

GENERAL NOTES

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC. DATED MAY, 2015, AND FROM HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON PRECISION INPUT FROM EXISTING DEEDS BY ROBERT H. VOGEL ENGINEERING, INC., DATED MAY 2015.
- THE COORDINATES AND ELEVATIONS SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, HOWARD COUNTY CONTROL STATIONS 28-FA & 28-FB WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED RC-DEO, RURAL CONSERVATION IN ACCORDANCE WITH THE ZONING REGULATIONS EFFECTIVE ON OCT. 05, 2013, AND IS SUBJECT TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE OCT. 07, 2007 PER COUNCIL BILL 47-2007 & 48-2007. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THIS PROPERTY IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT.
- WATER FOR THIS PROJECT IS TO BE BY PRIVATE WELLS.
- SEWER FOR THIS PROJECT IS TO BE BY PRIVATE SEPTIC SYSTEMS.
- EXISTING UTILITIES LOCATED FROM TOPOGRAPHIC SURVEY AND AS-BUILT DRAWINGS, CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
- THERE ARE NO "FLOODPLAIN" AREAS LOCATED WITHIN THE DEVELOPMENT AREA AS PER FEMA DFIRM MAPS APPROVED BY FEMA AND EFFECTIVE FOR COUNTY DEVELOPMENT RESTRICTIONS AS OF MAY 6, 2013.
- THERE ARE 0.12 AC. (NOT CONTIGUOUS) OF MDE STEEP SLOPES (20% OR GREATER) LOCATED WITHIN THE DEVELOPMENT AREA.
- IN ACCORDANCE WITH SECTION 16.1202(b)(1)(v) OF THE FOREST CONSERVATION MANUAL, FOREST CONSERVATION WILL NOT BE REQUIRED FOR THIS PROJECT. AGRICULTURAL PRESERVATION SUBDIVISIONS AND ANY AGRICULTURAL ACTIVITY, INCLUDING AGRICULTURAL SUPPORT BUILDINGS AND STRUCTURES BUILT USING ACCEPTED BEST MANAGEMENT PRACTICE UNLESS IT INVOLVES THE CLEARING OF 40,000 SQUARE FEET OR GREATER OF FOREST WITHIN A 1- YEAR PERIOD ARE EXEMPT AND DO NOT REQUIRE A DECLARATION OF INTENT. THIS PROPERTY IS UNDER A RECORDED AGRICULTURAL EASEMENT AND THE SINGLE FAMILY RESIDENTIAL UNITS ARE ALLOWED UNDER THE AGRICULTURAL USE.
- THERE ARE 0 S.F. (0.00 AC.) AREA OF WETLANDS PRESENT WITHIN THE DEVELOPMENT AREA PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, FEBRUARY 23, 2017.
- IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THERE IS NO OPEN SPACE REQUIREMENT FOR THIS RC-DEO (RURAL CONSERVATION) PROJECT.
- GEOTECHNICAL INVESTIGATIONS SHALL BE COMPLETED AS PART OF THE FINAL PLAN SUBMISSION.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THE PROJECT SITE WAS EVALUATED FOR THE PRESENCE OF ENVIRONMENTAL FEATURES AND A LETTER HAS BEEN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, FEBRUARY 23, 2017. MR. CANOLES NOTED A SMALL OUTCROPPING OF TREES BUT FOUND IT DID NOT CONSTITUTE A FOREST. NO SPECIMEN TREES OR ANY OTHER REGULATED ENVIRONMENTAL FEATURES WERE FOUND WITHIN THE LIMITS OF THE DEVELOPMENT AREA FOR THIS PROJECT.
- SHEPPARD CROSSING, CHAPEL BELLS WAY AND CHAPEL ESTATES DRIVE ARE ALL CLASSIFIED AS LOCAL ROADS. SITE ACCESS SHALL BE VIA A PRIVATE USE-IN-COMMON DRIVEWAY. INTERSECTION SHALL BE 4-WAY STOP CONDITION, THEREFORE, NO SIGHT DISTANCE ANALYSIS IS REQUIRED.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED WITHIN THE DEVELOPMENT AREA.
- THERE ARE NO EXISTING DWELLINGS OR STRUCTURES WITHIN THE DEVELOPMENT AREA.
- THE PROPOSED BUILDINGS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF NON-STRUCTURAL AND MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTION FACILITIES (M-6), DRY WELLS (M-5), NON-ROOFTOP DISCONNECT (N-2) AND GRAVEL TRENCHES (M-5). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PLAN. 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/PLAT AND/OR SITE DEVELOPMENT PLAN AND/OR RED-LINE REVISION PROCESS. THE APPLICANT AND CONSULTANT SHOULD EXPECT ADDITIONAL AND MORE DETAILED REVIEW COMMENTS (INCLUDING COMMENTS THAT MAY ALTER THE OVERALL SITE DESIGN) AS THIS PROJECT PROGRESSES THROUGH THE PLAN REVIEW PROCESS.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME.
- DEVELOPMENT OF THIS PROPERTY SHALL FOLLOW THE GUIDELINE CRITERIA ENUMERATED UNDER SECTION 16.125 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS FOR THE PROTECTION OF SCENIC ROADS.

SITE DATA

TAX MAP 29, BLOCK 13, PARCEL 25
5TH ELECTION DISTRICT
PRESENT ZONING: RC-DEO-RURAL CONSERVATION
TOTAL AREA OF PROPERTY: 162.07 AC.
DPZ REFERENCES: HO-10-03E, ECP-16-30, ECP-17-050, ECP-18-21, GP-17-038, SDP-18-004
DEED/PLAT REFERENCES: L.9771/F.214, L.12661/F.466, L.15767/F.420, L.15767/F.426
AREA MANAGED BY ESDV ("THIS PLAN-DEVELOPMENT AREA"): 214,619 S.F./4.93 AC.
USE OF PROPOSED STRUCTURES (THIS PLAN): SINGLE FAMILY RESIDENTIAL
*TOTAL BUILDING COVERAGE WITHIN THE DEVELOPMENT AREA: 11,550 SF (0.27 AC. OR 5.48%)
*PAVED AREA WITHIN THE DEVELOPMENT AREA: 25,926 SF (0.60 AC. OR 12.07%)
LIMIT OF DISTURBED AREA (THIS PLAN): 214,619 S.F./4.93 AC.
*WETLANDS ON SITE: 0.00 AC.
*WETLAND BUFFERS ON SITE: 0.00 AC.
*STREAMS AND THEIR BUFFERS ON SITE: 0.00 AC.
*AREA OF 100 YEAR FLOODPLAIN: 0.00 AC.
*AREA OF EXISTING FOREST ON SITE: 0.00 AC.
*AREA OF MDE STEEP SLOPES (20% OR GREATER): 0.12 AC. (NOT CONTIGUOUS)
*AREA OF ERODIBLE SOILS: 0.43 AC.
*IMPERVIOUS AREA: 37,476 S.F. / 0.86 AC.
*GREEN AREA: 177,143 S.F. / 4.07 AC.
NOTE *WITHIN LIMITS OF DEVELOPMENT AREA ONLY

ENVIRONMENTAL SITE DESIGN NARRATIVE

- IN ACCORDANCE WITH CHECKLIST ITEM III.K.
- THIS ENVIRONMENTAL CONCEPT PLAN PERTAINS ONLY TO THE 4.68 AC. DEVELOPMENT AREA FOR THE PROPOSED 3 LOT SUBDIVISION INDICATED HEREON. AN ENVIRONMENTAL STUDY BY ECO-SCIENCE PROFESSIONALS, INC. DETERMINED THAT THERE ARE NO STREAMS, WETLANDS OR THEIR BUFFERS WITHIN THIS DEVELOPMENT AREA. THE TOPOGRAPHY DOES NOT RESULT IN ANY STEEP SLOPES OVER 25% WITHIN THIS DEVELOPMENT AREA. ACCORDING TO CURRENT DFIRM APPROVED BY FEMA AND HOWARD COUNTY, THERE IS A 100YR FLOODPLAIN LOCATED WITHIN THE PROPERTY BOUNDARY, HOWEVER NONE EXISTS WITHIN THE DEVELOPMENT AREA FOR THIS PLAN. THE NATURAL RESOURCES WILL REMAIN UNDISTURBED, PROTECTED AND ENHANCED.
 - THERE IS A WELL DEFINED RIDGE LINE AT THE CENTER OF THE DEVELOPMENT AREA. THE SITE'S TOPOGRAPHY NATURALLY SLOPES FROM THIS RIDGE TO THE SOUTHEAST AND TO THE NORTHWEST. THE SITE HAS BEEN DESIGNED TO MAINTAIN THESE NATURAL FLOW PATTERNS.
 - THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT TO THE MAXIMUM EXTENT PRACTICABLE (MEP). THE ESD CONCEPT PROPOSES THE USE OF THREE (2) MICRO-BIORETENTION FACILITIES (M-6) AND TWELVE (12) DRY WELLS (M-5) AND 32 GRAVEL TRENCHES. THE OVERFLOW FOR SWM #2 AND #3 (M-6) WILL DISCHARGE BY PIPE THEN OVERLAND TO A GRASSED AREA WHERE IT WILL BE DIRECTED TO A CULVERT UNDER SHEPPARD'S CROSSING AND THEN TO AN OFFSITE 4x84" CULVERT AND FLOODPLAIN AREA AND ULTIMATELY THE MIDDLE PATUXENT RIVER TO THE NORTHEAST. SWM #8, THE NON-ROOFTOP DISCONNECT AREA (N-2) WILL FLOW TO A GRASSED AREA AT THE NORTHWEST OF THE DEVELOPMENT AREA AND FLOW OVERLAND TO A STREAM AND ULTIMATELY TO THE MIDDLE PATUXENT RIVER. THE SITE HAS BEEN GRADED SO THAT UNDISTURBED UPLAND AREAS ARE DIVERTED BY SWALE AROUND NEW IMPERVIOUS AREAS WHEREVER POSSIBLE.
 - SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE OF PERIMETER CONTROLS (SILT FENCE AND SUPER SILT FENCE), STONE OUTLET STRUCTURES AND INLET PROTECTION. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH THE CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
 - AS STATED IN #3 ABOVE, STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF MICRO BIORETENTION FACILITIES (M-6), DRY WELLS (M-5), NON-ROOFTOP DISCONNECT (N-2) AND BY GRAVEL TRENCHES (M-5). THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.

THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION".
TARGET PE = 1.19" PROVIDED PE = 1.19"
TARGET ESDV = 4,407 CUFT PROVIDED = 4,783 CUFT

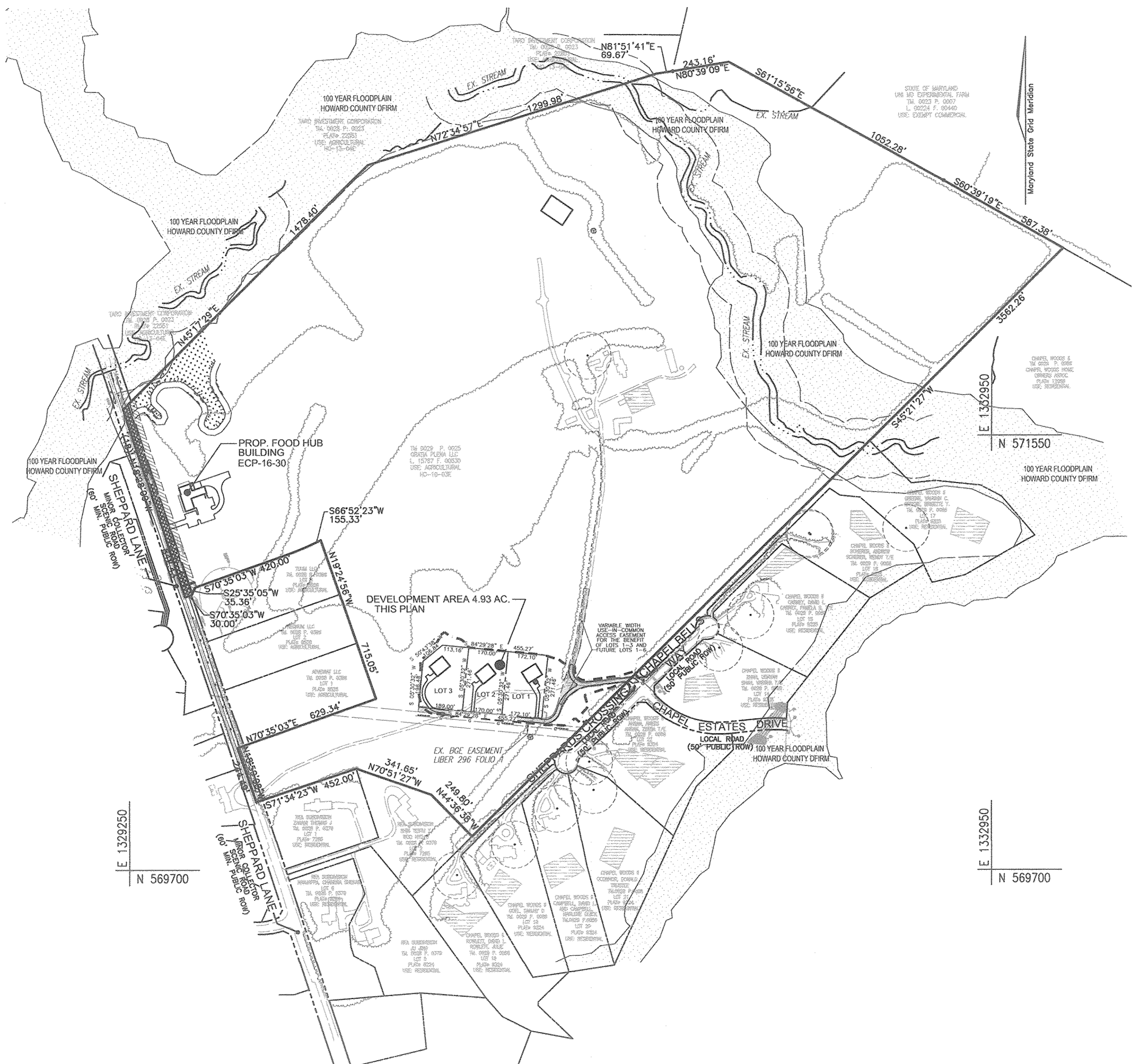
- NO DESIGN MANUAL WAIVERS ARE ANTICIPATED TO FULFILL THIS SWM CONCEPT.

ENVIRONMENTAL CONCEPT PLAN

CUNNINGHAM PROPERTY - 3 LOT AG

4979 SHEPPARD LANE

L.15767/F.530



LOCATION MAP
SCALE: 1"=300'

NOTES:

- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT
 - REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE PERMIT STAGES, AND THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE PERMIT PROCESS.
 - ENVIRONMENTAL FEATURES: THERE ARE NO WETLANDS, STREAMS OR STEEP SLOPES WITHIN THE DEVELOPED AREA. THERE ARE NO SIGNIFICANT FOREST STANDS IN THE DEVELOPMENT AREA.
- NO DISTURBANCE TO ANY STREAMS, FLOODPLAIN, WETLANDS OR THEIR BUFFERS ARE PROPOSED.

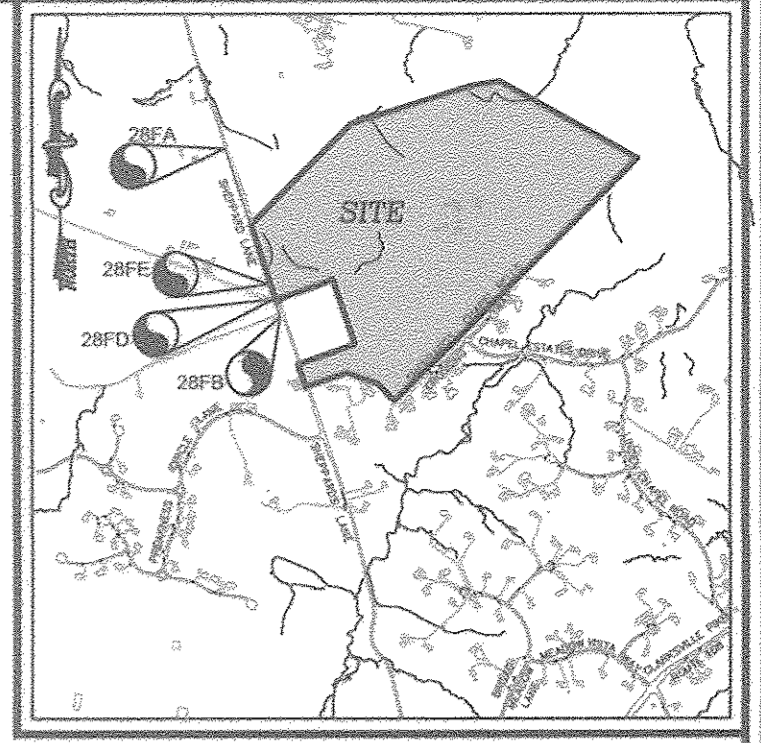
Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 832-2488 Fax (410) 832-2488

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
John P. Canoles

WATERSHED NAME: MIDDLE PATUXENT RIVER
SUB-BASIN NUMBER: 02-13-11
WATERSHED NUMBER: 2131106

BENCHMARKS

HOWARD COUNTY BENCHMARK 28FA	N 572,456.68	E 1,329,957.84	ELEV.: 348.21'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FB	N 570,710.84	E 1,329,524.63	ELEV.: 385.45'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FD	N 570,895.88	E 1,329,461.33	ELEV.: 381.91'
HOWARD COUNTY MONUMENT			
HOWARD COUNTY BENCHMARK 28FE	N 571,047.81	E 1,329,404.44	ELEV.: 380.85'
HOWARD COUNTY MONUMENT			



SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 3
LAYOUT, GRADING & SEDIMENT CONTROL PLAN	2 OF 3
ESDV DRAINAGE AREA MAP AND DETAILS	3 OF 3

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANDOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING TREE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LIMIT OF EXISTING WETLANDS
- PROPOSED 100 YEAR DFIRM FLOODPLAIN
- EX. 50' RCE EASEMENT
- SOILS BOUNDARY
- EXISTING TREELINE
- PROPOSED TREELINE
- EX. PRIVATE SEPTIC EASEMENT
- PROPOSED PRIVATE SEPTIC EASEMENT
- EXISTING PRIVATE WELL
- PROPOSED PRIVATE WELL
- DEVELOPMENT AREA / LOD
- LIMIT OF DISTURBANCE / LIMIT OF DEVELOPMENT AREA

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 3-2-18
 CHIEF DEVELOPMENT ENGINEERING DIVISION
 [Signature] 2/8/18
 CHIEF DIVISION OF LAND DEVELOPMENT

ENVIRONMENTAL CONCEPT PLAN
COVER SHEET

CUNNINGHAM PROPERTY
3 LOT AG
4979 SHEPPARD LANE
L.15767/F.426

ELECTION DISTRICT 5
TAX MAP: 29 GRID:13 PARCEL:25
ZONED: RC-DEO (RURAL CONSERVATION)
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET ELLICOTT CITY, MD 21043
TEL: 410.461.7666 FAX: 410.461.8961

DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHW
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 14-62

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 10181 EXPIRATION DATE: 09-27-2018

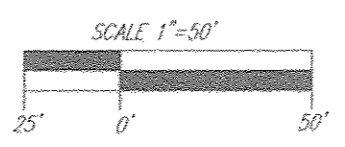
1 SHEET OF 3

NOTE:
ONLY A PORTION OF THE PARCEL (AREA OF LOD)
IS SHOWN ON THE ECP.



LEGEND	
	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEANOUT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING FENCE
	EXISTING TREE
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	SOILS BOUNDARY
	EXISTING TREELINE
	PROPOSED TREELINE
	PROPOSED SIDEWALK
	EX PRIVATE SEPTIC EASEMENT
	PROPOSED PRIVATE SEPTIC EASEMENT
	EXISTING PRIVATE WELL
	PROPOSED PRIVATE WELL
	PROPOSED STORM DRAIN UNDERDRAIN / CLEANOUT
	SUPER SILT FENCE
	SILT FENCE
	DEVELOPMENT AREA / LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	EROSION CONTROL MATTING
	MICRO-BIORETENTION (M-6) RAIN GARDEN (M-7)
	24' PRIVATE USE-IN-COMMON EASEMENT FOR THE BENEFIT OF LOTS 1-3
	MODE STEEP SLOPES >20%
	HIGHLY ERODIBLE SOILS

LAYOUT, GRADING AND SEDIMENT CONTROL PLAN



SCALE: 1" = 50'

NOTE:
EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

NOTE:
- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- SILT FENCE SHALL BE CURLED UPHILL. NO MORE THAN 35 FEET APART
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17							
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	HYDRIC	HYDRIC INCLUSIONS	PRIME FARMLAND	<15% SLOPE W/ EROSION POTENTIAL
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.20	NO	NO	YES	NO
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	.20	NO	NO	YES	NO
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	.37	NO	YES	YES	YES
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	.24	NO	NO	YES	NO
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.24	NO	NO	*YES	NO
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	.24	NO	NO	NO	YES

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
*FARMLAND OF STATEWIDE IMPORTANCE
NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

OWNER/DEVELOPER:
GRATIA PLENA, LLC,
11140 HOMERWOOD ROAD
ELLCOTT CITY, MD 21042
PHONE: 443-677-4612

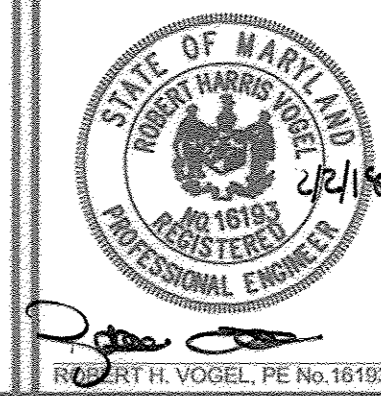
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 3/2/18
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Jill Mangum 2/8/18
CHIEF, DIVISION OF LAND DEVELOPMENT

HSCD NOTE:
APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME.
1. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING
2. THE PROJECT SHALL ADDRESS ANY TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.
3. THE FINAL PLAN SUBMISSION SHALL PROVIDE A DRAINAGE AREA MAP SPECIFIC TO CHOSEN SEDIMENT CONTROLS
4. THE FINAL PLAN SUBMISSION SHALL PROVIDE COMPUTATIONS TO VERIFY VELOCITIES ALONG DIKES, SWALES AND AT DIKES OUTLET LOCATIONS

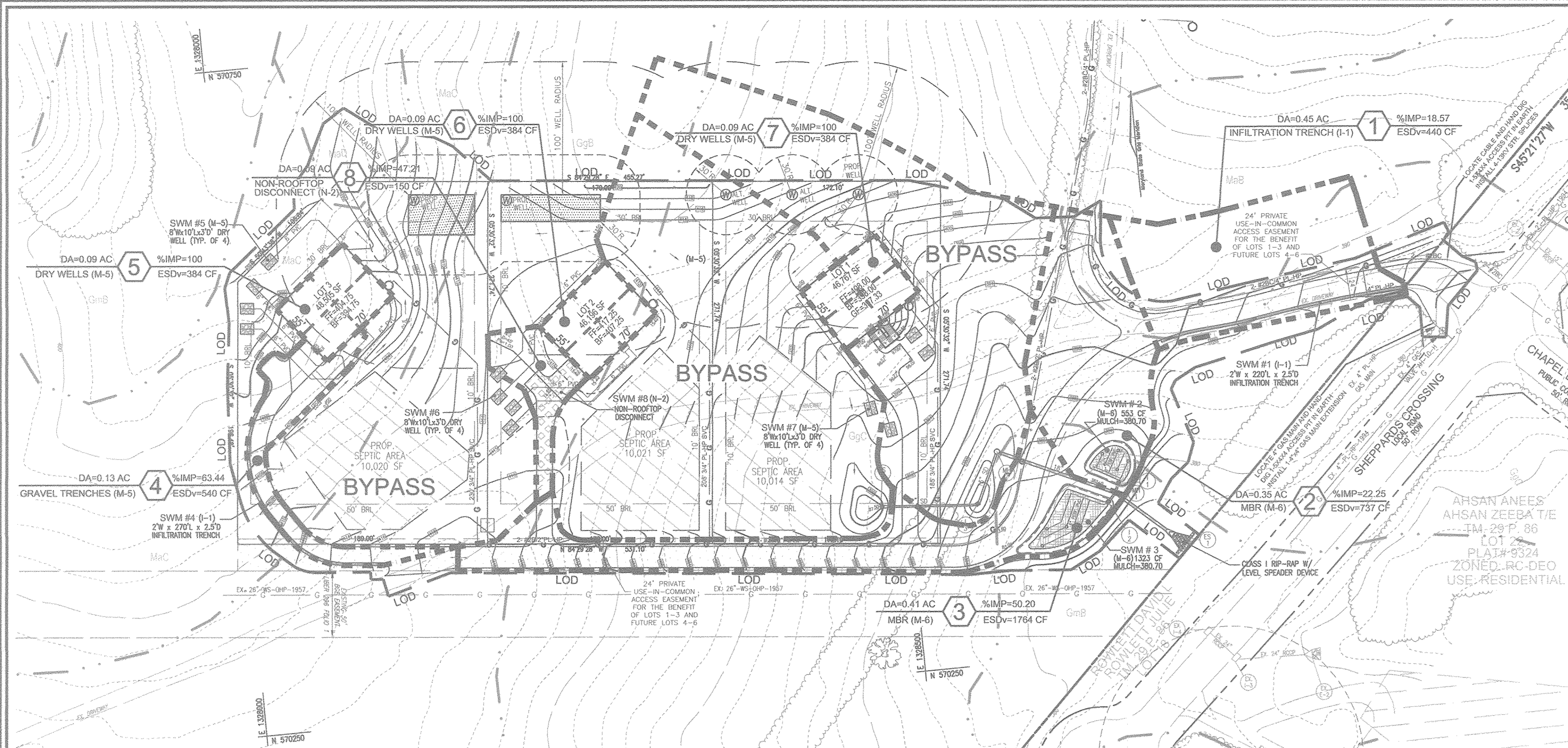
NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
LAYOUT, GRADING AND SEDIMENT CONTROL PLAN
CUNNINGHAM PROPERTY
3 LOT AG
4979 SHEPPARD LANE
L.15767/F.426
ELECTION DISTRICT 5
TAX MAP: 29 GRID:13 PARCEL:25
ZONED: RC-DEO (RURAL CONSERVATION)
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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PROFESSIONAL CERTIFICATE
DESIGN BY: GAH
DRAWN BY: GAH
CHECKED BY: RHV
DATE: FEBRUARY 2018
SCALE: AS SHOWN
W.O. NO.: 14-62
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. 16193, EXPIRATION DATE 09-27-2019.



DA	%IMP	Rv	DA	DA	MINIMUM VOLUME	MAXIMUM VOLUME	1.19" VOLUME PROVIDED*	IMPVY (SF)	IMPVRY (AC)	GREEN AREA	REV REQUIRED	REV PROVIDED	CF	REMARKS
1	18.01	0.2123	17080	0.39	302	786	360	373	0.067	0.32	74	86		
2	22.25	0.2502	15485	0.35	332	837	383	737	0.08	0.28	184	184		
3	50.20	0.5020	11738	0.41	744	1935	836	1764	0.21	0.20	411	411		
4	63.44	0.6344	5731	0.13	297	771	353	540	0.08	0.05	25	212		
5	100.00	0.9500	3950	0.09	305	782	363	384	0.09	0.00	17	38		
6	100.00	0.9500	3950	0.09	305	782	363	384	0.09	0.00	17	38		
7	100.00	0.9500	3950	0.09	305	782	363	384	0.09	0.00	17	38		
8	47.21	0.4721	3800	0.09	150	351	179	150	0.04	0.05	0	0		
TOTALS	45.42	0.4588	71804	1.64	2739	7096	3249	4715	0.24	0.89	724	1037		

ESDv DRAINAGE AREA MAP
SCALE: 1" = 50'

Appendix B.4 Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration

Material	Specification	Notes
Planting soil	See Appendix A, Table A.4	Use native soil
Planting soil (2" to 4" deep)	1/4" to 1/2" organic mulch (15-40% compost) or sandy loam (10%); coarse sand (50%) & compost (40%)	Use native soil types heavy sand or sandy loam; clay content < 1%
Organic content	Min. 10% by dry weight (ASTM D 2773)	
Mulch	4" to 6" deep, organic, non-toxic, free of weed seeds, and free of animal waste	Apply 4 months, minimum, in place or wood chips
Pre gravel drainage	per ASTM D 442	NO. 8 OR NO. 9 (1/4" to 3/8")
Underdrain piping	7/8" Type PE 28 or AASHTO M-278	4" x 6" with 1/2" holes @ 24" o.c. or 3/4" PVC or HDPE
Prevent in place concrete (if required)	MSHA Min No. 3/4" - 3500 psi @ 28 days, normal weight, air-entrained, conforming to ACI Code 309.8R, vertical loading (18" H or 18-20" allowable horizontal loading based on soil resistance) and analysis of potential cracking	
Sand	AASHTO M-6 or ASTM C-11	0.075 to 0.04"

DRAINAGE AREA #	AREA TREATED	FACILITY NUMBER	X	RECHARGE (cu ft)	RECHARGE (cu ft)	ESDv
1	17080	SWM #1	0	0	0	372
2	15485	SWM #2	0	0	0	184
3	11738	SWM #3	0	1764	0	441
4	5731	SWM #4	0	0	0	25
5	3950	SWM #5	0	0	0	17
6	3950	SWM #6	0	0	0	17
7	3950	SWM #7	0	0	0	17
8	3800	SWM #8	0	150	0	0
TOTALS	71804		0	2391	150	1152
ESDv REQUIRED	4407	CF				926
						4715

PROJECT: CUNNINGHAM 3 LOT AG

DEVELOPMENT AREA: 3.03 AC

TARGET P: 3.13 IN

PERCENT: 37.88

SITE PERM: 0.2071

TOTAL SITE ESDv: 4407 CF

DRAINAGE AREA	FACILITY	IMPVRY (SF)	IMPVRY (AC)	PERCENT	Rv	ESDv	ESDv	TARGET	PROVIDED
SWM #1	INFILTRATION TRENCH (M-1)	3080	14000	18.03	0.2123	302	786	360	373
SWM #2	MBR (M-6)	3418	12019	14.53	0.2501	332	837	383	737
SWM #3	MBR (M-6)	8863	17738	50.20	0.5018	744	1935	836	1764
SWM #4	INFILTRATION TRENCH (M-1)	2095	5731	63.44	0.6340	297	771	353	540
SWM #5	DRY WELLS (M-5)	0	3950	100.00	0.9500	305	782	363	384
SWM #6	DRY WELLS (M-5)	0	3950	100.00	0.9500	305	782	363	384
SWM #7	DRY WELLS (M-5)	0	3950	100.00	0.9500	305	782	363	384
SWM #8	DISCONNECT (N-2)	1784	2006	88.00	0.4721	150	391	179	150
TOTAL AREA		71804		37.88					4715
		1.64							

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3-2-18

DATE: 2/8/18

DATE: 2/8/18

MAPPED SOILS TYPES - CLARKSVILLE NW / NE MAP #16 / 17

SYMBOL	NAME / DESCRIPTION	GROUP	F	HYDRIC	PRIME FARMLAND	CRITICAL SLOPE
GgB	GLENNVILLE LOAM, 3 TO 8 PERCENT SLOPES	B	20	NO	NO	NO
GcC	GLENNVILLE LOAM, 8 TO 15 PERCENT SLOPES	B	20	NO	NO	NO
GmB	GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C/D	37	NO	YES	YES
MAB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	24	NO	NO	NO
MAC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	24	NO	NO	NO
MAD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	24	NO	NO	NO

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECT OF ROOFTOP RUNOFF (N-1), DISCONNECT OF NON-ROOFTOP RUNOFF (N-2)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE WEAR RESISTING BENEATH SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPROVED AREA IN COMMON AREAS. FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

APPENDIX B.2 CONSTRUCTION SPECIFICATIONS FOR INFILTRATION PRACTICES

B.2.1 INFILTRATION TRENCH GENERAL NOTES AND SPECIFICATIONS

- INFILTRATION TRENCHES SHALL BE CONSTRUCTED TO CONFORM TO THE INFILTRATION TRENCH DESIGN SPECIFICATIONS.
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B.2.2 INFILTRATION TRENCH DESIGN SPECIFICATIONS

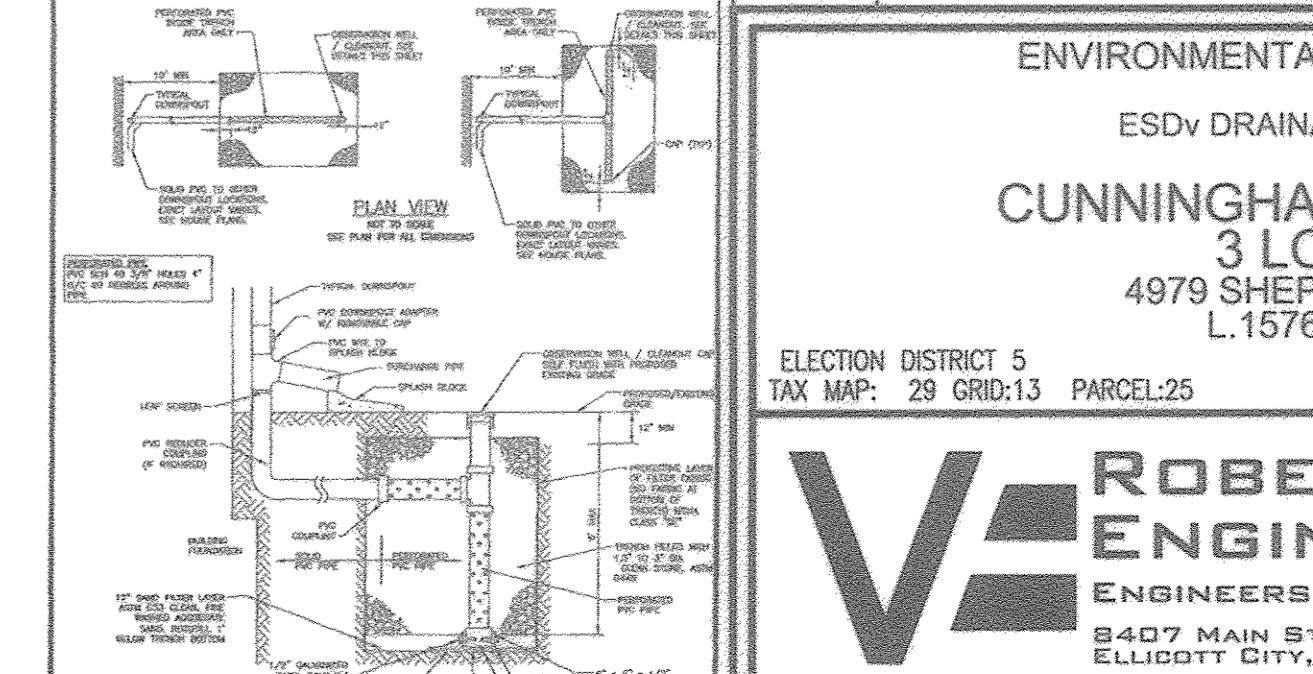
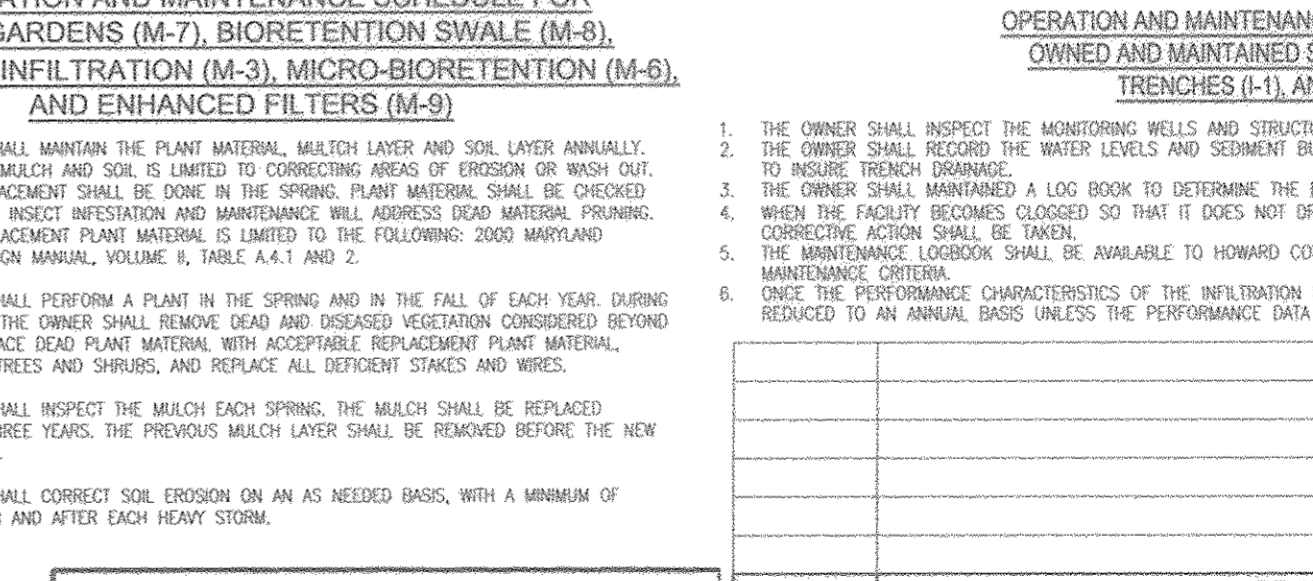
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LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB AND GUTTER
- PROPOSED CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING UTILITY POLE
- EXISTING SIGN
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING FENCE
- EXISTING TREE
- EXISTING TREE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- LIMIT OF EXISTING WETLANDS
- PROPOSED 100 YEAR OFPM FLOODPLAIN
- EX. 50' BEE EASEMENT
- SOILS BOUNDARY
- EXISTING TRENCH
- PROPOSED TRENCH
- PROPOSED SIDEWALK
- PROPOSED CONCRETE LOADING DOCK
- EX. PRIVATE SEPTIC CASSETTE
- PROPOSED PRIVATE SEPTIC CASSETTE
- EXISTING PRIVATE WELL
- PROPOSED PRIVATE WELL
- 4" PRIVATE PRESSURE SEWER
- PROPOSED 6" PRIVATE WATER
- PROPOSED STORM DRAIN UNDERDRAIN/CLEANOUT
- DECLINATION AREA / LIMIT OF DISTURBANCE
- ESDv DRAINAGE DIVIDE
- ESDv DRAINAGE AREA/FACILITY NUMBER
- 1
- SWM-1
- MICRO-BIORETENTION (M-6)
- RAIN GARDEN (M-7)

OPERATION AND MAINTENANCE SCHEDULE FOR RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), AND ENHANCED FILTERS (M-9)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY.
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY.
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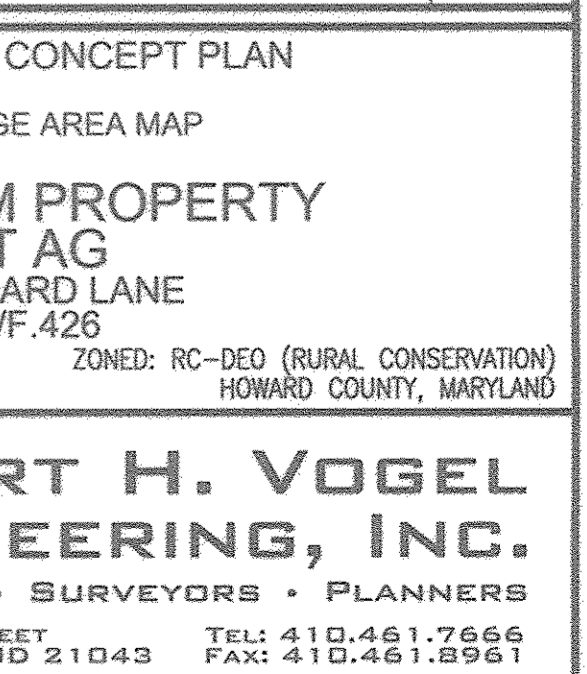
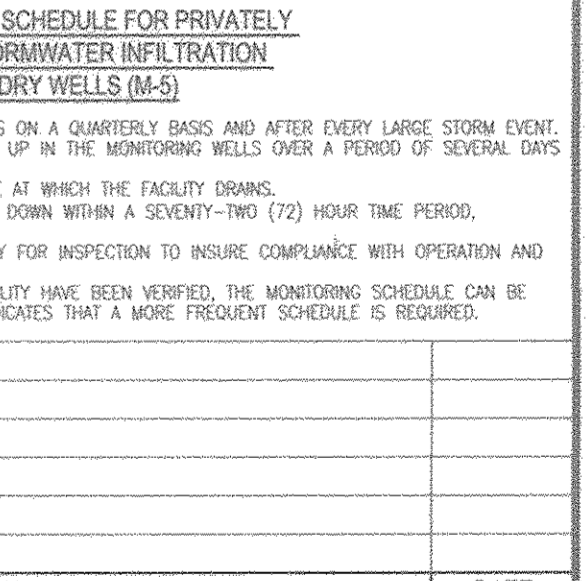


OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECT OF ROOFTOP RUNOFF (N-1), DISCONNECT OF NON-ROOFTOP RUNOFF (N-2)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE WEAR RESISTING BENEATH SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPROVED AREA IN COMMON AREAS. FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER INFILTRATION TRENCHES (M-1), AND DRY WELLS (M-5)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY.
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY.
- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY.
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OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECT OF ROOFTOP RUNOFF (N-1), DISCONNECT OF NON-ROOFTOP RUNOFF (N-2)

1. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE WEAR RESISTING BENEATH SHOULD BE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPROVED AREA IN COMMON AREAS. FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.