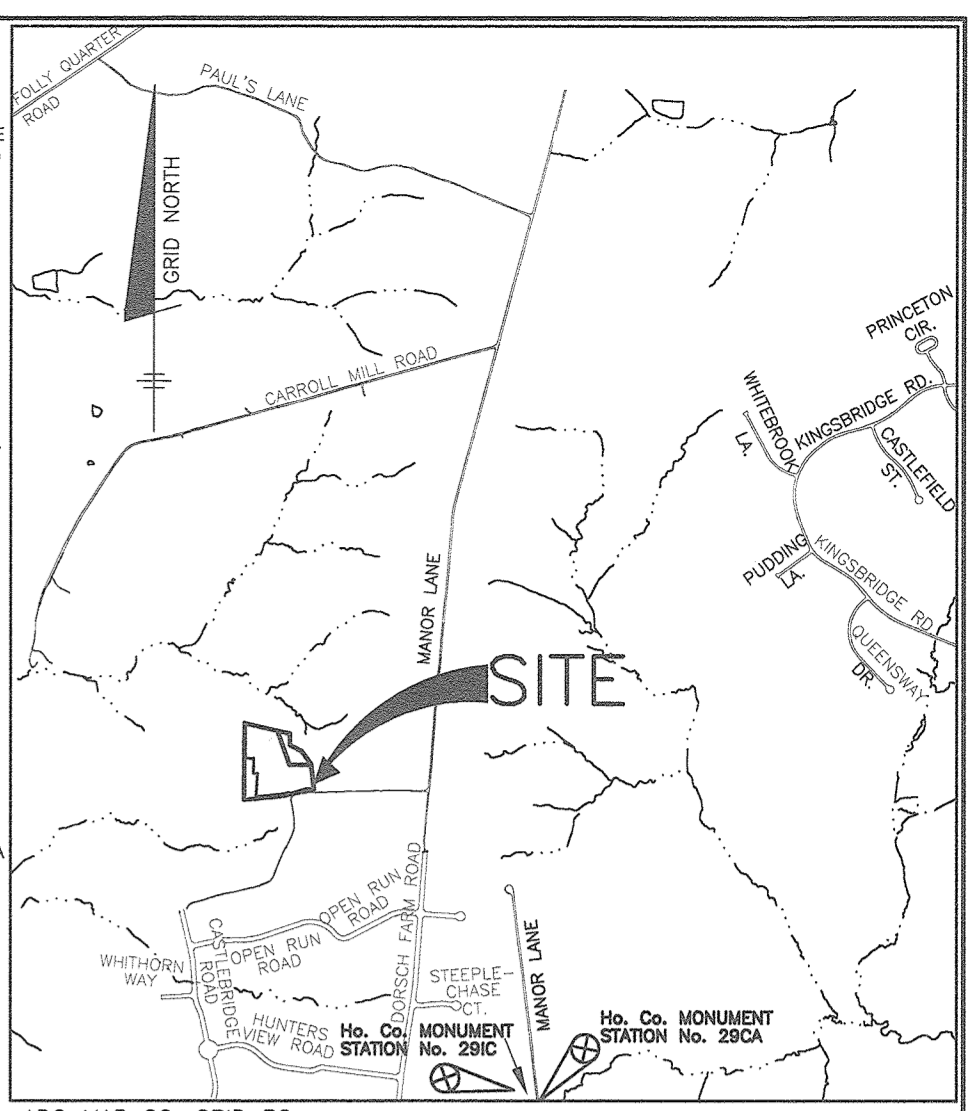


GENERAL NOTES

- COORDINATES BASED ON NAD 83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 25CA AND 25C.
- SUBJECT PROPERTY ZONED RC-DEO PER 10/06/2013 COMPREHENSIVE ZONING PLAN.
- ALL AREAS ON THIS PLAN ARE "MORE OR LESS".
- THE BOUNDARY ON THIS PLAN IS BASED ON THE PLAT ENTITLED "CARROLL-ZIEGLER PROPERTY, LOTS 2, 7, BUILDABLE PRESERVATION PARCEL 'L', NON-BUILDABLE PRESERVATION PARCELS 'M' AND 'N' RECORDED AS PLAT NOS. 2108-2112, 2113-2116 AND PRESERVATION PARCELS 1, THROUGH 14, LOTS 1 THROUGH 42, NON-BUILDABLE PRESERVATION PARCELS A THROUGH H, R AND S, BUILDABLE PRESERVATION PARCELS Q, AND NON-BUILDABLE BULK PARCELS AT THROUGH H, RECORDED AS PLAT NOS. 1803-1804. THE BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. ON OR ABOUT JULY, 2017 FOR FOX'S FARM.
- THERE ARE EXISTING STRUCTURES (NO DWELLINGS) ON FOX'S FARM NON-BUILDABLE PRESERVATION PARCEL A OR THE RESULTING NON-BUILDABLE PRESERVATION PARCEL A-1.
- LANDSCAPING FOR RIVERWOOD, PHASE 1, PARCEL 'Q' AND RIVERWOOD, PHASE 2, PARCEL II WERE REVIEWED UNDER F-04-082 AND F-06-154; NO LANDSCAPING WAS REQUIRED. LANDSCAPING FOR CARROLL-ZIEGLER PROPERTY, LOTS 2, 7 AND PRESERVATION PARCELS 1, THROUGH 14 WERE REVIEWED UNDER F-08-140. LANDSCAPING FOR LOTS 2, 7 WAS DEFERRED PER GENERAL NOTE 15 AND THE SUPPLEMENTAL LANDSCAPE PLAN, PARCEL 'L', M AND N WERE EXEMPT FROM LANDSCAPING OBLIGATIONS. FOX'S FARM LOT 3 AND NON-BUILDABLE PRESERVATION PARCEL A-1 ARE EXEMPT FROM PERIMETER LANDSCAPING IN ACCORDANCE WITH SECTION 16.24 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. SINCE THIS IS A PLAN TO REVISE INTERNAL PROPERTY LINES BETWEEN THE PROPERTIES WITH THE FOX'S FARM SUBDIVISION (PLAT 11379) AND DOES NOT CREATE ANY ADDITIONAL LOTS.
- FOX'S FARM PRESERVATION PARCEL A IS ENCOMBERED WITH A PRESERVATION EASEMENT HELD BY HOWARD COUNTY, MARYLAND, AND HOWARD COUNTY CONSERVANCY. THE RESTRICTIONS AND PERMITTED USES ASSOCIATED WITH THIS EASEMENT ARE SPECIFIED WITHIN THE DEED OF PRESERVATION EASEMENT RECORDED AT LIBER 3374 AT FOLIO 591, DATED JULY 14, 1994. THE PRESERVATION EASEMENT IS SUBJECT TO TITLE 16, SUBTITLE 5 OF THE HOWARD COUNTY CODE, AND SECTION 108 OF THE HOWARD COUNTY ZONING REGULATIONS. THE DEVELOPER INTENDS TO REVISE THE EASEMENT LIMITS BY INCLUDING THE AREA THAT IS CURRENTLY LOT 2 OF THE AREA CLOSEST TO THE STREAM THAT INCLUDES STEEP SLOPES, AND BY REMOVING THE AREA JUST WEST OF DEVELOPED LOT 1. THE REVISION WILL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ZONING REGULATIONS SECTIONS 104.0 (C), 104.0 (G) AND 106.1. THE CHANGE IN EASEMENT AREA WILL NOT RESULT IN ADDITIONAL UNITS OR USES THAT ARE NOT PERMITTED. IT WILL RESULT IN A BETTER EASEMENT CONFIGURATION AND BETTER PROTECTION FOR THE SLOPES AND STREAM AREAS. A HOLDER OF THE EASEMENT, HOWARD COUNTY CONSERVANCY, INC. HAS PREVIOUSLY OFFERED A LETTER OF SUPPORT FOR RECONFIGURATION TO MOVE THE LOT AWAY FROM THE BARN AND CLOSER TO EXISTING HOMES. PRESERVATION EASEMENT LENGTH IF THIS PERMITS LOTS TO BE BETTER LOCATED WITH RESPECT TO PRESERVATION PARCEL A, SECTION 16.24 OF THE HOWARD COUNTY CODE, PRESERVATION PARCELS OR BULK PARCELS FOR SINGLE FAMILY DETACHED DWELLINGS SHALL HAVE MINIMUM LOT FRONTS ON APPROVED STREETS WITHIN A PUBLIC RIGHT-OF-WAY WHICH PROVIDES ACCESS TO THE PROPERTY WITH 20 FEET FOR SINGLE PIPES AND NON-PIPES LOTS AND PRESERVATION PARCELS WHICH CANNOT BE FURTHER DIVIDED UNDER CURRENT ZONING AND SHALL HAVE SUFFICIENT FRONTAGE EQUIVALENT TO MEET THE DRIVEWAY EASEMENT REQUIREMENTS IN THE DESIGN MANUAL.
- ON JUNE 16, 2008 THE CHIEF OF THE ENVIRONMENTAL ENGINEERING DIVISION APPROVED A DESIGN MANUAL WAIVER TO DESIGN MANUAL, VOLUME II, ROADS AND BRIDGES, SECTION 2.6.A, GRANTING MORE THAN SIX (6) USERS ON A SINGLE USE-IN-COMMON DRIVEWAY.
- ON SEPTEMBER 5, 2017 THE DIRECTOR OF THE DEPARTMENT OF PLANNING AND ZONING APPROVED A REQUEST FOR AN ALTERNATIVE COMPLIANCE (WP-17-125) OF SECTION 16.12 (B) AND SECTION 16.12 (C)(2).
- CONDITIONS OF APPROVAL ARE:
 - A REVISED WP EXHIBIT THAT ADDRESSES THE ATTACHED DLD AND DEED COMMENT SHALL BE SUBMITTED WITHIN 30 DAYS OF ALTERNATIVE COMPLIANCE APPROVAL (ON OR ABOUT OCTOBER 5, 2017).
 - SUFFICIENT JUSTIFICATION PER SECTION 104.0 (I) MUST BE PROVIDED WITH THE EOP AND SUBDIVISION PLAN TO RECONFIGURE THE PRESERVATION PARCEL BASED ON AGRICULTURAL, HISTORICAL AND/OR ENVIRONMENTAL FEATURES.
 - ANY AMENDMENT TO THE EXISTING FOREST CONSERVATION EASEMENT WILL REQUIRE REVISION TO THE EXISTING FOREST CONSERVATION PLAN AND A NEW FOREST CONSERVATION PLAN TO CORRECT THE EASEMENT AND ADJUST LOT LINES FOR NEW LOTS.
 - THE DRIVEWAY FOR LOT 3 MUST BE PROVIDED.
 - ADDRESS ALL DEED COMMENTS.
 - THROUGH THE FORMAL SUBDIVISION PROCESS, EXISTING LOT 2 (FUTURE LOT 3) WILL BE RELOCATED AS SHOWN ON THE ALTERNATIVE COMPLIANCE PROPOSED ACCESS EXHIBIT AND AS APPROVED BY THE HEALTH DEPARTMENT. AN ENVIRONMENTAL CONCEPT PLAN AND FINAL PLAN AND PLAN WILL ALSO BE REQUIRED AND MUST BE APPROVED AND RECORDED PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT.
- THIS AREA DESIGNATES A PRIVATE SEWAGE DISPOSAL AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR NON-BUILDABLE SEWAGE DISPOSAL IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE DISPOSAL AREA. RECONSTRUCTION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.
- THE MODERATE INCOME HOUSING UNIT REQUIREMENT (COUNCIL BILL 35-2013) SHALL BE FULFILLED BY PAYMENT OF A FEE-IN-LIEU IN AN AMOUNT THAT IS TO BE CALCULATED BY THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT. THE FEE-IN-LIEU SHALL BE PAID FOR LOTS/RESIDENTIAL UNIT 3 WITHIN THIS SUBDIVISION AT TIME OF BUILDING PERMIT ISSUANCE.
- ALL WELLS SHALL BE DRILLED PRIOR TO FINAL PLAT RECORDED. IT IS THE DEVELOPER'S RESPONSIBILITY TO SCHEDULE THE WELL DRILLING PRIOR TO FINAL PLAT SUBMISSION. IT WILL NOT BE CONSIDERED "GOVERNMENT DELAY" IF THE WELL DRILLING HOLDS UP HEALTH DEPARTMENT SIGNATURE OF THE RECORD PLAT.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12' (IF SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 4" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN).
 - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 1% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
 - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1' FOOT DEPTH OVER DRIVEWAY.
 - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- THESE EASEMENTS SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORDED OF THE RECORD PLAT.
 - PRIVATE INGRESS, EGRESS, MAINTENANCE, STORMWATER MANAGEMENT, & UTILITY EASEMENT TO BENEFIT LOT 2, PARCEL 'L' AND RIVERWOOD PARCELS 'A' AND 'N'.
 - PRIVATE INGRESS, EGRESS, MAINTENANCE, STORMWATER MANAGEMENT, & UTILITY EASEMENT TO BENEFIT LOTS 3, 4 & 5 AND THE FOX'S FARM, LOTS 1 AND 3.
 - PRIVATE INGRESS, EGRESS, MAINTENANCE, STORMWATER MANAGEMENT, & UTILITY EASEMENT TO BENEFIT FOX'S FARM LOTS 1 AND 3.
 - PRIVATE INGRESS, EGRESS, MAINTENANCE, STORMWATER MANAGEMENT, & UTILITY EASEMENT TO BENEFIT FOX'S FARM LOT 1.
 - PRIVATE VARYING WIDTH INGRESS, EGRESS, MAINTENANCE, STORMWATER MANAGEMENT, & UTILITY EASEMENT TO BENEFIT FOX'S FARM LOT 1.
 - PRIVATE INGRESS, EGRESS, MAINTENANCE, STORMWATER MANAGEMENT, & UTILITY EASEMENT TO BENEFIT CARROLL-ZIEGLER PROPERTY PARCELS Q.
 - MODIFICATION TO THE EXISTING 24' PRIVATE INGRESS AND EGRESS EASEMENT FOR THE BENEFIT OF FOX'S FARM RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND, LIBER 3281 AT FOLIO 0041 TO BE MODIFIED TO REMOVE FOX'S FARM LOTS 1 AND 2 AND PARCEL A-1 ACCESS TO MANOR LANE AND TO ADD CARROLL-ZIEGLER PARCEL Q.
 - ABANDONMENT OF A SMALL PORTION OF THE EXISTING FOREST CONSERVATION EASEMENT B.
 - A NEW FOREST CONSERVATION EASEMENT FOR AREA 2A.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT TO THE PIPESTEM LOT DRIVEWAY.
- THIS PROPERTY IS DESIGNATED A TIER IV PROPERTY PER THE SUSTAINABLE GROWTH AND AGRICULTURAL PRESERVATION ACT OF 2012, MAP P-3, AS APPROVED BY THE HOWARD COUNTY COUNCIL AS PART OF PLAN HOWARD 2030.



ESD - SWM PRACTICES

LOT NUMBER	ADDRESS	MICRO BIO-RETENTION (M-5) QUANTITY	DRY WELLS (M-5) QUANTITY	NON-ROOFTOP DISC (N-2) QUANTITY
3	CASTLEBRIDGE ROAD (ELLCOTT CITY MD 21042)	1	2	2

SITE DATA TABULATION
FOX'S FARM LOT 3 & PARCEL A-1

- GENERAL SITE DATA
 - PRESENT ZONING: RC-DEO
 - LOCATION: TAX MAP 23 - GRID 10 - P/O PARCEL 131
 - APPLICABLE DPZ FILE REFERENCES: F-94-107, WP-06-06, WP-07-38, SP-06-19, RC-06-10, F-06-228, SP-07-05, F-07-022, F-07-185, F-08-109, WP-08-122, F-11-050, F-15-061, WP-17-125, ECP-17-070, F-11-060, F-08-140, F-14-051
 - DEED REFERENCE: L 3376 F. 496
 - PROPOSED USE OF SITE:
 - SFD LOT;
 - NON-BUILDABLE PRESERVATION PARCEL
 - PROPOSED WATER AND SEWER: PRIVATE WATER AND PRIVATE SEWER
- AREA TABULATION
 - TOTAL AREA OF SITE 8.69 Ac.±
 - AREA OF 100 YEAR FLOODPLAIN (APPROX.) 0 Ac.±
 - AREA OF STEEP SLOPES (25% OR GREATER) 0.01 Ac.±
 - AREA OF STEEP SLOPES LESS THAN 10 VERT. FEET PLUS AREAS OF STEEP SLOPES WITHIN FLOODPLAIN 0.01 Ac.±
 - NET AREA OF SITE 8.69 Ac.±
 - AREA OF THIS PLAN SUBMISSION 8.69 Ac.±
 - LIMIT OF DISTURBANCE (APPROX.) 1.35 Ac.±
 - AREA OF PROPOSED BUILDABLE LOTS 1.14 Ac.±
 - AREA OF BUILDABLE PRESERVATION PARCELS 0 Ac.±
 - AREA OF NON-BUILDABLE PRESERVATION PARCELS 7.54 Ac.±
 - AREA OF PROPOSED PUBLIC ROAD 0 Ac.±
 - AREA OF PROPOSED PUBLIC R/W DEDICATION 0 Ac.±
- DENSITY TABULATION
 - NET AREA OF SITE 8.69 Ac.±
 - TOTAL NUMBER OF LOTS ALLOWED PER ZONING 1
 - UNIT PER 4.25 GROSS ACRES ALLOWED BY RIGHT 1*
 - UNIT PER 2 NET ACRES (MAX) PER DEED PROVISION NA
- UNIT/LOT TABULATION
 - TOTAL NUMBER OF BUILDABLE LOTS PROPOSED ON THIS SUBMISSION 1
 - TOTAL NUMBER OF NON-BUILDABLE PRESERVATION PARCELS PROPOSED ON THIS SUBMISSION 1
 - TOTAL NUMBER OF BUILDABLE PRESERVATION PARCELS PROPOSED ON THIS SUBMISSION 0
 - THIS SUBDIVISION IS NOT CREATING NEW LOTS. LOT 2 IS BEING ABANDONED AND LOT 3 IS BEING CREATED IN KIND.

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND - PAGE NUMBER 12

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GSA		B		GLADSTONE LOAM, 0 TO 3 PERCENT SLOPES	0.20
GGB		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.20
GBC		B		GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.20
Gmb*	YES	C		GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37

* INDICATES HYDRIC SOILS
** HIGHLY ERODIBLE, K>0.35 OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, JULY 2014, MAP 12.

LEGEND

EXISTING WOODS LINE	EXISTING CONTOURS	EXISTING STRUCTURE	LIMITS OF DISTURBANCE (EFFECTIVE AREA)
PROPOSED WOODS LINE	PROPOSED CONTOURS	PERCOLATION TEST PASSED	PROPOSED STRUCTURE
SOILS CLASSIFICATION	STREAM	EXISTING SEPTIC FIELD	DRAINAGE D/VIDE
SOILS DELINEATION	SLOPES 15% TO 19.99%	EXISTING WELL	NON ROOFTOP DISCONNECT (FILTER AREA)
FOREST CONSERVATION	SLOPES 20% TO 24.99%	EX. WELL	NON ROOFTOP DISCONNECT (IMPERVIOUS)
PRIVATE INGRESS, EGRESS, STORMWATER MANAGEMENT, & UTILITY EASEMENT	SLOPES 25% AND GREATER	WELL BOX	

PLAN VIEW
SCALE: 1" = 50'

(IN FEET)
1 inch = 50 ft.

THIS PLAN CAN NOT BE USED FOR BUILDING OR GRADING PERMITS

SHEET INDEX

No.	DESCRIPTION
1	COVER SHEET, EXISTING CONDITIONS PLAN AND SOILS MAP
2	SUPPLEMENTAL GRADING & STORMWATER MANAGEMENT PLAN, DRAINAGE AREA MAP, NOTES AND DETAILS
3	SUPPLEMENTAL DRIVEWAY EXHIBIT, STORM DRAIN DRAINAGE AREA MAP, NOTES AND DETAILS

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(P) 410-465-8105 (F) 410-465-8644
WWW.BEI-ENGINEERING.COM

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. 45577 Expiration Date: 06-08-2020

[Signature] 2/1/19

OWNER: NATALIE ZIEGLER AND CHAD ZIRSCHKY, 4888 CASTLEBRIDGE ROAD, ELLICOTT CITY, MARYLAND 21042, 410-740-8880

FOX'S FARM
A REVISION OF LOT 2 AND PRESERVATION PARCEL 'A' RESULTING IN LOT 3 AND PRESERVATION PARCEL 'A-1'

TAX MAP: 23 - GRID: 10 - P/O PARCEL: 131 - ZONED: RC-DEO
ELECTION DISTRICT: NO. 3
HOWARD COUNTY, MARYLAND

SUPPLEMENTAL PLAN
COVER SHEET, EXISTING CONDITIONS PLAN, AND SOILS MAP

DATE: JANUARY, 2019 BEI PROJECT NO: 2799
DESIGN: JC DRAWN: BEI SCALE: AS SHOWN SHEET 1 OF 3

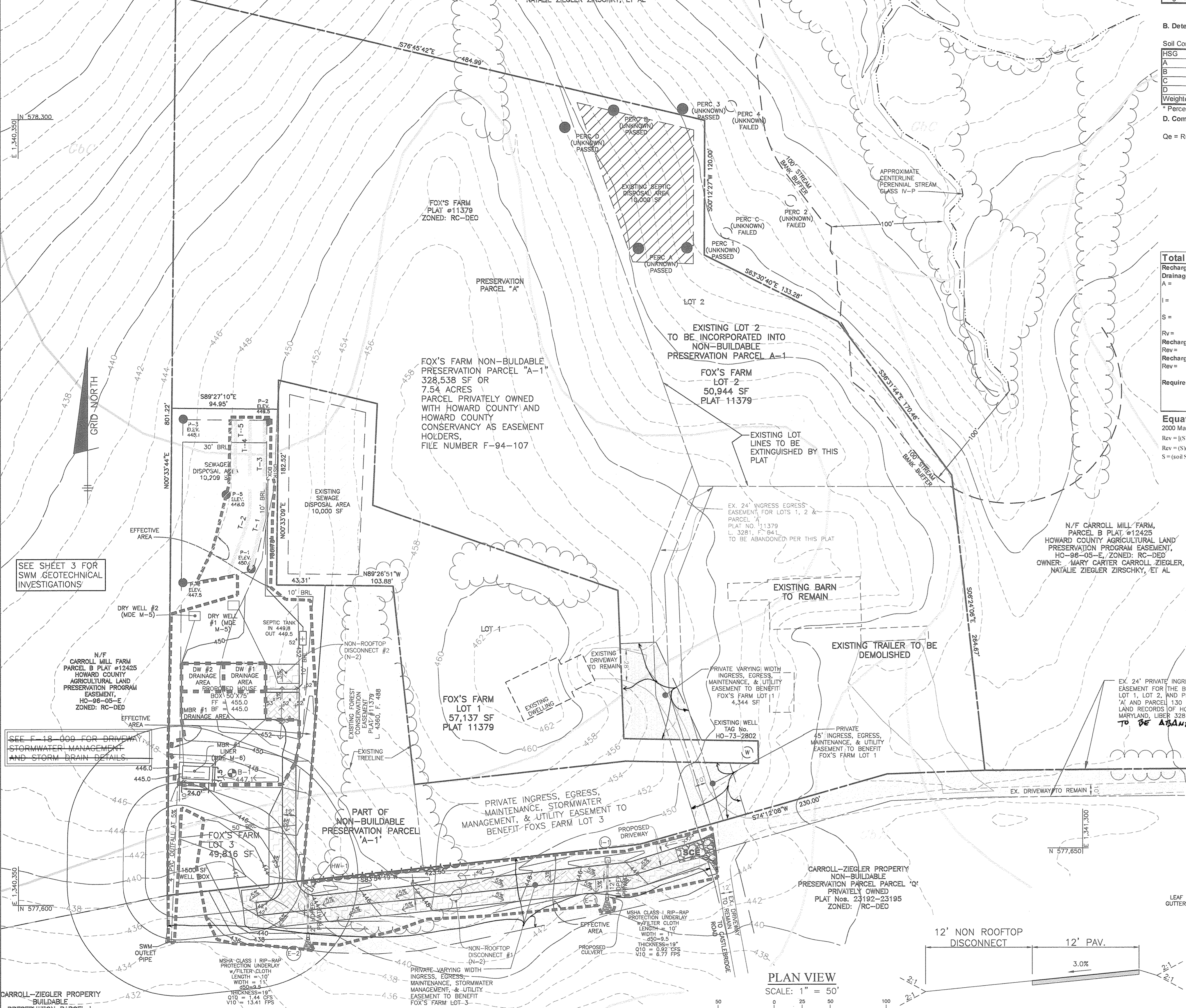
APPROVED: DEPARTMENT OF PUBLIC WORKS
[Signature] 3/8/2019
CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 7-25-19
CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 7-24-19
CHIEF, DIVISION OF ENGINEERING DIVISION

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
GSA		B		GLADSTONE LOAM, 0 TO 3 PERCENT SLOPES	0.20
GSP		B		GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.20
GSC		B		GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.20
GmB*	YES	C		GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37

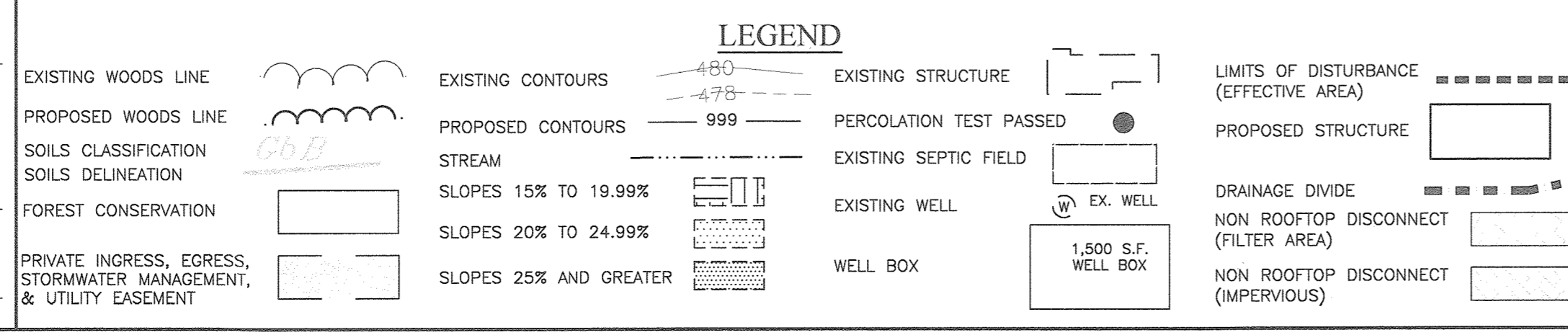
* INDICATES HYDRIC SOILS
 ** HIGHLY ERODIBLE, K>0.35 OR 15% OR GREATER SLOPES
 TAKEN FROM THE NRCS WEB SOIL SURVEY, JULY 2014, MAP 12.



APPROVED: DEPARTMENT OF PUBLIC WORKS
 DATE: 3/5/2019
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 7-25-19
 CHIEF, DIVISION OF LAND DEVELOPMENT

DATE: 7-24-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION



ESD - SWM PRACTICES			
LOT NUMBER	ADDRESS	MICRO-BIO-RETENTION (M-6) QUANTITY	NON-ROOFTOP DISC (N-2) QUANTITY
3	CASTLEBRIDGE ROAD ELLICOTT CITY MD 21042	1	2

Total Site
 Step 1: Determine ESD Implementation Goals

A. Determine Pre-Developed Conditions

Soil Conditions for "Woods in Good Condition"

HSG	RCN	Area (ft ²)	Percent
A	38	0	0%
B	55	82034	100%
C	77	0	0%
D	70	0	0%
Target RCN	65	82034	

B. Determine Initial Target Pe Using Table 5.3

Soil Conditions Developed Condition

HSG	Area (ft ²)	Impervious	Percent**	Target Pe
A	82034	14,685	20%	1.2
B	82034	14,685	20%	1.2
C	82034	14,685	20%	1.2
D	82034	14,685	20%	1.2
Weighted Pe	82034	14685	20%	1.2

D. Compute Qe

Qe = Runoff depth used to size ESD practices
 $Q_e = P_e \cdot R_v$

$P_e = 1.2$ inches
 $R_v = 0.05 + (0.009 \cdot I)$
 $R_v = 0.21$
 $Q_e = 0.25$ inches

Target $P_e = 1.2$ inches
 $Q_e = 0.25$ inches
 $ESD_v = 1732$ cubic feet

Total Site Recharge Volume Calculations

Recharge Volume
 Drainage Area = main site
 A = 1.88 Area in Acres

I = 18% Impervious
 S = 26 %
 Rv = 0.21

Recharge Using Percent Volume Method
 $Rev = 0.006 \text{ ac-ft} \cdot 375$
 $Rev = 0.09$ ac-ft

Recharge Using Percent Area Method
 $Rev = 0.09$ acres

Requirement may be met by either
 a) treating 37% of using structural methods.
 b) treating 0.09 acres using non-structural methods, or
 c) a combination of both

Equations

2000 Maryland Stormwater Design Manual Volume II

$Rev = [S](R_v)(A)]/12$ (percent volume method)
 $Rev = (S)(A)$ (percent area method)
 $S = (\text{soil } N\% \text{ soil}) + (\text{soil } S\% \text{ soil})$

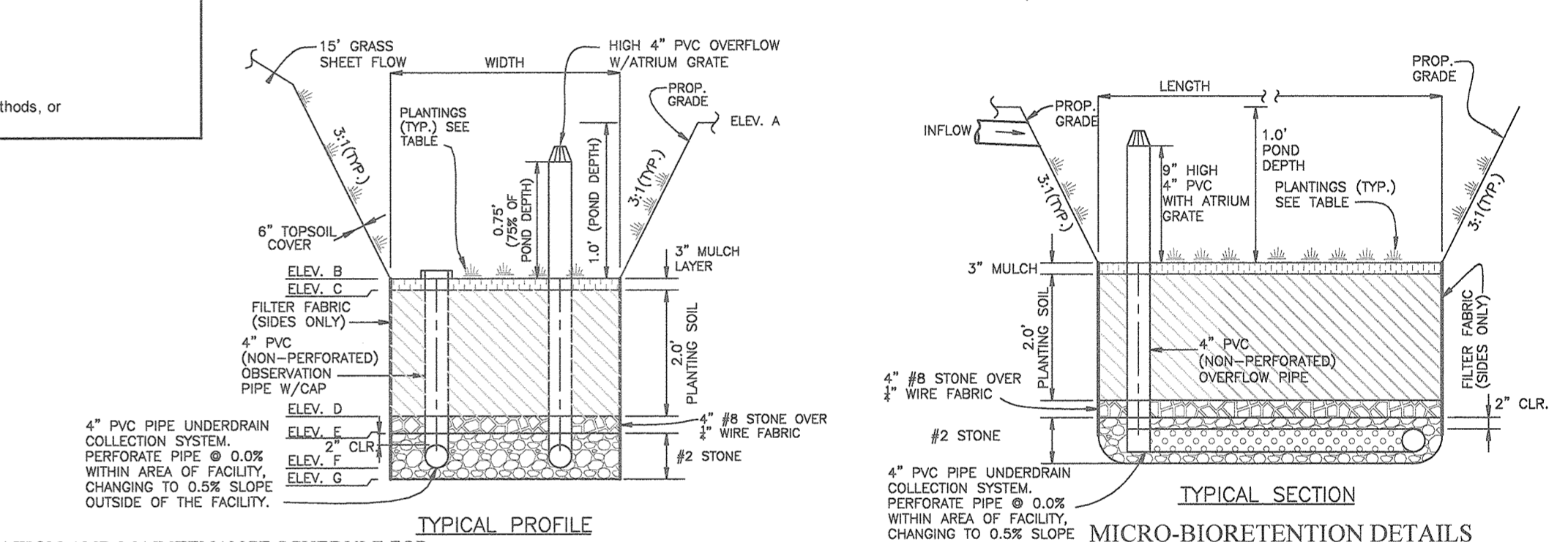
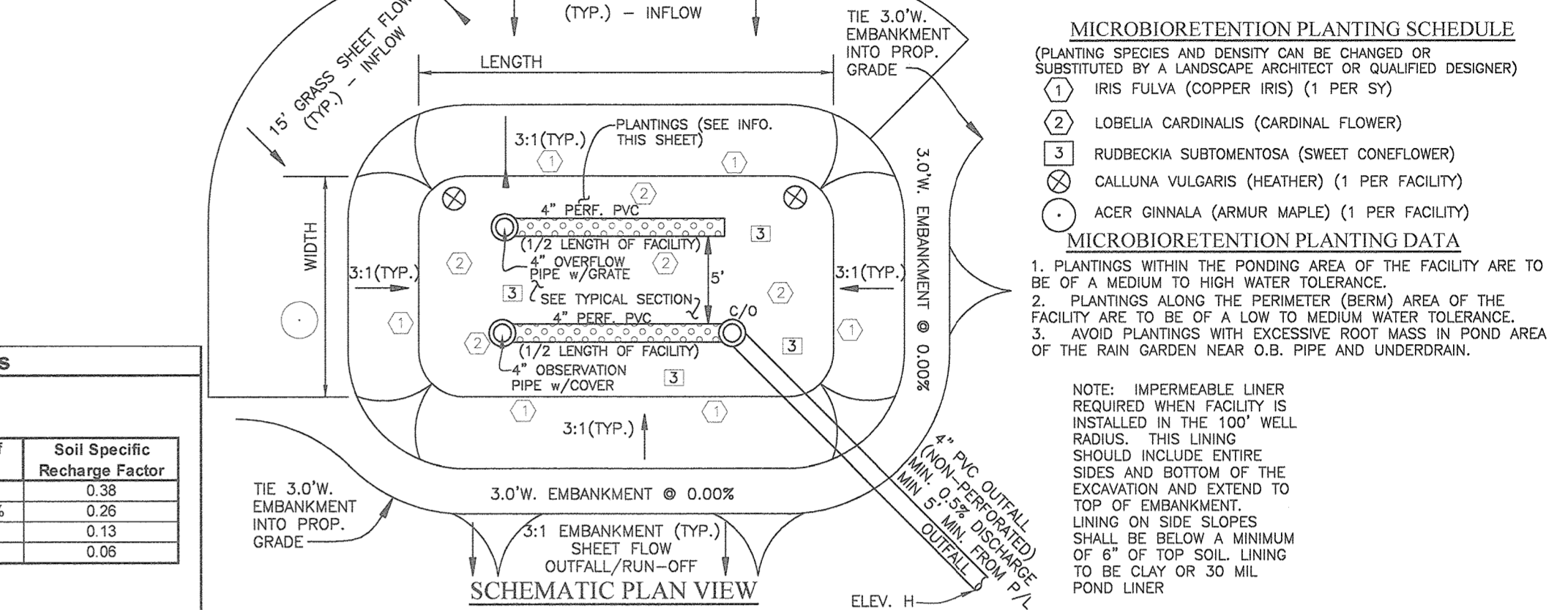
ESD STORMWATER MANAGEMENT SUMMARY TABLE

Practice	DA (ft ²)	Imp Area (ft ²)	% Imp	Rv	Required	Provided	% DA	ESDv	Pe	Rev (ac-ft)	Required	Provided	Ownership
(M-6) Micro Bio-Retention	5986	2,476	31%	0.33	159	276	PASS	263	492	2.25	0.0000	0.0000	Private
(M-5) Drywell	#1	938	100%	0.95	NA	NA	NA	89	174	2.34	0.0040	0.0040	Private
(M-5) Drywell	#2	938	100%	0.95	NA	NA	NA	89	174	2.34	0.0040	0.0040	Private
Non-Rooftop Discon.	NR-1	13,670	6,547	48%	0.48	NA	NA	548	548	1.00	0.0126	0.0126	Private
Non-Rooftop Discon.	NR-2	1,482	732	49%	0.49	NA	NA	61	61	1.00	0.0014	0.0014	Private
Totals per Individual Drainage Areas		24,997	11,631	47%	0.47	159	276	1050	1449	1.48	0.0086	0.0220	
Totals per Whole Site		82,034	11,631	14%		233		1732	1449				

PROJECT: Fox's Farm DATE: 01/17/19
 Facility Dimensions

BIORETENTION FACILITIES

FACILITY	ELEVATIONS (SEE TYPICAL BIORETENTION DETAIL)					FILTER	PLANTINGS			LINER				
	A	B	C	D	E		LENGTH (ft)	WIDTH (ft)	AREA (ft ²)					
MBR-1	448.00	445.00	444.75	442.75	442.42	441.75	440.92	434.34	24.0	11.5	276	55	28	YES

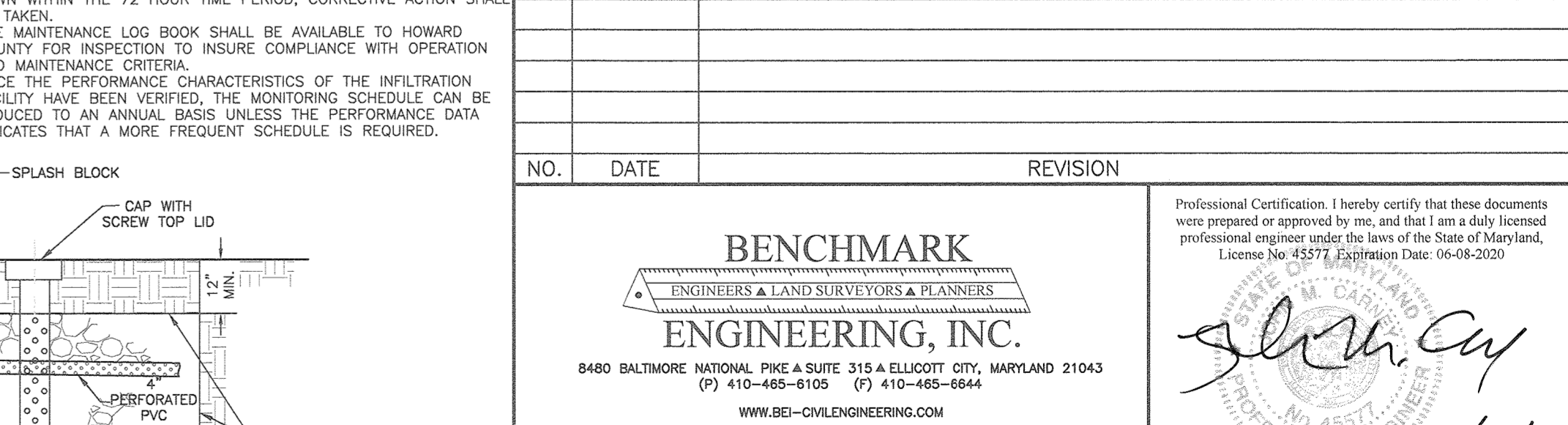


OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6)

1. 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 4.4.1 AND 2.
2. THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF 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.
3. 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.
4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

MATERIALS & SPECIFICATIONS FOR MICRO-BIORETENTION

MATERIAL	SPECIFICATION	N/A	PLANTINGS ARE SITE-SPECIFIC	NOTES:
PLANTINGS	SEE APPENDIX A, TABLE 4.4	N/A		PLANTINGS ARE SITE-SPECIFIC
PLANTING SOIL	LOAMY SAND 60-65% COMPOST 35-40%	N/A		USDA SOIL TYPES: LOAMY SAND OR SANDY LOAM; CLAY CONTENT < 6%
ORGANIC CONTENT	MIN 10% BY DRY WEIGHT	N/A		AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
MULCH	SHRUBBED HARDWOOD	N/A		AGED 6 MONTHS, MINIMUM, NO PINE OR WOOD CHIPS
GEOTEXTILE (CLASS C)	1/4" WIRE MESH	N/A		PE TYPE 1 NONWOVEN
GEOTEXTILE (CLASS D)	1/4" WIRE MESH	N/A		1/4" WIRE MESH
UNDERDRAIN GRAVEL	ASHTO M-43	N/A		NO. 57 OR NO. 6 (3/8" TO 0.75")
UNDERDRAIN PIPING	758, TYPE PE28 OR ASHTO M-27B	N/A		4" TO 4" RISE OF 2" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERDRAIN PIPING
IMPERVIOUS LINER	ASTM-D-4833 (THICKNESS) ASTM-D-412 (TENSILE STRENGTH 1,100 LB, ELONGATION 200%) ASTM-D-624 (TEAR RESISTANCE - 150 LB/IN) ASTM-D-471 (WATER ABSORPTION: +8)	N/A		30 MIL THICK LINER TO BE ULTRAVIOLET RESISTANT; A GEOTEXTILE FABRIC SHOULD BE USED TO PROTECT THE LINER FROM PUNCTURE.
GEOTEXTILE (BELOW IMPERV. LINER)	ASTM-D-4833 (PUNCTURE STRENGTH 150LB) ASTM-D-4632 (TENSILE STRENGTH 300 LB)	N/A		



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OWNER: NATALIE ZIEGLER AND JOHN ZIRSCHKY
 4888 CASTLEBRIDGE ROAD ELLICOTT CITY, MARYLAND 21042 410-740-6880

FOX'S FARM
 A REVISION OF LOT 2 AND PRESERVATION PARCEL 'A' RESULTING IN LOT 3 AND PRESERVATION PARCEL 'A-1'

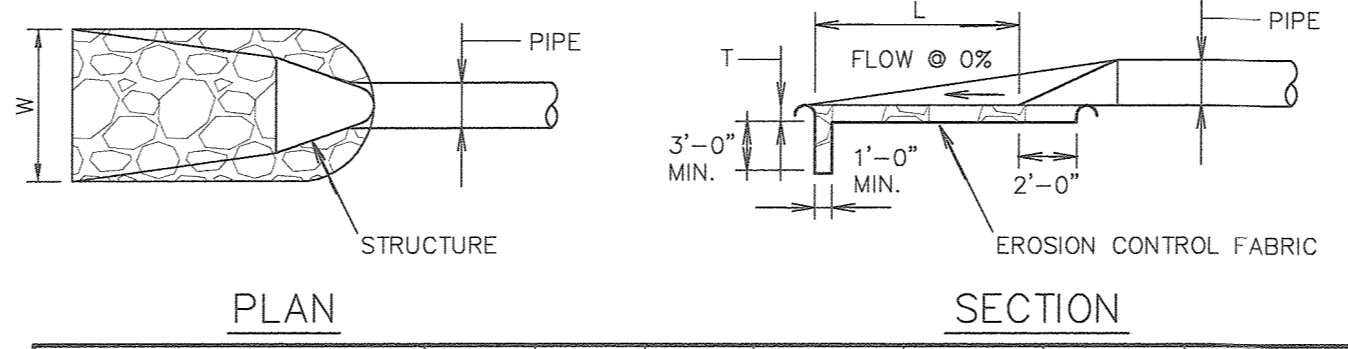
TAX MAP: 23 - GRID: 10 - P/O PARCEL: 131 - ZONED: RC-DEO
 ELECTION DISTRICT NO. 3 HOWARD COUNTY, MARYLAND

SUPPLEMENTAL PLAN
 GRADING & STORMWATER MANAGEMENT PLAN, DRAINAGE AREA MAP, NOTES AND DETAILS

DATE: JANUARY, 2019 BEI PROJECT NO: 2799
 SCALE: AS SHOWN SHEET 2 OF 3

SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
Gda	B			GLADSTONE LOAM, 0 TO 3 PERCENT SLOPES	0.20
Gdb	B			GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	0.20
Gdc	B			GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	0.20
Gdb*	C			GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	0.37

* INDICATES HYDRIC SOILS
 ** HIGHLY ERODIBLE, K<0.35 OR 15% OR GREATER SLOPES
 TAKEN FROM THE NRCS WEB SOIL SURVEY, JULY 2014, MAP 12.



STRUCTURE	TYPE	LOCATION	INVERT IN	INVERT OUT	TOP ELEV.	THROAT ELEV.	STD. DETAIL	NOTES	MAINTENANCE
I-1	D	N 577639.68 E 1340876.02	-	441.20	445.33	444.50	HO.CO.STD. D-4.10		PRIVATE
END SECTIONS									
E-1	12" HDPE END SECTION	N 577604.13 E 1340875.42	-	440.38	441.38			HDPE SEE MANUFACTURE'S SPECS.	PRIVATE
E-2	12" HDPE END SECTION	N 577569.09 E 1340868.55	-	437.70	438.70			HDPE SEE MANUFACTURE'S SPECS.	PRIVATE
HW-1	TYPE 'A' HEADWALL	N 577816.44 E 1340869.62	-	441.83	444.08		HO.CO.D-5.21		PRIVATE

STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE RIM.
 STRUCTURE LOCATION FOR D INLETS IS AT THE CENTER OF THE TOP OF SLAB.
 STRUCTURE LOCATION FOR 'A' INLETS IS AT THE MIDPOINT ALONG FRONT FACE.
 STRUCTURE LOCATION FOR END SECTIONS IS AT THE MIDPOINT OF THE END OF THE STRUCTURE.
 ALL INVERTS ARE AT THE CENTER OF STRUCTURE.
 PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

STRUCTURE	V10 fps	d10 (ft)	d50	LENGTH(L) (ft)	WIDTH(W) (ft)	THICK.(T) (ft)	SHA	CLASS
E-1	6.77	0.23	9.5"	10'	11'	19"	I	I
E-2	13.41	0.19	9.5"	10'	11'	19"	I	I

SEE DETAILS FOR RIP RAP CHANNEL AT LOW END OF CURB

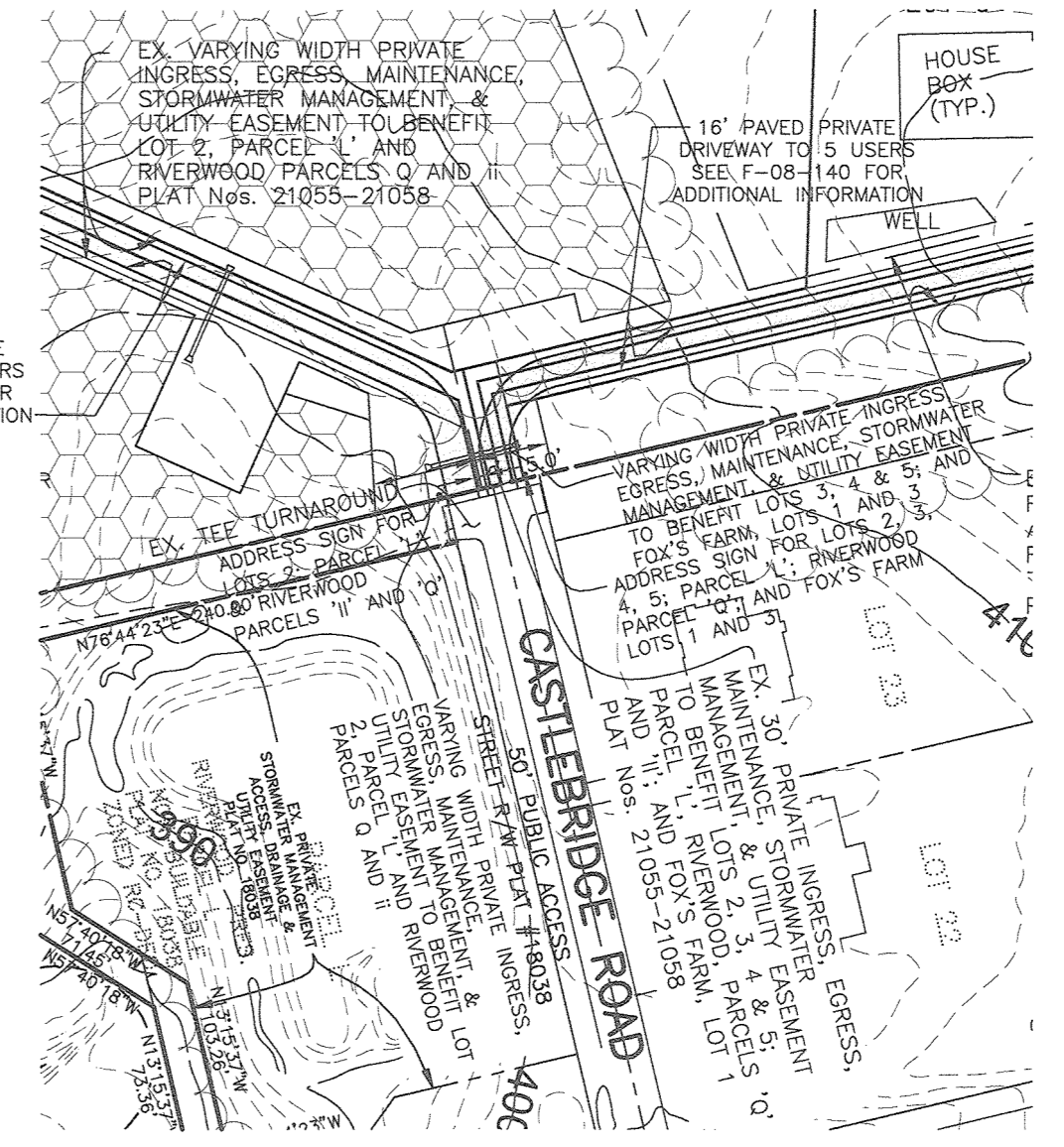
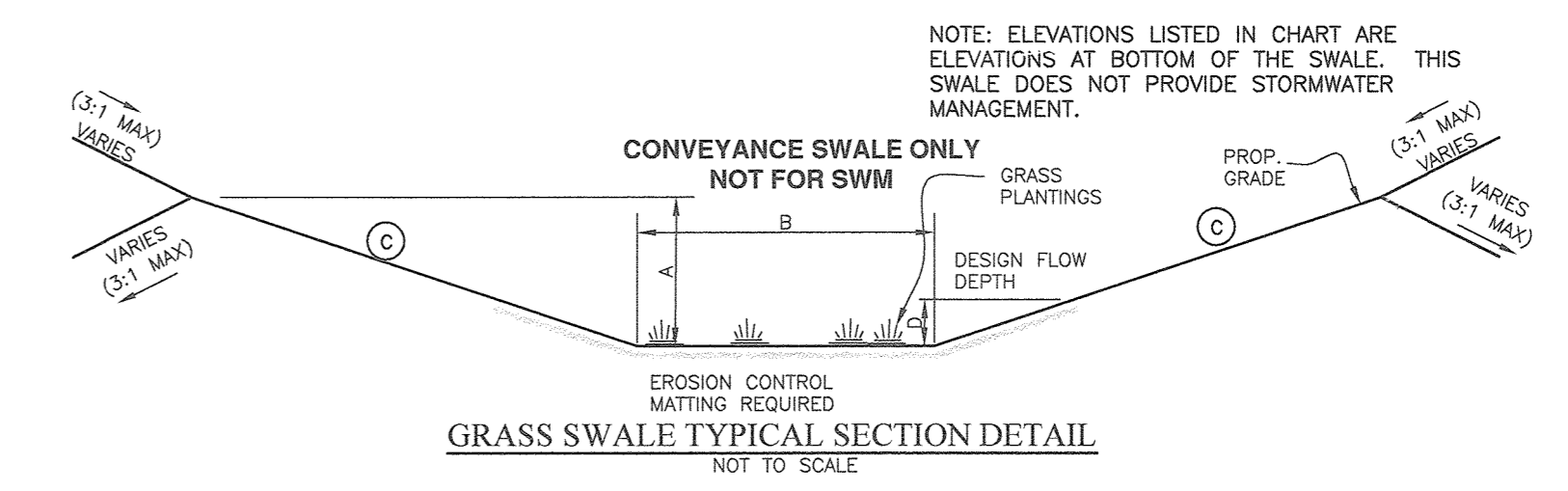
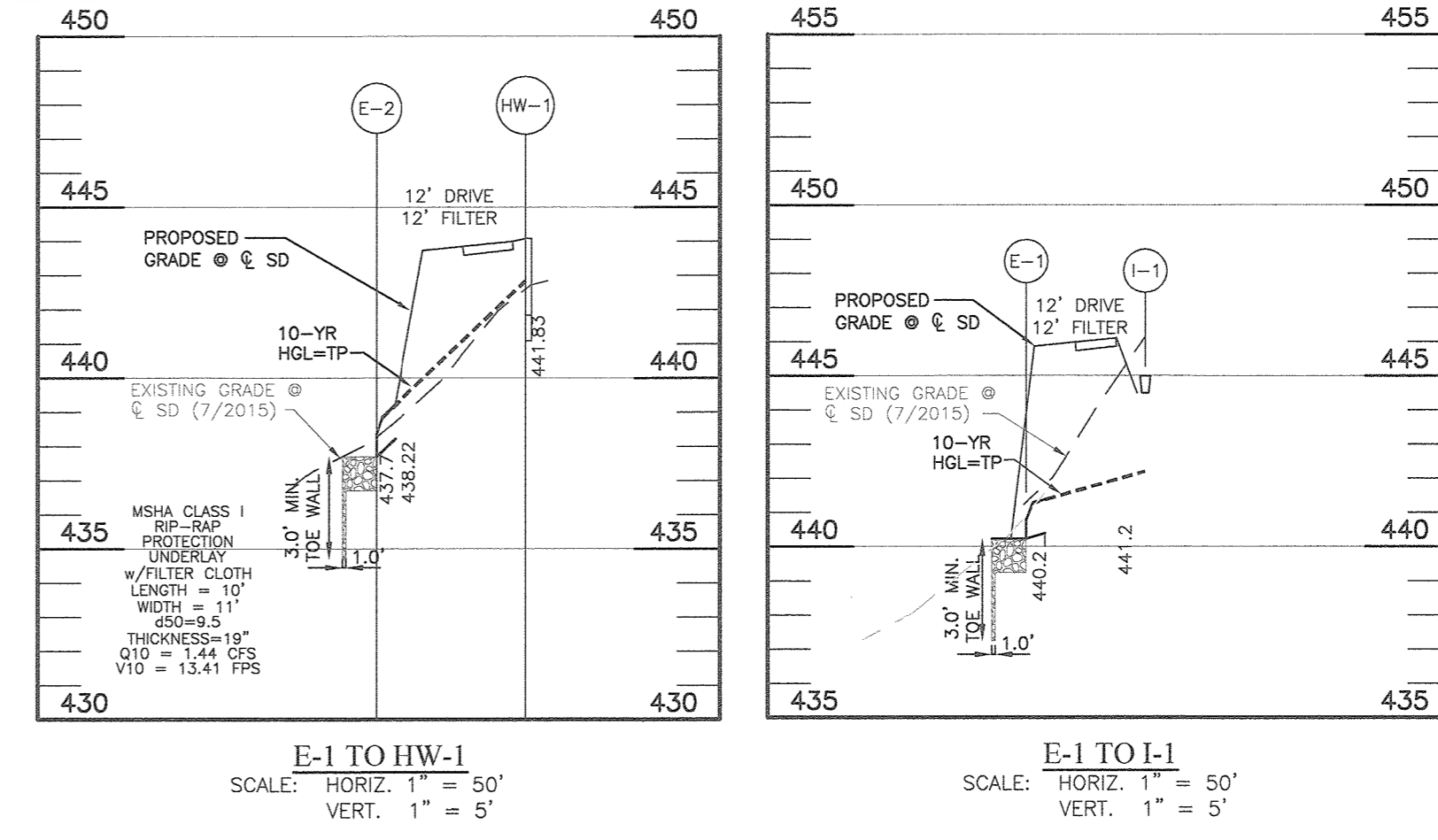
SIZE	TYPE	LENGTH (L.F.)	MAINTENANCE
12"	HDPEP	73	PRIVATE

All pipes shall have smooth interior. No interior corrugations.

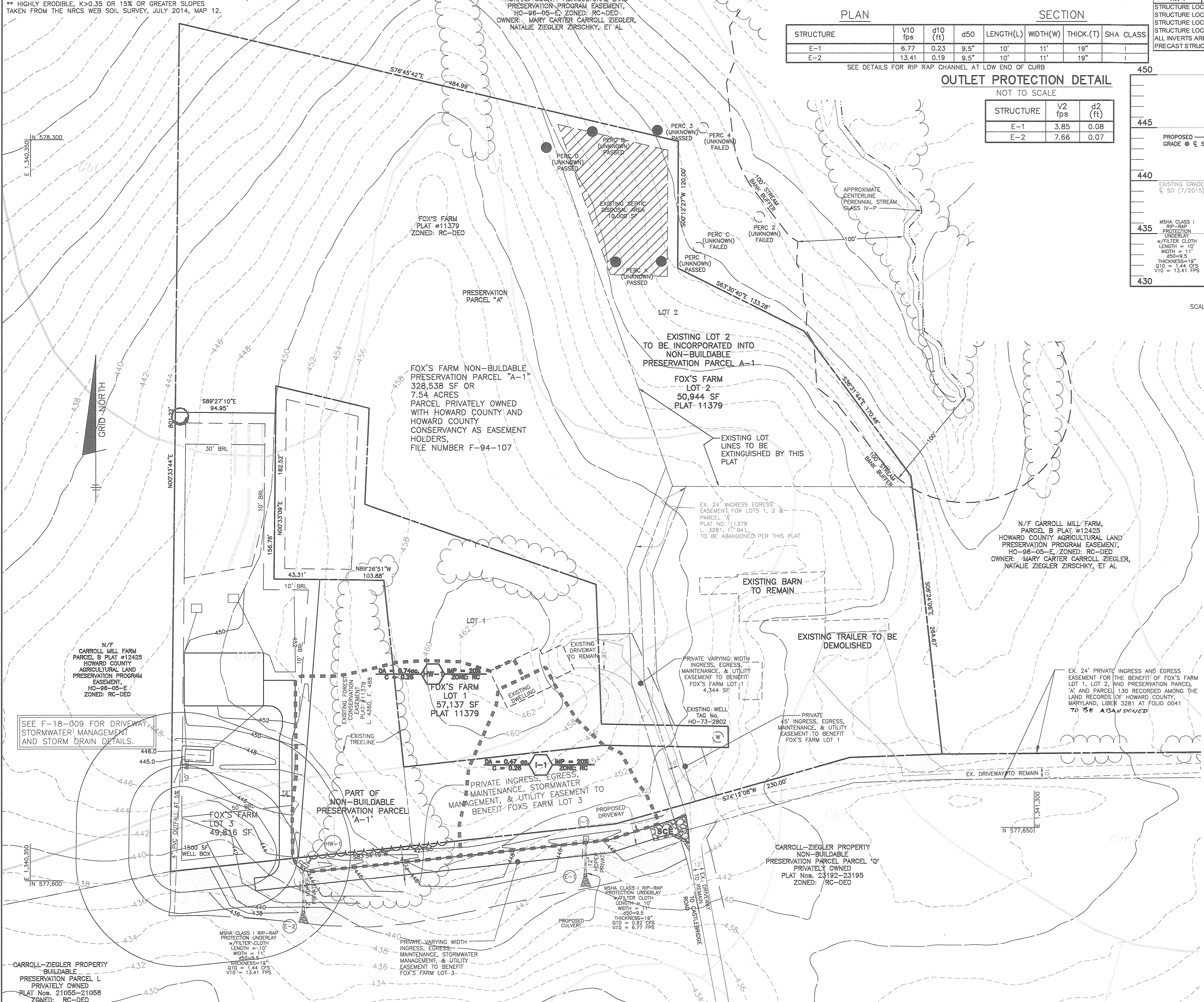
CONSTRUCTION SPECIFICATIONS
 1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
 2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
 3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
 4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
 5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS WORKED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

SWALE # 1		SWALE # 2	
A	1.0'	A	1.0'
B	2.0'	B	2.0'
C	2.1'	C	2:1
D	0.18'	D	0.21'
SLOPE	5%	SLOPE	7%
BOTTOM DIMS		BOTTOM DIMS	
LENGTH	191'	LENGTH	206'
WIDTH	2.0'	WIDTH	2.0'

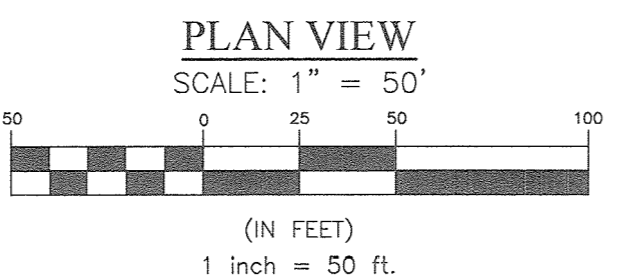
STORM Q (RUNOFF) VELOCITY STORM Q (RUNOFF) VELOCITY
 2HR 0.14 CFS 1.10 FPS 2HR 0.19 CFS 1.27 FPS
 10YR 0.92 CFS 2.17 FPS 10YR 1.44 CFS 2.83 FPS



NOTE: DRIVEWAY EXHIBIT IS A REQUIREMENT OF THE APPROVAL OF WP-17-125. TWO DRIVEWAYS ARE TO BE PROVIDED AT THE CONNECTION TO CASTLEBRIDGE ROAD. THE NUMBER OF RESIDENTIAL USER ON EACH DRIVEWAY IS LIMITED TO 6 PER THE DESIGN MANUAL. SEE F-08-140, AS REVISED, FOR ADDITIONAL INFORMATION ON THE CONSTRUCTION OF THE DRIVEWAYS



APPROVED: DEPARTMENT OF PUBLIC WORKS
 CHIEF, BUREAU OF HIGHWAYS
 DATE: 3/8/2019
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 7-25-19
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7-24-19



LEGEND	LEGEND	LEGEND	LEGEND
EXISTING WOODS LINE	EXISTING CONTOURS	EXISTING STRUCTURE	LIMITS OF DISTURBANCE (EFFECTIVE AREA)
PROPOSED WOODS LINE	PROPOSED CONTOURS	PERCOLATION TEST PASSED	PROPOSED STRUCTURE
SOILS CLASSIFICATION	SLOPES 15% TO 19.99%	EXISTING SEPTIC FIELD	DRAINAGE DIVIDE
SOILS DELINEATION	SLOPES 20% TO 24.99%	EXISTING WELL	NON ROOFTOP DISCONNECT (FILTER AREA)
FOREST CONSERVATION	SLOPES 25% AND GREATER	WELL BOX	NON ROOFTOP DISCONNECT (IMPERVIOUS)
PRIVATE INGRESS, EGRESS, MAINTENANCE, & UTILITY EASEMENT TO BENEFIT FOX'S FARM LOT 3			

THIS PLAN CAN NOT BE USED FOR BUILDING OR GRADING PERMITS

NO.	DATE	REVISION

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. 45577, Expiration Date: 06-08-2020

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE A SUITE 315 & ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8644
 WWW.BE-CIVILENGINEERING.COM

OWNER: NATALIE ZIEGLER AND JOHN ZIRSCHKY
 4888 CASTLEBRIDGE ROAD
 ELLICOTT CITY, MARYLAND 21042
 410-740-6880

FOX'S FARM
 A REVISION OF LOT 2 AND PRESERVATION PARCEL 'A' RESULTING IN LOT 3 AND PRESERVATION PARCEL 'A-1'

TAX MAP: 23 - GRID: 10 - P/O PARCEL: 131 - ZONED: RC-DEO
 ELECTION DISTRICT NO. 3
 HOWARD COUNTY, MARYLAND

SUPPLEMENTAL DRIVEWAY EXHIBIT, STORM DRAIN DRAINAGE AREA MAP, NOTES AND DETAILS

DATE: JANUARY, 2019 BEI PROJECT NO: 2799
 SCALE: AS SHOWN SHEET 3 OF 3