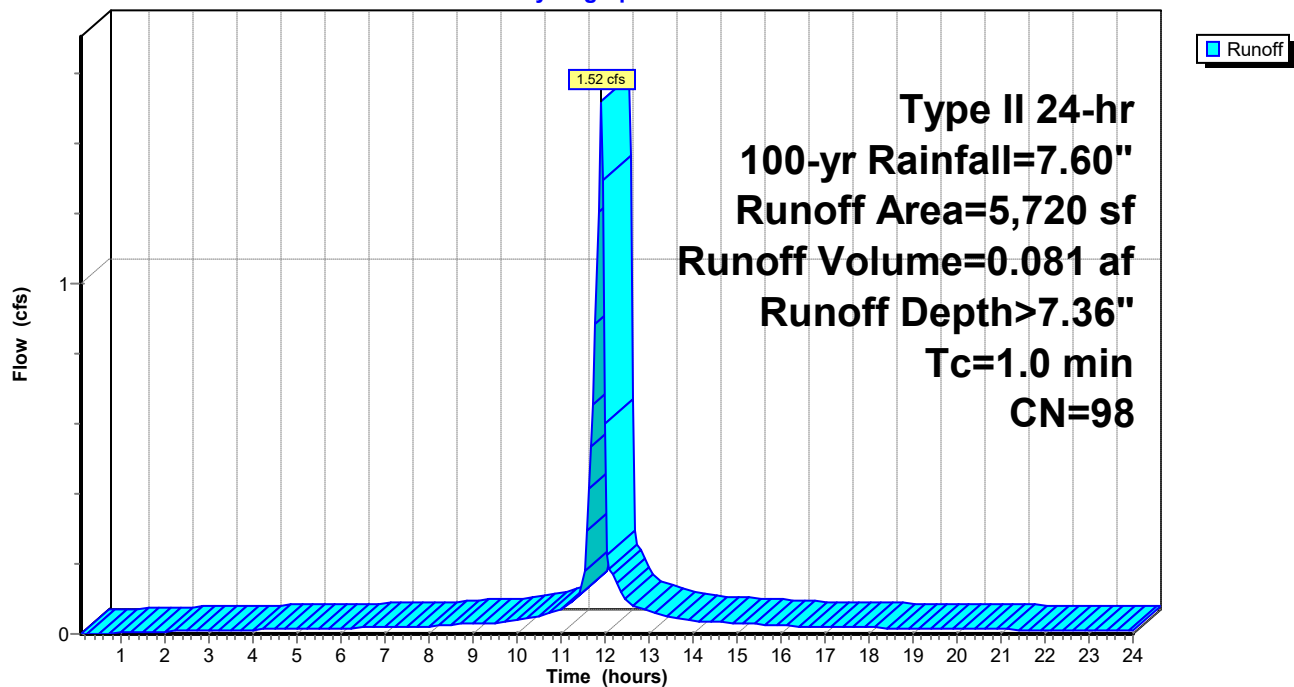
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	5,720	98	Asphalt
	5,720		100.00% Impervious Area

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

Subcatchment P5: Warehouse Parking Area

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P6: Warehouse Parking Area

Runoff = 1.54 cfs @ 11.90 hrs, Volume= 0.081 af, Depth> 7.36"

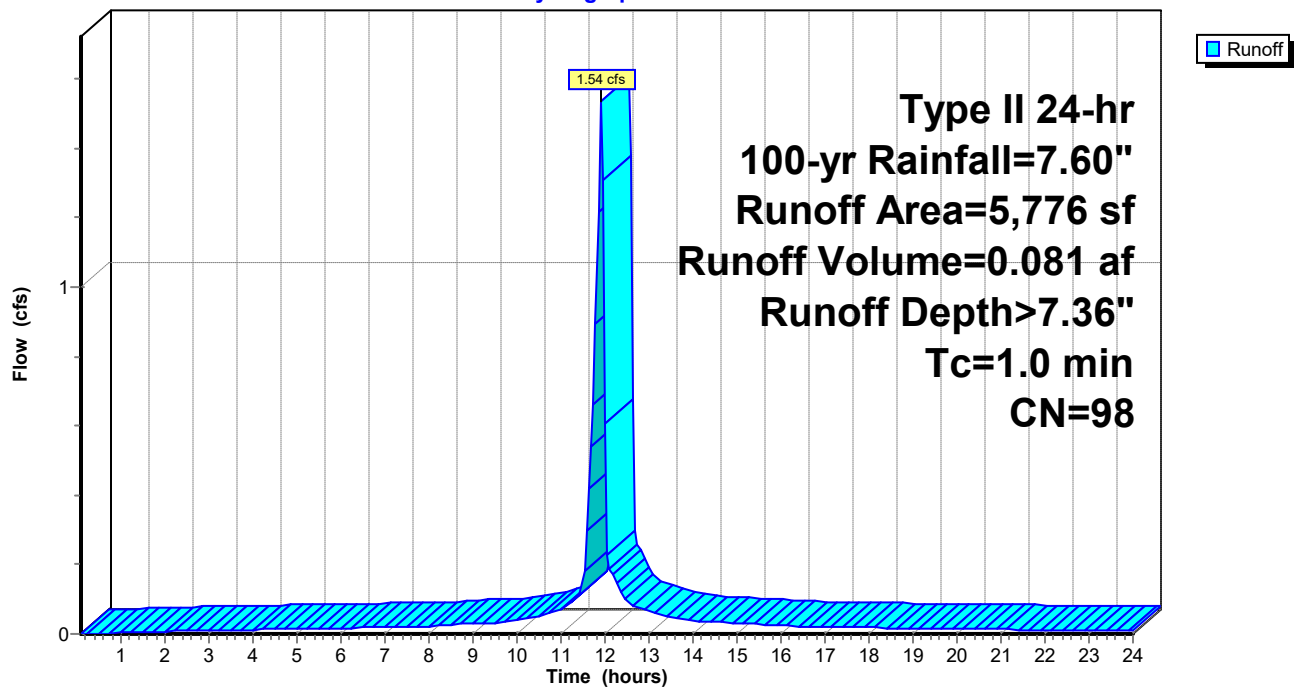
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	5,776	98	Asphalt
	5,776		100.00% Impervious Area

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

Subcatchment P6: Warehouse Parking Area

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P7: SWM Feature, Access Aisle, & Landscape Area

Runoff = 7.26 cfs @ 11.90 hrs, Volume= 0.314 af, Depth> 5.25"

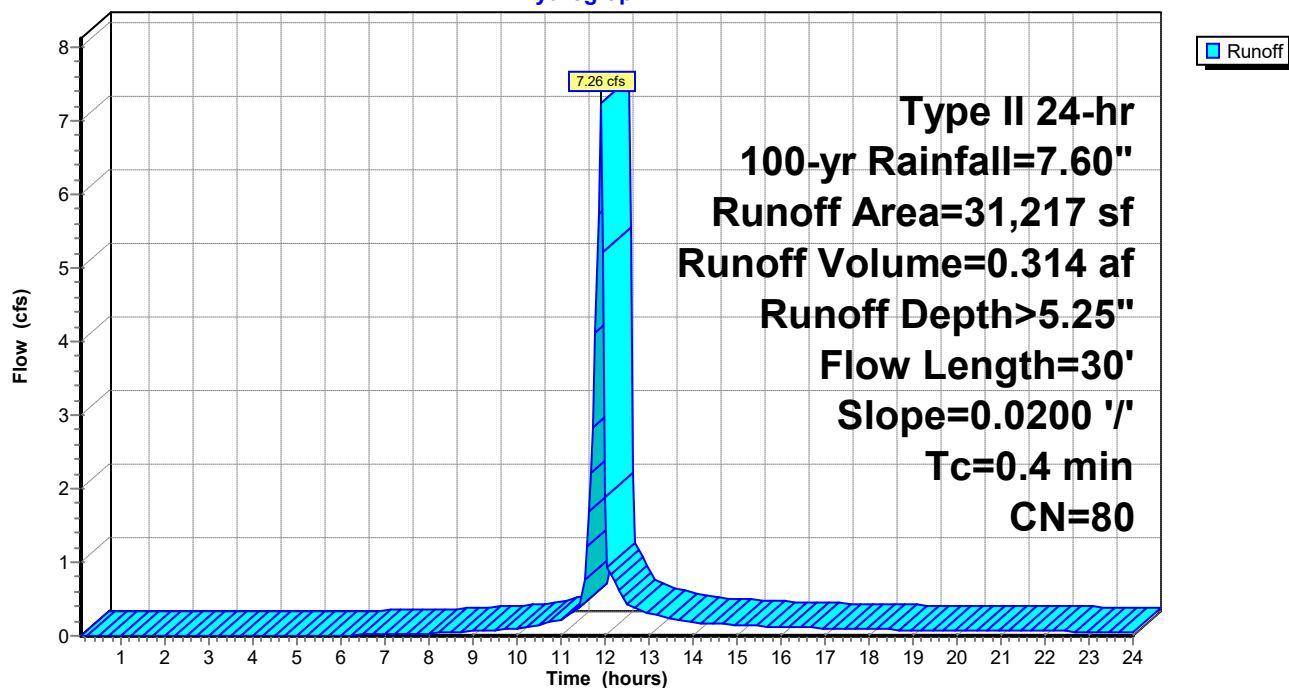
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
23,069	74	>75% Grass cover, Good, HSG C
* 8,148	98	Access Road
31,217	80	Weighted Average
23,069		73.90% Pervious Area
8,148		26.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	30	0.0200	1.11		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment P7: SWM Feature, Access Aisle, & Landscape Area

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Subcatchment P8: Half Warehouse Roof

Runoff = 0.75 cfs @ 11.90 hrs, Volume= 0.040 af, Depth> 7.36"

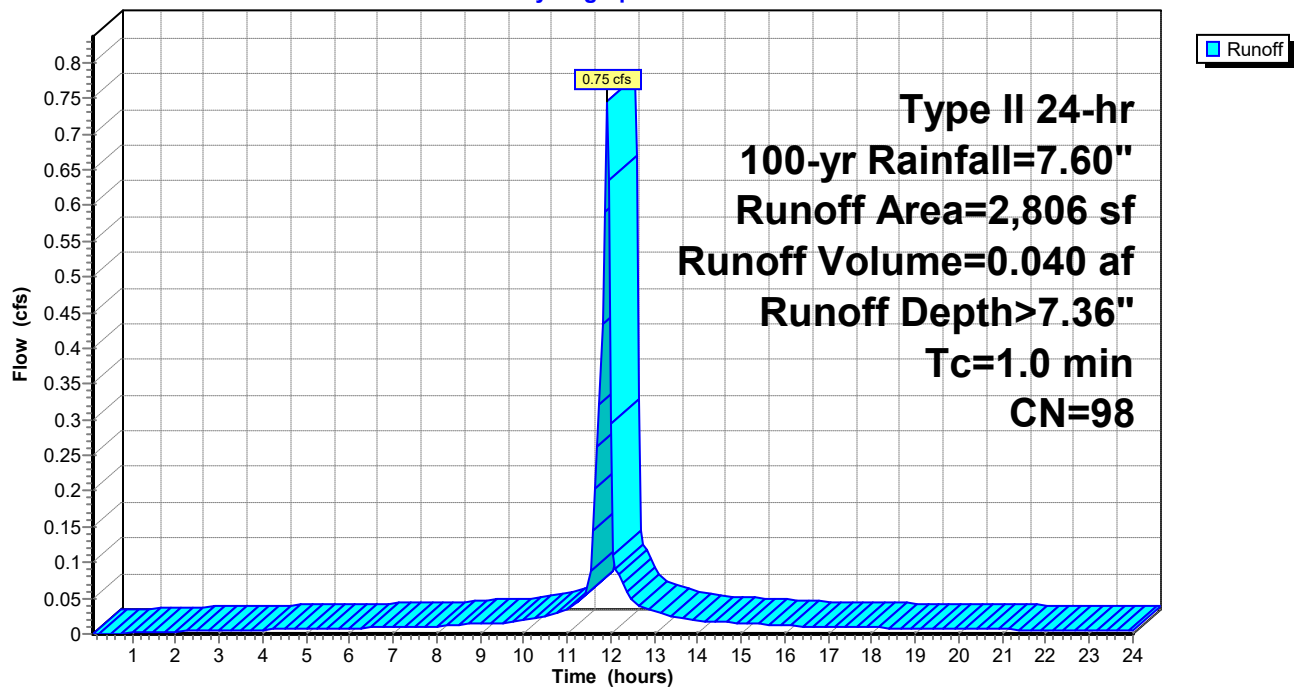
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	2,806	98	Roof
	2,806		100.00% Impervious Area

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

Subcatchment P8: Half Warehouse Roof

Hydrograph



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Summary for Subcatchment P9: Warehouse Parking

Runoff = 1.97 cfs @ 11.90 hrs, Volume= 0.104 af, Depth> 7.36"

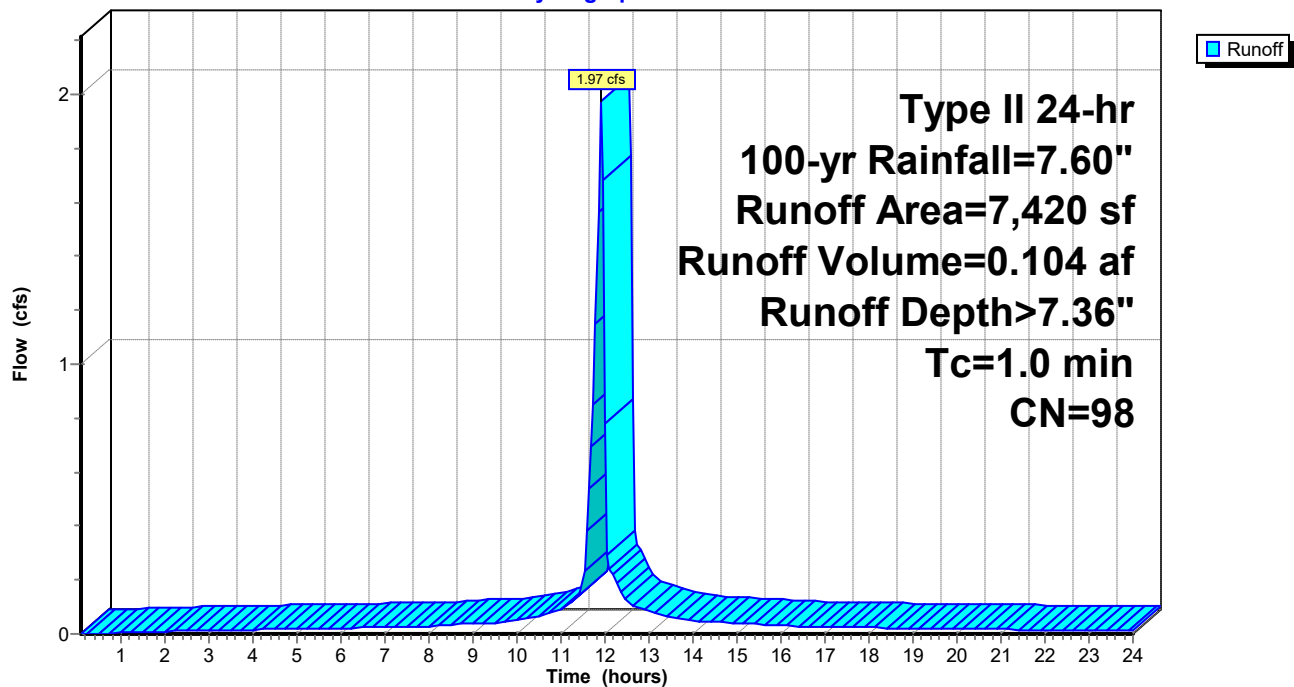
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	7,420	98	Asphalt
	7,420		100.00% Impervious Area

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

Subcatchment P9: Warehouse Parking

Hydrograph



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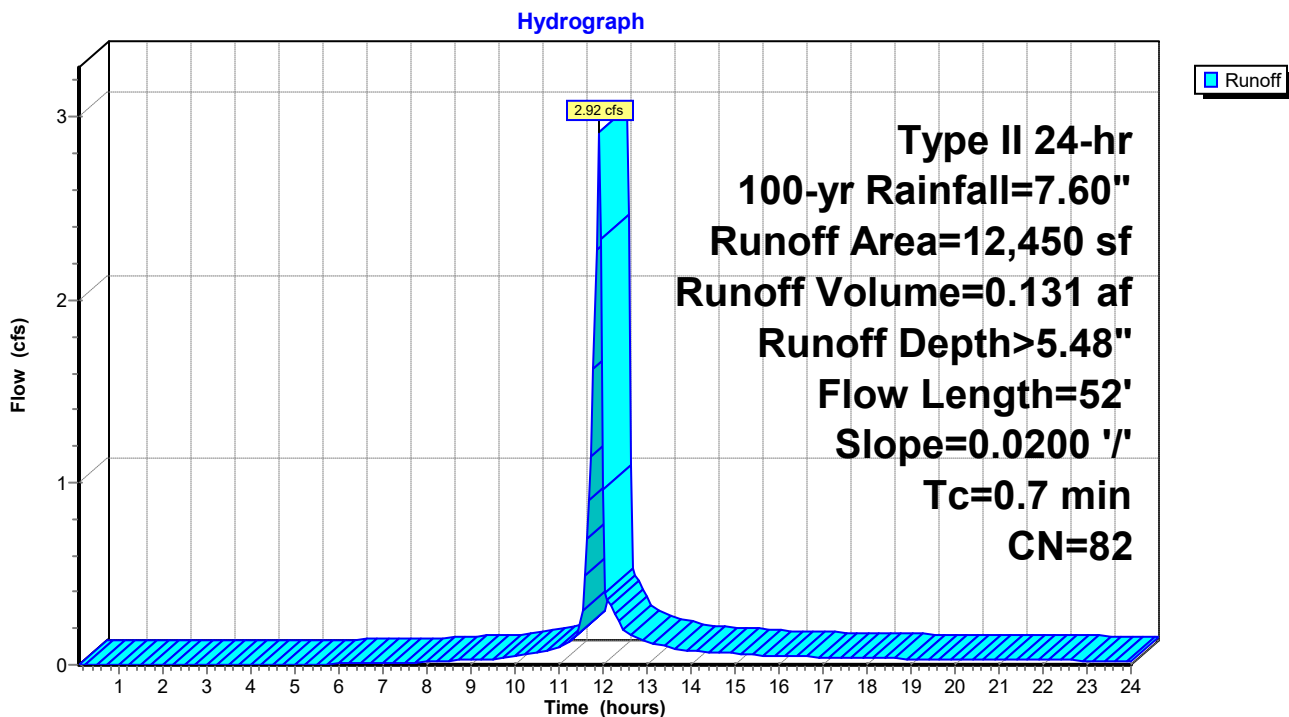
Summary for Subcatchment Y1: Office Parking Area & SWM Feature

Runoff = 2.92 cfs @ 11.90 hrs, Volume= 0.131 af, Depth> 5.48"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
8,245	74	>75% Grass cover, Good, HSG C
4,205	98	Paved roads w/curbs & sewers, HSG C
12,450	82	Weighted Average
8,245		66.22% Pervious Area
4,205		33.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	52	0.0200	1.24		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment Y1: Office Parking Area & SWM Feature

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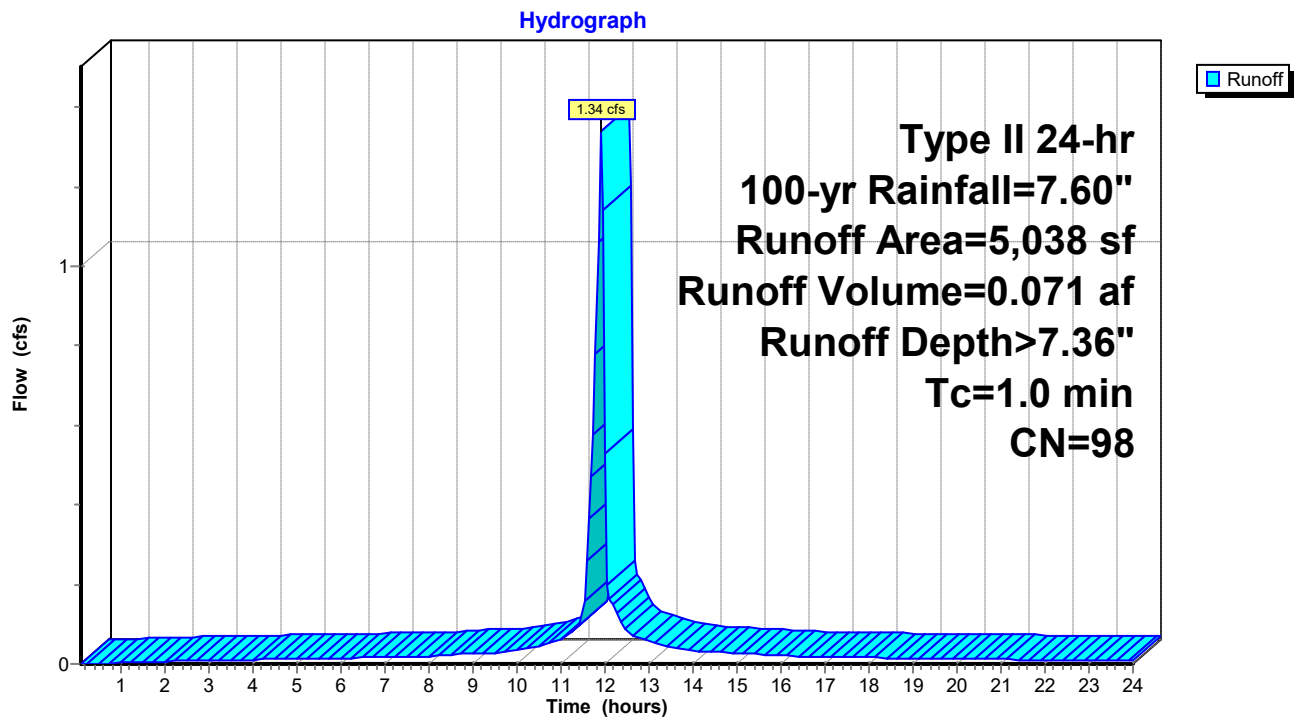
Summary for Subcatchment Y2: Half Warehouse Roof

Runoff = 1.34 cfs @ 11.90 hrs, Volume= 0.071 af, Depth> 7.36"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	5,038	98	Roof
	5,038		100.00% Impervious Area

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

Subcatchment Y2: Half Warehouse Roof

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Summary for Pond 1P: 15" HDPE

Inflow Area = 0.235 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 2.72 cfs @ 11.90 hrs, Volume= 0.144 af
Outflow = 2.72 cfs @ 11.90 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min
Primary = 2.72 cfs @ 11.90 hrs, Volume= 0.144 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

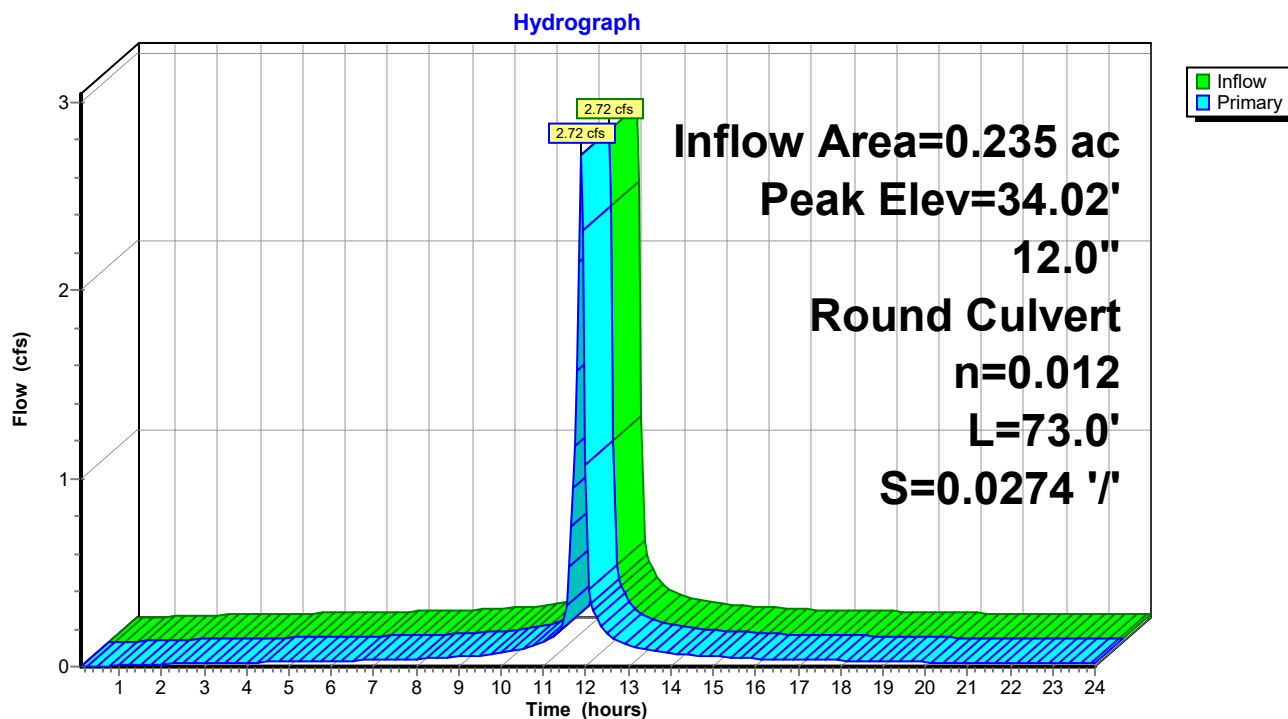
Peak Elev= 34.02' @ 11.91 hrs

Flood Elev= 35.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.00'	12.0" Round 15" Dual Wall HPDE L= 73.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.00' / 31.00' S= 0.0274 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.70 cfs @ 11.90 hrs HW=34.01' TW=33.03' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Inlet Controls 2.70 cfs @ 3.44 fps)

Pond 1P: 15" HDPE



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Stage-Area-Storage for Pond 1P: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.00	0	34.02	0	35.04	0
33.02	0	34.04	0	35.06	0
33.04	0	34.06	0	35.08	0
33.06	0	34.08	0	35.10	0
33.08	0	34.10	0	35.12	0
33.10	0	34.12	0	35.14	0
33.12	0	34.14	0	35.16	0
33.14	0	34.16	0	35.18	0
33.16	0	34.18	0	35.20	0
33.18	0	34.20	0	35.22	0
33.20	0	34.22	0	35.24	0
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		
33.42	0	34.44	0		
33.44	0	34.46	0		
33.46	0	34.48	0		
33.48	0	34.50	0		
33.50	0	34.52	0		
33.52	0	34.54	0		
33.54	0	34.56	0		
33.56	0	34.58	0		
33.58	0	34.60	0		
33.60	0	34.62	0		
33.62	0	34.64	0		
33.64	0	34.66	0		
33.66	0	34.68	0		
33.68	0	34.70	0		
33.70	0	34.72	0		
33.72	0	34.74	0		
33.74	0	34.76	0		
33.76	0	34.78	0		
33.78	0	34.80	0		
33.80	0	34.82	0		
33.82	0	34.84	0		
33.84	0	34.86	0		
33.86	0	34.88	0		
33.88	0	34.90	0		
33.90	0	34.92	0		
33.92	0	34.94	0		
33.94	0	34.96	0		
33.96	0	34.98	0		
33.98	0	35.00	0		
34.00	0	35.02	0		

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Summary for Pond 4P: 10" HDPE

Inflow Area = 0.054 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 0.62 cfs @ 11.90 hrs, Volume= 0.033 af
Outflow = 0.62 cfs @ 11.90 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.62 cfs @ 11.90 hrs, Volume= 0.033 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

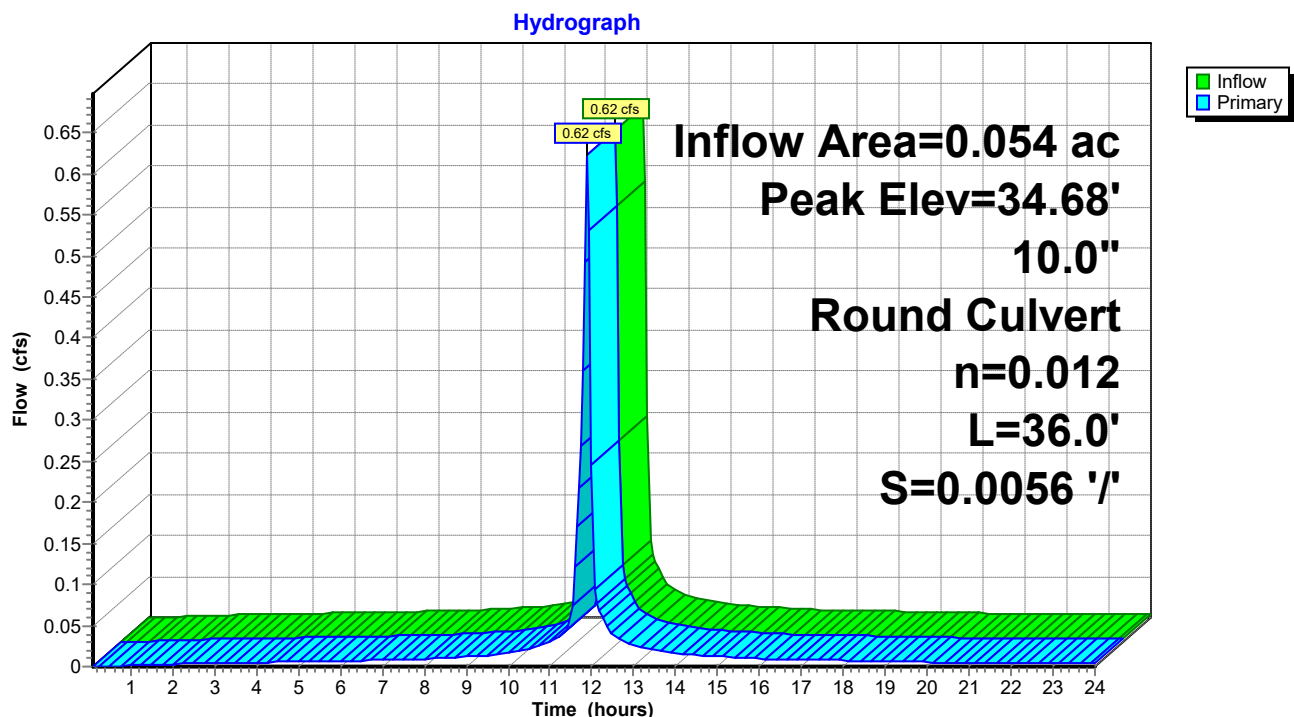
Peak Elev= 34.68' @ 11.91 hrs

Flood Elev= 35.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.05'	10.0" Round 10" Dual Wall HDPE L= 36.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 34.05' / 33.85' S= 0.0056 '/ Cc= 0.900 n= 0.012, Flow Area= 0.55 sf

Primary OutFlow Max=0.61 cfs @ 11.90 hrs HW=34.67' TW=34.52' (Dynamic Tailwater)
↑ **1=10" Dual Wall HDPE** (Outlet Controls 0.61 cfs @ 1.95 fps)

Pond 4P: 10" HDPE



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Stage-Area-Storage for Pond 4P: 10" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.05	0	34.56	0	35.07	0
34.06	0	34.57	0	35.08	0
34.07	0	34.58	0	35.09	0
34.08	0	34.59	0	35.10	0
34.09	0	34.60	0	35.11	0
34.10	0	34.61	0	35.12	0
34.11	0	34.62	0	35.13	0
34.12	0	34.63	0	35.14	0
34.13	0	34.64	0	35.15	0
34.14	0	34.65	0	35.16	0
34.15	0	34.66	0	35.17	0
34.16	0	34.67	0	35.18	0
34.17	0	34.68	0	35.19	0
34.18	0	34.69	0	35.20	0
34.19	0	34.70	0	35.21	0
34.20	0	34.71	0	35.22	0
34.21	0	34.72	0	35.23	0
34.22	0	34.73	0	35.24	0
34.23	0	34.74	0	35.25	0
34.24	0	34.75	0	35.26	0
34.25	0	34.76	0	35.27	0
34.26	0	34.77	0	35.28	0
34.27	0	34.78	0	35.29	0
34.28	0	34.79	0	35.30	0
34.29	0	34.80	0	35.31	0
34.30	0	34.81	0	35.32	0
34.31	0	34.82	0	35.33	0
34.32	0	34.83	0	35.34	0
34.33	0	34.84	0	35.35	0
34.34	0	34.85	0		
34.35	0	34.86	0		
34.36	0	34.87	0		
34.37	0	34.88	0		
34.38	0	34.89	0		
34.39	0	34.90	0		
34.40	0	34.91	0		
34.41	0	34.92	0		
34.42	0	34.93	0		
34.43	0	34.94	0		
34.44	0	34.95	0		
34.45	0	34.96	0		
34.46	0	34.97	0		
34.47	0	34.98	0		
34.48	0	34.99	0		
34.49	0	35.00	0		
34.50	0	35.01	0		
34.51	0	35.02	0		
34.52	0	35.03	0		
34.53	0	35.04	0		
34.54	0	35.05	0		
34.55	0	35.06	0		

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Summary for Pond 5P: 12" HDPE

Inflow Area = 0.092 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 1.07 cfs @ 11.90 hrs, Volume= 0.057 af
Outflow = 1.07 cfs @ 11.90 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min
Primary = 1.07 cfs @ 11.90 hrs, Volume= 0.057 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

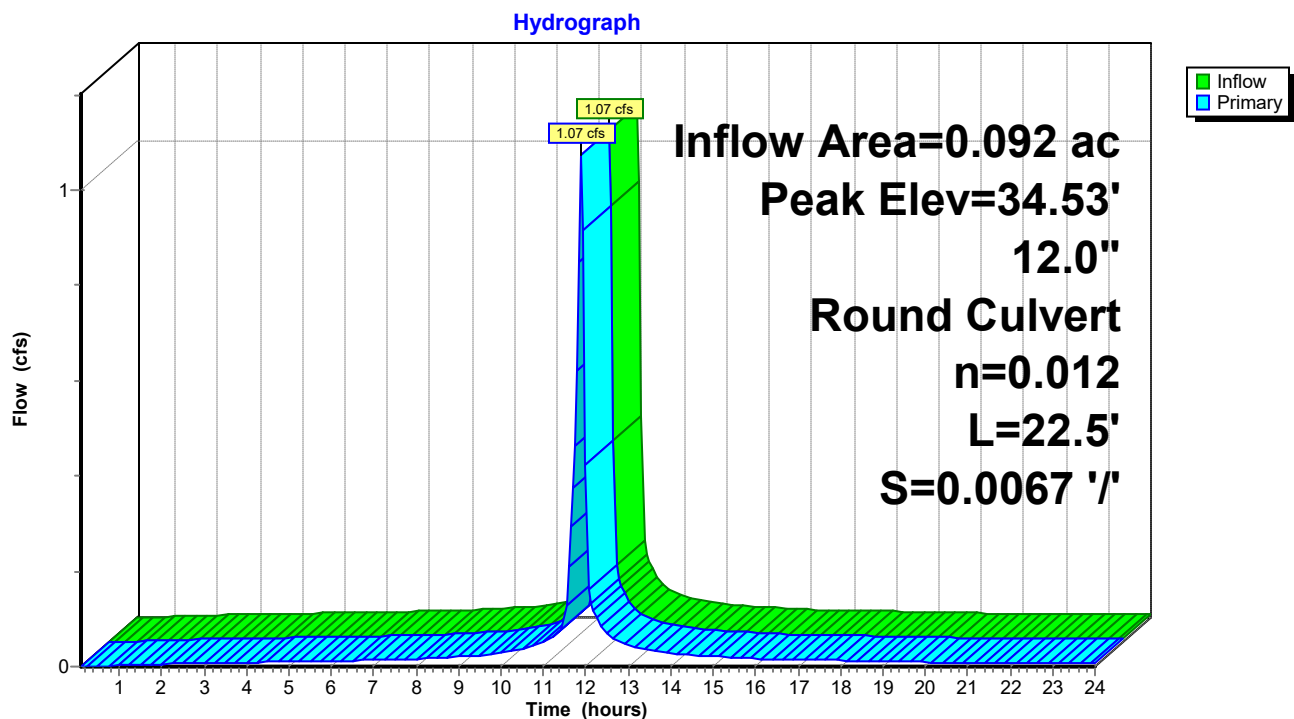
Peak Elev= 34.53' @ 11.91 hrs

Flood Elev= 35.35'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	12.0" Round 12" Dual Wall HDPE L= 22.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.75' / 33.60' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 11.90 hrs HW=34.52' TW=34.36' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Outlet Controls 1.06 cfs @ 2.25 fps)

Pond 5P: 12" HDPE



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Stage-Area-Storage for Pond 5P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.75	0	34.77	0
33.77	0	34.79	0
33.79	0	34.81	0
33.81	0	34.83	0
33.83	0	34.85	0
33.85	0	34.87	0
33.87	0	34.89	0
33.89	0	34.91	0
33.91	0	34.93	0
33.93	0	34.95	0
33.95	0	34.97	0
33.97	0	34.99	0
33.99	0	35.01	0
34.01	0	35.03	0
34.03	0	35.05	0
34.05	0	35.07	0
34.07	0	35.09	0
34.09	0	35.11	0
34.11	0	35.13	0
34.13	0	35.15	0
34.15	0	35.17	0
34.17	0	35.19	0
34.19	0	35.21	0
34.21	0	35.23	0
34.23	0	35.25	0
34.25	0	35.27	0
34.27	0	35.29	0
34.29	0	35.31	0
34.31	0	35.33	0
34.33	0	35.35	0
34.35	0		
34.37	0		
34.39	0		
34.41	0		
34.43	0		
34.45	0		
34.47	0		
34.49	0		
34.51	0		
34.53	0		
34.55	0		
34.57	0		
34.59	0		
34.61	0		
34.63	0		
34.65	0		
34.67	0		
34.69	0		
34.71	0		
34.73	0		
34.75	0		

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Summary for Pond 6P: 15" HDPE

Inflow Area = 0.332 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 3.85 cfs @ 11.90 hrs, Volume= 0.203 af
Outflow = 3.85 cfs @ 11.90 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 11.90 hrs, Volume= 0.203 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

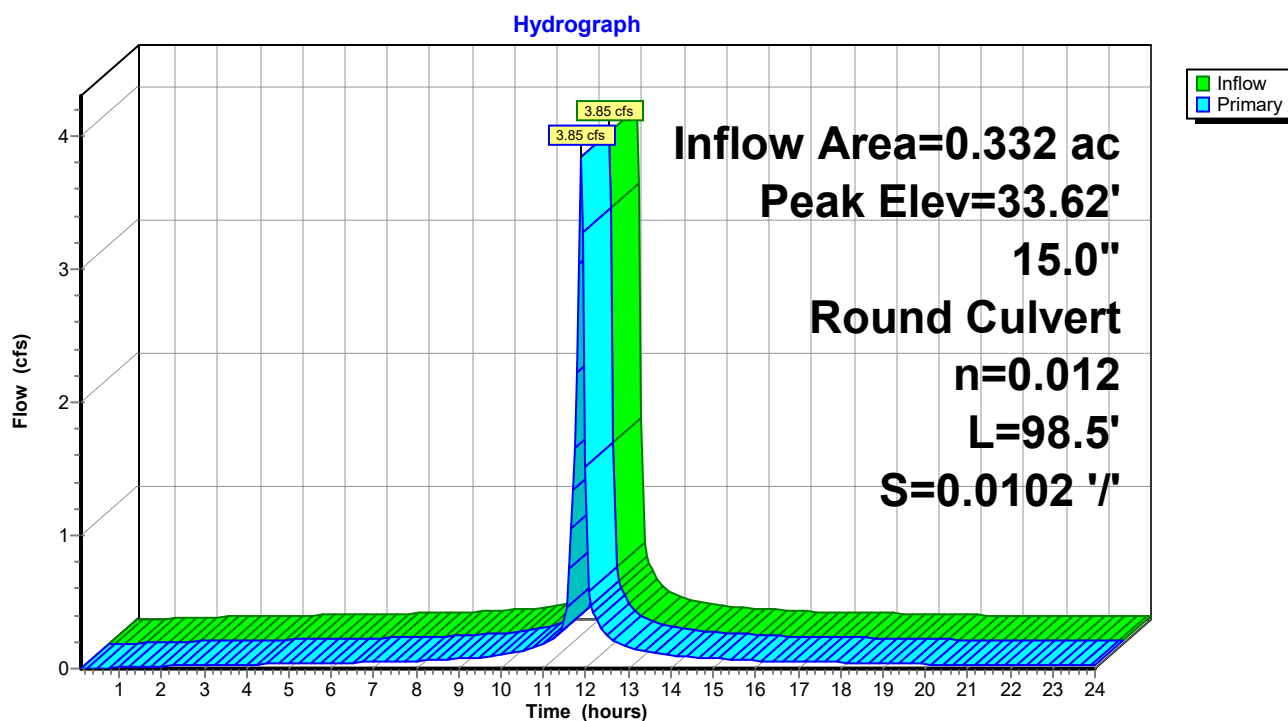
Peak Elev= 33.62' @ 11.95 hrs

Flood Elev= 34.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	15.0" Round 15" Dual Wall HPDE L= 98.5' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 32.00' / 31.00' S= 0.0102 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.80 cfs @ 11.90 hrs HW=33.53' TW=33.03' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Outlet Controls 3.80 cfs @ 3.23 fps)

Pond 6P: 15" HDPE



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Stage-Area-Storage for Pond 6P: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.00	0	33.02	0	34.04	0
32.02	0	33.04	0	34.06	0
32.04	0	33.06	0	34.08	0
32.06	0	33.08	0	34.10	0
32.08	0	33.10	0	34.12	0
32.10	0	33.12	0	34.14	0
32.12	0	33.14	0	34.16	0
32.14	0	33.16	0	34.18	0
32.16	0	33.18	0	34.20	0
32.18	0	33.20	0	34.22	0
32.20	0	33.22	0	34.24	0
32.22	0	33.24	0	34.26	0
32.24	0	33.26	0	34.28	0
32.26	0	33.28	0	34.30	0
32.28	0	33.30	0	34.32	0
32.30	0	33.32	0	34.34	0
32.32	0	33.34	0	34.36	0
32.34	0	33.36	0	34.38	0
32.36	0	33.38	0	34.40	0
32.38	0	33.40	0	34.42	0
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0		
32.50	0	33.52	0		
32.52	0	33.54	0		
32.54	0	33.56	0		
32.56	0	33.58	0		
32.58	0	33.60	0		
32.60	0	33.62	0		
32.62	0	33.64	0		
32.64	0	33.66	0		
32.66	0	33.68	0		
32.68	0	33.70	0		
32.70	0	33.72	0		
32.72	0	33.74	0		
32.74	0	33.76	0		
32.76	0	33.78	0		
32.78	0	33.80	0		
32.80	0	33.82	0		
32.82	0	33.84	0		
32.84	0	33.86	0		
32.86	0	33.88	0		
32.88	0	33.90	0		
32.90	0	33.92	0		
32.92	0	33.94	0		
32.94	0	33.96	0		
32.96	0	33.98	0		
32.98	0	34.00	0		
33.00	0	34.02	0		

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Pond 7P: 12" HDPE

Inflow Area = 0.199 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 2.31 cfs @ 11.90 hrs, Volume= 0.122 af
Outflow = 2.31 cfs @ 11.90 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min
Primary = 2.31 cfs @ 11.90 hrs, Volume= 0.122 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

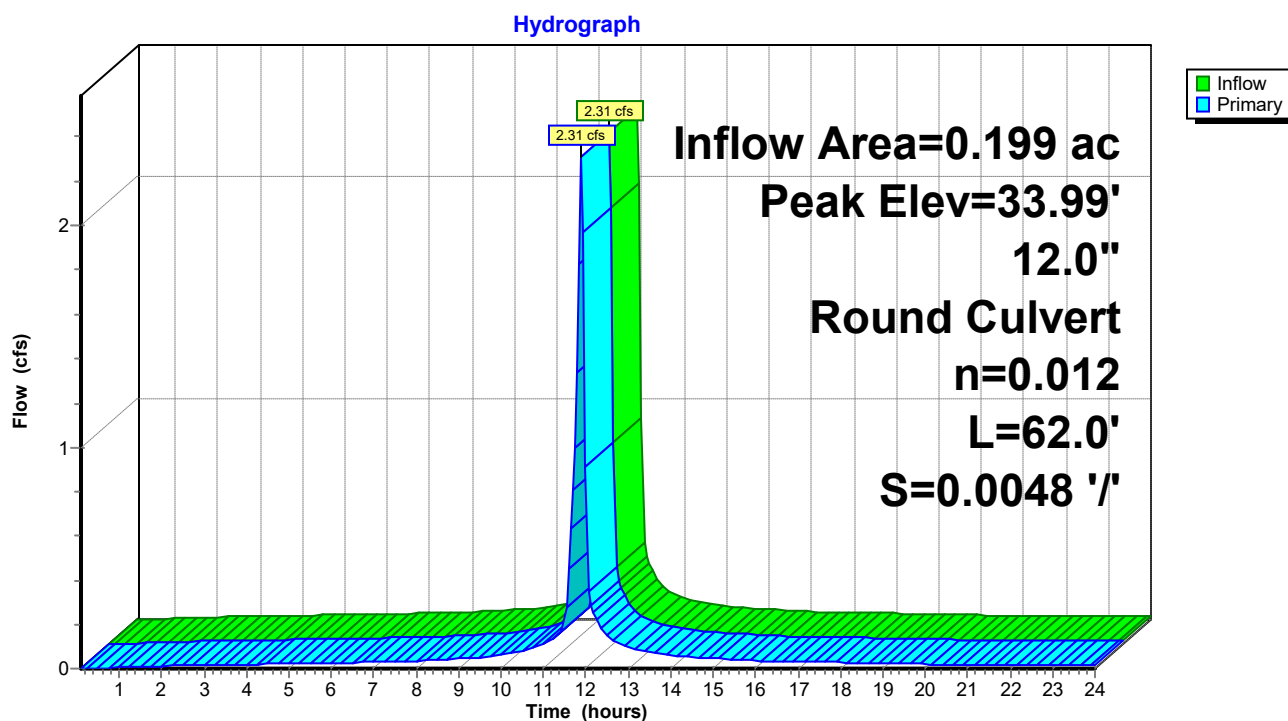
Peak Elev= 33.99' @ 11.92 hrs

Flood Elev= 34.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.40'	12.0" Round 12" Dual Wall HDPE L= 62.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 32.40' / 32.10' S= 0.0048 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.28 cfs @ 11.90 hrs HW=33.94' TW=33.53' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Outlet Controls 2.28 cfs @ 2.90 fps)

Pond 7P: 12" HDPE



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Stage-Area-Storage for Pond 7P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0	34.52	0
32.50	0	33.52	0	34.54	0
32.52	0	33.54	0	34.56	0
32.54	0	33.56	0	34.58	0
32.56	0	33.58	0	34.60	0
32.58	0	33.60	0	34.62	0
32.60	0	33.62	0	34.64	0
32.62	0	33.64	0	34.66	0
32.64	0	33.66	0	34.68	0
32.66	0	33.68	0	34.70	0
32.68	0	33.70	0	34.72	0
32.70	0	33.72	0	34.74	0
32.72	0	33.74	0		
32.74	0	33.76	0		
32.76	0	33.78	0		
32.78	0	33.80	0		
32.80	0	33.82	0		
32.82	0	33.84	0		
32.84	0	33.86	0		
32.86	0	33.88	0		
32.88	0	33.90	0		
32.90	0	33.92	0		
32.92	0	33.94	0		
32.94	0	33.96	0		
32.96	0	33.98	0		
32.98	0	34.00	0		
33.00	0	34.02	0		
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		

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Summary for Pond 8P: 8" HDPE

Inflow Area = 0.068 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 0.79 cfs @ 11.90 hrs, Volume= 0.042 af
Outflow = 0.79 cfs @ 11.90 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 11.90 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 34.28' @ 11.92 hrs

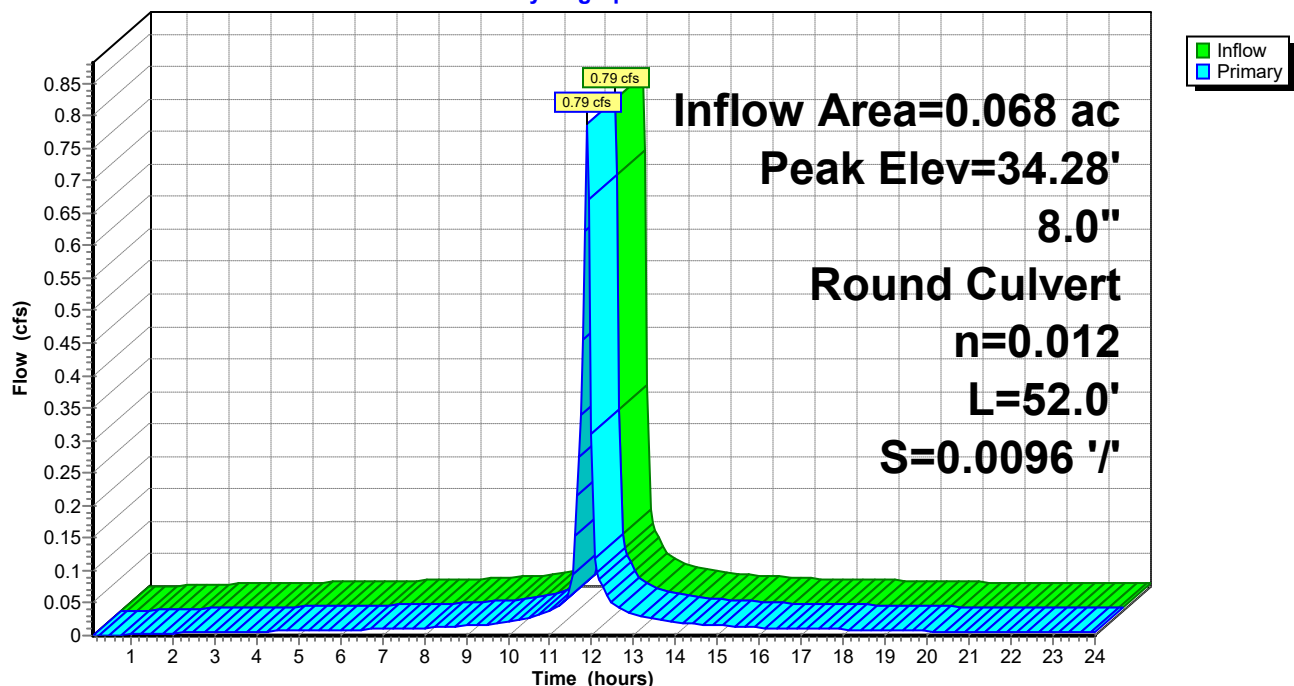
Flood Elev= 35.05'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.00'	8.0" Round 8" Dual Wall HPDE L= 52.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.00' / 32.50' S= 0.0096 '/ Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.78 cfs @ 11.90 hrs HW=34.24' TW=33.94' (Dynamic Tailwater)
↑ **1=8" Dual Wall HPDE** (Outlet Controls 0.78 cfs @ 2.22 fps)

Pond 8P: 8" HDPE

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond 8P: 8" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.00	0	34.02	0	35.04	0
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		
33.32	0	34.34	0		
33.34	0	34.36	0		
33.36	0	34.38	0		
33.38	0	34.40	0		
33.40	0	34.42	0		
33.42	0	34.44	0		
33.44	0	34.46	0		
33.46	0	34.48	0		
33.48	0	34.50	0		
33.50	0	34.52	0		
33.52	0	34.54	0		
33.54	0	34.56	0		
33.56	0	34.58	0		
33.58	0	34.60	0		
33.60	0	34.62	0		
33.62	0	34.64	0		
33.64	0	34.66	0		
33.66	0	34.68	0		
33.68	0	34.70	0		
33.70	0	34.72	0		
33.72	0	34.74	0		
33.74	0	34.76	0		
33.76	0	34.78	0		
33.78	0	34.80	0		
33.80	0	34.82	0		
33.82	0	34.84	0		
33.84	0	34.86	0		
33.86	0	34.88	0		
33.88	0	34.90	0		
33.90	0	34.92	0		
33.92	0	34.94	0		
33.94	0	34.96	0		
33.96	0	34.98	0		
33.98	0	35.00	0		
34.00	0	35.02	0		

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Summary for Pond 9P: 12" HDPE

Inflow Area = 0.064 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 0.75 cfs @ 11.90 hrs, Volume= 0.040 af
Outflow = 0.75 cfs @ 11.90 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 11.90 hrs, Volume= 0.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 34.48' @ 11.90 hrs

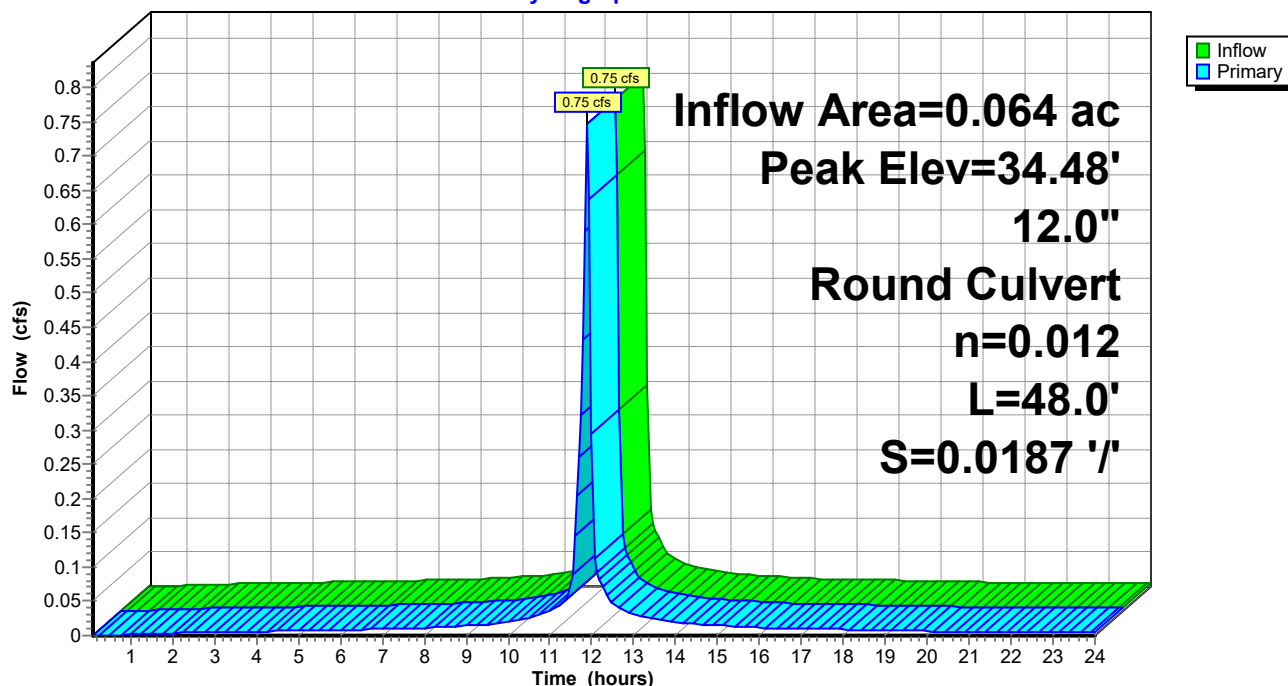
Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.00'	12.0" Round 12" Dual Wall HPDE L= 48.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.00' / 33.10' S= 0.0187 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.74 cfs @ 11.90 hrs HW=34.48' TW=34.01' (Dynamic Tailwater)
↑ **1=12" Dual Wall HPDE** (Outlet Controls 0.74 cfs @ 2.93 fps)

Pond 9P: 12" HDPE

Hydrograph



2023-03-03-Carrion HydroCAD

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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond 9P: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.00	0	35.02	0
34.02	0	35.04	0
34.04	0	35.06	0
34.06	0	35.08	0
34.08	0	35.10	0
34.10	0	35.12	0
34.12	0	35.14	0
34.14	0	35.16	0
34.16	0	35.18	0
34.18	0	35.20	0
34.20	0	35.22	0
34.22	0	35.24	0
34.24	0	35.26	0
34.26	0	35.28	0
34.28	0	35.30	0
34.30	0	35.32	0
34.32	0	35.34	0
34.34	0	35.36	0
34.36	0	35.38	0
34.38	0	35.40	0
34.40	0	35.42	0
34.42	0	35.44	0
34.44	0	35.46	0
34.46	0	35.48	0
34.48	0	35.50	0
34.50	0	35.52	0
34.52	0	35.54	0
34.54	0	35.56	0
34.56	0	35.58	0
34.58	0	35.60	0
34.60	0	35.62	0
34.62	0	35.64	0
34.64	0	35.66	0
34.66	0	35.68	0
34.68	0	35.70	0
34.70	0	35.72	0
34.72	0	35.74	0
34.74	0	35.76	0
34.76	0	35.78	0
34.78	0	35.80	0
34.80	0	35.82	0
34.82	0	35.84	0
34.84	0	35.86	0
34.86	0	35.88	0
34.88	0	35.90	0
34.90	0	35.92	0
34.92	0	35.94	0
34.94	0	35.96	0
34.96	0	35.98	0
34.98	0	36.00	0
35.00	0		

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Summary for Pond RLa: 10" HDPE

Inflow Area = 0.116 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 1.34 cfs @ 11.90 hrs, Volume= 0.071 af
Outflow = 1.34 cfs @ 11.90 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min
Primary = 1.34 cfs @ 11.90 hrs, Volume= 0.071 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

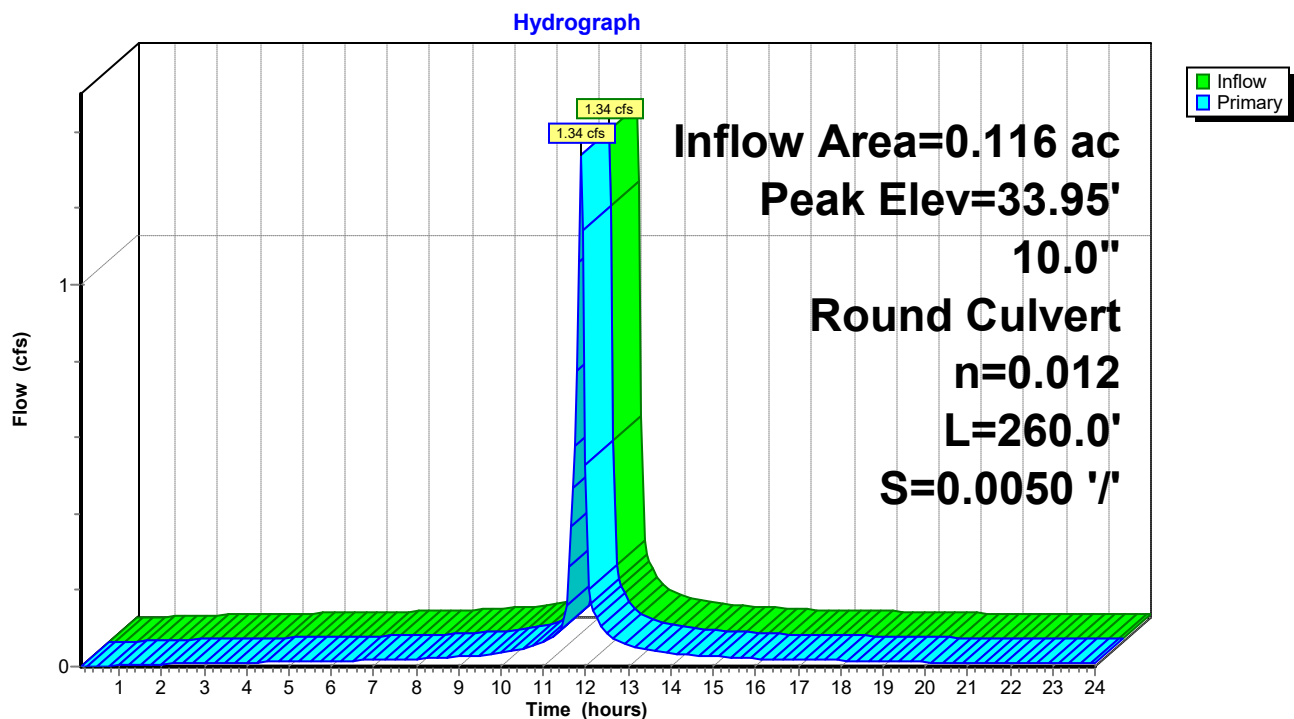
Peak Elev= 33.95' @ 11.92 hrs

Flood Elev= 35.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.30'	10.0" Round 10" Dual Wall HDPE L= 260.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 32.30' / 31.00' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 0.55 sf

Primary OutFlow Max=1.32 cfs @ 11.90 hrs HW=33.89' TW=32.93' (Dynamic Tailwater)
↑ **1=10" Dual Wall HDPE** (Outlet Controls 1.32 cfs @ 2.43 fps)

Pond RLa: 10" HDPE



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Stage-Area-Storage for Pond RL: 10" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
32.30	0	33.32	0	34.34	0
32.32	0	33.34	0	34.36	0
32.34	0	33.36	0	34.38	0
32.36	0	33.38	0	34.40	0
32.38	0	33.40	0	34.42	0
32.40	0	33.42	0	34.44	0
32.42	0	33.44	0	34.46	0
32.44	0	33.46	0	34.48	0
32.46	0	33.48	0	34.50	0
32.48	0	33.50	0	34.52	0
32.50	0	33.52	0	34.54	0
32.52	0	33.54	0	34.56	0
32.54	0	33.56	0	34.58	0
32.56	0	33.58	0	34.60	0
32.58	0	33.60	0	34.62	0
32.60	0	33.62	0	34.64	0
32.62	0	33.64	0	34.66	0
32.64	0	33.66	0	34.68	0
32.66	0	33.68	0	34.70	0
32.68	0	33.70	0	34.72	0
32.70	0	33.72	0	34.74	0
32.72	0	33.74	0	34.76	0
32.74	0	33.76	0	34.78	0
32.76	0	33.78	0	34.80	0
32.78	0	33.80	0	34.82	0
32.80	0	33.82	0	34.84	0
32.82	0	33.84	0	34.86	0
32.84	0	33.86	0	34.88	0
32.86	0	33.88	0	34.90	0
32.88	0	33.90	0	34.92	0
32.90	0	33.92	0	34.94	0
32.92	0	33.94	0	34.96	0
32.94	0	33.96	0	34.98	0
32.96	0	33.98	0	35.00	0
32.98	0	34.00	0		
33.00	0	34.02	0		
33.02	0	34.04	0		
33.04	0	34.06	0		
33.06	0	34.08	0		
33.08	0	34.10	0		
33.10	0	34.12	0		
33.12	0	34.14	0		
33.14	0	34.16	0		
33.16	0	34.18	0		
33.18	0	34.20	0		
33.20	0	34.22	0		
33.22	0	34.24	0		
33.24	0	34.26	0		
33.26	0	34.28	0		
33.28	0	34.30	0		
33.30	0	34.32	0		

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Summary for Pond RLb: 12" HDPE

Inflow Area = 0.043 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 0.50 cfs @ 11.90 hrs, Volume= 0.026 af
Outflow = 0.50 cfs @ 11.90 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 11.90 hrs, Volume= 0.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

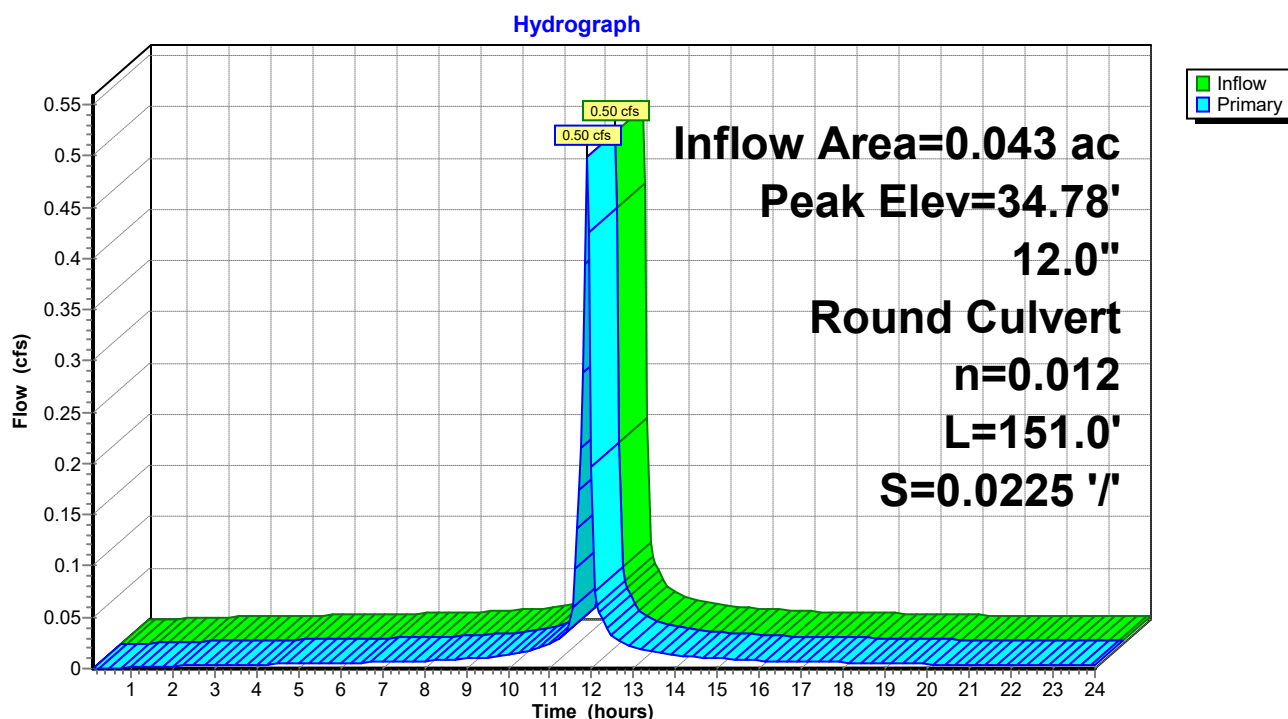
Peak Elev= 34.78' @ 11.90 hrs

Flood Elev= 35.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.40'	12.0" Round 12" Dual Wall HDPE L= 151.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.40' / 31.00' S= 0.0225 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.49 cfs @ 11.90 hrs HW=34.77' TW=33.03' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Inlet Controls 0.49 cfs @ 1.84 fps)

Pond RLb: 12" HDPE



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Stage-Area-Storage for Pond RLb: 12" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.40	0	34.91	0
34.41	0	34.92	0
34.42	0	34.93	0
34.43	0	34.94	0
34.44	0	34.95	0
34.45	0	34.96	0
34.46	0	34.97	0
34.47	0	34.98	0
34.48	0	34.99	0
34.49	0	35.00	0
34.50	0	35.01	0
34.51	0	35.02	0
34.52	0	35.03	0
34.53	0	35.04	0
34.54	0	35.05	0
34.55	0	35.06	0
34.56	0	35.07	0
34.57	0	35.08	0
34.58	0	35.09	0
34.59	0	35.10	0
34.60	0	35.11	0
34.61	0	35.12	0
34.62	0	35.13	0
34.63	0	35.14	0
34.64	0	35.15	0
34.65	0	35.16	0
34.66	0	35.17	0
34.67	0	35.18	0
34.68	0	35.19	0
34.69	0	35.20	0
34.70	0	35.21	0
34.71	0	35.22	0
34.72	0	35.23	0
34.73	0	35.24	0
34.74	0	35.25	0
34.75	0	35.26	0
34.76	0	35.27	0
34.77	0	35.28	0
34.78	0	35.29	0
34.79	0	35.30	0
34.80	0	35.31	0
34.81	0	35.32	0
34.82	0	35.33	0
34.83	0	35.34	0
34.84	0	35.35	0
34.85	0	35.36	0
34.86	0	35.37	0
34.87	0	35.38	0
34.88	0	35.39	0
34.89	0	35.40	0
34.90	0		

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Summary for Pond RLbb: 15" HDPE

Inflow Area = 0.214 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 2.48 cfs @ 11.90 hrs, Volume= 0.131 af
Outflow = 2.48 cfs @ 11.90 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min
Primary = 2.48 cfs @ 11.90 hrs, Volume= 0.131 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

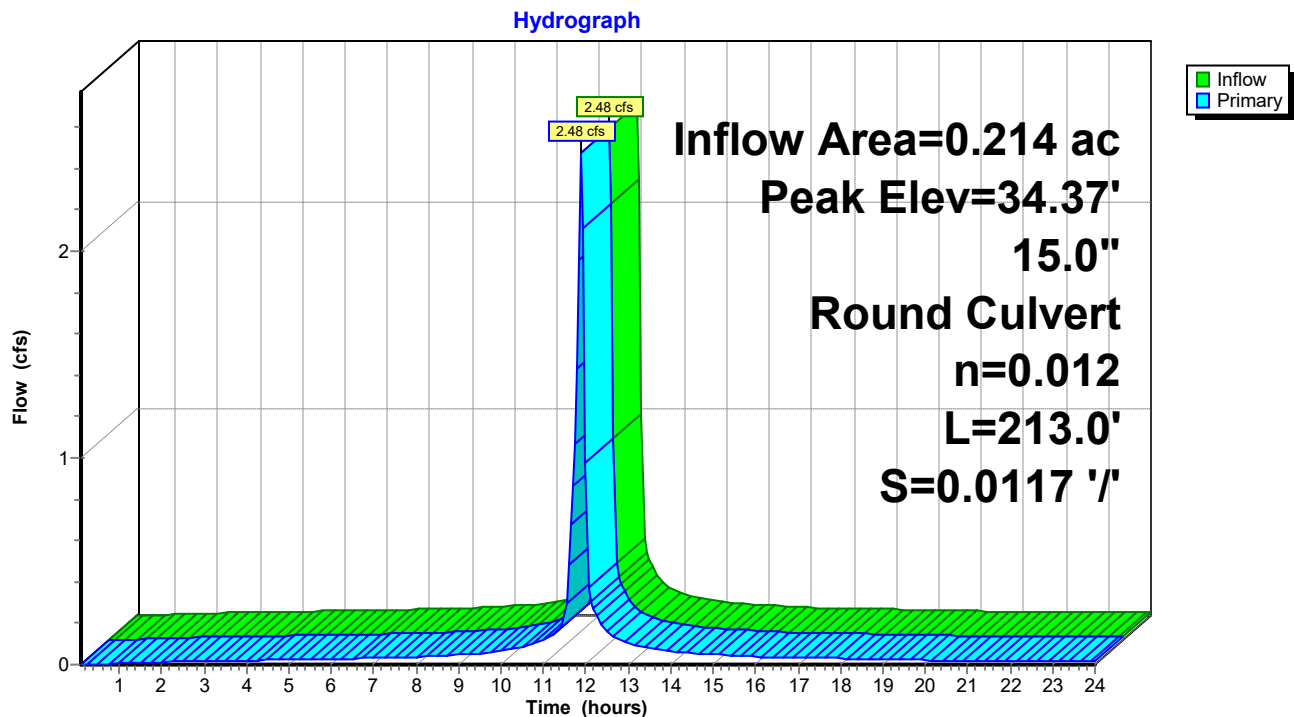
Peak Elev= 34.37' @ 11.92 hrs

Flood Elev= 35.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.50'	15.0" Round 15" Dual Wall HPDE L= 213.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 33.50' / 31.00' S= 0.0117 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.45 cfs @ 11.90 hrs HW=34.36' TW=33.03' (Dynamic Tailwater)
↑ **1=15" Dual Wall HPDE** (Outlet Controls 2.45 cfs @ 3.83 fps)

Pond RLbb: 15" HDPE



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Stage-Area-Storage for Pond RLbb: 15" HDPE

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.50	0	34.52	0
33.52	0	34.54	0
33.54	0	34.56	0
33.56	0	34.58	0
33.58	0	34.60	0
33.60	0	34.62	0
33.62	0	34.64	0
33.64	0	34.66	0
33.66	0	34.68	0
33.68	0	34.70	0
33.70	0	34.72	0
33.72	0	34.74	0
33.74	0	34.76	0
33.76	0	34.78	0
33.78	0	34.80	0
33.80	0	34.82	0
33.82	0	34.84	0
33.84	0	34.86	0
33.86	0	34.88	0
33.88	0	34.90	0
33.90	0	34.92	0
33.92	0	34.94	0
33.94	0	34.96	0
33.96	0	34.98	0
33.98	0	35.00	0
34.00	0	35.02	0
34.02	0	35.04	0
34.04	0	35.06	0
34.06	0	35.08	0
34.08	0	35.10	0
34.10	0	35.12	0
34.12	0	35.14	0
34.14	0	35.16	0
34.16	0	35.18	0
34.18	0	35.20	0
34.20	0	35.22	0
34.22	0	35.24	0
34.24	0	35.26	0
34.26	0	35.28	0
34.28	0	35.30	0
34.30	0	35.32	0
34.32	0	35.34	0
34.34	0	35.36	0
34.36	0	35.38	0
34.38	0	35.40	0
34.40	0		
34.42	0		
34.44	0		
34.46	0		
34.48	0		
34.50	0		

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Summary for Pond RLc: Roof Leader

Inflow Area = 0.129 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 1.49 cfs @ 11.90 hrs, Volume= 0.079 af
Outflow = 1.49 cfs @ 11.90 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 11.90 hrs, Volume= 0.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

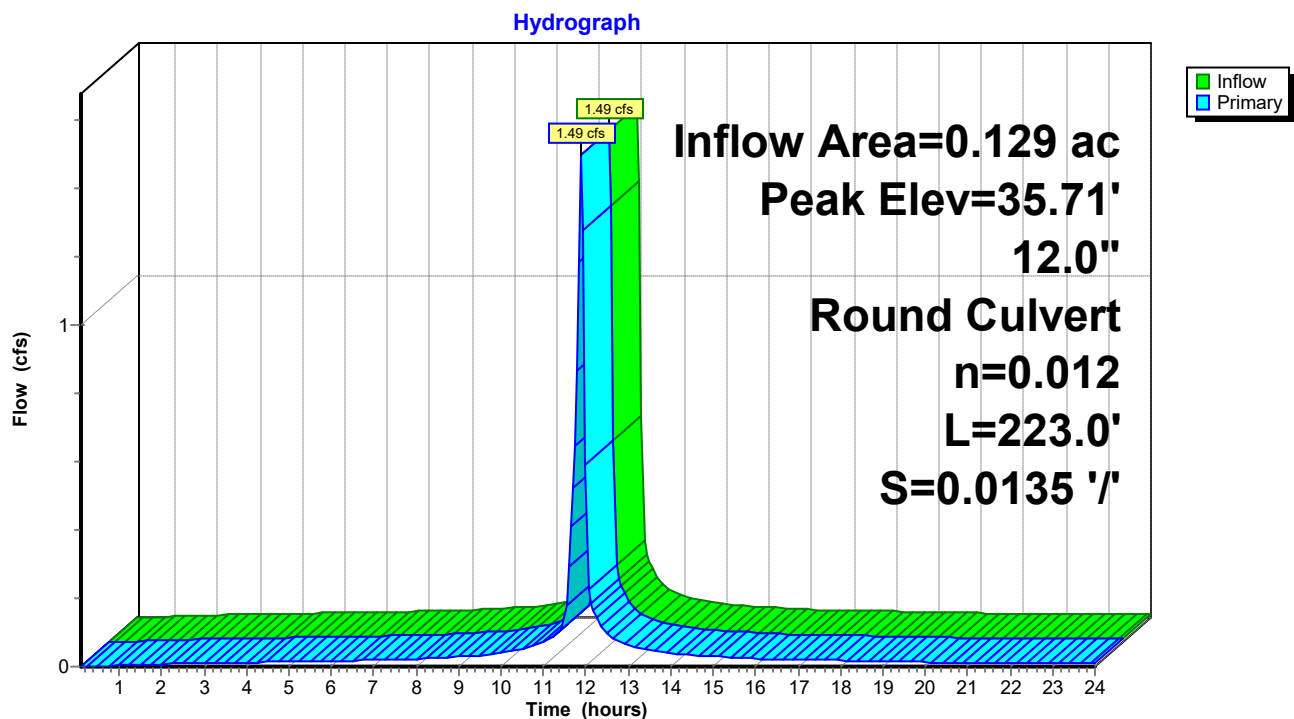
Peak Elev= 35.71' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	35.00'	12.0" Round 12" Dual Wall HDPE L= 223.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 35.00' / 32.00' S= 0.0135 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.47 cfs @ 11.90 hrs HW=35.70' TW=33.51' (Dynamic Tailwater)
↑1=12" Dual Wall HDPE (Inlet Controls 1.47 cfs @ 2.51 fps)

Pond RLc: Roof Leader



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Stage-Area-Storage for Pond RLc: Roof Leader

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	35.51	0
35.01	0	35.52	0
35.02	0	35.53	0
35.03	0	35.54	0
35.04	0	35.55	0
35.05	0	35.56	0
35.06	0	35.57	0
35.07	0	35.58	0
35.08	0	35.59	0
35.09	0	35.60	0
35.10	0	35.61	0
35.11	0	35.62	0
35.12	0	35.63	0
35.13	0	35.64	0
35.14	0	35.65	0
35.15	0	35.66	0
35.16	0	35.67	0
35.17	0	35.68	0
35.18	0	35.69	0
35.19	0	35.70	0
35.20	0	35.71	0
35.21	0	35.72	0
35.22	0	35.73	0
35.23	0	35.74	0
35.24	0	35.75	0
35.25	0	35.76	0
35.26	0	35.77	0
35.27	0	35.78	0
35.28	0	35.79	0
35.29	0	35.80	0
35.30	0	35.81	0
35.31	0	35.82	0
35.32	0	35.83	0
35.33	0	35.84	0
35.34	0	35.85	0
35.35	0	35.86	0
35.36	0	35.87	0
35.37	0	35.88	0
35.38	0	35.89	0
35.39	0	35.90	0
35.40	0	35.91	0
35.41	0	35.92	0
35.42	0	35.93	0
35.43	0	35.94	0
35.44	0	35.95	0
35.45	0	35.96	0
35.46	0	35.97	0
35.47	0	35.98	0
35.48	0	35.99	0
35.49	0	36.00	0
35.50	0		

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Summary for Pond RLcc: Roof Leader

Inflow Area = 0.070 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 0.81 cfs @ 11.90 hrs, Volume= 0.043 af
Outflow = 0.81 cfs @ 11.90 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 11.90 hrs, Volume= 0.043 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

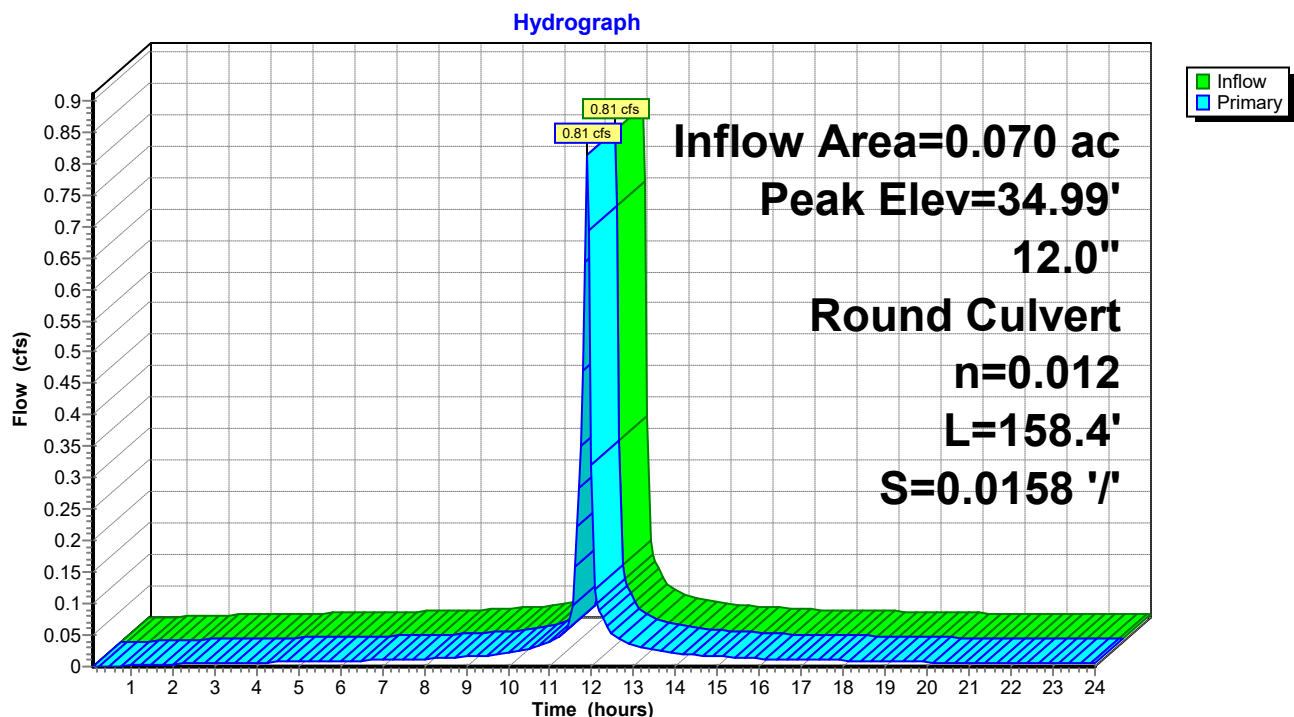
Peak Elev= 34.99' @ 11.90 hrs

Flood Elev= 36.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	34.50'	12.0" Round 12" Dual Wall HDPE L= 158.4' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 34.50' / 32.00' S= 0.0158 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.80 cfs @ 11.90 hrs HW=34.99' TW=33.51' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Inlet Controls 0.80 cfs @ 2.10 fps)

Pond RLcc: Roof Leader



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Stage-Area-Storage for Pond RLcc: Roof Leader

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
34.50	0	35.01	0	35.52	0
34.51	0	35.02	0	35.53	0
34.52	0	35.03	0	35.54	0
34.53	0	35.04	0	35.55	0
34.54	0	35.05	0	35.56	0
34.55	0	35.06	0	35.57	0
34.56	0	35.07	0	35.58	0
34.57	0	35.08	0	35.59	0
34.58	0	35.09	0	35.60	0
34.59	0	35.10	0	35.61	0
34.60	0	35.11	0	35.62	0
34.61	0	35.12	0	35.63	0
34.62	0	35.13	0	35.64	0
34.63	0	35.14	0	35.65	0
34.64	0	35.15	0	35.66	0
34.65	0	35.16	0	35.67	0
34.66	0	35.17	0	35.68	0
34.67	0	35.18	0	35.69	0
34.68	0	35.19	0	35.70	0
34.69	0	35.20	0	35.71	0
34.70	0	35.21	0	35.72	0
34.71	0	35.22	0	35.73	0
34.72	0	35.23	0	35.74	0
34.73	0	35.24	0	35.75	0
34.74	0	35.25	0	35.76	0
34.75	0	35.26	0	35.77	0
34.76	0	35.27	0	35.78	0
34.77	0	35.28	0	35.79	0
34.78	0	35.29	0	35.80	0
34.79	0	35.30	0	35.81	0
34.80	0	35.31	0	35.82	0
34.81	0	35.32	0	35.83	0
34.82	0	35.33	0	35.84	0
34.83	0	35.34	0	35.85	0
34.84	0	35.35	0	35.86	0
34.85	0	35.36	0	35.87	0
34.86	0	35.37	0	35.88	0
34.87	0	35.38	0	35.89	0
34.88	0	35.39	0	35.90	0
34.89	0	35.40	0	35.91	0
34.90	0	35.41	0	35.92	0
34.91	0	35.42	0	35.93	0
34.92	0	35.43	0	35.94	0
34.93	0	35.44	0	35.95	0
34.94	0	35.45	0	35.96	0
34.95	0	35.46	0	35.97	0
34.96	0	35.47	0	35.98	0
34.97	0	35.48	0	35.99	0
34.98	0	35.49	0	36.00	0
34.99	0	35.50	0		
35.00	0	35.51	0		

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Summary for Pond SDcc: 374.23 Yard Inlet

Inflow Area = 0.233 ac, 100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 2.70 cfs @ 11.90 hrs, Volume= 0.143 af
Outflow = 2.70 cfs @ 11.90 hrs, Volume= 0.143 af, Atten= 0%, Lag= 0.0 min
Primary = 2.70 cfs @ 11.90 hrs, Volume= 0.143 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

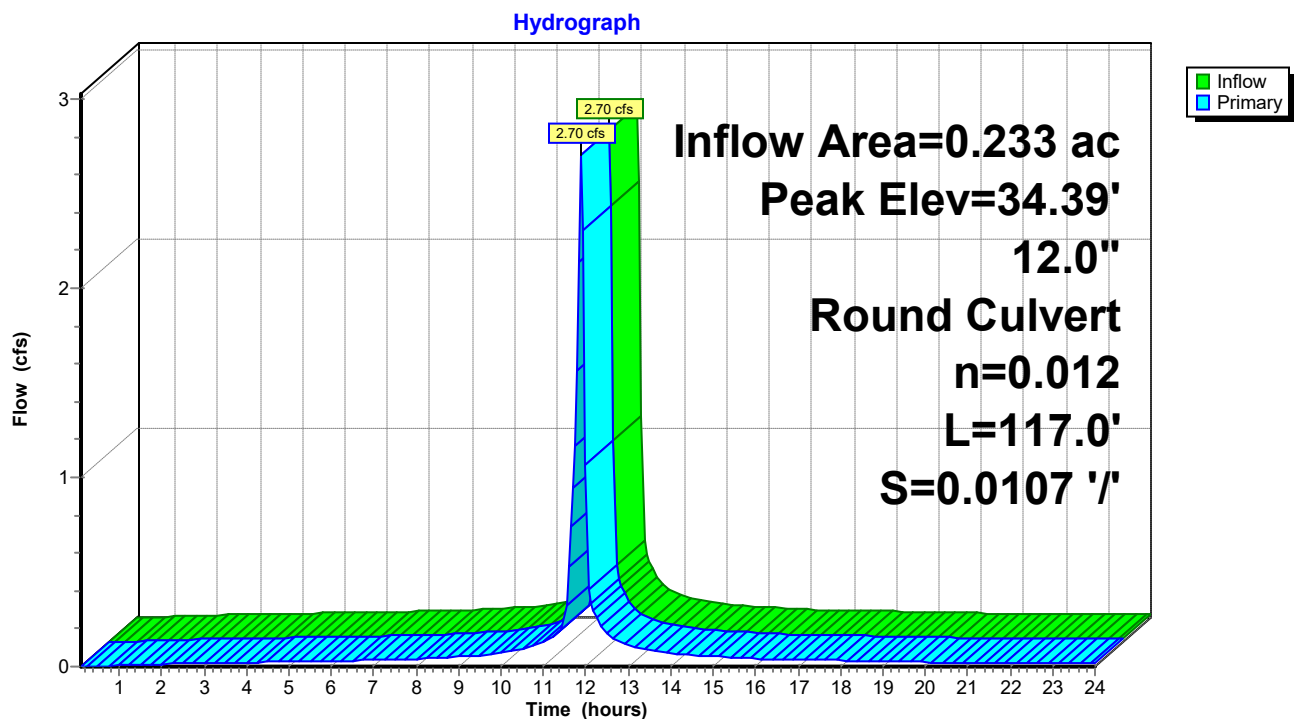
Peak Elev= 34.39' @ 11.92 hrs

Flood Elev= 35.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.25'	12.0" Round 12" Dual Wall HDPE L= 117.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 33.25' / 32.00' S= 0.0107 '/ Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.66 cfs @ 11.90 hrs HW=34.37' TW=33.51' (Dynamic Tailwater)
↑ **1=12" Dual Wall HDPE** (Outlet Controls 2.66 cfs @ 3.77 fps)

Pond SDcc: 374.23 Yard Inlet



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Stage-Area-Storage for Pond SDcc: 374.23 Yard Inlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
33.25	0	34.27	0
33.27	0	34.29	0
33.29	0	34.31	0
33.31	0	34.33	0
33.33	0	34.35	0
33.35	0	34.37	0
33.37	0	34.39	0
33.39	0	34.41	0
33.41	0	34.43	0
33.43	0	34.45	0
33.45	0	34.47	0
33.47	0	34.49	0
33.49	0	34.51	0
33.51	0	34.53	0
33.53	0	34.55	0
33.55	0	34.57	0
33.57	0	34.59	0
33.59	0	34.61	0
33.61	0	34.63	0
33.63	0	34.65	0
33.65	0	34.67	0
33.67	0	34.69	0
33.69	0	34.71	0
33.71	0	34.73	0
33.73	0	34.75	0
33.75	0	34.77	0
33.77	0	34.79	0
33.79	0	34.81	0
33.81	0	34.83	0
33.83	0	34.85	0
33.85	0	34.87	0
33.87	0	34.89	0
33.89	0	34.91	0
33.91	0	34.93	0
33.93	0	34.95	0
33.95	0	34.97	0
33.97	0	34.99	0
33.99	0	35.01	0
34.01	0	35.03	0
34.03	0	35.05	0
34.05	0	35.07	0
34.07	0	35.09	0
34.09	0	35.11	0
34.11	0	35.13	0
34.13	0	35.15	0
34.15	0	35.17	0
34.17	0	35.19	0
34.19	0	35.21	0
34.21	0	35.23	0
34.23	0	35.25	0
34.25	0		

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Summary for Pond SWM-A: SGW A

Inflow Area = 0.401 ac, 52.85% Impervious, Inflow Depth > 6.02" for 100-yr event
 Inflow = 4.26 cfs @ 11.90 hrs, Volume= 0.201 af
 Outflow = 2.75 cfs @ 11.97 hrs, Volume= 0.156 af, Atten= 36%, Lag= 4.3 min
 Primary = 1.30 cfs @ 11.97 hrs, Volume= 0.144 af
 Secondary = 1.44 cfs @ 11.97 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 33.09' @ 11.97 hrs Surf.Area= 2,865 sf Storage= 4,292 cf

Plug-Flow detention time= 192.8 min calculated for 0.156 af (77% of inflow)

Center-of-Mass det. time= 106.4 min (878.0 - 771.6)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	7,265 cf	Custom Stage Data (Irregular) Listed below (Recalc)

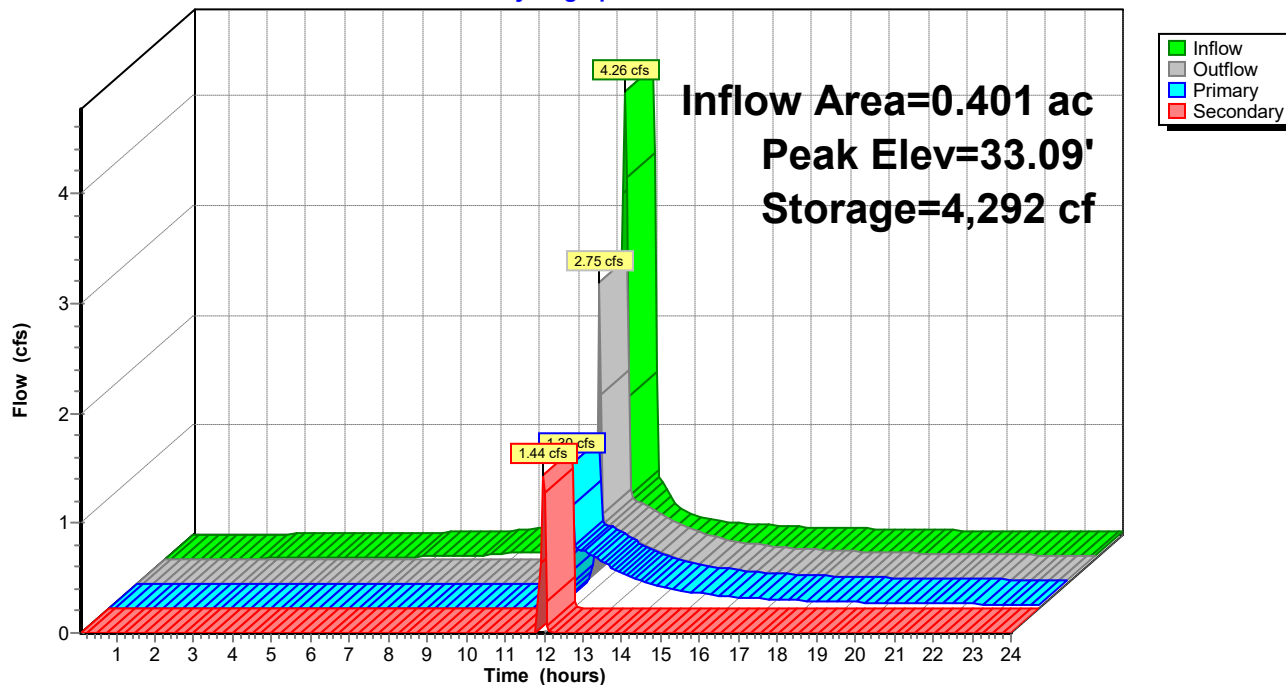
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
31.00	1,339	156.0	0	0	1,339
33.00	2,793	207.0	4,044	4,044	2,856
34.00	3,670	232.0	3,222	7,265	3,757

Device	Routing	Invert	Outlet Devices
#1	Primary	30.67'	12.0" Round 12" Dual Wall HDPE L= 54.6' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.67' / 30.26' S= 0.0075 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	32.00'	2.0" W x 12.0" H Vert. 2" Notch on Side of 374.23 C= 0.600
#3	Device 1	33.00'	10.7' long Rim 374.23 Inlet Cv= 2.62 (C= 3.28)
#4	Secondary	33.00'	30.0' long x 4.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.21 cfs @ 11.97 hrs HW=33.07' TW=32.08' (Dynamic Tailwater)↑ **1=12" Dual Wall HDPE** (Passes 1.21 cfs of 3.63 cfs potential flow)↑ **2=2" Notch on Side of 374.23** (Orifice Controls 0.58 cfs @ 3.48 fps)↑ **3=Rim 374.23 Inlet** (Weir Controls 0.63 cfs @ 0.86 fps)**Secondary OutFlow** Max=1.28 cfs @ 11.97 hrs HW=33.07' TW=0.00' (Dynamic Tailwater)↑ **4=Broad-Crested Rectangular Weir** (Weir Controls 1.28 cfs @ 0.62 fps)

Pond SWM-A: SGW A

Hydrograph



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Stage-Area-Storage for Pond SWM-A: SGW A

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	1,339	0	33.55	3,261	5,707
31.05	1,369	68	33.60	3,305	5,871
31.10	1,399	137	33.65	3,349	6,037
31.15	1,430	208	33.70	3,394	6,206
31.20	1,461	280	33.75	3,440	6,377
31.25	1,492	354	33.80	3,485	6,550
31.30	1,523	429	33.85	3,531	6,725
31.35	1,555	506	33.90	3,577	6,903
31.40	1,588	585	33.95	3,623	7,083
31.45	1,620	665	34.00	3,670	7,265
31.50	1,653	747			
31.55	1,686	830			
31.60	1,720	915			
31.65	1,754	1,002			
31.70	1,788	1,091			
31.75	1,822	1,181			
31.80	1,857	1,273			
31.85	1,892	1,367			
31.90	1,928	1,462			
31.95	1,964	1,559			
32.00	2,000	1,658			
32.05	2,036	1,759			
32.10	2,073	1,862			
32.15	2,110	1,967			
32.20	2,148	2,073			
32.25	2,186	2,182			
32.30	2,224	2,292			
32.35	2,262	2,404			
32.40	2,301	2,518			
32.45	2,340	2,634			
32.50	2,380	2,752			
32.55	2,420	2,872			
32.60	2,460	2,994			
32.65	2,500	3,118			
32.70	2,541	3,244			
32.75	2,582	3,372			
32.80	2,624	3,502			
32.85	2,666	3,635			
32.90	2,708	3,769			
32.95	2,750	3,905			
33.00	2,793	4,044			
33.05	2,834	4,185			
33.10	2,875	4,327			
33.15	2,917	4,472			
33.20	2,959	4,619			
33.25	3,001	4,768			
33.30	3,044	4,919			
33.35	3,086	5,072			
33.40	3,129	5,228			
33.45	3,173	5,385			
33.50	3,217	5,545			

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Summary for Pond SWM-C: SGW C

Inflow Area = 0.796 ac, 59.64% Impervious, Inflow Depth > 6.23" for 100-yr event
 Inflow = 7.97 cfs @ 11.91 hrs, Volume= 0.414 af
 Outflow = 4.07 cfs @ 11.97 hrs, Volume= 0.280 af, Atten= 49%, Lag= 3.4 min
 Primary = 4.07 cfs @ 11.97 hrs, Volume= 0.280 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 33.71' @ 12.01 hrs Surf.Area= 6,619 sf Storage= 9,433 cf

Plug-Flow detention time= 230.1 min calculated for 0.280 af (68% of inflow)

Center-of-Mass det. time= 127.3 min (884.2 - 756.9)

Volume	Invert	Avail.Storage	Storage Description		
#1	32.00'	15,119 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
32.00	4,506	289.0	0	0	4,506
34.00	7,023	340.0	11,436	11,436	7,135
34.50	7,715	352.0	3,683	15,119	7,818

Device	Routing	Invert	Outlet Devices
#1	Primary	31.67'	15.0" Round 15" Dual Wall HPDE L= 320.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 31.67' / 30.67' S= 0.0031 ' S= 0.0031 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	33.00'	6.0" W x 6.0" H Vert. 6" Notch on side of 374.70 C= 0.600
#3	Device 1	33.50'	16.3' long Rim of 374.70 Cv= 2.62 (C= 3.28)
#4	Secondary	34.00'	10.0' long 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

Primary OutFlow Max=3.19 cfs @ 11.97 hrs HW=33.67' TW=32.84' (Dynamic Tailwater)

1=15" Dual Wall HPDE (Outlet Controls 3.19 cfs @ 2.60 fps)

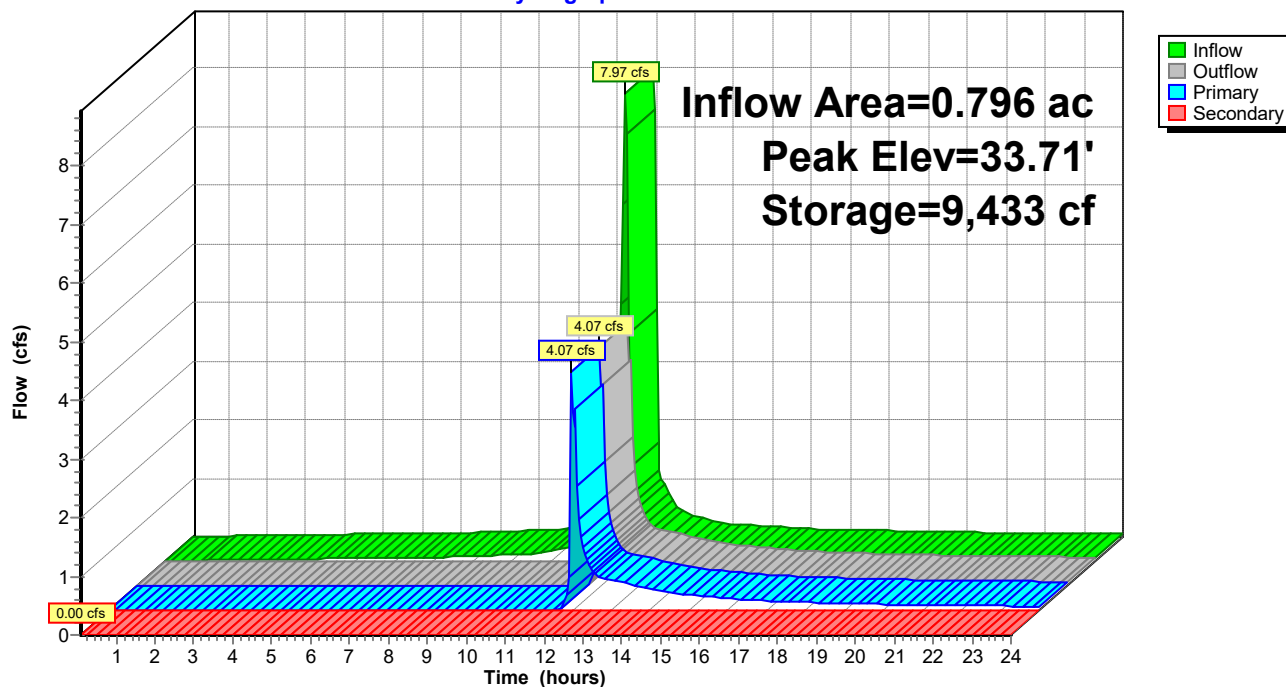

2=6" Notch on side of 374.70 (Passes < 0.77 cfs potential flow)


3=Rim of 374.70 (Passes < 3.72 cfs potential flow)
Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=32.00' TW=0.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond SWM-C: SGW C

Hydrograph



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Stage-Area-Storage for Pond SWM-C: SGW C

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	4,506	0
32.05	4,562	227
32.10	4,619	456
32.15	4,675	689
32.20	4,733	924
32.25	4,790	1,162
32.30	4,848	1,403
32.35	4,906	1,647
32.40	4,965	1,893
32.45	5,024	2,143
32.50	5,083	2,396
32.55	5,143	2,651
32.60	5,203	2,910
32.65	5,263	3,172
32.70	5,324	3,436
32.75	5,385	3,704
32.80	5,446	3,975
32.85	5,508	4,249
32.90	5,570	4,526
32.95	5,632	4,806
33.00	5,695	5,089
33.05	5,758	5,375
33.10	5,822	5,665
33.15	5,885	5,957
33.20	5,949	6,253
33.25	6,014	6,552
33.30	6,079	6,855
33.35	6,144	7,160
33.40	6,209	7,469
33.45	6,275	7,781
33.50	6,342	8,097
33.55	6,408	8,415
33.60	6,475	8,737
33.65	6,542	9,063
33.70	6,610	9,392
33.75	6,678	9,724
33.80	6,746	10,059
33.85	6,815	10,398
33.90	6,884	10,741
33.95	6,953	11,087
34.00	7,023	11,436
34.05	7,091	11,789
34.10	7,159	12,145
34.15	7,227	12,505
34.20	7,296	12,868
34.25	7,365	13,235
34.30	7,434	13,605
34.35	7,504	13,978
34.40	7,574	14,355
34.45	7,644	14,735
34.50	7,715	15,119

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Summary for Pond SWMB: SGW B

Inflow Area = 1.540 ac, 65.61% Impervious, Inflow Depth > 6.38" for 100-yr event
 Inflow = 16.78 cfs @ 11.90 hrs, Volume= 0.819 af
 Outflow = 1.86 cfs @ 12.15 hrs, Volume= 0.593 af, Atten= 89%, Lag= 15.0 min
 Primary = 1.86 cfs @ 12.15 hrs, Volume= 0.593 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 33.45' @ 12.17 hrs Surf.Area= 10,770 sf Storage= 21,186 cf

Plug-Flow detention time= 258.1 min calculated for 0.593 af (72% of inflow)

Center-of-Mass det. time= 163.1 min (920.9 - 757.8)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	27,407 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
31.00	6,669	389.0	0	0	6,669
33.00	9,979	439.0	16,537	16,537	10,066
34.00	11,785	464.0	10,869	27,407	11,918

Device	Routing	Invert	Outlet Devices
#1	Primary	32.00'	4.0" W x 18.0" H Vert. 4" Notch on side of 374.70 C= 0.600
#2	Primary	33.50'	16.3' long Rim of 374.23 2 End Contraction(s)

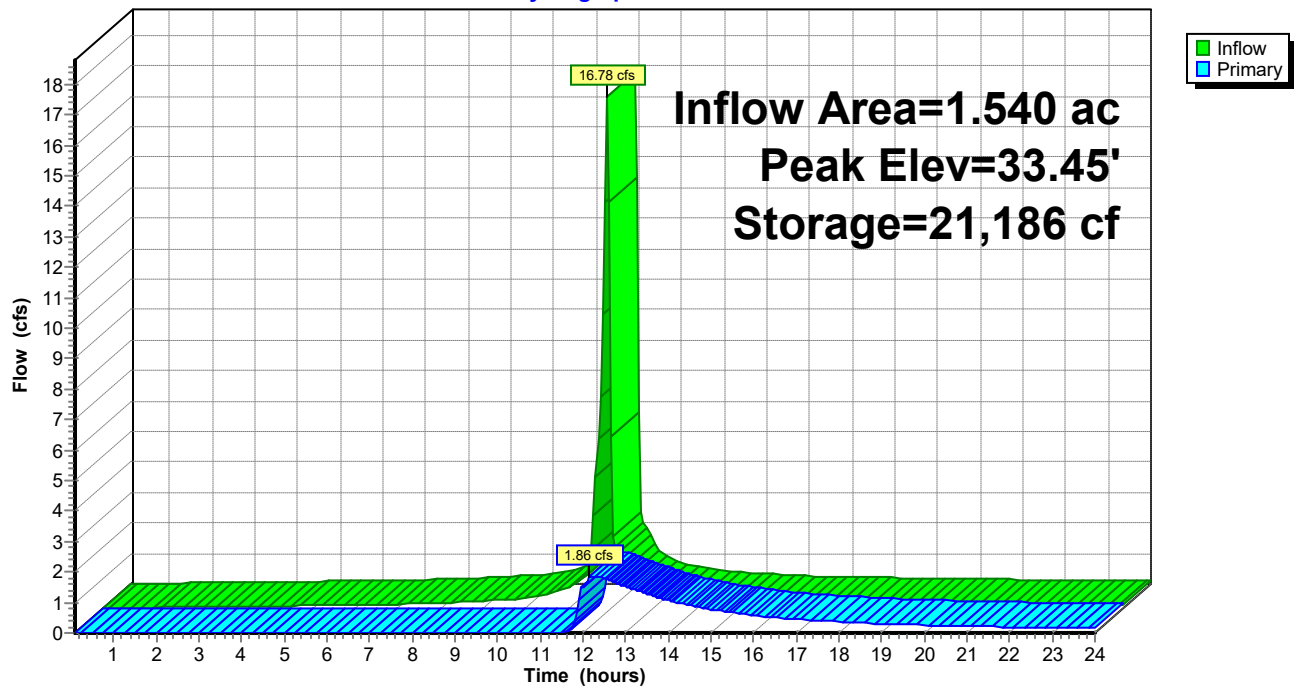
Primary OutFlow Max=1.86 cfs @ 12.15 hrs HW=33.45' TW=32.04' (Dynamic Tailwater)

1=4" Notch on side of 374.70 (Orifice Controls 1.86 cfs @ 3.86 fps)

2=Rim of 374.23 (Controls 0.00 cfs)

Pond SWMB: SGW B

Hydrograph



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Stage-Area-Storage for Pond SWMB: SGW B

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	6,669	0	33.55	10,954	22,292
31.05	6,744	335	33.60	11,045	22,842
31.10	6,819	674	33.65	11,136	23,396
31.15	6,894	1,017	33.70	11,227	23,955
31.20	6,970	1,364	33.75	11,319	24,519
31.25	7,046	1,714	33.80	11,412	25,087
31.30	7,123	2,068	33.85	11,505	25,660
31.35	7,200	2,427	33.90	11,598	26,238
31.40	7,278	2,788	33.95	11,691	26,820
31.45	7,356	3,154	34.00	11,785	27,407
31.50	7,434	3,524			
31.55	7,513	3,898			
31.60	7,592	4,275			
31.65	7,672	4,657			
31.70	7,752	5,043			
31.75	7,832	5,432			
31.80	7,913	5,826			
31.85	7,995	6,223			
31.90	8,076	6,625			
31.95	8,158	7,031			
32.00	8,241	7,441			
32.05	8,324	7,855			
32.10	8,407	8,273			
32.15	8,491	8,696			
32.20	8,575	9,123			
32.25	8,660	9,553			
32.30	8,745	9,989			
32.35	8,830	10,428			
32.40	8,916	10,872			
32.45	9,002	11,320			
32.50	9,089	11,772			
32.55	9,176	12,229			
32.60	9,264	12,690			
32.65	9,352	13,155			
32.70	9,440	13,625			
32.75	9,529	14,099			
32.80	9,618	14,578			
32.85	9,708	15,061			
32.90	9,798	15,548			
32.95	9,888	16,041			
33.00	9,979	16,537			
33.05	10,066	17,038			
33.10	10,153	17,544			
33.15	10,240	18,054			
33.20	10,328	18,568			
33.25	10,416	19,086			
33.30	10,505	19,609			
33.35	10,594	20,137			
33.40	10,683	20,669			
33.45	10,773	21,205			
33.50	10,863	21,746			

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Summary for Pond X1: MH-1

Inflow Area = 2.738 ac, 62.01% Impervious, Inflow Depth > 4.45" for 100-yr event
Inflow = 6.89 cfs @ 11.97 hrs, Volume= 1.016 af
Outflow = 6.89 cfs @ 11.97 hrs, Volume= 1.016 af, Atten= 0%, Lag= 0.0 min
Primary = 6.89 cfs @ 11.97 hrs, Volume= 1.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 32.25' @ 11.97 hrs

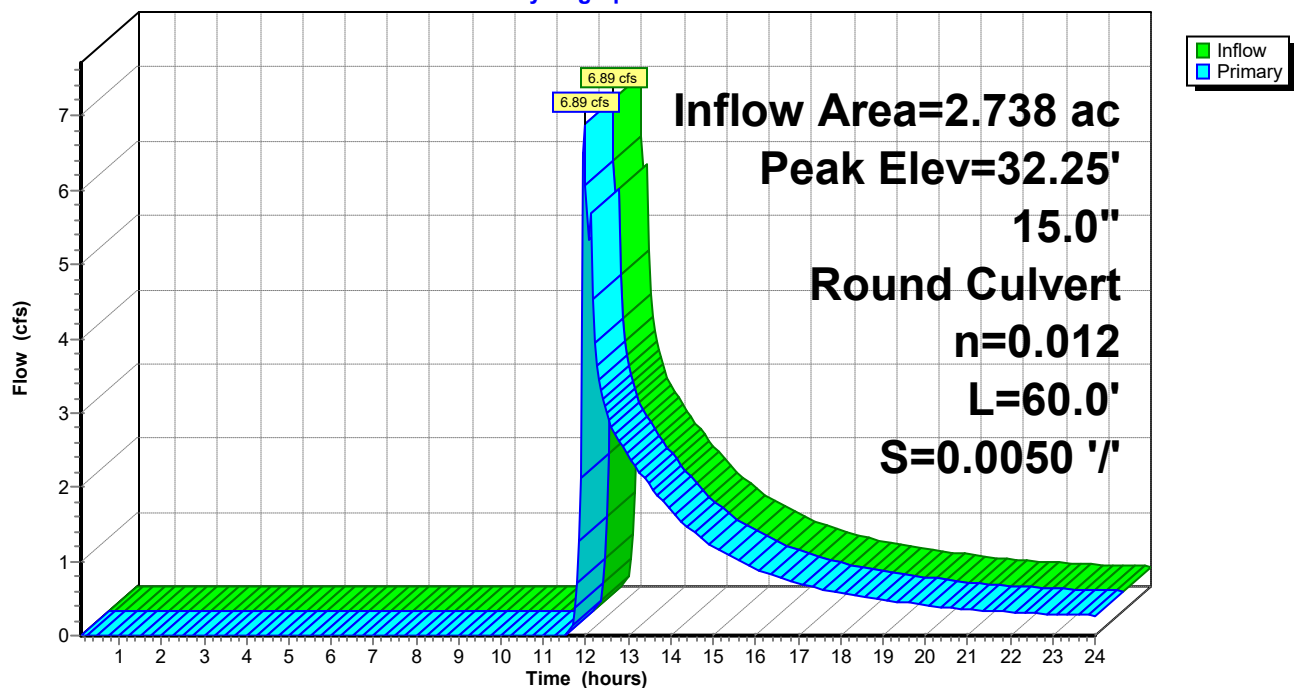
Flood Elev= 33.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.16'	15.0" Round 15" Dual Wall HPDE L= 60.0' Box, headwall w/3 rounded edges, Ke= 0.200 Inlet / Outlet Invert= 30.16' / 29.86' S= 0.0050 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=6.31 cfs @ 11.97 hrs HW=32.09' TW=0.00' (Dynamic Tailwater)
↑1=15" Dual Wall HPDE (Barrel Controls 6.31 cfs @ 5.15 fps)

Pond X1: MH-1

Hydrograph



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Stage-Area-Storage for Pond X1: MH-1

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
30.16	0	32.71	0
30.21	0	32.76	0
30.26	0	32.81	0
30.31	0	32.86	0
30.36	0	32.91	0
30.41	0	32.96	0
30.46	0	33.01	0
30.51	0	33.06	0
30.56	0	33.11	0
30.61	0	33.16	0
30.66	0	33.21	0
30.71	0	33.26	0
30.76	0	33.31	0
30.81	0	33.36	0
30.86	0	33.41	0
30.91	0	33.46	0
30.96	0	33.51	0
31.01	0	33.56	0
31.06	0	33.61	0
31.11	0	33.66	0
31.16	0	33.71	0
31.21	0	33.76	0
31.26	0		
31.31	0		
31.36	0		
31.41	0		
31.46	0		
31.51	0		
31.56	0		
31.61	0		
31.66	0		
31.71	0		
31.76	0		
31.81	0		
31.86	0		
31.91	0		
31.96	0		
32.01	0		
32.06	0		
32.11	0		
32.16	0		
32.21	0		
32.26	0		
32.31	0		
32.36	0		
32.41	0		
32.46	0		
32.51	0		
32.56	0		
32.61	0		
32.66	0		

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Type II 24-hr 100-yr Rainfall=7.60"

Printed 4/2/2023

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Summary for Pond X2: OS-B 374.70 Inlet

Inflow Area = 2.336 ac, 63.58% Impervious, Inflow Depth > 4.48" for 100-yr event
Inflow = 5.59 cfs @ 11.97 hrs, Volume= 0.873 af
Outflow = 5.59 cfs @ 11.97 hrs, Volume= 0.873 af, Atten= 0%, Lag= 0.0 min
Primary = 5.59 cfs @ 11.97 hrs, Volume= 0.873 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

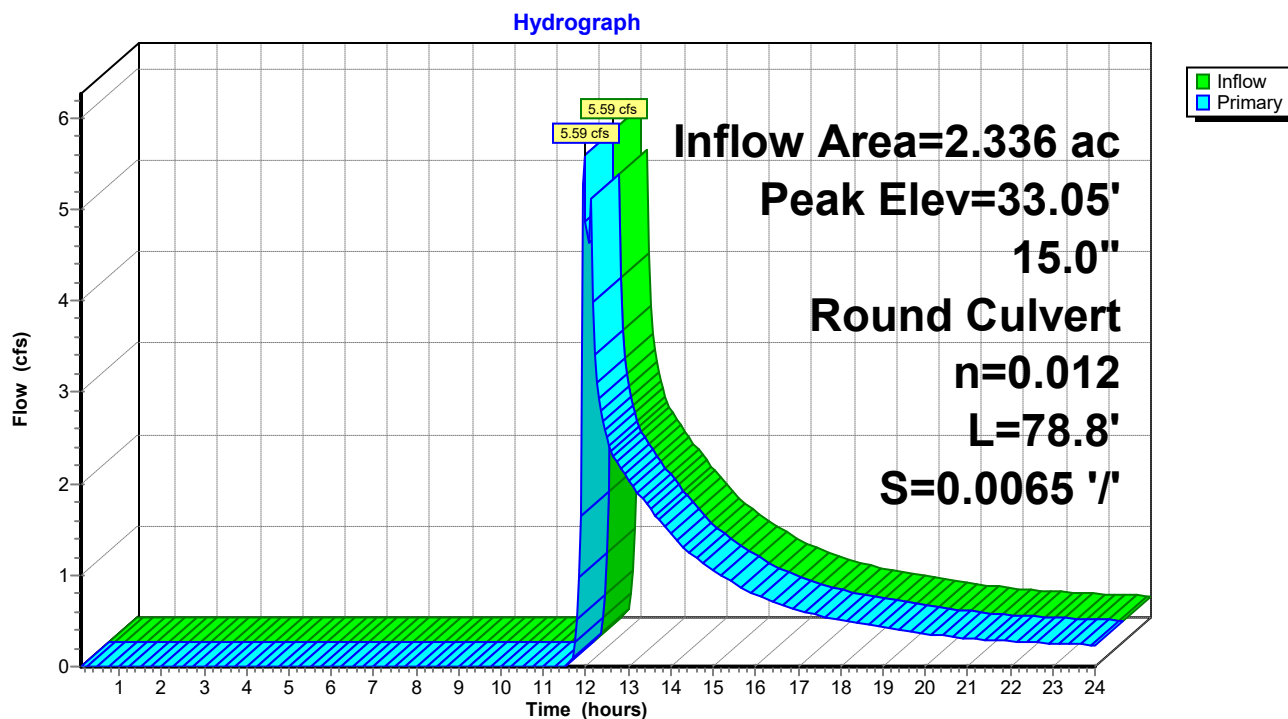
Peak Elev= 33.05' @ 11.97 hrs

Flood Elev= 33.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	30.67'	15.0" Round 15" Dual Wall HDPE L= 78.8' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 30.67' / 30.16' S= 0.0065 '/ Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=4.85 cfs @ 11.97 hrs HW=32.84' TW=32.10' (Dynamic Tailwater)
↑ **1=15" Dual Wall HDPE** (Outlet Controls 4.85 cfs @ 3.96 fps)

Pond X2: OS-B 374.70 Inlet



2023-03-03-Carrion HydroCAD

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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond X2: OS-B 374.70 Inlet

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
30.67	0	31.69	0	32.71	0
30.69	0	31.71	0	32.73	0
30.71	0	31.73	0	32.75	0
30.73	0	31.75	0	32.77	0
30.75	0	31.77	0	32.79	0
30.77	0	31.79	0	32.81	0
30.79	0	31.81	0	32.83	0
30.81	0	31.83	0	32.85	0
30.83	0	31.85	0	32.87	0
30.85	0	31.87	0	32.89	0
30.87	0	31.89	0	32.91	0
30.89	0	31.91	0	32.93	0
30.91	0	31.93	0	32.95	0
30.93	0	31.95	0	32.97	0
30.95	0	31.97	0	32.99	0
30.97	0	31.99	0	33.01	0
30.99	0	32.01	0	33.03	0
31.01	0	32.03	0	33.05	0
31.03	0	32.05	0		
31.05	0	32.07	0		
31.07	0	32.09	0		
31.09	0	32.11	0		
31.11	0	32.13	0		
31.13	0	32.15	0		
31.15	0	32.17	0		
31.17	0	32.19	0		
31.19	0	32.21	0		
31.21	0	32.23	0		
31.23	0	32.25	0		
31.25	0	32.27	0		
31.27	0	32.29	0		
31.29	0	32.31	0		
31.31	0	32.33	0		
31.33	0	32.35	0		
31.35	0	32.37	0		
31.37	0	32.39	0		
31.39	0	32.41	0		
31.41	0	32.43	0		
31.43	0	32.45	0		
31.45	0	32.47	0		
31.47	0	32.49	0		
31.49	0	32.51	0		
31.51	0	32.53	0		
31.53	0	32.55	0		
31.55	0	32.57	0		
31.57	0	32.59	0		
31.59	0	32.61	0		
31.61	0	32.63	0		
31.63	0	32.65	0		
31.65	0	32.67	0		
31.67	0	32.69	0		

2023-03-03-Carrion HydroCAD

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Type II 24-hr 100-yr Rainfall=7.60"

Printed 4/2/2023

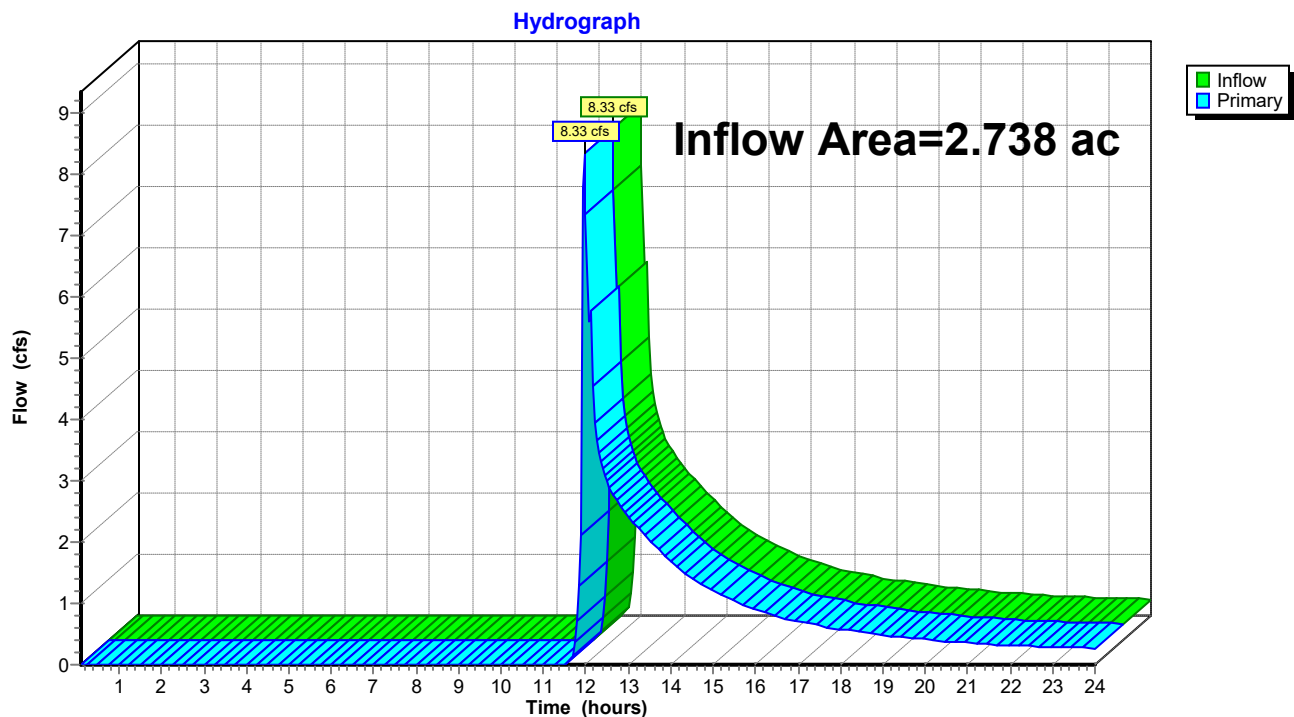
Page 199

Summary for Link 4L: POI #4 - POST

Inflow Area = 2.738 ac, 62.01% Impervious, Inflow Depth > 4.51" for 100-yr event
Inflow = 8.33 cfs @ 11.97 hrs, Volume= 1.028 af
Primary = 8.33 cfs @ 11.97 hrs, Volume= 1.028 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 4L: POI #4 - POST



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Type II 24-hr 100-yr Rainfall=7.60"

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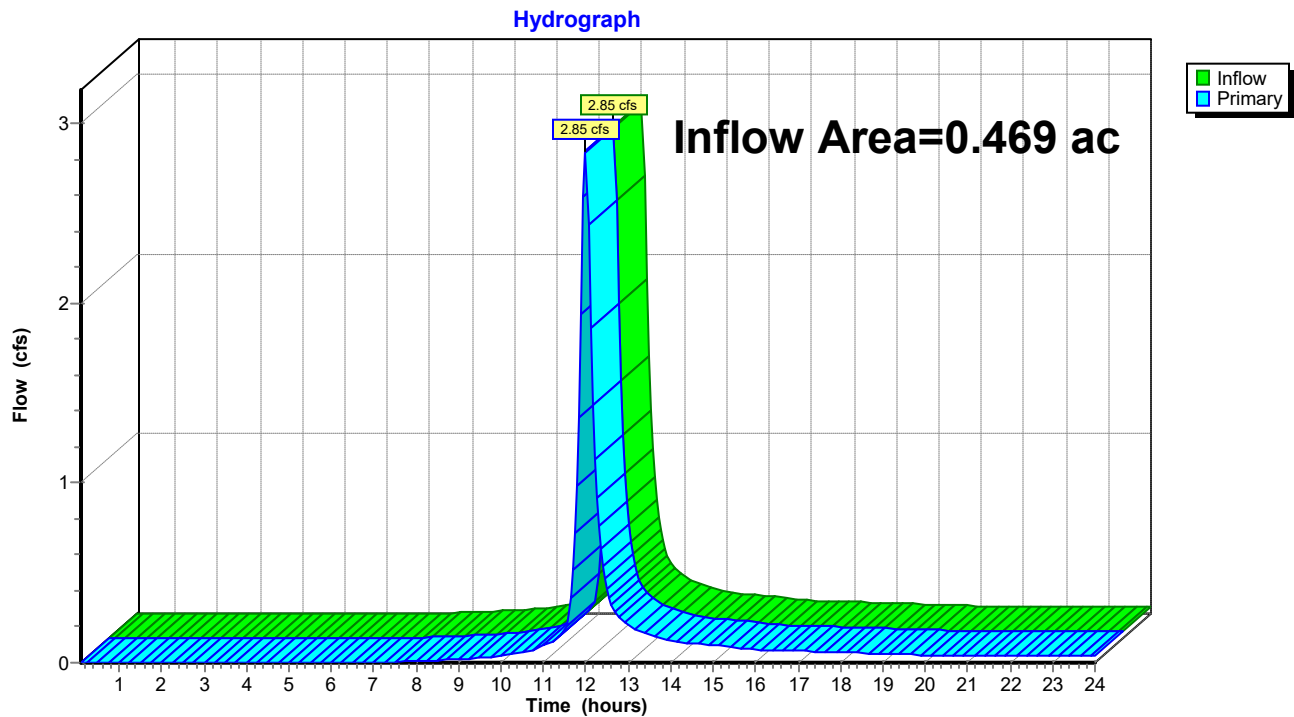
Page 200

Summary for Link 5L: POI #1 - POST

Inflow Area = 0.469 ac, 0.00% Impervious, Inflow Depth > 4.56" for 100-yr event
Inflow = 2.85 cfs @ 11.99 hrs, Volume= 0.178 af
Primary = 2.85 cfs @ 11.99 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 5L: POI #1 - POST



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Type II 24-hr 100-yr Rainfall=7.60"

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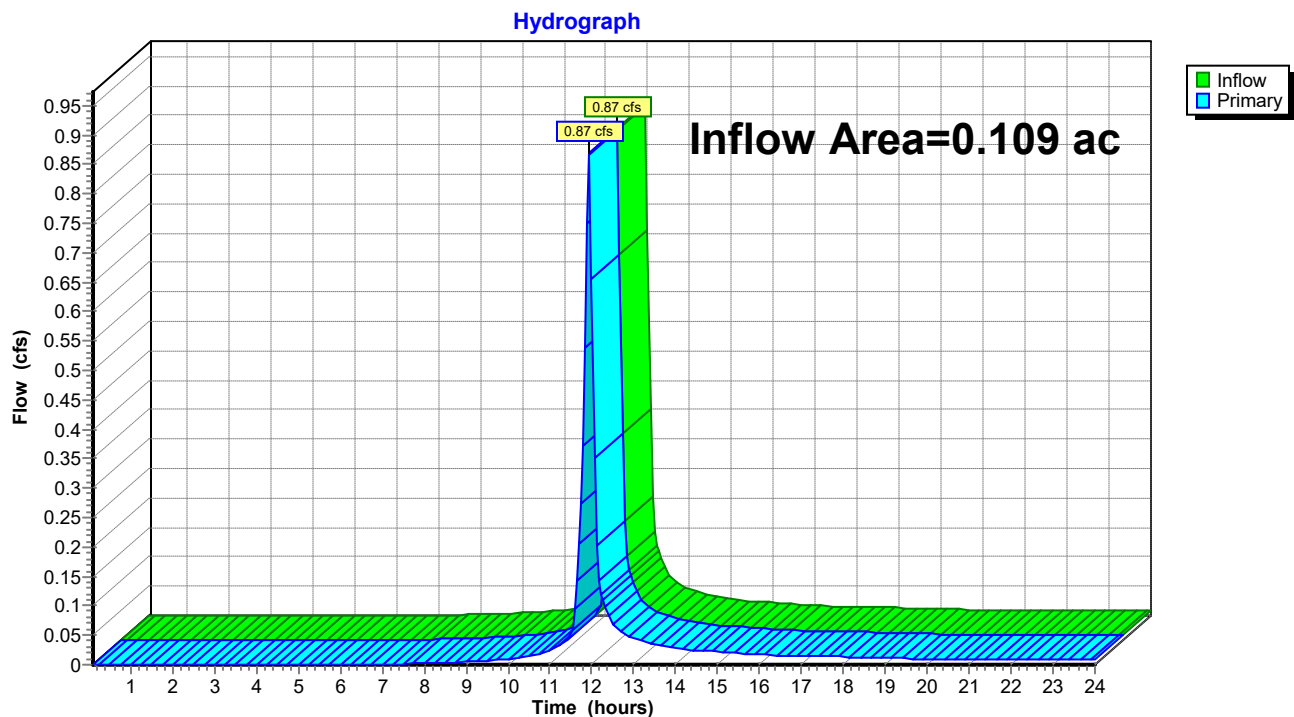
Page 201

Summary for Link 8L: POI #2 - POST

Inflow Area = 0.109 ac, 0.00% Impervious, Inflow Depth > 4.57" for 100-yr event
Inflow = 0.87 cfs @ 11.94 hrs, Volume= 0.042 af
Primary = 0.87 cfs @ 11.94 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 8L: POI #2 - POST



2023-03-03-Carrion HydroCAD

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220135 - Carrion Electric

Type II 24-hr 100-yr Rainfall=7.60"

Printed 4/2/2023

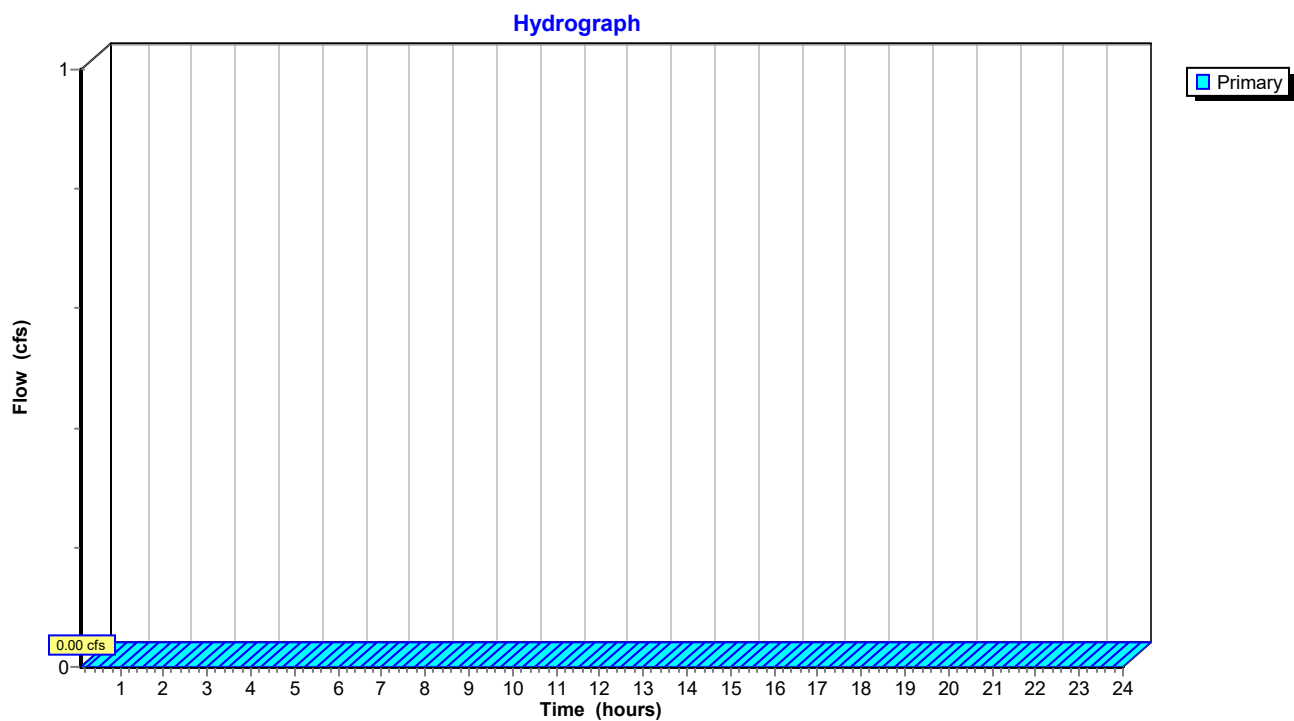
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Summary for Link 10L: POI #3 - POST

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 10L: POI #3 - POST



APPENDIX B

Environmental Site Design Calculations

ESD Target for Site Development (Total Site)

Earthen Disturbance (LOD) = 3.316 acre = 144,444.96 sf

Onsite Soils in LOD: 40.23% "HSG B", 49.86% "HSG C", & 9.91% "HSG D"

Proposed Buildings, Parking, Sidewalks, & Entrance = 73,948 sf

Impervious I = 51.19%

$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (51.19\%) = 0.511$

Based on I = 51.19%: $P_E = 1.8''$ for all soil types

$$ESD_{V_Total_Target} = \frac{(P_e)(R_v)(A)}{12} = \frac{(1.8)(0.511)(144,445)}{12} = \mathbf{11,072 \text{ cf}}$$

Submerged Gravel Wetland (SWM A – Yellow)

Drainage Area = 17,488 sf

Proposed Improvements = 9,242 sf; Impervious I = 52.85%

$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (52.85\%) = 0.526$

Based on I = 52.85%: $P_E = 1.8''$

$$ESD_{V_Total_Target_SWM_A} = \frac{(P_e)(R_v)(A)}{12} = \frac{(1.8)(0.526)(17,488)}{12} = \mathbf{1,380 \text{ cf}}$$

$$ESD_{Ponding} = \frac{(Area \text{ at Temporary Ponding Elevation} + Floor \text{ Area})}{2} \times \text{Ponding Depth} = \frac{(2,793 + 1,339)}{2} \times 1.00 = \mathbf{2,066 \text{ cf}}$$

$ESD_{Media} = \mathbf{0 \text{ cf}}$

$ESD_{Provided} = ESD_{Ponding} + ESD_{Media} = 2,066 + 0 = \mathbf{2,066 \text{ cf}}$

$ESD_v (\text{provided SWM A}) > ESD_v (\text{target SWM A})$

Submerged Gravel Wetland (SWM B – Purple)

Drainage Area = 67,086 sf

Proposed Improvements = 44,017 sf; Impervious I = 65.61%

$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (65.61\%) = 0.640$

Based on I = 65.61%: $P_E = 2.0''$

$$ESD_{V_Total_Target_SWM_B} = \frac{(P_e)(R_v)(A)}{12} = \frac{(2.0)(0.640)(67,086)}{12} = \mathbf{7,156 \text{ cf}}$$

$$ESD_{Ponding} = \frac{(Area \text{ at Temporary Ponding Elevation} + Floor \text{ Area})}{2} \times \text{Ponding Depth} = \frac{(9,979 + 6,669)}{2} \times 1.00 = \mathbf{8,324 \text{ cf}}$$

$ESD_{Media} = \mathbf{0 \text{ cf}}$

$ESD_{Provided} = ESD_{Ponding} + ESD_{Media} = 8,324 + 0 = \mathbf{8,324 \text{ cf}}$

$ESD_v (\text{provided SWM B}) > ESD_v (\text{target SWM B})$

Submerged Gravel Wetland (SWM C – Orange)

Drainage Area = 34,688 sf

Proposed Improvements = 20,689 sf; Impervious I = 59.64%

$$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (59.64\%) = 0.587$$

Based on I = 59.64%: $P_E = 2.0''$

$$ESD_{V_Total_Target_SWM_C} = \frac{(P_e)(R_v)(A)}{12} = \frac{(2.0)(0.587)(34,688)}{12} = \mathbf{3,394\ cf}$$

$$ESD_{Ponding} = \frac{(Area\ at\ Temporary\ Ponding\ Elevation + Floor\ Area)}{2} \times Ponding\ Depth = \frac{(7,023 + 4,506)}{2} \times 1.00 = \mathbf{5,765\ cf}$$

$$ESD_{Media} = \mathbf{0\ cf}$$

$$ESD_{Provided} = ESD_{Ponding} + ESD_{Media} = 5,765 + 0 = \mathbf{5,765\ cf}$$

$$ESD_v(\text{provided SWM C}) > ESD_v(\text{target SWM C})$$

APPENDIX C

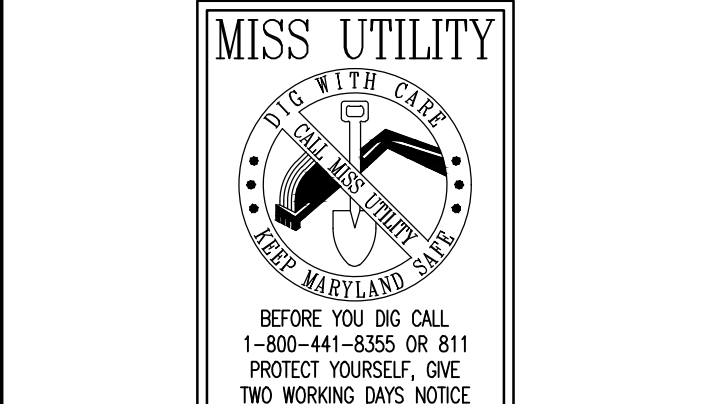
Drainage Area Maps

[illegible]

WARNING!!

THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. IN THE EVENT THE CONTRACTOR NOTIFIES THE DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UTILITIES PRIOR TO BEFORE BEGINNING ANY WORK ON-SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.



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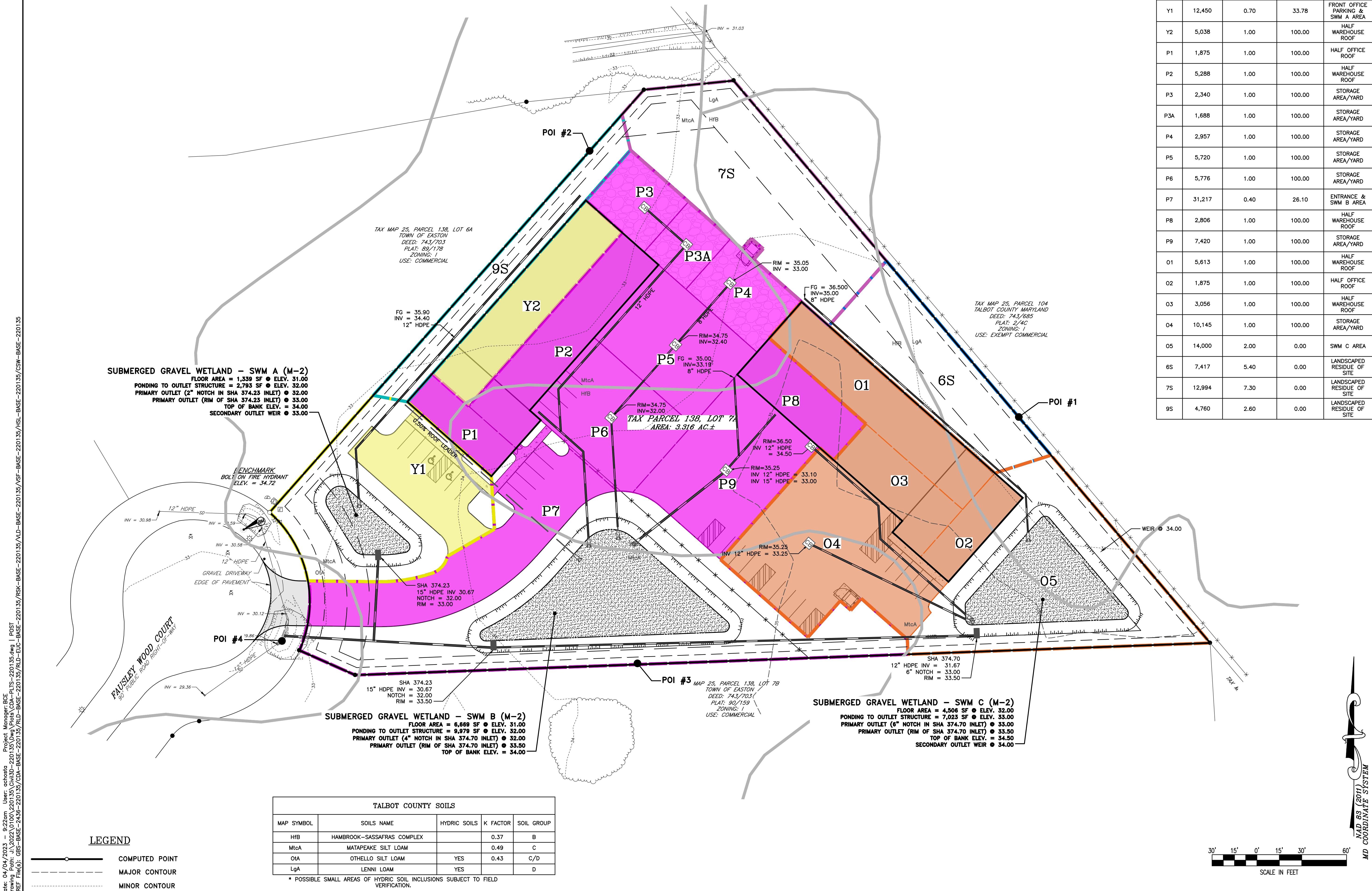
E-mail: general@ieinc.com
 117 Bay St. Easton, MD 21601 (410) 822-8003
 15 Washington St. Cambridge, MD 21613 (410) 221-0818
 354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

DATE _____

FOR
LOT 7A - MISTLETOE HALL
COMMERCE-BUSINESS PARK

ISSUED FOR:	DATE:	BY:
CLIENT REVIEW	4/5/23	BCE

SCALE:	JOB No.
AS NOTED	220135
	FILE No.
	A037



ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESD _v (FT. ³)	ACTUAL ESD _v (ft. ³)
SWM-A	M-2	SWM-A	ON-SITE	87	414841.9046'	1576152.9139'	0.401	0.212	0.031	1.8	1.8	1,380	2,066
SWM-B	M-2	SWM-B	ON-SITE	90	414793.1740'	1576317.2634'	1.54	1.01	0.153	2.0	2.0	7,156	8,324
SWM-C	M-2	SWM-C	ON-SITE	88	414803.1510'	1576609.5210'	0.769	0.475	0.103	2.0	2.0	3,394	5,765
TOTAL/ AVERAGE													



APPROVAL

Rid Van Engle
TOWN ENGINEER

1/2020
DATE

**TOWN OF EASTON
STANDARD DETAILS**

ESD SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO: TOE-SWM-7.01

SWM QUANTITY SUMMARY CHART

PRACTICE	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	T _c (MINUTES)	PRE 2 YEAR	POST 2 YEAR	W.S.E.	PRE 10 YEAR	POST 10 YEAR	W.S.E.	PRE 100 YEAR	POST 100 YEAR	W.S.E.
SWM-A	0.401	.212	87	1.0	--	0.05	32.20	--	0.29	32.67	--	2.75	33.09
SWM-B	1.54	1.01	90	1.0	--	0.15	32.27	--	0.75	32.79	--	1.86	33.45
SWM-C	0.769	.475	88	1.0	--	0.04	33.09	--	0.38	33.38	--	4.07	33.71

Drainage areas to the proposed stormwater features differ from existing onsite drainage patterns and are therefore not directly comparable in this chart's format.

Please see stormwater report, dated April 4, 2023 for additional information and exhibits. Onsite quantity management is successfully implemented as described therein.



APPROVAL

Rid Van Engle
TOWN ENGINEER

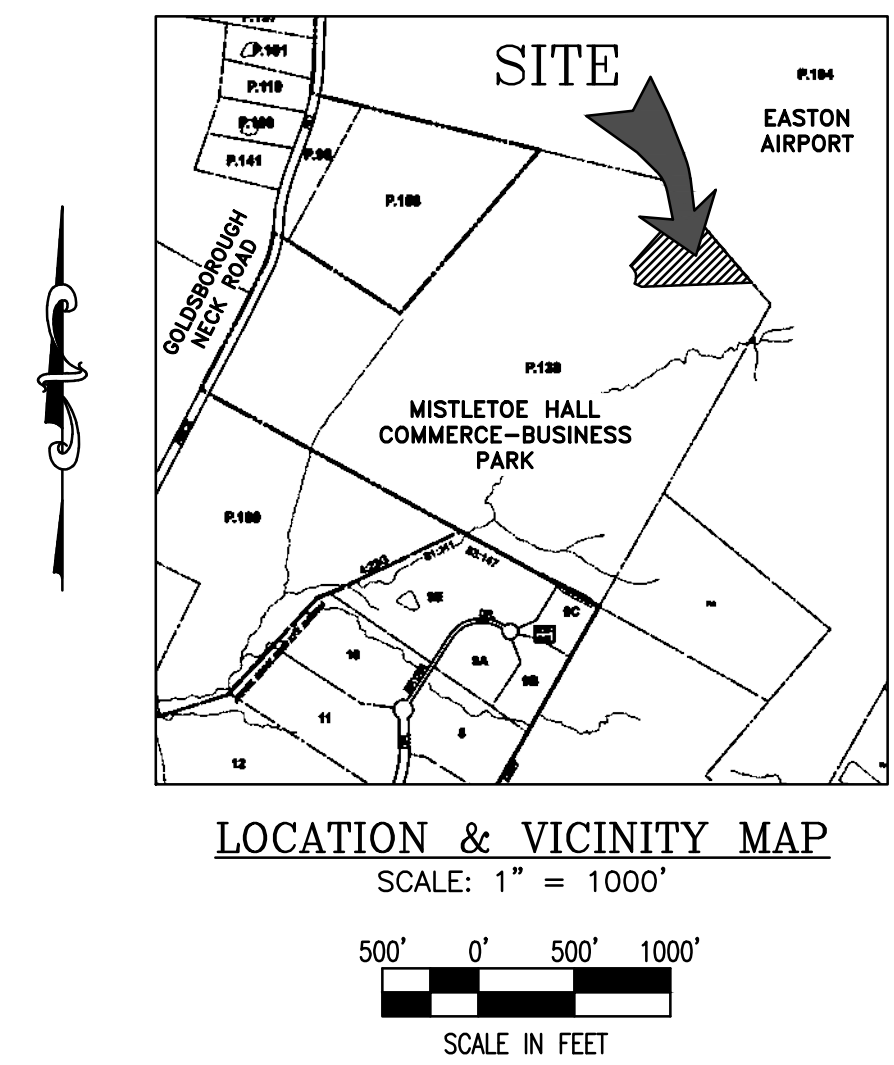
1/2020
DATE

**TOWN OF EASTON
STANDARD DETAILS**

SWM QUANTITY SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO: TOE-SWM-7.02

[illegible]

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE QUANTITIES SHOWN ON THIS PLAN ARE FOR INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.



Lane Engineering, LLC

Established 1986

Civil Engineers • Land Planning • Land Surveyors



E-mail: general@leinc.com

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15 Washington St.	Centerville, MD 21617 (410) 221-0818	
354 Pennsylvania Ave.	Centerville, MD 21617 (410) 758-2095	

SEAL	
	DATE _____

AERAIL CONTEXT PLAN
FOR LOT 7A – MISTLETOE HALL COMMERCE–BUSINESS PARK
IN THE FIRST ELECTION DISTRICT TALBOT COUNTY, MARYLAND TAX MAP 25, GRID 16, PARCEL 138 LOT 7A

ISSUED FOR:	DATE:	BY:
CLIENT REVIEW	4/5/23	BCE

SHEET No. 1 OF 1	DATE: 4/5/2023
SCALE: AS NOTED	JOB No. 220135
	FILE No. A037

NOTE: THE LAYOUT AS SHOWN
HEREON IS CONCEPTUAL ONLY AND
NOT INTENDED TO BE UTILIZED FOR
DESIGN OR CONSTRUCTION
PURPOSES.

NAD 83 (2011)
MD COORDINATE SYSTEM

PROPERTY:	TAX MAP 25, PARCEL 138 - LOT 7A				THE PR
OWNER:	C ESTATES, LLC 28857 FAUSLEY WOOD COURT EASTON, MD 21601				FLOOD MAPPED 240067
DEED:	2975/63				(100-Y-E
PLAT:	89/178				EQUALE ANNUAL ELEVATI MAY BE
CURRENT ZONING:	I (INDUSTRIAL)				
	REQUIRED	PROPOSED -	BUILDING A	BUILDING B	
BUILDING SETBACKS:	FRONT- 25'		117±	316'	
	SIDE- 10'		20'±/173±	47'±/173±	THE FL
	REAR- 30'		118±	33±	DEPICTE
MINIMUM LOT SIZE:	40,000 SF				INACCU
MINIMUM LOT FRONTAGE:	100'				IMPROV
MAXIMUM HEIGHT:	40'				
MINIMUM BUILDING ENVELOPE:	30' x 80'				
LOT COVERAGE:	50% (ALL BUILDINGS & STRUCTURES)				

PROPOSED DEVELOPMENT: TWO BUILDINGS 25,550 SF± TOTAL	
BUILDING A – CONSTRUCTION RELATED BUSINESS:	12,200 SF±
BUILDING B – CONSTRUCTION RELATED BUSINESS:	13,350 SF±
BUILDING HEIGHT: 40' MAXIMUM ALLOWED / PROPOSED	
TOTAL LOT COVERAGE: 50% PERMITTED (BUILDINGS & STRUCTURES ONLY)	
BUILDING A (CONSTRUCTION RELATED BUSINESS):	
2–STORY OFFICE BUILDING (3,750 SF PER FLOOR):	3,750 SF
1–STORY STORAGE BUILDING:	8,450 SF
BUILDING B (CONSTRUCTION RELATED BUSINESS):	
1–STORY OFFICE BUILDING:	3,750 SF
1–STORY STORAGE BUILDING:	9,600 SF
TOTAL BUILDING:	25,550 SF PROPOSED (17.6%)

PARKING REQUIRED:				
BUILDING A	-	CONSTRUCTION RELATED BUSINESS	1/1000 GFA: 15,950 SF/1000	= 16 SPACES MINIMUM
			1/200 GFA: 15,950 SF/200	= 80 SPACES MAXIMUM
BUILDING B	-	CONSTRUCTION RELATED BUSINESS	1/1000 GFA: 13,350 SF/1000	= 13 SPACES MINIMUM
			1/200 GFA: 13,350 SF/200	= 67 SPACES MAXIMUM
			TOTAL SPACES REQUIRED =	29 SPACES (MINIMUM)

SIGNAGE: ONE FREE STANDING, ARCHITECTURALLY COMPATIBLE MONUMENT SIGN PER TOWN CODE; ONE 75 SF MAXIMUM BUILDING SIGN PER CODE-DESIGN AND PERMITS TO COME LATER

BIKE RACK REQUIRED: 1 BIKE SPACE/10 VEHICLE SPACES; 3 BIKE SPACES/ BIKE RACK REQUIRED

ARTICLE 4. DEVELOPMENT STANDARDS

ARTICLE 4.03.(1):	BUILDINGS EXCEEDING 20 FEET IN HEIGHT SHALL INCORPORATE A BASE, MIDDLE AND CAP
ARTICLE 4.04.(A):	ON-SITE PARKING REQUIRED: IN ACCORDANCE WITH TOWN OF EASTON ZONING CODE WITHOUT OVERBUILDING PARKING, EMPLOYEE & COMPANY VEHICLES SHALL BE DESIGNATED GENERALLY IN THE SIDE AND OR BACK OF THE PROPERTY.
ARTICLE 4.04.(B):	OFF-SITE PARKING: NO PARKING SHALL BE PERMITTED WITHIN THE STREET RIGHT-OF-WAY OF ANY STREETS WITHIN THE PROPERTY.
ARTICLE 4.04.(C):	PARKING AREA STANDARDS: IN FRONT AND ON THE SIDE OF THE BUILDINGS, PAVED PARKING AREAS SHALL HAVE LANDSCAPED ISLANDS. NO MORE THAN SEVEN (7) CONSECUTIVE, SINGLE LOADED PARKING SPACES (14 SPACES IF TWO SEVEN-SPACE GROUPINGS OF PARKING SPACES (SHALL BE PROVIDED WITH A LANDSCAPED ISLAND MEASURING AT LEAST SIX (6) FEET IN WIDTH.
ARTICLE 4.04.(D):	SCREENING: ALL PARKING SHALL BE SCREENED FROM VIEW AS MUCH AS POSSIBLE BY DEPRESSING GRADES, THE USE OF LANDSCAPE AND/OR BY EARTH BERMS.
ARTICLE 4.05:	TRUCK LOADING & PARKING: ALL LOADING DOCKS SHALL BE LOCATED IN THE REAR OR SIDE OF THE BUILDINGS AND SCREENED FROM VIEW.
ARTICLE 4.06.(A):	MATERIAL & EQUIPMENT STORAGE: NO MATERIALS, SUPPLIES OR EQUIPMENT (INCLUDING BOATS, RECREATIONAL VEHICLES, TRAILERS, OR COMPANY OWNED OR OPERATED VEHICLES) SHALL BE STORED FOR NO MORE OF TWENTY-FOUR (24) HOURS IN ANY AREA ON A LOT EXCEPT INSIDE A CLOSED BUILDING , OR BEHIND A VISUAL BARRIER COMPLETELY SCREENED FROM VIEW OF ADJOINING LOTS OR PUBLIC STREETS.
ARTICLE 4.06.(B):	SCREENING OF REFUSE CONTAINERS: SHALL BE COMPLETELY CONCEALED FROM VIEW BY MEANS OF A SCREENING WALL CONSTRUCTED OF MATERIAL SIMILAR AND COMPATIBLE WITH THE BUILDING OR LANDSCAPE.
ARTICLE 4.09:	EXTERIOR LIGHTING:LIGHTING SOURCES, EXCEPT FOR STREET LIGHTS SHALL BE SCREENED FROM VIEW OR DIRECTED DOWNWARD AND SHIELDED.
ARTICLE 4.11:	FENCING: NATURAL BARRIERS ARE PREFERRED. BLACK OR DARK BROWN VINYL CLAD CHAIN FENCING, CMU, CONCRETE, BRICK AND STONE WALLS RE ALLOWED. GALVANIZED CHAIN LINK FENCE IS DISCOURAGED.
STORMWATER:	STORMWATER QUALITY AND QUANTITY WILL BE ADDRESSED THROUGH ESD FEATURES AS REQUIRED AND AS SHOWN HEREON APPROXIMATELY.
FOREST CONSERVATION:	N/A- PREVIOUSLY SATISFIED UNDER ORIGINAL SUBDIVISION APPROVAL

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL NO. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON MARCH 3, 2023.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

THE ELEVATIONS SHOWN HEREON ARE NAVD 988 DATUM AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS MDNM (NGS CERTIFICATE PENDING) AND LOYF (PID DK7414) COMBINED FACTOR: 0.99995360

THE COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND COORDINATE SYSTEM NAD83 (2011), AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS MDNM (NGS CERTIFICATE PENDING) AND LOYF (PID DK7414) COMBINED FACTOR: 0.99995360. THE DISTANCES SHOWN HEREON ARE GROUND BASED.

PUBLIC WATER AND SEWER SERVICES ARE PROVIDED BY THE TOWN OF EASTON.

FAA DETERMINATION OF NO HAZARD TO AIR NAVIGATION SHALL BE REQUIRED.

1. 1 TREE PER 70' STREET FRONTAGE = $101' \pm$ (ALONG FAUSLEY WOOD COURT)/70' = 2 TREES REQUIRED

1. OVERALL TREES- 1 TREE/3000 SF OF DISTURBED AREA- 144,445 SF/3000 SF = 48 TREES REQUIRED AND SHALL BE PROVIDED.
- 2A. INTERIOR PARKING LOT PLANTINGS- 1 TREE PER 10 SPACES;
29 SPACES/ 10 = 3 TREES REQUIRED/ PROVIDED
- 2B. PARKING HEDGE- SHALL BE PROVIDED.
3. BUILDING FAÇADE PLANTINGS- 1 TREE/20' OF EFFECTED FAÇADE = PHASE ONE: 75'/20 = 3 TREES REQUIRED & PHASE TWO: 152'/20 = 8 TREES REQUIRED, 11 TOTAL TREES REQUIRED AND SHALL BE PROVIDED.
- 2D. SERVICE/ LOADING AREAS- TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.
- 2F. BUFFERYARDS: NONE REQUIRED.

COMPUTED POINT

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

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FLOOD ZONE LEGEND
ZONE X - AREA OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD

THE FLOOD DATA SHOWN HEREON IS BASED ON AVAILABLE MAPPED AND/OR DIGITAL INFORMATION AND IS DEPICTED AS DIRECTED AND REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. IT IS SUBJECT TO DATA INACCURACIES AND REGULATORY CHANGE AND SHOULD BE VERIFIED PRIOR TO FINALIZING DEVELOPMENT OR IMPROVEMENT PLANS FOR THE SUBJECT LANDS.

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PRINCIPLE #3- AUTOMOBILES SHOULD NOT DETERMINE DESIGN- PARKING FOR OFFICE USERS AND CUSTOMERS PROVIDED FOR CONVENIENCE WITH BULK OF THE PARKING TO FRONT OR SIDE OF FACILITY.

PRINCIPLE #4- AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS- USABLE OPEN SPACE NOT APPLICABLE HERE.

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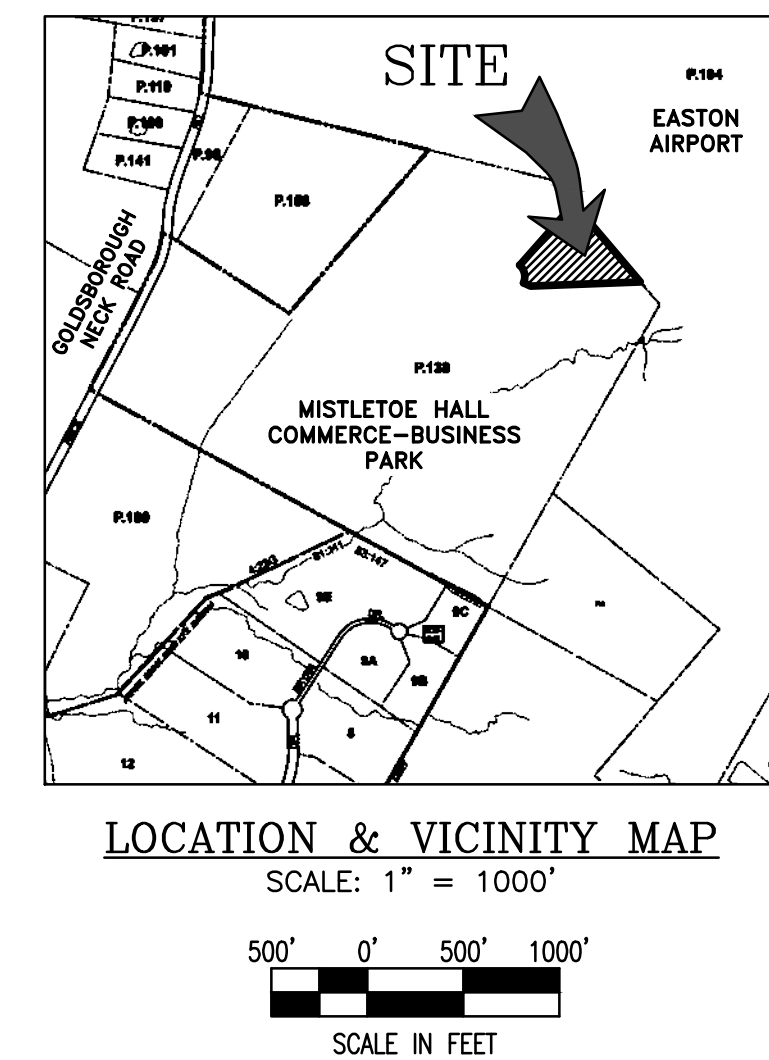
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PRINCIPLE #8- RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES- NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #9- NEIGHBORHOODS SHOULD CONNECT- NOT SPECIFICALLY APPLICABLE TO THIS APPLICATION.

	2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)
	1.25" CALIPER OR 7' HEIGHT MINIMUM FLOWERING TREES (CHERRY, MAGNOLIA, RED BUD, SERVICEBERRY TYPES)
	8' HEIGHT MINIMUM EVERGREEN TREES (WHITE PINE, SPRUCE, ARBORVITAE, HOLLY, LOBLOLLY TYPES)
	STORMWATER MANAGEMENT ESD LANDSCAPING MASS / PERENNIAL MIX WITH SHRUBS AND GRASSES

[illegible]

WARNING!!
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Lane Engineering, LLC

Established 1986
Civil Engineers • Land Planning • Land Surveyors



E-mail: general@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

SEA

FOR
LOT 7A - MISTLETOE HALL
COMMERCE-BUSINESS PARK

IN THE FIRST ELECTION DISTRICT
TALBOT COUNTY, MARYLAND
TAX MAP 25. GRID 16. PARCEL 138 LOT 7A

ISSUED FOR:	DATE:	BY:
CLIENT REVIEW	4/5/23	BCE

SHEET No. 1 OF 1	DATE: 4/5/2023
------------------	----------------

JOB No. 220135

AS NOTED	FILE No. A037
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PROPERTY:	TAX MAP 25, PARCEL 138 - LOT 7A				THE PL
OWNER:	C ESTATES, LLC 28857 FAUSLEY WOOD COURT EASTON, MD 21601				FLOOD MAPPED 240067 (100-YR EQUALE ANNUAL ELEVATI MAY BE
DEED:	2975/63				
PLAT:	89/178				
CURRENT ZONING:	I (INDUSTRIAL)				
BUILDING SETBACKS:	REQUIRED FRONT— 25' SIDE— 10' REAR— 30'	PROPOSED — 117'± 20'±/173'± 118'±	BUILDING A 318' 47'±/173'± 33'±	BUILDING B	THE FL DEPICTE INACCU IMPROV
MINIMUM LOT SIZE:	40,000 SF				
MINIMUM LOT FRONTAGE:	100'				
MAXIMUM HEIGHT:	10'				
MINIMUM BUILDING ENVELOPE:	30' X 80'				
LOT COVERAGE:	50% (ALL BUILDINGS & STRUCTURES)				

PARKING REQUIRED:				
BUILDING A	-	CONSTRUCTION RELATED BUSINESS	④ 1/1000 GFA: 15,950 SF/1000	= 16 SPACES MINIMUM
		CONSTRUCTION RELATED BUSINESS	④ 1/200 GFA: 15,950 SF/200	= 80 SPACES MAXIMUM
BUILDING B	-	CONSTRUCTION RELATED BUSINESS	④ 1/1000 GFA: 13,350 SF/1000	= 13 SPACES MINIMUM
		CONSTRUCTION RELATED BUSINESS	④ 1/200 GFA: 13,350 SF/200	= 67 SPACES MAXIMUM
TOTAL SPACES REQUIRED =				29 SPACES (MINIMUM)

BIKE RACK REQUIRED: 1 BIKE SPACE/10 VEHICLE SPACES; 3 BIKE SPACES/ BIKE RACK REQUIRED

ARTICLE 4 DEVELOPMENT STANDARDS

ARTICLE 4.03.(1):	BUILDINGS EXCEEDING 20 FEET IN HEIGHT SHALL INCORPORATE A BASE, MIDDLE AND CAP WITHOUT OVERBUILDING PARKING, EMPLOYEES & COMPANY VEHICLES SHALL BE DESIGNATED GENERALLY IN THE SIDE AND OR BACK OF THE PROPERTY.
ARTICLE 4.04.(A):	ON-SITE PARKING REQUIRED: IN ACCORDANCE WITH TOWN OF EASTON ZONING CODE WITHOUT OVERBUILDING PARKING, EMPLOYEES & COMPANY VEHICLES SHALL BE DESIGNATED GENERALLY IN THE SIDE AND OR BACK OF THE PROPERTY.
ARTICLE 4.04.(B):	OFF-SITE PARKING: NO PARKING SHALL BE PERMITTED WITHIN THE STREET RIGHT-OF-WAY OF ANY STREETS WITHIN THE PROPERTY.
ARTICLE 4.04.(C):	PARKING AREA STANDARDS: IN FRONT AND ON THE SIDE OF THE BUILDINGS, PAVED PARKING AREAS SHALL HAVE LANDSCAPED ISLANDS. NO MORE THAN SEVEN (7) CONSECUTIVE, SINGLE LOADED PARKING SPACES (14 SPACES IF TWO SEVEN-SPACE GROUPINGS OF PARKING SPACES) SHALL BE PROVIDED WITH A LANDSCAPED ISLAND MEASURING AT LEAST SIX (6) FEET IN WIDTH.
ARTICLE 4.04.(D):	SCREENING: ALL PARKING SHALL BE SCREENED FROM VIEW AS MUCH AS POSSIBLE BY DEPRESSING GRADES, THE USE OF LANDSCAPE AND/OR BY EARTH BERMS.
ARTICLE 4.05:	TRUCK LOADING & PARKING: ALL LOADING DOCKS SHALL BE LOCATED IN THE REAR OR SIDE OF THE BUILDINGS AND SCREENED FROM VIEW.
ARTICLE 4.06.(A):	MATERIAL & EQUIPMENT STORAGE: NO MATERIALS, SUPPLIES OR EQUIPMENT (INCLUDING BOATS, RECREATIONAL VEHICLES, TRAILERS, OR COMPANY OWNED OR OPERATED VEHICLES) SHALL BE STORED FOR NO MORE OF TWENTY-FOUR (24) HOURS IN ANY AREA ON A LOT EXCEPT INSIDE A CLOSED BUILDING , OR BEHIND A VISUAL BARRIER COMPLETELY SCREENED FROM VIEW OF ADJOINING LOTS OR PUBLIC STREETS.
ARTICLE 4.06.(B):	SCREENING OF REFUSE CONTAINERS: SHALL BE COMPLETELY CONCEALED FROM VIEW BY MEANS OF A SCREENING WALL CONSTRUCTED OF MATERIAL SIMILAR AND COMPATIBLE WITH THE BUILDING OR LANDSCAPE.
ARTICLE 4.09:	EXTERIOR LIGHTING:LIGHTING SOURCES, EXCEPT FOR STREET LIGHTS SHALL BE SCREENED FROM VIEW OR DIRECTED DOWNWARD AND SHIELDED.
ARTICLE 4.11:	FENCING: NATURAL BARRIERS ARE PREFERRED. BLACK OR DARK BROWN VINYL CLAD CHAIN FENCING, CMU, CONCRETE, BRICK AND STONE WALLS RE ALLOWED. GALVANIZED CHAIN LINK FENCING IS DISCOURAGED.
STORMWATER:	STORMWATER QUALITY AND QUANTITY WILL BE ADDRESSED THROUGH ESD FEATURES AS REQUIRED AND AS SHOWN HEREON APPROXIMATELY.
FOREST CONSERVATION:	N/A- PREVIOUSLY SATISFIED UNDER ORIGINAL SUBDIVISION APPROVAL

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL NO. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON MARCH 3, 2023.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

THE ELEVATIONS SHOWN HEREON ARE NAVD 1988 DATUM AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS
MDNM (NGS CERTIFICATE PENDING) AND LOYF (PID DK7414) COMBINED FACTOR: 0.99995360

THE COORDINATES SHOWN HEREON ARE BASED ON THE MARYLAND COORDINATE SYSTEM NAD83 (2011), AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS MDNM (NGS CERTIFICATE PENDING) AND LOYF (PID DK7414) COMBINATION FACTOR: 0.99995360. THE DISTANCES SHOWN HEREON ARE GROUND BASED.

PUBLIC WATER AND SEWER SERVICES ARE PROVIDED BY THE TOWN OF EASTON

FAA DETERMINATION OF NO HAZARD TO AIR NAVIGATION SHALL BE REQUIRED

1. 1 TREE PER 70' STREET FRONTAGE = $101' \pm$ (ALONG FAUSLEY WOOD COURT)/70' = 2 TREES REQUIRED

1. OVERALL TREES – 1 TREE/3000 SF OF DISTURBED AREA – 144,445 SF/3000 SF = 48 TREES REQUIRED AND SHALL BE PROVIDED.
- 2A. INTERIOR PARKING LOT PLANTINGS – 1 TREE PER 10 SPACES;
29 SPACES/ 10 = 3 TREES REQUIRED/ PROVIDED
- 2B. PARKING HEDGE – SHALL BE PROVIDED.
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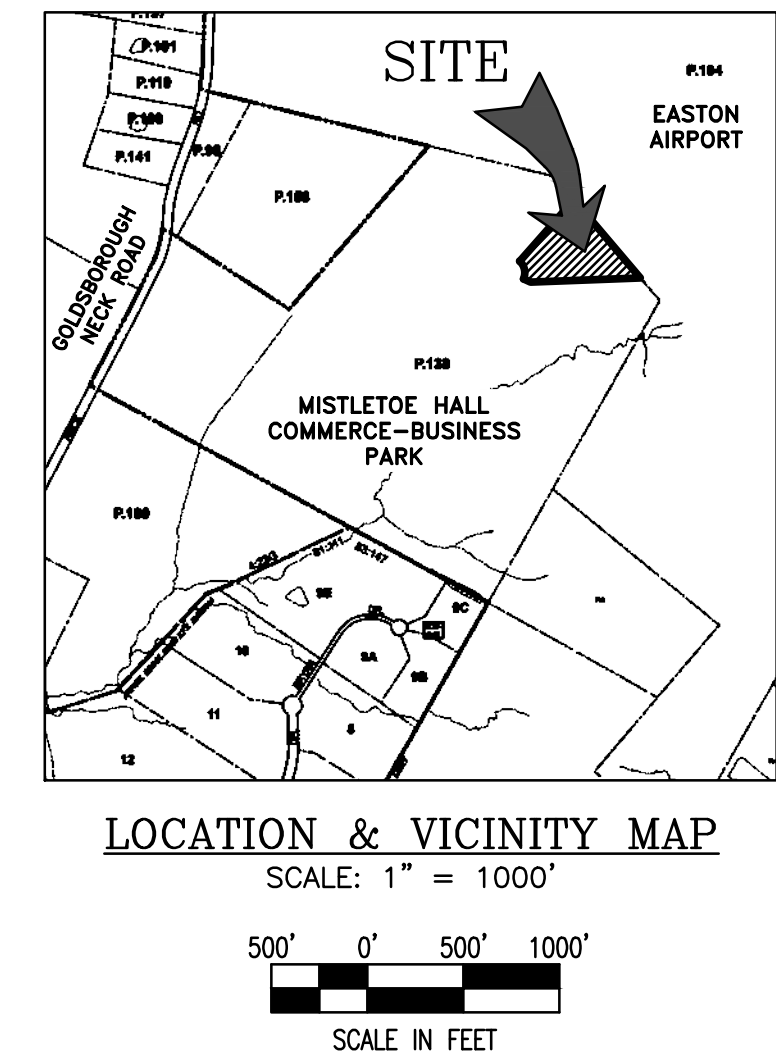
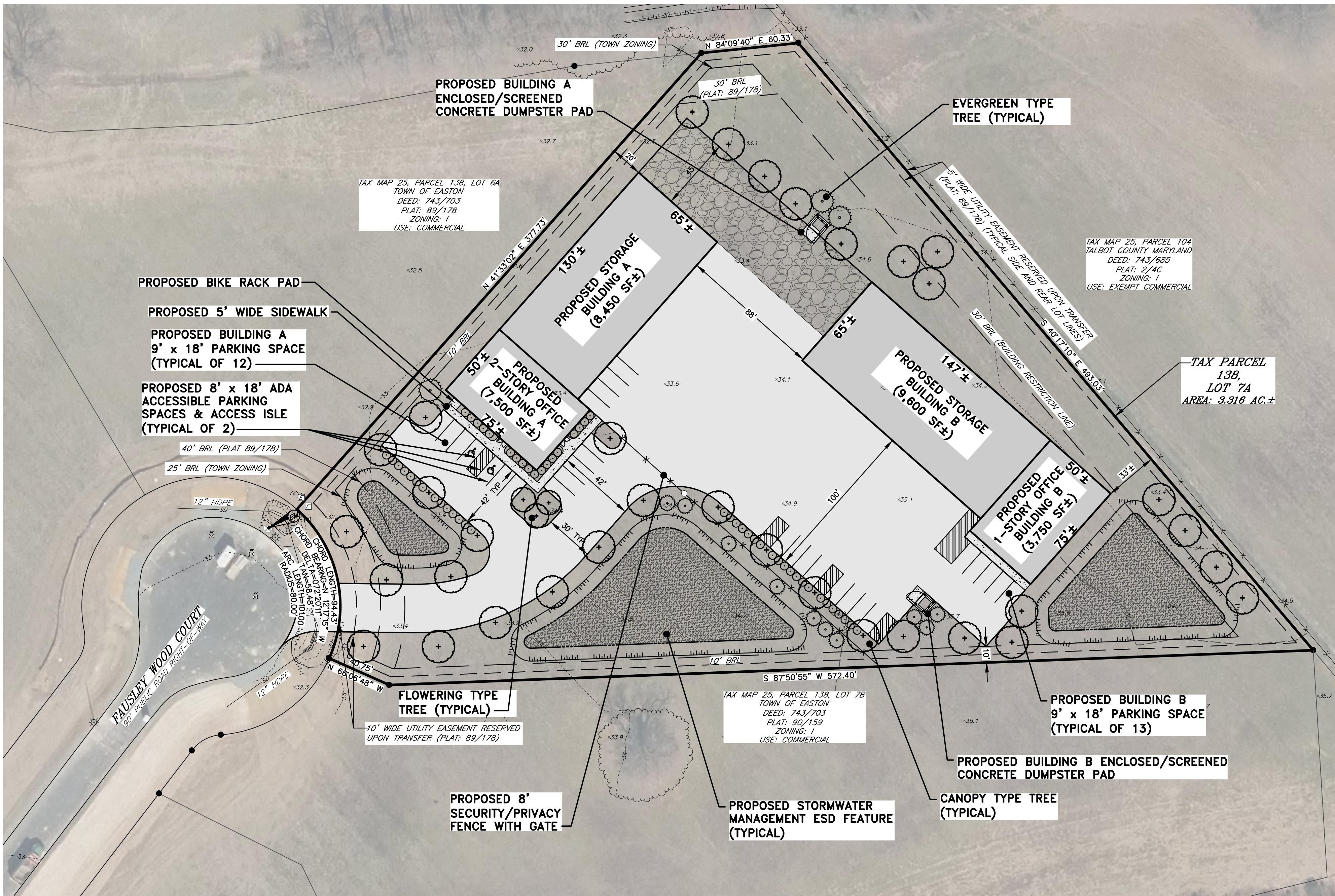
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[illegible]

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Lane Engineering, LLC

Established 1986



117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

SEAL

DATE _____

SKETCH SITE PLAN

FOR
LOT 7A - MISTLETOE HALL
COMMERCE-BUSINESS PARK

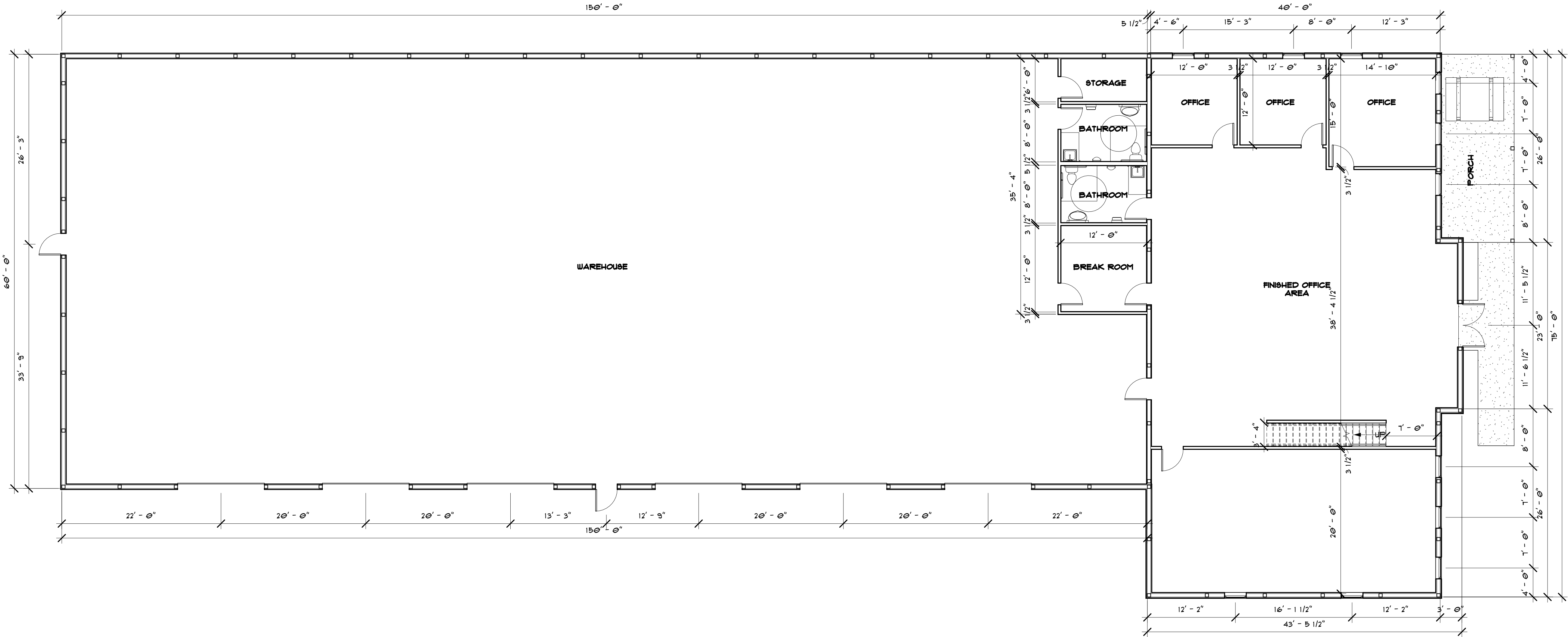
IN THE FIRST ELECTION DISTRICT
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 16, PARCEL 138 LOT 7A

ISSUED FOR:	DATE:	BY:
CLIENT REVIEW	4/5/23	BCE

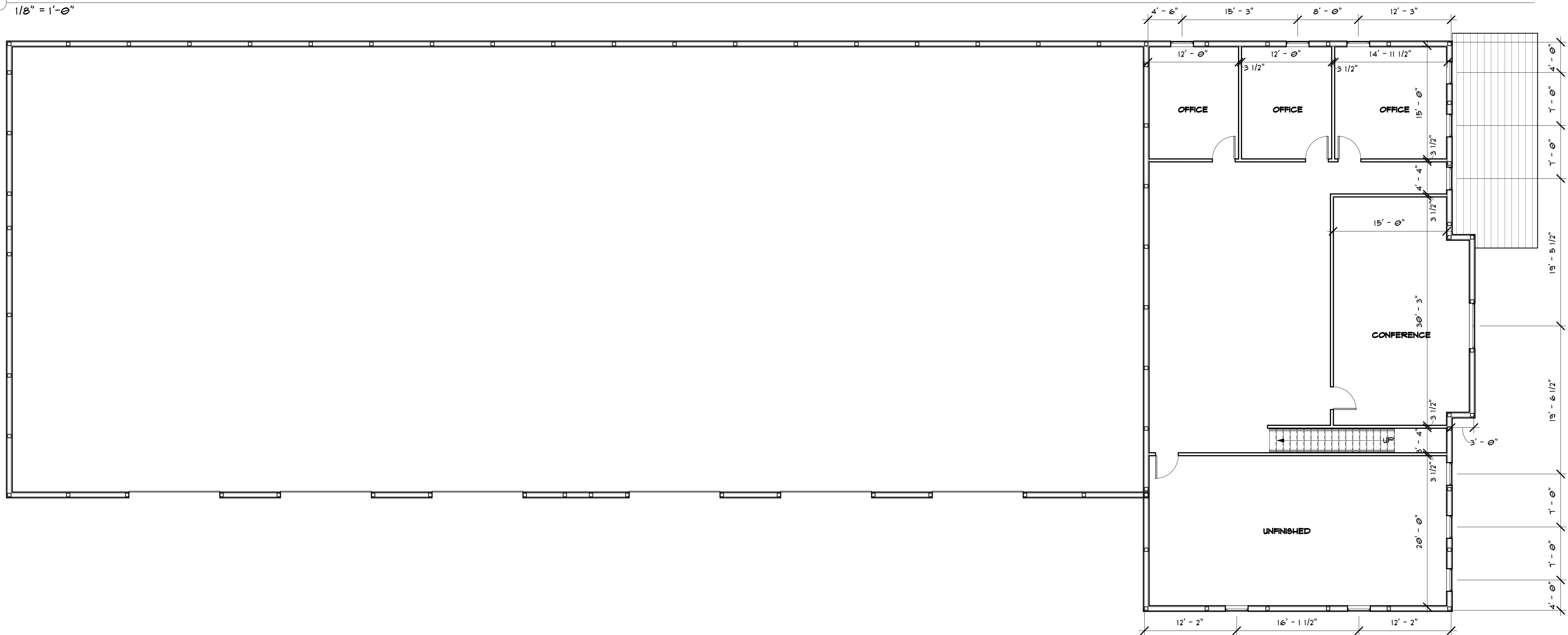
SHEET No. 1 OF 1 DATE: 4/5/2023

JOB No. 220135

AS NOTED



1 FIRST FLOOR
1/8" = 1'-0"



2 SECOND FLOOR
1/8" = 1'-0"



SEAL:



PROFESSIONAL CERTIFICATION:
I CERTIFY THAT THESE DOCUMENTS WERE
PREPARED OR APPROVED BY ME, AND THAT I AM
A QUALIFIED ARCHITECT UNDER THE LAWS
OF THE STATE OF MARYLAND.
LICENSE NO.: 0013955
EXPIRATION NO.: 09-23-2024

THE DOCUMENTS PREPARED BY FISHER
ARCHITECTURE, LLC, ARE SOLELY FOR
THE PURPOSES OF THE SPECIFIED
PROJECT. THEY ARE NOT INTENDED OR
AUTHORIZED FOR USE ON ANY OTHER
PROJECT. FISHER ARCHITECTURE, LLC
MAKES NO REPRESENTATION AS TO
THEIR SUITABILITY FOR ANY OTHER USE.
ALL DOCUMENTS PREPARED BY FISHER
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OF PROFESSIONAL SERVICE IN RESPECT
OF THE PROJECT. THESE DOCUMENTS
ARE, AND SHALL REMAIN, THE PROPERTY
OF FISHER ARCHITECTURE, LLC.

CONSULTANTS:

CARRION ELECTRIC

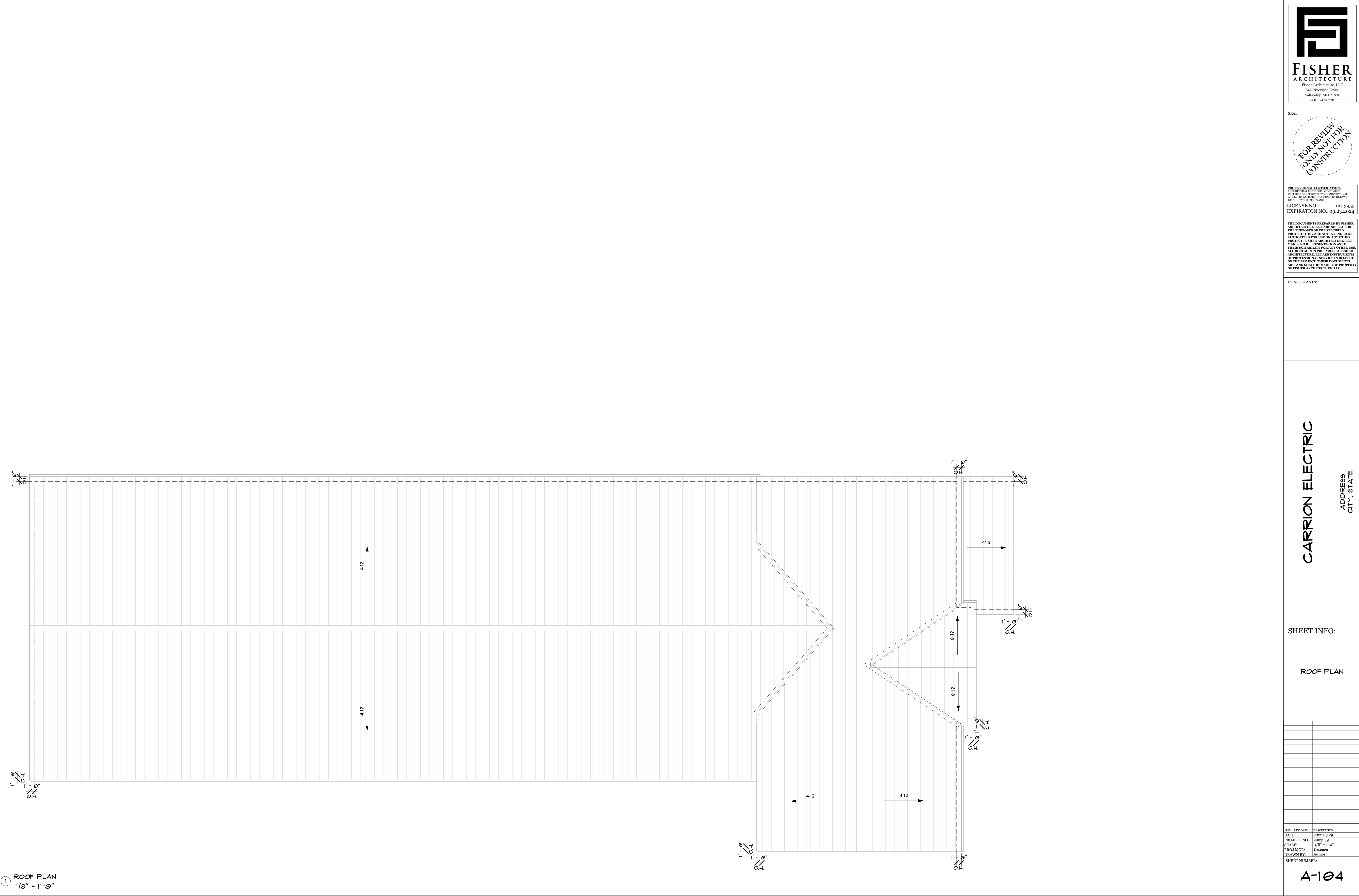
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CITY, STATE

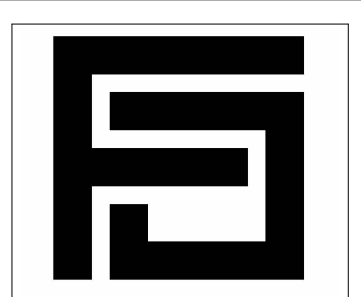
SHEET INFO:

FIRST FLOOR PLAN

REV	REV DATE	DESCRIPTION
DATE:	2022.09.29	
PROJECT NO.	20220929	
SCALE:	1/8" = 1'-0"	
FROM MGR:	Designer	
DRAWN BY:	Author	
SHEET NUMBER:		

A-101





FISHER
ARCHITECTURE
Fisher Architecture, LLC
542 Riverside Drive
Salisbury, MD 21801
(410) 742-0238

SEAL:

FOR REVIEW
ONLY NOT FOR
CONSTRUCTION

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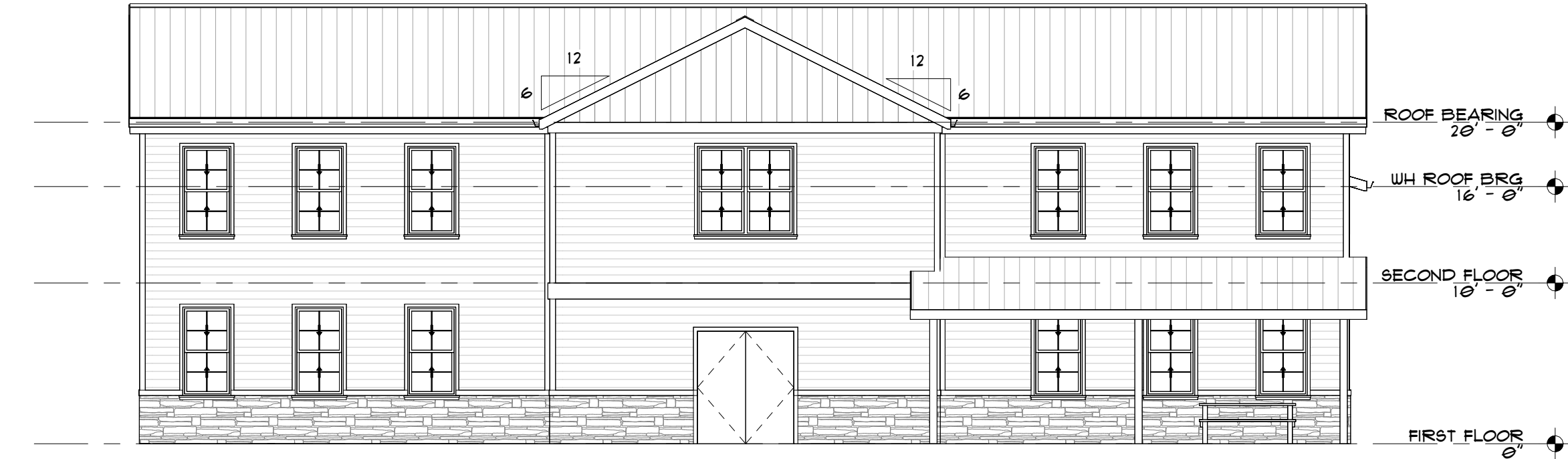
CONSULTANTS:

CARRION ELECTRIC

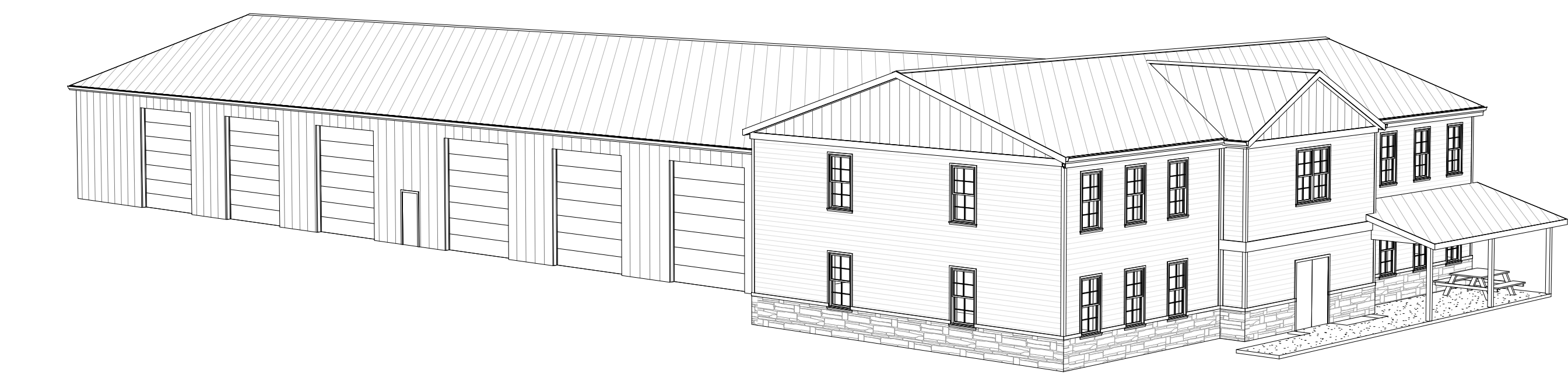
ADDRESS
CITY, STATE

SHEET INFO:		
ROOF PLAN		
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PROJECT NO.	2022099	
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PRGM MGR:	Designer	
DRAWN BY:	Author	
SHEET NUMBER:		

A-104



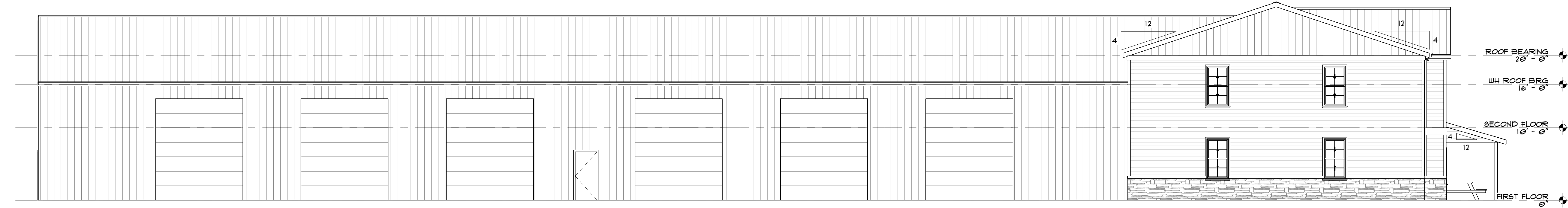
1 ELEVATION EAST
1/8" = 1'-0"



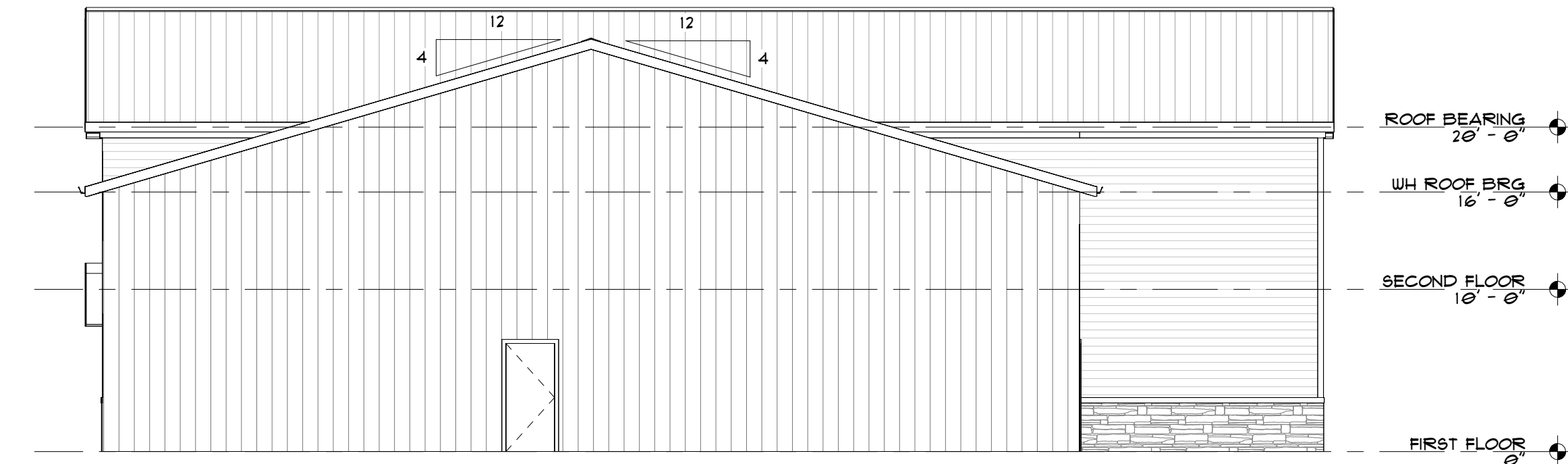
5 3D VIEW 1



2 ELEVATION NORTH
1/8" = 1'-0"



3 ELEVATION SOUTH
1/8" = 1'-0"



4 ELEVATION WEST
1/8" = 1'-0"



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CONSULTANTS:

CARRION ELECTRIC
ADDRESS
CITY, STATE

SHEET INFO:

ELEVATIONS

REV	REV DATE	DESCRIPTION
DATE:	2022.09.29	
PROJECT NO.	20220929	
SCALE:	1/8" = 1'-0"	
PRGM MGR:	Designer	
DRAWN BY:	Author	
SHEET NUMBER:		

A-201

APPENDIX B

SKETCH PLAN SUBMITTAL CHECKLIST

NOTE: THIS CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED ON A SITE PLAN. ADDITIONAL INFORMATION MAY BE REQUIRED FOR UNIQUE SITUATIONS.

COMPLETE THE CHECKLIST AND SUBMIT IT WITH THE PLAN. IF AN ITEM IS NOT APPLICABLE, ENTER "N/A".

1. Location map,	<u>X</u>
2. Boundary,	<u>X</u>
3. Topography,	<u>X</u>
4. General proposed land uses drawn to scale, and	<u>X</u>
5. The Forest Stand Delineation as detailed in the Town of Easton's Forest Conservation Ordinance.	<u>N/A</u>
6. The location of any easements, rights-of-way or any other encumbrances which pertain to the property subject to the site plan review.	<u>X</u>
7. Conditions of concern, for example, water courses, wetlands, floodplains, or other environmentally sensitive features.	<u>X</u>
8. Location of refuse collection, exterior lighting, fencing, and all pedestrian walkways and sidewalks.	<u>X</u>
9. General location and description (r.e. intended function, proposed species, etc.) of proposed landscaping.	<u>X</u>
10. Location of parking including layout and landscaping.	<u>X</u>
11. Conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above.	<u>X</u>
12. A statement describing the extent to which the application complies with the Recommended Design Principles for Easton set forth on pages 29-31 of the Comprehensive Plan.	<u>X</u>

APPENDIX B-2

SKETCH STORMWATER MANAGEMENT PLAN SUBMITTAL CHECKLIST

EFFECTIVE MAY 4, 2010

NOTE: THE FOLLOWING CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED FOR SUPPORT OF A STORMWATER MANAGEMENT CONCEPT PLAN, SITE DEVELOPMENT PLAN, AND/OR FINAL DESIGN PLAN. THE TOWN MAY REQUEST ADDITIONAL INFORMATION AS DEEMED NECESSARY.

COMPLETE THE APPROPRIATE CHECKLIST AND SUBMIT IT WITH THE PLANS, APPLICATION FORM, NARRATIVE OR REPORT, AND FEE. ITEMS IN BOLD ARE REQUIRED FOR CONCEPT AND/OR SITE DEVELOPMENT PHASE REVIEW.

I. Sketch Plan Submittal

A. Site and Resource Map

Natural Resources Identified on Plan, including, but not limited to:

Please use these responses for the following:

(Provided = P; Not Provided = NP; Not Applicable = N/A)

Tidal and Non-Tidal Wetland Boundaries	N/A	
Wetland Buffers		N/A
Floodplain Boundaries and Elevations	N/A	
Streams and other Waterways	N/A	
Stream Buffers	N/A	
Forest Boundaries		N/A
Forest Buffers	N/A	
Critical Areas	N/A	
Steep Slopes (>25%)	N/A	
Erodible Soils	N/A	
Areas of High Recharge	N/A	
Springs		N/A
Soil Types and Hydrologic Soil Groups	P	
Bedrock and/or other Geologic Features	N/A	
Vegetative Cover		P
Existing Drainage Areas and Flow Patterns	P	
Existing Stormwater Outfalls	P	
Site and Resource Map field verified by a properly licensed design professional.	N/A	

Existing contours (1' max intervals) and utilities shown. P

Large tracts of contiguous open spaces, forested areas and other important resources protected by conservation easements.

N/A

Opportunities for afforestation identified.

N/A

Wetland, stream and forest buffers enhanced and/or

expanded.

N/A

B. Site Fingerprinting and Development Layout

Locations of proposed impervious areas provided.	P
Proposed contours (1' max intervals) and utilities shown.	NP
Preliminary locations of proposed Environmental Site Design (ESD) practices provided.	P
Locations of stormwater outfalls and conveyance provided with offsite storm drains, culverts and grass channels with size and slope.	P
Limit of disturbance and extent of clearing & grading.	P
Site natural resources protected during construction. If site natural resources must be disturbed during construction, please include an explanation in the stormwater narrative.	N/A

Better Site Design Techniques incorporated, including:

Sheetflow and overland flow provided wherever possible	P
Building footprint and site layout designed to protect conservation areas	P
Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area	N/A
Landscaped medians and/or cul-de-sacs	P
Stormwater management features in medians or cul-de-sacs	N/A
Private open road section with grass channels and/or biofilters	N/A
Minimize numbers of parking spaces and sizes	P
Narrow frontages to reduce road length	N/A
Site graded to encourage runoff from impervious areas to pervious areas or other natural conveyance systems	N/A

C. Stormwater Narrative

Title Page includes:

Job Name	P
Owner/Developer	P
Design Professional	P
Date Prepared	P
Seal and Signature (properly licensed Design Professional)	P

Project is identified as new development or redevelopment. (Redevelopment projects have $\geq 40\%$ total site imperviousness)	P
---	---

Project and streets designed for 2-year and 10-year quantitative management. P

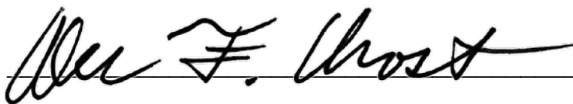
Project is identified as being within the Tanyard Branch Watershed. (Projects within this watershed must manage proposed 10-year storm flows to the existing 2-year storm discharge rate.) N/A

A narrative that supports the concept and describes how the design will achieve:

Natural resource protection and enhancement	<u>N/A</u>
Maintenance of natural flow patterns	<u>P</u>
Reduction of impervious areas through better site design, alternative surfaces, and non-structural practices	<u>N/A</u>
Implementation of ESD planning techniques and practices to the Maximum Extent Practicable (MEP)	<u>P</u>
Preliminary ESD sizing calculations provided	<u>P</u>
Integration of erosion and sediment controls (ESC) into the stormwater strategy	<u>P</u>

D. Sketch Plan Meeting

Following the Sketch Plan submittal, a meeting will be scheduled between the Town of Easton Planning & Zoning, Town Engineer, the Talbot County Soil Conservation District (SCD) ESC reviewer, the owner/developer, the SWM and ESC designer(s), and any other reviewers deemed necessary by the Town of Easton and/or the Talbot County SCD. Official Minutes from the Sketch Plan Meeting must be submitted for review and acceptance by all parties. These minutes must accompany all future submittals. N/A

This checklist completed by  Date 4-4-23

STORMWATER MANAGEMENT REPORT

For

Total Home Performance Easton, Maryland

Developer

Total Home Performance
c/o Matt & Katie Hargrove
8625 Brooks Drive
Easton, MD 21601

Design Professional

Lane Engineering, LLC
117 Bay Street
Easton, Maryland 21601
410-822-8003

Date Prepared

April 4, 2023

Date Revised

Prepared by

Alec F. Chosta, E.I.T.
Civil Engineer

Approved by

Timothy W. Glass, P.E.
Principal



PROFESSIONAL CERTIFICATION: I hereby certify that this document was prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23152, Expiration Date: 7/5/23

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1. Introduction
2. General Site Information
3. Proposed Project
4. Stormwater Management and Environmental Site Design (ESD)
 - 4.1 Stormwater Quantity Management
 - 4.2 Stormwater Quality
 - 4.2.1 ESD Practices Evaluation
5. Conclusion

APPENDIX LIST

- APPENDIX A – HydroCAD Quantity Management Calculations
APPENDIX B – Environmental Site Design Calculations
APPENDIX C – Drainage Area Maps

Total Home Performance STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

This report addresses stormwater management for development of the vacant property, Lot 1, of the Mistletoe Hall Commerce-Business Park. The stormwater management plan incorporates the requirements of the *2000 Maryland Stormwater Design Manual Volumes I and II* (Manual) as currently updated. Development projects are required to be reviewed during the concept, preliminary site development, and final design stages. This narrative addresses the requirements pertaining to the concept design stage and meets the intent of the guidelines and methodologies presented in the MDE document *Environmental Site Design (ESD) Process & Computations* dated July 2010.

2. GENERAL SITE INFORMATION

The Lot is comprised of approximately 10 acres with roughly 4.1 acres to be developed to house Total Home Performance, an energy efficiency company. The proposed development is located entirely outside the Chesapeake Bay Critical Area. This vacant lot predominantly consists of grassed meadow, formerly agricultural fields, with onsite drainage patterns split between the surrounding regional drainage channel and swales constructed along Goldsborough Neck Road. The site is also subject to non-tidal wetlands, and various associated buffers.



Per the USDA soil maps, site soils are a mix Othello, Elkton, and Mattapex Silt Loams, operating as Hydrologic Group C soils.

3. PROPOSED PROJECT

The proposed improvements consist of a blend of office and warehouse space with both visitor and employee parking intermixed with an equipment storage yard.

4. STORMWATER MANAGEMENT AND ENVIRONMENTAL SITE DESIGN (ESD)

An ESD target has been developed for disturbance associated with development activity on the 4.1 acre portion of the lot. The remaining portion of the property will address additional stormwater at the time of future development. The current construction disturbance is 181,375 SF (4.16 ac) in Group C soils. The proposed buildings, parking, and storage yard result in approximately 96560 SF (2.22 acres) of impervious cover (53.24%). Utilizing table 5.3 and onsite soil conditions, a target P_E of 1.8" results in an ESD target volume of 14,392 cf.

In accordance with the Manual, available ESD techniques i.e. Alternative Surfaces, Non-Structural and Micro-Scale Practices were evaluated for use at the site. Considering the proposed site conditions, i.e. location, topography, facility orientation, soil properties, ground water elevation, traffic, economics, use of facility, construction constraints, neighboring properties and available stormwater discharge locations, the following ESD practices are proposed for the site:

- Submerged Gravel Wetland (SGW)
- Bio-Swale (BSW)

See Appendix C for calculations.

4.1 STORMWATER QUANTITY MANAGEMENT

The existing site, consisting of agricultural use, breaks into four separate drainage areas and study points. These drainage areas ultimately discharge to the swales adjacent to the site – running along Goldsborough Neck Road and running along the rear of the site to Glebe Creek.

Analysis verifies that management of the 2 and 10-year storms is achieved in the proposed submerged gravel wetland facility, utilizing bio-swales as pretreatment and conveyance. The bio-swales each have a control structure (a SHA 374.23 or 374.70 Inlet) that further attenuates incoming flows before they are discharged into the next downstream bio-swale and, ultimately, the gravel wetland. Note that Bio-Swale #4 utilizes a grassed weir as its control before flow enters the wetland. The gravel wetland provides a majority of the flow attenuation via a primary control structure – once again a SHA 374.23 inlet that directs flow to the rear lot swale. There is also a secondary weir, discharging into the rear lot swale for emergency overflow.

In addition to management of onsite runoff in the post development condition, there is also a need to manage a portion of runoff from Mistletoe Drive. The construction of the commercial entrance to the site will fill a portion of the existing roadside swale. The Mistletoe Drive roadside swale is too shallow to reasonably accommodate a culvert at the proposed entrance. Therefore, a small portion of the Mistletoe Drive roadside swale will be redirected into Bio-Swale #2 and conveyed through the proposed development. Ultimately this runoff will be discharged in the existing swale at the rear of the proposed construction.

	2 Year Storm (cfs)		10 Year Storm (cfs)		100 Year Storm (cfs)	
	Pre	Post	Pre	Post	Pre	Post
Study Point 1	0.64	0.00	1.12	0.00	1.69	0.00
Study Point 2	0.56	0.00	0.98	0.00	1.49	0.00
Study Point 3	2.52	0.49	4.41	1.11	6.68	1.99
Study Point 4	1.80	0.42	3.15	7.73	4.77	9.76
TOTAL	5.52	0.91	9.66	8.84	14.63	11.75
NET REDUCTION	4.61		0.82		2.88	

Please see Appendix A for HydroCAD calculations and Appendix C for Drainage Area Maps.

4.2 STORMWATER QUALITY

Drainage Areas DA-1, DA-2, and DA-3 all feed into linked Bio-Swales (Bio-Swales #1-4) that share conveyance and an underdrain system. Therefore an ESD target is developed for the total of drainage areas 1,2,& 3 and treated with the total accumulation of Bio-Swales 1-4 ponding and media. The combined ESD target for drainage areas 1,2, & 3 is **9,372 cf**, which is based on a total of 56,834 sf (56.30%) of impervious and a PE of 1.8" in group "C" soils. The total treatment provided by the linked Bio-Swales is **9,796 cf** and includes both the temporary ponding and media.

Downstream of the Bio-Swales is a submerged gravel wetland. DA-4, which consists of the rear portion of the warehouse and storage yard will be directed straight into the facility via onsite stormdrains – see drainage area maps. An ESD target is developed this drainage area using 68,450 sf (58.04%) of impervious, a PE of 2.0", and results in **9,372 cf** of required treatment. The temporary ponding of the gravel wetland provides **9,796 cf** of treatment, excluding the media per UNH Guidance.

See Appendix C for additional information.

4.2.1 ESD PRACTICES EVALUATION

ESD practices were evaluated for applicability to the site:

Alternative Surfaces

- Green Rooftops – Not economical for Industrial usage
- Permeable Pavements – Permeable pavements require significant maintenance and are not desirable for commercial applications or areas of repeated heavy equipment loading.
- Reinforced Turf - Reinforced turf areas are commonly used for emergency equipment access or for areas that receive minimal vehicular use. Reinforced turf is not desirable for commercial applications.

Nonstructural practices

- Disconnection of Rooftop Runoff – Insufficient greenspace onsite to meet the required design criterion.
- Disconnection of Non-Rooftop Runoff – Insufficient greenspace onsite to meet the required design criterion.
- Sheetflow to Conservation Area – The configuration of the improvements do not allow for sheetflow discharge to site adjacent forest conservation areas.

Micro-scale practices

- Rainwater Harvesting – Opportunities for on-site reuse of harvested rainwater is limited. Irrigation is not proposed for the site. Operations and maintenance, especially during cold-weather periods, is also a concern.
- Submerged Gravel Wetlands – This practice is best suited for sites with a high groundwater table and poor soils. Mapped soils are predominantly C/D soils and ponds of significant excavation are likely to intercept groundwater if placed on the lower elevation portion of the site. Additional soil borings will confirm groundwater elevation.
- Landscape Infiltration – It is assumed there is not a significant infiltration potential within the project LOD without additional geotechnical exploration.
- Infiltration Berms – The requirements of the proposed development do not leave enough room for the implementation of this practice.
- Dry Wells – This practice is viewed as undesirable in Talbot County where many sites frequently have seasonal high ground water and other maintenance concerns. Dry wells are typically reserved for the treatment of building rooftops and would therefore require additional practices to supplement.
- Micro-Bioretenention – This practice will provide significant treatment. Maintenance for this practice is reasonable.
- Rain Gardens – This practice is better suited for residential environments.
- **Bio-Swales** – This practice provides the required treatment, is relatively easy to construct and maintain, and will enhance existing site drainage patterns.

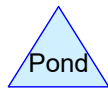
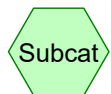
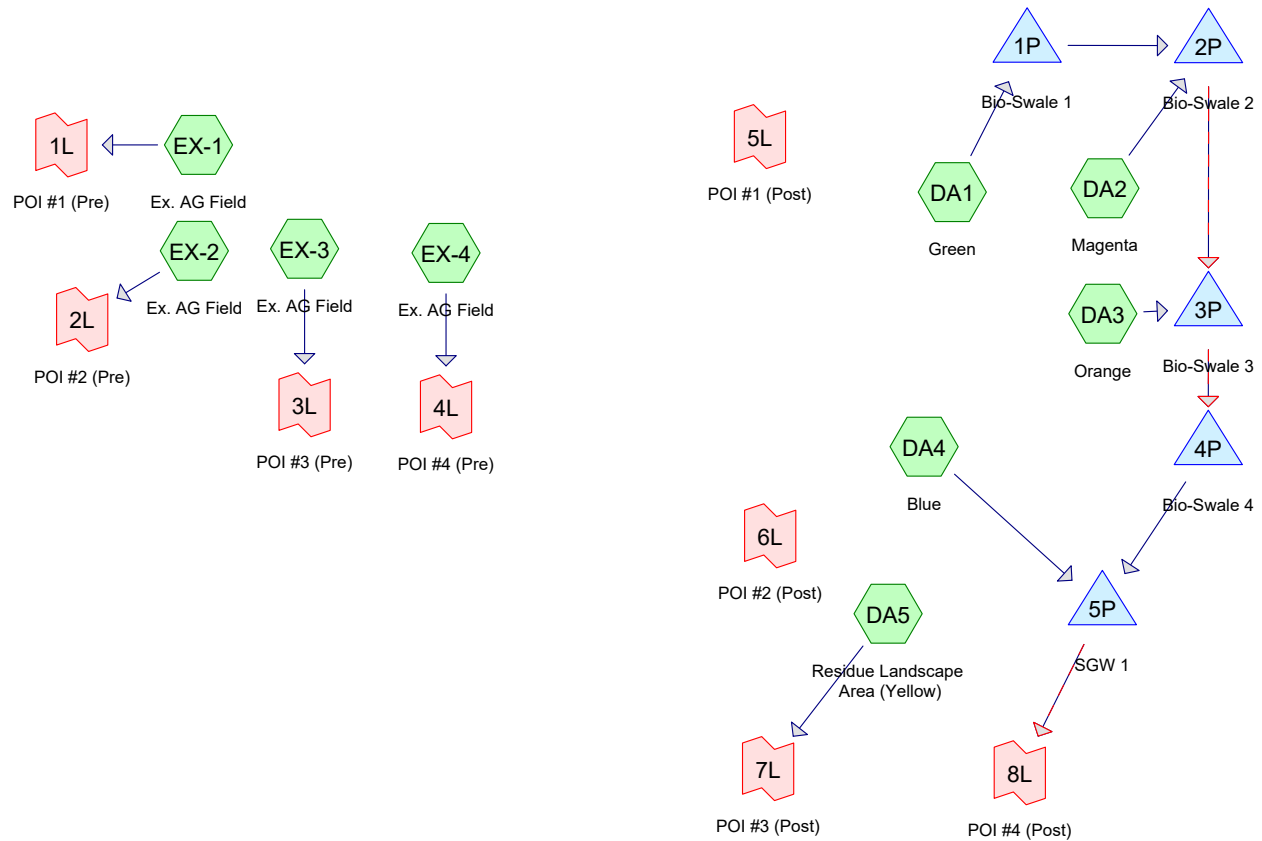
A series of **Bio-Swales** & a **Submerged Gravel Wetland** providing treatment and conveyance is ideal for this site. Such practices represent the most cost-effective and practical solution for quantity and quality management.

5. CONCLUSION

This stormwater management analysis indicates that the proposed design will successfully meet stormwater quality and quantity requirements.

APPENDIX A

HydroCAD Quantity Management Calculations



Routing Diagram for 2023-03-03-Hargrove HydroCAD
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2023-03-03-Hargrove HydroCAD

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment DA1: Green

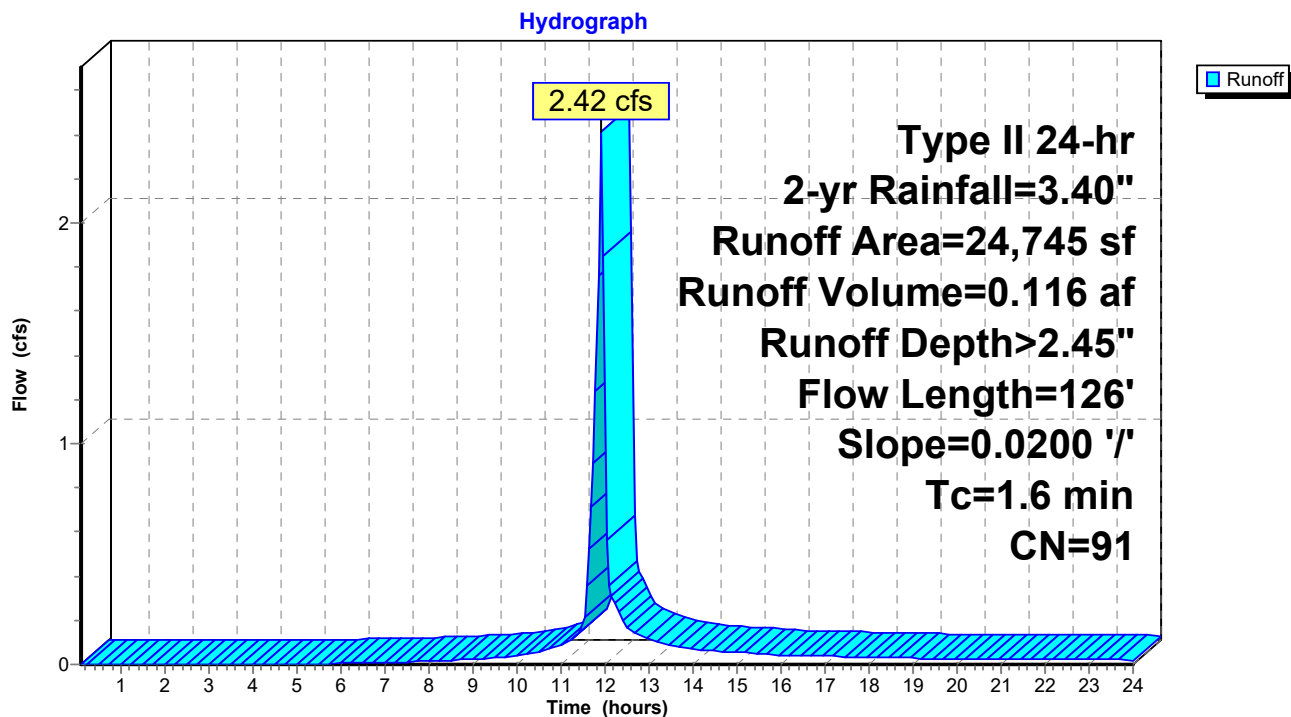
Runoff = 2.42 cfs @ 11.92 hrs, Volume= 0.116 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	14,945	98	Roof & Parking
	9,800	80	>75% Grass cover, Good, HSG D
	24,745	91	Weighted Average
	9,800		39.60% Pervious Area
	14,945		60.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	86	0.0200	1.38		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
1.6	126	Total			

Subcatchment DA1: Green



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Summary for Subcatchment DA2: Magenta

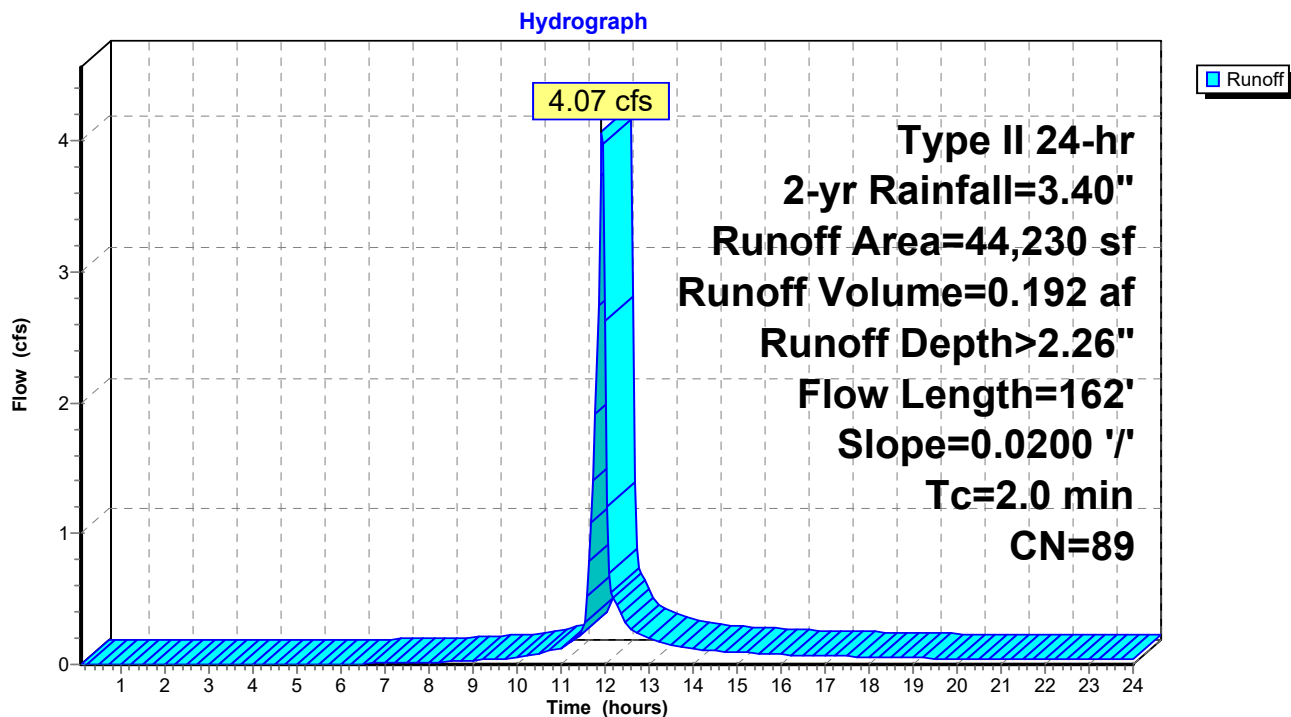
Runoff = 4.07 cfs @ 11.93 hrs, Volume= 0.192 af, Depth> 2.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	22,094	98	Roof & Parking
	22,136	80	>75% Grass cover, Good, HSG D
	44,230	89	Weighted Average
	22,136		50.05% Pervious Area
	22,094		49.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.4	122	0.0200	1.48		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
2.0	162	Total			

Subcatchment DA2: Magenta



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Summary for Subcatchment DA3: Orange

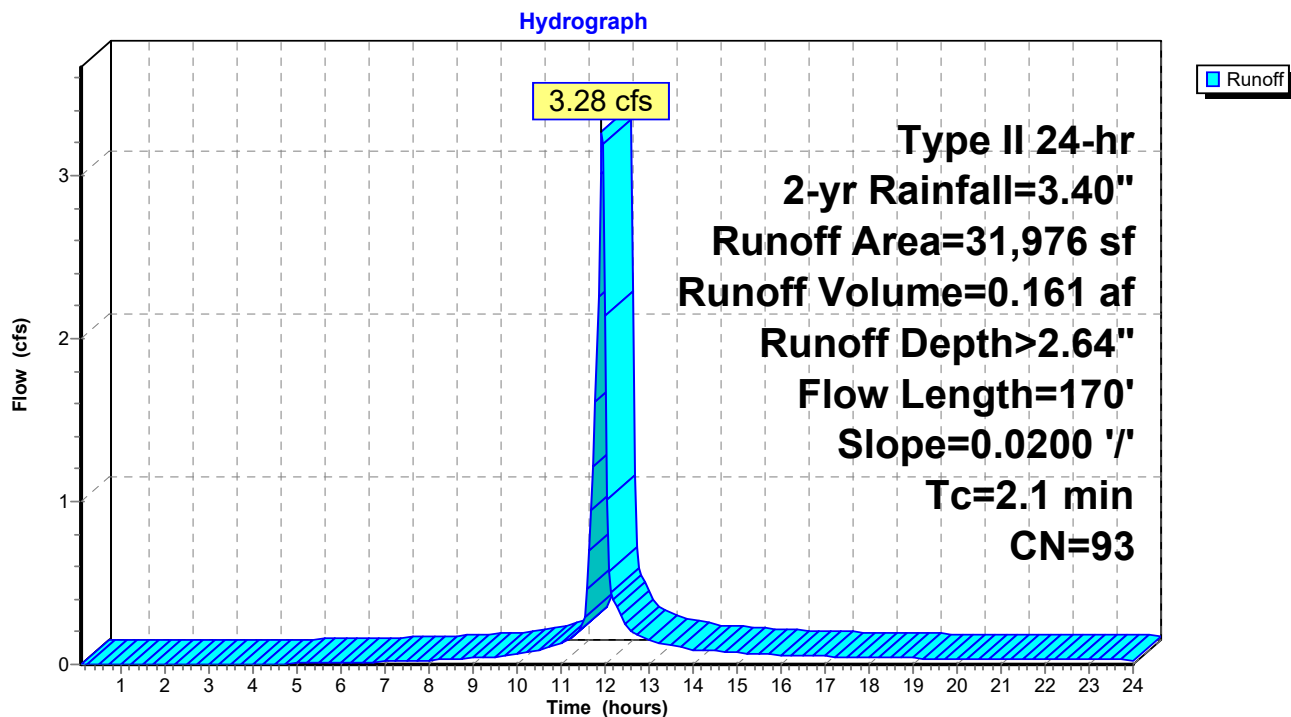
Runoff = 3.28 cfs @ 11.93 hrs, Volume= 0.161 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	22,972	98	Parking & Roof
	9,004	80	>75% Grass cover, Good, HSG D
	31,976	93	Weighted Average
	9,004		28.16% Pervious Area
	22,972		71.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.23		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.4	120	0.0200	1.47		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
2.1	170	Total			

Subcatchment DA3: Orange



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment DA4: Blue

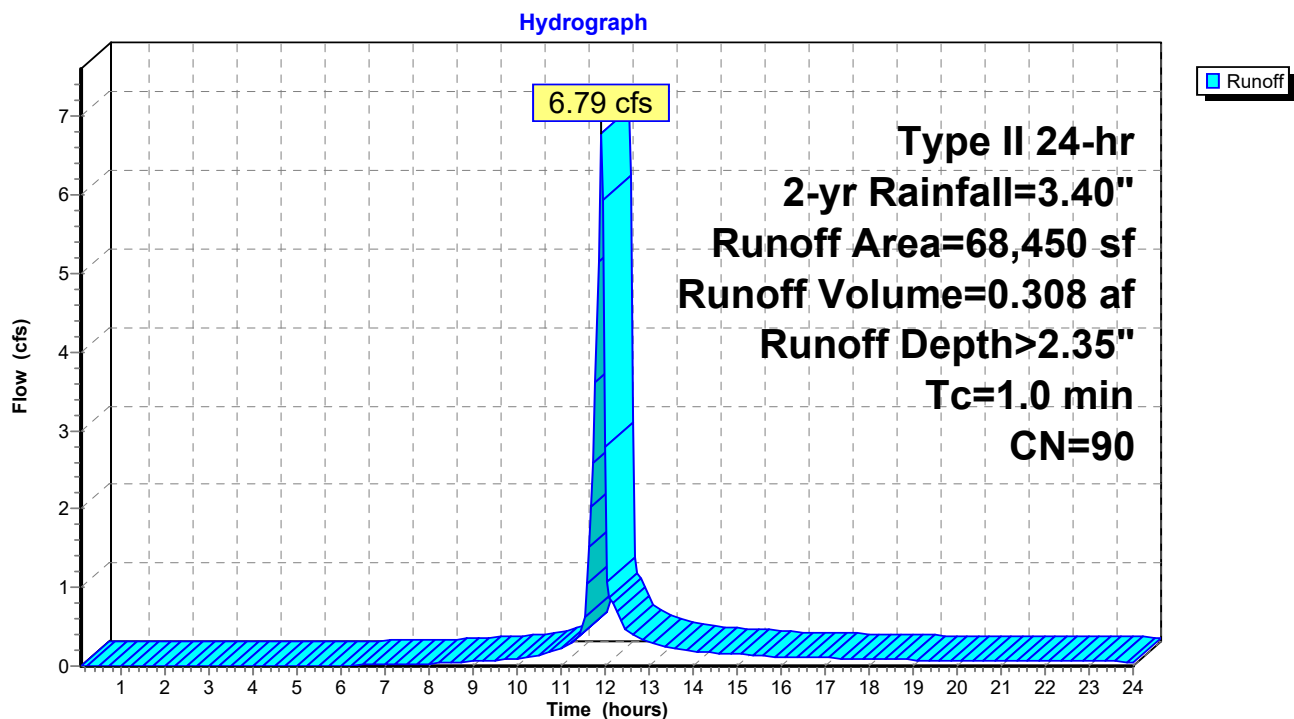
Runoff = 6.79 cfs @ 11.91 hrs, Volume= 0.308 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	39,727	98	Roof & Parking
	28,723	80	>75% Grass cover, Good, HSG D
	68,450	90	Weighted Average
	28,723		41.96% Pervious Area
	39,727		58.04% Impervious Area

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

Subcatchment DA4: Blue



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Summary for Subcatchment DA5: Residue Landscape Area (Yellow)

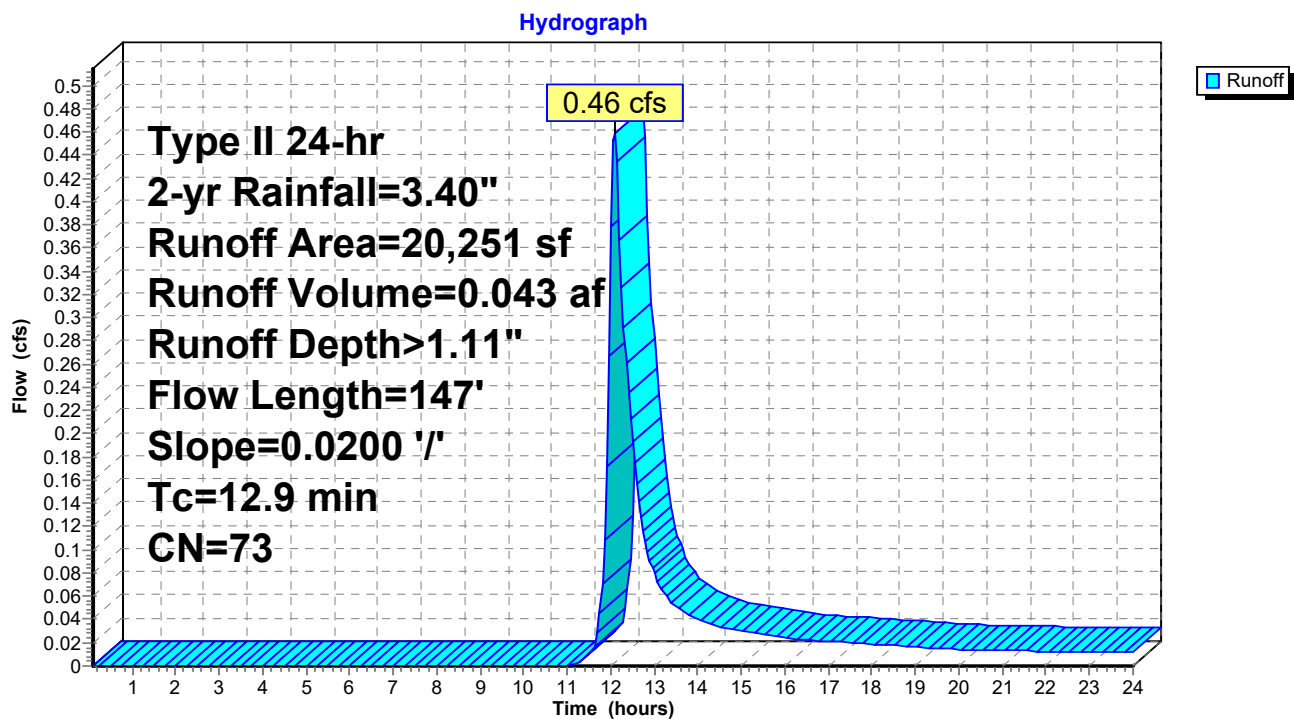
Runoff = 0.46 cfs @ 12.08 hrs, Volume= 0.043 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
20,251	73	Brush, Good, HSG D
20,251		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	147	0.0200	0.19		Sheet Flow, Landscaped Area
Grass: Short n= 0.150 P2= 3.40"					

Subcatchment DA5: Residue Landscape Area (Yellow)



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment EX-1: Ex. AG Field

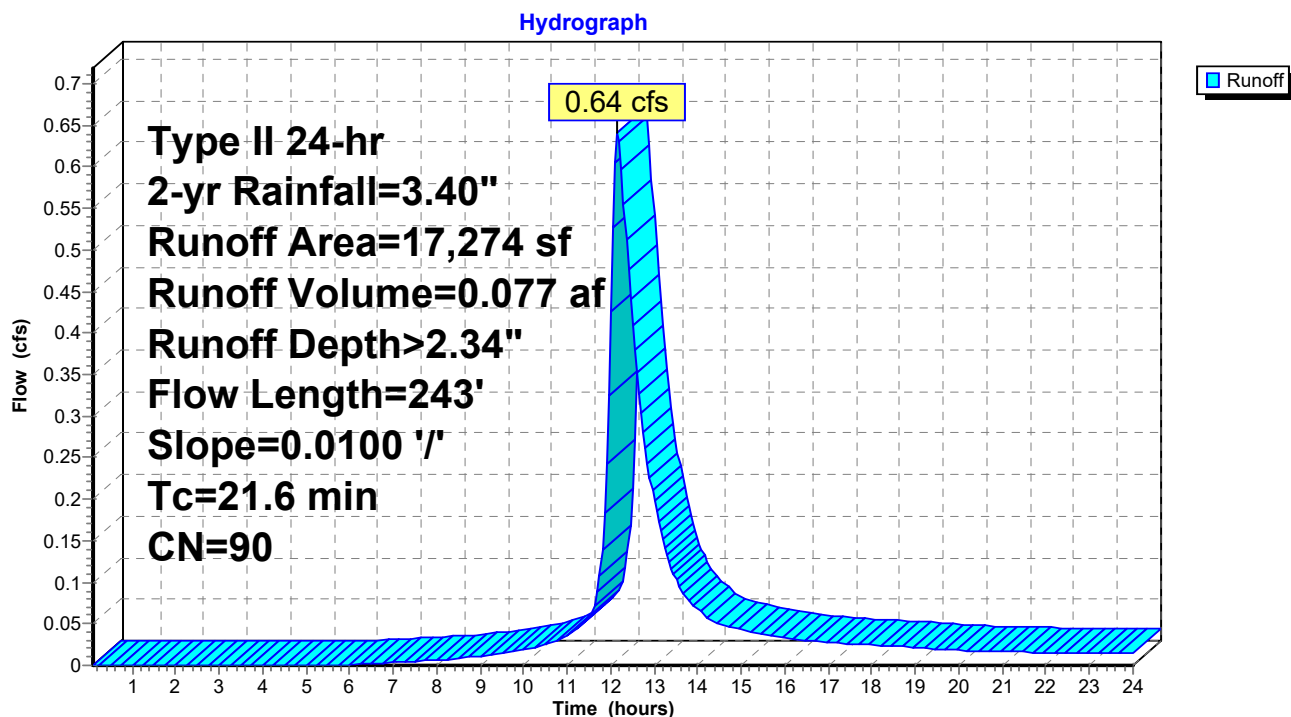
Runoff = 0.64 cfs @ 12.16 hrs, Volume= 0.077 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
17,274	90	Fallow, crop residue, Good, HSG D
17,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	169	0.0100	0.13		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.5	74	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
21.6	243	Total			

Subcatchment EX-1: Ex. AG Field



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment EX-2: Ex. AG Field

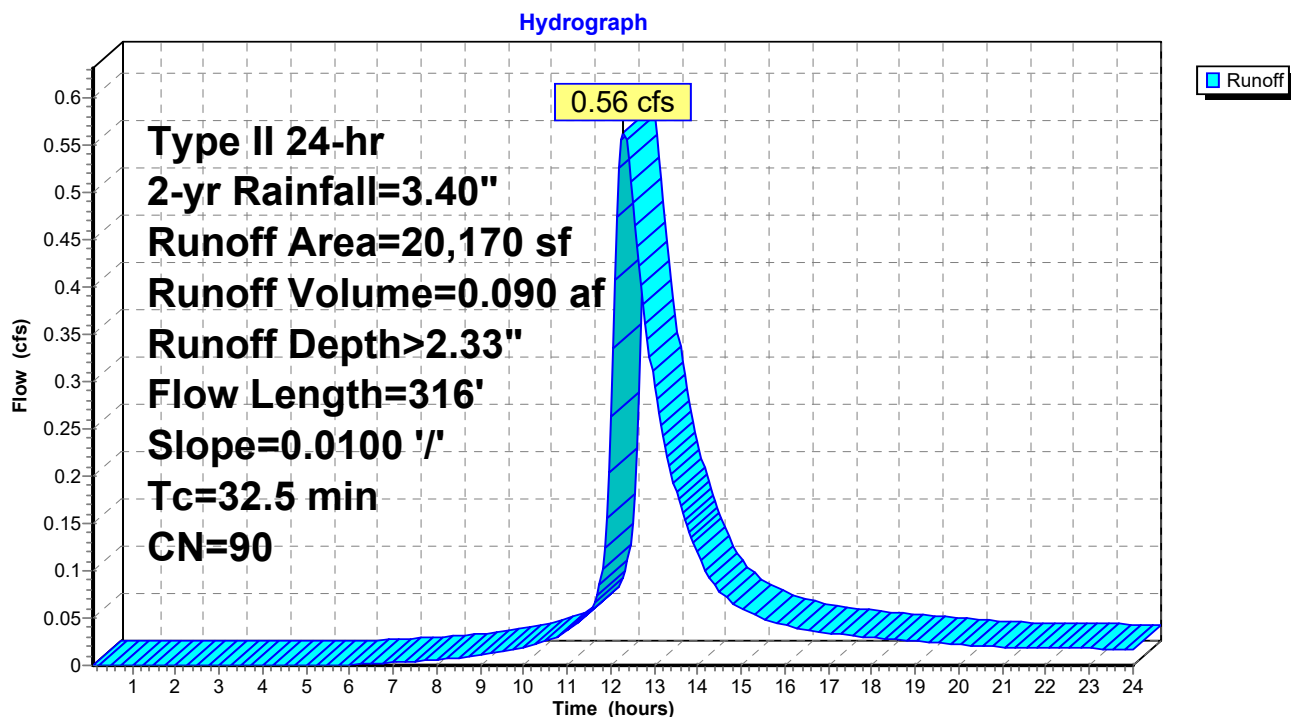
Runoff = 0.56 cfs @ 12.30 hrs, Volume= 0.090 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
20,170	90	Fallow, crop residue, Good, HSG D
20,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.3	288	0.0100	0.15		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.2	28	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
32.5	316	Total			

Subcatchment EX-2: Ex. AG Field



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Summary for Subcatchment EX-3: Ex. AG Field

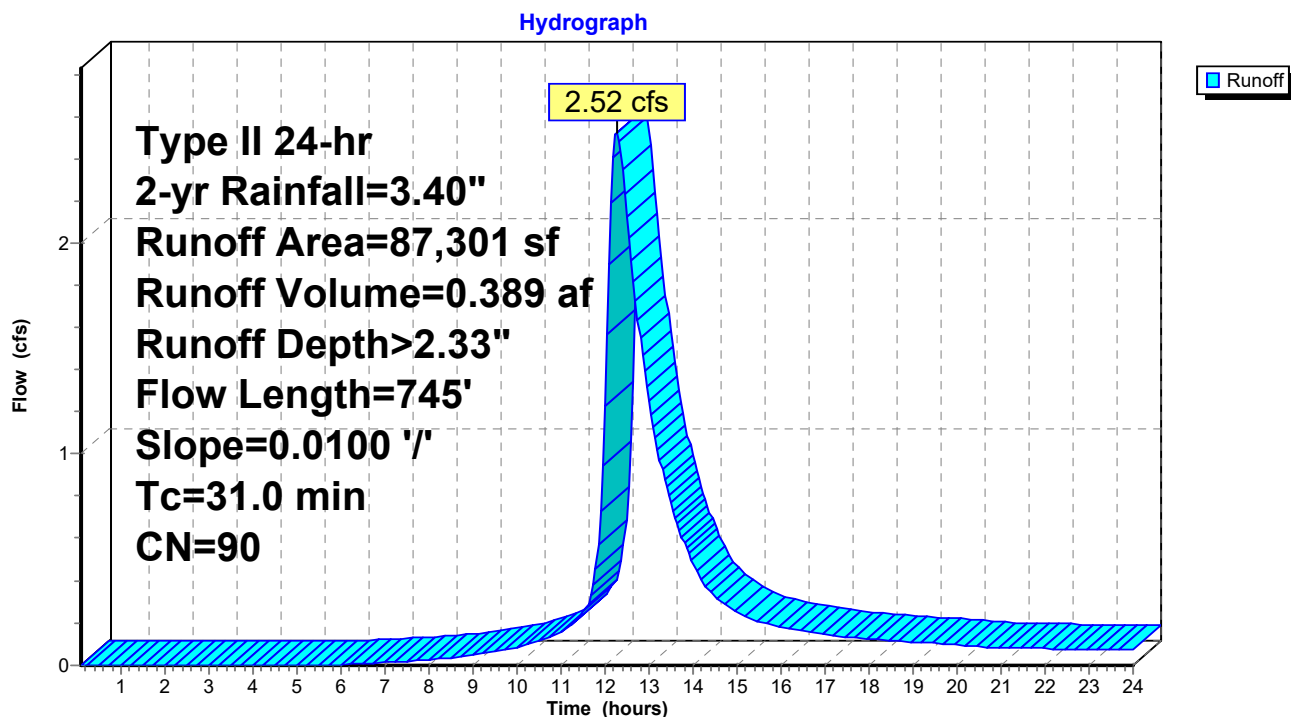
Runoff = 2.52 cfs @ 12.27 hrs, Volume= 0.389 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
87,301	90	Fallow, crop residue, Good, HSG D
87,301		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.8	239	0.0100	0.14		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
3.2	506	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
31.0	745	Total			

Subcatchment EX-3: Ex. AG Field



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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Subcatchment EX-4: Ex. AG Field

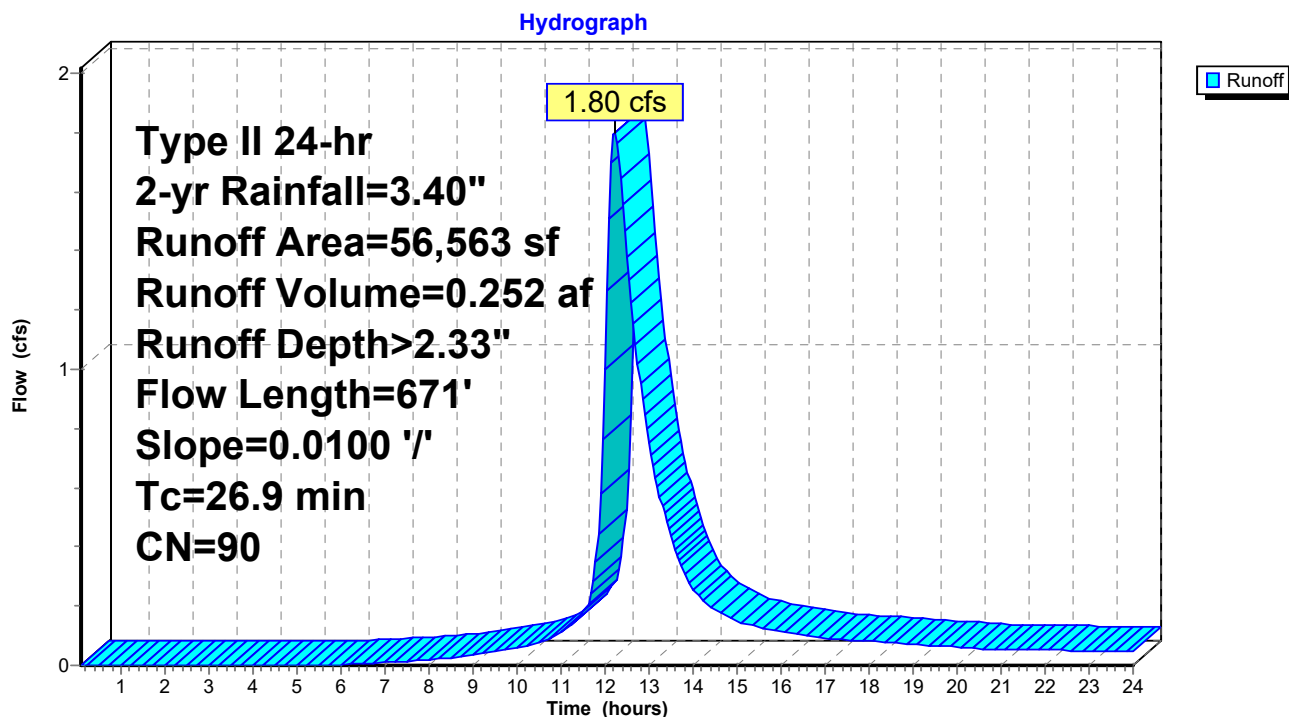
Runoff = 1.80 cfs @ 12.23 hrs, Volume= 0.252 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
56,563	90	Fallow, crop residue, Good, HSG D
56,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	198	0.0100	0.14		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
3.0	473	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
26.9	671	Total			

Subcatchment EX-4: Ex. AG Field



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Summary for Pond 1P: Bio-Swale 1

Inflow Area = 0.568 ac, 60.40% Impervious, Inflow Depth > 2.45" for 2-yr event
 Inflow = 2.42 cfs @ 11.92 hrs, Volume= 0.116 af
 Outflow = 0.42 cfs @ 12.10 hrs, Volume= 0.053 af, Atten= 83%, Lag= 10.8 min
 Primary = 0.42 cfs @ 12.10 hrs, Volume= 0.053 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.55' @ 12.10 hrs Surf.Area= 2,420 sf Storage= 2,831 cf

Plug-Flow detention time= 248.5 min calculated for 0.053 af (46% of inflow)

Center-of-Mass det. time= 133.0 min (926.8 - 793.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.49'	5,795 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.49	1,194	312.0	0.0	0	0	1,194
16.50	1,194	312.0	40.0	5	5	1,197
18.49	1,194	312.0	40.0	950	955	1,818
18.50	1,194	312.0	100.0	12	967	1,821
20.50	3,892	362.0	100.0	4,828	5,795	4,586

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	12.0" Round 12" Dual Wall HDPE L= 82.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.10' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	19.50'	10.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.41 cfs @ 12.10 hrs HW=19.55' TW=19.19' (Dynamic Tailwater)↑ **1=12" Dual Wall HDPE** (Passes 0.41 cfs of 1.80 cfs potential flow)↑ **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.41 cfs @ 0.74 fps)

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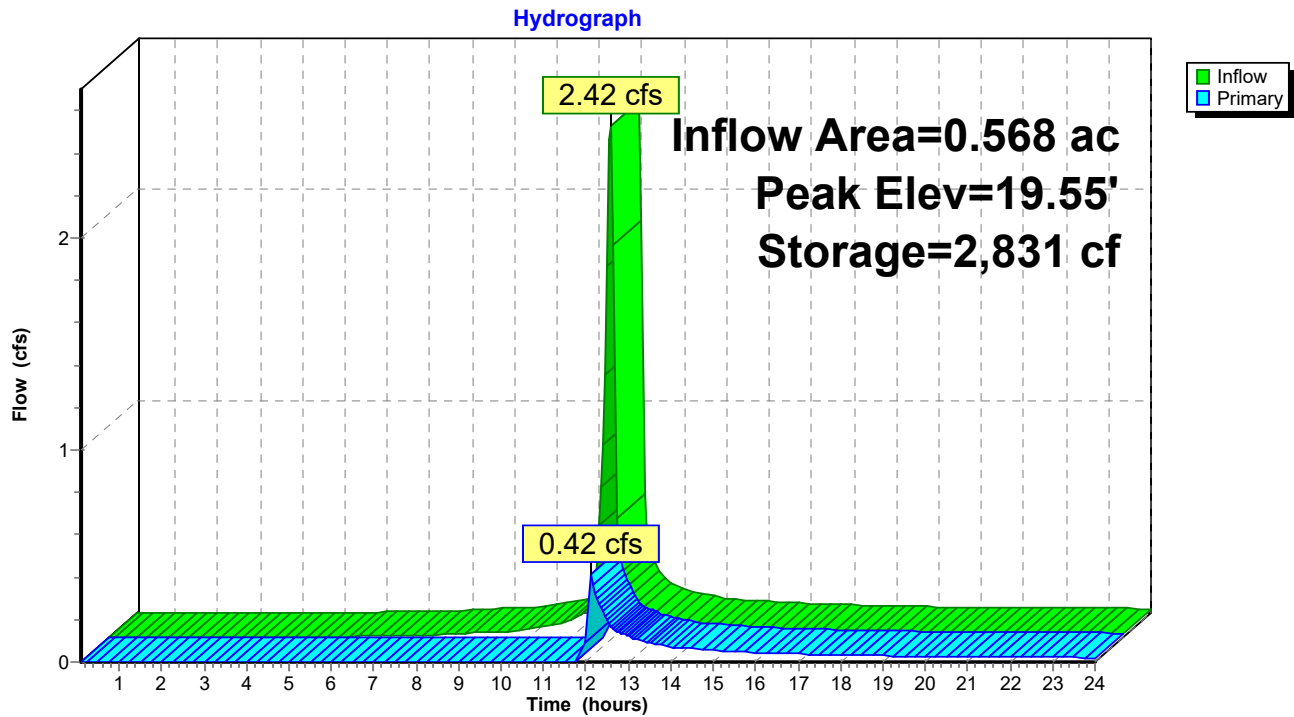
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Type II 24-hr 2-yr Rainfall=3.40"

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Pond 1P: Bio-Swale 1



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Stage-Area-Storage for Pond 1P: Bio-Swale 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.49	1,194	0	19.09	1,829	1,852
16.54	1,194	24	19.14	1,889	1,945
16.59	1,194	48	19.19	1,950	2,041
16.64	1,194	72	19.24	2,012	2,140
16.69	1,194	96	19.29	2,075	2,242
16.74	1,194	119	19.34	2,138	2,348
16.79	1,194	143	19.39	2,203	2,456
16.84	1,194	167	19.44	2,269	2,568
16.89	1,194	191	19.49	2,336	2,683
16.94	1,194	215	19.54	2,404	2,802
16.99	1,194	239	19.59	2,472	2,923
17.04	1,194	263	19.64	2,542	3,049
17.09	1,194	287	19.69	2,613	3,178
17.14	1,194	310	19.74	2,684	3,310
17.19	1,194	334	19.79	2,757	3,446
17.24	1,194	358	19.84	2,830	3,586
17.29	1,194	382	19.89	2,905	3,729
17.34	1,194	406	19.94	2,980	3,876
17.39	1,194	430	19.99	3,057	4,027
17.44	1,194	454	20.04	3,134	4,182
17.49	1,194	478	20.09	3,213	4,341
17.54	1,194	501	20.14	3,292	4,503
17.59	1,194	525	20.19	3,372	4,670
17.64	1,194	549	20.24	3,454	4,841
17.69	1,194	573	20.29	3,536	5,015
17.74	1,194	597	20.34	3,619	5,194
17.79	1,194	621	20.39	3,703	5,377
17.84	1,194	645	20.44	3,789	5,565
17.89	1,194	669	20.49	3,875	5,756
17.94	1,194	693			
17.99	1,194	716			
18.04	1,194	740			
18.09	1,194	764			
18.14	1,194	788			
18.19	1,194	812			
18.24	1,194	836			
18.29	1,194	860			
18.34	1,194	884			
18.39	1,194	907			
18.44	1,194	931			
18.49	1,194	955			
18.54	1,233	1,016			
18.59	1,282	1,079			
18.64	1,332	1,144			
18.69	1,384	1,212			
18.74	1,436	1,282			
18.79	1,489	1,355			
18.84	1,543	1,431			
18.89	1,599	1,510			
18.94	1,655	1,591			
18.99	1,712	1,675			
19.04	1,770	1,762			

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Summary for Pond 2P: Bio-Swale 2

Inflow Area = 1.583 ac, 53.70% Impervious, Inflow Depth > 1.86" for 2-yr event
 Inflow = 4.07 cfs @ 11.93 hrs, Volume= 0.245 af
 Outflow = 2.72 cfs @ 12.02 hrs, Volume= 0.164 af, Atten= 33%, Lag= 5.1 min
 Primary = 2.72 cfs @ 12.02 hrs, Volume= 0.164 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.24' @ 12.02 hrs Surf.Area= 3,247 sf Storage= 3,924 cf

Plug-Flow detention time= 187.7 min calculated for 0.164 af (67% of inflow)

Center-of-Mass det. time= 74.4 min (904.2 - 829.8)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	7,415 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	1,543	400.0	0.0	0	0	1,543
16.10	1,543	400.0	40.0	6	6	1,547
18.09	1,543	400.0	40.0	1,228	1,234	2,343
18.10	1,543	400.0	100.0	15	1,250	2,347
20.10	4,943	450.0	100.0	6,165	7,415	5,834

Device	Routing	Invert	Outlet Devices
#1	Primary	18.10'	15.0" Round x3 15" Dual Wall HDPE X 3.00 L= 52.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.10' / 18.10' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	19.10'	16.3' long MDOT SHA 374.70 2 End Contraction(s)

Primary OutFlow Max=2.40 cfs @ 12.02 hrs HW=19.23' TW=18.96' (Dynamic Tailwater)↑ **1=x3 15" Dual Wall HDPE** (Passes 2.40 cfs of 7.22 cfs potential flow)↑ **2=MDOT SHA 374.70** (Weir Controls 2.40 cfs @ 1.16 fps)

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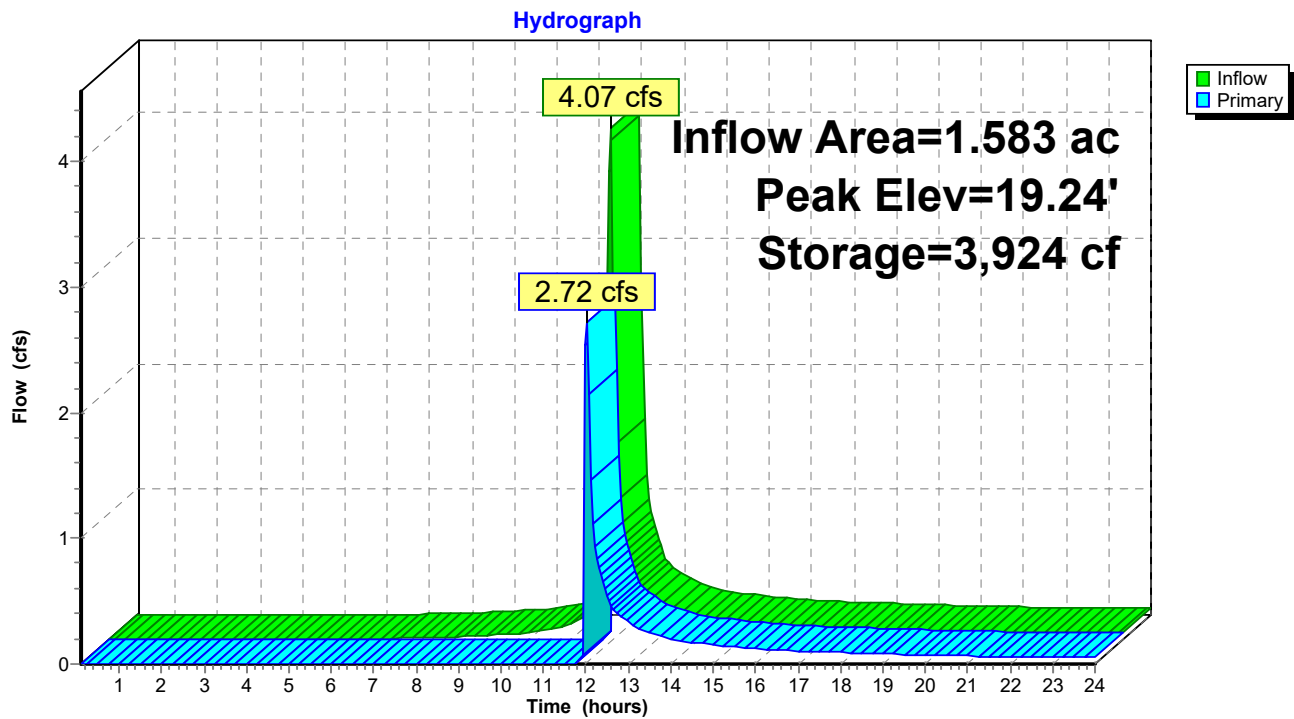
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Pond 2P: Bio-Swale 2



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Stage-Area-Storage for Pond 2P: Bio-Swale 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	1,543	0	18.69	2,346	2,389
16.14	1,543	31	18.74	2,422	2,508
16.19	1,543	62	18.79	2,498	2,631
16.24	1,543	93	18.84	2,577	2,758
16.29	1,543	123	18.89	2,656	2,889
16.34	1,543	154	18.94	2,737	3,023
16.39	1,543	185	18.99	2,818	3,162
16.44	1,543	216	19.04	2,901	3,305
16.49	1,543	247	19.09	2,985	3,452
16.54	1,543	278	19.14	3,071	3,604
16.59	1,543	309	19.19	3,157	3,760
16.64	1,543	339	19.24	3,245	3,920
16.69	1,543	370	19.29	3,334	4,084
16.74	1,543	401	19.34	3,424	4,253
16.79	1,543	432	19.39	3,516	4,427
16.84	1,543	463	19.44	3,608	4,605
16.89	1,543	494	19.49	3,702	4,787
16.94	1,543	525	19.54	3,797	4,975
16.99	1,543	555	19.59	3,893	5,167
17.04	1,543	586	19.64	3,991	5,364
17.09	1,543	617	19.69	4,089	5,566
17.14	1,543	648	19.74	4,189	5,773
17.19	1,543	679	19.79	4,290	5,985
17.24	1,543	710	19.84	4,392	6,202
17.29	1,543	741	19.89	4,496	6,424
17.34	1,543	772	19.94	4,600	6,652
17.39	1,543	802	19.99	4,706	6,884
17.44	1,543	833	20.04	4,813	7,122
17.49	1,543	864	20.09	4,921	7,366
17.54	1,543	895			
17.59	1,543	926			
17.64	1,543	957			
17.69	1,543	988			
17.74	1,543	1,018			
17.79	1,543	1,049			
17.84	1,543	1,080			
17.89	1,543	1,111			
17.94	1,543	1,142			
17.99	1,543	1,173			
18.04	1,543	1,204			
18.09	1,543	1,234			
18.14	1,592	1,313			
18.19	1,655	1,394			
18.24	1,718	1,478			
18.29	1,783	1,566			
18.34	1,849	1,656			
18.39	1,917	1,751			
18.44	1,985	1,848			
18.49	2,055	1,949			
18.54	2,126	2,054			
18.59	2,198	2,162			
18.64	2,271	2,273			

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Summary for Pond 3P: Bio-Swale 3

Inflow Area = 2.318 ac, 59.45% Impervious, Inflow Depth > 1.69" for 2-yr event
 Inflow = 4.68 cfs @ 12.00 hrs, Volume= 0.326 af
 Outflow = 4.02 cfs @ 12.02 hrs, Volume= 0.294 af, Atten= 14%, Lag= 1.2 min
 Primary = 4.02 cfs @ 12.02 hrs, Volume= 0.294 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 18.97' @ 12.03 hrs Surf.Area= 1,741 sf Storage= 1,914 cf

Plug-Flow detention time= 76.9 min calculated for 0.294 af (90% of inflow)

Center-of-Mass det. time= 27.3 min (872.4 - 845.0)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	4,635 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	944	249.0	0.0	0	0	944
16.10	944	249.0	40.0	4	4	946
18.09	944	249.0	40.0	751	755	1,442
18.10	944	249.0	100.0	9	765	1,444
20.10	3,140	300.0	100.0	3,870	4,635	3,739

Device	Routing	Invert	Outlet Devices
#1	Primary	18.10'	15.0" Round x3 15" Dual Wall HDPE X 4.00 L= 44.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.10' / 18.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	18.60'	16.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=3.83 cfs @ 12.02 hrs HW=18.96' TW=18.87' (Dynamic Tailwater)

1=x3 15" Dual Wall HDPE (Outlet Controls 3.83 cfs @ 1.51 fps)

2=Sharp-Crested Rectangular Weir (Passes 3.83 cfs of 7.36 cfs potential flow)

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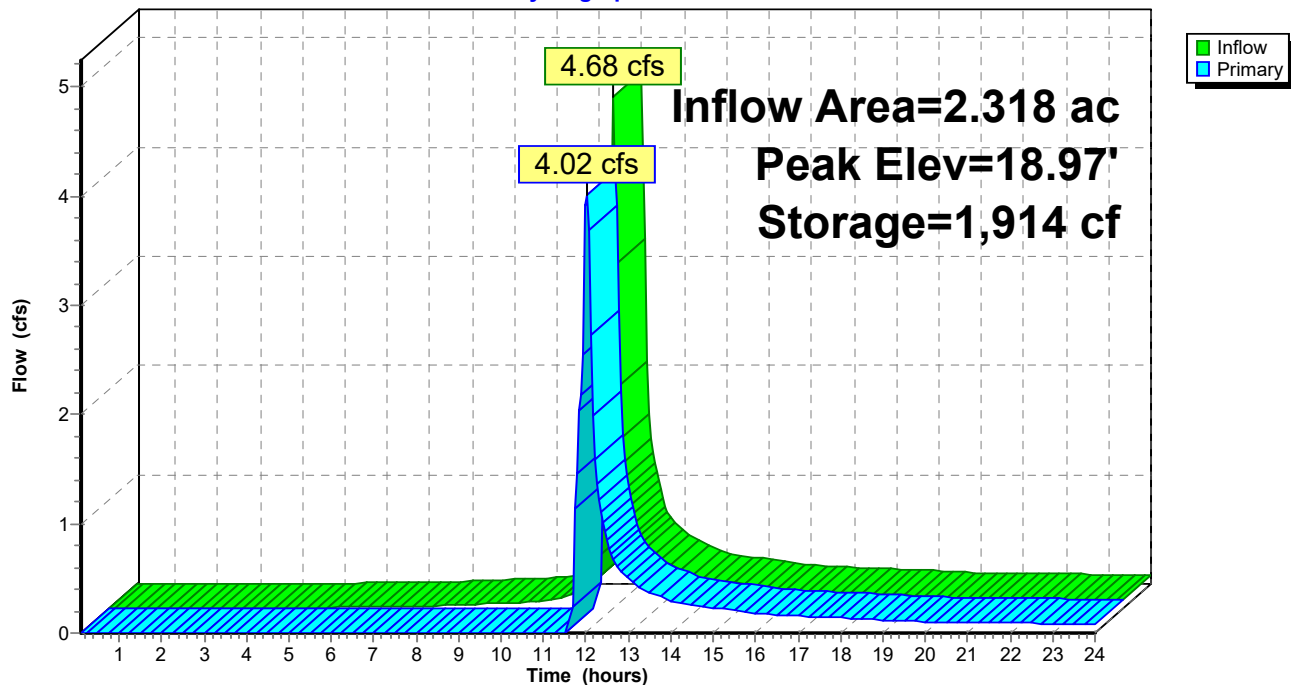
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Pond 3P: Bio-Swale 3

Hydrograph



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Stage-Area-Storage for Pond 3P: Bio-Swale 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	944	0	18.69	1,459	1,468
16.14	944	19	18.74	1,507	1,542
16.19	944	38	18.79	1,557	1,619
16.24	944	57	18.84	1,607	1,698
16.29	944	76	18.89	1,658	1,779
16.34	944	94	18.94	1,710	1,864
16.39	944	113	18.99	1,763	1,950
16.44	944	132	19.04	1,817	2,040
16.49	944	151	19.09	1,871	2,132
16.54	944	170	19.14	1,926	2,227
16.59	944	189	19.19	1,982	2,325
16.64	944	208	19.24	2,039	2,425
16.69	944	227	19.29	2,096	2,529
16.74	944	245	19.34	2,155	2,635
16.79	944	264	19.39	2,214	2,744
16.84	944	283	19.44	2,274	2,856
16.89	944	302	19.49	2,334	2,971
16.94	944	321	19.54	2,396	3,090
16.99	944	340	19.59	2,458	3,211
17.04	944	359	19.64	2,521	3,336
17.09	944	378	19.69	2,585	3,463
17.14	944	396	19.74	2,650	3,594
17.19	944	415	19.79	2,716	3,728
17.24	944	434	19.84	2,782	3,866
17.29	944	453	19.89	2,849	4,006
17.34	944	472	19.94	2,917	4,151
17.39	944	491	19.99	2,986	4,298
17.44	944	510	20.04	3,055	4,449
17.49	944	529	20.09	3,126	4,604
17.54	944	548			
17.59	944	566			
17.64	944	585			
17.69	944	604			
17.74	944	623			
17.79	944	642			
17.84	944	661			
17.89	944	680			
17.94	944	699			
17.99	944	717			
18.04	944	736			
18.09	944	755			
18.14	975	803			
18.19	1,015	853			
18.24	1,056	905			
18.29	1,098	958			
18.34	1,140	1,014			
18.39	1,183	1,072			
18.44	1,227	1,133			
18.49	1,272	1,195			
18.54	1,317	1,260			
18.59	1,364	1,327			
18.64	1,411	1,396			

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Summary for Pond 4P: Bio-Swale 4

Inflow Area = 2.318 ac, 59.45% Impervious, Inflow Depth > 1.52" for 2-yr event
 Inflow = 4.02 cfs @ 12.02 hrs, Volume= 0.294 af
 Outflow = 3.91 cfs @ 12.04 hrs, Volume= 0.273 af, Atten= 3%, Lag= 1.6 min
 Primary = 3.91 cfs @ 12.04 hrs, Volume= 0.273 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 18.89' @ 12.04 hrs Surf.Area= 1,140 sf Storage= 1,204 cf

Plug-Flow detention time= 51.4 min calculated for 0.273 af (93% of inflow)

Center-of-Mass det. time= 14.1 min (886.4 - 872.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	3,192 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	633	171.0	0.0	0	0	633
16.10	633	171.0	40.0	3	3	635
18.09	633	171.0	40.0	504	506	975
18.10	633	171.0	100.0	6	513	977
20.10	2,204	221.0	100.0	2,679	3,192	2,585

Device	Routing	Invert	Outlet Devices											
#1	Primary	18.60'	10.0' long x 3.0' breadth Broad-Crested Rectangular Weir											
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00											
			2.50 3.00 3.50 4.00 4.50											
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68											
			2.72 2.81 2.92 2.97 3.07 3.32											

Primary OutFlow Max=3.84 cfs @ 12.04 hrs HW=18.89' TW=17.63' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 3.84 cfs @ 1.34 fps)

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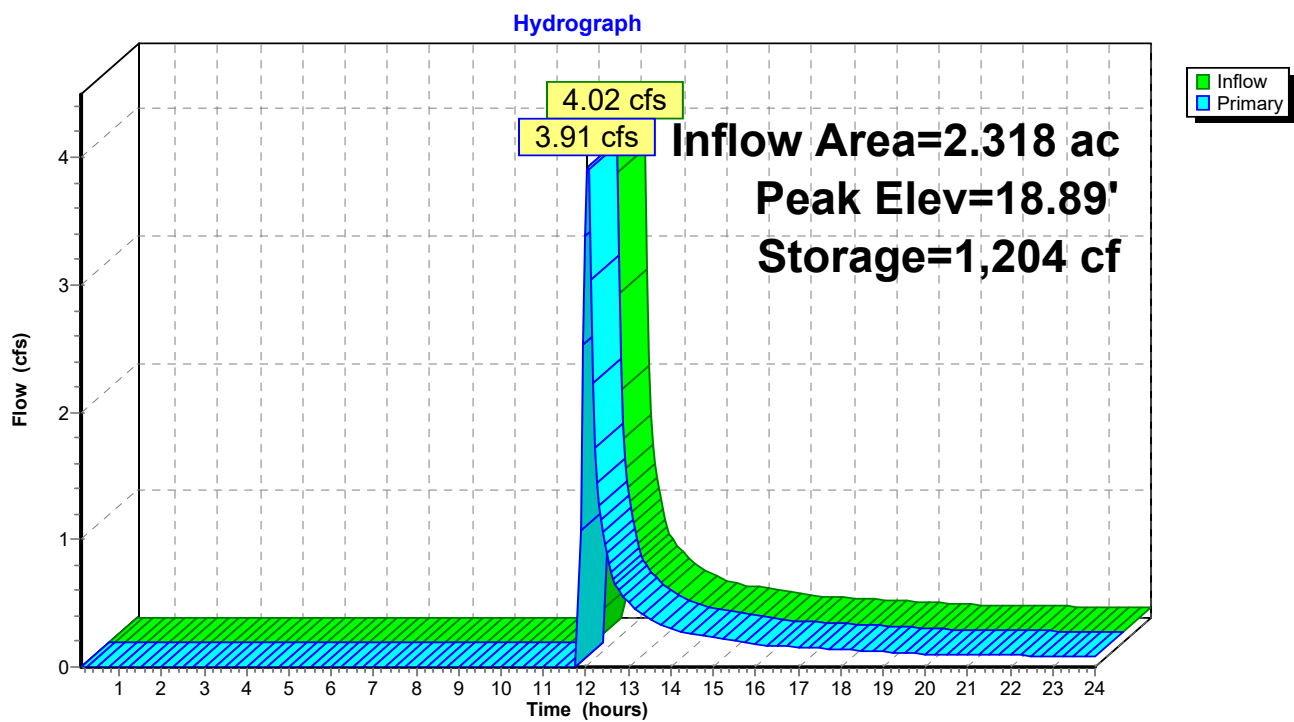
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Pond 4P: Bio-Swale 4



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Stage-Area-Storage for Pond 4P: Bio-Swale 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	633	0	18.69	998	990
16.14	633	13	18.74	1,032	1,040
16.19	633	25	18.79	1,068	1,093
16.24	633	38	18.84	1,104	1,147
16.29	633	51	18.89	1,140	1,203
16.34	633	63	18.94	1,177	1,261
16.39	633	76	18.99	1,215	1,321
16.44	633	89	19.04	1,253	1,383
16.49	633	101	19.09	1,292	1,446
16.54	633	114	19.14	1,331	1,512
16.59	633	127	19.19	1,371	1,580
16.64	633	139	19.24	1,412	1,649
16.69	633	152	19.29	1,453	1,721
16.74	633	165	19.34	1,495	1,794
16.79	633	177	19.39	1,538	1,870
16.84	633	190	19.44	1,581	1,948
16.89	633	203	19.49	1,624	2,028
16.94	633	215	19.54	1,668	2,111
16.99	633	228	19.59	1,713	2,195
17.04	633	241	19.64	1,759	2,282
17.09	633	253	19.69	1,805	2,371
17.14	633	266	19.74	1,851	2,462
17.19	633	279	19.79	1,898	2,556
17.24	633	291	19.84	1,946	2,652
17.29	633	304	19.89	1,994	2,751
17.34	633	317	19.94	2,043	2,852
17.39	633	329	19.99	2,093	2,955
17.44	633	342	20.04	2,143	3,061
17.49	633	354	20.09	2,194	3,170
17.54	633	367			
17.59	633	380			
17.64	633	392			
17.69	633	405			
17.74	633	418			
17.79	633	430			
17.84	633	443			
17.89	633	456			
17.94	633	468			
17.99	633	481			
18.04	633	494			
18.09	633	506			
18.14	655	538			
18.19	683	572			
18.24	712	607			
18.29	741	643			
18.34	771	681			
18.39	802	720			
18.44	833	761			
18.49	865	804			
18.54	897	848			
18.59	930	893			
18.64	964	941			

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Type II 24-hr 2-yr Rainfall=3.40"

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Summary for Pond 5P: SGW 1

Inflow Area = 3.889 ac, 58.88% Impervious, Inflow Depth > 1.79" for 2-yr event
 Inflow = 8.59 cfs @ 11.94 hrs, Volume= 0.581 af
 Outflow = 0.42 cfs @ 14.56 hrs, Volume= 0.308 af, Atten= 95%, Lag= 157.6 min
 Primary = 0.42 cfs @ 14.56 hrs, Volume= 0.308 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 18.30' @ 14.56 hrs Surf.Area= 9,411 sf Storage= 14,940 cf

Plug-Flow detention time= 341.4 min calculated for 0.308 af (53% of inflow)

Center-of-Mass det. time= 209.4 min (1,048.6 - 839.2)

Volume	Invert	Avail.Storage	Storage Description
#1	16.45'	38,893 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.45	6,846	329.0	0	0	6,846
20.45	12,919	429.0	38,893	38,893	13,066

Device	Routing	Invert	Outlet Devices
#1	Primary	16.11'	12.0" Round 12" Dual Wall HPDE X 2.00 L= 115.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 16.11' / 16.00' S= 0.0010 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	17.45'	2.0" W x 16.0" H Vert. 2" Notch C= 0.600
#3	Device 1	18.78'	16.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Secondary	19.95'	10.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.42 cfs @ 14.56 hrs HW=18.30' TW=0.00' (Dynamic Tailwater)

1=12" Dual Wall HPDE (Passes 0.42 cfs of 6.71 cfs potential flow)

2=2" Notch (Orifice Controls 0.42 cfs @ 2.95 fps)

3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=16.45' TW=0.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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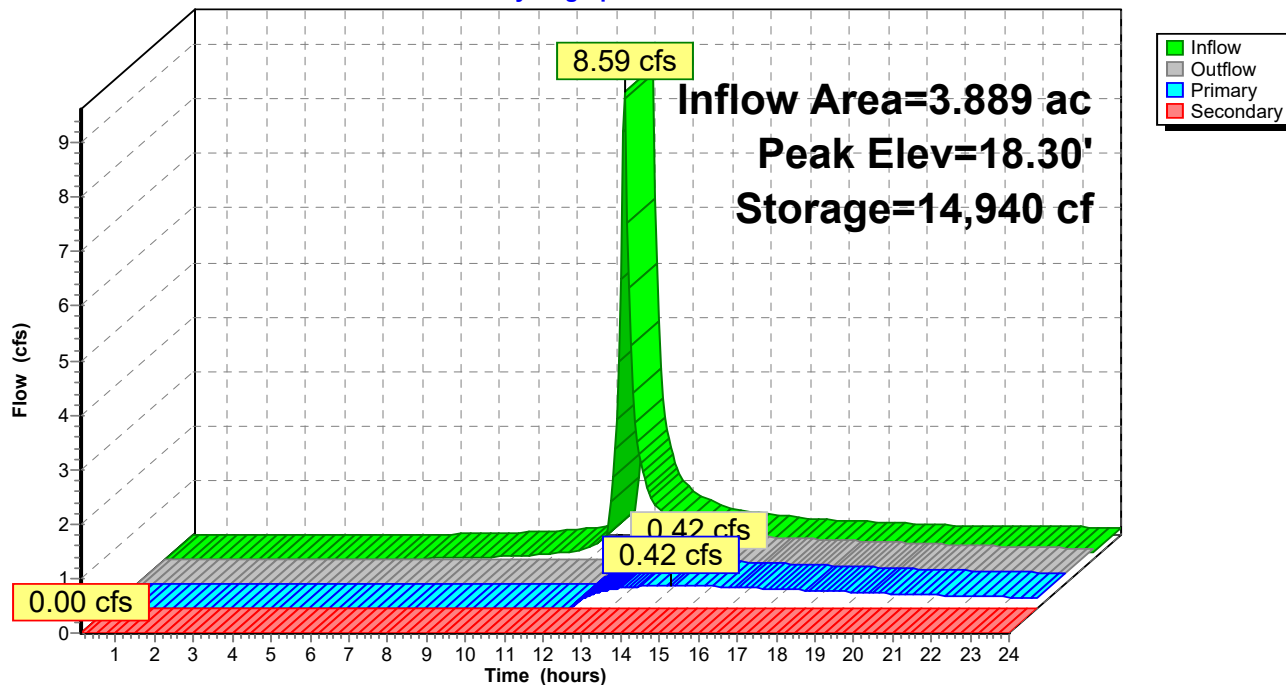
Type II 24-hr 2-yr Rainfall=3.40"

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Pond 5P: SGW 1

Hydrograph



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Stage-Area-Storage for Pond 5P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.45	6,846	0	19.05	10,576	22,473
16.50	6,910	344	19.10	10,656	23,004
16.55	6,975	691	19.15	10,736	23,539
16.60	7,039	1,041	19.20	10,816	24,078
16.65	7,104	1,395	19.25	10,896	24,621
16.70	7,170	1,752	19.30	10,977	25,167
16.75	7,235	2,112	19.35	11,058	25,718
16.80	7,301	2,475	19.40	11,140	26,273
16.85	7,367	2,842	19.45	11,221	26,832
16.90	7,434	3,212	19.50	11,304	27,395
16.95	7,501	3,585	19.55	11,386	27,963
17.00	7,568	3,962	19.60	11,468	28,534
17.05	7,635	4,342	19.65	11,551	29,110
17.10	7,703	4,726	19.70	11,635	29,689
17.15	7,771	5,112	19.75	11,718	30,273
17.20	7,839	5,503	19.80	11,802	30,861
17.25	7,908	5,896	19.85	11,886	31,453
17.30	7,977	6,293	19.90	11,971	32,050
17.35	8,046	6,694	19.95	12,055	32,650
17.40	8,115	7,098	20.00	12,140	33,255
17.45	8,185	7,506	20.05	12,226	33,864
17.50	8,255	7,917	20.10	12,311	34,478
17.55	8,325	8,331	20.15	12,397	35,095
17.60	8,396	8,749	20.20	12,483	35,717
17.65	8,467	9,171	20.25	12,570	36,344
17.70	8,538	9,596	20.30	12,657	36,974
17.75	8,610	10,025	20.35	12,744	37,609
17.80	8,682	10,457	20.40	12,831	38,249
17.85	8,754	10,893	20.45	12,919	38,893
17.90	8,827	11,332			
17.95	8,899	11,775			
18.00	8,972	12,222			
18.05	9,046	12,673			
18.10	9,119	13,127			
18.15	9,193	13,585			
18.20	9,268	14,046			
18.25	9,342	14,511			
18.30	9,417	14,980			
18.35	9,492	15,453			
18.40	9,568	15,930			
18.45	9,643	16,410			
18.50	9,720	16,894			
18.55	9,796	17,382			
18.60	9,873	17,873			
18.65	9,950	18,369			
18.70	10,027	18,868			
18.75	10,104	19,372			
18.80	10,182	19,879			
18.85	10,260	20,390			
18.90	10,339	20,905			
18.95	10,418	21,424			
19.00	10,497	21,947			

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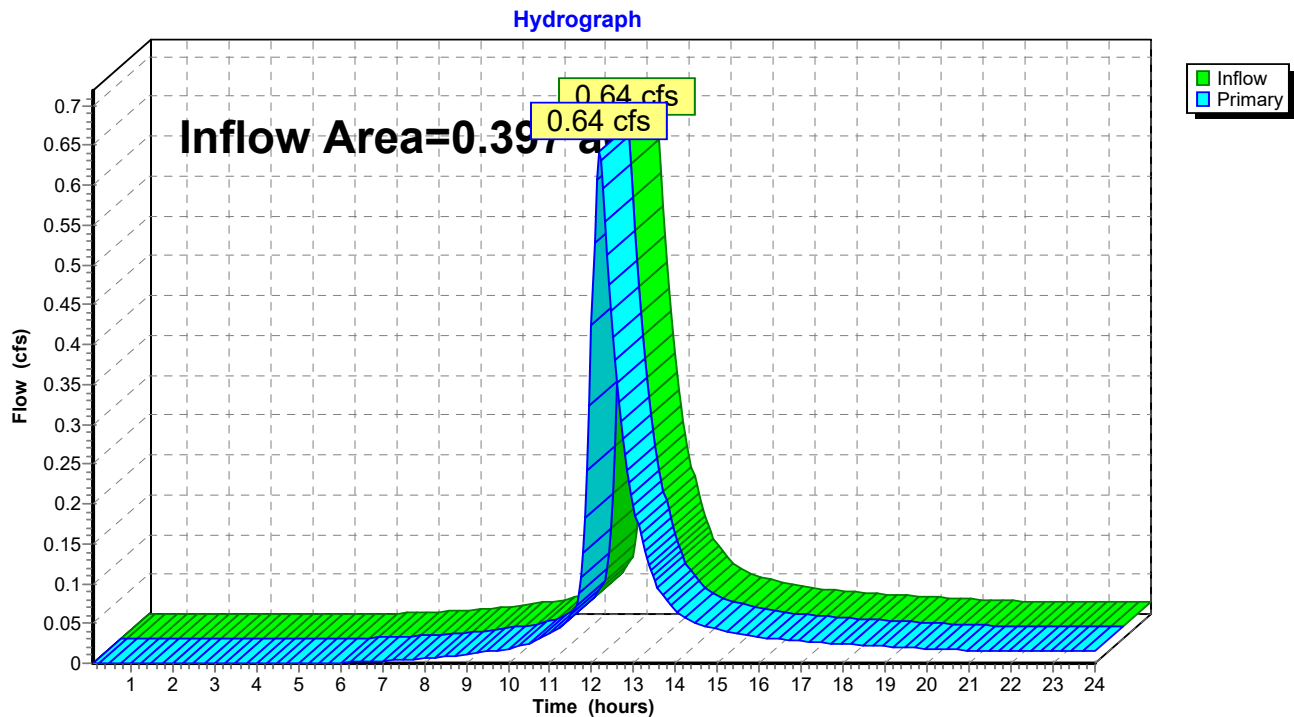
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Summary for Link 1L: POI #1 (Pre)

Inflow Area = 0.397 ac, 0.00% Impervious, Inflow Depth > 2.34" for 2-yr event
Inflow = 0.64 cfs @ 12.16 hrs, Volume= 0.077 af
Primary = 0.64 cfs @ 12.16 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 1L: POI #1 (Pre)



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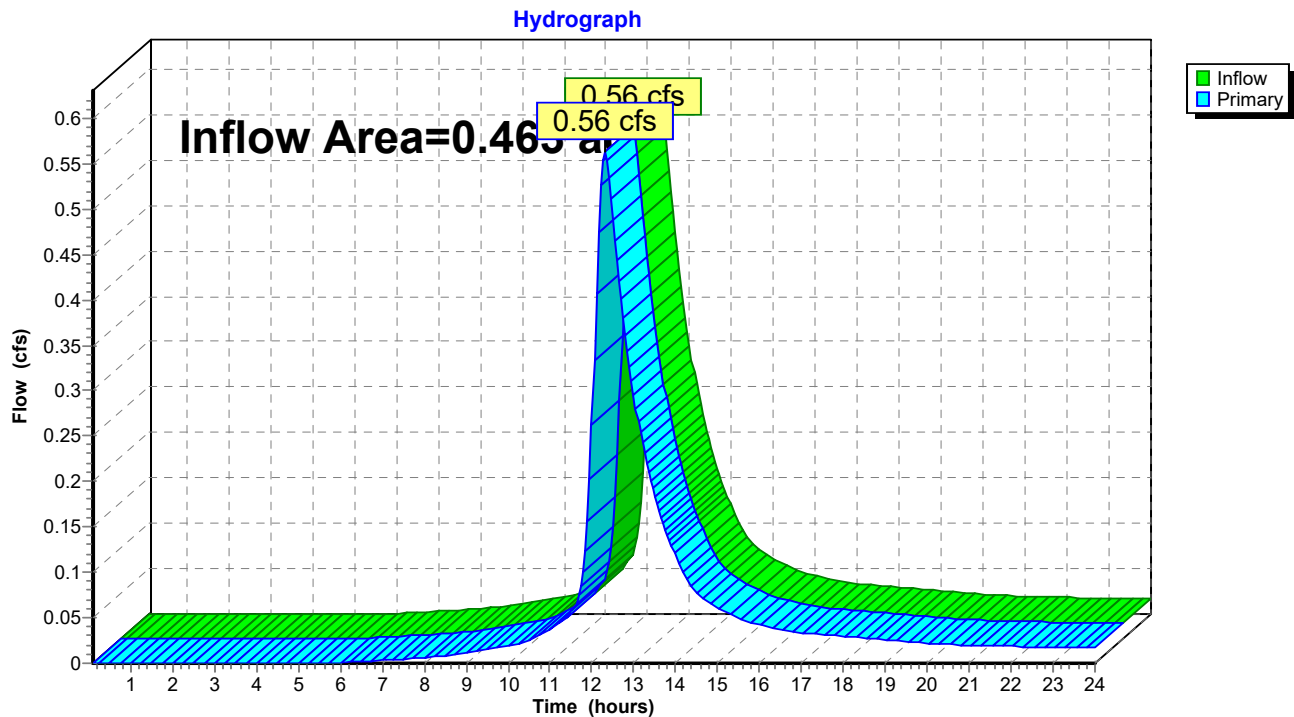
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Summary for Link 2L: POI #2 (Pre)

Inflow Area = 0.463 ac, 0.00% Impervious, Inflow Depth > 2.33" for 2-yr event
Inflow = 0.56 cfs @ 12.30 hrs, Volume= 0.090 af
Primary = 0.56 cfs @ 12.30 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 2L: POI #2 (Pre)



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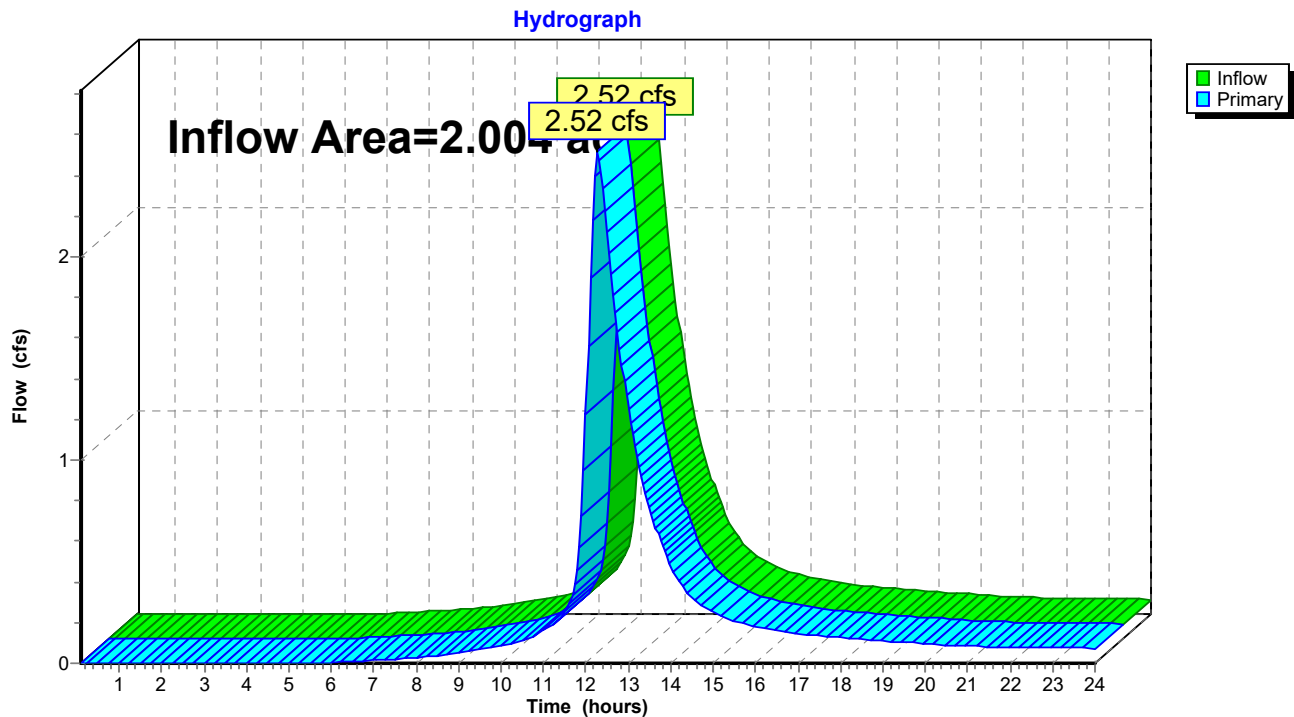
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Summary for Link 3L: POI #3 (Pre)

Inflow Area = 2.004 ac, 0.00% Impervious, Inflow Depth > 2.33" for 2-yr event
Inflow = 2.52 cfs @ 12.27 hrs, Volume= 0.389 af
Primary = 2.52 cfs @ 12.27 hrs, Volume= 0.389 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 3L: POI #3 (Pre)



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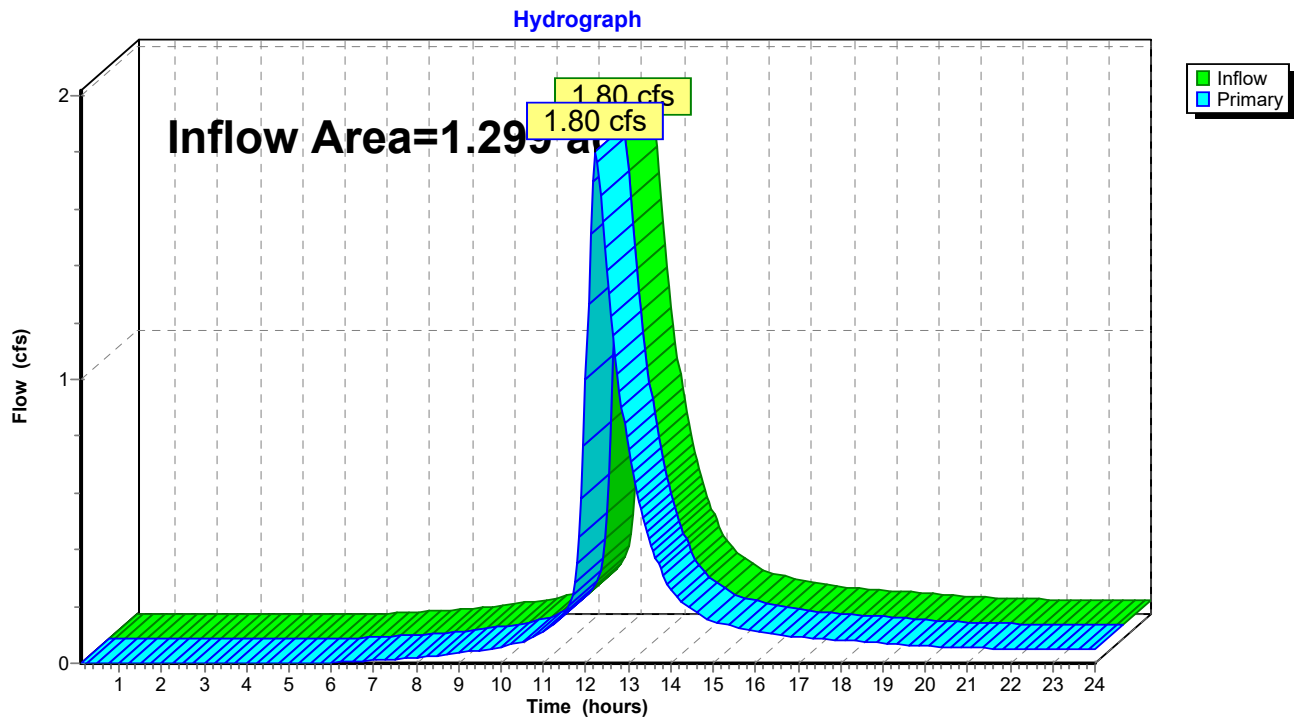
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Summary for Link 4L: POI #4 (Pre)

Inflow Area = 1.299 ac, 0.00% Impervious, Inflow Depth > 2.33" for 2-yr event
Inflow = 1.80 cfs @ 12.23 hrs, Volume= 0.252 af
Primary = 1.80 cfs @ 12.23 hrs, Volume= 0.252 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 4L: POI #4 (Pre)



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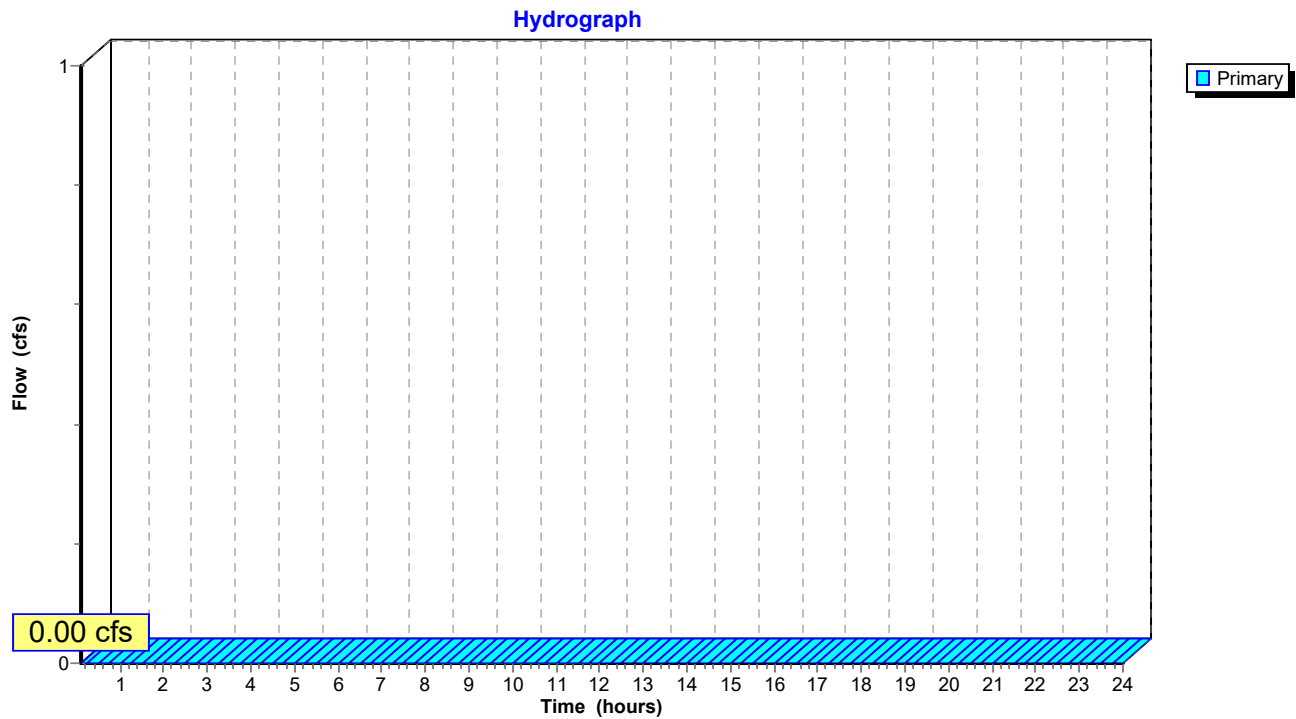
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Summary for Link 5L: POI #1 (Post)

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 5L: POI #1 (Post)



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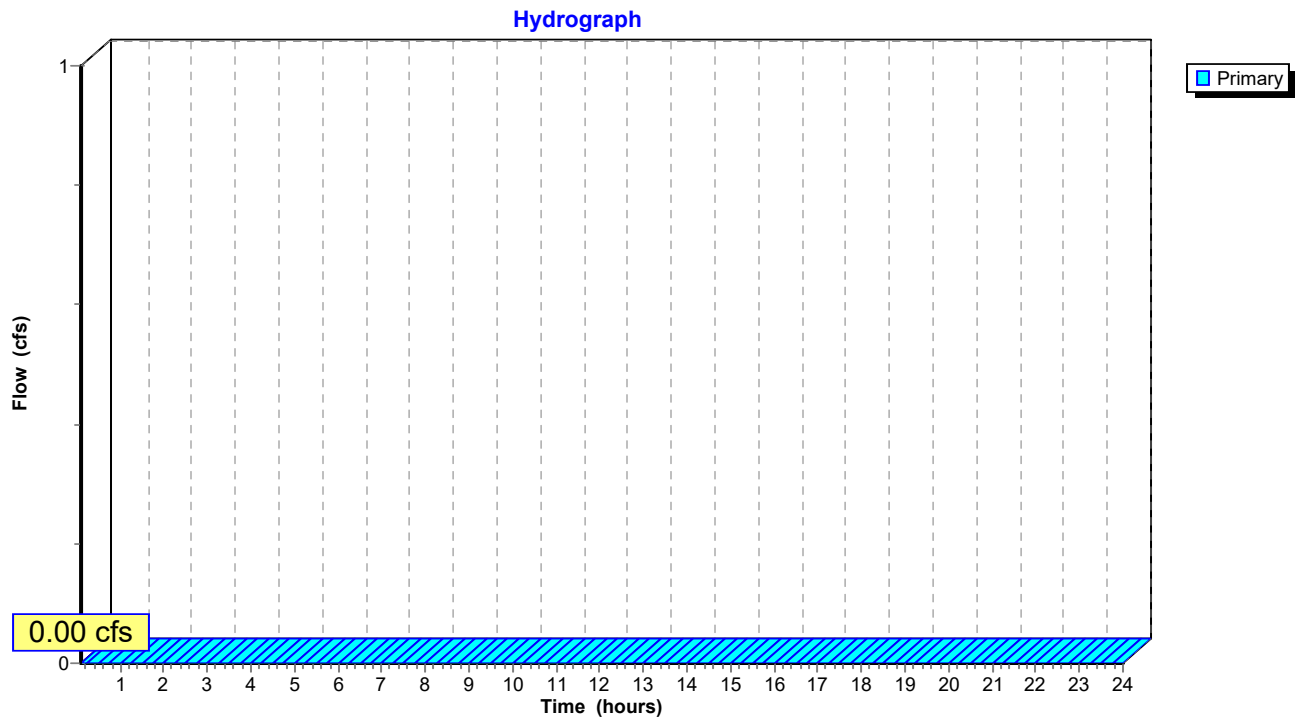
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Summary for Link 6L: POI #2 (Post)

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 6L: POI #2 (Post)



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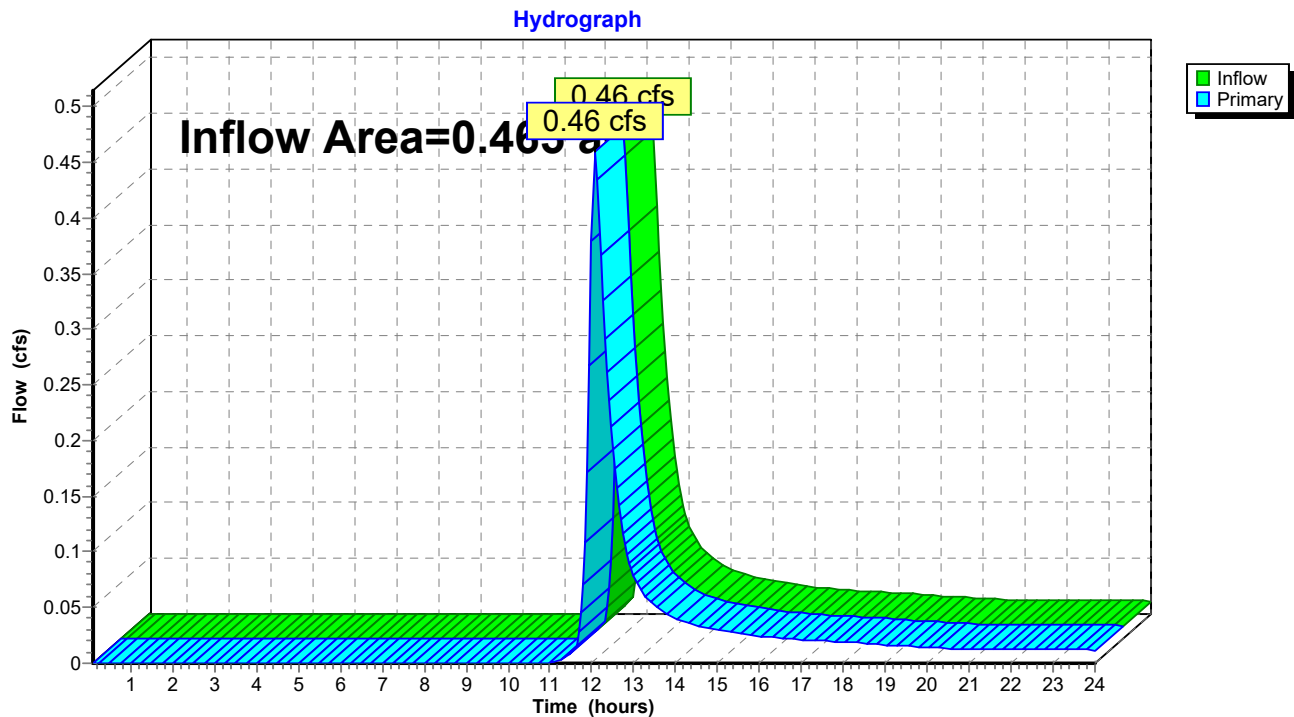
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Summary for Link 7L: POI #3 (Post)

Inflow Area = 0.465 ac, 0.00% Impervious, Inflow Depth > 1.11" for 2-yr event
Inflow = 0.46 cfs @ 12.08 hrs, Volume= 0.043 af
Primary = 0.46 cfs @ 12.08 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 7L: POI #3 (Post)



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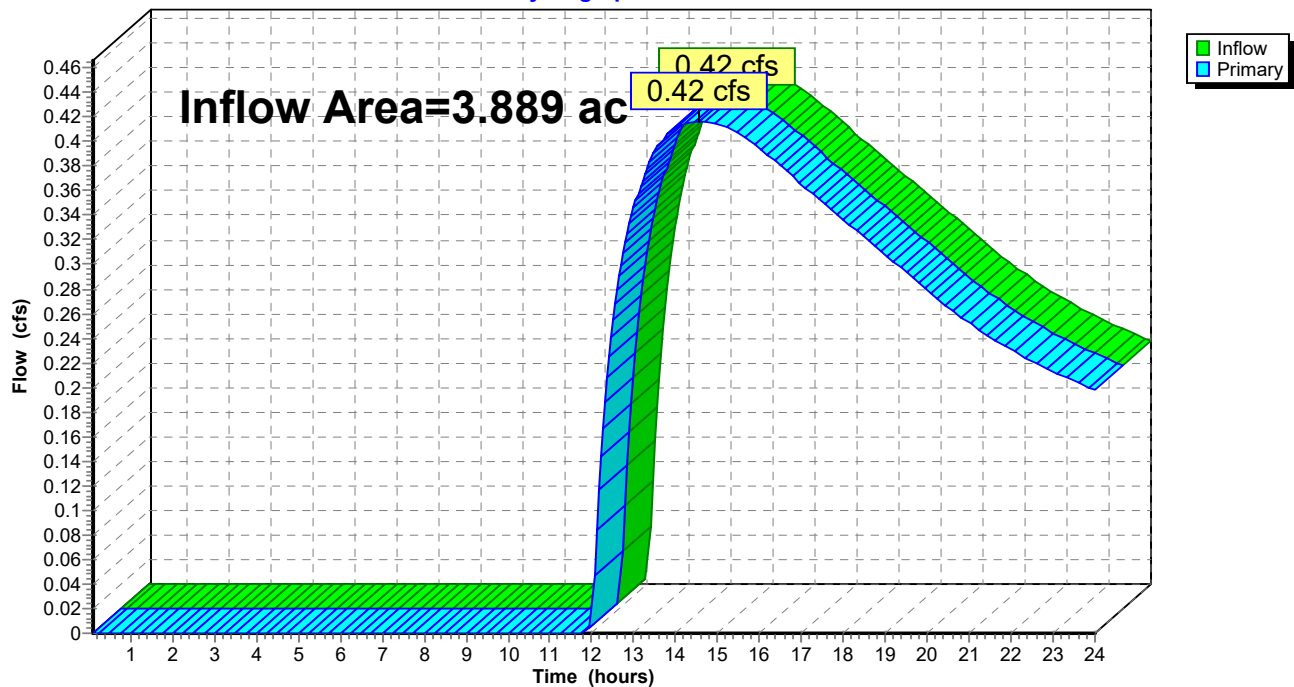
Summary for Link 8L: POI #4 (Post)

Inflow Area = 3.889 ac, 58.88% Impervious, Inflow Depth > 0.95" for 2-yr event
Inflow = 0.42 cfs @ 14.56 hrs, Volume= 0.308 af
Primary = 0.42 cfs @ 14.56 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 8L: POI #4 (Post)

Hydrograph



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Type II 24-hr 10-yr Rainfall=5.30"

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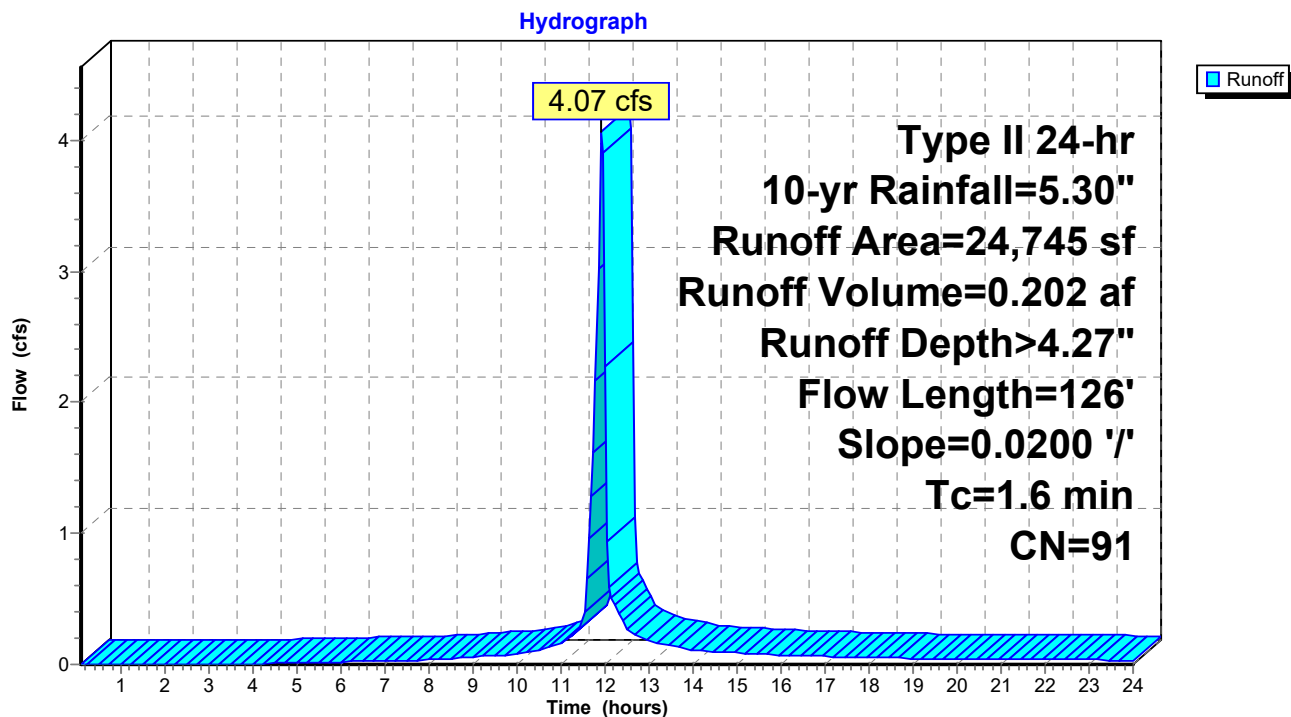
Summary for Subcatchment DA1: Green

Runoff = 4.07 cfs @ 11.92 hrs, Volume= 0.202 af, Depth> 4.27"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	14,945	98	Roof & Parking
	9,800	80	>75% Grass cover, Good, HSG D
	24,745	91	Weighted Average
	9,800		39.60% Pervious Area
	14,945		60.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	86	0.0200	1.38		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
1.6	126	Total			

Subcatchment DA1: Green

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Subcatchment DA2: Magenta

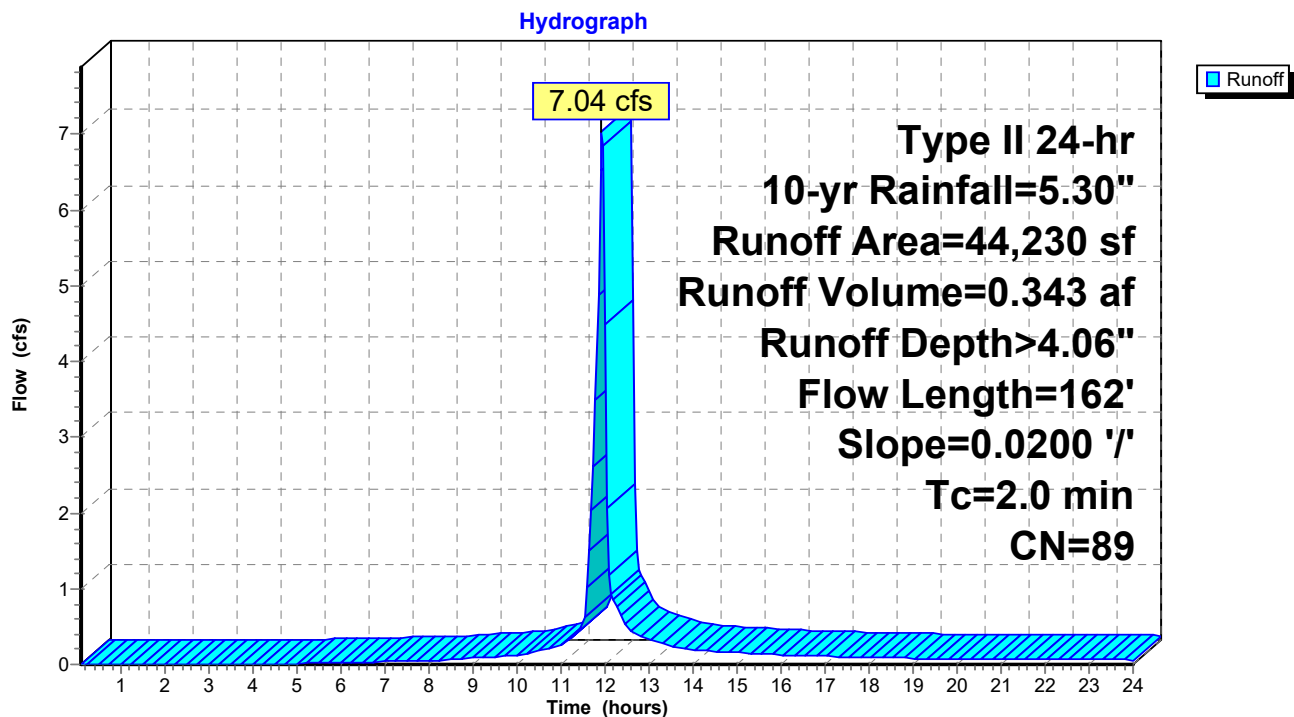
Runoff = 7.04 cfs @ 11.93 hrs, Volume= 0.343 af, Depth> 4.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	22,094	98	Roof & Parking
	22,136	80	>75% Grass cover, Good, HSG D
	44,230	89	Weighted Average
	22,136		50.05% Pervious Area
	22,094		49.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.4	122	0.0200	1.48		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
2.0	162	Total			

Subcatchment DA2: Magenta



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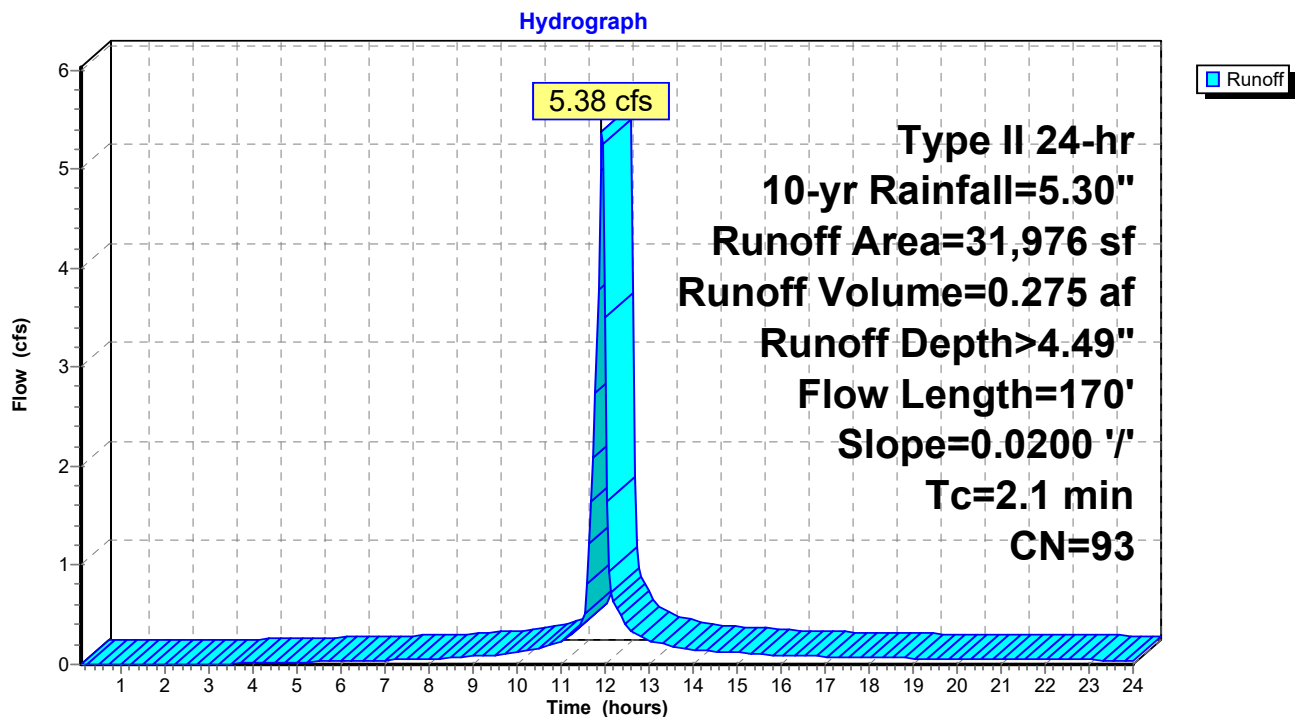
Summary for Subcatchment DA3: Orange

Runoff = 5.38 cfs @ 11.93 hrs, Volume= 0.275 af, Depth> 4.49"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	22,972	98	Parking & Roof
	9,004	80	>75% Grass cover, Good, HSG D
	31,976	93	Weighted Average
	9,004		28.16% Pervious Area
	22,972		71.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.23		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.4	120	0.0200	1.47		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
2.1	170	Total			

Subcatchment DA3: Orange

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Summary for Subcatchment DA4: Blue

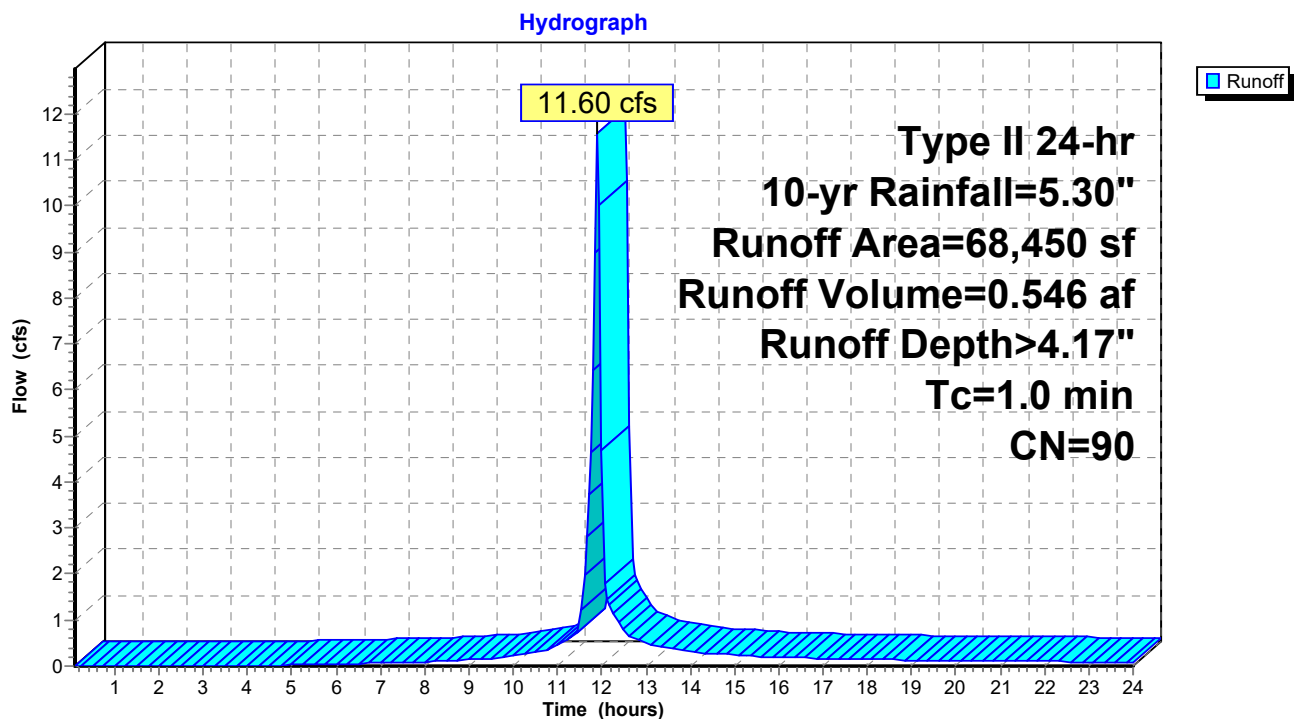
Runoff = 11.60 cfs @ 11.91 hrs, Volume= 0.546 af, Depth> 4.17"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	39,727	98	Roof & Parking
	28,723	80	>75% Grass cover, Good, HSG D
	68,450	90	Weighted Average
	28,723		41.96% Pervious Area
	39,727		58.04% Impervious Area

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

Subcatchment DA4: Blue



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Summary for Subcatchment DA5: Residue Landscape Area (Yellow)

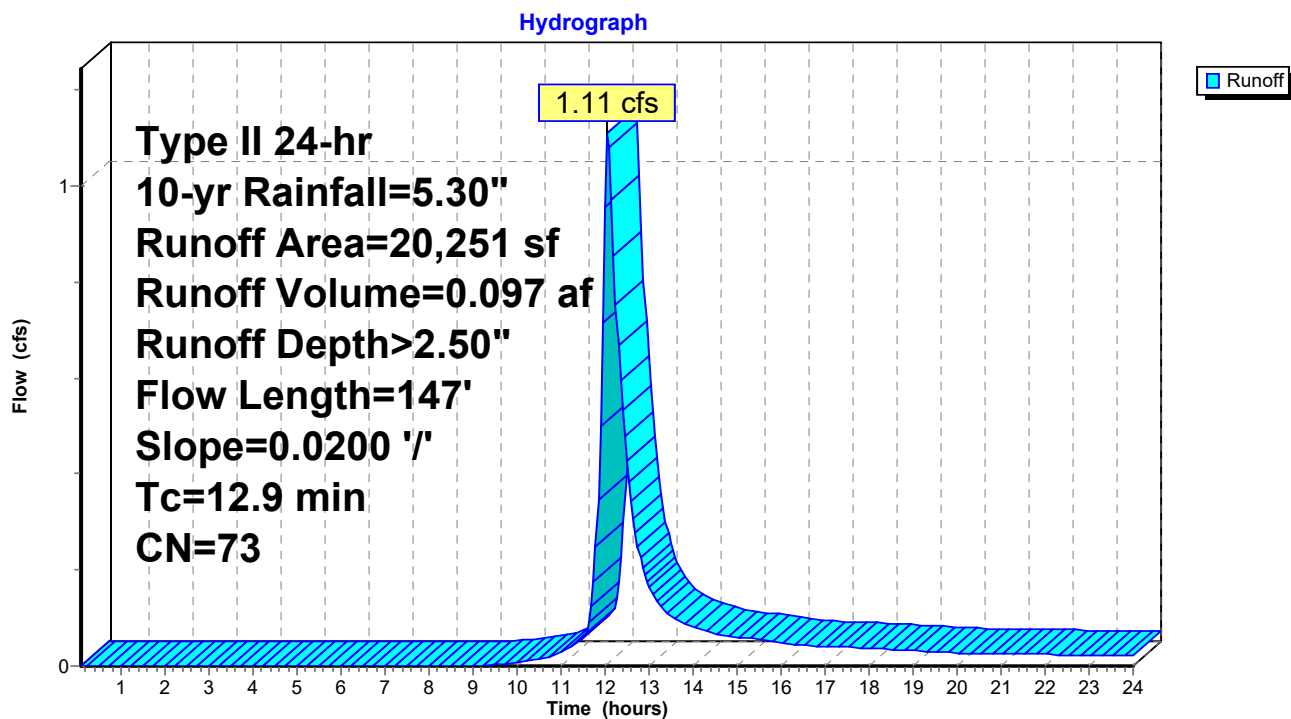
Runoff = 1.11 cfs @ 12.07 hrs, Volume= 0.097 af, Depth> 2.50"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
20,251	73	Brush, Good, HSG D
20,251		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	147	0.0200	0.19		Sheet Flow, Landscaped Area Grass: Short n= 0.150 P2= 3.40"

Subcatchment DA5: Residue Landscape Area (Yellow)



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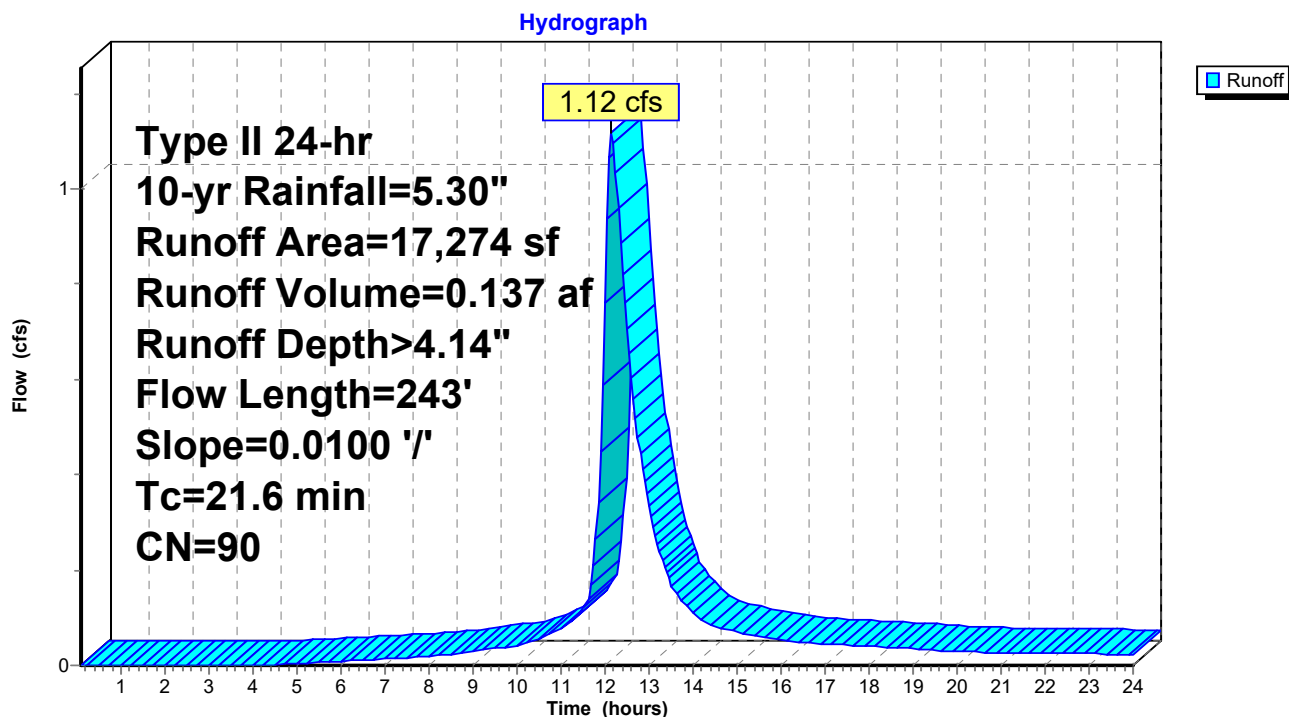
Summary for Subcatchment EX-1: Ex. AG Field

Runoff = 1.12 cfs @ 12.16 hrs, Volume= 0.137 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
17,274	90	Fallow, crop residue, Good, HSG D
17,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	169	0.0100	0.13		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.5	74	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
21.6	243	Total			

Subcatchment EX-1: Ex. AG Field

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Summary for Subcatchment EX-2: Ex. AG Field

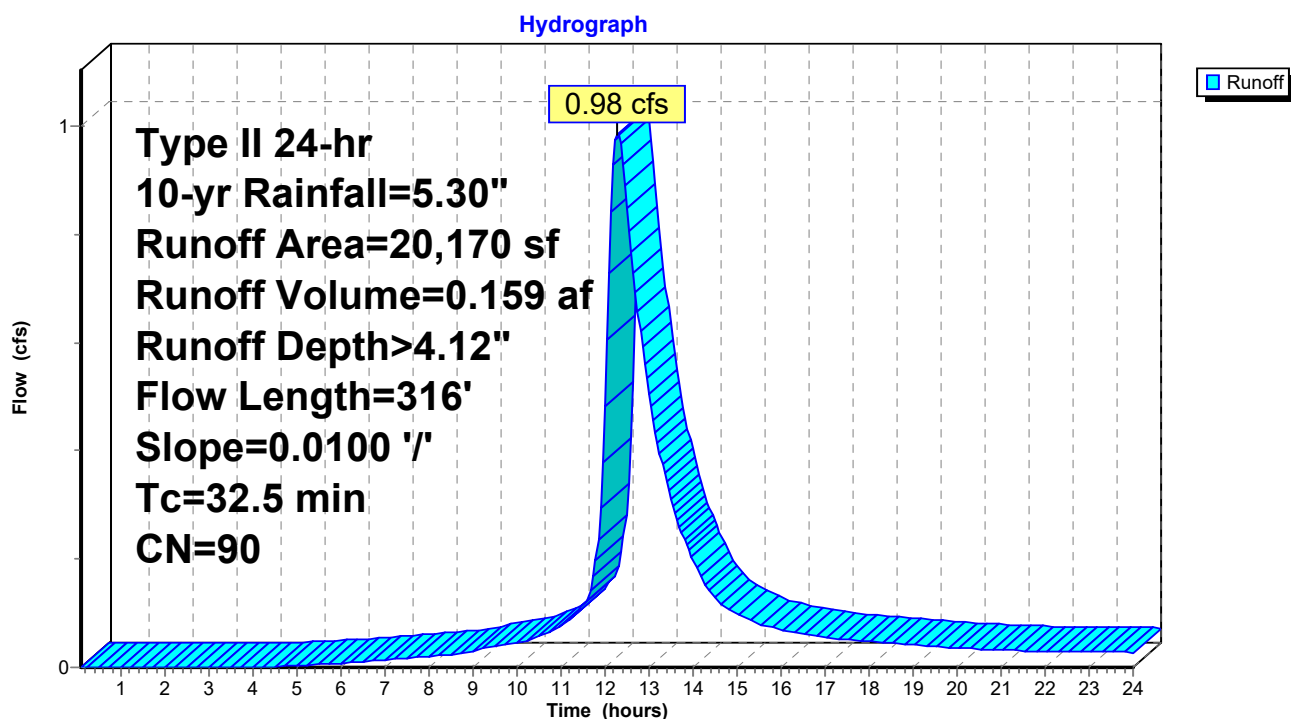
Runoff = 0.98 cfs @ 12.30 hrs, Volume= 0.159 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
20,170	90	Fallow, crop residue, Good, HSG D
20,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.3	288	0.0100	0.15		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.2	28	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
32.5	316	Total			

Subcatchment EX-2: Ex. AG Field



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Summary for Subcatchment EX-3: Ex. AG Field

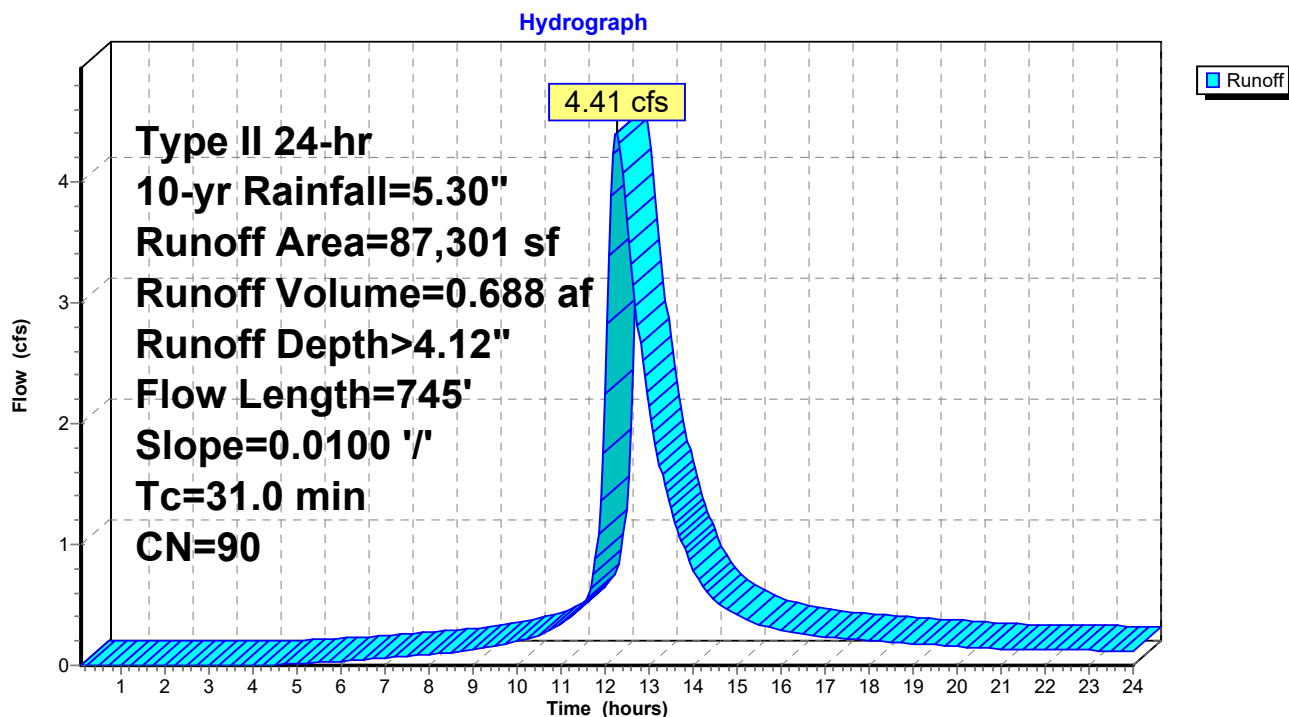
Runoff = 4.41 cfs @ 12.27 hrs, Volume= 0.688 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
87,301	90	Fallow, crop residue, Good, HSG D
87,301		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.8	239	0.0100	0.14		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
3.2	506	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
31.0	745	Total			

Subcatchment EX-3: Ex. AG Field



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Type II 24-hr 10-yr Rainfall=5.30"

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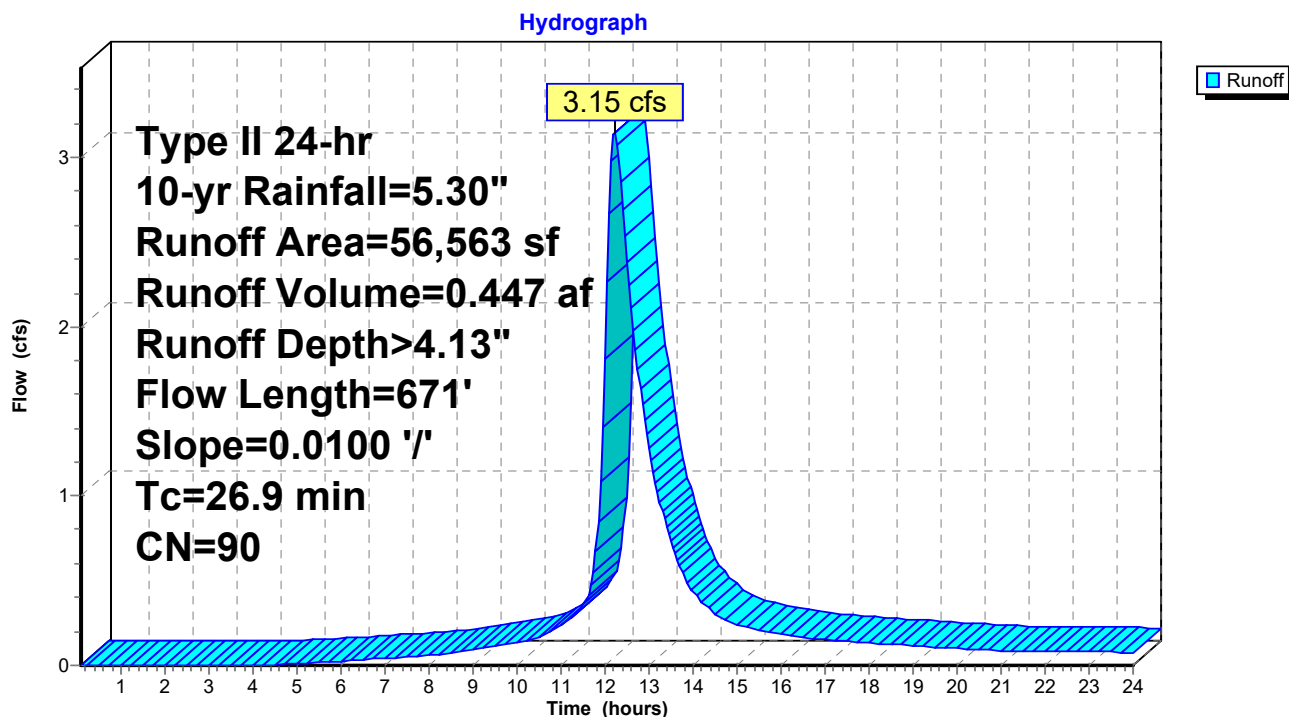
Summary for Subcatchment EX-4: Ex. AG Field

Runoff = 3.15 cfs @ 12.22 hrs, Volume= 0.447 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
56,563	90	Fallow, crop residue, Good, HSG D
56,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	198	0.0100	0.14		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
3.0	473	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
26.9	671	Total			

Subcatchment EX-4: Ex. AG Field

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Summary for Pond 1P: Bio-Swale 1

Inflow Area = 0.568 ac, 60.40% Impervious, Inflow Depth > 4.27" for 10-yr event
 Inflow = 4.07 cfs @ 11.92 hrs, Volume= 0.202 af
 Outflow = 2.20 cfs @ 12.10 hrs, Volume= 0.140 af, Atten= 46%, Lag= 11.0 min
 Primary = 2.20 cfs @ 12.10 hrs, Volume= 0.140 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.94' @ 12.01 hrs Surf.Area= 2,978 sf Storage= 3,872 cf

Plug-Flow detention time= 164.1 min calculated for 0.139 af (69% of inflow)

Center-of-Mass det. time= 69.2 min (847.6 - 778.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.49'	5,795 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.49	1,194	312.0	0.0	0	0	1,194
16.50	1,194	312.0	40.0	5	5	1,197
18.49	1,194	312.0	40.0	950	955	1,818
18.50	1,194	312.0	100.0	12	967	1,821
20.50	3,892	362.0	100.0	4,828	5,795	4,586

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	12.0" Round 12" Dual Wall HDPE L= 82.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.10' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	19.50'	10.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.22 cfs @ 12.10 hrs HW=19.81' TW=19.38' (Dynamic Tailwater)↑ **1=12" Dual Wall HDPE** (Outlet Controls 2.22 cfs @ 2.83 fps)↑ **2=Sharp-Crested Rectangular Weir** (Passes 2.22 cfs of 6.08 cfs potential flow)

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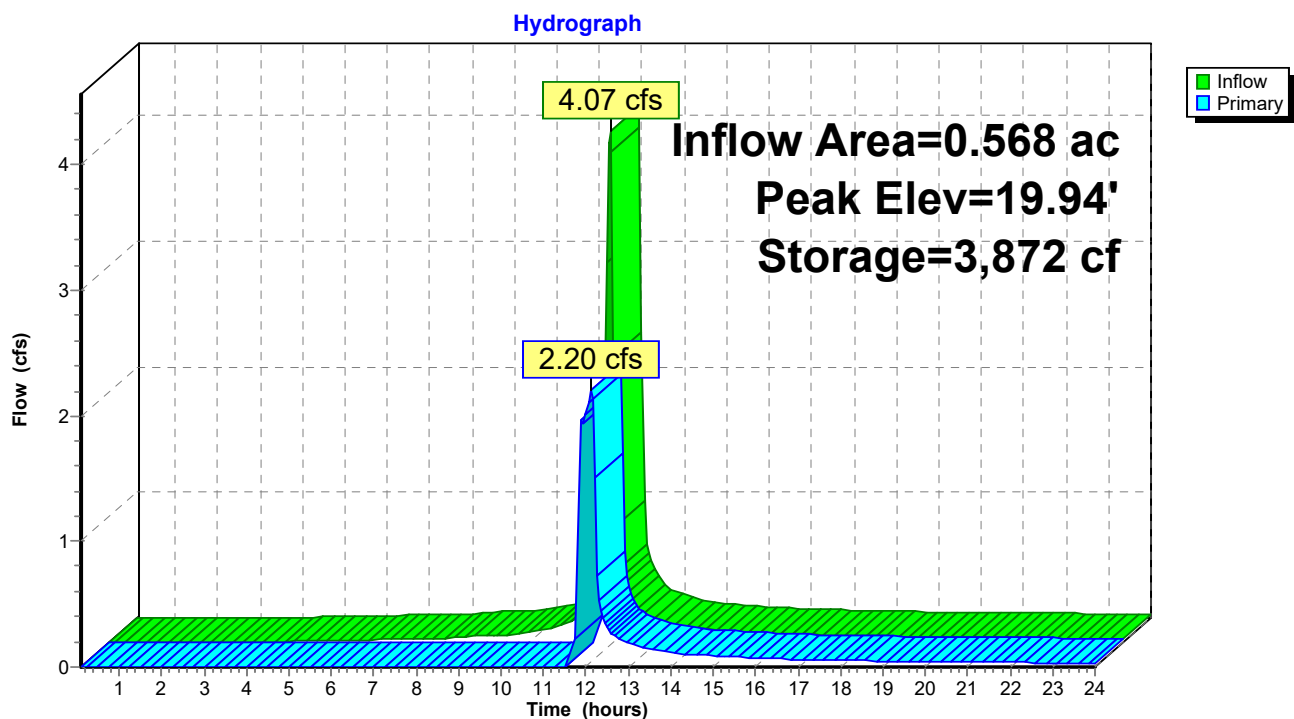
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Pond 1P: Bio-Swale 1



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Stage-Area-Storage for Pond 1P: Bio-Swale 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.49	1,194	0	19.09	1,829	1,852
16.54	1,194	24	19.14	1,889	1,945
16.59	1,194	48	19.19	1,950	2,041
16.64	1,194	72	19.24	2,012	2,140
16.69	1,194	96	19.29	2,075	2,242
16.74	1,194	119	19.34	2,138	2,348
16.79	1,194	143	19.39	2,203	2,456
16.84	1,194	167	19.44	2,269	2,568
16.89	1,194	191	19.49	2,336	2,683
16.94	1,194	215	19.54	2,404	2,802
16.99	1,194	239	19.59	2,472	2,923
17.04	1,194	263	19.64	2,542	3,049
17.09	1,194	287	19.69	2,613	3,178
17.14	1,194	310	19.74	2,684	3,310
17.19	1,194	334	19.79	2,757	3,446
17.24	1,194	358	19.84	2,830	3,586
17.29	1,194	382	19.89	2,905	3,729
17.34	1,194	406	19.94	2,980	3,876
17.39	1,194	430	19.99	3,057	4,027
17.44	1,194	454	20.04	3,134	4,182
17.49	1,194	478	20.09	3,213	4,341
17.54	1,194	501	20.14	3,292	4,503
17.59	1,194	525	20.19	3,372	4,670
17.64	1,194	549	20.24	3,454	4,841
17.69	1,194	573	20.29	3,536	5,015
17.74	1,194	597	20.34	3,619	5,194
17.79	1,194	621	20.39	3,703	5,377
17.84	1,194	645	20.44	3,789	5,565
17.89	1,194	669	20.49	3,875	5,756
17.94	1,194	693			
17.99	1,194	716			
18.04	1,194	740			
18.09	1,194	764			
18.14	1,194	788			
18.19	1,194	812			
18.24	1,194	836			
18.29	1,194	860			
18.34	1,194	884			
18.39	1,194	907			
18.44	1,194	931			
18.49	1,194	955			
18.54	1,233	1,016			
18.59	1,282	1,079			
18.64	1,332	1,144			
18.69	1,384	1,212			
18.74	1,436	1,282			
18.79	1,489	1,355			
18.84	1,543	1,431			
18.89	1,599	1,510			
18.94	1,655	1,591			
18.99	1,712	1,675			
19.04	1,770	1,762			

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Summary for Pond 2P: Bio-Swale 2

Inflow Area = 1.583 ac, 53.70% Impervious, Inflow Depth > 3.66" for 10-yr event
 Inflow = 8.98 cfs @ 11.93 hrs, Volume= 0.483 af
 Outflow = 7.02 cfs @ 12.00 hrs, Volume= 0.402 af, Atten= 22%, Lag= 4.2 min
 Primary = 7.02 cfs @ 12.00 hrs, Volume= 0.402 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.56' @ 11.99 hrs Surf.Area= 3,842 sf Storage= 5,065 cf

Plug-Flow detention time= 110.3 min calculated for 0.401 af (83% of inflow)

Center-of-Mass det. time= 37.8 min (841.9 - 804.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	7,415 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	1,543	400.0	0.0	0	0	1,543
16.10	1,543	400.0	40.0	6	6	1,547
18.09	1,543	400.0	40.0	1,228	1,234	2,343
18.10	1,543	400.0	100.0	15	1,250	2,347
20.10	4,943	450.0	100.0	6,165	7,415	5,834

Device	Routing	Invert	Outlet Devices
#1	Primary	18.10'	15.0" Round x3 15" Dual Wall HDPE X 3.00 L= 52.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.10' / 18.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	19.10'	16.3' long MDOT SHA 374.70 2 End Contraction(s)

Primary OutFlow Max=7.00 cfs @ 12.00 hrs HW=19.56' TW=19.41' (Dynamic Tailwater)

1=x3 15" Dual Wall HDPE (Inlet Controls 7.00 cfs @ 1.90 fps)

2=MDOT SHA 374.70 (Passes 7.00 cfs of 12.37 cfs potential flow)

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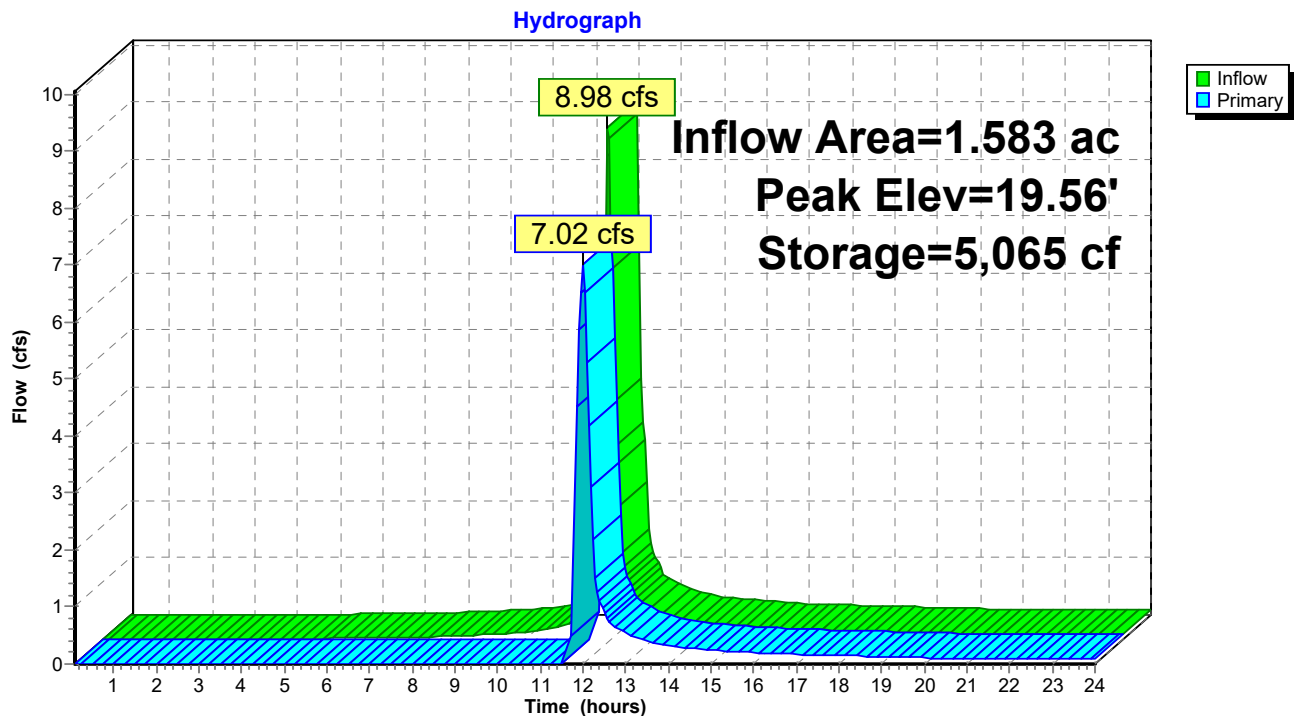
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Pond 2P: Bio-Swale 2



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Stage-Area-Storage for Pond 2P: Bio-Swale 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	1,543	0	18.69	2,346	2,389
16.14	1,543	31	18.74	2,422	2,508
16.19	1,543	62	18.79	2,498	2,631
16.24	1,543	93	18.84	2,577	2,758
16.29	1,543	123	18.89	2,656	2,889
16.34	1,543	154	18.94	2,737	3,023
16.39	1,543	185	18.99	2,818	3,162
16.44	1,543	216	19.04	2,901	3,305
16.49	1,543	247	19.09	2,985	3,452
16.54	1,543	278	19.14	3,071	3,604
16.59	1,543	309	19.19	3,157	3,760
16.64	1,543	339	19.24	3,245	3,920
16.69	1,543	370	19.29	3,334	4,084
16.74	1,543	401	19.34	3,424	4,253
16.79	1,543	432	19.39	3,516	4,427
16.84	1,543	463	19.44	3,608	4,605
16.89	1,543	494	19.49	3,702	4,787
16.94	1,543	525	19.54	3,797	4,975
16.99	1,543	555	19.59	3,893	5,167
17.04	1,543	586	19.64	3,991	5,364
17.09	1,543	617	19.69	4,089	5,566
17.14	1,543	648	19.74	4,189	5,773
17.19	1,543	679	19.79	4,290	5,985
17.24	1,543	710	19.84	4,392	6,202
17.29	1,543	741	19.89	4,496	6,424
17.34	1,543	772	19.94	4,600	6,652
17.39	1,543	802	19.99	4,706	6,884
17.44	1,543	833	20.04	4,813	7,122
17.49	1,543	864	20.09	4,921	7,366
17.54	1,543	895			
17.59	1,543	926			
17.64	1,543	957			
17.69	1,543	988			
17.74	1,543	1,018			
17.79	1,543	1,049			
17.84	1,543	1,080			
17.89	1,543	1,111			
17.94	1,543	1,142			
17.99	1,543	1,173			
18.04	1,543	1,204			
18.09	1,543	1,234			
18.14	1,592	1,313			
18.19	1,655	1,394			
18.24	1,718	1,478			
18.29	1,783	1,566			
18.34	1,849	1,656			
18.39	1,917	1,751			
18.44	1,985	1,848			
18.49	2,055	1,949			
18.54	2,126	2,054			
18.59	2,198	2,162			
18.64	2,271	2,273			

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Summary for Pond 3P: Bio-Swale 3

Inflow Area = 2.318 ac, 59.45% Impervious, Inflow Depth > 3.50" for 10-yr event
 Inflow = 11.77 cfs @ 11.95 hrs, Volume= 0.677 af
 Outflow = 11.12 cfs @ 11.97 hrs, Volume= 0.645 af, Atten= 6%, Lag= 1.7 min
 Primary = 11.12 cfs @ 11.97 hrs, Volume= 0.645 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.41' @ 11.99 hrs Surf.Area= 2,236 sf Storage= 2,785 cf

Plug-Flow detention time= 45.0 min calculated for 0.644 af (95% of inflow)

Center-of-Mass det. time= 18.8 min (831.7 - 812.9)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	4,635 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	944	249.0	0.0	0	0	944
16.10	944	249.0	40.0	4	4	946
18.09	944	249.0	40.0	751	755	1,442
18.10	944	249.0	100.0	9	765	1,444
20.10	3,140	300.0	100.0	3,870	4,635	3,739

Device	Routing	Invert	Outlet Devices
#1	Primary	18.10'	15.0" Round x3 15" Dual Wall HDPE X 4.00 L= 44.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.10' / 18.10' S= 0.0000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	18.60'	16.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=10.90 cfs @ 11.97 hrs HW=19.40' TW=19.16' (Dynamic Tailwater)

1=x3 15" Dual Wall HDPE (Outlet Controls 10.90 cfs @ 2.66 fps)

2=Sharp-Crested Rectangular Weir (Passes 10.90 cfs of 26.70 cfs potential flow)

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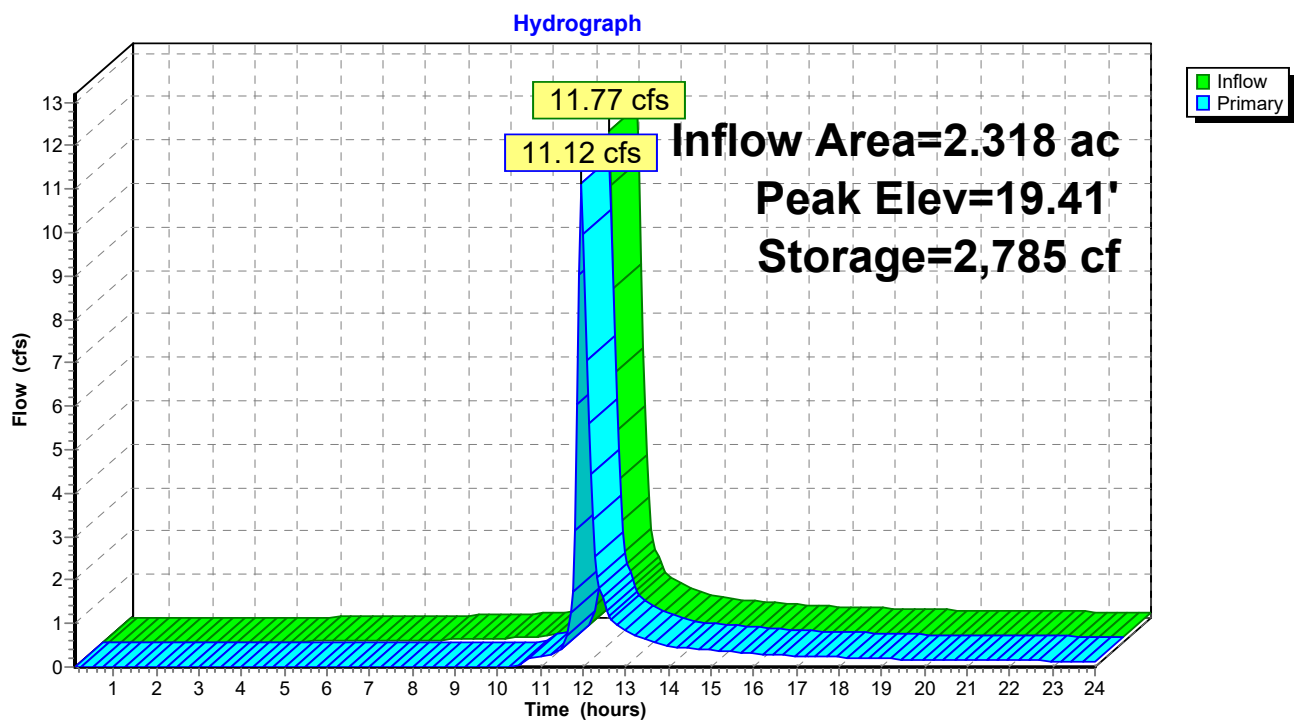
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Pond 3P: Bio-Swale 3



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Stage-Area-Storage for Pond 3P: Bio-Swale 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	944	0	18.69	1,459	1,468
16.14	944	19	18.74	1,507	1,542
16.19	944	38	18.79	1,557	1,619
16.24	944	57	18.84	1,607	1,698
16.29	944	76	18.89	1,658	1,779
16.34	944	94	18.94	1,710	1,864
16.39	944	113	18.99	1,763	1,950
16.44	944	132	19.04	1,817	2,040
16.49	944	151	19.09	1,871	2,132
16.54	944	170	19.14	1,926	2,227
16.59	944	189	19.19	1,982	2,325
16.64	944	208	19.24	2,039	2,425
16.69	944	227	19.29	2,096	2,529
16.74	944	245	19.34	2,155	2,635
16.79	944	264	19.39	2,214	2,744
16.84	944	283	19.44	2,274	2,856
16.89	944	302	19.49	2,334	2,971
16.94	944	321	19.54	2,396	3,090
16.99	944	340	19.59	2,458	3,211
17.04	944	359	19.64	2,521	3,336
17.09	944	378	19.69	2,585	3,463
17.14	944	396	19.74	2,650	3,594
17.19	944	415	19.79	2,716	3,728
17.24	944	434	19.84	2,782	3,866
17.29	944	453	19.89	2,849	4,006
17.34	944	472	19.94	2,917	4,151
17.39	944	491	19.99	2,986	4,298
17.44	944	510	20.04	3,055	4,449
17.49	944	529	20.09	3,126	4,604
17.54	944	548			
17.59	944	566			
17.64	944	585			
17.69	944	604			
17.74	944	623			
17.79	944	642			
17.84	944	661			
17.89	944	680			
17.94	944	699			
17.99	944	717			
18.04	944	736			
18.09	944	755			
18.14	975	803			
18.19	1,015	853			
18.24	1,056	905			
18.29	1,098	958			
18.34	1,140	1,014			
18.39	1,183	1,072			
18.44	1,227	1,133			
18.49	1,272	1,195			
18.54	1,317	1,260			
18.59	1,364	1,327			
18.64	1,411	1,396			

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Type II 24-hr 10-yr Rainfall=5.30"

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Summary for Pond 4P: Bio-Swale 4

Inflow Area = 2.318 ac, 59.45% Impervious, Inflow Depth > 3.34" for 10-yr event
 Inflow = 11.12 cfs @ 11.97 hrs, Volume= 0.645 af
 Outflow = 10.86 cfs @ 11.98 hrs, Volume= 0.624 af, Atten= 2%, Lag= 0.4 min
 Primary = 10.86 cfs @ 11.98 hrs, Volume= 0.624 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.18' @ 12.04 hrs Surf.Area= 1,365 sf Storage= 1,568 cf

Plug-Flow detention time= 26.5 min calculated for 0.622 af (96% of inflow)

Center-of-Mass det. time= 7.7 min (839.4 - 831.7)

Volume	Invert	Avail.Storage	Storage Description
#1	16.09'	3,192 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	633	171.0	0.0	0	0	633
16.10	633	171.0	40.0	3	3	635
18.09	633	171.0	40.0	504	506	975
18.10	633	171.0	100.0	6	513	977
20.10	2,204	221.0	100.0	2,679	3,192	2,585

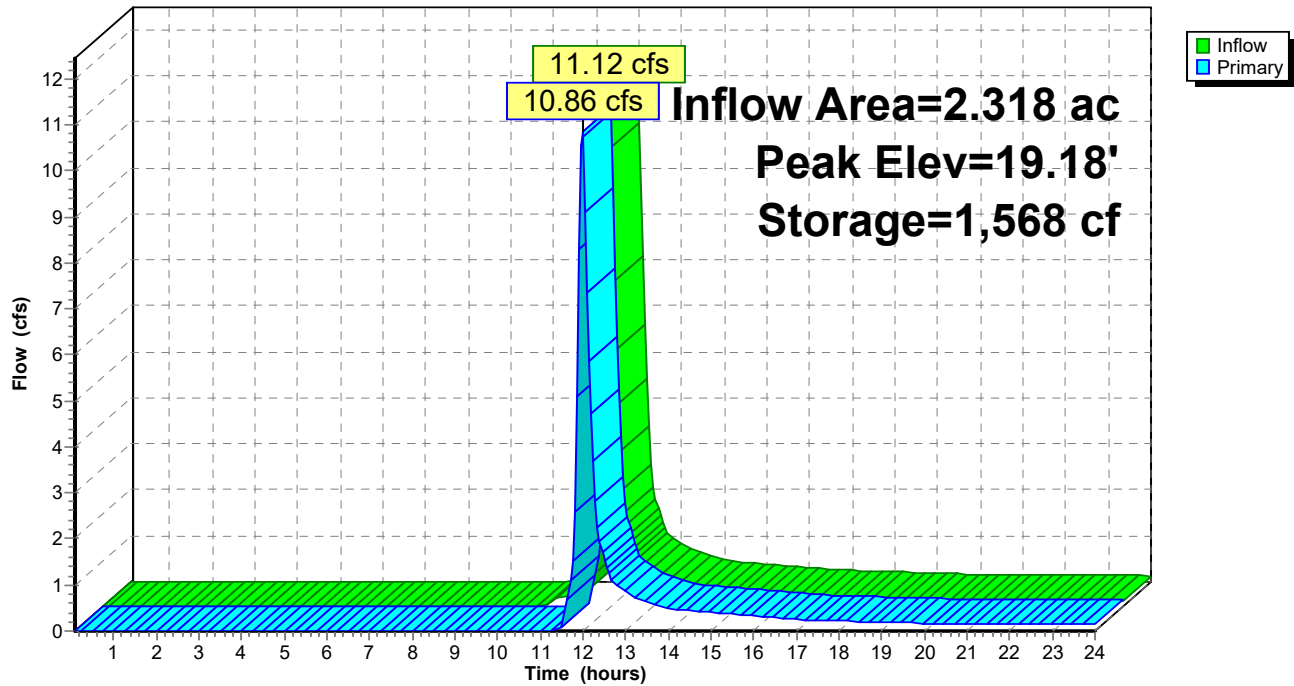
Device	Routing	Invert	Outlet Devices
#1	Primary	18.60'	10.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=11.01 cfs @ 11.98 hrs HW=19.16' TW=18.66' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 11.01 cfs @ 1.96 fps)

Pond 4P: Bio-Swale 4

Hydrograph



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Stage-Area-Storage for Pond 4P: Bio-Swale 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	633	0	18.69	998	990
16.14	633	13	18.74	1,032	1,040
16.19	633	25	18.79	1,068	1,093
16.24	633	38	18.84	1,104	1,147
16.29	633	51	18.89	1,140	1,203
16.34	633	63	18.94	1,177	1,261
16.39	633	76	18.99	1,215	1,321
16.44	633	89	19.04	1,253	1,383
16.49	633	101	19.09	1,292	1,446
16.54	633	114	19.14	1,331	1,512
16.59	633	127	19.19	1,371	1,580
16.64	633	139	19.24	1,412	1,649
16.69	633	152	19.29	1,453	1,721
16.74	633	165	19.34	1,495	1,794
16.79	633	177	19.39	1,538	1,870
16.84	633	190	19.44	1,581	1,948
16.89	633	203	19.49	1,624	2,028
16.94	633	215	19.54	1,668	2,111
16.99	633	228	19.59	1,713	2,195
17.04	633	241	19.64	1,759	2,282
17.09	633	253	19.69	1,805	2,371
17.14	633	266	19.74	1,851	2,462
17.19	633	279	19.79	1,898	2,556
17.24	633	291	19.84	1,946	2,652
17.29	633	304	19.89	1,994	2,751
17.34	633	317	19.94	2,043	2,852
17.39	633	329	19.99	2,093	2,955
17.44	633	342	20.04	2,143	3,061
17.49	633	354	20.09	2,194	3,170
17.54	633	367			
17.59	633	380			
17.64	633	392			
17.69	633	405			
17.74	633	418			
17.79	633	430			
17.84	633	443			
17.89	633	456			
17.94	633	468			
17.99	633	481			
18.04	633	494			
18.09	633	506			
18.14	655	538			
18.19	683	572			
18.24	712	607			
18.29	741	643			
18.34	771	681			
18.39	802	720			
18.44	833	761			
18.49	865	804			
18.54	897	848			
18.59	930	893			
18.64	964	941			

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Summary for Pond 5P: SGW 1

Inflow Area = 3.889 ac, 58.88% Impervious, Inflow Depth > 3.61" for 10-yr event
 Inflow = 20.98 cfs @ 11.93 hrs, Volume= 1.169 af
 Outflow = 7.73 cfs @ 12.14 hrs, Volume= 0.857 af, Atten= 63%, Lag= 12.7 min
 Primary = 7.73 cfs @ 12.14 hrs, Volume= 0.857 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.03' @ 12.14 hrs Surf.Area= 10,548 sf Storage= 22,287 cf

Plug-Flow detention time= 214.7 min calculated for 0.857 af (73% of inflow)

Center-of-Mass det. time= 120.1 min (932.5 - 812.4)

Volume	Invert	Avail.Storage	Storage Description		
#1	16.45'	38,893 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.45	6,846	329.0	0	0	6,846
20.45	12,919	429.0	38,893	38,893	13,066

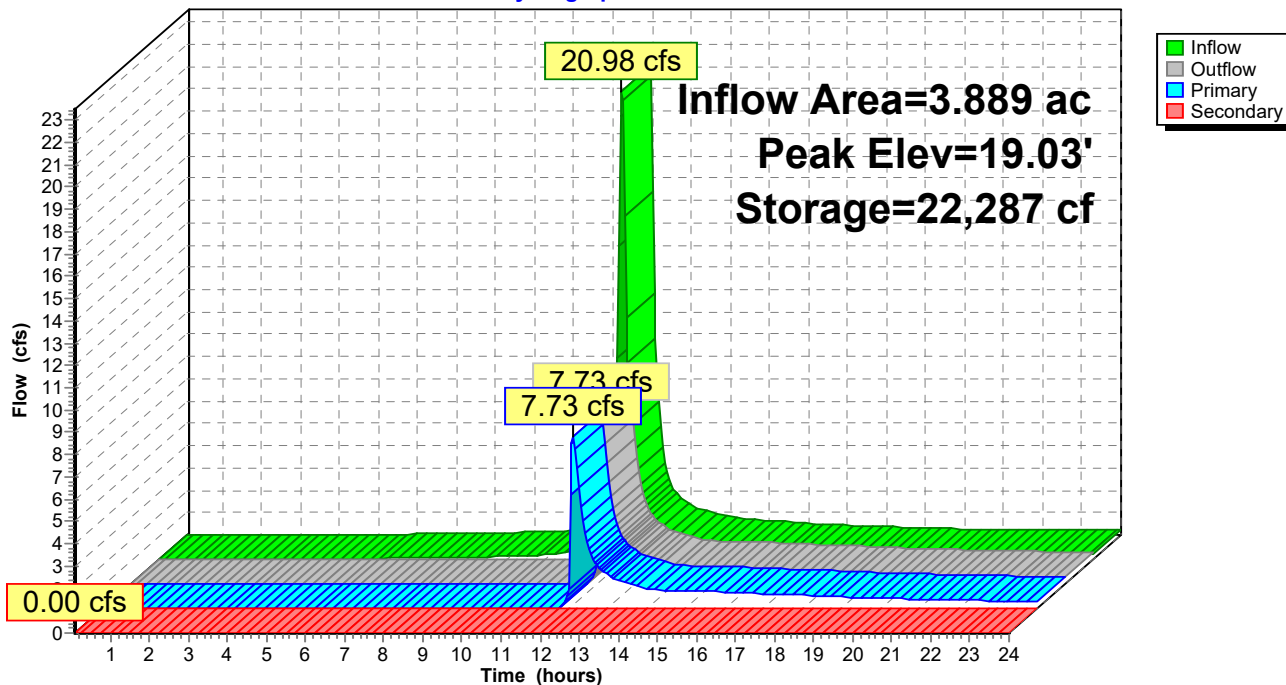
Device	Routing	Invert	Outlet Devices
#1	Primary	16.11'	12.0" Round 12" Dual Wall HPDE X 2.00 L= 115.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 16.11' / 16.00' S= 0.0010 ' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	17.45'	2.0" W x 16.0" H Vert. 2" Notch C= 0.600
#3	Device 1	18.78'	16.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Secondary	19.95'	10.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=7.68 cfs @ 12.14 hrs HW=19.03' TW=0.00' (Dynamic Tailwater)

Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=16.45' TW=0.00' (Dynamic Tailwater)

Pond 5P: SGW 1

Hydrograph



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Stage-Area-Storage for Pond 5P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.45	6,846	0	19.05	10,576	22,473
16.50	6,910	344	19.10	10,656	23,004
16.55	6,975	691	19.15	10,736	23,539
16.60	7,039	1,041	19.20	10,816	24,078
16.65	7,104	1,395	19.25	10,896	24,621
16.70	7,170	1,752	19.30	10,977	25,167
16.75	7,235	2,112	19.35	11,058	25,718
16.80	7,301	2,475	19.40	11,140	26,273
16.85	7,367	2,842	19.45	11,221	26,832
16.90	7,434	3,212	19.50	11,304	27,395
16.95	7,501	3,585	19.55	11,386	27,963
17.00	7,568	3,962	19.60	11,468	28,534
17.05	7,635	4,342	19.65	11,551	29,110
17.10	7,703	4,726	19.70	11,635	29,689
17.15	7,771	5,112	19.75	11,718	30,273
17.20	7,839	5,503	19.80	11,802	30,861
17.25	7,908	5,896	19.85	11,886	31,453
17.30	7,977	6,293	19.90	11,971	32,050
17.35	8,046	6,694	19.95	12,055	32,650
17.40	8,115	7,098	20.00	12,140	33,255
17.45	8,185	7,506	20.05	12,226	33,864
17.50	8,255	7,917	20.10	12,311	34,478
17.55	8,325	8,331	20.15	12,397	35,095
17.60	8,396	8,749	20.20	12,483	35,717
17.65	8,467	9,171	20.25	12,570	36,344
17.70	8,538	9,596	20.30	12,657	36,974
17.75	8,610	10,025	20.35	12,744	37,609
17.80	8,682	10,457	20.40	12,831	38,249
17.85	8,754	10,893	20.45	12,919	38,893
17.90	8,827	11,332			
17.95	8,899	11,775			
18.00	8,972	12,222			
18.05	9,046	12,673			
18.10	9,119	13,127			
18.15	9,193	13,585			
18.20	9,268	14,046			
18.25	9,342	14,511			
18.30	9,417	14,980			
18.35	9,492	15,453			
18.40	9,568	15,930			
18.45	9,643	16,410			
18.50	9,720	16,894			
18.55	9,796	17,382			
18.60	9,873	17,873			
18.65	9,950	18,369			
18.70	10,027	18,868			
18.75	10,104	19,372			
18.80	10,182	19,879			
18.85	10,260	20,390			
18.90	10,339	20,905			
18.95	10,418	21,424			
19.00	10,497	21,947			

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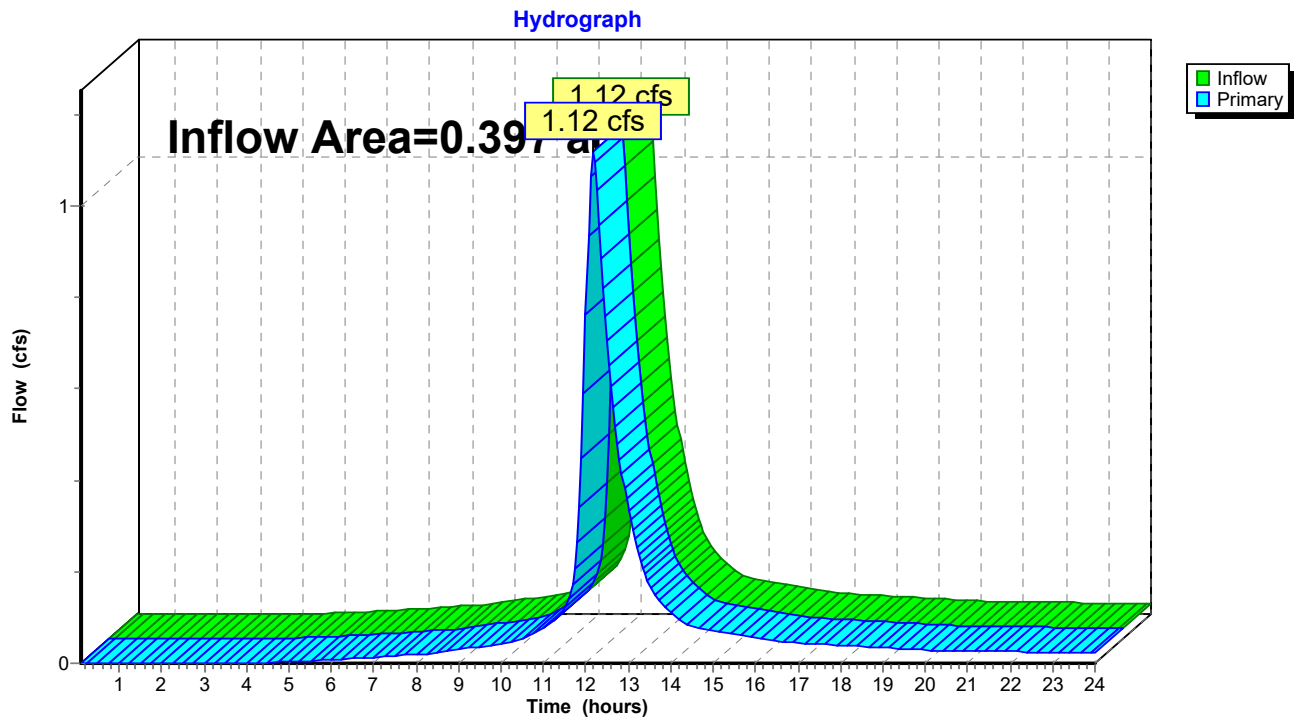
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Summary for Link 1L: POI #1 (Pre)

Inflow Area = 0.397 ac, 0.00% Impervious, Inflow Depth > 4.14" for 10-yr event
Inflow = 1.12 cfs @ 12.16 hrs, Volume= 0.137 af
Primary = 1.12 cfs @ 12.16 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 1L: POI #1 (Pre)



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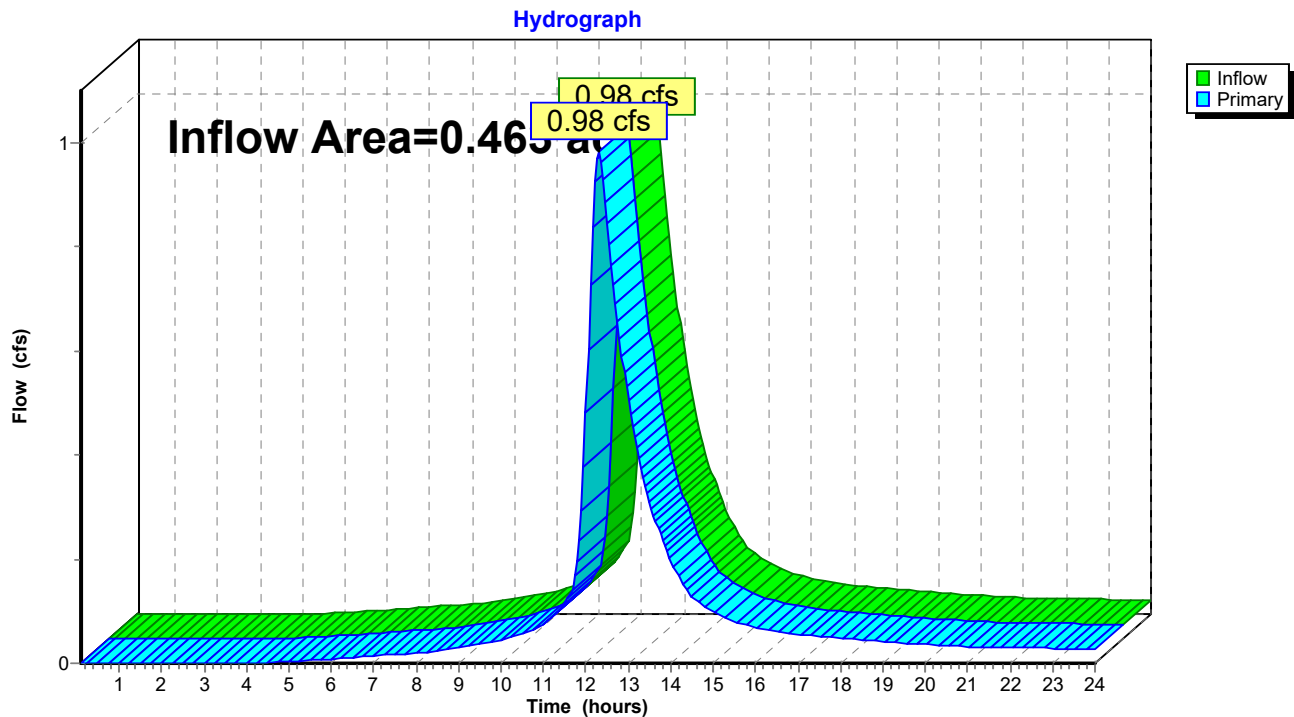
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Summary for Link 2L: POI #2 (Pre)

Inflow Area = 0.463 ac, 0.00% Impervious, Inflow Depth > 4.12" for 10-yr event
Inflow = 0.98 cfs @ 12.30 hrs, Volume= 0.159 af
Primary = 0.98 cfs @ 12.30 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 2L: POI #2 (Pre)



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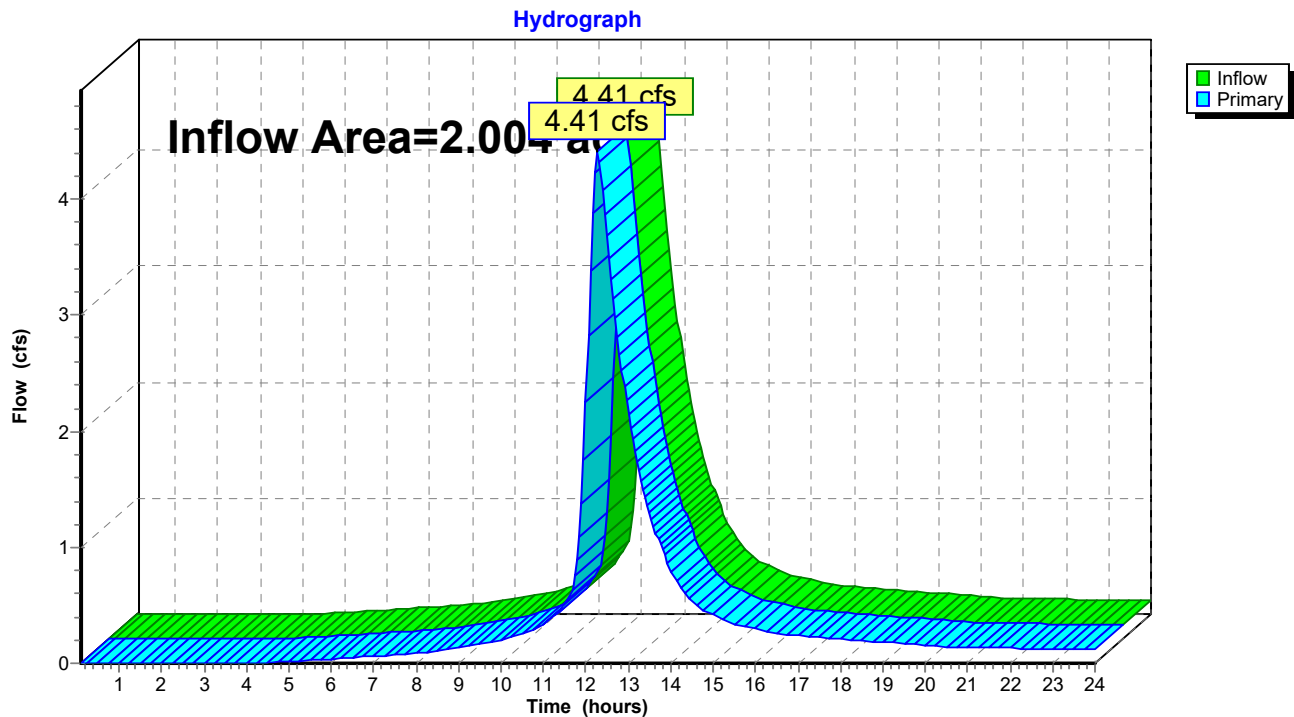
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Summary for Link 3L: POI #3 (Pre)

Inflow Area = 2.004 ac, 0.00% Impervious, Inflow Depth > 4.12" for 10-yr event
Inflow = 4.41 cfs @ 12.27 hrs, Volume= 0.688 af
Primary = 4.41 cfs @ 12.27 hrs, Volume= 0.688 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 3L: POI #3 (Pre)



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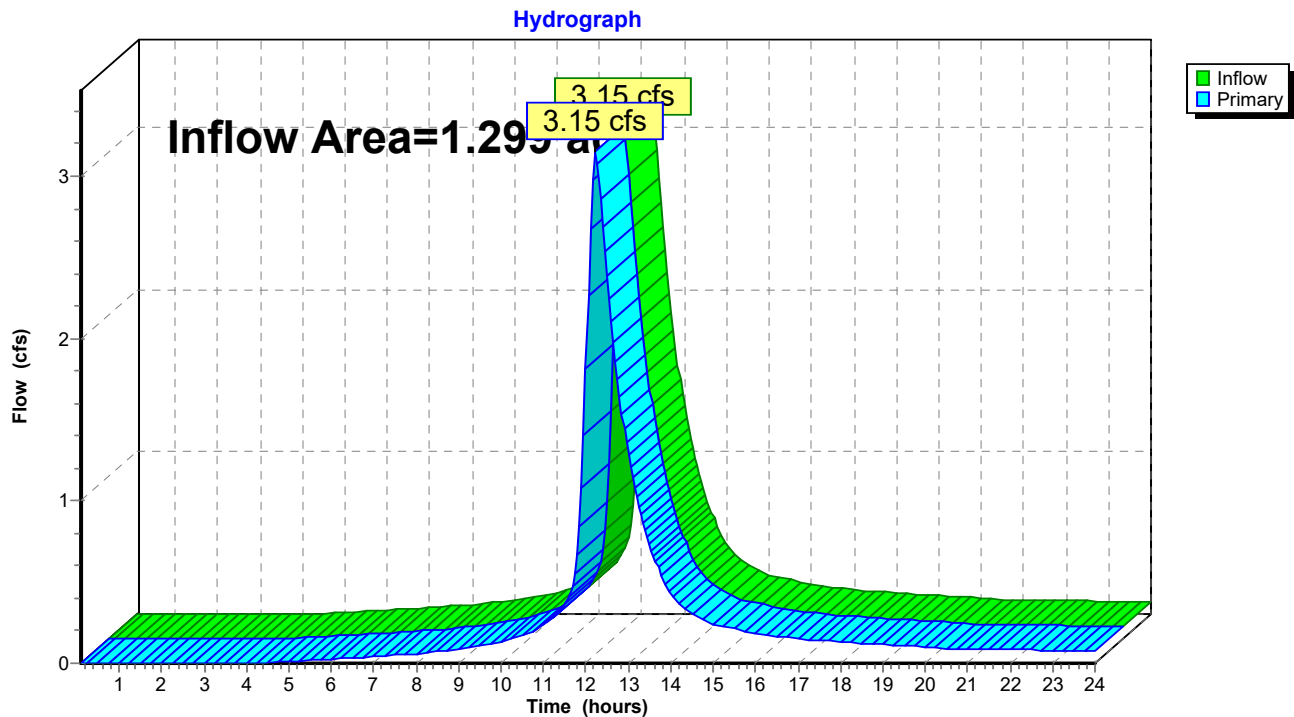
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Summary for Link 4L: POI #4 (Pre)

Inflow Area = 1.299 ac, 0.00% Impervious, Inflow Depth > 4.13" for 10-yr event
Inflow = 3.15 cfs @ 12.22 hrs, Volume= 0.447 af
Primary = 3.15 cfs @ 12.22 hrs, Volume= 0.447 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 4L: POI #4 (Pre)



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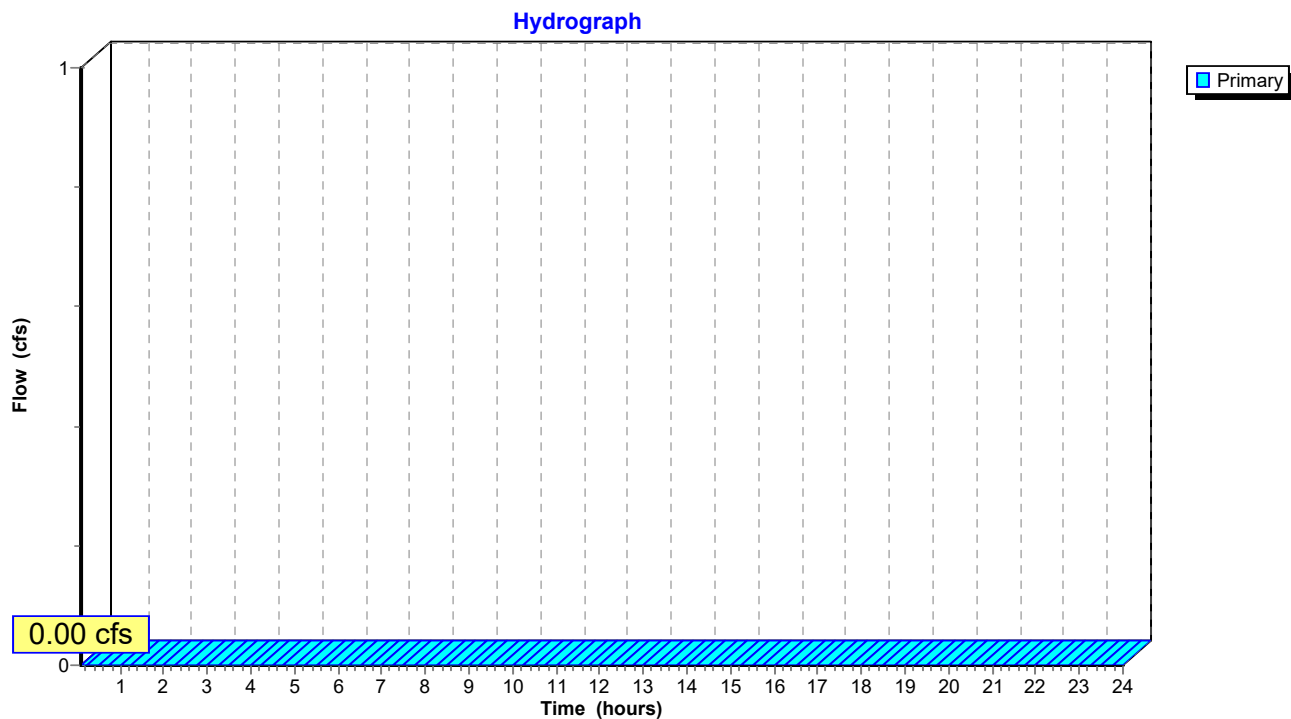
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Summary for Link 5L: POI #1 (Post)

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 5L: POI #1 (Post)



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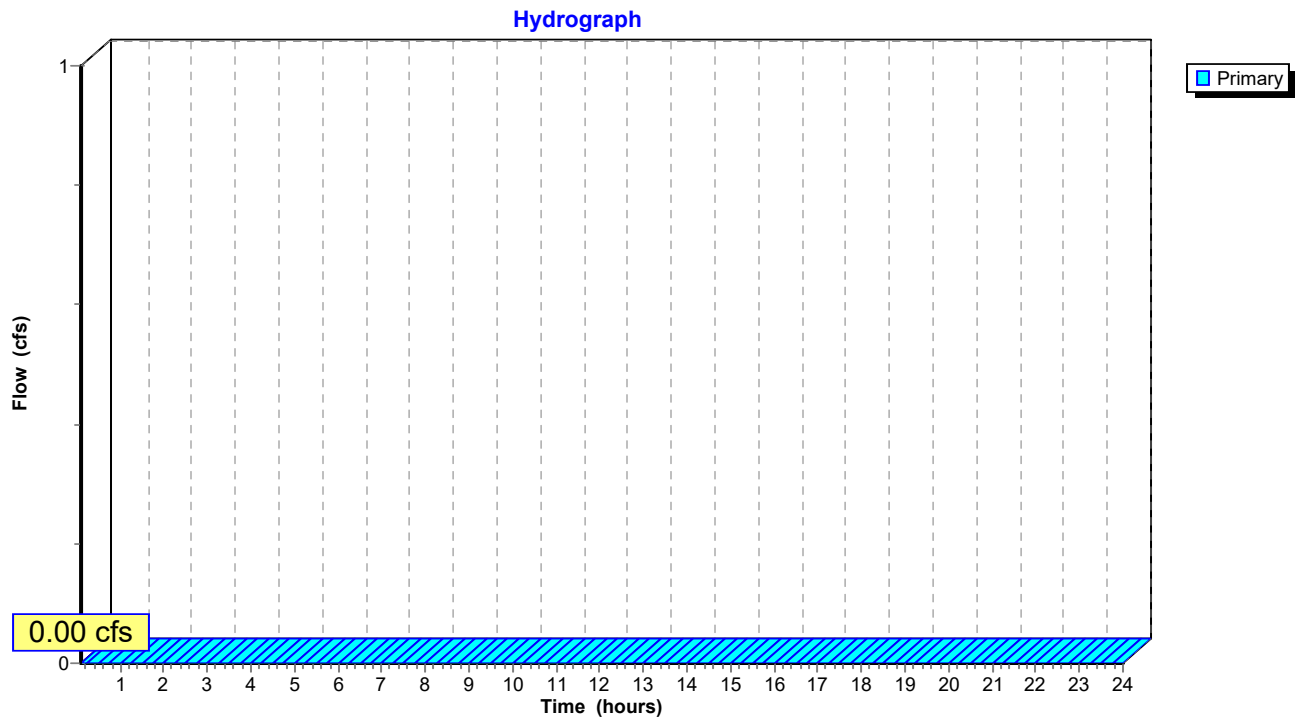
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Summary for Link 6L: POI #2 (Post)

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 6L: POI #2 (Post)



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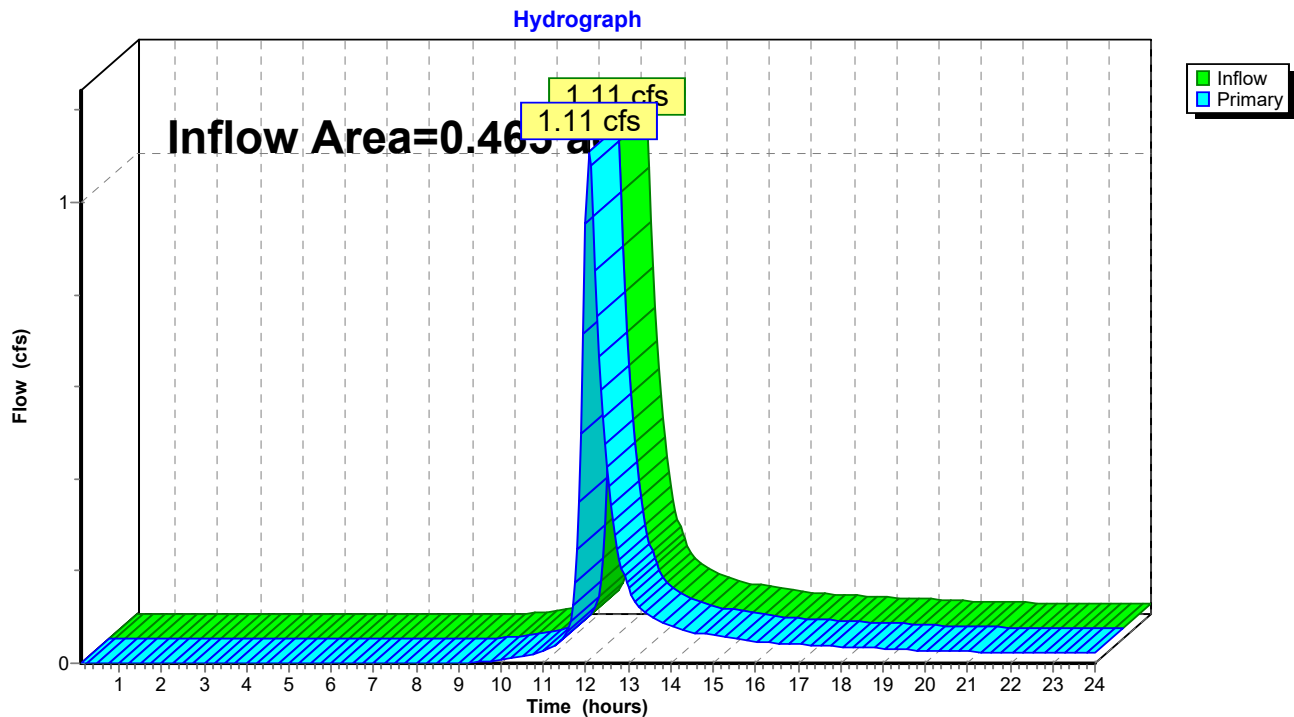
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Summary for Link 7L: POI #3 (Post)

Inflow Area = 0.465 ac, 0.00% Impervious, Inflow Depth > 2.50" for 10-yr event
Inflow = 1.11 cfs @ 12.07 hrs, Volume= 0.097 af
Primary = 1.11 cfs @ 12.07 hrs, Volume= 0.097 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 7L: POI #3 (Post)



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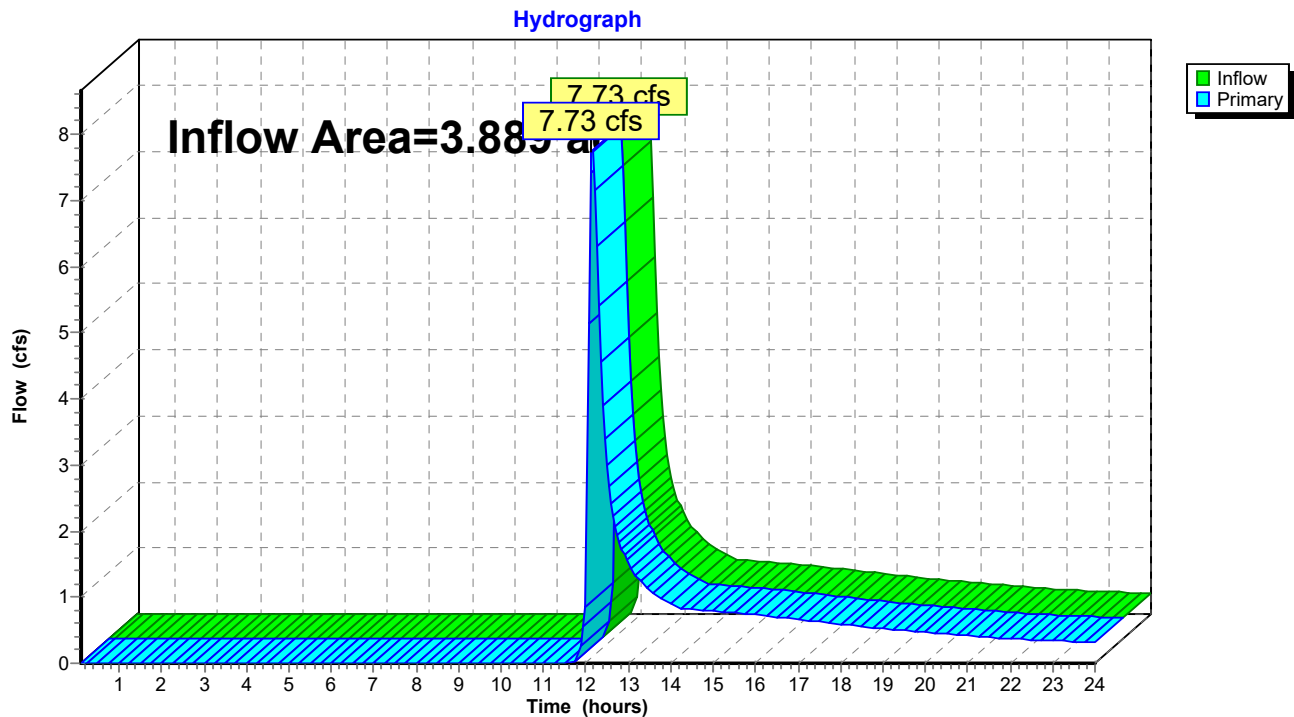
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Summary for Link 8L: POI #4 (Post)

Inflow Area = 3.889 ac, 58.88% Impervious, Inflow Depth > 2.64" for 10-yr event
Inflow = 7.73 cfs @ 12.14 hrs, Volume= 0.857 af
Primary = 7.73 cfs @ 12.14 hrs, Volume= 0.857 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 8L: POI #4 (Post)



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Type II 24-hr 100-yr Rainfall=7.60"

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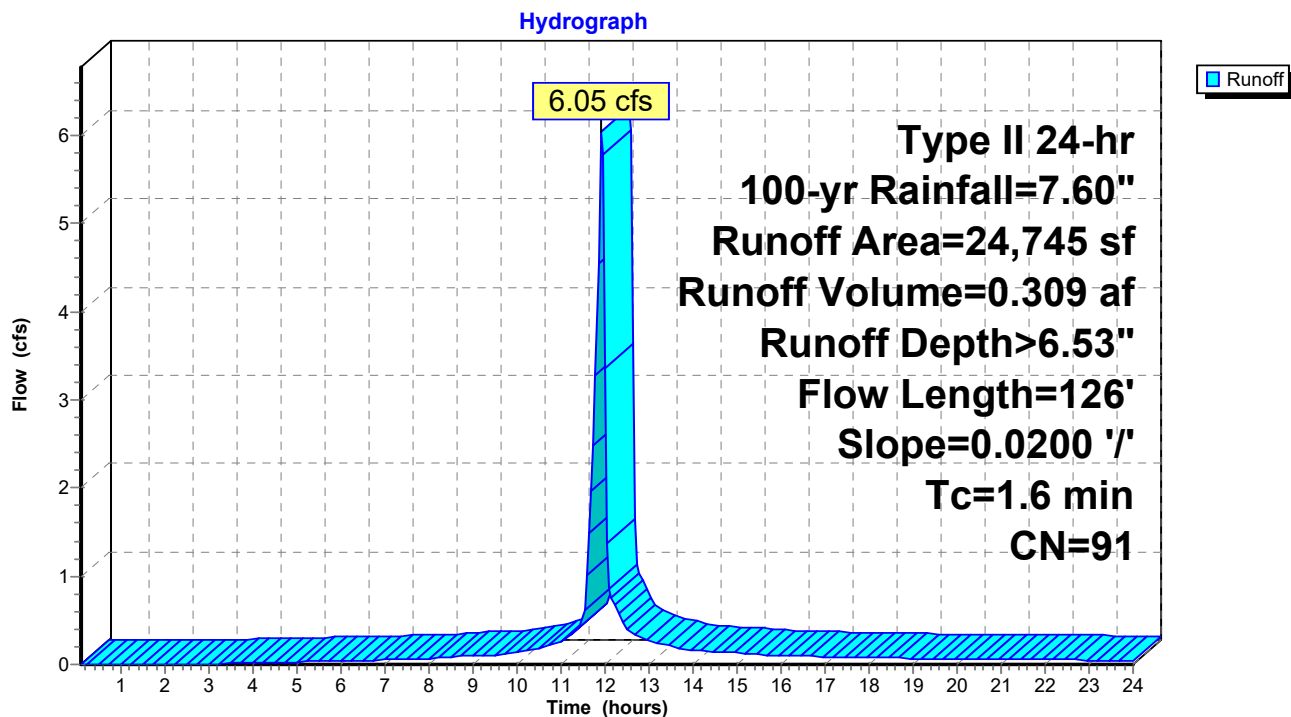
Summary for Subcatchment DA1: Green

Runoff = 6.05 cfs @ 11.92 hrs, Volume= 0.309 af, Depth> 6.53"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	14,945	98	Roof & Parking
	9,800	80	>75% Grass cover, Good, HSG D
	24,745	91	Weighted Average
	9,800		39.60% Pervious Area
	14,945		60.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.0	86	0.0200	1.38		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
1.6	126	Total			

Subcatchment DA1: Green

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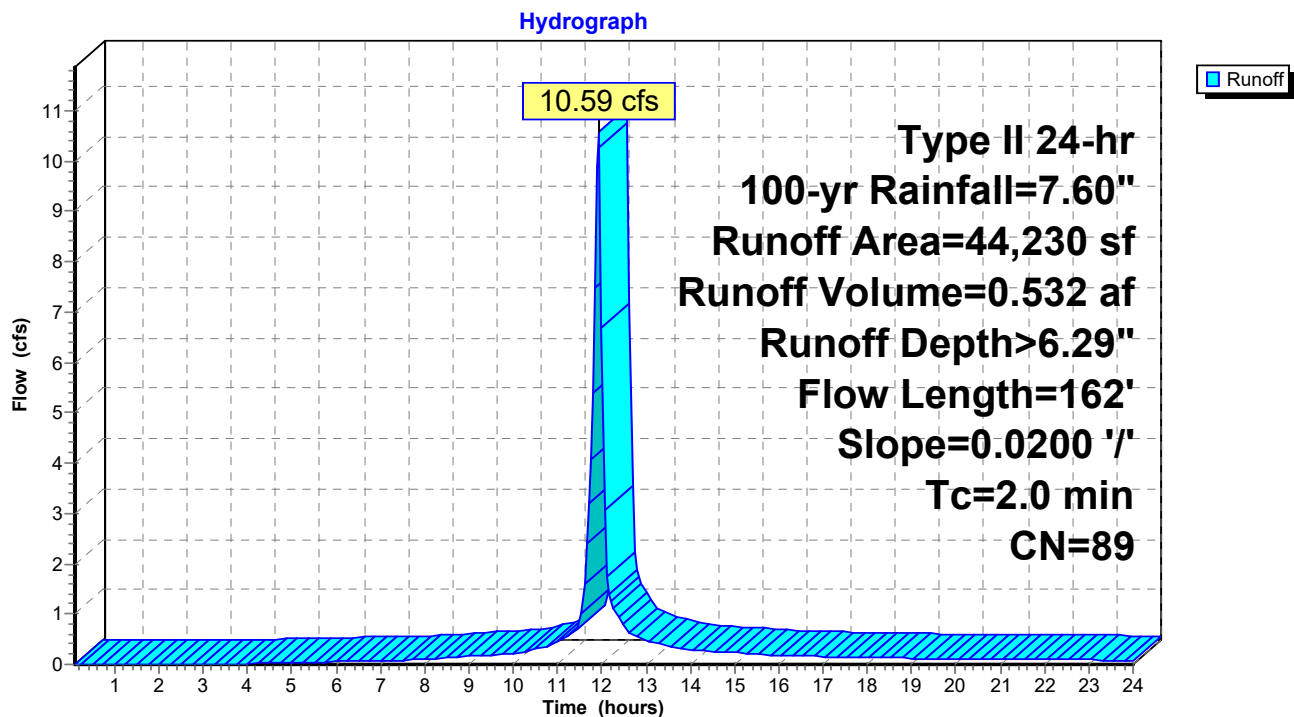
Summary for Subcatchment DA2: Magenta

Runoff = 10.59 cfs @ 11.93 hrs, Volume= 0.532 af, Depth> 6.29"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	22,094	98	Roof & Parking
	22,136	80	>75% Grass cover, Good, HSG D
	44,230	89	Weighted Average
	22,136		50.05% Pervious Area
	22,094		49.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	40	0.0200	1.18		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.4	122	0.0200	1.48		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
2.0	162	Total			

Subcatchment DA2: Magenta

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Summary for Subcatchment DA3: Orange

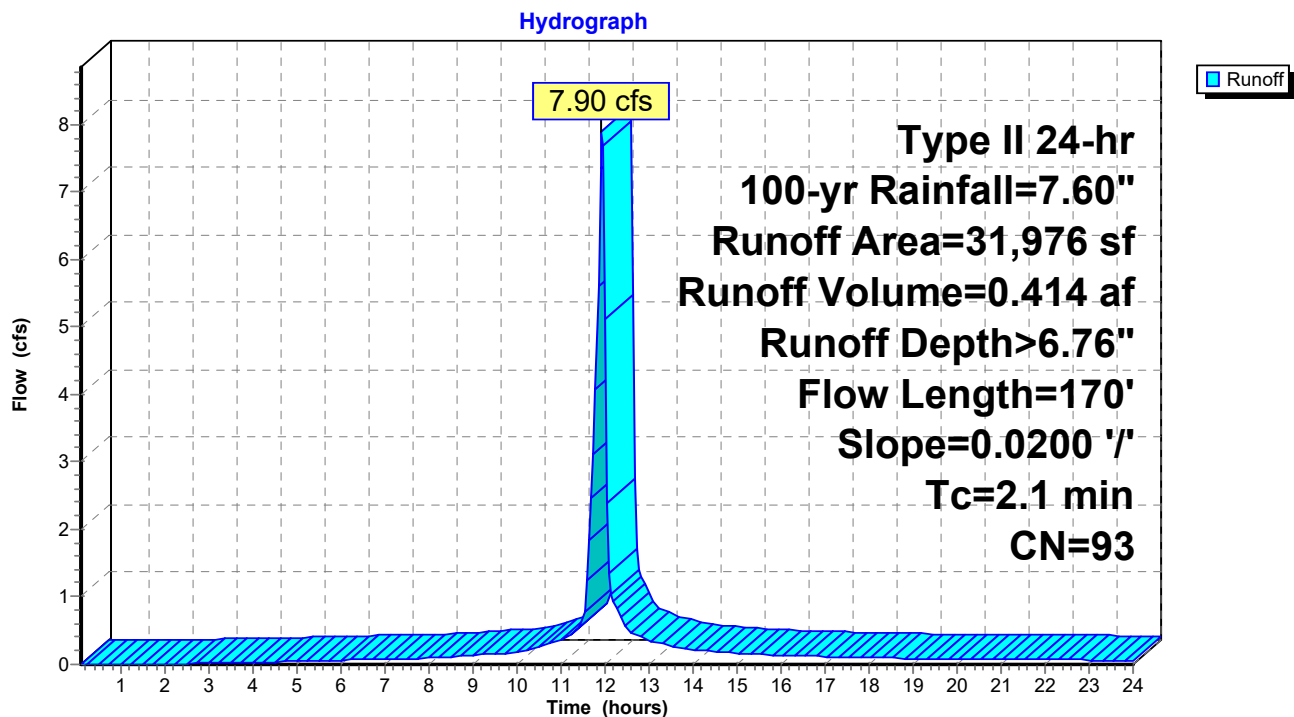
Runoff = 7.90 cfs @ 11.93 hrs, Volume= 0.414 af, Depth> 6.76"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	22,972	98	Parking & Roof
	9,004	80	>75% Grass cover, Good, HSG D
	31,976	93	Weighted Average
	9,004		28.16% Pervious Area
	22,972		71.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.23		Sheet Flow, Roof
					Smooth surfaces n= 0.011 P2= 3.40"
1.4	120	0.0200	1.47		Sheet Flow, Asphalt
					Smooth surfaces n= 0.011 P2= 3.40"
2.1	170	Total			

Subcatchment DA3: Orange



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Summary for Subcatchment DA4: Blue

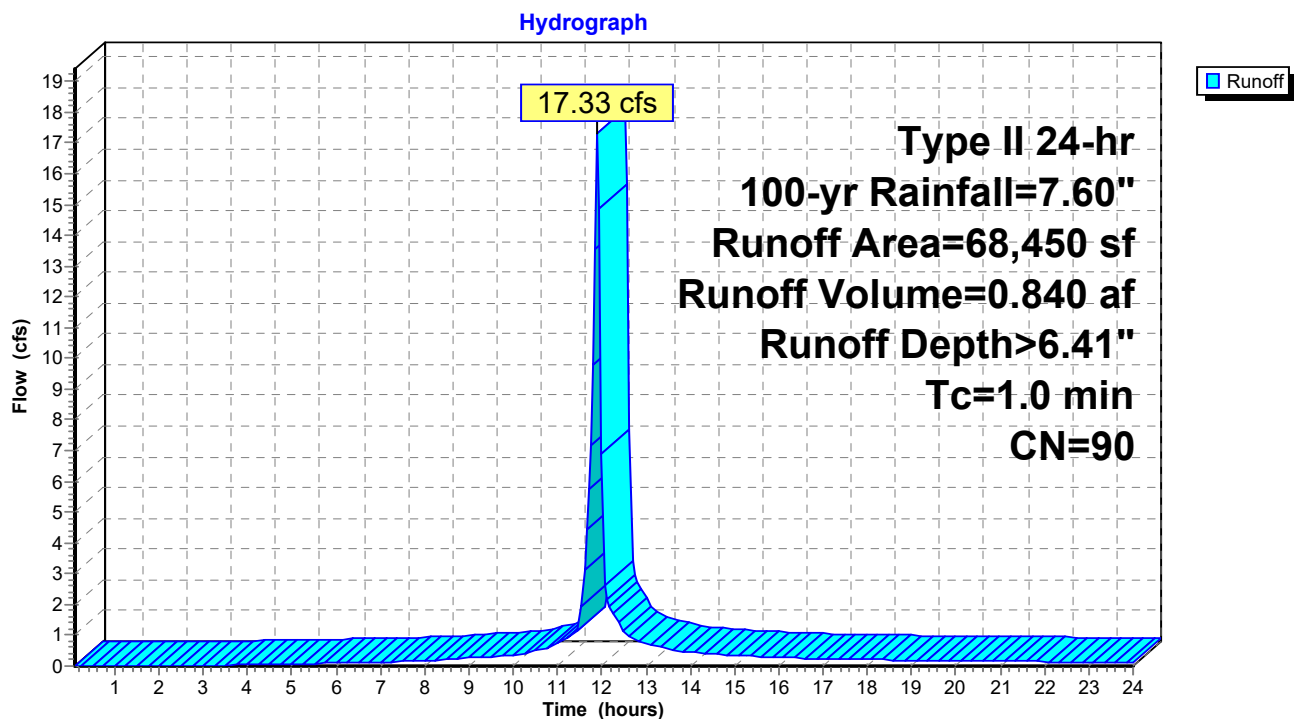
Runoff = 17.33 cfs @ 11.91 hrs, Volume= 0.840 af, Depth> 6.41"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	39,727	98	Roof & Parking
	28,723	80	>75% Grass cover, Good, HSG D
	68,450	90	Weighted Average
	28,723		41.96% Pervious Area
	39,727		58.04% Impervious Area

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

Subcatchment DA4: Blue



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Summary for Subcatchment DA5: Residue Landscape Area (Yellow)

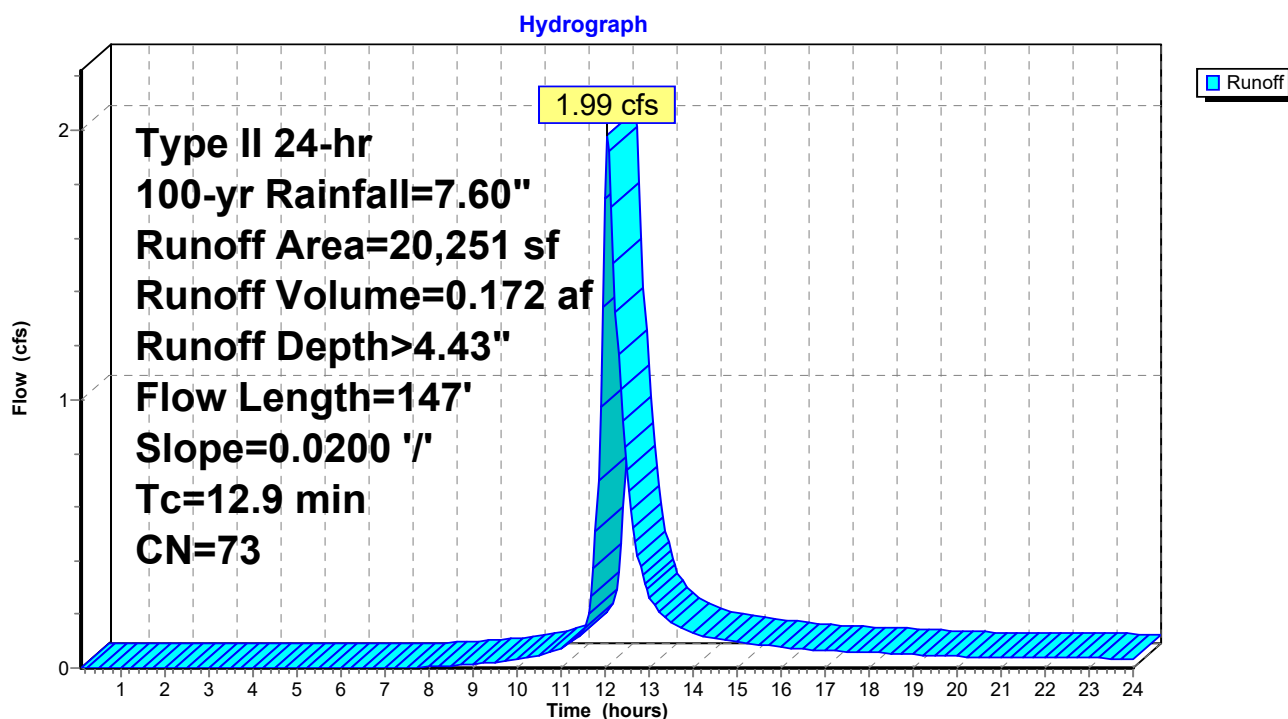
Runoff = 1.99 cfs @ 12.07 hrs, Volume= 0.172 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
20,251	73	Brush, Good, HSG D
20,251		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	147	0.0200	0.19		Sheet Flow, Landscaped Area Grass: Short n= 0.150 P2= 3.40"

Subcatchment DA5: Residue Landscape Area (Yellow)



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Summary for Subcatchment EX-1: Ex. AG Field

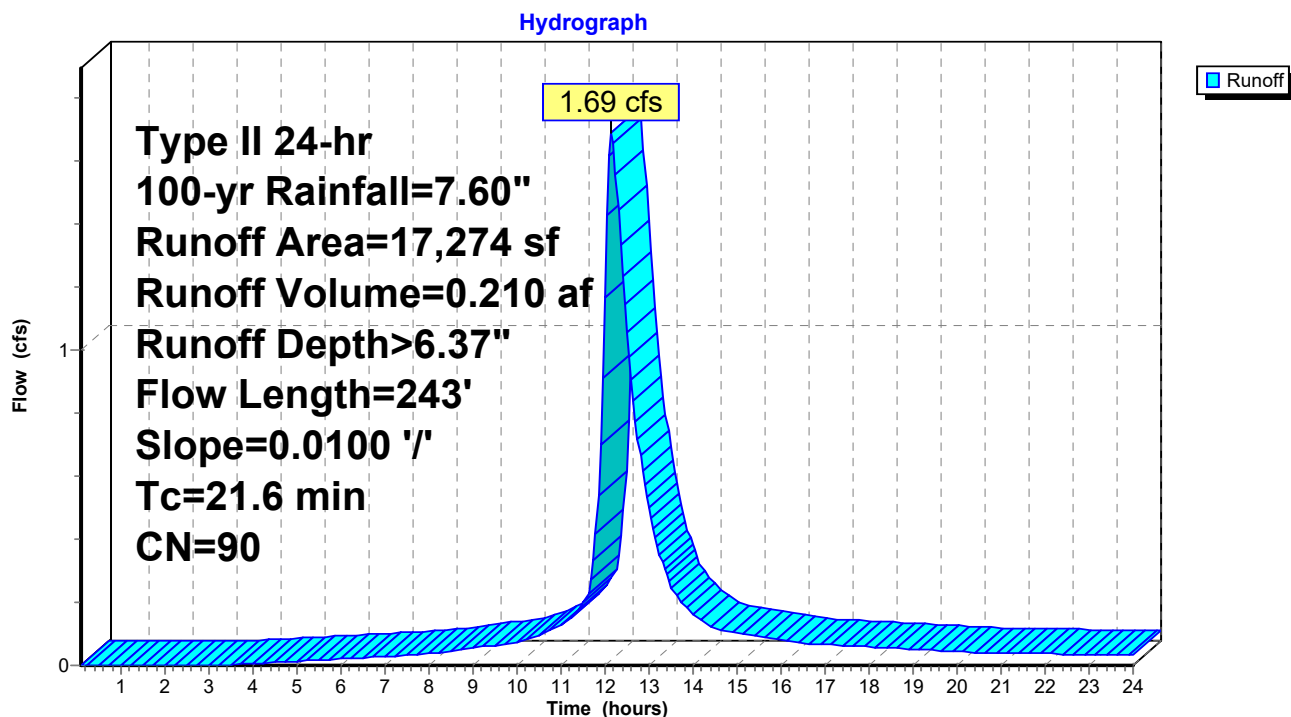
Runoff = 1.69 cfs @ 12.16 hrs, Volume= 0.210 af, Depth> 6.37"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
17,274	90	Fallow, crop residue, Good, HSG D
17,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	169	0.0100	0.13		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.5	74	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
21.6	243	Total			

Subcatchment EX-1: Ex. AG Field



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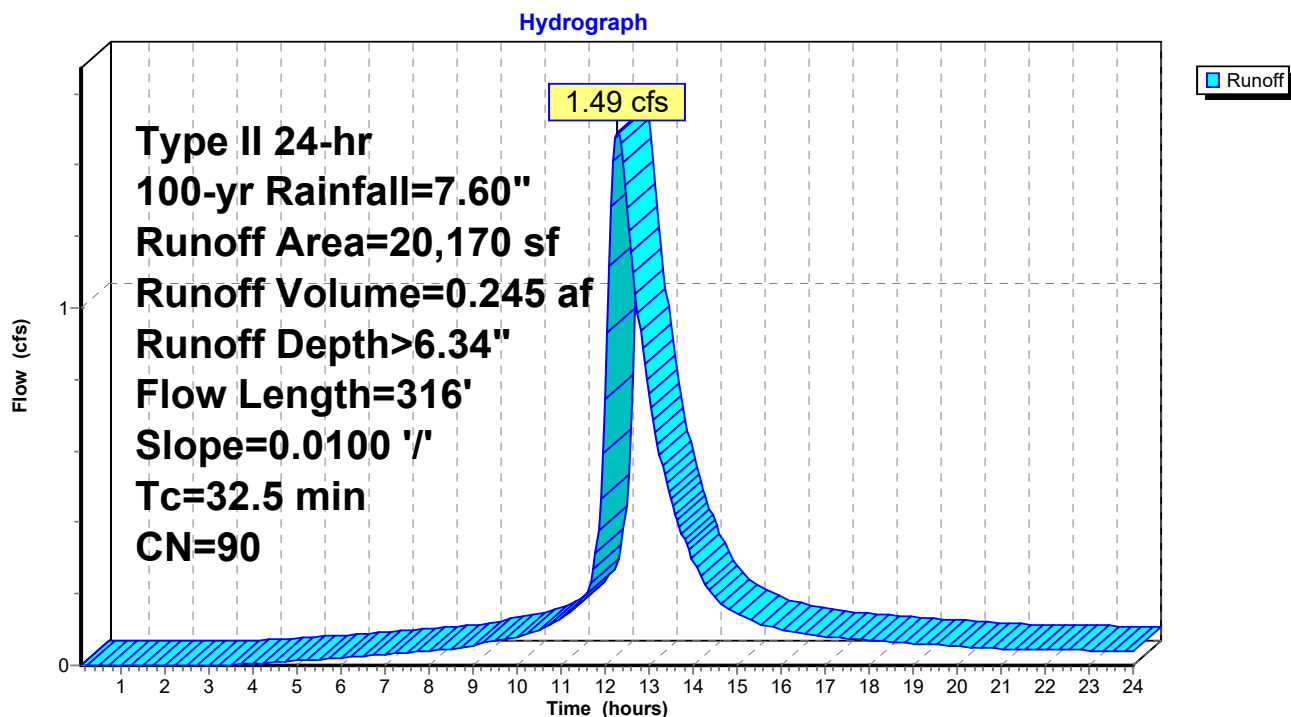
Summary for Subcatchment EX-2: Ex. AG Field

Runoff = 1.49 cfs @ 12.29 hrs, Volume= 0.245 af, Depth> 6.34"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
20,170	90	Fallow, crop residue, Good, HSG D
20,170		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.3	288	0.0100	0.15		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
0.2	28	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
32.5	316	Total			

Subcatchment EX-2: Ex. AG Field

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Type II 24-hr 100-yr Rainfall=7.60"

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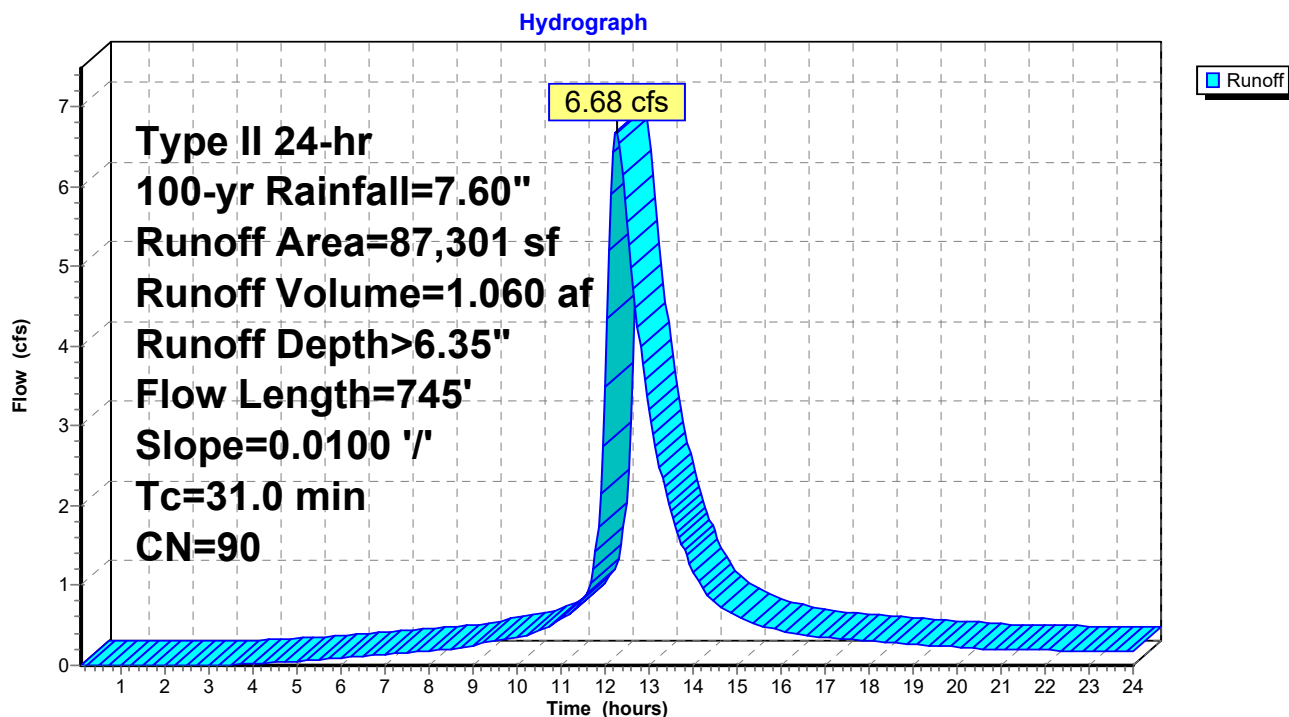
Summary for Subcatchment EX-3: Ex. AG Field

Runoff = 6.68 cfs @ 12.27 hrs, Volume= 1.060 af, Depth> 6.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
87,301	90	Fallow, crop residue, Good, HSG D
87,301		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.8	239	0.0100	0.14		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
3.2	506	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
31.0	745	Total			

Subcatchment EX-3: Ex. AG Field

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Type II 24-hr 100-yr Rainfall=7.60"

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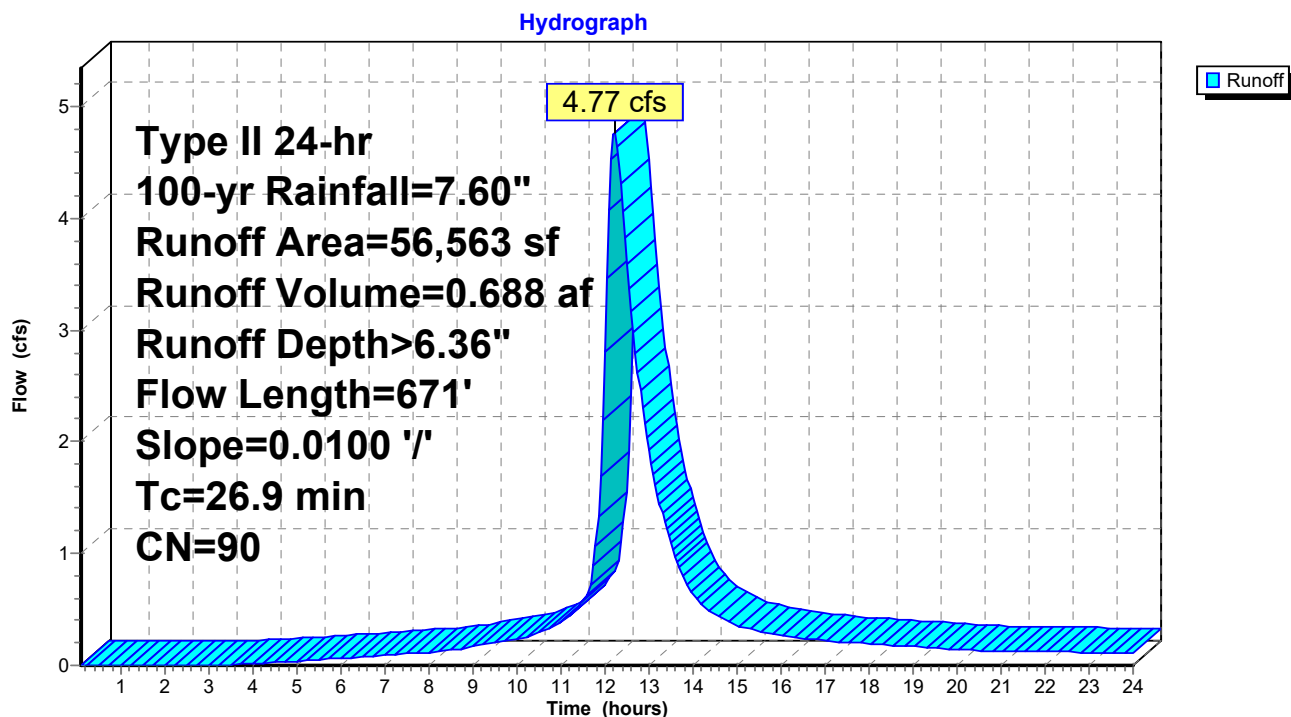
Summary for Subcatchment EX-4: Ex. AG Field

Runoff = 4.77 cfs @ 12.22 hrs, Volume= 0.688 af, Depth> 6.36"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
56,563	90	Fallow, crop residue, Good, HSG D
56,563		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.9	198	0.0100	0.14		Sheet Flow, Ag Field Cultivated: Residue>20% n= 0.170 P2= 3.40"
3.0	473	0.0100	2.63	2.10	Channel Flow, Ag Ditch Area= 0.8 sf Perim= 3.3' r= 0.24' n= 0.022 Earth, clean & straight
26.9	671	Total			

Subcatchment EX-4: Ex. AG Field

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Pond 1P: Bio-Swale 1

Inflow Area = 0.568 ac, 60.40% Impervious, Inflow Depth > 6.53" for 100-yr event
 Inflow = 6.05 cfs @ 11.92 hrs, Volume= 0.309 af
 Outflow = 2.08 cfs @ 12.15 hrs, Volume= 0.246 af, Atten= 66%, Lag= 13.6 min
 Primary = 2.08 cfs @ 12.15 hrs, Volume= 0.246 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 20.42' @ 12.04 hrs Surf.Area= 3,748 sf Storage= 5,474 cf

Plug-Flow detention time= 140.0 min calculated for 0.246 af (80% of inflow)

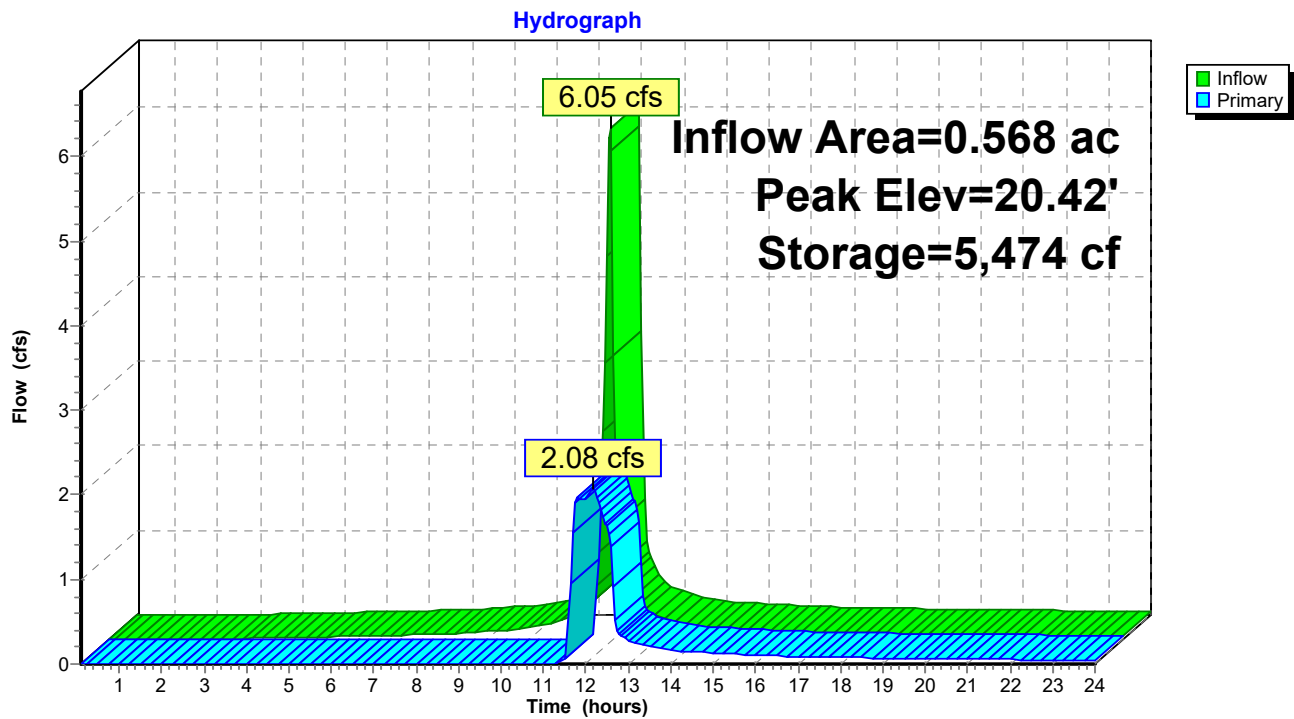
Center-of-Mass det. time= 60.1 min (827.4 - 767.3)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.49'	5,795 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.49	1,194	312.0	0.0	0	0	1,194
16.50	1,194	312.0	40.0	5	5	1,197
18.49	1,194	312.0	40.0	950	955	1,818
18.50	1,194	312.0	100.0	12	967	1,821
20.50	3,892	362.0	100.0	4,828	5,795	4,586

Device	Routing	Invert	Outlet Devices
#1	Primary	18.50'	12.0" Round 12" Dual Wall HDPE L= 82.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.50' / 18.10' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	19.50'	10.7' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.07 cfs @ 12.15 hrs HW=20.31' TW=19.91' (Dynamic Tailwater)↑ **1=12" Dual Wall HDPE** (Outlet Controls 2.07 cfs @ 2.64 fps)↑ **2=Sharp-Crested Rectangular Weir** (Passes 2.07 cfs of 21.22 cfs potential flow)

Pond 1P: Bio-Swale 1



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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond 1P: Bio-Swale 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.49	1,194	0	19.09	1,829	1,852
16.54	1,194	24	19.14	1,889	1,945
16.59	1,194	48	19.19	1,950	2,041
16.64	1,194	72	19.24	2,012	2,140
16.69	1,194	96	19.29	2,075	2,242
16.74	1,194	119	19.34	2,138	2,348
16.79	1,194	143	19.39	2,203	2,456
16.84	1,194	167	19.44	2,269	2,568
16.89	1,194	191	19.49	2,336	2,683
16.94	1,194	215	19.54	2,404	2,802
16.99	1,194	239	19.59	2,472	2,923
17.04	1,194	263	19.64	2,542	3,049
17.09	1,194	287	19.69	2,613	3,178
17.14	1,194	310	19.74	2,684	3,310
17.19	1,194	334	19.79	2,757	3,446
17.24	1,194	358	19.84	2,830	3,586
17.29	1,194	382	19.89	2,905	3,729
17.34	1,194	406	19.94	2,980	3,876
17.39	1,194	430	19.99	3,057	4,027
17.44	1,194	454	20.04	3,134	4,182
17.49	1,194	478	20.09	3,213	4,341
17.54	1,194	501	20.14	3,292	4,503
17.59	1,194	525	20.19	3,372	4,670
17.64	1,194	549	20.24	3,454	4,841
17.69	1,194	573	20.29	3,536	5,015
17.74	1,194	597	20.34	3,619	5,194
17.79	1,194	621	20.39	3,703	5,377
17.84	1,194	645	20.44	3,789	5,565
17.89	1,194	669	20.49	3,875	5,756
17.94	1,194	693			
17.99	1,194	716			
18.04	1,194	740			
18.09	1,194	764			
18.14	1,194	788			
18.19	1,194	812			
18.24	1,194	836			
18.29	1,194	860			
18.34	1,194	884			
18.39	1,194	907			
18.44	1,194	931			
18.49	1,194	955			
18.54	1,233	1,016			
18.59	1,282	1,079			
18.64	1,332	1,144			
18.69	1,384	1,212			
18.74	1,436	1,282			
18.79	1,489	1,355			
18.84	1,543	1,431			
18.89	1,599	1,510			
18.94	1,655	1,591			
18.99	1,712	1,675			
19.04	1,770	1,762			

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Pond 2P: Bio-Swale 2

Inflow Area = 1.583 ac, 53.70% Impervious, Inflow Depth > 5.90" for 100-yr event
 Inflow = 12.53 cfs @ 11.93 hrs, Volume= 0.779 af
 Outflow = 6.93 cfs @ 11.96 hrs, Volume= 0.697 af, Atten= 45%, Lag= 1.6 min
 Primary = 6.93 cfs @ 11.96 hrs, Volume= 0.697 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 20.05' @ 12.03 hrs Surf.Area= 4,839 sf Storage= 7,181 cf

Plug-Flow detention time= 84.7 min calculated for 0.697 af (90% of inflow)

Center-of-Mass det. time= 32.9 min (824.1 - 791.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	7,415 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	1,543	400.0	0.0	0	0	1,543
16.10	1,543	400.0	40.0	6	6	1,547
18.09	1,543	400.0	40.0	1,228	1,234	2,343
18.10	1,543	400.0	100.0	15	1,250	2,347
20.10	4,943	450.0	100.0	6,165	7,415	5,834

Device	Routing	Invert	Outlet Devices
#1	Primary	18.10'	15.0" Round x3 15" Dual Wall HDPE X 3.00 L= 52.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.10' / 18.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	19.10'	16.3' long MDOT SHA 374.70 2 End Contraction(s)

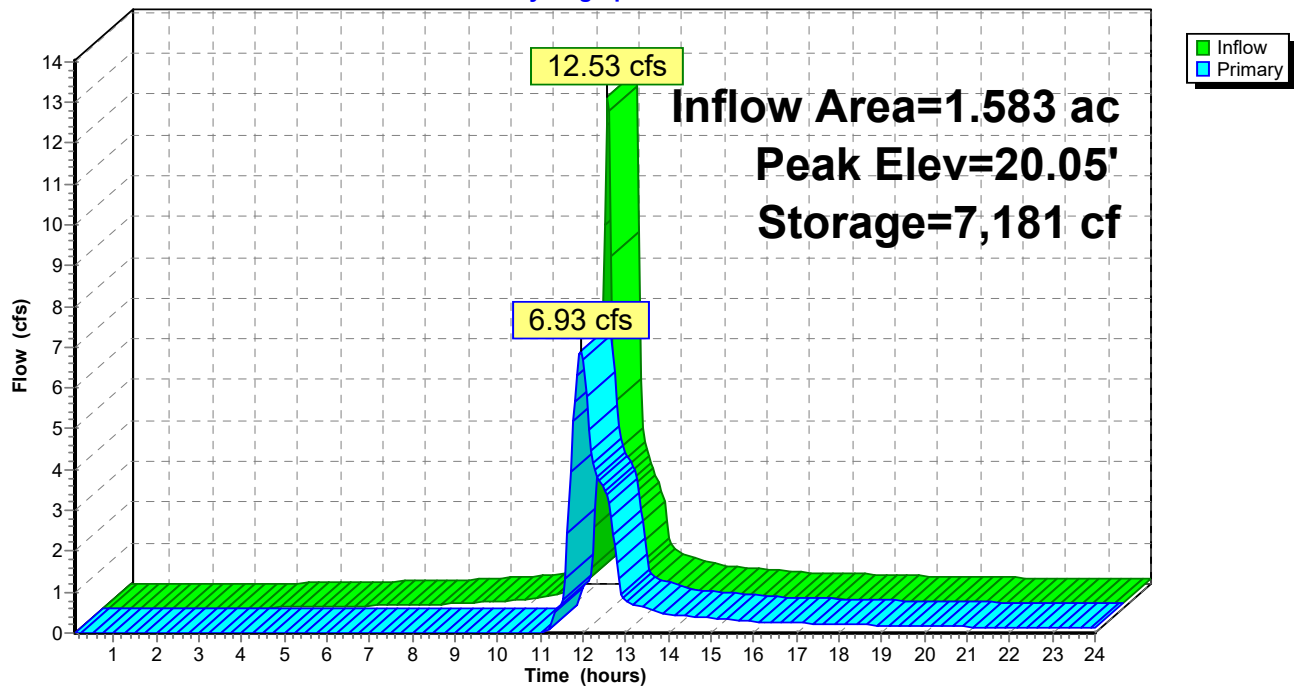
Primary OutFlow Max=6.72 cfs @ 11.96 hrs HW=19.92' TW=19.78' (Dynamic Tailwater)

1=x3 15" Dual Wall HDPE (Inlet Controls 6.72 cfs @ 1.82 fps)

2=MDOT SHA 374.70 (Passes 6.72 cfs of 23.09 cfs potential flow)

Pond 2P: Bio-Swale 2

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond 2P: Bio-Swale 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	1,543	0	18.69	2,346	2,389
16.14	1,543	31	18.74	2,422	2,508
16.19	1,543	62	18.79	2,498	2,631
16.24	1,543	93	18.84	2,577	2,758
16.29	1,543	123	18.89	2,656	2,889
16.34	1,543	154	18.94	2,737	3,023
16.39	1,543	185	18.99	2,818	3,162
16.44	1,543	216	19.04	2,901	3,305
16.49	1,543	247	19.09	2,985	3,452
16.54	1,543	278	19.14	3,071	3,604
16.59	1,543	309	19.19	3,157	3,760
16.64	1,543	339	19.24	3,245	3,920
16.69	1,543	370	19.29	3,334	4,084
16.74	1,543	401	19.34	3,424	4,253
16.79	1,543	432	19.39	3,516	4,427
16.84	1,543	463	19.44	3,608	4,605
16.89	1,543	494	19.49	3,702	4,787
16.94	1,543	525	19.54	3,797	4,975
16.99	1,543	555	19.59	3,893	5,167
17.04	1,543	586	19.64	3,991	5,364
17.09	1,543	617	19.69	4,089	5,566
17.14	1,543	648	19.74	4,189	5,773
17.19	1,543	679	19.79	4,290	5,985
17.24	1,543	710	19.84	4,392	6,202
17.29	1,543	741	19.89	4,496	6,424
17.34	1,543	772	19.94	4,600	6,652
17.39	1,543	802	19.99	4,706	6,884
17.44	1,543	833	20.04	4,813	7,122
17.49	1,543	864	20.09	4,921	7,366
17.54	1,543	895			
17.59	1,543	926			
17.64	1,543	957			
17.69	1,543	988			
17.74	1,543	1,018			
17.79	1,543	1,049			
17.84	1,543	1,080			
17.89	1,543	1,111			
17.94	1,543	1,142			
17.99	1,543	1,173			
18.04	1,543	1,204			
18.09	1,543	1,234			
18.14	1,592	1,313			
18.19	1,655	1,394			
18.24	1,718	1,478			
18.29	1,783	1,566			
18.34	1,849	1,656			
18.39	1,917	1,751			
18.44	1,985	1,848			
18.49	2,055	1,949			
18.54	2,126	2,054			
18.59	2,198	2,162			
18.64	2,271	2,273			

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Pond 3P: Bio-Swale 3

Inflow Area = 2.318 ac, 59.45% Impervious, Inflow Depth > 5.75" for 100-yr event
 Inflow = 14.80 cfs @ 11.93 hrs, Volume= 1.111 af
 Outflow = 11.49 cfs @ 11.94 hrs, Volume= 1.079 af, Atten= 22%, Lag= 0.2 min
 Primary = 11.49 cfs @ 11.94 hrs, Volume= 1.079 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5
 Peak Elev= 19.91' @ 12.04 hrs Surf.Area= 2,880 sf Storage= 4,073 cf

Plug-Flow detention time= 33.0 min calculated for 1.079 af (97% of inflow)
 Center-of-Mass det. time= 16.1 min (816.5 - 800.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	16.09'	4,635 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	944	249.0	0.0	0	0	944
16.10	944	249.0	40.0	4	4	946
18.09	944	249.0	40.0	751	755	1,442
18.10	944	249.0	100.0	9	765	1,444
20.10	3,140	300.0	100.0	3,870	4,635	3,739

Device	Routing	Invert	Outlet Devices
#1	Primary	18.10'	15.0" Round x3 15" Dual Wall HDPE X 4.00 L= 44.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 18.10' / 18.10' S= 0.0000 ' S= 0.0000 ' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	18.60'	16.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

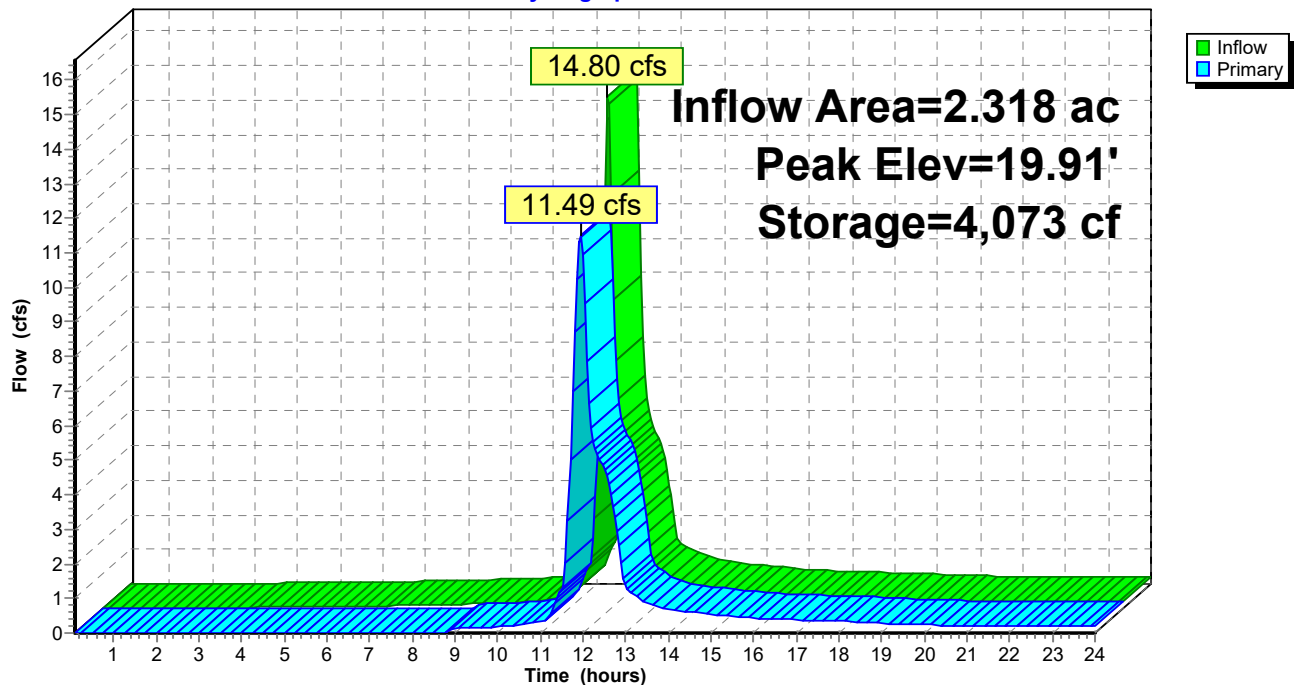
Primary OutFlow Max=11.32 cfs @ 11.94 hrs HW=19.70' TW=19.47' (Dynamic Tailwater)

↑ **1=x3 15" Dual Wall HDPE** (Inlet Controls 11.32 cfs @ 2.31 fps)

↑ **2=Sharp-Crested Rectangular Weir** (Passes 11.32 cfs of 37.94 cfs potential flow)

Pond 3P: Bio-Swale 3

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond 3P: Bio-Swale 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	944	0	18.69	1,459	1,468
16.14	944	19	18.74	1,507	1,542
16.19	944	38	18.79	1,557	1,619
16.24	944	57	18.84	1,607	1,698
16.29	944	76	18.89	1,658	1,779
16.34	944	94	18.94	1,710	1,864
16.39	944	113	18.99	1,763	1,950
16.44	944	132	19.04	1,817	2,040
16.49	944	151	19.09	1,871	2,132
16.54	944	170	19.14	1,926	2,227
16.59	944	189	19.19	1,982	2,325
16.64	944	208	19.24	2,039	2,425
16.69	944	227	19.29	2,096	2,529
16.74	944	245	19.34	2,155	2,635
16.79	944	264	19.39	2,214	2,744
16.84	944	283	19.44	2,274	2,856
16.89	944	302	19.49	2,334	2,971
16.94	944	321	19.54	2,396	3,090
16.99	944	340	19.59	2,458	3,211
17.04	944	359	19.64	2,521	3,336
17.09	944	378	19.69	2,585	3,463
17.14	944	396	19.74	2,650	3,594
17.19	944	415	19.79	2,716	3,728
17.24	944	434	19.84	2,782	3,866
17.29	944	453	19.89	2,849	4,006
17.34	944	472	19.94	2,917	4,151
17.39	944	491	19.99	2,986	4,298
17.44	944	510	20.04	3,055	4,449
17.49	944	529	20.09	3,126	4,604
17.54	944	548			
17.59	944	566			
17.64	944	585			
17.69	944	604			
17.74	944	623			
17.79	944	642			
17.84	944	661			
17.89	944	680			
17.94	944	699			
17.99	944	717			
18.04	944	736			
18.09	944	755			
18.14	975	803			
18.19	1,015	853			
18.24	1,056	905			
18.29	1,098	958			
18.34	1,140	1,014			
18.39	1,183	1,072			
18.44	1,227	1,133			
18.49	1,272	1,195			
18.54	1,317	1,260			
18.59	1,364	1,327			
18.64	1,411	1,396			

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Type II 24-hr 100-yr Rainfall=7.60"

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Summary for Pond 4P: Bio-Swale 4

Inflow Area = 2.318 ac, 59.45% Impervious, Inflow Depth > 5.59" for 100-yr event
 Inflow = 11.49 cfs @ 11.94 hrs, Volume= 1.079 af
 Outflow = 9.79 cfs @ 11.99 hrs, Volume= 1.057 af, Atten= 15%, Lag= 3.3 min
 Primary = 9.79 cfs @ 11.99 hrs, Volume= 1.057 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.76' @ 12.10 hrs Surf.Area= 1,870 sf Storage= 2,499 cf

Plug-Flow detention time= 19.3 min calculated for 1.057 af (98% of inflow)

Center-of-Mass det. time= 7.5 min (823.9 - 816.5)

Volume	Invert	Avail.Storage	Storage Description
#1	16.09'	3,192 cf	Custom Stage Data (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.09	633	171.0	0.0	0	0	633
16.10	633	171.0	40.0	3	3	635
18.09	633	171.0	40.0	504	506	975
18.10	633	171.0	100.0	6	513	977
20.10	2,204	221.0	100.0	2,679	3,192	2,585

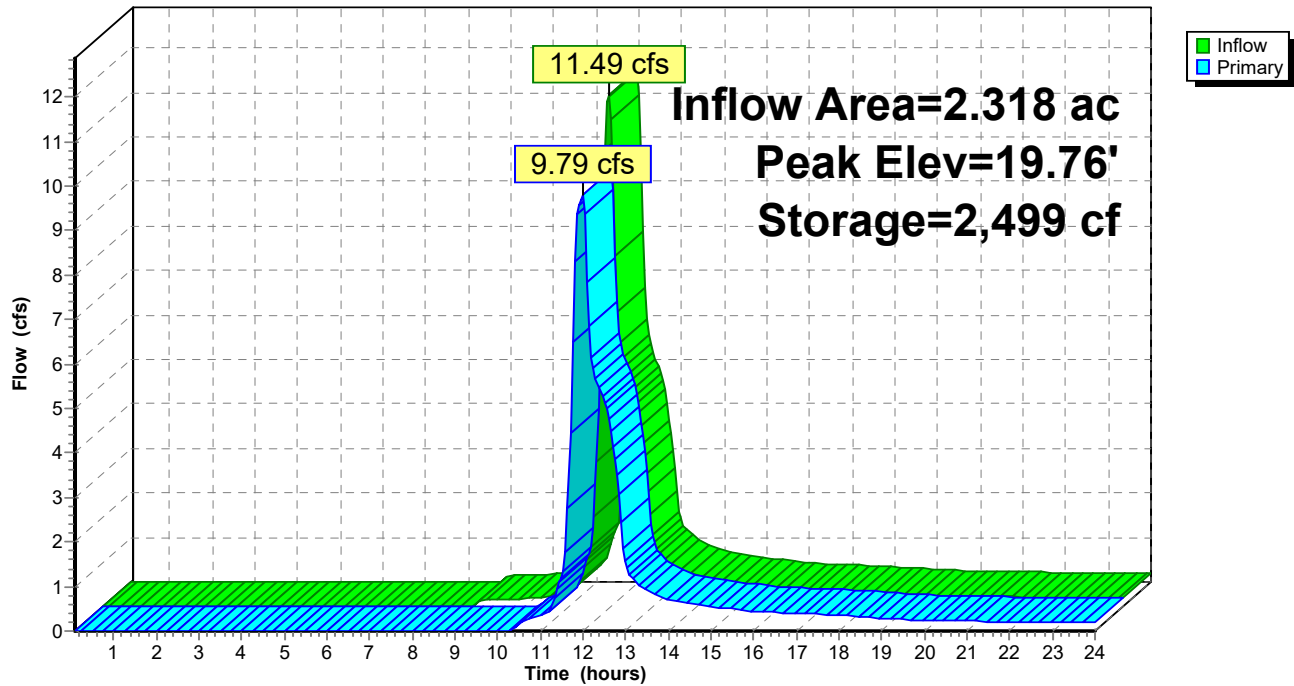
Device	Routing	Invert	Outlet Devices
#1	Primary	18.60'	10.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=9.68 cfs @ 11.99 hrs HW=19.66' TW=19.62' (Dynamic Tailwater)

↑1=Broad-Crested Rectangular Weir (Weir Controls 9.68 cfs @ 0.92 fps)

Pond 4P: Bio-Swale 4

Hydrograph



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Type II 24-hr 100-yr Rainfall=7.60"

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Stage-Area-Storage for Pond 4P: Bio-Swale 4

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.09	633	0	18.69	998	990
16.14	633	13	18.74	1,032	1,040
16.19	633	25	18.79	1,068	1,093
16.24	633	38	18.84	1,104	1,147
16.29	633	51	18.89	1,140	1,203
16.34	633	63	18.94	1,177	1,261
16.39	633	76	18.99	1,215	1,321
16.44	633	89	19.04	1,253	1,383
16.49	633	101	19.09	1,292	1,446
16.54	633	114	19.14	1,331	1,512
16.59	633	127	19.19	1,371	1,580
16.64	633	139	19.24	1,412	1,649
16.69	633	152	19.29	1,453	1,721
16.74	633	165	19.34	1,495	1,794
16.79	633	177	19.39	1,538	1,870
16.84	633	190	19.44	1,581	1,948
16.89	633	203	19.49	1,624	2,028
16.94	633	215	19.54	1,668	2,111
16.99	633	228	19.59	1,713	2,195
17.04	633	241	19.64	1,759	2,282
17.09	633	253	19.69	1,805	2,371
17.14	633	266	19.74	1,851	2,462
17.19	633	279	19.79	1,898	2,556
17.24	633	291	19.84	1,946	2,652
17.29	633	304	19.89	1,994	2,751
17.34	633	317	19.94	2,043	2,852
17.39	633	329	19.99	2,093	2,955
17.44	633	342	20.04	2,143	3,061
17.49	633	354	20.09	2,194	3,170
17.54	633	367			
17.59	633	380			
17.64	633	392			
17.69	633	405			
17.74	633	418			
17.79	633	430			
17.84	633	443			
17.89	633	456			
17.94	633	468			
17.99	633	481			
18.04	633	494			
18.09	633	506			
18.14	655	538			
18.19	683	572			
18.24	712	607			
18.29	741	643			
18.34	771	681			
18.39	802	720			
18.44	833	761			
18.49	865	804			
18.54	897	848			
18.59	930	893			
18.64	964	941			

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Summary for Pond 5P: SGW 1

Inflow Area = 3.889 ac, 58.88% Impervious, Inflow Depth > 5.85" for 100-yr event
 Inflow = 26.93 cfs @ 11.91 hrs, Volume= 1.897 af
 Outflow = 9.76 cfs @ 12.11 hrs, Volume= 1.551 af, Atten= 64%, Lag= 12.5 min
 Primary = 9.76 cfs @ 12.11 hrs, Volume= 1.551 af
 Secondary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 19.74' @ 12.11 hrs Surf.Area= 11,706 sf Storage= 30,184 cf

Plug-Flow detention time= 152.0 min calculated for 1.551 af (82% of inflow)

Center-of-Mass det. time= 77.5 min (877.6 - 800.0)

Volume	Invert	Avail.Storage	Storage Description		
#1	16.45'	38,893 cf	Custom Stage Data (Irregular) Listed below (Recalc)		
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
16.45	6,846	329.0	0	0	6,846
20.45	12,919	429.0	38,893	38,893	13,066

Device	Routing	Invert	Outlet Devices
#1	Primary	16.11'	12.0" Round 12" Dual Wall HPDE X 2.00 L= 115.0' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 16.11' / 16.00' S= 0.0010 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	17.45'	2.0" W x 16.0" H Vert. 2" Notch C= 0.600
#3	Device 1	18.78'	16.3' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#4	Secondary	19.95'	10.0' long x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=9.75 cfs @ 12.11 hrs HW=19.74' TW=0.00' (Dynamic Tailwater)

1=12" Dual Wall HPDE (Barrel Controls 9.75 cfs @ 6.21 fps)

2=2" Notch (Passes < 1.35 cfs potential flow)

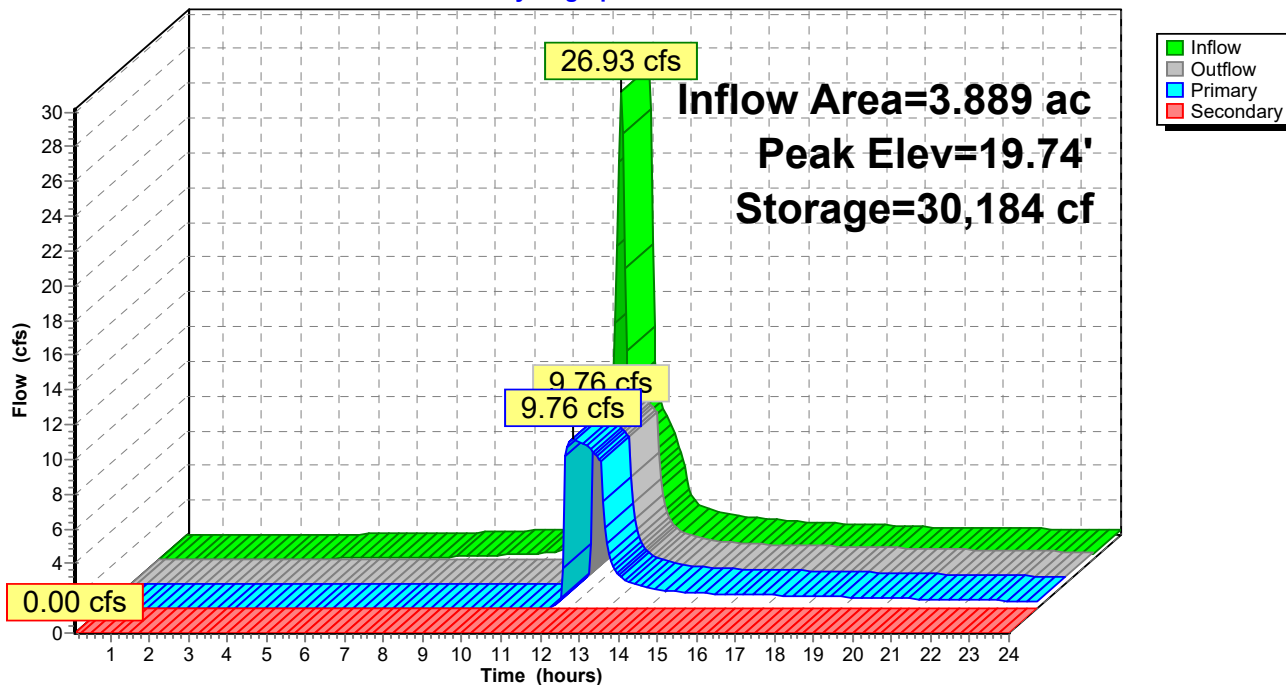
3=Sharp-Crested Rectangular Weir (Passes < 49.54 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.10 hrs HW=16.45' TW=0.00' (Dynamic Tailwater)

4=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 5P: SGW 1

Hydrograph



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Stage-Area-Storage for Pond 5P: SGW 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
16.45	6,846	0	19.05	10,576	22,473
16.50	6,910	344	19.10	10,656	23,004
16.55	6,975	691	19.15	10,736	23,539
16.60	7,039	1,041	19.20	10,816	24,078
16.65	7,104	1,395	19.25	10,896	24,621
16.70	7,170	1,752	19.30	10,977	25,167
16.75	7,235	2,112	19.35	11,058	25,718
16.80	7,301	2,475	19.40	11,140	26,273
16.85	7,367	2,842	19.45	11,221	26,832
16.90	7,434	3,212	19.50	11,304	27,395
16.95	7,501	3,585	19.55	11,386	27,963
17.00	7,568	3,962	19.60	11,468	28,534
17.05	7,635	4,342	19.65	11,551	29,110
17.10	7,703	4,726	19.70	11,635	29,689
17.15	7,771	5,112	19.75	11,718	30,273
17.20	7,839	5,503	19.80	11,802	30,861
17.25	7,908	5,896	19.85	11,886	31,453
17.30	7,977	6,293	19.90	11,971	32,050
17.35	8,046	6,694	19.95	12,055	32,650
17.40	8,115	7,098	20.00	12,140	33,255
17.45	8,185	7,506	20.05	12,226	33,864
17.50	8,255	7,917	20.10	12,311	34,478
17.55	8,325	8,331	20.15	12,397	35,095
17.60	8,396	8,749	20.20	12,483	35,717
17.65	8,467	9,171	20.25	12,570	36,344
17.70	8,538	9,596	20.30	12,657	36,974
17.75	8,610	10,025	20.35	12,744	37,609
17.80	8,682	10,457	20.40	12,831	38,249
17.85	8,754	10,893	20.45	12,919	38,893
17.90	8,827	11,332			
17.95	8,899	11,775			
18.00	8,972	12,222			
18.05	9,046	12,673			
18.10	9,119	13,127			
18.15	9,193	13,585			
18.20	9,268	14,046			
18.25	9,342	14,511			
18.30	9,417	14,980			
18.35	9,492	15,453			
18.40	9,568	15,930			
18.45	9,643	16,410			
18.50	9,720	16,894			
18.55	9,796	17,382			
18.60	9,873	17,873			
18.65	9,950	18,369			
18.70	10,027	18,868			
18.75	10,104	19,372			
18.80	10,182	19,879			
18.85	10,260	20,390			
18.90	10,339	20,905			
18.95	10,418	21,424			
19.00	10,497	21,947			

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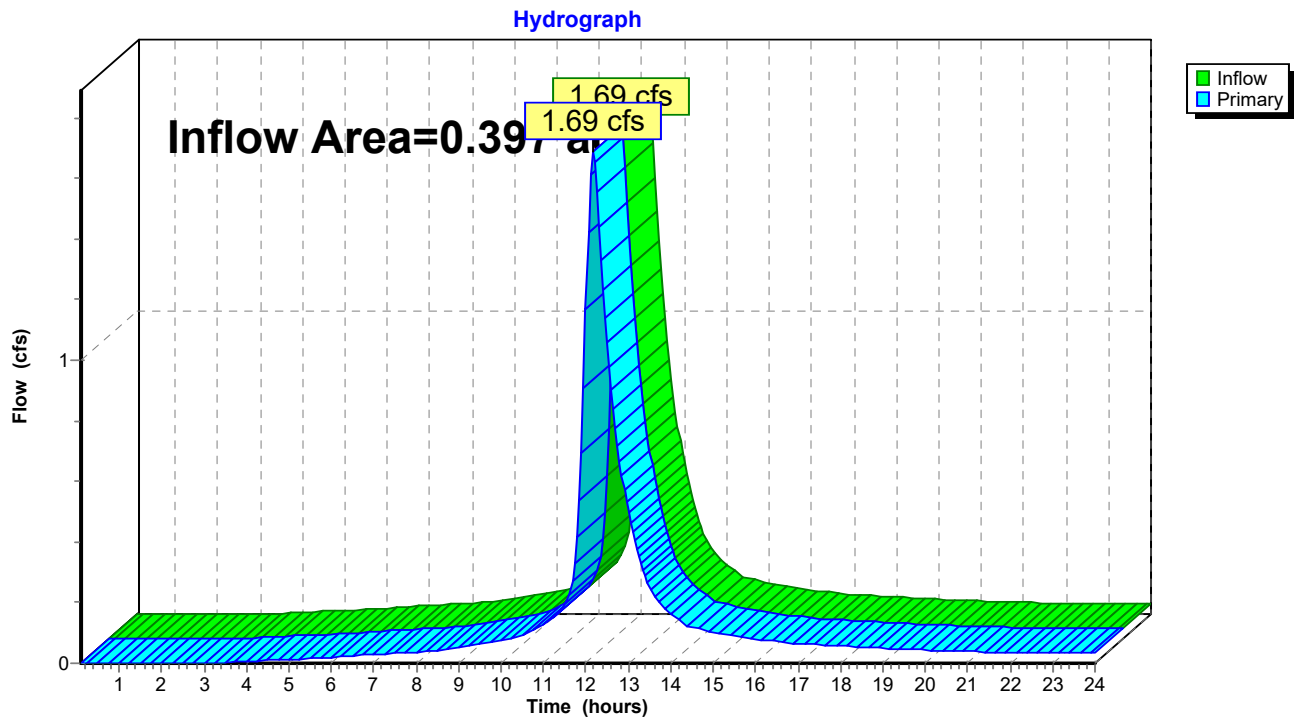
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Summary for Link 1L: POI #1 (Pre)

Inflow Area = 0.397 ac, 0.00% Impervious, Inflow Depth > 6.37" for 100-yr event
Inflow = 1.69 cfs @ 12.16 hrs, Volume= 0.210 af
Primary = 1.69 cfs @ 12.16 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 1L: POI #1 (Pre)



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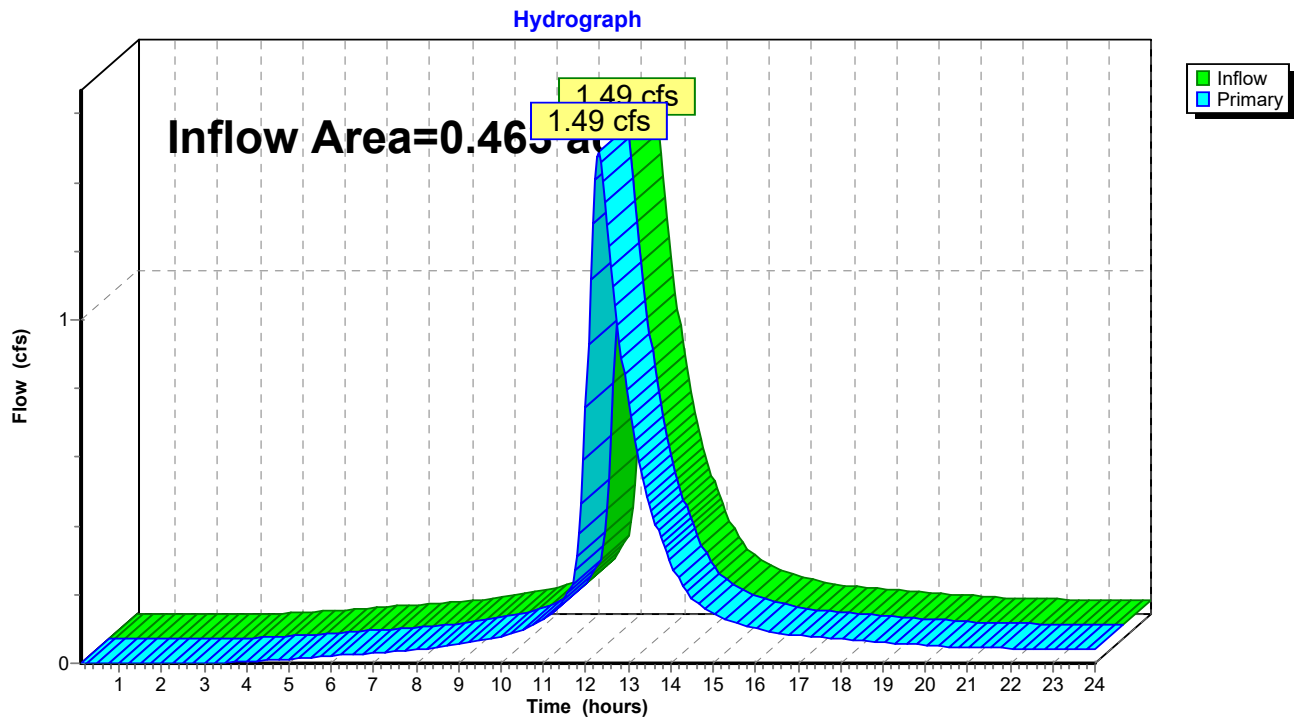
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Summary for Link 2L: POI #2 (Pre)

Inflow Area = 0.463 ac, 0.00% Impervious, Inflow Depth > 6.34" for 100-yr event
Inflow = 1.49 cfs @ 12.29 hrs, Volume= 0.245 af
Primary = 1.49 cfs @ 12.29 hrs, Volume= 0.245 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 2L: POI #2 (Pre)



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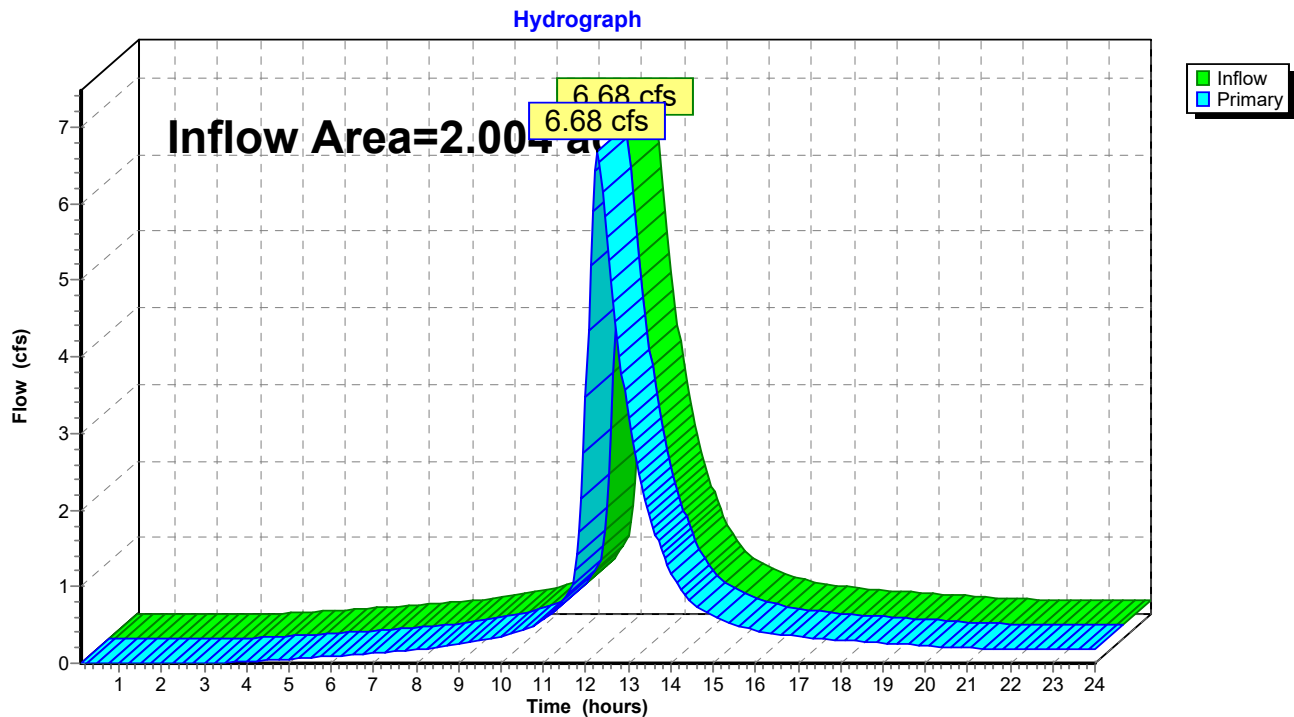
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Summary for Link 3L: POI #3 (Pre)

Inflow Area = 2.004 ac, 0.00% Impervious, Inflow Depth > 6.35" for 100-yr event
Inflow = 6.68 cfs @ 12.27 hrs, Volume= 1.060 af
Primary = 6.68 cfs @ 12.27 hrs, Volume= 1.060 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 3L: POI #3 (Pre)



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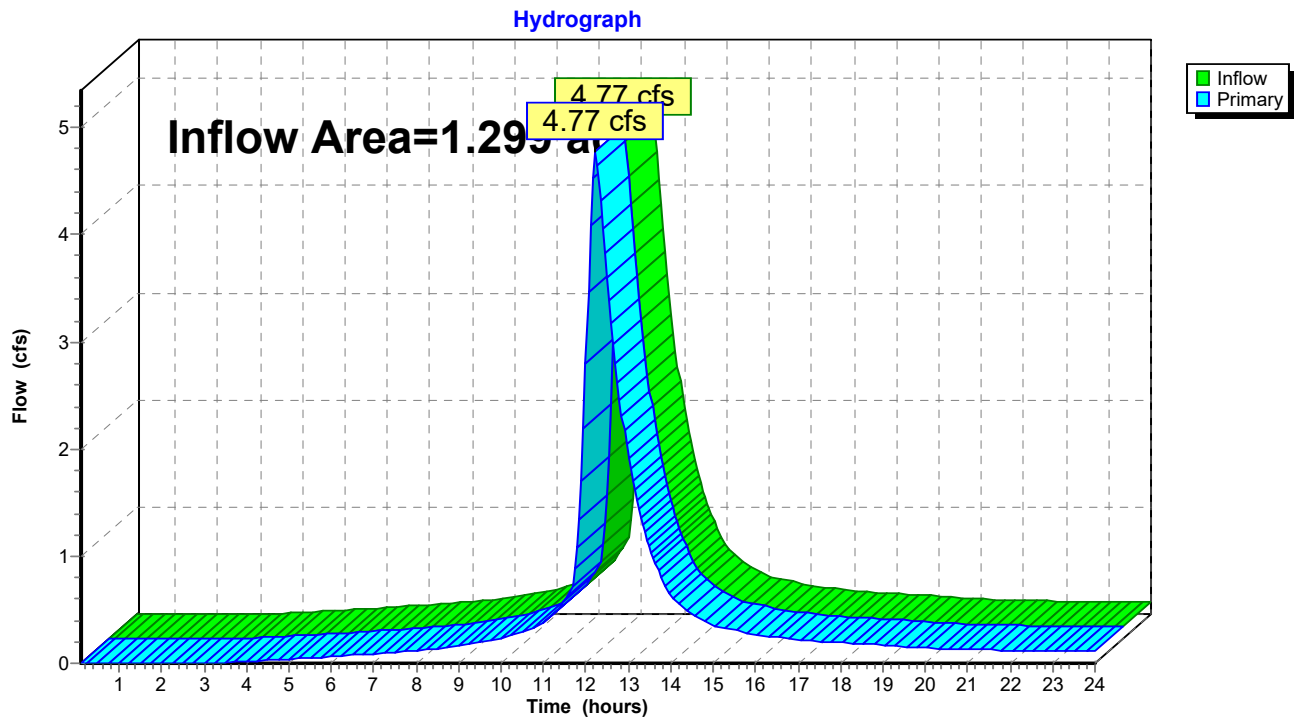
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Summary for Link 4L: POI #4 (Pre)

Inflow Area = 1.299 ac, 0.00% Impervious, Inflow Depth > 6.36" for 100-yr event
Inflow = 4.77 cfs @ 12.22 hrs, Volume= 0.688 af
Primary = 4.77 cfs @ 12.22 hrs, Volume= 0.688 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 4L: POI #4 (Pre)



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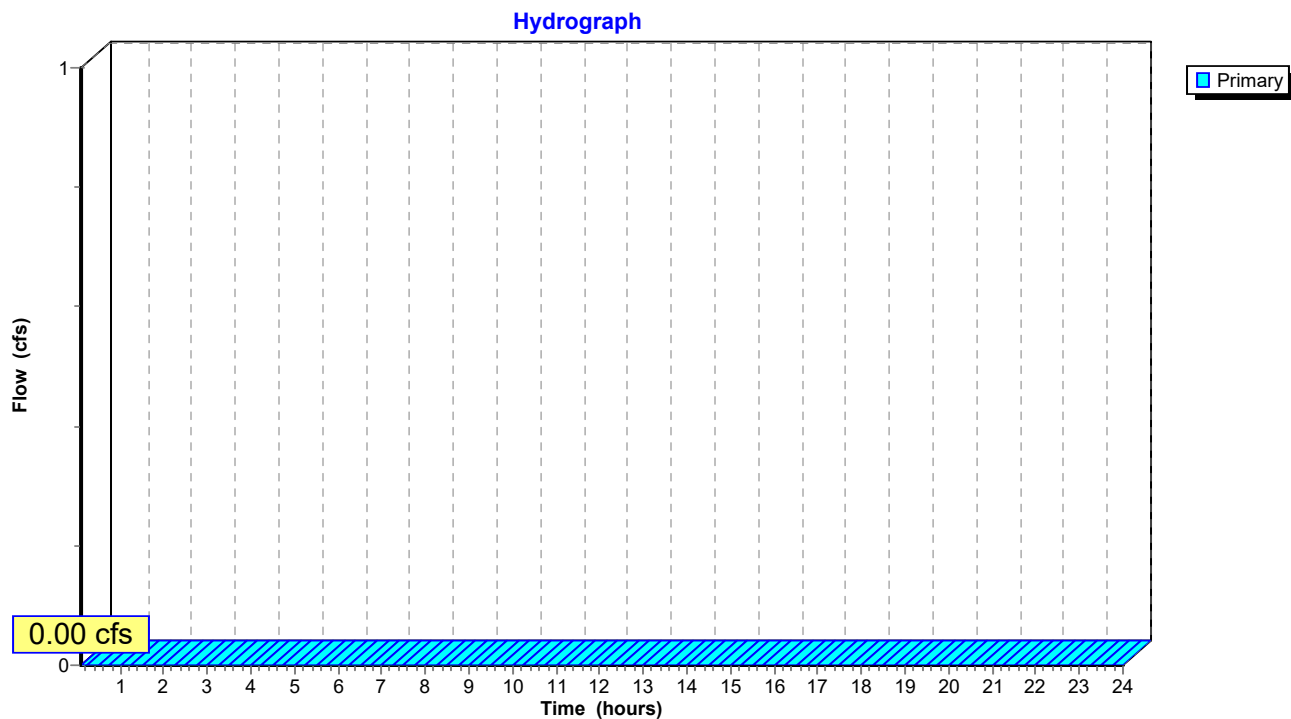
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Summary for Link 5L: POI #1 (Post)

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 5L: POI #1 (Post)



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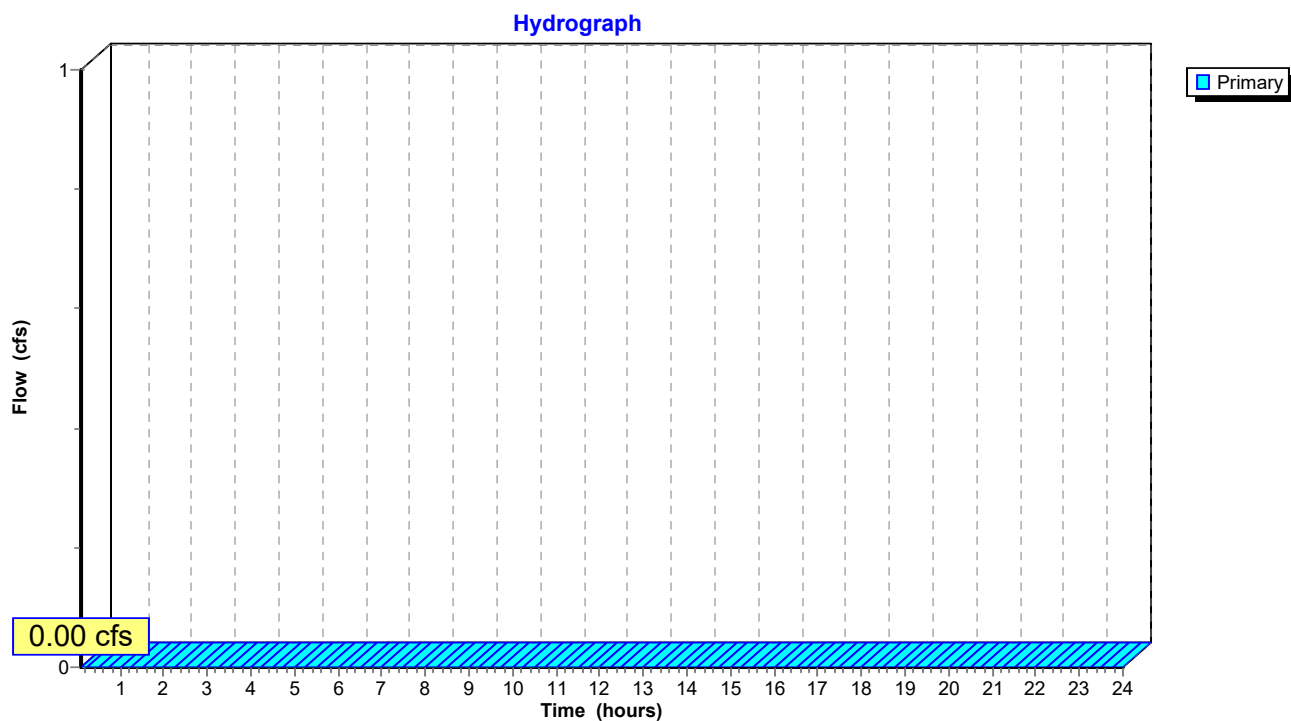
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Summary for Link 6L: POI #2 (Post)

Primary = 0.00 cfs @ 0.10 hrs, Volume= 0.000 af

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 6L: POI #2 (Post)



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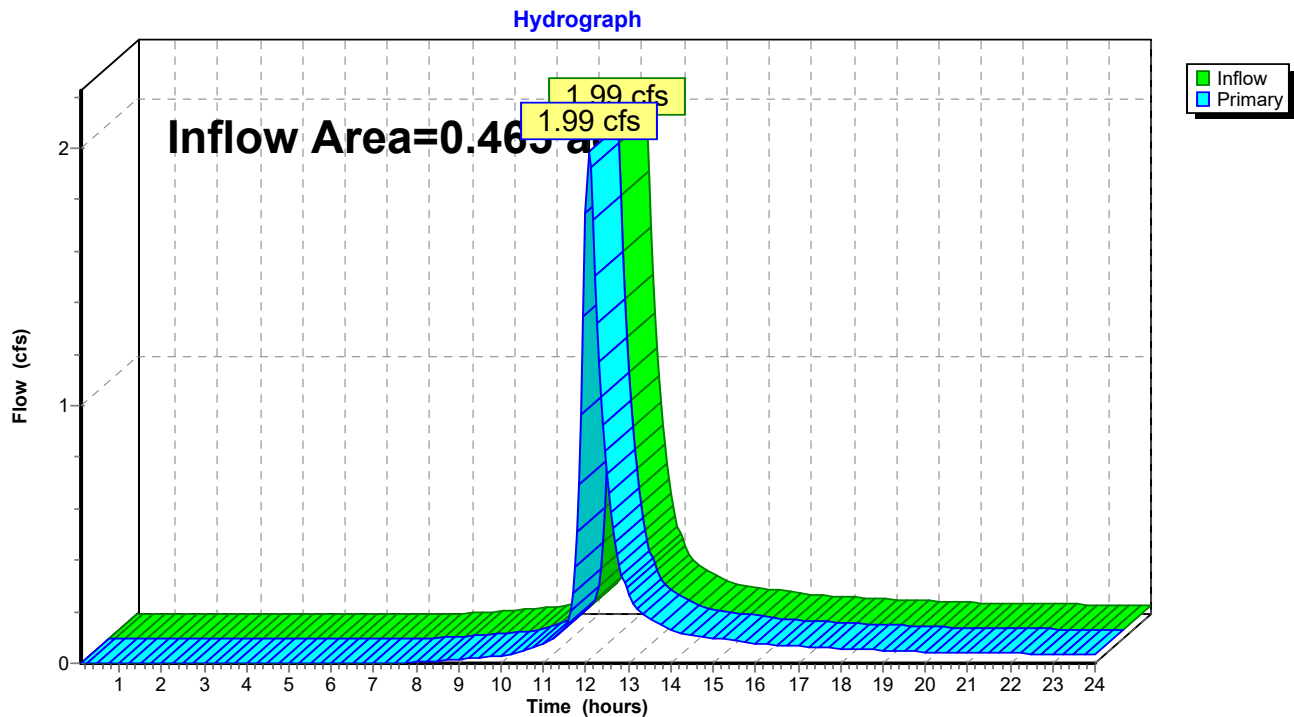
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Summary for Link 7L: POI #3 (Post)

Inflow Area = 0.465 ac, 0.00% Impervious, Inflow Depth > 4.43" for 100-yr event
Inflow = 1.99 cfs @ 12.07 hrs, Volume= 0.172 af
Primary = 1.99 cfs @ 12.07 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 7L: POI #3 (Post)



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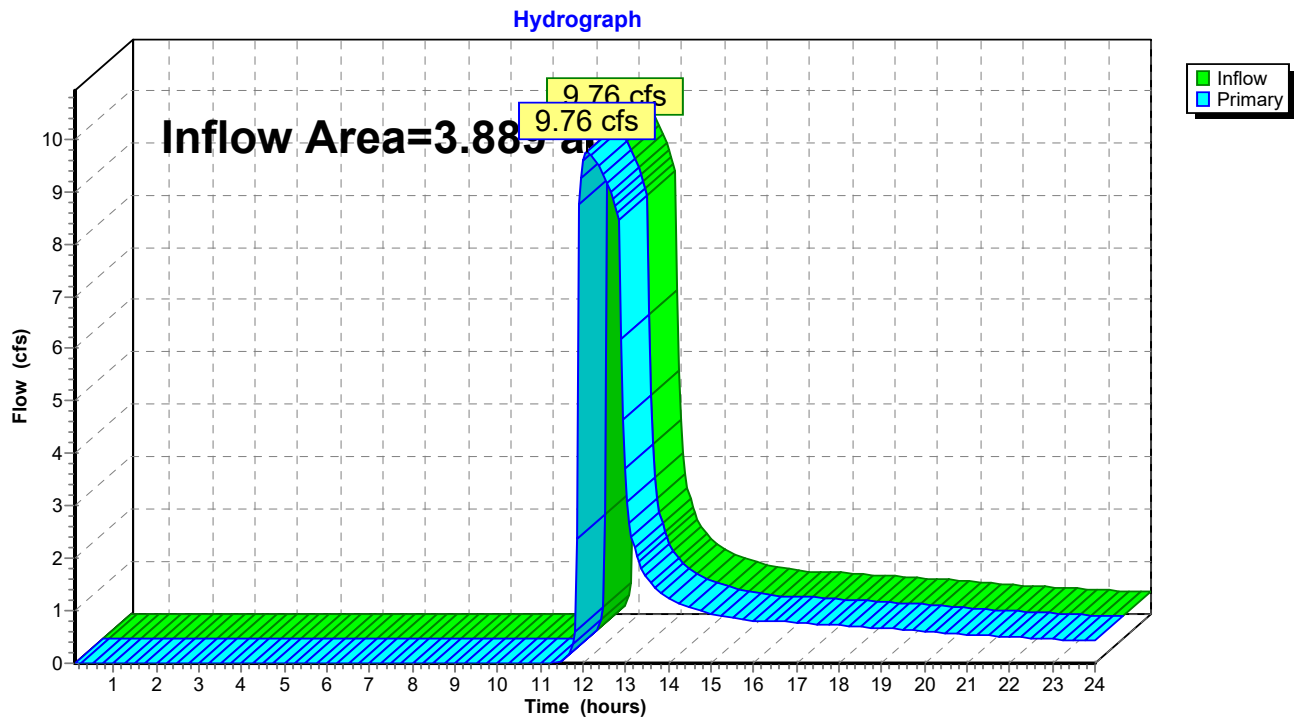
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Summary for Link 8L: POI #4 (Post)

Inflow Area = 3.889 ac, 58.88% Impervious, Inflow Depth > 4.79" for 100-yr event
Inflow = 9.76 cfs @ 12.11 hrs, Volume= 1.551 af
Primary = 9.76 cfs @ 12.11 hrs, Volume= 1.551 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.10-24.00 hrs, dt= 0.05 hrs

Link 8L: POI #4 (Post)



APPENDIX B

Environmental Site Design Calculations

ESD Target for Site Development (Total Site)

Earthen Disturbance (LOD) = 4.16 acre = 181,375 sf (excluding offsite work & grade ties)

Onsite Soils in LOD: "HSG C"

Proposed Buildings, Parking, Sidewalks, & Entrance = 96,560 sf

Impervious I = 53.24%

$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (\%) = 0.529$

Based on I = 53.24%: HSG C $P_E = 1.8''$

$$ESD_{V_Total_Target} = \frac{(Pe)(Rv)(A)}{12} = \frac{(1.8)(0.529)(181,375)}{12} = \mathbf{14,392 \text{ cf}}$$

Bio Swale (DA-1, DA-2, DA-3)

Drainage Area = 100,951 sf (sum of Drainage Areas DA-1, DA-2, DA-3)

Proposed Onsite Improvements (sum of Impervious within DA-1, DA-2, DA-3)

= 56,834 sf; Impervious I = 56.30%

$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (56.30\%) = 0.557$

Based on I = 56.30%: HSG B $P_E = 2.0''$

$$ESD_{V_Total_Target_DA-1, DA-2, DA-3} = \frac{(Pe)(Rv)(A)}{12} = \frac{(2.0)(0.557)(100,951)}{12} = \mathbf{9,372 \text{ cf}}$$

$$ESD_{Ponding} = \frac{(Area \text{ at Temporary Ponding Elevation BioSwales 1,2,3,\&4} + Floor \text{ Area BioSwales 1,2,3,\&4})}{2} \times \text{Ponding Depth}$$
$$= \frac{((1,197+1,547+946+364)+(2,494+3,195+1,993+1,369))}{2} \times 1.00 = \mathbf{6,553 \text{ cf}}$$

$ESD_{Media} = Porosity \text{ of Media} \times Media \text{ depth} \times Floor \text{ Area BioSwales 1,2,3, \&4}$

$$= 0.4 \times (1,197 + 1,547 + 946 + 364) \times 2.0 = \mathbf{3,243 \text{ cf}}$$

$$ESD_{Provided} = ESD_{Ponding} + ESD_{Media} = 6,553 + 3,243 = \mathbf{9,796 \text{ cf}}$$

$ESD_v (\text{provided DA -1, DA-2, DA-3}) > ESD_v (\text{target DA-1, DA-2, DA-3})$

Submerged Gravel Wetland (DA-4)

Drainage Area = 68,450 sf

Proposed Improvements = 39,727 sf; Impervious I = 58.03%

$$R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (58.03\%) = 0.572$$

Based on I = 58.03%: $P_E = 2.0''$

$$ESD_{V_Total_Target_SWM_C} = \frac{(P_E)(R_v)(A)}{12} = \frac{(2.0)(0.572)(68,450)}{12} = \mathbf{6,526\ cf}$$

$$ESD_{Ponding} = \frac{(Area\ at\ Temporary\ Ponding\ Elevation + Floor\ Area)}{2} \times Ponding\ Depth = \frac{(6,848 + 8,215)}{2} \times 1.00 = \mathbf{7,531\ cf}$$

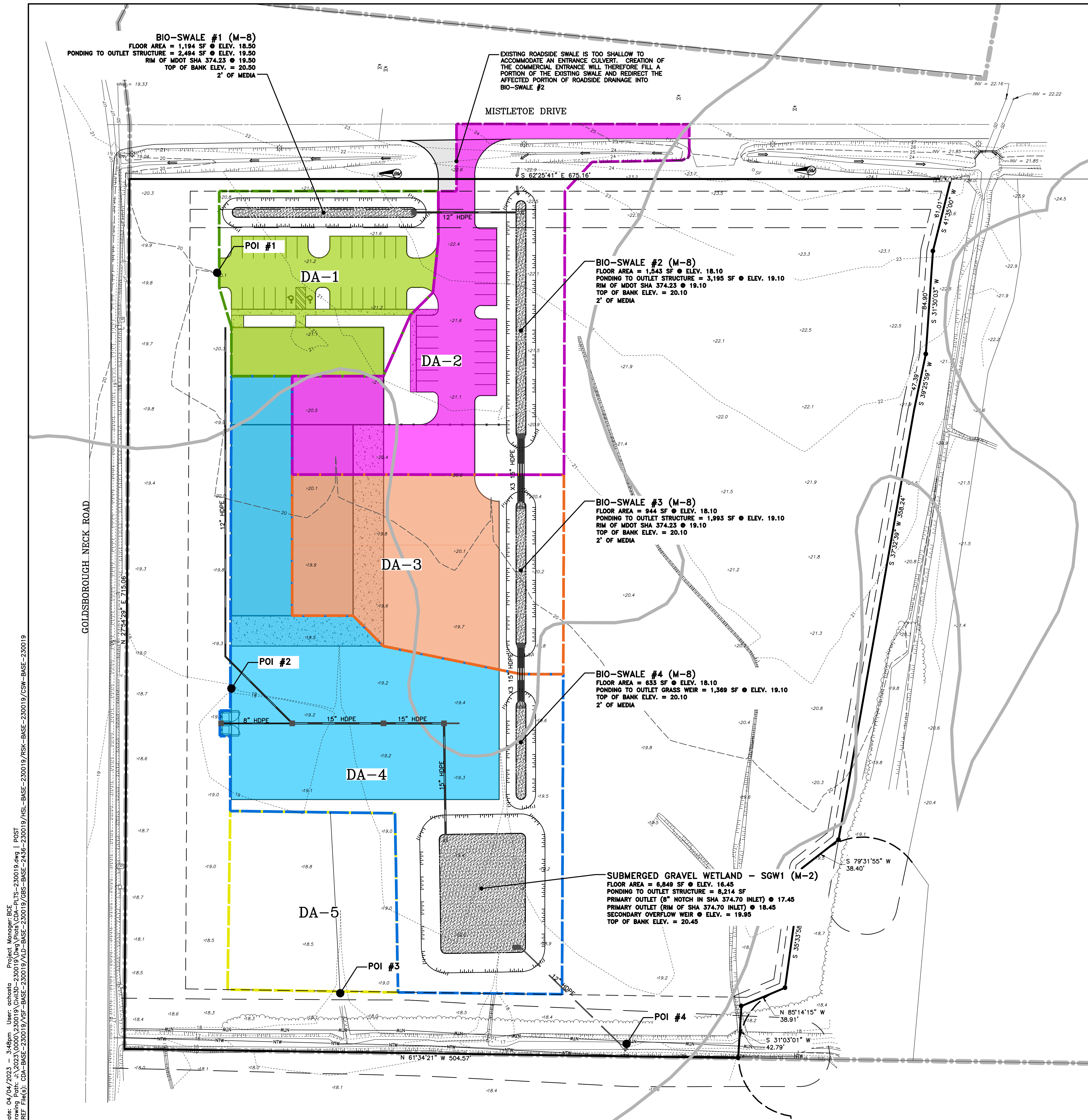
$$ESD_{Media} = \mathbf{0\ cf}$$

$$ESD_{Provided} = ESD_{Ponding} + ESD_{Media} = 7,531 + 0 = \mathbf{7,531\ cf}$$

$$ESD_v (provided\ DA-4) > ESD_v (target\ DA-4)$$

APPENDIX C

Drainage Area Maps



STUDY POINT	Q ₂	Q ₁₀	Q ₁₀₀
1	0.00	0.00	0.00
2	0.00	0.00	0.00
3	0.49	1.11	1.99
4	0.42	7.73	9.76

AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
DA-1	24,745	1.60	60.40	FRONT OFFICE & ASSOCIATED PARKING
DA-2	44,230	2.00	49.95	PORTION OF WAREHOUSE, PARKING, AND OFFSITE
DA-3	31,976	2.10	71.84	PORTION OF WAREHOUSE AND PARKING
DA-4	68,450	1.00	58.04	PORTION OF WAREHOUSE AND PARKING
DA-5	20,251	0.90	0.00	LANDSCAPED RESIDUE OF LOD

[illegible]

WARNING!!
THE LOCATIONS OF EXISTING UTILITIES AS SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL INFORMATIONAL AND PERMITTING PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.

THE CONTRACTOR SHALL TEST PIT AND LOCATE EXISTING UNDERGROUND UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.



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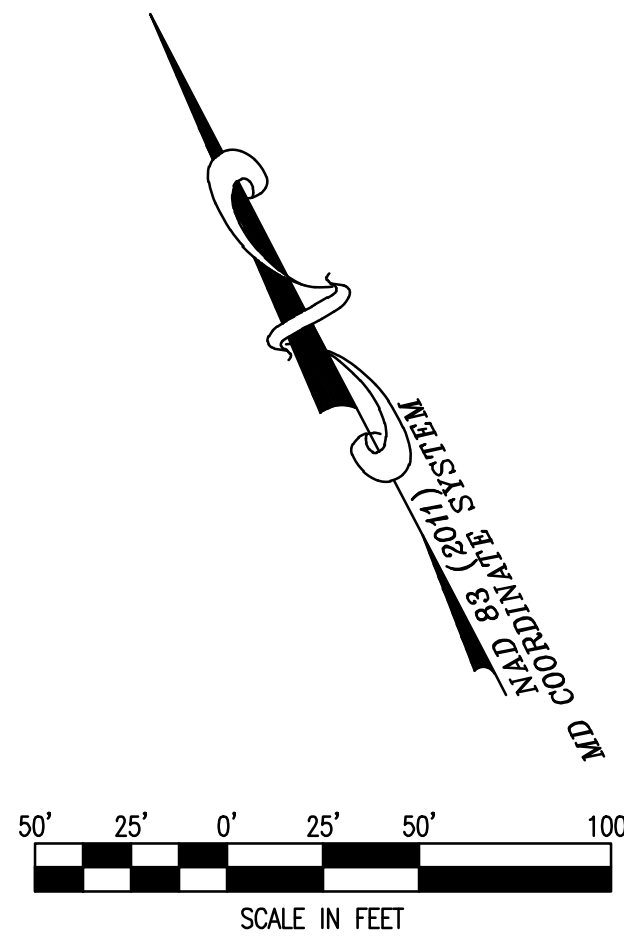
E-mail: general@laneinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MA 02143 (617) 221-0818
354 Pennsylvania Ave. Centerville, MD 21617 (410) 758-2095

TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
EmA	ELKTON SILT LOAM	YES		C/D
MAA	MATAPEX SILT LOAM	*	0.49	C
OTA	OTHELLO SILT LOAM	YES	0.43	C/D

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

LEGEND

- 
- COMPUTED POINT
- MAJOR CONTOUR
- MINOR CONTOUR



POST DEVELOPMENT DRAINAGE AREA MAP

FOR
LOT 1 – MISTLETOE HALL
COMMERCE–BUSINESS PARK

IN THE FIRST ELECTION DISTRICT
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 16, PARCEL 138 LOT 1

ISSUED FOR:	DATE:	BY:
AGENCY REVIEW	4/5/23	BCE

SHEET No. 2 OF 2 DATE: 4/5/23

SCALE:	JOB No.
AS NOTED	230019
	FILE No.
	A037

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESD _v (FT. ³)	ACTUAL ESD _v (ft. ³)
DA 1,2,3	M-8	BioSwale 1,2,3,4	ON-SITE	92	414552.3224'	1574459.9907'	2.31	1.30	0.09	2.0	2.0	9,372	9,796
DA 4	M-2	SGW 1	ON-SITE	90	414203.5688'	1574243.9837'	1.57	0.91	0.16	2.0	2.0	6,526	7,531
TOTAL/ AVERAGE													



APPROVAL

Rick Van Engle
TOWN ENGINEER

1/2020
DATE

**TOWN OF EASTON
STANDARD DETAILS**

ESD SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO: TOE-SWM-7.01

SWM QUANTITY SUMMARY CHART

PRACTICE	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	T _c (MINUTES)	PRE 2 YEAR	POST 2 YEAR	W.S.E.	PRE 10 YEAR	POST 10 YEAR	W.S.E.	PRE 100 YEAR	POST 100 YEAR	W.S.E.
BioSwale	2.31	1.30	92	1.0	--	0.42	18.30	--	7.73	19.03	--	9.76	19.74
SGW	1.57	0.91	90	1.0	--			--			--		

Drainage areas to the proposed stormwater features differ from existing onsite drainage patterns and are therefore not directly comparable in this chart's format.

Please see stormwater report, dated April 4, 2023 for additional information and exhibits. Onsite quantity management is successfully implemented as described therein.

Bioswales are linked and discharge to Submerged Gravel Wetland - a treatment train of stormwater management features installed in succession. Therefore discharges from the Submerged Gravel Wetland, which contains the final control structure in the train of stormwater features are provided in the table above as a post development condition.



APPROVAL

Rid Van Engle
TOWN ENGINEER

1/2020
DATE

**TOWN OF EASTON
STANDARD DETAILS**

SWM QUANTITY SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO: TOE-SWM-7.02

PROPERTY: TAX MAP 25, PARCEL 138 – LOT 2

CONTRACT PURCHASER/
DEVELOPER: PRO WELLNESS GROUP, LLC
C/O: MATT HARGROVE
8625 BROOKS DRIVE
EASTON, MD 21601

OWNER: TOWN OF EASTON
P.O. 520
EASTON, MD 21601

DEED: 743/703, 2916/104 (MISTLETOE HALL DECLARATION OF COVENANTS)
PLAT: 87/124

CURRENT ZONING: I (INDUSTRIAL)
PROPOSED

BUILDING SETBACKS: FRONT– 40’ FRONT– 122’±
SIDE– 30’ SIDE– 85’±/441’±
REAR– 10’ REAR– 359’±
NON–TIDAL WETLANDS– 25’

PROPOSED DEVELOPMENT: CONSTRUCTION RELATED BUSINESS – 26,000 SF± TOTAL

BUILDING HEIGHT: 40’ MAXIMUM ALLOWED / PROPOSED

TOTAL LOT COVERAGE: 50% PERMITTED (BUILDINGS & STRUCTURES ONLY)
CONSTRUCTION RELATED BUSINESS: 1–STORY OFFICE/WAREHOUSE BUILDING: 26,000 SF; (6%)

PARKING REQUIRED: CONSTRUCTION RELATED BUSINESS @ 1/1000 GFA: 26,000 SF/1000 = 26 SPACES MINIMUM
CONSTRUCTION RELATED BUSINESS @ 1/200 GFA: 26,000 SF/200 = 130 SPACES MAXIMUM
TOTAL SPACES REQUIRED = 26 SPACES (MINIMUM)

PARKING PROVIDED: 49 SPACES PROVIDED

BIKE RACK REQUIRED: 1 BIKE SPACE/10 VEHICLE SPACES; 5 BIKE SPACES/ BIKE RACK REQUIRED

ARTICLE 4 DEVELOPMENT STANDARDS

ARTICLE 4.03.(1): BUILDINGS EXCEEDING 20 FEET IN HEIGHT SHALL INCORPORATE A BASE, MIDDLE AND CAP

ARTICLE 4.04.(A): ON-SITE PARKING REQUIRED: IN ACCORDANCE WITH TOWN OF EASTON ZONING CODE WITHOUT OVERBUILDING PARKING, EMPLOYEE & COMPANY VEHICLES SHALL BE DESIGNATED GENERALLY IN THE SIDE AND OR BACK OF THE PROPERTY.

ARTICLE 4.04.(B): OFF-SITE PARKING: NO PARKING SHALL BE PERMITTED WITHIN THE STREET RIGHT-OF-WAY OF ANY STREETS WITHIN THE PROPERTY.

ARTICLE 4.04.(C): PARKING AREA STANDARDS: IN FRONT AND ON THE SIDE OF THE BUILDINGS, PAVED PARKING AREAS SHALL HAVE LANDSCAPED ISLANDS, NO MORE THAN SEVEN (7) CONSECUTIVE, SINGLE LOADED PARKING SPACES (14 SPACES IF TWO SEVEN-SPACE GROUPINGS OF PARKING SPACES) SHALL BE PROVIDED WITH A LANDSCAPED ISLAND MEASURING AT LEAST SIX (6) FEET IN WIDTH.

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ARTICLE 4.05: TRUCK LOADING & PARKING: ALL LOADING DOCKS SHALL BE LOCATED IN THE REAR OR SIDE OF THE BUILDINGS AND SCREENED FROM VIEW.

ARTICLE 4.06.(A): MATERIAL & EQUIPMENT STORAGE: NO MATERIALS, SUPPLIES OR EQUIPMENT (INCLUDING BOATS, RECREATIONAL VEHICLES, TRAILERS, OR COMPANY OWNED OR OPERATED VEHICLES) SHALL BE STORED FOR NO MORE OF TWENTY-FOUR (24) HOURS IN ANY AREA ON A LOT EXCEPT INSIDE A CLOSED BUILDING , OR BEHIND A VISUAL BARRIER COMPLETELY SCREENED FROM VIEW OF ADJOINING LOTS OR PUBLIC STREETS.

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STORMWATER: STORMWATER QUALITY AND QUANTITY WILL BE ADDRESSED THROUGH ESD FEATURES AS REQUIRED AND AS SHOWN HEREON APPROXIMATELY.

FOREST CONSERVATION: N/A- PREVIOUSLY SATISFIED UNDER ORIGINAL SUBDIVISION APPROVAL

THE CONTOURS SHOWN HEREON WERE TAKEN FROM TOPOGRAPHY PROVIDED BY TALBOT COUNTY AND ARE APPROXIMATE ONLY.
THE SITE IS LOCATED ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA.

NO ABSTRACT OF TITLE, TITLE COMMITMENT, NOR RESULTS OF A TITLE SEARCH HAVE BEEN FURNISHED TO LANE ENGINEERING, LLC. THE BUILDING RESTRICTION LINES AS SHOWN HEREON ARE BASED SOLELY ON THE CURRENT TALBOT COUNTY ZONING ORDINANCE APPLICABLE TO THE PROPERTY SHOWN HEREON AND ARE SUBJECT TO CHANGE WITH THE REVISION OF ZONING LAWS. OTHER DOCUMENTS OF RECORD MAY EXIST THAT MAY AFFECT THE SURVEYED PROPERTY REFLECTED HEREON, INCLUDING BUT NOT LIMITED TO EASEMENTS, ENCUMBRANCES, RESTRICTIVE COVENANTS, PLAT RESTRICTIONS OR ANY OTHER FACTS THAT AN ACCURATE, COMPLETE AND CURRENT TITLE SEARCH MAY DISCLOSE.

THERE ARE NO KNOWN HISTORIC STRUCTURES OR ARCHEOLOGICALLY SIGNIFICANT RESOURCES, STEEP SLOPES APPROACHING 15%, STREAMS, TIDAL WETLANDS/NON-TIDAL WETLANDS OR KNOWN HABITAT PROTECTION AREAS IN PROXIMITY TO THE PROPOSED SITE IMPROVEMENTS.

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LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE = $675 \pm$ LESS 50' UTILITY EASEMENT & 15' BUFFERYARD (65'), LESS ENTRANCE ACCESS (90') (ALONG MISTLETOE DRIVE) EQUALS $520/70' = 7$ TREES REQUIRED

LANDSCAPE REQUIREMENTS § 1014.6.F. (ON-SITE)

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- 2A. INTERIOR PARKING LOT PLANTINGS- 1 TREE PER 10 SPACES;
49 SPACES/ 10 = 5 TREES REQUIRED/ PROVIDED
- 2B. PARKING HEDGE- SHALL BE PROVIDED.
- 2C. BUILDING FAÇADE PLANTINGS- 1 TREE/20' OF AFFECTED FAÇADE = PHASE ONE: 365'/20 = 18 TREES REQUIRED AND SHALL BE PROVIDED.
- 2D. SERVICE/ LOADING AREAS- TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.
- 2F. BUFFERYARDS: 25' WIDE BUFFERYARD 'B' REQUIRED ALONG GLEESBOROUGH NECK ROAD (PER PLAT).

LANDSCAPE BUFFERYARD REQUIREMENTS (SECTION 1014.7 E.)

25' WIDE LANDSCAPE BUFFERYARD 'B' (ALONG GOLDSBOROUGH NECK ROAD)

715' LF LESS 50' SOUTHERN UTILITY EASEMENT (50 LF), LESS 50' NORTHERN UTILITY EASEMENT (50 LF) EQUALS
615 LF / 50' = 12.3 PLANT UNITS (PU)

2 SHADE/ CANOPY TREE	X 12.3 PU	= 24 SHADE/ CANOPY TREES REQUIRED
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LANDSCAPE KEY

- | | |
|---|---|
|  | 2" CALIPER MINIMUM CANOPY OR STREET TREES
(OAK, MAPLE TYPES) |
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|  | STORMWATER MANAGEMENT ESD LANDSCAPING MASS /
PERENNIAL MIX WITH SHRUBS AND GRASSES |

PRINCIPLE #1- INTEGRATED USES ARE DESIRABLE- THIS DEVELOPMENT PROPOSAL PROVIDES ADDITIONAL OFFICE AND ASSOCIATED CONSTRUCTION BUSINESS RELATED WAREHOUSE IN THIS MIXED BUSINESS PARK.

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Lane Engineering, LLC

Established 1986
Civil Engineers • Land Planning • Land Surveyors



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117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

SEAL

DATE _____

ILLUSTRATIVE PLAN

FOR
LOT 1 - MISTLETOE HALL
COMMERCE-BUSINESS PARK

IN THE FIRST ELECTION DISTRICT
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 16, PARCEL 138 LOT 1

ISSUED FOR:	DATE:	BY:
AGENCY REVIEW	4/5/23	BCE

SHEET No. 1 OF 1 DATE: 4/5/23

SCALE:	JOB No.
AS NOTED	230019
	FILE No.
	A037

PROPERTY: TAX MAP 25, PARCEL 138 – LOT 2

CONTRACT PURCHASER/
DEVELOPER: PRO WELLNESS GROUP, LLC
C/O: MATT HARGROVE
8625 BROOKS DRIVE
EASTON, MD 21601

OWNER: TOWN OF EASTON
P.O. 520
EASTON, MD 21601

DEED: 743/703, 2916/104 (MISTLETOE HALL DECLARATION OF COVENANTS)
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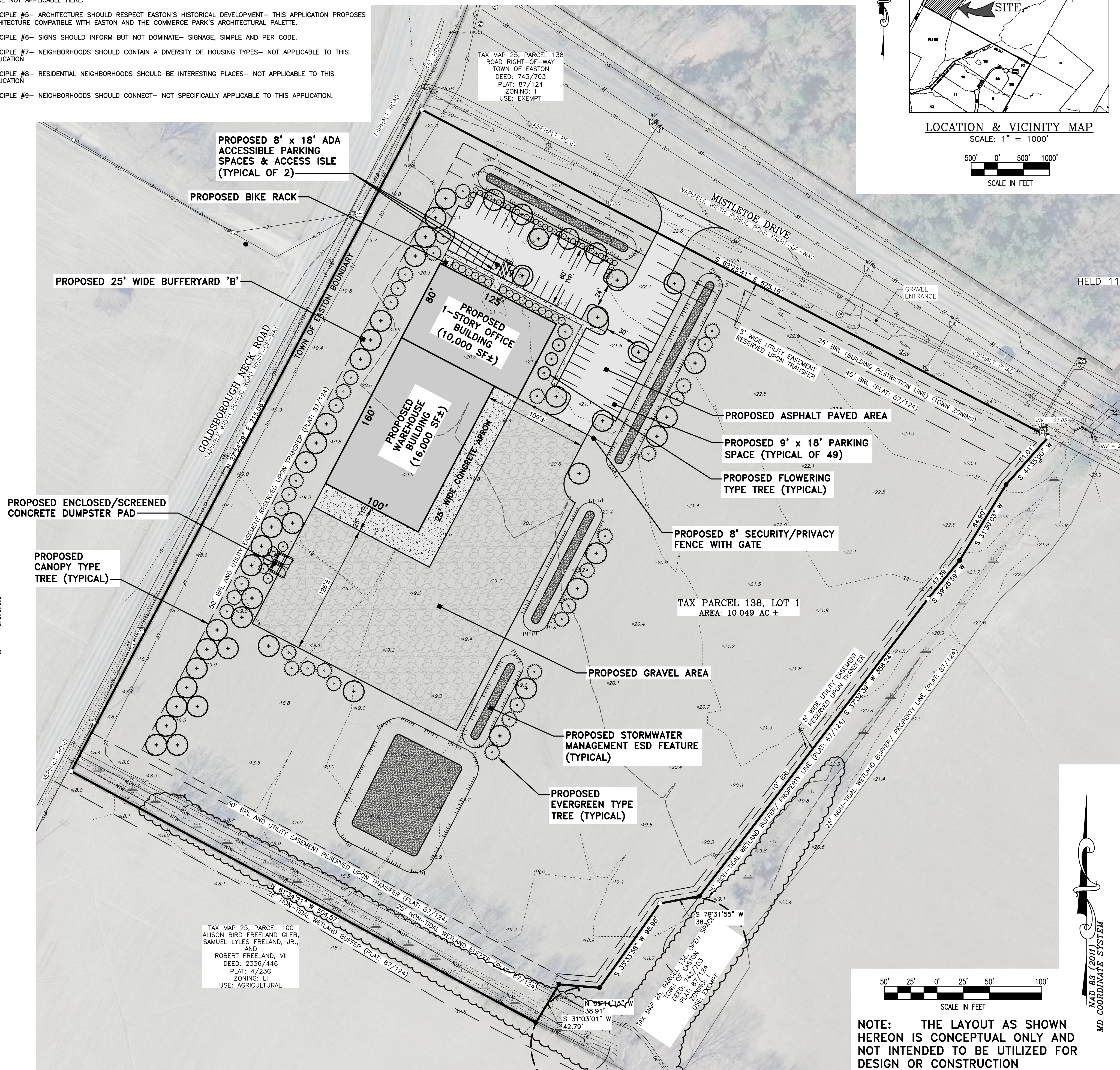
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SEAL

DATE _____

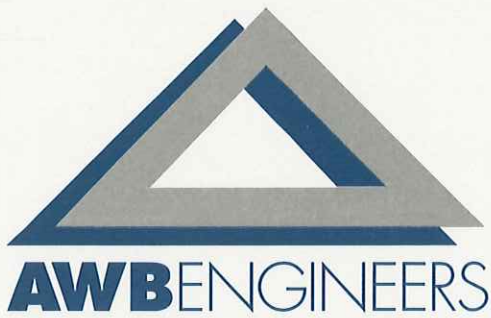
FOR
LOT 1 - MISTLETOE HALL
COMMERCE-BUSINESS PARK

IN THE FIRST ELECTION DISTRICT
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 16, PARCEL 138 LOT 1

ISSUED FOR:	DATE:	BY:
AGENCY REVIEW	4/5/23	BCE

SHEET No. 1 OF 1 DATE: 4/5/23

SCALE:	JOB No.
AS NOTED	230019
	FILE No.
	A037



March 30, 2023
23-EMC-0091

Town of Easton
14 South Harrison Street
Easton, Maryland 21601

RE: Covenant Compliance Letter
Mistletoe Hall Commerce-Business Park
Total Home Performance
Easton, Maryland

To whom it may concern:

This letter serves to demonstrate that the proposed new building for Total Home Performance on Lot 2 within the Mistletoe Hall Commerce-Business Park complies with the Architectural Standards (Article 4, Section 4.03) of the Declaration of Covenants dated November 5, 2021.

Regarding Section A, Paragraph (1), the proposed building will exceed 20'-0" in height and will therefore include the following:

- a) The base consists of a 4'-0" high base feature composed of contrasting black siding
- b) the middle of the building consists of windows set in the field color of off-white siding
- c) the cap feature is a parapet

Regarding Paragraph (2), we have included major architectural façade elements as rectangular "portal" features which serve to highlight the entrances to the building. These portals also serve to assist the building with complying with Paragraph (3). The portals create a change of exterior plane so that no single length of wall plane exceeds 60'-0".

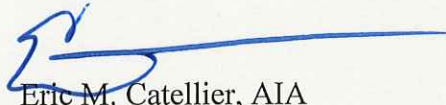
Our building complies with Section B by utilizing the steel panel option in Paragraph (4). We are proposing a 4'-0" high wainscot of contrasting black panels which wrap the entire perimeter of the building.

Regarding Section C, our roof slopes will be 1/2:12, however they will be screened from view by integrated parapets. There will be no roof mounted equipment

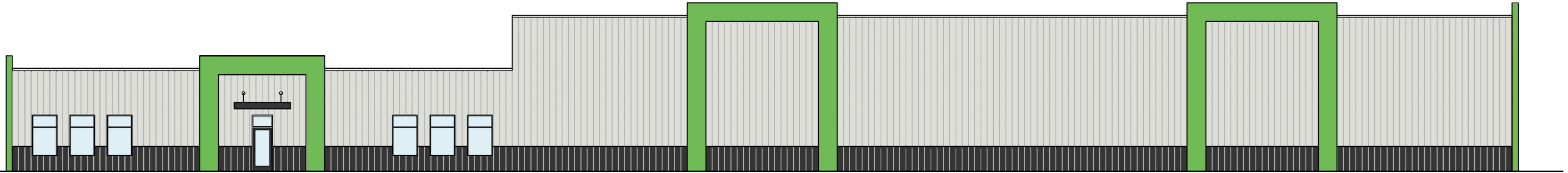
Regarding Section D, we understand that the exterior colors of our building are subject to approval by the Town of Easton. our building is primarily off-white with a black wainscot. The portal features are green, which match the green logo of Total Home Performance. We will submit a rendered version of the building elevations for review and approval.

Thank you for your consideration. We look forward to the approval of this project and its completion for the benefit of Town of Easton.

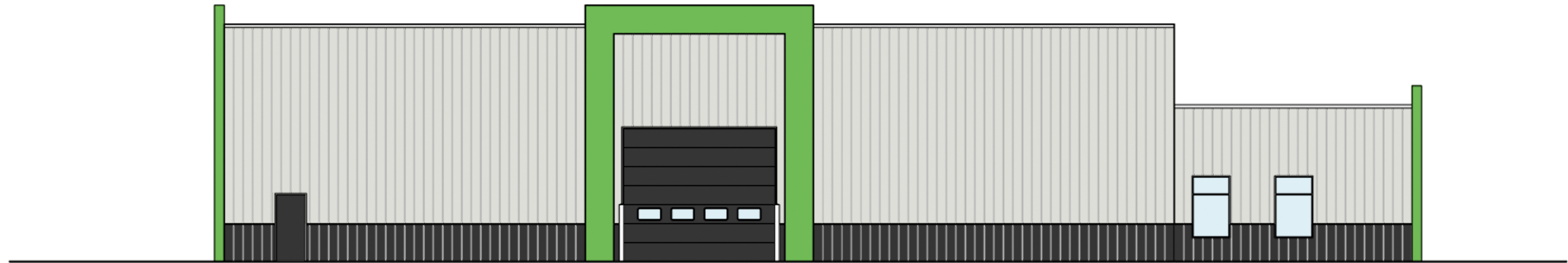
Sincerely,

A handwritten signature in blue ink, appearing to read 'Eric M. Catellier', with a long horizontal line extending to the right.

Eric M. Catellier, AIA
Project Architect



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



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



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



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

THE INFORMATION PRESENTED ON THIS PLAN IS PRELIMINARY IN NATURE AND SHOULD NOT BE RELIED UPON FOR FINAL PRICING OR CONSTRUCTION. THE USER MUST RECOGNIZE THAT THE INFORMATION PRESENTED ON THIS DRAWING MAY CHANGE AS THE FINAL CONSTRUCTION PLANS ARE DEVELOPED. INCREASED PROJECT COSTS OR DELAYS IN EXECUTION OF THIS PROJECT DUE TO FUTURE DESIGN CHANGES ARE NOT THE RESPONSIBILITY OF AWB ENGINEERS OR ITS SUB-CONTRACTORS.

[illegible]

ENGINEERS/ARCHITECTS
1942 NORTHWOOD DRIVE SALISBURY, MARYLAND 21801-7824
PH. (410) 742-7299 FAX. (410) 742-0273



BUILDING ELEVATIONS

TOTAL HOME PERFORMANCE
EASTON MARY AND

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RAWN EMC

PROJ.MGR. EMC

220418

A-105

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Easton Staff Development Review**Property Information**

Address	LOT 1 MISTLETOE HALL COMMERCE-BUSINESS PARK						
Tax Map	25	Grid	16	Parcel	138	Lot	1
Deed Reference:	Liber	743	Folio	703			
Plat Reference:	Liber	87	Folio	124			
Base Zoning District	I	Historic District	Y ☐ N ☒		Planning Redevelopment	Y ☐ N ☒	

Purpose of Application / Description of Work:

Applicant proposes 16,000sf warehouse building and a 10,000sf 1-story office building with parking.

CONTRACT PURCHASER Owner: TOWN OF EASTON

Name	PRO WELLNESS GROUP LLC C/O MATT HARGROVE	
Mailing Address	8625 Brooke Drive, Easton MD 21601	
Telephone No.	410-822-8003	Email matt@totalhomeperformance.com

Applicant / Agent

Name	Lane Engineering LLC C/O BRETT EWING	
Mailing Address	117 Bay Street, Easton MD 21601	
Telephone No.	410-822-8003	Email bewing@leinc.com

Surveyor / Engineer

Name	LANE ENG	License No.	363	Expiration Date	-
Mailing Address	117 Bay Street Easton MD 21601				
Telephone No.	410-822-8003	Email	bewing@leinc.com		

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

4/5/2023

Printed Name of Applicant or Agent

BRETT EWING

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date

ESDR 2023-08 / 2023-916

Completeness Check Date

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Required Y ☐ N ☐

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature

Date

RECEIVED

APR 06 2023

TOWN OF EASTON

Revised 02-2019

APPENDIX B

SKETCH PLAN SUBMITTAL CHECKLIST

NOTE: THIS CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED ON A SITE PLAN. ADDITIONAL INFORMATION MAY BE REQUIRED FOR UNIQUE SITUATIONS.

COMPLETE THE CHECKLIST AND SUBMIT IT WITH THE PLAN. IF AN ITEM IS NOT APPLICABLE, ENTER "N/A".

1. Location map,	<u>X</u>
2. Boundary,	<u>X</u>
3. Topography,	<u>X</u>
4. General proposed land uses drawn to scale, and	<u>X</u>
5. The Forest Stand Delineation as detailed in the Town of Easton's Forest Conservation Ordinance.	<u>N/A</u>
6. The location of any easements, rights-of-way or any other encumbrances which pertain to the property subject to the site plan review.	<u>X</u>
7. Conditions of concern, for example, water courses, wetlands, floodplains, or other environmentally sensitive features.	<u>X</u>
8. Location of refuse collection, exterior lighting, fencing, and all pedestrian walkways and sidewalks.	<u>X</u>
9. General location and description (r.e. intended function, proposed species, etc.) of proposed landscaping.	<u>X</u>
10. Location of parking including layout and landscaping.	<u>X</u>
11. Conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above.	<u>X</u>
12. A statement describing the extent to which the application complies with the Recommended Design Principles for Easton set forth on pages 29-31 of the Comprehensive Plan.	<u>X</u>

APPENDIX B-2

SKETCH STORMWATER MANAGEMENT PLAN SUBMITTAL CHECKLIST

EFFECTIVE MAY 4, 2010

NOTE: THE FOLLOWING CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED FOR SUPPORT OF A STORMWATER MANAGEMENT CONCEPT PLAN, SITE DEVELOPMENT PLAN, AND/OR FINAL DESIGN PLAN. THE TOWN MAY REQUEST ADDITIONAL INFORMATION AS DEEMED NECESSARY.

COMPLETE THE APPROPRIATE CHECKLIST AND SUBMIT IT WITH THE PLANS, APPLICATION FORM, NARRATIVE OR REPORT, AND FEE. ITEMS IN BOLD ARE REQUIRED FOR CONCEPT AND/OR SITE DEVELOPMENT PHASE REVIEW.

I. Sketch Plan Submittal

A. Site and Resource Map

Natural Resources Identified on Plan, including, but not limited to:

Please use these responses for the following:

(Provided = P; Not Provided = NP; Not Applicable = N/A)

Tidal and Non-Tidal Wetland Boundaries	N/A	
Wetland Buffers		N/A
Floodplain Boundaries and Elevations	N/A	
Streams and other Waterways	N/A	
Stream Buffers	N/A	
Forest Boundaries		N/A
Forest Buffers	N/A	
Critical Areas	N/A	
Steep Slopes (>25%)	N/A	
Erodible Soils	N/A	
Areas of High Recharge	N/A	
Springs		N/A
Soil Types and Hydrologic Soil Groups	P	
Bedrock and/or other Geologic Features	N/A	
Vegetative Cover		P
Existing Drainage Areas and Flow Patterns	P	
Existing Stormwater Outfalls	P	
Site and Resource Map field verified by a properly licensed design professional.	N/A	

Existing contours (1' max intervals) and utilities shown. P

Large tracts of contiguous open spaces, forested areas and other important resources protected by conservation easements.

N/A

Opportunities for afforestation identified.

N/A

Wetland, stream and forest buffers enhanced and/or

expanded.

N/A

B. Site Fingerprinting and Development Layout

Locations of proposed impervious areas provided.

P

Proposed contours (1' max intervals) and utilities shown.

NP

Preliminary locations of proposed Environmental Site Design (ESD) practices provided.

P

Locations of stormwater outfalls and conveyance provided with offsite storm drains, culverts and grass channels with size and slope.

P

Limit of disturbance and extent of clearing & grading.

P

Site natural resources protected during construction.
If site natural resources must be disturbed during construction, please include an explanation in the stormwater narrative.

N/A

Better Site Design Techniques incorporated, including:

Sheetflow and overland flow provided wherever possible

P

Building footprint and site layout designed to protect conservation areas

P

Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area

N/A

Landscaped medians and/or cul-de-sacs

P

Stormwater management features in medians or cul-de-sacs

N/A

Private open road section with grass channels and/or biofilters

N/A

Minimize numbers of parking spaces and sizes

P

Narrow frontages to reduce road length

N/A

Site graded to encourage runoff from impervious areas to pervious areas or other natural conveyance systems

N/A

C. Stormwater Narrative

Title Page includes:

Job Name

P

Owner/Developer

P

Design Professional

P

Date Prepared

P

Seal and Signature (properly licensed Design Professional)

P

Project is identified as new development or redevelopment.
(Redevelopment projects have $\geq 40\%$ total site imperviousness)

P

Project and streets designed for 2-year and 10-year
quantitative management. P

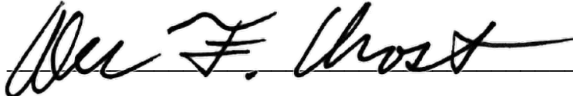
Project is identified as being within the Tanyard Branch
Watershed. (Projects within this watershed must manage
proposed 10-year storm flows to the existing 2-year storm
discharge rate.) N/A

A narrative that supports the concept and describes
how the design will achieve:

Natural resource protection and enhancement	<u>N/A</u>
Maintenance of natural flow patterns	<u>P</u>
Reduction of impervious areas through better site design, alternative surfaces, and non-structural practices	<u>N/A</u>
Implementation of ESD planning techniques and practices to the Maximum Extent Practicable (MEP)	<u>P</u>
Preliminary ESD sizing calculations provided	<u>P</u>
Integration of erosion and sediment controls (ESC) into the stormwater strategy	<u>P</u>

D. Sketch Plan Meeting

Following the Sketch Plan submittal, a meeting will be
scheduled between the Town of Easton Planning & Zoning,
Town Engineer, the Talbot County Soil Conservation
District (SCD) ESC reviewer, the owner/developer, the
SWM and ESC designer(s), and any other reviewers
deemed necessary by the Town of Easton and/or the
Talbot County SCD. Official Minutes from the Sketch
Plan Meeting must be submitted for review and
acceptance by all parties. These minutes must
accompany all future submittals. N/A

This checklist completed by  Date 4-4-23

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Site Plan, PUD, Planned Healthcare Application**Application Type**Planned Unit Development ☐Amendment ☐Health Care (HC) ☐Site Plan ☒**Subdivision Information**

Name

Original Property Size Acres Square Feet

Telephone No. Email

Site Plan Information

Property Size Acres Square Feet

Structure's Floor Area Structure's Square Feet

Area of Disturbance Number of Dwelling Units

Property Information

Address

Tax Map Grid Parcel Lot

Deed Reference: Liber Folio

Plat Reference: Liber Folio

Base Zoning District Historic Y ☐ N ☒ Planned Redevelopment Y ☐ N ☒

Source of Electricity

CONTRACT PURCHASER: Owner : TOWN OF EASTON

Name

Mailing Address

Telephone No. Email

Applicant or Agent

Name

Mailing Address

Telephone No. Email

Surveyor / Engineer

Name License No. Expiration Date

Mailing Address

Telephone No. Email

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

4/5/23

Printed Name of Applicant or Agent

BRETT EWING

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Planning Commission Required	Y ☐	N ☐
Planning Commission Meeting Date		
Sketch Approval Date	Project No.	ESDR 2023-08
Prelim/Dev. Approval Date	Application No.	2023-916
Final Approval Date	Sketch Fee Paid	04/06/2023
Recordation Date	Develop. Fee Paid	

Revised 02-2019

RECEIVED
APR 06 2023
TOWN OF EASTON

**Town of Easton**

Engineering, Planning and Zoning

14 South Harrison Street, Easton, MD 21601

Site Plan, PUD, Planned Healthcare Application**Application Type**Planned Unit Development ☐Amendment ☐Health Care (HC) ☐Site Plan ☒**Subdivision Information**

Name **MISTLETOE HALL FARM**
Original Property Size Acres **1.559** Square Feet
Telephone No. **410-822-7777** Email **DANLERIAN@YAHOO.COM**

Site Plan Information

Property Size Acres **1.559** Square Feet **67,910**
Structure's Floor Area **8,800** Structure's Square Feet **8,800**
Area of Disturbance **17,390** Number of Dwelling Units **2**

Property Information

Address **28860 FAUSLEY WOOD ROAD EASTON, MD 21601**
Tax Map **25** Grid **16** Parcel **138** Lot **6C**
Deed Reference: Liber Folio
Plat Reference: Liber Folio
Base Zoning District **I** Historic Y ☐ N ☒ Planned Redevelopment Y ☐ N ☐
Source of Electricity **TOWN**

Owner

Name **BLUE CRAB SELF STORAGE, LLC**
Mailing Address **8693 BROOKS DRIVE, EASTON, MD 21601**
Telephone No. **410-822-7777** Email **DANLERIAN@YAHOO.COM**

Applicant or Agent

Name **DANIEL M. LERIAN**
Mailing Address **10555 LAKE ROAD EASTON, MD 21601**
Telephone No. **410-822-7777** Email **DANLERIAN@YAHOO.COM**

Surveyor / Engineer

Name **ATIN: CHARLES P. JOHNSON & ASSOCIATES INC** Expiration Date
Mailing Address **THOMAS HALL** License No.
Telephone No. **15 OLD SOLOMONS ISLAND ROAD, SUITE 204 ANNAPOLIS, MD 21401** Email **THALL@CPJA.COM**

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

Printed Name of Applicant or Agent

D/M/L

2/5/2023

DANIEL M. LERIAN

For Office Use Only

Planning Commission Required	Y ☐ N ☐	
Planning Commission Meeting Date		
Sketch Approval Date	Project No.	ESDR 2023-09
Prelim/Dev. Approval Date	Application No.	2022-782
Final Approval Date	Sketch Fee Paid	10/03/2022
Recordation Date	Develop. Fee Paid	

Revised 02-2019

APPENDIX B-2

SKETCH STORMWATER MANAGEMENT PLAN SUBMITTAL CHECKLIST

EFFECTIVE MAY 4, 2010

NOTE: THE FOLLOWING CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED FOR SUPPORT OF A STORMWATER MANAGEMENT CONCEPT PLAN, SITE DEVELOPMENT PLAN, AND/OR FINAL DESIGN PLAN. THE TOWN MAY REQUEST ADDITIONAL INFORMATION AS DEEMED NECESSARY.

COMPLETE THE APPROPRIATE CHECKLIST AND SUBMIT IT WITH THE PLANS, APPLICATION FORM, NARRATIVE OR REPORT, AND FEE. ITEMS IN BOLD ARE REQUIRED FOR CONCEPT AND/OR SITE DEVELOPMENT PHASE REVIEW.

I. Sketch Plan Submittal

A. Site and Resource Map

Natural Resources Identified on Plan, including, but not limited to:

Please use these responses for the following:

(Provided = P; Not Provided = NP; Not Applicable = N/A)

Tidal and Non-Tidal Wetland Boundaries	<u>P</u>	
Wetland Buffers		<u>P</u>
Floodplain Boundaries and Elevations	<u>N/A</u>	
Streams and other Waterways	<u>N/A</u>	
Stream Buffers	<u>N/A</u>	
Forest Boundaries		<u>N/A</u>
Forest Buffers	<u>N/A</u>	
Critical Areas	<u>N/A</u>	
Steep Slopes (>25%)	<u>N/A</u>	
Erodible Soils	<u>P</u>	
Areas of High Recharge	<u>N/A</u>	
Springs		<u>N/A</u>
Soil Types and Hydrologic Soil Groups	<u>P</u>	
Bedrock and/or other Geologic Features	<u>N/A</u>	
Vegetative Cover		<u>P</u>
Existing Drainage Areas and Flow Patterns	<u>P</u>	
Existing Stormwater Outfalls	<u>P</u>	
Site and Resource Map field verified by a properly licensed design professional.	<u>P</u>	

Existing contours (1' max intervals) and utilities shown. P

Large tracts of contiguous open spaces, forested areas and
other important resources protected by conservation
easements.

P

Opportunities for afforestation identified.

N/A

Wetland, stream and forest buffers enhanced and/or

expanded.

N/A

B. Site Fingerprinting and Development Layout

Locations of proposed impervious areas provided.

P

Proposed contours (1' max intervals) and utilities shown.

P

Preliminary locations of proposed Environmental Site Design (ESD) practices provided.

P

Locations of stormwater outfalls and conveyance provided with offsite storm drains, culverts and grass channels with size and slope.

P

Limit of disturbance and extent of clearing & grading.

P

Site natural resources protected during construction.
If site natural resources must be disturbed during construction, please include an explanation in the stormwater narrative.

N/A

Better Site Design Techniques incorporated, including:

Sheetflow and overland flow provided wherever possible

P

Building footprint and site layout designed to protect conservation areas

N/A

Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area

N/A

Landscaped medians and/or cul-de-sacs

N/A

Stormwater management features in medians or cul-de-sacs

N/A

Private open road section with grass channels and/or biofilters

N/A

Minimize numbers of parking spaces and sizes

P

Narrow frontages to reduce road length

N/A

Site graded to encourage runoff from impervious areas to pervious areas or other natural conveyance systems

P

C. Stormwater Narrative

Title Page includes:

Job Name

P

Owner/Developer

P

Design Professional

P

Date Prepared

P

Seal and Signature (properly licensed Design Professional)

P

Project is identified as new development or redevelopment.
(Redevelopment projects have $\geq 40\%$ total site imperviousness)

P

Project and streets designed for 2-year and 10-year
quantitative management. P

Project is identified as being within the Tanyard Branch
Watershed. (Projects within this watershed must manage
proposed 10-year storm flows to the existing 2-year storm
discharge rate.) N/A

A narrative that supports the concept and describes
how the design will achieve:

Natural resource protection and enhancement P

Maintenance of natural flow patterns P

Reduction of impervious areas through better site design,
alternative surfaces, and non-structural practices P

Implementation of ESD planning techniques and practices
to the Maximum Extent Practicable (MEP) P

Preliminary ESD sizing calculations provided P

Integration of erosion and sediment controls (ESC) into
the stormwater strategy P

D. Sketch Plan Meeting

Following the Sketch Plan submittal, a meeting will be
scheduled between the Town of Easton Planning & Zoning,
Town Engineer, the Talbot County Soil Conservation
District (SCD) ESC reviewer, the owner/developer, the
SWM and ESC designer(s), and any other reviewers
deemed necessary by the Town of Easton and/or the
Talbot County SCD. Official Minutes from the Sketch
Plan Meeting must be submitted for review and
acceptance by all parties. These minutes must
accompany all future submittals. P

This checklist completed by Thomas Hall, PE #49860 Date 02/28/2023



Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

ESDR 2023-09

Easton Staff Development Review

Property Information

Address 28860 FAUSLEYWOOD COURT
Tax Map 25 Grid 16 Parcel 138 Lot 6C
Deed Reference: Liber Folio
Plat Reference: Liber Folio
Base Zoning District Historic District Y ☐ N ☒ Planning Redevelopment Y ☐ N ☐
Purpose of Application / Description of Work:

CONSTRUCT 50' X 88' X 16' MARINE CONTRACTOR BUILDING
40' X 100' X 12' CLIMATE STORAGE BUILDING
19000 SF OF DISTURBANCE

Owner

Name BLUE CRAB SELF STORAGE LLC
Mailing Address 8693 BROOKS DR, EASTON, MD 21601
Telephone No. 410-822-7777 Email DAN.LERIAN@YAHOO.COM

Applicant / Agent

Name DANIEL M. LERIAN
Mailing Address 8693 BROOKS DR EASTON, MD 21601
Telephone No. 410-822-7777 Email DAN.LERIAN@YAHOO.COM

Surveyor / Engineer

Name STEVEN W. WHITEN License No. 21326 Expiration Date 1/8/2023
Mailing Address 113 E. DOVER ST. UNIT C EASTON, MD 21601
Telephone No. 410-822-8484 Email ELIZABETH.FINK
EFINK@FINKWHITEN.COM

Any modifications during review shall warrant an updated application.

I do hereby solemnly declare and affirm that the information provided by this application and the documents attached hereto accurately represent the conditions of the request and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

9/30/2022

Printed Name of Applicant or Agent

DANIEL M. LERIAN

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Easton Staff Development Review Meeting Required

Y ☒ N ☐

RECEIVED

Easton Staff Development Review Meeting Date

02/22/2023

OCT 03 2022

Completeness Check Date

ESDR 2023-09

TOWN OF EASTON

Revisions/Resubmissions Required

Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Required Y ☐ N ☐

BOZA Required Y ☐ N ☐

Historic District Commission Required Y ☐ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature

Date

Revised 02-2019

Mistletoe Hall, Lot 6C

SWM Computations and Report

December 2022

Prepared for:
Dan Larian
10555 Lake Road
Easton, MD 21601
(410) 822-7777
danlerian@yahoo.com



Charles P. Johnson & Associates

45 Old Solomons Island Rd. Suite 204, Annapolis, Md 21401
(410) 266-5599 Fax (410) 266-3871
email: thall@cpja.com

Contents

I - Narrative	2
Existing Conditions	2
Resource Mapping	2
Stormwater Management Concept.....	3
Proposed Conditions	4
II - Environmental Site Design – ESDv	4
III – Minimum Control Requirements (SWM Ordinance 4.1)	5
Attachments	7

I - Narrative

Existing Conditions

This project, known as Mistletoe Hall, Lot 6C, is located at 28860 Fausley Wood Court in Easton. The project site is located on a parcel totaling approximately 1.56 acres. The site is zoned I-1 – Select Industrial District.

The site, in existing conditions, is unimproved. The site is stabilized with turf lawn. There are no steep slopes or other environmental features located onsite, though wetlands are located immediately to the North of the property. These wetlands are encompassed by a Forest Conservation Easement, dedicated to the Town of Easton during the original subdivision process. In existing conditions runoff from the site discharges to both the South and North of the property. The Northern discharge point discharges to the wetland and Forest Conservation Easement, while the Southern discharge point discharges to the public right-of-way of Mistletoe Drive.

There are two soil types located onsite, see Table 1-1 for the summary of the soils. There are no visible signs of erosion location onsite.

Table 1-1

Map Unit Symbol	Map Unit Name	Hydric	Hydrologic Soil Group	K-Factor (Whole Soil)
OtA	<i>Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain</i>	Y*	C/D	0.43
MtcA	<i>Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain</i>	Y*	C	0.49

*Soil contains potentially hydric components

Resource Mapping

a. Primary Environmental Features identified onsite:

1. **Streams** – There are no streams located onsite.
2. **Stream Order** – N/A
3. **Stream Buffers** – N/A
4. **Wetlands and Wetland Buffers** – There are no wetlands or wetland buffers located onsite. Wetlands are located immediately to the North, however the buffer does not encroach on the subject property.
5. **Floodplain** – The site lies within Flood Zone ‘X’ – Area of Minimal Flooding as shown on the FEMA flood insurance rate maps for Talbot County, Maryland. Map No. 24041C0187D, effective July 20, 2016.
6. **Steep Slopes** – Steep slopes do not exist on the subject property.

b. Secondary Environmental Features identified onsite:

1. **Critical Area** – This site is not located within the Chesapeake Bay Critical Area Overlay.
2. **Soils** – There are two soil types located onsite, see Table 1-1 for a summary.

3. **Forests** – There are no forests located onsite. An existing Forest Conservation Easement is located immediately to the North of the property.
4. **Cultural Resources** – This site is not located within a Historic District and there are no other known Cultural Resources located onsite.
5. **Miscellaneous** – No additional secondary environmental features are known to exist onsite.

Stormwater Management Concept

a. Alternative Surfaces

1. **Greens Roofs** shall not be utilized as green roofs are not included in the architectural design.
2. **Pervious Pavements** shall not be utilized as this device typically works best in sandy soils and the areas available for this practice are being treated in other devices.
3. **Reinforced Turf** shall not be utilized as this device typically works best in sandy soils and the areas available for this practice are being treated in other devices.

b. Non-Structural Practices

1. **Rooftop Disconnects** shall not be utilized as this practice works best in sandy soils, and the rooftop is being treated in other devices.
2. **Non-rooftop Disconnects** will not be utilized as this practice works best in sandy soils, and the areas available for this practice are being treated in other devices.
3. **Sheet flow to Conservation Areas** will not be used as part of this development as the areas available for this practice are being treated in alternative, more efficient, practices.

c. Micro-Scale Practices

1. **Rainwater Harvesting** will not be used as there are no plans for greywater reuse, rendering this practice impractical.
2. **Submerged Gravel Wetlands** will not be used as the areas available for use in this practice are not large enough to maintain submerged flow conditions, which is vital to the functionality of this practice.
3. **Landscape Infiltration** will not be utilized as the areas available for this practice are being treated in more efficient practices.
4. **Infiltration Berms** will not be utilized as this practice works best in high infiltration rate soil and infiltration berms have limited capacity to meet ESDv requirements as a stand-alone practice, typically being use for pre-treatment for other devices.
5. **Drywells** shall not be utilized as the in-situ soils are HSG-C and are not conducive to infiltration.
6. **Micro-Bioretenention** shall be utilized as this device will promote filtration of stormwater runoff. This device has not been designed with an underdrain system as the elevation of the site will not allow proper discharge. The device has been designed with an overflow weir to safely convey the larger 10-year storms.

7. **Rain Gardens** will be used as the areas available to drain to this practice are of allowable area. The Town of Easton Standard Detail for a Wet Soil Rain Garden (Std. Dtl. TOE-SWM-6.01-3) will be used in order to promote dewatering of the device.
8. **Swales** will not be used in this development as this practice is suitable for linear applications only.
9. **Enhanced Filters** will not be used as part of this development as the state minimums are being met with other devices.

Proposed Conditions

The owner of this property wishes to construct two buildings, along with a supporting parking lot. The property is currently undeveloped and will require no demolition prior to construction.

This development will provide stormwater management onsite, and a stable outfall for the drainage that leaves the site. Grading will only be performed where required to construct the buildings, parking lot, stormwater management, and to establish the drainage areas as shown on the development plans.

The existing site flow patterns will remain largely unchanged, while using minor grading and piping to support the use of the stormwater management. ESD measures will be implemented to the maximum extent practicable in order to meet the stormwater management requirements.

II - Environmental Site Design – ESDv

This site is being designed per the MDE 2000 Maryland Stormwater Management Manual. ESD devices are being proposed to the MEP and will adhere to the MDE Manual.

Per the Town of Easton Stormwater Management Ordinance (*'The Ordinance'*) planning techniques were implemented during the design process to ensure compliance with the applicable minimum control requirements. The discussion below outlines the various ways ESD was accomplished to the MEP.

- a) Preserving and protecting natural resources
There are no sensitive environmental features located onsite.
- b) Conserving natural drainage patterns.
Overall natural drainage patterns are largely left intact in the final development of this project. The Site Outfall locations will remain largely the same, and discharge conditions will not change as part of this development.
- c) Minimizing impervious area
The proposed development is located near the front of the property in order to limit the amount of impervious required for the drive aisle and parking.
- d) Reducing Runoff Volume

The entirety of the impervious surfaces will enter a stormwater management facility, reducing runoff leaving the site.

- e) Using ESD practices to maintain 100 percent of the annual average predevelopment groundwater recharge volume
The proposed ESD practices meet and exceed the minimum recharge volume, required to maintain the groundwater recharge volume of the site.
- f) Using green roofs, permeable pavement, reinforced turf, and other alternative surfaces
Green roofs are not included in the architectural design, and other alternative surface function best within sandy soils. The in-situ soils are HSG-C and do not lend themselves to the use of alternative surfaces.
- g) Limiting soil disturbance, mass grading, and compaction
The proposed development is located near the front of the property, limiting the amount of disturbance and grading.
- h) Clustering development
The proposed development is located near the front of the property, limiting the amount of impervious located onsite.
- i) Any practices approved by the Administration
The proposed development will be treated using devices from Chapter 5 of the MDE Stormwater Design Manual.

Soils in the development areas have a type ‘C’ HSG classification; therefore, the target RCN for woods in good condition is **70**. The proposed imperviousness for the site is **26%**. Using Table 5.3 from the MDE Manual yields a target rainfall depth (P_E) of **1.60** inches and a target runoff depth (Q_E) of **0.46** inches. From the initial computations, the minimum and target ESD volume is **2,625** cf, of which **213** cf needs to be recharge volume.

Stormwater management will be achieve using a combination of the practices discussed above.

III – Minimum Control Requirements (SWM Ordinance 4.1)

Per the Town of Easton Stormwater Management Ordinance Section 4.1 planning techniques, nonstructural practices, and design methods specified in the Design Manual shall be used to implement ESD to the MEP. Stormwater Management plans for development projects subject to the ordinance shall be designed using ESD sizing criteria, recharge volume, water quality volume, and channel protection storage volume criteria according to the Design Manual and that the MEP standard is met when channel stability is maintained, predevelopment groundwater discharge is replicated, nonpoint source pollution is minimized, and structural stormwater management practices are used only if determined to be absolutely necessary.

ESD Sizing Criteria (ESD_v)

The proposed stormwater management exceeds the minimum ESD_v for the site.

Recharge Volume (Re_v)

The proposed stormwater management will maintain the predeveloped groundwater recharge for the site.

Water Quality Volume (WQ_v)

The proposed stormwater management exceeds the required WQ_v as it also exceeds the required ESD_v for the site.

Channel Protection Volume (Cp_v)

Per Chapter 2 of the MDE Stormwater Management Manual this development is not subject to the Channel Protection Volume requirement.

Overbank Flood Protection Volume (Q_p)

While not required, the Overbank Flood Protection Volume was considered during the design phase of this project. The proposed stormwater management will aid in the reduction of runoff from the proposed development, allowing stormwater to be temporarily stored in the devices.

Attachments

Designer: TMH	Date: December 8, 2022	Checked By:	Date:
Title: Mistletoe Hall, Lot 6C	Job No.: 2022-5067		
Subject: Stormwater Management Computations	Sheet No. of		

Site Tabulations:

Location: 28860 Fausley Wood Ct					
Site Area:	67,891 sf	or	1.56 Ac.		
Soils: HSG 'A' =	0 sf	or	0.00 Ac.	or	0 % of Site
HSG 'B' =	0 sf	or	0.00 Ac.	or	0 % of Site
HSG 'C' =	67,891 sf	or	1.56 Ac.	or	100 % of Site
HSG 'D' =	0 sf	or	0.00 Ac.	or	0 % of Site

Impervious Surface Tabulations:

Proposed Impervious:	17,760 sf	or	0.41 Ac.
Alternative Surfaces:	0 sf	or	0.00 Ac.
Prop. Impervious:	17,760 sf	or	0.41 Ac.

Step 1: Determine SWM Requirements:

A. Determine Pre-Developed Conditions:

Soil Conditions and RCNs for "woods in good condition"

HSG	RCN*	Area	Percent
A	38	0.00 Ac.	0.00
B	55	0.00 Ac.	0.00
C	70	1.56 Ac.	100.00
D	77	0.00 Ac.	0.00

* RCN for "woods in good condition" (AACo, Appx F)

** Actual RCN is less than 30, use RCN = 38

Composite RCN for "woods in good condition"

$$RCN_{woods} = [(38 \times 0.00ac) + (55 \times 0.00ac) + (70 \times 1.56ac) + (77 \times 0.00ac)] / 1.56ac$$

$$RCN_{woods} = 70$$

Target RCN for "woods in good condition" = 70

B. Determine Target P_E Using Table 5.3

P_E = Rainfall used to size ESD practices

Proposed imperviousness (%I)

Impervious Area (from above):

$$\%I = \text{Imperv. Coverage} / \text{Site Area} = 17,760sf / 67,891sf = 26.16 \% = 26 \%$$

- Determine P_E from Table

Hydrologic Soil Group 'A'										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	40									
5%	43									
10%	46									
15%	48	38								
20%	51	40	38	38						
25%	54	41	40	39						
30%	57	42	41	39	38					
35%	60	44	42	40	39					
40%	61	44	42	40	39					
45%	66	48	46	41	40					
50%	69	51	48	42	41	38				
55%	72	54	50	42	41	39				
60%	74	57	52	44	42	40	38			
65%	77	61	55	47	44	42	40			
70%	80	66	61	55	50	45	40			
75%	84	71	67	62	56	48	40	38		
80%	86	73	70	65	60	52	44	40		
85%	89	77	74	70	65	58	49	42	38	
90%	92	81	78	74	70	65	58	48	42	38
95%	95	85	82	78	75	70	65	57	50	39
100%	98	89	86	83	80	76	72	66	59	40

Use P_E = 0 inches of rainfall as the target for ESD implementation

Hydrologic Soil Group 'B'										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	61									
5%	63									
10%	65									
15%	67	55								
20%	68	60	55	55						
25%	70	64	61	58						
30%	72	65	62	59	55					
35%	74	66	63	60	56					
40%	75	66	63	60	56					
45%	78	68	66	62	58					
50%	80	70	67	64	60					
55%	81	71	68	65	61	55				
60%	83	73	70	67	63	58				
65%	85	75	72	69	65	60	55			
70%	87	77	74	71	67	62	57			
75%	89	79	76	73	69	65	59			
80%	91	81	78	75	71	66	61			
85%	92	82	79	76	72	67	62	55		
90%	94	84	81	78	74	70	65	59	55	
95%	96	87	84	81	77	73	69	63	57	
100%	98	89	86	83	80	76	72	66	59	55

Use P_E = 0 inches of rainfall as the target for ESD implementation

Hydrologic Soil Group 'C'										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	74				↑					
5%	75									
10%	76									
15%	78									
20%	79	70								
25%	80	72	70	70						
30%	81	73	72	71	→					
35%	82	74	73	72	70					
40%	84	77	75	73	71					
45%	85	78	76	74	71					
50%	86	78	76	74	71					
55%	86	78	76	74	71	70				
60%	88	80	78	76	73	71				
65%	90	82	80	77	75	72				
70%	91	82	80	78	75	72				
75%	92	83	81	79	75	72				
80%	93	84	82	79	76	72				
85%	94	85	82	79	76	72				
90%	95	86	83	80	77	73	70			
95%	97	88	85	82	79	75	71			
100%	98	89	86	83	80	76	72	70		

Use P_E = 1.6 inches of rainfall as the target for ESD implementation

Hydrologic Soil Group 'D'										
%I	RCN*	P _E = 1"	1.2"	1.4"	1.6"	1.8"	2.0"	2.2"	2.4"	2.6"
0%	80									
5%	81									
10%	82									
15%	83									
20%	84	77								
25%	85	78								
30%	85	78	77	77						
35%	86	79	78	78						
40%	87	82	81	79	77					
45%	88	82	81	79	78					
50%	89	83	82	80	78					
55%	90	84	82	80	78					
60%	91	85	83	81	78					
65%	92	85	83	81	78					
70%	93	86	84	81	78					
75%	94	86	84	81	78					
80%	94	86	84	82	79					
85%	95	86	84	82	79					
90%	96	87	84	82	79	77				
95%	97	88	85	82	80	78				
100%	98	89	86	83	80	78	77			

Use P_E = 0 inches of rainfall as the target for ESD implementation

Composite P_E

HSG	Area	P_E	
A	0 sf	0 in	0sf x 0.00in / 67,891sf = 0 in
B	0 sf	0 in	0sf x 0.00in / 67,891sf = 0 in
C	67,891 sf	1.6 in	67,891sf x 1.60in / 67,891sf = 1.6 in
D	0 sf	0 in	0sf x 0.00in / 67,891sf = 0 in
			Composite P_E = 1.6 in

C. Compute Q_E :

Q_E = Runoff depth used to size ESD practices

$Q_E = P_E \times R_v$, where:

$P_E = 1.6$ in (Composite P_E from above)

$R_v = 0.05 + (0.009)(I)$; $I = 26.2$ %

= $0.05 + 0.009 \times (26.2)$

= 0.29

$Q_E = 1.6$ " x 0.29

= 0.46 inches

ESD Target for the Project

$P_E = 1.60$ Inches

$Q_E = 0.46$ Inches

D. Compute Minimum ESD_v & Re_v for Site:

Required Minimum ESD_v for Site:

$$ESD_v = [(P_E) \times (R_v) \times (A)] / 12$$

Where: $P_E = 1.60$ in. (WQ_v)

$R_v = 0.05 + (0.009 \times \%I)$

= $0.05 + (0.009 \times 26\%)$

= 0.29

Site Area: = 67,891 sf or 1.56 ac

Target $ESD_v = [(1.60 \text{ in.}) \times (0.29) \times (67,891\text{sf})] / 12 =$

= 2,625 cf

Required Minimum Recharge Volume (Re_v) for Site:

$$Re_v = [(S) \times (R_v) \times (A)] / 12$$

Where:

HSG	Area	Recharge Factor	Net 'S'
A	0.00 Ac	0.38	0.00 ac x 0.38 / 1.56 ac 0.00
B	0.00 Ac	0.26	0.00 ac x 0.26 / 1.56 ac 0.00
C	1.56 Ac	0.13	1.56 ac x 0.13 / 1.56 ac 0.13
D	0.00 Ac	0.07	0.00 ac x 0.07 / 1.56 ac 0.00

Composite 'S' = 0.13

$R_v = 0.05 + (0.009 \times \%I)$

= $0.05 + (0.009 \times 26.16\%)$

= 0.29

Target $Re_v = [(0.13) \times (0.29) \times (67,891\text{sf})] / 12 =$

= 213 cf

MDE Section 5.4.3 - Micro-Scale Practices

DA-A1: ESD Practice (M-6) - Micro Bioretention 1

Contributing Drainage Area	=	19,700	sf	or	0.45	Ac.
Impervious Surfaces in DA	=	13,800	sf	or	0.32	Ac.
Percent Imperviousness (%I)	=	70	%	=	13,800 sf / 19,700 sf	
Minimum Surface Area (A _t)	=	394	sf	MINIMUM; 2% of Contributing DA		
Provided Surface Area (A _t)	=	869	sf	≥	394 sf	O.K.

Concept Design Computations:

$$\begin{aligned}
 ESD_v &= (P_E \times R_v \times DA) / 12 \\
 \text{where: } P_E &= 15 \text{ in} \times (A_t / DA) \quad (MDE \text{ Eqn } 5.2) \\
 &= 15 \text{ in} \times (869 \text{ sf} / 19,700 \text{ sf}) \\
 P_E &= 0.66 \text{ in.} \quad (Concept \text{ Design Estimate}) \\
 R_v &= 0.05 + (0.009 \times \%I) \\
 &= 0.05 + (0.009 \times 70\%) \\
 &= 0.68 \\
 ESD_v &= (0.66 \text{ in.} \times 0.68 \times 19,700 \text{ sf}) / 12 \\
 &= 737 \text{ cf} \quad (Concept \text{ Design Estimate}) \\
 Re_v &= [(S) \times (R_v) \times (A)] / 12 \\
 &= [(0.13) \times (0.68) \times (19,700 \text{ sf})] / 12 \\
 &= 102 \text{ cf}
 \end{aligned}$$

Final Design Computations:

Media Storage:	Surface Area x Depth x Void Ratio
Mulch	= 0.25 ft Shredded Hardwood
Filter Media	= 2 ft Bioretention Soil
Choker Layer	= 0.5 ft #8 Stone
Gravel Jacket	= 1 ft #57 Stone
Enhanced Filter	= 0 ft #57 Stone Below Underdrain
Total Depth	= 3.75 ft
Media Storage/ESD _v	= 869 sf x 3.75 ft x 0.40
Media Storage/ESD _v	= 1,304 cf

Ponding Storage:	Average of Water & Device Surface Area x Ponding Depth
Device Surface Area	= 869 sf
Ponding Water Surface Area	= 1,495 sf
Ponding Depth	= 1.00 ft
Ponding Storage	= (869 sf + 1,495 sf) / 2 x 1.00 ft
	= 1,182 cf
Ponding ESD _v	= Device Surface Area x Ponding Depth
	= (869 sf x 1.00 ft)
	= 869 cf

$$\begin{aligned}
 \text{Total Storage} &= 2,486 \text{ cf} \quad \text{Total ESD}_v = 2,173 \text{ cf} \quad \text{Total Re}_v = 1405 \text{ cf} \\
 P_E \text{ Provided} &= (12 \times ESD_v) / (R_v \times DA) \\
 &= (12 \times 2,173 \text{ cf}) / (0.68 \times 19,700 \text{ sf}) \\
 &= 1.95 \text{ in.}
 \end{aligned}$$

$$\begin{aligned}
 ESD_v \text{ Max} &= (P_E \times R_v \times DA) / 12 \\
 &= (2.7 \times 0.68 \times 19,700 \text{ sf}) / 12 \\
 &= 3,014 \text{ cf}
 \end{aligned}$$

TOTAL ESD_v PROVIDED OK!

MDE Section 5.4.3 - Micro-Scale Practices

DA-B1: ESD Practice (M-7) - Rain Garden 1

Contributing Drainage Area	=	2,350	sf	or	0.05	Ac.
Impervious Surfaces in DA	=	1,450	sf	or	0.03	Ac.
Percent Imperviousness (%)	=	62	%	=	1,450 sf / 2,350 sf	
Minimum Surface Area (A_t)	=	47	sf	MINIMUM; 2% of Contributing DA		
Provided Surface Area (A_t)	=	224	sf	≥	47 sf	O.K.

Concept Design Computations:

$$\begin{aligned}
 ESD_v &= (P_E \times R_v \times DA) / 12 \\
 \text{where: } P_E &= 10 \text{ in} \times (A_t / DA) \quad (MDE \text{ Eqn } 5.2) \\
 &= 10 \text{ in} \times (224 \text{ sf} / 2,350 \text{ sf}) \\
 P_E &= 0.95 \text{ in.} \quad (Concept \text{ Design Estimate}) \\
 R_v &= 0.05 + (0.009 \times \%I) \\
 &= 0.05 + (0.009 \times 62\%) \\
 &= 0.61 \\
 ESD_v &= (0.95 \text{ in.} \times 0.61 \times 2,350 \text{ sf}) / 12 \\
 &= 113 \text{ cf} \quad (Concept \text{ Design Estimate}) \\
 Re_v &= [(S) \times (R_v) \times (A)] / 12 \\
 &= [(0.13) \times (0.61) \times (2,350 \text{ sf})] / 12 \\
 &= 16 \text{ cf}
 \end{aligned}$$

Final Design Computations:

Media Storage:	Surface Area x Depth x Void Ratio
Mulch Layer	= 0.25 ft <i>Mulch</i>
Filter Media	= 1.5 ft <i>Bioretention Soil</i>
Choker Layer	= 0 ft <i>Pea Gravel</i>
Gravel Jacket	= 0.5 ft <i>#57 Stone</i>
Total Depth	= 2.25 ft
Media Storage/ESDv	= 224 sf x 2.25 ft x 0.40
Media Storage/ESDv	= 202 cf

Ponding Storage:	Average of Water & Device Surface Area x Ponding Depth
Device Surface Area	= 224 sf
Ponding Water Surface Area	= 318 sf
Ponding Depth	= 0.50 ft
Ponding Storage	= (224 sf + 318 sf) / 2 x 0.50 ft
	= 136 cf
Ponding ESDv	= Device Surface Area x Ponding Depth
	= (224 sf x 0.50 ft)
	= 112 cf

Total Storage	=	338 cf	Total ESDv	=	314 cf	Total Re _v	=	16 cf
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$$\begin{aligned}
 P_E \text{ Provided} &= (12 \times ESD_v) / (R_v \times DA) \\
 &= (12 \times 314 \text{ cf}) / (0.61 \times 2,350 \text{ sf}) \\
 &= 2.63 \text{ in.}
 \end{aligned}$$

$$\begin{aligned}
 ESD_v \text{ Max} &= (P_E \times R_v \times DA) / 12 \\
 &= (2.7 \times 0.61 \times 2,350 \text{ sf}) / 12 \\
 &= 323 \text{ cf}
 \end{aligned}$$

TOTAL ESDv PROVIDED OK!

MDE Section 5.4.3 - Micro-Scale Practices

DA-B2: ESD Practice (M-7) - Rain Garden 2

Contributing Drainage Area	=	2,700	sf	or	0.06	Ac.
Impervious Surfaces in DA	=	1,870	sf	or	0.04	Ac.
Percent Imperviousness (%I)	=	69	%	=	1,870 sf / 2,700 sf	
Minimum Surface Area (A _t)	=	54	sf	MINIMUM; 2% of Contributing DA		
Provided Surface Area (A _t)	=	224	sf	≥	54 sf	O.K.

Concept Design Computations:

$$\begin{aligned}
 ESD_v &= (P_E \times R_v \times DA) / 12 \\
 \text{where: } P_E &= 10 \text{ in} \times (A_t / DA) \quad (MDE \text{ Eqn } 5.2) \\
 &= 10 \text{ in} \times (224 \text{ sf} / 2,700 \text{ sf}) \\
 P_E &= 0.83 \text{ in.} \quad (Concept \text{ Design Estimate}) \\
 R_v &= 0.05 + (0.009 \times \%I) \\
 &= 0.05 + (0.009 \times 69\%) \\
 &= 0.67 \\
 ESD_v &= (0.83 \text{ in.} \times 0.67 \times 2,700 \text{ sf}) / 12 \\
 &= 125 \text{ cf} \quad (Concept \text{ Design Estimate}) \\
 Re_v &= [(S) \times (R_v) \times (A)] / 12 \\
 &= [(0.13) \times (0.67) \times (2,700 \text{ sf})] / 12 \\
 &= 16 \text{ cf}
 \end{aligned}$$

Final Design Computations:

Media Storage:	Surface Area x Depth x Void Ratio
Mulch Layer	= 0.25 ft <i>Mulch</i>
Filter Media	= 1.5 ft <i>Bioretention Soil</i>
Choker Layer	= 0 ft <i>Pea Gravel</i>
Gravel Jacket	= 0.5 ft <i>#57 Stone</i>
Total Depth	= 2.25 ft
Media Storage/ESD _v	= 224 sf x 2.25 ft x 0.40
Media Storage/ESD _v	= 202 cf

Ponding Storage:	Average of Water & Device Surface Area x Ponding Depth
Device Surface Area	= 224 sf
Ponding Water Surface Area	= 318 sf
Ponding Depth	= 0.50 ft
Ponding Storage	= (224 sf + 318 sf) / 2 x 0.50 ft
	= 136 cf
Ponding ESD _v	= Device Surface Area x Ponding Depth
	= (224 sf x 0.50 ft)
	= 112 cf

Total Storage	=	338 cf	Total ESD _v	=	314 cf	Total Re _v	=	16 cf
---------------	---	--------	------------------------	---	--------	-----------------------	---	-------

$$\begin{aligned}
 P_E \text{ Provided} &= (12 \times ESD_v) / (R_v \times DA) \\
 &= (12 \times 314 \text{ cf}) / (0.67 \times 2,700 \text{ sf}) \\
 &= 2.08 \text{ in.}
 \end{aligned}$$

$$\begin{aligned}
 ESD_v \text{ Max} &= (P_E \times R_v \times DA) / 12 \\
 &= (2.7 \times 0.67 \times 2,700 \text{ sf}) / 12 \\
 &= 407 \text{ cf}
 \end{aligned}$$

TOTAL ESD_v PROVIDED OK!

P_E Value Calculations:
--

SWM Summary Chart							
DA #	ESD Practice	DA	Storage Provided	ESD _V	Re _V	P _E Value	Net P _E Value
DA-A1:	Micro Bioretention 1	19,700 sf	2,486 cf	2,173 cf	1,405 cf	1.95 in.	1.95" x 19,700 sf / 67,891 sf = 0.57 in.
DA-B1:	Rain Garden 1	2,350 sf	338 cf	314 cf	16 cf	2.63 in.	2.63" x 2,350 sf / 67,891 sf = 0.09 in.
DA-B2:	Rain Garden 2	2,700 sf	338 cf	314 cf	16 cf	2.08 in.	2.08" x 2,700 sf / 67,891 sf = 0.08 in.
		sf	cf	cf	cf	in.	in.
Totals:				2,801 cf	1,436 cf	Total Net P _E Value = 0.74 in.	
Target ESD _V :				2,625 cf	213 cf	Target P _E = 1.60 in.	
				P _E Provided: (12 x 2,801cf) / (0.29 x 67,891sf) = 1.71 in.			

DANIEL M. LERIAN

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Easton, MD 21601
410-822-7777

danlerian@yahoo.com

MHIC # 101234, MARINE CONTRACTOR LICENSE # 020E
MARYLAND HOME BUILDER LICENSE # 7169
MARYLAND STATE ELEVATOR LICENSE # 1485

SITE PLAN APPLICATION:

MISTLETOE HALL FARM

ACRES :1.559 67,910 SF NO. OF DWELLINGS :2

PROPOSED STRUCTURE : 8,800 SF

AREA OF DISTURBANCE : 17,390 SF

28860 FAUSLEY WOOD RD,EASTON MD 21601

TAX MAP :25 GRID: 16 PARCEL :138 LOT: 6C

OWNER :

BLUE CRAB SELF STORAGE LLC

8693 BROOKS DR ,EASTON, MD 21601

APPLICANT: DANIEL M. LERIAN

ENGINEER: THOMAS HALL thall@cpja.com

CHARLES P. JOHNSON & ASSOCIATES , INC

45 OLD SOLOMONS ISLAND RD

SUITE 204, ANNAPOLIS, MD 21401 410-266-5599

**Design principles statement: The attached drawings and work proposed
complies with all required check list.**

**Development Rights and responsibilities Agreement: I fully certify that
all work as designed will be as per plans attached.**

DANIEL M. LERIAN



Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☐

Subdivision Information

Name
Original Property Size Acres Square Feet
Telephone No. Email

Site Plan Information

Property Size Acres Square Feet
Structure's Floor Area Structure's Square Feet
Area of Disturbance Number of Dwelling Units

Property Information

Address
Tax Map
Deed Reference: Grid Parcel Lot
Plat Reference: Liber Folio
Base Zoning District Liber Folio
Source of Electricity Historic Y ☐ N ☐ Planned Redevelopment Y ☐ N ☐

Owner

Name
Mailing Address
Telephone No. Email

Applicant or Agent

Name
Mailing Address
Telephone No. Email

Surveyor / Engineer

Name License No. Expiration Date
Mailing Address
Telephone No. Email

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Development Standards and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date

Printed Name of Applicant or Agent

For Office Use Only

Planning Commission Required	Y ☐	N ☐
Planning Commission Meeting Date		
Sketch Approval Date		Project No.
Prelim/Dev. Approval Date		Application No.
Final Approval Date		Sketch Fee Paid
Recordation Date		Develop. Fee Paid

Revised 02-2019

SKETCH STORMWATER MANAGEMENT PLAN SUBMITTAL CHECKLIST

NOTE: THE FOLLOWING CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED FOR SUPPORT OF A STORMWATER MANAGEMENT CONCEPT PLAN, SITE DEVELOPMENT PLAN, AND/OR FINAL DESIGN PLAN. THE TOWN MAY REQUEST ADDITIONAL INFORMATION AS DEEMED NECESSARY.

COMPLETE THE APPROPRIATE CHECKLIST AND SUBMIT IT WITH THE PLANS, APPLICATION FORM, NARRATIVE OR REPORT, AND FEE. ITEMS IN BOLD ARE REQUIRED FOR CONCEPT AND/OR SITE DEVELOPMENT PHASE REVIEW.

A. Site and Resource Map

Please use these responses for the following:

(Provided = P; Not Provided = NP; Not Applicable = N/A)

N/A

N/A

N/A

N/A

N/A

K/A

N/A

2/10

$$\frac{N}{A}$$

N/A

$$- \mu_1$$

10

10

100

2

✓

✓

N/A

Wetland, stream and forest buffers enhanced and/or

expanded.

B. Site Fingerprinting and Development Layout

Locations of proposed impervious areas provided.

Proposed contours (1' max intervals) and utilities shown.

Preliminary locations of proposed Environmental Site Design (ESD) practices provided.

Locations of stormwater outfalls and conveyance provided with offsite storm drains, culverts and grass channels with size and slope.

Limit of disturbance and extent of clearing & grading.

Site natural resources protected during construction.
If site natural resources must be disturbed during construction, please include an explanation in the stormwater narrative.

Better Site Design Techniques incorporated, including:

Sheetflow and overland flow provided wherever possible
Building footprint and site layout designed to protect conservation areas

Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area

Landscaped medians and/or cul-de-sacs

Stormwater management features in medians or cul-de-sacs

Private open road section with grass channels and/or biofilters

Minimize numbers of parking spaces and sizes

Narrow frontages to reduce road length

Site graded to encourage runoff from impervious areas to pervious areas or other natural conveyance systems

C. Stormwater Narrative

Title Page includes:

Job Name

Owner/Developer

Design Professional

Date Prepared

Seal and Signature (properly licensed Design Professional)

Project is identified as new development or redevelopment.
(Redevelopment projects have $\geq 40\%$ total site imperviousness)

Project and streets designed for 2-year and 10-year quantitative management.



Project is identified as being within the Tanyard Branch Watershed. (Projects within this watershed must manage proposed 10-year storm flows to the existing 2-year storm discharge rate.)



A narrative that supports the concept and describes how the design will achieve:

- Natural resource protection and enhancement
- Maintenance of natural flow patterns
- Reduction of impervious areas through better site design, alternative surfaces, and non-structural practices
- Implementation of ESD planning techniques and practices to the Maximum Extent Practicable (MEP)
- Preliminary ESD sizing calculations provided
- Integration of erosion and sediment controls (ESC) into the stormwater strategy



D. Sketch Plan Meeting

Following the Sketch Plan submittal, a meeting will be scheduled between the Town of Easton Planning & Zoning, Town Engineer, the Talbot County Soil Conservation District (SCD) ESC reviewer, the owner/developer, the SWM and ESC designer(s), and any other reviewers deemed necessary by the Town of Easton and/or the Talbot County SCD. Official Minutes from the Sketch Plan Meeting must be submitted for review and acceptance by all parties. These minutes must accompany all future submittals.



This checklist completed by _____

Date 3/15/2023

APPENDIX B

SKETCH PLAN SUBMITTAL CHECKLIST

NOTE:

THIS CHECKLIST REPRESENTS THE MINIMUM INFORMATION TO BE SUBMITTED ON A SITE PLAN. ADDITIONAL INFORMATION MAY BE REQUIRED FOR UNIQUE SITUATIONS.

COMPLETE THE CHECKLIST AND SUBMIT IT WITH THE PLAN. IF AN ITEM IS NOT APPLICABLE, ENTER "N/A".

1. Location map, ✓
2. Boundary, ✓
3. Topography, ✓
4. General proposed land uses drawn to scale, and ✓
5. The Forest Stand Delineation as detailed in the Town of Easton's Forest Conservation Ordinance. N/A
6. The location of any easements, rights-of way or any other encumbrances which pertain to the property subject to the site plan review. ✓
7. Conditions of concern, for example, water courses, wetlands, floodplains, or other environmentally sensitive features. ✓
8. Location of refuse collection, exterior lighting, fencing, and all pedestrian walkways and sidewalks. ✓
9. General location and description (r.e. intended function, proposed species, etc.) of proposed landscaping. ✓
10. Location of parking including layout and landscaping. ✓
11. Conceptual building elevations or renderings illustrating the character, scale, and materials of all proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above. ✓
12. A statement describing the extent to which the application complies with the Recommended Design Principles for Easton set forth on pages 29-31 of the Comprehensive Plan. ✓

Sketch Site Plan

Sketch, Development Site plans and Final Site plans shall be prepared by a registered professional engineer, registered architect, registered landscape architect, registered land surveyor, or professional planner (AICP) who is operating within the scope of his license with respect to the services provided. Applicants are also advised to contact other governmental agencies (e.g. Easton Utilities, Maryland State Highway Administration, Maryland Department of Natural Resources, etc.) to obtain information as early as possible concerning any additional requirements those agencies may impose as a result of the proposed development.

COMPLETE APPLICATION REQUIRED AT SUBMISSION

Application review shall not commence unless a complete application is submitted. A complete application includes all **minimum** submission materials, studies and documents on this Checklist of Minimum Submission Requirements.

The Applicant shall provide an original signed copy and 3 paper copies of all submitted materials to begin checklist review. All plans shall be folded to a size of approximately 8 1/2" x 11" with the title block visible.

APPLICATION RESUBMISSION

Any resubmission will require that all materials be included in the resubmission package unless otherwise instructed. Areas shaded in gray are not optional.

Checklist of Minimum Submission Requirements Sketch Site Plan

	Provided	N/A
A. FEE CHECK. Fee Check, payable to the Town of Easton and attached to the plan. Fee schedules are available from the Planning and Zoning Department.	✓	
B. APPLICATION FORM. Provide a completed and signed form.	✓	
C. DESIGN PRINCIPLES STATEMENT: A statement describing the extent to which the application complies with the Recommended Design Principles for Easton set forth on pages 29-31 of the Comprehensive Plan	ATTACHED	
D. DEVELOPMENT RIGHTS AND RESPONSIBILITIES AGREEMENT. Provide an approved and fully executed agreement, if applicable.	ATTACHED	
E. SKETCH SITE PLAN. The site plan shall be sealed by a Licensed Professional Engineer (P.E.) or Surveyor. The site plan shall contain the following applicable data, legibly drawn, on sheets of 24 inches by 36 inches in size, with appropriate matchlines, (as necessary):	✓	
1) COVER SHEET	✓	
a) The Title "Site Plan"	✓	
b) Owner's name and address	✓	
c) Applicant name and address	✓	

d) Signature and seal of registered land surveyor, registered professional engineer, registered architect, or registered landscape architect responsible for the accuracy of the site plan	✓	
e) Sheet Index, including the number of sheets in the plan.	✓	
f) Property Tax Map and Parcel information for all properties that are part of the application. Such references may be made in tabular form or shown on the plan.	✓	
g) Vicinity map showing the location of the proposed plan drawn to a scale 1 inch equals not more than 2,000 feet or other appropriate scale as permitted by the Director. • The existing perimeter boundary line of the proposed plan and of any larger tract of which the plan forms a part. • Existing and mapped roads and principal access points with their names and route numbers (if applicable) • Town boundary lines within one mile of the proposed subdivision • North arrow	✓	
h) Approval Block	✓	
i) Revision Block showing the date of the drawing and date and type of all revisions made to any sheet of the plan.	✓	
j) Original Plan Date	✓	
k) The source of title of the owner (the deed book and page number of the last deed in the chain of title for all included property)	✓	
l) A source of floodplain note that describes the source of the existing floodplain information	✓	
2) EACH SHEET	✓	
a) The scale of the plat or plan shall be shown in feet	✓	
b) North arrow	✓	
c) Proposed name of the development. No proposed names of developments shall duplicate or closely resemble the name of any existing or currently proposed subdivision or development in Easton	✓	
d) A revision block shall be shown on all remaining sheets of the plan itemizing the revisions applicable to each sheet	✓	
e) Original plan date	✓	
f) Ward District and Easton, Maryland within the title block	✓	
3) ZONING DISTRICT AND JURISDICTIONAL BOUNDARIES	✓	
a) The zoning district boundaries shall be shown when a	✓	

property is located in more than one zoning district. Zoning overlay district boundaries shall be shown when a property is located within any zoning overlay district.	✓	
b) Jurisdictional boundaries shall be shown for property located adjacent to Talbot County	✓	
4) ZONING REQUIREMENTS: In tabular form show the specific zoning requirements, in accordance with the Zoning Ordinance, including any approved conditions or variances, for the subject property and the existing zoning districts to include but not limited to: maximum lot coverage; minimum lot size; minimum lot frontage; building envelope; minimum front, side and rear setbacks; maximum building heights; parking spaces required and provided (including standard and handicap accessible); open space requirements; proposed uses and proposed number of lots.	✓	
5) ADDITIONAL INFORMATION - EXISTING CONDITIONS	✓	
a) For adjoining property information, show: Tax Map and Parcel and adjacent zoning district. The existing adjacent land use shall be indicated for the purpose of determining buffer requirements per the Zoning Ordinance.	✓	
b) Show any features on adjacent properties that influence the site such as slopes, wetlands, floodplains, embankments, retaining walls, and other physical and environmental features.	✓	
c) Existing open space and conservation easements with deed book and page number.	✓	
d) Right-of-way, utility, and other known existing easements with deed book and page number.	✓	
e) The boundaries of the Critical Area, Critical Area Buffer, and other environmental buffers	✓	
f) Areas of forest or other vegetated cover.	✓	
g) Watercourses and names, if any.	✓	
h) Wetlands data as follows: • Potential jurisdictional waters and wetlands as identified by a consultant wetland delineation performed in accordance with Army Corps of Engineers (Corps) standards shall be depicted on the plan. • A note referencing the source of the wetland information depicted on the plan (including the Corps Jurisdictional Determination number and date, if it exists) and indicating that all applicable state and federal permits shall be obtained prior to disturbances within jurisdictional waters and wetlands shall be provided on the plan.	✓	
i) Existing contours with intervals not more than one (1) foot. Elevations shall be based on the United States Geological Survey or equivalent adjusted datum. (Source of contour data	✓	

referenced on site plan; include a benchmark with elevation and location on the plan.)	✓	
j) Pollution sources (including without limitation dump sites, drainfields, buried fuel tanks, hazardous material storage facilities, solid and liquid disposal sites, etc.) that are known or as identified	✓	
6) ADDITIONAL INFORMATION - PROPOSED	✓	
a) Reference to associated land development application numbers and corresponding approval dates for land development applications preceding the subject application submission that involve the subject property. Land development applications involving only adjacent sections, or expired or superseded land development applications, do not need to be listed.	✓	
b) For each building, the number of floors, floor area, height, exterior dimensions, location, and proposed use of each building, structure or other improvement. If an alteration is proposed to an existing building, structure, or other improvement, dotted lines shall denote features or locations to be abandoned and solid lines shall denote proposed features.	✓	
c) Layout of parking, loading spaces, bicycle spaces, and pedestrian and bicycle facilities. Indicate type of surfacing, parking stall and loading space dimensions, angle of parking stalls, width of aisles, and number of ADA and loading spaces provided. For parking spaces, show: - Existing spaces - Proposed spaces - Required spaces	✓	
d) The location of refuse collection	✓	
e) Location, type, size, and height of fencing, screening, and retaining walls.	✓	
f) Location of exterior lighting.	✓	
g) The proposed location of multiple mailbox groupings and other uses requiring a vehicle staging area.	✓	
h) Location, type, and dimensions of vehicular ingress and egress to the site, and clear sight triangles as applicable.	✓	
i) The location, size, height, number, and orientation of all proposed signs	✓	
j) Dimensions in feet and decimal parts to demonstrate compliance with regulations, conditions or variances	✓	
k) Note(s) on plans where land or facilities are to be dedicated to, and held in perpetuity by, a lot-owner's association, condominium association, or similar entity. If residential development, include homeowner's association	✓	

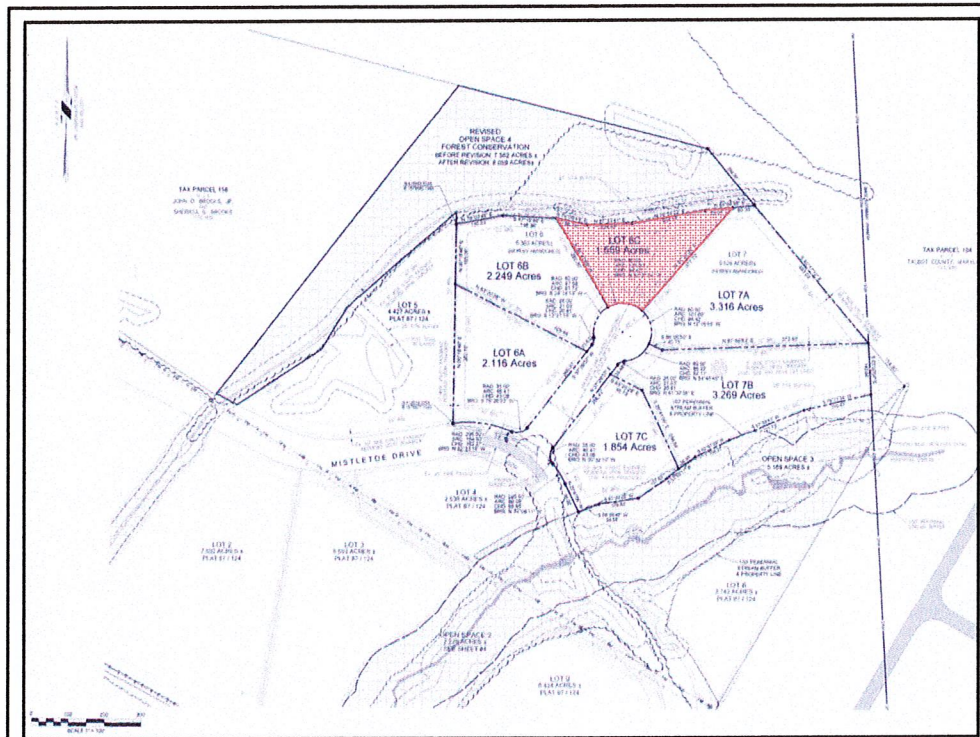
documentation when common open space and buffer areas are provided.	✓	
l) Conceptual building elevation renderings or sketches illustrating the character, scale, and materials and which accurately depict the architecture of any proposed structures. Such elevations or renderings shall be sealed by a licensed professional as described above.	✓	
m) Digital 3D renderings accurately depicting all building facades as well as those on all buildings within 200 feet in either direction on the same block as the proposed building	✓	
n) General location and description (i.e. intended function, proposed species, etc.) of proposed landscaping	✓	
7) STORMWATER MANAGEMENT CONCEPT PLAN: A stormwater management concept plan in accordance with the Stormwater Management Ordinance of the Town of Easton and showing at a minimum: 1) the location of the proposed limit of disturbance, erodible soils, steep slopes, and areas to be protected during construction; 2) preliminary estimates of stormwater management requirements, the selection and location of ESD practices to be used, and the location of all points of discharge from the site; and 3) a narrative that supports the concept design and describes how ESD will be implemented to the MEP.	✓	
9) FOREST STAND DELINEATION: A Forest Stand Delineation as detailed in the Town of Easton's Forest Conservation Ordinance.	✓	

MISTLETOE HALL FARM SUBDIVISION

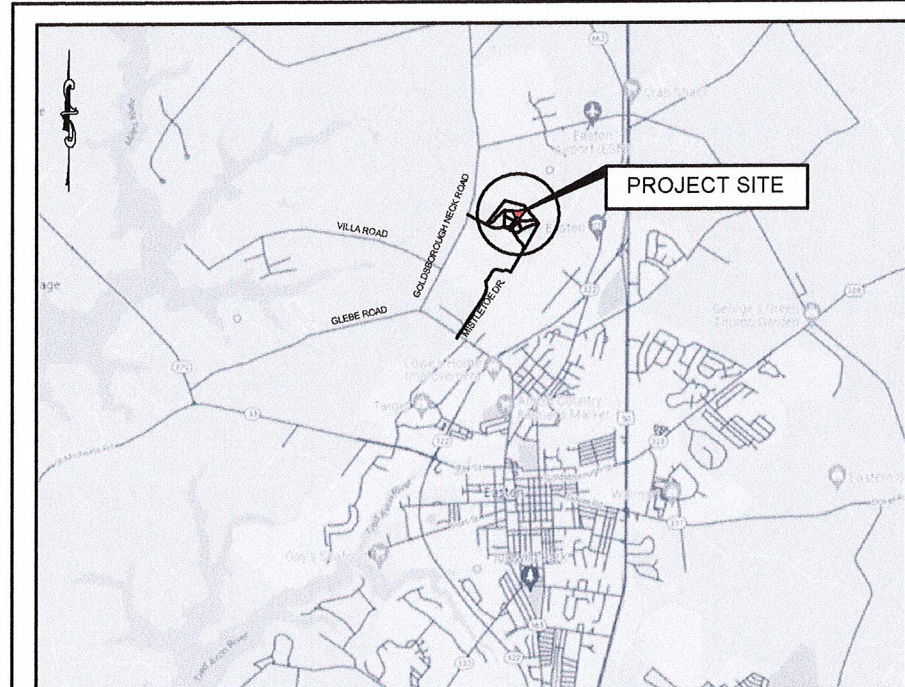
LOT 6C IMPROVEMENTS

28860 FAUSLEY WOOD COURT

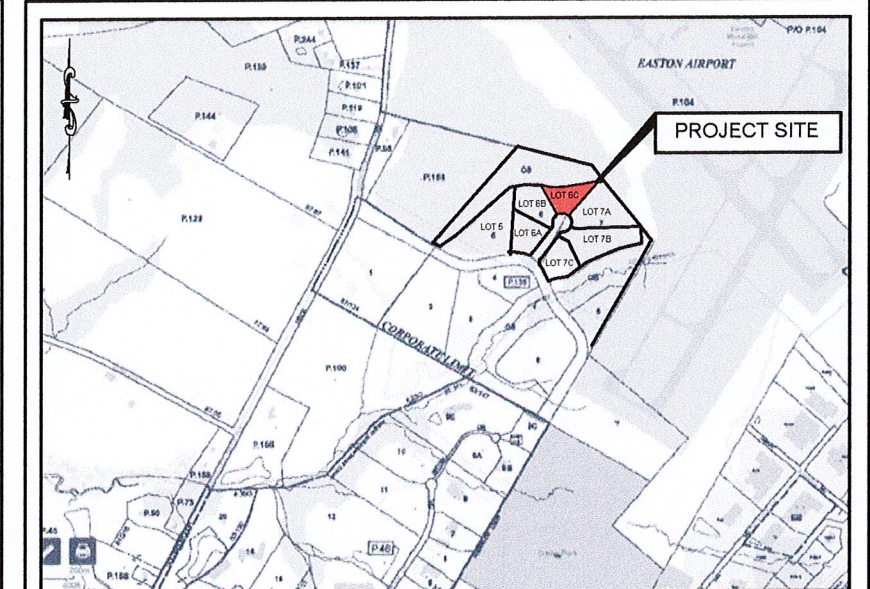
TOWN OF EASTON, MARYLAND



MISTLETOE FARM SUBDIVISION
(N.T.S.)

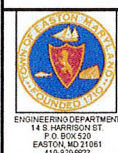


TOWN OF EASTON, MD
(N.T.S.)



TAX MAP
(N.T.S.)

STANDARD SYMBOLS*		STANDARD SYMBOLS*		STANDARD SYMBOLS*		STANDARD SYMBOLS*	
PLUNGE POOL	PP	STONE/RIPRAP OUTLET SEDIMENT TRAP ST II	ST-II	FILTER LOG	FL-18	VERTICAL DRAW-DOWN DEVICE	VDD
PORTABLE SEDIMENT TANK	PPST	SUBSURFACE DRAINS	SSD	GABION INFLOW PROTECTION	GIP	WASH RACK OPTION	WRO
REMOVABLE PUMPING STATION	RPS	SUMP PIT	SP	GABION INLET PROTECTION	GIP	GENERAL NOTES: 1. OWNER: BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 2. ZONING: I 3. BUILDING SETBACKS: 40' FRONT 10' SIDES 30' REAR 4. THE PROPERTY SHOWN HEREON IS NOT LOCATED WITHIN THE COASTAL FLOOD PLAIN AS SHOWN ON THE FLOOD INSURANCE RATE MAPS COMMUNITY PANEL FOR TALBOT COUNTY, MARYLAND 5. WATER SUPPLY & SEWAGE DISPOSAL: TOWN OF EASTON 6. CONTOURS SHOWN HEREON ARE REFERENCED TO NAVD 1988 7. TAX MAP 25 PARCEL 138 LOT 6C 8. DEED REF: BOOK 00743, PAGE 00703 9. WARD DISTRICT 1 10. BUILDING 1, STORAGE: MIN. 4 SPACES AND 2 FOR MANAGER 10. BUILDING 2, LIGHT INDUSTRIAL: MIN. 1 SPACE PER 2,000 SF GFA. MAX. 1 SPACE / 300SF GFA PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 121123 EXPIRATION DATE: 12/1/23	
RIPRAP INFLOW PROTECTION	RIP	SUPER SILT FENCE	SSF	HORIZONTAL DRAW-DOWN DEVICE	HDD		
RIPRAP OUTLET SEDIMENT TRAP ST III	ST-III	TEMPORARY ACCESS BRIDGE	TAB	LIMIT OF DISTURBANCE	LOD		
ROCK OUTLET PROTECTION I	ROP-I	TEMPORARY ACCESS CULVERT	TAC	MEDIAN INLET PROTECTION	MIP		
ROCK OUTLET PROTECTION II	ROP-II	TEMPORARY ASPHALT BERM	TAB	MEDIAN SUMP INLET PROTECTION	MISIP		
ROCK OUTLET PROTECTION III	ROP-III	TEMPORARY BARRIER DIVERSION	TBD	MOUNTABLE BERM	MB		
SILT FENCE	SF	TEMPORARY GABION OUTLET STRUCTURE	TGOS	PERIMETER DIKE/SWALE	PDS		
SILT FENCE ON PAVEMENT	SFOP	TEMPORARY SOIL STABILIZATION MATTING CHANNEL	TSMC (INCLUDE SHEAR STRESS)	PERMANENT SOIL STABILIZATION MATTING CHANNEL	PSMC (INCLUDE SHEAR STRESS)		
STABILIZED CONSTRUCTION ENTRANCE	SCE	TEMPORARY SOIL STABILIZATION MATTING SLOPE	TSMS (INCLUDE SHEAR STRESS)	PERMANENT SOIL STABILIZATION MATTING SLOPE	PSMS (INCLUDE SHEAR STRESS)		
STANDARD INLET PROTECTION	SIP	TEMPORARY STONE OUTLET STRUCTURE	TOS	PIPE OUTLET SEDIMENT TRAP ST I	ST-I		
STONE CHECK DAM	SCD	TEMPORARY SWALE	TS	PIPE SLOPE DRAIN	PSD		



APPROVED:	
TOWN OF EASTON - PLANNING & ZONING	DATE
APPROVED:	
TOWN OF EASTON - TOWN ENGINEER	DATE

APPROVED:	
EASTON UTILITIES - ENGINEER	DATE

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23	SEAL
DRN BY: FMB				
CHK BY:				
DATE				
BY	NO.	REVISION	DATE	

TITLE SHEET

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD

1
SCALE
AS SHOWN
SHEET NO.
1 OF 10

REVIEWED FOR THE TALBOT COUNTY SOIL CONSERVATION AND MEETS TECHNICAL REQUIREMENTS	
APPROVED:	DATE
TALBOT SOIL CONSERVATION DISTRICT	DATE
NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY, OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT ADDITIONAL PROTECTION BECOMES NECESSARY.	
DEVELOPERS CERTIFICATION	
I, HEREBY CERTIFY THAT ALL THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE ACCORDING TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.	
SIGNATURE	DATE
1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR. 2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.	

DANIEL M. LERIAN
Blue Crab Self Storage LLC

10555 Lake Road
Easton, MD 21601
410-822-7777

danlerian@yahoo.com
MHIC # 101234, MARINE CONTRACTOR LICENSE # 020E
MARYLAND HOME BUILDER LICENSE # 7169
MARYLAND STATE ELEVATOR LICENSE # 1485

March 27, 2023

Joseph A. Mayer, Plan Reviewer Town Of Easton
14 South Harrison Street
Easton, Md 21601 410-822-1943

jmayer@eastonmd.gov

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE
PRINCIPLE # 1 - INTEGRATED USES ARE DESIRABLE- THIS
DEVELOPMENT PROPOSAL PROVIDES ADDITIONAL SHOP SPACE AND
WAREHOUSE IN A MIXED BUSINESS PARK.

PRINCIPLE # 2 -NATURAL FEATURES SHOULD DETERMINE DESIGN- NO
COMPELLING NATURAL FEATURES; SITE LAYOUT ORIENTED TO TAKE
ADVANTAGE OF NATURAL DRAINAGE PATTERNS AND TO ORIENT
BUILDINGS FOOT PRINT TO STREET .
PRINCIPLE # 3 -AUTOMOBILES SHOULD NOT DETERMINE DESIGN-
PARKING FOR SHOP AND WAREHOUSE USERS AND CUSTOMERS ARE
PROVIDED FOR CONVENIENCE WITH ALL PARKING TO BE ON SIDE OF
BOTH BUILDINGS.

PRINCIPLE # 4 -AMPLE OPEN SPACE SHOULD BE PROVIDED WITHIN
AND AROUND NEIGHBORHOODS- AT THE REAR OF PROPOSED
BUILDINGS A BUFFER OF OPEN SPACE HAS BEEN PROVIDED.

PRINCIPLE # 5- ARCHITECTURE SHOULD RESPECT EASTON'S
HISTORICAL DEVELOPMENT-THIS APPLICATION PROPOSE
ARCHITECTURE COMPATIBLE WITH EASTON AND THE COMMERCE
PARK'S ARCHITECTURE PALETTE.

PRINCIPLE # 6 - SIGNS SHOULD INFORM BUT NOT DOMINATE-SIGNAGE
SIMPLE AND PER CODE.

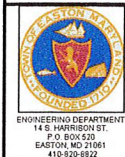
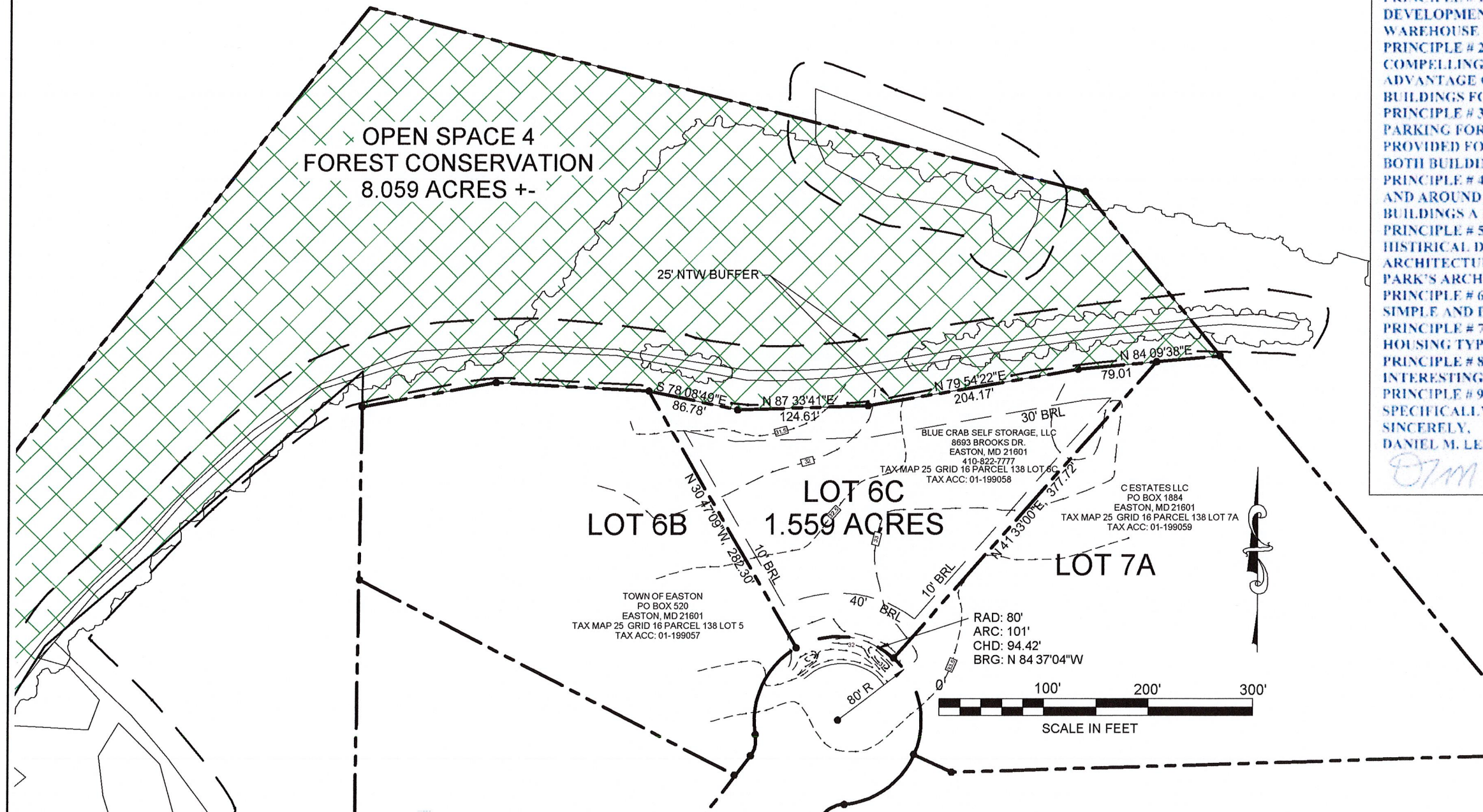
PRINCIPLE # 7 -NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF
HOUSING TYPES -NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE # 8- RESIDENTIAL NEIGHBORHOODS SHOULD BE
INTERESTING PLACES-NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE # 9- NEIGHBORHOODS SHOULD CONNECT-NOT
SPECIFICALLY APPLICABLE TO THIS APPLICATION.

SINCERELY,
DANIEL M. LERIAN

DML



APPROVED:	DATE:
TOWN OF EASTON - PLANNING & ZONING	
APPROVED:	DATE:
TOWN OF EASTON - TOWN ENGINEER	

APPROVED:	DATE:
EASTON UTILITIES - ENGINEER	

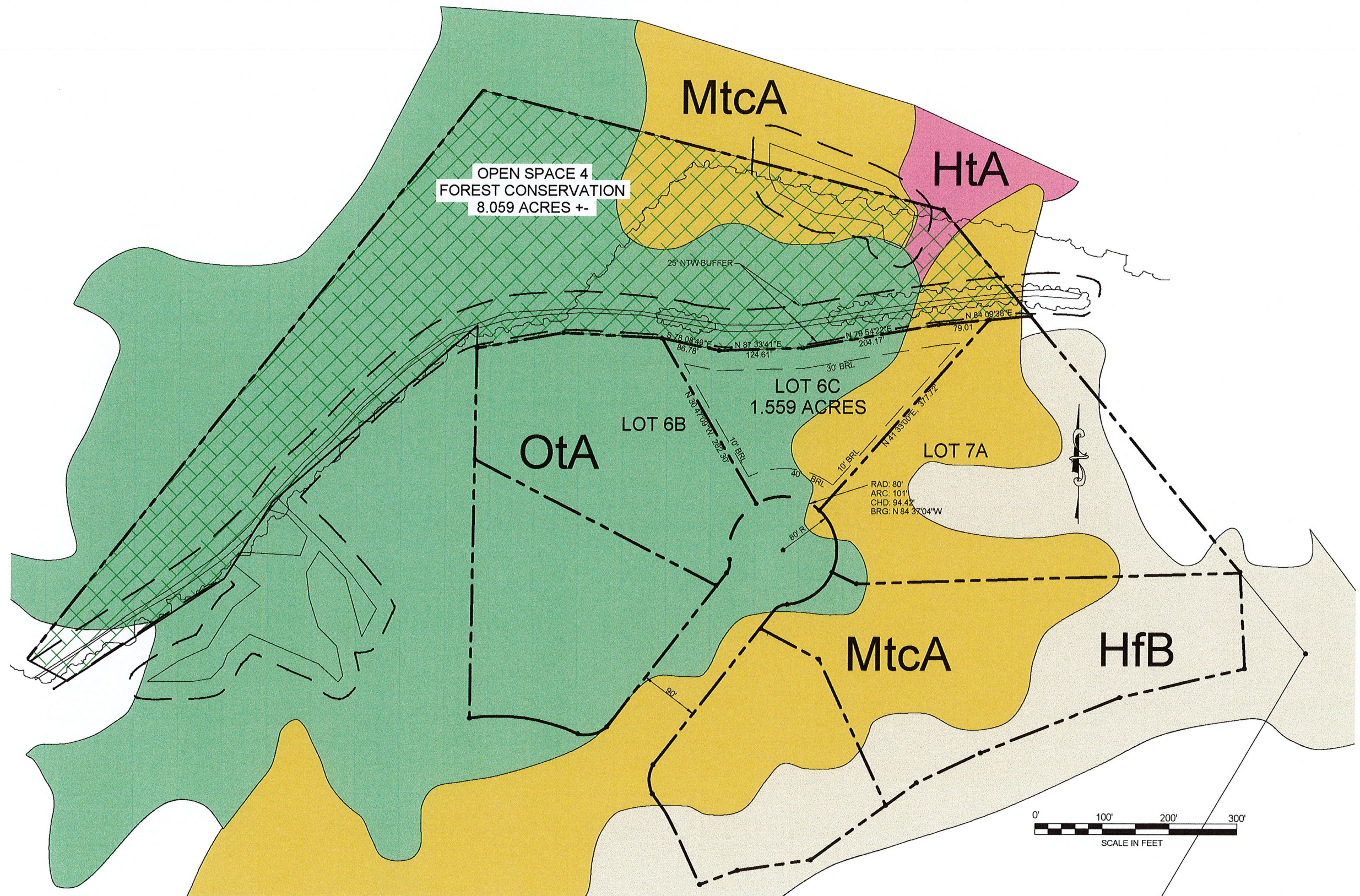
OWNER / DEVELOPER / APPLICANT	SEAL
BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777	

DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:	BY	NO.	REVISION

EXISTING SITE PLAN

MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD
--

2
SCALE AS SHOWN
SHEET NO. 2 OF 10



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____



APPROVED:	DATE:
TOWN OF EASTON - PLANNING & ZONING	
APPROVED:	DATE:
TOWN OF EASTON - TOWN ENGINEER	

APPROVED:	DATE:
EASTON UTILITIES - ENGINEER	

OWNER / DEVELOPER / APPLICANT
 BLUE CRAB SELF STORAGE, LLC
 8693 BROOKS DR.
 EASTON, MD 21601
 410-822-7777

SEAL

DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:			
BY	NO.	REVISION	DATE

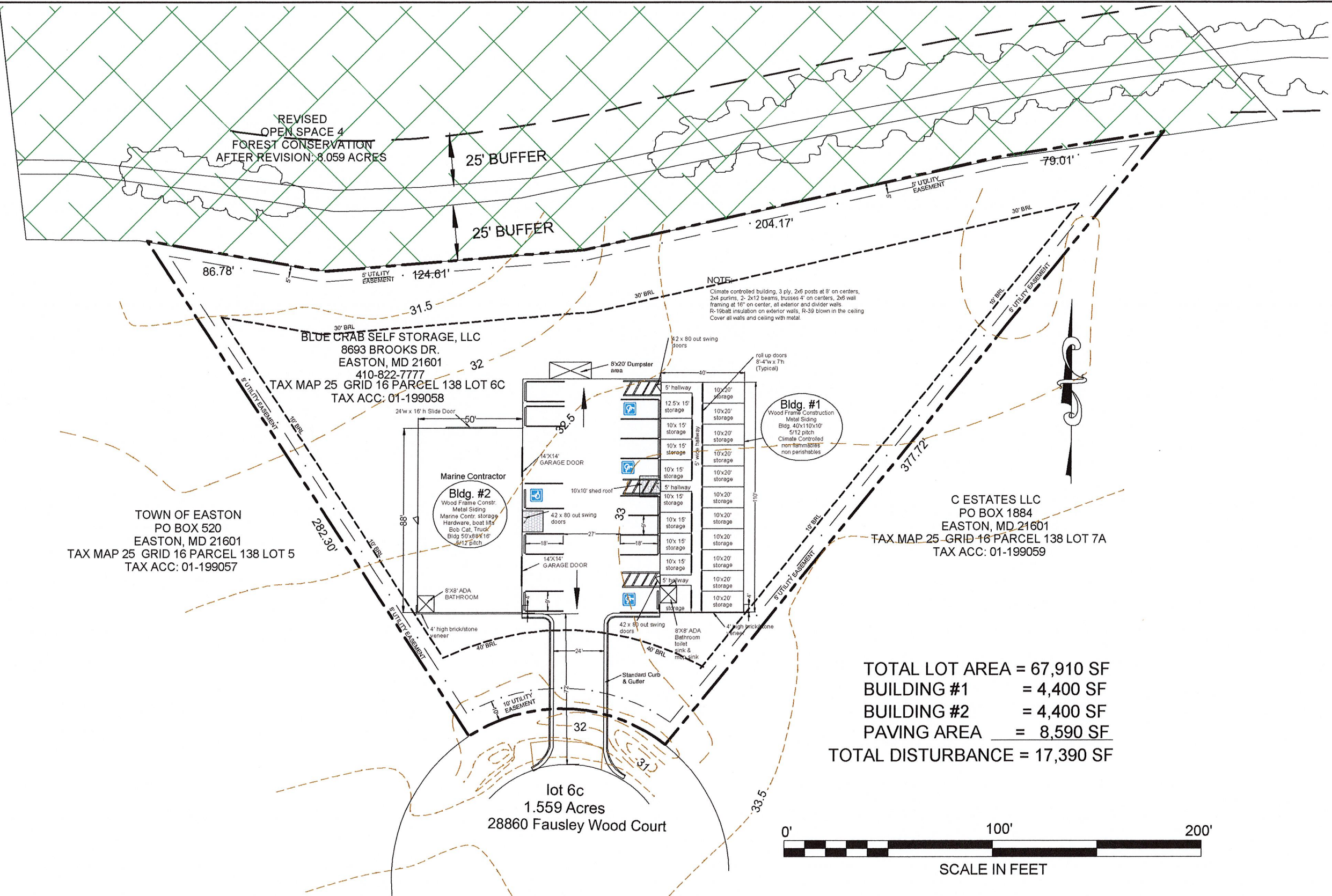
SOIL TYPES

MISTLETOE HALL FARM
 SUBDIVISION
 28860 FAUSLEY WOOD COURT
 WARD DISTRICT #1, EASTON, MD

3

SCALE
 AS SHOWN

SHEET NO.
 3 OF 10

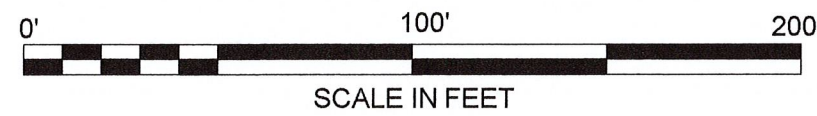


NOTE:
Climate controlled building, 3 ply, 2x6 posts at 8' on centers,
2x4 purlins, 2- 2x12 beams, busses 4' on centers, 2x6 wall
framing at 16" on center, all exterior and divider walls.
R-19 batt insulation on exterior walls, R-39 blown in the ceiling.
Cover all walls and ceiling with metal.

Bldg. #1
Wood Frame Construction
Metal Siding
Bldg. 40'x110'x10'
5/12 pitch
Climate Controlled
non-flammable
non-penetrables

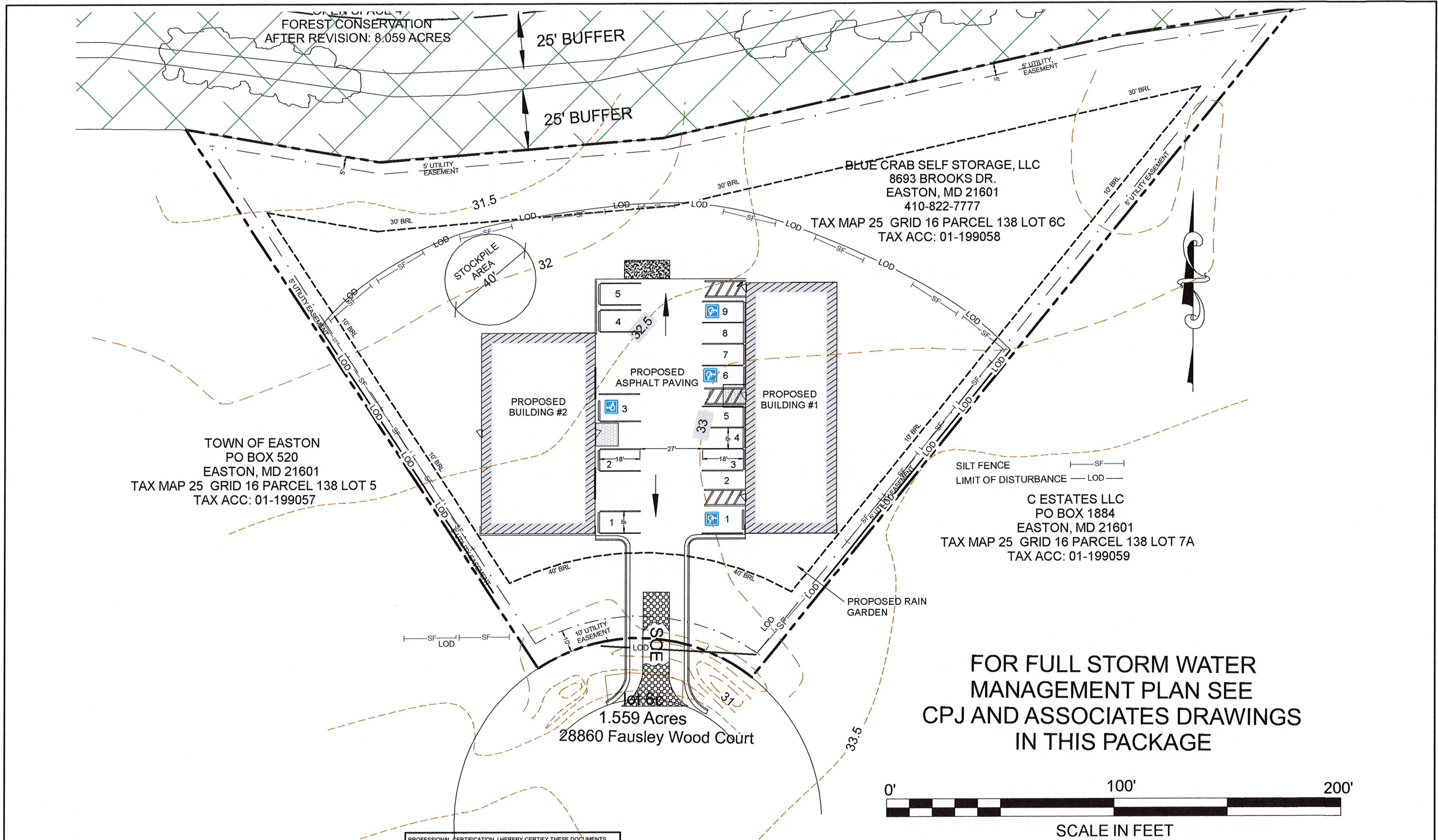
Bldg. #2
Wood Frame Constr.
Metal Siding
Marine Contr. storage
Hardware, boat lift,
Beb Cat, Truck
Bldg 50'x88'x16'
5/12 pitch

TOTAL LOT AREA = 67,910 SF
BUILDING #1 = 4,400 SF
BUILDING #2 = 4,400 SF
PAVING AREA = 8,590 SF
TOTAL DISTURBANCE = 17,390 SF



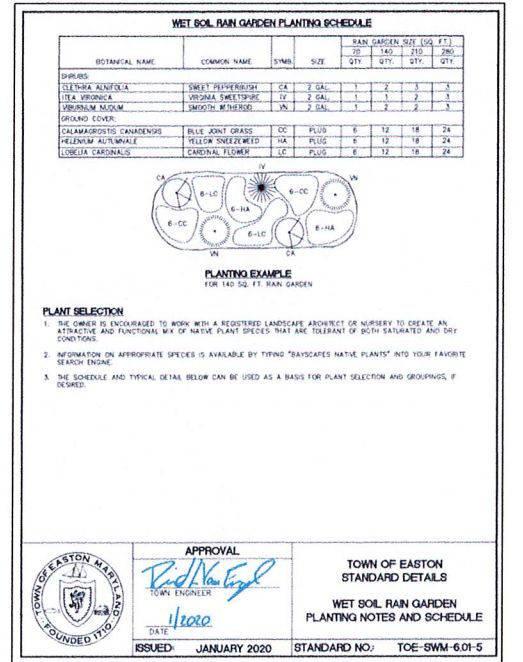
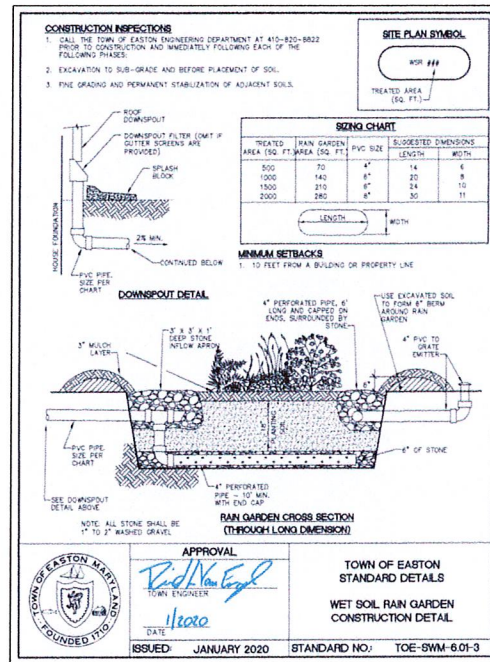
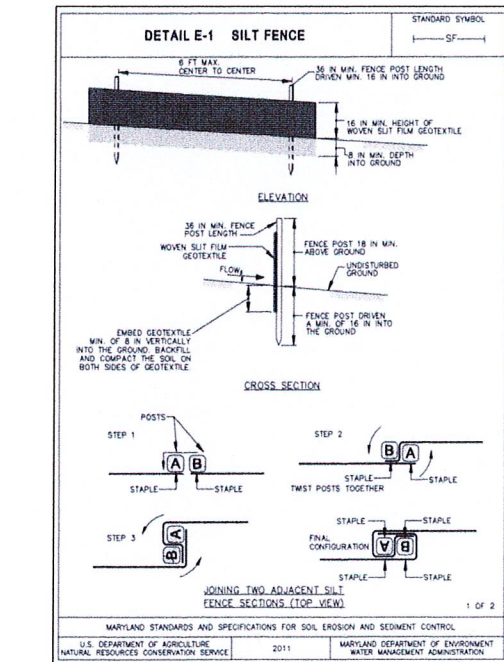
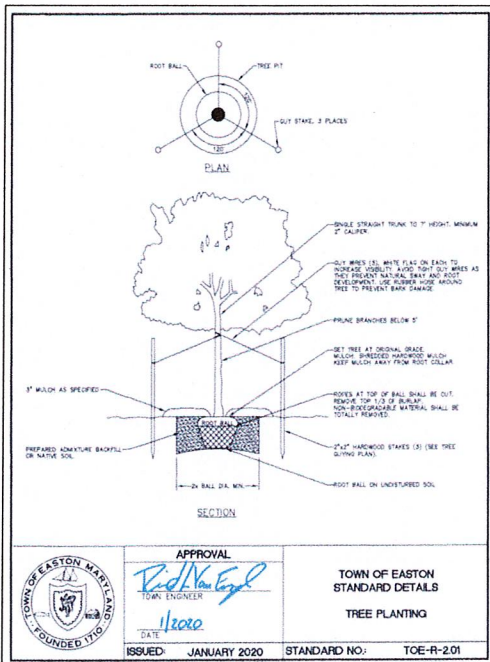
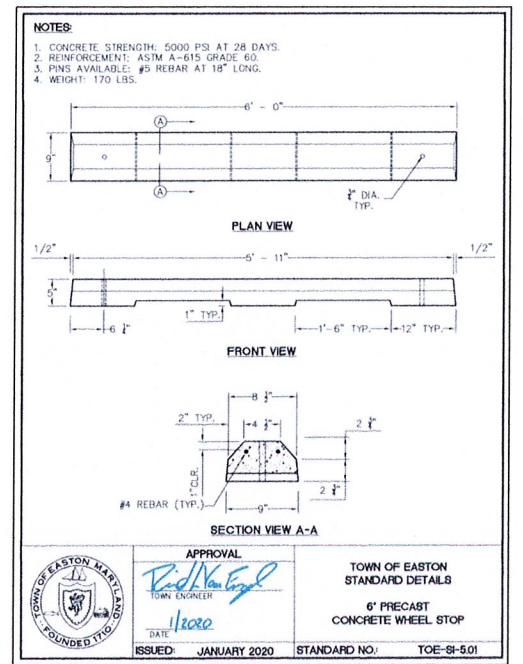
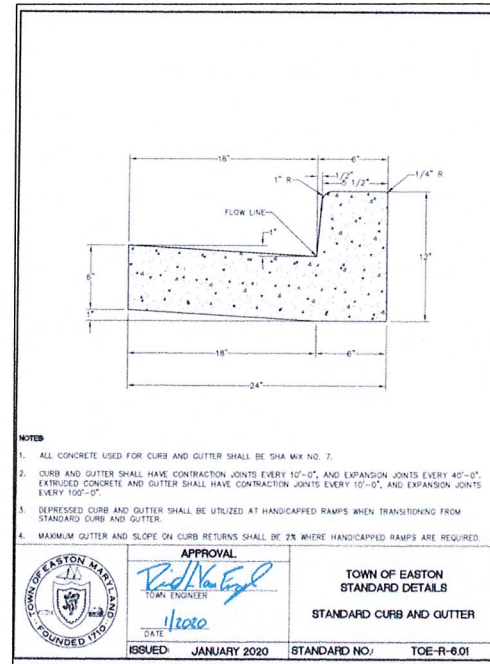
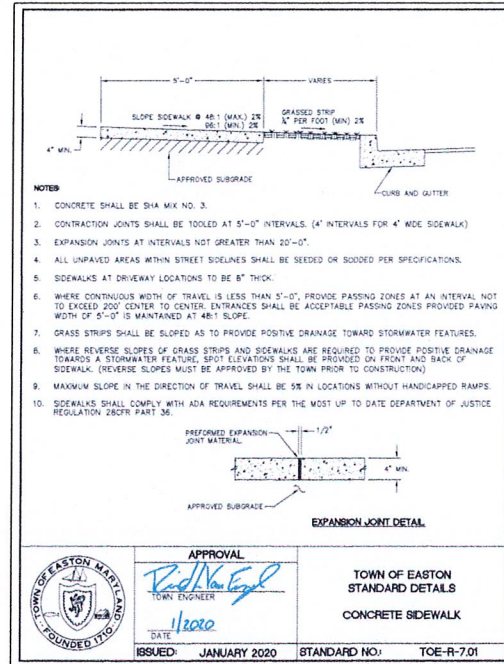
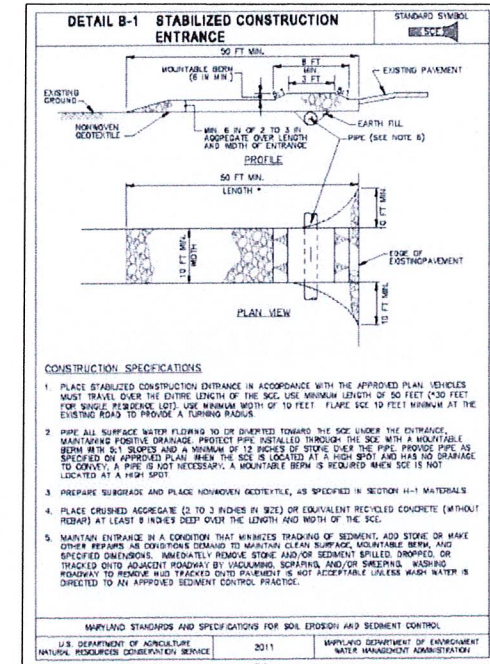
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. _____ EXPIRATION DATE: _____

 ENGINEERING DEPARTMENT 14 S. HARRISON ST. P.O. BOX 530 EASTON, MD 21601 410-273-1622	APPROVED: TOWN OF EASTON - PLANNING & ZONING DATE: _____	APPROVED: EASTON UTILITIES - ENGINEER DATE: _____	OWNER / DEVELOPER / APPLICANT BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777	SEAL	DES. BY: DML FMB ORIGINAL DRAWING DATE 12/1/23	PROPOSED SITE PLAN	MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD	4 SCALE AS SHOWN SHEET NO. 4 OF 10
	APPROVED: TOWN OF EASTON - TOWN ENGINEER DATE: _____			DRN BY: FMB				
				CHK BY:				
				DATE:				
					BY NO. REVISION DATE:			



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____ EXPIRATION DATE: _____

	APPROVED:	APPROVED:	OWNER / DEVELOPER / APPLICANT BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777	SEAL	DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23	STORM WATER MANAGEMENT	MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD	5 SCALE AS SHOWN SHEET NO. 5 OF 10		
	TOWN OF EASTON - PLANNING & ZONING	DATE			EASTON UTILITIES - ENGINEER	DATE	DRN BY: FMB						
	TOWN OF EASTON - TOWN ENGINEER	DATE					CHK BY:						
							DATE:	BY				NO.	REVISION



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____ EXPIRATION DATE: _____

ENGINEERING DEPARTMENT 14 S. HARRISON ST. P.O. BOX 525 EASTON, MD 21051 410-822-8822	APPROVED:	OWNER / DEVELOPER / APPLICANT	SEAL	DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
	TOWN OF EASTON - PLANNING & ZONING	DATE	BLUE CRAB SELF STORAGE, LLC		DRN BY: FMB		
	APPROVED:		8693 BROOKS DR.		CHK BY:		
	TOWN OF EASTON - TOWN ENGINEER	DATE	EASTON, MD 21601		DATE:		
		410-822-7777		BY	NO.	REVISION	DATE:

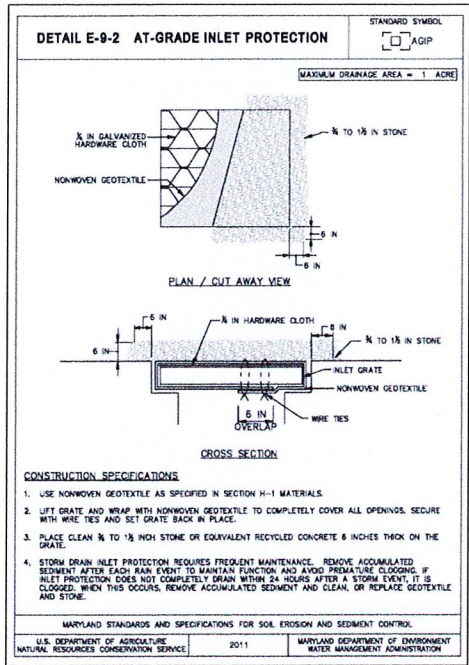
DETAILS

**MISTLETOE HALL FARM
SUBDIVISION**

28860 FAUSLEY WOOD COURT

WARD DISTRICT #1, EASTON, MD

6 SCALE AS SHOWN	SHEET NO. 6 OF 10
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EROSION AND SEDIMENT CONTROL STANDARDS & SPECIFICATIONS FOR VEGETATIVE STABILIZATION

- 1) Contractor shall install soil erosion and sediment control devices prior to any grading. Following initial disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes greater than three (3) horizontal to one (1) vertical (3:1) and seven (7) days as to all other disturbed or graded areas on the project site not under active grading.
- 2) All temporary erosion and sediment control devices are to be provided as indicated on this plan, with location adjustments to be made in the field as necessary, and to be maintained at the end of each working day until project completion. The minimum area practical shall be disturbed for the minimal amount of time possible.
- 3) Clearing and grubbing shall include all trees, brush, debris, root mat and organic materials to be removed.
- 4) Temporary seeding shall be accomplished between February 15th through April 30th and August 15th through November 30th. During other times, temporary mulching shall be provided.
- 5) Temporary seeding shall conform to the following applications: 436 lbs. per acre of 10-20-20, 4,000 lbs. per acre of ground limestone, to be incorporated into the soil by disking or other suitable means. Annual ryegrass shall be applied at a rate of 50 lbs. per acre using suitable equipment. Mulching shall be accomplished immediately after seeding.

Seed Mixture (For Hardiness Zone 7a) (From Table B.1)				Fertilizer Rate (10-20-20)	Lime Rate
Species	Appl. Rate (lbs. / ac.)	Seeding Dates	Seeding Depths		
ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	1/2"	436 lbs. / ac. 10 lbs. / 1000 sf	2 tons / ac. 90 lbs. / 1000 sf
BARLEY	96#	2/15 - 4/30, 8/15 - 11/30	1"		
OATS	72#	2/15 - 4/30, 8/15 - 11/30	1"		
WHEAT	120#	2/15 - 4/30, 8/15 - 11/30	1"		
CERIAL RYE	112#	2/15 - 4/30, 8/15 - 12/15	1"		
FOXTAIL MILLET	30#	5/1 - 8/14	1/2"		
PEARL MILLET	20#	5/1 - 8/14	1/2"		

- 6) Mulching shall be un-chopped, un-rotted, small grain straw applied at a rate of 2-2½ tons per acre. Anchor mulch with a mulch anchoring tool on the contour. Wood cellulose fiber may be used for anchoring straw at a rate of 750 lbs. per acre mixed with water at a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water, or with a synthetic liquid binder according to manufacturer recommendations. Wood cellulose fiber used as mulch must be applied at a wet dry weight of 1,500 lbs. per acre. Mix wood cellulose fiber with water to attain a mixture with a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water.
- 7) Permanent seeding shall be accomplished between February 15th through April 30th, or August 15th through October 31st. Permanent seeding at other than specified times will be allowed only upon written approval. Permanent seeding shall conform to the following applications: Permanent seeding for sites having disturbed over five (5) acres shall use fertilizer rates recommended by a soil testing agency and the recommendations provided in the Permanent Seeding Summary Table. Permanent seeding for conditions other than listed above shall be performed at the rates and dates as provided in the Permanent Seeding Summary Table below. Fertilizer and lime amendments shall be incorporated into the top 3"-5" of the soil by disking or other suitable means. Mulching shall be accomplished as discussed in Item #6 of these specifications.

Seed Mixture (For Hardiness Zone 7a) (From Table B.3)					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Appl. Rate (lb. / ac.)	Seeding Dates	Seeding Depth(s)	N	P2O5	K2O	
7	CREeping RED FESCUE KENTUCKY BLUEGRASS	60# 15#	2/15-4/30 8/15-10/31	1/2"-1/2"	45 lb. / ac. 1 lb. / 1000 sf	50 lb. / ac. 2 lbs. / 1000 sf	90 lb. / ac. 2 lbs. / 1000 sf	2 tons / ac. 90 lbs. / 1000 sf
8	TALL FESCUE	100#	2/15-4/30 8/15-10/31	1/2"-1/2"				
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60# 40# 20#	2/15-4/30 8/15-10/31	1/2"-1/2"				

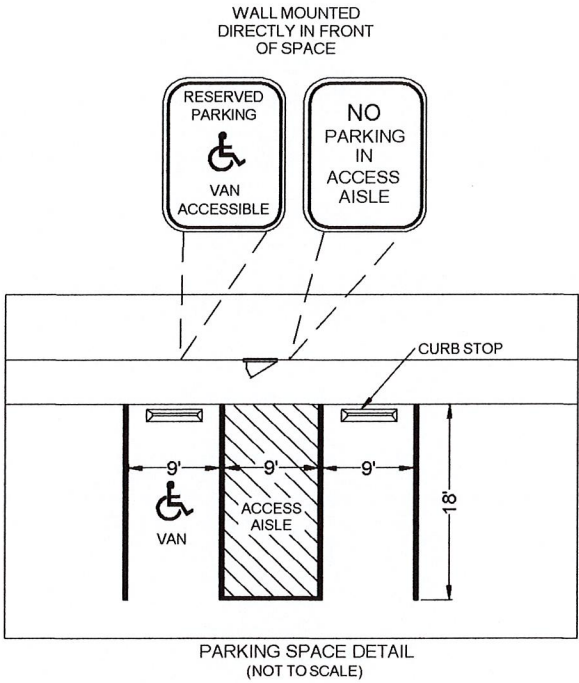
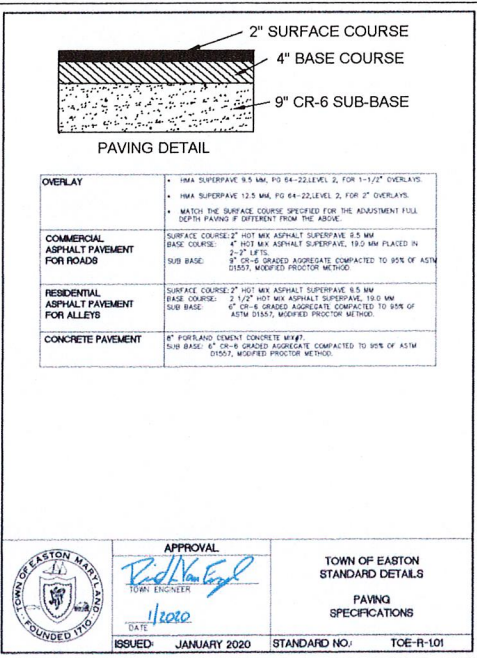
- 8) Any spoil or borrow will be placed at a site approved by the Talbot Soil Conservation District.
- 9) All areas remaining or intended to remain disturbed for longer than seven (7) days shall be stabilized in accordance with the USDA, Natural Resources Conservation Service Standards and Specifications for Soil Erosion and Sediment Control in developing areas for critical area stabilization.
- 10) It will be the responsibility of the Contractor or Subcontractor to notify the Engineer of any deviation from this plan. Any change made in this plan without written authorization from the Engineer will place responsibility of said change on the Contractor or Subcontractor.

PHASE OF CONSTRUCTION

1. CONTACT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, PHONE (410) 901-4020 A MINIMUM OF TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION TO SCHEDULE A PRE CONSTRUCTION MEETING TO REVIEW PLANS AND BECOME FAMILIAR WITH ALL PERMITS.
2. CONTRACTOR SHALL HAVE ALL SITE UTILITIES MARKED A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.
3. INSTALL TEMPORARY SEDIMENT CONTROL MEASURES / PERIMETER CONTROLS. MAINTAIN THROUGHOUT PROJECT.
4. REMOVE A MINIMUM OF 6" OF TOPSOIL AS NEEDED AND DISPOSE OF EXCESS TOPSOIL OFFSITE AT AN APPROVED LANDFILL.
5. ROUGH GRADE SITE.
6. BEGIN BUILDING CONSTRUCTION.
7. MAINTAIN ALL SEDIMENT CONTROLS THROUGHOUT CONSTRUCTION.
8. ONCE BUILDING CONSTRUCTION IS TO SUFFICIENT POINT, INSTALL ENTRANCE, SITE PAVEMENT (PER SECTION) AND SIDEWALKS.
9. ONCE DRAINAGE AREAS ARE ADEQUATELY STABILIZED (PAVEMENT SUBBASE INSTALLED AT A MINIMUM) AFTER NOTIFYING THE TOWN OF EASTON STORMWATER MANAGEMENT INSPECTOR, INSTALL STORMWATER MANAGEMENT BIOTRETENTION PONDS AND QUANTITY CONTROL AREA. CONNECT ROOF LEADERS TO STORMWATER MANAGEMENT AREAS.
10. INSTALL SITE LANDSCAPING, FOREST CONSERVATION PLANTINGS AND STORMWATER MANAGEMENT PLANTINGS.
11. SEED AND MULCH PER SPECIFICATIONS, PROVIDE STABILIZATION MATTING WHERE APPLICABLE. PROVIDE PERMANENT STABILIZATION TO WHOLE SITE.
12. ONCE THE SITE IS FULLY STABILIZED AND THROUGH COORDINATION AND APPROVAL OF THE MDE & TOWN OF EASTON INSPECTORS. REMOVE SEDIMENT CONTROL MEASURES.

THE FOLLOWING ITEMS HAVE BEEN ADDRESSED TO MEET THE REQUIREMENTS OF THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY (NPDES NUMBER MDR10, STATE DISCHARGE PERMIT NUMBER 09GP).

1. UTILIZATION OF ENVIRONMENTAL SITE DESIGN
2. MAINTENANCE OF LIMITS OF DISTURBANCE TO PROTECT NATURAL AREAS
3. CONTROL OF CONSTRUCTION EQUIPMENT AND VEHICLES
4. EVALUATION AND APPROPRIATE LIMITATION OF SITE CLEARING
5. EVALUATION AND DESIGNATION OF SITE AREA FOR PHASING OR SEQUENCING
6. IDENTIFICATION OF SOILS AT HIGH RISK FOR EROSION AND ADVANCED STABILIZATION TECHNIQUES TO BE USED
7. IDENTIFICATION OF STEEP SLOPES AND DESIGNATION OF LIMITATIONS ON CLEARING THEM
8. EVALUATION AND DESIGNATION OF STABILIZATION REQUIREMENTS AND THE LIMITS AND PROTECTION MEASURES FOR DISCHARGES TO THE CHESAPEAKE BAY, IMPAIRED WATERS OR WATERS WITH AN ESTABLISHED TOTAL MAXIMUM DAILY LOAD (TMDL)



GENERAL NOTES:

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HEREIN.

THIS DRAWING SHOWS INFORMATION OBTAINED FROM AVAILABLE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST WITHIN LIMITS OF THE WORK. AT AND BELOW THE SURFACE OF THE GROUND. THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITIES FOR THE ACCURACY OR COMPLETENESS OF SAID INFORMATION BEING SHOWN ONLY FOR THE CONVIENCE OF THE CONTRACTOR WHO MUST VERIFY THE INFORMATION TO HIS OWN SATISFACTION. IF THE CONTRACTOR RELIES ON SAID INFORMATION, HE DOES SO AT HIS OWN RISK. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL COORDINATE ALL PHASES WITH THEM:

MDE _____ 410-901-4020

TALBOT COUNTY _____ 410-770-8030

MISS UTILITY _____ 800-441-8355

SHOULD ANY DAMAGE OCCUR TO AN UTILITIES, THEY SHALL BE REPAIRD SOLELY AT THE CONTRACTOR'S EXPENSE.

ALL LANDSCAPING SHALL BE PREFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMEN AND BE GUARNTED FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTOR'S EXPENSE.

OWNER/DEVELOPER:
NAME: DAN LERINAN
STREET: 10555 LAKE ROAD
TOWN: EASTON, MD 21601

TOTAL LOT AREA = 67,910 SF
BUILDING #1 = 4,400 SF
BUILDING #2 = 4,400 SF
PAVING AREA = 10,900 SF
TOTAL DISTURBANCE = 19,700 SF

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____



APPROVED:

TOWN OF EASTON - PLANNING & ZONING DATE _____

APPROVED:

TOWN OF EASTON - TOWN ENGINEER DATE _____

APPROVED:

EASTON UTILITIES - ENGINEER DATE _____

OWNER / DEVELOPER / APPLICANT

BLUE CRAB SELF STORAGE, LLC

8693 BROOKS DR.

EASTON, MD 21601

410-822-7777

SEAL

DES. BY: DML

FMB

ORIGINAL DRAWING DATE

12/1/23

DRN BY: FMB

CHK BY:

DATE:

BY NO.

REVISION

DATE:

DETAILS

MISTLETOE HALL FARM
SUBDIVISION

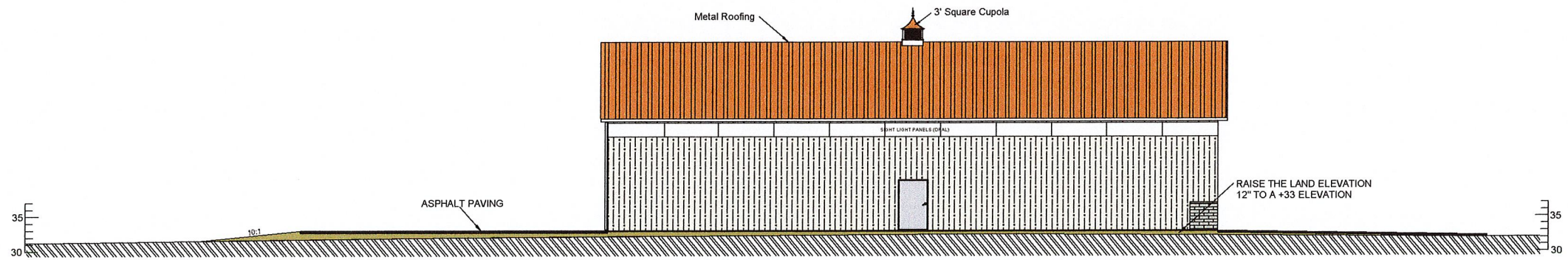
28860 FAUSLEY WOOD COURT

WARD DISTRICT #1, EASTON, MD

7

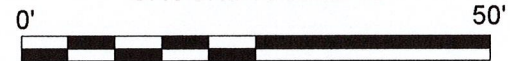
SCALE
AS SHOWN

SHEET NO.
7 OF 10

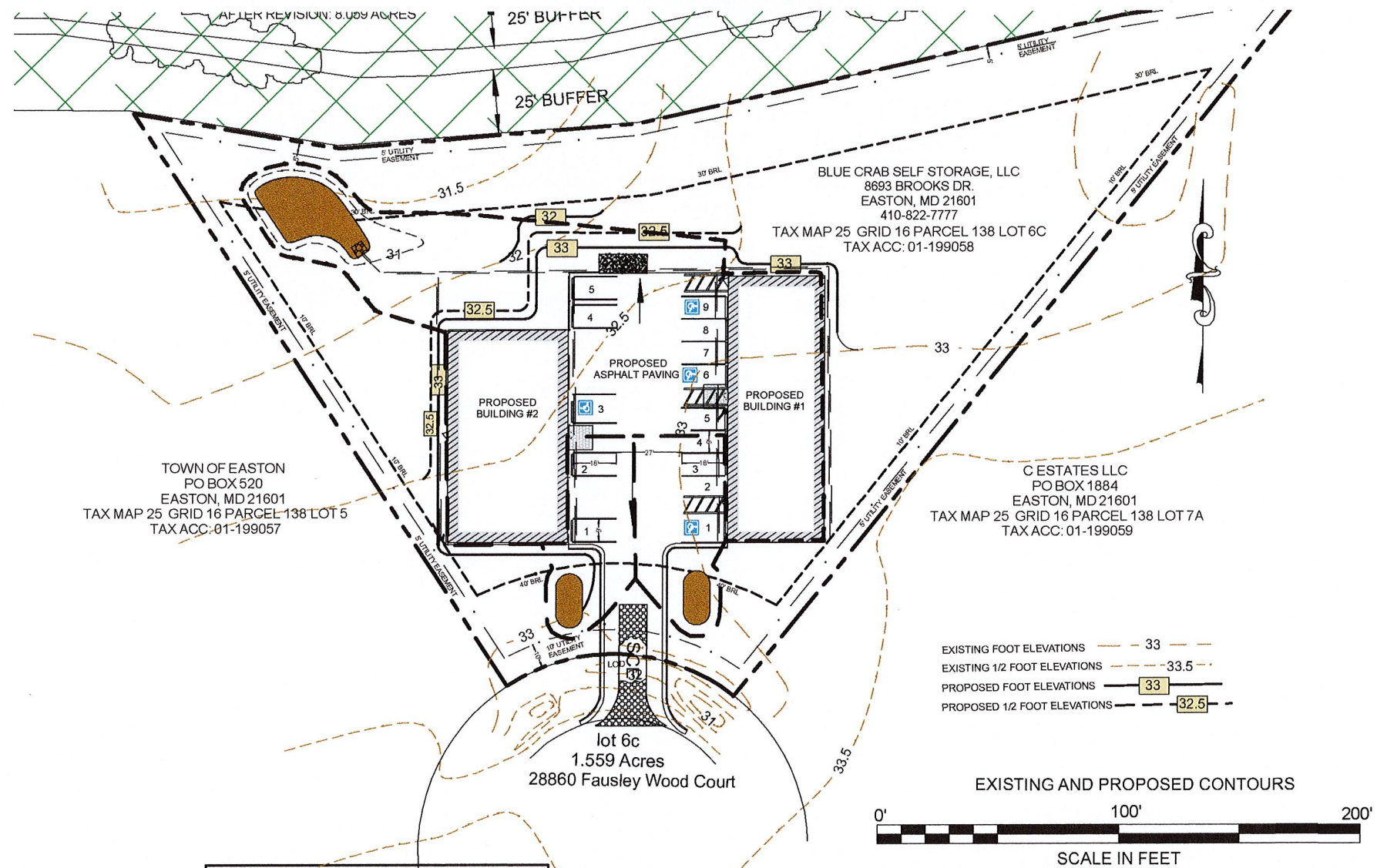


PROPOSED GRADE CHANGE TO +33 ELEVATION

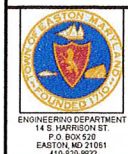
GROUND RAISED 12"



SCALE IN FEET



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____ EXPIRATION DATE: _____



APPROVED:	DATE:
TOWN OF EASTON - PLANNING & ZONING	DATE:
APPROVED:	DATE:
TOWN OF EASTON - TOWN ENGINEER	DATE:

APPROVED:	DATE:
EASTON UTILITIES - ENGINEER	DATE:

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

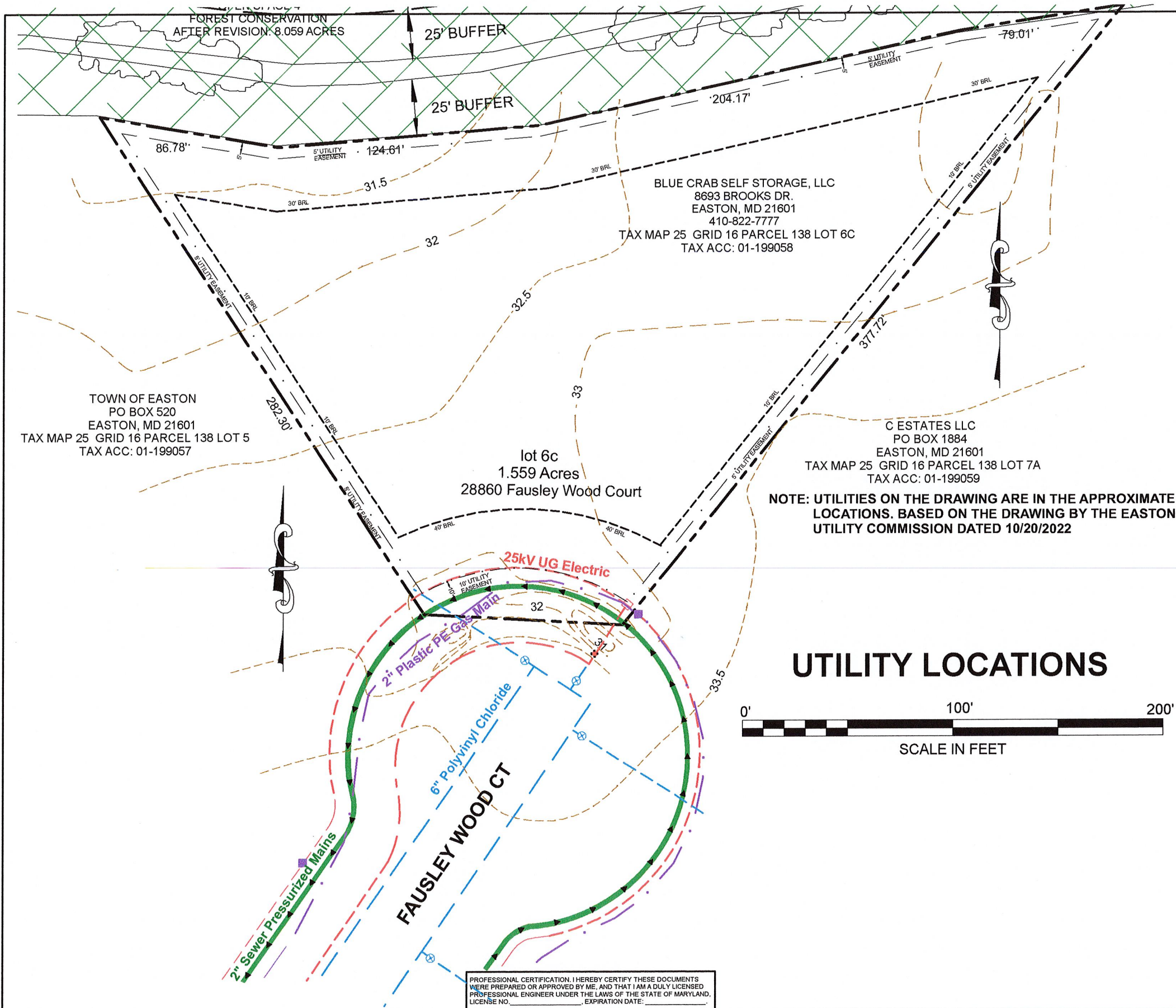
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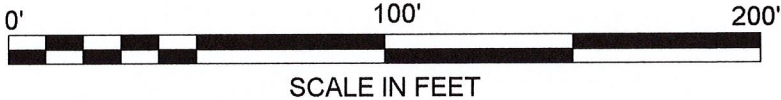
EXISTING AND PROPOSED CONTOURS

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD

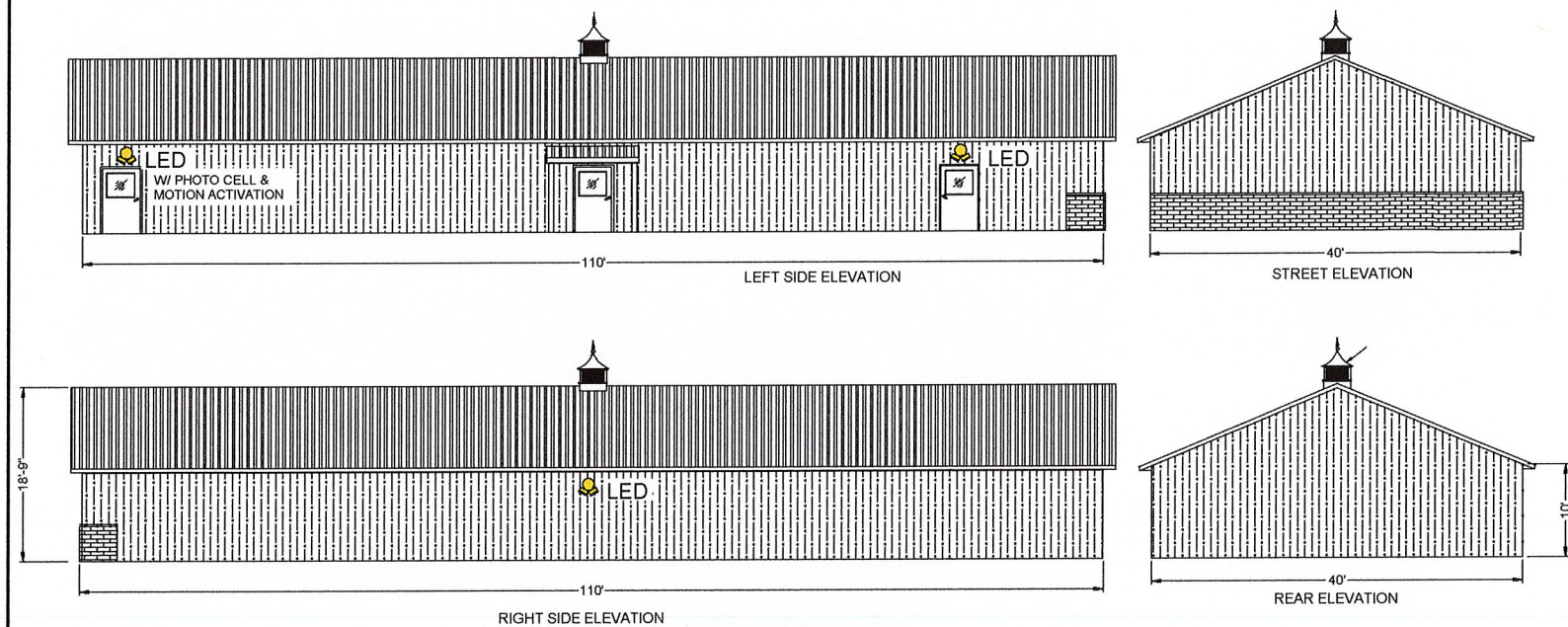
8
SCALE AS SHOWN
SHEET NO. 8 OF 10



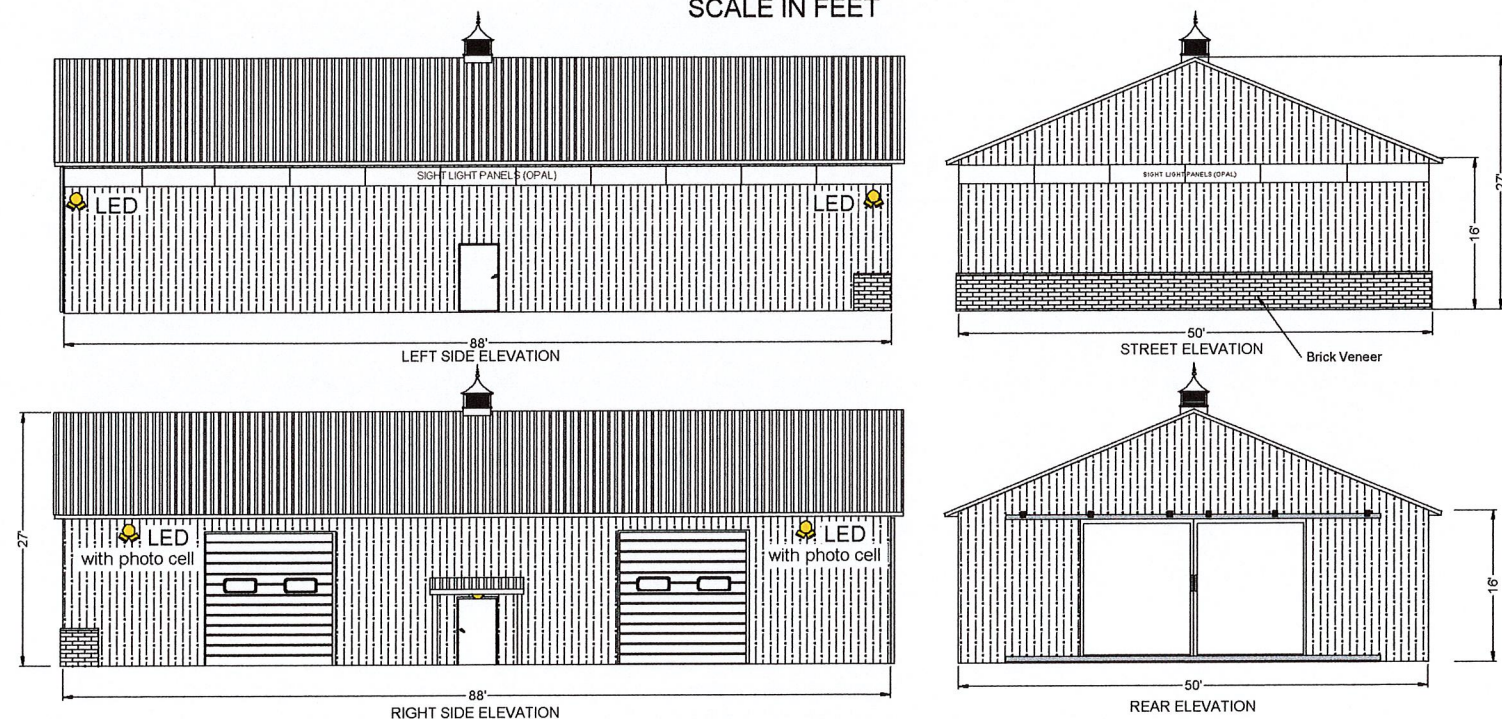
UTILITY LOCATIONS



	APPROVED:	APPROVED:	OWNER / DEVELOPER / APPLICANT BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777	SEAL	DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23	UTILITY LOCATIONS	MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD	9		
	TOWN OF EASTON - PLANNING & ZONING	DATE			EASTON UTILITIES - ENGINEER	DATE	DRN BY: FMB						SCALE AS SHOWN
	TOWN OF EASTON - TOWN ENGINEER	DATE					CHK BY:						SHEET NO.
							DATE:	BY			NO.	REVISION	DATE

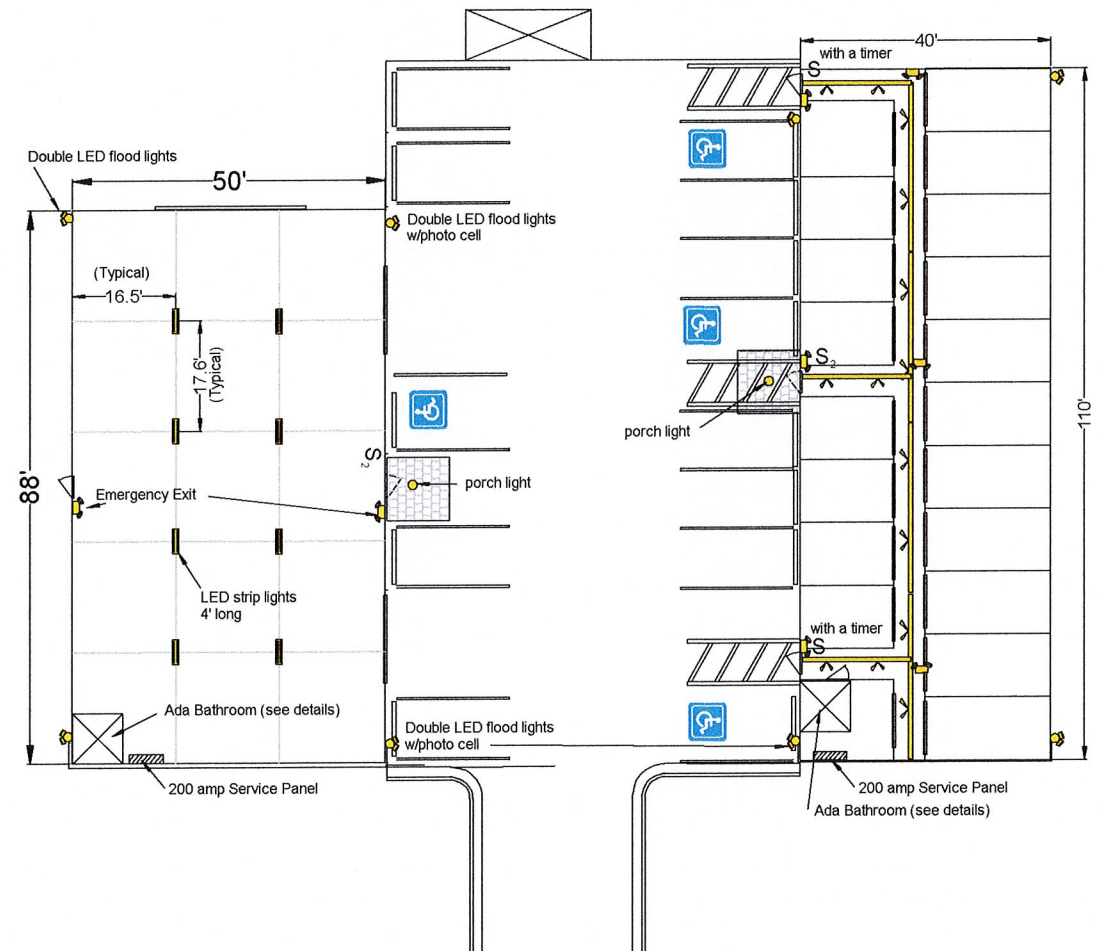


BUILDING # 1
0' 50'
SCALE IN FEET



BUILDING # 2
0' 50'
SCALE IN FEET

ELECTRICAL SYMBOLS			
	DUPLEX RECEPTACLE		RECESSED LIGHT
	240 VOLT RECEPTACLE		GFCI OUTLET
	CEILING LIGHT FIXTURE		INDOOR TELEPHONE
	SPLIT WIRED DUPLEX RECEPTACLE		SMOKE DETECTOR
	QUADPLEX RECEPTACLE		TELEVISION JACK
	WALL LIGHT		SERVICE PANEL
	WALL JUNCTION BOX		SINGLE POLE SWITCH
	CEILING FAN		REMOTE LIGHT SWITCH
	VENT FAN		THREE WAY SWITCH
	SWITCHED RECEPTACLE		FOUR WAY SWITCH
	FLUORESCENT CEILING LIGHT		EMERGENCY LIGHT
	DOUBLE LED FLOOD LIGHTS		4' STRIP LED LIGHTS
	OCCUPANCY SENSOR		TRACK LIGHTING
	LED		



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APPROVED:	APPROVED:
TOWN OF EASTON - PLANNING & ZONING	EASTON UTILITIES - ENGINEER
DATE:	DATE:
TOWN OF EASTON - TOWN ENGINEER	
DATE:	

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

SEAL

DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:			
BY	NO.	REVISION	DATE

ELECTRIC

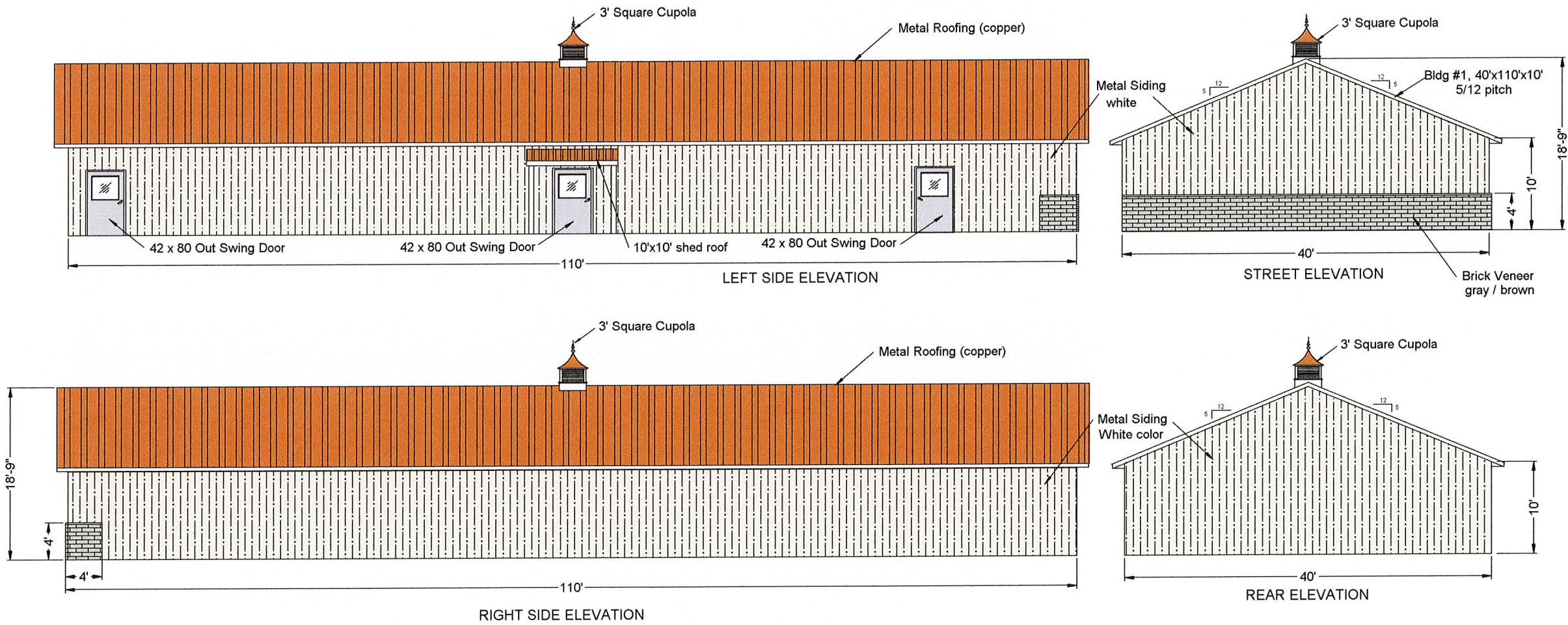
**MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD**

11

SCALE
AS SHOWN
SHEET NO.

NOTE:

Climate controlled building, 3 ply, 2x6 posts at 8' on centers, 2x4 purlins, 2- 2x12 beams, trusses 4' on centers, 2x6 wall framing at 16" on center, all exterior and divider walls. R-19 batt insulation on exterior walls, R-39 blown in the ceiling. Cover all walls and ceiling with metal.



BUILDING # 1



SCALE IN FEET

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APPROVED	DATE
TOWN OF EASTON - PLANNING & ZONING	DATE
APPROVED	DATE
TOWN OF EASTON - TOWN ENGINEER	DATE

APPROVED	DATE
EASTON UTILITIES - ENGINEER	DATE

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

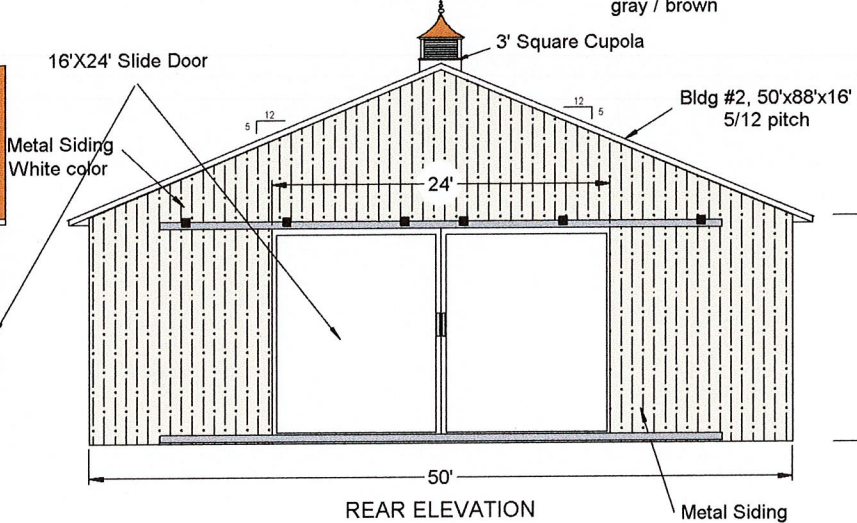
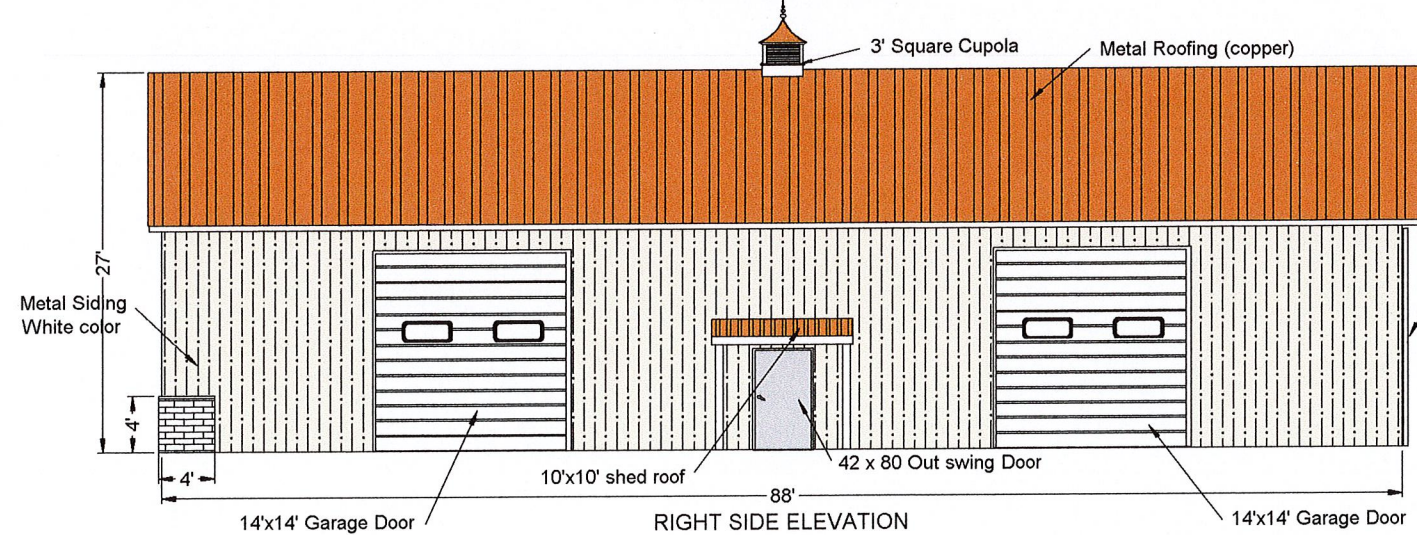
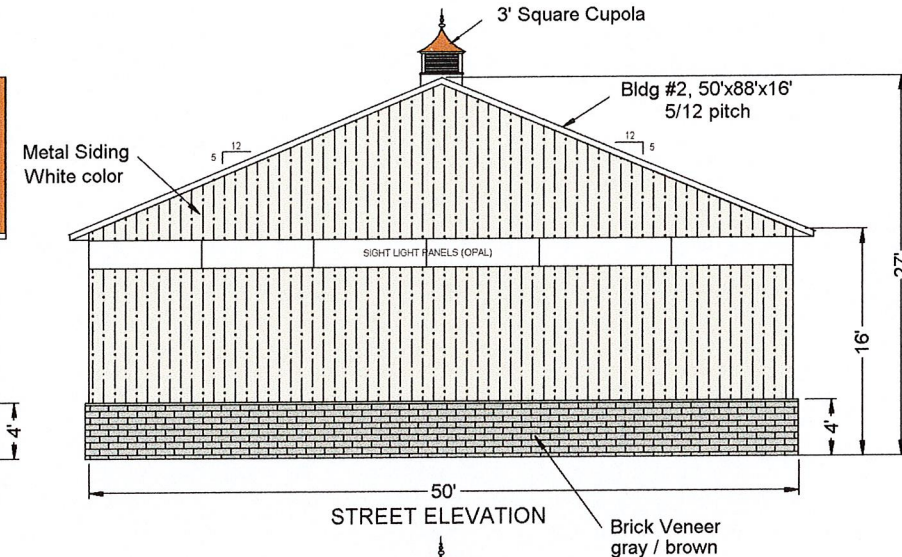
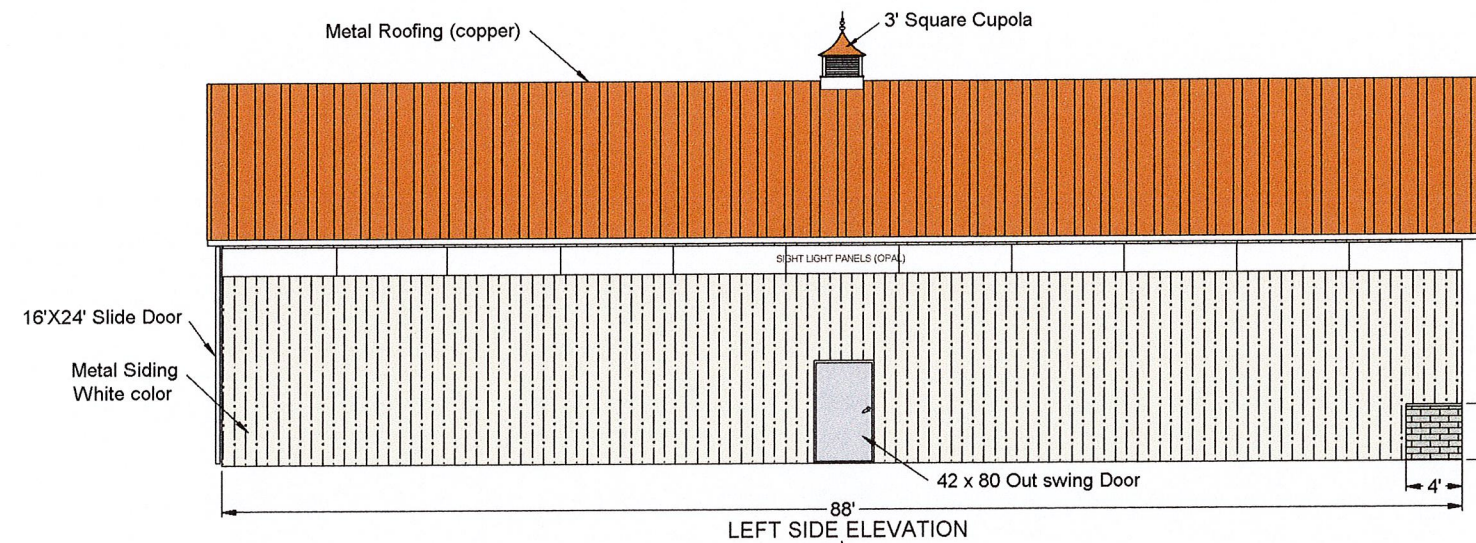
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CHK BY:			
DATE:			
BY	NO.	REVISION	DATE

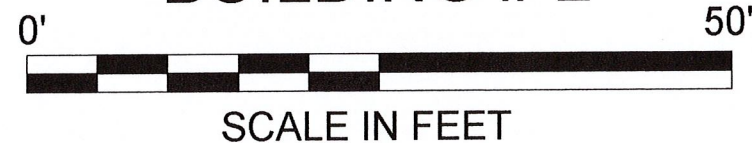
**PROPOSED
BUILDING #1**

**MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD**

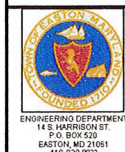
12
SCALE AS SHOWN
SHEET NO.



BUILDING # 2



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____



APPROVED:	DATE:
TOWN OF EASTON - PLANNING & ZONING	
APPROVED:	DATE:
TOWN OF EASTON - TOWN ENGINEER	

APPROVED:	DATE:
EASTON UTILITIES - ENGINEER	

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

SEAL

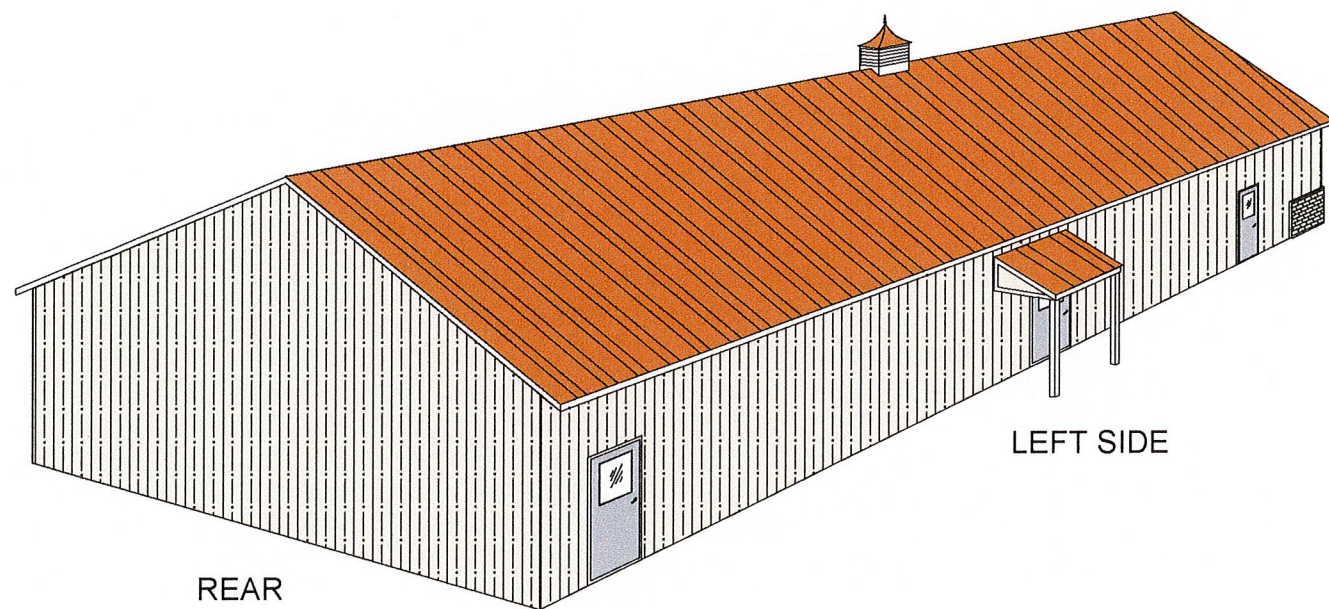
DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:	BY	NO.	REVISION

**PROPOSED
BUILDING #2**

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD

13

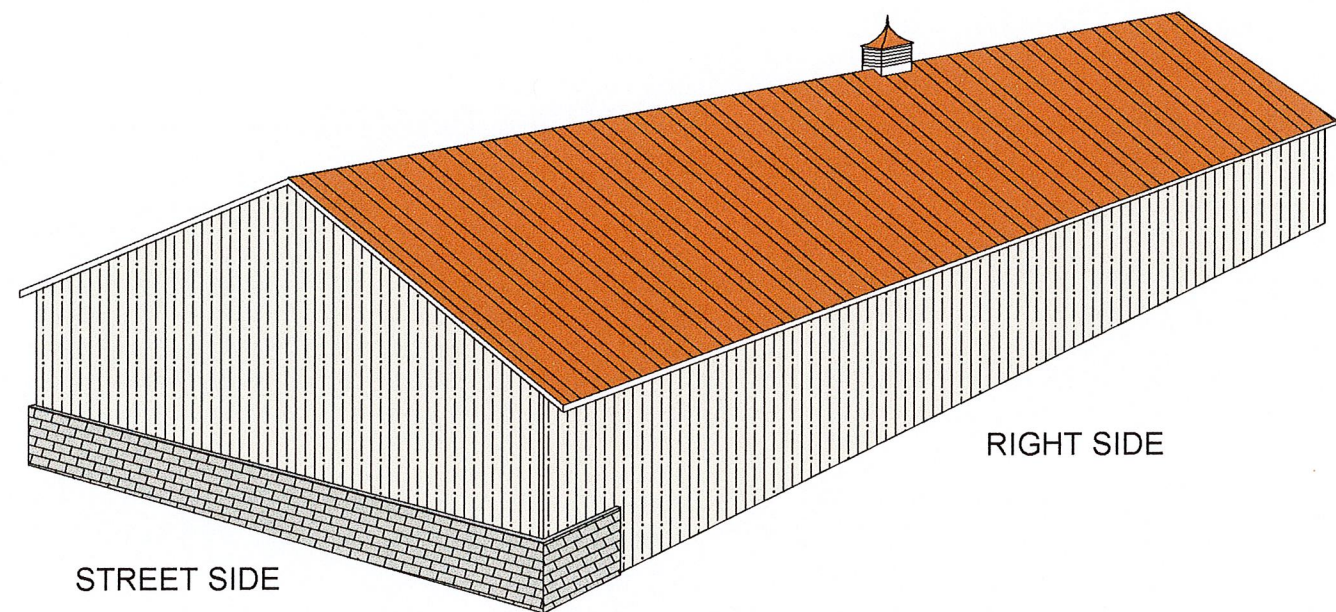
SCALE
AS SHOWN
SHEET NO.



REAR

LEFT SIDE

BUILDING #1

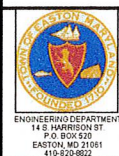


STREET SIDE

RIGHT SIDE

BUILDING #1

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____



APPROVED	DATE
TOWN OF EASTON - PLANNING & ZONING	DATE
APPROVED	DATE
TOWN OF EASTON - TOWN ENGINEER	DATE

APPROVED	DATE
EASTON UTILITIES - ENGINEER	DATE

OWNER / DEVELOPER / APPLICANT
 BLUE CRAB SELF STORAGE, LLC
 8693 BROOKS DR.
 EASTON, MD 21601
 410-822-7777

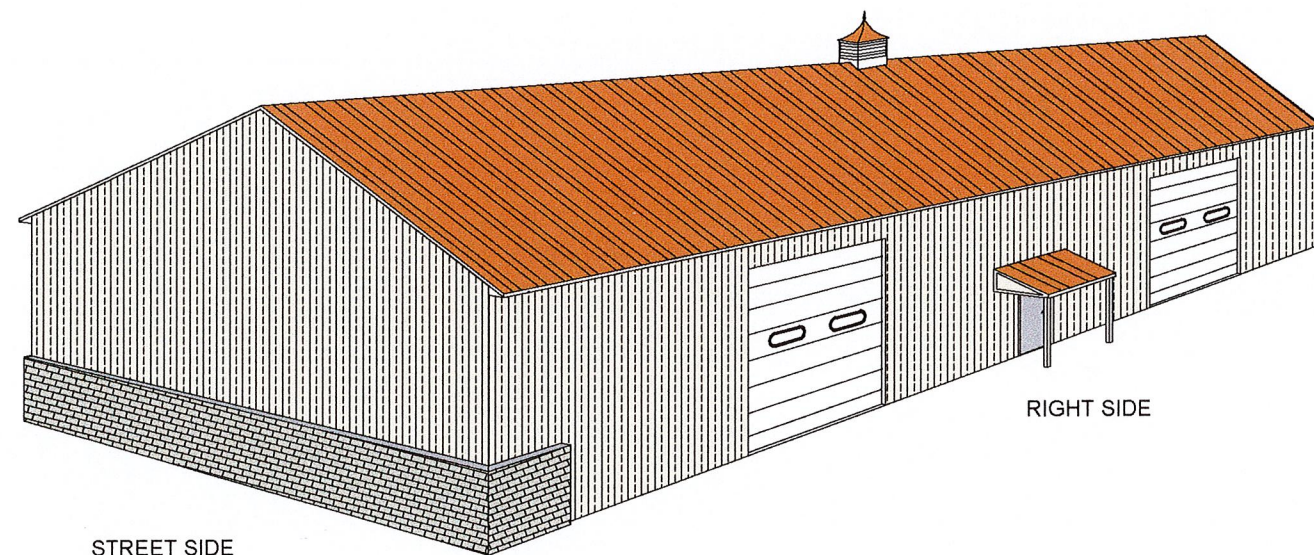
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DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:	BY	NO.	REVISION

**ISOMETRIC
BUILDING #1**

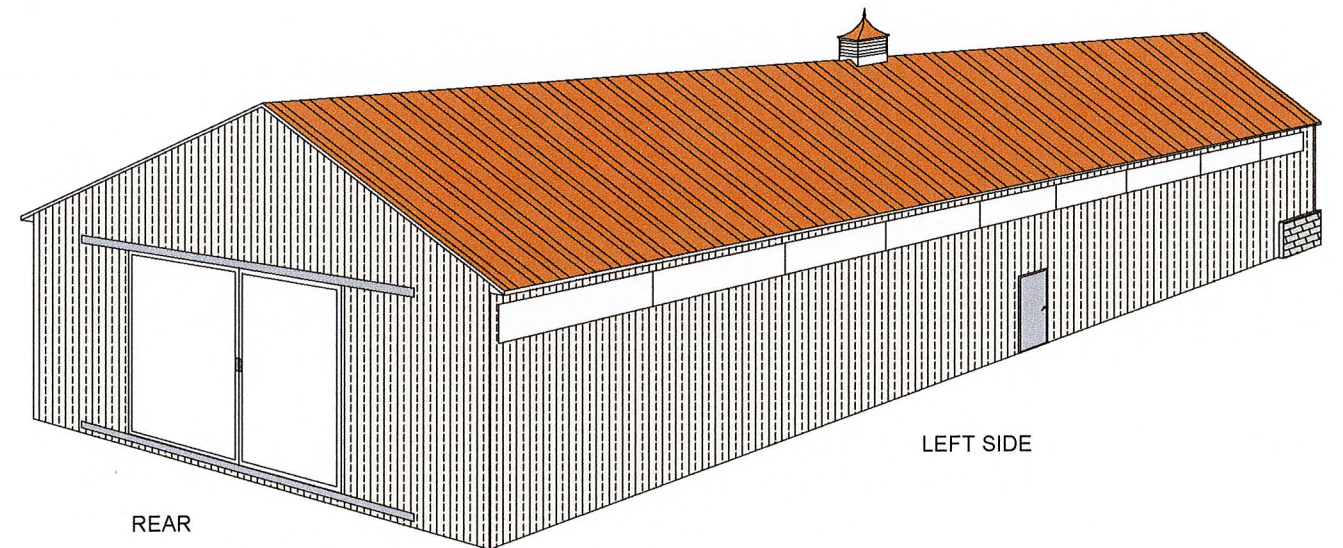
**MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD**

14
 SCALE
 AS SHOWN
 SHEET NO.



STREET SIDE

BUILDING # 2

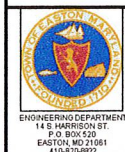


REAR

LEFT SIDE

BUILDING # 2

PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. _____ EXPIRATION DATE: _____



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TOWN OF EASTON - PLANNING & ZONING	DATE
APPROVED:	DATE:
TOWN OF EASTON - TOWN ENGINEER	DATE

APPROVED:	DATE:
EASTON UTILITIES - ENGINEER	DATE

OWNER / DEVELOPER / APPLICANT
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EASTON, MD 21601
410-822-7777

SEAL

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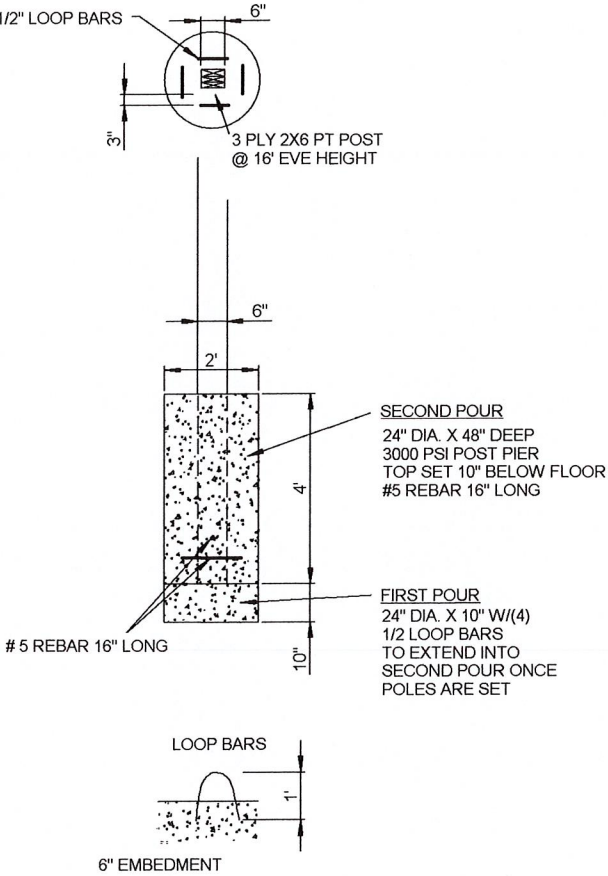
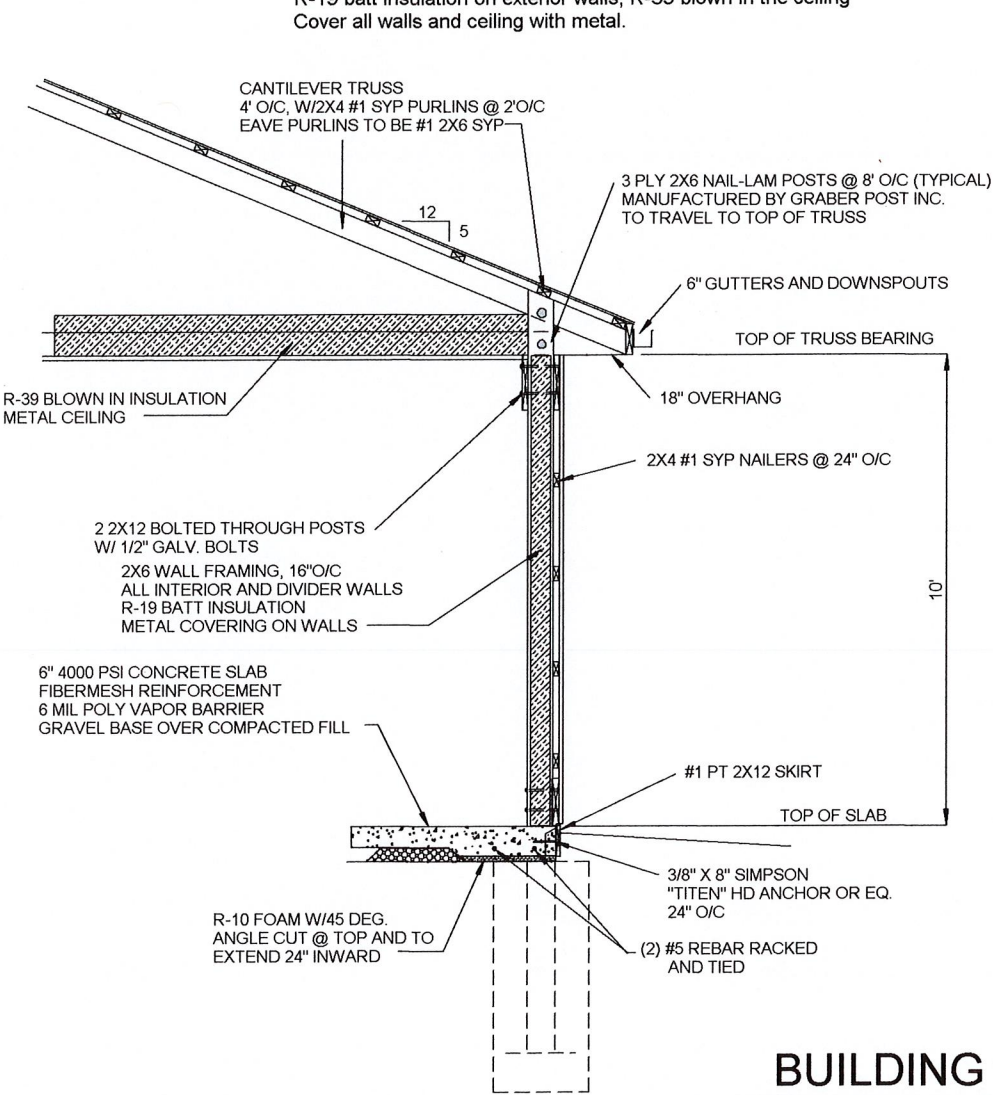
ISOMETRIC
BUILDING #2

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD

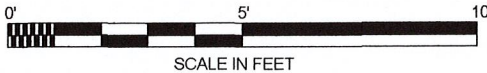
15

SCALE
AS SHOWN
SHEET NO.

Climate controlled building, 3 ply, 2x6 posts at 8' on centers, 2x4 purlins, 2- 2x12 beams, trusses 4' on centers, 2x6 wall framing at 16" on center, all exterior and divider walls. R-19 batt insulation on exterior walls, R-39 blown in the ceiling. Cover all walls and ceiling with metal.



BUILDING #1
10' HIGH WALL SECTION



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____



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TOWN OF EASTON - PLANNING & ZONING	
APPROVED:	DATE:
TOWN OF EASTON - TOWN ENGINEER	

APPROVED:	DATE:
EASTON UTILITIES - ENGINEER	

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

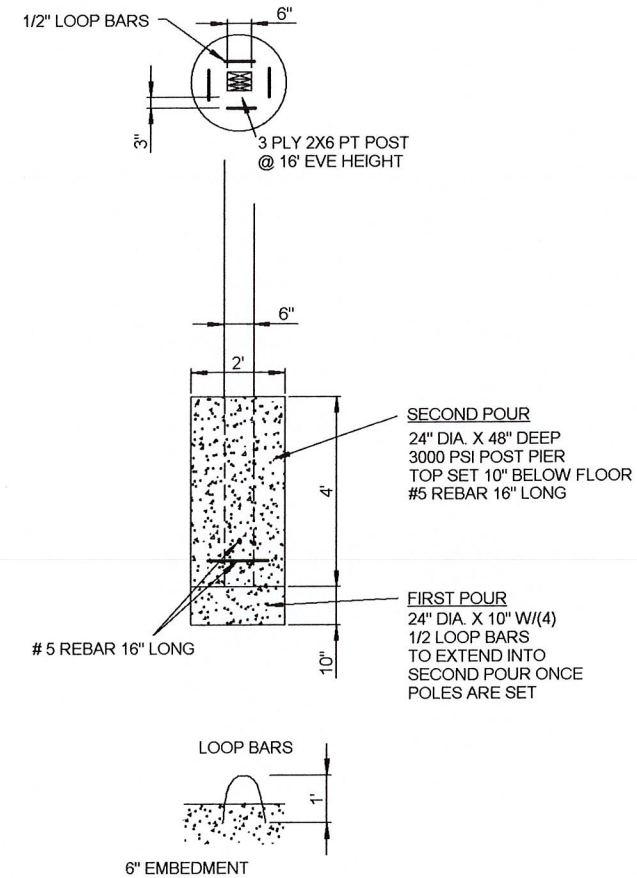
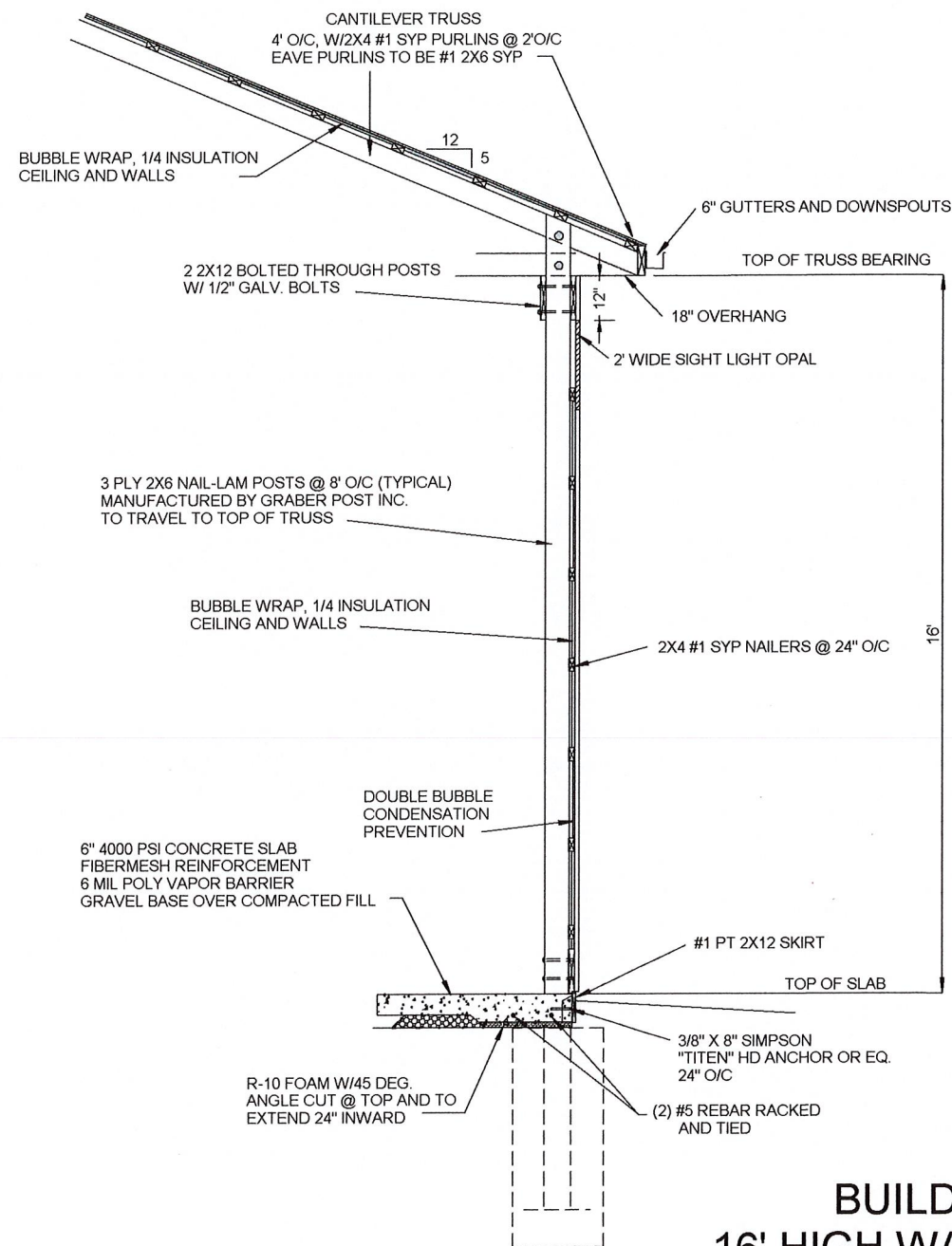
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DATE:			
BY	NO.	REVISION	DATE:

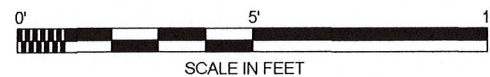
BUILDING #1 WALL DETAILS

MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD
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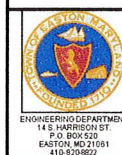
16
SCALE AS SHOWN
SHEET NO.



BUILDING #2 16' HIGH WALL SECTION



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____ EXPIRATION DATE: _____



APPROVED: _____ TOWN OF EASTON - PLANNING & ZONING DATE: _____	APPROVED: _____ EASTON UTILITIES - ENGINEER DATE: _____
APPROVED: _____ TOWN OF EASTON - TOWN ENGINEER DATE: _____	

OWNER / DEVELOPER / APPLICANT
 BLUE CRAB SELF STORAGE, LLC
 8693 BROOKS DR.
 EASTON, MD 21601
 410-822-7777

SEAL

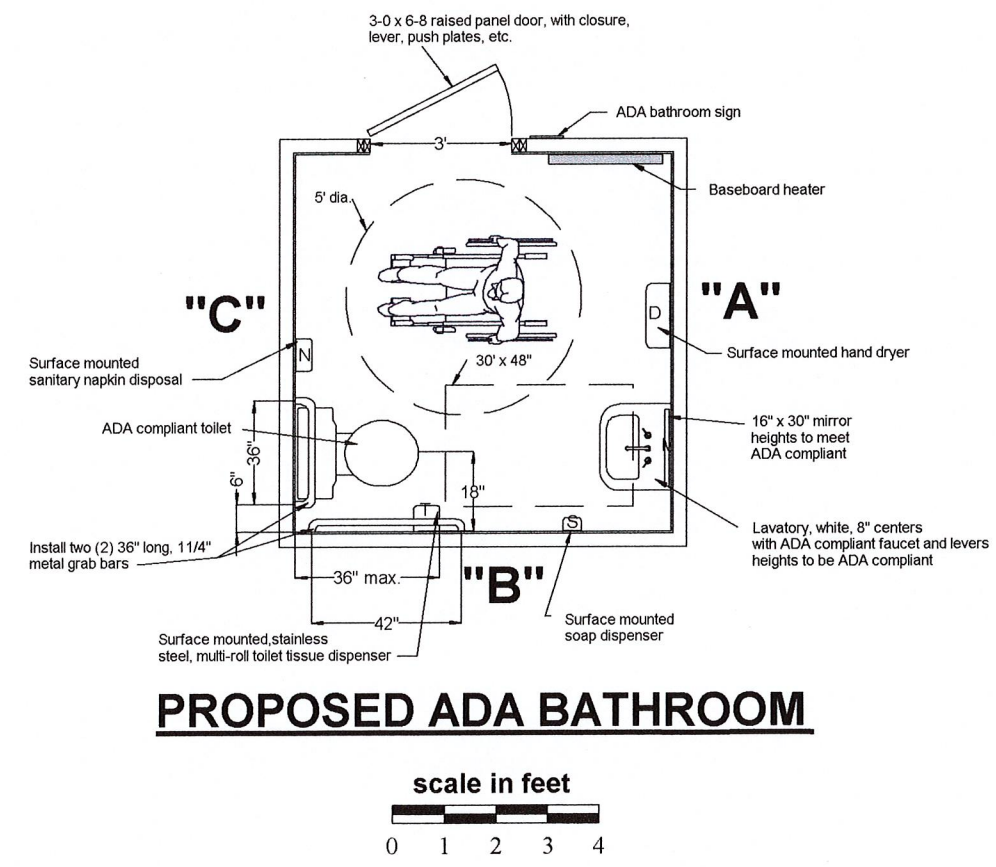
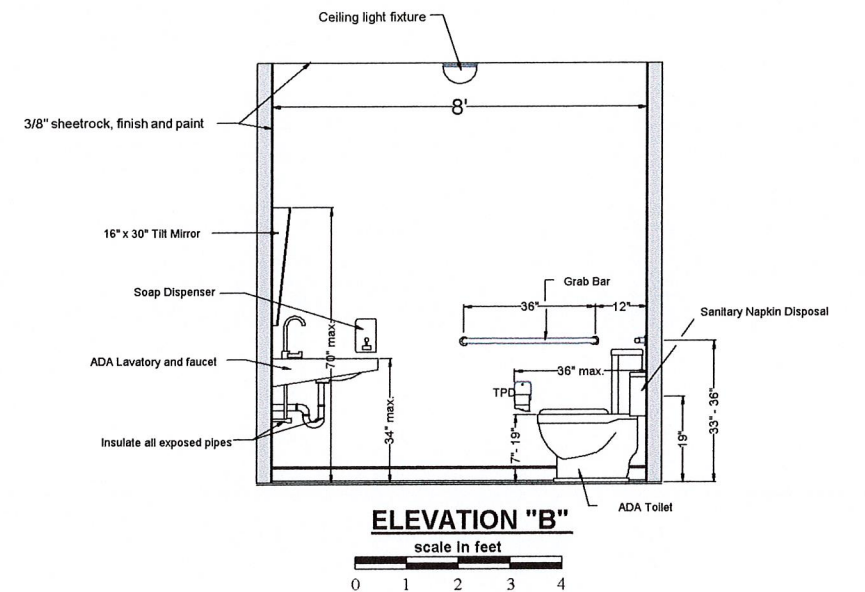
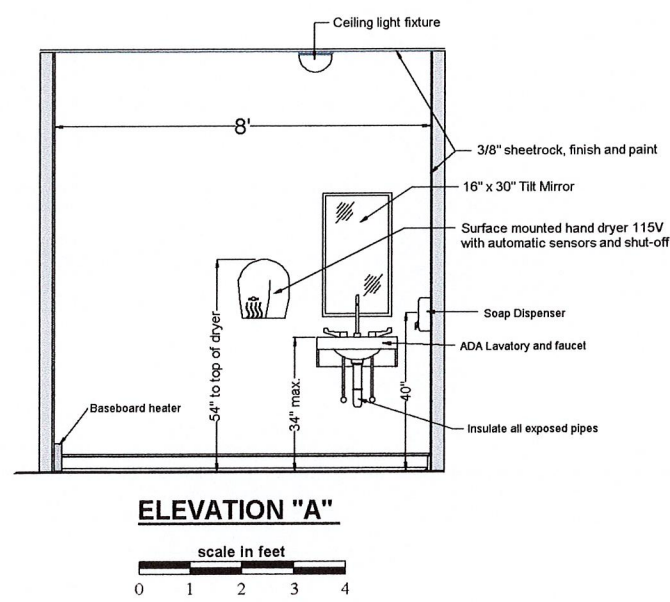
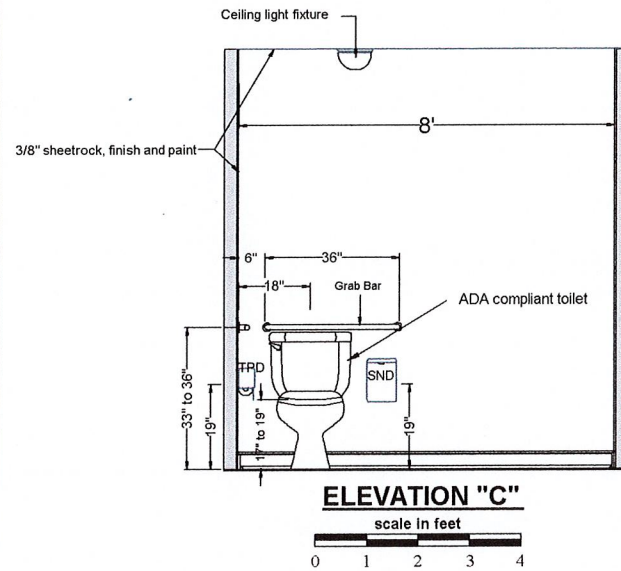
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DRN BY: FMB			
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DATE:			
BY:	NO.	REVISION	DATE

BUILDING #2 WALL DETAILS

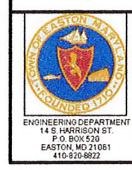
MISTLETOE HALL FARM
 SUBDIVISION
 28860 FAUSLEY WOOD COURT
 WARD DISTRICT #1, EASTON, MD

17

SCALE
AS SHOWN
SHEET NO.



PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. _____, EXPIRATION DATE: _____.



APPROVED: _____
TOWN OF EASTON - PLANNING & ZONING DATE _____
APPROVED: _____
TOWN OF EASTON - TOWN ENGINEER DATE _____

APPROVED: _____
EASTON UTILITIES - ENGINEER DATE _____

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

SEAL

DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:	BY	NO.	REVISION

ADA BATHROOMS

**MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD**

18
SCALE
AS SHOWN
SHEET NO.

[View Map](#)

[View GroundRent Redemption](#)

[View GroundRent Registration](#)

Special Tax Recapture: None

Account Identifier: District - 01 Account Number - 199182

Owner Information

Owner Name: BLUE CRAB SELF STORAGE LLC Use: COMMERCIAL
Mailing Address: 8693 BROOKS DR Principal Residence: NO
EASTON MD 21601- Deed Reference: /03001/ 00001

Location & Structure Information

Premises Address: 28860 FAUSLEY WOOD CT Legal Description: LOT 6C - 1.559 AC
EASTON 21601-0000 E/S GOLDSBOROUGH NECK RD
N/EASTON - MISTLETOE DR

Map:	Grid:	Parcel:	Neighborhood:	Subdivision:	Section:	Block:	Lot:	Assessment Year:	Plat No:
0025	0016	0138	18000.21	0000			6C	2022	
Town: EASTON									Plat Ref: 89/ 178

Primary Structure Built	Above Grade Living Area	Finished Basement Area	Property Land Area	County Use
			1.5590 AC	

Stories	Basement	Type	Exterior	Quality	Full/Half Bath	Garage	Last Notice of Major Improvements

Value Information

	Base Value	Value As of 01/01/2022	Phase-in Assessments As of 07/01/2022	As of 07/01/2023
Land:	316,800	316,800		
Improvements	0	0		
Total:	316,800	316,800	316,800	316,800
Preferential Land:	0	0		

Transfer Information

Seller:	Date:	Price:
TOWN OF EASTON	09/06/2022	\$203,000
Type: ARMS LENGTH VACANT	Deed1: /03001/ 00001	Deed2:
Seller:	Date:	Price:
Type:	Deed1:	Deed2:
Seller:	Date:	Price:
Type:	Deed1:	Deed2:

Exemption Information

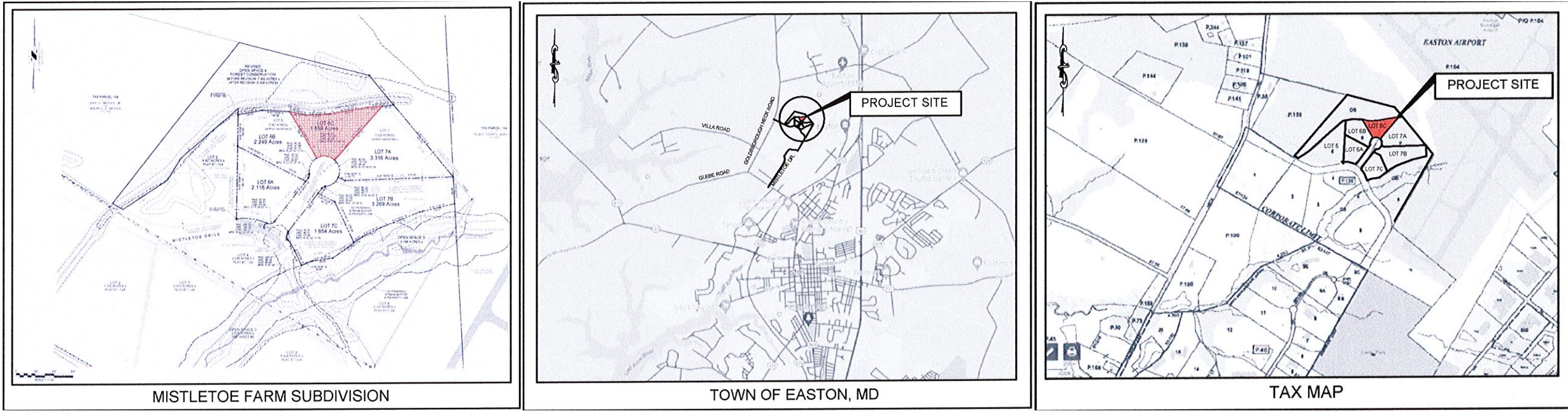
Partial Exempt Assessments:	Class	07/01/2022	07/01/2023
County:	000	0.00	
State:	000	0.00	
Municipal:	000	0.0000.00	0.0000.00
Special Tax Recapture: None			

Homestead Application Information

Homestead Application Status: No Application

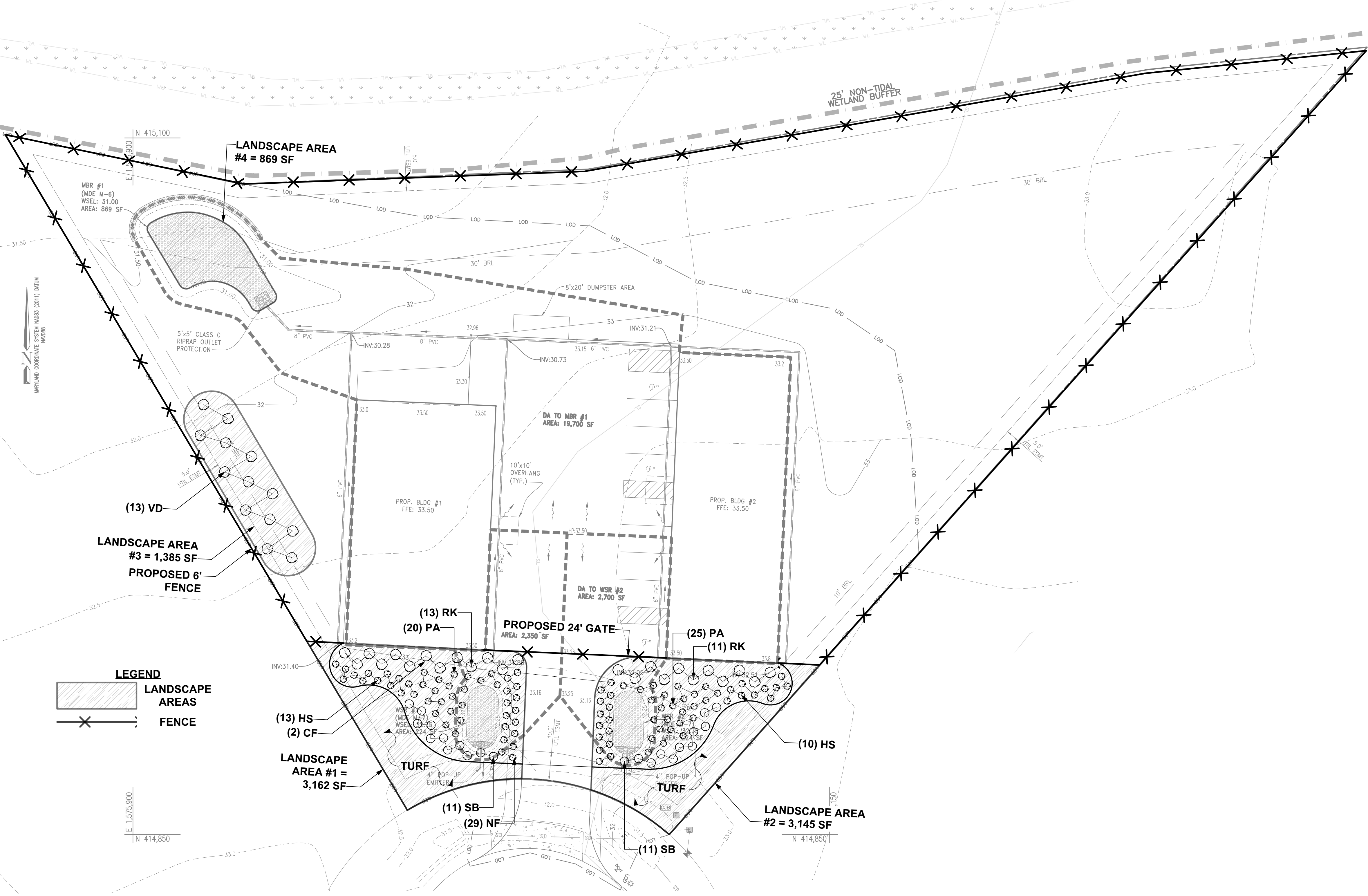
Homeowners' Tax Credit Application Information

Homeowners' Tax Credit Application Status: No Application Date:



LANDSCAPE TABULATIONS

LANDSCAPE PLANT LIST				
SYMBOL	QUANTITY	BOTANICAL NAME	COMMON	SIZE
VD	13	VIBURNUM DENTATUM	ARROWOOD VIBURNUM	3 GAL.
RK	24	ROSA x KNOCK OUT	RED KNOCK OUT ROSE	3 GAL.
SB	22	SPIRAEA x BUMALDA	ANTHONY WATERER SPIREA	3 GAL.
NF	29	NEPETA x FASSENII	CATMINT	1 GAL.
PA	45	PANICUM VIRGATUM	SWITCHGRASS	1 GAL.
HS	23	HEMEROCALLIS 'STELLA DE ORO'	DAYLILY	1 GAL.
LANDSCAPE AREA TAB				
TOTAL LOT AREA = 67,910 SF				
TOTAL LANDSCAPE AREA REQUIRED = 8,498 SF OF 12.5% OF TOTAL LOT AREA				
LANDSCAPE AREA #1			3,162 SF	
LANDSCAPE AREA #2			3,145 SF	
LANDSCAPE AREA #3			1,385 SF	
LANDSCAPE AREA #4			869 SF	
TOTAL LANDSCAPE AREA			8,561 SF	

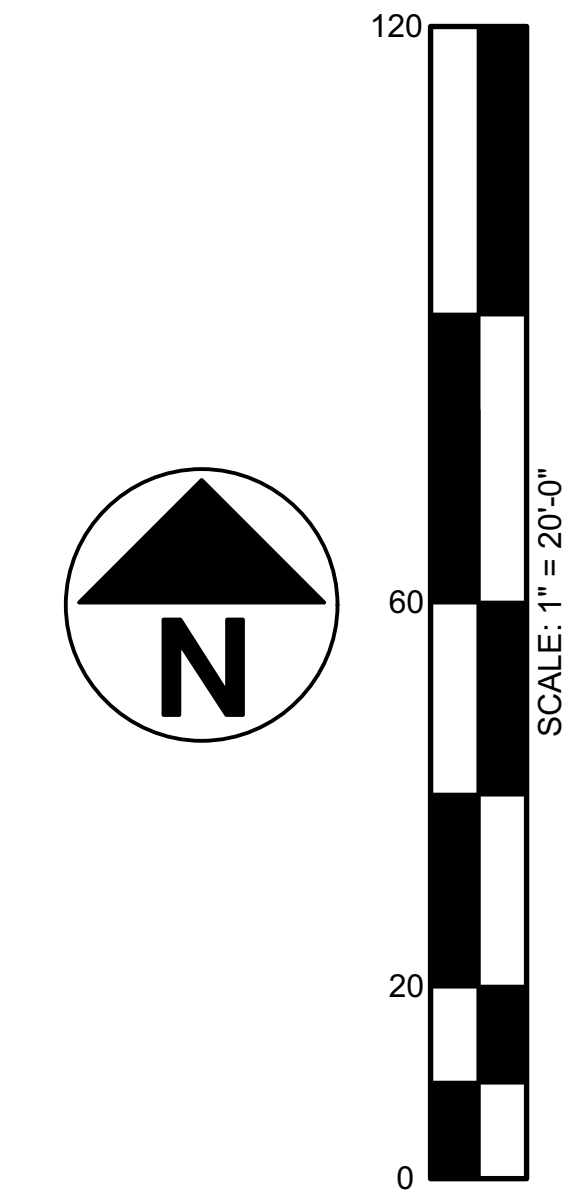


NOTE: PLEASE REFER TO STORMWATER MANAGEMENT PLAN SET FOR RAIN GARDEN PLANTINGS



28860 FAUSLEY WOOD COURT
TAX MAP 25, GRID 16, TAX
PARCEL 138
MISTLETOE HALL, LOT 6C
EASTON
TALBOT COUNTY, MARYLAND

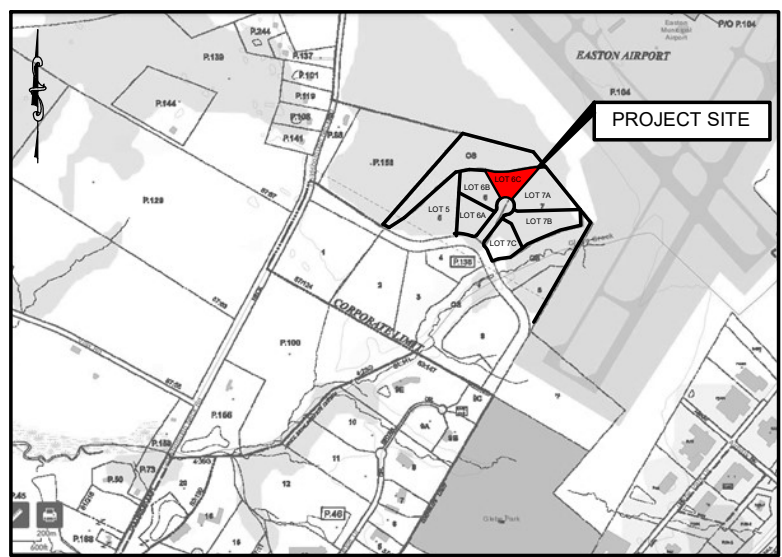
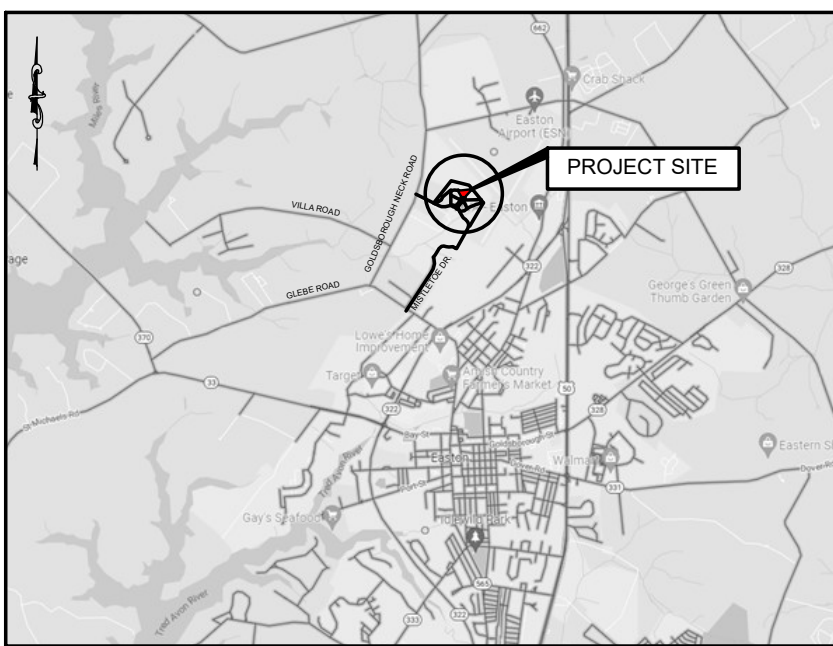
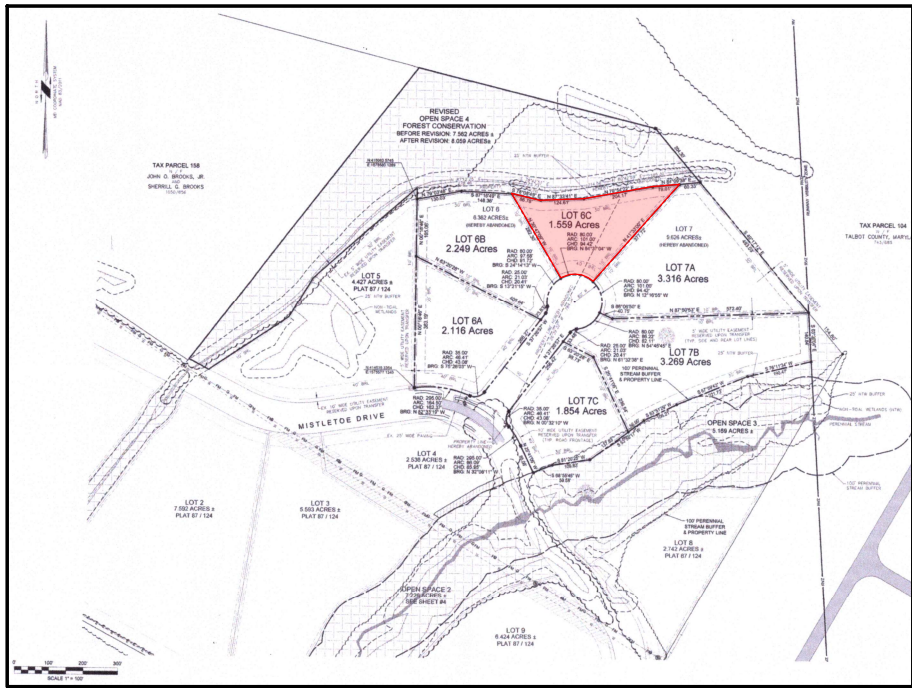
LANDSCAPE PLAN

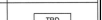


DATE: 02-08-23	CHECKED BY:
DRAWN BY:	
REVISION DATES:	
SHEET NUMBER:	
JOB NUMBER:	
DRAWING NUMBER:	

A100

MISTLETOE HALL FARM SUBDIVISION
LOT 6C IMPROVEMENTS
28860 FAUSLEY WOOD COURT
TOWN OF EASTON, MARYLAND



STANDARD SYMBOLS*		STANDARD SYMBOLS*		STANDARD SYMBOLS*		STANDARD SYMBOLS*	
PLUNGE POOL		STONE/RIPRAP OUTLET SEDIMENT TRAP ST II		FILTER LOG		VERTICAL DRAW-DOWN DEVICE	
PORTABLE SEDIMENT TANK		SUBSURFACE DRAINS		GABION INFLOW PROTECTION		WASH RACK OPTION	
REMOVABLE PUMPING STATION		SUMP PIT		GABION INLET PROTECTION		GENERAL NOTES: 1. OWNER: BLUE CRAB SELF STORAGE, LLC 8893 BROOKS DR EASTON, MD 21601 2. ZONING: I 3. BUILDING SETBACKS: 40' FRONT 10' SIDES 30' REAR 4. THE PROPERTY SHOWN HEREON IS NOT LOCATED WITHIN THE COASTAL FLOODPLAIN AS SHOWN ON THE FLOOD INSURANCE RATE MAPS COMMUNITARIAN FOR TALBOT COUNTY, MARYLAND 5. WATER SUPPLY & SEWAGE DISPOSAL: TOWN OF EASTON 6. CONTOURS SHOWN HEREON ARE REFERENCED TO NAVD 1988 7. TAX MAP 25 PARCEL 138 LOT 6C 8. DEED REF: BOOK 00743, PAGE 00703 9. WARD DISTRICT 1 10. BUILDING 1, STORAGE, MIN. 4 SPACES AND 2 FOR MANAGER 10. BUILDING 2, LIGHT INDUSTRIAL: MIN. 1 SPACE PER 2,000 SF GFA. MAX. 10,000 SF GFA. 11. PROFESSIONAL CERTIFICATE OF DESIGN AND CONSTRUCTION WERE PREPARED OR REVIEWED BY A PROFESSIONAL ENGINEER LICENSE NO.	
RIPRAP INFLOW PROTECTION		SUPER SILT FENCE		HORIZONTAL DRAW-DOWN DEVICE			
RIPRAP OUTLET SEDIMENT TRAP ST III		TEMPORARY ACCESS BRIDGE		LIMIT OF DISTURBANCE			
ROCK OUTLET PROTECTION I		TEMPORARY ACCESS CULVERT		MEDIAN INLET PROTECTION			
ROCK OUTLET PROTECTION II		TEMPORARY ASPHALT BERM		MEDIAN SUMP INLET PROTECTION			
ROCK OUTLET PROTECTION III		TEMPORARY BARRIER DIVERSION		MOUNTABLE BERM			
SILT FENCE		TEMPORARY GABION OUTLET STRUCTURE		PERIMETER DIKE/SWALE			
SILT FENCE ON PAVEMENT		TEMPORARY SOIL STABILIZATION MATTING CHANNEL		PERMANENT SOIL STABILIZATION MATTING CHANNEL			
STABILIZED CONSTRUCTION ENTRANCE		TEMPORARY SOIL STABILIZATION MATTING SLOPE		PERMANENT SOIL STABILIZATION MATTING SLOPE			
STANDARD INLET PROTECTION		TEMPORARY STONE OUTLET STRUCTURE		PIPE OUTLET SEDIMENT TRAP ST I			
STONE CHECK DAM		TEMPORARY SWALE		PIPE SLOPE DRAIN			

<u>INDEX OF SHEETS</u>	<u>SHEET NO.</u>
TITLE SHEET / LOCATION MAPS	1
EXISTING SITE PLAN	2
SOIL TYPES	3
PROPOSED SITE PLAN	4
STORM WATER MANAGEMENT	5
DETAILS	6
DETAILS	7
EXISTING AND PROPOSED CONTOURS	8
UTILITY LOCATIONS	9
SEALED TOPO SURVEY	10
CPJ AND ASSOCIATES	
STORM WATER MANAGEMENT PLANS	1,2,3

REVIEWED FOR THE TALBOT COUNTY SOIL CONSERVATION AND MEETS TECHNICAL REQUIREMENTS.

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT	DATE

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY, OR OTHERWISE ALTER THE EROSION CONTROL PREVISIONS OF THIS PLAN IN THE EVENT ADDITIONAL PROTECTION BECOMES NECESSARY.

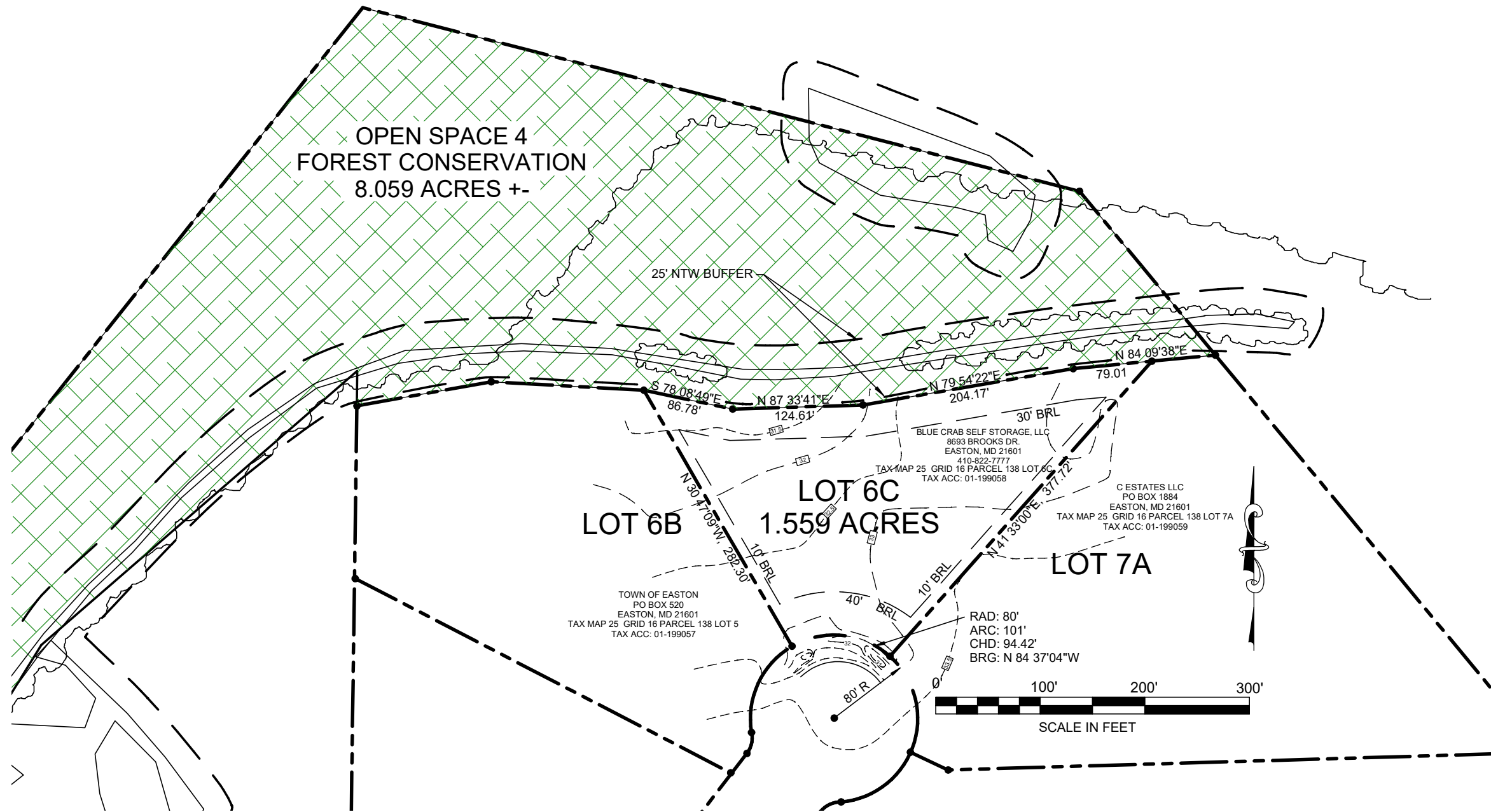
DEVELOPERS CERTIFICATION

I HEREBY CERTIFY THAT ALL THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE ACCORDING TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

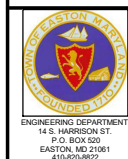
SIGNATURE	DATE

1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION FROM THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN APPROVAL FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.
2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

 ENGINEERING DEPARTMENT 14 S. HARRISON ST. P.O. BOX 530 EASTON, MD 21601 410-822-7777	TOWN OF EASTON, MARYLAND			OWNER / DEVELOPER / APPLICANT	DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23		TITLE SHEET	MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD	SCALE
	PLANNING AND ZONING	ENGINEERING	ENVIRONMENTAL REVIEW	BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777	DRN BY: FMB							AS SHOWN
					CHK BY:							SHEET NO.
					DATE:							1 OF 10
	DATE	DATE	DATE		BY	NO.	REVISION	DATE				



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THESE DOCUMENTS
WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED
PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND
LICENSE NO. _____, EXPIRATION DATE: _____



TOWN OF EASTON, MARYLAND

PLANNING AND ZONING

ENGINEERING

ENVIRONMENTAL REVIEW

DATE

DATE

DATE

OWNER / DEVELOPER / APPLICANT

BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

SEAL

DES. BY: DML

DRN BY: FMB

CHK BY:

DATE:

FMB

BY

ORIGINAL DRAWING DATE

NO. REVISION

12/1/23

DATE:

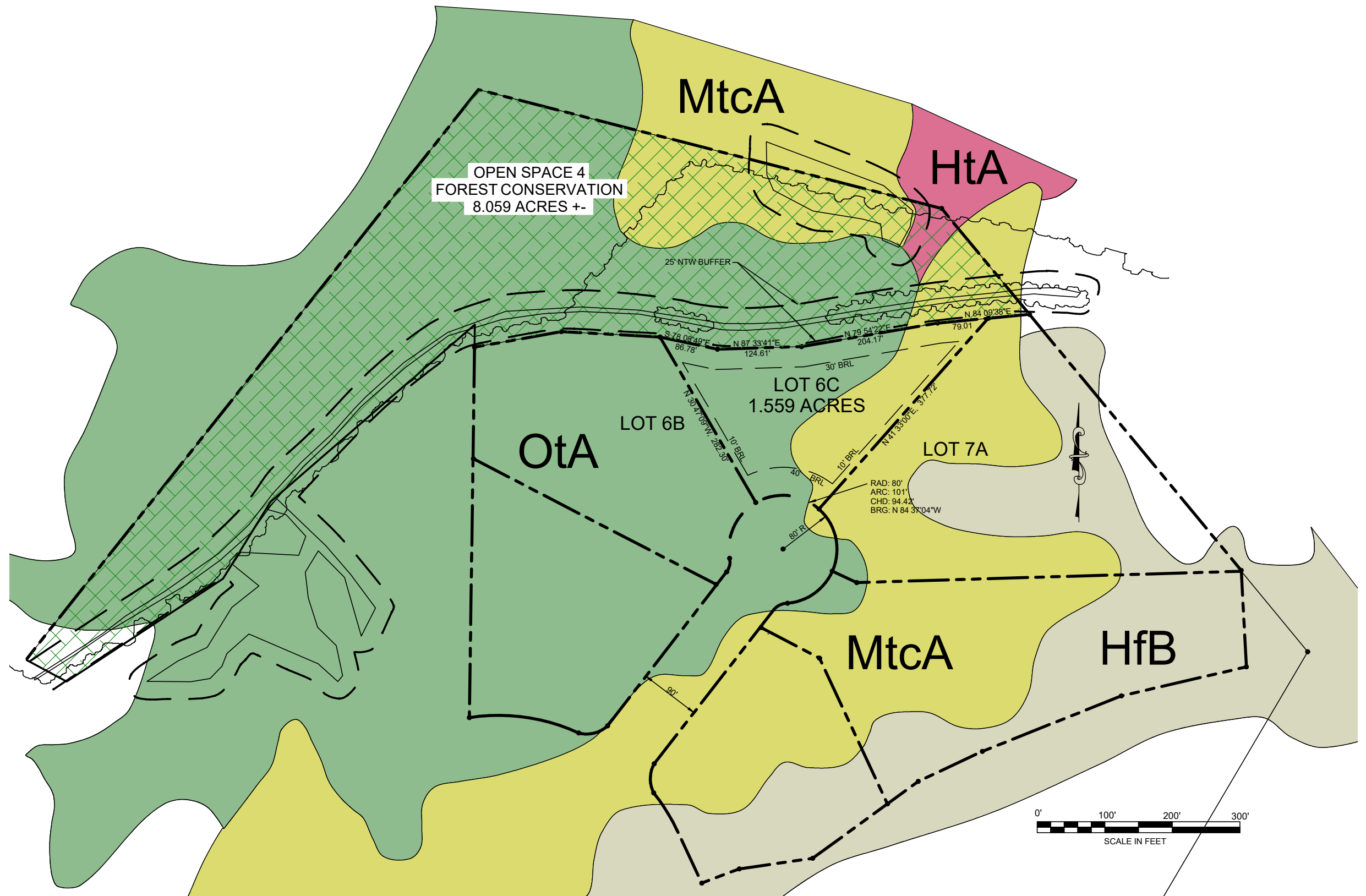
EXISTING SITE
PLAN

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD

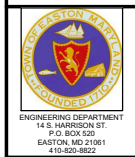
2

SCALE
AS SHOWN

SHEET NO.
2 OF 10



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____



TOWN OF EASTON, MARYLAND		
PLANNING AND ZONING	ENGINEERING	ENVIRONMENTAL REVIEW
_____	_____	_____
DATE	DATE	DATE

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC
8693 BROOKS DR.
EASTON, MD 21601
410-822-7777

SEAL

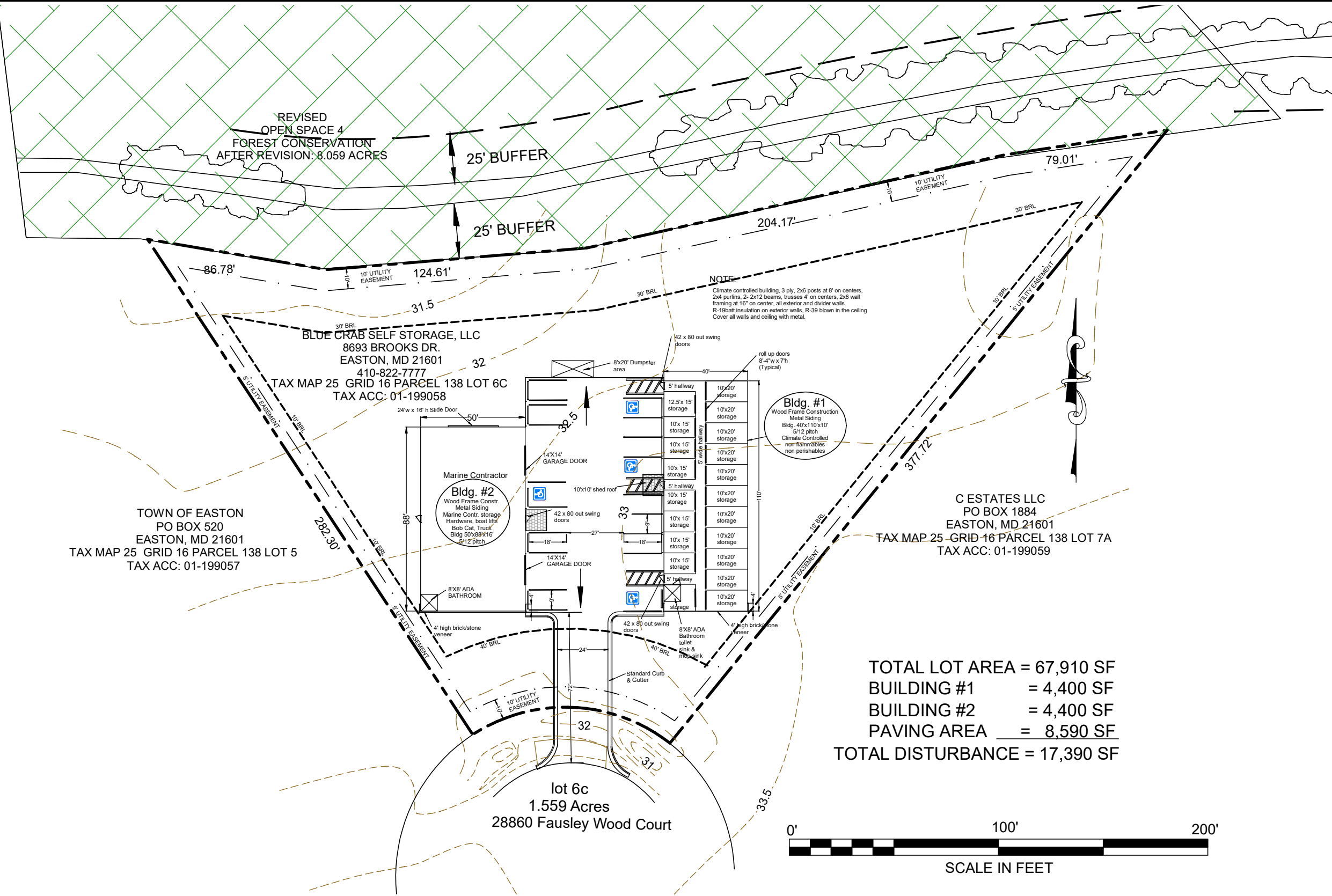
DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
DRN BY: FMB			
CHK BY:			
DATE:	BY NO.	REVISION	DATE:

SOIL TYPES

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #1, EASTON, MD

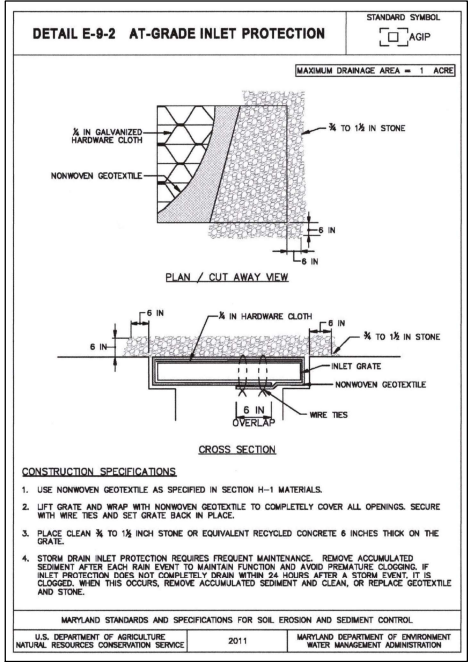
3

SCALE
AS SHOWN
SHEET NO.
3 OF 10



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____, EXPIRATION DATE: _____

 ENGINEERING DEPARTMENT 14 S. HARRISON ST. P.O. BOX 520 EASTON, MD 21601 410-820-8522	TOWN OF EASTON, MARYLAND			OWNER / DEVELOPER / APPLICANT	SEAL	DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23	PROPOSED SITE PLAN	MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD	4 SCALE AS SHOWN SHEET NO. 4 OF 10
	PLANNING AND ZONING	ENGINEERING	ENVIRONMENTAL REVIEW	BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777		DRN BY: FMB						
						CHK BY:						
						DATE:						
						BY:	NO.	REVISION	DATE			



EROSION AND SEDIMENT CONTROL STANDARDS & SPECIFICATIONS FOR VEGETATIVE STABILIZATION

- 1) Contractor shall install soil erosion and sediment control devices prior to any grading. Following initial disturbance or re-disturbance, permanent or temporary stabilization shall be completed within three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes greater than three (3) horizontal to one (1) vertical (3:1) and seven (7) days as to all other disturbed or graded areas on the project site not under active grading.
- 2) All temporary erosion and sediment control devices are to be provided as indicated on this plan, with location adjustments to be made in the field as necessary, and to be maintained at the end of each working day until project completion. The minimum area practical shall be disturbed for the minimal amount of time possible.
- 3) Clearing and grubbing shall include all trees, brush, debris, root mat and organic materials to be removed.
- 4) Temporary seeding shall be accomplished between February 15th through April 30th, and August 15th through November 30th. During other times, temporary mulching shall be provided.
- 5) Temporary seeding shall conform to the following applications: 436 lbs. per acre of 10-20-20, 4,000 lbs. per acre of ground limestone, to be incorporated into the soil by disking or other suitable means. Annual ryegrass shall be applied at a rate of 50 lbs. per acre using suitable equipment. Mulching shall be accomplished immediately after seeding.

Seed Mixture (For Hardness Zone 7a) (From Table B.1)				Fertilizer Rate (10-20-20)	Lime Rate
Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	1/2"	436 lbs. / ac. 10 lbs. / 1000 sf	2 tons / ac. 90 lbs. / 1000 sf
BARLEY	96#	2/15 - 4/30; 8/15 - 11/30	1"		
OATS	72#	2/15 - 4/30; 8/15 - 11/30	1"		
WHEAT	120#	2/15 - 4/30; 8/15 - 11/30	1"		
CEREAL RYE	112#	2/15 - 4/30; 8/15 - 12/15	1"		
FOXTAIL MILLET	30#	5/1 - 8/14	1/2"	436 lbs. / ac. 10 lbs. / 1000 sf	2 tons / ac. 90 lbs. / 1000 sf
PEARL MILLET	20#	5/1 - 8/14	1/2"		

- 6) Mulching shall be un-chopped, un-rotted, small grain straw applied at a rate of 2-2 1/2 tons per acre. Anchor mulch with a mulch anchoring tool on the Contour. Wood cellulose fiber may be used for anchoring straw at a rate of 750 lbs. per acre mixed with water at a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water, or with a synthetic liquid binder according to manufacturer recommendations. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1,500 lbs. per acre. Mix wood cellulose fiber with water to attain a mixture with a maximum of 50 lbs. of wood cellulose fiber per 100 gals. of water.
- 7) Permanent seeding shall be accomplished between February 15th through April 30th, or August 15th through October 31st. Permanent seeding at other than specified times will be allowed only upon written approval. Permanent seeding shall conform to the following applications: Permanent seeding for sites having disturbed over five (5) acres shall use fertilizer rates recommended by a soil testing agency and the recommendations provided in the Permanent Seeding Summary Table. Permanent seeding for conditions other than listed above shall be performed at the rates and dates as provided in the Permanent Seeding Summary Table below. Fertilizer and lime amendments shall be incorporated into the top 3"-5" of the soil by disking or other suitable means. Mulching shall be accomplished as discussed in Item #6 of these specifications.

Seed Mixture (For Hardness Zone 7a) (From Table B.3)				Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Appl. Rate (lbs. / ac.)	Seeding Dates	Seeding Depths	N	P2O5	K2O
7	CREeping RED FESCUE KENTUCKY BLUEGRASS	60# 15#	2/15-4/30 8/15-10/31	1/2"-1/2"	45 lb. / ac. 1 lb. / 1000 sf	90 lb. / ac. 2 lbs. / 1000 sf	90 lb. / ac. 2 lbs. / 1000 sf
8	TALL FESCUE	100#	2/15-4/30 8/15-10/31	1/2"-1/2"			
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60# 40# 20#	2/15-4/30 8/15-10/31	1/2"-1/2"			

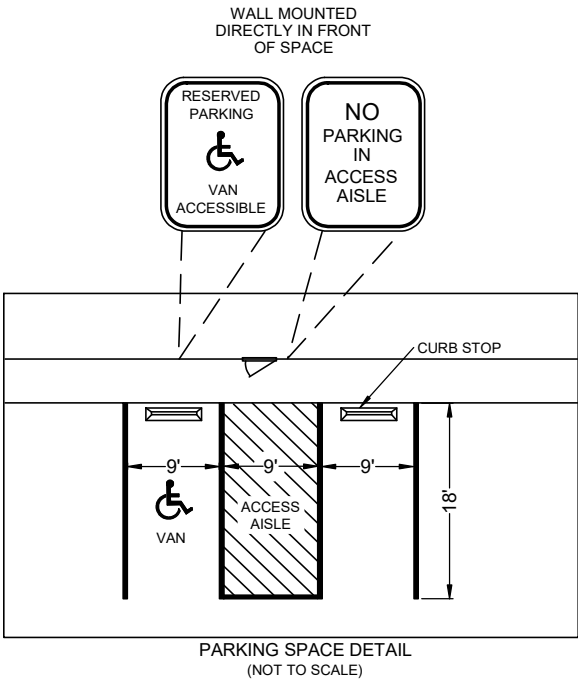
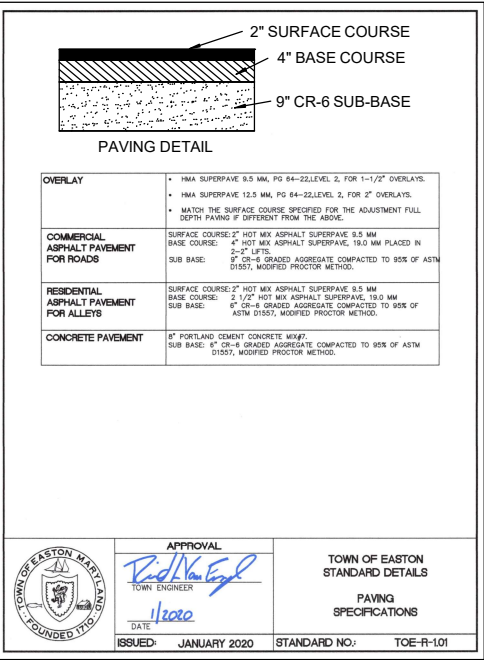
- 8) Any spoil or borrow will be placed at a site approved by the Talbot Soil Conservation District.
- 9) All areas remaining or intended to remain disturbed for longer than seven (7) days shall be stabilized in accordance with the USDA, Natural Resources Conservation Service Standards and Specifications for Soil Erosion and Sediment Control in developing areas for critical area stabilization.
- 10) It will be the responsibility of the Contractor or Subcontractor to notify the Engineer of any deviation from this plan. Any change made in this plan without written authorization from the Engineer will place responsibility of said change on the Contractor or Subcontractor.

PHASE OF CONSTRUCTION

- CONTACT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, PHONE (410) 901-4020 A MINIMUM OF TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION TO SCHEDULE A PRE CONSTRUCTION MEETING TO REVIEW PLANS AND BECOME FAMILIAR WITH ALL PERMITS.
- CONTRACTOR SHALL HAVE ALL SITE UTILITIES MARKED A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION.
- INSTALL TEMPORARY SEDIMENT CONTROL MEASURES / PERIMETER CONTROLS. MAINTAIN THROUGHOUT PROJECT.
- REMOVE A MINIMUM OF 6" OF TOPSOIL AS NEEDED AND DISPOSE OF EXCESS TOPSOIL OFFSITE AT AN APPROVED LANDFILL.
- ROUGH GRADE SITE.
- BEGIN BUILDING CONSTRUCTION.
- MAINTAIN ALL SEDIMENT CONTROLS THROUGHOUT CONSTRUCTION.
- ONCE BUILDING CONSTRUCTION IS TO SUFFICIENT POINT, INSTALL ENTRANCE, SITE PAVEMENT (PER SECTION) AND SIDEWALKS.
- ONCE DRAINAGE AREAS ARE ADEQUATELY STABILIZED (PAVEMENT SUBBASE INSTALLED AT A MINIMUM) AFTER NOTIFYING THE TOWN OF EASTON STORMWATER MANAGEMENT INSPECTOR, INSTALL STORMWATER MANAGEMENT BIORETENTION PONDS AND QUANTITY CONTROL AREA. CONNECT ROOF LEADERS TO STORMWATER MANAGEMENT AREAS.
- INSTALL SITE LANDSCAPING, FOREST CONSERVATION PLANTINGS AND STORMWATER MANAGEMENT PLANTINGS.
- SEED AND MULCH PER SPECIFICATIONS, PROVIDE STABILIZATION MATTING WHERE APPLICABLE. PROVIDE PERMANENT STABILIZATION TO WHOLE SITE.
- ONCE THE SITE IS FULLY STABILIZED AND THROUGH COORDINATION AND APPROVAL OF THE MDE & TOWN OF EASTON INSPECTORS. REMOVE SEDIMENT CONTROL MEASURES.

THE FOLLOWING ITEMS HAVE BEEN ADDRESSED TO MEET THE REQUIREMENTS OF THE GENERAL PERMIT FOR STORMWATER ASSOIATED WITH CONSTRUCTION ACTIVITY (NPDES NUMBER MDR10, STATE DISCHARGE PERMIT NUMBER 09GP).

- UTILIZATION OF ENVIRONMENTAL SITE DESIGN
- MAINTENANCE OF LIMITS OF DISTURBANCE TO PROTECT NATURAL AREAS
- CONTROL OF CONSTRUCTION EQUIPMENT AND VEHICLES
- EVALUATION AND APPROPRIATE LIMITATION OF SITE CLEARING
- EVALUATION AND DESIGNATION OF SITE AREA FOR PHASING OR SEQUENCING
- IDENTIFICATION OF SOILS AT HIGH RISK FOR EROSION AND ADVANCED STABILIZATION TECHNIQUES TO BE USED
- IDENTIFICATION OF STEEP SLOPES AND DESIGNATION OF LIMITATIONS ON CLEARING THEM
- EVALUATION AND DESIGNATION OF STABILIZATION REQUIREMENTS AND THE LIMITS AND PROTECTION MEASURES FOR DISCHARGES TO THE CHESAPEAKE BAY, IMPARED WATERS OR WATERS WITH AN ESTABLISHED TOTAL MAXIMUM DAILY LOAD (TMDL)



GENERAL NOTES:
ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, LOCAL BUILDING CODES, BEST PRACTICES OF THE RESPECTIVE TRADES AND THE STANDARD SPECIFICATIONS AND DETAILS REFERRED TO HERIN.

THIS DRAWING SHOWS INFORMATION OBTAINED FROM AVAILABE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST WITHIN LIMITS OF THE WORK. AT AND BELOW THE SURFACE OF THE GROUND. THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITIES FOR THE ACCURACY OR COMPLETENESS OF SAID INFORMATION BEING SHOWN ONLY FOR THE CONVENIENCE OF THE CONTRACTOR WHO MUST VERIFY THE INFORMATION TO HIS OWN SATIFICATION. IF THE CONTRACTOR RELIES ON SAID INFORMATION, HE DOES SO AT HIS OWN RISK. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORTING AND PROTECTING ALL PIPES, CONDUITS, TELEPHONE LINES AND OTHER STRUCTURES.

THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO START OF CONSTRUCTION AND SHALL COORDINATE ALL PHASES WITH THEM:

MDE _____ 410-901-4020
TALBOT COUNTY _____ 410-770-8030
MISS UTILITY _____ 800-441-8355

SHOULD ANY DAMAGE OCCUR TO AN UTILITIES, THEY SHALL BE REPAIRD SOLELY AT THE CONTRACTOR'S EXPENSE.

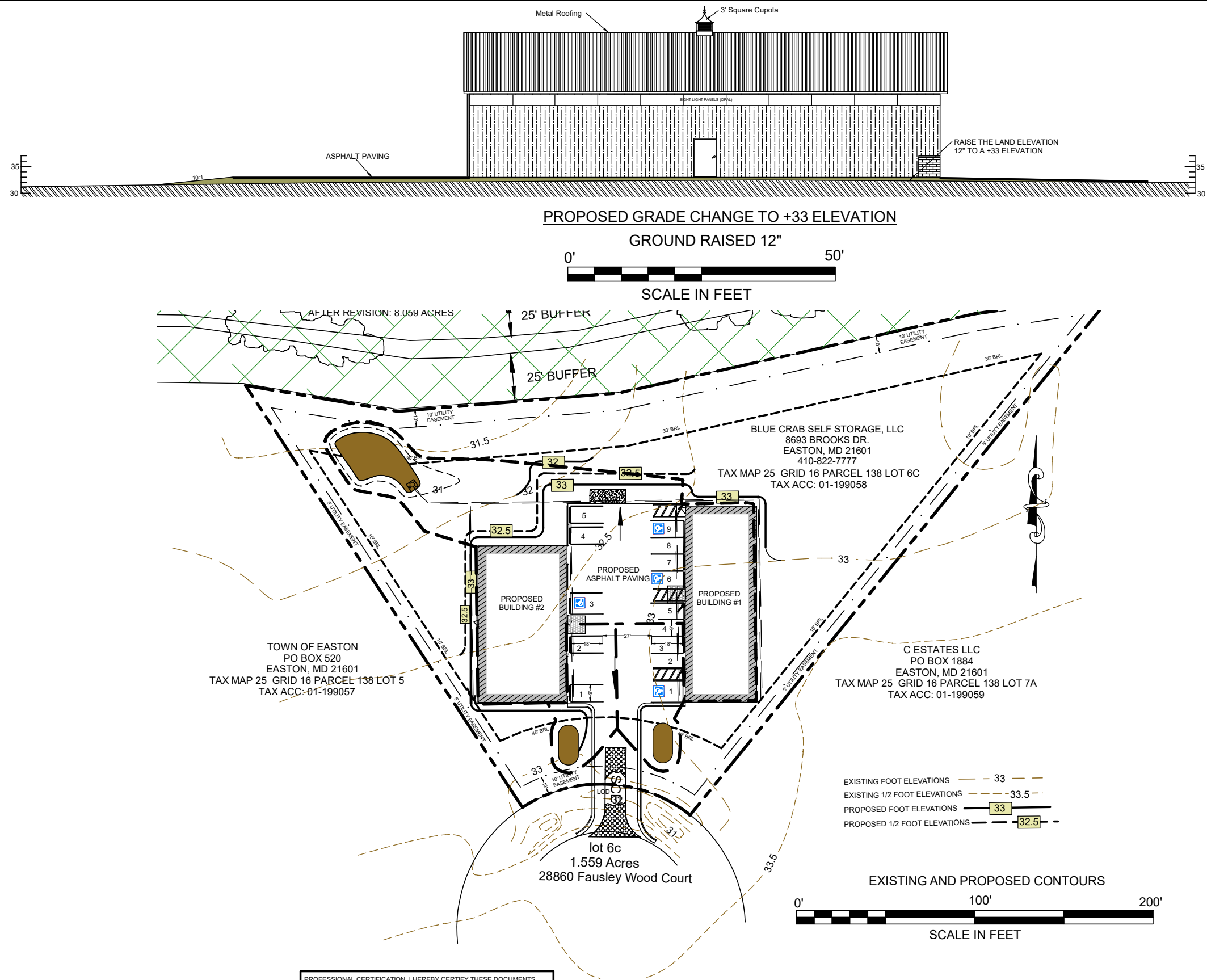
ALL LANDSCAPING SHALL BE PREFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMEN AND BE GUARNTeed FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY MONUMENTS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTOR'S EXPENSE.

OWNER/DEVELOPER:
NAME: DAN LERINAN
STREET: 10555 LAKE ROAD
TOWN: EASTON, MD 21601

TOTAL LOT AREA = 67,910 SF
BUILDING #1 = 4,400 SF
BUILDING #2 = 4,400 SF
PAVING AREA = 10,900 SF
TOTAL DISTURBANCE = 19,700 SF

TOWN OF EASTON, MARYLAND				OWNER / DEVELOPER / APPLICANT		SEAL		DES. BY: DML		FMB	ORIGINAL DRAWING DATE		12/1/23	DETAILS	MISTLETOE HALL FARM SUBDIVISION 28860 FAUSLEY WOOD COURT WARD DISTRICT #1, EASTON, MD		7
PLANNING AND ZONING		ENGINEERING		ENVIRONMENTAL REVIEW		BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777		DRN BY: FMB							SCALE AS SHOWN		SHEET NO. 7 OF 10
DATE		DATE		DATE				CHK BY:									
								DATE:		BY	NO.	REVISION		DATE:			



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. _____ EXPIRATION DATE: _____



TOWN OF EASTON, MARYLAND		
PLANNING AND ZONING	ENGINEERING	ENVIRONMENTAL REVIEW

OWNER / DEVELOPER / APPLICANT
BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DR. EASTON, MD 21601 410-822-7777

SEAL

DES. BY: DML	FMB	ORIGINAL DRAWING DATE	12/1/23
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CHK BY:			
DATE:			

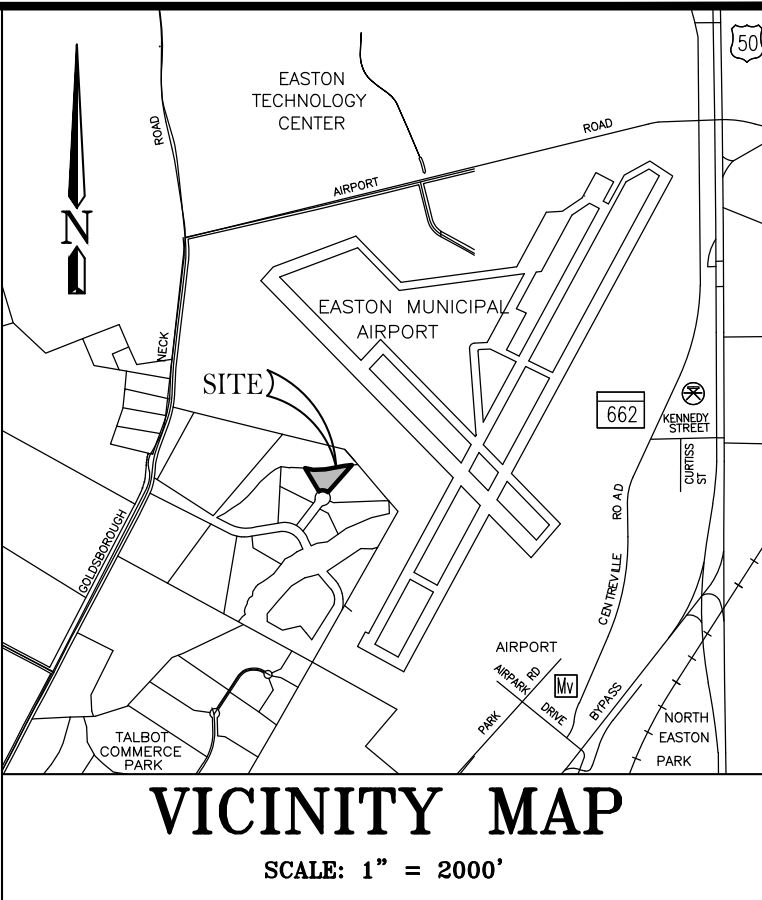
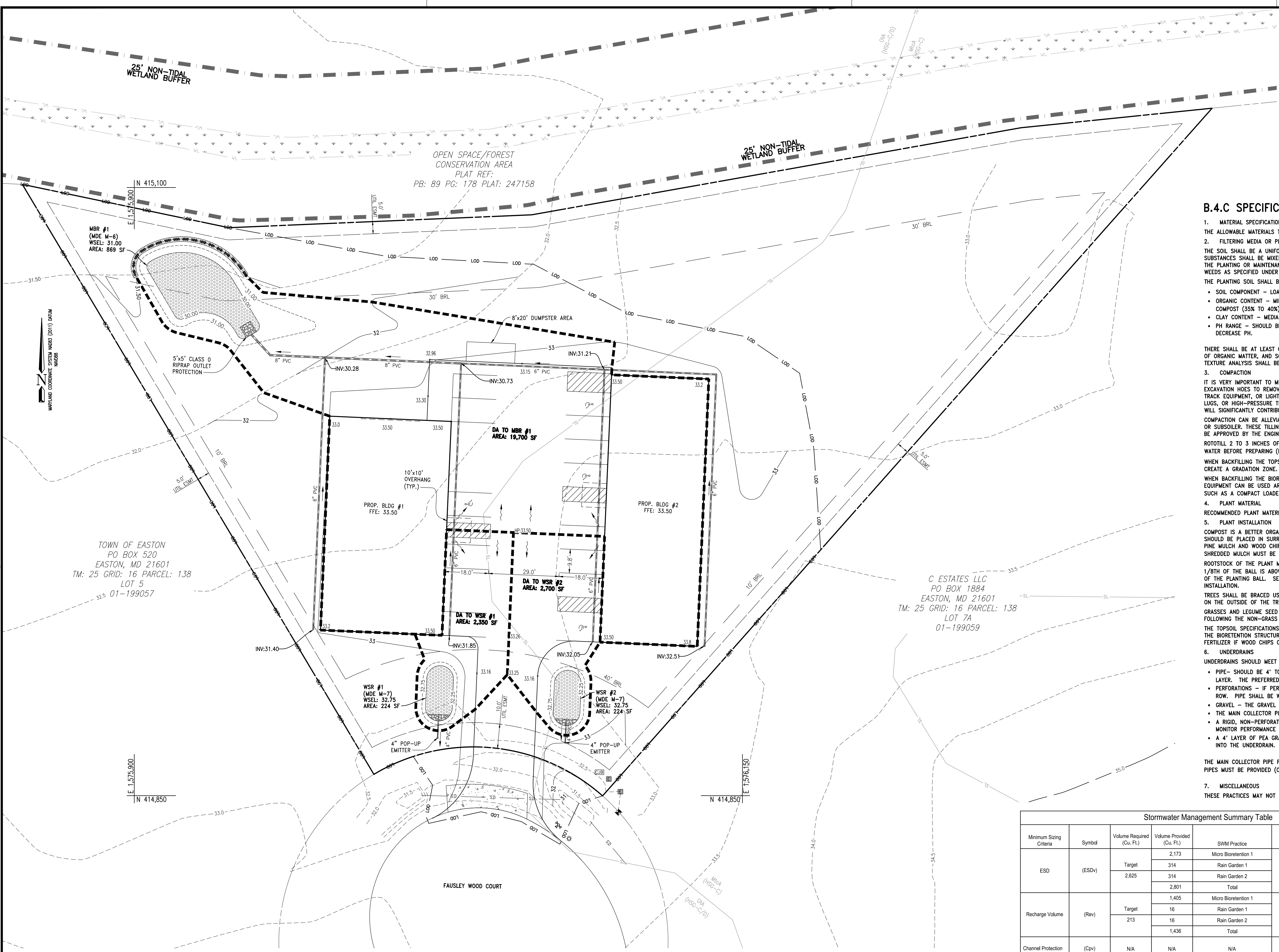
EXISTING AND
PROPOSED
CONTOURS

MISTLETOE HALL FARM
SUBDIVISION
28860 FAUSLEY WOOD COURT
WARD DISTRICT #4, EASTON, MD

8

SCALE
AS SHOWN

SHEET NO.



- B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION.**
- MATERIAL SPECIFICATIONS**
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
 - FILTERING MEDIA OR PLANTING SOIL**
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICROBIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 - SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
 - ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
 - CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
 - PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED INTO THE SOIL TO INCREASE OR DECREASE PH.

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS A CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT. ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

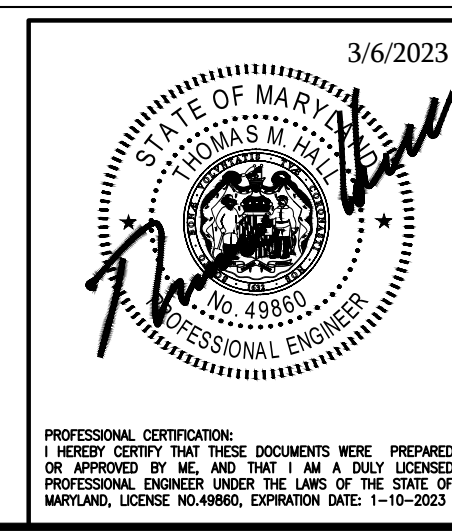
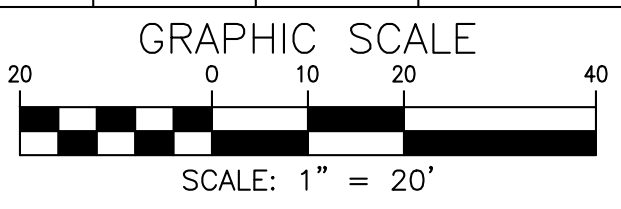
- 4. PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- 5. PLANT INSTALLATION**
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.
TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

- 6. UNDERDRAINS**
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 - PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OR HDPE).
 - PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/4" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4X4) GALVANIZED HARDWARE CLOTH.
 - GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 - THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 - A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
 - A 4" LAYER OF PEA GRAVEL (1/4" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

- 7. MISCELLANEOUS**
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

Stormwater Management Summary Table				
Minimum Sizing Criteria	Symbol	Volume Required (Cu. Ft.)	Volume Provided (Cu. Ft.)	SWM Practice
ESD	(ESDv)	Target	2,173	Micro Bioretention 1
			314	Rain Garden 1
			314	Rain Garden 2
			2,801	Total
Recharge Volume	(Rev)	Target	1,405	Micro Bioretention 1
			16	Rain Garden 1
			16	Rain Garden 2
			1,438	Total
Channel Protection Storage Volume	(CpV)	N/A	N/A	N/A
Overbank Flood Protection	(Op10)	N/A	N/A	N/A
Extreme Flood Volume	(QF)	N/A	N/A	N/A
CPV not required for this site				
Site discharges to FCE, controlling downstream development				
No historical flooding or floodplain downstream of site				



SOILS TABLE				
MAP UNIT SYMBOL	MAP UNIT NAME	HSG TYPE	K FACTOR, WHOLE SOIL	HYDRIC
MtA	Mattapex silt loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	0.49	5%
OIA	Ohwille silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C/D	0.43	*86%

*SOILS THAT CONTAIN POTENTIALLY HYDRIC COMPONENTS

- NOTES:**
- CONTRACTOR IS SOLELY RESPONSIBLE TO LOCATE ALL UTILITIES TO DETERMINE EXACT LOCATIONS, AND TO RELOCATE/RECONNECT AS REQUIRED.
 - EXISTING CONDITIONS PROVIDED TO CPJA BY DAN LERIAN

- LEGEND**
- PROPERTY LINE
 - ADJOINING PROPERTY LINE
 - EXISTING MAJOR CONTOUR
 - EXISTING MINOR CONTOUR
 - ROOF DRAIN SPOUT
 - LDD - LIMITS OF DISTURBANCE
 - SOILS DELINEATION
 - SD - EXISTING STORM DRAIN PIPE
 - INV. - INVERT
 - N/F - NOW OR FORMERLY
 - L. F. - LIBER ; FOLIO
 - B.R.L. - BUILDING RESTRICTION LINE
 - UTILITY BOX
 - POWER TRANSFORMER
 - FIRE HYDRANT
 - LIGHT POLE
 - NON TIDAL WETLANDS
 - PROPOSED SWM FACILITY
 - PROPOSED STORMRAIN PIPES
 - PROPOSED STRUCTURE
 - DRAINAGE AREA
 - MICRO-BIORETENTION WEIR
 - PROPOSED CONTOURS

PROPOSED STORMWATER MANAGEMENT PLAN
SCALE: 1"=20'

SITE DATA:
TOTAL SITE AREA: 1.56 AC.
EXISTING IMPERVIOUS: 0.0 AC.
PROPOSED IMPERVIOUS: 0.41 AC.

UPDATES/REVISIONS:

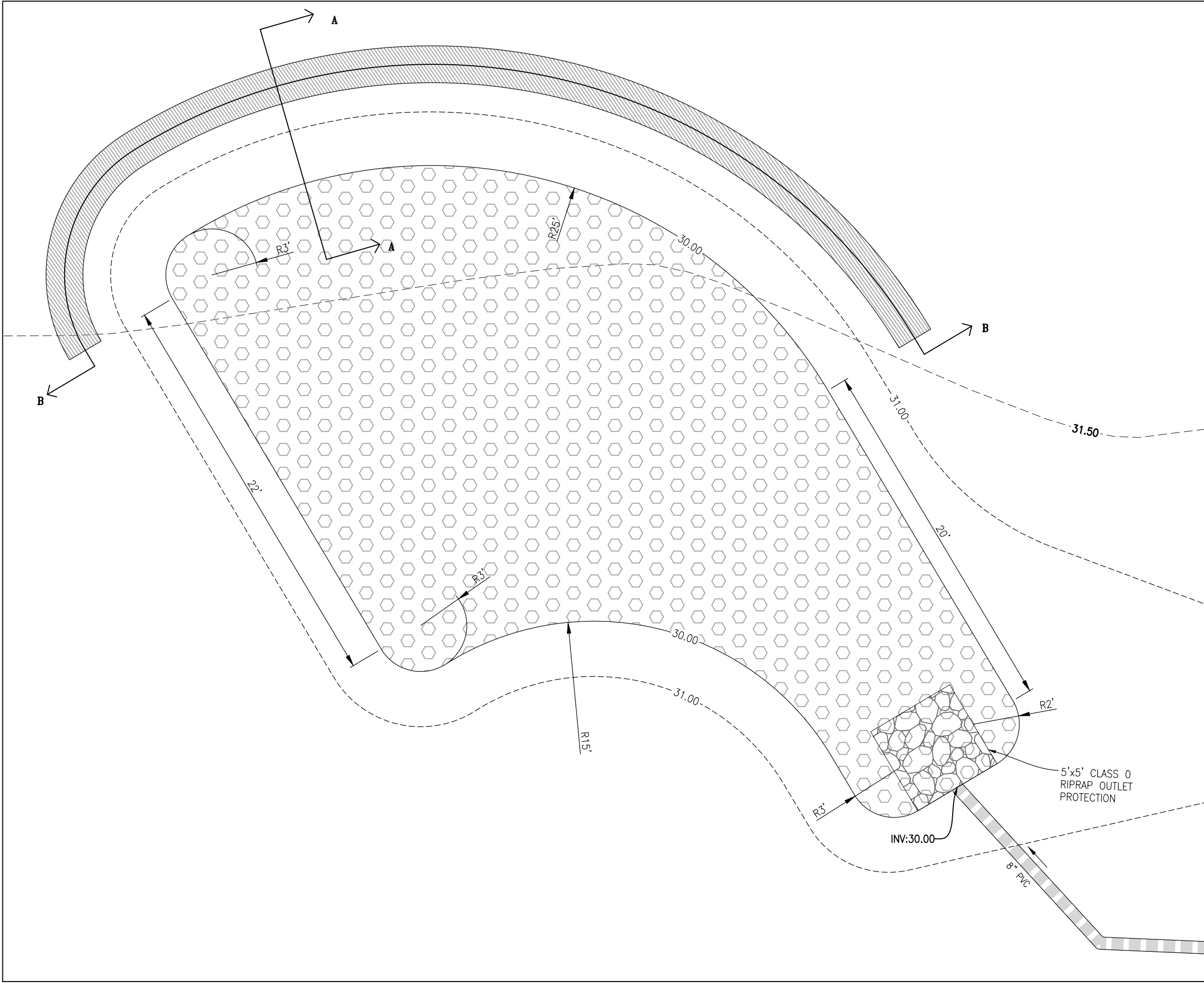
STORMWATER MANAGEMENT PLAN
28860 FAUSLEY WOOD COURT
TAX MAP 25, GRID 16, TAX PARCEL 138

MISTLETOE HALL, LOT 6C
EASTON
TALBOT COUNTY, MARYLAND

CPJ Charles P. Johnson & Associates, Inc.
Civil and Environmental Engineers • Planners • Landscape Architects • Surveyors
45 Old Solomons Island Rd., Ste. 204 Annapolis, MD 410-266-5999 Fax: 410-266-3871
www.cpjia.com • Silver Spring, MD • Gaithersburg, MD • Annapolis, MD • Greenbelt, MD • Frederick, MD • Fairfax, VA

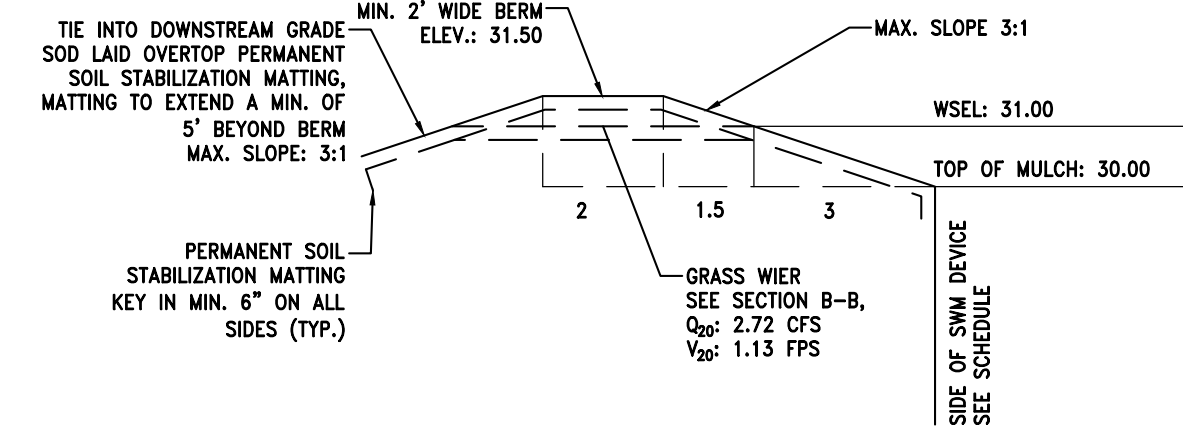
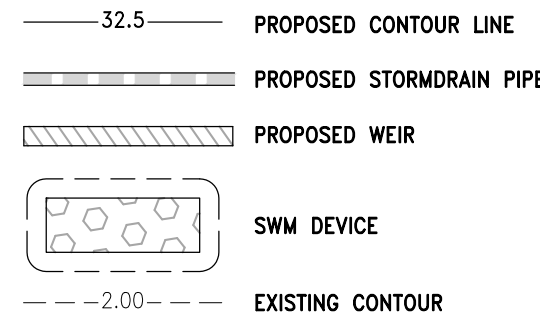
OWNER/DEVELOPER: BLUE CRAB SELF STORAGE, LLC 8693 BROOKS DRIVE EASTON, MD 21601 (410) 822-7777 DANLERIAN@YAHOO.COM	TAX ACCOUNT NO. 01-09982 DESIGN TMH DRAFT JCL DATE 3/6/2023 SCALE AS SHOWN	GRADING PERMIT NO. SHEET 01 OF 03 FILE NO: 2022-5067-24-01
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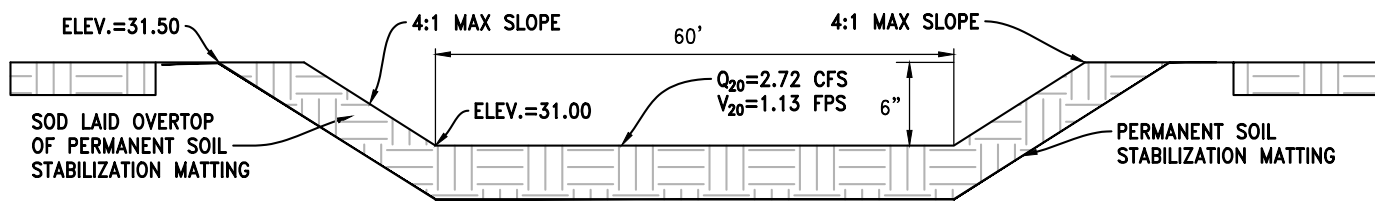


MICRO-BIORETENTION #1 INSET
SCALE: 1"=5'

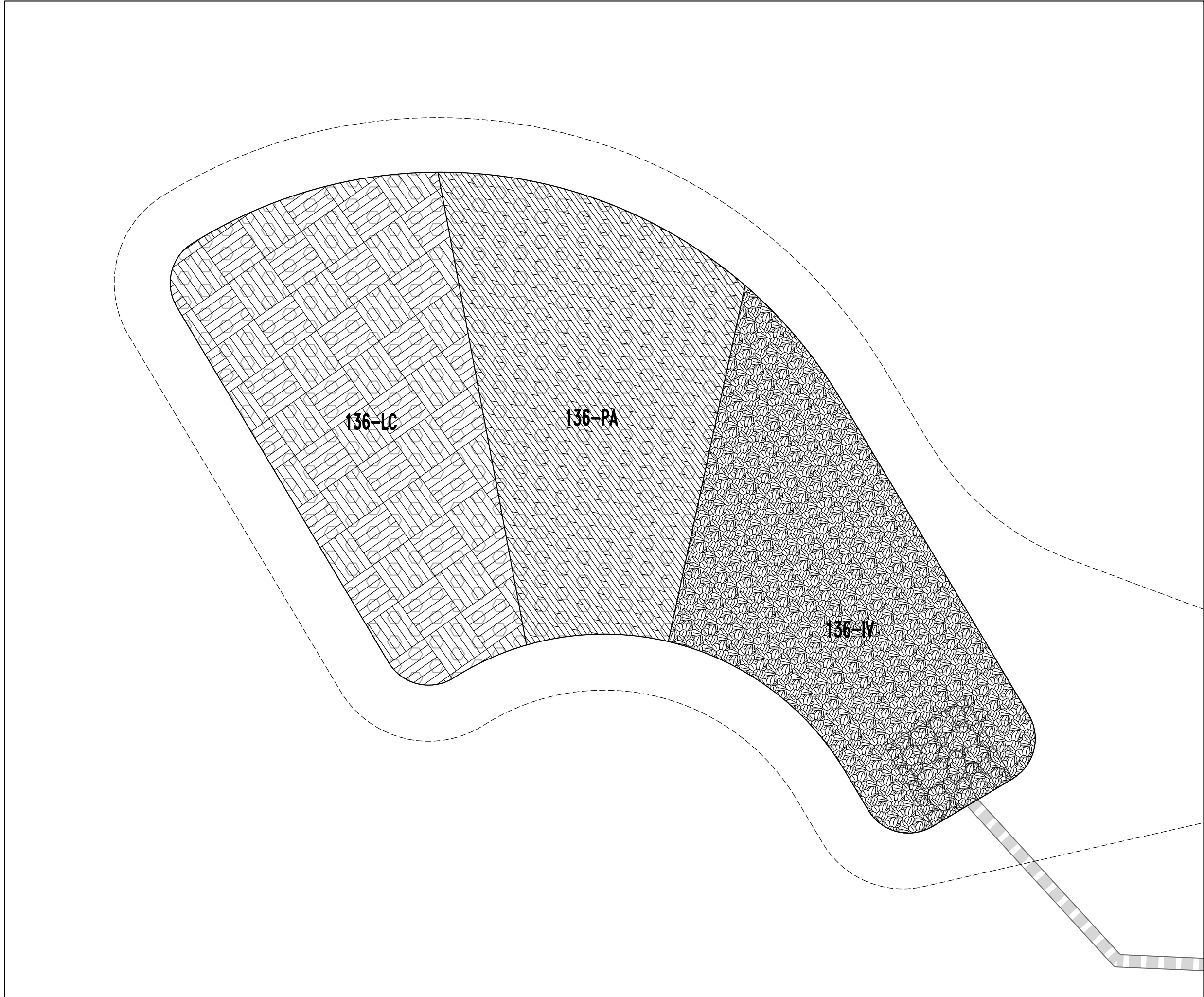
LEGEND



WEIR CREST SECTION A-A
SCALE: N.T.S



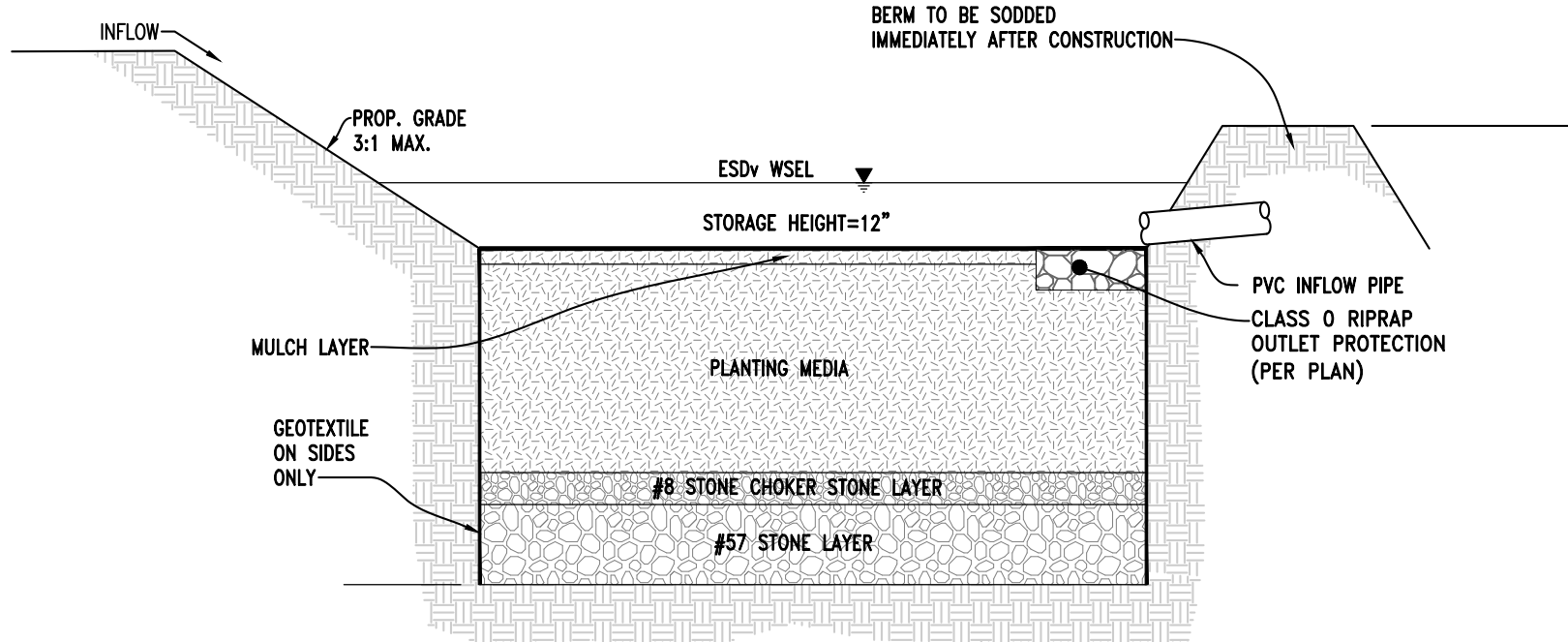
WEIR CREST SECTION B-B
SCALE: N.T.S



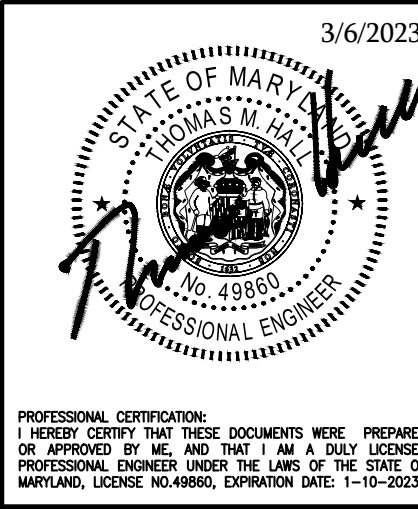
MICRO-BIORETENTION #1 PLANTINGS INSET
SCALE: 1"=5'

Table B.4.1 Materials Specifications for Micro-Bioretentment, Rain Gardens & Landscape Infiltration-			
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
planting soil [2' to 4' deep]	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone; washed cobble	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; fc=3500 psi @28 days, normal weight, air-entrained; reinforcing to meet ASTM- 615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) <i>not using previously approved State or local standards</i> requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone(AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand

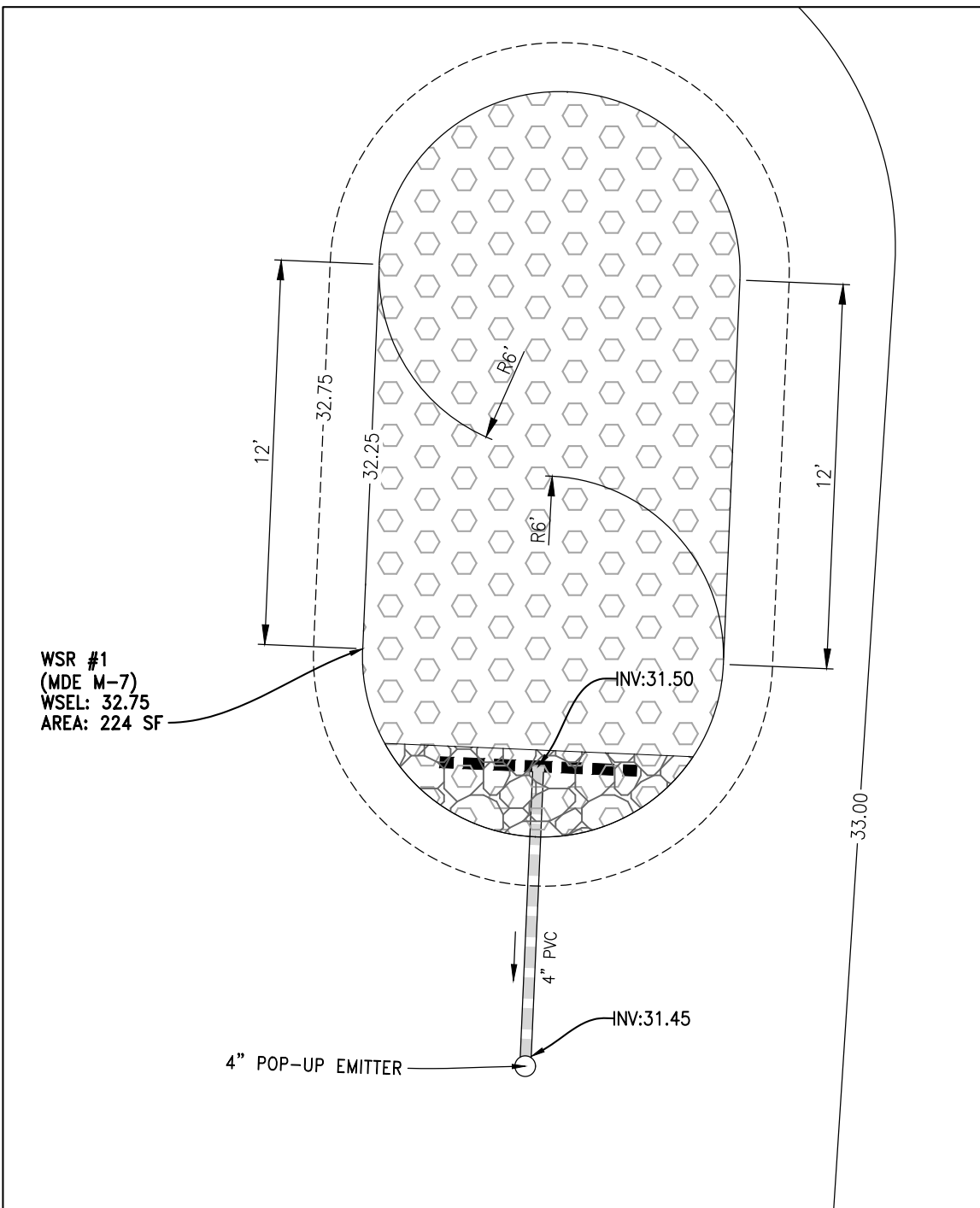
MICRO-BIORETENTION SCHEDULE	
	MBR
WATER SURFACE ELEVATION	31.00
FILTER BED ELEVATION	30.00
BOTTOM OF MULCH ELEVATION	29.75
PLANTING SOIL DEPTH	2.00
BOTTOM OF PLANTING SOIL ELEVATION	27.75
BOTTOM OF CHOKER LAYER	27.25
BOTTOM OF GRAVEL JACKET	26.25
SURFACE AREA (SF)	869



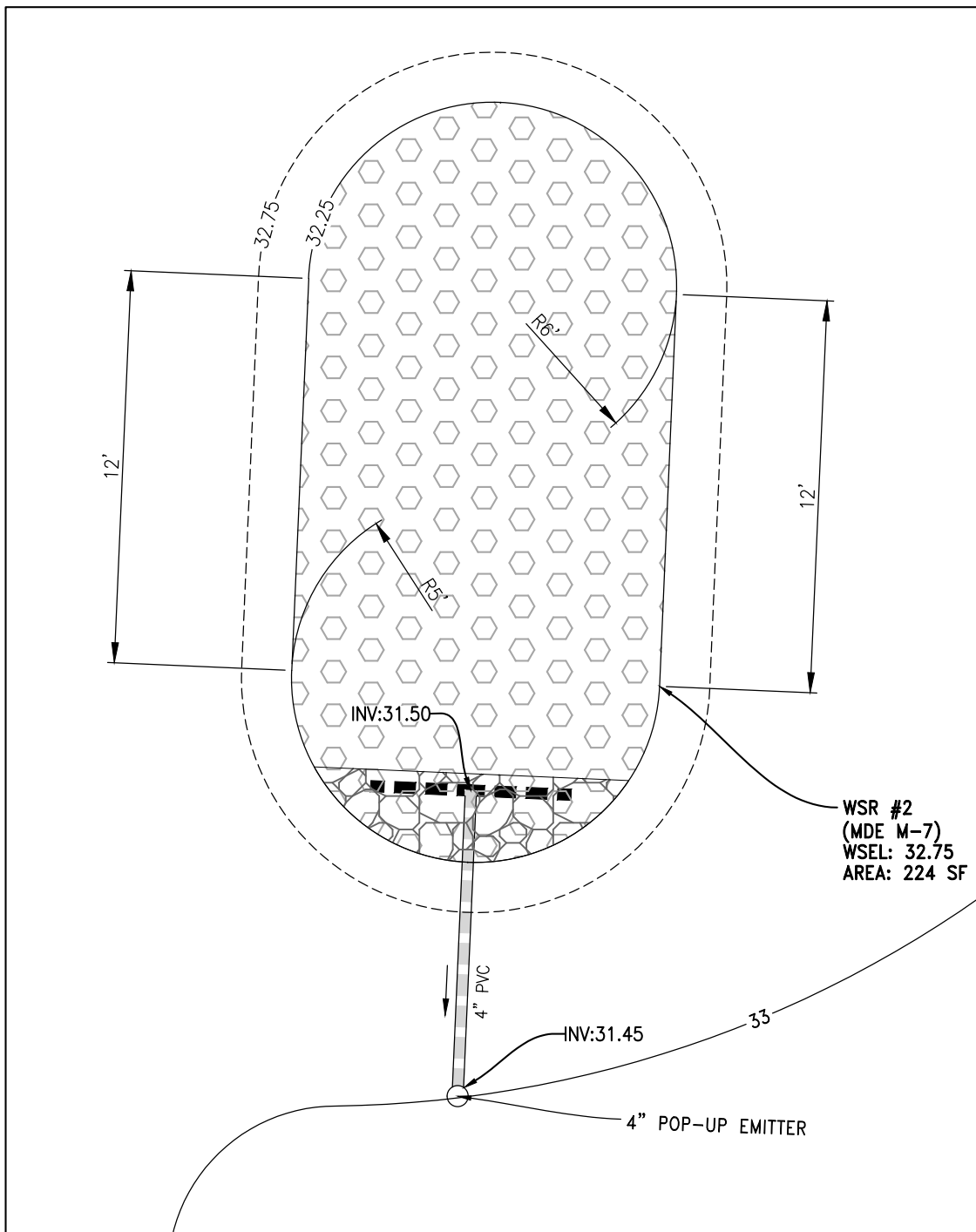
MICRO-BIORETENTION
TYPICAL CROSS SECTION
SCALE: NTS



UPDATES/REVISIONS:			
STORMWATER MANAGEMENT DETAILS 1 of 2 28860 FAUSLEY WOOD COURT TAX MAP 25, GRID 16, TAX PARCEL 138 MISTLETOE HALL, LOT 6C EASTON TALBOT COUNTY, MARYLAND			
CPJ Charles P. Johnson & Associates, Inc. Civil and Environmental Engineers • Planners • Landscape Architects • Surveyors Associates 45 Old Solomons Island Rd., Ste. 204 Annapolis, MD 410-266-5599 Fax: 410-266-3871 www.cpja.com • Silver Spring, MD • Gaithersburg, MD • Annapolis, MD • Greenbelt, MD • Frederick, MD • Fairfax, VA			
OWNER/DEVELOPER: BLUE CRAB SELF STORAGE, LLC 8695 BROOKS DRIVE EASTON, MD 21601 (410) 822-7777 DANLEIAN@YAHOO.COM	TAX ACCOUNT NO. 01-09982 DESIGN TMH DRAFT JCL DATE 3/6/2023 SCALE AS SHOWN	GRADING PERMIT NO. SHEET 02 OF 03 FILE NO: 2022-5067-24-02	
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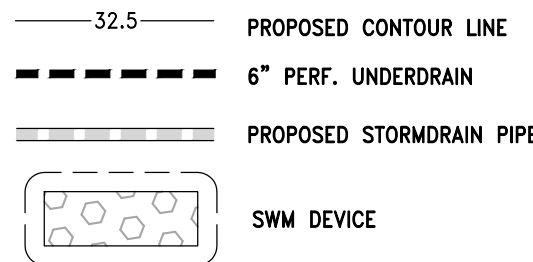
WET SOIL RAIN GARDEN #1 INSET
SCALE: 1"=5'



WET SOIL RAIN GARDEN #2 INSET
SCALE: 1"=5'

WET SOIL RAIN GARDEN SCHEDULE		
DESCRIPTION	1	2
WATER SURFACE ELEVATION	32.75	32.75
FILTER BED ELEVATION	32.25	32.25
BOTTOM OF MULCH ELEVATION	32.00	32.00
BOTTOM OF PLANTING SOIL ELEVATION	30.50	30.50
BOTTOM OF STONE	30.00	30.00
SURFACE AREA	224	224

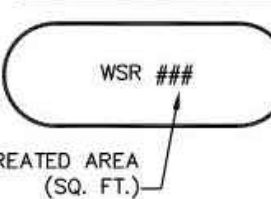
LEGEND



CONSTRUCTION INSPECTIONS

1. CALL THE TOWN OF EASTON ENGINEERING DEPARTMENT AT 410-820-8822 PRIOR TO CONSTRUCTION AND IMMEDIATELY FOLLOWING EACH OF THE FOLLOWING PHASES:
2. EXCAVATION TO SUB-GRADE AND BEFORE PLACEMENT OF SOIL.
3. FINE GRADING AND PERMANENT STABILIZATION OF ADJACENT SOILS.

SITE PLAN SYMBOL

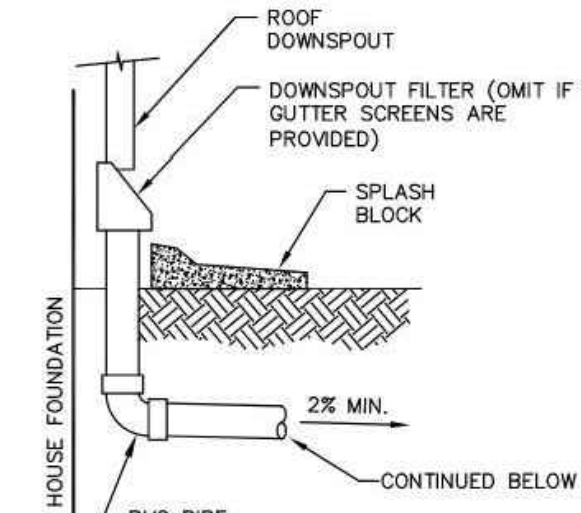


SIZING CHART

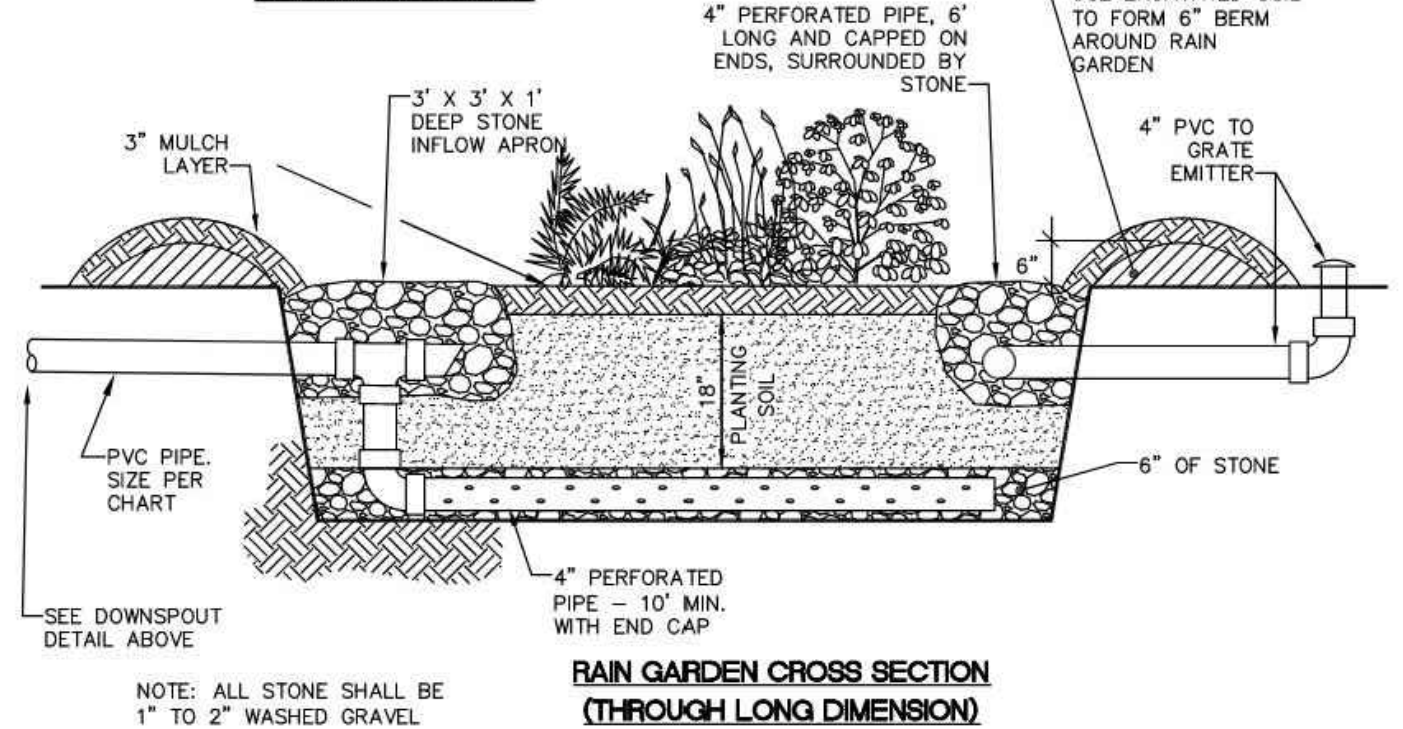
TREATED AREA (SQ. FT.)	RAIN GARDEN AREA (SQ. FT.)	PVC SIZE	SUGGESTED DIMENSIONS
500	70	4"	14' x 6'
1000	140	6"	20' x 8'
1500	210	6"	24' x 10'
2000	280	8"	30' x 11'

MINIMUM SETBACKS

1. 10 FEET FROM A BUILDING OR PROPERTY LINE



DOWNSPOUT DETAIL



RAIN GARDEN CROSS SECTION
(THROUGH LONG DIMENSION)



APPROVAL

Rid Van Engle
TOWN ENGINEER

TOWN OF EASTON
STANDARD DETAILS

WET SOIL RAIN GARDEN
CONSTRUCTION DETAIL

DATE: 1/2020

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-6.01-3

CONSTRUCTION NOTES

1. RAIN GARDENS SHALL BE CONSTRUCTED AFTER ALL UPSTREAM AREAS HAVE BEEN STABILIZED WITH EITHER IMPERVIOUS SURFACES OR TOPSOIL AND VEGETATION.
2. RAIN GARDEN EXCAVATION SHALL BE ROUGH AND UNCOMPACTED. IF SMEARING OF BOTTOM OR WALLS OCCURS, SCRATCH WITH A RAKE AS NECESSARY TO EXPOSE ROUGH EARTH.
3. LANDSCAPING MATERIALS SHOULD BE INSTALLED DURING THE SPRING OR FALL IF POSSIBLE.
4. OVERFLOW FROM RAIN GARDEN SHALL BE DIRECTED OVER A 3" DEEP BY 10' WIDE DEPRESSION IN THE PERIMETER BERM AND SHALL NOT BE A SOURCE OF DOWNSTREAM EROSION.
5. THE OWNER IS ENCOURAGED TO ENHANCE THE VISUAL APPEAL OF THE RAIN GARDEN BY USING STONE OR TIMBER RETAINING WALLS INSTEAD OF USING EXCAVATED SOIL. EPDM LINER MAY BE NEEDED TO MAKE A WATERTIGHT WALL.

SOIL SPECIFICATIONS

1. THE RAIN GARDEN PLANTING SOIL SHALL HAVE A COMPOSITION OF 50% SAND, 20% WOOD CHIPS LEAVES, AND 30% TOPSOIL.
2. SOIL SHALL BE OF UNIFORM COMPOSITION, FREE OF STONES, DEBRIS, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN ONE INCH.
3. SOIL SHALL BE FREE OF PLANTS (OR PLANT PARTS) OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, MUIGWORT, NUTSEDGE, POISON IVY, OR CANADIAN THISTLE.
4. PLANTING SOIL SHALL BE OVERFILLED BY 2-3" TO ALLOW FOR SETTLING. DO NOT COMPACT.

MAINTENANCE CRITERIA:

1. WATER PLANTS LIBERALLY THE FIRST GROWING SEASON AND DURING PERIODS OF DROUGHT THEREAFTER.
2. REMOVE ACCUMULATED TRASH AND VEGETATIVE DEBRIS EVERY FEW MONTHS AND ENSURE THAT INFLOW PIPE(S) FLOW FREELY.
3. PRUNE AND REMOVE DEAD VEGETATION PERIODICALLY, AS WITH ANY LANDSCAPE BED. IF SPECIFIC PLANTS ARE NOT SURVIVING, REPLACE WITH A DIFFERENT SPECIES. WATERING MAY BE REQUIRED DURING PROLONGED DRY PERIODS.
4. SILTS AND SEDIMENT SHOULD BE REMOVED FROM THE SURFACE OF THE FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH. THE TOP FEW INCHES OF FILTER MEDIA SHOULD BE REMOVED AND REPLACED WHEN WATER PONDS FOR MORE THAN 48 HOURS.
5. REFRESH MULCH WITH AN ADDITIONAL THIN LAYER ANNUALLY. REMOVE ALL MULCH AND REPLACE WITH A NEW THREE-INCH LAYER EVERY 3-5 YEARS.



APPROVAL

Rid Van Engle
TOWN ENGINEER

TOWN OF EASTON
STANDARD DETAILS

WET SOIL RAIN GARDEN
NOTES

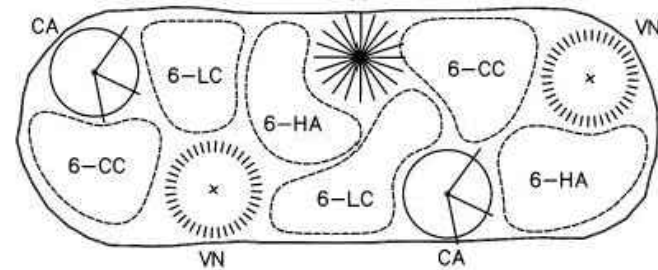
DATE: 1/2020

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-6.01-4

WET SOIL RAIN GARDEN PLANTING SCHEDULE

BOTANICAL NAME	COMMON NAME	SYMB.	SIZE	RAIN GARDEN SIZE (SQ. FT.)			
				70	140	210	280
SHRUBS:				QTY.	QTY.	QTY.	QTY.
CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	CA	2 GAL.	1	2	3	3
ITEA VIRGINICA	VIRGINIA SWEETSPIRE	IV	2 GAL.	1	1	2	3
VIBURNUM NUDUM	SMOOTH WITHEROD	VN	2 GAL.	1	2	2	3
GROUND COVER:							
CALAMAGROSIS CANADENSIS	BLUE JOINT GRASS	CC	PLUG	6	12	18	24
HELENIUM AUTUMNALE	YELLOW SNEEZEWEED	HA	PLUG	6	12	18	24
LOBELIA CARDINALIS	CARDINAL FLOWER	LC	PLUG	6	12	18	24



PLANTING EXAMPLE
FOR 140 SQ. FT. RAIN GARDEN

PLANT SELECTION

1. THE OWNER IS ENCOURAGED TO WORK WITH A REGISTERED LANDSCAPE ARCHITECT OR NURSERY TO CREATE AN ATTRACTIVE AND FUNCTIONAL MIX OF NATIVE PLANT SPECIES THAT ARE TOLERANT OF BOTH SATURATED AND DRY CONDITIONS.
2. INFORMATION ON APPROPRIATE SPECIES IS AVAILABLE BY TYPING "BAYSAPES NATIVE PLANTS" INTO YOUR FAVORITE SEARCH ENGINE.
3. THE SCHEDULE AND TYPICAL DETAIL BELOW CAN BE USED AS A BASIS FOR PLANT SELECTION AND GROUPINGS, IF DESIRED.



APPROVAL

Rid Van Engle
TOWN ENGINEER

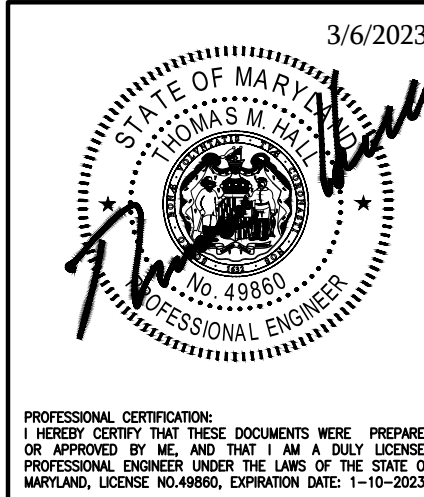
TOWN OF EASTON
STANDARD DETAILS

WET SOIL RAIN GARDEN
PLANTING NOTES AND SCHEDULE

DATE: 1/2020

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-6.01-5



UPDATES/REVISIONS:

STORMWATER MANAGEMENT DETAILS 2 of 2
28860 FAUSLEY WOOD COURT
TAX MAP 25, GRID 16, TAX PARCEL 138

MISTLETOE HALL, LOT 6C
EASTON
TALBOT COUNTY, MARYLAND

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OWNER/DEVELOPER: BLUE CRAB SELF STORAGE, LLC 8695 BROOKS DRIVE EASTON, MD 21601 (410) 822-7777 DANLERIAN@YAHOO.COM	TAX ACCOUNT NO. 01-099182	GRADING PERMIT NO.
DESIGN: TMH	SHEET: 03	OF: 03
DRAFT: JCL	DATE: 3/6/2023	FILE NO:
SCALE: AS SHOWN	2022-5067-24-03	

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