Easton Staff Development Review
MEETING AGENDA

Wednesday, August 28, 2024 - 11:00 AM
Council Chambers, Easton Town Office
14 S Harrison Street

1. Discussion Items

a.

Application Number:	2024 - 1263 / ESDR 24 - 17
Applicant:	DMS & Associates LLC
Location:	9071 Centreville Road (Parkway Storage) Tax Map 0100, Grid 0005, Parcel 0047, Lots 1-4
Zoning District:	BC
Request:	Sketch site plan review for the construction of a 31,700 (GFA) square foot climate controlled storage unit and mini-warehouse building with associated stormwater management facilities and other utility improvements.

b.

Application Number:	2024 - 1199 / ESDR 24 - 09
Applicant:	Rauch Inc.
Location:	1180 S. Washington Street (YMCA of Chesapeake) Tax Map 0108, Grid 0000, Parcel 2677
Zoning District:	R-10A
Request:	Sketch site plan review for the construction of a 6,119 square foot addition with associated stormwater management improvements, and a waiver for bufferyard requirements.

c.

Application Number:	2024 - 1261 / ESDR 24 - 15
Applicant:	Rauch Inc.
Location:	410 Needwood Avenue (Silo Square) Tax Map 0105, Grid 00EA, Parcel 2226
Zoning District:	BC
Request:	Sketch site plan review for the demolition of the existing silos on the property and construction of 28 single-

family attached dwellings with associated stormwater management facilities, and a waiver for bufferyard requirements.

d.

Application Number:	2024 - 1258 / ESDR 24 - 13
Applicant:	Lane Engineering, LLC
Location:	28575 Marlboro Avenue Tax Map 0034, Grid 0003, Parcel 0020, Lot 6
Zoning District:	PUD
Request:	Sketch site plan review for the redevelopment of the existing property and structure to be converted to a fast-food establishment (Starbucks).

e.

Application Number:	2024 - 1260 / ESDR 24 - 14
Applicant:	Lane Engineering, LLC
Location:	350 N. Washington Street Tax Map 0103, Grid 00EA, Parcel 513 & 514
Zoning District:	CB
Request:	Property line adjustment and sketch site plan review for the development of a two-story 16 unit multifamily residential building with associated parking, stormwater management, and other site improvements.

f.

Application Number:	2024 - 1262 / ESDR 24 - 16
Applicant:	Lane Engineering, LLC
Location:	9687 Technology Drive Tax Map 0025, Grid 0004, Parcel 0092, Lot 4
Zoning District:	BC
Request:	Sketch site plan review for the construction of a driveway and parking/lay-down yard with associated stormwater management facilities.

g.

Application Number:	2024 - 1264 / ESDR 24 - 12
Applicant:	Lane Engineering, LLC

Location:	106 Talbot Lane (Academy Art Museum) Tax Map 0105, Grid 00EA, Parcels 1948, 1949, 1950 & 1952
Zoning District:	R-7A
Request:	Sketch site plan review for the renovation of the existing structure to be converted to an art storage building / warehouse with associated stormwater management facilities, and a waiver for bufferyard requirements. This request also includes a lot line revision to abandon the lot lines between Parcel 1948, 1949, 1950 and 1952 to create a revised Parcel 1948.

Davis, Moore, Shearon & Associates, LLC

August 7, 2024

Town of Easton Department of Planning & Zoning
14 South Harrison Street
Easton, MD 21601

**RE: ESDR & PRELIMINARY PLAN SUBMITTAL FOR NEW CLIMATE CONTROLLED AND MINI-WAREHOUSE BUILDING ON THE LANDS OF PARKWAY STORAGE, LLC,
LOCATED 9701 CENTREVILLE ROAD, EASTON, MARYLAND,
TAX MAP 100, PARCEL - 47, LOTS 1-4, AIRWAY BUSINESS CENTER,
DMS & ASSOCIATES JOB #2022210**

Dear Town of Easton Planning and Zoning Staff:

Please find the enclosed submittal for ESDR for the above referenced project. This project was the subject of Board of Zoning Appeals (BOZA) case V-926/V23-06 heard and granted approval on August 15, 2023. We wish to commence this next step of the Town's site plan approval process with this ESDR submittal.

The project is a 31,700 s.f. (GFA) two story climate controlled and mini-warehouse building on Lot 1 of Airway Business Center. This new building will expand the Parkway Storage facility that currently exists on Lots 2-4. The new building will have perimeter access travelways, stormwater management and stormdrain, and a new exist only access from the site onto Centreville Road.

We hope that this initial ESDR submittal can begin to address Town site plan requirements and be a vessel to learn any additional concerns the Town may have regarding this project.

A subdivision will need to accompany this project to dissolve the lot line given this new building will share travelways and stormwater management with the existing facility. We will prepare draft subdivision plats and associated information after this first review.

We will further develop architecture after this first review. At this time the submitted renderings are those provided with the BOZA application.

The project will provide submerged gravel wetlands, a retrofitted micro-bioretention, and expansion of an existing stormwater management pond to address stormwater management requirements. We anticipate ongoing coordination and review with the Town Engineer to ensure proper calculations and justification are provided.

P.O. Box 80 Centreville, MD 21617
Phone: (443) 262-9130
Email: email@dmsandassociates.com

There was one condition that came with the BOZA approval, which was to provide screening along the bypass. We have developed a preliminary landscape plan that addresses this condition by providing extra evergreen trees along the bufferyard with the Bypass. We have addressed forest conservation requirements with the use of landscaping plantings given this site infill development and has no existing forest on the property.

Attached please find the following information.

3 copies of the cover letter
3 copies of the ESDR application
3 copies preliminary site and landscape plans
3 copies of the BOZA architectural renderings
3 copies of the preliminary SWM report
3 copies of the Sketch SWM checklist

We ask that you please review this submittal and include the project in the August 28th ESDR meeting. Should you have questions or need additional information please call me at 443-262-9130.

Sincerely,

DMS & Associates, LLC

Brandon A. Davis, P.E.

Enclosures
Pc: Benson Harper, Parkway Storage LLC.

RECEIVED
AUG 07 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	9701 Centreville Road Easton MD 21601						
Tax Map	100	Grid	5	Parcel	47	Lot	1-4
Deed Refernce:	Liber	1228	Folio	47			
Plat Reference:	Liber	1	Folio	115			
Base Zoning District	BC	Historic District Y ☐ N ☒		Planning Redevelopment Y ☐ N ☐			

Purpose of Application / Description of Work:

Follow up ESDR Application to BOZA Case V-926 V23-06

Proposed 31,700 (GFA) s.f. 2-Story Climate Controlled and mini-warehouse building with associated travel ways, utilities, and SWM.

Owner

Name	Parkway Storage LLC c/o Benson Harper
Mailing Address	9701 Centreville Rd, Easton MD 21601
Telephone No.	410 820 2000
Email	bharper@harperandson.com

Applicant / Agent

Name	Brandon Davis - DMS + Assoc.
Mailing Address	PO Box 80 Centreville MD 21617
Telephone No.	443 262 9130
Email	bdavis@dmsandassociates.com

Surveyor / Engineer

Name	Brandon Davis	License No.	37235	Expiration Date	6/5/26
Mailing Address	Same as Agent				
Telephone No.		Email			

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	8/7/2024
Printed Name of Applicant or Agent	Brandon Davis

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date 08/28/2024

Completeness Check Date 08/07/2024 **2024 - 1263 / ESDR 24- 17**

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date Documents Received Y ☐ N ☐

Staff Determination

Variance request approved by the Board of Zoning Appeals August 15, 2023.

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

BOZA Required Y ☐ N ☐ **TBD**

Historic District Commission Required Y ☐ N ☒

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature Samantha N. Smith Date 08/07/2024

Revised 02-2019

TOWN OF EASTON
P.O. Box 520
Easton, Maryland 21601

August 24, 2023

William Thomas Davis Jr.
DMS & Associates, LLC
P.O. Box 80
Centreville, Maryland 21617

Re: BOZA Application V-926 / V 23-06
9071 Centreville Road - Parkway Storage
Tax Map 100, Grid 005, Parcel 047, Lot 1-4
Easton, Maryland 21601

Dear Mr. Davis,

At their regularly scheduled meeting on August 15, 2023, the Town of Easton Board of Zoning Appeals (Board) heard application V-926 / V 23-06 for a Variance request from the minimum 100' setback for a climate controlled self-storage facility from the right-of-way of a major road. At the conclusion of the hearing, the Board voted (3-0) to approve the Variance request as submitted by the applicant with one condition:

1. The applicant shall provide a screening plan to be approved by Town staff and the Planning Commission during site plan review.

You will receive a written Decision from the Board detailing the above. The decisions are subject to a 30-day appeal period from the date of the written decision. Should you have questions concerning the above conditions, please contact this office at 410-822-1943.

Sincerely,

Samantha N. Smith

Samantha N. Smith, Administrative Specialist
Planning & Zoning Department
410-822-1943 ssmith@eastonMD.gov

PRELIMINARY SITE PLAN
FOR THE DEVELOPMENT OF
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE
ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER
IN THE TOWN OF EASTON, MARYLAND

SITE STATISTICS

CURRENT USE – COMMERCIAL/MINI-WAREHOUSES
PROPOSED USE – COMMERCIAL/MINI-WAREHOUSES & CLIMATE CONTROLLED STORAGE

AFTER LOT LINE ADJUSTMENT:

GROSS SITE AREA	=	3.784 ac.± (164,829 sq. ft.±)
CRITICAL AREA	=	0.000 ac.± (0,000 sq. ft.±)
BASE SITE AREA	=	3.784 ac.± (164,829 sq. ft.±)
BUILDINGS COVERAGE (PERMITTED) (50%)	=	1.892 ac.± (82,414 sq. ft.±)
BUILDINGS COVERAGE (EXISTING) (25.8%)	=	0.978 ac.± (42,596 sq. ft.±)
BUILDINGS COVERAGE (PROPOSED) (9.6%)	=	0.364 ac.± (15,850 sq. ft.±)
BUILDINGS COVERAGE (RESULTING) (35.5%)	=	1.342 ac.± (58,446 sq. ft.±)
IMPERVIOUS AREA (EXISTING) (57.0%)	=	2.155 ac.±
IMPERVIOUS AREA (TO BE REMOVED)	=	0.000 ac.±
IMPERVIOUS AREA (PROPOSED) (17.7%)	=	0.671 ac.±
IMPERVIOUS AREA (TOTAL) (74.7%)	=	2.826 ac.±
LANDSCAPE AREA (EXISTING) (43.0%)	=	1.629 ac.±
LANDSCAPE AREA (RESULTING) (25.3%)	=	0.958 ac.±

PARKING REQUIREMENTS

PROPOSED: (SECTION 28-1001.3):
4 SPACES/CLIMATE CONTROLLED SELF STORAGE OR MINI-WAREHOUSE SITE = 4 SPACES
2 SPACES/MANAGERS QUARTERS X 0 MANAGERS QUARTERS = 0 SPACES
1 SPACE/1,000 S.F. GFA CONSTRUCTION RELATED BUSINESES X 1,092 S.F. = 2 SPACES

PARKING SPACES (REQUIRED) = 6 SPACES (1 HANDICAP)
PARKING SPACES (PROVIDED) = 12 SPACES (1 HANDICAP)

OFF-STREET LOADING REQUIREMENTS

PROPOSED: (SECTION 28-1002.1.A):
1 space/10,000 sq. ft. floor area X 31,700 sq. ft. FLOOR AREA = 3 SPACES

PARKING SPACES (REQUIRED FOR PROPOSED BUILDING) = 3 SPACES
PARKING SPACES (PROVIDED) = 3 SPACES

REVIEWED FOR THE TALBOT SOIL CONSERVATION DISTRICT AND MEET TECHNICAL REQUIREMENTS

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT — DATE
SHAWN SMITH, DISTRICT MANAGER

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT ADDITIONAL PROTECTION BECOMES NECESSARY.

DEVELOPERS CERTIFICATION

I, BENSON HARPER, HEREBY CERTIFY THAT ALL THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE ACCORDING TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

OWNERS SIGNATURE — DATE

OWNERS NAME: PARKWAY STORAGE, LLC, c/o BENSON HARPER

OWNERS ADDRESS: 9701 CENTREVILLE ROAD, EASTON, MD 61601

OWNERS PHONE: 410-820-2000

1. 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 FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.

2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATION OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

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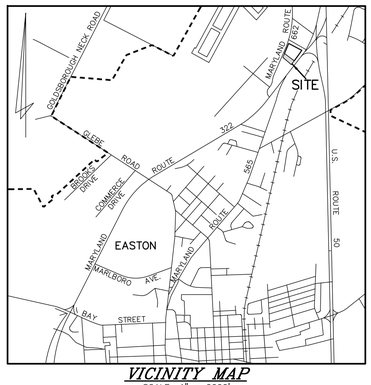
NOTES

1. PROPERTY LINE INFORMATION SHOWN HEREON IS TAKEN FROM A PLAT ENTITLED "PLAT SHOWING, AIRWAY BUSINESS CENTER" PREPARED BY RAUCH, WALLS AND LANE, INC. IN JULY, 1989 AND RECORDED IN PLAT BOOK LIBER W.A.S. 1, FOLIO 115. BEARINGS HAVE BEEN ROTATED TO HORIZONTAL DATUM IS NAD 83/2011.
2. FOR DEED REFERENCE, SEE LIBER 1228, FOLIO 47.
3. CURRENT ZONING CLASSIFICATION IS "BC" (BUSINESS COMMERCIAL)
4. THE PROPERTY IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA.
5. SITE IS NOT LOCATED WITHIN THE 100 YEAR FLOODPLAIN AS SCALED FROM FLOOD INSURANCE RATE MAP COMMUNITY PANEL No. 24041C0193C. (ZONE "X") (UNSHADED) DATED AUGUST 5, 2013.
6. SOILS ON SITE CONSIST OF "Up" (URBAN LAND) AS TAKEN FROM THE WEBSITE: http://websoilsurvey.nrcs.usda.gov FOR TALBOT COUNTY. NO HYDRIC SOILS EXIST ON THE SITE.
7. NO NATURAL RESOURCES (ie... WOODLANDS, NONTIDAL WETLANDS AND BUFFER, STREAM AND BUFFER, STEEP SLOPES, ENDANGERED SPECIES OR HABITATS) EXIST ON THE SITE.
8. EXISTING PUBLIC WATER WILL BE UTILIZED FOR POTABLE WATER SUPPLY. HOWEVER, THE BUILDING WILL NOT HAVE ANY BATHROOMS. A SPRINKLER SYSTEM WILL BE PROVIDED WITH A NEW SERVICE.
9. THE SITE UTILIZES EXISTING PUBLIC SEWER FOR SEWAGE DISPOSAL, HOWEVER, THE PROPOSED BUILDING WILL NOT HAVE ANY BATHROOMS, THEREFORE NO SEWER SERVICE IS PROPOSED.
10. STORMWATER MANAGEMENT FOR THE SITE IS ADDRESSED VIA THE IMPLEMENTATION OF ENVIRONMENTAL SITE DESIGN (ESD) TO THE MAXIMUM EXTENT PRACTICABLE (MEP).
11. ALL ONSITE LIGHTING SHALL BE LOW CUT-OFF SHIELDED LUMINARIES AT 18' IN HEIGHT AND LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE.
SITE LIGHTING PROVIDED: – LITHONIA LIGHTING D-SERIES: DSCW2 LED WALL PACK (OR EQUAL)
12. THERE SHALL BE NO OPEN STORAGE ON ANY LOT OR OPEN AREAS, NOR SHALL ANY PRODUCTS BE DISPLAYED IN OPEN AREAS. ALL OUTSIDE STORAGE SHALL BE ADEQUATELY SCREENED AND LANDSCAPED IN ACCORDANCE WITH PROVISIONS OF SECTION 1015 OF THE CODE FOR THE TOWN OF EASTON.
13. ONE FREESTANDING SIGN IS PERMITTED, NOT TO EXCEED 50 sq. ft. PER SIDE IN AREA, THE TOP OF WHICH IS NOT MORE THAN 10' IN HEIGHT. SUCH SIGNAGE SHALL BE SETBACK AT LEAST 10' FROM ANY PROPERTY LINE. A LANDSCAPED AREA EQUIVALENT TO THE AREA OF EACH SIDE OF A FREESTANDING SIGN.
14. WALL MOUNTED SIGNAGE IS PERMITTED WITH A MAXIMUM AREA OF 1 sq. ft. OF SIGNAGE PER 1 LINEAL FOOT OF STREET FRONTAGE OF THE BUILDING.
15. SITE REQUIREMENTS:
BUILDING SETBACKS
(SECTION 28.308.2(D)(1)(2)(3):
FRONT = 40'
REAR = 30'
SIDE = 10'
MAXIMUM BUILDING HEIGHT:
(SECTION 28.308.2(E):
PRINCIPAL = 35' (ALLOWED)
PRINCIPAL = <35' (EXISTING & PROPOSED)



VICINITY MAP
SCALE 1" = 2000'

LEGEND

	DEED POINT
	EDGE OF EXISTING TREES
T	EXISTING UTILITY POLE
x 46.87	EXISTING SPOT ELEVATION
47.0	EXISTING CONTOUR
	EXISTING LIGHT POLE
	PROPOSED DRAINAGE MANHOLE
	PROPOSED SIGN
	PROPOSED ACCESSIBLE PARKING SPACE
SS	EXISTING GRAVITY SEWER LINE
	EXISTING SEWER MANHOLE
W	EXISTING WATER LINE
	EXISTING FIRE HYDRANT
G	EXISTING GAS LINE
SF	PERIMETER SILT FENCE
(CIP)	"CURB" INLET PROTECTION
(AGIP)	"AT GRADE" INLET PROTECTION
L.O.D.	LIMITS OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE

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OWNER/DEVELOPER:
PARKWAY STORAGE, LLC
c/o BENSON HARPER
9701 CENTREVILLE ROAD
EASTON, MARYLAND 21601
PHONE No. 1-410-820-2000

ENGINEER:
DMS & ASSOCIATES, LLC
c/o BRANDON A. DAVIS, P.E.
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE No. 1-443-262-9130

SURVEYOR:
McCRONE, INC.
320 PENNSYLVANIA AVENUE
CENTREVILLE, MARYLAND 21617
PHONE No. 1-410-758-2237

GENERAL NOTES

1. THE EXISTING UTILITIES SHOWN WERE TAKEN FROM THE BEST AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY THEIR EXACT LOCATION PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE INCURRED TO SUCH UTILITIES SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL TEST PIT AS TO VERIFY THE LOCATION AND INVERT OF EXISTING UTILITIES.
2. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION AND SHALL COORDINATE CONSTRUCTION WITH THE UTILITY COMPANIES INVOLVED:

DELMARVA POWER & LIGHT COMPANY	1-800-375-7117
MISS UTILITY	1-800-441-8355
DMS & ASSOCIATES, LLC	1-443-262-9130
DEPARTMENT OF ENVIRONMENT	1-410-901-4020
TALBOT SOIL CONSERVATION DISTRICT	1-410-822-1577
TOWN OF EASTON ENGINEERING	1-410-820-8822
TOWN OF EASTON DEPARTMENT OF PUBLIC WORKS	1-410-822-0513
EASTON UTILITIES	1-410-822-6110

3. THE CONTRACTOR SHALL PROVIDE ALL EQUIPMENT, LABOR, AND MATERIALS FOR ANY MISCELLANEOUS OR TEST PIT EXCAVATIONS REQUIRED BY THE ENGINEER.
4. ALL CONSTRUCTION SHALL BE MARKED FOR TRAFFIC AND PEDESTRIAN SAFETY. ALL SIGNS SHALL BE PLACED IN ACCORDANCE WITH SECTION VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
5. ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE TOWN OF EASTON STANDARDS AND SPECIFICATIONS.
6. THE CONTRACTOR ASSUMES ALL RESPONSIBILITIES FOR ANY DEVIATIONS FROM THESE PLANS, UNLESS SAID DEVIATION IS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL RECEIVE WRITTEN PERMISSION FROM THE ENGINEER IF A DEVIATION OF THE PLAN IS NECESSARY.
7. ALL DISTURBED AREAS SHALL BE SMOOTHLY GRADED TO PROVIDE POSITIVE DRAINAGE IN THE DIRECTION OF FLOW ARROWS HEREIN AND STABILIZED WITH TOPSOIL, SEED, AND MULCH. IF SETTLEMENT OCCURS, TOPSOIL, SEEDING AND MULCHING SHALL BE REPEATED UNTIL SETTLEMENT SUBSIDES (SEE EROSION AND SEDIMENT CONTROL SPECIFICATIONS).
8. ALL TRASH, TREES, AND UNDERBRUSH ARE TO BE CLEARED AND REMOVED OFF SITE TO AN APPROVED DUMP SITE.
9. ANY EXCESS EXCAVATED MATERIAL SHALL BE REMOVED OFF SITE BY THE CONTRACTOR OR MATERIAL SHALL BE PLACED ON SITE AS DIRECTED BY THE ENGINEER AND/OR OWNER.
10. ANY EXISTING SURVEY MONUMENTATION THAT IS DISTURBED DURING CONSTRUCTION SHALL BE REPLACED BY A REGISTERED SURVEYOR AT THE CONTRACTOR'S EXPENSE.
11. ALL FILL AREAS WITHIN LIMITS OF ROADWAY CONSTRUCTION AND OTHER AREAS AS DESIGNATED ON THESE PLANS SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY AND LAID AND COMPACTED IN 8" LIFTS MAXIMUM.
12. TRENCHES SHALL NOT REMAIN OPEN OVERNIGHT. IF IT IS NECESSARY FOR TRENCHES TO REMAIN OPEN, STEEL PLATES, CAPABLE OF TRAFFIC BEARING, SHALL BE USED TO COMPLETELY COVER THE TRENCH.
13. ALL SEWER VALVES, BOXES AND FRAMES & COVERS SHALL BE SET AND ADJUSTED TO FINISHED GRADE.
14. CONTRACTOR MUST PROVIDE MONUMENTED SURVEY MARKERS PER PUBLIC WORKS AGREEMENT.
15. THE DEVELOPER SHALL COORDINATE WITH THE TOWN OF EASTON TO SCHEDULE INSTALLATION OF ALL NECESSARY ROADWAY SAFETY SIGNAGE AND ROAD NAME BLADES. SIGNAGE SHALL BE INSTALLED AT THE START OF CONSTRUCTION AND MAINTAINED BY THE TOWN OF EASTON THROUGHOUT THE COMPLETION OF THE WORK AT THE EXPENSE OF THE DEVELOPER. THE DEVELOPER SHALL PAY INVOICES UPON RECEIPT FROM THE TOWN OF EASTON.
16. ALL PVC, PE, AND HDPE PIPE, OTHER THAN PIPE RUNS BETWEEN GRAVITY SEWER MANHOLES, SHALL HAVE A CONTINUOUS, SINGLE STRAND, 8-GAUGE UNCOATED COPPER TRACER WIRE LOCATED BENEATH THE PIPE. THE WIRE SHALL BE STUBBED INTO ALL METER PITS, VACUUM VALVE PITS, CLEANOUTS, AND DIVISION VALVE BOXES.
17. ONCE CONSTRUCTION IS COMPLETE, AS-BUILT PLAN CERTIFICATION SHALL BE SUBMITTED BY EITHER A PROFESSIONAL ENGINEER OR PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF MARYLAND TO ENSURE ALL CONSTRUCTION IS IN COMPLIANCE WITH THE SPECIFICATIONS AND APPROVED PLANS.

BOARD OF ZONING APPEALS' VARIANCE OUTCOME

THE TOWN OF EASTON BOARD OF ZONING APPEALS GRANTED A VARIANCE (V-926/V23-06) ON AUGUST 15, 2023 FROM THE MINIMUM 100' SETBACK FOR A CLIMATE CONTROLLED SELF-STORAGE FACILITY FROM THE RIGHT-OF-WAY OF A MAJOR ROAD. A CONDITION WAS APPLIED "THE APPLICANT SHALL PROVIDE A SCREENING PLAN TO BE APPROVED BY TOWN STAFF AND THE PLANNING COMMISSION DURING SITE PLAN REVIEW."

STATEMENT OF PURPOSE AND INTENT

THE SITE IS LOCATED ON THE WEST SIDE OF MARYLAND ROUTE 322 AND THE EAST SIDE OF MARYLAND ROUTE 662 IN THE TOWN OF EASTON AND IS KNOWN AS "AIRWAY BUSINESS CENTER." LOT 1 IS CURRENTLY USED FOR OUTDOOR STORAGE AND LOTS 2 thru 4 CURRENTLY CONSIST OF (5) FIVE MINI-WAREHOUSES. THE INTENT OF THIS PRELIMINARY PLAN IS TO REMOVE THE LOT LINE BETWEEN LOTS 1 AND 2 TO CREATE (1) ONE NEW PARCEL. THEN, CONSTRUCT A NEW (2) TWO STORY MINI-WAREHOUSE BUILDING WITH A COMBINATION OF CLIMATE CONTROLLED AND TYPICAL MINI-WAREHOUSE UNITS.

THE PURPOSE OF THIS PRELIMINARY SITE PLAN IS TO OBTAIN APPROVAL FROM THE TOWN OF EASTON PLANNING AND ZONING AND TOWN OF EASTON PLANNING COMMISSION FOR THE PROPOSED PROJECT.

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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. 37235, EXPIRATION DATE: 6-26-2026

STATE OF MARYLAND · BRANDON A. DAVIS · 37235 · PROFESSIONAL ENGINEER

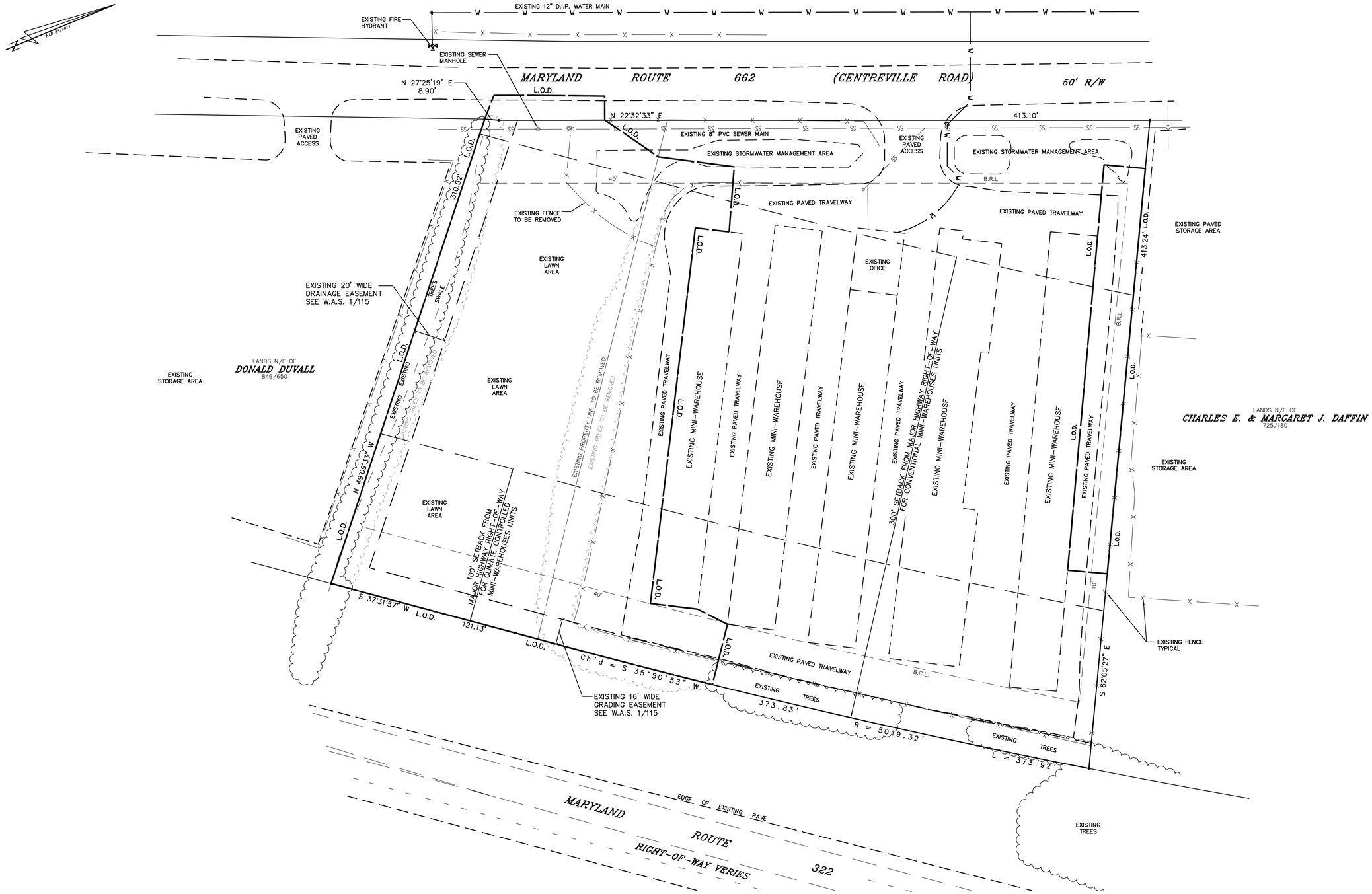
8/7/2024
DATE — SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN,
ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

TITLE SHEET
FOR THE DEVELOPMENT OF
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE
ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER
IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND
TAX MAP – 100, GRID – 5, PARCEL – 47

DATE: JULY '24	SCALE: AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-1	
CADD FILE – 22210-C1	



GRAPHIC SCALE

30 0 15 30 60

1 inch = 30 ft.

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TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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. 37235 EXPIRATION DATE: 6-2026

STATE OF MARYLAND · BRADDON A. DAVIS · No. 37235 · PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN,
ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

EXISTING CONDITIONS AND DEMOLITION PLAN

FOR THE DEVELOPMENT OF

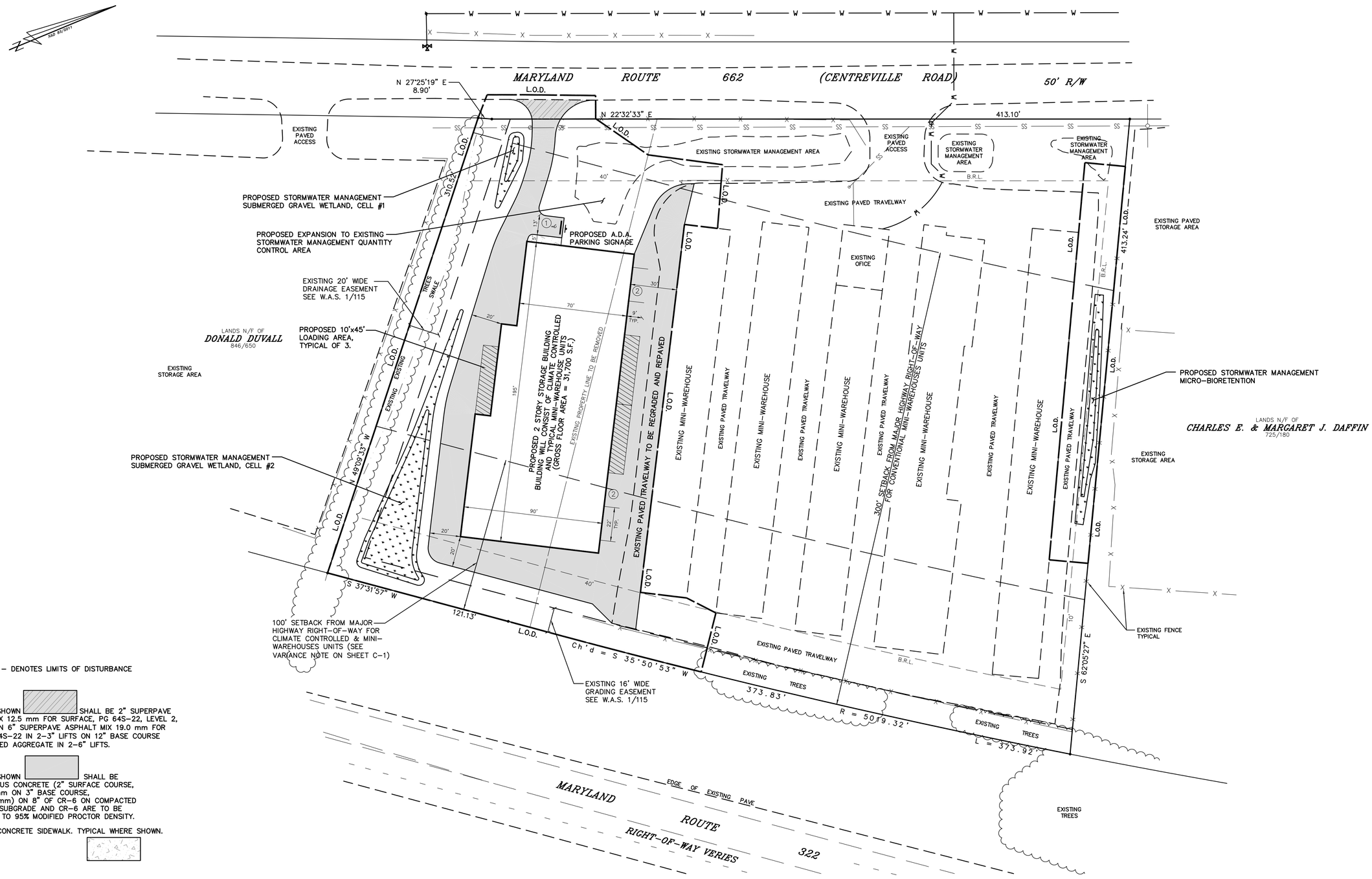
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP – 100, GRID – 5, PARCEL – 47

DATE	SCALE
JULY '24	AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-2	
CADD FILE – 22210-C2	



L.O.D. – DENOTES LIMITS OF DISTURBANCE

PAVEMENT SHOWN SHALL BE 2" SUPERPAVE ASPHALT MIX 12.5 mm FOR SURFACE, PG 64S-22, LEVEL 2, BASE MIX ON 6" SUPERPAVE ASPHALT MIX 19.0 mm FOR BASE, PG 64S-22 IN 2-3" LIFTS ON 12" BASE COURSE USING GRADED AGGREGATE IN 2-6" LIFTS.

PAVEMENT SHOWN SHALL BE 5" BITUMINOUS CONCRETE (2" SURFACE COURSE, BAND 9.5 mm ON 3" BASE COURSE, BAND 19.0 mm) ON 8" OF CR-6 ON COMPACTED SUBGRADE. SUBGRADE AND CR-6 ARE TO BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY.

PROPOSED CONCRETE SIDEWALK. TYPICAL WHERE SHOWN.

UNDERGROUND UTILITY WARNING:
NO TEST PITTING OR PRIVATE UTILITY LOCATING SERVICE OF UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF THIS PLAN. UTILITIES SHOWN HEREON ARE FROM THE BEST AVAILABLE DATA. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTORS TO COMPLY WITH THE UNDERGROUND FACILITIES DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.

GRAPHIC SCALE
30 0 15 30 60
1 inch = 30 ft.

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STATE OF MARYLAND BRANDON A. DAVIS No. 37235 PROFESSIONAL ENGINEER

8/7/2024
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DATE	REVISION

OVERALL SITE PLAN

FOR THE DEVELOPMENT OF

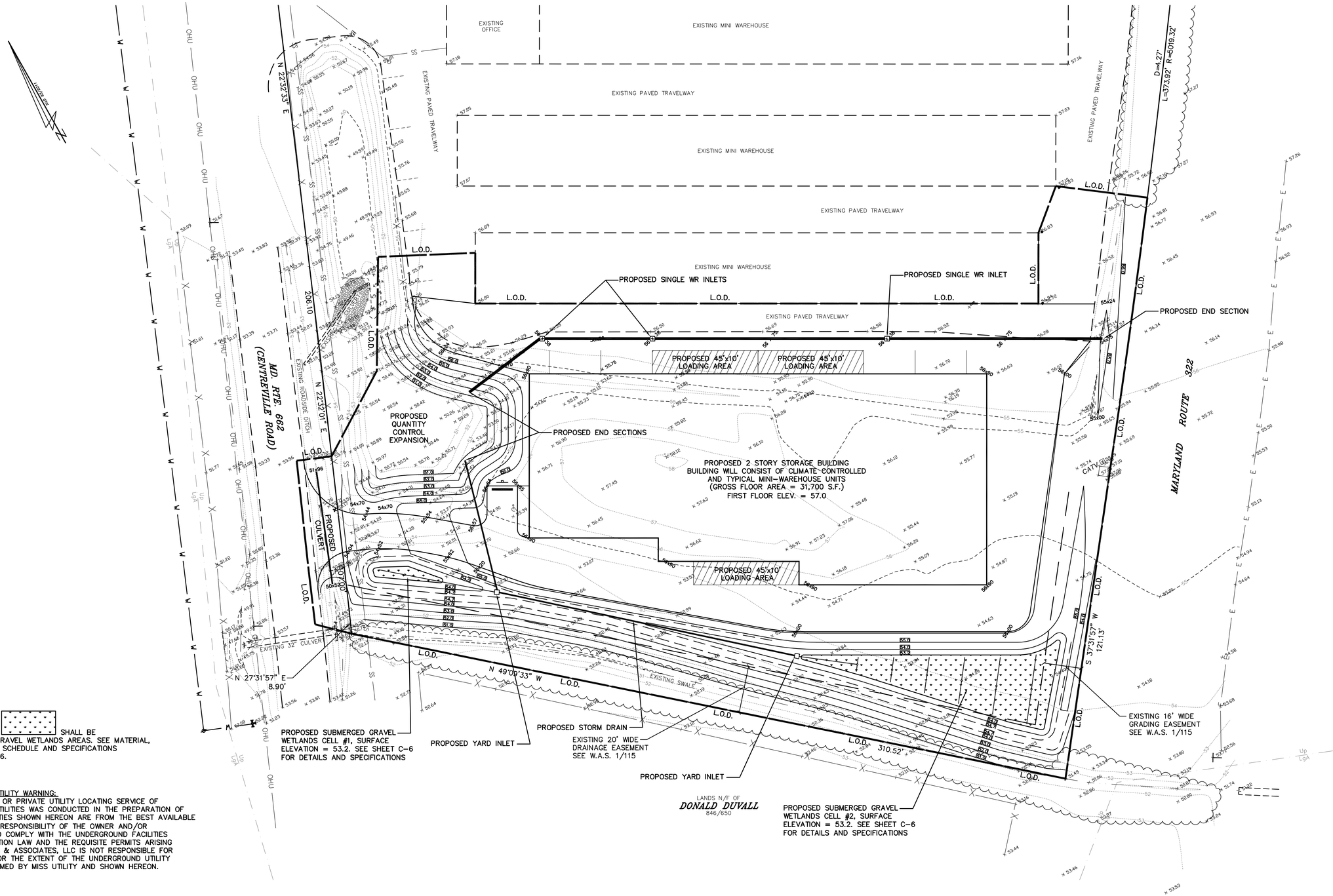
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP – 100, GRID – 5, PARCEL – 47

DATE: JULY '24	SCALE: AS SHOWN
JOB No.: 2022210	DRAWN BY:
FOLDER Ref.: 100-2022210	DESIGNED BY: BD
SHEET No. – C-3	
CADD FILE – 22210-C3	



AREA SHOWN SHALL BE SUBMERGED GRAVEL WETLANDS AREAS. SEE MATERIAL, MAINTENANCE SCHEDULE AND SPECIFICATIONS ON SHEET C-6.

UNDERGROUND UTILITY WARNING:
NO TEST PITTING OR PRIVATE UTILITY LOCATING SERVICE OF UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF THIS PLAN. UTILITIES SHOWN HEREON ARE FROM THE BEST AVAILABLE DATA. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTORS TO COMPLY WITH THE UNDERGROUND FACILITIES DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.

L.O.D. – DENOTES LIMITS OF DISTURBANCE

NOTE:
SEDIMENT AND EROSION CONTROL WILL BE STRICTLY ENFORCED

NOTE:
FOLLOWING INITIAL DISTURBANCE, PERMANENT OR TEMPORARY, STABILIZATION SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS ON ALL PERIMETER CONTROLS AND SLOPES GREATER THAN 3:1 AND 7 DAYS ON ALL OTHER DISTURBED AREAS ON THE SITE.

GRAPHIC SCALE
10 0 10 10 10
1 inch = 20 ft.

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TOWN OF EASTON PLANNING & ZONING

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STATE OF MARYLAND · BRADON A. DILL · No. 37235 · PROFESSIONAL ENGINEER

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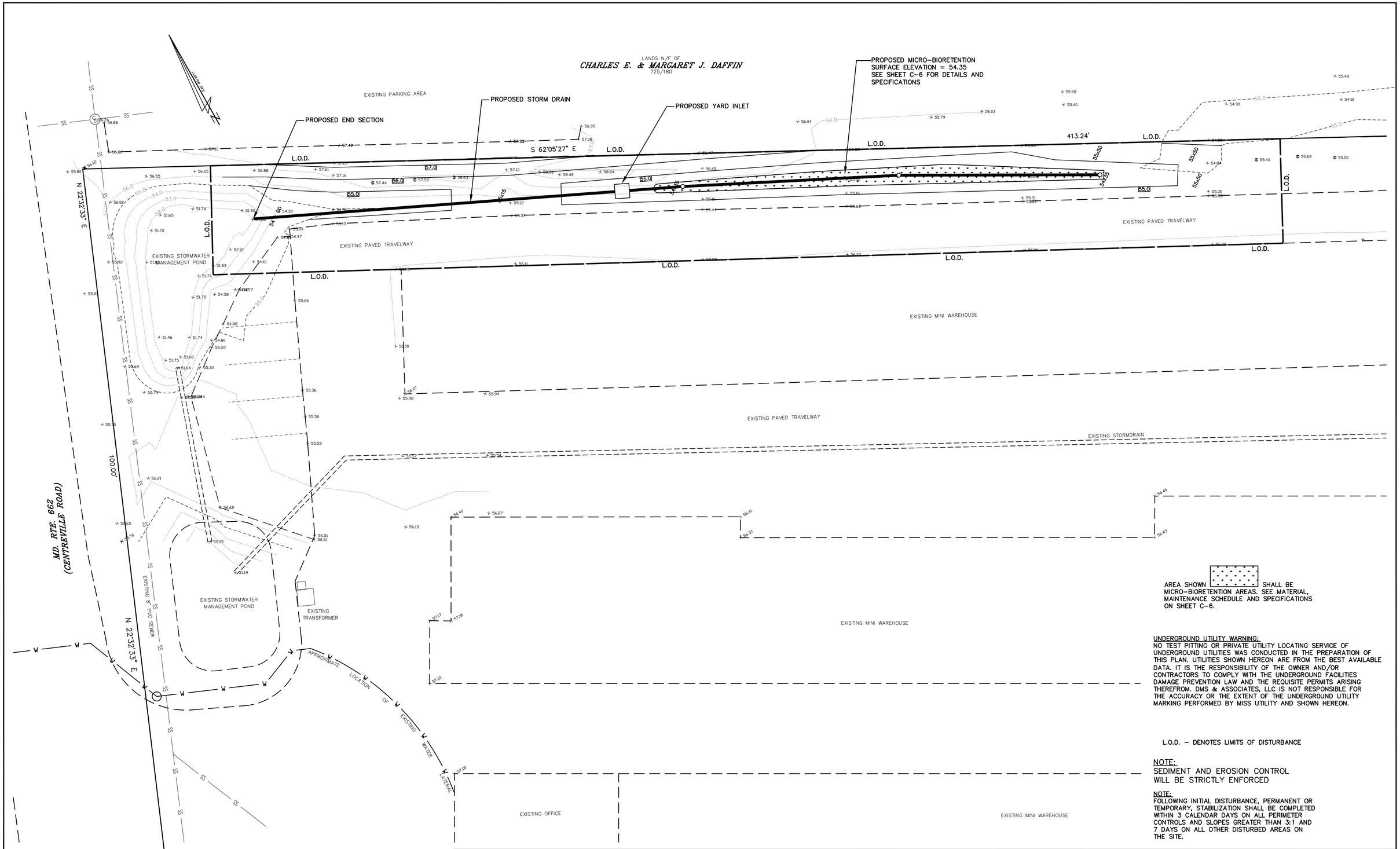
DATE	REVISION

DETAILED SITE PLAN, GRADING, AND STORMWATER MANAGEMENT PLAN

FOR THE DEVELOPMENT OF
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE
ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER
IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND
TAX MAP – 100, GRID – 5, PARCEL – 47

DATE	SCALE
JULY '24	AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-4	
CADD FILE – 22210-C4	



AREA SHOWN SHALL BE MICRO-BIORETENTION AREAS. SEE MATERIAL, MAINTENANCE SCHEDULE AND SPECIFICATIONS ON SHEET C-6.

UNDERGROUND UTILITY WARNING:
NO TEST PITTING OR PRIVATE UTILITY LOCATING SERVICE OF UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF THIS PLAN. UTILITIES SHOWN HEREON ARE FROM THE BEST AVAILABLE DATA. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTORS TO COMPLY WITH THE UNDERGROUND FACILITIES DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.

L.O.D. – DENOTES LIMITS OF DISTURBANCE

NOTE:
SEDIMENT AND EROSION CONTROL WILL BE STRICTLY ENFORCED

NOTE:
FOLLOWING INITIAL DISTURBANCE, PERMANENT OR TEMPORARY, STABILIZATION SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS ON ALL PERIMETER CONTROLS AND SLOPES GREATER THAN 3:1 AND 7 DAYS ON ALL OTHER DISTURBED AREAS ON THE SITE.

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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STATE OF MARYLAND BRANDON A. DAVIS No. 37235 PROFESSIONAL ENGINEER

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DATE	REVISION

DETAILED SITE PLAN, GRADING, AND STORMWATER MANAGEMENT PLAN

FOR THE DEVELOPMENT OF

MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP – 100, GRID – 5, PARCEL – 47

DATE JULY '24	SCALE AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-5	
CADD FILE – 22210-C5	

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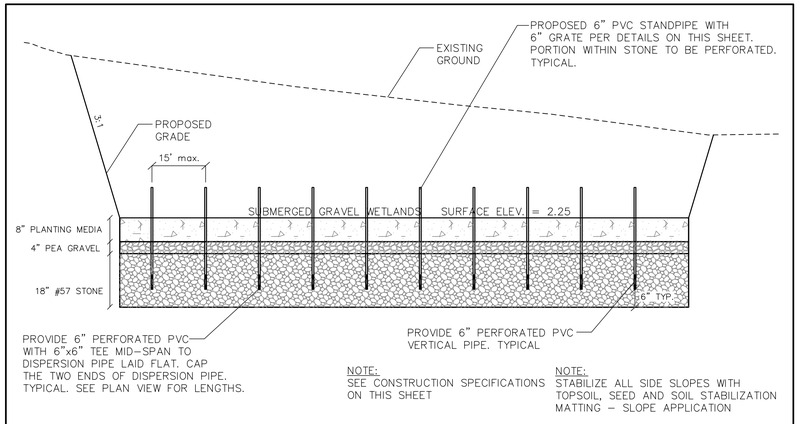
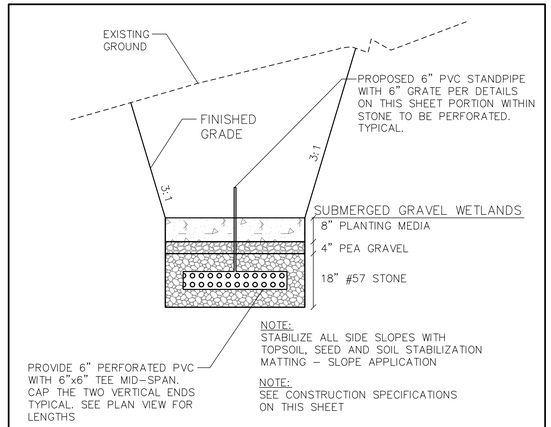
MICRO-BIORETENTION MAINTENANCE SCHEDULE

DESCRIPTION	METHOD	FREQUENCY	TIME OF THE YEAR
SOIL			
INSPECT AND REPAIR EROSION REPLACEMENT OF SOILS IF PONDING TIME EXCEEDS 48 HOURS	VISUAL	MONTHLY	MONTHLY
ORGANIC LAYER			
RE-MULCH ANY VOID AREAS	BY HAND	WHENEVER NEEDED	WHENEVER NEED
REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER (OPTIONAL)	BY HAND	ONCE EVERY TWO TO THREE YEARS	SPRING
ADD FRESH MULCH LAYER	BY HAND	YEARLY	SPRING
PLANTS			
REMOVAL AND REPLACEMENT OF ALL DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT	SEE PLANTING SPECS.	YEARLY	3/15 to 4/30
INSPECT FOR DISEASE/PEST PROBLEMS	VISUAL	ONCE A MONTH (AVERAGE)	INSPECT MORE FREQUENTLY IN WARMER MONTHS
DETERMINE IF TREATMENT IS WARRANTED. USE LEAST TOXIC TREATMENT APPROACH	BY HAND	N/A	VARIES, DEPENDS ON DISEASE OR INSECT INFESTATION
WATERING OF PLANT MATERIAL SHALL TAKE PLACE FOR FOURTEEN CONSECUTIVE DAYS AFTER PLANTING HAS BEEN COMPLETED UNLESS THERE IS SUFFICIENT NATURAL RAINFALL	BY HAND	IMMEDIATELY AFTER COMPLETION OF PROJECT	N/A
REMOVE STAKES AND WIRES AFTER 6 MONTHS	BY HAND	AFTER TREES HAVE TAKEN ROOT	REMOVE STAKES AND WIRES WHEN POSSIBLE, BUT AT LEAST BY SIX MONTHS TIME
REMOVE TAGS AFTER 6 MONTHS	BY HAND	AT END OF WARRANTEE PERIOD	
BERMS			
REPAIR BERM DAMAGE CAUSED BY EROSION OR BY MAINTENANCE ACTIVITIES	BY HAND OR LIGHT EQUIPMENT IF NECESSARY	IMMEDIATELY AFTER COMPLETION OF PROJECT, THEN AS NEEDED	IS IDEAL TO REPAIR AND STABILIZE DURING DRY PERIODS



SUBMERGED GRAVEL WETLANDS TYPICAL SECTION

NOT TO SCALE

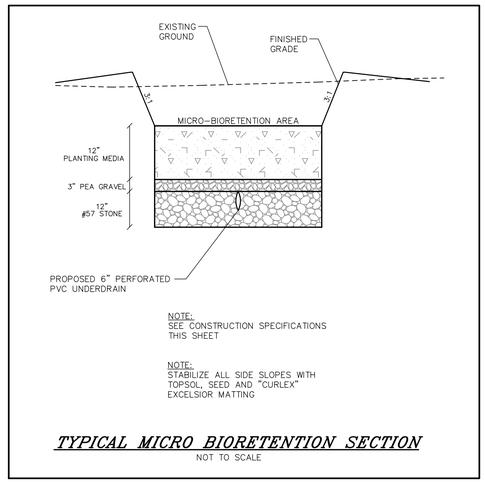


SUBMERGED GRAVEL WETLANDS TYPICAL SECTION

NOT TO SCALE

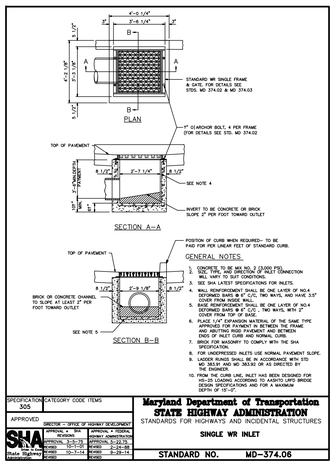
MATERIAL SPECIFICATIONS FOR MICRO-BIORETENTIONS

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE APPENDIX A, TABLE A.4	SEE PLAN	PLANTINGS ARE SITE-SPECIFIC - SEE LANDSCAPE PLAN FOR PLANT SPECIES
PLANTINGS SOILS (2' to 4' DEEP)	LOAMY SAND (60% to 65%) & COMPOST (35% to 40%) or SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5%
ORGANIC CONTENT	Min. 10% BY DRY WEIGHT (ASTM D 2974)		
MULCH	SHREDDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
PEA GRAVEL DIAPHRAGM	PEA GRAVEL; ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
GEOTEXTILE (SIDES ONLY)	SEE APPENDIX A, TABLE A.4	N/A	PE TYPE 1 NONWOVEN
GRAVEL (UNDERDRAINS AND INFILTRATION BERMS)	AASHTO M-43	No. 57 or No. 6 AGGREGATE (3/8" to 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 or AASHTO M-278	4" to 6" RIGID (SCH-40) PVC or SDR-35	SLOTTED OR PERFORATED PIPE; 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX No. 3; f_{c} = 3500 psi @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED: 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 350.R/89, VERTICAL LOADING [H-10 OR H-20]; ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTION ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND
BERM SOIL	UNIFIED SOIL CLASSIFICATION GC, SC, CH or CL		AREA OF PLACEMENT SHALL BE SCARIFIED PRIOR TO PLACEMENT. PLACED IN MAXIMUM OF 8" LIFTS. MATERIAL SHOULD CONTAIN SUFFICIENT MOISTURE SUCH THAT REQUIRED COMPACTION CAN BE OBTAINED WITH THE EQUIPMENT AVAILABLE. IDEAL DENSITY IS 95%.



TYPICAL MICRO BIORETENTION SECTION

NOT TO SCALE

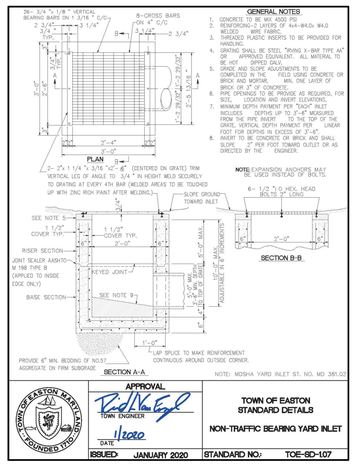


SPECIFICATION	CATEGORY CODE ITEMS
305	
APPROVED	DIRECTOR - OFFICE OF HIGHWAY DEVELOPMENT

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SINGLE WR INLET

STANDARD NO. MD-374.06

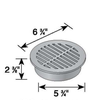


TOWN OF EASTON STANDARD DETAILS

NON-TRAFFIC BEARING YARD INLET

APPROVAL
TOWN ENGINEER
DATE 1/2020

ISSUED: JANUARY 2020 STANDARD NO.: TOE-SD-107



¼" Grate Opening

Part No.	Description	Color	Pkg. Qty.	Wt. Ea. lbs.	Product Class	Specifications
40	6" Round Grate	Black	10	0.49	10ND	6" Round Structural Foam Polyolefin Grate with UV Inhibitor. Open surface area 9.10 square inches. 27.84 GPM.
50	6" Round Grate	Green	10	0.49	10ND	
60	6" Round Grate	Gray	10	0.49	10ND	
60S	6" Round Grate	Sand	10	0.49	10ND	
	Fits Spee-Off Basin, 6" Sewer and Drain Pipe & Fittings and 6" Corrugated Pipe. (see page 74, ADA Compliant/Heel-proof.					

MATERIAL SPECIFICATIONS FOR SUBMERGED GRAVEL WETLANDS

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLAN	SEE PLAN	PLANTINGS ARE SITE-SPECIFIC - SEE LANDSCAPE PLAN FOR PLANT SPECIES
WETLAND MEDIA	LOAMY SAND COMPOST SANDY LOAM, COARSE SAND & COMPOST	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 5% ORGANIC MATER CONTENT SHALL BE GREATER THAN 15% HYDRAULIC CONDUCTIVITY SHALL BE BETWEEN 0.01 AND 0.10 ft/day ONSITE SOIL MAY BE AMENDED AND USED FOR WETLAND MEDIA UPON GEOTECH APPROVAL
PEA GRAVEL DIAPHRAGM	PEA GRAVEL; ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
UNDERDRAIN STONE	AASHTO M-43	No. 57 AGGREGATE (3/8" to 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 or AASHTO M-278	4" to 6" RIGID (SCH-40) PVC or SDR-35	SLOTTED OR PERFORATED PIPE; 3/8" PERF. @ 6" ON CENTER, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES; NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH

S.C.W. MAINTENANCE SCHEDULE

THE FOLLOWING ITEMS SHALL BE ADDRESSED TO ENSURE PROPER MAINTENANCE AND LONG-TERM PERFORMANCE OF SUBMERGED GRAVEL WETLANDS:

INSPECTION AND MAINTENANCE:

1st YEAR POST-CONSTRUCTION:
INSPECTION FREQUENCY SHALL BE AFTER EVERY MAJOR STORM IN THE FIRST YEAR FOLLOWING CONSTRUCTION.

- INSPECT TO BE CERTAIN SYSTEM DRAINS WITHIN 24-72 hrs.(WITHIN THE DESIGN PERIOD, BUT ALSO NOT SO QUICKLY AS TO MINIMIZE STORMWATER MANAGEMENT
- WATERING PLANTS AS NECESSARY DURING THE FIRST GROWING SEASON
- RE-VEGETATING POORLY ESTABLISHED AREAS AS NECESSARY
- TREATING DISEASED VEGETATION AS NECESSARY
- QUARTERLY INSPECTION OF SOIL AND REPAIRING ERODED AREAS, ESPECIALLY ON SLOPES.
- CHECKING INLETS, OUTLETS AND OVERFLOW SPILLWAY FOR BLOCKAGE, STRUCTURAL INTEGRITY AND EVIDENCE OF EROSION & SEDIMENTATION.

POST-CONSTRUCTION:
INSPECTION FREQUENCY SHALL BE AT LEAST EVERY 6 MONTHS THEREAFTER, AS PER USEPA GOOD HOUSE-KEEPING REQUIREMENTS. INSPECTION FREQUENCY CAN BE REDUCED TO ANNUAL FOLLOWING 2 YEARS OF MONITORING THAT INDICATES THE RATE OF SEDIMENT ACCUMULATION IS LESS THAN THE CLEANING CRITERIA LISTED BELOW. INSPECTIONS SHALL FOCUS ON:

- CHECKING THE FILTER SURFACE FOR DENSE COMPLETE, ROOT MAT ESTABLISHMENT ACROSS THE WETLAND SURFACE. THOROUGH REVEGETAION WITH GRASSES, FORBS AND SHRUBS IS NECESSARY. UNLIKE BIORETENTION, WHERE MULCH IS COMMONLY USED, COMPLETE SURFACE COVERAGE WITH VEGETATION IS NEEDED.
- CHECKING THE GRAVEL WETLAND SURFACE FOR STANDING WATER OR OTHER EVIDENCE OF RISER CLOGGING, SUCH AS DISCOLORED OR ACCUMULATED SEDIMENTS.
- CHECKING THE SEDIMENTATION CHAMBER OR FOREBAY FOR SEDIMENT ACCUMULATION, TRASH AND DEBRIS.
- INSPECT TO BE CERTAIN SEDIMENTATION FOREBAY DRAINS WITHIN 24 TO 72 hrs.
- CHECKING INLETS, OUTLETS AND OVERFLOW SPILLWAY FOR BLOCKAGE, STRUCTURAL INTEGRITY AND EVIDENCE OF EROSION.
- REMOVAL OF DECAYING VEGETATION, LITTER, DEBRIS, INVASIVE SPECIES AND WOODY VEGETATION.

CLEANING CRITERIA FOR GRAVEL WETLAND TREATMENT CELLS:
SEDIMENT SHALL BE REMOVED FROM THE GRAVEL WETLAND SURFACE WHEN IT ACCUMULATES TO A DEPTH OF SEVERAL INCHES (>10 cm) ACROSS THE WETLAND SURFACE. MATERIALS SHOULD BE REMOVED WITH RAKES RATHER THAN HEAVY CONSTRUCTION EQUIPMENT TO AVOID COMPACTION OF THE GRAVEL WETLAND SURFACE. HEAVY EQUIPMENT COULD BE USED IF THE SYSTEM IS DESIGNED WITH DIMENSIONS THAT ALLOW EQUIPMENT TO BE LOCATED OUTSIDE THE GRAVEL WETLAND, WHILE A BACKHOE SHOVEL REACHES INSIDE THE GRAVEL WETLAND TO REMOVE SEDIMENT. REMOVED SEDIMENTS SHALL BE DEWATERED (IF NECESSARY) AND DISPOSED OF IN AN ACCEPTABLE MANNER.

DRAINING AND FLUSHING GRAVEL WETLAND TREATMENT CELLS:
FOR MAINTENANCE IT MAY BE NECESSARY TO DRAIN OR FLUSH THE TREATMENT CELLS. PUMP OUT WATER FROM THE SYSTEM FROM THE NYLOPLAST HYDRAULIC CONTROL STRUCTURE AND FROM OTHER YARD GRATES. FLUSHING THE RISERS AND HORIZONTAL SUBDRAINS IS THE MOST EFFECTIVE WITH THE ENTIRE SYSTEM DRAINED. FLUSHED WATER AND SEDIMENT SHALL BE COLLECTED AND PROPERLY DISPOSED.

B.4.C Specifications for Micro-Bioretention

1. Materials Specifications

The allowable materials to be used in bioretention area are detailed in Table B.4.1

2. Filtering Media or Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet following criteria:

- –Soil Component – Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- –Organic Content – Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60%–65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%).
- –Clay Content – Media shall have a clay content of less than 5%.
- –pH Range – Should be between 5.5 – 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. Compaction

It is very important to minimize compaction of both the base of bioretention practices and the required backfill. When possible, use excavation hoes to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires,rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

4. Plant Material

Recommended plant material for micro-bioretention areas can be found in Appendix A.

5. Plant Installation

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". 3?. Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant materials shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

6. Underdrains

Underdrains should meet the following criteria:

- –Pipe–Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or AASHTO–M–278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).
- –Perforations–If perforated pipe is used, perforations should be 3" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a ¼" (No. 4 or 4x4) galvanized hardware cloth.
- –Gravel–The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.
- –The main collector pipe shall be at a minimum 0.5% slope.
- –A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to provide a clean–out port and monitor performance of the filter.
- –A 4" layer of pea gravel (1/8" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5% Observation wells and/or clean–out pipes must be provided (one minimum per every 1000 square feet of surface area).

7. Miscellaneous

The bioretention facility may not be constructed until all contributing drainage area has been stabilized.

INSPECTION REQUIREMENTS DURING CONSTRUCTION

THE CONTRACTOR SHALL NOTIFY THE TOWN OF EASTON ENGINEERING DEPARTMENT AT 410-820-8822, THREE (3) DAYS IN ADVANCE OF BEGINNING CONSTRUCTION FOR THE FOLLOWING:

FOR MICRO-BIORETENTION AREA:
(a) DURING EXCAVATION TO SUBGRADE
(b) DURING PLACEMENT OF BACKFILL OF UNDERDRAIN SYSTEMS;
(c) DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA
(d) DURING CONSTRUCTION OF ANY APPURTENANT CONVEYANCE SYSTEMS SUCH AS STORMDRAIN SYSTEMS, INLETS, OUTLETS, AND FLOW DISTRIBUTION STRUCTURES.
(e) UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.

FOR SUBMERGED GRAVEL WETLAND:
(a) DURING EXCAVATION TO SUBGRADE
(b) DURING PLACEMENT OF BACKFILL OF PERFORATED INLET PIPE AND OBSERVATION WELLS
(c) DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA AS APPLICABLE
(d) DURING CONSTRUCTION OF ANY APPURTENANT CONVEYANCE SYSTEMS SUCH AS DIVERSION STRUCTURES, INLETS, OUTLETS, AND FLOW DISTRIBUTION STRUCTURES.
(e) UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION, AND BEFORE ALLOWING RUNOFF TO ENTER THE WETLAND.

FOR STORMDRAINS:
(a) DURING EXCAVATION TO SUBGRADE
(b) DURING PLACEMENT OF PIPES
(c) DURING CONSTRUCTION OF ANY APPURTENANT CONVEYANCE SYSTEMS
(d) DURING COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION

FOR QUANTITY CONTROL AREAS:
(a) DURING EXCAVATION
(b) DURING BERM INSTALLATION
(c) DURING INSTALLATION OF PIPES, STRUCTURES, AND OVERFLOW WEIRS
(d) DURING CONSTRUCTION OF ANY APPURTENANT CONVEYANCE SYSTEMS
(e) DURING COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION

FINAL GRADING

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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. 37235 EXPIRATION DATE: 6-2026

STATE OF MARYLAND · BRADON A. SIVEK · No. 37235 · PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN,
ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

STORMWATER MANAGEMENT SPECIFICATIONS AND DETAILS

FOR THE DEVELOPMENT OF

MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP – 100, GRID – 5, PARCEL – 47

DATE	SCALE
JULY '24	AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-6	
CADD FILE – 22210-C6	

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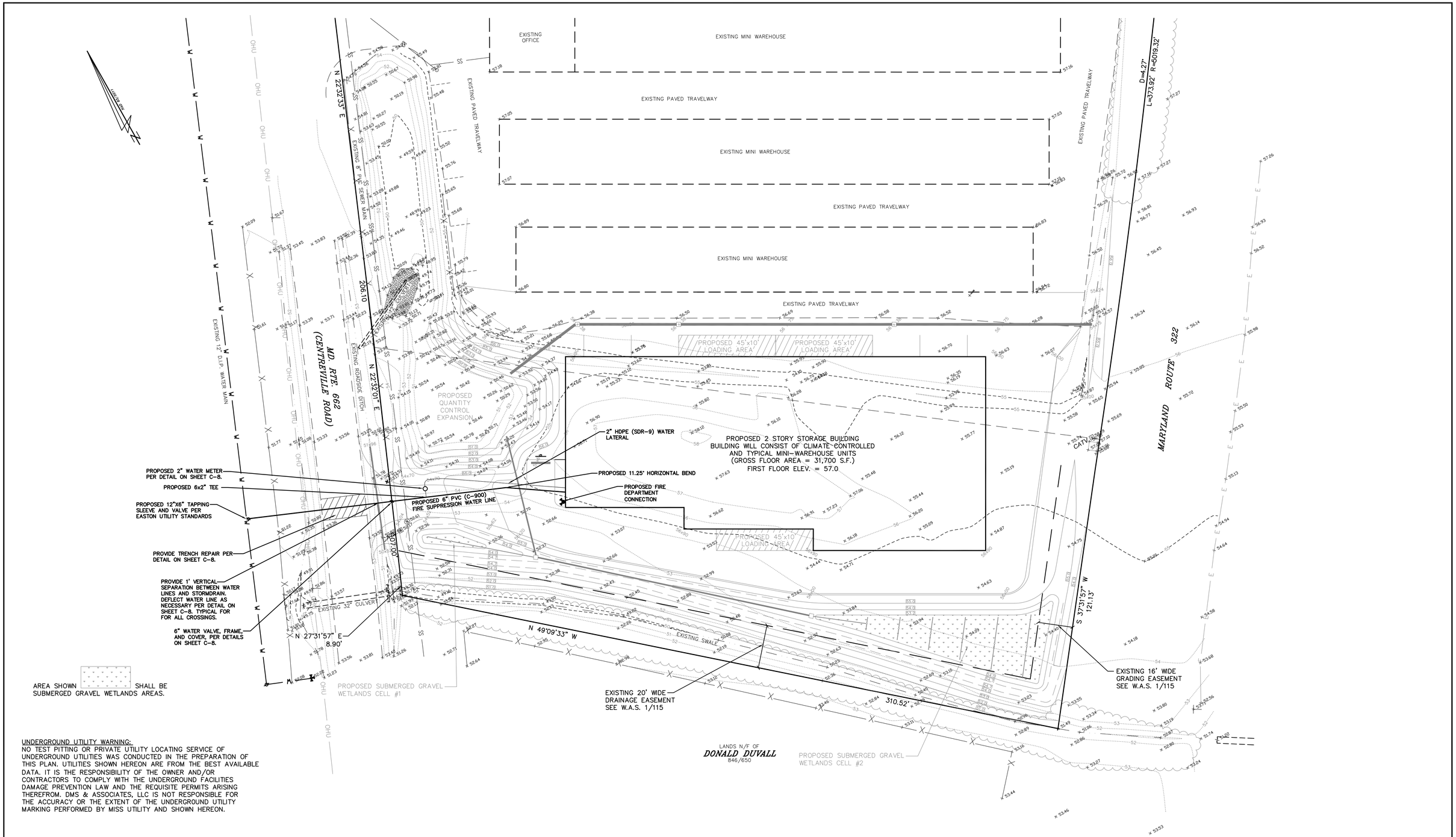

UNDERGROUND UTILITY WARNING:
NO TEST PITTING OR PRIVATE UTILITY LOCATING SERVICE OF UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF THIS PLAN. UTILITIES SHOWN HEREON ARE FROM THE BEST AVAILABLE DATA. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTORS TO COMPLY WITH THE UNDERGROUND FACILITIES DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.

GRAPHIC SCALE
10 0 10 10 10
1 inch = 20 ft.

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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. 37235 EXPIRATION DATE: 6-2026

STATE OF MARYLAND BRANDON A. DAVIS No. 37235 PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

UTILITY PLAN

FOR THE DEVELOPMENT OF
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE
ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER
IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND
TAX MAP – 100, GRID – 5, PARCEL – 47

DATE JULY '24	SCALE AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-7	
CADD FILE – 22210-C7	

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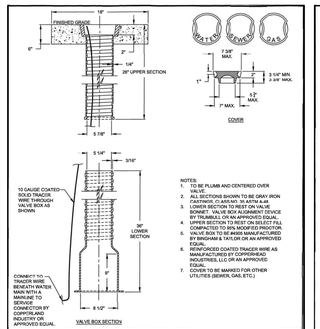
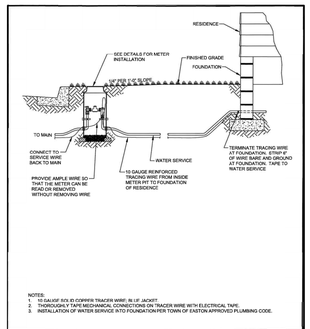
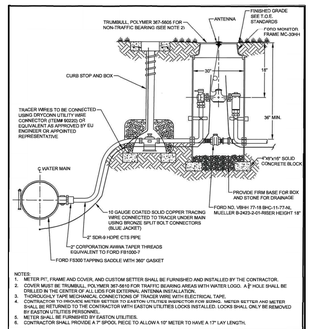


APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		SCREW TYPE VALVE BOX
ISSUED: JANUARY 2024		STANDARD NO.: W-102.3



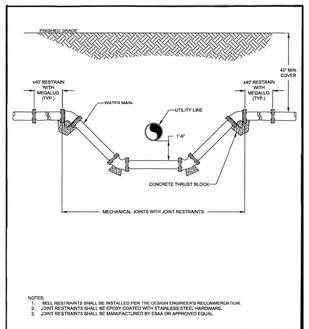
NOTES:
1. 10 GAUGE SOLID COPPER TRACER WIRE IN LIF. JACKET.
2. THOROUGHLY TAPE MECHANICAL CONNECTIONS ON TRACER WIRE WITH ELECTRICAL TAPE.
3. INSTALLATION OF WATER SERVICE INTO FOUNDATION PER TOWN OF EASTON APPROVED PLUMBING CODE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		WATER SERVICE CONNECTION
ISSUED: JANUARY 2024		STANDARD NO.: W-103.4



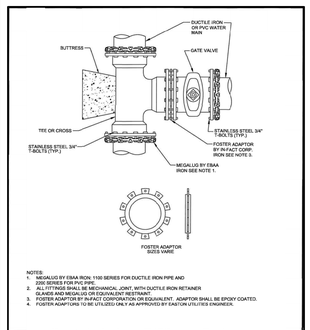
NOTES:
1. METER PIT, FRAME AND COVER, AND CUSTOM SETTER SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
2. COVER MUST BE TRUMBULL, POLYMER 367-5810 FOR TRAFFIC BEARING AREAS WITH WATER LOGO. A 3/4" HOLE SHALL BE DRILLED IN THE CENTER OF ALL LIDS FOR EXTERNAL ANTENNA INSTALLATION.
3. THOROUGHLY TAPE MECHANICAL CONNECTIONS OF TRACER WIRE WITH ELECTRICAL TAPE.
4. ALL METER PITS, FRAMES AND COVERS, AND CUSTOM SETTER 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	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		2" WATER SERVICE INSTALLATION
ISSUED: JANUARY 2024		STANDARD NO.: W-103.2



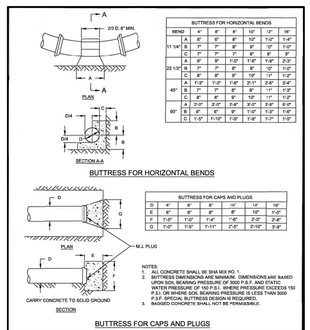
NOTES:
1. BELL RESTRAINTS SHALL BE INSTALLED PER THE DESIGN ENGINEER'S RECOMMENDATION.
2. JOINT RESTRAINTS SHALL BE EPOXY COATED WITH STAINLESS STEEL HARDWARE.
3. JOINT RESTRAINTS SHALL BE MANUFACTURED BY EBAA OR APPROVED EQUAL.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		WATER MAIN DEFLECTION
ISSUED: JANUARY 2024		STANDARD NO.: W-100.3



NOTES:
1. MEGALUG BY EBAA IRON 1100 SERIES FOR DUCTILE IRON PIPE AND 3000 SERIES FOR PVC PIPE.
2. ALL FITTINGS SHALL BE MECHANICAL JOINT, WITH DUCTILE IRON RETAINER GLANDS AND MEGALUG OR EQUIVALENT RESTRAINT.
3. FOSTER ADAPTOR BY PA-FACT CORPORATION OR EQUIVALENT. ADAPTOR SHALL BE EPOXY COATED.
4. FOSTER ADAPTORS TO BE UTILIZED ONLY AS APPROVED BY EASTON UTILITIES ENGINEER.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		MJ x MJ ADAPTOR
ISSUED: JANUARY 2024		STANDARD NO.: W-101.4



BUTTRESS FOR HORIZONTAL BENDS

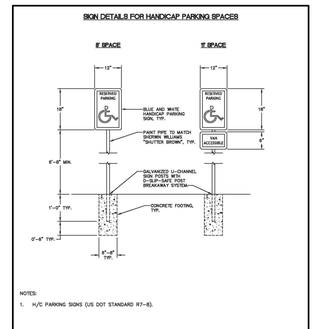
BEND		4"	6"	8"	10"	12"	16"
11 1/4°	A	6"	6"	6"	10"	1'-0"	1'-4"
	B	7"	7"	9"	9"	10"	11'0"
	C	7"	7"	7"	8"	8"	9"
22 1/2°	A	9"	9"	1'-0"	1'-6"	1'-9"	2'-3"
	B	7"	7"	8"	9"	10"	1'-0"
	C	8"	8"	9"	10"	1'1"	1'-3"
45°	A	1'-3"	1'-3"	1'-6"	2'-1"	2'-6"	3'-4"
	B	7"	7"	8"	9"	1'1"	1'-3"
	C	8"	8"	9"	10"	1'1"	1'-3"
90°	A	2'-0"	2'-0"	2'-6"	3'-0"	3'-6"	5'-0"
	B	8"	8"	9"	1'-0"	1'-3"	1'-6"
	C	1'-0"	1'-10"	1'-0"	1'-6"	1'-7"	1'-9"

BUTTRESS FOR CAPS AND PLUGS

	4"	6"	8"	10"	12"	16"
G	6"	6"	6"	8"	10"	1'-0"
E	6"	6"	6"	8"	10"	1'-0"
F	1'-0"	1'-0"	1'-6"	1'-6"	2'-0"	2'-6"
Q	1'-0"	1'-0"	1'-1'1"	2'-0"	2'-10"	3'-6"

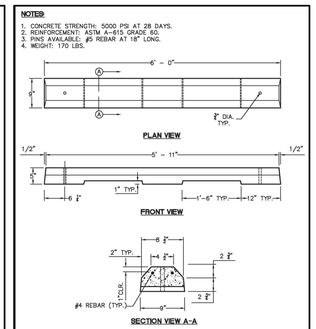
NOTES:
1. ALL CONCRETE SHALL BE SHA MIX NO. 3.
2. BUTTRESS DIMENSIONS ARE MINIMUM. DIMENSIONS ARE BASED UPON SOIL BEARING PRESSURE OF 1000 P.S.F. AND STATIC WATER PRESSURE OF 150 P.S.I. WHERE PRESSURE EXCEEDS 150 P.S.I. OR WHERE SOIL BEARING PRESSURE IS LESS THAN 1000 P.S.F. SPECIAL BUTTRESS DESIGN IS REQUIRED.
3. BACKED CONCRETE SHALL NOT BE "FORMISSIBLE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		BUTTRESSES FOR CAPS AND HORIZONTAL BENDS
ISSUED: JANUARY 2024		STANDARD NO.: W-101.1



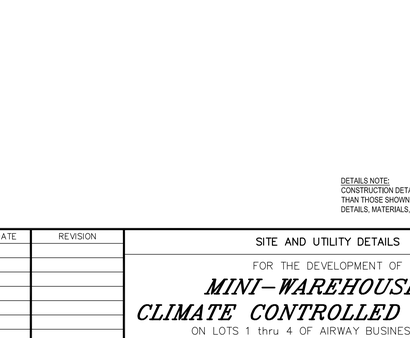
NOTES:
1. H/C PARKING SIGNS (US DOT STANDARD R7-8).

APPROVAL	REVISED	TOWN OF EASTON STANDARD DETAILS
TOWN ENGINEER DATE: 11/2020		SIGN DETAILS FOR HANDICAP PARKING SPACES
ISSUED: JANUARY 2020		STANDARD NO.: TOE-SI-4.01



NOTES:
1. CONCRETE STRENGTH: 5000 PSI AT 28 DAYS.
2. REINFORCEMENT: ASTM A-615, GRADE 60.
3. PINS AVAILABLE: #5 REBAR AT 18" LONG.
4. WEIGHT: 170 LBS.

APPROVAL	REVISED	TOWN OF EASTON STANDARD DETAILS
TOWN ENGINEER DATE: 11/2020		6" PRECAST CONCRETE WHEEL STOP
ISSUED: JANUARY 2020		STANDARD NO.: TOE-SI-5.01



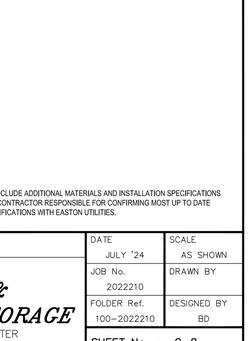
NOTE:
1. REVISE TO MEET PROJECT AND LOCAL JURISDICTION REQUIREMENTS AND GEOTECHNICAL REQUIREMENTS. THE MINIMUM REQUIRED THICKNESS ARE SHOWN IN THE DETAIL.

2. PROOF ROLL PREPARED SUBBASE SURFACE TO CHECK FOR UNSTABLE AREAS AND AREAS REQUIRING ADDITIONAL COMPACTION. NOTIFY ENGINEER OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

3. RECOMMEND A VERIFICATION WITH A GEOTECHNICAL ENGINEER FOR PAVEMENT THICKNESS.

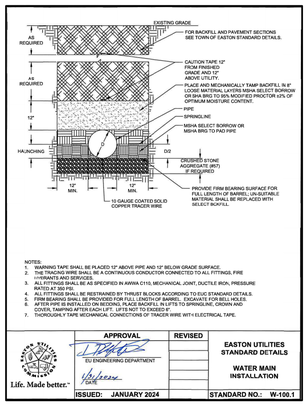
STANDARD ASPHALT PAVEMENT DETAIL

NOT TO SCALE



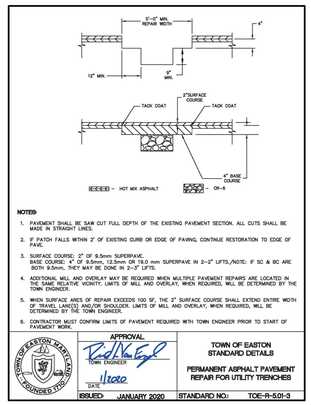
PIPE BOLLARD DETAIL

NOT TO SCALE



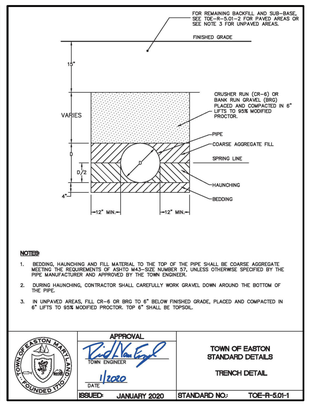
NOTES:
1. WARNING TAPE SHALL BE PLACED 12" ABOVE PIPE AND 12" BELOW GRADE SURFACE.
2. THE TRACING WIRE SHALL BE A CONTINUOUS CONDUCTOR CONNECTED TO ALL FITTINGS, FIRE HYDRANTS AND SERVICES.
3. ALL FITTINGS SHALL BE AS SPECIFIED IN AWWA C110, MECHANICAL JOINT, DUCTILE IRON, PRESSURE CLASS 350.
4. ALL FITTINGS SHALL BE RESTRAINED BY THRUST BLOCKS ACCORDING TO EUC STANDARD DETAILS.
5. FIRM BEARING SHALL BE PROVIDED FOR FULL LENGTH OF BARREL. EXCAVATE FOR BELL HOLES.
6. AFTER PIPE IS INSTALLED ON BEDDING, PLACE BACKFILL IN LIFTS TO SPRINGLINE, CROWN AND COVER, TAMPING AFTER EACH LIFT. LIFTS NOT TO EXCEED 6".
7. THOROUGHLY TAPE MECHANICAL CONNECTIONS OF TRACER WIRE WITH ELECTRICAL TAPE.

APPROVAL	REVISED	EASTON UTILITIES STANDARD DETAILS
EU ENGINEERING DEPARTMENT DATE: 12/1/2023		WATER MAIN INSTALLATION
ISSUED: JANUARY 2024		STANDARD NO.: W-100.1



NOTES:
1. PAVEMENT SHALL BE SAW CUT FULL DEPTH OF THE EXISTING PAVEMENT SECTION. ALL CUTS SHALL BE MADE IN STRAIGHT LINES.
2. IF PATCH FALLS WITHIN 2' OF EXISTING CURB OR EDGE OF PAVING, CONTINUE RESTORATION TO EDGE OF PAVE.
3. SURFACE COURSE: 3" 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 2-3" 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 AREA OF REPAIR EXCEEDS 100 SF, THE 3" 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	REVISED	TOWN OF EASTON STANDARD DETAILS
TOWN ENGINEER DATE: 11/2020		PERMANENT ASPHALT PAVEMENT REPAIR FOR UTILITY TRENCHES
ISSUED: JANUARY 2020		STANDARD NO.: TOE-R-501-3



NOTES:
1. BEDDING, HAUNCHING AND FILL MATERIAL TO THE TOP OF THE PIPE SHALL BE COARSE AGGREGATE MEETING THE REQUIREMENTS OF ASHTO #43-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	REVISED	TOWN OF EASTON STANDARD DETAILS
TOWN ENGINEER DATE: 11/2020		TRENCH DETAIL
ISSUED: JANUARY 2020		STANDARD NO.: TOE-R-501-1

DETAILS NOTE:
CONSTRUCTION DETAILS MAY INCLUDE ADDITIONAL MATERIALS AND INSTALLATION SPECIFICATIONS THAN THOSE SHOWN HEREON. CONTRACTOR RESPONSIBLE FOR CONFIRMING MOST UP TO DATE DETAILS, MATERIALS, AND SPECIFICATIONS WITH EASTON UTILITIES.

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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. 37235 EXPIRATION DATE: 6-2026

STATE OF MARYLAND · BRENDON A. DAVIS · No. 37235 · PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN,
ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

SITE AND UTILITY DETAILS

FOR THE DEVELOPMENT OF

MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP – 100, GRID – 5, PARCEL – 47

DATE	SCALE
JULY '24	AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – C-8	
CADD FILE – 22210-C8	

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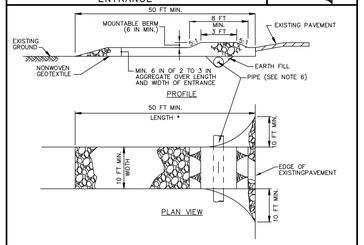
DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

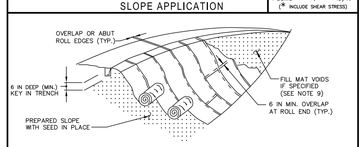
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*50 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

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 B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: PSSMS — ★ lb/ft² (★ INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

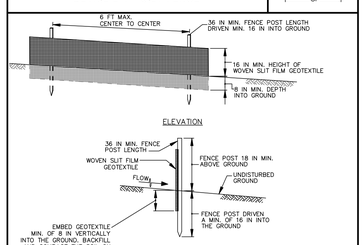
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE SOFTWOOD HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS, OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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



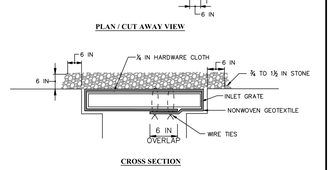
1 OF 2

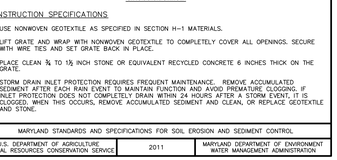
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP





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.

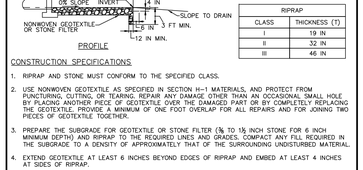
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL D-4-1-B ROCK OUTLET PROTECTION II

STANDARD SYMBOL: ROPII

DISCHARGE TO CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

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 1⅜ X 1⅜ ± 1/8 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

CONSTRUCTION SPECIFICATIONS

(MAXIMUM) SLOPE STEEPNESS LENGTH	(MAXIMUM) SLOPE LENGTH	SLOPE LENGTH
FLATTER THAN 50:1	UNLIMITED	UNLIMITED
50:1 to 10:1	125 ft.	1,000 ft.
10:1 to 5:1	100 ft.	750 ft.
5:1 to 3:1	60 ft.	500 ft.
3:1 to 2:1	40 ft.	250 ft.
2:1 AND STEEP	20 ft.	125 ft.

NOTE: IN AREAS LESS THAN 2% SLOPE AND SANDY SOILS (USDA FEDERAL CLASSIFICATION SYSTEM, SOIL CLASS A), MAXIMUM SLOPE LENGTH AND SILT FENCE LENGTH WILL BE UNLIMITED. IN THESE AREAS, SILT FENCE MAY BE THE ONLY PERIMETER CONTROL REQUIRED.

GENERAL NOTES

1. Notification of Talbot County Soil Conservation District (410-822-1577) at least five (5) days prior to the start of work.
2. Prior to the start of work, the Contractor is to obtain Town approval of any proposed plan changes and sequence of construction, specifically relating to installation, inspection, maintenance and removal of erosion and sediment control measures.
3. Sediment control measures are not to be removed until the areas served have established vegetative cover, or with the permission of the Talbot County Sediment Control Inspector.
4. When pumping sediment-laden water, the discharge must be directed to an approved sediment trapping measure prior to release from the site.
5. All temporary stockpiles are to be located within areas protected by sediment control measures, and are to be temporary stabilized.
6. All sediment control dikes, swales, basins and flow lines to basins will be temporarily seeded immediately upon installation to reduce the contribution to sediment loading.
7. Disposal of excess earth materials on State or Federal property requires MDE Approval, otherwise materials are to be disposed of at a location approved by the local authority.
8. Temporary soil erosion control and sediment control measures are to be provided as per the approved plan prior to grading operations. Location adjustments are to be made in the field as necessary. The minimum area practical shall be disturbed for the minimum possible time.
9. If grading is completed out of a seeding season, graded areas are to be temporarily stabilized by mulch and mulch anchoring. Mulch material shall be unweathered, unchopped small grain straw spread at the rate of 2 to 2-1/2 tons per acre. Mulch anchoring to be accomplished by an approved method, use of a mulch anchoring tool is recommended where possible.
10. Implementation of the sediment control plan shall be in accordance with the "2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control", of the Department.
11. The Contractor is responsible for implementation and maintenance of the approved plan, and all other measures necessary to control, filter, or prevent sediment from leaving the site.
12. In case where stormwater management structures are a part of site development, removal of sediment control structures may not be accomplished before the contributing drainage area to the stormwater management structure is dewatered and stabilized.
13. On sites where infiltration techniques are utilized for the control of stormwater, extreme care must be taken to prevent all runoff from entering the structure during construction.
14. Sediment control for utility construction in areas outside of designed controls:
    (a) Excavated trench material shall be placed on the high side of the trench.
    (b) Immediately following pipe installation the trench shall be backfilled, compacted and stabilized at the end of each working day.
    (c) Temporary silt fence or straw bale dikes shall be placed immediately downstream of any disturbed area intended to remain disturbed longer than one working day.
15. All points on construction ingress and egress shall be protected to prevent tracking of mud onto public ways.
16. Site information:

Total Area of Site	3.784 Acres
Area Of Total Disturbance	1.512 Acres
For New Building	1.359 Acres
For SWM Retrofit	0.153 Acres
Area to be Roofed or Paved	0.873 Acres
Total Cut	650 cy*
Total Fill	400 cy*

* CUT AND FILL AMOUNTS ARE APPROXIMATE. THE CONTRACTOR SHALL DO A SEPARATE TAKE-OFF

PHASE OF CONSTRUCTION

1. CONTACT THE MARYLAND DEPARTMENT OF THE ENVIRONMENT SEDIMENT AND EROSION CONTROL INSPECTOR AT 1-410-901-4020 AND TOWN OF EASTON AT 1-410-820-8822 A MINIMUM OF TWO (2) WEEKS PRIOR TO THE START OF CONSTRUCTION TO SCHEDULE A PRECONSTRUCTION MEETING.
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AT LOCATION SHOWN.
3. INSTALL PERIMETER SILT FENCE AT LOCATIONS SHOWN. MAINTAIN THROUGHOUT THE LIFE OF THE PROJECT.
4. STRIP TOPSOIL FROM THE LIMITS OF DISTURBANCE, REMOVE EXISTING GRAVEL AND DISPOSE OF OFF SITE AT AN APPROVED LANDFILL LOCATION.
5. IMPORT FILL FOR BUILDING PAD AND BEGIN BUILDING CONSTRUCTION.
6. INSTALL PROPOSED STORMDRAIN AND ROOF LEADERS. INSTALL INLET PROTECTION.
7. REMOVE EXISTING PAVE AS NEEDED AND GRADE TRAVEL WAYS AND WALKWAYS WITH COMPACTED SUBBASE.
8. INSTALL WATER LINE.
9. INSTALL CR-6 BASE FOR TRAVELWAYS.
10. ONCE CONTRIBUTING DRAINAGE AREAS ARE ADEQUATELY STABILIZED AND AFTER NOTIFYING THE TOWN OF EASTON SWM INSPECTOR, INSTALL STORMWATER MANAGEMENT PRACTICES. INSTALL RIPRAP PROTECTION AND CONNECT ROOF LEADERS TO SWM AREAS AS APPLICABLE.
11. INSTALL CONCRETE WALK.
12. INSTALL BITUMINOUS CONCRETE BASE COURSE.
13. FINE GRADE ALL AREAS PER DESIGN GRADES AND REMOVE ALL EXCESS TOPSOIL AND OR FILL MATERIAL FROM THE SITE. STABILIZE ALL DISTURBED AREAS WITH TOPSOIL, SEED AND MULCH. INSTALL ALL LANDSCAPING AND SWM PLANTINGS.
14. INSTALL BITUMINOUS CONCRETE SURFACE COURSE.
15. UPON APPROVAL FROM THE MARYLAND DEPARTMENT OF THE ENVIRONMENT INSPECTOR, REMOVE ALL TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES AND STABILIZE ALL DISTURBED AREAS PER PERMANENT STABILIZATION SPECIFICATIONS FOUND ON THIS SHEET.

EROSION & 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 days (7) as to all other disturbed or graded areas on the project site.

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 rye grass shall be applied at a rate of 50 lbs. per acre using suitable equipment. Mulching shall be accomplished immediately after seeding

Seed Mixture (For Hazard Zone 7a) (From Table B-1)					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYE GRASS	50 lbs.	2/15-4/30 8/15-11/30	1/2"	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
	BARLEY	96 lbs.	2/15-4/30, 8/15-11/30	1"		
	OATS	72 lbs.	2/15-4/30, 8/15-11/30	1"		
	WHEAT	120 lbs.	2/15-4/30, 8/15-11/30	1"		
	CEREAL RYE	112 lbs.	2/15-4/30, 8/15-12/15	1"		
	FOXTAIL MILLET	30 lbs.	5/1-8/14	1/2"		
	PEARL MILLET	20 lbs.	5/1-8/14			

6.) Mulching shall be unchopped, unrotted, small grain straw applied at a rate of 2-2 1/2 tons per acre. Anchor mulch with a mulch anchoring tool on the contour. Wood cellulose fiber may be used for anchoring straw at 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 manufacture 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 be disking or other suitable means. Mulching shall be accomplished as discussed in Item #6 of these specifications.

Seed Mixture (For Hazard Zone 7a) (From Table B-3)					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	N	P205	K20	
7	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60 lbs 15 lbs.	3/1-5/15 8/15-10/15	1/4" to 1/2"	45 lb/ac 1 lb/ 1000 sf	90 lb/ac 2 lb/ 1000 sf	90 lb/ac 2 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
8	TALL FESCUE	100 lbs.	3/1-5/15 8/15-10/15	1/4" to 1/2"				
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60 lbs 40 lbs. 20 lbs.	3/1-5/15 8/15-10/15	1/4" to 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 the Subcontractor.

THE FOLLOWING ITEMS HAVE BEEN ADDRESSED TO MEET THE REQUIREMENTS OF THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY (NPDES NUMBER MDR10, STATE DISCHARGE PERMIT NUMBER 09GP).

1. UTILIZATION OF ENVIRONMENTAL SITE DESIGN.
2. MAINTENANCE OF LIMITS OF DISTURBANCE TO PROTECT NATURAL AREAS
3. CONTROL OF CONSTRUCTION EQUIPMENT AND VEHICLES
4. EVALUATION AND APPROPRIATE LIMITATION OF SITE CLEARING
5. EVALUATION AND DESIGNATION OF SITE AREA FOR PHASING AND SEQUENCING
6. IDENTIFICATION OF SOILS AT HIGH RISK FOR EROSION AND ADVANCED STABILIZATION TECHNIQUES TO BE USED
7. IDENTIFICATION OF STEEP SLOPES AND DESIGNATION OF LIMITATIONS ON CLEARING THEM
8. EVALUATION AND DESIGNATION OF STABILIZATION REQUIREMENTS AND TIME LIMITS AND PROTECTION MEASURES FOR DISCHARGES TO THE CHESAPEAKE BAY, IMPAIRED WATERS OR WATERS WITH AN ESTABLISHED TOTAL MAXIMUM DAILY LOAD (TMDL).

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES - ENGINEER

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. 37235 EXPIRATION DATE: 6-2026

STATE OF MARYLAND · BRADON A. DAVIS · No. 37235 · PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN, ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

SEDIMENT & EROSION CONTROL DETAILS AND SPECIFICATIONS

FOR THE DEVELOPMENT OF

MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP - 100, GRID - 5, PARCEL - 47

DATE	SCALE
JULY '24	AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. - C-9	
CADD FILE - 22210-C9	

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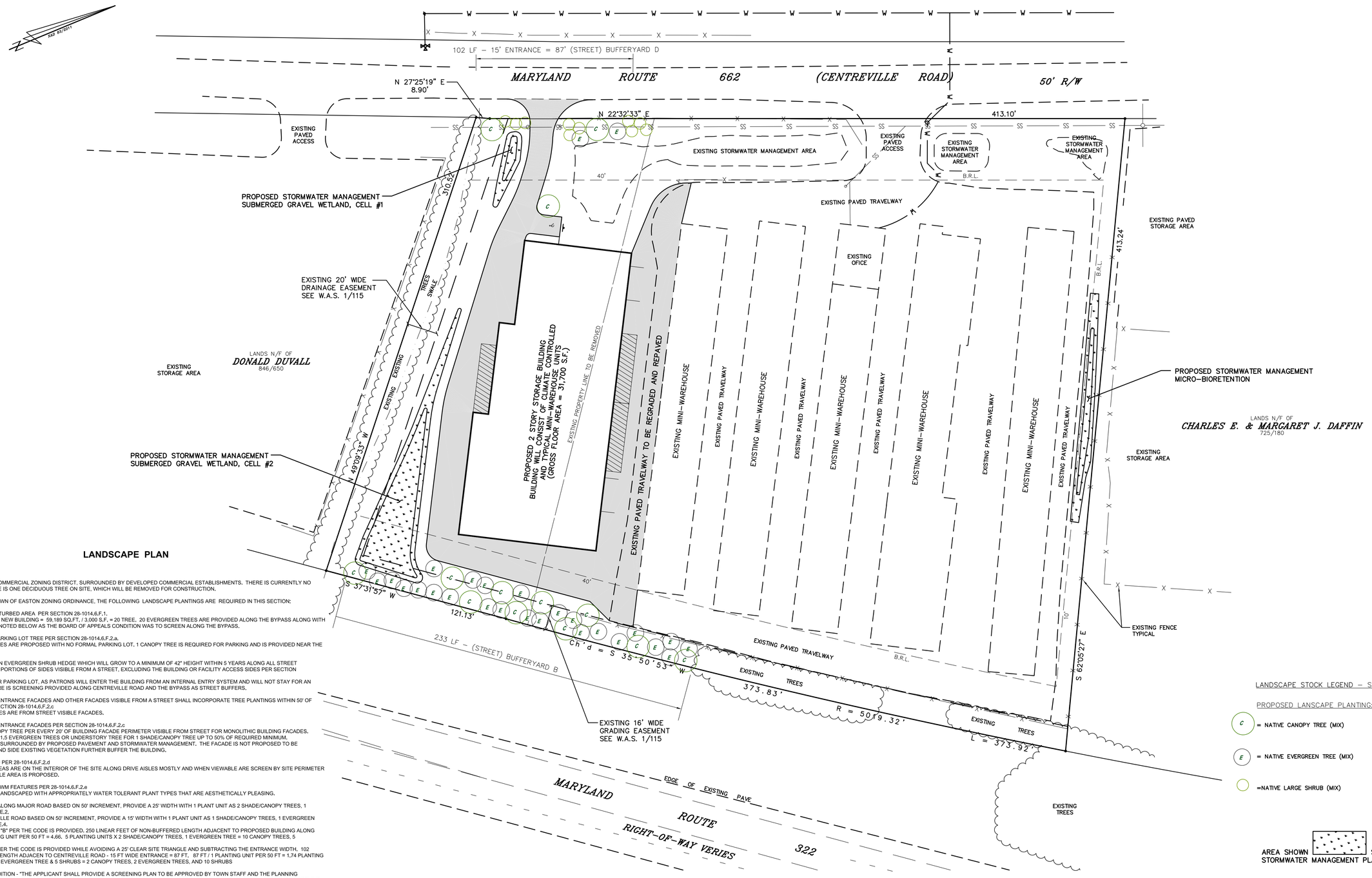

LANDSCAPE PLAN

NARRATIVE:

THIS SITE IS LOCATED WITHIN A COMMERCIAL ZONING DISTRICT, SURROUNDED BY DEVELOPED COMMERCIAL ESTABLISHMENTS. THERE IS CURRENTLY NO EXISTING FOREST ON SITE, THERE IS ONE DECIDUOUS TREE ON SITE, WHICH WILL BE REMOVED FOR CONSTRUCTION.

PER SECTION 28-1014.6 OF THE TOWN OF EASTON ZONING ORDINANCE, THE FOLLOWING LANDSCAPE PLANTINGS ARE REQUIRED IN THIS SECTION:

ONE (1) TREE PER 3,000 SF OF DISTURBED AREA PER SECTION 28-1014.6.F.1.
RESPONSE: DISTURBED AREA FOR NEW BUILDING = 59,189 SQ.FT. / 3,000 S.F. = 20 TREE, 20 EVERGREEN TREES ARE PROVIDED ALONG THE BYPASS ALONG WITH THE BUFFERYARD "B" PLANTINGS NOTED BELOW AS THE BOARD OF APPEALS CONDITION WAS TO SCREEN ALONG THE BYPASS.

ONE (1) TREE PER 10 INTERIOR PARKING LOT TREE PER SECTION 28-1014.6.F.2.a.
RESPONSE: JUST 5 PARKING SPACES ARE PROPOSED WITH NO FORMAL PARKING LOT, 1 CANOPY TREE IS REQUIRED FOR PARKING AND IS PROVIDED NEAR THE ADA PARKING SPACE.

PARKING LOT SCREENING WITH AN EVERGREEN SHRUB HEDGE WHICH WILL GROW TO A MINIMUM OF 42" HEIGHT WITHIN 5 YEARS ALONG ALL STREET FRONTAGES, AND ALONG ALL, OR PORTIONS OF SIDES VISIBLE FROM A STREET, EXCLUDING THE BUILDING OR FACILITY ACCESS SIDES PER SECTION 28-1014.6.F.2.b.
RESPONSE: THERE IS NO INTERIOR PARKING LOT, AS PATRONS WILL ENTER THE BUILDING FROM AN INTERNAL ENTRY SYSTEM AND WILL NOT STAY FOR AN EXTENDED PERIOD OF TIME. THERE IS SCREENING PROVIDED ALONG CENTREVILLE ROAD AND THE BYPASS AS STREET BUFFERS.

BUILDING ENVELOPE PLANTINGS-ENTRANCE FACADES AND OTHER FACADES VISIBLE FROM A STREET SHALL INCORPORATE TREE PLANTINGS WITHIN 50' OF THESE BUILDING FACADES PER SECTION 28-1014.6.F.2.c
RESPONSE: NO VISITOR ENTRANCES ARE FROM STREET VISIBLE FACADES.

BUILDING ENVELOPE PLANTINGS-ENTRANCE FACADES PER SECTION 28-1014.6.F.2.c
ONE (1) DECIDUOUS SHADE / CANOPY TREE PER EVERY 20' OF BUILDING FACADE PERIMETER VISIBLE FROM STREET FOR MONOLITHIC BUILDING FACADES. THERE IS AN OPTION SUBSTITUTE 1.5 EVERGREEN TREES OR UNDERSTORY TREE FOR 1 SHADE/CANOPY TREE UP TO 50% OF REQUIRED MINIMUM.
RESPONSE: THE NEW BUILDING IS SURROUNDED BY PROPOSED PAVEMENT AND STORMWATER MANAGEMENT. THE FACADE IS NOT PROPOSED TO BE MONOLITHIC. STREET BUFFERS AND SIDE EXISTING VEGETATION FURTHER BUFFER THE BUILDING.

SERVICE/LOADING AREAS SCREEN PER 28-1014.6.F.2.d
RESPONSE: SERVICE/LOADING AREAS ARE ON THE INTERIOR OF THE SITE ALONG DRIVE AISLES MOSTLY AND WHEN VIEWABLE ARE SCREEN BY SITE PERIMETER PLANTINGS. NO TRASH RECEPTACLE AREA IS PROPOSED.

EARTH BERMING AND DRAINAGE/SWM FEATURES PER 28-1014.6.F.2.e
RESPONSE: SWM AREAS WILL BE LANDSCAPED WITH APPROPRIATELY WATER TOLERANT PLANT TYPES THAT ARE AESTHETICALLY PLEASING.

BUFFERYARDS - BUFFERYARD 'B' ALONG MAJOR ROAD BASED ON 50' INCREMENT, PROVIDE A 25' WIDTH WITH 1 PLANT UNIT AS 2 SHADE/CANOPY TREES, 1 EVERGREEN TREES PER 28-1014.7.E.2.
BUFFERYARD 'D' ALONG CENTREVILLE ROAD BASED ON 50' INCREMENT, PROVIDE A 15' WIDTH WITH 1 PLANT UNIT AS 1 SHADE/CANOPY TREES, 1 EVERGREEN TREES & 5 SHRUBS PER 28-1014.7.E.4.
RESPONSE: MAJOR ROAD BUFFER "B" PER THE CODE IS PROVIDED. 250 LINEAR FEET OF NON-BUFFERED LENGTH ADJACENT TO PROPOSED BUILDING ALONG RIGHT OF WAY. 233 FT / 1 PLANTING UNIT PER 50 FT = 4.66. 5 PLANTING UNITS X 2 SHADE/CANOPY TREES, 1 EVERGREEN TREE = 10 CANOPY TREES, 5 EVERGREEN TREES
CENTREVILLE ROAD BUFFER "D" PER THE CODE IS PROVIDED WHILE AVOIDING A 25' CLEAR SITE TRIANGLE AND SUBTRACTING THE ENTRANCE WIDTH. 102 LINEAR FEET OF NON-BUFFERED LENGTH ADJACEN TO CENTREVILLE ROAD - 15 FT WIDE ENTRANCE = 87 FT. 87 FT / 1 PLANTING UNIT PER 50 FT = 1.74 PLANTING UNITS X 1 SHADE/CANOPY TREE, 1 EVERGREEN TREE & 5 SHRUBS = 2 CANOPY TREES, 2 EVERGREEN TREES, AND 10 SHRUBS

BOARD OF ZONING APPEALS CONDITION - "THE APPLICANT SHALL PROVIDE A SCREENING PLAN TO BE APPROVED BY TOWN STAFF AND THE PLANNING COMMISSION DURING SITE PLAN REVIEW" THE REQUIRED 20 TREES FOR THE DISTURBANCE ARE PROVIDED ALONG THE BYPASS TO ENHANCE THE SCREENING ALONG THE MAJOR ROAD, WHICH IS WHAT THE GRANTED VARIANCE WAS FOR.

UNDERGROUND UTILITY WARNING:
NO TEST PITTING OR PRIVATE UTILITY LOCATING SERVICE OF UNDERGROUND UTILITIES WAS CONDUCTED IN THE PREPARATION OF THIS PLAN. UTILITIES SHOWN HEREON ARE FROM THE BEST AVAILABLE DATA. IT IS THE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTORS TO COMPLY WITH THE UNDERGROUND FACILITIES DAMAGE PREVENTION LAW AND THE REQUISITE PERMITS ARISING THEREFROM. DMS & ASSOCIATES, LLC IS NOT RESPONSIBLE FOR THE ACCURACY OR THE EXTENT OF THE UNDERGROUND UTILITY MARKING PERFORMED BY MISS UTILITY AND SHOWN HEREON.

GRAPHIC SCALE
30 0 15 30 60
1 inch = 30 ft.

LANDSCAPE STOCK LEGEND – SITE LANDSCAPING

PROPOSED LANSCAPE PLANTING:

C = NATIVE CANOPY TREE (MIX)

E = NATIVE EVERGREEN TREE (MIX)

=NATIVE LARGE SHRUB (MIX)

AREA SHOWN SHALL BE STORMWATER MANAGEMENT PLANTINGS.

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TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES – ENGINEER

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. 37235 EXPIRATION DATE: 6-6-2026

STATE OF MARYLAND · BRADON A. DAVIS · No. 37235 · PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

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DATE	REVISION

PRELIMINARY LANDSCAPE PLAN

FOR THE DEVELOPMENT OF

MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE

ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER

IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND

TAX MAP – 100, GRID – 5, PARCEL – 47

DATE	SCALE
JULY '24	AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. – L-1	
CADD FILE – 22210-L1	

Net Tract Area

A.	Total Tract Area	A =	3.78	Overall Property
B.	Deductions	B =	2.45	Pre-existing facility/ Undisturbed by new building
C.	Net Tract Area	C =	1.33	Disturbance for new building

Land Use Category

Input the number "1" under the appropriate land use zoning, and limit to only one entry

ARA	MDR	IDA	HDR	MPD	CIA
0	0	0	0	0	1

D.	Afforestation Threshold (Net Tract Area x 15%)	D =	0.20	
E.	Conservation Threshold (Net Tract Area x 15%)	E =	0.20	

Existing Forest Cover

F.	Existing Forest Cover within the Net Tract Area	F =	0.00
G.	Area of Forest Above Conservation Threshold	G =	0.00

Break Even Point

H.	Break Even Point	H =	0.00
I.	Forest Clearing Permitted Without Mitigation	I =	0.00

Proposed Forest Clearing

J.	Total Area of Forest to be Cleared	J =	0.00
K.	Total Area of Forest to be Retained	K =	0.00

Planting Requirements

L.	Reforestation for Clearing Above the Conservation Threshold	L =	0.00
M.	Reforestation for Clearing Below the Conservation Threshold	M =	0.00
N.	Credit for Retention above the Conservation Threshold	N =	0.00
P.	Total Reforestation Required	P =	0.00
Q.	Total Afforestation Required	Q =	0.20
R.	Total Planting Requirement	R =	0.20

ENVIRONMENTAL FEATURES / SENSITIVE AREAS CHECK LIST CHART

FEATURE	YES	NO
CONTIGUOUS FOREST		X
WETLANDS		X
STREAMS		X
FLOODPLAINS		X
HYDRIC SOILS		X
PRIME AGRICULTURE SOILS		X
SOILS WITH K-FACTOR ABOVE .35		X
SLOPES GREATER THAN 25%		X
HISTORICAL AND CULTURAL FEATURES		X
TREES >30" DBH		X
STATE CHAMPION TREES		X
TREES >75% STATE CHAMPION		X
RARE, THREATENED OR ENDANGERED FLORA		X
RARE, THREATENED OR ENDANGERED FAUNA HABITAT		X

SIMPLE FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN

NARRATIVE:

THIS SITE IS LOCATED WITHIN A COMMERCIAL ZONING DISTRICT WHERE THERE IS PERIMETER VEGETATION TO THE EXISTING MINI-WAREHOUSE FACILITY. LITTLE NATIVE VEGETATION EXISTS. THERE IS CURRENTLY NO FOREST ON SITE. SOME OF THE PERIMETER VEGETATION IS TO BE REMOVED AS IT WILL BE DISTURBED BY GRADING AND CONSTRUCTION. THE MAJORITY OF AREA WHERE THE PROPOSED BUILDING WILL GO IS OPEN LAWN AREA.

NO SPECIAL HABITAT OR PROTECTED ENVIRONMENTAL FEATURES ARE KNOWN TO BE PRESENT ON THE SITE.

OWNERS OBJECTIVES: THE FOREST STAND DELINEATION AND FOREST CONSERVATION PLAN FOR THE SITE PLAN IS INTENDED TO COMPLY WITH THE FOREST CONSERVATION REGULATIONS FOR THE TOWN OF EASTON.

PROPOSED DEVELOPMENT / USE: THE TWO PARCELS WILL BE COMBINED. A NEW MINI-WAREHOUSE AND CLIMATE CONTROLLED SELF STORAGE BUILDING WILL BE CONSTRUCTED.

FOREST SOIL TYPES: Up – URBAN LAND

TOPOGRAPHY: THE SITE HAS NO SIGNIFICANT CHANGES IN ELEVATION. A SIDE EXISTING SWALE EXISTS DRAINING TO CENTREVILLE ROAD.

CRITICAL HABITAT AREAS OR RARE, THREATENED AND ENDANGERED SPECIES OF PLANTS AND ANIMALS: A REQUEST WAS SUBMITTED TO MARYLAND DEPARTMENT OF NATURAL RESOURCES (DNR) REQUESTING INFORMATION REGARDING THE PRESENCE OF RARE, THREATENED AND ENDANGERED SPECIES, HISTORIC SITES, AND CRITICAL HABITATS. ON 8/7/2024, DNR RESPONDED STATING THAT THERE ARE NO OFFICIAL STATE OR FEDERAL RECORDS FOR LISTED PLANT OR ANIMAL SPECIES WITHIN THE DELINEATED PROJECT AREA.

ADJACENT LAND USE: COMMERCIAL

HYDROLOGY, WETLANDS, STREAMS AND BUFFERS: THE SITE DOES NOT CONTAIN ANY HYDROLOGIC FEATURES, WETLANDS, STREAMS OR BUFFERS OF ANY KIND. THIS WAS CONFIRMED BY DAVIS ENVIORNMENTAL CONSULTING LLC.

THE SITE IS LOCATED ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA.

CULTURAL FEATURES: NONE

FOREST CONSERVATION REQUIRED: 0.20 ACRES
FOREST CONSERVATION PROVIDED: 0.479 ACRES USING CREDITS FOR LANDSCAPE PLANTINGS
13 DECIDUOUS CANOPY TREES PROVIDED AT 400 SQ.FT. CREDIT EACH AND
27 EVERGREEN TREES AT 250 SQ.FT. EACH
= 11,950 SQ.FT. OR 0.27 ACRES

FOREST CONSERVATION NOTES:

PRIOR TO THE COMMENCEMENT OF ANY DEVELOPMENT ACTIVITIES AND IF THESE ACTIVITIES ARE TO OCCUR WITHIN 25' OF THE FOREST CONSERVATION RETENTION AREA(S), NOTIFY THE TOWN OF EASTON DEPARTMENT OF PLANNING & ZONING (410-822-1943, FOREST CONSERVATION COORDINATOR) TO DETERMINE IF TEMPORARY PROTECTIVE DEVICES (SILT, BLAZE, WIRE &/OR WOOD FENCING) ARE REQUIRED. IF REQUIRED, DEVICES ARE TO BE INSTALLED AND INSPECTED BY THIS OFFICE PRIOR TO THE COMMENCEMENT OF ANY DEVELOPMENT ACTIVITIES. OWNER MAY BE SUBJECT TO INSTALLATION OF PROTECTIVE DEVICES.

PROTECTIVE DEVICES MUST BE SURVEY LOCATED, OR AS DIRECTED BY THE TOWN OF EASTON FOREST CONSERVATION COORDINATOR. THE TOWN RESERVES THE RIGHT TO MAKE ON-SITE TREE-BY-TREE DECISIONS WHEN INSPECTING RETENTION AREAS FOR CRITICAL ROOT ZONE PROTECTION.

MATERIALS AND STOCKPILE AREAS SHALL BE LOCATED OUTSIDE, AND AT LEAST 25' AWAY FROM THE BOUNDARY OF THE FOREST CONSERVATION AREA(S).

PRIOR TO REQUESTING A CERTIFICATE OF OCCUPANCY, NOTIFY THE TOWN OF EASTON DEPARTMENT OF PLANNING & ZONING (410-822-1943, FOREST CONSERVATION COORDINATOR) TO DETERMINE PROTECTIVE DEVICE REMOVAL. FENCING SHALL REMAIN IN PLACE UNTIL DISTURBED AREAS ARE PERMANENTLY STABILIZED. SIGNAGE AND OTHER PERMANENT PROTECTIVE DEVICES ARE TO REMAIN IN PERPETUITY.

LONG TERM PROTECTION: THE LANDSCAPE TREES MARKED "CREDITED AGAINST AFFORESTATION" AS SHOWN ON LANDSCAPE PLAN SHEET L-1 SHALL REMAIN THROUGHOUT THE LIFE OF THE PROPERTY. AT THE END OF THE CONSTRUCTION PERIOD, THE PROTECTED TREES SHALL BE PLACED UNDER A MINIMUM TWO (2) YEAR MAINTENANCE PERIOD. THE PROTECTIONS OF THESE TREES RUN PERPETUAL WITH THE PROPERTY, AND ARE BINDING UPON THE OWNERS(S), OCCUPANTS, AND THEIR PERSONAL REPRESENTATIVES, HEIRS, SUCCESSORS AND ASSIGNS. THIS AGREEMENT MUST BE DISCLOSED IN A SUBSEQUENT SALE, CONTRACT LEASE, MORTGAGE, DEED OR OTHER LEGAL PROPERTY INSTRUMENT. IF THE CREDITED TREES NOTED ON THIS PLAN ARE TO EVER BE REMOVED OR ARE DAMAGED DURING CONSTRUCTION THAT RESULTS IN A DECLINE IN THEIR HEALTH/REMOVAL, IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO REPLACE OR PAY THE FEE IN LIEU FOR THOSE TREES."

THE TOWN OF EASTON DEPARTMENT OF PLANNING & ZONING RESERVES THE RIGHT TO INSPECT THE FOREST CONSERVATION AREA(S) AT ANY FUTURE DATE, WITH PRE-NOTIFICATION OF THE PROPERTY OWNER OR THEIR REPRESENTATIVE, AND TO ENFORCE THE PROVISIONS OF THE PLANTING AGREEMENT AND/OR THE LONG TERM PROTECTIVE DEED OF FOREST CONSERVATION EASEMENT AT ANY TIME.

FOREST CONSERVATION CALCULATIONS:

TOTAL SITE AREA	=	3.78	ACRES
NET TRACT AREA	=	1.33	ACRES
EXISTING FOREST ON SITE	=	0.00	ACRES
FOREST TO BE CLEARED	=	0.00	ACRES
FOREST TO BE RETAINED	=	0.00	ACRES
FOREST CONSERVATION AREA REQUIRED	=	0.20	ACRES
TOTAL FOREST CONSERVATION PROVIDED (LANDSCAPE PLANTINGS)	=	0.27	ACRES

NOTE: PER SECTION 28-1014.5B OF THE TOWN OF EASTON ZONING ORDINANCE, LANDSCAPE PLANTINGS REQUIRED IN THIS SECTION AND MEETING THE SIZE AND SPECIFICATION REQUIREMENTS OF THIS SECTION, MAY BE CREDITED AGAINST AFFORESTATION OR REFORESTATION REQUIREMENTS OF A RELATED FOREST CONSERVATION PLAN FOR THE SAME SITE, IN ACCORDANCE WITH THE FOLLOWING SCHEDULE: (1) DECIDUOUS, SHADE/CANOPY TREES, 400 SQ. FT. AREA; (2) EVERGREEN TREES, 250 SQ. FT. AREA AND (3) UNDERSTORY TREES, 125 SQ. FT. AREA.

DECIDUOUS CANOPY TREES AND EVERGREEN TREES SHOWN HEREON SHALL COUNT TOWARDS FOREST CONSERVATION REQUIREMENT;

13 DECIDUOUS CANOPY TREES PROPOSED @ 400 SQ.FT. CREDIT = 5,200 SQ.FT. AND
27 EVERGREEN TREES PROPOSED @ 250 SQ.FT. CREDIT = 6,750 SQ.FT.
TOTAL = 11,950 SQ.FT. OR 0.27 ACRES;
SEE LANDSCAPE PLAN FOR LOCATIONS

TOTAL CREDIT PROVIDED TOWARDS FOREST CONSERVATION = 0.27 ACRES
TOTAL REQUIRED FOREST CONSERVATION = 0.20 ACRES

THIS FOREST CONSERVATION PLAN IS ACCEPTED BY THE PROPERTY OWNER:

BENSON HARPER, PARKWAY STORAGE, LLC. DATE

THIS FCP PLAN HAS BEEN REVIEWED AND APPROVED:

FOREST CONSERVATION AGENT, TOWN OF EASTON DATE

TOWN OF EASTON PLANNING & ZONING

TOWN OF EASTON ENGINEER

EASTON UTILITIES - ENGINEER

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. 37235 ,EXPIRATION DATE: 6-2026

STATE OF MARYLAND · BRANDON A. DAVIS · No. 37235 · PROFESSIONAL ENGINEER

8/7/2024
DATE SEAL

DAVIS, MOORE, SHEARON & ASSOCIATES, LLC
ENGINEERING, DRAFTING/DESIGN,
ENVIRONMENTAL SERVICES & SURVEYING
P.O. BOX 80
CENTREVILLE, MARYLAND 21617
PHONE : 1-443-262-9130
FAX : 1-443-262-9148

DATE	REVISION

TITLE SHEET

FOR THE DEVELOPMENT OF
MINI-WAREHOUSE & CLIMATE CONTROLLED STORAGE
ON LOTS 1 thru 4 OF AIRWAY BUSINESS CENTER
IN THE TOWN OF EASTON, 1st ELECTION DIST., TALBOT CO., MARYLAND
TAX MAP - 100, GRID - 5, PARCEL - 47

DATE JULY '24	SCALE AS SHOWN
JOB No. 2022210	DRAWN BY
FOLDER Ref. 100-2022210	DESIGNED BY BD
SHEET No. - FCP	
CADD FILE - 22210-FCP	

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STORAGE
STORAGE

STORAGE

STORMWATER MANAGEMENT NARRATIVE AND CALCULATIONS

FOR

PRELIMINARY SITE PLAN

FOR

CLIMATE CONTROLLED & MINI-WAREHOUSE SELF STORAGE BUILDING

LOTS 1-4 OF AIRWAY BUSINESS CENTER
CENTREVILLE ROAD
EASTON, MARYLAND 21601

PREPARED FOR:
PARKWAY STORAGE, LLC.
C/O BENSON HARPER
9701 CENTREVILLE ROAD
EASTON, MD 21601

PREPARED BY:
DMS & ASSOCIATES, LLC
P.O BOX 80
CENTREVILLE, MD 21617
DMS JOB# 2022210
PRELIMINARY PLAN DATE: AUGUST, 2024

STORMWATER MANAGEMENT NARRATIVE
PRELIMINARY PLAN
AIRWAY BUSINESS CENTER LOTS 1-4
PARKWAY STORAGE LLC.

The subject property is located at 9701 Centreville Road in Easton, Maryland. The property exists as a contractor's office and mini-warehouse self storage facility on lots 2-4 of Airway Business Center. Lot 1 is adjacent and primarily vacant lawn area. The overall property is commercially zoned as BC. The overall property borders the Centreville Road/MD 662 right of way on one side and the Easton Bypass MD 322 on the opposite side. The two sides are with private properties. A drainage swale exists along the side property line of lot 1 and leads to a culvert that goes under Centreville Road. The existing developed facility had a stormwater management (SWM) pond system along Centerville Road that collects the majority of the existing buildings and pavement. The pond outfalls to the roadside swale of Centerville Road. The soils inherent to the subject property are classified as Urban Land (Up) by the USDA-NRCS soil survey. These soils are thereby considered hydrologic soil group "D".

Project Description

The proposed project will construct a new two story climate controlled and mini-warehouse self storage building on lot 1. The building will have a perimeter travel way, added parking, and a new one way exit only access out to Centerville Road. Roof leaders will drain the new building to side SWM treatment areas. The existing pond system in front of the new building will be expanded. A new SWM treatment will be retro fitted on the eastern side of the existing facility to assist will addressing water quality requirements. Storm drain will collect treated and overflow runoff and convey it to the existing pond system.

Quality Control

The proposed project will result in approximately 1.33 acres of onsite disturbance (Limits of Disturbance = LOD) for the construction of the new building and associated improvements. The proposed onsite impervious area within that LOD is 0.67 acres. The overall property is 3.78 acres with 2.155 acres of existing impervious (or 57.0% imperviousness) and 2.826 acres of overall resulting impervious (74.7% imperviousness). Additional LOD will occur for SWM retrofit on the eastern side of the site but is excluded from any target calculations as there are no proposed improvements in that area except SWM.

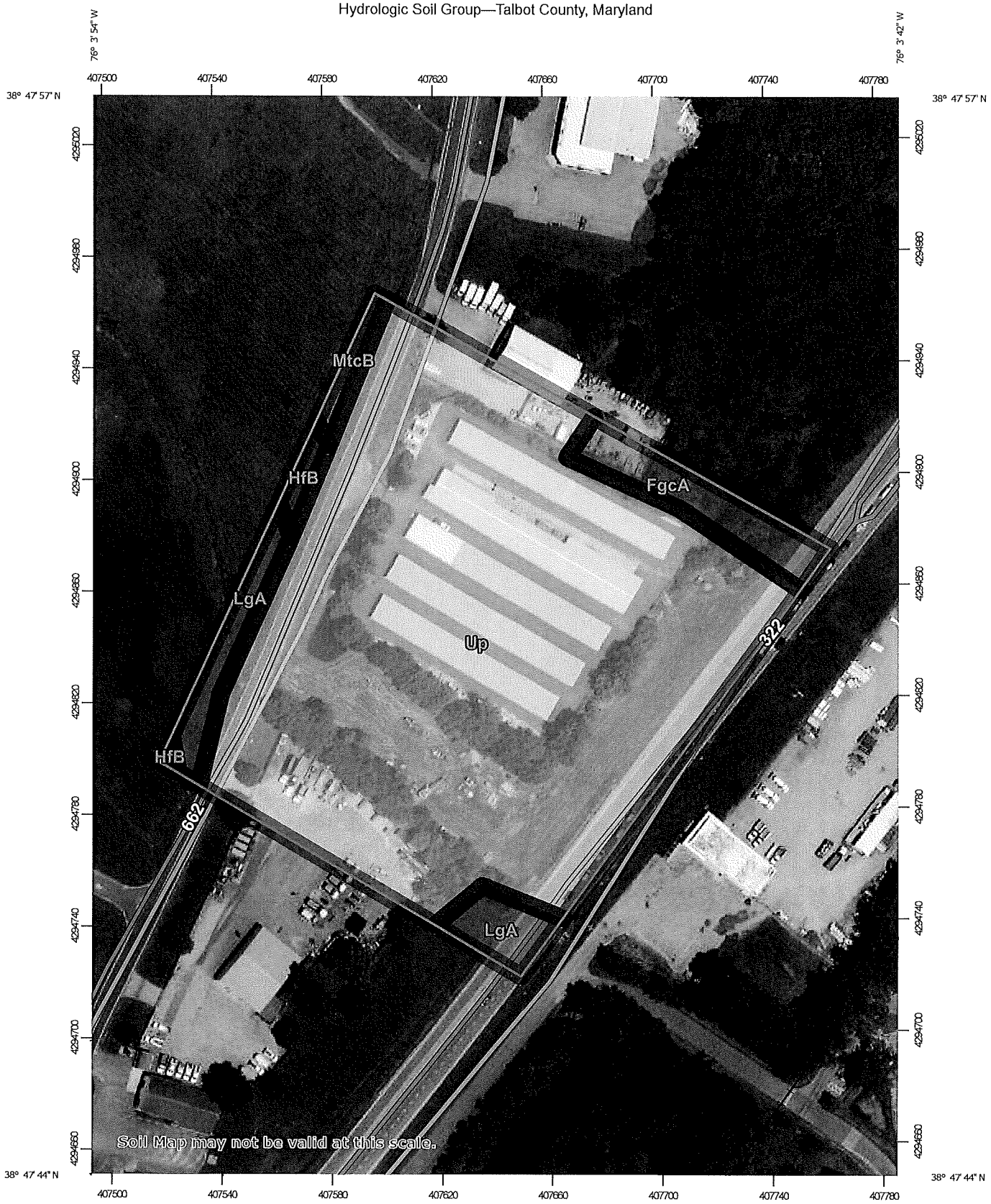
Water quality measures will be provided to address the requirements of the Town of Easton Stormwater Management Ordinance and chapter 5 of the Maryland Department of the Environment (MDE) Stormwater Management Design Manual. Per chapter 5 of the MDE SWM Design Manual, Environmental Site Design (ESD) should be implemented to the Maximum Extent Practicable (MEP). Target calculations are compiled using only the LOD and proposed impervious for the new building and its adjacent improvements. The target rainfall value (P_E) is 1.80 inches. The resulting ESD volume requirement for this project is 4,382 c.f. and recharge volume requirement (Rev) of 170 c.f. A two cell submerged gravel wetland (SGW) is proposed along the western side of the new building. A micro-bioretention device will be retrofitted along the eastern side of the property. The existing SWM pond in front of the new building will be

expanded. The combination of these measures will address ESD and Rev requirements for the project. These practices will filter runoff, attenuate flow, and will direct it to the SWM pond quantity control area along Centreville Road. The proposed ESD measures provide 5,813 c.f. of ESD volume. The expanded pond area provides another 817 c.f. of wet pool SWM volume. The project will mimic woods in good condition as these measures provide ESD to the MEP, and thereby address water quality, ESD, recharge, and channel protection requirements.

Quantity Control

The proposed project will provide ESD to the MEP with a volume in excess of the target ESD volume. The project will also expand the existing pond for the above mentioned wet pool and also add another 777 c.f. of dry storage above the outfall pipes' invert. The provided SWM will allow the new building and its associated impervious areas to mimic a reduced curve number to address quantity control requirements.

In conclusion, we feel the combination of the ESD measures, the overage of ESD volume, and expanded wet and dry storage volumes of the pond address all SWM requirements.



Map Scale: 1:1,890 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 25 50 100 150

Feet
0 50 100 200 300

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 Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 20, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 30, 2022—Jul 4, 2022

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
FgcA	Fallsington loams, 0 to 2 percent slopes, Mid-Altlantic Coastal Plain	C/D	0.4	4.9%
HfB	Hambrook-Sassafras complex, 2 to 5 percent slopes	B	0.1	1.0%
LgA	Lenni loam, 0 to 2 percent slopes	D	0.4	5.6%
MtcB	Mattapex silt loam, 2 to 5 percent slopes, Mid-Atlantic Coastal Plain	C	0.1	1.1%
Up	Urban land		6.9	87.4%
Totals for Area of Interest			**7.9**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

NON-STRUCTURAL

AND

ESD PRACTICES

CRITERIA & DESIGN PARAMETERS MET FOR SELECTED PRACTICE

M-6 Micro-Bioretention:

Performance Criteria:

- Equation 5.2 is applied during the sizing criteria to ensure that the device is had an adequate area and volume provided. Recharge requirements are not required in a redevelopment criteria situation.

Constraints:

- Space – the provided area aligns with the site shape and is adequate area for the contributing impervious area and overall drainage area.
- Topography – the site is less than 5% and will be flat in the treatment area. Runoff will enter the SWM area using sheet flow, or piped with riprap protection.
- Soils – the developed nature of the site and associated soils have led us to this practice since undisturbed high infiltrating soils are not available. An underdrain will be provided to avoid ponding water.
- Drainage Area – the drainage areas meets the constraints.
- Hotspot Runoff – this site is not considered a hotspot
- Infrastructure – the selected locations avoid conflicts with existing utilities and is in a convenient location to easily tie into existing stormwater conveyance system.

Design Guidance:

- Conveyance – the SWM is located off line and not in series with other conveyance paths. Runoff will enter the treatment area in a stable manner. The proposed underdrain will convey treated runoff to existing stormdrain system.
- Treatment – the device meets within reason the maximum drainage area, capture volume, surface area minimum, filter bed depth, groundwater avoidance, media layering, and material spec. requirements.
- Setbacks – the SWM area meets all MDE recommended setbacks from buildings, wells, and utilities.
- Landscaping – plantings are provided in the SWM area to provide nutrient uptake, filtration surface stabilization and gel with landscaping.

Construction Criteria:

- Sediment and Erosion Control – the construction sequencing requires drainage areas to be stabilized before SWM is installed.
- Soil Compaction – the SWM area is set off to the sides of the LOD to avoid construction traffic and associated compaction.
- Underdrain Installation – gravel and drain specifications are shown on the plans per MDE recommendations.
- Filter Media Installation – soils specifications are shown on the plans per MDE recommendations.
- Landscaping – plantings should be installed at the optimum seasonal timing, otherwise provisions should be made to ensure their health

Inspection and Maintenance Criteria:

- Inspection and Maintenance procedures are provided on the plans.

M-2 Submerged Gravel Wetland:

Design Constraints:

- Space – large areas at lower elevations are available with this site layout to construct multiple pretreatment forebays and large treatment cells for this practice. The forebays meet or exceed the 10% volume storage requirement, and treatment cells meet or exceed the 75% ESD volume storage requirement. Large drainage areas outfall to these devices to aid in keeping the subsurface media saturated, which is pertinent to the effectiveness of these devices.
- Topography – the site's fill situation provides for large drainage areas to sheetflow or pipe to these devices. Topography adjacent to the development provides adequate inverts for discharging filtered runoff.
- Soils – the poor infill dredge spoils soils will keep the subsurface media saturated to maximize treatment abilities.
- Drainage Area – the drainage areas are large and of sufficient size to ensure submerged flow conditions.
- Hotspot Runoff – this site is not considered a hotspot
- Wetland Vegetation Establishment – A landscape plan is included with the design of the submerged gravel wetland plantings.

Design Guidance:

- Conveyance – a series of perforated pipes in the gravel media provide dispersion of flows evenly throughout the area. Inlet overflow control structures allow flow above the ESDv to discharge off-site in a stable manner.
- Treatment - Pretreatment for at least 10% of the ESDv has been provided in the settlement forebays.
- Flow Splitter – the inlets have been designed to provide for split flow and for saturation level management
- Treatment Cells – multiple treatment cells collect runoff that overflows from forebays and meets/exceeds the 75% ESD volume requirement.
- Observation Wells – inline grates are be installed on all 6" diameter dispersion pipes and will act as observation wells.
- Landscaping – we have designed a landscape pallet that includes more than three varieties of wetland species

DMS

Davis, Moore, Shearon, & Assocates, LLC
Engineering, Drafting/Design, Environmental Services & Surveying

Site Name: Parkway Storage
Date: Aug-24
Description: Development Conditions

Designed By: B.A.D.
Checked By:

Determine ESD Implementation:

$$ESDv = \frac{(P_E)(Rv)(A)}{12.00}$$

A = Site Area
I = % Imperviousness
Rv = 0.05 + 0.009(I)

P_E= Rain Fall Target From Tbl. 5.3 (RCN Reductions)
(Total P_ExArea)/Area = Weighted P_E

Site Data — Redeveloped Site= No

Area A =	1.333	acres
Prop. Hard Surfaces =	0.671	acres
Alternative Surfaces =	0.000	
Net Imp. Area =	0.671	
% Impervious =	50.3	%
Rv =	0.503	
Zone =	eastern	
P_E=	1.80	inches

LOD

ESD_V = Runoff Volume for ESD design

ESD_V =	0.101	ac-ft
or	4,382	cf

$ESD_{V\ redev}$ = ESD Volume for redevelopment site

A_{redev} = (0.50)(Ex. Imp. Area) - (Ex. Imp. Area - Prop. Imp. Area)
A_{redev} = 0 acres

Ex. Imp. Area _____ acres

$ESD_{V\ redev}$ =	0.000	ac-ft
or	0	cf

Compute Recharge Volume (Rev)

HSG	RCN (woods)	P_E Table 5.3	P_E x Area	RCN xArea	Recharge factor (S)	Area	%
A	38	0.00	0.00	0	0.38	0.000	0.00%
B	55	0.00	0.00	0	0.26	0.000	0.00%
C	70	0.00	0.00	0	0.13	0.000	0.00%
D	77	1.80	2.40	103	0.07	1.333	100.00%
TOTALS			2.40	103		1.333	100.00%

S = 0.07

a.) Rev = [(S)(Rv)(A)]/12
(percent volume method)

Rev =	0.004	ac-ft
or	170	cf

DMS

Davis, Moore, Shearon, & Assocates, LLC

Engineering, Drafting/Design, Environmental Services & Surveying

Project: Parkway Storage

Submerged Gravel Wetland

Device: SGW #1

Provided

Cell Filtration Area Provided =	2024	sq. Ft.	
Media Storage w/in 4" Wetland Soil Above Saturation Level =	267	cu.Ft.	(porosity = 0.4)
Total Temporary Storage Provided =	4647	cu.Ft.	(see stage vs. storage calculations)
Total Treatment Volume Provided =	4914	cu.Ft.	

Additional Considerations

Minimum Pretreatment Met (yes/no):	yes
Minimum ESDv Storage Met (yes/no):	yes
Notes:	

DMS

Davis, Moore, Shearon, & Associates, LLC

Engineering, Drafting/Design, Environmental Services & Surveying

DATA FOR STAGE vs. STORAGE CURVE
JOB NAME: Parkway Storage
DESCRIPTION: SUBMERGED GRAVEL WETLAND

CELL #1

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
53.20	126				0	0.000
		276	1.00	276		
54.20	425				276	0.006
		512	0.50	256		
54.70	598				531	0.012

CELL #2

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
53.20	1,898				0	0.000
		2,455	1.00	2,455		
54.20	3,012				2,455	0.056
		3,321	0.50	1,661		
54.70	3,630				4,116	0.094

DMS

Davis, Moore, Shearon, & Assocates, LLC

Engineering, Drafting/Design, Environmental Services & Surveying

Project: Parkway Storage

Micro-Bioretention

Device: MB #1

Provided

Af Provided =	374	sq. Ft.	d_{mulch} =	0	inches
			d_{soil} =	12	inches
			d_{pea} =	3	inches
			d_{stone} =	12	inches
			porosity =	0.40	
Temp Pond. Area Prov. =	1124	sq. Ft.	$D_{temp.\ Stor.}$ =	9	inches
Media Storage Provided =	337	cu.Ft.			
Temp Pond. Stor. Prov. =	562	cu.Ft.			
Total ESDv Provided =	899	cu.Ft.			

Summary

Step	Requirement	Volume Required (cft)	Volume Provided (cft)	Notes
1	ESD_V =	4382	**5813**	Micro-Bioretention
2	Recharge (Rev)	170	**4914**	Micro-Bioretention
3	Channel Protection (CPv)	N/A	**N/A**	ESD to MEP and overflow volume storage

DMS

Davis, Moore, Shearon, & Associates, LLC

Engineering, Drafting/Design, Environmental Services & Surveying

DATA FOR STAGE vs. STORAGE CURVE
JOB NAME: Parkway Storage
DESCRIPTION: Pond Wet Pool Expansion

Existing

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
51.00	3,566				0	0.000
		4,077	1.00	4,077		
52.00	4,588				4,077	0.094
		4,860	0.50	2,430		
52.50	5,132				6,507	0.149

Proposed

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
51.00	4,070				0	0.000
		4,610	1.00	4,610		
52.00	5,150				4,610	0.106
		5,429	0.50	2,714		
52.50	5,707				7,324	0.168

Added Wet Pool Volume = 7,324 - 6,507 = 817

DMS

Davis, Moore, Shearon, & Associates, LLC

Engineering, Drafting/Design, Environmental Services & Surveying

DATA FOR STAGE vs. STORAGE CURVE
JOB NAME: Parkway Storage
DESCRIPTION: Pond Dry Pool Expansion

Existing

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
52.50	5,132				0	0.000
		5,430	0.50	2,715		
53.00	5,727				2,715	0.062
		6,404	1.00	6,404		
54.00	7,080				9,118	0.209

Proposed

ELEV. (FT)	SURFACE AREA (SQ.FT)	AVERAGE SURFACE AREA (SQ.FT.)	DIFF. IN ELEV. (FT)	INCREMENT STORAGE (CU.FT.)	STORAGE (CU. FT.)	STORAGE (ACRE FT.)
52.50	5,721				0	0.000
		6,002	0.50	3,001		
53.00	6,283				3,001	0.069
		6,895	1.00	6,895		
54.00	7,506				9,896	0.227

Added Wet Pool Volume = 9,896 - 9,118 = 777

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

RECEIVED
APR 23 2024
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	1180 S. WASHINGTON ST, EASTON, MD 21601						
Tax Map	0108	Grid	0000	Parcel	2677	Lot	
Deed Refernce:	Liber	02414	Folio	00448			
Plat Reference:	Liber		Folio				
Base Zoning District	COMMERCIAL	Historic District	Y ☐	N ■	Planning Redevelopment	Y ☐	N ■

Purpose of Application / Description of Work:

The Easton Family YMCA at S. Washington St is renovating and expanding parking facilities on their property. Two gravel parking lots will be converted to new asphalt parking. The existing asphalt parking lot there now, will be renovated through mill and overlay of new surface course.

The YMCA is also renovating the south entrance coming into the new parking lot.
A new stormwater management facility is being added in the southeast corner of the new south parking lot. The YMCA is also proposing tree removal south of the new entrance.

Owner

Name	YMCA OF THE CHESAPEAKE		
Mailing Address	202 PEACHBLOSSOM RD, EASTON, MD 21601		
Telephone No.	410-822-0566	Email	rgill@ymcachesapeake.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	4/19/2024
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 05/22/2024 **2024-1199 / ESDR 24-09**

Completeness Check Date 04/25/2024

Revisions/Resubmissions Required Y ☒ N ☐

Resubmission Date **08/07/2024** Documents Received Y ☒ N ☐

Staff Determination

Rescheduled for August 28, 2024 Easton Staff Development Review Meeting

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

BOZA Required Y ☐ N ☐ **TBD**

Historic District Commission Required Y ☐ N ☒

Resubmission for ESDR Required Y ☒ N ☐

Staff Signature Samantha N. Smith Date 08/07/2024

Revised 02-2019

RECEIVED
AUG 07 2024
TOWN OF EASTON

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

2024 - 1199 / ESDR 24 - 09

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐	Parking Spaces ☐	Parking/Aisle Dimension ☐
Landscaping & Buffering ■	Signage ☐	Other ☐

Project Information

Address	1180 S. WASHINGTON ST, EASTON, MD 21601						
Tax Map	0108	Grid	0000	Parcel	2677	Lot	
Zoning District	Residential	PC Meeting Date		Historic District	Yes ☐	No ■	
Owner or Agent	RAUCH INC. (AGENT) ON BEHALF OF YMCA OF THE CHESAPEAKE (OWNER)						
Mailing Address	106 N. HARRISON ST, EASTON, MD 21601						
Telephone No.	410-770-9081	Email	casey@raucheng.com				

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

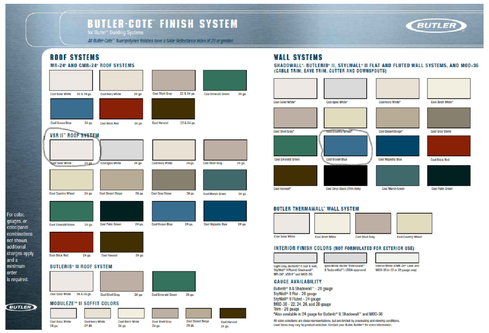
THE EXISTING CONDITIONS AT THE YMCA ALREADY HAVE STREET TREES WHICH ACT AS A BUFFERYARD. ADDITIONALLY, THERE IS NOT ENOUGH ROOM FOR AN EXPANDED BUFFERYARD. THE YMCA WANTS TO PLANT NEW TREES AND SHRUBS WHERE THEY ARE TRYING TO REMOVE A SECTION OF EXISTING PINE TREES.

☐ Ordinance Section Supporting Waiver Request. SECT. 28 - 1014

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.

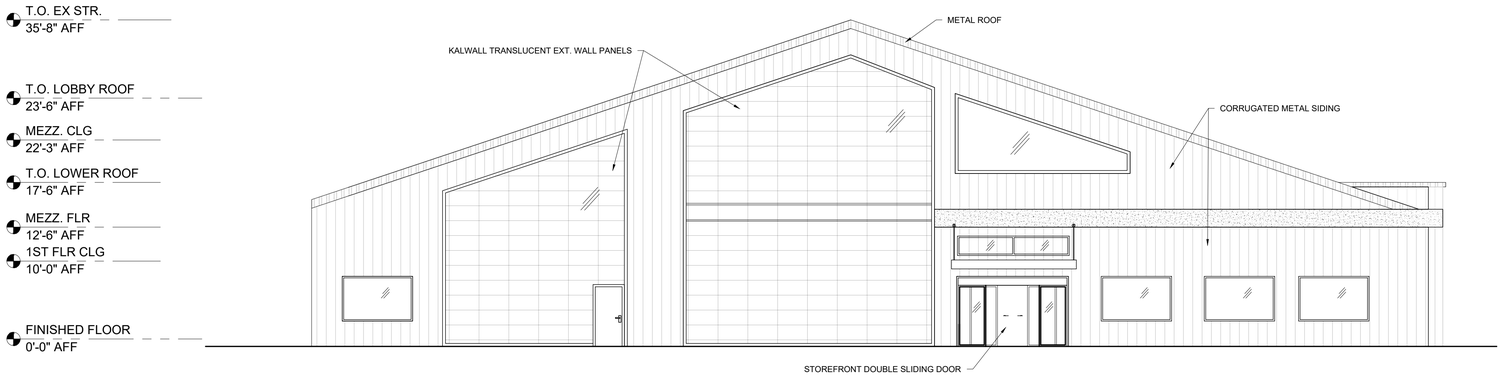
Signature of Applicant or Agent	*Chris Schoenster*
Date	8-7-24
Printed Name of Applicant or Agent	Chris Schoenster



X COLOR OPTIONS

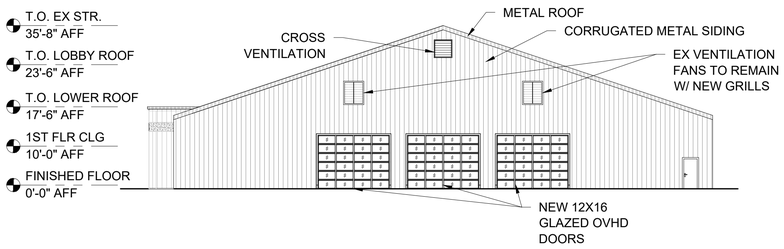
X KALWALL PANEL

X BUTLER METAL PANELS



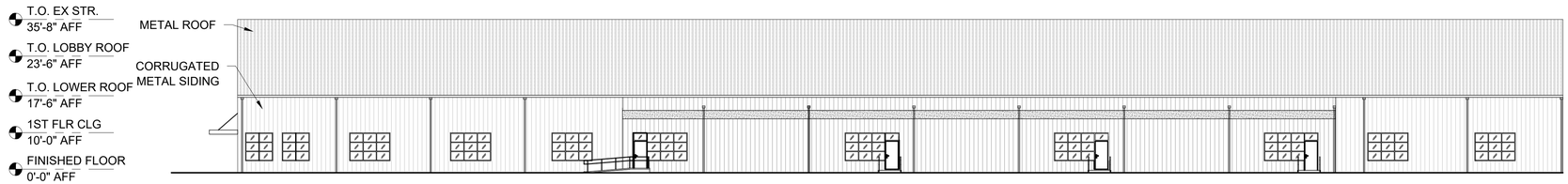
1 PROPOSED NORTH ELEVATION

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



2 PROPOSED SOUTH ELEVATION

Scale: 1/16" = 1'-0"



3 PROPOSED WEST ELEVATION

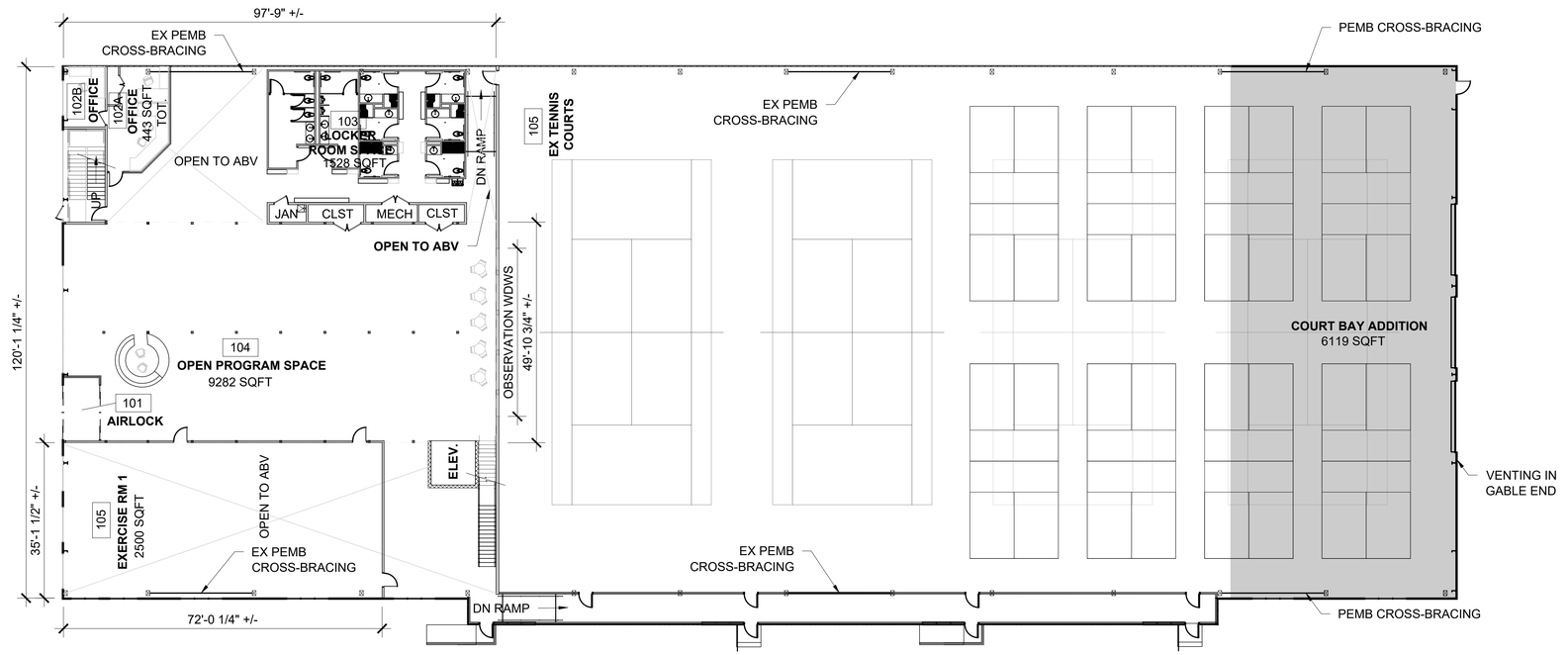
Scale: 1/16" = 1'-0"

RAUCH inc.
Engineering | Survey | Architecture | Environmental

office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com
Maryland Office: 106 N. Harrison St - Easton, MD 21601

YMCA WASHINGTON ST
Schematic Development Drawings
AUGUST 7 , 2024

PROPOSED PLANS



1 PROPOSED FLOOR PLAN

Scale: 1/16" = 1'-0"

RAUCH inc.
Engineering | Survey | Architecture | Environmental

office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com
Maryland Office: 106 N. Harrison St - Easton, MD 21601

YMCA WASHINGTON ST
Schematic Development Drawings
AUGUST 7 , 2024

PROPOSED PLANS

YMCA - SOUTH WASHINGTON STREET

INFRASTRUCTURE IMPROVEMENT PLAN

FOR

YOUNG MEN'S CHRISTIAN ASSOCIATION OF THE CHESAPEAKE INC

CONTACT INFORMATION

OWNER/DEVELOPER: YOUNG MEN'S CHRISTIAN ASSOCIATION (YMCA)
C/O ROBBIE GILL
202 PEACHBLOSSOM RD
EASTON, MD 21601
(410)822-1515

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

SITE DATA

PROPERTY ADDRESS:	1180 S WASHINGTON STREET EASTON, MD 21601
LONGITUDE:	38.751157° N
LATITUDE:	-76.071732° W
PRESENT ZONING CLASSIFICATION:	R10A
PRESENT USE:	COMMERCIAL/INDUSTRIAL USE OUTSIDE OF CBD
PROPOSED USE:	CONTINUED USE
TAX MAP:	0108
GRID:	0000
PARCEL:	*2677*
DEED REFERENCE:	*02414/ 0488*
SITE AREA:	205,603 SF / 4.72 ACRES
PROPOSED TOTAL LIMIT OF DISTURBANCE:	38,426 SF / 0.882 ACRES
TOTAL EXISTING IMPERVIOUS:	96,267.6 SF / 2.21 ACRES
TOTAL NEW IMPERVIOUS:	5,936 SF / 0.136 ACRES
TOTAL PROPOSED IMPERVIOUS	102,203 / 2.34 ACRES
MAXIMUM BUILDING HEIGHT:	35'
ACTUAL BUILDING HEIGHT:	36'-6"
MINIMUM BUILDING ENVELOPE:	60' DEEP X 30' WIDE
ACTUAL BUILDING ENVELOPE:	315'-3" DEEP X 120'-7" WIDE
EXISTING BUILDING ENVELOPE:	276'-8" DEEP X 120'-7" WIDE
SETBACKS:	FRONT = 15', REAR = 30', SIDE = 8'
TOTAL CUT:	687 CY
TOTAL FILL:	310 CY
NET CUT/FILL:	377 (CUT)
FOREST CONSERVATION:	N/A
FEMA FLOOD MAP:	PANEL 24041C0189D
SURVEY DATUM:	
HORIZONTAL:	NAVD83
VERTICAL:	NAVD88
EPSG CODE:	2248

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
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.

DESIGN PRINCIPLES FOR EASTON

(2010 COMPREHENSIVE PLAN, PG. 94 - 111)

1. **INTEGRATED USES ARE DESIRABLE** - DESIGN EXPANDS THE SERVICE OFFERINGS OF THE YMCA AND MAKES THE BUILDING EXTERIOR AND INTERIOR MORE COHESIVE.
2. **NATURAL FEATURES SHOULD DETERMINE DESIGN** - THE SITE MODIFICATIONS OF THE BUILDING AND EXTERIOR SITE EXPANSIONS RESPECT THE EXISTING ENVIRONMENTAL CONSTRAINTS, BUFFERS, AND STREAM CORRIDOR TO THE MAXIMUM EXTENT POSSIBLE.
3. **AUTOMOBILES SHOULD NOT DETERMINE DESIGN** - THE MODIFIED PARKING SPACES RENOVATE EXISTING IMPERVIOUS SURFACES AND IS CONSTRAINED BY THE SITES NATURAL FEATURES.
4. **AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN AND AROUND NEIGHBORHOODS** - THE SITE MAINTAINS MOST OF THE NATURAL STREAM CORRIDOR RIPARIAN BUFFER.
5. **ARCHITECTURE SHOULD RESPECT EASTON'S HISTORIC DISTRICT** - NOT APPLICABLE IN THIS ZONE.
6. **SIGNS SHOULD INFORM BUT NOT DOMINATE** - SIGNAGE WILL BE MODEST. MOST OF THE ADVERTISING FOR THE YMCA WILL BE ACHIEVED THROUGH EXTERIOR FAÇADE RENOVATIONS THAT MAKE IT VISIBLY ATTRACTIVE FROM THE ROAD WITH MINIMAL SIGNAGE.
7. **NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES** - NOT APPLICABLE.
8. **RESIDENTIAL DEVELOPMENTS SHOULD BE INTERESTING PLACES** - THE YMCA'S BUILDING AND SITE MODIFICATIONS WILL MAKE THIS ATHLETIC CENTER AN ATTRACTIVE PLACE FOR THE COMMUNITY AND FURTHER ANCHOR IT AS A TREASURED COMMUNITY RESOURCE.
9. **NEIGHBORHOODS SHOULD CONNECT** - THE SITE MODIFICATIONS WILL ALLOW SAFE ACCESS INTO, THROUGH, AND OUT OF THE SITES PARKING AREAS.

VICINITY MAP
SCALE: 1" = 2000'

DRAWING SHEET LIST

SHEET NO.	DRAWING TITLE
G-100	COVER SHEET
C-101	OVERALL SITE PLAN
V-101.01	EXISTING CONDITIONS
V-101.02	DEMOLITION PLAN
C-200	EROSION & SEDIMENT CONTROL COVER
C-200.01	EROSION & SEDIMENT CONTROL LEGEND
C-201.00	EROSION & SEDIMENT CONTROL PLAN
C-205.01 - 02	EROSION & SEDIMENT CONTROL DETAILS
C-301.01 - 03	COMBINED SITE GRADING AND STORMWATER PLAN
C-301.04 - 05	PRE & POST-DEVELOPMENT DRAINAGE MAPS
C-303	PROFILES
C-305.01 - 03	SITE & STORMWATER DETAILS
L-401	LANDSCAPE PLAN
L-405	LANDSCAPE DETAILS

ESTIMATED TOWN IMPACT FEES
TOTAL FEE COST: $1,500.00

ZONING & SUBDIVISION FEES

PLAN REVIEWS:
STORMWATER MANAGEMENT - UP TO 1 ACRE: $1,250.00

PLANNING COMMISSION FEES

CONCEPT, USE & DESIGN REVIEW: $250.00

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

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		CAB
BUFFER 25'/100'		25'
SOILS BOUNDARY		/ /
EROSION AND SEDIMENT CONTROL		
SILT FENCE	SF	
SUPER SILT FENCE	SSF	
SILT FENCE ON PAVEMENT	SFOP	
LIMITS OF DISTURBANCE	LOD	
LOD & SILT FENCE	LOD/SF	
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	~0.41%	~0.41%
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

COVER SHEET

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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 9081 | Fax: 410 770 3867

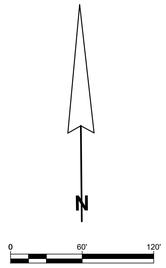
REVISIONS		
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	WCS
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: G-100

FOR REVIEW



PROPOSED SITE FEATURES

1. ASPHALT PARKING LOT #1 (62 PARKING SPACES)
   - PROPOSED EXPANDED ASPHALT (10,040 S.F.)
   - PROPOSED RENOVATED ASPHALT (14,005 S.F.)
2. ASPHALT PARKING LOT #2 (27 PARKING SPACES)
3. MICRO BIORENTENTION
4. CONCRETE SIDEWALK
5. GRAVEL ACCESS ROAD CONVERTED TO 16' WIDE ONE WAY ACCESS DRIVE TO SOUTH PARKING LOT

HATCH LEGEND

CONCRETE

ROCK PROTECTION/GRAVEL

ASPHALT

MICRO BIORENTION

ESTIMATED EXISTING PARKING: 81 SPACES

PROPOSED PARKING: **89**

- NORTH PARKING LOT: 62
- SOUTH PARKING LOT: 27

OVERALL SITE PLAN

OVERALL SITE PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

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REVISIONS

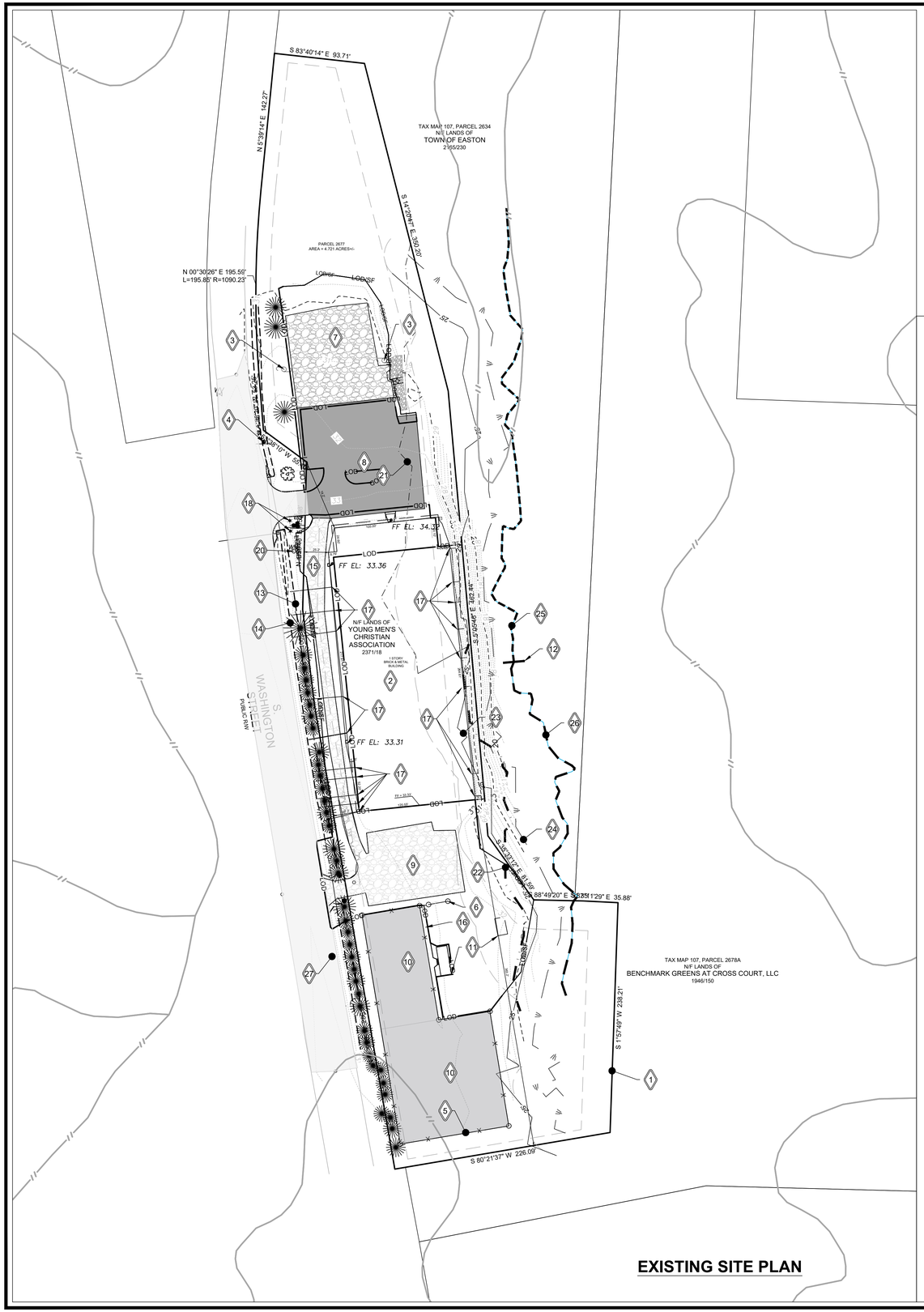
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-101

FOR REVIEW



EXISTING SITE PLAN

EXISTING FEATURES

1. PROPERTY LINE
2. YMCA BUILDING (38,108 S.F.)
3. LIGHT POLE
4. SIGN
5. CHAIN LINK FENCE
6. WOODEN FENCE
7. GRAVEL LOT #1
8. PAVEMENT PARKING LOT
9. GRAVEL LOT #2
10. TENNIS COURT
11. SHED
12. LINE OF DIVIDE
13. TOP OF DITCH
14. BOTTOM OF DITCH
15. GRAVEL ROAD
16. SIDEWALK
17. DOWNSPOUT DISCHARGE PIPE
18. LIGHT
19. CLEAN OUT
20. WATER MAIN
21. 100' PERENNIAL STREAM BUFFER
22. 50' INTERMITTENT STREAM BUFFER
23. 25' NON-TIDAL WETLAND BUFFER
24. NON-TIDAL WETLAND
25. PERENNIAL STREAM CENTERLINE
26. INTERMITTENT STREAM CENTERLINE
27. TREE LINE

HATCH LEGEND

GRAVEL

ASPHALT

EXISTING CONDITIONS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

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REVISIONS

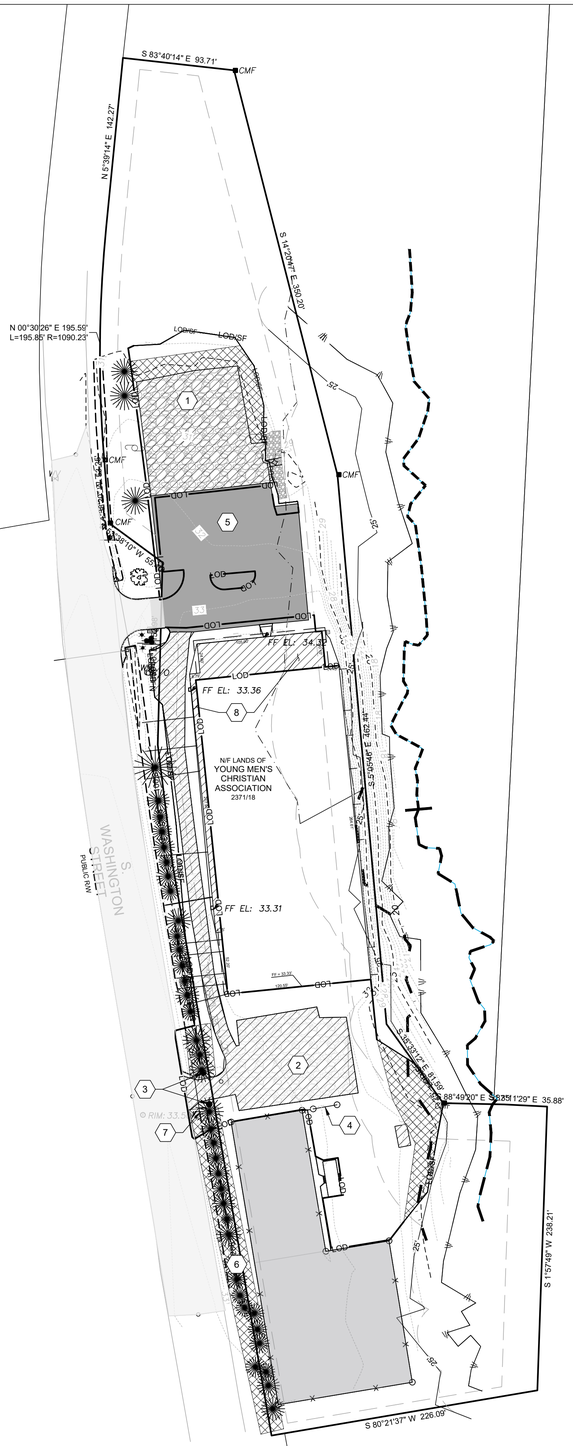
REV. #	DATE	DESCRIPTION
1		

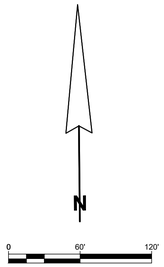
MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	WCS

SHEET NO.: V-101.01

FOR REVIEW





DEMOLITION NOTES

1. NORTH GRAVEL LOT TO BE DEMOLISHED
2. SOUTH GRAVEL LOT AND ACCESS DRIVE TO BE DEMOLISHED
3. FENCE POST TO BE DEMOLISHED
4. WOODEN FENCE TO BE DEMOLISHED
5. MILL AND OVERLAY TO RESURFACE EXISTING ASPHALT PARKING LOT (14,005 S.F.)
6. 23 PINE TREES TO BE REMOVED
7. REMOVE EXISTING 12" CULVERT PIPE CMP
8. REMOVE AND RENOVATE 4,207 SF OF EXISTING BUILDING

HATCH LEGEND

- GRAVEL
- EXISTING ASPHALT
- EXISTING TO BE DEMOLISHED
- EXISTING OVERGROWN UNDERGROWTH VEGETATION TO BE DEMOLISHED

EXISTING SITE & DEMOLITION PLAN

DEMOLITION PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC
DESIGNED BY:	/ BAOC
APPROVED BY:	

SHEET NO.: V-101.02

FOR REVIEW

STANDARD EROSION AND SEDIMENT CONTROL NOTES

1. The contractor shall notify the Maryland Department of the Environment (MDE) Sediment Control Inspector at 410-901-4020 and the Talbot County Department of Public Works (DPW) at 410-770-8170 at least 48 hours prior to commencing any land disturbing activities and, unless waived by the Sediment Control inspector, shall be required to hold a pre-construction meeting at the project site. The contractor must provide the name of the person on the site who is responsible for inspection and maintenance of erosion and sediment control measures and a copy of their green card to the Sediment Control Inspector.
2. All projects with construction activities disturbing 1 acre or more are required to submit a General Permit (NOI) to MDE to comply with the General Permit for Construction Activity for Stormwater Discharges. The General Permit must be approved prior to disturbance activities. To obtain a General Permit (NOI) form, contact the Permits Coordinator at the MDE Compliance Program at 410-537-3510.
3. The limit of disturbance shall be clearly delineated in the field prior to the pre-construction meeting and any grading activities to ensure compliance with the approved plan.
4. The approved Erosion and Sediment Control Plan must be kept at the project site.
5. The Talbot Soil Conservation District (TSCD) reserves the right to modify the Erosion and Sediment Control Plans.
6. The TSCD may revoke the approval of the Erosion and Sediment Control Plan if work performed at the project site does not conform to the provisions of the grading permit, to the approved plan or to any written instructions from MDE, Talbot County DPW or the TSCD.
7. The contractor must request that the Sediment Control Inspector approve work completed in accordance with the approved Erosion and Sediment Control Plan, the grading or building permit and the Talbot County Erosion and Sediment Control Ordinance at the following points of project development:
   A. Upon completion of the installation of perimeter erosion and sediment control measures but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by MDE is made.
   B. Prior to removal or modification of any sediment control structure(s).
   C. Upon final stabilization of the site and prior to the removal of any sediment control measures.
8. The contractor shall construct all erosion and sediment control measures per the approved plan and construction sequence and shall have them inspected and approved by the Sediment Control Inspector prior to beginning any other land disturbances.
9. The contractor shall ensure that all runoff from disturbed areas is directed to the sediment control devices and shall not remove any erosion or sediment control measure without prior permission from the Sediment Control Inspector.
10. The following minor plan modifications may be approved by the Sediment Control Inspector in the field:
    A. Sediment control structures (except basins and traps) may be moved to meet the existing contours and field conditions, when moving these structures would have no impact on their function or design criteria.
    B. Substitution of perimeter control measures may be made provided the measure substituted is equivalent (i.e., silt fence for straw bales) or is an upgrade of the original measure (i.e., silt fence to a perimeter berm with properly sized outlet).
    C. Addition and extension of perimeter controls (including stone construction entrances) may be made to meet field conditions. Any modifications to the plan which are not listed above require the plan to be submitted to the TSCD for review and approval.
11. The contractor shall protect all points of construction ingress and egress to prevent the deposition of materials onto public roads. All materials deposited onto public roads shall be removed immediately.
12. On-site temporary stockpile areas must be placed as shown on the approved plan. If the construction schedule is to exceed 3 days, the stockpile areas must be stabilized. Stockpile areas should not exceed fifteen feet in height. If a stockpile is to exceed fifteen feet in height, it must be shown on the plan to be terraced with pipe slope drains installed and approved by TSCD. Upon the completion of the use of the stockpile area, existing ground surfaces shall be restored to their original conditions and permanently stabilized.
13. Various steps in the sequence of construction may require the contractor to remove excess excavated material to an approved location or to import material from an approved location. For purposes of this plan, an approved location shall be one which is operating under an approved erosion and sediment control plan and an active grading permit at the time of construction.
14. The contractor shall inspect daily and maintain continuously in an effective operating condition all erosion and sediment control measures until such time as they are removed with prior permission from the Sediment Control Inspector.
15. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:
    A. Three (3) calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes equal to or greater than 3 horizontal to 1 vertical (3:1), and
    B. Seven (7) days as to all other disturbed or graded areas on the project site. The above requirements do not apply to those areas which are shown on the plan and are currently being used for material storage or for those areas on which actual construction activities are currently being performed or to interior areas of a surface mine site where the stabilization material would contaminate the recoverable resource. Maintenance shall be performed as necessary to ensure that the stabilized areas continuously meet the appropriate requirements of the most current Maryland Standards and Specifications for Soil Erosion and Sediment Control.
16. Sediment control practices will be maintained until the entire contributing area to the practice has been permanently stabilized and meets the satisfaction of the Sediment Control Inspector. Sediment controls may only be removed with the authorization of the Sediment Control Inspector.
17. All areas disturbed by the removal of sediment control devices must be immediately stabilized.
18. Surface drainage flows over unstabilized cut and fill slopes shall be controlled by either preventing drainage flows from traversing the slopes or by installing protective devices to convey the water downslope without causing erosion. Dikes shall be installed and maintained at the top of cut or fill slopes until the slope and drainage area to it are fully stabilized, at which time the dikes must be removed and final grading done to promote sheet flow drainage. Erosion control measures must be implemented at points of concentrated flow where erosion is likely to occur.
19. No permanent cut or fill slope with a gradient steeper than 3:1 will be permitted in lawn maintenance areas. A slope gradient of up to 2:1 will be permitted in non-maintenance areas provided that those areas are indicated on the erosion and sediment control plans with a low-maintenance ground cover specified for permanent stabilization. Slope gradient steeper than 2:1 will not be permitted with vegetation stabilization.
20. All flow lines are to be stabilized with sod or seed with erosion control matting to a depth of flow of 1 foot.
21. Sediment traps or basins are not permitted within 20 feet of a foundation which is existing or under construction. No structure may be constructed within 20 feet of an active sediment trap or basin.
22. Temporary sediment traps and sediment basins shall be cleaned out and restored to the original dimensions when sediment has accumulated to one half (1/2) the wet storage depth of the trap or basin.
23. Sediment removed from traps (and basins) shall be placed and stabilized in approved areas, but not within a floodplain, wetland or forest retention area. When pumping sediment laden water, the discharge must be directed to a sediment trapping device prior to release from the site.
24. For approved dewatering strategies for traps and basins, see section F of the 2011 Maryland Standards and Specifications for Soil Erosion and Sediment Control. Pumping sediment laden water into the waters of the State without filtration is strictly forbidden.
25. Sediment control devices placed in infiltration areas must have bottom elevations at least two (2) feet higher than the finished grade elevation of the infiltration practice. When converting a sediment trap to an infiltration device, all accumulated sediment must be removed and disposed of prior to final grading of infiltration device.
26. The developer is responsible for obtaining all necessary permits prior to any construction activities. Further, the issuance of a grading permit does not relieve the developer of the responsibility to obtain any additional local, state or federal permits.

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

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

HYDROLOGY NOTES:

1. THE PROJECT WILL NOT ALTER HYDROLOGY TO OR FROM THE SITE
2. NO OUTLETS WILL BE ALTERED BY THIS PROJECT

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
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.

YMCA - SOUTH WASHINGTON STREET

EROSION & SEDIMENT CONTROL PLANS

FOR

YOUNG MENS CHRISTIAN ASSOCIATION (YMCA)
OF THE CHESAPEAKE INC

VICINITY MAP
SCALE: 1" = 2000'

REVIEWED FOR THE TALBOT SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

APPROVED:

_____ _____
TALBOT SOIL CONSERVATION DISTRICT DATE

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT THAT ADDITIONAL PROTECTION BECOMES NECESSARY.

DEVELOPER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL OF THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE IN ACCORDANCE TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

_____ _____
SIGNATURE DATE

1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION MADE IN THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.
2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

CONTACT INFORMATION

OWNER/DEVELOPER: YOUNG MENS CHRISTIAN ASSOCIATION
C/O ROBBIE GILL
202 PEACHBLOSSOM RD
EASTON, MD 21601
(410)822-1515

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

SITE DATA

PROPERTY ADDRESS:	1180 S WASHINGTON STREET EASTON, MD 21601
LONGITUDE:	38.751157° N
LATITUDE:	-76.071732° W
PRESENT ZONING CLASSIFICATION:	R10A
PRESENT USE:	COMMERCIAL/INDUSTRIAL USE OUTSIDE OF CBD
PROPOSED USE:	CONTINUED USE
TAX MAP:	0108
GRID:	0000
PARCEL:	*2677*
DEED REFERENCE:	*02414/ 0488*
SITE AREA:	205,603 SF / 4.72 ACRES
PROPOSED TOTAL LIMIT OF DISTURBANCE:	38,426 SF / 0.882 ACRES
TOTAL EXISTING IMPERVIOUS:	96,267.6 SF / 2.21 ACRES
TOTAL NEW IMPERVIOUS:	5,936 SF / 0.136 ACRES
TOTAL PROPOSED IMPERVIOUS	102,203 / 2.34 ACRES
MAXIMUM BUILDING HEIGHT:	35'
ACTUAL BUILDING HEIGHT:	36'-6"
MINIMUM BUILDING ENVELOPE:	60' DEEP X 30' WIDE
ACTUAL BUILDING ENVELOPE:	315'-3" DEEP X 120'-7" WIDE
EXISTING BUILDING ENVELOPE:	276'-8" DEEP X 120'-7" WIDE
SETBACKS:	FRONT = 15', REAR = 30', SIDE = 8'
TOTAL CUT:	687 CY
TOTAL FILL:	310 CY
NET CUT/FILL:	377 (CUT)
FOREST CONSERVATION:	N/A
FEMA FLOOD MAP:	PANEL 24041C0189D
SURVEY DATUM:	
HORIZONTAL:	NAVD83
VERTICAL:	NAVD88
EPSG CODE:	2248

SOILS DATA

SYMBOL	SOIL SERIES	SLOPE	HYDRIC	HIGHLY ERODIBLE	HYDROLIC CLASSIFICATION
HfA	HAMBROOK-SASSAFRAS COMPLEX	0-2%	NO	NO	B
HfB	HAMBROOK-SASSAFRAS COMPLEX	2-5%	NO	NO	B

ESC DRAWING SHEET LIST

SHEET NO.	DRAWING TITLE
C-200.00	COVER SHEET
C-200.01	LEGEND
C-201	EROSION & SEDIMENT CONTROL PLAN
C-205.01 - 02	EROSION & SEDIMENT CONTROL DETAILS

EROSION AND SEDIMENT CONTROL COVER

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 0, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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 9081 | Fax: 410 770 3867

REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — DIAL BEFORE YOU DIG — 811

DATE	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-200.00

FOR REVIEW

LINETYPES

	PROPOSED	EXISTING
TOPOGRAPHY		
MAJOR CONTOURS	44	44
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		
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		
FLOOD PLANE 100/500 YR		
MEAN HIGH WATER		MHW
MEAN LOW WATER		MLW
CRITICAL AREA BOUNDARY		
BUFFER 25'/100'		
SOILS BOUNDARY		
SWM EASEMENT 5'/10'		
EROSION AND SEDIMENT CONTROL		
SILT FENCE	SF	
SUPER SILT FENCE	SSF	
SILT FENCE ON PAVEMENT	SFOP	
LIMITS OF DISTURBANCE	LOD	
LOD & SILT FENCE	LOD/SF	
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	

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	
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	39.01	39.00
LAND SLOPE	0.41%	0.41%
BENCHMARK	ELEV: 123	
BOREHOLE/MONITORING WELL		
LIGHTING		
RIPRAP OUTLET SEDIMENT TRAP	RST	
STONE OUTLET SEDIMENT TRAP	SST	
TYPE-1 INLET PROTECTION	IP-1	

HATCHES

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

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
CMF	CONCRETE MONUMENT FOUND
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

EROSION & SEDIMENT CONTROL LEGEND

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

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REVISIONS

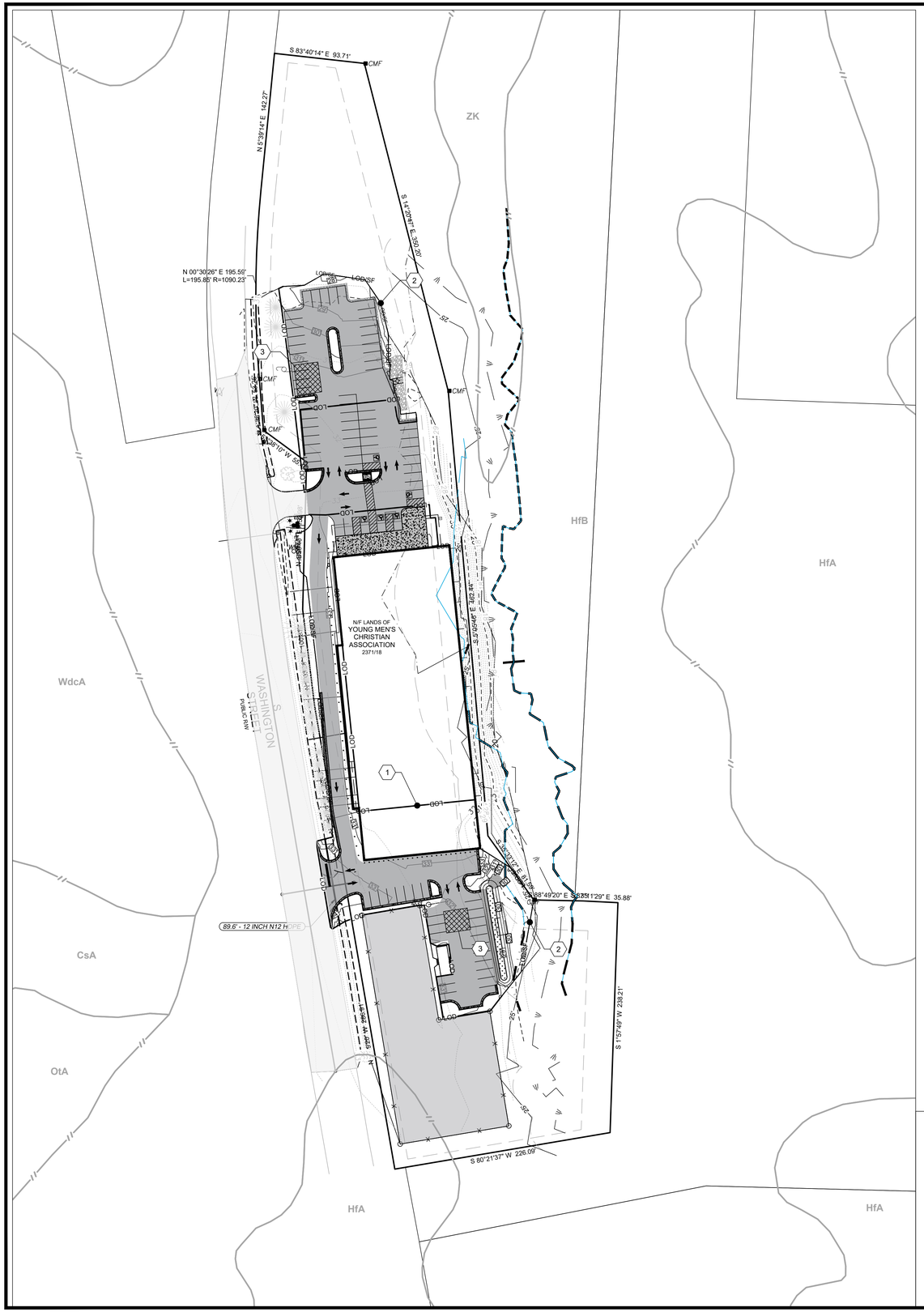
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — DIG SAFE BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	N/A
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-200.01

FOR REVIEW



EROSION & SEDIMENT CONTROL NOTES

1. LIMIT OF DISTURBANCE (LOD)
2. LIMIT OF DISTURBANCE & SILT FENCE. SEE DETAIL ON SHEET C-205.01
3. STOCKPILE / STAGING AREA

NOTE: STABILIZED CONSTRUCTION ENTRANCE NOT NECESSARY FOR EXISTING GRAVEL AND ASPHALT ENTRANCES.

SOILS DATA					
SYMBOL	SOIL SERIES	SLOPE	HYDRIC	HIGHLY ERODIBLE	HYDROLIC CLASSIFICATION
HfA	HAMBROOK-SASSAFRAS COMPLEX	0-2%	NO	NO	B
HfB	HAMBROOK-SASSAFRAS COMPLEX	0-5%	NO	NO	B

HATCH LEGEND

- CONCRETE
- ROCK PROTECTION/GRAVEL
- PROPOSED ASPHALT
- MICRO BIORENTION

EROSION & SEDIMENT CONTROL PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

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REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — 811

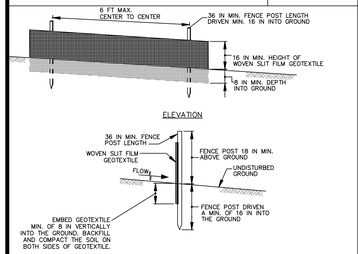
DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

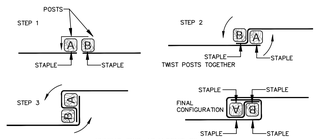
SHEET NO.: C-201

FOR REVIEW

DETAIL E-1 SILT FENCE

STANDARD SYMBOL: SF





JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

1 OF 2

CONSTRUCTION SPECIFICATIONS

1. USE WOOD POSTS 1½ X 1½ ± ⅛ 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.

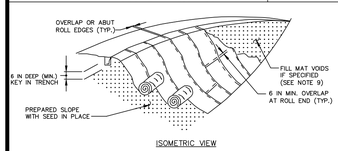
2 OF 2

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

DETAIL B-4-6-D PERMANENT SOIL STABILIZATION MATTING SLOPE APPLICATION

STANDARD SYMBOL: PSMS — # lb/ft² (# INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

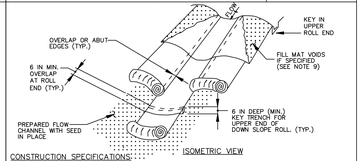
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "I" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "I" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING DOWN SLOPE. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE DOWNSLOPE MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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 B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSMC — # lb/ft² (# INCLUDE SHEAR STRESS)



ISOMETRIC VIEW

CONSTRUCTION SPECIFICATIONS

1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "I" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "I" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

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

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.

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"	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
	BARLEY	96#	2/15 - 4/30 / 8/15 - 11/30	1"		
	OATS	72#	2/15 - 4/30 / 8/15 - 11/30	1"		
	WHEAT	120#	2/15 - 4/30 / 8/15 - 11/30	1"		
	CEREAL RYE	112#	2/15 - 4/30 / 8/15 - 12/15	1"		
	FOXTAIL MILLET	30#	5/1 - 8/14	½"		
	PEARL MILLET	20#	5/1 - 8/14	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.

EROSION AND SEDIMENT CONTROL DETAILS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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 3867

REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	N/A
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-205.01

FOR REVIEW

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.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen.The appropriate seeding mixture must be applied when the ground thaws.
   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
   i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
   ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
   i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
   ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
   i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P_2O_5 (phosphorous), 200 pounds per acre; K_2O (potassium), 200 pounds per acre.
   i. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
   iii. Mix seed and fertilizer on site and seed immediately and without interruption.
   iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
   i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
   ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
   iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
   iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
   v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring
   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
   i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
   ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
   iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
   iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

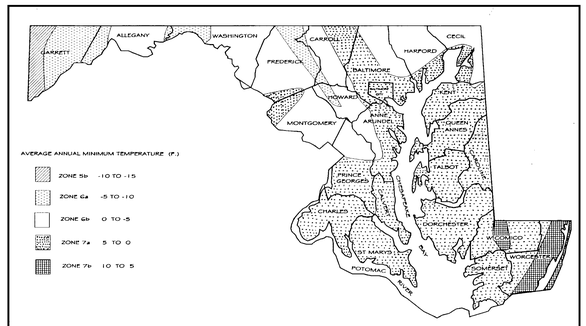
1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3): 7a Seed Mixture/from Table B.1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	40	FEB 15 - APR 30 AUG 15 - NOV 30	0.5	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
	BARLEY	96	FEB 15 - APR 30 AUG 15 - NOV 30	1.0		



Plant Hardiness Zones delineate areas where a species can be successfully established based on average annual minimum temperatures.

Figure B.3: U.S.D.A. Plant Hardiness Zones

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/		Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/		
	lb/ac	lb/1000 ft²		5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:

1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasses.

2/ For sandy soils, plant seeds at twice the depth listed above.

3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures
1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seedin Summary. The Summary is to be placed on the plan.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
   i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
   ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
   iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
   iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass Lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

Notes:
Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

   c. Ideal Times of Seeding for Turf Grass Mixtures

Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

Southern MD: Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

No.	Species	Seed Mixture (For Hardiness Zone 7a) (From Table B.3) Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	Fertilizer Rate (10-20-20) N	P2O5	K2O	Lime Rate
7	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60# 15#	2/15-4/30 8/15-10/31	¼"-½"				
8	TALL FESCUE	100#	2/15-4/30 8/15-10/31	¼"-½"	45 lb/ac 1 lb/ 1000 sf	90 lb/ac 2 lb/ 1000 sf	90 lb/ac 2 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
9	TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS	60# 45# 20#	2/15-4/30 8/15-10/31	¼"-½"				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
1. General Specifications
   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
3. Sod Maintenance
   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than ⅓ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

EROSION AND SEDIMENT CONTROL DETAILS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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

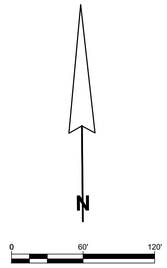
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — DIAL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	N/A
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-205.02

FOR REVIEW



PROPOSED SITE FEATURES

1. NORTH ASPHALT PARKING LOT (62 PARKING SPACES)
2. SOUTH ASPHALT PARKING LOT (27 PARKING SPACES)
3. MICRO BIORENTENTION (583 SF). SEE DETAIL SHEET C-305.02.
4. CONCRETE SIDEWALK. SEE DETAIL SHEET C-305.01.
5. NON ROOFTOP DISCONNECT (1,951 SF)
6. ONE-WAY PAVED ACCESS DRIVE TO SOUTH PARKING LOT

ESTIMATED EXISTING PARKING: 81 SPACES

PROPOSED PARKING: **89**

- NORTH PARKING LOT: 62
- SOUTH PARKING LOT: 27

ESD SUMMARY

ESD Facility ID	ESD Type	Surface Area (SF)	Drainage Area (SF)	Impervious Area (%)	Runoff Curve Number	Maryland Grid Coordinate (NAD 83, Northing)	Maryland Grid Coordinate (NAD 83, Easting)	Target P.E. (IN.)	Actual P.E. (IN.)	Target ESDv ($FT.^3$)	Actual ESDv ($FT.^3$)
1	Nonrooftop Disconnect	1951.0	9,361	100.0	92	396403.3009'	1577169.3622'	2.60	1.00	2001	741.2
2	Micro-bioretention	1881.0	27,779	78.0	90	395777.1940'	1577339.5298'	2.20	1.51	4700	2631.0
		3832.0	37140	89.0	91.0					6701	3372

Line of Investigation 1 – North Parking Area	2-YR (CFS)	10-YR (CFS)
Existing	2.24	3.84
Proposed	2.52	4.22

Line of Investigation 2 – South Parking Area	2-YR (CFS)	10-YR (CFS)
Existing	1.62	3.69
Proposed	0.21	0.44

Pre-Development Combined 10-Year CFS = 7.53 CFS

Post-Development Combined 10-Year CFS = 4.66 CFS

OVERALL SITE GRADING AND STORMWATER PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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

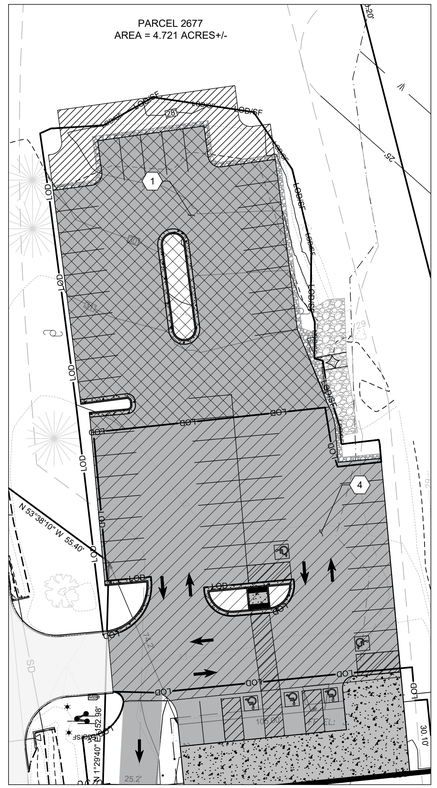
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	WCS
DESIGNED BY:	WCS
APPROVED BY:	BBF

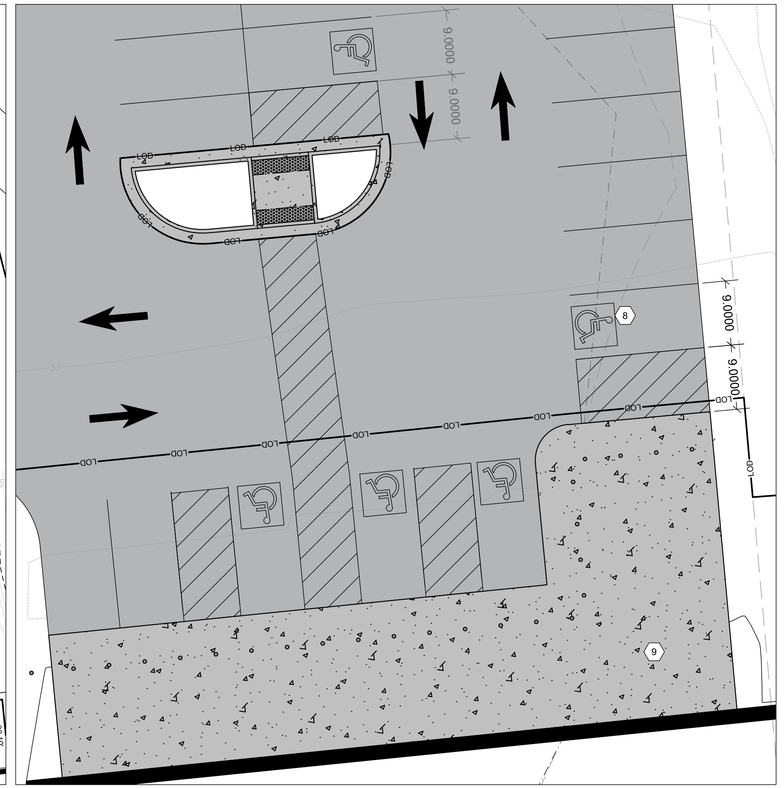
SHEET NO.: C-301.01

FOR REVIEW



PARKING LOT RENOVATION PLAN

0 30' 60'



HANDICAP PARKING PLAN

0 10' 20'

PROPOSED SITE FEATURES

1. CONVERT GRAVEL PARKING LOT INTO EXPANDED ASPHALT PARKING LOT (10,040 S.F.). SEE DETAIL SHEET C-305.01.
2. PROVIDE CONCRETE SIDEWALK. SEE DETAIL SHEET C-305.02
3. NON ROOFTOP DISCONNECT AREA (1,951 SF)
4. RENOVATE ASPHALT PARKING LOT (14,005 S.F.) THROUGH MILL AND OVERLAY. SEE DETAIL SHEET C-305.02.
5. STANDARD CURB AND GUTTER, SEE DETAIL SHEET C-305.01
6. PROVIDE PARKING ISLAND.
7. PROVIDE ROCK STRIP.
8. PROVIDE A.D.A. PARKING SPACE
9. PROVIDE VAN ACCESSIBLE A.D.A. PARKING SPACE WITH 8' ACCESS AISLE
10. PROVIDE STEEL PIPE BOLLARDS. SEE DETAIL SHEET C-305.03.

HATCH LEGEND

- GRAVEL
- PROPOSED ASPHALT
- EXPANDED ASPHALT
- MILL AND OVERLAY OF EXISTING ASPHALT

GENERAL NOTES:

1. NO LOD IS REQUIRED FOR MILL AND OVERLAY.
2. CURB STOPS ALONG ALL PERIMETER PARKING SPACES.
3. TYPICAL PARKING SPACES ARE 18' L x 9' W.
4. TWO WAY DRIVE AISLES ARE 24' W.

COMBINED SITE GRADING AND STORMWATER PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

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REVISIONS

REV. #	DATE	DESCRIPTION
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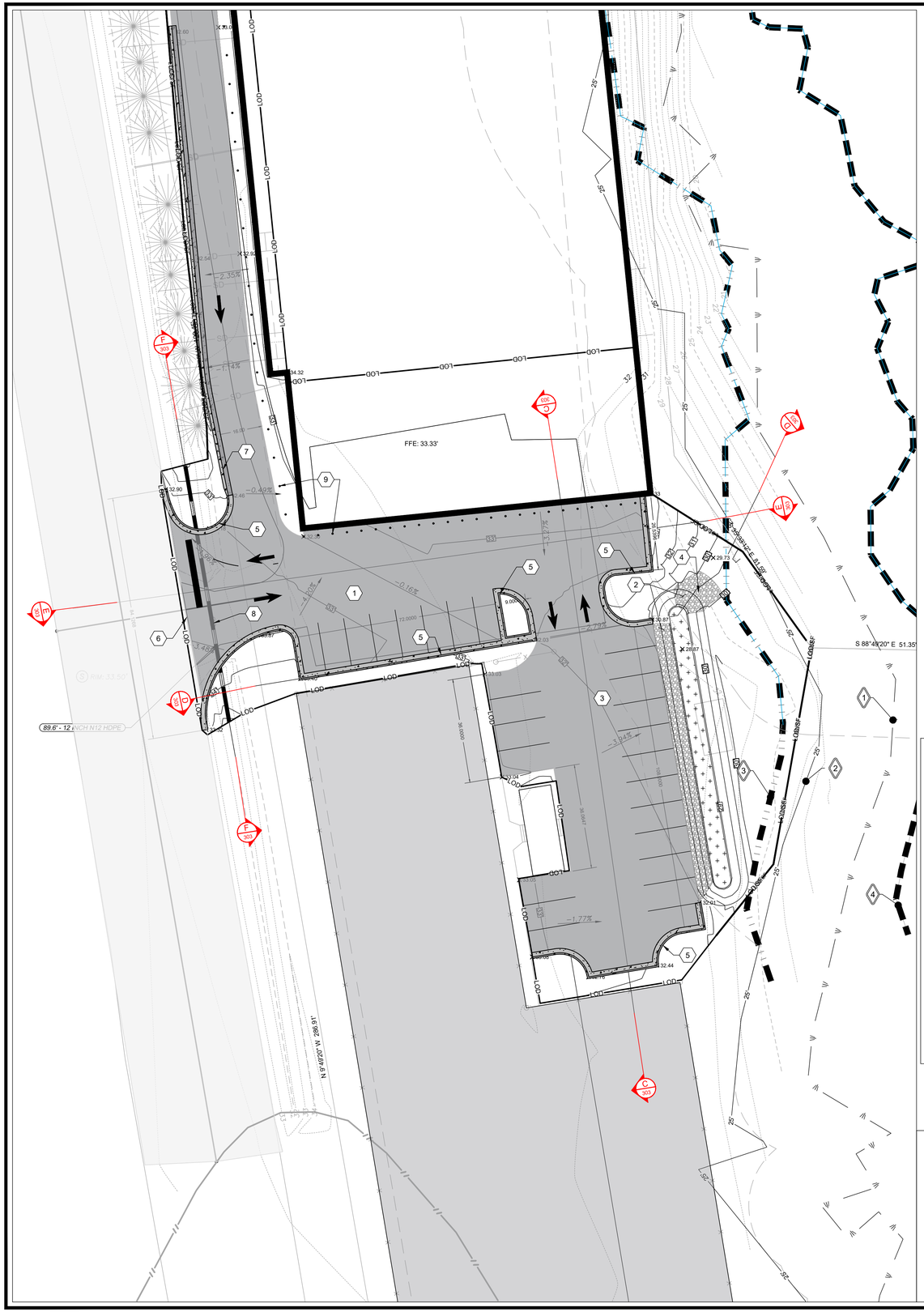
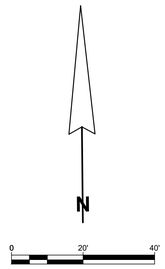
MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	

SHEET NO.: C-301.02

FOR REVIEW





PROPOSED SITE FEATURES

1. CONVERT GRAVEL PARKING LOT INTO ASPHALT PARKING LOT #2 (22 PARKING SPACES, 8,010 S.F.). SEE DETAIL SHEET C-305.01
2. PROVIDE ROCK PROTECTION
3. PROVIDE MICRO BIORENTENTION (583 S.F.) SEE DETAIL SHEET C-305.02.
4. PROVIDE OVERFLOW WEIR. SEE DETAIL SHEET C-305.03.
5. STANDARD CURB AND GUTTER, SEE DETAIL SHEET C-305.01
6. SHA ENTRANCE. SEE DETAIL SHEET C-305.01
7. PROVIDE MOUNTABLE CURB AND GUTTER. SEE DETAIL SHEET C-305.02.
8. REMOVE EXISTING CMP CULVERT PIPE AND REPLACE WITH 12" HDPE CULVERT PIPE. SEE PIPE COVER AND TRENCH DETAIL ON SHEET C-305.02
9. PROVIDE STEEL PIPE BOLLARDS. SEE DETAIL SHEET C-305.03.

EXISTING SITE FEATURES

1. NON-TIDAL WETLAND
2. 25' NON-TIDAL WETLAND BUFFER
3. 50' INTERMITTENT STREAM BUFFER
4. STREAM CENTERLINE

HATCH LEGEND

- CONCRETE
- ROCK PROTECTION/GRAVEL
- PROPOSED ASPHALT
- MICRO BIORENTION

GENERAL NOTES:

1. TYPICAL PARKING SPACES ARE 18' L x 9' W.
2. TWO WAY DRIVE AISLES ARE 24' W.

COMBINED GRADING AND STORMWATER PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2877

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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

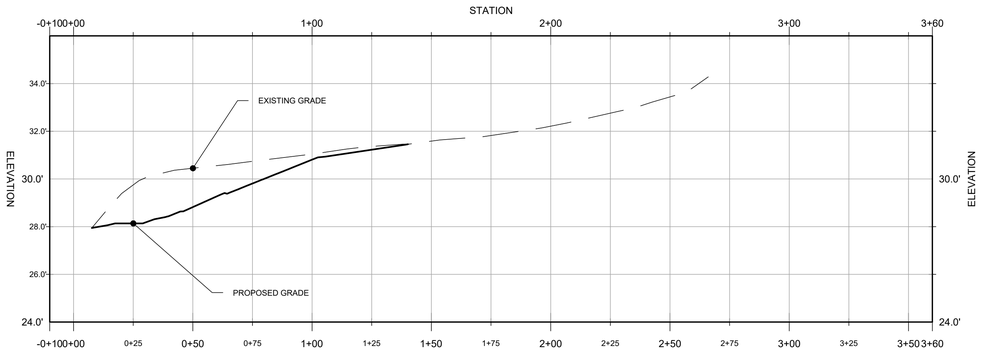
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — DIG SAFE BEFORE YOU DIG — 811

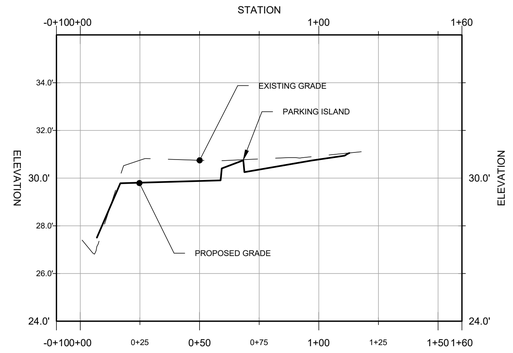
DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	

SHEET NO.: C-301.03

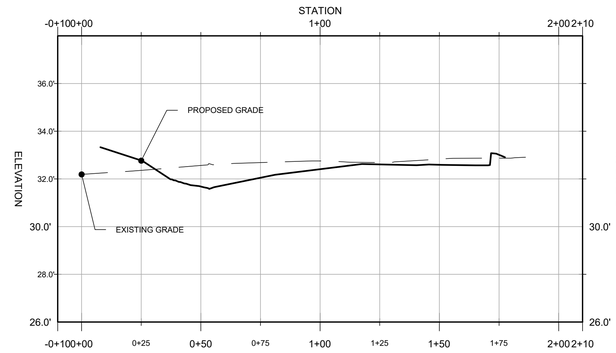
FOR REVIEW



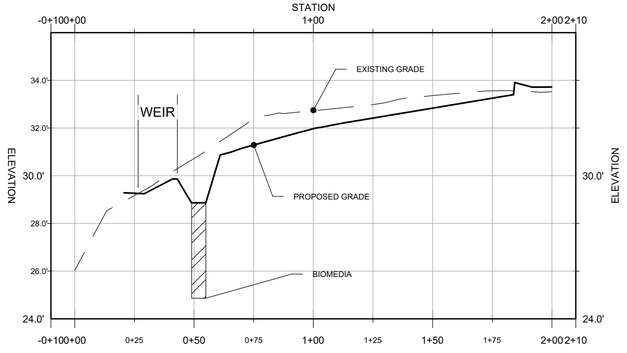
1V:10H EXAGGERATED PROFILE:
A



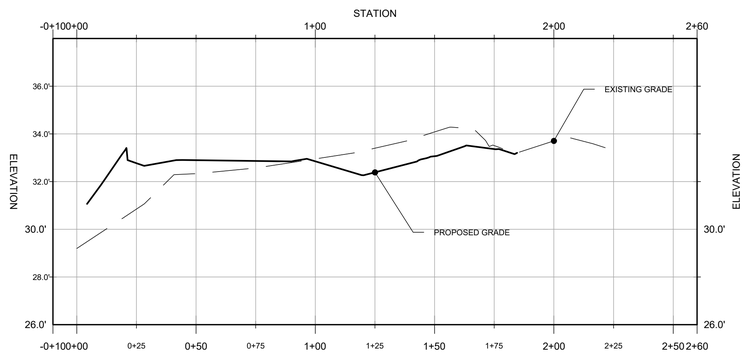
1V:10H EXAGGERATED PROFILE:
B



1V:10H EXAGGERATED PROFILE:
C

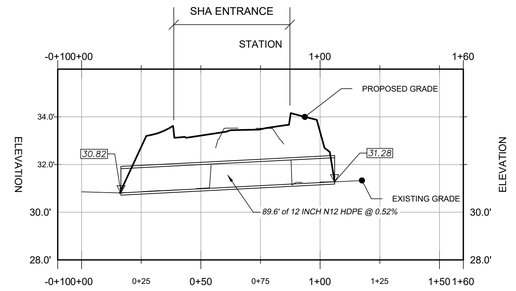


1V:10H EXAGGERATED PROFILE:
D



1V:10H EXAGGERATED PROFILE:
E

SCALE:
H: 1" = 30'



1V:10H EXAGGERATED PROFILE:
F

STORMWATER AND GRADING PROFILES

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 0, PARCEL 2677
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR YMCA INC.

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 9081 | Fax: 410 770 3667

REVISIONS

REV. #	DATE	DESCRIPTION
1		

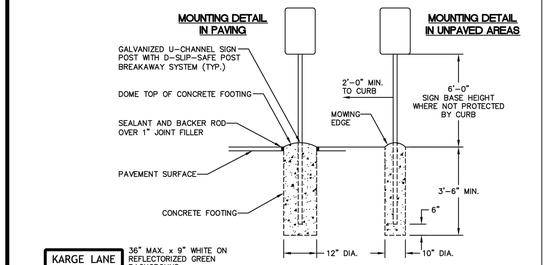
MISS UTILITY OF DELMARVA
CALL BEFORE YOU DIG
811

DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	

SHEET NO.: C-303

FOR REVIEW

SIGN DETAILS



KARGE LANE — 36" MAX. x 9" WHITE ON REFLECTORIZED GREEN BACKGROUND

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

YIELD — 36"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 BACKGORUND

30"x30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

30"x30" OCTAGONAL REFLECTORIZED WHITE LEGEND ON RED BACKGROUND

30"x30" 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 BLACK AND REFLECTORIZED BACKGROUND

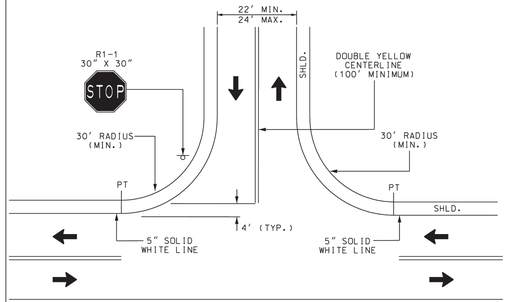
NOTES:

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

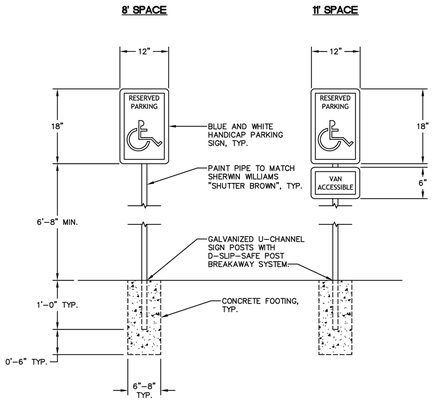


NOTES:

1. CANALIZATION MAY BE REQUIRED ALONG THE STATE HIGHWAY IN ACCORDANCE WITH 13.2.
2. TURNING LANES ARE NOT SHOWN.
3. REFER TO 12.0 FOR STREET CONNECTION STANDARDS.

TYPICAL OPEN SECTION
STREET CONNECTION
ENGINEERING ACCESS PERMITS

SIGN DETAILS FOR HANDICAP PARKING SPACES



NOTES:

1. H/C PARKING SIGNS (US DOT STANDARD R7-8).

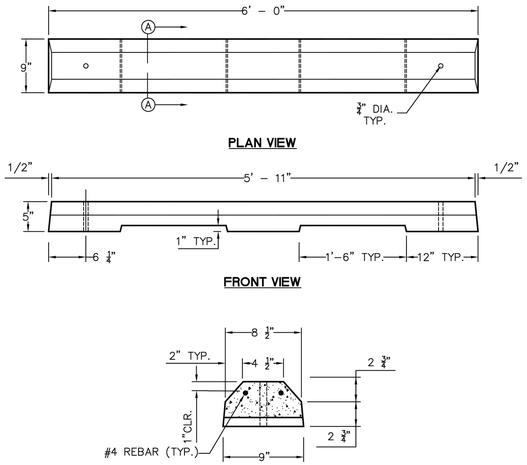
APPROVAL
TOWN ENGINEER
DATE 1/2020

TOWN OF EASTON STANDARD DETAILS
SIGN DETAILS FOR HANDICAP PARKING SPACES

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

NOTES:

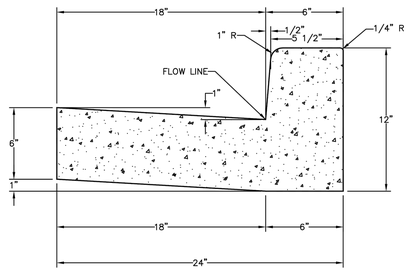
1. CONCRETE STRENGTH: 5000 PSI AT 28 DAYS.
2. REINFORCEMENT: ASTM A-615 GRADE 60.
3. PINS AVAILABLE: #5 REBAR AT 18" LONG.
4. WEIGHT: 170 LBS.



APPROVAL
TOWN ENGINEER
DATE 1/2020

TOWN OF EASTON STANDARD DETAILS
6' PRECAST CONCRETE WHEEL STOP

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-SI-5.01



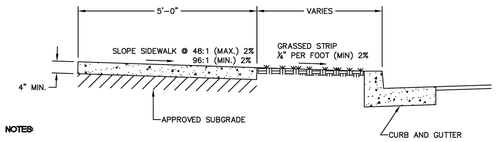
NOTES:

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

APPROVAL
TOWN ENGINEER
DATE 1/2020

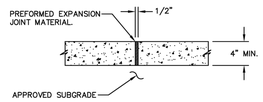
TOWN OF EASTON STANDARD DETAILS
STANDARD CURB AND GUTTER

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-6.01



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 8" 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

SHA ROW DRIVE ENTRANCE SECTION:

1.5" Superpave Asphalt Mix 9.5mm for Surface – PG 64S-22, Level 2
6" Superpave Asphalt Mix 19.0mm for Base – PG 64S-22, Level 2 (Two 3" lifts)

6" Graded Aggregate Base or 12" Capping Borrow

PROPOSED ON-SITE PARKING LOT SECTIONS:

1.5" Superpave Asphalt Mix 9.5mm for Surface – PG 64S-22, Level 2
3" Superpave Asphalt Mix 19.0mm for Base – PG 64S-22, Level 2

6" Graded Aggregate Base or 12" Capping Borrow

SITE DETAILS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-305.01

FOR REVIEW

STORMWATER BIORETENTION DETAIL

(MODIFIED RAIN GARDEN DETAIL FROM TOWN OF EASTON STANDARD DETAILS)

CONSTRUCTION INSPECTIONS

CALL THE TOWN OF EASTON ENGINEERING DEPARTMENT AT 410-820-8822 PRIOR TO CONSTRUCTION AND IMMEDIATELY FOLLOWING EACH OF THE FOLLOWING PHASES:

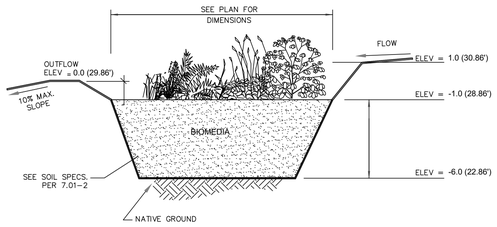
1. EXCAVATION TO SUB-GRADE AND BEFORE PLACEMENT OF SOIL.
2. FINE GRADING AND PERMANENT STABILIZATION OF ADJACENT SOILS.

CONSTRUCTION NOTES

1. RAIN GARDENS SHALL BE CONSTRUCTED AFTER ALL UPSTREAM AREAS HAVE BEEN STABILIZED WITH EITHER IMPERVIOUS SURFACES OR TOPSOIL AND VEGETATION.
2. RAIN GARDEN EXCAVATION SHALL BE ROUGH AND UNCOMPACTED. IF SMEARING OF BOTTOM OR WALLS OCCURS, SCRATCH WITH A RAKE AS NECESSARY TO EXPOSE ROUGH EARTH.
3. LANDSCAPING MATERIALS SHOULD BE INSTALLED DURING THE SPRING OR FALL IF POSSIBLE.
4. OVERFLOW FROM RAIN GARDEN SHALL BE DIRECTED OVER A 10' WIDE MINIMUM EARTH SPILLWAY STABILIZED WITH TURF AND SHALL NOT BE A SOURCE OF DOWNSTREAM EROSION.
5. THE OWNER IS ENCOURAGED TO ENHANCE THE VISUAL APPEAL OF THE RAIN GARDEN BY ADDING STONE OR TIMBER RETAINING WALLS.

MINIMUM SETBACKS

1. 10 FEET FROM A BUILDING OR PROPERTY LINE



CROSS SECTION

PLANT SELECTION

1. THE OWNER IS ENCOURAGED TO WORK WITH A REGISTERED LANDSCAPE ARCHITECT OR NURSERY TO CREATE AN ATTRACTIVE AND FUNCTIONAL MIX OF NATIVE PLANT SPECIES THAT ARE TOLERANT OF BOTH SATURATED AND DRY CONDITIONS.
2. INFORMATION ON APPROPRIATE SPECIES IS AVAILABLE BY TYPING "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.

SOIL SPECIFICATIONS

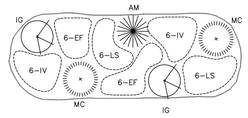
1. THE RAIN GARDEN PLANTING SOIL SHALL HAVE A COMPOSITION OF 50% SAND, 20% COMPOSTED LEAVES, AND 30% TOPSOIL.
2. SOIL SHALL BE OF UNIFORM COMPOSITION, FREE OF STONES, DEBRIS, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN ONE INCH.
3. SOIL SHALL BE FREE OF PLANTS (OR PLANT PARTS) OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, MUGWORT, NUTSEDGE, POISON IVY, OR CANADIAN THISTLE.
4. PLANTING SOIL SHALL BE OVERFILLED BY 1" TO 2" TO ALLOW FOR SETTLING. DO NOT COMPACT.

RAIN GARDEN PLANTING SCHEDULE

BOTANICAL NAME	COMMON NAME	SYMB.	SIZE	RAIN GARDEN SIZE (SQ. FT.) 70 QTY.	140 QTY.	210 QTY.	280 QTY.
SHRUBS:							
ILEX GLABRA	INKBERRY	IG	2 GAL.	1	2	3	3
ARONIA MELANOCARPA	BLACK CHOKEBERRY	AM	2 GAL.	1	1	2	3
MYRICA CERIFERA	BAYBERRY	MC	2 GAL.	1	2	2	3
GROUND COVER:							
ANDROPOGON VIRGINICUS	BROOMSEDGE	IV	PLUG	6	12	18	24
LIATRIS SPICATA	BLAZING STAR	LS	PLUG	6	12	18	24
EUPATORIUM FISTULOSUM	JOE-PYE WEED	EF	PLUG	6	12	18	24

PLANTING EXAMPLE

FOR 140 SQ. FT. RAIN GARDEN



MAINTENANCE CRITERIA:

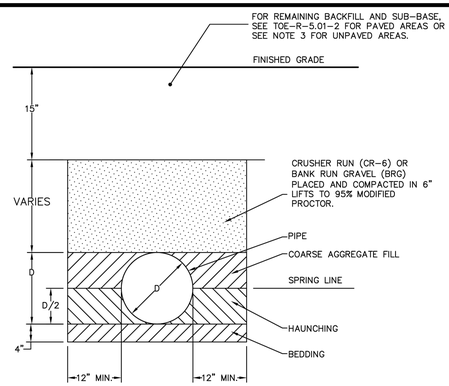
1. WATER PLANTS LIBERALLY THE FIRST GROWING SEASON AND DURING PERIODS OF DROUGHT THEREAFTER.
2. REMOVE ACCUMULATED TRASH AND VEGETATIVE DEBRIS EVERY FEW MONTHS.
3. PRUNE AND REMOVE DEAD VEGETATION PERIODICALLY, AS WITH ANY LANDSCAPE BED. IF SPECIFIC PLANTS ARE NOT SURVIVING, REPLACE WITH A DIFFERENT SPECIES. WATERING MAY BE REQUIRED DURING PROLONGED DRY PERIODS.
4. SILTS AND SEDIMENT SHOULD BE REMOVED FROM THE SURFACE OF THE FILTER BED WHEN ACCUMULATION EXCEEDS ONE INCH. THE TOP FEW INCHES OF FILTER MEDIA SHOULD BE REMOVED AND REPLACED WHEN WATER PONDS FOR MORE THAN 48 HOURS.
5. REFRESH MULCH WITH AN ADDITIONAL THIN LAYER ANNUALLY. REMOVE ALL MULCH AND REPLACE WITH A NEW THREE-INCH LAYER EVERY 3-5 YEARS.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

RAIN GARDEN LANDSCAPING DETAILS AND NOTES

ISSUED: JANUARY 2020 — STANDARD NO.: TOE-SWM-6.01-2



NOTES:

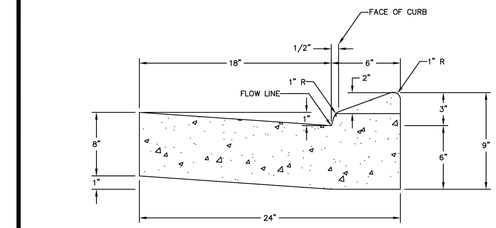
1. BEDDING, HAUNCHING AND FILL MATERIAL TO THE TOP OF THE PIPE SHALL BE COARSE AGGREGATE MEETING THE REQUIREMENTS OF ASHTO M43-SIZE NUMBER 57, UNLESS OTHERWISE SPECIFIED BY THE PIPE MANUFACTURER AND APPROVED BY THE TOWN ENGINEER.
2. DURING HAUNCHING, CONTRACTOR SHALL CAREFULLY WORK GRAVEL DOWN AROUND 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 ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

TRENCH DETAIL

ISSUED: JANUARY 2020 — STANDARD NO.: TOE-R-5.01-1



NOTES:

1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 40'-0". EXTRUDED CONCRETE CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'-0", AND EXPANSION JOINTS EVERY 100'-0".
3. MEDIAN CURB AND GUTTER TO BE USED AT MEDIANS ONLY. SEE TOE-R-8.07 FOR MEDIAN RAMP DETAILS.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

MEDIAN CURB AND GUTTER (SHA TYPE C)

ISSUED: JANUARY 2020 — STANDARD NO.: TOE-R-6.04

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: 9" CR-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: 2 1/2" HOT MIX ASPHALT SUPERPAVE, 19.0 MM SUB BASE: 6" CR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.
CONCRETE PAVEMENT	8" PORTLAND CEMENT CONCRETE MIX#7. SUB BASE: 6" CR-6 GRADED AGGREGATE COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.

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 9W-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 AND AGGREGATE ON A PREPARED SUB-BASE AS SHOWN WITHIN THE TOWN STANDARDS.
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 SPECIFICATIONS

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

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 ADD WATER TO MIX 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 SUB-GRADE 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 OF HIS/HER 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 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-1.03

PAVEMENT MARKINGS

A. CENTERLINE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SEPARATION OF TRAFFIC LANES THAT HAVE OPPOSITE DIRECTIONS OF TRAVEL.

1. THE CENTERLINE SHALL BE IN THE GEOMETRICAL CENTER OF THE ROADWAY UNLESS OTHERWISE REQUIRED BY FIELD CONDITIONS.
2. ALL TWO WAY STREETS GREATER THAN 16' WIDE SHALL HAVE A CENTERLINE.
3. THE CENTERLINE MARKING SHALL BE YELLOW LINES, CONFIGURATION TO BE APPROVED BY THE TOWN ENGINEER.

B. EDGE LINE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SHOULDER AND TRAVEL LANES.

1. THE EDGE OF THE TRAVEL LANE SHALL CONSIST OF A SINGLE SOLID WHITE LINE.
2. EXCEPT FOR DOTTED EDGE LINE EXTENSIONS, EDGE LINES SHALL NOT BE EXTENDED THROUGH INTERSECTIONS OR MAJOR DRIVEWAYS.

C. WHILE SEPARATING TRAFFIC LANES TRAVELING IN THE SAME DIRECTION A SINGLE BROKEN WHITE LINE SHALL BE USED WHERE CROSSING LANES IS PERMITTED.

D. LONGITUDINAL PAVEMENT MARKINGS SHALL BE READY-MIXED WHITE OR YELLOW PAINT WHICH MAY BE USED AS A BASE FOR DROP-ON REFLECTING GLASS BEADS, OR FOR USE AS A PLAIN NON-REFLECTIVE TRAFFIC PAINT SUITABLE FOR EITHER BITUMINOUS OR CONCRETE SURFACES.

1. GLASS BEADS SHALL CONFORM TO AASHTO M 247 WITH A MOISTURE RESISTANCE COATING.
2. IMMEDIATELY BEFORE APPLYING THE PAVEMENT MARKING PAINT TO THE PAVEMENT, THE CONTRACTOR SHALL INSURE THE SURFACE IS DRY AND ENTIRELY FREE FROM DIRT, SAND, GREASE, OIL, OR OTHER MATTER WHICH WOULD PREVENT EFFECTIVE ADHESION OF THE PAINT TO THE PAVEMENT.
3. THE SURFACE TEMPERATURE OF THE PAVEMENT SHALL BE A MINIMUM OF 5°C (40°F).
4. EVERY EFFORT SHALL BE MADE TO APPLY PAINT ACCORDINGLY TO THE REQUIREMENTS STATED IN THIS SECTION. WHEN PAINT MUST BE APPLIED BETWEEN THE DATES OF OCTOBER 15 THROUGH APRIL 15 INCLUSIVE OR ON PAVEMENT WITH A SURFACE TEMPERATURE BELOW 5°C (40°F), COLD WEATHER PAINT CAN BE USED WHICH DOES NOT EXCEED EPA'S FEDERAL REGISTER,RULES AND REGULATIONS (40 CFR PART 59 [AD-FRL-6149-7] RIN 2060-AE55), AS AMENDED, FOR VOC CONTENT LIMIT AND SHALL MEET THE AASHTO M248 F AND REQUIREMENTS NOTED BELOW. THESE PRODUCTS SHALL BE APPLIED ACCORDING TO THE MANUFACTURERS REQUIREMENTS.
5. THE COLD WEATHER PAINT SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS.

a) PROPERTY TEST METHOD REQUIREMENT.
b) DRY OPACITY (CONTRAST RATIO) ASTM D2244-WITH A WET FILM THICKNESS OF 18 ± 1 mils.
c) VOC ASTM D3960 150 g/l (1.25 lb/gal) MAX.
d) DRYING TIME ASTM D7111 WITH WET FILM THICKNESS OF 15 mils. 15 MINUTES MAX @ 25°C (77°F).

6. GLASS BEADS SHALL BE EVENLY APPLIED THROUGH THE ENTIRE PAINT THICKNESS AT A RATE OF 7 TO 9 lbs. TO EACH GALLON OF PAINT. GLASS BEADS SHALL BE APPLIED SIMULTANEOUSLY WITH PAINT, BY PRESSURIZED OR MECHANICAL DROP METHODS.
7. PAINTED LANE LINES, EDGE LINES, AND CENTERLINES SHALL HAVE A MINIMUM RETROREFLECTIVITY OF 250 MILLICANDELAS FOR WHITE AND 150 MILLICANDELAS FOR YELLOW. THE RETROREFLECTIVITY MEASUREMENT WILL BE TAKEN BY THE TOWN ON LINES THAT ARE CLEAN AND DRY WITHIN 30 DAYS OF APPLICATION, BEFORE ANY WINTER MAINTENANCE TAKES PLACE.
8. PAINT SHALL BE MARYLAND FAST DRY WATERBORNE TRAFFIC PAINT, LEAD FREE BY SHERMAN WILLIAMS OR APPROVED EQUAL. (FEDERAL STANDARD 595-38907 YELLOW OR 37925 WHITE).
9. PAVEMENT MARKINGS SHALL BE WARRANTED FOR A MINIMUM OF 2 YEARS FROM FINAL ACCEPTANCE BY THE TOWN.

APPROVAL — TOWN ENGINEER — DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

LONGITUDINAL PAVEMENT MARKINGS

ISSUED: JANUARY 2020 — STANDARD NO.: TOE-R-1.04

SITE & STORMWATER DETAILS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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

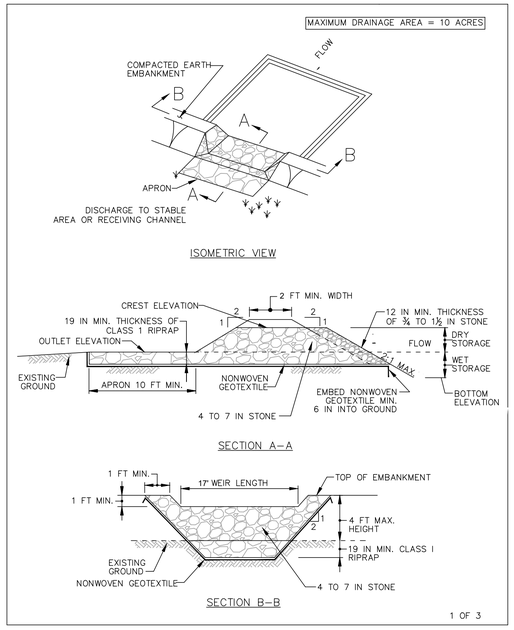
REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

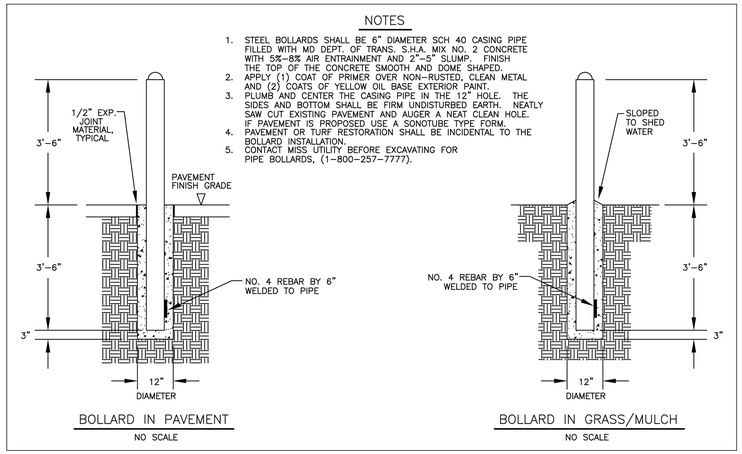
SHEET NO.: C-305.02

FOR REVIEW



1 OF 3

NOTE: STEEL PIPE BOLLARD ADOPTED FOR USE FROM THE CITY OF HAGERSTOWN, MD



SITE & STORMWATER DETAILS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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REVISIONS

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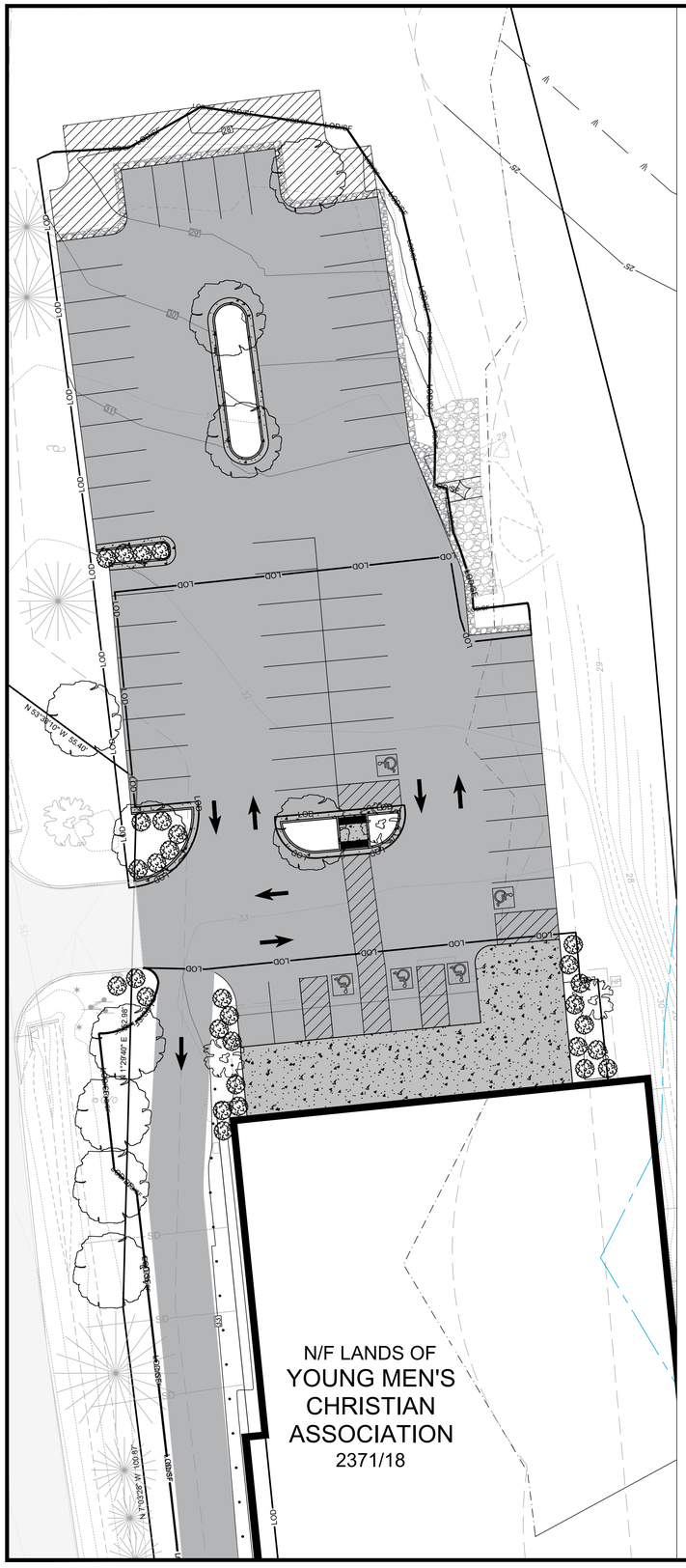
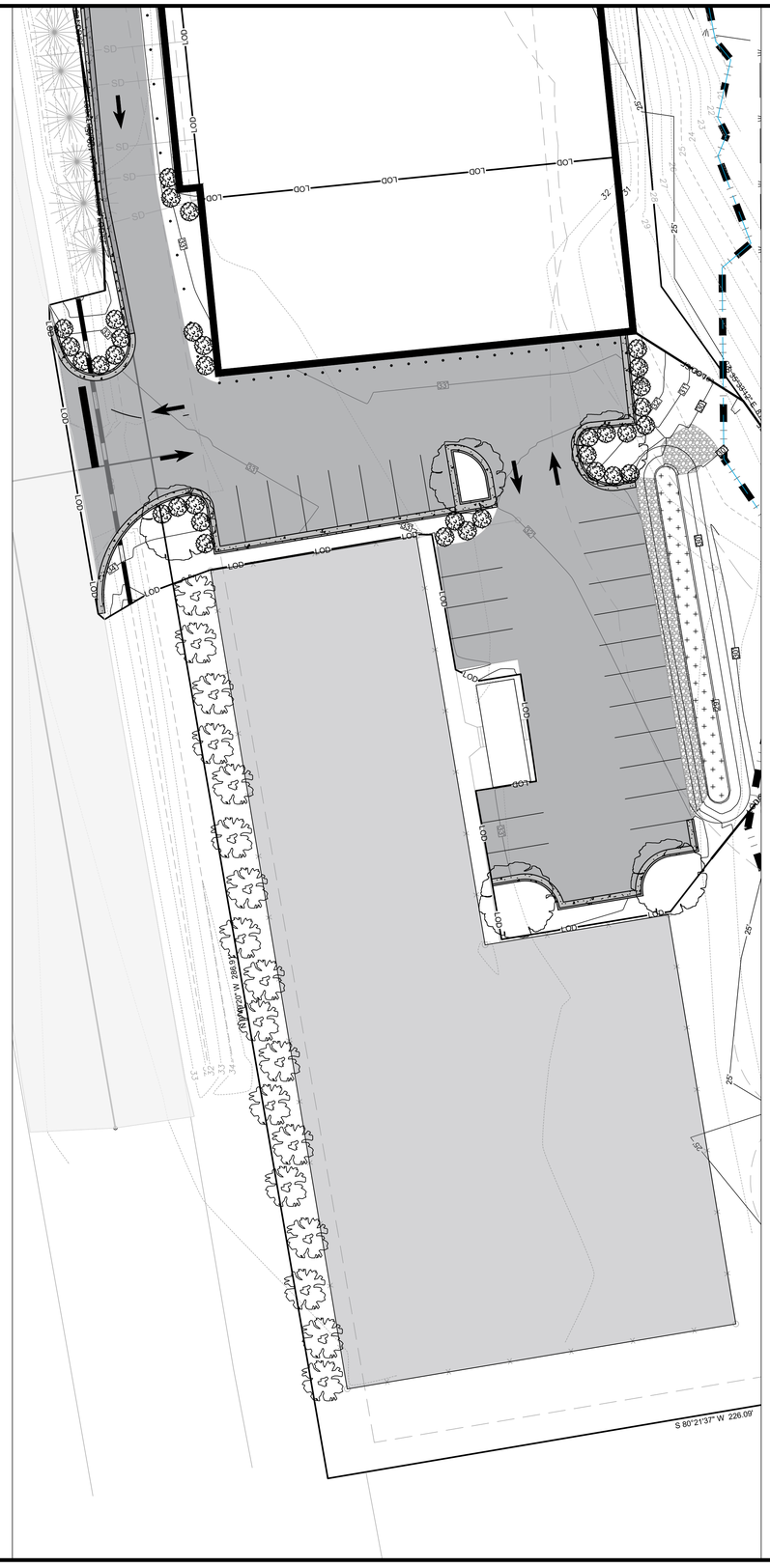
MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-305.03

FOR REVIEW





PROPOSED PLANTINGS:

15 DECIDUOUS CANOPY TREES
21 UNDERSTORY TREES
64 EVERGREEN SHRUBS

36 TOTAL TREES PROVIDED

30 TREES OVERALL TREES REQUIRED
(89,410 SQ-FT LOD / 3,000 = 30 TREES REQUIRED PER LANDSCAPE IMPROVEMENT SECTION 28-1014.6.F (INDUSTRY/BUSINESS AND SERVICE USES)

DECIDUOUS CANOPY TREE

UNDERSTORY TREE

SMALL-TO-MEDIUM EVERGREEN SHRUB

N

0 10' 20'

LANDSCAPE PLAN

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2877
FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND
PREPARED FOR YMCA INC.

RAUCH inc.
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Main Office: 106 N Harrison St - Easton, MD 21601
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REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	

SHEET NO.: L-401

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.

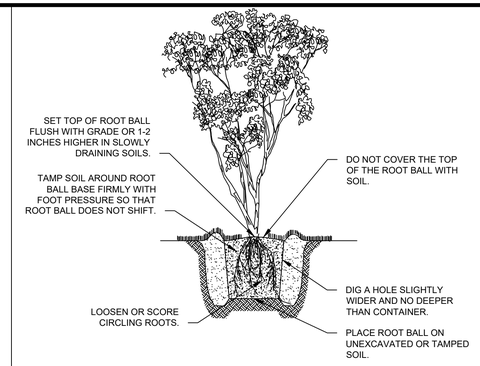
C. FAILURE TO MAINTAIN, REPAIR OR REPLACE THE REQUIRED AND APPROVED LANDSCAPE IMPROVEMENTS SHALL BE CONSIDERED A VIOLATION OF THIS ORDINANCE AND SHALL BE ENFORCED IN ACCORDANCE WITH SECTION 28 – 1308 OF THE TOWN OF EASTON ZONING ORDINANCE.

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.

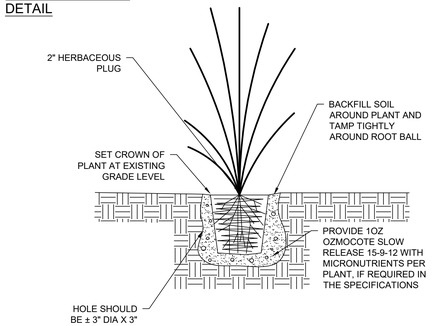
LANDSCAPING NOTES:

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.



CONTAINER TREE & SHRUB PLANTING DETAIL

2" PLUG PLANTING DETAIL



LANDSCAPE DETAILS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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 3887

REVISIONS

REV. #	DATE	DESCRIPTION
1		

MISS UTILITY OF DELMARVA — DIG SAFE BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	1" = 60'
DRAWN BY:	BAOC/AFK
DESIGNED BY:	WCS
APPROVED BY:	

SHEET NO.: L-405

FOR REVIEW

RAUCH inc.
Engineering | Survey | Architecture | Environmental

Site Development Stormwater Management Analysis

FOR

Easton Family YMCA @ Washington
1180 S Washington St
Easton, Md 21601

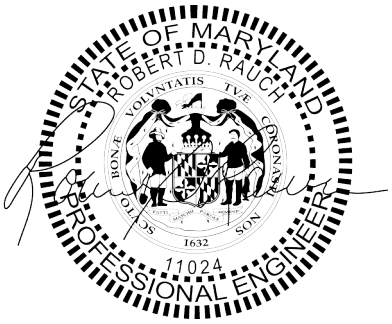
PREPARED FOR:

Young Men's Christian Association (YMCA) of the Chesa
101 N Wasker Drive
Chicago, IL 60606

PREPARED BY:

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

AUGUST 7, 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.

8/7/2024

ROBERT D. RAUCH, LICENCE NO. 11024 DATE
EXPIRATION DATE 7/24/2026

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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

SECTION 6……...……...Percolation Test

Main Office: 106 N Harrison St – Easton, MD 21601
Web: www.rauch-inc.com | Email: design@raucheng.com
Phone: 410.770.9081 | Fax: 410.770.3667

SECTION 1 – STORMWATER MANAGEMENT NARRATIVE

SITE DEVELOPMENT STORMWATER MANAGEMENT NARRATIVE

The proposed parking lot renovations at the Easton Family YMCA at 1180 S Washington is located on 4.72-acre lot of land. The site is outside of the Critical Area, does not qualify for Forest Conservation, is outside of the floodplain, and outside of the Tanyard Branch watershed. Minimal vegetation will be cleared for this project as most of the redevelopment is on existing impervious surface. The entire limit of disturbance is 89,410 sq-ft, which requires a state discharge permit through the NPDES. The dominant Hydrologic Soil Type is Type B. The unique site constraints of the YMCA being located on a ridge above a nearby stream valley have made the use of 'lines of investigation', versus commonly used study points, as the main way to estimate the water volume leaving the proposed site developments.

Within the LOD development, the plan will add 0.136 acres (5,936 sq-ft) of impervious surfaces, or a 7% increase. Based on the conditions of the existing parcel, the proposed development will be categorized as "Re-Development". The spreadsheets found in Section 2 of this report calculate the required ESD volume to be 2,604 CF of ESD storage.

Water quality will be met through non-rooftop disconnection to treat the northern parking lot and one micro-bioretention to treat the south parking lot. The proposed ESD practices overtreat 3,372 CF of water, compared to the required and calculated 2,604 CF (768 CF difference). The existing site conditions received geotechnical soil borings and gauged ground water to be at least 9' down and below the proposed stormwater facilities due to existing topography, being on top of a ridge before rapidly falling into a nearby stream valley. The percolation infiltrometer test discovered that over 24" of water drains per hour. Additionally, the proposed micro-bioretention will have a maximum of six feet of planting media depth and water will primarily exfiltrate through the bottom of the bioretention media. A weir is provided for the micro-bioretention to overflow during large stormwater events, where water can overflow and roll downhill into the stream below. No underdrains are provided as they are estimated to be unnecessary for this site and configuration.

Water quantity control is required for a post-development 10-year storm event to be less than the pre-development 10-year storm event within the Town of Easton, except within the Tanyard Branch. The proposed stormwater management practices reduce the combined 10-year CFS rate from 7.53 CFS to 4.66 CFS. The table for all lines of investigation are shown below for existing and proposed. Water quantity control is accomplished through both the non-rooftop disconnection and the one micro-bioretention, but primarily through the micro-bioretention.

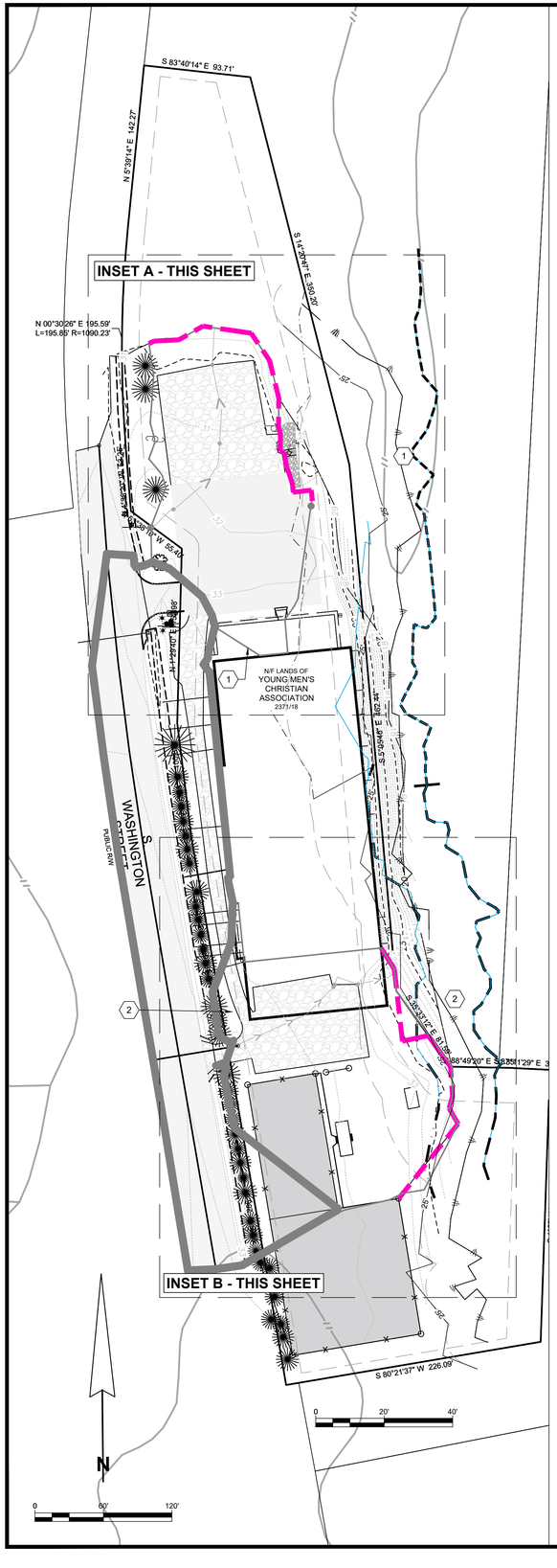
Line of Investigation 1 – North Parking Area		
	2-YR (CFS)	**10-YR (CFS)**
Existing	2.24	3.84
Proposed	2.52	4.22

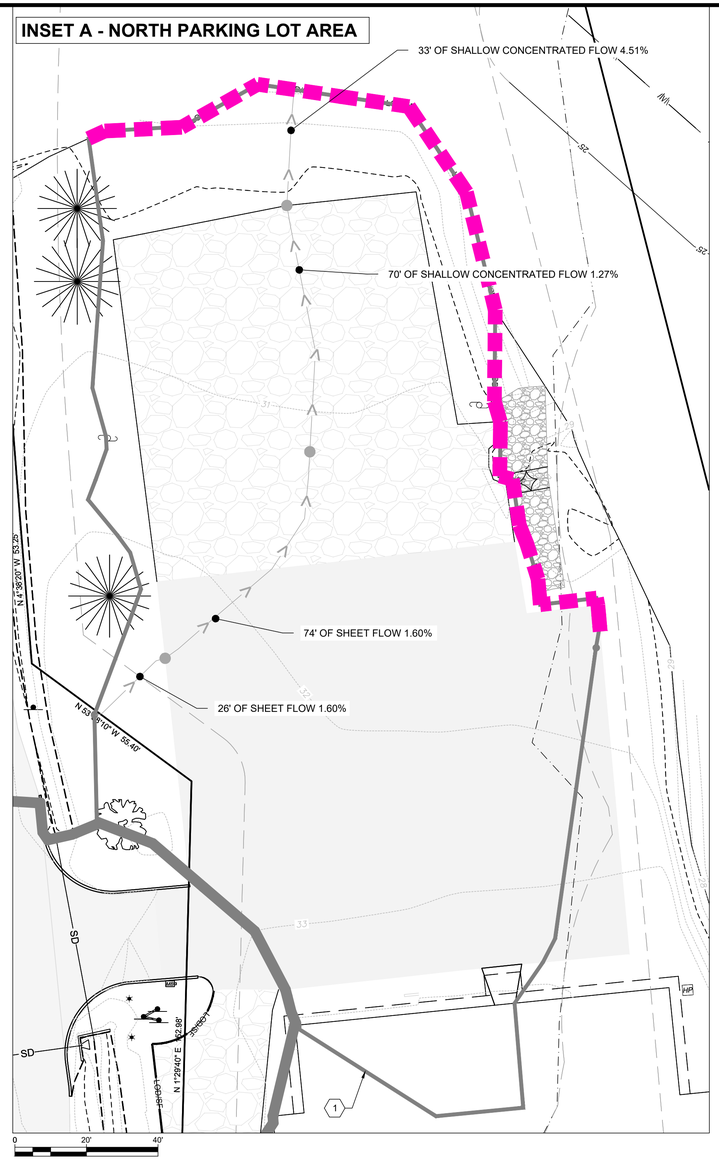
Line of Investigation 2 – South Parking Area		
	2-YR (CFS)	**10-YR (CFS)**
Existing	1.62	3.69
Proposed	0.21	0.44

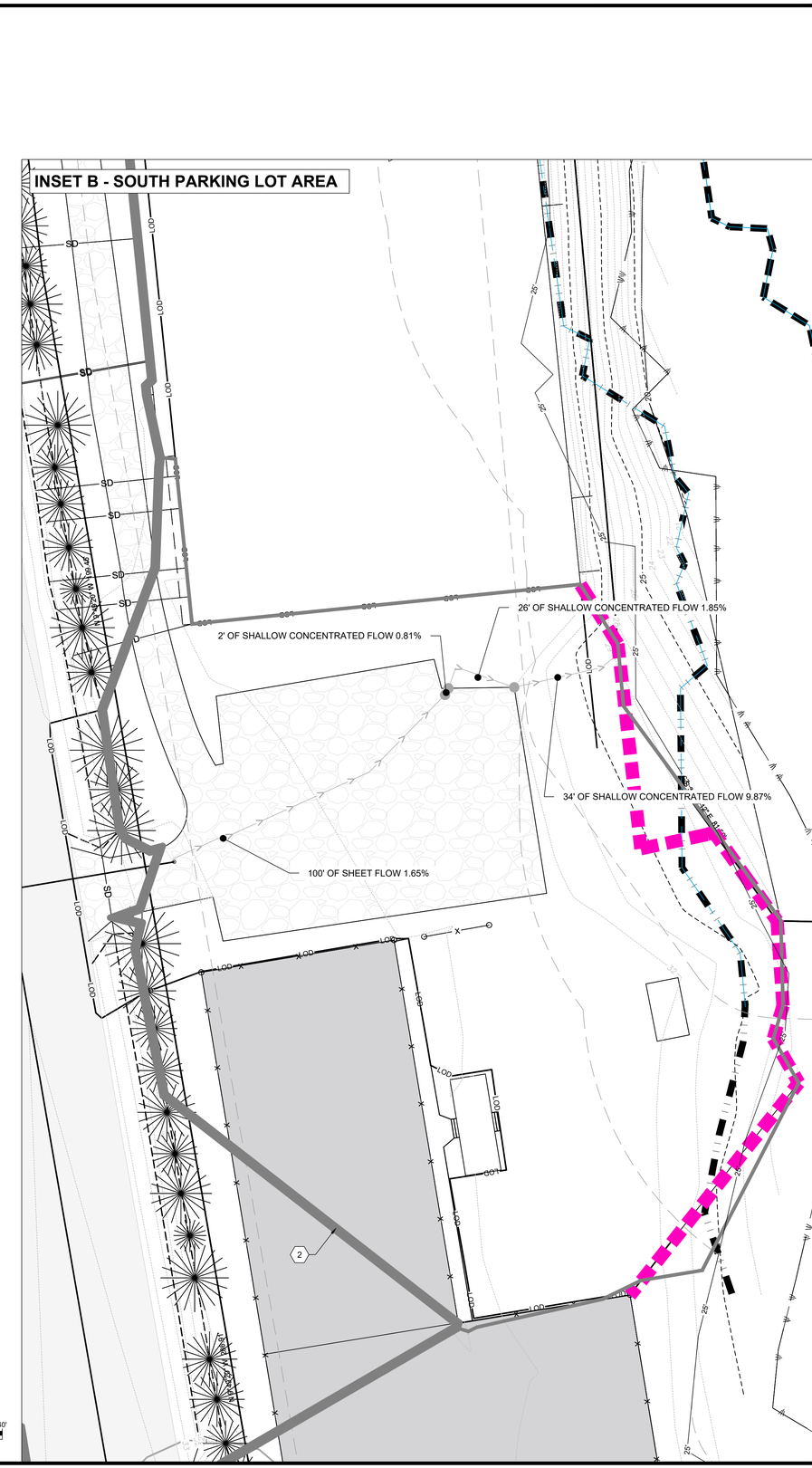
Pre-Development Combined 10-Year CFS = 7.53 CFS

Post-Development Combined 10-Year CFS = 4.66 CFS

SECTION 2 – EXISTING & PROPOSED DRAINAGE AREA MAPS







LEGEND

EXISTING DRAINAGE AREA	
LONGEST FLOW PATH - TIME OF CONCENTRATION	
LINE OF INVESTIGATION	
LOD	LOD
BOUNDARY LINE	
GRAVEL	
EXISTING ASPHALT	

PROPOSED SITE FEATURES

1. DRAINAGE AREA 1: 29,402 SF (0.675 AC)
2. DRAINAGE AREA 2: 35,808 SF (0.822 AC)

EXISTING DRAINAGE MAPS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 0, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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MISS UTILITY OF DELMARVA CALL BEFORE YOU DIG

811

DATE:	8/6/2024
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DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-301.04

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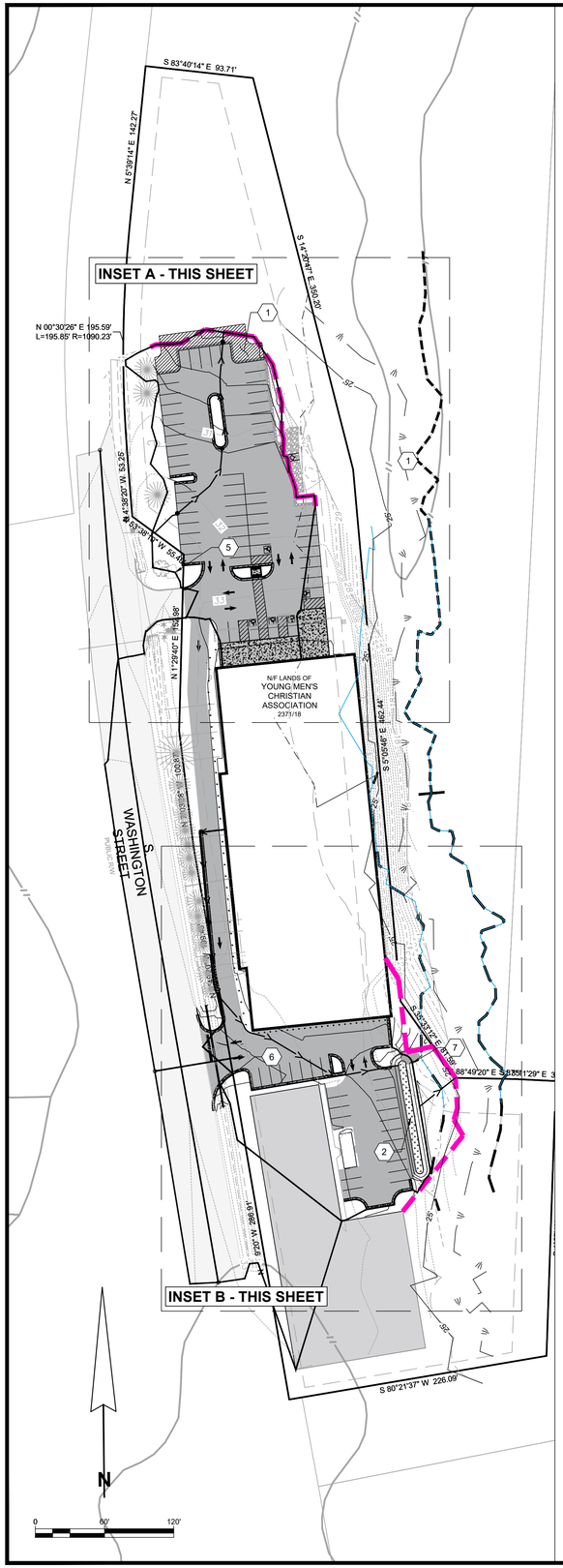
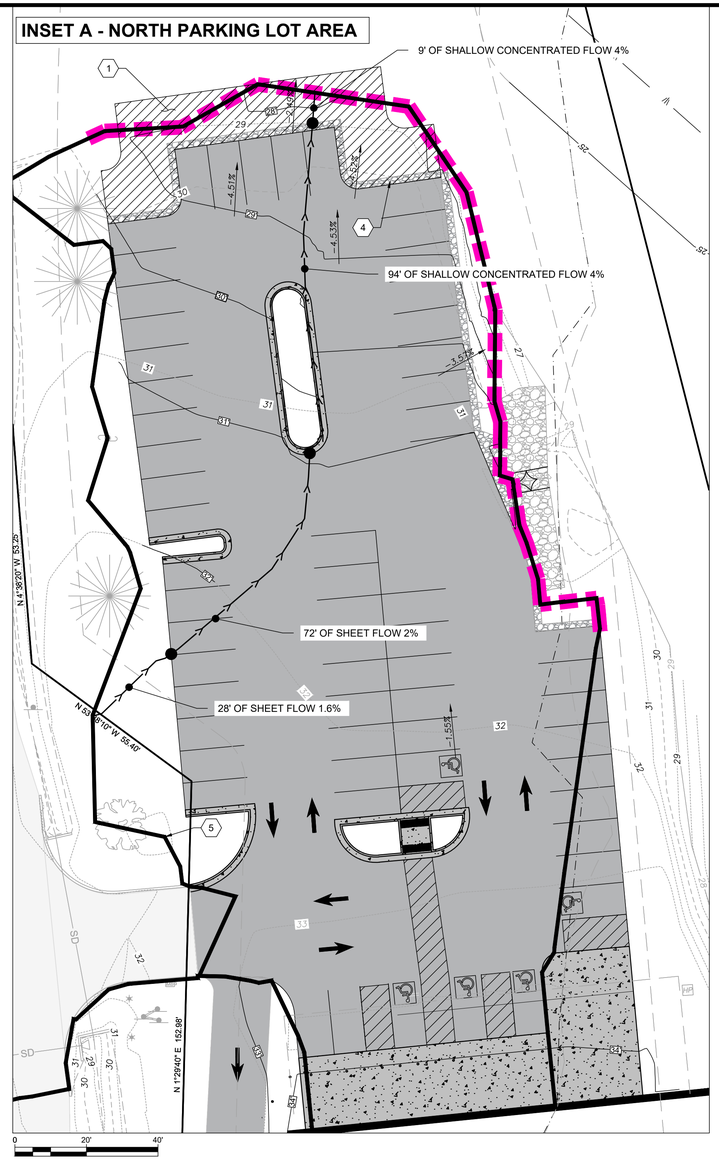
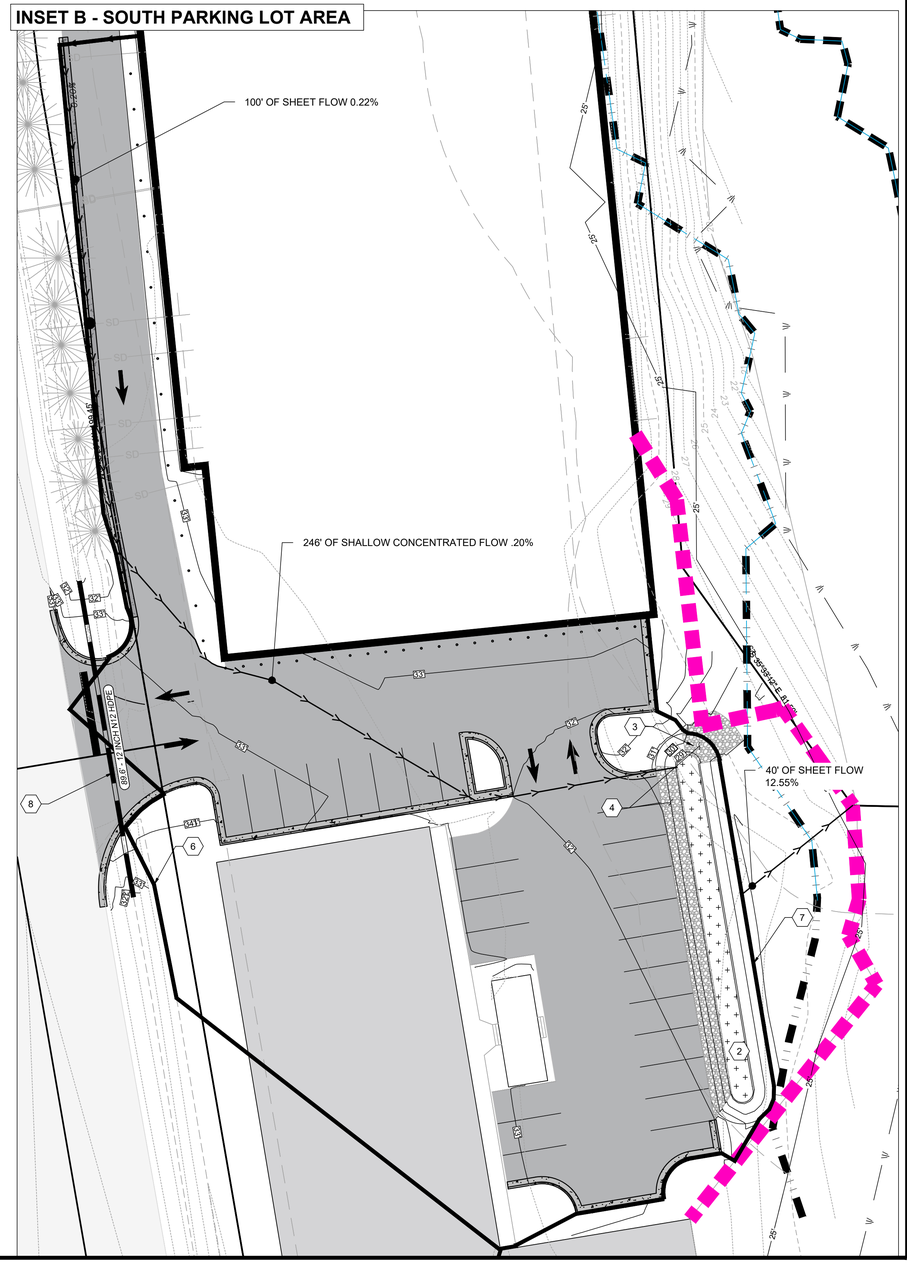




PROPOSED SITE FEATURES

1. NON-ROOFTOP DISCONNECTION AREA: 1,951 SF (DISCONNECTION LENGTH: 15' - CONTRIBUTING LENGTH: 75')
2. MICRO-BIORETENTION: BED AREA: 583 SF
3. WEIR
4. ROCK PROTECTION
5. DRAINAGE AREA 1: 30,922 SF (0.710 AC)
6. DRAINAGE AREA 2: 27,779 SF (0.637 AC)
7. DRAINAGE AREA 3: 4,169SF (0.096 AC)
8. PROVIDE AND INSTALL 67' HDPE PIPE UNDER EXPANDED SOUTH ENTRANCE



LEGEND

- PROPOSED DRAINAGE AREA
- LONGEST FLOW PATH - TIME OF CONCENTRATION
- LINE OF INVESTIGATION
- LOD
- BOUNDARY LINE
- GRAVEL
- PROPOSED ASPHALT
- MICRO BIORETENTION BED
- NONROOFTOP DISCONNECT

PROPOSED DRAINAGE MAPS

OF THE LANDS OF

YMCA INC.

TAX MAP 108, GRID 6, PARCEL 2677

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

PREPARED FOR YMCA INC.

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DESIGNED BY:	WCS
APPROVED BY:	BBF

SHEET NO.: C-301.05

FOR REVIEW

SECTION 3 – ESD WATER QUALITY CALCULATIONS

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 1/6/2019 Reuth Inc.

Project Name:
Date:

data input cells
calculation cells

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
Sensitive Areas Were Protected from Disturbance	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 Planting/Use Used at the Site to Convert Turf Areas into Forest	YES

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

New development/redevelopment category is based on the 10%, 50% 4000 ordinance the ESD and WQ values are based on the LDE-4800A. The term "10%" is defined as a marginal rate, for pursuit of practical optimization of bonus, sole pursuits of value that are in non-conformity or with nonfigurative and in-balanced relationship where development is to be professed as partial or work subdivisions or project. See page 5-7.17 in the design handbook. This means that a project may be classed as

Total SITE Area, A (acres or sq-ft)	4.77
Existing SITE Impervious Area (acres or sq-ft)	2.01
SITE percentage, I	42%
Development Category (for ESD)	**Redevelopment**
LOD Area, A (acres)	2.55
Existing LOD Impervious Surface Area (acres)	0.93
Proposed LOD Impervious Surface Area (acres)	0.94
Rainfall Depth, P (in)	1.0
Existing LOD Imperviousness, I_{LOD}	36%
Proposed LOD Imperviousness, I_{LOD}	40%
Water Quality Calculation for Redevelopment Only	
Regulated Treatment Area (acres)	0.402
Runoff Coefficient, Rv	0.90
Water Quality Volume, WQv (cf)	**1,582**

Development Category (for 10%): Redevelopment

New Development
Average Annual Predevelopment Load, L_{pre} (lbs P / yr): 1.05

Redevelopment
Predevelopment Runoff Coefficient, Rv_{pre}: 0.40
Phosphorus Mean Concentration, C (mg/L): 0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr): 2.02

Post-Development Runoff Coefficient, Rv_{post}: 0.90
Average Annual Post-Development Load, L_{post} (lbs P / yr): 2.32

Removal Requirement, RR (lbs P / yr): 0.50

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

% Soil Type A	0%	RCN Soil Type A	68.49
% Soil Type B	100%	RCN Soil Type B	79.39
% Soil Type C	0%	RCN Soil Type C	84.10
% Soil Type D	0%	RCN Soil Type D	88.52

Target Pre-Developed Condition, RCN_{Target}: 63.00000 Post-Developed Condition, RCN: 79.39

Soil Type A ESD Rainfall Target, P_E (in)	0.00
Soil Type B ESD Rainfall Target, P_E (in)	2.60
Soil Type C ESD Rainfall Target, P_E (in)	0.00
Soil Type D ESD Rainfall Target, P_E (in)	0.00
Maximum P_E (in)	2.6

Runoff depths for In and Hr analysis

2yr	10yr	25yr	100yr
3.4	5.1	6.1	7.8

Site ESD Rainfall Target, P_E (in): 2.60

ESD Runoff Depth, Q_E (in): 2.47

ESD Runoff Volume, ESDv (cf): 1,221

Total Treatment Volume (cf): 2,804

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

Nonstructural Practices	P_E Credit Description	Contributing Drainage Area (af)	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)
Disconnection of Rooftop Runoff 1	Up to 1 inch credit provided based upon disconnection and contributing flow length	0	0	N/A	#DIV/0!	0	0
Disconnection of Rooftop Runoff 2	Up to 1 inch credit provided based upon disconnection flow length	0	0	N/A	#DIV/0!	0	0
Disconnection of Non-Rooftop Runoff 1	Up to 1 inch credit provided based upon disconnection and contributing flow length	9,362	2,001	N/A	1.09	741	1,260
Disconnection of Non-Rooftop Runoff 2	Up to 1 inch credit provided based upon disconnection and contributing flow length	0	0	N/A	#DIV/0!	0	0
Sheetflow to Conservation Areas 1	Up to 1 inch credit provided based upon conservation area width	0	0	0	#DIV/0!	0	0
Sheetflow to Conservation Areas 2	Up to 1 inch credit provided based upon conservation area width	0	0	0	#DIV/0!	0	0

Critical Area Credits

Baseline Phosphorus Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
50%	50%	0.55	0.25	0.30
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#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 (af)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Green Roof (Level 1)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Green Roof (Level 2)	ESDv credit is based on roof thickness	0	0	N/A	0	0
Permeable Pavement (A Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Permeable Pavement (B Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Permeable Pavement (C Soils)	ESDv credit is based on subbase thickness	0	0	N/A	0	0
Rainwater Harvesting	ESDv credit is based on design storage volume and annual use	0	0	0	0	0
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	0	#DIV/0!	#DIV/0!	0	0
Infiltration berms	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens 1	ESDv credit is based on design storage volume	0	0	0	0	0
Rain Gardens 2	ESDv credit is based on design storage volume	0	0	0	0	0
Micro-Bioretention 1	ESDv credit is based on design storage volume	27,779	4,700	4700	2,631	2,069
Micro-Bioretention 2	ESDv credit is based on design storage volume	0	0	0	0	0
Landscape Infiltration	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales 1	ESDv credit is based on design storage volume	0	0	0	0	0
Grass Swales 2	ESDv credit is based on design storage volume	0	0	0	0	0
Bioswales 1	ESDv credit is based on design storage volume	0	0	0	0	0
Bioswales 2	ESDv credit is based on design storage volume	0	0	0	0	0
Wet Swales	ESDv credit is based on design storage volume	0	0	0	0	0

Critical Area Credits

Baseline Phosphorus Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
80%	#DIV/0!	0.00	0.00	0.00
80%	#DIV/0!	0.00	0.00	0.00
40%	#DIV/0!	0.00	0.00	0.00
43%	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	#DIV/0!	0.00	#DIV/0!
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
70%	65%	1.17	0.99	0.18
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#DIV/0!	#DIV/0!	0.00	0.00	0.00
#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): 37,141

WQv or ESDv Treated (cf) using ESD practices (E...w/Structural Overflow): 3,372 / 7,140

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): 1.24
Total Load Reduction Remaining (lbs P / yr): 0.00

New Development Water Quality Volume Requirement

Regulated Treatment Area (acres)	0.14
Runoff Coefficient, Rv	0.95
Water Quality Volume, WQv (cf)	**0**

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_D, (in) for Reduced RCN	N/A
1.25*(1yr Reduced RCN	N/A
Volume Management Required (cf)	**0**
Volume Required for structural practices (cf)	**0**

Target Reduced RCN $_{Area, T,K}$: 80.00

Q_D, (in) for pre-developed RCN: 0.12
1.25*(1yr Reduced RCN: 209

Return period: 1yr
CN: 80
Qa/Pa achieved x-Ro: 1.46
Qa/Pa: 3.00
CN*: **118.67**

Composite reduced runoff curve number for In and Hr analysis (TR-55)

2yr	10yr	25yr	100yr	Pa achieved x Ro
2.77	5.00	6.00	8.62	
1.46	3.00	3.95		
80	80	80		
118.67	**#NUM!**	**#NUM!**		

Step 9: Select Structural Practices to Meet Volume Management Requirements

Structural Practices	Contributing Drainage Area (af)	% Impervious Cover	Direct ESDv Received by Practice (cf)	ESDv from Upstream Practices (cf)	Treatment Volume (cf)
Stormwater Ponds (Level 1)	0	0%	0	0	0
Stormwater Ponds (Level 2)	0	0%	0	0	0
Stormwater Wetlands (Level 1)	0	0%	0	0	0
Stormwater Wetlands (Level 2)	0	0%	0	0	0
Stormwater Filtering Systems (Level 1)	0	0%	0	0	0
Stormwater Filtering Systems (Level 2)	0	0%	0	0	0
Stormwater Infiltration (Level 1)	0	0%	0	0	0
Stormwater Infiltration (Level 2)	0	0%	0	0	0

Critical Area Credits

Phosphorus Removal Efficiency	Adjusted Phosphorus Removal Efficiency	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
50%	0%	0.00	0.00	0.00
70%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
70%	0%	0.00	0.00	0.00
50%	0%	0.00	0.00	0.00
80%	0%	0.00	0.00	0.00
60%	0%	0.00	0.00	0.00
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): 1.24
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)	**0.50**
after non-structural and micro-scale BMPs (Steps 5 and 6)	
Total Load Reduction (lbs P / year)	1.24
Total Load Reduction Remaining (lbs P / yr)	**0.00**
after structural practices (Step 9)	
Total Load Reduction (lbs P / year)	1.24
Total Load Reduction Remaining (lbs P / yr)	**0.00**

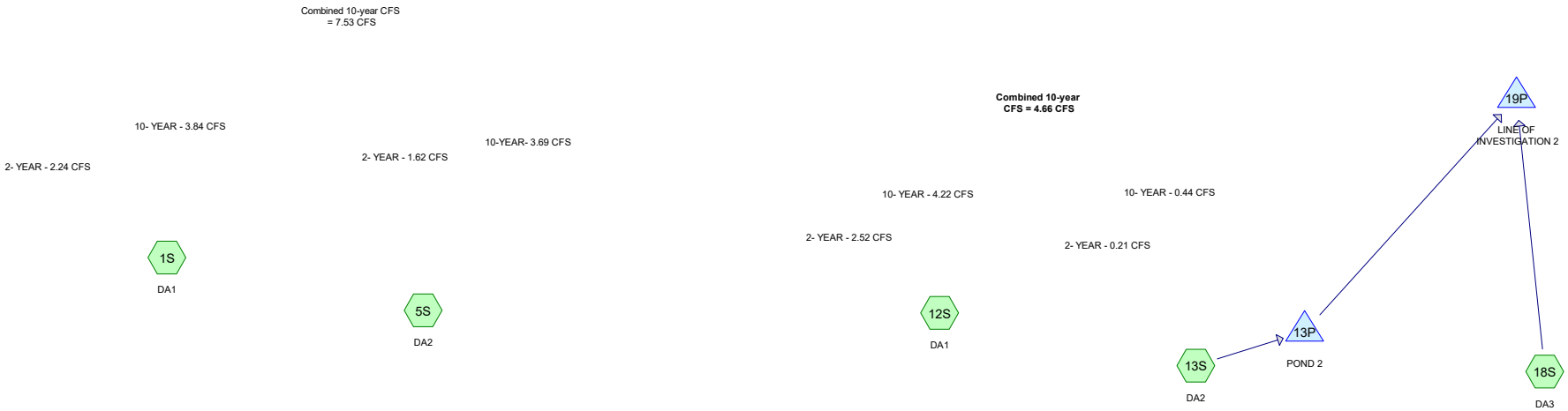
MDE's ESD to the MEP Calculations

ESD Runoff Volume, ESDv (cf)	1221.00
Total Treatment Volume (cf)	2604.48
WQv or ESDv Treated (cf) using ESD practices	3372.36
PE achieved (inches)	7.18
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

Nonstructural 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)		P_E Credit (in)	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 (%)
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1	9,362	100% 0.95	2.60 1927	2,001	15	15	1.00	741.16	1,260		A/B	50%	50.00%	0.50	0.25	0.25	1.00	82.57%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
					Disconnection Length (ft)	Contributing Length (ft) (Impervious)												
Disconnection of Non-Rooftop Runoff 1		100% 0.95	2.60 0	0			0.00	0.00	0				0.00%	0.00	0.00	0.00	0.00	0.00%
Total	9,362			2,001			1	741	1,260			50%	50.00%	0.50	0.25	0.25	1.00	82.57%

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 (%)
		78%	2.20				27,779	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)												
Micro-Bioretention 1	27,779	0.752	3830	4,700	0	0	4700	583	1,881	1	6	2.1%	2,631	2,069		A/B	75%	84.68%	1.17	0.99	0.18	1.51	93.23%
		0%	1.00				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%	1.00				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%	1.00				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%	100%				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%	1.00				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%	1.00				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%	1.00				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%	1.00				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%	1.00				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				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	27,779			4,700		0							2,631	2,069			75%	84.68%	1.17	0.99	0.18	1.51	93.23%

SECTION 4 – PRE/POST-DEVELOPMENT QUANTITY CALCULATIONS



Subcat Reach Pond Link

Routing Diagram for YMCA_S Washington

Prepared by {enter your company name here}, Printed 8/6/2024

HydroCAD® 10.00-20 s/n 02413 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.158	69	50-75% Grass cover, Fair, HSG B (1S, 12S)
0.096	79	<50% Grass cover, Poor, HSG B (18S)
0.622	61	>75% Grass cover, Good, HSG B (5S, 13S)
0.401	96	Gravel surface, HSG B (1S, 5S)
0.499	98	Paved parking, HSG B (13S)
1.029	98	Unconnected pavement, HSG B (1S, 5S, 12S)
0.135	65	Woods/grass comb., Fair, HSG B (1S)
2.940	**86**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.940	HSG B	1S, 5S, 12S, 13S, 18S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.940		**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
0.000	0.158	0.000	0.000	0.000	0.158	50-75% Grass cover, Fair	1S, 12S
0.000	0.096	0.000	0.000	0.000	0.096	<50% Grass cover, Poor	18S
0.000	0.622	0.000	0.000	0.000	0.622	>75% Grass cover, Good	5S, 13S
0.000	0.401	0.000	0.000	0.000	0.401	Gravel surface	1S, 5S
0.000	0.499	0.000	0.000	0.000	0.499	Paved parking	13S
0.000	1.029	0.000	0.000	0.000	1.029	Unconnected pavement	1S, 5S, 12S
0.000	0.135	0.000	0.000	0.000	0.135	Woods/grass comb., Fair	1S
0.000	**2.940**	**0.000**	**0.000**	**0.000**	**2.940**	**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 Runoff Area=29,402 sf 46.43% Impervious Runoff Depth=2.35"
Flow Length=203' Tc=5.4 min CN=90 Runoff=2.24 cfs 0.132 af

Subcatchment 5S: DA2 Runoff Area=35,808 sf 17.80% Impervious Runoff Depth=1.11"
Flow Length=162' Tc=2.5 min UI Adjusted CN=73 Runoff=1.62 cfs 0.076 af

Subcatchment 12S: DA1 Runoff Area=30,922 sf 80.26% Impervious Runoff Depth=2.54"
Flow Length=203' Tc=5.2 min CN=92 Runoff=2.52 cfs 0.150 af

Subcatchment 13S: DA2 Runoff Area=27,779 sf 78.29% Impervious Runoff Depth=2.35"
Flow Length=346' Tc=7.3 min CN=90 Runoff=1.90 cfs 0.125 af

Subcatchment 18S: DA3 Runoff Area=4,169 sf 0.00% Impervious Runoff Depth=1.49"
Flow Length=40' Slope=0.1255 '/' Tc=4.8 min CN=79 Runoff=0.21 cfs 0.012 af

Pond 13P: POND 2 Peak Elev=28.86' Storage=1,405 cf Inflow=1.90 cfs 0.125 af
Discarded=0.80 cfs 0.125 af Primary=0.00 cfs 0.000 af Outflow=0.80 cfs 0.125 af

Pond 19P: LINE OF INVESTIGATION 2 Inflow=0.21 cfs 0.012 af
Primary=0.21 cfs 0.012 af

Total Runoff Area = 2.940 ac Runoff Volume = 0.496 af Average Runoff Depth = 2.02"
48.01% Pervious = 1.412 ac 51.99% Impervious = 1.529 ac

Summary for Subcatchment 1S: DA1

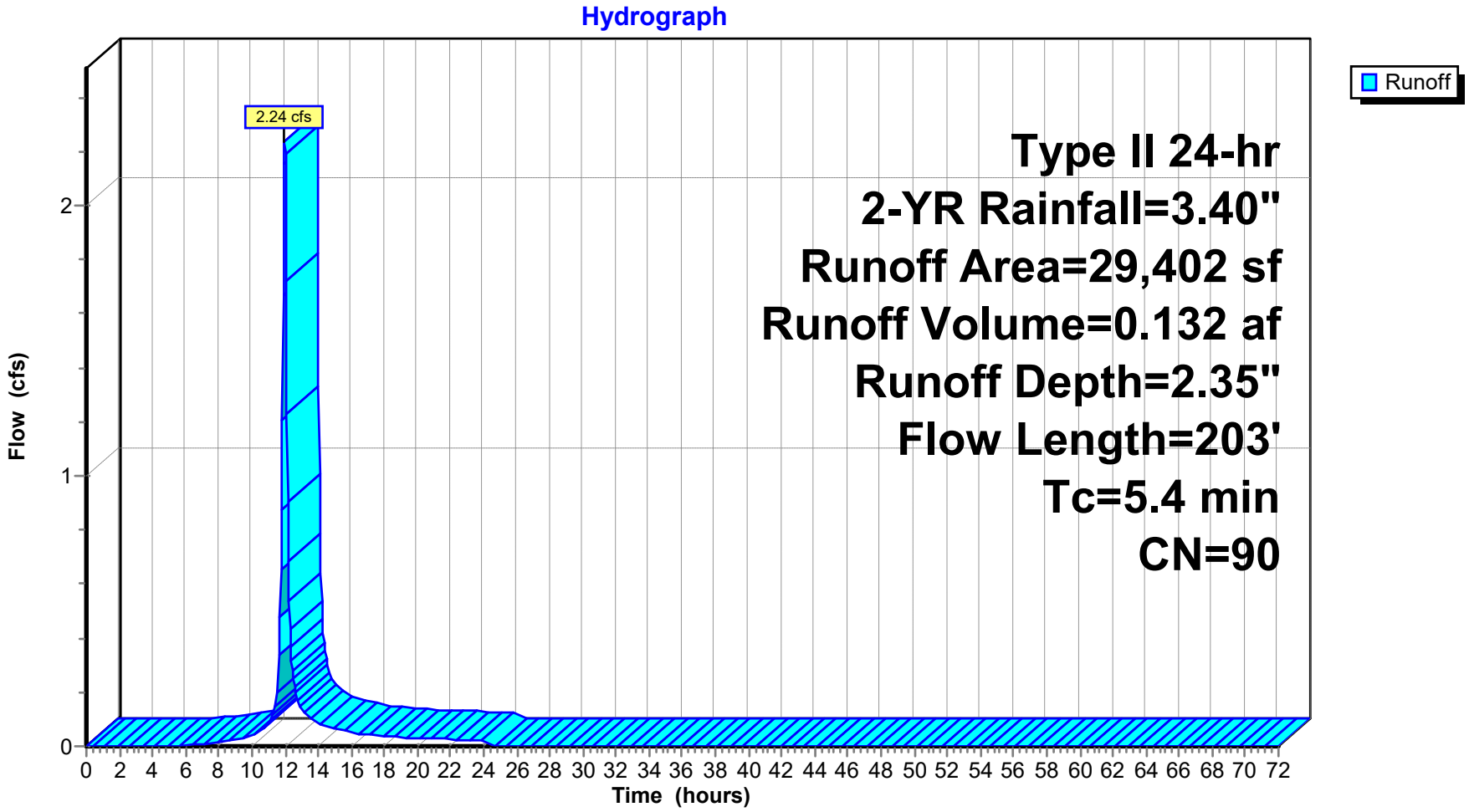
Runoff = 2.24 cfs @ 11.98 hrs, Volume= 0.132 af, Depth= 2.35"

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
800	69	50-75% Grass cover, Fair, HSG B
9,076	96	Gravel surface, HSG B
13,650	98	Unconnected pavement, HSG B
5,876	65	Woods/grass comb., Fair, HSG B
29,402	90	Weighted Average
15,752		53.57% Pervious Area
13,650		46.43% Impervious Area
13,650		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	26	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.0	74	0.0160	1.22		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.5	70	0.0127	2.29		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	33	0.0451	1.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.4	203	Total			

Subcatchment 1S: DA1



Summary for Subcatchment 5S: DA2

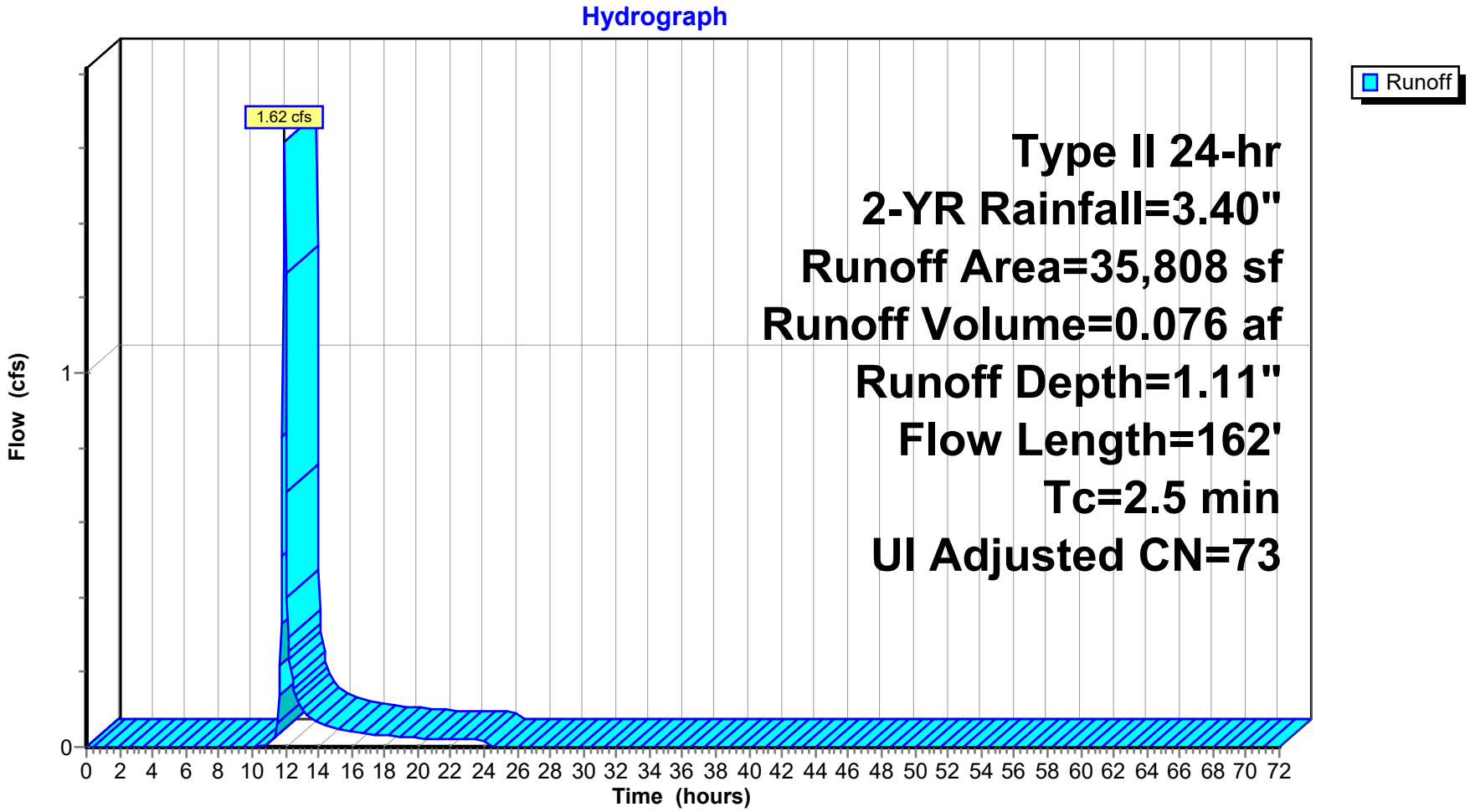
Runoff = 1.62 cfs @ 11.95 hrs, Volume= 0.076 af, Depth= 1.11"

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	Adj	Description
8,379	96		Gravel surface, HSG B
21,054	61		>75% Grass cover, Good, HSG B
6,375	98		Unconnected pavement, HSG B
35,808	76	73	Weighted Average, UI Adjusted
29,433			82.20% Pervious Area
6,375			17.80% Impervious Area
6,375			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0165	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.0	2	0.0081	1.83		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	26	0.0185	0.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	34	0.0987	0.79		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
2.5	162	Total			

Subcatchment 5S: DA2



Summary for Subcatchment 12S: DA1

Runoff = 2.52 cfs @ 11.97 hrs, Volume= 0.150 af, Depth= 2.54"

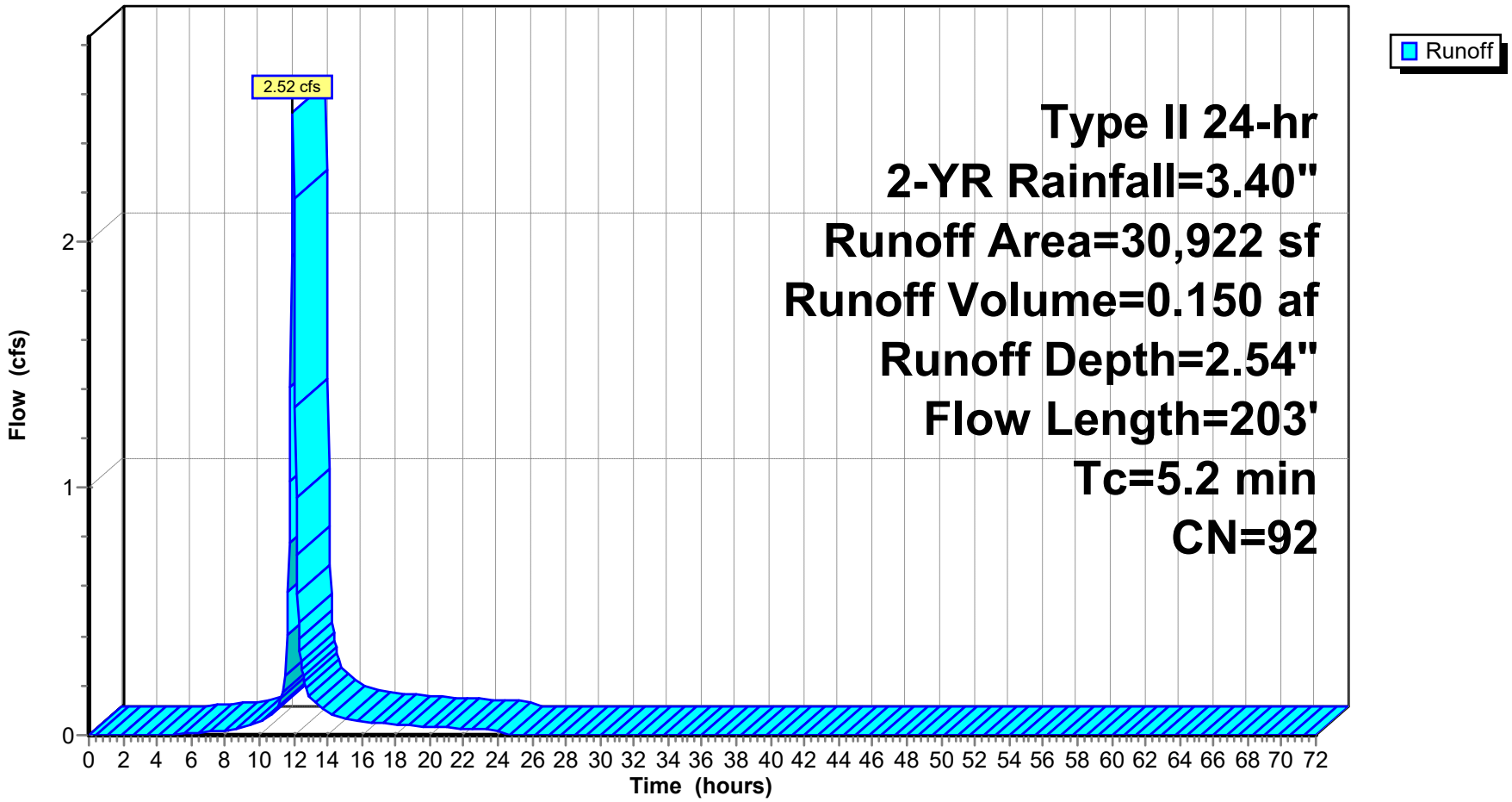
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
6,104	69	50-75% Grass cover, Fair, HSG B
24,818	98	Unconnected pavement, HSG B
30,922	92	Weighted Average
6,104		19.74% Pervious Area
24,818		80.26% Impervious Area
24,818		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	28	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.9	72	0.0200	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.4	94	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	9	0.0234	1.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	203	Total			

Subcatchment 12S: DA1

Hydrograph



Summary for Subcatchment 13S: DA2

Runoff = 1.90 cfs @ 12.00 hrs, Volume= 0.125 af, Depth= 2.35"

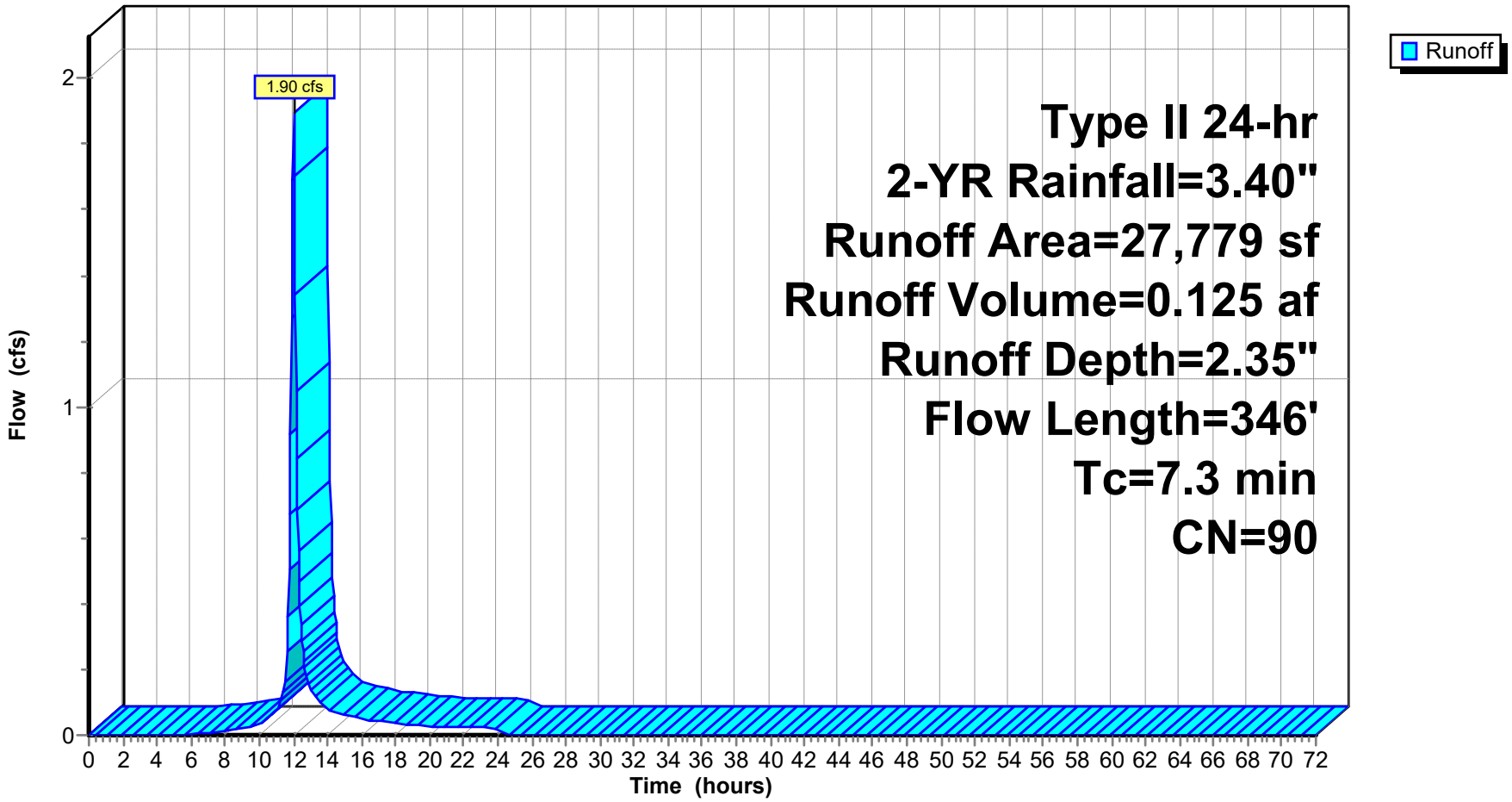
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
6,030	61	>75% Grass cover, Good, HSG B
21,749	98	Paved parking, HSG B
27,779	90	Weighted Average
6,030		21.71% Pervious Area
21,749		78.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	100	0.0022	0.59		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
4.5	246	0.0020	0.91		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.3	346	Total			

Subcatchment 13S: DA2

Hydrograph



Summary for Subcatchment 18S: DA3

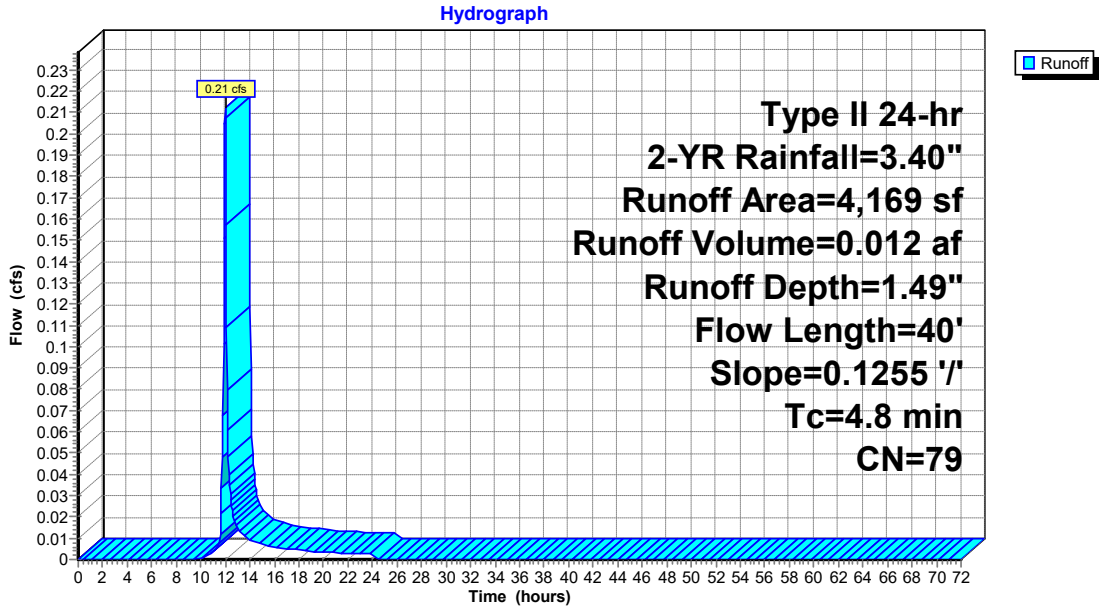
Runoff = 0.21 cfs @ 11.98 hrs, Volume= 0.012 af, Depth= 1.49"

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
4,169	79	<50% Grass cover, Poor, HSG B
4,169		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	40	0.1255	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Subcatchment 18S: DA3



Summary for Pond 13P: POND 2

Inflow Area = 0.638 ac, 78.29% Impervious, Inflow Depth = 2.35" for 2-YR event
Inflow = 1.90 cfs @ 12.00 hrs, Volume= 0.125 af
Outflow = 0.80 cfs @ 12.25 hrs, Volume= 0.125 af, Atten= 58%, Lag= 15.0 min
Discarded = 0.80 cfs @ 12.25 hrs, Volume= 0.125 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= 28.86' @ 12.25 hrs Surf.Area= 1,121 sf Storage= 1,405 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 17.8 min (824.9 - 807.1)

Volume	Invert	Avail.Storage	Storage Description
#1	22.85'	3,997 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

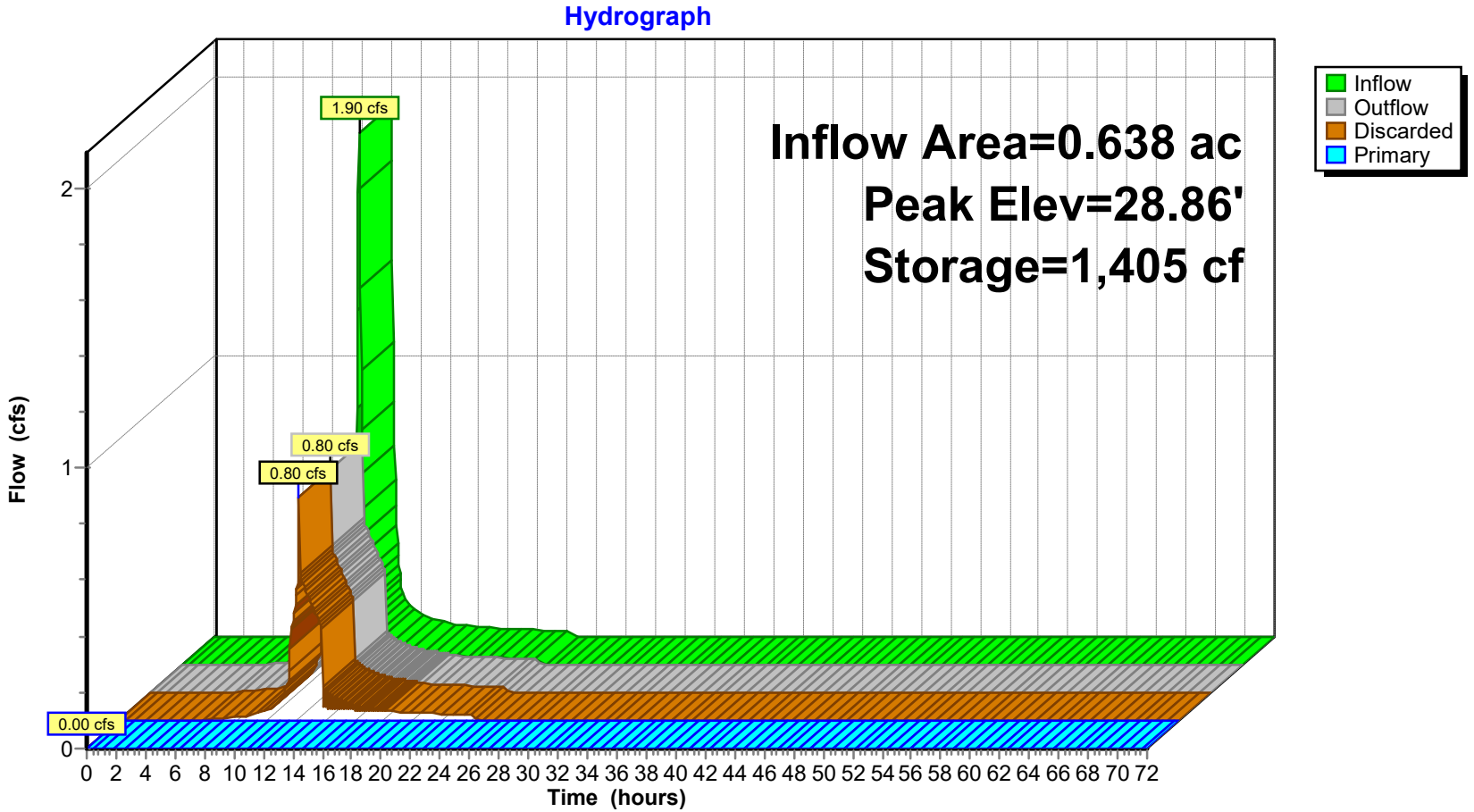
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.85	0	0.0	0	0
22.86	583	40.0	1	1
28.85	583	40.0	1,397	1,398
28.86	1,223	100.0	9	1,407
30.85	1,223	100.0	2,434	3,841
30.86	30,000	100.0	156	3,997

Device	Routing	Invert	Outlet Devices
#1	Discarded	22.85'	**24.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 12.00'
#2	Primary	29.87'	**14.0' long x 2.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

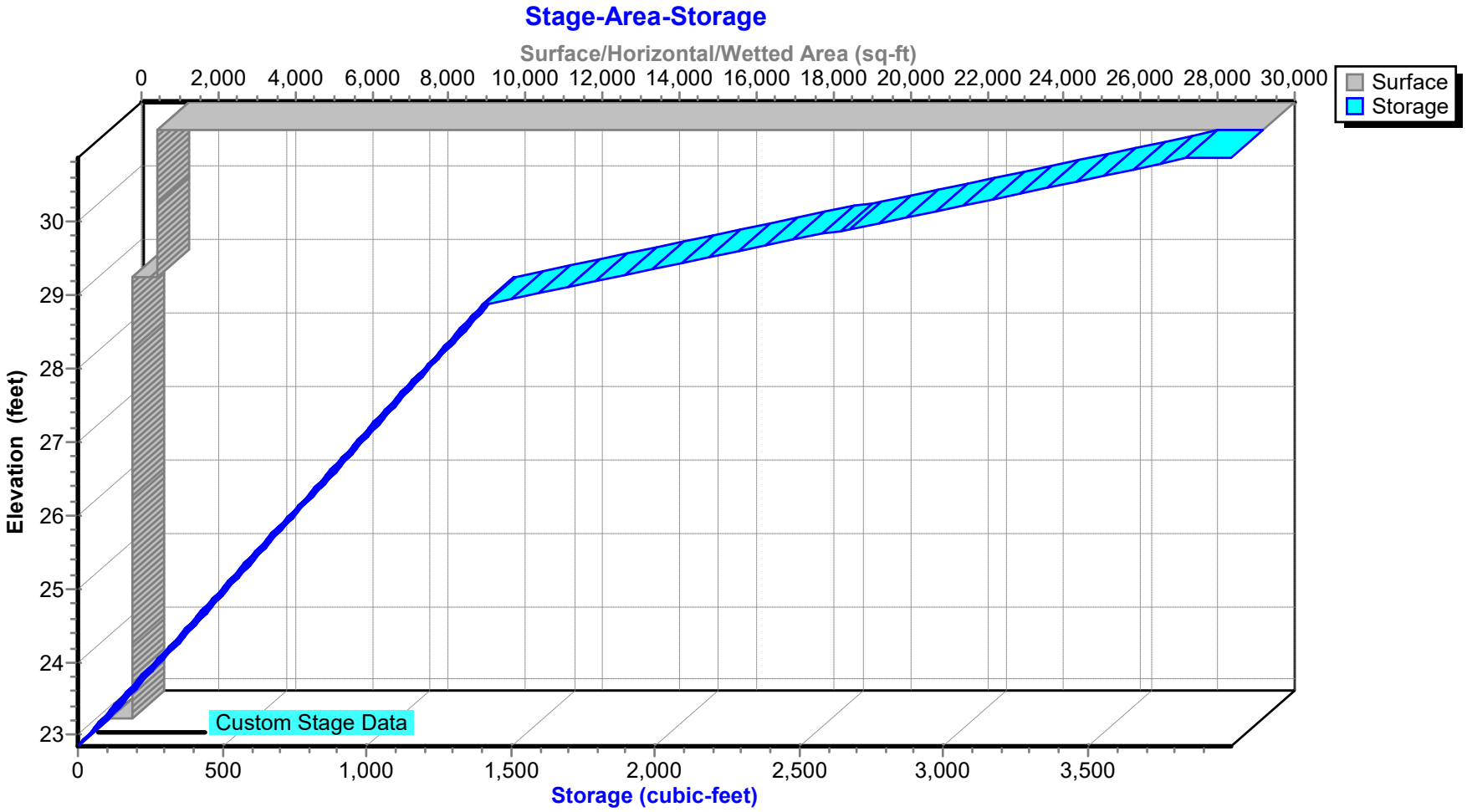
Discarded OutFlow Max=0.79 cfs @ 12.25 hrs HW=28.86' (Free Discharge)
└**1=Exfiltration** (Controls 0.79 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=22.85' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 13P: POND 2



Pond 13P: POND 2

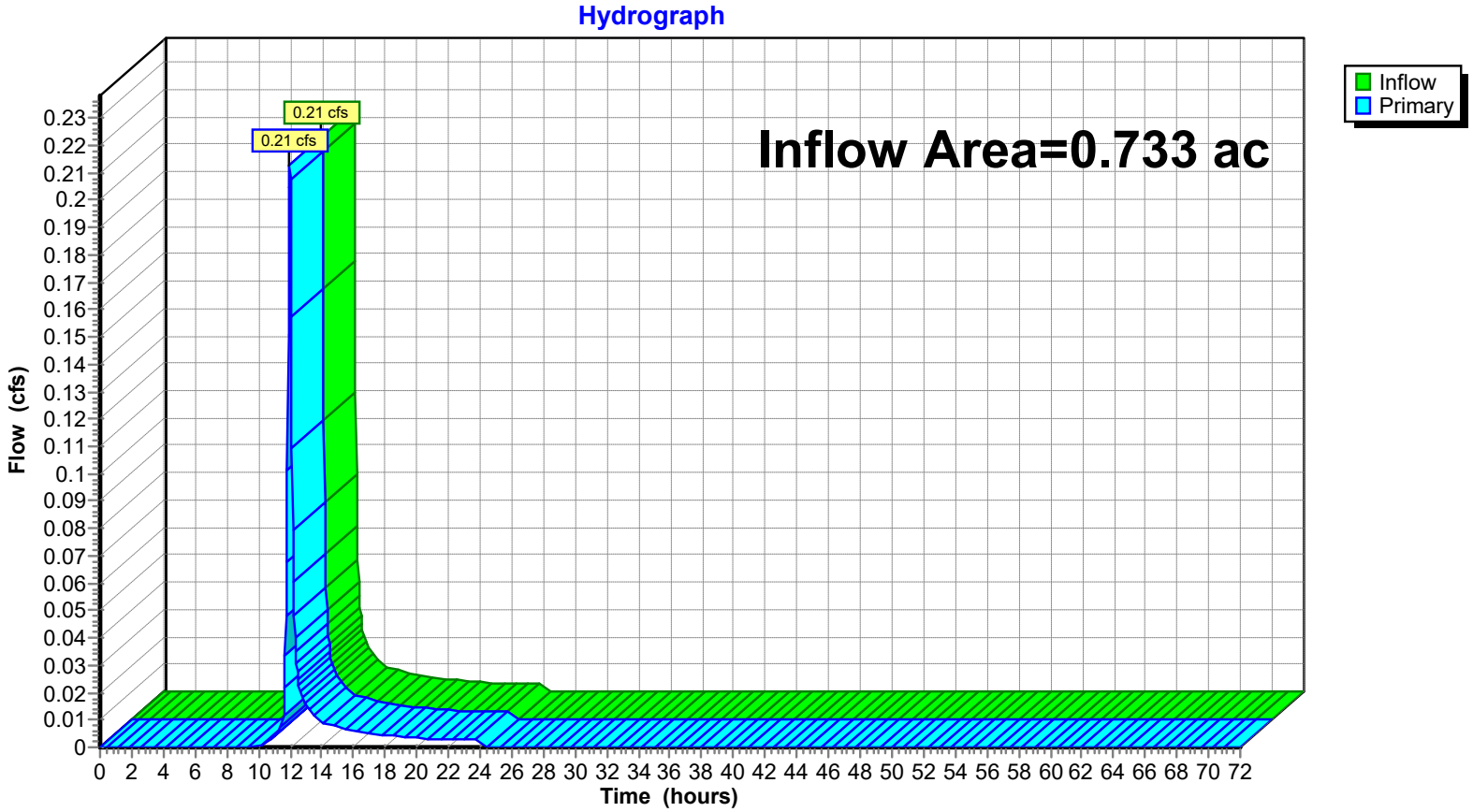


Summary for Pond 19P: LINE OF INVESTIGATION 2

Inflow Area = 0.733 ac, 68.08% Impervious, Inflow Depth = 0.19" for 2-YR event
Inflow = 0.21 cfs @ 11.98 hrs, Volume= 0.012 af
Primary = 0.21 cfs @ 11.98 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 19P: LINE OF INVESTIGATION 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 Runoff Area=29,402 sf 46.43% Impervious Runoff Depth=4.17"
Flow Length=203' Tc=5.4 min CN=90 Runoff=3.84 cfs 0.234 af

Subcatchment 5S: DA2 Runoff Area=35,808 sf 17.80% Impervious Runoff Depth=2.52"
Flow Length=162' Tc=2.5 min UI Adjusted CN=73 Runoff=3.69 cfs 0.172 af

Subcatchment 12S: DA1 Runoff Area=30,922 sf 80.26% Impervious Runoff Depth=4.38"
Flow Length=203' Tc=5.2 min CN=92 Runoff=4.22 cfs 0.259 af

Subcatchment 13S: DA2 Runoff Area=27,779 sf 78.29% Impervious Runoff Depth=4.17"
Flow Length=346' Tc=7.3 min CN=90 Runoff=3.27 cfs 0.221 af

Subcatchment 18S: DA3 Runoff Area=4,169 sf 0.00% Impervious Runoff Depth=3.06"
Flow Length=40' Slope=0.1255 '/' Tc=4.8 min CN=79 Runoff=0.44 cfs 0.024 af

Pond 13P: POND 2 Peak Elev=29.90' Storage=2,683 cf Inflow=3.27 cfs 0.221 af
Discarded=0.91 cfs 0.220 af Primary=0.18 cfs 0.001 af Outflow=1.09 cfs 0.221 af

Pond 19P: LINE OF INVESTIGATION 2 Inflow=0.44 cfs 0.026 af
Primary=0.44 cfs 0.026 af

Total Runoff Area = 2.940 ac Runoff Volume = 0.912 af Average Runoff Depth = 3.72"
48.01% Pervious = 1.412 ac 51.99% Impervious = 1.529 ac

Summary for Subcatchment 1S: DA1

Runoff = 3.84 cfs @ 11.98 hrs, Volume= 0.234 af, Depth= 4.17"

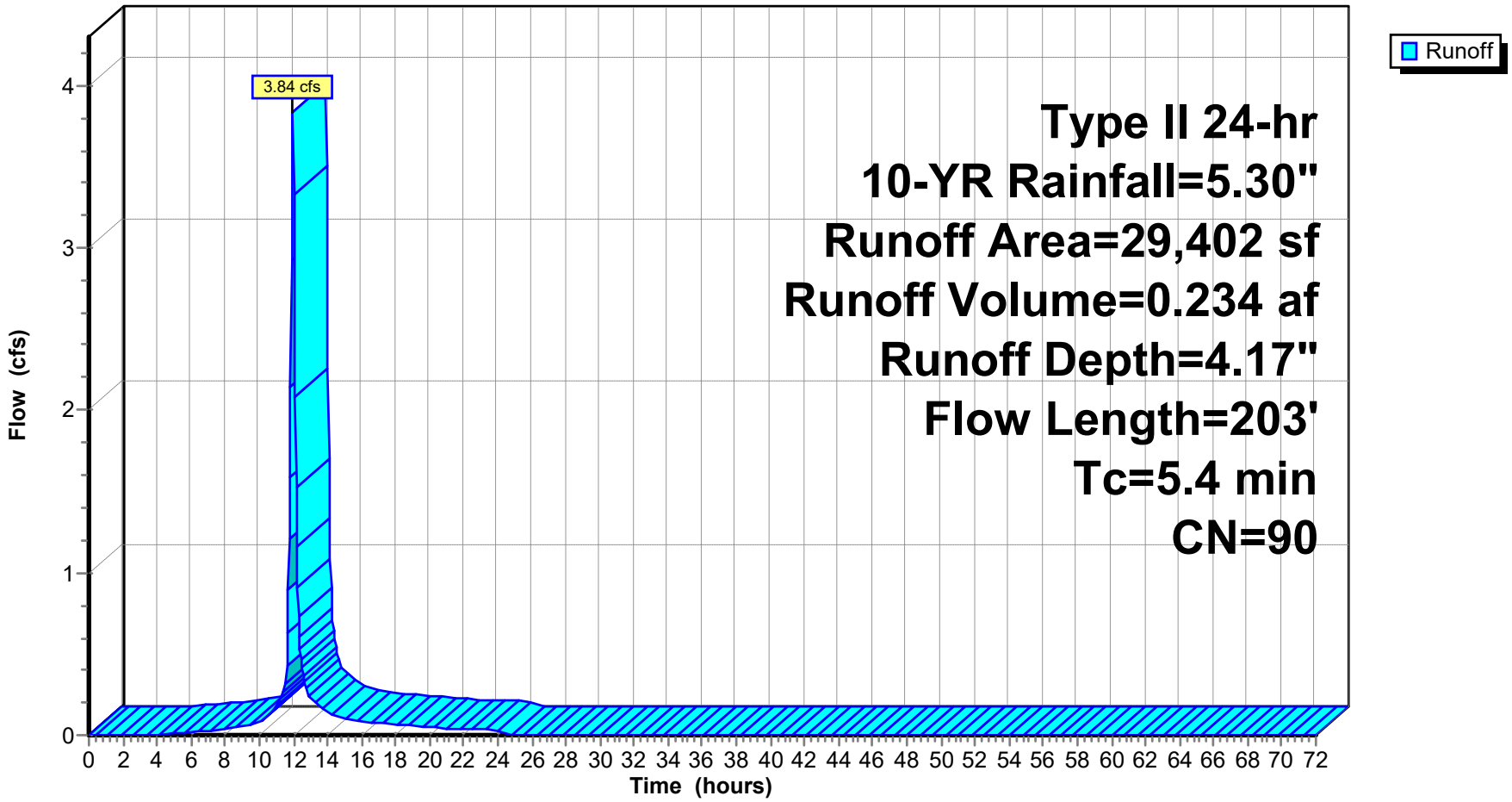
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
800	69	50-75% Grass cover, Fair, HSG B
9,076	96	Gravel surface, HSG B
13,650	98	Unconnected pavement, HSG B
5,876	65	Woods/grass comb., Fair, HSG B
29,402	90	Weighted Average
15,752		53.57% Pervious Area
13,650		46.43% Impervious Area
13,650		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	26	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
1.0	74	0.0160	1.22		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.5	70	0.0127	2.29		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.4	33	0.0451	1.49		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.4	203	Total			

Subcatchment 1S: DA1

Hydrograph



Summary for Subcatchment 5S: DA2

Runoff = 3.69 cfs @ 11.94 hrs, Volume= 0.172 af, Depth= 2.52"

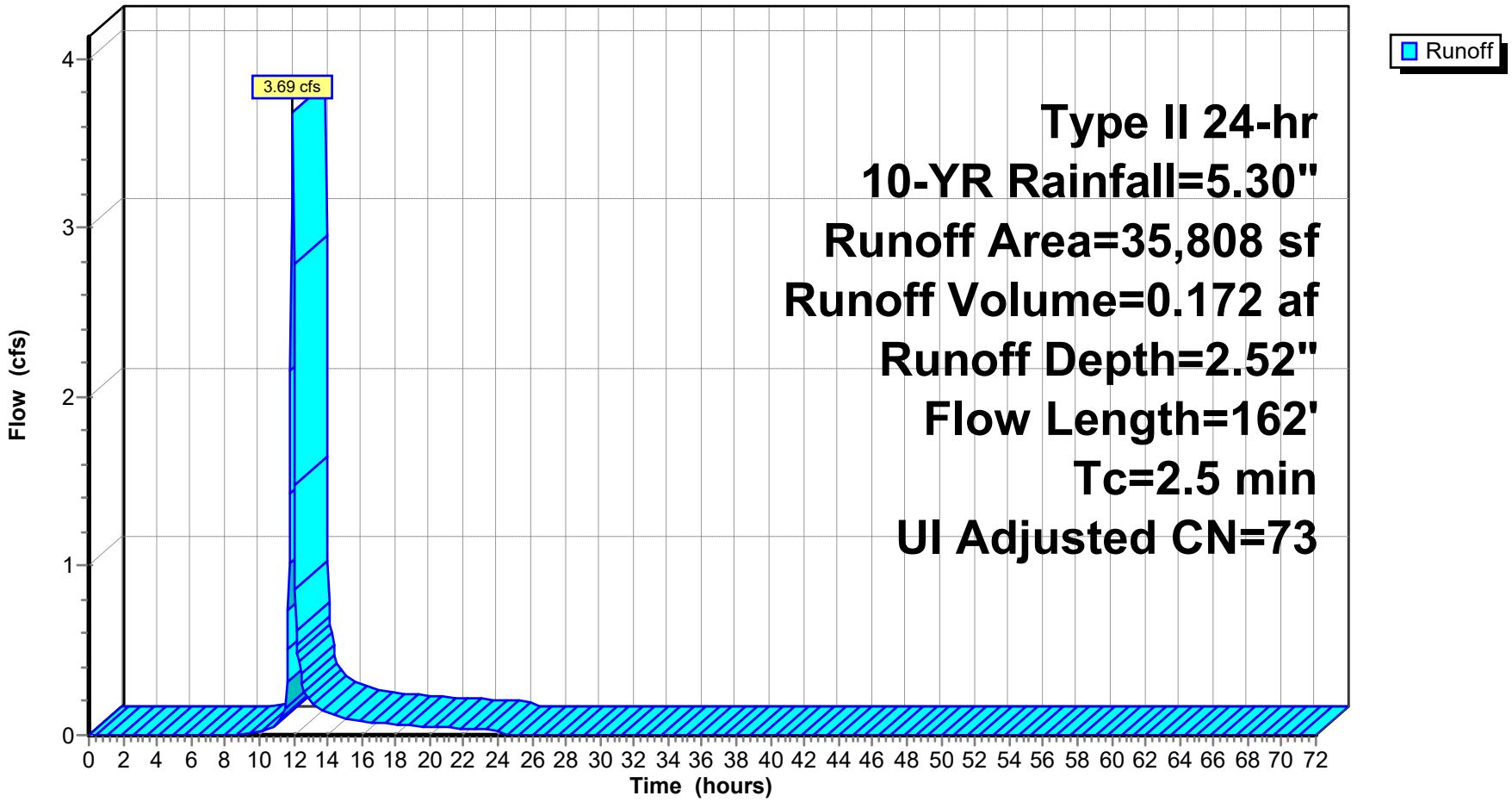
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Adj	Description
8,379	96		Gravel surface, HSG B
21,054	61		>75% Grass cover, Good, HSG B
6,375	98		Unconnected pavement, HSG B
35,808	76	73	Weighted Average, UI Adjusted
29,433			82.20% Pervious Area
6,375			17.80% Impervious Area
6,375			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0165	1.31		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.0	2	0.0081	1.83		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.5	26	0.0185	0.95		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	34	0.0987	0.79		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
2.5	162	Total			

Subcatchment 5S: DA2

Hydrograph



Summary for Subcatchment 12S: DA1

Runoff = 4.22 cfs @ 11.97 hrs, Volume= 0.259 af, Depth= 4.38"

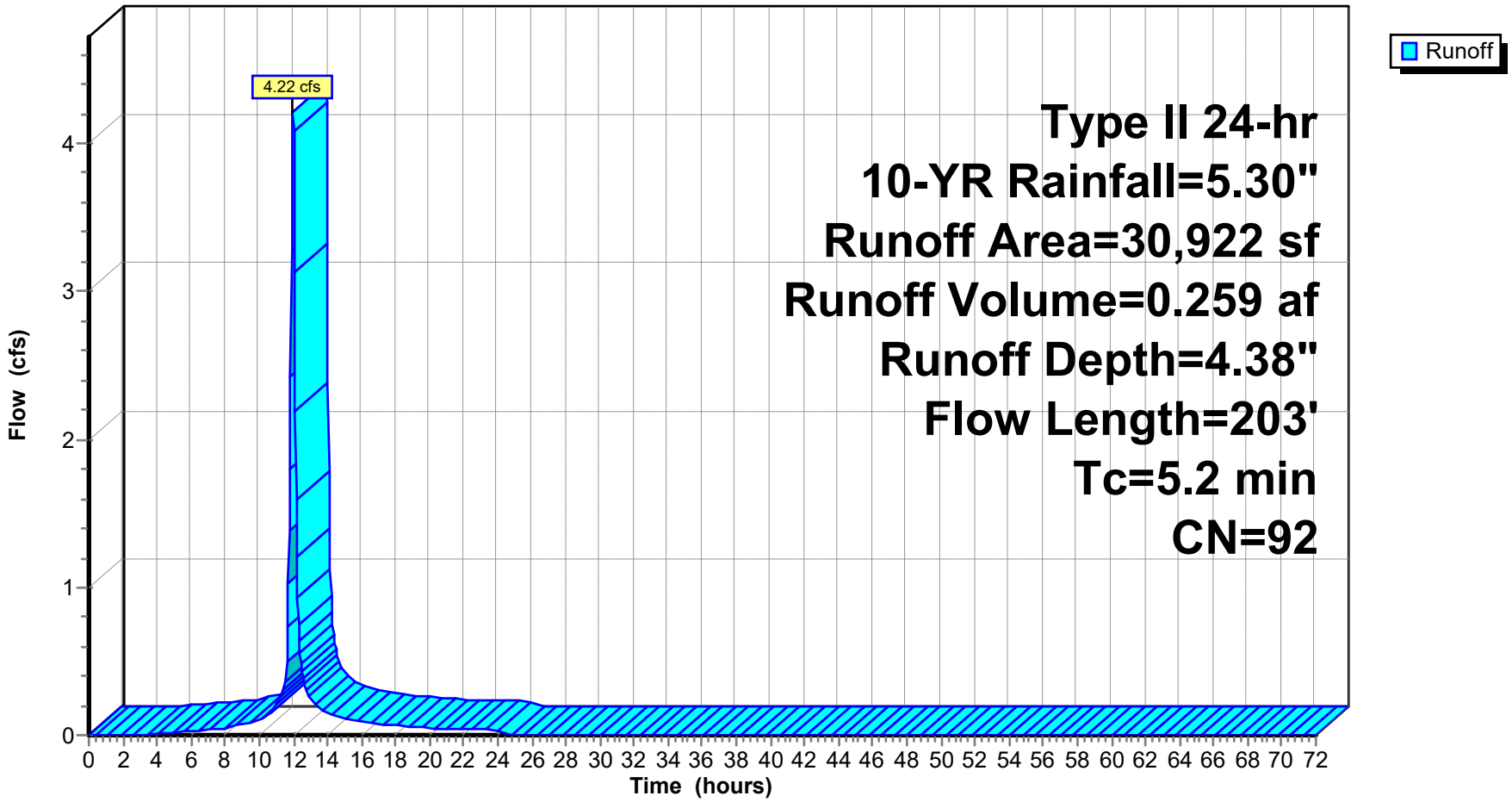
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
6,104	69	50-75% Grass cover, Fair, HSG B
24,818	98	Unconnected pavement, HSG B
30,922	92	Weighted Average
6,104		19.74% Pervious Area
24,818		80.26% Impervious Area
24,818		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	28	0.0160	0.12		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.40"
0.9	72	0.0200	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
0.4	94	0.0400	4.06		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	9	0.0234	1.07		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
5.2	203	Total			

Subcatchment 12S: DA1

Hydrograph



Summary for Subcatchment 13S: DA2

Runoff = 3.27 cfs @ 12.00 hrs, Volume= 0.221 af, Depth= 4.17"

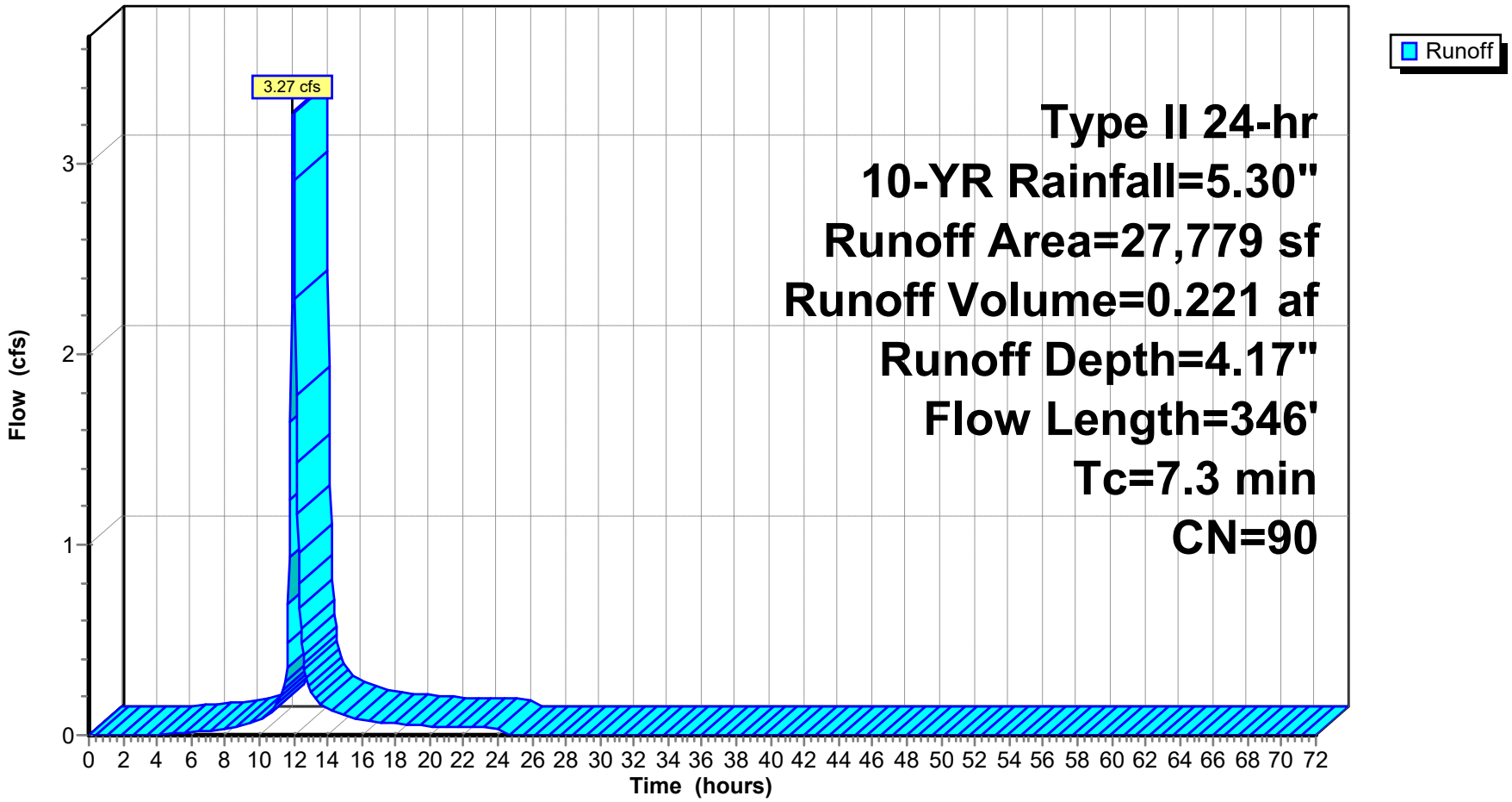
Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
6,030	61	>75% Grass cover, Good, HSG B
21,749	98	Paved parking, HSG B
27,779	90	Weighted Average
6,030		21.71% Pervious Area
21,749		78.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.8	100	0.0022	0.59		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.40"
4.5	246	0.0020	0.91		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
7.3	346	Total			

Subcatchment 13S: DA2

Hydrograph



Summary for Subcatchment 18S: DA3

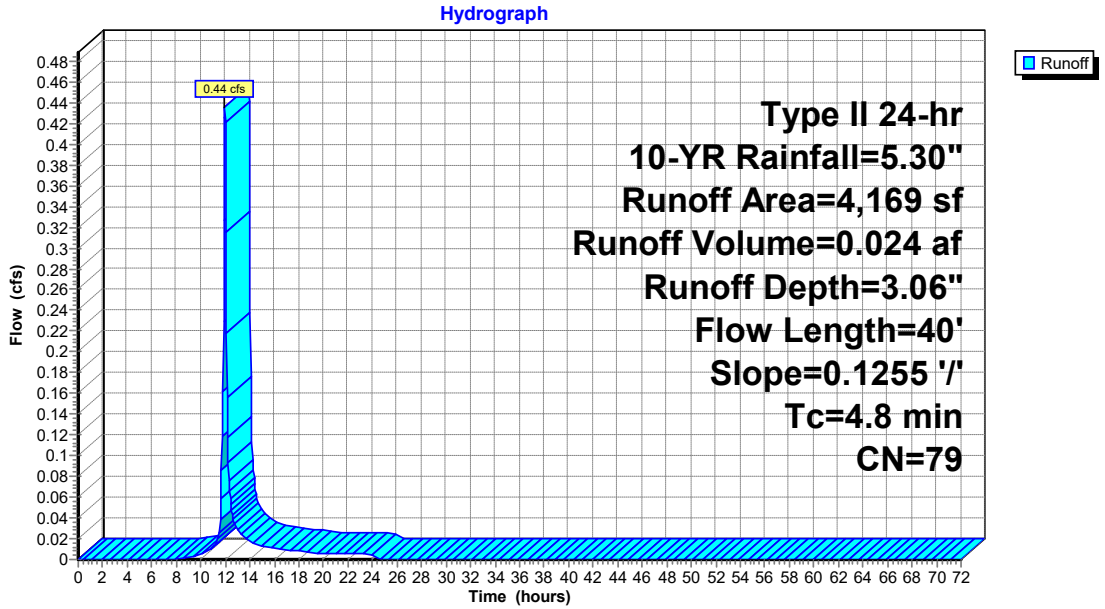
Runoff = 0.44 cfs @ 11.97 hrs, Volume= 0.024 af, Depth= 3.06"

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
4,169	79	<50% Grass cover, Poor, HSG B
4,169		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	40	0.1255	0.14		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.40"

Subcatchment 18S: DA3



Summary for Pond 13P: POND 2

Inflow Area = 0.638 ac, 78.29% Impervious, Inflow Depth = 4.17" for 10-YR event
Inflow = 3.27 cfs @ 12.00 hrs, Volume= 0.221 af
Outflow = 1.09 cfs @ 12.27 hrs, Volume= 0.221 af, Atten= 67%, Lag= 16.3 min
Discarded = 0.91 cfs @ 12.27 hrs, Volume= 0.220 af
Primary = 0.18 cfs @ 12.27 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 29.90' @ 12.27 hrs Surf.Area= 1,223 sf Storage= 2,683 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 21.8 min (812.9 - 791.2)

Volume	Invert	Avail.Storage	Storage Description
#1	22.85'	3,997 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

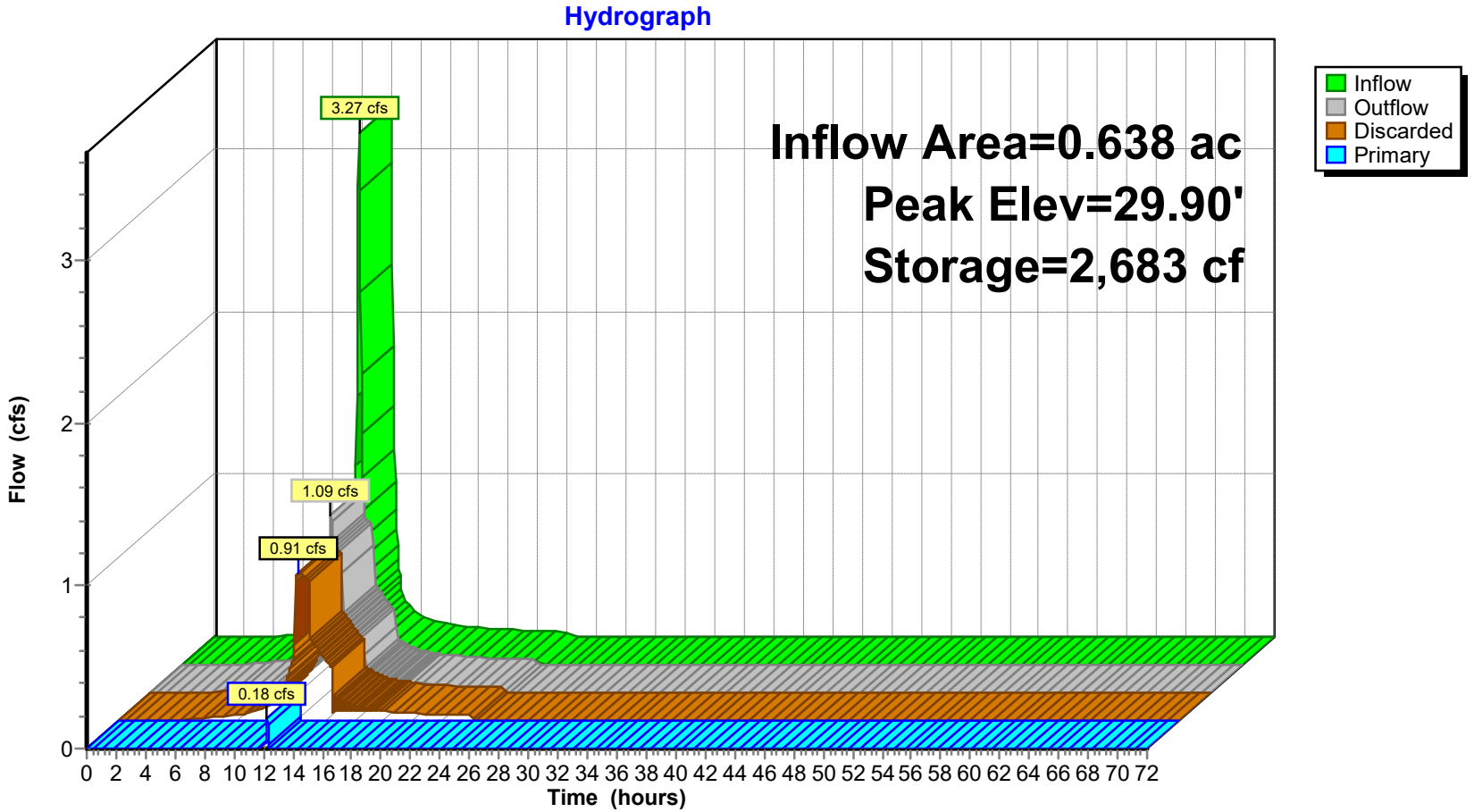
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
22.85	0	0.0	0	0
22.86	583	40.0	1	1
28.85	583	40.0	1,397	1,398
28.86	1,223	100.0	9	1,407
30.85	1,223	100.0	2,434	3,841
30.86	30,000	100.0	156	3,997

Device	Routing	Invert	Outlet Devices
#1	Discarded	22.85'	**24.000 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 12.00'
#2	Primary	29.87'	**14.0' long x 2.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50
			Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

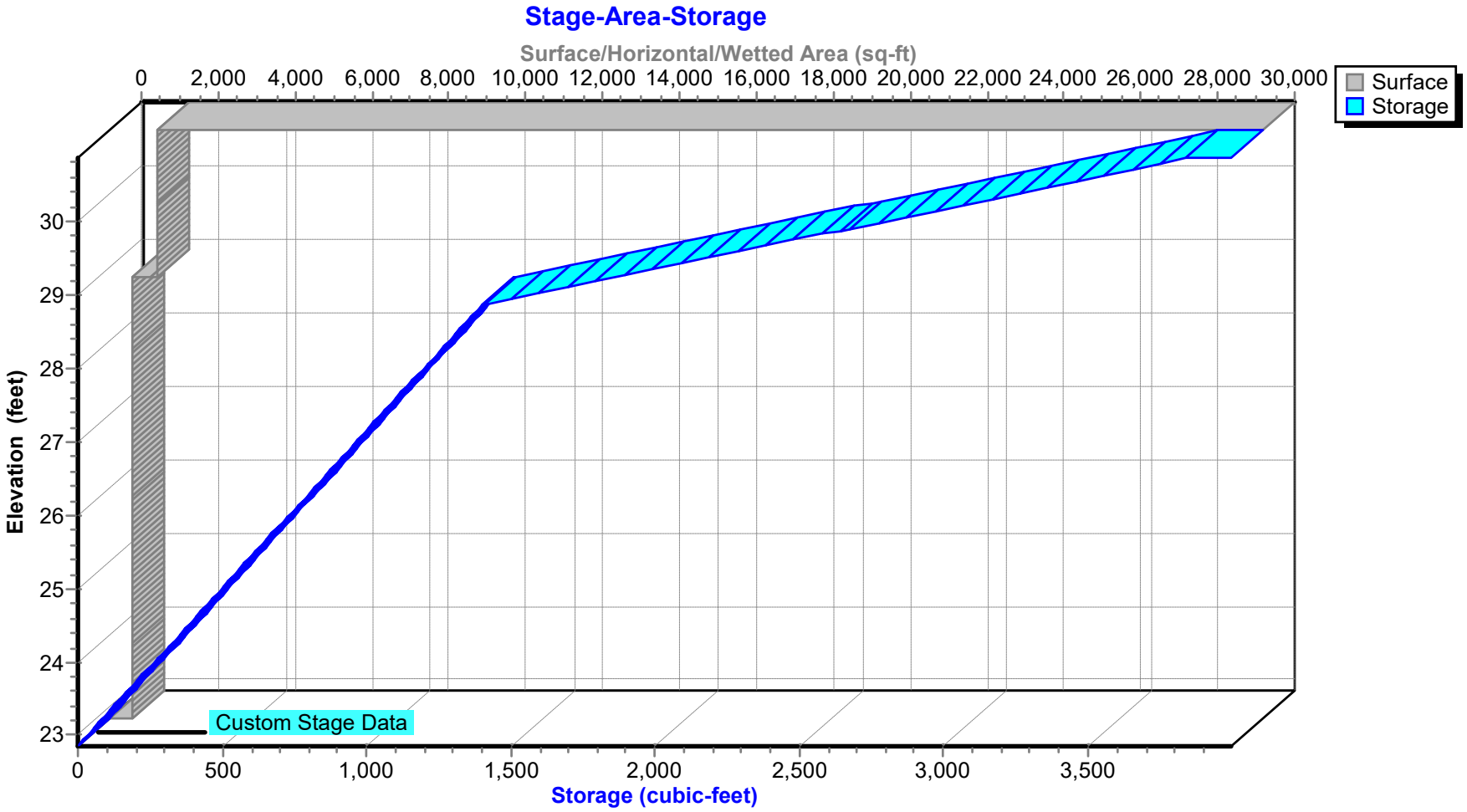
Discarded OutFlow Max=0.91 cfs @ 12.27 hrs HW=29.90' (Free Discharge)
└**1=Exfiltration** (Controls 0.91 cfs)

Primary OutFlow Max=0.16 cfs @ 12.27 hrs HW=29.90' TW=0.00' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.16 cfs @ 0.42 fps)

Pond 13P: POND 2



Pond 13P: POND 2

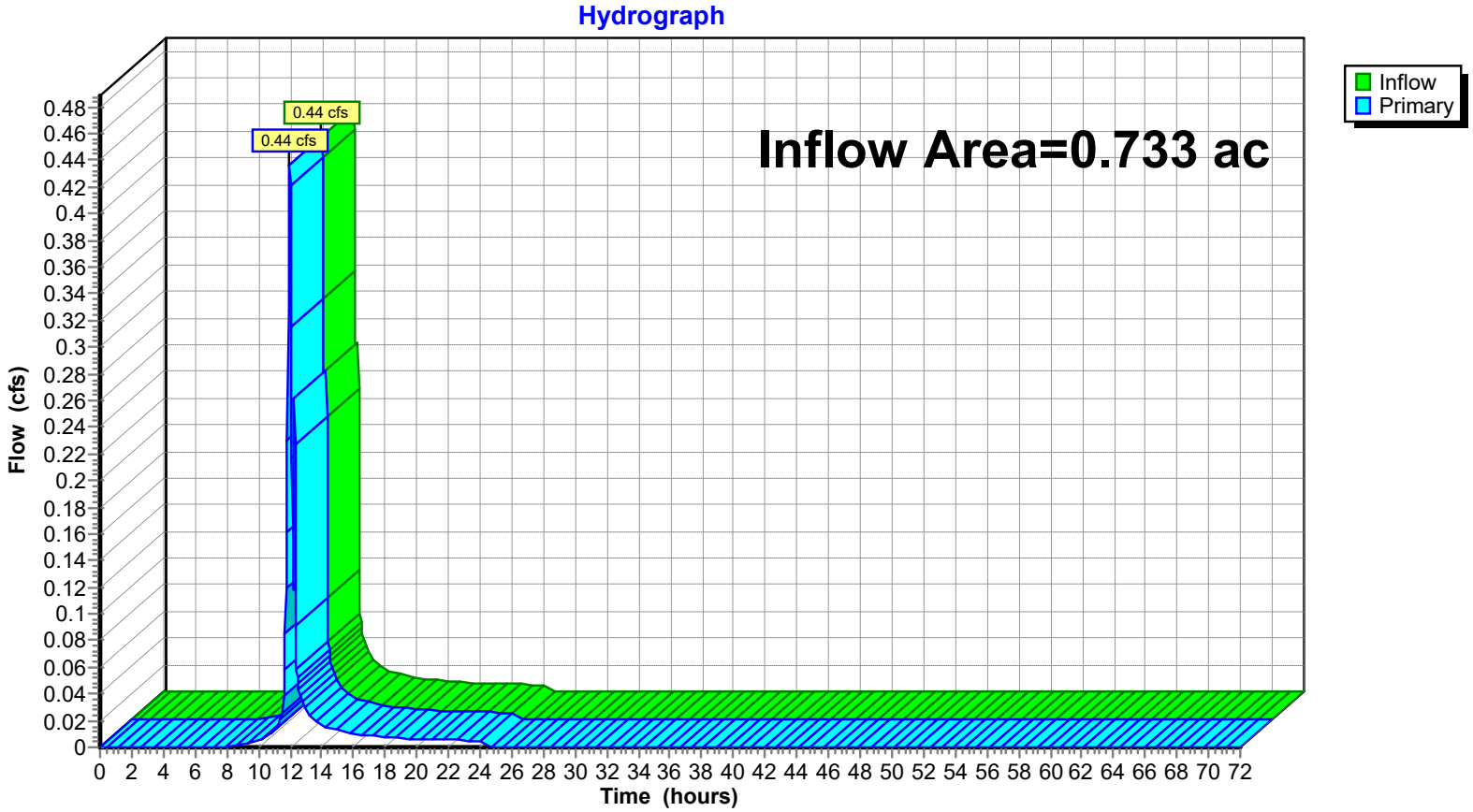


Summary for Pond 19P: LINE OF INVESTIGATION 2

Inflow Area = 0.733 ac, 68.08% Impervious, Inflow Depth = 0.42" for 10-YR event
Inflow = 0.44 cfs @ 11.97 hrs, Volume= 0.026 af
Primary = 0.44 cfs @ 11.97 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Pond 19P: LINE OF INVESTIGATION 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.

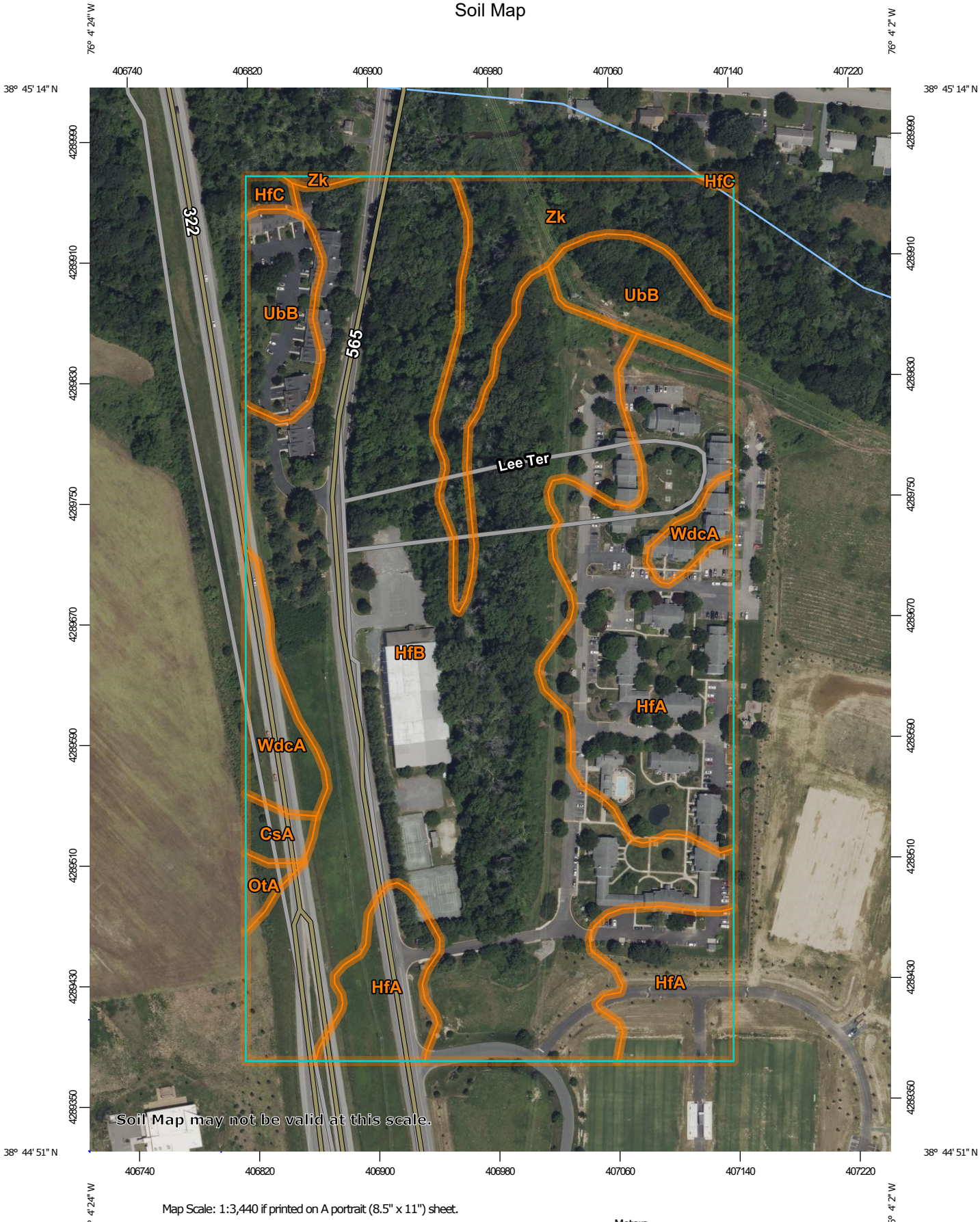
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree 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.



Map Scale: 1:3,440 if printed on A portrait (8.5" x 11") sheet.

N

0 50 100 200 300 Meters

0 150 300 600 900 Feet

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 20, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 30, 2022—Jul 4, 2022

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
CsA	Crosiadore silt loam, 0 to 2 percent slopes	0.4	0.8%
HfA	Hambrook-Sassafras complex, 0 to 2 percent slopes	11.1	23.4%
HfB	Hambrook-Sassafras complex, 2 to 5 percent slopes	26.8	56.6%
HfC	Hambrook-Sassafras complex, 5 to 10 percent slopes	0.2	0.4%
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	0.2	0.5%
UbB	Udorthents, borrow area, 0 to 5 percent slopes	3.1	6.5%
WdcA	Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	1.7	3.6%
Zk	Zekiah silt loam, frequently flooded	3.9	8.2%
Totals for Area of Interest		**47.3**	**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

CsA—Crosiadore silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: nmd5
Elevation: 0 to 100 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

Crosiadore and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosiadore

Setting

Landform: Depressions, flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 28 inches: silt loam
2Btg - 28 to 33 inches: sandy loam
2Cg - 33 to 50 inches: sandy loam
2C1 - 50 to 57 inches: gravelly loamy sand
2C2 - 57 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 10 percent
Landform: Flats
Landform position (three-dimensional): Rise
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Kentuck

Percent of map unit: 5 percent
Landform: Depressions
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Elkton

Percent of map unit: 5 percent
Landform: Swales, flats, depressions
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Othello

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, swales
Landform position (three-dimensional): Dip
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

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: Depressions, flats, fluviomarine terraces
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear

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
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls
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

Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Minor Components

Woodstown
Percent of map unit: 10 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Mattapex
Percent of map unit: 5 percent
Landform: Depressions, flats
Landform position (three-dimensional): Dip
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Ingleside
Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf
Ecological site: F153DY160NJ - Well Drained Coarse-Loamy Upland
Hydric soil rating: No

HfB—Hambrook-Sassafras complex, 2 to 5 percent slopes

Map Unit Setting
National map unit symbol: 1vh09
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: Flats, depressions, knolls, fluviomarine terraces
Landform position (three-dimensional): Rise
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, concave, convex

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: 2 to 5 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 40 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): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, flats, fluviomarine terraces, knolls
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: 2 to 5 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): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Minor Components

Woodstown
Percent of map unit: 10 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Mattapex
Percent of map unit: 5 percent
Landform: Flats, depressions
Landform position (three-dimensional): Dip
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Ingleside
Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Talf
Ecological site: F153DY160NJ - Well Drained Coarse-Loamy Upland
Hydric soil rating: No

HfC—Hambrook-Sassafras complex, 5 to 10 percent slopes

Map Unit Setting
National map unit symbol: 1vh0b
Elevation: 20 to 120 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
Hambrook and similar soils: 60 percent
Sassafras and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hambrook

Setting
Landform: Knolls, fluviomarine terraces, low hills
Landform position (three-dimensional): Side slope
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

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: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
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 40 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): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Description of Sassafras

Setting

Landform: Low hills, fluviomarine terraces, knolls
Landform position (three-dimensional): Side slope, riser
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: 5 to 10 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
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): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B

Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Minor Components

Galestown
Percent of map unit: 5 percent
Landform: Knolls, low hills
Landform position (three-dimensional): Side slope
Ecological site: F153DY170NJ - Sandy, Excessively Drained Upland
Hydric soil rating: No

Mattapex
Percent of map unit: 5 percent
Landform: Low hills
Landform position (three-dimensional): Base slope
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

OtA—Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting
National map unit symbol: 2thwn
Elevation: 0 to 100 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 46 to 68 degrees F
Frost-free period: 210 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Othello, drained, and similar soils: 48 percent
Othello, undrained, and similar soils: 28 percent
Minor components: 24 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Othello, Drained

Setting
Landform: Swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile
Ap - 0 to 9 inches: silt loam
Btg - 9 to 29 inches: silt loam

2BCg - 29 to 34 inches: sandy loam
2Cg - 34 to 80 inches: loamy 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 moderately high (0.06 to 0.57 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 2.0 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): 3w
Hydrologic Soil Group: C/D
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Description of Othello, Undrained

Setting

Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: peat
A - 2 to 4 inches: silt loam
Eg - 4 to 10 inches: silt loam
Btg - 10 to 29 inches: silt loam
2BCg - 29 to 35 inches: sandy loam
2Cg - 35 to 80 inches: loamy 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 moderately high (0.06 to 0.57 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 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp

Hydric soil rating: Yes

Minor Components

Mattapex

Percent of map unit: 7 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Crosiadore

Percent of map unit: 7 percent
Landform: Depressions, fluviomarine terraces, flats
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Fallsington, undrained

Percent of map unit: 5 percent
Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

UbB—Udorthents, borrow area, 0 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1vh0s
Elevation: 0 to 150 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: Not prime farmland

Map Unit Composition

Udorthents, borrow area, and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Borrow Area

Setting

Landform: Knolls, flats
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Fluviomarine sediments fluviomarine deposits

Typical profile

AC - 0 to 2 inches: loam
C - 2 to 80 inches: sandy loam

Properties and qualities

Slope: 0 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to very high (0.06 to 19.98 in/hr)
Depth to water table: About 20 to 40 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): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Udorthents, loamy

Percent of map unit: 10 percent
Landform: Broad interstream divides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Talf
Down-slope shape: Linear, convex
Across-slope shape: Linear
Hydric soil rating: No

Water

Percent of map unit: 5 percent
Hydric soil rating: No

Askecksy, drained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (three-dimensional): Talf

Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Ecological site: F153DY130MD - Sandy Coastal Plain Swamp
Hydric soil rating: Yes

Klej

Percent of map unit: 5 percent
Landform: Depressions, flats
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F153DY150NJ - Moist Sandy Upland
Hydric soil rating: No

WdcA—Woodstown sandy loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thvt
Elevation: 0 to 90 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

Woodstown and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: sandy loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy loam
BCg - 29 to 45 inches: fine sandy loam
Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained

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: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Minor Components

Fallsington

Percent of map unit: 6 percent
Landform: Flats, swales, depressions, drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Hammonton

Percent of map unit: 6 percent
Landform: Broad interstream divides, flats
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Hambrook

Percent of map unit: 4 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Zk—Zekiah silt loam, frequently flooded

Map Unit Setting

National map unit symbol: 1vh0y
Elevation: 0 to 120 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: Not prime farmland

Map Unit Composition

Zekiah and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Zekiah

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

A - 0 to 3 inches: silt loam
Cg - 3 to 20 inches: silt loam
2Ab - 20 to 27 inches: sandy loam
2Cg1 - 27 to 37 inches: sandy loam
2Cg2 - 37 to 50 inches: loam
2Cg3 - 50 to 80 inches: sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.38 to 1.98 in/hr)
Depth to water table: About 0 to 10 inches
Frequency of flooding: Frequent
Frequency of ponding: Frequent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: R149AY060DE - Wet Alluvial Floodplain
Hydric soil rating: Yes

Minor Components

Longmarsh

Percent of map unit: 10 percent
Landform: Flood plains
Ecological site: R149AY060DE - Wet Alluvial Floodplain
Hydric soil rating: Yes

Hurlock

Percent of map unit: 5 percent
Landform: Flood plains
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Hammonton

Percent of map unit: 5 percent
Landform: Flats
Landform position (three-dimensional): Rise
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

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SECTION 6 – PERCOLATION TEST

RAUCH inc.
engineering design & development services

June 26, 2024

REPORT ON INFILTROMETER TESTING AT 1180 S WASHINGTON ST, EASTON, MARYLAND 21601
Talbot Map 108 Grid 108 Parcel 2677 Subdivision 0000, TID 01-047221

The scope of work for this project included a soil profile to the depth of nine (9) feet, or that of groundwater, and infiltrometer testing to allow engineering design for SWM to proceed. One (1) infiltrometer to a depth of 9' was constructed.

The 9' auger boring within the test area was used to obtain the soil profile. This is shown below in the infiltrometer testing data on the attached soil sheet. NRCS has the soil in the area identified as Hambrook-Sassafras complex (HfB), mostly comprised of sand, silt, and a little clay. Its described as Well Drained. The profile also shows a well drained soil, and extensive depth of structure.

There was no confining stratae observed in the test location. The reported rate obtained for this location is shown as an average rate based on the four hours of testing. It should be noted that in all cases, and as expected, the infiltration is the most rapid during unsaturated periods and slow as ground saturation increases from the introduction of water . The test location is marked in green on the summary page.

Submitted by Kyle Kowalczyk, LEHS, Environmental Scientist, and Alaina Rathbun, Environmental Professional

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

RAUCH inc.
engineering design & development services

Appendix

1) Investigative Procedures.....(page 3-4)

2) Project Location Map.....(page 5-6)

3) Soil Boring Location Map.....(page 7-8)

4) Soil Boring Logs and Infiltration Test Data Sheet.....(page 9-10)

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office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

Appendix 1

INVESTIGATIVE PROCEDURES

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

INVESTIGATIVE PROCEDURES

HAND AUGER BORINGS

Soil profiles were completed with a 4" hand auger in order to observe changes in color and texture of the subsurface soils. The hand auger is advanced through the soil by turning the auger in a clockwise direction. Soil samples were evaluated by removing the hand auger from the boring hole and emptying the contained soil. Changes in color, texture, or both were documented in the attached boring profiles. One (1) borehole was completed for the soil profile and infiltration test on site.

SOIL CLASSIFICATION

Soil classifications allow for engineers to use past experiences to predict the behavior of the soils found on site. All soils were classified using the Munsell soil-color charts and textures. Soils were classified by visual inspection by environmental scientists while in the field.

FALLING HEAD INFILTRATION TEST

Single ring falling head infiltration testing at 9' was completed for the proposed storm water management facilities in an area that contained pervious surfaces. The test was completed by installing 4" schedule 10 PVC into the completed borehole and filling the infiltrometer with 24" of water. The amount of time for the water to seep through was then measured and recorded. After a measurement was taken, the infiltrometer was refilled to contain 24" of water. This process was continued until four hours of infiltration data was collected.

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office: 410.770.9081 | fax: 410.770.3667
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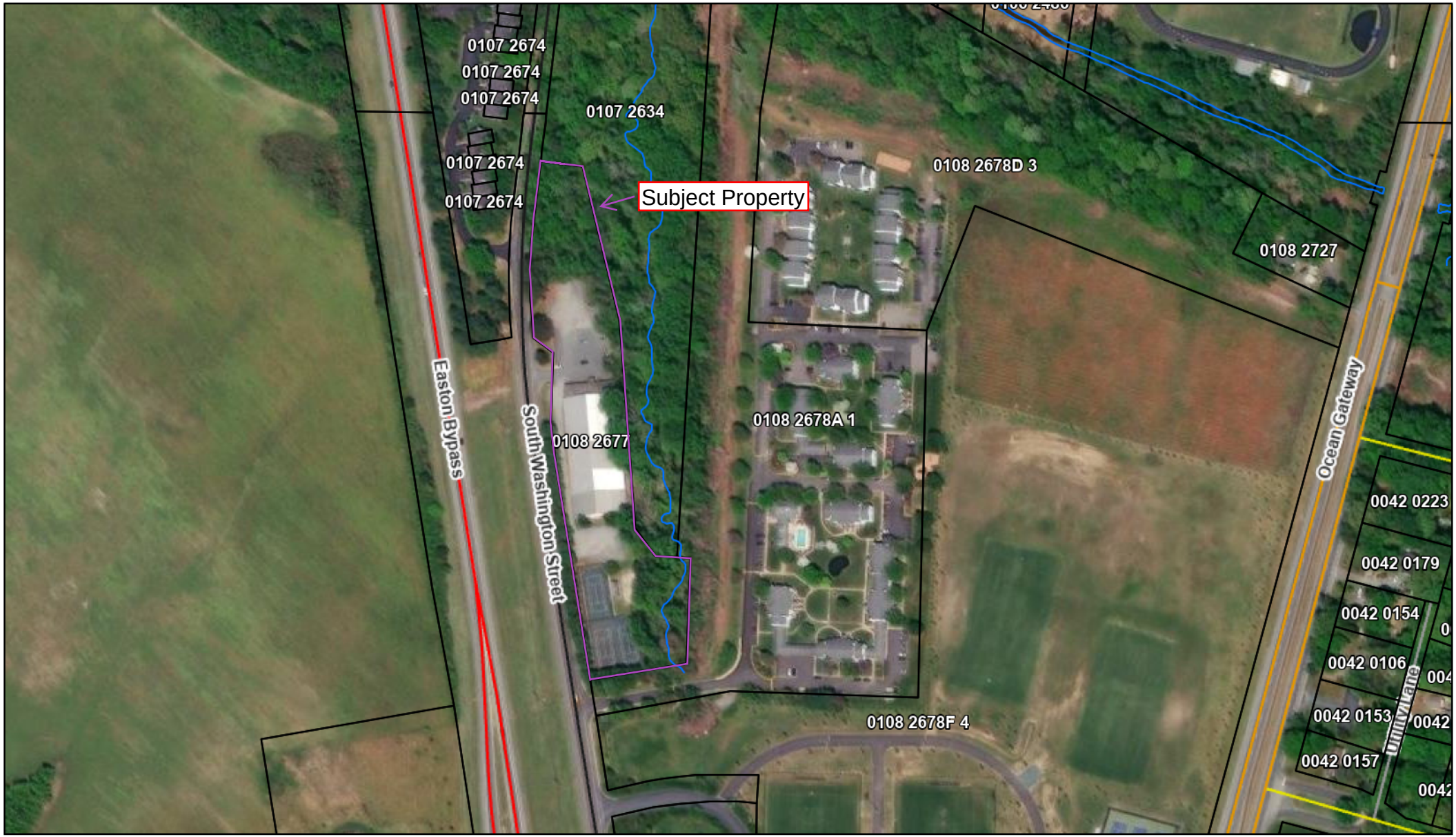
APPENDIX 2
PROJECT LOCATION MAP

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

Easton YMCA washington map



6/26/2024, 8:00:41 AM

Streams
Road_Centerlines
Parcels
Municiple
County
State
US
Private

1:4,514

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.19 km

Maxar

Maxar | MD iMAP, DoIT | The remapping of Maryland's Critical Area has been a collaboration of the Critical Area Commission, Maryland Department of Natural Resources, Talbot County, and ESRGC at Salisbury University. |

APPENDIX 3
SOIL BORING LOCATION MAP

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

Easton YMCA Washington boring location

6/26/2024, 8:38:20 AM

Streams
Road_Centerlines
State
Parcels
Municiple

1:1,128

0 0.01 0.01 0.03 mi

0 0.01 0.02 0.04 km

Maxar, Microsoft

Maxar, Microsoft | MD iMAP, DoIT | The remapping of Maryland's Critical Area has been a collaboration of the Critical Area Commission, Maryland Department of Natural Resources, Talbot County, and ESRGC at Salisbury University. |

APPENDIX 4
SOIL BORING LOGS AND INFILTRATION TEST DATA SHEET

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

Profile #		Date								
Nest #1		6.26.24								
Depth (in)		**Thickness**	**Matrix**	**Mottles**			**Description**	**Texture**	**Structure**	**Remarks**
0	6	6								TOPSOIL
6	31	25	7.5YR 5/8				C 1 F	LS	2MSBK	Redish
31	50	19	7.5YR 5/8				C 1 F	S	1WM	Redish
50	66	16	7.5YR 6/3				C 1 F	SiC	1WM	grey
66	108	42	7.5YR 7/1	7.5YR 6/2				S	1WM	light grey w/ light brown/tan

INFILTRATION TEST		
9' DEEP INFILTROMETER	in/hr	Notes
Hour 1	>24	24" in 0.066 hours
Hour 2	>24	24" in 0.066 hours
Hour 3	>24	24" in 0.1 hours
Hour 4	>24	24" in 0.116 mins

*ground water is not believed to be within two feet of the proposed stormwater facility due to the drastic change in the localized topography. *

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

RECEIVED
AUG 06 2024
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	410 Needwood Avenue, Easton, MD 21601						
Tax Map	0105	Grid	00EA	Parcel	2226	Lot	
Deed Refernce:	Liber	03105	Folio	00287			
Plat Reference:	Liber		Folio				
Base Zoning District	BC	Historic District Y ☐ N ☒		Planning Redevelopment Y ☒ N ☐			

Purpose of Application / Description of Work:

The project consists of demolition of existing grain silos on property within Town limits for construction of 28 attached single-family dwellings.

Owner

Name	Silo Square, LLC		
Mailing Address	999 Corporate Drive, Linthicum, MD 21090		
Telephone No.	410-384-4022	Email	jrondeau@thearcccr.org or jolinger@chesapeakeneighbors.org

Applicant / Agent

Name	Same as above		
Mailing Address			
Telephone No.		Email	

Surveyor / Engineer

Name	Robert Rauch	License No.	11024	Expiration Date	7/24/2026
Mailing Address	106 N. Harrison St, Easton, MD, 21601				
Telephone No.	410-770-9081	Email	robert@raucheng.com; brian@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 08/07/2024

Printed Name of Applicant or Agent Robert Rauch

For Office Use Only

Easton Staff Development Review Meeting Required Y [X] N [ ]

Easton Staff Development Review Meeting Date **08/28/2024**

2024 - 1261 / ESDR 24 - 15

Completeness Check Date **08/07/2024**

Revisions/Resubmissions Required Y [ ] N [ ]

Resubmission Date

Documents Received Y [ ] N [ ]

Staff Determination

Planning Commission Requir(Y [ ] N [ ] **TBD**

BOZA Required Y [ ] N [ ] **TBD**

Historic District Commission Required Y [ ] N [X]

Resubmission for ESDR Required Y [ ] N [ ]

Staff Signature Samantha N. Smith Date **08/07/2024**

Revised 02-2019

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

RECEIVED
AUG 06 2024
TOWN OF EASTON

2024 - 1261 / ESDR 24 - 15

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐	Parking Spaces ☐	Parking/Aisle Dimension ☐
Landscaping & Buffering ☒	Signage ☐	Other ☐

Project Information

Address	410 Needwood Avenue, Easton, MD 21601						
Tax Map	0105	Grid	00EA	Parcel	2226	Lot	
Zoning District	BC	PC Meeting Date		Historic District	Yes ☐	No ☒	
Owner or Agent	Silo Square, LLC						
Mailing Address	999 Corporate Drive, Linthicum, MD 21090						
Telephone No.	410-384-4022	Email	jrondeau@thearcccr.org or jolinger@chesapeakeneighbors.org				

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

Desired installation of split-rail fence in bufferyard abutting Town's "Rails-to-Trails" path system. Applicant intends to utilize Bufferyard "E" option calling for "wall/fence with 3 evergreen shrubs" by installing split-rail fence and shrubs as noted in code.

☒ Ordinance Section Supporting Waiver Request. 28-1014.7.E.5(c)1-3

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: B. Fitzgerald

Date: 8/6/24

Printed Name of Applicant or Agent: Brian Fitzgerald

ARC - SILO SQUARE

INFRASTRUCTURE IMPROVEMENTS

FOR

SILO SQUARE, LLC

EASTON, TALBOT COUNTY, MARYLAND 21601

SITE DATA:

PROPERTY ADDRESS:	410 NEEDWOOD AVENUE EASTON, MD 21601
LATITUDE:	38° 46' 03" N
LONGITUDE:	-76° 04' 14" W
PRESENT ZONING CLASSIFICATION:	BUSINESS COMMERCIAL DISTRICT WITH PRD OVERLAY
PRESENT USE:	BUSINESS COMMERCIAL
FUTURE USE:	RESIDENTIAL
TAX MAPS:	0105
GRIDS:	00EA
PARCELS:	2226
DEED REFERENCE:	03105 / 00287
PROPERTY AREA:	2.36 ACRES
CUT:	2,300 SF
FILL:	1,424 SF
NET CUT/FILL:	876 SF (CUT)
EXISTING IMPERVIOUS:	53%
PROPOSED IMPERVIOUS:	58%
FEMA FLOOD MAP:	PANEL 24041C0189D
WATERSHED:	LOWER CHOPTANK

NO PORTION OF THIS PROJECT SITE IS LOCATED WITHIN THE 100-YR FLOOD PLAIN

NO PORTION OF THIS PROJECT SITE IS LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA

DENSITY REQUIRED:	LESS THAN 40 UNITS PER ACRE
DENSITY PROVIDED:	11.9 UNITS PER ACRE
PRD SETBACKS:	FRONT: 10 FT FROM PROPERTY LINE SIDE: 5 FT FROM PROPERTY LINE REAR: NONE PRESENT
LOT SIZE:	N/A - NO INTENT TO SUBDIVIDE
EXISITNG LOT COVERAGE:	53%
REQUIRED LOT COVERAGE:	NOT TO EXCEED 65%
ACTUAL PR. LOT COVERAGE:	68%
REQUIRED MAX BUILDING HEIGHT:	35'
MAX PROPOSED BUILDING HEIGHT:	32'
OVERALL TREES REQUIRED:	3 PER RESIDENTIAL UNIT (84 TREES)
STREET TREES PROVIDED:	28 TREES
PARKING LOT TREES PROVIDED:	7 TREES
TOTAL TREES PROVIDED:	106

PARKING SPACES PROVIDED:

GARAGE/DRIVEWAY PARKING:	24 SPACES
OFFSTREET PARKING:	34 PARKING SPACES INCLUDES 3 EV CHARGING STATION INCLUDES 2 ADA SPACES WITH AISLE
TOTAL PARKING PROVIDED:	58 SPACES

BUFFERYARD:

REQUIRED:

BUFFERYARD "C":	20' PLANT WIDTH
PLANT WITH:	(1) SHADE/CANOPY TREE, 2 EVERGREEN TREES, 5 SHRUBS
OPTION:	SUBSTITUTE 1 EVERGREEN TREE FOR 5 SHRUBS *NOTE: WHEN BUFFERYARD IS LOCATED BETWEEN A PARKING LOT AND STREET R/W, DELETE SHRUB REQUIREMENT*

PROVIDED:

BUFFERYARD "C":	(1) SHADE/CANOPY TREE, 3 EVERGREEN TREES

REQUIRED:

BUFFERYARD "E":	10' PLANT WIDTH
PLANT WITH:	(1) SHADE/CANOPY TREE, 3 EVERGREEN TREES,
OPTION:	(2) SHADE /CANOPY TREE AND 8 EVERGREEN SHRUBS - OR - 4 EVERGREEN TREES - OR - WALL/FENCE WITH 3 EVERGREEN SHRUBS

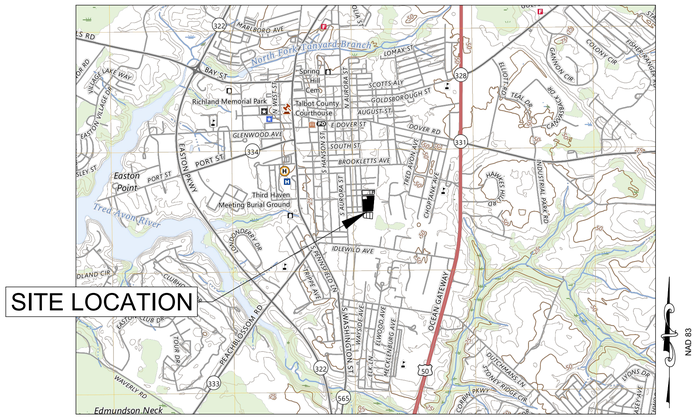
PROVIDED:

BUFFERYARD "E":	FENCE WITH 3 EVERGREEN SHRUBS

SURVEY DATUM	
HORIZONTAL:	NAD83
VERTICAL:	NAVD88
DATE OF SURVEY:	6/18/2024

CONTACT INFORMATION

OWNER/DEVELOPER:	SILO SQUARE, LLC 999 CORPORATE DRIVE, LINTHICUM, MD 21090 (410) 384-4022
ENGINEER:	RAUCH Inc. 106 N HARRISON ST EASTON, MARYLAND 21301 (410)770-9081



VICINITY MAP

SCALE: 1" = 2000'

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

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. STEEP SLOPES ARE NOT PRESENT ON SITE
4. NON TIDAL WETLANDS ARE NOT PRESENT ON THIS PORTION OF THE PROJECT

HYDROLOGY NOTES:

1. THE PROJECT WILL NOT ALTER HYDROLOGY TO OR FROM THE SITE
2. NO OUTLETS WILL BE ALTERED BY THIS PROJECT

LINETYPES

TOPOGRAPHY
- MAJOR CONTOURS
- MINOR CONTOURS
- TOP OF SLOPE BREAKLINE
- BOTTOM OF SLOPE BREAKLINE
- TOPOGRAPHY BREAKLINE
- CATCHMENT AREA
- Tc FLOW PATH
- PARCEL BOUNDARY
- PARCEL SETBACK/EASEMENT
- FENCELINE WOOD
- FENCELINE STEEL
- TREELINE/VEGETATION
- ROADWAY CENTERLINE
- HIGHWAY BARRIER

UTILITIES
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- TELEPHONE LINE
- GAS PIPE LINE
- COMMUNICATIONS (FIBER, ETC)
- WATER PIPE
- STORMWATER PIPE
- UNDERDRAIN
- SANITARY SEWER
- FORCE MAIN SEWER

ENVIRONMENTAL
- WETLAND LINE
- FLOOD PLANE 100/500 YR
- MEAN HIGH WATER
- MEAN LOW WATER
- CRITICAL AREA BOUNDARY
- BUFFER 25'/100'
- SOILS BOUNDARY

EROSION AND SEDIMENT CONTROL
- SILT FENCE
- SUPER SILT FENCE
- SILT FENCE ON PAVEMENT
- LIMITS OF DISTURBANCE
- STANDARD INLET PROTECTION
- AT-GRADE INLET PROTECTION
- CURB INLET PROTECTION
- 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	6.41%	6.41%
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

SEQUENCE OF CONSTRUCTION

1. NOTIFY MDE AT (410) 901-4020
   TALBOT COUNTY SOIL CONSERVATION DISTRICT AT (410) 822-1583
   TOWN OF EASTON DPW AT (410) 822-0513
2. PRE-CONSTRUCTION MEETING.
4. INSTALL ALL SEDIMENT AND EROSION CONTROL MEASURES PER PLANS.
5. CUT EXISTING SEWER PIPE. PLUG AND CAP WEST SECTION AND APPLY FLOWABLE FILL TO THE EAST PART OF THE SEWER PIPE TO BE ABANDONED.
6. DEMO PER PLAN.
7. INSTALL STORMWATER MANAGEMENT NETWORK.
8. INSTALL UTILITIES.
9. START SITE GRADING.
10. START CONSTRUCTION.
11. CONSTRUCT SUBMERGED GRAVEL WETLAND AREA. DO NOT FINALIZE CONSTRUCTION OF THIS UNTIL EARTH DISTURBANCE IS COMPLETE.
12. CONSTRUCT CURBS AND SIDEWALKS AS INDICATED ON THE PLANS.
13. INSTALL BASE PAVEMENT
14. PERMANENTLY STABILIZE REMAINING AREAS.
15. MAINTAIN ALL PERIMETER CONTROLS AND SEDIMENT CONTROL DEVICES UNTIL FINAL STABILIZATION HAS BEEN COMPLETELY ESTABLISHED.
16. REMOVE PERIMETER CONTROLS UPON APPROVAL BY THE MDE SEDIMENT CONTROL INSPECTOR.

DRAWING LIST

DRAWING NUMBER	DRAWING TITLE
G-100	TITLE SHEET
V-101	EXISTING CONDITIONS PLAN
C-101	OVERALL SITE PLAN
C-201.01-.02	EROSION & SEDIMENT CONTROL AND STORMWATER MANAGEMENT PLAN
C-203.01-.03	STORMWATER MANAGEMENT PROFILES
C-205.01-.02	EROSION & SEDIMENT CONTROL DETAILS
C-205.03	STORMWATER MANAGEMANT DETAILS
C-301.01-.02	SITE AND GRADING PLAN
C-303	GRADING PROFILES
C-305	SITE AND GRADING DETAILS
C-401.01-.02	UTILITY PLAN
C-403.01-.03	UTILITY PROFILES
C-405	UTILITY DETAILS
C-501.01-02	LANDSCAPE PLAN AND DETAILS

REVIEWED FOR THE TALBOT SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS

APPROVED:

TALBOT SOIL CONSERVATION DISTRICT _____ DATE _____

NOTE: THE TALBOT SOIL CONSERVATION DISTRICT RESERVES THE RIGHT TO ADD, DELETE, MODIFY OR OTHERWISE ALTER THE EROSION CONTROL PROVISIONS OF THIS PLAN IN THE EVENT THAT ADDITIONAL PROTECTION BECOMES NECESSARY.

DEVELOPER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL OF THE DEVELOPMENT AND/OR CONSTRUCTION SHALL BE DONE IN ACCORDANCE TO THIS PLAN OF EROSION AND SEDIMENT CONTROL.

SIGNATURE _____ DATE _____

1. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR OR SUBCONTRACTOR TO NOTIFY THE ENGINEER OF ANY DEVIATION MADE IN THIS PLAN. ANY CHANGE MADE TO THIS PLAN WITHOUT WRITTEN AUTHORIZATION FROM THE ENGINEER WILL PLACE RESPONSIBILITY FOR SAID CHANGE ON THE CONTRACTOR OR SUBCONTRACTOR.
2. ANY RESPONSIBLE PERSONNEL INVOLVED IN THIS CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT THE DEPARTMENT OF ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT BEFORE BEGINNING THE PROJECT.

GENERAL NOTES

PROJECT SHALL BE CONSTRUCTED TO COMPLY WITH THE TOWN OF EASTON DESIGN AND CONSTRUCTION STANDARDS.

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	410-822-0513
TALBOT COUNTY SCD	410-822-1583
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.

TITLE SHEET

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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 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, 2026

8/7/2024

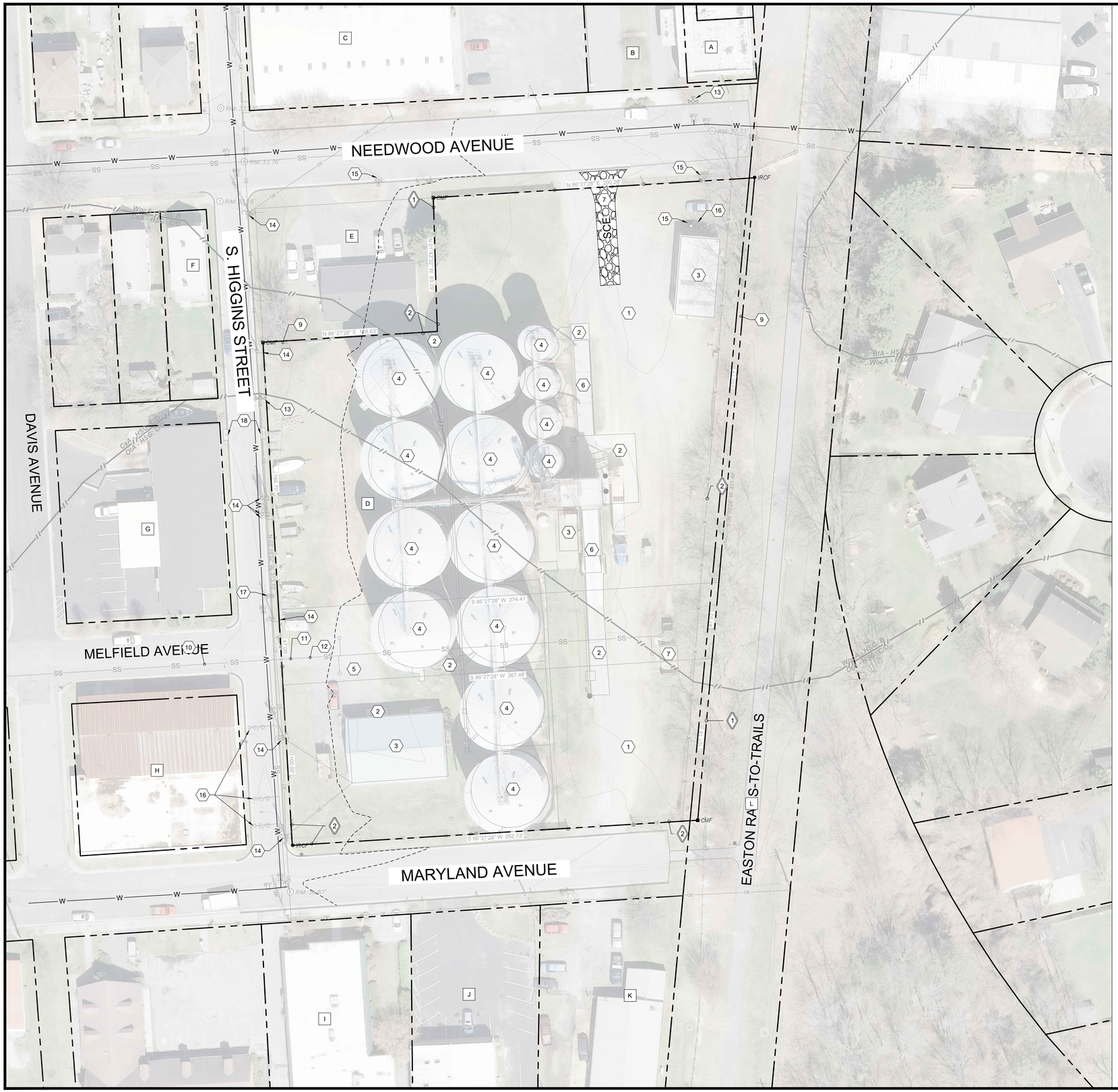
REVISIONS			
REV. #	DATE	DESCRIPTION	

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: G-100

FOR REVIEW



EXISTING FEATURES

1. EXISTING PROPERTY LINE
2. EXISTING CHAIN LINK FENCE TO STAY

NAD 83

0 30' 60'

DEMOLITION FEATURES

1. EXISTING GRAVEL ROAD TO BE DEMOLISHED
2. EXISTING CONCRETE PAD TO BE DEMOLISHED
3. EXISTING BUILDING TO BE DEMOLISHED
4. SALVAGE EXISTING SILO ROOF FOR REUSE. GENERAL CONTRACTOR TO DETERMINE EXACT STRUCTURE. REMAINING EXISTING SILOS TO BE DEMOLISHED.
5. EXISTING GRAVEL PARKING LOT TO BE DEMOLISHED
6. EXISTING TRUCK WEIGHT SCALE TO BE DEMOLISHED
7. EXISTING STRUCTURE TO BE DEMOLISHED
8. STABILIZED CONSTRUCTION ENTRANCE. SEE DETAIL ON SHEET V-105 .01
9. SILT FENCE. SEE DETAIL ON SHEET V-105.01
10. EXISTING SEWER PIPE
11. EXISTING SEWER PIPE CUT/ABANDONMENT LOCATION
12. ABANDONED SEWER PIPE TO BE FILLED WITH FLOWABLE FILL
13. EXISTING FIRE HYDRANT
14. EXISTING ELECTRIC POLE
15. EXISTING WATER METER
16. EXISTING CLEAN-OUT
17. MAIL BOX
18. CURB INLET
19. PROPOSED CONTOUR (TYP.)

PROPERTY DATA

- A — WARRINGTON DAN W, WARRINGTON REBECCA DIXON
  M/G/P: 0105/0000/4533- B/P: 00961/00816
- B — KNAUER IRVIN C JR KNAUER MARGARET E
  M/G/P: -/-/- - B/P: 00693/00234
- C — 411 NEEDWOOD LLC
  M/G/P: 0105/0000/2214 - B/P: 01302/00939
- D — SILO SQUARE LLC
  M/G/P: 0105/00EA/2226 - B/P: 03105/00287
- E — NEEDWOOD PARTNERSHIP
  M/G/P: 0105/000EA/2225 - B/P: 00777/00391
- F — EASTON VENTURES LLC
  M/G/P: 0105/00EA/2224 - B/P: 02340/00451
- G — KC RENTAL PROPERTIES, LLC
  M/G/P: 0105/0000/2234 - B/P: 01279/00343
- H — ASPRO INC
  M/G/P: 0105/000EA/2233 - B/P: 00814/00892
- I — WILLOW CONSTRUCTION INC
  M/G/P: 0105/000EA/2229 - B/P: 02958/00252
- J — WALBRIDGE REAL ESTATE INVESTMENTS LLC
  M/G/P: 0105/000EA/2228 - B/P: 02589/00013
- K — LORD STUART PROPERTIES LCC
  M/G/P: 0105/000EA/2227 - B/P: 02532/00125
- L — TOWN OF EASTON
  M/G/P: 0105/000EA/2211 - B/P: 01595/00214

SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	0.37	No
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C/D	0.43	Yes
CsA	Crosiadore silt loam, 0 to 2 percent slopes	C/D	0.49	Yes

***NOTE:** ANY WATER TO BE USED CAN COME OFF HYDRANT ON SOUTH HIGGINS STREET AFTER APPLYING FOR TEMPORARY WATER METER FROM EUC.

EXISITING CONDITIONS & DEMOLITION PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226
EASTON, TALBOT COUNTY, MARYLAND
PREPARED FOR: SILO SQUARE, LLC

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 9081 | Fax: 410 770 3667

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, 2026

8/7/2024

REVISIONS

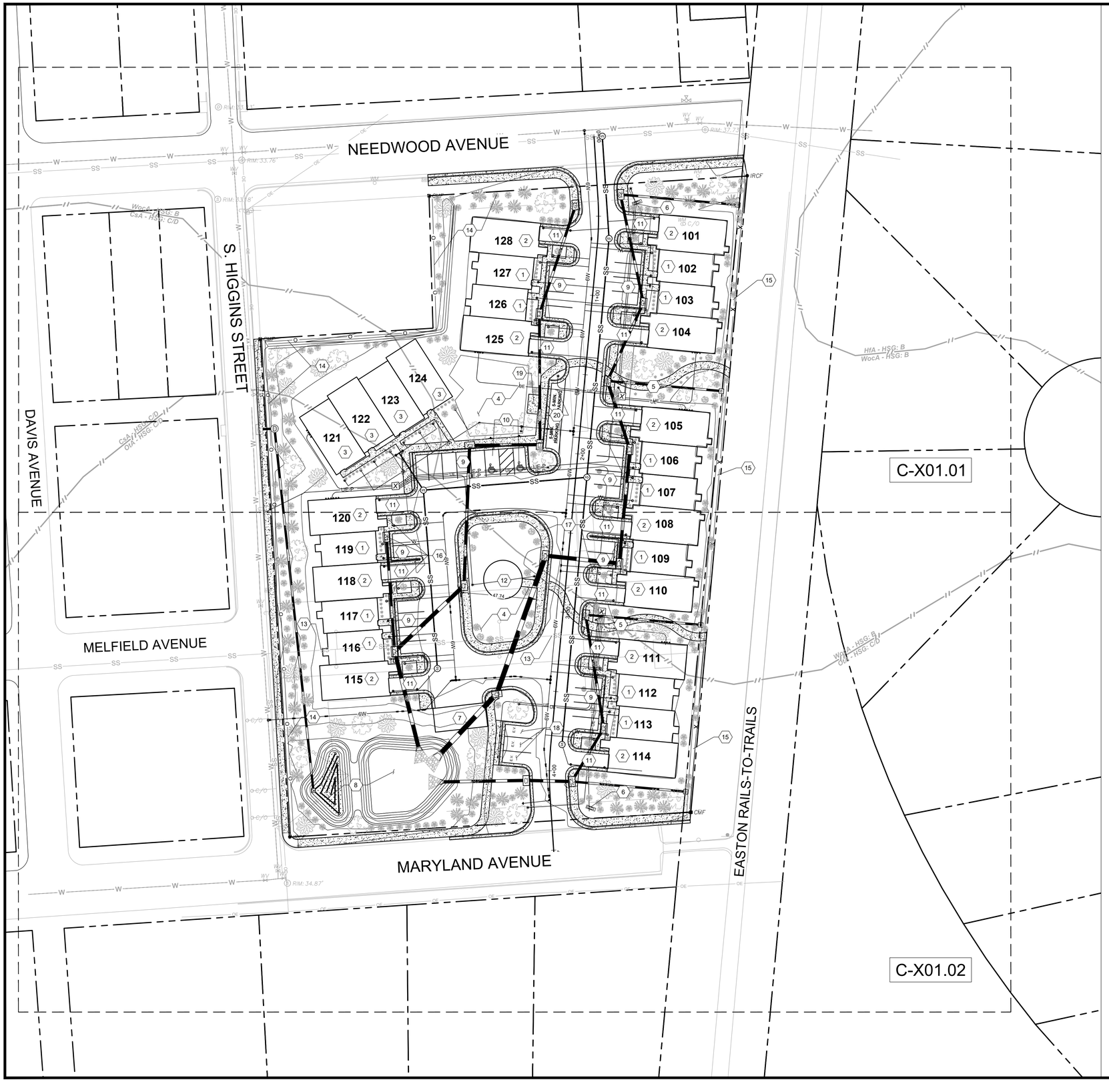
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG
811

DATE:	8/7/2024
SCALE:	1" = 30'
DRAWN BY:	AF / BO
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: V-101

FOR REVIEW



PROPOSED FEATURES

1. UNIT TYPE A
2. UNIT TYPE B
3. UNIT TYPE C
4. PARK
5. WALKING TRAIL
6. SIGN
7. TRASH AND RECYCLING CENTER
8. STORMWATER SUBMERGED GRAVEL WETLAND AND FOREBAY
9. PARKING AREA. TYPICAL SPACE: 9'Wx18'L
10. HANDICAP PARKING SPACE - 9'Wx18'L WITH 9'Wx18'L AISLE. TYPICAL OF TWO
11. DRIVEWAY FOR GARAGE ACCESS - 12'Wx25'L.
12. GAZEBO
13. EXISTING SEWER LATERAL TO BE DEMOLISHED - SEE V-101 FOR FURTHER DETAILS
14. PROPOSED 6' TALL BOARD-ON-BOARD FENCE
15. PROPOSED __' TALL SPLIT-RAIL FENCE
16. PROPOSED 3' SIDEWALK FOR RESIDENTIAL ACCESS - TYPICAL
17. PROPOSED 5' SIDEWALK FOR PUBLIC USE - TYPICAL
18. PROPOSED ELECTRIC VEHICLE CHARGING STATIONS
19. PROPOSED CLUSTER MAILBOX
20. PROPOSED PARALLEL PARKING FOR MAILBOX ACCESS

FINISH FLOOR/GARAGE FLOOR ELEVATIONS:
UNITS 101-104: 37.25'
UNITS 105-110: 37.25'
UNITS 111-114: 37.00'
UNITS 115-120: 36.50'
UNITS 121-124: 36.50'
UNITS 125-128: 37.00'

LANDSCAPING LEGEND

PROPOSED SHADE TREE - TYPE TO BE DETERMINED

PROPOSED SHRUB - TYPE TO BE DETERMINED

OVERALL SITE PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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Phone: 410 770 8081 | 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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 30'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-101

FOR REVIEW

EROSION & SEDIMENT CONTROL FEATURES

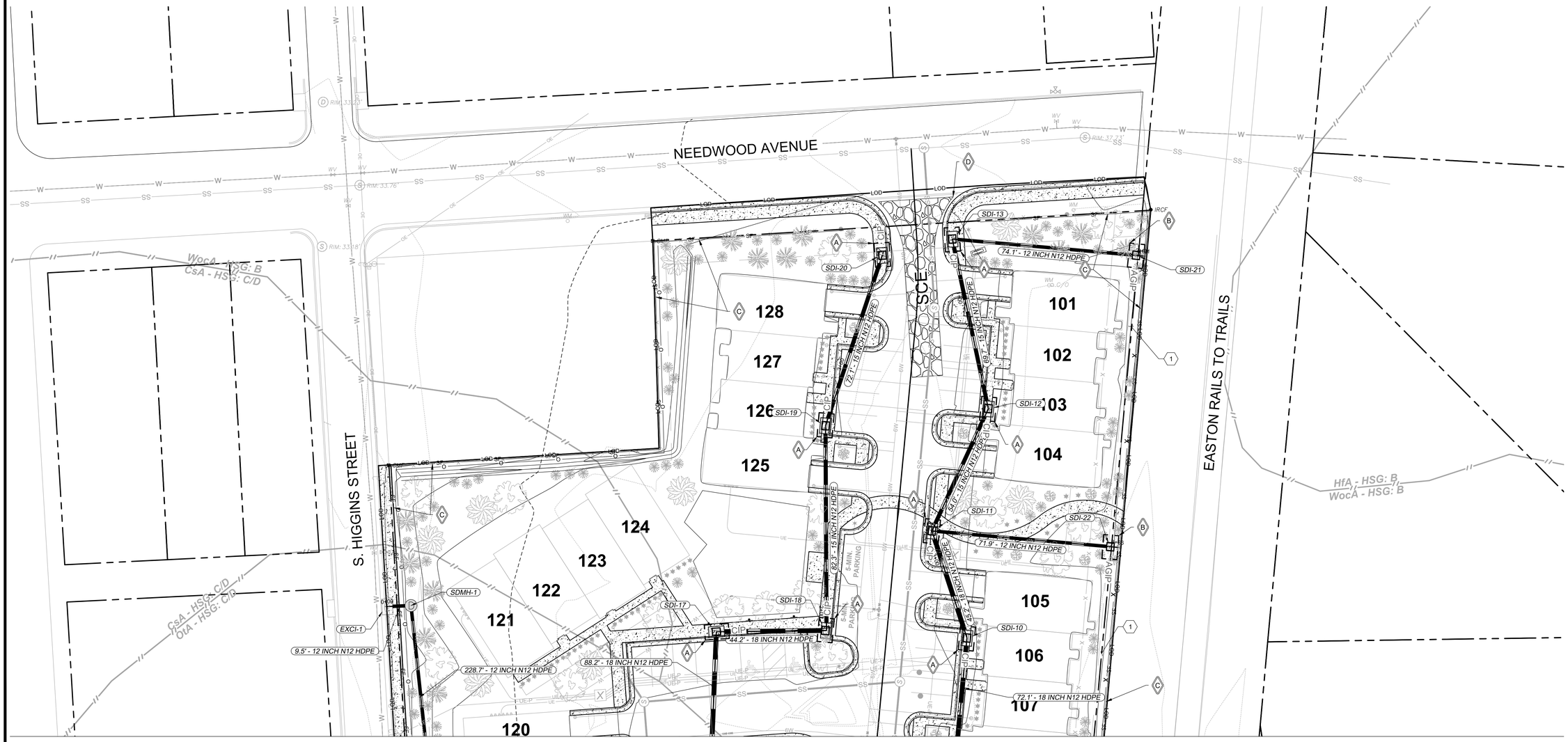
- (A) CURB INLET PROTECTION PER DETAIL ON C-205.01
- (B) AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01
- (C) SILT FENCE PER DETAIL ON C-205.01
- (D) STABILIZED CONSTRUCTION ENTRANCE PER DETAIL ON C-205.01

STORMWATER MANAGEMENT FEATURES

- (1) VEGETATED SWALE. SEE DETAIL ON C-205.03

SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	0.37	No
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C/D	0.43	Yes
CsA	Crosiadore silt loam, 0 to 2 percent slopes	C/D	0.49	Yes



CONTINUATION - SEE SHEET C-201.02

NAD 83

0 20' 40'

ESC AND SWM PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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License No. 11024
Expiration Date: July 24, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — DIAL 811 OR 1-800-282-8555 — 811

DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-201.01

FOR REVIEW

EROSION & SEDIMENT CONTROL FEATURES

- (A) CURB INLET PROTECTION PER DETAIL ON C-205.01
- (B) AT-GRADE INLET PROTECTION PER DETAIL ON C-205.01
- (C) SILT FENCE PER DETAIL ON C-205.01

STORMWATER MANAGEMENT FEATURES

- (1) SUBMERGED GRAVEL WETLAND WITH FOREBAY. SEE SECTIONS ON C-203.03 AND DETAIL ON C-205.03
- (2) VEGETATED SWALE. SEE DETAIL ON C-205.03

SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	0.37	No
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CsA	Crosiadore silt loam, 0 to 2 percent slopes	C/D	0.49	Yes

NAD 83

0 20' 40'

CONTINUATION - SEE SHEET C-201.01

ESC AND SWM PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

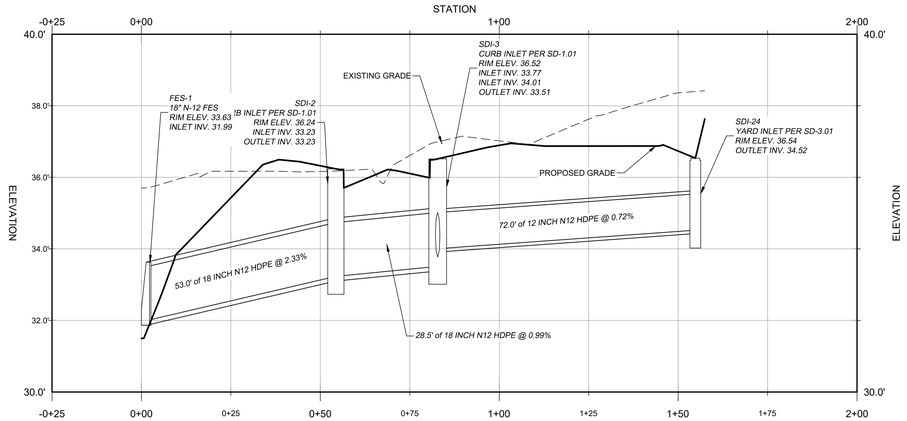
MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG

811

DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-201.02

FOR REVIEW



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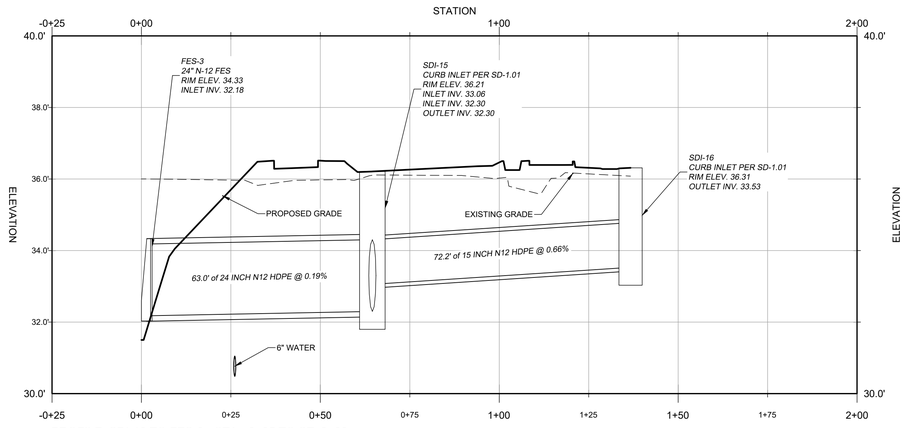

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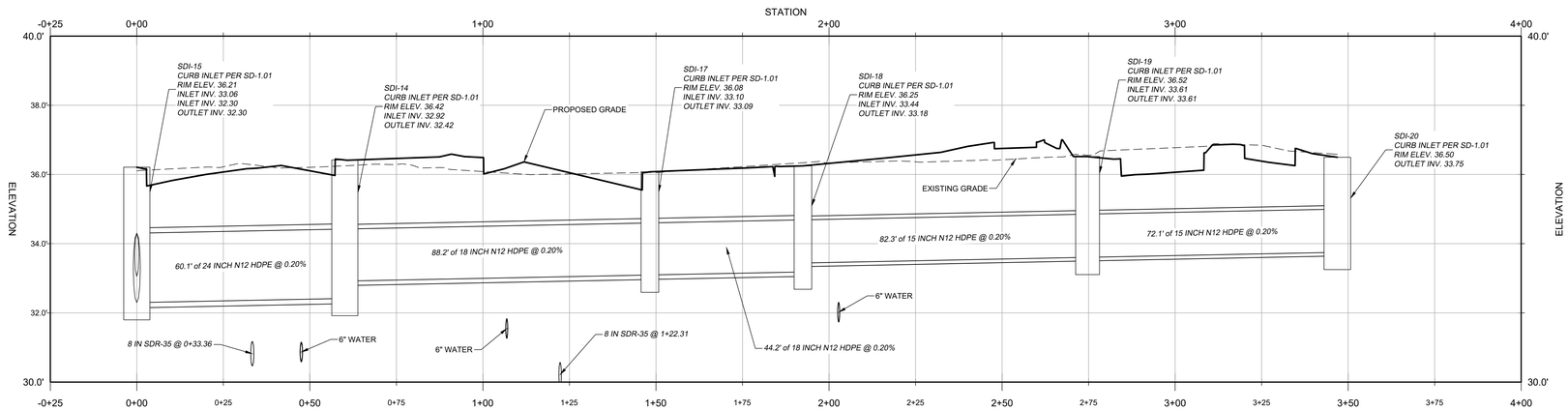


PROFILE: SDI-20 TO SDI-15 - STA. -0+25 TO ST. 4+00
SCALE: V: 1" = 2'; H: 1" = 20'

PIPE SCHEDULE
SILO SQUARE STORM

PIPE NAME	SIZE AND MATERIAL	LENGTH	SLOPE	UPSTREAM STRUCTURE AND INVERT	DOWNSTREAM STRUCTURE AND INVERT
SD-1	12 INCH N12 HDPE	228.72'	0.50%	SDI-1 INV. 31.17'	SDMH-1 INV. 30.02'
UD-5	6.0 inch PVC Pipe	18.87'	0.00%	CCO-5 INV. 26.67'	CCO-4 INV. 26.67'
UD-4	6.0 inch PVC Pipe	31.64'	0.00%	CCO-4 INV. 26.67'	CCO-3 INV. 26.67'
UD-3	6.0 inch PVC Pipe	21.88'	0.00%	CCO-3 INV. 26.67'	SDI-1 INV. 26.67'
UD-2	6.0 inch PVC Pipe	6.17'	0.00%	CCO-2 INV. 26.67'	SDI-1 INV. 26.67'
UD-1	6.0 inch PVC Pipe	21.46'	0.00%	CCO-1 INV. 26.67'	CCO-2 INV. 26.67'
UD-6	6.0 inch PVC Pipe	24.94'	0.00%	DCO-1 INV. 26.67'	DCO-2 INV. 26.67'
UD-7	6.0 inch PVC Pipe	11.29'	0.00%	DCO-2 INV. 26.67'	DCO-3 INV. 26.67'
UD-8	6.0 inch PVC Pipe	16.43'	0.00%	DCO-3 INV. 26.67'	DCO-4 INV. 26.67'
UD-9	6.0 inch PVC Pipe	10.28'	0.00%	DCO-4 INV. 26.67'	DCO-5 INV. 26.67'
SD-20	15 INCH N12 HDPE	72.15'	0.20%	SDI-20 INV. 33.75'	SDI-19 INV. 33.61'
SD-19	15 INCH N12 HDPE	82.25'	0.20%	SDI-19 INV. 33.61'	SDI-18 INV. 33.44'
SD-18	18 INCH N12 HDPE	44.21'	0.20%	SDI-18 INV. 33.18'	SDI-17 INV. 33.10'
SE-17	18 INCH N12 HDPE	88.15'	0.20%	SDI-17 INV. 33.09'	SDI-14 INV. 32.92'
SD-16	15 INCH N12 HDPE	72.16'	0.66%	SDI-16 INV. 33.53'	SDI-15 INV. 33.06'
SD-15	24 INCH N12 HDPE	63.04'	0.19%	SDI-15 INV. 32.30'	FES-3 INV. 32.18'
SD-12	15 INCH N12 HDPE	54.05'	0.20%	SDI-12 INV. 33.69'	SDI-11 INV. 33.58'
SD-11	18 INCH N12 HDPE	45.22'	0.20%	SDI-11 INV. 33.32'	SDI-10 INV. 33.23'
SD-10	18 INCH N12 HDPE	72.06'	0.20%	SDI-10 INV. 33.23'	SDI-9 INV. 33.09'
SD-9	24 INCH N12 HDPE	46.45'	0.65%	SDI-9 INV. 32.65'	SDI-8 INV. 32.35'
SD-14	24 INCH N12 HDPE	60.11'	0.20%	SDI-14 INV. 32.42'	SDI-15 INV. 32.30'
SD-7	30 INCH N12 HDPE	92.07'	0.20%	SDI-8 INV. 31.85'	SDI-6 INV. 31.67'
SD-6	30 INCH N12 HDPE	53.18'	0.22%	SDI-6 INV. 31.67'	FES-2 INV. 31.55'
SD-4	15 INCH N12 HDPE	39.15'	0.08%	SDI-4 INV. 33.80'	SDI-3 INV. 33.77'
SD-3	18 INCH N12 HDPE	28.46'	0.99%	SDI-3 INV. 33.51'	SDI-2 INV. 33.23'
SD-2	18 INCH N12 HDPE	53.01'	2.33%	SDI-2 INV. 33.23'	FES-1 INV. 31.99'
SD-5	15 INCH N12 HDPE	72.19'	0.20%	SDI-5 INV. 33.95'	SDI-4 INV. 33.80'
SD-13	15 INCH N12 HDPE	69.65'	0.53%	SDI-13 INV. 34.06'	SDI-12 INV. 33.69'
SD-21	12 INCH N12 HDPE	74.12'	1.19%	SDI-21 INV. 35.18'	SDI-13 INV. 34.30'
SD-22	12 INCH N12 HDPE	71.93'	1.00%	SDI-22 INV. 34.53'	SDI-11 INV. 33.82'
SD-23	12 INCH N12 HDPE	72.57'	0.69%	SDI-23 INV. 34.68'	SDI-5 INV. 34.18'
SD-24	12 INCH N12 HDPE	72.01'	0.72%	SDI-24 INV. 34.52'	SDI-3 INV. 34.01'
P-(273)	12 INCH N12 HDPE	9.52'	0.20%	SDMH-1 INV. 30.02'	EXCI-1 INV. 30.00'

STRUCTURE SCHEDULE
SILO SQUARE STORM

STRUCTURE NAME	LOCATION	STRUCTURE TYPE AND SIZE	CONNECTED PIPES	RIM ELEVATION
CCO-1	N402227.28, E1577646.71	6" PVC CLEANOUT	UD-1 INV OUT = 26.670	27.96
CCO-2	N402207.81, E1577637.67	6" PVC CLEANOUT	UD-1 INV IN = 26.670 UD-2 INV OUT = 26.670	32.83
CCO-3	N402189.21, E1577649.09	6" PVC CLEANOUT	UD-4 INV IN = 26.670 UD-3 INV OUT = 26.670	32.83
CCO-4	N402220.83, E1577647.88	6" PVC CLEANOUT	UD-5 INV IN = 26.670 UD-4 INV OUT = 26.670	32.83
CCO-5	N402203.17, E1577641.24	6" PVC CLEANOUT	UD-5 INV OUT = 26.670	32.83
DCO-1	N402224.93, E1577648.05	6" ADS NYLOPLAST STRUCTURE	UD-6 INV OUT = 26.670	32.83
DCO-2	N402202.29, E1577637.60	6" ADS NYLOPLAST STRUCTURE	UD-6 INV IN = 26.670 UD-7 INV OUT = 26.670	32.83
DCO-3	N402195.17, E1577646.36	6" ADS NYLOPLAST STRUCTURE	UD-7 INV IN = 26.670 UD-8 INV OUT = 26.670	32.83
DCO-4	N402211.60, E1577646.61	6" ADS NYLOPLAST STRUCTURE	UD-8 INV IN = 26.670 UD-9 INV OUT = 26.670	32.83
DCO-5	N402201.67, E1577643.96	6" ADS NYLOPLAST STRUCTURE	UD-9 INV IN = 26.670	32.83
EXCI-1	N402430.92, E1577598.98	CURB INLET PER SD-1.01	P-(273) INV IN = 30.000	33.78
FES-1	N402209.29, E1577713.76	18" N-12 FES	SD-2 INV IN = 31.994	33.63
FES-2	N402225.94, E1577711.71	30" N-12 FES	SD-6 INV IN = 31.553	34.26
FES-3	N402230.10, E1577699.15	24" N-12 FES	SD-15 INV IN = 32.175	34.33
SDI-1	N402203.91, E1577632.89	18"x18" CUSTOM INLET	UD-2 INV IN = 26.670 UD-3 INV IN = 26.670 SD-1 INV OUT = 31.167	32.61
SDI-2	N402210.22, E1577766.76	CURB INLET PER SD-1.01	SD-3 INV IN = 33.231 SD-2 INV OUT = 33.231	36.24
SDI-3	N402209.52, E1577795.22	CURB INLET PER SD-1.01	SD-4 INV IN = 33.770 SD-24 INV IN = 34.006 SD-3 INV OUT = 33.512	36.52
SDI-4	N402243.09, E1577815.37	CURB INLET PER SD-1.01	SD-5 INV IN = 33.802 SD-4 INV OUT = 33.803	36.48
SDI-5	N402314.37, E1577803.94	CURB INLET PER SD-1.01	SD-23 INV IN = 34.182 SD-5 INV OUT = 33.947	36.69
SDI-6	N402264.74, E1577748.09	CURB INLET PER SD-1.01	SD-7 INV IN = 31.669 SD-6 INV OUT = 31.669	36.04
SDI-8	N402351.52, E1577778.83	CURB INLET PER SD-1.01	SD-9 INV IN = 32.346 SD-7 INV OUT = 31.853	35.85
SDI-9	N402346.59, E1577825.01	CURB INLET PER SD-1.01	SD-10 INV IN = 33.088 SD-9 INV OUT = 32.648	36.65
SDI-10	N402418.34, E1577831.66	CURB INLET PER SD-1.01	SD-11 INV IN = 33.232 SD-10 INV OUT = 33.232	36.55
SDI-11	N402461.31, E1577817.59	CURB INLET PER SD-1.01	SD-12 INV IN = 33.580 SD-22 INV IN = 33.816 SD-11 INV OUT = 33.322	36.55
SDI-12	N402510.39, E1577840.22	CURB INLET PER SD-1.01	SD-13 INV IN = 33.688 SD-12 INV OUT = 33.688	36.44
SDI-13	N402578.53, E1577825.77	CURB INLET PER SD-1.01	SD-21 INV IN = 34.296 SD-13 INV OUT = 34.060	36.81
SDI-14	N402332.73, E1577727.54	CURB INLET PER SD-1.01	SE-17 INV IN = 32.918 SD-14 INV OUT = 32.417	36.42
SDI-15	N402291.29, E1577683.99	CURB INLET PER SD-1.01	SD-16 INV IN = 33.056 SD-14 INV IN = 32.297 SD-15 INV OUT = 32.297	36.21
SDI-16	N402363.27, E1577678.82	CURB INLET PER SD-1.01	SD-16 INV OUT = 33.531	36.31
SDI-17	N402420.81, E1577731.07	CURB INLET PER SD-1.01	SD-18 INV IN = 33.095 SE-17 INV OUT = 33.094	36.08
SDI-18	N402421.30, E1577775.28	CURB INLET PER SD-1.01	SD-19 INV IN = 33.441 SD-18 INV OUT = 33.183	36.25
SDI-19	N402503.55, E1577774.88	CURB INLET PER SD-1.01	SD-20 INV IN = 33.606 SD-19 INV OUT = 33.607	36.52
SDI-20	N402572.00, E1577797.69	CURB INLET PER SD-1.01	SD-20 INV OUT = 33.751	36.50
SDI-21	N402571.99, E1577899.60	YARD INLET PER SD-3.01	SD-21 INV OUT = 35.178	36.79
SDI-22	N402454.96, E1577889.24	YARD INLET PER SD-3.01	SD-22 INV OUT = 34.534	36.55
SDI-23	N402307.97, E1577876.23	YARD INLET PER SD-3.01	SD-23 INV OUT = 34.682	36.69
SDI-24	N402203.14, E1577866.94	YARD INLET PER SD-3.01	SD-24 INV OUT = 34.524	36.54
SDMH-1	N402431.33, E1577608.49	PRECAST CONCRETE MANHOLE PER SD-4.00	SD-1 INV IN = 30.018 P-(273) INV OUT = 30.019	33.96

STORMWATER MANAGEMENT PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchinc.com
Phone: 410 770 8081 | 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, 2026

8/7/2024

REVISIONS

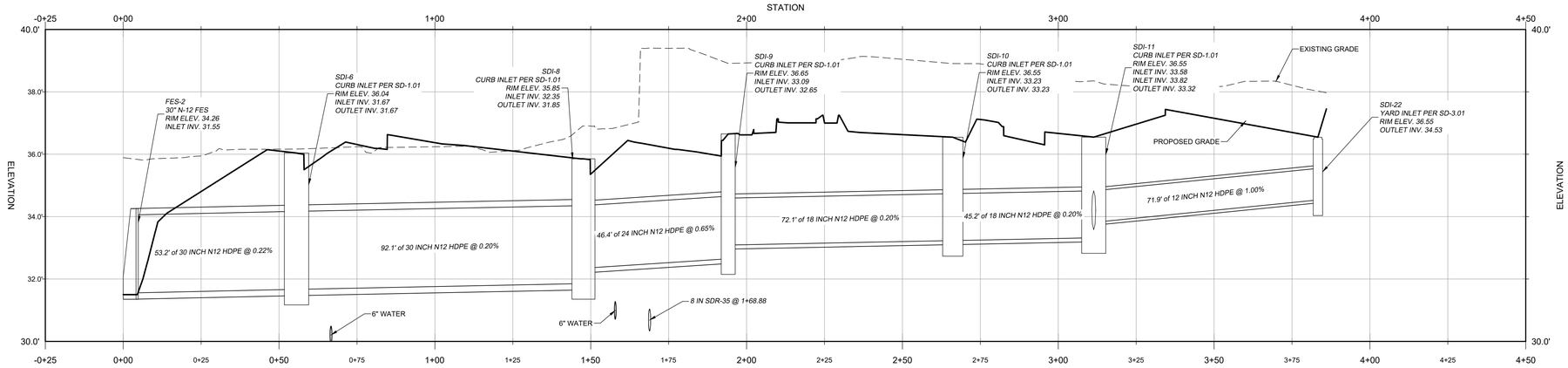
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — DIAL 811 OR 1-800-282-8555 — 811

DATE	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-203.01

FOR REVIEW



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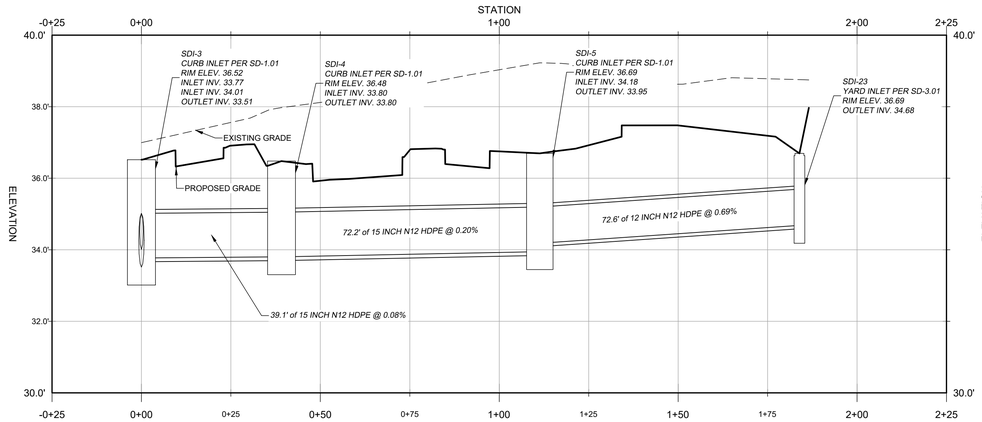

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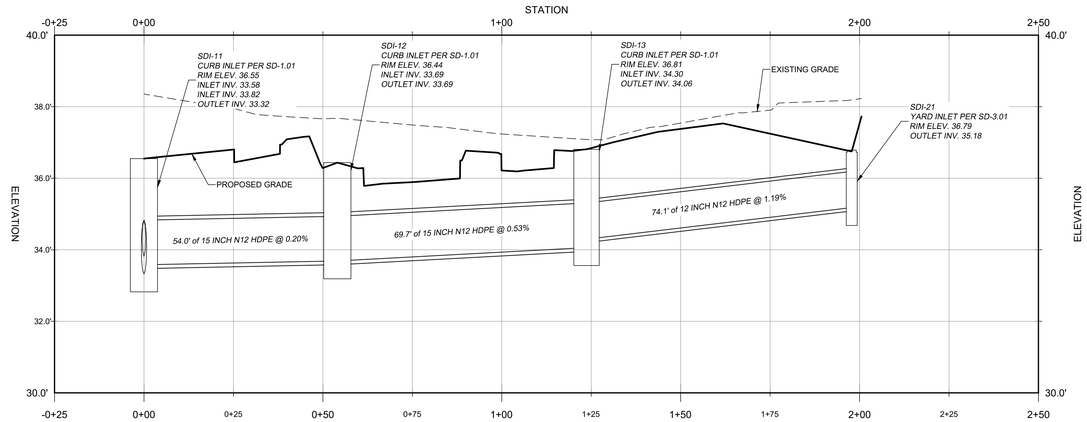

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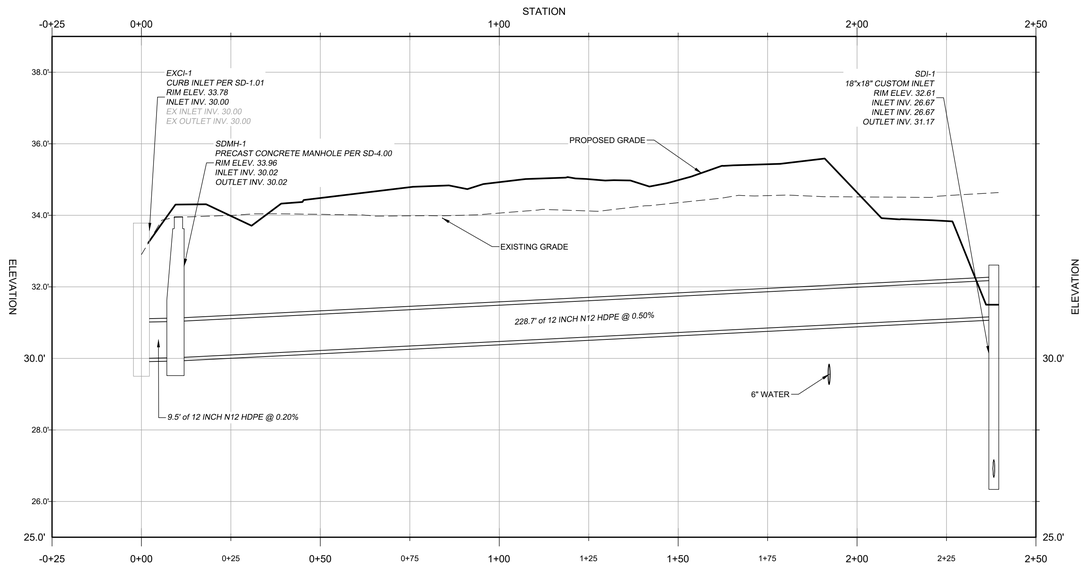


PROFILE: SDI-1 TO EXCI-1 - STA. -0+25 TO ST. 2+50
SCALE: V: 1" = 2'; H: 1" = 20'

STORMWATER MANAGEMENT PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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 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, 2026

8/7/2024

REVISIONS

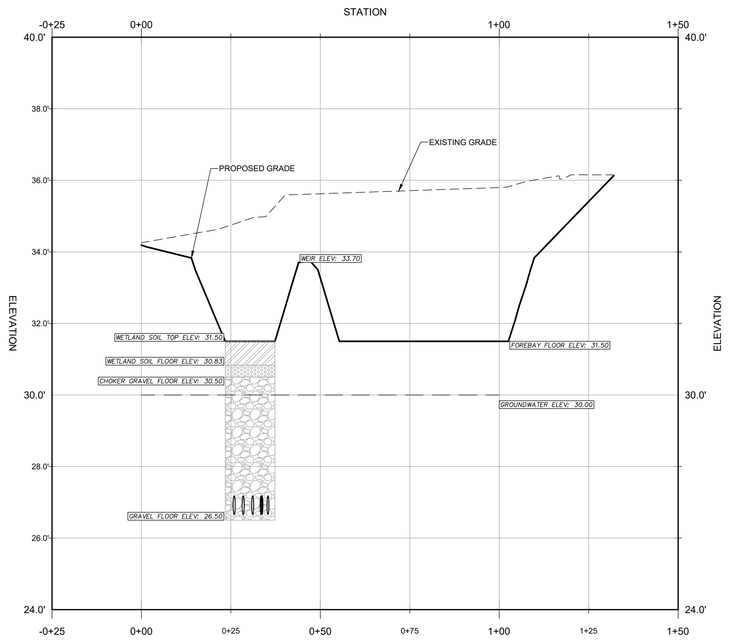
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

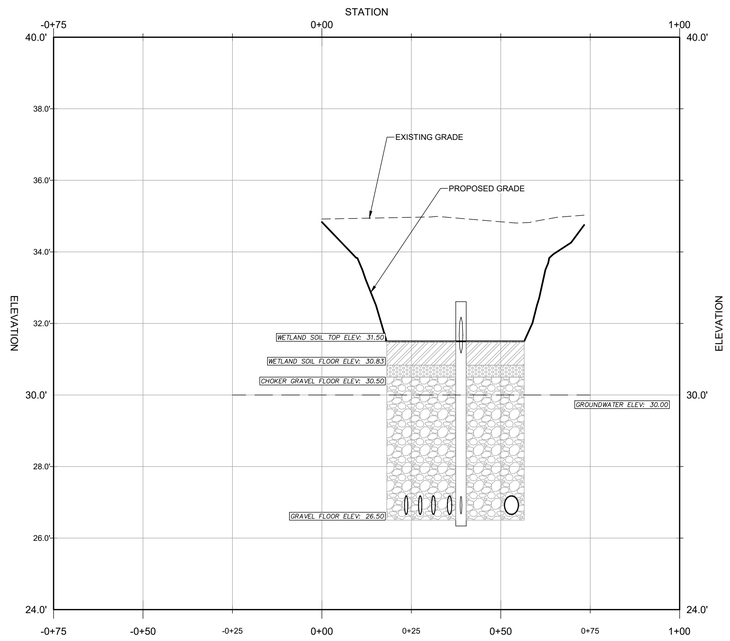
DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-203.02

FOR REVIEW



PROFILE: SGW - SECTION A-A - STA. -0+25 TO ST. 1+50
SCALE: V: 1" = 2'; H: 1" = 20'



PROFILE: SGW - SECTION B-B - STA. -0+75 TO ST. 1+00
SCALE: V: 1" = 2'; H: 1" = 20'

STORMWATER MANAGEMENT PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

RAUCH inc.
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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 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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-203.03

FOR REVIEW

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
DORCHESTER COUNTY DPW	410-228-2920
DORCHESTER COUNTY SCD	410-228-3733
MISS UTILITY	800-257-7777 or 811

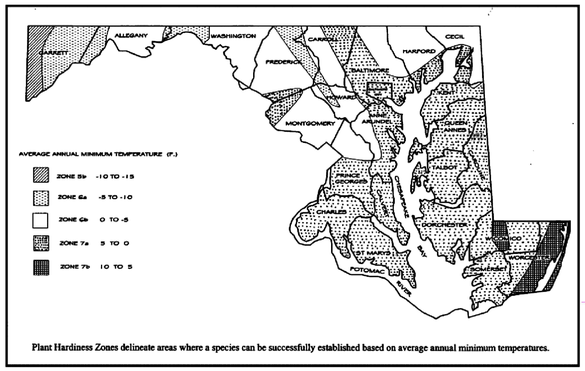
SHOULD ANY DAMAGE OCCUR TO ANY MARKED UTILITIES, THEY SHALL BE REPAIRED SOLELY AT THE CONTRACTORS EXPENSE.

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.

CLEARING & GRUBBING NOTES :

1. ALL TREES TO BE LOGGED AND STUMPS TO BE REMOVED.
2. ALL AREAS/HOLES WHERE A STUMP ONCE WAS IS TO BE FILLED IN TO MEET SURROUNDING GRADES.
3. CLEARING AND GRUBBING SHALL INCLUDE ALL TREES. BUSH, DEBRIS, ROAD MATERIAL AND ORGANIC MATERIALS TO BE REMOVED.



Plant Hardiness Zones delineate areas where a species can be successfully established based on average annual minimum temperatures.

Figure B.3: U.S.D.A. Plant Hardiness Zones

Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate 1/		Seeding Depth 2/ (inches)	Recommended Seeding Dates by Plant Hardiness Zone 3/		
	lb/ac	lb/1000 ft²		5b and 6a	6b	7a and 7b
Cool-Season Grasses						
Annual Ryegrass (*Lolium perenne ssp. multiflorum*)	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Barley (*Hordeum vulgare*)	96	2.2	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Oats (*Avena sativa*)	72	1.7	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Wheat (*Triticum aestivum*)	120	2.8	1.0	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 15	Feb 15 to Apr 30; Aug 15 to Nov 30
Cereal Rye (*Secale cereale*)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15
Warm-Season Grasses						
Foxtail Millet (*Setaria italica*)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14
Pearl Millet (*Pennisetum glaucum*)	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14

NOTES:

1/ Seeding rates for the warm-season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur in very late fall beyond the seeding dates for other temporary seedings. Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

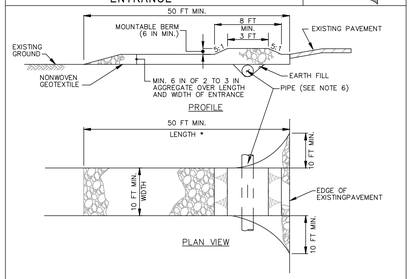
Oats are the recommended nurse crop for warm-season grasses.

2/ For sandy soils, plant seeds at twice the depth listed above.

3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

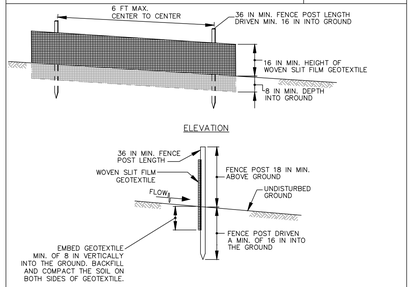
1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

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



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 1⅜ X 1⅜ ± 3/8 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

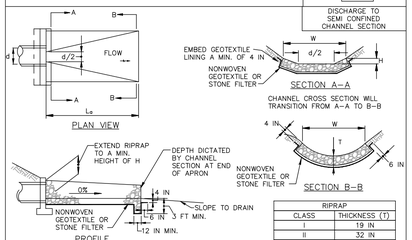
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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

DETAIL D-4-1-A ROCK OUTLET PROTECTION I

STANDARD SYMBOL: ROP1

DISCHARGE TO SEMI CONFINED CHANNEL SECTION



RIPRAP	
CLASS	THICKNESS (T)
I	19 IN
II	32 IN
III	46 IN

CONSTRUCTION SPECIFICATIONS

1. RIPRAP AND STONE MUST CONFORM TO THE SPECIFIED CLASS.
2. USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, AND PROTECT FROM PUNCTURING, CUTTING, OR TEARING. REPAIR ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE BY PLACING ANOTHER PIECE OF GEOTEXTILE OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE. PROVIDE A MINIMUM OF ONE FOOT OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER.
3. PREPARE THE SUBGRADE FOR GEOTEXTILE OR STONE FILTER (⅜ TO 1½ INCH STONE FOR 6 INCH MINIMUM DEPTH) AND RIPRAP TO THE REQUIRED LINES AND GRADES. COMPACT ANY FILL REQUIRED IN THE SUBGRADE TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
4. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
5. CONSTRUCT RIPRAP OUTLET TO FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. PLACE STONE FOR RIPRAP OUTLET IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. PLACE RIPRAP IN A MANNER TO PREVENT DAMAGE TO THE STONE FILTER BLANKET OR GEOTEXTILE. HAND PLACE TO THE EXTENT NECESSARY.
6. WHERE NO ENDWALL IS USED, CONSTRUCT THE UPSTREAM END OF THE APRON SO THAT THE WIDTH IS TWO TIMES THE DIAMETER OF THE OUTLET PIPE, AND EXTEND THE STONE UNDER THE OUTLET BY A MINIMUM OF 18 INCHES.
7. CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS IN WITH EXISTING GROUND.
8. MAINTAIN LINE, GRADE, AND CROSS SECTION. KEEP OUTLET FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. AFTER HIGH FLOWS INSPECT FOR SCOUR AND DISLODGED RIPRAP. MAKE NECESSARY REPAIRS IMMEDIATELY.

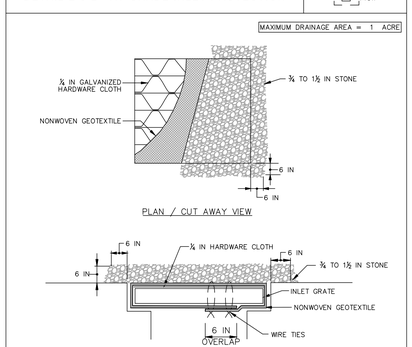
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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



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.

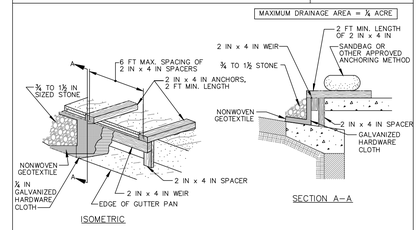
MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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



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

EROSION & SEDIMENT CONTROL DETAILS

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

RAUCH inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchinc.com
Phone: 410 770 8081 | 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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — DIAL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	N/A
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-205.01

FOR REVIEW

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.

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"	436 lb/ac 10 lb/ 1000 sf	2 tons/ac. 90 lb/ 1000 sf
	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"		
	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-4-2 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.

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen.The appropriate seeding mixture must be applied when the ground thaws.
   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
      i. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding).
      ii. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

3. Anchoring
   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
      i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
      ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
      iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition

To stabilize disturbed soils with vegetation for up to 6 months.

Purpose

To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.

2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.

3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

Temporary Seeding Summary

Hardiness Zone (from Figure B.3):_____ Seed Mixture(from Table B.1):_____					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths		
	ANNUAL RYEGRASS	40	FEB 15 - APR 30 AUG 15 - NOV 30	0.50	436 lb/ac 10 lb/ 1000 sf	2 tons/ac 90 lb/ 1000 sf
	BARLEY	40	FEB 15 - APR 30 AUG 15 - NOV 30	1		

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

Definition

To stabilize disturbed soils with permanent vegetation.

Purpose

To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures
1. General Use
   a. Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seedin Summary. The Summary is to be placed on the plan.
   b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guide, Section 342 - Critical Area Planting.
   c. For sites having disturbed area over 5 acres, use and show the rates recommended by the soil testing agency.
   d. For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary .
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
      i. Kentucky Bluegrass: Full Sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky bluegrass cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
      iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
      iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass Lawns. For establishment in high quality, intensively managed turf area. Mixture includes; Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1½ to 3 pounds per 1000 square feet.

   Notes:
   Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland"

   Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line

   c. Ideal Times of Seeding for Turf Grass Mixtures

   Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

   Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)

   Southern MD: Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

   d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
   e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1inch every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

Permanent Seeding Summary

Hardiness Zone (from Figure B.3):_____ Seed Mixture(from Table B.1):_____					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Appl. Rate (lbs./ac.)	Seeding Dates	Seeding Depths	N	P2O5	K2O	
	CREEPING RED FESCUE KENTUCKY BLUEGRASS	60# 15#	MAR 1 - MAY 15 AUG 15 - OCT 15	1/4" - 1/2"	45 lb/ac 1 lb/ 1000 sf	90 lb/ac 2 lb/1000 sf	90 lb/ac 2 lb/1000 sf	2 tons/ac 90 lb/ 1000 sf
	TALL FESCUE	100#	MAR 1 - MAY 15 AUG 15 - OCT 15	1/4" - 1/2"				

B. Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).
1. General Specifications
   a. Class of turfgrass sod must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
3. Sod Maintenance
   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than ½ of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

EROSION & SEDIMENT CONTROL DETAILS

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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

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, 2026

8/7/2024

REVISIONS

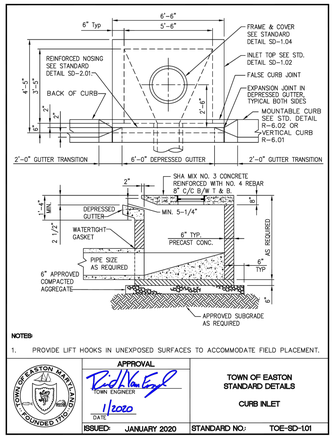
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG — 811

DATE:	8/7/2024
SCALE:	N/A
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-205.02

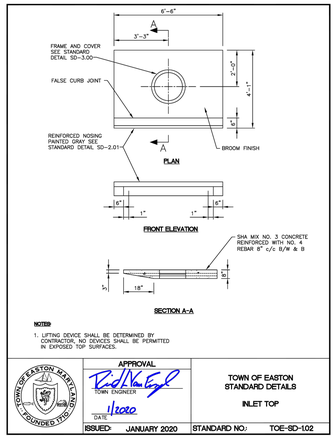
FOR REVIEW



NOTES:

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

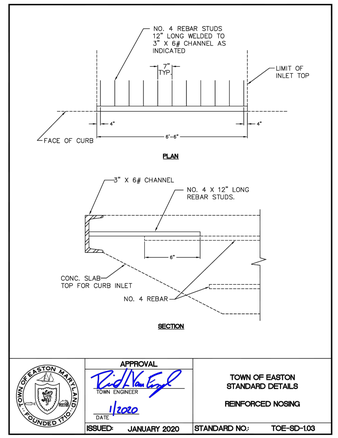
APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	CURB INLET	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.01



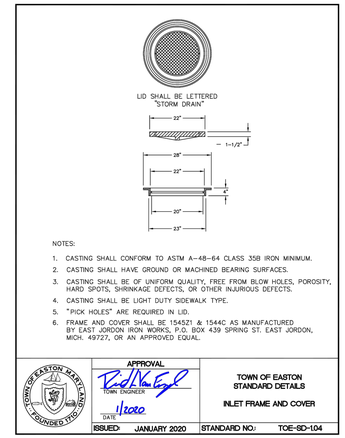
NOTES:

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

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



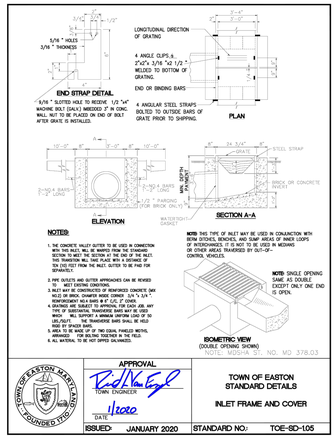
APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	REINFORCED NOSING	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.03



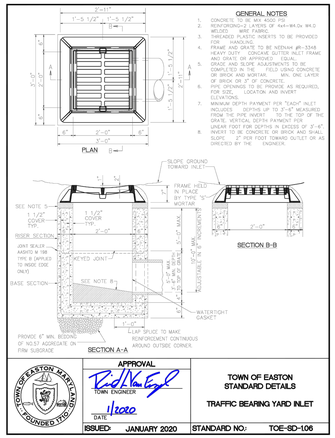
NOTES:

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



APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	INLET FRAME AND COVER	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.05



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

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	NON-TRAFFIC BEARING YARD INLET	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.07

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	LAWN INLET BOX W/ LAWN BASIC FRAME AND GRATE	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-1.08

NOTES:

1. PRECAST MANHOLE SHALL CONFORM TO ASTM C-478-78A AS MANUFACTURED BY: YORK CONCRETE SEPTIC TANKS INC. YORK PA. OR AN APPROVED EQUAL.
2. BENCH AND CHANNEL SHALL BE BRICK OR HAND FORMED CONCRETE. MIN. THICKNESS OF 4", BENCH SHALL SLOPE TO TOP OF PIPE 1/2" FALL PER FOOT.
3. MORTAR SHALL BE "TYPE S".
4. MANHOLE STEPS REQUIRED OVER THE EFFLUENT SIDE AS SHOWN.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	PRECAST CONCRETE MANHOLE	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-2.01

NOTES:

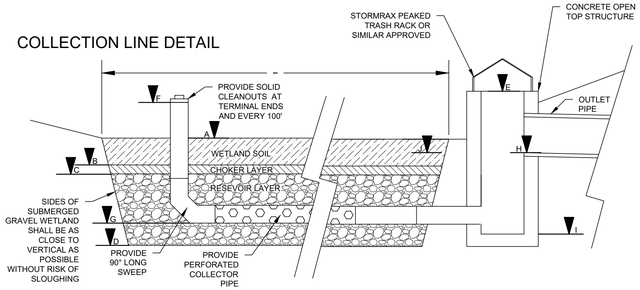
1. CASTING SHALL CONFORM TO ASTM A-48-64 CLASS 35B IRON MINIMUM.
2. CASTING SHALL HAVE GROUND OR MACHINED BEARING SURFACES.
3. CASTING SHALL BE OF UNIFORM QUALITY, FREE FROM BLOW HOLES, POROSITY, HARD SPOTS, SHRINKAGE DEFECTS, OR OTHER INJURIOUS DEFECTS.
4. CASTING SHALL BE HEAVY DUTY ROADWAY TYPE.
5. PICK HOLES" ARE REQUIRED IN COVER. "
6. FRAME & COVER SHALL BE AS INDICATED AND AS MANUFACTURED BY E.A. QUIRIN FOUNDRY, BOX 98 ST. CLAIR, PA 17970, OR AN APPROVED EQUAL.

APPROVAL	TOWN OF EASTON STANDARD DETAILS	
TOWN ENGINEER: Rod Van Engel	MANHOLE FRAME AND COVER	
DATE: 1/2020		
ISSUED: JANUARY 2020	STANDARD NO.:	TOE-SD-2.02

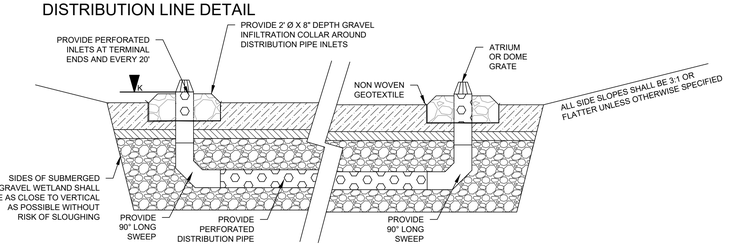
SUBMERGED GRAVEL WETLAND

STANDARD DETAIL — N.T.S.

COLLECTION LINE DETAIL



DISTRIBUTION LINE DETAIL



NOTES:

- WETLAND SOILS SHALL BE LOW Ksat SOIL (0.1-0.01 FT/DAY) CONTAINING ±50%SILT/CLAY, ±25% SAND, ±25% ORGANIC CONTENT
- ALL PIPES SHALL BE SDR-35 OR SCHEDULE 40 UNLESS SHOWN
- FILTER FABRIC IS NOT USED BETWEEN SOIL AND CHOKER STONE OR GRAVEL AND CHOKER STONE
- PERFORATIONS SHALL BE ⅜" Ø @ 6" o/c AROUND THE CIRCUMFERENCE OF THE PIPE
- 4" THICK CHOKER STONE SHALL BE PEA GRAVEL OR #8 STONE, WASHED AND FREE OF FINES
- THICK RESERVOIR GRAVEL SHALL BE ¾" RIVER GRAVEL OR #57 CRUSHED STONE, WASHED AND FREE OF FINES
- YARD INLETS SHALL BE FOUNDED ON 6" NO 57 STONE ATTOP GEOTEXTILE FILTER - COMPACT SUBGRADE.

SUBMERGED GRAVEL WETLAND		
PRACTICE NAME		SGW #1
	COMPONENT	ELEVATION - FT
A	SUBMERGED GRAVEL WETLAND	31.50
B	CHOKER TOP	30.83
C	RESEVOIR TOP	30.50
D	RESERVOIR BOTTOM	26.50
E	RIM	33.50
F	CLEANOUT	34.00
G	COLLECTION & DISTRIBUTION UNDERDRAIN INVERT	26.67
H	OUTLET PIPE INVERT	31.17
I	OUTLET STRUCTURE BOTTOM	25.67
J	IWS ELEVATION	31.17
K	DISTRIBUTION STANDPIPE ELEV.	31.75
	COLLECT & DISTRIBUTE PIPES	6"
	OUTLET STRUCTURE SIZE + TYPE	18"X18" CONC.
	OUTLET PIPE SIZE + TYPE	12" HDPE
	BED AREA	563

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv (FT.^{3})	ACTUAL ESDv (ft.^{3})
1	SGW-1	SUBMERGED GRAVEL WETLANDS #1	ON	90	402209.8308'	1577667.3932'	1.895	1.173	0.077	1.33	2.80	3,197	6,713
2													
3													
4													
5													
6													
7													
8													
9													
10													
TOTAL/ AVERAGE				90			1.895	1.173	0.077	1.33	2.80	3,197	6,713

QUANTITY SUMMARY CHART

STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT	EXISTING	8.60	15.15	23.03
	PROPOSED	2.71	4.89	20.04
CHANGE	CHANGE	5.89	10.26	2.99

STORMWATER MANAGEMENT DETAILS

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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 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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	N/A
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-205.03

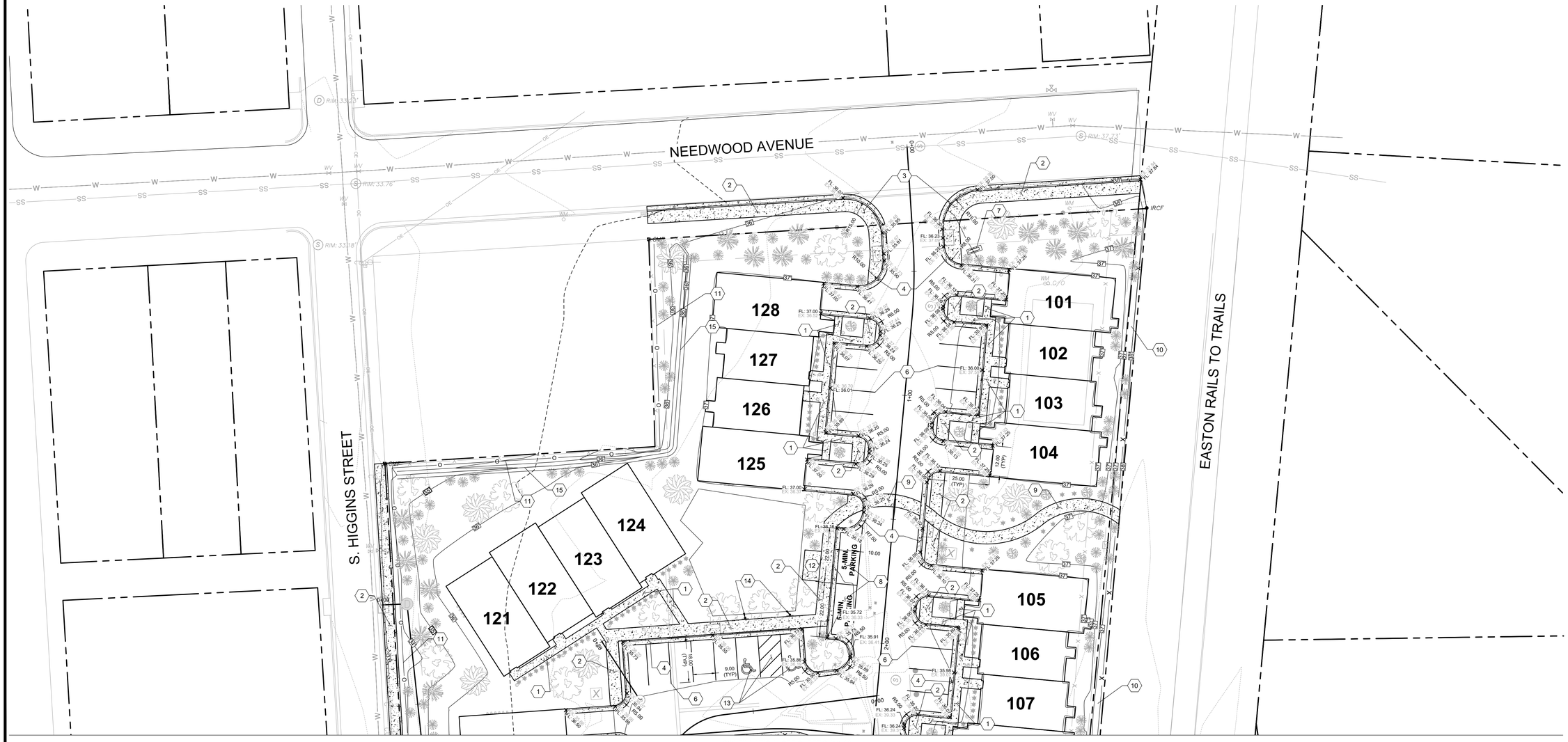
FOR REVIEW

SITE AND GRADING FEATURES

1. 3' SIDEWALK PER DETAIL ON C-305
2. 5' SIDEWALK PER DETAIL ON C-305
3. CURB RAMP WITH DETECTABLE WARNING SURFACES PER DETAILS ON C-305
4. STANDARD CURB (TYPICAL) PER DETAIL ON C-305
5. ASPHALT PAVEMENT PER DETAIL ON C-305
6. PARKING STALL STRIPING (TYPICAL) PER DETAIL ON C-305
7. MONUMENT SIGN PER DETAIL ON C-305
8. (2) PARALLEL PARKING SPACES FOR MAILBOX ACCESS
9. STAMPED ASPHALT WALKING TRAIL PER DETAIL ON C-305
10. 40" TALL SPLIT-RAIL FENCE. END FENCE 5' FROM EDGES OF TRAIL FOR RAILS-TO-TRAILS ACCESS. SEE ARCHITECTURAL PLANS FOR FURTHER DETAILS
11. 6' TALL BOARD-ON-BOARD FENCE. SEE ARCHITECTURAL PLANS FOR FURTHER DETAILS
12. CONCRETE PAD FOR CLUSTER MAILBOXES. SEE ARCHITECTURAL PLANS FOR FURTHER DETAILS
13. HANDICAP PARKING SYMBOL AND ACCESS AISLE. MARK PER PARKING STALL STRIPING DETAIL ON C-305
14. HANDICAP PARKING SIGN. SEE DETAIL ON C-305
15. VEGETATED V-BOTTOM SWALE.

NAD 83

0 20' 40'



SITE AND GRADING PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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 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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

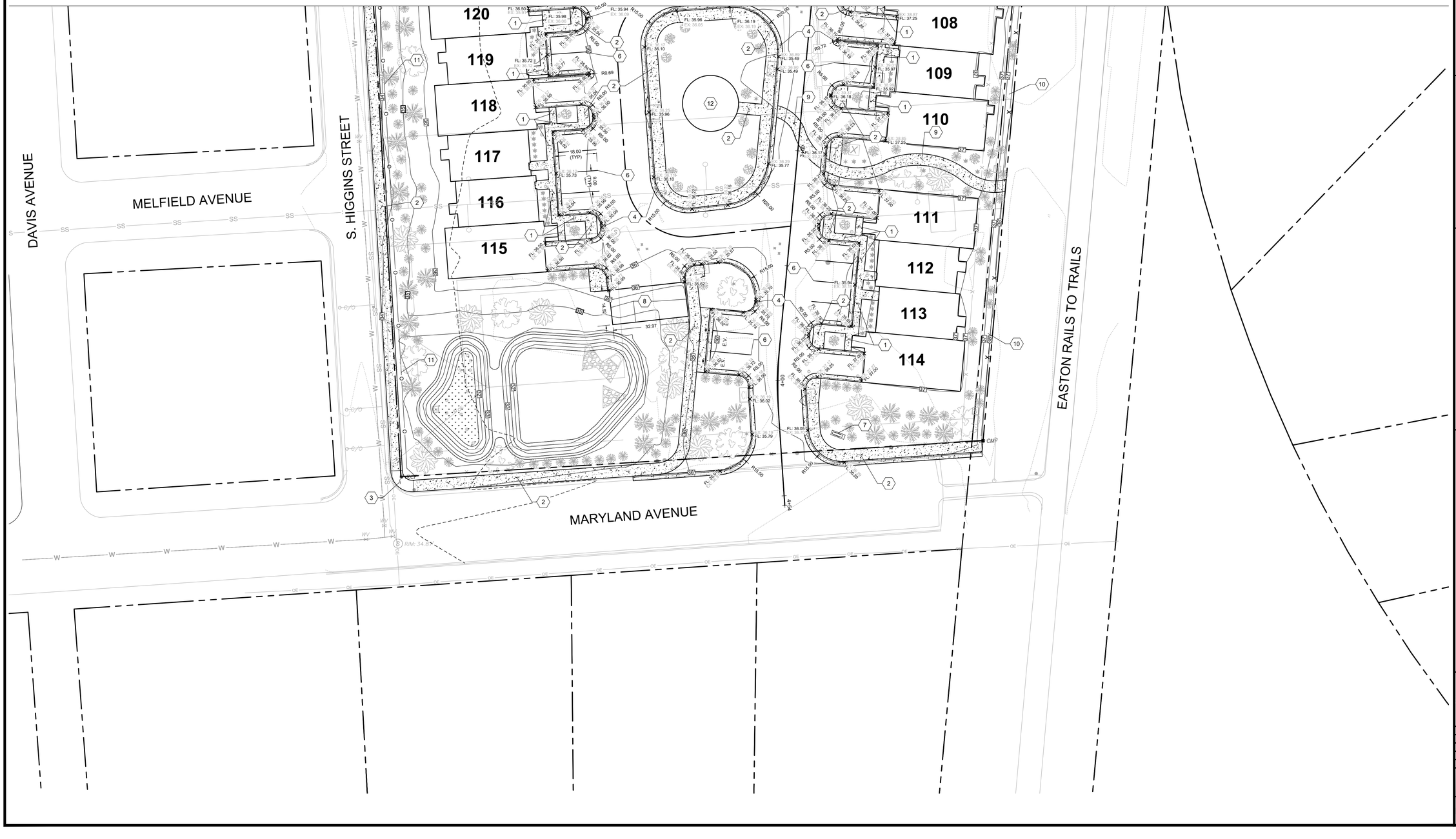
SHEET NO.: C-301.01

FOR REVIEW

SITE AND GRADING FEATURES

1. 3' SIDEWALK PER DETAIL ON C-305
2. 5' SIDEWALK PER DETAIL ON C-305
3. CURB RAMP WITH DETECTABLE WARNING SURFACES PER DETAILS ON C-305
4. STANDARD CURB (TYPICAL) PER DETAIL ON C-305
5. ASPHALT PAVEMENT PER DETAIL ON C-305
6. PARKING STALL STRIPING (TYPICAL) PER DETAIL ON C-305
7. MONUMENT SIGN PER DETAIL ON C-305
8. 6' TALL MASONRY SURROUND FOR TRASH AND RECYCLING RECEPTACLES PER DETAIL ON C-305
9. STAMPED ASPHALT WALKING TRAIL PER DETAIL ON C-305
10. 40" TALL SPLIT-RAIL FENCE. END FENCE 5' FROM EDGES OF TRAIL FOR RAILS-TO-TRAILS ACCESS. SEE ARCHITECTURAL PLANS FOR FURTHER DETAILS
11. 6' TALL BOARD-ON-BOARD FENCE. SEE ARCHITECTURAL PLANS FOR FURTHER DETAILS
12. GAZEBO. SEE ARCHITECTURAL PLANS FOR FURTHER DETAILS

CONTINUATION - SEE SHEET C-301.01



SITE AND GRADING PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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REVISIONS

REV. #	DATE	DESCRIPTION

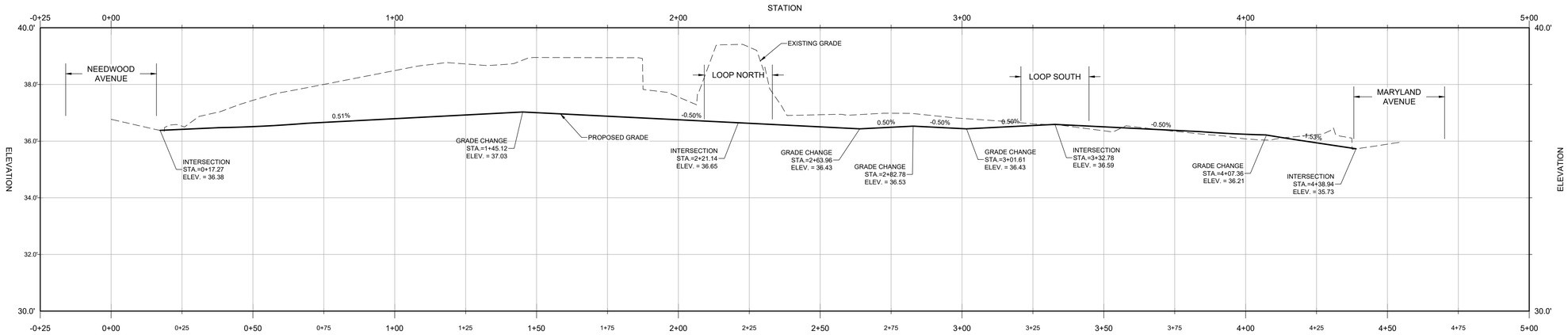
MISS UTILITY OF DELMARVA — CALL BEFORE YOU DIG

811

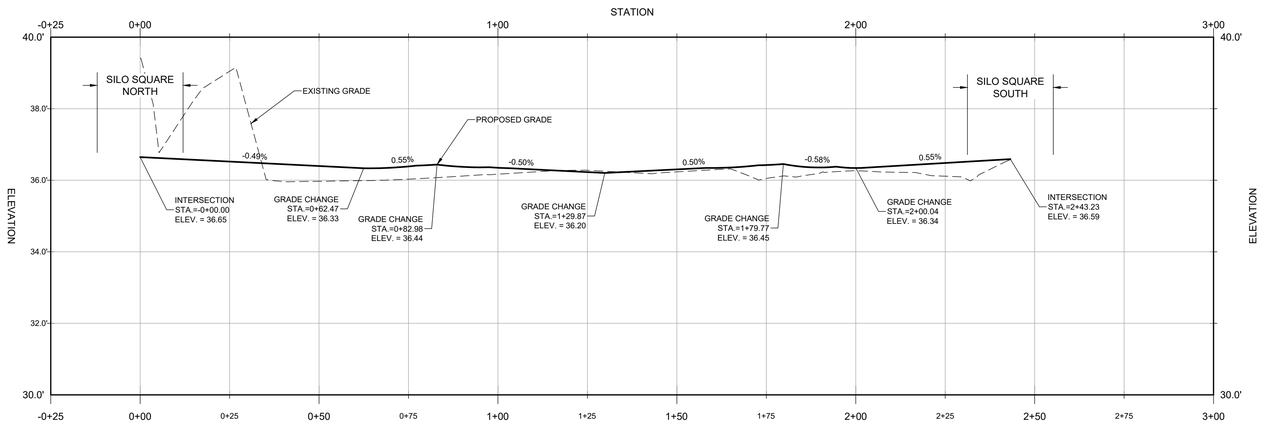
DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-301.02

FOR REVIEW



PROFILE: SILO SQUARE - NEEDWOOD TO MARYLAND - STA. -0+25 TO ST. 5+00
SCALE: V: 1" = 2'; H: 1" = 20'



PROFILE: SILO SQUARE LOOP - STA. -0+25 TO ST. 3+00
SCALE: V: 1" = 2'; H: 1" = 20'

GRADING PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-303

FOR REVIEW

OVERLAY	1"	HMA SUPERPAVE 9.5 MM, PG 64-22(ESAL 3), FOR 3-LANE HIGHWAYS
	1.5"	HMA SUPERPAVE 12.5 MM, PG 64-22(ESALS 3, FOR 2" OVERLAYS.
	ADJUST	ADJUST THE SURFACE DOWN/UP AS REQUIRED FOR THE ADJUSTMENT FULL DEPTH PAVING IF DIFFERENT FROM THE TABLE
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 TWO LIFTS
	SUB BASE:	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:	2 1/2" 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	9" PORTLAND CEMENT CONCRETE MIX#3	
	SUB BASE:	6" GR-6 COMPACTED TO 95% OF ASTM D1557, MODIFIED PROCTOR METHOD.

APPROVAL		
TOWN OF EASTON	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 9W-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 BASE COURSE SHALL MEET THE PROVISIONS OF MD SHA STANDARDS.
c) RECYCLED CRUSHED CONCRETE IS AN ACCEPTABLE MATERIAL 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 AND AGGREGATE ON A PREPARED SUB-BASE AS SHOWN WITHIN THE TOWN STANDARDS.
2. MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF SECTION 504 AND SECTION 904 OF MD SHA STANDARD SPECIFICATIONS.
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 SUPERVISION OF THE TOWN ENGINEER.
2. A MINIMUM OF 3" 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 OF EASTON	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 ADD WATER TO MIX 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 SUB-GRADE 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 REPORTED TO THE ENGINEER WITHIN 48 HOURS OF 7 AND 28 DAY BREAKS. REPORT SHALL INCLUDE LOCATION OF POUR PER PLAN STATIONING.
6. ENGINEER OF HIS/HER 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. EXPANSION JOINTS FOR CURBING SHALL BE PLACED AT NOT TO EXCEED 100 FEET AND AT EACH SIDE OF CURVE. SIDEWALKS SHALL HAVE EXPANSION JOINTS AT 20 FOOT INTERVALS OR AT CHANGE OF DIRECTION.

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

CONCRETE QUICK REFERENCE LIST

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

PAVEMENT MARKINGS

A. CENTERLINE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SEPARATION OF TRAFFIC LANES THAT HAVE OPPOSITE DIRECTIONS OF TRAVEL.

1. THE CENTERLINE SHALL BE IN THE GEOMETRICAL CENTER OF THE ROADWAY UNLESS OTHERWISE REQUIRED BY FIELD CONDITIONS.
2. ALL TWO WAY STREETS GREATER THAN 16' WIDE SHALL HAVE A CENTERLINE.
3. THE CENTERLINE MARKING SHALL BE YELLOW LINES, CONFIGURATION TO BE APPROVED BY THE TOWN ENGINEER.

B. EDGE LINE PAVEMENT MARKINGS SHALL BE USED TO DELINEATE THE SHOULDER AND TRAVEL LANES.

1. THE EDGE OF THE TRAVEL LANE SHALL CONSIST OF A SINGLE SOLID WHITE LINE.
2. EXCEPT FOR DOTTED EDGE LINE EXTENSIONS, EDGE LINES SHALL NOT BE EXTENDED THROUGH INTERSECTIONS OR MAJOR DRIVEWAYS.

C. WHILE SEPARATING TRAFFIC LANES TRAVELING IN THE SAME DIRECTION A SINGLE BROKEN WHITE LINE SHALL BE USED WHERE CROSSING LANES IS PERMITTED.

D. LONGITUDINAL PAVEMENT MARKINGS SHALL BE READY-MIXED WHITE OR YELLOW PAINT WHICH MAY BE USED AS A BASE FOR DROP–ON REFLECTING GLASS BEADS, OR FOR USE AS A PLAIN NON–REFLECTIVE TRAFFIC PAINT SUITABLE FOR EITHER BITUMINOUS OR CONCRETE SURFACES.

1. GLASS BEADS SHALL CONFORM TO AASHTO M 247 WITH A MOISTURE RESISTANCE COATING.
2. IMMEDIATELY BEFORE APPLYING THE PAVEMENT MARKING PAINT TO THE PAVEMENT, THE CONTRACTOR SHALL INSURE THE SURFACE IS DRY AND ENTIRELY FREE FROM DIRT, SAND, GREASE, OIL, OR OTHER MATTER WHICH WOULD PREVENT EFFECTIVE ADHESION OF THE PAINT TO THE PAVEMENT.
3. PAINT SHALL NOT BE APPLIED WHEN THE AIR TEMPERATURE IS BELOW 50°F AND RISING.
4. EVERY EFFORT SHALL BE MADE TO APPLY PAINT ACCORDING TO THE REQUIREMENTS STATED IN THIS SECTION. WHEN PAINT MUST BE APPLIED BETWEEN THE DATES OF OCTOBER 15 THROUGH APRIL 15 INCLUSIVE OR ON PAVEMENT WITH A SURFACE TEMPERATURE BELOW 5°C (40°F), COLD WEATHER PAINT CAN BE USED WHICH DOES NOT EXCEED EPA'S FEDERAL REGISTER,"RULES AND REGULATIONS (40 CFR PART 59 [AD–FRL–6149–7] RIN 2060–AE55), AS AMENDED, FOR VOC CONTENT LIMIT AND SHALL MEET THE AASHTO M248 'F AND REQUIREMENTS NOTED BELOW. THESE PRODUCTS SHALL BE APPLIED ACCORDING TO THE MANUFACTURERS REQUIREMENTS.
5. THE COLD WEATHER PAINT SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS.

a) PROPERTY TEST METHOD REQUIREMENT.
b) DRY OPACITY (CONTRAST RATIO) ASTM D2244–WITH A WET FILM THICKNESS OF 18 ± 1 mils.
c) VOC ASTM D3960 150 g/l (1.25 lb/gal) MAX.
d) DRYING TIME ASTM D7111 WITH WET FILM THICKNESS OF 15 mils. 15 MINUTES MAX @ 25°C (77°F).

6. GLASS BEADS SHALL BE EVENLY APPLIED THROUGH THE ENTIRE PAINT THICKNESS AT A RATE OF 7 TO 9 lbs. TO EACH GALLON OF PAINT. GLASS BEADS ON THE NOSE OF EACH LINE SHALL BE APPLIED SIMULTANEOUSLY WITH PAINT, BY PRESSURIZED DR MECHANICAL DROP METHODS.
7. PAINTED LANE LINES, EDGE LINES, AND CENTERLINES SHALL HAVE A MINIMUM RETROREFLECTIVITY OF 250 MILLICANDELAS PER WHITE AND 150 MILLICANDELAS FOR YELLOW. THE RETROREFLECTIVITY MEASUREMENT WILL BE TAKEN BY THE TOWN ON LINES THAT ARE CLEAN AND DRY WITHIN 30 DAYS OF THE PAINTING OF THE LINES AND AGAIN AT 12 MONTHS.
8. PAINT SHALL BE MARYLAND FAST DRY WATERBORNE TRAFFIC PAINT, LEAD FREE BY SHERWIN WILLIAMS OR APPROVED EQUAL. (FEDERAL STANDARD 595–38907 YELLOW OR 37925 WHITE).
9. PAVEMENT MARKINGS SHALL BE WARRANTED FOR A MINIMUM OF 2 YEARS FROM FINAL ACCEPTANCE BY THE TOWN.

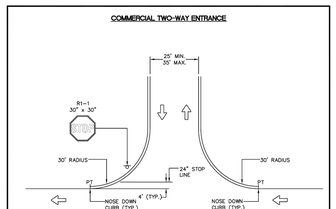
APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

LONGITUDINAL PAVEMENT MARKINGS

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-1.04

COMMERCIAL TWO-WAY ENTRANCE



NOTES:

1. MINIMUM CHANNELIZATION IS SHOWN.
2. TURNING LANES ARE NOT SHOWN.

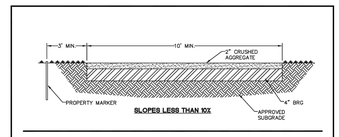
NOTE: ONLY TO BE USED WHEN SIDEWALK IS NOT PRESENT.

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

COMMERCIAL TWO-WAY ENTRANCE

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-4.04



NOTES:

1. DRIVEWAY SECTIONS TO BE SHOWN OR AS APPROVED BY THE TOWN ENGINEER'S OFFICE.
2. DRIVEWAY TO BE A MIN. OF 35' LONG AND A MIN. OF 10' WIDE.
3. DRIVEWAY TO BE A MIN. OF 3' FROM PROPERTY LINE.

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

SINGLE FAMILY RESIDENTIAL DRIVEWAY

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-4.05

- 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 EXTENT DETAILED OR SPECIFIED WITHIN.
  2. SURFACE RESTORATION IN TOWN STREETS AND ROADS SHALL BE IN ACCORDANCE WITH THE MARYLAND STATE HIGHWAY ADMINISTRATION "STANDARD BOOK" FOR DIMENSIONS AND DETAILS.
  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 REPAIR WIDTH DESTINATION WIDTH IS FIVE (5) FEET. ACTUAL WIDTH SHALL VARY BASED ON FIELD CONDITIONS AS DETERMINED BY THE TOWN ENGINEER.
  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 PATCHES. CONTRACTOR SHALL POST WARNING SIGNS.
  10. ALL ADJUSTMENTS TO EXISTING UTILITIES MUST BE MADE PRIOR TO PAVING OPERATIONS AND REPLATED IF THERE IS ANY DAMAGE DUE TO ROLLING AND COMPACTING OPERATIONS. MANHOLE OR CATCH BASIN ADJUSTMENTS SHALL BE DONE WITH ADJUSTMENT RINGS, BRICK COURSES, OR MORTAR LAYERS, SUBJECT TO ENGINEER'S 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) 3" FOR 12.5mm SUPERPAVE
  C) 3" FOR 19mm SUPERPAVE
  D) 4" FOR AGGREGATE.
  E) 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 HAVE 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 OR ITS AGENTS, THE REPAIRS MAY BE MADE BY THE TOWN FORCES 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 OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

SURFACE RESTORATION AND PAVING NOTES

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

RESTORATION IN UNPAVED AREAS

A. TOPSOIL AND SEEDING

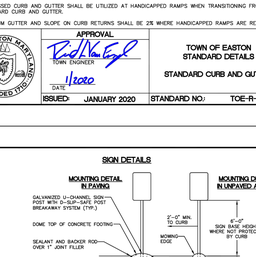
1. TOPSOIL SHALL BE PLACED IN AREAS WHERE GRASS HAS BEEN DISTURBED BY THE CONTRACTOR'S OPERATIONS, DEPTH OF TOPSOIL SHALL BE FOUR (4) INCHES MINIMUM. TOPSOIL SALVAGED AND STOCKPILED DURING TRENCH AND STRUCTURE EXCAVATION MAY BE USED FOR THIS PURPOSE, WHEN TOP SOILING, ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 701, 702, 703, 704, 705, AND 920. IF DIRECTED, THE CONTRACTOR SHALL HAVE THE TOPSOIL TESTED BY A STATE CERTIFIED LABORATORY AND SHALL SUBMIT CERTIFICATION THAT TOPSOIL MEETS THE REQUIREMENTS OF THE SPECIFICATIONS AND IS SUITABLE FOR THE GROWTH OF TURF GRASSES.
2. SEEDING SHALL CONSIST OF FURNISHING AND PLACING SEED AND SOIL SUPPLEMENTS ON TOP SOILED AREAS AND AT ANY OTHER LOCATION, AS DIRECTED BY THE ENGINEER. WHEN SEEDING, ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL MEET THE PROVISIONS OF MD SHA STANDARDS, SECTION 705 AND 920.
3. FERTILIZER SHALL BE A RECOGNIZED COMMERCIAL FERTILIZER CONFORMING TO MD SHA STANDARDS, SECTION 920.
4. MULCH SHALL BE APPLIED TO DISTURBED AREAS WITH SLOPES LESS THAN 3 TO 1. MULCH FOR THESE AREAS SHALL CONSIST OF STRAW MULCH AS SPECIFIED IN MD SHA STANDARDS, SECTION 705. MULCHING OF AREAS WHERE SLOPES EQUAL OR EXCEED 3 TO 1 SHALL UTILIZE CURLEX OR EQUAL

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

RESTORATION NOTES

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-5.05



NOTES:

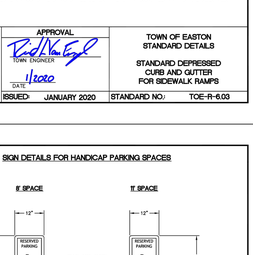
1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'–0", AND EXPANSION JOINTS EVERY 40'–0", EXTRUDED CONCRETE AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'–0", AND EXPANSION JOINTS EVERY 100'–0".
3. DEPRESSED CURB AND GUTTER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

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

STANDARD CURB AND GUTTER

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-6.01



NOTES:

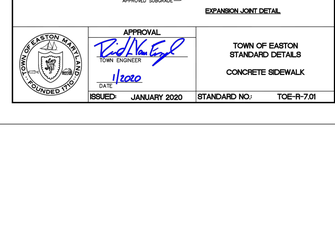
1. ALL CONCRETE USED FOR CURB AND GUTTER SHALL BE SHA MIX NO. 7.
2. CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'–0", AND EXPANSION JOINTS EVERY 40'–0", EXTRUDED CONCRETE CURB AND GUTTER SHALL HAVE CONTRACTION JOINTS EVERY 10'–0", AND EXPANSION JOINTS EVERY 100'–0".
3. MAXIMUM GUTTER SLOPE ON CURB RETURNS SHALL BE 2% WHERE HANDICAPPED RAMPS ARE REQUIRED.

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

STANDARD DEPRESSED CURB AND GUTTER FOR SIDEWALK RAMPS

ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-6.03



NOTES

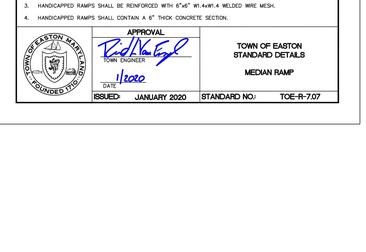
1. CONCRETE SHALL BE SHA MIX NO. 3.
2. CONTRACTION JOINTS SHALL BE TOOLED AT 5'–0" INTERVALS. (4" INTERVALS FOR 4' WIDE SIDEWALK)
3. EXPANSION JOINTS AT INTERVALS NOT GREATER THAN 20'–0".
4. ALL UNPAVED AREAS WITHIN STREET SIDELINES SHALL BE SEEDED OR SODDED PER SPECIFICATIONS.
5. SIDEWALKS AT DRIVEWAY LOCATIONS TO BE 8" 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.

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

CONCRETE SIDEWALK

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



NOTES:

1. SURFACE TEXTURE ON RAMPS SHALL BE COARSE BROOMING OR NON–SKID TYPE SURFACE.
2. MAX SLOPE SHALL BE 48:1 (2%) IN ANY DIRECTION.
3. HANDICAPPED RAMPS SHALL BE REINFORCED WITH 6"x6" W1.4xW1.4 WELDED WIRE MESH.
4. HANDICAPPED RAMPS SHALL CONTAIN A 6" THICK CONCRETE SECTION.

APPROVAL		
TOWN OF EASTON	TOWN ENGINEER	DATE 1/2020

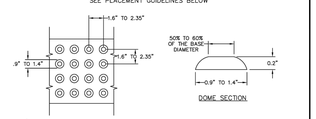
TOWN OF EASTON STANDARD DETAILS

MEDIAN RAMP

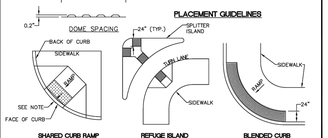
ISSUED: JANUARY 2020 | STANDARD NO.: TOE-R-7.07

MAT DETAILS

SEE PLACEMENT GUIDELINES BELOW



PLACEMENT GUIDELINES



SHARED CURB RAMP | REFUGE ISLAND | BLENDED CURB

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 SHOWED 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 OF EASTON	TOWN ENGINEER	DATE 1/2020

TOWN OF EASTON STANDARD DETAILS

DETECTABLE WARNING SURFACES

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

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 the Town of intention to pour concrete 24 hours prior to performing work. (Phone: 410–820–8822).
2) Driver shall present computer generated mix delivery ticket upon arrival to site.
3) Do not add water to mix 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 1 ½ 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 reported 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.

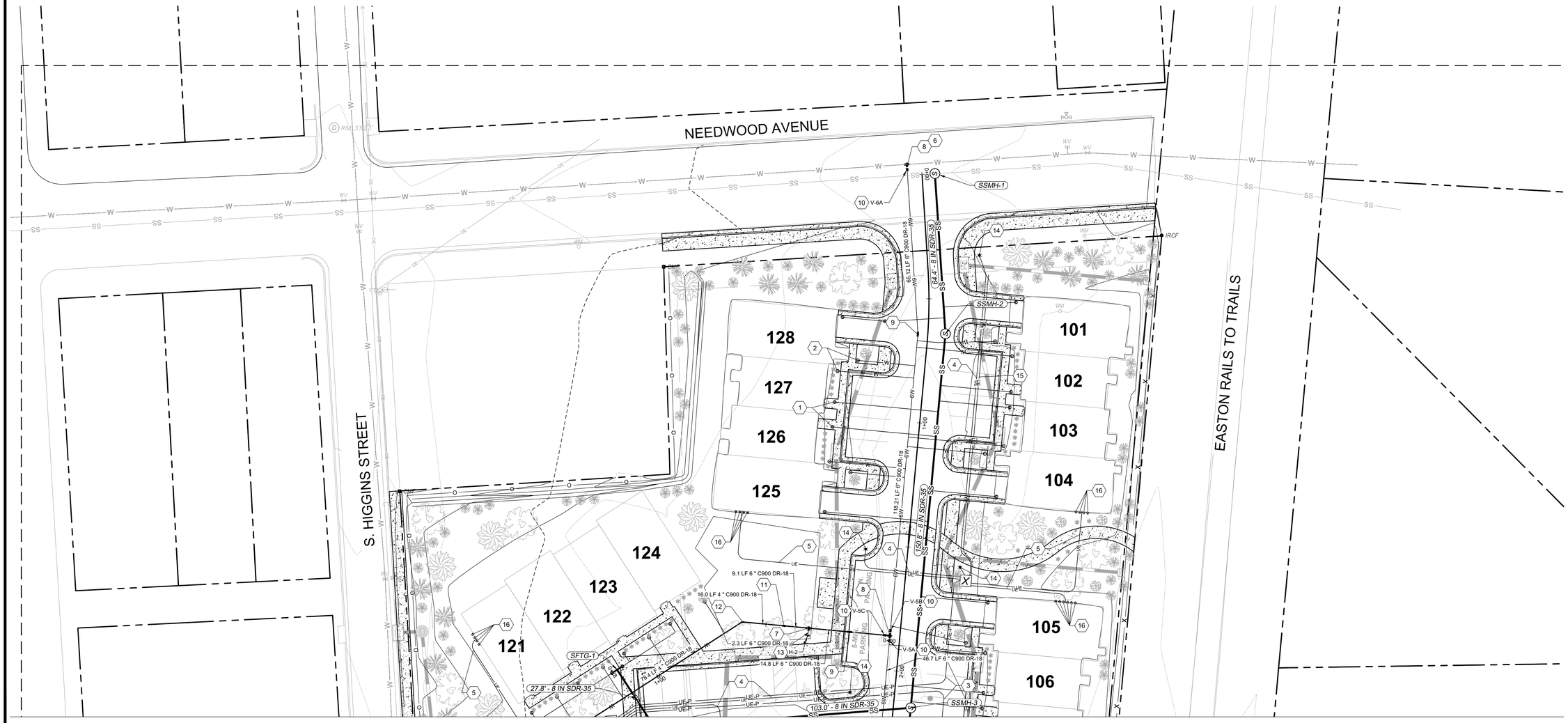
APPROVAL		
TOWN OF EASTON	TOWN ENG

UTILITY FEATURES

1. 6" SEWER LATERAL AND CLEANOUT (TYPICAL) PER DETAIL ON C-405
2. X" WATER LATERAL AND METER PIT (TYPICAL) PER DETAIL ON C-405
3. QTY-X" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS PRIMARY UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
4. QTY-X" CONDUIT FOR STREETLIGHT. SEE UTILITY TRENCH DETAIL ON C-405
5. QTY-X" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS SECONDARY UTILITIES TO RESIDENCE. SEE UTILITY TRENCH DETAIL ON C-405
6. CONNECT NEW WATER MAIN TO EXISTING MAIN IN MARYLAND AVENUE
7. 6"x6" HYDRANT TEE
8. 6"x6" TEE
9. 6" 11.25-DEG BEND
10. 6" GATE VALVE
11. 6"x4" REDUCER
12. 4" 45-DEG BEND
13. FIRE HYDRANT - SEE DETAIL SHEET C-405
14. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
15. QTY-X" CONDUIT FOR SIGN ILLUMINATION. SEE UTILITY TRENCH DETAIL ON C-405
16. ELECTRICAL METER BOX CLUSTER - 4 OR 6 METERS DEPENDING ON STRUCTURE REQUIREMENTS.

NAD 83

0 20' 40'



CONTINUATION - SEE SHEET C-401.02

UTILITY PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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 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, 2026

8/7/2024

REVISIONS		
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

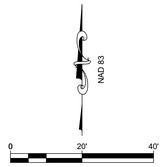
DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-401.01

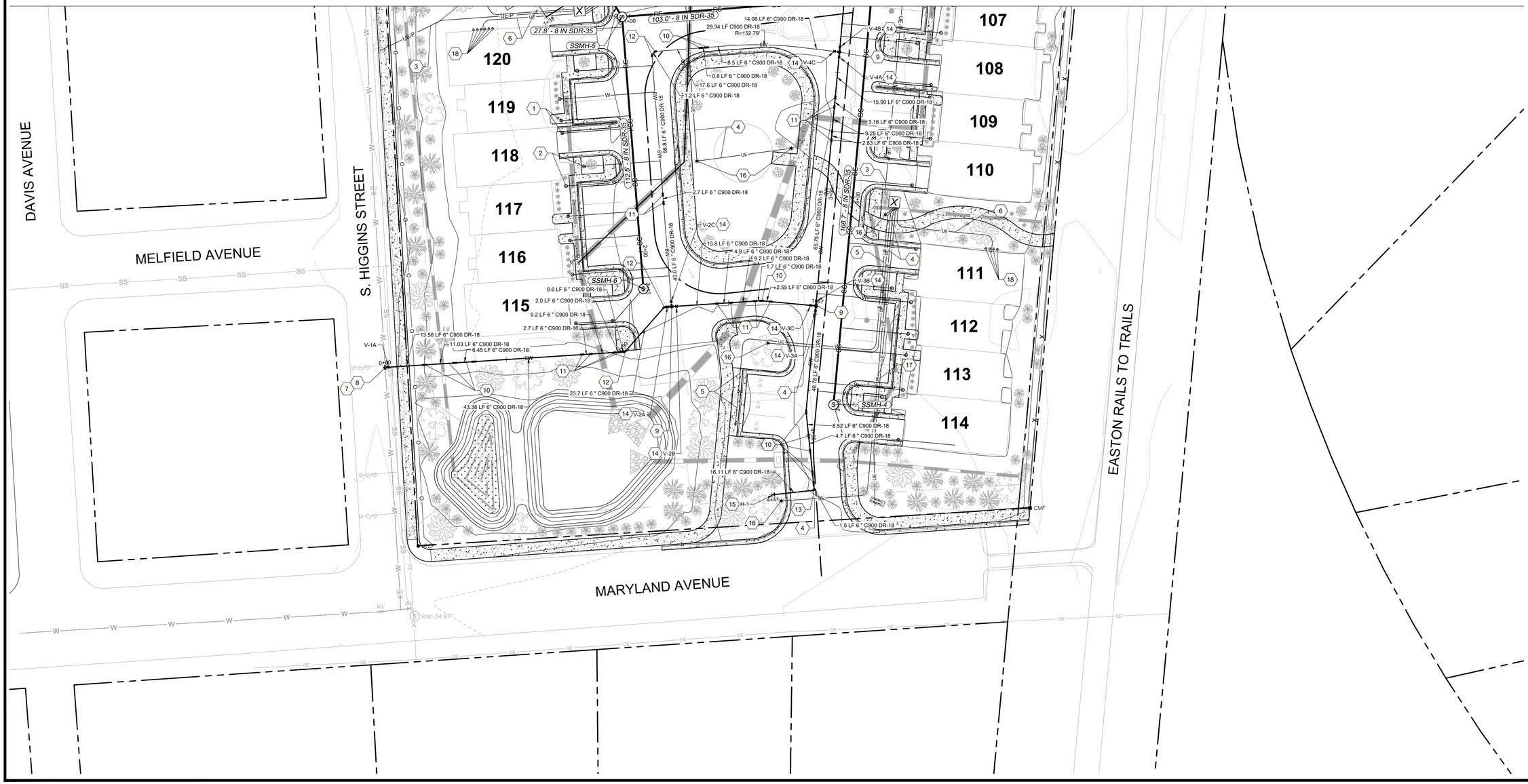
FOR REVIEW

UTILITY FEATURES

1. 6" SEWER LATERAL AND CLEANOUT (TYPICAL) PER DETAIL ON C-405
2. X" WATER LATERAL AND METER PIT (TYPICAL) PER DETAIL ON C-405
3. QTY-X" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS PRIMARY UTILITIES. SEE UTILITY TRENCH DETAIL ON C-405
4. QTY-X" CONDUIT FOR STREETLIGHT. SEE UTILITY TRENCH DETAIL ON C-405
5. QTY-X" CONDUIT FOR ELECTRIC VEHICLE CHARGING STAITON(S). SEE UTILITY TRENCH DETAIL ON C-405
6. QTY-X" CONDUITS FOR ELECTRICAL AND COMMUNICATIONS SECONDARY UTILITIES TO RESIDENCE. SEE UTILITY TRENCH DETAIL ON C-405
7. CONNECT NEW WATER MAIN TO EXISTING MAIN IN SOUTH HIGGINS STREET
8. 8"x6" TEE
9. 6"x6" TEE
10. 6" 11.25-DEG BEND
11. 6" 22.5-DEG BEND
12. 6" 45-DEG BEND
13. 6" 90-DEG BEND
14. 6" GATE VALVE
15. FIRE HYDRANT - SEE DETAIL SHEET C-405
16. STYLE POLE MOUNTED LAMP PER DETAIL ON C-405
17. QTY-X" CONDUIT FOR SIGN ILLUMINATION. SEE UTILITY TRENCH DETAIL ON C-405
18. ELECTRICAL METER BOX CLUSTER - 4 OR 6 METERS DEPENDING ON STRUCTURE REQUIREMENTS.



CONTINUATION - SEE SHEET C-401.01



UTILITY PLAN

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

RAUCH Inc.
Engineering | Survey | Architecture | Environmental
Main Office: 106 N Harrison St - Easton, MD 21601
Web: www.rauch-inc.com | Email: design@rauchorg.com
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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, 2026

8/7/2024

REVISIONS

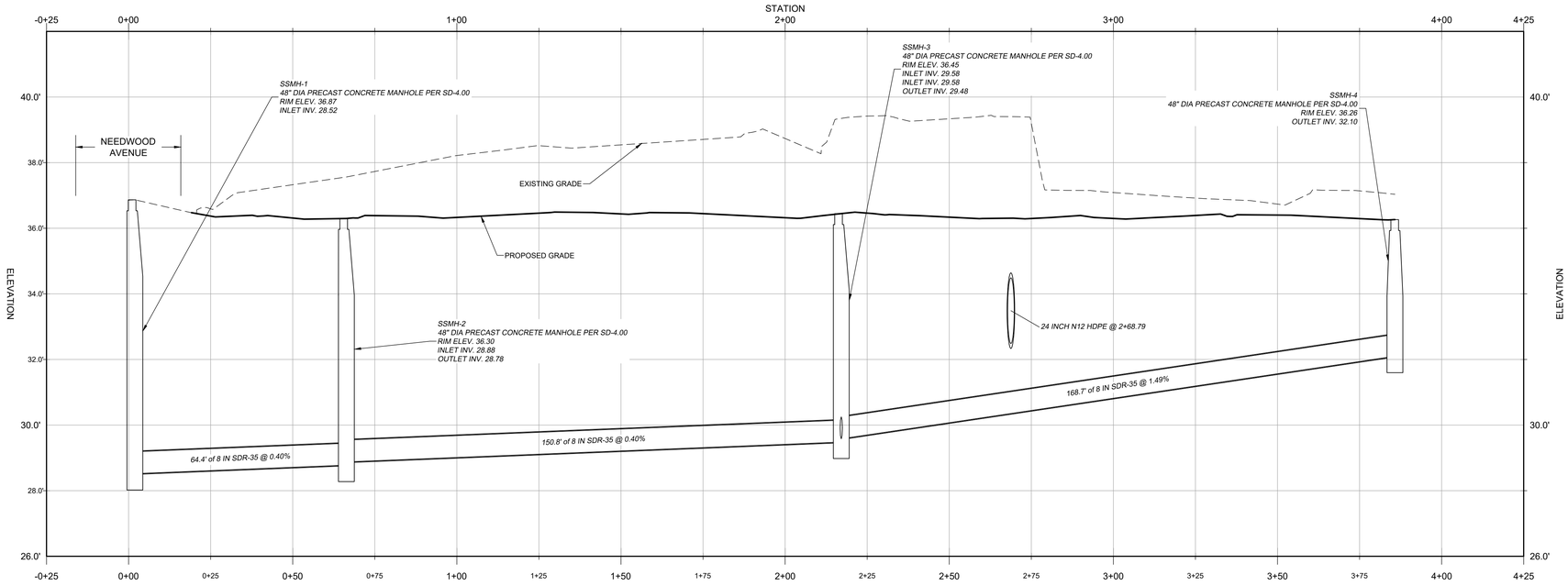
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

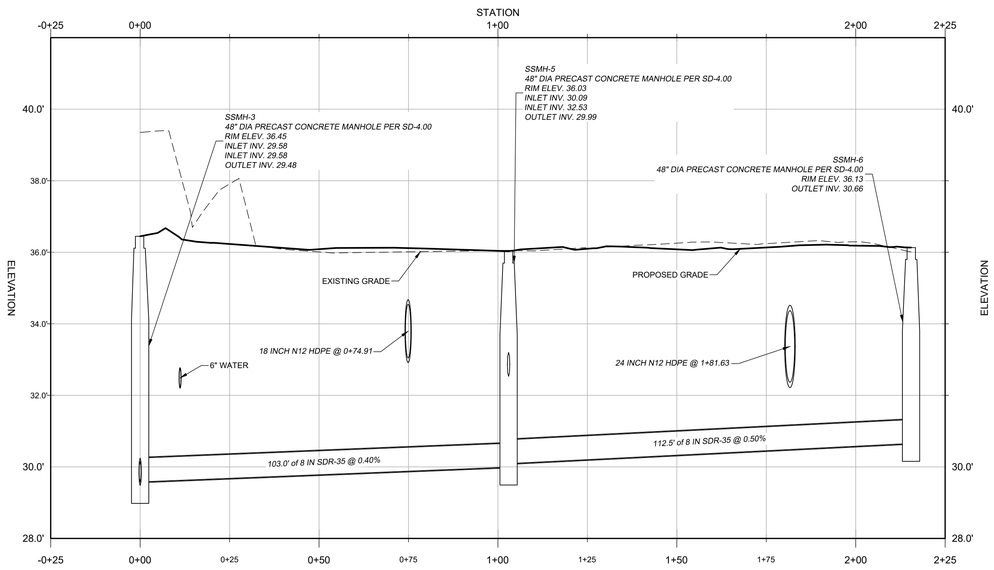
DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-401.02

FOR REVIEW



PROFILE: SSMH-4 TO SSMH-1 - STA. -0+25 TO ST. 4+25
SCALE: V: 1" = 2'; H: 1" = 20'



PROFILE: SSMH-6 TO SSMH-3 - STA. -0+25 TO ST. 2+25
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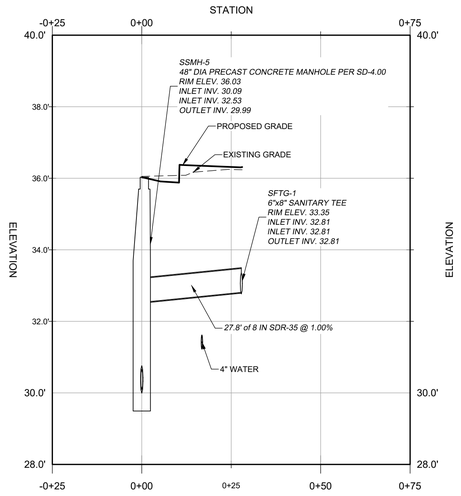

PROFILE: SFTG-1 TO SSMH-5 - STA. -0+25 TO ST. 0+75
SCALE: V: 1" = 2'; H: 1" = 20'

PIPE SCHEDULE
SILO SQUARE SANITARY SEWER

PIPE NAME	SIZE AND MATERIAL	LENGTH	SLOPE	UPSTREAM STRUCTURE AND INVERT	DOWNSTREAM STRUCTURE AND INVERT
SS-3	8 IN SDR-35	168.67'	1.49%	SSMH-4 INV. 32.10'	SSMH-3 INV. 29.58'
SS-2	8 IN SDR-35	150.76'	0.40%	SSMH-3 INV. 29.48'	SSMH-2 INV. 28.88'
SS-1	8 IN SDR-35	64.44'	0.40%	SSMH-2 INV. 28.78'	SSMH-1 INV. 28.52'
SS-5	8 IN SDR-35	112.48'	0.50%	SSMH-6 INV. 30.66'	SSMH-5 INV. 30.09'
SS-4	8 IN SDR-35	102.99'	0.40%	SSMH-5 INV. 29.99'	SSMH-3 INV. 29.58'
SS-8	6 IN SDR-35	2.50'	1.00%	SCO-1 INV. 32.84'	SFTG-1 INV. 32.81'
SS-7	6 IN SDR-35	2.50'	1.00%	SCO-2 INV. 32.84'	SFTG-1 INV. 32.81'
SS-6	8 IN SDR-35	27.83'	1.00%	SFTG-1 INV. 32.81'	SSMH-5 INV. 32.53'

STRUCTURE SCHEDULE
SILO SQUARE SANITARY SEWER

STRUCTURE NAME	LOCATION	STRUCTURE TYPE AND SIZE	CONNECTED PIPES	RIM ELEVATION
SCO-1	N402414.64, E1577684.75	6" SANITARY SEWER CLEANOUT	SS-8 INV OUT = 32.835	36.34
SCO-2	N402417.34, E1577688.95	6" SANITARY SEWER CLEANOUT	SS-7 INV OUT = 32.835	36.31
SFTG-1	N402416.01, E1577686.84	6"x8" SANITARY TEE	SS-8 INV IN = 32.810 SS-7 INV IN = 32.810 SS-6 INV OUT = 32.810	33.35
SSMH-1	N402615.13, E1577814.40	48" DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-1 INV IN = 28.520	36.87
SSMH-2	N402550.83, E1577818.64	48" DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-2 INV IN = 28.878 SS-1 INV OUT = 28.778	36.30
SSMH-3	N402400.72, E1577804.71	48" DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-3 INV IN = 29.581 SS-4 INV IN = 29.581 SS-2 INV OUT = 29.481	36.45
SSMH-4	N402232.78, E1577789.10	48" DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-3 INV OUT = 32.097	36.26
SSMH-5	N402392.69, E1577702.03	48" DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-5 INV IN = 30.093 SS-6 INV IN = 32.532 SS-4 INV OUT = 29.993	36.03
SSMH-6	N402280.56, E1577710.80	48" DIA PRECAST CONCRETE MANHOLE PER SD-4.00	SS-5 INV OUT = 30.655	36.13

UTILITY PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

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REVISIONS

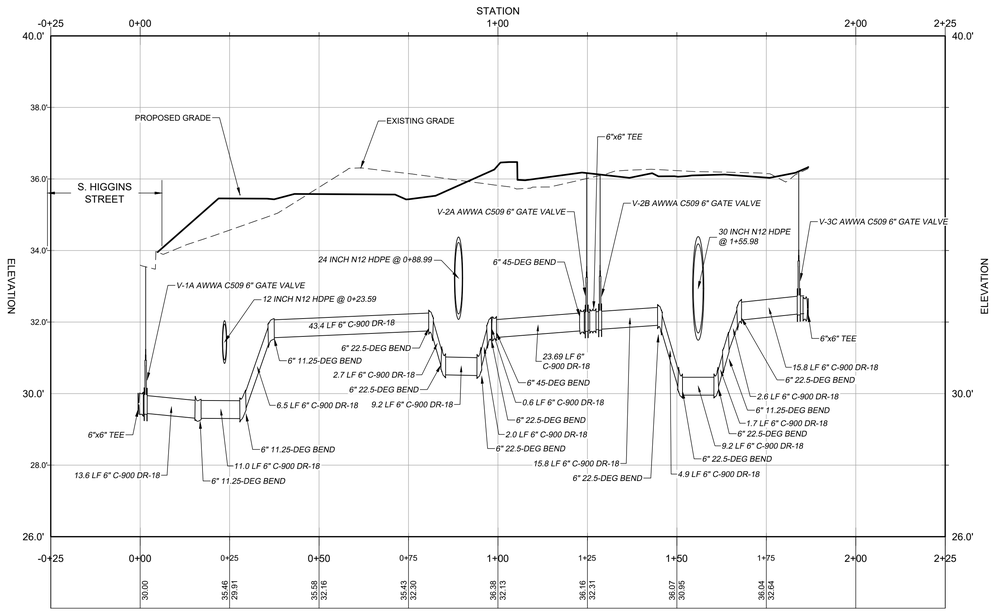
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
811

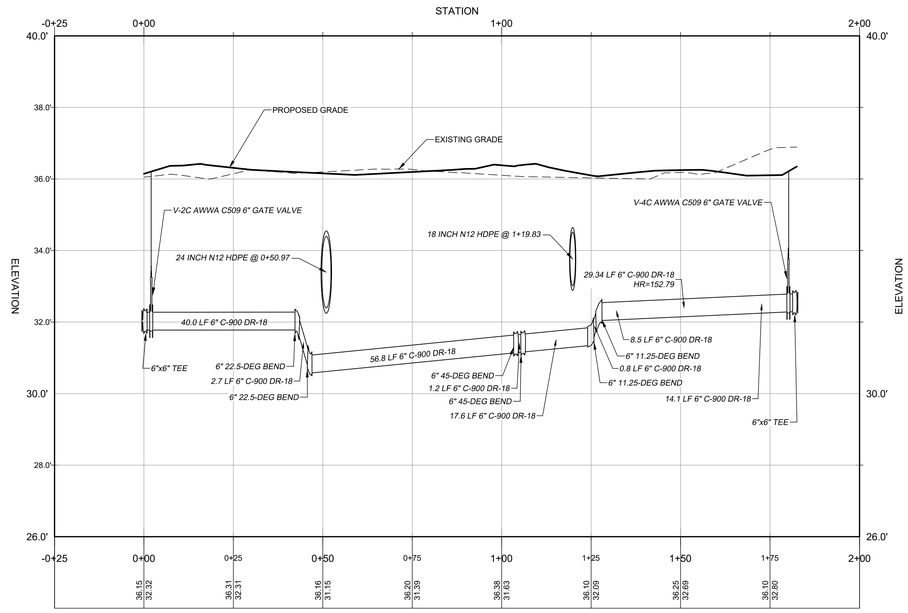
DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-403.01

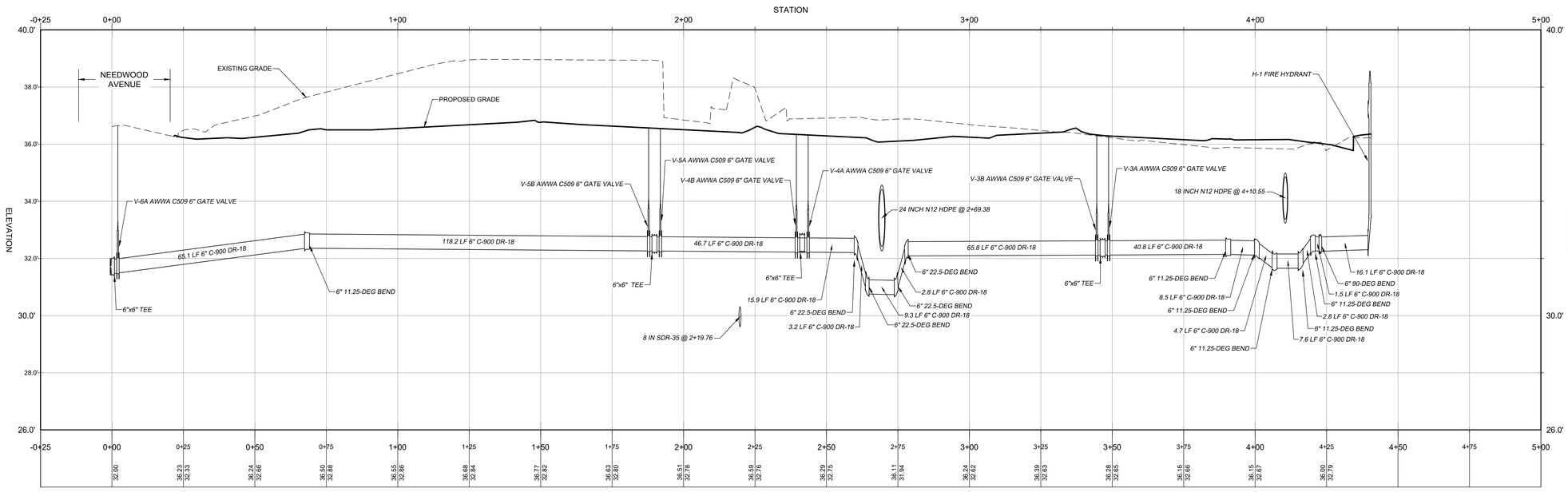
FOR REVIEW



PROFILE: WATER - HIGGINS TIE-IN - STA. -0+25 TO ST. 2+25
SCALE: V: 1" = 2'; H: 1" = 20'



PROFILE: WATER - SILO SQUARE LOOP - STA. -0+25 TO ST. 2+00
SCALE: V: 1" = 2'; H: 1" = 20'



PROFILE: WATER - NEEDWOOD TIE-IN - STA. -0+25 TO ST. 5+00
SCALE: V: 1" = 2'; H: 1" = 20'

UTILITY PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

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811

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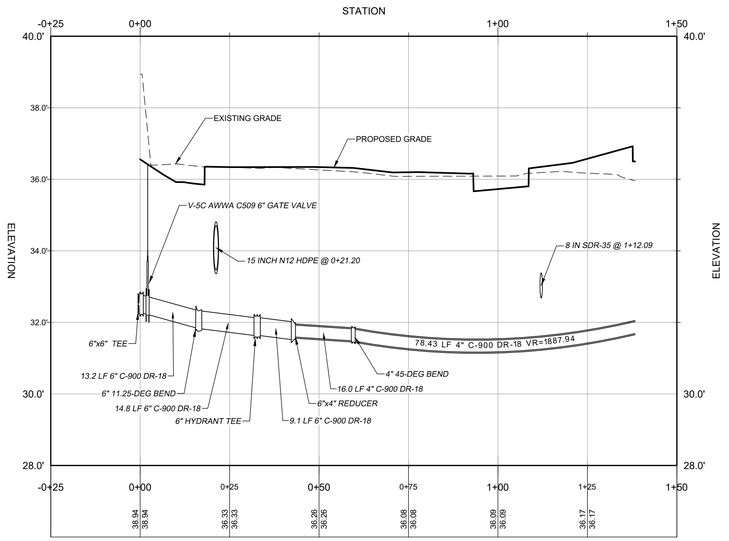
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-403.02

FOR REVIEW



PROFILE: WATER - HEADER TO BLDG 121-124 - STA. -0+25 TO ST. 1+50
SCALE: V: 1" = 2'; H: 1" = 20'

UTILITY PROFILES

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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 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, 2026

8/7/2024

REVISIONS

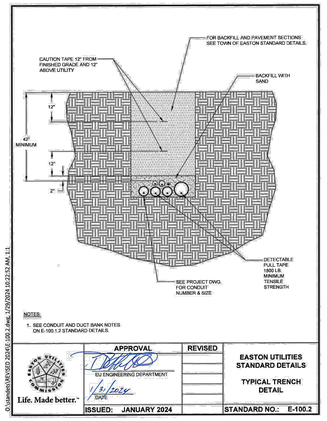
REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA
811

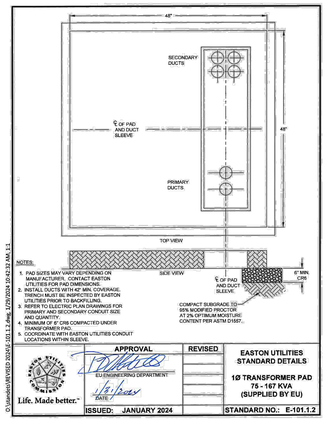
DATE:	8/7/2024
SCALE:	AS SHOWN
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-403.03

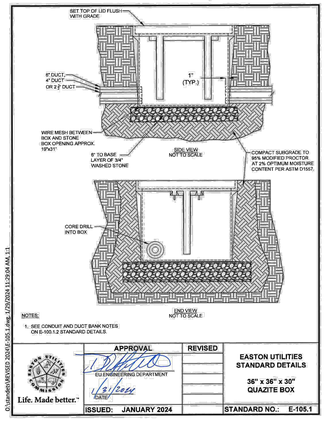
FOR REVIEW



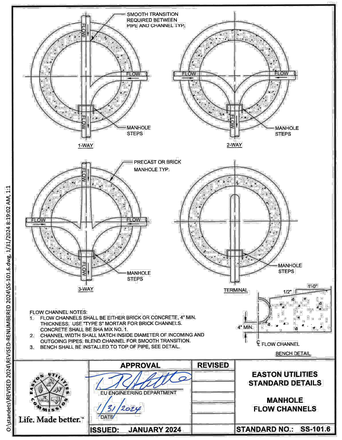
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS TYPICAL TRENCH DETAIL
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: E-100.2



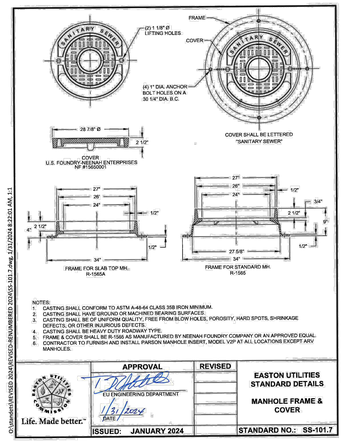
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS 1Ø TRANSFORMER PAD 75 - 167 KVA (SUPPLIED BY EU)
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: E-101.1.2



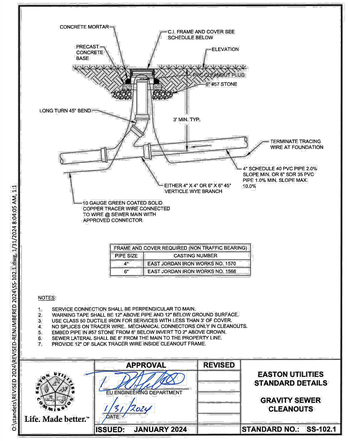
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS 36" x 36" x 30" QUAZITE BOX
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: E-105.1



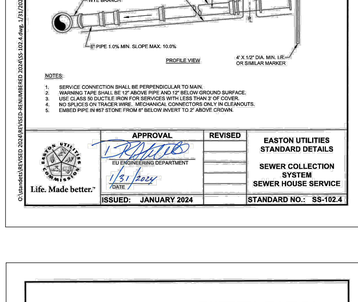
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS MANHOLE FLOW CHANNELS
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: SS-101.8



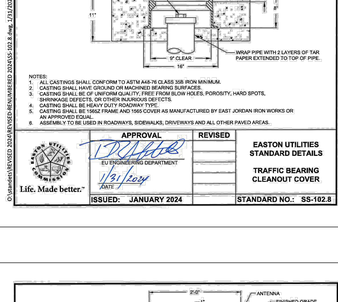
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS MANHOLE FRAME & COVER
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: SS-101.7



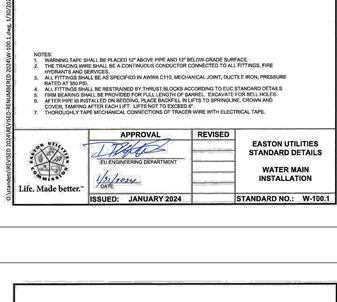
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS GRAVITY SEWER CLEANOUTS
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: SS-102.1



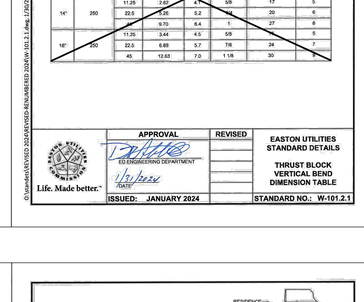
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS SEWER COLLECTION SYSTEM SEWER HOUSE SERVICE
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: SS-102.4



APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS TRAFFIC BEARING CLEANOUT COVER
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: SS-102.8



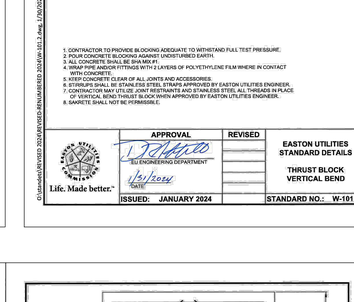
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS WATER MAIN INSTALLATION
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-100.1



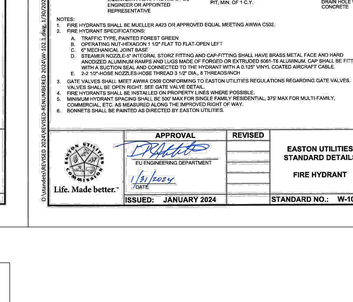
DIMENSION TABLE

PIPE DIA. IN.	TABLE PRESSURE PSI	BEND ANGLE (DEG.)	CONCRETE VOLUME (CY)	CUBE SIZE (FT.)	STIRRUP DIA. (IN.)	STIRRUP EMBEDMENT (IN.)	STIRRUP BAR #
4"	250	11.25	0.21	1.8	5/8	17	5
		22.5	0.43	2.3			
		45	0.77	2.8			
6"	250	11.25	0.48	2.4	5/8	17	5
		22.5	0.95	3.0			
		45	1.79	3.6			
8"	250	11.25	0.86	2.6	5/8	17	5
		22.5	1.65	3.5			
		45	3.22	4.4			
10"	250	11.25	1.39	3.3	5/8	17	5
		22.5	2.62	4.1			
		45	4.97	4.1			
12"	250	11.25	1.94	3.7	5/8	17	5
		22.5	3.61	4.7			
		45	6.89	5.4	7/8	24	7
14"	250	11.25	2.65	4.1	5/8	17	5
		22.5	4.96	5.2	1"	29	6
		45	9.70	6.4		27	8
16"	250	11.25	3.44	4.5	5/8	17	5
		22.5	6.69	5.7	7/8	24	7
		45	12.63	7.0	1 1/8	30	9

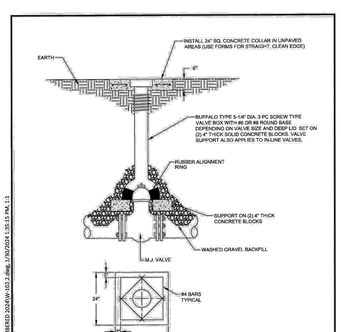
APPROVAL	REVISED	
ED ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS THRUST BLOCK VERTICAL BEND DIMENSION TABLE
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-101.2.1



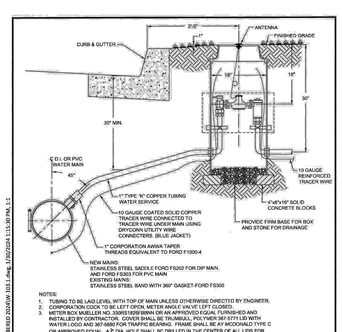
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS THRUST BLOCK VERTICAL BEND
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-101.2



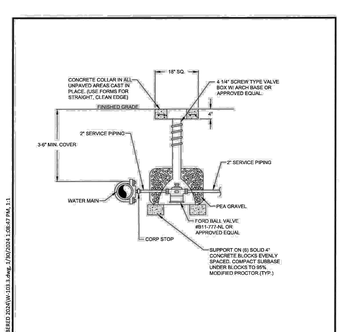
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS FIRE HYDRANT
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-102.1



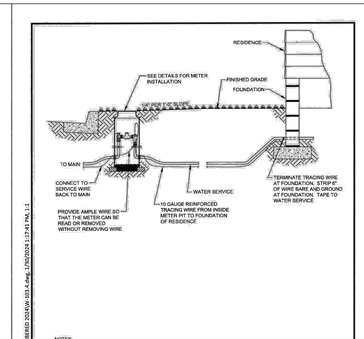
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS GATE VALVE BOX ASSEMBLY
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-102.2



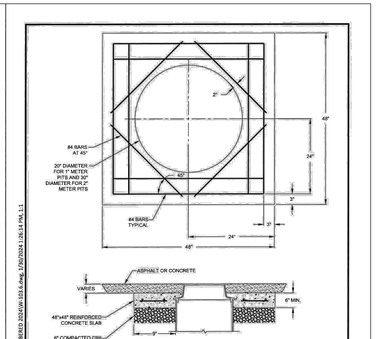
APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS 1" WATER SERVICE
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-103.1



APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS CURB STOP AND BOX
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-103.3



APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS WATER SERVICE CONNECTION
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-103.4



APPROVAL	REVISED	
EU ENGINEERING DEPARTMENT DATE: 1/31/2024		EASTON UTILITIES STANDARD DETAILS WATER METER PIT INSTALLATION-TRAFFIC BEARING
Life. Made better.™		
ISSUED: JANUARY 2024		STANDARD NO.: W-103.6

UTILITY DETAILS

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

RAUCH inc.
Engineering | Surveyor | 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 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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

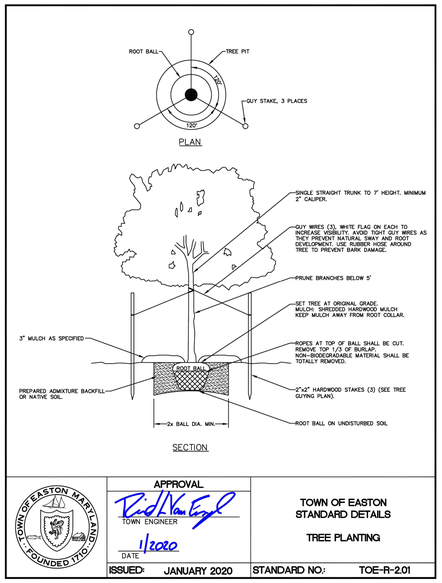
MISS UTILITY OF DELMARVA — STOP, LOOK & DIG BEFORE YOU DIG

811

DATE: 8/7/2024
SCALE: N/A
DRAWN BY: AF
DESIGNED BY: BBF
APPROVED BY:

SHEET NO.: C-405

FOR REVIEW



APPROVAL

TOWN ENGINEER

DATE 1/2020

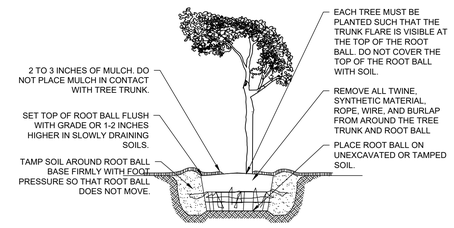
TOWN OF EASTON STANDARD DETAILS

TREE PLANTING

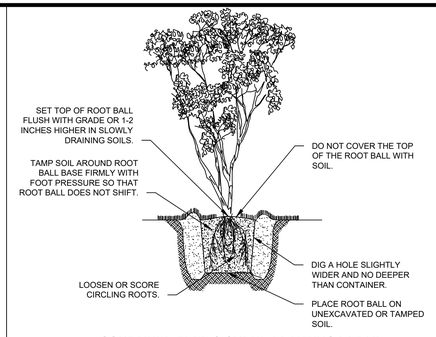
ISSUED: JANUARY 2020 STANDARD NO.: TOE-R-2.01

STAKE TREES ONLY UPON THE APPROVAL OF THE LANDSCAPE ARCHITECT.

PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES ONLY UPON THE APPROVAL OF LANDSCAPE ARCHITECT.



B&B TREE & SHRUB PLANTING DETAIL

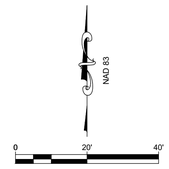


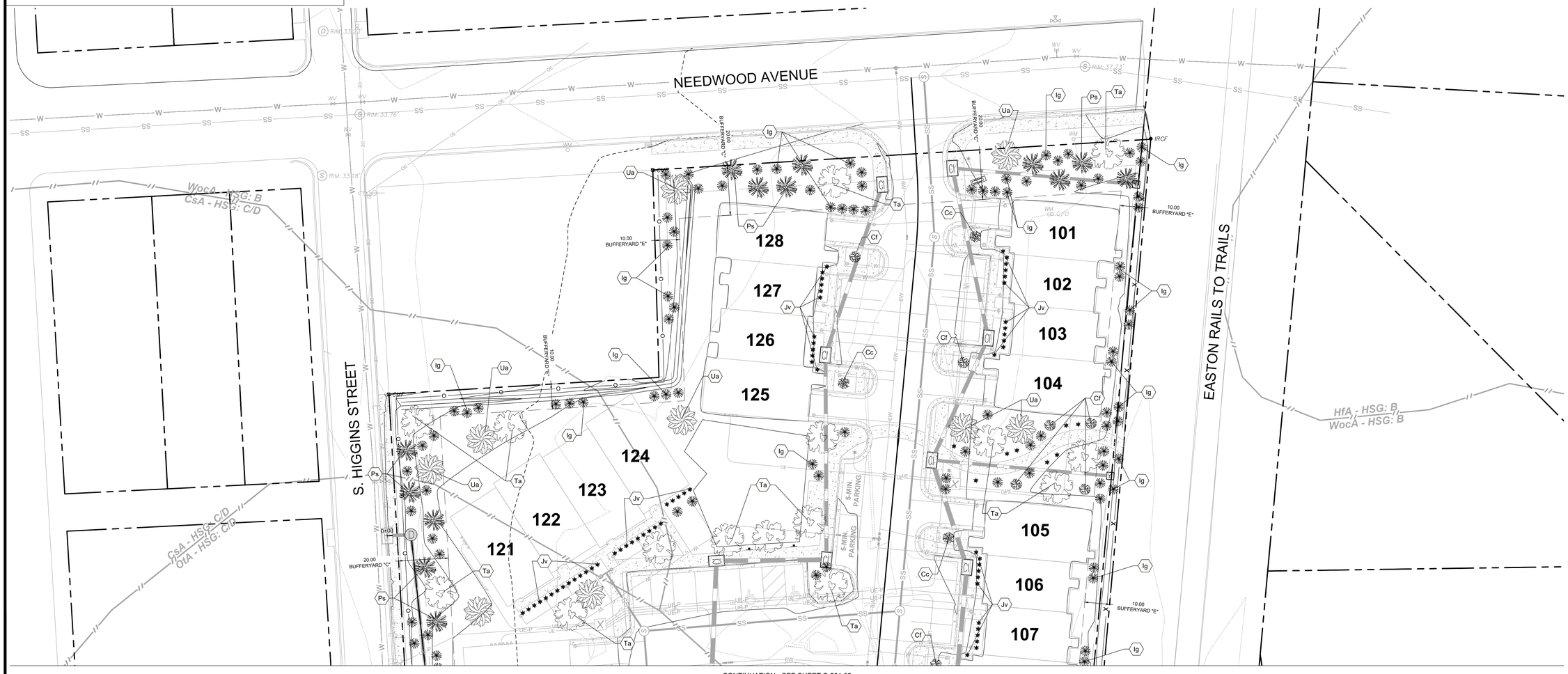
CONTAINER TREE & SHRUB PLANTING DETAIL

LANDSCAPE FEATURES

- Cf — SMALL TREE - DOGWOOD, AMERICAN FLOWERING - CORNUS FLORIDA - QTY 15
- Cc — SMALL TREE - REDBUD, EASTERN - CERCIS CANADENSIS - QTY 17
- Ta — SHADE TREE - LINDEN, AMERICAN - TILIA AMERICANA - QTY 24
- Ua — SHADE TREE - ELM, AMERICAN - ULMUS AMERICANA - QTY 18
- Ps — EVERGREEN TREE - PINE, EASTERN WHITE - PINUS STROBUS - QTY 32
- Ig — EVERGREEN SHRUB - INKBERRY HOLLY - ILEX GLABRA - QTY 181
- Jv — EVERGREEN SHRUB - JUNIPER 'GREY OWL' - JUNIPERUS VIRGINIANA - QTY 116

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE "MARYLAND NATIVE" SPECIES FOR PLANTING.





CONTINUATION - SEE SHEET C-501.02

LANDSCAPE PLAN AND DETAILS

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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

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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

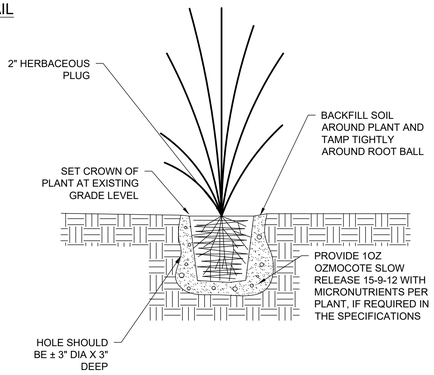
SHEET NO.: C-501.01

FOR REVIEW

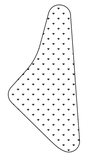
LANDSCAPE NOTES:

1. LANDSCAPE INSTALLER SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK. INSTALLER SHALL ENSURE THAT FINAL GRADES HAVE BEEN ESTABLISHED AD 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 HALL BE EXCAVATED AND WORED IN A RECTANGULAR FORM WITH THE SMALL DIMENSION TWICE THE DIAMETER OF THE ROOT BALL AND LARGE DIMENSION AT LEAST THREE (3) TIMES THE DIAMETER OF THE ROOT BALL. OPEN AREA TREE PITS SHALL BE EXCAVATED TO A MINIMUM DIMENSION 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 TO A DEPTH OF TWELVE INCHES (12") (OR RAISED SLIGHTLY TO ACHIEVE A TWELVE INCH (12") FRIABLE SOIL DEPTH). SHRUB PLANTING AREAS SHALL BE WORKED TO TWELVE INCH (12") MINIMUM OUTSIDE THE ROOTBALL.
6. ALL LANDSCAPE BEDS SHALL BE "V" EDGED AND MULCH WITH MINIMUM THREE INCH (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) FIVE FEET (5') LONG, OR OTHER APPROVED GUYING SYSTEMS. 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.

2" PLUG PLANTING DETAIL



SWM MAINTENANCE & INSPECTION SCHEDULE	
TASKS	**FREQUENCY**
SPOT WEEDING, EROSION REPAIR, TRASH REMOVAL	TWICE DURING GROWING SEASON
ADD REINFORCEMENT PLANTING TO MAINTAIN DESIRED VEGETATION DENSITY	AS NEEDED
REMOVE INVASIVE PLANTS USING RECOMMENDED CONTROL METHODS	AS NEEDED
SPRING INSPECTION AND CLEANUP	ANNUALLY
REMOVE SEDIMENT IN INFLOW POINTS	ONCE EVERY 2-3 YEARS



PV QUANTITY: 2,533
IV QUANTITY: 2,534

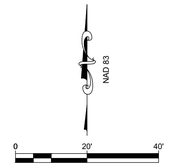
SUBMERGED GRAVEL WETLAND

PLANT SCHEDULE - SUBMERGED GRAVEL WETLAND					
KEY	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**	**O.C. SPACING**	**TOTAL QUANTITY**
GRASSES					
PV	Panicum Vergatum	Shenandoah	QUART	1'-6"	2533
IV	Itea Virginica	Henry's Garnet	QUART	1'-6"	2534

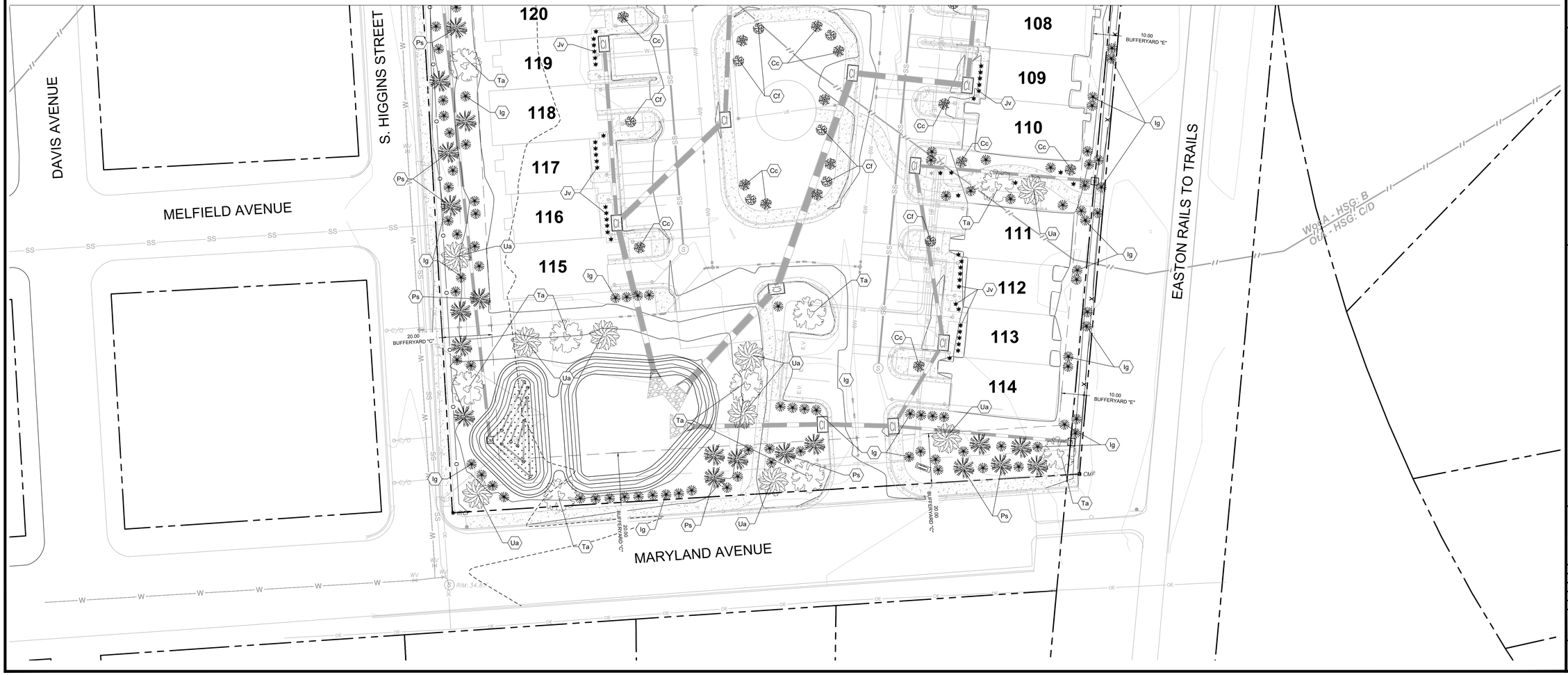
LANDSCAPE FEATURES

- Cf — SMALL TREE - DOGWOOD, AMERICAN FLOWERING - CORNUS FLORIDA - QTY 15
- Cc — SMALL TREE - REDBUD, EASTERN - CERCIS CANADENSIS - QTY 17
- Ta — SHADE TREE - LINDEN, AMERICAN - TILIA AMERICANA - QTY 24
- Ua — SHADE TREE - ELM, AMERICAN - ULMUS AMERICANA - QTY 18
- Ps — EVERGREEN TREE - PINE, EASTERN WHITE - PINUS STROBUS - QTY 32
- Ig — EVERGREEN SHRUB - INKBERRY HOLLY - ILEX GLABRA - QTY 181
- Jv — EVERGREEN SHRUB - JUNIPER 'GREY OWL' - JUNIPERUS VIRGINIANA - QTY 116

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE "MARYLAND NATIVE" SPECIES FOR PLANTING.



CONTINUATION - SEE SHEET C-501.01



LANDSCAPE PLAN AND DETAILS

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

RAUCH inc.
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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

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, 2026

8/7/2024

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — STOP! EXCAVATION NOTICE — 811

DATE:	8/7/2024
SCALE:	1" = 20'
DRAWN BY:	AF
DESIGNED BY:	BBF
APPROVED BY:	

SHEET NO.: C-501.02

FOR REVIEW

SILO SQUARE

410 NEEDWOOD AVE, EASTON MD
PROPOSED 101-128 SILO SQUARE,
EASTON MD

RAUCH inc.
Engineering | Survey | Architecture | Environmental

August 7, 2024

LEGEND

PRELIMINARY LOCATIONS

- T — TRANSFORMER
- FH — FIRE HYDRANT
- STREET LIGHTS
- SITE SIGNAGE

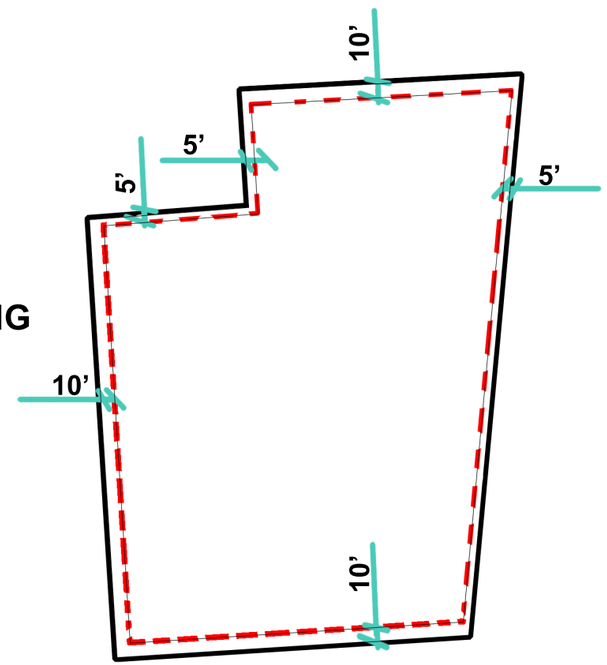
PARK **A** - 2,000 SQ FT
PARK **B** - 4,700 SQ FT
C - MAILBOXES
2 MAILBOXES
1 PARCEL BOX

Silo Square Townhomes

Unit Number	Unit Type	Bedroom/Bath	Square Footage	Quantity	Number of Stories
101-104	STICK 1	4 BED/3.5 BATH	2,144	2	3
		3 BED/2.5 BATH	1,995	2	2
105-110	STICK 2	4 BED/3.5 BATH	2,144	3	3
		3 BED/2.5 BATH	1,995	3	2
111-114	STICK 1	4 BED/3.5 BATH	2,144	2	3
		3 BED/2.5 BATH	1,995	2	2
115-120	STICK 2	4 BED/3.5 BATH	2,144	3	3
		3 BED/2.5 BATH	1,995	3	2
121-124	STICK 3	4 BED/3.5 BATH	2,439	4	3
125-128	STICK 1	4 BED/3.5 BATH	2,144	2	3
		3 BED/2.5 BATH	1,995	2	2
			Total	28	

Zoning:

- Zoned: BC Business commercial
- PUD
- PRD
- Setbacks
  - Front – forty (40) feet from the property line
  - Side – ten (10) feet on each side of the property line
  - Rear – thirty (30) feet from the property line
  - Height limitations – thirty-five (35) feet



SETBACKS

SITE PLAN

1/16” = 1’-0”

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3D VIEW FROM HIGGINS STREET

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3D VIEW FROM RAILS TO TRAILS

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SILO SQUARE PAVILION

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Site Signage

VIEW FROM MARYLAND AVE

SITE SIGN

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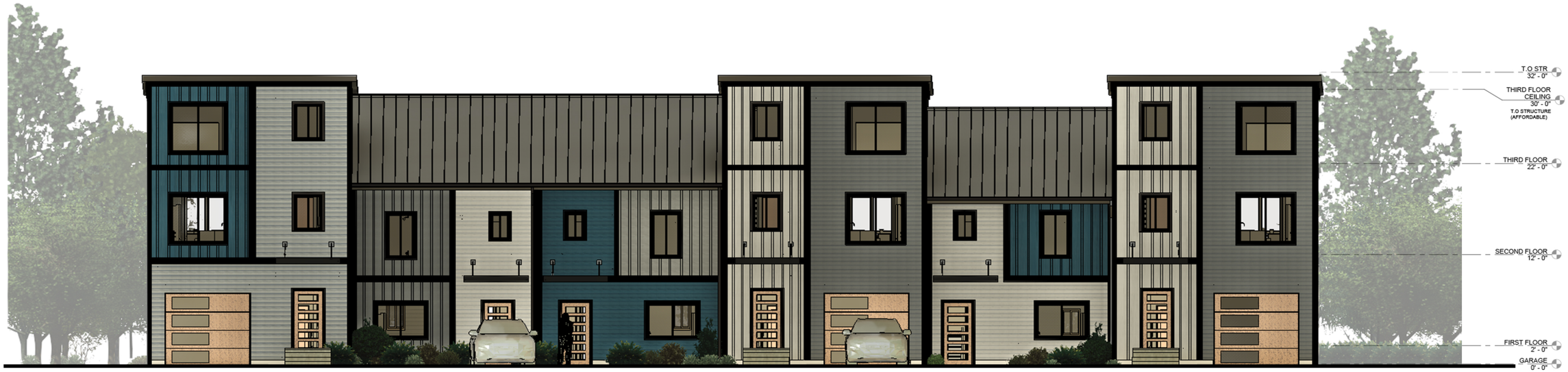
STICK 1 - FRONT ELEVATION



STICK 2 - FRONT ELEVATION

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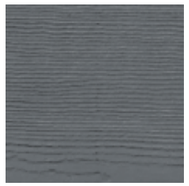
Silo Square Finishes

URBAN GRAY

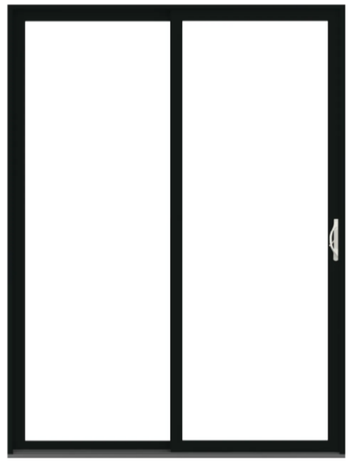


TITANIUM

ARGENT GRAY

HUDSON BAY BLUE

ENTRY DOOR WITH FROSTED GLASS

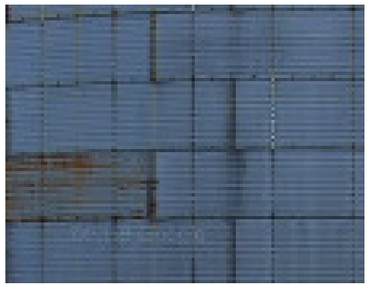


SLIDING PATIO DOOR

GARAGE DOOR WITH FROSTED GLASS

STREET LIGHT

SLIDING WINDOW



REUSED METAL FROM THE SILO

BLACK GUTTER AND DOWNSPOUTS

METAL STANDING SEAM ROOF - SILVER

MAIL BOXES PARCEL BOX

Silo Square Fences

Rails to Trails
Two Rail Board Fence

West side fence
Wood Board on Board

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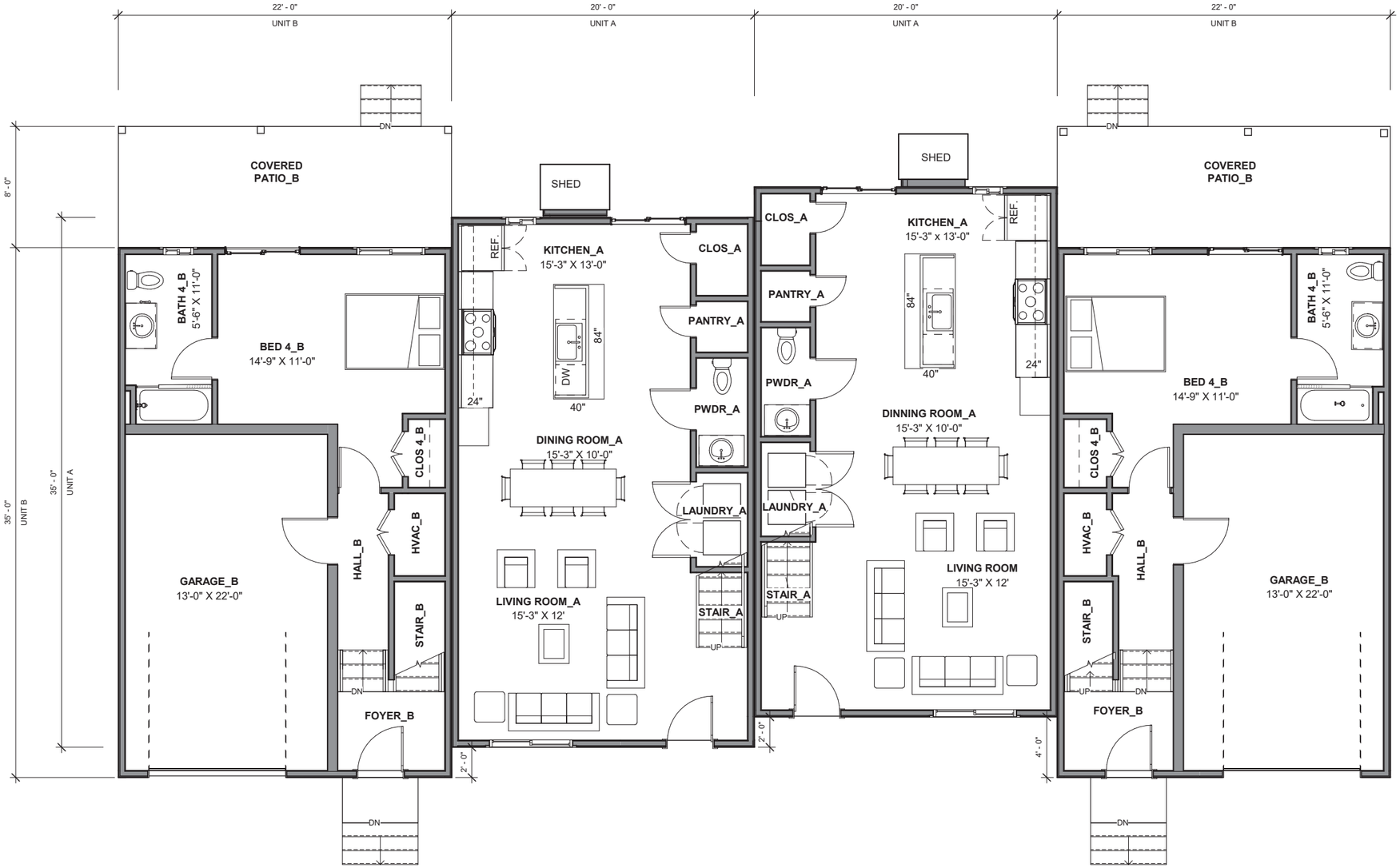

STICK 1 - FIRST FLOOR PLAN

1/8” = 1’-0”

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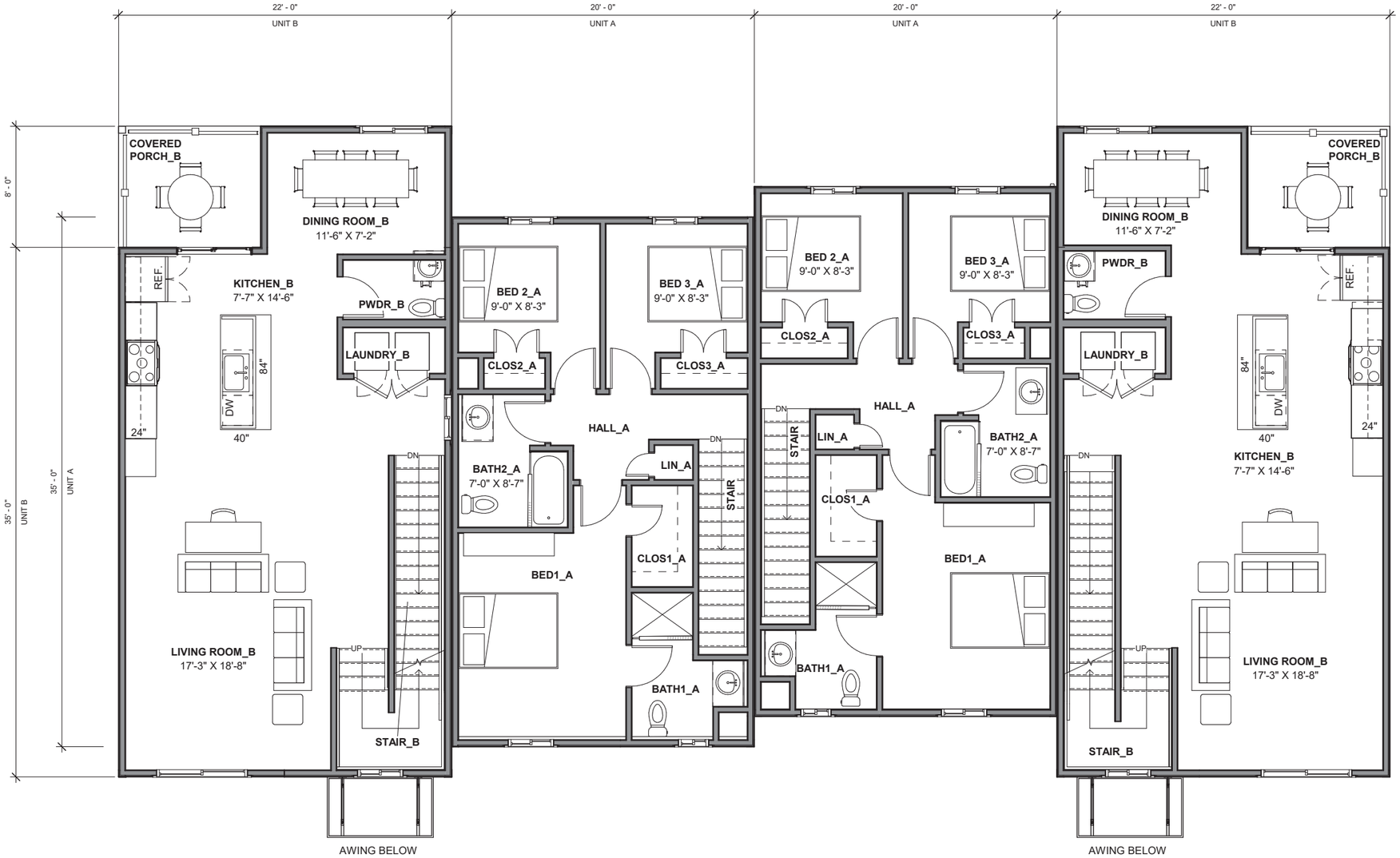

STICK 1 - SECOND FLOOR PLAN

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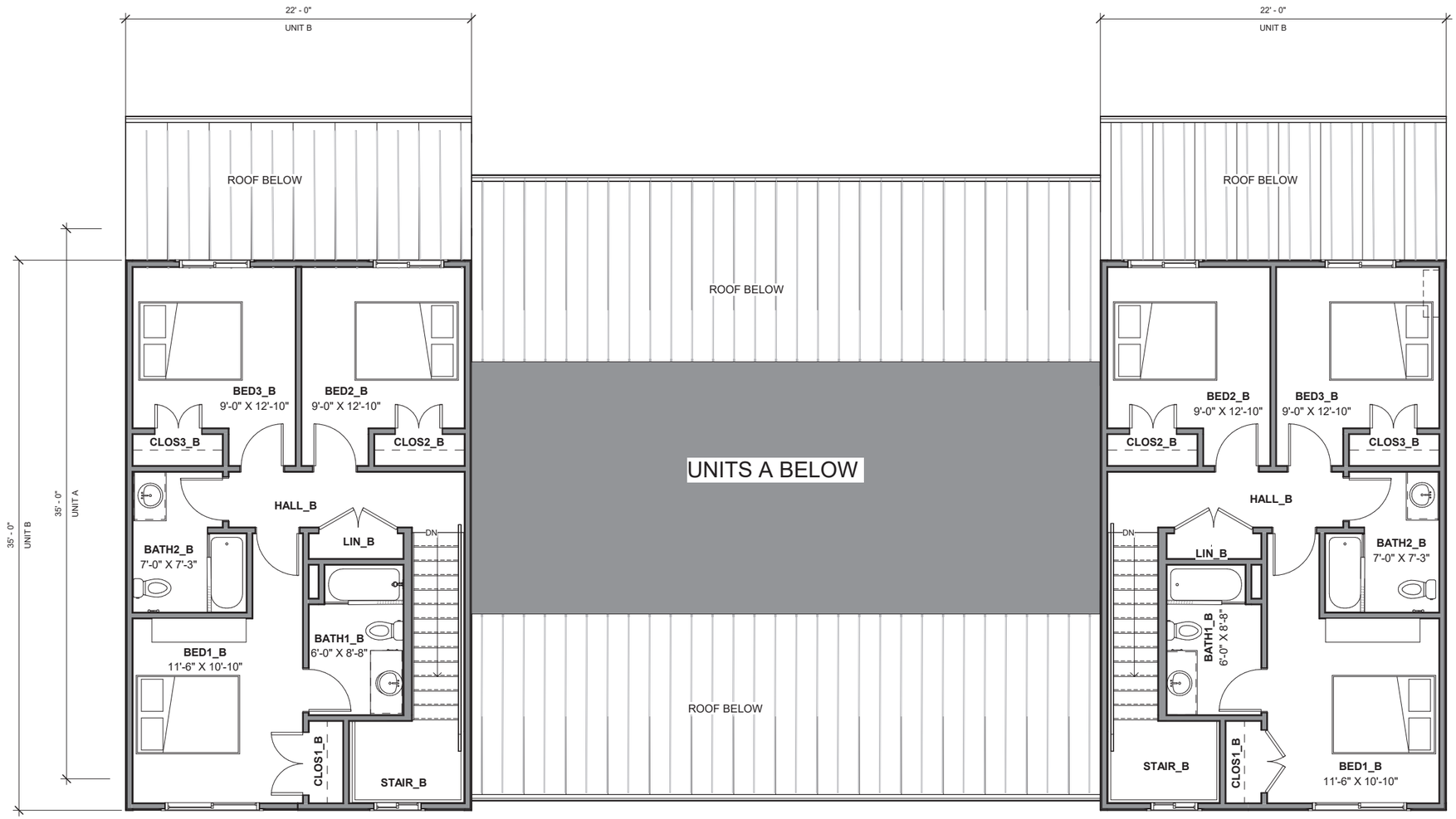

STICK 1 - THIRD FLOOR PLAN

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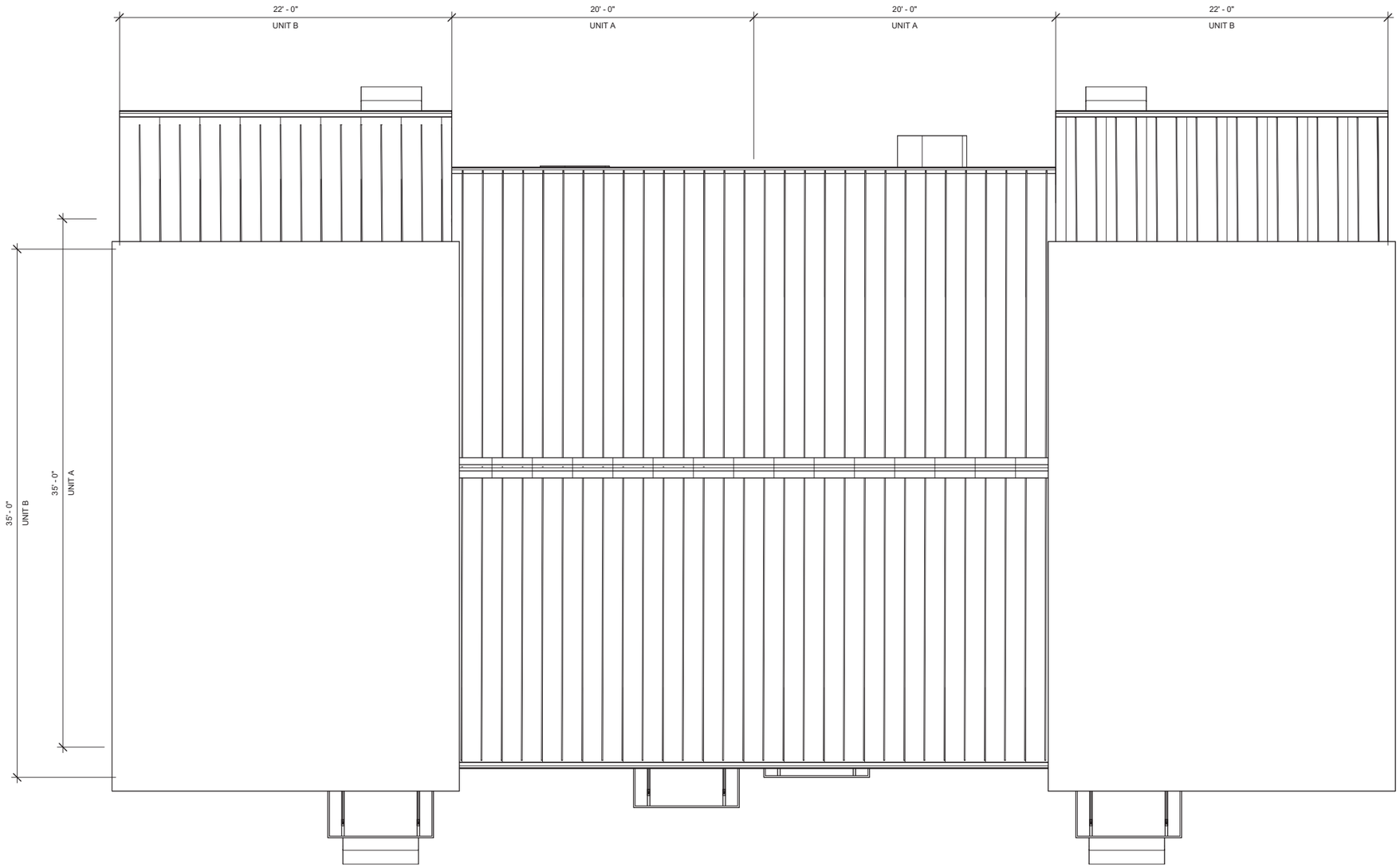

STICK 1 - ROOF PLAN

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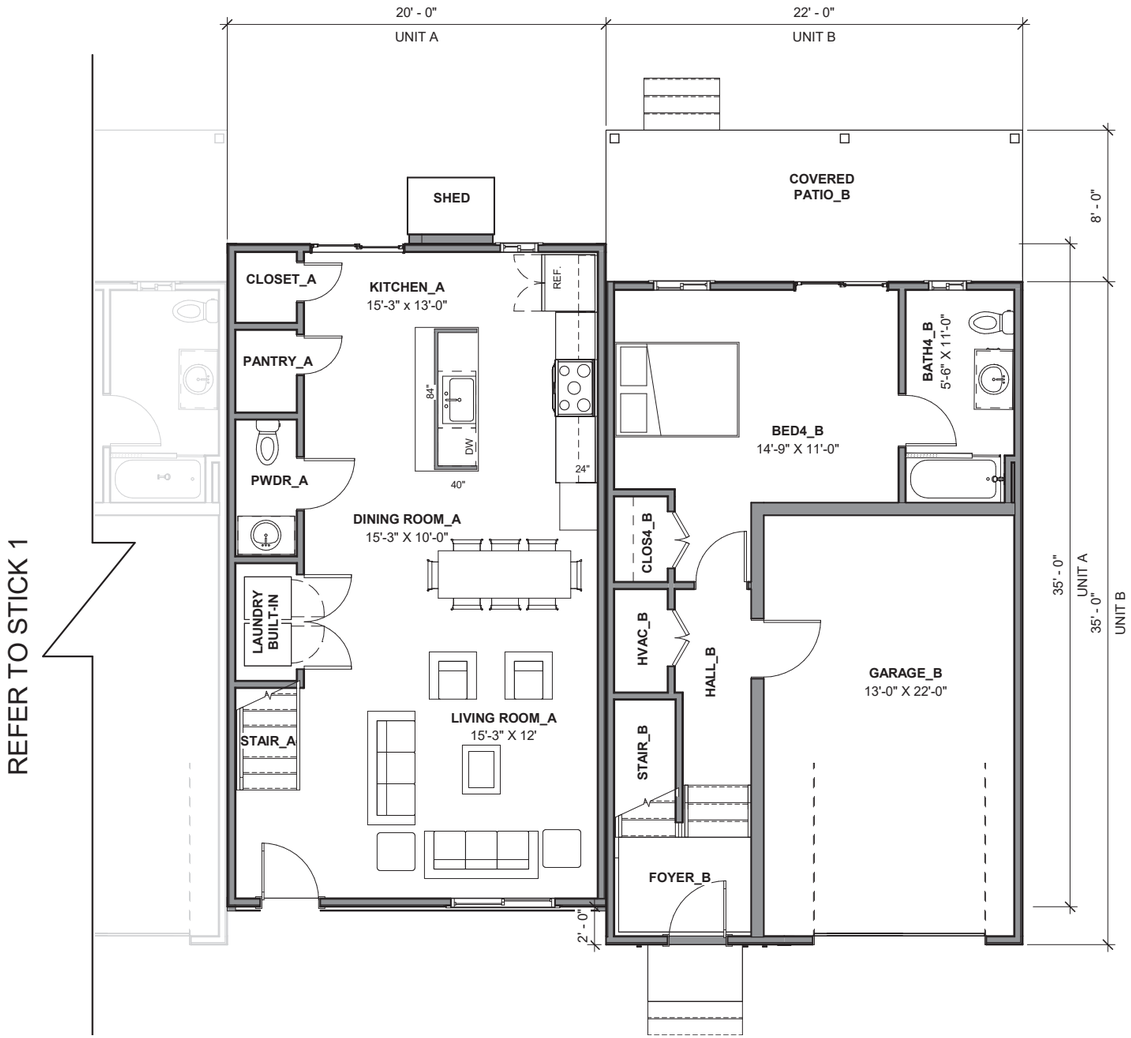
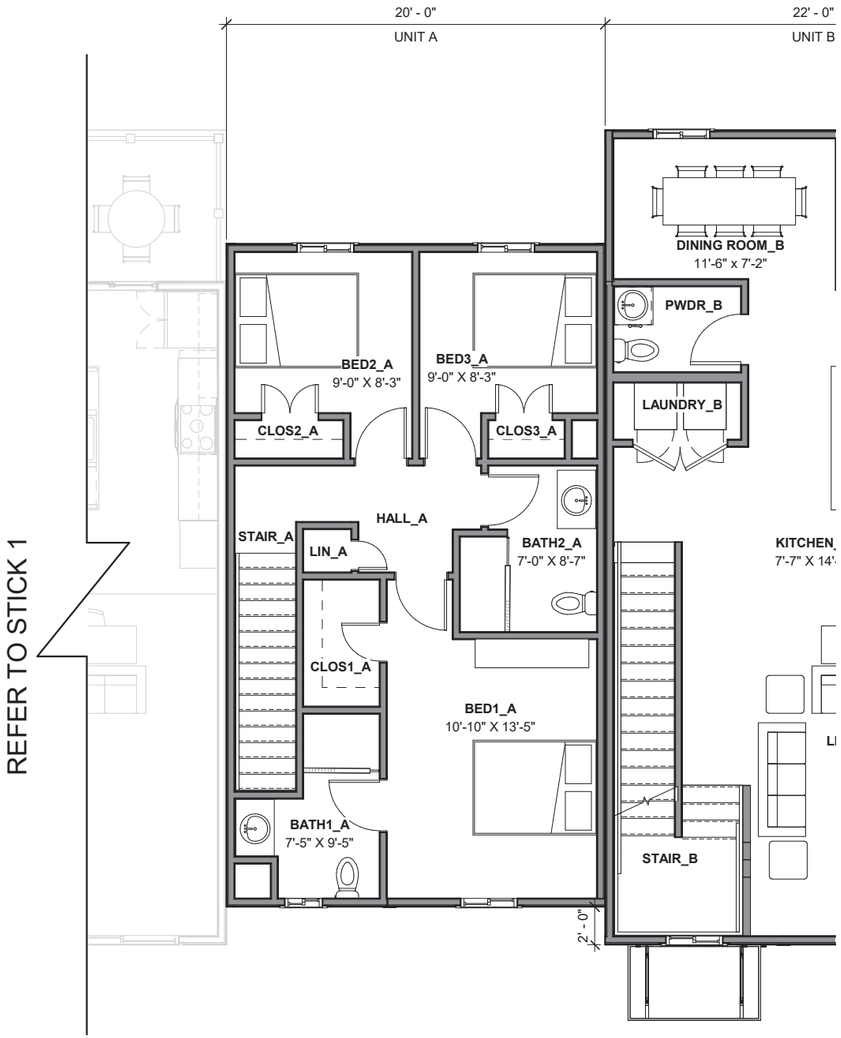


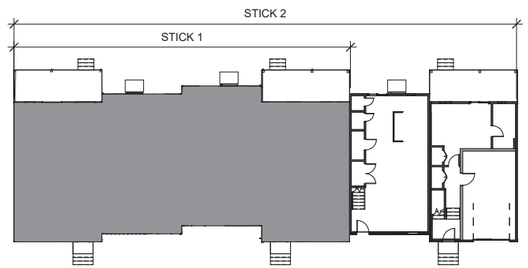
STICK 2 - FIRST FLOOR PLAN

1/8” = 1’-0”



STICK 2 - SECOND FLOOR PLAN

1/8” = 1’-0”



KEY PLAN

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STICK 2 - THIRD FLOOR PLAN

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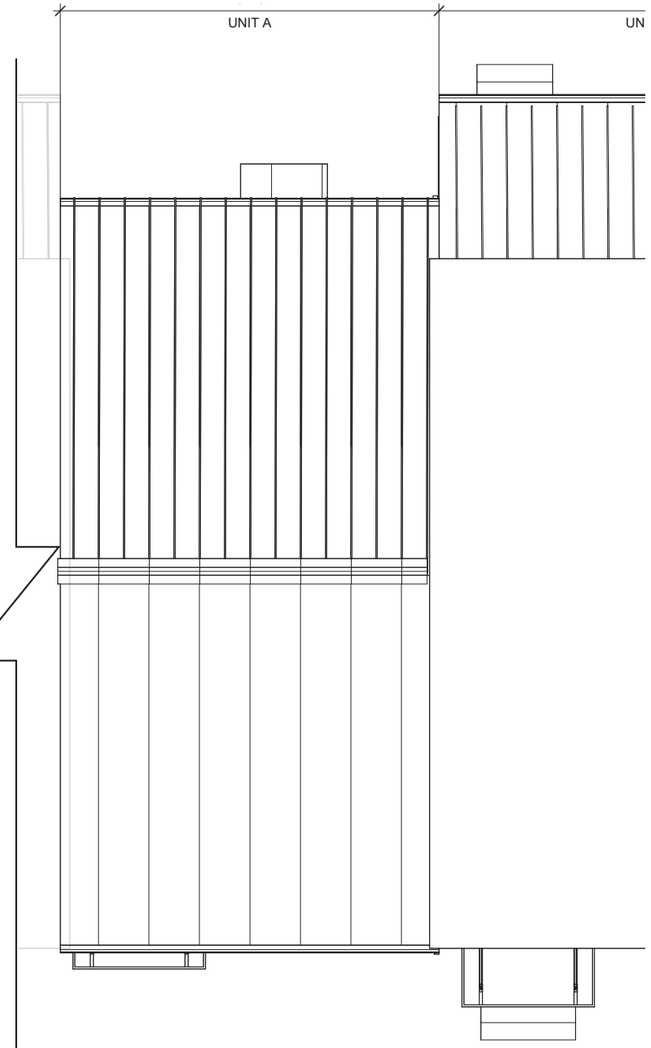
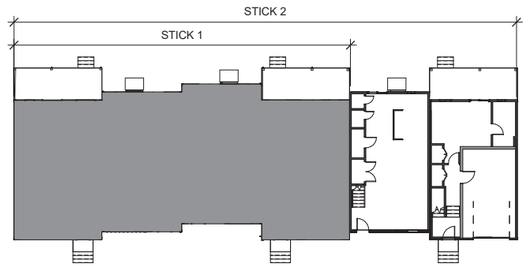


STICK 2 - ROOF PLAN

1/8” = 1’-0”



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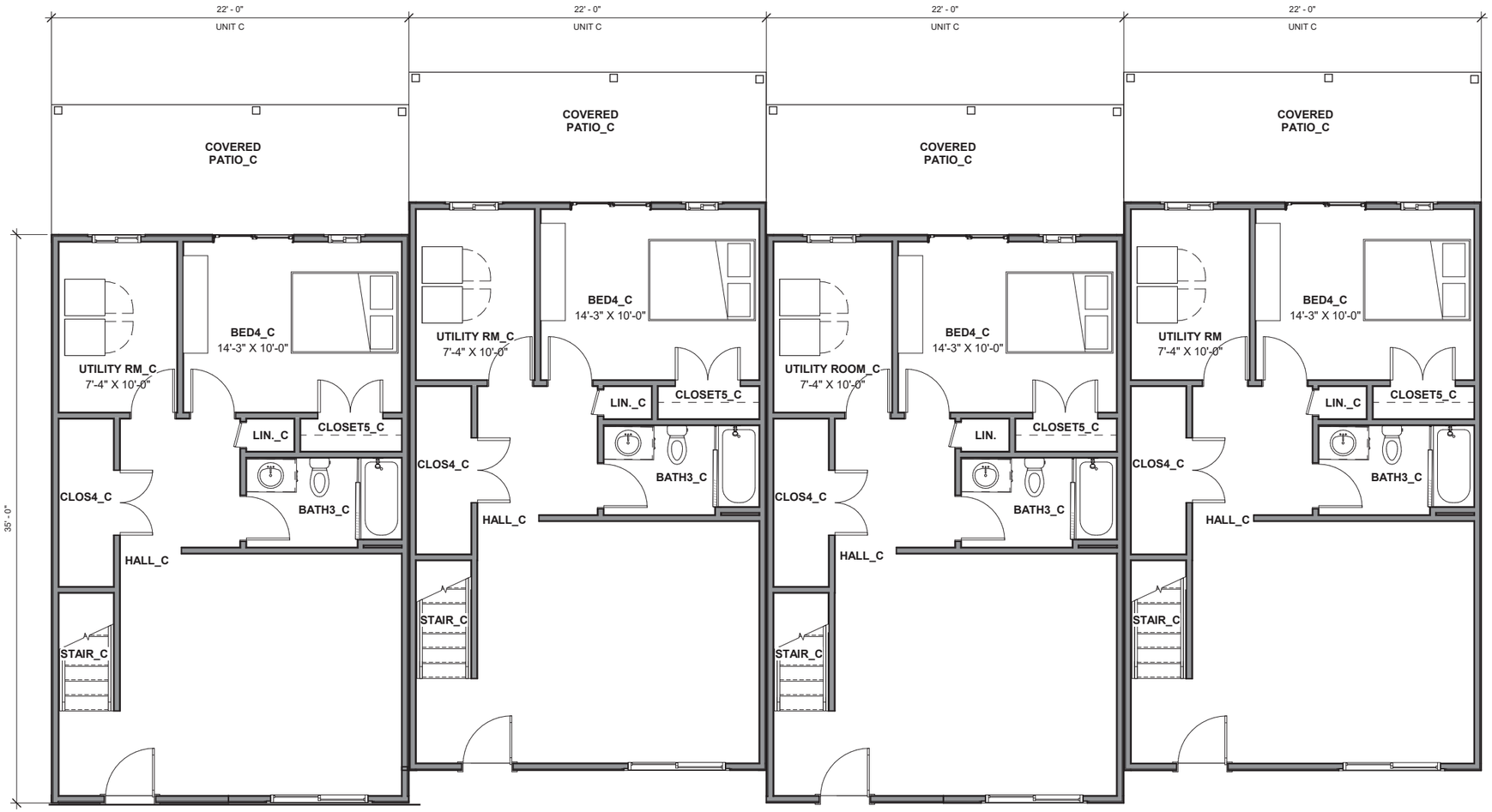

STICK 3 - FIRST FLOOR PLAN

1/8” = 1’-0”

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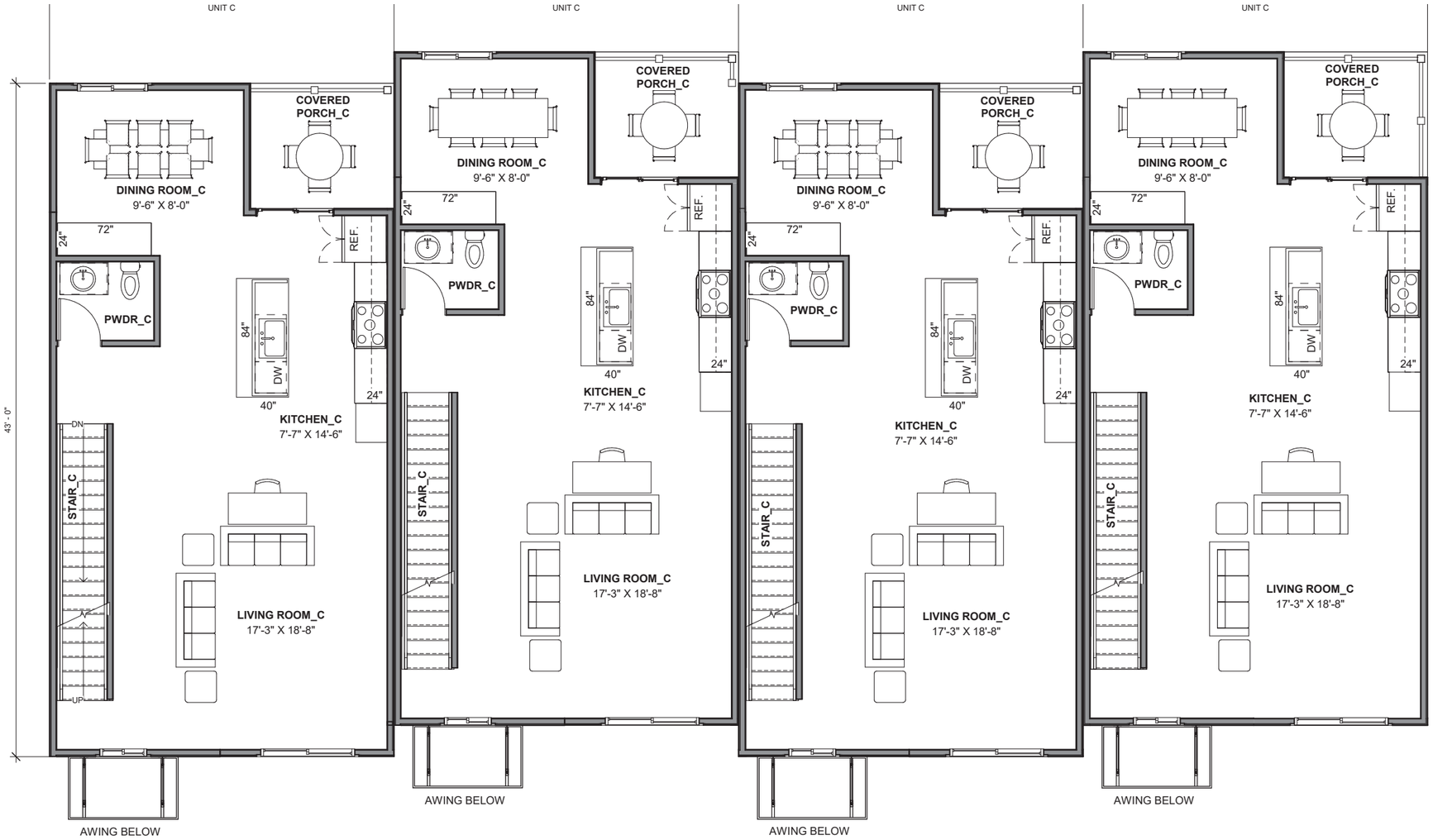

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1/8” = 1’-0”

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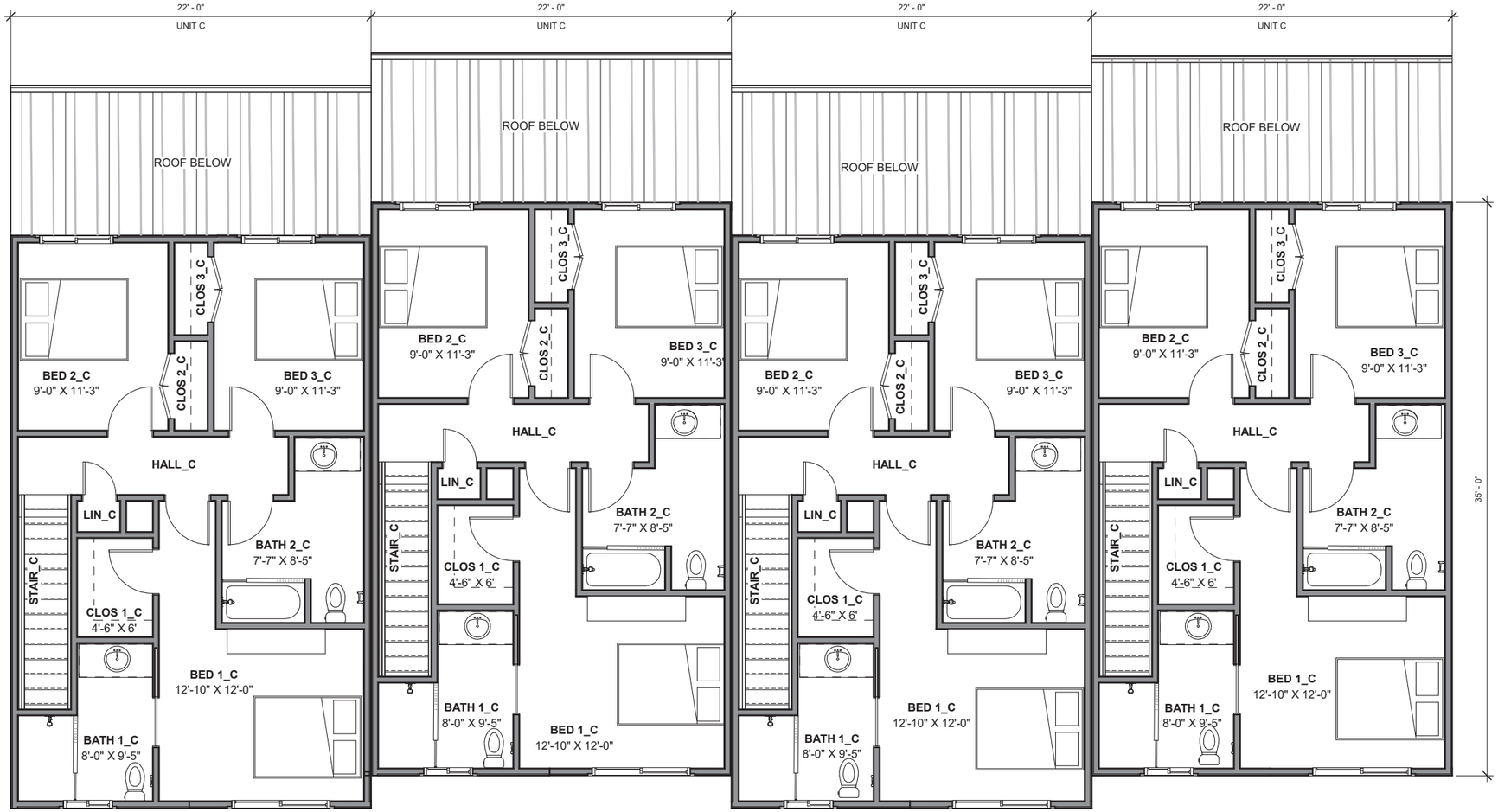

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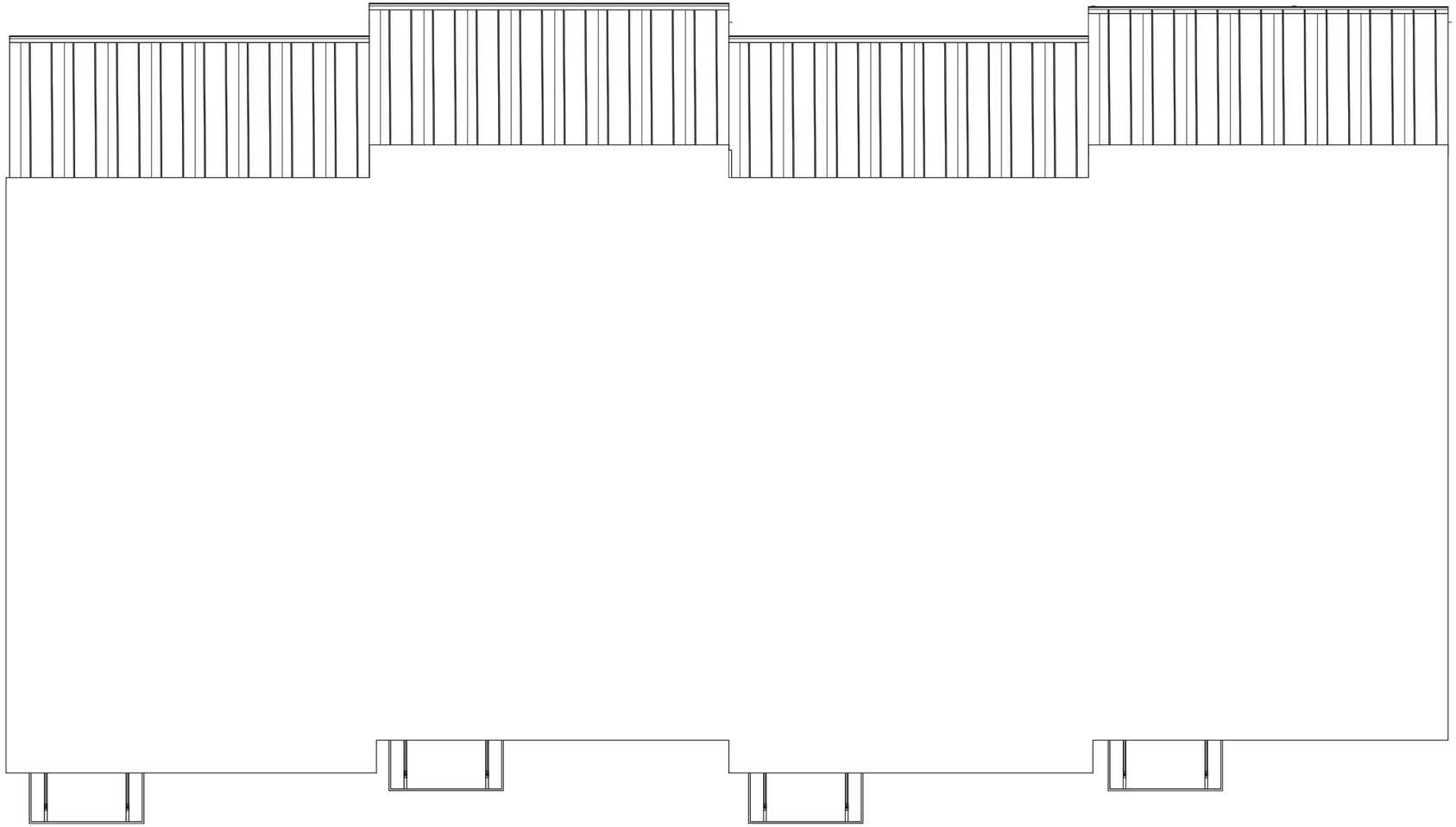

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1/8” = 1’-0”

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engineering design & development services

STORMWATER MANAGEMENT ANALYSIS

FOR

SILO SQUARE

PREPARED FOR

CHESAPEAKE NEIGHBORS, LLC

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

6th of August 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.

08/06/2024

ROBERT D. RAUCH, LICENCE NO. 11024 — DATE
EXPIRATION DATE 7/24/2026

106 N. Harrison Street - Easton, MD 21601
office: 410.770.9081 | fax: 410.770.3667
email: design@raucheng.com | web: www.raucheng.com

Stormwater Management Narrative

RAUCH inc.
engineering design & development services

STORMWATER MANAGEMENT ANALYSIS – NARRATIVE

EXISTING CONDITIONS

The project site being analyzed is in the town of Easton, Maryland, in Talbot County, between Maryland Avenue, Needwood Avenue, South Higgins Street, and Easton Rails to Trails. The existing conditions of the site include 14 silos, truck scales, and 2 buildings. The site is mostly on poorly drained HSG C/D soils, and the north part of the site is on HSG C soil.
The existing site drains through a series of sheet flow and shallow concentrated flow before ultimately reaching the Study Point (Curb inlet) located on South Higgins Street.

PROPOSED CONDITIONS

Silo Square involves the construction of 28 townhome units within 6 structures, a center park with a gazebo, parking, driving aisles, refuse area, and stormwater management facilities.

The majority of the proposed impervious will be treated for quality management by a submerged gravel wetland with a forebay. The ponding in the forebay and submerged gravel wetland will also be used as quantity management.

Proposed conditions during the 2-, 10-, and 100-year storm events have been analyzed and show postconstruction peak flows are less than preconstruction peak flows at the Study Point.

The maps included with this report detail all drainage areas with times of concentration.

WATER QUALITY – ESDv/WQv

The Submerged Gravel Wetland will have the required pretreatment forebay and the wetland itself will have 2’ of gravel. The summary of the calculations is shown below:

SITE REQUIRED ESDv (SEE ATTACHMENTS FOR SPECIFIC CALCULATIONS):
ESDv REQUIRED: 3,197 CF

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SUBMERGED GRAVEL WETLAND #1

FOREBAY:		
DRAINAGE AREA:	83,507 SF	
BOTTOM SURFACE AREA:	1,672 SF	
TOP OF PONDING SURFACE AREA:	2,747 SF	
PONDING DEPTH:	2 FT	
ESDv PROVIDED:	4,419 CF	
10% ESDv PRETREATMENT REQUIRED:	320 CF	
10% ESDv PRETREATMENT PROVIDED:	4,419 CF > 320 CF	OK
SUBMERGED GRAVEL WETLAND#1:		
GRAVEL BED AREA:		
BOTTOM SURFACE AREA:	563 SF	
TOP OF PONDING SURFACE AREA:	1,281 SF	
MEDIA DEPTH:	2 FT	
PONDING DEPTH:	2 FT	
ESDv PROVIDED:	2,294 CF	
ESDv PROVIDED (BOTH FOREBAY & GRAVEL AREA):	6,713 CF	
75% ESDv TEMPORARY STORAGE REQUIRED:	**2,398 CF**	
75% ESDv TEMPORARY STORAGE PROVIDED:	**6,263 > 2,398 CF**	**OK**
CALCULATION SUMMARY:		
ESDv REQUIRED =	**3,197 CF**	
ESDv PROVIDED =	**6,713 CF**	**OK**

STORMWATER QUALITY NOTES:

The above quality stormwater management practices meet the Environmental Site Design Volume required for the site.

WATER QUANTITY

Volume control is provided within both the submerged gravel wetland and by managing/maintaining existing times of concentrations within existing and reshaped drainage areas.
The East drainage area flows to a forebay, through a series of Yard and Curb Inlets, then the flow passes to the Submerge Gravel Wetland with is located in the Southeast corner of the site. Then the flow is discharged to the Study Point (Curb Inlet) on South Higgins Street.

Below is a summary of the proposed peak runoffs flows from the 2, 10, and 100-year storms compared to existing peak runoff flows from the same events.

STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT	EXISTING	8.60	15.15	23.03
	PROPOSED	2.71	4.89	20.04
CHANGE	CHANGE	5.89	10.26	2.99

NATURAL AREA PRESERVATION

The stormwater management facilities for this project have been designed to preserve natural areas such as existing treelines as best as possible.

CONCLUSION

This report shows that all requirements of the MDE stormwater design manual have been met for this site and natural areas have been preserved in meeting these guidelines.

ESD Calculations

Project Name:	**Chesapeake Neighbors - Silo Square**								
Date:	**6-Aug-24**								
	data input cells								
	calculation cells								
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)	*106730*								
Existing SITE Impervious Area (acres or sq-ft)	*56058*								
SITE percent impervious	53%								
Development Category (for ESD)	**Redevelopment**								
LOD Area, A (acres)	2.45								
Existing LOD Impervious Surface Area (acres)	1.29								
Proposed LOD Impervious Surface Area (acres)	1.42								
Rainfall Depth, P (in)	1.0								
Existing LOD Imperviousness, I_{pre}	53%								
Proposed LOD Imperviousness, I_{post}	58%								
Water Quality Calculation for Redevelopment Only									
Required Treatment Area (acres)	0.643								
Runoff Coefficient, Rv	0.95								
Water Quality Volume, WQv (cf)	**2,219**								

Step 4: Calculate Environmental Site Design (ESD) Rainfall Target, P_E								
% Soil Type A	0%		RCN Soil Type A	73.22				
% Soil Type B	0%		RCN Soil Type B	82.22				
% Soil Type C	47%		RCN Soil Type C	87.22				
% Soil Type D	53%		RCN Soil Type D	90.61				
Target Pre-Developed Condition, RCN_{woods}	73.71	Post-Developed Condition, RCN		89.02				
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)	2.20							
Soil Type D ESD Rainfall Target, P_E (in)	2.00							
	1yr							
Maximum P_E (in)	2.7							
Site ESD Rainfall Target, P_E (in)		2.09						
ESD Runoff Depth, Q_E (in)		1.99						
ESD Runoff Volume, ESDv (cf)		**978**						
Site Rainfall Target, P_E (in)		**1.33**						
Total Site Treatment Volume (cf)		**3,197**						

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

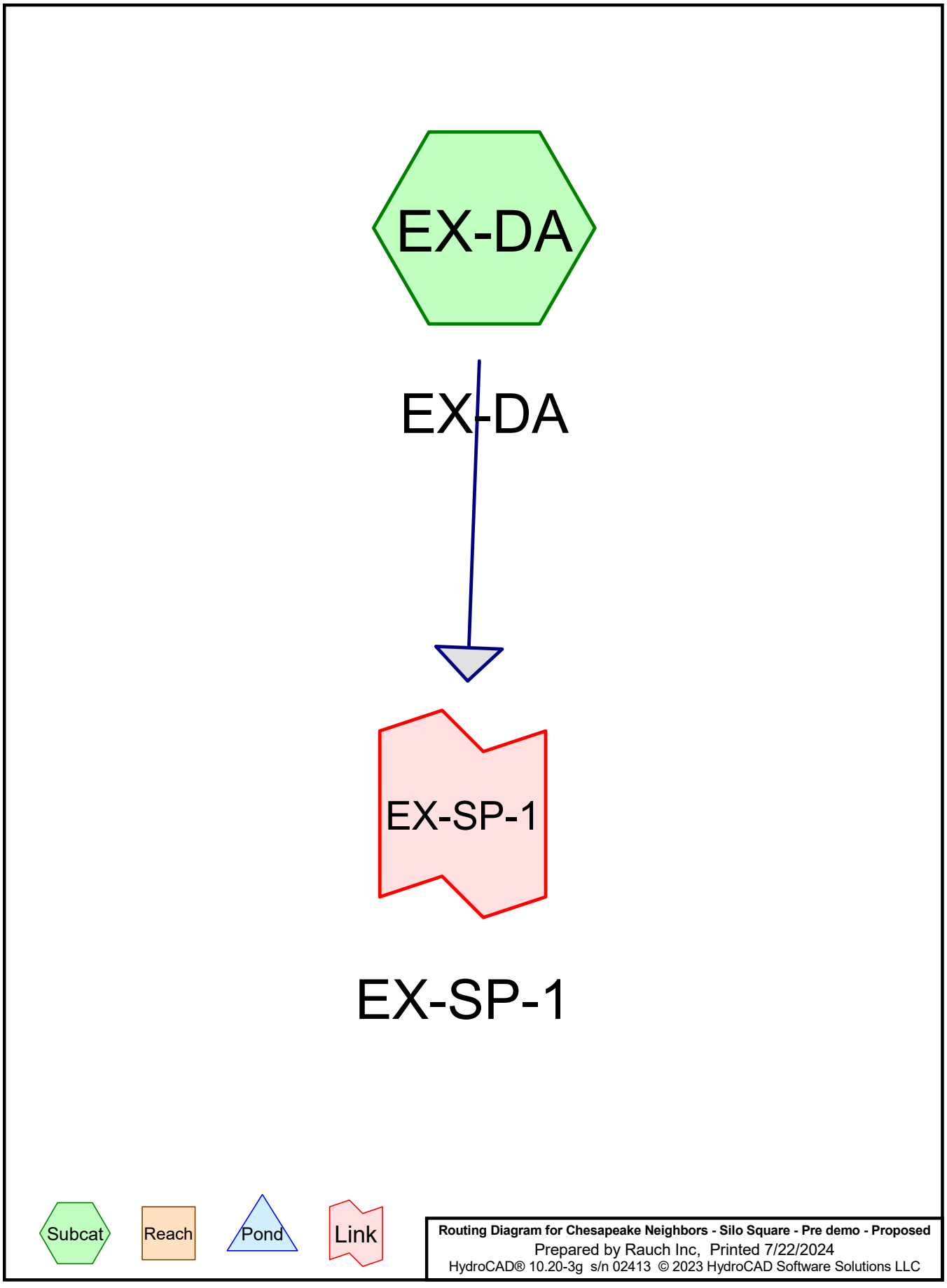
Micro-Scale Practices	P_E Credit Description	Contributing Drainage Area (sf)	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)
Submerged Gravel Wetlands	ESDv credit is based on design storage volume	83,507	11,086	6667	6,713	11,039

Step 7: Check for ESDv to MEP compliance and Revise Site If Necessary								
	Drainage Area Treated (sf)		83,507				**WQv or ESDv Treated (cf) using ESD practices**	6,713
							P_E achieved (inches)	2.80
							Entire ESDv Treated Through ESD Practices?	**YES**
							ESDv Remaining? (cf)	**0**
							If ESDV is not fully treated, is ESD to MEP achieved?	**YES**
							Redevelopment WQv Requirements Met Through ESD Practices?	**YES**
New Development Water Quality Volume Requirements							**WQv Remaining? (cf)**	**0**
Required Treatment Area (acres)	0.14							
Runoff Coefficient, Rv	0.95							
Water Quality Volume, WQv (cf)	**0**						**New Development WQv Requirements Met Through ESD Practices?**	**N/A**
							WQv Remaining? (cf)	**0**

M-2

	Direct drainage				Indirect drainage											
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)				WQV or ESDv provided (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice and Row	SOIL TYPE
		60%	1.89				83,507	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)			Submerged Gravel Wetlands	
Forebay #1	83,507	0.59	7777	11,086	0	0	11086	1,672	2,747	2	0	4,419	6,667	2	C/D
		0%	1.00				83,507	Bed Surface Area (sf)	Top of Ponding Surface Area (sf)	Ponding Depth (ft)	Media Depth (ft)				
Submerged Gravel Wetlands #1		0.05	0	0	83507	6667	6667	563	1,281	2	2	2,294	4,372		C/D
Total	83,507			11,086		6,667						6,713	11,039		

Analysis of Existing Conditions


EX-DA
EX-DA
EX-SP-1
EX-SP-1
Subcat
Reach
Pond
Link
Routing Diagram for Chesapeake Neighbors - Silo Square - Pre demo - Proposed
Prepared by Rauch Inc, Printed 7/22/2024
HydroCAD® 10.20-3g s/n 02413 © 2023 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 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 EX-DA: EX-DA Runoff Area=106,730 sf 52.52% Impervious Runoff Depth=2.18"
Flow Length=624' Tc=3.8 min CN=88 Runoff=8.60 cfs 0.445 af

Link EX-SP-1: EX-SP-1 Inflow=8.60 cfs 0.445 af
Primary=8.60 cfs 0.445 af

Total Runoff Area = 2.450 ac Runoff Volume = 0.445 af Average Runoff Depth = 2.18"
47.48% Pervious = 1.163 ac 52.52% Impervious = 1.287 ac

Summary for Subcatchment EX-DA: EX-DA

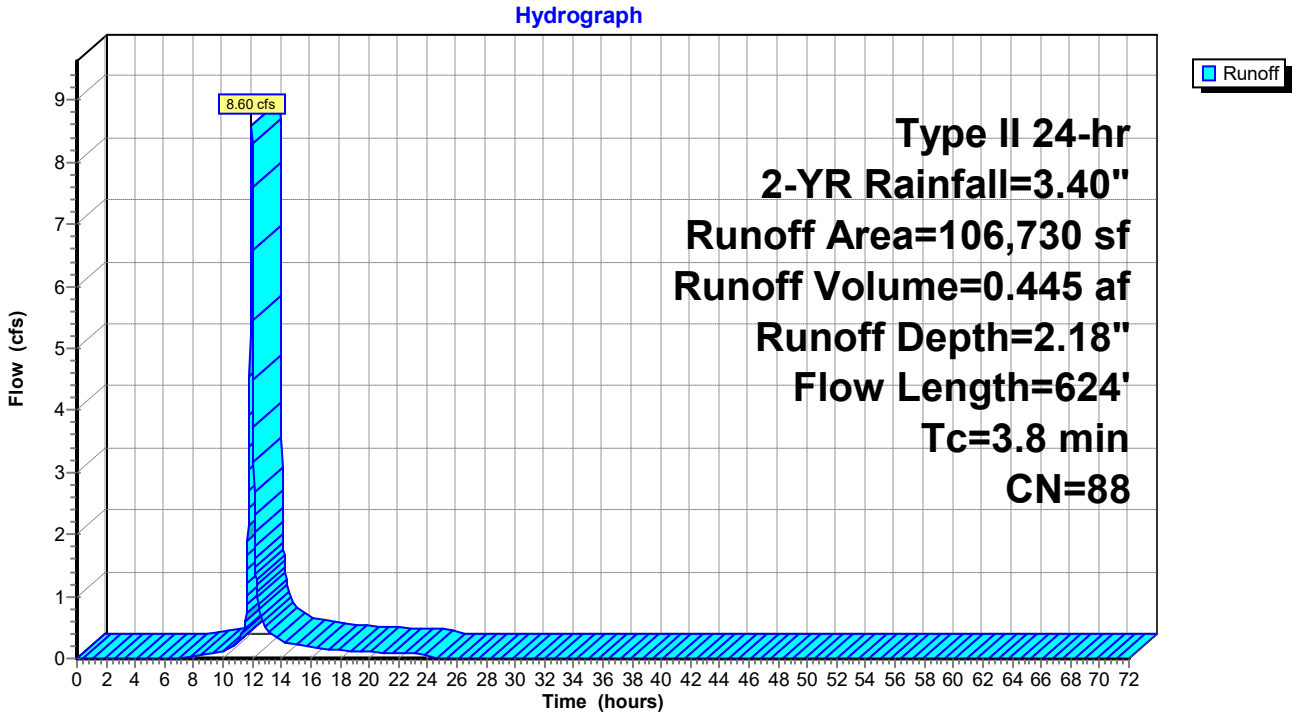
Runoff = 8.60 cfs @ 11.96 hrs, Volume= 0.445 af, Depth= 2.18"
Routed to Link EX-SP-1 : EX-SP-1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
28,399	98	Paved parking, HSG C
21,828	74	>75% Grass cover, Good, HSG C
27,658	98	Paved parking, HSG D
28,845	80	>75% Grass cover, Good, HSG D
106,730	88	Weighted Average
50,673		47.48% Pervious Area
56,057		52.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0082	0.99		**Sheet Flow, Gravel** Smooth surfaces n= 0.011 P2= 3.40"
0.9	105	0.0083	1.85		**Shallow Concentrated Flow, Gravel** Paved Kv= 20.3 fps
0.3	29	0.0127	1.81		**Shallow Concentrated Flow, Grassed** Unpaved Kv= 16.1 fps
0.9	390	0.0117	7.51	67.62	**Channel Flow, Channeled paved** Area= 9.0 sf Perim= 19.0' r= 0.47' n= 0.013 Asphalt, smooth
3.8	624	Total			

Subcatchment EX-DA: EX-DA

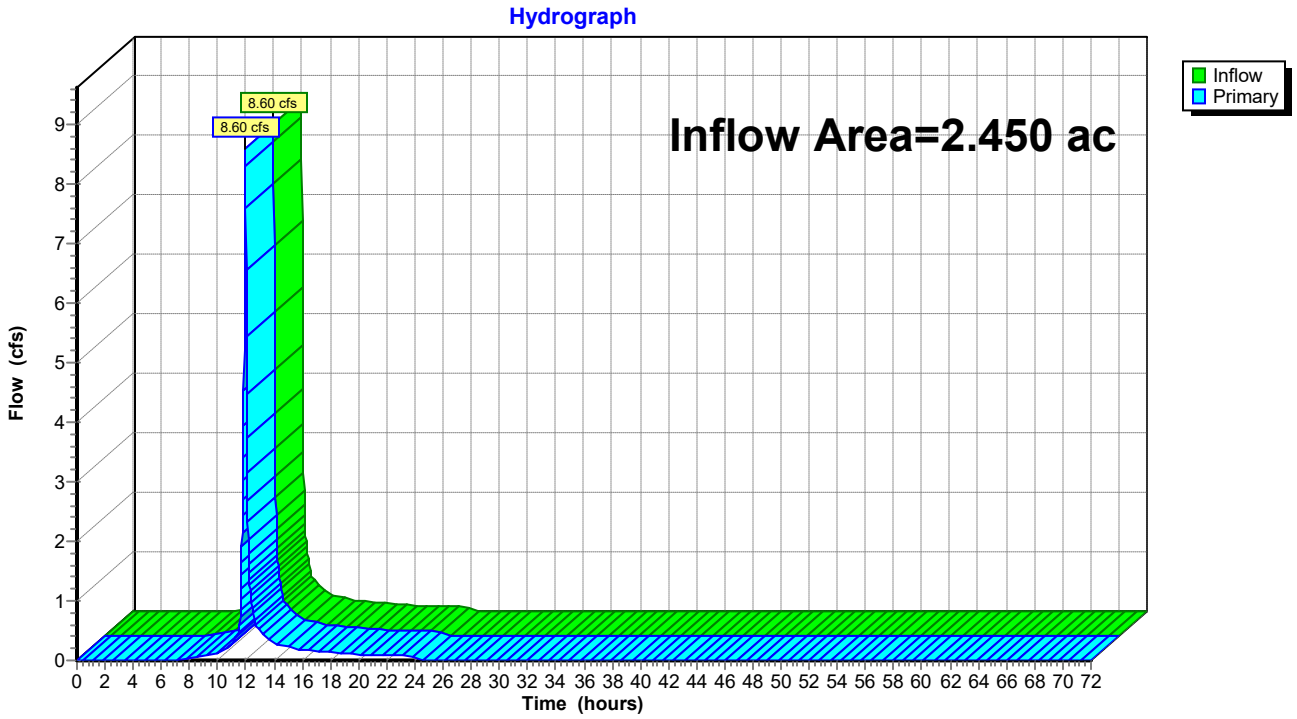


Summary for Link EX-SP-1: EX-SP-1

Inflow Area = 2.450 ac, 52.52% Impervious, Inflow Depth = 2.18" for 2-YR event
Inflow = 8.60 cfs @ 11.96 hrs, Volume= 0.445 af
Primary = 8.60 cfs @ 11.96 hrs, Volume= 0.445 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link EX-SP-1: EX-SP-1



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 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 EX-DA: EX-DA Runoff Area=106,730 sf 52.52% Impervious Runoff Depth=3.95"
Flow Length=624' Tc=3.8 min CN=88 Runoff=15.15 cfs 0.807 af

Link EX-SP-1: EX-SP-1 Inflow=15.15 cfs 0.807 af
Primary=15.15 cfs 0.807 af

Total Runoff Area = 2.450 ac Runoff Volume = 0.807 af Average Runoff Depth = 3.95"
47.48% Pervious = 1.163 ac 52.52% Impervious = 1.287 ac

Summary for Subcatchment EX-DA: EX-DA

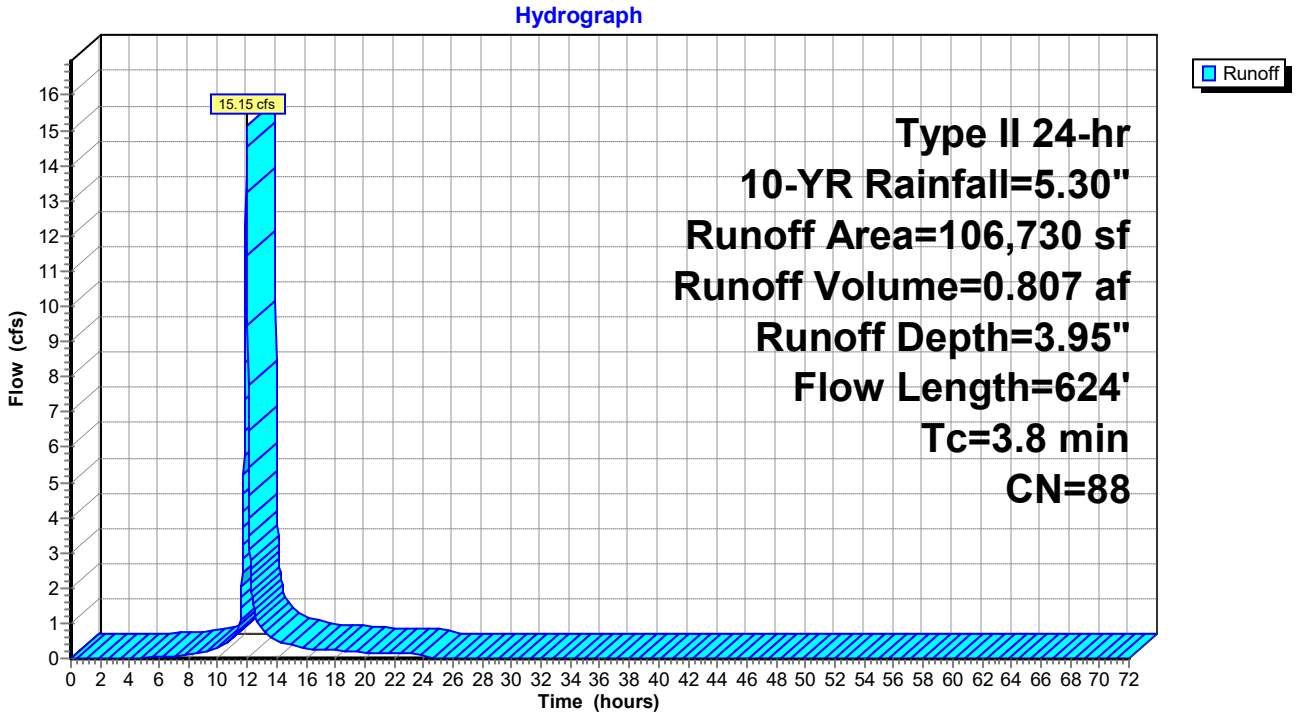
Runoff = 15.15 cfs @ 11.96 hrs, Volume= 0.807 af, Depth= 3.95"
Routed to Link EX-SP-1 : EX-SP-1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
28,399	98	Paved parking, HSG C
21,828	74	>75% Grass cover, Good, HSG C
27,658	98	Paved parking, HSG D
28,845	80	>75% Grass cover, Good, HSG D
106,730	88	Weighted Average
50,673		47.48% Pervious Area
56,057		52.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0082	0.99		**Sheet Flow, Gravel** Smooth surfaces n= 0.011 P2= 3.40"
0.9	105	0.0083	1.85		**Shallow Concentrated Flow, Gravel** Paved Kv= 20.3 fps
0.3	29	0.0127	1.81		**Shallow Concentrated Flow, Grassed** Unpaved Kv= 16.1 fps
0.9	390	0.0117	7.51	67.62	**Channel Flow, Channeled paved** Area= 9.0 sf Perim= 19.0' r= 0.47' n= 0.013 Asphalt, smooth
3.8	624	Total			

Subcatchment EX-DA: EX-DA

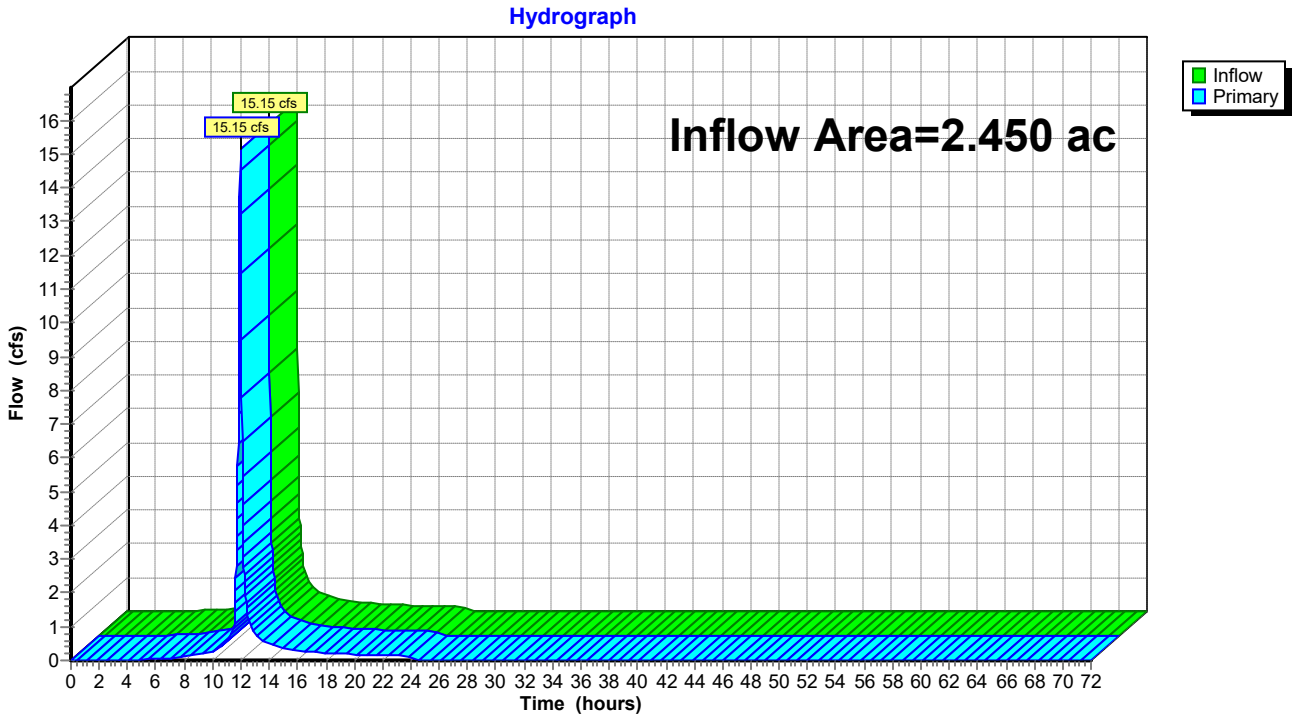


Summary for Link EX-SP-1: EX-SP-1

Inflow Area = 2.450 ac, 52.52% Impervious, Inflow Depth = 3.95" for 10-YR event
Inflow = 15.15 cfs @ 11.96 hrs, Volume= 0.807 af
Primary = 15.15 cfs @ 11.96 hrs, Volume= 0.807 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link EX-SP-1: EX-SP-1



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 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 EX-DA: EX-DA Runoff Area=106,730 sf 52.52% Impervious Runoff Depth=6.18"
Flow Length=624' Tc=3.8 min CN=88 Runoff=23.03 cfs 1.261 af

Link EX-SP-1: EX-SP-1 Inflow=23.03 cfs 1.261 af
Primary=23.03 cfs 1.261 af

Total Runoff Area = 2.450 ac Runoff Volume = 1.261 af Average Runoff Depth = 6.18"
47.48% Pervious = 1.163 ac 52.52% Impervious = 1.287 ac

Summary for Subcatchment EX-DA: EX-DA

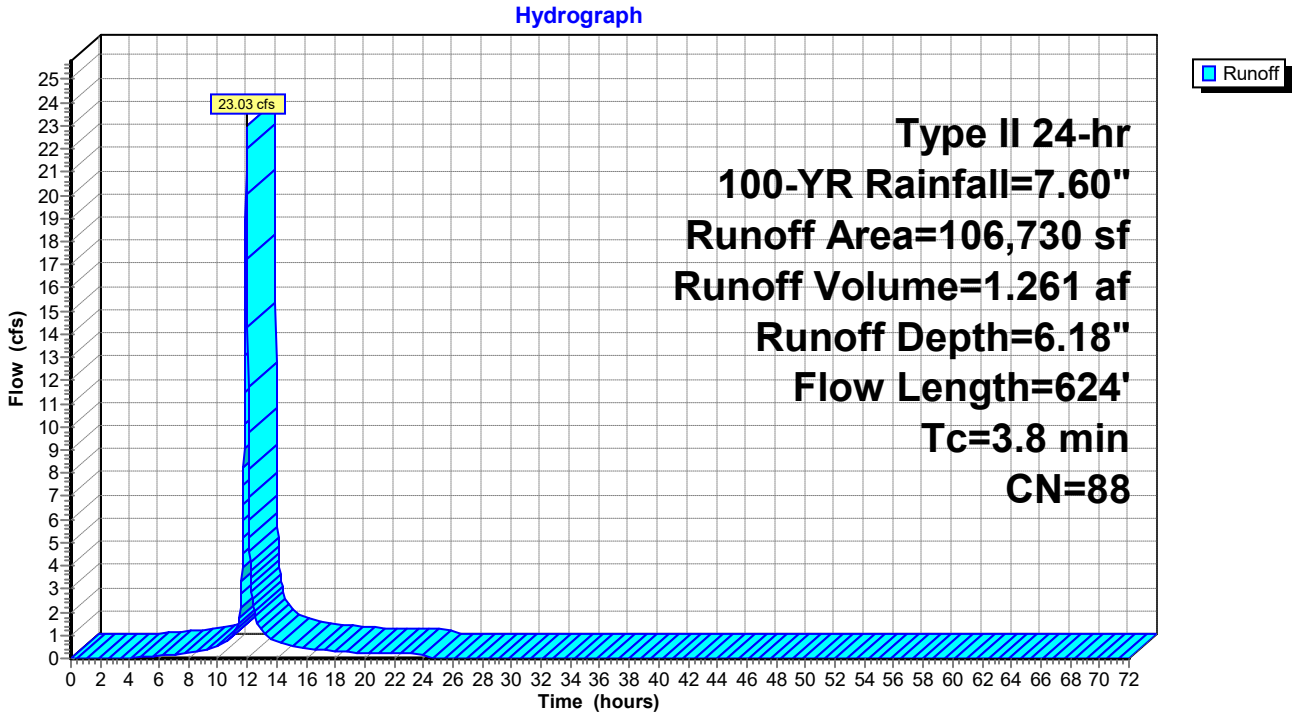
Runoff = 23.03 cfs @ 11.96 hrs, Volume= 1.261 af, Depth= 6.18"
Routed to Link EX-SP-1 : EX-SP-1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
28,399	98	Paved parking, HSG C
21,828	74	>75% Grass cover, Good, HSG C
27,658	98	Paved parking, HSG D
28,845	80	>75% Grass cover, Good, HSG D
106,730	88	Weighted Average
50,673		47.48% Pervious Area
56,057		52.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	100	0.0082	0.99		**Sheet Flow, Gravel** Smooth surfaces n= 0.011 P2= 3.40"
0.9	105	0.0083	1.85		**Shallow Concentrated Flow, Gravel** Paved Kv= 20.3 fps
0.3	29	0.0127	1.81		**Shallow Concentrated Flow, Grassed** Unpaved Kv= 16.1 fps
0.9	390	0.0117	7.51	67.62	**Channel Flow, Channeled paved** Area= 9.0 sf Perim= 19.0' r= 0.47' n= 0.013 Asphalt, smooth
3.8	624	Total			

Subcatchment EX-DA: EX-DA

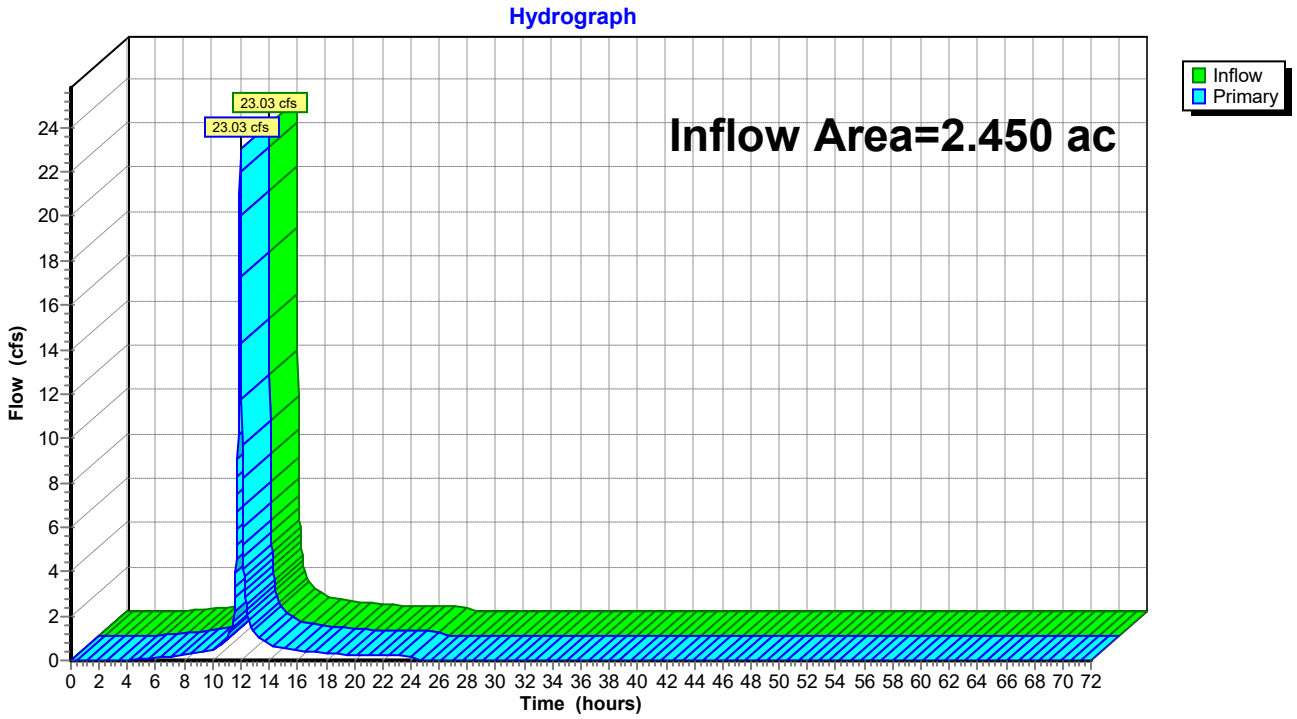


Summary for Link EX-SP-1: EX-SP-1

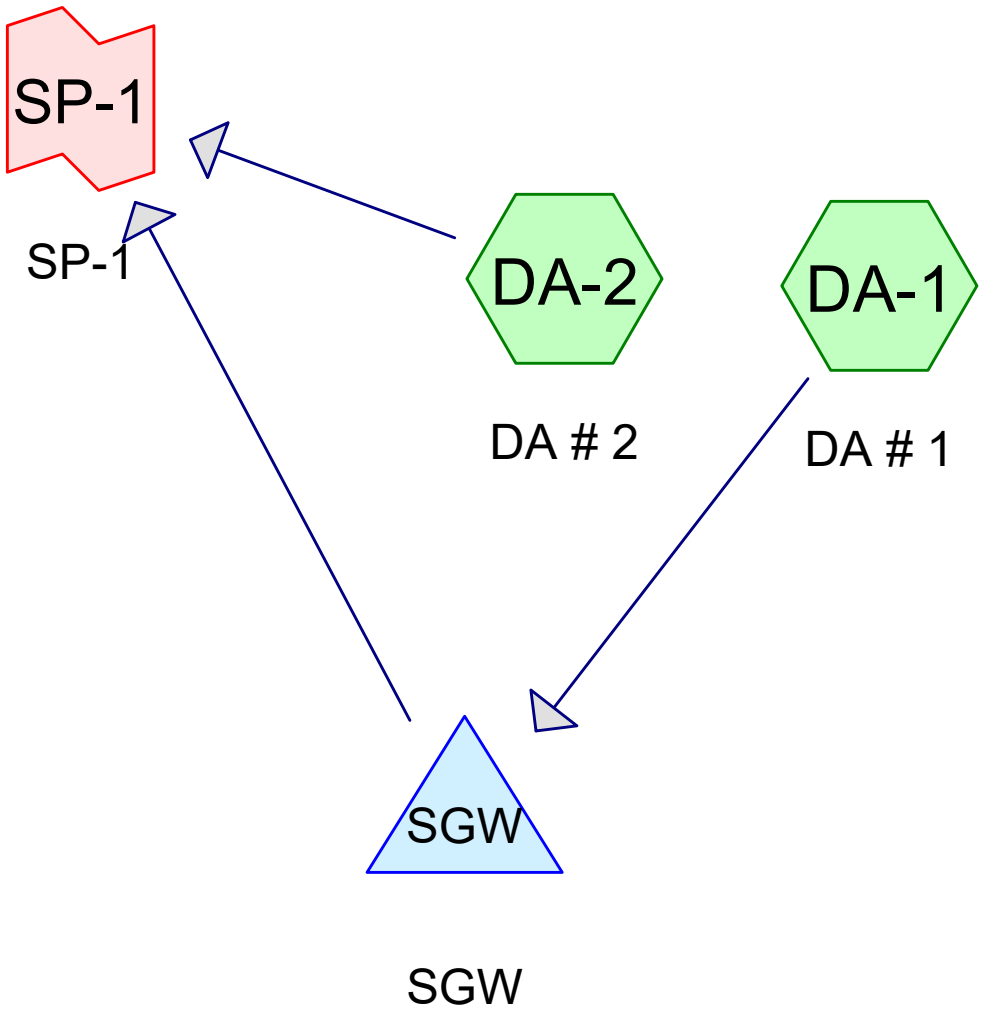
Inflow Area = 2.450 ac, 52.52% Impervious, Inflow Depth = 6.18" for 100-YR event
Inflow = 23.03 cfs @ 11.96 hrs, Volume= 1.261 af
Primary = 23.03 cfs @ 11.96 hrs, Volume= 1.261 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link EX-SP-1: EX-SP-1



Analysis of Proposed Conditions



Subcat Reach Pond Link

Routing Diagram for Chesapeake Neighbors - Silo Square - Pre demo - Proposed
Prepared by Rauch Inc, Printed 7/22/2024
HydroCAD® 10.20-3g s/n 02413 © 2023 HydroCAD Software Solutions LLC

Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 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 DA-1: DA # 1 Runoff Area=82,560 sf 61.89% Impervious Runoff Depth=2.35"
Flow Length=499' Tc=10.2 min CN=90 Runoff=4.85 cfs 0.372 af

Subcatchment DA-2: DA # 2 Runoff Area=24,169 sf 44.95% Impervious Runoff Depth=2.09"
Flow Length=266' Tc=4.5 min CN=87 Runoff=1.79 cfs 0.097 af

Pond SGW: SGW Peak Elev=33.15' Storage=5,668 cf Inflow=4.85 cfs 0.372 af
Outflow=1.33 cfs 0.372 af

Link SP-1: SP-1 Inflow=2.71 cfs 0.469 af
Primary=2.71 cfs 0.469 af

Total Runoff Area = 2.450 ac Runoff Volume = 0.469 af Average Runoff Depth = 2.30"
41.94% Pervious = 1.028 ac 58.06% Impervious = 1.422 ac

Summary for Subcatchment DA-1: DA # 1

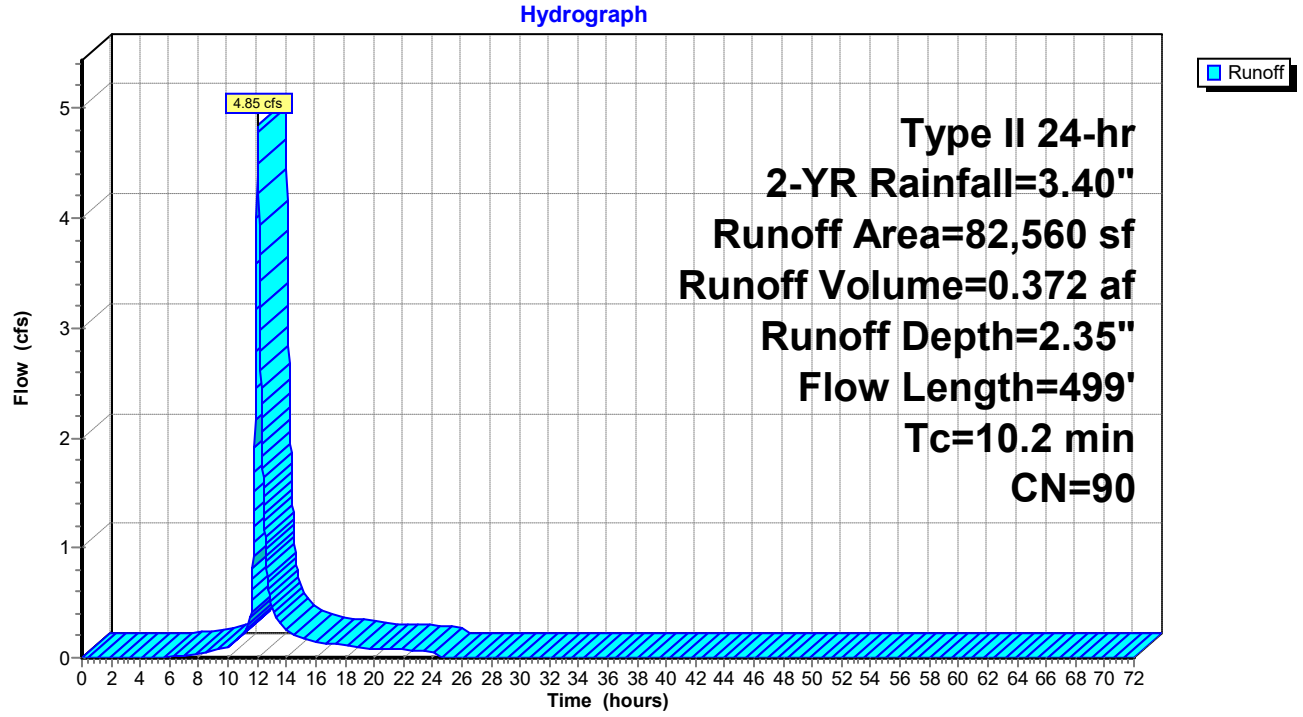
Runoff = 4.85 cfs @ 12.03 hrs, Volume= 0.372 af, Depth= 2.35"
Routed to Pond SGW : SGW

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
28,716	98	Paved parking, HSG C
13,526	74	>75% Grass cover, Good, HSG C
22,381	98	Paved parking, HSG D
17,937	80	>75% Grass cover, Good, HSG D
82,560	90	Weighted Average
31,463		38.11% Pervious Area
51,097		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	69	0.0172	0.15		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.40"
2.7	430	0.0021	2.70	2.12	**Pipe Channel, Piped** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
10.2	499	Total			

Subcatchment DA-1: DA # 1



Summary for Subcatchment DA-2: DA # 2

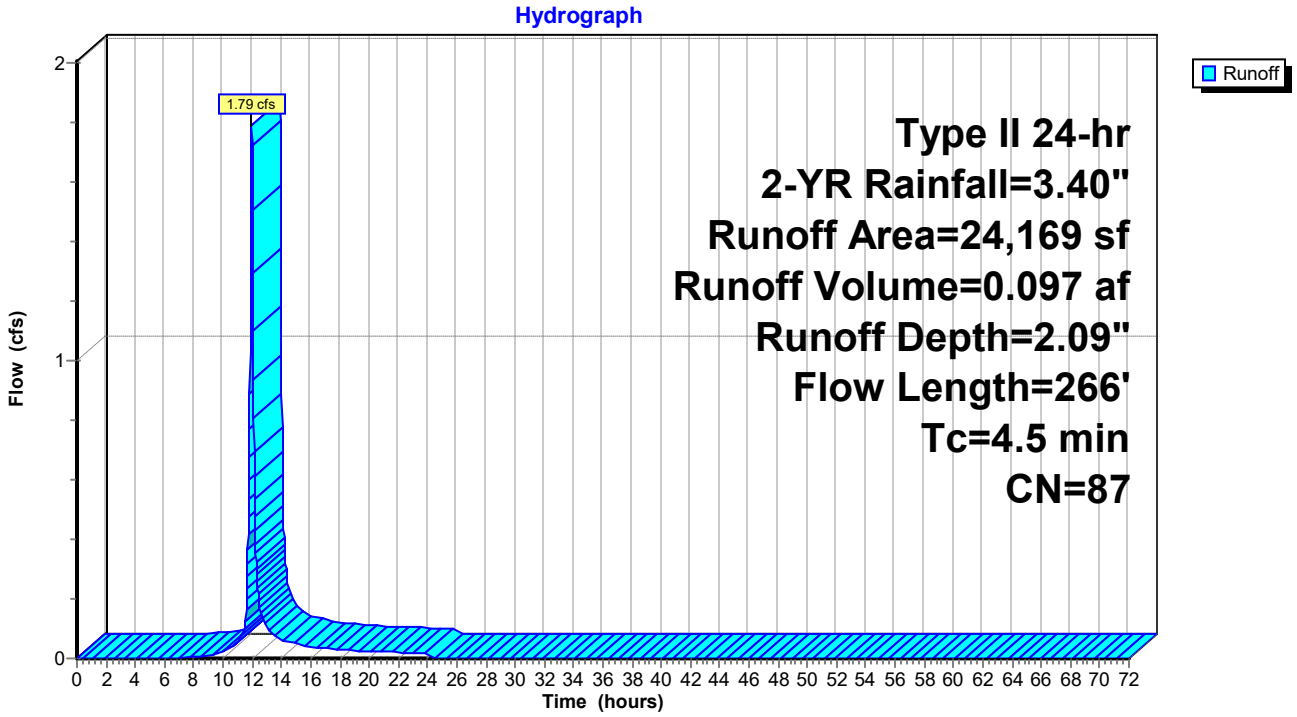
Runoff = 1.79 cfs @ 11.97 hrs, Volume= 0.097 af, Depth= 2.09"
Routed to Link SP-1 : SP-1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 2-YR Rainfall=3.40"

Area (sf)	CN	Description
3,657	98	Paved parking, HSG C
4,328	74	>75% Grass cover, Good, HSG C
7,208	98	Paved parking, HSG D
8,976	80	>75% Grass cover, Good, HSG D
24,169	87	Weighted Average
13,304		55.05% Pervious Area
10,865		44.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.40"
1.9	200	0.0100	1.80	1.26	**Channel Flow, Grass Conveyance Swale** Area= 0.7 sf Perim= 3.2' r= 0.22' n= 0.030 Earth, grassed & winding
0.6	52	0.0067	1.47	0.15	**Channel Flow, Paved Channel Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
4.5	266	Total			

Subcatchment DA-2: DA # 2



Summary for Pond SGW: SGW

Inflow Area = 1.895 ac, 61.89% Impervious, Inflow Depth = 2.35" for 2-YR event
Inflow = 4.85 cfs @ 12.03 hrs, Volume= 0.372 af
Outflow = 1.33 cfs @ 12.47 hrs, Volume= 0.372 af, Atten= 73%, Lag= 26.6 min
Primary = 1.33 cfs @ 12.47 hrs, Volume= 0.372 af
Routed to Link SP-1 : SP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Starting Elev= 31.17' Surf.Area= 563 sf Storage= 977 cf
Peak Elev= 33.15' @ 12.47 hrs Surf.Area= 3,462 sf Storage= 5,668 cf (4,690 cf above start)

Plug-Flow detention time= 77.6 min calculated for 0.349 af (94% of inflow)
Center-of-Mass det. time= 25.8 min (837.4 - 811.6)

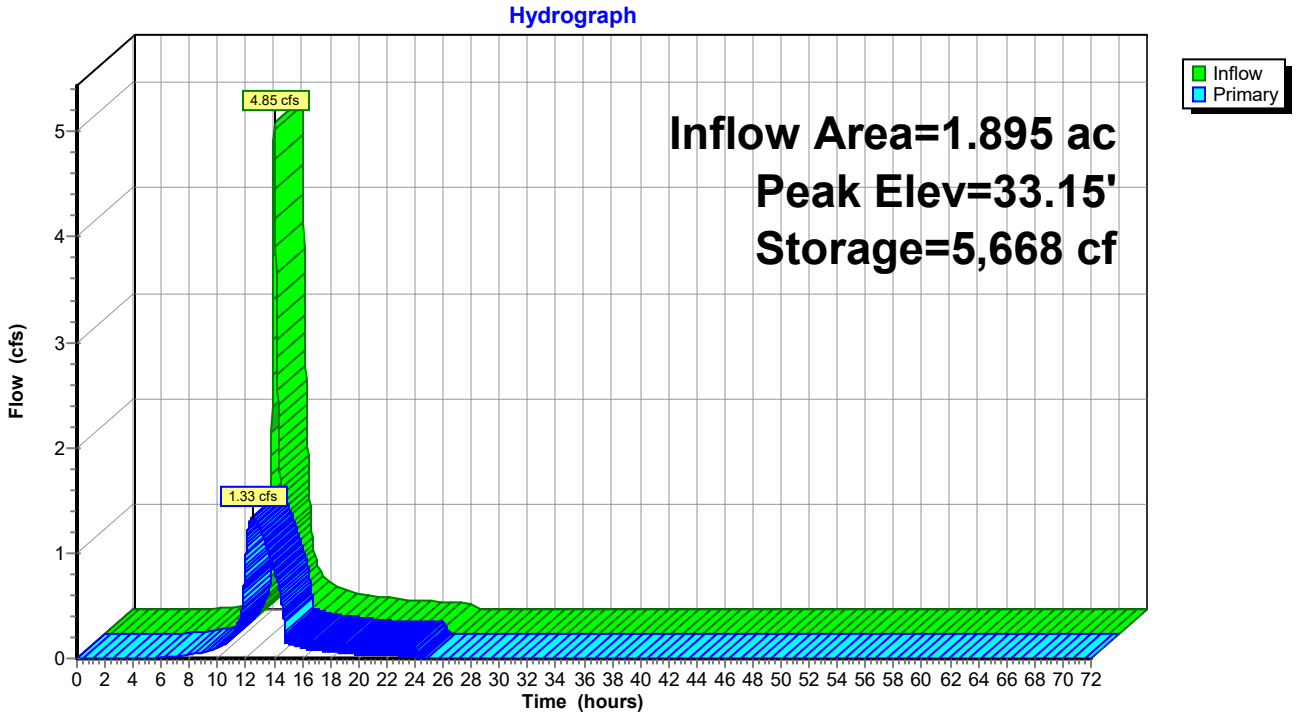
Volume	Invert	Avail.Storage	Storage Description
#1	26.49'	8,918 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.49	563	261.2	0.0	0	0	563
26.50	563	261.2	40.0	2	2	566
30.83	563	261.2	40.0	975	977	1,697
30.84	563	261.2	0.0	0	977	1,699
31.49	563	261.2	0.0	0	977	1,869
31.50	2,235	261.2	100.0	13	990	1,872
32.01	2,587	275.4	100.0	1,229	2,219	2,493
33.00	3,367	308.0	100.0	2,939	5,158	4,034
34.00	4,028	336.6	100.0	3,693	8,850	5,536
34.01	10,000	400.0	100.0	68	8,918	9,252

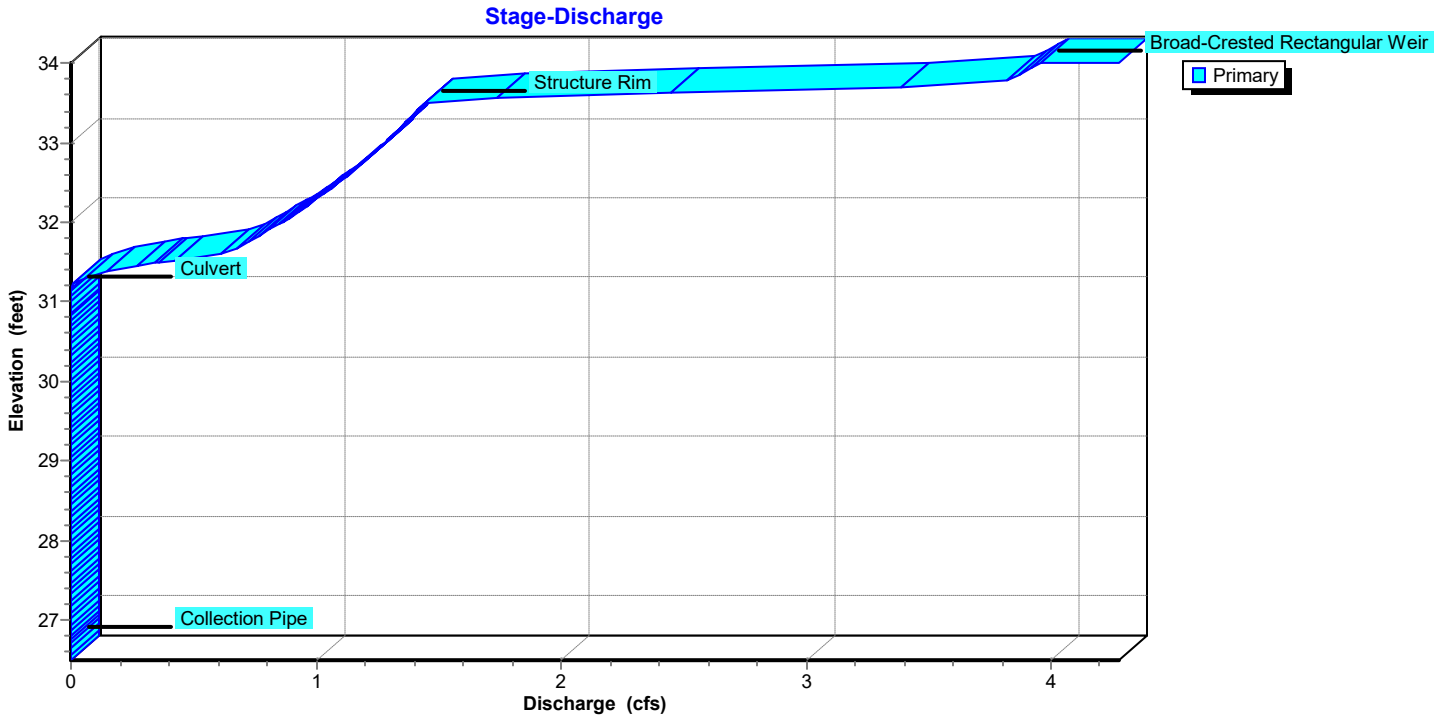
Device	Routing	Invert	Outlet Devices
#1	Primary	31.17'	**12.0" Round Culvert** L= 228.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.17' / 30.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 HDPE, Flow Area= 0.79 sf
#2	Device 1	26.75'	**6.0" Vert. Collection Pipe** C= 0.600 Limited to weir flow at low heads
#3	Device 1	33.50'	**18.0" x 18.0" Horiz. Structure Rim** C= 0.600 Limited to weir flow at low heads
#4	Primary	34.00'	**130.0' long + 3.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.33 cfs @ 12.47 hrs HW=33.15' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Passes 1.33 cfs of 3.35 cfs potential flow)
  - **2=Collection Pipe** (Orifice Controls 1.33 cfs @ 6.77 fps)
  - **3=Structure Rim** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

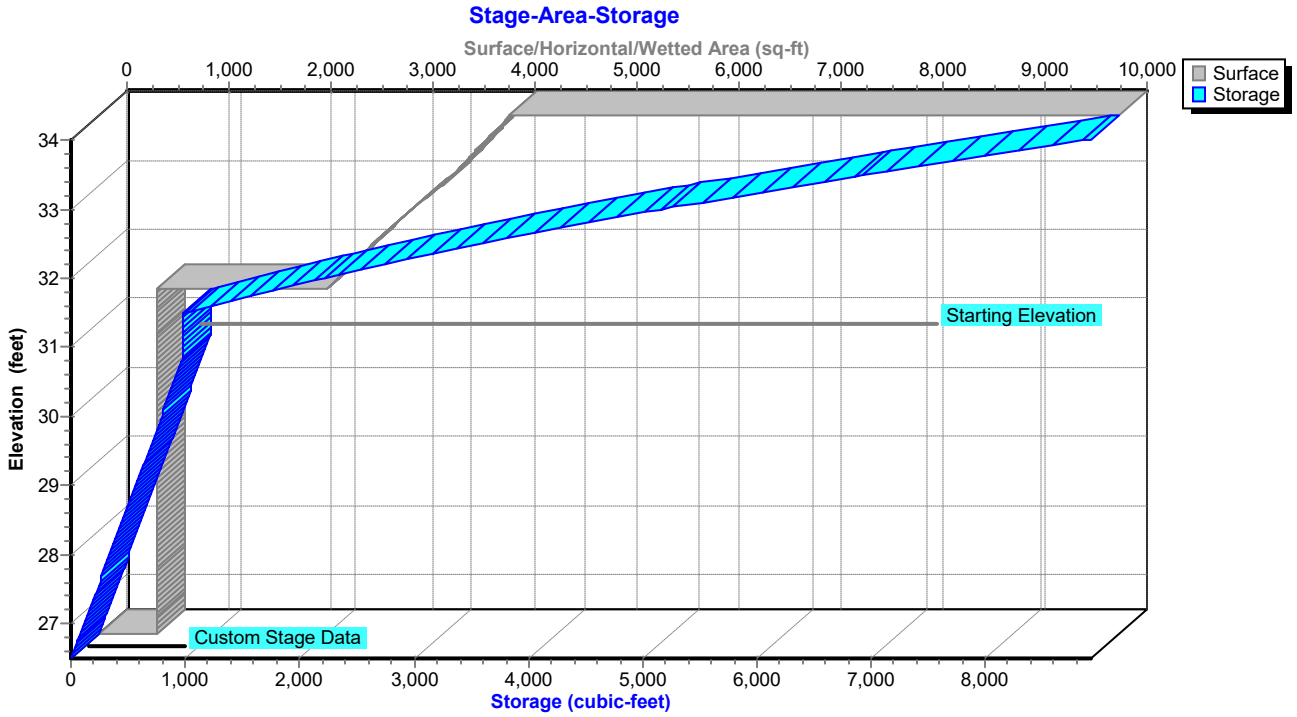
Pond SGW: SGW



Pond SGW: SGW



Pond SGW: SGW

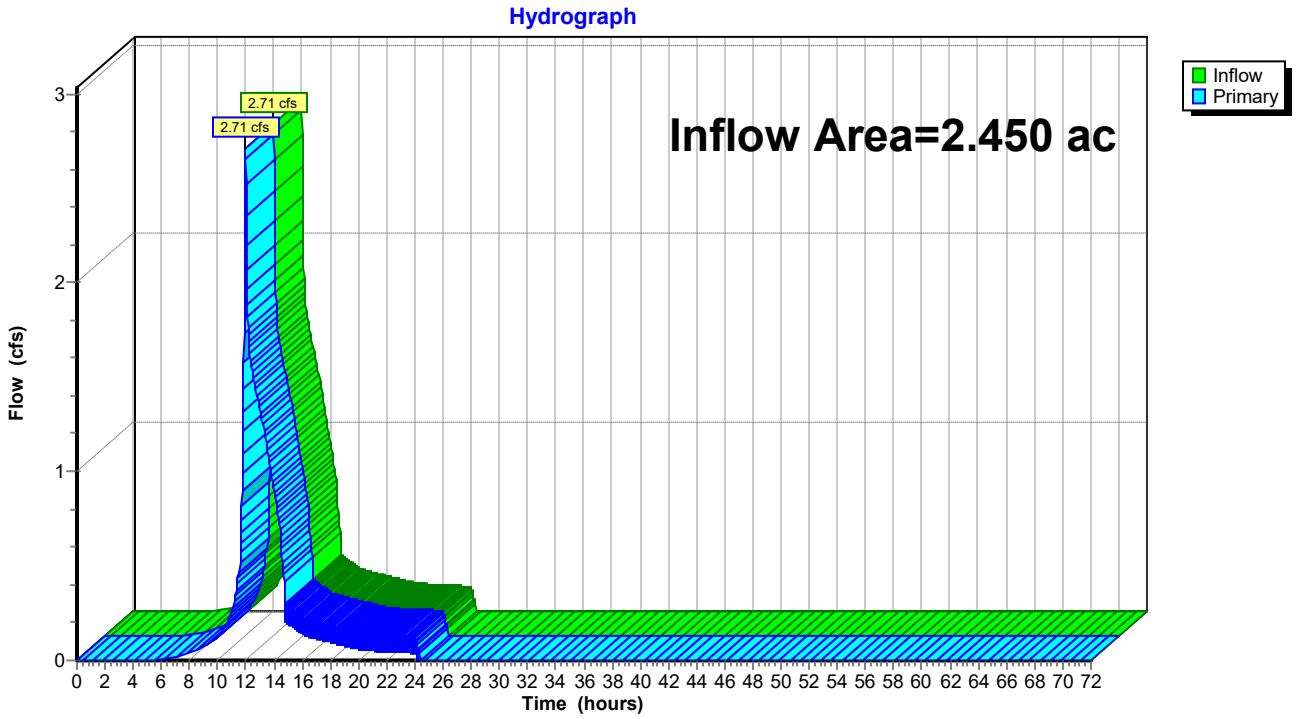

Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
Surface
Storage
34
33
32
31
30
29
28
27
Elevation (feet)
Starting Elevation
Custom Stage Data
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Storage (cubic-feet)

Summary for Link SP-1: SP-1

Inflow Area = 2.450 ac, 58.06% Impervious, Inflow Depth = 2.30" for 2-YR event
Inflow = 2.71 cfs @ 11.98 hrs, Volume= 0.469 af
Primary = 2.71 cfs @ 11.98 hrs, Volume= 0.469 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link SP-1: SP-1



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 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 DA-1: DA # 1 Runoff Area=82,560 sf 61.89% Impervious Runoff Depth=4.17"
Flow Length=499' Tc=10.2 min CN=90 Runoff=8.39 cfs 0.658 af

Subcatchment DA-2: DA # 2 Runoff Area=24,169 sf 44.95% Impervious Runoff Depth=3.85"
Flow Length=266' Tc=4.5 min CN=87 Runoff=3.21 cfs 0.178 af

Pond SGW: SGW Peak Elev=33.90' Storage=8,444 cf Inflow=8.39 cfs 0.658 af
Outflow=3.89 cfs 0.658 af

Link SP-1: SP-1 Inflow=4.89 cfs 0.836 af
Primary=4.89 cfs 0.836 af

Total Runoff Area = 2.450 ac Runoff Volume = 0.836 af Average Runoff Depth = 4.09"
41.94% Pervious = 1.028 ac 58.06% Impervious = 1.422 ac

Summary for Subcatchment DA-1: DA # 1

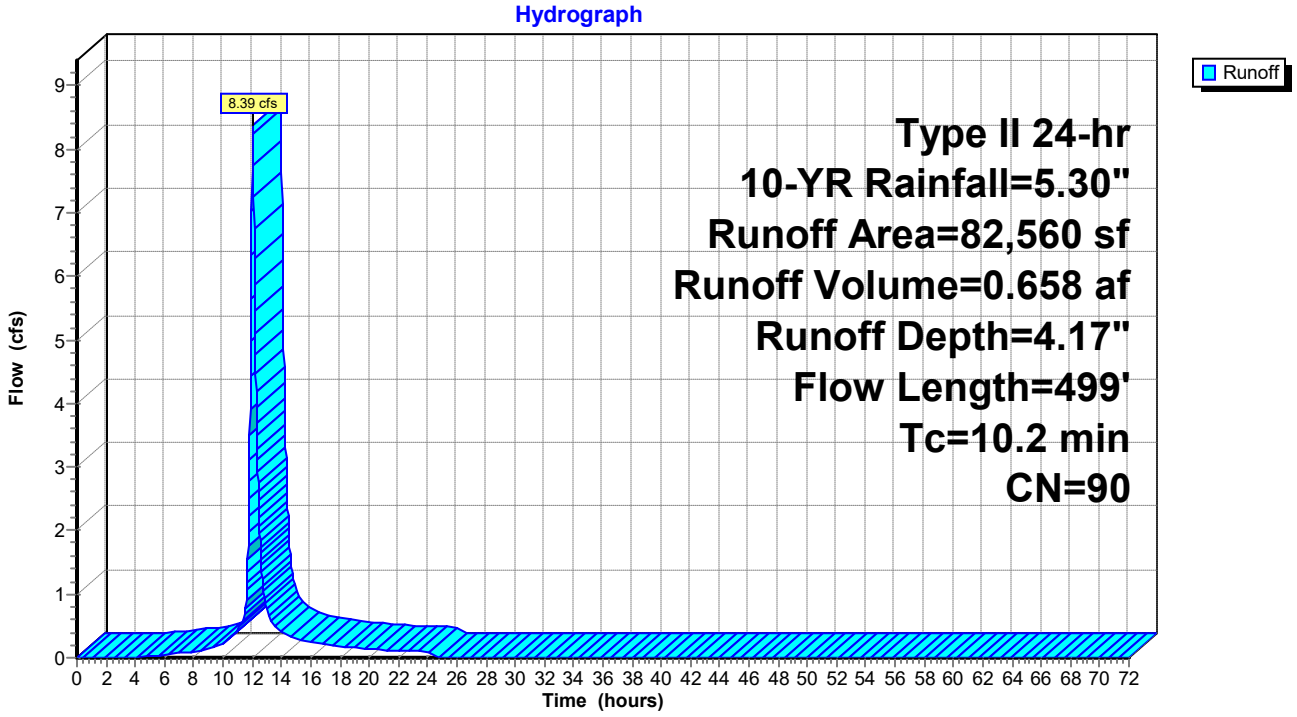
Runoff = 8.39 cfs @ 12.03 hrs, Volume= 0.658 af, Depth= 4.17"
Routed to Pond SGW : SGW

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
28,716	98	Paved parking, HSG C
13,526	74	>75% Grass cover, Good, HSG C
22,381	98	Paved parking, HSG D
17,937	80	>75% Grass cover, Good, HSG D
82,560	90	Weighted Average
31,463		38.11% Pervious Area
51,097		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	69	0.0172	0.15		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.40"
2.7	430	0.0021	2.70	2.12	**Pipe Channel, Piped** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
10.2	499	Total			

Subcatchment DA-1: DA # 1



Summary for Subcatchment DA-2: DA # 2

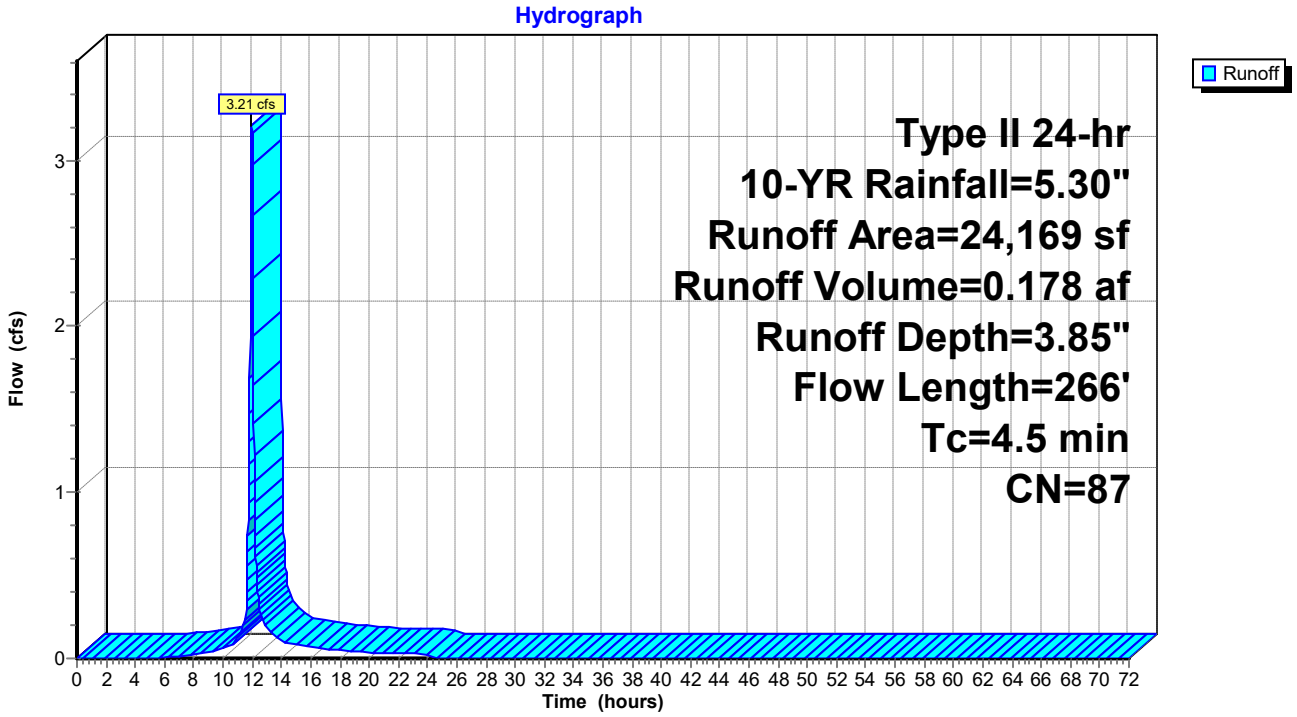
Runoff = 3.21 cfs @ 11.97 hrs, Volume= 0.178 af, Depth= 3.85"
Routed to Link SP-1 : SP-1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 10-YR Rainfall=5.30"

Area (sf)	CN	Description
3,657	98	Paved parking, HSG C
4,328	74	>75% Grass cover, Good, HSG C
7,208	98	Paved parking, HSG D
8,976	80	>75% Grass cover, Good, HSG D
24,169	87	Weighted Average
13,304		55.05% Pervious Area
10,865		44.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.40"
1.9	200	0.0100	1.80	1.26	**Channel Flow, Grass Conveyance Swale** Area= 0.7 sf Perim= 3.2' r= 0.22' n= 0.030 Earth, grassed & winding
0.6	52	0.0067	1.47	0.15	**Channel Flow, Paved Channel Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
4.5	266	Total			

Subcatchment DA-2: DA # 2



Summary for Pond SGW: SGW

Inflow Area = 1.895 ac, 61.89% Impervious, Inflow Depth = 4.17" for 10-YR event
Inflow = 8.39 cfs @ 12.03 hrs, Volume= 0.658 af
Outflow = 3.89 cfs @ 12.28 hrs, Volume= 0.658 af, Atten= 54%, Lag= 15.3 min
Primary = 3.89 cfs @ 12.28 hrs, Volume= 0.658 af
Routed to Link SP-1 : SP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Starting Elev= 31.17' Surf.Area= 563 sf Storage= 977 cf
Peak Elev= 33.90' @ 12.28 hrs Surf.Area= 3,958 sf Storage= 8,444 cf (7,466 cf above start)

Plug-Flow detention time= 62.4 min calculated for 0.635 af (97% of inflow)
Center-of-Mass det. time= 27.8 min (823.4 - 795.6)

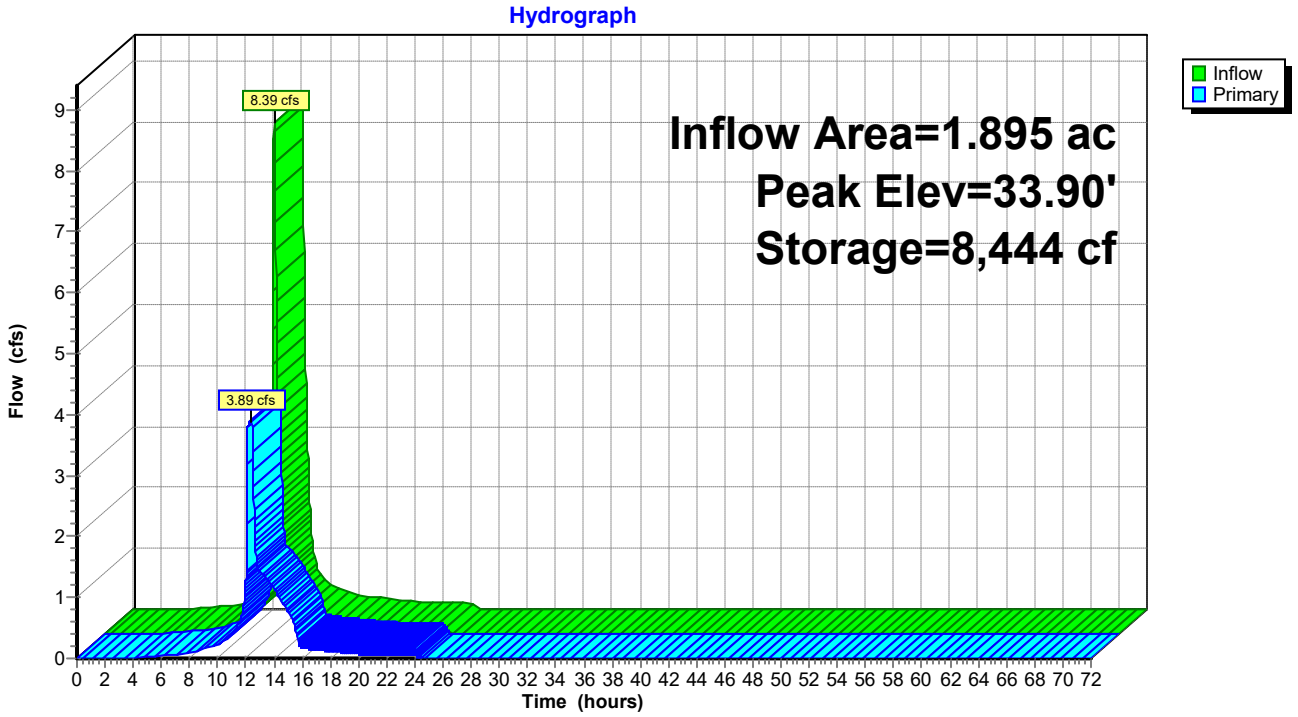
Volume	Invert	Avail.Storage	Storage Description
#1	26.49'	8,918 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.49	563	261.2	0.0	0	0	563
26.50	563	261.2	40.0	2	2	566
30.83	563	261.2	40.0	975	977	1,697
30.84	563	261.2	0.0	0	977	1,699
31.49	563	261.2	0.0	0	977	1,869
31.50	2,235	261.2	100.0	13	990	1,872
32.01	2,587	275.4	100.0	1,229	2,219	2,493
33.00	3,367	308.0	100.0	2,939	5,158	4,034
34.00	4,028	336.6	100.0	3,693	8,850	5,536
34.01	10,000	400.0	100.0	68	8,918	9,252

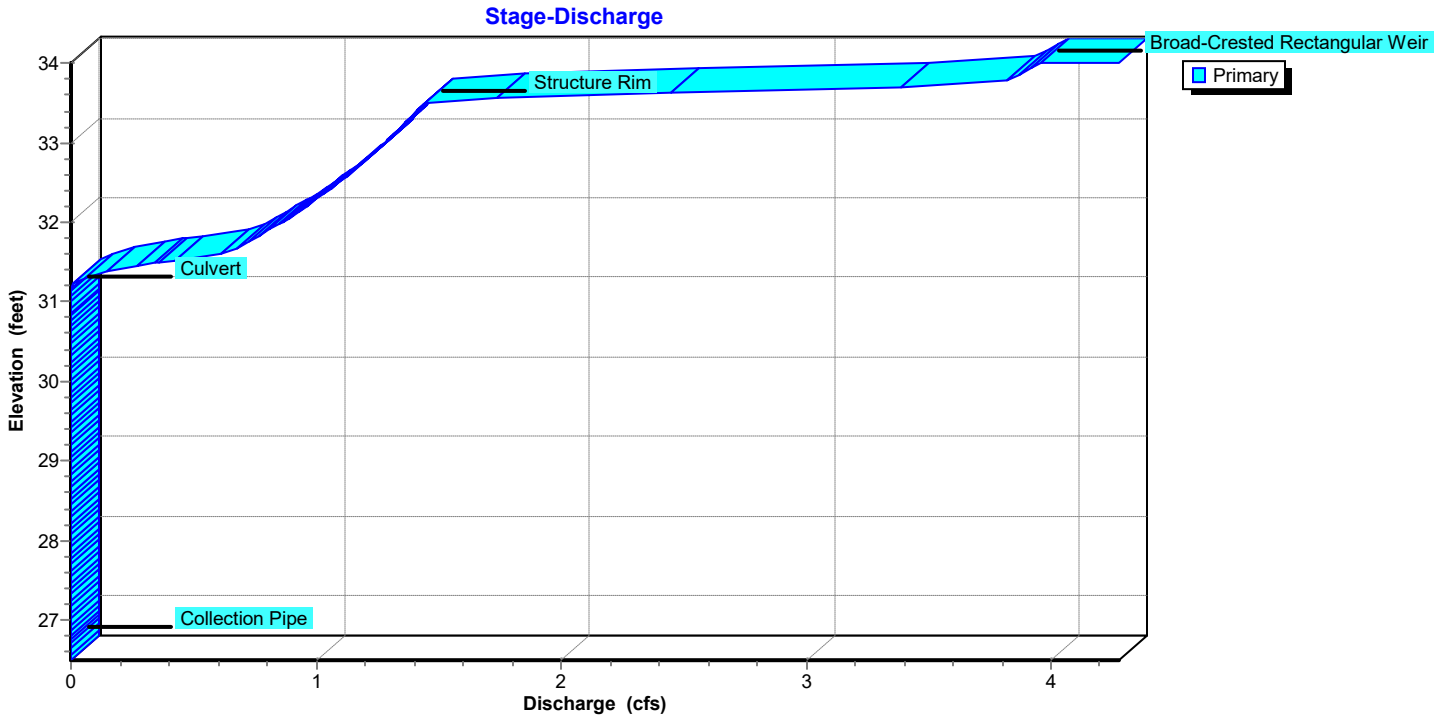
Device	Routing	Invert	Outlet Devices
#1	Primary	31.17'	**12.0" Round Culvert** L= 228.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.17' / 30.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 HDPE, Flow Area= 0.79 sf
#2	Device 1	26.75'	**6.0" Vert. Collection Pipe** C= 0.600 Limited to weir flow at low heads
#3	Device 1	33.50'	**18.0" x 18.0" Horiz. Structure Rim** C= 0.600 Limited to weir flow at low heads
#4	Primary	34.00'	**130.0' long + 3.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=3.89 cfs @ 12.28 hrs HW=33.90' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 3.89 cfs @ 4.95 fps)
  - **2=Collection Pipe** (Passes < 1.56 cfs potential flow)
  - **3=Structure Rim** (Passes < 4.92 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

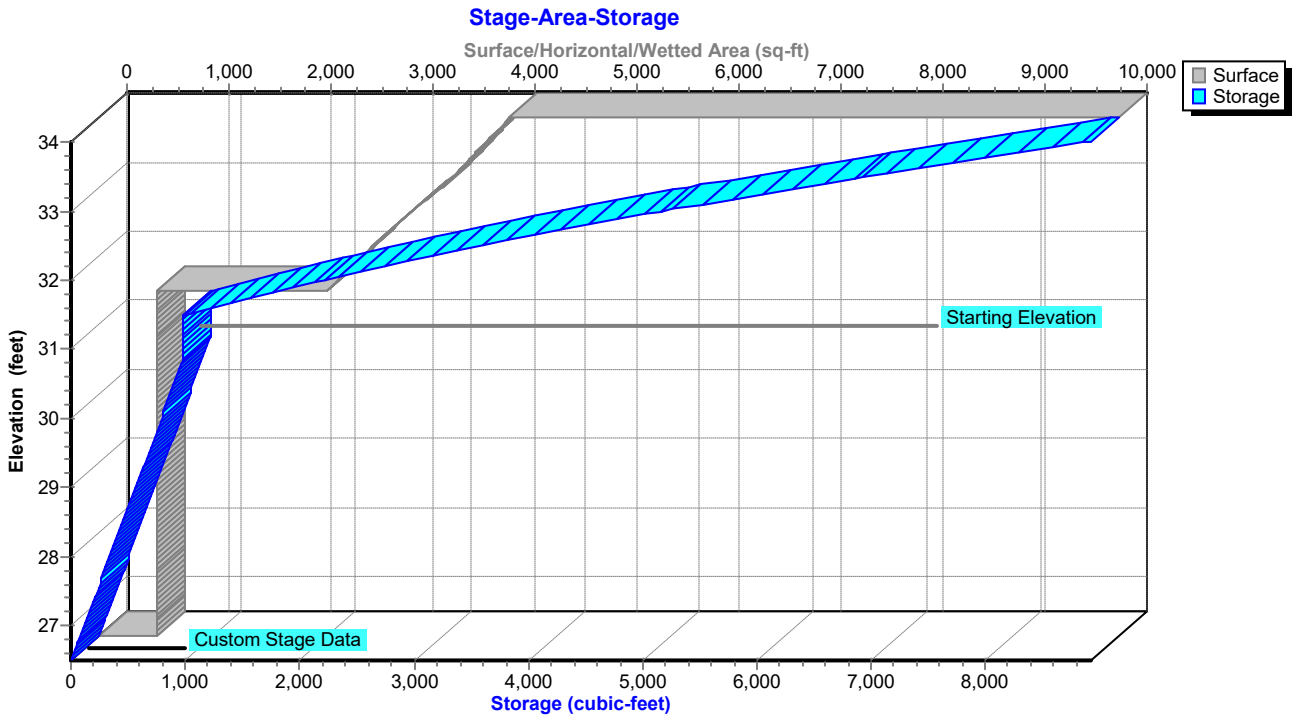
Pond SGW: SGW



Pond SGW: SGW



Pond SGW: SGW

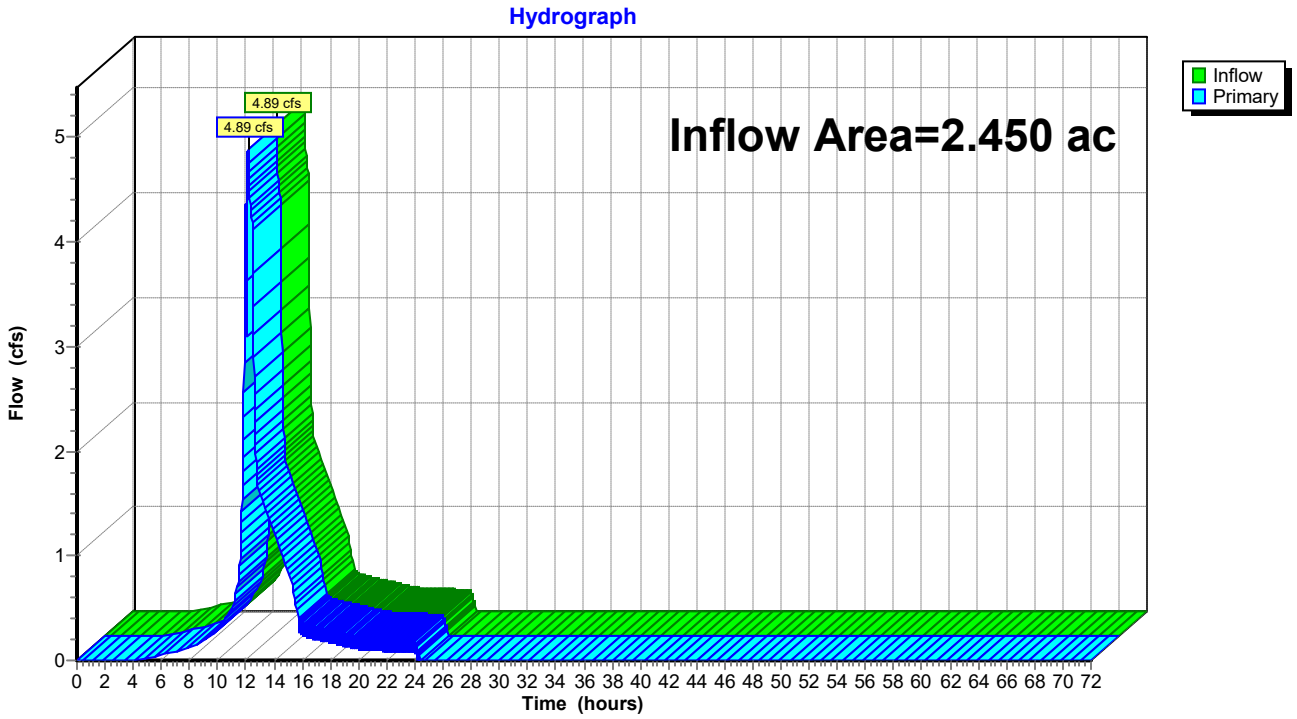

Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
Surface
Storage
34
33
32
31
30
29
28
27
Elevation (feet)
Starting Elevation
Custom Stage Data
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Storage (cubic-feet)

Summary for Link SP-1: SP-1

Inflow Area = 2.450 ac, 58.06% Impervious, Inflow Depth = 4.09" for 10-YR event
Inflow = 4.89 cfs @ 12.15 hrs, Volume= 0.836 af
Primary = 4.89 cfs @ 12.15 hrs, Volume= 0.836 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link SP-1: SP-1



Time span=0.00-72.00 hrs, dt=0.02 hrs, 3601 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 DA-1: DA # 1 Runoff Area=82,560 sf 61.89% Impervious Runoff Depth=6.41"
Flow Length=499' Tc=10.2 min CN=90 Runoff=12.63 cfs 1.013 af

Subcatchment DA-2: DA # 2 Runoff Area=24,169 sf 44.95% Impervious Runoff Depth=6.06"
Flow Length=266' Tc=4.5 min CN=87 Runoff=4.92 cfs 0.280 af

Pond SGW: SGW Peak Elev=34.12' Storage=8,918 cf Inflow=12.63 cfs 1.013 af
Outflow=17.07 cfs 1.013 af

Link SP-1: SP-1 Inflow=20.04 cfs 1.293 af
Primary=20.04 cfs 1.293 af

Total Runoff Area = 2.450 ac Runoff Volume = 1.293 af Average Runoff Depth = 6.33"
41.94% Pervious = 1.028 ac 58.06% Impervious = 1.422 ac

Summary for Subcatchment DA-1: DA # 1

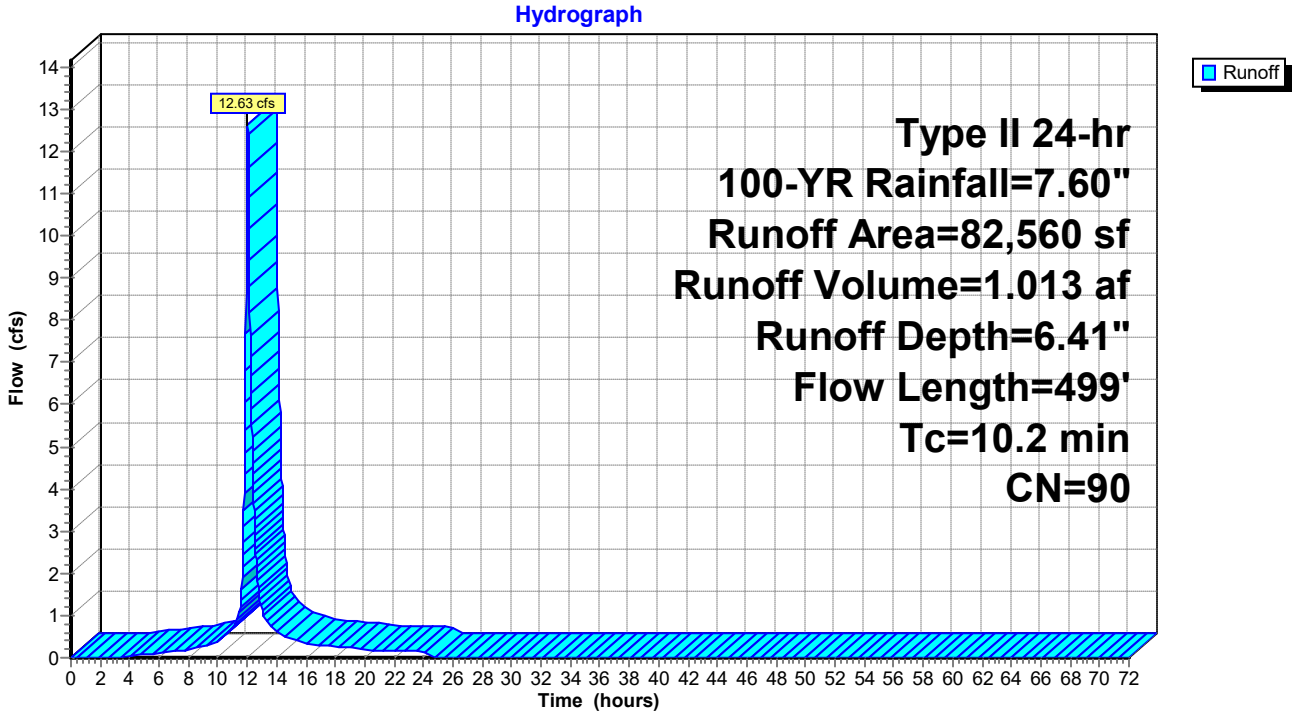
Runoff = 12.63 cfs @ 12.03 hrs, Volume= 1.013 af, Depth= 6.41"
Routed to Pond SGW : SGW

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
28,716	98	Paved parking, HSG C
13,526	74	>75% Grass cover, Good, HSG C
22,381	98	Paved parking, HSG D
17,937	80	>75% Grass cover, Good, HSG D
82,560	90	Weighted Average
31,463		38.11% Pervious Area
51,097		61.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	69	0.0172	0.15		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.40"
2.7	430	0.0021	2.70	2.12	**Pipe Channel, Piped** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.010 PVC, smooth interior
10.2	499	Total			

Subcatchment DA-1: DA # 1



Summary for Subcatchment DA-2: DA # 2

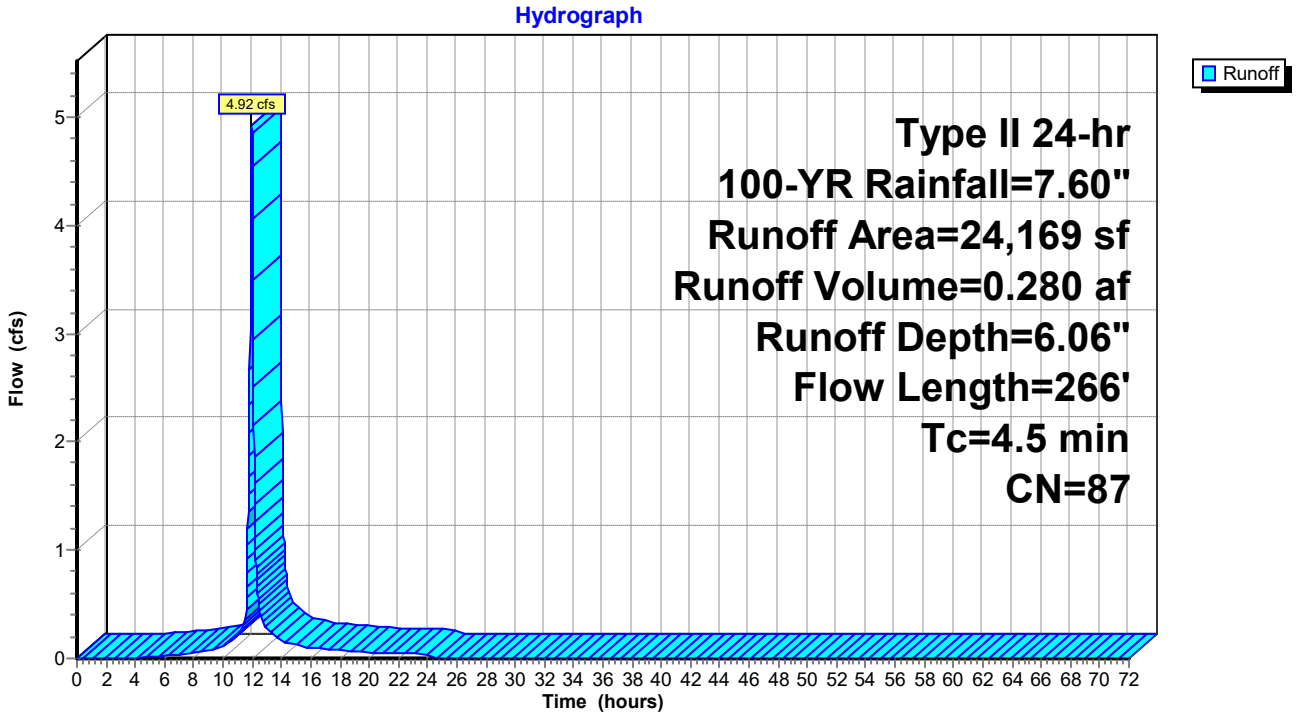
Runoff = 4.92 cfs @ 11.96 hrs, Volume= 0.280 af, Depth= 6.06"
Routed to Link SP-1 : SP-1

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Type II 24-hr 100-YR Rainfall=7.60"

Area (sf)	CN	Description
3,657	98	Paved parking, HSG C
4,328	74	>75% Grass cover, Good, HSG C
7,208	98	Paved parking, HSG D
8,976	80	>75% Grass cover, Good, HSG D
24,169	87	Weighted Average
13,304		55.05% Pervious Area
10,865		44.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.0	14	0.0200	0.12		**Sheet Flow, Grass** Grass: Short n= 0.150 P2= 3.40"
1.9	200	0.0100	1.80	1.26	**Channel Flow, Grass Conveyance Swale** Area= 0.7 sf Perim= 3.2' r= 0.22' n= 0.030 Earth, grassed & winding
0.6	52	0.0067	1.47	0.15	**Channel Flow, Paved Channel Flow** Area= 0.1 sf Perim= 1.6' r= 0.06' n= 0.013 Concrete, trowel finish
4.5	266	Total			

Subcatchment DA-2: DA # 2



Summary for Pond SGW: SGW

Inflow Area = 1.895 ac, 61.89% Impervious, Inflow Depth = 6.41" for 100-YR event
Inflow = 12.63 cfs @ 12.03 hrs, Volume= 1.013 af
Outflow = 17.07 cfs @ 12.06 hrs, Volume= 1.013 af, Atten= 0%, Lag= 1.9 min
Primary = 17.07 cfs @ 12.06 hrs, Volume= 1.013 af
Routed to Link SP-1 : SP-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs
Starting Elev= 31.17' Surf.Area= 563 sf Storage= 977 cf
Peak Elev= 34.12' @ 12.06 hrs Surf.Area= 10,000 sf Storage= 8,918 cf (7,941 cf above start)

Plug-Flow detention time= 48.9 min calculated for 0.990 af (98% of inflow)
Center-of-Mass det. time= 24.1 min (808.2 - 784.1)

Volume	Invert	Avail.Storage	Storage Description
#1	26.49'	8,918 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

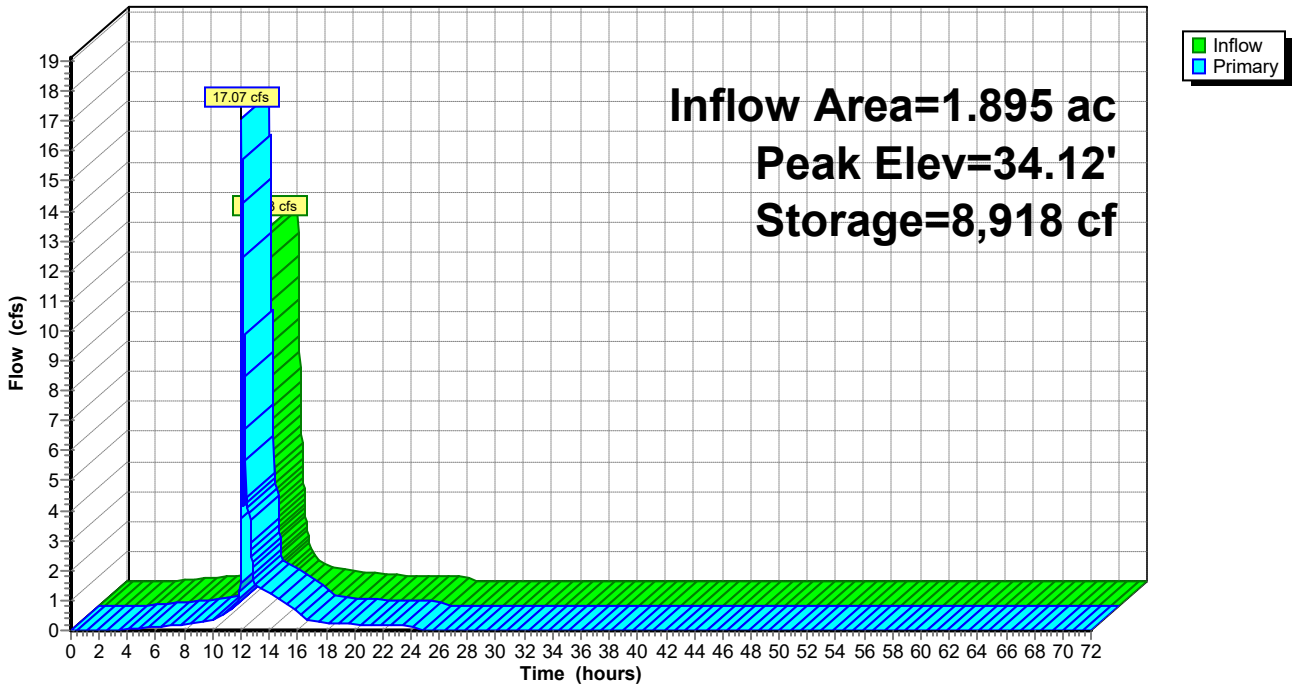
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.49	563	261.2	0.0	0	0	563
26.50	563	261.2	40.0	2	2	566
30.83	563	261.2	40.0	975	977	1,697
30.84	563	261.2	0.0	0	977	1,699
31.49	563	261.2	0.0	0	977	1,869
31.50	2,235	261.2	100.0	13	990	1,872
32.01	2,587	275.4	100.0	1,229	2,219	2,493
33.00	3,367	308.0	100.0	2,939	5,158	4,034
34.00	4,028	336.6	100.0	3,693	8,850	5,536
34.01	10,000	400.0	100.0	68	8,918	9,252

Device	Routing	Invert	Outlet Devices
#1	Primary	31.17'	**12.0" Round Culvert** L= 228.1' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.17' / 30.00' S= 0.0051 '/' Cc= 0.900 n= 0.012 HDPE, Flow Area= 0.79 sf
#2	Device 1	26.75'	**6.0" Vert. Collection Pipe** C= 0.600 Limited to weir flow at low heads
#3	Device 1	33.50'	**18.0" x 18.0" Horiz. Structure Rim** C= 0.600 Limited to weir flow at low heads
#4	Primary	34.00'	**130.0' long + 3.0 '/' SideZ x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=16.79 cfs @ 12.06 hrs HW=34.12' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 4.04 cfs @ 5.14 fps)
  - **2=Collection Pipe** (Passes < 1.62 cfs potential flow)
  - **3=Structure Rim** (Passes < 8.52 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Weir Controls 12.76 cfs @ 0.82 fps)

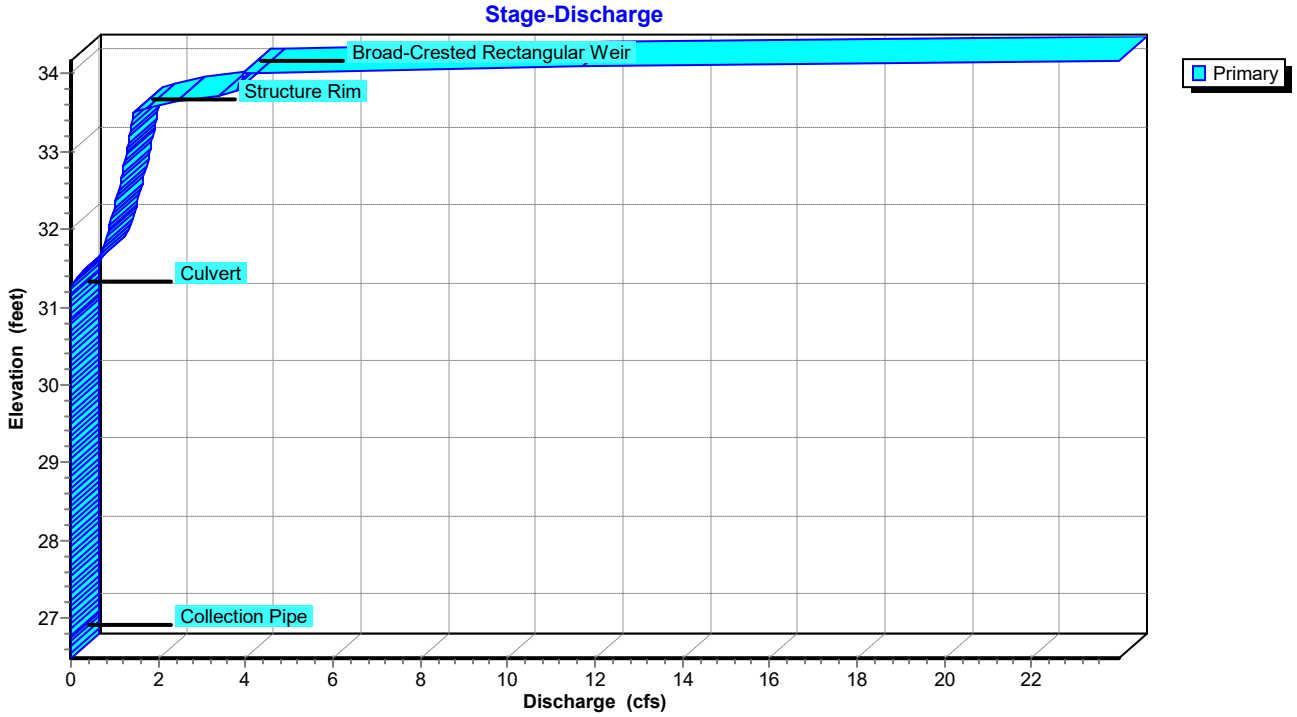
Pond SGW: SGW

Hydrograph

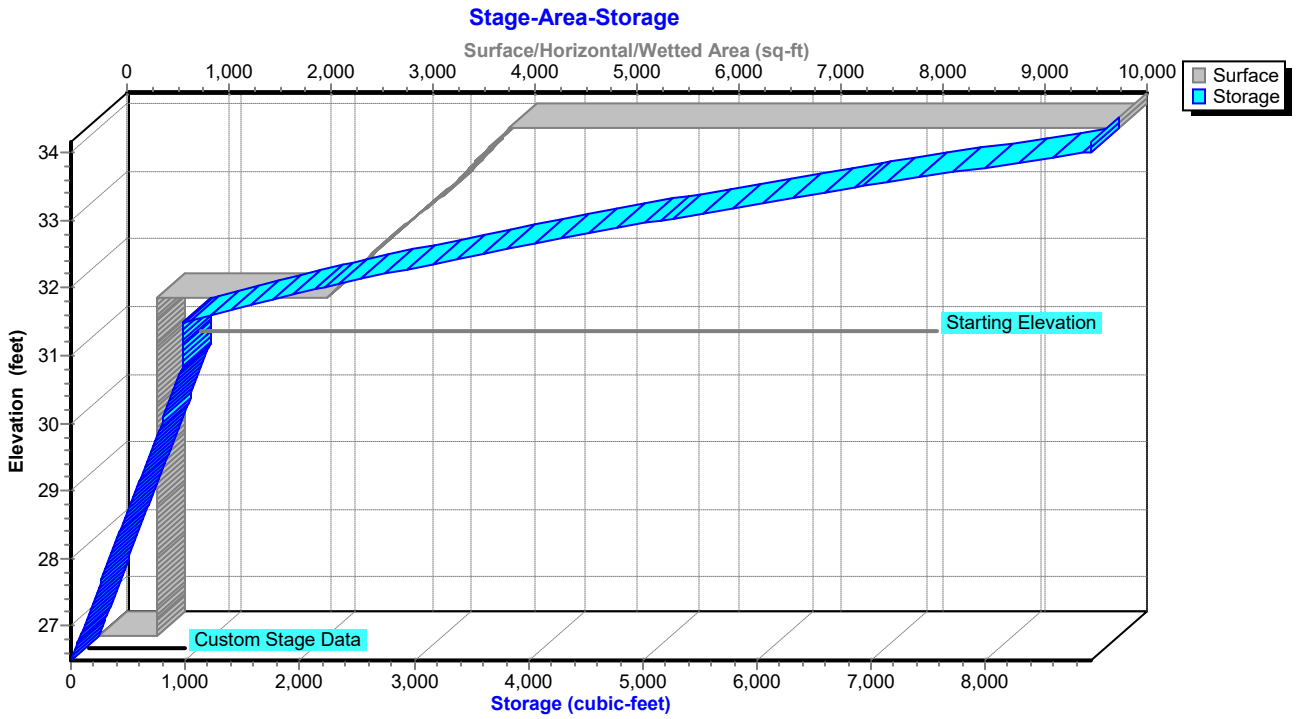


Pond SGW: SGW

Stage-Discharge



Pond SGW: SGW

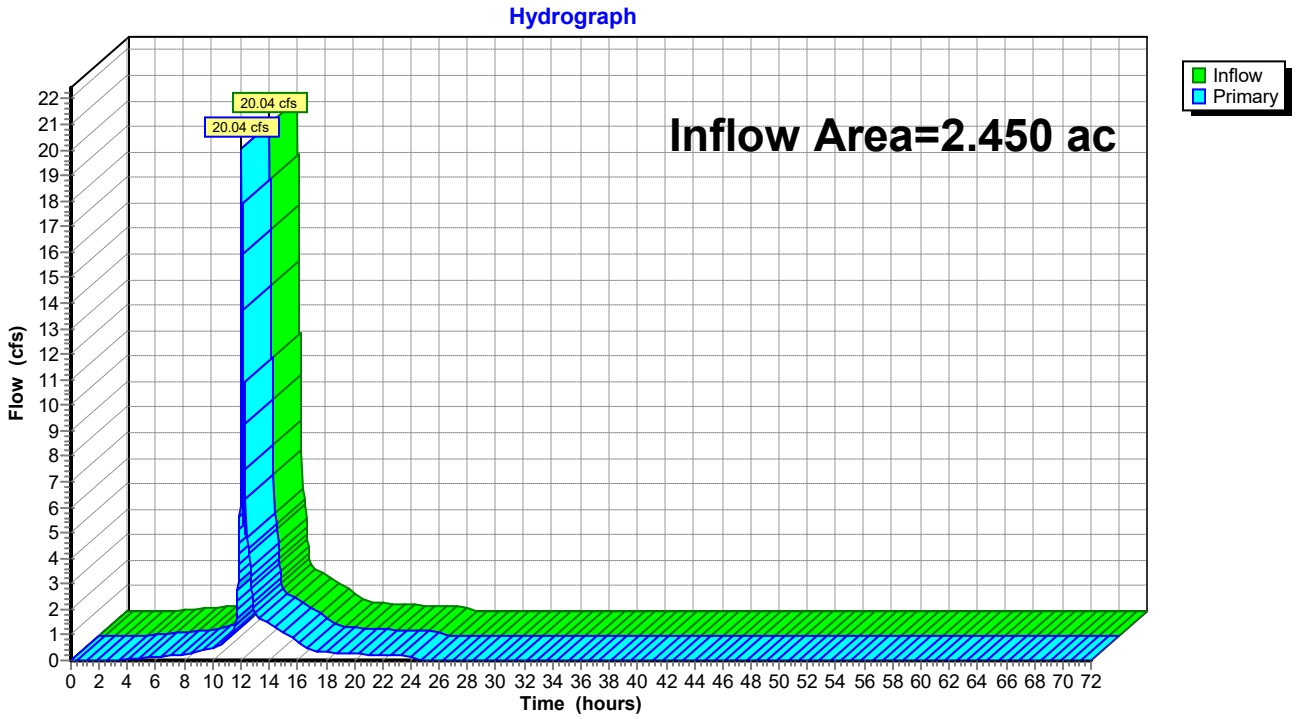

Stage-Area-Storage
Surface/Horizontal/Wetted Area (sq-ft)
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
Surface
Storage
34
33
32
31
30
29
28
27
Elevation (feet)
Starting Elevation
Custom Stage Data
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Storage (cubic-feet)

Summary for Link SP-1: SP-1

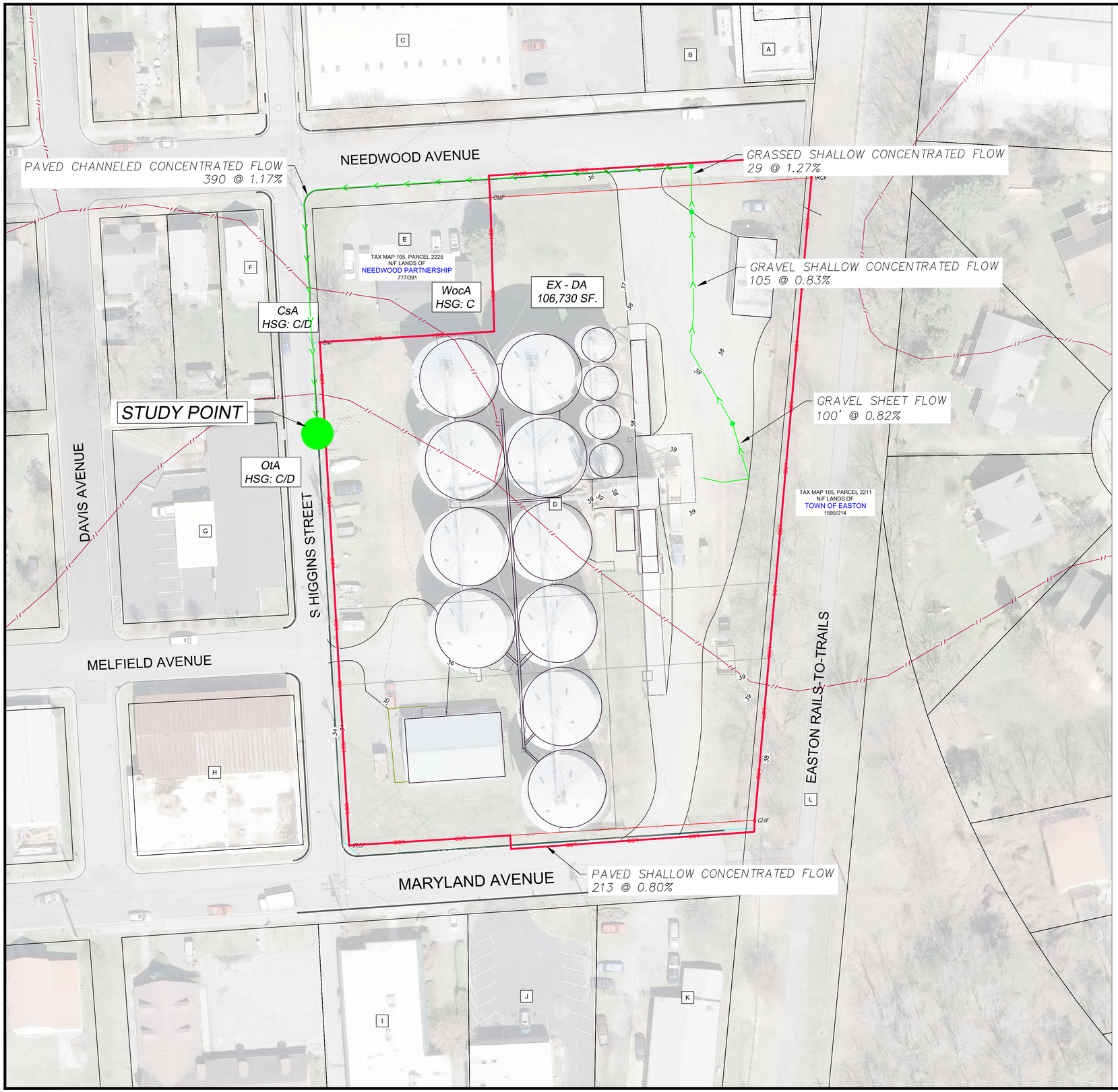
Inflow Area = 2.450 ac, 58.06% Impervious, Inflow Depth = 6.33" for 100-YR event
Inflow = 20.04 cfs @ 12.06 hrs, Volume= 1.293 af
Primary = 20.04 cfs @ 12.06 hrs, Volume= 1.293 af, Atten= 0%, Lag= 0.0 min

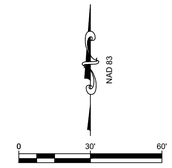
Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.02 hrs

Link SP-1: SP-1



Stormwater Drainage Area Maps





STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT	EXISTING	8.60	15.15	23.03
	PROPOSED	2.71	4.89	20.04
CHANGE	CHANGE	5.89	10.26	2.99

LEGEND

FLOWPATH

DRAINAGE AREA

SOILS BOUNDARY

PROPERTY DATA

A — WARRINGTON DAN W, WARRINGTON REBECCA DIXON
M/G/P: 0105/0000/4533- B/P: 00961/00816

B — KNAUER IRVIN C JR KNAUER MARGARET E
M/G/P: -/-/- - B/P: 00693/00234

C — 411 NEEDWOOD LLC
M/G/P: 0105/0000/2214 - B/P: 01302/00939

D — SILO SQUARE LLC
M/G/P: 0105/00EA/2226 - B/P: 03105/00287

E — NEEDWOOD PARTNERSHIP
M/G/P: 0105/000EA/2225 - B/P: 00777/00391

F — EASTON VENTURES LLC
M/G/P: 0105/00EA/2224 - B/P: 02340/00451

G — KC RENTAL PROPERTIES, LLC
M/G/P: 0105/0000/2234 - B/P: 01279/00343

H — ASPRO INC
M/G/P: 0105/000EA/2233 - B/P: 00814/00892

I — WILLOW CONSTRUCTION INC
M/G/P: 0105/000EA/2229 - B/P: 02958/00252

J — WALBRIDGE REAL ESTATE INVESTMENTS LLC
M/G/P: 0105/000EA/2228 - B/P: 02589/00013

K — LORD STUART PROPERTIES LCC
M/G/P: 0105/000EA/2227 - B/P: 02532/00125

L — TOWN OF EASTON
M/G/P: 0105/000EA/2211 - B/P: 01595/00214

SOIL DATA

Map Unit Symbol	Name	Hydrologic Soil Group	K-Factor	Hydric?
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C	0.37	No
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	C/D	0.43	Yes
CsA	Crosiadore silt loam, 0 to 2 percent slopes	C/D	0.49	Yes

PRECONSTRUCTION - QUANTITY ANALYSIS MAP

OF THE LANDS OF

SILO SQUARE, LLC

TAX MAP 0105, GRID 00EA, PARCEL 2226

EASTON, TALBOT COUNTY, MARYLAND

PREPARED FOR: SILO SQUARE, LLC

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: 410.770.3867

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

24-Jul-24

REVISIONS

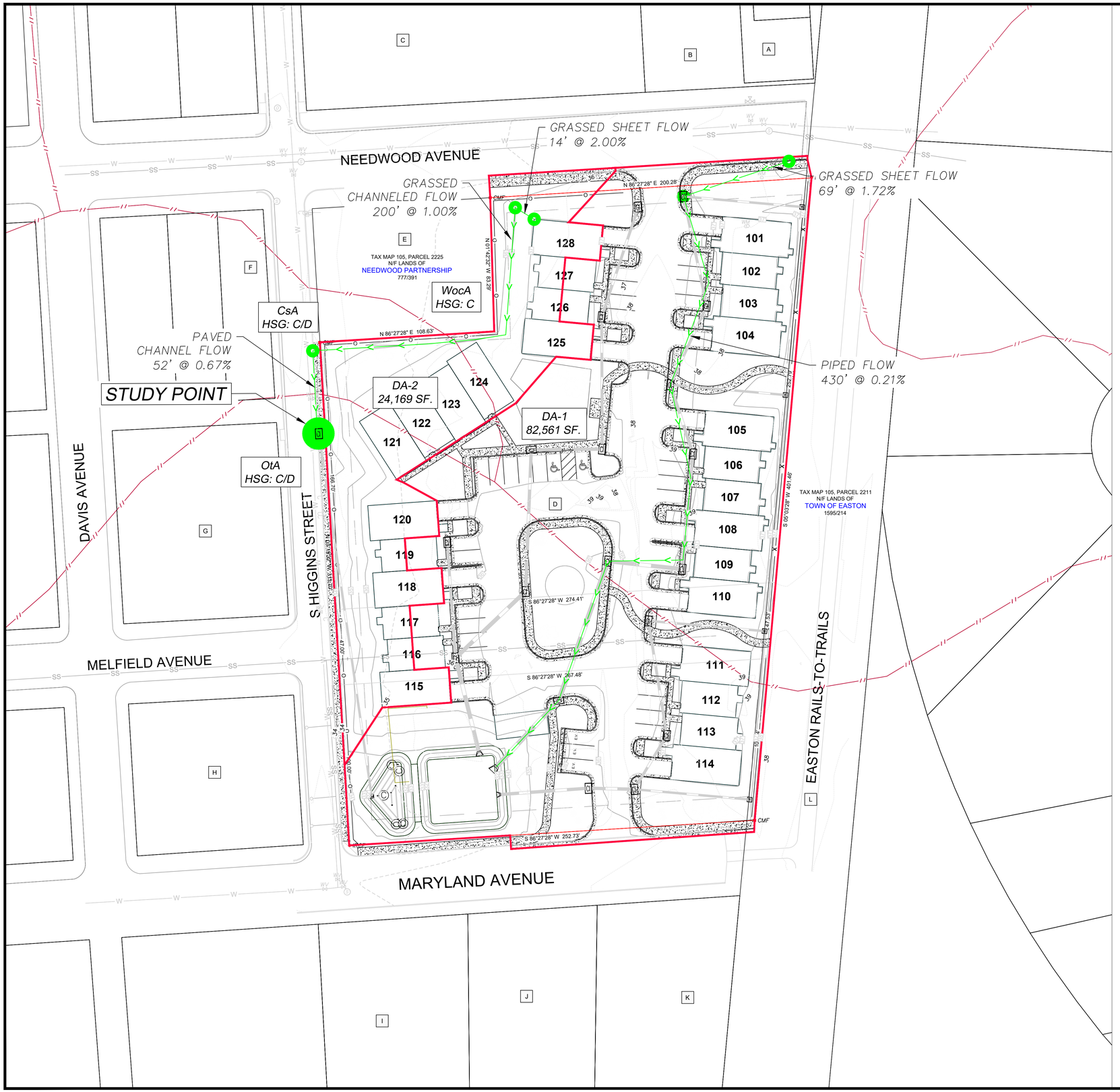
REV. #	DATE	DESCRIPTION

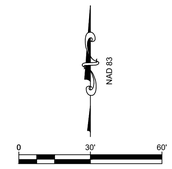
MISS UTILITY OF DELMARVA — 811

DATE:	7/22/2024
SCALE:	1" = 30'
DRAWN BY:	BO
DESIGNED BY:	
APPROVED BY:	

SHEET NO.: SWM -101

FOR REVIEW





STUDY POINT	STORM EVENT	2-YEAR (cfs)	10-YEAR (cfs)	100-YEAR (cfs)
STUDY POINT	EXISTING	8.60	15.15	23.03
	PROPOSED	2.71	4.89	20.04
CHANGE	CHANGE	5.89	10.26	2.99

LEGEND

- FLOWPATH
- DRAINAGE AREA
- SOILS BOUNDARY

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- B — KNAUER IRVIN C JR KNAUER MARGARET E
  M/G/P: -/-/- - B/P: 00693/00234
- C — 411 NEEDWOOD LLC
  M/G/P: 0105/0000/2214 - B/P: 01302/00939
- D — SILO SQUARE LLC
  M/G/P: 0105/00EA/2226 - B/P: 03105/00287
- E — NEEDWOOD PARTNERSHIP
  M/G/P: 0105/000EA/2225 - B/P: 00777/00391
- F — EASTON VENTURES LLC
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- G — KC RENTAL PROPERTIES, LLC
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- J — WALBRIDGE REAL ESTATE INVESTMENTS LLC
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- K — LORD STUART PROPERTIES LCC
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CsA	Crosiadore silt loam, 0 to 2 percent slopes	C/D	0.49	Yes

POSTCONSTRUCTION - QUANTITY ANALYSIS MAP

OF THE LANDS OF

SILO SQUARE

TAX MAP 0105, GRID 00EA, PARCEL 2226
EASTON, TALBOT COUNTY, MARYLAND
PREPARED FOR: SILO SQUARE, LLC

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: 410.770.3867

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

24-Jul-24

REVISIONS

REV. #	DATE	DESCRIPTION

MISS UTILITY OF DELMARVA — 811

DATE: 7/22/2024
SCALE: 1" = 30'
DRAWN BY: BO
DESIGNED BY:
APPROVED BY:

SHEET NO.: SWM - 102

FOR REVIEW

Soils Report

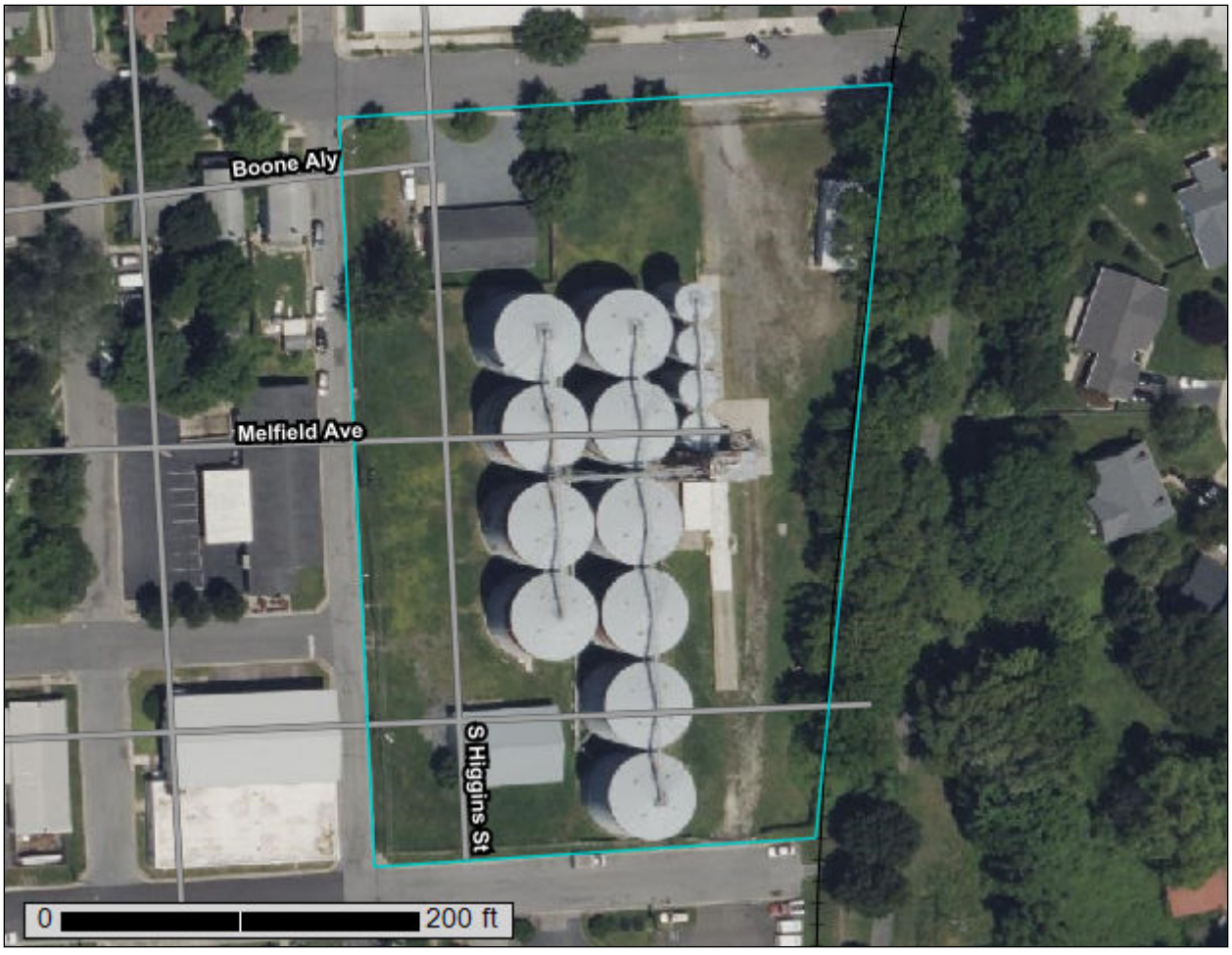
United States Department of Agriculture

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.

Soil Map

Map Scale: 1:780 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

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 20, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 30, 2022—Jul 4, 2022

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
CsA	Crosiadore silt loam, 0 to 2 percent slopes	0.2	6.9%
OtA	Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	1.2	43.6%
WocA	Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain	1.3	49.5%
Totals for Area of Interest		**2.7**	**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

CsA—Crosiadore silt loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: nmd5
Elevation: 0 to 100 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

Crosiadore and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Crosiadore

Setting

Landform: Depressions, flats
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Parent material: Silty eolian deposits over fluviomarine sediments

Typical profile

Ap - 0 to 10 inches: silt loam
Bt - 10 to 28 inches: silt loam
2Btg - 28 to 33 inches: sandy loam
2Cg - 33 to 50 inches: sandy loam
2C1 - 50 to 57 inches: gravelly loamy sand
2C2 - 57 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: About 10 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: C/D
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Minor Components

Mattapex

Percent of map unit: 10 percent
Landform: Flats
Landform position (three-dimensional): Rise
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Kentuck

Percent of map unit: 5 percent
Landform: Depressions
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Elkton

Percent of map unit: 5 percent
Landform: Swales, flats, depressions
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Othello

Percent of map unit: 5 percent
Landform: Flats, depressions, drainageways, swales
Landform position (three-dimensional): Dip
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

OtA—Othello silt loams, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thwn
Elevation: 0 to 100 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 46 to 68 degrees F
Frost-free period: 210 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Othello, drained, and similar soils: 48 percent
Othello, undrained, and similar soils: 28 percent
Minor components: 24 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Othello, Drained

Setting

Landform: Swales, depressions, flats
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Ap - 0 to 9 inches: silt loam
Btg - 9 to 29 inches: silt loam
2BCg - 29 to 34 inches: sandy loam
2Cg - 34 to 80 inches: loamy 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 moderately high (0.06 to 0.57 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 2.0 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): 3w
Hydrologic Soil Group: C/D
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Description of Othello, Undrained

Setting

Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Parent material: Silty eolian deposits over fluviomarine deposits

Typical profile

Oe - 0 to 2 inches: peat
A - 2 to 4 inches: silt loam
Eg - 4 to 10 inches: silt loam
Btg - 10 to 29 inches: silt loam
2BCg - 29 to 35 inches: sandy loam
2Cg - 35 to 80 inches: loamy 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 moderately high (0.06 to 0.57 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 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Minor Components

Mattapex

Percent of map unit: 7 percent
Landform: Broad interstream divides, swales, depressions, flats
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Crosiadore

Percent of map unit: 7 percent
Landform: Depressions, fluviomarine terraces, flats
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Tread, dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

Kentuck, undrained

Percent of map unit: 5 percent
Landform: Swales, depressions, flats
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Fallsington, undrained

Percent of map unit: 5 percent
Landform: Drainageways, swales, depressions, flats
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

WocA—Woodstown loam, 0 to 2 percent slopes, Mid-Atlantic Coastal Plain

Map Unit Setting

National map unit symbol: 2thx4
Elevation: 0 to 90 feet
Mean annual precipitation: 40 to 50 inches
Mean annual air temperature: 55 to 59 degrees F
Frost-free period: 210 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Woodstown and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Woodstown

Setting

Landform: Flats, broad interstream divides, depressions, fluviomarine terraces
Landform position (two-dimensional): Summit, footslope
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear, concave
Across-slope shape: Linear, concave
Parent material: Loamy fluviomarine deposits

Typical profile

Ap - 0 to 7 inches: loam
E - 7 to 11 inches: sandy loam
Bt - 11 to 29 inches: sandy loam
BCg - 29 to 45 inches: fine sandy loam
Cg - 45 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
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: About 20 to 40 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w

Hydrologic Soil Group: C
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Minor Components

Hammonton

Percent of map unit: 6 percent
Landform: Broad interstream divides, flats
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

Fallsington

Percent of map unit: 6 percent
Landform: Swales, depressions, flats, drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Ecological site: F149AY090NJ - Coastal Plain Hardwood Swamp
Hydric soil rating: Yes

Hambrook

Percent of map unit: 4 percent
Landform: Flats, fluviomarine terraces
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Mattapex

Percent of map unit: 4 percent
Landform: Depressions, flats, broad interstream divides, swales
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Dip, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Ecological site: F153CY020MD - Moist Loess Upland
Hydric soil rating: No

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

RECEIVED
AUG 01 2024
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	28575 Marlboro Ave, Easton, MD 21601						
Tax Map	34	Grid	3	Parcel	20	Lot	6
Deed Refernce:	Liber	2897	Folio	41			
Plat Reference:	Liber	82	Folio	65			
Base Zoning District	PUD	Historic District Y ☐ N ☒		Planning Redevelopment Y ☐ N ☒			

Purpose of Application / Description of Work:

Applicant proposes to renovate property and structure to convert to a fast-food establishment (Starbucks).

Owner

Name	REMCO Properties, LLC c/o BET Investments, Inc. (Peter D'Angeli)
Mailing Address	200 Dryden Rd, Ste 2000, Dresher, PA 19025
Telephone No.	610-731-3493
Email	pdangeli@betinvestments.com

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	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@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 7/3/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

For Office Use Only

Easton Staff Development Review Meeting Required Y [X] N [ ]

Easton Staff Development Review Meeting Date **08/28/2024**

2024-1258 / ESDR 24-13

Completeness Check Date 08/01/2024

Revisions/Resubmissions Required Y [ ] N [ ]

Resubmission Date

Documents Received Y [ ] N [ ]

Staff Determination

Planning Commission Requir(Y [ ] N [ ] **TBD**

BOZA Required Y [ ] N [ ] **TBD**

Historic District Commission Required Y [ ] N [X]

Resubmission for ESDR Required Y [ ] N [ ]

Staff Signature *Samantha N. Smith* Date **08/01/2024**

Revised 02-2019

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

RECEIVED
AUG 01 2024
TOWN OF EASTON

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	Starbucks at Waterside Village				
Original Property Size	Acres	0.951 AC	Square Feet	41,432 SF	
Telephone No.	610-731-3493	Email	pdangeli@betinvestments.com		

Site Plan Information

Property Size	Acres	0.951 AC	Square Feet	41,432 SF	
Structure's Floor Area	3,580 SF ±	Structure's Square Feet	3,580 SF ±		
Area of Disturbance	41,432 SF ±	Number of Dwelling Units	0		

Property Information

Address	28575 Marlboro Ave, Easton, MD 21601						
Tax Map	34	Grid	3	Parcel	20	Lot	6
Deed Refernce:	Liber	2987	Folio	41			
Plat Reference:	Liber	82	Folio	65			
Base Zoning District	PUD	Historic	Y ☐	N ☒	Planned Redevelopment	Y ☐	N ☒
Source of Electricity	Easton Utilities						

Owner

Name	REMCO Properties, LLC c/o BET Investments, Inc. (Peter D'Angeli)		
Mailing Address	200 Dryden Rd, Ste 2000, Dresher, PA 19025		
Telephone No.	610-731-3493	Email	pdangeli@betinvestments.com

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	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@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 7/3/2024

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.	**ESDR 24-13**
Prelim/Dev. Approval Date		Application No.	**2024-1258**
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019

PROPERTY OWNER: REMCO PROPERTIES, LLC
C/O BET INVESTMENTS, INC. (PETER D'ANGELI)
200 DRYDEN ROAD, STE 2000
DRESHER, PA 19025
(610) 731-3493

PROPERTY ADDRESS: 28575 MARLBORO AVENUE
EASTON, MD 21601

DEED REFERENCE: 2897/41

PLAT REFERENCE: 82/65

SITE NOTES

ZONING CLASSIFICATION: PUD
SETBACKS:
FRONT- SEE SITE PLAN
SIDE- SEE SITE PLAN
REAR- SEE SITE PLAN

THE PROPERTY SHOWN HEREON LIES PARTIALLY INSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL No. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON JUNE 23, 2021.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

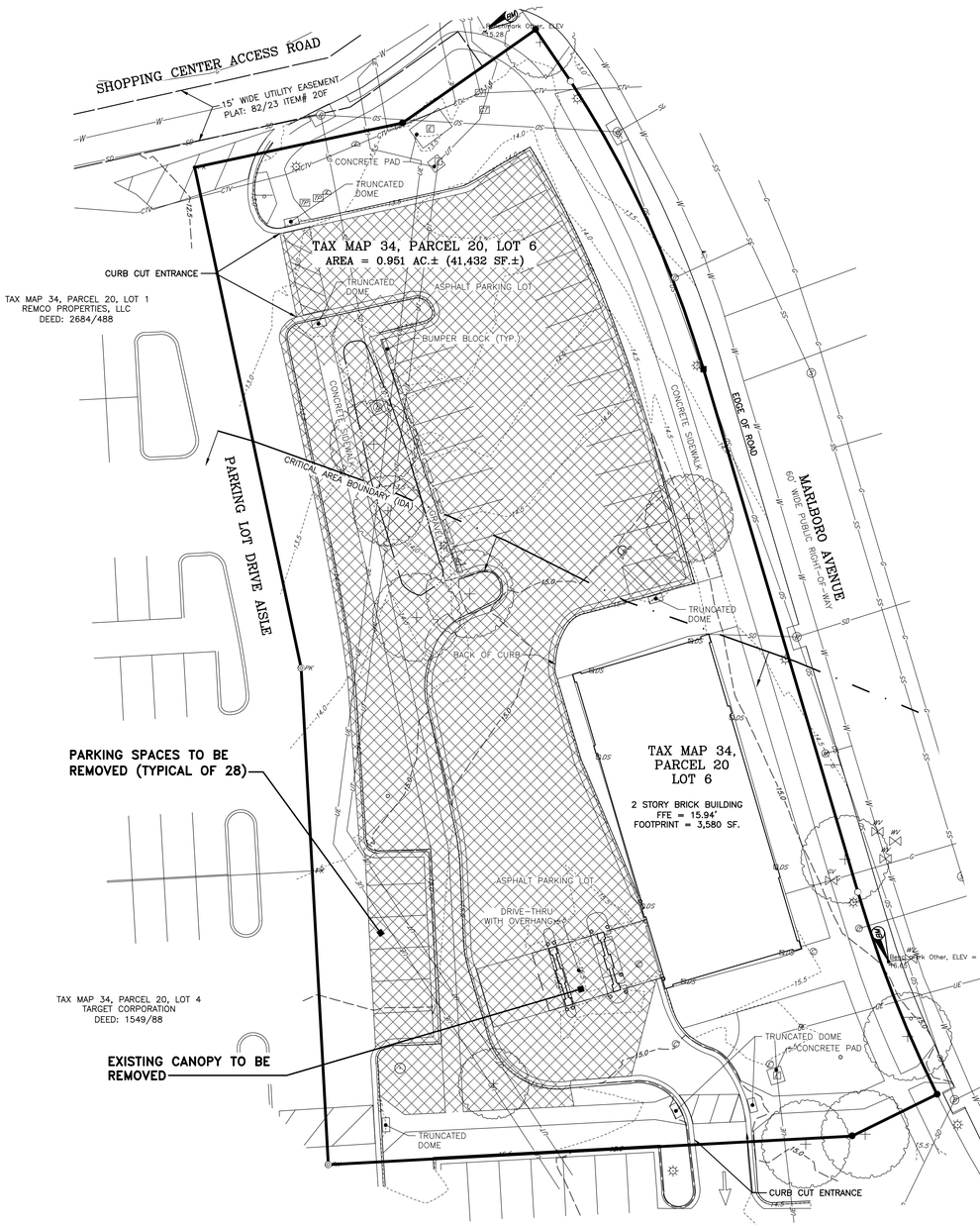
THE CONTOURS SHOWN HEREON WERE TAKEN FROM FIELD RUN TOPOGRAPHY BY LANE ENGINEERING, LLC ON JUNE 23, 2021.

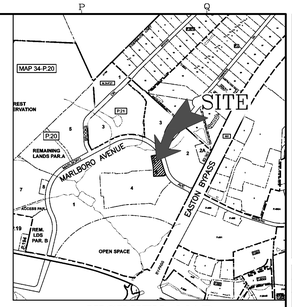
FLOOD DATA

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 FEDERAL INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0187D FOR THE 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
SCALE: 1" = 1,000'
500' 0' 500' 1000'
SCALE IN FEET

LEGEND

- TRAFFIC BOLLARD
- DOWNSPOUT
- ELECTRIC TRANSFORMER
- ELECTRIC METER
- ELECTRIC HANDHOLE
- LAMP POLE
- SANITARY SEWER CLEAN OUT
- STORM DRAIN MANHOLE
- TELEPHONE PEDESTAL
- SINGLE POST SIGN
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- CABLE TV PEDESTAL
- IRON ROD FOUND
- COMPUTED POINT
- CONCRETE MONUMENT FOUND
- UNDERGROUND SANITARY SEWER
- UNDERGROUND STORMDRAIN
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND WATER
- UNDERGROUND CABLE TV
- UNDERGROUND FIBEROPTIC
- MAJOR CONTOUR
- MINOR CONTOUR
- AREA TO BE REMOVED

20' 10' 0' 10' 20' 40'
SCALE IN FEET

WELSIS ELEVATIONS (NAD 83/91)

PROPERTY BOUNDARY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	TANGENT	CHD. BEARING	CHD. LENGTH
C1	310.00'	89.77'	45.20'	S 24°45'33" E	89.46'
C2	360.00'	61.33'	30.74'	S 21°20'37" E	61.25'

SEE SHEET 2 OF 2 FOR SKETCH SITE PLAN.

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

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@lanelnc.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. 51461 , Expiration Date: 04/04/2026.

SEAL
STATE OF MARYLAND
STACY E. CHOPTIAN
51461
PROFESSIONAL ENGINEER
7-3-24
DATE

EXISTING CONDITIONS & DEMOLITION PLAN

ON THE LANDS OF
28575 MARLBORO AVENUE
EASTON, MARYLAND
REMCO PROPERTIES, LLC

IN ELECTION WARD , TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, GRID 3, PARCEL 20, LOT 6

ISSUED/REVISED FOR: DATE: BY:
ESDR SUBMITTAL 07/03/24 BCE

SHEET No. 1 OF 2
SCALE: AS NOTED
JOB No. 240109
FILE No. 9246

Date: 07/03/2024 - 8:47am User: barmes Project Manager: BCE
Drawing Path: J:\2024\0100\240109\Civil3D-240109\Dwg\Plots\ESDR-RSK-PLTS-240109.dwg | ECDP
XREF File(s): RAR-BASE-240109/RBS-BASE-2438-240109/RSK-BASE-240109/RSK-ONE-WAY-BASE-240109/MLD-BASE-240109/VSF-BASE-240109/RLD-CHOPTANK-BASE-240109/RLD-EUC-BASE-240109/RLD-CHOPTANK-BASE-240109/CSW-BASE-240109/CBS-BASE-2438-240109/XRN-BASE-240109

EXISTING CONDITIONS: A COMMERCIAL PROPERTY WITH EXISTING BUILDING AND PARKING LOT THAT PREVIOUSLY SERVED A BANK.

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO REVITALIZE AND REDEVELOP THE EXISTING LOT 6 AS SHOWN HEREON INTO A FAST-FOOD ESTABLISHMENT (STARBUCKS).

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH ESD FEATURES (PERMEABLE PAVERS AND ADS ECOPURE BIOFILTER) AS REQUIRED AND DETAILED IN THE CONCEPT SWM REPORT INCLUDED WITH THIS SKETCH SITE PLAN.

LOT COVERAGE: ALL BUILDINGS AND STRUCTURES SHALL NOT EXCEED 50% OF THE LOT AREA.

TOTAL STRUCTURE LOT COVERAGE: 3,580 SF (8.6%)

TOTAL SITE AREA: 41,432 SF±

SPECIAL EXCEPTIONS/VARIANCES: NONE

REFUSE/TRASH: DUMPSTER AREA AND SCREENING AS SHOWN HEREON.

SITE LIGHTING: EXISTING ONSITE. ALL PROPOSED LIGHTING, UNLESS OTHERWISE APPROVED BY THE PLANNING COMMISSION, SHALL BE SHARP CUT-OFF SHIELDED LUMINARIES ON 18' HEIGHT POLES MAX. LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE.

PARKING

SEE ENCLOSED PARKING EXHIBIT.

SITE NOTES

ZONING CLASSIFICATION: PUD (PLANNED UNIT DEVELOPMENT)

SETBACKS:	PROPOSED RESTAUARANT (CARRY-OUT)
FRONT- SEE SITE PLAN	20'±
SIDE- SEE SITE PLAN	44'±
REAR- SEE SITE PLAN	76'±

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1- INTEGRATED USES ARE DESIRABLE- THIS APPLICATION PROPOSES TO REMODEL ONE OF THE EXISTING BUILDING ORIGINALLY APPROVED AND V HEALTH AND FITNESS GYM IN AN ESTABLISHED, YET STILL EVOLVING MIXED-USE COMMERCIAL DEVELOPMENT AND PROVIDES A SPECIFIC LAND USE NOT FOUND CURRENTLY IN THIS DEVELOPMENT AREA.

PRINCIPLE #2- NATURAL FEATURES SHOULD DETERMINE DESIGN- THE LOCATION OF THIS EXISTING BUILDING WAS DETERMINED UNDER THE PHASE 1 PUD APPROVAL. THIS PROPOSED DEVELOPMENT CONSISTS OF REMODELING THE EXISTING BANK AND CONVERTING TO A STARBUCKS. THE EXISTING PARKING AREA SHALL BE RE-CONFIGURED AND MAJORITY OF THE BUILDING CONSTRUCTION/ REMODEL SHALL BE WITHIN THE EXISTING FOOTPRINT PRESERVING THE INTEGRITY OF THE SURROUNDING AREA.

PRINCIPLE #3- AUTOMOBILES SHOULD NOT DETERMINE DESIGN- THIS PAD SITE LIES WITHIN A DEVELOPED (IMPROVED) SUBURBAN COMMERCIAL CENTER. USERS OF THIS PROPOSED STARBUCKS AND OTHER LAND USES WITHIN THE SURROUNDING WATERSIDE VILLAGE DEVELOPMENT DEPEND ON AUTOMOBILE ACCESS FROM EASTON AND THE SURROUNDING COUNTY THEY SERVE. PEDESTRIAN SIDEWALKS AND VIABLE WALKING AND BIKING ACCESS IS INTEGRATED THROUGH THE NEIGHBORHOOD; HOWEVER MOST USERS WILL ARRIVE BY CAR AND THE CAR SHOULD BE ACCOMMODATED. THE PROPERTY LAYOUT IS CONFIGURED BEST WITH THE STORES ON MARLBORO AVENUE AND THE PARKING FIELD AND PRIMARY ACCESS ORIENTED TO THE BALANCE OF THE DEVELOPED WATERSIDE VILLAGE DEVELOPMENT.

PRINCIPLE #4- AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS- THIS SITE PLAN CONTINUES THE PROTECTION OF SWM FEATURES AND GREEN SPACES WITHIN THE CAMPUS.

PRINCIPLE #5- ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT- THIS APPLICATION PROPOSES ARCHITECTURE IMRPROVEMENTS COMPATIBLE WITH EXISTING WATERSIDE VILLAGE DEVELOPMENT.

PRINCIPLE #6- SIGNS SHOULD INFORM BUT NOT DOMINATE- SIGNAGE WILL COMPLY WITH BASE ZONING REQUIREMENTS; THREE BUILDING WALL MOUNTED SIGNS ARE PERMITTED.

PRINCIPLE #7- NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES- NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES- NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #9- NEIGHBORHOODS SHOULD CONNECT- THIS PROJECT ENJOYS THE BENEFIT OF BEING WELL CONNECTED TO EASTON AND SURROUNDS WITH MAJOR STREET EXTENSION CONSTRUCTION COMPLETED PROVIDING FOUR PRIMARY ACCESS POINTS TO MD RT 322/MARLBORO AVENUE, MD RT 33/BAY STREET, AND GLEBE ROAD.

DEVELOPMENT STANDARDS: §701 G (1) THROUGH (8)

(1) THE PROPERTY IS UNDER ONE OWNERSHIP AS SHOWN HEREON.

(2) THE SITE IS SUITABLY CONFIGURED FOR THE PROPOSED DEVELOPMENT.

(3) PUBLIC WATER AND SEWER IS ALREADY AVAILABLE ON SITE.

(4) THIS DEVELOPMENT PROVIDES REGIONAL TRAFFIC SOLUTIONS, MULTIPLE ACCESS POINTS AND HAS TRAFFIC SIGNALS AT BOTH STATE HIGHWAY INTERSECTIONS.

(5) THE DEVELOPER PLANS TO COMMENCE CONSTRUCTION WITHIN A YEAR AFTER FINAL SITE PLAN APPROVAL.

(6) PROVIDED AS SHOWN HEREON.

(7) PARKING SATISFIES REQUIREMENTS AS SET FORTH IN SECTION 1001 AS SHOWN HEREON.

(8) N/A – MAJOR RETAIL AND/OR SHOPPING CENTER USE IS NOT PROPOSED.

APPLICATION REQUIREMENTS: §701 H (1) (A) THROUGH (N)

a) PROPOSED DEVELOPMENT LAYOUT- PROVIDED AS SHOWN HEREON

b) NO SPECIFIC RESERVATION OF OPEN SPACE PROPOSED. OPEN SPACE AREAS, BOTH NATURAL AREAS AND PEDESTRIAN SPACES TO REMAIN UNDER OWNERSHIP AND MANAGEMENT OF DEVELOPER.

c) THE PLAN SHOWS THE PROPOSED LAND USES WITH PARKING AREA REQUIREMENTS PER PROPOSED PROJECT.

d) TYPES OF DWELLINGS- N/A

e) DWELLINGS AND PARKING AREAS- N/A

f) LAND USE TABULATION- AS SHOWN HEREON

g) RESIDENTIAL DENSITY TABULATION- N/A

h) ARCHITECTURAL ELEVATIONS INCLUDED WITH THIS SUBMITTAL

i) AS SHOWN HEREON.

j) FOREST CONSERVATION COMPLIANCE FOR THIS DEVELOPMENT ACTIVITY ON LOT 6 IS PROVIDED UNDER A FOREST CONSERVATION EASEMENT AS SHOWN ON PLAT MAS 82/23-4 AND DETAILED IN A "PERPETUAL PROTECTION AGREEMENT, DEED OF FOREST CONSERVATION EASEMENT" RECORDED AMONG THE LAND RECORDS OF TALBOT COUNTY, MARYLAND IN LIBER 1946 AT FOLIO 329-333.

k) A METES AND BOUNDS DESCRIPTION PROVIDED AS SHOWN HEREON.

l) N/A

m) THE PROPOSED DEVELOPMENT WILL ENHANCE THE TOWN OF EASTON BY PROVIDING JOBS AND THE NECESSARY MEANS TO ENTER AND ADVANCE IN THE WORK FORCE AS WELL AS PROVIDING THE MOST DESIRABLE DEVELOPMENT PATTERN FOR PRESENT-DAY EASTON AND THE SURROUNDING WATERSIDE VILLAGE.

n) THERE ARE NO DEVELOPMENT STANDARDS PROPOSED TO BE UNIQUELY ESTABLISHED FOR THE PUD.

INTENSELY DEVELOPED AREAS: §501.3.A (1) THROUGH (4)

1. NO FOREST OR WOODLAND VEGETATION IS AFFECTED BY THIS PROJECT.
2. NO ROAD, BRIDGE OR UTILITY IS PROPOSED WITHIN A HABITAT PROTECTION AREA.
3. NO DEVELOPMENT ACTIVITIES CROSS OR AFFECT STREAMS.
4. ALL DEVELOPMENT INCLUDES STORMWATER MANAGEMENT TECHNOLOGIES THAT REDUCE POLLUTANT LOADINGS BY AT LEAST 10% BELOW CURRENT SITE LEVELS.

LANDSCAPE KEY

+ 2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)

ESD SUMMARY CHART

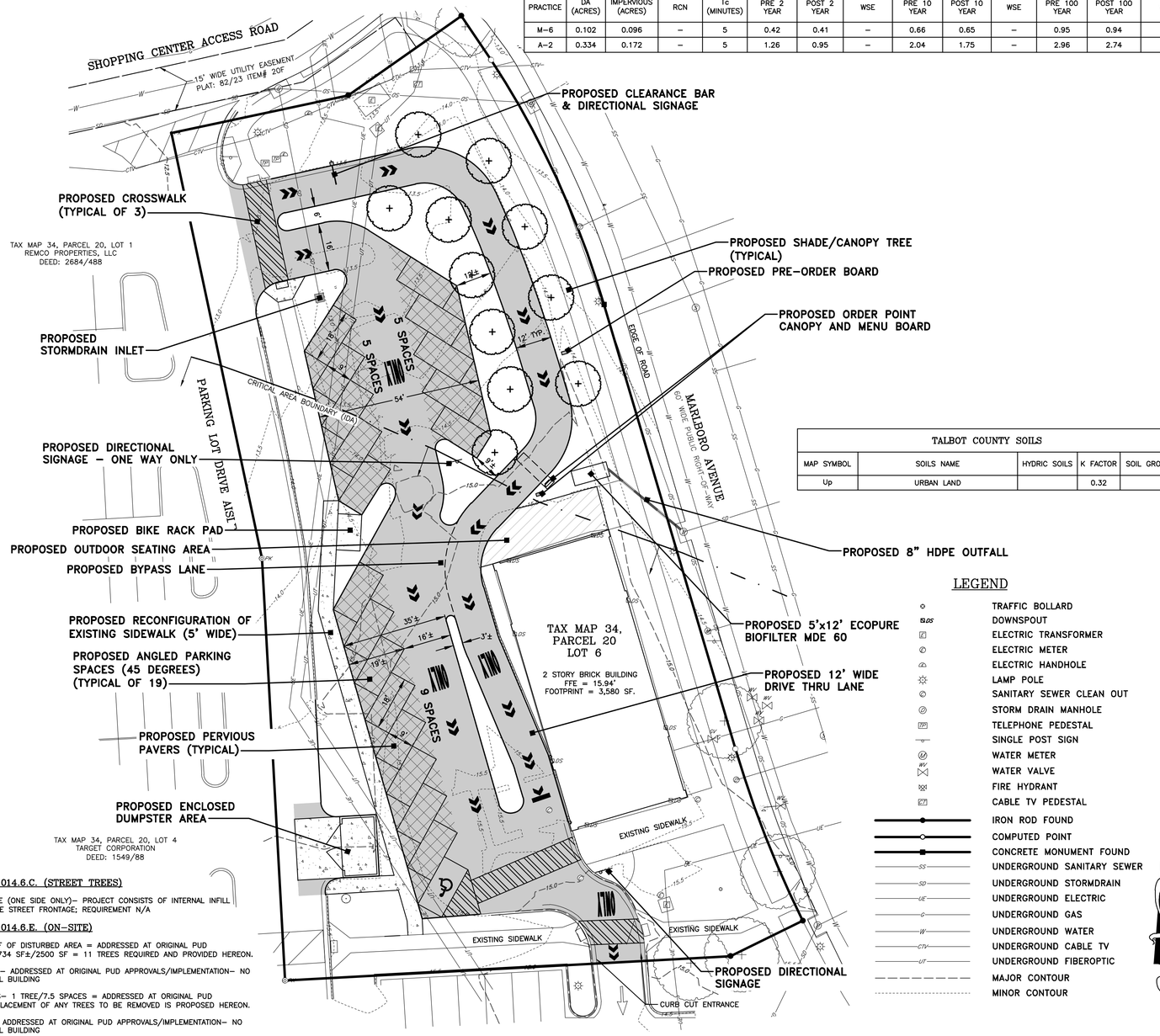
DRAINAGE AREA	TYPE OF ESD PRACTICE	TYPE OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN)	ACTUAL PE (IN)	TARGET ESDv (FT³)	ACTUAL ESDv (FT³)
P-1	M-6	ECOPURE BIOFILTER MDE 60	ON-SITE	–	407729.91	1573187.68	0.102	0.096	0.001	1.8	1.8	–	690
P-2	A-2	PERMEABLE PAVERS	ON-SITE	–	407744.91	1573105.93	0.334	0.172	0.099	1.8	2	–	✱✱824
TOTAL/AVERAGE	–	–	–	–	–	–	0.436	0.268	0.100	1.8	1.9	✱1,110	1,514

✱ TOTAL SITE TARGET FOR DRAINAGE AREA TO EXISTING INLET ON-SITE

✱✱ EXISTING ROOF AREA IS NOT BEING TREATED PRESENT DAY AND THERE IS NO ESDv REQUIREMENT AS THE AREA PRE-DATES CURRENT STORMWATER REGULATIONS. ESDv WILL BE PROVIDED BY 5' X 12' ADS ECOPURE BIOFILTER MDE 60. FEATURE WILL PROVIDE ADDITIONAL TREATMENT SO THAT THE PROPOSED DEVELOPMENT MEETS THE DRAINAGE AREA TARGET.

SWM QUANTITY SUMMARY CHART

PRACTICE	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
M-6	0.102	0.096	–	5	0.42	0.41	–	0.66	0.65	–	0.95	0.94	–
A-2	0.334	0.172	–	5	1.26	0.95	–	2.04	1.75	–	2.96	2.74	–



LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE (ONE SIDE ONLY)- PROJECT CONSISTS OF INTERNAL INFILL DEVELOPMENT AND DOES NOT HAVE STREET FRONTAGE; REQUIREMENT N/A

LANDSCAPE REQUIREMENTS § 1014.6.E. (ON-SITE)

1A. OVERALL TREES- 1 TREE/2500 SF OF DISTURBED AREA = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- 26,734 SF±/2500 SF = 11 TREES REQUIRED AND PROVIDED HEREON.

2A. INTERNAL STREET TREE PLANTINGS- ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING

2B. INTERNAL PARKING LOT PLANTINGS- 1 TREE/7.5 SPACES = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- REPLACEMENT OF ANY TREES TO BE REMOVED IS PROPOSED HEREON.

2C. PARKING LOT PERIMETER HEDGE- ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING

2D.I. BUILDING FAÇADE PLANTINGS- 1 TREE/50' OF FRONT FAÇADE = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- REPLACEMENT OF ANY TREES TO BE REMOVED IS PROPOSED HEREON.

2D.II. FAÇADE LANDSCAPE BEDS- 25% OF FRONT FAÇADE = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- ALL EXISTING BEDS SURROUNDING THE BUILDING FAÇADE SHALL BE MAINTAINED AND REVITALIZED WITH THIS NEW DEVELOPMENT, NO ADDITIONAL BEDS REQUIRED.

2E. SERVICE LOADING AREAS- TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.

2F. SHRUBS AND GROUND COVERS- REQUIRED ACROSS SITE; ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING

2G. BUFFERYARDS §1014.7.E.4.: PAD SITE ADJACENT TO INTERIOR PROPERTY LINE; ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING.

PROPERTY BOUNDARY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	TANGENT	CHD. BEARING	CHD. LENGTH
C1	310.00'	89.77'	45.20'	S 24°45'33" E	89.46'
C2	360.00'	61.33'	30.74'	S 21°20'37" E	61.25'

TALBOT COUNTY SOILS

MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
Up	URBAN LAND		0.32	

LEGEND

- TRAFFIC BOLLARD
- DOWNSPOUT
- ELECTRIC TRANSFORMER
- ELECTRIC METER
- ELECTRIC HANDHOLE
- LAMP POLE
- SANITARY SEWER CLEAN OUT
- STORM DRAIN MANHOLE
- TELEPHONE PEDESTAL
- SINGLE POST SIGN
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- CABLE TV PEDESTAL
- IRON ROD FOUND
- COMPUTED POINT
- CONCRETE MONUMENT FOUND
- UNDERGROUND SANITARY SEWER
- UNDERGROUND STORMDRAIN
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND WATER
- UNDERGROUND CABLE TV
- UNDERGROUND FIBEROPTIC
- MAJOR CONTOUR
- MINOR CONTOUR

MD COORDINATE SYSTEM NAD 83 (2011)

20' 10' 0' 10' 20' 40'
SCALE IN FEET

SEE SHEET 1 OF 2 FOR EXISTING CONDITIONS & DEMOLITION PLAN.

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

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
PLEASE 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@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND BRIAN E. CHIDSEY 51461 PROFESSIONAL ENGINEER
7-5-24
DATE

SKETCH SITE PLAN

ON THE LANDS OF
28575 MARLBORO AVENUE
EASTON, MARYLAND
REMCO PROPERTIES, LLC

IN ELECTION WARD , TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, GRID 3, PARCEL 20, LOT 6

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	07/03/24	BCE

SHEET No. 2 OF 2

SCALE: AS NOTED

JOB No. 240109

FILE No. 9246

Land Consultants, LLC

Date: 07/03/2024 - 8:47am User: barnes Project Manager: BCE
Drawing Path: J:\2024\01001.240109\Civil3D-240109\Dwg\Plots\ESDR-RSK-PLTS-240109.dwg | SKETCH PLAN
XREF File(s): RAR-BASE-240109/RES-BASE-2436-240109/RSK-BASE-240109/RSK-ONE-WAY-BASE-240109/XLD-BASE-240109/VSF-BASE-240109/RLD-CHOPTANK-BASE-240109/RLD-EUC-BASE-240109/LLP-BASE-240109/CSW-BASE-240109/CBS-BASE-2436-240109/XRN-BASE-240109

EXISTING CONDITIONS: A COMMERCIAL PROPERTY WITH EXISTING BUILDING AND PARKING LOT THAT PREVIOUSLY SERVED A BANK.

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO REVITALIZE AND REDEVELOP THE EXISTING LOT 6 AS SHOWN HEREON INTO A FAST-FOOD ESTABLISHMENT (STARBUCKS).

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH ESD FEATURES (PERMEABLE PAVERS AND ADS ECOPURE BIOFILTER) AS REQUIRED AND DETAILED IN THE CONCEPT SWM REPORT INCLUDED WITH THIS SKETCH SITE PLAN.

LOT COVERAGE: ALL BUILDINGS AND STRUCTURES SHALL NOT EXCEED 50% OF THE LOT AREA.

TOTAL STRUCTURE LOT COVERAGE: 3,580 SF (8.6%)

TOTAL SITE AREA: 41,432 SF±

SPECIAL EXCEPTIONS/VARIANCES: NONE

REFUSE/TRASH: DUMPSTER AREA AND SCREENING AS SHOWN HEREON.

SITE LIGHTING: EXISTING ONSITE. ALL PROPOSED LIGHTING, UNLESS OTHERWISE APPROVED BY THE PLANNING COMMISSION, SHALL BE SHARP CUT-OFF SHIELDED LUMINARIES ON 18' HEIGHT POLES MAX. LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE.

PARKING

SEE ENCLOSED PARKING EXHIBIT.

SITE NOTES

ZONING CLASSIFICATION: PUD (PLANNED UNIT DEVELOPMENT)

SETBACKS:		PROPOSED RESTAUARANT (CARRY-OUT)
FRONT-	SEE SITE PLAN	20'±
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COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

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DEVELOPMENT STANDARDS: §701 G (1) THROUGH (8)

(1) THE PROPERTY IS UNDER ONE OWNERSHIP AS SHOWN HEREON.

(2) THE SITE IS SUITABLY CONFIGURED FOR THE PROPOSED DEVELOPMENT.

(3) PUBLIC WATER AND SEWER IS ALREADY AVAILABLE ON SITE.

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(6) PROVIDED AS SHOWN HEREON.

(7) PARKING SATISFIES REQUIREMENTS AS SET FORTH IN SECTION 1001 AS SHOWN HEREON.

(8) N/A - MAJOR RETAIL AND/OR SHOPPING CENTER USE IS NOT PROPOSED.

APPLICATION REQUIREMENTS: §701 H (1) (A) THROUGH (N)

a) PROPOSED DEVELOPMENT LAYOUT- PROVIDED AS SHOWN HEREON

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c) THE PLAN SHOWS THE PROPOSED LAND USES WITH PARKING AREA REQUIREMENTS PER PROPOSED PROJECT.

d) TYPES OF DWELLINGS- N/A

e) DWELLINGS AND PARKING AREAS- N/A

f) LAND USE TABULATION- AS SHOWN HEREON

g) RESIDENTIAL DENSITY TABULATION- N/A

h) ARCHITECTURAL ELEVATIONS INCLUDED WITH THIS SUBMITTAL

i) AS SHOWN HEREON.

j) FOREST CONSERVATION COMPLIANCE FOR THIS DEVELOPMENT ACTIVITY ON LOT 6 IS PROVIDED UNDER A FOREST CONSERVATION EASEMENT AS SHOWN ON PLAT MAS 82/23-4 AND DETAILED IN A "PERPETUAL PROTECTION AGREEMENT, DEED OF FOREST CONSERVATION EASEMENT" RECORDED AMONG THE LAND RECORDS OF TALBOT COUNTY, MARYLAND IN LIBER 1946 AT FOLIO 329-333.

k) A METES AND BOUNDS DESCRIPTION PROVIDED AS SHOWN HEREON.

l) N/A

m) THE PROPOSED DEVELOPMENT WILL ENHANCE THE TOWN OF EASTON BY PROVIDING JOBS AND THE NECESSARY MEANS TO ENTER AND ADVANCE IN THE WORK FORCE AS WELL AS PROVIDING THE MOST DESIRABLE DEVELOPMENT PATTERN FOR PRESENT-DAY EASTON AND THE SURROUNDING WATERSIDE VILLAGE.

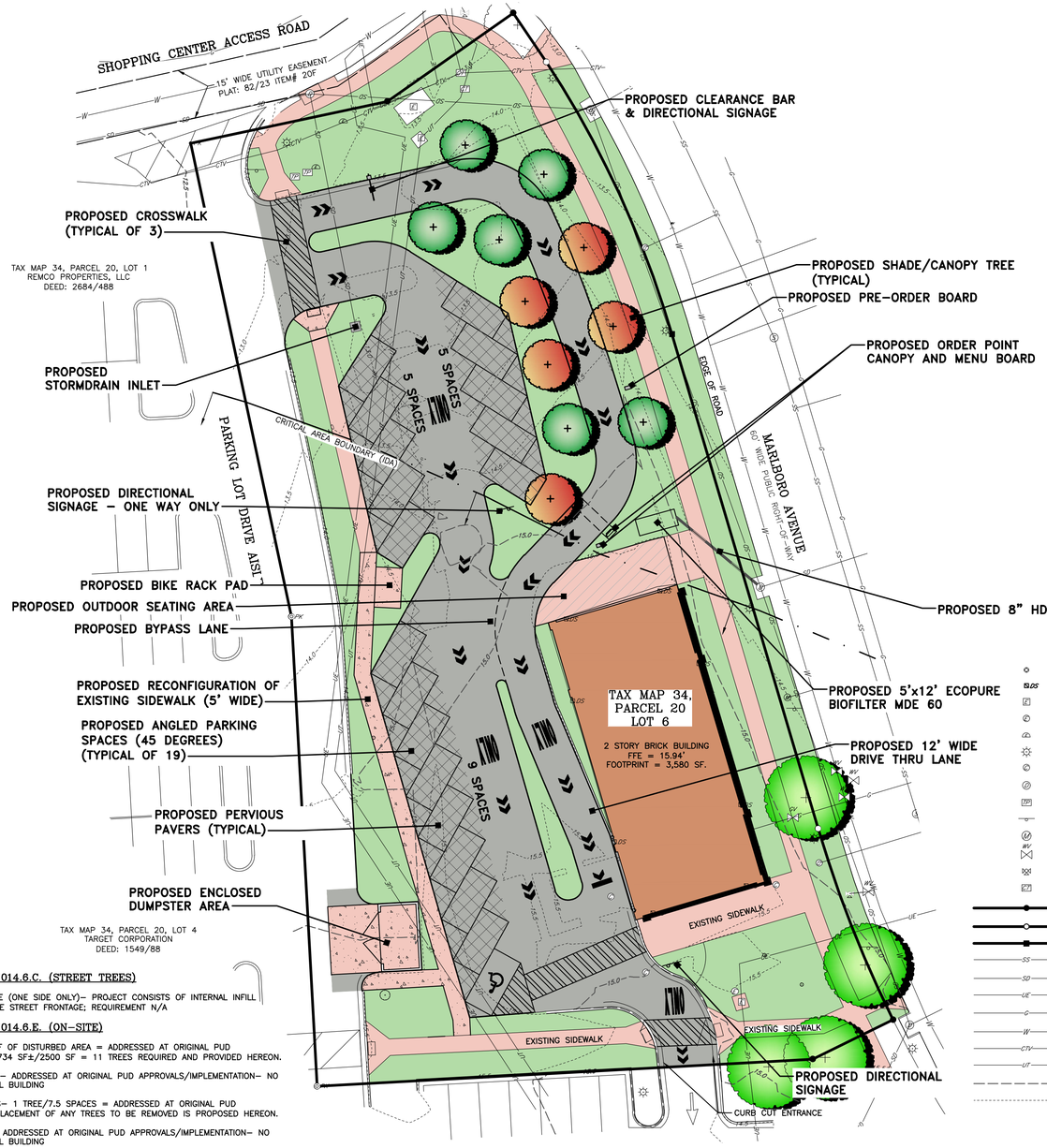
n) THERE ARE NO DEVELOPMENT STANDARDS PROPOSED TO BE UNIQUELY ESTABLISHED FOR THE PUD.

INTENSELY DEVELOPED AREAS: §501.3.A (1) THROUGH (4)

1. NO FOREST OR WOODLAND VEGETATION IS AFFECTED BY THIS PROJECT.
2. NO ROAD, BRIDGE OR UTILITY IS PROPOSED WITHIN A HABITAT PROTECTION AREA.
3. NO DEVELOPMENT ACTIVITIES CROSS OR AFFECT STREAMS.
4. ALL DEVELOPMENT INCLUDES STORMWATER MANAGEMENT TECHNOLOGIES THAT REDUCE POLLUTANT LOADINGS BY AT LEAST 10% BELOW CURRENT SITE LEVELS.

LANDSCAPE KEY

+ 2" CALIPER MINIMUM CANOPY OR STREET TREES (OAK, MAPLE TYPES)



LANDSCAPE REQUIREMENTS § 1014.6.C. (STREET TREES)

1. 1 TREE PER 70' STREET FRONTAGE (ONE SIDE ONLY)- PROJECT CONSISTS OF INTERNAL INFILL DEVELOPMENT AND DOES NOT HAVE STREET FRONTAGE; REQUIREMENT N/A

LANDSCAPE REQUIREMENTS § 1014.6.E. (ON-SITE)

1A. OVERALL TREES- 1 TREE/2500 SF OF DISTURBED AREA = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- 26,734 SF±/2500 SF = 11 TREES REQUIRED AND PROVIDED HEREON.

2A. INTERNAL STREET TREE PLANTINGS- ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING

2B. INTERNAL PARKING LOT PLANTINGS- 1 TREE/7.5 SPACES = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- REPLACEMENT OF ANY TREES TO BE REMOVED IS PROPOSED HEREON.

2C. PARKING LOT PERIMETER HEDGE- ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING

2D.I. BUILDING FAÇADE PLANTINGS- 1 TREE/50' OF FRONT FAÇADE = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- REPLACEMENT OF ANY TREES TO BE REMOVED IS PROPOSED HEREON.

2D.II. FAÇADE LANDSCAPE BEDS- 25% OF FRONT FAÇADE = ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- ALL EXISTING BEDS SURROUNDING THE BUILDING FAÇADE SHALL BE MAINTAINED AND REVITALIZED WITH THIS NEW DEVELOPMENT, NO ADDITIONAL BEDS REQUIRED.

2E. SERVICE LOADING AREAS- TOWN COMPLIANT ENCLOSURE, SCREENED AS SHOWN HEREON.

2F. SHRUBS AND GROUND COVERS- REQUIRED ACROSS SITE; ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING

2G. BUFFERYARDS §1014.7.E.4.: PAD SITE ADJACENT TO INTERIOR PROPERTY LINE; ADDRESSED AT ORIGINAL PUD APPROVALS/IMPLEMENTATION- NO CHANGE REQUIRED FOR THIS INFILL BUILDING.

PROPERTY BOUNDARY CURVE TABLE

CURVE	RADIUS	ARC LENGTH	TANGENT	CHD. BEARING	CHD. LENGTH
C1	310.00'	89.77'	45.20'	S 24°45'33" E	89.46'
C2	360.00'	61.33'	30.74'	S 21°20'37" E	61.25'

LEGEND

- TRAFFIC BOLLARD
- DOWNSPOUT
- ELECTRIC TRANSFORMER
- ELECTRIC METER
- ELECTRIC HANDHOLE
- LAMP POLE
- SANITARY SEWER CLEAN OUT
- STORM DRAIN MANHOLE
- TELEPHONE PEDESTAL
- SINGLE POST SIGN
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- CABLE TV PEDESTAL
- IRON ROD FOUND
- COMPUTED POINT
- CONCRETE MONUMENT FOUND
- UNDERGROUND SANITARY SEWER
- UNDERGROUND STORMDRAIN
- UNDERGROUND ELECTRIC
- UNDERGROUND GAS
- UNDERGROUND WATER
- UNDERGROUND CABLE TV
- UNDERGROUND FIBEROPTIC
- MAJOR CONTOUR
- MINOR CONTOUR

MD COORDINATE SYSTEM (2011) NAD 83

20' 10' 0' 10' 20' 40'
SCALE IN FEET

SEE SHEET 1 OF 2 FOR EXISTING CONDITIONS & DEMOLITION PLAN.

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

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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Lane Engineering, LLC
Established 1986
Civil Engineers • Land Planning • Land Surveyors
E-mail: general@lanelnc.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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND · CHRISTOPHER B. ENGLE · 51461 · PROFESSIONAL ENGINEER

7-3-24
DATE

ILLUSTRATIVE PLAN

ON THE LANDS OF
28575 MARLBORO AVENUE
EASTON, MARYLAND
REMCO PROPERTIES, LLC

IN ELECTION WARD , TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, GRID 3, PARCEL 20, LOT 6

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	07/03/24	BCE

SHEET No. 1 OF 1

SCALE: AS NOTED

JOB No. 240109

FILE No. 9246

Land Development Consultants

Date: 07/03/2024 - 8:39am User: barnes Project Manager: BCE
Drawing Path: J:\2024\0100\240109\Civil3D-240109\Dwg\Plots\ESDR-RSK-PLTS-240109.dwg | ILLUSTRATIVE PLAN
XREF File(s): RAR-BASE-240109/RBS-BASE-2436-240109/RSK-BASE-240109/RSK-ONE-WAY-BASE-240109/XLD-BASE-240109/MSF-BASE-240109/RLD-CHOPTANK-BASE-240109/RLD-EUC-BASE-240109/LLP-BASE-240109/CSW-BASE-240109/CBS-BASE-2436-240109/XRN-BASE-240109

PROPERTY OWNER: REMCO PROPERTIES, LLC
C/O BET INVESTMENTS, INC. (PETER D'ANGLE)
200 DRYDEN ROAD, STE 2000
DRESHER, PA 19025
(610) 731-3493

PROPERTY ADDRESS: 28575 MARLBORO AVENUE
EASTON, MD 21601

DEED REFERENCE: 2897/41

PLAT REFERENCE: 82/65

SITE NOTES

ZONING CLASSIFICATION: PUD
SETBACKS:
FRONT- SEE SITE PLAN
SIDE- SEE SITE PLAN
REAR- SEE SITE PLAN

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL No. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON JUNE 23, 2021.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

THE CONTOURS SHOWN HEREON WERE TAKEN FROM FIELD RUN TOPOGRAPHY BY LANE ENGINEERING, LLC ON JUNE 23, 2021.

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 FEDERAL INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0187D FOR THE 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.

PARKING

EXISTING PARKING: 1 STORY BANK WITH DRIVE-THRU @ 1/1,500 SF GFA: 3,580 SF/1,500 = 3 SPACES MINIMUM
1 STORY BANK WITH DRIVE-THRU @ 1/200 SF GFA: 3,580 SF/200 = 18 SPACES MAXIMUM

PROPOSED PARKING: 1 STORY RESTAURANT (FAST-FOOD) @ 1/100 SF GFA: 4,160 SF/100 = 42 SPACES MINIMUM
1 STORY RESTAURANT (FAST-FOOD) @ 1/50 SF GFA: 4,160 SF/50 = 84 SPACES MAXIMUM
19 SPACES PROVIDED ON SITE.

***NET INCREASE IN REQUIRED PARKING BY 39 SPACES**

ADJACENT PROPERTY: LOT 1 WATERSIDE VILLAGE
REMCO PROPERTIES, LLC
DEED: 2684/488

EXISTING PARKING: 1 STORY RETAIL BUSINESSES @ 1/300 SF GFA: 31,940 SF/300 = 107 SPACES MINIMUM
1 STORY RETAIL BUSINESSES @ 1/200 SF GFA: 31,940 SF/200 = 160 SPACES MAXIMUM
160 SPACES PROVIDED

***SURPLUS OF 53 SPACES ON ADJACENT PROPERTY. PARKING ON OVERALL SITE TO EXCEED STANDARD BY 11 SPACES.**

NAD 83 (2011)
MD COORDINATE SYSTEM

30' 15' 0' 15' 30' 60'
SCALE IN FEET

REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

WARNING!!
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SEAL

DATE

PARKING EXHIBIT

ON THE LANDS OF
28575 MARLBORO AVENUE
EASTON, MARYLAND
REMCO PROPERTIES, LLC

IN ELECTION WARD , TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, GRID 3, PARCEL 20, LOT 6

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	07/03/24	BCE

SHEET No. 1 OF 1
JOB No. 240109
SCALE: AS NOTED
FILE No. 9246

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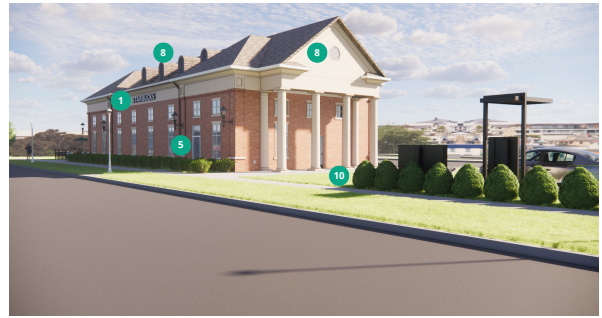
Date: 07/03/2024 - 9:04am User: barmes Project Manager: BCE
Drawing Path: J:\2024\0100\240109\Civil3D-240109\Dwg\Plots\PARKING-EXHIBIT-240109.dwg | Layout1
XREF File(s): RAR-BASE-240109/ALD-BASE-240109/TBSK-ONE-WAY-BASE-240109/CBS-BASE-2436-240109

1. 18" Wordmark - Illuminated - White
2. New DT Awning
3. New BOH door / patch and repair
4. Remove existing exterior door / patch and repair
5. New exterior, exit only door
6. New DT window / patch and repair
7. Relocate gutter
8. Repaint - SW 9542 Natural White
9. Demo existing Bank Teller Canopy / patch and repair
10. Hedges planted to screen equipment
** Coordinate with LL



SITE SIGNAGE REQUIREMENTS	
Are Illuminated signs allowed?	YES
What is the maximum number of pylon/monument signs allowed, and height restriction?	91 sqft total of exterior signage no monument sign no window signs
What is the maximum number of signs allowed on building?	total of 91 sqft
What is the maximum area/size of building signage allowed?	total of 91 sqft
What are the restrictions for directional signage?	NO
Are there any restrictions on the menu board installation?	DT equipment not counted, but must be screened from street.

REFERENCE: DESIGN ANALYSIS - EXTERIOR ENVIORNMENT
SD PROJECT SCORECARD

CONCEPT STORMWATER MANAGEMENT REPORT

For

Starbucks
Lot 6 Waterside Village
28575 Marlboro Ave, Easton, MD.

Developer

Remco Properties, LLC
C/O BET Investments, INC
200 Dryden Road, Suite 2000
Dresher, Pennsylvania 19025
(215) 938-7300 ext 110

Design Professional

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

Date Prepared

July 3, 2024

Prepared by

Matt Rajacich, E.I.T.
Civil Engineer

Reviewed by

Alec Chosta, P.E.
Civil Engineer

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. 51461; Expiration Date: 4/4/2026.

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3. STORMWATER MANAGEMENT 3
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APPENDIX B – Pre- and Post-Development Drainage Area Exhibits
APPENDIX C – HydroCAD Computations
APPENDIX D – Hynes Geotech Report
APPENDIX E – NRCS Soils Map
APPENDIX F – Old NRCS Soils Map
APPENDIX G – EcoPure Detail/MDE Approval
APPENDIX H – McCrone Plans
APPENDIX I – 10% Phosphorous Reduction Calculations

1. INTRODUCTION

The following narrative addresses stormwater management quality and quantity requirements for the site as described in the current Town of Easton Stormwater Management Ordinance. The 2000 Maryland Stormwater Design Manual Volumes I and II (Manual), as amended in 2009, is referenced in meeting these requirements.

2. GENERAL SITE AND PROJECT INFORMATION

28575 Marlboro Avenue (Lot 6) is part of the Waterside Village development and was originally developed as a bank which has since closed. The developer proposes to re-design the existing parking lot and drive-thru in order provide the necessary access for a proposed Starbucks.

The existing site is fully developed with a parking lot, drive-thru, and bank building. The existing site is 41,432 SF with 29,355 SF of impervious area (71%). There is a small bio-retention facility which treats the northern portion of the existing parking lot. The proposed development will consist of removing the existing parking lot and bio-retention feature and reconfiguring the parking/drive-thru layout to serve the needs of Starbucks. By utilizing permeable pavers, the proposed development will result in a total impervious area of 23,615 SF (57%), a net decrease of 5,740 SF.

3. STORMWATER MANAGEMENT

3.1 EXISTING SOILS CONDITIONS

The existing site is mapped as Urban based on current soil maps. 1970 soil maps show the area mapped as MxA and KpA. Both of these soils are categorized as being silty loams that act most like C soils (See Appendix G for 1970 soil reports). A geotechnical soil analysis was done across the street from the proposed development for Michaels and is attached in Appendix E. This report shows that soils near the site are mainly silt sands with some clay. Groundwater was encountered between 6 and 7 feet. Based on these findings, it is assumed that on-site soils will be classified as HSG “C” soils.

3.2 EXISTING DRAINAGE CONDITIONS

The existing parking lot has a high point at the existing drive-thru and splits drainage to the north and south of the site. A majority of the north side of the site sheetflows to an existing bio-retention area on the northwest side of the site (bio-retention #16) that was part of the original Waterside Village development. This bio-retention area outfalls into an existing stormdrain inlet with a 15” culvert. This culvert connects to a larger stormdrain system for the rest of the Waterside Village development. The southern portion of the site sheetflows to a bio-retention to the south of the subject property that was constructed as part of the original Waterside Village development. The rooftop runoff is piped directly to an existing stormdrain inlet at the northeast corner of the existing building. This rooftop runoff is un-treated until it reaches a downstream stormwater feature associated with the original Waterside Village development (Basin #1) (See Appendix I for original Waterside Village Site Plans and see Appendix C for Drainage Area Maps). The entire subject property ultimately drains into the same existing stormdrain

system, which discharges to Basin #1 on the west side of Target as shown on the original Waterside Village Site Plans.

3.3 ENVIRONMENTAL SITE DESIGN (ESD) PRACTICES - QUALITY

The existing site was designed to meet stormwater management requirements as required by the 2000 Maryland Stormwater Design Manual. The Manual was amended in 2009 to include Environmental Site Design when development occurs. The proposed development will remove an existing bio-retention area which provides 1,003 CF of WQv treatment for the existing parking lot. In order to meet the requirements of the amended stormwater manual, a target ESDv was calculated based on the proposed drainage area that will flow to the existing bio-retention outfall inlet. The remainder of the parking lot and drive aisles on site will be treated by the existing stormwater features that were constructed with the original Waterside Village development and will not be included in this analysis.

The ESDv target for the drainage area that flows to the existing bio-retention stormdrain inlet at the north of the site is **1,191 cf**. In order to meet this target. Permeable Pavers are proposed and will provide **690 cf** of treatment. Permeable pavers area effective for reducing imperviousness in pedestrian pavements, parking lots, driveways, plazas, and access roads. Permeable pavements are also useful in high-density areas where space is limited, making this an practice ideal for this site. Permeable pavers are not ideal within drive aisles and greenspace is limited on-site. In order to meet the ESDv requirement for the project, an ADS EcoPure BioFilter (BioFilter) is proposed to treat the rooftop runoff from the existing building which is currently untreated. The BioFilter will provide additional ESDv so that the site target can be met. The proposed BioFilter will provide **824 cf** of treatment. Combined, the total treatment provided is **1,514 cf**. Refer to Appendix A for detailed calculations.

According to the approval letter from MDE (Appendix H), BioFilters cannot be used as standalone ESD practices because they do not have the required drawdown times required to meet ESDv requirements. The drawdown time for the proposed BioFilter is 5 minutes. The BioFilter can still be used as long as it meets the following requirements:

The practice must be capable of capturing 25% of the design volume prior to filtration. The ESDv for the existing roof and surrounding drainage area is 598 cf and 25% of that volume is 150 cf. The proposed BioFilter provides 206 cf of pre-treatment volume.

The maximum filter surface area to drainage area ratio for a system treating runoff from once inch of rainfall is 91 SF per 20,000 SF of imperviousness. The filter surface area provided by the proposed BioFilter is 60 SF and the total contributing drainage area is only 4,429 SF.

The BioFilter cannot act as a stand-alone practice for addressing ESD requirements unless all runoff passing through the unit also passes through approved practices designed to meet channel erosion control requirements. The proposed BioFilter will act as a pre-treatment device for the existing building which is currently not being treated. This runoff will flow through the BioFilter and then into the existing stormdrain system which flows to an approved basin downstream.

3.3.1 PROPOSED DRAINAGE PLAN

Existing drainage patterns on-site will be maintained. The site has been split into 3 different drainage areas. P-1 consists of the existing building, the sidewalk north of the building and a small greenspace. This area will all drain to the proposed BioFilter and will then discharge into the same stormdrain inlet as it did prior to re-development. P-2 consists of a majority of the parking lot and greenspace on-site, and will be treated by permeable pavers and ultimately discharge into the same stormdrain system as it did prior to the re-development of this site. P-3 consists of the remainder of the

site which will continue to drain as it did prior to the re-development of this site. Drainage Area Maps are provided in Appendix B.

3.3.2 10% PHOSPHOROUS REDUCTION CALCULATIONS

Critical Area Commission requires 10% phosphorous reduction. By reducing the overall impervious area on-site, we have implicitly met this reduction requirement. The proposed permeable pavers offer additional phosphorous removal which is quantified in the reduction calculations in Appendix D. The BioFilter also reduces phosphorous loads, but since the reduction is phosphorous is already met, the phosphorous reduction from the BioFilter has not been quantified.

3.4 QUANTITY MANAGEMENT

Stormwater quantity management is required per the Town of Easton SWM ordinance, which requires management of the 2 & 10-year peak storm runoff rate and safe conveyance of the 100-year peak storm. The proposed development will reduce the impervious area on-site by 5,740 SF which implicitly reduces runoff from the site. A HydroCAD analysis was done to ensure that quantity requirements were met at both POI-1 and POI-2.

The proposed Drainage Areas are shown in Appendix C.

	2 Year Storm (cfs)		**10 Year Storm (cfs)**		**100 Year Storm (cfs)**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
Study Point 1	0.42	0.41	0.66	0.65	0.95	0.94
Study Point 2	1.26	0.95	2.04	1.75	2.96	2.74
TOTAL	1.68	1.36	2.70	2.40	3.91	3.68
NET REDUCTION	**0.32**		**0.30**		**0.23**	

The analysis results show that the 2- and 10-year storm events developed condition peak runoff rates are less than the existing conditions peak runoff rates. The 100-year storm event runoff is safely conveyed to the existing points of discharges. HydroCAD computations are included in Appendix D.

4. CONCLUSION

The project design meets the intent of the Town of Easton's Stormwater Management Ordinance for both water quality treatment and water quantity control.

As demonstrated, the project design has incorporated planning and development strategies and has evaluated ESD practices for application and compatibility with the existing site conditions, project design objectives and required ESD design parameters. ESD has been met to the MEP for this commercial site.

The quantitative management also meets town requirements.

It is respectfully requested that the stormwater analysis and report and project design be approved as presented.

APPENDIX A

- ESD CALCULATIONS

ESD Target for Parking Lot Development

Drainage Area = 14,542 sf (Drainage area to Bio-retention #16 inlet)

Onsite Soils in LOD: "HSG C"

Proposed Parking, and Sidewalks= 7,473 sf;

Impervious I = 51%

R_v = 0.05 + 0.009 (I) = 0.05 + 0.009 (51%) = 0.509

Based on I = 51%: HSG C P_E = 1.8"

$ESD_{V\_Total\_Target} = \frac{(Pe)(Rv)(A)}{12} = \frac{(1.8)(0.509)(14{,}542)}{12}$ = **1,110 cf**

Permeable Pavers (A-2)

$ESD_{Provided}$ = Total Paver Area X ESDv Per HSG = 4316 X 0.160 = **690 cf**

5' x 12' ADS EcoPure BioFilter MDE 60 (M-6)

$ESD_{Provided}$ per ADS Detail = **824 cf**

Total $ESD_{Provided}$ = **690 cf** + **824 cf** = **1,514 cf**

ESD_V (provided) > ESD_V (target)

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv ($FT.^3$)	ACTUAL ESDv ($ft.^3$)
1	M-6	ECOPURE BIOFILTER MDE 60 PERMEABLE PAVERS	ON-SITE	-	407729.91	1573187.68	0.102	0.096	0.001	1.8	1.8	-	690
2	A-2		ON-SITE	-	407744.91	1573105.93	0.334	0.172	0.099	1.8	2	-	**824
3													
4				-								-	-
5												-	-
6													
7													
8													
9													
10													
TOTAL/ AVERAGE				-			0.436	0.268	0.100	1.8	1.9	*1,110	1,514

* TOTAL SITE TARGET FOR DRAINAGE AREA TO EXISTING INLET ON-SITE

** EXISTING ROOF AREA IS NOT BEING TREATED PRESENT DAY AND THERE IS NO ESDv REQUIREMENT AS THE AREA PRE-DATES CURRENT STORMWATER REGULATIONS. ESDv WILL BE PROVIDED BY 5' X 12' ADS ECOPURE BIOFILTER MDE 60. FEATURE WILL PROVIDE ADDITIONAL TREATMENT SO THAT THE PROPOSED DEVELOPMENT MEETS THE DRAINAGE AREA TARGET.

TOWN OF EASTON MARYLAND · FOUNDED 1710 ·

APPROVAL

TOWN ENGINEER

1/2020

DATE

TOWN OF EASTON
STANDARD DETAILS

ESD SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-7.01

SWM QUANTITY SUMMARY CHART

PRACTICE	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	W.S.E.	PRE 10 YEAR	POST 10 YEAR	W.S.E.	PRE 100 YEAR	POST 100 YEAR	W.S.E.
M-6	0.102	0.096	-	5	0.42	0.41	-	0.66	0.65	-	0.95	0.94	-
A-2	0.334	0.172	-	5	1.26	0.95	-	2.04	1.75	-	2.96	2.74	-

TOWN OF EASTON MARYLAND · FOUNDED 1710

APPROVAL

TOWN ENGINEER

1/2020
DATE

TOWN OF EASTON
STANDARD DETAILS

SWM QUANTITY SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-7.02

APPENDIX B

- DRAINAGE AREA MAPS

PROPERTY BOUNDARY CURVE TABLE					
CURVE	RADIUS	ARC LENGTH	TANGENT	CHD. BEARING	CHD. LENGTH
C1	310.00'	89.77'	45.20'	S 24°45'33" E	89.46'
C2	360.00'	61.33'	30.74'	S 21°20'37" E	61.25'

SWM PRE DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.42	0.66	0.95
2	1.26	2.04	2.96

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
EX-1	3,580	1.00	100%	EXISTING BUILDING
EX-2	14,168	5.00	85%	CUSTOMER PARKING & DRIVE-THRU
EX-3	23,684	—	58%	RESIDUAL

SHOPPING CENTER ACCESS ROAD

15' WIDE UTILITY EASEMENT PLAT: 82/23 ITEM# 20F

PK NAIL FOUND

CONCRETE PAD

TRUNCATED DOME

CURB CUT ENTRANCE

TAX MAP 34, PARCEL 20, LOT 6
AREA = 0.951 AC.± (41,432 SF.±)

EX-3

EX-2

EX-1

2 STORY BRICK BUILDING
FFE = 15.94'
FOOTPRINT = 3,580 SF.

POI #2

POI #1

CONCRETE SIDEWALK

EDGE OF ROAD

MARLBORO AVENUE
60' WIDE PUBLIC RIGHT-OF-WAY

PARKING LOT DRIVE AISLE

TAX MAP 34, PARCEL 20, LOT 1
REMCO PROPERTIES, LLC
DEED: 2684/488

PK NAIL TO BE SET

PK NAIL FOUND

ASPHALT PARKING LOT

DRIVE-THRU WITH OVERHANG

TAX MAP 34, PARCEL 20, LOT 4
TARGET CORPORATION
DEED: 1549/88

TRUNCATED DOME

CONCRETE PAD

PK NAIL TO BE SET

CURB CUT ENTRANCE

PARKING LOT DRIVE AISLE

Benchmark #1, ELEV & HYD-BOLT
15.39'

Benchmark #2, Other, ELEV = HYD-BOLT
16.65'

NAD 83 (2011)
MD COORDINATE SYSTEM

20' 10' 0' 10' 20' 40'
SCALE IN FEET

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@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND
BRUCE CHRISTOPHER ESTOCIN
51461
PROFESSIONAL ENGINEER

DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

ON THE LANDS OF
REMCO PROPERTIES, LLC

IN ELECTION WARD , TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, GRID 3, PARCEL 20, LOT 6

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	07/02/24	BCE

SHEET No. 1 OF 2

SCALE: AS NOTED

JOB No. 240109

FILE No. 9246

Date: 07/02/2024 - 3:03pm User: mrajcich Project Manager: BCE
Drawing Path: J:\2024\0100\240109\Civil3D-240109\Dwg\Plots\CDA-PLTS-240109.dwg | Pre
XREF File(s): VDA-BASE-240109/CDA-BASE-240109/CSW-BASE-240109/RSK-ONE-WAY-BASE-240109/VSF-BASE-240109/NLD-BASE-240109/CBS-BASE-2436-240109

PROPERTY BOUNDARY CURVE TABLE					
CURVE	RADIUS	ARC LENGTH	TANGENT	CHD. BEARING	CHD. LENGTH
C1	310.00'	89.77'	45.20'	S 24°45'33" E	89.46'
C2	360.00'	61.33'	30.74'	S 21°20'37" E	61.25'

SWM POST DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.41	0.65	0.94
2	0.95	1.75	2.74

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
P-1	4,429	5.00	95%	EXISTING BUILDING
P-2	14,542	5.00	51%	CUSTOMER PARKING & DRIVE-THRU
P-3	22,462	—	53%	RESIDUAL

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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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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND
BRUCE E. CROST
51461
PROFESSIONAL ENGINEER

DATE

POST-DEVELOPMENT DRAINAGE AREA MAP

ON THE LANDS OF
REMCO PROPERTIES, LLC

IN ELECTION WARD , TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 34, GRID 3, PARCEL 20, LOT 6

ISSUED/REVISED FOR:	DATE:	BY:
ESDR SUBMITTAL	07/02/24	BCE

SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 240109
FILE No. 9246

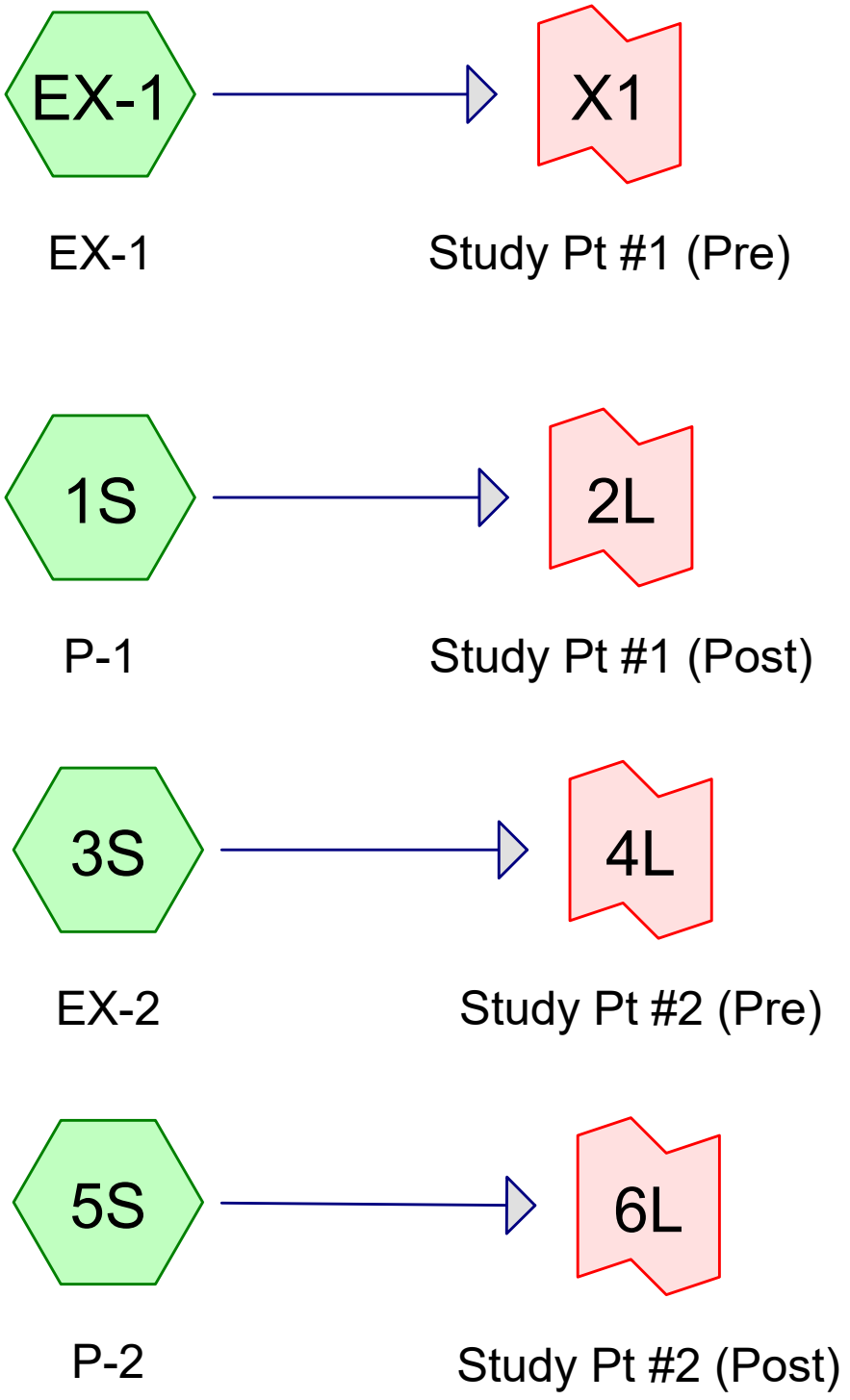
20' 10' 0' 10' 20' 40'
SCALE IN FEET

NAD 83 (2011)
MD COORDINATE SYSTEM

Date: 07/02/2024 - 3:03pm User: mrajcich Project Manager: BCE
Drawing Path: J:\2024\0100\240109\Civil3D-240109\Dwg\Plots\CDA-PLTS-240109.dwg | Post
XREF File(s): VDA-BASE-240109/CDA-BASE-240109/CSW-BASE-240109/RSK-ONE-WAY-BASE-240109/VSF-BASE-240109/NLD-BASE-240109/CBS-BASE-2436-240109

APPENDIX C

- HYDROCAD COMPUTATIONS



Subcat Reach Pond Link

Routing Diagram for 240109 - ConceptHydroCAD
Prepared by {enter your company name here}, Printed 7/2/2024
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: P-1

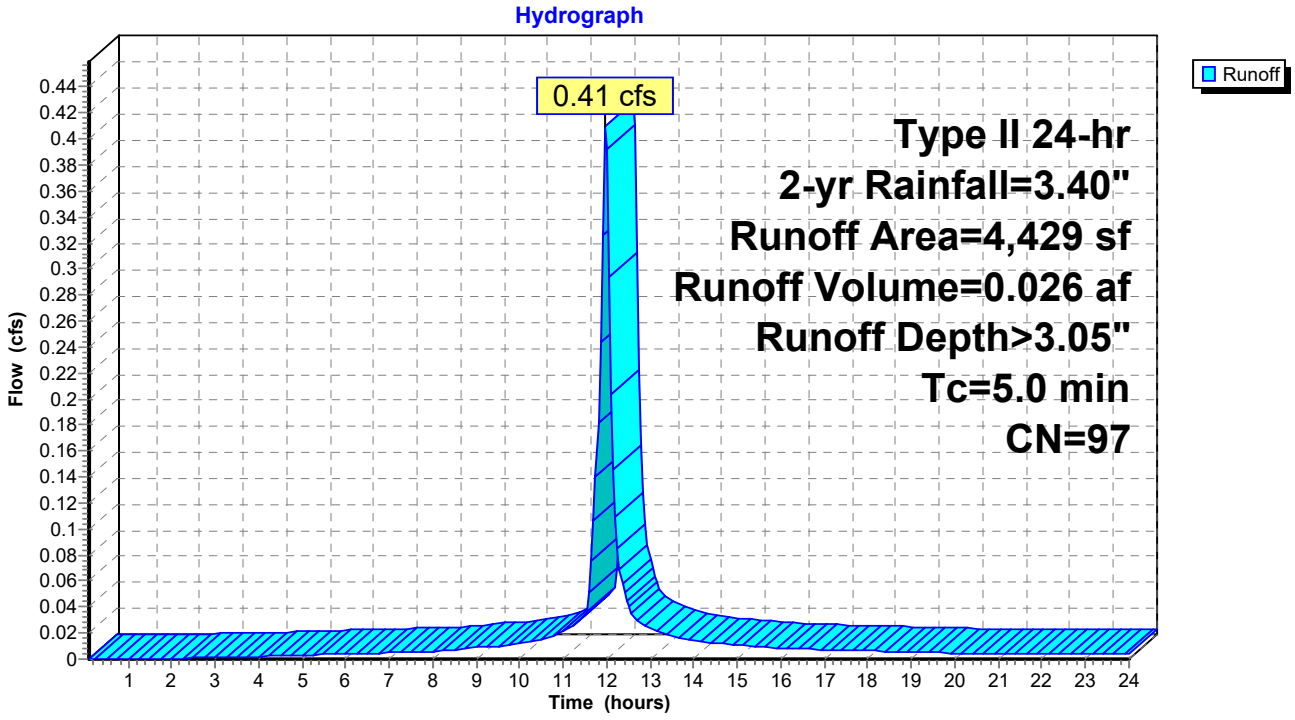
Runoff = 0.41 cfs @ 11.97 hrs, Volume= 0.026 af, Depth> 3.05"

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

Area (sf)	CN	Description
4,185	98	Paved parking, HSG C
244	74	>75% Grass cover, Good, HSG C
4,429	97	Weighted Average
244		5.51% Pervious Area
4,185		94.49% Impervious Area

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

Subcatchment 1S: P-1



Summary for Subcatchment 3S: EX-2

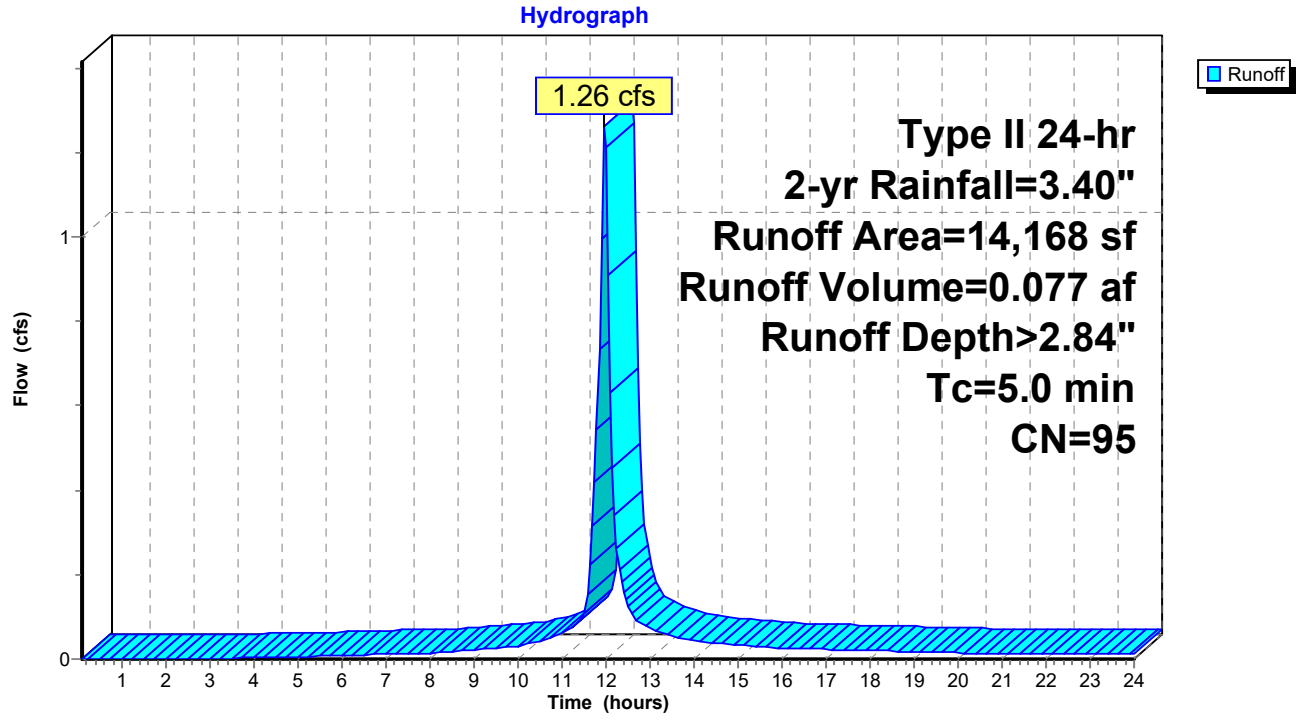
Runoff = 1.26 cfs @ 11.97 hrs, Volume= 0.077 af, Depth> 2.84"

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

Area (sf)	CN	Description
12,112	98	Paved parking, HSG C
2,056	74	>75% Grass cover, Good, HSG C
14,168	95	Weighted Average
2,056		14.51% Pervious Area
12,112		85.49% Impervious Area

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

Subcatchment 3S: EX-2



Summary for Subcatchment 5S: P-2

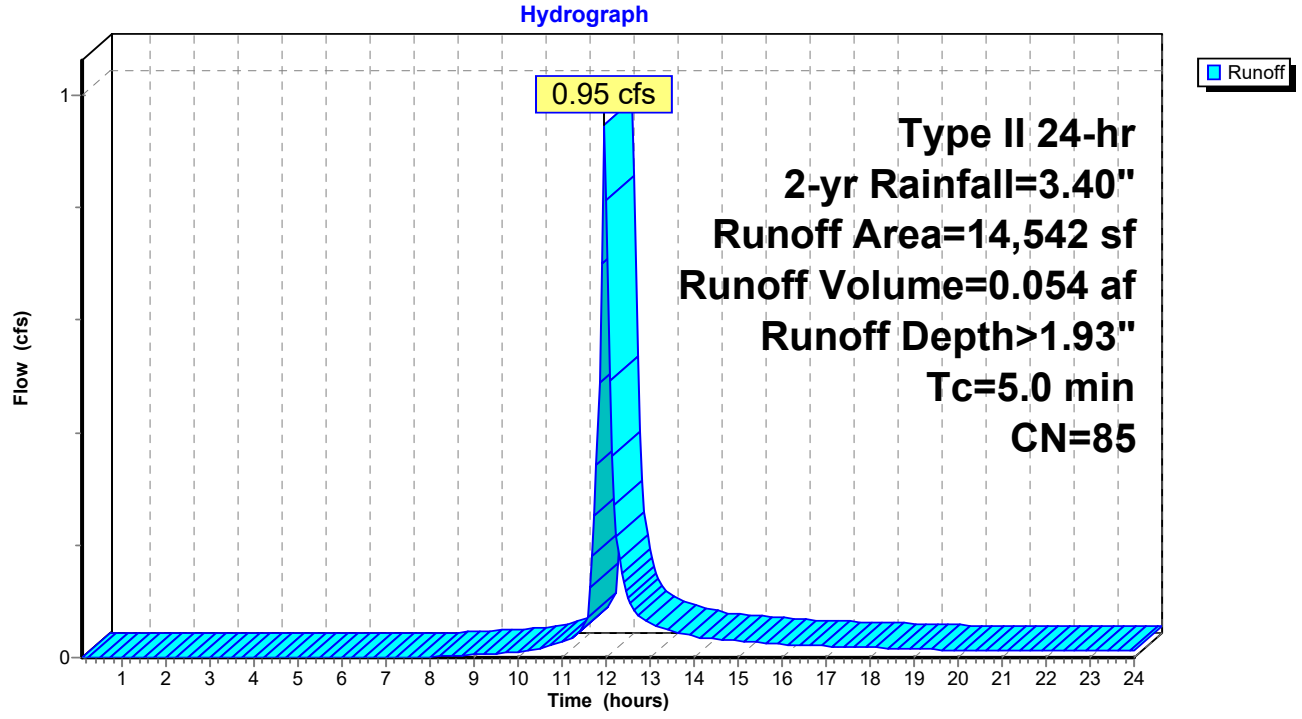
Runoff = 0.95 cfs @ 11.98 hrs, Volume= 0.054 af, Depth> 1.93"

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

Area (sf)	CN	Description
7,473	98	Paved parking, HSG C
4,316	70	Woods, Good, HSG C
2,753	74	>75% Grass cover, Good, HSG C
14,542	85	Weighted Average
7,069		48.61% Pervious Area
7,473		51.39% Impervious Area

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

Subcatchment 5S: P-2



Summary for Subcatchment EX-1: EX-1

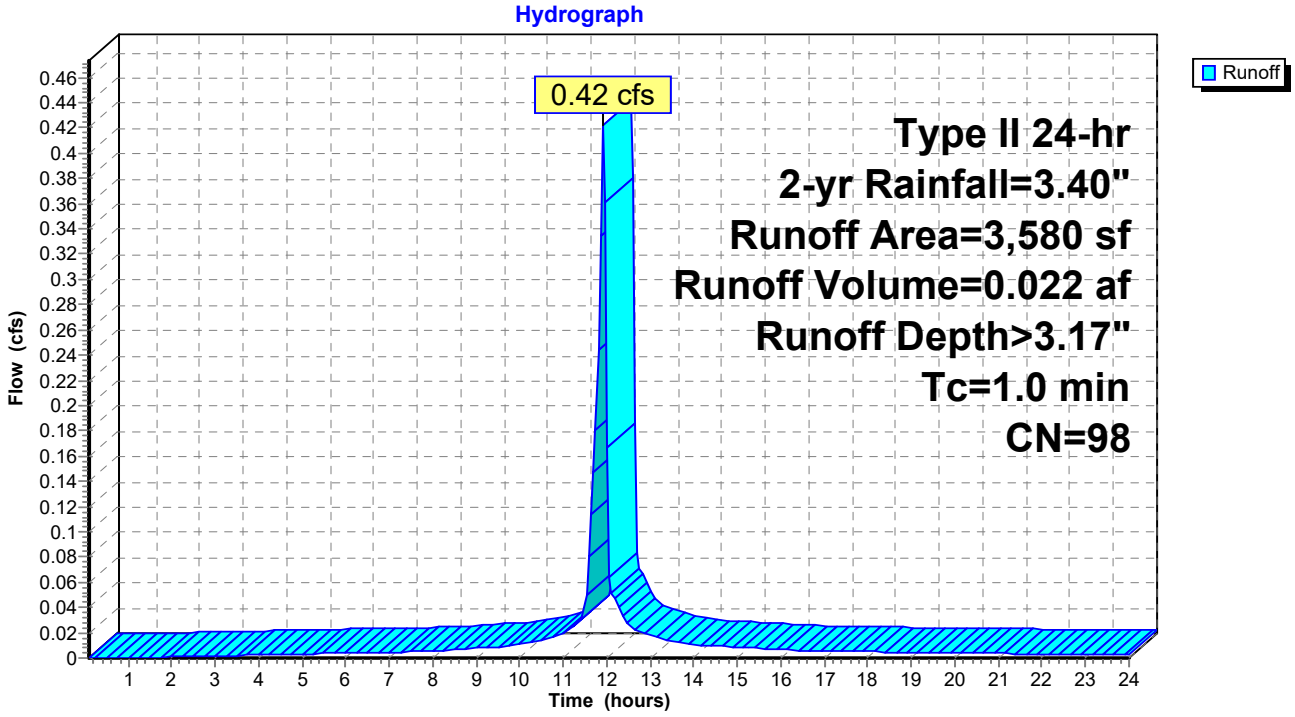
Runoff = 0.42 cfs @ 11.90 hrs, Volume= 0.022 af, Depth> 3.17"

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

Area (sf)	CN	Description
3,580	98	Unconnected roofs, HSG C
3,580		100.00% Impervious Area
3,580		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, 1**

Subcatchment EX-1: EX-1

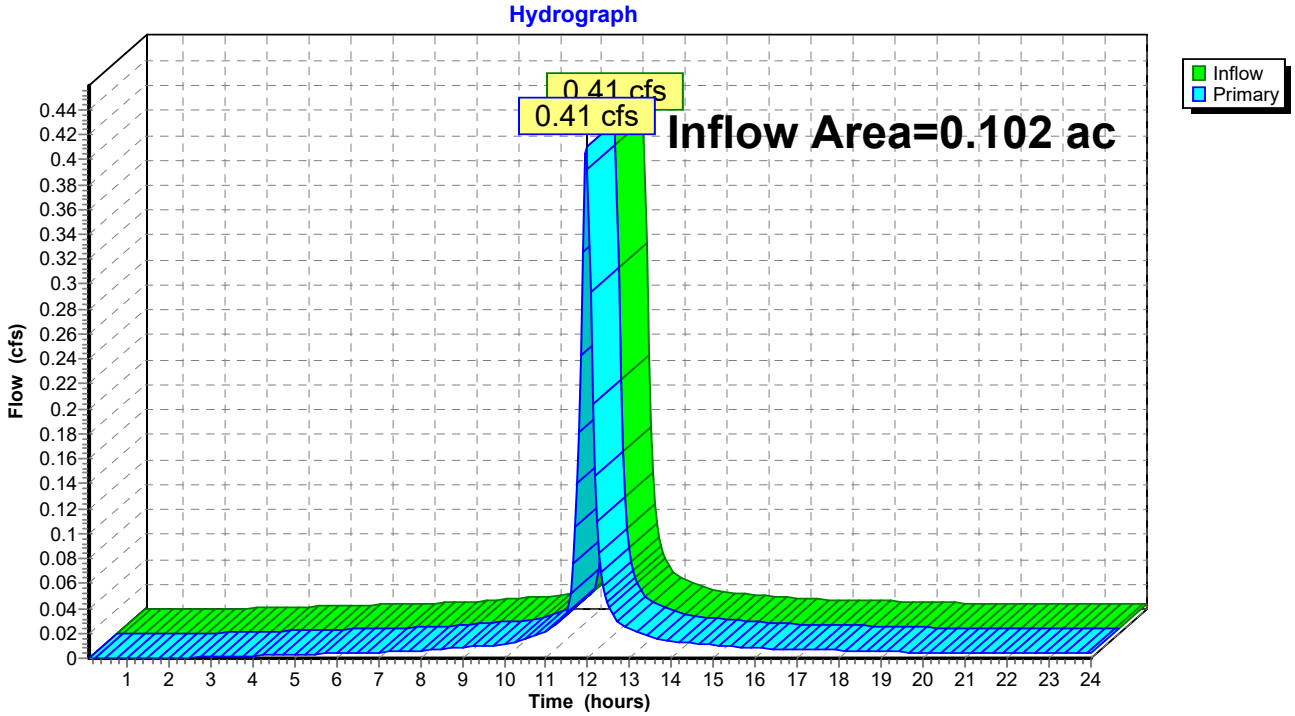


Summary for Link 2L: Study Pt #1 (Post)

Inflow Area = 0.102 ac, 94.49% Impervious, Inflow Depth > 3.05" for 2-yr event
Inflow = 0.41 cfs @ 11.97 hrs, Volume= 0.026 af
Primary = 0.41 cfs @ 11.97 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Study Pt #1 (Post)

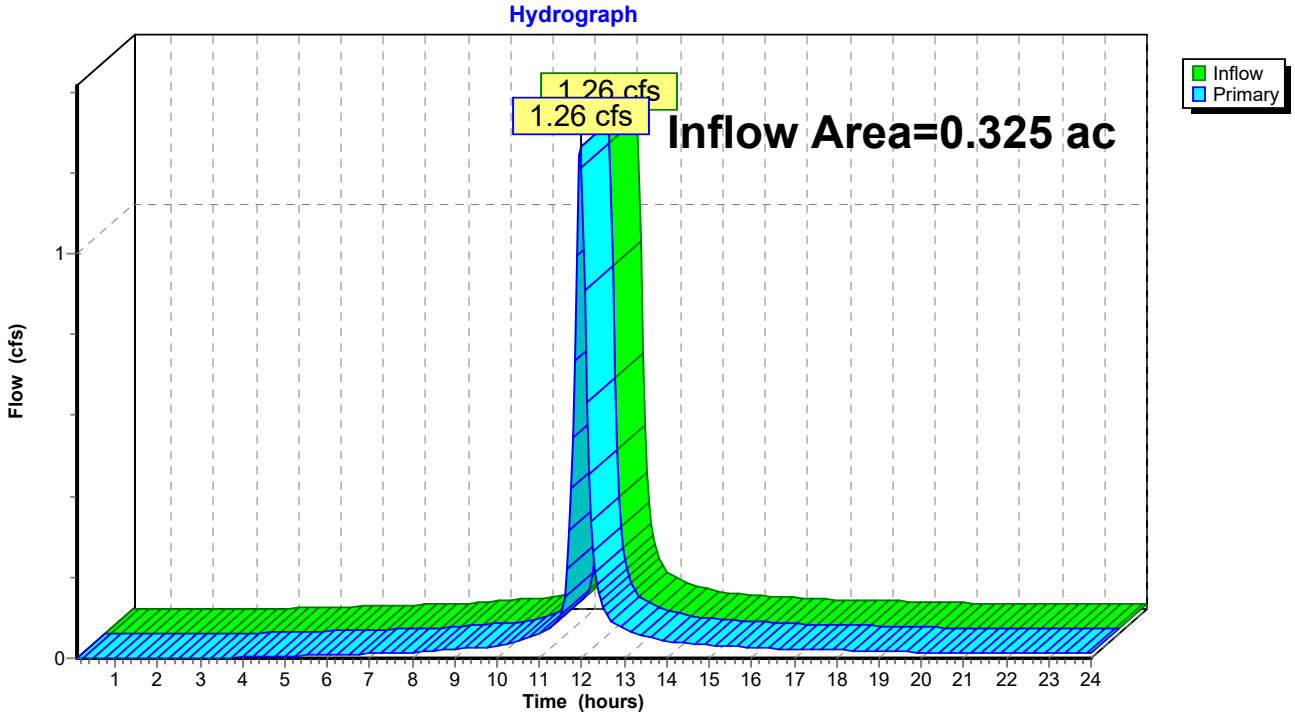


Summary for Link 4L: Study Pt #2 (Pre)

Inflow Area = 0.325 ac, 85.49% Impervious, Inflow Depth > 2.84" for 2-yr event
Inflow = 1.26 cfs @ 11.97 hrs, Volume= 0.077 af
Primary = 1.26 cfs @ 11.97 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min

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

Link 4L: Study Pt #2 (Pre)

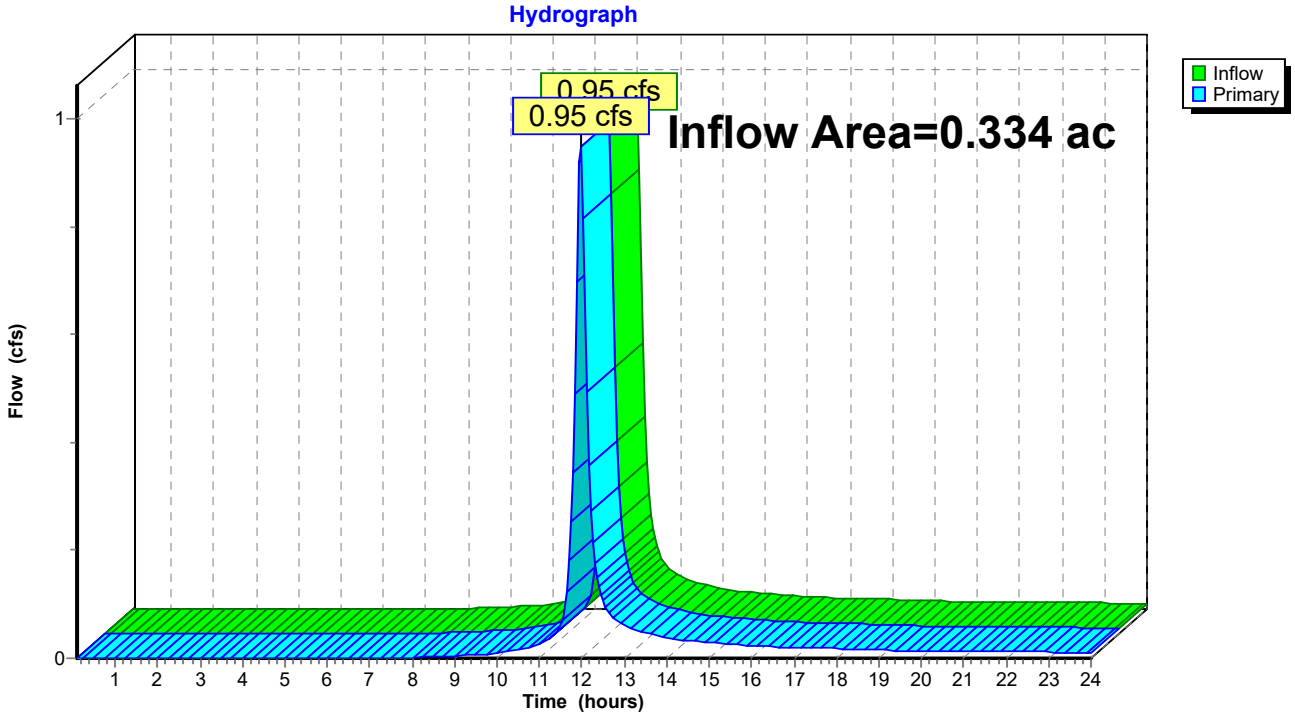


Summary for Link 6L: Study Pt #2 (Post)

Inflow Area = 0.334 ac, 51.39% Impervious, Inflow Depth > 1.93" for 2-yr event
Inflow = 0.95 cfs @ 11.98 hrs, Volume= 0.054 af
Primary = 0.95 cfs @ 11.98 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

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

Link 6L: Study Pt #2 (Post)

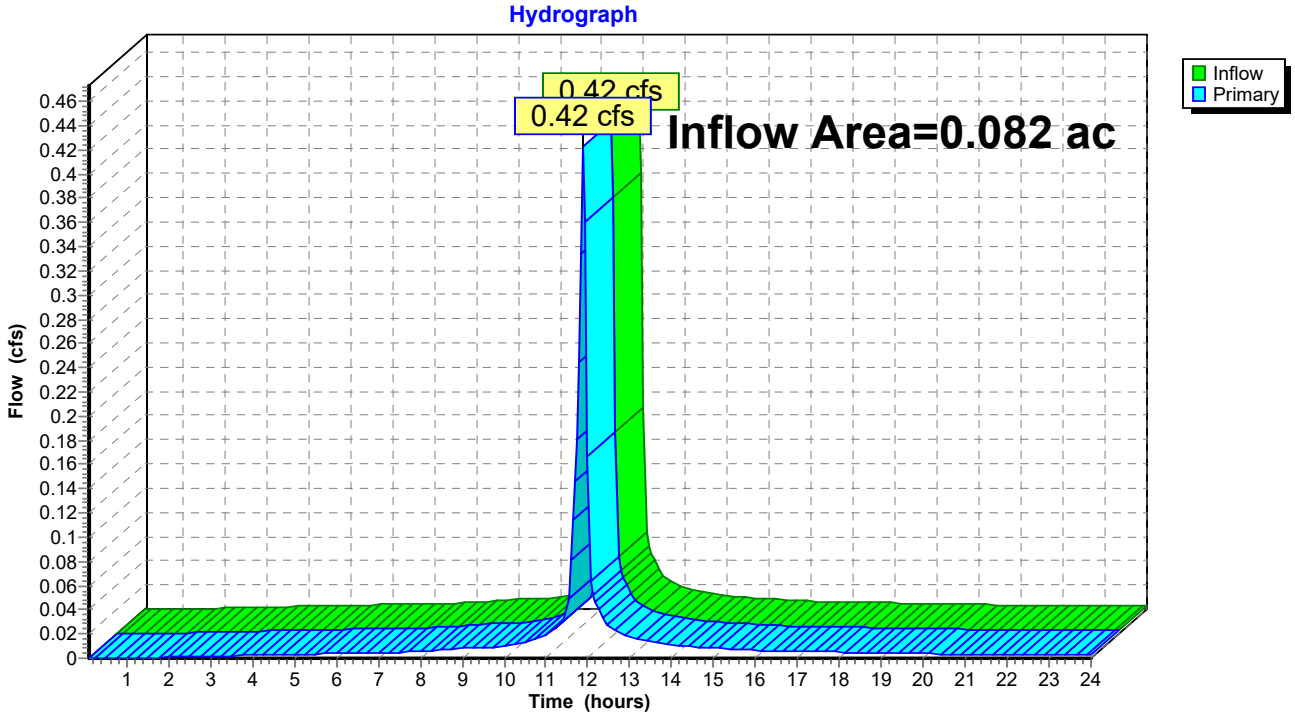


Summary for Link X1: Study Pt #1 (Pre)

Inflow Area = 0.082 ac,100.00% Impervious, Inflow Depth > 3.17" for 2-yr event
Inflow = 0.42 cfs @ 11.90 hrs, Volume= 0.022 af
Primary = 0.42 cfs @ 11.90 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

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

Link X1: Study Pt #1 (Pre)



Summary for Subcatchment 1S: P-1

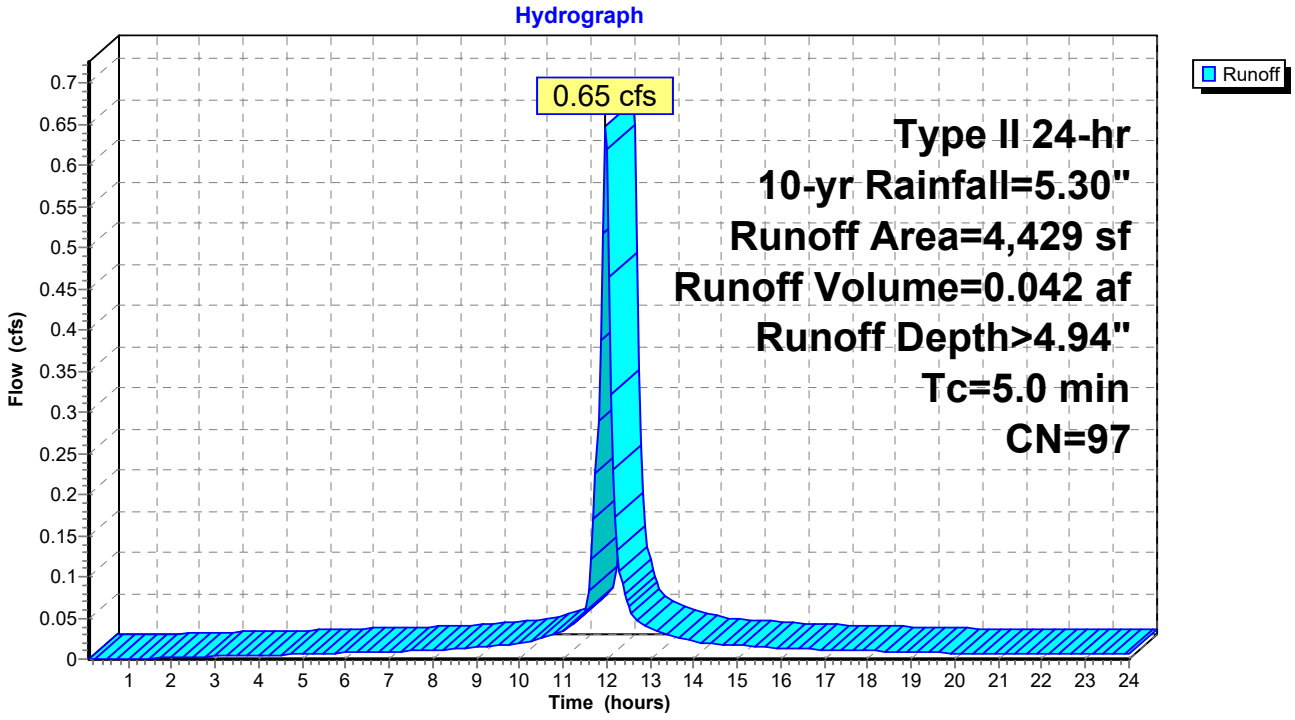
Runoff = 0.65 cfs @ 11.97 hrs, Volume= 0.042 af, Depth> 4.94"

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

Area (sf)	CN	Description
4,185	98	Paved parking, HSG C
244	74	>75% Grass cover, Good, HSG C
4,429	97	Weighted Average
244		5.51% Pervious Area
4,185		94.49% Impervious Area

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

Subcatchment 1S: P-1



Summary for Subcatchment 3S: EX-2

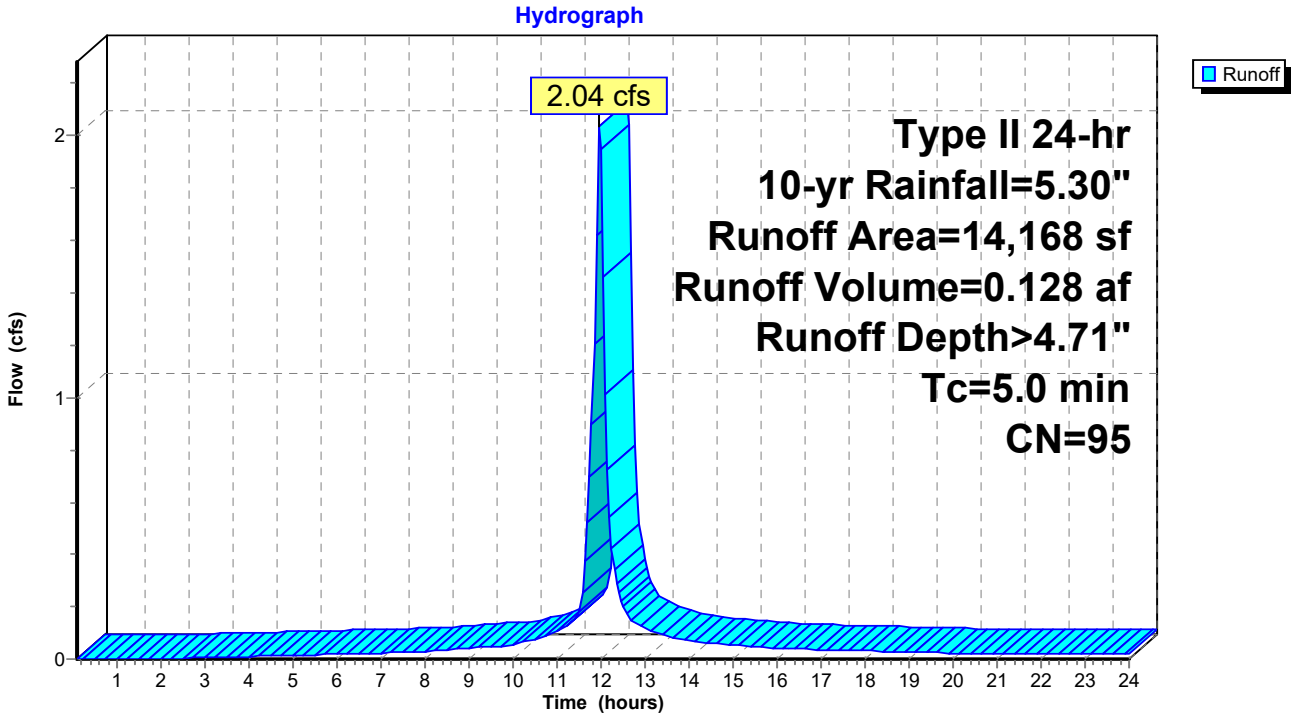
Runoff = 2.04 cfs @ 11.97 hrs, Volume= 0.128 af, Depth> 4.71"

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

Area (sf)	CN	Description
12,112	98	Paved parking, HSG C
2,056	74	>75% Grass cover, Good, HSG C
14,168	95	Weighted Average
2,056		14.51% Pervious Area
12,112		85.49% Impervious Area

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

Subcatchment 3S: EX-2



Summary for Subcatchment 5S: P-2

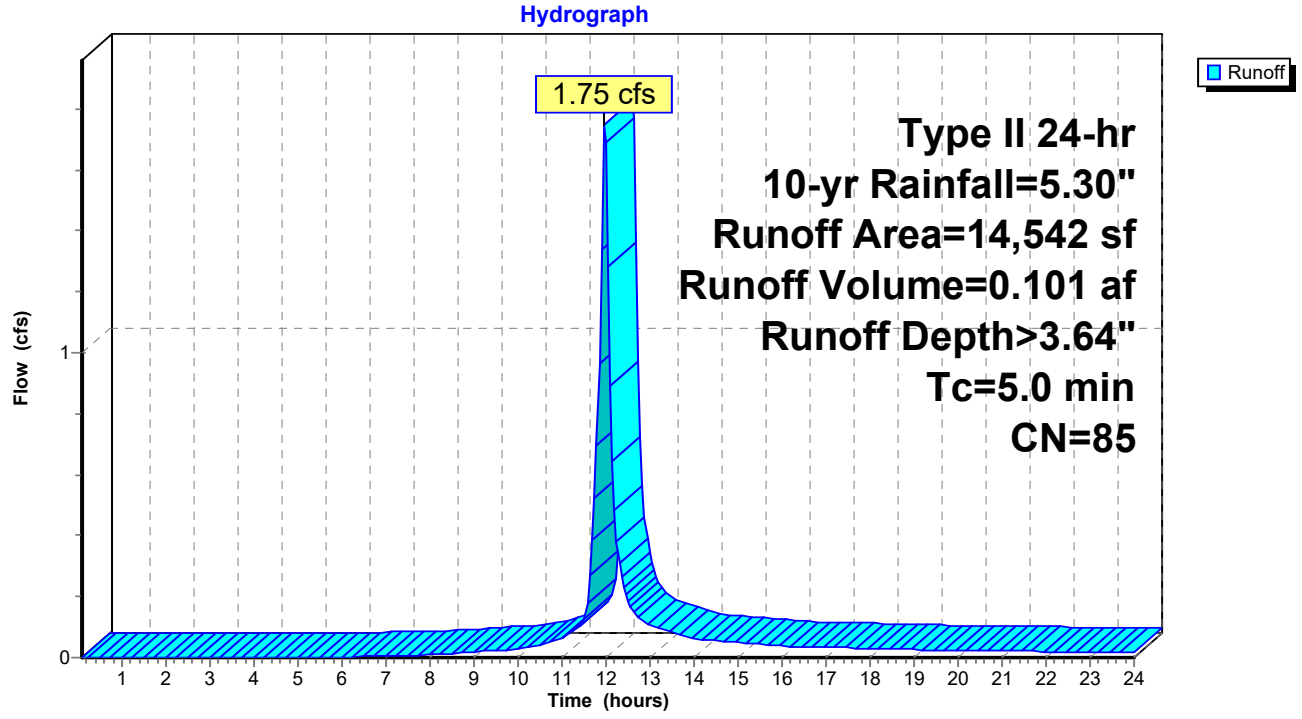
Runoff = 1.75 cfs @ 11.97 hrs, Volume= 0.101 af, Depth> 3.64"

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

Area (sf)	CN	Description
7,473	98	Paved parking, HSG C
4,316	70	Woods, Good, HSG C
2,753	74	>75% Grass cover, Good, HSG C
14,542	85	Weighted Average
7,069		48.61% Pervious Area
7,473		51.39% Impervious Area

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

Subcatchment 5S: P-2



Summary for Subcatchment EX-1: EX-1

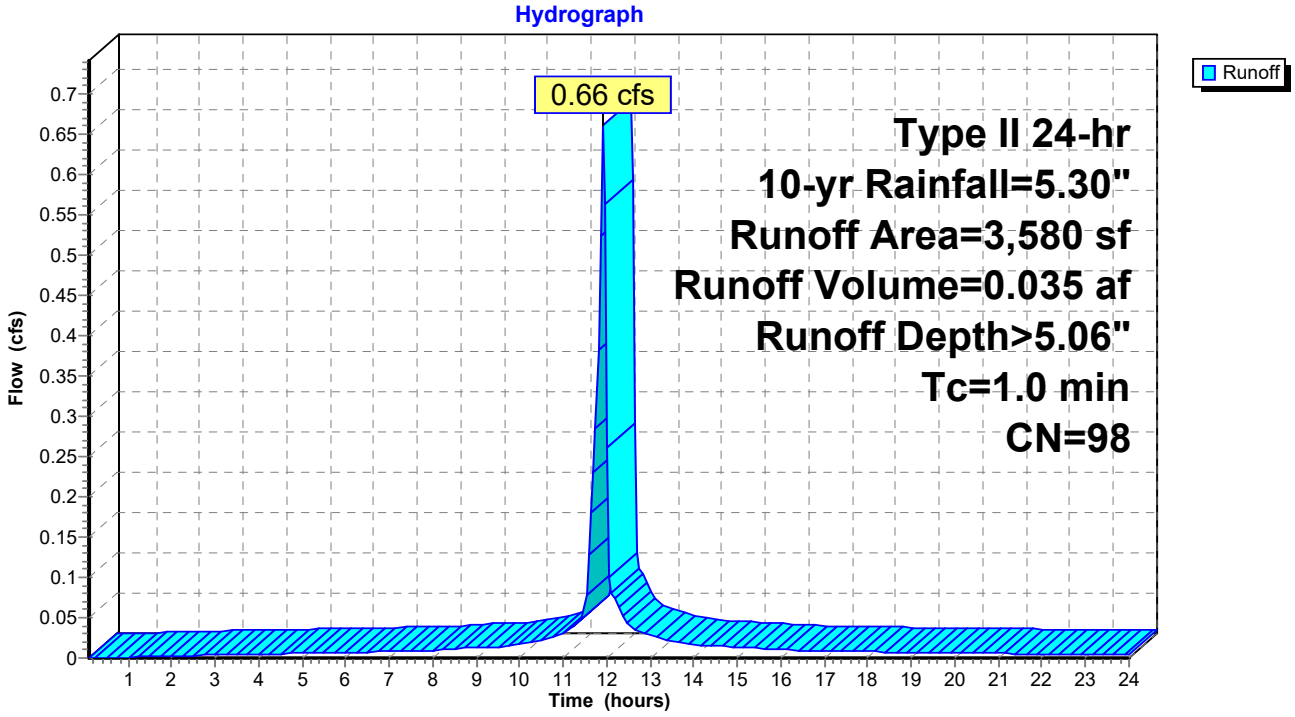
Runoff = 0.66 cfs @ 11.90 hrs, Volume= 0.035 af, Depth> 5.06"

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

Area (sf)	CN	Description
3,580	98	Unconnected roofs, HSG C
3,580		100.00% Impervious Area
3,580		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, 1**

Subcatchment EX-1: EX-1

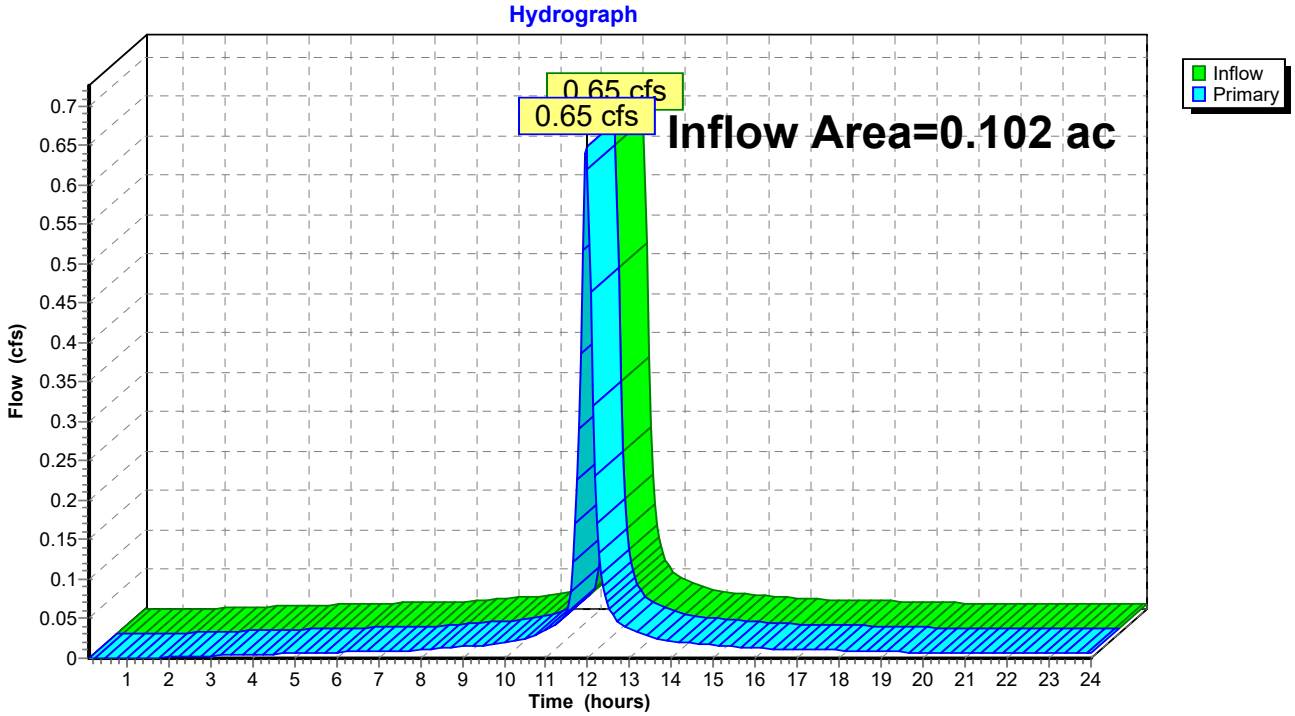


Summary for Link 2L: Study Pt #1 (Post)

Inflow Area = 0.102 ac, 94.49% Impervious, Inflow Depth > 4.94" for 10-yr event
Inflow = 0.65 cfs @ 11.97 hrs, Volume= 0.042 af
Primary = 0.65 cfs @ 11.97 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Study Pt #1 (Post)

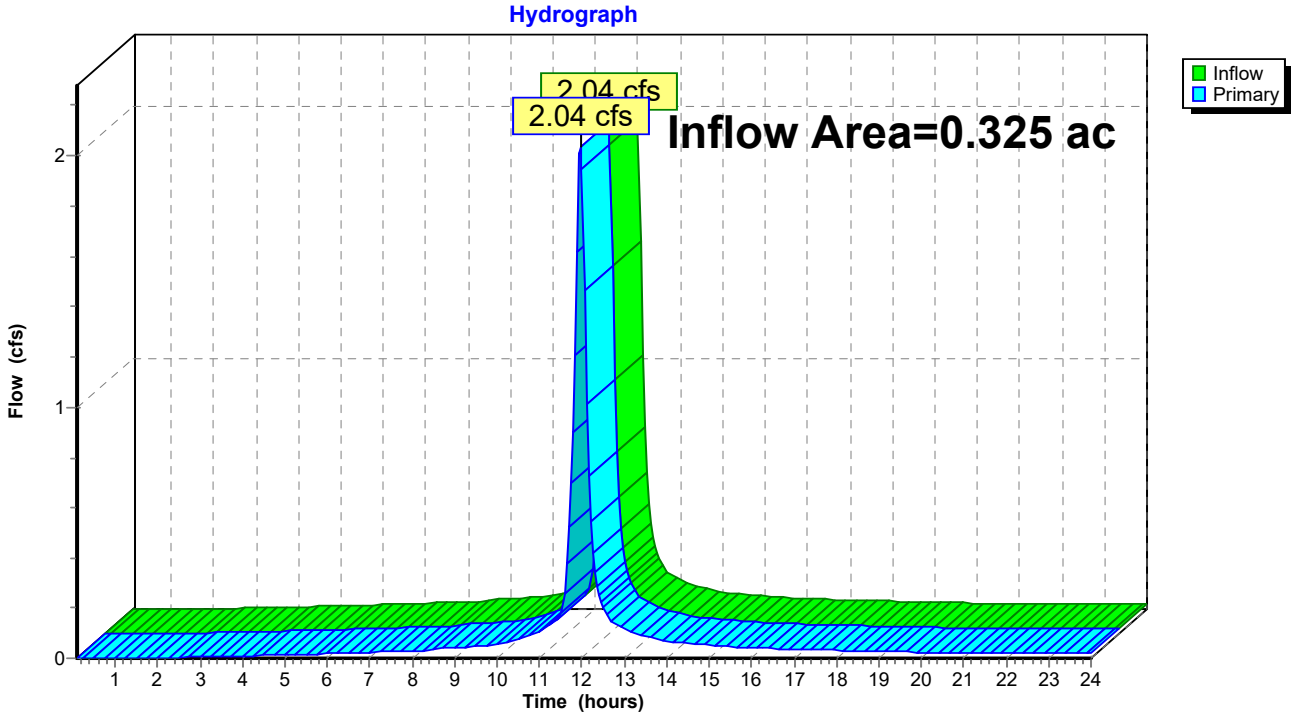


Summary for Link 4L: Study Pt #2 (Pre)

Inflow Area = 0.325 ac, 85.49% Impervious, Inflow Depth > 4.71" for 10-yr event
Inflow = 2.04 cfs @ 11.97 hrs, Volume= 0.128 af
Primary = 2.04 cfs @ 11.97 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min

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

Link 4L: Study Pt #2 (Pre)

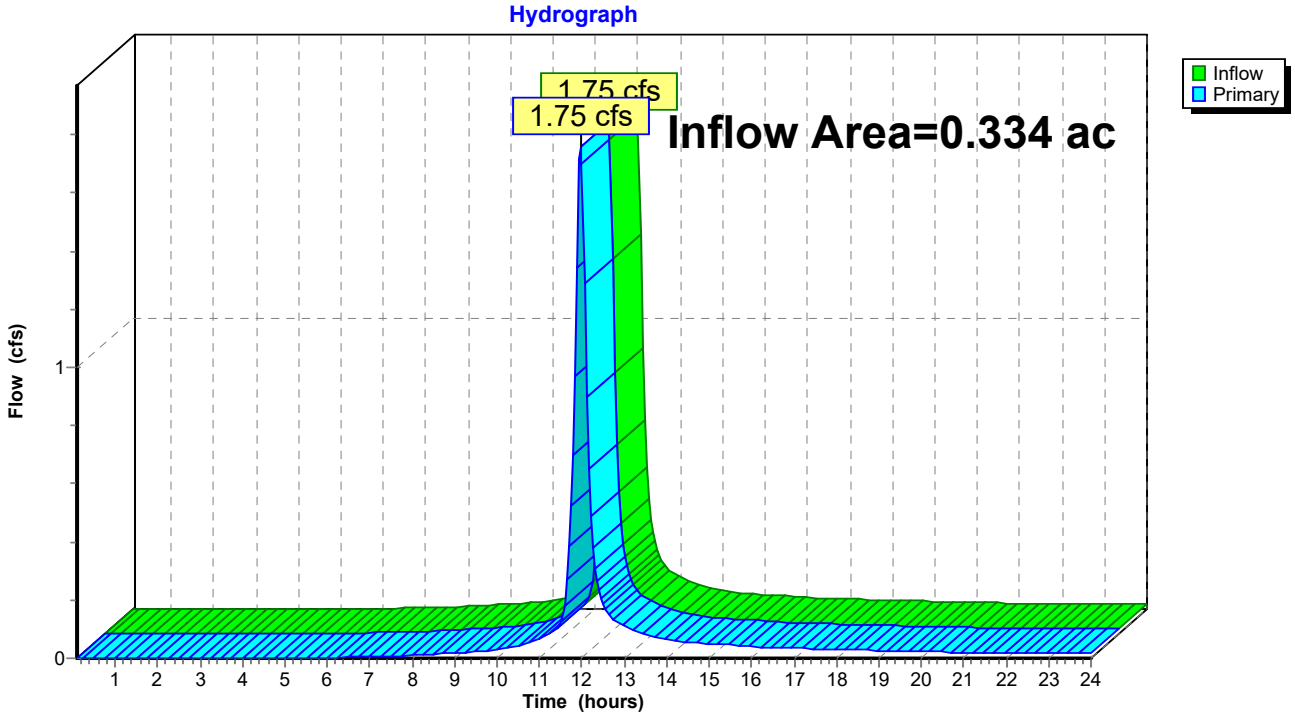


Summary for Link 6L: Study Pt #2 (Post)

Inflow Area = 0.334 ac, 51.39% Impervious, Inflow Depth > 3.64" for 10-yr event
Inflow = 1.75 cfs @ 11.97 hrs, Volume= 0.101 af
Primary = 1.75 cfs @ 11.97 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

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

Link 6L: Study Pt #2 (Post)

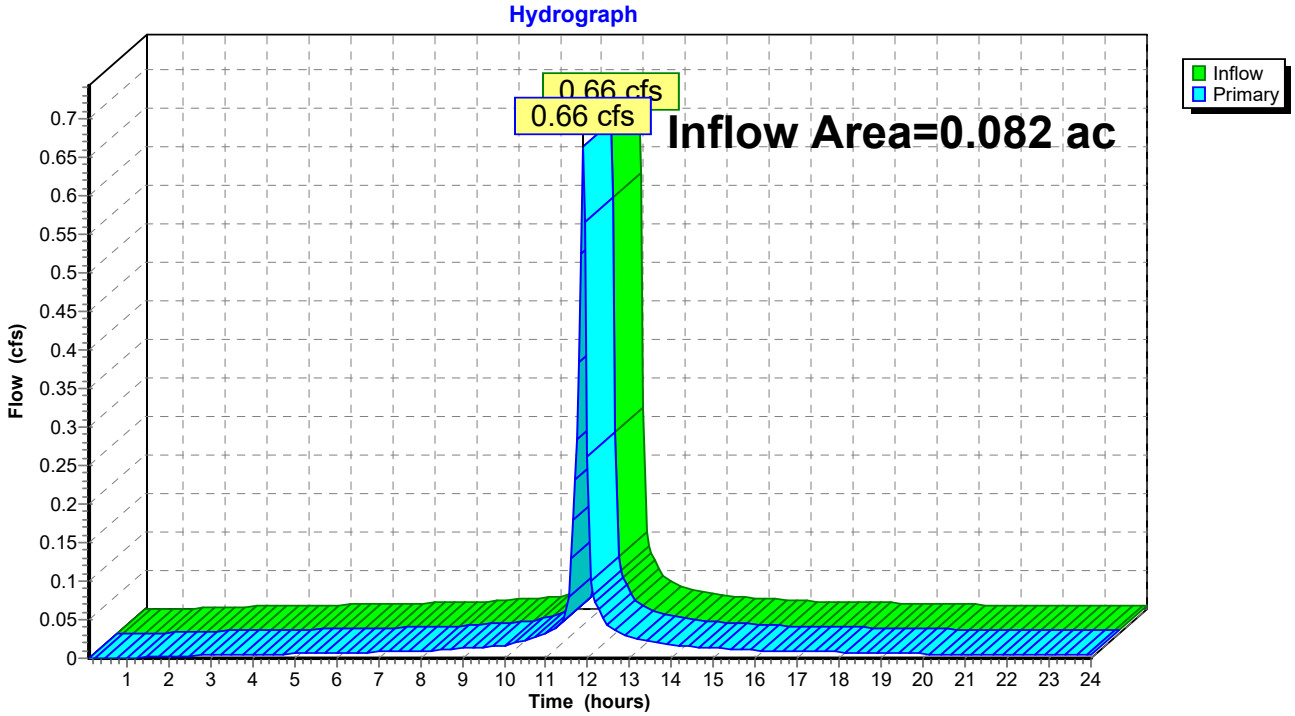


Summary for Link X1: Study Pt #1 (Pre)

Inflow Area = 0.082 ac,100.00% Impervious, Inflow Depth > 5.06" for 10-yr event
Inflow = 0.66 cfs @ 11.90 hrs, Volume= 0.035 af
Primary = 0.66 cfs @ 11.90 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

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

Link X1: Study Pt #1 (Pre)



Summary for Subcatchment 1S: P-1

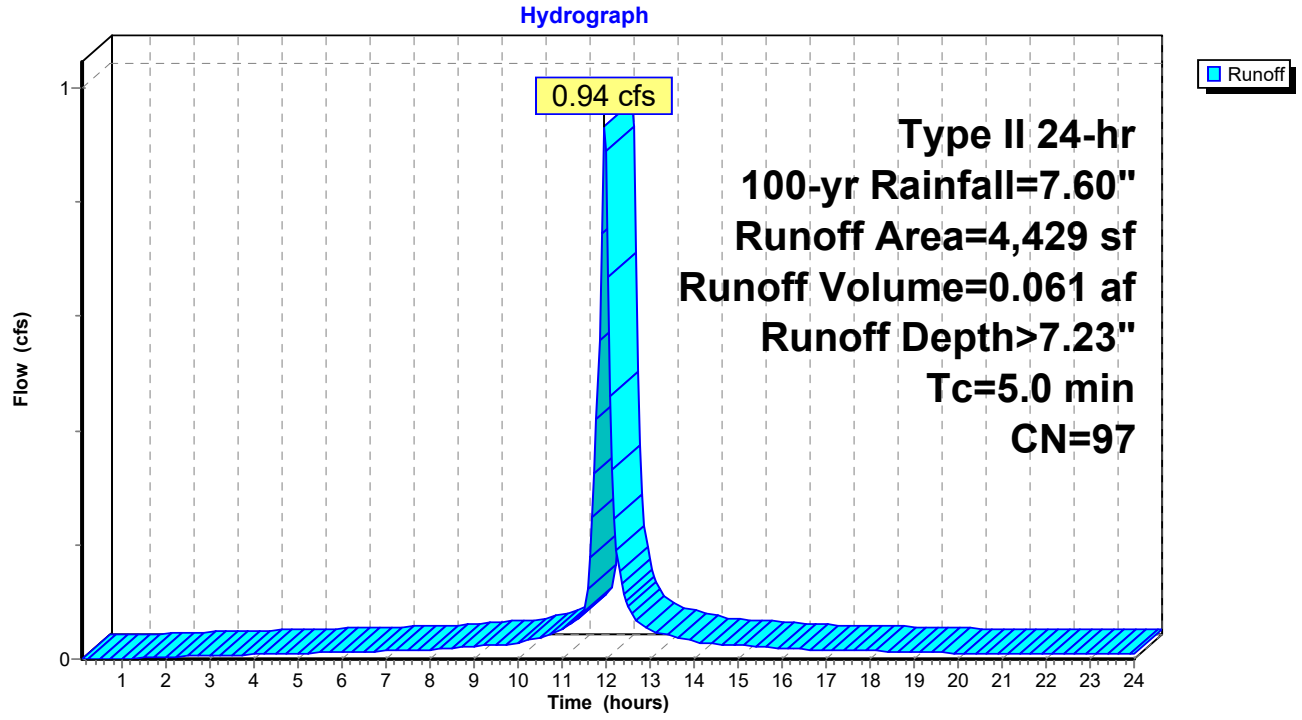
Runoff = 0.94 cfs @ 11.97 hrs, Volume= 0.061 af, Depth> 7.23"

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

Area (sf)	CN	Description
4,185	98	Paved parking, HSG C
244	74	>75% Grass cover, Good, HSG C
4,429	97	Weighted Average
244		5.51% Pervious Area
4,185		94.49% Impervious Area

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

Subcatchment 1S: P-1



Summary for Subcatchment 3S: EX-2

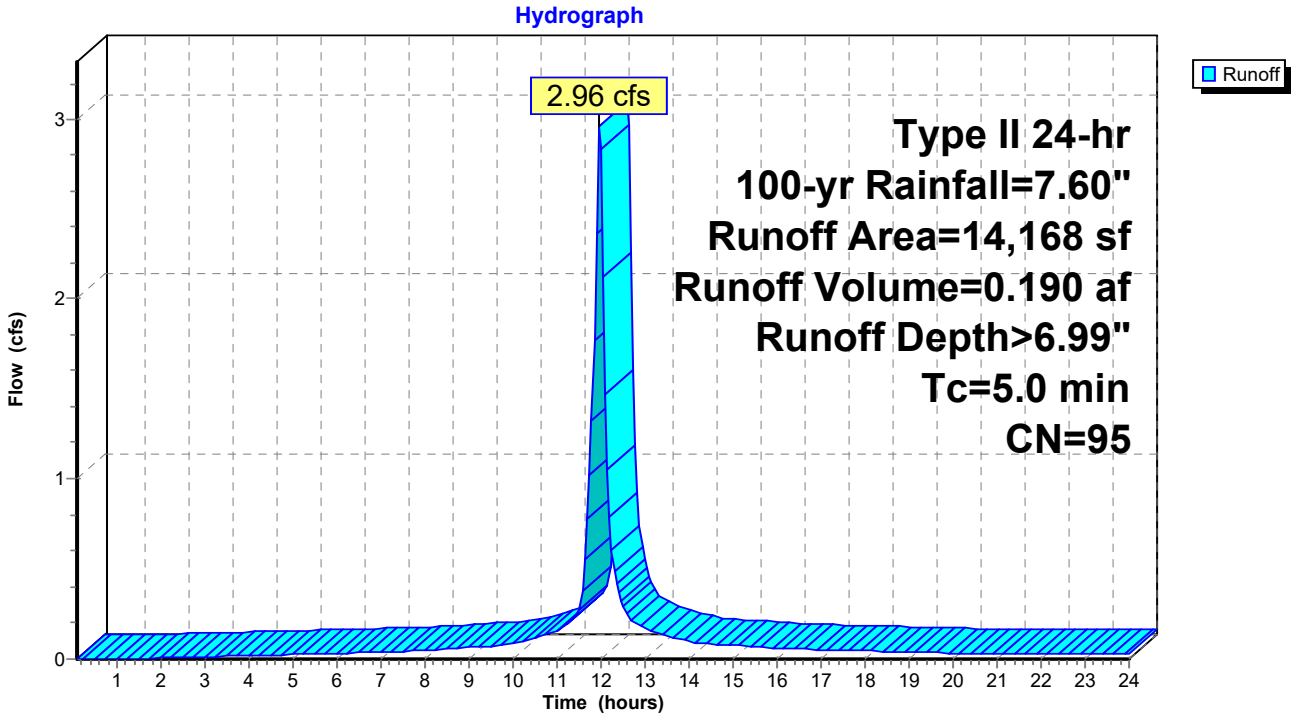
Runoff = 2.96 cfs @ 11.97 hrs, Volume= 0.190 af, Depth> 6.99"

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

Area (sf)	CN	Description
12,112	98	Paved parking, HSG C
2,056	74	>75% Grass cover, Good, HSG C
14,168	95	Weighted Average
2,056		14.51% Pervious Area
12,112		85.49% Impervious Area

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

Subcatchment 3S: EX-2



Summary for Subcatchment 5S: P-2

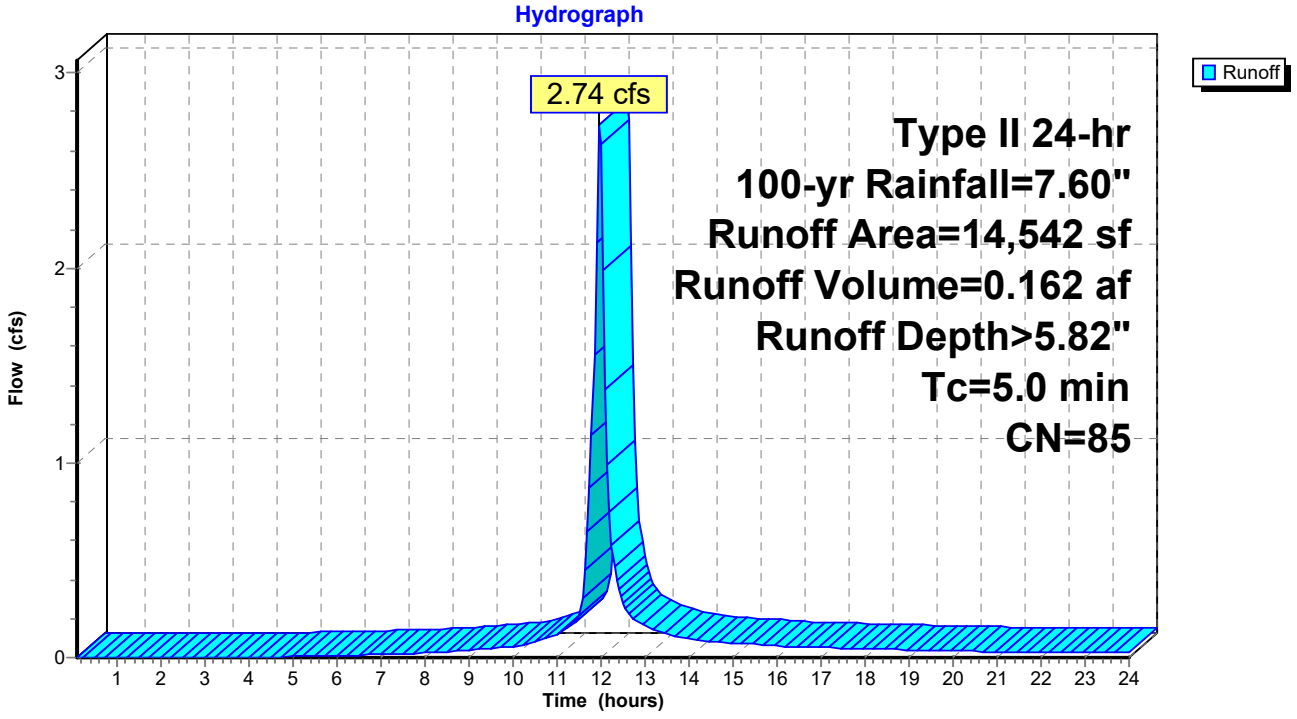
Runoff = 2.74 cfs @ 11.97 hrs, Volume= 0.162 af, Depth> 5.82"

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

Area (sf)	CN	Description
7,473	98	Paved parking, HSG C
4,316	70	Woods, Good, HSG C
2,753	74	>75% Grass cover, Good, HSG C
14,542	85	Weighted Average
7,069		48.61% Pervious Area
7,473		51.39% Impervious Area

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

Subcatchment 5S: P-2



Summary for Subcatchment EX-1: EX-1

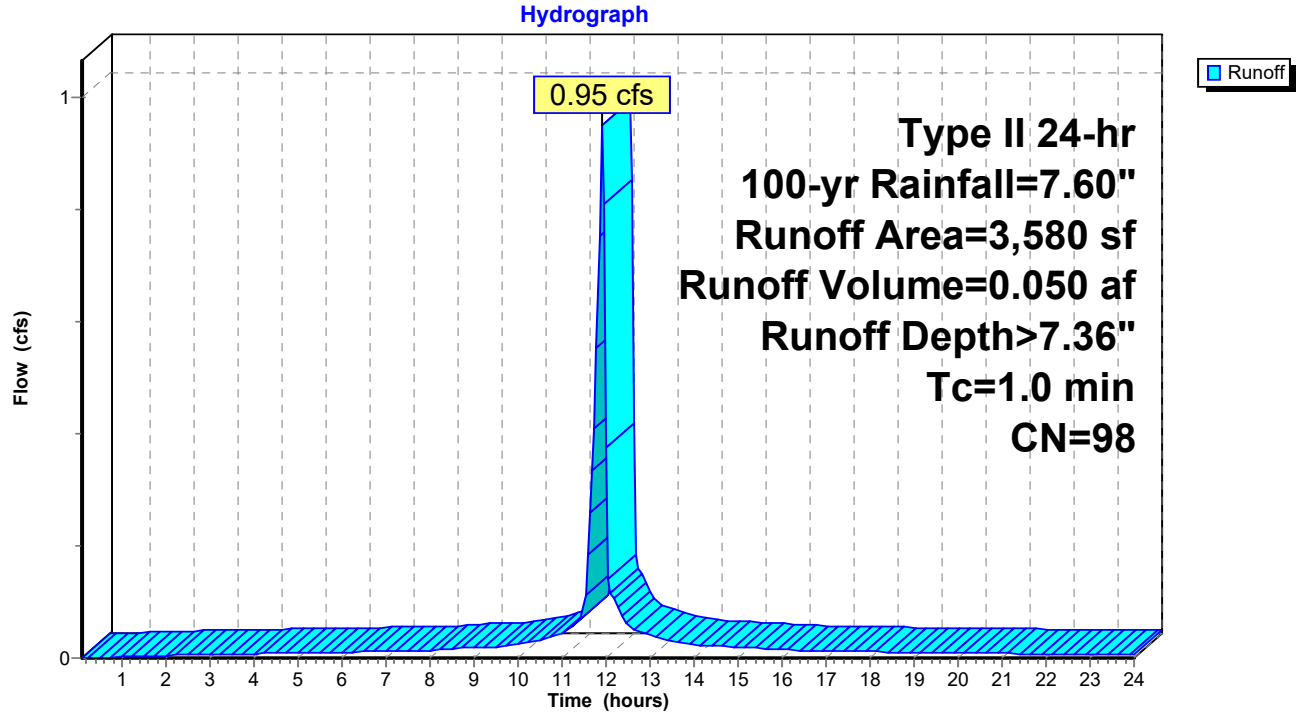
Runoff = 0.95 cfs @ 11.90 hrs, Volume= 0.050 af, Depth> 7.36"

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

Area (sf)	CN	Description
3,580	98	Unconnected roofs, HSG C
3,580		100.00% Impervious Area
3,580		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0					**Direct Entry, 1**

Subcatchment EX-1: EX-1

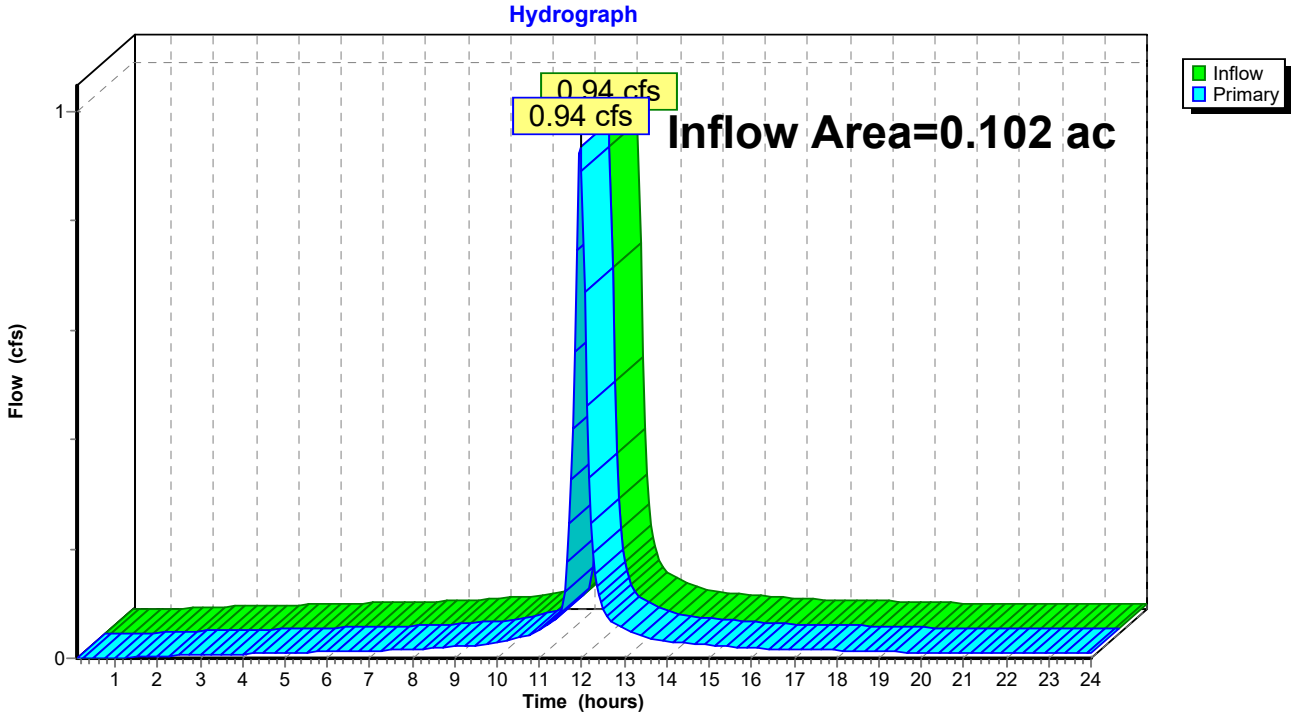


Summary for Link 2L: Study Pt #1 (Post)

Inflow Area = 0.102 ac, 94.49% Impervious, Inflow Depth > 7.23" for 100-yr event
Inflow = 0.94 cfs @ 11.97 hrs, Volume= 0.061 af
Primary = 0.94 cfs @ 11.97 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min

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

Link 2L: Study Pt #1 (Post)

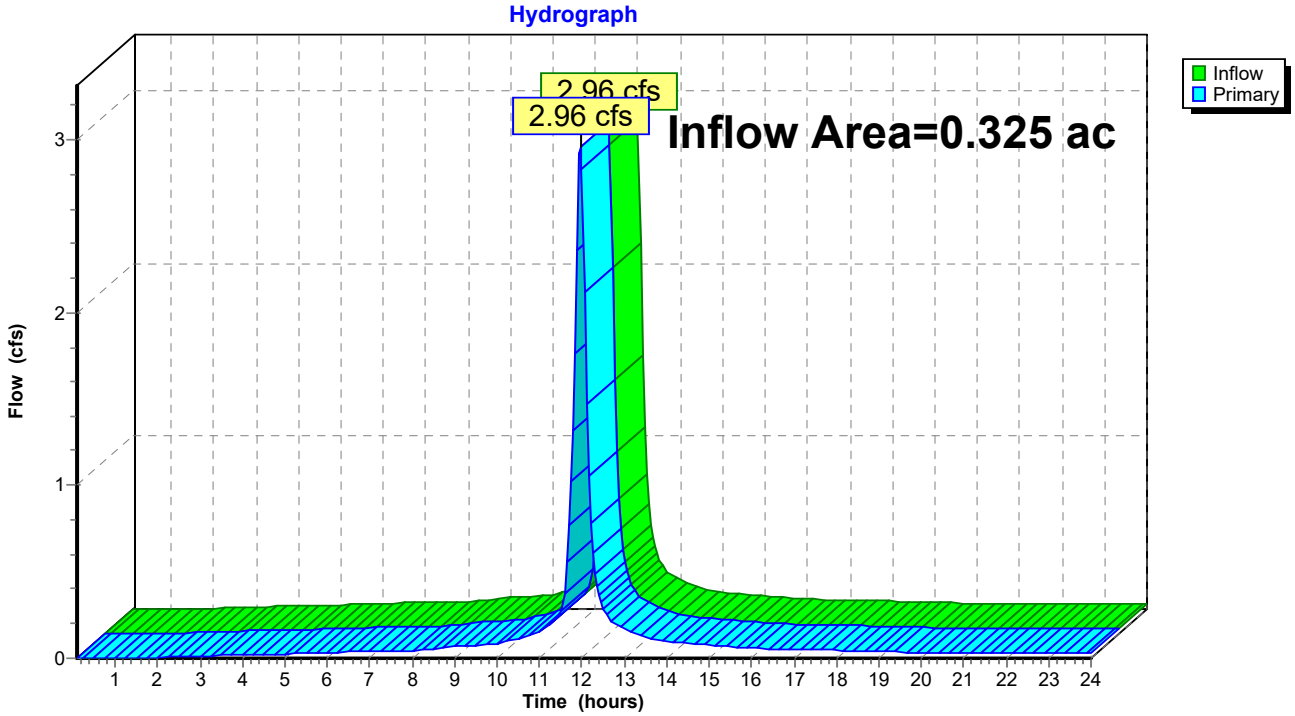


Summary for Link 4L: Study Pt #2 (Pre)

Inflow Area = 0.325 ac, 85.49% Impervious, Inflow Depth > 6.99" for 100-yr event
Inflow = 2.96 cfs @ 11.97 hrs, Volume= 0.190 af
Primary = 2.96 cfs @ 11.97 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min

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

Link 4L: Study Pt #2 (Pre)

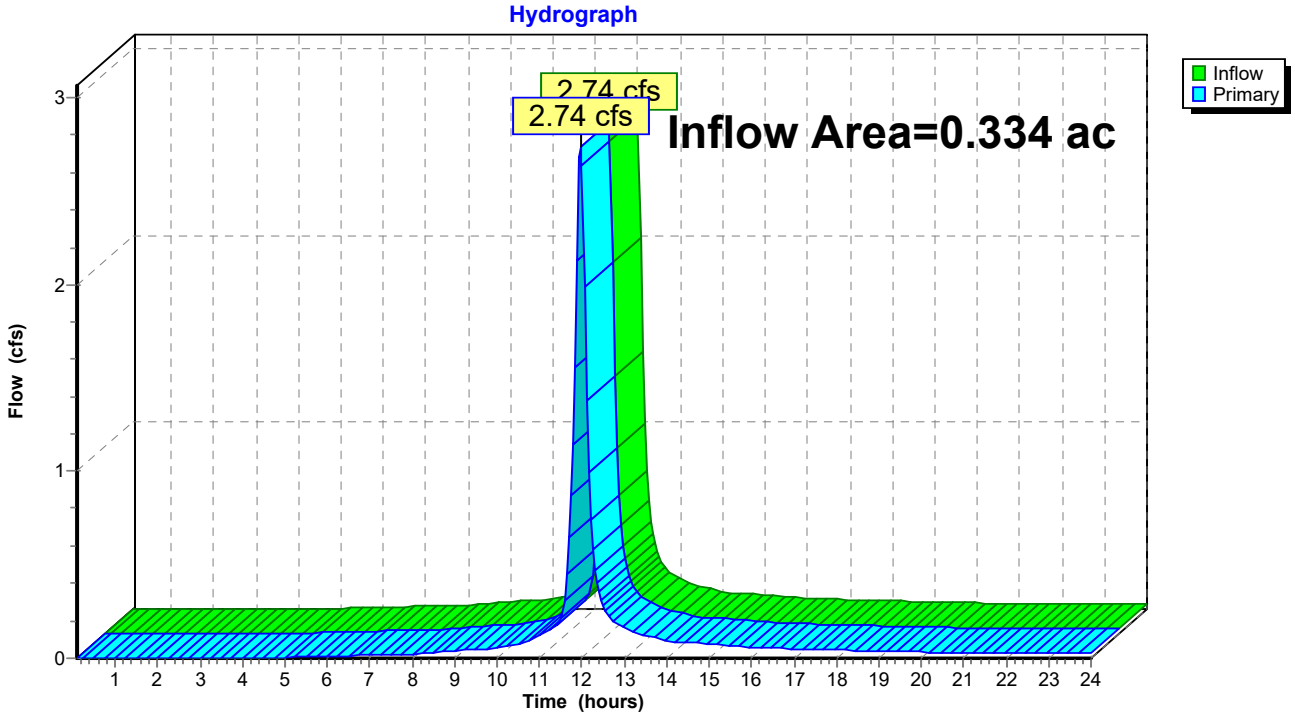


Summary for Link 6L: Study Pt #2 (Post)

Inflow Area = 0.334 ac, 51.39% Impervious, Inflow Depth > 5.82" for 100-yr event
Inflow = 2.74 cfs @ 11.97 hrs, Volume= 0.162 af
Primary = 2.74 cfs @ 11.97 hrs, Volume= 0.162 af, Atten= 0%, Lag= 0.0 min

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

Link 6L: Study Pt #2 (Post)

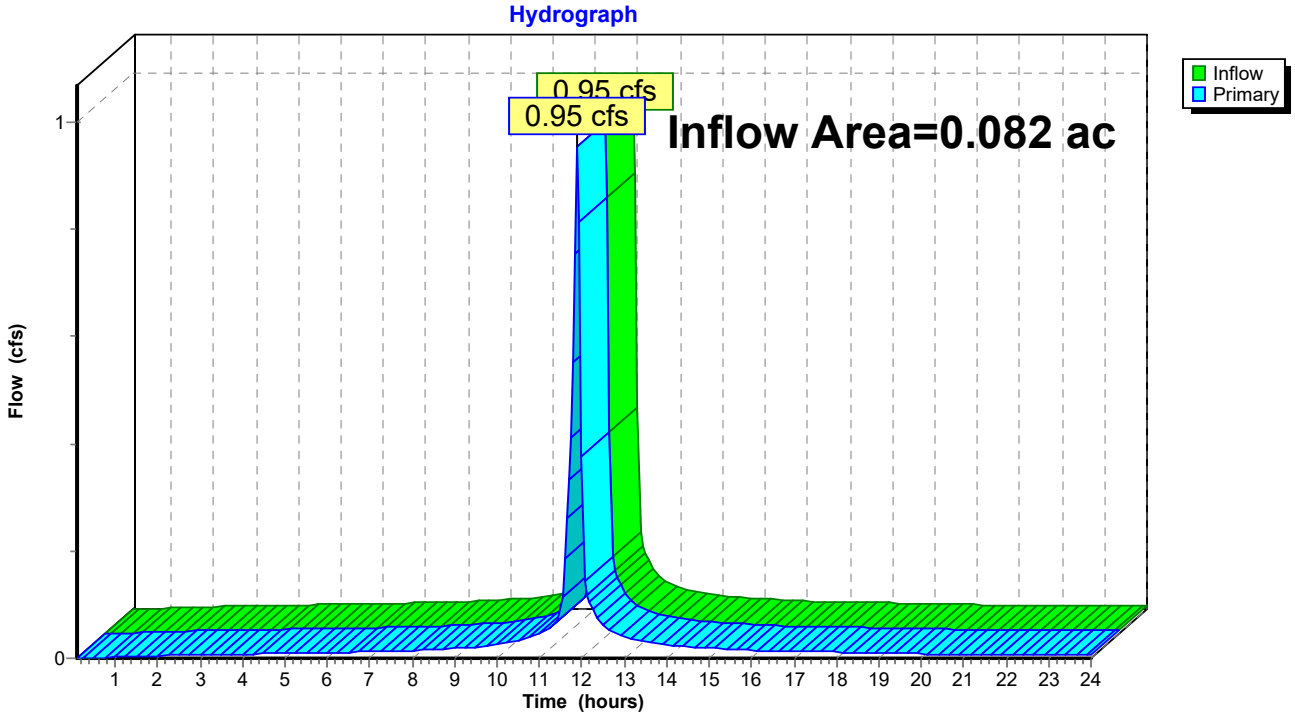


Summary for Link X1: Study Pt #1 (Pre)

Inflow Area = 0.082 ac,100.00% Impervious, Inflow Depth > 7.36" for 100-yr event
Inflow = 0.95 cfs @ 11.90 hrs, Volume= 0.050 af
Primary = 0.95 cfs @ 11.90 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min

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

Link X1: Study Pt #1 (Pre)



APPENDIX D

- HYNES GEOTECH REPORT

HYNES

JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

May 4, 2017

Mr. Pete D'Angeli
BET Investments
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Re: Report of Subsurface Exploration, and Geotechnical Engineering Services
Waterside Village – Michael's Store
Easton, Maryland
Project No.: JDH-10/17/233

Dear Mr. D'Angeli:

John D. Hynes & Associates, Inc. has completed the authorized subsurface exploration and geotechnical engineering recommendations for the proposed Waterside Village – Michael's Store project located in Easton, Maryland. Our services were performed, generally, in accordance with our proposal dated April 6, 2017.

This report describes the exploration methods employed, exhibits the data obtained, and presents our evaluations and recommendations. In summary, we recommend that the subject building's structural elements be supported by spread footing foundations bearing on firm, natural soils or controlled, structural fill. If the recommendations of the report regarding subgrade preparation and construction are followed, we recommend that the building's foundations be designed using a maximum allowable soil bearing pressure of 2,000 psf. Refer to the Structure Foundations section of this report for the specific foundation recommendations.

We appreciate the opportunity to be of service to you. If you have any questions regarding the contents of this report or if we may be of further assistance, please contact our office.

Respectfully,

JOHN D. HYNES & ASSOCIATES, INC.

Jason A. Lindsey, P.E.
Project Engineer

JAL: JDH/jsl

STATE OF MARYLAND
JASON A. LINDSEY
No. 46676
PROFESSIONAL ENGINEER

John D. Hynes, P.E.
President

STATE OF MARYLAND
JOHN DAVID HYNES
No. 16233
REGISTERED
PROFESSIONAL ENGINEER

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdhynes@aol.com

HYNES

REPORT OF
SUBSURFACE EXPLORATION,
AND
GEOTECHNICAL ENGINEERING SERVICES

WATERSIDE VILLAGE – MICHAEL'S STORE
EASTON, MARYLAND

PREPARED FOR
BET INVESTMENTS

MAY 4, 2017
PROJECT NO.: JDH-10/17/233

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdhynes@aol.com

HYNES

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PURPOSE AND SCOPE

The subsurface exploration study was performed to evaluate the subsurface conditions with respect to the following:

1. General site and subgrade preparation;
2. Fill and backfill construction;
3. Foundation recommendations, including allowable bearing capacity, and estimated foundation settlement;
4. Foundation construction and inspection procedures;
5. Foundation frost depth;
6. Seismic site class;
7. Floor slab support;
8. Lateral earth pressure requirements;
9. Location of groundwater and applicable construction dewatering control procedures; and
10. Other aspects of the design and construction for the proposed structures indicated by the exploration.

An evaluation of the site, with respect to potential construction problems and recommendations dealing with earthwork and inspection during construction, is included. The inspection is considered necessary both to confirm the subsurface conditions and to verify that the soils related construction phases are performed properly.

EXISTING SITE CONDITIONS

As shown on the Project Location Map (Drawing JDH-10/17/233-A) in the Appendix, the project site is located at the intersection of Commerce Drive and Marlboro Avenue in Easton, Maryland. At the time of our field work, the site consisted of a vacant, grass-covered lot and an asphalt-paved parking lot. There is an existing stormwater pond located to the north of the site. Topographically, the site is relatively flat and is located in a suburban shopping center in the Town of Easton.

PROJECT CHARACTERISTICS

The proposed project consists of the construction of a new Michael's Store. The store will be one story and will have a proposed footprint of 16,860 sf. The building will be steel-framed with masonry exterior walls. The building will have a slab on grade and a loading dock area on the north side of the building. The proposed finish floor Elevation will be approximately 15. 8 ft. A retaining wall is proposed on the north side of the property between the existing pond area and the loading dock area. Based on information received by the structural engineer, we understand that column loads will not exceed 70 kips and that wall loads will not exceed 3 klf.

We understand that the retaining wall adjacent to the stormwater pond area will likely be a cast-in-place wall. Based on the site grading plan, we understand that the retaining wall will be approximately 4 to 5 feet tall.

FIELD EXPLORATION AND STUDY

In order to determine the nature of the subsurface conditions at the site, a total of seven test borings, designated as B-1 through B-5 (building area), and R-1 and R-2 (retaining wall area), were drilled on April 18, 2017 at the approximate locations shown on our Boring Location Plan (Drawing No.: JDH-10/17/233-B) in the Appendix. The

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building test borings were drilled to depths of 20.5 feet. The retaining wall borings were drilled to depths of 15.5 feet. All borings were drilled using a trailer-mounted Mobile B-47 HD drill rig.

Soil sampling and testing were carried out in accordance with ASTM Specification D-1586. A brief description of our field procedures is included in the Appendix. The results of all boring and sampling operations are shown on the boring logs.

Samples of the subsurface soils were examined by our engineering staff and were visually classified in accordance with the Unified Soil Classification System (USCS) and ASTM Specification D-2488. The estimated USCS symbols appear on the boring logs (where applicable) and keys to the system's nomenclature are provided in the Appendix of this report. Also included are reference sheets which define the terms and symbols used on the boring logs and explain the Standard Penetration Test procedures.

We note that the test boring records represent our interpretation of the field data based on visual examination and selected soil classification tests. Indicated interfaces between materials may be gradual.

The field exploration data was supplemented with laboratory testing data. The laboratory at John D. Hynes & Associates, Inc. performed one Sieve Analysis test, one Atterberg Limits test, and two Natural Moisture Content tests. The test results are noted on the boring logs in the Appendix. The test results are included in the Appendix.

SUBSURFACE CONDITIONS

At the time of our exploration, approximately 6 to 12 inches of organic bearing soil was encountered at the surface at boring locations B-1, B-3, B-4, R-1, and R-2. Approximately 3 inches of asphalt and 6 inches of stone were encountered at the surface at locations B-2 and B-5. Varying thicknesses of organic bearing soil and other surficial materials may be present at other parts of the site.

Subsurface soils, visually classified in accordance with the USCS, consisted of interbedded layers of SAND (SP), Low-Silt SAND (SP-SM), Silty SAND (SM), Clayey SILT (ML), and Silty CLAY (CL) to the boring termination depths. The sands were characterized by Standard Penetration Test (SPT) values (N-values) of 6 to 42 blows per foot indicating in-place relative densities of loose to dense. N-values in the cohesive soil layers ranged from 7 to 29 blows per foot, indicating in-place consistencies of medium stiff to very stiff.

Groundwater was encountered during drilling operations at depths of 6 to 8.5 feet below grade at the boring locations. Groundwater elevations may vary at other times during the year depending upon the amount of local precipitation, the water level in the nearby pond, and the extent of local surface development.

RECOMMENDATIONS

The following recommendations and considerations are based on our understanding of the proposed construction, the data obtained from the exploration, and our previous experience with similar subsurface conditions and projects. If there are any significant changes to the project characteristics, such as revised structural loadings differing significantly from those noted above, structure geometry, structure location, elevations, etc., we request that this office be advised so the recommendations of this report can be re-evaluated.

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A. Site Preparation

Prior to the construction of foundations, ground slabs, or the placement of fill in any structural areas, all existing organic materials, asphalt pavement, existing utilities, frozen or wet soils, excessively soft or loose soils, root mats, debris, and other deleterious materials should be removed and wasted. The existing organic bearing soil should be stripped from the structural areas and can be stockpiled for reuse in landscape areas. If groundwater or perched surface water are encountered during any grading or excavation process, Hynes & Associates should be consulted for additional recommendations regarding the stabilization of the bases of the excavations and backfilling.

After the stripping operations have been completed, the exposed subgrade soils should be inspected. The inspector should verify that organic matter has been removed from structural subgrade areas. The inspector should require the exposed subgrade materials be proofrolled utilizing a heavily-loaded dump truck or other pneumatic tired vehicle of similar size and weight. The purpose of proofrolling would be to provide surficial densification and to locate any isolated areas of soft or loose soils requiring undercutting. Proofrolling is not advised in wet areas which may deteriorate under repeated vehicular loading. Wet areas should be drained and allowed to dry prior to proofrolling. Precipitation may result in standing water (perched water) at low areas. If the water is allowed to pond, the natural soils may deteriorate and overexcavation or subgrade improvements may be necessary at those areas. Recommendations for dewatering are provided in Section G of this report. The Geotechnical Engineer should be consulted to evaluate poor subgrade conditions during construction.

Care should be exercised during the grading operations at the site. Shallow SM, ML, and CL materials were identified at the boring locations. These materials are moderately (SM) to highly (CL and ML) sensitive to changes in moisture conditions and should therefore be protected. Most of the shallow soils at the site will be very sensitive when wet. The control of stormwater on the site during earthwork operations is very important. If earthwork is performed in the presence of moisture, the traffic of heavy equipment, including heavy compaction equipment, may create pumping and a general deterioration of the subgrade soils. Construction traffic should be minimized at structural subgrade areas. The contractor should be very careful to protect the subgrade by draining the site properly. Areas should be stripped and filled as soon as possible. If subgrade problems arise, the Geotechnical Engineer should be consulted for an evaluation of the conditions. Other subgrade stabilization methods may also be required. Overexcavated areas resulting from the removal of organic matter, or otherwise unacceptable materials should be backfilled with properly compacted materials in accordance with the procedures discussed in the following section.

B. Fill Selection, Placement and Compaction

It is recommended that all materials to be used as structural fill be inspected, tested and approved by the Geotechnical Engineer prior to use. The existing SM, SP, and SP-SM soils that do not contain organics may be re-used for structural fill. Acceptable borrow material should include GW, SM, SW, and SP classified in accordance with the USCS. Furthermore, the material to be utilized as structural fill should have a Plasticity Index (PI) less than 20. The existing shallow CL and ML materials should not be reused as structural fill.

The importation of high quality, granular material should be allowed, and acceptable unit rates for importation and placement should be established. Sand, gravel or sand/gravel mixtures would be appropriate for wet weather placement. Otherwise, the materials noted above will be acceptable for use as structural fill. Native or imported SM soils will be sensitive to alteration in moisture content and will become unworkable during

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and following periods of precipitation. For this reason, if earthwork is attempted in late autumn, winter or early spring, the above mentioned high quality imported granular material should be limited to those soils better than SM. SM materials become unworkable at moisture contents greater than 3 percentage points above optimum. The contractor would have to dry these SM materials or set them aside for use in landscaping areas.

Structural fill should be placed in lifts which are 8 inches or less in loose thickness and should be compacted to at least 95 percent of the Modified Proctor maximum dry density (ASTM D-1557). Adjustments to the natural moisture content of the soils may be required in order to obtain specified compaction levels. Should utility construction be performed after earthwork, the Contractor should be responsible for achieving 95 percent compaction in all trench backfill. These guidelines should be set for all structural fill at the site including, but not limited to building, ground slab and pavement fills.

For the proofrolling and fill compaction operations, fill limits should be extended at least 10 feet beyond the structure exterior walls and exterior columns. A sufficient number of in-place density tests should be performed by an engineering technician to verify that the proper degree of compaction is being obtained in all fill soils.

C. Structure Foundations

Considering current grade levels, the in-situ soil conditions and the noted assumed structural loadings, we recommend that the building's structural elements be supported on spread footing foundations bearing on firm, natural soils or controlled, structural fill. Footings supporting structural elements for the building columns and walls may be proportioned based upon a maximum allowable soil bearing pressure not in excess of 2,000 psf. If our recommendations are followed, we estimate a total foundation settlement of 1 inch and differential settlement of ½ inch for the building.

Minimum dimensions of 30 inches for square footings and 24 inches for continuous or rectangular footings should be used in foundation design to minimize the possibility of a local shear failure. All foundation excavations should be inspected by the Geotechnical Engineer or his approved representative prior to the placement of concrete. The purpose of the inspection would be to verify that the exposed bearing materials are acceptable for the design soil bearing pressure and that loose, wet, frozen or compressible soils are not present.

Where continuous wall footings may need to be raised in elevation in a direction away from and perpendicular to other footings, footings may be gradually changed or lowered to the desired elevation using step construction procedures with a 2H:1V, or more gentle, slope. In addition, discrete column, pier or wall footings bearing at a higher elevation than lower footings should be located at a distance apart which is equal to or greater than the difference in the elevations of the footings.

In Easton, exterior footings and footings in unheated areas should be located at a depth of at least 2 feet to bottom of footing below the outside final grade to provide adequate frost cover protection. If the building is to be constructed during the winter months or if the building will be subjected to freezing temperatures after footing construction, then all footings should be adequately protected during freezing periods.

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We recommend that the cast-in-place retaining wall to the north of the loading dock be supported by a shallow spread footing foundation. The footing should be designed using a maximum allowable soil bearing pressure of 2,000 pounds per square foot. The footing will need to be located at least 2 feet below finished grade to meet frost depth requirements. We estimate a total settlement of 1 inch of less and differential settlement equal to half of the total settlement. A drainage tile should be installed along the wall. Weep holes should be installed at a spacing of no more than 10 feet along the length of the retaining wall.

Soils exposed at the bases of all satisfactory foundation excavations should be protected against any detrimental change in condition, such as disturbance from rain or frost. Surface runoff should be drained away from the excavations and not be allowed to pond.

D. Seismic Site Classification

The soils in the project area are part of the Atlantic Coastal Plains geologic formation. Soils have been deposited on the coastal plain by glaciers and alluvial deltas. Some of the windblown deposits have been reworked by alluvial action.

Hynes & Associates is providing below, the Seismic Site Class in accordance with the International Building Code (IBC) 2015. The code stipulates that we evaluate the strength of soil to a depth of 100 feet below grade. We used the soil properties indicated in the test borings which were drilled to depths of 20.5 feet, and our experience with deeper test borings that we have drilled locally. In consideration of the test boring data, it is our opinion that the average properties of the soils in the upper 100 feet of the local subsurface stratigraphy meet Site Class "D" criteria according to the IBC-2015, Section 1613.3.2.

E. Floor Slab Support

Ground supported slabs may be supported on firm, natural soils or on a layer of controlled, structural fill. The subgrade should be prepared in accordance with the procedures described in Sections A and B of this report. It is also recommended that a 4 to 6 inch clean, granular, leveling and load-distributing material such as washed gravel, or screened crushed stone, be used beneath the floor slabs. This material will require acquisition from off-site sources. Prior to placing the leveling and load distributing material, the slab subgrade should be free of standing water or mud. An acceptable moisture barrier should also be provided for the building slab. These procedures will help to prevent capillary rise and damp floor slab conditions. For native soil or fill material placed and compacted according to the procedures outlined in this report, we recommend using a value of modulus of subgrade reaction of 150 pounds per cubic inch.

F. Lateral Earth Pressure Requirements for Below Grade Walls

We understand there will be a proposed docking and unloading area and a retaining wall north of the loading dock area. It is recommended that below grade walls subject to lateral earth pressure be designed to resist an equivalent fluid weight of 64 pcf, provided that the backfill meets the requirements specified in this report. This lateral earth pressure intensity is based on at-rest soil loading conditions using a soil coefficient of 0.5. Please refer to the sketches (Drawing Nos.: JDH-10/17/223-C and D) in the Appendix for soil and surcharge distribution requirements for the drained and undrained conditions. We recommend designing the loading dock walls using the "Undrained Conditions". We recommend installing a drainage tile to drain the retaining walls. Weep holes may be used to help drain the wall. If drainage is provided, the wall may be designed using the "Drained Conditions".

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Soils acceptable for backfill behind permanent retaining walls include SW and SM materials. For these materials compacted in place, applicable minimum engineering characteristics acceptable for design are as follows:

Cohesion	Zero
Angle of Internal Friction:	30°
Maximum moist density, compacted backfill	125 pcf
Coefficient of sliding friction between cast-in-place footing and subgrade	
On sand	0.40

The compaction behind these walls should be 92 to 95 percent of the Modified Proctor maximum dry density. Since excessive compaction may cause yielding or damage to foundation and retaining walls, hand operated equipment should be used near the walls.

For passive resistance against embedded wall and footing elements against the stable native soils, or the recommended backfill sands, the following design parameters are recommended:

Cohesion	Zero
Angle of Internal Friction	30°
Moist Soil Weight	125 pcf
Buoyant Soil Weight	63 pcf

Distribute passive pressure in a triangular load diagram with a bottom ordinate of $3\gamma d$, where γ = soil weight (buoyant if applicable) and d = depth of bottom of wall below top of resisting soil. A factor of safety of 1.5 is recommended.

We recommend that drainage be provided along the retaining wall. The drainage system components should be at least 4 inch diameter perforated PVC underdrain installed in 12 inches of clean stone, wrapped in a filter fabric material. This system, commonly termed "drainage tile", should be installed to industry standards. Water collected by this system can be transported by gravity means and discharged through the use of a sump pump system or into the local storm drainage system.

G. Groundwater and Drainage

Groundwater was measured during drilling operations at a depth of 6 to 8.5 feet below the existing ground surface. Considering the proposed construction, the contractor may experience foundation construction problems relating to the groundwater in the deeper retaining wall and loading dock foundation excavations. The Contractor should be prepared to dewater the lowest excavations in the event of the infiltration of precipitation or the presence of groundwater. If required, acceptable measures for dewatering should be implemented. These methods may include sumping and pumping, etc. Efforts should be made to keep exposed subgrade areas dry during construction, primarily, because the soils will be susceptible to deterioration and loss of strength in the presence of moisture. Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation and pavement subgrade soils. All pavements

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Email: jdhynes@aol.com

should be sloped away from the building to prevent ponding of water around it. The final site drainage should also be designed such that run-off onto adjacent properties is controlled properly.

ADDITIONAL SERVICES RECOMMENDED

Additional engineering, testing and consulting services recommended for this project are summarized below.

A. Site Preparation and Proofrolling Monitoring

The Geotechnical Engineer or experienced soils inspector should inspect the site after it has been stripped and excavated. The inspector should determine if any undercutting or in-place densification is necessary to prepare a subgrade for fill placement, or slab and pavement support. The inspector should verify that organic soils, organic matter, tree stumps, and demolition debris have been removed from all structural subgrade areas prior to filling operations.

B. Fill Placement and Compaction Monitoring

The Geotechnical Engineer or experienced soils inspector should witness all fill operations and take sufficient in-place density tests to verify that the specified degree of fill compaction is achieved. The inspector should observe and approve borrow materials used and should determine if their existing moisture contents are acceptable.

C. Footing Excavation Inspections

The Geotechnical Engineer should inspect all foundation excavations for the structures. He should verify that the design bearing pressures are available and that no loose or soft areas exist beneath the bearing surfaces of the foundation excavations.

REMARKS

This report has been prepared solely and exclusively for BET Investments to provide guidance to design professionals in developing facilities plans for the proposed Waterside Village – Michael's Store project located in Easton, Maryland. It has not been developed to meet the needs of others, and application of this report for other than its intended purpose could result in substantial difficulties. The Consulting Engineer cannot be held accountable for any problems which occur due to the application of this report to other than its intended purpose. This report in its entirety should be attached to the project specifications.

These analyses and recommendations are, of necessity, based on the concepts made available to us at the time of the writing of this report, and on-site conditions, surface and subsurface that existed at the time the exploratory borings were drilled. Further assumption has been made that the limited exploratory borings, in relation both to the areal extent of the site and to depth, are representative of conditions across the site. It is also recommended that we be given the opportunity to review all plans for the project in order to comment on the interaction of soil conditions as described herein and the design requirements.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted engineering principles and practices.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdhynes@aol.com

APPENDIX

1. Investigative Procedures
2. Project Location Map
3. Boring Location Plan
4. Boring Logs
5. Earth Pressure Requirements for Below Grade Walls (Drained)
6. Earth Pressure Requirements for Below Grade Walls (Undrained)
7. Unified Soil Classification Sheet
8. Field Classification Sheet
9. Information Sheet

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INVESTIGATIVE PROCEDURES

SOIL TEST BORINGS

Soil drilling and sampling operations were performed in accordance with ASTM Specification D-1586. The borings were advanced by mechanically turning continuous hollow stem auger flights into the ground. At regular intervals, samples were obtained with a standard 1.4 inch I.D., 2.0 inch O.D. splitspoon sampler. The sampler was first seated 6 inches to penetrate any loose cuttings and then driven an additional foot with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is the "Standard Penetration Resistance". The penetration resistance, when properly evaluated, is an index to the soil's strength, density and behavior under applied loads. The soil descriptions and penetration resistances for each boring are presented on the Test Boring Records in the Appendix.

SOIL CLASSIFICATION

Soil classifications provide a general guide to the engineering properties of various soil types and enable the engineer to apply his past experience to current problems. In our investigation, jar samples obtained during drilling operations are examined in our laboratory and visually classified by the geotechnical engineer in accordance with ASTM Specification D-2488. The soils are classified according to the AASHTO or Unified Classification System (ASTM D-2487). Each of these classification systems and the in-place physical soil properties provides an index for estimating the soil's behavior.

ATTERBERG LIMITS TEST

Portions from representative soil samples obtained during drilling operations were selected for Atterberg Limits tests. The Atterberg Limits are indicative of the soil's plasticity characteristics. The liquid limit is the moisture content at which the soil will flow as a heavy viscous fluid and is determined in accordance with ASTM Specification D-4318. The plastic limit is the moisture content at which the soil begins to lose its plasticity and is determined in accordance with ASTM Specification D-4318.

SIEVE ANALYSIS

Gradational analysis tests were performed to determine the particle size and distribution of the samples tested. The grain size distribution of soils coarser than a No. 200 sieve is determined by passing the sample through a standard set of nested sieves. The percentage of materials passing the No. 200 sieve is determined by washing the material over a No. 200 sieve. These tests are in accordance with ASTM D-421, D-422 and D-1140. The results are presented in the Appendix to our report.

NATURAL MOISTURE

Portions from representative soil samples obtained during drilling operations were selected for Natural Moisture Content tests. The Natural Moisture Content Test determines the water content of soils by drying into an oven with a standard drying temperature of 110 °C. The loss of mass drying the sample, determines the water content into the soil. The water content of the sample is calculated in percentage. The water content of soils (natural moisture) is determined in accordance with ASTM Specification D-2216.

32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
Email: jdhynes@aol.com

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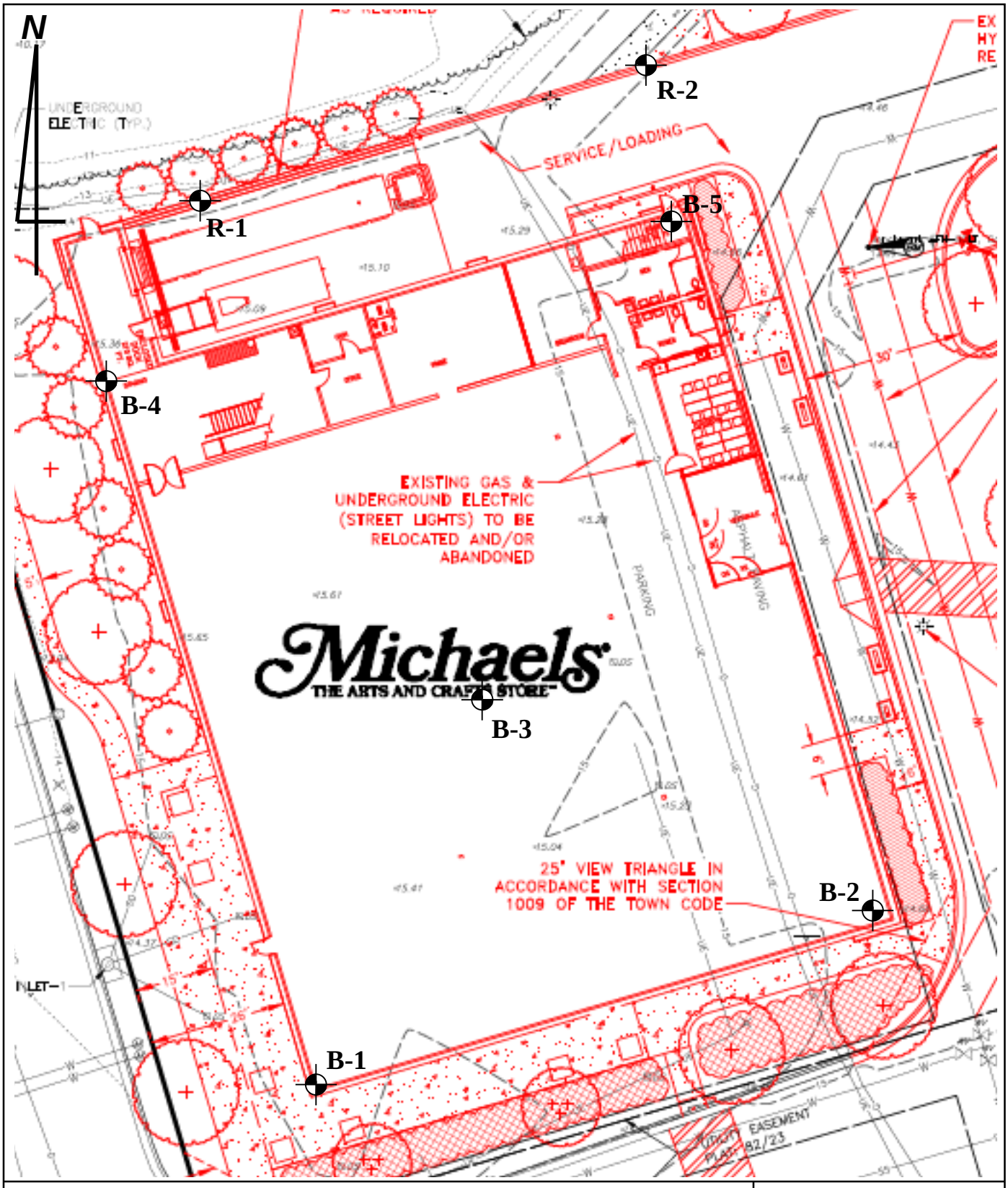
	Date: April 24, 2017
	Scale: 1 in. = 2,000 ft.
	Drawn: ADC Map
Project Location Map Waterside Village – Michael's Store Easton, Maryland	**DWG. No.** **JDH-10/17/233-A**



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Date: April 24, 2017

Scale: 1 in. ≈ 25 ft.

Drawn: Lane Engineering

Boring Location Plan
Waterside Village – Michael's Store
Easton, Maryland

DWG. No.

JDH-10/17/233-B

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LOG OF BORING B-1

(Page 1 of 1)

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, very stiff, clayey SILT, with little fine to medium sand		ML	1	3-8-21-20	Scale 1" ~ 4.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6 feet during drilling operations. At completion water was at 7.5 feet; boring caved in at 9.5 feet.
2						
4	Brown, wet, loose, fine to medium SAND, with trace silt		SP	2	6-5-5	
6	Brown, saturated, fine to medium SAND, with some silt		SM	3	6-4-5	
8						
10	Brown, saturated, loose, fine to medium SAND, with little silt, trace shell fragments		SP-SM	4	4-5-5	
12						
14	Brown, saturated, medium dense, fine to medium SAND, with some silt		SM	5	4-5-6	
16						
18	Light gray, saturated, medium dense, fine to coarse SAND, with trace silt		SP			
20				6	6-9-9	
	Boring terminated at 20.5 feet.					
22						
24						
26						
28						
30						

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LOG OF BORING B-2

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, very stiff, clayey SILT, with little fine to medium sand		ML	1	5-7-6-10	Scale 1" ~ 4.5 feet Approximately 3 inches of asphalt was encountered at the ground surface. Groundwater was encountered at 6 feet during drilling operations. At completion water was at 6 feet; boring caved in at 7 feet. Laboratory Test Results Sample No. 2 From 3 to 4.5 feet Sieve Analysis Sieve Size / Passing % 3/8" 100 No. 4 99.8 No. 10 99.8 No. 20 99.7 No. 40 99.4 No. 60 73.4 No. 100 46.5 No. 200 18.4 Natural Moisture = 17.9% Sample No. 3 From 6 to 7.5 feet Natural Moisture = 18.3%
2	Brown, wet, medium dense, fine to medium SAND, with little silt		SP-SM	2	10-9-9	
4	Brown, wet, loose, fine to medium SAND, with some silt		SM	3	4-2-4	
6	Light brown, saturated, loose, fine to medium SAND, with little silt, trace shell fragments		SP-SM	4	5-4-5	
8	Gray, saturated, loose, fine to medium SAND, with some silt, trace shell fragments, trace clay		SM	5	4-5-5	
10	Gray, saturated, medium dense, fine to coarse SAND, with trace silt, trace shell fragments		SP	6	5-6-6	
12	Boring terminated at 20.5 feet.					
14						
16						
18						
20						
22						
24						
26						
28						
30						

HYNES & ASSOCIATES

LOG OF BORING B-3

(Page 1 of 1)

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, very stiff, clayey SILT, with little fine to medium sand		ML	1	4-9-10-13	Scale 1" ~ 4.5 feet Approximately 9 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6 feet during drilling operations. Laboratory Test Results Sample No. 3 From 6 to 7.5 feet Atterberg Limits Liquid Limit = 35 Plasticity Index = 12 Natural Moisture = 22.2%
2						
4	Brown, wet, medium stiff, clayey SILT, with trace fine to medium sand		ML	2	2-6-4	
6	Gray, wet, stiff, silty CLAY, with some fine to medium sand, trace silt		CL	3	4-6-7	
8	Brown, saturated, medium dense, fine to medium SAND, with some silt, trace shell fragments		SM	4	4-5-7	
10						
12						
14	Brown, saturated, medium dense, fine to medium SAND, with some silt, trace shell fragments, trace clay		SM	5	5-5-7	
16						
18	Light gray, saturated, medium dense, fine to coarse SAND, trace silt		SP	6	8-10-13	
20	Boring terminated at 20.5 feet.					
22						
24						
26						
28						
30						

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LOG OF BORING B-4

(Page 1 of 1)

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, very stiff, clayey SILT, with little fine to medium sand		ML	1	4-8-8-12	Scale 1" ~ 4.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 7 feet during drilling operations. At completion water was at 7 feet; boring caved in at 8 feet.
2						
4	Brown, wet, stiff, silty CLAY, with some fine to medium sand		CL	2	5-6-9	
6	Brown, wet, medium dense, clayey SILT and fine to medium SAND		ML-SM	3	7-11-11	
8	Light brown, saturated, loose, fine SAND, with little silt		SP-SM	4	4-4-5	
10						
12	Brown, saturated, medium dense, fine to coarse SAND, with trace silt, trace shell fragments		SP	5	5-7-8	
14						
16						
18						
20				6	6-8-9	
	Boring terminated at 20.5 feet.					
22						
24						
26						
28						
30						

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LOG OF BORING B-5

(Page 1 of 1)

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 20.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, very stiff, clayey SILT, with little fine to medium sand		ML	1	11-9-8	Scale 1" ~ 4.5 feet
2	Gray, wet, very stiff, clayey SILT, with trace fine to medium sand		ML	2	12-8-10	Approximately 3 inches of asphalt was encountered at the ground surface. Groundwater was encountered at 8.5 feet during drilling operations.
4						
6	Brown, saturated, stiff, silty CLAY, with little fine to medium sand		CL	3	5-6-7	At completion water was at 6.5 feet; boring caved in at 8 feet. Laboratory Test Results
8	Gray, saturated, loose, fine to medium SAND, with some silt, trace shell fragments, trace clay		SM	4	3-3-5	Sample No. 4 From 9 to 10.5 feet Natural Moisture = 24.8%
10						
12	Brown, saturated, medium dense, fine to medium SAND, with trace silt		SP	5	3-5-9	
14						
16						
18	Light gray, saturated, dense, fine to medium SAND, with trace silt		SP	6	16-19-23	
20	Boring terminated at 20.5 feet.					
22						
24						
26						
28						
30						

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LOG OF BORING R-1

(Page 1 of 1)

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 15.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, stiff, clayey SILT, with little fine to medium sand		ML	1	4-6-9-13	Scale 1" ~ 4.5 feet Approximately 12 inches of organic bearing soil was encountered at the ground surface. Groundwater was encountered at 6 feet during drilling operations. At completion water was at 6.5 feet; boring caved in at 7 feet.
2	Brown, wet, very stiff, clayey SILT, with trace fine to medium sand		ML	2	10-10-10	
4						
6	Brown, wet, medium stiff, silty CLAY, with trace fine to medium sand		CL	3	4-3-4	
8	Gray, saturated, loose, fine to medium SAND, with some silt, trace shell fragments, trace clay		SM	4	4-4-4	
10						
12	Light gray, saturated, medium dense, fine to coarse SAND, with trace shell fragments		SP	5	4-4-8	
14						
16	Boring terminated at 15.5 feet.					
18						
20						
22						
24						
26						
28						
30						

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LOG OF BORING R-2

(Page 1 of 1)

BET Investments, Inc.
200 Witmer Road, Suite 200
Horsham, Pennsylvania 19044

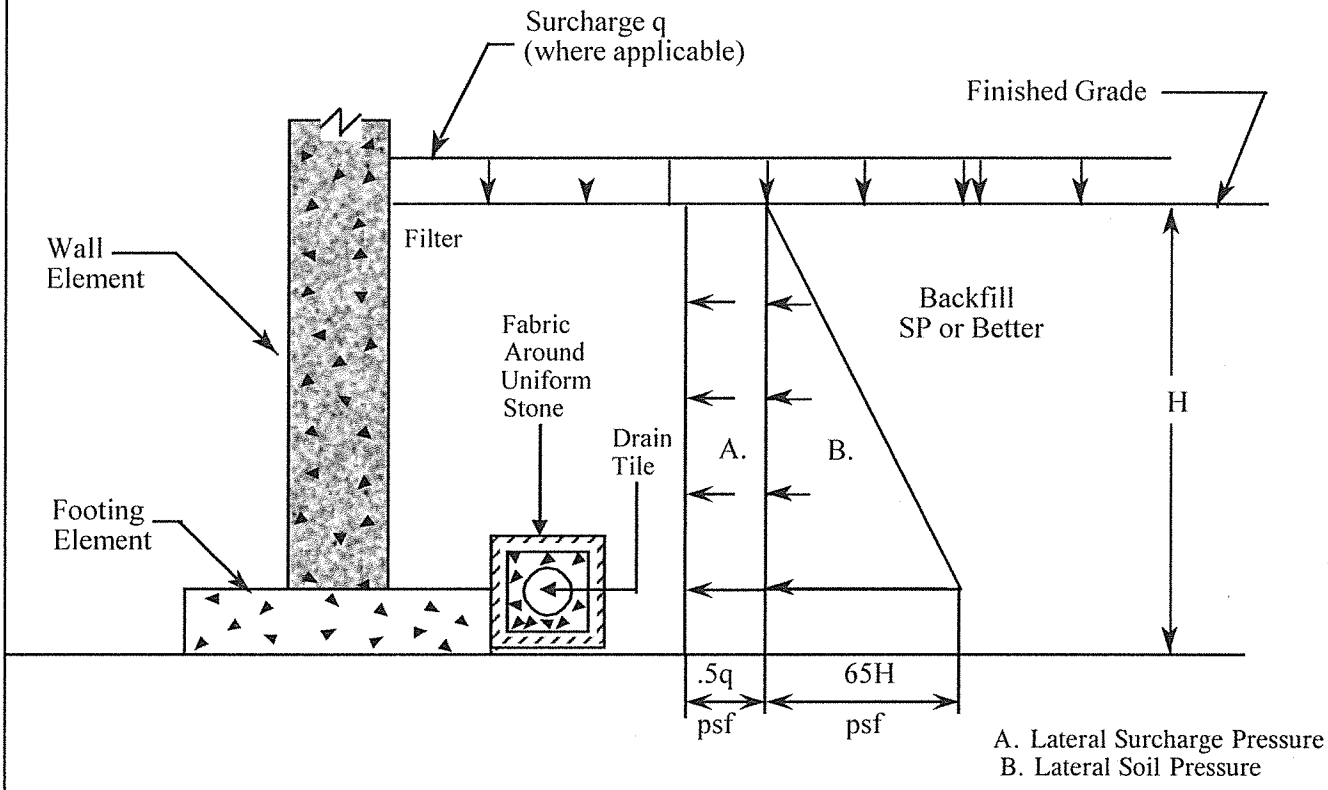
Waterside Village - Michael's Store

Project No.: JDH-10/17/233

Date Completed: : April 18, 2017
Logged By: : W. Weiland
Drilled By: : J. Briddell
Drilling Method: : HSA (Mobile B-47 HD)
Total Depth: : 15.5 feet

Depth in Feet	DESCRIPTION	GRAPHIC	USCS	Sample No.	Blows per 6 inches	REMARKS
0	Brown, wet, very stiff, clayey SILT, with little fine to medium sand		ML	1	5-7-9-11	Scale 1" ~ 4.5 feet Approximately 6 inches of organic bearing soil was encountered at the ground surface.
2						
4	Brown, wet, medium dense, clayey SILT and fine to medium SAND		ML-SM	2	10-11-16	Groundwater was encountered at 7 feet during drilling operations.
6	Light brown, saturated, medium dense, fine SAND, with some silt		SM	3	7-10-12	At completion water was at 9.5 feet; boring caved in at 9.5 feet.
8						
10	Brown, sautrated, loose, fine to medium SAND, with little silt, trace shell fragments		SP-SM	4	4-3-4	
12						
14	Light brown, saturated, medium dense, fine to medium SAND, with little silt, trace shell fragments		SP-SM	5	4-6-6	
16	Boring terminated at 15.5 feet.					
18						
20						
22						
24						
26						
28						
30						

EARTH PRESSURE REQUIREMENTS
FOR
BELOW GRADE WALLS (DRAINED)



1. Pressure diagram assumes at rest soil pressures on cantilevered walls or walls with one support level.
2. Pressure diagram includes only loads resulting from backfill and surcharges.
3. This distribution assumes perimeter sub-drainage will be provided; therefore, hydrostatic pressure is not included.
4. For backfill, use SP or better quality material (ASTM D-2487).
5. Compact backfill in maximum 8-inch loose lifts to 92 to 95 percent maximum dry density (ASTM D-1557).
6. Use only light-duty hand operated compaction equipment within 10 feet of walls.
7. For surcharge q, consider the greater of the maximum expected construction equipment live loads or permanent structure dead and live loads.
8. For temporary retaining walls used for excavation support, use 2/3 of the above values for lateral surcharge and soil pressures. This reflects the active soil pressure condition.

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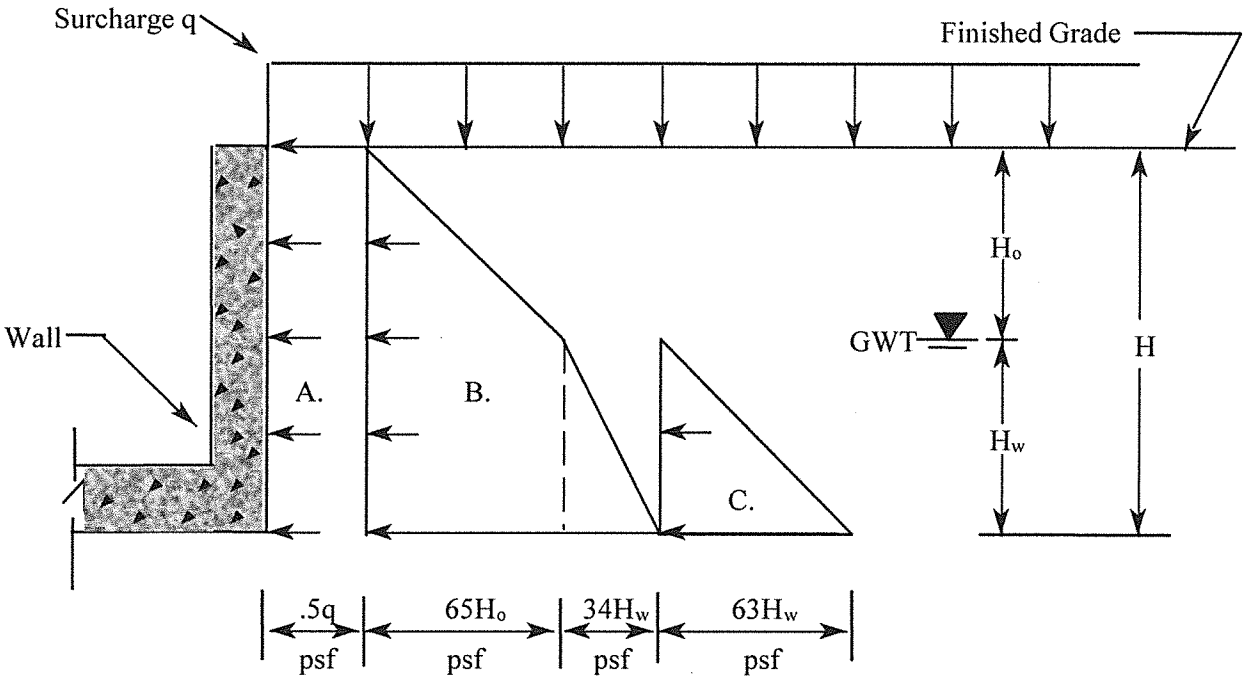
	Date: April 26, 2016
	Scale: Not to Scale
	DRAWN: JAL
Earth Pressure Requirements for Below Grade Walls (Drained) Waterside Village – Michael's Store Easton, Maryland	**DWG. No.** **JDH-10/17/233-C**

EARTH PRESSURE REQUIREMENTS
FOR
BELOW GRADE WALLS (UNDRAINED)



A. Lateral Surcharge
B. Lateral Soil Pressure
C. Hydrostatic Pressure

1. Pressure diagram assumes undrained soil conditions.
2. Pressure diagram assumes at rest soil pressures on cantilevered walls or walls with one support level.
3. For backfill, use non-plastic SP or better quality material (ASTM D-2487).
4. Compact backfill in maximum 8-inch loose lifts to 92 to 95 percent maximum dry density (ASTM D-1557).
5. Use only light-duty hand operated compaction equipment within 10 feet of walls.
6. For surcharge q, consider the greater of the maximum expected construction equipment live loads or permanent structure dead and live loads.
7. For temporary retaining walls used for excavation support, use 2/3 of the above values for lateral surcharge and soil pressures. This reflects the active soil pressure condition.

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Date: April 25, 2017
Scale: Not to Scale
DRAWN: JAL

Earth Pressure Requirements for Below Grade Walls (Undrained)
Waterside Village – Michael's Store
Easton, Maryland

DWG. No.
JDH-10/17/233-D

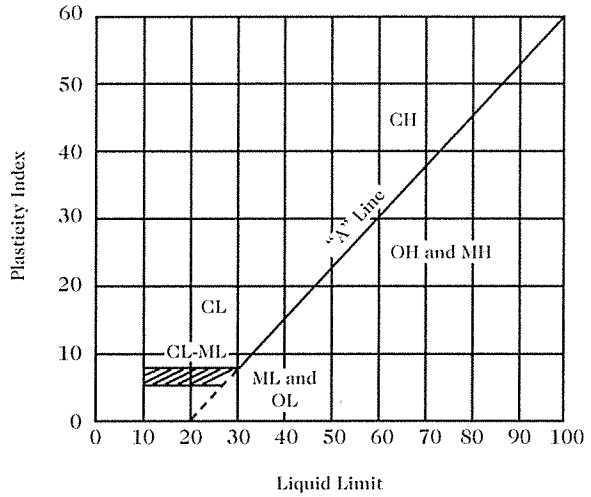
JOHN D. HYNES & ASSOCIATES, INC.

Geotechnical and Environmental Consultants
Monitoring Well Installation
Construction Inspection and Materials Testing

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions			*Group Symbols*	*Typical Names*	*Laboratory Classification Criteria*		
Coarse-grained soils (More than half of material is larger than No 200 sieve size)	Gravels (More than half of coarse fraction is larger than No 4 sieve size)	Clean gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No 200 sieve size), coarse grained soils are classified as follows: Less than 5 percent: GW, GP, SW, SP. More than 12 percent: GM, GC, SM, SC. 5 to 12 percent: *Borderline cases requiring dual symbols*[d]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			GP	Poorly graded gravels, gravel sand mixtures, little or no fines		Not meeting all graduation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM[a] d / u	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
	Sands (More than half of coarse fraction is smaller than No 4 sieve size)	Clean sands (Little or no fines)	SW	Well-graded sands, gravelly sands,		$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all graduation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM[a] d / u	Silty sands, sand-silt mixtures		Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line with P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No 200 sieve)	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity			
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity, organic silts			
	Highly organic soils		Pt	Peat and other highly organic soils			

Plasticity Chart



32185 Beaver Run Drive • Salisbury, Maryland 21804 • 410-546-6462 • Fax 410-548-5346
E-mail - jdhynes@aol.com

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FIELD CLASSIFICATION SYSTEM FOR SOIL EXPLORATION

NON-COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

DENSITY

Very Loose	- 5 blows/ft. or less
Loose	- 6 to 10 blows/ft.
Medium Dense	- 11 to 30 blows/ft.
Dense	- 31 to 50 blows/ft.
Very Dense	- 51 blows/ft. or more

RELATIVE PROPORTIONS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

PARTICLE SIZE IDENTIFICATION

Boulders	- 8 inch diameter or more
Cobbles	- 3 to 8 inch diameter
Gravel	- Coarse - 1 to 3 inch
	- Medium - 1/2 to 1 inch
	- Fine - 4.75 mm to 1/2 inch
Sand	- Coarse - 2.0 mm to 4.75 mm
	- Medium - 0.425 mm to 2.0 mm
	- Fine - 0.075 mm to 0.425 mm
Silt	- 0.075 mm to 0.002 mm

COHESIVE SOILS
(Clay, Silt and Combinations)

CONSISTENCY

Very Soft	- 3 blows/ft. or less
Soft	- 4 to 5 blows/ft.
Medium Stiff	- 6 to 10 blows/ft.
Stiff	- 11 to 15 blows/ft.
Very Stiff	- 16 to 30 blows/ft.
Hard	- 31 blows/ft. or more

PLASTICITY

Degree of Plasticity	Plasticity Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	over 22

Classification on logs are made by visual inspection of samples unless a sample has been subjected to laboratory classification testing.

Standard Penetration Test - Driving a 2.0" O.D., 1-3/8" I.D., splitspoon sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to drive the spoon 6 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the test are recorded for each 6 inches of penetration on the drill log (Example - 6/8/9). The standard penetration test value (N - value) can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.). (ASTM D-1586)

Strata Changes - In the column "Soil Descriptions," on the drill log, the horizontal lines represent strata changes. A solid line (—) represents an actually observed change, a dashed line (----) represents an estimated change.

Groundwater - Observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc. may cause changes in the water levels indicated on the logs.

32185 Beaver Run Drive • Salisbury, Maryland 21804
410-546-6462 • Fax 410-548-5346

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by:* the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

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APPENDIX E

- NRCS MAP

Up

APPENDIX F

- 1970 NRCS SOILS MAP

(Joins sheet 18)
(Joins sheet 26)
(Joins sheet 31)
25
N
St Aubins Heights
Bloomfield
EASTON
(county seat)
Easton Point
Waverly
Waverly Island Estates
Watermelon Point
Shipshead Creek
Dixon Creek
TRED AVON RIVER
BALTIMORE AND EASTERN
Tanyard Branch
SPRING HILL CEM
North Fork
Papermill Pond
UNDER CONSTRUCTION
PENN CENTRAL
EDMUNDSON NECK
1 Mile
5000 Feet
Scale 1:15840

Mattapex loam, 2 to 5 percent slopes, moderately eroded (MpB2).—All of this soil has been cultivated. In most places as much as 6 inches of the surface layer has been lost through erosion. In most areas plowing has mixed subsoil material into the remaining surface layer so that the present surface layer is lighter and more yellow in color than in less eroded areas, and it crusts tightly after a rain. In these areas the content of organic matter and nitrogen are low and seed germinates poorly.

This soil is farmed intensively, primarily to cash grain. It responds well to applications of lime and fertilizer. Because of susceptibility to erosion, however, management practices that reduce runoff are needed. (Capability unit IIe–16; woodland suitability group 4)

Mattapex silt loam, 0 to 2 percent slopes (MxA).—This soil dries more slowly than do other Mattapex soils in the county, and field operations are delayed for 1 or 2 days longer after a rain. The profile of this soil is similar to the one described as typical for the series, except that it contains more silt and less sand. Some damage from frost heave can be expected on this soil during severe winters.

Included in mapping are small areas of the more clayey Keyport soils.

This Mattapex soil is easily farmed and is suitable for use of large farm equipment. It is not susceptible to erosion, and except for removal of surface water from depressions, management concerns are not serious. This silt loam, however, compacts more readily than do the Mattapex loams. Compaction can be overcome by growing hay or pasture crops and by neither working the soil nor grazing it when it is wet. (Capability unit IIw–1; woodland suitability group 4)

Mattapex silt loam, 2 to 5 percent slopes, moderately eroded (MxB2).—The profile of this soil is similar to that described as typical for the series, except that it contains more silt and less sand and is moderately eroded. In many of the eroded areas plowing has mixed material from the subsoil with the remaining surface layer. These areas do not retain moisture well for plant use. They contain little nitrogen and no organic matter, and their surface crusts readily after a rain. Seed generally germinates poorly in these areas.

than the surrounding soil. In the more eroded areas the soil is devoid of organic matter, has poor structure, and crusts after a rain. During winter and spring seepage occurs at the base of slopes and delays tillage in spring for as much as a week.

Included in mapping are areas of Mattapex loam and of Mattapex silt loam.

This soil is suited to all general farm crops, but management practices are needed for controlling further erosion and for draining seepage areas. (Capability unit IIIe–13; woodland suitability group 7)

Keyport loam, 10 to 15 percent slopes (KmD).—This soil is mostly wooded. It is similar to Keyport loam, 5 to 10 percent slopes, moderately eroded, but is more sloping, is more susceptible to erosion if cleared and tilled, and has greater seepage for a longer period. This soil should remain wooded or should be developed as wildlife habitat. (Capability unit VIe–2; woodland suitability group 7)

Keyport silt loam, 0 to 2 percent slopes (KpA).—This soil is more extensive than any other Keyport soil in Talbot County. Its surface layer is less sandy than the surface layer in the Keyport loams and is less clayey than that layer in Keyport silty clay loams. This silt loam has the profile described as typical for the series.

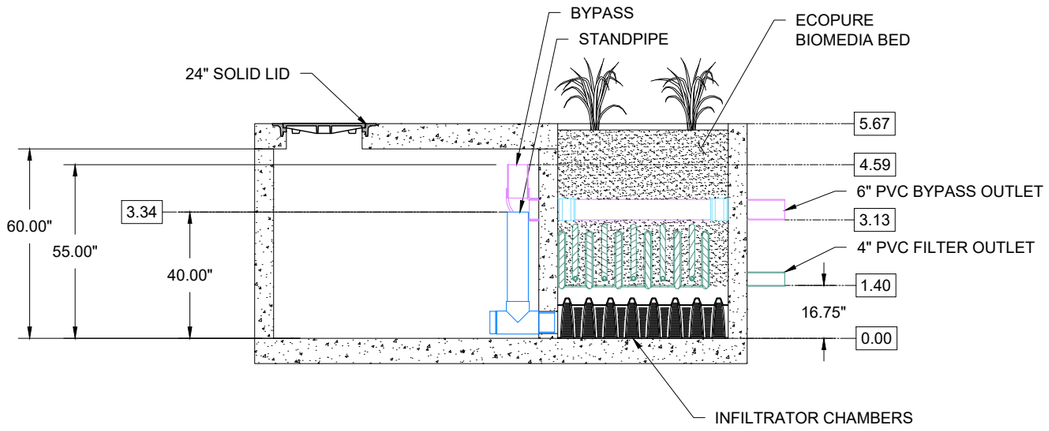
Water collects on the surface of this soil during the winter and delays spring plowing unless this soil is drained. Although surface water generally is not a concern during the growing season, it may delay field operations after a heavy rain. Because this soil is level and occupies large areas, it is well suited to use of large farm machinery. The soil, however, compacts easily if worked or grazed when very wet.

In many areas where this soil borders tidal streams, erosion of the banks is very active. The banks are undercut when the sandier underlying material is washed away. Then large blocks of remaining soil break off and are eroded away by tidal action (fig. 5). (Capability unit IIw–8; woodland suitability group 4)

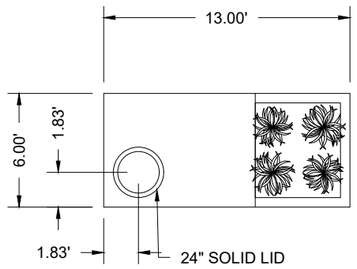
Keyport silt loam, 2 to 5 percent slopes, moderately eroded (KpB2).—This soil does not absorb so much surface water as Keyport silt loam, 0 to 2 percent slopes, and in places has lost as much as 75 percent of its surface layer. In these areas the subsoil has been mixed into the remaining surface layer by plowing and the present surface layer is lighter colored than in other places. Seed germinates slowly on the soil in the more eroded areas because it

APPENDIX G

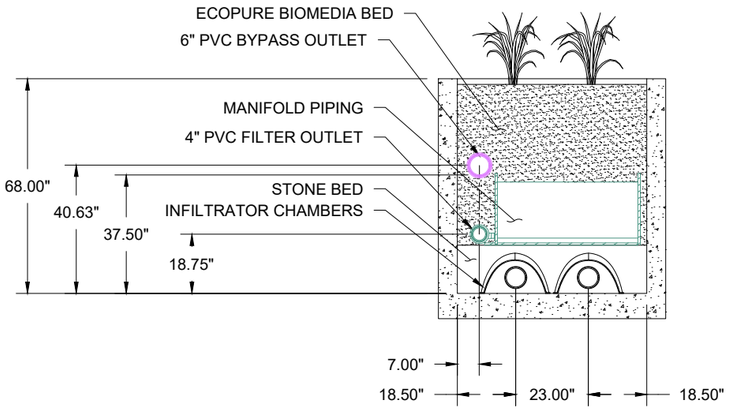
- ECOPURE DETAIL/MDE APPROVAL



SECTION A-A
NTS



TOP SLAB PLAN VIEW
NTS / PIPE CONNECTIONS NOT SHOWN



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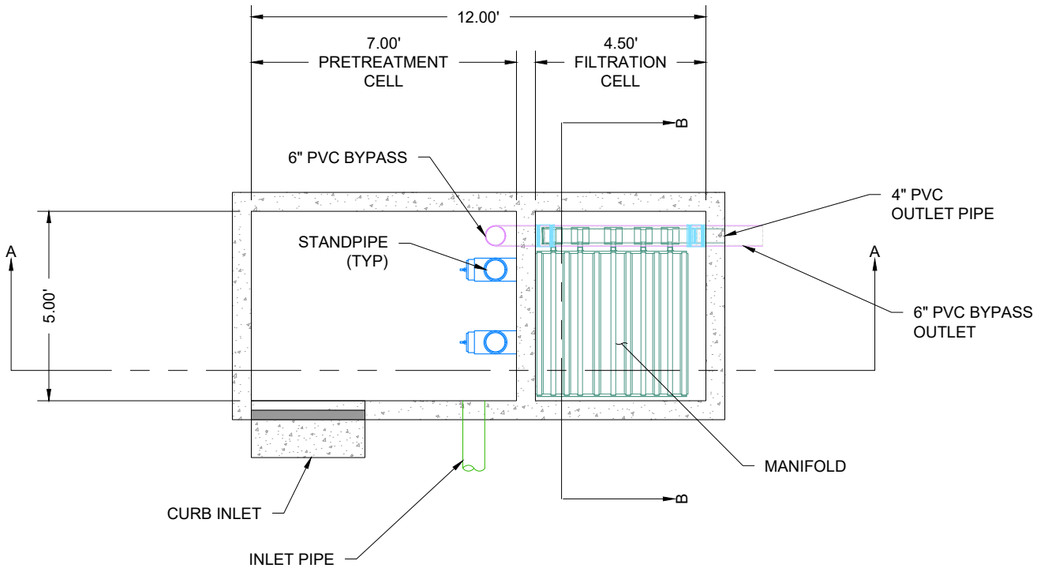


PLAN VIEW
NTS

ECOPURE BIOFILTER MDE 60	5x12
WATER QUALITY FLOW RATE	0.13 CFS
EFFECTIVE LOADING RATE	1 GPM/SF
EQUIVALENT ESD VOLUME	824 CF
25% ESDv PROVIDED	206 CF

THE ECOPURE BIOFILTER™ IS A BIOFILTRATION STORMWATER TREATMENT TECHONOLOGY RELIES ON PHYSICAL, CHEMICAL AND BIOLOGICAL MECHANISMS TO REMOVE TOTAL SUSPENDED SOLIDS, TOTAL PHOSPHORUS, TOTAL NITROGEN, HEAVY METALS, OIL and GREASE, TRASH AND BACTERIA. THE ECOPURE SYSTEM PROVIDES LINEAR TREATMENT DESIGN WITH AN UPFRONT PRETREATMENT CHAMBER.

ECOPURE BIOFILTER
60
STANDARD DETAIL

DATE: 6/08/22 | DRAWN: KLJ | PROJECT #: | CHECKED: KLJ

DATE	DRWN	CHKD	DESCRIPTION

EcoPure™ Biofilter
Stormwater Media Filters

4640 TRUEMAN BLVD
HILLIARD, OH 43026

NOT TO SCALE

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.

SHEET 1 OF 1

February 22, 2023

Mr. Greg Moore
ADS – BaySaver
1010 Deer Hollow Drive
Mt. Airy, MD 21771

Dear Mr. Moore:

Thank you for your request to the Maryland Department of the Environment (Department) regarding the ADS EcoPure BioFilter (EcoPure BioFilter). You have requested that the Department consider the EcoPure Filter (2-cell configuration) for approval as an environmental site design (ESD) practice to address local stormwater management requirements for new development and redevelopment in Maryland. The Department has evaluated the information that you have provided, including product descriptions, operations & maintenance information, drawings, and the results of independent field monitoring of a EcoPure BioFilter system installation in Washington State conducted in accordance with the Washington Department of Ecology (DOE) Technology Assessment Protocol - Ecology (TAPE). We offer the following:

While field monitoring conforming to TAPE is acceptable, the Department assesses performance based on specific Maryland requirements when evaluating technologies. As you are aware, ESD practices are designed to capture, treat, and slowly release a specific volume through a combination of infiltration, filtration, evapotranspiration, and slow release over an extended period. This addresses pollutant removal, groundwater recharge and channel erosion control goals. Where the entire ESD volume (ESD_v) cannot be captured and treated using the practices and/or techniques found in Chapter 5 of the 2000 Maryland Stormwater Design Manual (Manual), the remaining volume may be treated using the approved structural practices found in Chapter 3. With respect to the slow release to meet the channel protection requirements, the entire ESD_v must be released over an extended period (i.e., $\geq$ 36 hours). Additionally, a portion of the ESD_v must provide recharge within the system (the recharge volume, or Re_v) as described in Chapter 2 of the Manual.

The Department considers the EcoPure BioFilter to be a two-cell treatment device in which the first cell functions as a hydrodynamic separator while the second cell contains a proprietary type of filter that uses a fast flow bio-media. The runoff enters the sedimentation cell, where coarse particles are screened and/or allowed to settle, before entering the filtering chamber from the bottom where it flows upward into the bio-media layer, where the filtering occurs, before exiting the practice through an outflow pipe. Based on the submitted monitoring information, the EcoPure BioFilter meets the Department's requirement of 80% removal efficiency for total suspended solids (TSS) and 40% removal efficiency for total phosphorus (TP). As a result, the EcoPure BioFilter meets the Department's water quality standard for stormwater practices. However, according to the submitted TAPE analysis report, the EcoPure BioFilter has an estimated drawdown time of approximately 5 minutes, which is significantly less than what is needed to address ESDv requirements. Therefore,

the EcoPure BioFilter may not be used as a stand-alone ESD practice. However, it may be used as part of a system of practices that, as a whole, addresses all of the ESD requirements, given that the following conditions listed below are met:

- Individual applications must be capable of capturing 25% of the design volume prior to filtration (i.e., within the sedimentation chamber) for pretreatment.

- The maximum filter surface area to drainage area ratio for a system treating the runoff from one inch of rainfall is 91 square (sq.) feet (a 7 ft. x 13 ft. unit) per 20,000 sq. ft. of imperviousness. This is also the maximum drainage area to any micro-bioretention practice listed in Chapter 5 of the Manual (see p. 5.98).

- As mentioned above, because the drain time associated with the filter component is minimal (e.g., ~5 minutes), the system cannot be used as a stand-alone practice for addressing ESD requirements unless all runoff passing through the unit also passes through approved practices that are designed to meet channel erosion control requirements.

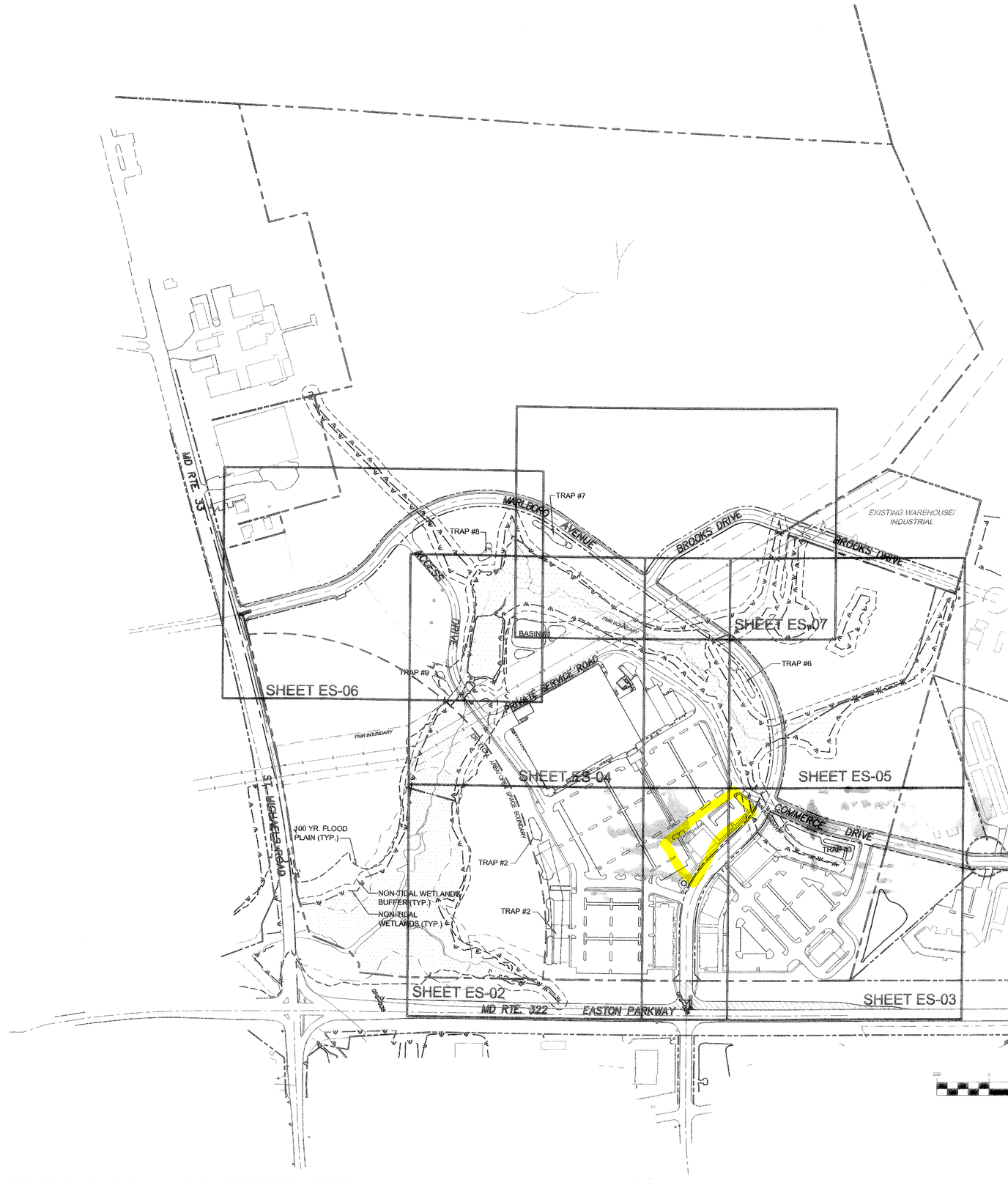
In summary, the Department has no objections to the use of the EcoPure BioFilter for use in new development, redevelopment, and retrofitting applications provided that the above stipulations are met, and it is accepted locally. However, local jurisdictions may request a copy of a letter from the Department verifying product classification. This letter serves as verification. Thank you again for your interest. If you have any questions or would like to discuss this further, please feel free to call me at (410) 537-3550 or by email at stewart.comstock@maryland.gov.

Sincerely,

Stewart R. Comstock, P.E., Chief
Program Review Division
Stormwater, Dam Safety, and Flood Management Program
Water and Science Administration

APPENDIX H

- WATERSIDE VILLAGE SITE PLANS



LEGEND

SCE	DENOTES STABILIZED CONSTRUCTION ENTRANCE
SF	DENOTES SILT FENCE
SSF	DENOTES SUPER SILT FENCE
LOD	DENOTES LIMIT OF DISTURBANCE
AGIP	DENOTE AT GRADE INLET PROTECTION
SIP	DENOTES STANDARD INLET PROTECTION
CIP	DENOTES CURB INLET PROTECTION

NOTE: USE SUPER SILT FENCE FOR ALL STANDARD INLET PROTECTIONS.

GRAPHIC SCALE

200 0 100 200 400 800

(IN FEET)

1 inch = 200 ft.

APPROVED
Town of Easton, Maryland
Planning & Zoning Commission
Date 2/1/07

STATE OF MARYLAND * VINCENT J. McCRONE, JR. * 21605 * REGISTERED PROFESSIONAL ENGINEER

SEAL DATE

APPROVED BY: APPROVAL DATE

APPROVED BY: APPROVAL DATE

REVIEWED BY: APPROVAL DATE

REVIEWED BY: FOR SEDIMENT CONTROL REVIEW ONLY: APPROVAL DATE

REVISIONS

DATE	DESCRIPTION
03/31/06	PER COMMENTS - 11/11/05
07/30/06	PER COMMENTS - MAY '06
09/22/06	PER COMMENTS - AUG.'06
12/06/06	PER COMMENTS - VARIOUS

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● Construction Services ● Land Planning & Surveying
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207 NORTH LIBERTY STREET
CENTREVILLE, MARYLAND
(410) 758-2237 * FAX (410) 758-2464
www.mccronepic.com

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DATE	OCT. 10, 2005
JOB NUMBER:	D1040242
SCALE:	1"=200'
DRAWN BY:	DAL
DESIGNED BY:	DAL
APPROVED BY:	VJD
FOLDER REFERENCE	N/A

EROSION & SEDIMENT CONTROL LAYOUT

FOR:

WATERSIDE VILLAGE at EASTON

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

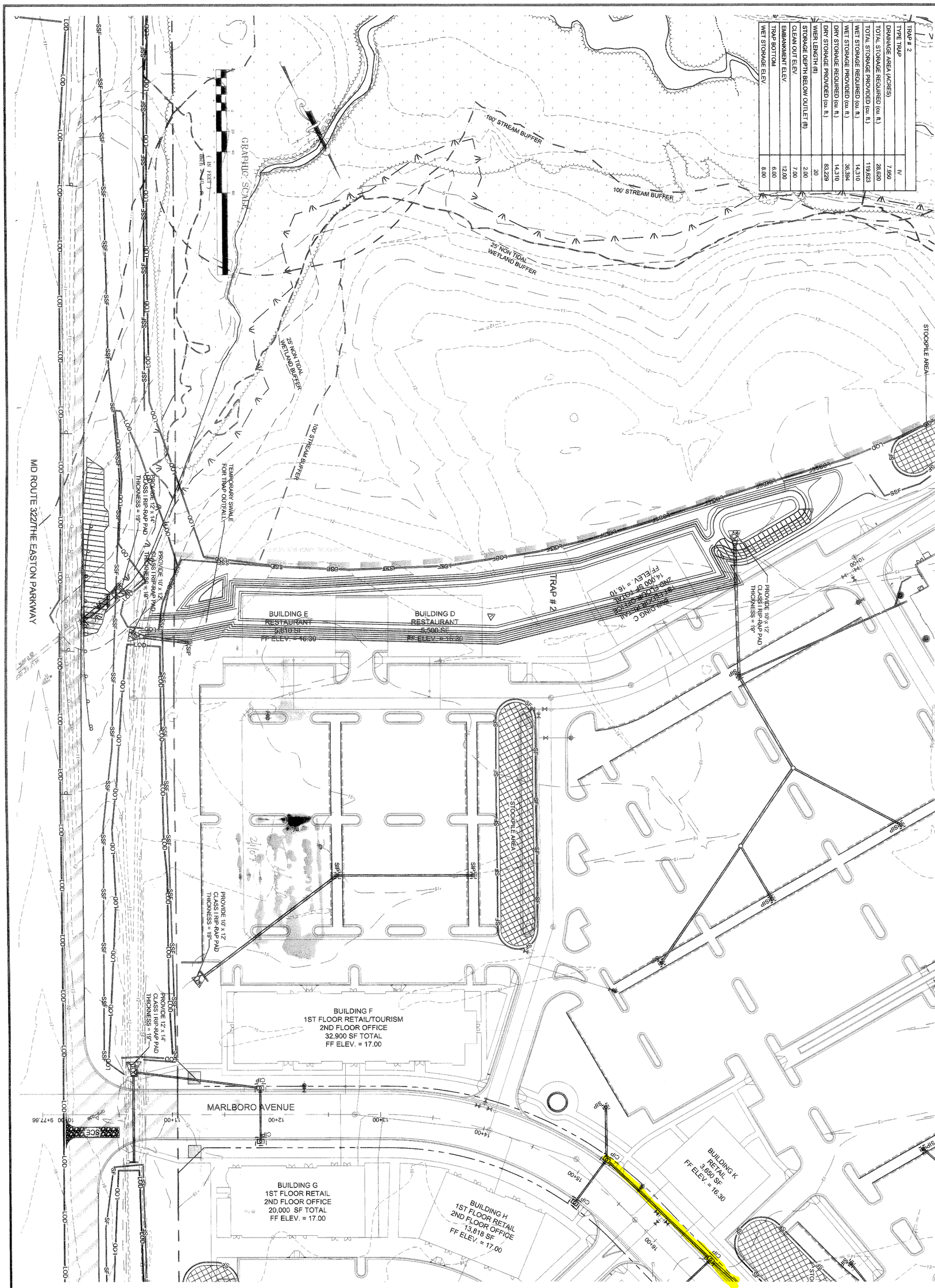
TAX MAP - 34, GRID - 3, PARCEL - 20

PREPARED FOR: REMCO PROPERTIES, LLC

SHEET NO.: ES-01

FILE NO.: D1040242-ES-01.DWG

PLOTTED: Dec 12, 2006 - 11:05am Z:\LDT_Projects\D1040242\dwg\Engineering\D1040242-ES-01.dwg.....Tab:ES-01



EROSION & SEDIMENT CONTROL

FOR:

WATERSIDE VILLAGE at EASTON

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

TAX MAP - 34, GRID - 3, PARCEL - 20

PREPARED FOR: REMCO PROPERTIES, LLC

FILE NO.: D1040242-ES-01-07.dwg

SHEET NO.: ES-02

DATE:	OCT. 10, 2005
JOB NUMBER:	D1040242
SCALE:	1"=40'
DRAWN BY:	DAL
DESIGNED BY:	DAL
APPROVED BY:	VLD
FOLDER REFERENCE:	4317

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● Construction Services ● Land Planning & Surveying
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07/30/06	PER COMMENTS - MAY '06
09/22/06	PER COMMENTS - AUG.'06
12/06/06	PER COMMENTS - VARIOUS
2	REVISED PER MDE, CRIT AREA, CONTRACTOR CMMTS

APPROVED BY: _____ APPROVAL _____ DATE

APPROVED BY: _____ APPROVAL _____ DATE

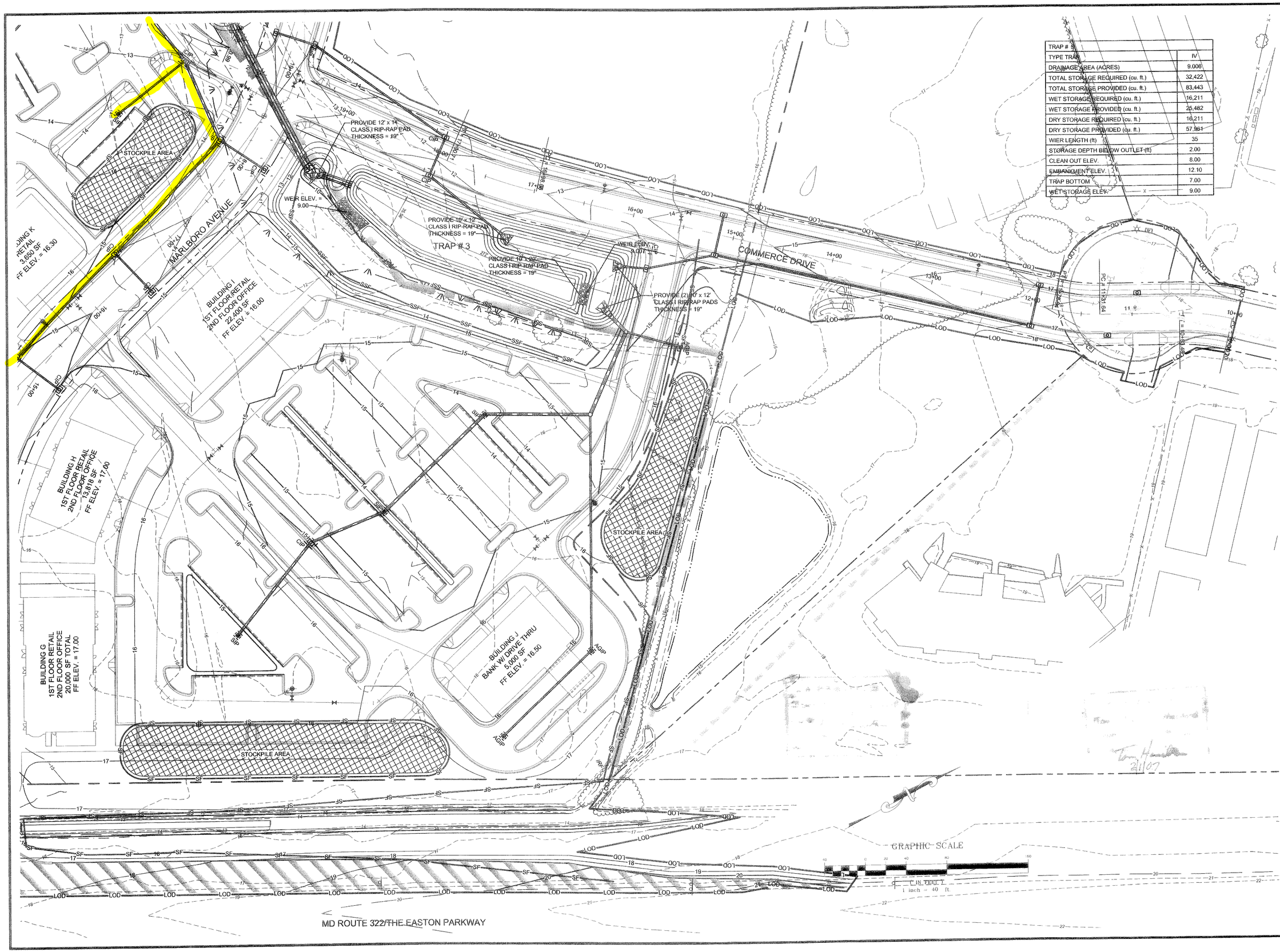
REVIEWED BY: _____ APPROVAL _____ DATE

REVIEWED BY: FOR SEDIMENT CONTROL, REVIEW ONLY _____ APPROVAL _____ DATE

STATE OF MARYLAND — VINCENT L. DAVIS — No. 21355 — REGISTERED PROFESSIONAL ENGINEER

SEAL

DATE 12/14/06



TRAP # 3	
TYPE TRAP	IV
DRAINAGE AREA (ACRES)	9.006
TOTAL STORAGE REQUIRED (cu. ft.)	32,422
TOTAL STORAGE PROVIDED (cu. ft.)	83,443
WET STORAGE REQUIRED (cu. ft.)	16,211
WET STORAGE PROVIDED (cu. ft.)	25,482
DRY STORAGE REQUIRED (cu. ft.)	16,211
DRY STORAGE PROVIDED (cu. ft.)	57,961
WIER LENGTH (ft)	35
STORAGE DEPTH BELOW OUTLET (ft)	2.00
CLEAN OUT ELEV.	8.00
EMBANKMENT ELEV.	12.10
TRAP BOTTOM	7.00
WET STORAGE ELEV.	9.00

STATE OF MARYLAND VIRGINIA L. PADOS REGISTERED PROFESSIONAL ENGINEER

SEAL 12/8/06

DATE

APPROVED BY:

APPROVAL DATE

APPROVED BY: DATE

APPROVAL DATE

REVIEWED BY: DATE

APPROVAL DATE

REVIEWED BY: FOR SEDIMENT CONTROL REVIEW ONLY

APPROVAL DATE

REVISIONS

DATE	DESCRIPTION
03/31/06	PER COMMENTS - 11/1/05
07/30/06	PER COMMENTS - MAY '06
09/22/06	PER COMMENTS - AUG. '06
12/06/06	PER COMMENTS - VARIOUS

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DATE	OCT. 10, 2005
JOB NUMBER:	D1040242
SCALE:	1"=40'
DRAWN BY:	DAL
DESIGNED BY:	DAL
APPROVED BY:	VLD
FOLDER REFERENCE:	4317

EROSION & SEDIMENT CONTROL

FOR:

WATERSIDE VILLAGE at EASTON

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

TAX MAP - 34, GRID - 3, PARCEL - 20

PREPARED FOR: REMCO PROPERTIES, LLC

SHEET NO.: ES-03

FILE NO.: D1040242-ES-01-07.dwg

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PROVIDE 10' x 12' CLASS I RIP-RAP PAD THICKNESS = 19"

PROVIDE 10' x 14' CLASS I RIP-RAP PAD THICKNESS = 19"

MARLBORO AVENUE

STOCKPILE AREA

WEIR ELEV. = 7.00

WEIR ELEV. = 6.50

PROVIDE 10' x 10' CLASS I RIP-RAP PAD THICKNESS = 18"

24" OUTFALL INV.=5.00'

15' LF 6" PRE-PERFORATED PIPE HORIZONTAL DRAW DOWN DEVICE SEE SHT. 8 FOR DETAIL

25' NON TIDAL WETLAND BUFFER

BASIN # 1

TEMP. 24" RISER STRUCTURE

INV.=5.20

PROVIDE 9' x 20' CLASS I RIP-RAP PAD THICKNESS = 19"

WEIR ELEV. = 5.20

PROVIDE (2) 10' x 12' CLASS I RIP-RAP PADS THICKNESS = 19"

PROVIDE 16' x 25' CLASS I RIP-RAP PAD THICKNESS = 19"

PROVIDE 10' x 12' CLASS I RIP-RAP PAD THICKNESS = 19"

3'-3" ADS YARD INLET INV. OUTLET (INVERT = 4.00' TOP = 6.5)

PROVIDE 8' x 55' CLASS I RIP-RAP PAD THICKNESS = 19"

45° BENDS

TRAP # 9

WEIR ELEV. = 3.20

15" ADS PIPE @ 0.5% SLOPE

22.5° BEND

END SECTION INV. = 3.2'

PROVIDE CLASS I RIP-RAP PAD THICKNESS = 19"

28' NON TIDAL WETLAND BUFFER

WEIR ELEV. = 3.00

LOADING AREA

PROVIDE (2) 10' x 12' CLASS I RIP-RAP PADS THICKNESS = 19"

PRIVATE SERVICE ROAD

25' NON TIDAL WETLAND BUFFER

PROVIDE 8' x 20' CLASS I RIP-RAP PAD THICKNESS = 19"

BUILDING B1 RETAIL 20,197 SF FF ELEV. = 16.00

BUILDING B2 RETAIL 7,665 SF FF = 14.67

BLDG. B3 RETAIL 4,078 SF FF = 14.00

BUILDING A RETAIL ANCHOR 126,842 SF FF ELEV. =17.00

ACCESS DRIVE

STOCKPILE AREA

BASIN # 1	
DRAINAGE AREA (ACRES)	12.133
TOTAL STORAGE REQUIRED (cu. ft.)	43,679
TOTAL STORAGE PROVIDED (cu. ft.)	52,314
WET STORAGE REQUIRED (cu. ft.)	21,839
WET STORAGE PROVIDED (cu. ft.)	29,339
DRY STORAGE REQUIRED (cu. ft.)	21,839
DRY STORAGE PROVIDED (cu. ft.)	22,975
STORAGE DEPTH BELOW OUTLET (ft)	2.20
CLEAN OUT ELEV.	4.10
EMBANKMENT ELEV.	7.10
TRAP BOTTOM	3.00
WET STORAGE ELEV.	5.20

TRAP # 9	
TYPE TRAP	II
DRAINAGE AREA (ACRES)	1.829
TOTAL STORAGE REQUIRED (cu. ft.)	6,584
TOTAL STORAGE PROVIDED (cu. ft.)	11,639
WET STORAGE REQUIRED (cu. ft.)	3,292
WET STORAGE PROVIDED (cu. ft.)	4,377
DRY STORAGE REQUIRED (cu. ft.)	3,292
DRY STORAGE PROVIDED (cu. ft.)	7,261
WIER LENGTH (ft)	20
STORAGE DEPTH BELOW OUTLET (ft)	2.20
CLEAN OUT ELEV.	2.10
EMBANKMENT ELEV.	5.00
TRAP BOTTOM	1.00
WET STORAGE ELEV.	3.20

GRAPHIC SCALE

(IN FEET)
1 inch = 40 ft.

STATE OF MARYLAND — JOSEPH A. GALOS — No. 21601 — REGISTERED PROFESSIONAL ENGINEER

SEAL 3/9/06 DATE

APPROVED BY: APPROVAL DATE

APPROVED BY: APPROVAL DATE

REVIEWED BY: APPROVAL DATE

REVIEWED BY: FOR SEDIMENT CONTROL REVIEW ONLY APPROVAL DATE

REVISIONS

DATE	DESCRIPTION
03/31/06	PER COMMENTS - 11/7/05
07/30/06	PER COMMENTS - MAY '06
09/22/06	PER COMMENTS - AUG.'06
12/06/06	PER COMMENTS - VARIOUS
1	REVISED PER MDE, CRIT AREA, CENTERLINE DIMS.

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DATE	OCT. 10, 2005
JOB NUMBER:	D1040242
SCALE:	1"=40'
DRAWN BY:	DAL
DESIGNED BY:	DAL
APPROVED BY:	SCH
FOLDER REFERENCE	4317

EROSION & SEDIMENT CONTROL

FOR:

WATERSIDE VILLAGE at EASTON

FIRST ELECTION DISTRICT, TALBOT COUNTY, MARYLAND

TAX MAP - 34 GRID - 3, PARCEL - 20

PREPARED FOR: REMCO PROPERTIES, LLC

SHEET NO.: ES-04

FILE NO.: D1040242-ES-01-07.dwg

PLOTTED: Dec 12, 2006 - 11:06am Z:\LDT_Projects\D1040242\dwg\Engineering\D1040242-ES-02-07.dwg Tab:ES-04

MAINTENANCE AND INSPECTION NOTES FOR SURFACE FILTERING SYSTEMS

(From Maryland Department of the Environment. SWM Manual, Appendix E, Group 4B)

1. FILTERING SYSTEMS MUST BE INSPECTED REGULARLY. WHEN PONDING IS EVIDENT ON THE SURFACE OF THE FILTER BE FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REMOVED AND REPLACED WITH FRESH MATERIAL AND DISPOSED OF PROPERLY.

2. SILT/ SEDIMENT REMOVAL SHALL BE PERFORMED WHEN SEDIMENT ACCUMULATES A DEPTH THAT EXCEEDS ONE INCH.

3. FILTERS WITH A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE TIMES PER GROWING SEASON TO MAINTAIN GRASS HEIGHTS THAT DO NOT EXCEED 12 INCHES.

4. DEAD OR DISEASED PLANT MATERIAL SHALL BE REPLACED. AREAS DEVOID OF MULCH SHOULD BE RE-MULCHED ON AN ANNUAL BASIS.

5. DIRECT MAINTENANCE ACCESS TO THE PRE-TREATMENT AREA AND FILTER BED SHALL BE MAINTAINED.

6. VIGOROUS AND DENSE GROWTH SHOULD BE MAINTAINED. ANY BARE SPOTS, BURNED OUT AREAS OR ERODED AREAS MUST BE RE-SODDED IMMEDIATELY. WATERING AND/ OR FERTILIZATION SHOULD BE PROVIDED DURING THE FIRST FEW MONTHS AFTER STRIP IS ESTABLISHED AND MAY PERIODICALLY BE NEEDED DURING PERIODS OF DROUGHT.

LANDSCAPE SPECIFICATIONS

MATERIALS:

PLANTS SHALL BE NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES, AND GROWN UNDER CLIMATIC CONDITIONS SIMILIAR TO THOSE IN THE LOCALITY OF THE PROJECT. THEY SHALL HAVE BEEN ROOT PRUNED, PREFERABLY WITHIN THE LAST YEAR.

PLANTS SHALL BE SOUND, HEALTHY, AND VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL BE FREE OF DISEASE, PESTS, EGGS OR LARVAE, AND SHALL HAVE A HEALTHY DEVELOPED ROOT SYSTEM.

PLANTS SHALL NOT BE PRUNED BEFORE DELIVERY. TREES WITH A DAMAGED OR CROOKED LEADER OR MULTIPLE LEADERS, ABRASIONS ON THE BARK, SUNSCALD, DISFIGURING KNOTS OR FRESH CUTS OVER 1 1/4 INCH WILL BE REJECTED.

NO CHANGE IN QUANTITY, SIZE, KIND, OR QUALITY OF PLANT SPECIFIED WILL BE PERMITTED WITHOUT THE APPROVAL OF THE LANDSCAPE ARCHITECT.

TOPSOIL SHALL BE FERTILE, FRIABLE AND TYPICAL OF THE LOCALITY; IT SHALL BE FREE OF STONES, LUMPS, PLANTS, ROOTS, STICKS AND SHALL NOT BE DELIVERED IN A FROZEN OR MUDDY CONDITION.

STAKING MATERIALS: GUY WIRE SHALL BE PLIABLE 12 GAUGE GALVANIZED TWISTED TWO STRAND WIRE. HOSE SHALL BE A SUITABLE LENGTH OF TWO-PLY RUBBER HOSE 3/4 INCH IN DIAMETER STAKES SHALL CONFORM TO THE DETAIL ON THIS SHEET.

WRAPPING MATERIAL SHALL BE A STANDARD MANUFACTURED TREE WRAPPING PAPER WITH CRINKLED SURFACE AND FASTENED BY AN APPROVED METHOD.

APPLICABLE SPECIFICATIONS AND STANDARDS:
"STANDARD PLANT NAMES," LATEST EDITION AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE.

"AMERICAN STANDARD FOR NURSERY STOCK," LATEST EDITION, AMERICAN ASSOCIATION OF NURSERYMEN.

DIGGING AND HANDLING OF PLANT MATERIALS:
IMMEDIATELY BEFORE DIGGING, SPRAY ALL EVERGREEN OR DECIDUOUS PLANT MATERIAL IN FULL LEAF WITH ANTI-DESSICANT, APPLYING AN ADEQUATE FILM OVER TRUNKS, BRANCHES, TWIGS, AND/OR FOLIAGE.

DIG BALL AND BURLAP (B & B) PLANTS WITH FIRM NATURAL BALLS OF EARTH, OF DIAMETER NOT LESS THAN THAT RECOMMENDED BY AMERICAN STANDARD FOR NURSERY STOCK, AND OF SUFFICIENT DEPTH TO INCLUDE THE FIBROUS AND FEEDING ROOTS. PLANTS MOVED WITH A BALL WILL NOT BE ACCEPTED IF THE BALL IS CRACKED OR BROKEN BEFORE OR DURING PLANTING OPERATIONS.

EXCAVATION OF PLANTING AREAS:
STAKE OUT ON THE GROUND LOCATIONS FOR PLANTS AND OUT-LINES OF AREA TO BE PLANTED AND OBTAIN APPROVAL OF THE LANDSCAPE ARCHITECT BEFORE EXCAVATION IS BEGUN. LANDSCAPED AREAS TO BE THOROUGHLY WEEDED PRIOR TO PLANTING OPERATION.

PLANTING OPERATIONS:
SET PLANTS AT SAME RELATIONSHIP TO FINISHED GRADE AS THEY BORE TO THE GROUND FROM WHICH THEY WERE DUG. USE EXISTING SOIL TO BACKFILL APPROXIMATELY 2/3 FULL, WATER THOROUGHLY BEFORE INSTALLING REMAINDER OF THE PLANTING SOIL TO TOP OF PITS, ELIMINATING ALL AIR POCKETS.

SET PLANTING PLUMB AND BRACE RIGIDLY IN POSITION UNTIL THE PLANTING SOIL HAS BEEN STAMPED SOLIDLY AROUND THE BALL AND ROOTS. CUT ROPES OR STRINGS FROM THE TOP OF BALL AFTER PLANT HAS BEEN SET. LEAVE BURLAP OR CLOTH WRAPPING INTACT AROUND BALLS. TURN UNDER AND BURY PORTIONS OF BURLAP AT TOP OF BALL.

PROTECT PLANTS AT ALL TIMES FROM SUN OR DRYING WINDS. PLANTS THAT CANNOT BE PLANTED IMMEDIATELY ON DELIVERY SHALL BE KEPT IN THE SHADE, WELL PROTECTED WITH SOIL, WET MOSS OR OTHER ACCEPTABLE MATERIAL AND SHALL BE KEPT WELL WATERED. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN THREE DAYS AFTER DELIVERY.

PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES. PLANTS SHALL BE LIFTED AND HANDLED FROM THE BOTTOM OF THE BALL ONLY.

PLACE 1 - 2" OF TOPSOIL OR ORGANIC MATTER ON ALL PLANTING PITS & BEDS IMMEDIALY AFTER PLANTING.

MULCH ALL PITS AND BEDS WITH A 2" LAYER OF BARK MULCH IMMEDIATELY AFTER PLANTING. FORM A 3" EARTH SAUCER AROUND EACH PLANT. WATER ALL PLANTS IMMEDIATELY AFTER PLANTING.

STAKING, WRAPPING AND PRUNING:
STAKING SHALL BE COMPLETED IMMEDIATELY AFTER PLANTING. PLANTS SHALL STAND PLUMB AFTER STAKING. STAKES AND GUY WIRES SHALL BE REMOVED AT THE END OF THE GUARANTEE PERIOD AND DISPOSED OF OFF SITE BY THE CONTRACTOR.

WRAP DECIDUOUS TREE TRUNKS STARTING AT THE BASE OF THE TREE UP TO THE SECOND BRANCH. REMOVE WRAPPING AT THE END OF THE GUARANTEE PERIOD.

PRUNE PLANTS AT THE TIME OF PLANTING AS DIRECTED BY THE LANDSCAPE ARCHITECT TO REMOVE A MAXIMUM OF 1/3 OF THE FOLIAGE. REMOVE ALL DEAD WOOD, SUCKERS OR BROKEN BRANCHES AND PRESERVE THE NATURAL CHARACTER OF THE PLANT.

GUARANTEE:
ALL PLANT MATERIAL SHALL BE GUARANTEED BY THE CONTRACTOR TO BE IN A HEALTHY AND VIGOROUS CONDITION AT THE BEGINNING OF THE SECOND GROWING SEASON FOLLOWING ACCEPTANCE BY THE LANDSCAPE ARCHITECT.

LANDSCAPE NOTES

1. ALL LANDSCAPE AREAS TO BE SEEDED WITH GRASS COMMON TO REGION EXCEPT WHERE OTHER PLANT MATERIAL IS CALLED FOR.

2. THIS SITE IS TO BE IRRIGATED BY AN AUTOMATIC PERMANENT IRRIGATION. CONTRACTOR TO PROVIDE DESIGN DRAWINGS FOR APPROVAL PRIOR TO INSTALLATION.

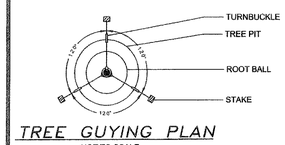
3. ALL TREES AND SHRUBS TO BE PLANTED IN MULCHED BEDS WITH SHOVEL CUT EDGES TO SEPARATE TURF GRASS AREAS.

4. GRASS TO EXTEND FROM PROPERTY LINES TO BACK OF PUBLIC SIDEWALKS AND/OR CURBS.

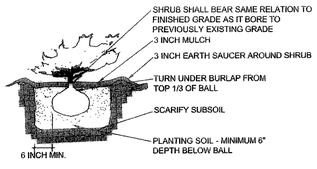
5. SEE IRRIGATION PLAN FOR LOCATION OF PVC PIPES SLEEVES TO BE PLACED UNDER PAVED AREAS.

6. FOR ANY LANDSCAPE AREA SO DESIGNATED TO REMAIN WHETHER ON OR OFF SITE, REMOVE WEEDS, ROCKS, CONSTRUCTION ITEMS, ETC., THEN SCARIFY AREA, RESEED, AND FERTILIZE. R.O.W. CURB AND GUTTERS ARE TO BE CLEANED OF DEBRIS.

7. FINISHED GRADES IN LANDSCAPE ISLANDS SHALL BE INSTALLED SO THAT THEY ARE 1" LOWER THAN THE TOP OF THE SURROUNDING CURB.



TREE GUYING PLAN
NOT TO SCALE



SHRUB PLANTING DETAIL
NOT TO SCALE

CONSTRUCTION SPECIFICATIONS FOR BIO-RETENTION AREAS

(From MDE 2000 SWM Manual, Appendix B.3, B.3.B)

1. MATERIAL SPECIFICATIONS
THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.3.2.

2. PLANTING SOIL
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

PH RANGE	5.2 - 7.0
ORGANIC MATTER	1.5 - 4% (BY WEIGHT)
MAGNESIUM	35 LB./AC
PHOSPHORUS (PHOSPHATE -P2O5)	75 LB./AC
POTASSIUM (POTASH -K2O)	85 LB./AC NOT TO EXCEED
SOLUBLE SALTS	500 PPM

ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURE ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY.

SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE MODIFIED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.

3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING A LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT. OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF BIORETENTION FACILITY BY USING PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE REQUIRED SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.

4. PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX A, SECTION A.2.3., AND SPECIFIC PLANTINGS AS SPECIFIED IN SCHEDULE BELOW.

8. PLANT INSTALLATION
MULCH SHOULD BE PLACED TO UNIFORM THICKNESS OF 2" TO 3". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MUST BE WELL AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.

ROOT STOCK OF THE PLANT MATERIAL SHOULD BE KEPT MOIST DURING TRANSPORTATION AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER IN ALL DIRECTIONS THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWTH SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL AREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS
UNDERDRAINS ARE TO BE PLACED ON A 3'-0" WIDE SECTION OF FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS
THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

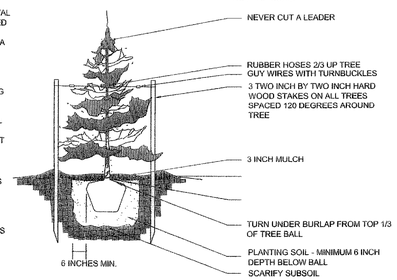
PRIVATE STORMWATER MANAGEMENT MAINTENANCE AND INSPECTION NOTES

INFILTRATION TRENCHES:

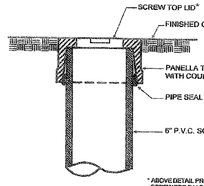
1. THE INFILTRATION TRENCH MUST BE INSPECTED SEVERAL TIMES DURING THE FIRST FEW MONTHS OF OPERATION AFTER MAJOR STORMS, THEN ANNUALLY THEREAFTER. INSPECTIONS SHALL EXAMINE EVIDENCE OF SURFACE PONDING, CLOGGING, ETC. WATER LEVELS IN OBSERVATION WELLS SHOULD BE RECORDED OVER A SEVERAL DAY PERIOD TO CHECK TRENCH DRAINAGE.
2. BUFFER STRIPS MUST BE INSPECTED ANNUALLY. GROWTH SHALL BE VIGOROUS AND DENSE. ANY BARE SPOTS, BURNED AREAS, OR ERODED AREAS MUST BE RE-SEEDED OR RE-SODDED IMMEDIATELY. WATERING AND FERTILIZATION SHALL BE PROVIDED DURING THE FIRST FEW MONTHS AFTER STRIP IS ESTABLISHED, AND MAY BE PERIODICALLY NEEDED DURING PERIODS OF DROUGHT.
3. BUFFER STRIPS MUST BE MOWED AT LEAST TWICE A YEAR TO PREVENT WOODY GROWTH AND FOR PROPER MAINTENANCE. MORE FREQUENT MOWING MAY BE REQUIRED IN RESIDENTIAL AREAS. EXTREME CARE SHALL BE TAKEN TO ENSURE THAT BUFFER STRIP IS NOT MOWED TOO SHORT AND THAT BAGGERS ARE USED TO PREVENT CLIPPINGS FROM CLOGGING THE TRENCH.
4. THE PRE-TREATMENT INLETS OF UNDERGROUND TRENCHES SHALL BE CHECKED PERIODICALLY AND CLEANED OUT WHEN SEDIMENT DEPLETES MORE THAN 10% OF THE AVAILABLE CAPACITY. SEDIMENT REMOVAL CAN BE PERFORMED MANUALLY OR BY USE OF A VACUUM PUMP. INLET AND OUTLET PIPES MUST BE CHECKED FOR CLOGGING AND VANDALISM. (SEE ADDITIONAL NOTES FOR PRETREATMENT DEVICES BELOW).
5. ANY ADJACENT TREES MAY REQUIRE TRIMMING TO ENSURE THAT THE DRIP-LINE DOES NOT EXTEND OVER A TRENCH SURFACE SO THAT TREE LEAVES DO NOT CLOG THE TRENCH. ANY SEEDLING GROWTH THAT DEVELOPS IN VICINITY OF A TRENCH SHALL BE REMOVED TO PREVENT ROOT PUNCTURE WHICH MAY CAUSE SEDIMENT TO ENTER THE TRENCH.
6. CLOGGING OF SURFACE TRENCHES CAN BE ADDRESSED BY CAREFULLY REMOVING THE TOP LAYER OF STONE, REMOVING CLOGGED FILTER FABRIC, INSTALLING NEW FILTER FABRIC, AND CLEANING OR REPLACING THE TOP STONE LAYER.
7. REHABILITATION OF A CLOGGED UNDERGROUND TRENCH REQUIRES THE REMOVAL OF TOPSOIL, VEGETATION OR STRUCTURAL LAYER (PAVEMENT), REMOVAL OF THE PROTECTIVE PLASTIC LAYER, REMOVAL OF THE ENTIRE STONE AGGREGATE LAYER, REMOVAL OF THE BOTTOM FILTER FABRIC (WHEN REQUIRED IN PAVED AREAS), TILLING OF THE SUBSOIL LAYER TO PROMOTE BETTER INFILTRATION AND THEN REPLACEMENT OF EACH LAYER.

UNDERGROUND FILTER SYSTEMS & PRETREATMENT DEVICES

1. THE SEDIMENT CHAMBER OUTLET DEVICES MUST BE CLEANED OR REPAIRED WHEN THE DRAWDOWN TIMES WITHIN THE CHAMBER EXCEEDS 36 HOURS.
2. TRASH AND DEBRIS SHALL BE REMOVED AS NECESSARY.
3. SEDIMENT REMOVAL FROM THE SEDIMENTATION CHAMBER SHALL BE PERFORMED WHEN THE SEDIMENT ACCUMULATES A DEPTH THAT EXCEEDS SIX INCHES.
4. PRETREATMENT DEVICES SHALL BE INSPECTED AND CLEANED OUT AFTER ANY STORM EVENT THAT EQUALS OR EXCEEDS 1" OF PRECIPITATION. AT A MINIMUM, THESE DEVICES SHALL BE CLEANED EVERY 6 MONTHS.



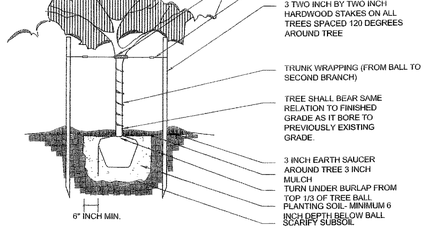
EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE



EACH OBSERVATION WELL / CLEANOUT SHALL INCLUDE THE FOLLOWING:

1. FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL / CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.
2. THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.

OBSERVATION WELL DETAIL



TREE PLANTING DETAIL
NOT TO SCALE

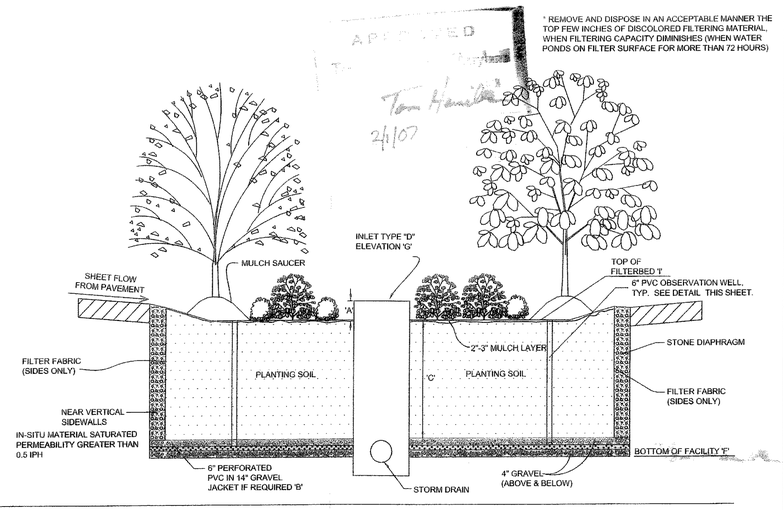
BIORETENTION FACILITY TABLE

FACILITY	DRAINAGE AREA		POOL DEPTH 'A'	UNDERDRAIN 'B'		FILTER BED DEPTH 'C'	STONE DIAPHRAGM LENGTH	STONE DIAPHRAGM WIDTH 'E'	STONE DIAPHRAGM DEPTH	BOTTOM OF FACILITY 'F'	INLET DATA		FILTER BED 'I'	STORM DRAIN		WQV (cu. ft.)	
	STRUCTURE	(AC)		SIZE	INV. IN						WEIR ELEV	ELEV 'G'	TOP	SIZE 'J'	INV. OUT	REQ'D	PROV.
#2	1-7	0.650 AC	0.5'	6"	8.26	2.5'	135'	3'	3.25'	7.60	12.10	12.93	11.60	30"	7.28	2,026	2,543
#3	1-11	0.582 AC	0.5'	6"	8.36	2.5'	106'	3'	3.5'	7.70	12.20	13.03	11.70	30"	7.67	1,654	2,004
#4	1-10	0.549 AC	0.5'	6"	9.86	2.5'	135'	2.5'	3.5'	9.20	13.70	14.53	13.20	15"	9.50	1,684	1,683
#5	1-12	0.582 AC	0.5'	6"	9.86	2.5'	135'	2.5'	4"	9.20	13.70	14.53	13.20	15"	9.50	1,791	1,751
#6	2-4	1.090 AC	0.5'	6"	10.91	2.5'	276'	2'	4"	10.25	14.75	15.58	14.25	18"	10.75	3,524	1,896
#7	2-6	0.803 AC	0.5'	6"	10.91	2.5'	270'	2'	3'	10.25	14.75	15.58	14.25	18"	10.77	2,570	1,661
#8	2-7	0.641 AC	0.5'	6"	10.91	2.5'	198'	2'	3.5'	10.25	14.75	15.58	14.25	18"	11.00	1,998	1,295
#9	2-2	1.938AC	0.5'	6"	10.91	2.5'	547'	2'	3.5'	10.25	14.75	15.58	14.25	36"	8.90	5,729	9,438
#10	4-5	1.127 AC	0.5'	6"	10.66	2.5'	378'	2'	3'	10.00	14.50	15.33	14.00	18"	11.55	3,442	2,419
#11	4-4	1.048AC	0.5'	6"	10.66	2.5'	378'	2'	3'	10.00	14.50	15.33	14.00	24"	10.58	3,330	2,419
#12	4-2	1.084 AC	0.5'	6"	9.66	2.5'	261'	2'	3'	9.00	13.50	14.33	13.00	30"	9.00	2,484	6,192
#13	3-25	0.994 AC	0.5'	6"	9.96	2.5'	297'	2'	3.5'	9.30	13.80	14.63	13.30	36"	9.43	2,902	2,948
#14	3-26	1.299 AC	0.5'	6"	10.66	2.5'	450'	2'	3'	10.00	14.50	15.33	14.00	30"	10.34	4,048	2,864
#15	3-28	1.718 AC	0.5'	6"	11.66	2.5'	345'	3'	3'	11.00	15.50	16.33	15.00	24"	11.42	4,307	7,892
#16	1-14	0.376 AC	0.5'	6"	9.56	2.5'	80'	3'	3'	8.90	13.40	14.23	12.90	15"	9.40	1,003	1,635
#17	1-21	0.797 AC	0.5'	6"	10.91	2.5'	163'	2.5'	3'	10.25	14.75	15.58	14.25	18"	10.70	1,876	6,047

Table B.3.2 Materials Specifications for Bioretention

Material	Specifications	Size	Notes
Plantings	See Appendix A, Table A.4	n/a	Plantings are site-specific
Planting Soil [2.5' to 4' deep]	Sand 35 – 60% Silt 30 – 55% Clay 10 – 25%	n/a	USDA soil types loamy sand, sandy loam or loam
Mulch	Shredded hardwood		Aged 6 months, minimum
Pea gravel diaphragm and curtain drain	Pea gravel Ornamental stone: washed cobbles	Pea gravel: No. 6 Stone: 2" to 5"	
Geotextile	MdSHA, PE Type I	n/a	For use as necessary beneath underdrains only
Underdrain gravel or aggregate	AASHTO M-43	#57 or #67	
Underdrain piping	F758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes.
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air entrained; reinforcing to meet ASTM-615-60	n/a	On-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland – design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand [1' deep]	AASHTO-M-6 or ASTM-C-33		Sand substitutions such as diabase and graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

Material	Specifications	Size	Notes
Dry swale soil	USCS; ML, SM, SC	n/a	Soil with a higher percent organic content is preferred
Dry swale sand	ASTM C-33 fine aggregate concrete sand		
Check dam (pressure treated)	AWPA Standard C6	6" by 6" or 8" by 8"	Do not coat with creosote; embed at least 3' into side slopes
Check dam (natural wood)	Black Locust, Red Mulberry, Cedars, Catalpa, White Oak, Chestnut Oak, Black Walnut	6" to 12" diameter; notch as necessary	Do not use the following, as these species have a predisposition toward rot: Ash, Beech, Birch, Elm, Hackberry, Hemlock, Hickories, Maples, Red and Black Oak, Pines, Poplar, Spruce, Sweetgum, Willow
Filter strip sand/gravel pervious berm	Sand: per dry swale sand Gravel: AASHTO M-43	Sand Gravel: ½" to 1"	Mix with approximately 25% loam soil to support grass cover crop; sand (35-60%), silt (30-55%), and gravel (10-25%) See Bioretention Planting Soil notes for more detail.
Pea gravel diaphragm and curtain drain	ASTM D 448	Varies (No. 6) or (1/8" to 3/8")	Use clean bank-run gravel
Underdrain gravel or aggregate	AASHTO M-43	#57 or #67	
Underdrain	F 758 Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
Geotextile	MdSHA, PE Type I	n/a	
Rip rap	Per County criteria; if none given, use MSHA Standards and Specs Section 905	Size per County DOT requirements based on 10-year design flows	



TYPICAL BIORETENTION FACILITY
Not to Scale

APPROVED
Tom Hamilton
24107

APPROVED BY: APPROVAL DATE
APPROVED BY: APPROVAL DATE
REVIEWED BY: APPROVAL DATE
REVIEWED BY: FOR SEDIMENT CONTROL REVIEW ONLY: APPROVAL DATE

REVISIONS

DATE	DESCRIPTION
03/31/06	PER COMMENTS - 1111/05
07/30/06	PER COMMENTS - MAY '06
09/22/06	PER COMMENTS - AUG 06
12/29/06	PER COMMENTS -

APPENDIX I

- 10% PHOSPHOROUS REDUCTION CALCULATIONS

VERSION 4.0

Maryland ESD Calculations and 10% Phosphorus Removal

Last Update: 12/3/2013

Project Name:	**Starbucks Marlboro Ave**
Date:	**3-Jul-24**
	data input cells
	calculation cells

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)	*N/A*
Stream, Wetland and Shoreline Buffers Were Reserved	*N/A*
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	*N/A*
Site Design Was Evaluated to Identify Potential Hotspot Generating Area for Stormwater Treatment	*N/A*
Erosion and Sediment Control Practices and Post Construction Stormwater Management Practices Were Integrated into a Comprehensive Plan	*N/A*
Tree PlantingWas Used at the Site to Convert Turf Areas into Forest	*N/A*

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

Site Area, A (acres)	0.44
Existing Impervious Surface Area (acres)	0.36
Proposed Impervious Surface Area (acres)	0.27
Rainfall Depth, P (in)	1.0
Existing Imperviousness, I_{pre}	82.7%
Proposed Imperviousness, I_{post}	61.5%
Water Quality Calculation for Redevelopment Only	
Required Treatment Area (acres)	0.09
Runoff Coefficient, Rv	0.95
Water Quality Volume, WQv (cf)	**302**

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

Development Category (for ESD)	**Redevelopment**
% Soil Type A	0%
% Soil Type B	0%
% Soil Type C	100%
% Soil Type D	0%
Pre-Developed Condition, RCN_{woods}	70
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)	0.00
Soil Type D ESD Rainfall Target, P_E (in)	0.00
Maximum P_E (in)	2.7
Site ESD Rainfall Target, P_E (in)	0.00
ESD Runoff Depth, Q_E (in)	0.00
ESD Runoff Volume, ESDv (cf)	**0**
Total Treatment Volume (cf)	**302**

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

Development Category (for 10%)	**Redevelopment**
New Development	
Average Annual Predevelopment Load, Lpre (lbs P / yr)	0.22
Redevelopment:	
Predevelopment Runoff Coefficient, Rv_{pre}	0.79
Phosphorous Mean Concentration, C (mg/L)	0.3
Average Annual Predevelopment Load, L_{pre} (lbs P / yr)	0.85
Post-Development Runoff Coefficient, Rv_{post}	0.60
Average Annual Post-Development Load, L_{post} (lbs P / yr)	0.64
Removal Requirement, RR (lbs P / yr)	**-0.12**

Calculation Summary	0.5 acre site
	.25 acres to .38 acres
Critical Area 10% Calculations	50% to 75%
Removal Requirement, RR (lbs P / yr)	**-0.12**
after non-structural and micro-scale BMPs (Steps 5 and 6)	
Total Load Reduction (lbs P / year)	0.78
Total Load Reduction Remaining (lbs P / yr)	**0.00**
after structural practices (Step 9)	
Total Load Reduction (lbs P / year)	20127.81
Total Load Reduction Remaining (lbs P / yr)	**0.00**
MDE's ESD to the MEP Calculations	
ESD Runoff Volume, ESDv (cf)	0.00
Total Treatment Volume (cf)	301.78
WQv or ESDv Treated (cf)	2326.72
PE achieved (inches)	N/A
Entire ESDv Treated Through Environmental Site Design?	YES
ESDv Remaining? (cf)	0.00
If ESDV is not fully treated, is ESD to MEP achieved?	YES
Redevelopment WQv Requirements Met Through Environmental Site Design?	YES
WQv Remaining? (cf)	0.00
New Development WQv Requirements Met Through Environmental Site Design?	N/A
WQv Remaining? (cf)	0.00

Micro-Scale Practices	P_E Credit Description	Contributing Drainage Area (sf)	% Impervious Cover	Direct ESDv Received by Practice (cf)	WQv or ESDv from Up-Gradient Practices (cf)	Practice Specific Parameter(s)			WQv or ESDv credit (cf)	Runoff Volume Remaining (cf)	Down-Gradient Practice		Baseline Phosphorous Removal Efficiency	Average Adjusted Removal Efficiency Rate	P Load to Practice (lbs/yr)	Load Reduction (lbs/yr)	Remaining Load (lbs/yr)
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness	14,542	100%	3,108	N/A	Subbase Thickness (in) 12			2,327	782	Stormwater Ponds (Level 1)		40%	100%	0.78	0.78	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Pemeable Pavement (C Soils)	ESDv credit is based on subbase thickness		100%	0	N/A	Subbase Thickness (in)			0	0			40%		0.00	0.00	0.00
Total		14,542		3,108	0				2,327	782			40%	100%	0.78	0.78	0.00

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

RECEIVED
AUG 05 2024
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	350 N Washington Street, Easton, MD 21601						
Tax Map	103	Grid	EA	Parcel	513 & 514	Lot	
Deed Refernce:	Liber	2554	Folio	256			
Plat Reference:	Liber		Folio				
Base Zoning District	CB	Historic District Y ☐ N ☒		Planning Redevelopment Y ☐ N ☒			

Purpose of Application / Description of Work:

The proposed project is to remove the property line between Parcels 513 & 514, thus creating Revised Parcel 513, then demolishing the existing commercial building on Parcel 513. The site is to be redeveloped to include a two-story 16-unit multi-family residential building and associated parking.

Owner

Name	350 North Washington Street Investments, LLC		
Mailing Address	28348 Old Country Club Rd, Easton, MD 21601		
Telephone No.	805-455-3545	Email	larrytnich@gmail.com

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	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@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 8/5/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date **08/28/2024**

Completeness Check Date **08/25/2024**

2024 - 1260 / ESDR 24 - 14

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

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

BOZA Required Y ☐ N ☐ **TBD**

Historic District Commission Required Y ☐ N ☒

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature Samantha N. Smith Date **08/05/2024**

Revised 02-2019

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

RECEIVED
AUG 05 2024
TOWN OF EASTON

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	350 N Washington Street Parcels 513 & 514				
Original Property Size	Acres	0.62 AC ±	Square Feet	26,918 SF ±	
Telephone No.		Email			

Site Plan Information

Property Size	Acres	0.62 AC ±	Square Feet	26,918 SF ±
Structure's Floor Area	7,163 SF ±	Structure's Square Feet	14,326 SF ±	
Area of Disturbance	26,918 SF ±	Number of Dwelling Units	16	

Property Information

Address	315 N Washington St, Easton, MD 21601						
Tax Map	103	Grid	EA	Parcel	513 & 514	Lot	
Deed Refernce:	Liber	2554	Folio	256			
Plat Reference:	Liber		Folio				
Base Zoning District	CB	Historic	Y ☐	N ☒	Planned Redevelopment	Y ☐	N ☒
Source of Electricity	Easton Utilities						

Owner

Name	350 North Washington Street Investments, LLC		
Mailing Address	28348 Old Country Club Rd, Easton, MD 21601		
Telephone No.	805-455-3545	Email	larrytnich@gmail.com

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	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@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 8/5/2024

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.	**ESDR 24-14**
Prelim/Dev. Approval Date		Application No.	**2024-1260**
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019

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

RECEIVED
AUG 05 2024
TOWN OF EASTON

Subdivision & Property Line Adjustment Application

Application Type

Subdivision ☐ Minor Subdivision ☐ Lot Line Revision ☒

Subdivision Information

Name	350 N Washington Street Parcels 513 & 514				
Property Size	Acres	0.62 AC ±	Square Feet	26,976 SF ±	
Number of Lots Proposed	Revised Parcel 513				

Property Information

Address	350 N Washington St, Easton, MD 21601						
Tax Map	103	Grid	EA	Parcel	513 & 514	Lot	
Deed Refernce:	Liber	2554	Folio	256			
Plat Reference:	Liber		Folio				
Zoning District	CB	Planned Redevelopment Y ☐ N ☒		Historic District Y ☐ N ☒			
Source of Electricity	Easton Utilities						

Owner

Name	350 North Washington Street Investments, LLC		
Mailing Address	28348 Old Country Club Rd, Easton, MD 21601		
Telephone No.	805-455-3545	Email	larrytnich@gmail.com

Surveyor / Engineer

Name	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@leinc.com		

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

Additional Comments:

The proposed project is to remove the lot line between Parcels 513 & 514 thus creating Revised Parcel 513.

Minimum Lot Size	5,000 SF	Minimum Lot Frontage	30 FT
Minimum Lot Envelope	20 FT X 30 FT	Existing Lot Coverage	1,503 SF
		Proposed Lot Coverage	7,163 SF

☐ ESDR Letter
☐ $200 Per Subdivided Lot Fee
☐ $500 Lot Line Revision Fee

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Subdivision Regulations Article 4, Procedures and Requirements and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date 8/6/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

For Office Use Only

Planning Commission Y ☐ N ☐			
Planning Commission Meeting Date		TBD	
PC Approval Date		Subdivision No.	SD-500
Conditions? Y / N		Application No.	2024 - 1260
Recordation Date		Fee Amount	$500.00
ESDR Y / N Date		Review Fee Paid	08/05/2024
			Revised 02-2019

SITE NOTES

PARCELS 513 & 514

PROPERTY OWNER: 350 NORTH WASHINGTON STREET INVESTMENTS LLC

PROPERTY ADDRESS: 350 NORTH WASHINGTON STREET
EASTON, MARYLAND 21601

OWNER ADDRESS: 28348 OLD COUNTRY CLUB ROAD
EASTON, MARYLAND 21601

DEED REFERENCE: 2554/256

ZONING CLASSIFICATION: CB (CENTRAL BUSINESS)

SETBACKS:		MULTI-FAMILY BUILDING (28-10071-14)
FRONT-	25'	25'
SIDE-	NONE	50'
REAR-	N/A	N/A

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 PROPERTY BOUNDARY AS SHOWN HEREON WAS TAKEN FROM A "PARCEL BOUNDARY EXHIBIT" FOR THE LANDS OF CHARLES T. BISHOP PREPARED BY RAUGH, INC., ENGINEERING DESIGN & DEVELOPMENT SERVICES, DATED JUNE 2018.

CONTOURS SHOWN HEREON WERE TAKEN FROM 2019 TALBOT COUNTY AERIAL TOPOGRAPHY.

THE IMPROVEMENTS SHOWN HEREON WERE TRACED BASED ON 2022 TOWN OF EASTON AERIAL IMAGERY.

UTILITIES SHOWN HEREON ARE BASED ON BEST AVAILABLE RECORDS AND HAVE NOT BEEN FIELD LOCATED.

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 TALBOT COUNTY, 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 LOCATION 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.

PROJECT NOTES

EXISTING CONDITIONS: A COMMERCIAL FACILITY USED FOR GENERAL SERVICES.

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO REMOVE THE PROPERTY LINE BETWEEN PARCELS 513 & 514, THUS CREATING REVISED PARCEL 513, THEN DEMOLISHING THE EXISTING COMMERICAL BUILDING ON PARCEL 513. THE SITE IS THEN TO BE REDEVELOPED TO INCLUDE A 2-STORY, 7,163 SF± (14,326 GFA±) MULTI-FAMILY RESIDENTIAL BUILDING WITH 16 UNITS, SIDEWALKS, PARKING AND STORMWATER MANAGEMENT AREA.

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH ESD FEATURES (SUBMERGED GRAVEL WETLAND, PERMEABLE PAVERS) AS REQUIRED AND DETAILED IN THE CONCEPT STORMWATER REPORT INCLUDED WITH THIS SKETCH SITE PLAN SUBMITTAL.

LOT COVERAGE: ALL BUILDINGS AND STRUCTURES SHALL NOT EXCEED 90% OF THE LOT AREA.

EXISTING BUILDING: 1,503 SF
PROPOSED MULTI-FAMILY BUILDING: 7,163 SF
TOTAL STRUCTURE LOT COVERAGE: 7,163 SF (26.6%)

TOTAL SITE AREA: PARCEL 513 – 18,668 SF±
PARCEL 514 – 8,250 SF±

DENSITY: 30 UNITS/ ACRE PERMITTED (18 UNITS); 16 UNITS PROPOSED (28-1007.1-14).

REFUSE/TRASH: APPLICANT PROPOSES TO CONSTRUCT PERMANENT DUMPSTER ENCLOSURE ON-SITE AS SHOWN.

HEIGHT: PERMITTED – 60'; PROPOSED – LESS THAN 60'.

SITE LIGHTING: ALL PROPOSED LIGHTING UNLESS APPROVED OTHERWISE BY THE TOWN OF EASTON PLANNING COMMISSION SHALL BE LOW CUT-OFF SHIELDED LUMINARIES AT 18' HEIGHT. LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE.

SIGNAGE: ALL SIGNAGE WILL BE COMPLIANT WITH TOWN STANDARDS.

OPEN SPACE: EXEMPT IN CBD PER CODE 28-1007.1-14.

FOREST CONSERVATION: FOREST CONSERVATION IS EXEMPT PER §31-3.2.O; AN ACTIVITY ON A PREVIOUSLY DEVELOPED AREA COVERED BY IMPERVIOUS SURFACE AND LOCATED IN THE PRIORITY FUNDING AREA.

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TOTAL SPACES REQUIRED: NO OFF-STREET PARKING IS REQUIRED FOR USES WITHIN THE CENTRAL BUSINESS ZONING DISTRICT. THE ADEQUACY OF PARKING RELATIVE TO THE PROPOSED USE OF THE PROPERTY SHALL BE EVALUATED DURING THE SITE PLAN REVIEW PROCESS

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LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.6.B.:

1. OVERALL TREES – 3 TREES/ RESIDENTIAL UNIT: 16 UNITS X 3 = 48 TREES REQUIRED

1A. STREET TREES– 1 DECIDUOUS TREE/ 25' OF STREET CENTERLINE: N/A

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10' WIDE LANDSCAPE BUFFERYARD 'E'
(ALONG NON-STREET, EXTERIOR PROPERTY LINES ADJOINING MORE OR LESS INTENSE ZONING OR LAND USE)
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50 LF LF / 50' = 3 PLANT UNITS (PU)
2 SHADE/ CANOPY TREES X 3 PU= 6 SHADE/ CANOPY TREES REQUIRED
1 EVERGREEN TREES X 3 PU= 3 EVERGREEN TREES REQUIRED

SWM QUANTITY SUMMARY CHART

STUDY POINT	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
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2	0.440	0.227	86	5.0	1.26	0.54	30.29	2.03	1.09	30.50	2.95	2.44	30.81

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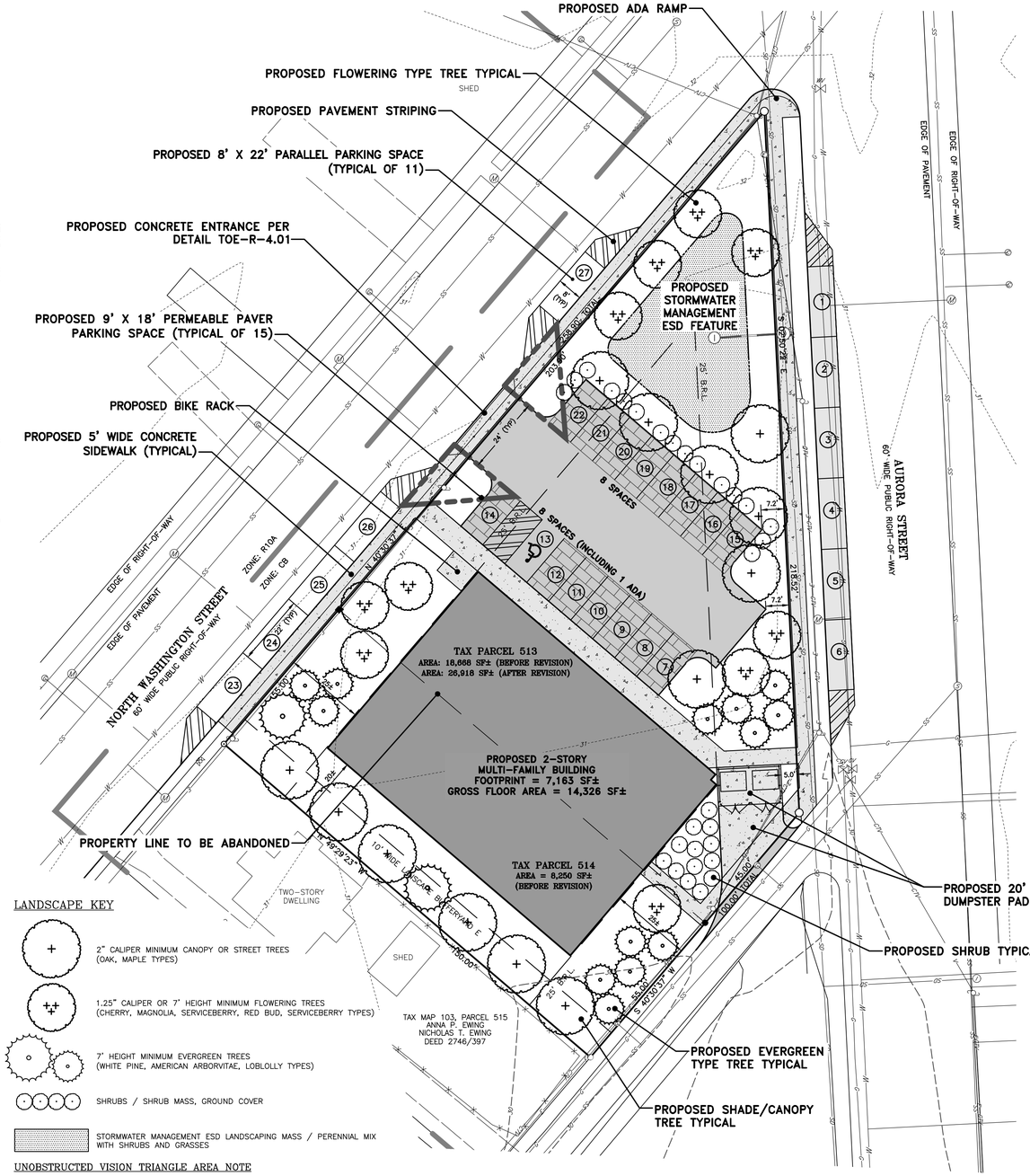
P-3	A-2	PERMEABLE PAVERS	ON-SITE	80	407889.87	1576829.93	0.230	0.061	0.034	1	1	–	235
TOTAL/AVERAGE	–	–	–	–	–	–	0.618	0.277	0.072	1	1	* 0	1,531

*TOTAL SITE TARGET FOR DEVELOPMENT BASED ON REDEVELOPMENT



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UNOBSTRUCTED VISION TRIANGLE AREA NOTE

25' UNOBSTRUCTED VISION TRIANGLE IN ACCORDANCE WITH THE TOWN OF EASTON ZONING ORDINANCE.

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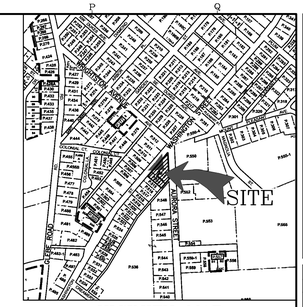
NAD 83 (2011) MD COORDINATE SYSTEM



VICINITY MAP
SCALE: 1" = 600'
300' 0' 300' 600'
SCALE IN FEET

LEGEND

- CONCRETE MONUMENT FOUND
- IRON ROD FOUND
- COMPUTED POINT
- IRON ROD SET
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- STORM DRAIN LINE
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REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

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MISS UTILITY
BEFORE YOU DIG CALL
1-800-441-8355 OR 811
PROTECT YOURSELF, ONE
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. 51461 , Expiration Date: 04/04/2026.

SEAL

08/05/24
DATE

SKETCH SITE PLAN

FOR
350 N. WASHINGTON STREET

IN ELECTION WARD ONE, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID EA PARCELS 513 & 514

ISSUED/REVISED FOR:	DATE:	BY:
AGENCY REVIEW	08/05/24	BCE

SHEET No.	1 OF 1
SCALE:	AS NOTED
JOB No.	210051
FILE No.	1026

Date: 08/01/2024 - 4:55pm User: NBaumgartner Project Manager: BCE
Drawing Path: J:\2021\0000\210051\Civil3D-210051\Dwg\Plots\CSK-PLTS-210051.dwg | ESDR
XREF File(s): RLD-BASE-210051/RAR-BASE-210051/RLD-EUC-BASE-210051/CBS-BASE-2438-210051/CSK-BASE-210051/LUP-BASE-210051/XRN-BASE-210051/XRF-BASE-210051

SITE NOTES

PARCELS 513 & 514

PROPERTY OWNER: 350 NORTH WASHINGTON STREET INVESTMENTS LLC

PROPERTY ADDRESS: 350 NORTH WASHINGTON STREET
EASTON, MARYLAND 21601

OWNER ADDRESS: 28348 OLD COUNTRY CLUB ROAD
EASTON, MARYLAND 21601

DEED REFERENCE: 2554/256

ZONING CLASSIFICATION: CB (CENTRAL BUSINESS)

SETBACKS:		MULTI-FAMILY BUILDING (28-10071-14)
FRONT-	25'	25'
SIDE-	NONE	50'
REAR-	N/A	N/A

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 PROPERTY BOUNDARY AS SHOWN HEREON WAS TAKEN FROM A "PARCEL BOUNDARY EXHIBIT" FOR THE LANDS OF CHARLES T. BISHOP PREPARED BY RAUGH, INC., ENGINEERING DESIGN & DEVELOPMENT SERVICES, DATED JUNE 2018.

CONTOURS SHOWN HEREON WERE TAKEN FROM 2019 TALBOT COUNTY AERIAL TOPOGRAPHY.

THE IMPROVEMENTS SHOWN HEREON WERE TRACED BASED ON 2022 TOWN OF EASTON AERIAL IMAGERY.

UTILITIES SHOWN HEREON ARE BASED ON BEST AVAILABLE RECORDS AND HAVE NOT BEEN FIELD LOCATED.

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 TALBOT COUNTY, 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 LOCATION 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.

PROJECT NOTES

EXISTING CONDITIONS: A COMMERCIAL FACILITY USED FOR GENERAL SERVICES.

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO REMOVE THE PROPERTY LINE BETWEEN PARCELS 513 & 514, THUS CREATING REVISED PARCEL 513, THEN DEMOLISHING THE EXISTING COMMERICAL BUILDING ON PARCEL 513. THE SITE IS THEN TO BE REDEVELOPED TO INCLUDE A 2-STORY, 7,163 SF± (14,326 GFA±) MULTI-FAMILY RESIDENTIAL BUILDING WITH 16 UNITS, SIDEWALKS, PARKING AND STORMWATER MANAGEMENT AREA.

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH ESD FEATURES (SUBMERGED GRAVEL WETLAND, PERMEABLE PAVERS) AS REQUIRED AND DETAILED IN THE CONCEPT STORMWATER REPORT INCLUDED WITH THIS SKETCH SITE PLAN SUBMITTAL.

LOT COVERAGE: ALL BUILDINGS AND STRUCTURES SHALL NOT EXCEED 90% OF THE LOT AREA.

EXISTING BUILDING: 1,503 SF
PROPOSED MULTI-FAMILY BUILDING: 7,163 SF
TOTAL STRUCTURE LOT COVERAGE: 7,163 SF (26.6%)

TOTAL SITE AREA: PARCEL 513 – 18,668 SF±
PARCEL 514 – 8,250 SF±

DENSITY: 30 UNITS/ ACRE PERMITTED (18 UNITS); 16 UNITS PROPOSED (28-1007.1-14).

REFUSE/TRASH: APPLICANT PROPOSES TO CONSTRUCT PERMANENT DUMPSTER ENCLOSURE ON-SITE AS SHOWN.

HEIGHT: PERMITTED – 60'; PROPOSED – LESS THAN 60'.

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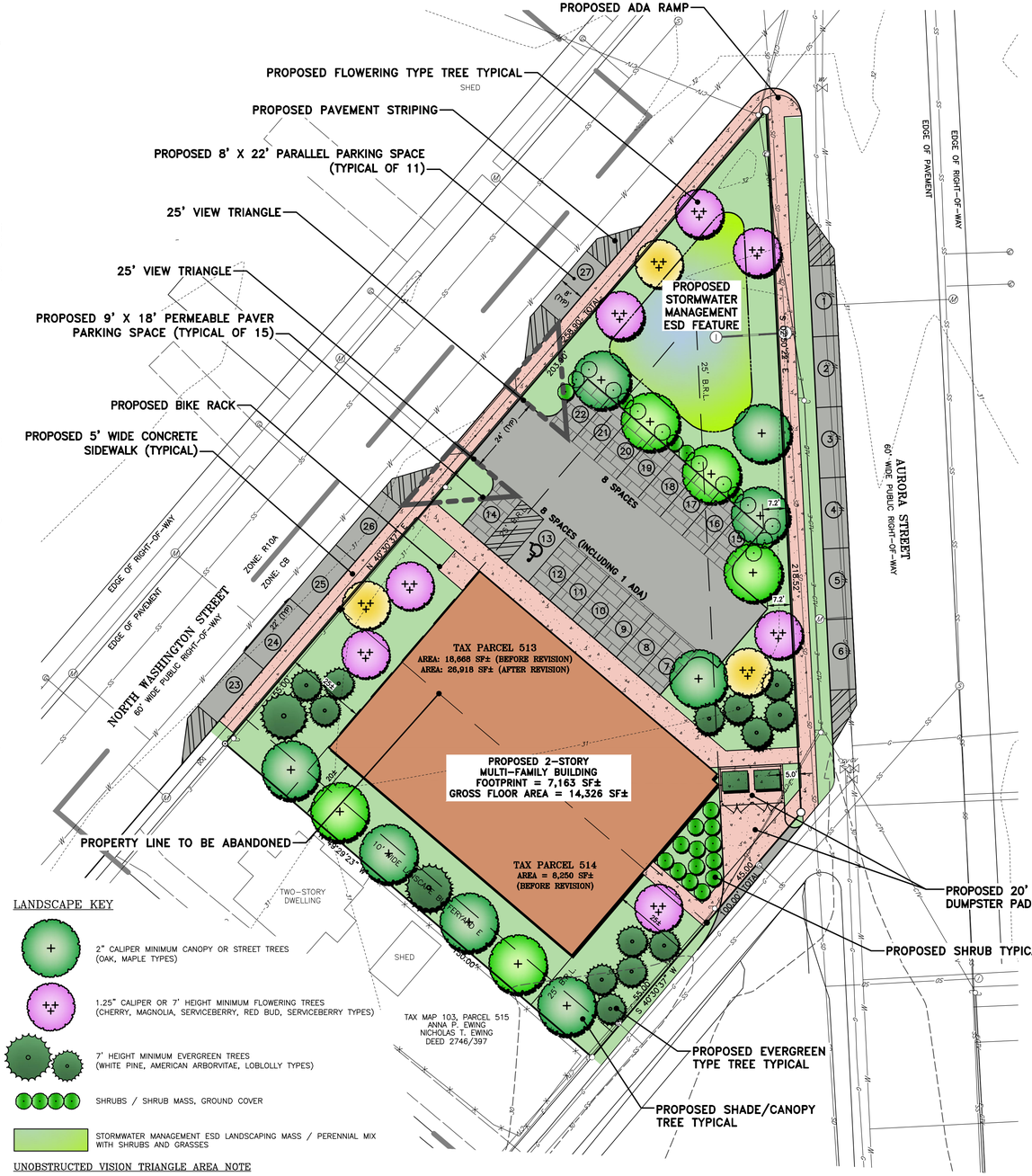

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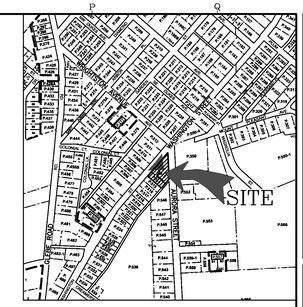

VICINITY MAP
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No.	DATE	DESCRIPTION	BY

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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. 51461 , Expiration Date: 04/04/2026.

SEAL
STATE OF MARYLAND CHARLES T. BISHOP 51461 PROFESSIONAL ENGINEER
08-05-24
DATE

SKETCH SITE PLAN AND ILLUSTRATIVE PLAN

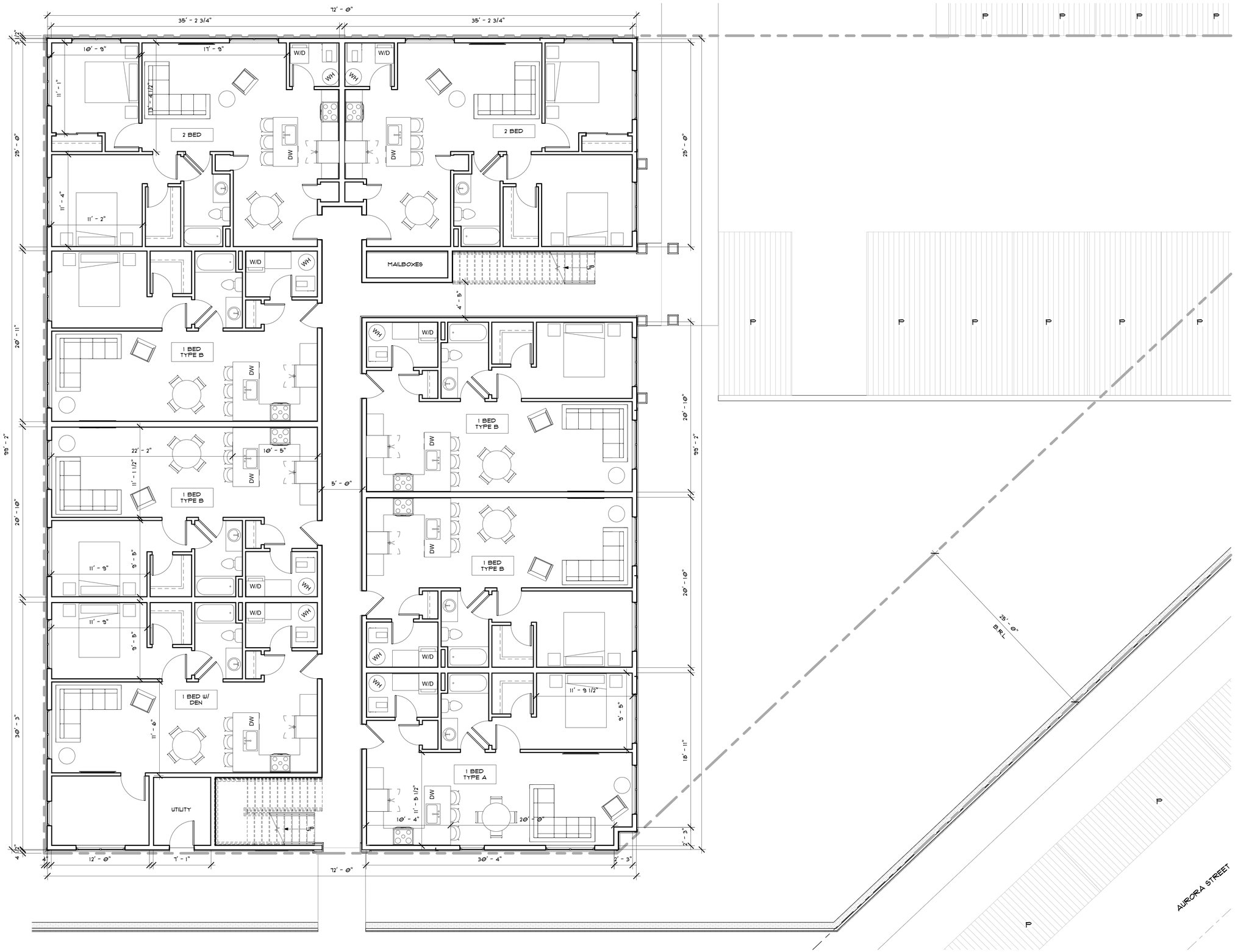
FOR
350 N. WASHINGTON STREET

IN ELECTION WARD ONE, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID EA PARCELS 513 & 514

ISSUED/REVISED FOR: DATE: BY:
AGENCY REVIEW 08/05/24 BCE

SHEET No. 1 OF 1
SCALE: AS NOTED
JOB No. 210051
FILE No. 1026

Date: 08/01/2024 - 4:55pm User: NBaumgartnerProject Manager: BCE
Drawing Path: J:\2021\0000\210051\Civil3D-210051\Dwg\Plots\CSK-PLTS-210051.dwg | Illustrative
XREF File(s): RLD-BASE-210051/YAR-BASE-210051/RLD-EUC-BASE-210051/CBS-BASE-2438-210051/CSK-BASE-210051/LLP-BASE-210051/XRN-BASE-210051/RSF-BASE-210051



1 FIRST FLOOR
3/16" = 1'-0"

UNIT MATRIX				
	AREA	1ST	2ND	TOTAL
1 BED TYPE A	714 S.F.	1	1	10 (64%)
1 BED TYPE B	710 S.F.	4	4	
1 BED W/ DEN	821 S.F.	1	1	2 (13%)
2 BED	897 S.F.	2	2	2 (13%)
		8	8	16

FISHER ARCHITECTURE
Fisher Architecture, LLC
542 Riverside Drive
Salisbury, MD 21801
(410) 742-0238

SEAL:

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CONSULTANTS:

WASHINGTON ST. APARTMENTS

350 N. WASHINGTON ST.
EASTON, MD

SHEET INFO:

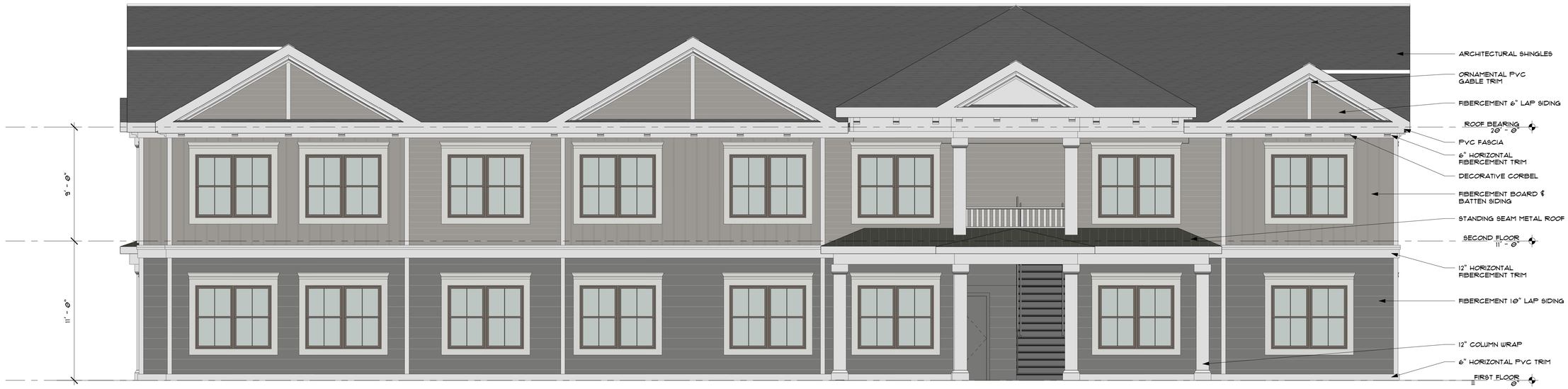
FIRST FLOOR PLAN

REV	REV DATE	DESCRIPTION
4	08.05.2024	Schematic Package
3	07.31.2024	Updated Schematic Design
2	07.23.2024	Schematic Design
1	07.02.2024	SD Layout

DATE:	2024.06.18
PROJECT NO.	2024063
SCALE:	As indicated
PROJ MGR:	L. White
DRAWN BY:	A. Harrer

SHEET NUMBER:

A-101



1 ELEVATION NORTH1
1/4" = 1'-0"

2 ELEVATION EAST1
1/4" = 1'-0"

FISHER ARCHITECTURE
Fisher Architecture, LLC
542 Riverside Drive
Salisbury, MD 21801
(410) 742-0238

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CONSULTANTS:

WASHINGTON ST. APARTMENTS

350 N. WASHINGTON ST.
EASTON, MD

SHEET INFO:

ELEVATIONS

REV	REV DATE	DESCRIPTION
4	08.05.2024	Schematic Package
3	07.31.2024	Updated Schematic Design
2	07.23.2024	Schematic Design
DATE:		2024.06.18
PROJECT NO.		2024061
SCALE:		1/4" = 1'-0"
PROJ MGR:		L. White
DRAWN BY:		A. Harrer

SHEET NUMBER:

A-200

2 ELEVATION WEST1
1/4" = 1'-0"

1 ELEVATION SOUTH1
1/4" = 1'-0"

FISHER ARCHITECTURE
Fisher Architecture, LLC
542 Riverside Drive
Salisbury, MD 21801
(410) 742-0238

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CONSULTANTS:

WASHINGTON ST. APARTMENTS

350 N. WASHINGTON ST.
EASTON, MD

SHEET INFO:

ELEVATIONS

REV	REV DATE	DESCRIPTION
4	08.05.2024	Schematic Package
3	07.31.2024	Updated Schematic Design
2	07.23.2024	Schematic Design

DATE:	2024.06.18
PROJECT NO.	2024061
SCALE:	1/4" = 1'-0"
PROJ MGR:	L. White
DRAWN BY:	A. Harrer

SHEET NUMBER:

A-201

Exterior Finishes

-Fiber Cement Lap Siding; Color; Pearl Gray & Gray Slate
-Fiber Cement Board & Batten; Color; Pearl Gray

-Doors; Color; White
-Windows; Trim Color; White; Frame Color; Bronze
-Roof; Colors; Black & Gray
-Accents; Color; White

- Pearl Gray - James Hardie

- Gray Slate - James Hardie

Easton Design Guildlines New Construction

North Washington Street Apartments

Setback

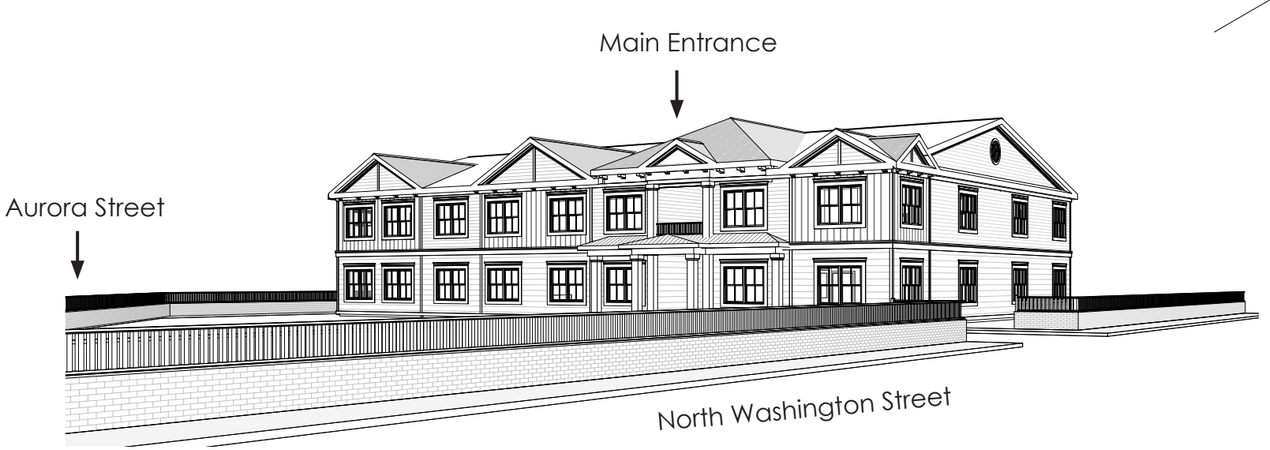
Design Principles; The location of new buildings should respect the established setbacks of traditional buildings in Easton. Typically this means that new commercial buildings should be aligned with neighboring buildings, built to the front setback line established in the Town of Easton's Zoning Ordinance, with parking to the sides and rear.

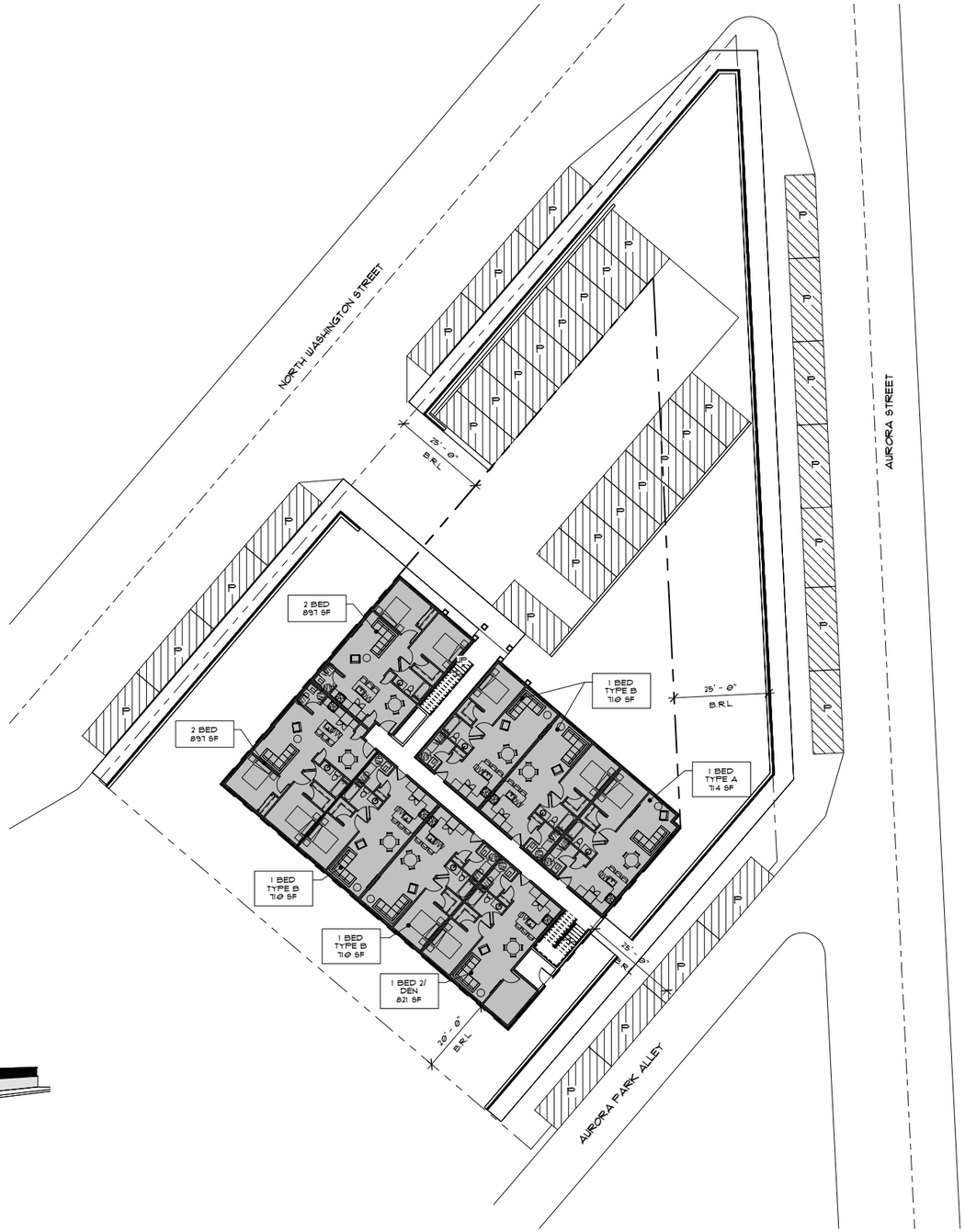
Design Response; (Variance for building location within setback)

Orientation

Design Principles; New buildings should be oriented to the principal street with their main entrance in full view.

Design Response; Main entrance faces and is in full view of both principle streets; North Washington Street and Aurora Street.





Scale

Design Principles; The scale of a new residential and commercial buildings should respect the prevailing scale of Easton's traditional residential and commercial buildings; that is, they should be human in scale.

Design Response; Proposed design matches the prevailing commercial building scale, both within the immediate site context and surrounding.

Proportion

Design Principles; The facade proportions for new commercial buildings should be based on proportions found on the facades of Easton's traditional commercial buildings.

Likewise, the facade proportions for new residential buildings should be based on proportions found on the facades of Easton's traditional residential buildings.

Design Response; Components of the proposed design adheres to the traditional building proportions found within Easton's commercial and residential buildings.

Rhythm

Design Principles; The facades of new buildings should be based on the facade rhythms of Easton's traditional buildings of similar use. The spacing between new buildings should reflect the spacing between traditional buildings of similar use. Typically facade rhythms within a contiguous new commercial block should be similar. The facade rhythms within a new residential development of similar size houses should be compatible with each.

Massing

Design Principles; The massing of the facade of new residential and commercial buildings should be based on the massing found on traditional buildings of similar use in Easton.

Height

Design Principles; Designing primary facades of new party wall or contiguous buildings to be similar in height. Varying the heights of new commercial buildings by no more than two stories in any one block. Varying the heights of new free standing buildings by a maximum of ten percent of the height of adjacent new buildings. Using towers and chimneys on residential buildings in a manner similar to their use on Easton's traditional residential buildings.

Materials

Design Principles; The materials used for walls, sloped roofs, and other exterior features of new buildings should be based on the materials found on traditional residential and commercial buildings in Easton. The size, texture, surface finish, and other defining characteristics of new exterior materials should be similar to those found on Easton's traditional residential and commercial buildings. Non-traditional materials such as stucco, stucco like material (EFIS), vinyl and metal siding, textured plywood, oversized brick, concrete block, texture concrete masonry units (CMU) and the like should not be used for primary facades of new buildings.

Design Response; The proposed design's facade rhythm, massing, and height are created through similar sized details, ornament, projections, and heights found within Easton's commercial and residential buildings. Chosen materials reflect the traditional size and surface texture of the existing character of Easton.

Roof Shape

Design Principles; Roof shapes of new buildings should be based on those found on traditional buildings in Easton. Roof shapes for new buildings should be compatible with those on adjacent new buildings. Roofs on new commercial buildings should be flat with pronounced front facade cornices or Mansard. Roofs on new residential buildings should be primarily gable or hipped.

Design Response; The proposed design consists of combinations of hipped and gable roof shapes, respecting the immediate residential context.

Details and Ornamentation

Design Principles; New buildings should use well scaled and proportioned details and ornamentation on their principal facades. Details and ornamentation found on existing buildings in Easton may be used as the basis for details and ornamentation on new buildings, but they should not be copied exactly.

Design Response; The proposed design references details and ornamental elements found throughout historic Easton, however, does not copy these existing elements.

Color

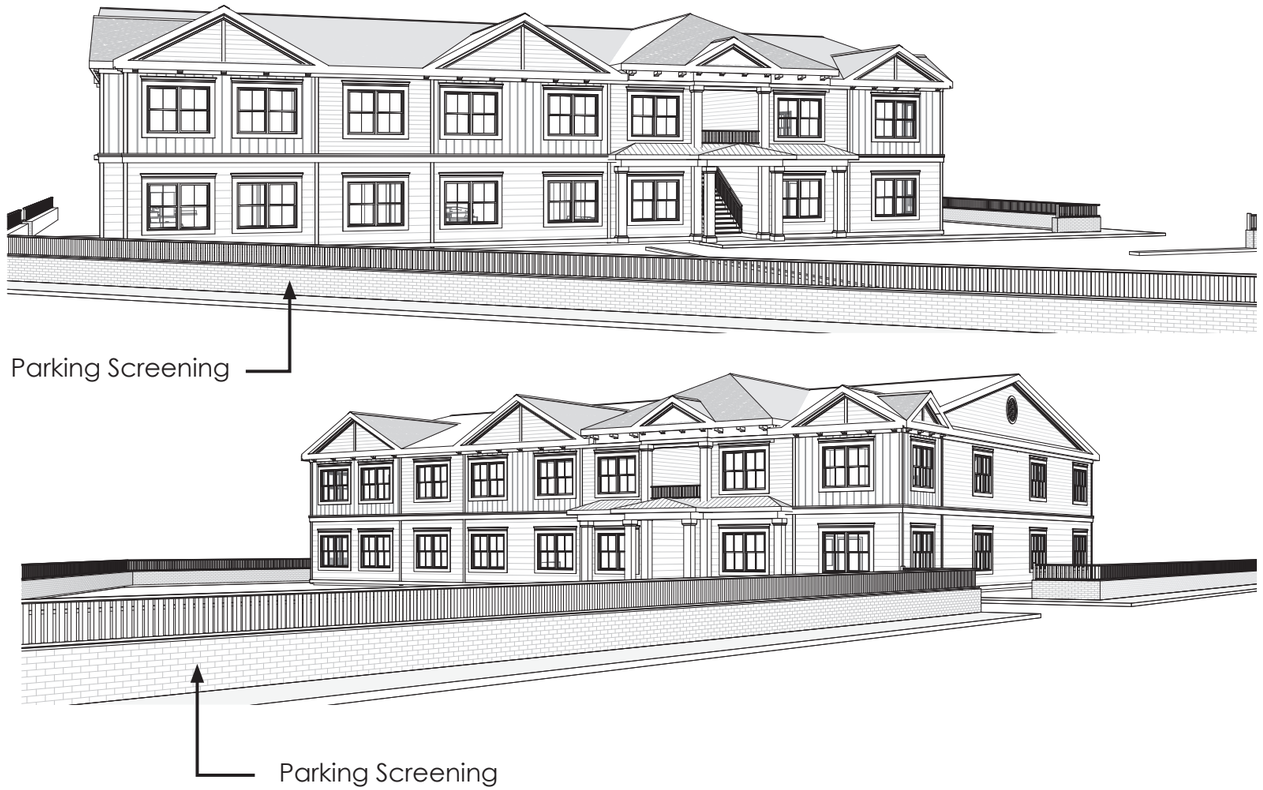
Design Principles; The colors of new buildings and structures should be compatible with its overall design and that of neighboring buildings. Brick and stone should typically be left unpainted. Traditional color schemes should be used. No more than three painted colors should be used on new buildings.

Design Response; Proposed material colors are nutural and blend with color schemes found in the immidate and adjasent neighborhoods.

Parking Lots

Design Principles; Provide adequate landscaping, walls or fences to screen automobiles from immediate view, but still allow visual access into the lots. Design parking lots in accordance with the landscape standards contained in the Town of Easton Zoning Ordinance.

Design Response; The proposed design includes fencing and landscaping to screen front parking lot from immediate view.



CONCEPT STORMWATER MANAGEMENT REPORT

For

350 N Washington Street
Easton, Maryland

Developer

350 North Washington Street Investments LLC
C/O Larry Nicholson
28348 Old Country Club Road
Easton, MD 21601

Design Professional

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

Date Prepared

July 25, 2024

Prepared by

Matt Rajacich, E.I.T.

Reviewed by

Alec F. Chosta, P.E.
Civil Engineer

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. 51461, Expiration Date: 4/4/26.

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1. Introduction
2. General Site Information
3. Proposed Project
4. Stormwater Management and Environmental Site Design (ESD)
   4.1 Stormwater Quantity Management
5. Conclusion

APPENDIX LIST

APPENDIX A – Maryland Environmental Site Design (ESD) Calculations
APPENDIX B – Drainage Area Maps
APPENDIX C – HydroCAD Quantity Management Report

350 N Washington Street
STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

This report addresses the concept stormwater management design for development of the property located at 350 N Washington Street, Easton, Maryland. The stormwater management plan incorporates the requirements of the *2000 Maryland Stormwater Design Manual Volumes I and II* (Manual) as currently updated. Development projects are required to be reviewed during the concept, preliminary site development, and final design stages.

2. GENERAL SITE INFORMATION

Current site conditions consist of a commercial building with paved and gravel parking. This site has served as various different commercial businesses such as a gas station, auto repair shop, and carpenter's shop. No stormwater management facilities exist on-site present day and the site currently drains to existing stormdrain inlets located on N Washington Street and Aurora Street (see Drainage Area Maps in Appendix B). 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. No historical on-site flooding problems exist.

Per the USDA soil maps, site soils are Nassawango Silt Loam and are classified as a Hydrologic Soil Group (HSG) C soil.

3. PROPOSED PROJECT

The developer proposes to demolish all existing improvements on-site and construct a multi-family residential building with associated sidewalks and parking. Additional site lighting, public sidewalk, and plantings to be provided per Town requirements.

4. STORMWATER MANAGEMENT AND ENVIRONMENTAL SITE DESIGN (ESD)

The existing site is over 40% impervious and therefore qualifies for redevelopment. Projects that qualify for redevelopment are required to treat or remove 50% of the existing impervious area on-site to a Pe of 1" as well as treat 100% of the net increase in impervious area on-site to the full Pe based on soil group. The total site area for the project is 26,918 SF (0.618 acres) with an existing impervious area of 24,542 SF (0.563 acres, 91.2%). Through the use or permeable pavers, which are not considered as impervious lot coverage, the proposed development will result in a total impervious area of 12,052 SF (0.277 acres) for a 12,490 SF net increase of impervious area on-site. Over 50% of the existing impervious area on-site will be removed resulting in an ESD target volume of **0 cf**. Refer to Appendix A for detailed ESD calculations.

Since this site is located within the Tanyard Branch, the owner is required to manage the post-development 10-year storm event runoff to the pre-development 2-year storm event runoff. Therefore, the following ESD techniques i.e. Alternative Surfaces, Non-Structural and Micro-Scale Practices were evaluated for use at the site in order to satisfy quantity management:

Alternative Surfaces

- Green Rooftops – Are not cost effective and require extensive maintenance making them not ideal for this project.
- **Permeable Pavements** – Permeable pavements are effective for reducing imperviousness in pedestrian pavements and parking lots. The site is mapped with C soils making permeable pavements a viable for this project.
- Reinforced Turf - Reinforced turf areas are commonly used for emergency equipment access or for areas that receive minimal vehicular use. The proposed parking area will have significant vehicular use.

Nonstructural practices

- Disconnection of Rooftop Runoff – Not applicable to the current parking lot project.
- Disconnection of Non-Rooftop Runoff – This could be utilized to a minimal degree, however, the site lacks adequate green space to disconnect the entirety of the proposed parking lot.
- Sheetflow to Conservation Area – The adjacent properties and environmental features do not meet the requirements for implementation of this practice.

Micro-scale practices

- Rainwater Harvesting – Opportunities for on-site reuse of harvested rainwater is limited. Irrigation is not proposed for the site. Operations and maintenance, especially during cold-weather periods, is also a concern.
- **Submerged Gravel Wetlands** – This practice is best suited for sites with a high groundwater table and poor soils, making it ideal for the current project. A large impervious drainage area will ensure saturated conditions.

- Landscape Infiltration – The drainage area limitation in Chapter 5 prohibits the use of this practice in the current configuration of the subdivision.
- Infiltration Berms – The requirements of the proposed development do not leave enough room for the implementation of this practice. Site soils prohibit meaningful implementation of this practice.
- Dry Wells – The proposed drainage areas exceed the 1,000 square foot limit for dry wells. Soils do not suit infiltration-based practices.
- Micro-Bioretention – This practice would provide significant treatment and quantity management. Maintenance for this practice is reasonable. Site soils may not suit this infiltration practice.
- Rain Gardens – The limited drainage area (10,000 sf) allowed for the practice, prevents its use for the current project.
- Bio-Swale – This practice could provide significant treatment and quantity management. Maintenance for this practice is reasonable. However, site soils likely do not suit this infiltration practice and it is unlikely that there is adequate separation from groundwater based on surrounding areas.

A **Submerged Gravel Wetland and Permeable Pavers** are ideally suited for this site. The total ESD volume provided by the gravel wetland's temporary ponding is **1,139 cf** and the permeable pavers is **392 cf** for total ESD volume of **1,531 cf.** Please refer to Appendix A for the detailed calculations.

4.1 STORMWATER QUANTITY MANAGEMENT

The site currently drains to existing stormdrain inlets located on N Washington Street and Aurora Street (see Drainage Area Maps in Appendix B). Post-development, runoff from the proposed multi-family building will discharge directly into the proposed submerged gravel wetland. The remainder of the site will sheet flow to either Aurora Street or N Washington Street and drain through the existing gutter pans to the existing stormdrain inlets which the site drains to present day. By reducing the impervious area on-site, we have implicitly met quantity management requirements. Since this site is located within the Tanyard Branch Watershed, the post-development 10-year storm event must be managed to the pre-development 2-year storm condition.

This requirement will be met by utilizing a submerged gravel wetland and permeable pavers on-site. A HydroCAD analysis proves that the proposed design meets the Tanyard Branch Watershed requirements. See Appendix C for HydroCAD analysis, also summarized in the table below.

	2 Year Storm (cfs)		**10 Year Storm (cfs)**		**100 Year Storm (cfs)**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
Study Point 1	**1.19**	0.42	1.88	**0.84**	2.72	1.37
Study Point 2	**1.26**	0.54	2.03	**1.09**	2.95	2.44
TOTAL	2.45	0.96	3.91	1.93	5.67	3.81
NET REDUCTION	**1.49**		**1.98**		**1.86**	

5. CONCLUSION

This stormwater management analysis indicates that the proposed design will successfully meet stormwater quality and quantity requirements. Referring to the attached water quality calculations, the

ESD volume provided is greater than the ESD volume required. Planning and design analysis indicate that stormwater quality and quantity management can be accomplished as described.

APPENDIX A

MARYLAND ENVIRONMENTAL SITE DESIGN (ESD) CALCULATIONS

Maryland Environmental Site Design (ESD) Computations

Project	Nicholson	By	MR	Job #	210051
Location	350 N Washington Street	Date	7/25/2024	File #	1395

Determine if the Project is subject to Redevelopment Requirements:

Site Area =	0.6 ac	excluding buffers, forest conservation =	ac
Net Site Area =	0.6		
Existing Imp. Area =	0.6 ac		
Percent Impervious (I) =	91.2 %		

I > 40%. Project subject to Redevelopment standards.

ESD Target for Redevelopment

Impervious Cover (50% of Ex. Imp):	0.28 ac	12,271 sf	
Percent Impervious (I)	100 %		

Remove and/or treat	*12,271 sf*	*of exising impervious area*	
Area of impervious removed=	12,490.0 sf	*(whereby Ipost < Ipre)*	
Impervious area remaining =	-219 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**

$$ESD_v = \frac{(P_E)(R_v)(A)}{12}$$

= **-17** **cf**

Permeable Pavers (A-2)

$ESD_{Provided}$ = Total Paver Area X ESDv Per HSG C = 2,451 X 0.160 = **392 cf**

Submerged Gravel Wetland (M-2)

$ESD_{Ponding} = \frac{(Area\ at\ Temporary\ Ponding\ Elevation + Floor\ Area)}{2} \times$ Ponding Depth $= \frac{(665+1{,}157)}{2} \times 1.25 = \mathbf{1{,}139\ cf}$

$ESD_{Media} = 0\ cf\ (Per\ UNH\ Guidance)$

$ESD_{Provided} = ESD_{Ponding} + ESD_{Media}$ = 1,139 + 0 = **1,139 cf**

ESD_V (provided) > ESD_V (target)

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv ($FT.^3$)	ACTUAL ESDv ($ft.^3$)
P-1	A-2	PERMEABLE PAVERS	ON-SITE	80	407927.42	1576784.42	0.178	0.049	0.023	1	1	-	157
P-2	M-2	SUBMERGED GRAVEL WETLAND	ON-SITE	93	407947.13	1576824.40	0.210	0.167	0.015	1	1	-	1,139
P-3	A-2	PERMEABLE PAVERS	ON-SITE	80	407889.87	1576829.93	0.230	0.061	0.034	1	1	-	235
4													
5													
6													
7													
8													
9													
10													
TOTAL/ AVERAGE				-			0.618	0.277	0.072	1	1	* 0	1,531

* TOTAL SITE TARGET FOR DEVELOPMENT BASED ON REDEVELOPMENT

TOWN OF EASTON MARYLAND · FOUNDED 1710 ·

APPROVAL

TOWN ENGINEER

1/2020
DATE

TOWN OF EASTON
STANDARD DETAILS

ESD SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-7.01

SWM QUANTITY SUMMARY CHART

~~PRACTICE~~ Study Point	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	W.S.E.	PRE 10 YEAR	POST 10 YEAR	W.S.E.	PRE 100 YEAR	POST 100 YEAR	W.S.E.
1	0.178	0.049	80	5	1.19	0.42	-	1.88	0.84	-	2.72	1.37	-
2	0.440	0.227	86	5	1.26	0.54	30.29	2.03	1.09	30.50	2.95	2.44	30.81

APPROVAL

TOWN ENGINEER

1/2020
DATE

TOWN OF EASTON
STANDARD DETAILS

SWM QUANTITY SUMMARY CHART

ISSUED: JANUARY 2020

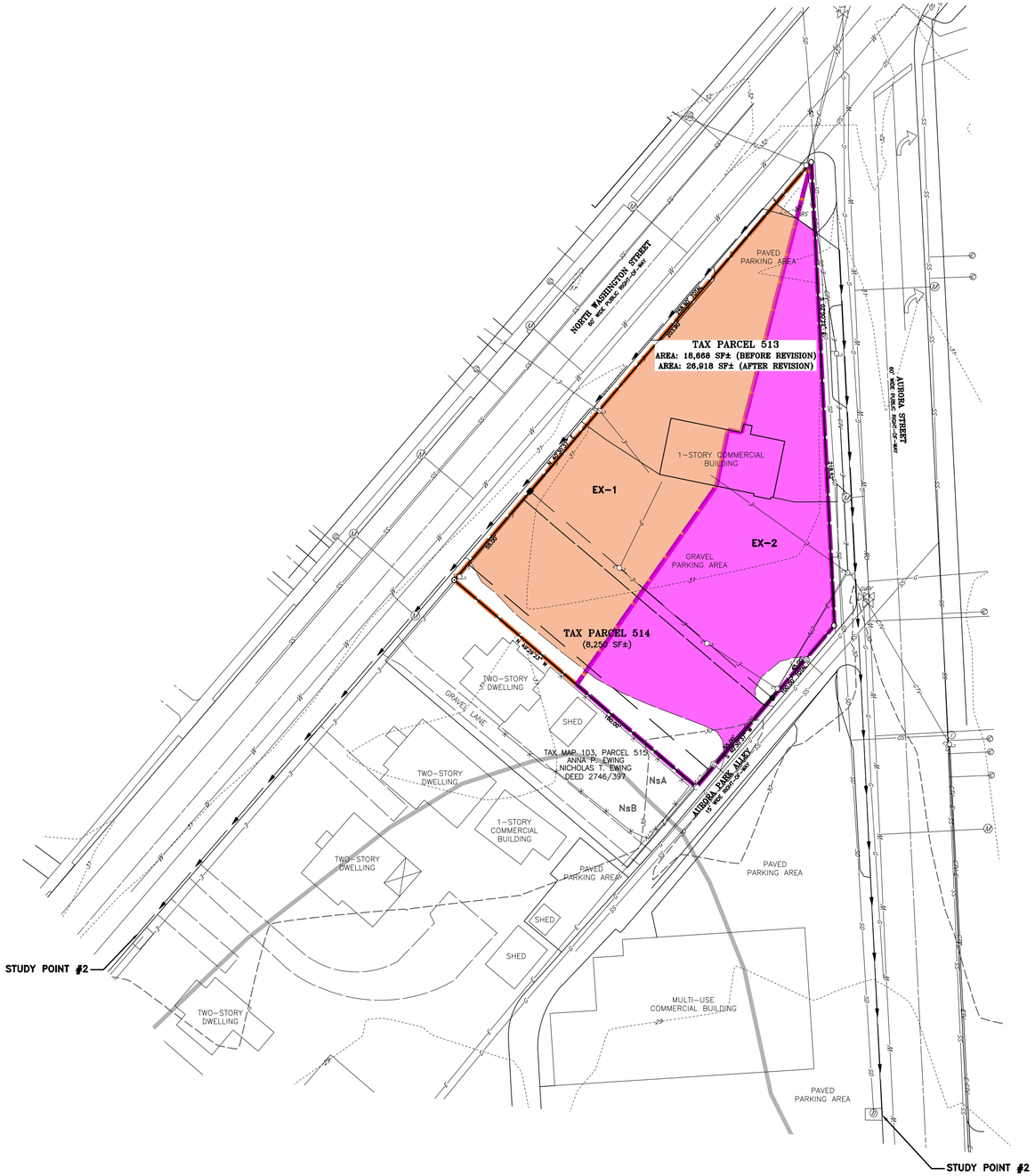
STANDARD NO.: TOE-SWM-7.02

APPENDIX B

DRAINAGE AREA MAPS

SWM PRE DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	1.19	1.88	2.72
2	1.26	2.03	2.95

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
EX-1	12,992	5.50	94%	BUILDING AND PARKING
EX-2	13,925	5.10	88%	BUILDING AND PARKING



TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
NsA	NASSAWANGO SILT LOAM	*	0.49	C
NsB	NASSAWANGO SILT LOAM	*	0.49	C

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

LEGEND

- CONCRETE MONUMENT FOUND
- IRON ROD FOUND
- COMPUTED POINT
- IRON ROD SET
- GV — GAS SHUTOFF VALVE
- G — GAS LINE
- CTV — CABLE TV LINE
- UTILITY POLE
- E — ELECTRIC LINE
- S — SANITARY SEWER CLEAN OUT
- S — SANITARY SEWER MANHOLE
- SS — SANITARY SEWER LINE
- STORM DRAIN INLET
- W — WATER METER
- WV — WATER VALVE
- FIRE HYDRANT
- W — DOMESTIC WATER LINE
- SD — STORM DRAIN LINE
- D — PROPOSED STORM DRAIN MANHOLE
- I — PROPOSED STORM DRAIN INLET

NAD 83 (2011) MD COORDINATE SYSTEM

30' 15' 0' 15' 30' 60'
SCALE IN FEET

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

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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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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND — CHRISTOPHER B. ELLIOTT — 51461 — PROFESSIONAL ENGINEER

07-25-24
DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

FOR
350 N. WASHINGTON STREET

IN ELECTION WARD ONE, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID EA PARCELS 513 & 514

ISSUED/REVISED FOR:	DATE:	BY:
AGENCY REVIEW	07/25/24	BCE

SHEET No. 1 OF 2

SCALE: AS NOTED

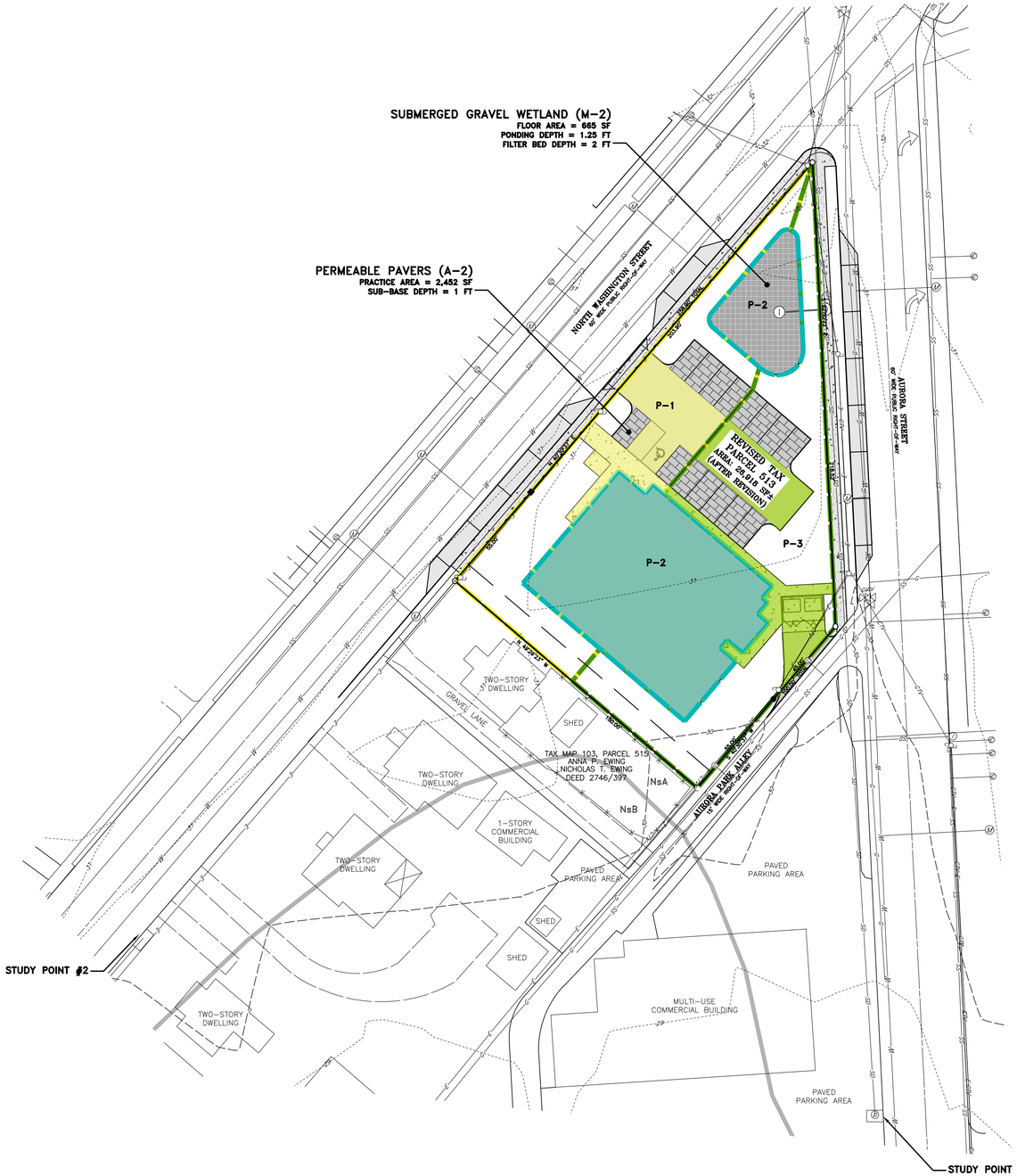
JOB No. 210051

FILE No. 1026

Date: 07/25/2024 - 3:22pm User: mrojcich Project Manager: BCE
Drawing Path: J:\2021\0000\210051\Civil3D-210051\Dwg\Plats\CDA-PLTS-210051.dwg | PRE
XREF File(s): CSK-BASE-210051/VDA-BASE-210051/CDA-BASE-210051/PSF-BASE-210051/RLD-BASE-210051/RLD-EUC-BASE-210051/CBS-BASE-2438-210051/HSL-BASE-210051

SWM POST DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.42	0.84	1.37
2	0.54	1.09	2.44

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
P–1	7,744	5.00	28%	HARDSCAPING, PARKING, AND GREEN SPACE
P–2	9,135	5.00	79%	BUILDING AND STORMWATER FEATURE
P–3	10,040	5.10	26%	HARDSCAPING, PARKING, AND GREEN SPACE



TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
NsA	NASSAWANGO SILT LOAM	*	0.49	C
NsB	NASSAWANGO SILT LOAM	*	0.49	C

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

LEGEND

- CONCRETE MONUMENT FOUND
- IRON ROD FOUND
- COMPUTED POINT
- IRON ROD SET
- GV — GAS SHUTOFF VALVE
- G — GAS LINE
- CTV — CABLE TV LINE
- UTILITY POLE
- E — ELECTRIC LINE
- S — SANITARY SEWER CLEAN OUT
- S — SANITARY SEWER MANHOLE
- SS — SANITARY SEWER LINE
- STORM DRAIN INLET
- W — WATER METER
- WV — WATER VALVE
- FIRE HYDRANT
- W — DOMESTIC WATER LINE
- SD — STORM DRAIN LINE
- D — PROPOSED STORM DRAIN MANHOLE
- I — PROPOSED STORM DRAIN INLET

NAD 83 (2011) MD COORDINATE SYSTEM

30' 15' 0' 15' 30' 60'
SCALE IN FEET

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

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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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND — ANDREW E. CHOSY — 51461 — PROFESSIONAL ENGINEER

07-25-24
DATE

POST–DEVELOPMENT DRAINAGE AREA MAP

FOR
350 N. WASHINGTON STREET

IN ELECTION WARD ONE, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 103 GRID EA PARCELS 513 & 514

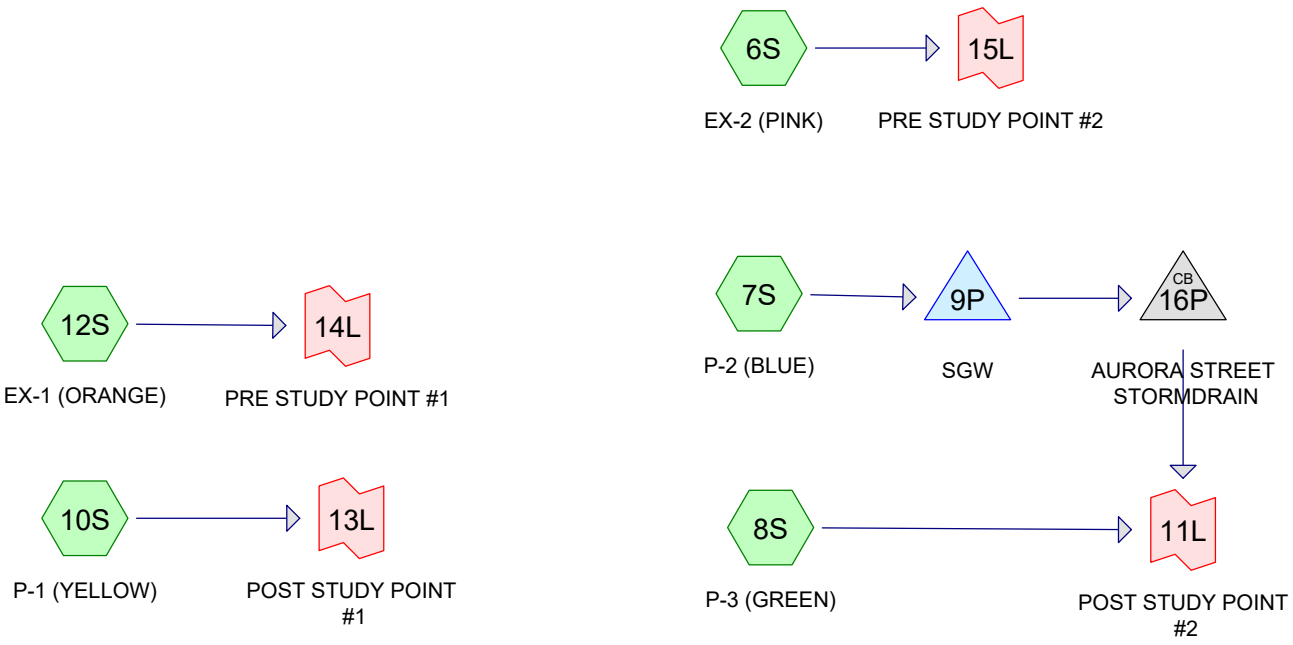
ISSUED/REVISED FOR:	DATE:	BY:
AGENCY REVIEW	07/25/24	BCE

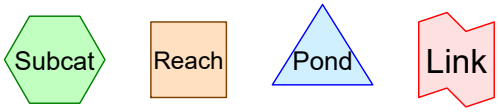
SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 210051
FILE No. 1026

Date: 07/25/2024 – 3:22pm User: mrojcich Project Manager: BCE
Drawing Path: J:\2021\0000\210051\Civil3D–210051\Dwg\Plots\CDA–PLTS–210051.dwg | POST
XREF File(s): CSK–BASE–210051/VDA–BASE–210051/CDA–BASE–210051/RSF–BASE–210051/RLD–BASE–210051/RLD–EUC–BASE–210051/CBS–BASE–2438–210051/HSL–BASE–210051

APPENDIX C

HydroCAD Report





Routing Diagram for 210051-CONCEPT
Prepared by Lane Engineering, LLC, Printed 7/25/2024
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 6S: EX-2 (PINK)

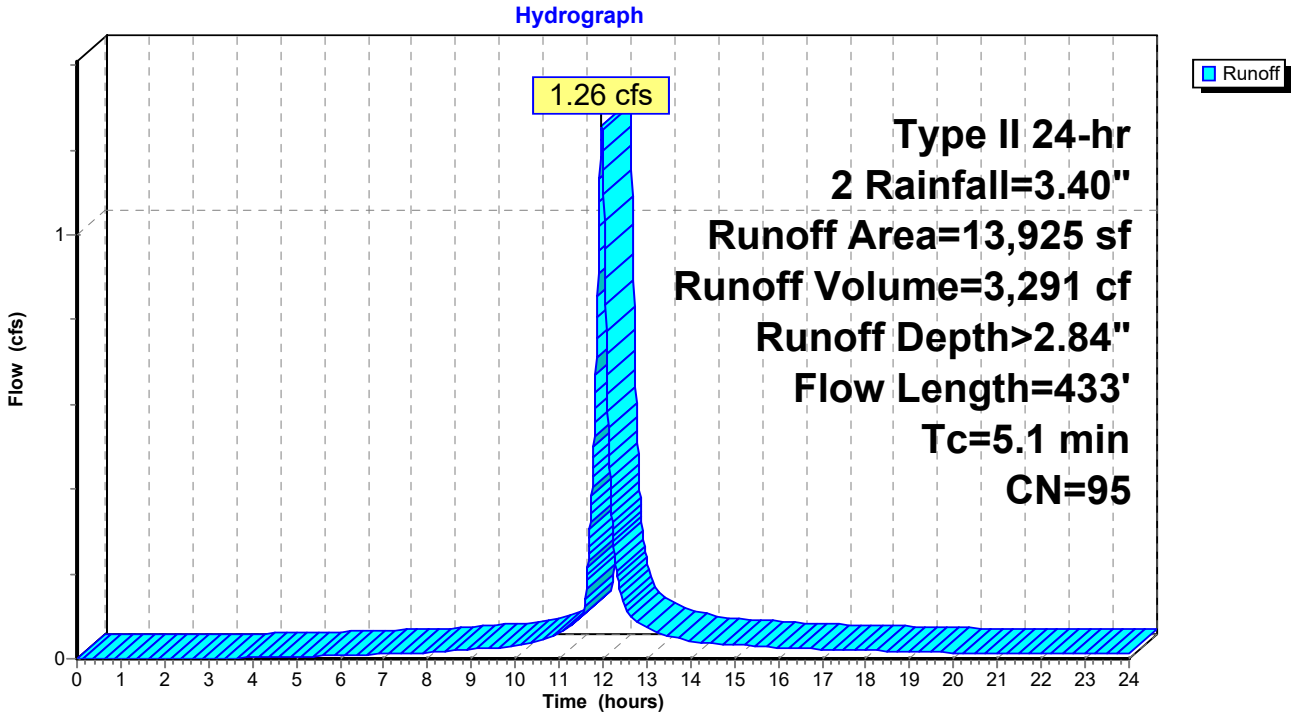
Runoff = 1.26 cfs @ 11.97 hrs, Volume= 3,291 cf, Depth> 2.84"

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 Rainfall=3.40"

Area (sf)	CN	Description
765	98	Unconnected roofs, HSG C
8,441	98	Paved parking, HSG C
3,106	98	Paved parking, HSG C
1,613	74	>75% Grass cover, Good, HSG C
13,925	95	Weighted Average
1,613		11.58% Pervious Area
12,312		88.42% Impervious Area
765		6.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.07		**Sheet Flow, a-b** Smooth surfaces n= 0.011 P2= 3.40"
4.7	408	0.0050	1.44		**Shallow Concentrated Flow, b-c** Paved Kv= 20.3 fps
5.1	433	Total			

Subcatchment 6S: EX-2 (PINK)



Summary for Subcatchment 7S: P-2 (BLUE)

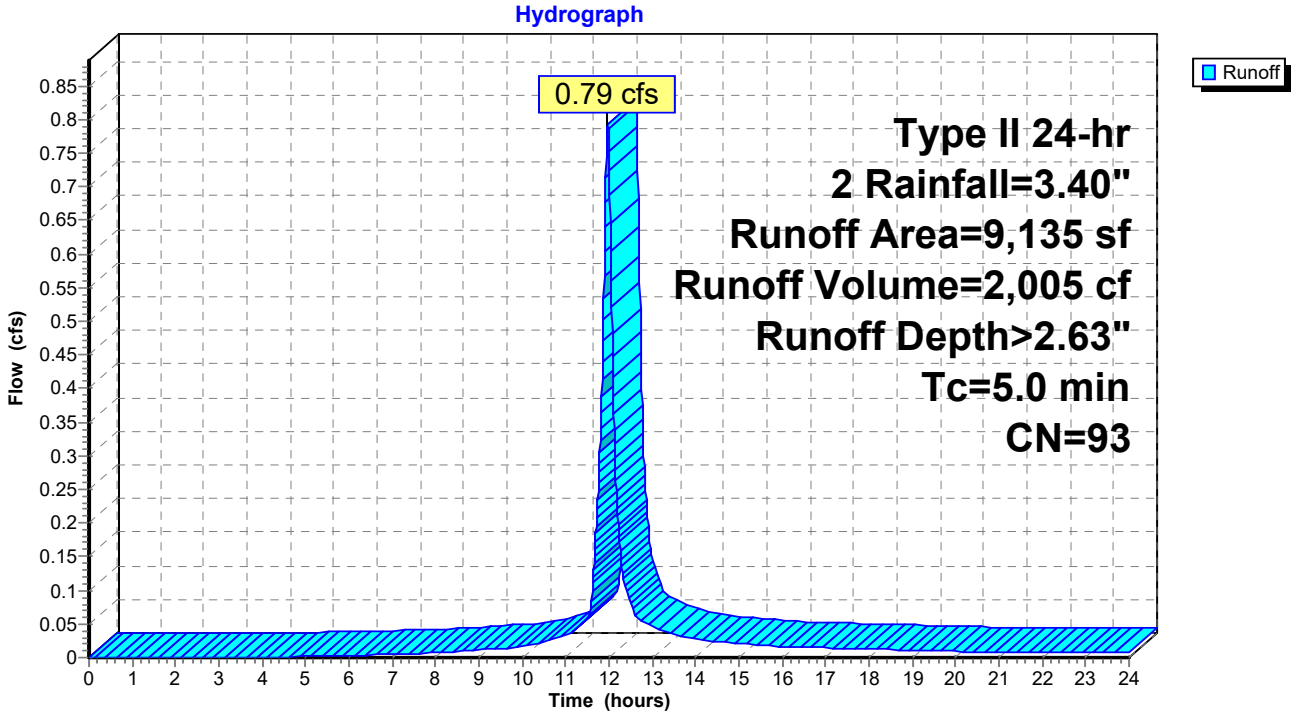
Runoff = 0.79 cfs @ 11.97 hrs, Volume= 2,005 cf, Depth> 2.63"

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 Rainfall=3.40"

Area (sf)	CN	Description
7,254	98	Unconnected roofs, HSG C
1,881	74	>75% Grass cover, Good, HSG C
9,135	93	Weighted Average
1,881		20.59% Pervious Area
7,254		79.41% Impervious Area
7,254		100.00% Unconnected

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

Subcatchment 7S: P-2 (BLUE)



Summary for Subcatchment 8S: P-3 (GREEN)

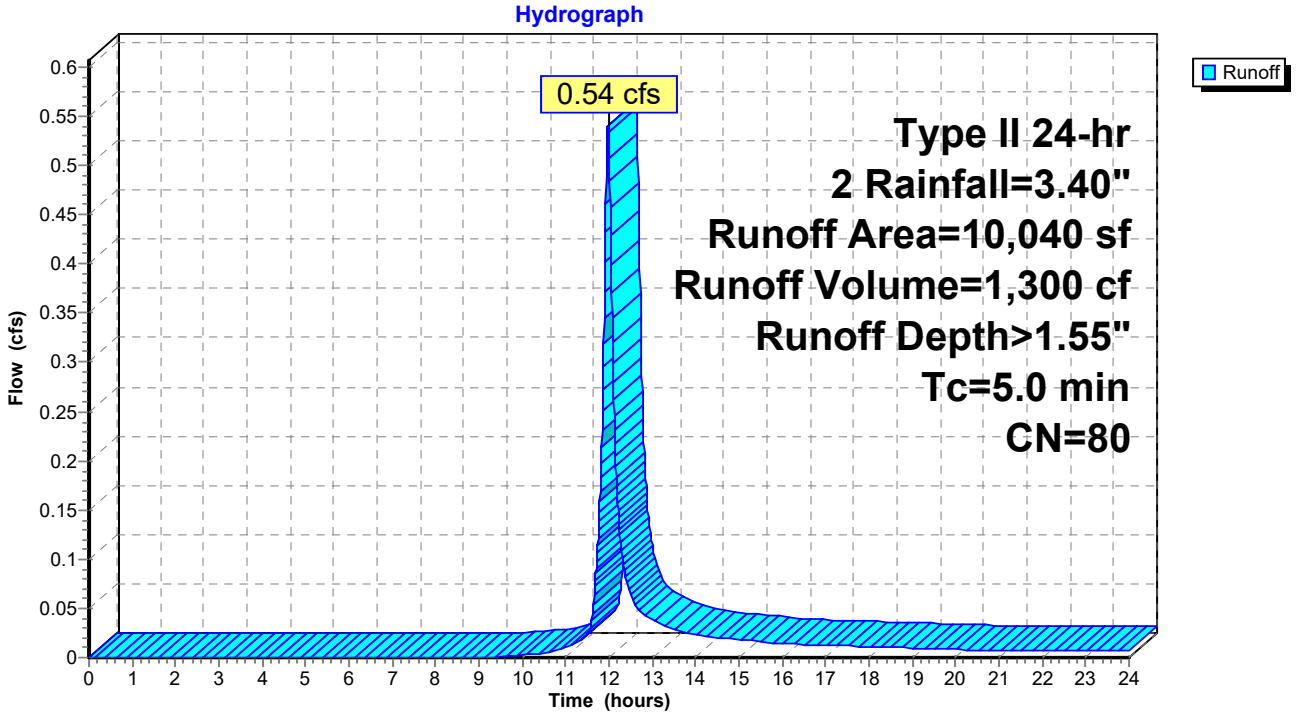
Runoff = 0.54 cfs @ 11.98 hrs, Volume= 1,300 cf, Depth> 1.55"

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 Rainfall=3.40"

	Area (sf)	CN	Description
	2,639	98	Paved parking, HSG C
*	1,469	70	Woods, Good, HSG C "Pavers"
	5,932	74	>75% Grass cover, Good, HSG C
	10,040	80	Weighted Average
	7,401		73.72% Pervious Area
	2,639		26.28% Impervious Area

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

Subcatchment 8S: P-3 (GREEN)



Summary for Subcatchment 10S: P-1 (YELLOW)

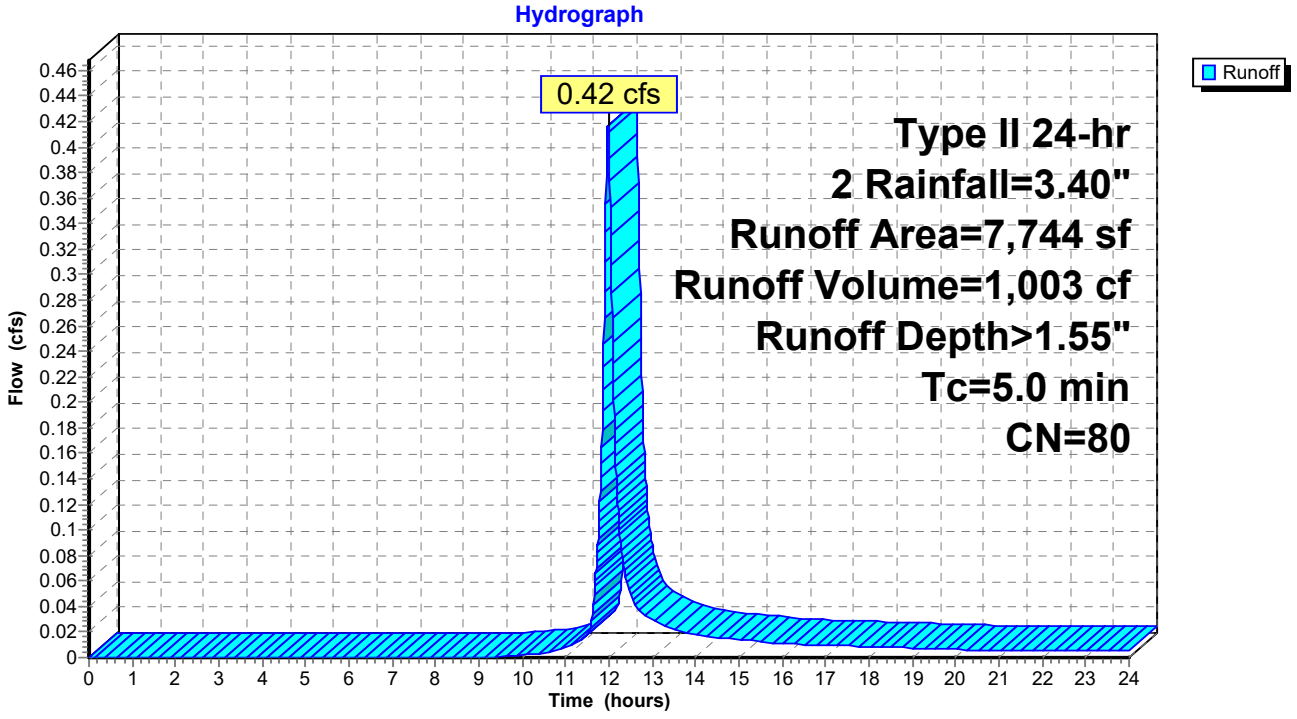
Runoff = 0.42 cfs @ 11.98 hrs, Volume= 1,003 cf, Depth> 1.55"

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 Rainfall=3.40"

	Area (sf)	CN	Description
	2,158	98	Paved parking, HSG C
*	983	70	Woods, Good, HSG C "Pavers"
	4,603	74	>75% Grass cover, Good, HSG C
	7,744	80	Weighted Average
	5,586		72.13% Pervious Area
	2,158		27.87% Impervious Area

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

Subcatchment 10S: P-1 (YELLOW)



Summary for Subcatchment 12S: EX-1 (ORANGE)

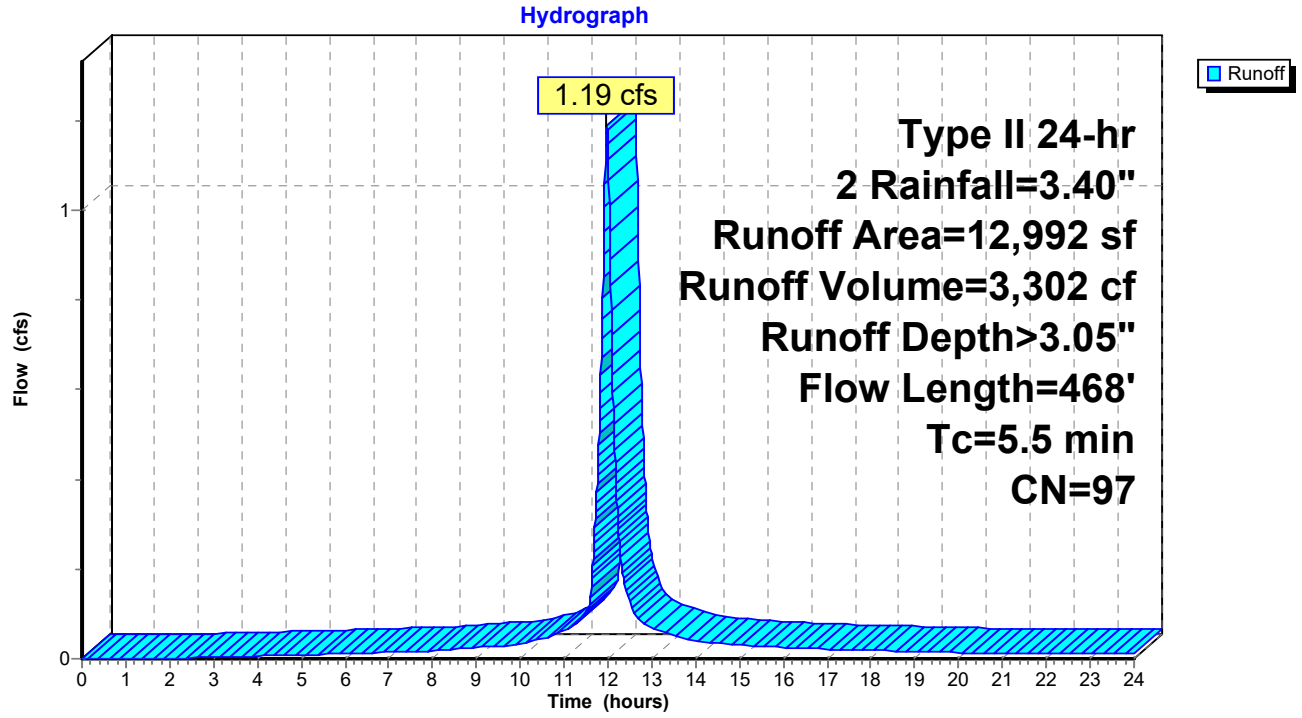
Runoff = 1.19 cfs @ 11.98 hrs, Volume= 3,302 cf, Depth> 3.05"

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 Rainfall=3.40"

Area (sf)	CN	Description
738	98	Unconnected roofs, HSG C
6,646	98	Paved parking, HSG C
4,845	98	Paved parking, HSG C
763	74	>75% Grass cover, Good, HSG C
12,992	97	Weighted Average
763		5.87% Pervious Area
12,229		94.13% Impervious Area
738		6.03% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0200	0.99		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
5.2	451	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.5	468	Total			

Subcatchment 12S: EX-1 (ORANGE)



Summary for Pond 9P: SGW

Inflow Area = 9,135 sf, 79.41% Impervious, Inflow Depth > 2.63" for 2 event
Inflow = 0.79 cfs @ 11.97 hrs, Volume= 2,005 cf
Outflow = 0.01 cfs @ 18.89 hrs, Volume= 232 cf, Atten= 99%, Lag= 415.3 min
Primary = 0.01 cfs @ 18.89 hrs, Volume= 232 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 30.29' @ 18.89 hrs Surf.Area= 1,304 sf Storage= 1,782 cf

Plug-Flow detention time= 666.1 min calculated for 232 cf (12% of inflow)
Center-of-Mass det. time= 437.6 min (1,226.0 - 788.4)

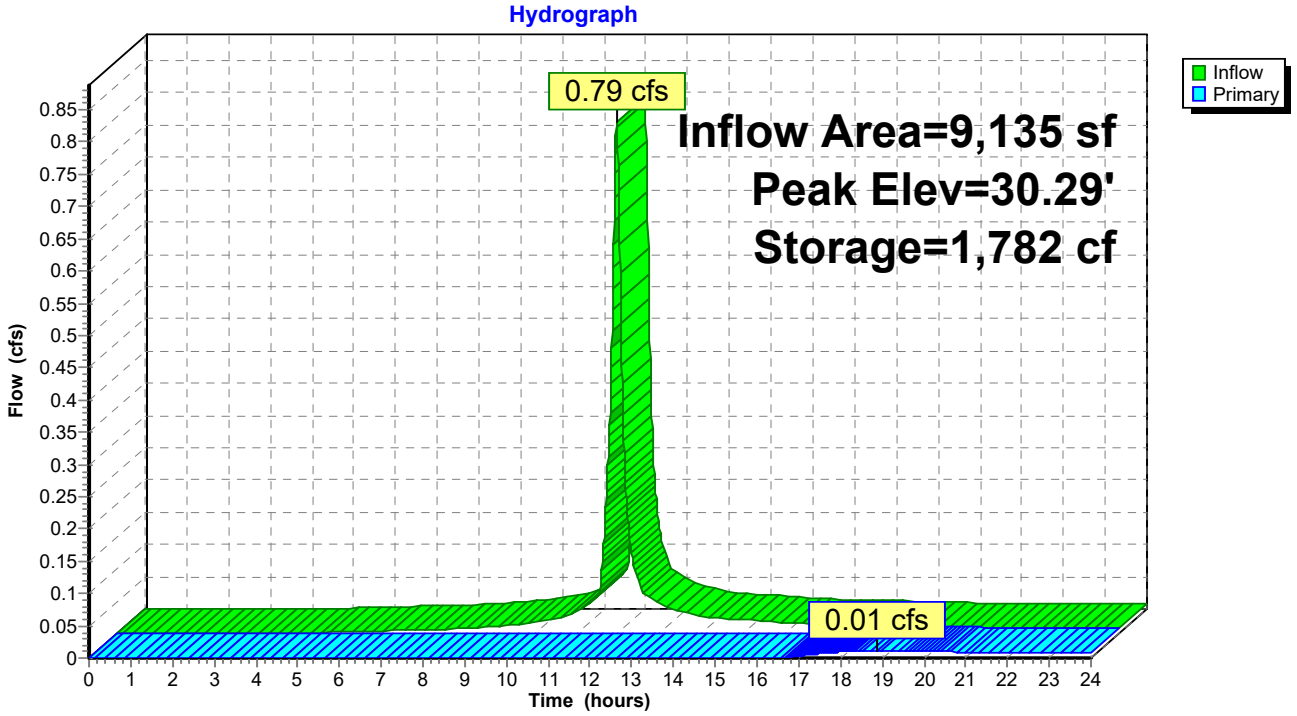
Volume	Invert	Avail.Storage	Storage Description
#1	26.99'	2,869 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.99	665	111.0	0.0	0	0	665
27.00	665	111.0	40.0	3	3	666
28.99	665	111.0	40.0	529	532	887
29.00	665	111.0	100.0	7	539	888
31.00	1,751	161.0	100.0	2,330	2,869	2,004

Device	Routing	Invert	Outlet Devices
#1	Primary	28.70'	**8.0" Round Culvert** L= 22.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.70' / 28.60' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf
#2	Device 1	30.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	30.75'	**10.7' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=0.01 cfs @ 18.89 hrs HW=30.29' TW=28.66' (Dynamic Tailwater)
1=Culvert (Passes 0.01 cfs of 1.66 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.01 cfs @ 0.61 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: SGW


Hydrograph
0.79 cfs
Inflow Area=9,135 sf
Peak Elev=30.29'
Storage=1,782 cf
0.01 cfs
Inflow
Primary
Flow (cfs)
Time (hours)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75 0.8 0.85
0 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 Pond 16P: AURORA STREET STORMDRAIN

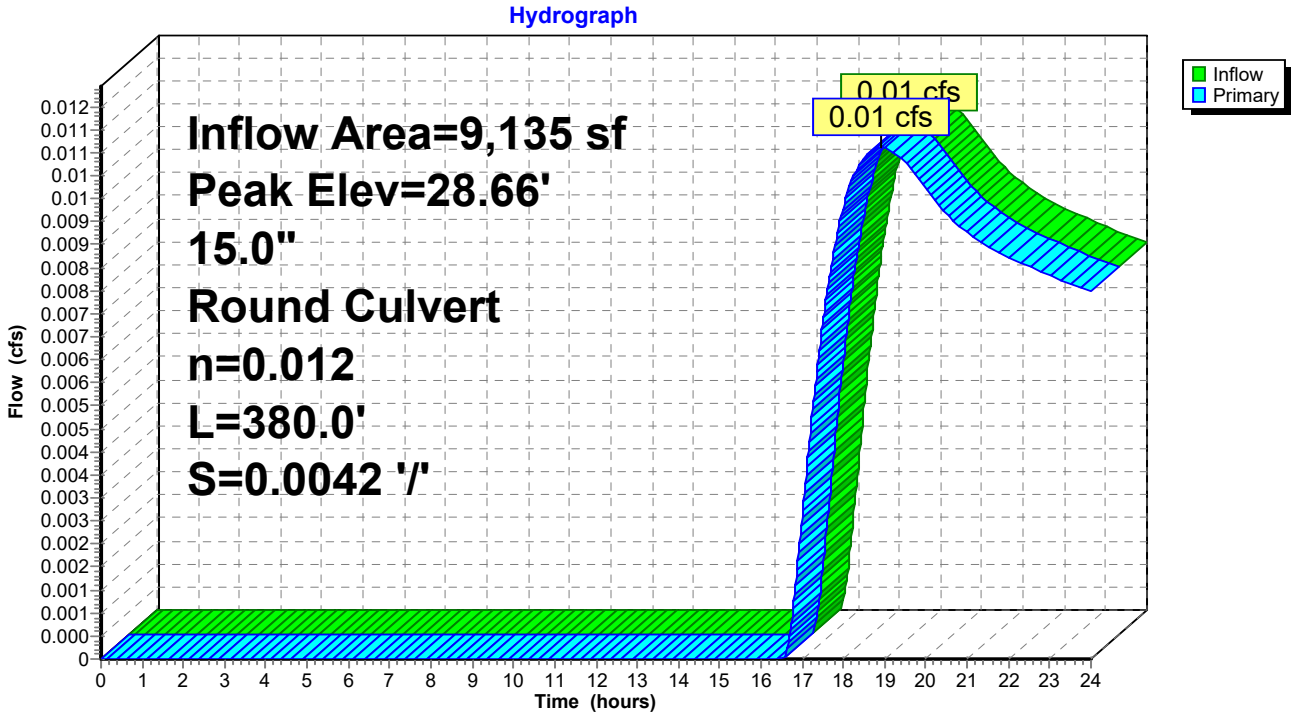
Inflow Area = 9,135 sf, 79.41% Impervious, Inflow Depth > 0.30" for 2 event
Inflow = 0.01 cfs @ 18.89 hrs, Volume= 232 cf
Outflow = 0.01 cfs @ 18.89 hrs, Volume= 232 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 18.89 hrs, Volume= 232 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 28.66' @ 18.89 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	28.60'	**15.0" Round Culvert** L= 380.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.60' / 27.00' S= 0.0042 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.01 cfs @ 18.89 hrs HW=28.66' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.01 cfs @ 0.77 fps)

Pond 16P: AURORA STREET STORMDRAIN

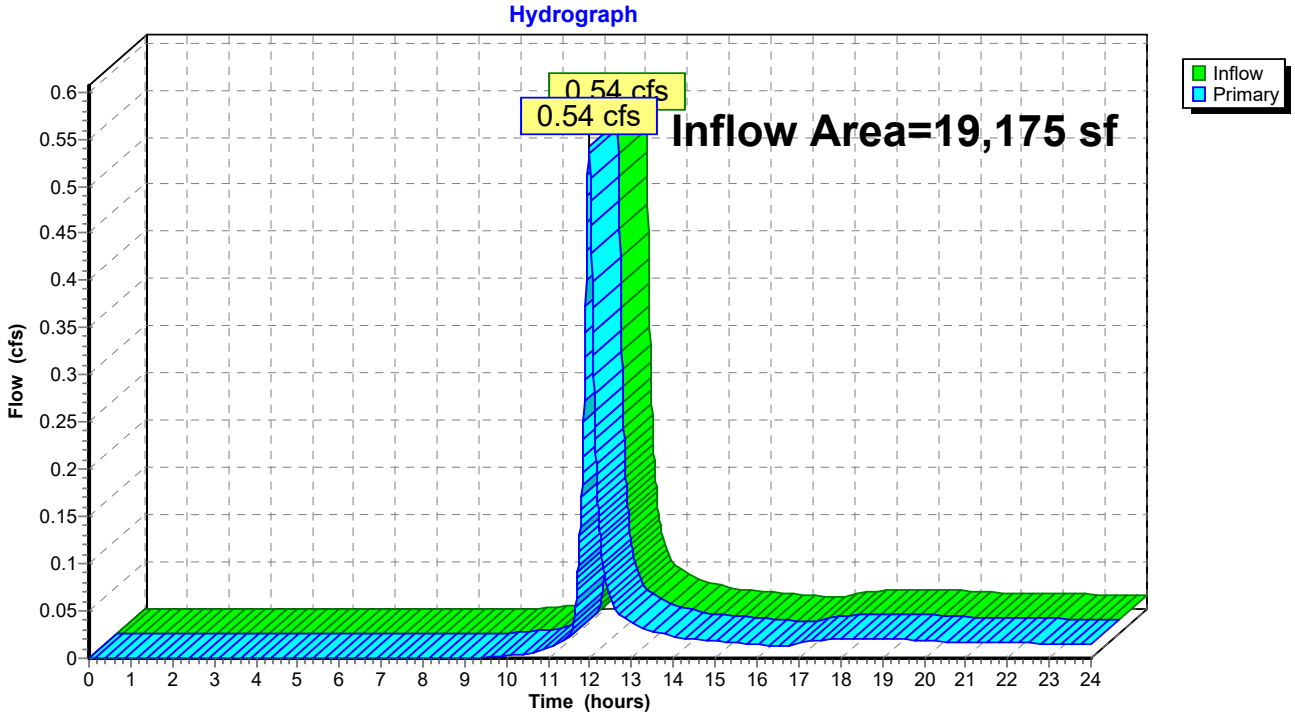


Summary for Link 11L: POST STUDY POINT #2

Inflow Area = 19,175 sf, 51.59% Impervious, Inflow Depth > 0.96" for 2 event
Inflow = 0.54 cfs @ 11.98 hrs, Volume= 1,532 cf
Primary = 0.54 cfs @ 11.98 hrs, Volume= 1,532 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 11L: POST STUDY POINT #2

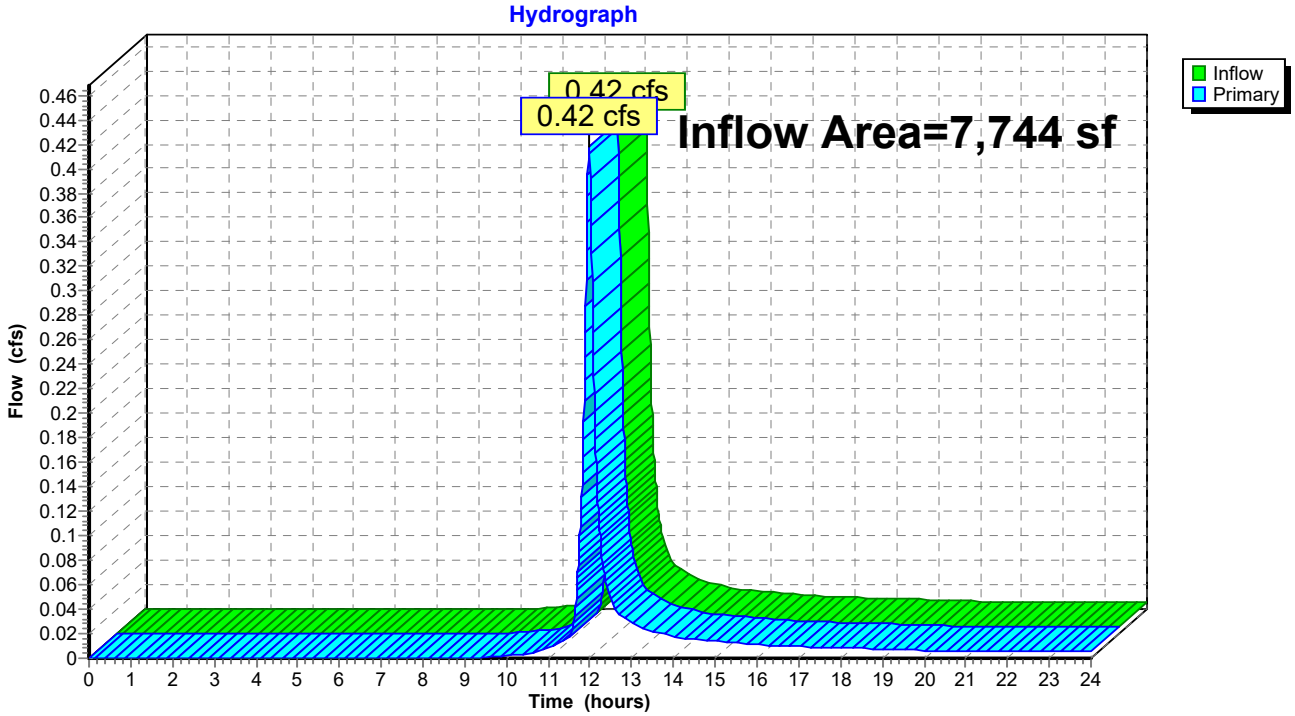


Summary for Link 13L: POST STUDY POINT #1

Inflow Area = 7,744 sf, 27.87% Impervious, Inflow Depth > 1.55" for 2 event
Inflow = 0.42 cfs @ 11.98 hrs, Volume= 1,003 cf
Primary = 0.42 cfs @ 11.98 hrs, Volume= 1,003 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 13L: POST STUDY POINT #1

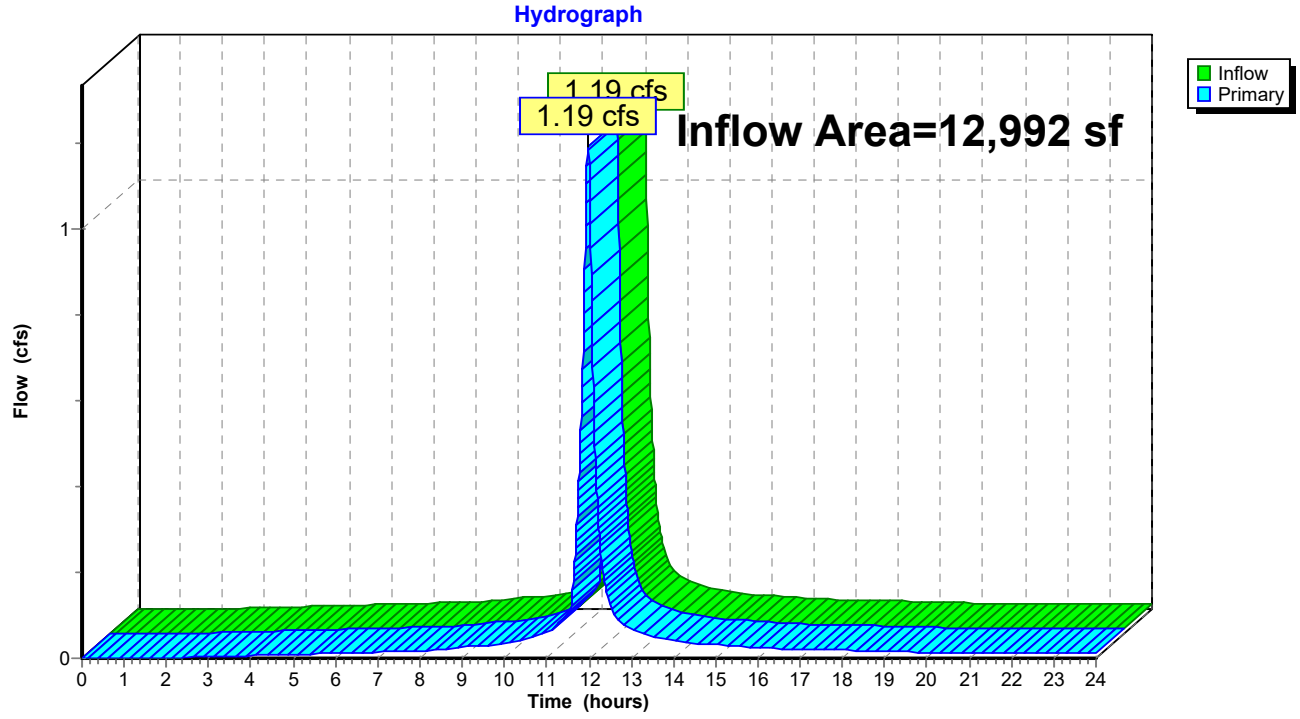


Summary for Link 14L: PRE STUDY POINT #1

Inflow Area = 12,992 sf, 94.13% Impervious, Inflow Depth > 3.05" for 2 event
Inflow = 1.19 cfs @ 11.98 hrs, Volume= 3,302 cf
Primary = 1.19 cfs @ 11.98 hrs, Volume= 3,302 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 14L: PRE STUDY POINT #1

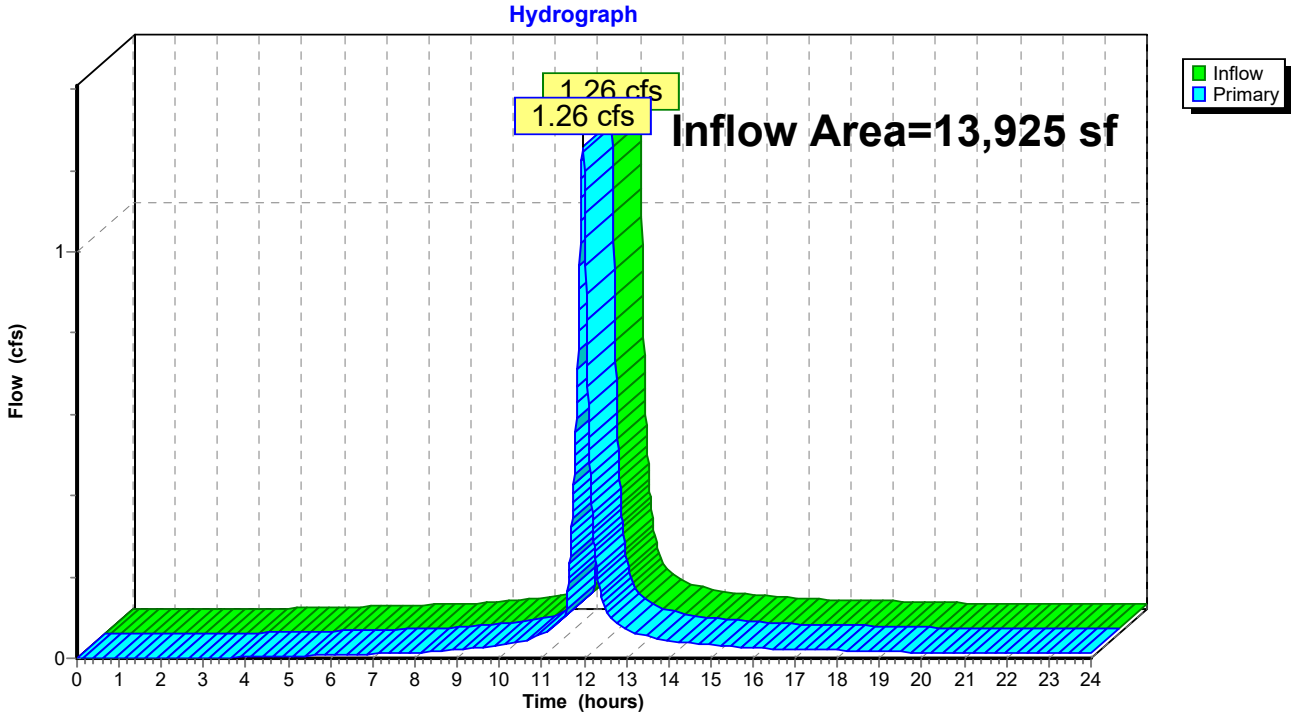


Summary for Link 15L: PRE STUDY POINT #2

Inflow Area = 13,925 sf, 88.42% Impervious, Inflow Depth > 2.84" for 2 event
Inflow = 1.26 cfs @ 11.97 hrs, Volume= 3,291 cf
Primary = 1.26 cfs @ 11.97 hrs, Volume= 3,291 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 15L: PRE STUDY POINT #2



Summary for Subcatchment 6S: EX-2 (PINK)

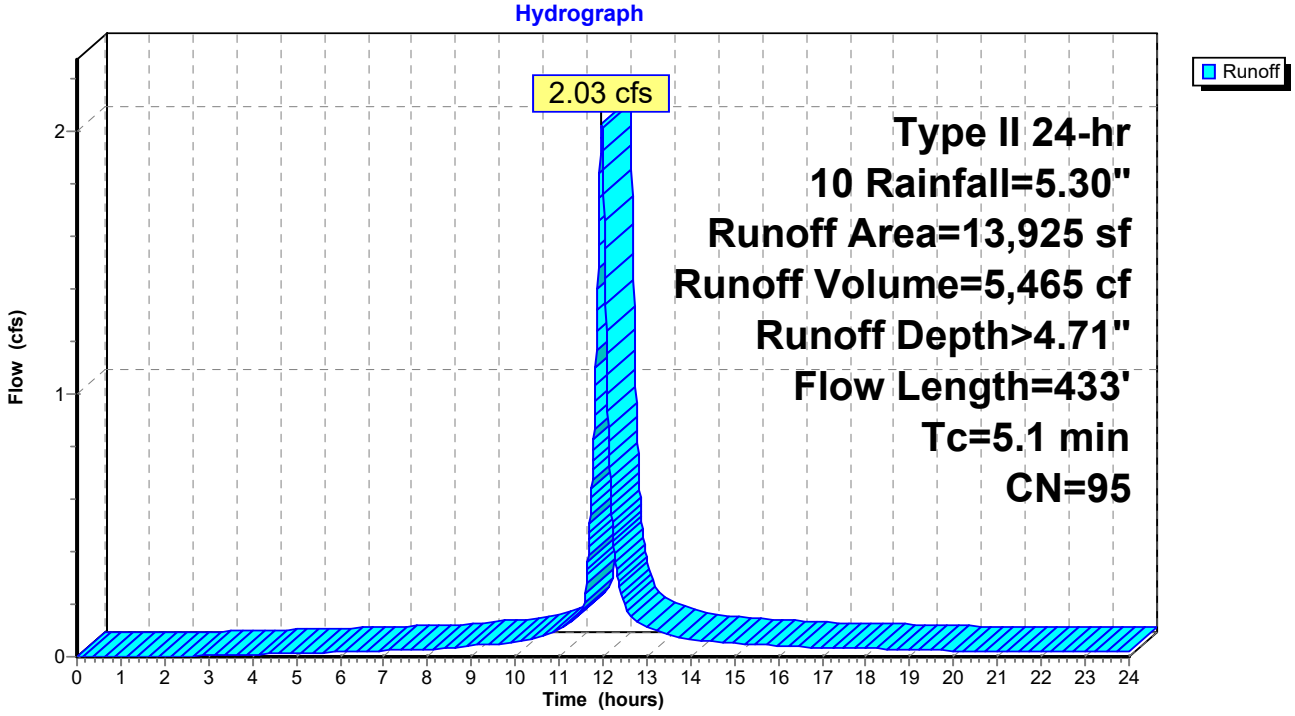
Runoff = 2.03 cfs @ 11.97 hrs, Volume= 5,465 cf, Depth> 4.71"

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 Rainfall=5.30"

Area (sf)	CN	Description
765	98	Unconnected roofs, HSG C
8,441	98	Paved parking, HSG C
3,106	98	Paved parking, HSG C
1,613	74	>75% Grass cover, Good, HSG C
13,925	95	Weighted Average
1,613		11.58% Pervious Area
12,312		88.42% Impervious Area
765		6.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.07		**Sheet Flow, a-b** Smooth surfaces n= 0.011 P2= 3.40"
4.7	408	0.0050	1.44		**Shallow Concentrated Flow, b-c** Paved Kv= 20.3 fps
5.1	433	Total			

Subcatchment 6S: EX-2 (PINK)



Summary for Subcatchment 7S: P-2 (BLUE)

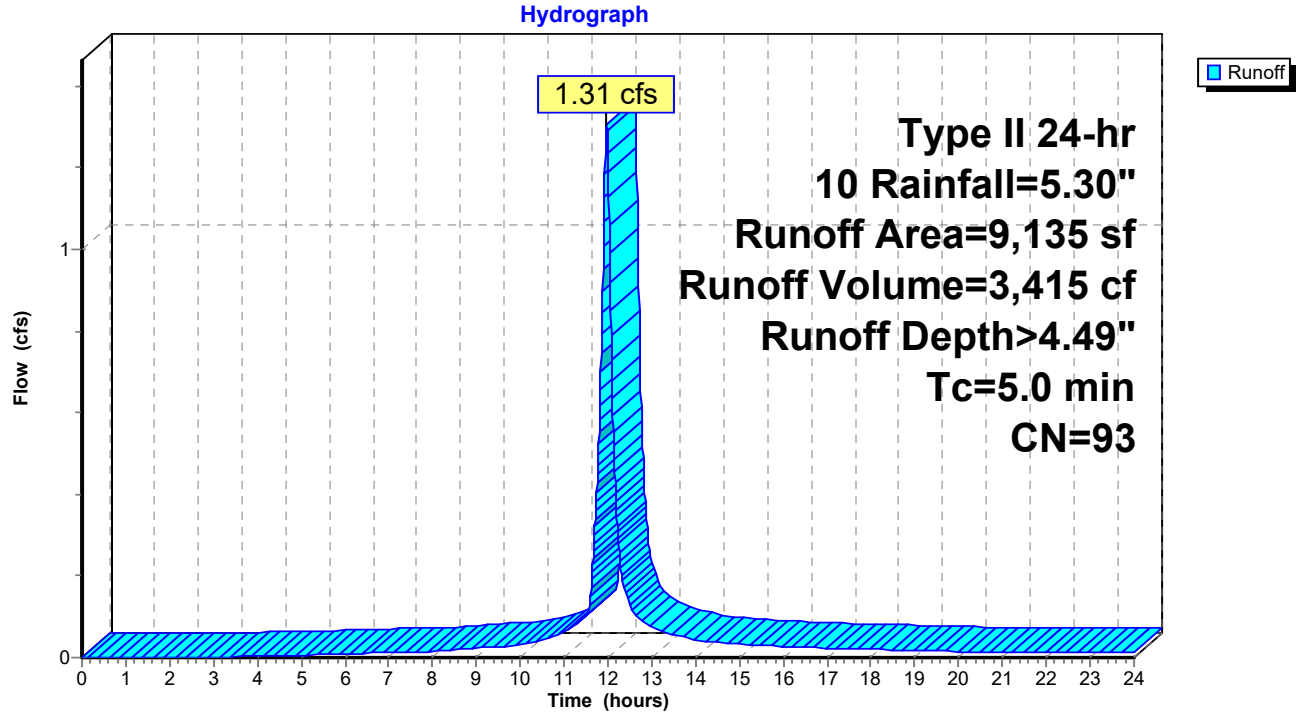
Runoff = 1.31 cfs @ 11.97 hrs, Volume= 3,415 cf, Depth> 4.49"

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 Rainfall=5.30"

Area (sf)	CN	Description
7,254	98	Unconnected roofs, HSG C
1,881	74	>75% Grass cover, Good, HSG C
9,135	93	Weighted Average
1,881		20.59% Pervious Area
7,254		79.41% Impervious Area
7,254		100.00% Unconnected

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

Subcatchment 7S: P-2 (BLUE)



Summary for Subcatchment 8S: P-3 (GREEN)

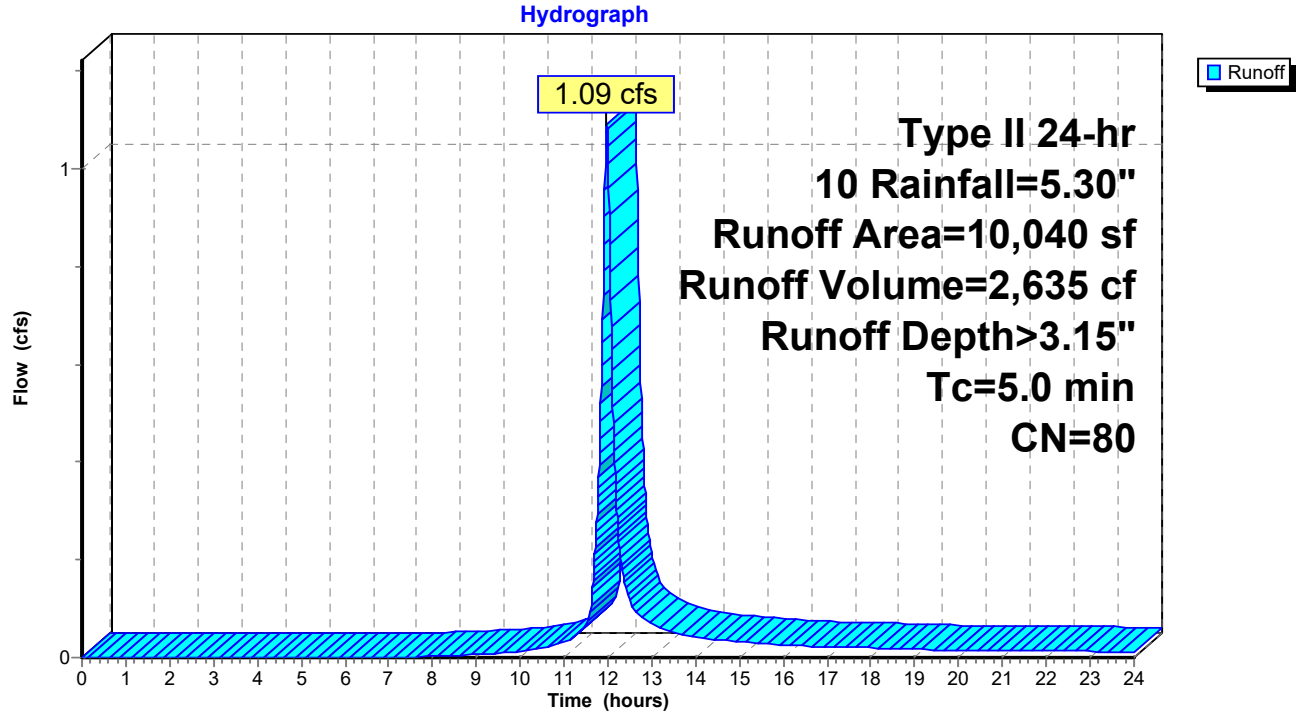
Runoff = 1.09 cfs @ 11.97 hrs, Volume= 2,635 cf, Depth> 3.15"

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 Rainfall=5.30"

	Area (sf)	CN	Description
	2,639	98	Paved parking, HSG C
*	1,469	70	Woods, Good, HSG C "Pavers"
	5,932	74	>75% Grass cover, Good, HSG C
	10,040	80	Weighted Average
	7,401		73.72% Pervious Area
	2,639		26.28% Impervious Area

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

Subcatchment 8S: P-3 (GREEN)



Summary for Subcatchment 10S: P-1 (YELLOW)

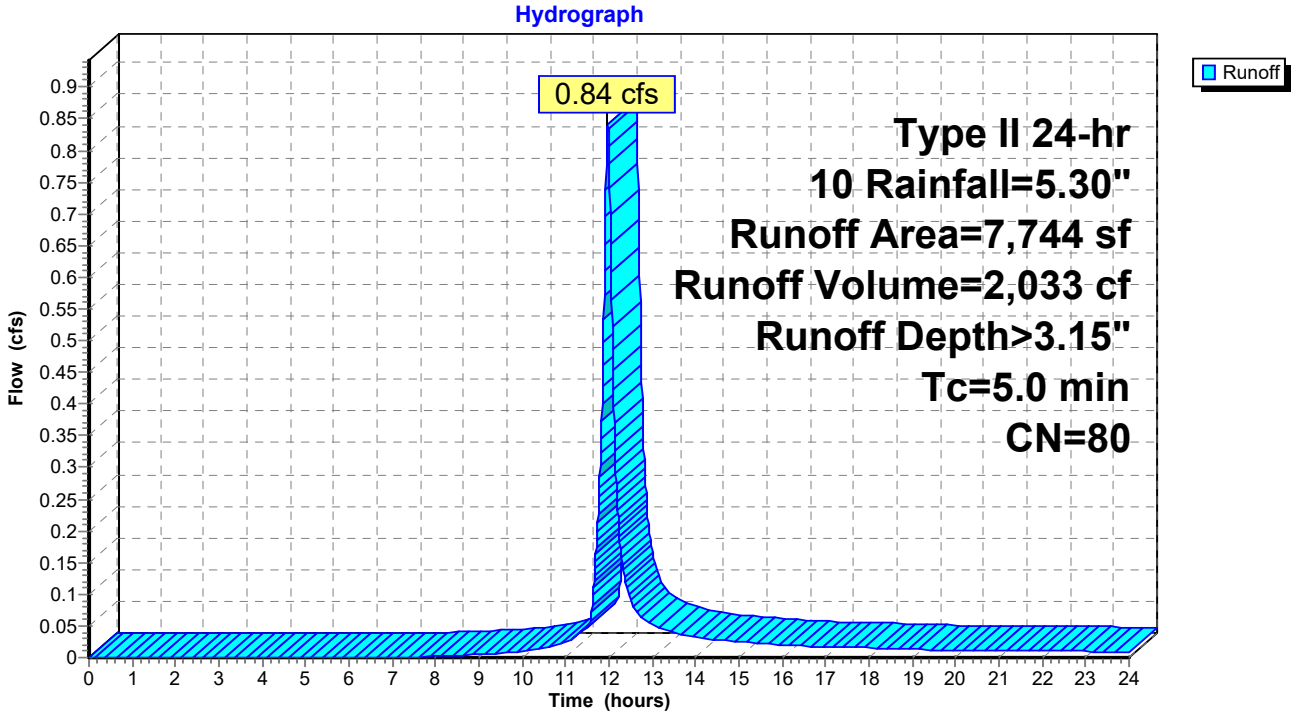
Runoff = 0.84 cfs @ 11.97 hrs, Volume= 2,033 cf, Depth> 3.15"

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 Rainfall=5.30"

	Area (sf)	CN	Description
	2,158	98	Paved parking, HSG C
*	983	70	Woods, Good, HSG C "Pavers"
	4,603	74	>75% Grass cover, Good, HSG C
	7,744	80	Weighted Average
	5,586		72.13% Pervious Area
	2,158		27.87% Impervious Area

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

Subcatchment 10S: P-1 (YELLOW)



Summary for Subcatchment 12S: EX-1 (ORANGE)

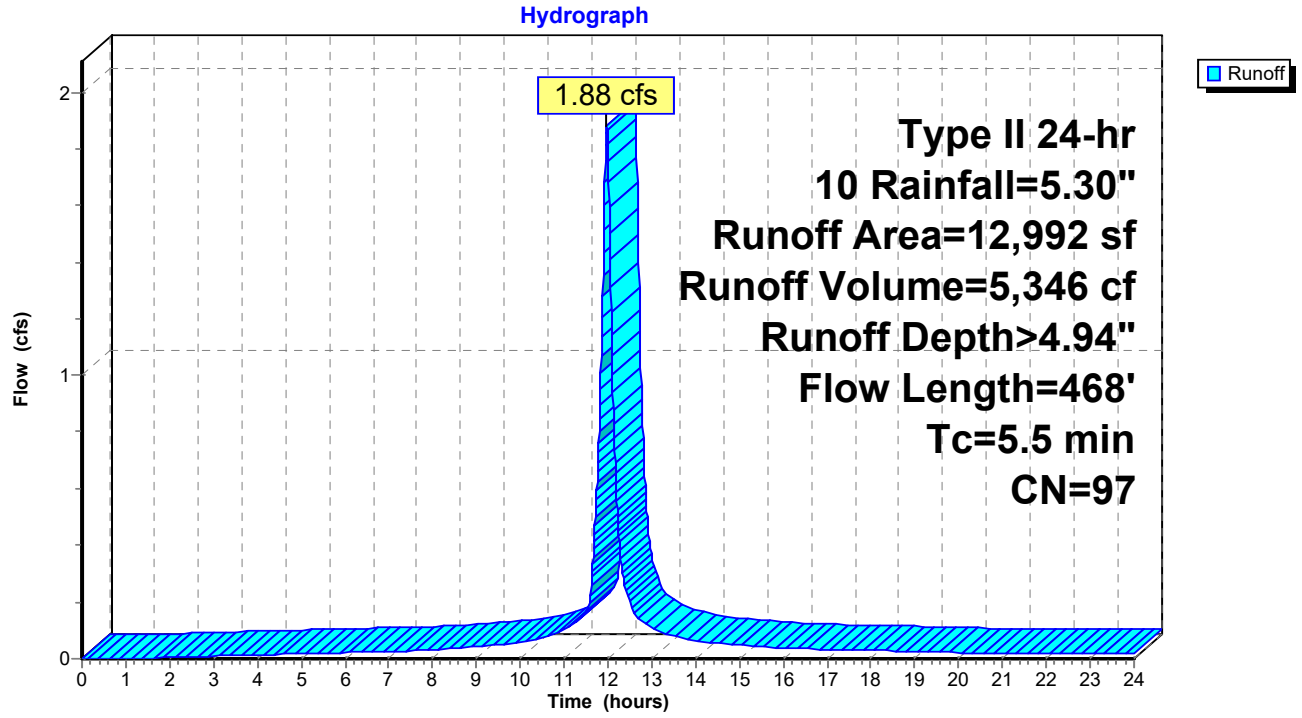
Runoff = 1.88 cfs @ 11.98 hrs, Volume= 5,346 cf, Depth> 4.94"

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 Rainfall=5.30"

Area (sf)	CN	Description
738	98	Unconnected roofs, HSG C
6,646	98	Paved parking, HSG C
4,845	98	Paved parking, HSG C
763	74	>75% Grass cover, Good, HSG C
12,992	97	Weighted Average
763		5.87% Pervious Area
12,229		94.13% Impervious Area
738		6.03% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0200	0.99		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
5.2	451	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.5	468	Total			

Subcatchment 12S: EX-1 (ORANGE)



Summary for Pond 9P: SGW

Inflow Area = 9,135 sf, 79.41% Impervious, Inflow Depth > 4.49" for 10 event
Inflow = 1.31 cfs @ 11.97 hrs, Volume= 3,415 cf
Outflow = 0.20 cfs @ 12.32 hrs, Volume= 1,628 cf, Atten= 85%, Lag= 21.0 min
Primary = 0.20 cfs @ 12.32 hrs, Volume= 1,628 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 30.50' @ 12.32 hrs Surf.Area= 1,431 sf Storage= 2,073 cf

Plug-Flow detention time= 263.5 min calculated for 1,627 cf (48% of inflow)
Center-of-Mass det. time= 145.1 min (919.3 - 774.2)

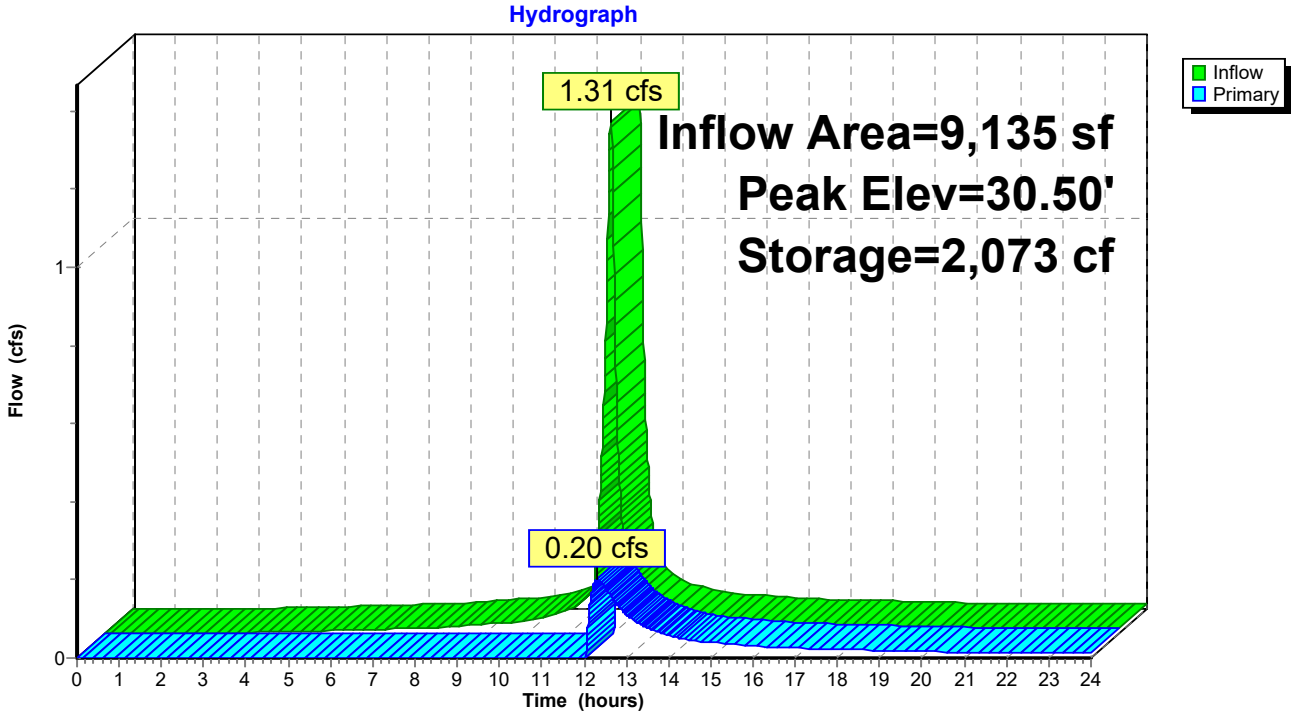
Volume	Invert	Avail.Storage	Storage Description
#1	26.99'	2,869 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.99	665	111.0	0.0	0	0	665
27.00	665	111.0	40.0	3	3	666
28.99	665	111.0	40.0	529	532	887
29.00	665	111.0	100.0	7	539	888
31.00	1,751	161.0	100.0	2,330	2,869	2,004

Device	Routing	Invert	Outlet Devices
#1	Primary	28.70'	**8.0" Round Culvert** L= 22.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.70' / 28.60' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf
#2	Device 1	30.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	30.75'	**10.7' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=0.20 cfs @ 12.32 hrs HW=30.50' TW=28.84' (Dynamic Tailwater)
1=Culvert (Passes 0.20 cfs of 1.80 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.20 cfs @ 1.60 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 9P: SGW


Hydrograph
1.31 cfs
0.20 cfs
Inflow Area=9,135 sf
Peak Elev=30.50'
Storage=2,073 cf
Inflow
Primary
Flow (cfs)
Time (hours)
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

Summary for Pond 16P: AURORA STREET STORMDRAIN

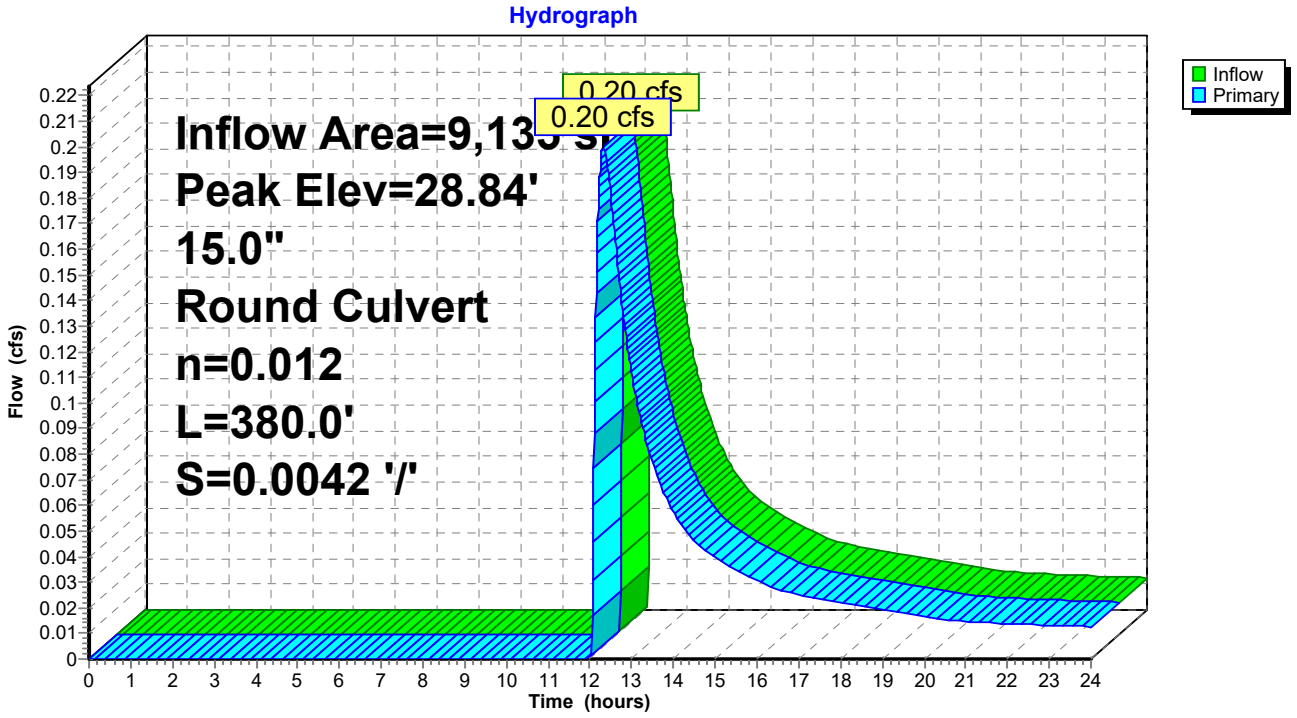
Inflow Area = 9,135 sf, 79.41% Impervious, Inflow Depth > 2.14" for 10 event
Inflow = 0.20 cfs @ 12.32 hrs, Volume= 1,628 cf
Outflow = 0.20 cfs @ 12.32 hrs, Volume= 1,628 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.32 hrs, Volume= 1,628 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 28.84' @ 12.32 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	28.60'	**15.0" Round Culvert** L= 380.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.60' / 27.00' S= 0.0042 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.20 cfs @ 12.32 hrs HW=28.84' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 0.20 cfs @ 1.84 fps)

Pond 16P: AURORA STREET STORMDRAIN

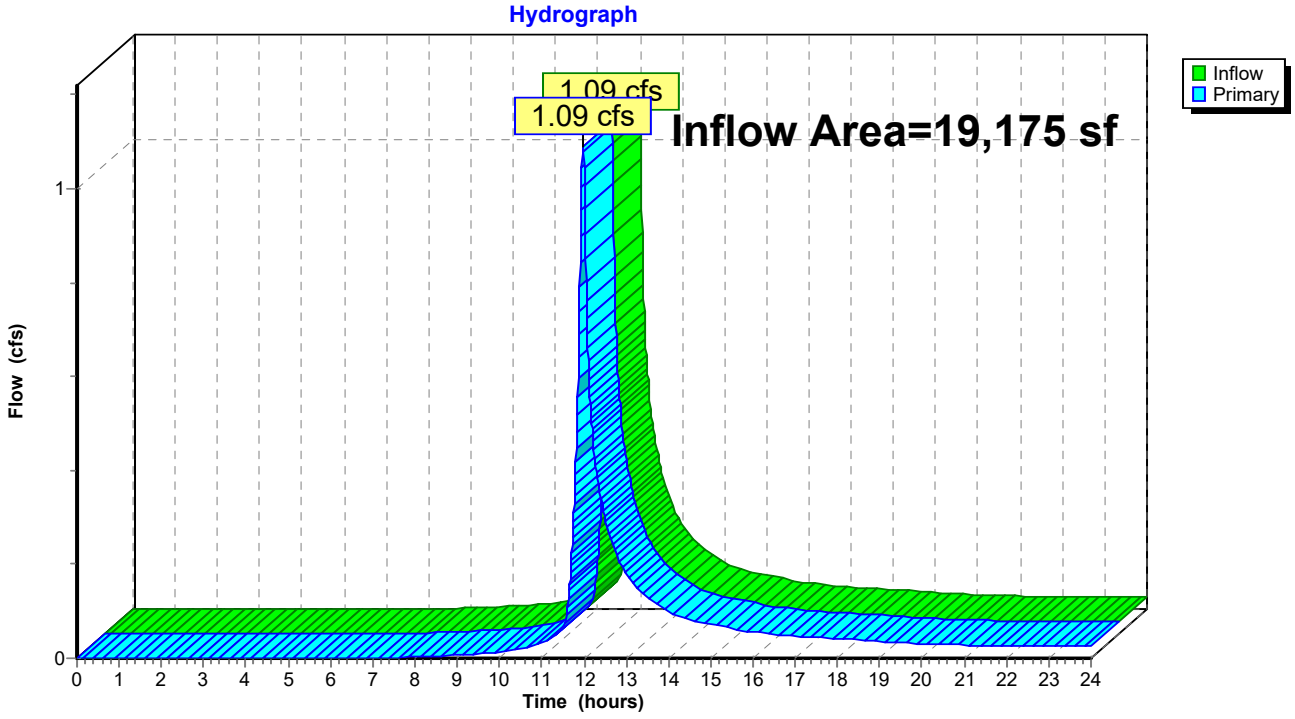


Summary for Link 11L: POST STUDY POINT #2

Inflow Area = 19,175 sf, 51.59% Impervious, Inflow Depth > 2.67" for 10 event
Inflow = 1.09 cfs @ 11.97 hrs, Volume= 4,264 cf
Primary = 1.09 cfs @ 11.97 hrs, Volume= 4,264 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 11L: POST STUDY POINT #2

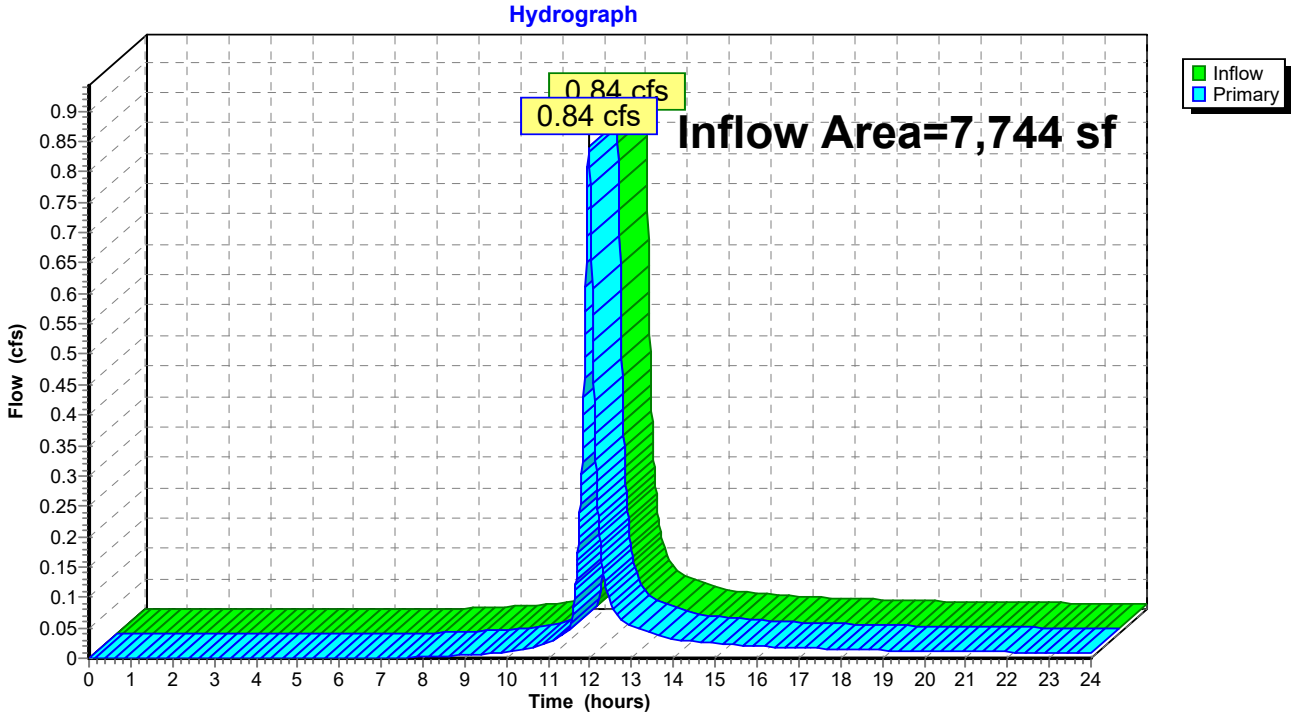


Summary for Link 13L: POST STUDY POINT #1

Inflow Area = 7,744 sf, 27.87% Impervious, Inflow Depth > 3.15" for 10 event
Inflow = 0.84 cfs @ 11.97 hrs, Volume= 2,033 cf
Primary = 0.84 cfs @ 11.97 hrs, Volume= 2,033 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 13L: POST STUDY POINT #1

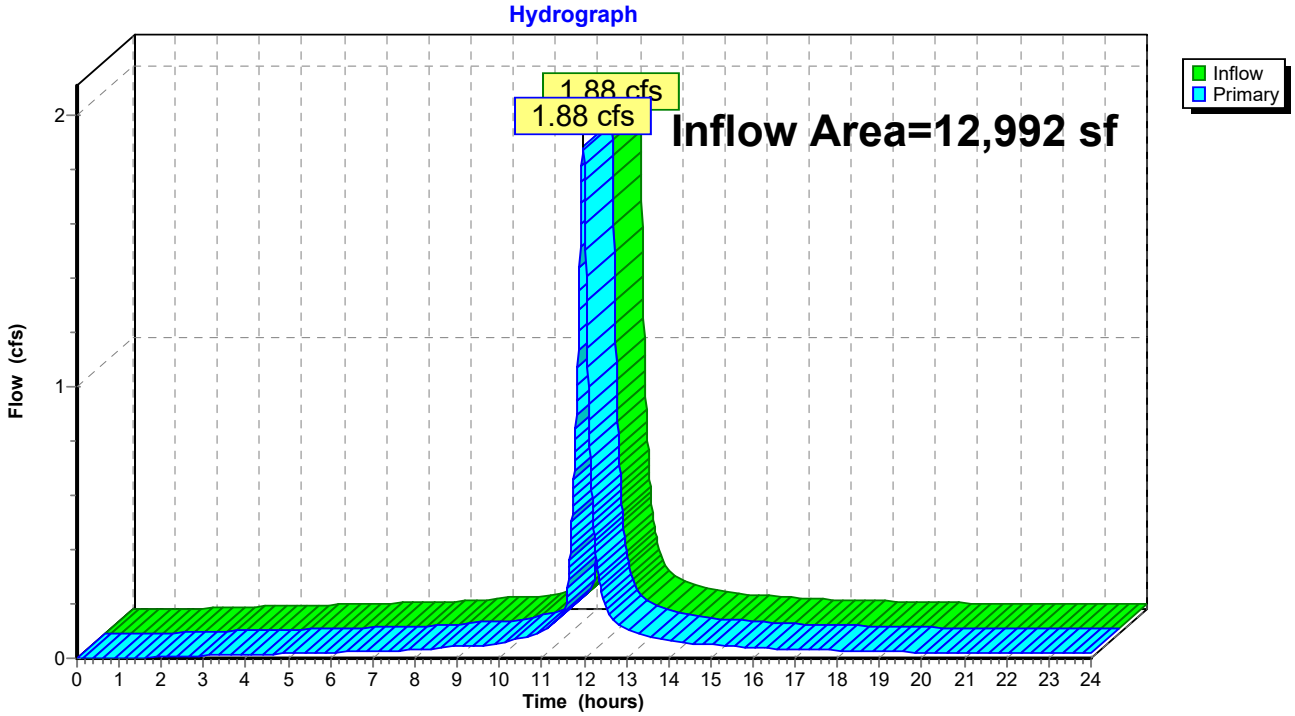


Summary for Link 14L: PRE STUDY POINT #1

Inflow Area = 12,992 sf, 94.13% Impervious, Inflow Depth > 4.94" for 10 event
Inflow = 1.88 cfs @ 11.98 hrs, Volume= 5,346 cf
Primary = 1.88 cfs @ 11.98 hrs, Volume= 5,346 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 14L: PRE STUDY POINT #1

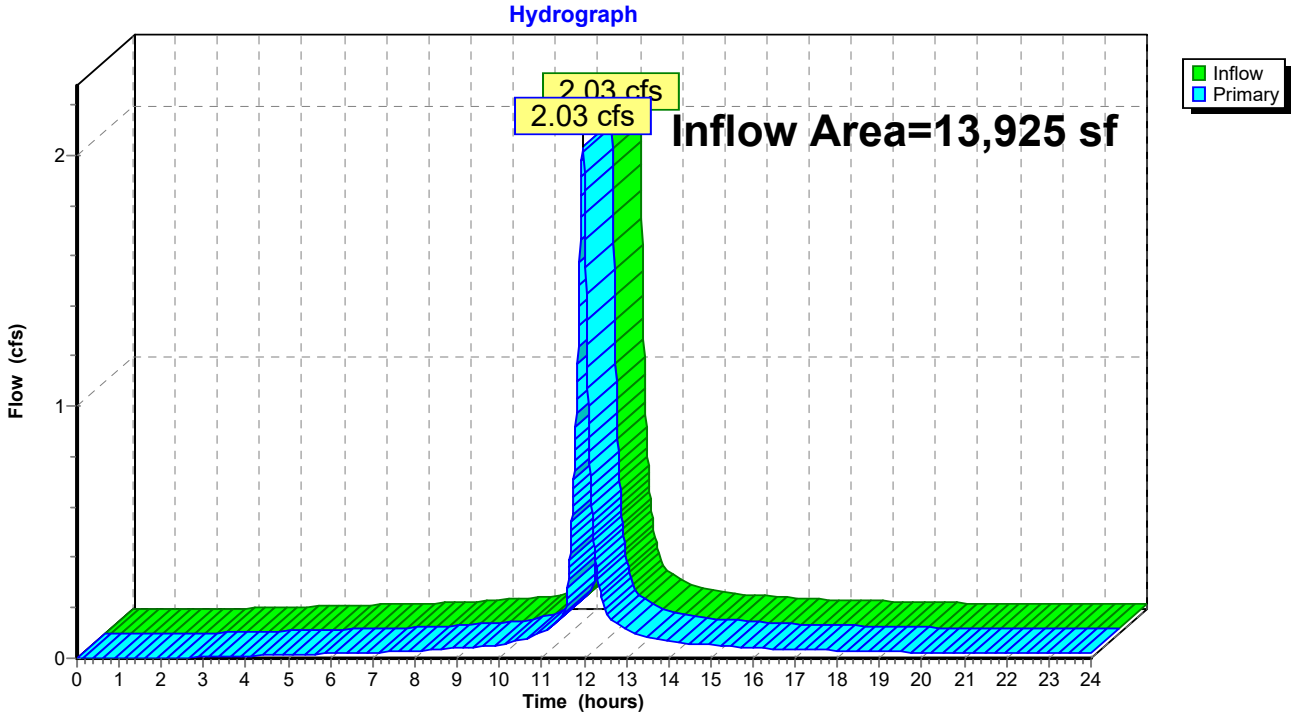


Summary for Link 15L: PRE STUDY POINT #2

Inflow Area = 13,925 sf, 88.42% Impervious, Inflow Depth > 4.71" for 10 event
Inflow = 2.03 cfs @ 11.97 hrs, Volume= 5,465 cf
Primary = 2.03 cfs @ 11.97 hrs, Volume= 5,465 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 15L: PRE STUDY POINT #2



Summary for Subcatchment 6S: EX-2 (PINK)

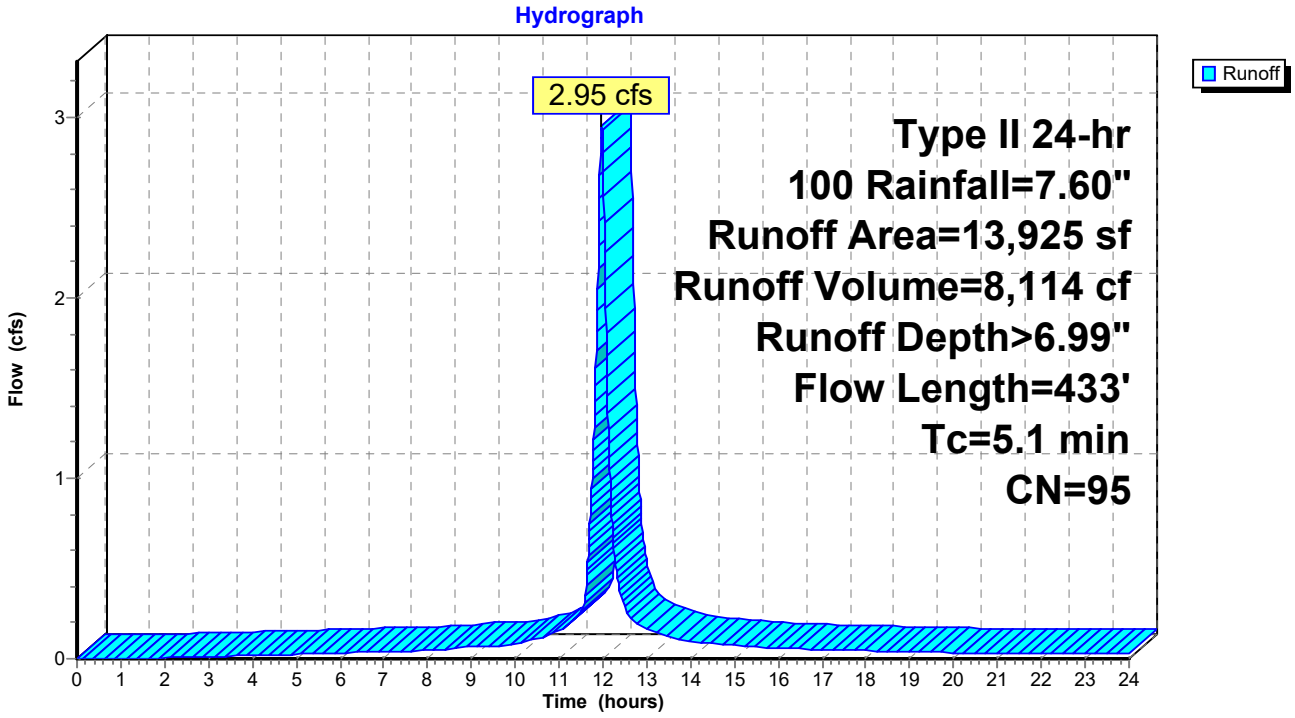
Runoff = 2.95 cfs @ 11.97 hrs, Volume= 8,114 cf, Depth> 6.99"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
765	98	Unconnected roofs, HSG C
8,441	98	Paved parking, HSG C
3,106	98	Paved parking, HSG C
1,613	74	>75% Grass cover, Good, HSG C
13,925	95	Weighted Average
1,613		11.58% Pervious Area
12,312		88.42% Impervious Area
765		6.21% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	25	0.0200	1.07		**Sheet Flow, a-b** Smooth surfaces n= 0.011 P2= 3.40"
4.7	408	0.0050	1.44		**Shallow Concentrated Flow, b-c** Paved Kv= 20.3 fps
5.1	433	Total			

Subcatchment 6S: EX-2 (PINK)



Summary for Subcatchment 7S: P-2 (BLUE)

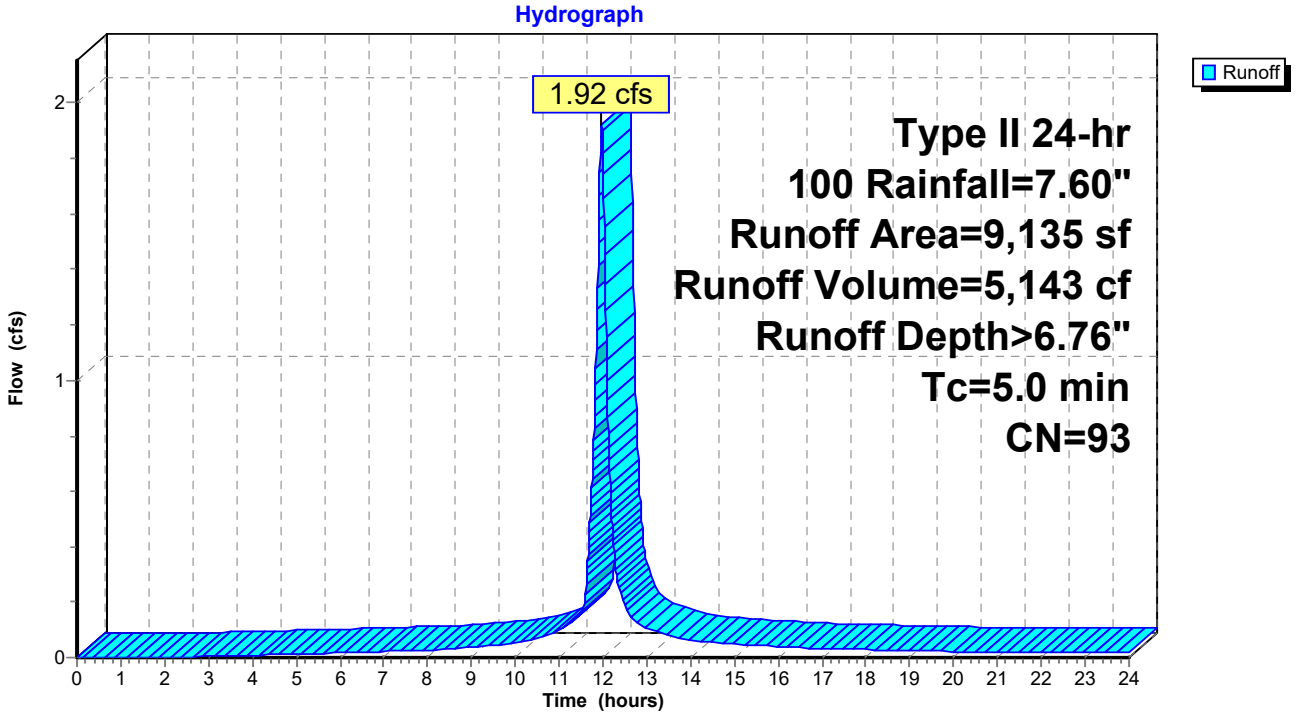
Runoff = 1.92 cfs @ 11.97 hrs, Volume= 5,143 cf, Depth> 6.76"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
7,254	98	Unconnected roofs, HSG C
1,881	74	>75% Grass cover, Good, HSG C
9,135	93	Weighted Average
1,881		20.59% Pervious Area
7,254		79.41% Impervious Area
7,254		100.00% Unconnected

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

Subcatchment 7S: P-2 (BLUE)



Summary for Subcatchment 8S: P-3 (GREEN)

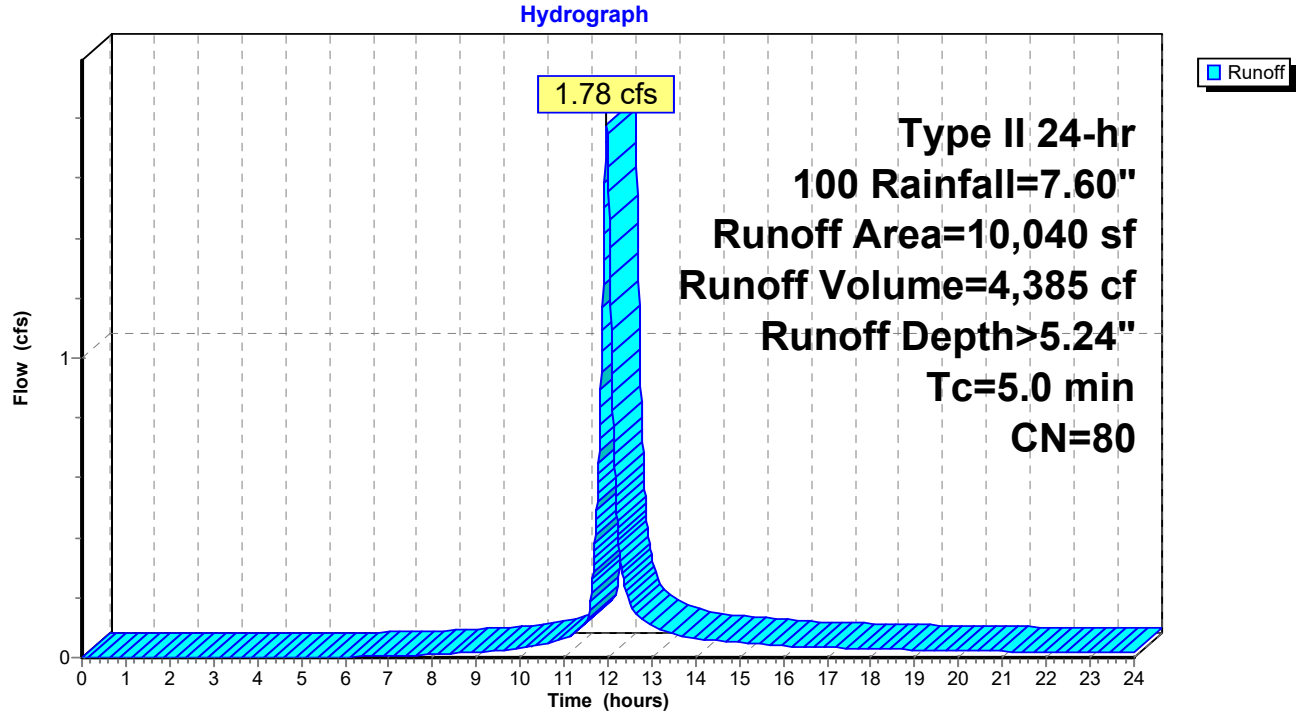
Runoff = 1.78 cfs @ 11.97 hrs, Volume= 4,385 cf, Depth> 5.24"

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 100 Rainfall=7.60"

	Area (sf)	CN	Description
	2,639	98	Paved parking, HSG C
*	1,469	70	Woods, Good, HSG C "Pavers"
	5,932	74	>75% Grass cover, Good, HSG C
	10,040	80	Weighted Average
	7,401		73.72% Pervious Area
	2,639		26.28% Impervious Area

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

Subcatchment 8S: P-3 (GREEN)



Summary for Subcatchment 10S: P-1 (YELLOW)

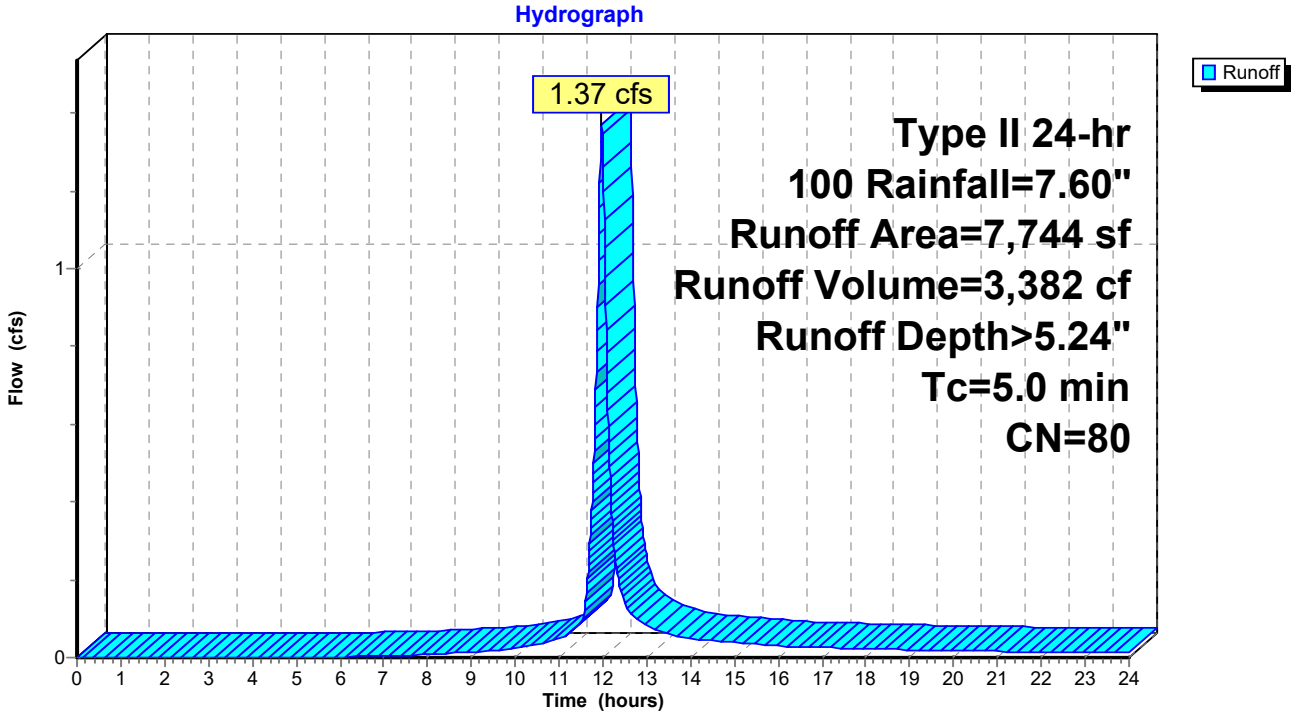
Runoff = 1.37 cfs @ 11.97 hrs, Volume= 3,382 cf, Depth> 5.24"

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 100 Rainfall=7.60"

	Area (sf)	CN	Description
	2,158	98	Paved parking, HSG C
*	983	70	Woods, Good, HSG C "Pavers"
	4,603	74	>75% Grass cover, Good, HSG C
	7,744	80	Weighted Average
	5,586		72.13% Pervious Area
	2,158		27.87% Impervious Area

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

Subcatchment 10S: P-1 (YELLOW)



Summary for Subcatchment 12S: EX-1 (ORANGE)

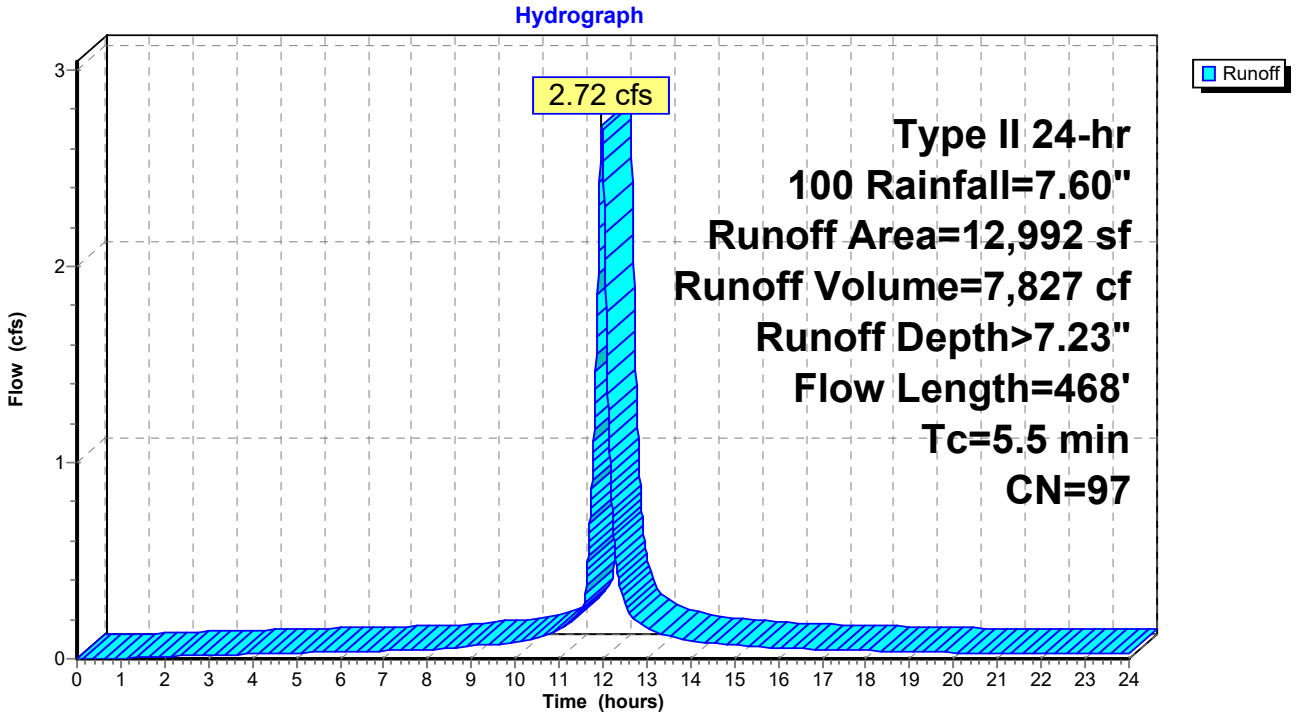
Runoff = 2.72 cfs @ 11.97 hrs, Volume= 7,827 cf, Depth> 7.23"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
738	98	Unconnected roofs, HSG C
6,646	98	Paved parking, HSG C
4,845	98	Paved parking, HSG C
763	74	>75% Grass cover, Good, HSG C
12,992	97	Weighted Average
763		5.87% Pervious Area
12,229		94.13% Impervious Area
738		6.03% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	17	0.0200	0.99		**Sheet Flow, A-B** Smooth surfaces n= 0.011 P2= 3.40"
5.2	451	0.0050	1.44		**Shallow Concentrated Flow, B-C** Paved Kv= 20.3 fps
5.5	468	Total			

Subcatchment 12S: EX-1 (ORANGE)



Summary for Pond 9P: SGW

Inflow Area = 9,135 sf, 79.41% Impervious, Inflow Depth > 6.76" for 100 event
Inflow = 1.92 cfs @ 11.97 hrs, Volume= 5,143 cf
Outflow = 1.20 cfs @ 12.07 hrs, Volume= 3,342 cf, Atten= 38%, Lag= 5.8 min
Primary = 1.20 cfs @ 12.07 hrs, Volume= 3,342 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 30.81' @ 12.07 hrs Surf.Area= 1,627 sf Storage= 2,552 cf

Plug-Flow detention time= 198.6 min calculated for 3,341 cf (65% of inflow)
Center-of-Mass det. time= 98.5 min (862.5 - 764.1)

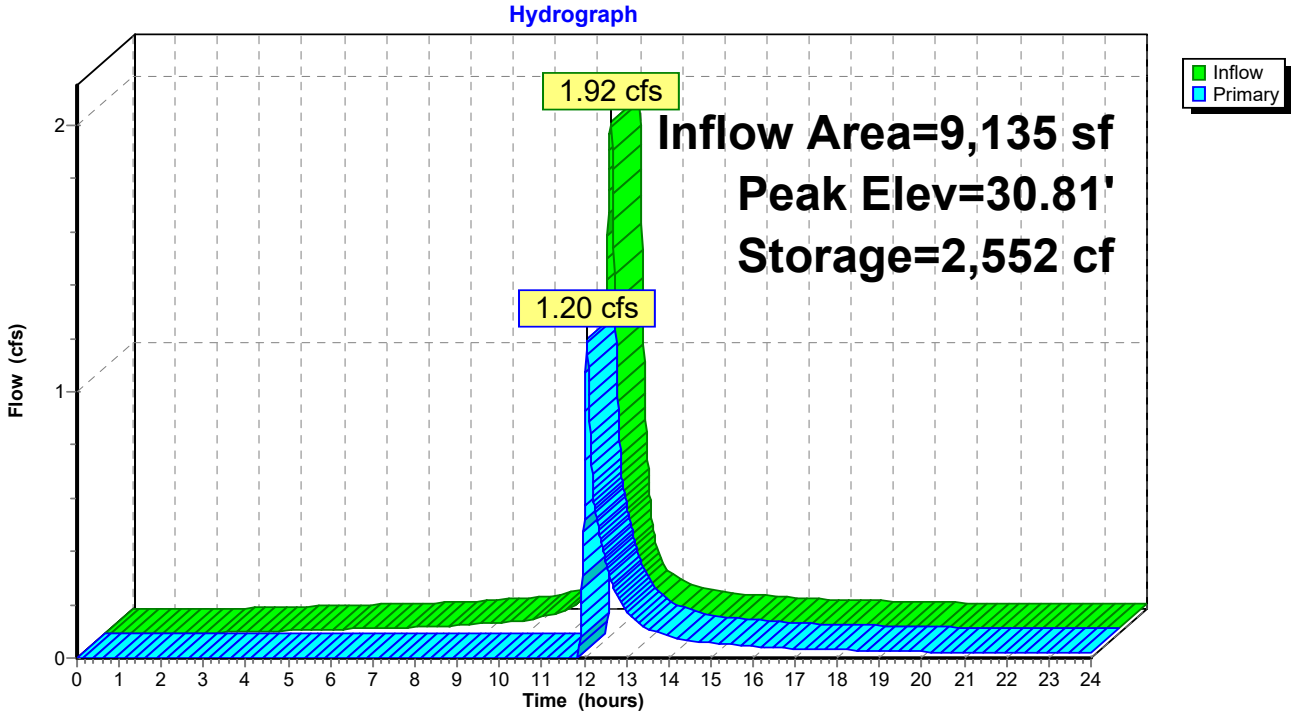
Volume	Invert	Avail.Storage	Storage Description
#1	26.99'	2,869 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
26.99	665	111.0	0.0	0	0	665
27.00	665	111.0	40.0	3	3	666
28.99	665	111.0	40.0	529	532	887
29.00	665	111.0	100.0	7	539	888
31.00	1,751	161.0	100.0	2,330	2,869	2,004

Device	Routing	Invert	Outlet Devices
#1	Primary	28.70'	**8.0" Round Culvert** L= 22.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.70' / 28.60' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf
#2	Device 1	30.25'	**6.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	30.75'	**10.7' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)

Primary OutFlow Max=1.20 cfs @ 12.07 hrs HW=30.81' TW=29.19' (Dynamic Tailwater)
1=Culvert (Passes 1.20 cfs of 1.89 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.65 cfs @ 2.61 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 0.55 cfs @ 0.82 fps)

Pond 9P: SGW


Hydrograph
1.92 cfs
1.20 cfs
Inflow Area=9,135 sf
Peak Elev=30.81'
Storage=2,552 cf
Inflow
Primary
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 Pond 16P: AURORA STREET STORMDRAIN

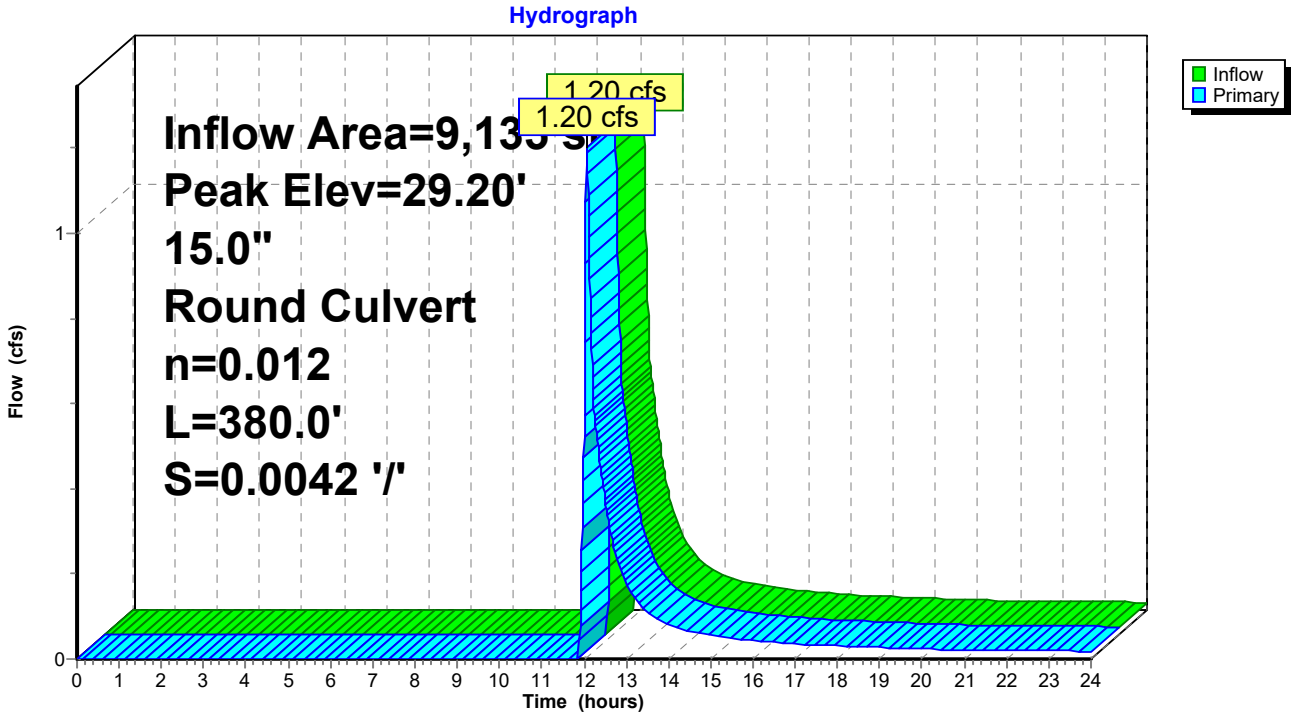
Inflow Area = 9,135 sf, 79.41% Impervious, Inflow Depth > 4.39" for 100 event
Inflow = 1.20 cfs @ 12.07 hrs, Volume= 3,342 cf
Outflow = 1.20 cfs @ 12.07 hrs, Volume= 3,342 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.20 cfs @ 12.07 hrs, Volume= 3,342 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 29.20' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	28.60'	**15.0" Round Culvert** L= 380.0' RCP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 28.60' / 27.00' S= 0.0042 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.20 cfs @ 12.07 hrs HW=29.19' TW=0.00' (Dynamic Tailwater)
1=Culvert (Barrel Controls 1.20 cfs @ 3.05 fps)

Pond 16P: AURORA STREET STORMDRAIN

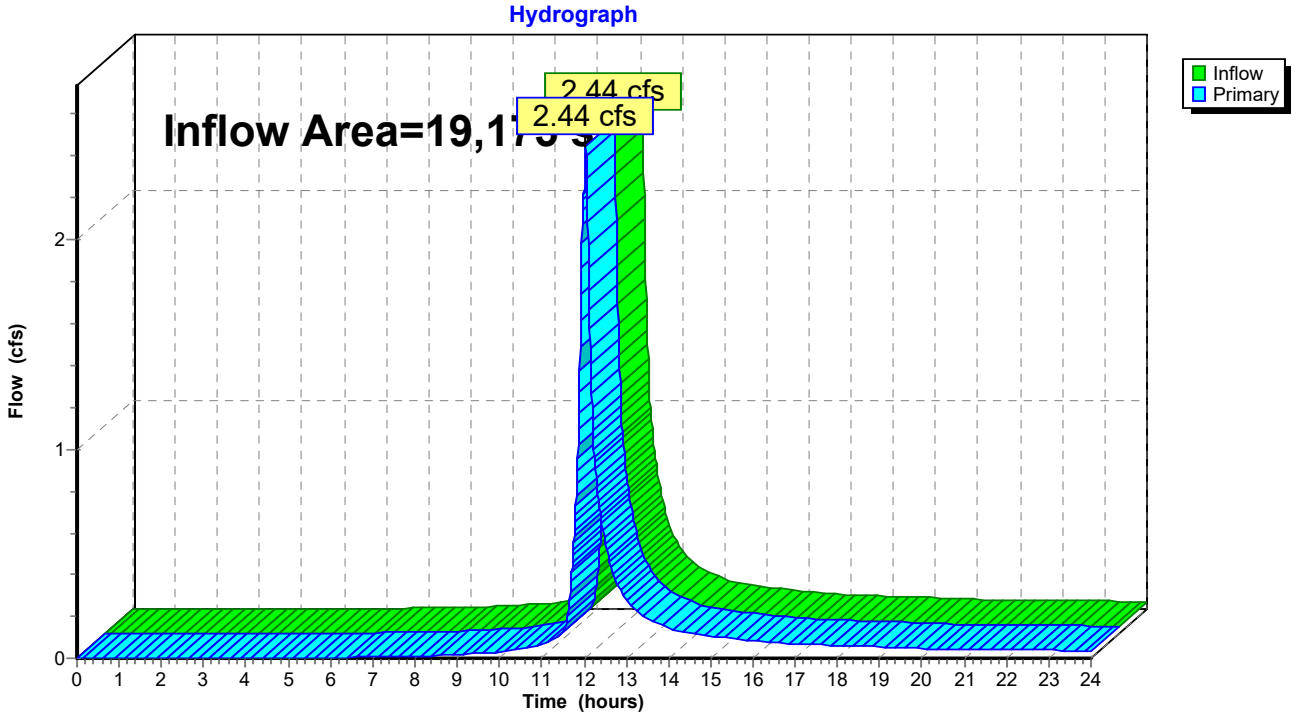


Summary for Link 11L: POST STUDY POINT #2

Inflow Area = 19,175 sf, 51.59% Impervious, Inflow Depth > 4.84" for 100 event
Inflow = 2.44 cfs @ 12.04 hrs, Volume= 7,727 cf
Primary = 2.44 cfs @ 12.04 hrs, Volume= 7,727 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 11L: POST STUDY POINT #2

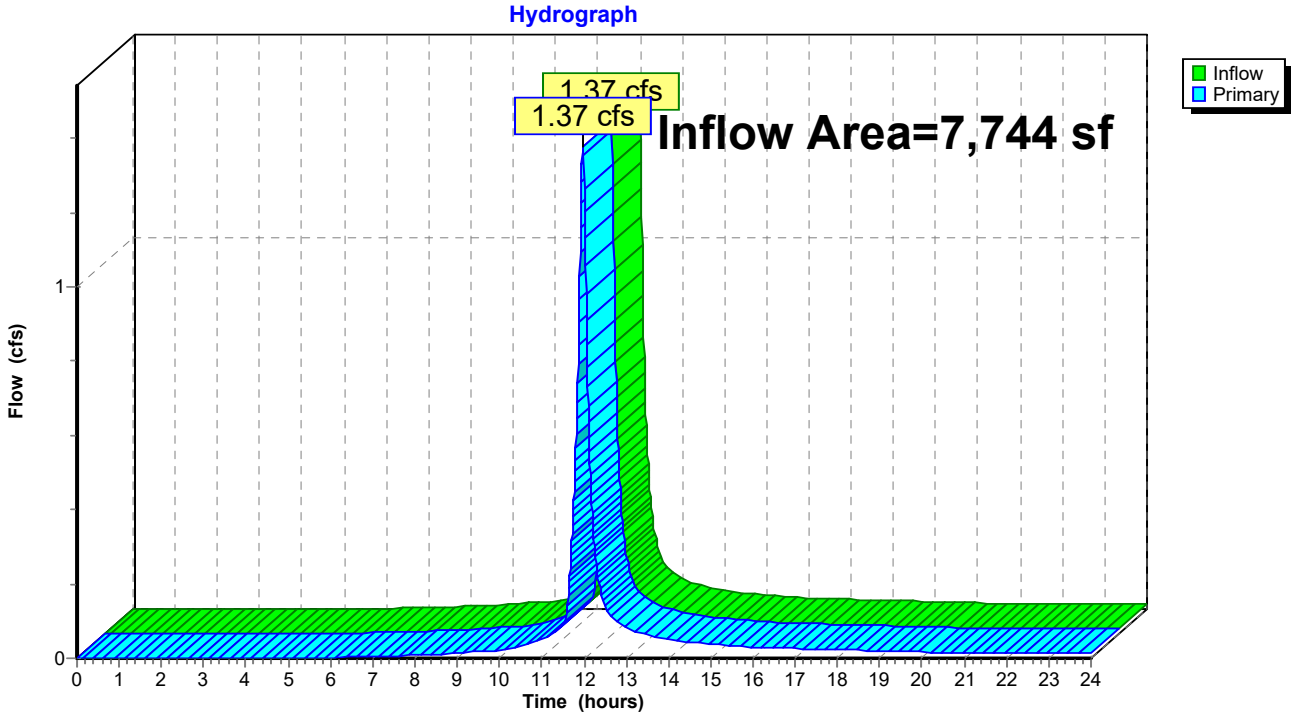


Summary for Link 13L: POST STUDY POINT #1

Inflow Area = 7,744 sf, 27.87% Impervious, Inflow Depth > 5.24" for 100 event
Inflow = 1.37 cfs @ 11.97 hrs, Volume= 3,382 cf
Primary = 1.37 cfs @ 11.97 hrs, Volume= 3,382 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 13L: POST STUDY POINT #1

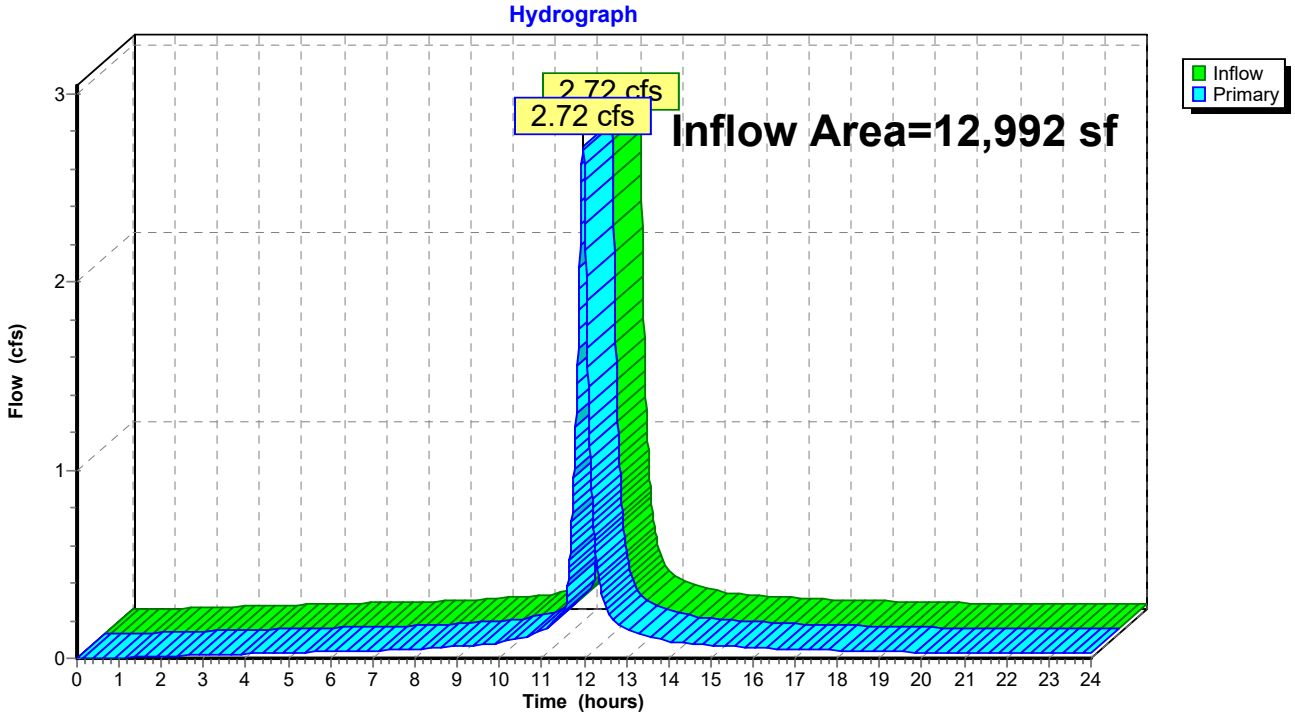


Summary for Link 14L: PRE STUDY POINT #1

Inflow Area = 12,992 sf, 94.13% Impervious, Inflow Depth > 7.23" for 100 event
Inflow = 2.72 cfs @ 11.97 hrs, Volume= 7,827 cf
Primary = 2.72 cfs @ 11.97 hrs, Volume= 7,827 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 14L: PRE STUDY POINT #1

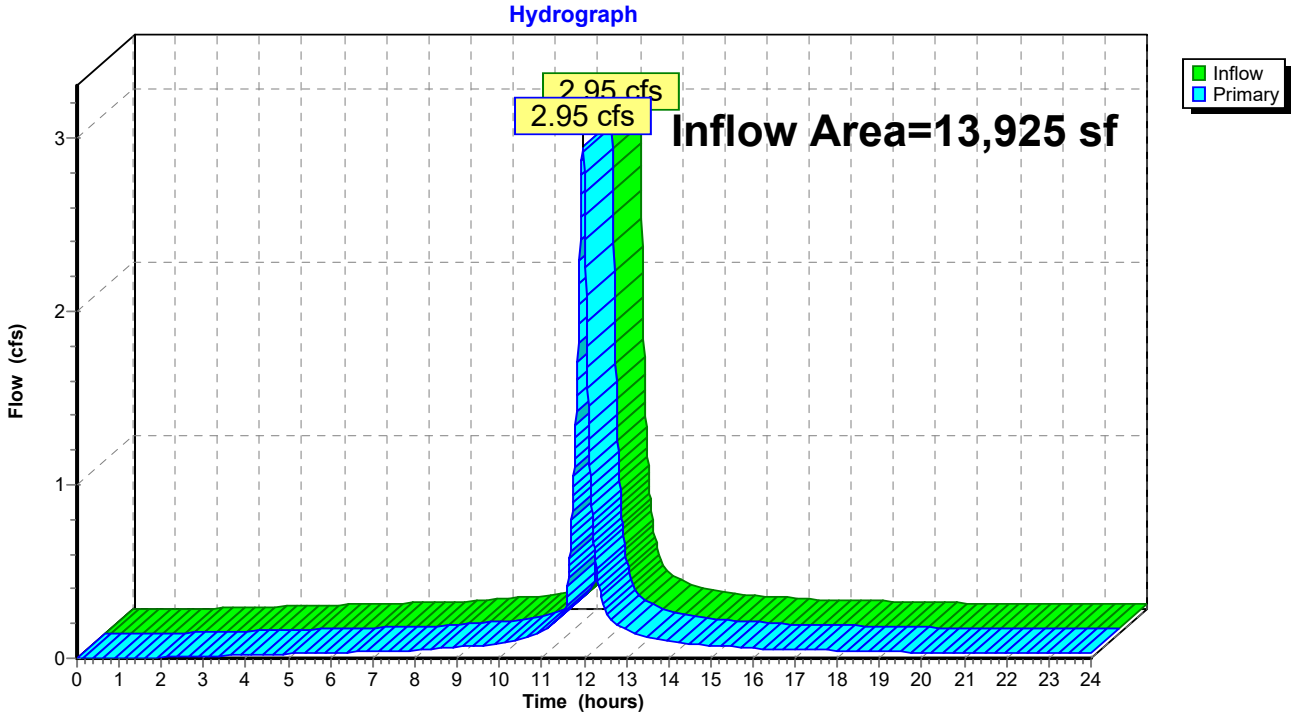


Summary for Link 15L: PRE STUDY POINT #2

Inflow Area = 13,925 sf, 88.42% Impervious, Inflow Depth > 6.99" for 100 event
Inflow = 2.95 cfs @ 11.97 hrs, Volume= 8,114 cf
Primary = 2.95 cfs @ 11.97 hrs, Volume= 8,114 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 15L: PRE STUDY POINT #2



TRAFFIC IMPACT ANALYSIS

FOR

350 NORTH WASHINGTON STREET

Prepared by:

LENHART TRAFFIC CONSULTING, INC.

TRAFFIC ENGINEERING & TRANSPORTATION PLANNING

August 9, 2024

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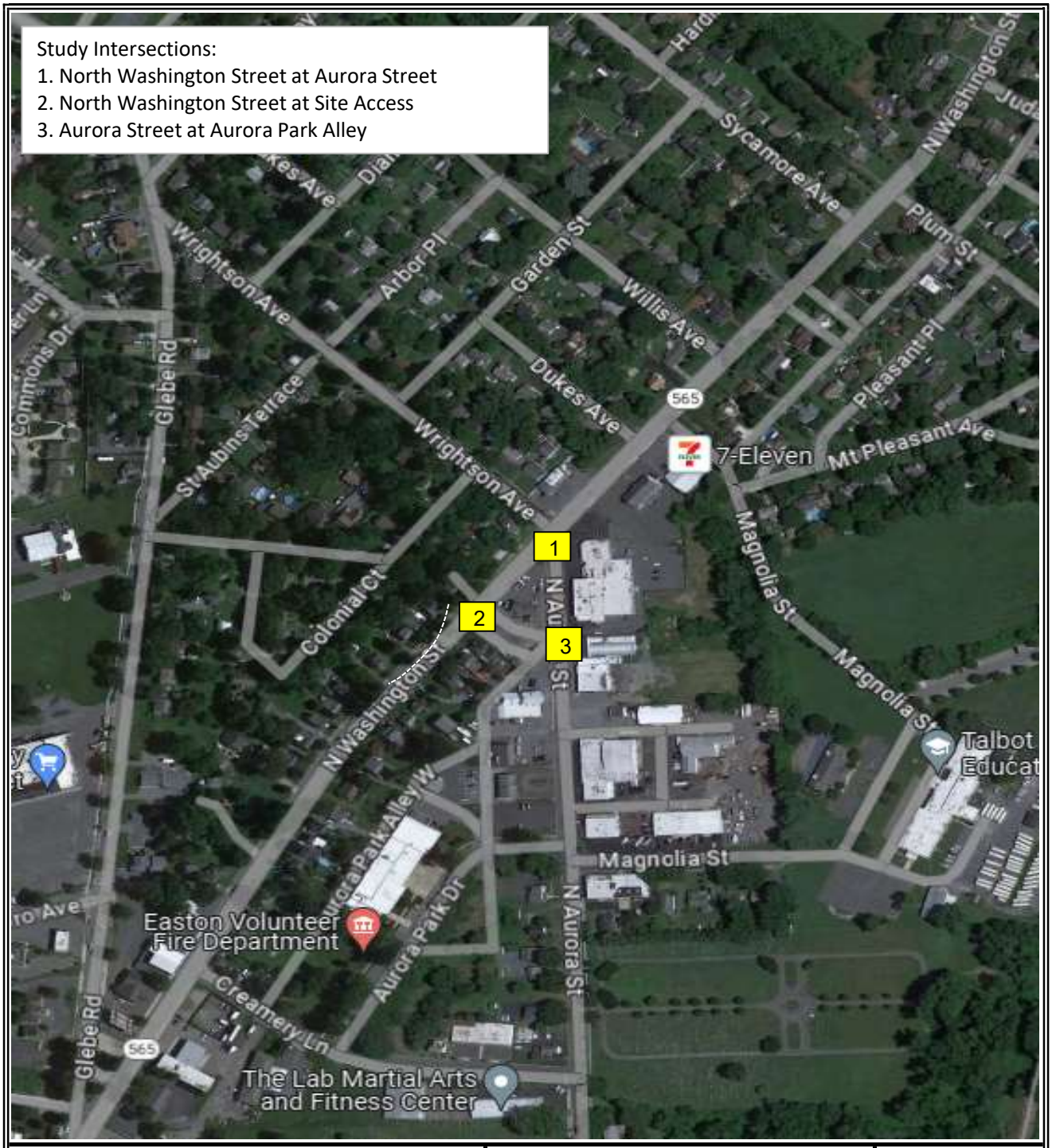
Section 1 Introduction

1.1 Project Description

This Traffic Impact Analysis (TIA) has been prepared for the proposed redevelopment of the property located at 350 North Washington Street, located in Easton, Maryland. The location of the site is shown on **Exhibit 1.** The site is proposed to be redeveloped with 16 multi-family low-rise units. Access to the site will be provided along North Washington Street.

1.2 Scope of Study

This TIA has been prepared in accordance with a scoping agreement coordinated with the Town of Easton and conforms to the MDOT SHA Traffic Impact Study Guidelines. Note that per MDOT SHA's Access Permits Manual, all study intersections were evaluated using the Critical Lane Volume (CLV) methodology and must maintain Level-of-Service (LOS) D or better to be considered adequate. The Highway Capacity Manual (HCM) methodology was also utilized to evaluate the study intersections per Town of Easton Guidelines.



Trip Generation Memo	Site Location Map	**Exhibit 1**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Section 2 Existing Conditions

2.1 Description of Road Network

The key roads in the study area are:

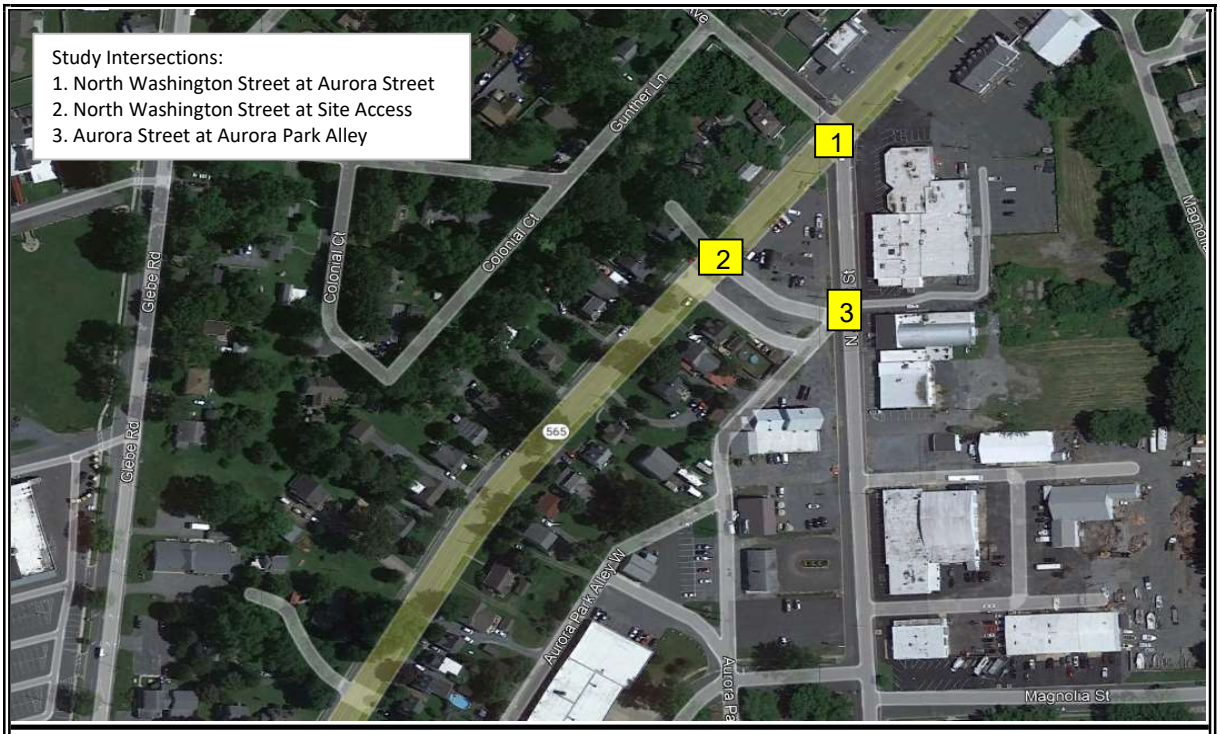
- North Washington Street– a two-lane roadway with a posted speed limit of 25 MPH in the vicinity of the site.
- Aurora Street – a two-lane roadway with a posted speed limit of 25 MPH in the vicinity of the site.
- Wrightson Avenue – a two-lane roadway with a posted speed limit of 25 MPH in the vicinity of the site.
- Aurora Park Alley – an unmarked roadway with no posted speed limit signs.

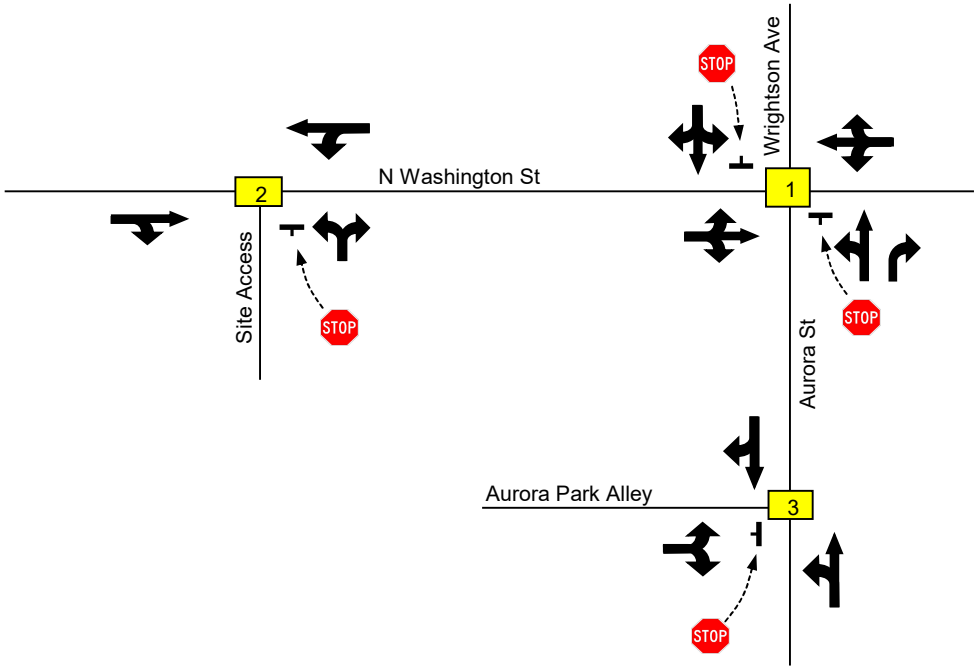
2.2 Existing Lane Configurations

The Lane Use & Traffic Control Devices are shown on **Exhibit 2**.

2.3 Existing Traffic Counts

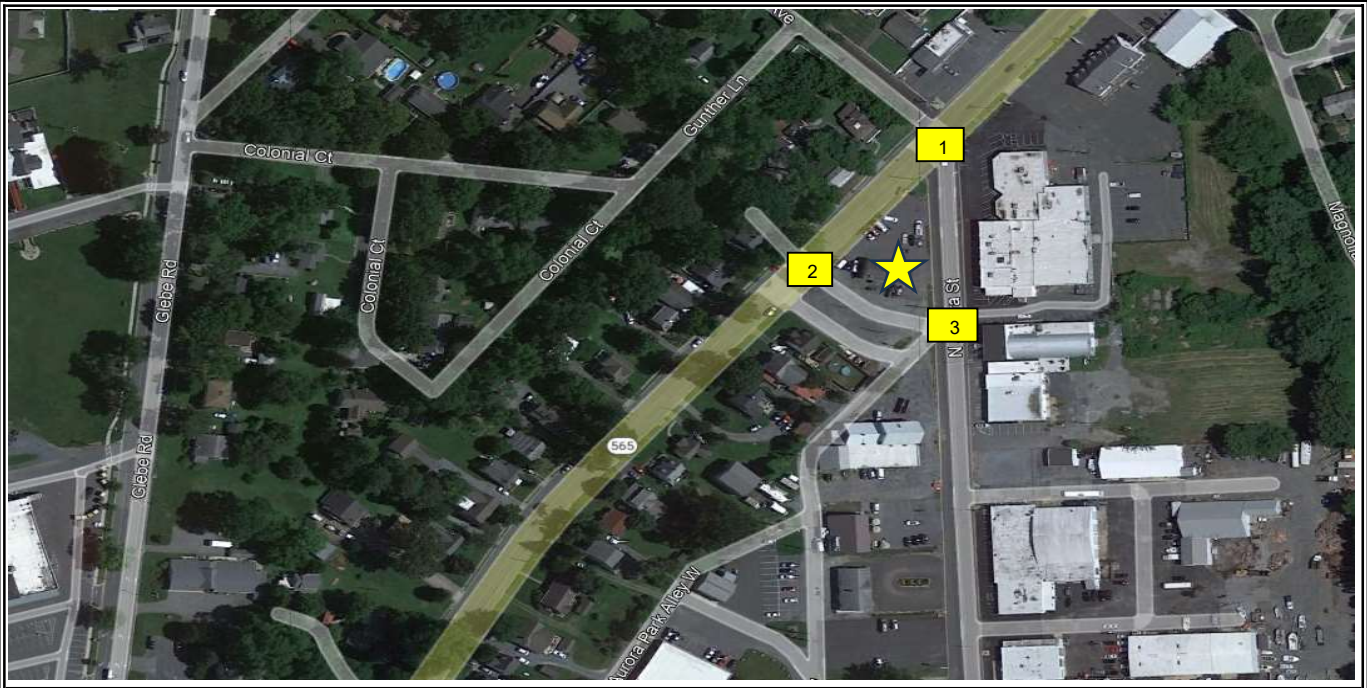
Peak hour turning movement counts were conducted Thursday, May 30, 2024 and Saturday, June 1, 2024. The results of the turning movements counts are shown on **Exhibit 3** and represent existing traffic volumes for the purposes of this study.

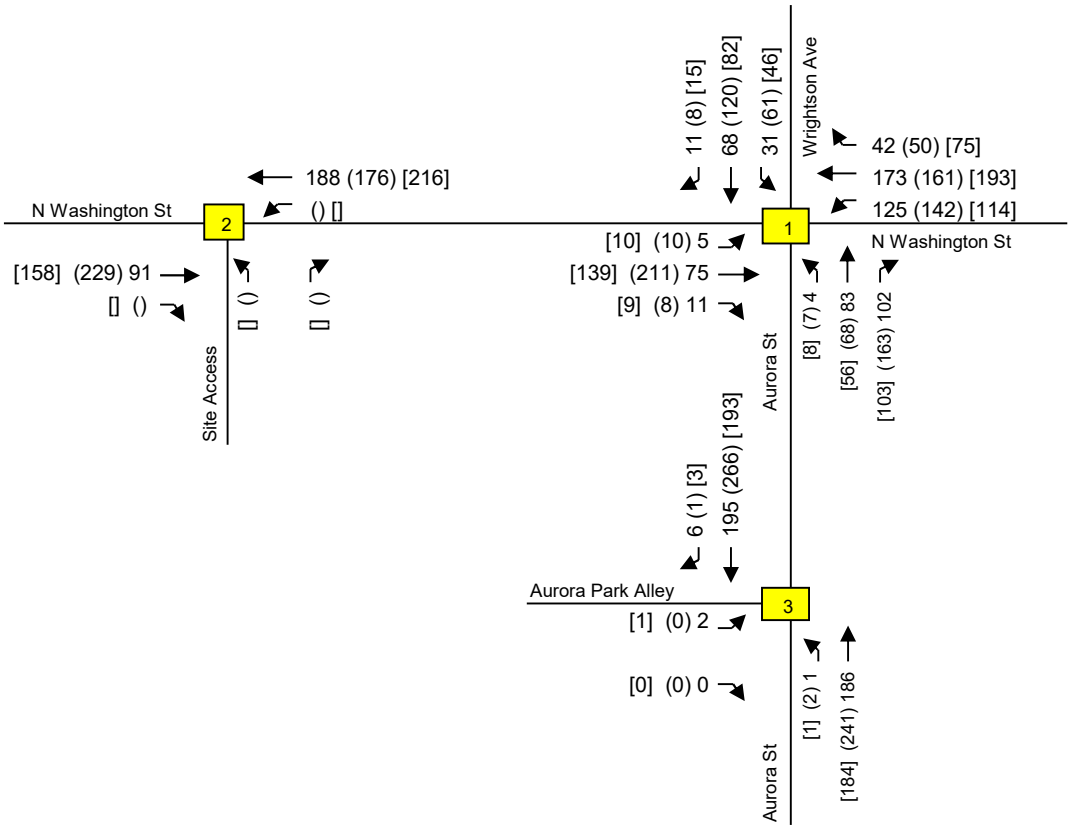




Traffic Impact Analysis	Existing Lane Use & Traffic Control Devices	**Exhibit 2**

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com





Traffic Impact Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Existing Peak Hour Volumes Key: xx = AM Pk (xx) = PM Pk [xx] = Sat Pk	**Exhibit 3**

Section 3 Background Conditions

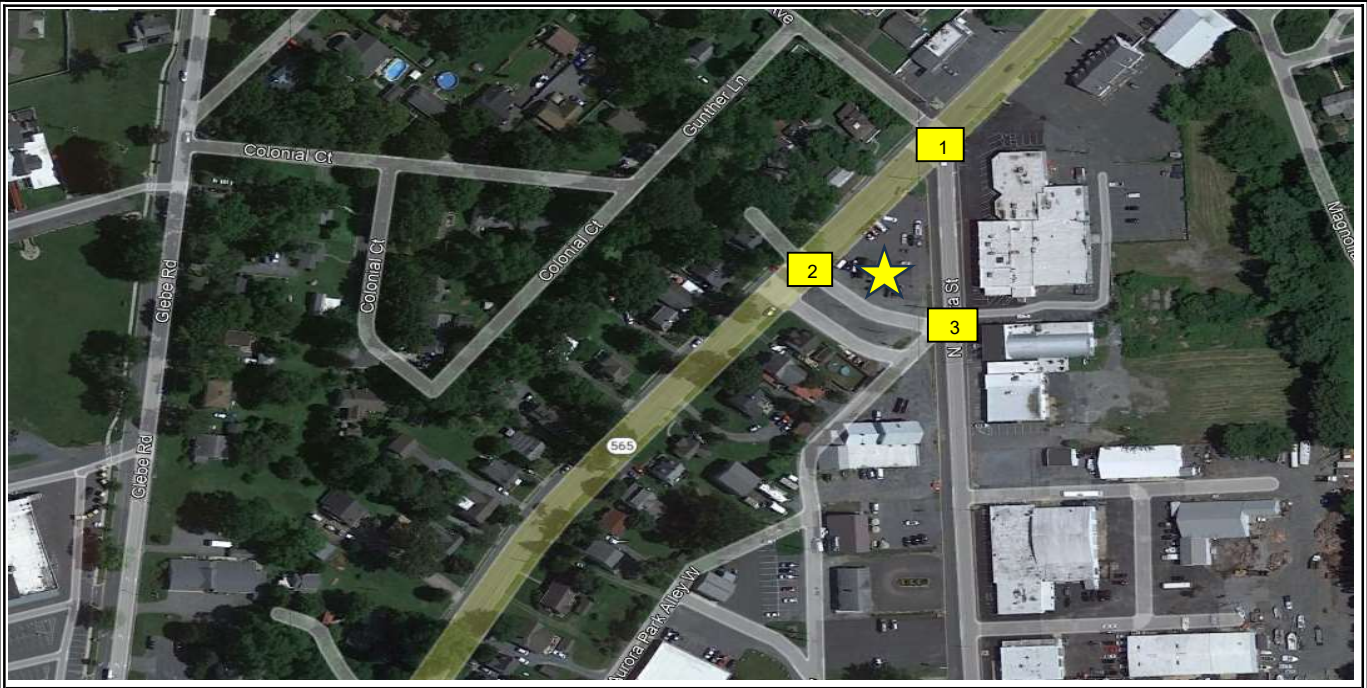
3.1 Annual Growth

The Maryland Department of Transportation State Highway Administration's Average Daily Traffic Volumes (ADT's) have been reviewed for the past ten years and it was determined that average yearly growth in the study area is negative. To provide a conservative analysis, a growth rate of 1.0% has been applied for 5 years to the existing peak hour volumes and the resulting base peak hour volumes are shown on **Exhibit 4.**

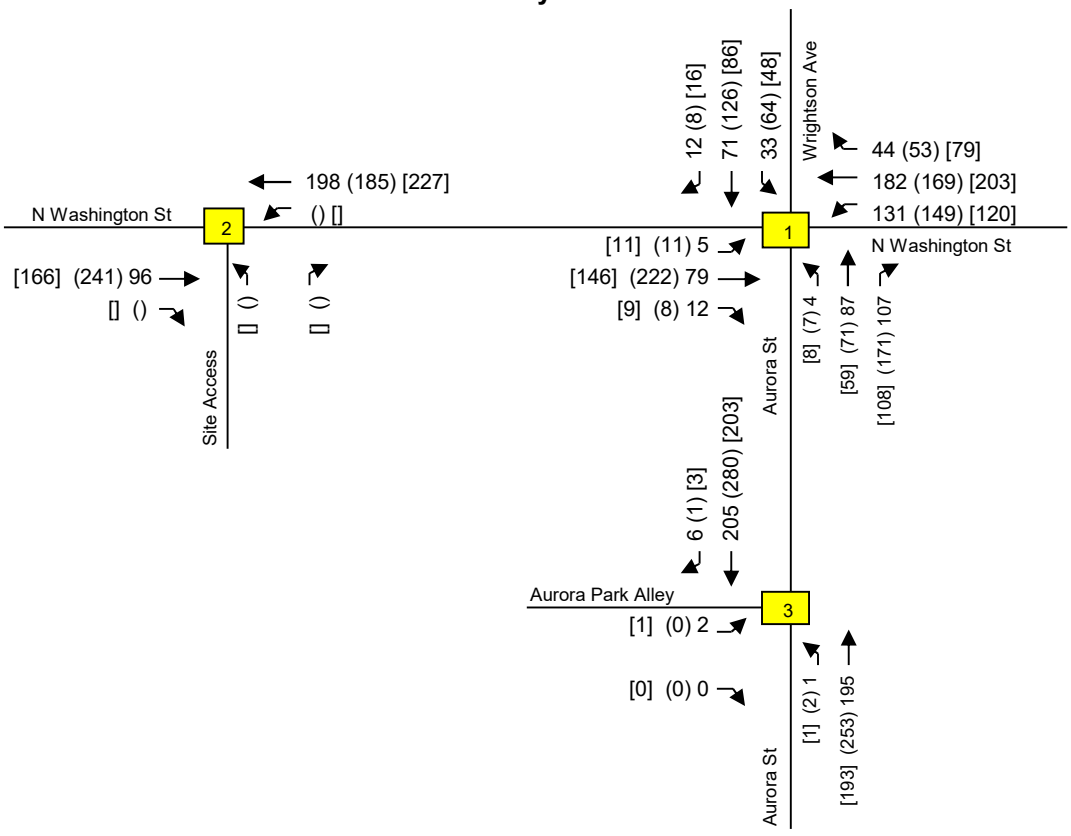
3.2 Approved Background Developments

No background developments were identified in the vicinity of the proposed site. Therefore, the volumes shown on Exhibit 4 represent the background peak hour volumes for the study intersections.

The results of the CLV and HCM analyses for the Background Conditions are shown on Exhibits 8 and 9.



1 % Growth
5 Year Study Period



Traffic Impact Analysis	Background Peak Hour Volumes	**Exhibit 4**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Key: xx = AM Pk (xx) = PM Pk [xx] = Sat Pk	

Section 4 Projected Conditions with Site

4.1 Site Trip Generation

The site is proposed to be redeveloped with 16 multi-family low-rise units. Access to the site will be provided via North Washington Street.

The trip generation for the proposed development is detailed on **Exhibit 5**. Trip generation rates were obtained from the ITE Trip Generation Manual, 11th Edition.

4.2 Site Trip Distribution & Trip Assignment

The trip distribution and assignment for the proposed site is shown on **Exhibit 6.**

4.3 Total Traffic Volumes

The Total Peak Hour Volumes are shown on **Exhibit 7**.

4.4 Projected Level of Service

The total peak hour traffic volumes shown on Exhibit 7 were evaluated using the CLV methodology per MDOT SHA Guidelines. The results of the CLV analysis are shown on **Exhibit 8** and indicate that all intersections operate at LOS A under total conditions. Per The Town of Easton's Guidelines, the study intersections were also evaluated using the HCM methodology. The results of the HCM analysis are shown on **Exhibit 9** and indicate that all study intersections operate at an overall LOS D or better. It should be noted that the southbound approach of Wrightson Avenue at Intersection #1 does operate with some delay during the PM Peak Hour. However, no additional traffic is added to this movement as a result of the proposed site. Additionally, the proposed site has a negligible impact on this movement with an increase in delay of only two seconds between Background and Total Conditions.

Trip Generation Rates

Multifamily Housing, Low-Rise (ITE-220, Units) [Not Close to Rail Transit]

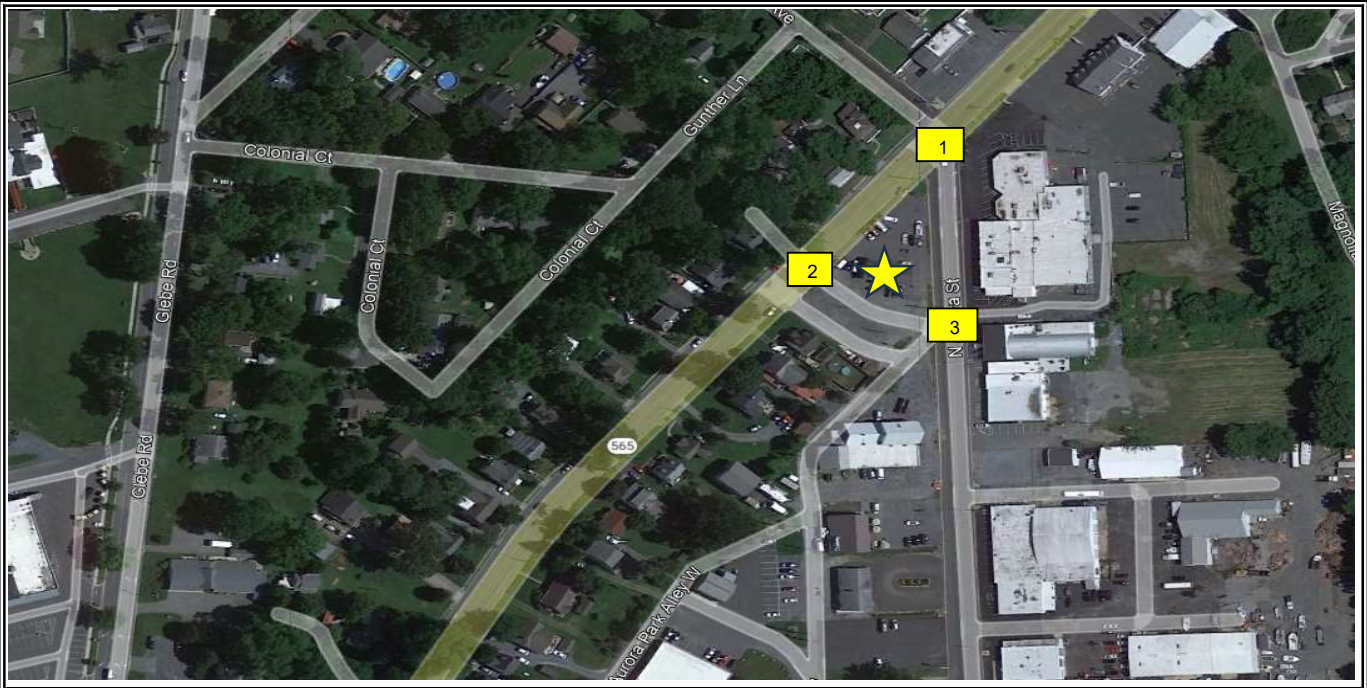
	Trip Distribution (In/Out)
Morning Trips = 0.40 x Units	24/76
Evening Trips = 0.51 x Units	63/37
Midday Sat. Trips = 0.41 x Units	50/50

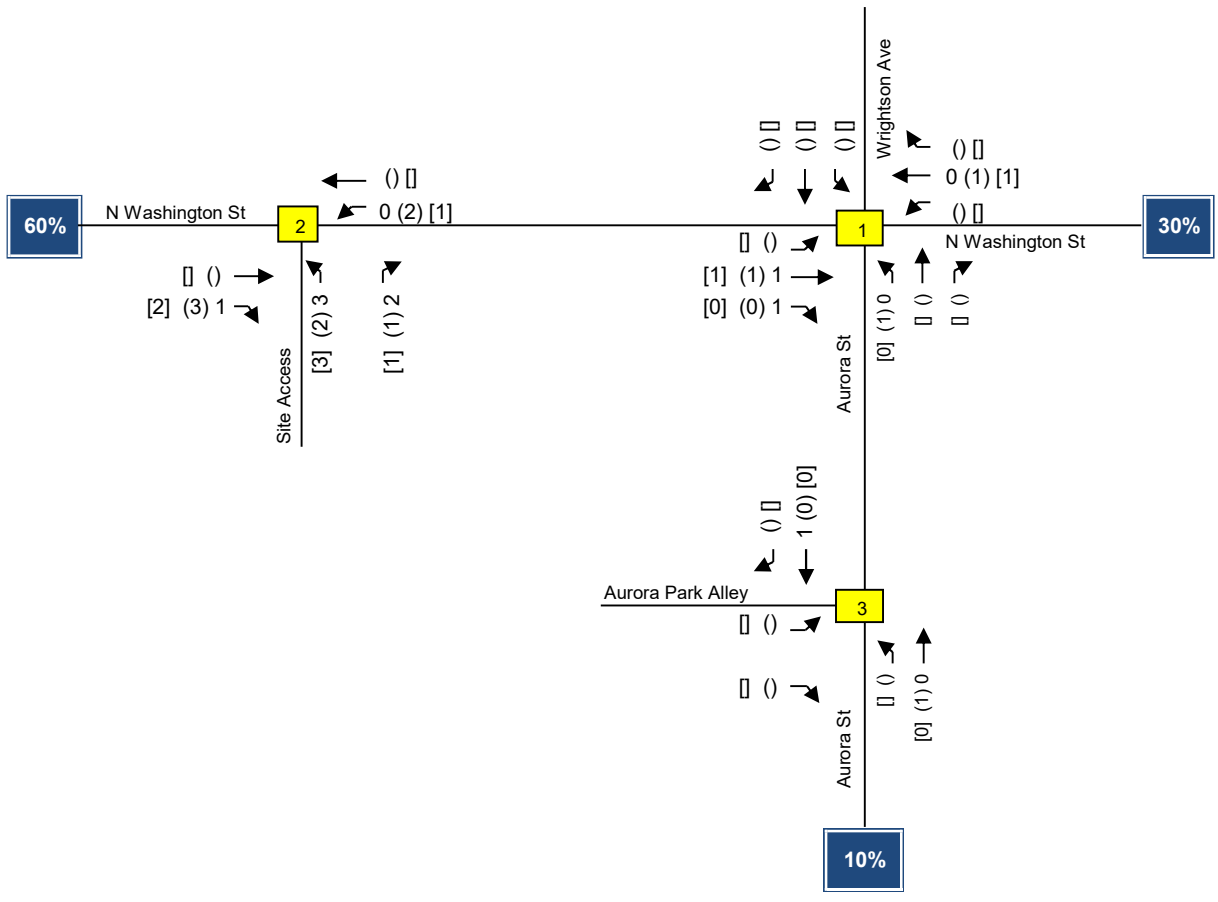
Trip Generation Totals

		AM Peak			PM Peak			Midday Sat.		
		In	Out	Total	In	Out	Total	In	Out	Total
Multifamily Housing, Low-Rise (ITE-220, Units)	16 units	1	5	6	5	3	8	3	4	7

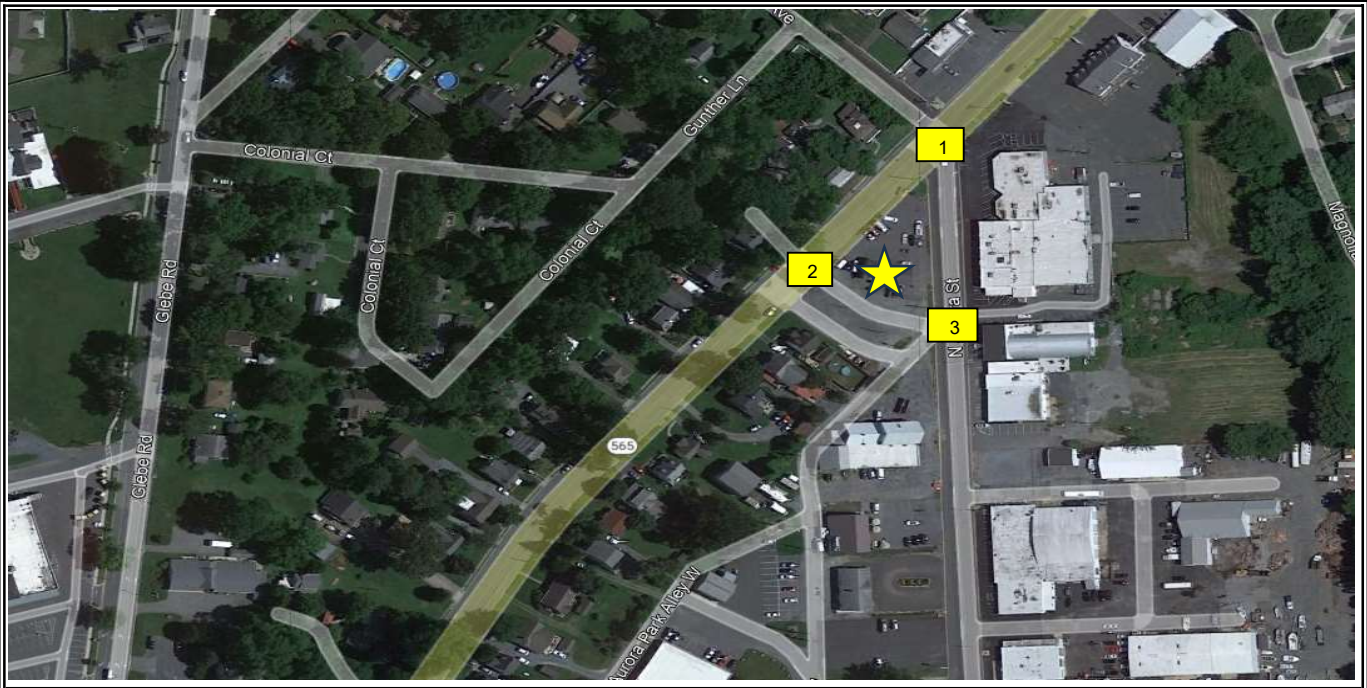
NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition

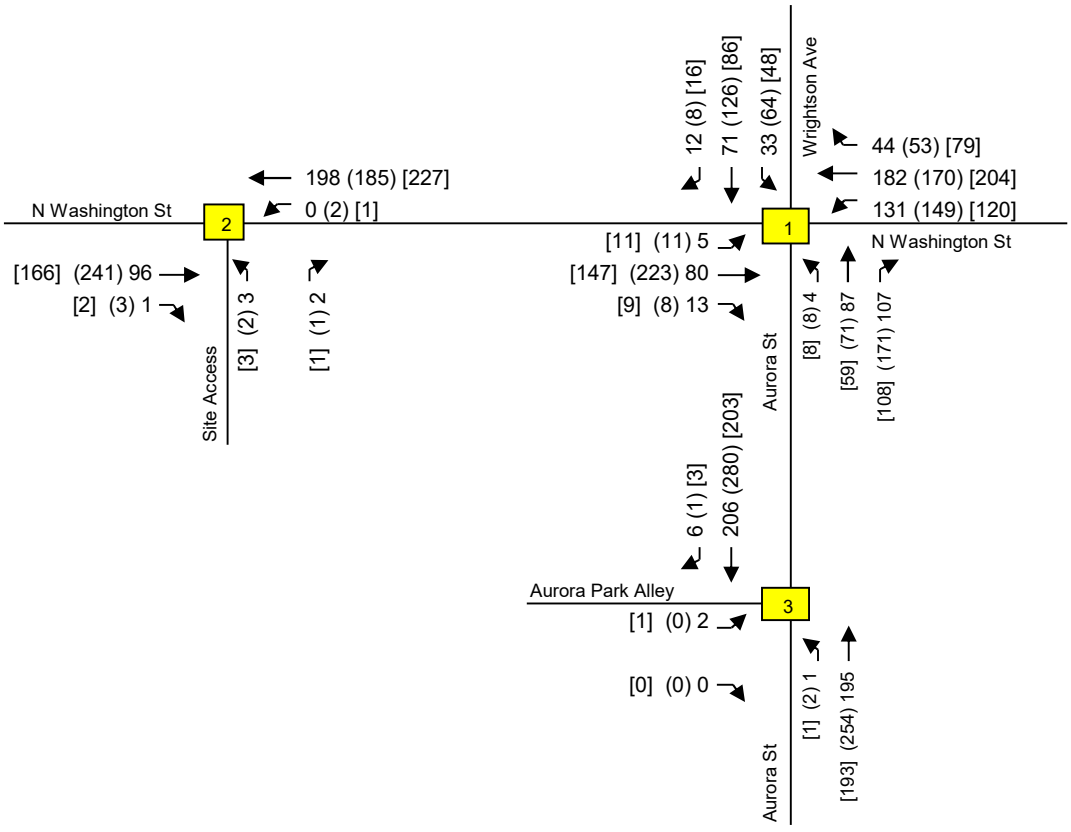
Traffic Impact Analysis	Trip Generation for Site	**Exhibit 5**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		





Traffic Impact Analysis	Site Trip Assignment	**Exhibit 6**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com	Key: xx = AM Pk (xx) = PM Pk [xx] = Sat Pk	





Traffic Impact Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
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Total Peak Hour Volumes

Key: xx = AM Pk (xx) = PM Pk [xx] = Sat Pk

Exhibit 7

Level-of-Service Results

Morning Peak Hour	Existing CLV	Background CLV	Total CLV
1). N Washington St & Aurora St	A / 476	A / 499	A / 499
2). N Washington St & Site Access	--	--	A / 203
3). Aurora St & Aurora Park Alley	A / 204	A / 214	A / 215
Evening Peak Hour	**Existing CLV**	**Background CLV**	**Total CLV**
1). N Washington St & Aurora St	A / 762	A / 800	A / 802
2). N Washington St & Site Access	--	--	A / 249
3). Aurora St & Aurora Park Alley	A / 269	A / 283	A / 283
Sat. Midday Peak Hour	**Existing CLV**	**Background CLV**	**Total CLV**
1). N Washington St & Aurora St	A / 559	A / 588	A / 589
2). N Washington St & Site Access	--	--	A / 232
3). Aurora St & Aurora Park Alley	A / 198	A / 208	A / 208

Level-of-Service Results

Morning Peak Hour	Existing LOS	Background LOS	Total LOS
1). North Washington Street & Aurora Street	A / 8.3 sec.	A / 8.8 sec.	A / 8.8 sec.
Eastbound Left/Thru/Right	0.4 seconds	0.4 seconds	0.4 seconds
Westbound Left/Thru/Right	3.3 seconds	3.3 seconds	3.3 seconds
Northbound Left/Thru	18.0 seconds	19.0 seconds	19.1 seconds
Northbound Right	9.2 seconds	9.2 seconds	9.3 seconds
Southbound Left/Thru/Right	21.7 seconds	23.9 seconds	24.0 seconds
2). North Washington Street & Site Access			A / 0.2 sec.
Eastbound Left/Right	Future	Future	0.0 seconds
Westbound Left/Thru	Intersection	Intersection	0.0 seconds
Northbound Left/Thru			9.8 seconds
3). Aurora Street & Aurora Park Alley	A / 0.1 sec.	A / 0.1 sec.	A / 0.1 sec.
Eastbound Left/Right	11.1 seconds	11.3 seconds	11.3 seconds
Northbound Thru/Left	0.0 seconds	0.0 seconds	0.0 seconds
Southbound Thru/Right	0.0 seconds	0.0 seconds	0.0 seconds

Evening Peak Hour	Existing LOS	Background LOS	Total LOS
1). North Washington Street & Aurora Street	C / 23.9 sec.	D / 34.5 sec.	D / 34.7 sec.
Eastbound Left/Thru/Right	0.4 seconds	0.4 seconds	0.4 seconds
Westbound Left/Thru/Right	3.9 seconds	4.0 seconds	4.0 seconds
Northbound Left/Thru	24.6 seconds	27.4 seconds	27.9 seconds
Northbound Right	10.7 seconds	10.9 seconds	10.9 seconds
Southbound Left/Thru/Right	101.0 seconds	155.9 seconds	157.5 seconds
2). North Washington Street & Site Access			A / 0.1 sec.
Eastbound Left/Right	Future	Future	0.0 seconds
Westbound Left/Thru	Intersection	Intersection	0.1 seconds
Northbound Left/Thru			10.9 seconds
3). Aurora Street & Aurora Park Alley	A / 0.0 sec.	A / 0.0 sec.	A / 0.0 sec.
Eastbound Left/Right	0 seconds	0.0 seconds	0.0 seconds
Northbound Thru/Left	0.1 seconds	0.1 seconds	0.1 seconds
Southbound Thru/Right	0.0 seconds	0.0 seconds	0.0 seconds

Sat. Midday Peak Hour	Existing LOS	Background LOS	Total LOS
1). North Washington Street & Aurora Street	A / 9.2 sec.	B / 10.2 sec.	B / 10.2 sec.
Eastbound Left/Thru/Right	0.6 seconds	0.6 seconds	0.6 seconds
Westbound Left/Thru/Right	2.9 seconds	2.9 seconds	2.9 seconds
Northbound Left/Thru	20.1 seconds	21.5 seconds	21.6 seconds
Northbound Right	9.6 seconds	9.7 seconds	9.7 seconds
Southbound Left/Thru/Right	30.4 seconds	35.8 seconds	36.0 seconds
2). North Washington Street & Site Access			A / 0.1 sec.
Eastbound Left/Right	Future	Future	0.0 seconds
Westbound Left/Thru	Intersection	Intersection	0.0 seconds
Northbound Left/Thru			10.7 seconds
3). Aurora Street & Aurora Park Alley	A / 0.0 sec.	A / 0.0 sec.	A / 0.0 sec.
Eastbound Left/Right	11.1 seconds	11.2 seconds	11.2 seconds
Northbound Thru/Left	0.0 seconds	0.0 seconds	0.0 seconds
Southbound Thru/Right	0.0 seconds	0.0 seconds	0.0 seconds

Section 5 Conclusions / Recommendations

5.1 Results of Analyses

This Traffic Impact Analysis (TIA) has been prepared for the proposed redevelopment of the property located at 350 North Washington Street, located in Easton, Maryland. The site is proposed to be redeveloped with 16 multi-family low-rise units. Access to the site will be provided along North Washington Street.

Based on the analyses contained in this report:

- Using the CLV methodology as required by MDOT SHA Guidelines, all study intersections operate at LOS A under Existing, Background, and Total Conditions. Per MDOT SHA's Access Permits Manual, all study intersections must operate at LOS D or better to be considered adequate. Given each of the study intersections operate at LOS A, all study intersections are considered to operate adequately.
- Using the HCM methodology as required per The Town of Easton's Guidelines, all study intersections operate with an overall LOS D or better under Existing, Background, and Total Conditions. Additionally, the Level-of-Service at all intersections and individual movements at intersections remains unchanged between Background and Total Conditions. Therefore, it can be concluded that the site has a negligible impact and Level-of-Service does not degrade as a result of the proposed site.

In light of the findings contained in this report, it is recommended that the proposed development is approved.

Appendix A

Supplemental Information
Turning Movement Counts

From:	mlenhart
To:	"Rick Van Emburgh"; Richard Baker (SHA); Henry Dierker
Cc:	Nick Driban; Ryan Wingate; Zach Wingate; Brett Ewing
Subject:	Scoping Request for TIS - 350 North Washington Street, Easton
Date:	Tuesday, May 28, 2024 5:55:40 PM
Attachments:	2024-04-30-EXHIBIT-210051.pdf image001.png Traffic Impact Study Scoping Exhibits.pdf

Hi Rick,

I am writing to confirm the scope of the study including the study intersections. I've also cc'd Rich Baker with SHA for his feedback and concurrence.

1. The site plan is attached. The site is 18 multifamily dwelling units with access to North Washington Street (MD 565) and N. Aurora Street.
2. I've attached a trip generation analysis. The site only generates 7 AM, and 10 PM peak hour trips. The SHA does not require a traffic study for sites that generate fewer than 50 peak hour trips, therefore a Traffic Impact Study should not be required for SHA purposes.
3. This should be a simple study, but please confirm the study intersections as we are collecting counts before school gets out.

Thanks,
Mike

Mike Lenhart, P.E., PTOE
President

Office: (410) 216-3333 (Ext. 1)
Mobile: (410) 980-2367

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BOULEVARD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

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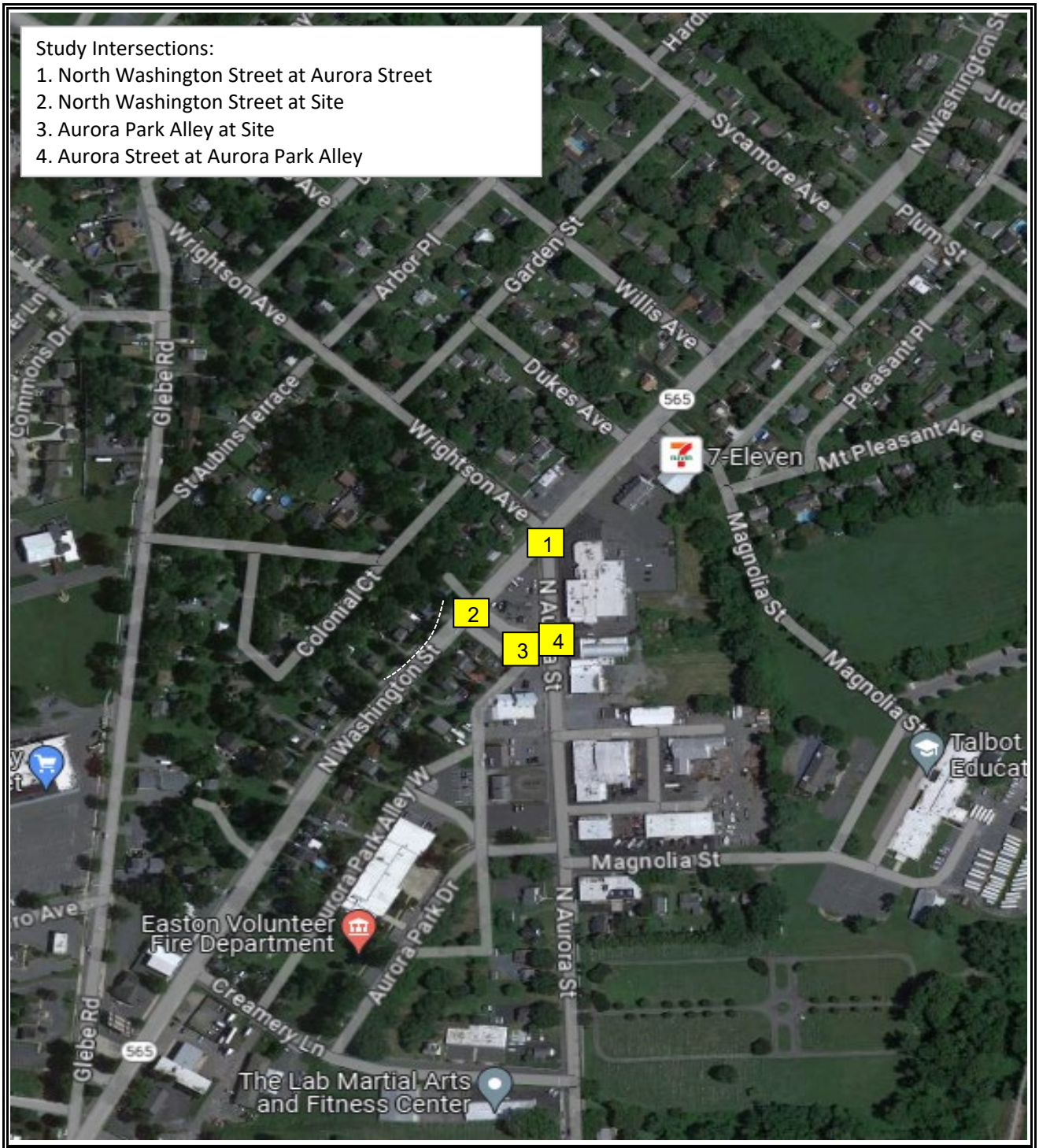
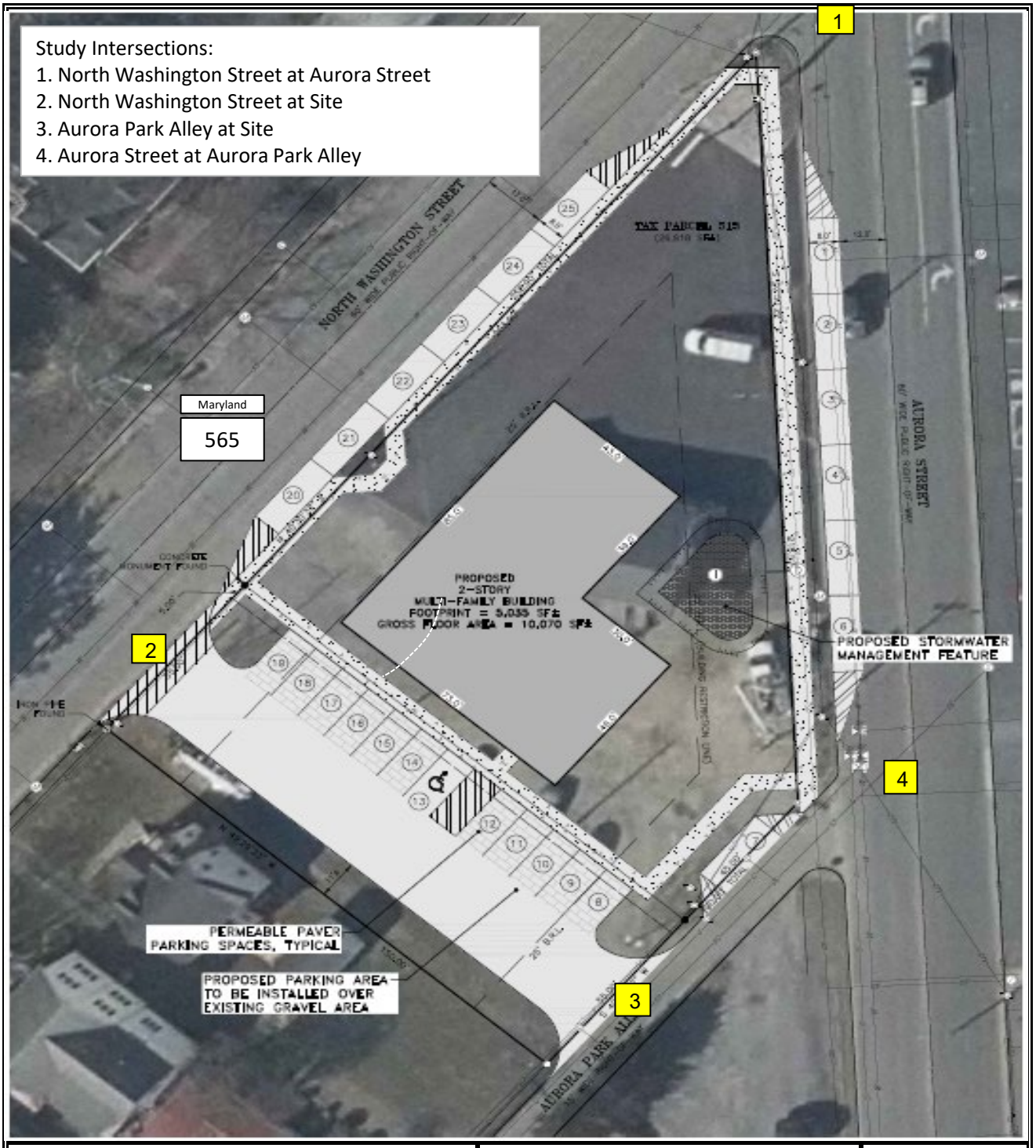


Trip Generation Memo	Site Location Map	**Exhibit 1a**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		



Trip Generation Memo	Site Plan	**Exhibit 1b**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Trip Generation Rates

Multifamily Housing, Low-Rise (ITE-220, Units) [Not Close to Rail Transit]

Trip Distribution (In/Out)

Morning Trips = 0.40 x Units	24/76
Evening Trips = 0.51 x Units	63/37

Trip Generation Totals

			AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
LU Code 210	Multifamily Housing, Low-Rise (ITE-220, Units)	18 units	2	5	7	6	3	9

NOTE: Trip Generation Rates obtained from the ITE Trip Generation Manual, 11th Edition

Traffic Impact Analysis	Trip Generation for Site	**Exhibit 2**
LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	Aurora St Northbound					Wrightson Ave Southbound					N Washington St Eastbound					N Washington St Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	0	19	19	0	0	1	6	1	0	0	1	17	1	0	0	18	25	10	0	118
6:45-7:00	0	0	21	19	0	0	5	12	2	0	0	0	11	1	0	0	22	31	8	0	132
7:00-7:15	0	0	8	17	0	0	2	13	2	0	0	2	14	1	0	0	20	18	10	1	107
7:15-7:30	0	1	10	17	0	0	2	13	0	0	0	1	16	1	0	0	18	31	8	0	118
7:30-7:45	0	0	16	28	0	0	3	15	2	0	0	2	15	3	0	0	34	38	13	0	169
7:45-8:00	0	1	34	29	0	0	8	12	0	1	0	0	20	4	0	0	38	55	7	0	208
8:00-8:15	0	1	18	25	0	0	12	22	6	0	0	2	20	1	0	0	28	40	12	0	187
8:15-8:30	0	2	15	20	0	0	8	19	3	0	0	1	20	3	0	0	25	40	10	0	166
8:30-8:45	0	1	18	17	0	0	10	15	0	2	0	2	14	2	0	0	23	36	8	0	146
8:45-9:00	0	3	16	23	0	0	10	17	2	0	0	2	24	2	0	0	26	47	9	0	181
9:00-9:15	0	2	24	19	0	0	10	17	2	0	0	0	19	2	0	0	23	32	10	0	160
9:15-9:30	0	0	20	19	0	0	8	23	2	0	0	2	28	0	0	0	28	35	4	0	169
Hourly Totals																					
6:30-7:30	0	1	58	72	0	0	10	44	5	0	0	4	58	4	0	0	78	105	36	1	476
6:45-7:45	0	1	55	81	0	0	12	53	6	0	0	5	56	6	0	0	94	118	39	1	527
7:00-8:00	0	2	68	91	0	0	15	53	4	1	0	5	65	9	0	0	110	142	38	1	604
7:15-8:15	0	3	78	99	0	0	25	62	8	1	0	5	71	9	0	0	118	164	40	0	683
7:30-8:30	0	4	83	102	0	0	31	68	11	1	0	5	75	11	0	0	125	173	42	0	731
7:45-8:45	0	5	85	91	0	0	38	68	9	3	0	5	74	10	0	0	114	171	37	0	710
8:00-9:00	0	7	67	85	0	0	40	73	11	2	0	7	78	8	0	0	102	163	39	0	682
8:15-9:15	0	8	73	79	0	0	38	68	7	2	0	5	77	9	0	0	97	155	37	0	655
8:30-9:30	0	6	78	78	0	0	38	72	6	2	0	6	85	6	0	0	100	150	31	0	658

AM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
7:30-8:30	**0**	**4**	**83**	**102**	**0**	**0**	**31**	**68**	**11**	**1**	**0**	**5**	**75**	**11**	**0**	**0**	**125**	**173**	**42**	**0**	**731**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Aurora St Northbound					Wrightson Ave Southbound					N Washington St Eastbound					N Washington St Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	4	13	34	1	0	11	26	4	0	0	3	67	3	0	0	32	39	13	0	249
4:15-4:30	0	1	17	47	0	0	15	28	1	0	0	1	54	4	0	0	30	38	9	0	245
4:30-4:45	0	3	25	44	0	0	12	27	1	0	0	5	63	2	0	0	40	30	16	0	268
4:45-5:00	0	1	17	30	1	0	20	29	3	0	0	2	50	1	0	0	37	44	14	0	248
5:00-5:15	0	2	9	42	0	0	14	36	3	3	0	2	44	1	0	0	35	49	11	0	248
5:15-5:30	0	0	15	26	0	1	18	30	1	2	0	0	52	1	0	0	40	35	12	5	231
5:30-5:45	0	2	18	22	0	1	10	10	2	0	0	0	42	3	0	0	36	40	19	0	205
5:45-6:00	0	2	8	35	1	0	12	17	1	0	0	1	26	2	0	0	28	28	11	0	171
6:00-6:15	0	0	5	26	0	0	14	17	1	0	0	5	34	3	0	0	27	27	8	0	167
6:15-6:30	0	2	7	12	0	0	12	16	1	1	0	2	30	0	0	0	20	17	17	0	136
6:30-6:45	0	2	9	21	0	0	17	17	0	0	0	1	22	2	0	0	19	25	10	0	145
6:45-7:00	0	2	17	18	1	0	9	9	0	2	0	1	23	3	0	0	19	31	10	0	142
Hourly Totals																					
4:00-5:00	0	9	72	155	2	0	58	110	9	0	0	11	234	10	0	0	139	151	52	0	1012
4:15-5:15	0	7	68	163	1	0	61	120	8	3	0	10	211	8	0	0	142	161	50	0	1013
4:30-5:30	0	6	66	142	1	1	64	122	8	5	0	9	209	5	0	0	152	158	53	5	1006
4:45-5:45	0	5	59	120	1	2	62	105	9	5	0	4	188	6	0	0	148	168	56	5	943
5:00-6:00	0	6	50	125	1	2	54	93	7	5	0	3	164	7	0	0	139	152	53	5	866
5:15-6:15	0	4	46	109	1	2	54	74	5	2	0	6	154	9	0	0	131	130	50	5	782
5:30-6:30	0	6	38	95	1	1	48	60	5	1	0	8	132	8	0	0	111	112	55	0	681
5:45-6:45	0	6	29	94	1	0	55	67	3	1	0	9	112	7	0	0	94	97	46	0	621
6:00-7:00	0	6	38	77	1	0	52	59	2	3	0	9	109	8	0	0	85	100	45	0	594

PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
4:15-5:15	**0**	**7**	**68**	**163**	**1**	**0**	**61**	**120**	**8**	**3**	**0**	**10**	**211**	**8**	**0**	**0**	**142**	**161**	**50**	**0**	**1013**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: N Washington St & Aurora St
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Thursday, May 30, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 3:00 pm)

	Aurora St Northbound					Wrightson Ave Southbound					N Washington St Eastbound					N Washington St Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
10:00-10:15	0	0	21	22	0	0	15	14	2	0	0	3	19	2	0	0	31	40	10	2	179
10:15-10:30	0	5	13	27	0	0	17	19	3	0	0	2	30	1	0	0	25	40	14	0	196
10:30-10:45	0	5	12	20	0	0	12	15	1	1	0	5	33	2	2	0	32	35	19	0	191
10:45-11:00	0	2	11	21	1	0	8	23	1	0	0	5	35	4	1	0	24	48	16	0	198
11:00-11:15	0	1	24	24	1	0	8	17	0	0	0	2	25	4	1	0	31	51	17	0	204
11:15-11:30	0	1	16	25	1	0	12	24	1	0	0	4	42	4	0	0	30	38	16	0	213
11:30-11:45	0	1	19	30	1	0	7	17	3	1	0	2	23	3	0	0	20	33	10	0	168
11:45-12:00	0	3	14	30	0	0	13	19	3	0	0	5	38	3	0	0	21	33	10	1	192
12:00-12:15	0	2	11	22	0	0	9	20	3	1	0	2	32	0	0	0	36	65	35	1	237
12:15-12:30	0	2	15	29	0	0	9	16	3	0	0	1	33	4	0	0	34	53	14	0	213
12:30-12:45	0	1	16	22	0	0	15	27	6	4	0	2	36	2	0	0	23	42	16	0	208
12:45-1:00	0	2	15	22	0	0	10	17	3	0	0	3	30	1	0	0	27	29	12	0	171
1:00-1:15	0	2	15	33	0	0	14	23	1	0	0	3	31	3	1	0	18	30	11	0	184
1:15-1:30	0	1	15	33	0	0	9	24	3	0	0	3	26	1	0	0	22	39	13	0	189
1:30-1:45	0	2	18	27	0	0	16	15	2	0	0	2	18	3	0	0	21	26	10	0	160
1:45-2:00	0	0	10	27	0	0	16	22	2	0	0	1	44	2	0	0	21	26	12	0	183
2:00-2:15	0	3	14	19	0	0	9	11	1	0	0	2	18	1	0	0	20	32	14	0	144
2:15-2:30	0	1	5	26	0	0	10	13	2	1	0	1	32	2	0	0	22	28	7	0	149
2:30-2:45	0	2	17	20	0	0	10	14	5	0	0	2	36	1	0	0	20	39	15	0	181
2:45-3:00	0	0	18	22	0	0	15	17	0	1	0	1	24	1	0	0	27	33	11	0	169

Hourly Totals																					
10:00-11:00	0	12	57	90	1	0	52	71	7	1	0	15	117	9	3	0	112	163	59	2	771
10:15-11:15	0	13	60	92	2	0	45	74	5	1	0	14	123	11	4	0	112	174	66	0	796
10:30-11:30	0	9	63	90	3	0	40	79	3	1	0	16	135	14	4	0	117	172	68	0	814
10:45-11:45	0	5	70	100	4	0	35	81	5	1	0	13	125	15	2	0	105	170	59	0	790
11:00-12:00	0	6	73	109	3	0	40	77	7	1	0	13	128	14	1	0	102	155	53	1	783
11:15-12:15	0	7	60	107	2	0	41	80	10	2	0	13	135	10	0	0	107	169	71	2	816
11:30-12:30	0	8	59	111	1	0	38	72	12	2	0	10	126	10	0	0	111	184	69	2	815
11:45-12:45	0	8	56	103	0	0	46	82	15	5	0	10	139	9	0	0	114	193	75	2	857
12:00-1:00	0	7	57	95	0	0	43	80	15	5	0	8	131	7	0	0	120	189	77	1	835
12:15-1:15	0	7	61	106	0	0	48	83	13	4	0	9	130	10	1	0	102	154	53	0	781
12:30-1:30	0	6	61	110	0	0	48	91	13	4	0	11	123	7	1	0	90	140	52	0	757
12:45-1:45	0	7	63	115	0	0	49	79	9	0	0	11	105	8	1	0	88	124	46	0	705
1:00-2:00	0	5	58	120	0	0	55	84	8	0	0	9	119	9	1	0	82	121	46	0	717
1:15-2:15	0	6	57	106	0	0	50	72	8	0	0	8	106	7	0	0	84	123	49	0	676
1:30-2:30	0	6	47	99	0	0	51	61	7	1	0	6	112	8	0	0	84	112	43	0	637
1:45-2:45	0	6	46	92	0	0	45	60	10	1	0	6	130	6	0	0	83	125	48	0	658
2:00-3:00	0	6	54	87	0	0	44	55	8	2	0	6	110	5	0	0	89	132	47	0	645

PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
11:45-12:45	**0**	**8**	**56**	**103**	**0**	**0**	**46**	**82**	**15**	**5**	**0**	**10**	**139**	**9**	**0**	**0**	**114**	**193**	**75**	**2**	**857**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: N Washington St & Aurora St
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, June 1, 2024
County: Talbot County

Weekday Morning Peak Hour (6:30 am - 9:30 am)

	Aurora St Northbound					Aurora St Southbound					Aurora Park Alley Eastbound					N/A Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
6:30-6:45	0	0	42		0	0		25	0	0	0	0		0	0						67
6:45-7:00	0	0	38		0	0		34	1	0	0	0		0	1						73
7:00-7:15	0	0	29		0	0		34	1	0	0	0		0	1						64
7:15-7:30	0	1	30		0	0		33	0	0	0	0		0	1						64
7:30-7:45	0	0	43		0	0		51	2	0	0	1		0	1						98
7:45-8:00	0	0	65		0	0		53	0	1	0	1		0	0						121
8:00-8:15	0	0	41		0	0		48	1	0	0	0		0	0						92
8:15-8:30	0	1	37		0	0		43	3	0	0	0		0	0						86
8:30-8:45	0	0	38		0	0		42	0	2	0	0		0	0						81
8:45-9:00	0	1	43		0	0		46	0	0	0	0		0	0						92
9:00-9:15	0	0	46		0	0		43	0	0	0	0		0	1						92
9:15-9:30	0	0	40		0	0		51	0	0	0	0		0	1						92

Hourly Totals

6:30-7:30	0	1	139		0	0		126	2	0	0	0		0	3						271
6:45-7:45	0	1	140		0	0		152	4	0	0	1		0	4						303
7:00-8:00	0	1	167		0	0		171	3	1	0	2		0	3						351
7:15-8:15	0	1	179		0	0		185	3	1	0	2		0	2						378
7:30-8:30	0	1	186		0	0		195	6	1	0	2		0	1						399
7:45-8:45	0	1	181		0	0		186	4	3	0	1		0	0						383
8:00-9:00	0	2	159		0	0		179	4	2	0	0		0	0						353
8:15-9:15	0	2	164		0	0		174	3	2	0	0		0	1						354
8:30-9:30	0	1	167		0	0		182	0	2	0	0		0	2						361

AM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
7:30-8:30	**0**	**1**	**186**		**0**	**0**		**195**	**6**	**1**	**0**	**2**		**0**	**1**						**399**

Weekday Evening Peak Hour (4 pm - 7 pm)

	Aurora St Northbound					Aurora St Southbound					Aurora Park Alley Eastbound					N/A Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:00-4:15	0	0	49		0	1		60	0	2	0	0		0	0						112
4:15-4:30	0	0	68		0	0		57	1	0	0	0		0	0						127
4:30-4:45	1	0	68		0	0		66	0	0	0	0		0	0						135
4:45-5:00	0	1	49		0	0		68	0	0	0	0		0	0						119
5:00-5:15	0	0	56		0	0		75	0	0	0	0		0	0						131
5:15-5:30	0	0	38		0	0		69	0	0	0	1		1	0						110
5:30-5:45	1	0	45		0	0		47	2	0	0	0		0	0						95
5:45-6:00	0	0	44		0	0		47	0	0	0	1		0	0						92
6:00-6:15	0	0	32		0	0		48	0	0	0	0		0	0						80
6:15-6:30	0	0	20		0	0		35	0	0	0	0		0	1						55
6:30-6:45	0	0	32		0	0		38	0	0	0	1		0	0						72
6:45-7:00	0	0	35		0	0		32	0	0	0	0		0	0						67

Hourly Totals

4:00-5:00	1	1	234		0	1		251	1	2	0	0		0	0						495
4:15-5:15	1	1	241		0	0		266	1	0	0	0		0	0						513
4:30-5:30	1	1	211		0	0		278	0	0	0	1		1	0						496
4:45-5:45	1	1	188		0	0		259	2	0	0	1		1	0						456
5:00-6:00	1	0	183		0	0		238	2	0	0	2		1	0						429
5:15-6:15	1	0	159		0	0		211	2	0	0	2		1	0						377
5:30-6:30	1	0	141		0	0		177	2	0	0	1		0	1						323
5:45-6:45	0	0	128		0	0		168	0	0	0	2		0	1						300
6:00-7:00	0	0	119		0	0		153	0	0	0	1		0	1						275

PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
4:15-5:15	**1**	**1**	**241**		**0**	**0**		**266**	**1**	**0**	**0**	**0**		**0**	**0**						**513**

Peak Hour
Turning Movement Count

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Aurora St & Aurora Park Alley
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Thursday, May 30, 2024
Jurisdiction: Talbot County

Weekend Peak Hour (10:00 am - 3:00 pm)

	Aurora St Northbound					Aurora St Southbound					Aurora Park Alley Eastbound					N/A Westbound					
Time:	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	U-Turn	Left	Thru	Right	Peds	Total
10:00-10:15	1	0	44		0	0		52	0	0	0	0		0	0						98
10:15-10:30	0	0	45		0	0		44	0	0	0	0		0	0						90
10:30-10:45	0	0	38		0	0		48	0	2	0	0		1	0						87
10:45-11:00	0	0	33		0	0		46	0	0	0	0		0	0						80
11:00-11:15	0	0	47		0	1		49	1	0	0	0		0	0						100
11:15-11:30	0	1	41		0	0		57	0	0	0	0		0	0						99
11:30-11:45	0	0	49		0	0		51	0	0	0	1		0	0						101
11:45-12:00	0	0	47		0	0		36	2	0	0	0		0	0						85
12:00-12:15	0	0	37		0	0		58	0	0	0	0		0	0						97
12:15-12:30	0	0	42		0	0		55	0	1	0	0		0	0						100
12:30-12:45	0	0	39		0	0		52	0	0	0	0		0	0						92
12:45-1:00	0	0	42		0	0		43	0	0	0	0		0	0						86
1:00-1:15	0	0	47		0	0		45	1	0	0	1		0	0						94
1:15-1:30	0	1	49		0	0		47	0	0	0	1		0	1						98
1:30-1:45	0	0	44		0	0		41	1	0	0	0		0	0						86
1:45-2:00	0	0	37		0	0		44	0	0	0	1		0	0						85
2:00-2:15	0	0	36		1	0		33	0	1	0	0		0	0						69
2:15-2:30	0	0	32		0	0		37	0	1	0	0		0	0						69
2:30-2:45	0	0	40		0	0		35	0	0	0	0		0	0						75
2:45-3:00	0	0	38		0	0		47	0	0	0	0		0	0						85

Hourly Totals																					
10:00-11:00	1	0	160		0	0		190	0	2	0	0		1	0						358
10:15-11:15	0	0	163		0	1		187	1	2	0	0		1	0						361
10:30-11:30	0	1	159		0	1		200	1	2	0	0		1	0						370
10:45-11:45	0	1	170		0	1		203	1	0	0	1		0	0						382
11:00-12:00	0	1	184		0	1		193	3	0	0	1		0	0						386
11:15-12:15	0	1	174		0	0		202	2	0	0	1		0	0						383
11:30-12:30	0	0	175		0	0		200	2	1	0	1		0	0						385
11:45-12:45	0	0	165		0	0		201	2	1	0	0		0	0						377
12:00-1:00	0	0	160		0	0		208	0	1	0	0		0	0						380
12:15-1:15	0	0	170		0	0		195	1	1	0	1		0	0						376
12:30-1:30	0	1	177		0	0		187	1	0	0	2		0	1						376
12:45-1:45	0	1	182		0	0		176	2	0	0	2		0	1						369
1:00-2:00	0	1	177		0	0		177	2	0	0	3		0	1						366
1:15-2:15	0	1	166		1	0		165	1	1	0	2		0	1						344
1:30-2:30	0	0	149		1	0		155	1	2	0	1		0	0						313
1:45-2:45	0	0	145		1	0		149	0	2	0	1		0	0						302
2:00-3:00	0	0	146		1	0		152	0	2	0	0		0	0						302

PM	Northbound					Southbound					Eastbound					Westbound					
Peak Hour	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**U-Turn**	**Left**	**Thru**	**Right**	**Peds**	**Total**
11:00-12:00	**0**	**1**	**184**		**0**	**1**		**193**	**3**	**0**	**0**	**1**		**0**	**0**						**386**

Peak Hour
Turning Movement Count

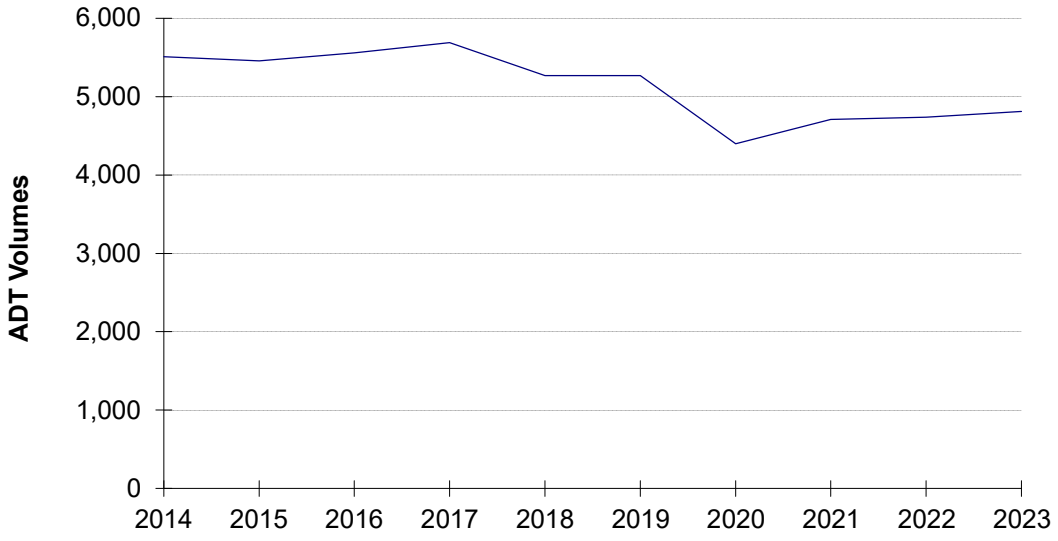
LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Intersection: Aurora St & Aurora Park Alley
Weather: Clear
Count by: Count Cam DSS
Count Day/Date: Saturday, June 1, 2024
County: Talbot County

TRAFFIC GROWTH PROJECTION

LOCATION: North Washington Street at Aurora Street
REPORT DATE: 07-Aug-24
AVERAGE GROWTH: -1.58%
MATHEMATICAL GROWTH: -1.68%

Year	ADT Volume	Vol. increase	% increase	Average %
2013		NO DATA AVAILABLE		
2014	5,512			
2015	5,460	-52	-0.94%	-0.94%
2016	5,561	101	1.85%	0.45%
2017	5,692	131	2.36%	1.09%
2018	5,270	-422	-7.41%	-1.04%
2019	5,271	1	0.02%	-0.83%
~~2020~~	~~4,402~~	~~-869~~	~~-16.49%~~	~~-4.12%~~
2021	4,710	-561	-10.64%	-2.46%
2022	4,741	31	0.66%	-2.02%
2023	4,812	71	1.50%	-1.58%



TRAFFIC GROWTH
North Washington Street at Aurora Street

Appendix B

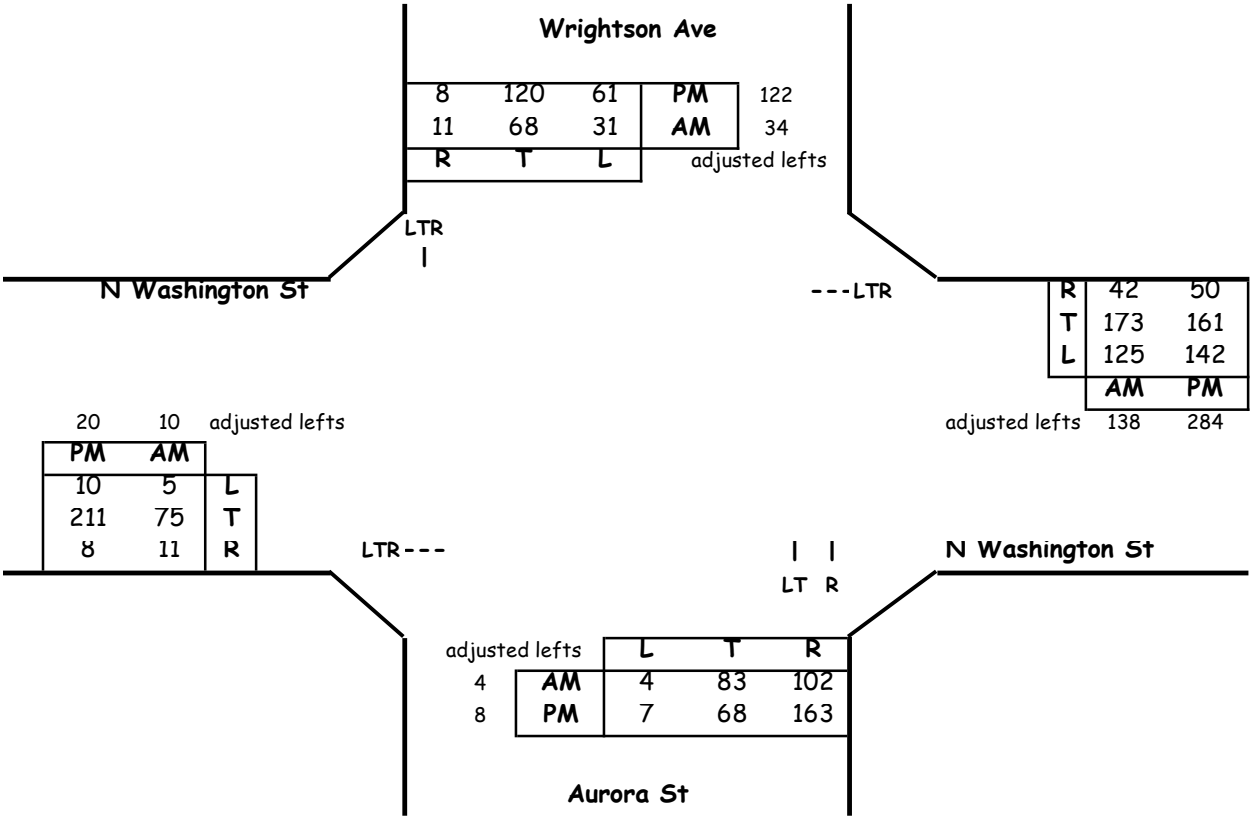
CLV Level of Service Worksheets

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: N Washington St
Minor Street: Aurora St
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	87	1.00	87	31	1	31	118
SB	113	1.00	113	4	1	4	
EB	96	1	96	125	1	125	358
WB	353	1	353	5	1	5	

CLV TOTAL= **476**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	76	1.00	76	61	1	61	257
SB	250	1.00	250	7	1	7	
EB	239	1	239	142	1	142	505
WB	495	1	495	10	1	10	

CLV TOTAL= **762**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

N Washington St & Aurora St
(Existing Traffic)

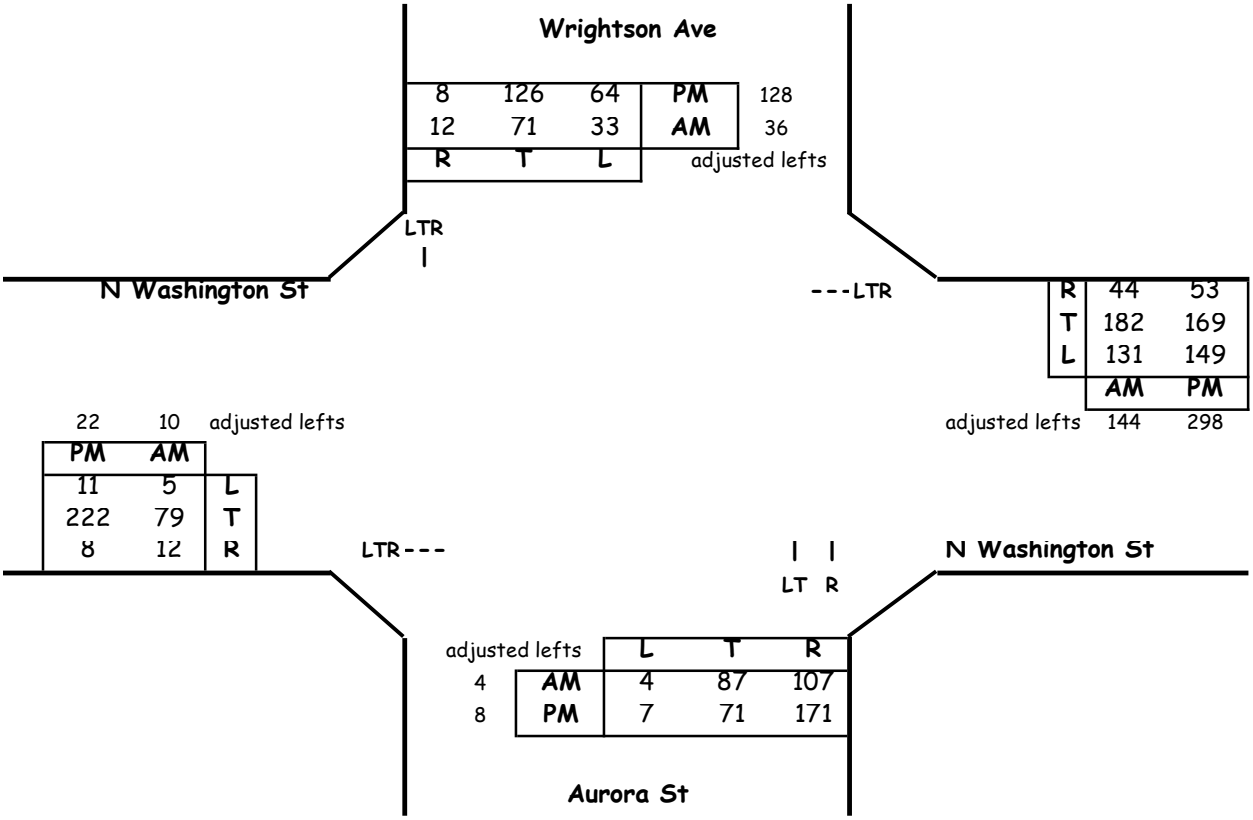
Intersection 1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: N Washington St
Minor Street: Aurora St
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	91	1.00	91	33	1	33	124
SB	119	1.00	119	4	1	4	
EB	101	1	101	131	1	131	375
WB	370	1	370	5	1	5	

CLV TOTAL= **499**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	79	1.00	79	64	1	64	269
SB	262	1.00	262	7	1	7	
EB	252	1	252	149	1	149	531
WB	520	1	520	11	1	11	

CLV TOTAL= **800**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
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N Washington St & Aurora St
(Background Traffic)

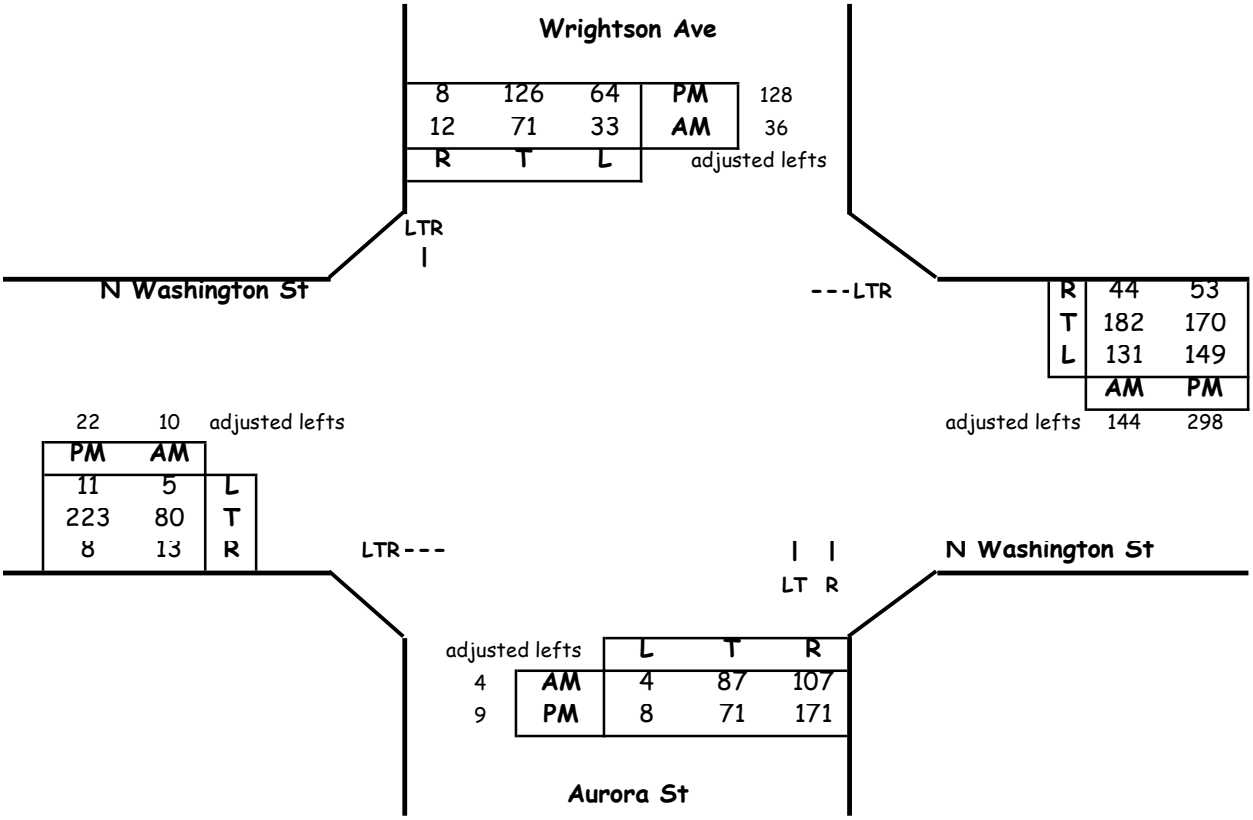
Intersection 1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: N Washington St
Minor Street: Aurora St
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	91	1.00	91	33	1	33	124
SB	119	1.00	119	4	1	4	
EB	103	1	103	131	1	131	375
WB	370	1	370	5	1	5	

CLV TOTAL= **499**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	80	1.00	80	64	1	64	270
SB	262	1.00	262	8	1	8	
EB	253	1	253	149	1	149	532
WB	521	1	521	11	1	11	

CLV TOTAL= **802**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

N Washington St & Aurora St
(Total Traffic)

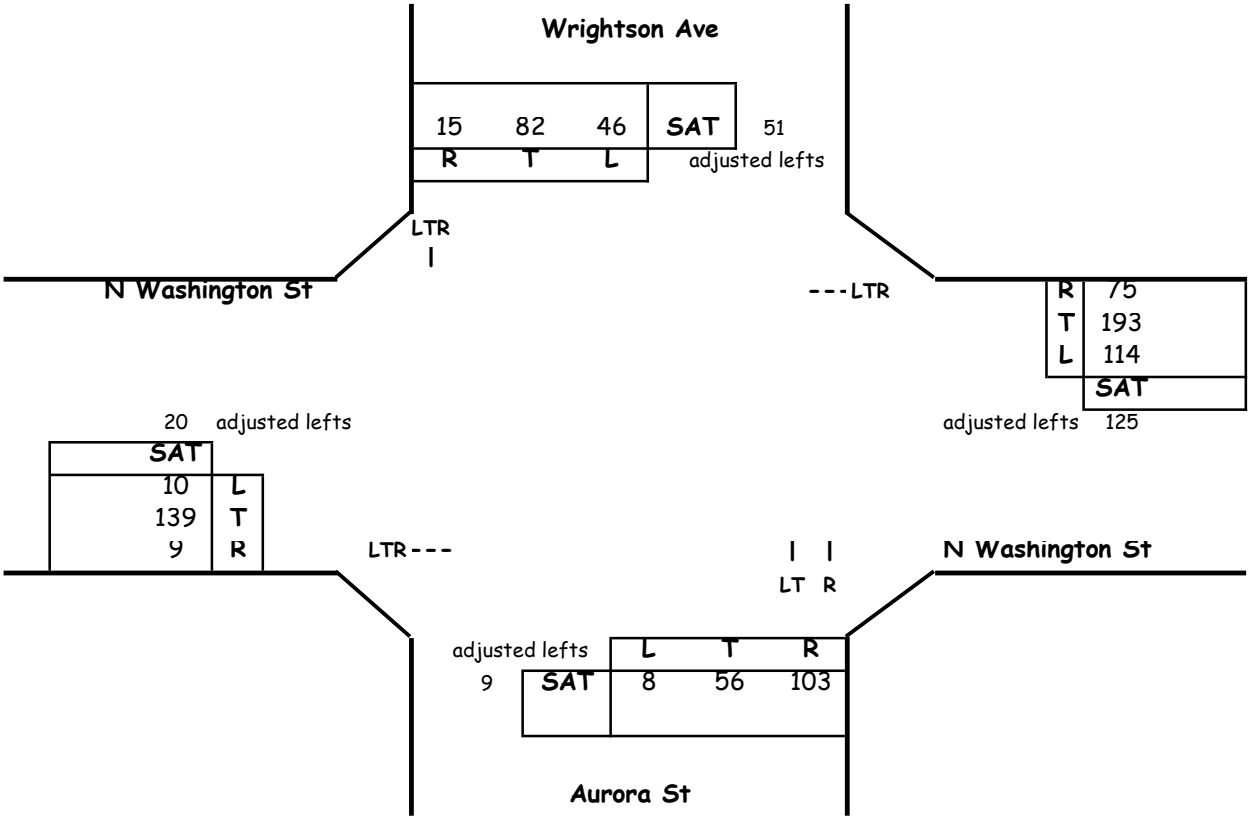
Intersection 1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: N Washington St
Minor Street: Aurora St
Study Period: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	65	1.00	65	46	1	46	156
SB	148	1.00	148	8	1	8	
EB	168	1	168	114	1	114	403
WB	393	1	393	10	1	10	
						CLV TOTAL=	559
						Level of Service (LOS)=	A

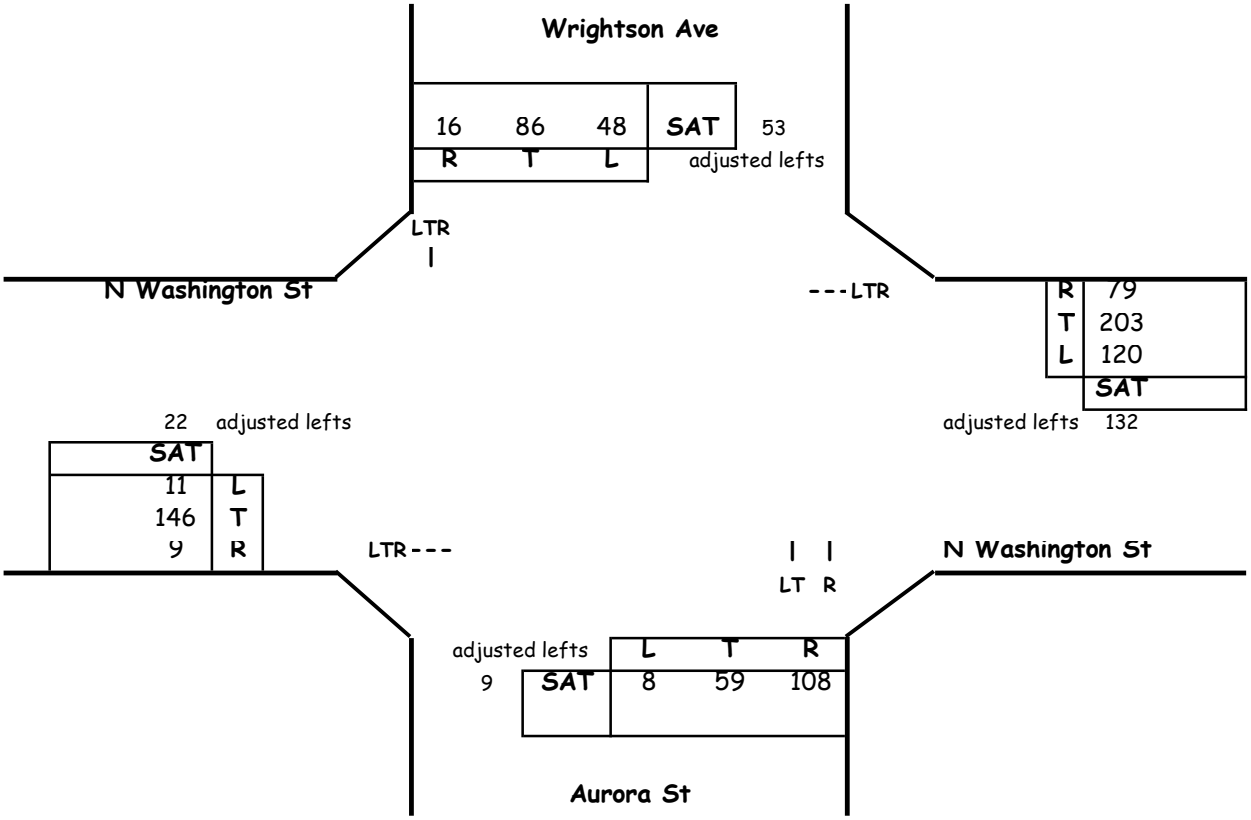
Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		N Washington St & Aurora St (Existing Traffic)	Intersection 1

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: N Washington St
Minor Street: Aurora St
Study Period: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	68	1.00	68	48	1	48	163
SB	155	1.00	155	8	1	8	
EB	177	1	177	120	1	120	425
WB	414	1	414	11	1	11	
						CLV TOTAL=	588
						Level of Service (LOS)=	A

Critical Lane Volume Analysis		N Washington St & Aurora St (Background Traffic)	Intersection 1

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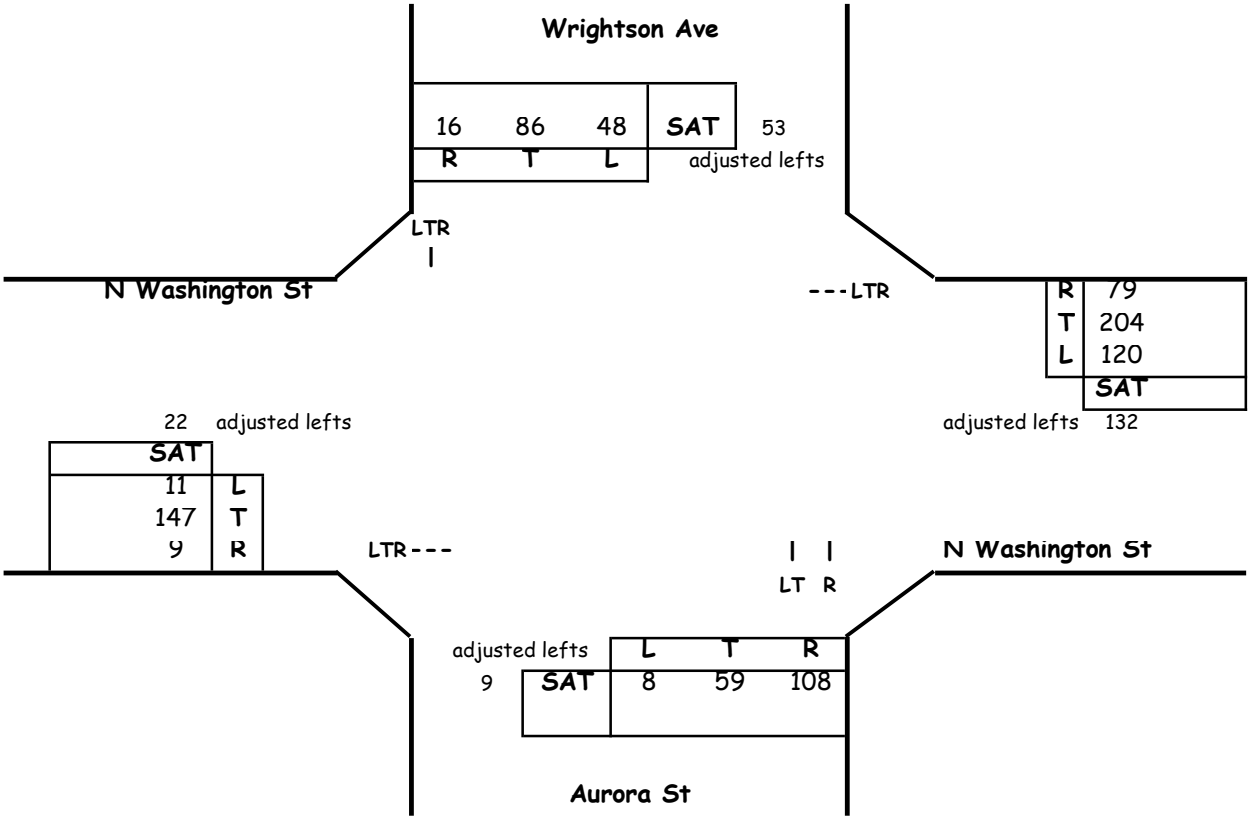
CRITICAL LANE VOLUME (CLV) METHODOLOGY

Main Line: N Washington St
Minor Street: Aurora St
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Critical Lane Volume Analysis

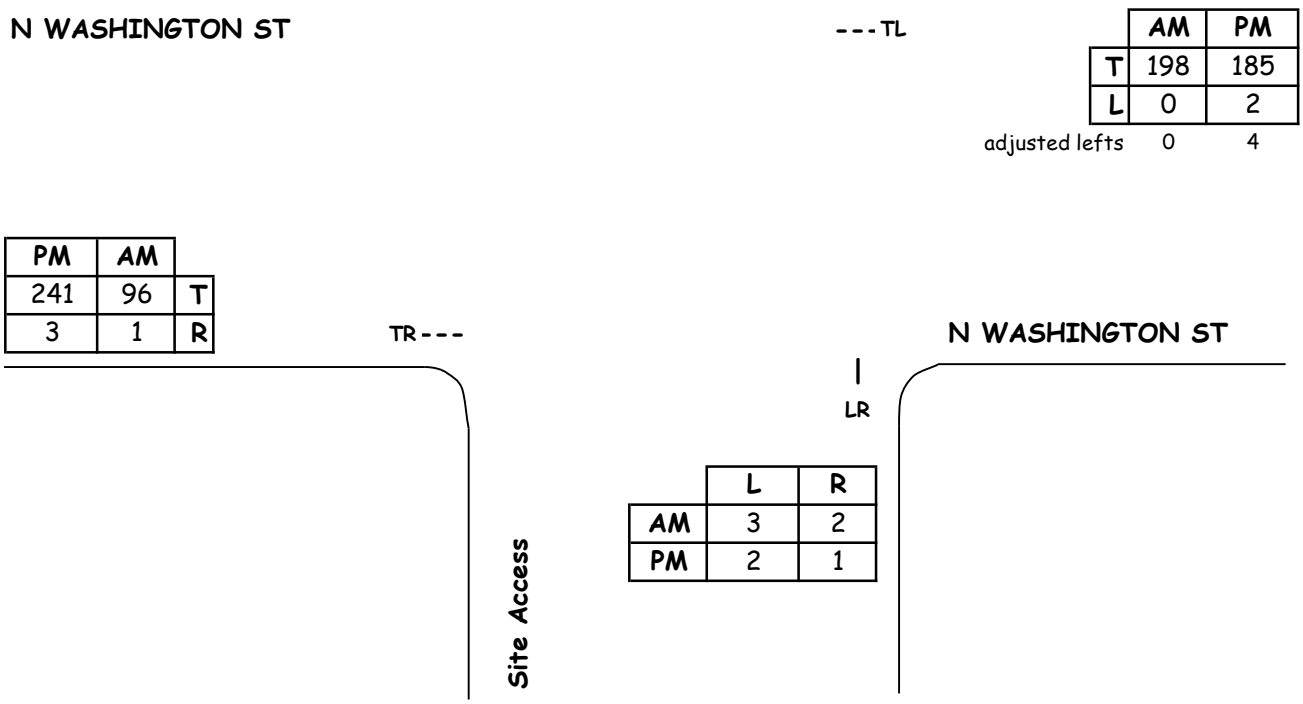
Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	68	1.00	68	48	1	48	163
SB	155	1.00	155	8	1	8	
EB	178	1	178	120	1	120	426
WB	415	1	415	11	1	11	
					CLV TOTAL=		589
					Level of Service (LOS)=		A

Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		N Washington St & Aurora St (Total Traffic)	Intersection 1

Critical Lane Volume (CLV) Methodology for MSHA

Main Line: N Washington St
Minor Street: Site Access
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
NB	5	1.00	5				5
EB	97	1.00	97	0	1.00	0	198
WB	198	1.00	198				

CLV TOTAL= **203**
Level of Service (LOS)= **A**

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
NB	3	1.00	3				3
EB	244	1.00	244	2	1.00	2	246
WB	189	1.00	189				

CLV TOTAL= **249**
Level of Service (LOS)= **A**

Critical Lane Volume Analysis		N Washington St & Site Access (Total Traffic)	**Intersection 2**

LENHART TRAFFIC CONSULTING, INC.
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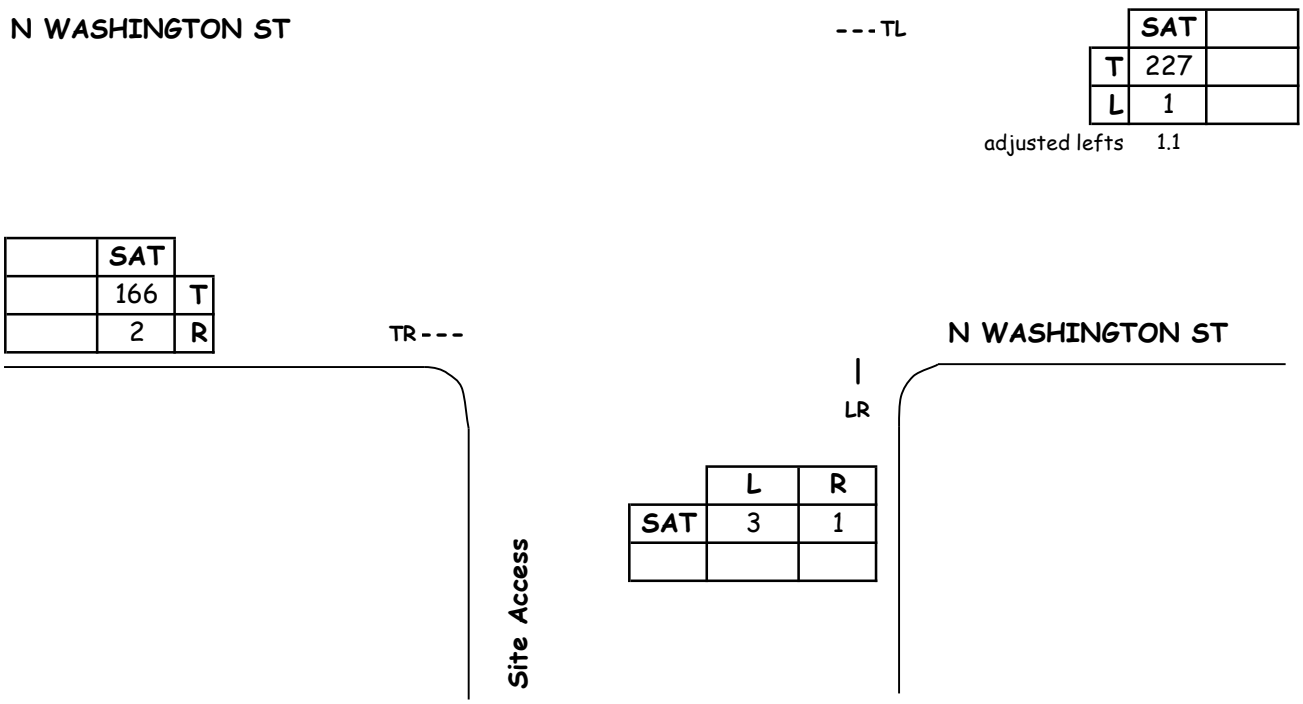
Critical Lane Volume (CLV) Methodology for MSHA

Main Line: N Washington St
Minor Street: Site Access
Study Period: Total Traffic

Analyst: Lenhart Traffic Consulting



Critical Lane Volume Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
NB	4	1.00	4				4
EB	168	1.00	168	1	1.00	1	228
WB	228	1.00	228				
						CLV TOTAL=	232
						Level of Service (LOS)=	A

Critical Lane Volume Analysis		N Washington St & Site Access (Total Traffic)	**Intersection 2**

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
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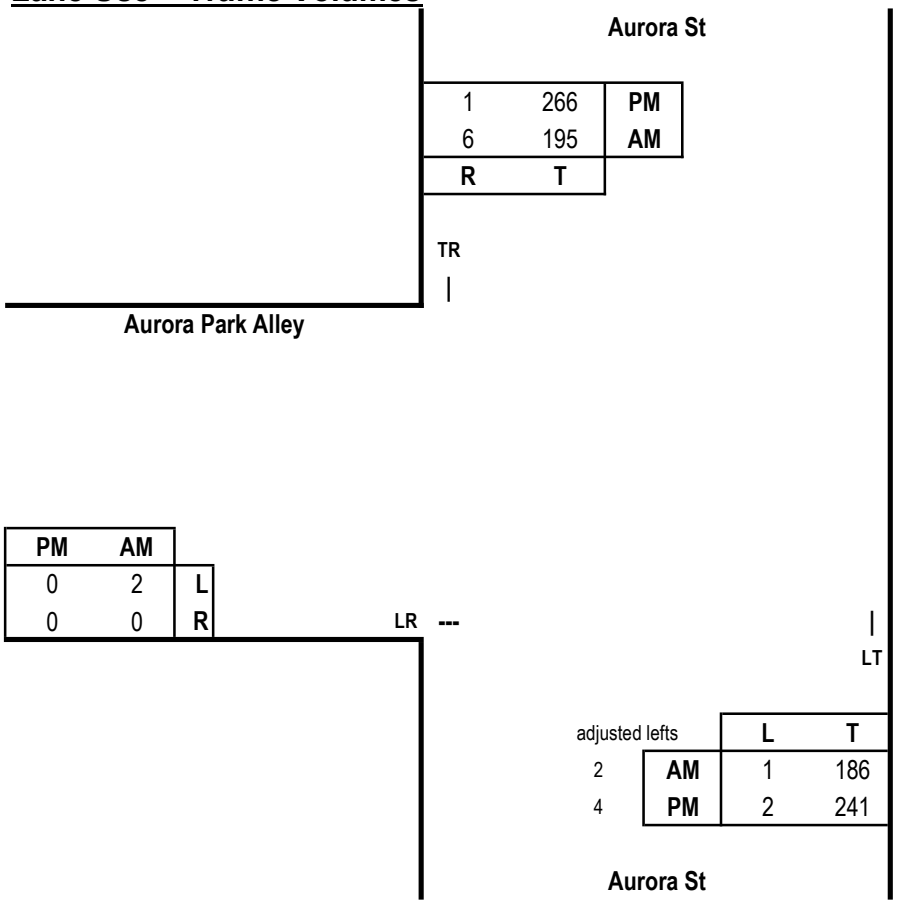
CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: Aurora St
and: Aurora Park Alley
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	2	1.00	2				2
NB	188	1.00	188				202
SB	201	1.00	201	1	1.00	1	
					CLV TOTAL=		204
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	0	1.00	0				0
NB	245	1.00	245				269
SB	267	1.00	267	2	1.00	2	
					CLV TOTAL=		269
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
www.lenharttraffic.com

Aurora St &
Aurora Park Alley
(Existing Traffic)

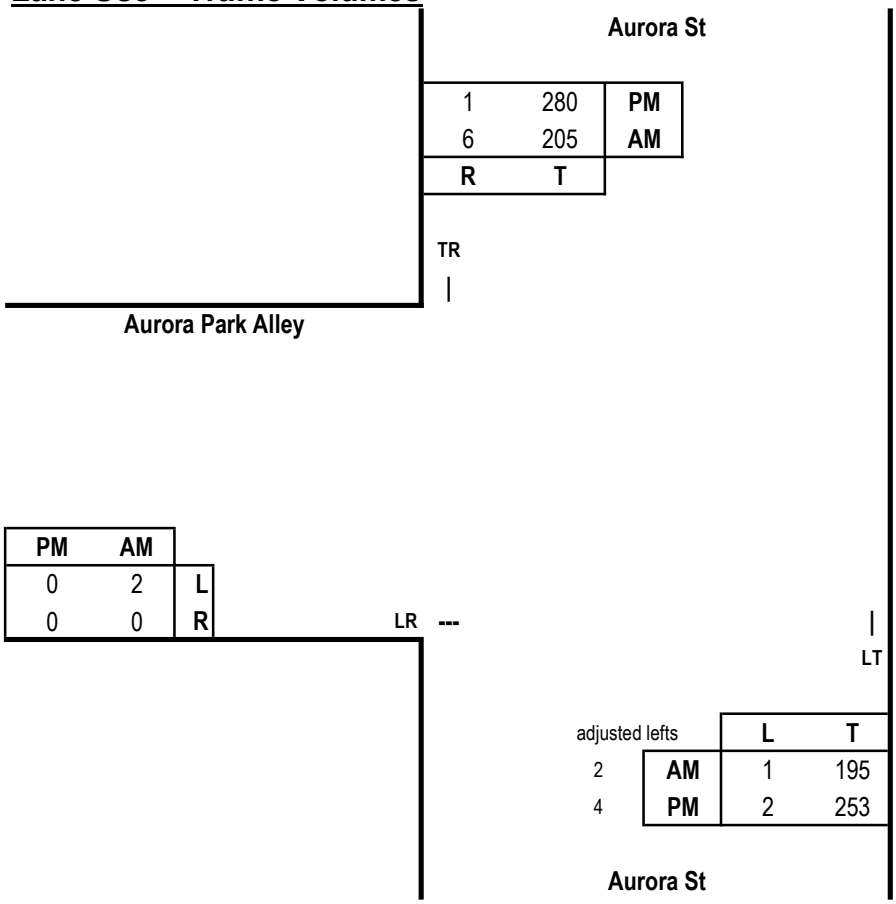
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: Aurora St
and: Aurora Park Alley
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	2	1.00	2				2
NB	197	1.00	197				212
SB	211	1.00	211	1	1.00	1	
					CLV TOTAL=		214
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	0	1.00	0				0
NB	257	1.00	257				283
SB	281	1.00	281	2	1.00	2	
					CLV TOTAL=		283
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
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Aurora St &
Aurora Park Alley
(Background Traffic)

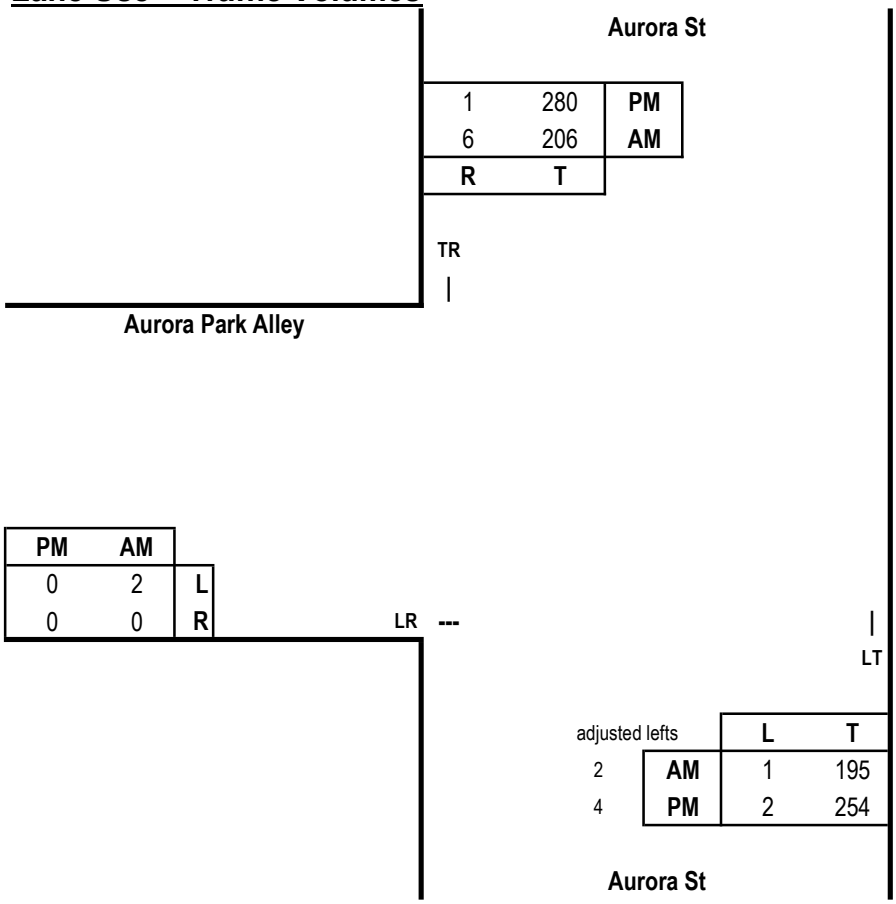
Intersection 3

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: Aurora St
and: Aurora Park Alley
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Morning Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	AM CLV
EB	2	1.00	2				2
NB	197	1.00	197				213
SB	212	1.00	212	1	1.00	1	
					CLV TOTAL=		215
					Level of Service (LOS)=		A

Evening Peak Hour

Dir	Thru Volumes VOL	x LUF	= Total	+ Opposing Lefts VOL	x LUF	= Total	PM CLV
EB	0	1.00	0				0
NB	258	1.00	258				283
SB	281	1.00	281	2	1.00	2	
					CLV TOTAL=		283
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
645 BALTIMORE ANNAPOLIS BLVD, SUITE 214
SEVERNA PARK, MD 21146
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Aurora St &
Aurora Park Alley
(Total Traffic)

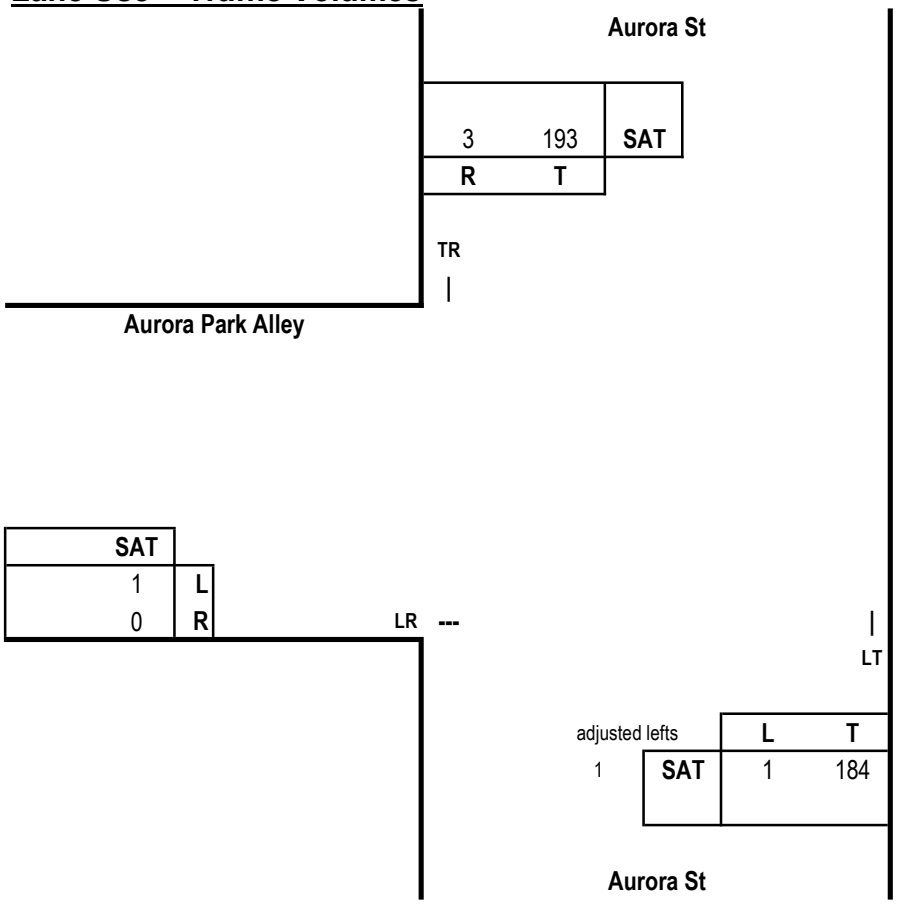
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: Aurora St
and: Aurora Park Alley
Conditions: Existing Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour							
	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
EB	1	1.00	1				1
NB	185	1.00	185				197
SB	196	1.00	196	1	1.00	1	
					CLV TOTAL=		198
					Level of Service (LOS)=		A

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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SEVERNA PARK, MD 21146
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Aurora St &
Aurora Park Alley
(Existing Traffic)

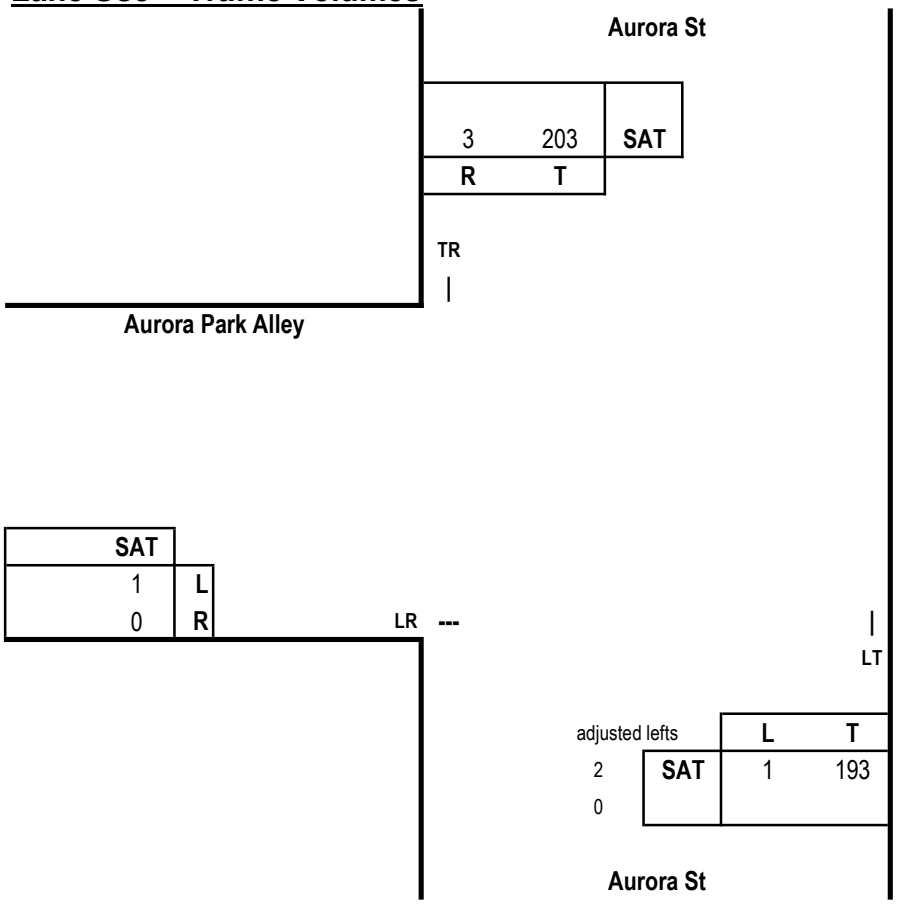
Intersection
3

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: Aurora St
and: Aurora Park Alley
Conditions: Background Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour

	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
EB	1	1.00	1				1
NB	195	1.00	195				207
SB	206	1.00	206	1	1.00	1	
						CLV TOTAL=	**208**
						Level of Service (LOS)=	**A**

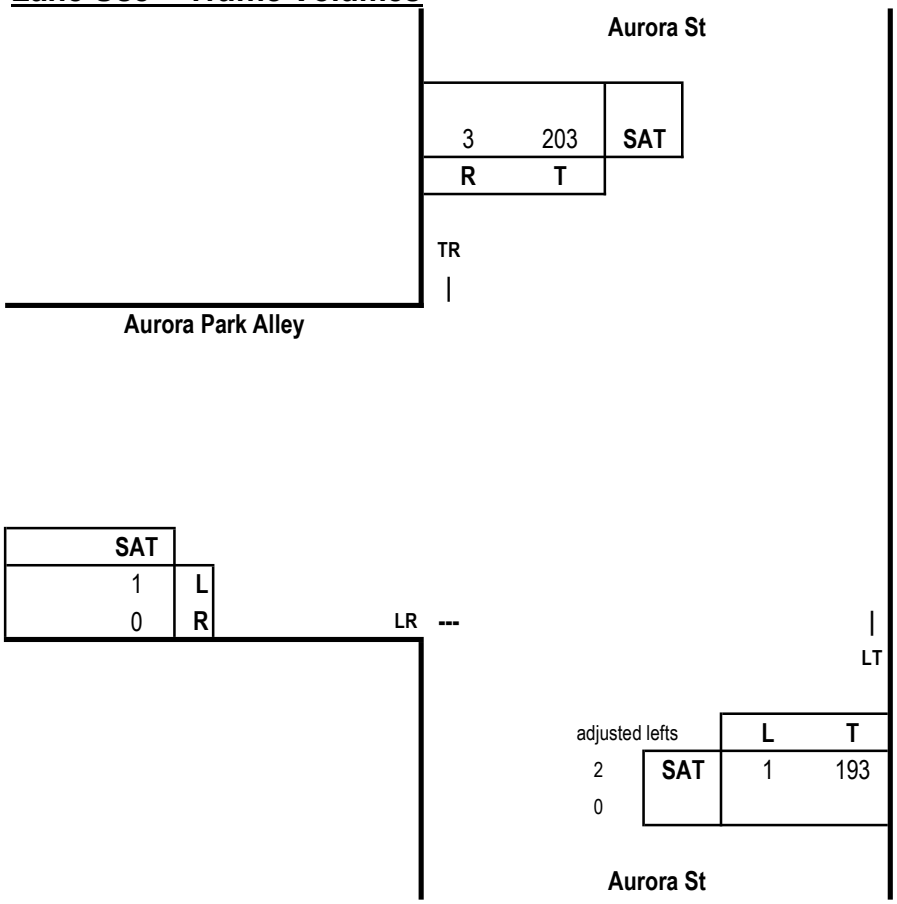
Critical Lane Volume Analysis LENHART TRAFFIC CONSULTING, INC. 645 BALTIMORE ANNAPOLIS BLVD, SUITE 214 SEVERNA PARK, MD 21146 www.lenharttraffic.com		Aurora St & Aurora Park Alley (Background Traffic)	**Intersection** **3**

CRITICAL LANE VOLUME (CLV) METHODOLOGY

Intersection of: Aurora St
and: Aurora Park Alley
Conditions: Total Traffic

Analyst: Lenhart Traffic Consulting

Lane Use + Traffic Volumes



Capacity Analysis

Sat. Midday Peak Hour

	Thru Volumes			+ Opposing Lefts			SAT
Dir	VOL	x LUF	= Total	VOL	x LUF	= Total	CLV
EB	1	1.00	1				1
NB	195	1.00	195				207
SB	206	1.00	206	1	1.00	1	
						CLV TOTAL=	**208**
						Level of Service (LOS)=	**A**

Critical Lane Volume Analysis

LENHART TRAFFIC CONSULTING, INC.
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SEVERNA PARK, MD 21146
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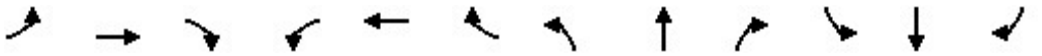
Aurora St &
Aurora Park Alley
(Total Traffic)

Intersection
3

Appendix C

Synchro Level of Service Worksheets



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	75	11	125	173	42	4	83	102	31	68	11
Future Volume (Veh/h)	5	75	11	125	173	42	4	83	102	31	68	11
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	82	12	136	188	46	4	90	111	34	74	12
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	234			94			630	604	88	737	587	211
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	234			94			630	604	88	737	587	211
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			91			99	76	89	85	81	99
cM capacity (veh/h)	1333			1500			308	374	970	224	382	829

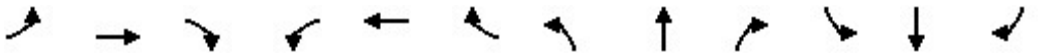
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	99	370	94	111	120
Volume Left	5	136	4	0	34
Volume Right	12	46	0	111	12
cSH	1333	1500	370	970	334
Volume to Capacity	0.00	0.09	0.25	0.11	0.36
Queue Length 95th (ft)	0	7	25	10	40
Control Delay (s)	0.4	3.3	18.0	9.2	21.7
Lane LOS	A	A	C	A	C
Approach Delay (s)	0.4	3.3	13.2		21.7
Approach LOS			B		C

Intersection Summary				
Average Delay	8.3			
Intersection Capacity Utilization	44.5%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	1	186	195	6
Future Volume (Veh/h)	2	0	1	186	195	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	1	202	212	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420	216	219			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	216	219			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	590	824	1350			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	203	219
Volume Left	2	1	0
Volume Right	0	0	7
cSH	590	1350	1700
Volume to Capacity	0.00	0.00	0.13
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.1	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.1	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	211	8	142	161	50	7	68	163	61	120	8
Future Volume (Veh/h)	10	211	8	142	161	50	7	68	163	61	120	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	229	9	154	175	54	8	74	177	66	130	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	229			238			840	792	234	980	770	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	229			238			840	792	234	980	770	202
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			95	74	78	49	55	99
cM capacity (veh/h)	1339			1329			167	282	806	130	290	839

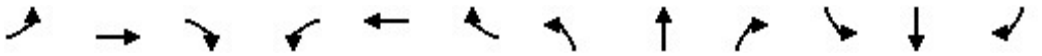
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	249	383	82	177	205
Volume Left	11	154	8	0	66
Volume Right	9	54	0	177	9
cSH	1339	1329	264	806	212
Volume to Capacity	0.01	0.12	0.31	0.22	0.97
Queue Length 95th (ft)	1	10	32	21	209
Control Delay (s)	0.4	3.9	24.6	10.7	101.0
Lane LOS	A	A	C	B	F
Approach Delay (s)	0.4	3.9	15.1		101.0
Approach LOS			C		F

Intersection Summary				
Average Delay	23.9			
Intersection Capacity Utilization	58.4%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	2	241	266	1
Future Volume (Veh/h)	0	0	2	241	266	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2	262	289	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	556	290	290			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	556	290	290			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	492	750	1272			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	264	290
Volume Left	0	2	0
Volume Right	0	0	1
cSH	1700	1272	1700
Volume to Capacity	0.00	0.00	0.17
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	17.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	139	9	114	193	75	8	56	103	46	82	15
Future Volume (Veh/h)	10	139	9	114	193	75	8	56	103	46	82	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	151	10	124	210	82	9	61	112	50	89	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	292			161			738	718	156	820	682	251
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	292			161			738	718	156	820	682	251
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			96	81	87	75	74	98
cM capacity (veh/h)	1270			1418			242	321	890	204	337	788

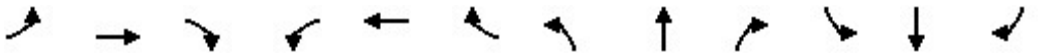
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	172	416	70	112	155
Volume Left	11	124	9	0	50
Volume Right	10	82	0	112	16
cSH	1270	1418	308	890	293
Volume to Capacity	0.01	0.09	0.23	0.13	0.53
Queue Length 95th (ft)	1	7	21	11	72
Control Delay (s)	0.6	2.9	20.1	9.6	30.4
Lane LOS	A	A	C	A	D
Approach Delay (s)	0.6	2.9	13.7		30.4
Approach LOS			B		D

Intersection Summary				
Average Delay	9.2			
Intersection Capacity Utilization	53.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	184	193	3
Future Volume (Veh/h)	1	0	1	184	193	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	200	210	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	414	212	213			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414	212	213			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	595	829	1357			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	201	213
Volume Left	1	1	0
Volume Right	0	0	3
cSH	595	1357	1700
Volume to Capacity	0.00	0.00	0.13
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.1	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.1	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	20.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	79	12	131	182	44	4	87	107	33	71	12
Future Volume (Veh/h)	5	79	12	131	182	44	4	87	107	33	71	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	86	13	142	198	48	4	95	116	36	77	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	246			99			660	632	92	772	615	222
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246			99			660	632	92	772	615	222
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			99	73	88	82	79	98
cM capacity (veh/h)	1320			1494			288	358	965	206	367	818

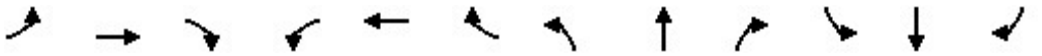
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	104	388	99	116	126
Volume Left	5	142	4	0	36
Volume Right	13	48	0	116	13
cSH	1320	1494	355	965	314
Volume to Capacity	0.00	0.10	0.28	0.12	0.40
Queue Length 95th (ft)	0	8	28	10	47
Control Delay (s)	0.4	3.3	19.0	9.2	23.9
Lane LOS	A	A	C	A	C
Approach Delay (s)	0.4	3.3	13.8		23.9
Approach LOS			B		C

Intersection Summary				
Average Delay	8.8			
Intersection Capacity Utilization	45.8%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	1	195	205	6
Future Volume (Veh/h)	2	0	1	195	205	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	1	212	223	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440	226	230			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440	226	230			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	574	813	1338			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	213	230
Volume Left	2	1	0
Volume Right	0	0	7
cSH	574	1338	1700
Volume to Capacity	0.00	0.00	0.14
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.3	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	222	8	149	169	53	7	71	171	64	126	8
Future Volume (Veh/h)	11	222	8	149	169	53	7	71	171	64	126	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	241	9	162	184	58	8	77	186	70	137	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	242			250			884	836	246	1031	811	213
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	242			250			884	836	246	1031	811	213
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			94	71	77	38	50	99
cM capacity (veh/h)	1324			1316			144	264	793	113	272	827

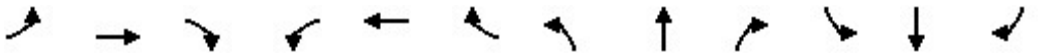
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	262	404	85	186	216
Volume Left	12	162	8	0	70
Volume Right	9	58	0	186	9
cSH	1324	1316	245	793	191
Volume to Capacity	0.01	0.12	0.35	0.23	1.13
Queue Length 95th (ft)	1	11	37	23	268
Control Delay (s)	0.4	4.0	27.4	10.9	155.9
Lane LOS	A	A	D	B	F
Approach Delay (s)	0.4	4.0	16.1		155.9
Approach LOS			C		F

Intersection Summary				
Average Delay	34.5			
Intersection Capacity Utilization	60.5%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	2	253	280	1
Future Volume (Veh/h)	0	0	2	253	280	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2	275	304	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	584	304	305			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	584	304	305			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	474	735	1256			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	277	305
Volume Left	0	2	0
Volume Right	0	0	1
cSH	1700	1256	1700
Volume to Capacity	0.00	0.00	0.18
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	146	9	120	203	79	8	59	108	48	86	16
Future Volume (Veh/h)	11	146	9	120	203	79	8	59	108	48	86	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	159	10	130	221	86	9	64	117	52	93	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	307			169			776	755	164	861	717	264
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	307			169			776	755	164	861	717	264
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			96	79	87	72	71	98
cM capacity (veh/h)	1254			1409			221	304	881	185	319	775

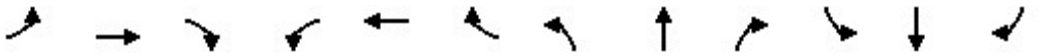
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	181	437	73	117	162
Volume Left	12	130	9	0	52
Volume Right	10	86	0	117	17
cSH	1254	1409	290	881	273
Volume to Capacity	0.01	0.09	0.25	0.13	0.59
Queue Length 95th (ft)	1	8	24	11	87
Control Delay (s)	0.6	2.9	21.5	9.7	35.8
Lane LOS	A	A	C	A	E
Approach Delay (s)	0.6	2.9	14.2		35.8
Approach LOS			B		E

Intersection Summary				
Average Delay	10.2			
Intersection Capacity Utilization	55.8%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	193	203	3
Future Volume (Veh/h)	1	0	1	193	203	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	210	221	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	434	222	224			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	222	224			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	578	817	1345			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	211	224
Volume Left	1	1	0
Volume Right	0	0	3
cSH	578	1345	1700
Volume to Capacity	0.00	0.00	0.13
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	80	13	131	182	44	4	87	107	33	71	12
Future Volume (Veh/h)	5	80	13	131	182	44	4	87	107	33	71	12
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	87	14	142	198	48	4	95	116	36	77	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	246			101			662	634	94	774	617	222
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246			101			662	634	94	774	617	222
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			90			99	73	88	82	79	98
cM capacity (veh/h)	1320			1491			287	357	963	205	365	818

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	106	388	99	116	126
Volume Left	5	142	4	0	36
Volume Right	14	48	0	116	13
cSH	1320	1491	354	963	313
Volume to Capacity	0.00	0.10	0.28	0.12	0.40
Queue Length 95th (ft)	0	8	28	10	47
Control Delay (s)	0.4	3.3	19.1	9.3	24.0
Lane LOS	A	A	C	A	C
Approach Delay (s)	0.4	3.3	13.8		24.0
Approach LOS			B		C

Intersection Summary				
Average Delay	8.8			
Intersection Capacity Utilization	45.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	96	1	0	198	3	2
Future Volume (Veh/h)	96	1	0	198	3	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	104	1	0	215	3	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			105		320	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			105		320	104
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1486		674	950

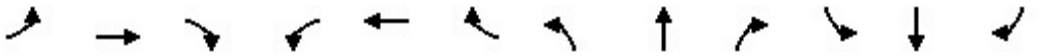
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	105	215	5
Volume Left	0	0	3
Volume Right	1	0	2
cSH	1700	1486	763
Volume to Capacity	0.06	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	9.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	20.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	1	195	206	6
Future Volume (Veh/h)	2	0	1	195	206	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0	1	212	224	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	442	228	231			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442	228	231			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	573	812	1337			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	213	231
Volume Left	2	1	0
Volume Right	0	0	7
cSH	573	1337	1700
Volume to Capacity	0.00	0.00	0.14
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.3	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.3	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	223	8	149	170	53	8	71	171	64	126	8
Future Volume (Veh/h)	11	223	8	149	170	53	8	71	171	64	126	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	242	9	162	185	58	9	77	186	70	137	9
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	243			251			886	838	246	1033	813	214
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	243			251			886	838	246	1033	813	214
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			88			94	71	77	38	50	99
cM capacity (veh/h)	1323			1314			144	263	792	113	272	826

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	263	405	86	186	216
Volume Left	12	162	9	0	70
Volume Right	9	58	0	186	9
cSH	1323	1314	242	792	190
Volume to Capacity	0.01	0.12	0.36	0.23	1.14
Queue Length 95th (ft)	1	11	38	23	269
Control Delay (s)	0.4	4.0	27.9	10.9	157.5
Lane LOS	A	A	D	B	F
Approach Delay (s)	0.4	4.0	16.3		157.5
Approach LOS			C		F

Intersection Summary				
Average Delay	34.7			
Intersection Capacity Utilization	60.6%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	241	3	2	185	2	1
Future Volume (Veh/h)	241	3	2	185	2	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	262	3	2	201	2	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			265		468	264
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			265		468	264
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1299		552	775

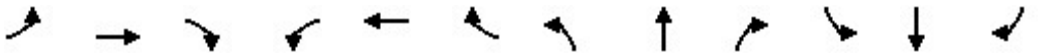
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	265	203	3
Volume Left	0	2	2
Volume Right	3	0	1
cSH	1700	1299	611
Volume to Capacity	0.16	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	10.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	10.9
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	2	254	280	1
Future Volume (Veh/h)	0	0	2	254	280	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	2	276	304	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	584	304	305			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	584	304	305			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	473	735	1256			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	278	305
Volume Left	0	2	0
Volume Right	0	0	1
cSH	1700	1256	1700
Volume to Capacity	0.00	0.00	0.18
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	0.0	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	147	9	120	204	79	8	59	108	48	86	16
Future Volume (Veh/h)	11	147	9	120	204	79	8	59	108	48	86	16
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	160	10	130	222	86	9	64	117	52	93	17
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	308			170			778	757	165	863	719	265
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	308			170			778	757	165	863	719	265
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			91			96	79	87	72	71	98
cM capacity (veh/h)	1253			1407			220	303	879	185	319	774

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1
Volume Total	182	438	73	117	162
Volume Left	12	130	9	0	52
Volume Right	10	86	0	117	17
cSH	1253	1407	289	879	272
Volume to Capacity	0.01	0.09	0.25	0.13	0.60
Queue Length 95th (ft)	1	8	24	11	88
Control Delay (s)	0.6	2.9	21.6	9.7	36.0
Lane LOS	A	A	C	A	E
Approach Delay (s)	0.6	2.9	14.3		36.0
Approach LOS			B		E

Intersection Summary				
Average Delay	10.2			
Intersection Capacity Utilization	55.9%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	166	2	1	227	3	1
Future Volume (Veh/h)	166	2	1	227	3	1
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	180	2	1	247	3	1
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			182		430	181
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			182		430	181
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			1393		582	862

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	182	248	4
Volume Left	0	1	3
Volume Right	2	0	1
cSH	1700	1393	633
Volume to Capacity	0.11	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	10.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.0	10.7
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	0	1	193	203	3
Future Volume (Veh/h)	1	0	1	193	203	3
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	1	210	221	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	434	222	224			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434	222	224			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	578	817	1345			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	1	211	224
Volume Left	1	1	0
Volume Right	0	0	3
cSH	578	1345	1700
Volume to Capacity	0.00	0.00	0.13
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B	A	
Approach Delay (s)	11.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		

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

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TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	9687 Technology Drive, Easton, MD 21601							
Tax Map	25	Grid	4	Parcel	92	Lot	4	
Deed Refernce:	Liber	2754	Folio	19				
Plat Reference:	Liber	89	Folio	149				
Base Zoning District	BC	Historic District Y ☐ N ☒		Planning Redevelopment Y ☐ N ☒				

Purpose of Application / Description of Work:

The proposed project is to construct a driveway and parking/lay-down yard to serve the tenant building on the adjacent Lot 12.

Owner

Name	Easton Sunrise Partners, LLC c/o Scott Wagner		
Mailing Address	928 Riverview Terrace, St Michaels, MD 21663		
Telephone No.	717-577-5984	Email	srw@comcast.net

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	Timothy Glass, P.E.	License No.	23152	Expiration Date	7/5/2025
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	tglass@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 8/7/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

For Office Use Only

Easton Staff Development Review Meeting Required Y [X] N [ ]

Easton Staff Development Review Meeting Date **08/28/2024**

2024 - 1262 / ESDR 24 - 16

Completeness Check Date **08/07/2024**

Revisions/Resubmissions Required Y [ ] N [ ]

Resubmission Date

Documents Received Y [ ] N [ ]

Staff Determination

Planning Commission Requir(Y [ ] N [ ] **TBD**

BOZA Required Y [ ] N [ ] **TBD**

Historic District Commission Required Y [ ] N [X]

Resubmission for ESDR Required Y [ ] N [ ]

Staff Signature Samantha N. Smith Date **08/07/2024**

Revised 02-2019

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TOWN OF EASTON

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

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	9687 Technology Drive, Easton, MD 21601				
Original Property Size	Acres	15.23 AC ±	Square Feet	663,419 SF ±	
Telephone No.		Email			

Site Plan Information

Property Size	Acres	15.23 AC ±	Square Feet	663,419 SF ±	
Structure's Floor Area	53,566 SF ±	Structure's Square Feet	53,566 SF ±	*Hardscaping only*	
Area of Disturbance	133,380 SF ±	Number of Dwelling Units	0		

Property Information

Address	9687 Technology Drive, Easton, MD 21601						
Tax Map	25	Grid	4	Parcel	92	Lot	4
Deed Refernce:	Liber	2754	Folio	19			
Plat Reference:	Liber	89	Folio	149			
Base Zoning District		BC	Historic Y ☐ N ☒		Planned Redevelopment Y ☐ N ☒		
Source of Electricity		Easton Utilities					

Owner

Name	Easton Sunrise Partners, LLC c/o Scott Wagner		
Mailing Address	928 Riverview Terrace, St Michaels, MD 21663		
Telephone No.	717-577-5984	Email	srw@comcast.net

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	Timothy Glass, P.E.	License No.	23152	Expiration Date	7/5/2025
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	tglass@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 8/7/2024

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.	**ESDR 24 - 16**
Prelim/Dev. Approval Date		Application No.	**2024 - 1262**
Final Approval Date		Sketch Fee Paid	
Recordation Date		Develop. Fee Paid	

Revised 02-2019

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

RECEIVED
AUG 07 2024
TOWN OF EASTON

2024 - 1262 / ESDR 24 - 16

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐	Parking Spaces ☐	Parking/Aisle Dimension ☐
Landscaping & Buffering ☒	Signage ☐	Other ☐

Project Information

Address	9687 Technology Drive, Easton, MD 21601						
Tax Map	25	Grid	4	Parcel	92	Lot	4
Zoning District	BC	PC Meeting Date	9/19/24	Historic District	Yes ☐	No ☒	
Owner or Agent	Owner: Easton Sunrise Partners, LLC Agent: 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				

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

We are requesting a waiver of the minimum tree planting requirement to plant 14 trees instead of 45 trees, the waiver being for 31 trees.

☐ Ordinance Section Supporting Waiver Request. § 1014.6.G.1

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 8/7/2024

Printed Name of Applicant or Agent Brett Ewing, AICP, Lane Engineering, LLC

PROPERTY OWNER: EASTON SUNRISE PARTNERS, LLC
C/O SCOTT WAGNER
928 RIVERVIEW TERRACE
ST. MICHAELS, MD 21663
(717) 577-5984

PROPERTY ADDRESS: 9687 TECHNOLOGY DRIVE
EASTON, MARYLAND 21601

DEED REFERENCE: 2754/19

PLAT REFERENCE: 89/149

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL NO. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON MARCH 23, 2021, FEBRUARY 19, 2024, AND MARCH 7, 2024.

THE CONTOURS SHOWN HEREON WERE DERIVED FROM FIELD RUN TOPOGRAPHY BY LANE ENGINEERING, LLC DATED MARCH 23, 2021, FEBRUARY 19, 2024, AND MARCH 7, 2024.

THE UTILITIES SHOWN HEREON ARE FROM RESOURCE DATA PROVIDED BY EASTON UTILITIES AND ARE APPROXIMATE ONLY.

FLOOD DATA

THE PROPERTY SHOWN HEREON IS 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" AND "A" FLOOD ZONE AS SHOWN ON THE FLOOD INSURANCE RATE MAPS FOR COMMUNITY NO. 240067, MAP NO. 24041C0180D FOR TALBOT COUNTY, 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
ZONES A, AE, AH, AO, AR, A99, V, & VE – 1% ANNUAL CHANCE FLOOD
ZONE X (SHADED) – 0.2% ANNUAL CHANCE FLOOD
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 LOCATION 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.

TALBOT COUNTY SOILS

MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
CsA	CROSIADORE SILT LOAM	*	0.49	C/D
FaA	FALLSINGTON SANDY LOAM	YES		C/D
HfB	HAMBROOK–SASSAFRAS COMPLEX		0.37	B
IgB	INGLESIDE SANDY LOAM		0.15	A
LgA	LENNI LOAM	YES		D
WoA	WOODSTOWN LOAM	*	0.32	C

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

PROPERTY BOUNDARY CURVE TABLE

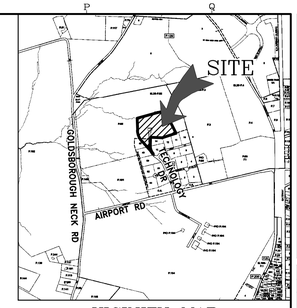
CURVE	RADIUS	ARC LENGTH	TANGENT	CHD. BEARING	CHD. LENGTH
C1	325.00'	248.80'	130.86'	S 19°50'30" E	242.77'
C2	475.00'	326.56'	170.03'	S 22°04'42" E	320.17'

LEGEND

- ELECTRIC TRANSFORMER
- TAP CABINET
- GAS SHUTOFF VALVE
- LAMP POLE
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- TELEPHONE PEDESTAL
- SINGLE POST SIGN
- APPROXIMATE TREE LINE
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- SPRINKLER HEAD
- WATER FAUCET
- IRON ROD FOUND
- CONCRETE MONUMENT FOUND
- COMPUTED POINT
- GAS LINE
- UNDERGROUND ELECTRIC LINE
- SANITARY SEWER LINE
- DOMESTIC WATER LINE
- FLOOD ZONE LINE

SEE SHEET 2 OF 2 FOR SKETCH SITE PLAN.

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.



VICINITY MAP
SCALE: 1" = 2,000'
1,000' 0' 1,000' 2,000'
SCALE IN FEET

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

WARNING!!
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MISS UTILITY
DIG WITH CARE
MARYLAND
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@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

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. 23152, Expiration Date: 7/3/2025.

SEAL
STATE OF MARYLAND
BRIAN C. ENGLAND
REGISTERED
PROFESSIONAL ENGINEER
8.6.24
DATE

EXISTING CONDITIONS

EASTON SUNRISE PARTNERS, LLC

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 4, PARCEL 92, LOT 4

ISSUED/REVISED FOR:	DATE:	BY:
AGENCY REVIEW	08/06/24	BCE

SHEET No. 1 OF 2
SCALE: AS NOTED
JOB No. 230399
FILE No. 3208

Date: 08/07/2024 - 8:03am User: mrojecich Project Manager: BCE
Drawing Path: J:\2023\0300\230399\Civil3D-230399\Dwgs\Plots\ESDR-RSK-PLTS-230399.dwg | Existing Conditions
XREF File(s): RSK-BASE-230399/YLD-BASE-230399/FAR-BASE-230399/CBS-BASE-24438-230399/VAB-BASE-200185/VSF-BASE-230399/CSW-BASE-230399/HSL-BASE-230399/LLP-BASE-230399/RL

EXISTING CONDITIONS: VACANT LOT.

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO CONSTRUCT A DRIVEWAY AND PARKING/LAYDOWN YARD TO SERVE THE TENANTS BUILDING ON THE ADJACENT LOT 12.

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH WILL BE ADDRESSED THROUGH ESD FEATURES (NON-ROOFTOP DISCONNECT) AS REQUIRED AND DETAILED IN THE CONCEPT SWM REPORT INCLUDED WITH THIS SKETCH SITE PLAN.

LOT COVERAGE: ALL BUILDINGS AND STRUCTURES SHALL NOT EXCEED 50% OF THE LOT AREA. THIS PROJECT DOES NOT PROPOSE ANY STRUCTURES.

TOTAL SITE AREA: LOT 4 – 15.230 ACRES±

SPECIAL EXCEPTIONS/VARIANCES: NONE

REFUSE/TRASH: N/A

SITE LIGHTING: ALL PROPOSED LIGHTING UNLESS APPROVED OTHERWISE BY THE PLANNING COMMISSION SHALL BE SHARP CUT-OFF SHIELDED LUMINARIES ON 18' HEIGHT POLES MAX. LIGHT SHALL NOT SHINE OFF-SITE AT LEVELS GREATER THAN 1 FOOT CANDLE.

SIGNAGE: THIS PROJECT DOES NOT PROPOSE ANY SIGNAGE.

SITE NOTES

ZONING CLASSIFICATION: BC (BUSINESS COMMERCIAL DISTRICT)
SETBACKS:
FRONT– 40'
SIDE– 10'
REAR– 30'

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1– INTEGRATED USES ARE DESIRABLE – THIS PROJECT PROPOSES TO PROVIDE SUPPLEMENT EXTERIOR STORAGE FOR AN EXISTING BUILDING FOUND ON LOT 12.

PRINCIPLE #2– NATURAL FEATURES SHOULD DETERMINE DESIGN – THIS PROJECT PROPOSES A DESIGN THAT WILL KEEP DISTURBANCE AND TREE REMOVAL TO A MINIMUM. THE NATURAL FEATURES OF THE PROPERTY WILL REMAIN MOSTLY UNCHANGED, KEEPING THE INTEGRITY OF NATURAL DRAINAGE FEATURES AND TREELINE.

PRINCIPLE #3– AUTOMOBILES SHOULD NOT DETERMINE DESIGN – NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE #4– AMPLE COMMUNITY OPEN SPACE – NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE #5– ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT – NOT APPLICABLE TO THIS APPLICATION; THERE IS CURRENTLY NOT PROPOSED ARCHITECTURE FOR THIS PROJECT.

PRINCIPLE #6– SIGNS SHOULD INFORM BUT NOT DOMINATE – THIS PROJECT DOES NOT PROPOSE ANY SIGNS.

PRINCIPLE #7– NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES – NOT APPLICABLE TO THIS APPLICATION; INTENDED FOR RESIDENTIAL PROJECTS

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES – NOT APPLICABLE TO THIS APPLICATION.

PRINCIPLE #9– NEIGHBORHOODS SHOULD CONNECT – NOT APPLICABLE TO THIS APPLICATION.

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.6.G. (LARGE LOT DISPLAY AND SPECIALTY):

1. MINIMUM TREE PLANTINGS: 1 TREE/3,000 SF OF DISTURBANCE = 133,380 SF OF DISTURBANCE/3,000 = 45 TREES
14 TREES PROVIDED, WAIVER REQUEST FOR 31 TREES

2.A. INTERIOR CUSTOMER PARKING LOT PLANTINGS = 1 TREE PER 7.5 SPACES – NOT APPLICABLE TO THIS APPLICATION.

2.B. EVERGREEN SHRUB HEDGE WHICH WILL GROW TO A MINIMUM OF 42" HEIGHT – NOT APPLICABLE TO THIS APPLICATION.

2.C. BUILDING ENVELOPE PLANTINGS – NOT APPLICABLE TO THIS APPLICATION.

LANDSCAPE BUFFERYARD REQUIREMENT (1014.7.E): NOT APPLICABLE TO THIS APPLICATION – DEVELOPMENT IS SITUATED AT THE END OF A CULDESAC WITH SURROUNDING SIMILAR ZONING AND USES.

FOREST CONSERVATION REQUIREMENTS

FOREST CONSERVATION HAS BEEN SATISFIED WITH THE ORIGINAL SUBDIVISION PLAT FOUND IN PLAT BOOK 4, PAGE 80G.

LEGEND

- ELECTRIC TRANSFORMER
- TAP CABINET
- GAS SHUTOFF VALVE
- LAMP POLE
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- TELEPHONE PEDESTAL
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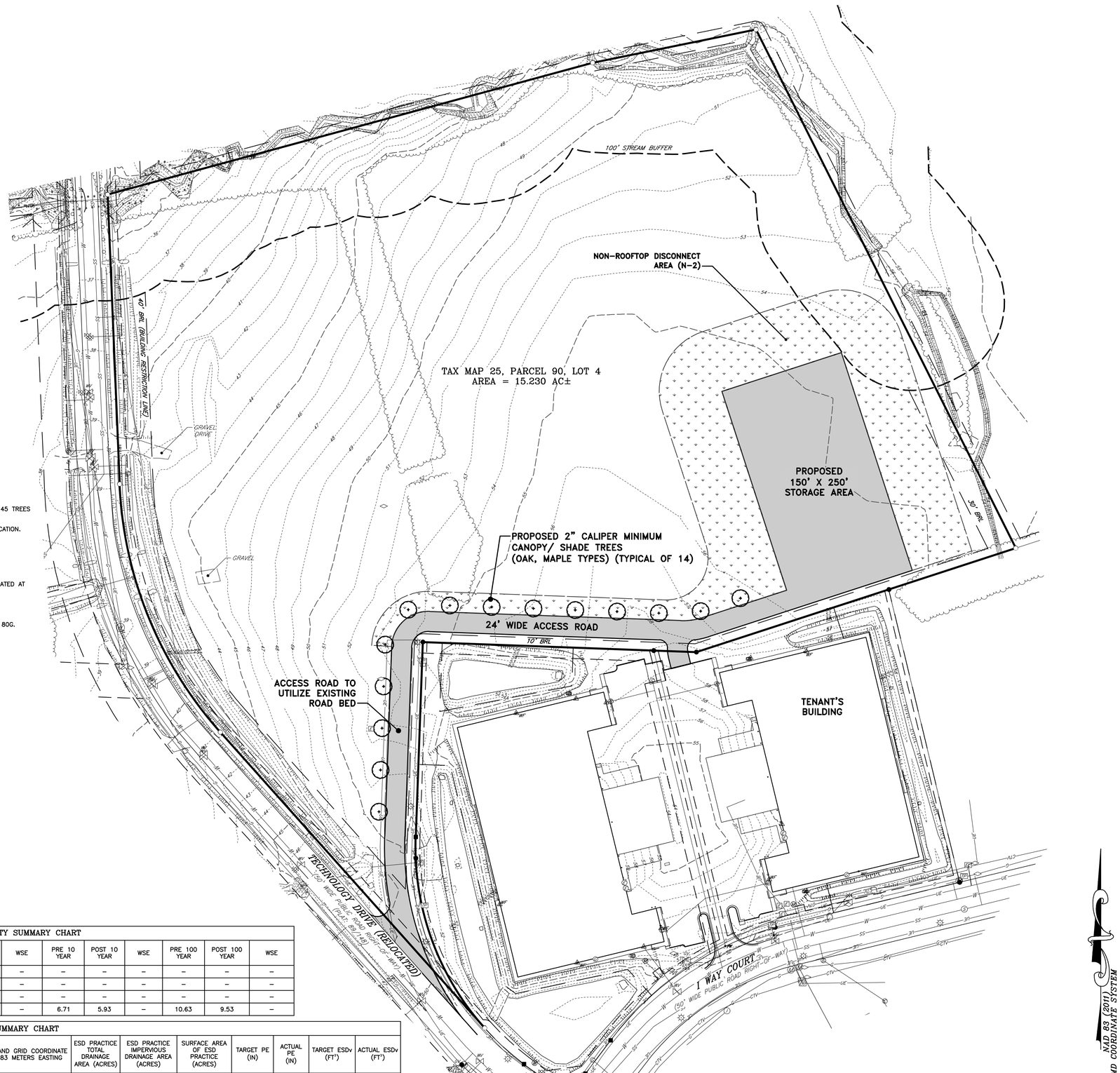
- SANITARY SEWER LINE
- DOMESTIC WATER LINE
- FLOOD ZONE LINE



SEE SHEET 1 OF 2 FOR EXISTING CONDITIONS PLAN.

NOTE: THE LAYOUT AS SHOWN HEREON IS CONCEPTUAL ONLY AND NOT INTENDED TO BE UTILIZED FOR DESIGN OR CONSTRUCTION PURPOSES.

60' 30' 0' 30' 60' 120'
SCALE IN FEET

SWM QUANTITY SUMMARY CHART

AREA	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
P-1	0.432	0.166	83	25.7	–	–	–	–	–	–	–	–	–
P-2	1.411	0.592	84	29.8	–	–	–	–	–	–	–	–	–
P-3	1.219	0.472	83	30.8	–	–	–	–	–	–	–	–	–
SP-1	–	–	–	–	3.54	3.03	–	6.71	5.93	–	10.63	9.53	–

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)
P-1	N-2	NON-ROOFTOP DISCONNECT	ON-SITE	83	419688.53	1576574.26	0.432	0.166	0.266	1.8	1	1,120	573
P-2	N-2	NON-ROOFTOP DISCONNECT	ON-SITE	84	419885.17	1576788.08	1.411	0.592	0.819	1.8	1	3,940	2,040
P-3	N-2	NON-ROOFTOP DISCONNECT	ON-SITE	83	419900.76	1577054.12	1.219	0.472	0.747	1.8	1	3,172	1,627
TOTAL	–	–	–	–	–	–	3.062	1.230	1.832	1.8	1	8,232	4,240

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REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

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MARYLAND LAW
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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. 23152, Expiration Date: 7/3/2025.

SEAL
STATE OF MARYLAND
JOSEPH WILLIAM KUNKEL
PROFESSIONAL ENGINEER
8.6.24
DATE

SKETCH SITE PLAN

EASTON SUNRISE PARTNERS, LLC

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 4, PARCEL 92, LOT 4

ISSUED/REVISED FOR: AGENCY REVIEW
DATE: 08/06/24 BY: BCE

SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 230399
FILE No. 3208

Date: 08/07/2024 - 8:03am User: mrojcich Project Manager: BCE
Drawing Path: J:\2023\0300\230399\Civil3D_230399\Dwg\Plots\ESDR-RSK-PLTS-230399.dwg | Storage Sketch
XREF File(s): RSK-BASE-230399/YLD-BASE-230399/FOR-BASE-230399/CBS-BASE-24438-230399/VAB-BASE-200185/VSF-BASE-230399/CSW-BASE-230399/YBL-BASE-230399/LLP-BASE-230399/RL

CONCEPT STORMWATER MANAGEMENT REPORT

For

Lot 4 Easton Technology Center
9687 Technology Drive
Easton, Maryland

Developer

Easton Sunrise Partners, LLC
C/O Scott Wagner
928 Riverview Terrace
St. Michaels, MD 21663

Design Professional

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

Date Prepared

August 6, 2024

Prepared by

Matt Rajacich, E.I.T.

Reviewed by

Timothy W. Glass, P.E.
Principal

PROFESSIONAL CERTIFICATION: I hereby certify that this document was prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 23152, Expiration Date: 7/5/2025.

TABLE OF CONTENTS

SECTIONS LIST

1. Introduction
2. General Site Information
3. Proposed Project
4. Stormwater Management and Environmental Site Design (ESD)
   4.1 Stormwater Quantity Management
5. Conclusion

APPENDIX LIST

APPENDIX A – Maryland Environmental Site Design (ESD) Calculations
APPENDIX B – Drainage Area Maps
APPENDIX C – HydroCAD Quantity Management Report

9687 Technology Drive
STORMWATER MANAGEMENT REPORT

1. INTRODUCTION

This report addresses the concept stormwater management design for development of the property located at 9687 Technology Drive, Easton, Maryland. The stormwater management plan incorporates the requirements of the *2000 Maryland Stormwater Design Manual Volumes I and II* (Manual) as currently updated. Development projects are required to be reviewed during the concept, preliminary site development, and final design stages.

2. GENERAL SITE INFORMATION

Current site conditions consist of row crops. The site drains presently to an existing stream that leads to Goldsborough Creek. No historical on-site flooding problems exist.

Per the USDA soil maps, a majority of the site soils in the area of construction are Crosiadore Silt Loam. This soil is classified as a C/D soil. According to soil maps, soils downstream of the proposed construction site soils are Hambrook-Sassafras Complex which is classified as a B soil. Based on this, it assumed that on-site soils will act as drained C soils.

3. PROPOSED PROJECT

The developer proposes to construct a 150' x 250' laydown yard along with a 24' wide access road with plantings per Town requirements.

4. STORMWATER MANAGEMENT AND ENVIRONMENTAL SITE DESIGN (ESD)

An ESD target has been developed for disturbance associated with the development activity. This on-lot disturbance is 133,380 SF (3.062 ac) in Group C soils. The proposed access road and lay down yard will result in approximately 53,566 SF (1.229 ac) of impervious cover (40%). Utilizing table 5.3 and onsite soil conditions, a target P_E of 1.8" results in an ESD target volume of 8,232 cf. See Appendix A for calculations.

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

- Non-Rooftop Disconnect

The existing site is an active farm field with row crops and the site drains to an existing stream which leads to Goldsborough Creek. Chapter 1 of the Manual states that the primary goal of the stormwater management program is to maintain after development, as nearly as possible, the predevelopment runoff characteristics. The Stormwater Management Act of 2007 (Act) defines ESD as "…using small-scale stormwater management practices, nonstructural techniques, and better site planning to mimic natural hydrologic runoff characteristics and minimize the impact of land development on water resources." Under this definition, ESD includes:

1. Optimizing conservation of natural features (e.g. drainage patterns, soil, vegetation).
2. Minimizing impervious surfaces (e.g. pavement, concrete channels, roofs).
3. Slowing down runoff to maintain discharge timing and to increase infiltration and evapotranspiration.
4. Using other nonstructural practices or innovative technologies approved by MDE.

Later on in Chapter 5 of the Manual, it states that the use of storm drains and engineering conveyance systems should be minimized by using vegetated swales and other natural systems so that forests, buffers, and overland flow characteristics remain intact. It also states that stormwater management plans should maintain sheetflow and natural overland flow processes wherever feasible and provide stable conveyance of runoff off-site.

The proposed site is unique in Easton for the fact that there are opportunities to disconnect large portions of stormwater runoff utilizing sheetflow over turf grass. Conventionally for developments such as this, where groundwater is anticipated to be 4-5' underground, submerged gravel wetlands are proposed to handle stormwater management requirements. Due to the topography on-site, the only practical place to outfall the facility will be within an existing streambed. In order to convey runoff from the proposed laydown yard, a system of inlets and stormdrain pipes would also be needed. This is not ideal per the Manual. By utilizing disconnection, the total lot disturbance can be reduced, and the runoff generated by the proposed development can sheetflow in a non-erosive manner over turf grass. This will provide maximum opportunity for infiltration and recharge of site groundwater. This stormwater solution will also prevent impacts to the existing streambed where the site flows present day. Crosiadore Silt Loam is anticipated to have silt loam at the surface with sandy loams and gravely loamy sand 2' below the surface. In order to enhance the disconnect area, a soil amendment will be specified in order to promote infiltration and recharge of site groundwater.

The ESD volume provided by non-rooftop disconnect is 4,240 cf which equates to treating the minimum required rainfall depth of 1". This volume is less than the required ESD volume per table 5.3, but due to site conditions and the intent of the Manual, stormwater management has been implemented to the maximum extent practicable for this site by encouraging sheetflow and increasing the opportunity for groundwater recharge.

4.1 STORMWATER QUANTITY MANAGEMENT

The site currently drains to an existing stream which leads to Goldsborough Creek. The site exists as row crop present day. The proposed development of a laydown yard with a 75' wide grass disconnect area surrounding it will reduce runoff to the existing stream on-site. By utilizing turf grass around the proposed lay down yard, quantity management is achieved. A HydroCAD analysis proves that the proposed design meets the requirement to reduce post development stormwater runoff for the 2 and 10-year storms. Refer to Drainage Area Maps in Appendix B for information on site drainage and see Appendix C for HydroCAD analysis, also summarized in the table below.

	2 Year Storm (cfs)		**10 Year Storm (cfs)**		**100 Year Storm (cfs)**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
Study Point 1	3.54	3.03	6.71	5.93	10.63	9.53
NET REDUCTION	**0.51**		**0.78**		**1.10**	

5. CONCLUSION

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

APPENDIX A

MARYLAND ENVIRONMENTAL SITE DESIGN (ESD) CALCULATIONS

Maryland Environmental Site Design (ESD) Computations

Project	Lot 4 Easton Technology Center	By	MR	Job #	230399
Location	9687 Technology Drive	Date	8/6/2024	File #	3208

Determine if the Project is subject to Redevelopment Requirements:

Site Area = 3.062 ac
Net Site Area = 3.062 ac
Existing Imp. Area = 0 ac
Percent Impervious (I) = 0 %
I <40%. Project Not subject to Redevelopment requirements.

Step 1 - Determine Stormwater Management Requirements

Initial Site Assessment (Site Data):

Existing Conditions

Total Disturbance Area: 133,380 sf
Soil Types:

HSG	A	B	C	D
Area		133,380		
Percent		100.0		

Proposed Layout

Impervious Cover: 53,566 sf
Percent Impervious (I) 40 %

Determine RCNs for Wooded Conditions:

HSG	A	B	C	D
Area			133,380	
Percent			100.0	
RCN	38	55	70	77

Weighted RCN: **70**

Determine ESD Targets:

Rv = 0.05 +0.009(I)
= 0.41

From Table 5.3 and
%I = 40

HSG	A	B	C	D
Area			133,380	
Target P_E			1.8	

Composite Target P_E (in.): **1.80**

$$ESDv = \frac{(P_E)(Rv)(A)}{12}$$

= **8,232** **cf**

Step 2 - Preliminary ESD Options

Please refer to the Stormwater Management Report

Step 3 - ESD Design

Evaluation of specific ESD treatment practices for the project on the following sheets.

Non-Rooftop Disconnection Areas

Access Road (P-1)

Total Length		ft	Target ESDv =	$(P_E)(Rv)(A)/12$
Total Width		ft		
Impervious Area	7,244	sf		
Percent Impervious (I)	100	%	=	**573** cf
Rv = 0.05 +0.009(I)	0.95			
Pe	1	in		

Check for compliance with design criteria:

Non-Rooftop Disconnect Design Criteria:	**Provided**
_ Vegetated flowpath available downstream of impervious area	✓
_ Topography is 5% or less along disconnected flowpaths	✓
_Site is not a hot spot	✓
_Maximum contributing flowpath is less than 75 feet	✓
_ Runoff will drain in a safe and non-erosive manner	✓
_Sizing factor/length ratio supports Pe value used	✓
_Disconnections are > 10 ft from impervious surfaces	✓
_ Receiving areas are vegetated and discharge to no-disturbance buffer areas	✓
_ Erosion and sediment control practices are not located in receiving areas	✓

Non-Rooftop Disconnection Areas

Access Road and Laydown Yard (P-2)

Total Length		ft	Target ESDv = $(P_E)(Rv)(A)/12$
Total Width		ft	
Impervious Area	25,772	sf	
Percent Impervious (I)	100	%	= **2,040** cf
Rv = 0.05 +0.009(I)	0.95		
Pe	1	in	

Check for compliance with design criteria:

Non-Rooftop Disconnect Design Criteria:	**Provided**
_ Vegetated flowpath available downstream of impervious area	✓
_ Topography is 5% or less along disconnected flowpaths	✓
_Site is not a hot spot	✓
_Maximum contributing flowpath is less than 75 feet	✓
_ Runoff will drain in a safe and non-erosive manner	✓
_Sizing factor/length ratio supports Pe value used	✓
_Disconnections are > 10 ft from impervious surfaces	✓
_ Receiving areas are vegetated and discharge to no-disturbance buffer areas	✓
_ Erosion and sediment control practices are not located in receiving areas	✓

Non-Rooftop Disconnection Areas

Laydown Yard (P-3)

Total Length		ft	Target ESDv = $(P_E)(Rv)(A)/12$
Total Width		ft	
Impervious Area	20,550	sf	
Percent Impervious (I)	100	%	= **1,627** cf
Rv = 0.05 +0.009(I)	0.95		
Pe	1	in	

Check for compliance with design criteria:

Non-Rooftop Disconnect Design Criteria:	**Provided**
_ Vegetated flowpath available downstream of impervious area	✓
_ Topography is 5% or less along disconnected flowpaths	✓
_Site is not a hot spot	✓
_Maximum contributing flowpath is less than 75 feet	✓
_ Runoff will drain in a safe and non-erosive manner	✓
_Sizing factor/length ratio supports Pe value used	✓
_Disconnections are > 10 ft from impervious surfaces	✓
_ Receiving areas are vegetated and discharge to no-disturbance buffer areas	✓
_ Erosion and sediment control practices are not located in receiving areas	✓

ESD SUMMARY CHART

DRAINAGE AREA	TYPE OF ESD PRACTICE	NAME OF ESD PRACTICE (STRUCTURE NAME)	ON-SITE OR OFF-SITE STRUCTURE	RUNOFF CURVE NUMBER (RCN) WEIGHTED	MARYLAND GRID COORDINATE NAD 83 METERS NORTHING	MARYLAND GRID COORDINATE NAD 83 METERS EASTING	ESD PRACTICE TOTAL DRAINAGE AREA (ACRES)	ESD PRACTICE IMPERVIOUS DRAINAGE AREA (ACRES)	SURFACE AREA OF ESD PRACTICE (ACRES)	TARGET PE (IN.)	ACTUAL PE (IN.)	TARGET ESDv ($FT.^3$)	ACTUAL ESDv ($ft.^3$)
P-1	N-2	NON-ROOFTOP DISCONNECT	ON-SITE	83	419688.53	1576574.26	0.432	0.166	0.266	1.8	1	1,120	573
P-2	N-2	NON-ROOFTOP DISCONNECT	ON-SITE	84	419885.17	1576788.08	1.411	0.592	0.819	1.8	1	3,940	2,040
P-3	N-2	NON-ROOFTOP DISCONNECT	ON-SITE	83	419900.76	1577054.12	1.219	0.472	0.747	1.8	1	3,172	1,627
4													
5													
6													
7													
8													
9													
10													
TOTAL/ AVERAGE				-			3.062	1.230	1.832	1.8	1	8,232	4,240

TOWN OF EASTON MARYLAND · FOUNDED 1710 ·

APPROVAL

TOWN ENGINEER

1/2020

DATE

ISSUED: JANUARY 2020

TOWN OF EASTON
STANDARD DETAILS

ESD SUMMARY CHART

STANDARD NO.: TOE-SWM-7.01

SWM QUANTITY SUMMARY CHART

~~PRACTICE~~ Area	DA (ACRES)	IMPERVIOUS (ACRES)	RCN	Tc (MINUTES)	PRE 2 YEAR	POST 2 YEAR	W.S.E.	PRE 10 YEAR	POST 10 YEAR	W.S.E.	PRE 100 YEAR	POST 100 YEAR	W.S.E.
P-1	0.432	0.166	83	25.7									
P-2	1.411	0.592	84	29.8									
P-3	1.219	0.472	83	30.8									
SP-1					3.54	3.03	-	6.71	5.93	-	10.63	9.53	-

TOWN OF EASTON MARYLAND · FOUNDED 1710 ·

APPROVAL

TOWN ENGINEER

1/2020
DATE

TOWN OF EASTON
STANDARD DETAILS

SWM QUANTITY SUMMARY CHART

ISSUED: JANUARY 2020

STANDARD NO.: TOE-SWM-7.02

APPENDIX B

DRAINAGE AREA MAPS

SWM PRE DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	3.54	6.71	10.63

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
EX-1	18,824	14.20	0%	ROW CROP
EX-2	114,556	27.30	0%	ROW CROP

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

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.

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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. 23152, Expiration Date: 7/8/2025.

SEAL

8.6.24
DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

EASTON SUNRISE PARTNERS, LLC

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 4, PARCEL 92, LOT 4

ISSUED/REVISED FOR:	DATE:	BY:
AGENCY REVIEW	08/06/24	BCE

SHEET No. 1 OF 2

SCALE: AS NOTED

JOB No. 230399

FILE No. 3208

LEGEND

- CONCRETE MONUMENT FOUND
- IRON ROD FOUND
- COMPUTED POINT
- IRON ROD SET
- GV — GAS SHUTOFF VALVE
- G — GAS LINE
- CTV — CABLE TV LINE
- UTILITY POLE
- E — ELECTRIC LINE
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- SS — SANITARY SEWER LINE
- STORM DRAIN INLET
- WATER METER
- WV — WATER VALVE
- FIRE HYDRANT
- W — DOMESTIC WATER LINE
- SD — STORM DRAIN LINE

TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
CsA	CROSIADORE SILT LOAM	*	0.49	C/D
FaA	FALLSINGTON SANDY LOAM	YES		C/D
HfB	HAMBROOK-SASSAFRAS COMPLEX		0.37	B
IgB	INGLESIDE SANDY LOAM		0.15	A
LgA	LENNI LOAM	YES		D
WoA	WOODSTOWN LOAM	*	0.32	C

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

TAX MAP 25, PARCEL 92, LOT 4
AREA = 15.230 AC±

EX-2

EX-1

TAX MAP 25, PARCEL 92, LOT 3
EASTON SUNRISE PARTNERS, LLC
DEED: 2754/19
PLAT: 89/149
ZONING: BC

TAX MAP 25, PARCEL 90, LOT 11
ZIG, LLC
DEED: 2529/336
PLAT: 4/80G
ZONING: BC

TAX MAP 25, PARCEL 90, LOT 12
EASTON SUNRISE PARTNERS, LLC
DEED: 2804/456
PLAT: 91/51
ZONING: BC

TAX MAP 25, PARCEL 90, LOT 13
EASTON SUNRISE PARTNERS, LLC
DEED: 2804/456
PLAT: 91/51
ZONING: BC

100' STREAM BUFFER

FLOOD ZONE

30' BRL (BUILDING RESTRICTION LINE)

10' BRL

GRAVEL DRIVE

SWM EASEMENT AREA 1 (DEED: 2804/456)

SWM EASEMENT AREA 2 (DEED: 2804/456)

SWM EASEMENT AREA 3 (DEED: 2804/456)

5' WIDE UTILITIES DISTRIBUTION RIGHT-OF-WAY AND EASEMENT

10' WIDE UTILITIES DISTRIBUTION RIGHT-OF-WAY AND EASEMENT

N 76°29'49" E 199.28'

N 72°41'57" E 400.98'

S 76°53'14" E 403.56'

S 71°58'01" W 401.52'

N 87°54'36" W 327.11'

N 02°05'24" W 233.22'

N 41°06'47" W 47.33'

N 02°22'59" W 346.41'

TECHNOLOGY DRIVE (RELOCATED)
(50' WIDE PUBLIC ROAD RIGHT-OF-WAY)

I WAY COURT
(50' WIDE PUBLIC ROAD RIGHT-OF-WAY)

NAD 83 (2011) MD COORDINATE SYSTEM

60' 30' 0' 30' 60' 120'
SCALE IN FEET

Date: 08/06/2024 - 4:39pm User: mrojcich Project Manager: BCE
Drawing Path: J:\2023\0300\230399\Civil3D-230399\Dwg\Plots\CDA-PLTS-230399.dwg | PRE
XREF File(s): XLD-BASE-230399/VSF-BASE-230399/RSK-BASE-230399/VDA-BASE-230399/CDA-BASE-230399/CSW-BASE-230399/HSL-BASE-230399/CBS-BASE-24X36-230399

SWM POST DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	3.03	5.93	9.53

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
P-1	18,824	25.70	38%	ACCESS ROAD
P-2	61,463	29.80	42%	ACCESS ROAD AND LAY DOWN YARD
P-3	53,093	30.80	39%	LAY DOWN YARD

PLANS ARE ISSUED FOR REVIEW ONLY

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REVISIONS TO APPROVED PLANS			
No.	DATE	DESCRIPTION	BY

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SEAL

8.6.24
DATE

POST-DEVELOPMENT DRAINAGE AREA MAP

EASTON SUNRISE PARTNERS, LLC

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 25, GRID 4, PARCEL 92, LOT 4

ISSUED/REVISED FOR:	DATE:	BY:
AGENCY REVIEW	08/06/24	BCE

SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 230399
FILE No. 3208

LEGEND

- CONCRETE MONUMENT FOUND
- IRON ROD FOUND
- COMPUTED POINT
- IRON ROD SET
- GAS SHUTOFF VALVE
- GAS LINE
- CABLE TV LINE
- UTILITY POLE
- ELECTRIC LINE
- SANITARY SEWER CLEAN OUT
- SANITARY SEWER MANHOLE
- SANITARY SEWER LINE
- STORM DRAIN INLET
- WATER METER
- WATER VALVE
- FIRE HYDRANT
- DOMESTIC WATER LINE
- STORM DRAIN LINE

TALBOT COUNTY SOILS				
MAP SYMBOL	SOILS NAME	HYDRIC SOILS	K FACTOR	SOIL GROUP
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FaA	FALLSINGTON SANDY LOAM	YES		C/D
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LgA	LENNI LOAM	YES		D
WoA	WOODSTOWN LOAM	*	0.32	C

* POSSIBLE SMALL AREAS OF HYDRIC SOIL INCLUSIONS SUBJECT TO FIELD VERIFICATION.

P-1
P-2
P-3

NON-ROOFTOP DISCONNECT AREA (N-2)

TAX MAP 25, PARCEL 92, LOT 4
AREA = 15.230 AC±

TAX MAP 25, PARCEL 92, LOT 3
EASTON SUNRISE PARTNERS, LLC
DEED: 2754/19
PLAT: 89/149
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TAX MAP 25, PARCEL 90, LOT 11
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EASTON SUNRISE PARTNERS, LLC
DEED: 2804/456
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ZONING: BC

TAX MAP 25, PARCEL 90, LOT 13
EASTON SUNRISE PARTNERS, LLC
DEED: 2804/456
PLAT: 91/51
ZONING: BC

STUDY POINT 1

100' STREAM BUFFER

FLOOD ZONE

GRAVEL DRIVE

SWM EASEMENT AREA 1 (DEED: 2804/456)

SWM EASEMENT AREA 2 (DEED: 2804/456)

SWM EASEMENT AREA 3 (DEED: 2804/456)

5' WIDE UTILITIES DISTRIBUTION RIGHT-OF-WAY AND EASEMENT

10' WIDE UTILITIES DISTRIBUTION RIGHT-OF-WAY AND EASEMENT

30' BRL

10' BRL

TECHNOLOGY DRIVE (RELOCATED)
(50' WIDE PUBLIC ROAD RIGHT-OF-WAY)

I WAY COURT
(50' WIDE PUBLIC ROAD RIGHT-OF-WAY)

N 76°29'49" E 199.28'
N 74°15'57" E 406.98'
S 71°58'01" W 401.52'
S 85°37'47" E 403.52'
N 87°54'36" W 327.11'
S 02°05'24" W 233.22'
N 41°06'23" W 47.33'
N 02°22'59" W 345.64'

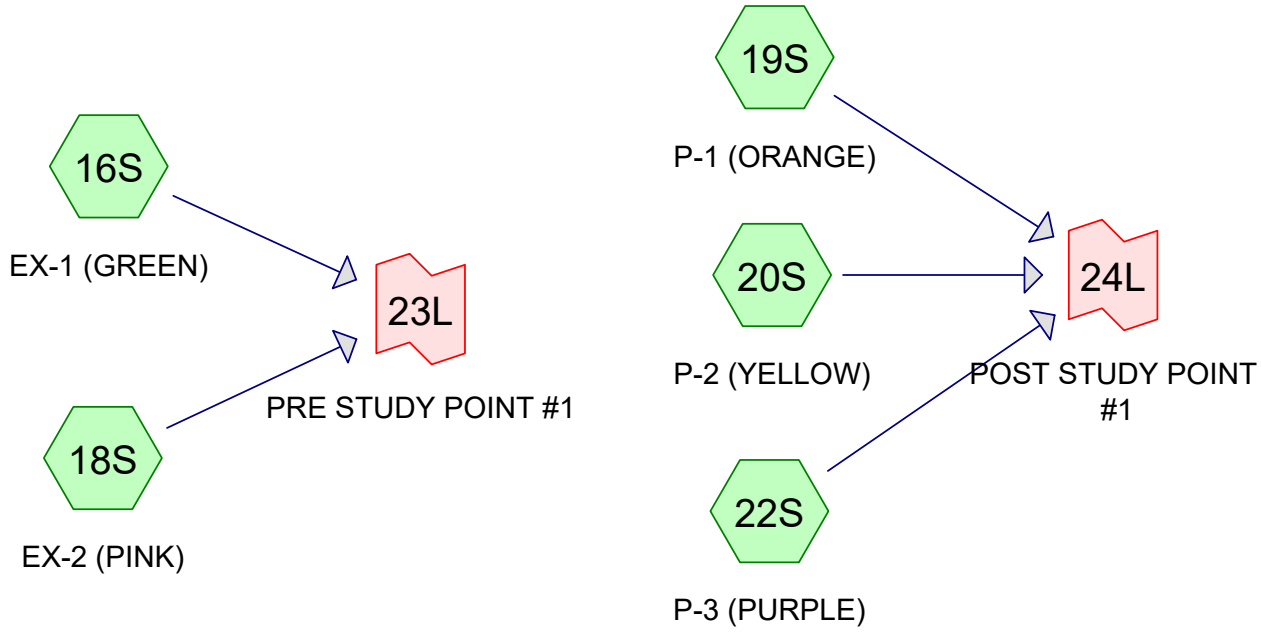
SCALE IN FEET
60' 30' 0' 30' 60' 120'

MD COORDINATE SYSTEM NAD 83 (2011)

Date: 08/06/2024 - 4:39pm User: mrojacich Project Manager: BCE
Drawing Path: J:\2023\0300\230399\Civil3D-230399\Dwg\Plots\CDA-PLTS-230399.dwg | POST
XREF File(s): XLD-BASE-230399/VSF-BASE-230399/RSK-BASE-230399/VDA-BASE-230399/CDA-BASE-230399/CSW-BASE-230399/HSL-BASE-230399/CBS-BASE-24X36-230399

APPENDIX C

HydroCAD Report



Subcat Reach Pond Link

Routing Diagram for 230399-CONCEPT
Prepared by Lane Engineering, LLC, Printed 8/6/2024
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment 16S: EX-1 (GREEN)

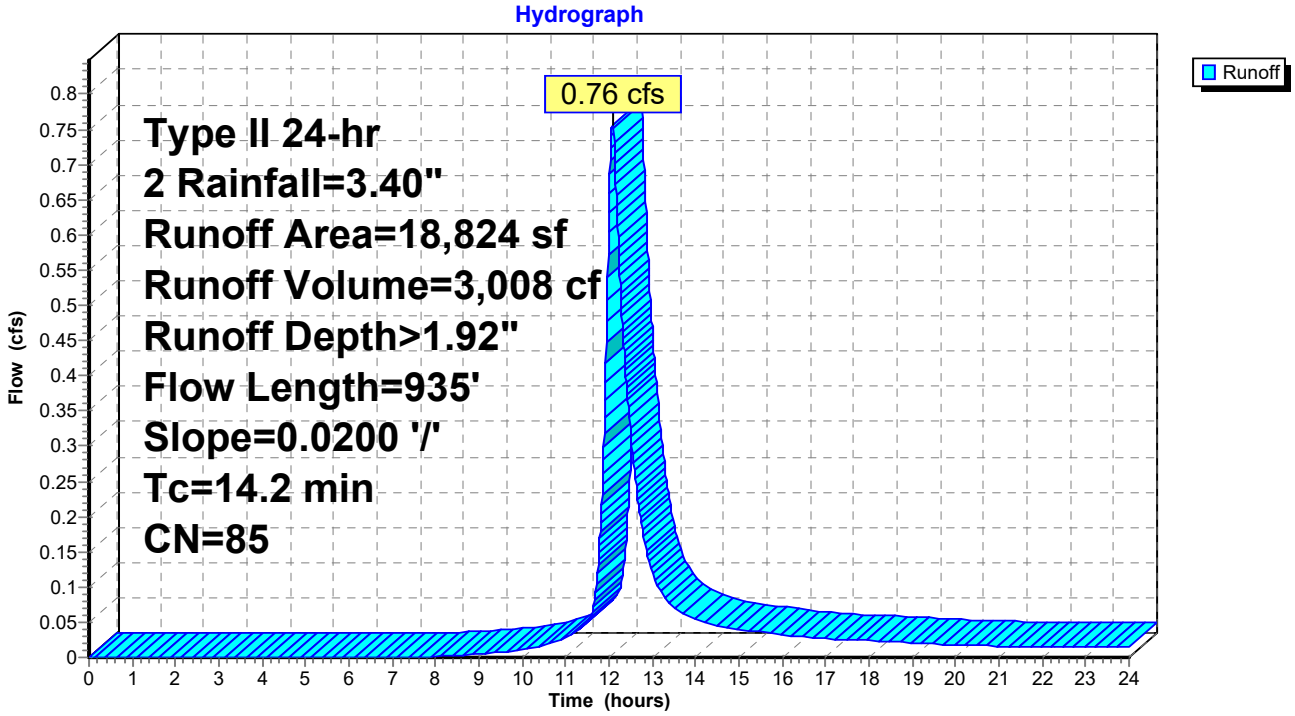
Runoff = 0.76 cfs @ 12.08 hrs, Volume= 3,008 cf, Depth> 1.92"

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 Rainfall=3.40"

Area (sf)	CN	Description
18,824	85	Row crops, straight row, Good, HSG C
18,824		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	150	0.0200	0.40		**Sheet Flow, A-B SHEET** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
7.3	559	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
0.6	226	0.0200	6.80	135.97	**Channel Flow, C-D CHANNEL** Area= 20.0 sf Perim= 16.6' r= 1.20' n= 0.035 Short grass
14.2	935	Total			

Subcatchment 16S: EX-1 (GREEN)



Summary for Subcatchment 18S: EX-2 (PINK)

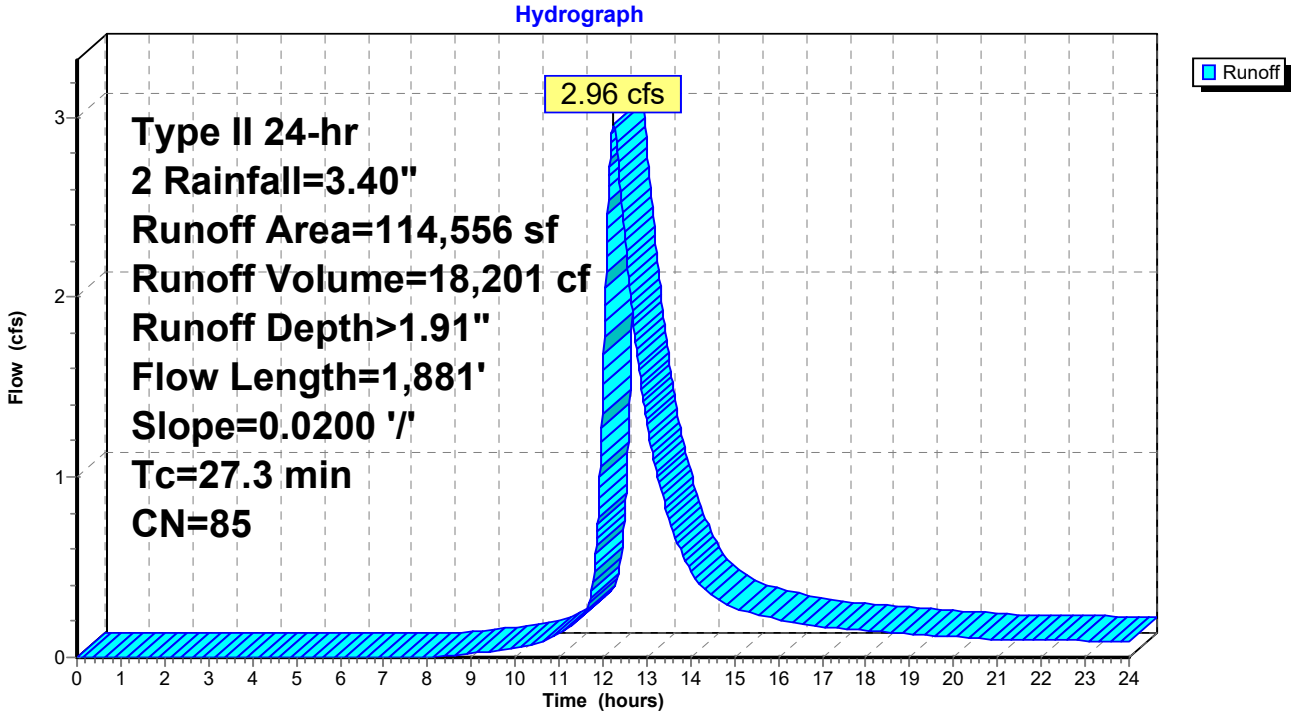
Runoff = 2.96 cfs @ 12.25 hrs, Volume= 18,201 cf, Depth> 1.91"

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 Rainfall=3.40"

Area (sf)	CN	Description
114,556	85	Row crops, straight row, Good, HSG C
114,556		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	150	0.0200	0.40		**Sheet Flow, A-B SHEET** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
4.7	360	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
16.3	1,371	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
27.3	1,881	Total			

Subcatchment 18S: EX-2 (PINK)



Summary for Subcatchment 19S: P-1 (ORANGE)

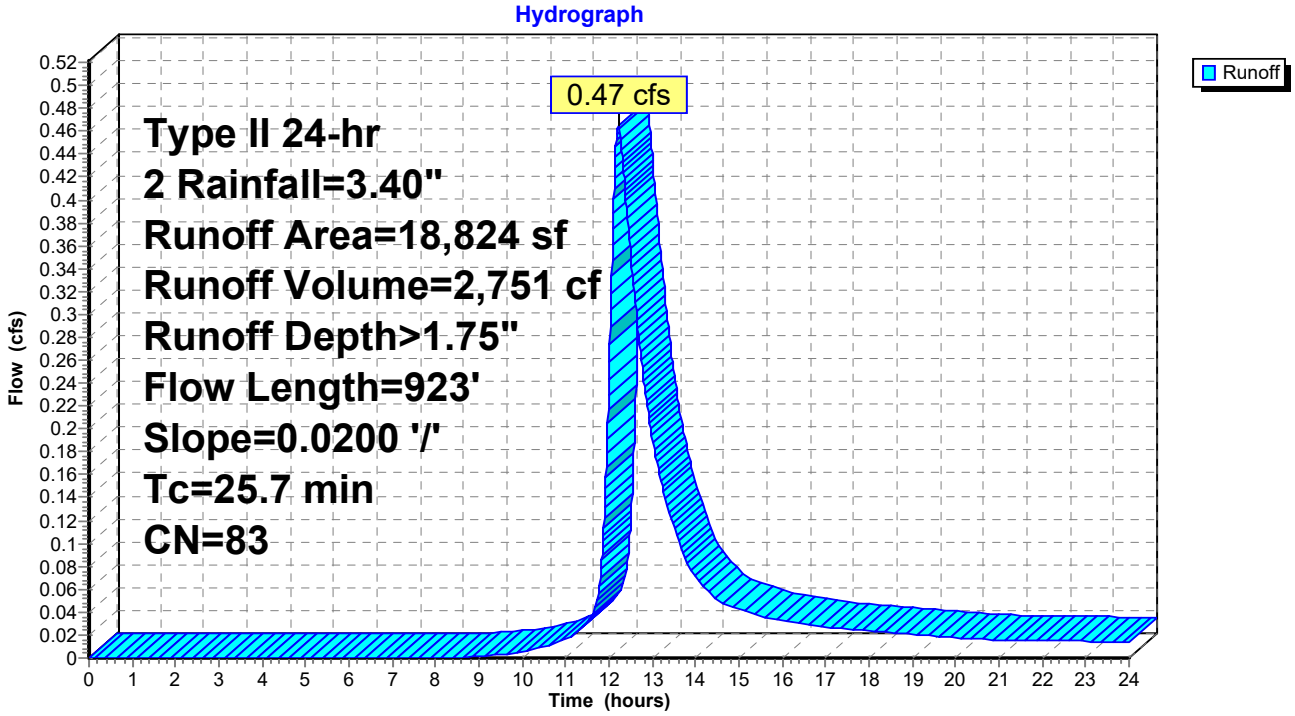
Runoff = 0.47 cfs @ 12.22 hrs, Volume= 2,751 cf, Depth> 1.75"

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 Rainfall=3.40"

Area (sf)	CN	Description
7,244	98	Paved parking, HSG C
11,580	74	>75% Grass cover, Good, HSG C
18,824	83	Weighted Average
11,580		61.52% Pervious Area
7,244		38.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
17.6	135	0.0200	0.13		**Sheet Flow, B-C SHEET** Grass: Dense n= 0.240 P2= 3.40"
7.2	547	0.0200	1.27		**Shallow Concentrated Flow, C-D SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
0.6	226	0.0200	6.80	135.97	**Channel Flow, D-E CHANNEL** Area= 20.0 sf Perim= 16.6' r= 1.20' n= 0.035 Short grass
25.7	923	Total			

Subcatchment 19S: P-1 (ORANGE)



Summary for Subcatchment 20S: P-2 (YELLOW)

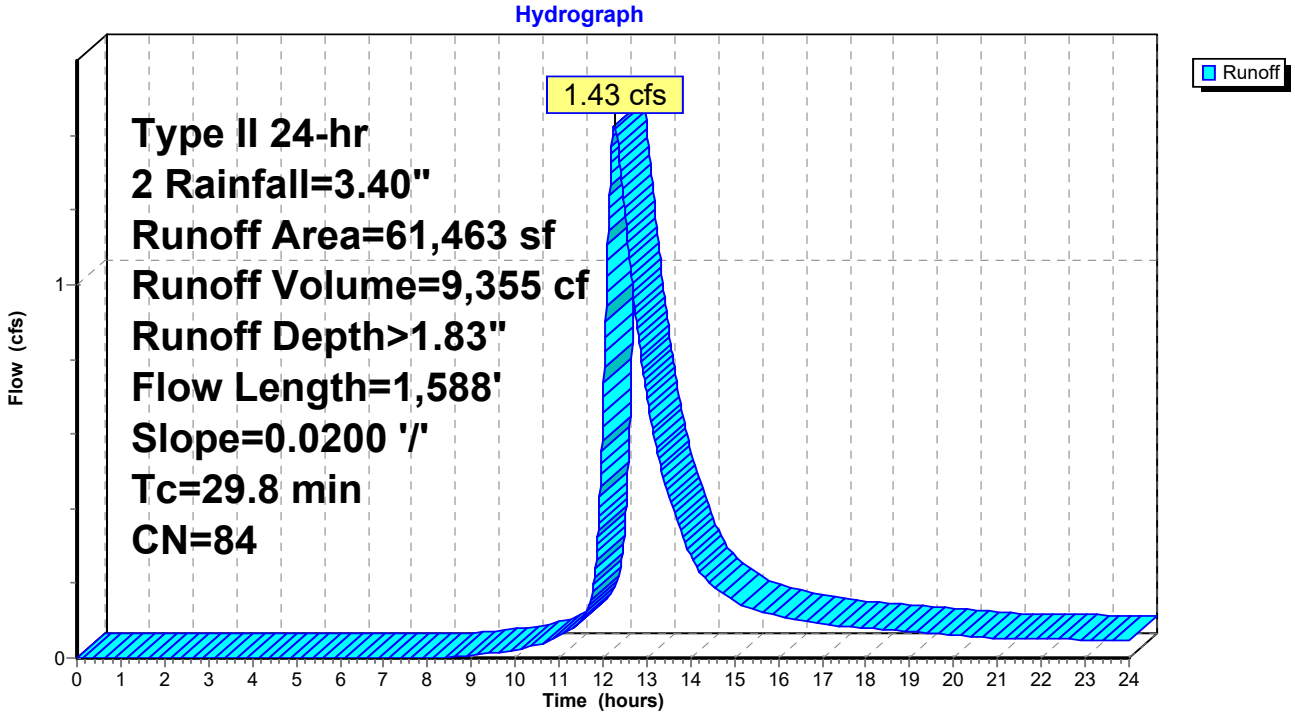
Runoff = 1.43 cfs @ 12.25 hrs, Volume= 9,355 cf, Depth> 1.83"

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 2 Rainfall=3.40"

Area (sf)	CN	Description
25,772	98	Paved parking, HSG C
35,691	74	>75% Grass cover, Good, HSG C
61,463	84	Weighted Average
35,691		58.07% Pervious Area
25,772		41.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	75	0.0200	1.34		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
11.0	75	0.0200	0.11		**Sheet Flow, B_C SHEET** Grass: Dense n= 0.240 P2= 3.40"
8.2	623	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
9.7	815	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
29.8	1,588	Total			

Subcatchment 20S: P-2 (YELLOW)



Summary for Subcatchment 22S: P-3 (PURPLE)

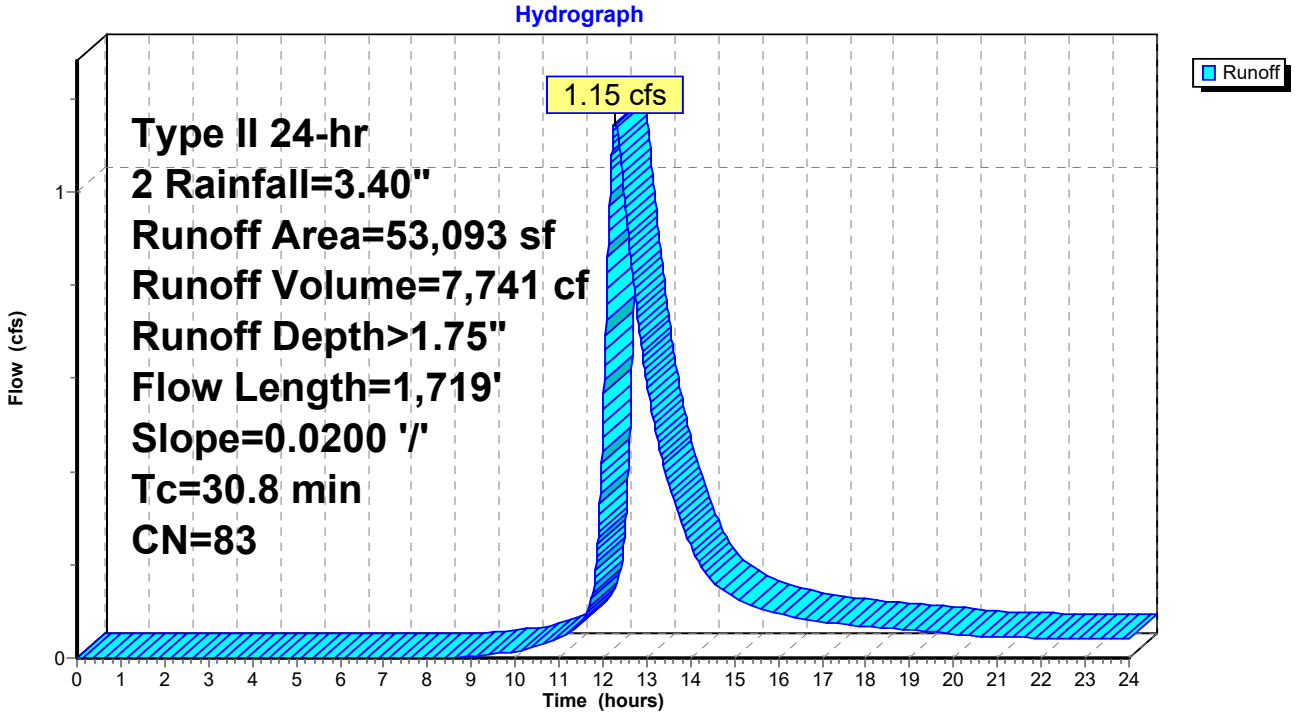
Runoff = 1.15 cfs @ 12.26 hrs, Volume= 7,741 cf, Depth> 1.75"

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 Rainfall=3.40"

Area (sf)	CN	Description
20,550	98	Paved parking, HSG C
32,543	74	>75% Grass cover, Good, HSG C
53,093	83	Weighted Average
32,543		61.29% Pervious Area
20,550		38.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	75	0.0200	1.34		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
11.0	75	0.0200	0.11		**Sheet Flow, B_C SHEET** Grass: Dense n= 0.240 P2= 3.40"
2.6	198	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
16.3	1,371	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
30.8	1,719	Total			

Subcatchment 22S: P-3 (PURPLE)

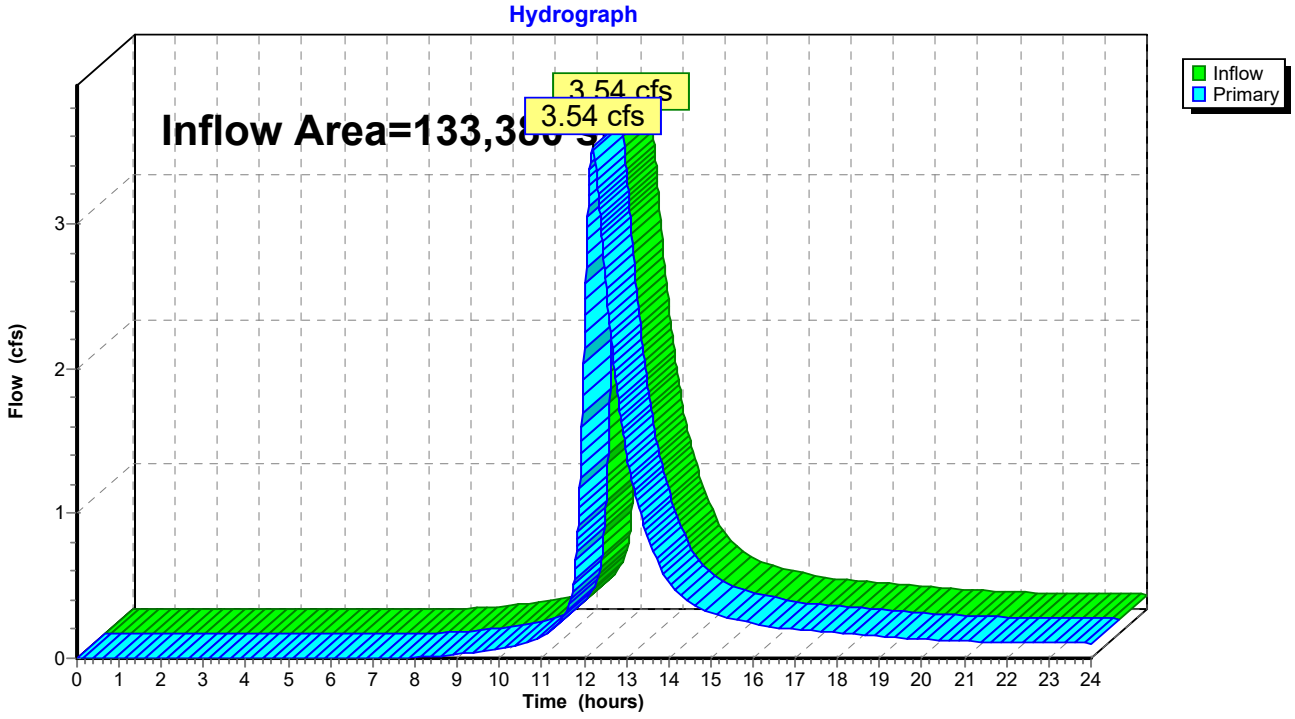


Summary for Link 23L: PRE STUDY POINT #1

Inflow Area = 133,380 sf, 0.00% Impervious, Inflow Depth > 1.91" for 2 event
Inflow = 3.54 cfs @ 12.20 hrs, Volume= 21,209 cf
Primary = 3.54 cfs @ 12.20 hrs, Volume= 21,209 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 23L: PRE STUDY POINT #1

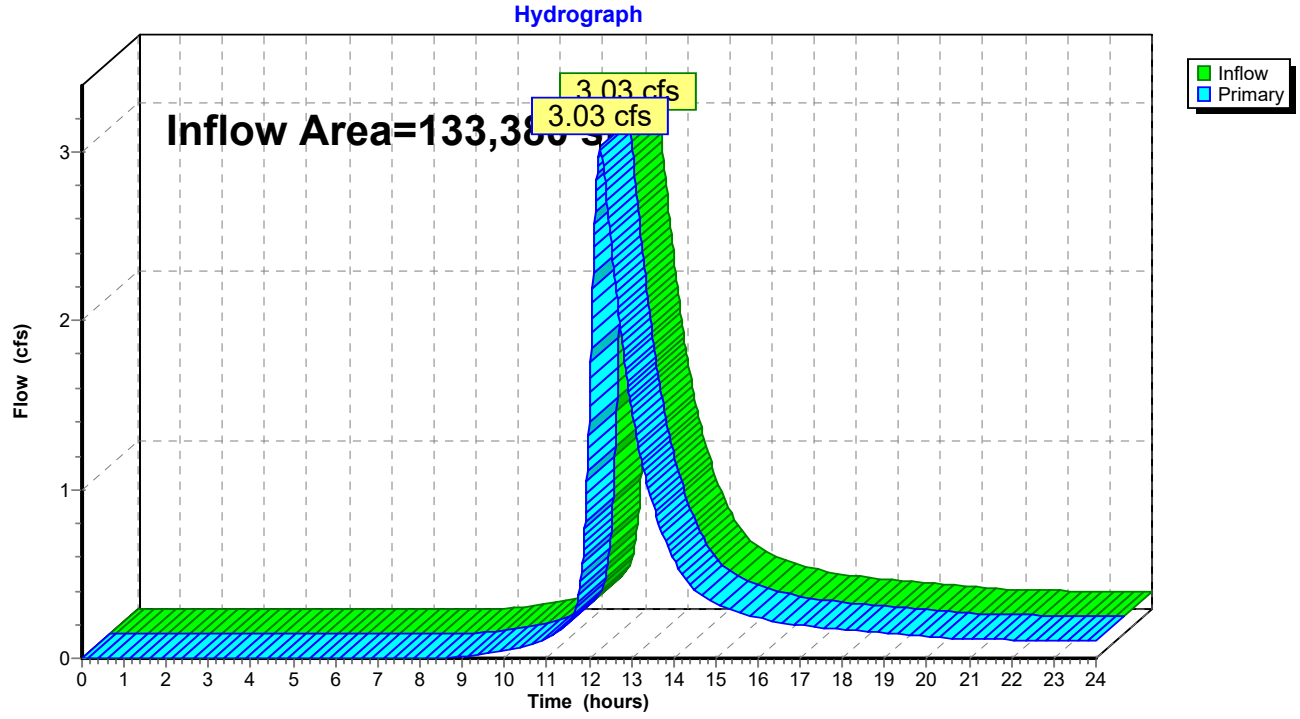


Summary for Link 24L: POST STUDY POINT #1

Inflow Area = 133,380 sf, 40.16% Impervious, Inflow Depth > 1.79" for 2 event
Inflow = 3.03 cfs @ 12.25 hrs, Volume= 19,848 cf
Primary = 3.03 cfs @ 12.25 hrs, Volume= 19,848 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 24L: POST STUDY POINT #1



Summary for Subcatchment 16S: EX-1 (GREEN)

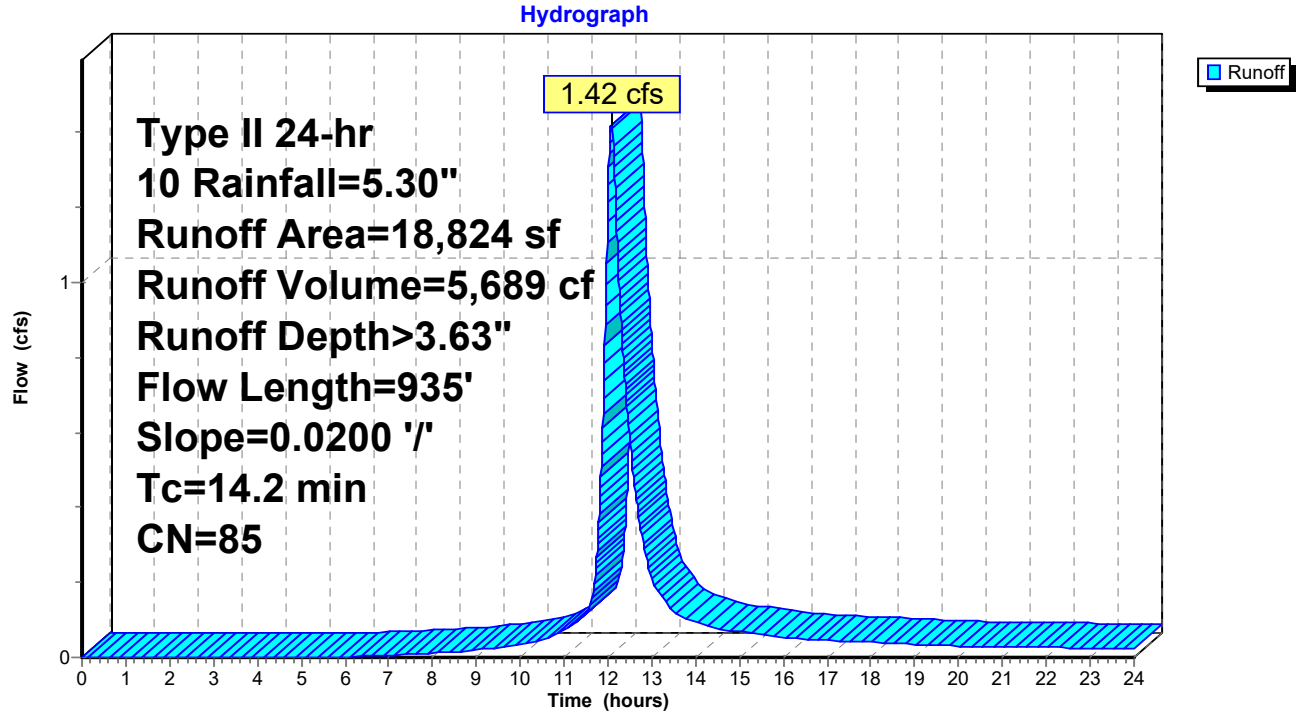
Runoff = 1.42 cfs @ 12.08 hrs, Volume= 5,689 cf, Depth> 3.63"

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 Rainfall=5.30"

Area (sf)	CN	Description
18,824	85	Row crops, straight row, Good, HSG C
18,824		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	150	0.0200	0.40		**Sheet Flow, A-B SHEET** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
7.3	559	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
0.6	226	0.0200	6.80	135.97	**Channel Flow, C-D CHANNEL** Area= 20.0 sf Perim= 16.6' r= 1.20' n= 0.035 Short grass
14.2	935	Total			

Subcatchment 16S: EX-1 (GREEN)



Summary for Subcatchment 18S: EX-2 (PINK)

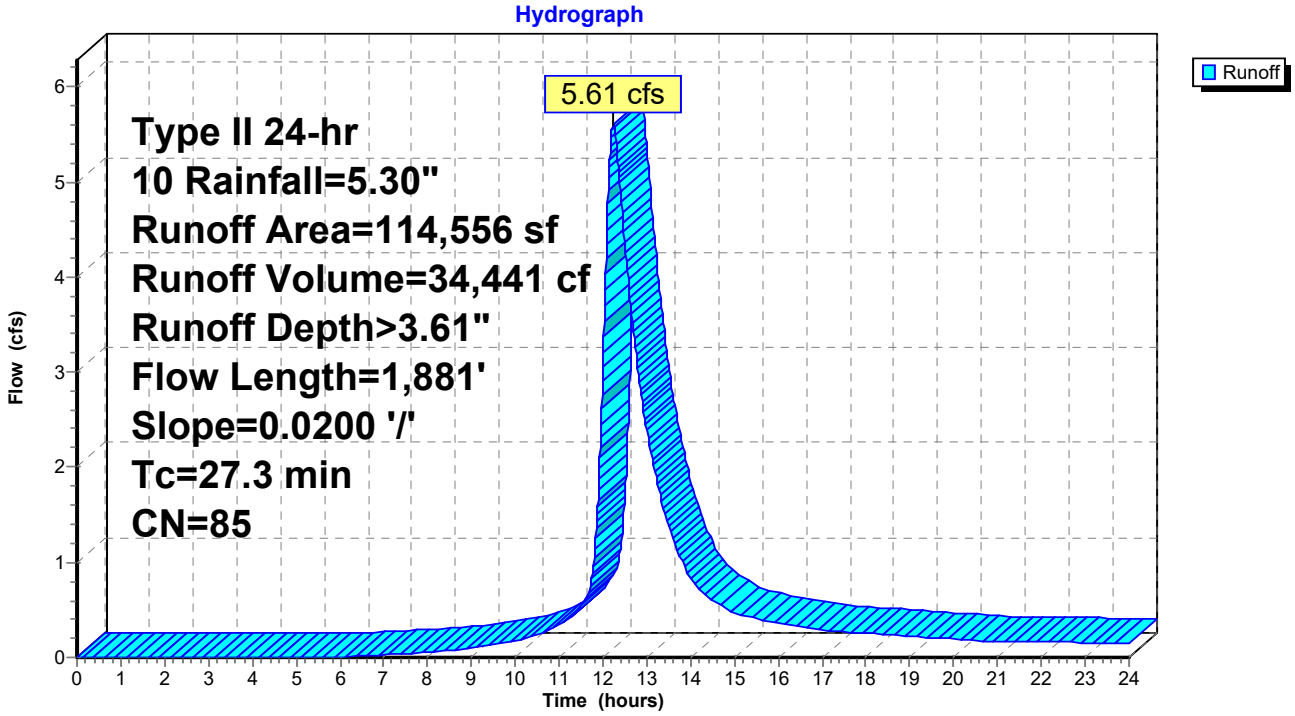
Runoff = 5.61 cfs @ 12.25 hrs, Volume= 34,441 cf, Depth> 3.61"

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 Rainfall=5.30"

Area (sf)	CN	Description
114,556	85	Row crops, straight row, Good, HSG C
114,556		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	150	0.0200	0.40		**Sheet Flow, A-B SHEET** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
4.7	360	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
16.3	1,371	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
27.3	1,881	Total			

Subcatchment 18S: EX-2 (PINK)



Summary for Subcatchment 19S: P-1 (ORANGE)

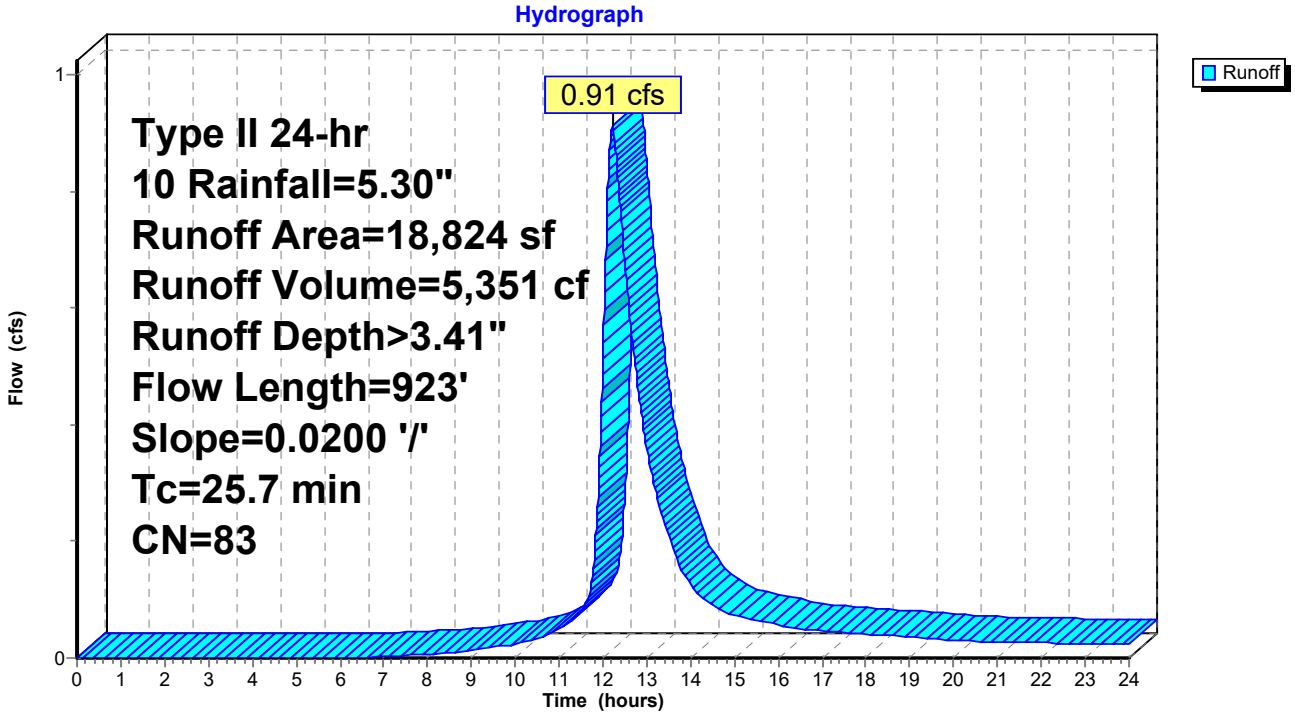
Runoff = 0.91 cfs @ 12.22 hrs, Volume= 5,351 cf, Depth> 3.41"

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 Rainfall=5.30"

Area (sf)	CN	Description
7,244	98	Paved parking, HSG C
11,580	74	>75% Grass cover, Good, HSG C
18,824	83	Weighted Average
11,580		61.52% Pervious Area
7,244		38.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
17.6	135	0.0200	0.13		**Sheet Flow, B-C SHEET** Grass: Dense n= 0.240 P2= 3.40"
7.2	547	0.0200	1.27		**Shallow Concentrated Flow, C-D SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
0.6	226	0.0200	6.80	135.97	**Channel Flow, D-E CHANNEL** Area= 20.0 sf Perim= 16.6' r= 1.20' n= 0.035 Short grass
25.7	923	Total			

Subcatchment 19S: P-1 (ORANGE)



Summary for Subcatchment 20S: P-2 (YELLOW)

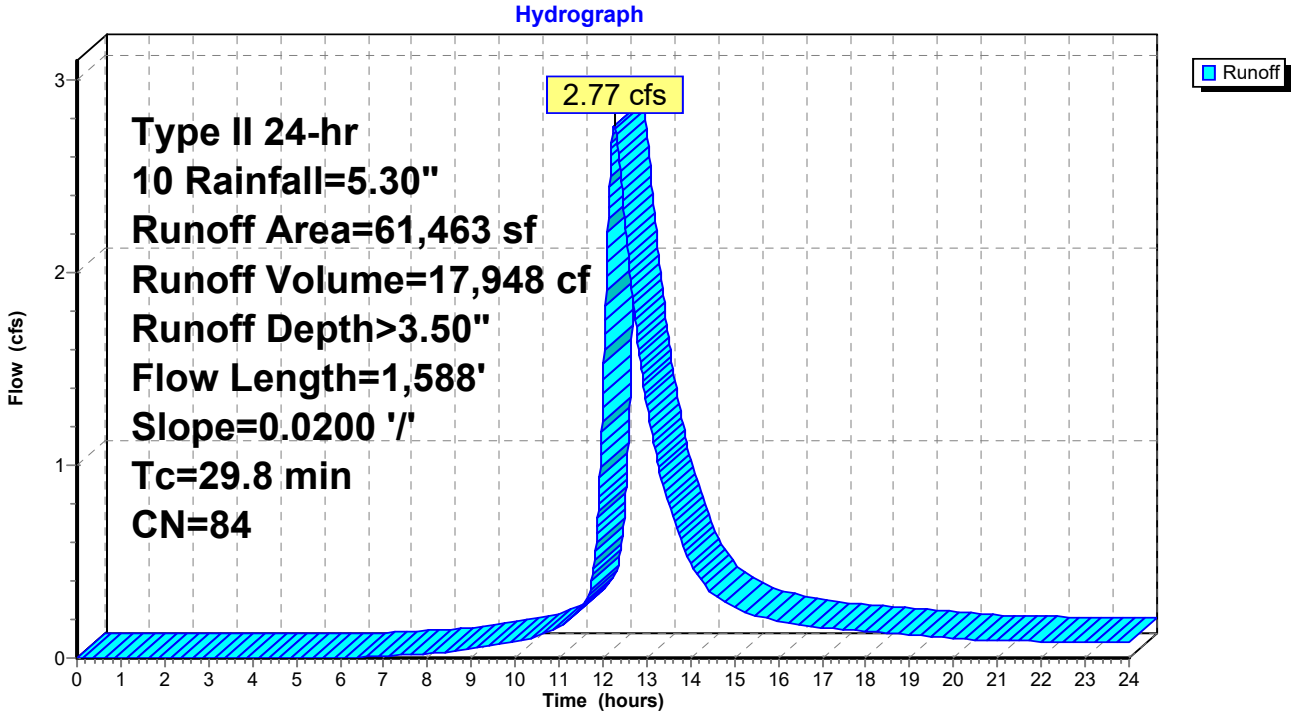
Runoff = 2.77 cfs @ 12.25 hrs, Volume= 17,948 cf, Depth> 3.50"

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 Rainfall=5.30"

Area (sf)	CN	Description
25,772	98	Paved parking, HSG C
35,691	74	>75% Grass cover, Good, HSG C
61,463	84	Weighted Average
35,691		58.07% Pervious Area
25,772		41.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	75	0.0200	1.34		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
11.0	75	0.0200	0.11		**Sheet Flow, B_C SHEET** Grass: Dense n= 0.240 P2= 3.40"
8.2	623	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
9.7	815	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
29.8	1,588	Total			

Subcatchment 20S: P-2 (YELLOW)



Summary for Subcatchment 22S: P-3 (PURPLE)

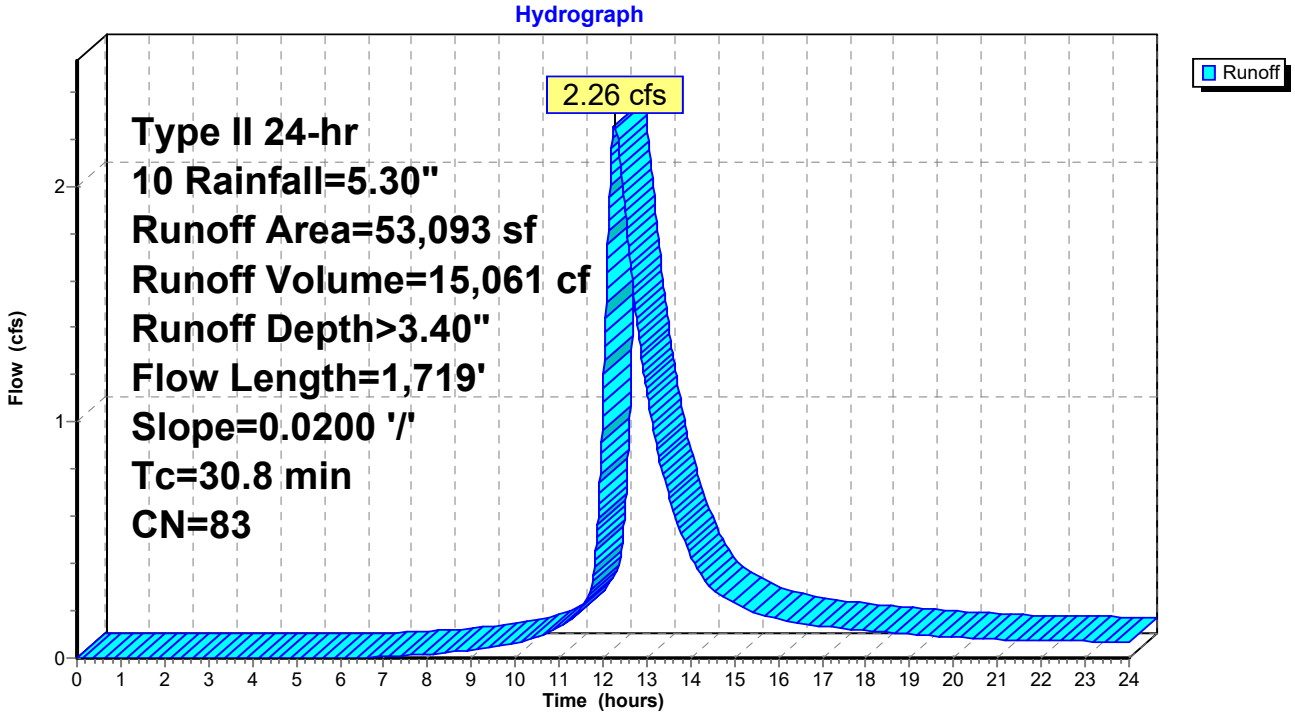
Runoff = 2.26 cfs @ 12.26 hrs, Volume= 15,061 cf, Depth> 3.40"

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 Rainfall=5.30"

Area (sf)	CN	Description
20,550	98	Paved parking, HSG C
32,543	74	>75% Grass cover, Good, HSG C
53,093	83	Weighted Average
32,543		61.29% Pervious Area
20,550		38.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	75	0.0200	1.34		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
11.0	75	0.0200	0.11		**Sheet Flow, B_C SHEET** Grass: Dense n= 0.240 P2= 3.40"
2.6	198	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
16.3	1,371	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
30.8	1,719	Total			

Subcatchment 22S: P-3 (PURPLE)

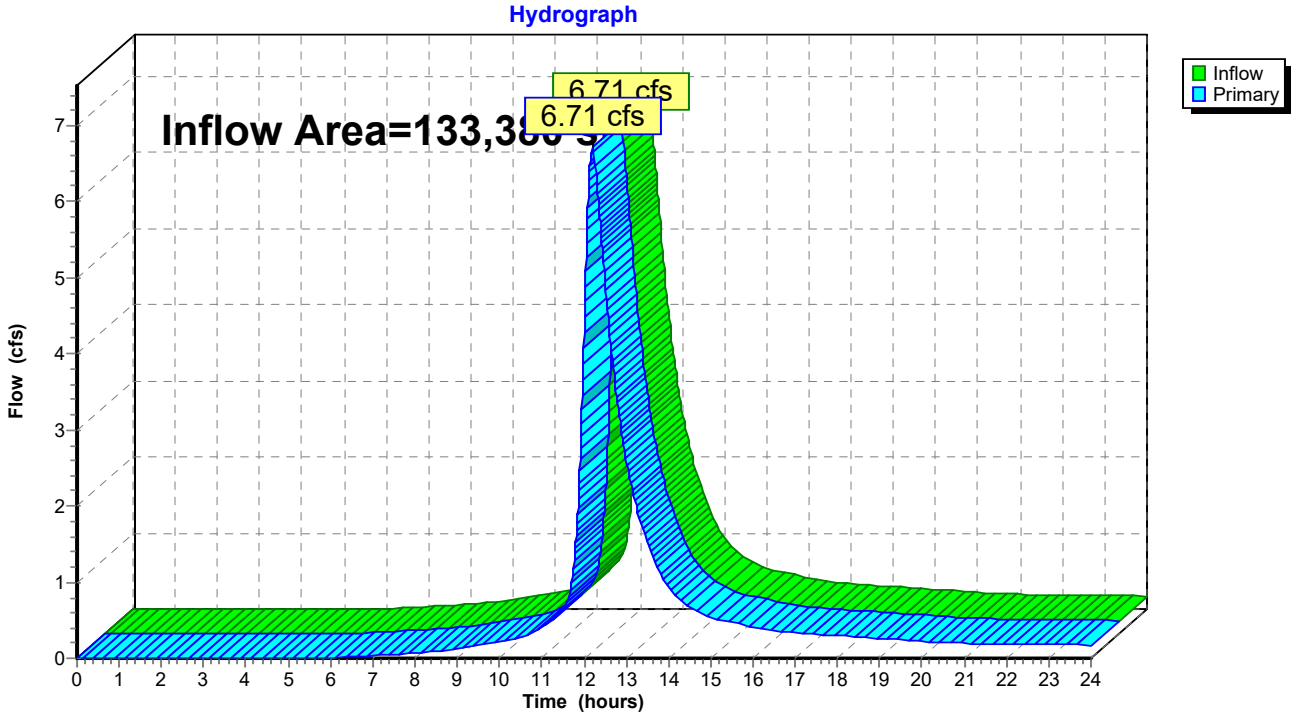


Summary for Link 23L: PRE STUDY POINT #1

Inflow Area = 133,380 sf, 0.00% Impervious, Inflow Depth > 3.61" for 10 event
Inflow = 6.71 cfs @ 12.20 hrs, Volume= 40,130 cf
Primary = 6.71 cfs @ 12.20 hrs, Volume= 40,130 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 23L: PRE STUDY POINT #1

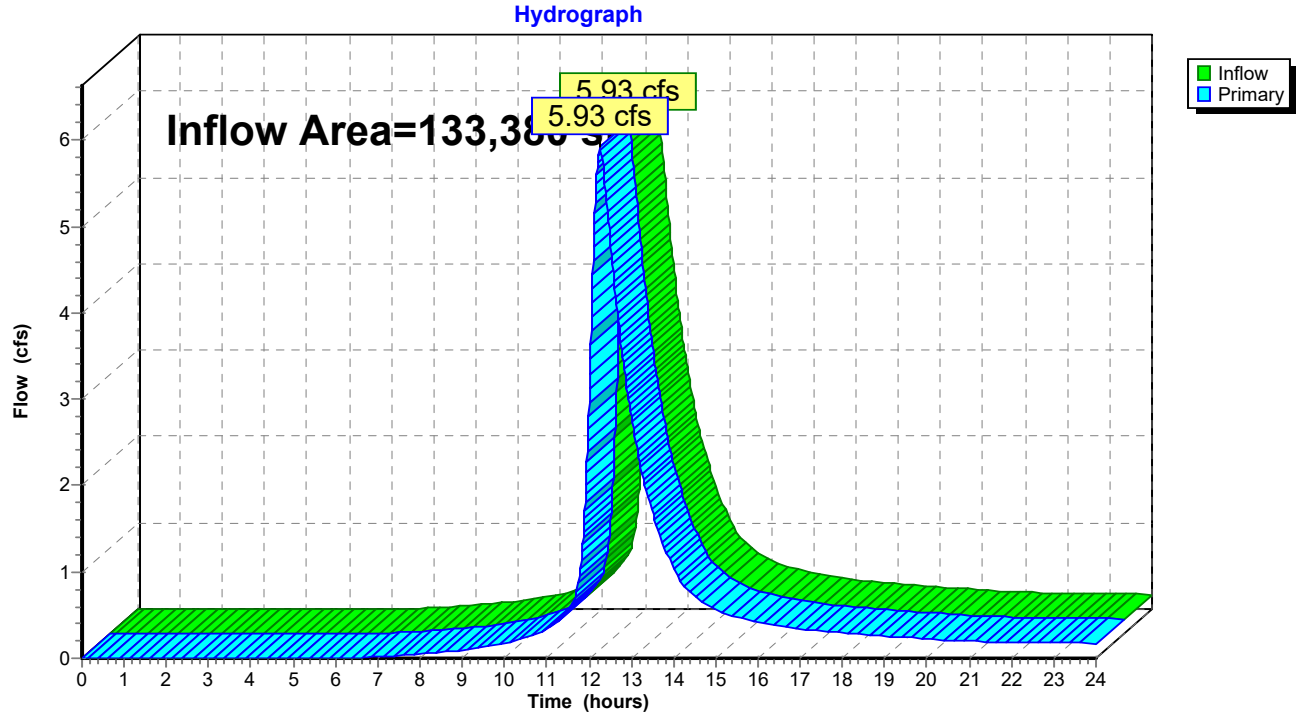


Summary for Link 24L: POST STUDY POINT #1

Inflow Area = 133,380 sf, 40.16% Impervious, Inflow Depth > 3.45" for 10 event
Inflow = 5.93 cfs @ 12.25 hrs, Volume= 38,360 cf
Primary = 5.93 cfs @ 12.25 hrs, Volume= 38,360 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 24L: POST STUDY POINT #1



Summary for Subcatchment 16S: EX-1 (GREEN)

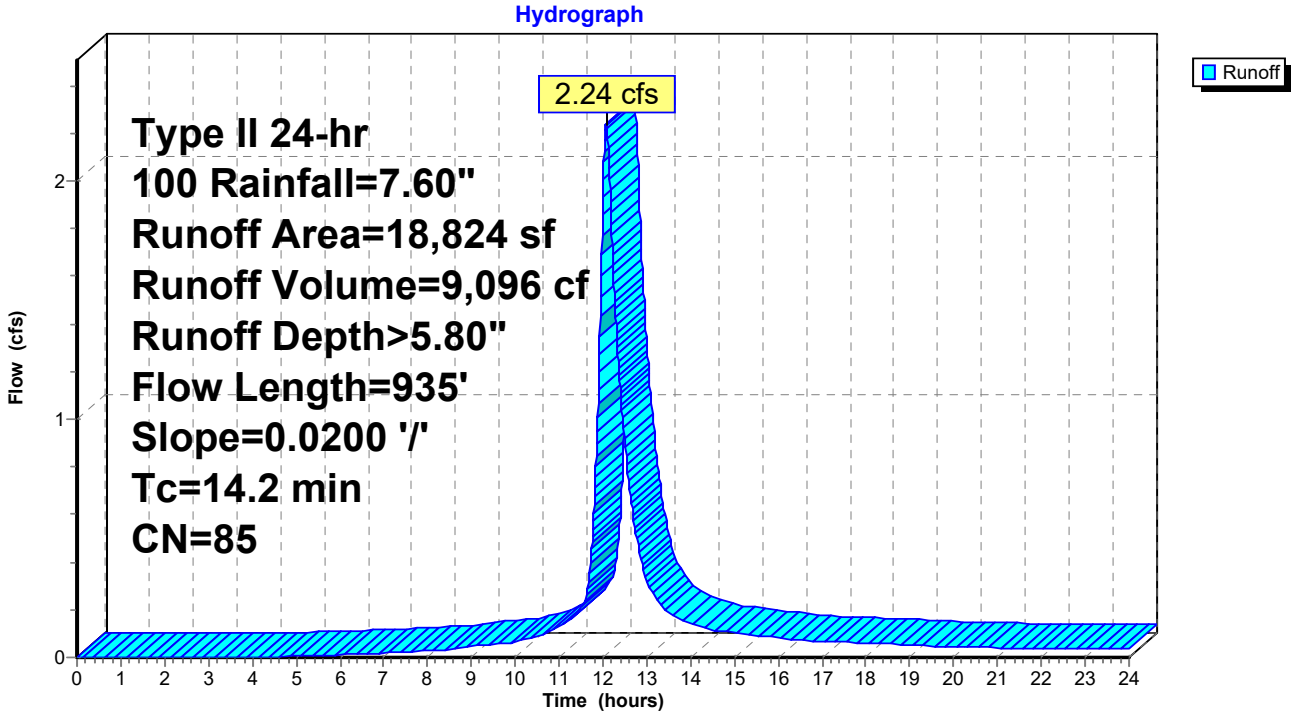
Runoff = 2.24 cfs @ 12.08 hrs, Volume= 9,096 cf, Depth> 5.80"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
18,824	85	Row crops, straight row, Good, HSG C
18,824		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	150	0.0200	0.40		**Sheet Flow, A-B SHEET** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
7.3	559	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
0.6	226	0.0200	6.80	135.97	**Channel Flow, C-D CHANNEL** Area= 20.0 sf Perim= 16.6' r= 1.20' n= 0.035 Short grass
14.2	935	Total			

Subcatchment 16S: EX-1 (GREEN)



Summary for Subcatchment 18S: EX-2 (PINK)

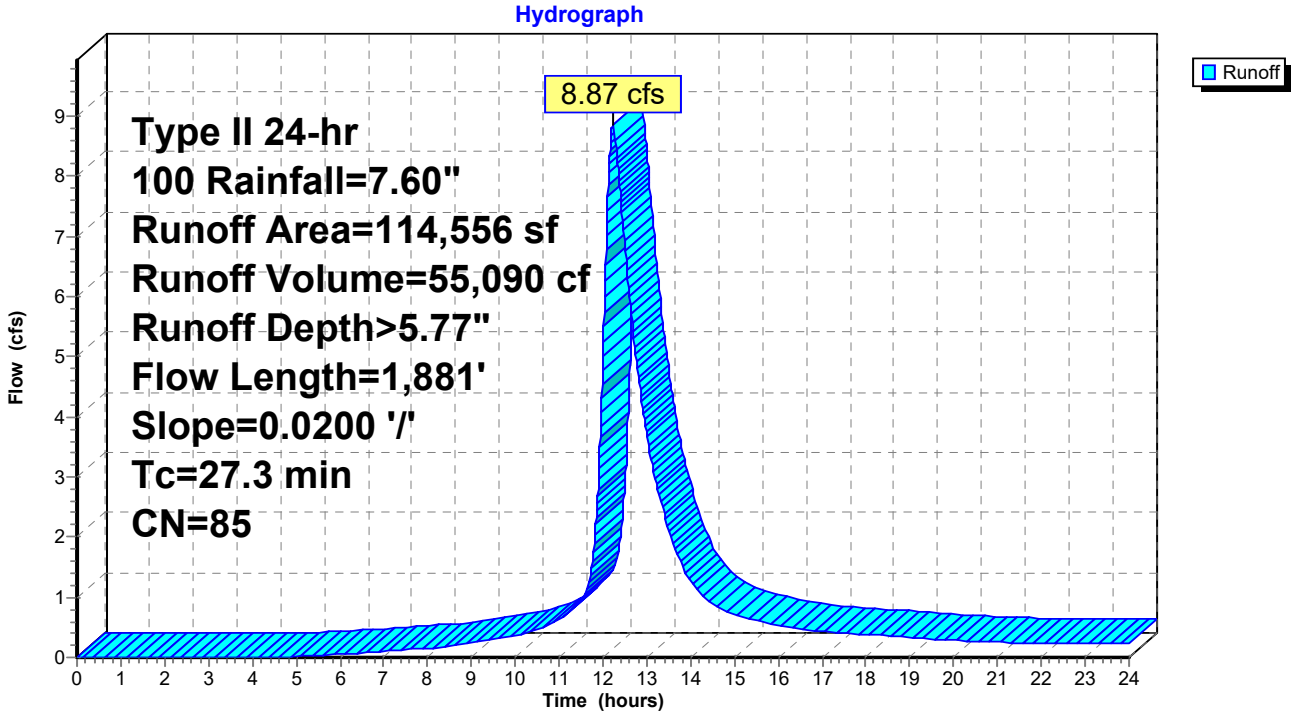
Runoff = 8.87 cfs @ 12.25 hrs, Volume= 55,090 cf, Depth> 5.77"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
114,556	85	Row crops, straight row, Good, HSG C
114,556		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	150	0.0200	0.40		**Sheet Flow, A-B SHEET** Cultivated: Residue<=20% n= 0.060 P2= 3.40"
4.7	360	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
16.3	1,371	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
27.3	1,881	Total			

Subcatchment 18S: EX-2 (PINK)



Summary for Subcatchment 19S: P-1 (ORANGE)

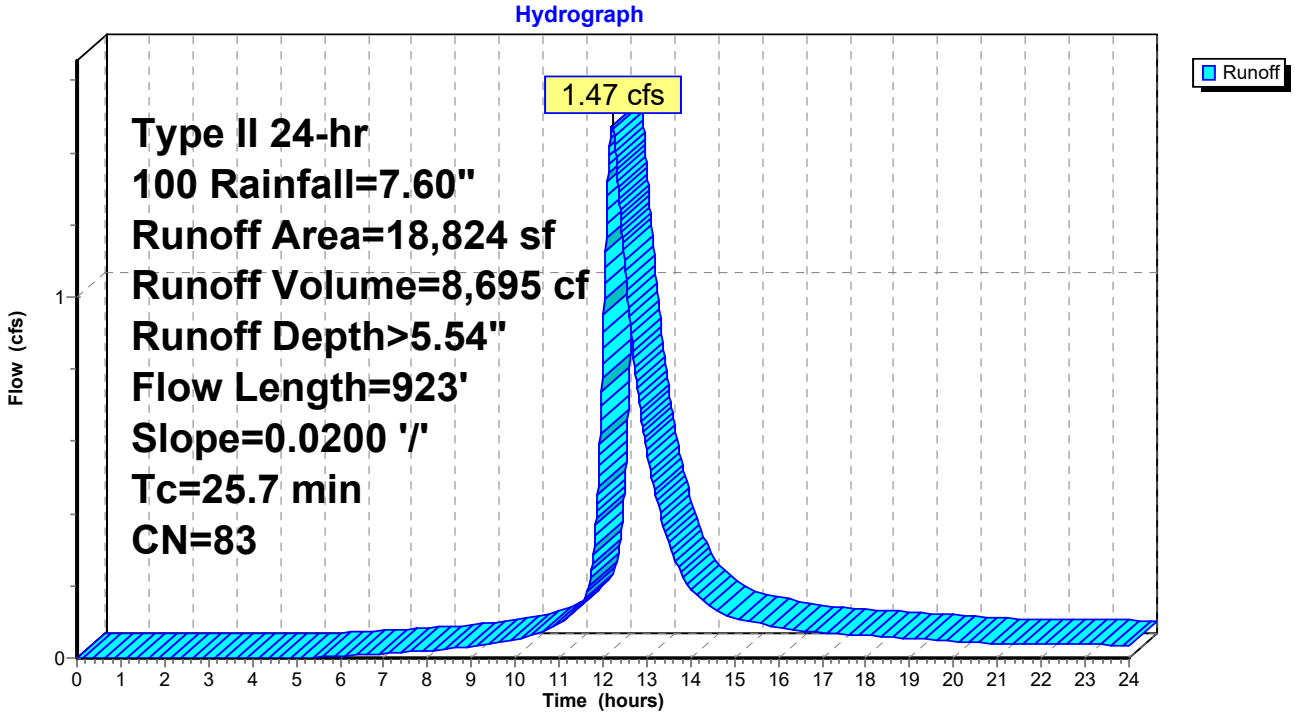
Runoff = 1.47 cfs @ 12.22 hrs, Volume= 8,695 cf, Depth> 5.54"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
7,244	98	Paved parking, HSG C
11,580	74	>75% Grass cover, Good, HSG C
18,824	83	Weighted Average
11,580		61.52% Pervious Area
7,244		38.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	15	0.0200	0.97		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
17.6	135	0.0200	0.13		**Sheet Flow, B-C SHEET** Grass: Dense n= 0.240 P2= 3.40"
7.2	547	0.0200	1.27		**Shallow Concentrated Flow, C-D SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
0.6	226	0.0200	6.80	135.97	**Channel Flow, D-E CHANNEL** Area= 20.0 sf Perim= 16.6' r= 1.20' n= 0.035 Short grass
25.7	923	Total			

Subcatchment 19S: P-1 (ORANGE)



Summary for Subcatchment 20S: P-2 (YELLOW)

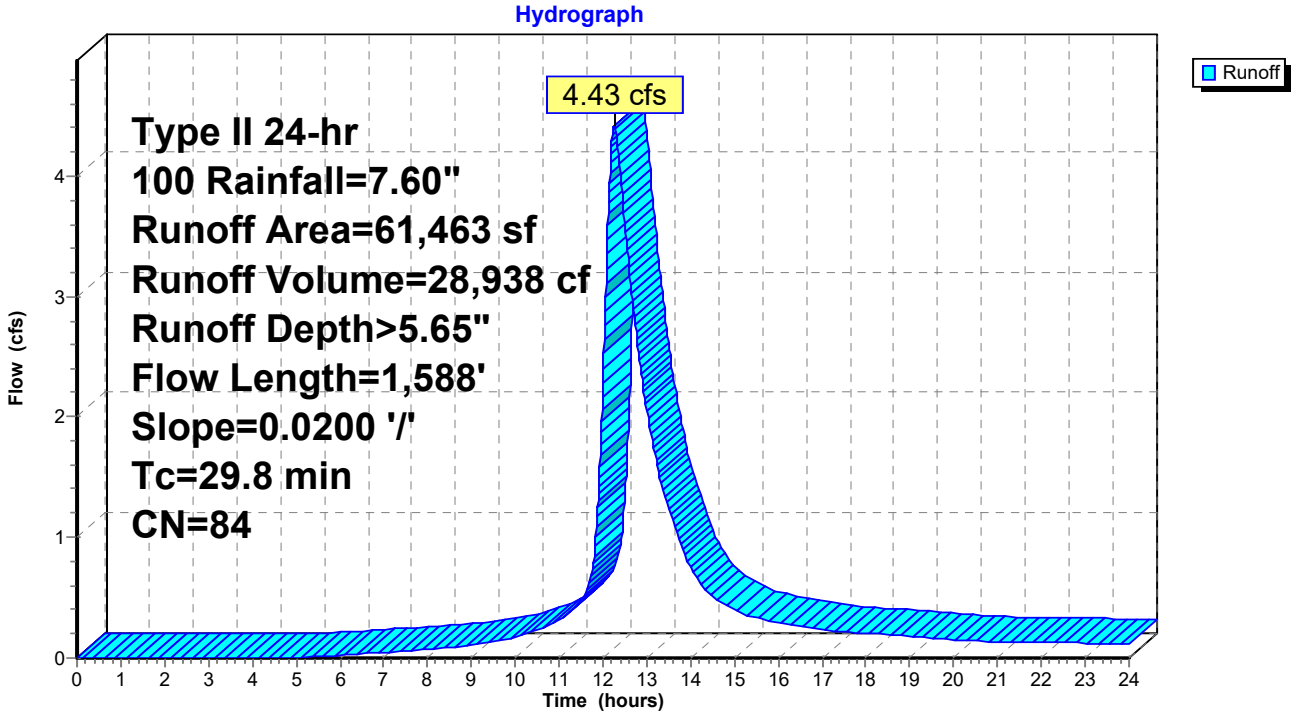
Runoff = 4.43 cfs @ 12.25 hrs, Volume= 28,938 cf, Depth> 5.65"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
25,772	98	Paved parking, HSG C
35,691	74	>75% Grass cover, Good, HSG C
61,463	84	Weighted Average
35,691		58.07% Pervious Area
25,772		41.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	75	0.0200	1.34		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
11.0	75	0.0200	0.11		**Sheet Flow, B_C SHEET** Grass: Dense n= 0.240 P2= 3.40"
8.2	623	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
9.7	815	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
29.8	1,588	Total			

Subcatchment 20S: P-2 (YELLOW)



Summary for Subcatchment 22S: P-3 (PURPLE)

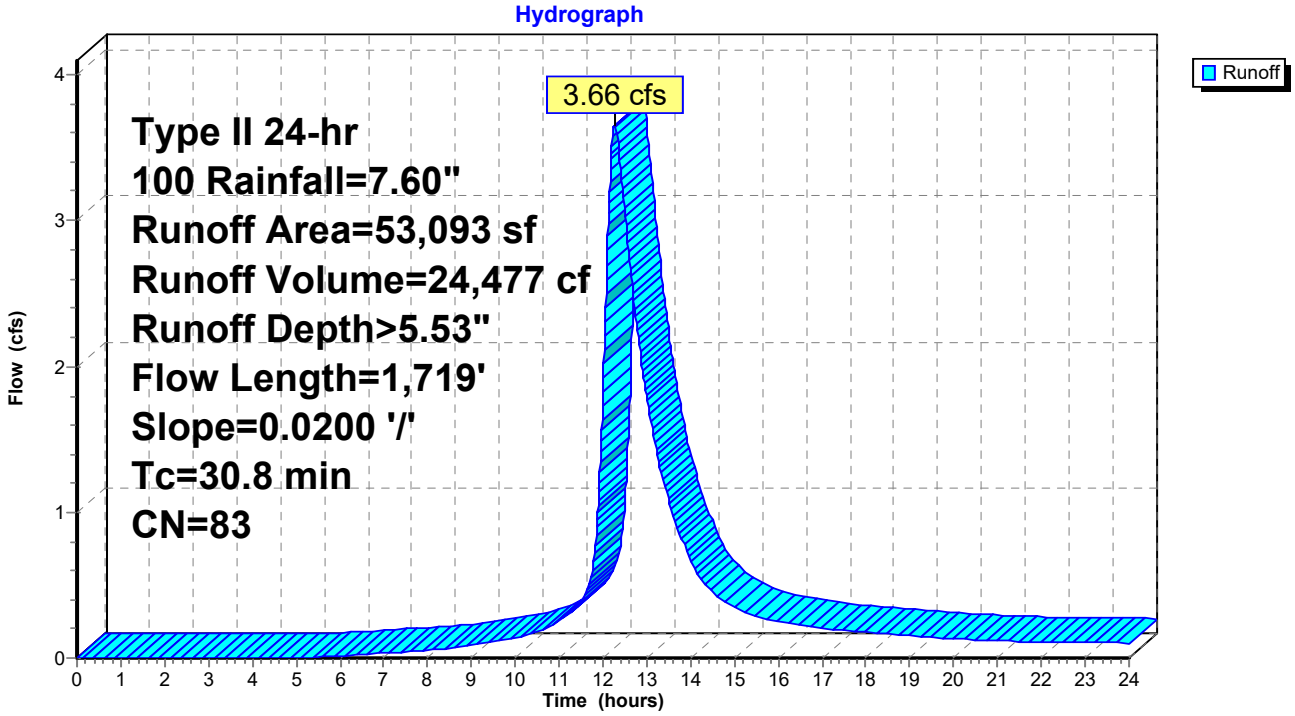
Runoff = 3.66 cfs @ 12.26 hrs, Volume= 24,477 cf, Depth> 5.53"

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 100 Rainfall=7.60"

Area (sf)	CN	Description
20,550	98	Paved parking, HSG C
32,543	74	>75% Grass cover, Good, HSG C
53,093	83	Weighted Average
32,543		61.29% Pervious Area
20,550		38.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	75	0.0200	1.34		**Sheet Flow, A-B SHEET** Smooth surfaces n= 0.011 P2= 3.40"
11.0	75	0.0200	0.11		**Sheet Flow, B_C SHEET** Grass: Dense n= 0.240 P2= 3.40"
2.6	198	0.0200	1.27		**Shallow Concentrated Flow, B-C SHALLOW** Cultivated Straight Rows Kv= 9.0 fps
16.3	1,371	0.0200	1.40	20.03	**Channel Flow, C-D CHANNEL** Area= 14.3 sf Perim= 14.3' r= 1.00' n= 0.150 Very weedy reaches w/pools
30.8	1,719	Total			

Subcatchment 22S: P-3 (PURPLE)

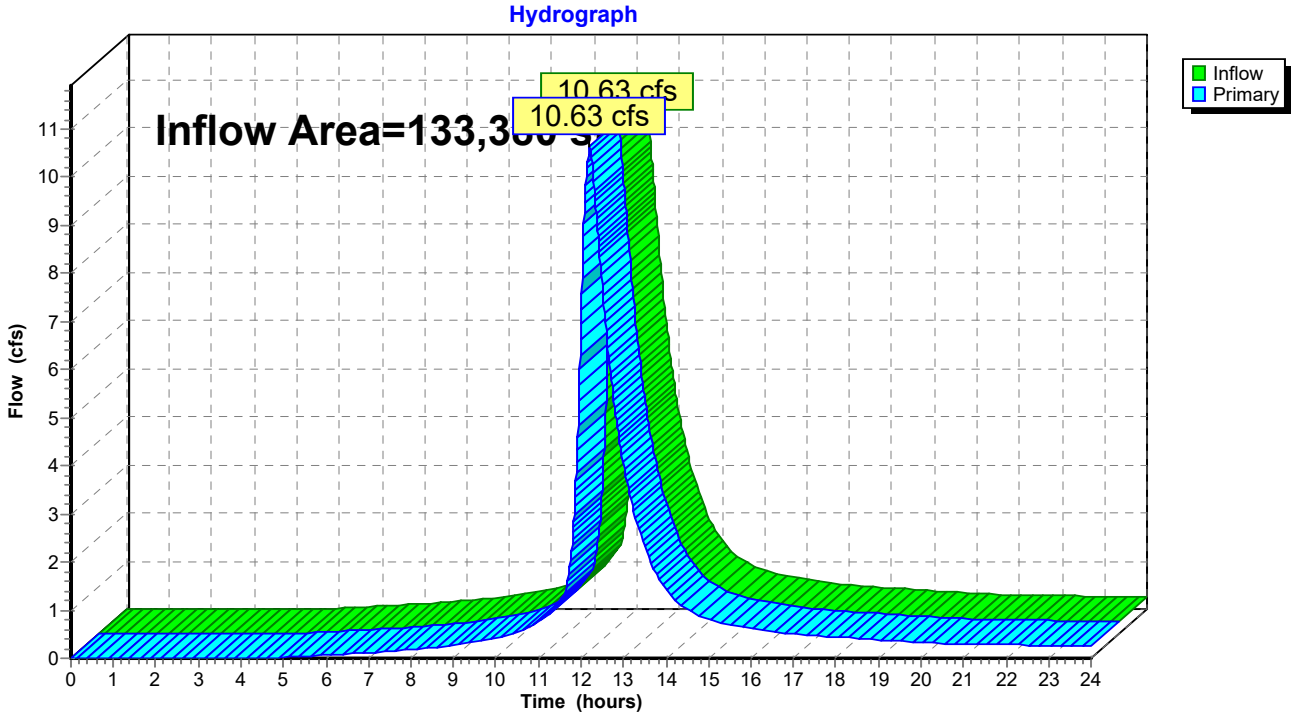


Summary for Link 23L: PRE STUDY POINT #1

Inflow Area = 133,380 sf, 0.00% Impervious, Inflow Depth > 5.77" for 100 event
Inflow = 10.63 cfs @ 12.20 hrs, Volume= 64,187 cf
Primary = 10.63 cfs @ 12.20 hrs, Volume= 64,187 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 23L: PRE STUDY POINT #1

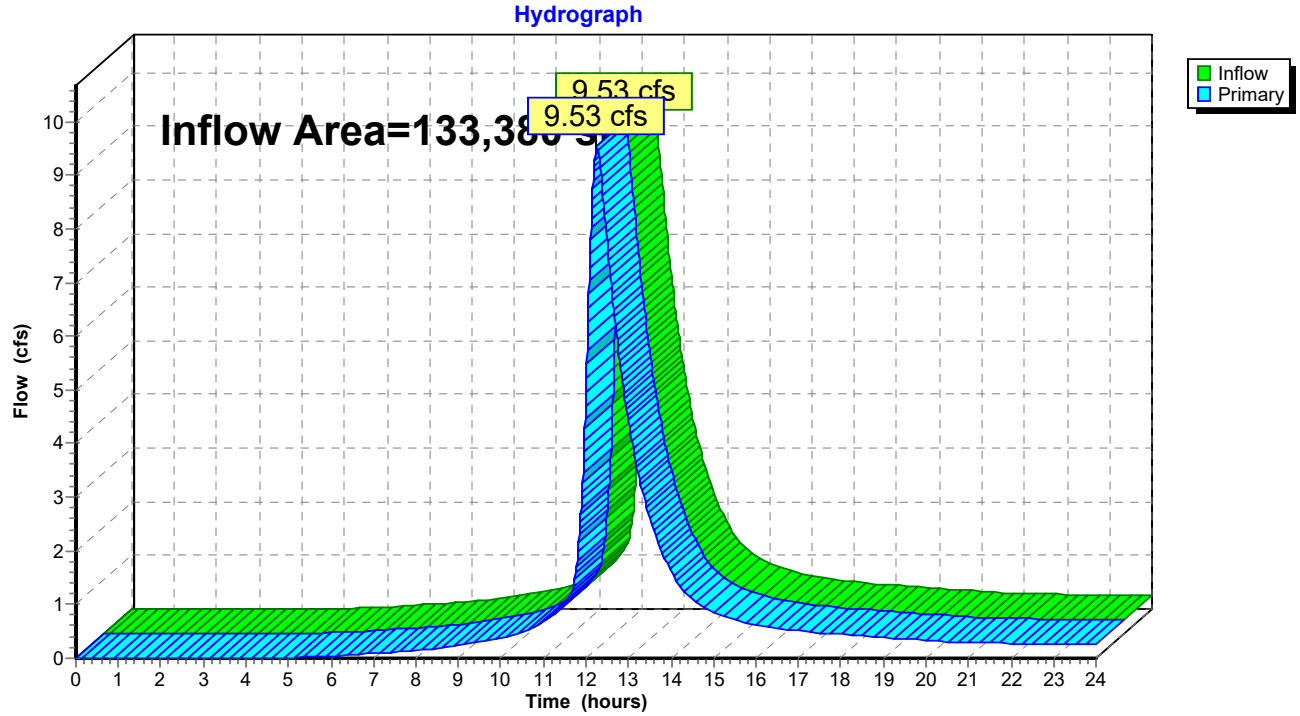


Summary for Link 24L: POST STUDY POINT #1

Inflow Area = 133,380 sf, 40.16% Impervious, Inflow Depth > 5.59" for 100 event
Inflow = 9.53 cfs @ 12.25 hrs, Volume= 62,111 cf
Primary = 9.53 cfs @ 12.25 hrs, Volume= 62,111 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 24L: POST STUDY POINT #1



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

RECEIVED
AUG 07 2024
TOWN OF EASTON

Easton Staff Development Review

Property Information

Address	106 Talbot Lane, Easton, MD 21601							
Tax Map	105	Grid	EA	Parcel	1948, 1949, 1950, 1952	Lot		
Deed Refernce:	Liber	3030	Folio	497				
Plat Reference:	Liber	81	Folio	525				
Base Zoning District		R7A	Historic District	Y ☒ N ☐	Planning Redevelopment	Y ☐ N ☒		

Purpose of Application / Description of Work:

The proposed project is to abandon the lot lines between Parcels 1948, 1949, 1950 & 1952 to create Revised Parcel 1948, and renovate and expand existing structure to convert to an art storage building/warehouse for Academy Art Museum.

Owner

Name	Academy Art Museum, Inc.		
Mailing Address	106 South St, Easton, MD 21601		
Telephone No.	410-822-2787	Email	jchrzanowski@academyartmuseum.org

Applicant / Agent

Name	Lane Engineering, LLC c/o Sean Callahan		
Mailing Address	117 Bay St, Easton, MD 21601		
Telephone No.	410-822-8003	Email	scallahan@leinc.com mbrophy@leinc.com

Surveyor / Engineer

Name	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@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 8/7/2024

Printed Name of Applicant or Agent Sean Callahan, Lane Engineering, LLC

For Office Use Only

Easton Staff Development Review Meeting Required Y ☒ N ☐

Easton Staff Development Review Meeting Date 08/28/2024

Completeness Check Date 08/08/2024

2024 - 1264 / ESDR 24 - 18 / SD - 501

Revisions/Resubmissions Required Y ☐ N ☐

Resubmission Date

Documents Received Y ☐ N ☐

Staff Determination

BOZA Special Exception approval granted November 15, 2022.

HDC Renovation COA granted April 8, 2024.

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

BOZA Required Y ☐ N ☒

Historic District Commission Required Y ☐ N ☐ **TBD**

Resubmission for ESDR Required Y ☐ N ☐

Staff Signature Samantha N. Smith Date 08/08/2024

Revised 02-2019

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

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TOWN OF EASTON

Site Plan, PUD, Planned Healthcare Application

Application Type

Planned Unit Development ☐ Amendment ☐ Health Care (HC) ☐ Site Plan ☒

Subdivision Information

Name	106 Talbot Lane, Easton, MD 21601				
Original Property Size	Acres	0.049 SF ±	Square Feet	2,137 SF ±	
Telephone No.		Email			

Site Plan Information

Property Size	Acres	0.14 AC ±	Square Feet	6,140 SF ±
Structure's Floor Area	2,648 SF ±	Structure's Square Feet	4,710 SF ±	
Area of Disturbance	5,355 SF ±	Number of Dwelling Units	0	

Property Information

Address	106 Talbot Lane, Easton, MD 21601						
Tax Map	105	Grid	EA	Parcel	1948, 1949, 1950, 1952		
Deed Refernce:	Liber	3030	Folio	497			
Plat Reference:	Liber	81	Folio	525			
Base Zoning District		R7A	Historic Y ☒ N ☐		Planned Redevelopment Y ☐ N ☒		
Source of Electricity		Easton Utilities					

Owner

Name	Academy Art Museum, Inc.		
Mailing Address	106 South St, Easton, MD 21601		
Telephone No.	410-822-2787	Email	jchrzanowski@academyartmuseum.org

Applicant or Agent

Name	Lane Engineering, LLC c/o Sean Callahan		
Mailing Address	117 Bay St, Easton, MD 21601		
Telephone No.	410-822-8003	Email	scallahan@leinc.com mbrophy@leinc.com

Surveyor / Engineer

Name	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@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 8/7/2024

Printed Name of Applicant or Agent Sean Callahan, Lane Engineering, LLC

For Office Use Only

Planning Commission Required	Y ☐ N ☐			
Planning Commission Meeting Date	TBD			
Sketch Approval Date		Project No.	SD - 501	ESDR 24-18
Prelim/Dev. Approval Date		Application No.		2024 - 1264
Final Approval Date		Sketch Fee Paid		
Recordation Date		Develop. Fee Paid		

Revised 02-2019

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

RECEIVED
AUG 07 2024
TOWN OF EASTON

Subdivision & Property Line Adjustment Application

Application Type

Subdivision ☐ Minor Subdivision ☐ Lot Line Revision ☒

Subdivision Information

Name	106 Talbot Lane, Easton, MD 21601				
Property Size	Acres	0.049 SF ±	Square Feet	2,137 SF ±	
Number of Lots Proposed					

Property Information

Address	106 Talbot Lane, Easton, MD 21601						
Tax Map	105	Grid	EA	Parcel	1948, 1949, 1950, 1952	Lot	
Deed Refernce:	Liber	3030	Folio	497			
Plat Reference:	Liber	81	Folio	525			
Zoning District		R7A	Planned Redevelopment Y ☐ N ☒		Historic District Y ☒ N ☐		
Source of Electricity		Easton Utilities					

Owner

Name	Academy Art Museum, Inc.		
Mailing Address	106 South St, Easton, MD 21601		
Telephone No.	410-822-2787	Email	jchrzanowski@academyartmuseum.org

Surveyor / Engineer

Name	Alec Chosta, P.E.	License No.	51461	Expiration Date	4/4/2026
Mailing Address	117 Bay St, Easton, MD 21601				
Telephone No.	410-822-8003	Email	achosta@leinc.com		

Applicant or Agent

Name	Lane Engineering, LLC c/o Sean Callahan		
Mailing Address	117 Bay St, Easton, MD 21601		
Telephone No.	410-822-8003	Email	scallahan@leinc.com mbrophy@leinc.com

Additional Comments:

The proposed project is to abandon the lot lines between Parcels 1948, 1949, 1950 & 1952 to create Revised Parcel 1948, and renovate and expand existing structure to convert to an art storage building/warehouse for Academy Art Museum.

Minimum Lot Size	7,500 SF	Minimum Lot Frontage	30 FT
Minimum Lot Envelope	60 FT X 30 FT	Existing Lot Coverage	794 SF ±
		Proposed Lot Coverage	2,530 SF ±

☐ ESDR Letter
☐ $200 Per Subdivided Lot Fee
☐ $500 Lot Line Revision Fee

Any modifications during review shall warrant an updated application.

I hereby certify that I have reviewed and satisfied the Town of Easton Subdivision Regulations Article 4, Procedures and Requirements and that submission of an incomplete application will be returned for correction prior to processing.

Signature of Applicant or Agent

Date 8/7/2024

Printed Name of Applicant or Agent Sean Callahan, Lane Engineering, LLC

For Office Use Only

Planning Commission Y ☐ N ☐			
Planning Commission Meeting Date		TBD	
PC Approval Date		Subdivision No.	SD-501
Conditions? Y / N		Application No.	2024 - 1264
Recordation Date		Fee Amount	$500.00
ESDR Y / N Date		Review Fee Paid	
			Revised 02-2019

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TOWN OF EASTON

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

2024 - 1264 / ESDR 24 - 18 / SD - 501

Supplemental Waiver Request Application

Waiver Request Type

Sidewalk ☐	Parking Spaces ☒	Parking/Aisle Dimension ☐
Landscaping & Buffering ☒	Signage ☐	Other ☐

Project Information

Address	106 Talbot Lane, Easton, MD 21601						
Tax Map	105	Grid	EA	Parcel	1948, 1949, 1950, 1952	Lot	
Zoning District	R7A	PC Meeting Date		Historic District	Yes ☒	No ☐	
Owner or Agent	Owner: Academy Art Museum, Inc. Agent: Lane Engineering, LLC c/o Sean Callahan						
Mailing Address	117 Bay St, Easton, MD 21601						
Telephone No.	410-822-8003	Email	scallahan@leinc.com mbrophy@leinc.com				

Request Details

Please attach a detailed description of the waiver request(s) being made and the justification(s) for requesting said waiver(s).

We are requesting a waiver of the planting requirement for 2 trees (§ 1014.6.F) and 9 buffer yard trees (§ 1014.7.E) due to the size of the site, proximity to the building, and planting constraints, as further detailed on the Sketch Site Plan.

In addition, we are requesting a waiver of the parking requirements for 3 spaces (§ 1001.3) due to the nature of the proposed use of a storage facility that will have no traffic outside of the Academy Art staff, as further detailed on the Sketch Site Plan.

☐ Ordinance Section Supporting Waiver Request. See above

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 8/7/2024

Printed Name of Applicant or Agent Sean Callahan, Lane Engineering, LLC

PROPERTY OWNER: ACADEMY ART MUSEUM, INC.
C/O JENNIFER CHRZANOWSKI, INTERIM DIRECTOR
106 SOUTH STREET
EASTON, MD 21601
(410) 822–8121

PROPERTY ADDRESS: 106 TALBOT LANE (PARCEL 1948)
108 TALBOT LANE (PARCEL 1949)
110 TALBOT LANE (PARCEL 1950)
TALBOT LANE (PARCEL 1952)

EASTON, MARYLAND 21601

DEED REFERENCE: 3030/497

PLAT REFERENCE: 81/525

SITE NOTES

ZONING CLASSIFICATION: R7A (RESIDENTIAL)

SETBACKS:		PROPOSED BUILDING
FRONT–	15'	15'
SIDE–	8'	8'
REAR–	25'	25'

MAXIMUM LOT COVERAGE ALLOWED IS 100% OF BUILDING ENVELOPE.

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL NO. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON JULY 6, 2023.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

THE CONTOURS SHOWN HEREON WERE TAKEN FROM FIELD RUN TOPOGRAPHY BY LANE ENGINEERING, LLC ON JULY 6, 2023.

THE ELEVATIONS SHOWN HEREON ARE NAVD 1988 DATUM AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS MDNM (NGS CERTIFICATE PENDING) AND DEHA (NGS CERTIFICATE PENDING).

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 THE 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
ZONES A, AE, AH, AO, AR, A99, V & VE – 1% ANNUAL CHANCE FLOOD
ZONE X (SHADED) – 0.2% ANNUAL CHANCE FLOOD
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.

EXISTING CONDITIONS: RESIDENTIAL USE ON PARCEL 1948, OTHER PARCELS SIT AS VACANT LOTS, PREVIOUSLY OF RESIDENTIAL USE.

PROPOSED DEVELOPMENT: THE PROPOSED PROJECT IS TO REVITALIZE AND REDEVELOP THE EXISTING DWELLING FOUND ON PARCEL 1948 AS AN EXPANSION OF THE EXISTING ACADEMY OF THE ARTS FOUND AT 106 SOUTH STREET, ADJACENT TO THE SUBJECT PROPERTY, AND TO CONSTRUCT AN ANNEXED BUILDING CONNECTED BY A BREEZEWAY TO BE UTILIZED AS STORAGE.

STORMWATER MANAGEMENT: STORMWATER QUANTITY/QUALITY CONTROL WILL BE ADDRESSED THROUGH ESD FEATURES ALTERNATIVE SURFACES AND FLOW–THROUGH PLANTER AS REQUIRED AND DETAILED IN THE CONCEPT SWM REPORT INCLUDED WITH THIS SKETCH SITE PLAN.

LOT COVERAGE: MAXIMUM LOT COVERAGE IS ALLOWED WITHIN 100% OF THE BUILDING ENVELOPE. THE MAXIMUM HEIGHT OF STRUCTURES IN THE R7A DISTRICT IS 35 FEET. THIS PROJECT PROPOSES A BUILDING HEIGHT OF 26±.

TOTAL SITE AREA: 6,140 SF±

SPECIAL EXCEPTIONS/VARIANCES: BUILDING RESTRICTIONS SHOWN HEREON ARE PER A ZONING APPEALS SPECIAL EXCEPTION DATED OCTOBER 7, 2022 AND CONFIRMED BY PLANNING AND ZONING, JOE MAYER AND MIGUEL SALINAS IN AN EMAIL DATED MAY 15, 2024. THIS PROJECT WAS GRANTED APPROVAL FROM THE HISTORIC DISTRICT COMMISSION ON APRIL 8, 2024.

REFUSE/TRASH: THIS PROJECT PROPOSES TO USE TIPPER CANS TO BE STORED IN THE GARAGE.

SITE LIGHTING: THIS PROJECT PROPOSES TO USE SHIELDED WALL PACK SECURITY LIGHTING.

PARKING

WAREHOUSE @ 1/2,000 SF GFA: 5,296 SF/2,000 = 3 SPACES MINIMUM
WAREHOUSE @ 1/350 SF GFA: 5,296 SF/350 = 15 SPACES MAXIMUM

BIKE RACK: N/A

THIS PROJECT PROPOSES TO WAIVE THE PARKING REQUIREMENT DUE TO THE NATURE OF THE PROPOSED USE OF A STORAGE FACILITY THAT WILL HAVE NO TRAFFIC OUTSIDE OF THE ACADEMY OF THE ARTS STAFF.

COMPREHENSIVE PLAN DESIGN PRINCIPLES RESPONSE NARRATIVE

PRINCIPLE #1– INTEGRATED USES ARE DESIRABLE– THIS PROPOSED PROJECT WOULD EXPAND STORAGE AND ACCESS TO THE EXISTING ACADEMY OF THE ARTS MUSEUM FOUND ON SOUTH STREET, ADJACENT TO THE SUBJECT PROPERTY.

PRINCIPLE #2– NATURAL FEATURES SHOULD DETERMINE DESIGN– NO COMPELLING NATURAL FEATURES; SITE LAYOUT ORIENTED TO TAKE ADVANTAGE OF NATURAL DRAINAGE PATTERNS.

PRINCIPLE #3– AUTOMOBILES SHOULD NOT DETERMINE DESIGN– THE SITE DEVELOPMENT IS DETERMINED BY THE SURROUNDING NEIGHBORHOOD, DRAINAGE PATTERNS AND AUTOMOBILES WERE NOT USED TO DICTATE THE PROPOSED DESIGN NOT APPLICABLE HERE.

PRINCIPLE #4– AMPLE OPEN SPACES SHOULD BE PROVIDED WITHIN & AROUND NEIGHBORHOODS– USABLE OPEN SPACE NOT APPLICABLE HERE.

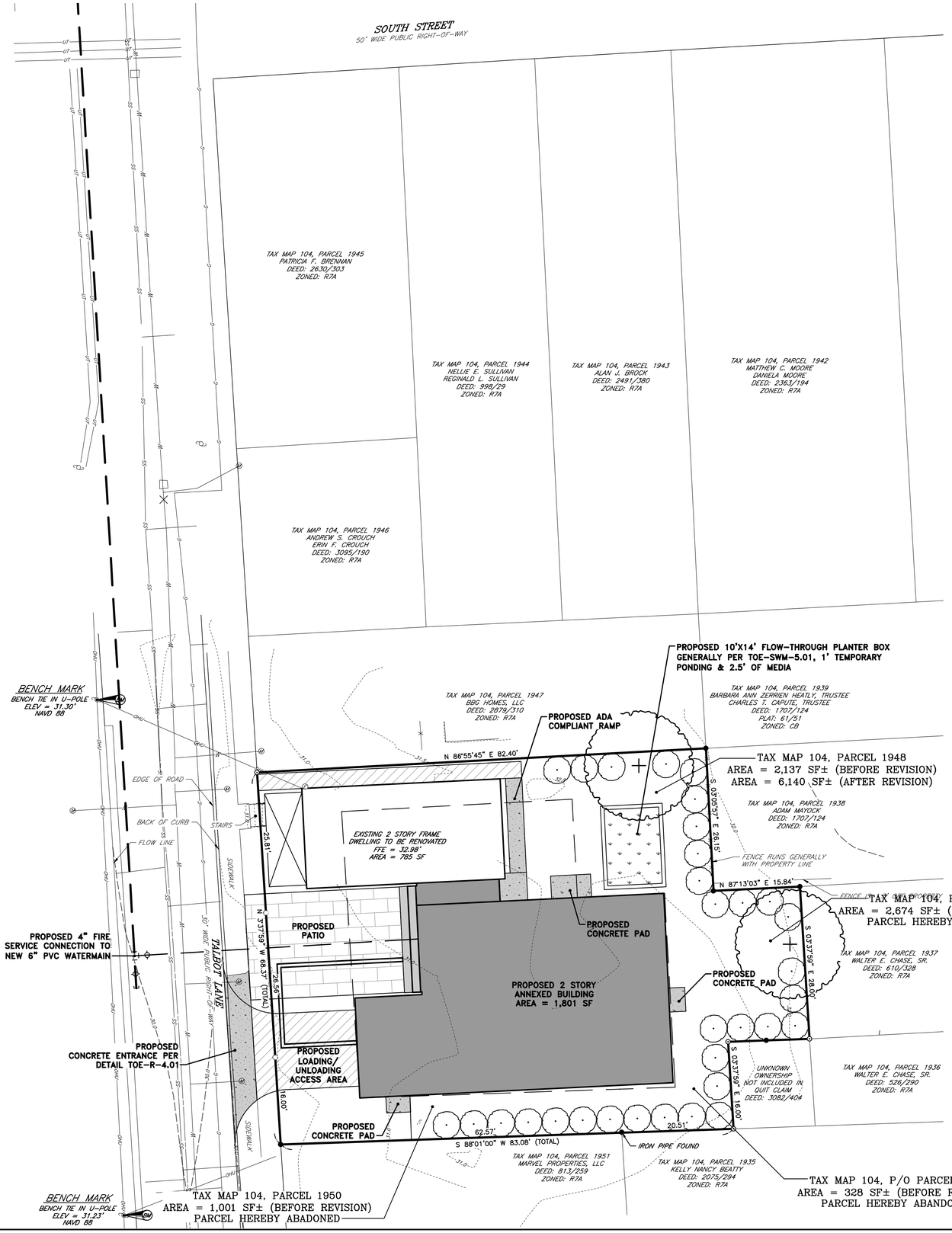
PRINCIPLE #5– ARCHITECTURE SHOULD RESPECT EASTON'S HISTORICAL DEVELOPMENT– THIS APPLICATION PROPOSES ARCHITECTURE IMPROVEMENTS COMPATIBLE WITH EXISTING NEIGHBORHOOD WHILE UTILIZING CONCEPTS SUCH AS A LIVING ROOFTOP TO REFASHION EXISTING HISTORICAL DEVELOPMENT.

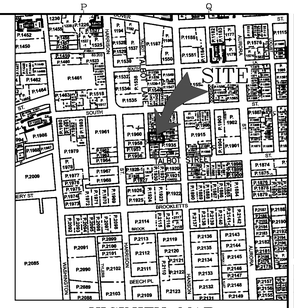
PRINCIPLE #6– SIGNS SHOULD INFORM BUT NOT DOMINATE– ALL SIGNAGE WILL BE COMPLIANT WITH TOWN STANDARDS.

PRINCIPLE #7– NEIGHBORHOODS SHOULD CONTAIN A DIVERSITY OF HOUSING TYPES– NOT APPLICABLE TO THIS APPLICATION

PRINCIPLE #8 RESIDENTIAL NEIGHBORHOODS SHOULD BE INTERESTING PLACES– THE PROPOSED EXPANSION OF THE ACADEMY OF THE ARTS SERVES COMMUNITIES ADJACENT TO DOWNTOWN AREAS AND GIVES RESIDENTS THE OPPORTUNITY TO SHARE IN THIS EXHIBITION.

PRINCIPLE #9– NEIGHBORHOODS SHOULD CONNECT– SIDEWALK SHALL BE TIED INTO EXISTING SIDEWALK ALONG TALBOT LANE TO ENHANCE NEIGHBORHOOD CONNECTIVITY.





VICINITY MAP
SCALE: 1" = 500'
250' 0' 250' 500'
SCALE IN FEET

LEGEND

- IRON ROD FOUND
- IRON ROD SET
- ELECTRIC METER
- GAS MAIN
- OHU OVER HEAD UTILITY LINES
- UTILITY POLE
- SS SANITARY SEWER MAIN
- WATER METER
- W WATER MAIN
- MINOR CONTOUR
- ×30.6 SPOT ELEVATION
- PROPOSED BUILDING
- PROPOSED REINFORCED TURF
- PROPOSED PERMEABLE PAVERS

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. 51461 , Expiration Date: 04/04/2026.

SEAL

08-07-24
DATE

OVERALL CONTEXT PLAN

ON THE LANDS OF ACADEMY ART MUSEUM, INC.

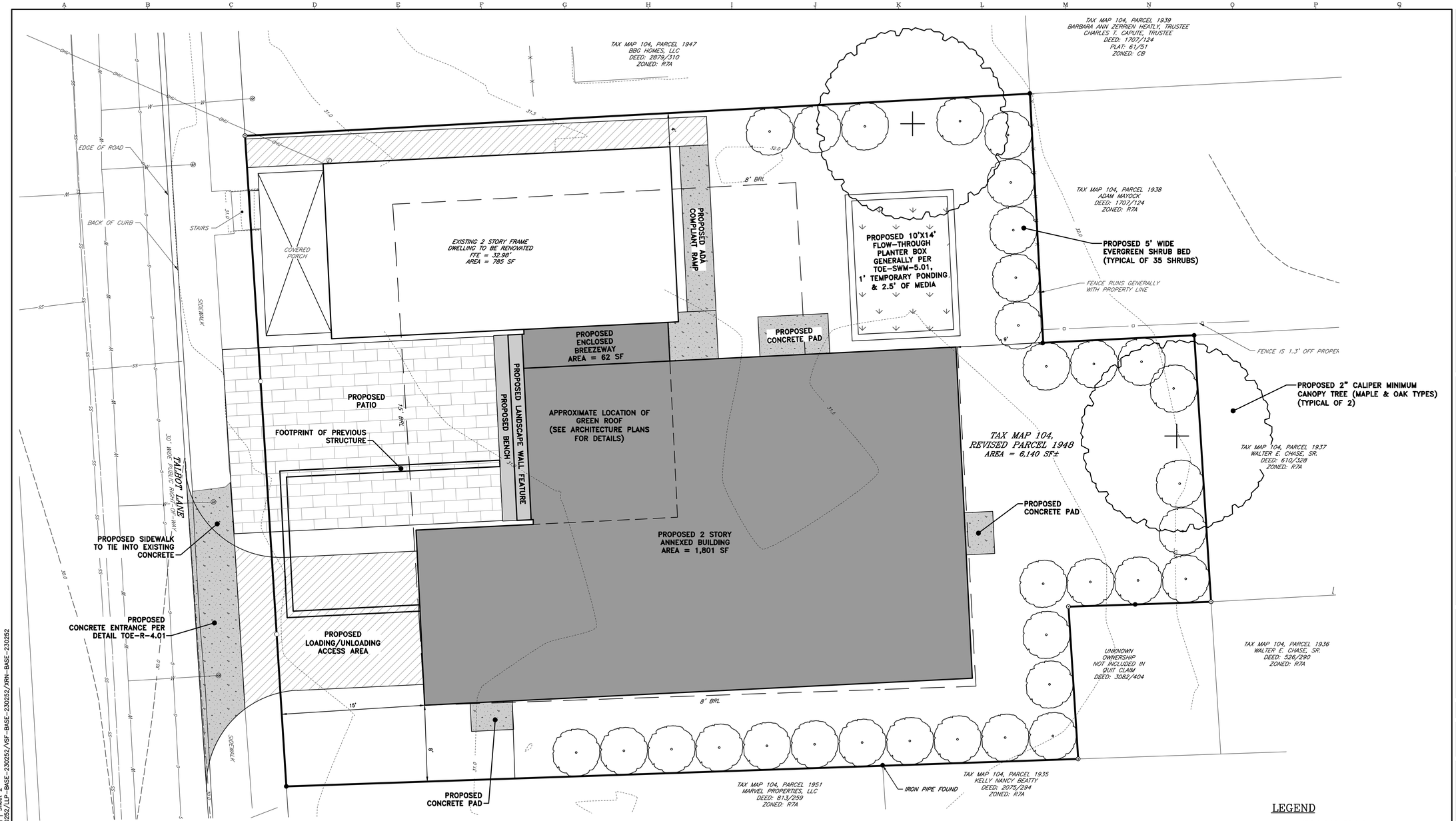
IN ELECTION WARD FOUR, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, GRID EA, PARCELS 1948, 1949, 1950

ISSUED/REVISED FOR: ESDR SUBMITTAL
DATE: 08/07/24
BY: JSC

SHEET No. 1 OF 2
JOB No. 230252
SCALE: AS NOTED
FILE No. 1980

LANE ENGINEERING, LLC

Date: 08/07/2024 – 11:28am User: achosta Project Manager: JSC
Drawing Path: J:\2023\0200\230252\Civil\30-230252\Dwg\Plats\ESDR–CSP–PLTS–230252.dwg | Sheet 1
XREF File(s): RAR–BASE–230252/MLD–BASE–230252/CSP–BASE–230252/CBS–BASE–24356–230252/LUP–BASE–230252/FSF–BASE–230252/XRN–BASE–230252



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	0.04	0.00	74	11.60	0.08	0.04	--	0.17	0.10	--	0.28	0.17	--
#2	0.11	0.06	88	12.00	0.24	0.17	--	0.44	0.31	--	0.69	0.58	--
TOTAL	0.15	0.06	--	--	0.32	0.21	--	0.61	0.41	--	0.97	0.75	--

ESD SUMMARY CHART												
PRACTICE AREA (SF)	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)
344	A-1	GREEN ROOF	ON-SITE	77	403840.0643'	1576454.8910'	0.01	--	0.01	--	--	--	46 CF
470	A-2	PERMEABLE PAVERS	ON-SITE	70	403838.8743'	1576432.1658'	0.01	--	0.01	--	--	--	75 CF
319	A-3	REINFORCED TURF	ON-SITE	74	403818.8468'	1576429.8837'	0.01	--	0.01	--	--	--	0 CF
140	M-6	PLANTER BOX	ON-SITE	94	403856.6980'	1576487.0288'	0.01	--	0.01	--	--	--	280 CF
										TOTAL	1.8"	396 CF	401 CF

FOREST CONSERVATION: FOREST CONSERVATION IS EXEMPT SINCE THE DEVELOPMENT IS LESS THAN 40,000 SF; AND PER §31-3.2.0: AN ACTIVITY ON A PREVIOUSLY DEVELOPED AREA COVERED BY IMPERVIOUS SURFACE AND LOCATED IN THE PRIORITY FUNDING AREA.

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.6.F. (BUSINESS & SERVICE USES):

1. OVERALL TREES – 1 TREE/ 3000 SF OF DISTURBED AREA (5,586 SF) = 2 TREES REQUIRED (WAIVER REQUESTED)

2.A. PARKING LOT TREES– N/A

2.B. PARKING HEDGE– N/A

2.C. BUILDING FAÇADE PLANTINGS: 1 TREE/20' OF AFFECTED FAÇADE 38' LESS DRIVEWAY 20' = 1 TREES REQUIRED, APPLICANT PROPOSES TO UTILIZE LANDSCAPE WALL ALONG THE FRONT OF THE BUILDING FOR FAÇADE PLANTINGS.

2.D. SERVICE LOADING/ DUMPSTER SCREENING: N/A – TIPPERS CANS TO BE UTILIZED AND STORED INSIDE BUILDING.

LANDSCAPE BUFFERYARD REQUIREMENTS (SECTION 1014.7 E.)

10' WIDE LANDSCAPE BUFFERYARD 'E' – ALONG NORTHERN, EASTERN & SOUTHERN PROPERTY LINES
(ALONG NON-STREET, EXTERIOR PROPERTY LINES ADJOINING MORE OR LESS INTENSE ZONING OR LAND USE)

265 LF LESS ADA ACCESS ALONG NORTHERN PROPERTY LINE (52 LF) & LESS ACCESS AREA ALONG SOUTHERN PROPERTY LINE (28 LF) EQUALS 185 LF / 50' = 3.7 PLANT UNITS (PU)

2 SHADE/ CANOPY TREES X 3.7 PU = 7 SHADE/ CANOPY TREES REQUIRED, 2 TREES PROVIDED WAIVER REQUESTED FOR 5 TREES
1 EVERGREEN TREES X 3.7 PU = 4 EVERGREEN TREES REQUIRED, WAIVER REQUESTED FOR 4 TREES

DUE TO THE SIZE OF THE SITE, PROXIMITY TO THE BUILDING AND PLANTING CONSTRAINTS, THE APPLICANT PROPOSES TO PLANT A 5' WIDE EVERGREEN SHRUB HEDGE ALONG THE NORTHERN, EASTERN AND SOUTHERN PROPERTY LINES AND PROVIDE A COUPLE OF SHADE/ CANOPY TREES ALONG THE EAST AND NORTH PROPERTY LINES IN ORDER TO SATISFY BUFFERYARD REQUIREMENTS.

LEGEND

- IRON ROD FOUND
- IRON ROD SET
- ELECTRIC METER
- GAS MAIN
- OHU OVER HEAD UTILITY LINES
- UTILITY POLE
- SS SANITARY SEWER MAIN
- WATER METER
- W WATER MAIN
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED BUILDING
- PROPOSED REINFORCED TURF
- PROPOSED PERMEABLE PAVERS

MD COORDINATE SYSTEM NAD 83 (2011)

5' 2.5' 0' 2.5' 5' 10'
SCALE IN FEET

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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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@lane.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. 51461 , Expiration Date: 04/04/2026.

SEAL

DATE 08-07-24

SKETCH SITE PLAN

ON THE LANDS OF ACADEMY ART MUSEUM, INC.

IN ELECTION WARD FOUR, TOWN OF EASTON TALBOT COUNTY, MARYLAND
TAX MAP 105, GRID EA, PARCELS 1948, 1949, 1950

ISSUED/REVISED FOR: DATE: BY:
ESDR SUBMITTAL 08/07/24 JSC

SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 230252
FILE No. 1980

Date: 08/07/2024 - 11:28am User: achosta Project Manager: JSC
Drawing Path: J:\2023\0200\230252\Civil\30-230252\Dwg\Plots\ESDR-CSP-PLTS-230252.dwg | Sheet 2
XREF File(s): RAR-BASE-230252/VLD-BASE-230252/CSP-BASE-230252/CBS-BASE-2436-230252/LUP-BASE-230252/VSF-BASE-230252/XRN-BASE-230252

FOREST CONSERVATION: FOREST CONSERVATION IS EXEMPT SINCE THE DEVELOPMENT IS LESS THAN 40,000 SF; AND PER §31-3.2.O: AN ACTIVITY ON A PREVIOUSLY DEVELOPED AREA COVERED BY IMPERVIOUS SURFACE AND LOCATED IN THE PRIORITY FUNDING AREA.

LANDSCAPE REQUIREMENTS SUMMARY PER ZONING ORDINANCE:

SECTION 1014.6.F. (BUSINESS & SERVICE USES):

1. OVERALL TREES – 1 TREE/ 3000 SF OF DISTURBED AREA (5,586 SF) = 2 TREES REQUIRED (WAIVER REQUESTED)

2.A. PARKING LOT TREES– N/A

2.B. PARKING HEDGE– N/A

2.C. BUILDING FAÇADE PLANTINGS: 1 TREE/20' OF AFFECTED FAÇADE 38' LESS DRIVEWAY 20' = 1 TREES REQUIRED, APPLICANT PROPOSES TO UTILIZE LANDSCAPE WALL ALONG THE FRONT OF THE BUILDING FOR FAÇADE PLANTINGS.

2.D. SERVICE LOADING/ DUMPSTER SCREENING: N/A – TIPPERS CANS TO BE UTILIZED AND STORED INSIDE BUILDING.

LANDSCAPE BUFFERYARD REQUIREMENTS (SECTION 1014.7 E.)

10' WIDE LANDSCAPE BUFFERYARD 'E' – ALONG NORTHERN, EASTERN & SOUTHERN PROPERTY LINES
(ALONG NON-STREET, EXTERIOR PROPERTY LINES ADJOINING MORE OR LESS INTENSE ZONING OR LAND USE)

265 LF LESS ADA ACCESS ALONG NORTHERN PROPERTY LINE (52 LF) & LESS ACCESS AREA ALONG SOUTHERN PROPERTY LINE (28 LF) EQUALS 185 LF / 50' = 3.7 PLANT UNITS (PU)

2 SHADE/ CANOPY TREES X 3.7 PU = 7 SHADE/ CANOPY TREES REQUIRED, 2 TREES PROVIDED WAIVER REQUESTED FOR 5 TREES
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LEGEND

- IRON ROD FOUND
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- ELECTRIC METER
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- OVER HEAD UTILITY LINES
- UTILITY POLE
- SANITARY SEWER MAIN
- WATER METER
- WATER MAIN
- MAJOR CONTOUR
- MINOR CONTOUR
- PROPOSED BUILDING
- PROPOSED REINFORCED TURF
- PROPOSED PERMEABLE PAVERS

MD COORDINATE SYSTEM NAD 83 (2011)

5' 2.5' 0' 2.5' 5' 10'
SCALE IN FEET

REVISIONS TO APPROVED PLANS

No.	DATE	DESCRIPTION	BY

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354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

SEAL

DATE

ILLUSTRATIVE SITE PLAN

ON THE LANDS OF ACADEMY ART MUSEUM, INC.

IN ELECTION WARD FOUR, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, GRID EA, PARCELS 1948, 1949, 1950

ISSUED/REVISED FOR: DATE: BY:
ESDR SUBMITTAL 08/07/24 JSC

SHEET No. 1 OF 1
SCALE: AS NOTED
JOB No. 230252
FILE No. 1980

Date: 08/07/2024 - 9:27am User: wbarnhart Project Manager:JSC
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XREF File(s): RAR-BASE-230252/VLD-BASE-230252/CSP-BASE-230252/CBS-BASE-24X36-230252/LLP-BASE-230252/VSF-BASE-230252/XRN-BASE-230252

PROPERTY OWNER: ACADEMY ART MUSEUM, INC.
PROPERTY ADDRESS: 106 TALBOT LANE (PARCEL 1948)
108 TALBOT LANE (PARCEL 1949)
110 TALBOT LANE (PARCEL 1950)
EASTON, MARYLAND 21601
DEED REFERENCE: 3030/497
THE PART OF PARCEL 1952 SHOWN HEREON WAS CONVEYED TO ACADEMY ART MUSEUM, INC. BY A QUITCLAIM DEED RECORDED IN LIBER 3082 AT FOLIO 404.
PLAT REFERENCE: 81/525 AND 91/114

SITE NOTES

ZONING CLASSIFICATION: R7A (RESIDENTIAL)
SETBACKS:
FRONT– 15'
SIDE– 8'
REAR– 25'

BUILDING RESTRICTION LINES SHOWN HEREON ARE PER A ZONING APPEALS SPECIAL EXCEPTION DATED 10–07–22 AND CONFIRMED BY PLANNING AND ZONING, JOE MAYER AND MIGUEL SALINAS IN AN EMAIL DATED MAY 15, 2024.

MAXIMUM LOT COVERAGE ALLOWED IS 100% OF BUILDING ENVELOPE.

THE PROPERTY SHOWN HEREON LIES ENTIRELY OUTSIDE OF THE CHESAPEAKE BAY CRITICAL AREA AS SHOWN ON THE TALBOT COUNTY CRITICAL AREA MAPS IN ACCORDANCE WITH TALBOT COUNTY BILL No. 1295, ENACTED AUGUST 12, 2014.

THE IMPROVEMENTS SHOWN HEREON WERE FIELD LOCATED BY LANE ENGINEERING, LLC ON 07–06–23.

THE DIMENSIONS OF BUILDINGS, STRUCTURES AND SETBACKS WERE MEASURED TO THE NEAREST 0.1 FOOT.

THE CONTOURS SHOWN HEREON WERE TAKEN FROM FIELD RUN TOPOGRAPHY BY LANE ENGINEERING, LLC ON 07–06–23.

THE ELEVATIONS SHOWN HEREON ARE NAVD 1988 DATUM AS ESTABLISHED BY GPS METHODOLOGY TO CORS STATIONS MDNM (NGS CERTIFICATE PENDING) AND DEHA (NGS CERTIFICATE PENDING).

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 DEHA (NGS CERTIFICATE PENDING). 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 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 THE 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
ZONES A, AE, AH, AO, AR, A99, V & VE – 1% ANNUAL CHANCE FLOOD
ZONE X (SHADED) – 0.2% ANNUAL CHANCE FLOOD
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.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY, TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, BELIEF AND INFORMATION, TO ACADEMY ART MUSEUM, INC. THAT THE PLAN SHOWN HEREON IS CORRECT, THAT IT IS A LOT LINE REVISION SURVEY OF ALL THE LANDS CONVEYED TO ACADEMY ART MUSEUM, INC. BY DEED DATED JANUARY 25, 2023 AND RECORDED AMONG THE LAND RECORDS OF TALBOT COUNTY, MARYLAND IN LIBER 3030, AT FOLIO 497 AND ALL THE LANDS CONVEYED TO ACADEMY ART MUSEUM, INC. BY DEED DATED SEPTEMBER 15, 2023 AND RECORDED AMONG THE LAND RECORDS OF TALBOT COUNTY, MARYLAND IN LIBER 3082, AT FOLIO 404, THAT IT IS IN ACCORDANCE WITH DEEDS AND/OR PLATS OF RECORD. THIS PLAT HAS BEEN PREPARED BY ME PERSONALLY OR UNDER MY RESPONSIBLE CHARGE AND THAT I AM A DULY LICENSED PROPERTY LINE SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 363, AND, SUBJECT TO BIENNIAL RENEWAL, MY CURRENT EXPIRATION DATE IS AUGUST 3, 2025, AND COMPLIES WITH THE REQUIREMENTS AS SET FORTH IN REGULATION 09.13.06.12, 09.13.06.03 AND 09.13.06.04 OF THE MARYLAND MINIMUM STANDARDS OF PRACTICE FOR SURVEYORS. MONUMENTS HAVE BEEN SET OR FOUND AS SHOWN HEREON.

JEFFERSON EWELL HUBBARD
REGISTERED PROPERTY LINE SURVEYOR
MARYLAND REGISTRATION No. 363
LANE ENGINEERING, LLC
117 BAY STREET
EASTON, MARYLAND 21601

8/7/24
DATE

OWNERS CERTIFICATE

ACADEMY OF THE ARTS, INC., OWNER OF THE PROPERTY SHOWN AND DESCRIBED HEREON, HEREBY ADOPT THIS LOT LINE REVISION PLAT.

BY: _____ DATE _____

NOTARY STATEMENT

THE OWNER HAS SWORN TO AND SUBSCRIBED BEFORE ME THIS _____DAY OF _____, 2024

NOTARY

TALBOT COUNTY HEALTH DEPARTMENT

REVISED PARCEL 1948 AS SHOWN HEREON IS APPROVED FOR COMMUNITY WATER SUPPLY AND COMMUNITY SEWERAGE AND THEIR USE IS IN ACCORDANCE WITH TALBOT COUNTY COMPREHENSIVE WATER AND SEWERAGE PLAN AND MARYLAND DEPARTMENT OF THE ENVIRONMENT REGULATION 26.04.03.

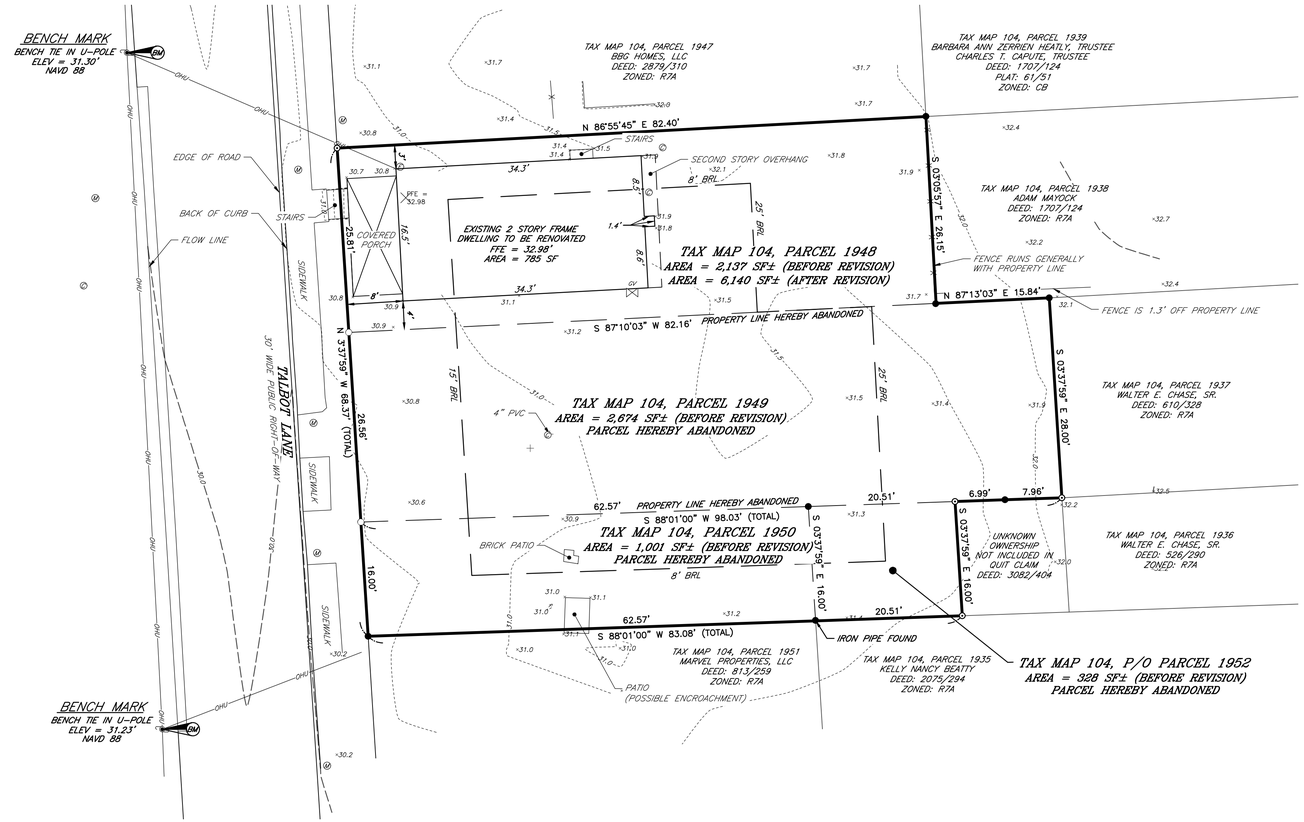
THIS LOT LINE REVISION IS APPROVED BY THE TALBOT COUNTY HEALTH DEPARTMENT

TALBOT COUNTY APPROVING AUTHORITY _____ DATE _____

APPROVED:

CHAIRMAN OF THE PLANNING AND ZONING COMMISSION _____ DATE _____

THE TOWN PLANNER _____ DATE _____



VICINITY MAP
SCALE: 1" = 500'
250' 0' 250' 500'
SCALE IN FEET

LEGEND

- IRON ROD FOUND
- IRON ROD SET
- ELECTRIC METER
- GAS MAIN
- OVER HEAD UTILITY LINES
- UTILITY POLE
- SANITARY SEWER MAIN
- WATER METER
- MAJOR CONTOUR
- MINOR CONTOUR
- SPOT ELEVATION

MD COORDINATE SYSTEM NAD 83 (2011)

10' 5' 0' 5' 10' 20'
SCALE IN FEET

REVISIONS

No.	DATE	DESCRIPTION	BY

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

SEAL
STATE OF MARYLAND
JEFFERSON EWELL HUBBARD
363
REGISTERED
PROPERTY LINE SURVEYOR
8/7/24
DATE

LOT LINE REVISION PLAT

ON THE LANDS OF ACADEMY ART MUSEUM, INC.

IN THE TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, GRID EA, PARCELS 1948, 1949, 1950

ISSUED FOR:	DATE:	BY:
REVIEW	06–26–24	JSC
SUBMITTED TO THE TOWN OF EASTON	08–07–24	JEH

SHEET No. 1 OF 1	DATE: 08–07–24
SCALE: AS NOTED	JOB No. 230252
	FILE No. 1980

© LANE ENGINEERING, LLC

Date: 08/07/2024 – 8:16am User: jhubbard Project Manager: JSC
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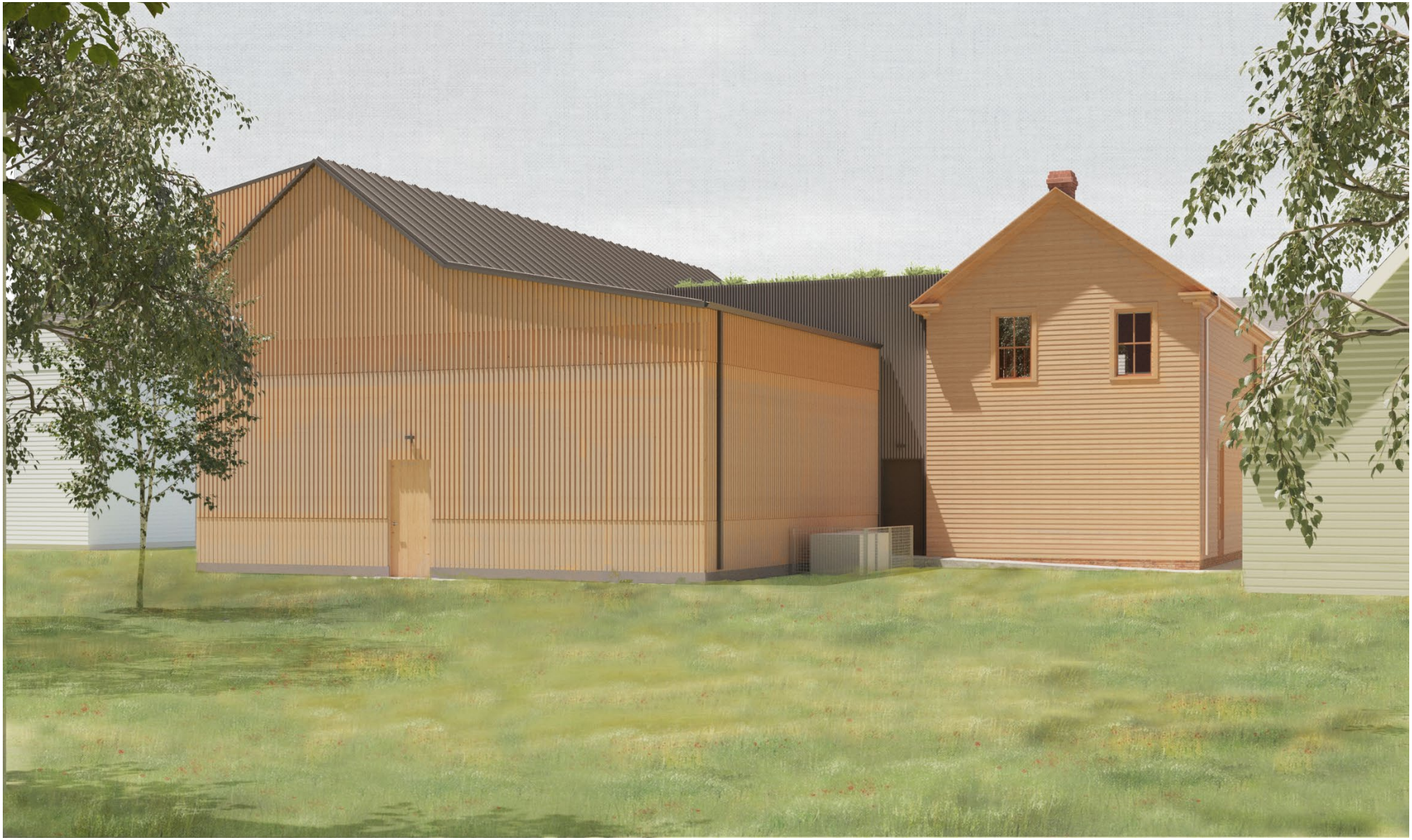
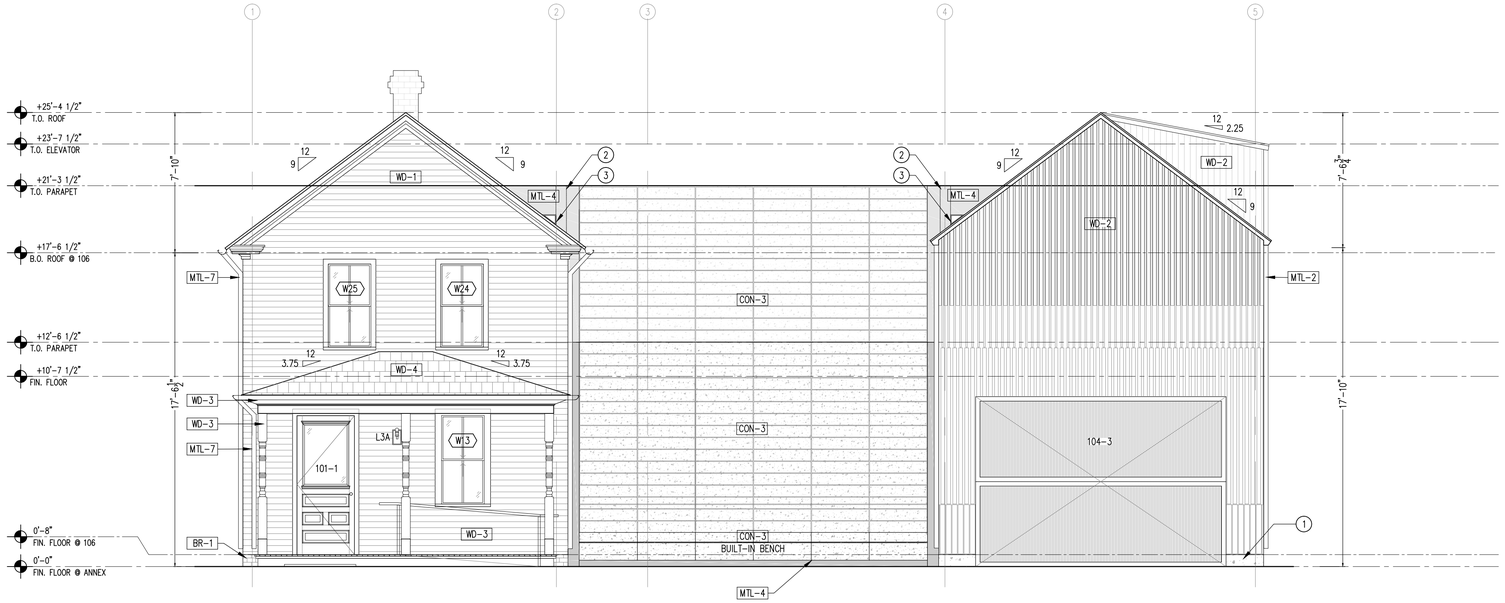
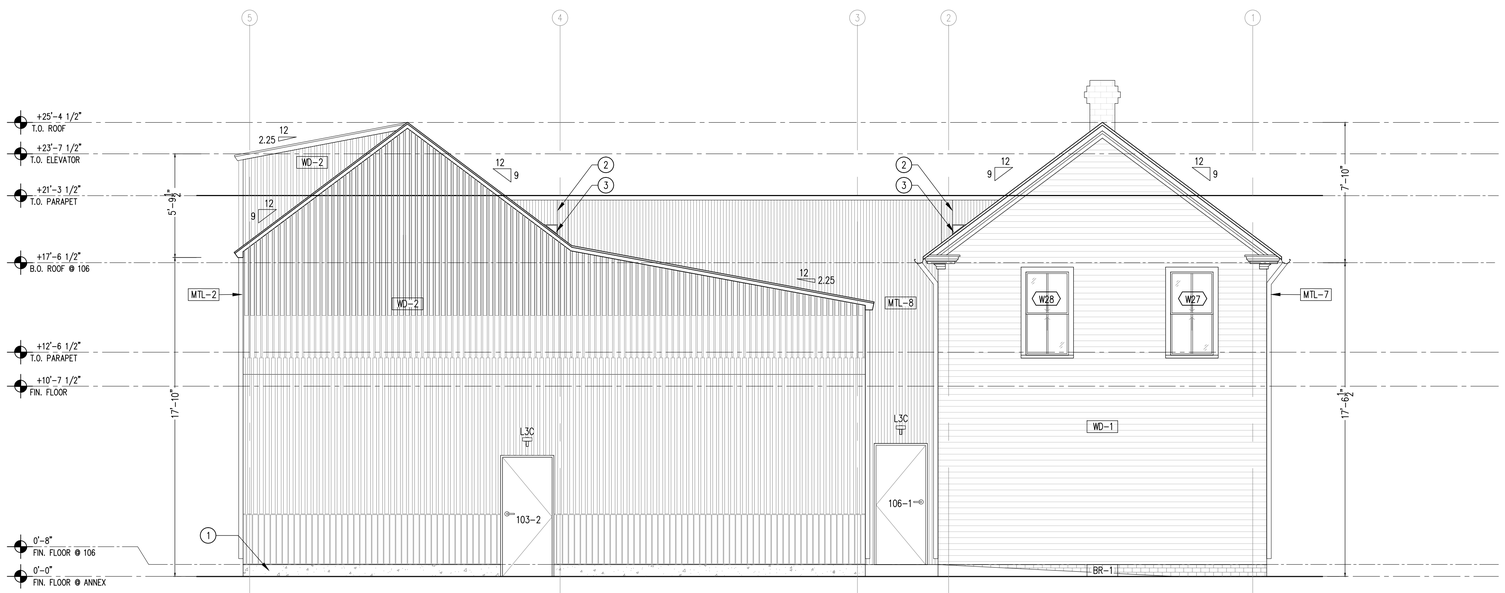




1 PROPOSED WEST ELEVATION
1/4" = 1'-0"



2 PROPOSED EAST ELEVATION
1/4" = 1'-0"

SHEET NOTES

1. APPLY PARGE COAT AT EXPOSED PORTION OF NEW ANNEX WALL.
2. DASHED LINE INDICATES PARAPET WALL BEYOND.
2. SCUPPER FOR CRICKET DRAINAGE TO MATCH METAL FINISH SHOWN.

KEY

- WXX — WINDOW TAG; SEE A-600
- XXX-X — DOOR TAG; SEE A-600
- XX-X — MATERIAL/FINISH TAG; SEE A-600
- X 12 — ROOF SLOPE

GRT ARCHITECTS

Owner:
Academy Art Museum
106 South St, Easton, MD, 21601

Design Architect:
GRT Architects LLP
61 Greenpoint Ave, Suite 509, Brooklyn, NY 11222
917 909 1868

Architect of Record:
John Hutchison Architecture
302 Park Row, Floor 1, Chestertown, MD 21620

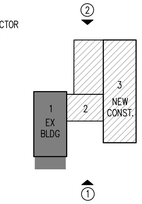
Civil Engineer:
Lane Engineering, LLC
117 Bay St, Easton, MD 21601

Structural Engineer:
Silcox Engineering & Drafting
312 Park Row, Suite B, Chestertown, MD 21620

MEP/FP Engineer:
Allen + Shariff
205 East Market St, Salisbury, MD 21801

KEY PLAN

1 – 106
2 – CONNECTOR
3 – ANNEX



description	date
FEASIBILITY STUDY FINAL SUBMISSION	06/14/2023
SCHEMATIC DESIGN	02/20/2024
DESIGN DEVELOPMENT	05/07/2024

NOT FOR CONSTRUCTION, PERMITTING, OR ANY PURPOSE OTHER THAN TO CONVEY DESIGN INTENT

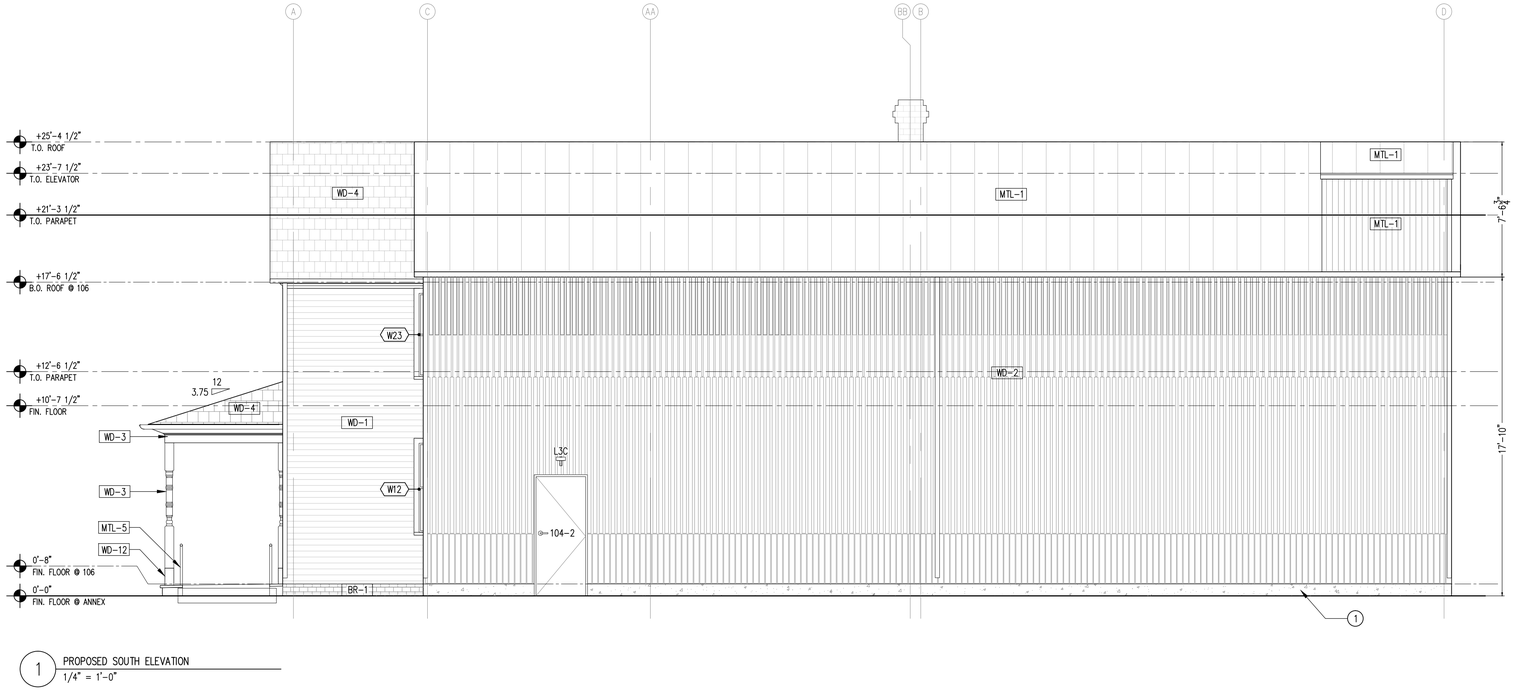
ACADEMY ART MUSEUM ANNEX

106 TALBOT LANE, EASTON, MD 21601

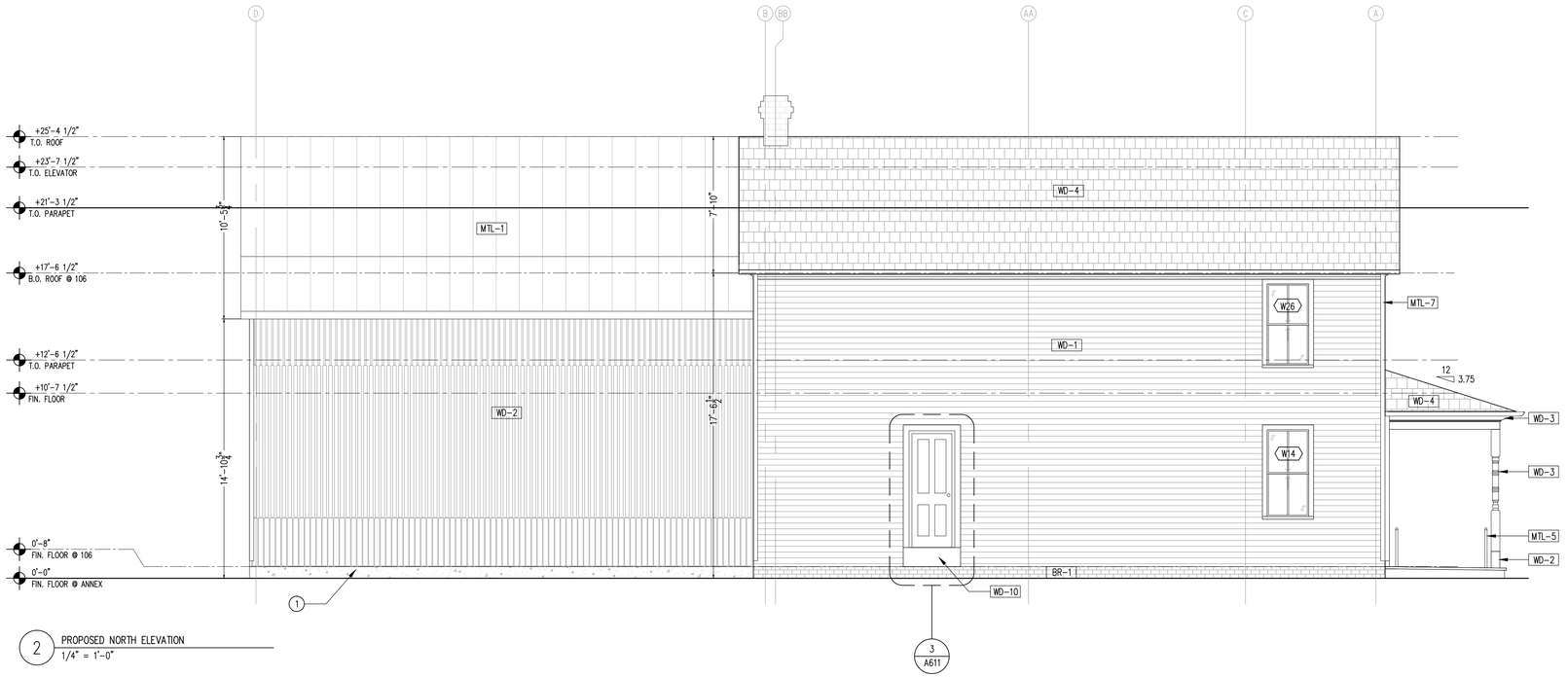
PROPOSED ELEVATIONS

NOT FOR CONSTRUCTION

project number: 2304
scale AS NOTED
sheet number
A-200.00



1 PROPOSED SOUTH ELEVATION
1/4" = 1'-0"



2 PROPOSED NORTH ELEVATION
1/4" = 1'-0"

SHEET NOTES

1 APPLIED PARGE COAT AT EXPOSED PORTION OF NEW ANNEX WALL.

KEY

WXX	WINDOW TAG; SEE A-600
XXX-X	DOOR TAG; SEE A-600
XX-X	MATERIAL/FINISH TAG; SEE A-600
X 12	ROOF SLOPE

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917 909 1868

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117 Bay St, Easton, MD 21601

Structural Engineer:
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MEP/FP Engineer:
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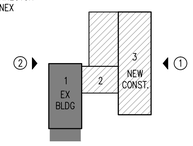
KEY PLAN

1 – 106
2 – CONNECTOR
3 – ANNEX



description	date
FEASIBILITY STUDY FINAL SUBMISSION	06/14/2023
SCHEMATIC DESIGN	02/20/2024
DESIGN DEVELOPMENT	05/07/2024

NOT FOR CONSTRUCTION, PERMITTING, OR ANY PURPOSE OTHER THAN TO CONVEY DESIGN INTENT

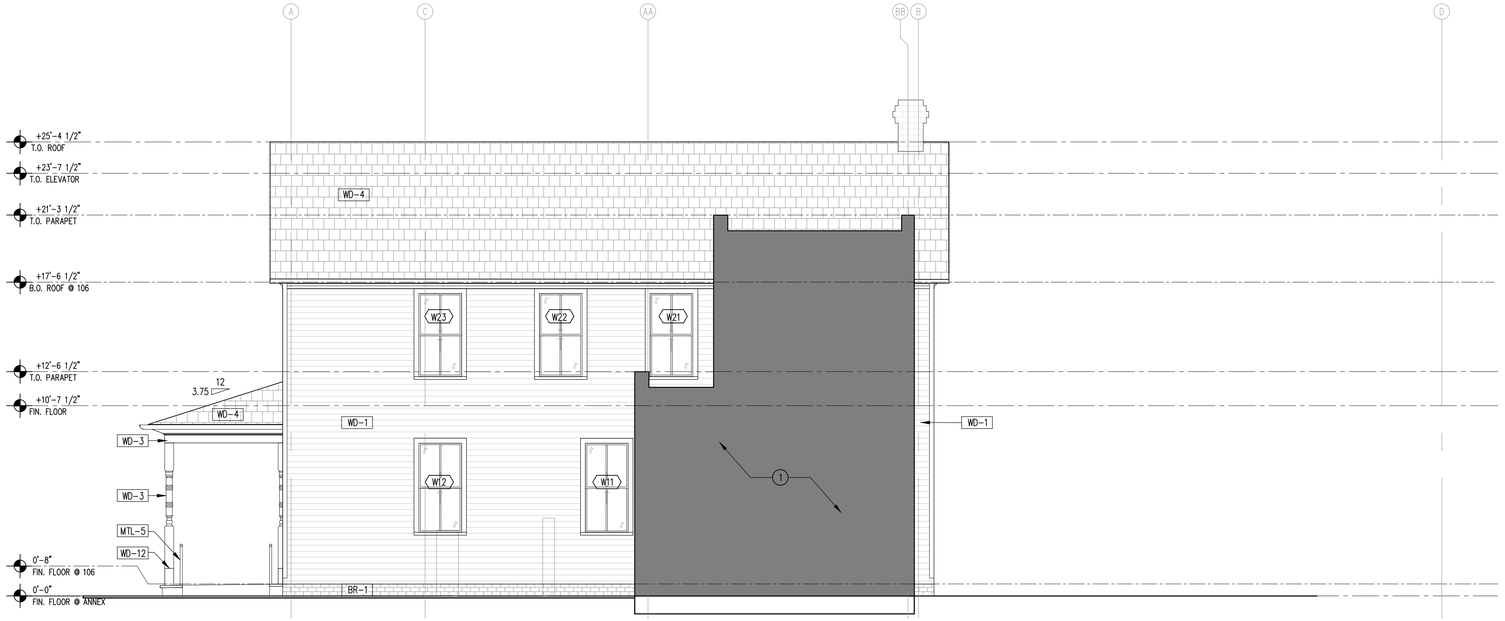
ACADEMY ART MUSEUM ANNEX

106 TALBOT LANE, EASTON, MD 21601

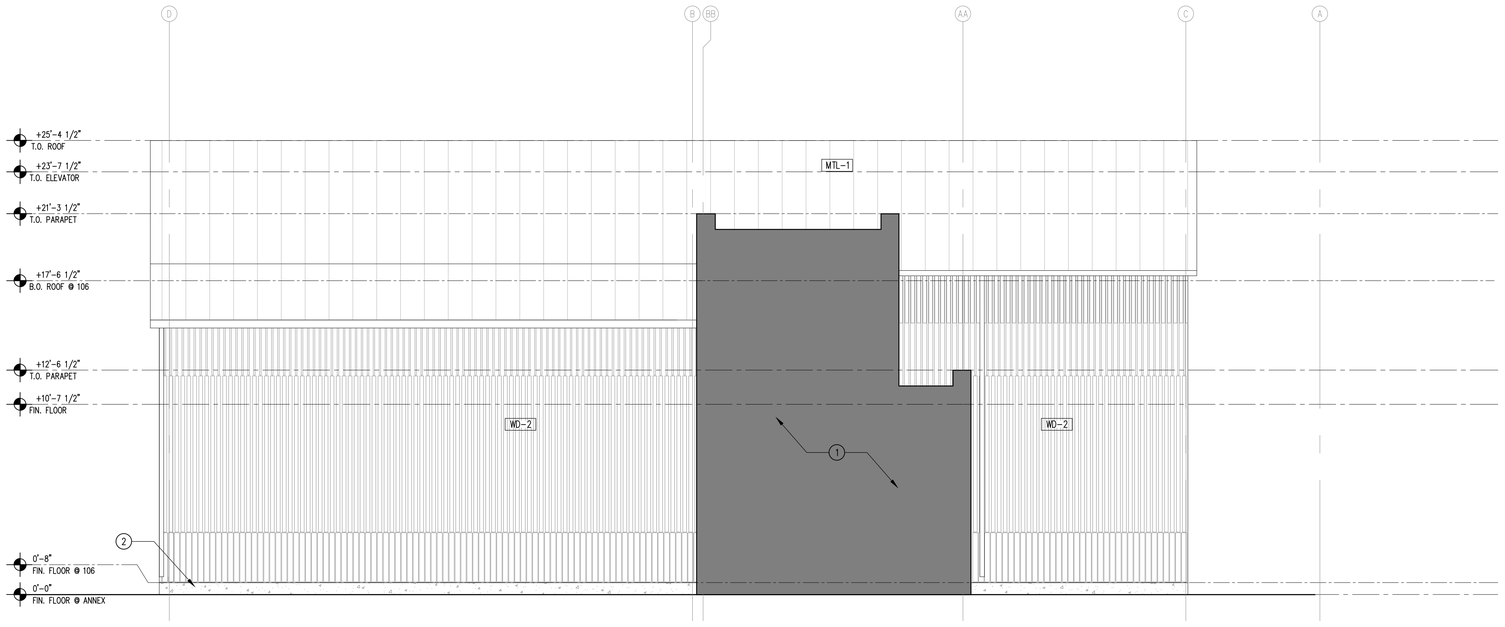
PROPOSED ELEVATIONS

NOT FOR CONSTRUCTION

project number: 2304
scale AS NOTED
sheet number
A-201.00



1 PROPOSED SOUTH ELEVATION
1/4" = 1'-0"



2 PROPOSED NORTH ELEVATION
1/4" = 1'-0"

SHEET NOTES

1. EXTENTS OF NEW CONSTRUCTION PORTION OF WORK CONNECTING TO EXISTING BUILDING.
2. APPLIED PARGE COAT AT EXPOSED PORTION OF NEW ANNEX WALL.

KEY

WXX	WINDOW TAG; SEE A-600
XXX-X	DOOR TAG; SEE A-600
XX-X	MATERIAL/FINISH TAG; SEE A-600
X 12	ROOF SLOPE

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Lane Engineering, LLC
117 Bay St, Easton, MD 21601

Structural Engineer:
Silcox Engineering & Drafting
312 Park Row, Suite B, Chestertown, MD 21620

MEP/FP Engineer:
Allen + Shariff
205 East Market St, Salisbury, MD 21801

KEY PLAN

1 – 106
2 – CONNECTOR
3 – ANNEX

description	date
DESIGN DEVELOPMENT	05/07/2024

NOT FOR CONSTRUCTION, PERMITTING, OR ANY PURPOSE OTHER THAN TO CONVEY DESIGN INTENT

ACADEMY ART MUSEUM ANNEX

106 TALBOT LANE, EASTON, MD 21601

PROPOSED ELEVATIONS

NOT FOR CONSTRUCTION

project number: 2304
scale AS NOTED
sheet number
A-202.00

CONCEPT STORMWATER MANAGEMENT REPORT

For

Academy Art Museum, Inc. - Annex
Easton, Maryland

Developer

Academy Art Museum, Inc.
c/o Jennifer Chrzanowski, Interim Director
106 S. Street
Easton, MD 21601

Design Professional

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

Date Prepared

August 7, 2024

Date Revised

N/A

Prepared by

Alec F. Chosta, P.E.
Civil Engineer

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. 51461, Expiration Date: 4/4/2026

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Stormwater Management Submittal Checklist

1. INTRODUCTION

This report addresses stormwater management for development of the properties at 106 & 108 Talbot Lane. The stormwater management plan incorporates the requirements of the *2000 Maryland Stormwater Design Manual Volumes I and II* (Manual) as currently updated. Stormwater projects are required to be reviewed during the concept, preliminary site development and final design stages. This narrative addresses the requirements pertaining to the concept design stage and meets the intent of the guidelines and methodologies presented in the MDE document *Environmental Site Design (ESD) Process & Computations* dated July 2010.

2. GENERAL SITE INFORMATION

The to-be consolidated property consists of a historic building on one lot (106 Talbot Lane) and a currently vacant lot next door (formerly 108 Talbot Lane) as well as lands that have undergone a quitclaim process. The property is entirely outside the Critical Area with no environmental features of note. 108 Talbot Lane previously hosted residential dwellings dating back to the early 1900s, but the most recent structure was removed due to poor condition between 2013 and 2022 – see appendices D & E for historical coverage. Roof failure is evident in the aerial imagery.

Onsite drainage patterns split with a high point in the middle of the parcels that shed water either to Talbot Lane or to the rear of the property.

According to the USDA soil maps, site soils are mapped as Udorthents– classified as a Hydrologic Group "C" soil. Historical urban use and remaining debris onsite, including buried remnants of foundations, have further limited the infiltration and absorption capacity of onsite soils.

3. PROPOSED PROJECT

The property is to be consolidated into a single parcel and the existing historic dwelling is to be expanded upon to create an art storage building. This updated structure will also house an office, loading area, and restrooms for non-public use. The property is not intended to host public events or exhibitions.

4. ENVIRONMENTAL SITE DESIGN (ESD)

ESD requirements must be addressed for the project's on-lot limits of disturbance (LOD), which is assumed to consist of the entire property, less the footprint of the existing structure which will be an internal renovation, and results in 5,355 SF of earthen disturbance. Based on existing, and even historical lot coverage, the project does not qualify for "redevelopment" as described in the Manual. The project's target ESD volume is **396 cf** and is further elaborated upon in the subsequent sections.

4.1 STORMWATER QUANTITY

The property has been in urbanized residential usage since at least 1907 according to the Sanborn Maps in Appendix E. The proposed project anticipates the use of alternative surfaces to promote infiltration and minimize surface runoff as best possible onsite.

Analysis verifies that management of the 2 and 10-year storms for onsite runoff is achieved in the proposed stormwater features. These consist of a combination of alternative surfaces and a flow-through planter box.

	2 Year Storm (cfs)		**10 Year Storm (cfs)**		**100 Year Storm (cfs)**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
Study Point 1	0.08	0.04	0.17	0.10	0.28	0.17
Study Point 2	0.24	0.17	0.44	0.31	0.69	0.58
Totals	0.32	0.21	0.61	0.41	0.97	0.75
NET REDUCTION	**0.11**		**0.20**		**0.22**	

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

4.2 STORMWATER QUALITY

A holistic approach has been taken for stormwater given the limitations of the property and efforts to maximize the storage capacity of the structure. Significant use of alternative surfaces including permeable pavers, reinforced grass turf, and a green roof has been used to reduce ESD targets while providing treatment. The resulting ESD target after deducting these alternative surfaces from site impervious calculations is 396 cf.

Regrettably, these alternative surfaces do not fully satisfy treatment requirements and the use of a flow-through planter box is proposed to anchor the project's treatment to the maximum extent practicable (MEP). The permeable pavers provide 75 cf of treatment, the green roof provides 46 cf, and the Reinforced Grass Turf does not generate a treatment credit – leaving a deficit of 275 cf relative to the site target of 396 cf. The planter box is projected to generate 280 cf of treatment bringing total site treatment to **401 cf.**

See Appendix A for calculations.

4.2.1 ESD PRACTICES

ESD practices were evaluated for applicability to the site:

Alternative Surfaces

- **Green Rooftops** – the project has incorporated a green roof and wall into the aesthetics of the building. This practice provides minimal treatment but also serves to reduce the overall project impervious coverage and ESDv target.
- **Permeable Pavements** – The project is proposing to create a courtyard using masonry pavers along the frontage of the building. These pavers will be underlain with a 12" gravel base to promote infiltration where possible.
- **Reinforced Turf** - Reinforced turf areas are commonly used for emergency equipment access or for areas that receive minimal vehicular use. The loading area on the front of the building and egress route will utilize such a surface to minimize onsite impervious coverage.

Nonstructural practices

- Disconnection of Rooftop Runoff – Due to the spatial limitations of the property, disconnection of rooftop runoff is not feasible.
- Disconnection of Non-Rooftop Runoff – As an in-town property with relatively high density, there is limited opportunity and space to implement this practice.
- Sheetflow to Conservation Area – There are no open space or conservation areas adjacent to the site outside of various buffer yards that do not meet the necessary criteria as defined by the Manual.

Micro-scale practices

- Rainwater Harvesting – Opportunities for on-site reuse of harvested rainwater is limited. Irrigation is not proposed for the site. Operations and maintenance, especially during cold-weather periods, is also a concern.
- Submerged Gravel Wetlands **–** This practice is best suited for sites with a high groundwater table and large drainage areas. Due to small lot size, saturated conditions in the gravel media may be difficult to maintain solely by stormwater runoff – particularly in the summer months.
- Landscape Infiltration – the soils on-site are predominantly mapped as group C at the surface level. Historical urban use and soil compaction further limits the likelihood of usable levels of infiltration. Infiltration practices are not recommended within 10' of property lines or building foundations.

- Infiltration Berms – onsite soils do not support the use of this practice - the opportunity for successful implementation is limited due to the proposed density of the project. Infiltration practices are not recommended within 10' of property lines or building foundations.
- Dry Wells – the project is infill construction and drywells are not recommended within 10 feet of a building foundation (be it structures onsite or on neighboring properties).
- **Micro Bio-Retention** – A variant of this practice is proposed in the form of a flow-through planter box with 2.5' of media and 1' of temporary ponding. This above grade practice is permissible to be within 10' of building foundations and has been previously approved to be placed within a building restriction line in the Town of Easton.
- Rain Gardens – This practice could provide the necessary treatment. Concerns exist about long term maintenance access as any such practice would be constructed in the backyard. Per the Town of Easton Rain Garden Detail, rain gardens are not allowed within 10 feet of a building foundation or property line – there are very limited areas of the property that can meet this requirement and such areas are inadequate to construct a practice of the required size.
- Grass & Bio-Swales – Given the density of the proposed project, the opportunity to implement such practices is limited.

A combination of alternative surfaces, including green roofs, pavers, reinforced turf, and a flow-through planter box is required for this site.

The total ESD volume provided is **401 CF.**

5. CONCLUSION

This stormwater management analysis indicates that the proposed design will successfully meet stormwater quality and quantity requirements. Referring to the attached water quality calculations, the computed ESDv provided is greater than the ESDv required. Planning and design analysis indicates that stormwater quality and quantity management can be accomplished as described.

APPENDIX A

MARYLAND ENVIRONMENTAL SITE DESIGN (ESD) CALCULATIONS

ESD Site Target

Earthen Disturbance (LOD) = 5,355 sf; Consisting of the entire consolidated property (6,140 sf) less the footprint of the existing building (785 sf) which will be an interior renovation.

Project does not qualify for redevelopment ($I_{Existing}$ <40%)

Onsite Soils are Mapped as Hydrologic Group "C"

The proposed development will create 2,642 sf of new impervious (deducting green roof, living wall, permeable pavers, and planter bench). Impervious 49.34%

R_v = 0.05 + 0.009*(49.34) = 0.494

Per table 5.3, P_E = 1.8"

$ESD_V = \frac{(Pe)(Rv)(A)}{12} = \frac{(1.8)(0.494)(5{,}355)}{12}$ = **396 cf**

Green Roof (A-1)

Per MDE Environmental Site Design (ESD) Process & Computations Table 1

8" Roof Thickness yields 0.134 ESD_V per ft^2

344 sf x 0.134 cf/sf = **46 cf**

Permeable Pavers (A-2)

Per MDE Environmental Site Design (ESD) Process & Computations Table 1

12" Gravel Subbase yields 0.16 ESD_V per ft^2

470 sf x 0.16 cf/sf = **75 cf**

Reinforced Grass Turf (A-3)

Grass Pave Product used to reduce impervious: 319 sf

No ESD credit provided per the Manual

Flow-Through Planter (M-6)

10 ft x 14 ft Planter Box with 2.5 feet of media

$ESD_{V\text{-}Media}$ = 140 sf x 2.5 ft x 0.4 (porosity) = 140 cf

$ESD_{V\text{-}Ponding}$ = 140 sf x 1 ft = 140 cf

$ESD_{V\text{-}FTP}$ = **280 cf**

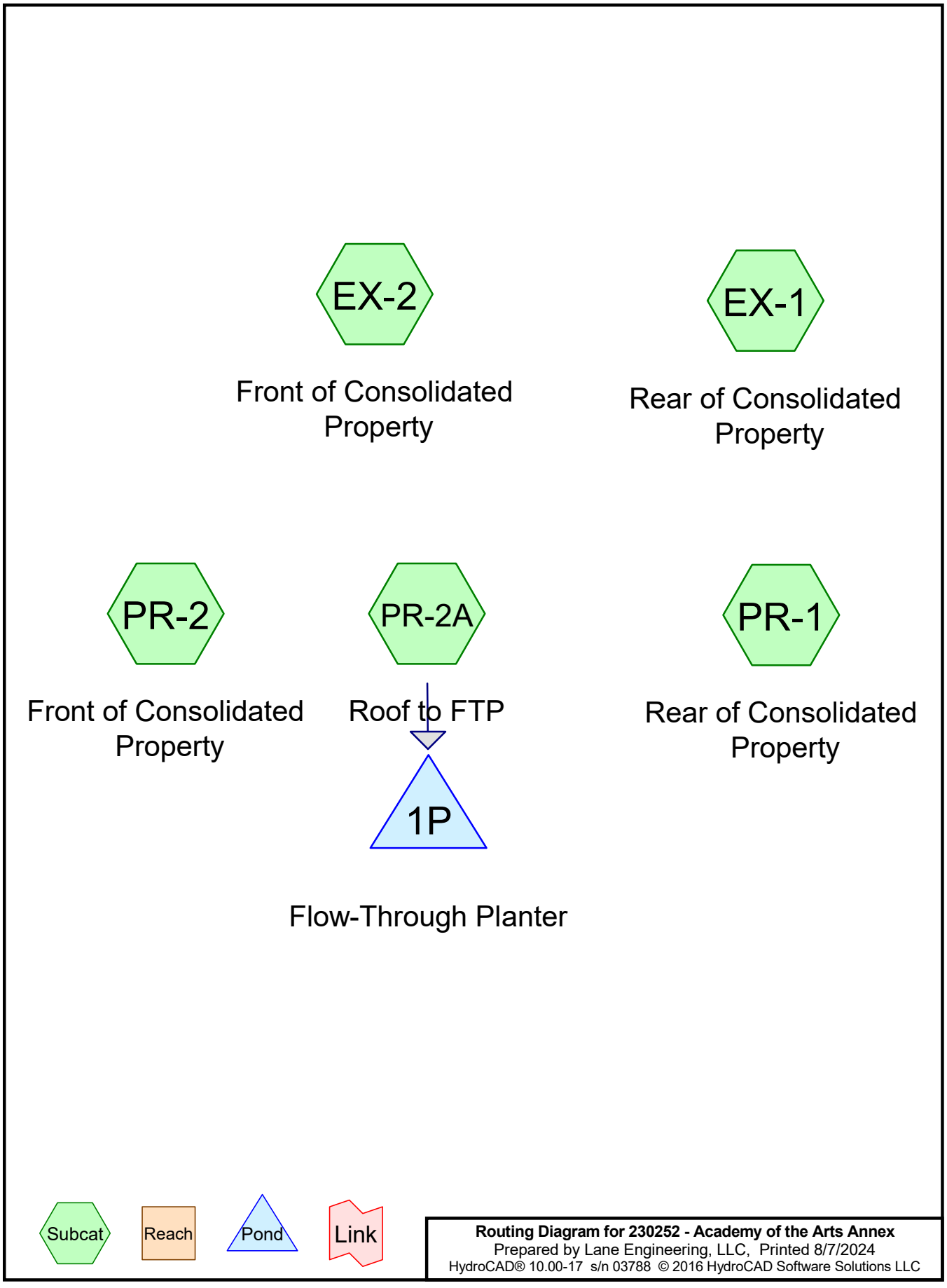
Total ESD_V

46 cf + 75 cf + 280 cf = **401 cf**

ESD_V (provided) > ESD_V (target)

APPENDIX B

HydroCAD Quantity Analysis


EX-2
Front of Consolidated Property
EX-1
Rear of Consolidated Property
PR-2
Front of Consolidated Property
PR-2A
Roof to FTP
1P
Flow-Through Planter
PR-1
Rear of Consolidated Property
Subcat
Reach
Pond
Link
Routing Diagram for 230252 - Academy of the Arts Annex
Prepared by Lane Engineering, LLC, Printed 8/7/2024
HydroCAD® 10.00-17 s/n 03788 © 2016 HydroCAD Software Solutions LLC

Summary for Subcatchment EX-1: Rear of Consolidated Property

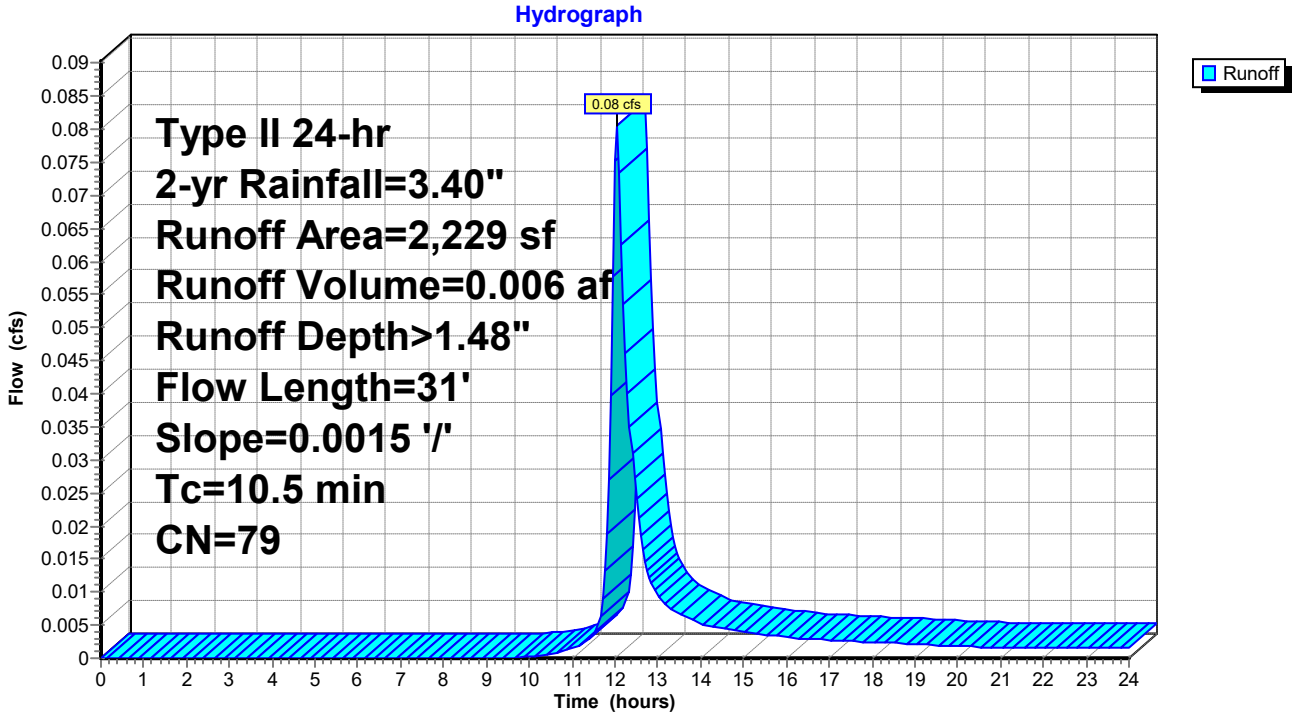
Runoff = 0.08 cfs @ 12.05 hrs, Volume= 0.006 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

Area (sf)	CN	Description
2,229	79	50-75% Grass cover, Fair, HSG C
2,229		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	31	0.0015	0.05		**Sheet Flow, Ex. Vacant Lot** Grass: Short n= 0.150 P2= 3.40"

Subcatchment EX-1: Rear of Consolidated Property



Summary for Subcatchment EX-2: Front of Consolidated Property

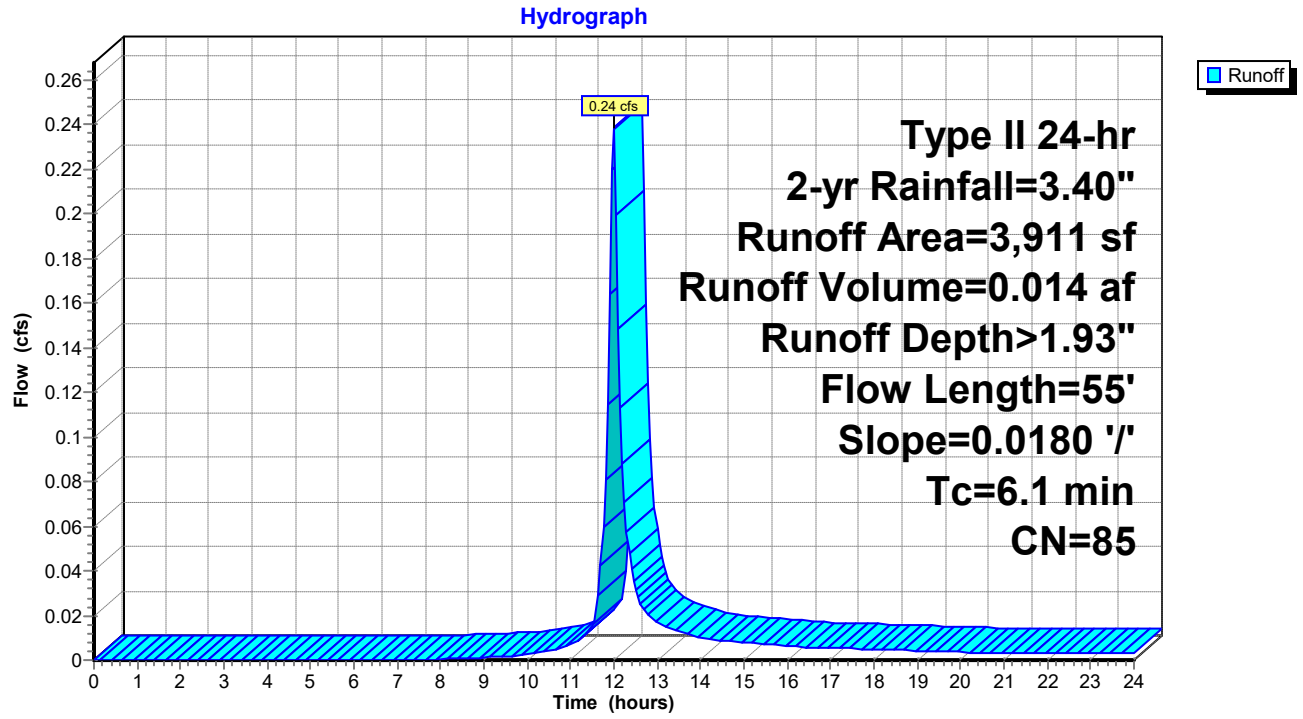
Runoff = 0.24 cfs @ 11.99 hrs, Volume= 0.014 af, Depth> 1.93"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	887	98	Ex Bldg & Misc. Slabs
	2,668	79	50-75% Grass cover, Fair, HSG C
*	356	98	Previous Building
	3,911	85	Weighted Average
	2,668		68.22% Pervious Area
	1,243		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	55	0.0180	0.15		**Sheet Flow, Vacant Grassed Lot** Grass: Short n= 0.150 P2= 3.40"

Subcatchment EX-2: Front of Consolidated Property



Summary for Subcatchment PR-1: Rear of Consolidated Property

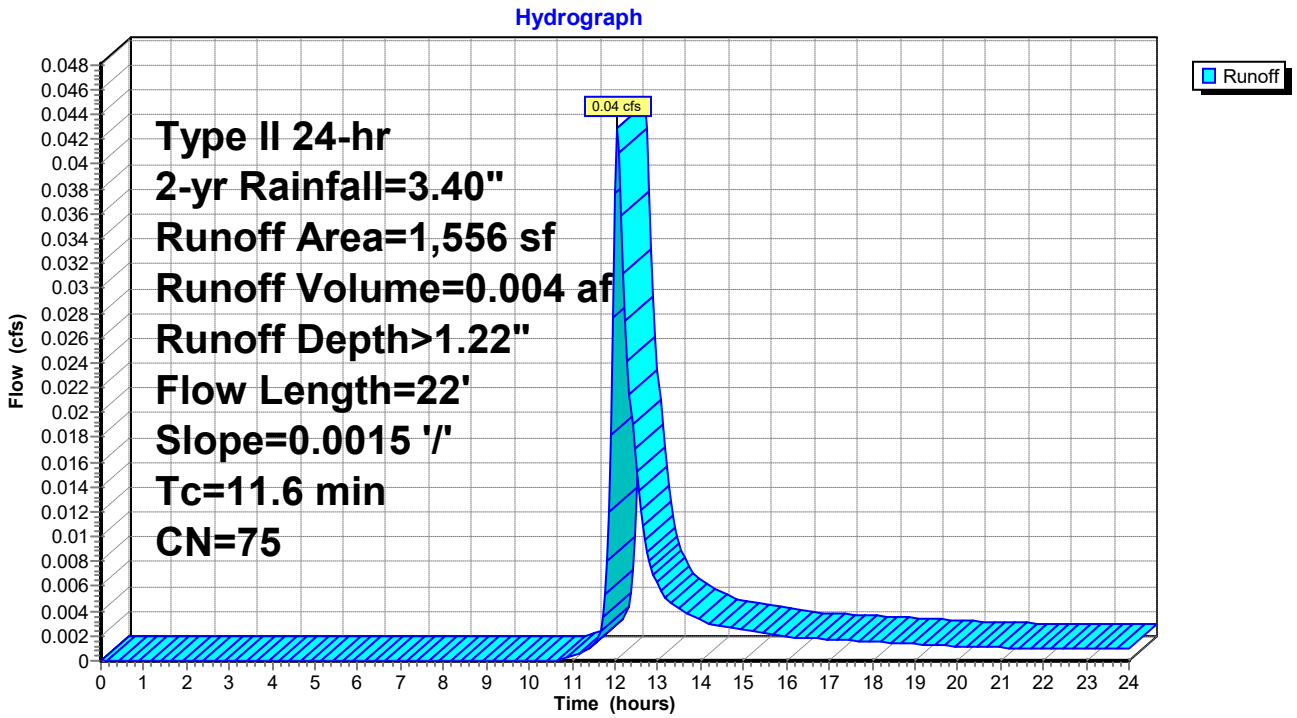
Runoff = 0.04 cfs @ 12.06 hrs, Volume= 0.004 af, Depth> 1.22"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
	1,518	74	>75% Grass cover, Good, HSG C
*	38	98	Conc Pad & HVAC
	1,556	75	Weighted Average
	1,518		97.56% Pervious Area
	38		2.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	22	0.0015	0.03		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"

Subcatchment PR-1: Rear of Consolidated Property



Summary for Subcatchment PR-2: Front of Consolidated Property

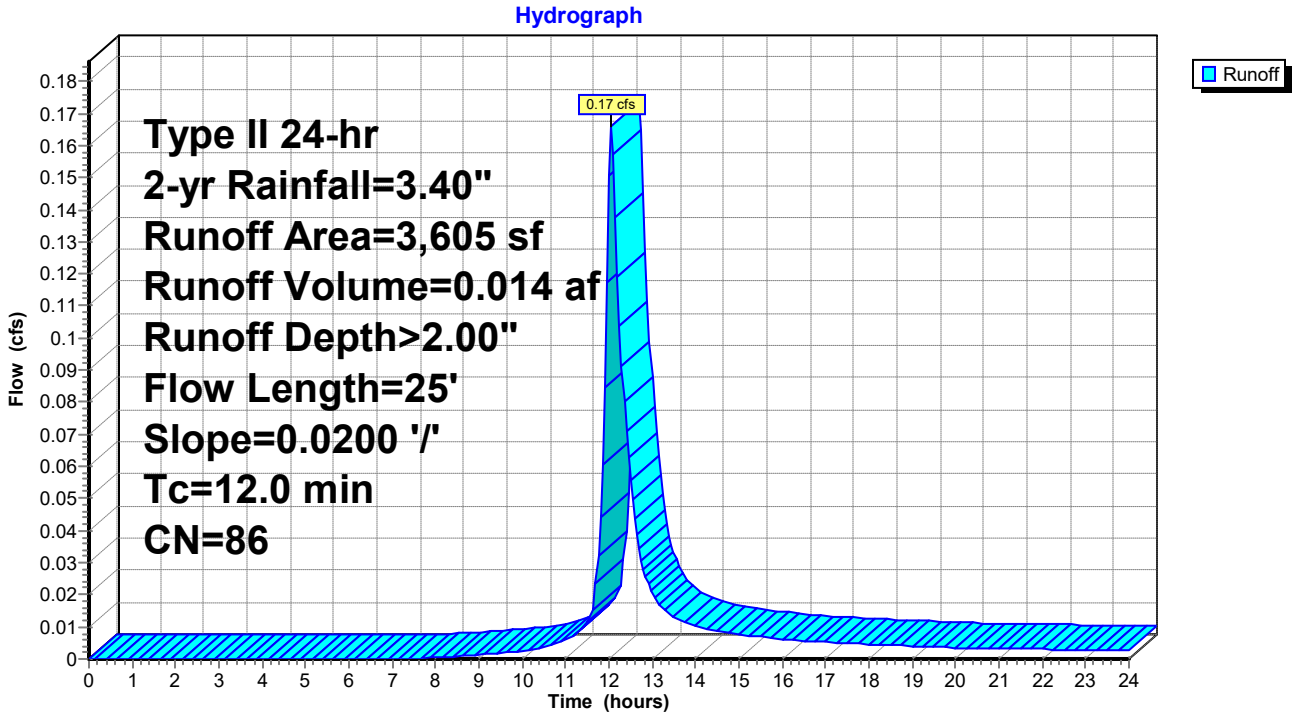
Runoff = 0.17 cfs @ 12.06 hrs, Volume= 0.014 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	887	98	Ex Bldg & Misc. Slabs
*	850	98	New Building Addition
*	72	98	ADA Egress Ramp
*	319	74	Grass Pave (Open Space, Good)
*	344	77	Green Roof
*	470	70	Perm. Pavers
*	663	74	Grass Lawn
	3,605	86	Weighted Average
	1,796		49.82% Pervious Area
	1,809		50.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	25	0.0200	0.03		**Sheet Flow, Flow over Perm. Pavers** Woods: Dense underbrush n= 0.800 P2= 3.40"

Subcatchment PR-2: Front of Consolidated Property



Summary for Subcatchment PR-2A: Roof to FTP

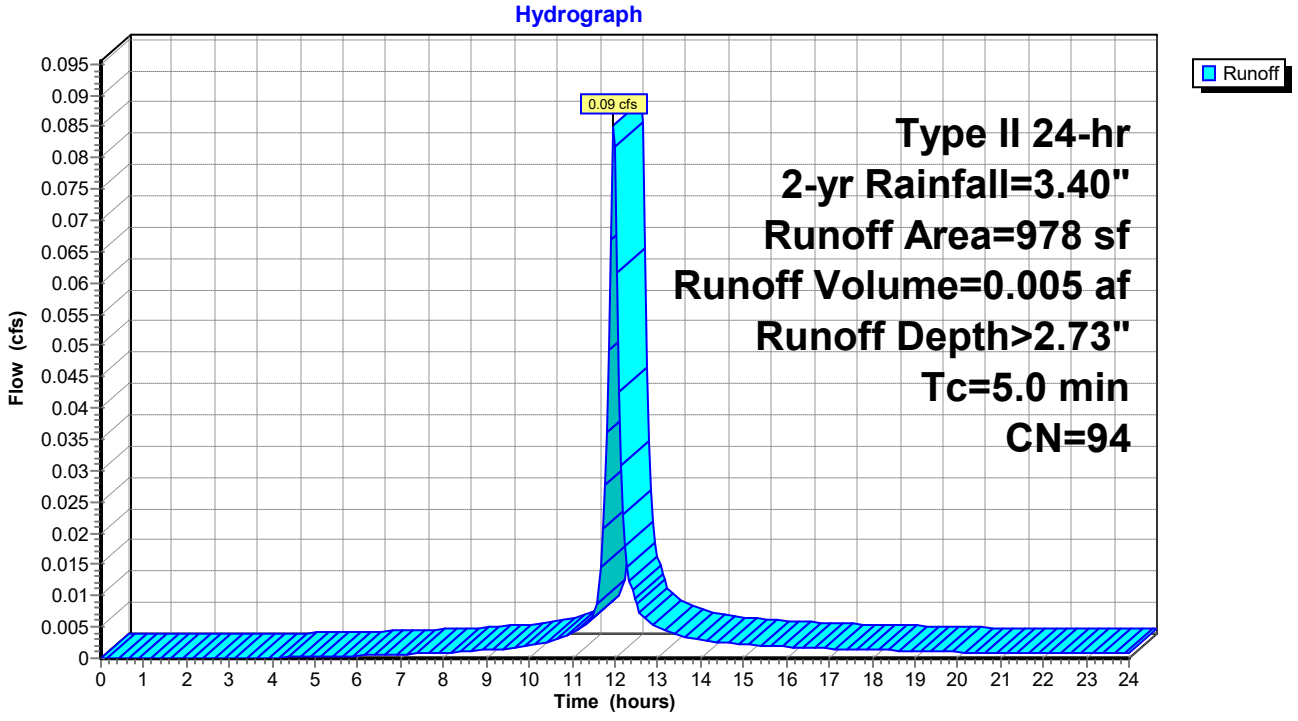
Runoff = 0.09 cfs @ 11.97 hrs, Volume= 0.005 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.40"

	Area (sf)	CN	Description
*	796	98	Portion of Roof to FTP
*	182	74	FTP
	978	94	Weighted Average
	182		18.61% Pervious Area
	796		81.39% Impervious Area

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

Subcatchment PR-2A: Roof to FTP



Summary for Pond 1P: Flow-Through Planter

Inflow Area = 0.022 ac, 81.39% Impervious, Inflow Depth > 2.73" for 2-yr event
Inflow = 0.09 cfs @ 11.97 hrs, Volume= 0.005 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 34.09' @ 24.00 hrs Surf.Area= 140 sf Storage= 223 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

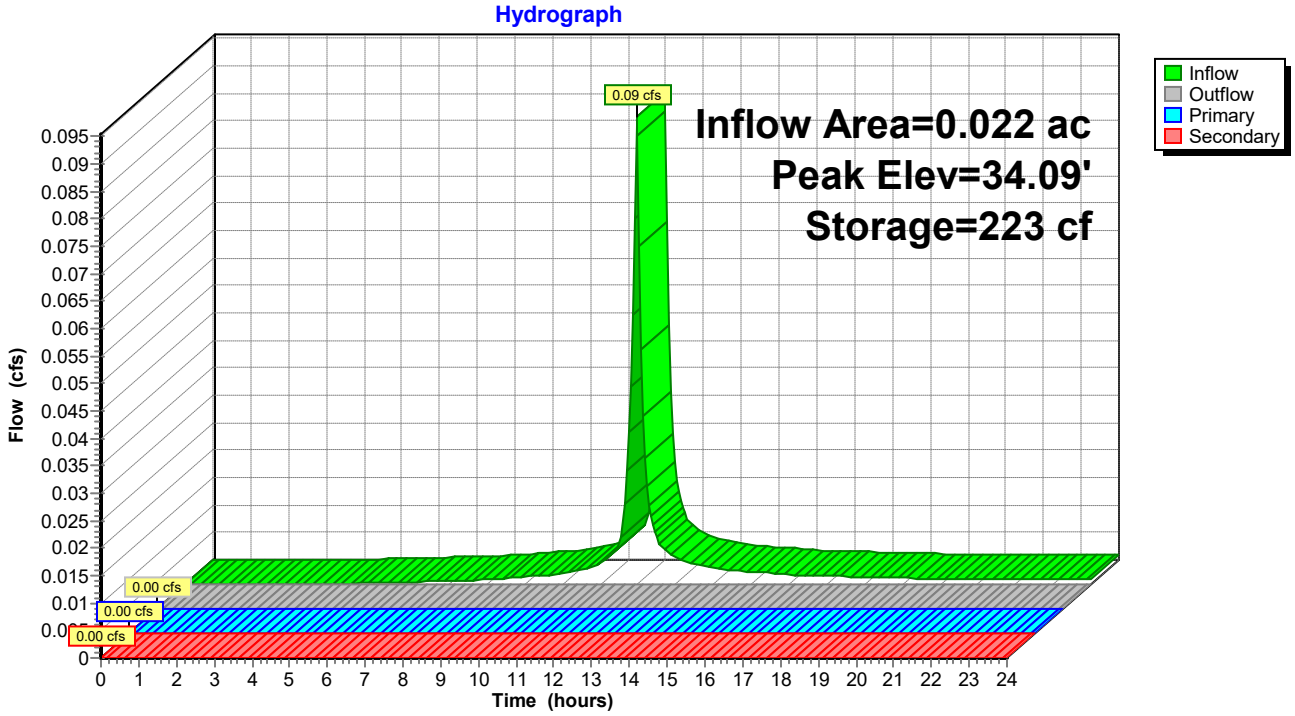
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.00	140	0.0	0	0
31.01	140	40.0	1	1
33.49	140	40.0	139	139
33.50	140	100.0	1	141
34.50	140	100.0	140	281
35.00	140	100.0	70	351

Device	Routing	Invert	Outlet Devices
#1	Primary	31.00'	**4.0" Round Culvert** L= 76.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 31.00' / 30.50' S= 0.0066 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	34.50'	**4.0" Vert. 4" PVC Outlet** C= 0.600
#3	Secondary	34.75'	**10.0' long FTP Overflow** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.00' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)
↑—**2=4" PVC Outlet** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.00' (Free Discharge)
↑—**3=FTP Overflow** (Controls 0.00 cfs)

Pond 1P: Flow-Through Planter



Stage-Area-Storage for Pond 1P: Flow-Through Planter

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	**140**	0
31.05	140	3
31.10	140	6
31.15	140	8
31.20	140	11
31.25	140	14
31.30	140	17
31.35	140	20
31.40	140	22
31.45	140	25
31.50	140	28
31.55	140	31
31.60	140	34
31.65	140	36
31.70	140	39
31.75	140	42
31.80	140	45
31.85	140	48
31.90	140	50
31.95	140	53
32.00	140	56
32.05	140	59
32.10	140	62
32.15	140	64
32.20	140	67
32.25	140	70
32.30	140	73
32.35	140	76
32.40	140	78
32.45	140	81
32.50	140	84
32.55	140	87
32.60	140	90
32.65	140	92
32.70	140	95
32.75	140	98
32.80	140	101
32.85	140	104
32.90	140	106
32.95	140	109
33.00	140	112
33.05	140	115
33.10	140	118
33.15	140	120
33.20	140	123
33.25	140	126
33.30	140	129
33.35	140	132
33.40	140	134
33.45	140	137
33.50	140	141
33.55	140	148
33.60	140	155
33.65	140	162
33.70	140	169
33.75	140	176
33.80	140	183
33.85	140	190
33.90	140	197
33.95	140	204
34.00	140	211
34.05	140	218
34.10	140	225
34.15	140	232
34.20	140	239
34.25	140	246
34.30	140	253
34.35	140	260
34.40	140	267
34.45	140	274
34.50	140	281
34.55	140	288
34.60	140	295
34.65	140	302
34.70	140	309
34.75	140	316
34.80	140	323
34.85	140	330
34.90	140	337
34.95	140	344
35.00	140	**351**

Summary for Subcatchment EX-1: Rear of Consolidated Property

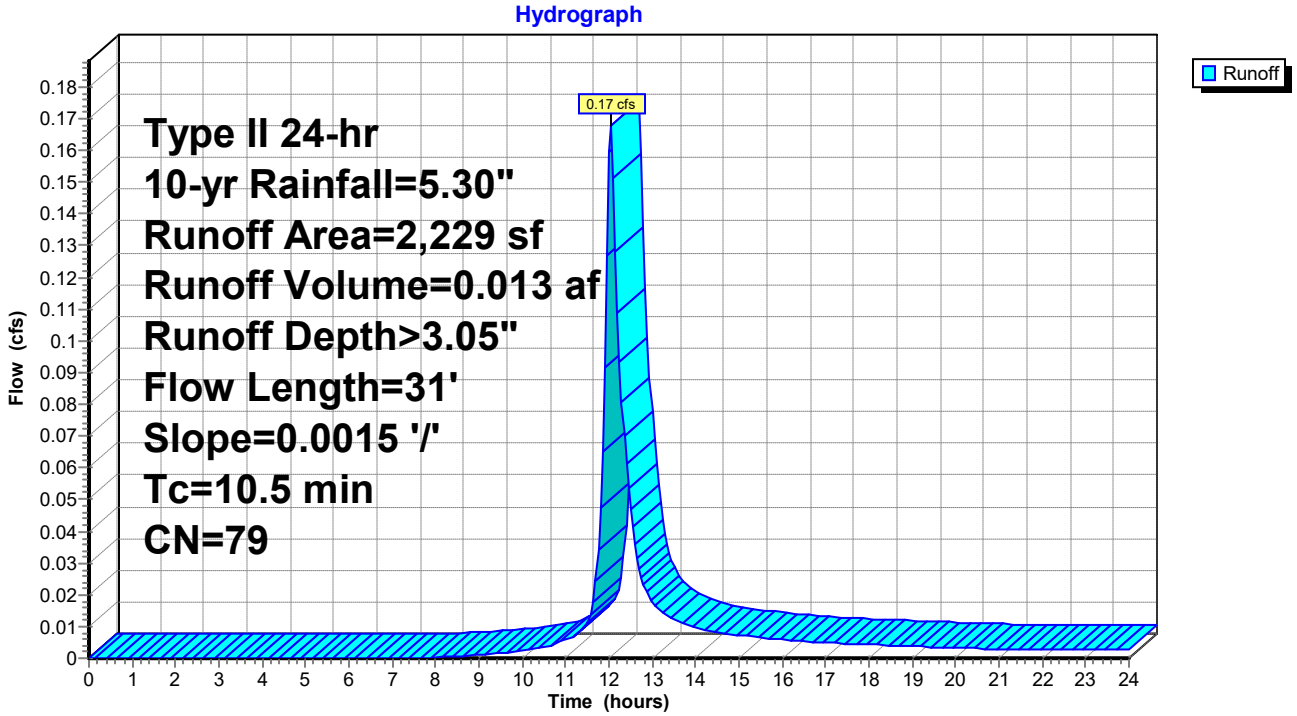
Runoff = 0.17 cfs @ 12.04 hrs, Volume= 0.013 af, Depth> 3.05"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

Area (sf)	CN	Description
2,229	79	50-75% Grass cover, Fair, HSG C
2,229		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	31	0.0015	0.05		**Sheet Flow, Ex. Vacant Lot** Grass: Short n= 0.150 P2= 3.40"

Subcatchment EX-1: Rear of Consolidated Property



Summary for Subcatchment EX-2: Front of Consolidated Property

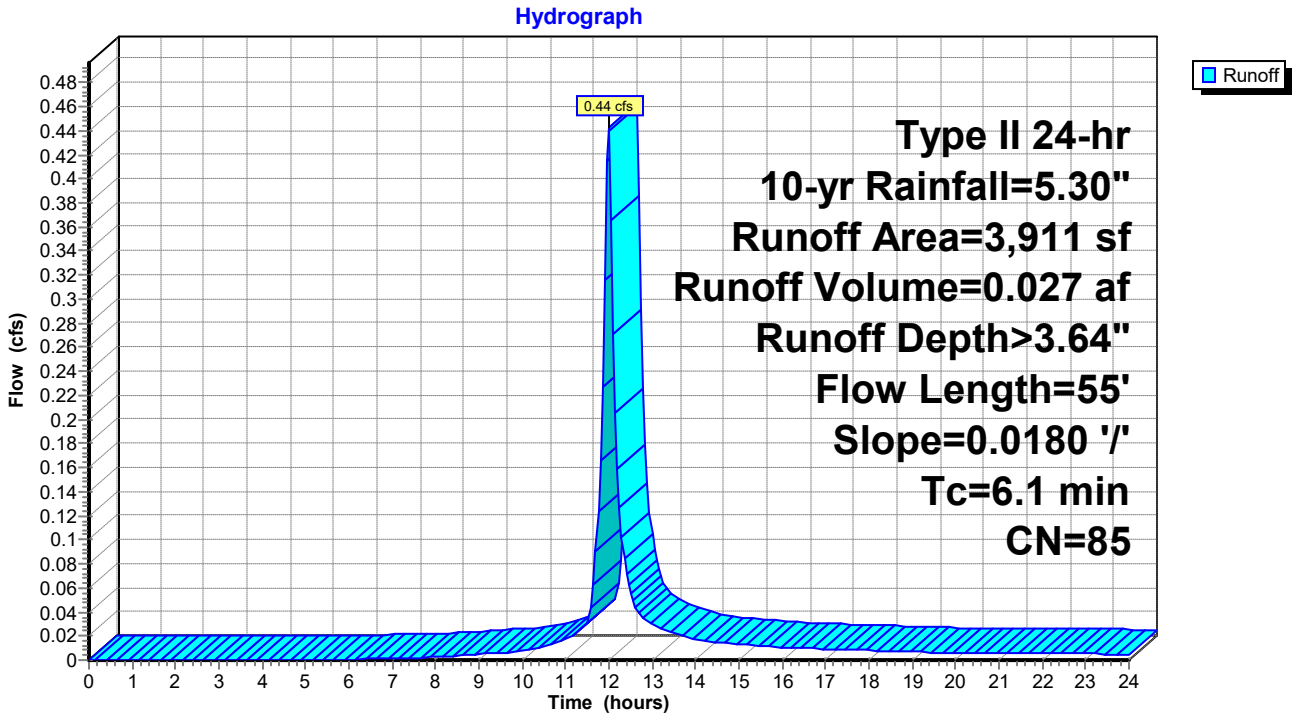
Runoff = 0.44 cfs @ 11.99 hrs, Volume= 0.027 af, Depth> 3.64"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	887	98	Ex Bldg & Misc. Slabs
	2,668	79	50-75% Grass cover, Fair, HSG C
*	356	98	Previous Building
	3,911	85	Weighted Average
	2,668		68.22% Pervious Area
	1,243		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	55	0.0180	0.15		**Sheet Flow, Vacant Grassed Lot** Grass: Short n= 0.150 P2= 3.40"

Subcatchment EX-2: Front of Consolidated Property



Summary for Subcatchment PR-1: Rear of Consolidated Property

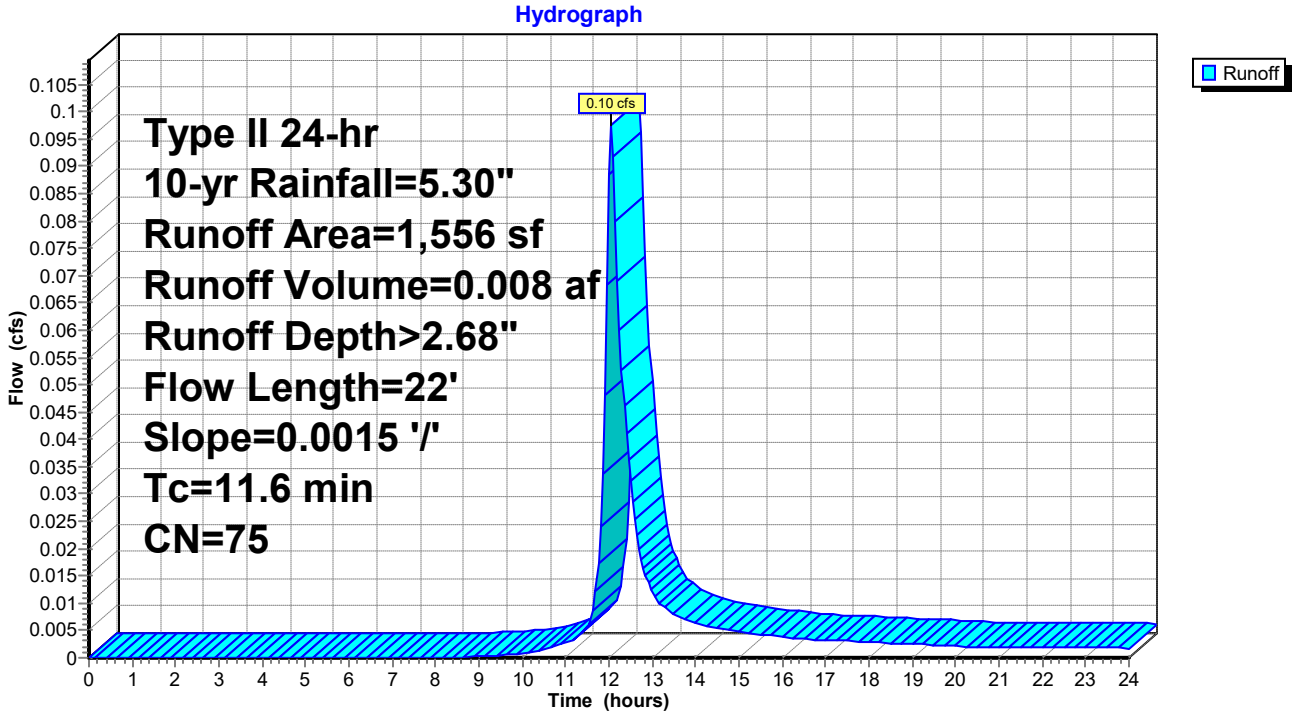
Runoff = 0.10 cfs @ 12.06 hrs, Volume= 0.008 af, Depth> 2.68"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
	1,518	74	>75% Grass cover, Good, HSG C
*	38	98	Conc Pad & HVAC
	1,556	75	Weighted Average
	1,518		97.56% Pervious Area
	38		2.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	22	0.0015	0.03		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"

Subcatchment PR-1: Rear of Consolidated Property



Summary for Subcatchment PR-2: Front of Consolidated Property

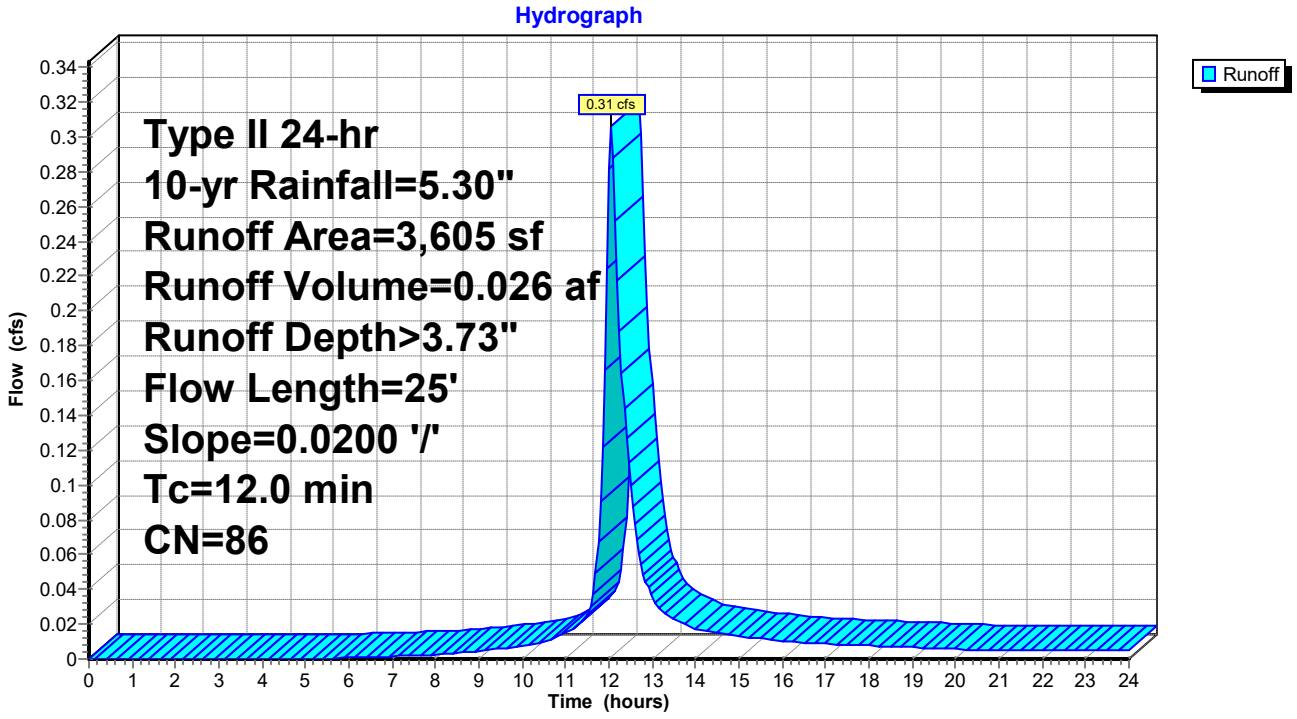
Runoff = 0.31 cfs @ 12.05 hrs, Volume= 0.026 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	887	98	Ex Bldg & Misc. Slabs
*	850	98	New Building Addition
*	72	98	ADA Egress Ramp
*	319	74	Grass Pave (Open Space, Good)
*	344	77	Green Roof
*	470	70	Perm. Pavers
*	663	74	Grass Lawn
	3,605	86	Weighted Average
	1,796		49.82% Pervious Area
	1,809		50.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	25	0.0200	0.03		**Sheet Flow, Flow over Perm. Pavers** Woods: Dense underbrush n= 0.800 P2= 3.40"

Subcatchment PR-2: Front of Consolidated Property



Summary for Subcatchment PR-2A: Roof to FTP

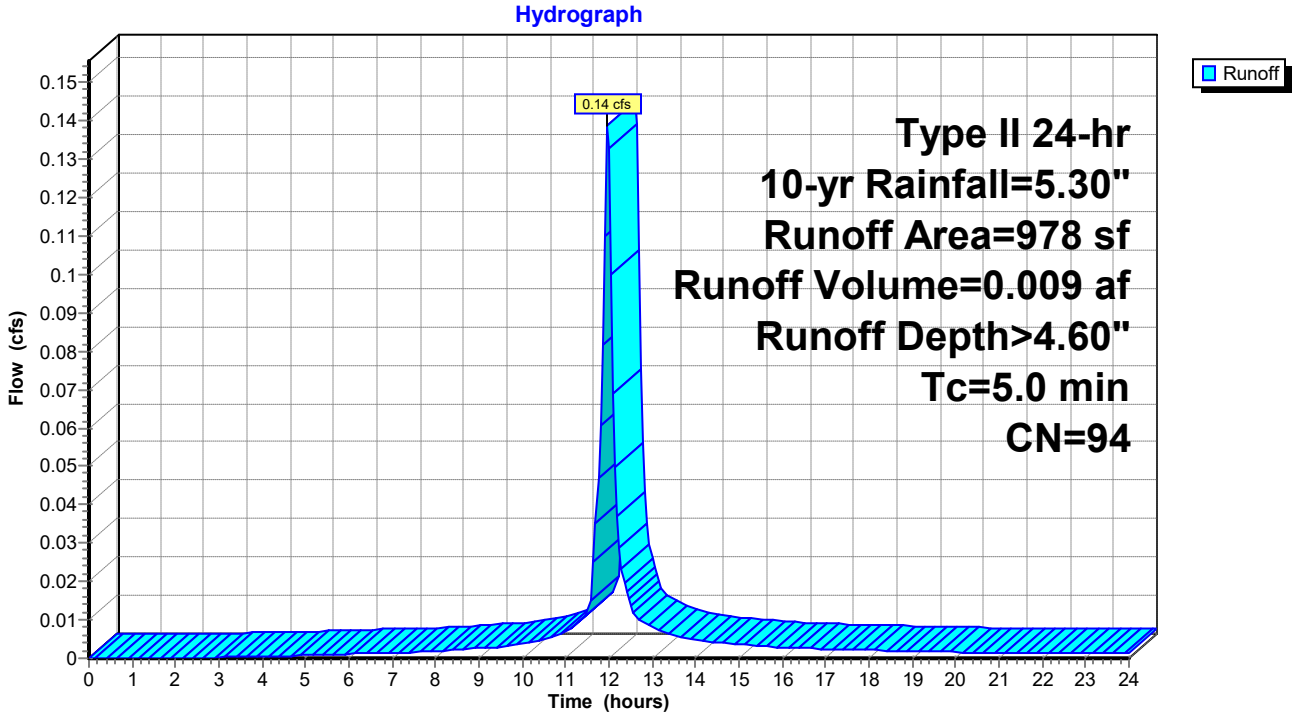
Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.009 af, Depth> 4.60"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=5.30"

	Area (sf)	CN	Description
*	796	98	Portion of Roof to FTP
*	182	74	FTP
	978	94	Weighted Average
	182		18.61% Pervious Area
	796		81.39% Impervious Area

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

Subcatchment PR-2A: Roof to FTP



Summary for Pond 1P: Flow-Through Planter

Inflow Area = 0.022 ac, 81.39% Impervious, Inflow Depth > 4.60" for 10-yr event
Inflow = 0.14 cfs @ 11.97 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 13.87 hrs, Volume= 0.002 af, Atten= 96%, Lag= 114.0 min
Primary = 0.00 cfs @ 13.87 hrs, Volume= 0.002 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 34.54' @ 13.87 hrs Surf.Area= 140 sf Storage= 287 cf

Plug-Flow detention time= 461.5 min calculated for 0.002 af (24% of inflow)
Center-of-Mass det. time= 278.5 min (1,048.0 - 769.6)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

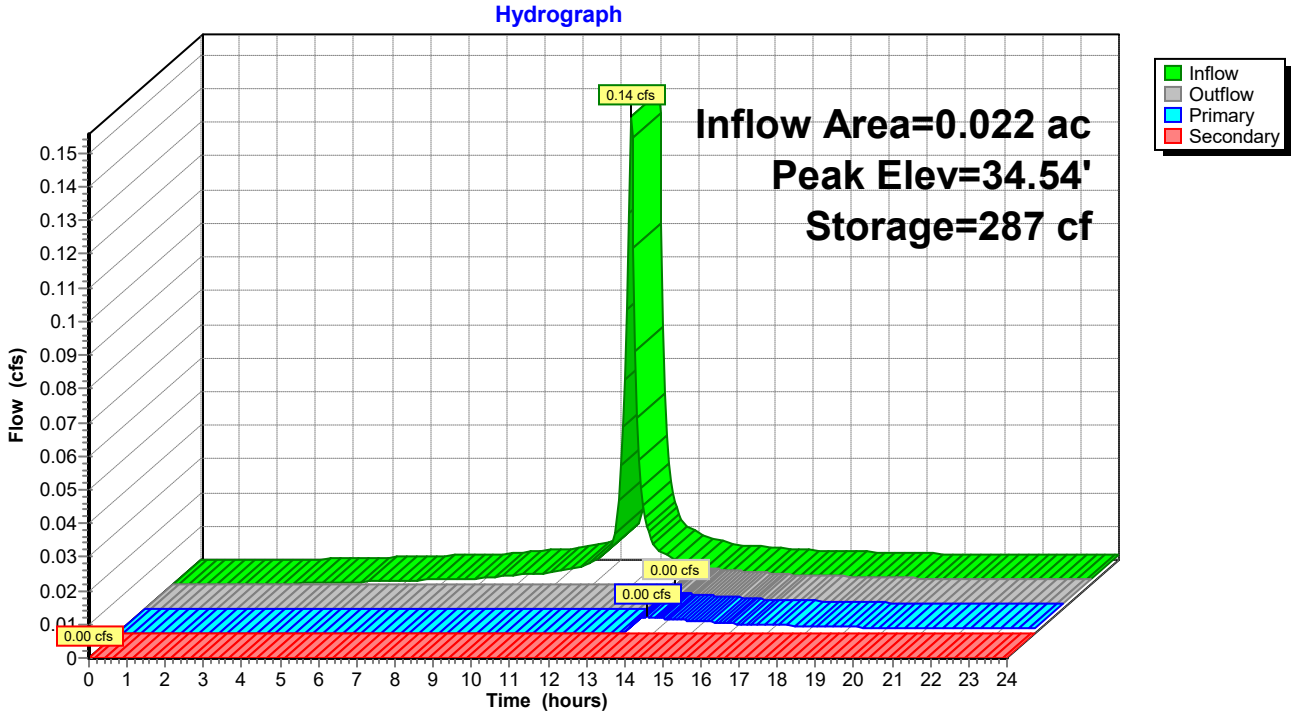
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.00	140	0.0	0	0
31.01	140	40.0	1	1
33.49	140	40.0	139	139
33.50	140	100.0	1	141
34.50	140	100.0	140	281
35.00	140	100.0	70	351

Device	Routing	Invert	Outlet Devices
#1	Primary	31.00'	**4.0" Round Culvert** L= 76.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 31.00' / 30.50' S= 0.0066 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	34.50'	**4.0" Vert. 4" PVC Outlet** C= 0.600
#3	Secondary	34.75'	**10.0' long FTP Overflow** 2 End Contraction(s)

Primary OutFlow Max=0.00 cfs @ 13.87 hrs HW=34.54' (Free Discharge)
└**1=Culvert** (Passes 0.00 cfs of 0.48 cfs potential flow)
└**2=4" PVC Outlet** (Orifice Controls 0.00 cfs @ 0.72 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.00' (Free Discharge)
└**3=FTP Overflow** (Controls 0.00 cfs)

Pond 1P: Flow-Through Planter



Stage-Area-Storage for Pond 1P: Flow-Through Planter

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	**140**	0
31.05	140	3
31.10	140	6
31.15	140	8
31.20	140	11
31.25	140	14
31.30	140	17
31.35	140	20
31.40	140	22
31.45	140	25
31.50	140	28
31.55	140	31
31.60	140	34
31.65	140	36
31.70	140	39
31.75	140	42
31.80	140	45
31.85	140	48
31.90	140	50
31.95	140	53
32.00	140	56
32.05	140	59
32.10	140	62
32.15	140	64
32.20	140	67
32.25	140	70
32.30	140	73
32.35	140	76
32.40	140	78
32.45	140	81
32.50	140	84
32.55	140	87
32.60	140	90
32.65	140	92
32.70	140	95
32.75	140	98
32.80	140	101
32.85	140	104
32.90	140	106
32.95	140	109
33.00	140	112
33.05	140	115
33.10	140	118
33.15	140	120
33.20	140	123
33.25	140	126
33.30	140	129
33.35	140	132
33.40	140	134
33.45	140	137
33.50	140	141
33.55	140	148
33.60	140	155
33.65	140	162
33.70	140	169
33.75	140	176
33.80	140	183
33.85	140	190
33.90	140	197
33.95	140	204
34.00	140	211
34.05	140	218
34.10	140	225
34.15	140	232
34.20	140	239
34.25	140	246
34.30	140	253
34.35	140	260
34.40	140	267
34.45	140	274
34.50	140	281
34.55	140	288
34.60	140	295
34.65	140	302
34.70	140	309
34.75	140	316
34.80	140	323
34.85	140	330
34.90	140	337
34.95	140	344
35.00	140	**351**

Summary for Subcatchment EX-1: Rear of Consolidated Property

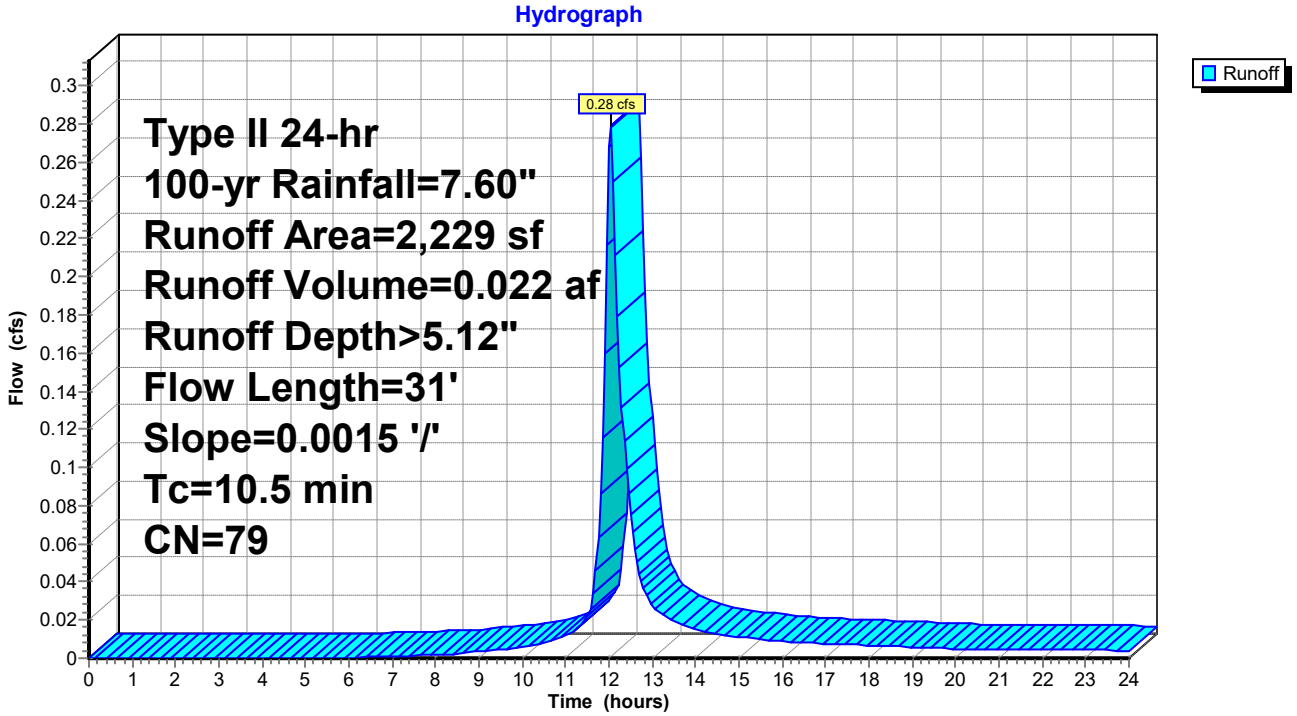
Runoff = 0.28 cfs @ 12.04 hrs, Volume= 0.022 af, Depth> 5.12"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

Area (sf)	CN	Description
2,229	79	50-75% Grass cover, Fair, HSG C
2,229		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	31	0.0015	0.05		**Sheet Flow, Ex. Vacant Lot** Grass: Short n= 0.150 P2= 3.40"

Subcatchment EX-1: Rear of Consolidated Property



Summary for Subcatchment EX-2: Front of Consolidated Property

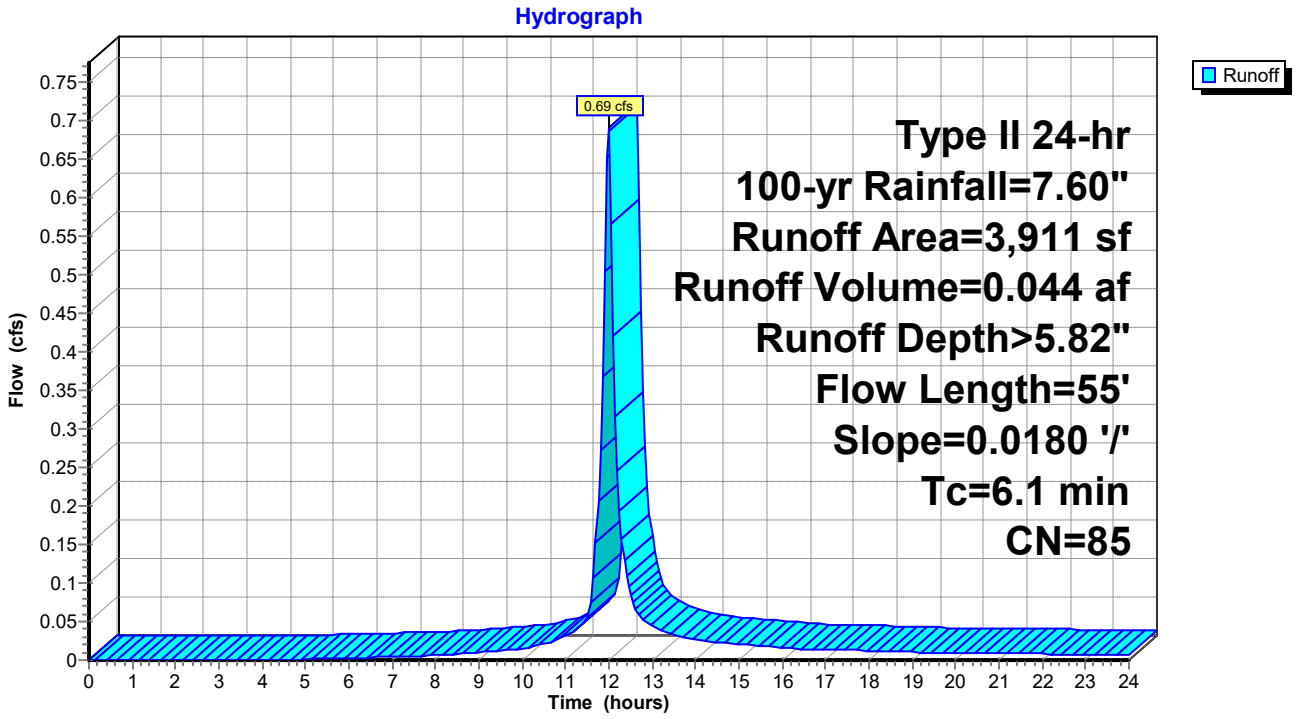
Runoff = 0.69 cfs @ 11.99 hrs, Volume= 0.044 af, Depth> 5.82"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	887	98	Ex Bldg & Misc. Slabs
	2,668	79	50-75% Grass cover, Fair, HSG C
*	356	98	Previous Building
	3,911	85	Weighted Average
	2,668		68.22% Pervious Area
	1,243		31.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	55	0.0180	0.15		**Sheet Flow, Vacant Grassed Lot** Grass: Short n= 0.150 P2= 3.40"

Subcatchment EX-2: Front of Consolidated Property



Summary for Subcatchment PR-1: Rear of Consolidated Property

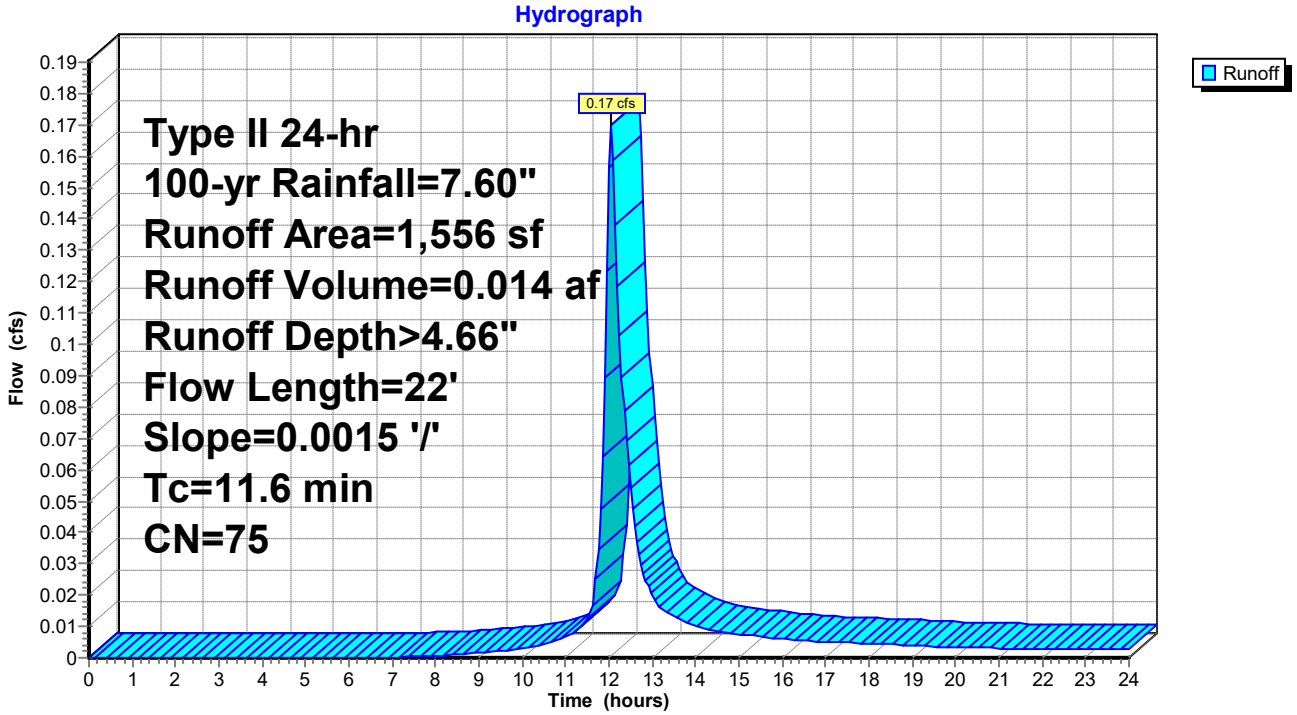
Runoff = 0.17 cfs @ 12.05 hrs, Volume= 0.014 af, Depth> 4.66"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
	1,518	74	>75% Grass cover, Good, HSG C
*	38	98	Conc Pad & HVAC
	1,556	75	Weighted Average
	1,518		97.56% Pervious Area
	38		2.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.6	22	0.0015	0.03		**Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 3.40"

Subcatchment PR-1: Rear of Consolidated Property



Summary for Subcatchment PR-2: Front of Consolidated Property

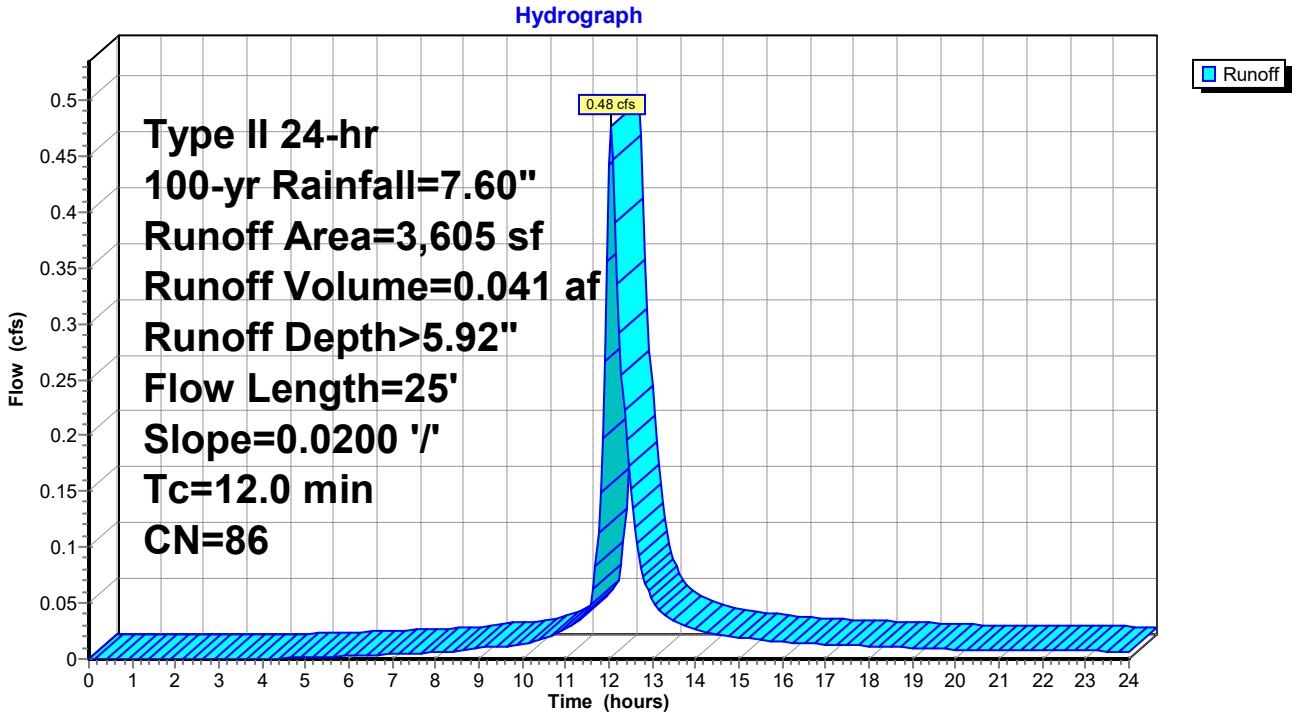
Runoff = 0.48 cfs @ 12.05 hrs, Volume= 0.041 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	887	98	Ex Bldg & Misc. Slabs
*	850	98	New Building Addition
*	72	98	ADA Egress Ramp
*	319	74	Grass Pave (Open Space, Good)
*	344	77	Green Roof
*	470	70	Perm. Pavers
*	663	74	Grass Lawn
	3,605	86	Weighted Average
	1,796		49.82% Pervious Area
	1,809		50.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	25	0.0200	0.03		**Sheet Flow, Flow over Perm. Pavers** Woods: Dense underbrush n= 0.800 P2= 3.40"

Subcatchment PR-2: Front of Consolidated Property



Summary for Subcatchment PR-2A: Roof to FTP

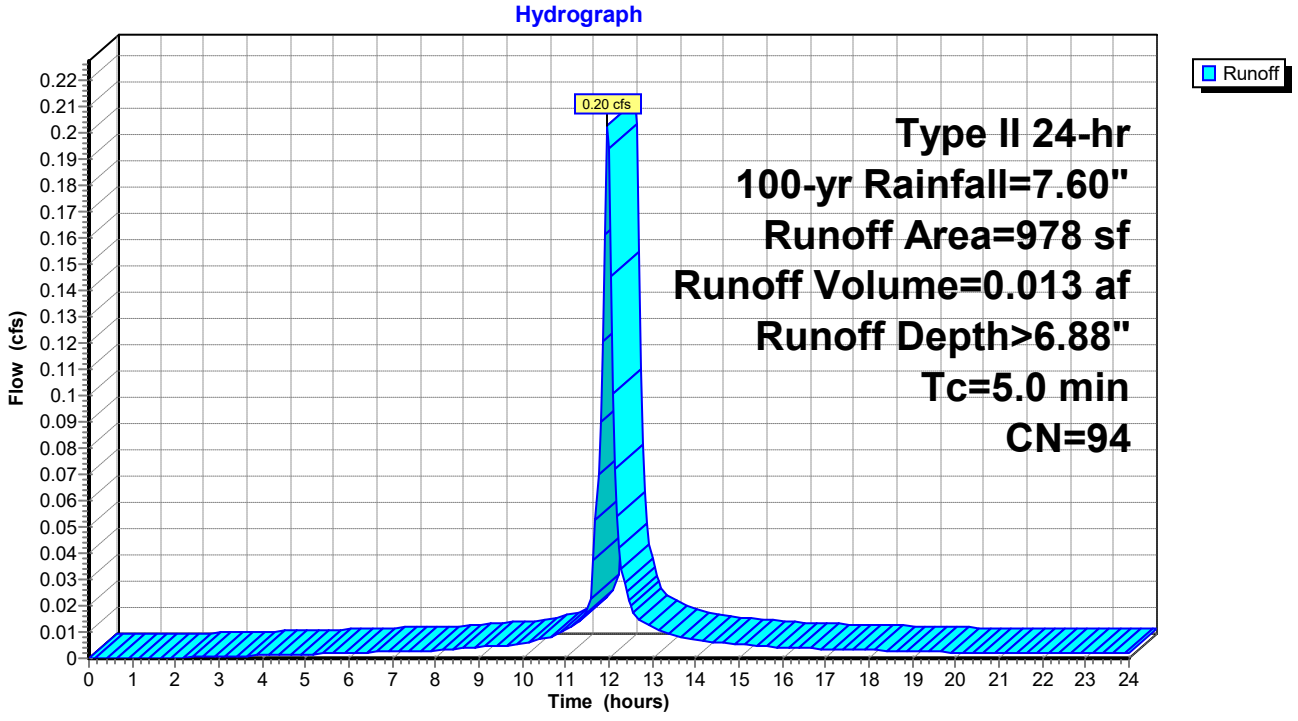
Runoff = 0.20 cfs @ 11.97 hrs, Volume= 0.013 af, Depth> 6.88"

Runoff by SCS TR-20 method, UH=Delmarva, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-yr Rainfall=7.60"

	Area (sf)	CN	Description
*	796	98	Portion of Roof to FTP
*	182	74	FTP
	978	94	Weighted Average
	182		18.61% Pervious Area
	796		81.39% Impervious Area

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

Subcatchment PR-2A: Roof to FTP



Summary for Pond 1P: Flow-Through Planter

Inflow Area = 0.022 ac, 81.39% Impervious, Inflow Depth > 6.88" for 100-yr event
Inflow = 0.20 cfs @ 11.97 hrs, Volume= 0.013 af
Outflow = 0.10 cfs @ 12.12 hrs, Volume= 0.006 af, Atten= 51%, Lag= 9.1 min
Primary = 0.10 cfs @ 12.12 hrs, Volume= 0.006 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 34.72' @ 12.12 hrs Surf.Area= 140 sf Storage= 312 cf

Plug-Flow detention time= 250.9 min calculated for 0.006 af (49% of inflow)
Center-of-Mass det. time= 129.9 min (890.0 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1	31.00'	351 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

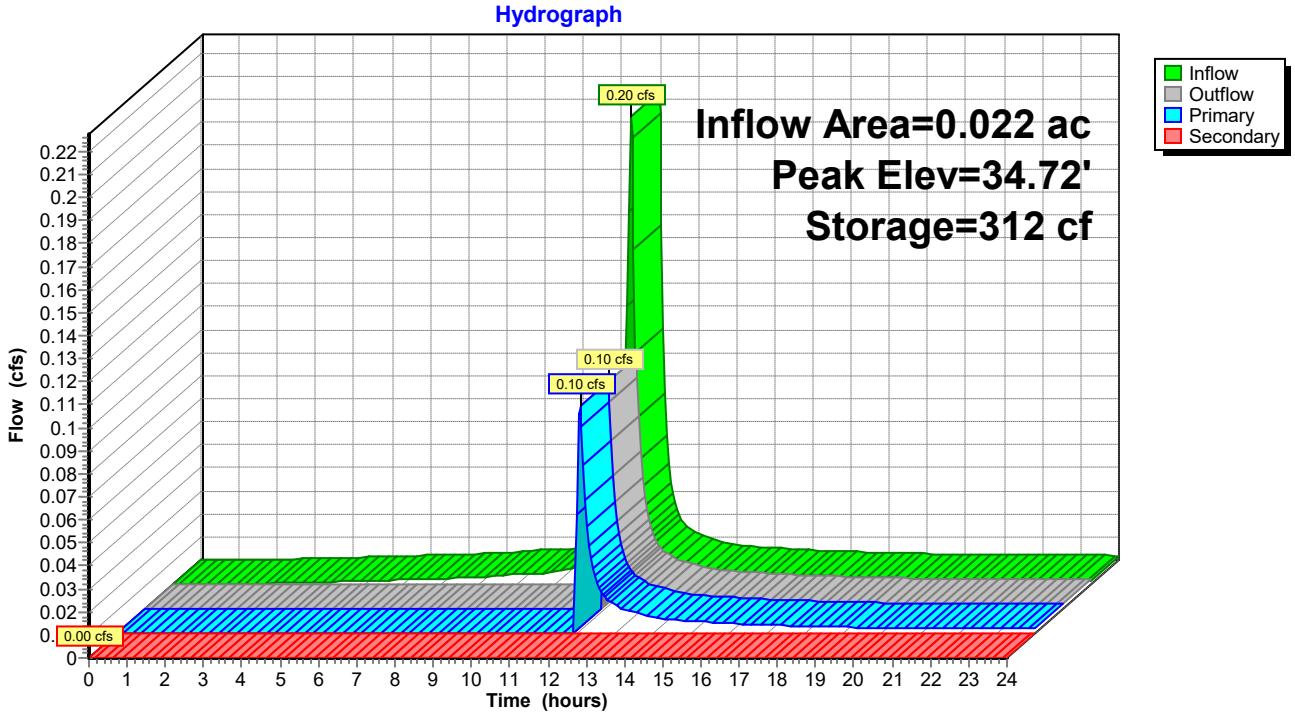
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
31.00	140	0.0	0	0
31.01	140	40.0	1	1
33.49	140	40.0	139	139
33.50	140	100.0	1	141
34.50	140	100.0	140	281
35.00	140	100.0	70	351

Device	Routing	Invert	Outlet Devices
#1	Primary	31.00'	**4.0" Round Culvert** L= 76.0' CPP, mitered to conform to fill, Ke= 0.700 Inlet / Outlet Invert= 31.00' / 30.50' S= 0.0066 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	34.50'	**4.0" Vert. 4" PVC Outlet** C= 0.600
#3	Secondary	34.75'	**10.0' long FTP Overflow** 2 End Contraction(s)

Primary OutFlow Max=0.09 cfs @ 12.12 hrs HW=34.71' (Free Discharge)
└**1=Culvert** (Passes 0.09 cfs of 0.49 cfs potential flow)
└**2=4" PVC Outlet** (Orifice Controls 0.09 cfs @ 1.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=31.00' (Free Discharge)
└**3=FTP Overflow** (Controls 0.00 cfs)

Pond 1P: Flow-Through Planter



Stage-Area-Storage for Pond 1P: Flow-Through Planter

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
31.00	**140**	0
31.05	140	3
31.10	140	6
31.15	140	8
31.20	140	11
31.25	140	14
31.30	140	17
31.35	140	20
31.40	140	22
31.45	140	25
31.50	140	28
31.55	140	31
31.60	140	34
31.65	140	36
31.70	140	39
31.75	140	42
31.80	140	45
31.85	140	48
31.90	140	50
31.95	140	53
32.00	140	56
32.05	140	59
32.10	140	62
32.15	140	64
32.20	140	67
32.25	140	70
32.30	140	73
32.35	140	76
32.40	140	78
32.45	140	81
32.50	140	84
32.55	140	87
32.60	140	90
32.65	140	92
32.70	140	95
32.75	140	98
32.80	140	101
32.85	140	104
32.90	140	106
32.95	140	109
33.00	140	112
33.05	140	115
33.10	140	118
33.15	140	120
33.20	140	123
33.25	140	126
33.30	140	129
33.35	140	132
33.40	140	134
33.45	140	137
33.50	140	141
33.55	140	148
33.60	140	155
33.65	140	162
33.70	140	169
33.75	140	176
33.80	140	183
33.85	140	190
33.90	140	197
33.95	140	204
34.00	140	211
34.05	140	218
34.10	140	225
34.15	140	232
34.20	140	239
34.25	140	246
34.30	140	253
34.35	140	260
34.40	140	267
34.45	140	274
34.50	140	281
34.55	140	288
34.60	140	295
34.65	140	302
34.70	140	309
34.75	140	316
34.80	140	323
34.85	140	330
34.90	140	337
34.95	140	344
35.00	140	**351**

APPENDIX C

Drainage Area Maps

LEGEND

- IRON ROD FOUND
- GV — GAS SHUTOFF VALVE
- OHU — ELECTRIC LINE
- SANITARY SEWER CLEAN OUT
- WATER METER
- W — DOMESTIC WATER LINE

SWM PRE-DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.08	0.17	0.28
2	0.24	0.44	0.69
TOTAL	0.32	0.61	0.97

STORMWATER MANAGEMENT DRAINAGE AREA TABLE				
AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
EX-1	2229	10.50	0.00	BACKYARD
EX-2	3911	6.10	31.78	FRONT YARD & EX BUILDINGS

TAX MAP 104, PARCEL 1947
BBG HOMES, LLC
DEED: 2875/310
ZONED: R7A

TAX MAP 104, PARCEL 1939
BARBARA ANN ZERRIEN HEATLY, TRUSTEE
CHARLES T. CAPUTE, TRUSTEE
DEED: 1707/124
PLAT: 61/51
ZONED: CB

TAX MAP 104, PARCEL 1938
ADAM MAYOCK
DEED: 1707/124
ZONED: R7A

EXISTING DWELLING (INTERIOR RENOVATION)

COVERED PORCH

STAIRS

STAIRS

SIDEWALK

SIDEWALK

SIDEWALK

8" BRL

15" BRL

DRAINAGE AREA BOUNDARY (TYP) GENERALLY Y LINE

FENCE IS 1.3' OFF PROP

EX-1

EX-2

PRIOR DWELLING PREVIOUSLY REMOVED IN ANTICIPATION OF REDEVELOPMENT OF SITE

TIME OF CONCENTRATION LINE (TYP)

POI #1 (EXISTING DRAINAGE PATTERN ONTO NEIGHBORING PROPERTIES)

POI #2 (CURB LINE OF TALBOT LANE)

TAX MAP 104, PARCEL 1937
WALTER E. CHASE, SR.
DEED: 610/328
ZONED: R7A

TAX MAP 104, PARCEL 1936
WALTER E. CHASE, SR.
DEED: 526/290
ZONED: R7A

UNKNOWN OWNERSHIP NOT INCLUDED IN QUIT CLAIM
DEED: 3082/404

TAX MAP 104, PARCEL 1951
MARVEL PROPERTIES, LLC
DEED: 813/259
ZONED: R7A

TAX MAP 104, PARCEL 1935
KELLY NANCY BEATTY
DEED: 2075/294
ZONED: R7A

IRON PIPE FOUND

PATIO (POSSIBLE ENCROACHMENT)

MD COORDINATE SYSTEM NAD 83 (2011)

5' 2.5' 0' 2.5' 5' 10'
SCALE IN FEET

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

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@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND
CHRISTOPHER J. CROSBY
51461
PROFESSIONAL ENGINEER

DATE

PRE-DEVELOPMENT DRAINAGE AREA MAP

ON THE LANDS OF
ACADEMY ART MUSEUM, INC.

IN ELECTION WARD FOUR, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, GRID EA, PARCELS 1948, 1949, 1950

ISSUED/REVISED FOR: DATE: BY:

SHEET No. 1 OF 2

SCALE: AS NOTED

JOB No. 230252

FILE No. 1980

Land Development Desktop Studio

Date: 08/07/2024 - 11:02am User: achasta Project Manager: JSC
Drawing Path: J:\2023\0200\230252\Civil3D-230252\Dwg\Plats\CDA-PLTS-230252.dwg | PRE
XREF File(s): VLD-BASE-230252/VSF-BASE-230252/CDA-BASE-230252/CBS-BASE-2438-230252/VDA-BASE-230252/CSP-BASE-230252

LEGEND

- IRON ROD FOUND
- OHU — ELECTRIC LINE
- SANITARY SEWER CLEAN OUT
- WATER METER
- W — DOMESTIC WATER LINE

SWM POST-DEVELOPMENT DISCHARGES (CFS)			
STUDY POINT	Q_2	Q_{10}	Q_{100}
1	0.04	0.10	0.17
2	0.17	0.31	0.58
TOTAL	0.21	0.41	0.75

STORMWATER MANAGEMENT DRAINAGE AREA TABLE

AREA #	AREA (SF)	TOTAL Tc (MINUTES)	IMPERVIOUS (%)	DESCRIPTION
PR-1	1556	11.60	2.44	BACKYARD
PR-2	3605	12.00	50.18	BUILDINGS & ALTERNATIVE SURFACES
PR-2A*	978	5.00	81.39	BUILDING ROOF TO PLANTER BOX

*PLANTER BOX OUTLET WILL DAYLIGHT IN CURB FACE OF TALBOT LANE

TAX MAP 104, PARCEL 1947
BBG HOMES, LLC
DEED: 3875/310
ZONED: R7A

REINFORCED TURF (A-3)
PRACTICE AREA = 114 SF

EXISTING DWELLING (INTERIOR RENOVATION)

COVERED PORCH

STAIRS

PROPOSED 10'X14' FLOW-THROUGH PLANTER BOX GENERALLY PER TOE-SWM-5.01, 1' TEMPORARY PONDING & 2.5' OF MEDIA

PERMEABLE PAVERS (A-2)
PRACTICE AREA = 470 SF
SUB-BASE DEPTH = 1 FT

GREEN ROOF (A-1)
FLOOR AREA = 344 SF
8" TALL PLANTINGS

PR-2A
ROOF AREA DRAINING TO PLANTER BOX 796 SF

PR-1

PR-2

REINFORCED TURF (A-3)
PRACTICE AREA = 205 SF

8' BRL

TIME OF CONCENTRATION LINE (TYP)

DRAINAGE AREA BOUNDARY (TYP)

FENCE RUNS GENERALLY WITH PROPERTY LINE

FENCE IS 1.3' OFF PROP.

TAX MAP 104, PARCEL 1938
ADAM MAYOCK
DEED: 1707/124
ZONED: R7A

TAX MAP 104, PARCEL 1937
WALTER E. CHASE, SR.
DEED: 610/328
ZONED: R7A

POI #1
(EXISTING DRAINAGE PATTERN ONTO NEIGHBORING PROPERTIES)

POI #2
(CURB LINE OF TALBOT LANE)

TAX MAP 104, PARCEL 1951
MARVEL PROPERTIES, LLC
DEED: 813/259
ZONED: R7A

IRON PIPE FOUND

TAX MAP 104, PARCEL 1935
KELLY NANCY BEATTY
DEED: 2075/294
ZONED: R7A

UNKNOWN OWNERSHIP NOT INCLUDED IN QUIT CLAIM
DEED: 3082/404

TAX MAP 104, PARCEL 1936
WALTER E. CHASE, SR.
DEED: 526/290
ZONED: R7A

NAD 83 (2011) MD COORDINATE SYSTEM

5' 2.5' 0' 2.5' 5' 10'
SCALE IN FEET

PLANS ARE ISSUED FOR REVIEW ONLY

PLANS ARE NOT APPROVED FOR CONSTRUCTION

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@leinc.com
117 Bay St. Easton, MD 21601 (410) 822-8003
15 Washington St. Cambridge, MD 21613 (410) 221-0818
354 Pennsylvania Ave. Centreville, MD 21617 (410) 758-2095

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. 51461 , Expiration Date: 04/04/2026.

SEAL

STATE OF MARYLAND · STACEY L. CROSBY · 51461 · PROFESSIONAL ENGINEER

DATE

POST-DEVELOPMENT DRAINAGE AREA MAP

ON THE LANDS OF ACADEMY ART MUSEUM, INC.

IN ELECTION WARD FOUR, TOWN OF EASTON
TALBOT COUNTY, MARYLAND
TAX MAP 105, GRID EA, PARCELS 1948, 1949, 1950

ISSUED/REVISED FOR: DATE: BY:

SHEET No. 2 OF 2
SCALE: AS NOTED
JOB No. 230252
FILE No. 1980

Date: 08/07/2024 - 11:02am User: achosta Project Manager: JSC
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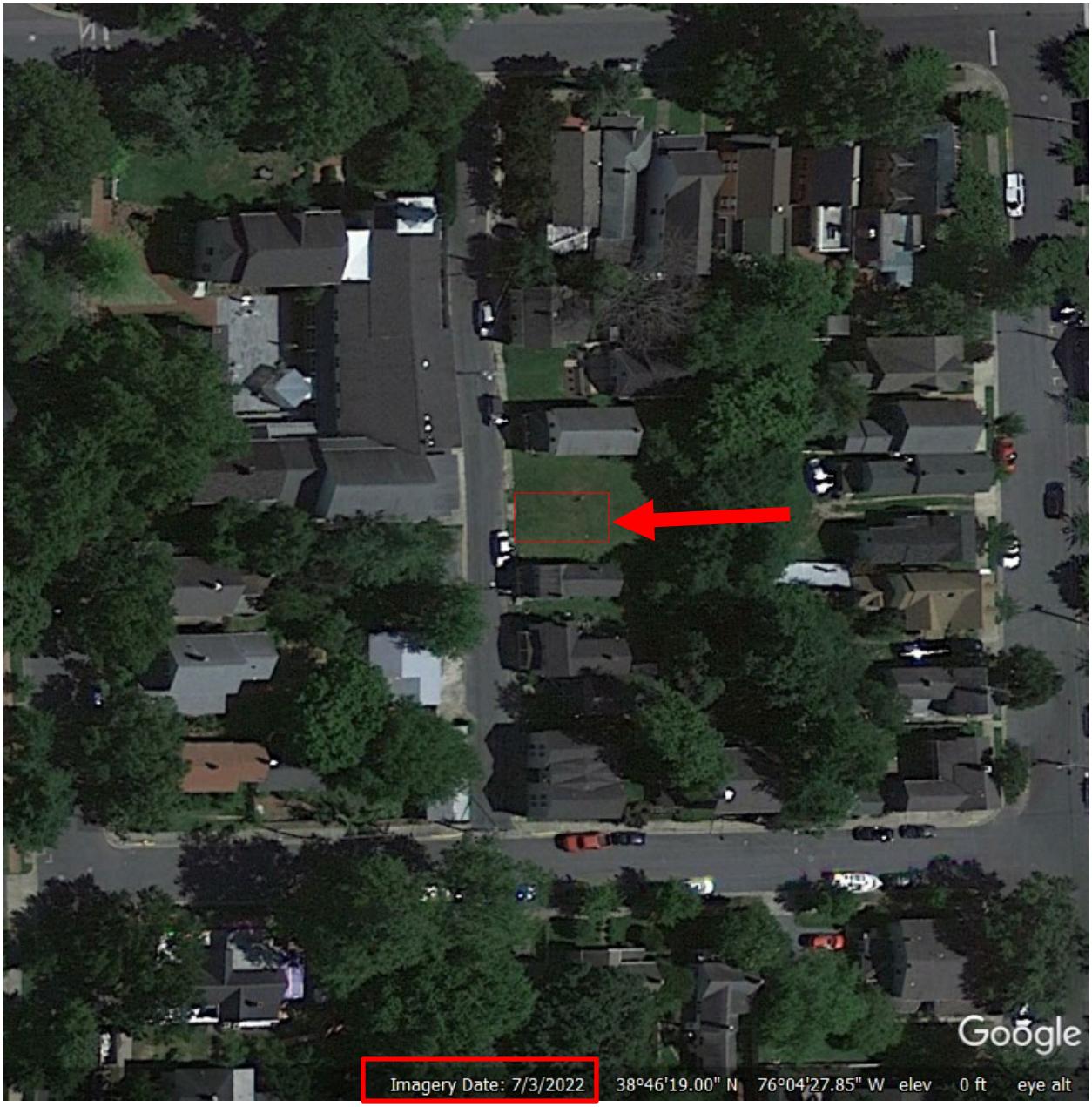
XREF File(s): VLD-BASE-230252/VSF-BASE-230252/CDA-BASE-230252/CBS-BASE-2436-230252/VDA-BASE-230252/CSP-BASE-230252

APPENDIX D

Aerial Imagery

Geological Survey
Google
Imagery Date: 2/28/2007
38°46'19.00" N
76°04'27.85" W
elev
0 ft
eye alt

Google
Imagery Date: 10/19/2013
38°46'19.00" N
76°04'27.85" W
elev
0 ft
eye alt


Imagery Date: 7/3/2022
38°46'19.00" N 76°04'27.85" W elev 0 ft eye alt
Google

APPENDIX E

Sanborn Maps of Easton

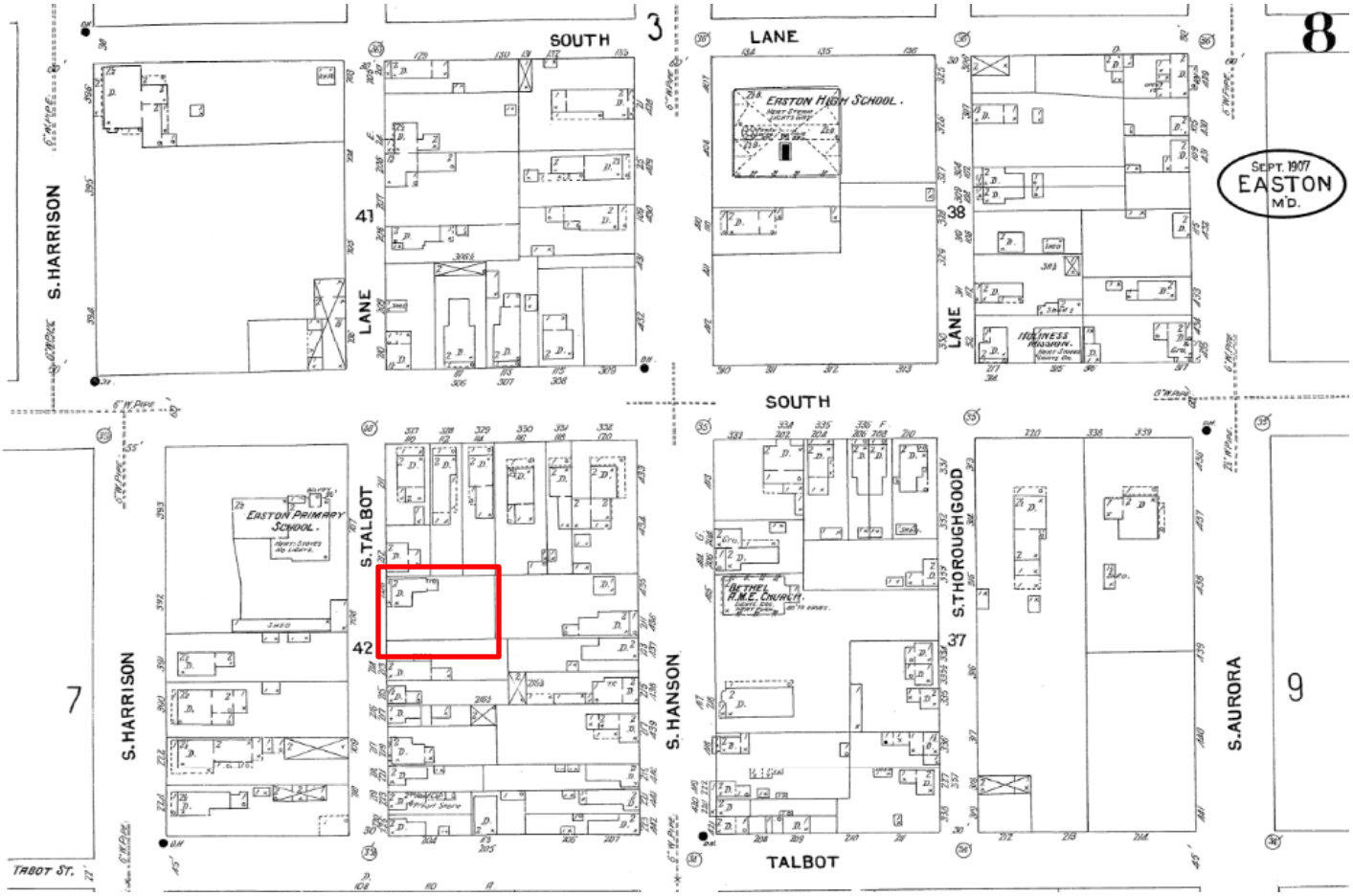


Figure 1 - Sanborn Map Circa 1907

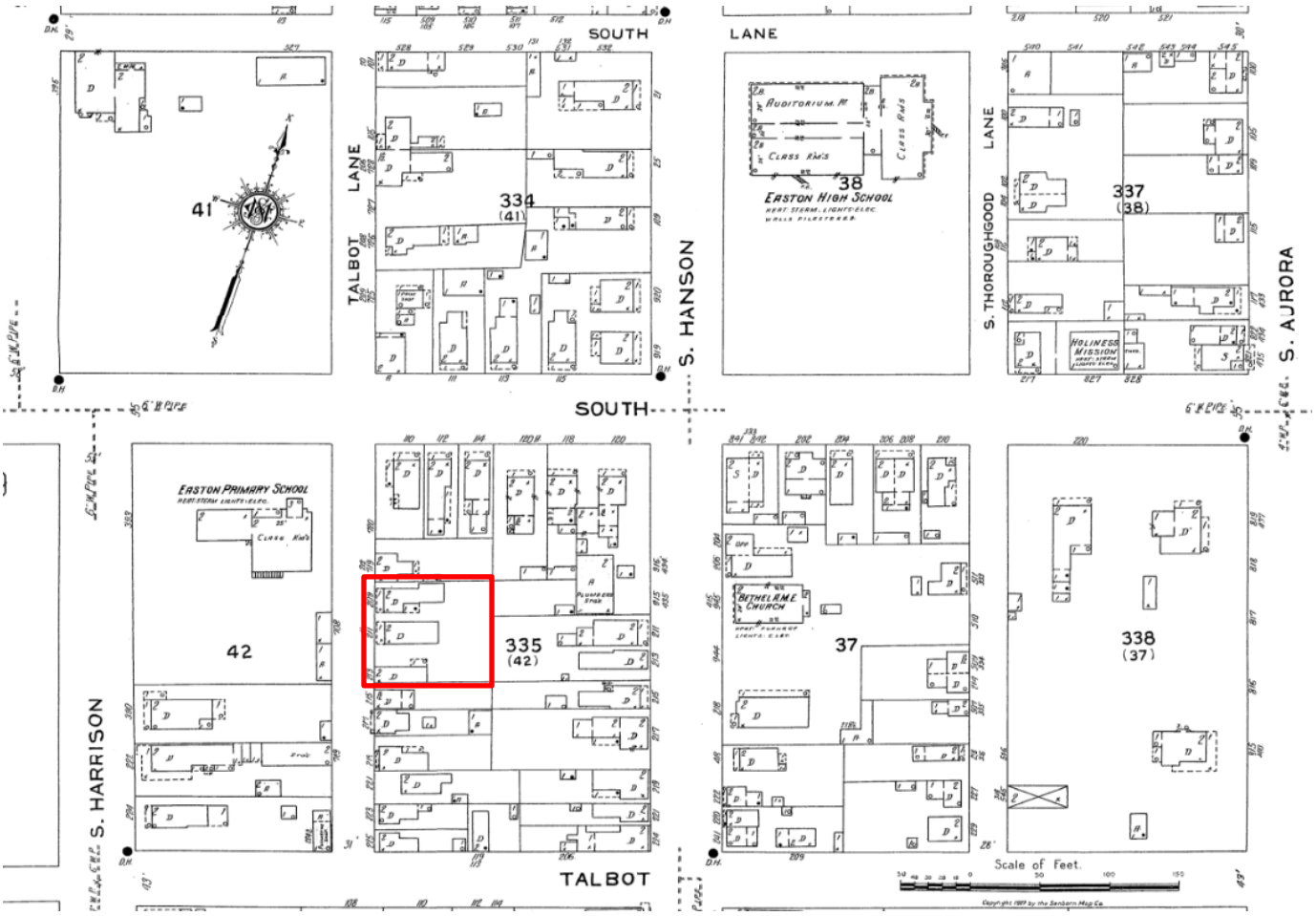


Figure 2 - Sanborn Map Circa 1927