Easton Staff Development Review
MEETING AGENDA

Wednesday, April 24, 2024 - 10:00 AM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Staff Review

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

Easton Staff Development Review (ESDR) 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.

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.

2. Discussion Items

a.

Application Number:	2024 - 07
Location:	521 August Street Tax Map 103, Grid 0EA, Parcel 1028
Applicant:	RAUCH Inc.
Request:	Sketch Site Plan review for the development of lots 102 (521 August Street) and lot 103 (523 August Street) as one consolidated lot.

b.

Application Number:	2024 - 08
Location:	139 N. Washington Street Tax Map 104, Grid 0EA, Parcel 0612
Applicant:	Lane Engineering, LLC
Request:	Sketch Site Plan review for the construction of 4-story town homes and single-family detached dwellings.

RECEIVED
APR 0 1 2024
TOWN OF EASTON

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

Easton Staff Development Review

Property Information

Address	521 August Street Easton, MD 21601						
Tax Map	0103	Grid	00EA	Parcel	01028	Lot	
Deed Refernce:	Liber	2429/00366	Folio				
Plat Reference:	Liber	85/98	Folio				
Base Zoning District	COMMERCIAL	Historic District	Y ☑	N ☐	Planning Redevelopment	Y ☑	N ☐

Purpose of Application / Description of Work:

Chesapeake Community Development is applying for ESDR to develop lots 0102 (521 August St) and lot 0103 (523 August St) as one consolidated lot. New address confirmation is pending.

August Street is within the Commercial District, Historic District, PUD Infill, PRD, and this application reflects a PRD application development with no special exemptions at this point. It complies with existing zoning code to develop a single 2 story mansion style apartment building with 7 dwelling units.

Owner

Name	Chesapeake Community Development Suite 300		
Mailing Address	999 Corporate Drive, Linthicum Heights MD, 21090		
Telephone No.	410-269-1883	Email	jolinger@chesapeakeneighbors.org

Applicant / Agent

Name	RAUCH Inc.		
Mailing Address	106 N. Harrison Street, Easton, MD 21601		
Telephone No.	410-770-9081	Email	casey@raucheng.com

Surveyor / Engineer

Name	RAUCH Inc.	License No.	11024	Expiration Date	7-24-24
Mailing Address	106 N. Harrison Street, Easton, MD 21601				
Telephone No.	410-770-9081	Email	robert@raucheng.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	3/29/24
Printed Name of Applicant or Agent	Robert Rauch

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date **04/24/2024** 2024-1178 / ESDR 24-07

Completeness Check Date **04/03/2024**

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Requir(Y ☒ N ☐ **TBD**

BOZA Required Y ☐ N ☒

Historic District Commission Required Y ☐ N ☒ * **Historic District Commission Approval on 01/22/2024**

2024-007 / HD 24-05

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature *Samantha N. Smith* Date **04/03/2024**

Revised 02-2019

Town of Easton
Planning and Zoning
14 S. Harrison Street Easton, MD 21601 410-822-1943
HISTORIC DISTRICT COMMISSION
CERTIFICATE OF APPROPRIATENESS

Meeting Date:	**1/22/2024**
Application Number:	**2024-007**
Location:	**521 August Street**
Applicant:	**Chesapeake Community Development LLC**

Request: The applicant is proposing to construct a two-story mansion apartment on the corner of Park Street, August Street, and Powells Alley. The proposed structure is approximately 3,330 square feet, with a height of 26 feet. The applicant is also requesting approval for the removal of healthy trees within the Historic District.

Commissioner Greer moved to approve the application with the condition that:

1) all trash and recycling receptacles shall be screened on three sides; and

2) minor revisions to the proposed site and structure that are consistent with the Historic District Guidelines may be administratively approved by staff after consultation with the Chair of the Commission.

Commissioner Bateman seconded the motion.
FOR: 5 - Demby, Brophy, Bateman, Greer, Pezor

If the scope of work changes and or the materials and methods used are contrary to that understood by the application and any supplemental information provided, the work shall not continue until such time that the Commission is notified and said differences are considered and approved by the Commission.

"A Certificate of Appropriateness shall lapse upon the expiration of the corresponding Building Permit. For applications that require a building permit but for which none is issued, this Certificate of Appropriateness shall lapse six (6) months after issuance. In the event a building permit is not required, the Certificate of Appropriateness shall lapse six (6) months from its issuance if substantial work is not underway. For good cause shown, this period may be extended by the Commission".

Prior to start of work please contact the Building Inspection Department at 410 822 2525 to ensure all required building permits have been obtained. Also, please reach out to the Building Inspection department to ensure your project complies with the Town of Easton's building codes.

Nicholas Johnson _____ 2/14/2024

Representative, Historic District Commission — Date

CONTACT INFORMATION

OWNER/DEVELOPER: CHESAPEAKE COMMUNITY DEVELOPMENT SUITE 300
999 CORPORATE DRIVE
LINTHICUM HEIGHTS MD, 21090
410-269-1883

ENGINEER: RAUCH Inc.
106 N HARRISON ST
EASTON, MARYLAND 21301
(410)770-9081

SITE DATA

CURRENT PROPERTY ADDRESS:	521 AUGUST STREET EASTON, MD 21601
FUTURE ADDRESS AFTER LOT LINE REVISION:	41 N. PARK STREET (NEW ADDRESS CONFIRMATION PENDING) EASTON, MD 21601
LATITUDE:	38°46'31.3" N
LONGITUDE:	-76°04'00.8" W
PRESENT ZONING CLASSIFICATION:	CBD, PRD, PUD-INFILL, HISTORIC
PROPOSED ZONING:	PRD
PRESENT USE:	UNDEVELOPED SITE
PROPOSED USE:	SINGLE MANSION APARTMENT (BUILDING FOOTPRINT AREA: 3,443 SQ-FT)
TAX MAP:	0103
GRID:	00EA
PARCEL:	*01028*
DEED REFERENCE:	*02429/ 00366*
SITE AREA:	8,382 SQ. FT / 0.192 ACRES
FEMA FLOOD MAP:	PANEL 2400670002B
FOREST CONSERVATION:	TOTAL SITE AREA IS LESS THAN 40,000 S.F. THEREFORE NO FCP IS REQUIRED
SURVEY DATUM:	
HORIZONTAL:	NAVD83
VERTICAL:	NAVD88
EPSG CODE:	2248

ZONING & PARKING NOTE:
THE REQUIREMENTS FOR OFF-STREET PARKING IN THE SUPPLEMENTAL REQUIREMENTS OF THE ZONING ORDINANCE ARE NOT A REQUIREMENT IN PRD OVERLAY ZONE NOR IN THE CB ZONE. THIS APPLICATION REFLECTS A SINGLE MANSION APARTMENT MIDDLE-HOUSING TYPE WITH PROPOSED 7 DWELLING UNITS.

AS A MANSION APARTMENT, A MINIMUM 0.75 PARKING SPACES ARE NORMALLY REQUIRED PER DWELLING UNIT FOR ALL MIDDLE HOUSING TYPES (7 DU's X 0.75 = 5.25), WITH A MAXIMUM OF 1 PER DU (7 DU's X 1 = 7). 9 PARKING SPACES ARE PROVIDED, INCLUDING 1 HANDICAP VAN SPACE AND AN AISLE. IN ADDITION TO THE PROVIDED PARKING SPACES, THE EXISTING PUBLIC PARKING ALONG AUGUST AND PARK STREETS ARE ADEQUATE FOR THE PROPOSED DEVELOPMENT AND ARE NOT ANTICIPATED TO CAUSE SIGNIFICANT TRAFFIC CONGESTION, BASED ON OBSERVATIONS OF EVENING PARKING CONDITIONS AFTER 6:30 PM DURING WEEKDAYS.

DESIGN PRINCIPLES FOR EASTON

(2010 COMPREHENSIVE PLAN, PG. 94 - 111)

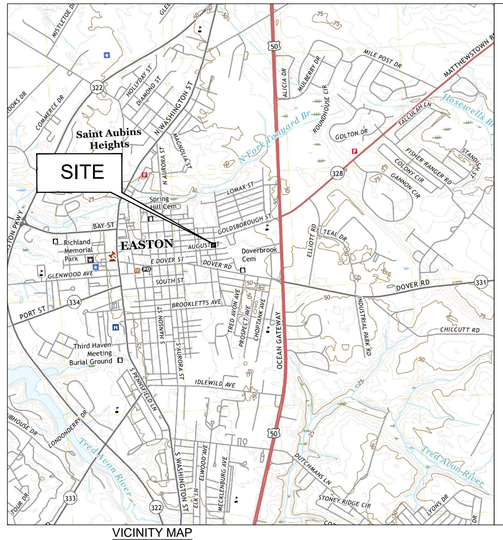
1. **INTEGRATED USES ARE DESIRABLE** - AUGUST STREET CONSISTS OF RESIDENTIAL AND COMMERCIAL PROPERTIES. THIS PROJECT WILL HAVE A TOTAL OF 7 AFFORDABLE AND MARKET RATE DWELLING UNITS WITHIN THE BUILDING. THIS ADDRESSES THE NEED FOR HOUSING WHICH IS IN LINE WITH THE COMPREHENSIVE PLAN TO INCREASE THE NUMBER AND TYPES OF HOUSING AVAILABLE IN THE AREA.
2. **NATURAL FEATURES SHOULD DETERMINE DESIGN** - THE SITE IS WITHIN AN EXISTING NEIGHBORHOOD BLOCK. STORMWATER PLANTERS AND PERMEABLE PAVERS ARE BEING UTILIZED TO MITIGATE RAIN RUNOFF AND IMPROVE WATER QUALITY OF GROUND WATER. THE PLANTERS ARE DESIGNED TO BLEND IN WITH THE BUILDING ARCHITECTURE AND MINIMIZE THEIR VISUAL IMPACT. NATIVE SPECIMENS WILL BE PLANTED TO OFFER SHADE AND VISUAL INTEREST TO THE AREA. IN CONJUCTION WITH THE EXISTING BRICK FRONT WALK, SIDEWALKS HAVE BEEN PROPOSED ON THE TWO STREET FRONTAGES WHICH WILL INCREASE THE WALKABILITY IN THE AREA.
3. **AUTOMOBILES SHOULD NOT DETERMINE DESIGN** -THE MODEST REAR PARKING LOT DOES NOT DOMINATE THIS SITE. CLEAVER USE OF PARALLEL PARKING SPACES HAVE BEEN EMPLOYED TO MINIMIZE THE HARD SURFACES WHILE ACCOMMODATING THE PARKING DEMANDS OF THE ADDITIONAL DWELLING UNITS. PARKING PAVERS PROVIDE A DISTINCTIVE UPSCALE LOOK WHILE IMPROVING STORMWATER.
4. **AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN AND AROUND NEIGHBORHOODS** - THIS PROJECT PROVIDES BOTH FRONT AND REAR YARD AS WELL AS TREE LINED SIDEWALKS WITH TASTEFUL, LOW MAINTENANCE LANDSCAPE. THE USE OF PORCHES AND BALCONIES PROVIDES FOR OUTDOOR LIVING FOR THE APARTMENT RESIDENTS.
5. **ARCHITECTURE SHOULD RESPECT EASTON'S HISTORIC DISTRICT** - THIS PROJECT HAS BEEN REVIEWED AND APPROVED BY THE TOWN OF EASTON HISTORIC DISTRICT COMMISSION. THE ARCHITECTURAL DESIGN IS COMPATIBLE WITH THE NEIGHBORHOOD IN TERMS OF SCALE, ROOF LINES, DETAILING AND MATERIAL SELECTIONS.
6. **SIGNS SHOULD INFORM BUT NOT DOMINATE** - THERE WILL BE MINIMAL SIGNAGE ON THIS PROPERTY. EACH UNIT WILL HAVE A STREET/HOUSE NUMBER THAT WILL INDICATE THE UNIT AND ADDRESS FOR THE PUBLIC AND FIRE/RESCUE SERVICES. A FREE STANDING SIGN IS NOT ANTICIPATED ON THIS PROPERTY.
7. **NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES** - THIS MANSION STYLE APARTMENT BUILDING OFFERS A CHOICE IN AN OTHERWISE PREDOMINANTLY COMMUNITY OF SINGLE FAMILY DWELLINGS.
8. **RESIDENTIAL DEVELOPMENTS SHOULD BE INTERESTING PLACES** - THIS APARTMENT OFFERS ARCHITECTURAL INTEREST THROUGH THE USE OF PORCHES, BALCONIES , VARIED ROOF LINES, BAY WINDOWS AND DIFFERENT MATERIALS AS WELL AS LANDSCAPE. THE FACT THAT THERE ARE BOTH MARKET AND AFFORDABLE HOUSING OFFERS INCLUSION FOR PEOPLE WITH DIFFERENT SOCIAL AND ECONOMIC CLASSES.
9. **NEIGHBORHOODS SHOULD CONNECT** - PEDESTRIANS CAN TRAVERSE THE TOWN IN A SAFE AND PLEASANT WAY WITH THE ADDITION OF THE SIDEWALKS ALONG THE PROPERTY EDGES.

THE LAURA HOUSE

DEVELOPMENT PLANS

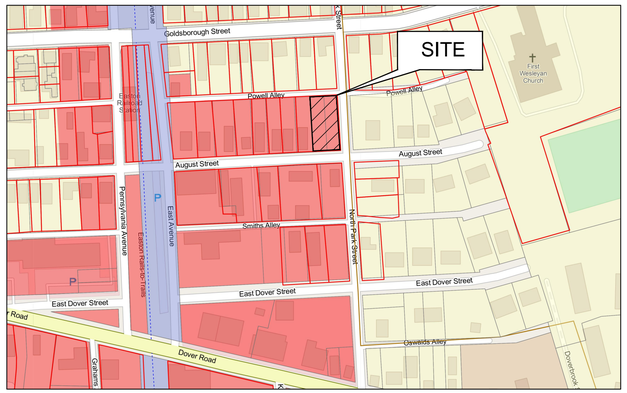
FOR

CHESAPEAKE COMMUNITY DEVELOPMENT
TALBOT COUNTY, MARYLAND 21601



VICINITY MAP
SCALE: 1" = 2,000'

ZONING VICINITY MAP



DRAWING LIST

SHEET NUMBER	DRAWING TITLE
G-100	COVER SHEET
V-100	EXISTING CONDITIONS AND DEMO PLAN
C-101	OVERALL SITE PLAN
C-200	EROSION AND SEDIMENT CONTROL COVER SHEET
C-201	EROSION AND SEDIMENT CONTROL
C-205	EROSION AND SEDIMENT CONTROL DETAILS
C-301	SITE GRADING PLAN
C-305	SITE DETAILS
C-401	STORMWATER AND STORM DRAIN PLAN
C-403	STORMWATER AND STORM DRAIN PROFILES
C-405.01 - .02	STORMWATER DETAILS
C-501	UTILITY PLAN
C-505.01 - .02	UTILITY DETAILS
C-601.01 - .02	LANDSCAPING PLAN
C-605	LANDSCAPING NOTES AND DETAILS

ESTIMATED TOWN IMPACT FEES
TOTAL FEE COST: $54,795

ZONING & SUBDIVISION FEES

LOT LINE REVISION: $500.00

PLAN REVIEWS:
PLANNED REDEVELOPMENT (PRD) REVIEW: $500.00
MULTI-FAMILY REVIEW: $2,870.00
STORMWATER MANAGEMENT - UP TO 1 ACRE: $1,250.00
HISTORIC DISTRICT REVIEW FOR RESIDENTIAL: $75.00

PLANNING COMMISSION FEES

CONCEPT, USE & DESIGN REVIEW: $250.00

EASTON UTILITIES:

CAPITAL CHARGES FOR WATER & WASTEWATER: $7,050 PER EDU
FOR 7 EDU'S = $49,350

NOTE: THE IMPACT FEES INDICATED IN THIS NOTATION SHALL NOT BE CONSTRUCTED AS VESTED AND UNTIL SUBMISSION OF THE BUILDING APPLICATION.

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 HEREON.

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 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 CONSTRUCTION PHASES WITH THEM:

MDE (Main Number)_____	410-537-3000
MDE (Eastern Shore Field Office)_____	410-901-4020
TOWN OF EASTON DPW_____	410-882-0513
EASTON UTILITIES_____	410-822-6110
TALBOT COUNTY SCD_____	410-882-1577 x 3
MISS UTILITY_____	800-257-7777 or 811

SHOULD ANY DAMAGE OCCUR TO ANY MARKED UTILITIES, THEY SHALL BE REPAIRED SOLELY AT THE CONTRACTORS EXPENSE.

ALL LANDSCAPING SHALL BE PERFORMED BY QUALIFIED PROFESSIONALS. ALL PLANT MATERIALS SHALL BE FROM CERTIFIED NURSERYMAN AND BE GUARANTEED FOR ONE (1) YEAR FROM THE DATE OF PLANTING.

ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTORS EXPENSE.

FIRE LANE AND ACCESS WILL MEET REQUIREMENTS FOR THE PROPOSED BUILDING PRIOR TO THE FINAL SITE PLAN.

ENVIRONMENTAL NOTES:
1. THE PROJECT SITE IS NOT LOCATED WITHIN THE CRITICAL AREA BUFFER
2. THE SITE IS NOT LOCATED WITHIN A 100 YEAR FLOODPLAIN
3. NON-TIDAL WETLANDS ARE NOT PRESENT ON-SITE

STANDARD STABILIZATION NOTE:
FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIATION MUST BE COMPLETE WITHIN:
A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1) AND
B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING

LINETYPES

	PROPOSED	EXISTING
TOPOGRAPHY		
MAJOR CONTOURS	45	45
MINOR CONTOURS	44	44
TOP OF SLOPE BREAKLINE		
BOTTOM OF SLOPE BREAKLINE		
TOPOGRAPHY BREAKLINE		
CATCHMENT AREA		
Tc FLOW PATH		
PARCEL BOUNDARY		
PARCEL SETBACK/EASEMENT		
FENCELINE WOOD		
FENCELINE STEEL		X
TREELINE/VEGETATION		
ROADWAY CENTERLINE		
HIGHWAY BARRIER		
UTILITIES		
OVERHEAD ELECTRIC	OE	OE
UNDERGROUND ELECTRIC	UE	UE
TELEPHONE LINE	T	T
GAS PIPE LINE	G	G
CABLE TV	CTV	CTV
WATER PIPE	W	W
STORMWATER PIPE		
UNDERDRAIN		
SANITARY SEWER	SS	SS
FORCE MAIN SEWER	FM	FM
ENVIRONMENTAL		
WETLAND LINE		Ψ
FLOOD PLANE 100/500 YR		FP-100
MEAN HIGH WATER		MHW
MEAN LOW WATER		MLW
CRITICAL AREA BOUNDARY		CA
BUFFER 25'/100'		25'
SOILS BOUNDARY		//
EROSION AND SEDIMENT CONTROL		
SILT FENCE		
SUPER SILT FENCE	SSF	
SILT FENCE ON PAVEMENT	SFOP	
LIMITS OF DISTURBANCE		
LOD & SILT FENCE		
LOD & SUPER SILT FENCE	LOD/SSF	
LOD & SILT FENCE ON PAVEMENT	LOD/SFOP	
STANDARD INLET PROTECTION	SIP	
AT-GRADE INLET PROTECTION	AGIP	
CURB INLET PROTECTION	CIP	
SWM EASEMENT 5'/10'		

SYMBOLS

	PROPOSED	EXISTING
FLARED END SECTION		
YARD INLET	YI	YI
CURB INLET	CI	CI
CUSTOM INLET	CuI	CuI
NYLOPLAST INLET	N	N
STORM DRAIN MANHOLE	D	D
SANITARY SEWER MANHOLE	S	S
CLEANOUT	C	C
GATE VALVE	GV	GV
STUB		
SIGN		
WATER METER	WM	WM
FIRE HYDRANT		
WELL	W	W
BOLLARD		
ELECTRIC TRANSFORMER	ELEC	ELEC
TELEPHONE PEDESTAL	T	T
UTILITY POLE		
GUY WIRE		
CONIFEROUS TREE		
DECIDUOUS TREE		
SPOT ELEVATION	X39.01	X 39.00
LAND SLOPE	2.41%	2.41%
BENCHMARK	ELEV: 123	
BOREHOLE/MONITORING WELL		

HATCHES

ASPHALT	
GRAVEL	
CONCRETE	
RIPRAP/ROCK	
ESD BED BOTTOM	
BRICK PAVING	
EXISTING,TO BE DEMOLISHED	
STEEP SLOPES	
ROOFTOP/NON-ROOFTOP DISCONNECT	

ABBREVIATIONS

ADA	AMERICANS WITH DISABILITIES ACT
AGIP	AT GRADE INLET PROTECTION
@	AT
BC	BACK OF CURB
BM	BENCHMARK
BRL	BUILDING RESTRICTION LINE
CES	CONCRETE END SECTION
C/O	CLEAN OUT
CHRD	CHORD
CI	CURB INLET
CIP	CURB INLET PROTECTION
CL	CENERLINE
CMP	CORRUGATED METAL PIPE
CuI	CUSTOM INLET
CY	CUBIC YARD
DI	DUCTILE IRON
E	EAST
EL/ELEV	ELEVATION
EP	EDGE OF PAVE
ESC	EROSION AND SEDIMENT CONTROL
EX	EXISTING
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FOOT
GFA	GROSS FLOOR AREA
GPD	GALLONS PER DAY
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
I	INLET
INV	INVERT
KV	KILOVOLTS
L	ARC LENGTH
LF	LINEAR FEET
LOD	LIMITS OF DISTURBED AREA
LT	LEFT
MAX	MAXIMUM
MBR	MICRO-BIORETENTION
MD	MARYLAND
MEP	MECHANICAL, ELECTRICAL, AND PLUMBING
MH	MANHOLE
MHW	MEAN HIGH WATER
MIN	MINIMUM
MLW	MEAN LOW WATER
MSHA	MARYLAND STATE HIGHWAY ADMINISTRATION
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
N	NORTH
NO	NUMBER
PC	POINT OF CURVATURE
PE	POLYETHYLENE
PERF	PERFORATED
PR	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
Q	DISCHARGE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RCN	RUNOFF CURVE NUMBER
ROW	RIGHT-OF-WAY
RT	RIGHT
S	SOUTH
SCE	STABILIZED CONSTRUCTION ENTRANCE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
Sf	FRICTION SLOPE
SF	SILT FENCE
SHA	STATE HIGHWAY ADMINISTRATION
SIP	STANDARD INLET PROTECTION
SQ	SQUARE
SS	SANITARY SEWER
SSF	SUPER SILT FENCE
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
SWM	STORM WATER MANAGEMENT
TAN	TANGENT
TB	THRUST BLOCK
TBR	TO BE REMOVED
TC	TOP OF CURB
Tc	TIME OF CONCENTRATION
TP	TAX PARCEL
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC
UL	UNDERGROUND LIGHT CABLE
UT	UNDERGROUND TELEPHONE
V	VELOCITY
W	WEST
W/	WITH

COVER SHEET
FOR
THE LAURA HOUSE
TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 9081 | Fax: 410 770 3867

Professional Certification.
I hereby certify that 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. 11024
Expiration Date: July 24, 2022
29-Mar-24

REVISIONS

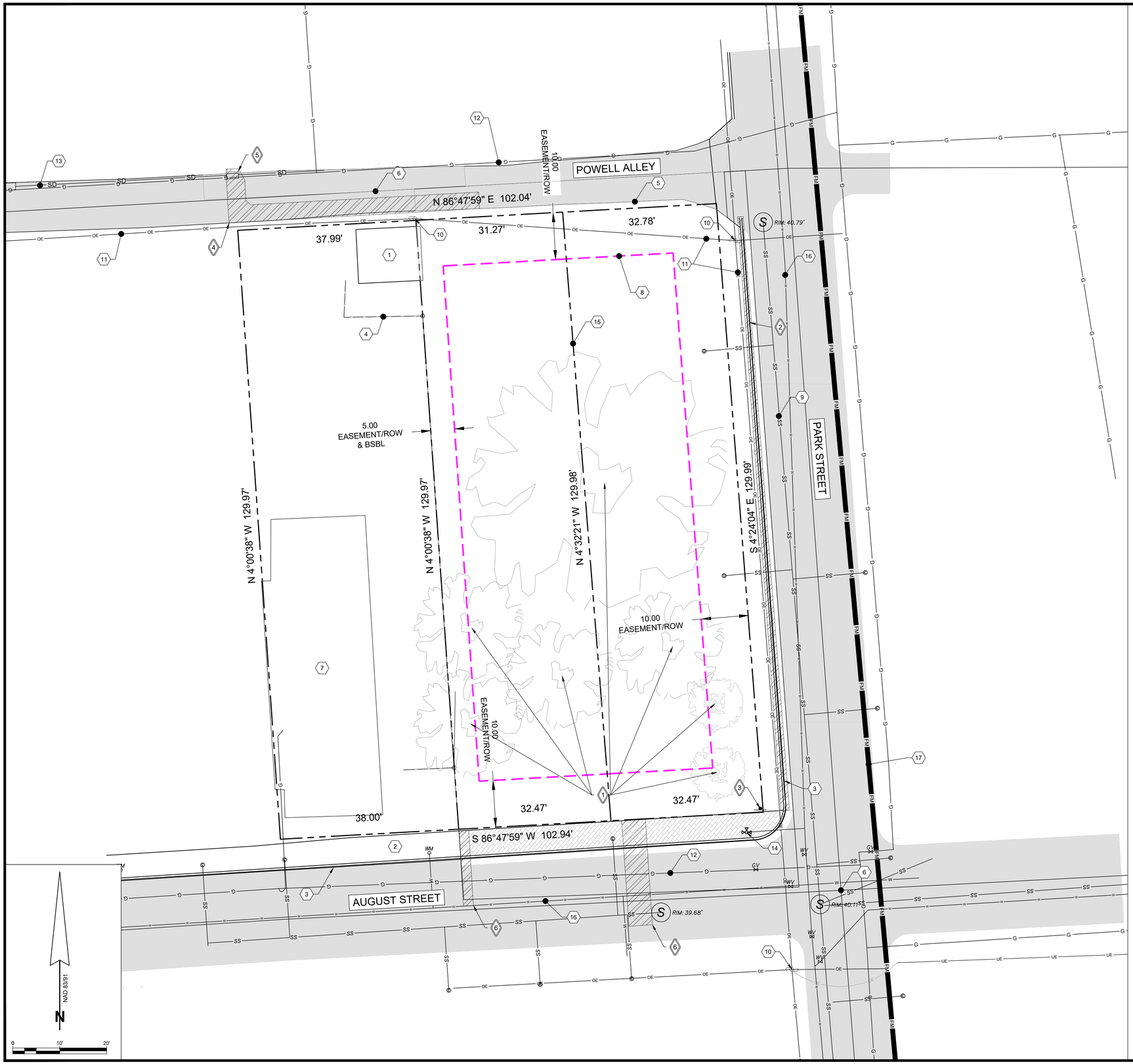
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — DIAL 811 OR 800-257-7777 — 811

DATE:	3/29/2024
SCALE:	AS SHOWN
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: G-100

FOR REVIEW



EXISTING FEATURES

1. CONCRETE PARKING PAD
2. BRICK SIDEWALK
3. CONCRETE CURB AND GUTTER
4. WOODEN FENCE ALONG SHARED PROPERTY LINE
5. EDGE OF PAVEMENT
6. ROAD CENTERLINE
7. HOUSE
8. EASTON UTILITY EASEMENT/R.O.W.
9. SANITARY SEWER
10. UTILITY POLE
11. OVERHEAD ELECTRIC
12. GAS LINE
13. 10' TERRACOTTA STORM DRAIN
14. FIRE HYDRANT
15. EXISTING SURVEYED PROPERTY LINE SHARED BETWEEN 521 AUGUST ST AND 523 AUGUST WILL BE DISSOLVED UPON LOT LINE REVISION. PROPOSED PLAN DRAWINGS WILL HIDE THIS LINE FOR CLARITY AND TO REPRESENT PROPOSED INTENTIONS.
16. WATER LINE
17. FORCE MAIN
18. FENCE

DEMOLITION

1. CLEAR & GRUB EXISTING TREES (5) AND LARGE SHRUBS (2)
2. DEMOLISH AND REMOVE APPROXIMATELY 200 LF OF EXISTING CONCRETE CURB & GUTTER ALONG PARK STREET.
3. EXISTING METAL STREET SIGN AND POST TO BE TEMPORARILY REMOVED AND RE-INSTALLED UPON PROJECT COMPLETION
4. DEMOLISH AND REPAIR APPROXIMATELY 220 SF OF ALLEY TO INSTALL PROPOSED STORMWATER PIPE. DEMOLISH AND REPAIR REMAINING ASPHALT AREAS AS SHOWN ON PLAN FOR PROPOSED UTILITY CONNECTIONS. SEE PATCH REPAIR DETAIL ON SHEET C-305
5. DEMOLISH AND REPLACE BRICK GRATE INLET BOX IN POWELL ALLEY WITH STANDARD TRAFFIC BEARING CONCRETE YARD INLET. SEE DETAIL ON SHEET C-405.01
6. DEMOLISH AND EXCAVATE APPROXIMATELY 147 SF EXISTING ROAD AND SIDEWALK SECTIONS TO GET ACCESS TO WATER AND SEWER SERVICE LINES.

EXISTING CONDITIONS AND DEMO PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

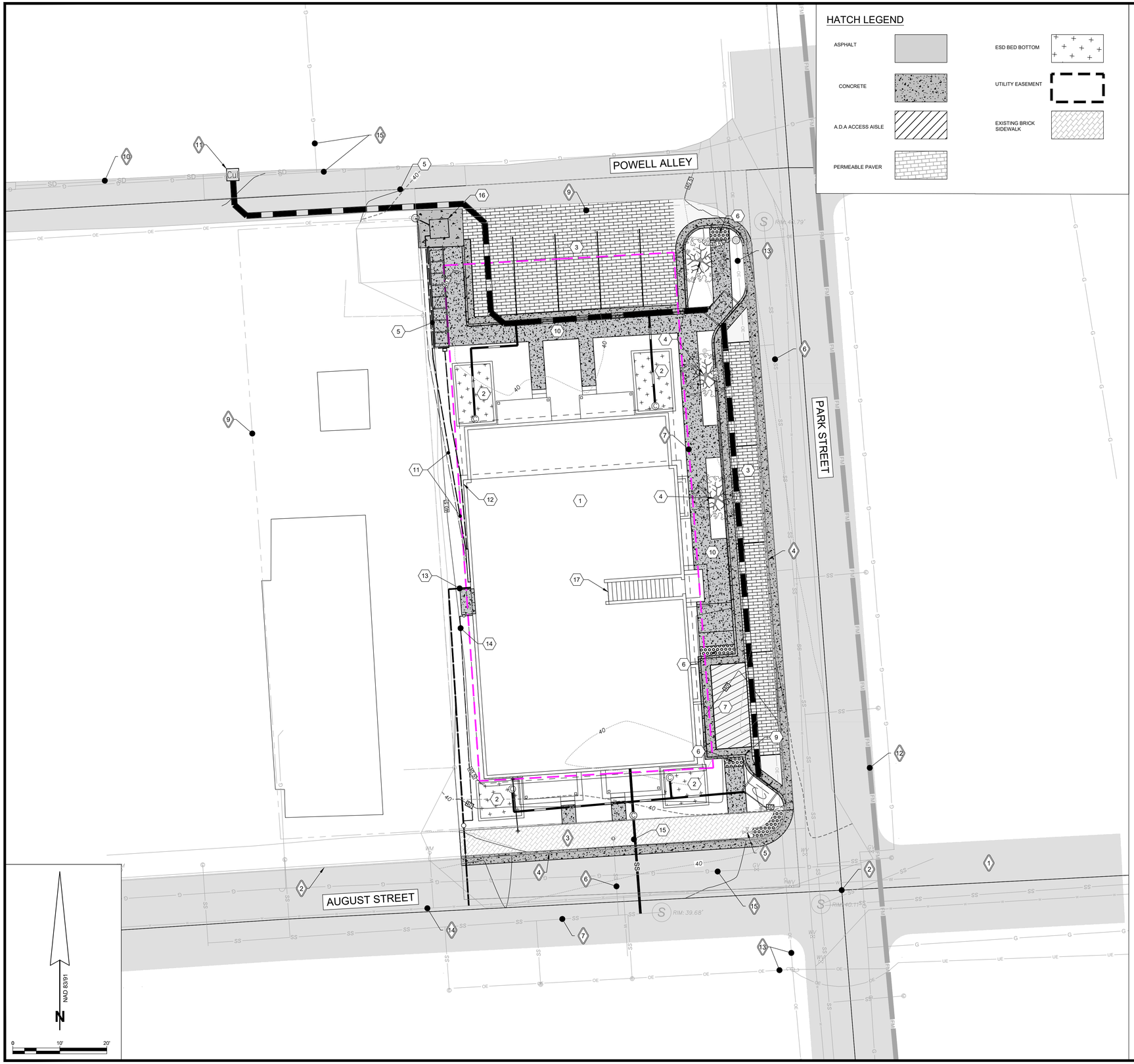
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811 — CALL BEFORE YOU DIG

DATE:	3/29/2024
SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: V-100

FOR REVIEW



HATCH LEGEND

- ASPHALT
- CONCRETE
- A.D.A ACCESS AISLE
- PERMEABLE PAVER
- ESD BED BOTTOM
- UTILITY EASEMENT
- EXISTING BRICK SIDEWALK

PROPOSED SITE PLAN NOTES

1. APARTMENT BUILDING FOOTPRINT (F.F.E = 40.69')
2. SWM PLANTER BOX. SEE DETAIL ON SHEET C-405.01
3. PERMEABLE PAVER. SEE DETAIL ON SHEET C-405.01
4. PROPOSED UNDERSTORY TREES. SEE DETAIL SHEET ON C-601.01.
5. TRASH CORRAL WITH WOODEN SCREENING FENCE FOR 8 TRASH RECEPTACLES.
6. ADA SIDEWALK RAMP. SEE DETAIL ON SHEET C-305
7. A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
8. TRASH CORRAL WITH WOODEN SCREENING FENCE.
9. STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305
10. CONCRETE SIDEWALK
11. UNDERGROUND ELECTRIC AND FIBER OPTIC SERVICE LINES
12. ELECTRIC METER AND CATV UTILITY MOUNT
13. FIRE SUPPRESSION LINE
14. WATER LINE
15. SANITARY SEWER
16. ELECTRIC TRANSFORMER. SEE DETAIL SHEET C-502.02.
17. ENTRANCE STAIRCASE TO SECOND STORY.

EXISTING FEATURES

1. ROAD
2. ROAD CENTERLIINE
3. BRICK SIDEWALK - **NOTE**: EXISTING BRICK SIDEWALK WILL REMAIN AND ONLY REPAIRED IN THE AREAS WHERE PROPOSED UTILITY SERVICE LINES ARE INDICATED ON THESE PLANS.
4. CURB AND GUTTER
5. FIRE HYDRANT
6. SANITARY SEWER
7. SEWER
8. EASEMENT LINE / R.O.W
9. PROPERTY LINE
10. 10' TERRACOTTA STORM DRAIN
11. BRICK GRATE INLET
12. APPROXIMATE LOCATION OF EXISTING SEWER FORCE MAIN (GIS DATA)
13. OVERHEAD ELECTRIC
14. WATER LINE
15. GIS LINE

OVERALL SITE PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410 770 8081 | Fax: 410 770 3887

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	3/29/2024
SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-101

FOR REVIEW

CONTACT INFORMATION

OWNER/DEVELOPER: CHESAPEAKE COMMUNITY DEVELOPMENT SUITE 300
999 CORPORATE DRIVE
LINTHICUM HEIGHTS MD, 21090
410-269-1883

ENGINEER: RAUCH Inc.
106 N HARRISON ST
EASTON, MARYLAND 21301
(410)770-9081

ESC DRAWING LIST

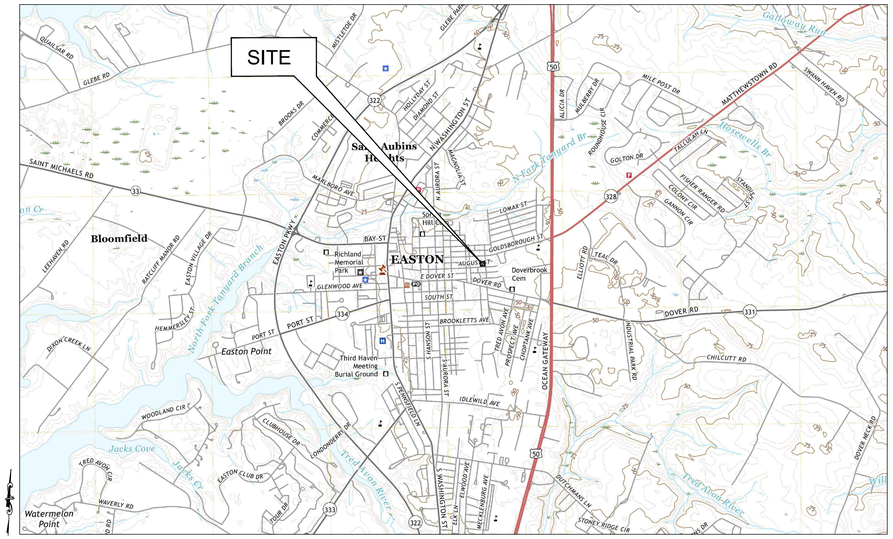
SHEET NUMBER	DRAWING TITLE
C-200.00	EROSION AND SEDIMENT CONTROL COVER
C-201	EROSION AND SEDIMENT CONTROL PLAN
C-205	EROSION AND SEDIMENT CONTROL DETAILS

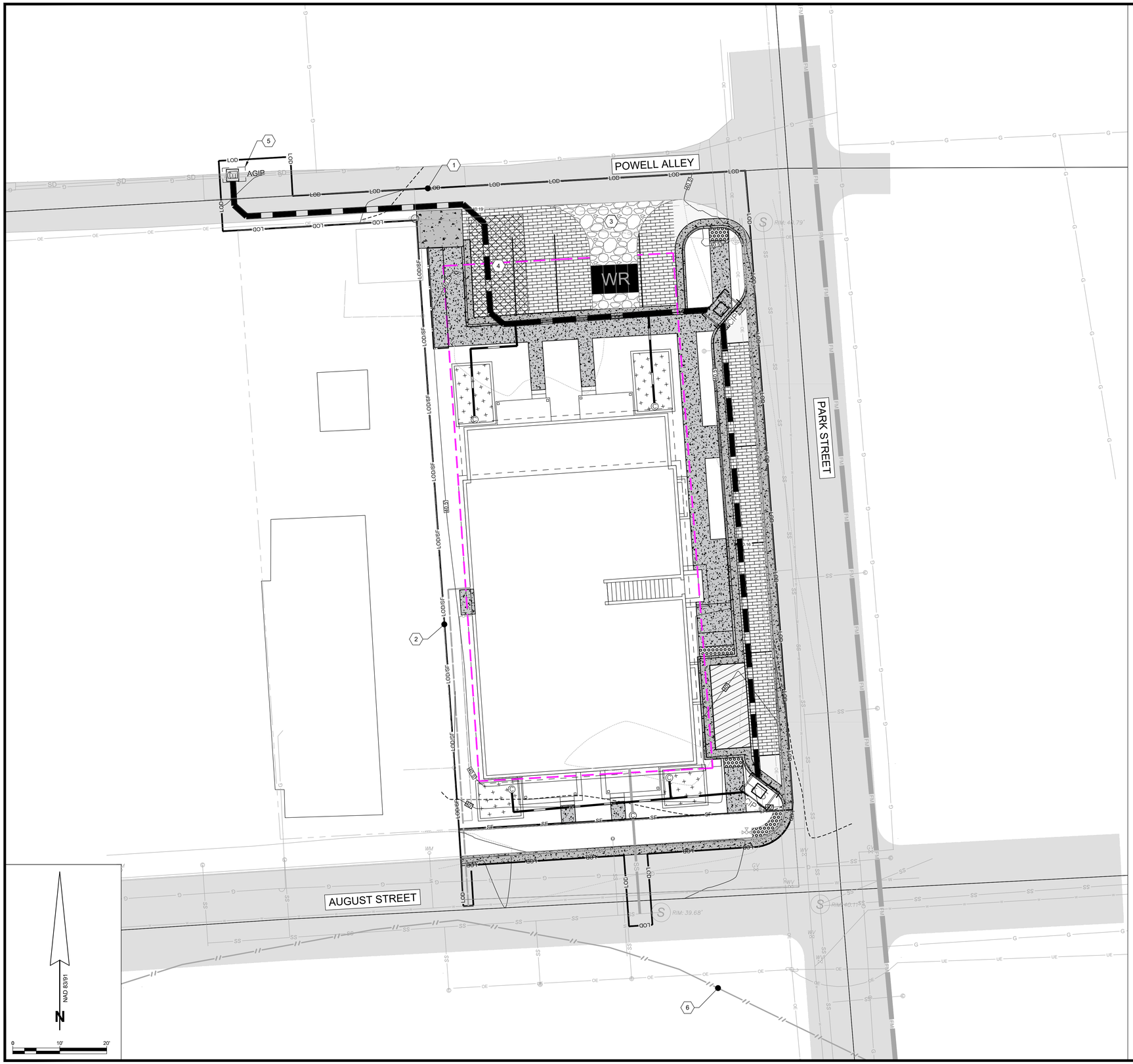
THE LAURA HOUSE

DEVELOPMENT PLANS

FOR

CHESAPEAKE COMMUNITY DEVELOPMENT
TALBOT COUNTY, MARYLAND 21601


SITE
Saint Aubins Heights
Bloomfield
EASTON
Richland Memorial Park
Dovebrook Cem
Third Haven Meeting Burial Ground
Easton Point
North Fork Tanyard Branch
N Fork Tanyard Br
Jacks Cove
Jacks Cr
Tred Avon River
Watermelon Point
Harris Cr
Hoppecrouse Br
Glebe Rd
Quail Ear Rd
Saint Michaels Rd
Lehmann Rd
Bay St
Glenwood Ave
E Dover St
South St
Brooklette Ave
Port St
Hemmesley Dr
Dixon Creek Ln
Woodland Cir
Red Hook Cir
Waverly Rd
Easton Club Dr
Idlewild Ave
Ocean Gateway
Goldsborough St
Dover Rd
Chilcutt Rd
Matthewstown Rd
Mile Post Dr
Golton Dr
Tayloe Ranger Rd
Stanton Dr
Gannons Cir
Colonial Cir
Roundhouse Cir
Hillcrest Dr
Hillside Dr
Glebe Rd
Brooks Dr
Commerce St
Washington St
Aurora St
Maryland Ave
Lomax St
Easton Parkway
Easton Village Dr
Ratcliff Manor Rd
Elliott Dr
Teal Dr
Tilghman Rd
Stoney Ridge Cir
Dover Rd
Chilcutt Rd
Dover Road
Easton Bypass
Goldsborough St
Idlewild Ave
Brookletts Ave
Hanson St
Peachblow St
Tred Avon Ave
Chapman Ave
Oxford St
Mechlenburg St
Talbot St
Lowndes St
Cleburne Dr
Easton Club Dr
Red Hook Cir
Waverly Rd
Woodland Cir
Dixon Creek Ln
Hemmesley Dr
Port St
Glenwood Ave
Bay St
Lehmann Rd
Saint Michaels Rd
Glebe Rd
Quail Ear Rd
Hillside Dr
Glebe Rd
Brooks Dr
Commerce St
Washington St
Aurora St
Maryland Ave
Lomax St
Easton Parkway
Easton Village Dr
Ratcliff Manor Rd
Elliott Dr
Teal Dr
Tilghman Rd
Stoney Ridge Cir
Dover Rd
Chilcutt Rd
Matthewstown Rd
Mile Post Dr
Golton Dr
Tayloe Ranger Rd
Stanton Dr
Gannons Cir
Colonial Cir
Roundhouse Cir
Hillcrest Dr



EROSION & SEDIMENT CONTROL NOTES

1. LIMIT OF DISTURBANCE
2. LIMIT OF DISTURBANCE & SILT FENCE. SEE DETAIL ON SHEET C-205.01
3. STABILIZED CONSTRUCTION ENTRANCE WITH WASHOUT RACK. SEE DETAIL ON SHEET C-205.01
4. STOCKPILE / STAGING AREA
5. AT-GRADE INLET PROTECTION. SEE DETAIL ON SHEET C-205.01
6. SOILS LINE - **NOTE**: ENTIRE SITE IS WITHIN FALLINGSTON LOAM (FgA) - HYDROLOGIC SOIL GROUP D

HATCH LEGEND

ASPHALT		ESD BED BOTTOM	
A.D.A ACCESS AISLE		EASEMENT	
PERMEABLE PAVER		CONCRETE	

EROSION AND SEDIMENT CONTROL

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL 3 FROM ANYWHERE, ANYTIME — 811

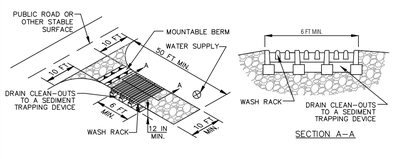
DATE:	3/29/2024
SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-201

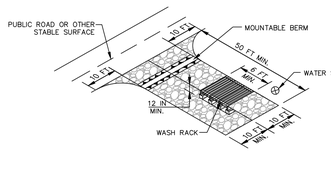
FOR REVIEW

DETAIL B-2 WASH RACK OPTION

STANDARD SYMBOL: WR



ISOMETRIC VIEW – WASH RACK IN SCE



ISOMETRIC VIEW– WASH RACK ALONG SCE

CONSTRUCTION SPECIFICATIONS

1. USE A WASH RACK DESIGNED AND CONSTRUCTED/MANUFACTURED FOR THE ANTICIPATED TRAFFIC LOADS. CONCRETE, STEEL, OR OTHER MATERIALS ARE ACCEPTABLE. PRE-FABRICATED UNITS SUCH AS CATTLE GUARDS ARE ACCEPTABLE. USE MINIMUM DIMENSION OF 6 FEET x 10 FEET. ORIENT DIRECTION OF RIBS AS SHOWN ON THE DETAIL.
2. INSTALL PRIOR TO, ALONG SIDE OF, OR AS PART OF THE SCE.
3. DIRECT WASH WATER TO AN APPROVED SEDIMENT TRAPPING DEVICE.
4. KEEP AREA UNDER WASH RACK FREE OF ACCUMULATED SEDIMENT. IF DAMAGED, REPAIR OR REPLACE WASH RACK.

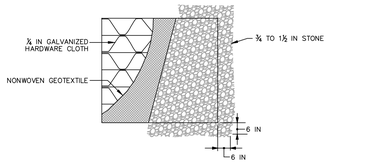
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

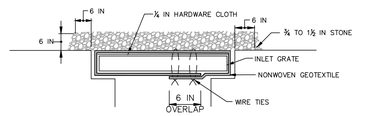
DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

MAXIMUM DRAINAGE AREA = 1 ACRE



PLAN / CUT AWAY VIEW



CROSS SECTION

CONSTRUCTION SPECIFICATIONS

1. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
2. LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
3. PLACE CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
4. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

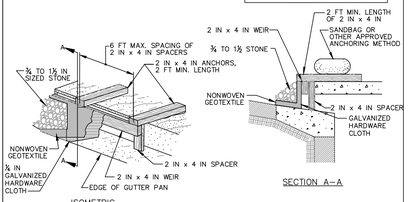
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

MAXIMUM DRAINAGE AREA = ¼ ACRE



ISOMETRIC

SECTION A–A

CONSTRUCTION SPECIFICATIONS

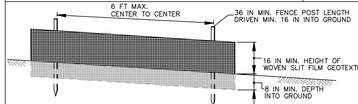
1. USE NOMINAL 2 INCH x 4 INCH LUMBER
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS.
3. NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
4. ATTACH A CONTINUOUS PIECE OF ¾ INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
5. PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
6. PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH), EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
7. INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
8. FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN ¾ TO 1½ INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
9. AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
10. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

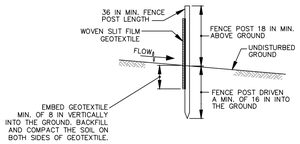
U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

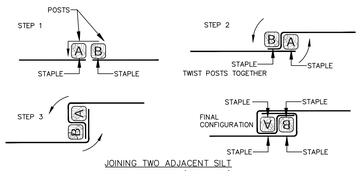
STANDARD SYMBOL: SF



ELEVATION



CROSS SECTION



JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1½ x 1½ x ¾ INCH (MINIMUM) SQUARE CUT OF SOUND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.
2. USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART.
3. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H–1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID–SECTION.
4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H–1 MATERIALS.
5. EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC.
6. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.
7. EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.
8. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION AND SEDIMENT CONTROL STANDARDS AND 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, or 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
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	50#	2/15 - 4/30 8/15 - 11/30	½"		
	BARLEY OATS WHEAT CEREAL RYE	96# 72# 120# 112#	2/15 - 4/30 / 8/15 - 11/30 2/15 - 4/30 / 8/15 - 11/30 2/15 - 4/30 / 8/15 - 11/30 2/15 - 4/30 / 8/15 - 12/15	1" 1" 1" 1"	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
	FOXTAIL MILLET PEARL MILLET	30# 20#	5/1 - 8/14 5/1 - 8/14	½" ½"		

6. Mulching shall be unchopped, unrotted, 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 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 March 1st through May 15th, or August 15th through October 15th. 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 (lbs/ac)	Seeding Dates	Seeding Depths	N	P2O5	K2O	
7	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60# 15#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"	45 lb/ac 1lb/ 1000 sf	90 lb/ac 2lb/ 1000 sf	90 lb/ac 2lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sq
8	TALL FESCUE	100#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"				
9	TALL FESCUE KENTUCKY BLUEGRASS PERRENIAL RYEGRASS	60# 40# 20#	3/1 - 5/15 8/15 - 10/15	1/4" - 1/2"				

8. Any spoil or borrow will be placed at a site approved by the 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.

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

Using vegetation as cover to protect exposed soil from erosion.

Purpose

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetation will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.

1. Adequate vegetative stabilization requires 95 percent groundcover.

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.

3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization
   a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
   b. Apply fertilizer and lime as prescribed on the plans.
   c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.

2. Permanent Stabilization
   a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      i. Soil pH between 6.0 and 7.0.
      ii. Soluble salts less than 500 parts per million (ppm).
      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      iv. Soil contains 1.5 percent minimum organic matter by weight.
      v. Soil contains sufficient pore space to permit adequate root penetration.
   b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
   c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.

3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

4. Areas having slopes steeper than 2:1 require special consideration and design.

5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
   c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

6. Topsoil Application
   a. Erosion and sediment control practices must be maintained when applying topsoil.
   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
   c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.

2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.

3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.

4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.

5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

EROSION AND SEDIMENT CONTROL DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

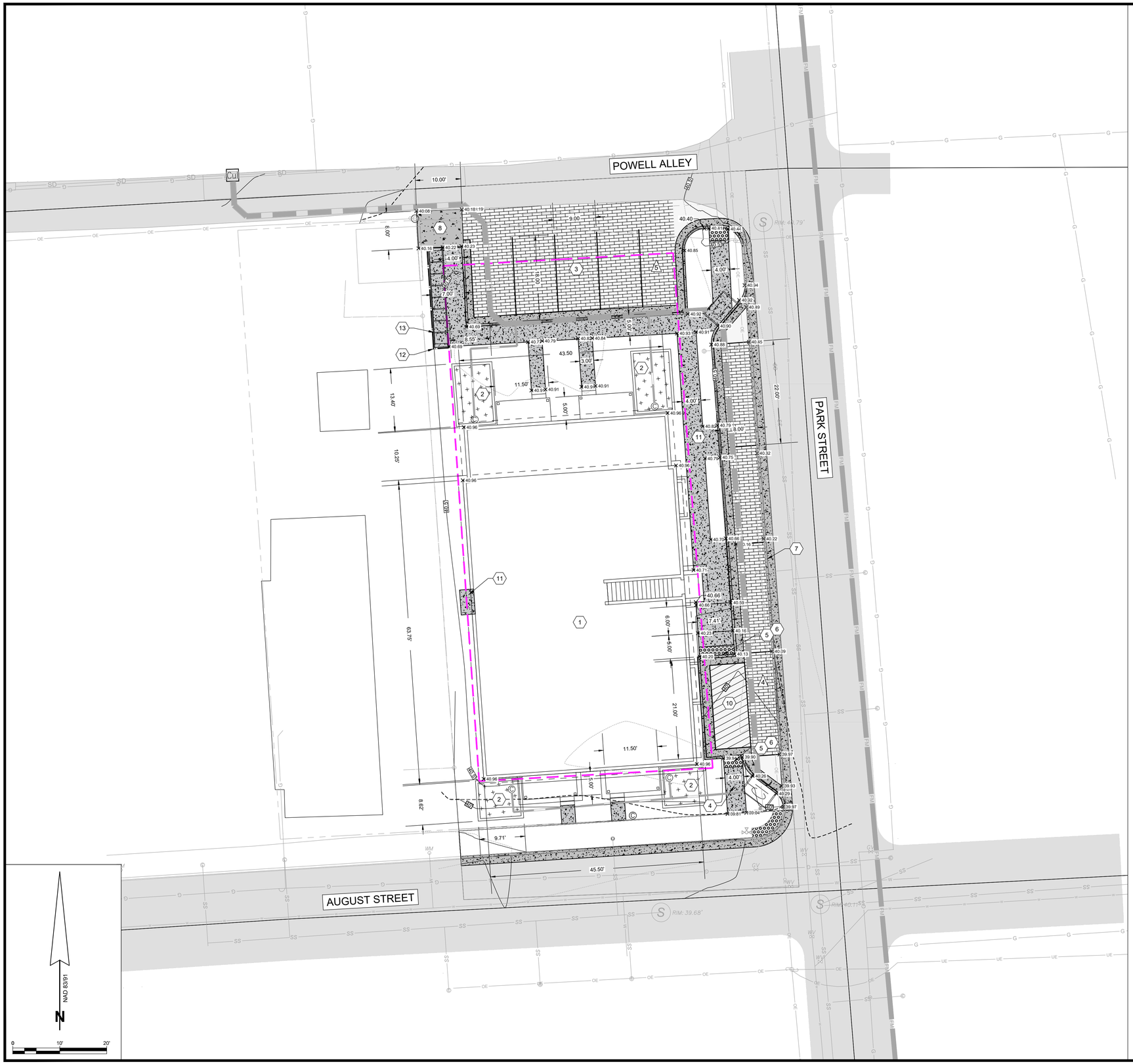
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — DIAL 811 OR DIGRITE.COM — 811

DATE:	3/29/2024
SCALE:	N/A
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-205

FOR REVIEW



PROPOSED SITE PLAN NOTES

1. APARTMENT BUILDING FOOTPRINT (F.F.E = 41.96)
2. STORMWATER PLANTER BOX WITH 6" WIDE CONCRETE MASONRY BLOCKS AND WOODEN FACADE. SEE DETAIL ON SHEET C-405.01
3. PERMEABLE PAVERS. SEE DETAIL ON SHEET C-405.01
4. 5 FT BRICK PAVER SIDEWALK EXCEPT WHERE SHOWN. SEE DETAIL ON SHEET C-405.01
5. SIDEWALK RAMP. SEE DETAIL ON SHEET C-305
6. DETECTABLE WARNING SURFACE. SEE DETAIL ON SHEET C-305
7. DEPRESSED CURB. SEE DETAIL ON SHEET C-305
8. CONCRETE DUMPSTER PAD. SEE DETAIL ON SHEET C-305
9. STANDARD CURB AND GUTTER. SEE DETAIL ON SHEET C-305
10. A.D.A. ACCESS AISLE STRIPED PER A.D.A. STANDARDS
11. CONCRETE SIDEWALK / LANDING
12. WOODEN SCREENING FENCE FOR TRASH CORRAL FOR 8 TRASH RECEPTACLES.

NOTE: ALL FLOW LINE FILLETS RADIUS OF 5', UNLESS OTHERWISE SPECIFIED

(#) NUMBER OF PARKING SPACES

HATCH LEGEND

- ASPHALT
- A.D.A ACCESS AISLE
- PERMEABLE PAVER
- ESD BED BOTTOM
- EASEMENT
- CONCRETE

SITE GRADING PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — DIG SAFE. IT'S THE LAW. — 811

DATE:	3/29/2024
SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-301

FOR REVIEW

OVERLAY	• HMA SUPERPAVE 9.5 MM, PG 64-22,LEVEL 2, FOR 1-1/2" OVERLAYS. • HMA SUPERPAVE 12.5 MM, PG 64-22,LEVEL 2, FOR 2" OVERLAYS. • MATCH THE SURFACE COURSE SPECIFIED FOR THE ADJUSTMENT FULL DEPTH PAVING IF DIFFERENT FROM THE ABOVE.
COMMERCIAL ASPHALT PAVEMENT FOR ROADS	SURFACE COURSE:2" HOT MIX ASPHALT SUPERPAVE 9.5 MM BASE COURSE: 4" HOT MIX ASPHALT SUPERPAVE, 19.0 MM, PLACED IN 2-2" LIFTS. SUB BASE: 8" GR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.
RESIDENTIAL ASPHALT PAVEMENT FOR ALLEYS	SURFACE COURSE:2" HOT MIX ASPHALT SUPERPAVE 9.5 MM BASE COURSE: 4" HOT MIX ASPHALT SUPERPAVE, 19.0 MM SUB BASE: 6" GR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.
CONCRETE PAVEMENT	8" PORTLAND CEMENT CONCRETE MIX#7. SUB BASE: 6" GR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — PAVING SPECIFICATIONS

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-1.01

PAVING NOTES

PAVING REQUIREMENTS

A. BASE COURSE

1. SUB-GRADE SHALL BE PLACED ON PREPARED AND COMPACTED REFILLED EXCAVATIONS TO THE COMPACTED DEPTH AS SHOWN ON DETAIL SHI-1.03. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 208.
2. GRADED AGGREGATE BASE COURSE:

a) GRADED AGGREGATE BASE COURSE SHALL BE SPREAD ON PREPARED AND COMPACTED REFILLED EXCAVATION TO THE COMPACTED DEPTH SHOWN ON THE DRAWING DETAILS.
b) GRADED AGGREGATE SHALL BE PER MD SHA STANDARD, SECTION 901.
c) RECYCLED CRUSHED CONCRETE IS AN ACCEPTABLE ALTERNATIVE PROVIDED THICKNESS ADJUSTMENTS ARE MADE BASED ON SUPPLEMENTAL TESTING TO BE SUBMITTED BY A QUALIFIED TESTING LABORATORY AND APPROVED BY THE TOWN ENGINEER.

B. TACK COAT

1. COATING SHALL BE RESIDUAL ASPHALT UNIFORMLY SPREAD BETWEEN .01 AND .05 GALLONS/SQ. YARD.
2. CONTRACTOR SHALL TAKE CARE NOT TO TRACK COAT ON SURFACE COURSES.

C. HOT MIX ASPHALT PAVEMENT

1. HOT MIX ASPHALT PAVEMENT SHALL CONSIST OF A NUMBER OF COURSES OF HMA SUPERPAVE MATERIAL AS SHOWN ON THE DETAILS AND SHALL BE PLACED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.
2. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF SECTION 504 AND SECTION 904 OF THE MD SHA STANDARDS AND DETAILS.
3. SURFACE COURSES OF BITUMINOUS CONCRETE MIXES SHALL HAVE LESS THAN 15% OF RECYCLED ASPHALT PAVEMENT (RAP).
4. BASE COURSES SHALL HAVE NO MORE THAN 20% RAP.
5. WEATHER RESTRICTIONS:

a) PLANT MIXED SEAL – MINIMUM SURFACE TEMPERATURE 60°F AND RISING.
b) SURFACE COURSE – MINIMUM SURFACE TEMPERATURE 40°F AND RISING.
c) BASE COURSE – MINIMUM SURFACE TEMPERATURE 32°F AND RISING.

D. CONCRETE PAVEMENT

1. CONCRETE USED IN THE RESTORATION OF STREET AND ROADS SHALL BE PLACED TO THE MINIMUM THICKNESS THAT SHALL BE APPROVED BY THE TOWN. CONCRETE MAY BE A BASE COURSE WITH A BITUMINOUS CONCRETE OVERLAY OR A FINISHED SURFACE COURSE.
2. CONCRETE PAVEMENT SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 522.
3. CONCRETE SIDEWALK AND CURB AND GUTTER RESTORATION SHALL BE AS INDICATED WITHIN THE TOWN STANDARDS.

E. SOIL CEMENT

1. WHERE THE CBR VALUES ARE FOUND TO BE LOW WITHIN THE PAVED AREA, THE TOWN WILL ALLOW THE SUB-GRADE BE REINFORCED BY A CEMENTIOUS MATERIAL BEING MIXED IN THE SUBGRADE. APPLICATION SHALL BE SUBJECT TO THE GEOTECHNICAL INVESTIGATION.
2. A MINIMUM OF 2" OF GRADED AGGREGATE SHALL BE INSTALLED BETWEEN THE AMENDED SOIL AND BITUMINOUS PAVEMENT.
3. MINIMUM MIX DEPTH OF THE SOIL CEMENT MIXTURE SHALL BE 8" WITH A 5–5.5% MINIMUM CEMENT CONTENT.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — PAVING NOTES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-1.02

CONCRETE QUICK REFERENCE LIST

CAST-IN-PLACE CONCRETE SIDEWALKS AND CURBING

A. SUBMITTALS

1. SUBMIT MIX DESIGN FOR APPROVAL PRIOR TO PLACING CONCRETE (MSHA MIX #3 FOR ALL CONCRETE SIDEWALKS, AIR ENTRAINED, MINIMUM 3500 PSI MIX). FOR CURB AND GUTTER, UTILIZE MSHA MIX #7, EXCEPT MAXIMUM WATER CEMENTITIOUS RATIO OF 0.45 AND 611 POUNDS MINIMUM CEMENTITIOUS MATERIALS. AIR ENTRAINED, MINIMUM 4200 PSI MIX.
2. SUBMIT CONCRETE TESTING AGENCY FOR APPROVAL, WHICH CONTRACTOR OR PROJECT OWNER SHALL EMPLOY FOR INFIELD AND LABORATORY TESTING.

B. CONCRETE PLACEMENT

1. NOTIFY TOWN OF INTENTION TO POUR CONCRETE 24 HOURS PRIOR TO PERFORMING WORK. (PHONE: 410–822–8822).
2. DRIVER SHALL PRESENT COMPUTER GENERATED MIX DELIVERY TICKET UPON ARRIVAL TO SITE.
3. DO NOT POUR CONCRETE WHEN AT JOB SITE UNLESS APPROVED BY ENGINEER. DO NOT POUR CONCRETE DURING RAIN EVENTS.
4. TESTING AGENCY SHALL TEST FOR SLUMP, TEMPERATURE AND AIR ENTRAINMENT AT THE JOB SITE, PRIOR TO POURING EACH TRUCK LOAD DELIVERED TO SITE. THE MAXIMUM TIME FROM ADDING WATER TO BATCH AT PLANT TO DISCHARGE AT SITE SHALL BE WITHIN 1½ HOURS. TESTING AGENCY SHALL VERIFY THAT SUBGRADE IS PROPERLY COMPACTED.
5. TESTING AGENCY SHALL COLLECT CYLINDERS FOR COMPRESSION TESTING ON EACH TRUCK LOAD OF CONCRETE DELIVERED TO SITE PER ACI REQUIREMENTS. TEST RESULTS SHALL BE PROVIDED TO THE ENGINEER WITHIN 48 HOURS OF 7 AND 28 DAY BREAKS. REPORT SHALL INCLUDE LOCATION OF POUR PER PLAN STATIONING.
6. ENGINEER OR HIS REPRESENTATIVE SHALL VERIFY THAT AREA OF CONCRETE WORK IS PROPERLY PREPARED, FREE OF WATER, FREE OF UNSTABLE MATERIALS AND THAT ALL REINFORCEMENT REQUIRED AT DRIVEWAYS, RAMP, VALLEY GUTTERS, ETC. IS IN PLACE AND PROPERLY SUPPORTED.
7. COLD WEATHER CONCRETE PLACEMENT SHALL BE PROTECTED FROM DAMAGE AND FROST, FREEZING ACTION OR LOW TEMPERATURES. NO UNAPPROVED ADMIXTURES ARE PERMITTED.
8. CONCRETE CURB AND SIDEWALKS SHALL HAVE PROPER CONTROL JOINTS INSTALLED AT 10 FOOT INTERVALS FOR CURB AND 5 FOOT INTERVALS FOR SIDEWALK. EXPANSION JOINTS FOR CURBING SHALL BE, AT EACH 100 FOOT INTERVAL PLUS AT EACH POINT OF TANGENT OF CURVE. SIDEWALKS SHALL HAVE EXPANSION JOINTS AT 20 FOOT INTERVALS OR AT CHANGE OF DIRECTION.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — CONCRETE QUICK REFERENCE LIST

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-1.03

CAST-IN-PLACE CONCRETE SIDEWALKS AND CURBING

A. Submittals
1) Submit mix design for approval prior to placing concrete (MSHA MIX #3 for all concrete sidewalks, or entrained, minimum 3500 psi mix). For curb and gutter, utilize MSHA Mix #7, except maximum water cementitious ratio of 0.45 and 611 pounds minimum cementitious materials, or entrained, minimum 4200 psi mix.
2) Submit Concrete Testing Agency for approval, which contractor or project owner shall employ for infield and laboratory testing.

B. Concrete Placement
1) Notify the Town of intention to pour concrete 24 hours prior to performing work. (Phone: 410-822-8822).
2) Driver shall present computer generated mix delivery ticket upon arrival to site.
3) Do not pour concrete at job site unless approved by Engineer. Do not pour concrete during rain events.
4) Testing agency shall test for slump, temperature and air entrainment at the job site, prior to pouring each truck load delivered to site. The maximum time from adding water to batch at plant to discharge at site shall be within 1½ hours. Testing agency shall verify that subgrade is properly compacted.
5) Testing agency shall collect cylinders for compression testing on each truck load of concrete delivered to site per ACI requirements. Test results shall be provided to the Engineer within 48 hours of 7 and 28 day breaks. Report shall include location of pour per plan stationing.
6) Engineer or his representative shall verify that area of concrete work is properly prepared, free of water, free of unstable materials and that all reinforcement required at driveways, ramps, valley gutters, etc. is in place and properly supported.
7) Cold weather concrete placement shall be protected from damage and frost, freezing action or low temperatures. No unapproved admixtures are permitted.
8) Concrete curb and sidewalks shall have proper control joints installed at 10 foot intervals for curb and 5 foot intervals for sidewalk. curb & gutter shall have contraction joints every 10'–0", and expansion joints every 40'–0". Extruded concrete curb & gutter shall have contraction joints every 10'–0", and expansion joints every 100'–0" and at point of tangent or curve. Sidewalks shall have expansion joints at 20 foot intervals or at change of direction.

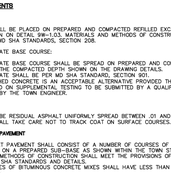
APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — CONCRETE QUICK REFERENCE LIST

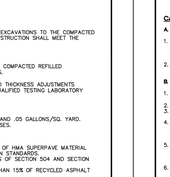
ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.09

SIGN DETAILS

MOUNTING DETAIL IN PAVING



MOUNTING DETAIL IN UNPAVED AREAS



KARGE LANE 36" MAX. x 8" WHITE ON REFLECTORIZED GREEN BACKGROUND

STOP 30"x30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

30"x36"x36" RED AND BLACK ON REFLECTORIZED WHITE BACKGROUND

SPEED LIMIT 50 STANDARD 24"x30" SIGN PANEL BLACK LEGEND ON REFLECTORIZED WHITE BACKGROUND

24"x24" RED AND BLACK ON REFLECTORIZED WHITE BACKGROUND

30"x30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

30"x30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

30"x12" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

DO NOT ENTER 30"x30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

ONE WAY 36"x12" BLACK LEGEND ON WHITE AND REFLECTORIZED BACKGROUND

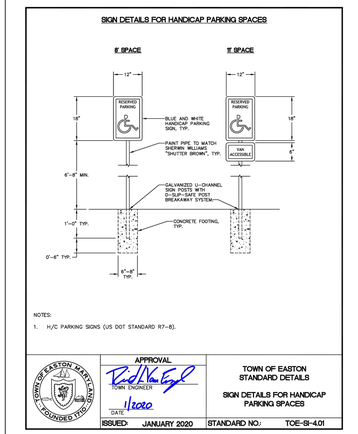
NOTES:
1. REFER TO THE MARYLAND STATE HIGHWAY ADMINISTRATION "STANDARD BOOK" FOR DIMENSIONS AND COLORS OF ALL SIGNS NOT SHOWN.
2. ALL PROPOSED SIGNS MUST MEET THE MINIMUM REQUIREMENTS FOR RETROREFLECTIVITY SET FORTH BY THE MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES, MUST CURRENT EDITION.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — SIGN DETAILS

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-8.03

SIGN DETAILS FOR HANDICAP PARKING SPACES

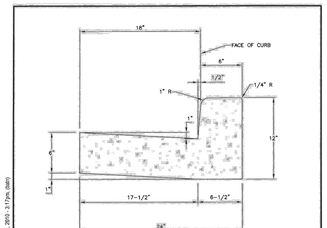


NOTES:
1. H/C PARKING SIGNS (US DOT STANDARD R7–8).

APPROVAL — TOWN ENGINEER — DATE 1/2020

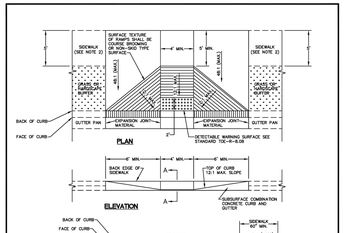
TOWN OF EASTON STANDARD DETAILS — SIGN DETAILS FOR HANDICAP PARKING SPACES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-SI-4.01



NOTES:
1. ALL CONCRETE USED FOR CURB & GUTTER SHALL BE SHA MIX NO. 7.
2. CURB & GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'–0", AND EXPANSION JOINTS EVERY 40'–0". EXTRUDED CONCRETE CURB & GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'–0", AND EXPANSION JOINTS EVERY 100'–0" AND AT PT. OR PC.
3. DEPRESSED CURB AND GUTTER SHALL BE UTILIZED AT HANDICAPPED RAMPS WHEN TRANSITIONING FROM STANDARD CURB AND GUTTER.
4. MAXIMUM GUTTER SLOPE ON CURB RETURNS SHALL BE 2% WHERE HANDICAPPED RAMPS ARE REQUIRED.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
TOWN ENGINEER DATE	MAY 1, 89 AUG 1, 94 FEB 25, 09 JAN 1, 11	STANDARD CURB AND GUTTER
ISSUED: MAY 1, 1986		STANDARD NO. PW-2.00

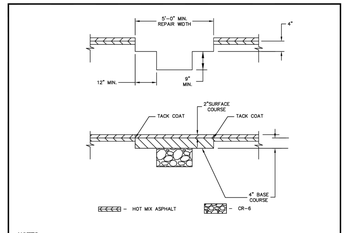


NOTES
1. TO BE USED ON WIDE SIDEWALKS OR SIDEWALKS WITH SIGNIFICANT SEPARATION FROM THE ROADWAY WHERE THE GEOMETRY SPECIFIED IN THE DETAILS ABOVE CAN BE SATISFIED. MAY BE MODIFIED TO SUIT A PARTICULAR LOCATION.
2. WHERE 60" SIDEWALK CAN NOT BE PROVIDED, A DESIGN WAIVER MUST BE REQUESTED.
3. NO TRAVERSABLE SLOPE ON THE RAMP OR SIDEWALK SHALL EXCEED 12:1 IN THE DIRECTION OF PEDESTRIAN TRAVEL OR 48:1 PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH TOE STANDARD 7.03.
5. SIDEWALK RAMPS TO BE SHOWN ON PLANS SYMBOLICALLY AND REFERENCED WITH THE CENTER OF THE RAMP ALIGNED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL BE SHOWN WHERE PROPOSED RAMP VARIES FROM STANDARD CASES.
6. TRANSITION PANELS TO TIE INTO EXISTING SIDEWALK MUST BE A MINIMUM OF 5' IN LENGTH.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — SIDEWALK RAMPS PERPENDICULAR

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.03



NOTES
1. PAVEMENT SHALL BE SAW CUT FULL DEPTH OF THE EXISTING PAVEMENT SECTION. ALL CUTS SHALL BE MADE IN STRAIGHT LINES.
2. 6" PATCH FALLS WITHIN 2' OF EXISTING CURB OR EDGE OF PAVING, CONTINUE RESTORATION TO EDGE OF PAVE.
3. SURFACE COURSE: 2" OF 9.5mm SUPERPAVE. BASE COURSE: 4" OF 9.5mm, 12.5mm OR 19.0 mm SUPERPAVE IN 2–2" LIFTS./NOTE: IF SC & BC ARE BOTH 9.5mm, THEY MAY BE DONE IN 3–3" LIFTS.
4. ADDITIONAL MILL AND OVERLAY MAY BE REQUIRED WHEN MULTIPLE PAVEMENT REPAIRS ARE LOCATED IN THE SAME RELATIVE VICINITY. LIMITS OF MILL AND OVERLAY, WHEN REQUIRED, WILL BE DETERMINED BY THE TOWN ENGINEER.
5. WHEN SURFACE ARES OF REPAIR EXCEEDS 100 SF, THE 2" SURFACE COURSE SHALL EXTEND ENTIRE WIDTH OF TRAVEL LANE(S) AND/OR SHOULDER. LIMITS OF MILL AND OVERLAY, WHEN REQUIRED, WILL BE DETERMINED BY THE TOWN ENGINEER.
6. CONTRACTOR MUST CONFIRM LIMITS OF PAVEMENT REQUIRED WITH TOWN ENGINEER PRIOR TO START OF PAVEMENT WORK.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — PERMANENT ASPHALT PAVEMENT REPAIR FOR UTILITY TRENCHES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-5.01-3

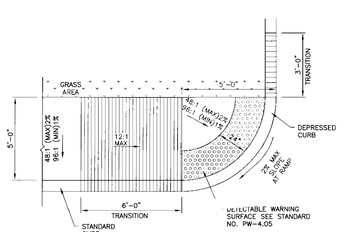
A. GENERAL NOTES
1. THIS SPECIFICATION SHALL APPLY TO ANY AND ALL UTILITY WORK OR STREET MODIFICATIONS SUCH AS DRAINAGE IMPROVEMENTS OR OTHER CONSTRUCTION DEEMED APPROPRIATE BY THE TOWN ENGINEER. THE CONTRACTOR SHALL RESTORE ALL SURFACES DAMAGED BY THEIR OPERATIONS TO THE WIDTHS AND DEPTHS OF THE ADJACENT PAVEMENT.
2. SURFACE RESTORATION IN TOWN STREETS AND ROADS SHALL BE IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS AND THESE TOWN STANDARDS.
3. EXISTING PAVEMENT SHALL BE TRIMMED TO SECURE A STRAIGHT CLEAN EDGE FOR REMOVING. SAW CUT PAVEMENT AS SHOWN ON PW-1.06 OR AS DIRECTED TO OBTAIN A CLEAN PAVEMENT EDGE. ALL TRENCHES SHALL BE CUT BACK BY ONE (1) FOOT ON EITHER SIDE OF THE TRENCH.
4. NO STAGGERED OR IRREGULAR LONGITUDINAL TRENCH REPAIR WIDTHS SHALL BE ALLOWED. REPAIRS SHALL BE A UNIFORM WIDTH AND IN A STRAIGHT LINE.
5. MINIMUM TEMPORARY TRENCH RESTORATION WIDTH IS FIVE (5) FEET. ACTUAL WIDTH SHALL VARY BASED ON THE WIDTH OF THE TRENCH AND THE TRAVEL LANE.
6. ALL STREET REPAIR AREAS SHALL INCLUDE RESTORATION WHERE APPLICABLE, PLUS MILL AND OVERLAY. MILL AND OVERLAY SHALL INCLUDE THE FULL LANE WIDTH OF ANY STREET DISTURBED. ON HORIZONTAL CROSSINGS THE MINIMUM RUN OF THE STREET TO BE MILLED AND OVERLAID SHALL BE THIRTY (30) FEET, CENTERED ON THE DISTURBANCE. SHOULD MULTIPLE CROSS ROAD REPAIRS ARE CREATED, MILL AND OVERLAY SHALL CONTINUE THE FULL LANE WIDTH TO INCLUDE ALL TRENCHES WHERE CROSS ROAD REPAIRS ARE LESS THAN FIFTY (50) FEET APART. LONGITUDINAL TRENCHES SHALL INCLUDE MILL AND OVERLAY FOR ONE (1) FULL LANE WIDTH FOR FIFTEEN (15) FEET BEYOND EXCAVATION FOR EACH LANE DISTURBED.
7. UNDERMINED AREAS SHALL BE GROUTED FILLED OR CUT BACK.
8. A TEMPORARY TWO (2) INCH LAYER OF COLD PATCH SHALL BE PLACED ON ALL UTILITY TRENCHES WHERE WEATHER CONDITIONS OR OTHER DELAYS DO NOT PERMIT FINAL REPAIRS WITHIN SEVEN (7) CALENDAR DAYS.
9. METAL PLATING MAY BE USED AT THE END POINT OF THE UTILITY LAYING OPERATION AND MUST BE USED TO PROTECT THE INTEGRITY OF CONCRETE PAVING. CONTRACTOR SHALL POST WARNING SIGNS.
10. ALL ADJUSTMENTS TO CASTING TO BRING TO GRADE MUST BE DONE TO PAVEMENT OPERATIONS AND OPERATED BY SAFE MEANS OF TRAFFIC CONTROL AND COMPACTING OPERATIONS. MINIMUM OF TWO (2) BRICK ADJUSTMENTS SHALL BE DONE WITH ADJUSTMENT RINGS, BRICK COURSES, OR MORTAR LAYERS, SUBJECT TO EASTON UTILITIES APPROVAL.
11. PAVING OPERATIONS SHALL BE PERFORMED IF THE FOLLOWING MINIMUM TEMPERATURES ARE MET:
A) 32 DEGREES AND RISING FOR ANY HOT MIX BASE COURSE.
B) 32 DEGREES AND RISING FOR ANY HOT MIX SURFACE COURSE
LIFT THICKNESS SHALL BE LIMITED TO:
A) 2" FOR 9.5mm SUPERPAVE
B) 2" FOR 12.5mm SUPERPAVE
C) 3" FOR 19mm SUPERPAVE
D) 4" FOR 25mm SUPERPAVE
E) 4" FOR AGGREGATE
F) 8" FOR BACKFILL
12. CATCH BASINS, INLETS, CURBS AND ALL OTHER APPURTENANCES SHALL BE ADEQUATELY COVERED AND PROTECTED PRIOR TO APPLICATION OF BITUMINOUS MATERIALS. NO EARTH OF BITUMINOUS MATERIALS SHALL BE ALLOWED TO ENTER ANY STORM DRAINAGE SYSTEM. SUITABLE CONTAINMENT PROVISIONS SHALL BE EMPLOYED TO PREVENT SURFACE RUNOFF OF BITUMINOUS MATERIALS.
13. THE FINAL SURFACE SHALL PROVIDE A SMOOTH TRANSITION, FREE OR ABRUPT CHANGES IN GRADE, IS MADE WITH ADJACENT PAVEMENTS AND/OR SIDEWALK. NO DEPRESSIONS OR OTHER MISALIGNMENT SHALL OBSTRUCT, TRAP OR OTHERWISE MISDIRECT THE FLOW OF SURFACE WATER DRAINAGE.
14. ALL PAVEMENT SHALL BE CUT BACK ONE (1) FOOT ON EITHER SIDE OF THE TRENCH.

B. MAINTENANCE OF REFILLED EXCAVATIONS
1. ALL DEPRESSIONS APPEARING IN THE REFILLED EXCAVATION, STABILIZED BASE AND TEMPORARY PAVING SHALL BE PROPERLY REFILLED. IF THE CONTRACTOR FAILS TO MAKE REPAIRS WITHIN 48 HOURS AFTER NOTIFICATION BY THE TOWN ENGINEER, THE TOWN ENGINEER MAY REFILL ANY DEPRESSIONS AND THE COST THEREOF SHALL BE BILLED TO THE CONTRACTOR. IN CASE OF EMERGENCY, THE TOWN MAY REFILL ANY DEPRESSIONS OR PROTECT WITH BARRICADES WITHOUT GIVING PREVIOUS NOTICE TO THE CONTRACTOR, AND THE COST OF DOING SO SHALL BE BILLED TO THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY INJURY OR DAMAGE THAT MAY RESULT FROM LACK OF MAINTENANCE OF ANY REFILLED EXCAVATION AT ANY TIME.

APPROVAL — TOWN ENGINEER — DATE 1/2020

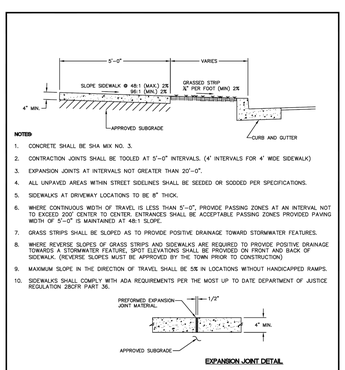
TOWN OF EASTON STANDARD DETAILS — SURFACE RESTORATION AND PAVING NOTES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-5.04



NOTES:
1. BRICK SIDEWALK AND HANDICAP RAMPS SHALL BE USED AS DIRECTED BY THE TOWN.
2. AT NO POINT SHALL THE SLOPE OF THE LANDING BE GREATER THAN 48:1 (2%), INCLUDING DIAGONAL.
3. THERE SHALL BE A LANDING PRIOR TO THE RAMPS. THE LANDING SHALL BE 3' IN LENGTH, MINIMUM.
4. DETAIL ONLY TO BE USED AS A GUIDE, CONTRACTOR TO USE GRADES SHOWN ON GRADING PLAN.

TYPE "G" SIDEWALK RAMP DETAIL



NOTES
1. CONCRETE SHALL BE SHA MIX NO. 3.
2. CONTRACTION JOINTS SHALL BE TOOLED AT 5'–0" INTERVALS. (4' INTERVALS FOR 4' WIDE SIDEWALK)
3. EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 20'–0".
4. ALL UNPAVED AREAS WITHIN STREET SIDELINES SHALL BE SEEDED OR SODDED PER SPECIFICATIONS.
5. SIDEWALKS AT DRIVEWAY LOCATIONS TO BE 6" THICK.
6. WHERE CONTINUOUS WIDTH OF TRAVEL IS LESS THAN 5'–0", PROVIDE PASSING ZONES AT AN INTERVAL NOT TO EXCEED 200' CENTER TO CENTER. ENTRANCES SHALL BE ACCEPTABLE PASSING ZONES PROVIDED PAVING WIDTH OF 5'–0" IS MAINTAINED AT 48:1 SLOPE.
7. GRASS STRIPS SHALL BE SLOPED AS TO PROVIDE POSITIVE DRAINAGE TOWARD STORMWATER FEATURES.
8. WHERE REVERSE SLOPES OF GRASS STRIPS AND SIDEWALKS ARE REQUIRED TO PROVIDE POSITIVE DRAINAGE TOWARDS A STORMWATER FEATURE, SPOT ELEVATIONS SHALL BE PROVIDED ON FRONT AND BACK OF SIDEWALK. (REVERSE SLOPES MUST BE APPROVED BY THE TOWN PRIOR TO CONSTRUCTION)
9. MAXIMUM SLOPE IN THE DIRECTION OF TRAVEL SHALL BE 5% IN LOCATIONS WITHOUT HANDICAPPED RAMPS.
10. SIDEWALKS SHALL COMPLY WITH ADA REQUIREMENTS PER THE MOST UP TO DATE DEPARTMENT OF JUSTICE REGULATION 28CFR PART 36.

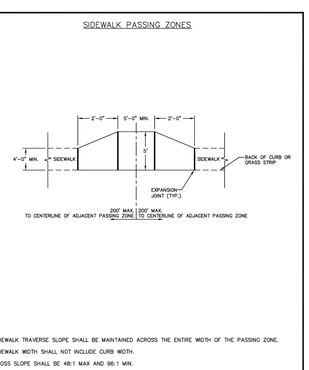
EXPANSION JOINT DETAIL

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — CONCRETE SIDEWALK

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.01

SIDEWALK PASSING ZONES



NOTES:
1. SIDEWALK TRAVERSE SLOPE SHALL BE MAINTAINED ACROSS THE ENTIRE WIDTH OF THE PASSING ZONE.
2. SIDEWALK WIDTH SHALL NOT INCLUDE CURB WIDTH.
3. CROSS SLOPE SHALL BE 48:1 MAX AND 96:1 MIN.

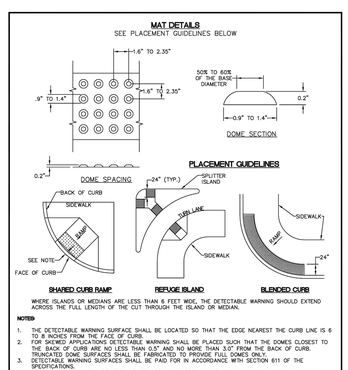
APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — SIDEWALK PASSING ZONES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.06

MAT DETAILS

SEE PLACEMENT GUIDELINES BELOW



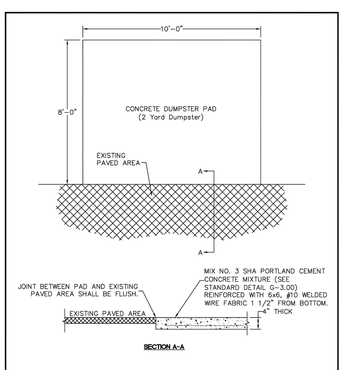
WHERE ISLANDS OR MEDIANS ARE LESS THAN 6 FEET WIDE, THE DETECTABLE WARNING SHOULD EXTEND ACROSS THE FULL LENGTH OF THE CUT THROUGH THE ISLAND OR MEDIAN.

NOTES
1. THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 TO 8 INCHES FROM THE FACE OF CURB.
2. FOR SKEWED APPLICATIONS DETECTABLE WARNING SHALL BE PLACED SUCH THAT THE DOMES CLOSEST TO THE BACK OF CURB ARE NO LESS THAN 0.5" AND NO MORE THAN 3.0" FROM THE BACK OF CURB. TRUNCATED DOME SURFACES SHALL BE FABRICATED TO PROVIDE FULL DOMES ONLY.
3. DETECTABLE WARNING SURFACES SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 611 OF THE SPECIFICATIONS.
4. DETECTABLE WARNING SURFACES ARE REQUIRED AT STREET CROSSING AND SIGNALIZED INTERSECTIONS.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — DETECTABLE WARNING SURFACES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.08



SECTION A-A

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS — CONCRETE DUMPSTER PAD

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-SI-3.01

SITE DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

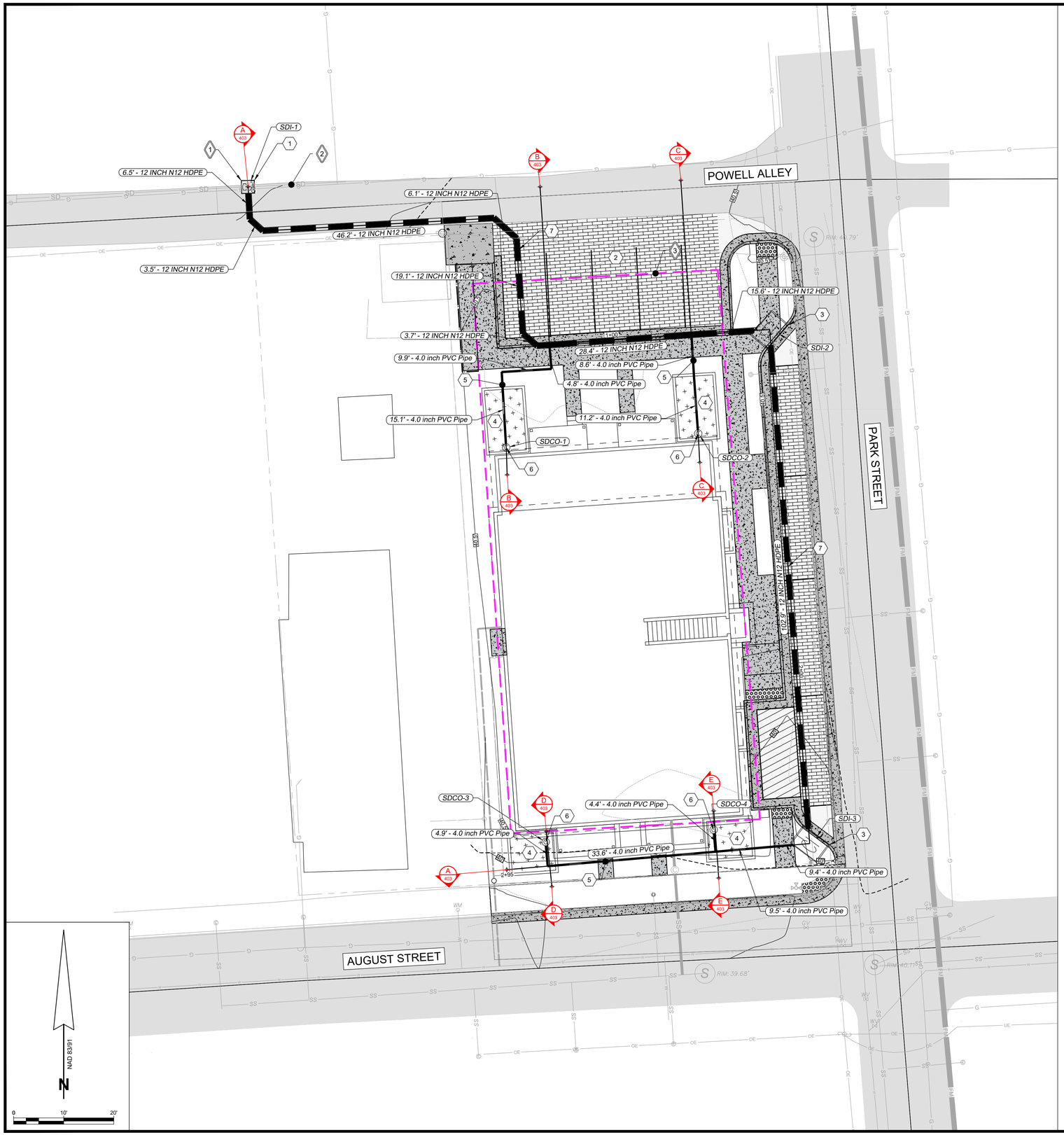
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

| REV. # | DATE | DESCR



PROPOSED STORMWATER FEATURES & NOTES

1. REPLACE EXISTING YARD INLET WITH STANDARD TRAFFIC BEARING YARD INLET. SEE DETAIL ON SHEET 405.01
2. PERMEABLE PAVERS USING PAVE DRAIN. SEE DETAILS ON SHEET C-405.01
3. STANDARD CURB INLET. SEE DETAIL ON SHEET C-405.01
4. STORMWATER MANAGEMENT PLANTER BOX. SEE DETAIL ON SHEET C-405.01
5. 4" PVC PIPE
6. 4" PVC CLEANOUT
7. 12" HDPE PIPE

EXISTING STORMWATER FEATURES

1. AT-GRADE STEEL INLET WITH BRICK CULVERT BOX TO BE REMOVED AND REPLACED WITH STANDARD TRAFFIC BEARING YARD INLET
2. 10" TERRACOTTA STORMWATER DRAIN PIPE
3. EASTON UTILITY EASEMENT/R.O.W.

STRUCTURE SCHEDULE
STORM DRAIN

STRUCTURE NAME	LOCATION	STRUCTURE TYPE AND SIZE	CONNECTED PIPES	RIM ELEVATION
SDCO-1	N405145.73, E1578325.90	4 in CLEANOUT	INV OUT = 38.00	42.95
SDCO-2	N405148.50, E1578364.23	4 in CLEANOUT	INV OUT = 38.40	42.92
SDCO-3	N405066.98, E1578333.78	4 in CLEANOUT	INV OUT = 38.00	41.64
SDCO-4	N405069.42, E1578367.31	4 in CLEANOUT	INV OUT = 37.95	41.90
SDI-1	N405197.77, E1578274.37	24 x 24 inch Rectangular Structure	INV IN = 37.60	39.32
SDI-2	N405169.26, E1578378.51	41 x 66 CURB INLET PER SD-1.01	INV IN = 37.78 INV OUT = 37.78	40.90
SDI-3	N405066.66, E1578386.49	41 x 66 CURB INLET PER SD-1.01	INV IN = 37.93 INV OUT = 37.93	40.27

PIPE SCHEDULE
STORM DRAIN

PIPE NAME	SIZE AND MATERIAL	LENGTH	SLOPE	UPSTREAM STRUCTURE AND INVERT	DOWNSTREAM STRUCTURE AND INVERT
SDP-1	12 INCH N12 HDPE	6.46'	0.17%	INV. 37.61'	SDI-1 INV. 37.60'
SDP-2	12 INCH N12 HDPE	3.46'	0.14%	INV. 37.62'	INV. 37.61'
SDP-3	12 INCH N12 HDPE	46.20'	0.14%	INV. 37.68'	INV. 37.62'
SDP-4	12 INCH N12 HDPE	6.08'	0.05%	INV. 37.69'	INV. 37.68'
SDP-5	12 INCH N12 HDPE	19.09'	0.13%	INV. 37.71'	INV. 37.69'
SDP-6	12 INCH N12 HDPE	3.68'	0.14%	INV. 37.72'	INV. 37.71'
SDP-7	12 INCH N12 HDPE	2.47'	0.15%	INV. 37.72'	INV. 37.72'
SDP-8	12 INCH N12 HDPE	28.43'	0.09%	INV. 37.75'	INV. 37.72'
SDP-9	12 INCH N12 HDPE	15.64'	0.22%	SDI-2 INV. 37.78'	INV. 37.75'
SDP-10	12 INCH N12 HDPE	102.91'	0.14%	SDI-3 INV. 37.93'	SDI-2 INV. 37.78'
SDP-11	4.0 inch PVC Pipe	9.36'	0.14%	INV. 37.94'	SDI-3 INV. 37.93'
SDP-12	4.0 inch PVC Pipe	9.51'	0.14%	INV. 37.95'	INV. 37.94'
SDP-13	4.0 inch PVC Pipe	33.62'	0.14%	INV. 38.00'	INV. 37.95'
SDP-14	4.0 inch PVC Pipe	4.80'	5.73%	INV. 38.00'	INV. 37.72'
SDP-15	4.0 inch PVC Pipe	9.92'	0.00%	INV. 38.00'	INV. 38.00'
SDP-16	4.0 inch PVC Pipe	15.08'	0.00%	SDCO-1 INV. 38.00'	INV. 38.00'
SDP-17	4.0 inch PVC Pipe	8.61'	7.59%	INV. 38.40'	INV. 37.75'
SDP-18	4.0 inch PVC Pipe	11.18'	0.00%	SDCO-2 INV. 38.40'	INV. 38.40'
SDP-19	4.0 inch PVC Pipe	4.85'	0.00%	SDCO-3 INV. 38.00'	INV. 38.00'
SDP-20	4.0 inch PVC Pipe	4.40'	0.00%	SDCO-4 INV. 37.95'	INV. 37.95'

HATCH LEGEND

- ASPHALT
- ADA ACCESS AISLE
- PERMEABLE PAVER
- ESD BED BOTTOM
- EASEMENT
- CONCRETE

STORMWATER AND STORM DRAIN PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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REVISIONS

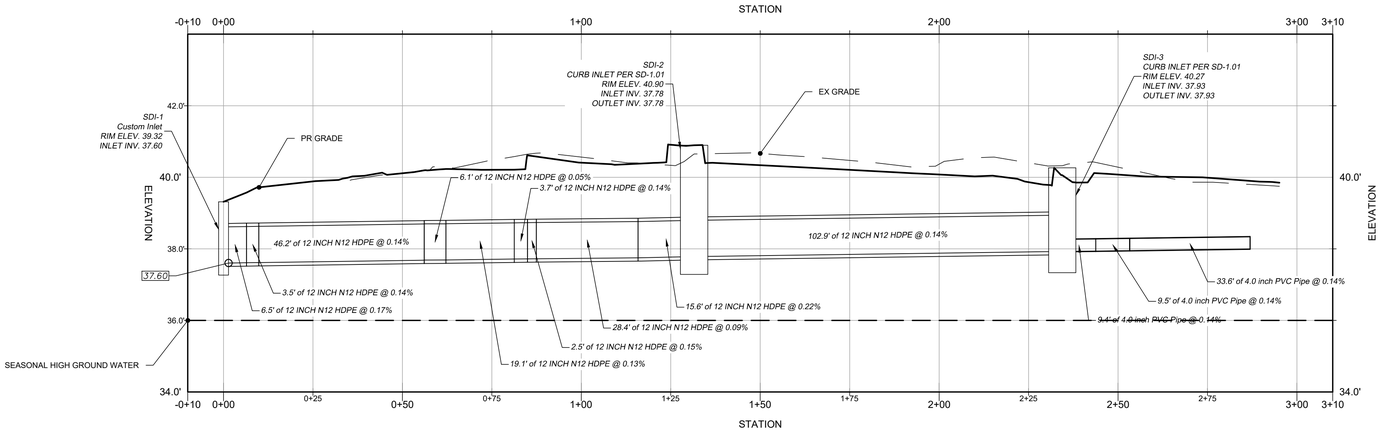
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

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SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-401

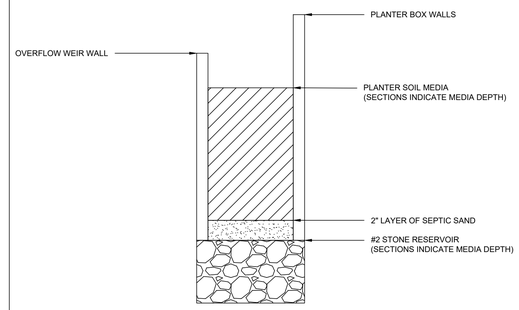
FOR REVIEW



1V:10H EXAGGERATED PROFILE:
A

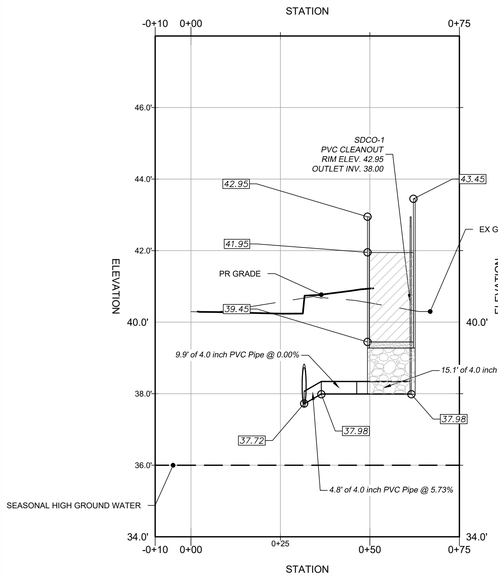
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V: 1" = 2'

TYPICAL PLANTER BOX SECTION LEGEND



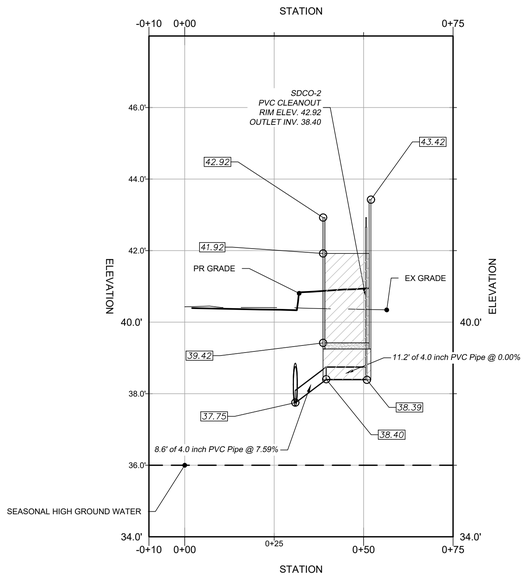
N.T.S.

NOTE: SEE STORMWATER PLANTER BOX ON DETAIL SHEET C-405.01



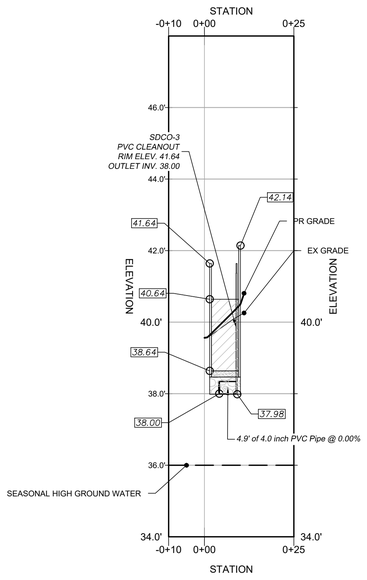
1V:10H EXAGGERATED PROFILE:
B

H: 1" = 20'
V: 1" = 2'



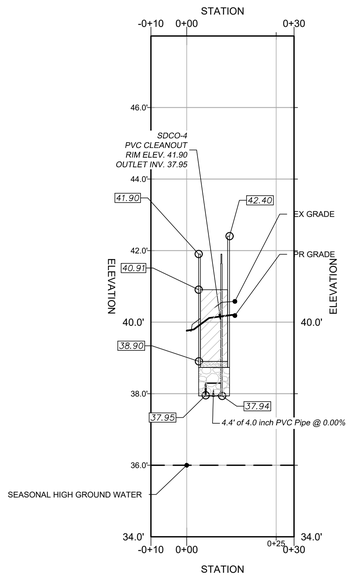
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C

H: 1" = 20'
V: 1" = 2'



1V:10H EXAGGERATED PROFILE:
D

H: 1" = 20'
V: 1" = 2'



1V:10H EXAGGERATED PROFILE:
E

H: 1" = 20'
V: 1" = 2'

STORMWATER AND STORM DRAIN PROFILES

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
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REVISIONS

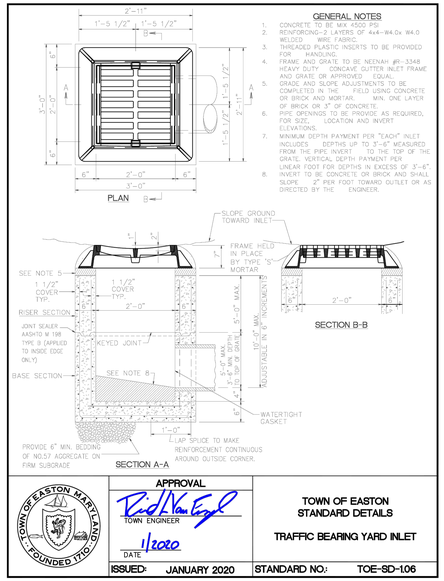
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

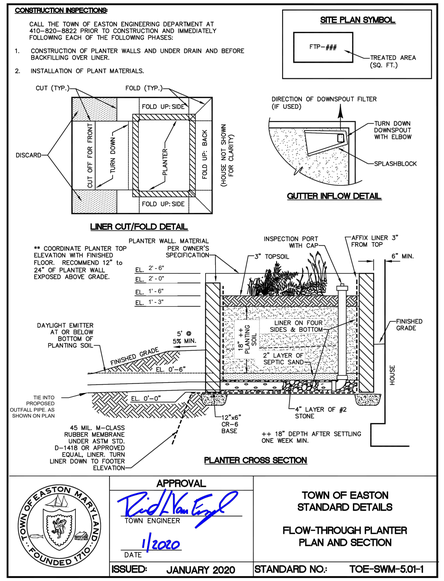
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DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-403

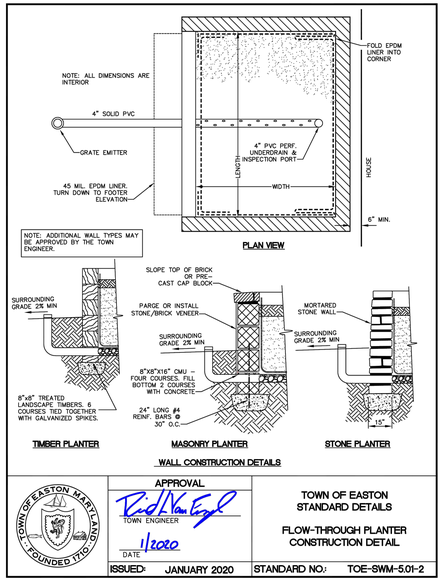
FOR REVIEW



APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
TRAFFIC BEARING YARD INLET
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SD-1.06



APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
FLOW-THROUGH PLANTER PLAN AND SECTION
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SWM-5.01-1



APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
FLOW-THROUGH PLANTER CONSTRUCTION DETAIL
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SWM-5.01-2

PLANT SELECTION

1. THE HOMEOWNER IS ENCOURAGED TO WORK WITH A REGISTERED LANDSCAPE ARCHITECT OR NURSERY TO INSURE AN ATTRACTIVE AND FUNCTIONAL MIX OF NATIVE PLANTS SPECIFICALLY TOLERANT OF BOTH SATURATED AND DRY CONDITIONS.
2. INFORMATION ON APPROPRIATE SPECIES IS AVAILABLE BY TYPING "BAYSCAPES 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.

FLOW-THROUGH PLANTER LANDSCAPE SCHEDULE

BOTANICAL NAME	COMMON NAME	SIZE	PLANTER SIZE (SQ. FT.) 70 QTY.	140 QTY.	210 QTY.	280 QTY.
SHRUBS:						
ILEX GLABRA (MALE ONLY)	INKBERRY	2 GAL.	PICK ONE	PICK ONE	PICK TWO	PICK TWO
ARONIA MELANOCARPA	BLACK CHOKEBERRY	2 GAL.				
MYRICA CERIFERA	BAYBERRY	2 GAL.				
GROUND COVER:						
ANDROPOGON VIRGINICUS	BROOMSEDGE	PLUG	3	4	6	8
LIATRIS SPICATA	BLAZING STAR	PLUG	0	2	3	4
SEMPERVIVUM GLOBIFERUM	HENS & CHICKS	PLUG	3	4	6	8

SOIL SPECIFICATIONS

1. THE PLANTING SOIL SHALL HAVE A COMPOSITION OF 50% SAND, 20% COMPOSTED LEAVES, AND 30% TOPSOIL.
2. TOPSOIL SHALL BE OF UNIFORM COMPOSITION, FREE OF STONES, DEBRIS, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN ONE INCH.
3. TOPSOIL SHALL BE FREE OF PLANTS OR PLANT PARTS OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, MUGWORT, NUTSEDGE, POISON IVY, CANADIAN THISTLE.

SIZING CHART

TREATED AREA (SQ. FT.)	PLANTER AREA (SQ. FT.)	SUGGESTED INTERIOR DIMENSIONS LENGTH	WIDTH
250	10	4	3
500	20	7	3
750	30	8	4
1000	40	10	4

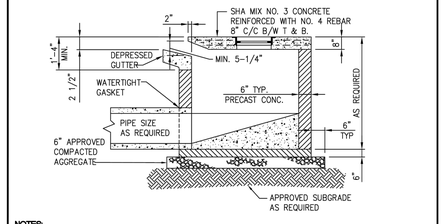
CONSTRUCTION NOTES

1. PLANTERS SHALL BE CONSTRUCTED AFTER EXTERIOR SIDING HAS BEEN INSTALLED.
2. LANDSCAPING MATERIALS SHOULD BE INSTALLED DURING THE SPRING OR FALL IF POSSIBLE
3. GUTTER SCREENS AND/OR DOWNSPOUT FILTERS SHALL BE PROVIDED TO PRE-TREAT ANY ROOF AREAS THAT FLOW INTO A PLANTER. DOWNSPOUT FILTERS SHALL BE ORIENTED SO LEAVES AND DEBRIS FALL OUTSIDE THE PLANTER. (TYPE "DOWNSPOUT FILTER" IN YOUR FAVORITE SEARCH ENGINE TO FIND EXAMPLES FOR PURCHASE.)

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.
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. SILT AND SEDIMENT SHOULD BE REMOVED FROM THE SURFACE OF THE FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH.
5. THE TOPSOIL AND FILTER MEDIA SHOULD BE REMOVED AND REPLACED WHEN WATER PONDS FOR MORE THAN 48 HOURS. EXISTING PLANT MATERIAL CAN BE TEMPORARILY REMOVED AND RE-PLANTED IN THE NEW SOIL.

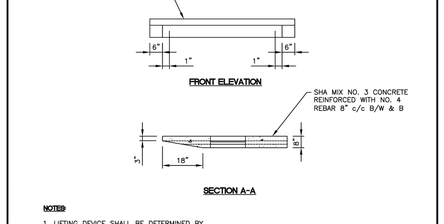
APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
FLOW-THROUGH PLANTER NOTES
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SWM-5.01-3



NOTES:

1. PROVIDE LIFT HOOKS IN UNEXPOSED SURFACES TO ACCOMMODATE FIELD PLACEMENT.

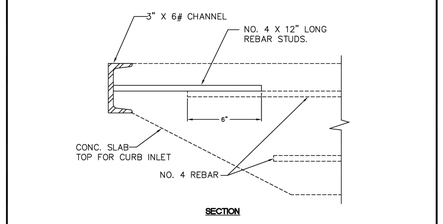
APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
CURB INLET
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SD-1.01



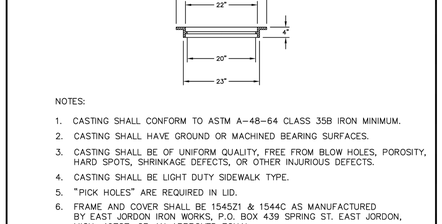
NOTES:

1. LIFTING DEVICE SHALL BE DETERMINED BY CONTRACTOR, NO DEVICES SHALL BE PERMITTED IN EXPOSED TOP SURFACES.

APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
INLET TOP
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SD-1.02



APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
REINFORCED NOSING
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SD-1.03



NOTES:

1. CASTING SHALL CONFORM TO ASTM A-48-64 CLASS 35B IRON MINIMUM.
2. CASTING SHALL HAVE GROUND OR MACHINED BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE LIGHT DUTY SIDEWALK TYPE.
5. "PICK HOLES" ARE REQUIRED IN LID.
6. FRAME AND COVER SHALL BE 1545Z1 & 1544C AS MANUFACTURED BY EAST JORDON IRON WORKS, P.O. BOX 439 SPRING ST. EAST JORDON, MICH. 49727, OR AN APPROVED EQUAL.

APPROVAL
TOWN ENGINEER
DATE 1/2020
TOWN OF EASTON STANDARD DETAILS
INLET FRAME AND COVER
ISSUED: JANUARY 2020
STANDARD NO.: TOE-SD-1.04

STORMWATER DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

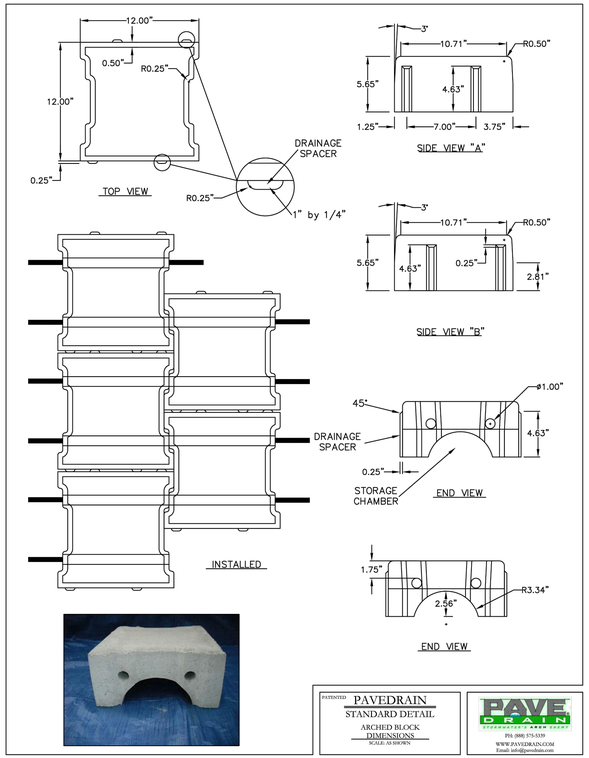
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	3/29/2024
SCALE:	N/A
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

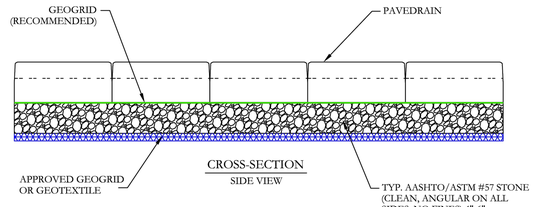
SHEET NO.: C-405.01

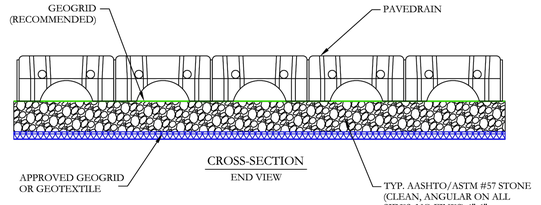
FOR REVIEW



PATENTED PAVEDRAIN
STANDARD DETAIL
ARCHED BLOCK DIMENSIONS
SCALE: SEE SHOWN

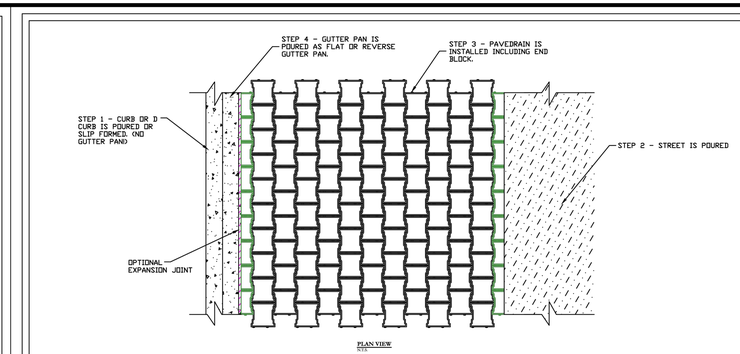
PAVE DRAIN STORMWATER'S GREEN EXPERT
PH: (800) 575-5339
WWW.PAVEDRAIN.COM
Email: info@pavedrain.com





PAVEDRAIN
STANDARD DETAIL
CROSS-SECTIONS
SCALE: N.T.S.

PAVE DRAIN STORMWATER'S GREEN EXPERT
PH: (800) 575-5339
WWW.PAVEDRAIN.COM
Email: info@pavedrain.com



PATENTED PAVEDRAIN
STANDARD DETAIL
CURB & GUTTER
SCALE: N.T.S.

PAVE DRAIN STORMWATER'S GREEN EXPERT
PH: (800) 575-5339
WWW.PAVEDRAIN.COM
Email: info@pavedrain.com

STORMWATER DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

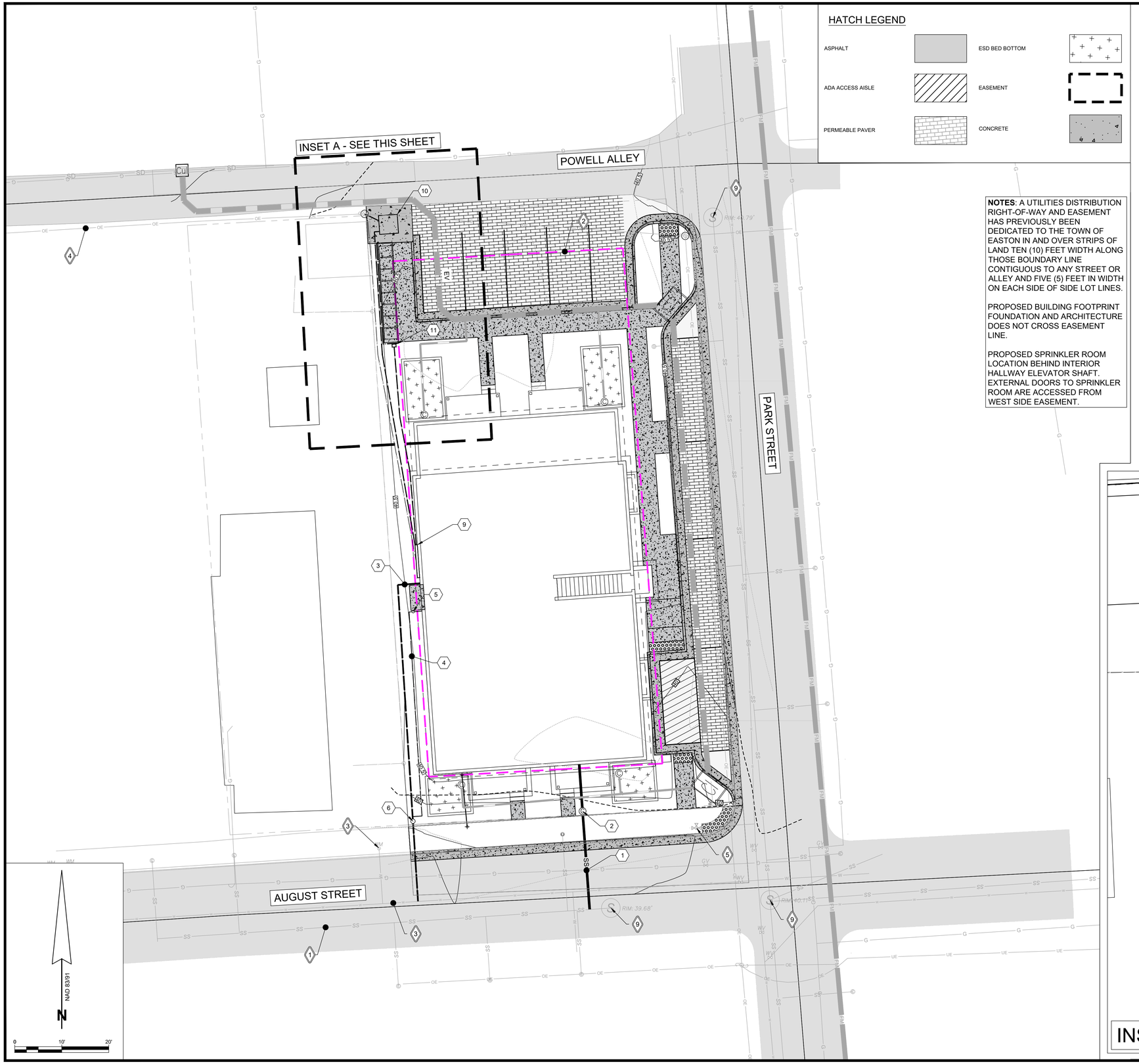
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
811

DATE:	3/29/2024
SCALE:	N/A
DRAWN BY:	JWL & WCS
DESIGNED BY:	JWL & WCS
APPROVED BY:	BBF

SHEET NO.: C-405.02

FOR REVIEW



HATCH LEGEND

ASPHALT		ESD BED BOTTOM	
ADA ACCESS AISLE		EASEMENT	
PERMEABLE PAVER		CONCRETE	

NOTES: A UTILITIES DISTRIBUTION RIGHT-OF-WAY AND EASEMENT HAS PREVIOUSLY BEEN DEDICATED TO THE TOWN OF EASTON IN AND OVER STRIPS OF LAND TEN (10) FEET WIDTH ALONG THOSE BOUNDARY LINE CONTIGUOUS TO ANY STREET OR ALLEY AND FIVE (5) FEET IN WIDTH ON EACH SIDE OF SIDE LOT LINES.

PROPOSED BUILDING FOOTPRINT FOUNDATION AND ARCHITECTURE DOES NOT CROSS EASEMENT LINE.

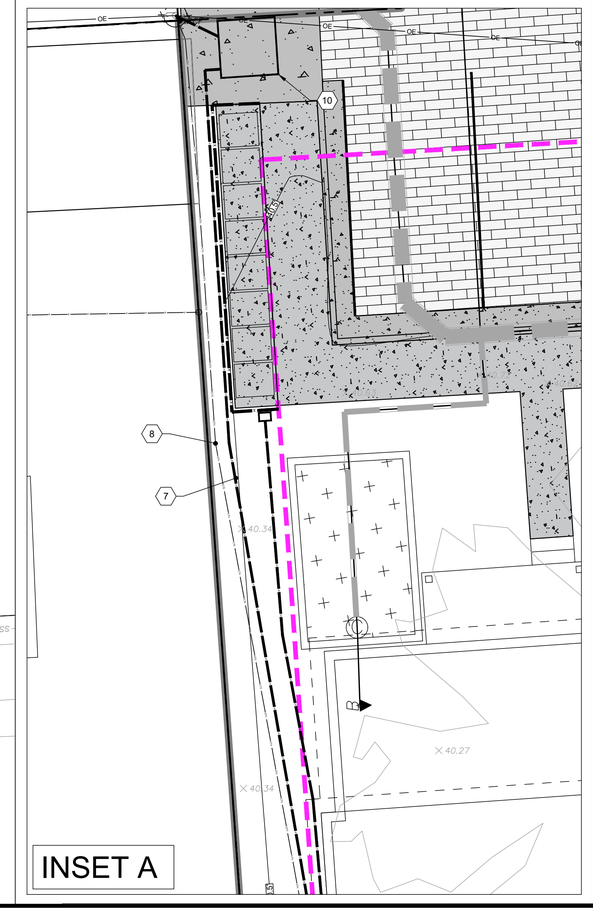
PROPOSED SPRINKLER ROOM LOCATION BEHIND INTERIOR HALLWAY ELEVATOR SHAFT. EXTERNAL DOORS TO SPRINKLER ROOM ARE ACCESSED FROM WEST SIDE EASEMENT.

PROPOSED UTILITY FEATURES

1. 6" SDR-35 SEWER. SEWER LATERALS CROSSING WATER SERVICE LINES MUST BE ENCASED WITH CONCRETE.. SEE DETAILS ON SHEET C-505.01
2. 6" SDR-35 SEWER CLEAN OUT. SEE DETAIL ON SHEET C-505.01
3. 6" FIRE C-900 WATER LINE. SEE DETAIL ON SHEET C-505.01
4. 2" POTABLE SDR-9 HDPE PIPE WATER LINE. SEE DETAIL ON SHEET C-505.01
5. WATER METER. SEE DETAIL ON SHEET C-505.01
6. WATER GATE VALVE. SEE DETAIL ON SHEET C-505.02
7. LOCATION OF 1-4" DUCT FOR UNDERGROUND ELECTRIC WITH PULL STRING. SEE DETAIL SHEET C-505.02.
8. LOCATION OF CATV LINE
9. LOCATION OF PROPOSED MOUNTING PANELS FOR ELECTRIC METER BANKS AND CATV BOX. SEE DETAIL ON SHEET 505.02
10. SINGLE-PHASE TRANSFORMER (75-167 KVA). SEE DETAIL ON SHEET 505.02
11. PROPOSED ELECTRIC VEHICLE (EV) CHARGING STATION ATTACHED TO OUTSIDE OF WOODEN SCREENING FENCE. SEE DETAIL ON SHEET 505.02

EXISTING FEATURES

1. 8" SEWER MAIN
2. EASTON UTILITY R.O.W. / EASEMENT LINE
3. WATER LINE
4. OVERHEAD ELECTRIC LINES
5. FIRE HYDRANT
6. SEWER MANHOLE



UTILITY PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
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REVISIONS

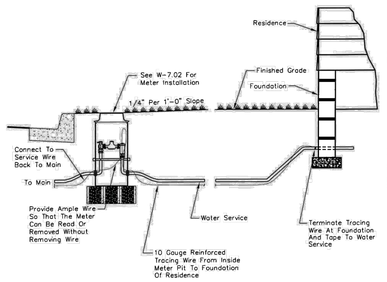
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	3/29/2024
SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

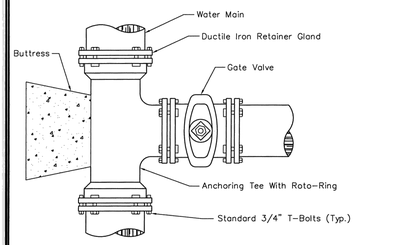
SHEET NO.: C-501

FOR REVIEW



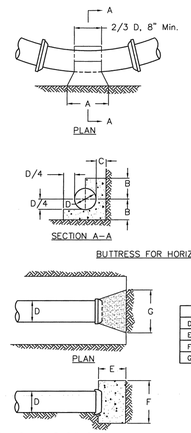
Notes:
1. 10 Gauge Solid Copper Tracer Wire; Blue Jacket.
2. Thoroughly Tape Mechanical Connections With Electrical Tape.
3. Installation Of Water Service Into Foundation Per Town Of Easton Standards.

APPROVAL	REVISED	
EU MANAGER OF ENGINEERING DATE	JUN. 23, 97	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
	MAR 1, 98	
	MAR 1, 07	
	SEP 1, 09	WATER SERVICE CONNECTION
	SEP 15,14	
ISSUED: JUNE 5, 1997	AUG 6, 19	STANDARD NO. W-7.04



Note:
1. All Fittings Shall Be Mechanical Joint, With Ductile Iron Retainer Glands And Mega-Lug Or Equivalent Restraint.
2. Anchoring Tee Shall Be As Indicated And As Manufactured By Griffin Pipe Products, 1100 West Front St. Florance, N.J. 08518, Or An Approved Equal.
3. Retainer Gland Shall Be As Indicated And As Manufactured By Russell Pipe & Foundry Co. Inc., 910 Washington St., Alexander City, AL. 35010, Or An Approved Equal.

APPROVAL	REVISED	
EU MANAGER OF ENGINEERING DATE	AUG 1, 94	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
	MAR 9, 95	
	MAR 1, 98	
		ANCHORING TEE
ISSUED: MAY 1, 1986		STANDARD NO. W-2.01

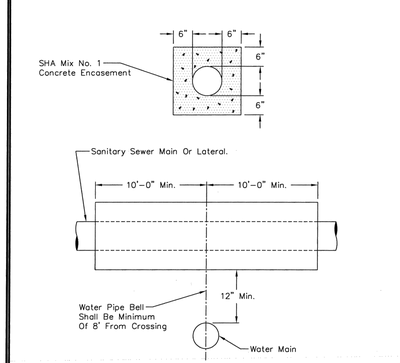


BUTTRESS FOR HORIZONTAL BENDS						
BEND		6"	8"	10"	12"	16"
1/32	A	6"	8"	10"	1'-0"	1'-4"
	B	7"	8"	9"	10"	1'-0"
	C	7"	7"	8"	8"	9"
1/16	A	9"	1'-0"	1'-4"	1'-9"	2'-3"
	B	7"	8"	9"	10"	1'-0"
	C	8"	9"	10"	11"	1'-2"
1/8	A	1'-3"	1'-8"	2'-1"	2'-6"	3'-4"
	B	7"	8"	9"	11"	1'-3"
	C	8"	9"	10"	11"	1'-2"
1/4	A	2'-0"	2'-6"	3'-0"	3'-6"	5'-0"
	B	8"	9"	1'-0"	1'-3"	1'-6"
	C	1'-10"	1'-9"	1'-8"	1'-7"	1'-5"

BUTTRESS FOR CAPS AND PLUGS					
D	6"	8"	10"	12"	16"
E	6"	8"	8"	10"	1'-0"
F	1'-0"	1'-4"	1'-6"	2'-0"	2'-8"
G	1'-5"	1'-11"	2'-5"	2'-10"	3'-9"

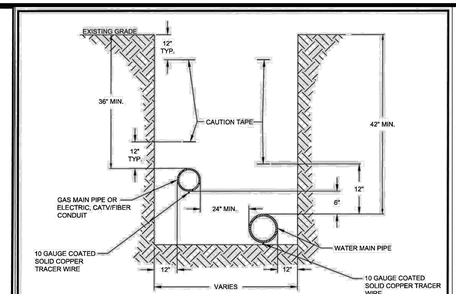
Notes:
1. All Concrete Shall Be SHA Mix No. 1.
2. Buttress Dimensions Are Minimum. Dimensions Are Based Upon Soil Bearing Pressure Of 3000 P.S.F. And Static Water Pressure Of 150 P.S.I. Where Pressure Exceeds 150 P.S.I. Or Where Soil Bearing Pressure Is Less Than 3000 P.S.F. Special Buttress Design Is Required.

APPROVAL	REVISED	
EU MANAGER OF ENGINEERING DATE		TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
		BUTTRESSES FOR CAPS AND HORIZONTAL BENDS
ISSUED: MAY 1, 1986		STANDARD NO. W-3.00



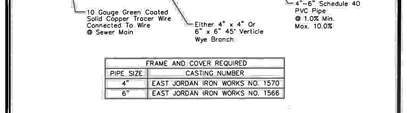
Notes;
1. Anytime The Water Main Is Below Any Sewer Main, The Sewer Main Shall Be Encased In Concrete.

APPROVAL	REVISED	
EU MANAGER OF ENGINEERING DATE	MAR 1, 98	TOWN OF EASTON AND EASTON UTILITIES STANDARD DETAILS
	AUG 1, 01	
	FEB 1, 02	CROSSING A WATER MAIN WITH A SEWER MAIN
ISSUED: MAY 1, 1986		STANDARD NO. G-5.00



NOTES:
1. USE SELECT GRANULAR BACKFILL ONLY.
2. PROVIDE AS MUCH SEPARATION AS PERMITTED BY TRENCH WIDTH.
3. TRENCH TAPE (WARNING TAPE) SHALL BE PLACED 12" ABOVE PIPE AND 12" ABOVE BELOW GROUND SURFACE.
4. GAS MAIN CONSTRUCTION BY EASTON UTILITIES IN ACCORDANCE WITH EASTON UTILITIES GAS CONSTRUCTION STANDARDS.
5. REINFORCED COATED TRACER WIRE AS MANUFACTURED BY COPPERHEAD INDUSTRIES, LLC, OR AN APPROVED EQUAL.
6. THOROUGHLY TAPE MECHANICAL CONNECTIONS OF TRACER WIRE WITH ELECTRICAL TAPE.

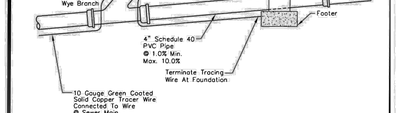
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT 1/31/2024 DATE		EASTON UTILITIES STANDARD DETAILS
		WATER MAIN JOINT TRENCHING
ISSUED: JANUARY 2024		STANDARD NO.: W-100.2



FRAME AND COVER REQUIRED	
PIPE SIZE	CASTING NUMBER
4"	EAST JORDAN IRON WORKS NO. 1570
6"	EAST JORDAN IRON WORKS NO. 1566

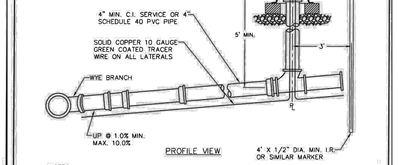
NOTES:
1. SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
2. ADD DETECTOR TAPE TO ALL PIPE.
3. USE CLASS 50 DUCTILE IRON FOR SERVICES WITH LESS THAN 3' OF COVER.
4. NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
5. EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.

APPROVAL	REVISED	
EU MANAGER OF ENGINEERING JAN 15, 19 DATE		EASTON UTILITIES STANDARD DETAILS
		GRAVITY SEWER CLEANOUTS
ISSUED: JAN 15, 2019		STANDARD NO. SS-8.03



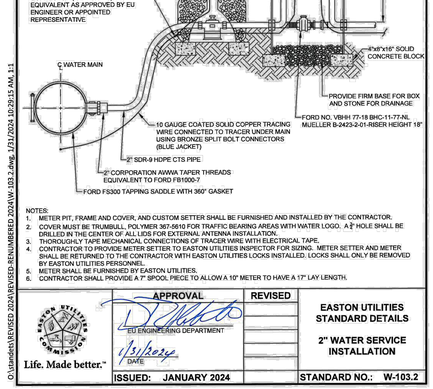
NOTES:
1. SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
2. ADD DETECTOR TAPE TO ALL PIPE.
3. USE CLASS 50 DUCTILE IRON FOR SERVICES WITH LESS THAN 3' OF COVER.
4. NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
5. EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.
6. INSTALLATION OF SEWER LATERAL INTO FOUNDATION PER TOWN OF EASTON STANDARD.
7. PROVIDE VIDEO INSPECTION OF LATERAL FROM CLEANOUT AT HOUSE/STRUCTURE, TO MAIN.

APPROVAL	REVISED	
EU MANAGER OF ENGINEERING JAN 15, 19 DATE	JUN 11 ,97	EASTON UTILITIES STANDARD DETAILS
	MAR 1, 98	
	SEP 1, 09	
	JUL. 20, 11	PVC SEWER HOUSE CONNECTION
ISSUED: JULY 1, 1996	SEP 15, 14	STANDARD NO. SS-8.02
	JAN 15, 19	



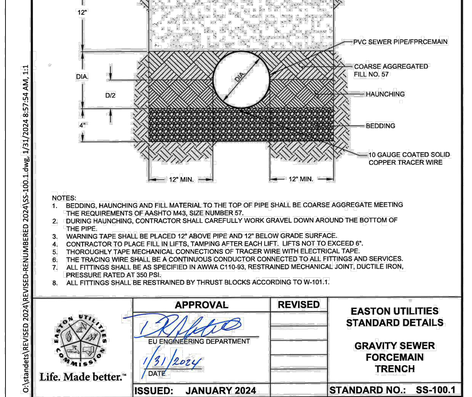
NOTES:
1. SERVICE CONNECTION SHALL BE PERPENDICULAR TO MAIN.
2. ADD DETECTOR TAPE TO ALL PIPE.
3. USE CLASS 50 DUCTILE IRON FOR SERVICES WITH LESS THAN 3' OF COVER.
4. NO SPLICES ON TRACER WIRE. MECHANICAL CONNECTORS ONLY IN CLEANOUTS.
5. EMBED PIPE IN #57 STONE FROM 6" BELOW INVERT TO 2" ABOVE CROWN.

APPROVAL	REVISED	
JAN 15, 2019 DATE	MAY 1, 89	EASTON UTILITIES STANDARD DETAILS
	AUG 1, 94	
	MAR 9, 95	
	FEB 1, 02	SEWER COLLECTION SYSTEM SEWER HOUSE SERVICE
ISSUED: MAY 1, 1986	JAN 15, 19	STANDARD NO. SS-8.00



NOTES:
1. METER PIT, FRAME AND COVER, AND CUSTOM SETTER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. COVER MUST BE TRUMBULL, POLYMER 367-5610 FOR TRAFFIC BEARING AREAS WITH WATER LOGO. A ¾" HOLE SHALL BE DRILLED IN THE CENTER OF ALL LIDS FOR EXTERNAL ANTENNA INSTALLATION.
3. THOROUGHLY TAPE MECHANICAL CONNECTIONS OF TRACER WIRE WITH ELECTRICAL TAPE.
4. CONTRACTOR TO PROVIDE METER SETTER TO EASTON UTILITIES INSPECTOR FOR SIZING. METER SETTER AND METER SHALL BE RETURNED TO THE CONTRACTOR WITH EASTON UTILITIES LOCKS INSTALLED. LOCKS SHALL ONLY BE REMOVED BY EASTON UTILITIES PERSONNEL.
5. METER SHALL BE FURNISHED BY EASTON UTILITIES.
6. CONTRACTOR SHALL PROVIDE A 7" SPOOL PIECE TO ALLOW A 10" METER TO HAVE A 17" LAY LENGTH.

APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT 1/31/2024 DATE		EASTON UTILITIES STANDARD DETAILS
		2" WATER SERVICE INSTALLATION
ISSUED: JANUARY 2024		STANDARD NO.: W-103.2



NOTES:
1. BEDDING, HAUNCHING AND FILL MATERIAL TO THE TOP OF PIPE SHALL BE COARSE AGGREGATE MEETING THE REQUIREMENTS OF AASHTO M43, SIZE NUMBER 57.
2. DURING HAUNCHING, CONTRACTOR SHALL CAREFULLY WORK GRAVEL DOWN AROUND THE BOTTOM OF THE PIPE.
3. WARNING TAPE SHALL BE PLACED 12" ABOVE PIPE AND 12" BELOW GRADE SURFACE.
4. CONTRACTOR TO PLACE FILL IN LIFTS, TAMPING AFTER EACH LIFT. LIFTS NOT TO EXCEED 6".
5. THOROUGHLY TAPE MECHANICAL CONNECTIONS OF TRACER WIRE WITH ELECTRICAL TAPE.
6. THE TRACING WIRE SHALL BE A CONTINUOUS CONDUCTOR CONNECTED TO ALL FITTINGS AND SERVICES.
7. ALL FITTINGS SHALL BE AS SPECIFIED IN AWWA C110-93, RESTRAINED MECHANICAL JOINT; DUCTILE IRON, PRESSURE RATED AT 350 PSI.
8. ALL FITTINGS SHALL BE RESTRAINED BY THRUST BLOCKS ACCORDING TO W-101.1.

APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT 1/31/2024 DATE		EASTON UTILITIES STANDARD DETAILS
		GRAVITY SEWER FORCEMAIN TRENCH
ISSUED: JANUARY 2024		STANDARD NO.: SS-100.1

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UTILITY DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
Phone: 410 770 8081 | Fax: 410 770 3867

REVISIONS

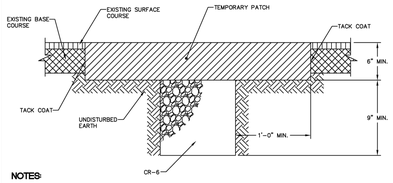
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA 811

DATE:	3/29/2024
SCALE:	N/A
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-505.01

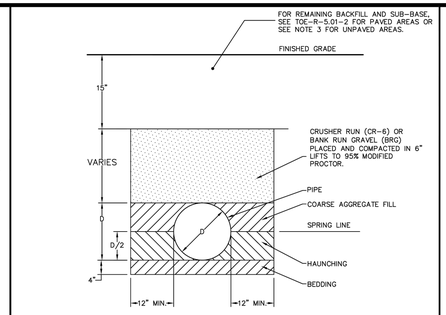
FOR REVIEW



NOTES:

1. PAVEMENT SHALL BE SAW CUT FULL DEPTH OF THE EXISTING PAVEMENT SECTION. ALL CUTS SHALL BE MADE IN STRAIGHT LINES.
2. TEMPORARY PATCH SHALL BE ONE OF THE FOLLOWING, PLACED AND COMPACTED IN 3" LIFTS (MAX).
   1. CR-6 (3" LIFTS MAX.)
   2. 9.5mm, (2" LIFTS MAX.)12.5mm, OR 19mm SUPERPAVE, (3" LIFTS)
   3. COLD PATCH (3" LIFTS MAX.)
3. A TEMPORARY CR-6 PATCH MUST BE CONVERTED TO COLD PATCH OR SUPERPAVE WITHIN 1 WEEK OF COMPLETION OF TRENCH WORK, UNLESS APPROVED BY TOWN ENGINEER.
4. TEMPORARY TRENCH RESTORATION MUST BE CONVERTED TO A PERMANENT TRENCH RESTORATION WITHIN 30 CALENDAR DAYS OF COMPLETION OF TRENCH WORK, UNLESS APPROVED BY TOWN ENGINEER. TEMPORARY TRENCH RESTORATION DONE AFTER NOVEMBER 30TH MUST BE CONVERTED TO A PERMANENT TRENCH RESTORATION BEFORE MAY 30TH OF THE FOLLOWING YEAR.
5. TEMPORARY RESTORATION MUST BE INSPECTED AND MAINTAINED EVERY 30 DAYS UNTIL PERMANENT RESTORATION IS COMPLETED. AN INSPECTION AND MAINTENANCE LOG MUST BE KEPT.
6. CONTRACTOR MUST CONFIRM LIMITS OF PATCH REQUIRED WITH THEN TOWN ENGINEER PRIOR TO START OF PATCH WORK.

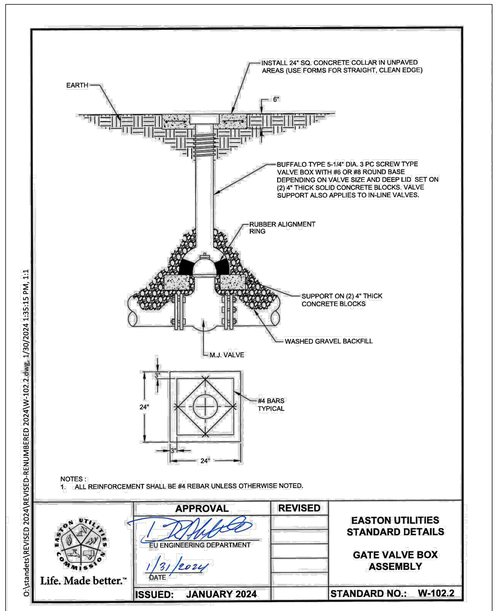
APPROVAL		TOWN OF EASTON STANDARD DETAILS
TOWN ENGINEER DATE 1/2020		TEMPORARY PAVEMENT REPAIR FOR UTILITY TRENCHES
ISSUED: JANUARY 2020	STANDARD NO:	TOE-R-5.01-2



NOTES:

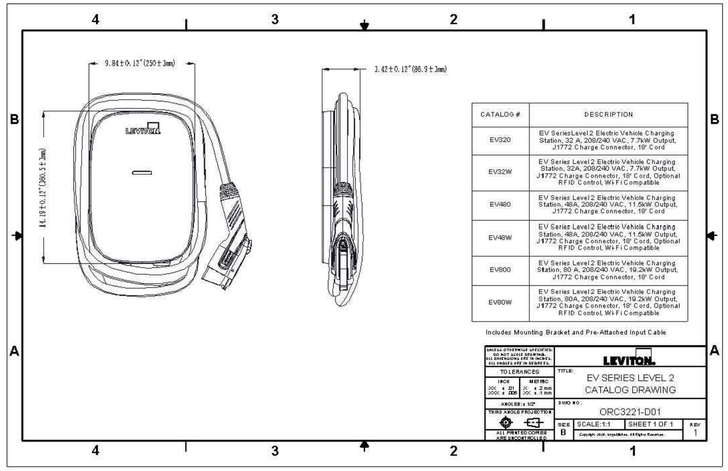
1. BEDDING, HAUNCHING AND FILL MATERIAL TO THE TOP OF THE PIPE SHALL BE COARSE AGGREGATE MEETING THE REQUIREMENTS OF ASHTO M43-SIZE NUMBER 57, UNLESS OTHERWISE SPECIFIED BY THE PIPE MANUFACTURER AND APPROVED BY THE TOWN ENGINEER.
2. DURING HAUNCHING, CONTRACTOR SHALL CAREFULLY WORK GRAVEL DOWN AROUND THE BOTTOM OF THE PIPE.
3. IN UNPAVED AREAS, FILL CR-6 OR BRG TO 6" BELOW FINISHED GRADE, PLACED AND COMPACTED IN 6" LIFTS TO 95% MODIFIED PROCTOR. TOP 6" SHALL BE TOPSOIL.

APPROVAL		TOWN OF EASTON STANDARD DETAILS
TOWN ENGINEER DATE 1/2020		TRENCH DETAIL
ISSUED: JANUARY 2020	STANDARD NO:	TOE-R-5.01-1



NOTES :
1. ALL REINFORCEMENT SHALL BE #4 REBAR UNLESS OTHERWISE NOTED.

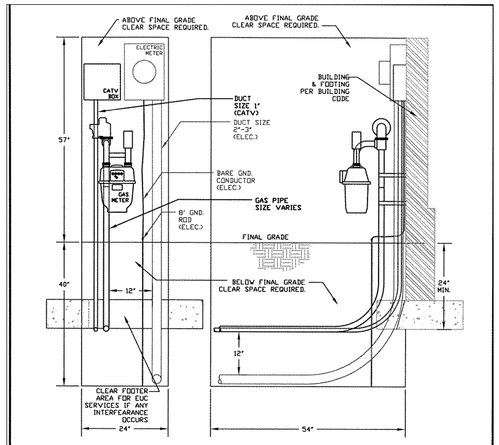
APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE 1/31/2024		GATE VALVE BOX ASSEMBLY
ISSUED: JANUARY 2024		STANDARD NO.: W-102.2



CATALOG #	DESCRIPTION
EV320	EV Series Level 2 Electric Vehicle Charging Station, 32 A, 208/240 VAC, 7.7kW Output, J1772 Charge Connector, 18' Cord
EV32W	EV Series Level 2 Electric Vehicle Charging Station, 32A, 208/240 VAC, 7.7kW Output, J1772 Charge Connector, 18' Cord, Optional RFID Control, Wi-Fi Compatible
EV480	EV Series Level 2 Electric Vehicle Charging Station, 48A, 208/240 VAC, 11.5kW Output, J1772 Charge Connector, 18' Cord
EV48W	EV Series Level 2 Electric Vehicle Charging Station, 48A, 208/240 VAC, 11.5kW Output, J1772 Charge Connector, 18' Cord, Optional RFID Control, Wi-Fi Compatible
EV800	EV Series Level 2 Electric Vehicle Charging Station, 80 A, 208/240 VAC, 19.2kW Output, J1772 Charge Connector, 18' Cord
EV80W	EV Series Level 2 Electric Vehicle Charging Station, 80A, 208/240 VAC, 19.2kW Output, J1772 Charge Connector, 18' Cord, Optional RFID Control, Wi-Fi Compatible

Includes Mounting Bracket and Pre-Attached Input Cable

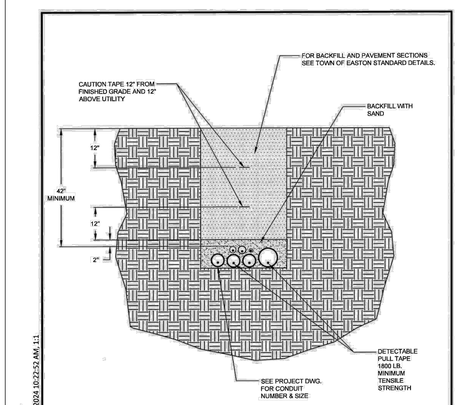
UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN INCHES. ALL ANGLES ARE IN DEGREES.	LEVITON.
TOLERANCES INCH: ± .01 .XXX: ± .005 MILIMETRIC: .X: ± 0.2 mm .XX: ± 0.1 mm	TITLE: EV SERIES LEVEL 2 CATALOG DRAWING
ANGLES: ± 1/2°	DWG NO.: ORC3221-D01
THIRD ANGLE PROJECTION	SIZE B, SCALE: 1:1, SHEET 1 OF 1, REV 1
ALL PRETOLERANCED ARE DECORTICALLED	Copyright 2021, Leviton Mfg. All Rights Reserved.



ELECTRIC NOTES
1. 200A electric meter (Typical).

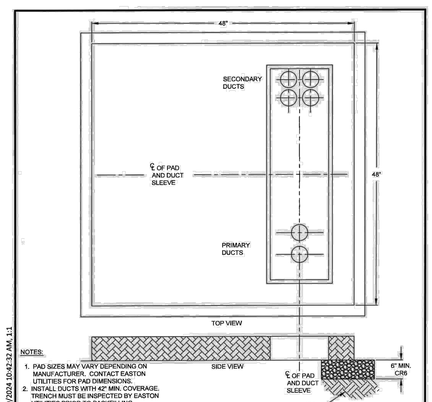
GAS NOTES
1. Gas meter locations shall be agreed upon by the customer and Easton Utilities in advance of construction and are subject to final approval by Easton Utilities.
2. Gas metering assemblies will not be installed in places where it may be subject to damage.
3. Should Easton Utilities determine bollards are required to protect its meter assemblies, the customer shall be required to provide such protection at their cost.
4. Outside gas meter assemblies are recommended to be at least three (3) feet from any equipment with an open flame or subject to electrical arcing.
5. Refer to National Fuel Gas Code 2002, Easton Utilities Gas Service Tariff and Customer Handbook for additional requirements.

APPROVAL	REVISED	TOWN OF EASTON AND EASTON UTILITIES COMMISSION STANDARD DETAILS
EU MANAGER OF ENGINEERING DATE 4/19/07		ELECTRIC METER, GAS METER & CATV BOX LOCATIONS FOR TOWNHOUSES
ISSUED: NOV 1, 2006		STANDARD NO. E-5.00



NOTES:
1. SEE CONDUIT AND DUCT BANK NOTES ON E-100.1.2 STANDARD DETAILS.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE 1/31/2024		TYPICAL TRENCH DETAIL
ISSUED: JANUARY 2024		STANDARD NO.: E-100.2



NOTES:
1. PAD SIZES MAY VARY DEPENDING ON MANUFACTURER. CONTACT EASTON UTILITIES FOR PAD DIMENSIONS.
2. INSTALL DUCTS WITH 42" MIN. COVERAGE. TRENCH MUST BE INSPECTED BY EASTON UTILITIES PRIOR TO BACKFILLING.
3. REFER TO ELECTRIC PLAN DRAWINGS FOR PRIMARY AND SECONDARY CONDUIT SIZE AND QUANTITY.
4. MINIMUM OF 6" CRS COMPACTED UNDER TRANSFORMER PAD.
5. COORDINATE WITH EASTON UTILITIES CONDUIT LOCATIONS WITHIN SLEEVE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE 1/31/2024		1Ø TRANSFORMER PAD 75 - 167 KVA (SUPPLIED BY EU)
ISSUED: JANUARY 2024		STANDARD NO.: E-101.1.2

UTILITY DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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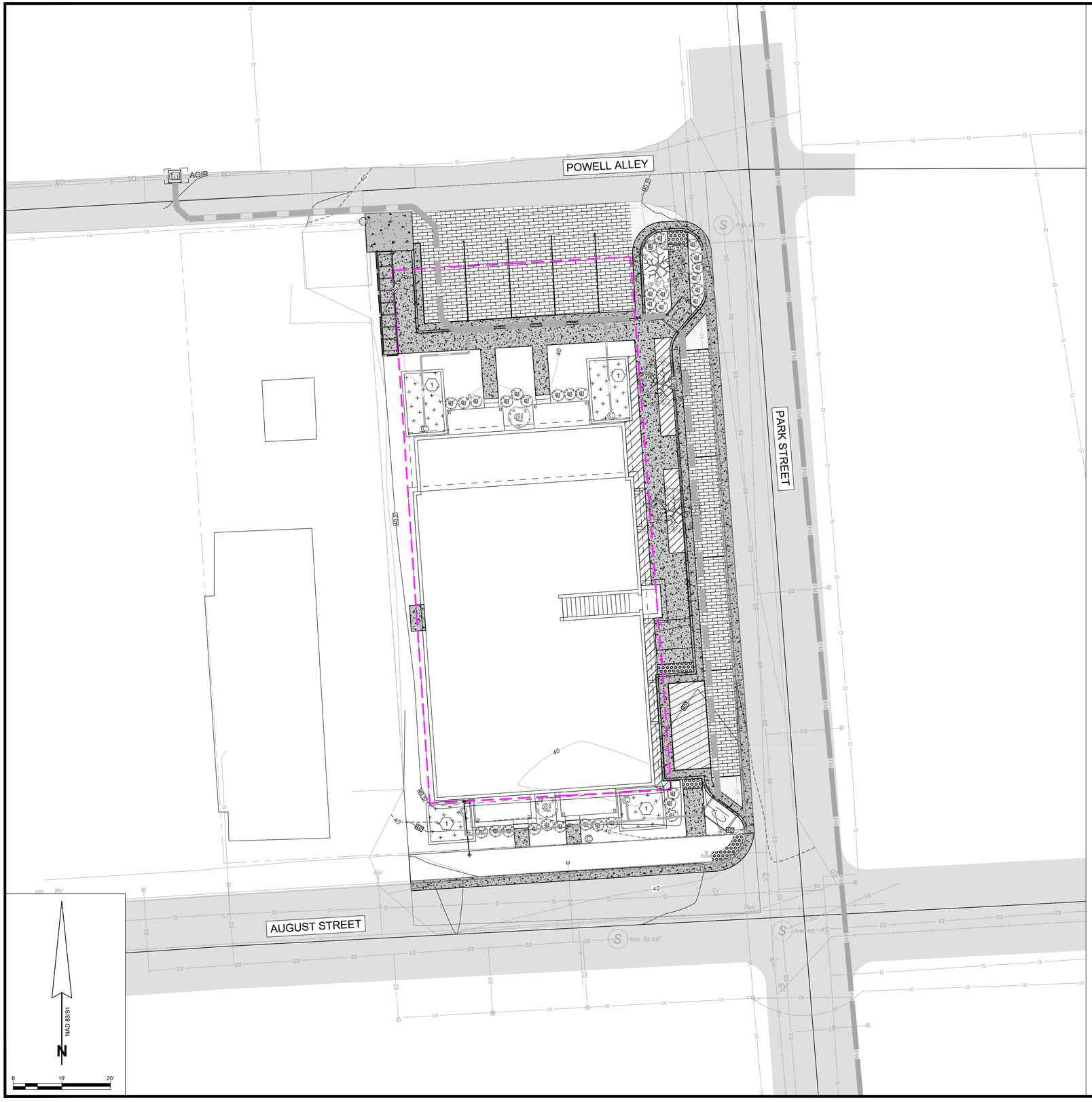
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

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DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-505.02

FOR REVIEW



BUFFERYARD & LANDSCAPE FEATURES

(1) PLANTER BOX PLANTING (SEE SHEET C-601.02 FOR MORE DETAIL)

LANDSCAPE LEGEND

- DECIDUOUS UNDERSTORY TREES
- LARGE SHRUBS
- SMALL SHRUBS
- HERBACEOUS PLANTING BED
- PLANTER BOX BED

NOTES:

BUFFER YARDS ARE NOT REQUIRED AS PER PRELIMINARY PLANNING & ZONING STAFF REVIEW COMMENTS.

NO CANOPY TREES SHALL BE PLANTED UNDER OVERHEAD ELECTRIC ALONG PARK STREET OR POWELL ALLEY.

PLANT TYPE SYMBOLS REFLECT PROPOSED PLANTING LOCATIONS.

DETAILED PLANT SPECIES AND SCHEDULE TO BE DETERMINED.

LANDSCAPING PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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MISS UTILITY OF DELMARVA — 811

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SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-601.01

FOR REVIEW



PLANTER BOX
PLANTING
PLAN TO BE
DETERMINED

LANDSCAPING PLAN

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028
ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND
PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
CALL BEFORE YOU DIG
811

DATE:	3/29/2024
SCALE:	1" = 10'
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.:
C-601.02

FOR
REVIEW

LANDSCAPE PLANTING REQUIREMENTS

GENERAL REQUIREMENTS:

- COMPLIANCE WITH THE TERMS OF THIS LANDSCAPE PLAN, INCLUDING ALL MAINTENANCE AND WARRANTY REQUIREMENTS PRESCRIBED HEREON IS THE RESPONSIBILITY OF THE OWNER. MAINTENANCE AND WARRANTY TERMS AND RESPONSIBILITIES OF THE CONTRACTOR SHALL BE NEGOTIATED BETWEEN OWNER AND CONTRACTOR.
- THE CONTRACTOR (CONTRACTOR) IS RESPONSIBLE FOR THE COMPLETE INSTALLATION OF ALL LANDSCAPING SHOWN OR IMPLIED ON THIS PLAN. PLANT QUANTITIES ARE SHOWN FOR CONVENIENCE ONLY AND SHALL BE VERIFIED PRIOR TO INSTALLATION. THE CONTRACTOR SHALL NOTIFY THE OWNER, OR DESIGNATED REPRESENTATIVE IF PROPOSED SPECIES AND/OR SITE PLANTING CONDITIONS WARRANT RE-DESIGN CONSIDERATIONS.
- THE CONTRACTOR SHALL DILIGENTLY ATTEMPT TO LOCATE THE SPECIFIED NATIVE PLANT MATERIAL. IF SPECIFIED PLANT MATERIALS CANNOT BE LOCATED, ALTERNATIVES MAY BE CONSIDERED AND APPROVED, IN ADVANCE, BY THE OWNER, OR DESIGNATED REPRESENTATIVE.
- PRIOR TO LANDSCAPE INSTALLATION, THE CONTRACTOR SHALL COORDINATE A SITE MEETING WITH THE OWNER, OR DESIGNATED REPRESENTATIVE TO REVIEW THE PLAN, SITE DRAINAGE CONDITIONS AND TO DETERMINE ANY FIELD ADJUSTMENTS NECESSARY.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK, AND SHALL COORDINATE WITH OTHER CONTRACTORS ON SITE AND MISS UTILITY TO VERIFY UTILITY LOCATIONS. ANY REPAIRS TO EXISTING UNDERGROUND UTILITIES REQUIRED AS A RESULT OF ACTIONS OF THE CONTRACTOR AND/OR HIS ASSIGNS SHALL BE BORNE BY CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY THAT FINAL ROUGH GRADES HAVE BEEN ESTABLISHED AND THAT THE SITE IS READY FOR LANDSCAPE INSTALLATION. THE CONTRACTOR SHALL ENSURE THAT PLANTINGS WILL HAVE ADEQUATE DRAINAGE. THE CONTRACTOR SHALL INSTALL PLANT MATERIAL FACTORING IN ANY "FINAL" GRADING WORK TO BE COMPLETED AFTER LANDSCAPE INSTALLATION.
- THE CONTRACTOR SHALL LAY OUT BEDS AND POSITION PLANTS FOR APPROVAL BY OWNER, OR DESIGNATED REPRESENTATIVE. THE CONTRACTOR SHALL REVIEW ANY SIGNIFICANT FIELD ADJUSTMENTS PRIOR TO INSTALLATION.
  - **NOTE:** PLANTING WITHIN THE ROOT ZONE OF EXISTING TREES REQUIRES ADDITIONAL CARE. HAND DIGGING OF PLANTING HOLES AND ADJUSTMENT OF PLANTING LAYOUT MAY BE NECESSARY.
- THE CONTRACTOR SHALL MAINTAIN A CLEAN JOB SITE AND REMOVE ALL PLANTING AND RELATED DEBRIS DAILY DURING THE COURSE OF IMPLEMENTATION.
- THE OWNER, OR DESIGNATED REPRESENTATIVE SHALL REJECT ANY AND ALL PLANT MATERIAL THAT DOES NOT MEET SPECIFICATIONS, IS DISEASED OR OTHERWISE UNHEALTHY.
- ALL LANDSCAPE INSTALLATION SHALL BE ACCOMPLISHED WITH QUALIFIED PERSONNEL, UTILIZING INDUSTRY STANDARD PRACTICES AND TECHNIQUES.

PLANT MATERIAL:

- ALL PLANT MATERIAL SHALL CONFORM TO THE AMERICAN STANDARD FOR NURSERY STOCK AS APPROVED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE INC. LATEST EDITIONS.
- ALL PLANT MATERIAL SHALL BE NURSERY GROWN WITH SOUND HORTICULTURAL PRACTICES AND UNLESS OTHERWISE APPROVED BY THE OWNER, OR DESIGNATED REPRESENTATIVE, GROWN IN SOIL AND CLIMATE CONDITIONS SIMILAR TO THIS PROJECT SITE.
- ALL MATERIAL SHALL EXHIBIT HEALTHY GROWTH WITH GOOD BRANCHING STRUCTURE, DENSE FOLIAGE AND A FIBROUS, DEVELOPED ROOT SYSTEM.
- ALL MATERIAL SHALL BE FREE OF INSECT INFESTATION AND DISEASE. THE OWNER RESERVES THE RIGHT TO HAVE THE PLANT MATERIAL INSPECTED AND TAGGED AT THE GROWING SITE, AND TO REJECT ANY DEFICIENT MATERIAL AT THE JOB SITE.

PLANT MATERIAL HANDLING:

- ALL PLANT MATERIAL SHALL ARRIVE AT THE JOB SITE IN A HEALTHY CONDITION.
- THE CONTRACTOR SHALL STAGE DELIVERY AND PLANT INSTALLATION TO MINIMIZE STRESS ON PLANT MATERIAL.
- PLANT MATERIAL TO BE STAGED ON OR OFF THE JOB SITE SHALL BE LOCATED TO MAXIMIZE PROTECTION FROM HOT SUN AND DRYING WINDS, AND SHALL BE WATERED TO MAINTAIN A STRESS FREE CONDITION. ON-SITE WATER MAY NOT BE AVAILABLE FOR THE CONTRACTOR TO USE. THE LACK OF AVAILABLE WATER SHALL NOT RELIEVE THE CONTRACTOR OF ADEQUATE MAINTENANCE.

PLANTING SCHEDULE:

- PLANTING SCHEDULES SHALL COINCIDE WITH THE OVERALL PROGRESS OF SITE CONSTRUCTIONS.
- CERTAIN PLANT SPECIES REQUIRE SPECIFIC SEASON INSTALLATION AND SHALL BE COORDINATED APPROPRIATELY.
- PLANTING IS DISCOURAGED IN THE HOT, DRY PERIODS OF SUMMER AND DURING FROZEN GROUND CONDITIONS IN WINTER, BUT MAY BE CONSIDERED YEAR-ROUND WITH MAINTENANCE REQUIREMENTS ADDRESSED ACCORDINGLY.
- THE CONTRACTOR IS RESPONSIBLE FOR PLANT MATERIAL HEALTH AND VIGOR REGARDLESS OF WHEN THE MATERIAL IS INSTALLED.

TREE & SHRUB PLANTINGS:

- ALL TREE/SHRUB PLANTING PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE PLANT ROOT FLARE SHALL LIE AT THE FINISHED GRADE SURROUNDING THE PLANT. SOIL THAT MAY HAVE BEEN PLACED ON TOP OF ROOT BALL OR SETTLED AROUND TRUNK OR ROOT FLARE DURING TRANSPORT SHALL BE REMOVED TO ADEQUATELY EXPOSE ROOT FLARE SO PROPER PLANTING DEPTH CAN BE ESTABLISHED.
- THE ROOT BALL SHALL REST ON UNDISTURBED OR STABILIZED SOIL. THE CONTRACTOR SHALL NOTIFY THE OWNER, OR DESIGNATED REPRESENTATIVE IF THIS PLANTING DEPTH SPECIFICATION CANNOT BE IMPLEMENTED.
- TREE PLANTING PITS SHALL BE EXCAVATED DEPTH EQUAL TO THE HEIGHT OF THE ROOT BALL AND TO A WIDTH EQUALING TWICE THE ROOT BALL DIAMETER.
- EXCAVATED SOILS NOT PREVIOUSLY COMPACTED OR OTHERWISE DEGRADED SHALL BE RE-USED FOR PLANTING PIT BACKFILL. EXCAVATED SOILS UNSUITED FOR BACKFILL SHALL BE AMENDED WITH FRIABLE TOPSOIL TO CREATE A SUITABLE PLANTING SOIL AS APPROVED BY THE OWNER, OR DESIGNATED REPRESENTATIVE. EXCAVATED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH A SUITABLE PLANTING SOIL. NOTE: FOR BEDDING PURPOSES OR UNLESS OTHERWISE SPECIFIED HERON, THE CONTRACTOR SHALL ASSUME EXCAVATED SOILS ARE SUITABLE FOR PLANTING BACKFILL.
- SLOW RELEASE FERTILIZER TAB(S) (20-10-5, 21 GRAM, 2-YEAR) SHALL BE ADDED TO PLANTING HOLES AS PER MANUFACTURER'S SPECIFICATIONS.
- THE SIDES OF CONTAINER GROWN STOCK SHALL BE CUT OR SCARIFIED TO ELIMINATE BOUND ROOTS AND PROMOTE HEALTHY ROOT GROWTH.
- ALL SYNTHETIC MATERIALS FROM AROUND THE TREE TRUNK AND ROOT BALL SHALL BE REMOVED AND NOT EVIDENT WITHIN THE BACKFILL SOIL MIX. STRING, ROPE, SYNTHETIC BURLAP, PLASTIC, STRAPPING, AND OTHER MATERIALS THAT WILL NOT DECOMPOSE IN THE SOIL SHALL BE REMOVED AT THE TIME OF PLANTING
- SOIL GRADES SHALL BE FEATHERED AROUND PLANTINGS TO BLEND WITH SURROUNDING LANDSCAPE OR TURF AREAS. EXCESS EXCAVATED SOIL SHALL BE REMOVED FROM JOB SITE.
- ALL TREES AND SHRUBS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO ENSURE SOIL CONTACT WITH ROOTS.

TREE STAKING/ GUYING:

- TREES SHALL BE STAKED TO PREVENT TOPPLING BY STRONG WIND.
- STAKES SHALL BE INSTALLED ACORDING TO DETAIL PROVIDED ON PLAN. ANOTHER STAKING/GUYING METHOD MAY BE USED WITH APPROVAL OF OWNER'S REPRESENTATIVE.

HERBACEOUS PLANT INSTALLATION:

- ROOT MASSES SHALL BE MOIST, BUT NOT SATURATED, AT THE TIME OF PLANTING.
- PLANT PITS SHALL BE PREPARED USING A DIBBLE, SPADE OR MECHANICAL AUGER BY OPENING A HOLE AT THE PLANTING SITE. FOR PLANTINGS UNDER EXISTING TREES, PLANTING HOLES SHALL BE HAND-DUG AND LOCATIONS ADJUSTED TO ACCOMMODATE EXISTING TREE ROOTS.
- PLANTS SHALL BE PLACED IN PLANTING PITS IN A VERTICAL POSITION.
- SOIL SHALL BE BACKFILLED INTO PLANT PITS, LIGHTLY COMPRESSED TO ELIMINATE AIR POCKETS, AND FIRMED AROUND THE PLANTS.
- ALL PLANTS SHALL BE WATERED DURING PLANTING TO MINIMIZE AIR POCKETS AND TO ENSURE SOIL CONTACT WITH ROOTS.

MULCHING:

- TWO TO THREE INCHES OF SHREDDED HARDWOOD MULCH SHALL BE APPLIED TO ALL NEWLY PLANTED TREES AND SHRUBS.
- TWO TO THREE INCHES OF HARDWOOD MULCH SHALL BE APPLIED TO UPLAND HERBACEOUS PLANTING AREAS AS SHOWN ON THE PLANTING PLAN.
- MULCH SHALL NOT BE APPLIED TO SWALE, FOREBAY, OR WETLAND PLANTING SHELF AREAS.

MAINTENANCE

DURING CONSTRUCTION PERIOD:

- THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL THROUGHOUT JOB COMPLETION AND FINAL ACCEPTANCE. ALL PLANT MATERIAL SHALL BE WATERED, WEEDED, MULCHED, PRUNED AND TREATED FOR INSECT DAMAGE, FUNGUS OR DISEASE TO INSURE HEALTHY GROWING CONDITIONS. WATERING SHALL PROVIDE ADEQUATE MOISTURE TO SUPPORT VIGOROUS GROWTH. DURING TIMES OF NORMAL PRECIPITATION, ALL TREES SHALL RECEIVE 1", OR APPROX. 5-10 GALLONS OF WATER PER WEEK. PLANTS IN HEAVIER SOILS SHALL BE MONITORED TO AVOID OVER-WATERING. GATOR BAGS, WATERING TRAYS, IRRIGATION, HAND WATERING, OR OTHER INDUSTRY STANDARD TECHNIQUES SHALL BE EMPLOYED TO MAINTAIN ADEQUATE MOISTURE SUPPLY TO THE PLANT MATERIAL. THE CONTRACTOR SHALL INSTRUCT THE OWNER REGARDING THE REQUIRED AND PROPER ON-GOING MAINTENANCE OF LANDSCAPE MATERIAL.

DURING WARRANTY PERIOD:

- THE CONTRACTOR SHALL VISIT THE SITE PERIODICALLY TO ADVISE OWNER OF ANY DEFICIENT CONDITIONS AFFECTING PLANT SURVIVABILITY. DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED (SEE WARRANTY BELOW).

LANDSCAPE WARRANTIES

FROM THE 2018 TOWN OF EASTON ZONING ORDINANCE:

A. PRIOR TO ISSUANCE OF AN OCCUPANCY PERMIT, THE APPROVED PRELIMINARY LANDSCAPE PLAN SHALL BE IMPLEMENTED BY THE APPLICANT. AT COMPLETION, THE APPLICANT SHALL REQUEST THAT THE TOWN INSPECT THE COMPLETE LANDSCAPING AND ISSUE THE APPROPRIATE APPROVAL. THE TOWN RECOGNIZES THAT PLANTING SCHEDULES AND FAVORABLE WEATHER/CLIMATIC CONDITIONS DO NOT ALWAYS COINCIDE. THE APPLICANT SHALL MAKE EVERY REASONABLE EFFORT TO COORDINATE BUILDING AND SITE CONSTRUCTION WITH LANDSCAPE IMPROVEMENT INSTALLATION SO THAT ALL PROJECT CONSTRUCTION CAN BE COMPLETE PRIOR TO REQUEST FOR OCCUPANCY PERMITS. UPON DEMONSTRATING THAT SOME OR ALL OF THE REQUIRED LANDSCAPE IMPROVEMENTS SHOULD BE POSTPONED, AND SUBJECT TO THE APPROVAL OF THE TOWN, THE APPLICANT SHALL POST AN IRREVOCABLE FINANCIAL SURETY EQUAL TO THE ESTIMATED INSTALLATION COSTS AS APPROVED BY THE TOWN, GUARANTEEING THE COMPLETE IMPLEMENTATION OF THE LANDSCAPE PLAN WITHIN 6 MONTHS OF OCCUPANCY OR USE OF THE SITE OR SUBDIVISION. AFTER INSTALLATION IS COMPLETE AND INSPECTED AND APPROVED BY THE TOWN, THE APPLICANT SHALL REQUEST IN WRITING TO THE TOWN TO RELEASE ANY UNUSED PORTION OF THE SURETY.

B. THE OWNER/DEVELOPER SHALL MAINTAIN ALL LANDSCAPE IMPROVEMENTS PROVIDING ADEQUATE GROWING CONDITIONS TO INSURE HEALTHY, VIGOROUS PLANT SURVIVAL AND GROWTH. THE TOWN RESERVES THE RIGHT TO PERIODICALLY REVIEW INSTALLED LANDSCAPES AND REPORT ANY SIGNIFICANT DEFICIENCIES TO THE OWNER/DEVELOPER. AT THE END OF TWO GROWING SEASONS, AND/OR AT ANY TIME PRIOR TO, THE TOWN SHALL ASSESS THE LANDSCAPE IMPROVEMENTS AND DIRECT REPLACEMENT OR REVITALIZATION OF ANY DEFICIENT AREAS. THE OWNER SHALL REPAIR OR REPLACE DEFICIENT ITEMS WITHIN 30 CALENDAR DAYS.

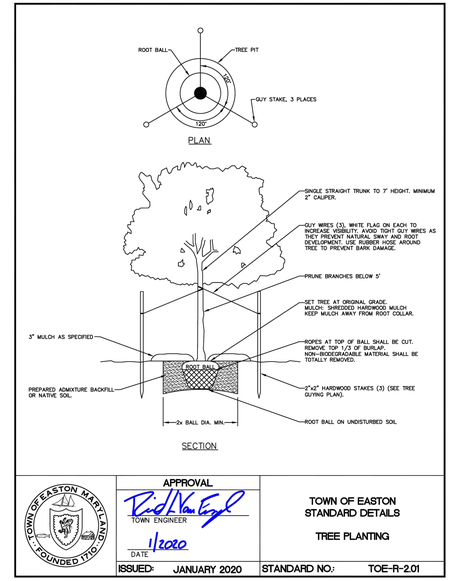
C. FAILURE TO MAINTAIN, REPAIR OR REPLACE THE REQUIRED AND APPROVED LANDSCAPE IMPROVEMENTS SHALL BE CONSIDERED A VIOLATION OF THIS ORDINANCE AND SHALL BE ENFORCED IN ACCORDANCE WITH SECTION 28 – 1308 OF THE TOWN OF EASTON ZONING ORDINANCE.

MAINTENANCE:

DURING CONSTRUCTION PERIOD:
THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL THROUGH JOB COMPLETION AND FINAL ACCEPTANCE. ALL PLANT MATERIAL SHALL BE WATERED, WEEDED, MULCHED, PRUNED AND TREATED FOR INSECT DAMAGE, FUNGUS OR DISEASE TO ENSURE HEALTHY GROWING CONDITIONS. WATERING SHALL PROVIDE ADEQUATE MOISTURE TO SUPPORT VIGOROUS GROWTH. TYPICALLY, ALL TREES SHOULD RECEIVE APPROXIMATELY 1", OR 5-10 GALLONS OF WATER PER WEEK. PLANTS IN HEAVIER SOILS SHALL BE MONITORED TO AVOID OVER-WATERING. GATOR BAGS, WATERING TRAYS, IRRIGATION, HAND WATERING, OR OTHER INDUSTRY STANDARD TECHNIQUES SHALL BE EMPLOYED TO MAINTAIN ADEQUATE MOISTURE SUPPLY TO THE PLANT MATERIAL. INSTRUCT OWNER REGARDING REQUIRED AND PROPER ON-GOING MAINTENANCE OF LANDSCAPE INSTALLATION.

LANDSCAPING NOTES:

1. LANDSCAPE INSTALLER SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. INSTALLER SHALL ENSURE THAT FINAL GRADES HAVE BEEN ESTABLISHED AND THE SITE IS READY FOR LANDSCAPE INSTALLATION.
2. LANDSCAPE INSTALLER SHALL MAINTAIN THE LANDSCAPE IMPROVEMENT AREAS IN A CLEAN CONDITION, REMOVING DEBRIS DAILY AND AT THE COMPLETION OF THE INSTALLATION.
3. INSTALLER SHALL LAYOUT ALL BEDS AND POSITION PLANTS PER THE PLANS. ADJUST AS REQUIRED FOR FIELD CONDITIONS. REPORT SIGNIFICANT ADJUSTMENTS TO THE OWNER FOR APPROVAL PRIOR TO PLANT INSTALLATION. ALL BED AREAS SHALL BE SPRAYED WITH HERBICIDE AS NEEDED TO KILL AND/OR REMOVE ALL WEED OR GRASS VEGETATION.
4. EXCEPT FOR TREE SPADE INSTALLATIONS, ALL TREE PITS SHALL BE EXCAVATED TO A DEPTH SO THAT THE ROOT BALL WILL REST ON SOLID SOIL AT THE PROPER HEIGHT. STREET TREES PLANTING PITS SHALL BE EXCAVATED AND WORKED IN A RECTANGULAR FORM WITH THE SMALL DIMENSION TWICE THE DIAMETER OF THE ROOT BALL AND THE LARGE DIMENSION AT LEAST THREE TIMES THE DIAMETER OF THE ROOT BALL. OPEN AREA TREE PITS SHALL BE EXCAVATED TO A MINIMUM DIMENSION OF TWICE THE ROOTBALL WIDTH. TREES PLANTED ON SLOPES OR SIDE SWALES SHALL BE INSTALLED AT A HEIGHT RELATING TO THE UPHILL SIDE OF THE PIT, AND MOUNDED WITH SOIL AROUND THE LOWER SIDE. ALL SIDES AND BOTTOM OF TREE PLANTING PITS SHALL BE SCARIFIED OR LOOSENED TO PERMIT ROOT GROWTH. EXCAVATED SOILS THAT HAVE BEEN PREVIOUSLY UNDISTURBED SHALL BE LOOSENED AND UTILIZED FOR BACKFILL. COMPACTED SOILS THAT CANNOT BE RESTORED TO A REASONABLE PLANTING SOIL SHALL BE REMOVED AND REPLACED WITH FRIABLE NATIVE SOILS FROM THE REGION.
5. ALL SHRUB PLANTING PITS, LANDSCAPE BEDS AND PLANTING MASS AREAS SHALL BE WORKED TOWN OF EASTON 2018 EDITION ZONING ORDINANCE ARTICLE X 10-62 TO A DEPTH OF 12" (OR RAISED SLIGHTLY TO ACHIEVE A 12" FRIABLE SOIL DEPTH). SHRUB PLANTING AREAS SHALL BE WORKED TO 12" MINIMUM OUTSIDE THE ROOT BALL.
6. ALL LANDSCAPE BEDS SHALL BE "V" EDGED AND MULCHED WITH MINIMUM 3" DOUBLE SHREDDED HARDWOOD BARK MULCH, OR APPROVED EQUAL. MULCH TO FENCE LINES OR BACK OF CURBS WHERE APPROPRIATE TO ELIMINATE NARROW GRASS AREAS. AVOID MULCH PILED AGAINST TREE TRUNKS, ETC.
7. ALL TREES TO BE STAKED AND GUYED WITH HARDWOOD STAKES, MINIMUM OF TWO (2) - 5' LONG, OR OTHER APPROVED GUYING SYSTEM. STAKES SHALL BE DRIVEN INTO STABLE SOILS. PROVIDE WIRE GUYS WITH RUBBER PROTECTANT OR OTHER APPROVED INDUSTRY PRACTICE.
8. LANDSCAPE INSTALLER SHALL MAINTAIN ALL PLANT MATERIALS THROUGH THE COMPLETION OF THE LANDSCAPE INSTALLATION, AND THEN AS REQUIRED BY THE OWNER.
9. AT THE COMPLETION OF THE LANDSCAPE INSTALLATION (OR BY PHASED COMPLETION IF PROVIDED FOR ON THE PLAN), THE OWNER, OR HIS DESIGNATED REPRESENTATIVE SHALL REQUEST AN INSPECTION BY TOWN OF EASTON.



TOWN OF EASTON MARYLAND FOUNDED 1710

APPROVAL

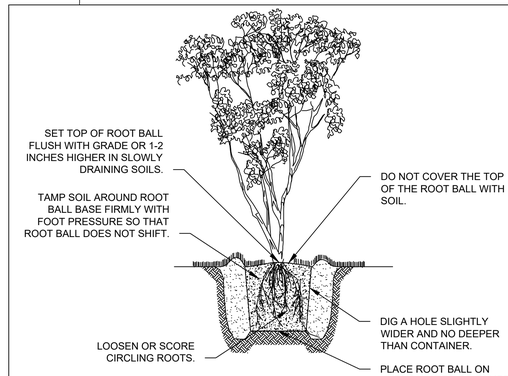
TOWN ENGINEER

DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

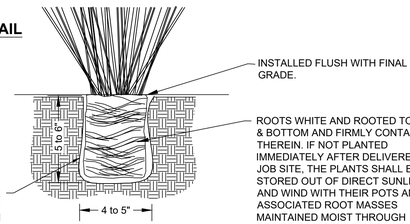
TREE PLANTING

ISSUED: JANUARY 2020 STANDARD NO.: TOE-R-2.01



CONTAINER TREE & SHRUB PLANTING DETAIL

HERBACEOUS PLANTING DETAIL



LANDSCAPING NOTES AND DETAILS

FOR

THE LAURA HOUSE

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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Phone: 410 770 8081 | Fax: 410 770 3887

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL TWO WORK DAYS — 811

DATE:	3/29/2024
SCALE:	N/A
DRAWN BY:	AFK & WCS
DESIGNED BY:	AFK & WCS
APPROVED BY:	BBF

SHEET NO.: C-605

FOR REVIEW



1 PROPOSED NORTH ELEVATION

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



2 PROPOSED EAST ELEVATION

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

NORTH & EAST EXTERIOR ELEVATIONS

CHESAPEAKE COMMUNITY LLC.
THE LAURA HOUSE

address????

EASTON , MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY LLC.

RAUCH inc.
Engineering | Survey | Architecture | Environmental
office: 410.770.9081 | fax: 410.770.3667
email: design@rauchinc.com | web: www.rauchinc.com
Maryland Office: 108 N. Washington St. Easton, MD 21601

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LICENSE NUMBER: 22221
EXPIRATION DATE: 07/18/2024

REVISIONS

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DESIGNED BY: VR

APPROVED BY:

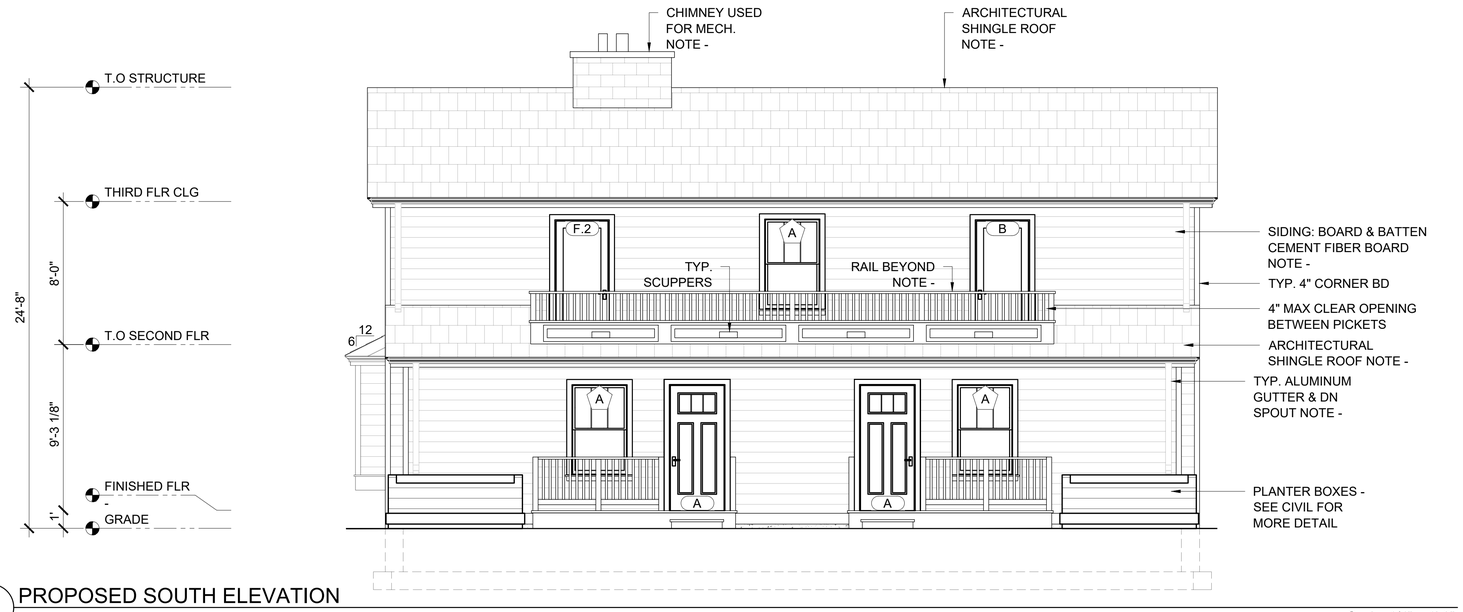
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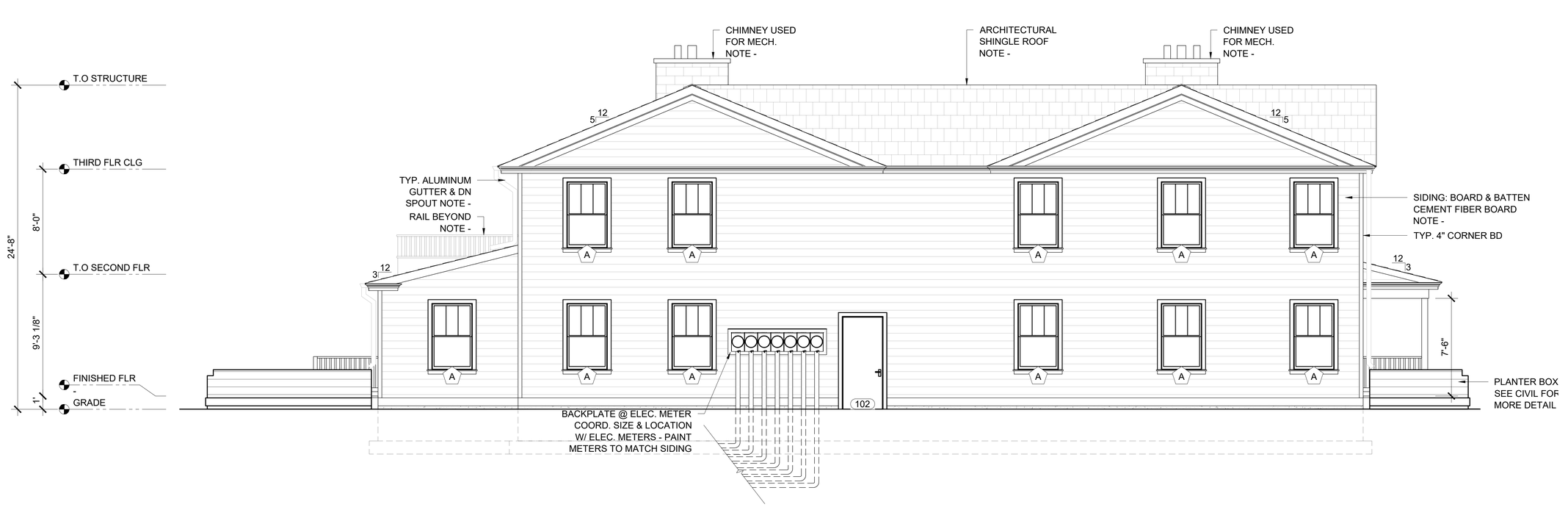
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Z:\Chesapeake Neighbors\August St\Architecture\Drawings\CAD Drawings



1 PROPOSED SOUTH ELEVATION

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



2 PROPOSED WEST ELEVATION

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

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SOUTH & WEST EXTERIOR ELEVATIONS

CHESAPEAKE COMMUNITY LLC.
THE LAURA HOUSE

address ????
EASTON , MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY LLC.

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Engineering | Survey | Architecture | Environmental
office: 410.770.9081 | fax: 410.770.3667
email: design@rauchinc.com | web: www.rauchinc.com
Maryland Office: 108 N. Washington St. Easton, MD 21601

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REVISIONS

REV. #	DATE	DESCRIPTION

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DESIGNED BY: VR
APPROVED BY:

SHEET NO.:
A-202

Z:\Chesapeake Neighbors\August St\Architecture\Drawings\CAD Drawings

THE LAURA HOUSE . August Street . Easton, Maryland

Schematic Design
March 25, 2024

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THE LAURA HOUSE . August Street . Easton, Maryland

Schematic Design
March 25, 2024

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THE LAURA HOUSE . August Street . Easton, Maryland

Schematic Design
March 25, 2024

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APPENDIX B-1

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. ☑
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 ☑

This checklist completed by Chris Schoenster Date 3/29/24

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	P
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.	P

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. 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 P

Proposed streets, rights of way, and/or sidewalks with modifications to reduce impervious area P

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 P

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 ≥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.) P

A narrative that supports the concept and describes how the design will achieve:

Natural resource protection and enhancement N/A
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. N/A

This checklist completed by Chris Schoenster Date 3/29/24

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Site Development Stormwater Management Analysis

FOR

"The Laura House"
521 August Street
Easton, Md 21601

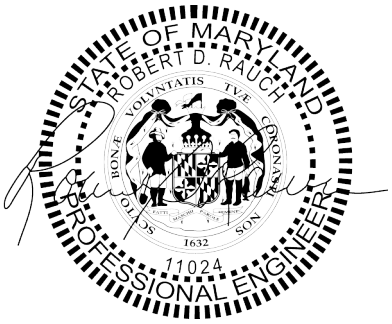
PREPARED FOR:

Chesapeake Community Development
999 Corporate Blvd,
Linthicum Heights, MD 21090

PREPARED BY:

RAUCH, INC
106 N. HARRISON STREET
EASTON, MD 21601

March 21, 2024



PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENCED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

3/21/2024

ROBERT D. RAUCH, LICENCE NO. 11024 DATE
EXPIRATION DATE 7/24/2024

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SECTION 1……...Stormwater Management Narrative

SECTION 2……Existing & Proposed Drainage Area Plans

SECTION 3……ESD Water Quality Calculations

SECTION 4……Pre/Post-Development Quantity Calculations

SECTION 5……...……..Soil Report

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SECTION 1 – STORMWATER MANAGEMENT NARRATIVE

SITE DEVELOPMENT STORMWATER MANAGEMENT NARRATIVE

The proposed Laura House development at 521 August Street is located on an undeveloped 0.19-acre parcel of land with 5 trees and 2 shrubs. The site is outside of the Critical Area, does not qualify for Forest Conservation, is outside of the floodplain, and within the Tanyard Branch watershed. All the existing vegetation will be cleared for this project. The entire limit of disturbance is 10,639.4 sq-ft. The dominant Hydrologic Soil Type is Type D.

Within the LOD development, the plan will add 0.115 acres (5,032 sq-ft) of impervious surfaces, or a 47% increase. There will be permeable pavers for both the parallel parking spaces along Park St and 90-degree parking along Powell Alley using a permeable paver product called PaveDrain. The PaveDrain pavers were selected as ideal for this site primarily because of their patented internal arc chamber that can store more water volume than the average paver, which increases the probability of water exfiltrating through the soil and not overflowing into nearby stormwater infrastructure; this is important given the challenging stormwater requirements within the Tanyard Branch. All soil located within the areas of permeable pavement will be excavated to the groundwater elevation of 36.0' and replaced with amended soil to improve infiltration. Based on the conditions of the existing parcel, the proposed development will be categorized as "New Development". The spreadsheets found in Section 2 of this report calculate the required ESD volume to be 1,073 CF of ESD storage.

Water quality will be met through four Town of Easton stormwater planter boxes and permeable pavers. The planters collect runoff coming from the proposed building and will discharge to the grate inlet in Powell Alley. The permeable paver parking lots have stone reservoirs that exfiltrates into the ground and directly into the discharge pipe out to Powell Alley. All distribution pipes collect the water around the site and discharge at the location of an existing inlet in Powell Alley, referred to as Study Point #1. The inlet that we are discharging into will be replaced with a traffic bearing yard inlet and all existing pipes will be re-connected to it. The proposed planters and permeable pavers slightly overtreat 1,269 CF of water, compared to the required and calculated 1,057 CF.

Water quantity control is required for a 10-year storm event to be less than a 2-year storm event within the Tanyard Branch watershed for the Town of Easton. All on-site water will be collected within our facilities and most off-site Town drainage will bypass our facilities as they currently do. The table for all study points is shown below for existing and proposed. Water quantity control is accomplished primarily through the combination of planter boxes and PaveDrain permeable pavers.

Study Point #1		
	2-YR (CFS)	**10-YR (CFS)**
Existing	**<u>0.48</u>**	0.89
Proposed	0.27	**<u>0.43</u>**

Study Point #2		
	2-YR (CFS)	**10-YR (CFS)**
Existing	**<u>0.27</u>**	0.43
Proposed	0.10	**<u>0.18</u>**

SECTION 2 – EXISTING & PROPOSED DRAINAGE AREA MAPS

STUDY POINT #1

54' OF SHALLOW CONCENTRATED FLOW
@ 1.4% SLOPE

POWELL ALLEY

100' OF SHEET FLOW
@ 0.54% SLOPE

SHALLOW CONCENTRATED FLOW
93' @ 1.0%

PARK STREET

100' OF SHEET FLOW
@ 1.6% SLOPE

STUDY POINT #2

AUGUST STREET

109' OF SHALLOW CONCENTRATED FLOW
@ 0.40% SLOPE

EXISTING CATCHMENT FEATURES

1. AT-GRADE STEEL INLET WITH BRICK CULVERT BOX
2. DRAINAGE AREA #1 = 8,329 SF
3. DRAINAGE AREA #2 = 2,781 SF

NAD 83/91

N

0 10' 20'

EXISTING DRAINAGE PLAN

OF THE LANDS OF

CHESAPEAKE COMMUNITY DEVELOPMENT

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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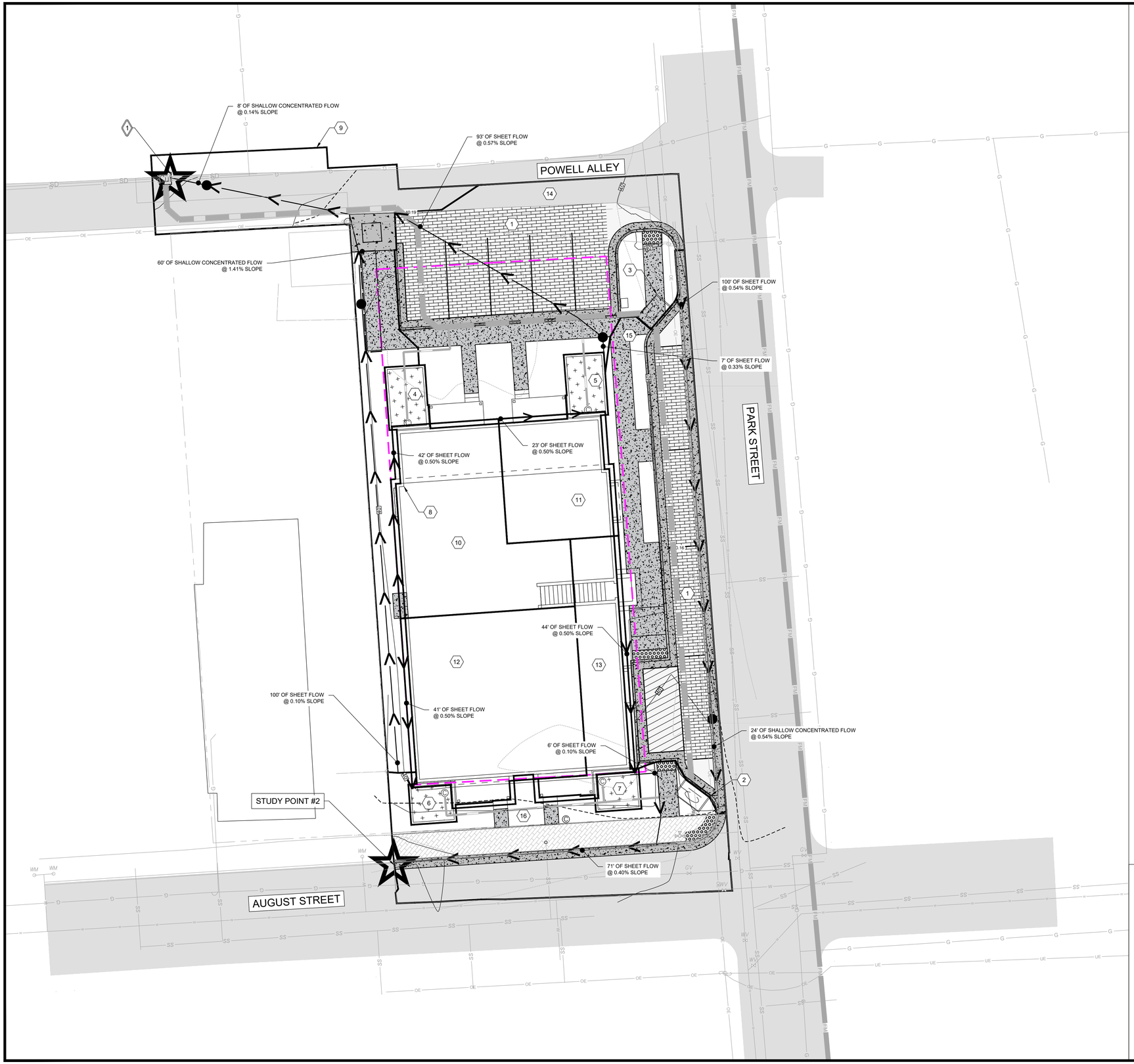
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SCALE:	1" = 10'
DRAWN BY:	WCS
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: EX-DA MAP

FOR REVIEW



STORMWATER NOTES

1. PAVEDRAIN PERMEABLE PAVERS
2. CURB INLET #1
3. CURB INLET #2
4. STORMWATER PLANTER BOX #1
5. STORMWATER PLANTER BOX #2
6. STORMWATER PLANTER BOX #3
7. STORMWATER PLANTER BOX #4
8. BUILDING
9. DRAINAGE AREA 1 = 1,689 SF
10. DRAINAGE AREA 2 = 1,266 SF
11. DRAINAGE AREA 3 = 733 SF
12. DRAINAGE AREA 4 = 1,492 SF
13. DRAINAGE AREA 5 = 671 SF
14. DRAINAGE AREA 6 = 2,326 SF
15. DRAINAGE AREA 7 = 1,930 SF
16. DRAINAGE AREA 8 = 1,544 SF

EXISTING CATCHMENT FEATURES

1. AT-GRADE STEEL INLET WITH BRICK CULVERT BOX TO BE REPLACED WITH PROPOSED TRAFFIC BEARING YARD INLET

NAD 83/91

N

0 10' 20'

PROPOSED DRAINAGE PLAN

OF THE LANDS OF

CHESAPEAKE COMMUNITY DEVELOPMENT

TAX MAP: 0103, GRID: 00EA, PARCEL: 01028

ELECTION DISTRICT 01, TALBOT COUNTY, MARYLAND

PREPARED FOR CHESAPEAKE COMMUNITY DEVELOPMENT

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REV. #	DATE	DESCRIPTION
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DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: PR-DA MAP

FOR REVIEW

SECTION 3 – ESD WATER QUALITY CALCULATIONS

LIMITS OF DISTURBANCE

EXISTING LOD COVERAGE

COVERAGE DESCRIPTION	COVERAGE CATEGORY	COVERAGE AREA SQ-FT	SOIL TYPE
ROADWAY +CONCRETE	IMPERVIOUS	1445.59	C
TURF LAWN	PERVIOUS	9326	C

TOTAL SITE AREA	10639	SQ-FT
EXISTING IMPERVIOUS AREA	1445.59	SQ-FT
PERCENT IMPERVIOUS	14%	

PROPOSED LOD COVERAGE

COVERAGE DESCRIPTION	COVERAGE CATEGORY	COVERAGE AREA SQ-FT		
SIDEWALK	IMPERVIOUS	1196	concrete, brick sidewalks and	4
PERVIOUS PARKING	PERVIOUS	1527	Proposed Parking	
ROOFS	IMPERVIOUS	3443	1	4
PERMEABLE PAVEMENT	PERVIOUS	230.00	Porch patios 4x	
PAVEMENT	IMPERVIOUS	904.45	Concrete curb	
SIDEWALK	IMPERVIOUS		Auxillary sidewalk around side	75.7
ROADWAY	IMPERVIOUS	792.52	Existing Road	
PAVEMENT	IMPERVIOUS	76	Planter Box Wall	
GRAVEL	IMPERVIOUS	42.44		
PAVEMENT	IMPERVIOUS	22	Porch steps	

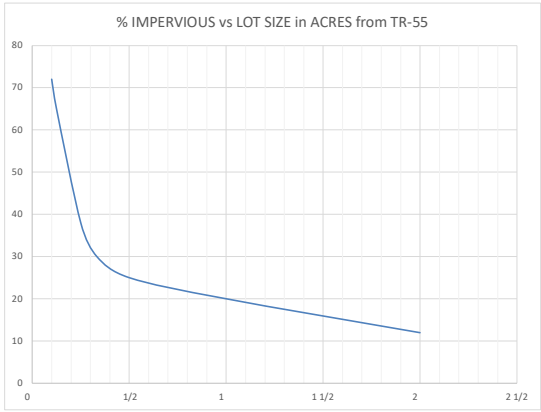
TOTAL SITE AREA	10639	SQ-FT
PROPOSED IMPERVIOUS AREA	6477	SQ-FT
PERCENT IMPERVIOUS	61%	

PERCENT HSG A	0%		
PERCENT HSG B	0%		234
PERCENT HSG C	101%		1527
PERCENT HSG D	0%		
		0.033	
		0.148687787	

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FROM TR-55		
	LOT SIZE	% IMPERVIOUS
	2.00	12
	1.00	20
1/2	0.50	25
1/3	0.33	30
1/4	0.25	38
1/8	0.13	65
	0.10	72

0.166667



PERVIOUS	A	GRAVEL	IMPERVIOUS
IMPERVIOUS	B	ROOFS	IMPERVIOUS
	C	OUS PARKING	IMPERVIOUS
	D	DRIVEWAY	IMPERVIOUS
		ROADWAY	IMPERVIOUS
		WATER	IMPERVIOUS
		PAVEMENT	IMPERVIOUS
		SIDEWALK	IMPERVIOUS
		LANDSCAPING	PERVIOUS
		PERVIOUS PARKING	PERVIOUS
		TREES/VEGETATION	PERVIOUS
		TURF LAWN	PERVIOUS
		CONSERVATION AREA	PERVIOUS
		PERMEABLE PAVEMENT	PERVIOUS

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 1/6/2019 Rauch Inc.

Project Name:	
Date:	

1196 1 4

data input cells

calculation cells

1 4

Step 1: Complete ESD Implementation Checklist

Check all of the Following ESD Practices That Were Implemented at Site	*Yes - No - N/A*
Environmental Mapping Was Conducted at Site Prior to Layout	*YES*
Natural Areas Were Conserved (e.g., forests, wetlands, steep slopes, floodplains)	*YES*
Stream, Wetland and Shoreline Buffers Were Reserved	*YES*
Disturbance of Permeable Soils Was Minimized	*YES*
Natural Flow Paths Were Maintained Across the Site	*YES*
Building Layout Was Fingerprinted to Reduce Clearing and Grading at Site	*YES*
Site Grading Promoted Sheetflow From Impervious Areas to Pervious Ones	*YES*
Site Design Was Evaluated to Reduce Creation of Needless Impervious Cover	*YES*
Site Design Was Evaluated to Maximize Disconnection of Impervious Cover	*YES*
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment	*YES*
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan	*YES*
Tree PlantingWas Used at the Site to Convert Turf Areas into Forest	*YES*

Step 2: Calculate Site Imperviousness and Water Quality Volume, WQv (for redevelopment)

defined as A single tract, lot, parcel of land or combination of tracts, lots parcels of land that are in one ownership or are contiguous and in diverse ownership where develoment is to be perfomed as part of a unit, subdivision or project. See page 5.117 in the design handbook. This means that a project may be classed as redevelopment even if the LOD is less than 40% impervious

Total SITE Area, A (acres or sq-ft)	*10812.4*	LOD
Existing SITE Impervious Area (acres or sq-ft)	*1445.59*	
SITE percent impervious	13%	
Development Category (for ESD)	**New Development**	

LOD Area, A (acres)	0.24
Existing LOD Impervious Surface Area (acres)	0.03
Proposed LOD Impervious Surface Area (acres)	0.15
Rainfall Depth, P (in)	1.0

Existing LOD Imperviousness, I_{pre}	14%
Proposed LOD Imperviousness, I_{post}	61%

Water Quality Calculation for Redevelopment Only

Required Treatment Area (acres)	0.000
Runoff Coefficient, Rv	0.95
Water Quality Volume, WQv (cf)	**0**

Step 3: Calculate Phosphorous Removal Requirement, RR for Critical Area Sites

Development Category (for 10%)	**New Development**

New Development

Average Annual Predevelopment Load, Lpre (lbs P / yr)		0.12

Redevelopment:

Predevelopment Runoff Coefficient, Rv_{pre}	0.17
Phosphorous Mean Concentration, C (mg/L)	0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	0.10
Post-Development Runoff Coefficient, Rv_{post}	0.60
Average Annual Post-Development Load, L_{post} (lbs P / yr)	0.36
Removal Requirement, RR (lbs P / yr)	**0.25**

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E

% Soil Type A	0%	RCN Soil Type A	74.53
% Soil Type B	0%	RCN Soil Type B	83.35
% Soil Type C	101%	RCN Soil Type C	88.35
% Soil Type D	0%	RCN Soil Type D	91.18

Target Pre-Developed Condition, RCN_{woods}	70.87238	Post-Developed Condition, RCN	89.45

Soil Type A ESD Rainfall Target, P_E (in)	0.00
Soil Type B ESD Rainfall Target, P_E (in)	0.00
Soil Type C ESD Rainfall Target, P_E (in)	2.00
Soil Type D ESD Rainfall Target, P_E (in)	0.00
1yr	
Maximum P_E (in)	2.7

Runnoff depths for H and H analysis		
2yr	10yr	100yr
3.4	*5.3*	*7.6*

Site ESD Rainfall Target, P_E (in)	2.02
ESD Runoff Depth, Q_E (in)	1.21
ESD Runoff Volume, ESDv (cf)	**1,073**
Total Treatment Volume (cf)	**1,073**

Step 5: Select Nonstructural Practices to Treat the ESD Rainfall Target

Nonstructural Practices	P_E Credit Description	Contributing Drainage Area (sf)	Direct WQv or ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	Average P_E Credit (in)	WQV or ESDv credit (cf)	Runoff Volume Remaining (cf)	*Critical Area Credits* Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Disconnection of Rooftop Runoff 1	Up to 1 inch credit provided based upon disconnection flow length.	0	0	N/A	#DIV/0!	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Disconnection of Rooftop Runoff 2	Up to 1 inch credit provided based upon disconnection flow length.	0	0	N/A	#DIV/0!	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Disconnection of Non-Rooftop Runoff 1	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	N/A	#DIV/0!	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Disconnection of Non-Rooftop Runoff 2	Up to 1 inch credit provided based upon disconnection and contributing flow lengths.	0	0	N/A	#DIV/0!	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Sheetflow to Conservation Areas 1	Up to 1 inch credit provided based upon conservation area width.	0	0	0	#DIV/0!	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Sheetflow to Conservation Areas 2	Up to 1 inch credit provided based upon conservation area width.	0	0	0	#DIV/0!	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00

Step 6: Select Micro-Scale Practices to Treat the ESD Rainfall Target

Micro-Scale Practices	P_E Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Green Roof (Level 1)	ESDv credit is based on roof thickness	0	0	N/A	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Green Roof (Level 2)	ESDv credit is based on roof thickness	0	0	N/A	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Pemeable Pavement (A Soils)	ESDv credit is based on subbase thickness	3,486	745	N/A	718	27	80%	97%	0.20	0.19	0.01
Pemeable Pavement (B Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0	80%	#DIV/0!	0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0	40%	#DIV/0!	0.00	0.00	0.00
Rainwater Harvesting	ESDv credit is based on design storage volume and annual use	0	0	0	0	0	45%	#DIV/0!	0.00	0.00	0.00
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Infiltration berms	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Rain Gardens 1	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Rain Gardens 2	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Micro-Bioretention 1	ESDv credit is based on design storage volume	3,770	806	806	551	255	48%	57%	0.20	0.12	0.09
Micro-Bioretention 2	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Landscape Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Grass Swales 1	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Grass Swales 2	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Bio-swales 1	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Bio-swales 2	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00
Wet Swales	ESDv credit is based on design storage volume	0	0	0	0	0	#DIV/0!	#DIV/0!	0.00	0.00	0.00

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary

Drainage Area Treated (sf)	7,256

WQv or ESDv Treated (cf) using ESD practices	1,269
P_E achieved (inches)	2.39
Entire ESDv Treated Through ESD Practices?	**YES**
ESDv Remaining? (cf)	**0**
If ESDV is not fully treated, is ESD to MEP achieved?	**NO**
Redevelopment WQv Requirements Met Through ESD Practices?	**N/A**
WQv Remaining? (cf)	**0**
New Development WQv Requirements Met Through ESD Practices?	**YES**
WQv Remaining? (cf)	**0**

Total Load Reduction (lbs P / year)	0.31
Total Load Reduction Remaining (lbs P / yr)	**0.00**

New Development Water Quality Volume Requirements

Required Treatment Area (acres)	0.24
Runoff Coefficient, Rv	0.60
Water Quality Volume, WQv (cf)	**530**

Step 8: Determine Reduced RCN and Volume Management Requirements Based Upon P_E Achieved

Reduced RCN for Type A Soils	N/A
Reduced RCN for Type B Soils	N/A
Reduced RCN for Type C Soils	N/A
Reduced RCN for Type D Soils	N/A
Composite Reduced RCN CN* 1 yr	**N/A**
Q_E (in) for Reduced RCN	N/A
V (ft^3) for Reduced RCN	N/A
Volume Management Required (cf)	**0**
Volume Required for structural practices (cf)	**0**

Target Reduced RCN $_{woods}$ 1 yr	70.87
Q_E (in) for pre developed RCN	0.59
V (ft^3) for pre developed RCN	522

	Composite reduced runoff curve number for H and H analysis (TR-55)		
	S	Ia	Pe achived x Rv
	1.18	0.24	1.43
Return period	2 yr	10 yr	100 yr
Qr	2.31	4.11	6.35
Qr-(Pe achieved x Rv)	0.87	2.68	4.92
CN*	**68.60**	**74.80**	**77.07**

Step 9: Select Structural Practices to Meet Volume Management Requirements

Critical Area Credits

Structural Practices	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)	Phosphorous Removal Efficiency	Adjusted Phosphorus Removal Efficiency	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Stormwater Ponds (Level 1)	0	0%	0	0	0	50%	0%	0.00	0.00	0.00
Stormwater Ponds (Level 2)	0	0%	0	0	0	75%	0%	0.00	0.00	0.00
Stormwater Wetlands (Level 1)	0	0%	0	0	0	50%	0%	0.00	0.00	0.00
Stormwater Wetlands (Level 2)	0	0%	0	0	0	75%	0%	0.00	0.00	0.00
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0	60%	0%	0.00	0.00	0.00
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0	65%	0%	0.00	0.00	0.00
Stormwater Infiltration (Level 1)	0	0%	0	0	0	60%	0%	0.00	0.00	0.00
Stormwater Infiltration (Level 2)	0	0%	0	0	0	90%	0%	0.00	0.00	0.00

Total structural CPv or WQv provided	0
WQv Requirement Met through structural practices?	**YES**
WQv Remaining (cf)	**0**
CPv Requirement Met through structural practices?	**YES**
CPv Remaining (cf)	**0**

Total Load Reduction (lbs P / year)	0.31
Total Load Reduction Remaining (lbs P / yr)	**0.00**

Calculation Summary	0.5 acre site .25 acres to .38 acres
Critical Area 10% Calculations	50% to 75%
Removal Requirement, RR (lbs P / yr)	**0.25**
after non-structural and micro-scale BMPs (Steps 5 and 6)	
Total Load Reduction (lbs P / year)	0.31
Total Load Reduction Remaining (lbs P / yr)	**0.00**
after structural practices (Step 9)	
Total Load Reduction (lbs P / year)	0.31
Total Load Reduction Remaining (lbs P / yr)	**0.00**

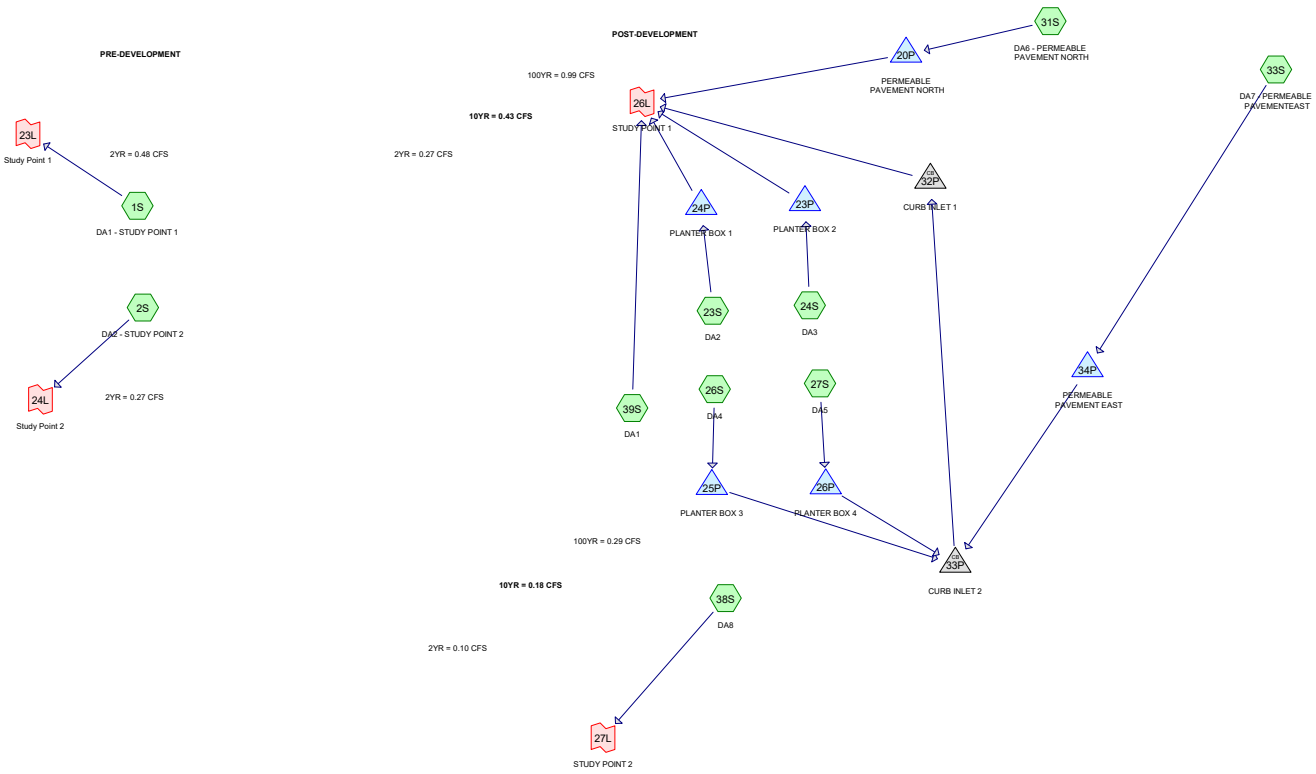
MDE's ESD to the MEP Calculations

ESD Runoff Volume, ESDv (cf)	1073.00
Total Treatment Volume (cf)	1073.00
WQv or ESDv Treated (cf) using ESD practices	1268.69
PE achieved (inches)	2.39
Entire ESDv Treated Through ESD Practices?	YES
ESDv Remaining? (cf)	0.00
If ESDV is not fully treated, is ESD to MEP achieved?	NO
Redevelopment WQv Requirements Met Through ESD Practices?	N/A
WQv Remaining? (cf)	0.00
New Development WQv Requirements Met Through ESD Practices?	YES
WQv Remaining? (cf)	0.00

Micro-Scale Practices	Contributing Drainage Area (sf)	% Impervious Cover ---------- RV	To fully treat sub area ------ PE required ------- WQV required	Max available WQv or ESDv from CDA (cf)	Area of upstream catchment (sf)	WQv or ESDv from Up-Gradient Practices (cf)	Total catchment area ------ Total ESDv to practice	Practice Specific Parameter(s)				Bed area % of direct catchement area	WQV or ESDv provided (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice and Row	SOIL TYPE	Baseline Phosphorous Removal Efficiency	Adjusted Removal Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)	Watershed-inches treated (PE Provided)	Annual Rainfall Treated (%)
		100%	2.23				1,153	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
PLANTER BOX 1	1,153	0.95	203	246	0	0	246	92	1,196	0.5	2.5	8.0%	246	0		C/D	50%	65.52%	0.06	0.04	0.02	2.70	108.20%
		100%	2.23				620	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
PLANTER BOX 2	620	0.95	109	133	0	0	133	92	92	0.5	2.5	14.8%	133	0		C/D	50%	65.52%	0.03	0.02	0.01	2.70	108.20%
		100%	2.23				1,409	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
PLANTER BOX 3	1,409	0.95	248	301	0	0	301	66	66	0.5	2	4.7%	86	215		C/D	50%	45.90%	0.08	0.03	0.04	0.77	75.81%
		100%	2.23				588	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
PLANTER BOX 4	588	0.95	104	126	0	0	126	66	66	0.5	2	11.2%	86	40		C/D	50%	59.55%	0.03	0.02	0.01	1.84	98.35%
		100%	223%				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
PLANTER BOX 5		0.95	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
		0%	1.01246264				0	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1		0.05	0	0	0	0	0					#DIV/0!	0	0				0.00%	0.00	0.00	0.00	0.00	0.00%
Total	3,770			806		0							551	255			48%	57.26%	0.20	0.12	0.09	1.84	98.37%

Micro-Scale Practices	Contributing Drainage Area (sf)	% Impervious Cover ---------- RV	To fully treat sub area ------ PE required ------- WQV required	Max available WQv or ESDv from CDA (cf)	Practice Specific Parameter(s)	WQV or ESDv provided (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice and Row		Baseline Phosphorous Removal Efficiency	Adjusted Removal Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)	Watershed-inches treated (PE Provided)	Annual Rainfall Treated (%)
Pemeable Pavement (A Soils)	1,842	100% 0.95	2.23 325	394	Subbase Thickness (in) 12	379	14		#	80%	100.00%	0.10	0.10	0.00	2.60	107.24%
Pemeable Pavement (A Soils)	1,644	100% 0.95	2.23 290	351	Subbase Thickness (in) 12	339	13			80%	100.00%	0.09	0.09	0.00	2.60	107.24%
Pemeable Pavement (A Soils)		100% 0.95	2.23 0	0	Subbase Thickness (in) 12	0	0			80%	0.00%	0.00	0.00	0.00	0.00	0.00%
Pemeable Pavement (A Soils)		100% 0.95	2.23 0	0	Subbase Thickness (in) 12	0	0			80%	0.00%	0.00	0.00	0.00	0.00	0.00%
Pemeable Pavement (A Soils)		100% 0.95	2.23 0	0	Subbase Thickness (in)	0	0			80%	0.00%	0.00	0.00	0.00	0.00	0.00%
Pemeable Pavement (A Soils)		100% 0.95	2.2274178 0	0	Subbase Thickness (in)	0	0			80%	0.00%	0.00	0.00	0.00	0.00	0.00%
Total	3,486			745		718	27			80%	96.97%	0.20	0.19	0.01	2.60	107.24%

SECTION 4 – PRE/POST-DEVELOPMENT QUANTITY CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for CN_August st_Laura House_WCS_CURRENT
Prepared by {enter your company name here}, Printed 3/28/2024
HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.040	39	>75% Grass cover, Good, HSG A (31S, 33S, 38S, 39S)
0.007	39	Pasture/grassland/range, Good, HSG A (23S, 24S, 26S, 27S)
0.074	98	Paved parking, HSG D (1S, 2S, 31S)
0.087	98	Roofs, HSG D (23S, 24S, 26S, 27S)
0.112	98	Unconnected pavement, HSG D (23S, 24S, 26S, 27S, 31S, 33S, 38S, 39S)
0.211	86	Woods/grass comb., Poor, HSG D (1S, 2S)
0.531	**88**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.047	HSG A	23S, 24S, 26S, 27S, 31S, 33S, 38S, 39S
0.000	HSG B	
0.000	HSG C	
0.484	HSG D	1S, 2S, 23S, 24S, 26S, 27S, 31S, 33S, 38S, 39S
0.000	Other	
0.531		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.040	0.000	0.000	0.000	0.000	0.040	>75% Grass cover, Good	31S, 33S, 38S, 39S
0.007	0.000	0.000	0.000	0.000	0.007	Pasture/grassland/range, Good	23S, 24S, 26S, 27S
0.000	0.000	0.000	0.074	0.000	0.074	Paved parking	1S, 2S, 31S
0.000	0.000	0.000	0.087	0.000	0.087	Roofs	23S, 24S, 26S, 27S
0.000	0.000	0.000	0.112	0.000	0.112	Unconnected pavement	23S, 24S, 26S, 27S, 31S, 33S, 38S, 39S

Ground Covers (all nodes) (continued)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.211	0.000	0.211	Woods/grass comb., Poor	1S, 2S
0.047	**0.000**	**0.000**	**0.484**	**0.000**	**0.531**	**TOTAL AREA**	

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA1 - STUDY POINT 1 Runoff Area=8,470 sf 7.58% Impervious Runoff Depth=2.09"
Flow Length=197' Tc=8.6 min CN=87 Runoff=0.48 cfs 0.034 af

Subcatchment 2S: DA2 - STUDY POINT 2 Runoff Area=2,902 sf 52.55% Impervious Runoff Depth=2.54"
Flow Length=209' Tc=3.4 min CN=92 Runoff=0.27 cfs 0.014 af

Subcatchment 23S: DA2 Runoff Area=1,266 sf 92.73% Impervious Runoff Depth=2.74"
Flow Length=42' Slope=0.0050 '/' Tc=1.0 min CN=94 Runoff=0.14 cfs 0.007 af

Subcatchment 24S: DA3 Runoff Area=733 sf 87.45% Impervious Runoff Depth=2.45"
Flow Length=23' Slope=0.0050 '/' Tc=0.6 min CN=91 Runoff=0.08 cfs 0.003 af

Subcatchment 26S: DA4 Runoff Area=1,492 sf 95.58% Impervious Runoff Depth=2.84"
Flow Length=41' Slope=0.0050 '/' Tc=1.0 min CN=95 Runoff=0.17 cfs 0.008 af

Subcatchment 27S: DA5 Runoff Area=671 sf 90.16% Impervious Runoff Depth=2.54"
Flow Length=44' Slope=0.0050 '/' Tc=1.1 min CN=92 Runoff=0.07 cfs 0.003 af

Subcatchment 31S: DA6 - PERMEABLE Runoff Area=2,326 sf 79.19% Impervious Runoff Depth=2.01"
Flow Length=108' Tc=4.3 min CN=86 Runoff=0.17 cfs 0.009 af

Subcatchment 33S: DA7 - PERMEABLE Runoff Area=1,930 sf 85.18% Impervious Runoff Depth=2.26"
Flow Length=124' Slope=0.0054 '/' Tc=2.3 min CN=89 Runoff=0.17 cfs 0.008 af

Subcatchment 38S: DA8 Runoff Area=1,568 sf 76.98% Impervious Runoff Depth=1.85"
Flow Length=77' Tc=5.0 min CN=84 Runoff=0.10 cfs 0.006 af

Subcatchment 39S: DA1 Runoff Area=1,769 sf 65.97% Impervious Runoff Depth=1.42"
Flow Length=160' Tc=31.9 min CN=78 Runoff=0.03 cfs 0.005 af

Pond 20P: PERMEABLE PAVEMENT NORTH Peak Elev=39.22' Storage=160 cf Inflow=0.17 cfs 0.009 af
Discarded=0.01 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.009 af

Pond 23P: PLANTER BOX 2 Peak Elev=39.83' Storage=53 cf Inflow=0.08 cfs 0.003 af
Outflow=0.02 cfs 0.003 af

Pond 24P: PLANTER BOX 1 Peak Elev=40.75' Storage=104 cf Inflow=0.14 cfs 0.007 af
Outflow=0.03 cfs 0.006 af

Pond 25P: PLANTER BOX 3 Peak Elev=38.61' Storage=16 cf Inflow=0.17 cfs 0.008 af
Outflow=0.16 cfs 0.008 af

Pond 26P: PLANTER BOX 4 Peak Elev=38.28' Storage=15 cf Inflow=0.07 cfs 0.003 af
Outflow=0.06 cfs 0.003 af

Pond 32P: CURB INLET 1 Peak Elev=38.09' Inflow=0.22 cfs 0.011 af
Outflow=0.22 cfs 0.011 af

Pond 33P: CURB INLET 2 Peak Elev=38.26' Inflow=0.22 cfs 0.011 af
Outflow=0.22 cfs 0.011 af

Pond 34P: PERMEABLE PAVEMENT EAST Peak Elev=39.60' Storage=176 cf Inflow=0.17 cfs 0.008 af
Discarded=0.01 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.008 af

Link 23L: Study Point 1 Inflow=0.48 cfs 0.034 af
Primary=0.48 cfs 0.034 af

Link 24L: Study Point 2 Inflow=0.27 cfs 0.014 af
Primary=0.27 cfs 0.014 af

Link 26L: STUDY POINT 1 Inflow=0.27 cfs 0.026 af
Primary=0.27 cfs 0.026 af

Link 27L: STUDY POINT 2 Inflow=0.10 cfs 0.006 af
Primary=0.10 cfs 0.006 af

Total Runoff Area = 0.531 ac Runoff Volume = 0.097 af Average Runoff Depth = 2.20"
48.66% Pervious = 0.258 ac 51.34% Impervious = 0.273 ac

Summary for Subcatchment 1S: DA1 - STUDY POINT 1

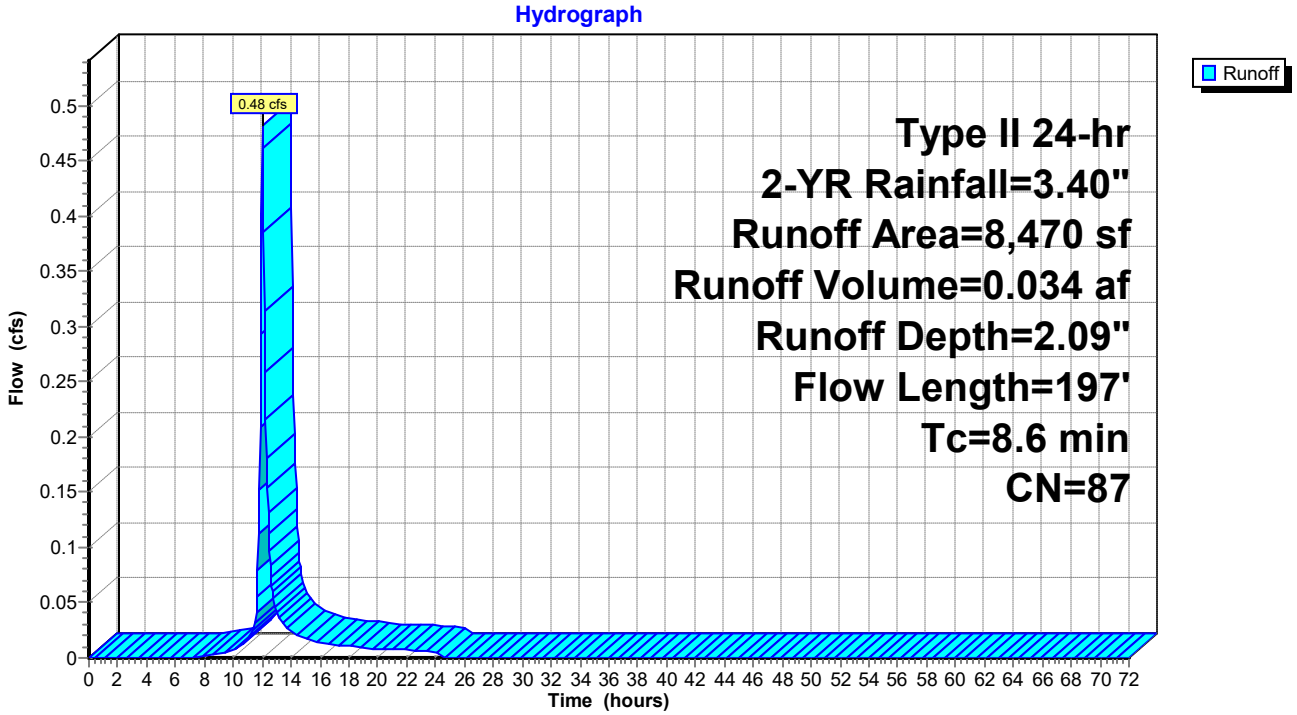
Runoff = 0.48 cfs @ 12.02 hrs, Volume= 0.034 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
7,828	86	Woods/grass comb., Poor, HSG D
642	98	Paved parking, HSG D
8,470	87	Weighted Average
7,828		92.42% Pervious Area
642		7.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.2	93	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	54	0.0140	2.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.6	197	Total			

Subcatchment 1S: DA1 - STUDY POINT 1



Summary for Subcatchment 2S: DA2 - STUDY POINT 2

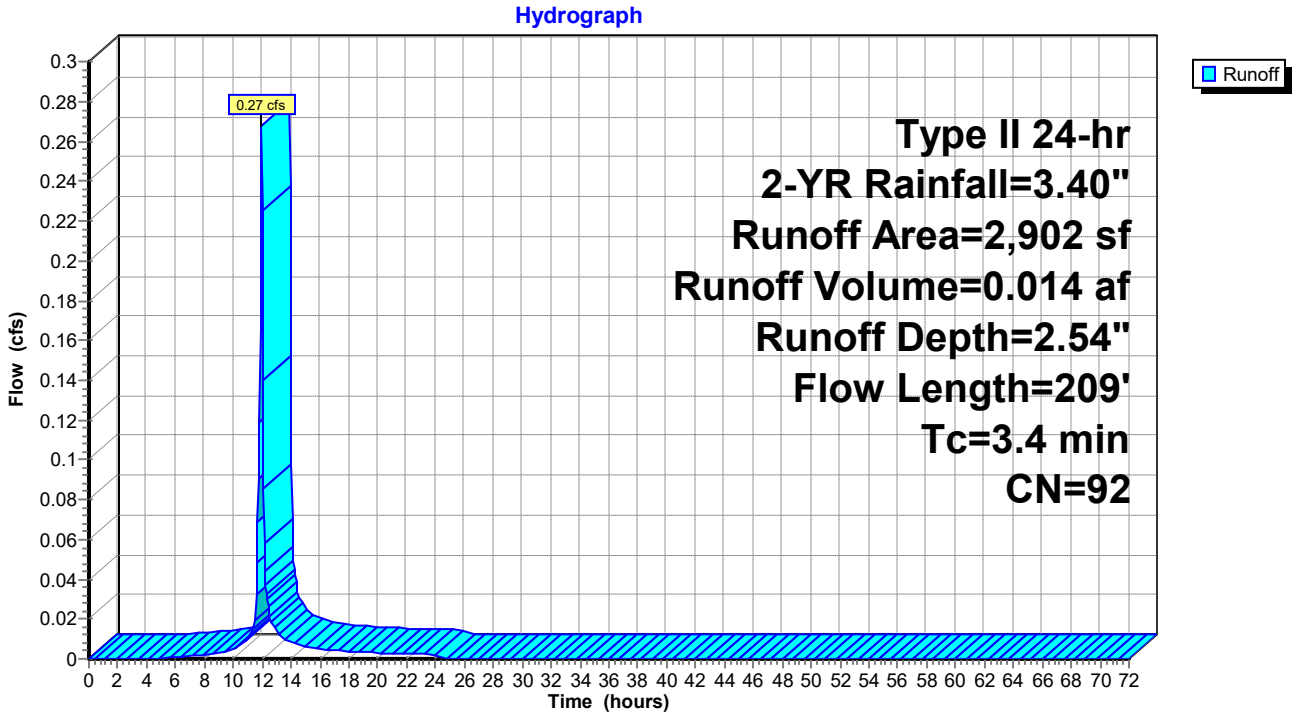
Runoff = 0.27 cfs @ 11.95 hrs, Volume= 0.014 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,377	86	Woods/grass comb., Poor, HSG D
1,525	98	Paved parking, HSG D
2,902	92	Weighted Average
1,377		47.45% Pervious Area
1,525		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0054	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
1.4	109	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	209	Total			

Subcatchment 2S: DA2 - STUDY POINT 2



Summary for Subcatchment 23S: DA2

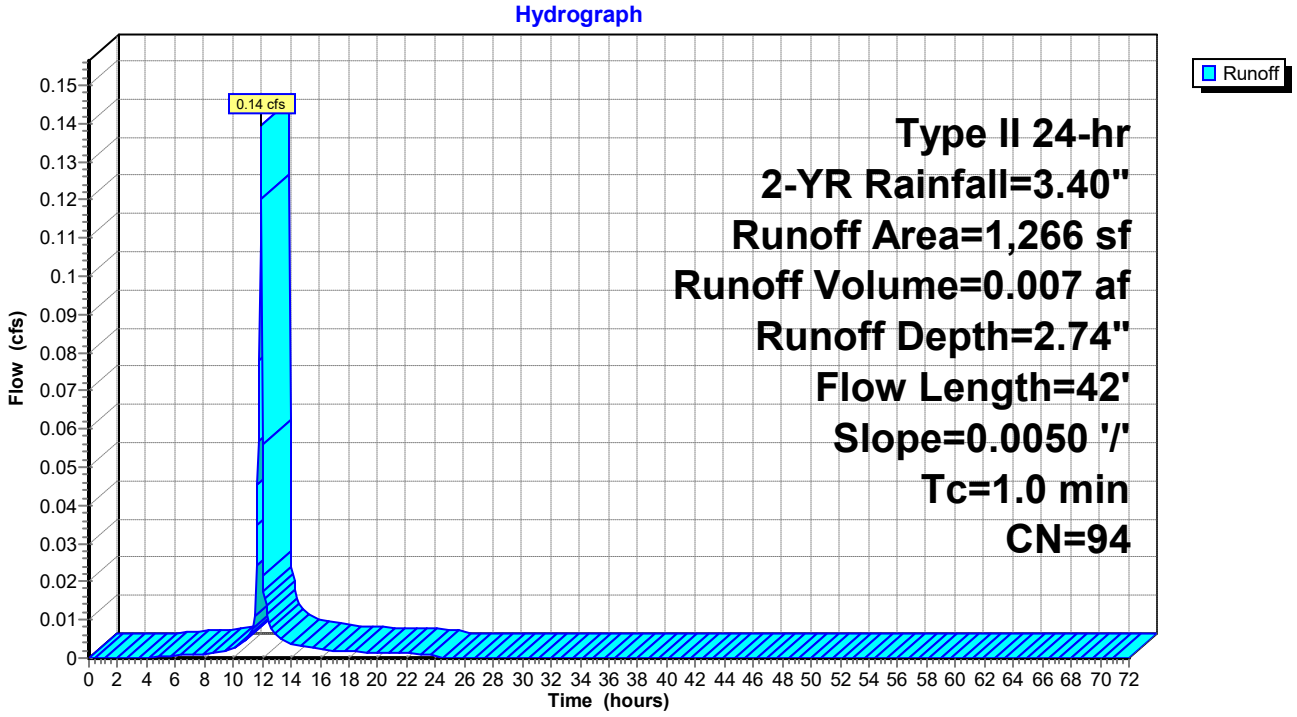
Runoff = 0.14 cfs @ 11.91 hrs, Volume= 0.007 af, Depth= 2.74"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,153	98	Roofs, HSG D
92	39	Pasture/grassland/range, Good, HSG A
21	98	Unconnected pavement, HSG D
1,266	94	Weighted Average
92		7.27% Pervious Area
1,174		92.73% Impervious Area
21		1.79% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	42	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 23S: DA2



Summary for Subcatchment 24S: DA3

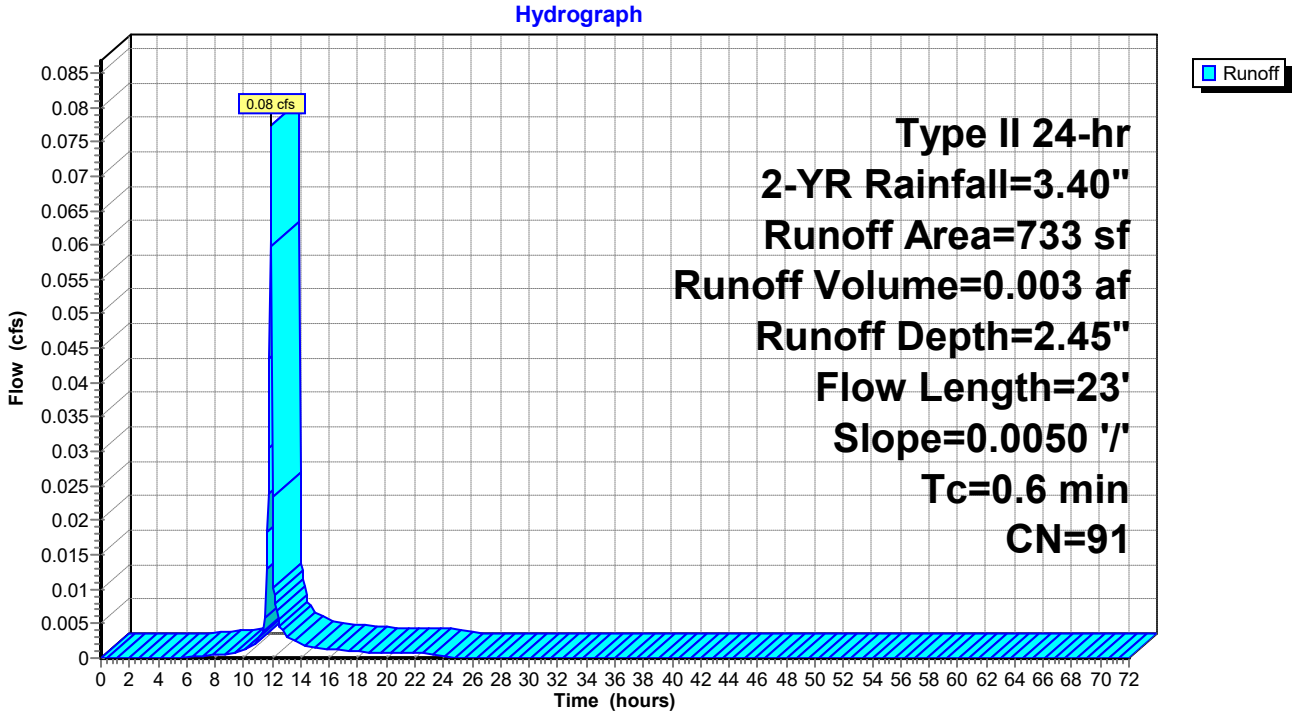
Runoff = 0.08 cfs @ 11.90 hrs, Volume= 0.003 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
620	98	Roofs, HSG D
92	39	Pasture/grassland/range, Good, HSG A
21	98	Unconnected pavement, HSG D
733	91	Weighted Average
92		12.55% Pervious Area
641		87.45% Impervious Area
21		3.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	23	0.0050	0.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 24S: DA3



Summary for Subcatchment 26S: DA4

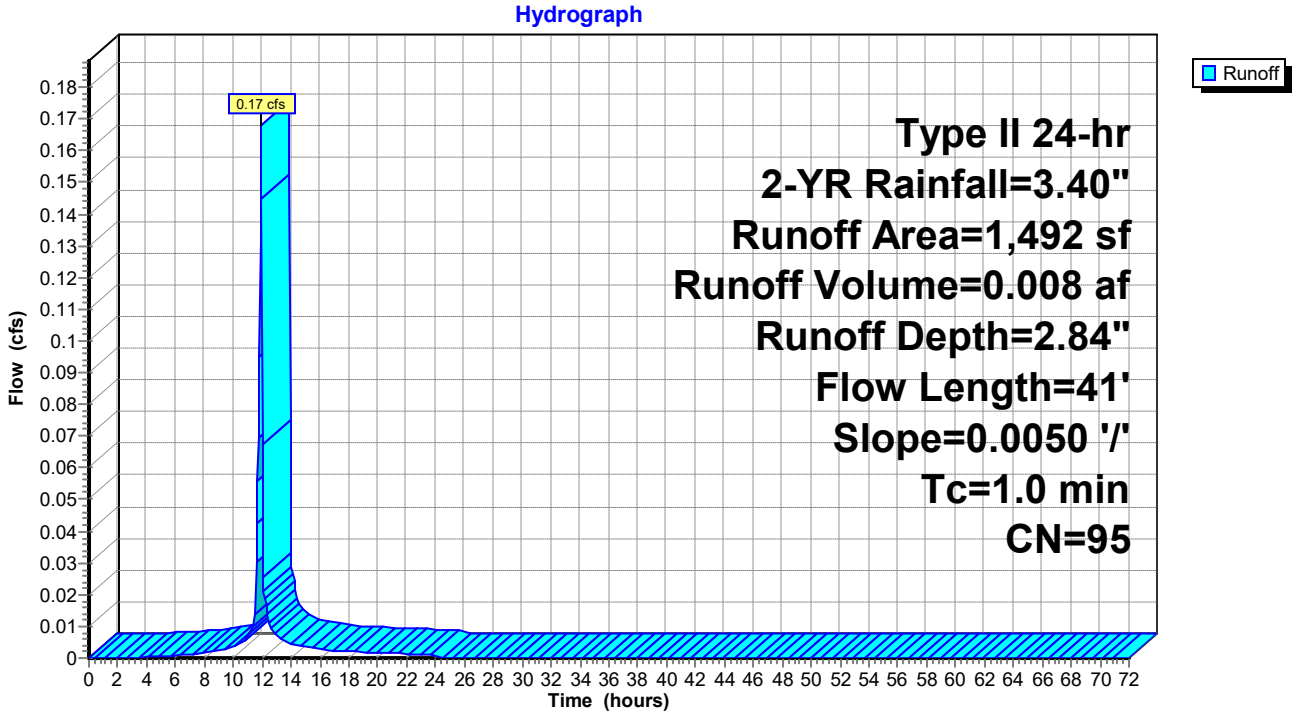
Runoff = 0.17 cfs @ 11.91 hrs, Volume= 0.008 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,409	98	Roofs, HSG D
66	39	Pasture/grassland/range, Good, HSG A
17	98	Unconnected pavement, HSG D
1,492	95	Weighted Average
66		4.42% Pervious Area
1,426		95.58% Impervious Area
17		1.19% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	41	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 26S: DA4



Summary for Subcatchment 27S: DA5

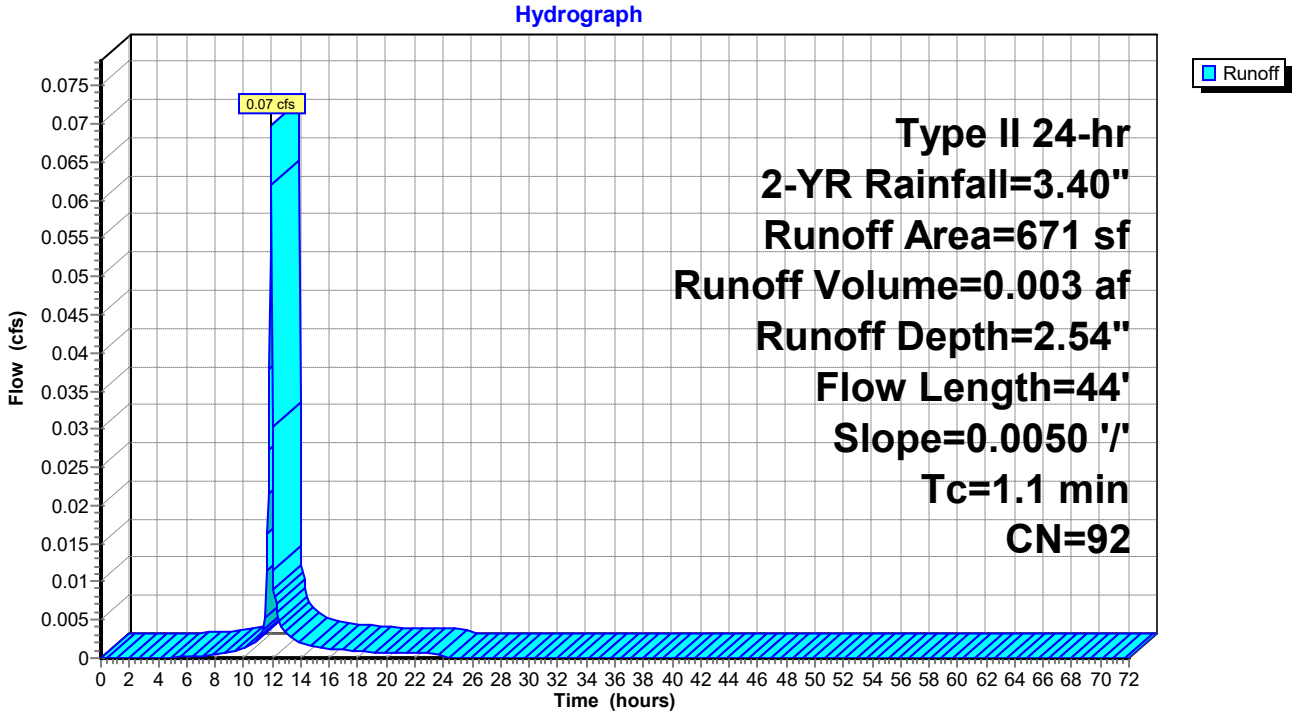
Runoff = 0.07 cfs @ 11.91 hrs, Volume= 0.003 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
588	98	Roofs, HSG D
66	39	Pasture/grassland/range, Good, HSG A
17	98	Unconnected pavement, HSG D
671	92	Weighted Average
66		9.84% Pervious Area
605		90.16% Impervious Area
17		2.81% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	44	0.0050	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 27S: DA5



Summary for Subcatchment 31S: DA6 - PERMEABLE PAVEMENT NORTH

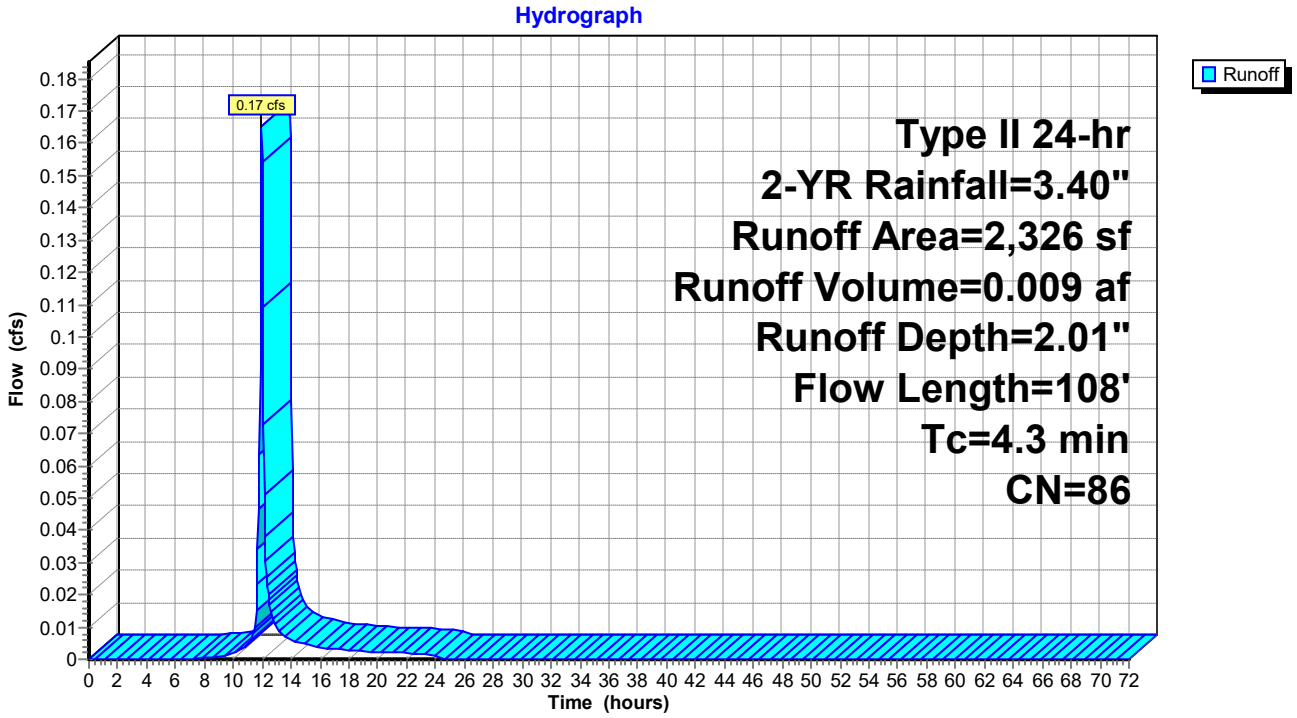
Runoff = 0.17 cfs @ 11.96 hrs, Volume= 0.009 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,046	98	Paved parking, HSG D
508	98	Unconnected pavement, HSG D
288	98	Unconnected pavement, HSG D
484	39	>75% Grass cover, Good, HSG A
2,326	86	Weighted Average
484		20.81% Pervious Area
1,842		79.19% Impervious Area
796		43.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	7	0.0033	0.05		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.8	93	0.0057	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.2	8	0.0014	0.76		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	108	Total			

Subcatchment 31S: DA6 - PERMEABLE PAVEMENT NORTH



Summary for Subcatchment 33S: DA7 - PERMEABLE PAVEMENTEAST

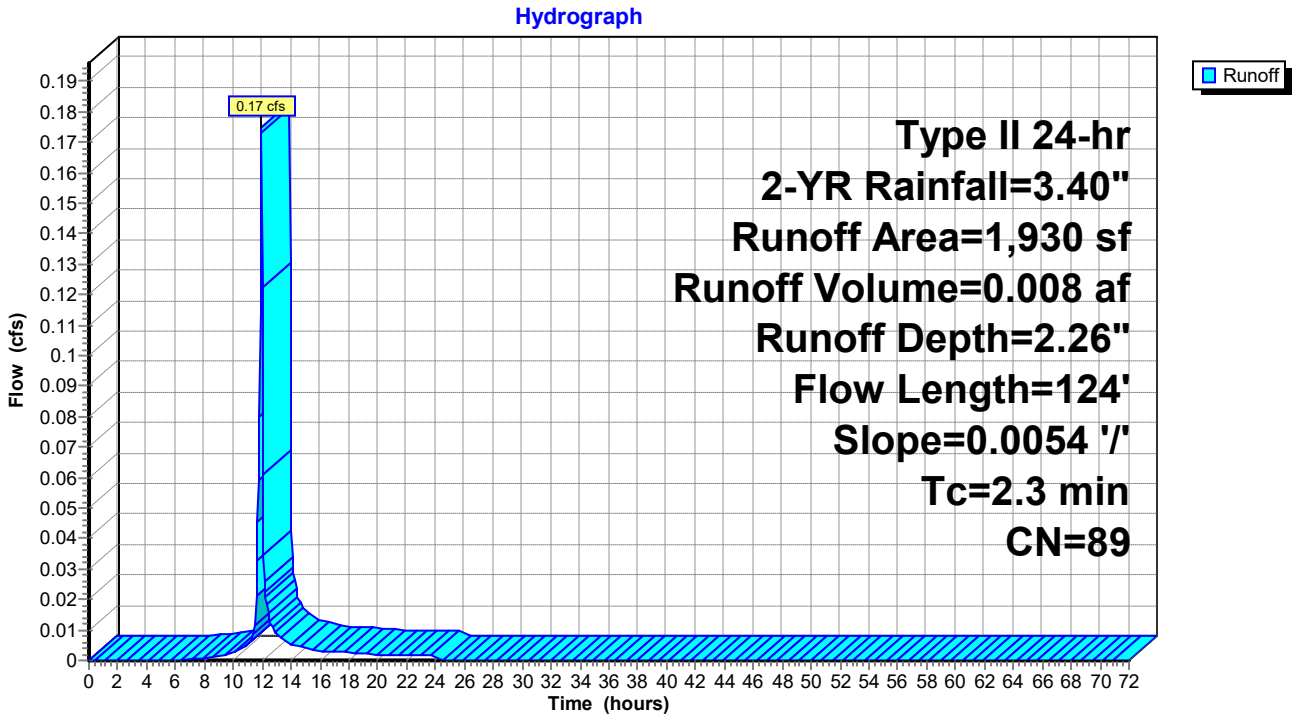
Runoff = 0.17 cfs @ 11.94 hrs, Volume= 0.008 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
286	39	>75% Grass cover, Good, HSG A
1,644	98	Unconnected pavement, HSG D
1,930	89	Weighted Average
286		14.82% Pervious Area
1,644		85.18% Impervious Area
1,644		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0054	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.3	24	0.0054	1.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.3	124	Total			

Subcatchment 33S: DA7 - PERMEABLE PAVEMENTEAST



Summary for Subcatchment 38S: DA8

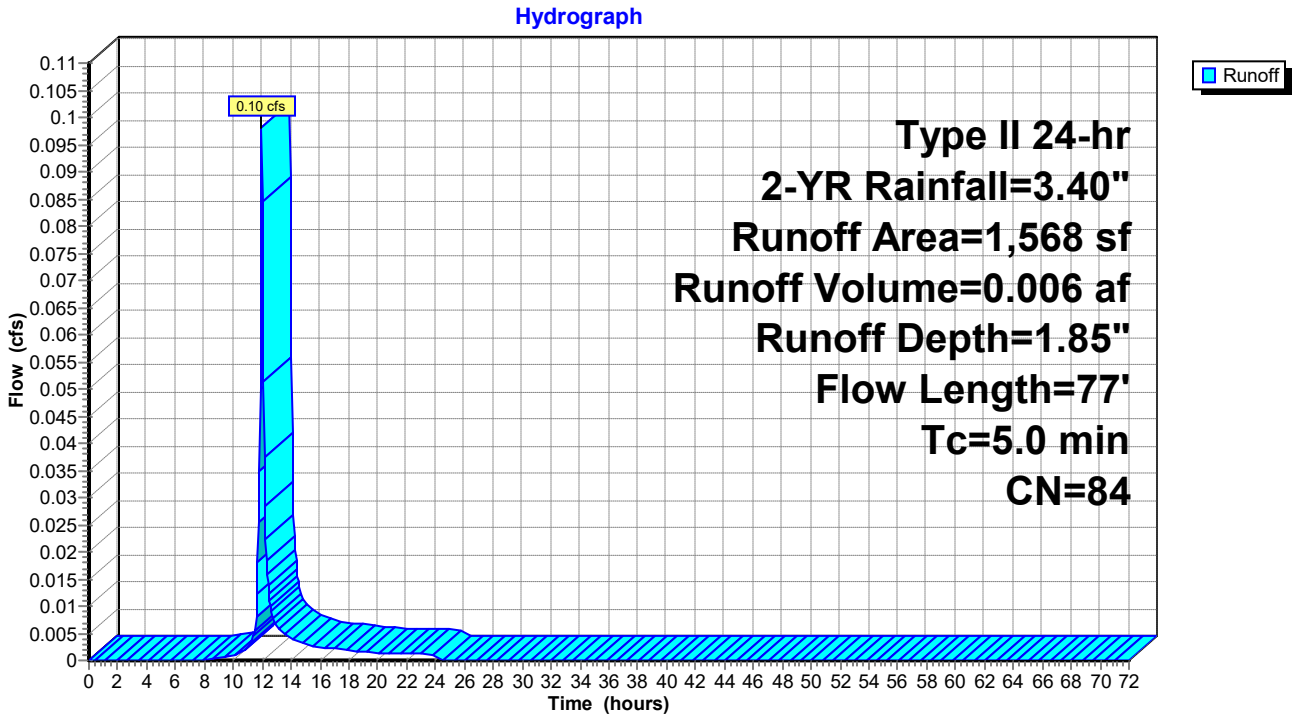
Runoff = 0.10 cfs @ 11.98 hrs, Volume= 0.006 af, Depth= 1.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,207	98	Unconnected pavement, HSG D
361	39	>75% Grass cover, Good, HSG A
1,568	84	Weighted Average
361		23.02% Pervious Area
1,207		76.98% Impervious Area
1,207		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	6	0.0010	0.03		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.7	71	0.0040	0.70		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
5.0	77	Total			

Subcatchment 38S: DA8



Summary for Subcatchment 39S: DA1

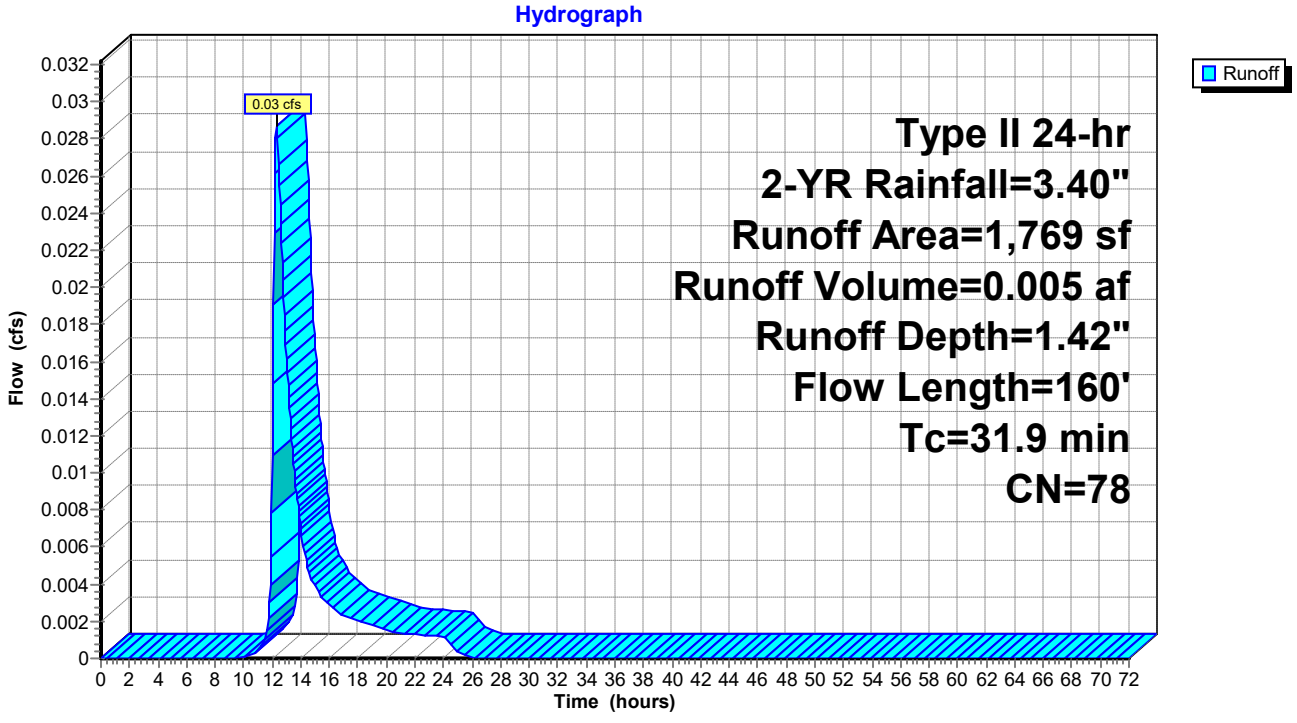
Runoff = 0.03 cfs @ 12.31 hrs, Volume= 0.005 af, Depth= 1.42"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
1,167	98	Unconnected pavement, HSG D
602	39	>75% Grass cover, Good, HSG A
1,769	78	Weighted Average
602		34.03% Pervious Area
1,167		65.97% Impervious Area
1,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.5	100	0.0010	0.05		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.4	60	0.0141	2.41		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
31.9	160	Total			

Subcatchment 39S: DA1



Summary for Pond 20P: PERMEABLE PAVEMENT NORTH

Inflow Area = 0.053 ac, 79.19% Impervious, Inflow Depth = 2.01" for 2-YR event
Inflow = 0.17 cfs @ 11.96 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 12.65 hrs, Volume= 0.009 af, Atten= 92%, Lag= 41.0 min
Discarded = 0.01 cfs @ 12.65 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 39.22' @ 12.65 hrs Surf.Area= 1,001 sf Storage= 160 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 98.9 min (916.8 - 817.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	38.82'	403 cf	**23.00'W x 43.50'L x 1.47'H Field A** 1,467 cf Overall - 460 cf Embedded = 1,008 cf x 40.0% Voids
#2A	39.82'	103 cf	**PaveDrain S6-45** x 1075 Inside #1 Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf 25 Rows of 43 Chambers
		506 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.82'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 36.00'
#2	Primary	40.19'	**43.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 12.65 hrs HW=39.22' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.82' TW=37.68' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 20P: PERMEABLE PAVEMENT NORTH - Chamber Wizard Field A

Chamber Model = PaveDrain S6-45 (PaveDrain 12x12 Block with gap storage)
Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf
Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf

12.0" Wide - 1.0" Nesting = 11.0" C-C Row Spacing

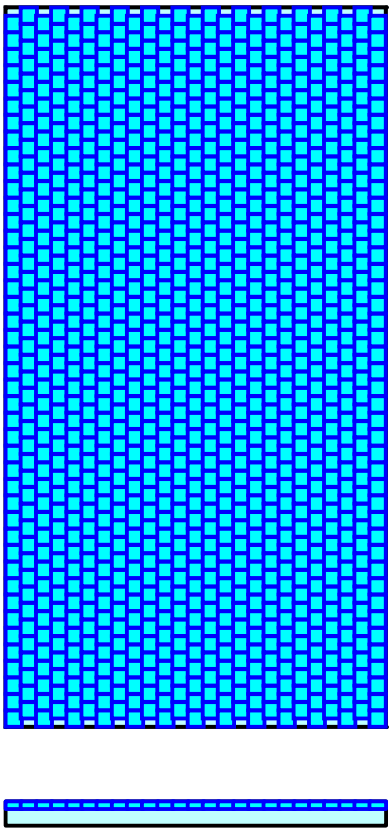
43 Chambers/Row x 1.00' Long = 43.00' Row Length +0.50' Row Offset = 43.50' Base Length
25 Rows x 12.0" Wide - 1.0" Nesting x 24 = 23.00' Base Width
12.0" Base + 5.6" Chamber Height = 1.47' Field Height

1,075 Chambers x 0.1 cf = 102.6 cf Chamber Storage
1,075 Chambers x 0.4 cf = 459.9 cf Displacement

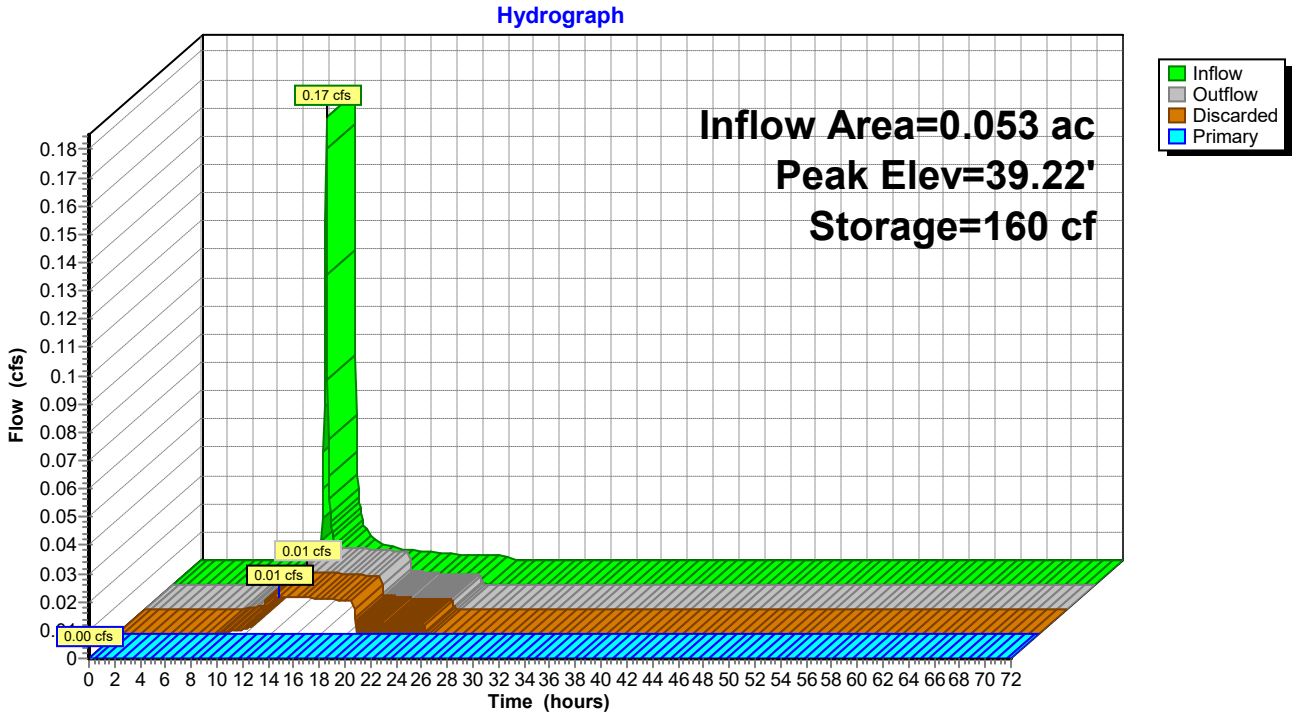
1,467.4 cf Field - 459.9 cf Chambers = 1,007.5 cf Stone x 40.0% Voids = 403.0 cf Stone Storage

Chamber Storage + Stone Storage = 505.7 cf = 0.012 af
Overall Storage Efficiency = 34.5%
Overall System Size = 43.50' x 23.00' x 1.47'

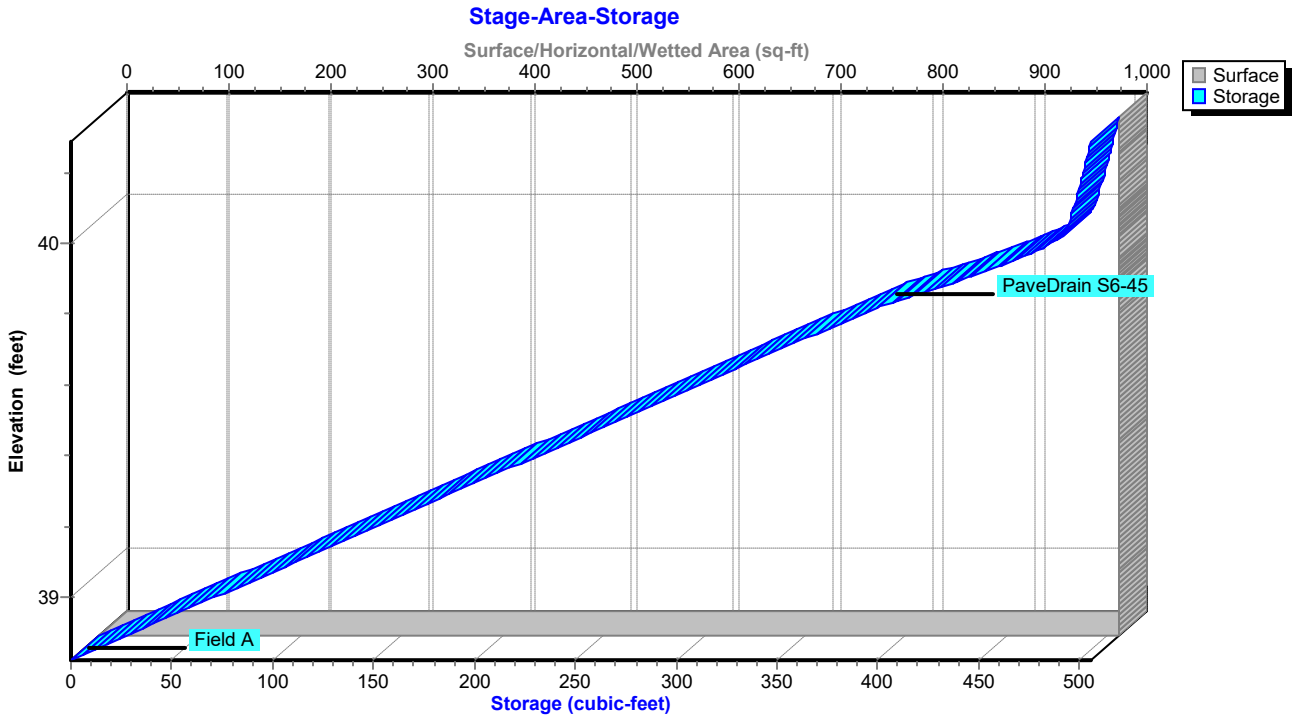
1,075 Chambers
54.3 cy Field
37.3 cy Stone



Pond 20P: PERMEABLE PAVEMENT NORTH



Pond 20P: PERMEABLE PAVEMENT NORTH



Summary for Pond 23P: PLANTER BOX 2

Inflow Area = 0.017 ac, 87.45% Impervious, Inflow Depth = 2.45" for 2-YR event
Inflow = 0.08 cfs @ 11.90 hrs, Volume= 0.003 af
Outflow = 0.02 cfs @ 12.02 hrs, Volume= 0.003 af, Atten= 74%, Lag= 7.2 min
Primary = 0.02 cfs @ 12.02 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 39.83' @ 12.02 hrs Surf.Area= 92 sf Storage= 53 cf

Plug-Flow detention time= 59.7 min calculated for 0.003 af (95% of inflow)
Center-of-Mass det. time= 32.4 min (824.9 - 792.5)

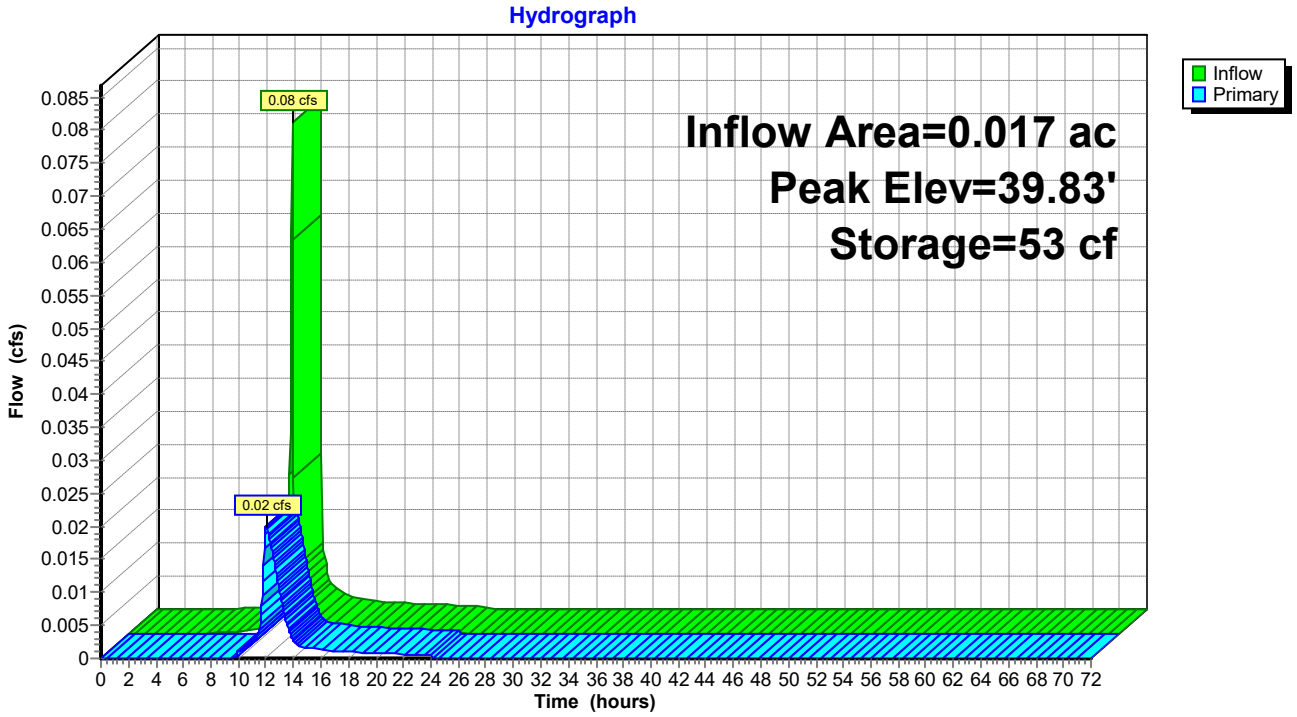
Volume	Invert	Avail.Storage	Storage Description
#1	38.40'	2,745 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.40	92	0.0	0	0
38.41	92	40.0	0	0
41.92	92	40.0	129	130
41.93	92	100.0	1	130
42.92	92	100.0	91	222
43.42	10,000	100.0	2,523	2,745

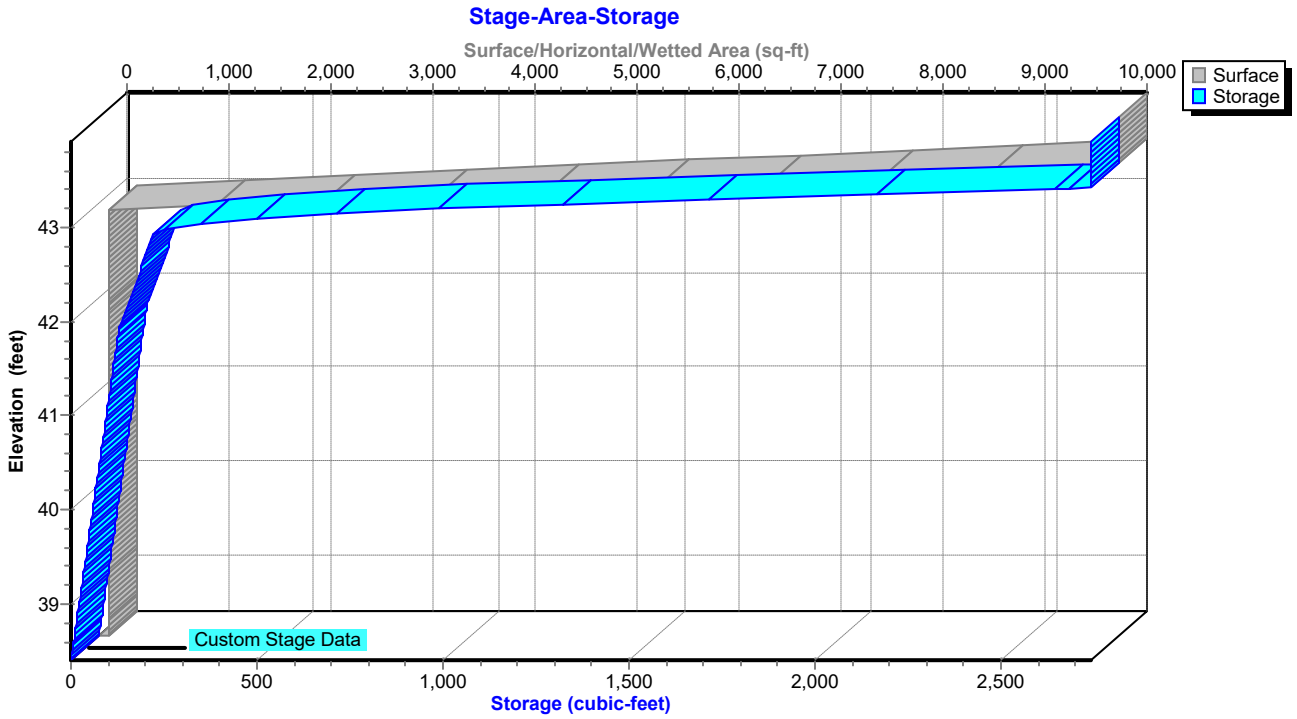
Device	Routing	Invert	Outlet Devices
#1	Primary	37.75'	**12.0" Round Culvert** L= 106.5' Ke= 0.500 Inlet / Outlet Invert= 37.75' / 37.60' S= 0.0014 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	38.42'	**4.0" Round Culvert** L= 8.6' Ke= 0.500 Inlet / Outlet Invert= 38.42' / 37.75' S= 0.0779 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	38.59'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	43.41'	**7.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.02 cfs @ 12.02 hrs HW=39.82' TW=37.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.02 cfs of 3.52 cfs potential flow)
  - **2=Culvert** (Passes 0.02 cfs of 0.47 cfs potential flow)
    - **3=Orifice/Grate** (Orifice Controls 0.02 cfs @ 5.33 fps)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 23P: PLANTER BOX 2



Pond 23P: PLANTER BOX 2



Summary for Pond 24P: PLANTER BOX 1

Inflow Area = 0.029 ac, 92.73% Impervious, Inflow Depth = 2.74" for 2-YR event
Inflow = 0.14 cfs @ 11.91 hrs, Volume= 0.007 af
Outflow = 0.03 cfs @ 12.05 hrs, Volume= 0.006 af, Atten= 79%, Lag= 8.7 min
Primary = 0.03 cfs @ 12.05 hrs, Volume= 0.006 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 40.75' @ 12.05 hrs Surf.Area= 92 sf Storage= 104 cf

Plug-Flow detention time= 53.7 min calculated for 0.006 af (97% of inflow)
Center-of-Mass det. time= 38.0 min (815.8 - 777.8)

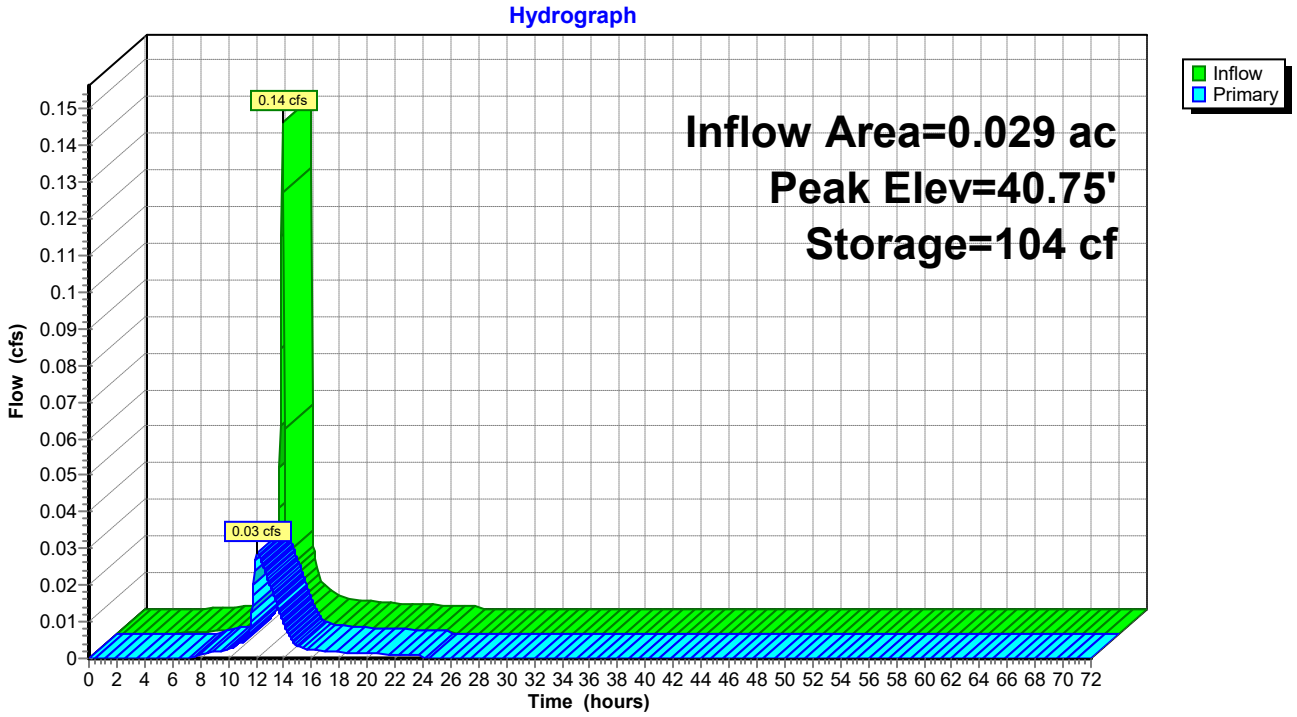
Volume	Invert	Avail.Storage	Storage Description
#1	37.92'	2,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.92	92	0.0	0	0
37.93	92	40.0	0	0
41.95	92	40.0	148	148
41.96	92	100.0	1	149
42.95	92	100.0	91	240
43.45	10,000	100.0	2,523	2,763

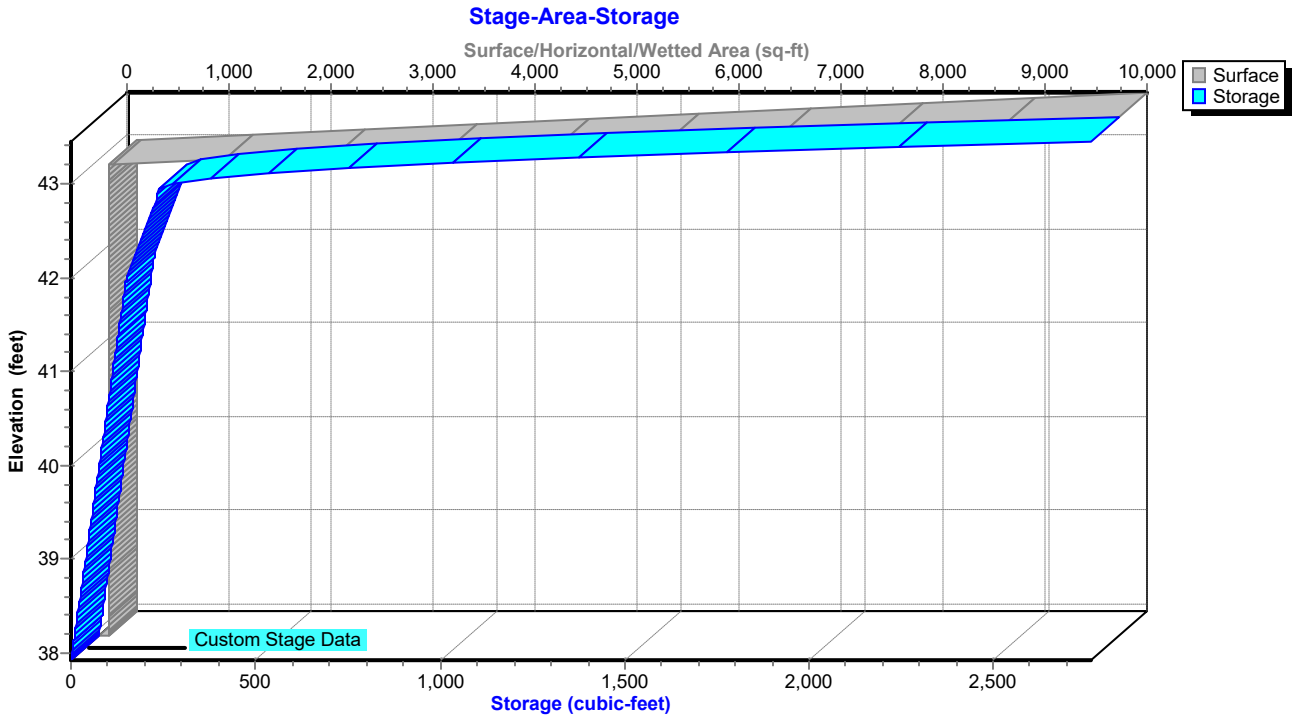
Device	Routing	Invert	Outlet Devices
#1	Primary	37.73'	**12.0" Round Culvert** L= 87.6' Ke= 0.500 Inlet / Outlet Invert= 37.73' / 37.60' S= 0.0015 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.95'	**4.0" Round Culvert** L= 4.8' Ke= 0.500 Inlet / Outlet Invert= 37.95' / 37.73' S= 0.0458 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	38.12'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	42.95'	**7.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.03 cfs @ 12.05 hrs HW=40.75' TW=37.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.03 cfs of 4.96 cfs potential flow)
  - **2=Culvert** (Passes 0.03 cfs of 0.68 cfs potential flow)
    - **3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 7.80 fps)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: PLANTER BOX 1



Pond 24P: PLANTER BOX 1



Summary for Pond 25P: PLANTER BOX 3

Inflow Area = 0.034 ac, 95.58% Impervious, Inflow Depth = 2.84" for 2-YR event
Inflow = 0.17 cfs @ 11.91 hrs, Volume= 0.008 af
Outflow = 0.16 cfs @ 11.94 hrs, Volume= 0.008 af, Atten= 6%, Lag= 1.8 min
Primary = 0.16 cfs @ 11.94 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.61' @ 11.94 hrs Surf.Area= 66 sf Storage= 16 cf

Plug-Flow detention time= 6.4 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 6.1 min (777.8 - 771.7)

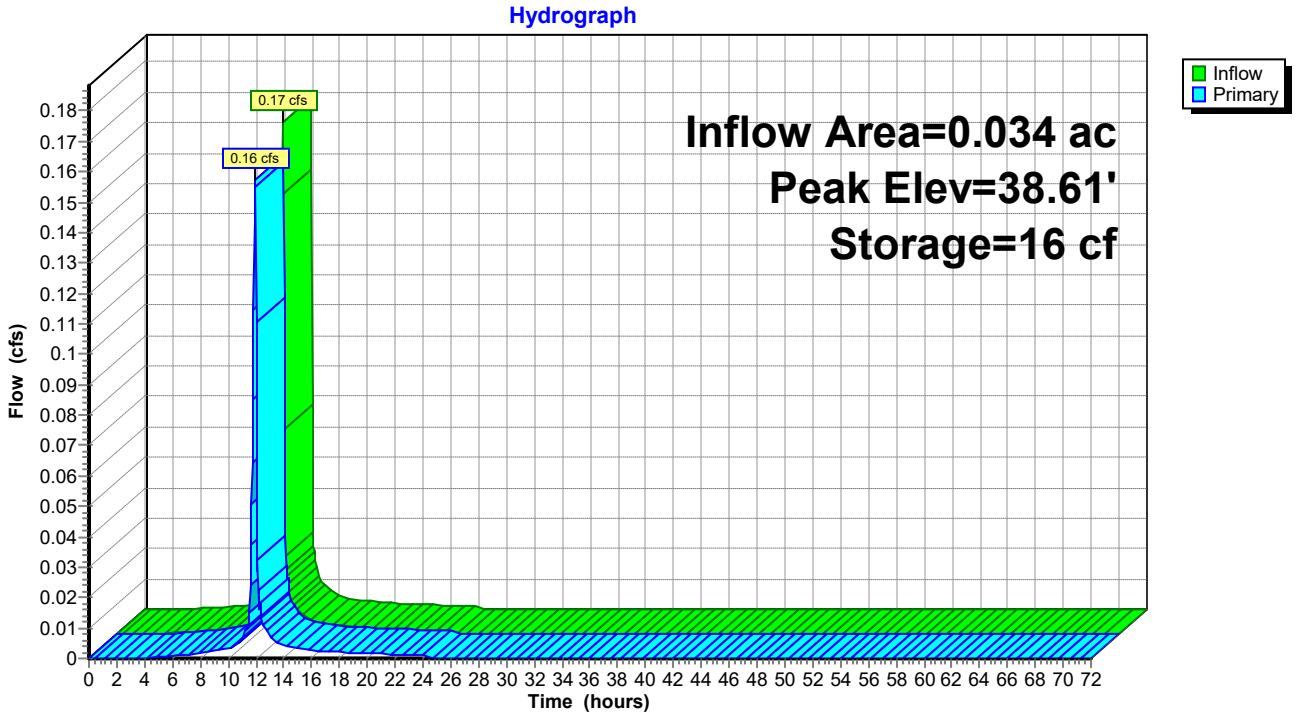
Volume	Invert	Avail.Storage	Storage Description
#1	37.99'	2,633 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.99	66	0.0	0	0
38.00	66	40.0	0	0
41.14	66	40.0	83	83
41.15	66	100.0	1	84
41.64	66	100.0	32	116
42.14	10,000	100.0	2,517	2,633

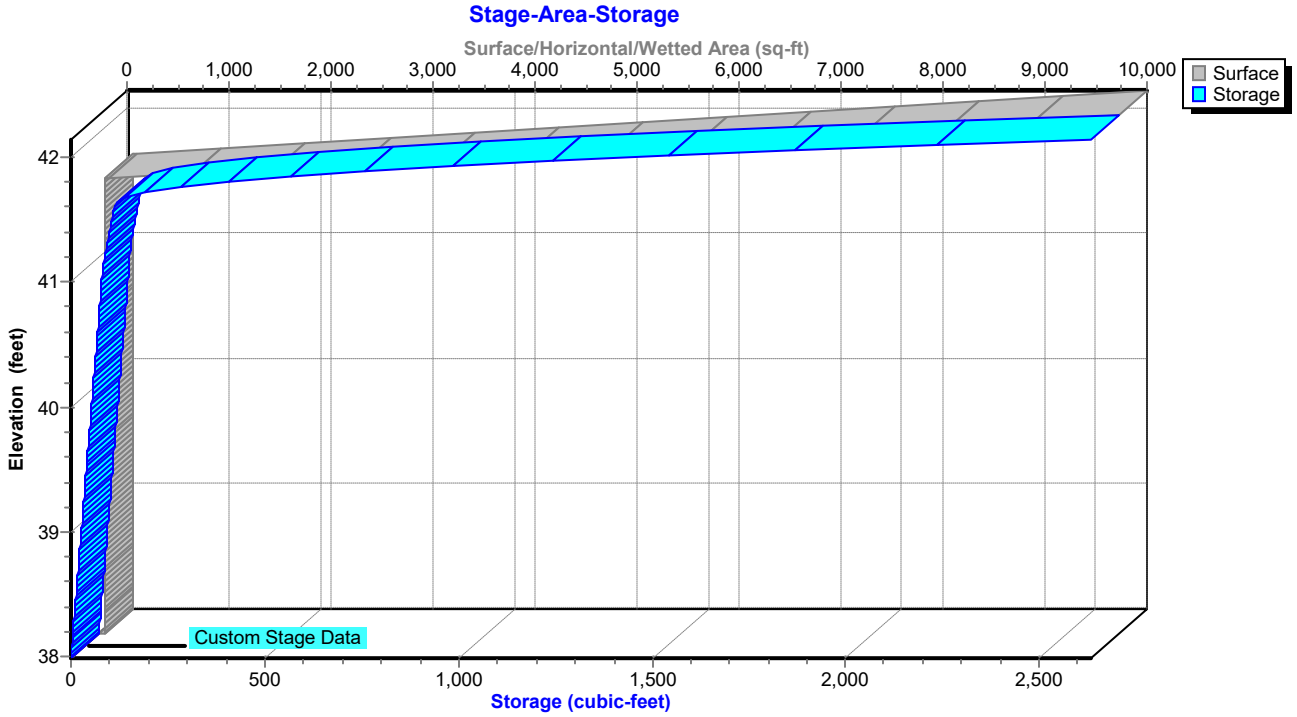
Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**4.0" Round Culvert** L= 52.5' Ke= 0.500 Inlet / Outlet Invert= 38.00' / 37.94' S= 0.0011 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	38.00'	**4.0" Round Culvert** L= 4.9' Ke= 0.500 Inlet / Outlet Invert= 38.00' / 38.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 1	38.17'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	41.64'	**8.7' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.15 cfs @ 11.94 hrs HW=38.58' TW=38.26' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 0.15 cfs @ 1.74 fps)
  - **2=Culvert** (Passes < 0.24 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 0.01 cfs potential flow)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: PLANTER BOX 3



Pond 25P: PLANTER BOX 3



Summary for Pond 26P: PLANTER BOX 4

Inflow Area = 0.015 ac, 90.16% Impervious, Inflow Depth = 2.54" for 2-YR event
Inflow = 0.07 cfs @ 11.91 hrs, Volume= 0.003 af
Outflow = 0.06 cfs @ 11.92 hrs, Volume= 0.003 af, Atten= 13%, Lag= 0.9 min
Primary = 0.06 cfs @ 11.92 hrs, Volume= 0.003 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.28' @ 11.98 hrs Surf.Area= 104 sf Storage= 15 cf

Plug-Flow detention time= 26.6 min calculated for 0.003 af (99% of inflow)
Center-of-Mass det. time= 20.4 min (808.9 - 788.5)

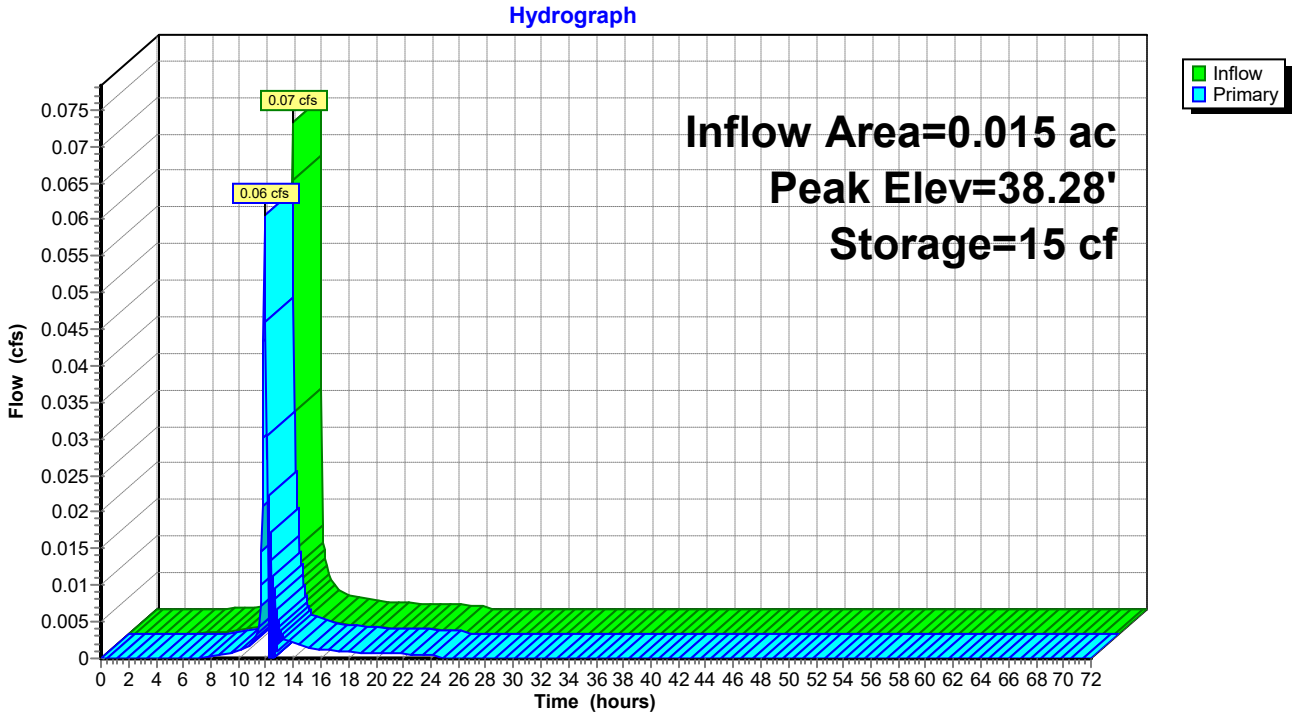
Volume	Invert	Avail.Storage	Storage Description
#1	37.91'	2,723 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.91	104	0.0	0	0
37.92	104	40.0	0	0
41.40	104	40.0	145	145
41.41	104	100.0	1	146
41.90	104	100.0	51	197
42.40	10,000	100.0	2,526	2,723

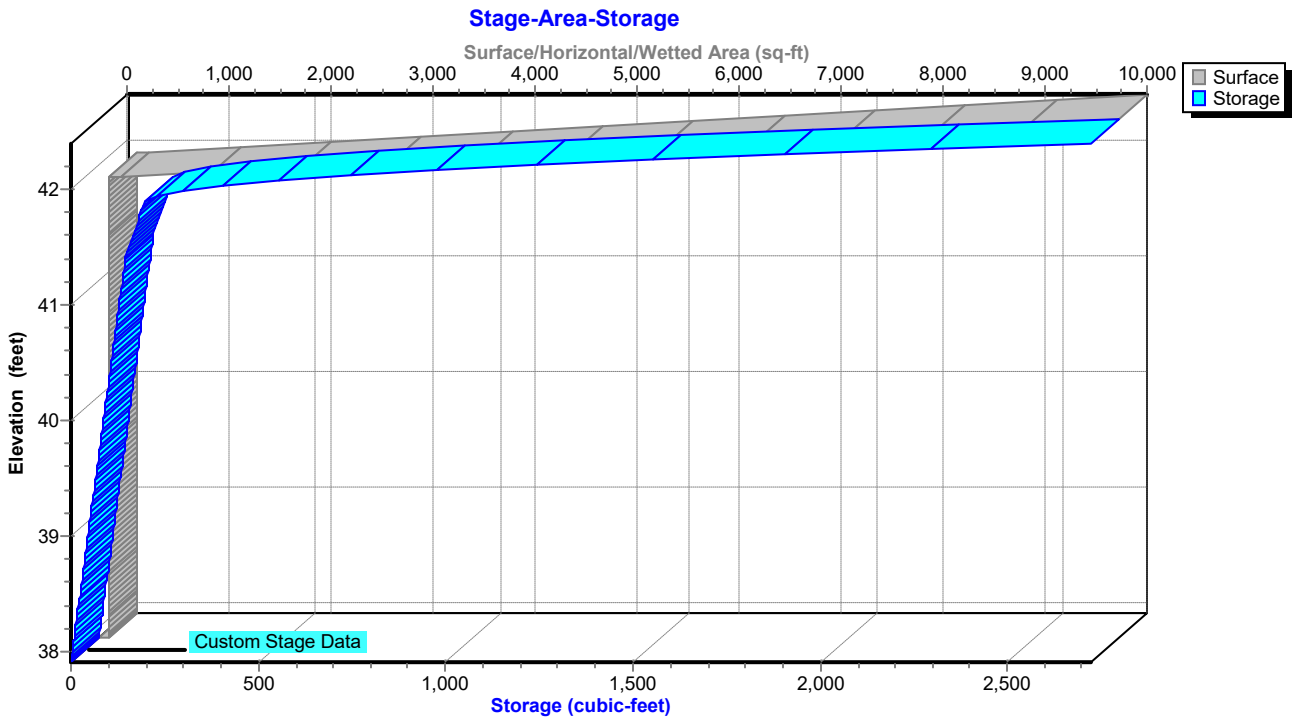
Device	Routing	Invert	Outlet Devices
#1	Primary	37.94'	**4.0" Round Culvert** L= 9.5' Ke= 0.500 Inlet / Outlet Invert= 37.94' / 37.93' S= 0.0011 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	37.94'	**4.0" Round Culvert** L= 4.3' Ke= 0.500 Inlet / Outlet Invert= 37.94' / 37.94' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 1	38.11'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	41.90'	**8.7' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.00 cfs @ 11.92 hrs HW=38.25' TW=38.25' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Culvert** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 26P: PLANTER BOX 4



Pond 26P: PLANTER BOX 4



Summary for Pond 32P: CURB INLET 1

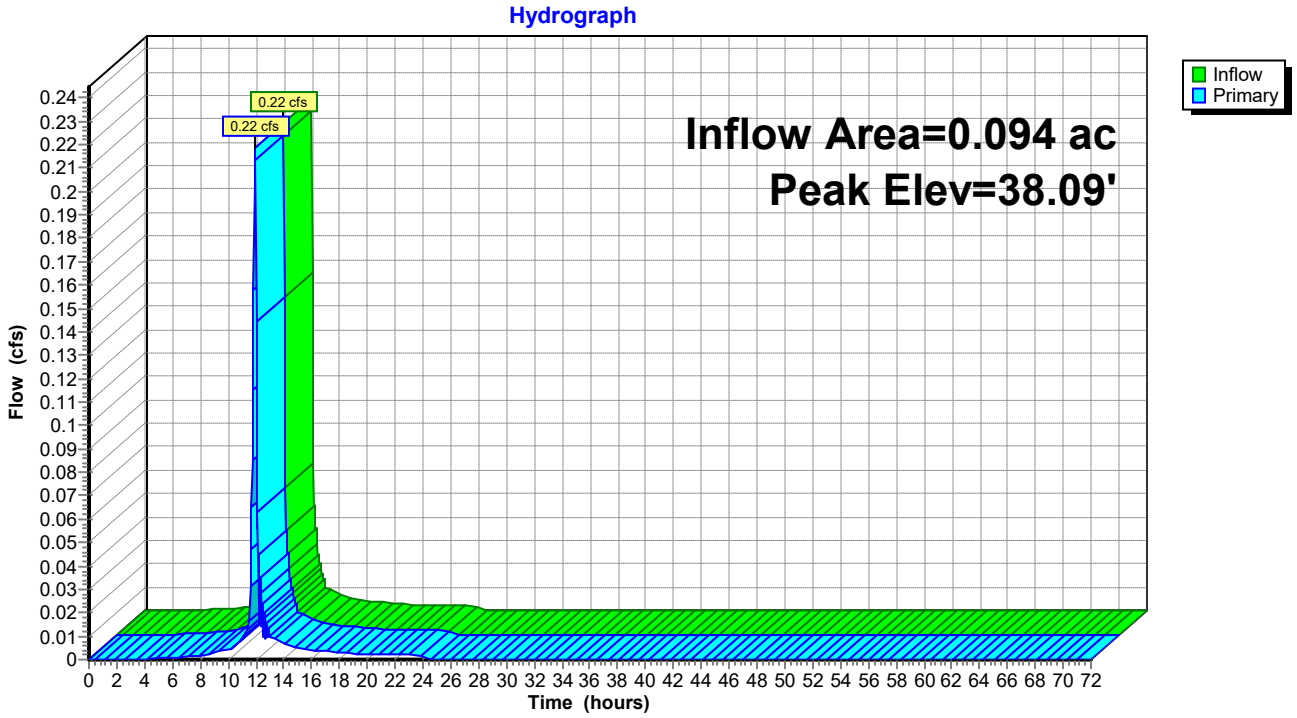
Inflow Area = 0.094 ac, 89.79% Impervious, Inflow Depth = 1.45" for 2-YR event
Inflow = 0.22 cfs @ 11.93 hrs, Volume= 0.011 af
Outflow = 0.22 cfs @ 11.93 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 11.93 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.09' @ 11.93 hrs

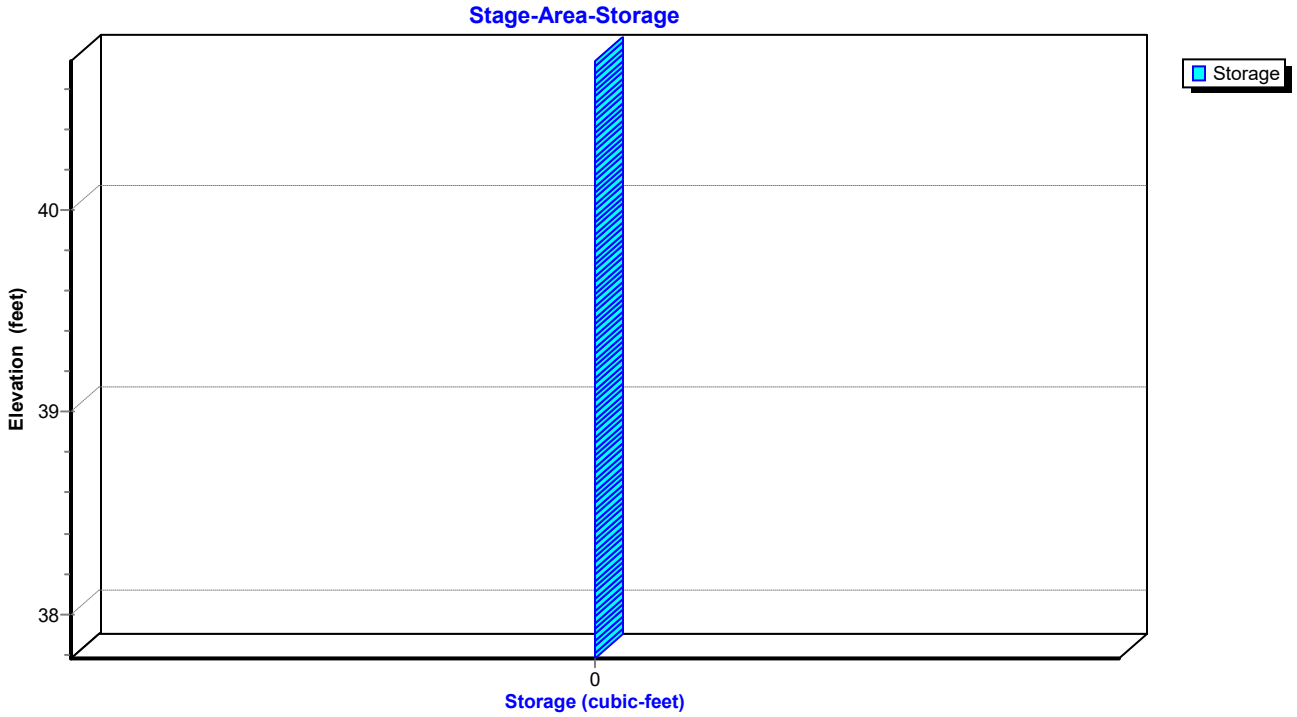
Device	Routing	Invert	Outlet Devices
#1	Primary	37.78'	**12.0" Round Culvert** L= 25.1' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.78' / 37.75' S= 0.0012 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	40.40'	**66.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.21 cfs @ 11.93 hrs HW=38.08' TW=37.68' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.21 cfs @ 1.56 fps)
2=Orifice/Grate (Controls 0.00 cfs)

Pond 32P: CURB INLET 1



Pond 32P: CURB INLET 1



Summary for Pond 33P: CURB INLET 2

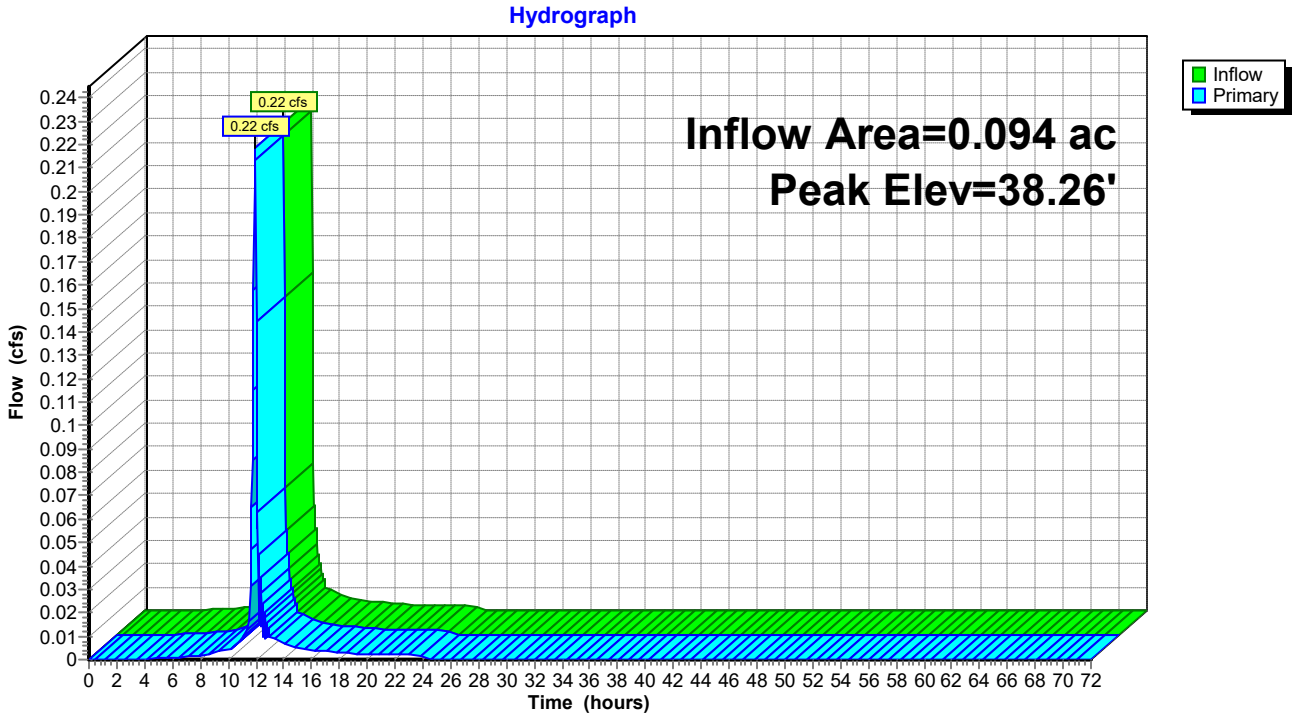
Inflow Area = 0.094 ac, 89.79% Impervious, Inflow Depth = 1.45" for 2-YR event
Inflow = 0.22 cfs @ 11.93 hrs, Volume= 0.011 af
Outflow = 0.22 cfs @ 11.93 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 11.93 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.26' @ 11.94 hrs

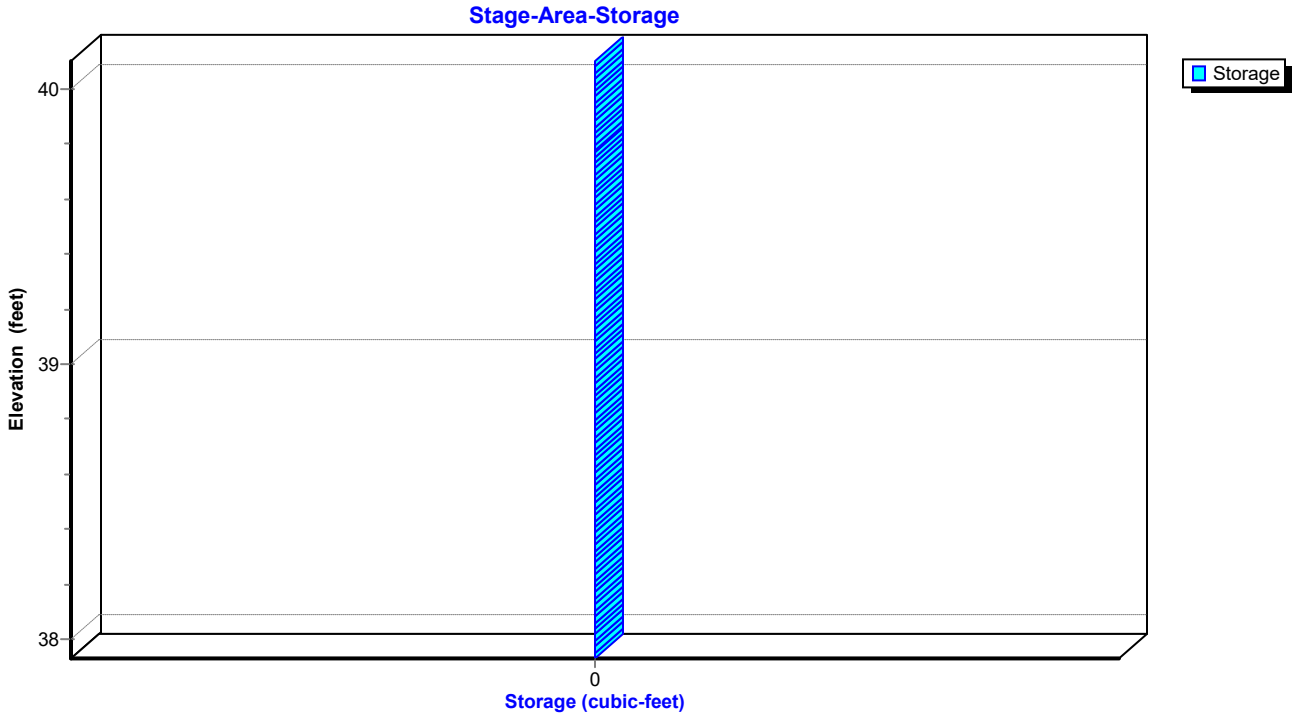
Device	Routing	Invert	Outlet Devices
#1	Primary	37.93'	**12.0" Round Culvert** L= 102.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.93' / 37.78' S= 0.0015 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.77'	**66.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.20 cfs @ 11.93 hrs HW=38.26' TW=38.08' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.20 cfs @ 1.34 fps)
2=Orifice/Grate (Controls 0.00 cfs)

Pond 33P: CURB INLET 2



Pond 33P: CURB INLET 2



Summary for Pond 34P: PERMEABLE PAVEMENT EAST

Inflow Area = 0.044 ac, 85.18% Impervious, Inflow Depth = 2.26" for 2-YR event
Inflow = 0.17 cfs @ 11.94 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 13.22 hrs, Volume= 0.008 af, Atten= 96%, Lag= 77.0 min
Discarded = 0.01 cfs @ 13.22 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 39.60' @ 13.22 hrs Surf.Area= 494 sf Storage= 176 cf

Plug-Flow detention time= 224.4 min calculated for 0.008 af (100% of inflow)
Center-of-Mass det. time= 224.4 min (1,028.0 - 803.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	38.71'	200 cf	**5.58'W x 88.50'L x 1.47'H Field A** 725 cf Overall - 226 cf Embedded = 499 cf x 40.0% Voids
#2A	39.71'	50 cf	**PaveDrain S6-45** x 528 Inside #1 Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf 6 Rows of 88 Chambers
		250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.71'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 36.00'
#2	Primary	40.16'	**88.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 13.22 hrs HW=39.60' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.71' TW=37.93' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 34P: PERMEABLE PAVEMENT EAST - Chamber Wizard Field A

Chamber Model = PaveDrain S6-45 (PaveDrain 12x12 Block with gap storage)
Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf
Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf

12.0" Wide - 1.0" Nesting = 11.0" C-C Row Spacing

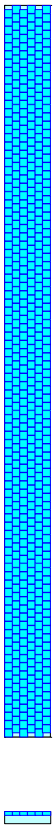
88 Chambers/Row x 1.00' Long = 88.00' Row Length +0.50' Row Offset = 88.50' Base Length
6 Rows x 12.0" Wide - 1.0" Nesting x 5 = 5.58' Base Width
12.0" Base + 5.6" Chamber Height = 1.47' Field Height

528 Chambers x 0.1 cf = 50.4 cf Chamber Storage
528 Chambers x 0.4 cf = 225.9 cf Displacement

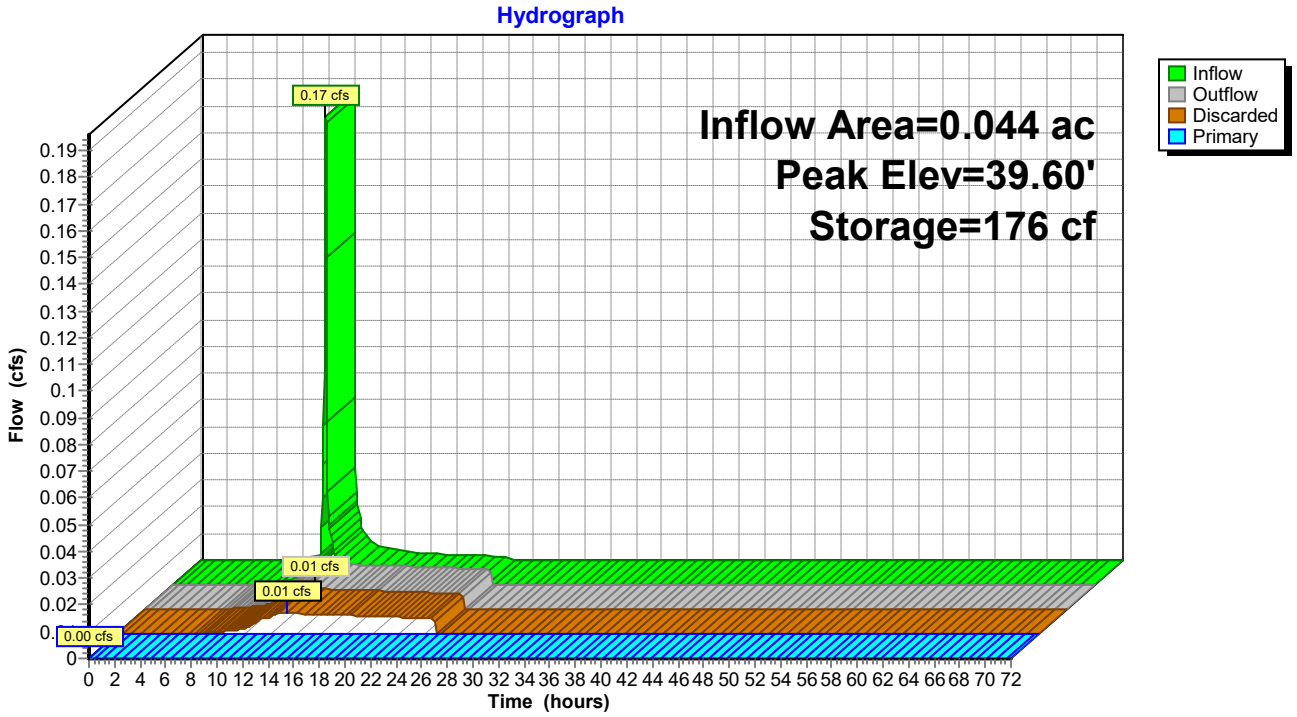
724.7 cf Field - 225.9 cf Chambers = 498.8 cf Stone x 40.0% Voids = 199.5 cf Stone Storage

Chamber Storage + Stone Storage = 250.0 cf = 0.006 af
Overall Storage Efficiency = 34.5%
Overall System Size = 88.50' x 5.58' x 1.47'

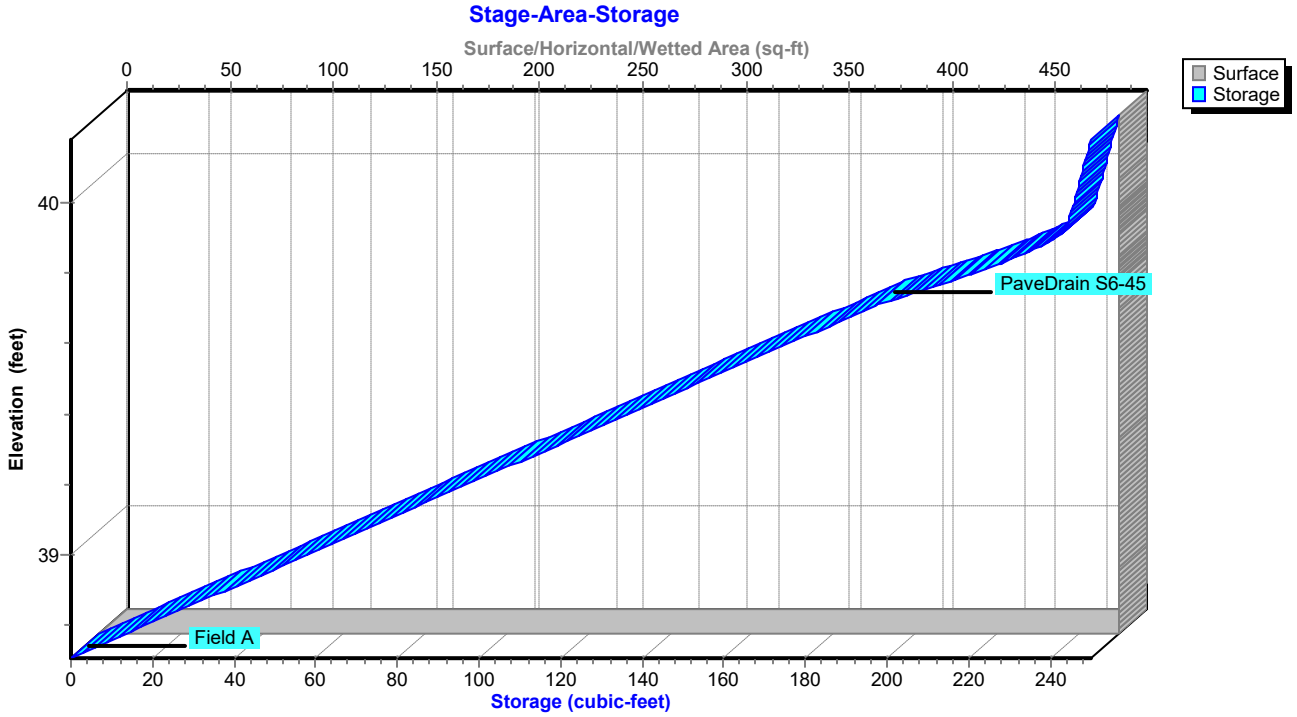
528 Chambers
26.8 cy Field
18.5 cy Stone



Pond 34P: PERMEABLE PAVEMENT EAST



Pond 34P: PERMEABLE PAVEMENT EAST

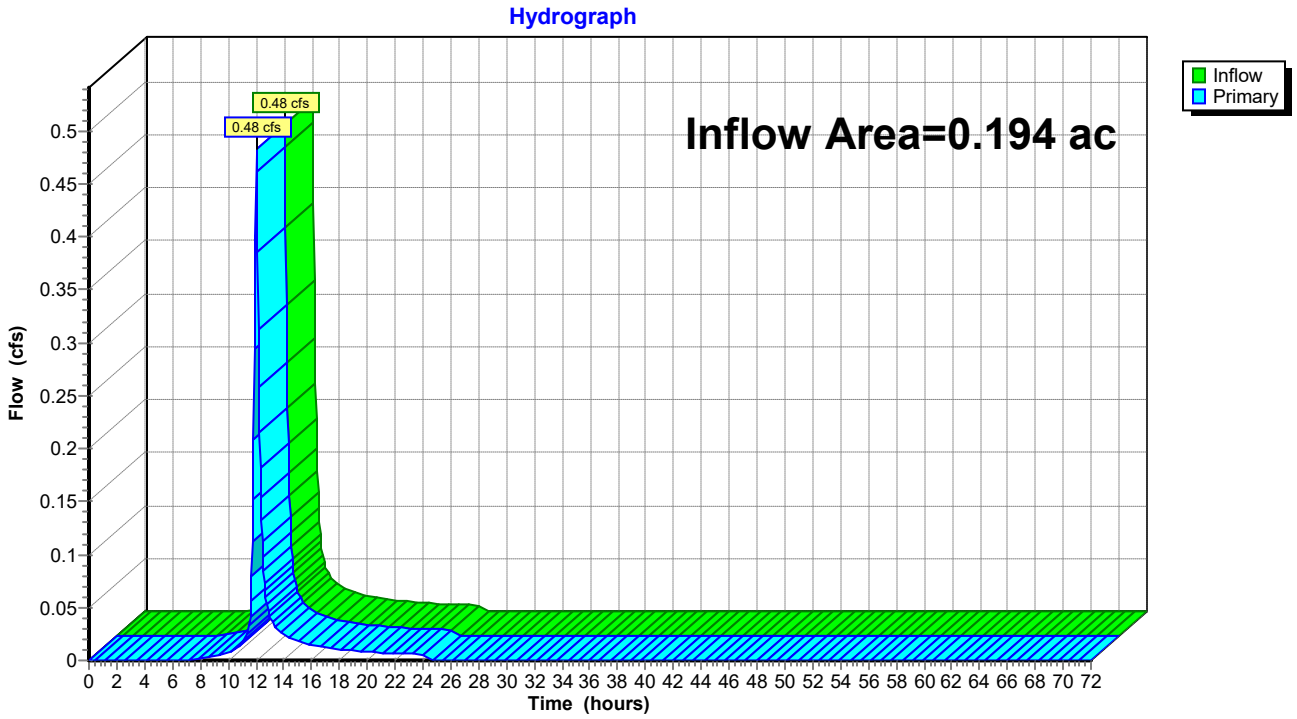


Summary for Link 23L: Study Point 1

Inflow Area = 0.194 ac, 7.58% Impervious, Inflow Depth = 2.09" for 2-YR event
Inflow = 0.48 cfs @ 12.02 hrs, Volume= 0.034 af
Primary = 0.48 cfs @ 12.02 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

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

Link 23L: Study Point 1

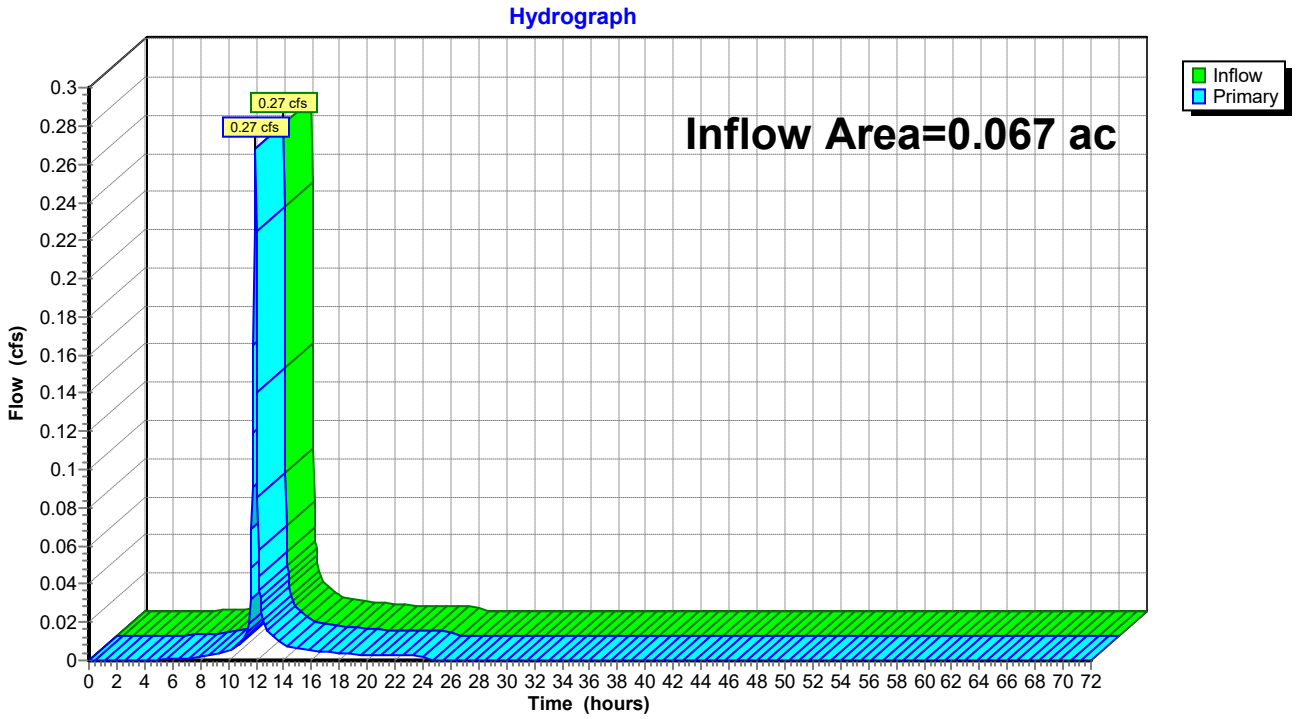


Summary for Link 24L: Study Point 2

Inflow Area = 0.067 ac, 52.55% Impervious, Inflow Depth = 2.54" for 2-YR event
Inflow = 0.27 cfs @ 11.95 hrs, Volume= 0.014 af
Primary = 0.27 cfs @ 11.95 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

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

Link 24L: Study Point 2



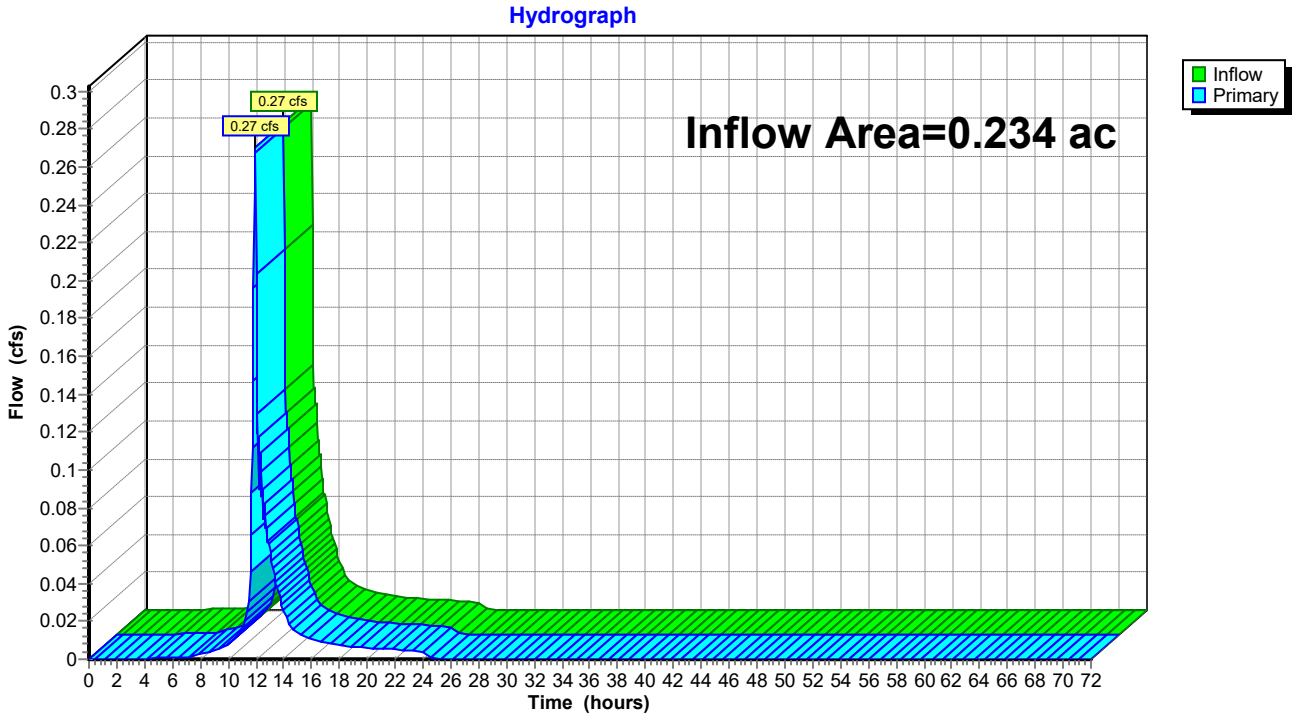
Summary for Link 26L: STUDY POINT 1

Inflow Area = 0.234 ac, 83.43% Impervious, Inflow Depth = 1.33" for 2-YR event
Inflow = 0.27 cfs @ 11.94 hrs, Volume= 0.026 af
Primary = 0.27 cfs @ 11.94 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

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

Fixed water surface Elevation= 37.68'

Link 26L: STUDY POINT 1

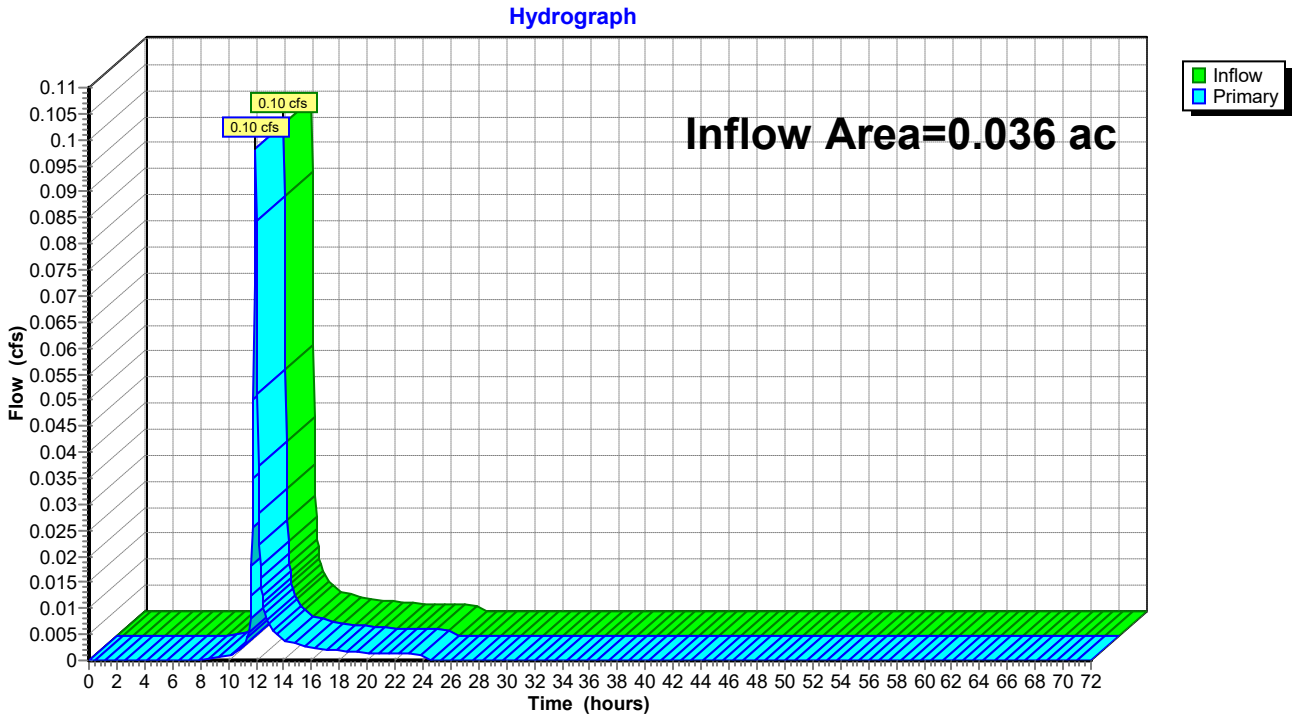


Summary for Link 27L: STUDY POINT 2

Inflow Area = 0.036 ac, 76.98% Impervious, Inflow Depth = 1.85" for 2-YR event
Inflow = 0.10 cfs @ 11.98 hrs, Volume= 0.006 af
Primary = 0.10 cfs @ 11.98 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

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

Link 27L: STUDY POINT 2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA1 - STUDY POINT 1 Runoff Area=8,470 sf 7.58% Impervious Runoff Depth=3.85"
Flow Length=197' Tc=8.6 min CN=87 Runoff=0.87 cfs 0.062 af

Subcatchment 2S: DA2 - STUDY POINT 2 Runoff Area=2,902 sf 52.55% Impervious Runoff Depth=4.38"
Flow Length=209' Tc=3.4 min CN=92 Runoff=0.45 cfs 0.024 af

Subcatchment 23S: DA2 Runoff Area=1,266 sf 92.73% Impervious Runoff Depth=4.60"
Flow Length=42' Slope=0.0050 '/' Tc=1.0 min CN=94 Runoff=0.23 cfs 0.011 af

Subcatchment 24S: DA3 Runoff Area=733 sf 87.45% Impervious Runoff Depth=4.27"
Flow Length=23' Slope=0.0050 '/' Tc=0.6 min CN=91 Runoff=0.13 cfs 0.006 af

Subcatchment 26S: DA4 Runoff Area=1,492 sf 95.58% Impervious Runoff Depth=4.72"
Flow Length=41' Slope=0.0050 '/' Tc=1.0 min CN=95 Runoff=0.27 cfs 0.013 af

Subcatchment 27S: DA5 Runoff Area=671 sf 90.16% Impervious Runoff Depth=4.38"
Flow Length=44' Slope=0.0050 '/' Tc=1.1 min CN=92 Runoff=0.12 cfs 0.006 af

Subcatchment 31S: DA6 - PERMEABLE Runoff Area=2,326 sf 79.19% Impervious Runoff Depth=3.75"
Flow Length=108' Tc=4.3 min CN=86 Runoff=0.30 cfs 0.017 af

Subcatchment 33S: DA7 - PERMEABLE Runoff Area=1,930 sf 85.18% Impervious Runoff Depth=4.06"
Flow Length=124' Slope=0.0054 '/' Tc=2.3 min CN=89 Runoff=0.30 cfs 0.015 af

Subcatchment 38S: DA8 Runoff Area=1,568 sf 76.98% Impervious Runoff Depth=3.55"
Flow Length=77' Tc=5.0 min CN=84 Runoff=0.18 cfs 0.011 af

Subcatchment 39S: DA1 Runoff Area=1,769 sf 65.97% Impervious Runoff Depth=2.97"
Flow Length=160' Tc=31.9 min CN=78 Runoff=0.06 cfs 0.010 af

Pond 20P: PERMEABLE PAVEMENT NORTH Peak Elev=39.69' Storage=347 cf Inflow=0.30 cfs 0.017 af
Discarded=0.02 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.017 af

Pond 23P: PLANTER BOX 2 Peak Elev=40.92' Storage=93 cf Inflow=0.13 cfs 0.006 af
Outflow=0.03 cfs 0.006 af

Pond 24P: PLANTER BOX 1 Peak Elev=42.30' Storage=181 cf Inflow=0.23 cfs 0.011 af
Outflow=0.04 cfs 0.011 af

Pond 25P: PLANTER BOX 3 Peak Elev=39.10' Storage=29 cf Inflow=0.27 cfs 0.013 af
Outflow=0.24 cfs 0.013 af

Pond 26P: PLANTER BOX 4 Peak Elev=38.39' Storage=20 cf Inflow=0.12 cfs 0.006 af
Outflow=0.10 cfs 0.006 af

Pond 32P: CURB INLET 1 Peak Elev=38.17' Inflow=0.35 cfs 0.022 af
Outflow=0.35 cfs 0.022 af

Pond 33P: CURB INLET 2 Peak Elev=38.36' Inflow=0.35 cfs 0.022 af
Outflow=0.35 cfs 0.022 af

Pond 34P: PERMEABLE PAVEMENT EAST Peak Elev=40.17' Storage=250 cf Inflow=0.30 cfs 0.015 af
Discarded=0.01 cfs 0.013 af Primary=0.20 cfs 0.002 af Outflow=0.21 cfs 0.015 af

Link 23L: Study Point 1 Inflow=0.87 cfs 0.062 af
Primary=0.87 cfs 0.062 af

Link 24L: Study Point 2 Inflow=0.45 cfs 0.024 af
Primary=0.45 cfs 0.024 af

Link 26L: STUDY POINT 1 Inflow=0.43 cfs 0.048 af
Primary=0.43 cfs 0.048 af

Link 27L: STUDY POINT 2 Inflow=0.18 cfs 0.011 af
Primary=0.18 cfs 0.011 af

Total Runoff Area = 0.531 ac Runoff Volume = 0.175 af Average Runoff Depth = 3.96"
48.66% Pervious = 0.258 ac 51.34% Impervious = 0.273 ac

Summary for Subcatchment 1S: DA1 - STUDY POINT 1

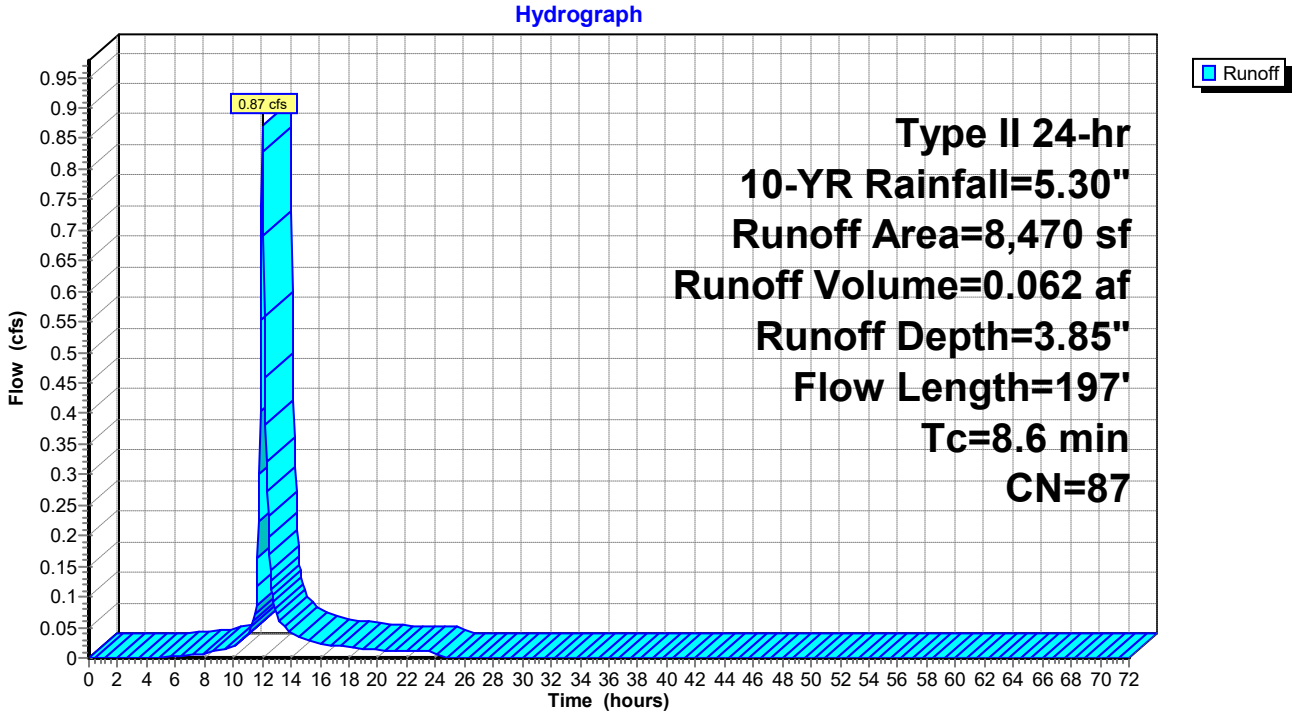
Runoff = 0.87 cfs @ 12.01 hrs, Volume= 0.062 af, Depth= 3.85"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
7,828	86	Woods/grass comb., Poor, HSG D
642	98	Paved parking, HSG D
8,470	87	Weighted Average
7,828		92.42% Pervious Area
642		7.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.2	93	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	54	0.0140	2.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.6	197	Total			

Subcatchment 1S: DA1 - STUDY POINT 1



Summary for Subcatchment 2S: DA2 - STUDY POINT 2

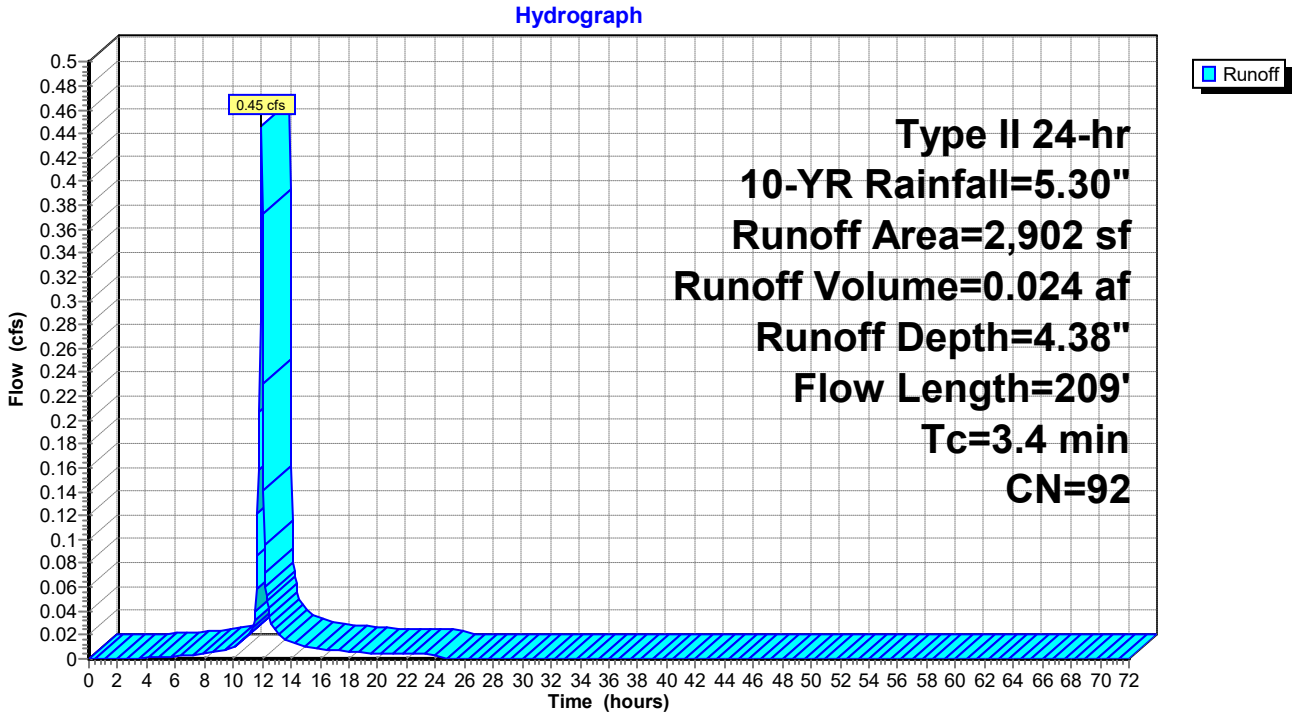
Runoff = 0.45 cfs @ 11.95 hrs, Volume= 0.024 af, Depth= 4.38"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,377	86	Woods/grass comb., Poor, HSG D
1,525	98	Paved parking, HSG D
2,902	92	Weighted Average
1,377		47.45% Pervious Area
1,525		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0054	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
1.4	109	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	209	Total			

Subcatchment 2S: DA2 - STUDY POINT 2



Summary for Subcatchment 23S: DA2

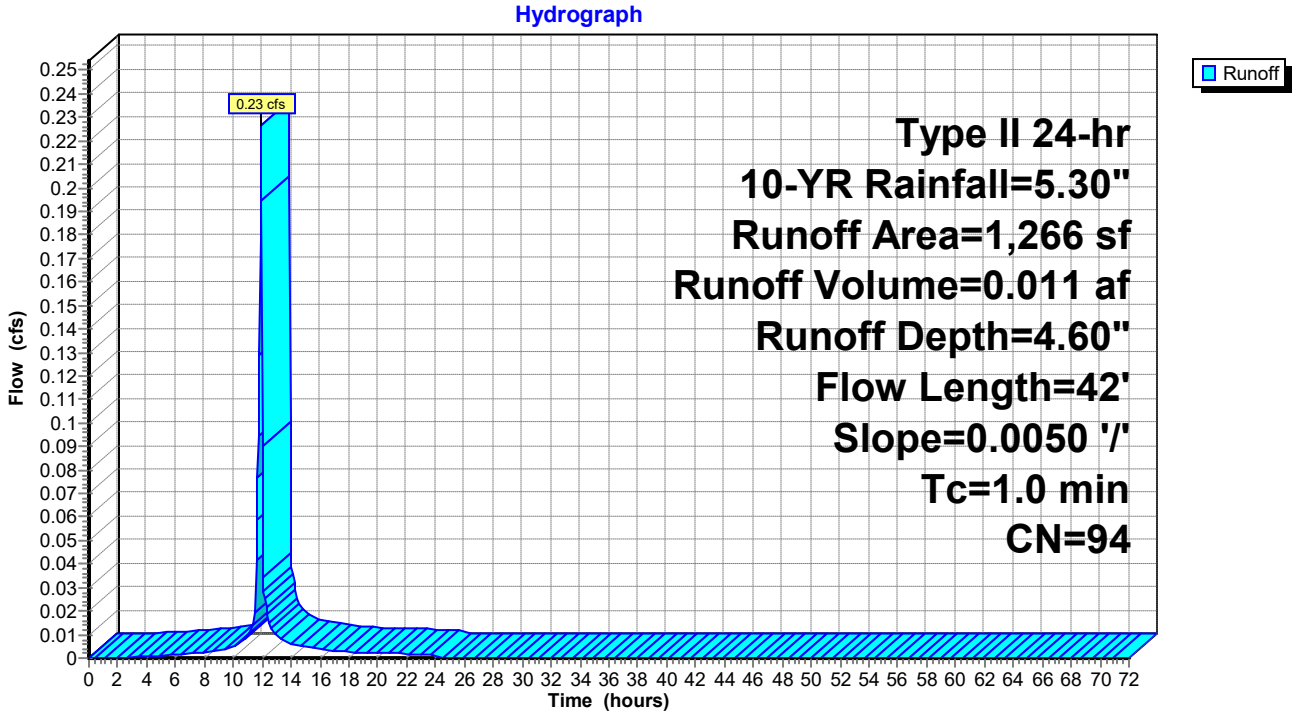
Runoff = 0.23 cfs @ 11.91 hrs, Volume= 0.011 af, Depth= 4.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,153	98	Roofs, HSG D
92	39	Pasture/grassland/range, Good, HSG A
21	98	Unconnected pavement, HSG D
1,266	94	Weighted Average
92		7.27% Pervious Area
1,174		92.73% Impervious Area
21		1.79% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	42	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 23S: DA2



Summary for Subcatchment 24S: DA3

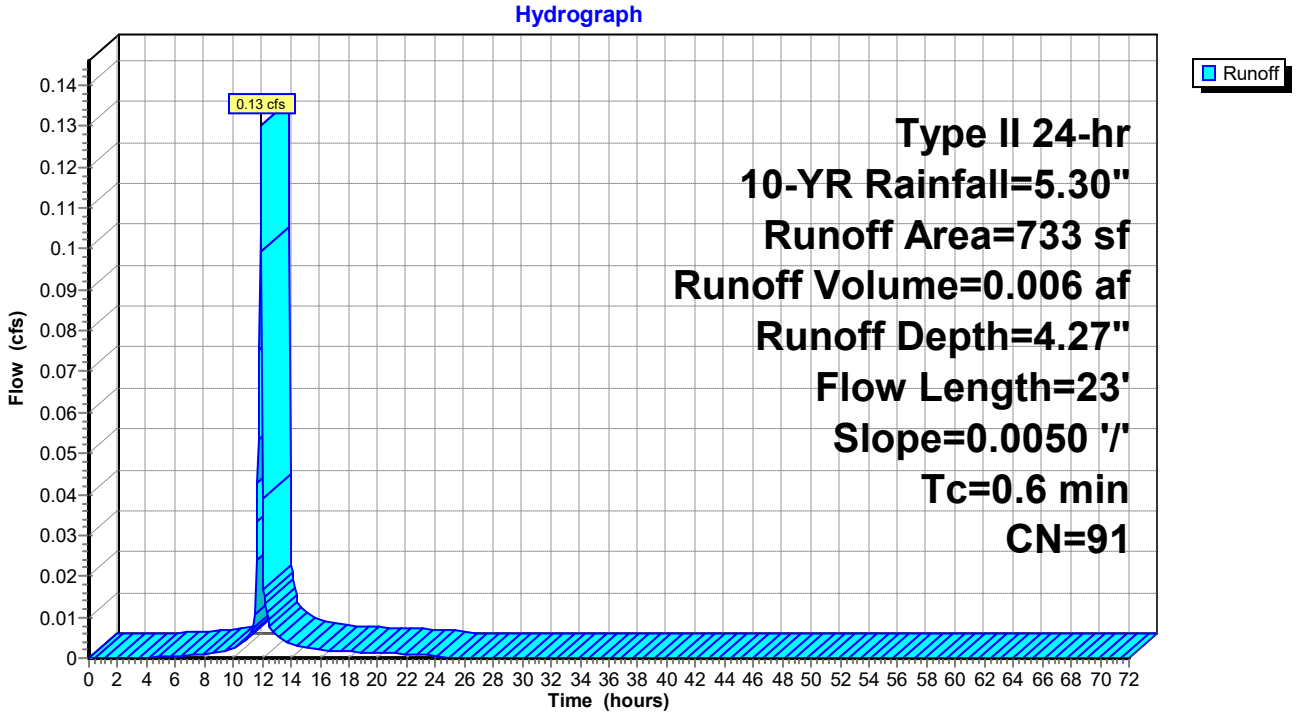
Runoff = 0.13 cfs @ 11.90 hrs, Volume= 0.006 af, Depth= 4.27"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
620	98	Roofs, HSG D
92	39	Pasture/grassland/range, Good, HSG A
21	98	Unconnected pavement, HSG D
733	91	Weighted Average
92		12.55% Pervious Area
641		87.45% Impervious Area
21		3.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	23	0.0050	0.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 24S: DA3



Summary for Subcatchment 26S: DA4

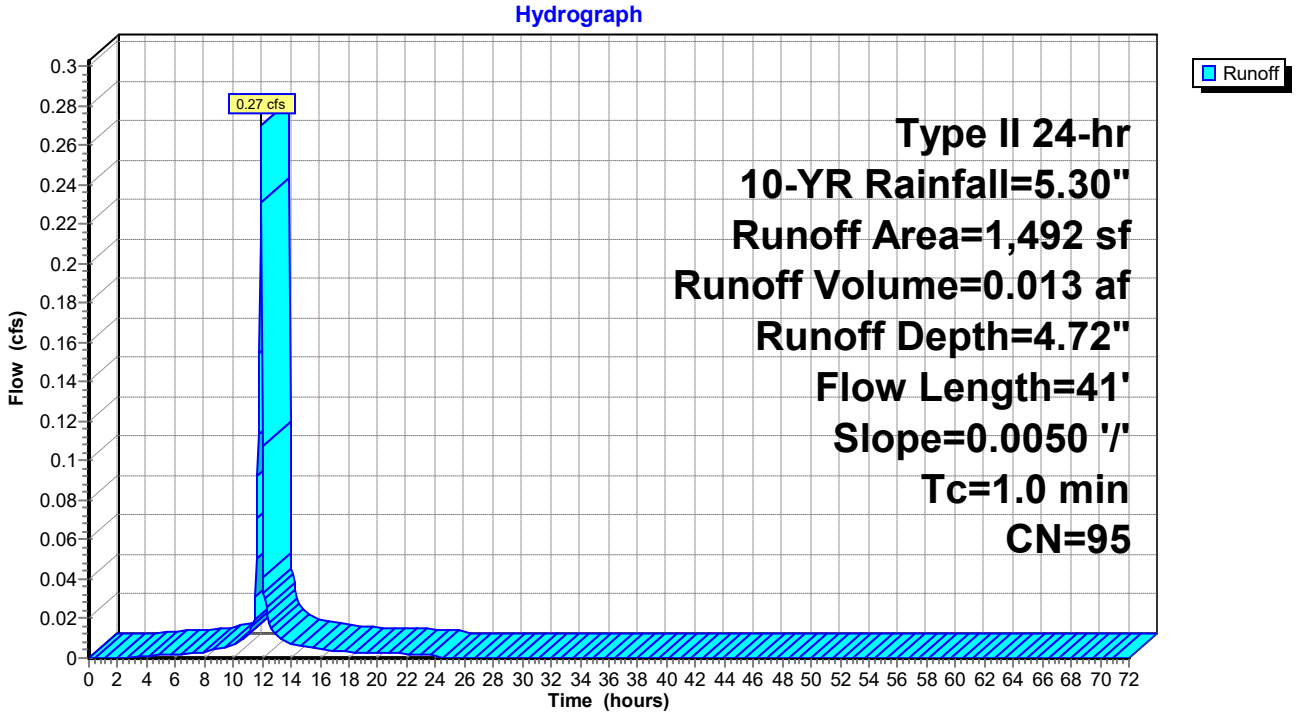
Runoff = 0.27 cfs @ 11.90 hrs, Volume= 0.013 af, Depth= 4.72"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,409	98	Roofs, HSG D
66	39	Pasture/grassland/range, Good, HSG A
17	98	Unconnected pavement, HSG D
1,492	95	Weighted Average
66		4.42% Pervious Area
1,426		95.58% Impervious Area
17		1.19% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	41	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 26S: DA4



Summary for Subcatchment 27S: DA5

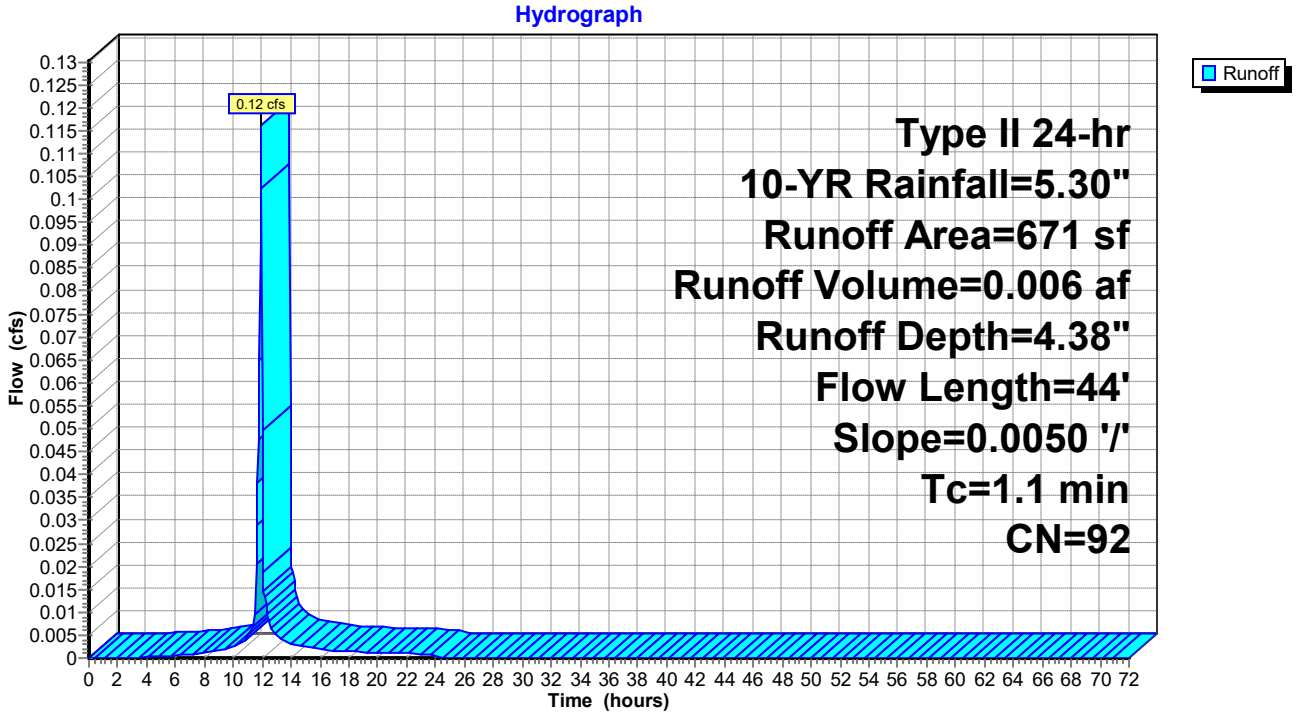
Runoff = 0.12 cfs @ 11.91 hrs, Volume= 0.006 af, Depth= 4.38"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
588	98	Roofs, HSG D
66	39	Pasture/grassland/range, Good, HSG A
17	98	Unconnected pavement, HSG D
671	92	Weighted Average
66		9.84% Pervious Area
605		90.16% Impervious Area
17		2.81% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	44	0.0050	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 27S: DA5



Summary for Subcatchment 31S: DA6 - PERMEABLE PAVEMENT NORTH

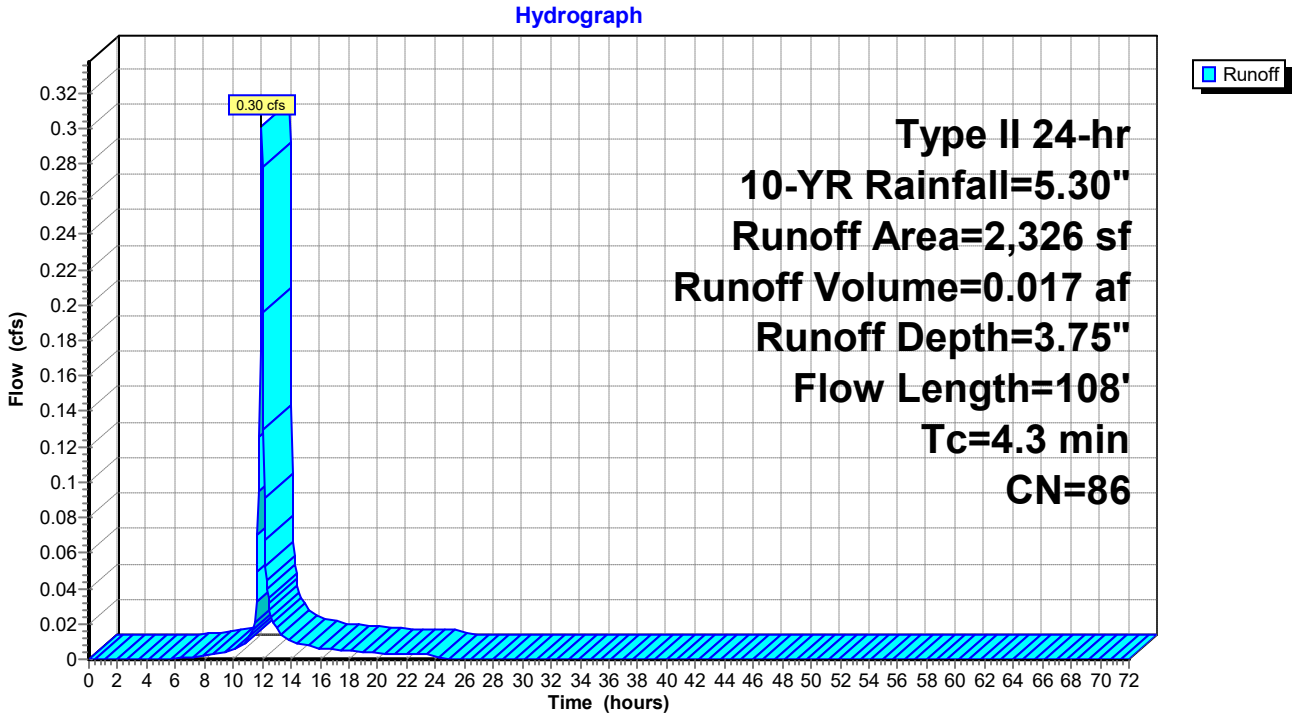
Runoff = 0.30 cfs @ 11.96 hrs, Volume= 0.017 af, Depth= 3.75"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,046	98	Paved parking, HSG D
508	98	Unconnected pavement, HSG D
288	98	Unconnected pavement, HSG D
484	39	>75% Grass cover, Good, HSG A
2,326	86	Weighted Average
484		20.81% Pervious Area
1,842		79.19% Impervious Area
796		43.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	7	0.0033	0.05		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.8	93	0.0057	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.2	8	0.0014	0.76		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	108	Total			

Subcatchment 31S: DA6 - PERMEABLE PAVEMENT NORTH



Summary for Subcatchment 33S: DA7 - PERMEABLE PAVEMENTEAST

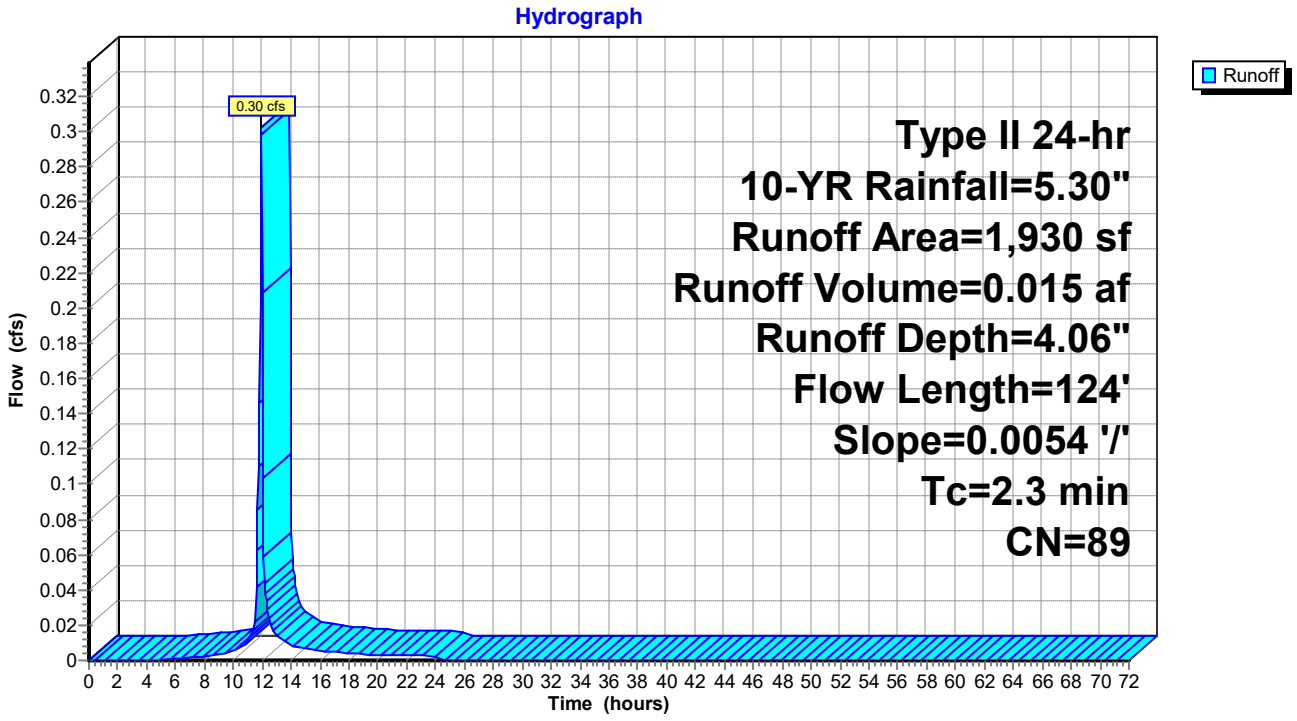
Runoff = 0.30 cfs @ 11.94 hrs, Volume= 0.015 af, Depth= 4.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
286	39	>75% Grass cover, Good, HSG A
1,644	98	Unconnected pavement, HSG D
1,930	89	Weighted Average
286		14.82% Pervious Area
1,644		85.18% Impervious Area
1,644		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0054	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.3	24	0.0054	1.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.3	124	Total			

Subcatchment 33S: DA7 - PERMEABLE PAVEMENTEAST



Summary for Subcatchment 38S: DA8

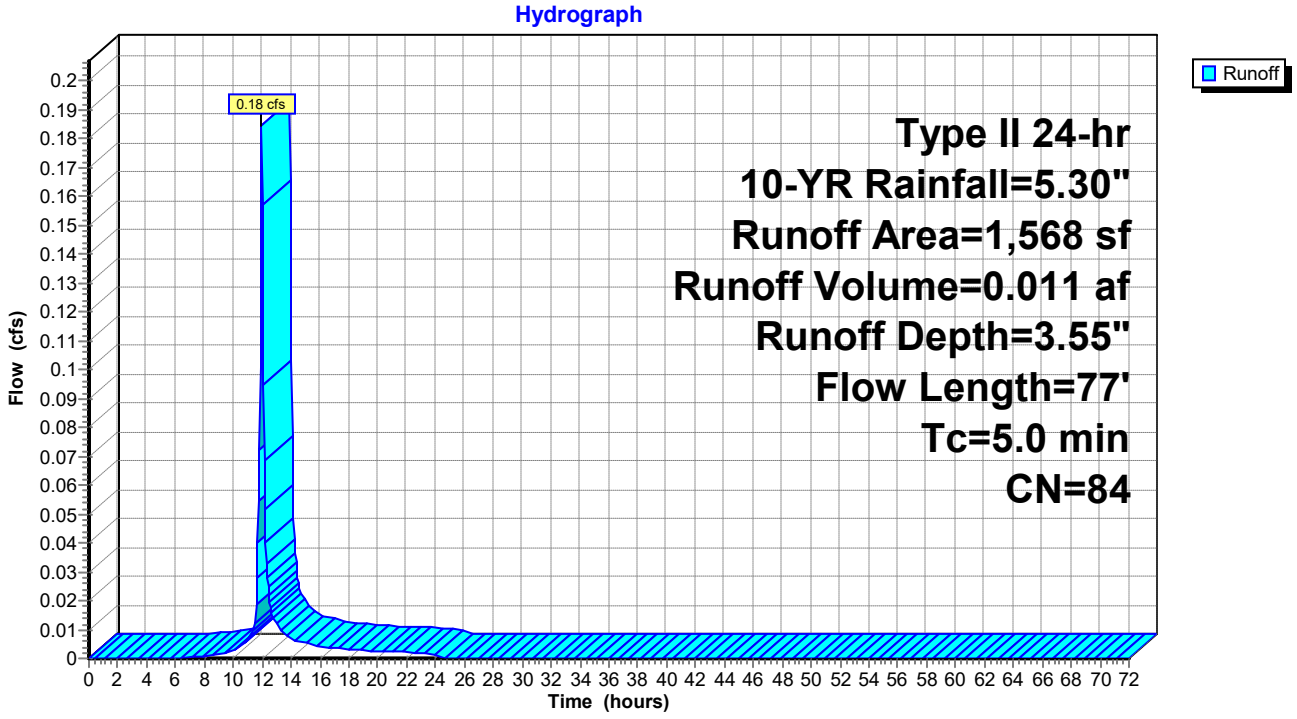
Runoff = 0.18 cfs @ 11.97 hrs, Volume= 0.011 af, Depth= 3.55"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,207	98	Unconnected pavement, HSG D
361	39	>75% Grass cover, Good, HSG A
1,568	84	Weighted Average
361		23.02% Pervious Area
1,207		76.98% Impervious Area
1,207		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	6	0.0010	0.03		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.7	71	0.0040	0.70		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
5.0	77	Total			

Subcatchment 38S: DA8



Summary for Subcatchment 39S: DA1

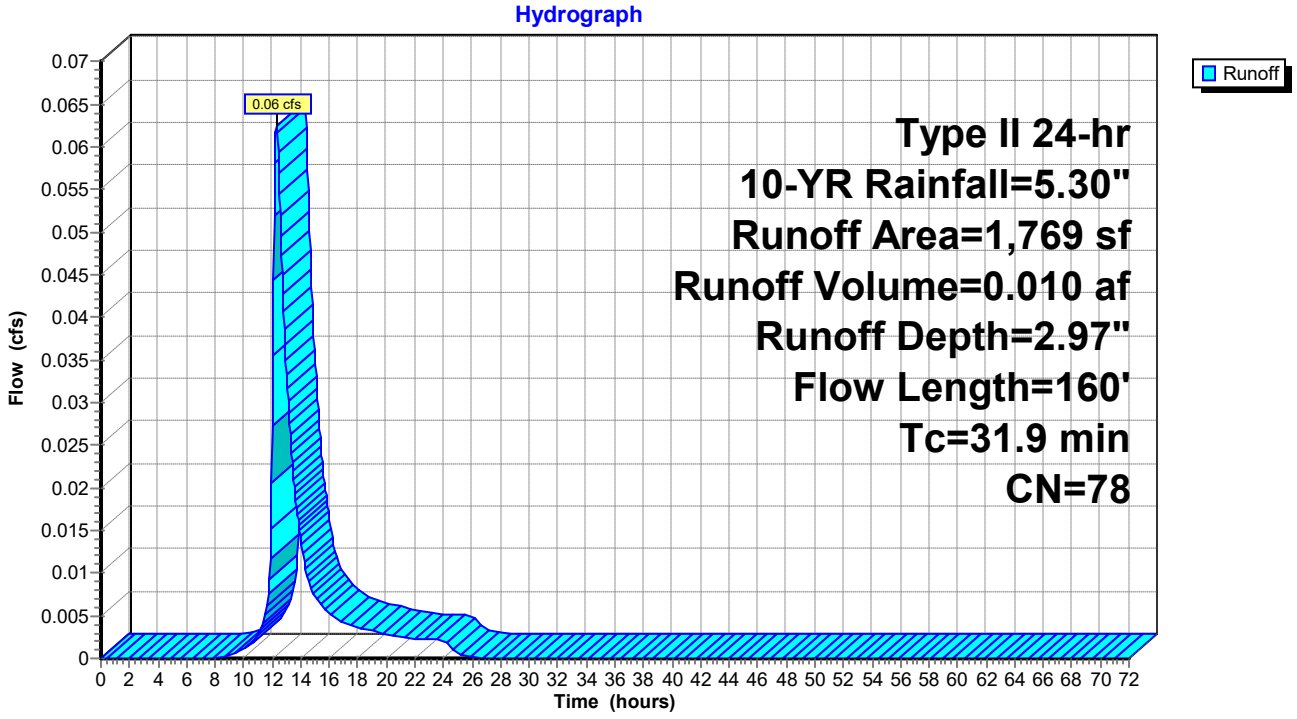
Runoff = 0.06 cfs @ 12.30 hrs, Volume= 0.010 af, Depth= 2.97"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
1,167	98	Unconnected pavement, HSG D
602	39	>75% Grass cover, Good, HSG A
1,769	78	Weighted Average
602		34.03% Pervious Area
1,167		65.97% Impervious Area
1,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.5	100	0.0010	0.05		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.4	60	0.0141	2.41		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
31.9	160	Total			

Subcatchment 39S: DA1



Summary for Pond 20P: PERMEABLE PAVEMENT NORTH

Inflow Area = 0.053 ac, 79.19% Impervious, Inflow Depth = 3.75" for 10-YR event
Inflow = 0.30 cfs @ 11.96 hrs, Volume= 0.017 af
Outflow = 0.02 cfs @ 13.21 hrs, Volume= 0.017 af, Atten= 95%, Lag= 75.0 min
Discarded = 0.02 cfs @ 13.21 hrs, Volume= 0.017 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 39.69' @ 13.21 hrs Surf.Area= 1,001 sf Storage= 347 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 217.2 min (1,017.4 - 800.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	38.82'	403 cf	**23.00'W x 43.50'L x 1.47'H Field A** 1,467 cf Overall - 460 cf Embedded = 1,008 cf x 40.0% Voids
#2A	39.82'	103 cf	**PaveDrain S6-45** x 1075 Inside #1 Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf 25 Rows of 43 Chambers
		506 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.82'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 36.00'
#2	Primary	40.19'	**43.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.02 cfs @ 13.21 hrs HW=39.69' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.82' TW=37.68' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 20P: PERMEABLE PAVEMENT NORTH - Chamber Wizard Field A

Chamber Model = PaveDrain S6-45 (PaveDrain 12x12 Block with gap storage)
Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf
Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf

12.0" Wide - 1.0" Nesting = 11.0" C-C Row Spacing

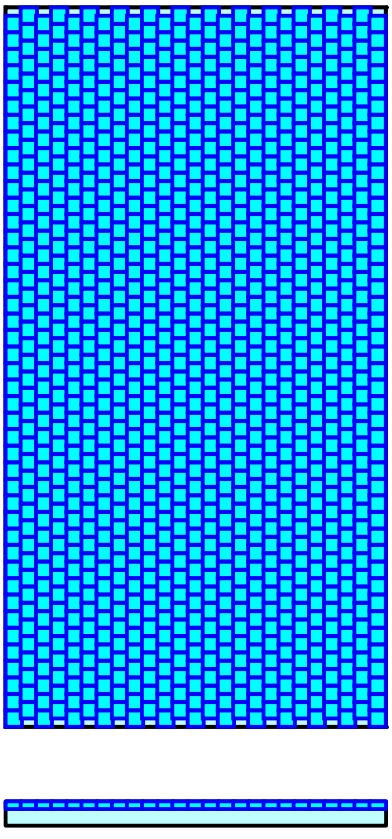
43 Chambers/Row x 1.00' Long = 43.00' Row Length +0.50' Row Offset = 43.50' Base Length
25 Rows x 12.0" Wide - 1.0" Nesting x 24 = 23.00' Base Width
12.0" Base + 5.6" Chamber Height = 1.47' Field Height

1,075 Chambers x 0.1 cf = 102.6 cf Chamber Storage
1,075 Chambers x 0.4 cf = 459.9 cf Displacement

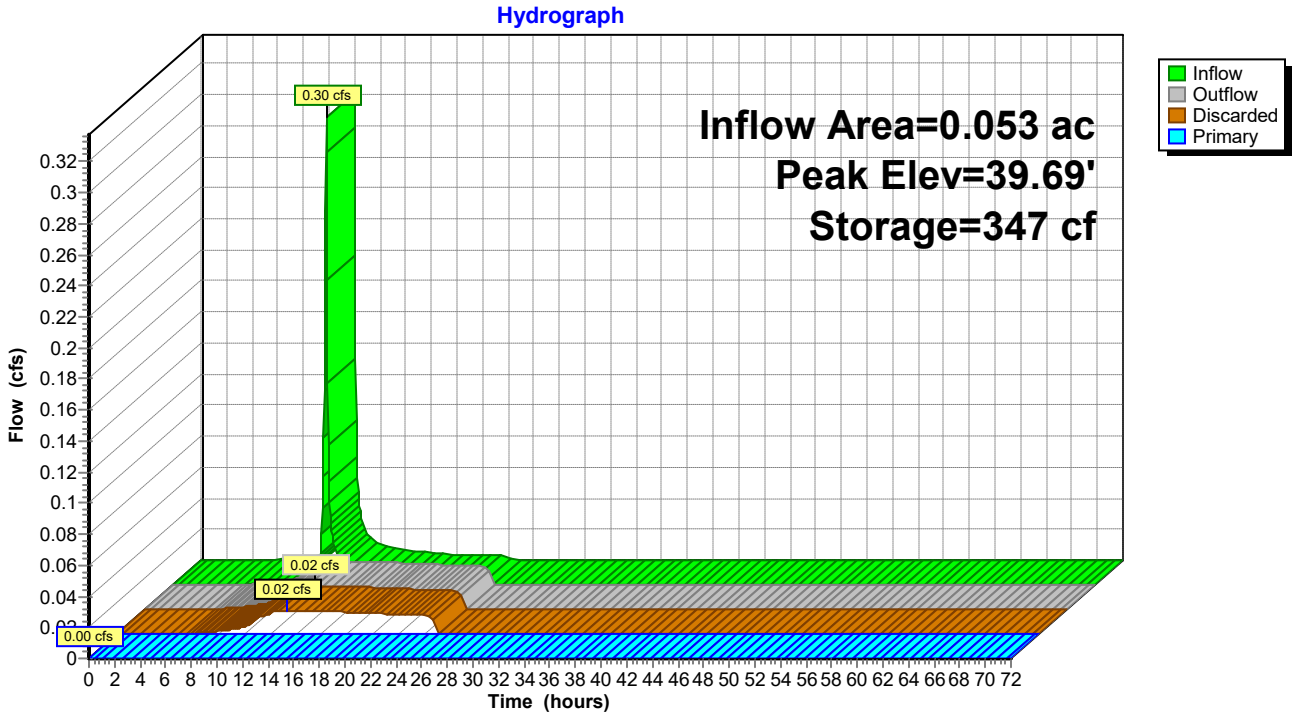
1,467.4 cf Field - 459.9 cf Chambers = 1,007.5 cf Stone x 40.0% Voids = 403.0 cf Stone Storage

Chamber Storage + Stone Storage = 505.7 cf = 0.012 af
Overall Storage Efficiency = 34.5%
Overall System Size = 43.50' x 23.00' x 1.47'

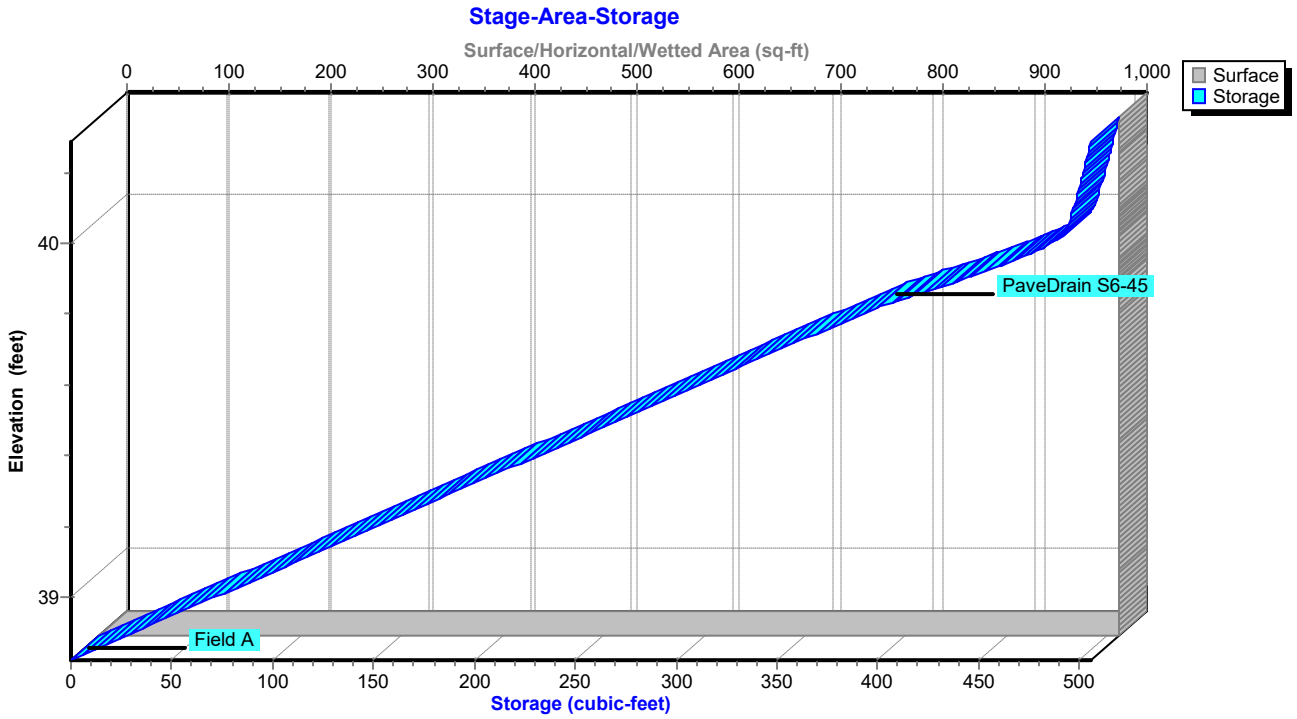
1,075 Chambers
54.3 cy Field
37.3 cy Stone



Pond 20P: PERMEABLE PAVEMENT NORTH



Pond 20P: PERMEABLE PAVEMENT NORTH



Summary for Pond 23P: PLANTER BOX 2

Inflow Area = 0.017 ac, 87.45% Impervious, Inflow Depth = 4.27" for 10-YR event
Inflow = 0.13 cfs @ 11.90 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.03 hrs, Volume= 0.006 af, Atten= 79%, Lag= 7.8 min
Primary = 0.03 cfs @ 12.03 hrs, Volume= 0.006 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 40.92' @ 12.03 hrs Surf.Area= 92 sf Storage= 93 cf

Plug-Flow detention time= 53.3 min calculated for 0.006 af (97% of inflow)
Center-of-Mass det. time= 36.6 min (813.6 - 777.0)

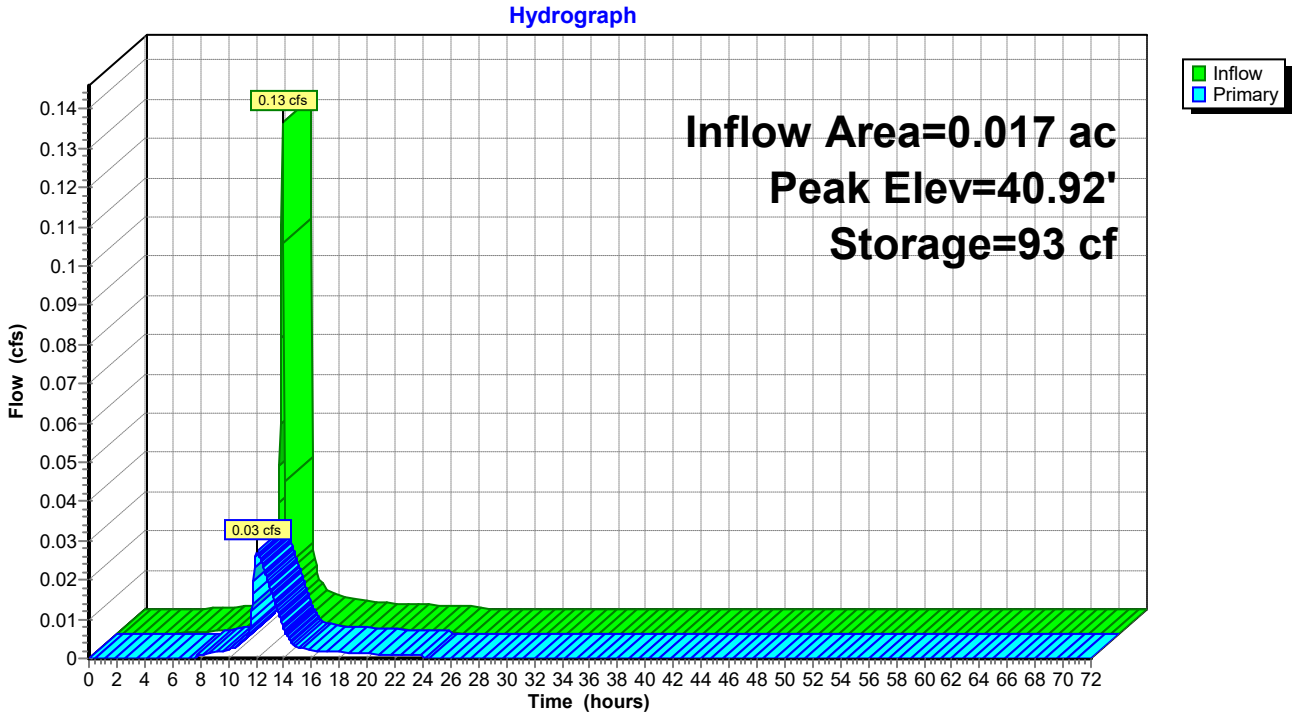
Volume	Invert	Avail.Storage	Storage Description
#1	38.40'	2,745 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.40	92	0.0	0	0
38.41	92	40.0	0	0
41.92	92	40.0	129	130
41.93	92	100.0	1	130
42.92	92	100.0	91	222
43.42	10,000	100.0	2,523	2,745

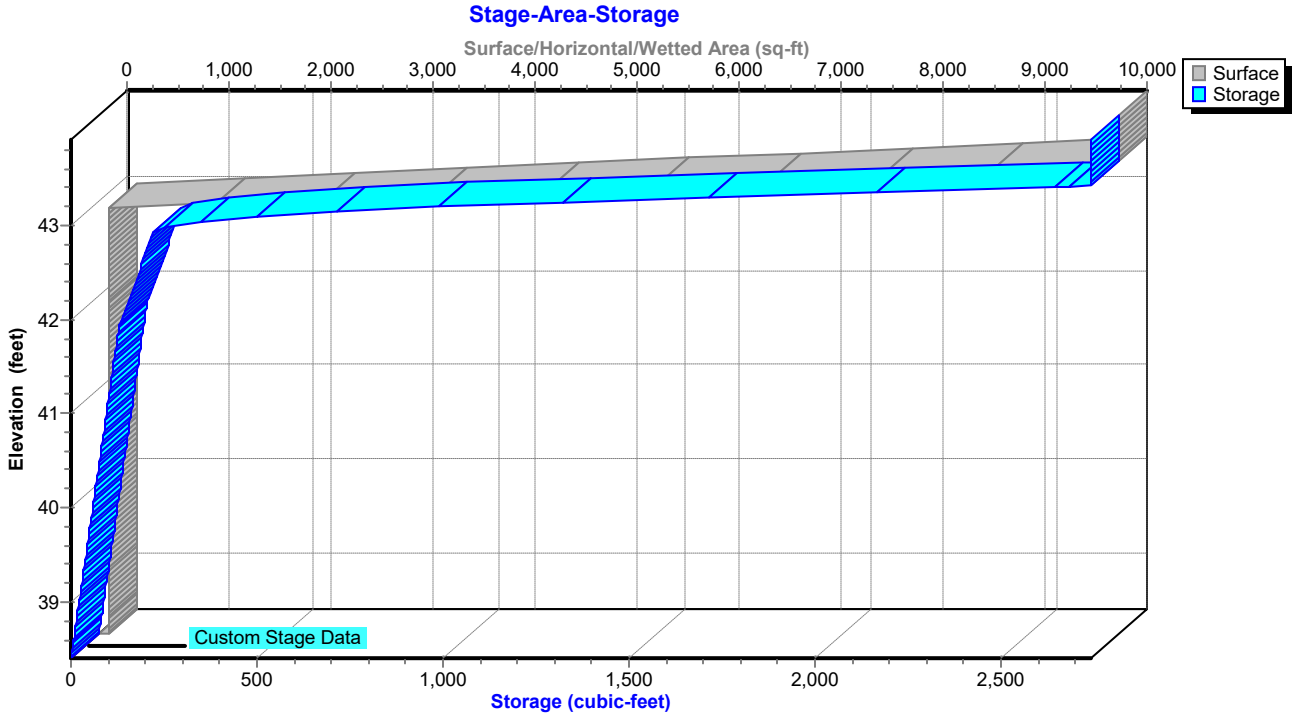
Device	Routing	Invert	Outlet Devices
#1	Primary	37.75'	**12.0" Round Culvert** L= 106.5' Ke= 0.500 Inlet / Outlet Invert= 37.75' / 37.60' S= 0.0014 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	38.42'	**4.0" Round Culvert** L= 8.6' Ke= 0.500 Inlet / Outlet Invert= 38.42' / 37.75' S= 0.0779 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	38.59'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	43.41'	**7.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.03 cfs @ 12.03 hrs HW=40.92' TW=37.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.03 cfs of 4.86 cfs potential flow)
  - **2=Culvert** (Passes 0.03 cfs of 0.64 cfs potential flow)
    - **3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 7.34 fps)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 23P: PLANTER BOX 2



Pond 23P: PLANTER BOX 2



Summary for Pond 24P: PLANTER BOX 1

Inflow Area = 0.029 ac, 92.73% Impervious, Inflow Depth = 4.60" for 10-YR event
Inflow = 0.23 cfs @ 11.91 hrs, Volume= 0.011 af
Outflow = 0.04 cfs @ 12.07 hrs, Volume= 0.011 af, Atten= 84%, Lag= 9.7 min
Primary = 0.04 cfs @ 12.07 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 42.30' @ 12.07 hrs Surf.Area= 92 sf Storage= 181 cf

Plug-Flow detention time= 56.3 min calculated for 0.011 af (98% of inflow)
Center-of-Mass det. time= 46.0 min (810.2 - 764.3)

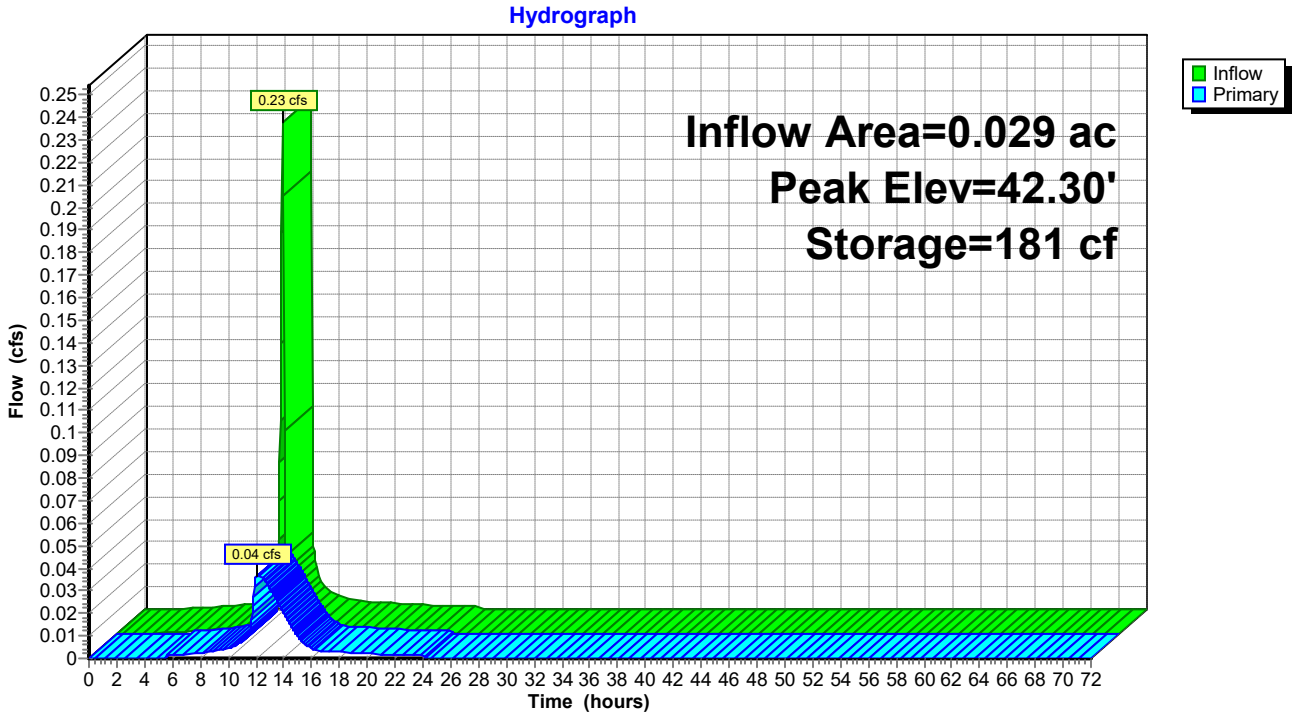
Volume	Invert	Avail.Storage	Storage Description
#1	37.92'	2,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.92	92	0.0	0	0
37.93	92	40.0	0	0
41.95	92	40.0	148	148
41.96	92	100.0	1	149
42.95	92	100.0	91	240
43.45	10,000	100.0	2,523	2,763

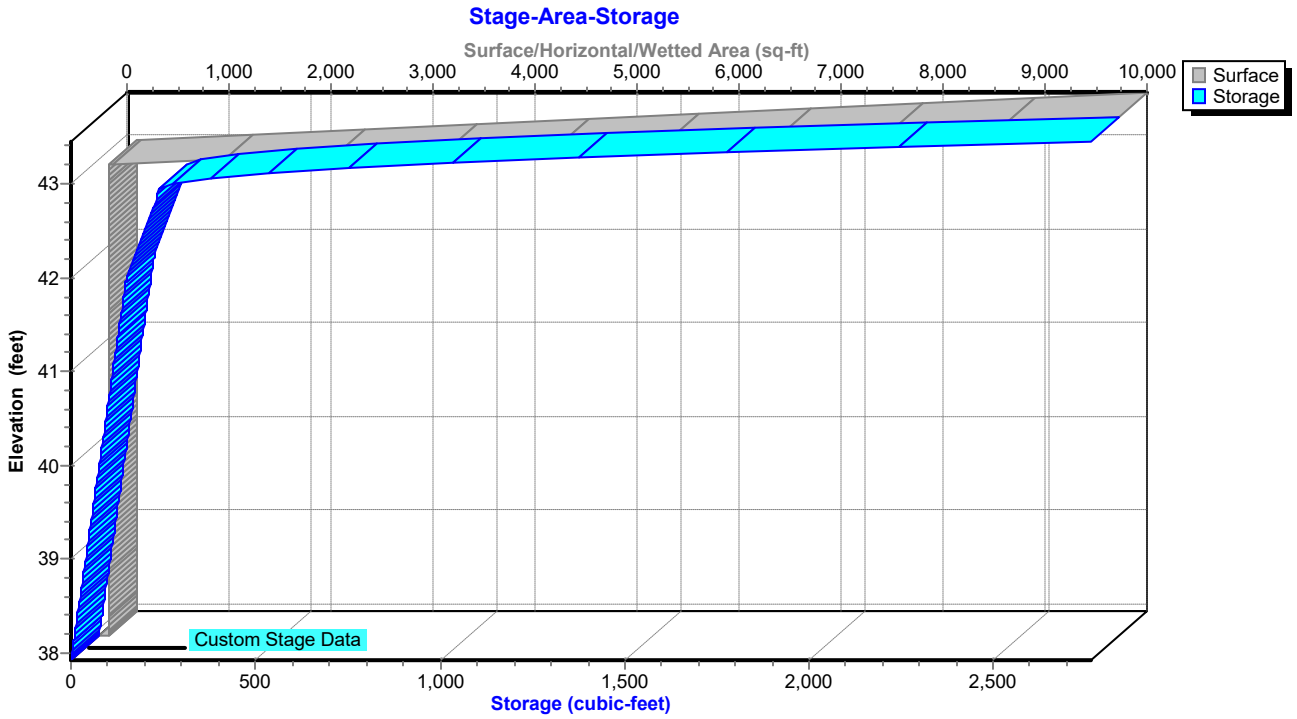
Device	Routing	Invert	Outlet Devices
#1	Primary	37.73'	**12.0" Round Culvert** L= 87.6' Ke= 0.500 Inlet / Outlet Invert= 37.73' / 37.60' S= 0.0015 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.95'	**4.0" Round Culvert** L= 4.8' Ke= 0.500 Inlet / Outlet Invert= 37.95' / 37.73' S= 0.0458 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	38.12'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	42.95'	**7.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.04 cfs @ 12.07 hrs HW=42.29' TW=37.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 6.50 cfs potential flow)
  - **2=Culvert** (Passes 0.04 cfs of 0.86 cfs potential flow)
    - **3=Orifice/Grate** (Orifice Controls 0.04 cfs @ 9.84 fps)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 24P: PLANTER BOX 1



Pond 24P: PLANTER BOX 1



Summary for Pond 25P: PLANTER BOX 3

Inflow Area = 0.034 ac, 95.58% Impervious, Inflow Depth = 4.72" for 10-YR event
Inflow = 0.27 cfs @ 11.90 hrs, Volume= 0.013 af
Outflow = 0.24 cfs @ 11.93 hrs, Volume= 0.013 af, Atten= 11%, Lag= 1.8 min
Primary = 0.24 cfs @ 11.93 hrs, Volume= 0.013 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 39.10' @ 11.94 hrs Surf.Area= 66 sf Storage= 29 cf

Plug-Flow detention time= 5.1 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 4.9 min (764.0 - 759.0)

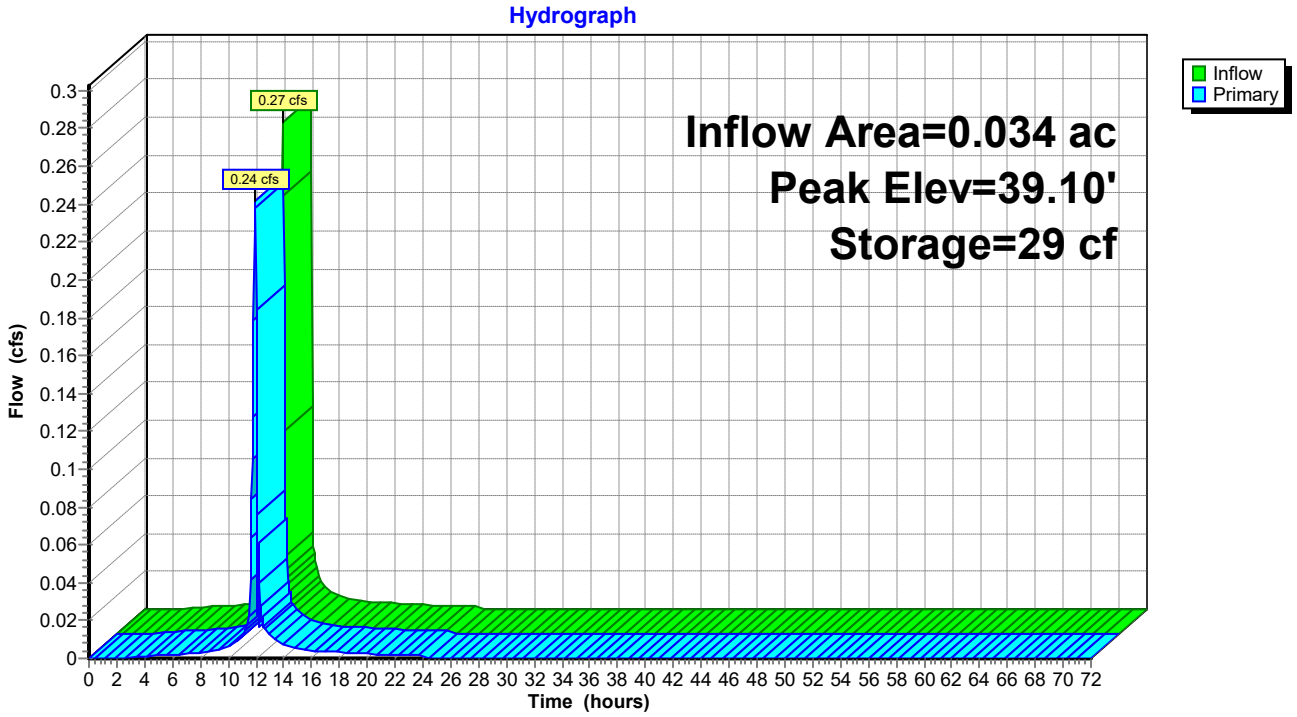
Volume	Invert	Avail.Storage	Storage Description
#1	37.99'	2,633 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.99	66	0.0	0	0
38.00	66	40.0	0	0
41.14	66	40.0	83	83
41.15	66	100.0	1	84
41.64	66	100.0	32	116
42.14	10,000	100.0	2,517	2,633

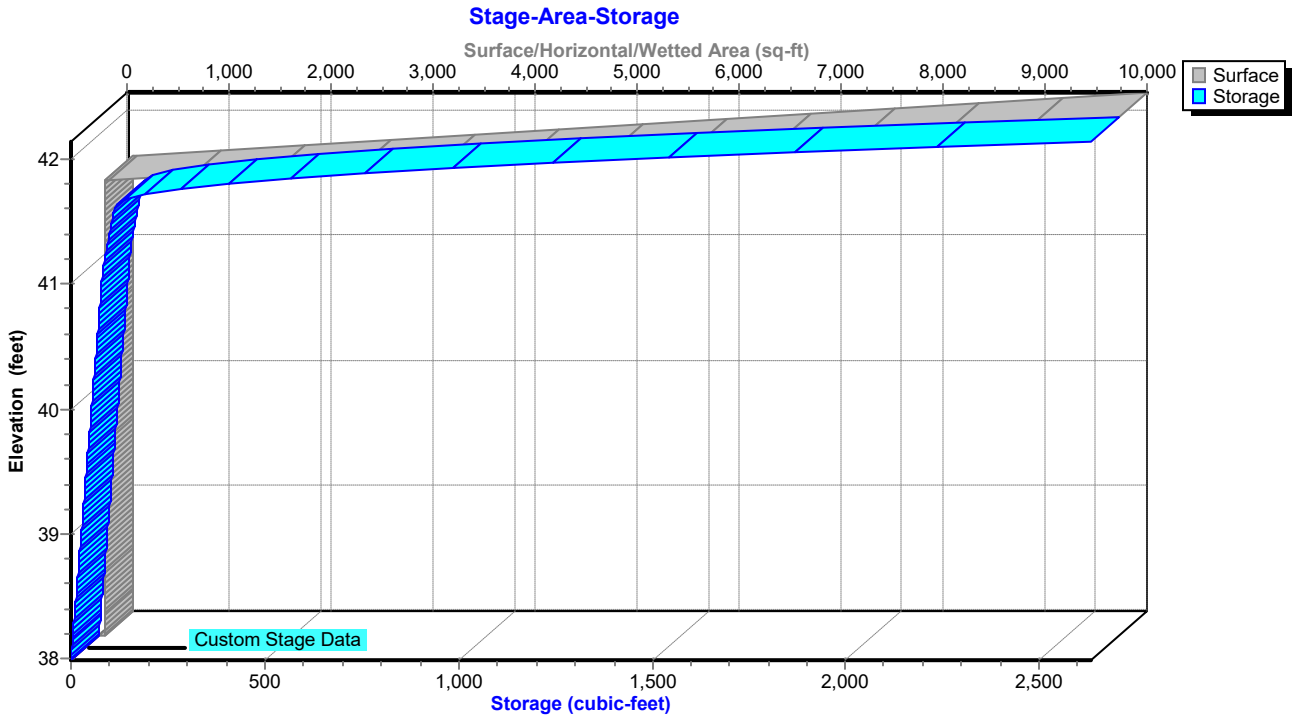
Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**4.0" Round Culvert** L= 52.5' Ke= 0.500 Inlet / Outlet Invert= 38.00' / 37.94' S= 0.0011 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	38.00'	**4.0" Round Culvert** L= 4.9' Ke= 0.500 Inlet / Outlet Invert= 38.00' / 38.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 1	38.17'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	41.64'	**8.7' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.23 cfs @ 11.93 hrs HW=39.06' TW=38.35' (Dynamic Tailwater)
- **1=Culvert** (Outlet Controls 0.23 cfs @ 2.63 fps)
  - **2=Culvert** (Passes < 0.35 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 0.02 cfs potential flow)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: PLANTER BOX 3



Pond 25P: PLANTER BOX 3



Summary for Pond 26P: PLANTER BOX 4

Inflow Area = 0.015 ac, 90.16% Impervious, Inflow Depth = 4.38" for 10-YR event
Inflow = 0.12 cfs @ 11.91 hrs, Volume= 0.006 af
Outflow = 0.10 cfs @ 11.92 hrs, Volume= 0.006 af, Atten= 14%, Lag= 0.9 min
Primary = 0.10 cfs @ 11.92 hrs, Volume= 0.006 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.39' @ 11.96 hrs Surf.Area= 104 sf Storage= 20 cf

Plug-Flow detention time= 19.0 min calculated for 0.006 af (99% of inflow)
Center-of-Mass det. time= 16.1 min (789.8 - 773.6)

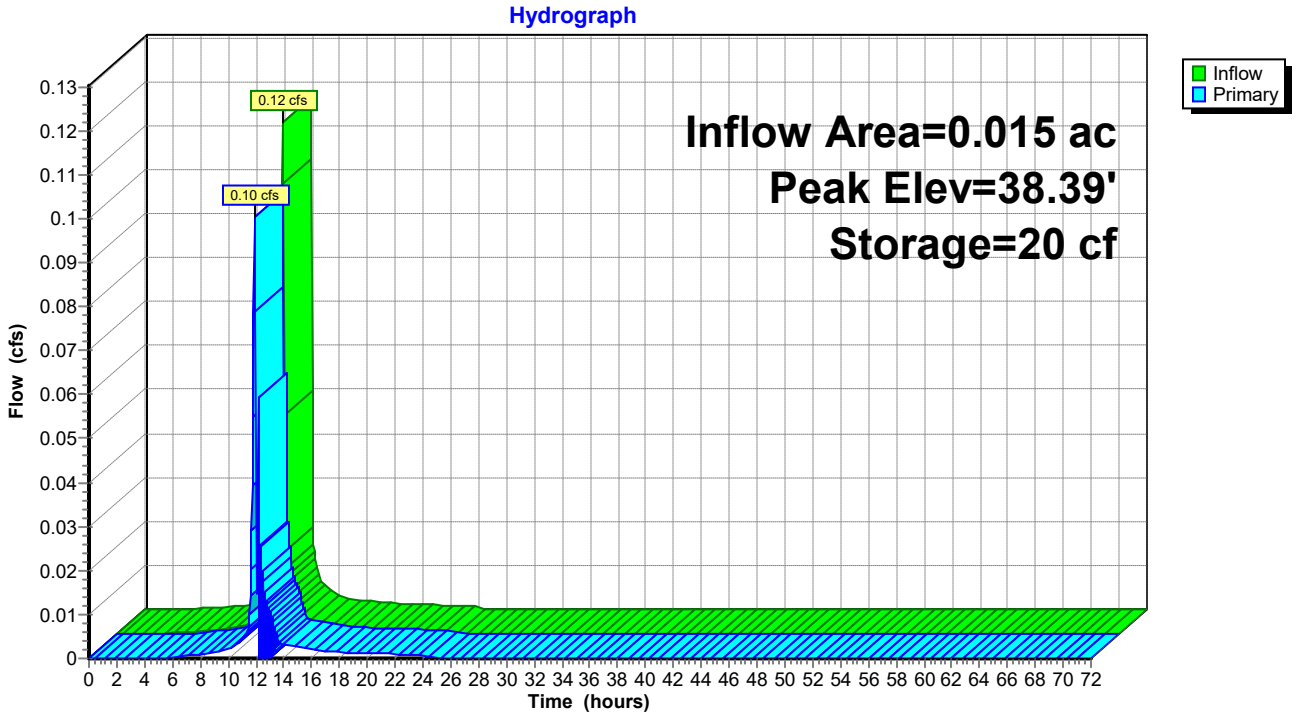
Volume	Invert	Avail.Storage	Storage Description
#1	37.91'	2,723 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.91	104	0.0	0	0
37.92	104	40.0	0	0
41.40	104	40.0	145	145
41.41	104	100.0	1	146
41.90	104	100.0	51	197
42.40	10,000	100.0	2,526	2,723

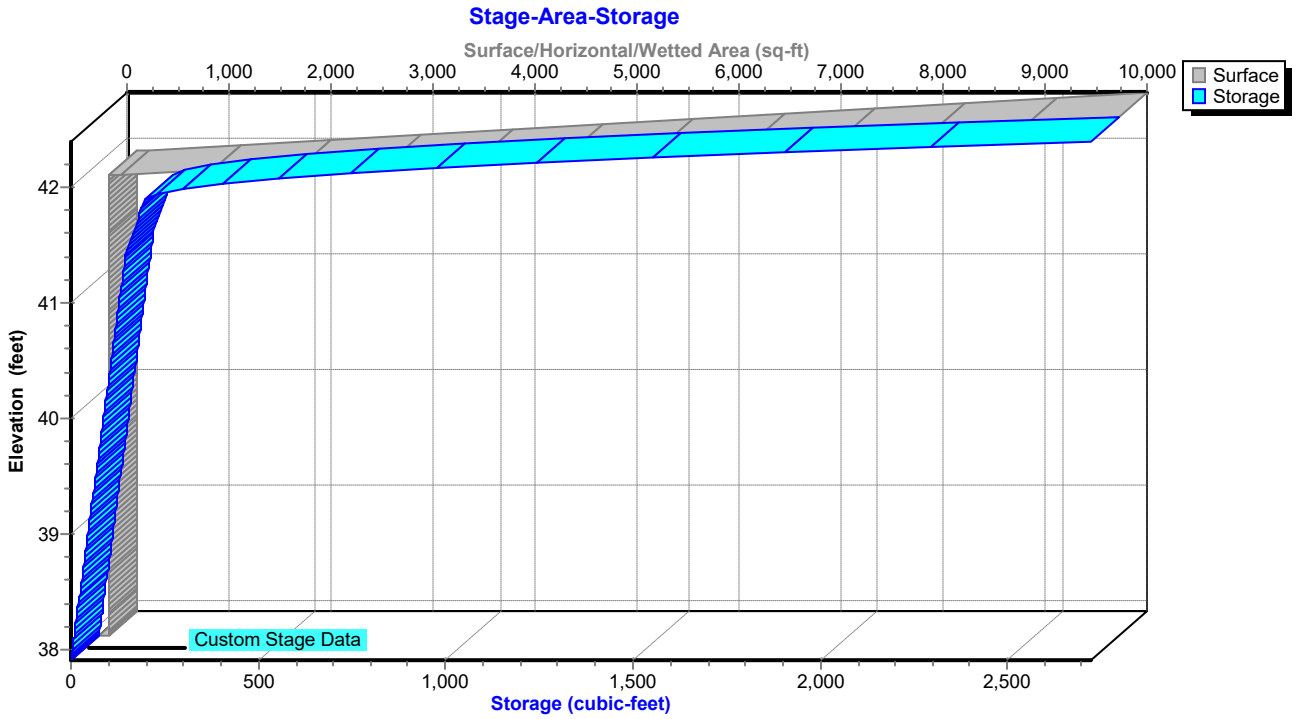
Device	Routing	Invert	Outlet Devices
#1	Primary	37.94'	**4.0" Round Culvert** L= 9.5' Ke= 0.500 Inlet / Outlet Invert= 37.94' / 37.93' S= 0.0011 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	37.94'	**4.0" Round Culvert** L= 4.3' Ke= 0.500 Inlet / Outlet Invert= 37.94' / 37.94' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 1	38.11'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	41.90'	**8.7' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.06 cfs @ 11.92 hrs HW=38.36' TW=38.34' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 0.06 cfs @ 0.65 fps)
  - **2=Culvert** (Passes < 0.06 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 0.00 cfs potential flow)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 26P: PLANTER BOX 4



Pond 26P: PLANTER BOX 4



Summary for Pond 32P: CURB INLET 1

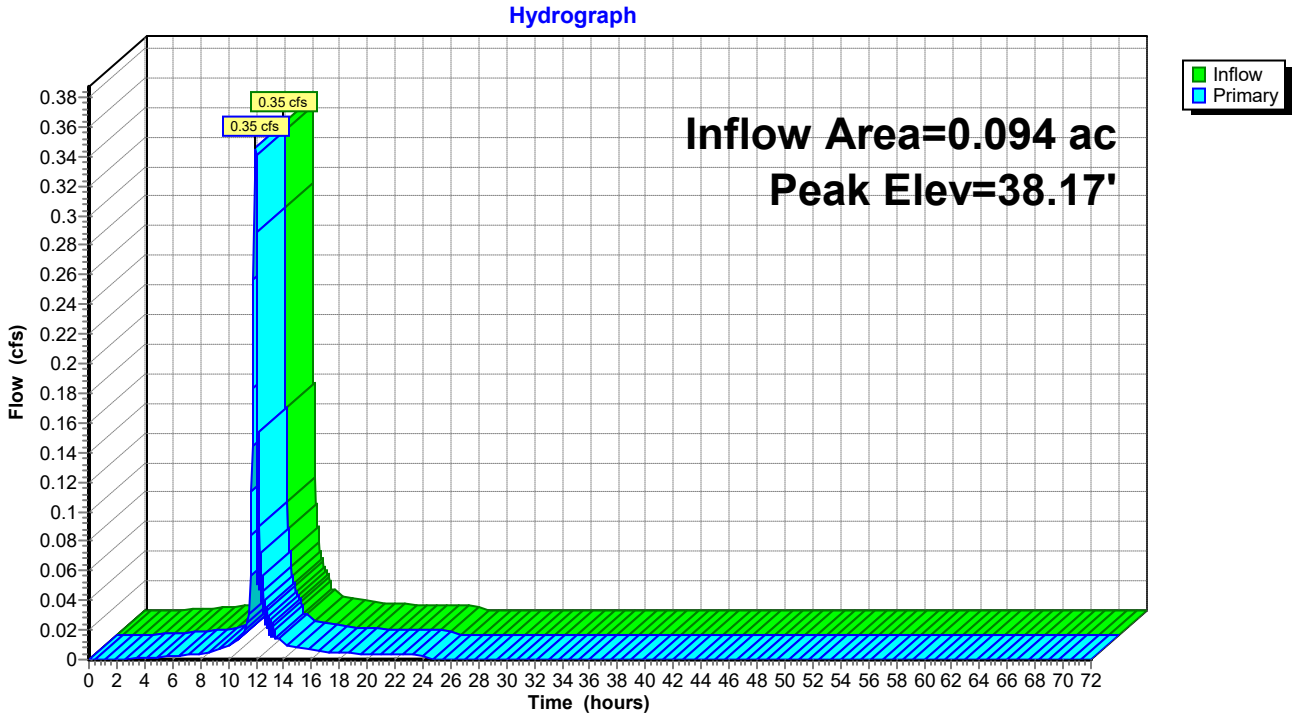
Inflow Area = 0.094 ac, 89.79% Impervious, Inflow Depth = 2.75" for 10-YR event
Inflow = 0.35 cfs @ 11.98 hrs, Volume= 0.022 af
Outflow = 0.35 cfs @ 11.98 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 11.98 hrs, Volume= 0.022 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.17' @ 12.00 hrs

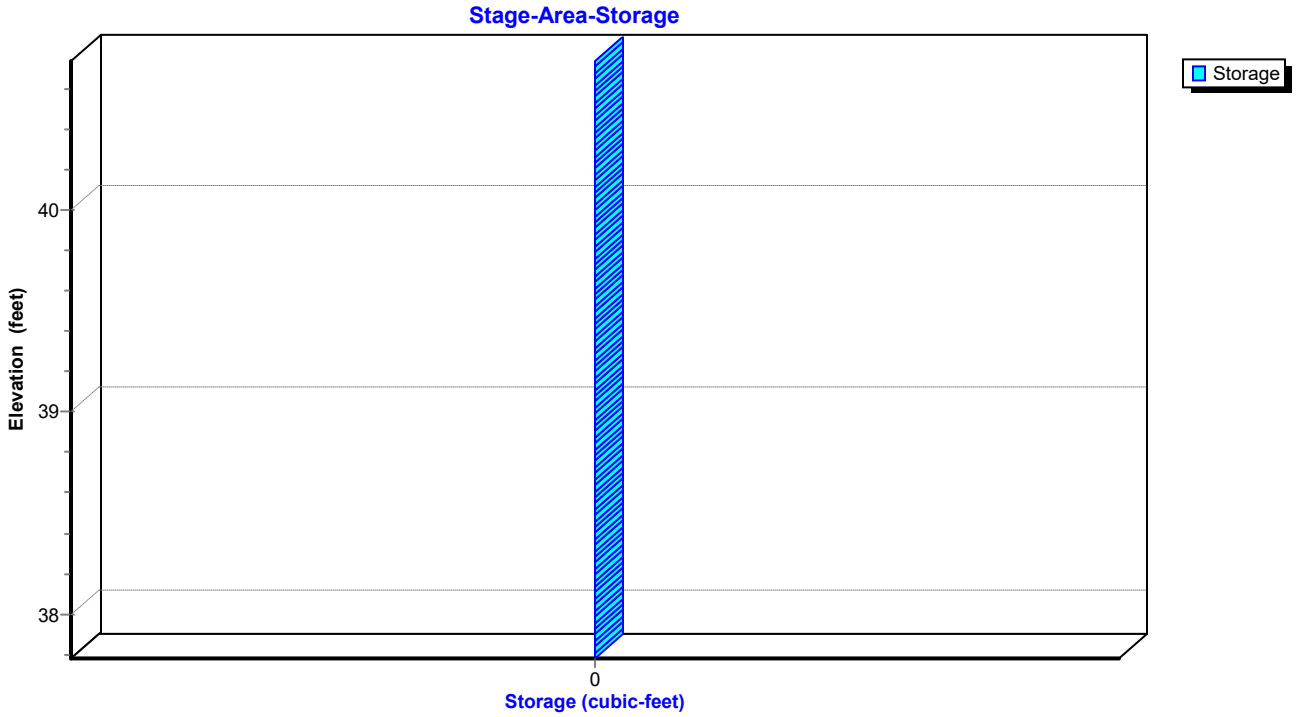
Device	Routing	Invert	Outlet Devices
#1	Primary	37.78'	**12.0" Round Culvert** L= 25.1' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.78' / 37.75' S= 0.0012 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	40.40'	**66.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.34 cfs @ 11.98 hrs HW=38.16' TW=37.68' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.34 cfs @ 1.81 fps)
2=Orifice/Grate (Controls 0.00 cfs)

Pond 32P: CURB INLET 1



Pond 32P: CURB INLET 1



Summary for Pond 33P: CURB INLET 2

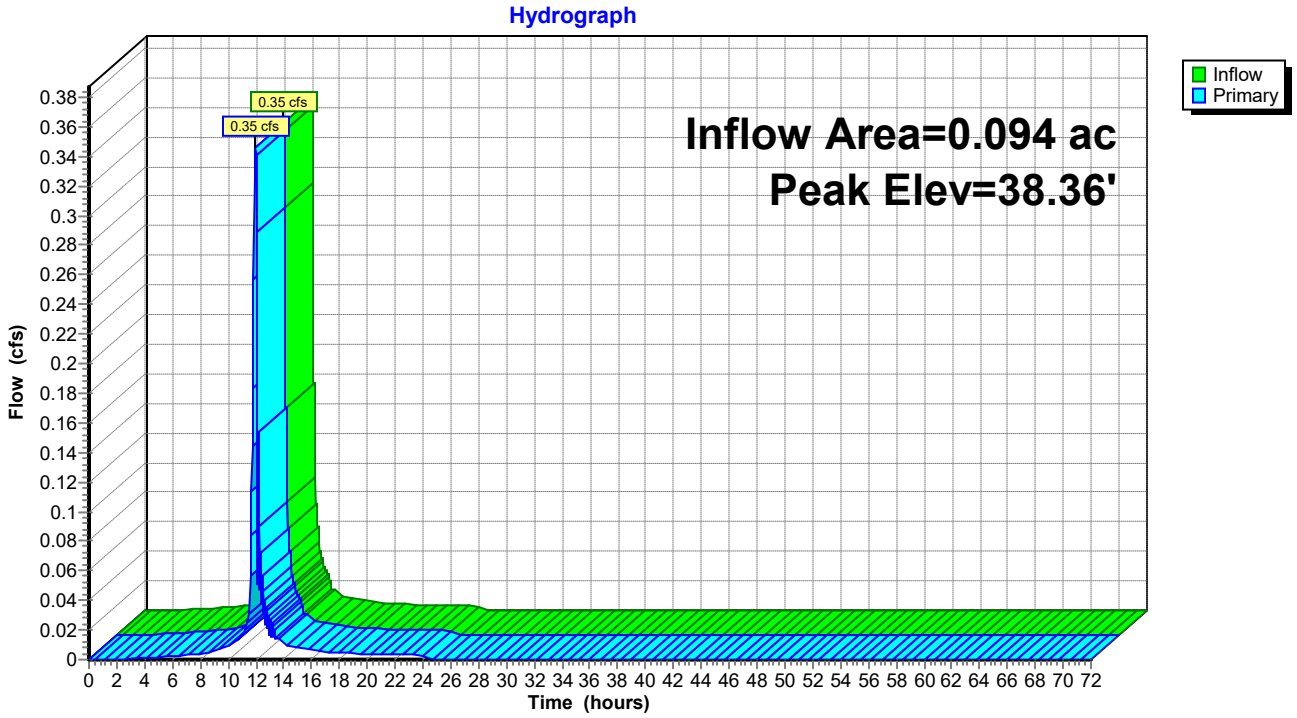
Inflow Area = 0.094 ac, 89.79% Impervious, Inflow Depth = 2.75" for 10-YR event
Inflow = 0.35 cfs @ 11.98 hrs, Volume= 0.022 af
Outflow = 0.35 cfs @ 11.98 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.35 cfs @ 11.98 hrs, Volume= 0.022 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.36' @ 11.98 hrs

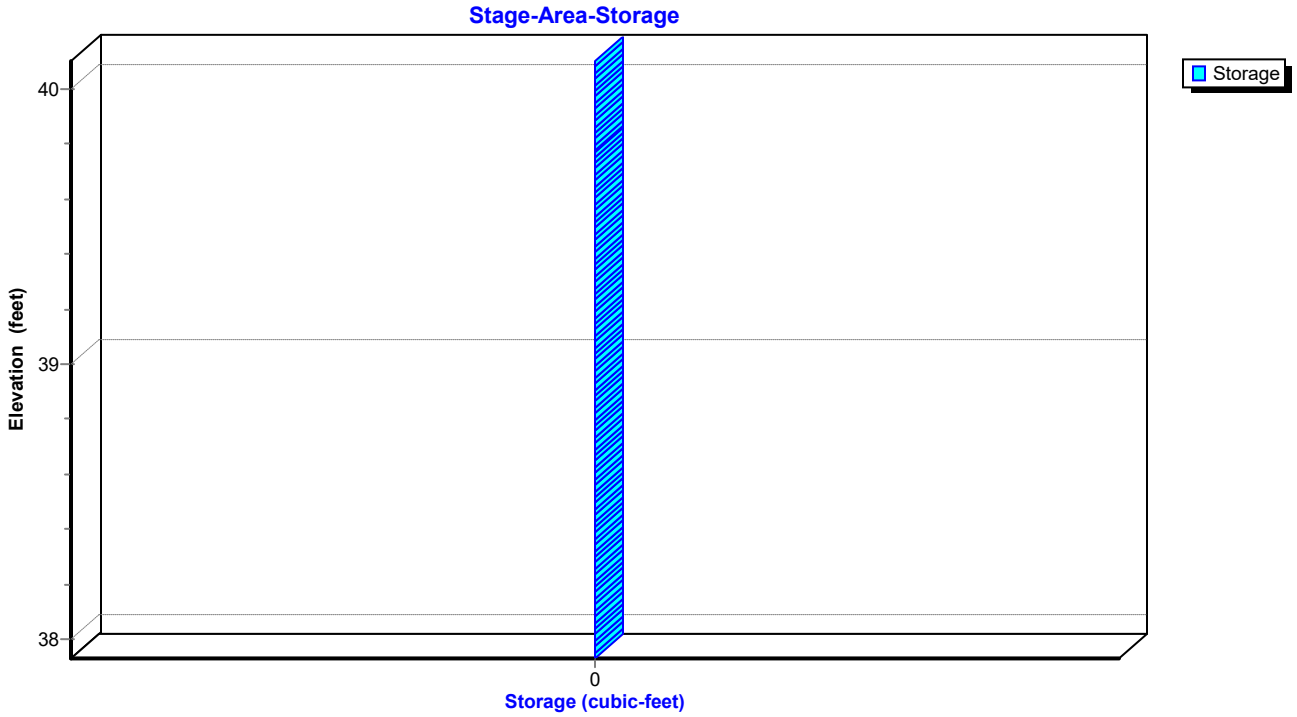
Device	Routing	Invert	Outlet Devices
#1	Primary	37.93'	**12.0" Round Culvert** L= 102.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.93' / 37.78' S= 0.0015 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.77'	**66.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.33 cfs @ 11.98 hrs HW=38.35' TW=38.16' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.33 cfs @ 1.55 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 33P: CURB INLET 2



Pond 33P: CURB INLET 2



Summary for Pond 34P: PERMEABLE PAVEMENT EAST

Inflow Area = 0.044 ac, 85.18% Impervious, Inflow Depth = 4.06" for 10-YR event
Inflow = 0.30 cfs @ 11.94 hrs, Volume= 0.015 af
Outflow = 0.21 cfs @ 12.04 hrs, Volume= 0.015 af, Atten= 30%, Lag= 6.4 min
Discarded = 0.01 cfs @ 12.05 hrs, Volume= 0.013 af
Primary = 0.20 cfs @ 12.04 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 40.17' @ 12.05 hrs Surf.Area= 494 sf Storage= 250 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 256.4 min (1,043.6 - 787.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	38.71'	200 cf	**5.58'W x 88.50'L x 1.47'H Field A** 725 cf Overall - 226 cf Embedded = 499 cf x 40.0% Voids
#2A	39.71'	50 cf	**PaveDrain S6-45** x 528 Inside #1 Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf 6 Rows of 88 Chambers
		250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.71'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 36.00'
#2	Primary	40.16'	**88.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 12.05 hrs HW=40.17' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.18 cfs @ 12.04 hrs HW=40.17' TW=38.34' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.18 cfs @ 0.28 fps)

Pond 34P: PERMEABLE PAVEMENT EAST - Chamber Wizard Field A

Chamber Model = PaveDrain S6-45 (PaveDrain 12x12 Block with gap storage)
Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf
Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf

12.0" Wide - 1.0" Nesting = 11.0" C-C Row Spacing

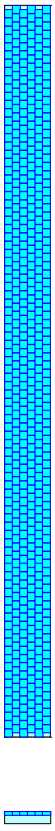
88 Chambers/Row x 1.00' Long = 88.00' Row Length +0.50' Row Offset = 88.50' Base Length
6 Rows x 12.0" Wide - 1.0" Nesting x 5 = 5.58' Base Width
12.0" Base + 5.6" Chamber Height = 1.47' Field Height

528 Chambers x 0.1 cf = 50.4 cf Chamber Storage
528 Chambers x 0.4 cf = 225.9 cf Displacement

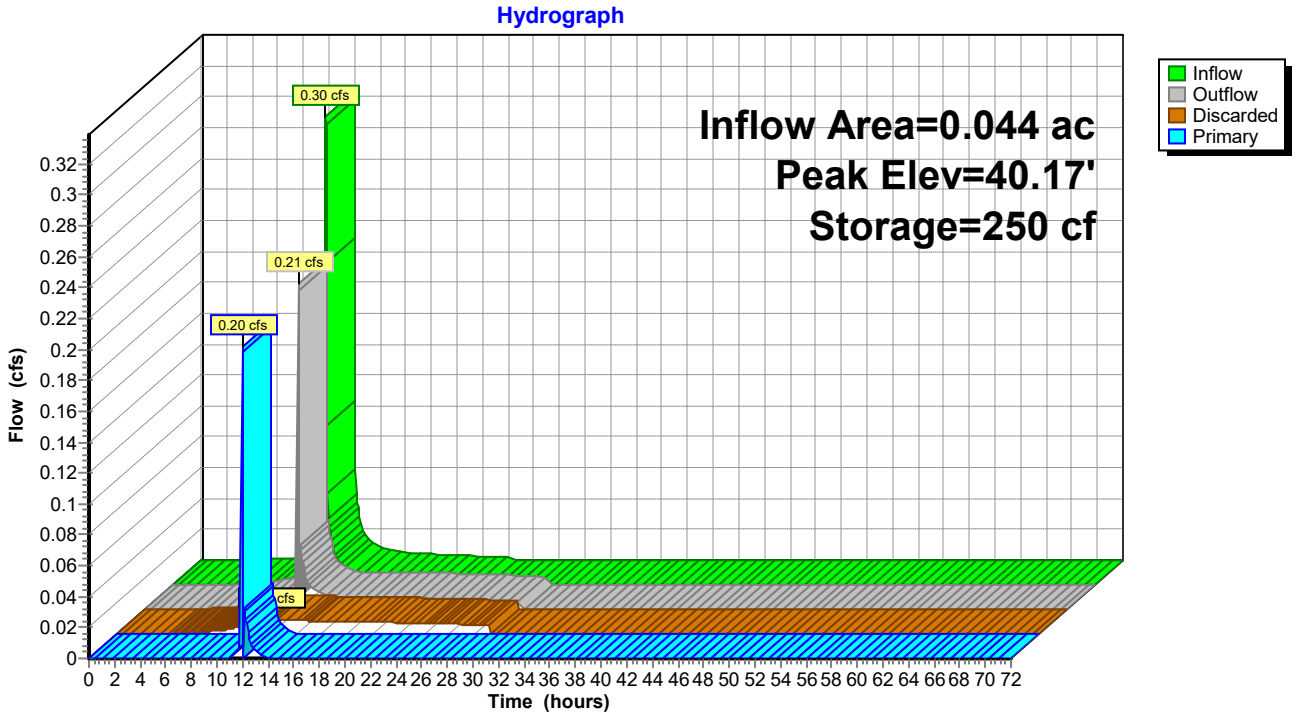
724.7 cf Field - 225.9 cf Chambers = 498.8 cf Stone x 40.0% Voids = 199.5 cf Stone Storage

Chamber Storage + Stone Storage = 250.0 cf = 0.006 af
Overall Storage Efficiency = 34.5%
Overall System Size = 88.50' x 5.58' x 1.47'

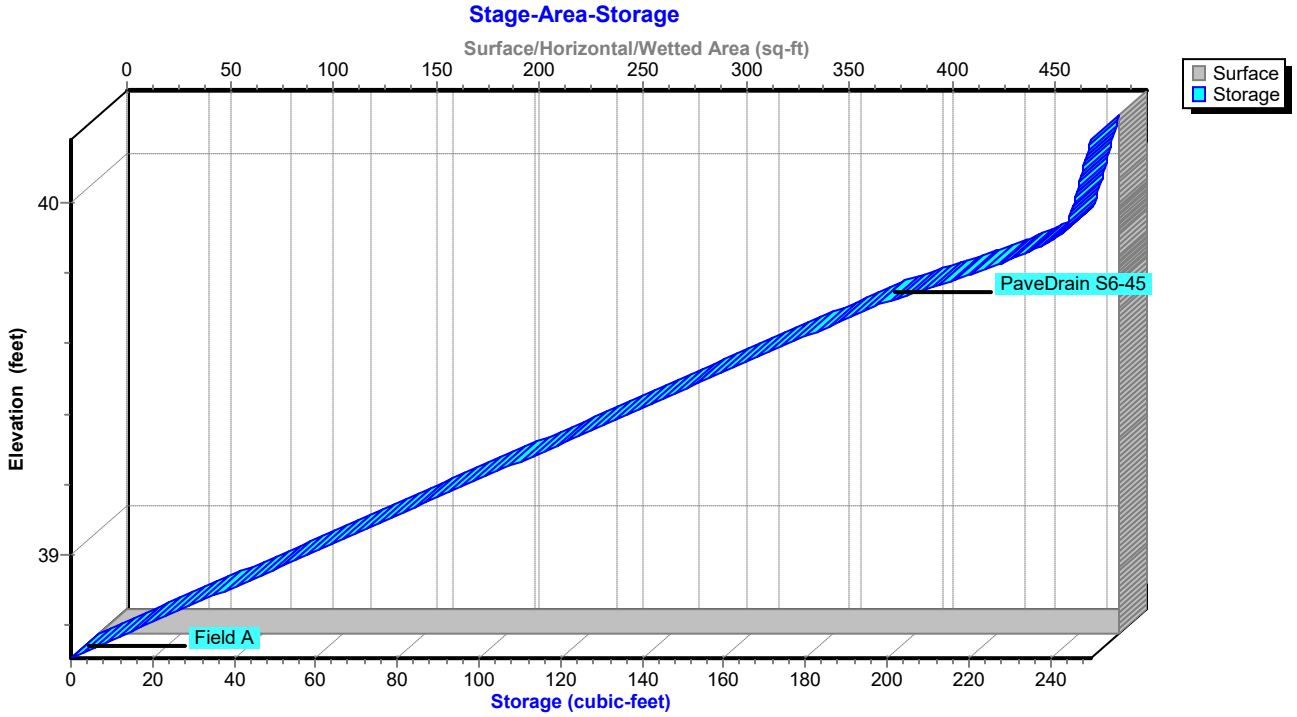
528 Chambers
26.8 cy Field
18.5 cy Stone



Pond 34P: PERMEABLE PAVEMENT EAST



Pond 34P: PERMEABLE PAVEMENT EAST

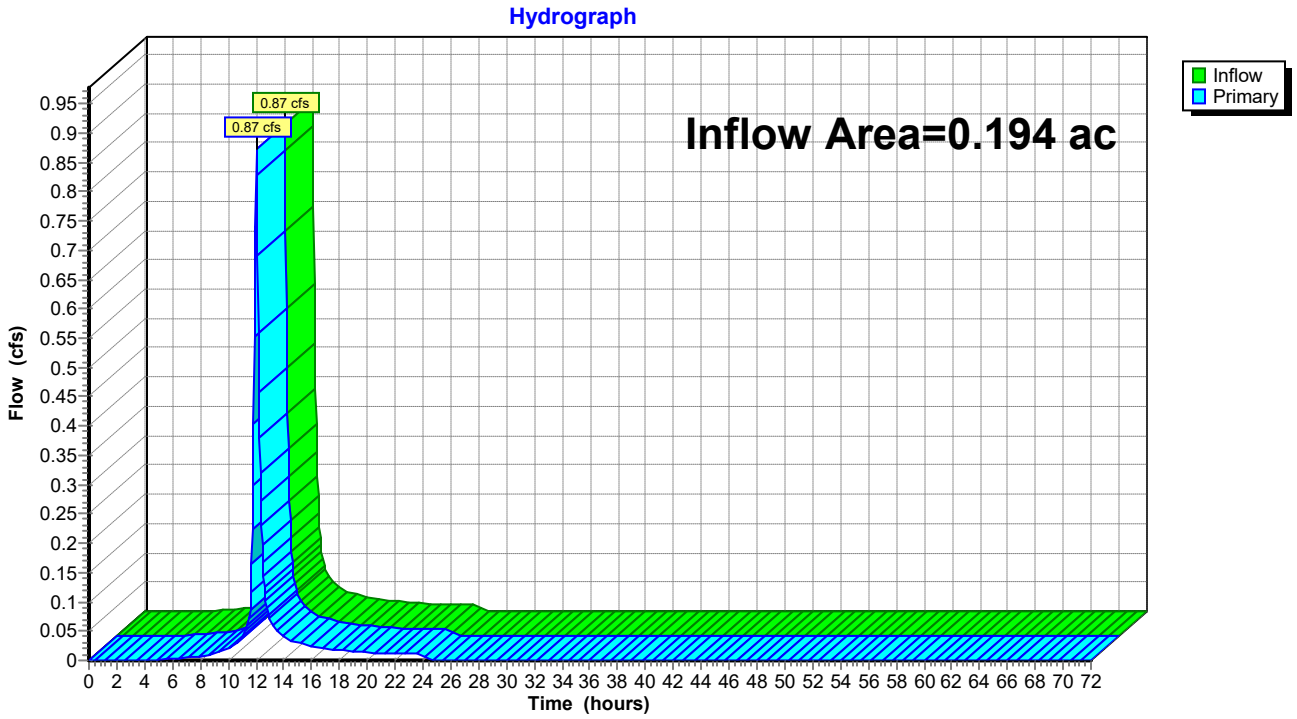


Summary for Link 23L: Study Point 1

Inflow Area = 0.194 ac, 7.58% Impervious, Inflow Depth = 3.85" for 10-YR event
Inflow = 0.87 cfs @ 12.01 hrs, Volume= 0.062 af
Primary = 0.87 cfs @ 12.01 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

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

Link 23L: Study Point 1

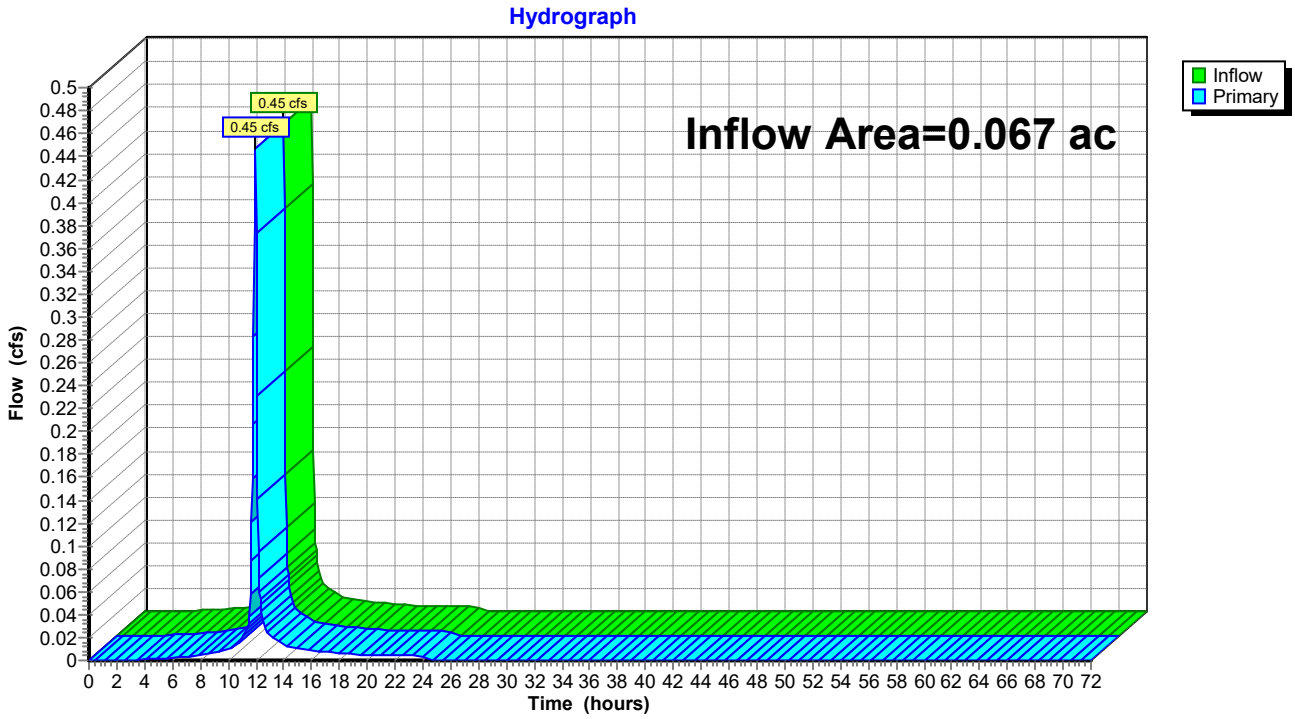


Summary for Link 24L: Study Point 2

Inflow Area = 0.067 ac, 52.55% Impervious, Inflow Depth = 4.38" for 10-YR event
Inflow = 0.45 cfs @ 11.95 hrs, Volume= 0.024 af
Primary = 0.45 cfs @ 11.95 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

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

Link 24L: Study Point 2



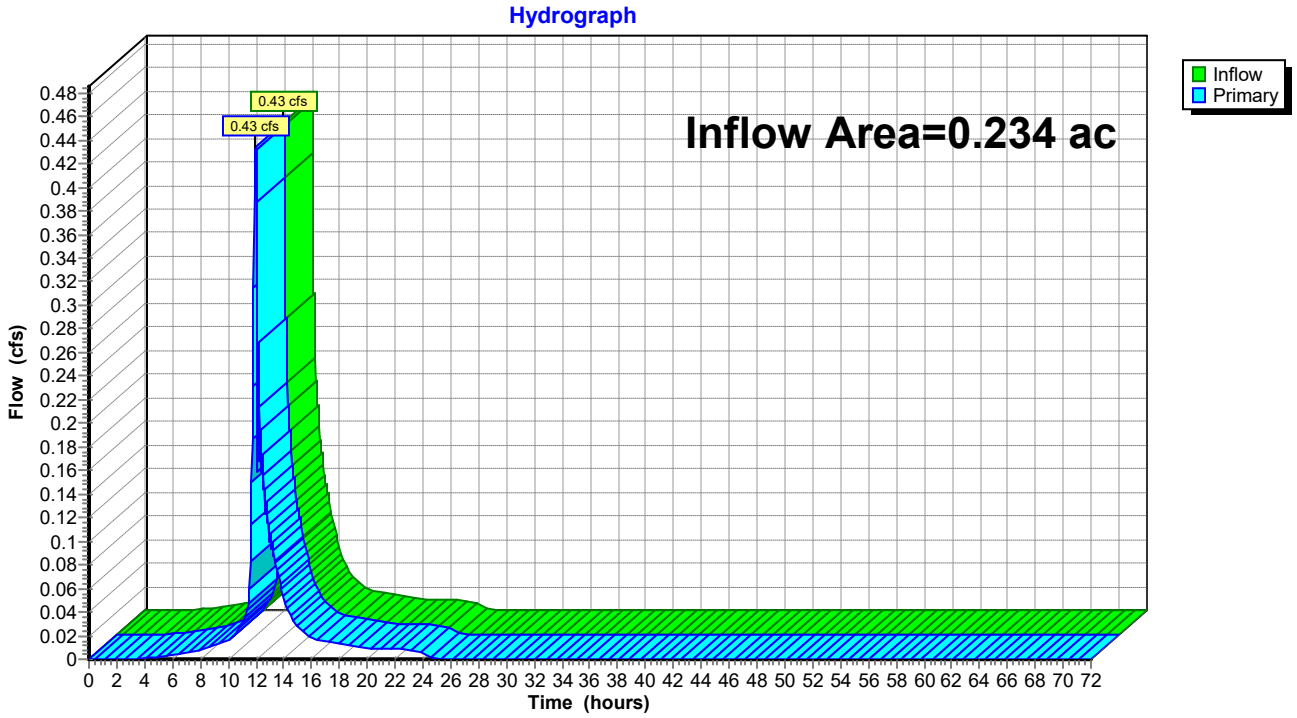
Summary for Link 26L: STUDY POINT 1

Inflow Area = 0.234 ac, 83.43% Impervious, Inflow Depth = 2.48" for 10-YR event
Inflow = 0.43 cfs @ 11.99 hrs, Volume= 0.048 af
Primary = 0.43 cfs @ 11.99 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

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

Fixed water surface Elevation= 37.68'

Link 26L: STUDY POINT 1

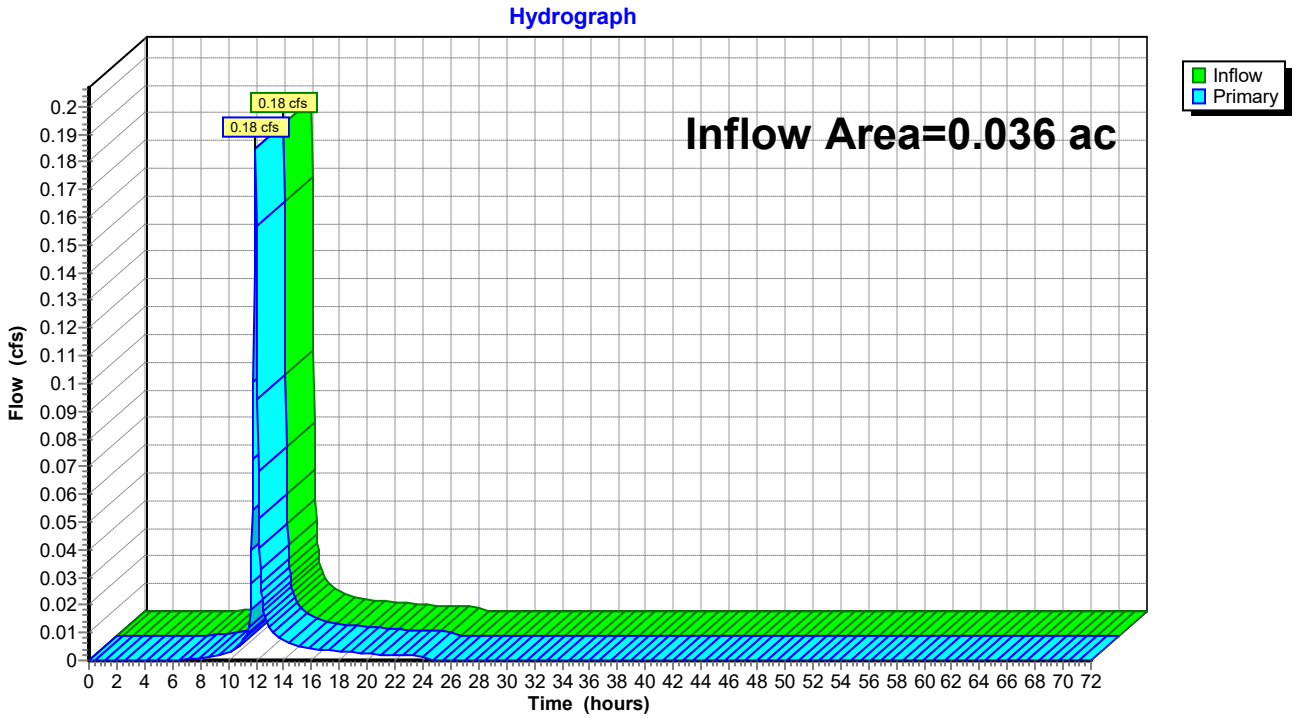


Summary for Link 27L: STUDY POINT 2

Inflow Area = 0.036 ac, 76.98% Impervious, Inflow Depth = 3.55" for 10-YR event
Inflow = 0.18 cfs @ 11.97 hrs, Volume= 0.011 af
Primary = 0.18 cfs @ 11.97 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

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

Link 27L: STUDY POINT 2



Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: DA1 - STUDY POINT 1 Runoff Area=8,470 sf 7.58% Impervious Runoff Depth=6.06"
Flow Length=197' Tc=8.6 min CN=87 Runoff=1.34 cfs 0.098 af

Subcatchment 2S: DA2 - STUDY POINT 2 Runoff Area=2,902 sf 52.55% Impervious Runoff Depth=6.65"
Flow Length=209' Tc=3.4 min CN=92 Runoff=0.66 cfs 0.037 af

Subcatchment 23S: DA2 Runoff Area=1,266 sf 92.73% Impervious Runoff Depth=6.88"
Flow Length=42' Slope=0.0050 '/' Tc=1.0 min CN=94 Runoff=0.33 cfs 0.017 af

Subcatchment 24S: DA3 Runoff Area=733 sf 87.45% Impervious Runoff Depth=6.53"
Flow Length=23' Slope=0.0050 '/' Tc=0.6 min CN=91 Runoff=0.19 cfs 0.009 af

Subcatchment 26S: DA4 Runoff Area=1,492 sf 95.58% Impervious Runoff Depth=7.00"
Flow Length=41' Slope=0.0050 '/' Tc=1.0 min CN=95 Runoff=0.39 cfs 0.020 af

Subcatchment 27S: DA5 Runoff Area=671 sf 90.16% Impervious Runoff Depth=6.65"
Flow Length=44' Slope=0.0050 '/' Tc=1.1 min CN=92 Runoff=0.17 cfs 0.009 af

Subcatchment 31S: DA6 - PERMEABLE Runoff Area=2,326 sf 79.19% Impervious Runoff Depth=5.94"
Flow Length=108' Tc=4.3 min CN=86 Runoff=0.47 cfs 0.026 af

Subcatchment 33S: DA7 - PERMEABLE Runoff Area=1,930 sf 85.18% Impervious Runoff Depth=6.29"
Flow Length=124' Slope=0.0054 '/' Tc=2.3 min CN=89 Runoff=0.46 cfs 0.023 af

Subcatchment 38S: DA8 Runoff Area=1,568 sf 76.98% Impervious Runoff Depth=5.71"
Flow Length=77' Tc=5.0 min CN=84 Runoff=0.29 cfs 0.017 af

Subcatchment 39S: DA1 Runoff Area=1,769 sf 65.97% Impervious Runoff Depth=5.02"
Flow Length=160' Tc=31.9 min CN=78 Runoff=0.11 cfs 0.017 af

Pond 20P: PERMEABLE PAVEMENT NORTH Peak Elev=40.20' Storage=502 cf Inflow=0.47 cfs 0.026 af
Discarded=0.02 cfs 0.024 af Primary=0.18 cfs 0.002 af Outflow=0.20 cfs 0.026 af

Pond 23P: PLANTER BOX 2 Peak Elev=42.09' Storage=145 cf Inflow=0.19 cfs 0.009 af
Outflow=0.03 cfs 0.009 af

Pond 24P: PLANTER BOX 1 Peak Elev=42.99' Storage=256 cf Inflow=0.33 cfs 0.017 af
Outflow=0.20 cfs 0.017 af

Pond 25P: PLANTER BOX 3 Peak Elev=39.96' Storage=52 cf Inflow=0.39 cfs 0.020 af
Outflow=0.32 cfs 0.020 af

Pond 26P: PLANTER BOX 4 Peak Elev=38.70' Storage=33 cf Inflow=0.17 cfs 0.009 af
Outflow=0.15 cfs 0.009 af

Pond 32P: CURB INLET 1 Peak Elev=38.44' Inflow=0.94 cfs 0.037 af
Outflow=0.94 cfs 0.037 af

Pond 33P: CURB INLET 2 Peak Elev=38.63' Inflow=0.94 cfs 0.037 af
Outflow=0.94 cfs 0.037 af

Pond 34P: PERMEABLE PAVEMENT EAST Peak Elev=40.17' Storage=250 cf Inflow=0.46 cfs 0.023 af
Discarded=0.01 cfs 0.015 af Primary=0.48 cfs 0.008 af Outflow=0.49 cfs 0.023 af

Link 23L: Study Point 1 Inflow=1.34 cfs 0.098 af
Primary=1.34 cfs 0.098 af

Link 24L: Study Point 2 Inflow=0.66 cfs 0.037 af
Primary=0.66 cfs 0.037 af

Link 26L: STUDY POINT 1 Inflow=0.99 cfs 0.082 af
Primary=0.99 cfs 0.082 af

Link 27L: STUDY POINT 2 Inflow=0.29 cfs 0.017 af
Primary=0.29 cfs 0.017 af

Total Runoff Area = 0.531 ac Runoff Volume = 0.273 af Average Runoff Depth = 6.18"
48.66% Pervious = 0.258 ac 51.34% Impervious = 0.273 ac

Summary for Subcatchment 1S: DA1 - STUDY POINT 1

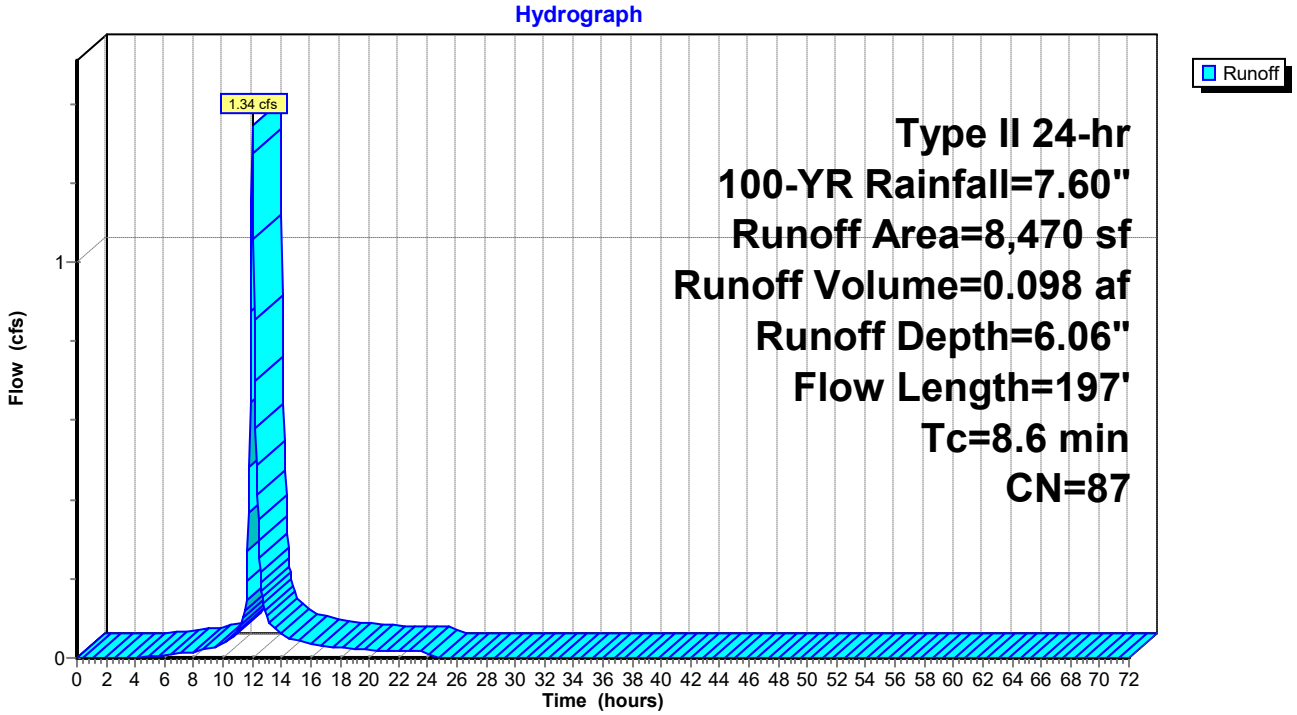
Runoff = 1.34 cfs @ 12.01 hrs, Volume= 0.098 af, Depth= 6.06"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
7,828	86	Woods/grass comb., Poor, HSG D
642	98	Paved parking, HSG D
8,470	87	Weighted Average
7,828		92.42% Pervious Area
642		7.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	50	0.0160	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
2.2	93	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	54	0.0140	2.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
8.6	197	Total			

Subcatchment 1S: DA1 - STUDY POINT 1



Summary for Subcatchment 2S: DA2 - STUDY POINT 2

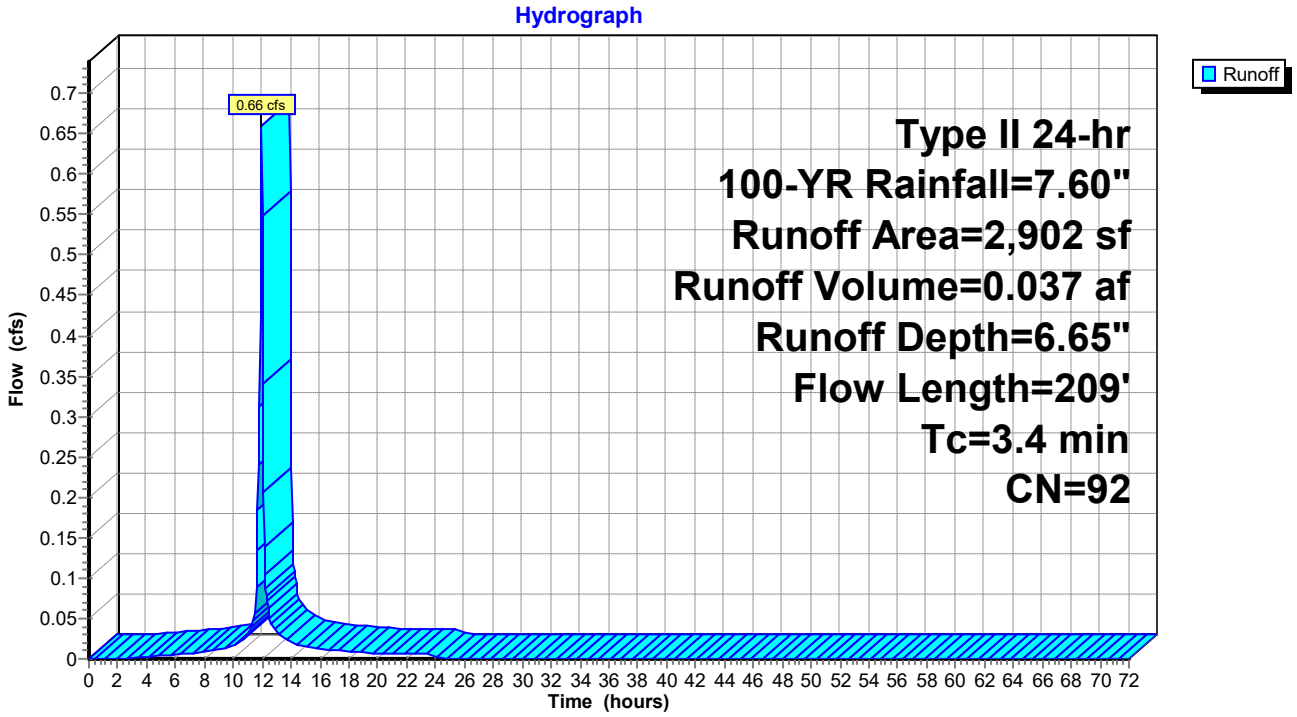
Runoff = 0.66 cfs @ 11.95 hrs, Volume= 0.037 af, Depth= 6.65"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,377	86	Woods/grass comb., Poor, HSG D
1,525	98	Paved parking, HSG D
2,902	92	Weighted Average
1,377		47.45% Pervious Area
1,525		52.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0054	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
1.4	109	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
3.4	209	Total			

Subcatchment 2S: DA2 - STUDY POINT 2



Summary for Subcatchment 23S: DA2

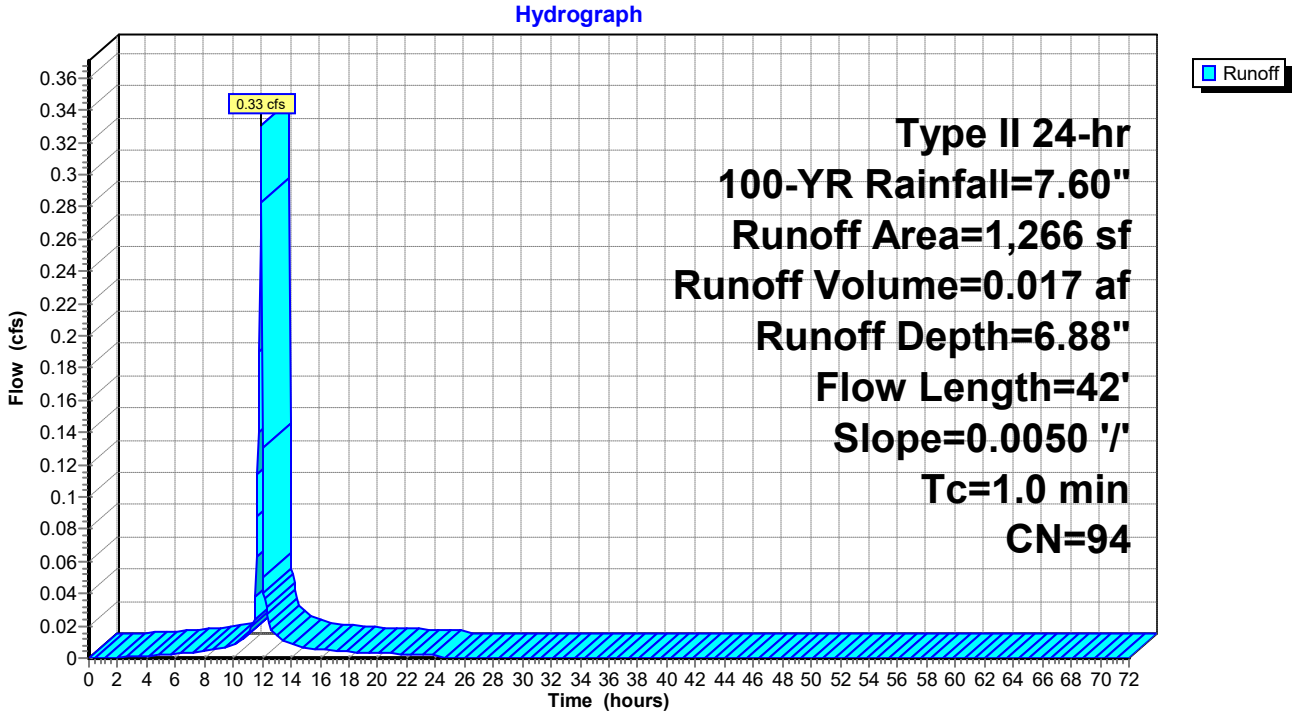
Runoff = 0.33 cfs @ 11.90 hrs, Volume= 0.017 af, Depth= 6.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,153	98	Roofs, HSG D
92	39	Pasture/grassland/range, Good, HSG A
21	98	Unconnected pavement, HSG D
1,266	94	Weighted Average
92		7.27% Pervious Area
1,174		92.73% Impervious Area
21		1.79% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	42	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 23S: DA2



Summary for Subcatchment 24S: DA3

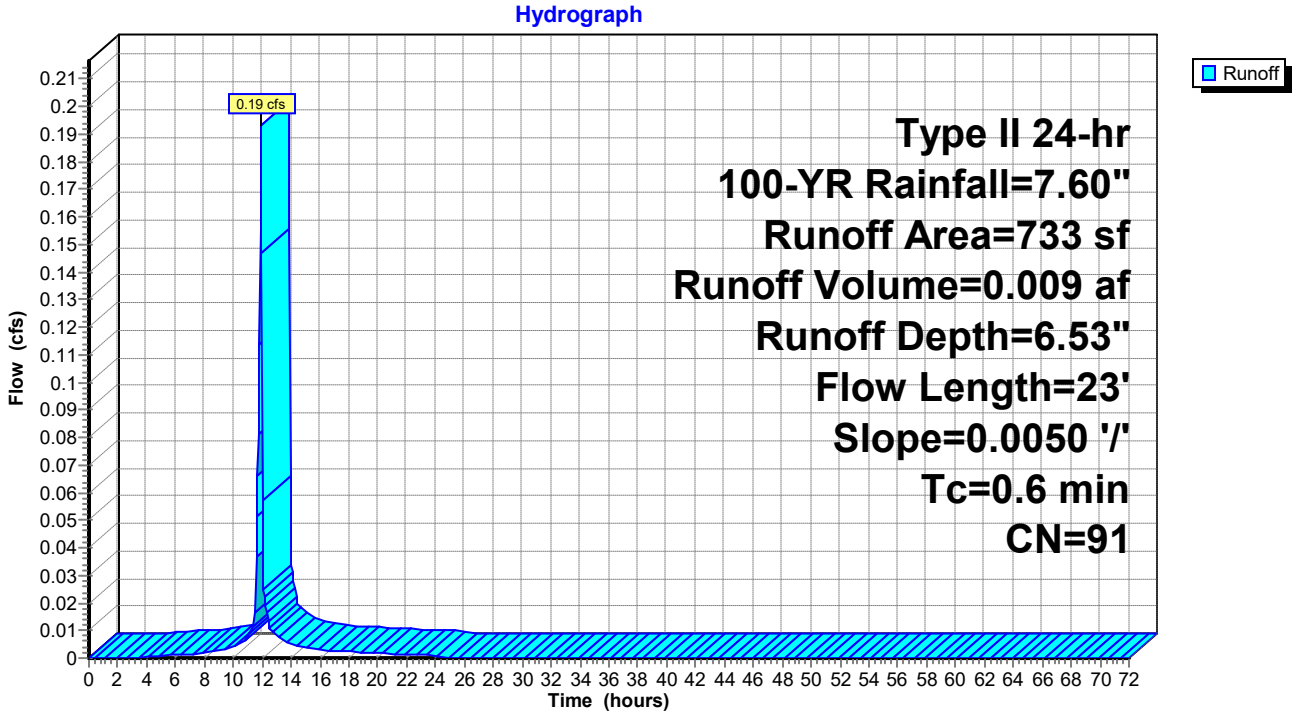
Runoff = 0.19 cfs @ 11.90 hrs, Volume= 0.009 af, Depth= 6.53"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
620	98	Roofs, HSG D
92	39	Pasture/grassland/range, Good, HSG A
21	98	Unconnected pavement, HSG D
733	91	Weighted Average
92		12.55% Pervious Area
641		87.45% Impervious Area
21		3.28% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	23	0.0050	0.61		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 24S: DA3



Summary for Subcatchment 26S: DA4

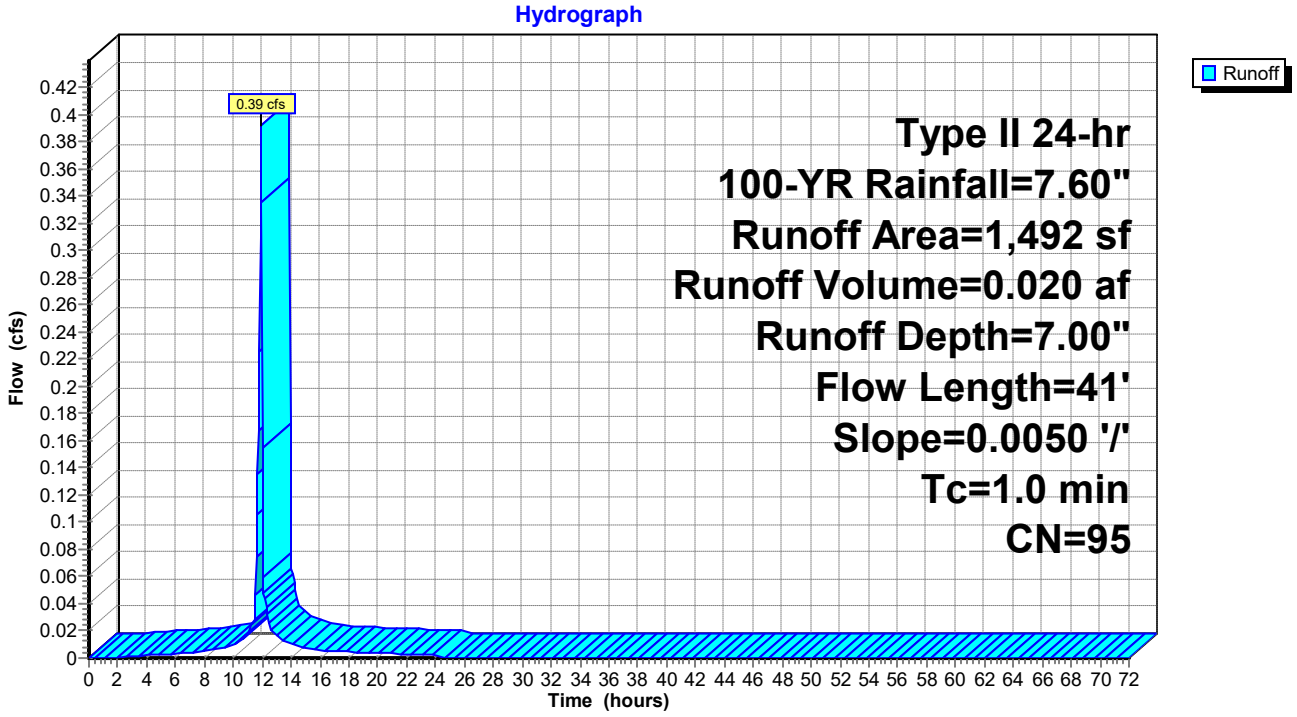
Runoff = 0.39 cfs @ 11.90 hrs, Volume= 0.020 af, Depth= 7.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,409	98	Roofs, HSG D
66	39	Pasture/grassland/range, Good, HSG A
17	98	Unconnected pavement, HSG D
1,492	95	Weighted Average
66		4.42% Pervious Area
1,426		95.58% Impervious Area
17		1.19% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	41	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 26S: DA4



Summary for Subcatchment 27S: DA5

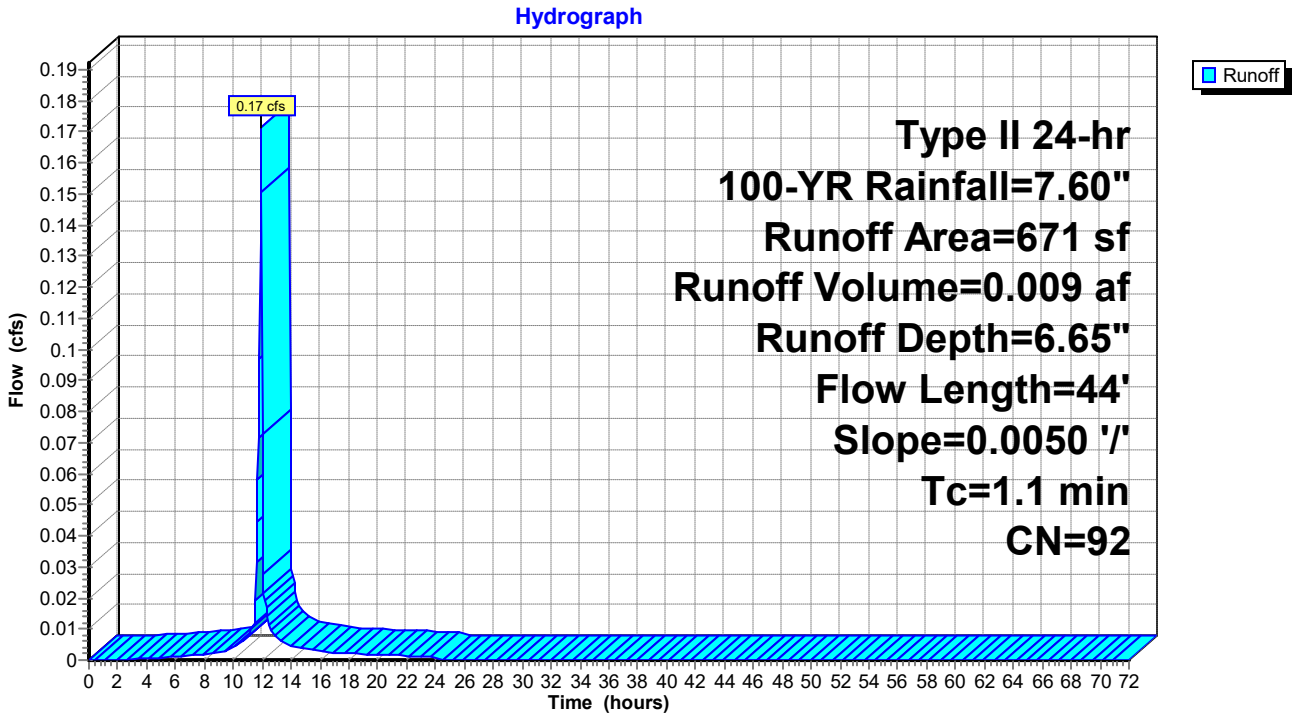
Runoff = 0.17 cfs @ 11.91 hrs, Volume= 0.009 af, Depth= 6.65"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
588	98	Roofs, HSG D
66	39	Pasture/grassland/range, Good, HSG A
17	98	Unconnected pavement, HSG D
671	92	Weighted Average
66		9.84% Pervious Area
605		90.16% Impervious Area
17		2.81% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.1	44	0.0050	0.69		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 27S: DA5



Summary for Subcatchment 31S: DA6 - PERMEABLE PAVEMENT NORTH

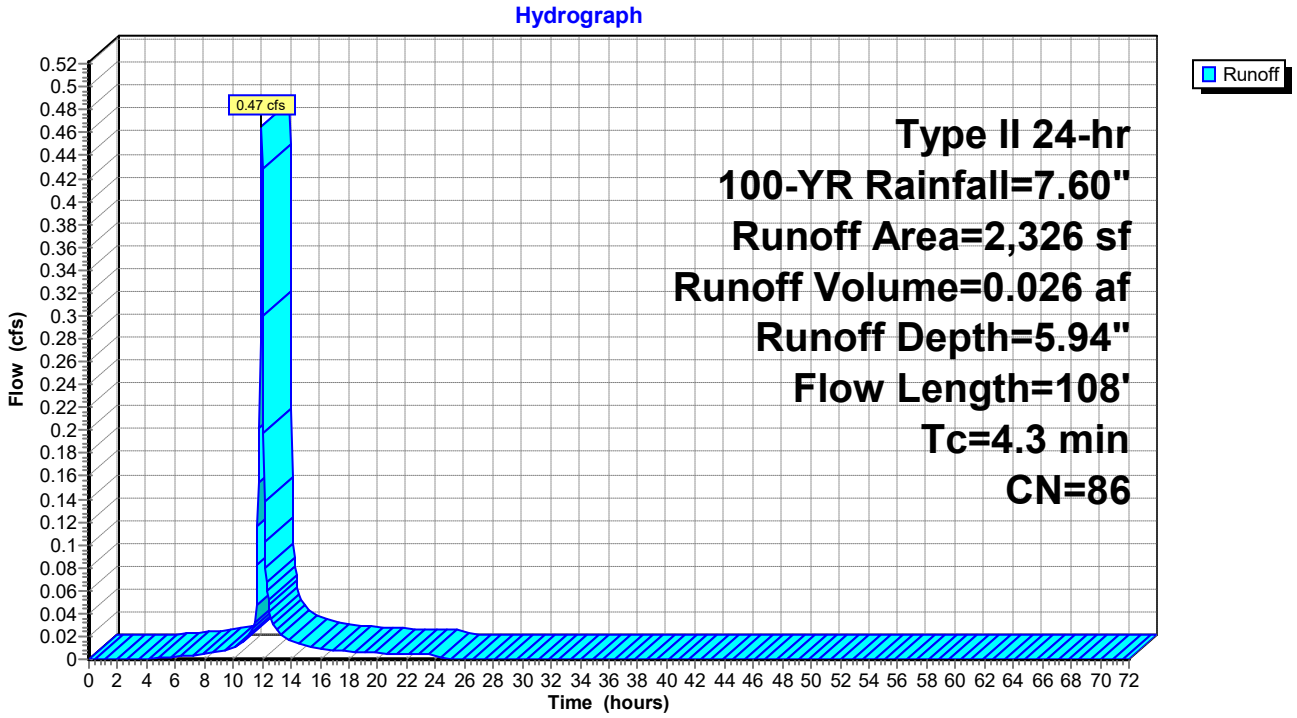
Runoff = 0.47 cfs @ 11.96 hrs, Volume= 0.026 af, Depth= 5.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,046	98	Paved parking, HSG D
508	98	Unconnected pavement, HSG D
288	98	Unconnected pavement, HSG D
484	39	>75% Grass cover, Good, HSG A
2,326	86	Weighted Average
484		20.81% Pervious Area
1,842		79.19% Impervious Area
796		43.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	7	0.0033	0.05		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.8	93	0.0057	0.85		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.2	8	0.0014	0.76		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
4.3	108	Total			

Subcatchment 31S: DA6 - PERMEABLE PAVEMENT NORTH



Summary for Subcatchment 33S: DA7 - PERMEABLE PAVEMENTEAST

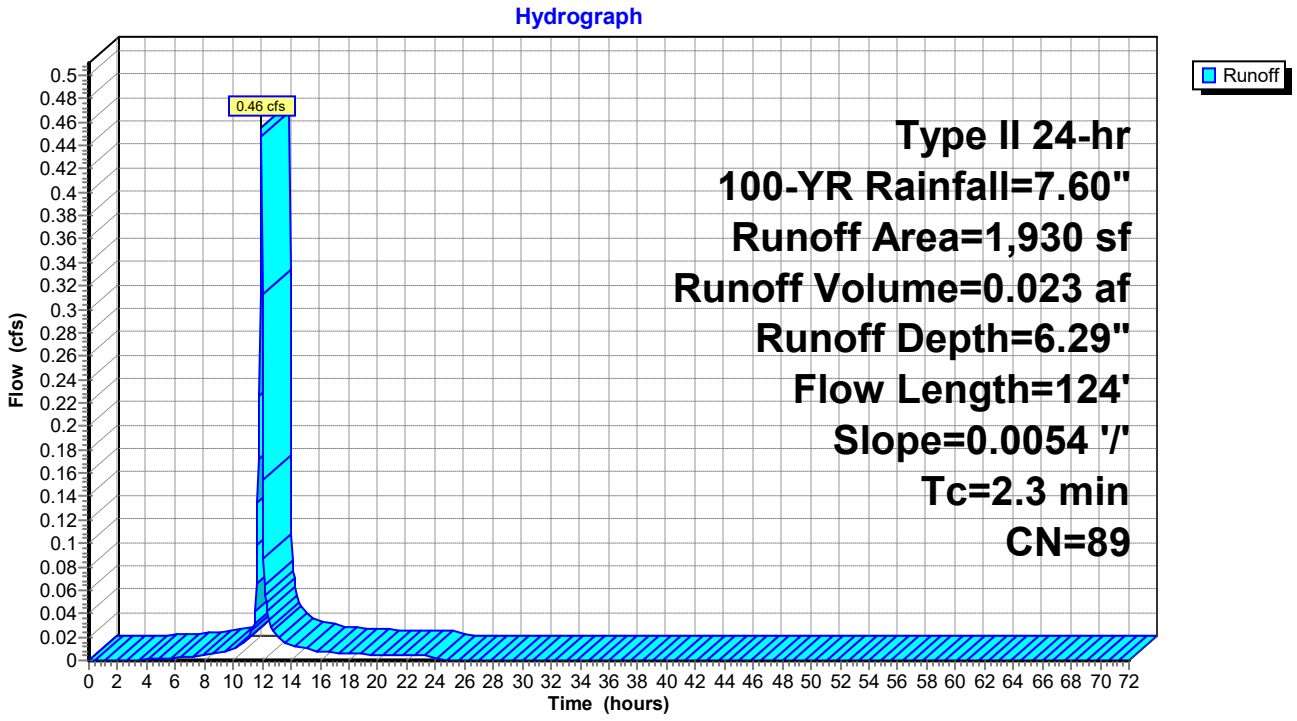
Runoff = 0.46 cfs @ 11.93 hrs, Volume= 0.023 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
286	39	>75% Grass cover, Good, HSG A
1,644	98	Unconnected pavement, HSG D
1,930	89	Weighted Average
286		14.82% Pervious Area
1,644		85.18% Impervious Area
1,644		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	100	0.0054	0.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.3	24	0.0054	1.49		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.3	124	Total			

Subcatchment 33S: DA7 - PERMEABLE PAVEMENTEAST



Summary for Subcatchment 38S: DA8

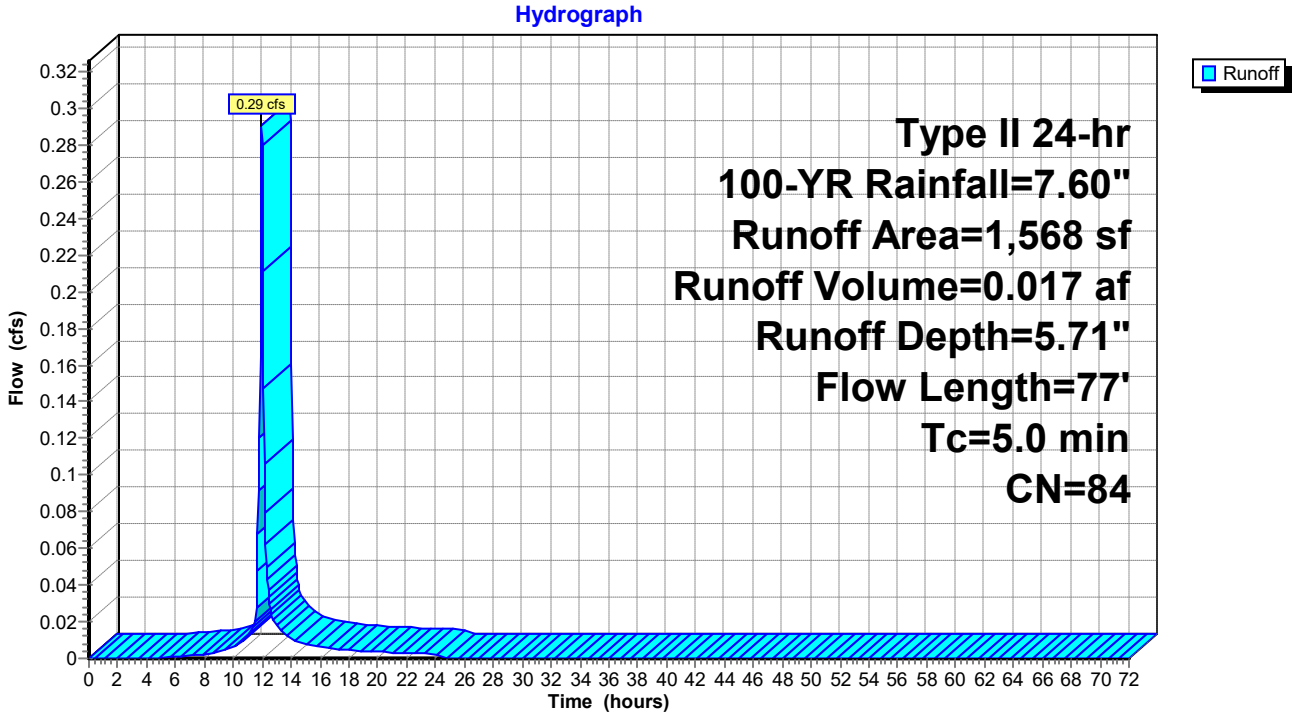
Runoff = 0.29 cfs @ 11.97 hrs, Volume= 0.017 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,207	98	Unconnected pavement, HSG D
361	39	>75% Grass cover, Good, HSG A
1,568	84	Weighted Average
361		23.02% Pervious Area
1,207		76.98% Impervious Area
1,207		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	6	0.0010	0.03		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.7	71	0.0040	0.70		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
5.0	77	Total			

Subcatchment 38S: DA8



Summary for Subcatchment 39S: DA1

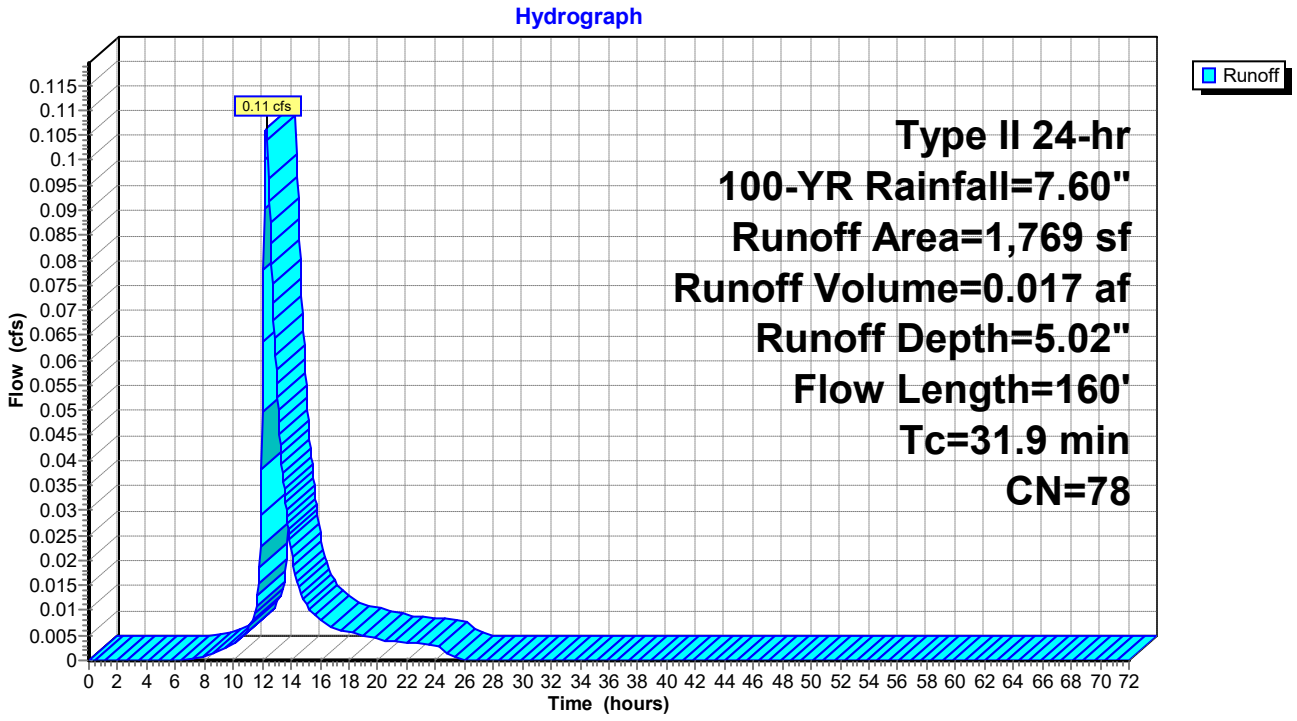
Runoff = 0.11 cfs @ 12.29 hrs, Volume= 0.017 af, Depth= 5.02"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
1,167	98	Unconnected pavement, HSG D
602	39	>75% Grass cover, Good, HSG A
1,769	78	Weighted Average
602		34.03% Pervious Area
1,167		65.97% Impervious Area
1,167		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
31.5	100	0.0010	0.05		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.4	60	0.0141	2.41		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
31.9	160	Total			

Subcatchment 39S: DA1



Summary for Pond 20P: PERMEABLE PAVEMENT NORTH

Inflow Area = 0.053 ac, 79.19% Impervious, Inflow Depth = 5.94" for 100-YR event
Inflow = 0.47 cfs @ 11.96 hrs, Volume= 0.026 af
Outflow = 0.20 cfs @ 12.20 hrs, Volume= 0.026 af, Atten= 57%, Lag= 14.3 min
Discarded = 0.02 cfs @ 12.20 hrs, Volume= 0.024 af
Primary = 0.18 cfs @ 12.20 hrs, Volume= 0.002 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 40.20' @ 12.20 hrs Surf.Area= 1,001 sf Storage= 502 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 273.5 min (1,060.8 - 787.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	38.82'	403 cf	**23.00'W x 43.50'L x 1.47'H Field A** 1,467 cf Overall - 460 cf Embedded = 1,008 cf x 40.0% Voids
#2A	39.82'	103 cf	**PaveDrain S6-45** x 1075 Inside #1 Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf 25 Rows of 43 Chambers
		506 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.82'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 36.00'
#2	Primary	40.19'	**43.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.02 cfs @ 12.20 hrs HW=40.20' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.02 cfs)

Primary OutFlow Max=0.18 cfs @ 12.20 hrs HW=40.20' TW=37.68' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.18 cfs @ 0.35 fps)

Pond 20P: PERMEABLE PAVEMENT NORTH - Chamber Wizard Field A

Chamber Model = PaveDrain S6-45 (PaveDrain 12x12 Block with gap storage)
Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf
Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf

12.0" Wide - 1.0" Nesting = 11.0" C-C Row Spacing

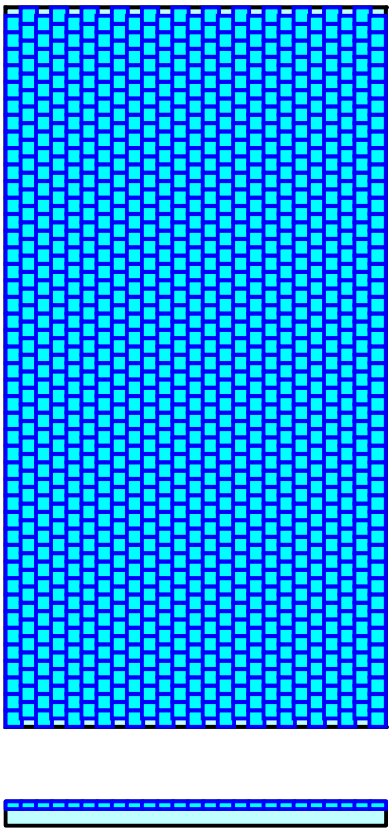
43 Chambers/Row x 1.00' Long = 43.00' Row Length +0.50' Row Offset = 43.50' Base Length
25 Rows x 12.0" Wide - 1.0" Nesting x 24 = 23.00' Base Width
12.0" Base + 5.6" Chamber Height = 1.47' Field Height

1,075 Chambers x 0.1 cf = 102.6 cf Chamber Storage
1,075 Chambers x 0.4 cf = 459.9 cf Displacement

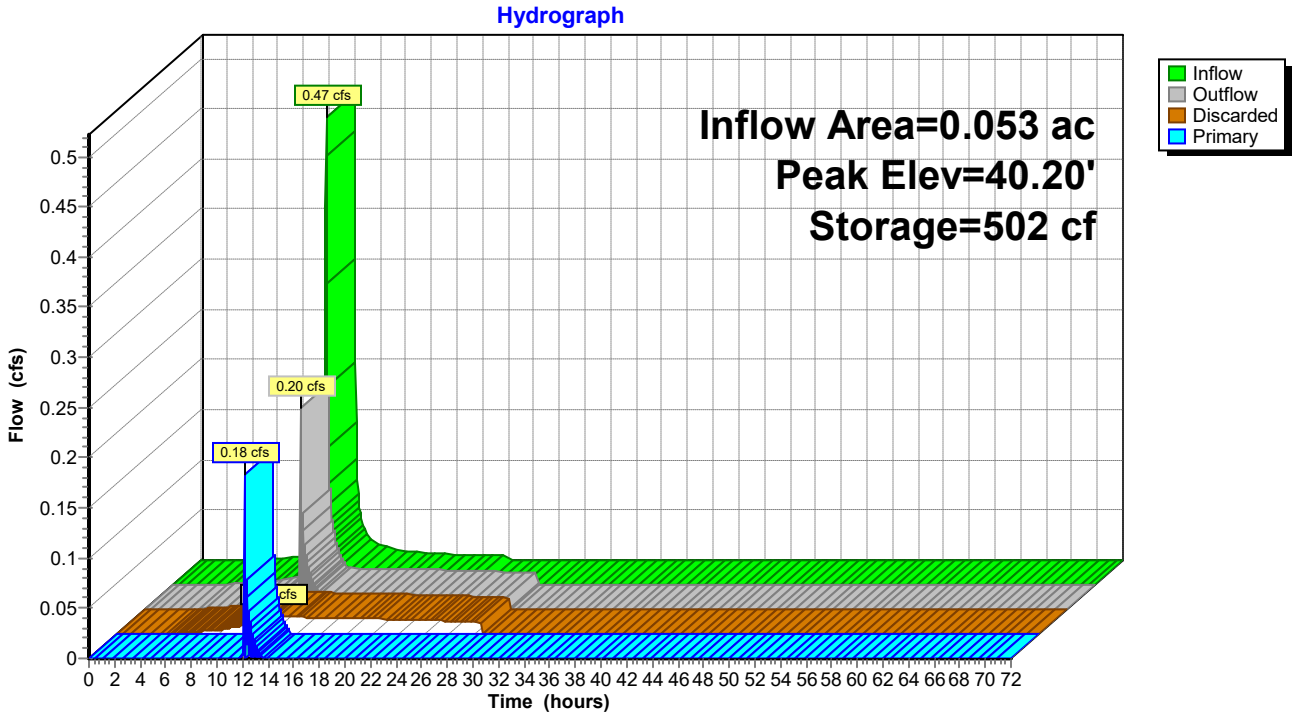
1,467.4 cf Field - 459.9 cf Chambers = 1,007.5 cf Stone x 40.0% Voids = 403.0 cf Stone Storage

Chamber Storage + Stone Storage = 505.7 cf = 0.012 af
Overall Storage Efficiency = 34.5%
Overall System Size = 43.50' x 23.00' x 1.47'

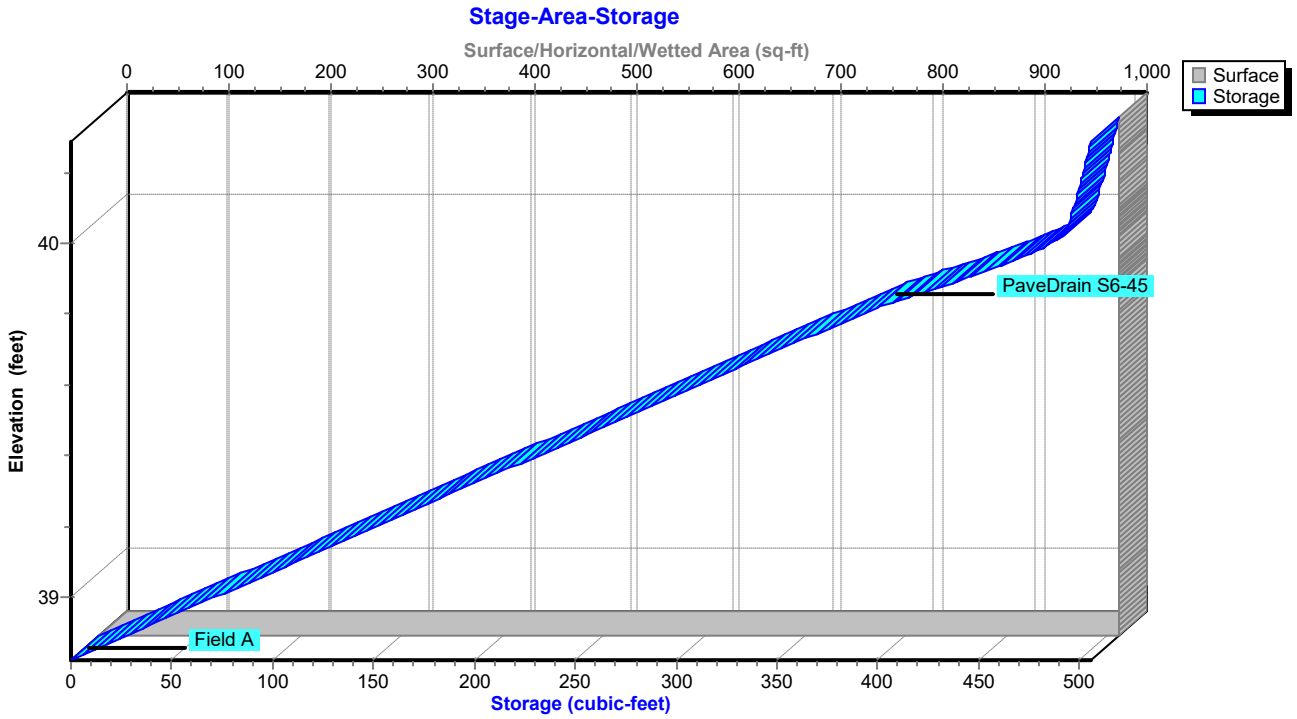
1,075 Chambers
54.3 cy Field
37.3 cy Stone



Pond 20P: PERMEABLE PAVEMENT NORTH



Pond 20P: PERMEABLE PAVEMENT NORTH



Summary for Pond 23P: PLANTER BOX 2

Inflow Area = 0.017 ac, 87.45% Impervious, Inflow Depth = 6.53" for 100-YR event
Inflow = 0.19 cfs @ 11.90 hrs, Volume= 0.009 af
Outflow = 0.03 cfs @ 12.05 hrs, Volume= 0.009 af, Atten= 83%, Lag= 9.0 min
Primary = 0.03 cfs @ 12.05 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 42.09' @ 12.05 hrs Surf.Area= 92 sf Storage= 145 cf

Plug-Flow detention time= 53.2 min calculated for 0.009 af (98% of inflow)
Center-of-Mass det. time= 41.9 min (807.8 - 765.9)

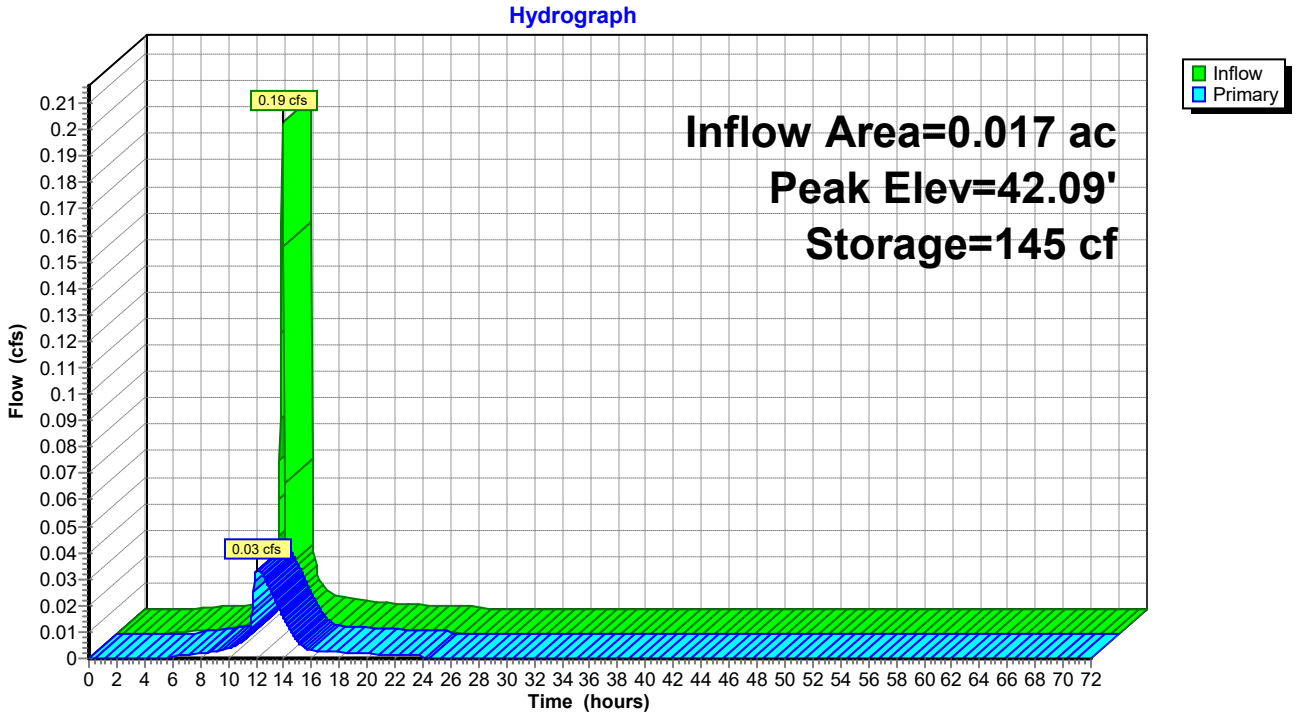
Volume	Invert	Avail.Storage	Storage Description
#1	38.40'	2,745 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.40	92	0.0	0	0
38.41	92	40.0	0	0
41.92	92	40.0	129	130
41.93	92	100.0	1	130
42.92	92	100.0	91	222
43.42	10,000	100.0	2,523	2,745

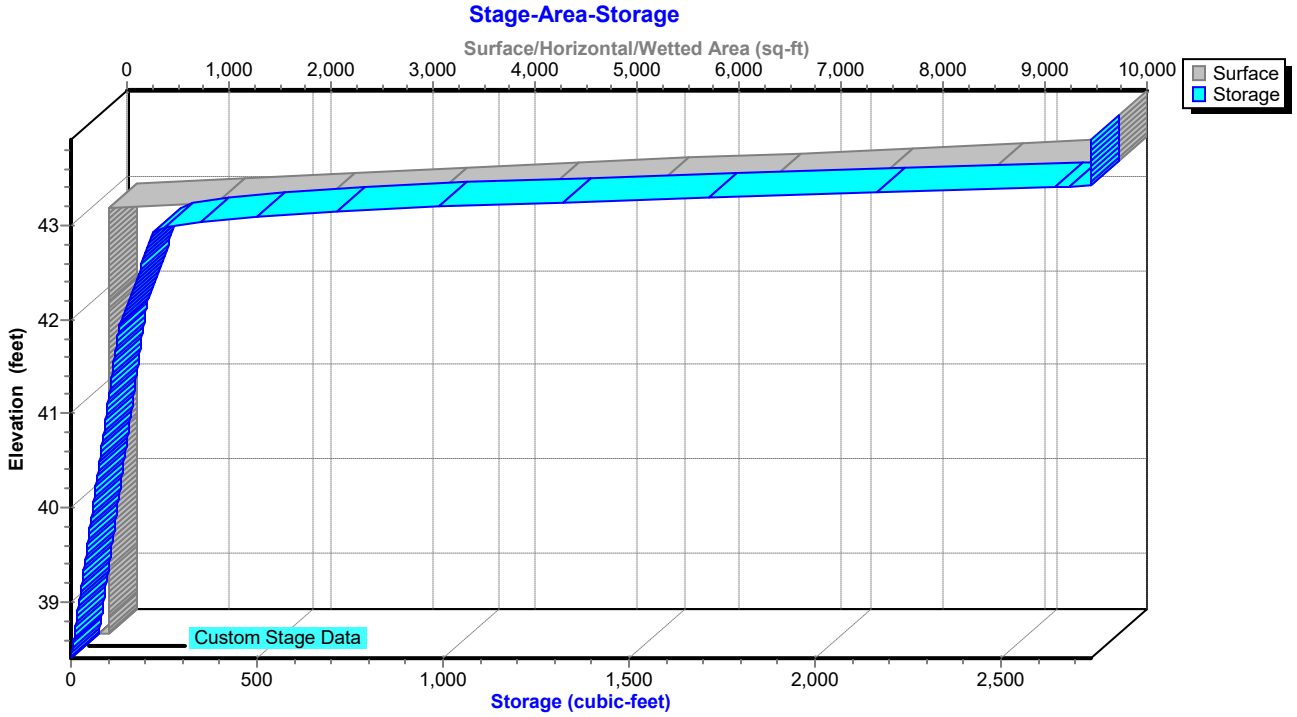
Device	Routing	Invert	Outlet Devices
#1	Primary	37.75'	**12.0" Round Culvert** L= 106.5' Ke= 0.500 Inlet / Outlet Invert= 37.75' / 37.60' S= 0.0014 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	38.42'	**4.0" Round Culvert** L= 8.6' Ke= 0.500 Inlet / Outlet Invert= 38.42' / 37.75' S= 0.0779 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	38.59'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	43.41'	**7.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.03 cfs @ 12.05 hrs HW=42.09' TW=37.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.03 cfs of 5.97 cfs potential flow)
  - **2=Culvert** (Passes 0.03 cfs of 0.79 cfs potential flow)
    - **3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 9.01 fps)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 23P: PLANTER BOX 2



Pond 23P: PLANTER BOX 2



Summary for Pond 24P: PLANTER BOX 1

Inflow Area = 0.029 ac, 92.73% Impervious, Inflow Depth = 6.88" for 100-YR event
Inflow = 0.33 cfs @ 11.90 hrs, Volume= 0.017 af
Outflow = 0.20 cfs @ 12.01 hrs, Volume= 0.017 af, Atten= 39%, Lag= 6.1 min
Primary = 0.20 cfs @ 12.01 hrs, Volume= 0.017 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 42.99' @ 12.01 hrs Surf.Area= 805 sf Storage= 256 cf

Plug-Flow detention time= 57.6 min calculated for 0.017 af (99% of inflow)
Center-of-Mass det. time= 50.8 min (805.6 - 754.8)

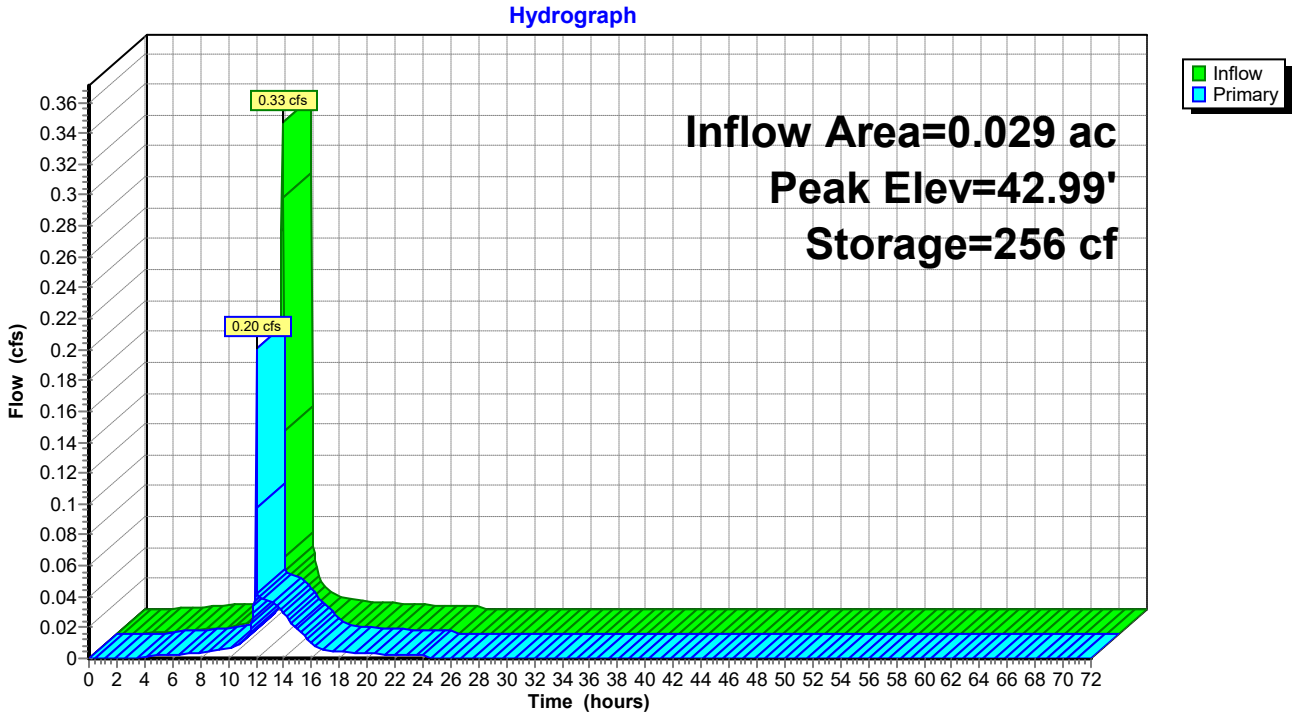
Volume	Invert	Avail.Storage	Storage Description
#1	37.92'	2,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.92	92	0.0	0	0
37.93	92	40.0	0	0
41.95	92	40.0	148	148
41.96	92	100.0	1	149
42.95	92	100.0	91	240
43.45	10,000	100.0	2,523	2,763

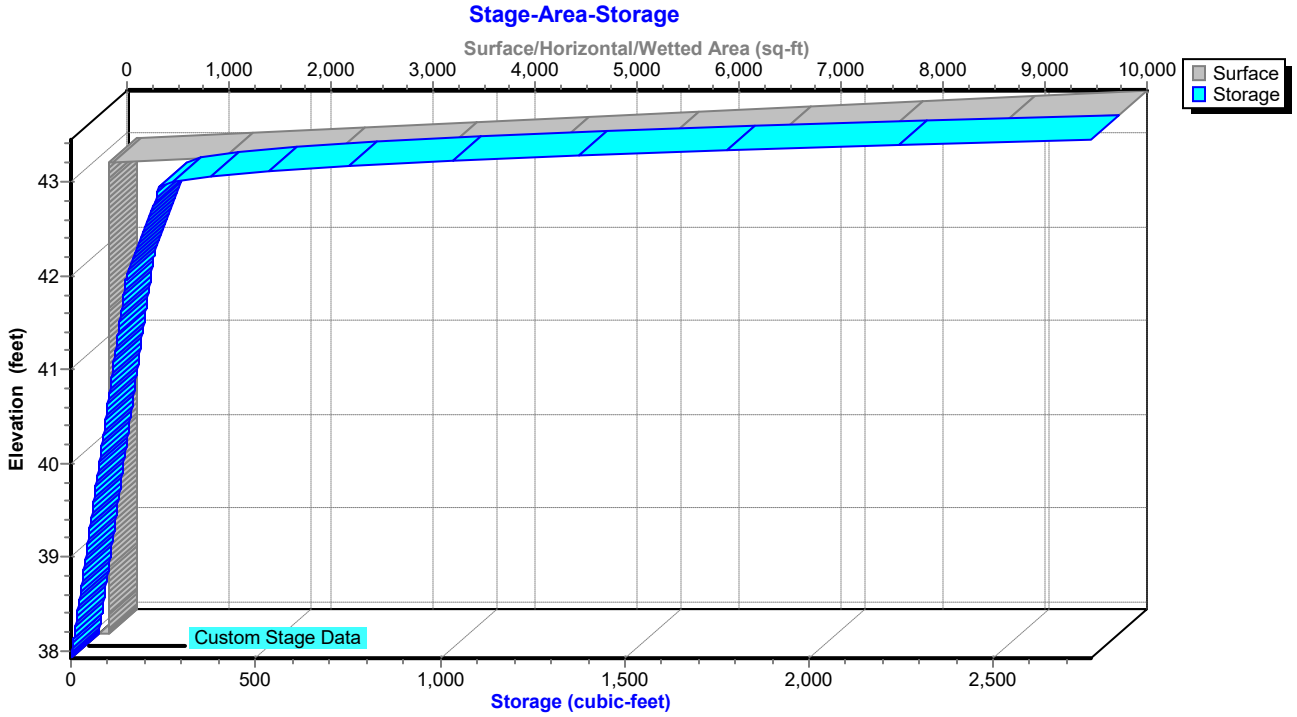
Device	Routing	Invert	Outlet Devices
#1	Primary	37.73'	**12.0" Round Culvert** L= 87.6' Ke= 0.500 Inlet / Outlet Invert= 37.73' / 37.60' S= 0.0015 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Device 1	37.95'	**4.0" Round Culvert** L= 4.8' Ke= 0.500 Inlet / Outlet Invert= 37.95' / 37.73' S= 0.0458 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 2	38.12'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	42.95'	**7.5' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.19 cfs @ 12.01 hrs HW=42.98' TW=37.68' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.04 cfs of 7.08 cfs potential flow)
  - **2=Culvert** (Passes 0.04 cfs of 0.93 cfs potential flow)
    - **3=Orifice/Grate** (Orifice Controls 0.04 cfs @ 10.62 fps)
- **4=Sharp-Crested Rectangular Weir** (Weir Controls 0.15 cfs @ 0.60 fps)

Pond 24P: PLANTER BOX 1



Pond 24P: PLANTER BOX 1



Summary for Pond 25P: PLANTER BOX 3

Inflow Area = 0.034 ac, 95.58% Impervious, Inflow Depth = 7.00" for 100-YR event
Inflow = 0.39 cfs @ 11.90 hrs, Volume= 0.020 af
Outflow = 0.32 cfs @ 11.94 hrs, Volume= 0.020 af, Atten= 18%, Lag= 1.8 min
Primary = 0.32 cfs @ 11.94 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 39.96' @ 11.95 hrs Surf.Area= 66 sf Storage= 52 cf

Plug-Flow detention time= 4.5 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 4.3 min (754.6 - 750.3)

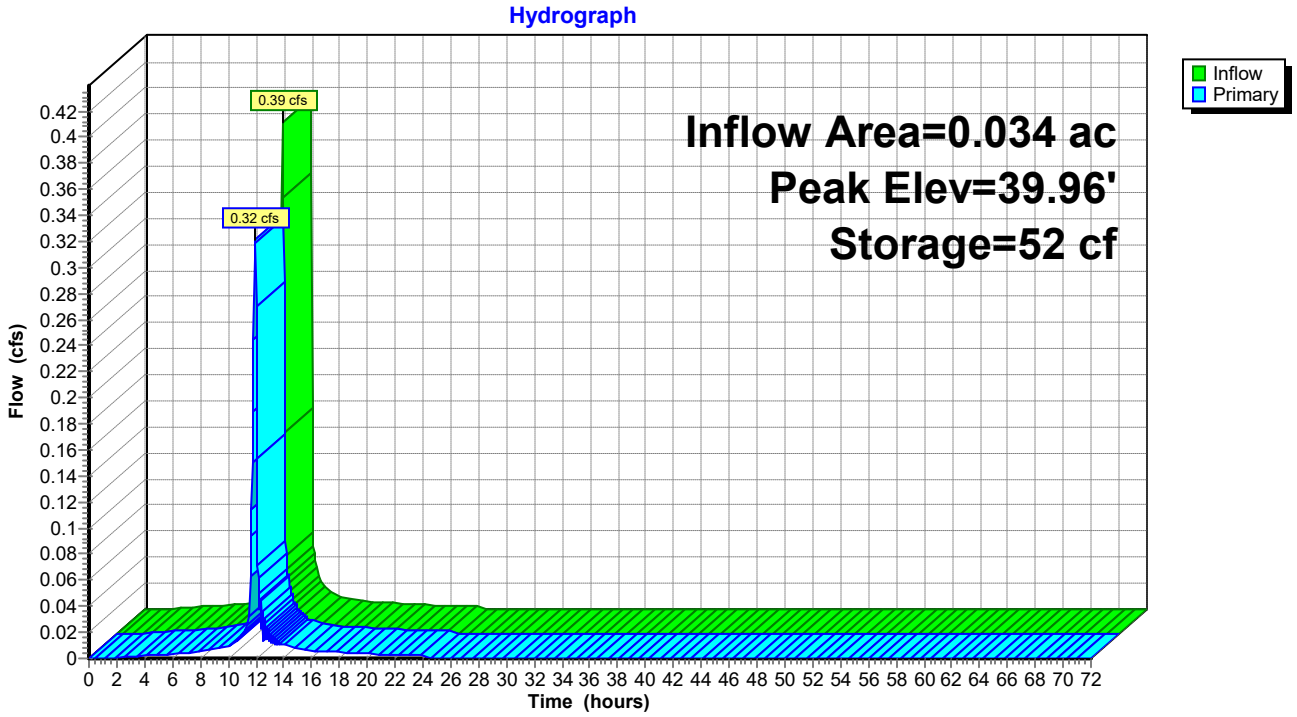
Volume	Invert	Avail.Storage	Storage Description
#1	37.99'	2,633 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.99	66	0.0	0	0
38.00	66	40.0	0	0
41.14	66	40.0	83	83
41.15	66	100.0	1	84
41.64	66	100.0	32	116
42.14	10,000	100.0	2,517	2,633

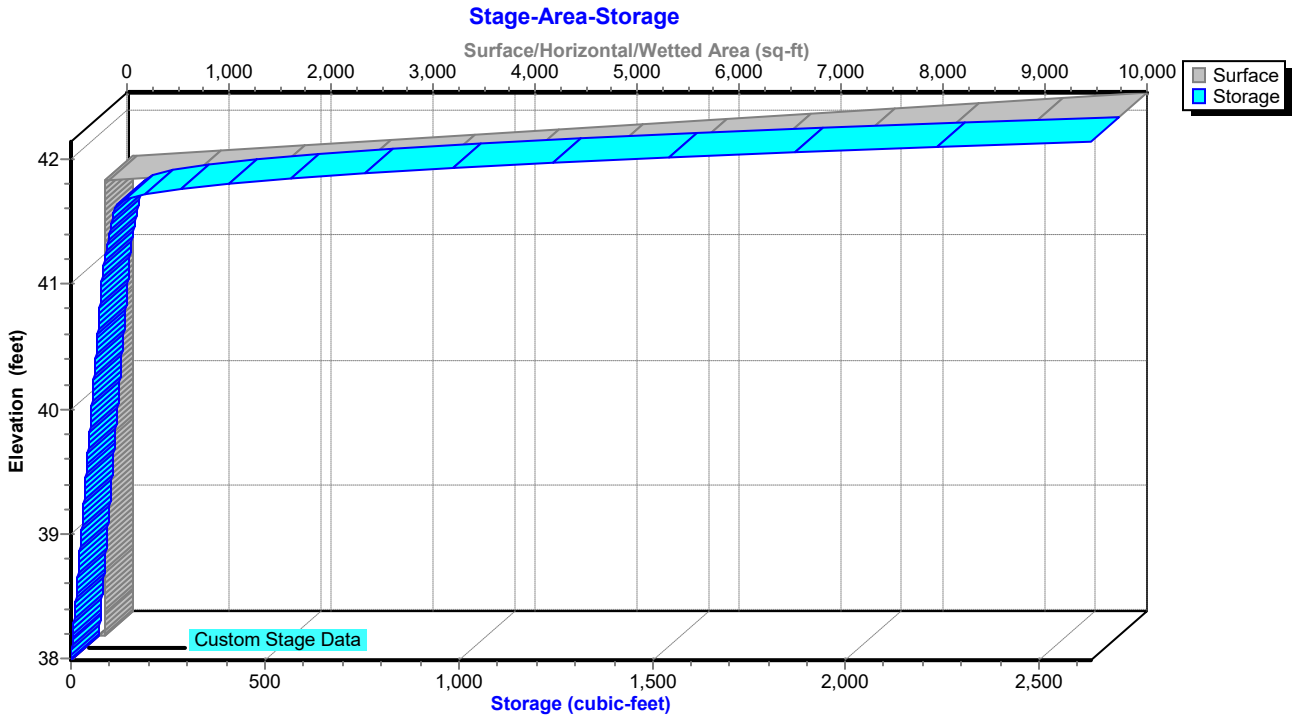
Device	Routing	Invert	Outlet Devices
#1	Primary	38.00'	**4.0" Round Culvert** L= 52.5' Ke= 0.500 Inlet / Outlet Invert= 38.00' / 37.94' S= 0.0011 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	38.00'	**4.0" Round Culvert** L= 4.9' Ke= 0.500 Inlet / Outlet Invert= 38.00' / 38.00' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 1	38.17'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	41.64'	**8.7' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.30 cfs @ 11.94 hrs HW=39.86' TW=38.62' (Dynamic Tailwater)
- **1=Culvert** (Outlet Controls 0.30 cfs @ 3.47 fps)
  - **2=Culvert** (Passes < 0.47 cfs potential flow)
  - **3=Orifice/Grate** (Passes < 0.02 cfs potential flow)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: PLANTER BOX 3



Pond 25P: PLANTER BOX 3



Summary for Pond 26P: PLANTER BOX 4

Inflow Area = 0.015 ac, 90.16% Impervious, Inflow Depth = 6.65" for 100-YR event
Inflow = 0.17 cfs @ 11.91 hrs, Volume= 0.009 af
Outflow = 0.15 cfs @ 11.89 hrs, Volume= 0.009 af, Atten= 15%, Lag= 0.0 min
Primary = 0.15 cfs @ 11.89 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.70' @ 11.99 hrs Surf.Area= 104 sf Storage= 33 cf

Plug-Flow detention time= 16.3 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 13.3 min (776.3 - 763.0)

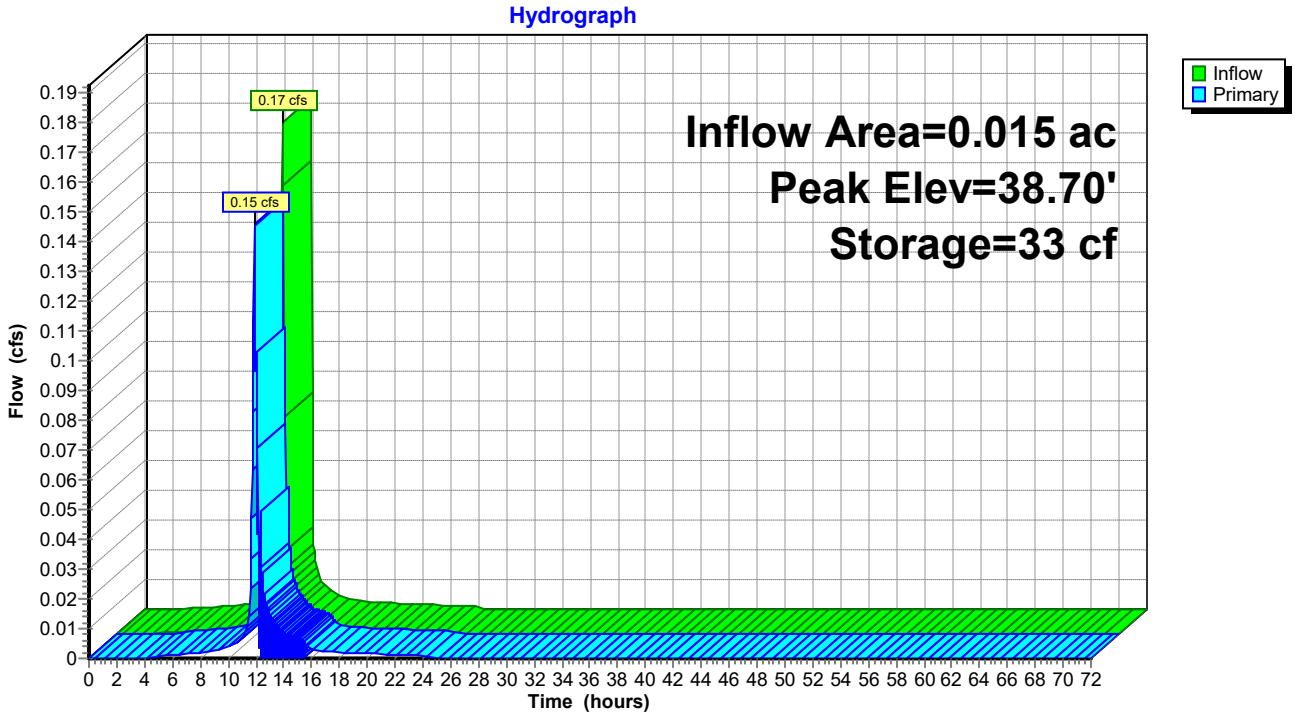
Volume	Invert	Avail.Storage	Storage Description
#1	37.91'	2,723 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
37.91	104	0.0	0	0
37.92	104	40.0	0	0
41.40	104	40.0	145	145
41.41	104	100.0	1	146
41.90	104	100.0	51	197
42.40	10,000	100.0	2,526	2,723

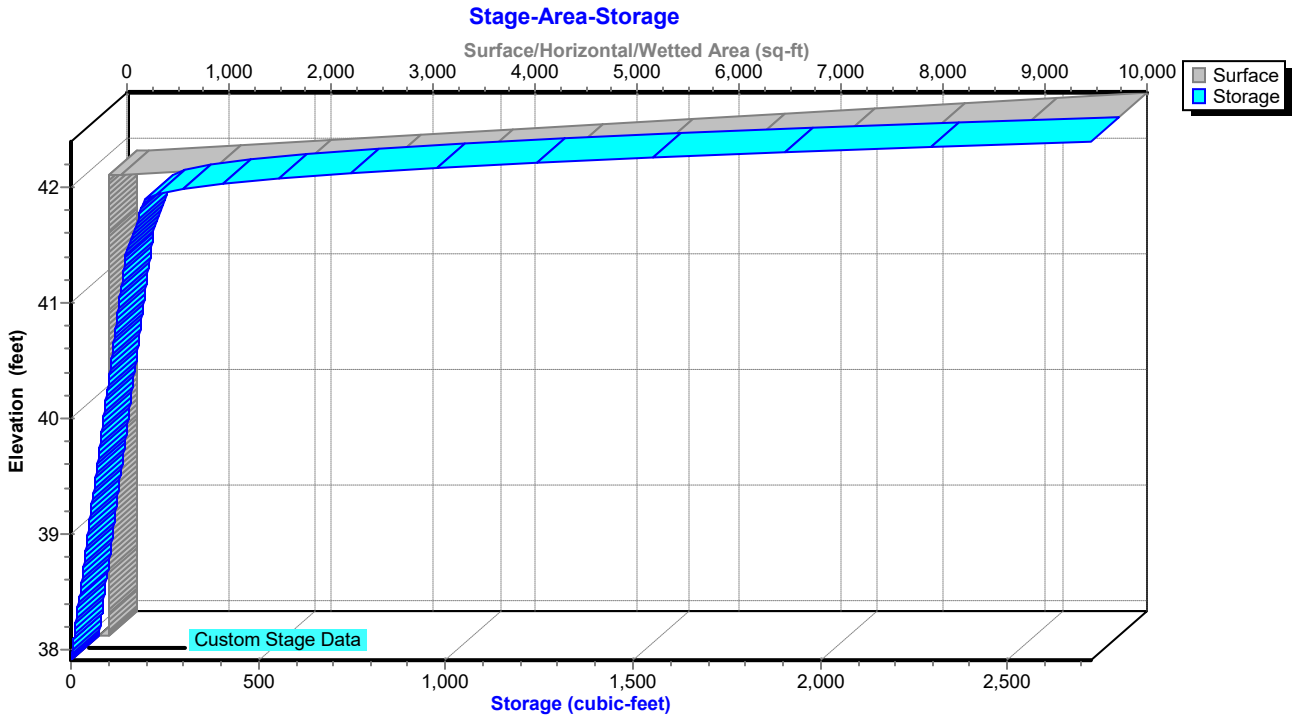
Device	Routing	Invert	Outlet Devices
#1	Primary	37.94'	**4.0" Round Culvert** L= 9.5' Ke= 0.500 Inlet / Outlet Invert= 37.94' / 37.93' S= 0.0011 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	37.94'	**4.0" Round Culvert** L= 4.3' Ke= 0.500 Inlet / Outlet Invert= 37.94' / 37.94' S= 0.0000 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#3	Device 1	38.11'	**0.1" Horiz. Orifice/Grate X 68.00** C= 0.600 Limited to weir flow at low heads
#4	Primary	41.90'	**8.7' long x 0.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=0.00 cfs @ 11.89 hrs HW=38.46' TW=38.56' (Dynamic Tailwater)
- **1=Culvert** (Controls 0.00 cfs)
  - **2=Culvert** (Controls 0.00 cfs)
  - **3=Orifice/Grate** (Controls 0.00 cfs)
- **4=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 26P: PLANTER BOX 4



Pond 26P: PLANTER BOX 4



Summary for Pond 32P: CURB INLET 1

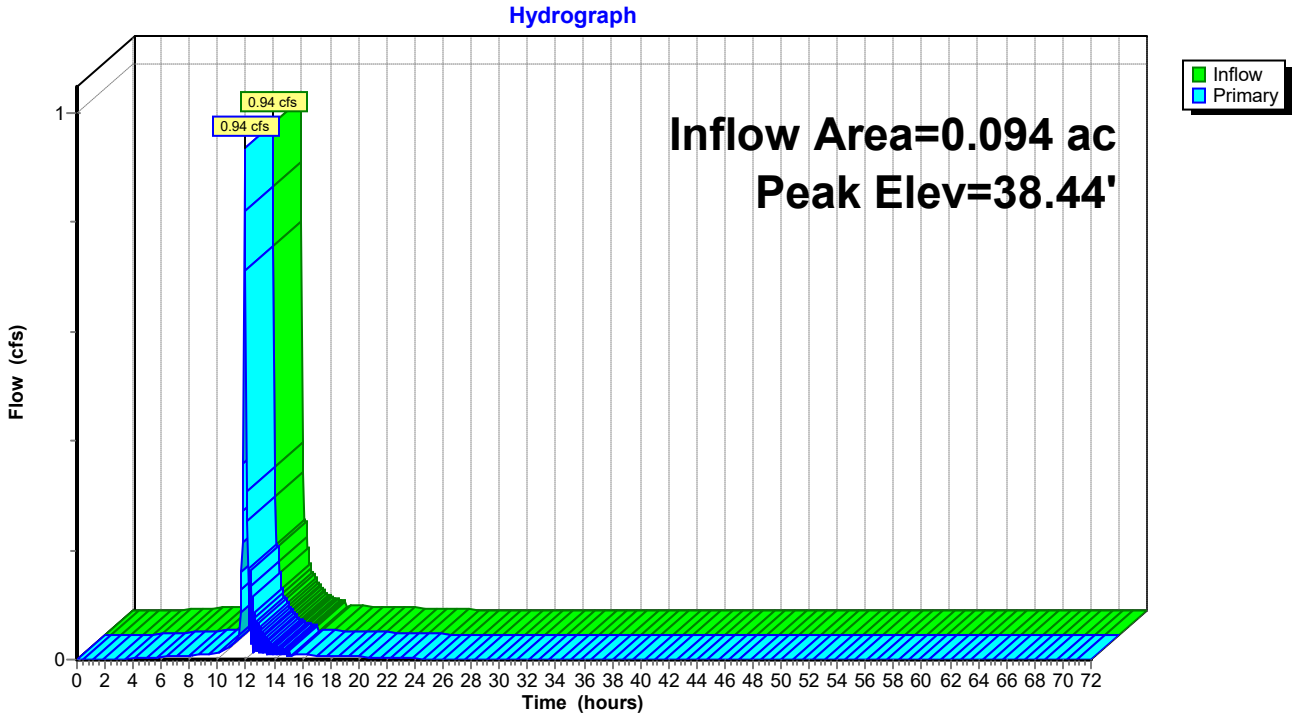
Inflow Area = 0.094 ac, 89.79% Impervious, Inflow Depth = 4.72" for 100-YR event
Inflow = 0.94 cfs @ 11.92 hrs, Volume= 0.037 af
Outflow = 0.94 cfs @ 11.92 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 11.92 hrs, Volume= 0.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.44' @ 11.92 hrs

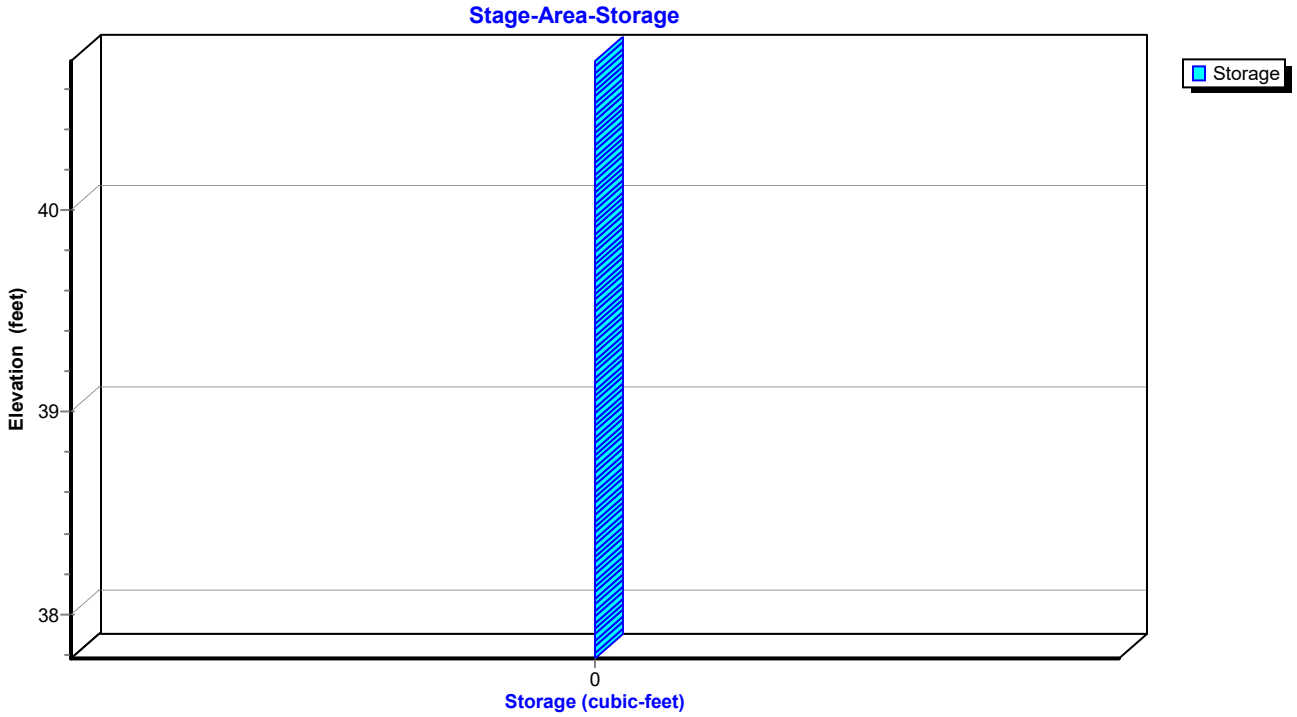
Device	Routing	Invert	Outlet Devices
#1	Primary	37.78'	**12.0" Round Culvert** L= 25.1' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.78' / 37.75' S= 0.0012 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	40.40'	**66.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.86 cfs @ 11.92 hrs HW=38.41' TW=37.68' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.86 cfs @ 2.39 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 32P: CURB INLET 1



Pond 32P: CURB INLET 1



Summary for Pond 33P: CURB INLET 2

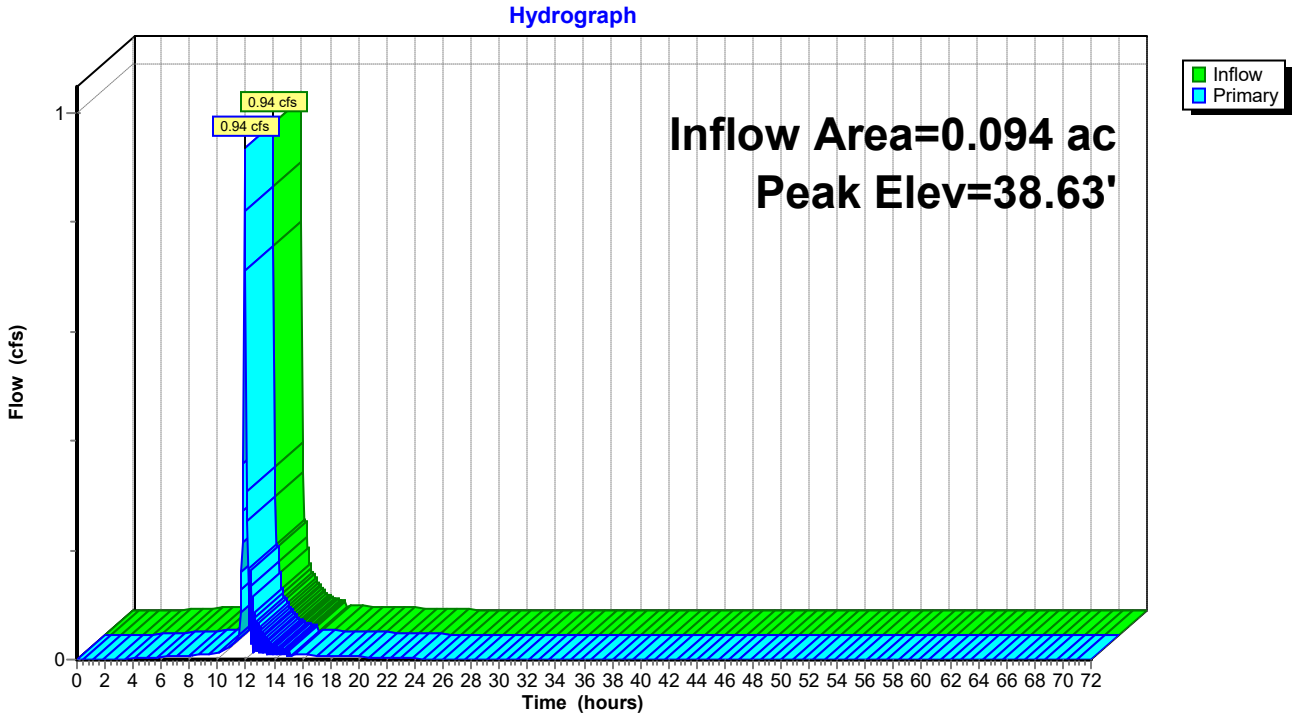
Inflow Area = 0.094 ac, 89.79% Impervious, Inflow Depth = 4.72" for 100-YR event
Inflow = 0.94 cfs @ 11.92 hrs, Volume= 0.037 af
Outflow = 0.94 cfs @ 11.92 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.94 cfs @ 11.92 hrs, Volume= 0.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 38.63' @ 11.95 hrs

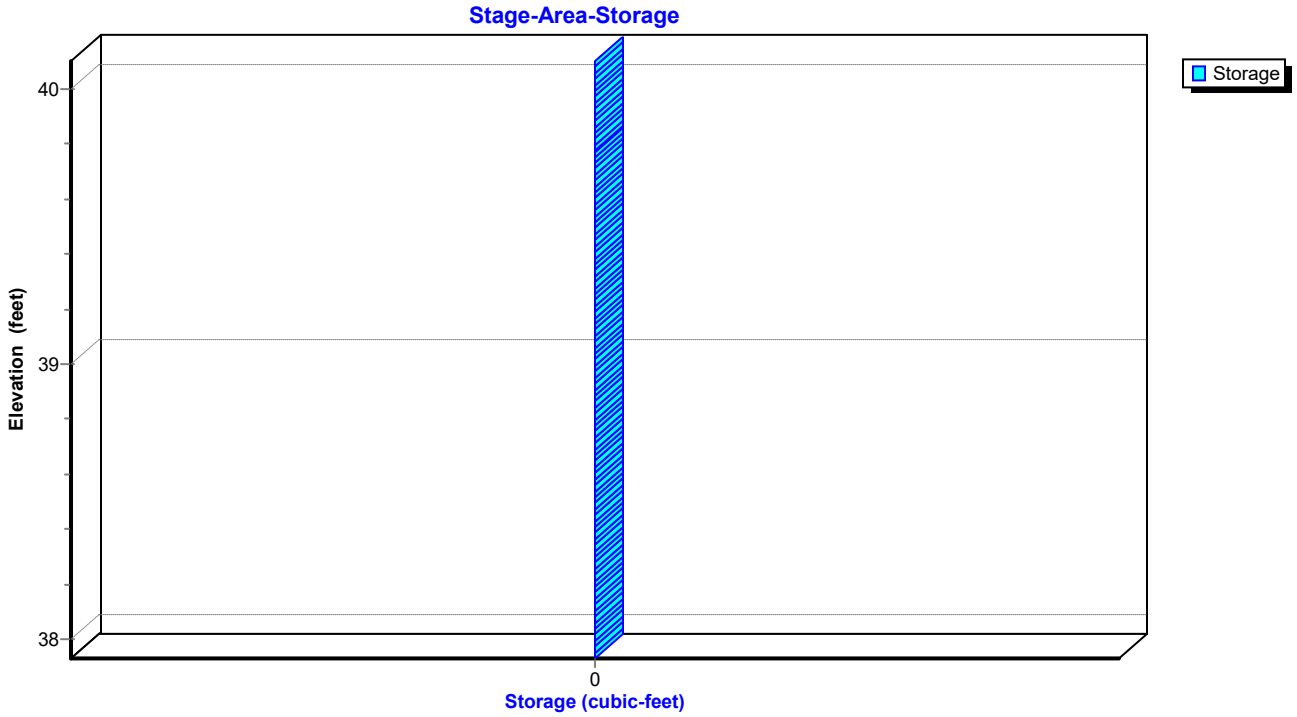
Device	Routing	Invert	Outlet Devices
#1	Primary	37.93'	**12.0" Round Culvert** L= 102.9' Box, headwall w/3 square edges, Ke= 0.500 Inlet / Outlet Invert= 37.93' / 37.78' S= 0.0015 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.79 sf
#2	Primary	39.77'	**66.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.74 cfs @ 11.92 hrs HW=38.61' TW=38.41' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.74 cfs @ 1.85 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond 33P: CURB INLET 2



Pond 33P: CURB INLET 2



Summary for Pond 34P: PERMEABLE PAVEMENT EAST

Inflow Area = 0.044 ac, 85.18% Impervious, Inflow Depth = 6.29" for 100-YR event
Inflow = 0.46 cfs @ 11.93 hrs, Volume= 0.023 af
Outflow = 0.49 cfs @ 11.92 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.90 hrs, Volume= 0.015 af
Primary = 0.48 cfs @ 11.92 hrs, Volume= 0.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 40.17' @ 11.90 hrs Surf.Area= 494 sf Storage= 250 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 200.2 min (975.4 - 775.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	38.71'	200 cf	**5.58'W x 88.50'L x 1.47'H Field A** 725 cf Overall - 226 cf Embedded = 499 cf x 40.0% Voids
#2A	39.71'	50 cf	**PaveDrain S6-45** x 528 Inside #1 Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf 6 Rows of 88 Chambers
		250 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.71'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 36.00'
#2	Primary	40.16'	**88.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Discarded OutFlow Max=0.01 cfs @ 11.90 hrs HW=40.17' (Free Discharge)
↑—**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.43 cfs @ 11.92 hrs HW=40.17' TW=38.61' (Dynamic Tailwater)
↑—**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.43 cfs @ 0.37 fps)

Pond 34P: PERMEABLE PAVEMENT EAST - Chamber Wizard Field A

Chamber Model = PaveDrain S6-45 (PaveDrain 12x12 Block with gap storage)
Inside= 7.1"W x 5.6"H => 0.10 sf x 1.00'L = 0.1 cf
Outside= 12.0"W x 5.6"H => 0.43 sf x 1.00'L = 0.4 cf

12.0" Wide - 1.0" Nesting = 11.0" C-C Row Spacing

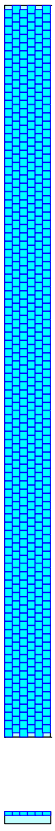
88 Chambers/Row x 1.00' Long = 88.00' Row Length +0.50' Row Offset = 88.50' Base Length
6 Rows x 12.0" Wide - 1.0" Nesting x 5 = 5.58' Base Width
12.0" Base + 5.6" Chamber Height = 1.47' Field Height

528 Chambers x 0.1 cf = 50.4 cf Chamber Storage
528 Chambers x 0.4 cf = 225.9 cf Displacement

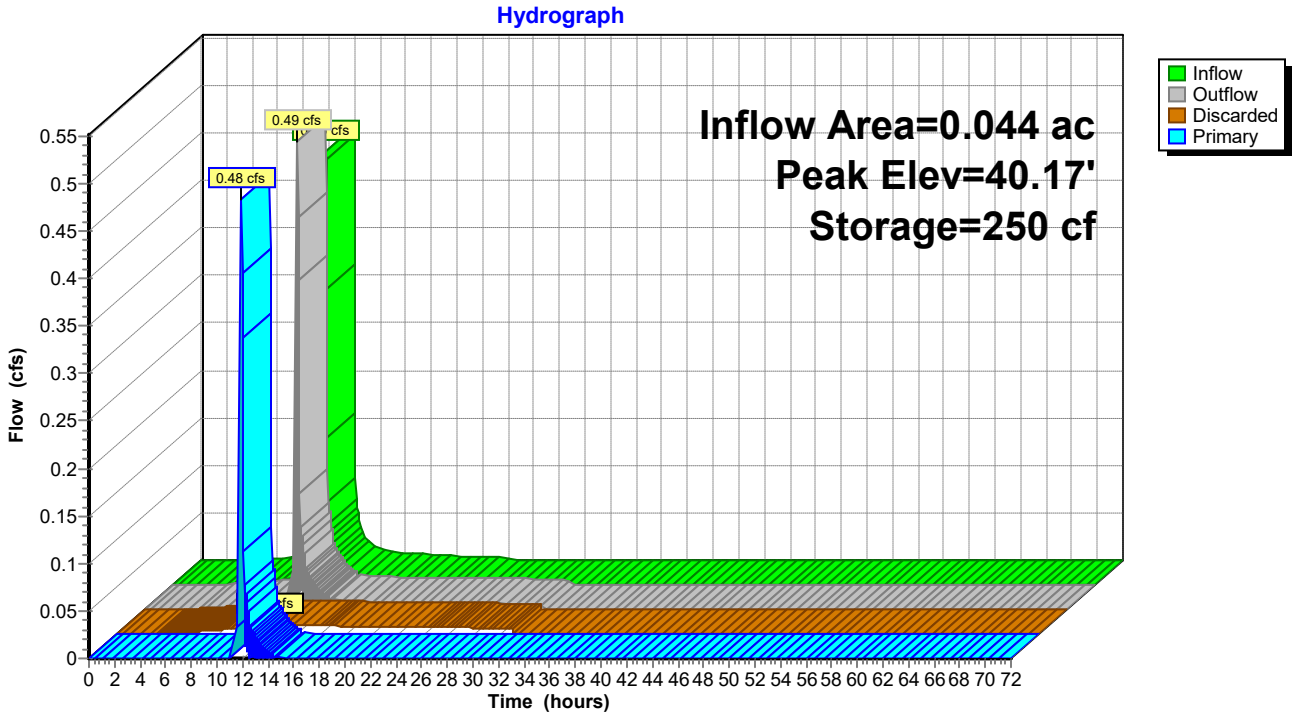
724.7 cf Field - 225.9 cf Chambers = 498.8 cf Stone x 40.0% Voids = 199.5 cf Stone Storage

Chamber Storage + Stone Storage = 250.0 cf = 0.006 af
Overall Storage Efficiency = 34.5%
Overall System Size = 88.50' x 5.58' x 1.47'

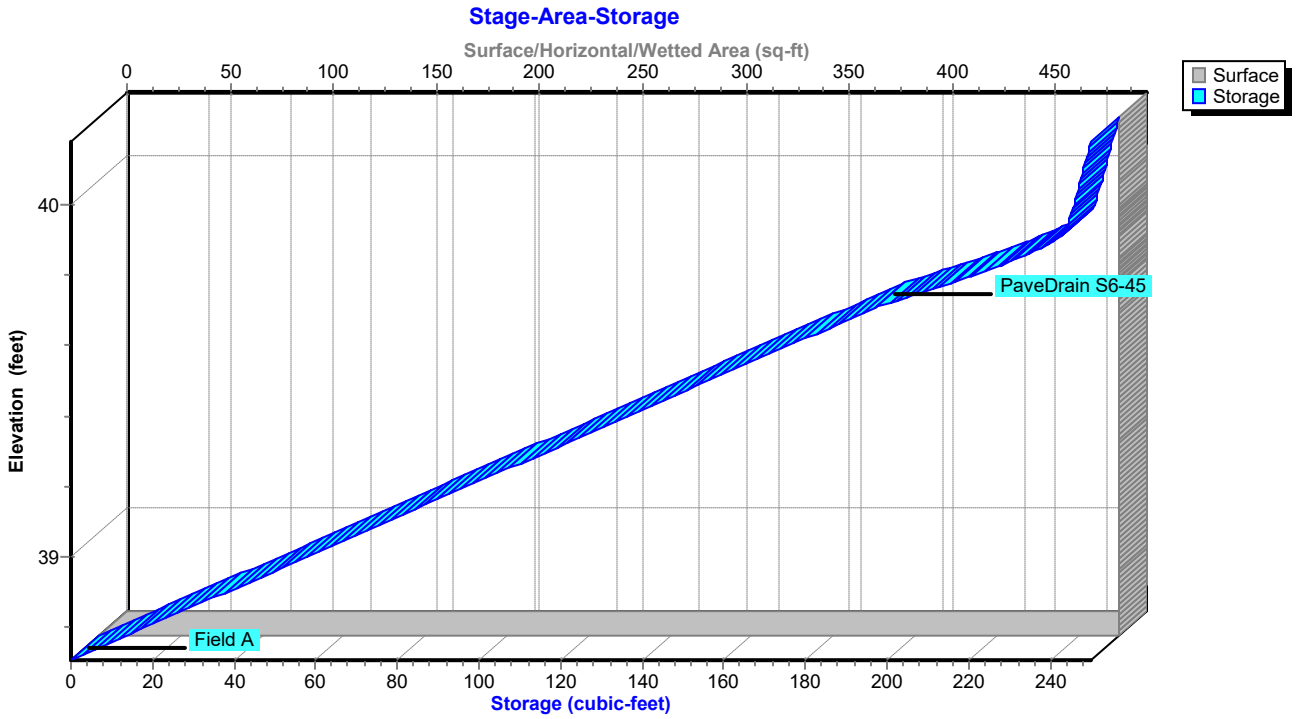
528 Chambers
26.8 cy Field
18.5 cy Stone



Pond 34P: PERMEABLE PAVEMENT EAST



Pond 34P: PERMEABLE PAVEMENT EAST

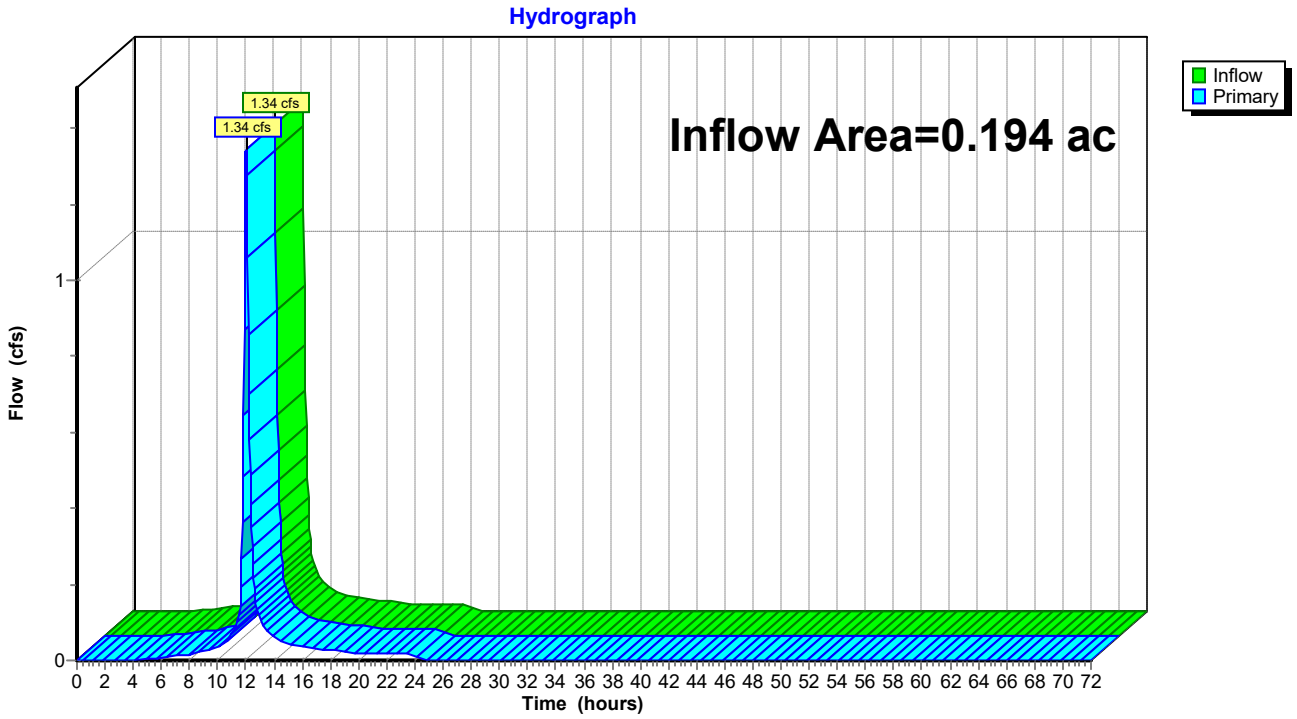


Summary for Link 23L: Study Point 1

Inflow Area = 0.194 ac, 7.58% Impervious, Inflow Depth = 6.06" for 100-YR event
Inflow = 1.34 cfs @ 12.01 hrs, Volume= 0.098 af
Primary = 1.34 cfs @ 12.01 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min

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

Link 23L: Study Point 1

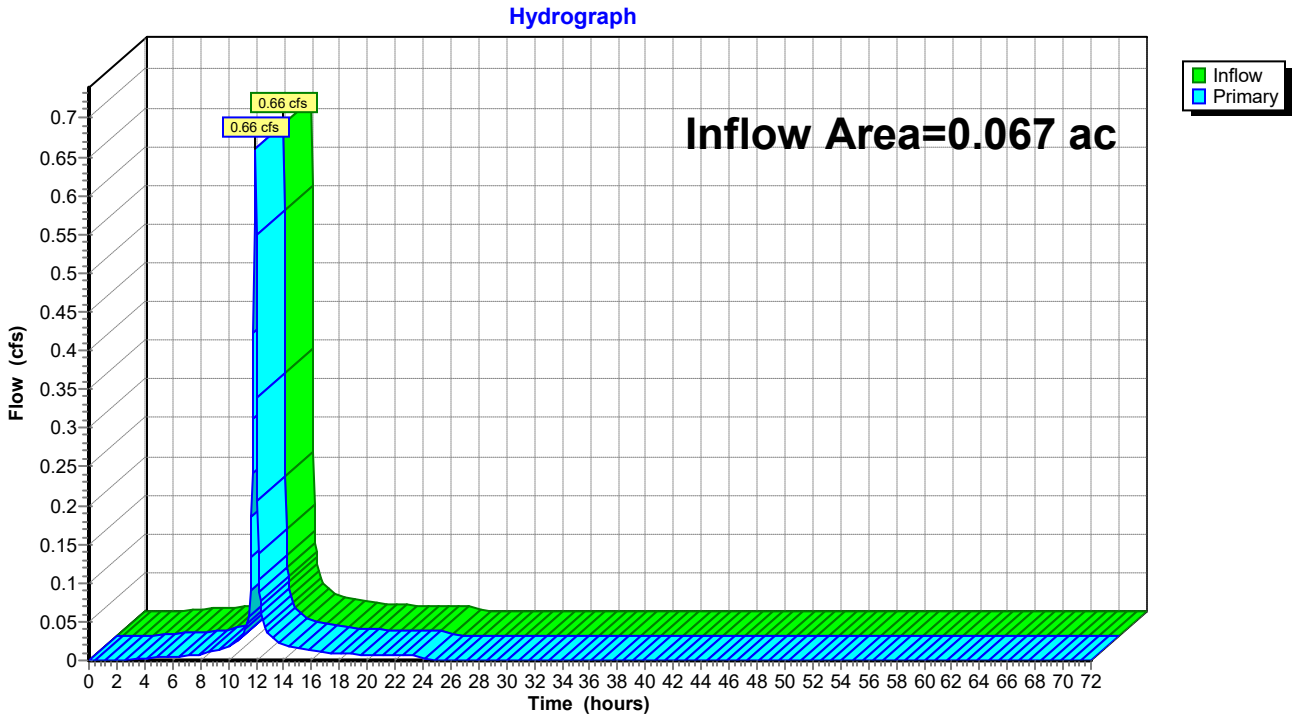


Summary for Link 24L: Study Point 2

Inflow Area = 0.067 ac, 52.55% Impervious, Inflow Depth = 6.65" for 100-YR event
Inflow = 0.66 cfs @ 11.95 hrs, Volume= 0.037 af
Primary = 0.66 cfs @ 11.95 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

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

Link 24L: Study Point 2



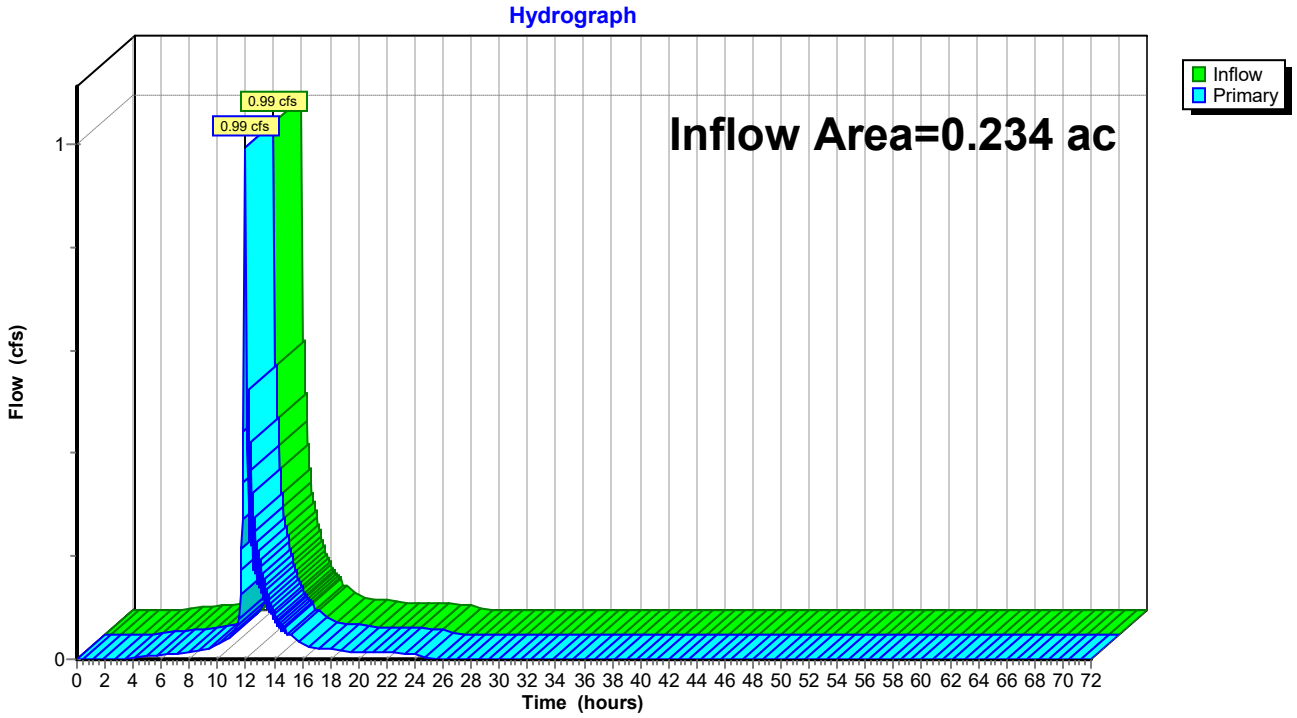
Summary for Link 26L: STUDY POINT 1

Inflow Area = 0.234 ac, 83.43% Impervious, Inflow Depth = 4.20" for 100-YR event
Inflow = 0.99 cfs @ 12.00 hrs, Volume= 0.082 af
Primary = 0.99 cfs @ 12.00 hrs, Volume= 0.082 af, Atten= 0%, Lag= 0.0 min

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

Fixed water surface Elevation= 37.68'

Link 26L: STUDY POINT 1

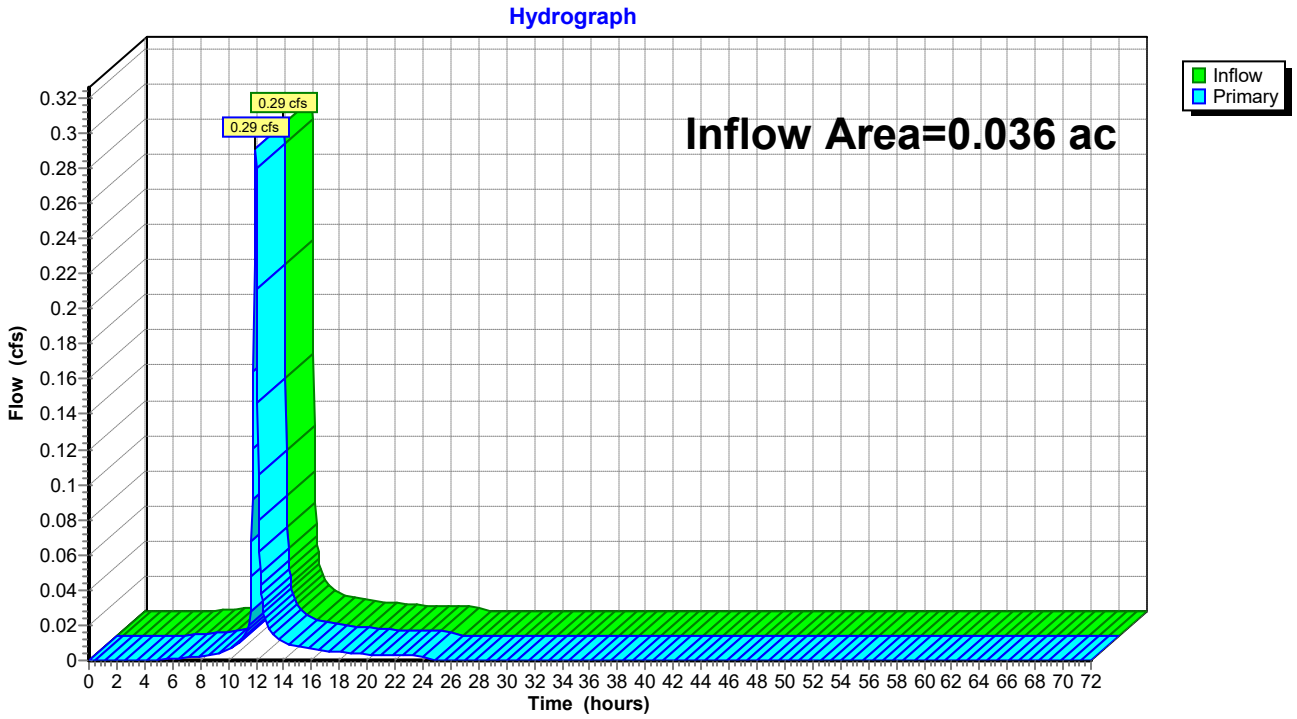


Summary for Link 27L: STUDY POINT 2

Inflow Area = 0.036 ac, 76.98% Impervious, Inflow Depth = 5.71" for 100-YR event
Inflow = 0.29 cfs @ 11.97 hrs, Volume= 0.017 af
Primary = 0.29 cfs @ 11.97 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

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

Link 27L: STUDY POINT 2



SECTION 5 – SOIL REPORTS

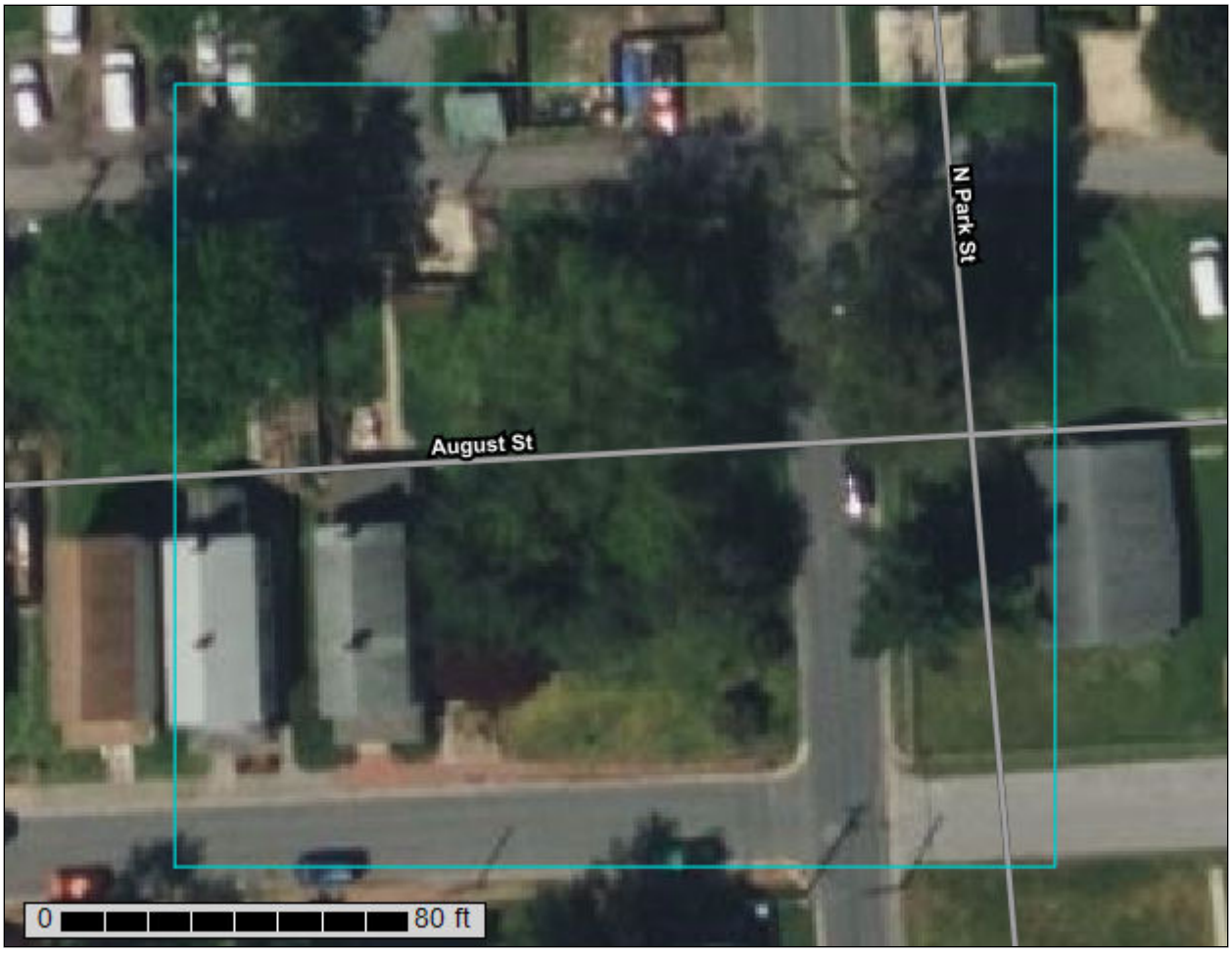
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Talbot County, Maryland



Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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


76° 4' 2" W
76° 3' 58" W
38° 46' 32" N
38° 46' 30" N
407280
407290
407300
407310
407320
407330
407340
407350
407360
407370
4292420
4292410
4292400
4292390
4292380
4292370
4292360
N Park St
August St
FgcA
HfA
Soil Map may not be valid at this scale.
Map Scale: 1:466 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 5 10 20 30
Feet
0 20 40 80 120
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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

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

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

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

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

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

Soil Survey Area: Talbot County, Maryland
Survey Area Data: Version 18, Aug 27, 2021

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

Date(s) aerial images were photographed: Apr 1, 2021—Oct 1, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FgcA	Fallsington loams, 0 to 2 percent slopes, Mid-Altlantic Coastal Plain	0.8	99.6%
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	0.0	0.4%
Totals for Area of Interest		**0.8**	**100.0%**

Map Unit Descriptions

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

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

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

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

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Talbot County, Maryland

FgcA—Fallsington loams, 0 to 2 percent slopes, Mid-Altlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2s96t
Elevation: 10 to 70 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Fallsington, undrained, and similar soils: 38 percent
Fallsington, drained, and similar soils: 37 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Fallsington, Undrained

Setting

Landform: Drainageways, flats, depressions, swales
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Loamy fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: mucky peat
A - 2 to 10 inches: loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 1.98 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: None
Frequency of ponding: Occasional
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Description of Fallsington, Drained

Setting

Landform: Flats, depressions, swales
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 10 inches: loam
Btg - 10 to 32 inches: sandy clay loam
BCg - 32 to 39 inches: loamy sand
Cg1 - 39 to 46 inches: sandy clay loam
Cg2 - 46 to 80 inches: sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 1.98 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: Rare
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.3 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Hydric soil rating: Yes

Minor Components

Hammonton

Percent of map unit: 7 percent
Landform: Flats, drainageways
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear
Hydric soil rating: No

Woodstown

Percent of map unit: 7 percent
Landform: Flats, fluviomarine terraces, depressions, broad interstream divides
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Othello

Percent of map unit: 6 percent
Landform: Depressions, swales, drainageways, flats
Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

Marshyhope

Percent of map unit: 5 percent
Landform: Depressions, flats, drainageways
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

HfA—Hambrook-Sassafras complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 1vh08
Elevation: 0 to 330 feet
Mean annual precipitation: 42 to 48 inches
Mean annual air temperature: 52 to 58 degrees F
Frost-free period: 180 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Hambrook and similar soils: 41 percent
Sassafras and similar soils: 39 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting

Landform: Fluviomarine terraces, flats, depressions
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave

Typical profile

Ap - 0 to 10 inches: sandy loam
BE - 10 to 14 inches: loam
Bt - 14 to 28 inches: sandy clay loam
BC - 28 to 65 inches: loamy sand
2Cg - 65 to 80 inches: silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)

Depth to water table: About 42 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Knolls, fluviomarine terraces, flats, low hills
Landform position (three-dimensional): Riser, dip
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Typical profile

Ap - 0 to 9 inches: sandy loam
E - 9 to 15 inches: sandy loam
Bt - 15 to 30 inches: loam
BC - 30 to 37 inches: sandy loam
C - 37 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Hydric soil rating: No

Minor Components

Woodstown

Percent of map unit: 10 percent
Landform: Depressions, flats
Landform position (three-dimensional): Dip
Hydric soil rating: No

Mattapex

Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Hydric soil rating: No

Ingleside

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf
Hydric soil rating: No

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Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

RECEIVED
APR 03 2024
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	139 N Washington St, Easton, MD 21601						
Tax Map	104	Grid	EA	Parcel	612	Lot	
Deed Refernce:	Liber	2237	Folio	62			
Plat Reference:	Liber	21 / 37	Folio	48 / 10			
Base Zoning District	CB	Historic District Y ☒ N ☐		Planning Redevelopment Y ☐ N ☐			

Purpose of Application / Description of Work:

Construction of 4-story town homes and single-family detached dwellings totaling 33 units.

Owner

Name	NAI Saturn Eastern, LLC	Developer: Miller Development Corporation c/o Robby Miller
Mailing Address	250 Park Center Blvd, Boise, ID 83706	8120 Woodmont Ave, Ste #160, Bethesda, MD 20814
Telephone No.	301-807-7057	Email rmiller@miller.group

Applicant / Agent

Name	Lane Engineering, LLC c/o Brett Ewing, AICP	
Mailing Address	117 Bay St, Easton, MD 21601	
Telephone No.	410-822-8003	Email bewing@leinc.com

Surveyor / Engineer

Name	Jarret Beyer, P.E.	License No.	48188	Expiration Date	12/28/2025
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	jbeyer@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 4/3/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐ **2024-1182 / ESDR 24-08**

Easton Staff Development Review Meeting Date 04/24/2024

Completeness Check Date 04/03/2024

Revisions/Resubmissions Required Y ☐ N ☒

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

Planning Commission Requir(Y ☒ N ☐ **TBD**

BOZA Required Y ☐ N ☒

Historic District Commission Required Y ☒ N ☐

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature Samantha N. Smith Date 04/03/2024

Revised 02-2019

Town of Easton
Engineering, Planning and Zoning
14 South Harrison Street, Easton, MD 21601

RECEIVED
APR 03 2024
TOWN OF EASTON

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☒ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	139 North Washington				
Original Property Size	Acres	1.522 AC ±	Square Feet	66,298 SF ±	
Telephone No.	301-807-7057	Email	rmiller@miller.group		

Site Plan Information

Property Size	Acres	1.522 AC ±	Square Feet	66,286 SF ±	
Structure's Floor Area	25,548 SF ± total		Structure's Square Feet	83,340 SF ±	total approximate GFA
Area of Disturbance	1.522 AC ±		Number of Dwelling Units	33	

Property Information

Address	139 N Washington St, Easton, MD 21601						
Tax Map	104	Grid	EA	Parcel	612	Lot	
Deed Refernce:	Liber	2237	Folio	62			
Plat Reference:	Liber	21 / 37	Folio	48 / 10			
Base Zoning District	CB	Historic	Y ☒	N ☐	Planned Redevelopment	Y ☐	N ☐
Source of Electricity	Easton Utilities						

Owner

Name	NAI Saturn Eastern, LLC	Developer:	Miller Development Corporation c/o Robby Miller
Mailing Address	250 Park Center Blvd, Boise, ID 83706		8120 Woodmont Ave, #160, Bethesda, MD 20814
Telephone No.	301-807-7057	Email	rmiller@miller.group

Applicant or Agent

Name	Lane Engineering, LLC c/o Brett Ewing, AICP		
Mailing Address	117 Bay St, Easton, MD 21601		
Telephone No.	410-822-8003	Email	bewing@leinc.com

Surveyor / Engineer

Name	Jarret Beyer, P.E.	License No.	48188	Expiration Date	12/28/2025
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	jbeyer@leinc.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 4/3/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

For Office Use Only

Planning Commission Required	Y ☒ N ☐		
Planning Commission Meeting Date	TBD		
Sketch Approval Date		Project No. PUD 24-01	ESDR 24-08
Prelim/Dev. Approval Date		Application No.	2024-1182
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019

PUD SKETCH PLAN

FOR

139 NORTH WASHINGTON

IN THE TOWN OF EASTON

TALBOT COUNTY, MARYLAND

PROJECT DATA

OWNER:	NAI SATURN EASTERN, LLC ATTN LEGAL DEPARTMENT 250 PARK CENTER BOULEVARD BOISE, ID 83706
APPLICANT/DEVELOPER:	MILLER DEVELOPMENT CORPORATION C/O ROBBY MILLER (PRESIDENT) 8120 WOODMONT AVENUE, #160 BETHESDA, MD 20814

PROPERTY ADDRESS

139 NORTH WASHINGTON STREET EASTON, MD 21601

DEED REFERENCE:	2237/62
PLAT REFERENCE:	21/37 & 48/10
ZONING CLASSIFICATION:	CB – CENTRAL BUSINESS COMMERCIAL DISTRICT PUD – PLANNED UNIT DEVELOPMENT (INFILL) HISTORIC DISTRICT
SITE AREA:	1.522 ACRES±

ZONING REQUIREMENTS

	CB	PUD INFILL	PROPOSED PUD
MINIMUM LOT SIZE	5,000 SF	N/A	1,159 SF±
MAXIMUM LOT SIZE	N/A	5 ACRES	4,934 SF±
MAXIMUM BUILDING HEIGHT	60'	N/A	42'±
*MAXIMUM LOT COVERAGE	90%	N/A	N/A
*EXISTING LOT COVERAGE	34%	–	–
*PROPOSED LOT COVERAGE *(BUILDINGS & STRUCTURES)	–	–	41%
MAXIMUM DENSITY	SINGLE FAMILY 7 DWELLING UNITS/ACRE (10 DWELLING UNITS TOTAL) MIDDLE HOUSING 9 DWELLING UNITS/ACRE (13 DWELLING UNITS TOTAL)	60 DWELLING UNITS/ACRE (91 DWELLING UNITS TOTAL)	22 DWELLING UNITS/ACRE (33 DWELLING UNITS TOTAL)

APPROVALS:	HDC REVIEW/APPROVAL IS REQUIRED.
EXISTING CONDITIONS:	EXISTING GROCERY STORY BUILDING WITH THE REMAINDER OF THE PARCEL CONSISTING OF PAVED PARKING LOT.
PROPOSED DEVELOPMENT:	4–STORY TOWNHOMES & SINGLE FAMILY DETACHED DWELLINGS (33 UNITS TOTAL)
BUILDING FOOTPRINT:	760 SF± (TOWNHOMES) 798 SF± (SINGLE FAMILY DETACHED DWELLINGS) 840 SF± (SINGLE FAMILY DETACHED DWELLINGS)
PARKING REQUIRED:	CODE 28–305.2 OFFSTREET PARKING SHALL NOT BE REQUIRED WITHIN CB ZONING DISTRICT.
PARKING PROVIDED:	67 TOTAL SPACES PROVIDED (INCLUDES GARAGES)
PARKING NOTE:	OFF–STREET PARKING IS NOT REQUIRED FOR PROJECTS IN THE CBD ZONING DISTRICT, ALTHOUGH ADEQUACY IS CONSIDERED THROUGH THE SITE PLAN PROCESS. 2.06 SPACES IS PROPOSED PER UNIT AND SIDEWALK CONNECTION TO ACCESS DOWNTOWN EASTON RESULT IN ADEQUACY FROM A FUNCTION AND MARKETING PERSPECTIVE.
REFUSE/TRASH:	PROPOSED RESIDENTIAL TIPPER CANS TO BE STORED WITHIN INDIVIDUAL GARAGES.
SITE LIGHTING:	POLE HEIGHT TO BE DETERMINED FOR EFFICIENT LIGHT COVERAGE, BUT HEIGHTS IN RANGE OF 18'–20'±. PHOTOMETRIC ANALYSIS WILL BE PROVIDED PRIOR TO FINAL APPROVAL.
STORMWATER MANAGEMENT:	STORMWATER QUANTITY MANAGEMENT IS ADDRESSED WITH UNDERGROUND CHAMBERS. THE SITE IS THE IN THE TANYARD BRANCH WATERSHED AND THE POST–DEVELOPMENT 10–YEAR STORM RUNOFF IS MANAGED TO THE PRE–DEVELOPMENT 2–YEAR STORM RUNOFF. STORMWATER QUALITY MANAGEMENT IS ADDRESSED THROUGH USE OF STRUCTURAL FILTERS, PAVERS, AND PLANTER AREAS. ADDITIONALLY, THIS IS A REDEVELOPMENT SITE AND IMPERVIOUS AREA HAS BEEN SIGNIFICANTLY REDUCED.
FOREST CONSERVATION:	IS EXEMPT PER §31–3.2.0: AN ACTIVITY ON A PREVIOUSLY DEVELOPED AREA COVERED BY IMPERVIOUS SURFACE AND LOCATED IN THE PRIORITY FUNDING AREA.

PROJECT NOTES

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 ABOVE GROUND IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON FEBRUARY 2, 2024.

THE UNDERGROUND UTILITIES SHOWN HEREON WERE TAKEN FROM BEST AVAILABLE RESOURCES AND ARE APPROXIMATE ONLY.

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) COMBINED FACTOR: 0.99995360. THE DISTANCES SHOWN HEREON ARE GROUND BASED.

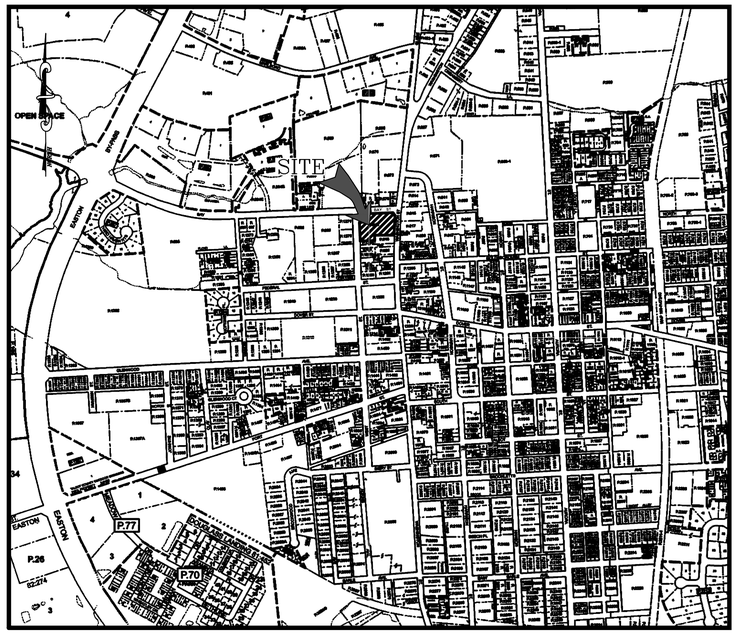
NO ABSTRACT OF TITLE, TITLE COMMITMENT, NOR RESULTS OF A TITLE SEARCH HAVE BEEN FURNISHED TO LANE ENGINEERING, LLC. THE BUILDING RESTRICTION LINES AS SHOWN HEREON ARE BASED SOLELY ON THE CURRENT TOWN OF EASTON COUNTY ZONING ORDINANCE APPLICABLE TO THE PROPERTY SHOWN HEREON AND ARE SUBJECT TO CHANGE WITH 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.

FLOOD DATA

THE PROPERTY SHOWN HEREON IS NOT LOCATED IN THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) SPECIAL FLOOD HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD. THE PROPERTY IS MAPPED IN THE "X" FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0189D FOR TOWN OF EASTON, MARYLAND. THE 1% ANNUAL CHANCE FLOOD (100–YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SFHA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. THE SFHA INCLUDES ZONES A, AE, AH, AO, AR, A99, V & VE. THE BASE FLOOD ELEVATION (BFE) IS THE WATER SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD. FLOOD INSURANCE MAY BE REQUIRED FOR STRUCTURES LOCATED IN THE SPECIAL FLOOD HAZARD AREA.

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.



VICINITY MAP

0 0 0' 0 0 0
SCALE IN FEET

INDEX OF SHEETS

PDF SHEET	TITLE
1	TITLE SHEET & PROJECT NOTES
2	AERIAL CONTEXT PLAN
3	SKETCH SITE PLAN
4	ILLUSTRATIVE SITE PLAN
5	CONCEPTUAL SWM PLAN
6	PROPOSED LOT LAYOUT

PUD LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE: SECTION 701:

SECTION 701.G (TABLE)

PUD INFILL – MINIMUM OPEN SPACE REQUIREMENTS: LANDSCAPING SHALL BE PROVIDED TO ENHANCE THE PROJECT AND ADVANCE THE DEGREE TO WHICH THE INFILL PROJECT BLENDS IN WITH SURROUNDING PROPERTIES

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1– INTEGRATED USES ARE DESIRABLE– THIS DEVELOPMENT PROPOSES RESIDENTIAL DEVELOPMENT ADJOINING OTHER RESIDENTIAL LAND USES AND COMMERCIAL USES.

PRINCIPLE #2– NATURAL FEATURES SHOULD DETERMINE DESIGN– NO COMPELLING NATURAL FEATURES; SWM INTEGRATED ON SITE.

PRINCIPLE #3– AUTOMOBILES SHOULD NOT DETERMINE DESIGN– PARKING FOR RESIDENTS IS IMPORTANT. THE PROPOSED PARKING HAS BEEN DESIGNED TO ACCOMMODATE THE BUILDING LAYOUT ON–SITE.

PRINCIPLE #4– AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS– USABLE OPEN SPACE NOT SPECIFICALLY APPLICABLE HERE.

PRINCIPLE #5– ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT– THIS APPLICATION PROPOSES ARCHITECTURE COMPATIBLE WITH EXISTING BUILDINGS AND COMPATIBLE WITH EXISTING ARCHITECTURE FOUND IN EASTON.

PRINCIPLE #6– SIGNS SHOULD INFORM BUT NOT DOMINATE–SIGNAGE TASTEFUL, SIMPLE AND PER CODE.

PRINCIPLE #7– NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES– THIS DEVELOPMENT PROPOSES TOWNHOMES AND SINGLE FAMILY DWELLINGS AS PERMITTED IN THE CB ZONING DISTRICT.

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES– THIS DEVELOPMENTS SETTING PROVIDES DIVERSITY TO THE DOWNTOWN DISTRICT.

PRINCIPLE #9– NEIGHBORHOODS SHOULD CONNECT– THE MEWS WILL PROVIDE PEDESTRIAN CONNECTION FROM WASHINGTON STREET TO WEST STREET.

APPROVED:
PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED:
PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS TO APPROVED PLANS

No:	DATE	DESCRIPTION	BY

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BEFORE YOU DIG CALL
1–800–441–8355 OR 811
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TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E–mail: general@lanei.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

PROFESSIONAL CERTIFICATION: I hereby certify that 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. 48188 , Expiration Date: 12/28/2025.

SEAL
STATE OF MARYLAND
JARRETT A. BEYER
48188
PROFESSIONAL ENGINEER
4-2-24
DATE

TITLE SHEET

ON THE LANDS OF
NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

ISSUED/REVISED FOR: DATE: BY:

SHEET No. 1 OF 6
SCALE: AS NOTED
JOB No. 240014
FILE No. B412

Date: 04/03/2024 – 10:35am User: wbarnhart Project Manager:BCE
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XREF File(s): XLD–BASE–240014/CBS–BASE–2436–240014



NAD 83 (2011) MD COORDINATE SYSTEM

60' 30' 0' 30' 60' 120'
SCALE IN FEET

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TOWN OF EASTON – TOWN ENGINEER DATE

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JARRET J. BRYER
No. 48188
PROFESSIONAL ENGINEER
12-2-24
DATE

AERIAL CONTEXT PLAN

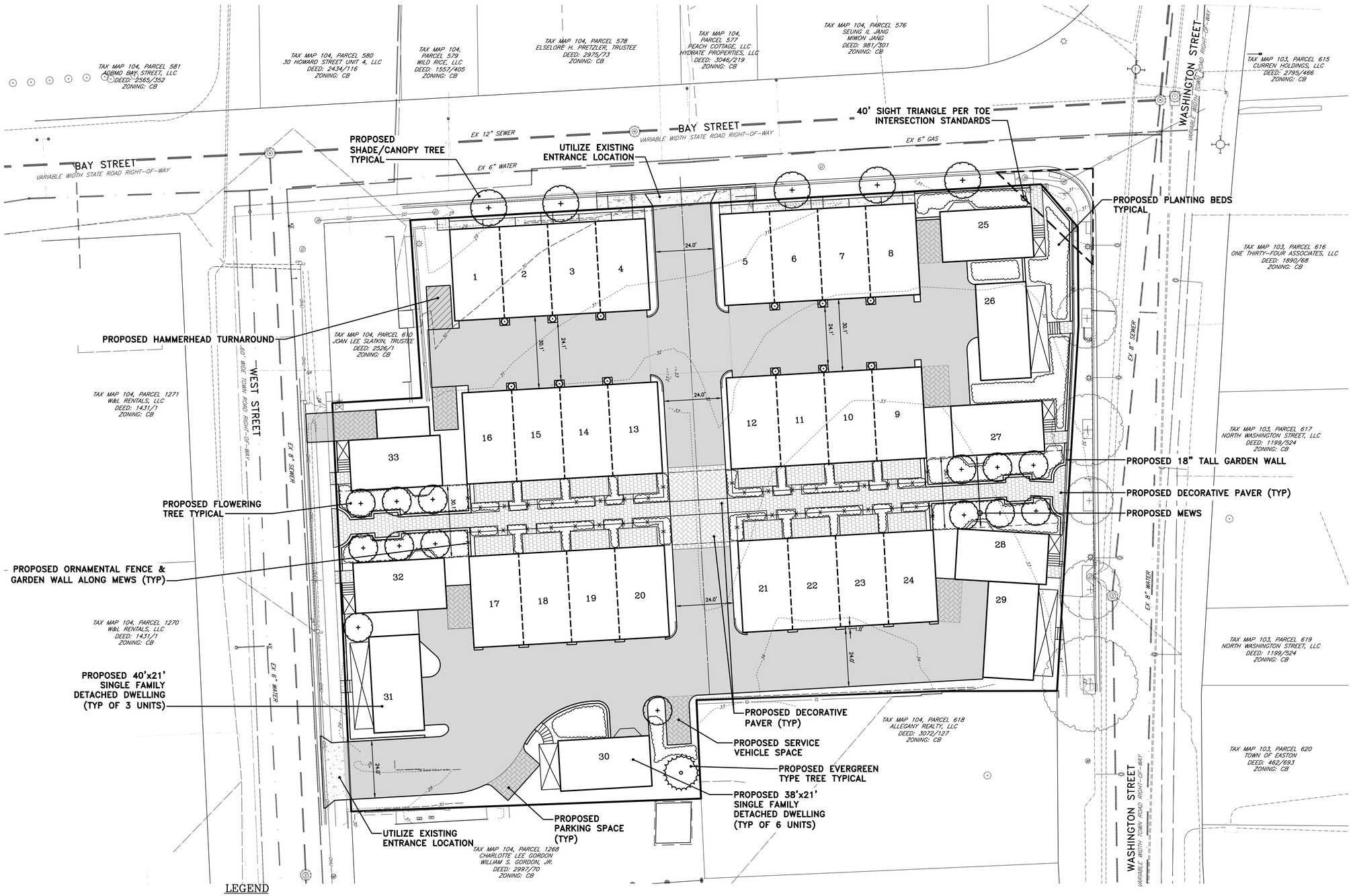
ON THE LANDS OF
NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

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SHEET No. 2 OF 6
SCALE: AS NOTED
JOB No. 240014
FILE No. B412

Date: 04/03/2024 – 10:29am User: wbarnhart Project Manager: BCE
Drawing Path: J:\2024\0000\240014\Civil3D-240014\Dwg\Plots\CSK-PUD-PLTS-240014.dwg | 2-Aerial Context Plan
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LEGEND

- IRON ROD FOUND
- COMPUTED POINT
- ELECTRIC HANDHOLE
- SINGLE POST SIGN
- GAS VALVE
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- UTILITY POLE
- LAMP POLE
- OHU — OVER HEAD UTILITY LINES
- SANITARY SEWER MANHOLE
- STORM DRAIN MANHOLE/INLET
- SD — STORM DRAIN LINE
- DECIDUOUS TREE

LANDSCAPE KEY

- 2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)
- 1.25" CALIPER OR 7' HEIGHT MINIMUM FLOWERING TREES (CHERRY, MAGNOLIA, SERVICEBERRY, RED BUD, SERVICEBERRY TYPES)
- 7' HEIGHT MINIMUM EVERGREEN TREES (WHITE PINE, AMERICAN ARBORVITAE, LOBLOLLY TYPES)
- PLANTING BEDS

UNOBSTRUCTED VISION TRIANGLE AREA NOTE

40' UNOBSTRUCTED VISION TRIANGLE (AT THE INTERSECTION OF WASHINGTON AND BAY STREET) IN ACCORDANCE WITH THE TOWN OF EASTON ZONING ORDINANCE.

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

20' 10' 0' 10' 20' 40'
SCALE IN FEET

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TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED:
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EASTON PLANNING COMMISSION CHAIRMAN DATE

REVISIONS TO APPROVED PLANS

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SEAL
STATE OF MARYLAND — JANET L. BUTLER — 48188 — PROFESSIONAL ENGINEER
4-2-24
DATE

SKETCH SITE PLAN

ON THE LANDS OF
NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

ISSUED/REVISED FOR: DATE: BY:

SHEET No. 3 OF 6
SCALE: AS NOTED
JOB No. 240014
FILE No. B412

Date: 04/03/2024 - 10:29am User: wbarnhart Project Manager: BCE
Drawing Path: J:\2024\0000\240014\Civil\3D-240014\Dwg\Plats\CSK-PUD-PLTS-240014.dwg | 3-Sketch
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LEGEND

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- ELECTRIC HANDHOLE
- SINGLE POST SIGN
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SEAL
STATE OF MARYLAND
GARRETT J. BOYER
PROFESSIONAL ENGINEER
14-2-24
DATE

ILLUSTRATIVE SITE PLAN

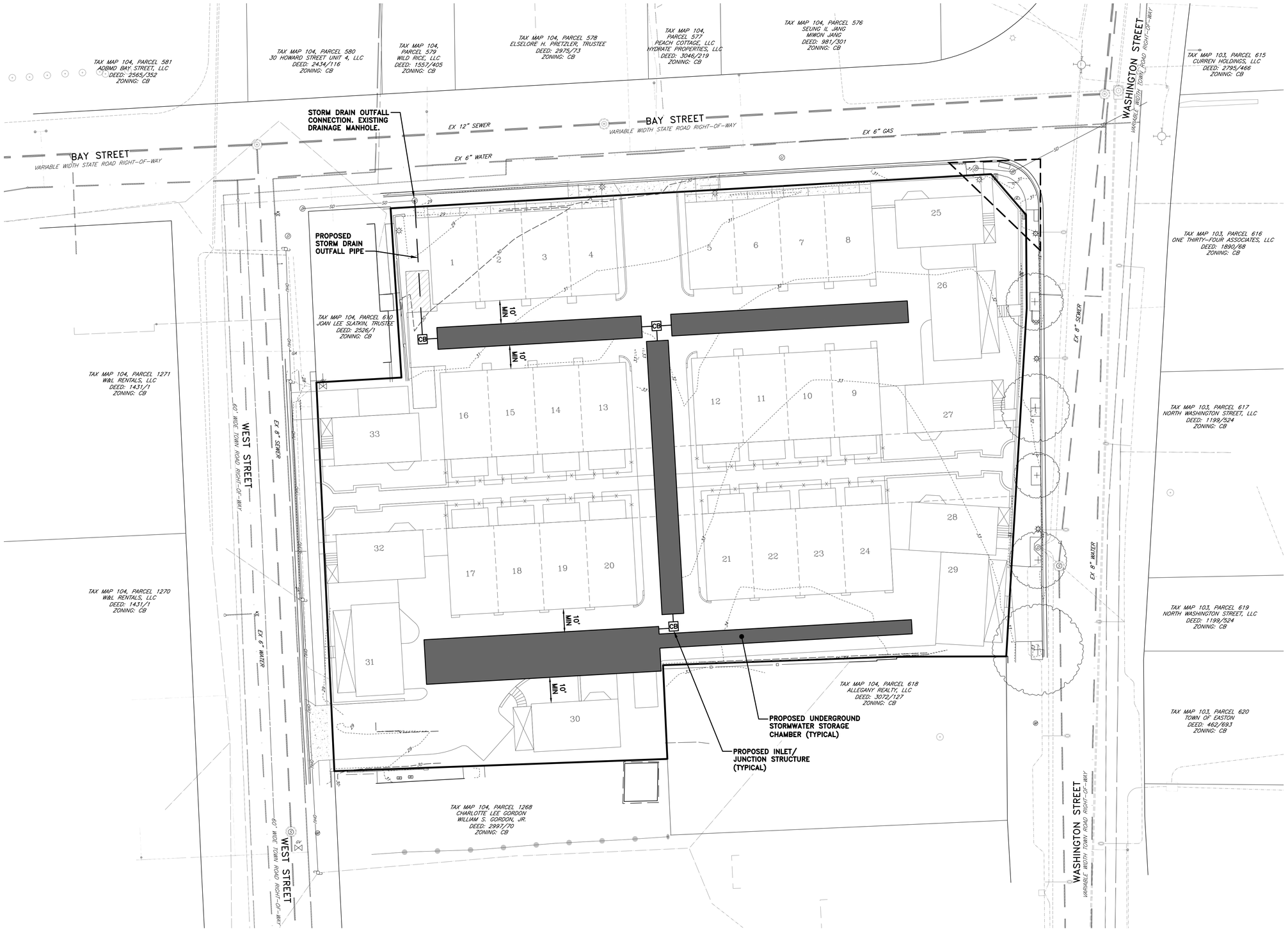
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IN THE TOWN OF EASTON, WARD DISTRICT 1
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SHEET No. 4 OF 6
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FILE No. B412

Date: 04/03/2024 - 10:30am User: wbarnhart Project Manager: BCE
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XREF File(s): VLD-BASE-240014/2024-03-18-CAR/CSP-SRCE-240014/CSK-BASE-240014/CBS-BASE-2438-240014/RAR-BASE-240014/RLD-EUC-OLD-BASE-240014/VSF-BASE-240014/SWF-BASE-240014/CSW-CSK-BASE-240014/XRN-PUD-BASE-240014/LLP-PUD-BASE-240014



SWM QUANTITY SUMMARY CHART

POI	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	WSE	PRE 10 YEAR	POST 10 YEAR	WSE	PRE 100 YEAR	POST 100 YEAR	WSE
1	1.50	0.04	–	2.9	7.06	3.87	–	11.15	6.93	–	–	–	–
2	0.06	0.01	–	1.3	0.33	0.15	–	0.53	0.30	–	–	–	–

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE 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 ESDv (FT³)	ACTUAL ESDv (FT³)
OVERALL	–	BAYFILTER 522	ON-SITE	–	–	–	1.52	1.50	–	1.0	1.0	952	1,250

APPROVED:
PLANS ARE
TOWN OF EASTON – TOWN PLANNER DATE
APPROVED:
ISSUED FOR
REVIEW ONLY
TOWN OF EASTON – TOWN ENGINEER DATE
APPROVED:
PLANS ARE NOT
APPROVED FOR
CONSTRUCTION
EASTON PLANNING COMMISSION DATE

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

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.

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15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

PROFESSIONAL CERTIFICATION: I hereby certify that 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. 48188 , Expiration Date: 12/28/2025.

SEAL
STATE OF MARYLAND
JARRET J. BEYER
No. 48188
PROFESSIONAL ENGINEER
4-2-24
DATE

CONCEPTUAL SWM PLAN

ON THE LANDS OF NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

ISSUED/REVISED FOR: DATE: BY:

SHEET No. 5 OF 6
JOB No. 240014
SCALE: AS NOTED
FILE No. B412

Date: 04/03/2024 - 10:30am User: wbarnhart Project Manager: BCE
Drawing Path: J:\2024\00003\240014\Civil3D-240014\Dwg\Plots\CSK-PUD-PLTS-240014.dwg | 5-SWM
XREF File(s): VLD-BASE-240014/2024-03-18-CAK/CSF-SKCE-240014/CSK-BASE-240014/CBS-BASE-24436-240014/RAR-BASE-240014/RLD-EUC-OLD-BASE-240014/VSF-BASE-240014/VSP-BASE-240014/XRN-PUD-BASE-240014/LLP-PUD-BASE-240014



PROPOSED LOT LAYOUT TABLE		
UNIT #	LOT SIZE (SF±)	UNIT TYPE
1	2119	20'x38' TOWNHOME
2	1159	20'x38' TOWNHOME
3	1159	20'x38' TOWNHOME
4	2101	20'x38' TOWNHOME
5	2098	20'x38' TOWNHOME
6	1159	20'x38' TOWNHOME
7	1159	20'x38' TOWNHOME
8	1197	20'x38' TOWNHOME
9	1407	20'x38' TOWNHOME
10	1362	20'x38' TOWNHOME
11	1362	20'x38' TOWNHOME
12	2383	20'x38' TOWNHOME
13	2383	20'x38' TOWNHOME
14	1362	20'x38' TOWNHOME
15	1362	20'x38' TOWNHOME
16	1407	20'x38' TOWNHOME
17	1613	20'x38' TOWNHOME
18	1561	20'x38' TOWNHOME
19	1561	20'x38' TOWNHOME
20	2809	20'x38' TOWNHOME
21	2899	20'x38' TOWNHOME
22	1621	20'x38' TOWNHOME
23	1629	20'x38' TOWNHOME
24	1692	20'x38' TOWNHOME
25	2210	38'x21' SINGLE FAMILY DETACHED DWELLING
26	2865	40'x21' SINGLE FAMILY DETACHED DWELLING
27	2888	38'x21' SINGLE FAMILY DETACHED DWELLING
28	2481	38'x21' SINGLE FAMILY DETACHED DWELLING
29	1911	40'x21' SINGLE FAMILY DETACHED DWELLING
30	4934	38'x21' SINGLE FAMILY DETACHED DWELLING
31	2823	40'x21' SINGLE FAMILY DETACHED DWELLING
32	2516	38'x21' SINGLE FAMILY DETACHED DWELLING
33	3094	38'x21' SINGLE FAMILY DETACHED DWELLING
	TOTAL: 66,286 SF±/1.522 AC±	

NAD 83 (2011) MARYLAND STATE COORDINATE SYSTEM

NOTE

A WAIVER OF STANDARD DRAINAGE & UTILITY EASEMENTS (AT FRONT, SIDE AND REAR OF LOTS) IS REQUESTED AS PART OF THIS PUD.

THESE LOTS ARE PROPOSED AS FEE SIMPLE LOTS WITHOUT DIRECT ROAD FRONTAGE. A "BLANKET EASEMENT" WILL BE PROVIDED ACROSS THE PROPERTY FOR AREAS OF COMMON USE/TRAVEL.

NOTE: THE PROPOSED LOT LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED FOR FINAL PLAT/LOT CONFIGURATION AND RECORDATION.

20' 10' 0' 10' 20' 40'
SCALE IN FEET

APPROVED:
PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED:
PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

WARNING!!

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SEAL
STATE OF MARYLAND
JAMES D. BUTLER IV
48188
PROFESSIONAL ENGINEER
4-2-24
DATE

PROPOSED LOT LAYOUT

ON THE LANDS OF
NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

ISSUED/REVISED FOR: DATE: BY:

SHEET No. 6 OF 6
SCALE: AS NOTED
JOB No. 240014
FILE No. B412

Land Development Plan

Date: 04/03/2024 - 10:31am User: wbarnhart Project Manager: BCE
Drawing Path: J:\2024\0000\240014\Civil3D-240014\Dwg\Plats\CSK-PUD-PLTS-240014.dwg | 6-Subdivision
XREF File(s): VLD-BASE-240014/2024-03-18-DAY/CSP-SKCE-240014/CSK-BASE-240014/CBS-BASE-240014/RAR-BASE-240014/RLD-EUC-OLD-BASE-240014/VSF-BASE-240014/VSF-BASE-240014/CSW-CSK-BASE-240014/XRN-PUD-BASE-240014/LLP-PUD-BASE-240014



VIEW AT CORNER OF BAY ST AND WASHINGTON ST



KEY PLAN 1-40
1" = 40'-0"

PUD SKETCH PLAN - 04.03.24

139 N. Washington St.

139 N. WASHINGTON ST. | EASTON, MD 20814

1ST ELECTION DISTRICT
TALBOT COUNTY, MD
WSSC GRID:
TAX MAP:

MNCPPC:

OWNER / CLIENT

MILLER GROUP
8120 Woodmont Ave, Ste 160 | Bethesda, MD 20814
202.752.9866 | www.miller.group

ARCHITECT

mauricewalters | architect
400 7th St NW, Ste 502 | Washington, DC 20004
202.675.1094 | www.mwaltersarchitect.com

CIVIL ENGINEER

Lane Engineering, LLC
117 Bay St. | Easton, MD 21601
410.822.8003 | www.leinc.com

LANDSCAPE ARCHITECT

OEHME, VAN SWEDEN
800 G St SE | Washington, DC 20003
202.546.7575 | www.ovsla.com

LAND USE ATTORNEY

McAllister, DeTar, Showalter & Walker, LLC
100 N. West St | Easton, MD 21601
410.820.0222 | www.mdswlaw.com

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STATE OF MARYLAND
MAURICE C. WALTERS III
13218
ARCHITECT

I hereby certify that these document were prepared or approved by me, and that I am a duly licensed professional architect under the laws of the State of Maryland.

NAME: MAURICE WALTERS
LICENSE No: 15649
EXPIRATION DATE: 09/03/2024

Drawing Title

SITE RENDERING

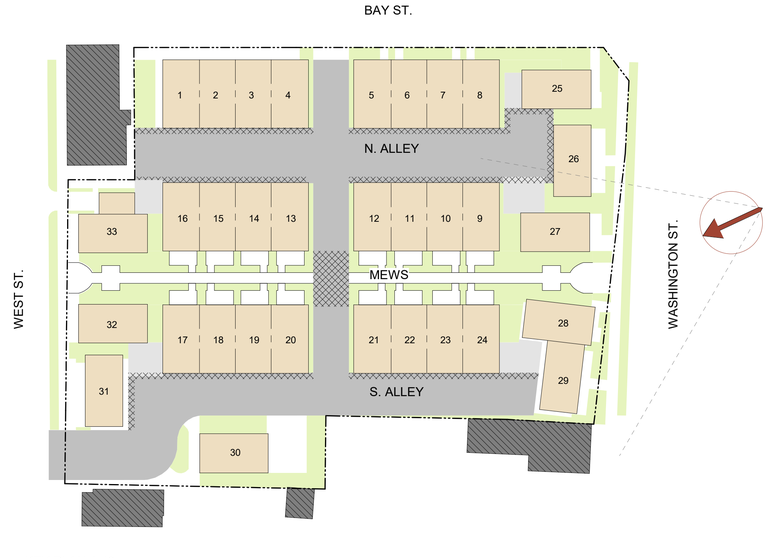
Sheet No.

A001

Scale 1" = 40'-0"



VIEW FROM WASHINGTON ST TOWARD MEWS ENTRY



KEY PLAN 1-40
1" = 40'-0"

PUD SKETCH PLAN - 04.03.24

139 N. Washington St.

139 N. WASHINGTON ST. | EASTON, MD 20814

1ST ELECTION DISTRICT
TALBOT COUNTY, MD
WSSC GRID:
TAX MAP:

MNCPPC:

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NAME: MAURICE WALTERS
LICENSE No: 15649
EXPIRATION DATE: 09/03/2024

Drawing Title

SITE RENDERING

Sheet No.

A002

Scale 1" = 40'-0"



BAY ST.

VIEW IN MEWS TOWARD WEST ST



KEY PLAN 1-40
1" = 40'-0"

PUD SKETCH PLAN - 04.03.24

139 N. Washington St.

139 N. WASHINGTON ST. | EASTON, MD 20814

1ST ELECTION DISTRICT
TALBOT COUNTY, MD
WSSC GRID:
TAX MAP:

MNCPPC:

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LICENSE No: 15649
EXPIRATION DATE: 09/03/2024

Drawing Title

SITE RENDERING

Sheet No.

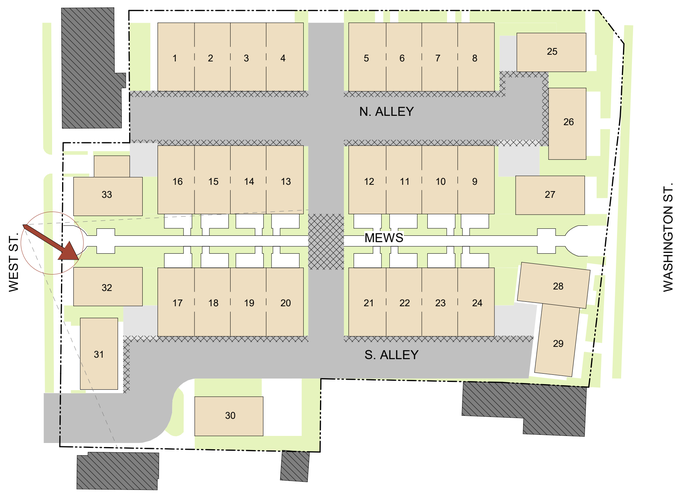
A003

Scale 1" = 40'-0"



BAY ST.

VIEW AT MEWS ENTRY AT WEST ST



KEY PLAN 1-40
1" = 40'-0"

PUD SKETCH PLAN - 04.03.24

139 N. Washington St.

139 N. WASHINGTON ST. | EASTON, MD 20814

1ST ELECTION DISTRICT
TALBOT COUNTY, MD
WSSC GRID:
TAX MAP:

MNCPPC:

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13218
ARCHITECT

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NAME: MAURICE WALTERS
LICENSE No: 15649
EXPIRATION DATE: 09/03/2024

Drawing Title

SITE RENDERING

Sheet No.

A004

Scale 1" = 40'-0"



BAY ST.

VIEW FROM WEST ST TOWARD MEWS ENTRY



KEY PLAN 1-40
1" = 40'-0"

PUD SKETCH PLAN - 04.03.24

139 N. Washington St.

139 N. WASHINGTON ST. | EASTON, MD 20814

1ST ELECTION DISTRICT
TALBOT COUNTY, MD
WSSC GRID:
TAX MAP:

MNCPPC:

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NAME: MAURICE WALTERS
LICENSE No: 15649
EXPIRATION DATE: 09/03/2024

Drawing Title

SITE RENDERING

Sheet No.

A005

Scale 1" = 40'-0"

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,	X
2. Boundary,	X
3. Topography,	X
4. General proposed land uses drawn to scale, and	X
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.	X
7. Conditions of concern, for example, water courses, wetlands, floodplains, or other environmentally sensitive features.	N/A
8. Location of refuse collection, exterior lighting, fencing, and all pedestrian walkways and sidewalks.	X
9. General location and description (r.e. intended function, proposed species, etc.) of proposed landscaping.	X
10. Location of parking including layout and landscaping.	X
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.	X
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.	X

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
Stream Buffers
Forest Boundaries
Forest Buffers
Critical Areas
Steep Slopes (>25%)
Erodible Soils
Areas of High Recharge
Springs N/A
Soil Types and Hydrologic Soil Groups
Bedrock and/or other Geologic Features N/A
Vegetative Cover ✓
Existing Drainage Areas and Flow Patterns
Existing Stormwater Outfalls
Site and Resource Map field verified by a properly licensed design professional.

Existing contours (1' max intervals) and utilities shown. ✓

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. ✓

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. N/A

Better Site Design Techniques incorporated, including:

Sheetflow and overland flow provided wherever possible ✓

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 ✓

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 ✓

Narrow frontages to reduce road length N/A

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 ≥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 N/A
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 2/3/24

CONCEPT STORMWATER MANAGEMENT REPORT

For

Easton Townhomes

Developer

Miller Development Corporation
c/o Robby Miller (President)
8120 Woodmont Avenue, #160
Bethesda, MD 20814

Design Professional

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

Date Prepared

April 2, 2024

Prepared by

Jarret J. Beyer, P.E.



4/2/24

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. 48188, Expiration Date: 12/28/2025.

TABLE OF CONTENTS

SECTIONS LIST

1. Introduction
2. General Project Summary

APPENDIX LIST

APPENDIX A – Maryland Environmental Site Design (ESD) Calculations
APPENDIX B – Stormwater Quantity Calculations
APPENDIX C – Pre-development Drainage Area Map
APPENDIX D – Post-development Drainage Area Map

EASTON TOWNHOMES
CONCEPT STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

This report addresses the stormwater management 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 site development 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 PROJECT SUMMARY

The project is located at the old Safeway grocery store on the corner of Washington Street and Bay Street in downtown Easton. The old store has been abandoned for many years. The project consists of demolition of the existing structure and parking lot and constructing 33 townhome units along with drive aisles, walkways, and other amenities.

The site is nearly entirely impervious (>90% impervious) and therefore qualifies for redevelopment status (>40% existing impervious area.) Stormwater quality management (ESD) is proposed to be accomplished via pervious pavers, small infiltration features (flow-through planter type of feature), and structural stormwater filters. A structural stormwater filter can address the entire ESD requirement of **952 cubic feet**, but we are considering the best possible method(s) to meet the intent of the ESD requirements. Please see Appendix A for ESD calculations.

The site is in the Tanyard Branch Watershed. New development and redevelopment are required to manage the post-development 10-year storm event runoff to the pre-development 2-year storm event runoff. Stormwater quantity management is proposed to be accomplished via underground storage. The bulk of the existing site runoff is towards an inlet on the northwest corner of the site. This drainage pattern will be retained, with the underground storage system collecting runoff and directing it to an existing adjacent manhole in the Bay Street sidewalk. With the use of HydroCAD this stormwater management plan has been verified to meet the Tanyard Branch Watershed requirements. Please see Appendix B for the stormwater quantity analysis, also summarized in the table below.

Stormwater Quantity Summary				
	POI #1 2-yr Storm (cfs)	POI #1 10-yr Storm (cfs)	POI #2 2-yr Storm (cfs)	POI #2 10-yr Storm (cfs)
Pre-development	**7.06**	11.15	**0.33**	0.53
Post-development	3.87	**6.93**	0.15	**0.30**

Please see appendices C and D for the pre-development and post-development drainage area maps for further clarity.

APPENDIX A

MARYLAND ENVIRONMENTAL SITE DESIGN (ESD) CALCULATIONS

Maryland Environmental Site Design (ESD) Computations

Project	Easton Townhomes	By	JJB	Job #	240014
Location	139 N. Washington Street, Easton, MD	Date	2/13/2024	File #	B412

Determine if the Project is subject to Redevelopment Requirements:

Site Area =	66,283	sf	excluding buffers, forest conservation =	sf
Net Site Area =	66,283	sf		
Existing Imp. Area =	65,555	sf		
Percent Impervious (I) =	99	%		

I > 40%. Project meets Redevelopment requirements.

ESD Target for Redevelopment

Impervious Cover (50% of Ex. Imp):	32,778	sf
Percent Impervious (I)	100	%

Remove and/or treat	*32,778*	*sf*	*of exising impervious area*
Area of impervious removed=	20,749	sf	
Impervious area remaining =	12,029	sf	*to be treated using ESD practices, Pe = 1 in, Rv = 0.95*

R_v = 0.05 +0.009(I)
= 0.95

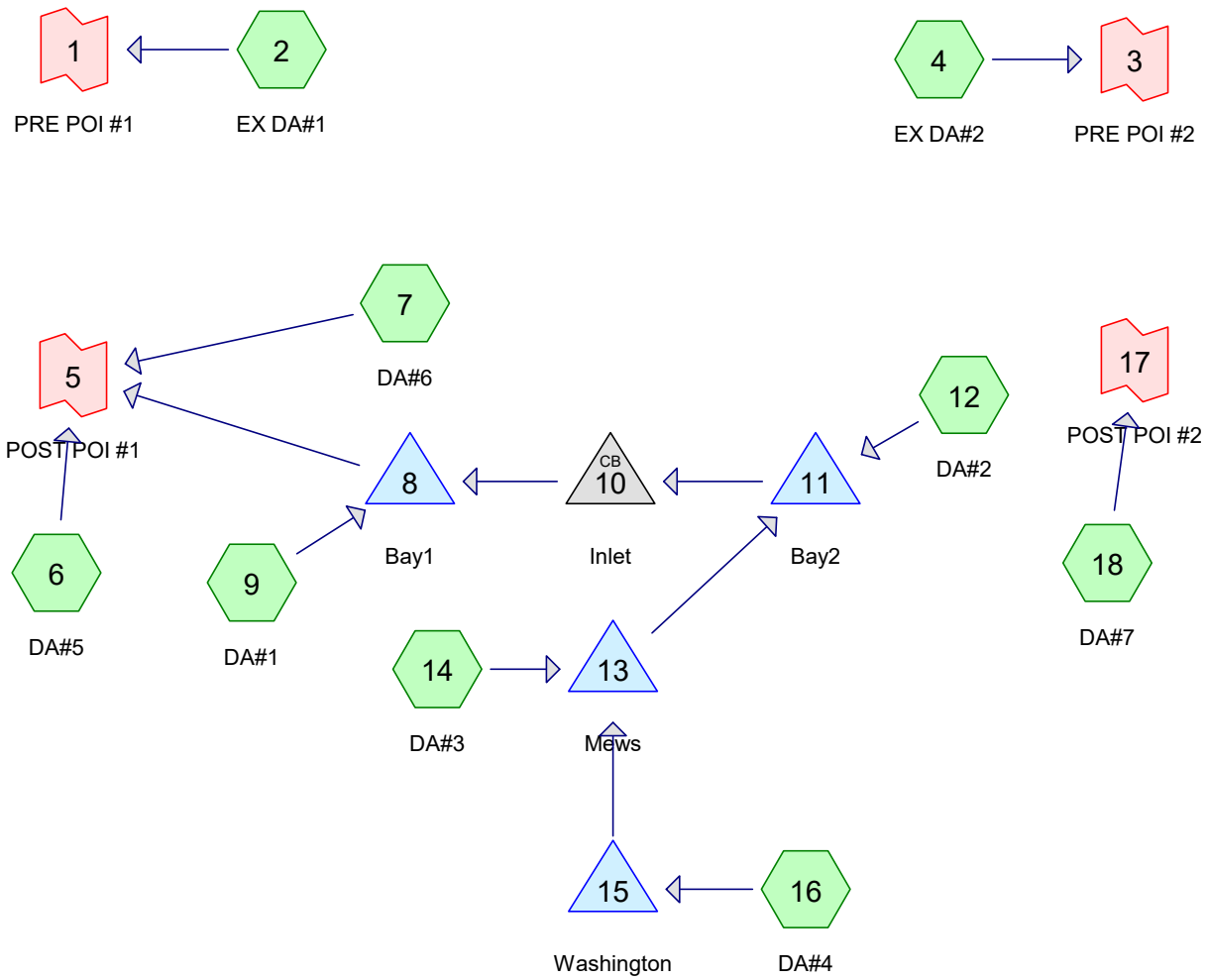
Composite Target P_E (in.): **1.00**

$$ESD_v = \frac{(P_E)(R_v)(A)}{12}$$

= **952** **cf**

APPENDIX B

STORMWATER QUANTITY CALCULATIONS



Subcat Reach Pond Link

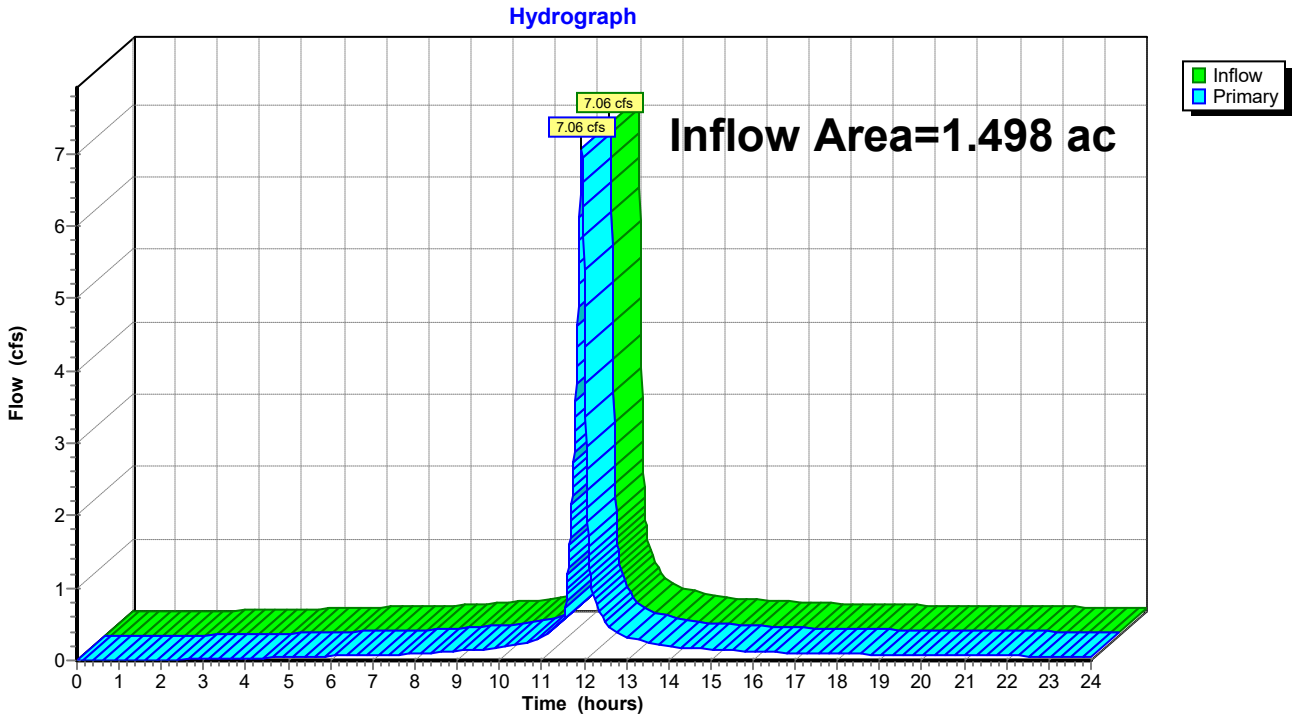
Routing Diagram for HydroCAD-240014
Prepared by Lane Engineering, LLC, Printed 4/2/2024
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Link 1: PRE POI #1

Inflow Area = 1.498 ac, 97.53% Impervious, Inflow Depth > 3.05" for 2-YR event
Inflow = 7.06 cfs @ 11.94 hrs, Volume= 0.381 af
Primary = 7.06 cfs @ 11.94 hrs, Volume= 0.381 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 1: PRE POI #1



Summary for Subcatchment 2: EX DA#1

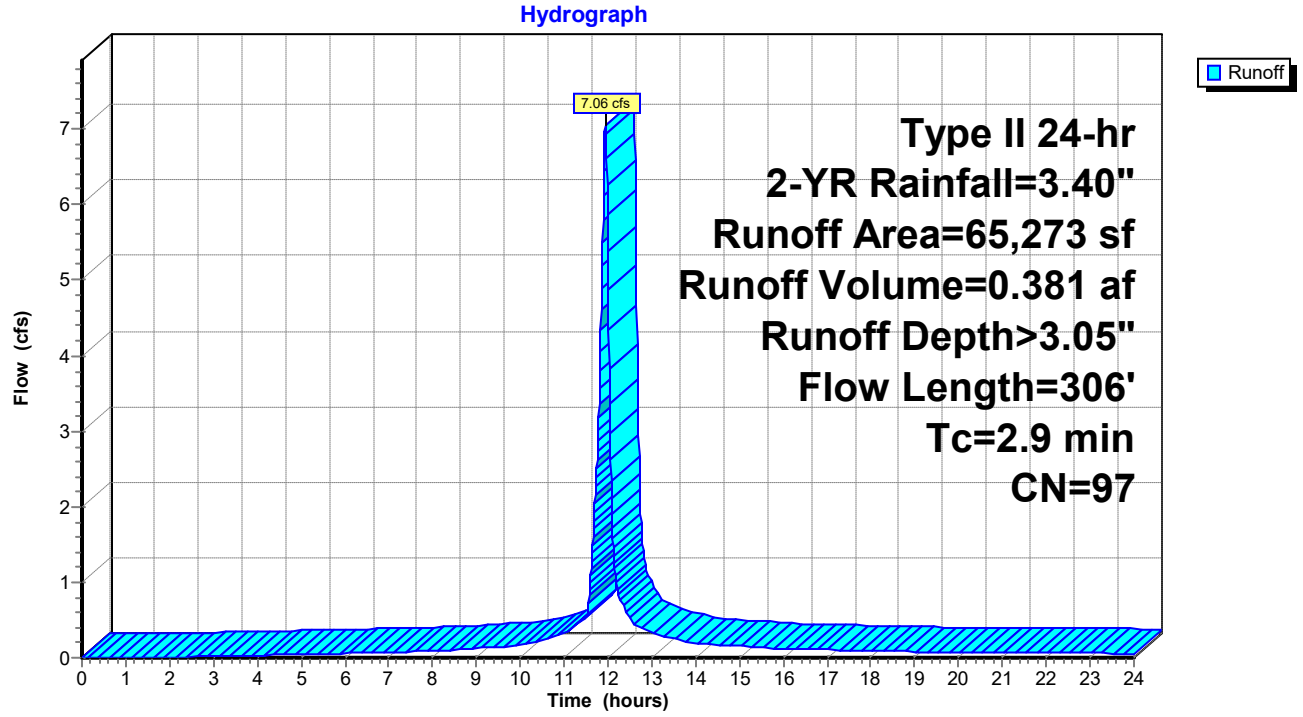
Runoff = 7.06 cfs @ 11.94 hrs, Volume= 0.381 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	63,661	98	Paved parking & Bldg HSG C
	1,612	74	>75% Grass cover, Good, HSG C
	65,273	97	Weighted Average
	1,612		2.47% Pervious Area
	63,661		97.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	49	0.0440	1.69		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
1.4	101	0.0130	1.20		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
0.6	77	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	79	0.0290	3.46		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
2.9	306	Total			

Subcatchment 2: EX DA#1

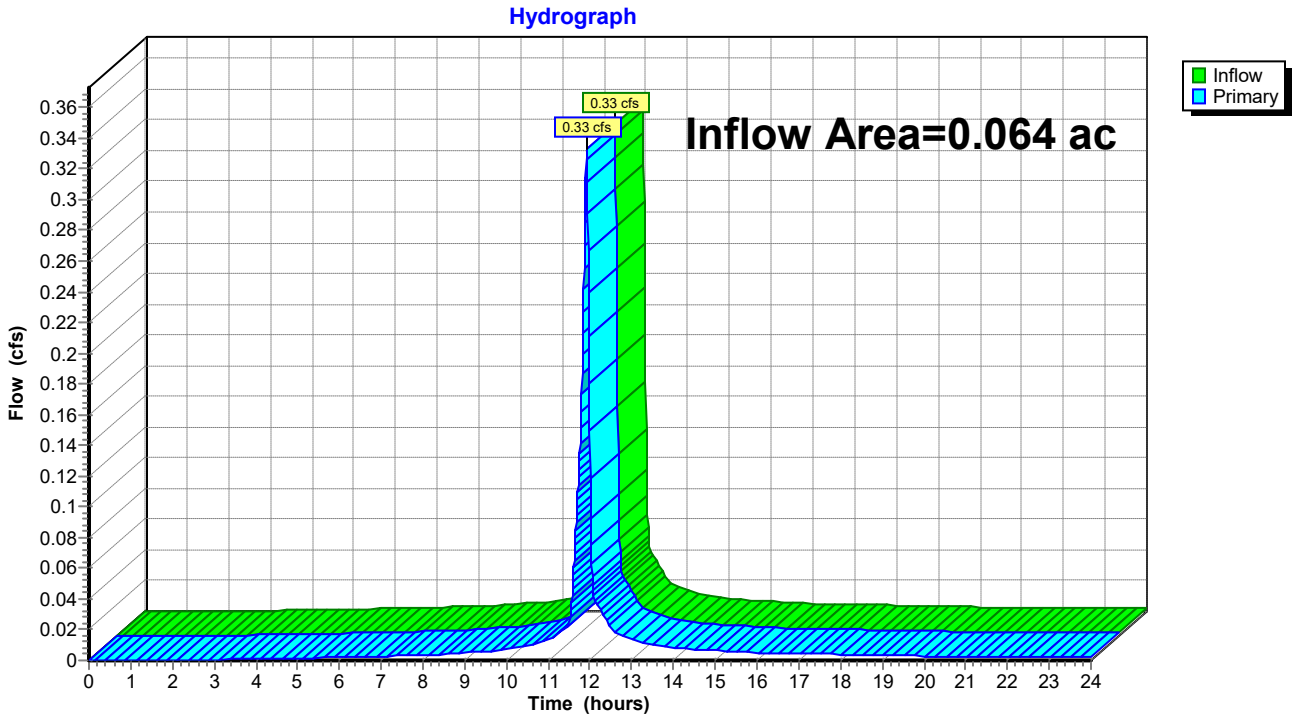


Summary for Link 3: PRE POI #2

Inflow Area = 0.064 ac, 91.40% Impervious, Inflow Depth > 2.95" for 2-YR event
Inflow = 0.33 cfs @ 11.92 hrs, Volume= 0.016 af
Primary = 0.33 cfs @ 11.92 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3: PRE POI #2



Summary for Subcatchment 4: EX DA#2

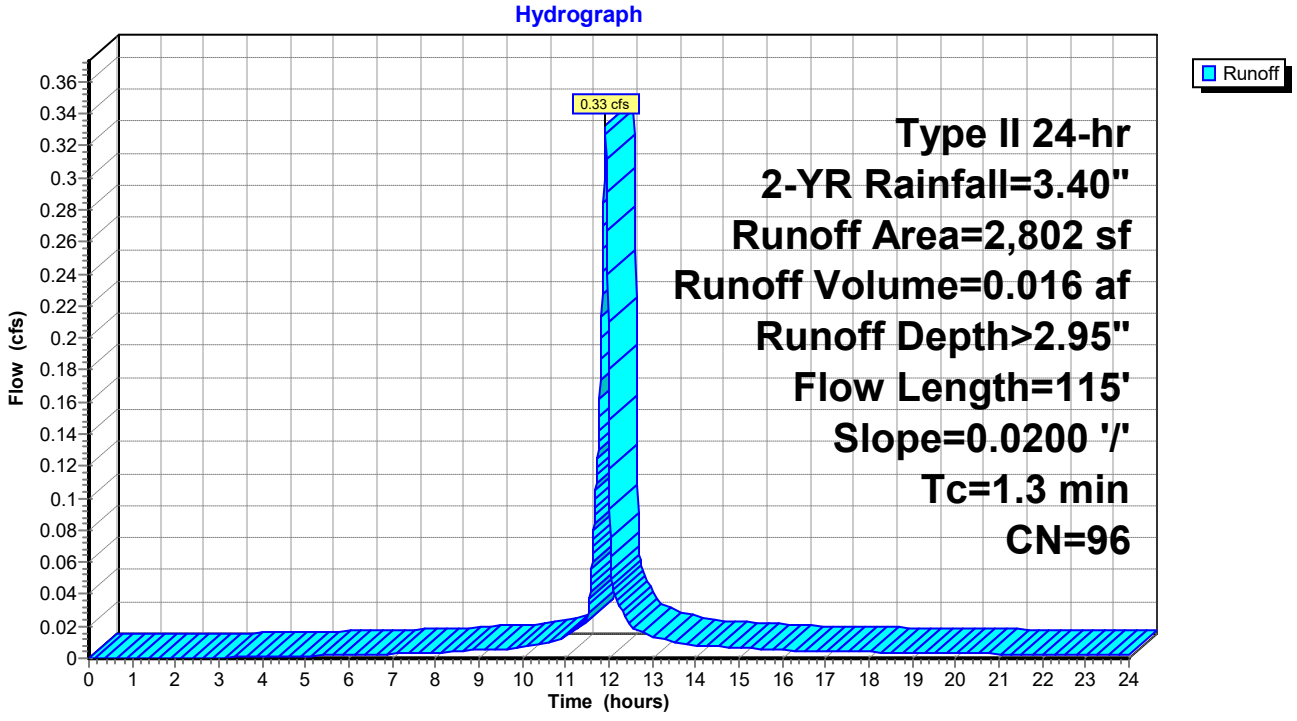
Runoff = 0.33 cfs @ 11.92 hrs, Volume= 0.016 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
2,561	98	Paved parking, HSG C
241	74	>75% Grass cover, Good, HSG C
2,802	96	Weighted Average
241		8.60% Pervious Area
2,561		91.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	115	0.0200	1.46		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 4: EX DA#2

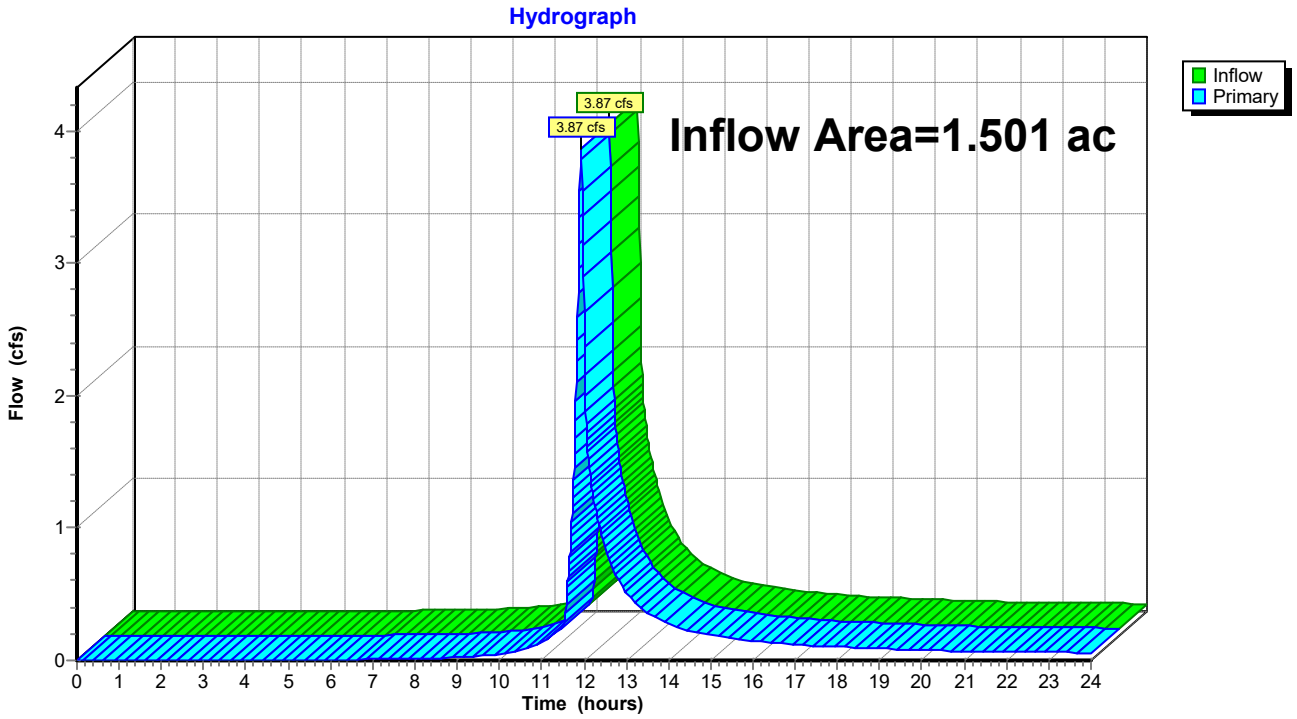


Summary for Link 5: POST POI #1

Inflow Area = 1.501 ac, 82.05% Impervious, Inflow Depth > 2.33" for 2-YR event
Inflow = 3.87 cfs @ 11.93 hrs, Volume= 0.291 af
Primary = 3.87 cfs @ 11.93 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5: POST POI #1



Summary for Subcatchment 6: DA#5

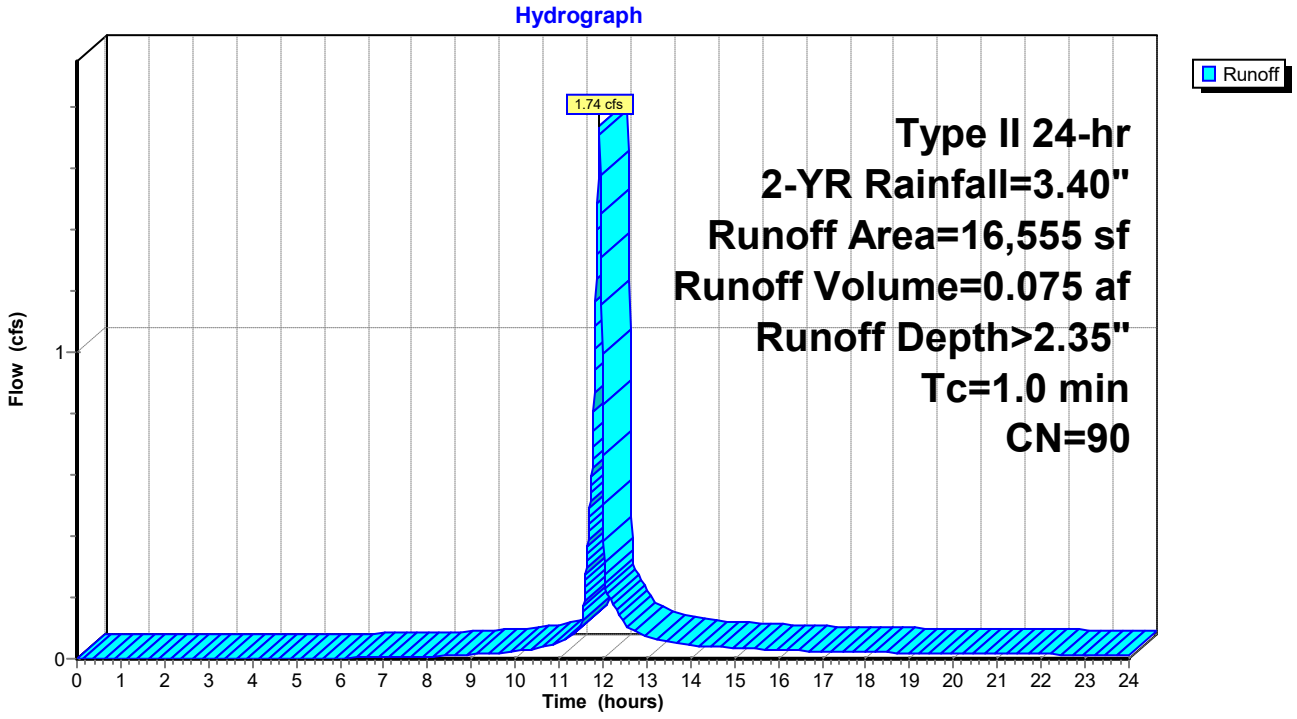
Runoff = 1.74 cfs @ 11.92 hrs, Volume= 0.075 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	10,741	98	Pvmt, Bldgs, Walks, HSG C
	5,814	74	>75% Grass cover, Good, HSG C
	16,555	90	Weighted Average
	5,814		35.12% Pervious Area
	10,741		64.88% Impervious Area

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

Subcatchment 6: DA#5



Summary for Subcatchment 7: DA#6

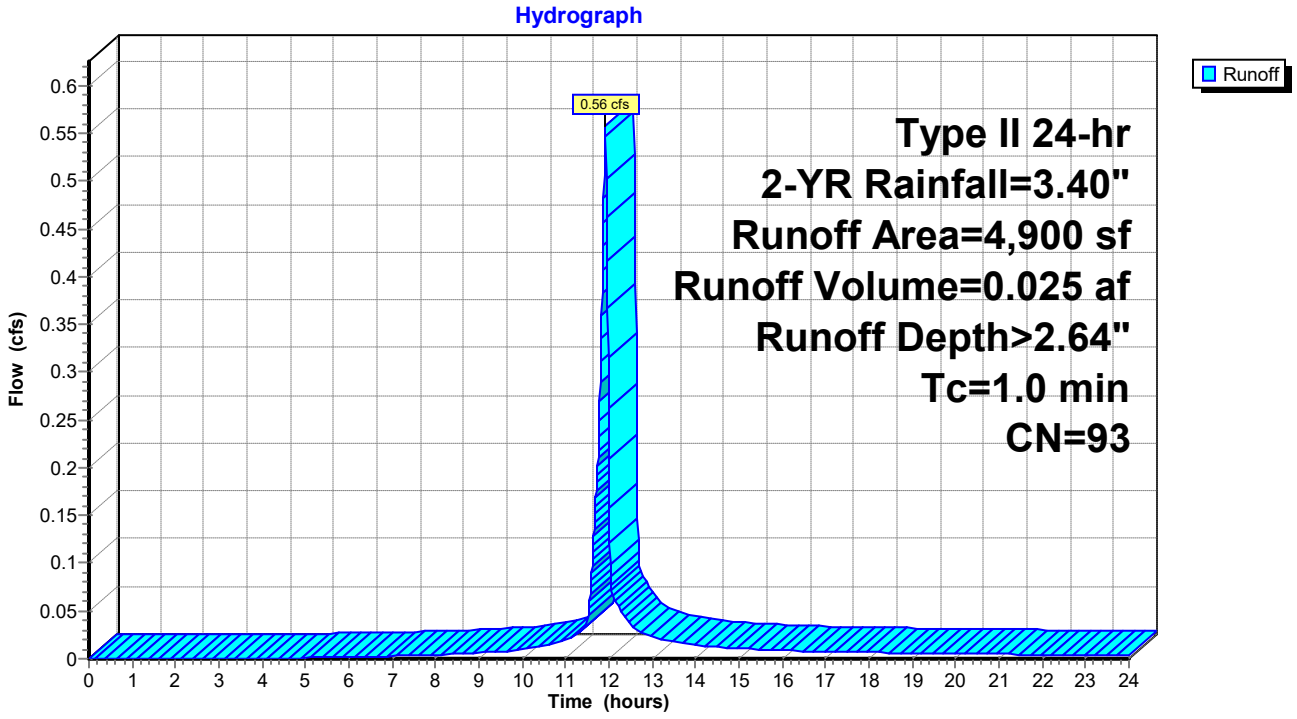
Runoff = 0.56 cfs @ 11.92 hrs, Volume= 0.025 af, Depth> 2.64"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	3,893	98	Pvmt, Bldgs, Walks, HSG C
	1,007	74	>75% Grass cover, Good, HSG C
	4,900	93	Weighted Average
	1,007		20.55% Pervious Area
	3,893		79.45% Impervious Area

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

Subcatchment 7: DA#6



Summary for Pond 8: Bay1

Inflow Area = 1.008 ac, 88.81% Impervious, Inflow Depth > 2.37" for 2-YR event
Inflow = 2.14 cfs @ 11.93 hrs, Volume= 0.199 af
Outflow = 1.84 cfs @ 11.97 hrs, Volume= 0.192 af, Atten= 14%, Lag= 2.5 min
Primary = 1.84 cfs @ 11.97 hrs, Volume= 0.192 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 26.72' @ 11.97 hrs Surf.Area= 0.023 ac Storage= 0.018 af
Flood Elev= 27.23' Surf.Area= 0.023 ac Storage= 0.024 af

Plug-Flow detention time= 38.0 min calculated for 0.192 af (97% of inflow)
Center-of-Mass det. time= 19.2 min (851.8 - 832.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	25.40'	0.017 af	**11.50'W x 88.64'L x 2.33'H Field A** 0.055 af Overall - 0.012 af Embedded = 0.042 af x 40.0% Voids
#2A	25.90'	0.012 af	**ADS_StormTech SC-310 +Cap** x 36 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 3 Rows of 12 Chambers
		0.029 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	25.90'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 25.90' / 25.52' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.84 cfs @ 11.97 hrs HW=26.72' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.84 cfs @ 3.63 fps)

Pond 8: Bay1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

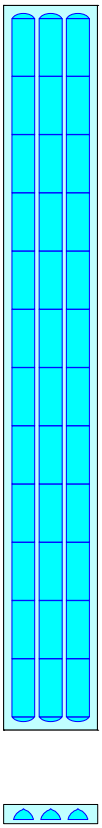
12 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 86.64' Row Length +12.0" End Stone x 2 = 88.64' Base Length
3 Rows x 34.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.50' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

36 Chambers x 14.7 cf = 530.7 cf Chamber Storage

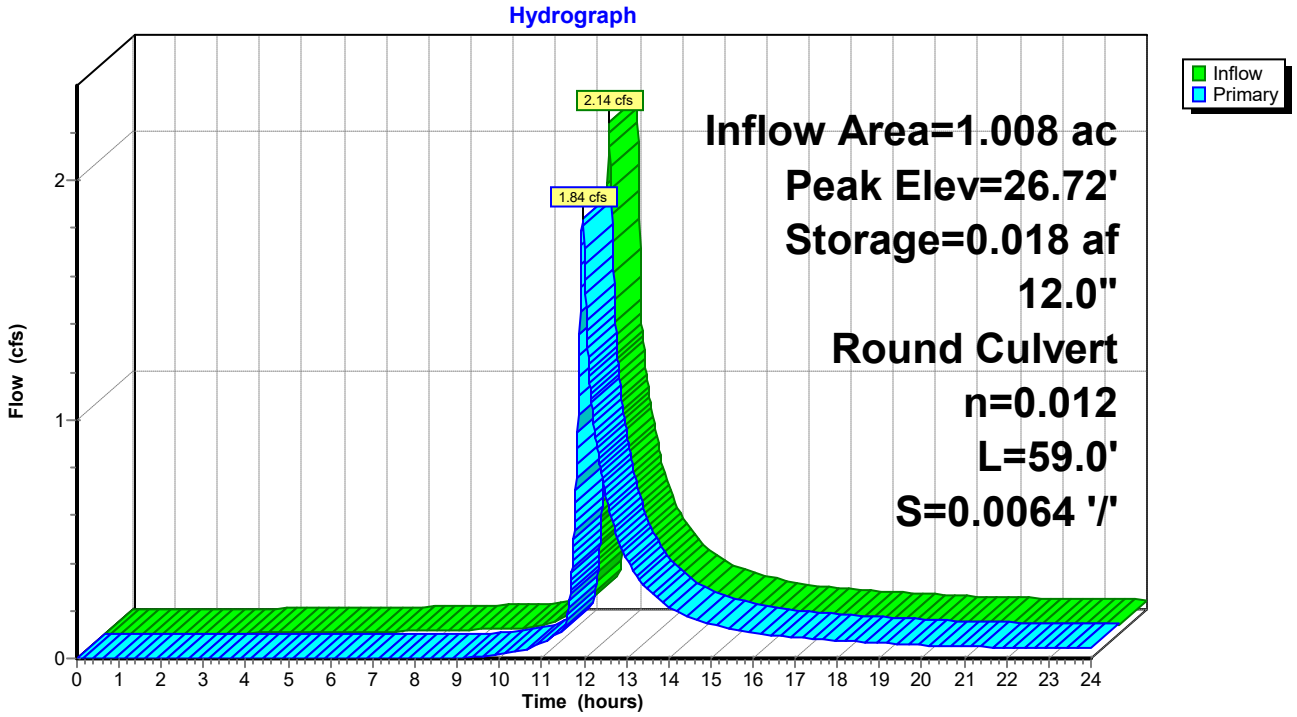
2,378.5 cf Field - 530.7 cf Chambers = 1,847.8 cf Stone x 40.0% Voids = 739.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,269.8 cf = 0.029 af
Overall Storage Efficiency = 53.4%
Overall System Size = 88.64' x 11.50' x 2.33'

36 Chambers
88.1 cy Field
68.4 cy Stone



Pond 8: Bay1


Hydrograph
Inflow
Primary
2.14 cfs
1.84 cfs
Inflow Area=1.008 ac
Peak Elev=26.72'
Storage=0.018 af
12.0"
Round Culvert
n=0.012
L=59.0'
S=0.0064 '/'
Flow (cfs)
Time (hours)
0
1
2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 9: DA#1

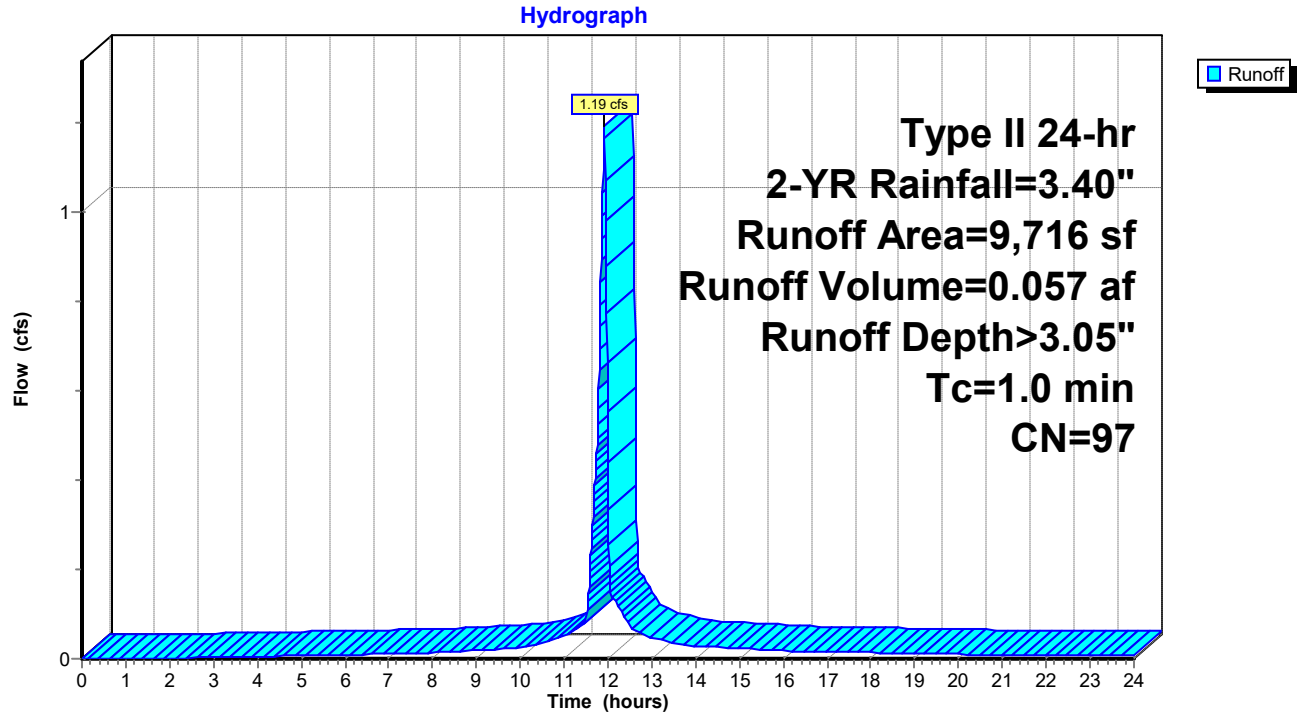
Runoff = 1.19 cfs @ 11.91 hrs, Volume= 0.057 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	9,147	98	Pvmt, Bldgs, Walks, HSG C
	569	74	>75% Grass cover, Good, HSG C
	9,716	97	Weighted Average
	569		5.86% Pervious Area
	9,147		94.14% Impervious Area

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

Subcatchment 9: DA#1



Summary for Pond 10: Inlet

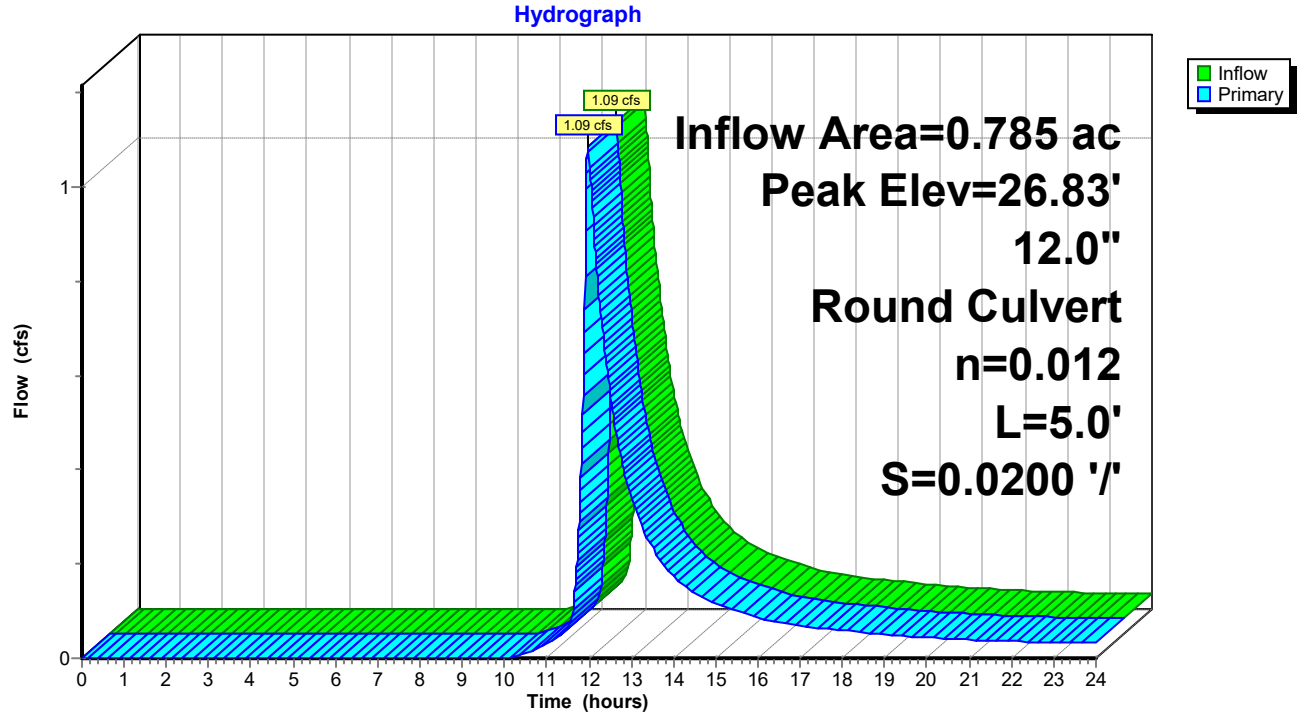
Inflow Area = 0.785 ac, 87.29% Impervious, Inflow Depth > 2.17" for 2-YR event
Inflow = 1.09 cfs @ 11.98 hrs, Volume= 0.142 af
Outflow = 1.09 cfs @ 11.98 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min
Primary = 1.09 cfs @ 11.98 hrs, Volume= 0.142 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 26.83' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	26.00'	**12.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.00' / 25.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.08 cfs @ 11.98 hrs HW=26.83' TW=26.72' (Dynamic Tailwater)
↳**1=Culvert** (Outlet Controls 1.08 cfs @ 2.11 fps)

Pond 10: Inlet



Summary for Pond 11: Bay2

Inflow Area = 0.785 ac, 87.29% Impervious, Inflow Depth > 2.28" for 2-YR event
Inflow = 1.61 cfs @ 11.92 hrs, Volume= 0.149 af
Outflow = 1.09 cfs @ 11.98 hrs, Volume= 0.142 af, Atten= 33%, Lag= 3.2 min
Primary = 1.09 cfs @ 11.98 hrs, Volume= 0.142 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.11' @ 11.99 hrs Surf.Area= 0.027 ac Storage= 0.017 af
Flood Elev= 27.86' Surf.Area= 0.027 ac Storage= 0.028 af

Plug-Flow detention time= 51.1 min calculated for 0.142 af (95% of inflow)
Center-of-Mass det. time= 24.7 min (863.0 - 838.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	26.03'	0.020 af	**11.50'W x 102.88'L x 2.33'H Field A** 0.063 af Overall - 0.014 af Embedded = 0.049 af x 40.0% Voids
#2A	26.53'	0.014 af	**ADS_StormTech SC-310 +Cap** x 42 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 3 Rows of 14 Chambers
		0.034 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	26.53'	**12.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.53' / 26.10' S= 0.0860 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.07 cfs @ 11.98 hrs HW=27.11' TW=26.83' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.07 cfs @ 3.30 fps)

Pond 11: Bay2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

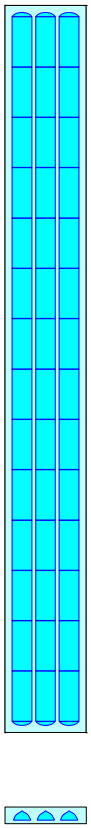
14 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 100.88' Row Length +12.0" End Stone x 2 = 102.88' Base Length
3 Rows x 34.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.50' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

42 Chambers x 14.7 cf = 619.2 cf Chamber Storage

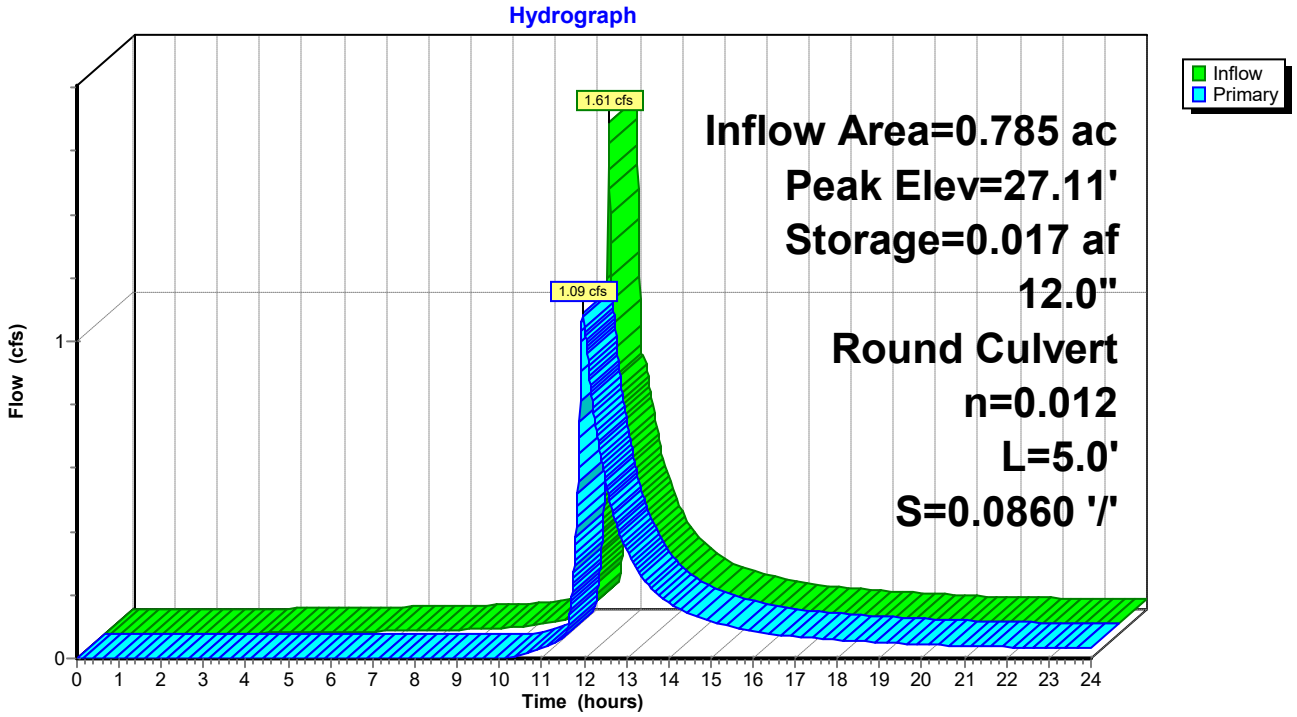
2,760.6 cf Field - 619.2 cf Chambers = 2,141.5 cf Stone x 40.0% Voids = 856.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,475.7 cf = 0.034 af
Overall Storage Efficiency = 53.5%
Overall System Size = 102.88' x 11.50' x 2.33'

42 Chambers
102.2 cy Field
79.3 cy Stone



Pond 11: Bay2


Hydrograph
Inflow
Primary
1.61 cfs
1.09 cfs
Inflow Area=0.785 ac
Peak Elev=27.11'
Storage=0.017 af
12.0"
Round Culvert
n=0.012
L=5.0'
S=0.0860 '/'
Flow (cfs)
0
1
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Time (hours)

Summary for Subcatchment 12: DA#2

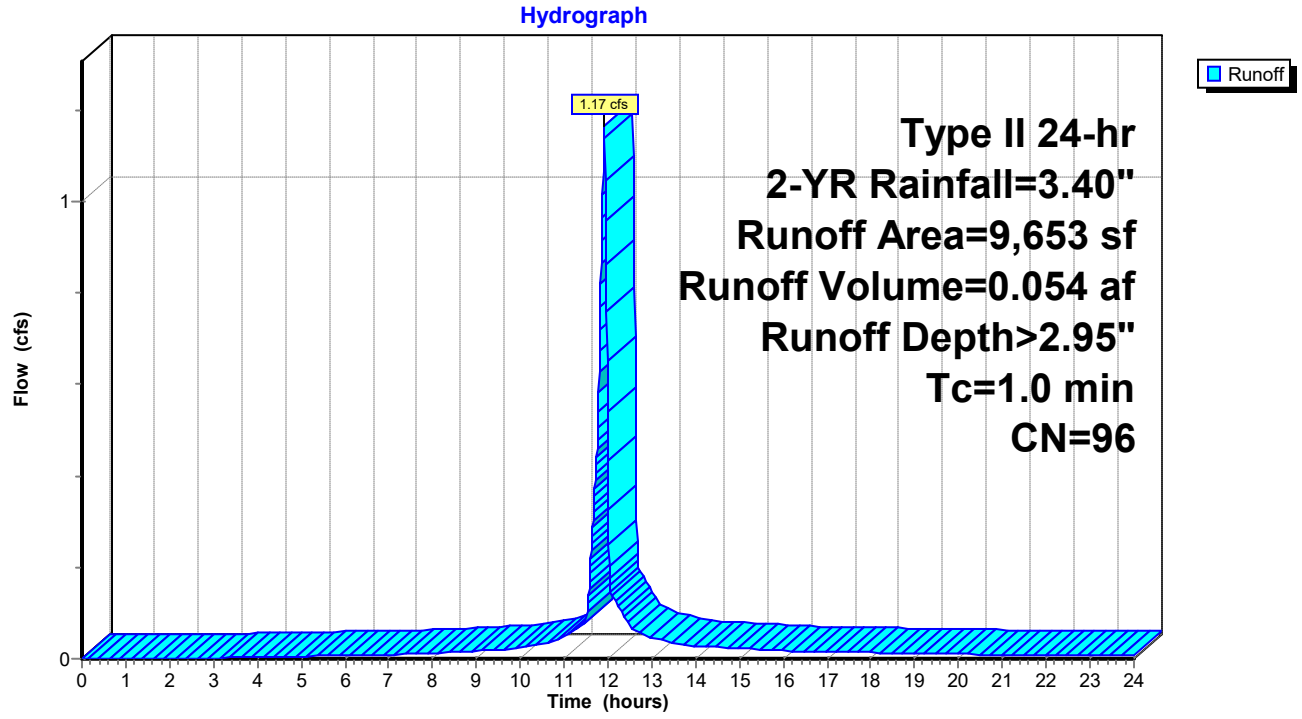
Runoff = 1.17 cfs @ 11.92 hrs, Volume= 0.054 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	8,951	98	Pvmt, Bldgs, Walks, HSG C
	702	74	>75% Grass cover, Good, HSG C
	9,653	96	Weighted Average
	702		7.27% Pervious Area
	8,951		92.73% Impervious Area

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

Subcatchment 12: DA#2



Summary for Pond 13: Mews

Inflow Area = 0.563 ac, 85.15% Impervious, Inflow Depth > 2.36" for 2-YR event
Inflow = 1.20 cfs @ 11.90 hrs, Volume= 0.111 af
Outflow = 0.67 cfs @ 12.10 hrs, Volume= 0.095 af, Atten= 44%, Lag= 12.1 min
Primary = 0.67 cfs @ 12.10 hrs, Volume= 0.095 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.13' @ 12.00 hrs Surf.Area= 0.031 ac Storage= 0.026 af
Flood Elev= 27.53' Surf.Area= 0.031 ac Storage= 0.032 af

Plug-Flow detention time= 105.7 min calculated for 0.095 af (86% of inflow)
Center-of-Mass det. time= 41.4 min (880.5 - 839.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	25.70'	0.022 af	**11.50'W x 117.12'L x 2.33'H Field A** 0.072 af Overall - 0.016 af Embedded = 0.056 af x 40.0% Voids
#2A	26.20'	0.016 af	**ADS_StormTech SC-310 +Cap** x 48 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 3 Rows of 16 Chambers
		0.039 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	26.20'	**12.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.20' / 26.10' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.72 cfs @ 12.10 hrs HW=27.07' TW=27.03' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.72 cfs @ 1.33 fps)

Pond 13: Mews - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

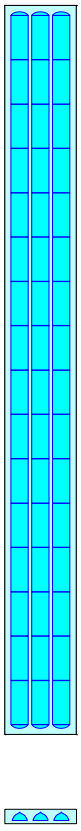
16 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 115.12' Row Length +12.0" End Stone x 2 = 117.12' Base Length
3 Rows x 34.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.50' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

48 Chambers x 14.7 cf = 707.6 cf Chamber Storage

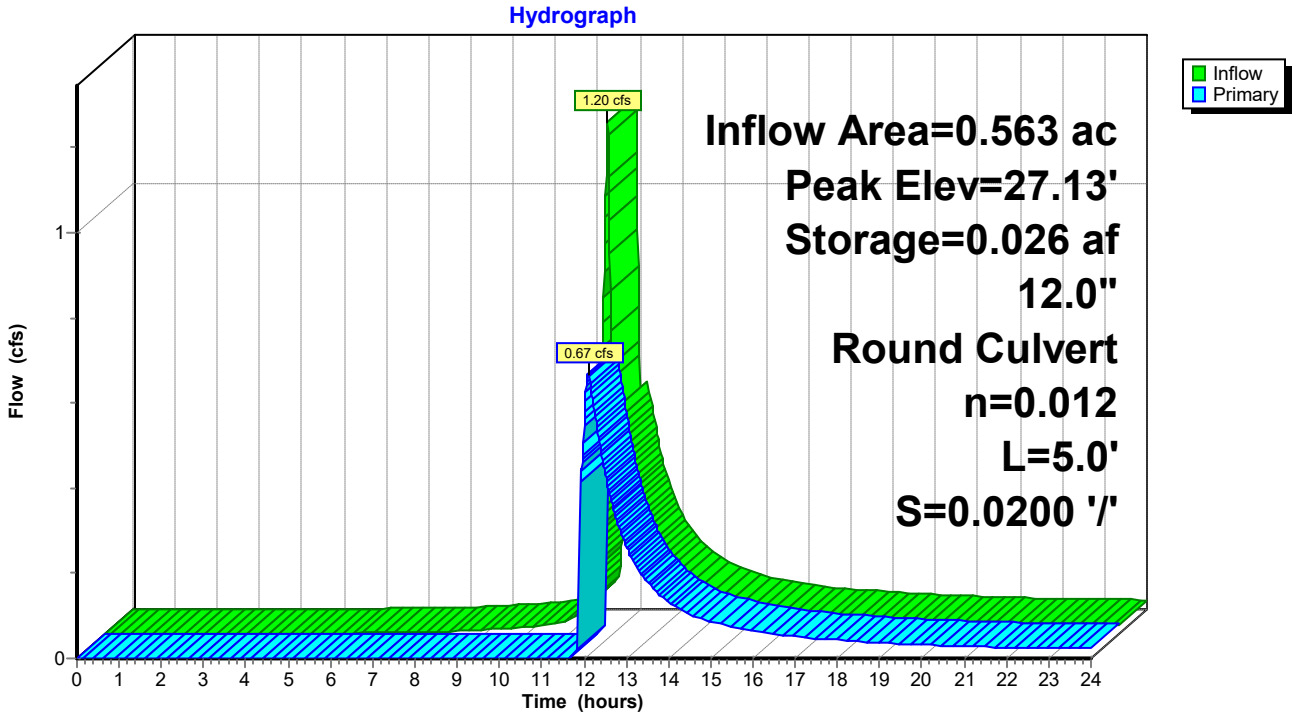
3,142.7 cf Field - 707.6 cf Chambers = 2,435.1 cf Stone x 40.0% Voids = 974.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,681.7 cf = 0.039 af
Overall Storage Efficiency = 53.5%
Overall System Size = 117.12' x 11.50' x 2.33'

48 Chambers
116.4 cy Field
90.2 cy Stone



Pond 13: Mews


Hydrograph
Inflow
Primary
1.20 cfs
0.67 cfs
Inflow Area=0.563 ac
Peak Elev=27.13'
Storage=0.026 af
12.0"
Round Culvert
n=0.012
L=5.0'
S=0.0200 '/'
Flow (cfs)
0
1
Time (hours)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 14: DA#3

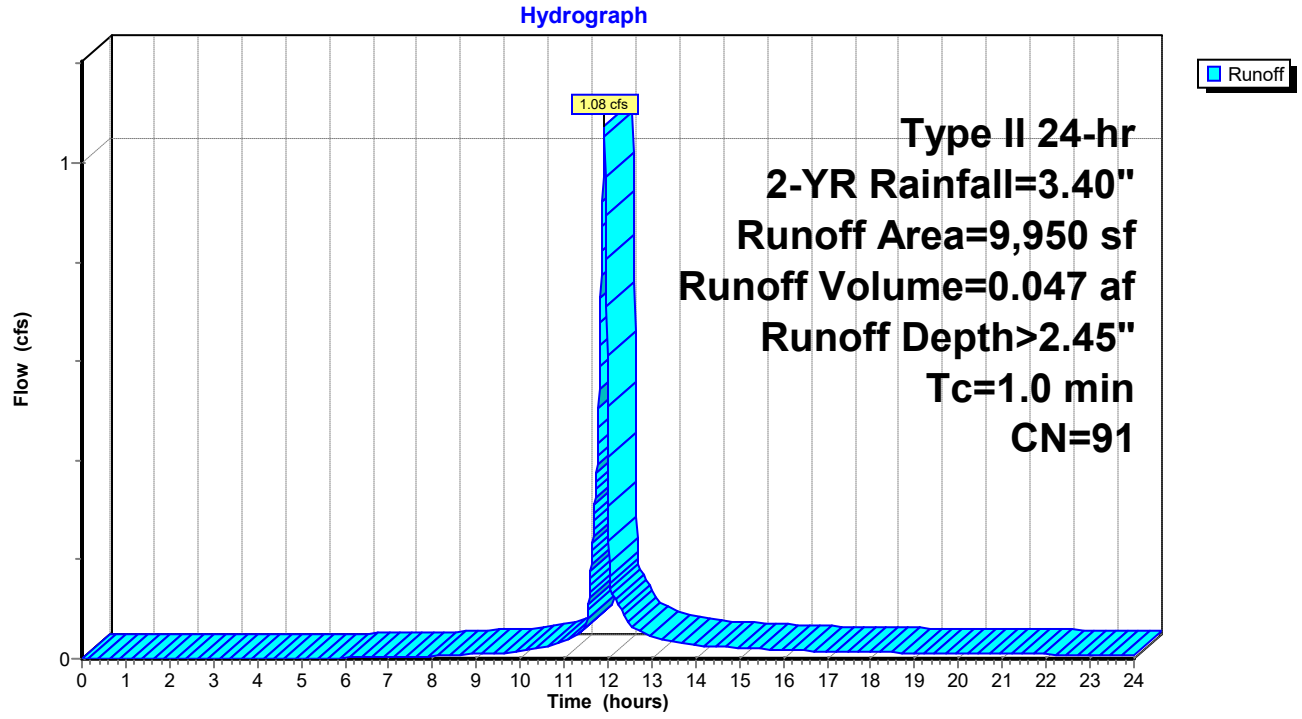
Runoff = 1.08 cfs @ 11.92 hrs, Volume= 0.047 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	7,133	98	Pvmt, Bldgs, Walks, HSG C
	2,817	74	>75% Grass cover, Good, HSG C
	9,950	91	Weighted Average
	2,817		28.31% Pervious Area
	7,133		71.69% Impervious Area

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

Subcatchment 14: DA#3



Summary for Pond 15: Washington

Inflow Area = 0.335 ac, 94.33% Impervious, Inflow Depth > 3.05" for 2-YR event
Inflow = 1.79 cfs @ 11.91 hrs, Volume= 0.085 af
Outflow = 0.42 cfs @ 12.15 hrs, Volume= 0.064 af, Atten= 76%, Lag= 13.9 min
Primary = 0.42 cfs @ 12.15 hrs, Volume= 0.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.15' @ 12.04 hrs Surf.Area= 0.071 ac Storage= 0.049 af
Flood Elev= 27.73' Surf.Area= 0.071 ac Storage= 0.073 af

Plug-Flow detention time= 204.3 min calculated for 0.064 af (75% of inflow)
Center-of-Mass det. time= 116.1 min (872.7 - 756.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	26.00'	0.051 af	**14.83'W x 209.68'L x 2.33'H Field A** 0.167 af Overall - 0.039 af Embedded = 0.127 af x 40.0% Voids
#2A	26.50'	0.039 af	**ADS_StormTech SC-310 +Cap** x 116 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 4 Rows of 29 Chambers
		0.090 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	26.50'	**8.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.50' / 26.40' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.44 cfs @ 12.15 hrs HW=27.12' TW=27.05' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.44 cfs @ 1.67 fps)

Pond 15: Washington - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

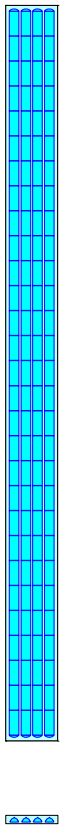
29 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 207.68' Row Length +12.0" End Stone x 2 = 209.68' Base Length
4 Rows x 34.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 14.83' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

116 Chambers x 14.7 cf = 1,710.1 cf Chamber Storage

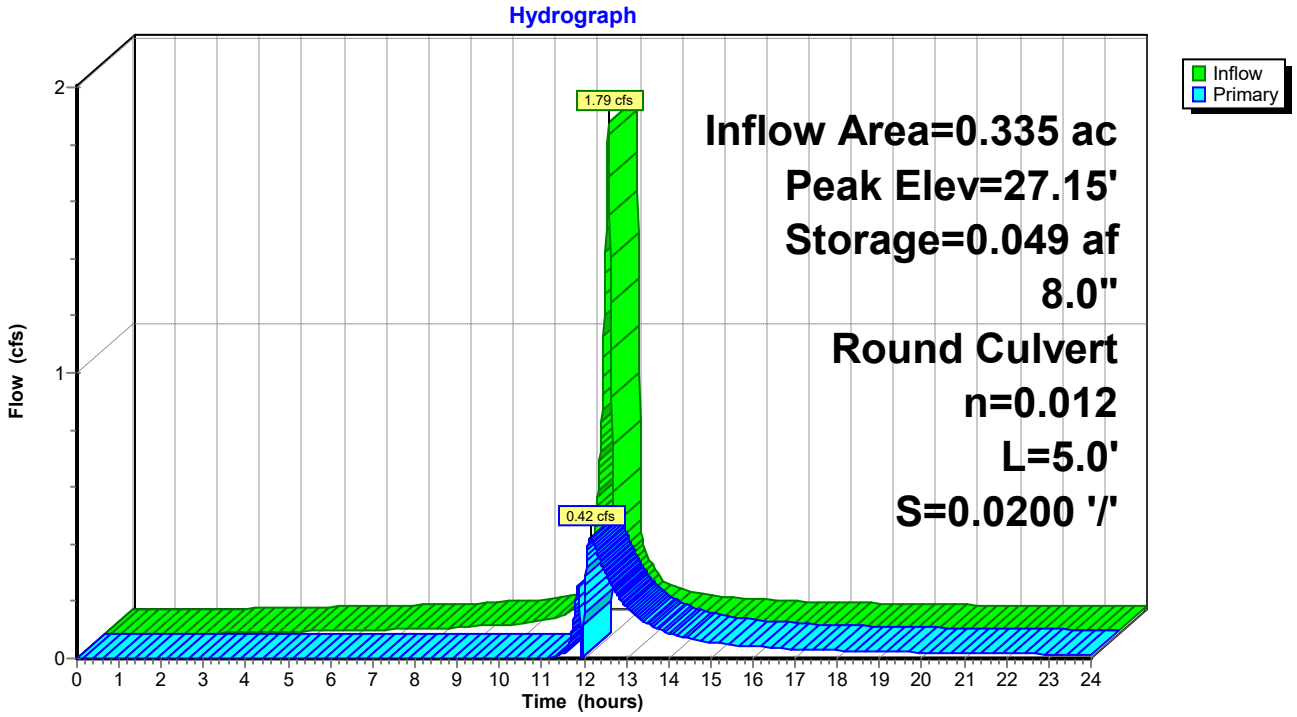
7,257.3 cf Field - 1,710.1 cf Chambers = 5,547.2 cf Stone x 40.0% Voids = 2,218.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,928.9 cf = 0.090 af
Overall Storage Efficiency = 54.1%
Overall System Size = 209.68' x 14.83' x 2.33'

116 Chambers
268.8 cy Field
205.5 cy Stone



Pond 15: Washington



Summary for Subcatchment 16: DA#4

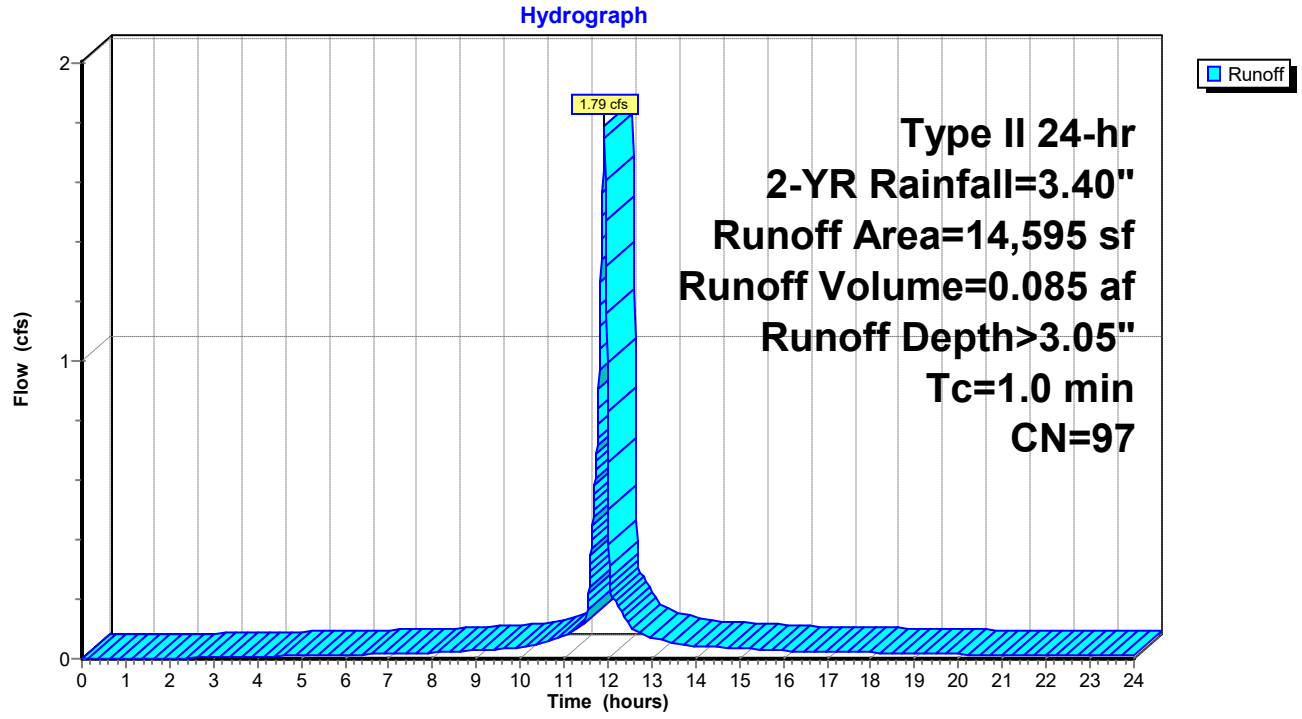
Runoff = 1.79 cfs @ 11.91 hrs, Volume= 0.085 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	13,767	98	Pvmt, Bldgs, Walks, HSG C
	828	74	>75% Grass cover, Good, HSG C
	14,595	97	Weighted Average
	828		5.67% Pervious Area
	13,767		94.33% Impervious Area

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

Subcatchment 16: DA#4

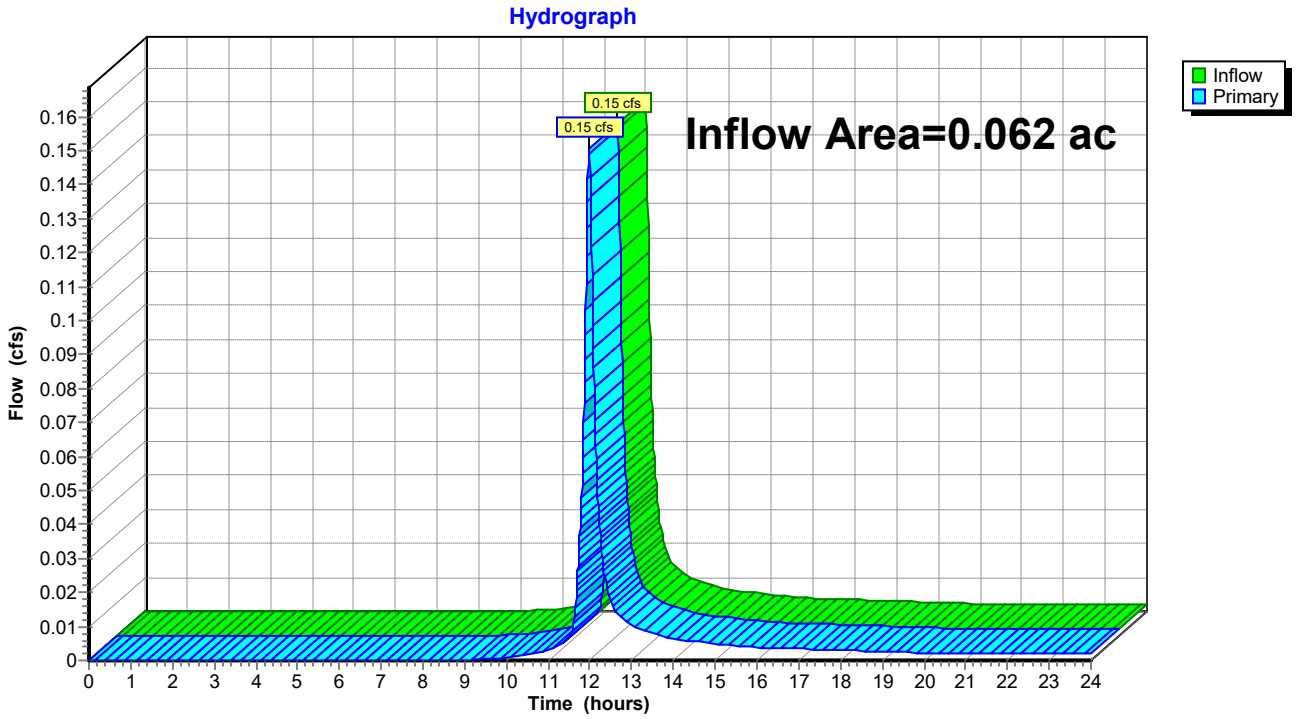


Summary for Link 17: POST POI #2

Inflow Area = 0.062 ac, 29.84% Impervious, Inflow Depth > 1.62" for 2-YR event
Inflow = 0.15 cfs @ 11.98 hrs, Volume= 0.008 af
Primary = 0.15 cfs @ 11.98 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 17: POST POI #2



Summary for Subcatchment 18: DA#7

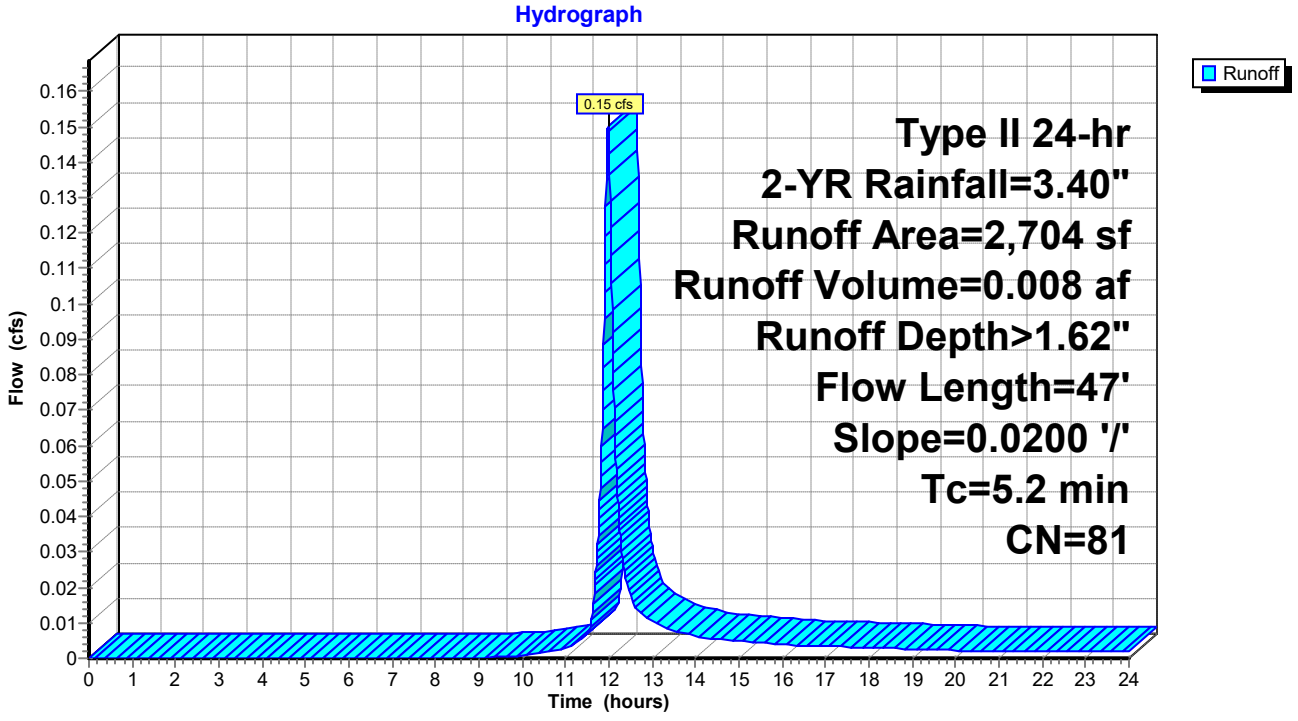
Runoff = 0.15 cfs @ 11.98 hrs, Volume= 0.008 af, Depth> 1.62"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 2-YR Rainfall=3.40"

	Area (sf)	CN	Description
*	807	98	Pvmt, Bldgs, Walks, HSG C
	1,897	74	>75% Grass cover, Good, HSG C
	2,704	81	Weighted Average
	1,897		70.16% Pervious Area
	807		29.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	47	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 18: DA#7

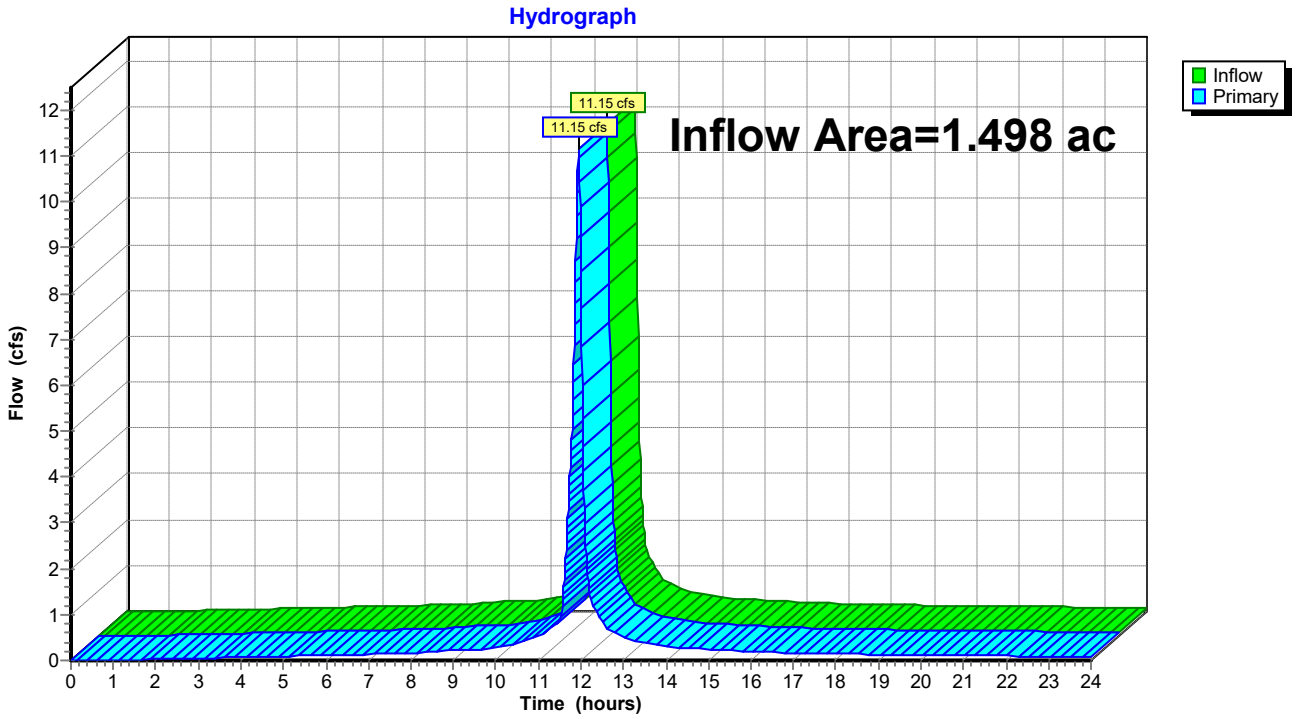


Summary for Link 1: PRE POI #1

Inflow Area = 1.498 ac, 97.53% Impervious, Inflow Depth > 4.94" for 10-YR event
Inflow = 11.15 cfs @ 11.94 hrs, Volume= 0.617 af
Primary = 11.15 cfs @ 11.94 hrs, Volume= 0.617 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 1: PRE POI #1



Summary for Subcatchment 2: EX DA#1

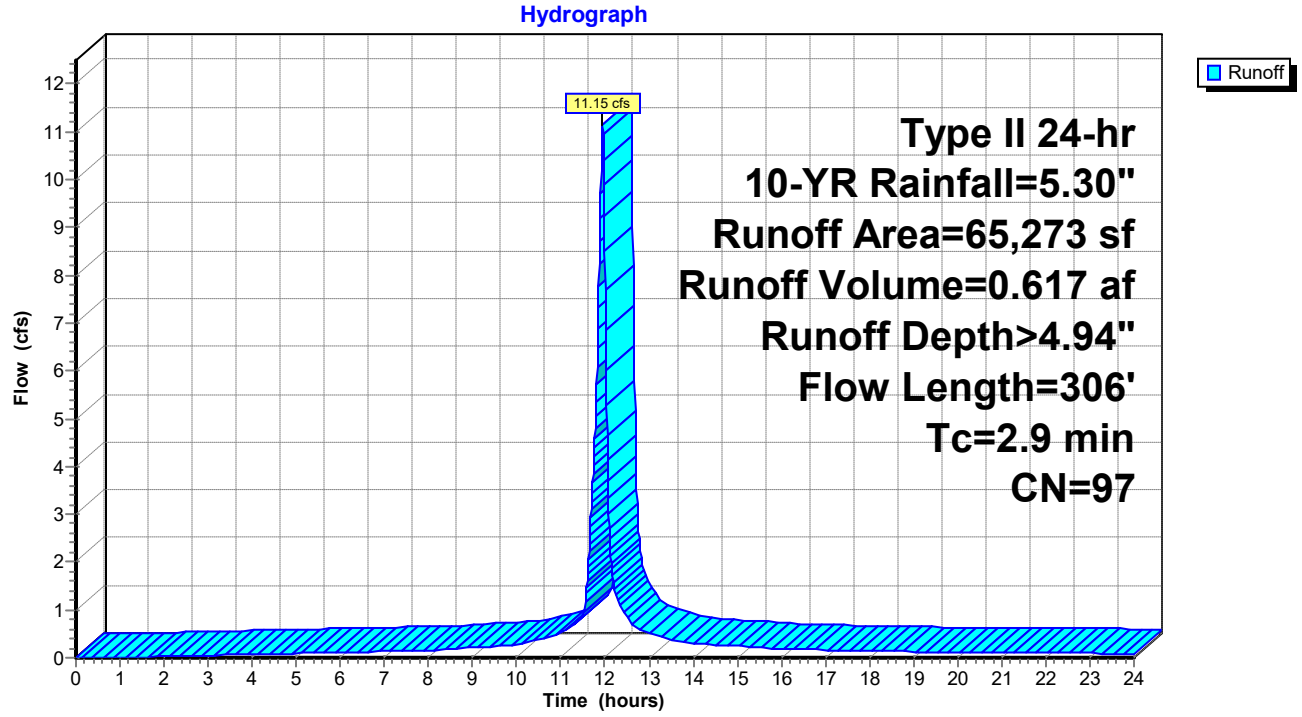
Runoff = 11.15 cfs @ 11.94 hrs, Volume= 0.617 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	63,661	98	Paved parking & Bldg HSG C
	1,612	74	>75% Grass cover, Good, HSG C
	65,273	97	Weighted Average
	1,612		2.47% Pervious Area
	63,661		97.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	49	0.0440	1.69		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
1.4	101	0.0130	1.20		**Sheet Flow, B-C** Smooth surfaces n= 0.011 P2= 3.40"
0.6	77	0.0110	2.13		**Shallow Concentrated Flow, C-D** Paved Kv= 20.3 fps
0.4	79	0.0290	3.46		**Shallow Concentrated Flow, D-E** Paved Kv= 20.3 fps
2.9	306	Total			

Subcatchment 2: EX DA#1

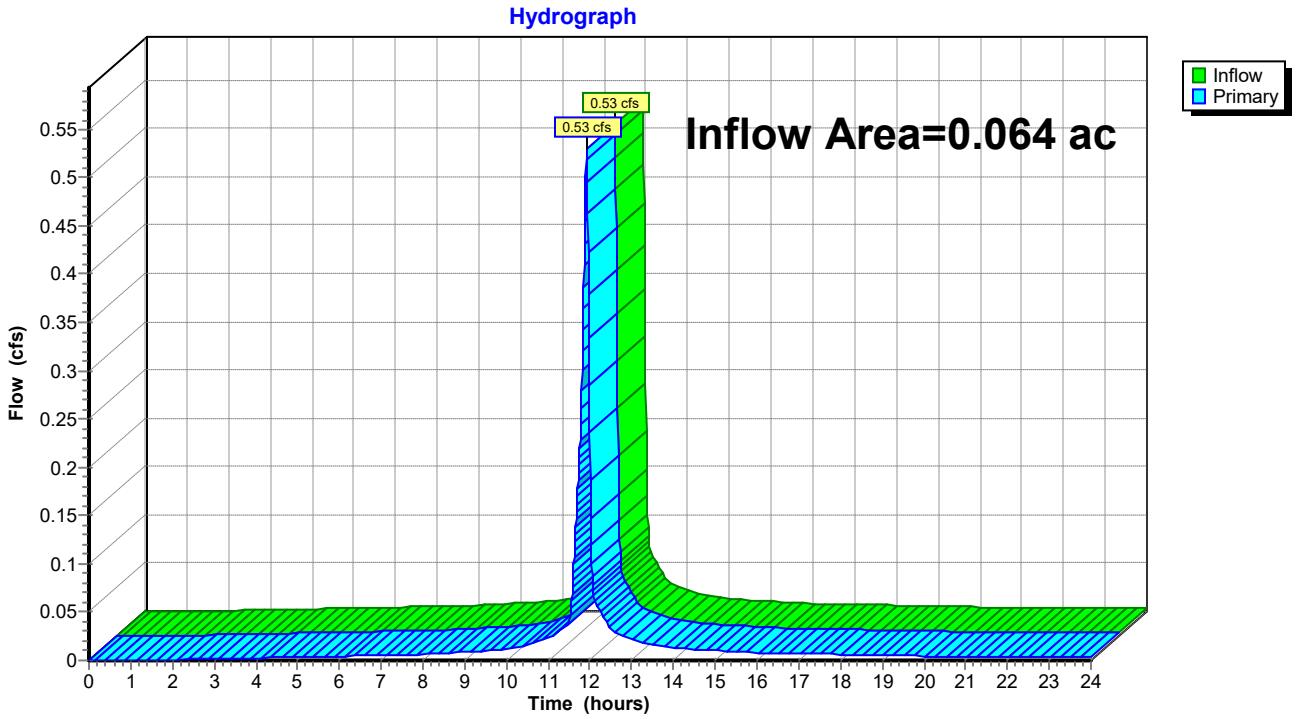


Summary for Link 3: PRE POI #2

Inflow Area = 0.064 ac, 91.40% Impervious, Inflow Depth > 4.83" for 10-YR event
Inflow = 0.53 cfs @ 11.92 hrs, Volume= 0.026 af
Primary = 0.53 cfs @ 11.92 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 3: PRE POI #2



Summary for Subcatchment 4: EX DA#2

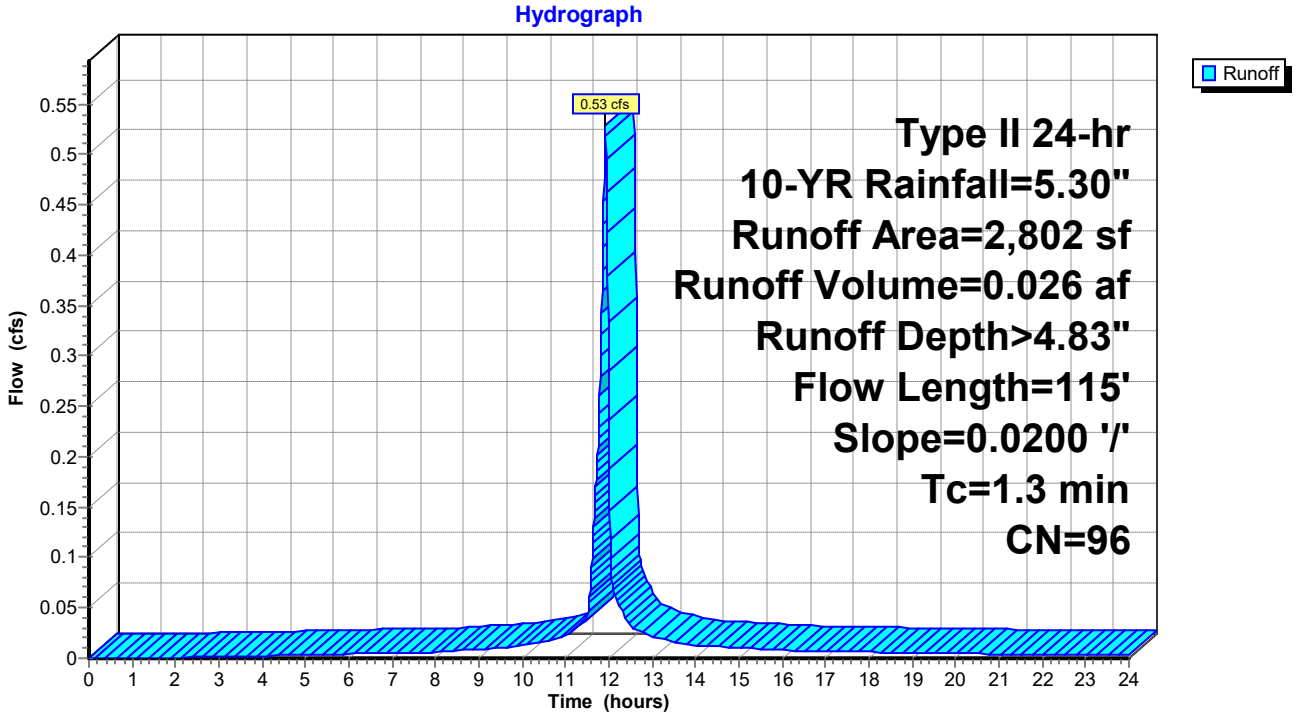
Runoff = 0.53 cfs @ 11.92 hrs, Volume= 0.026 af, Depth> 4.83"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
2,561	98	Paved parking, HSG C
241	74	>75% Grass cover, Good, HSG C
2,802	96	Weighted Average
241		8.60% Pervious Area
2,561		91.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	115	0.0200	1.46		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"

Subcatchment 4: EX DA#2

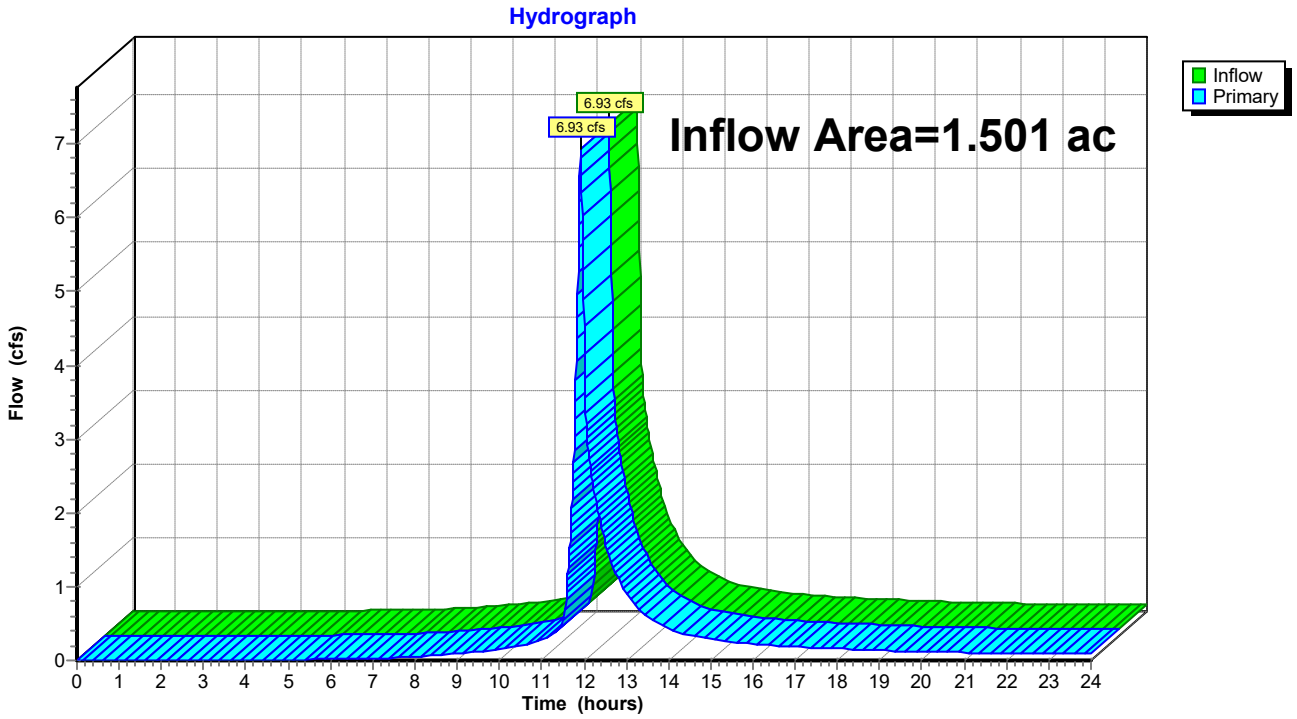


Summary for Link 5: POST POI #1

Inflow Area = 1.501 ac, 82.05% Impervious, Inflow Depth > 4.17" for 10-YR event
Inflow = 6.93 cfs @ 11.92 hrs, Volume= 0.521 af
Primary = 6.93 cfs @ 11.92 hrs, Volume= 0.521 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5: POST POI #1



Summary for Subcatchment 6: DA#5

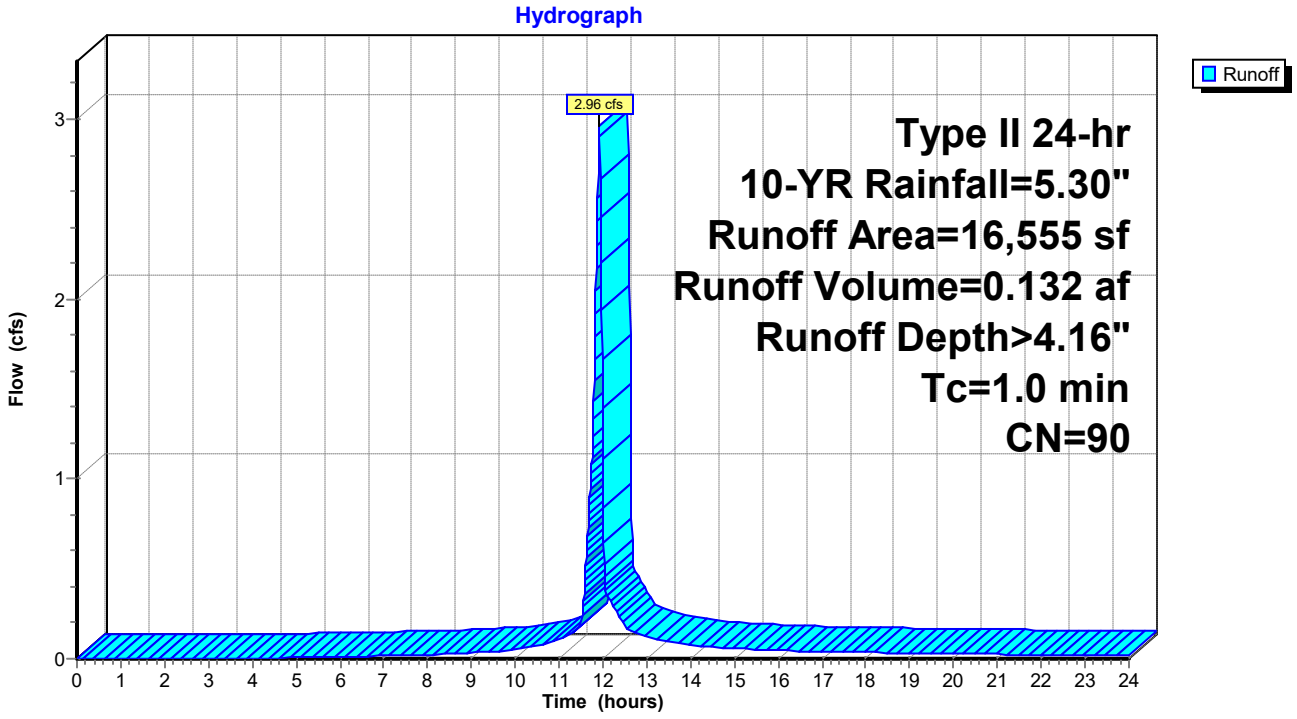
Runoff = 2.96 cfs @ 11.92 hrs, Volume= 0.132 af, Depth> 4.16"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	10,741	98	Pvmt, Bldgs, Walks, HSG C
	5,814	74	>75% Grass cover, Good, HSG C
	16,555	90	Weighted Average
	5,814		35.12% Pervious Area
	10,741		64.88% Impervious Area

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

Subcatchment 6: DA#5



Summary for Subcatchment 7: DA#6

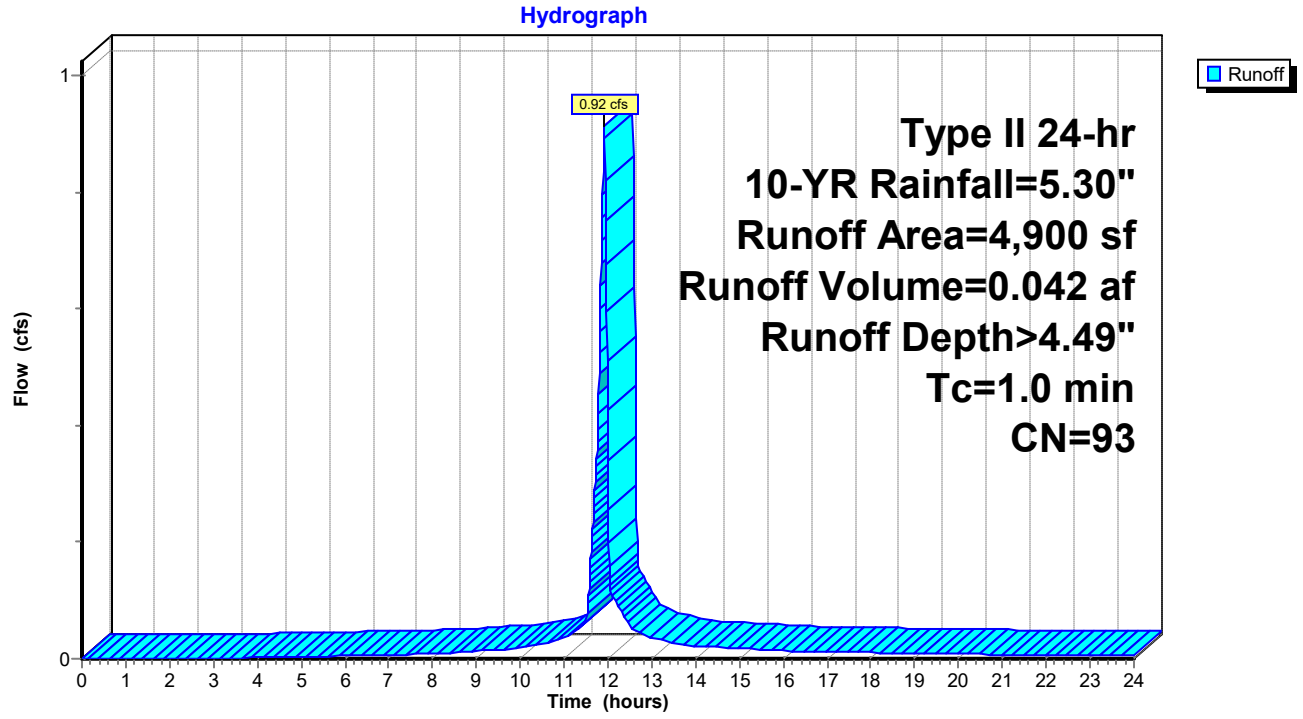
Runoff = 0.92 cfs @ 11.92 hrs, Volume= 0.042 af, Depth> 4.49"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	3,893	98	Pvmt, Bldgs, Walks, HSG C
	1,007	74	>75% Grass cover, Good, HSG C
	4,900	93	Weighted Average
	1,007		20.55% Pervious Area
	3,893		79.45% Impervious Area

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

Subcatchment 7: DA#6



Summary for Pond 8: Bay1

Inflow Area = 1.008 ac, 88.81% Impervious, Inflow Depth > 4.21" for 10-YR event
Inflow = 3.73 cfs @ 11.92 hrs, Volume= 0.354 af
Outflow = 3.16 cfs @ 11.96 hrs, Volume= 0.347 af, Atten= 15%, Lag= 2.8 min
Primary = 3.16 cfs @ 11.96 hrs, Volume= 0.347 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.30' @ 11.96 hrs Surf.Area= 0.023 ac Storage= 0.025 af
Flood Elev= 27.23' Surf.Area= 0.023 ac Storage= 0.024 af

Plug-Flow detention time= 26.0 min calculated for 0.347 af (98% of inflow)
Center-of-Mass det. time= 14.2 min (826.8 - 812.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	25.40'	0.017 af	**11.50'W x 88.64'L x 2.33'H Field A** 0.055 af Overall - 0.012 af Embedded = 0.042 af x 40.0% Voids
#2A	25.90'	0.012 af	**ADS_StormTech SC-310 +Cap** x 36 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 3 Rows of 12 Chambers
		0.029 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	25.90'	**12.0" Round Culvert** L= 59.0' Ke= 0.500 Inlet / Outlet Invert= 25.90' / 25.52' S= 0.0064 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.16 cfs @ 11.96 hrs HW=27.29' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 3.16 cfs @ 4.02 fps)

Pond 8: Bay1 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

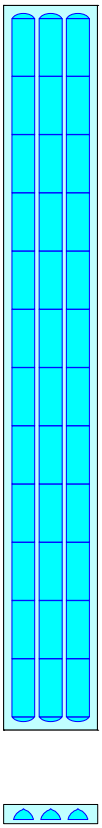
12 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 86.64' Row Length +12.0" End Stone x 2 = 88.64' Base Length
3 Rows x 34.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.50' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

36 Chambers x 14.7 cf = 530.7 cf Chamber Storage

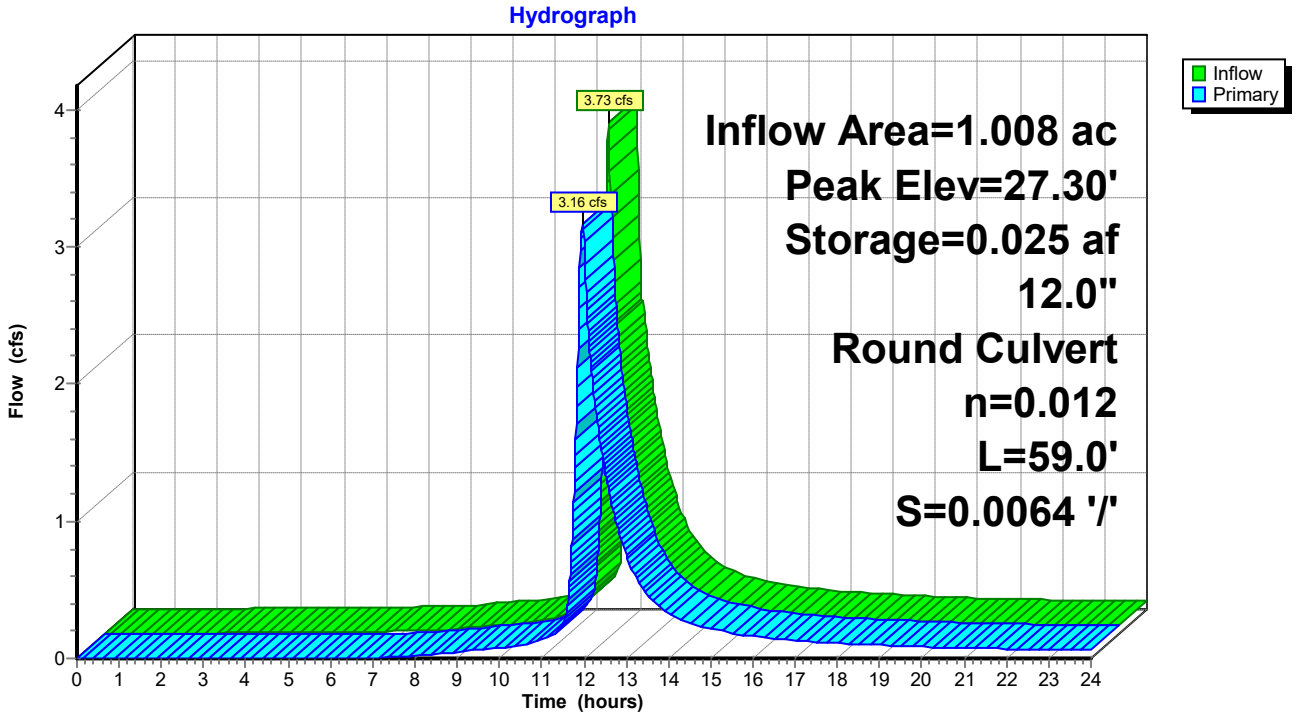
2,378.5 cf Field - 530.7 cf Chambers = 1,847.8 cf Stone x 40.0% Voids = 739.1 cf Stone Storage

Chamber Storage + Stone Storage = 1,269.8 cf = 0.029 af
Overall Storage Efficiency = 53.4%
Overall System Size = 88.64' x 11.50' x 2.33'

36 Chambers
88.1 cy Field
68.4 cy Stone



Pond 8: Bay1


Hydrograph
Inflow
Primary
3.73 cfs
3.16 cfs
Inflow Area=1.008 ac
Peak Elev=27.30'
Storage=0.025 af
12.0"
Round Culvert
n=0.012
L=59.0'
S=0.0064 '/'
Flow (cfs)
Time (hours)
0
1
2
3
4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 9: DA#1

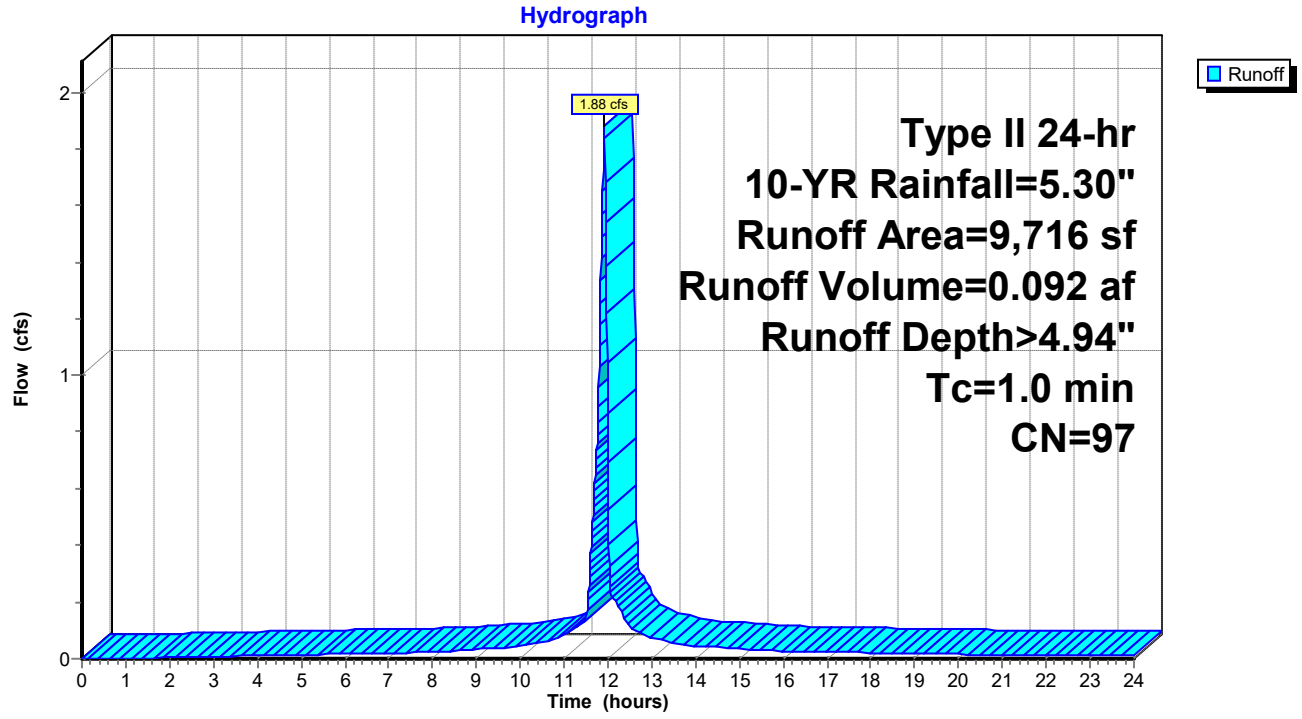
Runoff = 1.88 cfs @ 11.91 hrs, Volume= 0.092 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	9,147	98	Pvmt, Bldgs, Walks, HSG C
	569	74	>75% Grass cover, Good, HSG C
	9,716	97	Weighted Average
	569		5.86% Pervious Area
	9,147		94.14% Impervious Area

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

Subcatchment 9: DA#1



Summary for Pond 10: Inlet

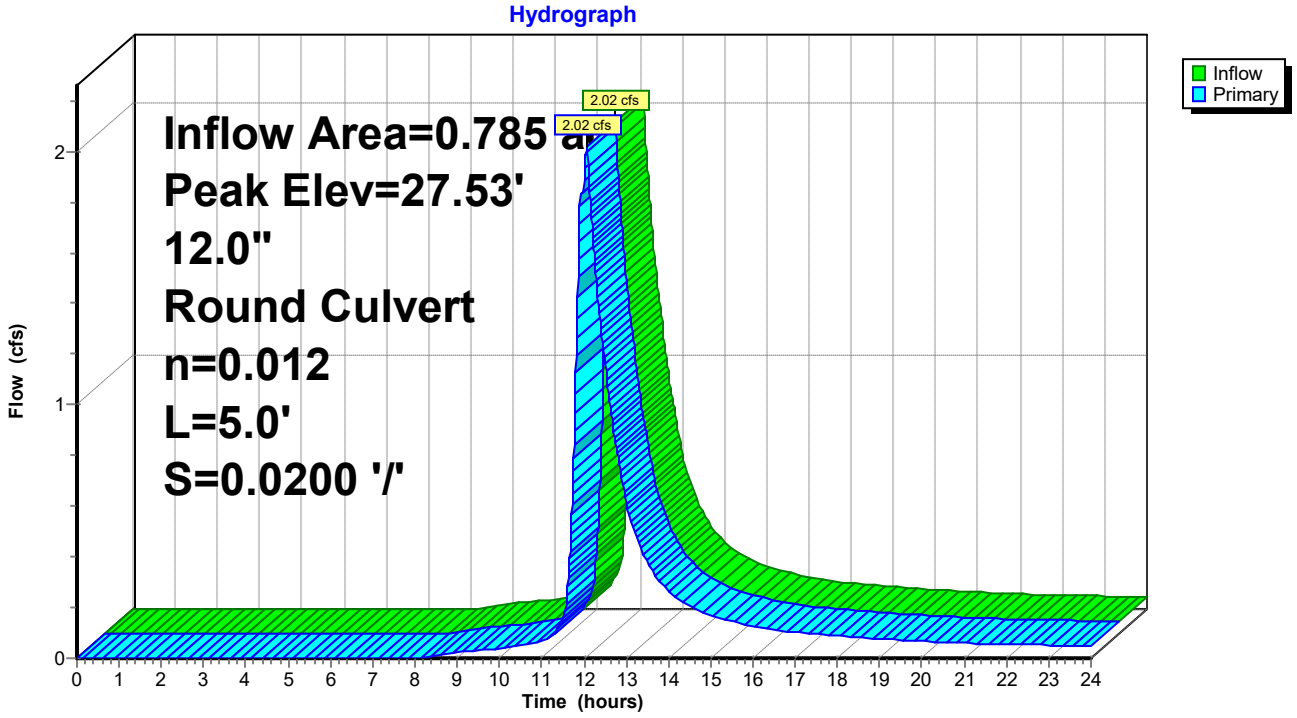
Inflow Area = 0.785 ac, 87.29% Impervious, Inflow Depth > 4.01" for 10-YR event
Inflow = 2.02 cfs @ 12.06 hrs, Volume= 0.262 af
Outflow = 2.02 cfs @ 12.06 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min
Primary = 2.02 cfs @ 12.06 hrs, Volume= 0.262 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.53' @ 11.98 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	26.00'	**12.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.00' / 25.90' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.10 cfs @ 12.06 hrs HW=27.26' TW=26.95' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.10 cfs @ 2.68 fps)

Pond 10: Inlet



Summary for Pond 11: Bay2

Inflow Area = 0.785 ac, 87.29% Impervious, Inflow Depth > 4.12" for 10-YR event
Inflow = 2.94 cfs @ 11.92 hrs, Volume= 0.270 af
Outflow = 2.02 cfs @ 12.06 hrs, Volume= 0.262 af, Atten= 31%, Lag= 8.7 min
Primary = 2.02 cfs @ 12.06 hrs, Volume= 0.262 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.76' @ 11.99 hrs Surf.Area= 0.027 ac Storage= 0.027 af
Flood Elev= 27.86' Surf.Area= 0.027 ac Storage= 0.028 af

Plug-Flow detention time= 34.9 min calculated for 0.262 af (97% of inflow)
Center-of-Mass det. time= 18.5 min (835.8 - 817.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	26.03'	0.020 af	**11.50'W x 102.88'L x 2.33'H Field A** 0.063 af Overall - 0.014 af Embedded = 0.049 af x 40.0% Voids
#2A	26.53'	0.014 af	**ADS_StormTech SC-310 +Cap** x 42 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 3 Rows of 14 Chambers
		0.034 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	26.53'	**12.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.53' / 26.10' S= 0.0860 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.11 cfs @ 12.06 hrs HW=27.57' TW=27.26' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.11 cfs @ 2.69 fps)

Pond 11: Bay2 - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

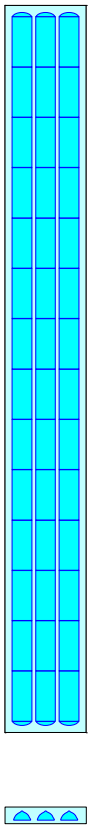
14 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 100.88' Row Length +12.0" End Stone x 2 = 102.88' Base Length
3 Rows x 34.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.50' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

42 Chambers x 14.7 cf = 619.2 cf Chamber Storage

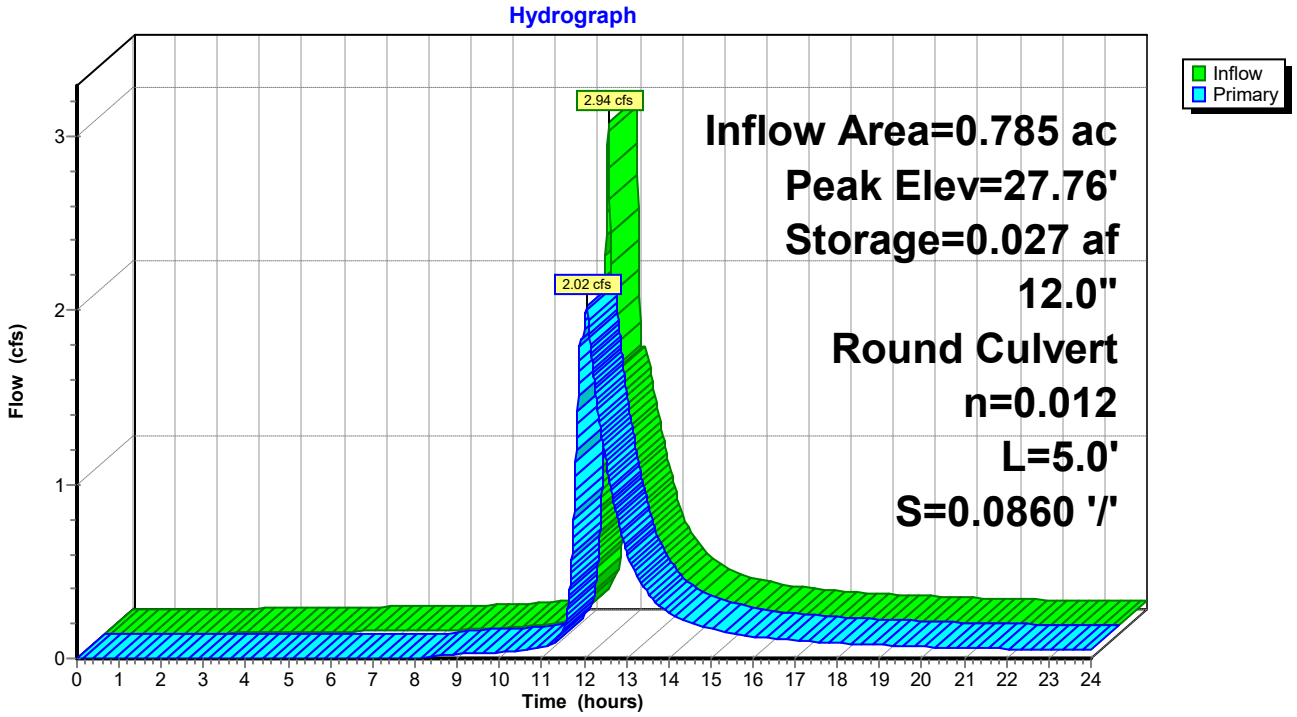
2,760.6 cf Field - 619.2 cf Chambers = 2,141.5 cf Stone x 40.0% Voids = 856.6 cf Stone Storage

Chamber Storage + Stone Storage = 1,475.7 cf = 0.034 af
Overall Storage Efficiency = 53.5%
Overall System Size = 102.88' x 11.50' x 2.33'

42 Chambers
102.2 cy Field
79.3 cy Stone



Pond 11: Bay2


Hydrograph
Inflow
Primary
2.94 cfs
2.02 cfs
Inflow Area=0.785 ac
Peak Elev=27.76'
Storage=0.027 af
12.0"
Round Culvert
n=0.012
L=5.0'
S=0.0860 '/'
Flow (cfs)
Time (hours)
0
1
2
3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 12: DA#2

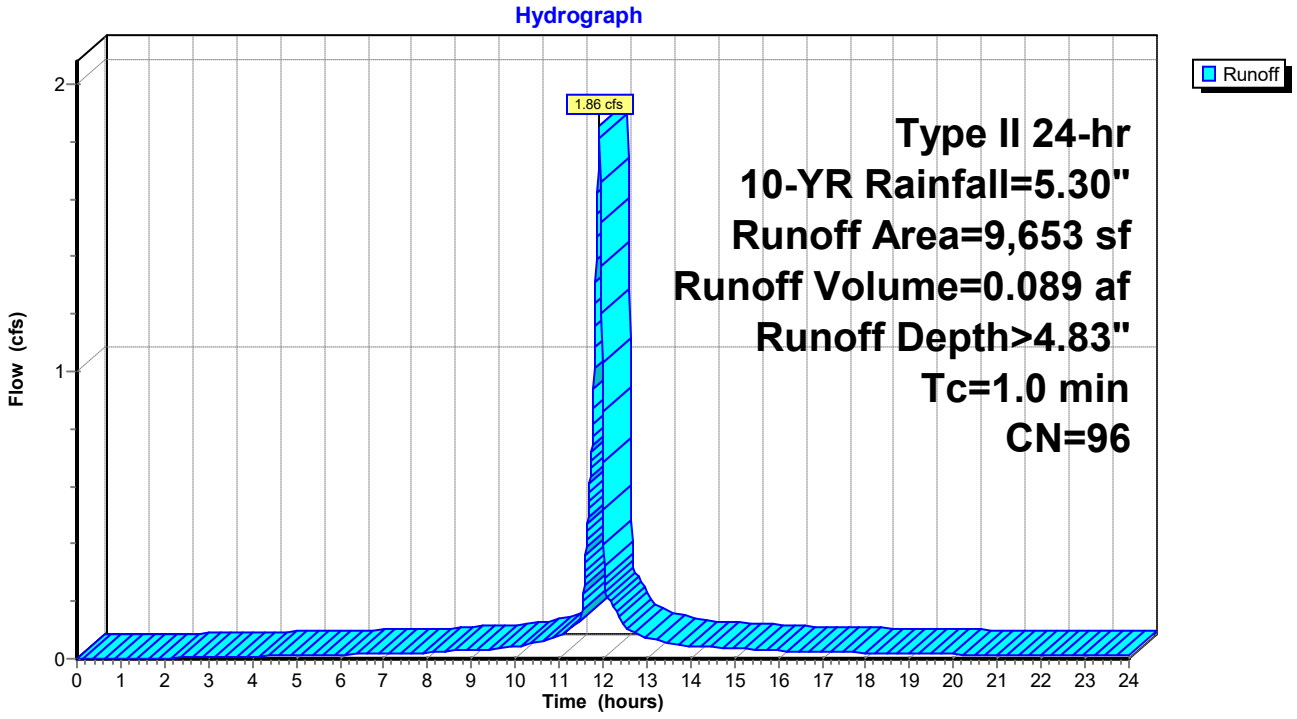
Runoff = 1.86 cfs @ 11.91 hrs, Volume= 0.089 af, Depth> 4.83"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	8,951	98	Pvmt, Bldgs, Walks, HSG C
	702	74	>75% Grass cover, Good, HSG C
	9,653	96	Weighted Average
	702		7.27% Pervious Area
	8,951		92.73% Impervious Area

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

Subcatchment 12: DA#2



Summary for Pond 13: Mews

Inflow Area = 0.563 ac, 85.15% Impervious, Inflow Depth > 4.19" for 10-YR event
Inflow = 1.94 cfs @ 11.91 hrs, Volume= 0.197 af
Outflow = 1.31 cfs @ 12.11 hrs, Volume= 0.181 af, Atten= 32%, Lag= 11.8 min
Primary = 1.31 cfs @ 12.11 hrs, Volume= 0.181 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.83' @ 12.00 hrs Surf.Area= 0.031 ac Storage= 0.036 af
Flood Elev= 27.53' Surf.Area= 0.031 ac Storage= 0.032 af

Plug-Flow detention time= 73.3 min calculated for 0.181 af (92% of inflow)
Center-of-Mass det. time= 31.2 min (849.2 - 817.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	25.70'	0.022 af	**11.50'W x 117.12'L x 2.33'H Field A** 0.072 af Overall - 0.016 af Embedded = 0.056 af x 40.0% Voids
#2A	26.20'	0.016 af	**ADS_StormTech SC-310 +Cap** x 48 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 3 Rows of 16 Chambers
		0.039 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	26.20'	**12.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.20' / 26.10' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.43 cfs @ 12.11 hrs HW=27.59' TW=27.45' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.43 cfs @ 1.81 fps)

Pond 13: Mews - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

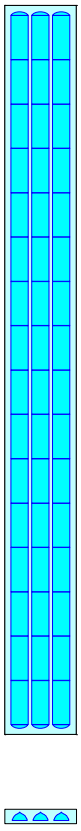
16 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 115.12' Row Length +12.0" End Stone x 2 = 117.12' Base Length
3 Rows x 34.0" Wide + 6.0" Spacing x 2 + 12.0" Side Stone x 2 = 11.50' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

48 Chambers x 14.7 cf = 707.6 cf Chamber Storage

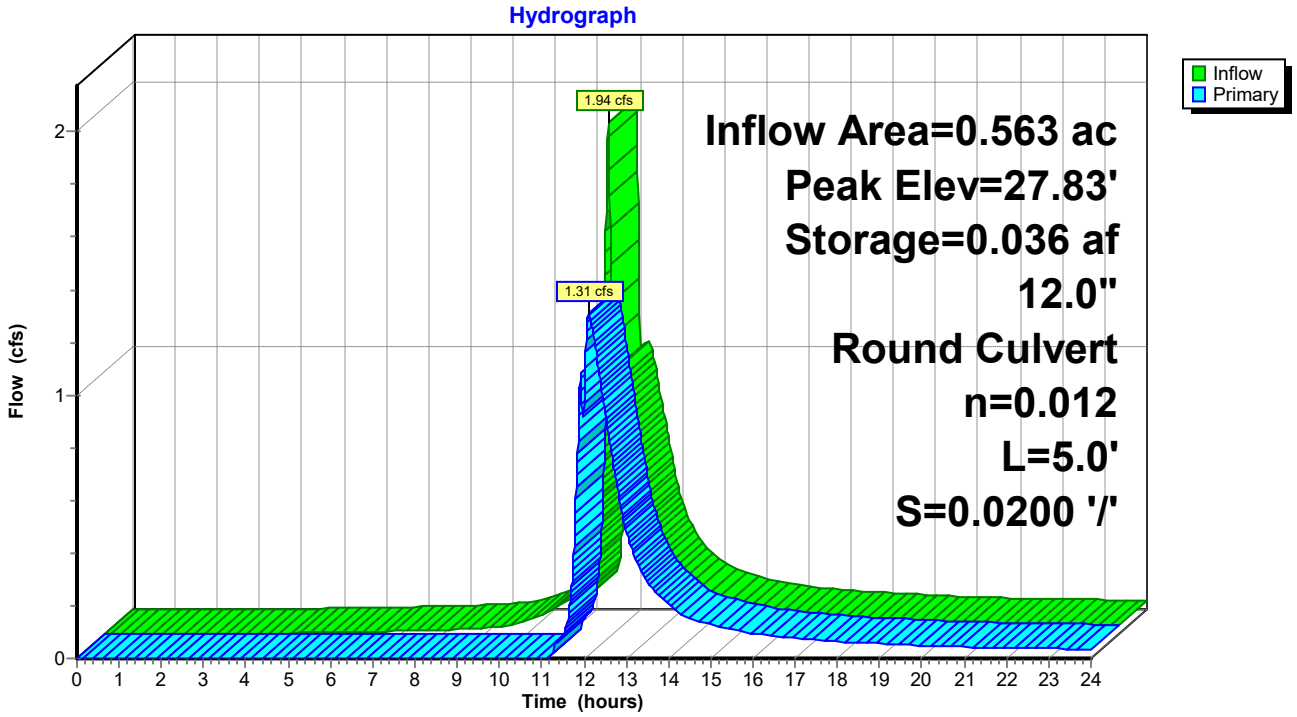
3,142.7 cf Field - 707.6 cf Chambers = 2,435.1 cf Stone x 40.0% Voids = 974.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,681.7 cf = 0.039 af
Overall Storage Efficiency = 53.5%
Overall System Size = 117.12' x 11.50' x 2.33'

48 Chambers
116.4 cy Field
90.2 cy Stone



Pond 13: Mews


Hydrograph
Inflow
Primary
1.94 cfs
1.31 cfs
Inflow Area=0.563 ac
Peak Elev=27.83'
Storage=0.036 af
12.0"
Round Culvert
n=0.012
L=5.0'
S=0.0200 '/'
Flow (cfs)
Time (hours)
0
1
2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Summary for Subcatchment 14: DA#3

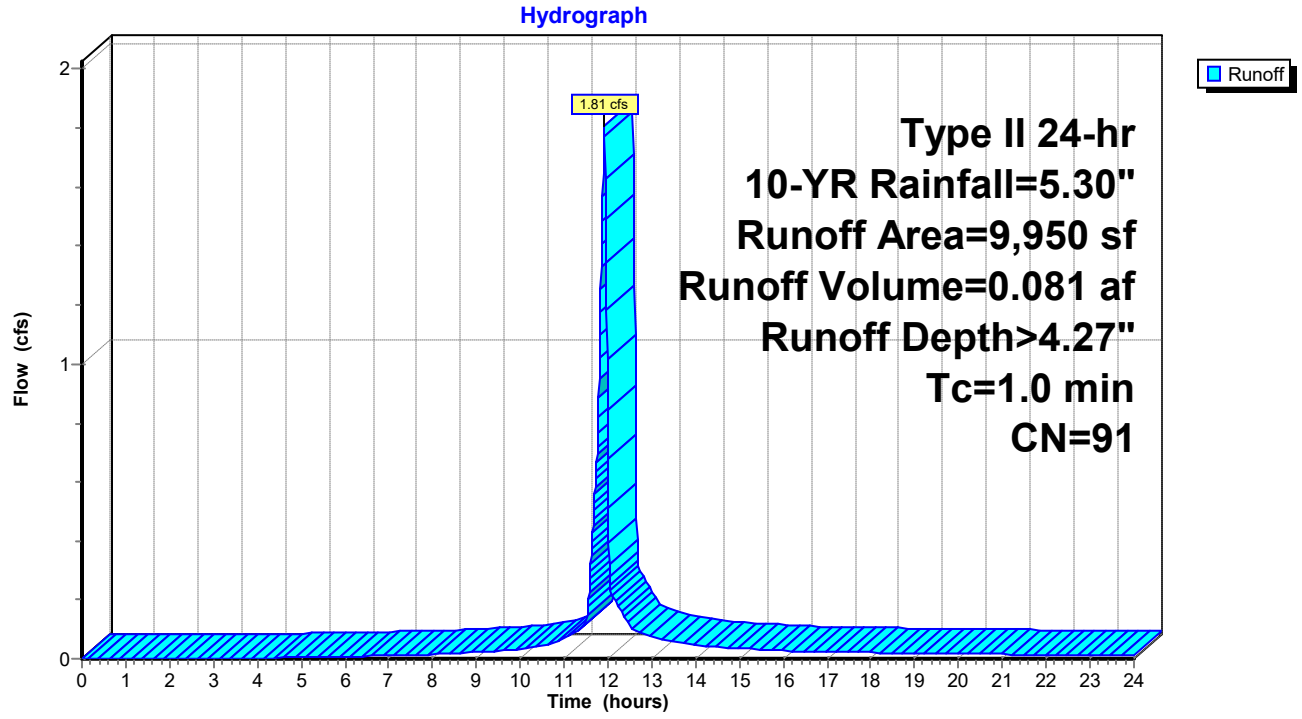
Runoff = 1.81 cfs @ 11.92 hrs, Volume= 0.081 af, Depth> 4.27"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	7,133	98	Pvmt, Bldgs, Walks, HSG C
	2,817	74	>75% Grass cover, Good, HSG C
	9,950	91	Weighted Average
	2,817		28.31% Pervious Area
	7,133		71.69% Impervious Area

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

Subcatchment 14: DA#3



Summary for Pond 15: Washington

Inflow Area = 0.335 ac, 94.33% Impervious, Inflow Depth > 4.94" for 10-YR event
Inflow = 2.83 cfs @ 11.91 hrs, Volume= 0.138 af
Outflow = 0.84 cfs @ 12.20 hrs, Volume= 0.116 af, Atten= 70%, Lag= 17.3 min
Primary = 0.84 cfs @ 12.20 hrs, Volume= 0.116 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 27.89' @ 12.03 hrs Surf.Area= 0.071 ac Storage= 0.077 af
Flood Elev= 27.73' Surf.Area= 0.071 ac Storage= 0.073 af

Plug-Flow detention time= 171.8 min calculated for 0.116 af (84% of inflow)
Center-of-Mass det. time= 100.0 min (846.4 - 746.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	26.00'	0.051 af	**14.83'W x 209.68'L x 2.33'H Field A** 0.167 af Overall - 0.039 af Embedded = 0.127 af x 40.0% Voids
#2A	26.50'	0.039 af	**ADS_StormTech SC-310 +Cap** x 116 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap 4 Rows of 29 Chambers
		0.090 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	26.50'	**8.0" Round Culvert** L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 26.50' / 26.40' S= 0.0200 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Primary OutFlow Max=0.86 cfs @ 12.20 hrs HW=27.69' TW=27.43' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.86 cfs @ 2.47 fps)

Pond 15: Washington - Chamber Wizard Field A

Chamber Model = ADS_StormTech SC-310 +Cap (ADS StormTech® SC-310 with cap length)
Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf
Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

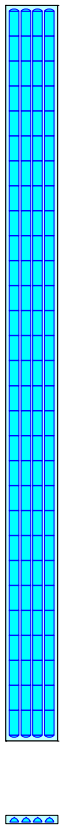
29 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 207.68' Row Length +12.0" End Stone x 2 = 209.68' Base Length
4 Rows x 34.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 14.83' Base Width
6.0" Base + 16.0" Chamber Height + 6.0" Cover = 2.33' Field Height

116 Chambers x 14.7 cf = 1,710.1 cf Chamber Storage

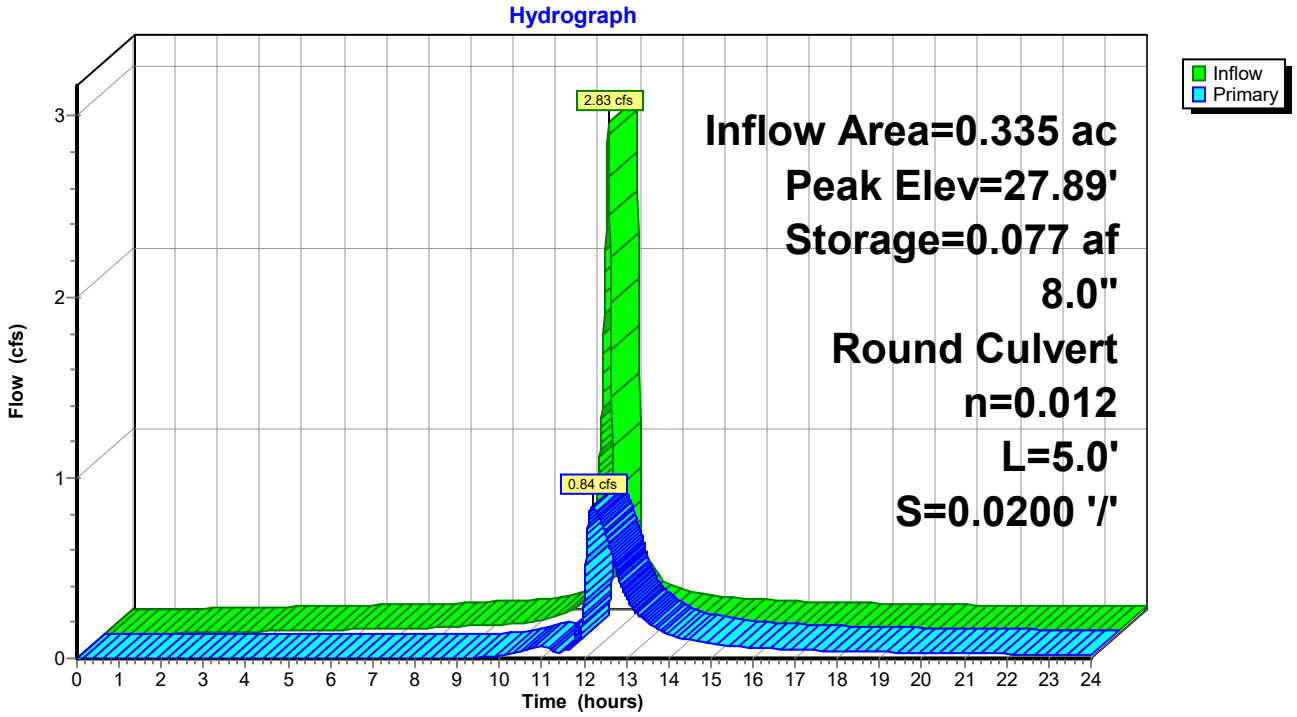
7,257.3 cf Field - 1,710.1 cf Chambers = 5,547.2 cf Stone x 40.0% Voids = 2,218.9 cf Stone Storage

Chamber Storage + Stone Storage = 3,928.9 cf = 0.090 af
Overall Storage Efficiency = 54.1%
Overall System Size = 209.68' x 14.83' x 2.33'

116 Chambers
268.8 cy Field
205.5 cy Stone



Pond 15: Washington



Summary for Subcatchment 16: DA#4

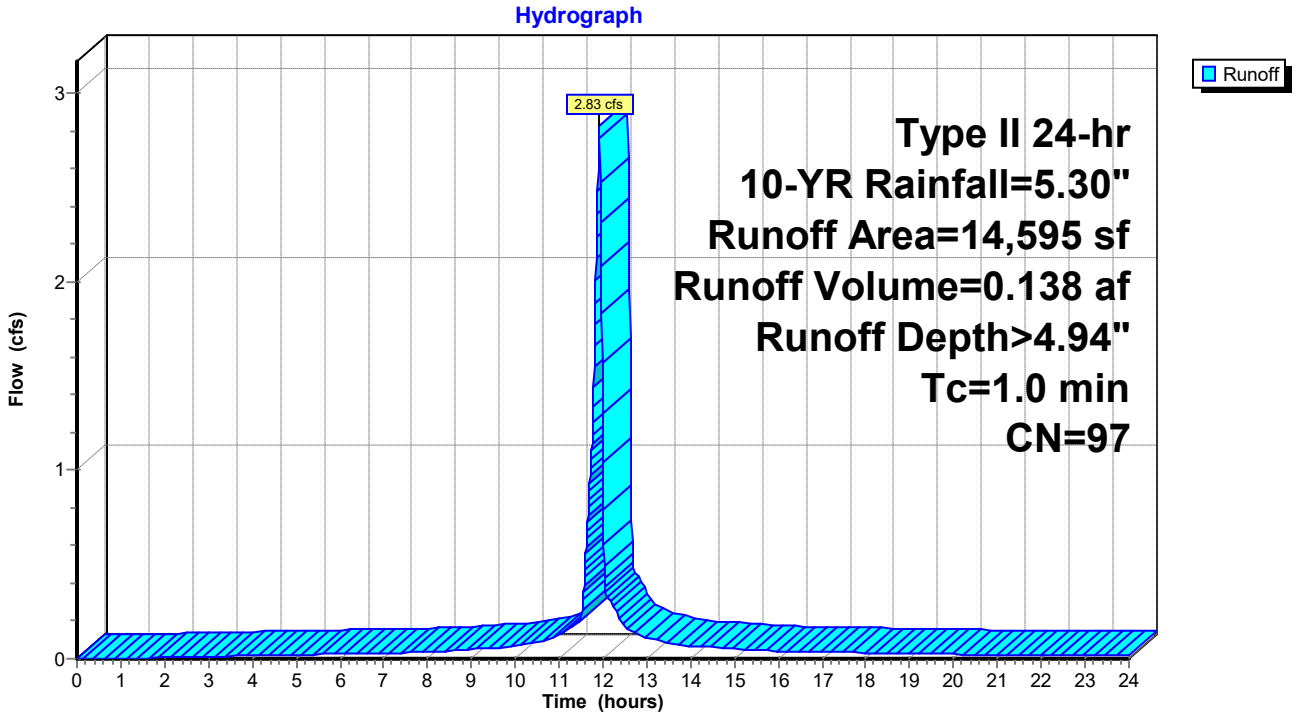
Runoff = 2.83 cfs @ 11.91 hrs, Volume= 0.138 af, Depth> 4.94"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	13,767	98	Pvmt, Bldgs, Walks, HSG C
	828	74	>75% Grass cover, Good, HSG C
	14,595	97	Weighted Average
	828		5.67% Pervious Area
	13,767		94.33% Impervious Area

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

Subcatchment 16: DA#4

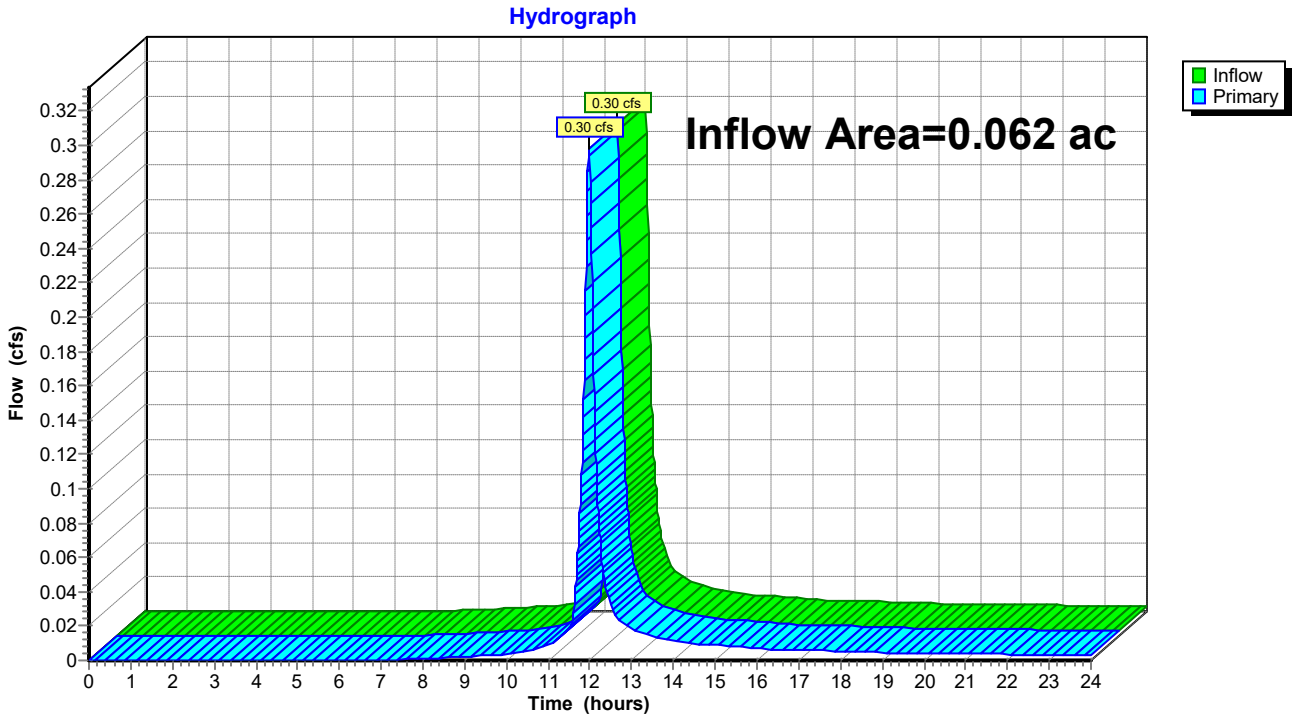


Summary for Link 17: POST POI #2

Inflow Area = 0.062 ac, 29.84% Impervious, Inflow Depth > 3.25" for 10-YR event
Inflow = 0.30 cfs @ 11.98 hrs, Volume= 0.017 af
Primary = 0.30 cfs @ 11.98 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 17: POST POI #2



Summary for Subcatchment 18: DA#7

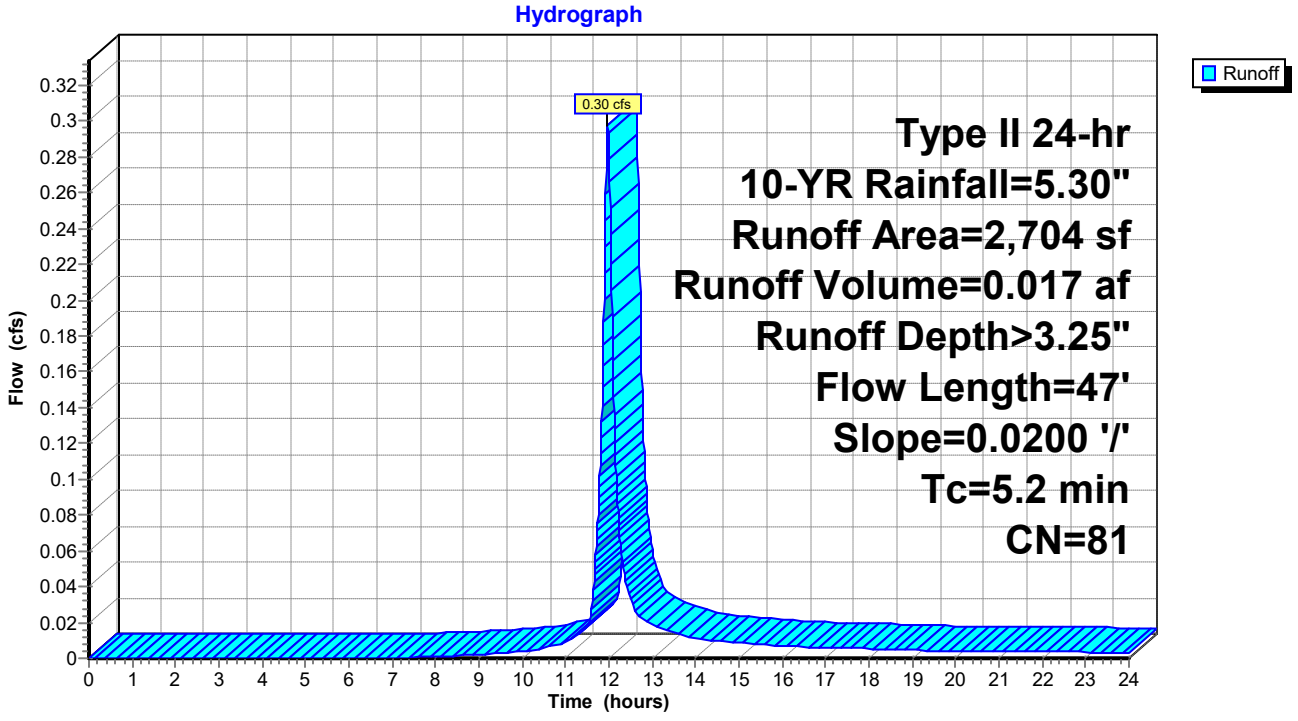
Runoff = 0.30 cfs @ 11.98 hrs, Volume= 0.017 af, Depth> 3.25"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type II 24-hr 10-YR Rainfall=5.30"

	Area (sf)	CN	Description
*	807	98	Pvmt, Bldgs, Walks, HSG C
	1,897	74	>75% Grass cover, Good, HSG C
	2,704	81	Weighted Average
	1,897		70.16% Pervious Area
	807		29.84% Impervious Area

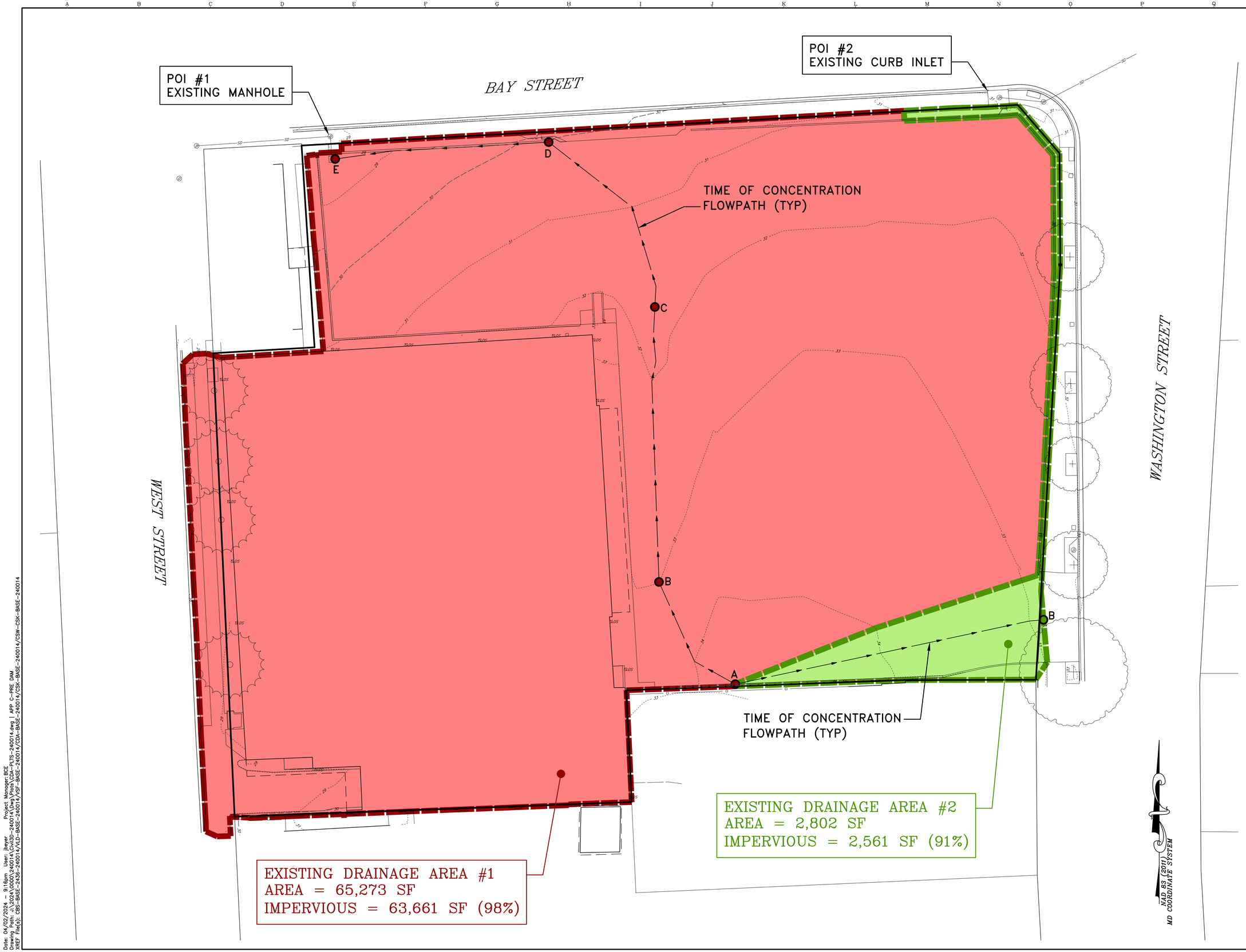
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	47	0.0200	0.15		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.40"

Subcatchment 18: DA#7



APPENDIX C

PRE-DEVELOPMENT DRAINAGE AREA MAP



APPROVED:
PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED:
PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON PLANNER – PLANNER DATE

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

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 ANY WORK ON-SITE. THE CONTRACTOR SHALL NOTIFY DEPT. OF PUBLIC WORKS OF ANY POSSIBLE CONFLICT AND REQUEST THE RELOCATION OF THE EXISTING UNDERGROUND UTILITIES BEFORE BEGINNING ANY WORK ON-SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RELOCATION EXPENSE.

MISS UTILITY
DIG WITH CARE
BEFORE YOU DIG CALL
1-800-441-8355 OR 811
PROTECT YOURSELF, GIVE
TWO WORKING DAYS NOTICE

Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lanei nc.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

PROFESSIONAL CERTIFICATION: I hereby certify that 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. 48188, Expiration Date: 12/28/2025.

SEAL
STATE OF MARYLAND
JARRET J. BEYER
48188
REGISTERED
PROFESSIONAL ENGINEER

DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

ON THE LANDS OF
NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

ISSUED/REVISED FOR: DATE: BY:

SHEET No. APPENDIX C
SCALE: AS NOTED
JOB No. 240014
FILE No. B412

Land Development

Date: 04/02/2024 - 9:16pm User: jbeyer Project Manager: BCE
Drawing Path: J:\2024\0000\240014\Civil3D-240014\Dwg\Plots\CDA-PLTS-240014.dwg | APP C-PRE DAM
XREF File(s): C_CBS-BASE-2436-240014/XLD-BASE-240014/VSF-BASE-240014/CDA-BASE-240014/CSK-BASE-240014/CSW-CSK-BASE-240014

APPENDIX D

POST-DEVELOPMENT DRAINAGE AREA MAP

DRAINAGE AREA #6
AREA = 4,900 SF
IMPERVIOUS = 3,893 SF (80%)

DRAINAGE AREA #1
AREA = 9,716 SF
IMPERVIOUS = 9,147 SF (94%)

POI #2
EXISTING CURB INLET

POI #1
EXISTING MANHOLE

BAY STREET

STORM DRAIN
OUTFALL PIPE

UNDERGROUND
STORMWATER
STORAGE

DRAINAGE AREA #7
AREA = 2,704 SF
IMPERVIOUS = 807 SF (30%)

DRAINAGE AREA #2
AREA = 9,653 SF
IMPERVIOUS = 8,951 SF (93%)

WASHINGTON STREET

WEST STREET

DRAINAGE AREA #3
AREA = 9,950 SF
IMPERVIOUS = 7,133 SF (72%)

STORM DRAIN INLET (TYP)

UNDERGROUND
STORMWATER STORAGE

DRAINAGE AREA #4
AREA = 14,595 SF
IMPERVIOUS = 13,767 SF (94%)

DRAINAGE AREA #5
AREA = 16,555 SF
IMPERVIOUS = 10,741 SF (65%)

MD COORDINATE SYSTEM
NAD 83 (2011)

APPROVED:
PLANS ARE ISSUED FOR REVIEW ONLY
TOWN OF EASTON – TOWN PLANNER DATE

APPROVED:
TOWN OF EASTON – TOWN ENGINEER DATE

APPROVED:
PLANS ARE NOT APPROVED FOR CONSTRUCTION
EASTON UTILITIES – ENGINEER DATE

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

WARNING!!
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DIG WITH CARE
BEFORE YOU DIG CALL
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Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lanei nc.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

PROFESSIONAL CERTIFICATION: I hereby certify that 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. 48188, Expiration Date: 12/28/2025.

SEAL
STATE OF MARYLAND
JARRET J. BEYER
48188
REGISTERED
PROFESSIONAL ENGINEER

DATE

POST-DEVELOPMENT DRAINAGE AREA MAP

ON THE LANDS OF
NAI SATURN EASTERN, LLC

IN THE TOWN OF EASTON, WARD DISTRICT 1
TALBOT COUNTY, MARYLAND
TAX MAP 104 TAX PARCEL 612

ISSUED/REVISED FOR: DATE: BY:

SHEET No. APPENDIX D
JOB No. 240014
SCALE: AS NOTED
FILE No. B412

Land Development

Date: 04/02/2024 - 9:16pm User: jbeyer Project Manager: BCE
Drawing Path: J:\2024\0000\240014\Civil3D-240014\Dwg\Plots\CDA-PLTS-240014.dwg | APP D-POST DAM
XREF File(s): CBS-BASE-2436-240014/XLD-BASE-240014/VSF-BASE-240014/CDA-BASE-240014/CSK-BASE-240014/CSW-CSK-BASE-240014