

# ENVIRONMENTAL CONCEPT PLAN ROMANO CONSTRUCTION A.C. MILLER PROPERTY

**PARCEL 'B'**  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
TAX MAP No. 47 GRID No. 23 PARCEL NO. 540

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SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	EXISTING CONDITION AND DEMOLITION PLAN
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6	SWM DRAINAGE AREA MAP

## DESIGN NARRATIVE

**INTRODUCTION:**  
THIS REPORT WILL DEMONSTRATE HOW THE CRITERIA SET FORTH IN THE MARYLAND STORMWATER DESIGN MANUAL, VOLUMES 1 AND 2 (EFFECTIVE OCTOBER 2000, REVISED MAY 2009) WILL BE SATISFIED FOR THESE LOTS. THE GOAL OF CREATING HYDROLOGY SIMILAR TO THAT OF "WOODS IN GOOD CONDITION" WILL BE ACCOMPLISHED THROUGH THE USE OF MICRO BIO-RETENTION FACILITIES (2), RECHARGE CHAMBERS (7), FILTERRA INLETS (7) AND CISTERNS (2), AS SUGGESTED WITHIN CHAPTER 5 OF PREVIOUSLY MENTIONED MANUAL. THE ACHIEVEMENT OF THIS GOAL WILL REMOVE THE REQUIREMENT OF PROVIDING CHANNEL PROTECTION VOLUME.

**GENERAL SITE CONDITIONS:**  
THE ROMANO CONSTRUCTION PROJECT IS ZONED M-2 AND LOCATED ON TAX MAP 47, PARCEL NO. 540 OF THE HOWARD COUNTY, MARYLAND TAX MAP DATABASE SYSTEM. THIS PROPERTY CONSISTS OF 3.52 ACRES OF WHICH NO ACRES ARE ENCLUMBERED WITH A PRESERVATION EASEMENT DEDICATED TO HOWARD COUNTY MARYLAND AGRICULTURAL LAND PRESERVATION PROGRAM.

- I. NATURAL RESOURCE PROTECTION:**  
TO ENSURE THE PROTECTION OF NATURAL RESOURCES LOCATED ON THIS SITE, ALL BUFFERS WILL BE HONORED AND ALL IMPROVEMENT WILL BE LOCATED OUTSIDE OF ENVIRONMENTALLY SENSITIVE AREAS. THERE ARE NO DEFINED SPECIMEN TREES LOCATED ON THIS PROPERTY.
- II. MAINTENANCE OF NATURAL FLOW PATTERNS:**  
THE PROPOSED DEVELOPMENT IS DESIGNED WITH THE INTENT OF CREATING DRAINAGE DIVIDES SIMILAR TO THOSE OF THE NATURAL FLOW PATTERNS IN THE PROJECT AREA.
- III. REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN, ALTERNATIVE SURFACES AND NONSTRUCTURAL PRACTICES:**  
THIS SITE PROPOSES THE MINIMUM IMPERVIOUS AREAS NECESSARY TO PROVIDE ADEQUATE ACCESS TO THE PROPOSED BUILDINGS. ALL PROPOSED IMPERVIOUS SURFACES ARE RECEIVING TREATMENT THROUGH THE USE OF 650 STORMWATER MANAGEMENT FACILITIES. WE ARE PROVIDING FOR 2 MICRO BIO-RETENTION FACILITIES TO TREAT PART OF THE ROOFS AND PAVING, 7-FILTERRA INLETS TO TREAT MORE PAVING AND 7-RECHARGE CHAMBERS TO TREAT THE REMAINING PAVING. WE ARE ALSO PROVIDING 2-CISTERNS TO CAPTURE THE REMAINING ROOFTOP RUNOFF.
- IV. INTEGRATION OF EROSION AND SEDIMENT CONTROLS INTO STORMWATER STRATEGY:**  
THIS SUBMISSION ONLY PROPOSES ON-LOT SEDIMENT CONTROLS SUCH AS SUPER SILT FENCE, A STOCKPILE AND A STABILIZED CONSTRUCTION ENTRANCE.
- V. IMPLEMENTATION OF ESD PLANNING TECHNIQUES AND PRACTICES TO THE MAXIMUM EXTENT PRACTICABLE (MEP):**  
THIS SUBMISSION PROPOSES 2 MICRO BIO-RETENTION FACILITIES (M-6), 7-FILTERRA INLETS, 2-CISTERNS AND 7-RECHARGE CHAMBERS TO MEET AND EXCEED ENVIRONMENTAL SITE DESIGN TO THE MAXIMUM EXTENT PRACTICABLE (ESD TO THE MEP).
- VI. REQUEST FOR DESIGN MANUAL WAIVER:**  
NO WAIVERS ARE EXPECTED TO BE REQUESTED ON THIS PROJECT RELATING TO SWM REQUIREMENTS.

## OPERATION AND MAINTENANCE SCHEDULE FOR FILTERRA SYSTEM

ANNUAL MAINTENANCE CONSISTS OF A MAXIMUM OF (2) SCHEDULED VISITS. THE VISITS ARE SCHEDULED SEASONALLY. THE SPRING VISIT AIMS TO CLEAN UP AFTER WINTER LOADS INCLUDING SALTS AND SANDS. THE FALL VISIT HELPS THE SYSTEM BY REMOVING EXCESSIVE LEAF LITTER. EACH MAINTENANCE INSPECTION CONSISTS OF THE FOLLOWING TASKS:

1. FILTERRA UNIT INSPECTION
2. FOREIGN DEBRIS, SILT, MULCH AND TRASH REMOVAL
3. FILTER MEDIA EVALUATION AND RECHARGE AS NECESSARY
4. PLANT HEALTH EVALUATION AND PRUNING OR REPLACEMENT AS NECESSARY
5. REPLACEMENT OF MULCH
6. DISPOSAL OF ALL MAINTENANCE REFUSE ITEMS
7. MAINTENANCE RECORDS UPDATED AND STORED

## MICRO-BIORETENTION (M-6) OPERATION & MAINTENANCE SCHEDULE

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDER BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

## OPERATION AND MAINTENANCE SCHEDULE FOR RAINWATER HARVESTING SYSTEM (M-1)

THE RAINWATER HARVESTING SYSTEM (UNDERGROUND CHAMBERS) SHALL BE INSPECTED AT LEAST TWICE PER YEAR (ONCE EACH IN THE SPRING AND FALL) THE OWNER IS RESPONSIBLE FOR MAINTAINING A DETAILED LOG OF THE MAINTENANCE INSPECTION FINDINGS AND A HISTORY OF THE COMPLETED WORK. THE LOG SHALL BE MADE AVAILABLE TO HOWARD COUNTY DPZ AND/OR THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UPON REQUEST. SPECIFIC COMPONENTS TO BE INSPECTED AND MAINTAINED INCLUDE THE ITEMS AS FOLLOWS:

1. REMOVE DEBRIS.
2. EXAMINE STRUCTURES FOR SIGNS OF STRUCTURAL ISSUES (DAMAGE, CORROSION, ETC).
3. REMOVE AND PROPERLY DISPOSE ACCUMULATED SEDIMENT GREATER THAN ONE (1) INCH.
4. THE HOMEOWNER SHALL VERIFY INTEGRITY OF LEAF SCREENS, GUTTERS & DOWNSPOUTS AND CLEAN AND REMOVE ANY DEBRIS.

NOTE:  
1. THE RAINWATER HARVESTING STORAGE SHALL BE 80% EMPTIED MINIMUM, WHEN A 2" OR GREATER RAINFALL EVENT IS FORECASTED. THIS IS TO ALLOW STORAGE TO PROVIDE QUANTITY MANAGEMENT NEEDED TO PROTECT DOWNSTREAM WATERWAYS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

\_\_\_\_\_  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 10/27/22

\_\_\_\_\_  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 10/27/22

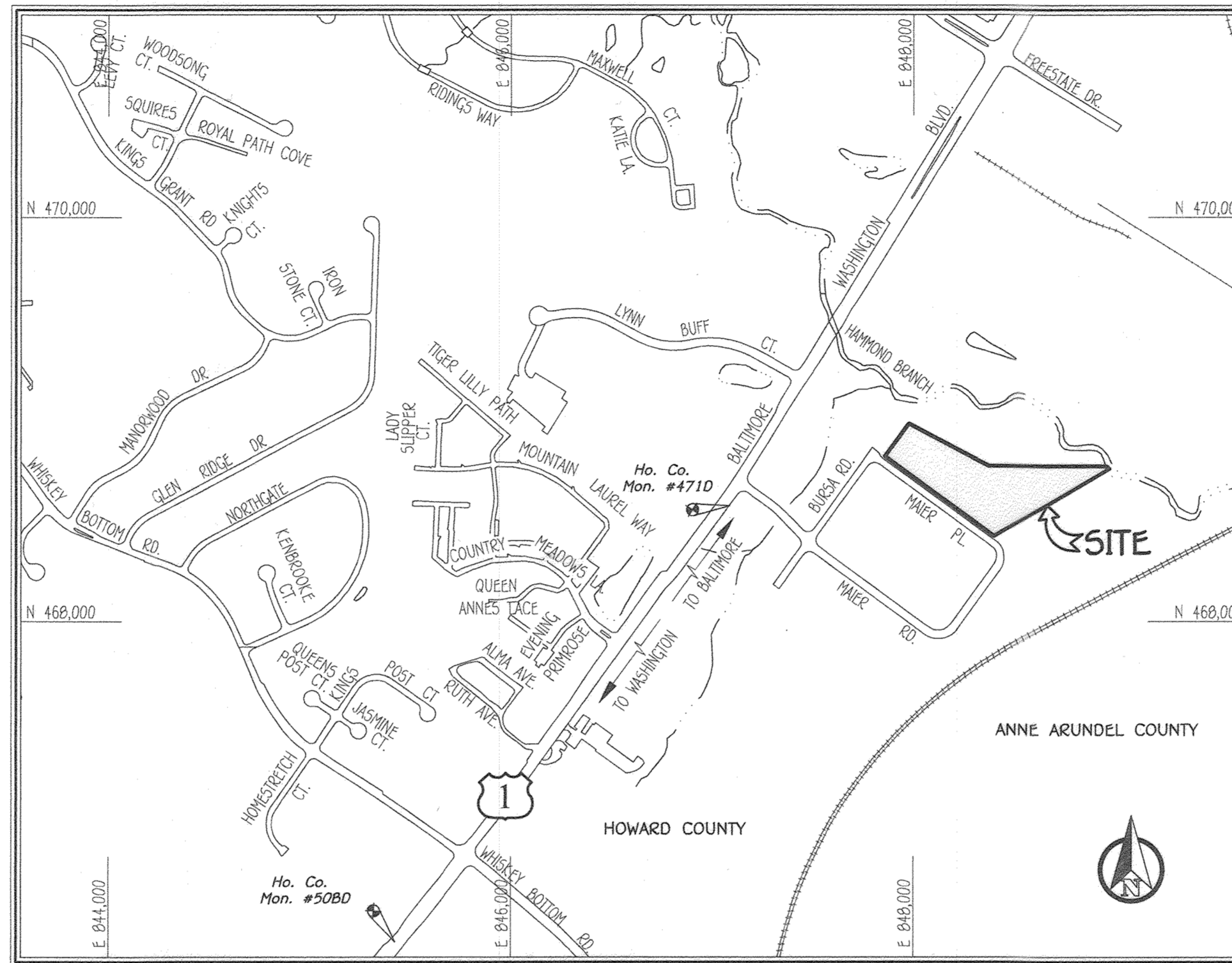
**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALDWIN NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461 - 2000

**Owner/Developer**  
A.J. ROMANO CONSTRUCTION INC.  
8970 MAIER PLACE  
LAUREL, MARYLAND 20723  
ATTN: ANTONIO ROMANO, PRESIDENT  
Tel: (301)-362-0080  
Fax: (301)-362-0081

### 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. 17720, EXPIRATION DATE: 01/25/24.

\_\_\_\_\_  
PAUL G. CAVANAUGH  
DATE: 10/27/22



VICINITY MAP  
SCALE: 1" = 600'

### STORMWATER MANAGEMENT PRACTICES

AREA ID	PERMEABLE PAVING A-2 (Y/N)	DISCONNECTION OF ROOFTOP RUNOFF N-1 (Y/N)	DISCONNECTION OF NON-ROOFTOP RUNOFF N-2 (Y/N)	FILTERRA INLETS (Y/N)	BIO-RETENTION M-6 (Y/N)	BIO-RETENTION F-6 (Y/N)	SUBMERGED GRAVEL WETLAND M-2	RAINWATER HARVESTING M-1
BUILDING 1	NO	NO	NO	NO	Y-(1)	NO	NO	YES
BUILDING 2	NO	NO	NO	NO	Y-(1)	NO	NO	YES
PARKING LOT	NO	NO	NO	Y-(7)	Y-(2)	NO	NO	NO

### STORMWATER MANAGEMENT SUMMARY

AREA ID	LOCATION	DRAINAGE AREA SF.	% IMPERVIOUS	ESD <sub>V</sub> REQUIRED CuFt.	ESD <sub>V</sub> PROVIDED CuFt.	SURFACE AREA S.F.
E.S.D. 1	8970 MAIER PLACE	15,014	54%	-	1,064	640
E.S.D. 2	8970 MAIER PLACE	17,362	54%	-	1,177	695
FT-1	8970 MAIER PLACE	15,892	100%	-	1,295	
FT-2	8970 MAIER PLACE	17,599	100%	-	1,393	
FT-3	8970 MAIER PLACE	12,716	100%	-	1,007	
FT-4	8970 MAIER PLACE	16,100	98%	-	1,245	
FT-5	8970 MAIER PLACE	19,179	98%	-	1,495	
FT-6	8970 MAIER PLACE	14,971	100%	-	1,185	
FT-7	8970 MAIER PLACE	19,127	100%	-	1,514	
STONE RECHARGE	8970 MAIER PLACE	-	-	-	14,441	
C-1	8970 MAIER PLACE	5,200	100%	-	1,070	
C-2	8970 MAIER PLACE	7,500	100%	-	1,543	

ESD<sub>V</sub> REQUIRED = 27,164 CuFt.  
ESD<sub>V</sub> PROVIDED = 28,389 CuFt.  
WEIGHTED P<sub>e</sub> REQUIRED = 2.18'  
P<sub>e</sub> PROVIDED = 2.28'

### BENCHMARK INFORMATION

HOWARD COUNTY CONTROL STATION #471D - HORIZONTAL - NAD '83  
N 529,698.8950  
E 1,351,457.9920  
ELEVATION = 180.229 - VERTICAL - (NAVD '88)

HOWARD COUNTY CONTROL STATION #508D - HORIZONTAL - (NAD '83)  
N 527,539.830  
E 1,359,803.0180  
ELEVATION = 254.803 - VERTICAL - (NAVD '88)

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
12.000	SPOT ELEVATION
12.000	PROPOSED STORM DRAIN PIPE
PS	PROPOSED SEWER
PS	PROPOSED WATER
---	PROPOSED ROAD OVERLAY
---	AREAS OF DEMOLITION
---	LIMIT OF DISTURBANCE
---	SUPER SILT FENCE
---	STABILIZED CONSTRUCTION ENTRANCE
---	SOIL DELINEATION
---	EX. WATER MAIN
---	EX. SEWER MAIN
---	EX. STORM DRAIN
---	EX. WETLANDS
---	EX. WETLANDS BUFFER
---	EX. 100 YEAR FLOODPLAIN
---	STORM DRAIN DRAINAGE CHIMNEY
---	PROPOSED P-4 PAVING
---	SWM DRAINAGE DIVIDE
---	BIO RETENTION FACILITY
---	INLET PROTECTION

## GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION WORK BEING DONE.
  2. THE CONTRACTOR SHALL NOTIFY (MISS UTILITY) AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
  3. THE SUBJECT PROPERTY IS ZONED M-2 (PER 10/06/04 COMPREHENSIVE ZONING PLAN)
  4. EXISTING TOPOGRAPHY SHOWN IS FROM A FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS AND CARTER, INC. AND DATED DECEMBER 26, 2017.
  5. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 471D AND 508D WERE USED FOR THIS PROJECT.
  6. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES 1 & II, REVISED 2009. PROVIDED STORMWATER MANAGEMENT INCLUDE THE USE OF FOUR (4) RECHARGE CHAMBERS, TWO (2) M-6 MICRO BIO-RETENTION FACILITIES, TWO (2) CISTERNS (TRUCK MAINTENANCE) AND FIVE (5) FILTERRA INLETS.
  7. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. PUBLIC WATER AND SEWER WILL BE UTILIZED FOR THIS PROJECT.
  8. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
  9. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
  10. LANDSCAPING WILL BE PROVIDED AT THE SITE DEVELOPMENT STAGE OF THIS PROJECT.
  11. FOREST CONSERVATION WILL BE ADDRESSED AT THE SITE DEVELOPMENT STAGE OF THIS PROJECT.
  12. OFF-SITE GRADING PERMISSION LETTERS WILL BE PROVIDED AT THE SITE DEVELOPMENT STAGE OF THIS PROJECT.
  13. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SITE PLAN STAGES. THEREFORE, THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS (INCLUDING THOSE THAT MAY ALTER OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES.
  14. SOIL BORING INFORMATION WILL BE PROVIDED AT THE SDP STAGE OF THIS PROJECT.
  15. APPROVAL OF THIS ECP DOES NOT CONSTITUTE APPROVAL OF SUBSEQUENT OR ASSOCIATED SUBDIVISION OR SITE DEVELOPMENT PLANS OR RED-LINE REVISIONS. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN, SITE DEVELOPMENT PLAN, OR RED-LINE REVISION PROCESSES. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THE PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESSES.
  16. THE WETLAND AREAS SHOWN ON THIS PLAN WERE TAKEN FROM PLAT #16329.
  17. THIS SITE CONTAINS AN EXISTING 100-YEAR FLOODPLAIN. TWO ARE SHOWN. ONE WAS DETERMINED BY KIDDE CONSULTANTS, INC. AS SHOWN ON PLAT #16329 RECORDED ON NOVEMBER 29, 2008. THE OTHER WAS DELINEATED BASED ON FEMA FIREHETTE CROSS SECTION ELEVATIONS DOWNLOADED ON JUNE 16, 2022.
  18. THERE IS NO NEED TO HAVE A NOISE STUDY OR A TRAFFIC STUDY FOR THIS PROJECT.
  19. PREVIOUS FILE NUMBERS: WP-02-01, WP-98-97, F-02-010, SP-02-003
  20. THE IMPACT TO THE 15' SETBACK FOR THE LIMIT OF DISTURBANCE ADJACENT TO A FOREST CONSERVATION EASEMENT WILL BE ADDRESSED AT THE SITE DEVELOPMENT PLAN STAGE.
- 21. BY PASS SHALL BE PROVIDED WITH THE SITE DEVELOPMENT PLAN.**

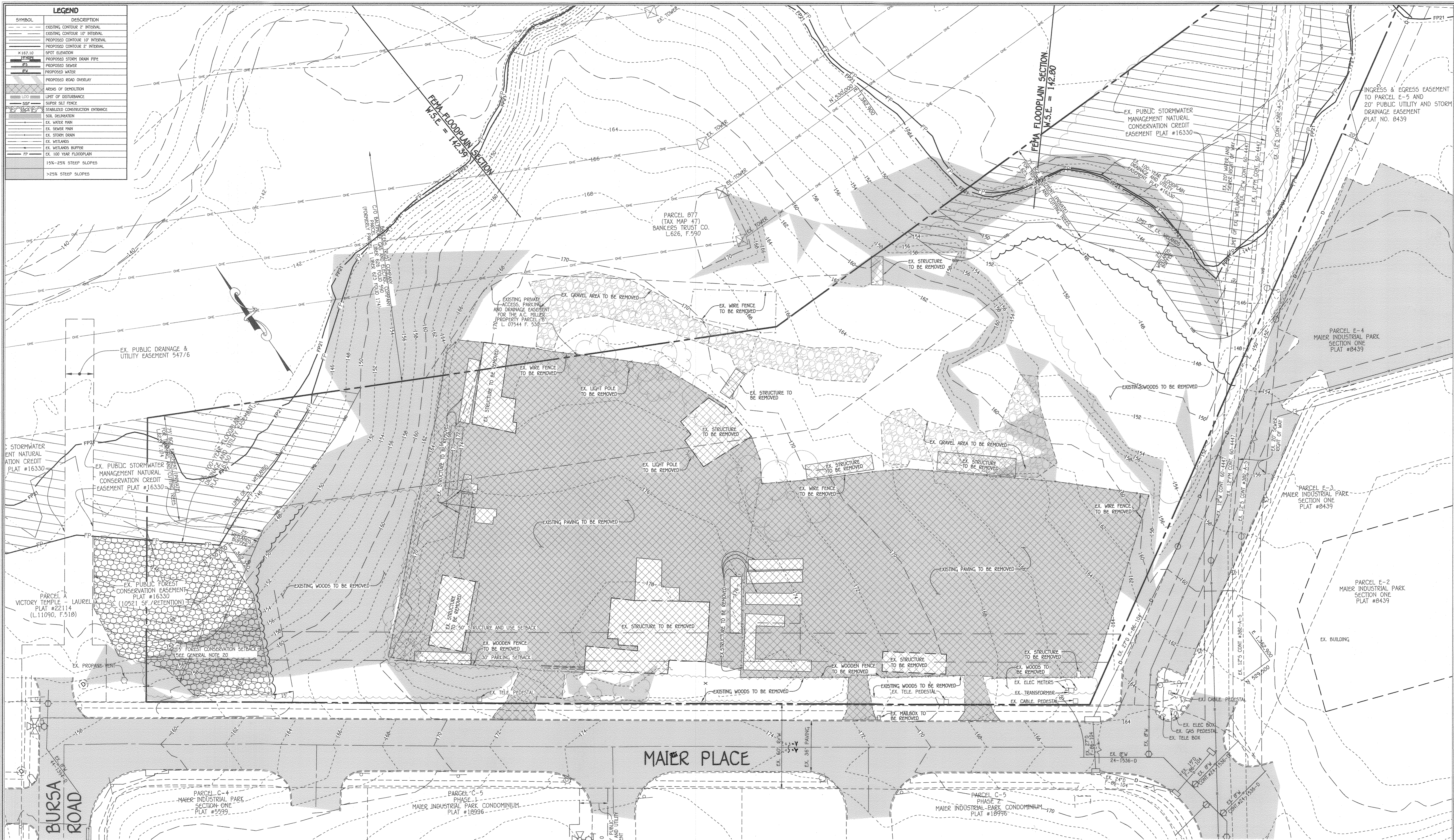
## SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF THIS SUBMISSION = 5.52 ac.±
- B. LIMIT OF DISTURBED AREA = 194,186 SqFt. or 4.5 Ac.±
- C. PRESENT ZONING DESIGNATION = M-2 (PER 10/06/13 COMPREHENSIVE ZONING PLAN)
- D. PROPOSED USE: CONTRACTOR'S OFFICE, OUTDOOR AND INDOOR STORAGE FACILITY.
- E. OPEN SPACE ON SITE: N/A
- F. RECREATIONAL AREA PROVIDED: N/A
- G. BUILDING COVERAGE OF SITE: 25,400 SQ.FT. OR 0.58 AC.±
- H. PREVIOUS HOWARD COUNTY FILES: SP-02-003, WP-02-001, WP-98-097, F-02-010
- I. TOTAL AREA OF EX. FLOODPLAIN LOCATED ON SITE: 0.94 AC.±
- J. TOTAL AREA OF SLOPES IN EXCESS OF 15% = 1.01 AC.±
- K. NET TRACT AREA = 4.58 AC.±  
(TOTAL SITE AREA (5.52) - FLOODPLAIN (0.94) - STEEP SLOPES AREA (0))
- L. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 1.16 AC.±
- M. TOTAL AREA OF EX. FOREST (RETENTION) = 1.31 AC.±
- N. TOTAL GREEN OPEN AREA = 0.9 AC.±
- O. TOTAL IMPERVIOUS AREA = 3.6 AC.±
- P. AREA OF ERODIBLE SOILS = 3.32 AC.±

TITLE SHEET  
**ROMANO CONSTRUCTION**  
A.C. MILLER PROPERTY  
PARCEL B  
PLAT NO. 16329 F-02-010  
8970 MAIER PLACE, LAUREL, MD. 20725  
Zoned: M-2  
Tax Map No.: 47 Grid No.: 23 Parcel No.: 540  
Sixth Election District Howard County, Maryland  
Scale: As Shown  
Date: October 5, 2022  
Sheet 1 of 6



SYMBOL	DESCRIPTION
(Dashed line)	EXISTING CONTOUR 2' INTERVAL
(Dotted line)	EXISTING CONTOUR 10' INTERVAL
(Dashed line)	PROPOSED CONTOUR 10' INTERVAL
(Dashed line)	PROPOSED CONTOUR 2' INTERVAL
(Number)	SPOT ELEVATION
(Line with 'X')	PROPOSED STORM DRAIN PIPE
(Line with 'S')	PROPOSED SEWER
(Line with 'W')	PROPOSED WATER
(Line with 'R')	PROPOSED ROAD OVERLAY
(Hatched area)	AREAS OF DEMOLITION
(Dashed line)	LIMIT OF DISTURBANCE
(Line with 'S')	SUPER SILT FENCE
(Line with 'S')	STABILIZED CONSTRUCTION ENTRANCE
(Line with 'S')	SOIL DELINEATION
(Line with 'W')	EX. WATER MAIN
(Line with 'S')	EX. SEWER MAIN
(Line with 'D')	EX. STORM DRAIN
(Line with 'W')	EX. WETLANDS
(Line with 'W')	EX. WETLANDS BUFFER
(Line with 'F')	EX. 100 YEAR FLOODPLAIN
(Line with 'S')	15%-25% STEEP SLOPES
(Line with 'S')	>25% STEEP SLOPES



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT

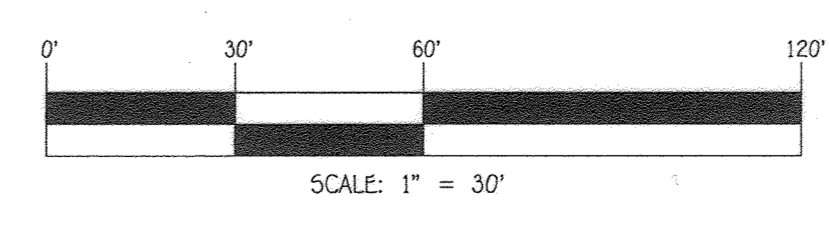
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 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
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 ELLICOTT CITY, MARYLAND 21042  
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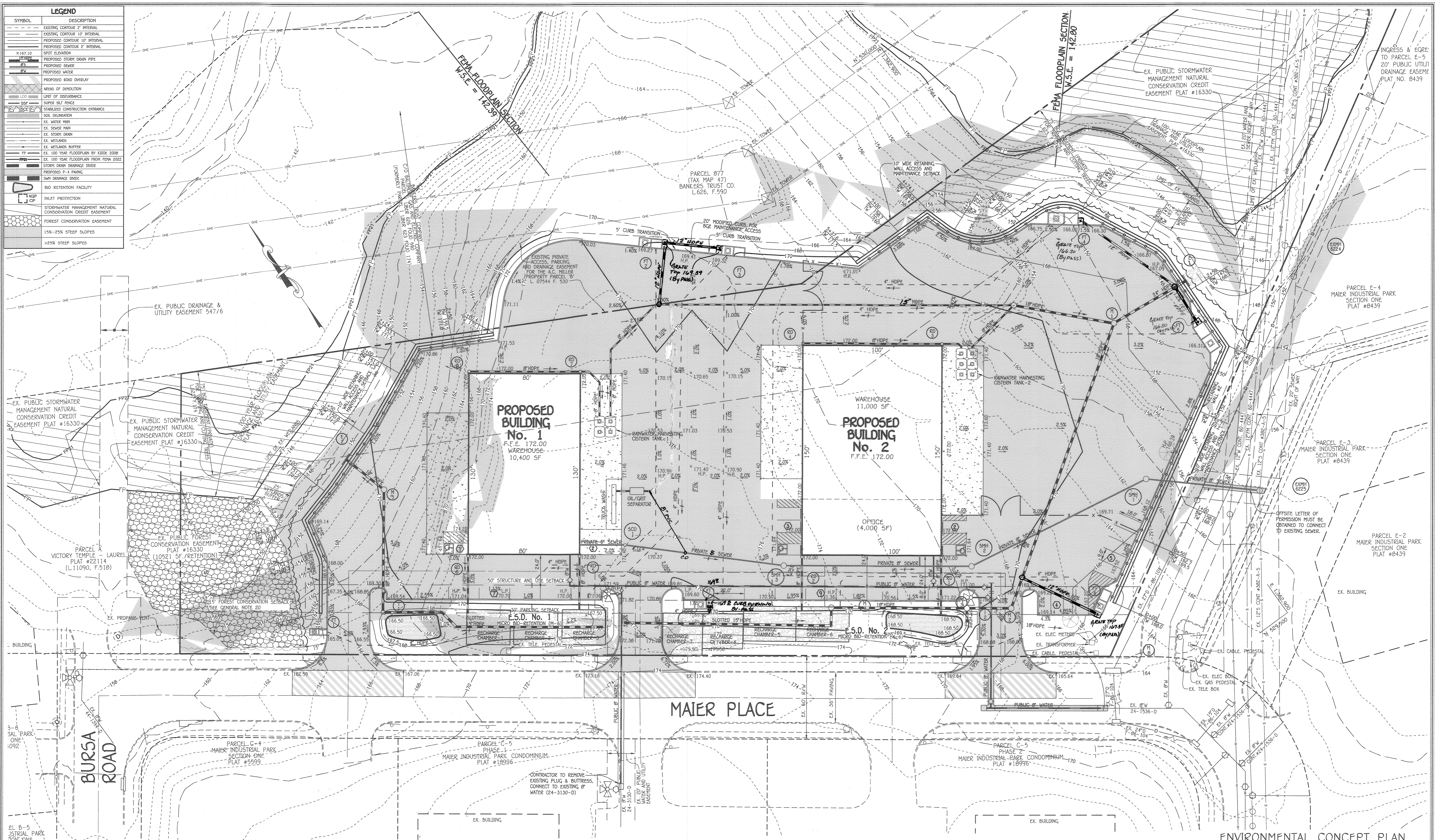
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 PAUL G. CAVANAUGH



**DEMOLITION PLAN**  
**ROMANO CONSTRUCTION**  
**A.C. MILLER PROPERTY**  
**PARCEL B**  
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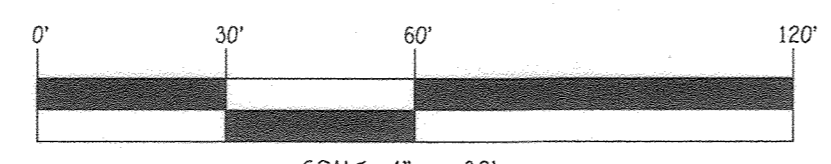
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(Line with 'S')	EX. WETLANDS
(Line with 'S')	EX. WETLANDS BUFFER
(Line with 'S')	EX. 100 YEAR FLOODPLAIN BY CODE 2008
(Line with 'S')	EX. 100 YEAR FLOODPLAIN FROM FEMA 2002
(Line with 'S')	STORM DRAIN DRAINAGE DIVIDE
(Line with 'S')	PROPOSED P-4 PAVING
(Line with 'S')	SMI DRAINAGE DIVIDE
(Line with 'S')	BIO RETENTION FACILITY
(Line with 'S')	INLET PROTECTION
(Line with 'S')	STORMWATER MANAGEMENT NATURAL CONSERVATION CREDIT EASEMENT
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 CENTENNIAL SQUARE OFFICE PARK - 10272 BALDOR NATIONAL FREE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2995



SCALE: 1" = 30'  
 Owner/Developer

A.J. ROMANO CONSTRUCTION INC.  
 8970 MAIER PLACE  
 LAUREL, MARYLAND 20723  
 Attn: ANTONIO ROMANO, PRESIDENT  
 Tele: (301)-362-0990  
 Fax: (301)-362-8881

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PAUL G. CAVANAUGH  
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ENVIRONMENTAL CONCEPT PLAN  
**ROMANO CONSTRUCTION**  
 A.C. MILLER PROPERTY  
 PARCEL B

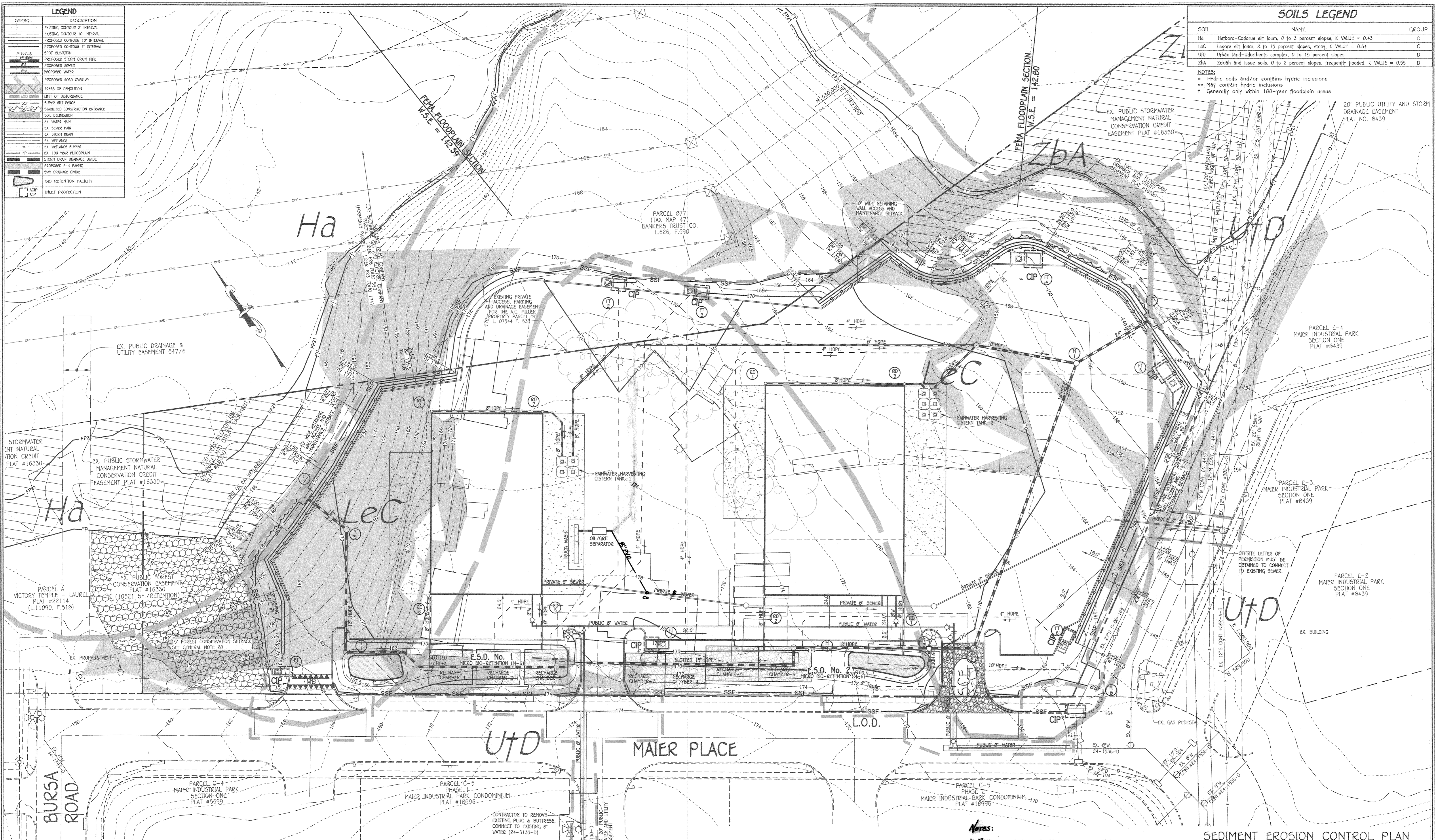
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---	SWM DRAINAGE DIVIDE
---	BIO RETENTION FACILITY
---	AGIP
---	CIP
---	INLET PROTECTION

SOIL	NAME	GROUP
Ha	Hatboro-Codorus silt loam, 0 to 3 percent slopes, K VALUE = 0.43	D
LeC	Legore silt loam, 0 to 15 percent slopes, stony, K VALUE = 0.64	C
UJD	Urban land-Udothenis complex, 0 to 15 percent slopes	D
ZBa	Zekiah and Issa soils, 0 to 2 percent slopes, frequently flooded, K VALUE = 0.95	D

NOTES:  
 \* Hydric soils and/or contains hydric inclusions  
 \* May contain hydric inclusions  
 † Generally only within 100-year floodplain areas



APPROVED: DEPARTMENT OF PLANNING AND ZONING

10/24/22  
 DATE

10.27.22  
 DATE

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALDORNE NATIONAL FILE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2999

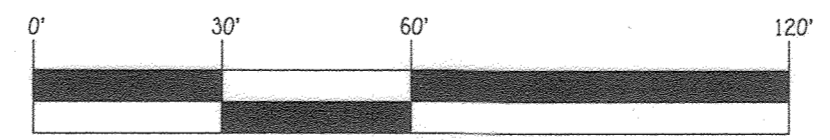
Owner/Developer  
 A.J. ROMANO CONSTRUCTION INC.  
 8970 MAIER PLACE  
 LAUREL, MARYLAND 20723  
 Attn: ANTONIO ROMANO, PRESIDENT  
 Tele: (301)-362-0080  
 Fax: (301)-362-0081

**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 1710, EXPIRATION DATE: 01/25/24.

*Paul G. Cavanaugh*  
 PAUL G. CAVANAUGH  
 DATE: 10/27/22

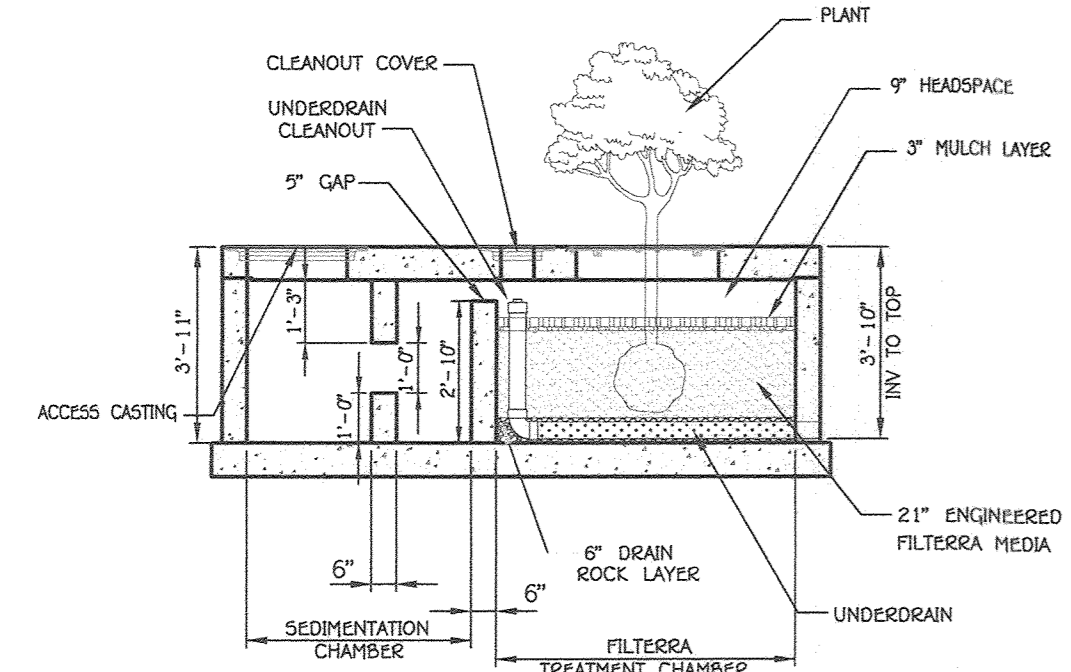
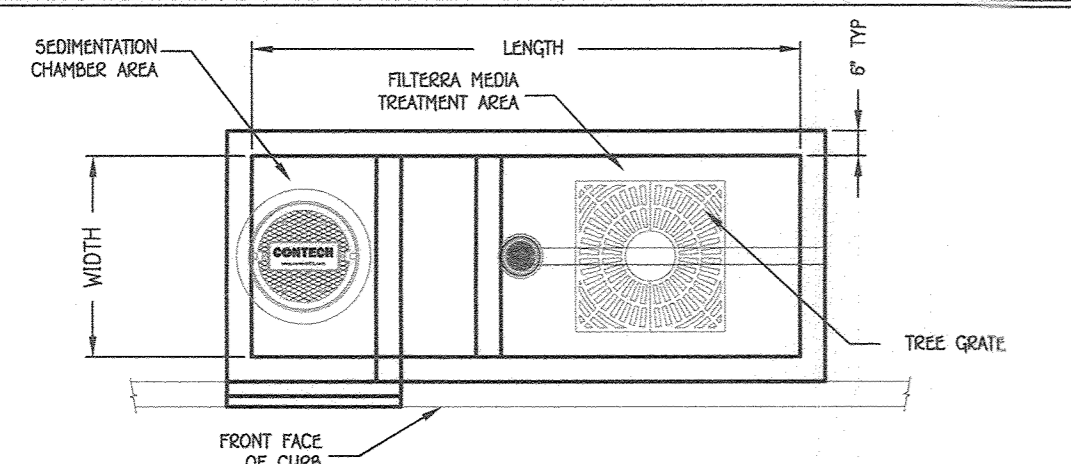


Notes:  
 1. REFER TO SHEET 3 FOR BY PASS SYSTEM  
 2. AGIP SHALL BE PROVIDED FOR BY PASS



**SEDIMENT EROSION CONTROL PLAN**  
**ROMANO CONSTRUCTION**  
 A.C. MILLER PROPERTY  
 PARCEL B  
 PLAT NO. 16329 F-02-010  
 8970 MAIER PLACE, LAUREL, MD. 20725  
 Tax Map No.: 47 Grid No.: 23 Parcel No.: 540  
 Sixth Election District Howard County, Maryland  
 Scale: As Shown  
 Date: October 5, 2022  
 Sheet 4 of 6





UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	FILTERRA TREATMENT AREA	MAXIMUM DRAINAGE AREA TREATED (SF)	WQV STORAGE CAPACITY (CF)
FTSC 6' x 4'	12' x 4'	6' x 4'	5,216	103
FTSC 8' x 4'	16' x 4'	8' x 4'	7,141	141
FTSC 6' x 6'	12' x 6'	6' x 6'	7,047	155
FTSC 8' x 6'	16' x 6'	8' x 6'	10,734	212
FTSC 10' x 6'	19' x 6'	10' x 6'	12,630	250
FTSC 10' x 8'	20' x 8'	10' x 8'	18,178	360
FTSC 11' x 8'	22' x 8'	11' x 8'	20,000	398

NOTE:  
 1. MAXIMUM DRAINAGE AREA TREATED ASSUMES 25% WQV AND FILTER SURFACE AREA REQUIREMENTS ARE BOTH MET.  
 2. STORAGE CAPACITY ASSUMES 40% VOLUME IN UNDERDRAIN STONE AND 50% VOLUME IN MULCH AND MEDIA.  
 3. ALL INFORMATION IS BASED ON STANDARD 3.82 RIM TO OUTLET DEPTH. CONTACT CONTEXT FOR CUSTOM SIZING IF DEPTH IS NOT 3.82. ACCEPTABLE DEPTH IS 3.32 MIN. TO 5.00 MAX. RIM TO INVERT OUT.

### FILTERRA STANDARD PLAN NOTES

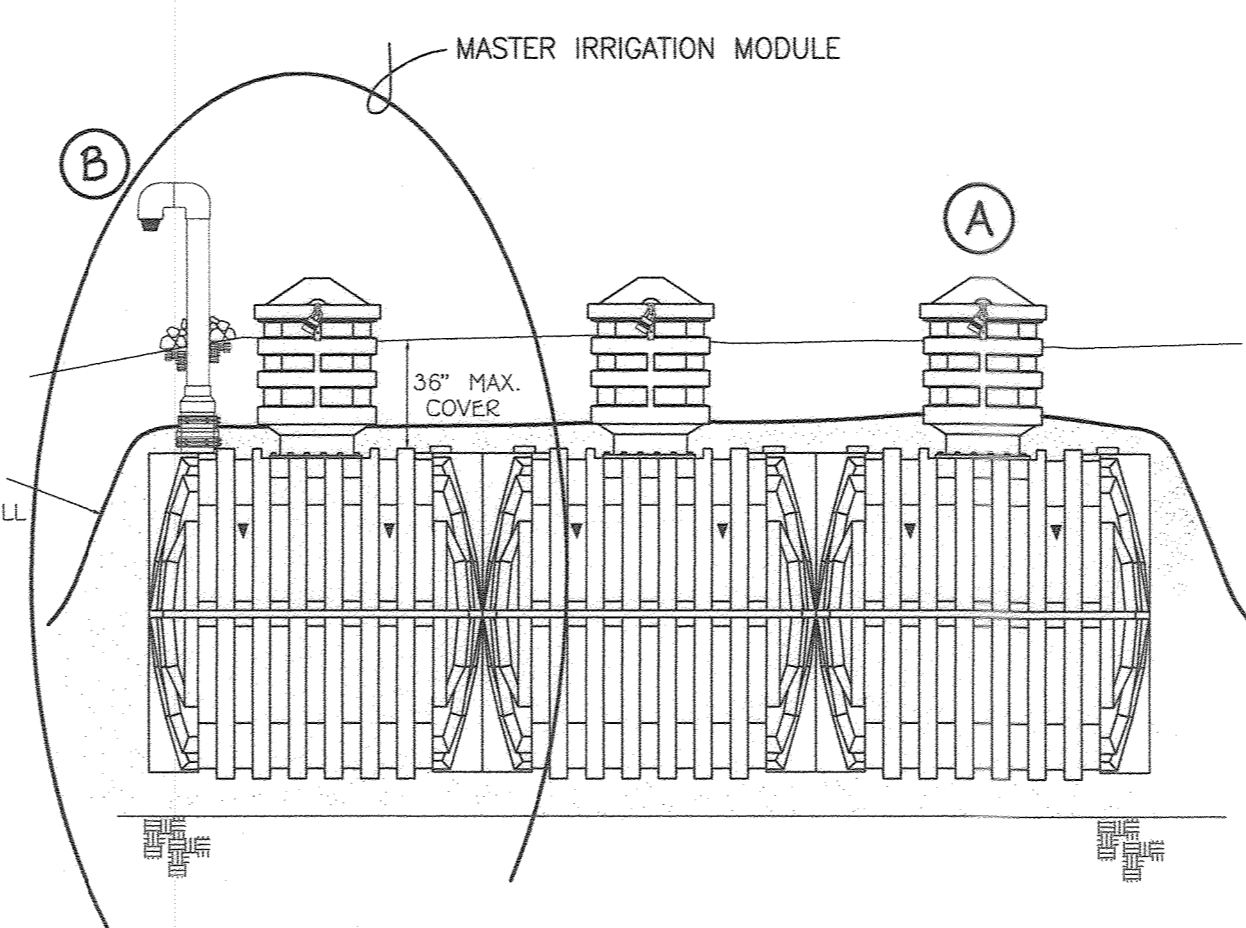
- Construction & Installation**
- Each unit shall be constructed at the locations and elevations according to the sizes shown on the approved drawings. Any modifications to the elevation or location shall be at the direction of and approved by the Engineer.
  - If the Filterra® is stored before installation, the top slab must be placed on the box using the 2x4 provided, to prevent any contamination from the site. All internal fittings supplied (if any), must be left in place as per the delivery.
  - The unit shall be placed on a completed sub-grade with a minimum 6-inch gravel base matching the final grade of the curb line in the area of the unit. The unit is to be placed such that the unit top and top slab match the grade of the curb in the area of the unit. Compact undisturbed sub-grade materials to 95% of maximum density at +1/- 2% of optimum moisture. Unsuitable material below sub-grade shall be replaced to the site engineer's approval.
  - Outlet connections shall be aligned and sealed to meet the approved drawings with modifications necessary to meet site conditions and local regulations.
  - Once the unit is set, the internal wooden forms and protective mesh cover must be left intact. Remove only the temporary wooden shipping blocks between the box and top slab. The top lid should be sealed onto the box section before backfilling, using a non-shrink grout, butyl rubber or similar waterproof seal. The boards on top of the lid and boards sealed in the unit's throat must NOT be removed. The Supplier (American or its authorized dealer) will remove these sections at the time of activation. Backfilling should be performed in a careful manner, bringing the appropriate fill material up in 6 lifts on all sides. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Filterra® shall conform to ASTM specification C991 "Standard Practice for Installation of Underground Precast Utility Structures", unless directed otherwise in contract documents.
  - The contractor is responsible for inlet protection/sediment control and cleaning around each Filterra unit.
  - Curb and gutter construction (where present) shall ensure that the flow-line of the Filterra® units is at a greater elevation than the flow-line of the bypass structure or relief (drop inlet, curb cut or similar). Failure to comply with this guideline may cause failure and/or damage to the Filterra® environmental device.
  - Each Filterra® unit must receive adequate irrigation to ensure survival of the living system during periods of drier weather. This may be achieved through a piped system, gutter flow or through the tree grate.

- Activation**
- Activation of the Filterra® unit is performed ONLY by the Supplier. Purchaser is responsible for Filterra® inlet protection and subsequent clean out cost. This process cannot commence until the project site is fully stabilized and cleaned (full landscaping, grass cover, final paving and street sweeping completed), negating the chance of construction materials contaminating the Filterra® system. Care shall be taken during construction not to damage the protective throat and top plates.
  - Activation includes installation of plant(s) and mulch layers as necessary.

- Included Maintenance**
- Each correctly installed Filterra® unit is to be maintained by the Supplier, or a Supplier Approved contractor for a minimum period of 1 year. The cost of this service is to be included in the price of each Filterra® unit. Extended maintenance contracts are available at extra cost upon request.

- Annual included maintenance consists of a maximum of (2) scheduled visits. The visits are scheduled seasonally; the spring visit aims to clean up after winter debris that may include salts and sands. The fall visit helps the system by removing excessive leaf litter.
- Each Included Maintenance visit consists of the following tasks:
  - Filtterra® unit inspection
  - Foreign debris, soil, mulch & trash removal
  - Filter media evaluation and recharge as necessary
  - Plant health evaluation and pruning or replacement as necessary
  - Replacement of mulch
  - Disposal of all maintenance refuse items
  - Maintenance records updated and stored (reports available upon request)

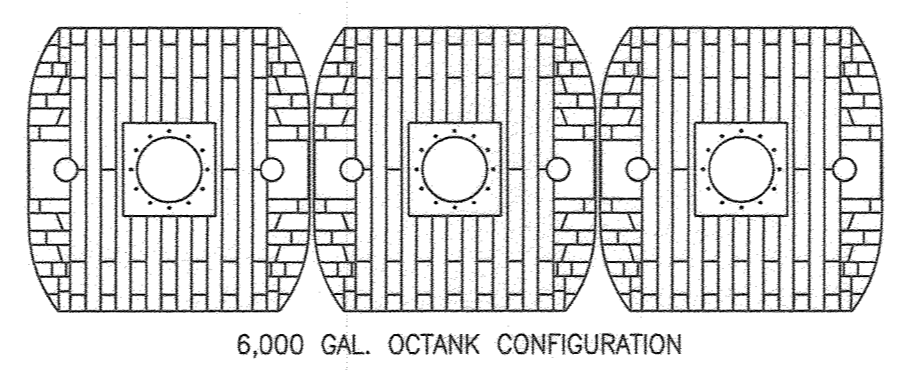
D. The beginning and ending date of Supplier's obligation to maintain the installed system shall be determined by the Supplier at the time the system is activated. Owners must promptly notify the Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.



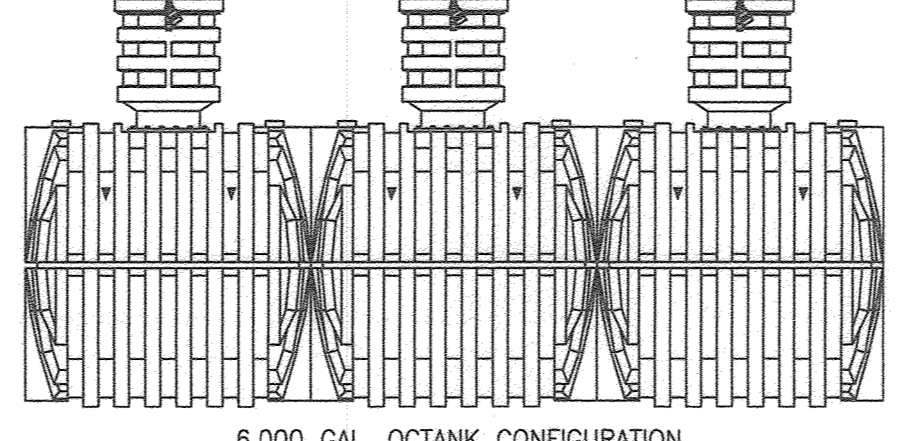
6000 Gallon OctTank Configuration

#### ACCESSORIES

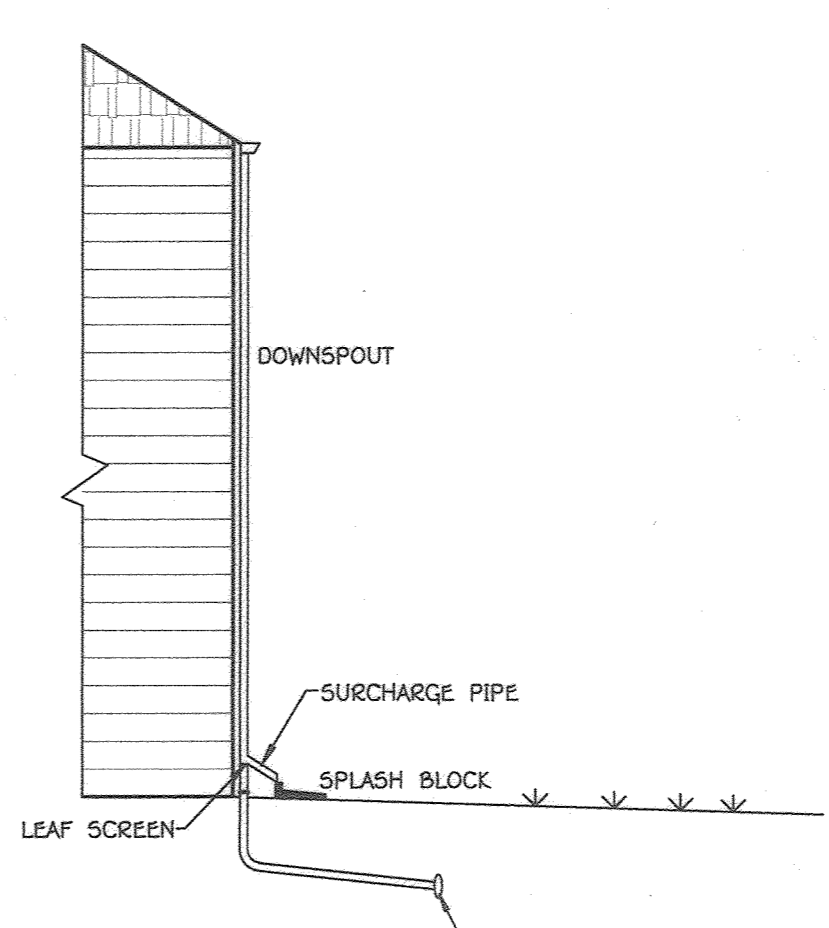
- 27" I.D. POLYETHYLENE SPOOL TYPE MANWAY EXTENSION TO GRADE w/ MESH BASKET ASSEMBLY AND INFLOW PIPE.
- PVC VENT WITH GUARD AND STAINLESS STEEL INSECT SCREEN.



6,000 GAL. OCTANK CONFIGURATION

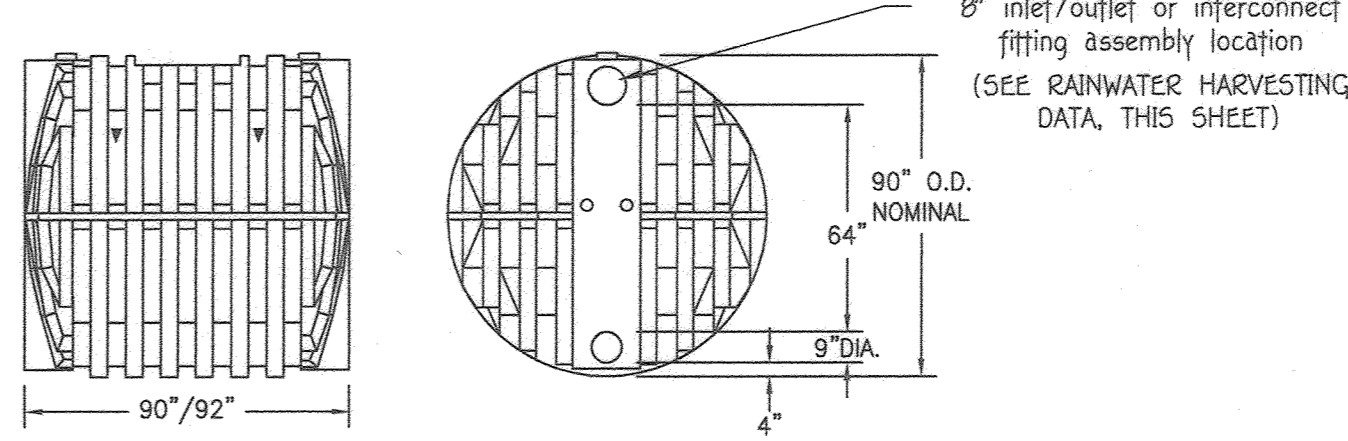


6,000 GAL. OCTANK CONFIGURATION (shown with manway extension)

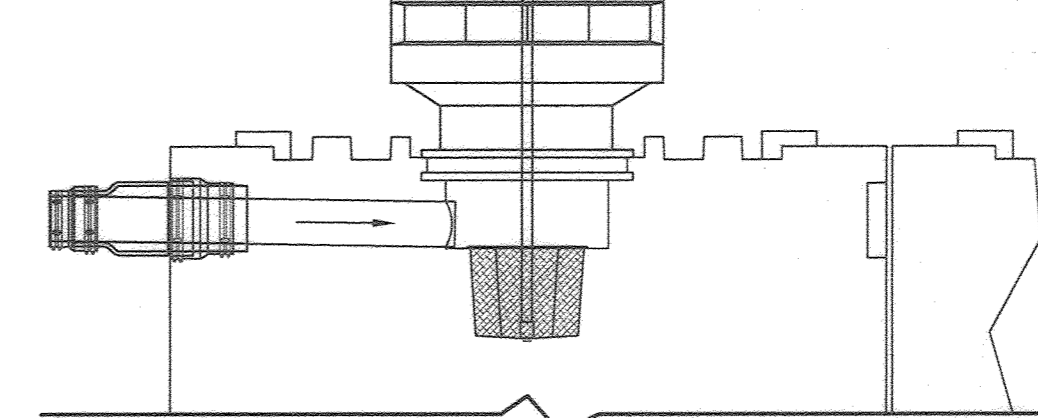


TYPICAL DOWNSPOUT FOR ROOFLEADER TO OCTANK

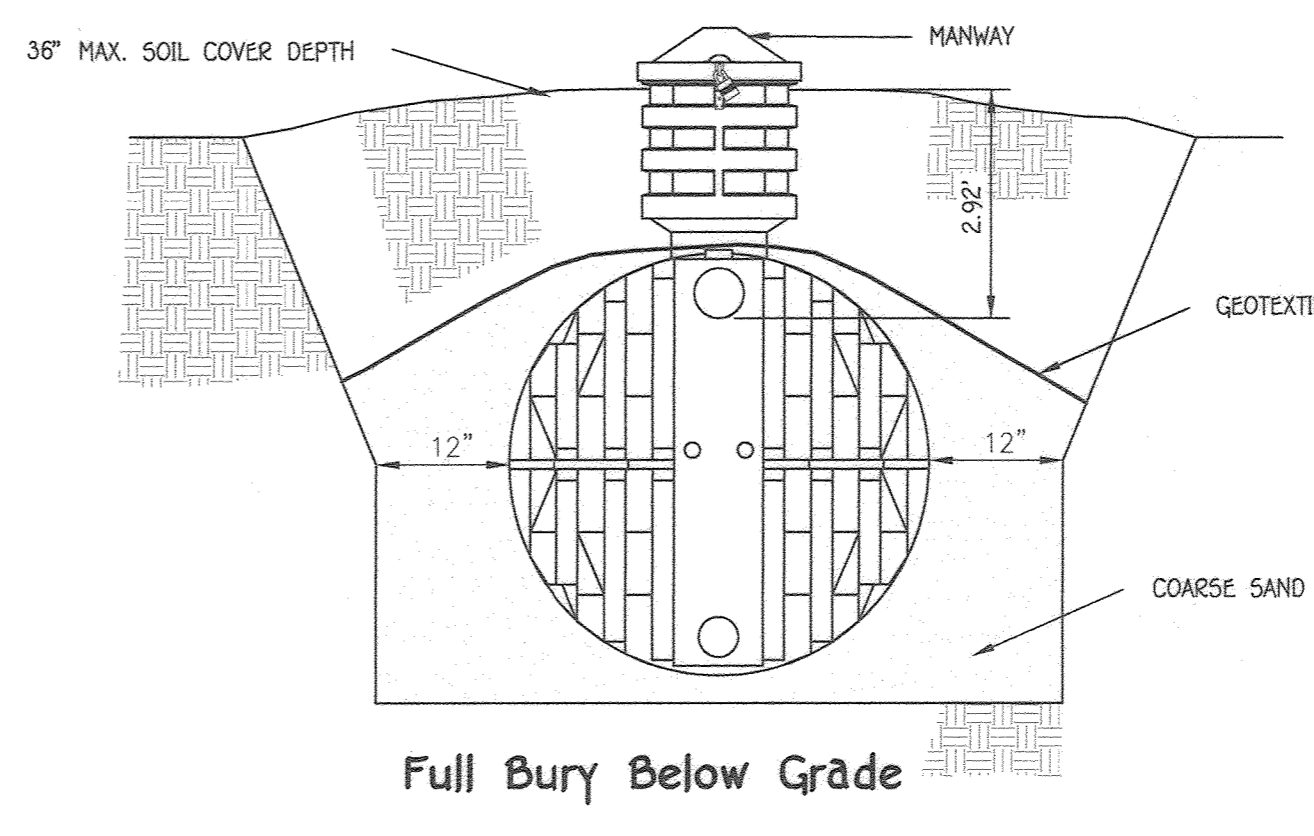
ALL DIMENSIONS ARE NOMINAL AND MAY VARY SLIGHTLY.



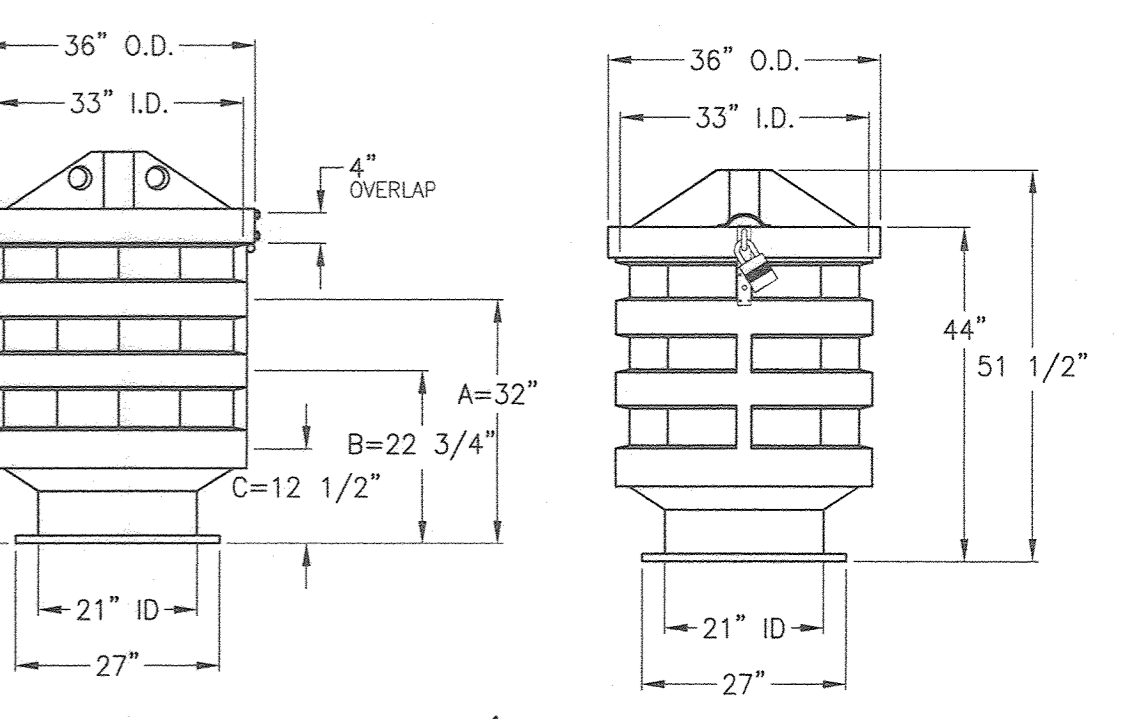
SINGLE 2,000 GAL. MODULE



Clarifier with silt dam and debris basket



Full Bury Below Grade



20" x 30" I.D. Polyethylene manway extension

#### SPECIFICATIONS FOR POLYETHYLENE UNDERGROUND WATER TANKS QUALITY ASSURANCE

MANUFACTURER: OMEGA INC. 980 DABCO DR. - P.O. BOX 775 - BONNETT, CO 80102 OR EQUIV.  
 PHONE NUMBER: 800-232-8660, FAX: 303-544-5001, INTERNET: WWW.DABCOINC.COM

**GENERAL GOVERNING STANDARDS**

- ASTM 1998-93, POLYETHYLENE STORAGE TANKS, THOSE SPECIFIC SECTIONS CONSIDERED GERMANE AND PRESENT AS APPLIED TO UNDERGROUND WATER STORAGE TANKS ONLY.
- SECTION 4: TYPE 2 HIGH DENSITY VIRGIN LINEAR POLYETHYLENE RESIN
- SECTION 5: MATERIAL STANDARDS FOR FOOD CONTACT GRADE POLYETHYLENE RESIN
- SECTION 7: FITTINGS FOR POLYETHYLENE WATER TANKS
- SECTION 8: PERFORMANCE REQUIREMENTS BASED ON IMPACT TESTING
- SECTION 9: DIMENSIONS AND TOLERANCES
- SECTION 10: WORKMANSHIP

**DESIGN STANDARDS / OMEGA MODULAR POLYETHYLENE SYSTEMS**

- EXTERNAL HYDROSTATIC LOADING: THE EMPTY TANK SYSTEM WITH MANWAY BESS, WHEN ANCHORED INTO A SAND BACKFILLED EXCAVATION AT A 3 FOOT BURY DEPTH AND FLOODED WITH WATER TO SPRING LINE, MUST MAINTAIN ITS STRUCTURAL SHAPE AND 100% WATER TIGHTNESS.
- TRAFFIC LOADING: TANK SYSTEMS, WHEN PROPERLY INSTALLED AND INCORPORATING AN APPROVED CONCRETE SURFACE SLAB, MUST WITHSTAND AUTOMOBILE AND 100 TRUCK TRAFFIC LOADS.
- SOIL BURY INSTALLATION: TANK SYSTEMS MUST HAVE SUFFICIENT WALL STRENGTH AND STRUCTURAL INTEGRITY TO BE INSTALLED AND COMPLETELY BACKFILLED TO A 3 FOOT BURY DEPTH WITHOUT THE ADDITION OF WATER DURING THE BACKFILL PROCESS. FURTHERMORE, TANK SYSTEMS MUST MAINTAIN THEIR STRUCTURAL SHAPE AND FULL STORAGE CAPACITY WHEN LEFT EMPTY FOR EXTENDED PERIODS.

**TANK FITTINGS**

ALL FITTINGS SHALL BE OF POLYPROPYLENE OR PVC CONSTRUCTION AND INCORPORATE ONLY 300 GRADE STAINLESS STEEL HARDWARE. COMPATIBLE AND WAREABLE TANK-TO-PIPE FLEXIBLE COUPLERS MUST BE MADE AVAILABLE ALONG WITH THE TANK SYSTEM AT THE TIME OF PURCHASE. FITTINGS, GASKETS, AND HARDWARE MUST BE AVAILABLE SPECIFICALLY FOR DOMESTIC WATER USE.

**POTABLE WATER APPLICATIONS**

THE VIRGIN POLYETHYLENE RESIN USED FOR CONSTRUCTION OF POTABLE WATER STORAGE TANKS MUST BE NSF LISTED AND COMPLY WITH FPA TITLE 21 WHEN IN CONTACT WITH DRINKING WATER.

**ACCESSORIES**

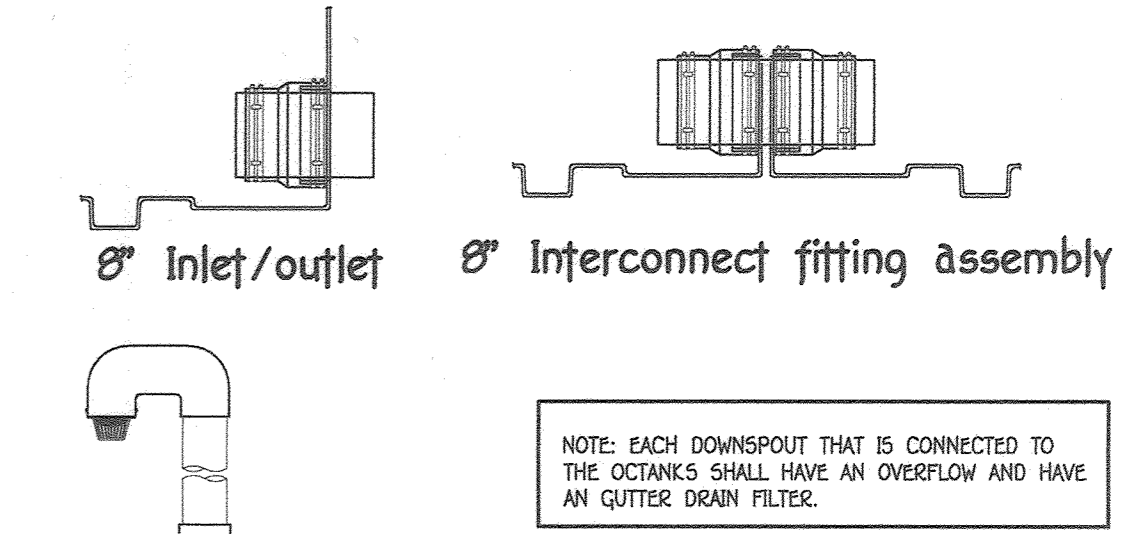
THE ACCESSORY PACKAGE PROVIDED WITH ANY STORAGE TANK SYSTEM MUST CONTAIN ONLY FULLY APPROVED ACCESSORIES AND APPURTENANCES WHICH MEET ALL PERFORMANCE STANDARDS AND WARRANTY COVERAGE GUIDELINES OF TANK MANUFACTURER.

**CAPACITY AND SIZE REQUIREMENTS**

- THE NOMINAL VOLUME OF THE TANK SYSTEM SHALL BE \_\_\_\_\_ GALLONS.
- THE NOMINAL TANK DIAMETER SHALL BE \_\_\_\_\_ FEET BY A NOMINAL LENGTH OF \_\_\_\_\_ FEET.

**LIMITED WARRANTY**

A STANDARD 2 YEAR STRUCTURAL AND CORROSION WARRANTY SHALL REMAIN EFFECTIVE UPON TANK DELIVERY. AN OPTIONAL EXTENDED WARRANTY PROGRAM MUST BE AVAILABLE AT TIME OF PURCHASE.



8" Inlet/outlet 8" Interconnect fitting assembly

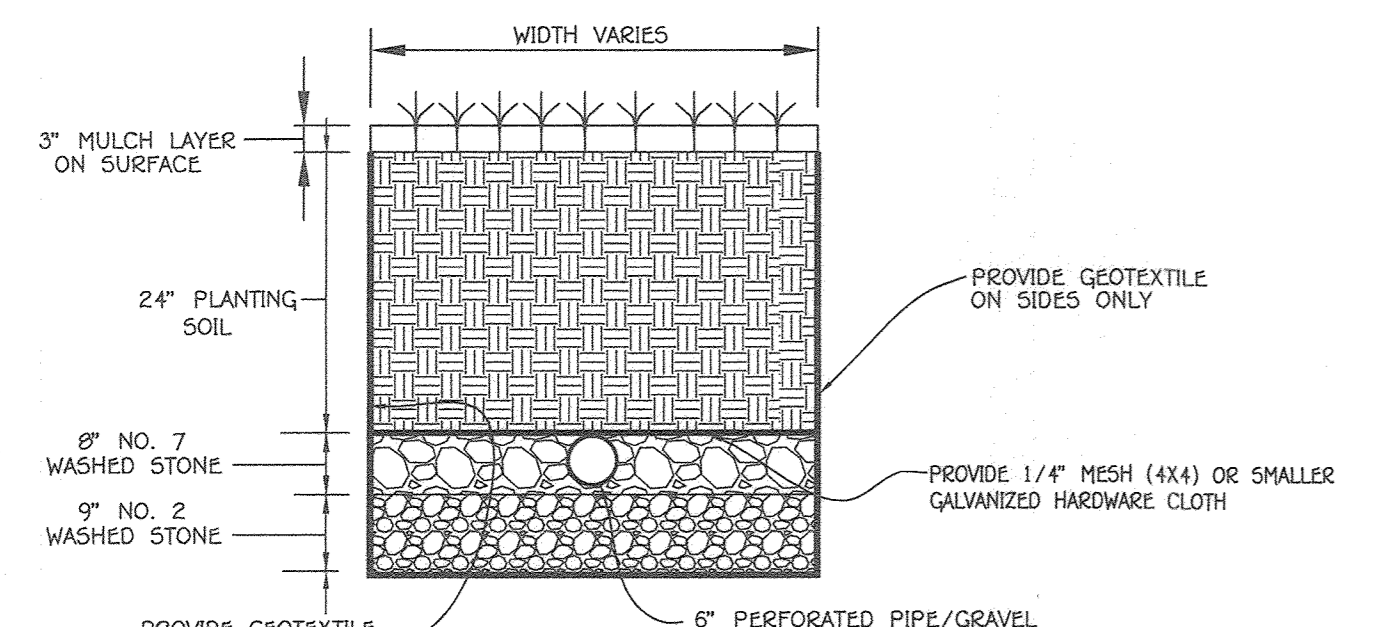
NOTE: EACH DOWNSPOUT THAT IS CONNECTED TO THE OCTANKS SHALL HAVE AN OVERFLOW AND HAVE AN GUTTER DRAIN FILTER.

#### STORMWATER MANAGEMENT NOTES

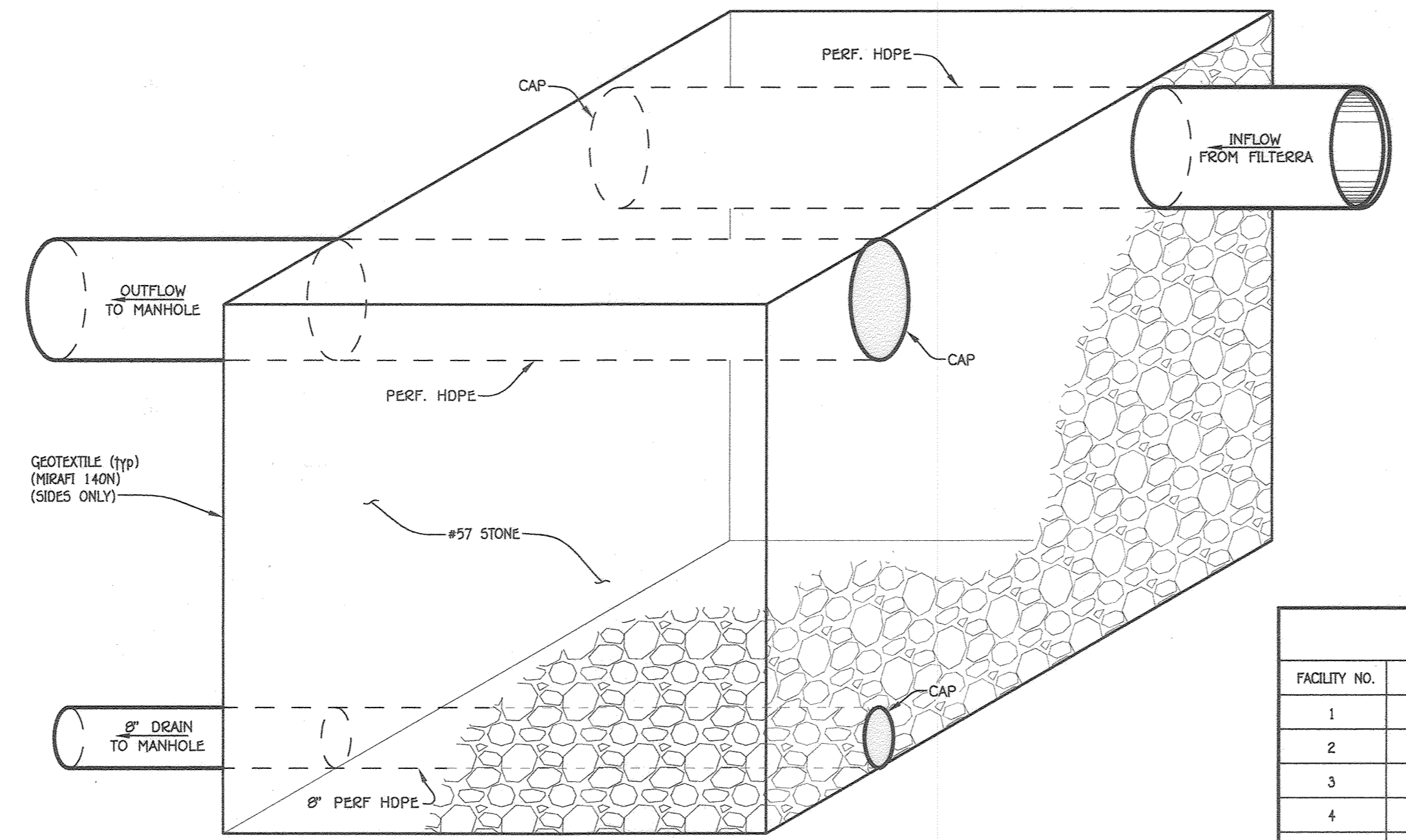
- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5% THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
- FINAL GRADING IS SHOWN ON THIS SITE DEVELOPMENT PLAN.

#### DESIGN GUIDELINES FOR USING FILTERRA

- Do not place in a sump condition. The standard Filterra® cannot be used as a stand alone inlet - it will need effective bypass during higher intensity rainfall events. For sump conditions please contact Filterra®.
- Plans MUST show Filterra® Top Curb (TC) and Flow Line (FL) spot elevations and also bypass TC (where applicable) and bypass FL spot elevations. The Filterra® TC and FL elevations MUST be higher than the bypass TC and FL elevations for effective bypass. Use Drawing FLP-2 (p.24) as a detail on the project plans.
- For proper trash collection ensure a minimum 4" and maximum 6" Filterra® throat opening depth and use Drawing CGT-5 (p.25) as a detail on the project plans.
- Do not direct surface flow to the standard Filterra® in a "head-on" configuration. Refer to Guidelines G11-A (p.13) and G12 (p.18) for grading design that encourages flow to enter a Filterra® in a cross linear flow - left-to-right or right-to-left in the gutter in front of the throat, as per a wet curb which prevents system damage. During extreme storm events the excess flow should continue past the Filterra® to a bypass inlet or other means of relief. Guideline G15, Parking Lot Corners, shows common applications (p.19).
- To calculate which size Filterra® is required, use Table 1, Filterra® Quick Sizing Table, appropriate to the project's geographical region and target treatment regime (p.12). The entire contributing drainage area to the Filterra® should be considered and the minimum allowable C factors noted. The maximum contributing drainage area will vary with site conditions. For further information relating to sizing please contact Filterra®.
- To ensure correct installation, include the standard Filterra® Plan Notes (p.26-27) on your Filterra® detail project sheet, as well as detailed drawings FLP-2 and CGT-5 (p.24,25).
- Positive drainage of each Filterra® unit's effluent treatment pipe is required to prevent free standing water from accumulating in the system or underdrain. This could occur due to tidal influences or improper connection of Filterra®'s effluent pipe to a bypass structure or other outlet.



TYPICAL SECTION - BIO-RETENTION FACILITY (M-6) NO SCALE



TYPICAL SECTION - RECHARGE CHAMBER NOT TO SCALE

FACILITY NO.	LENGTH	WIDTH	HEIGHT	STORAGE VOLUME INCL. 40% Voids	ESOV VOLUME CREATED	TOP ELEV.	BOTTOM ELEV. & 8" DRAIN INV.	15" DRAIN INV.
1	32'	25'	7'	2,240 CF	1,981 CF	CALCULATED AT SITE PLAN STAGE		
2	32'	25'	7'	2,240 CF	2,200 CF	CALCULATED AT SITE PLAN STAGE		
3	32'	25'	5'	1,600 CF	1,589 CF	CALCULATED AT SITE PLAN STAGE		
4	29'	25'	7'	2,030 CF	2,012 CF	CALCULATED AT SITE PLAN STAGE		
5	38'	25'	7'	2,660 CF	2,397 CF	CALCULATED AT SITE PLAN STAGE		
6	38'	25'	5'	1,900 CF	1,871 CF	CALCULATED AT SITE PLAN STAGE		
7	29'	30'	7'	2,436 CF	2,391 CF	CALCULATED AT SITE PLAN STAGE		

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT, DATE: 10-27-22

CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE: 10-27-22

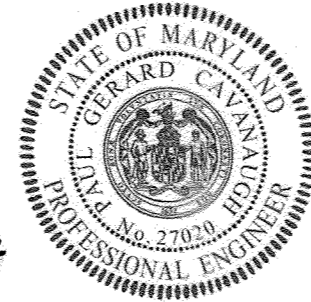
FISHER, COLLINS & CARTER, INC.  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2000

Owner/Developer  
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 9970 MAIER PLACE  
 LAUREL, MARYLAND 20723  
 Attn: ANTONIO ROMANO, PRESIDENT  
 Tele: (301)-362-0090  
 Fax: (301)-362-8881

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. 2020, EXPIRATION DATE: 01/25/24.

PAUL G. CAVANAUGH, DATE: 10/27/22



SWM DETAIL SHEET  
 ROMANO CONSTRUCTION  
 A.C. MILLER PROPERTY  
 PARCEL B  
 PLAT NO. 16329 F-02-010  
 8970 MAIER PLACE, LAUREL, MD. 20725  
 Zone: M-2  
 Tax Map No.: 47 Grid No.: 23 Parcel No.: 540  
 Sixth Election District Howard County, Maryland  
 Scale: As Shown  
 Date: October 5, 2022  
 Sheet 2 of 6



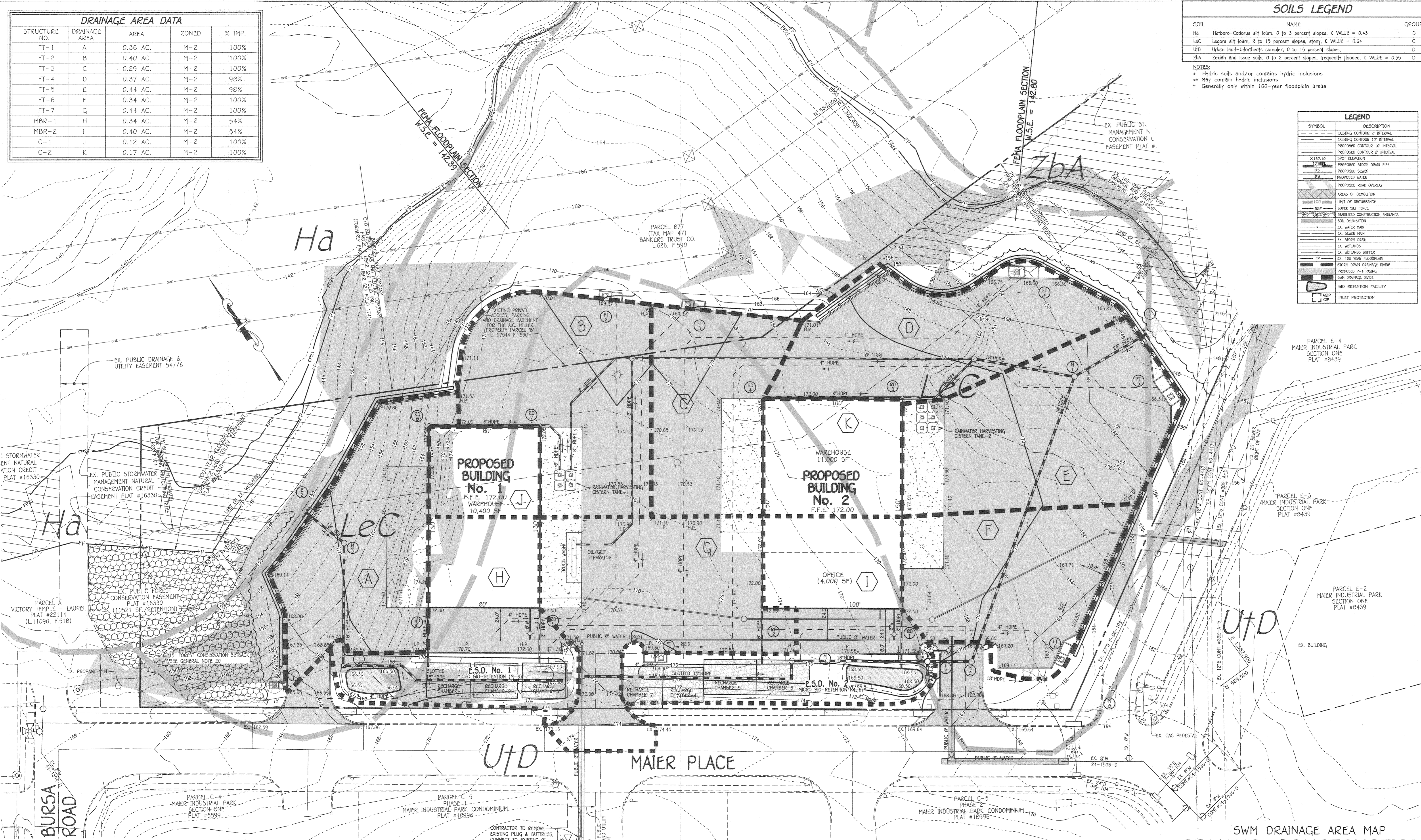
**SOILS LEGEND**

SOIL	NAME	GROUP
Ha	Hatboro-Codorus silt loam, 0 to 3 percent slopes, K VALUE = 0.43	D
LaC	Legore silt loam, 8 to 15 percent slopes, stony, K VALUE = 0.64	C
U1D	Urban land-Udorthents complex, 0 to 15 percent slopes,	D
ZbA	Zeliah and Issue soils, 0 to 2 percent slopes, frequently flooded, K VALUE = 0.55	D

NOTES:  
 \* Hydric soils and/or contains hydric inclusions  
 \*\* May contain hydric inclusions  
 † Generally only within 100-year floodplain areas

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
x 167.10	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	PROPOSED ROAD OVERLAY
---	AREAS OF DEMOLITION
---	LIMIT OF DISTURBANCE
---	SUPER SALT FENCE
---	SOIL DEMOLITION
---	STABILIZED CONSTRUCTION ENTRANCE
---	EX. WATER MAIN
---	EX. SEWER MAIN
---	EX. STORM DRAIN
---	EX. WETLANDS
---	EX. WETLANDS BUFFER
---	EX. 100 YEAR FLOODPLAIN
---	STORM DRAIN DRAINAGE DIVIDE
---	PROPOSED P-1 PAVING
---	SWH DRAINAGE DIVIDE
---	BIO RETENTION FACILITY
---	AGP
---	INLET PROTECTION

DRAINAGE AREA DATA				
STRUCTURE NO.	DRAINAGE AREA	AREA	ZONED	% IMP.
FT-1	A	0.36 AC.	M-2	100%
FT-2	B	0.40 AC.	M-2	100%
FT-3	C	0.29 AC.	M-2	100%
FT-4	D	0.37 AC.	M-2	98%
FT-5	E	0.44 AC.	M-2	98%
FT-6	F	0.34 AC.	M-2	100%
FT-7	G	0.44 AC.	M-2	100%
MBR-1	H	0.34 AC.	M-2	54%
MBR-2	I	0.40 AC.	M-2	54%
C-1	J	0.12 AC.	M-2	100%
C-2	K	0.17 AC.	M-2	100%

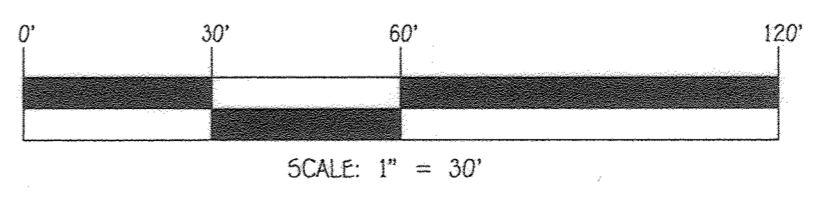


APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 10/24/22  
 DATE: 10-27-22

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
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 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2000

Owner/Developer  
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 8970 MAIER PLACE  
 LAUREL, MARYLAND 20723  
 ATTN: ANTONIO ROMANO, PRESIDENT  
 Tele: (301)-362-0290  
 Fax: (301)-362-0801

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 PAUL G. CAVANAUGH  
 DATE: 10/27/22



SWM DRAINAGE AREA MAP  
**ROMANO CONSTRUCTION**  
 A.C. MILLER PROPERTY  
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