

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	DEMO PLAN
3	ENVIRONMENTAL CONCEPT PLAN
4	EROSION AND SEDIMENT CONTROL PLAN

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
 Chief, Division of Land Development
 3-11-22
 DATE

ENVIRONMENTAL CONCEPT PLAN

MITCHELL GREENS

LOT 1 THROUGH 8 AND
 OPEN SPACE LOT 9 & 10

TAX MAP No. 25 GRID No. 13 PARCEL NO. 134 & 235

STORMWATER MANAGEMENT PRACTICES			
LOT/PARCEL No.	MICRO BIO-RETENTION M-6 (NUMBER)	FILTERED INLET M-6 (NUMBER)	DRY WELLS M-5 (NUMBER)
1	NO	NO	YES (2)
2	NO	NO	YES (2)
3	NO	NO	YES (2)
4	NO	NO	YES (2)
5	NO	NO	YES (2)
6	NO	NO	YES (2)
7	NO	NO	YES (2)
8	NO	NO	YES (4)
O.S. 9	YES (2)	NO	NO
O.S. 10	YES (1)	NO	NO
ALONG DRIVEWAY	NO	YES (2)	NO

DESIGN NARRATIVE

INTRODUCTION:
 THIS REPORT WILL DEMONSTRATE HOW THE CRITERIA SET FORTH IN THE MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I AND II (EFFECTIVE OCTOBER 2000, REVISED MAY 2009) WILL BE SATISFIED ON THIS PROJECT. THE GOAL OF CREATING HYDROLOGY SIMILAR TO THAT OF "WOODS IN GOOD CONDITION" WILL BE ACCOMPLISHED THROUGH THE USE OF THE PRACTICES CONTAINED WITHIN CHAPTER 5 OF SAID MANUAL. THE ACHIEVEMENT OF THIS GOAL WILL REMOVE THE REQUIREMENT OF PROVIDING CHANNEL PROTECTION VOLUME.

GENERAL SITE CONDITIONS:
 THIS PROPERTY IS LOCATED ON TAX MAP #25, GRID #13, PARCEL NO'S. 134 & 235. IT IS MADE UP OF TWO PARCELS AS SHOWN. THE FIRST PARCEL HAS A DEED REFERENCE OF L18199, F.00398 AND THE ADJACENT PARCEL LOCATED TO THE REAR IS LOCATED WITH A DEED REFERENCE OF L17065, F.00278. THE ADDRESS OF THE FIRST PARCEL IS 3956 OLD COLUMBIA PIKE AND CONTAINS 1.04 AC.+. THE ADDRESS OF THE SECOND PARCEL IS 3958 OLD COLUMBIA PIKE AND CONTAINS 4.284 AC.+. THE PROPOSED HOUSE WILL BE SERVED BY PUBLIC WATER AND PUBLIC SEWER. THE RUNOFF FROM THE LOT IS MOSTLY FROM EAST TO WEST, WITH SAID RUNOFF GOING TOWARDS AN UNNAMED TRIBUTARY TO THE TIBER BRANCH LOCATED IN THE CENTER OF THE PROPERTY. MICRO BIO-RETENTION AND DRYWELLS WILL BE UTILIZED TO TREAT THE ROOFTOP. THE PROPOSED DRIVEWAY WILL BE TREATED BY SEVERAL MICRO BIO-RETENTION FACILITIES. PER THE 2004 WEB SOIL SURVEY, SOILS ON-SITE CONSIST OF "GBC" GLAUSTONE LOAM, "GFC" GLAUSTONE URBAN LAND, "MGP" MANOR - BANNERTOWN SANDY LOAM ALL TYPE B SOIL. IN ADDITION, THERE IS ANOTHER SOIL "GMC" GLENVILLE SILT LOAM WHICH IS A TYPE C SOIL.

I. NATURAL RESOURCE PROTECTION:
 ENVIRONMENTALLY SENSITIVE FEATURES SUCH AS A STREAM AND ITS BUFFER, WETLANDS AND THEIR BUFFERS DO EXIST ON-SITE. HOWEVER, THESE ARE NO AREAS OF FLOODPLAIN LOCATED ON THIS PROPERTY. ALTERNATIVE COMPLIANCE HAS BEEN REQUESTED FOR THE CONSTRUCTION OF THE USE-IN-COMMON DRIVEWAY WITHIN THE STREAM BUFFER. STREAM, WETLANDS, AND WETLAND BUFFERS WILL HAVE SUPER SILT FENCE PROVIDED TO PROTECT THEM DURING CONSTRUCTION.

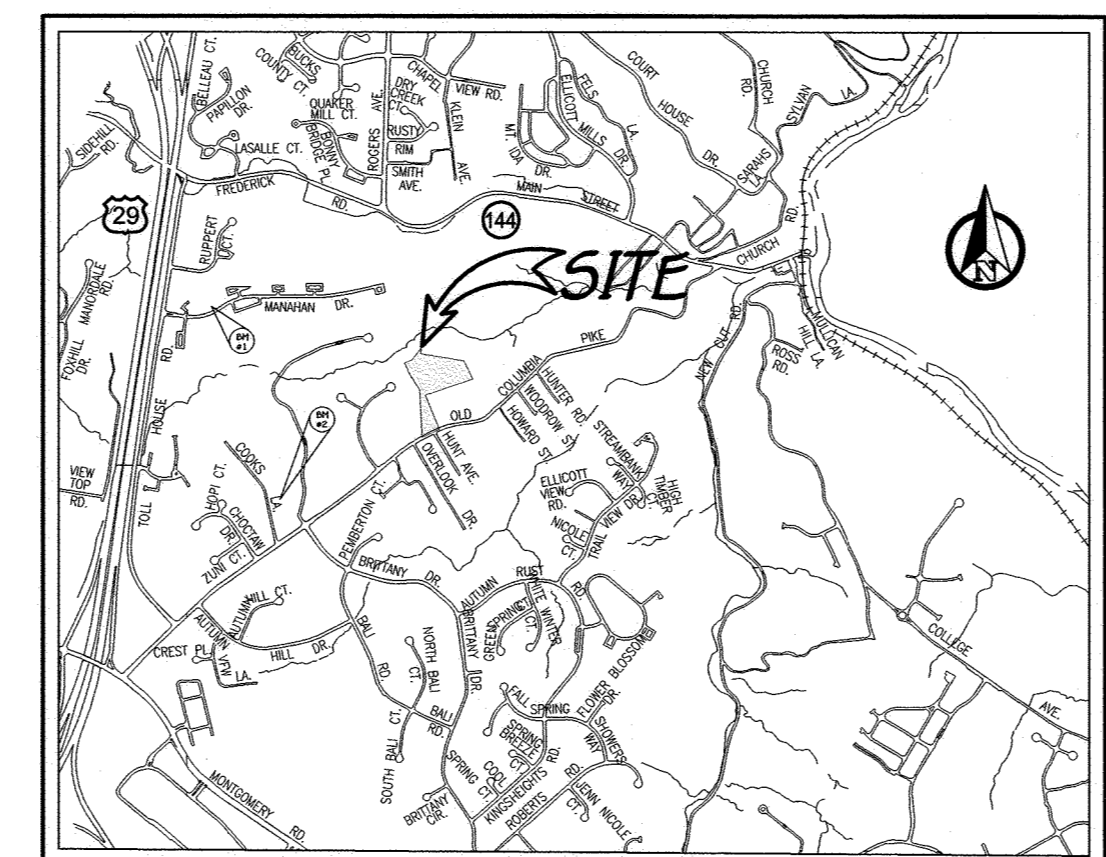
II. MAINTENANCE OF NATURAL FLOW PATTERNS:
 NATURAL FLOW PATTERNS WILL BE MAINTAINED. EXISTING AND PROPOSED RUNOFF FLOWS MOSTLY TOWARD THE EAST AND SOUTHEAST PORTION OF THE SITE.

III. REDUCTION OF IMPERVIOUS AREAS THROUGH BETTER SITE DESIGN, ALTERNATIVE SURFACES AND NONSTRUCTURAL PRACTICES
 A PRIVATE ACCESS DRIVEWAY WILL BE LOCATED TO SERVE THIS SITE. THE ACCESS DRIVEWAY WILL BE 22' WIDE TO COMPLY WITH TODAY'S STANDARDS AND SPECIFICATIONS. CURRENTLY, A 14'-16' DRIVEWAY IS LOCATED AT THE SITE. THE PROPOSED WIDENING WILL TAKE PLACE ON THE EAST SIDE OF THE ROAD.

IV. INTEGRATION OF EROSION AND SEDIMENT CONTROLS INTO STORMWATER STRATEGY:
 SILT FENCE AND SUPER SILT FENCE WILL BE UTILIZED TO PROVIDE EROSION AND SEDIMENT CONTROL BECAUSE THE MAJORITY OF THE SITE IS SPREAD OUT.

V. IMPLEMENTATION OF ASD PLANNING TECHNIQUES AND PRACTICES TO THE MAXIMUM EXTENT PRACTICABLE (MEP)
 THE FULL ACQUIRED VOLUME IS BEING PROVIDED ALONG WITH 100-YEAR AND THE 3-56-HOUR 6.6 INCH EVENT MANAGEMENT. SINCE THIS PROPERTY IS LOCATED WITHIN THE ELLICOTT CITY WATERSHED, WATER QUALITY AND QUANTITY MANAGEMENT IS BEING PROVIDED BY THREE MICRO BIO-RETENTION FACILITIES, TWO FILTERED INLET BIO-RETENTION FACILITIES & ON LOT DRY WELLS.

VI. REQUEST FOR A DESIGN MANUAL WAIVER:
 NO WAIVERS RELATED TO STORMWATER MANAGEMENT ARE REQUIRED. ALTERNATIVE COMPLIANCE IS BEING REQUESTED AT SKETCH PLAN FOR GRADING WITHIN STREAM AND WETLAND BUFFERS TO IMPROVE AN EXISTING DRIVEWAY CROSSING. IN ADDITION, THE PROPERTY IS SUBJECT TO HO. CO. CAPITAL PROJECT FOR STREAM ENHANCEMENT AND FLOOD CONTROL MEASURES BY GREENVEST, LLC. SINCE AN ALT. COMPLIANCE FOR ENVIRONMENTAL ISSUES WILL BE REQUESTED AT THE NEXT PLAN REVIEW, AN ADDITIONAL 10% OF QUANTITY MANAGEMENT HAS BEEN PROVIDED.

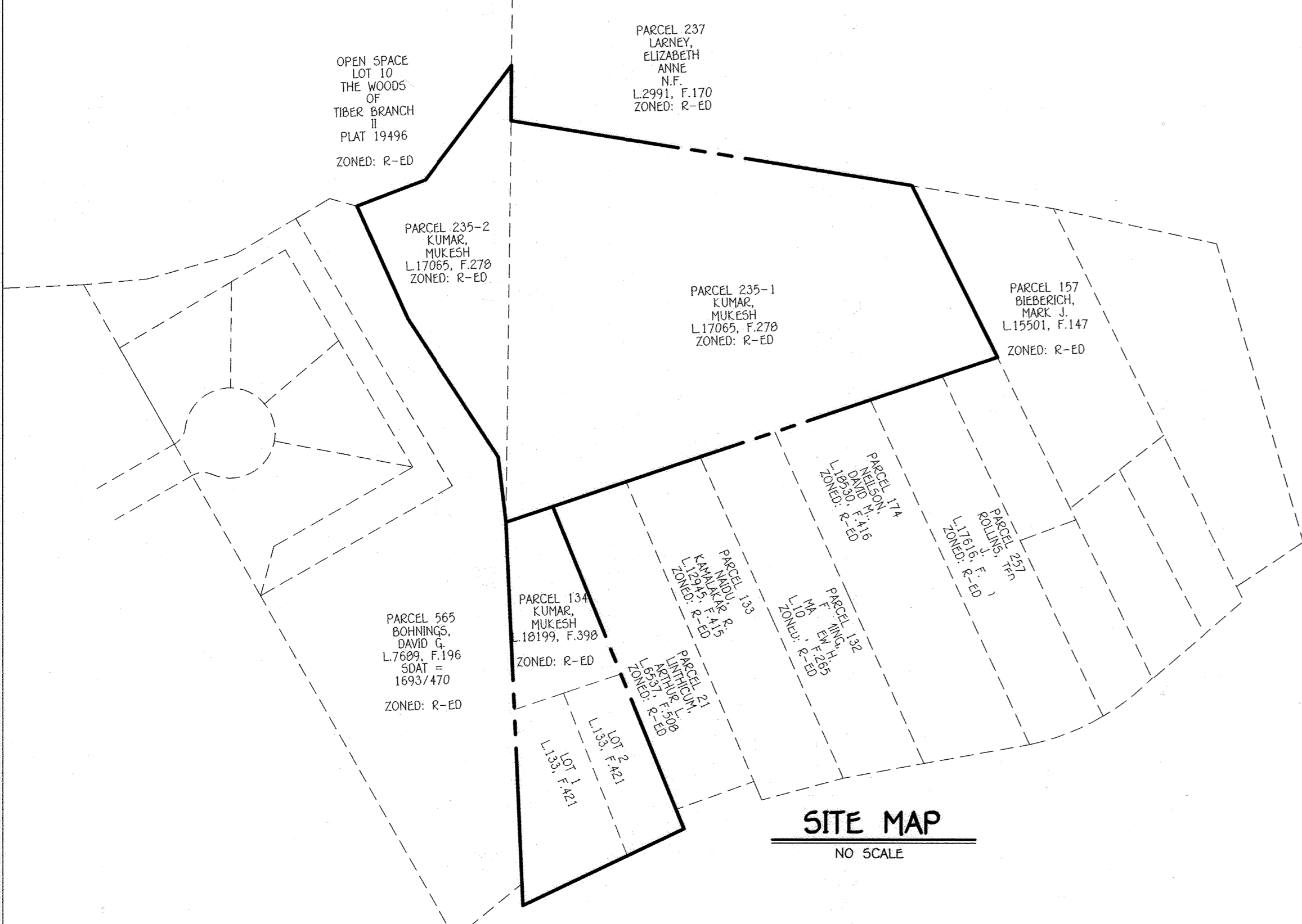


BENCHMARK DATA

COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS NO.24FB AND NO.2413

BENCHMARK #1 - NO.24FB
 N 582,652.119 ELEV. = 422.49
 E 1,364,255.979

BENCHMARK #2 - NO.2413
 N 580,648.901 ELEV. = 403.70
 E 1,364,974.507



SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GENERAL NOTES

- 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 WORK.
- THE CONTRACTOR SHALL NOTIFY (MISS UTILITY) AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- BOUNDARY SHOWN HEREON IS BASED ON FIELD RUN MONUMENT BOUNDARY SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED JUNE, 2018. TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. IN MAY 2018 AND SUPPLEMENTED WITH HOWARD COUNTY GIS TOPOGRAPHY AT 5' CONTOUR INTERVAL INTERPOLATED FOR 2' CONTOUR INTERVAL.
- 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. 17HA AND 17ID WERE USED FOR THIS PROJECT.
- PREVIOUS DEP FILE NUMBERS: PLAT BOOK 5, PAGE 19; D-1198, WP-21-014.
- STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. NON-STRUCTURAL PRACTICES IN ACCORDANCE WITH CHAPTER 5 ARE BEING UTILIZED. THE SWM FOR THE PROPOSED HOMES ARE BEING PROVIDED BY DRY WELLS AND THE ROAD SURFACE SWM IS BEING PROVIDED BY MICRO-BIORETENTIONS FACILITIES.
- THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. LOTS TO BE SERVED PUBLIC WATER AND PUBLIC SEWER, CONTRACT #11-W & #32-5.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-ED (PER DATE 10/06/2013 COMPREHENSIVE ZONING PLAN).
- STEEP SLOPES EXIST ON-SITE WITH THE AREA OF 1.30 ACRES. HOWEVER THE SITE DOES NOT CONTAIN 100-YEAR FLOODPLAIN, BUT THERE ARE WETLANDS AND A UNNAMED TRIBUTARY TO THE TIBER BRANCH THAT HAS ASSOCIATED STREAM BUFFERS SHOWN.
- A SOIL BORING WILL BE REQUIRED FOR THIS PROJECT SINCE DRYWELLS AND A MICRO-BIORETENTIONS FACILITIES IS BEING UTILIZED.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT SUBDIVISION, FOREST CONSERVATION, OR SITE DEVELOPMENT PLANS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED COMMENTS THAT MAY ALTER THE SITE DESIGN, HOUSE LOCATION, DRIVEWAY LOCATION, GRADING, TREE CLEARING, AND/OR OTHER REQUIREMENTS AS THE DEVELOPMENT PLAN PROGRESSES THROUGH THE PLAN REVIEW PROCESS IN ACCORDANCE WITH THE SUBDIVISION AND ZONING REGULATIONS AND THE FOREST CONSERVATION REQUIREMENTS. IN ADDITION, THE SP PHASE WILL REQUIRE A SCENIC ROAD STUDY FOR THIS PORTION OF OLD COLUMBIA PIKE.
- APPROVAL OF THIS ECP BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT PROVIDE APPROVAL OF THE SHOWN SEDIMENT CONTROLS.
- A SMALL SHED EXISTS ON THE PROPERTY AND WILL BE REMOVED.
- SOILS SHOWN HEREON ARE BASED ON THE NRCS WEBSOIL SURVEY AND HOWARD COUNTY SOIL MAP #13.
- NO HISTORICAL FEATURES OR CEMETERIES ARE ON SITE.

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 5.65 AC.+
- LIMIT OF DISTURBED AREA = 113,256 S.F. OR 2.60 AC.
- PRESENT ZONING DESIGNATION = R-ED (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: N/A
- TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC.+
- TOTAL AREA OF STEEP SLOPES:
 MODERATED STEEP SLOPES: 15%-24.9% = 2.07 AC.
 STEEP SLOPES: 25% OR GREATER = 1.30 AC.+
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.25 AC.+
- TOTAL AREA OF STREAM (INCLUDING BUFFER) = 2.14 AC.+
- TOTAL AREA OF EXISTING FOREST = 2.20 AC.+
- TOTAL AREA OF FOREST TO BE RETAINED = 2.15 AC. (IN EASEMENT)
- TOTAL AREA OF LOTS / BUILDABLE PARCELS = 2.26 AC.+
- TOTAL GREEN OPEN AREA = 3.26 AC.+
- TOTAL IMPERVIOUS AREA = 0.65 AC.+
- TOTAL AREA OF ERODIBLE SOILS = 0.49 AC.+
- TOTAL AREA OF ROAD DEDICATION = 0.13 AC.+

THE MAXIMUM DRAINAGE AREA TO THE PROPERTY LINE IS 16.32 AC. + AND IS NOT CONSIDERED A 100-YEAR FLOODPLAIN.

Mitchell's Green - 100-Year and Ellicott City Storms - Summary									
DRAINAGE AREA DESIGNATION	Area (Acres)	AREA (Sq Miles)	RCN	TTC (hrs)	TTC (0 cfs)	ELICOTT CITY FLOOD Q (cfs)	100-Yr. WSE	ELICOTT CITY FLOOD WSE	REMARKS
A-ex	0.59	0.000922	55	0.14	1.8	2.62	---	---	Reflects Woods in Good Cond.
B-ex	0.72	0.001125	55	0.12	2.32	3.29	---	---	Reflects Woods in Good Cond.
C-ex	0.93	0.001453	57	0.10	3.37	4.69	---	---	Reflects Woods in Good Cond.
D-ex	0.26	0.000408	65	0.16	1.08	1.69	---	---	Reflects Woods in Good Cond.
Total Existing	2.38	---	---	---	8.47	12.27	---	---	Total Ex. Via Aditly
A-1-Pr	0.32	0.00053	74	0.13	1.9	2.97	---	---	Prop. A-1 Inflow
A-1-BIO#1	---	---	---	---	0.5	0.58	308.53	309.04	DW+ Micro Bio #1 Outflow
A-2-Pr	0.53	0.00083	72	0.13	2.71	4.40	---	---	Prop. A-2 Inflow
A-2-BIO#2	---	---	---	---	0.56	0.76	300.95	301.11	DW+ Micro Bio #2 Outflow
A-3-Pr	0.10	0.00016	74	0.10	0.47	0.78	---	---	Lot 8 Drywells
Sub total "A"	0.95	---	---	---	1.93	2.12	---	---	Drywells Lots 2 & 3
B-Prop	0.42	0.00066	76	0.10	2.07	2.81	---	---	---
C-1-Pr	0.85	0.00102	71	0.10	3.45	5.55	---	---	Prop. C-1 Inflow
C-1-BIO#3	---	---	---	---	1.22	1.66	314.35	314.66	DW+ BIO#3 Outflow
C-2-Pr	0.40	0.00063	75	0.1	1.85	2.5	---	---	Fillers Inters
Sub total "C"	1.25	---	---	---	3.97	4.88	---	---	---
D-Prop	0.27	0.00043	66	0.17	1.00	1.03	---	---	Ex Home on Lot 8
TOTAL PROPOSED	---	---	---	---	7.67	10.12	---	---	Total Proposed
Overall Decrease Bx. To Proposed SWM	---	---	---	---	10%	21%	---	---	Overall % Decrease

STORMWATER MANAGEMENT INFORMATION							
Lot No.	Facility Name & Number	Practice Type (Quantity)	Public	Private	HOA Maintained	Homeowner Maintained	Remarks
1	DRYWELL #1 & #2	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
2	DRYWELL #3 & #4	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
3	DRYWELL #5 & #6	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
4	DRYWELL #7 & #8	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
5	DRYWELL #9 & #10	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
6	DRYWELL #11 & #12	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
7	DRYWELL #13 & #14	(M-5) - 2 Ea.	---	X	---	---	X DRYWELLS
8	DRYWELL #15 - #18	(M-5) - 4 Ea.	---	X	---	---	X DRYWELLS
O.S. 9	ESD #1 & #2	(M-6) - 2 Ea.	---	X	---	---	MICRO BIO-RETENTION
O.S. 10	ESD #3	(M-6) - 1 Ea.	---	X	---	---	MICRO BIO-RETENTION
ALONG DRIVEWAY	FI #1 & #2	(M-6) - 2 Ea.	---	X	X	---	FILTERED INLETS

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
---	STABILIZED CONSTRUCTION ENTRANCE
---	LOD
---	SUPER SILT FENCE
---	LINE OF DISTURBANCE
---	PROP. LIMIT OF CLEARING
---	EX. LIMIT OF TREES AND FOREST
---	EXISTING TREES
---	EX. PAVING
---	AREAS TO BE DEMOLISHED
---	FOREST CONSERVATION AREA
---	STEEP SLOPE 15% TO 24.9%
---	STEEP SLOPE 25% OR GREATER
---	CRITICAL ROOT ZONE
---	SPECIMEN TREE TO BE REMOVED



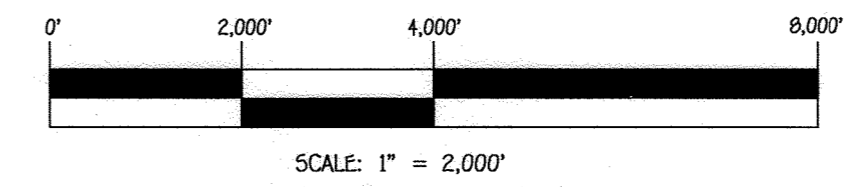
PROFESSIONAL CERTIFICATION

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. 20748, EXPIRATION DATE: 2/22/2025.

Michael J. Williams
 SIGNATURE OF PROFESSIONAL ENGINEER
 1/11/22
 DATE

STORMWATER MANAGEMENT NOTES

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH 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.



OWNER/DEVELOPER

MUKESH KUMAR & AGILA SUNDARAM
 3958 OLD COLUMBIA PIKE
 ELLICOTT CITY, MARYLAND 21043
 513-293-0599

TITLE SHEET
MITCHELL GREENS
 LOTS 1-8 & OPEN SPACE LOTS 9 & 10
 ZONED: R-ED
 TAX MAP NO.: 25 GRID NO.: 13 PARCEL NO.: 134 & 235
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: JANUARY 11, 2022
 SHEET 1 OF 4

SOILS LEGEND			
SOIL	NAME	CLASS	K FACTOR
QbC	Gladstone loam, 0 to 15 percent slope	B	.32
QcC	Gladstone-Urban land complex, 0 to 15 percent slope	B	--
GmC	Glenville silt loam, 0 to 15 percent slope	C	.49
MgD	Mānor-Bānneretown sandy loam, 15 to 25 percent slope, rocky	B	.24
Soil Map Number: 13 (Ellicott City, SW)			

Specimen Tree Chart				
Key (X#)	Species	Size (in. dbh)	CRZ (feet radius)	Comments
1	American beech	40.5	60.75	Fair, cavities present in tree
2	Black walnut	31.5	47.25	Good, crz impacted by existing site feature
3	Silver maple	37.5	56.25	Poor, notable trunk rot
4	Silver maple	38.5	57.75	Poor, notable trunk rot
5	Silver maple	39	58.5	Fair, some dieback in crown
6	Black walnut	31	46.5	Good
7	Tulip poplar	57	85.5	Poor, major trunk rot
8	Green ash	35	52.5	Very poor/dead, borer damage
9	Green ash	37.5	56.25	Very poor/dead, borer damage
10	Tulip poplar	35	52.5	Good
11	Silver maple	58	87	Very poor, major rot, one main trunk dead and broken
12	White pine	30	45	Good
13	Silver maple	56	84	Fair, trunk rot noted
14	Norway Spruce	37	55.5	Good
15	Silver maple	36	54	Fair, some dieback
16	Red Oak	32.5	48.75	Poor, Substantial Dieback
17	Black walnut	38.5	57.75	Very Poor

LEGEND	
SYMBOL	DESCRIPTION
[Symbol]	EXISTING CONTOUR 2' INTERVAL
[Symbol]	PROPOSED CONTOUR 2' INTERVAL
[Symbol]	STABILIZED CONSTRUCTION CONTINUOUS
[Symbol]	SURFACE SILT FENCE
[Symbol]	LDO
[Symbol]	LIMIT OF DISTURBANCE
[Symbol]	PROP. LIMIT OF CLEARING
[Symbol]	EX. LIMIT OF TREES AND FOREST
[Symbol]	EXISTING TREES
[Symbol]	EX. PAVING
[Symbol]	AREAS TO BE DEMOLISHED
[Symbol]	FOREST CONSERVATION AREA
[Symbol]	STEEP SLOPE 15% TO 24.9%
[Symbol]	STEEP SLOPE OF 25% OR GREATER
[Symbol]	CRZ
[Symbol]	CRITICAL ROOT ZONE
[Symbol]	SPECIMEN TREE AND SPECIMEN TREE TO BE REMOVED

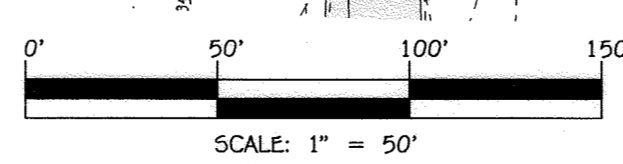


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[Signature]
SIGNATURE OF PROFESSIONAL ENGINEER DATE

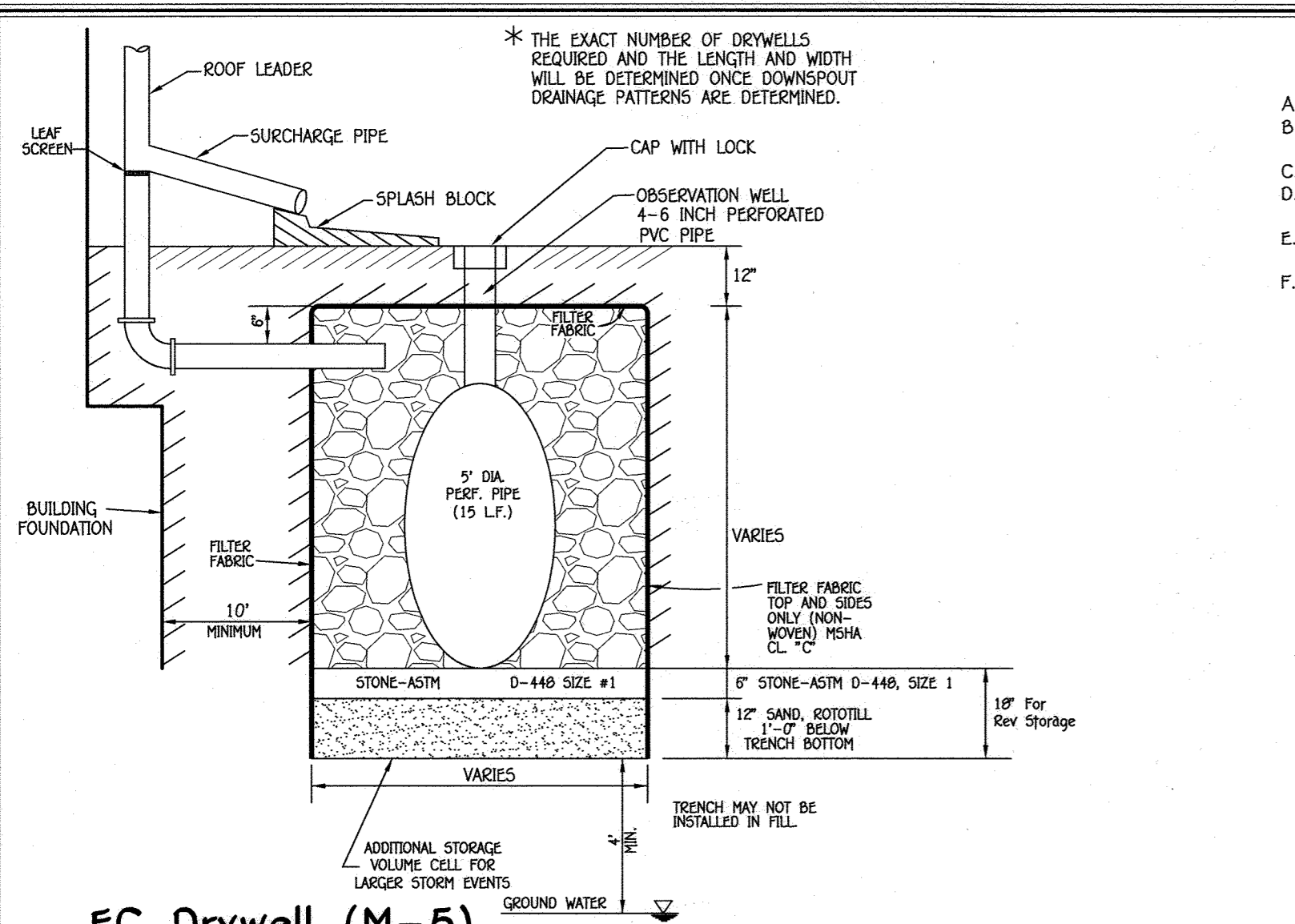
FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
ELICOTT CITY, MARYLAND 21042
(410) 461 - 2855



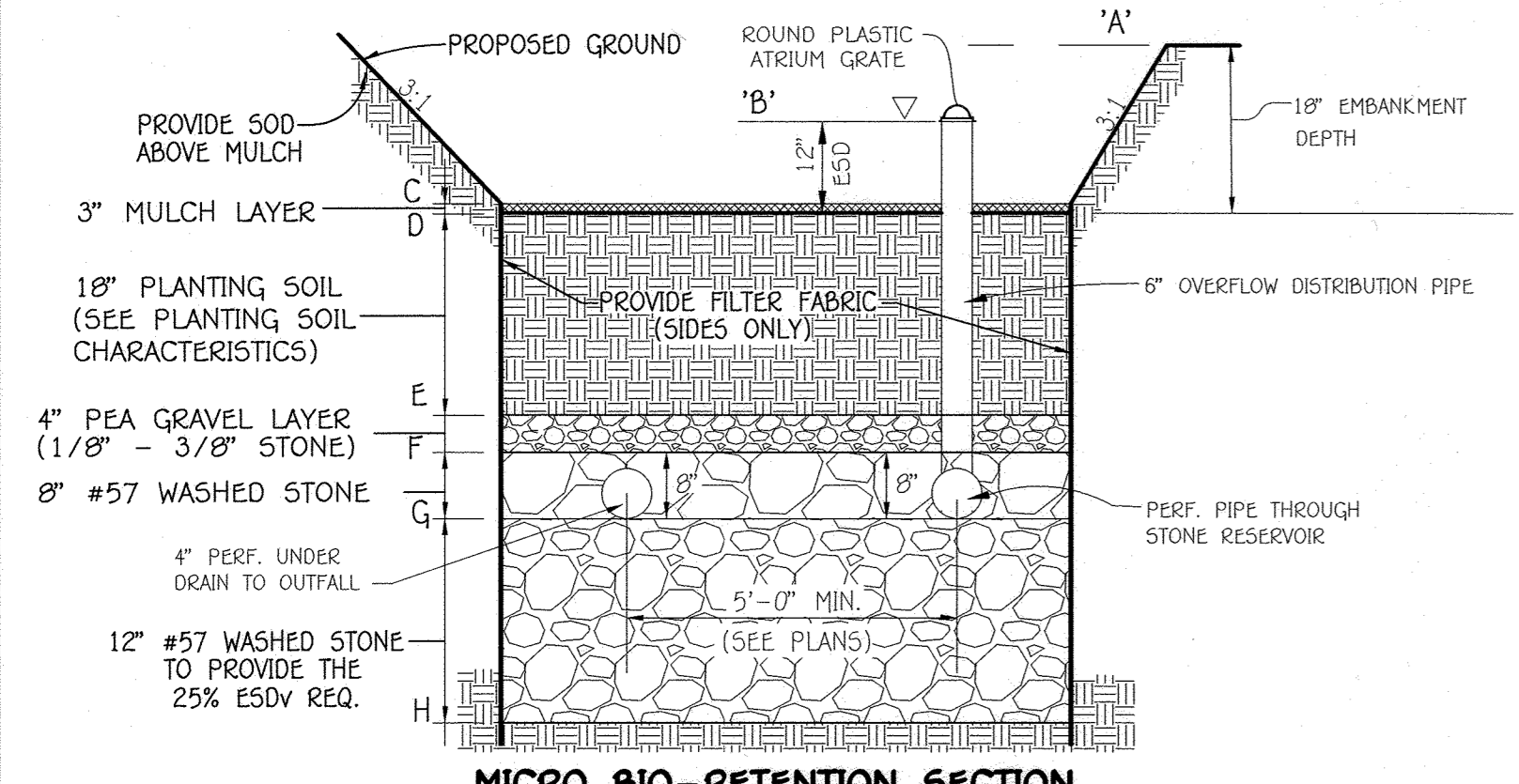
**DEMO PLAN
MITCHELL GREENS**
LOTS 1-B & OPEN SPACE LOTS 9 & 10
ZONED: R-ED

OWNER/DEVELOPER
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STAMP NO.: 25 GRID NO.: 13 PARCEL NO.: 134 & 235
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: A5 SHOWN DATE: JANUARY 11, 2022
SHEET 2 OF 4



EC Drywell (M-5)



MICRO BIO-RETENTION SECTION WITH 6\"/>

MICRO BIO-RETENTIONS								
MICRO-BIORETENTION FILTER	A	B	C	D	E	F	G	H
#1	310.00	311.00	309.00	308.75	307.25	306.92	306.25	305.25
#2	301.00	303.00	300.00	299.75	298.25	297.92	297.25	296.25
#3	314.00	313.00	312.25	312.00	310.50	310.17	309.50	308.50

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific.
Planting soil	loamy sand 60-70% compost 35-40% or sandy loam 50% compost and 50% compost 40%	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2914)	n/a	
Mulch	shredded hardwood	n/a	aged 6 months, minimum
Pea gravel/diaphragm	pea gravel: ASTM-D-448 (1/8" to 3/8")	No. 8 or No. 9 (1/8" to 3/8")	
Curbin drain	ornamental stone: washed cobble	stone: 2" to 5"	
Geotextile	n/a	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	ASTM M-43	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdrain piping	F 750, Type PS 20 or ASTM M-278	4" to 6" rigid schedule 40 PVC or SDR35	slotted or perforated pipe; 3/8" perft. @ 6" on center, 4 holes per row, minimum of 2" of gravel over pipe; not necessary underneath pipe. Perforated pipe shall be wrapped with 1/4 inch galvanized hardware cloth.
Found in place concrete (if required)	MSHA Mix No. 3; f = 3500 psi at 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 518e 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 308.4R9, vertical loading 1H-10 or H-20; allowable horizontal loading (based on soil pressures); and analysis of potential cracking.
Sand	ASTM M-6 or ASTM C-33	0.02" to 0.04"	Sand substitutions such as Dolomite and Graystone (ASTM) #10 are not acceptable. No calcium carbonate or dolomite sand substitutions are acceptable. No "rock dust" can be used for sand.

SYMBOL	DESCRIPTION
(---)	EXISTING CONTOUR 2' INTERVAL
(---)	PROPOSED CONTOUR 2' INTERVAL
(---)	STABILIZED CONSTRUCTION ENTRANCE
(---)	SURFER SILE FENCE
(---)	LIMIT OF DISTURBANCE
(---)	PROP. LIMIT OF CLEARING
(---)	EX. LIMIT OF TREES AND FOREST
(---)	EXISTING TREES
(---)	EX. PAVING
(---)	AREAS TO BE DEMOLISHED
(---)	FOREST CONSERVATION AREA
(---)	STEEP SLOPE 15% TO 24.9%
(---)	STEEP SLOPE OF 25% OR GREATER
(---)	CENTRAL ROOT ZONE
(---)	SPECIMEN TREE TO BE REMOVED

SOIL	NAME	CLASS
GbC	Gladstone loam, 0 to 15 percent slopes	B
GfC	Gladstone-Urban land complex, 0 to 15 percent slopes	B
GmC	Glenville silt loam, 0 to 15 percent slopes	C
MgD	Manor-Bannertown sandy loams, 15 to 25 percent slopes, rocky	B

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- THE OWNER SHALL INSPECT THE MONITORING WELLS AND STRUCTURES ON A QUARTERLY BASIS AND AFTER EVERY HEAVY STORM EVENT.
- THE OWNER SHALL RECORD THE WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS OVER A PERIOD OF SEVERAL DAYS TO ENSURE TRENCH DRAINAGE.
- THE OWNER SHALL MAINTAIN A LOG BOOK TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN A SEVENTY-TWO (72) HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

SOILS LEGEND

SOIL	NAME	CLASS
GbC	Gladstone loam, 0 to 15 percent slopes	B
GfC	Gladstone-Urban land complex, 0 to 15 percent slopes	B
GmC	Glenville silt loam, 0 to 15 percent slopes	C
MgD	Manor-Bannertown sandy loams, 15 to 25 percent slopes, rocky	B

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

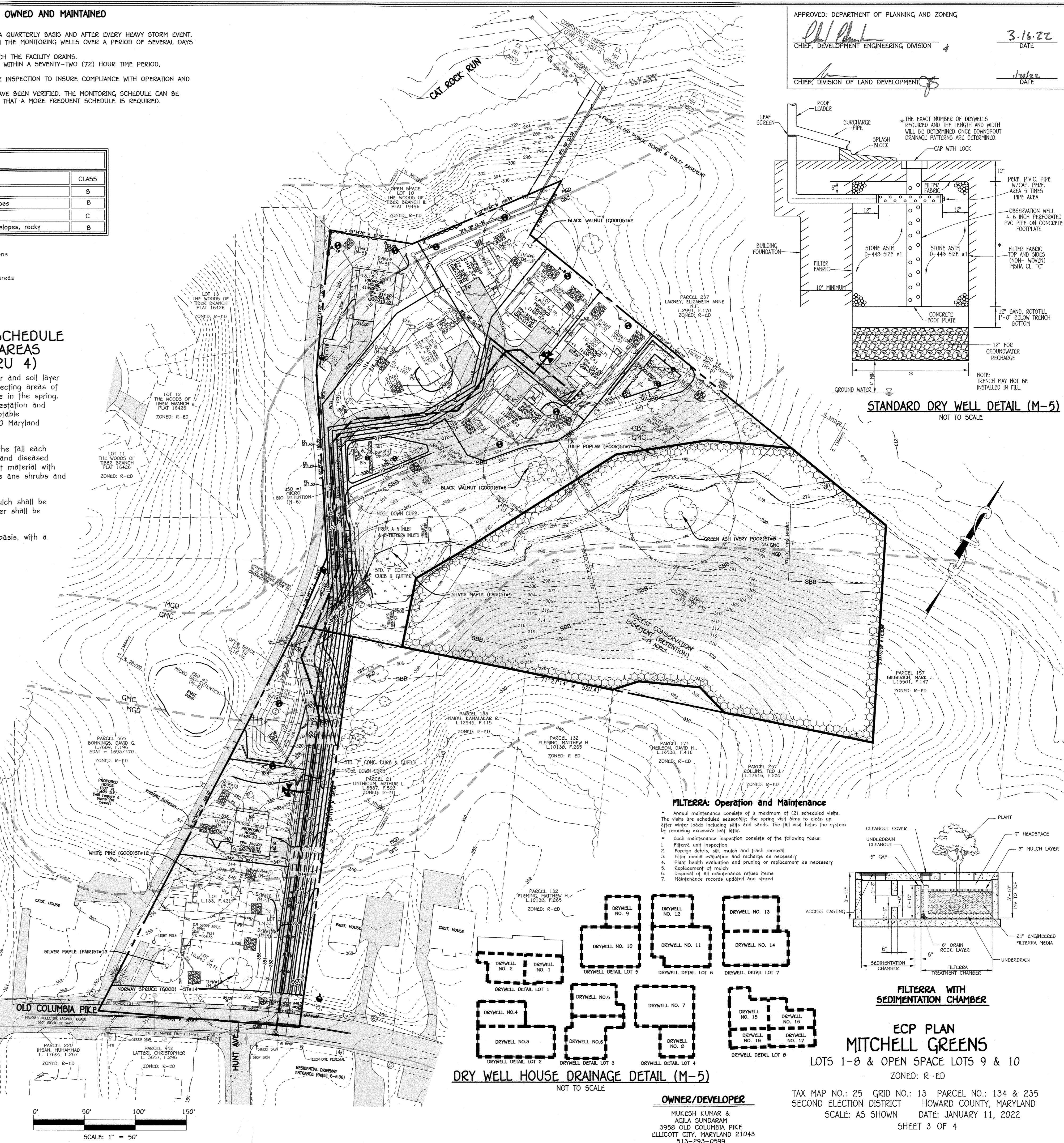
OPERATION AND MAINTENANCE SCHEDULE FOR MICRO BIO-RETENTION AREAS (M-6) (FACILITY Nos. 1 THRU 4)

- The owner shall maintain the plant material, mulch layer and soil layer annually, 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. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year; during the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

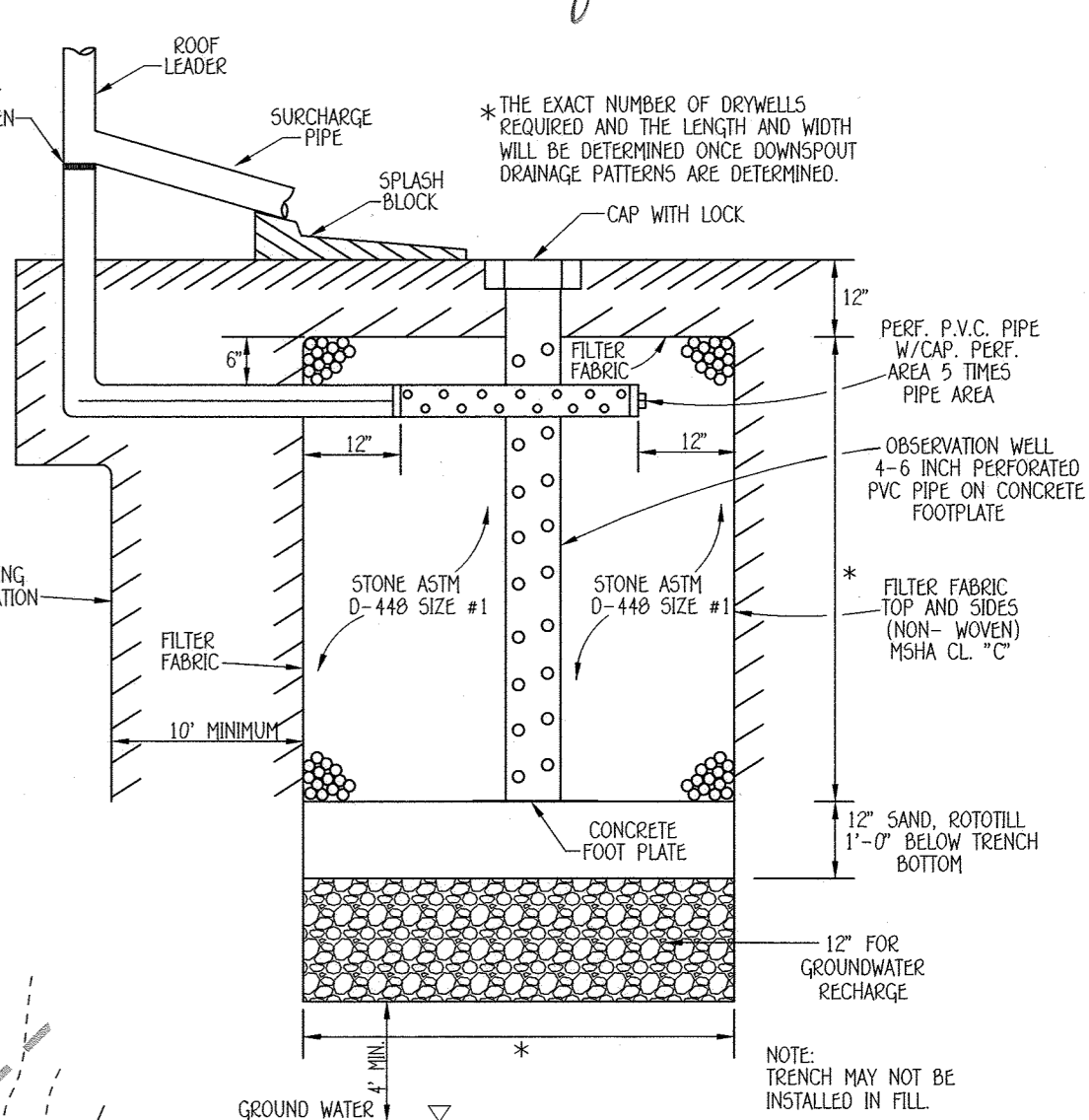
DRY WELL CHART

DRYWELL NO.	LOT NO.	TOTAL AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L	W	D	REMARKS
DW#1	LOT 1	400 Sq. Ft.	250 C.F.	264 C.F.	100%	11'	10'	6"	STD DRYWELL
DW#2	LOT 1	400 Sq. Ft.	250 C.F.	264 C.F.	100%	11'	10'	6"	STD DRYWELL
DW#3	LOT 2	750 Sq. Ft.	308 C.F.	313 C.F.	100%	7'	10'	7"	EC DRYWELL
DW#4	LOT 2	750 Sq. Ft.	308 C.F.	313 C.F.	100%	7'	10'	7"	EC DRYWELL
DW#5	LOT 3	750 Sq. Ft.	308 C.F.	313 C.F.	100%	7'	10'	7"	EC DRYWELL
DW#6	LOT 3	750 Sq. Ft.	308 C.F.	313 C.F.	100%	7'	10'	7"	EC DRYWELL
DW#7	LOT 4	750 Sq. Ft.	308 C.F.	313 C.F.	100%	10'	15'	6"	EC DRYWELL
DW#8	LOT 4	750 Sq. Ft.	308 C.F.	313 C.F.	100%	10'	15'	6"	EC DRYWELL
DW#9	LOT 5	750 Sq. Ft.	308 C.F.	313 C.F.	100%	10'	15'	6"	EC DRYWELL
DW#10	LOT 5	750 Sq. Ft.	308 C.F.	313 C.F.	100%	10'	15'	6"	EC DRYWELL
DW#11	LOT 6	750 Sq. Ft.	308 C.F.	313 C.F.	100%	8'	15'	7"	EC DRYWELL
DW#12	LOT 6	750 Sq. Ft.	308 C.F.	313 C.F.	100%	8'	15'	7"	EC DRYWELL
DW#13	LOT 7	700 Sq. Ft.	471 C.F.	513 C.F.	100%	8'	15'	7"	EC DRYWELL
DW#14	LOT 7	700 Sq. Ft.	471 C.F.	513 C.F.	100%	8'	15'	7"	EC DRYWELL
DW#15	LOT 8	400 Sq. Ft.	51 C.F.	200 C.F.	100%	10'	10'	5"	STD DRYWELL
DW#16	LOT 8	400 Sq. Ft.	51 C.F.	200 C.F.	100%	10'	10'	5"	STD DRYWELL
DW#17	LOT 8	400 Sq. Ft.	51 C.F.	317 C.F.	100%	12'	12'	5"	STD DRYWELL
DW#18	LOT 8	400 Sq. Ft.	51 C.F.	317 C.F.	100%	12'	12'	5"	STD DRYWELL

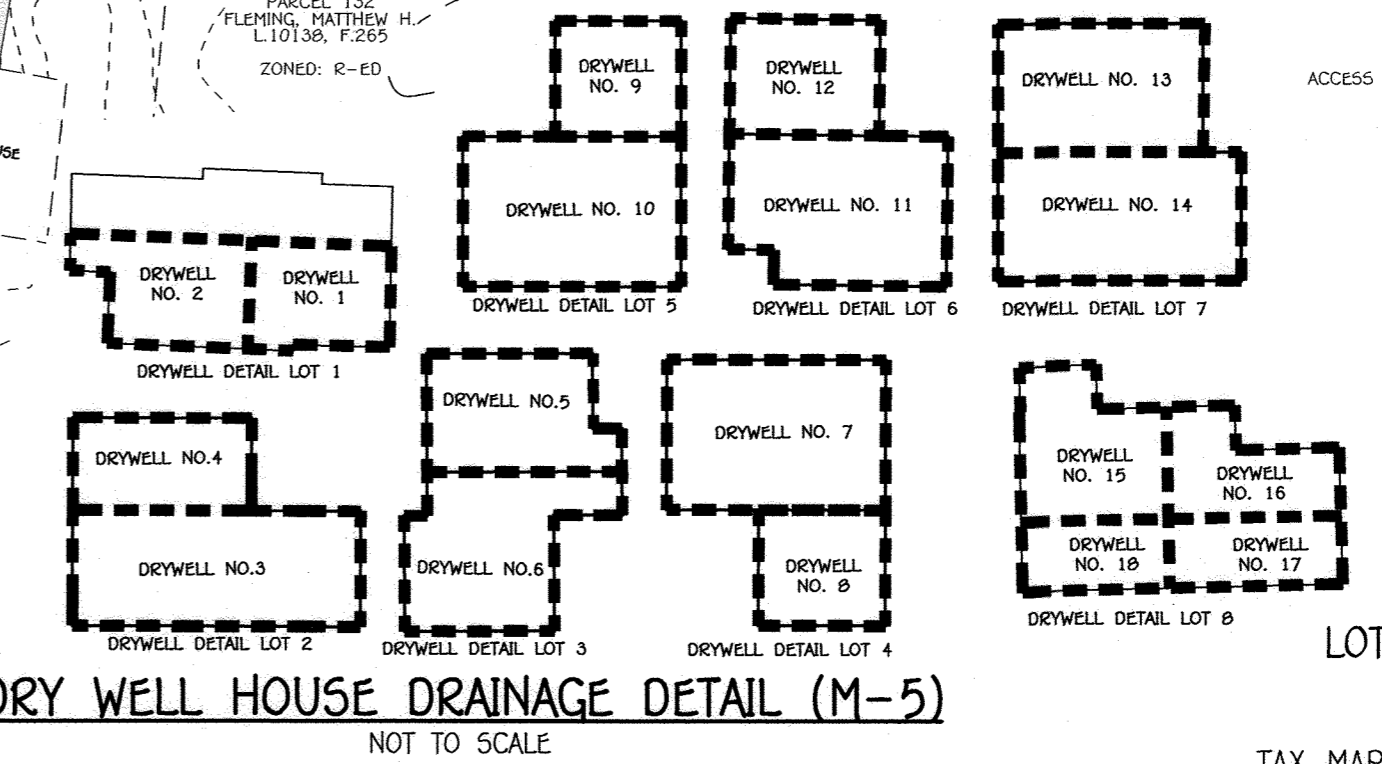
* AREA OF TREATMENT: 100% OF ESO PLUS UP TO FULL 1-YR. 2.6 INCH STORM.



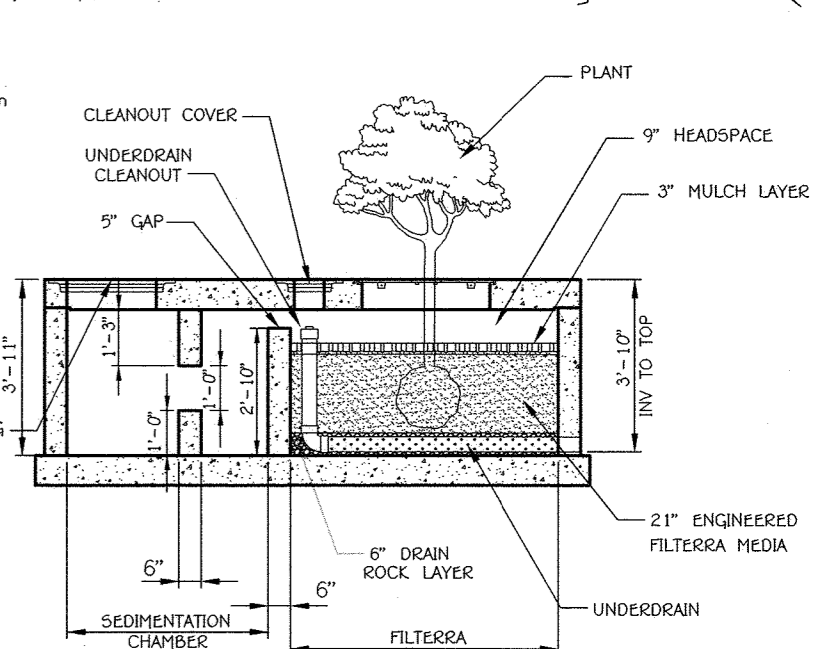
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 3.16.22



STANDARD DRY WELL DETAIL (M-5)
NOT TO SCALE



DRY WELL HOUSE DRAINAGE DETAIL (M-5)
NOT TO SCALE



FILTRERA WITH SEDIMENTATION CHAMBER

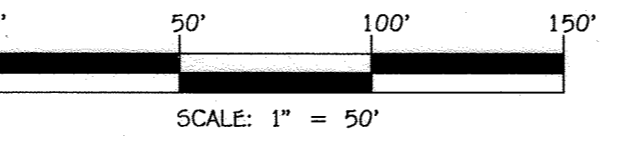
ECP PLAN MITCHELL GREENS
 LOTS 1-8 & OPEN SPACE LOTS 9 & 10
 ZONED: R-ED

TAX MAP NO.: 25 GRID NO.: 13 PARCEL NO.: 134 & 235
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: A5 SHOWN DATE: JANUARY 11, 2022
 SHEET 3 OF 4

OWNER/DEVELOPER
 MUKESH KUMAR &
 AGILA SUNDARAM
 3950 OLD COLUMBIA PIKE
 ELLICOTT CITY, MARYLAND 21043
 513-293-0599

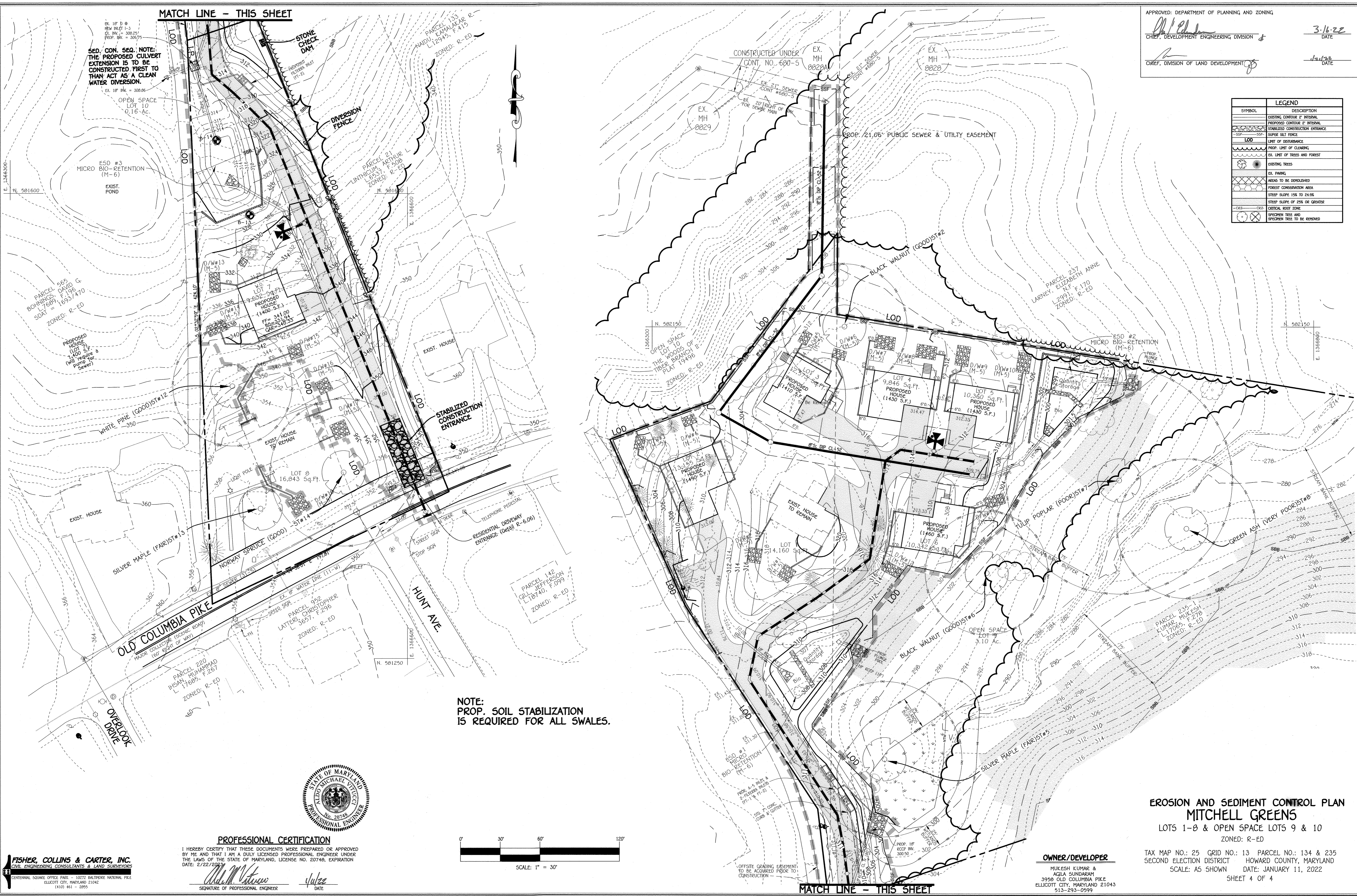
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THIS STATE OF MARYLAND, LICENSE NO. 20748, EXPIRATION DATE: 2/22/2028.
 [Signature]
 SIGNATURE OF PROFESSIONAL ENGINEER DATE

FISHER, COLLINS & CARTER, INC.
 AGILE ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461 - 2955



SCALE: 1" = 50'

SYMBOL	DESCRIPTION
(Symbol)	EXISTING CONTOUR 2' INTERNAL
(Symbol)	PROPOSED CONTOUR 2' INTERNAL
(Symbol)	STABILIZED CONSTRUCTION ENTRANCE
(Symbol)	SUPER SILT FENCE
(Symbol)	LIMIT OF DISTURBANCE
(Symbol)	PROP. LIMIT OF CLEARING
(Symbol)	EX. LIMIT OF TREES AND FOREST
(Symbol)	EXISTING TREES
(Symbol)	EX. PAVING
(Symbol)	AREAS TO BE DEMOLISHED
(Symbol)	FOREST CONSERVATION AREA
(Symbol)	STEEP SLOPE 15% TO 24.9%
(Symbol)	STEEP SLOPE OF 25% OR GREATER
(Symbol)	CENTRAL ROOF ZONE
(Symbol)	SPECIMEN TREE AND SPECIMEN TREE TO BE REMOVED



SED. CON. SEQ. NOTE:
 THE PROPOSED CULVERT
 EXTENSION IS TO BE
 CONSTRUCTED FIRST TO
 THAN ACT AS A CLEAN
 WATER DIVERSION.
 EX. 18" INV. = 308.86

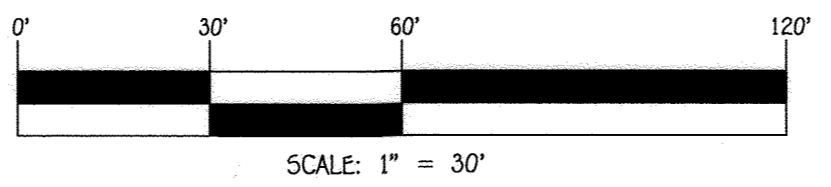
NOTE:
 PROP. SOIL STABILIZATION
 IS REQUIRED FOR ALL SWALES.



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. 20748, EXPIRATION DATE: 2/28/2023

SIGNATURE OF PROFESSIONAL ENGINEER: *Michael J. Carter*
 DATE: _____



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21104
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OWNER/DEVELOPER
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EROSION AND SEDIMENT CONTROL PLAN
MITCHELL GREENS
 LOTS 1-8 & OPEN SPACE LOTS 9 & 10
 ZONED: R-ED
 TAX MAP NO.: 25 GRID NO.: 13 PARCEL NO.: 134 & 235
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN DATE: JANUARY 11, 2022
 SHEET 4 OF 4

I:\2024\04\09\ang04\09-602\CEP\04\09 CEP Sheet 4 Erosion and Sediment Control Planning_1/11/2022 10:06:46 PM Downloaded T1500 (Temporary).pc3, 1/1