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2	ENVIRONMENTAL CONCEPT PLAN
3	SCHEMATIC GRADING, SEDIMENT & EROSION CONTROL PLAN

Minimum Lot Size Chart			
LOT No.	GROSS AREA	PIPESTEM AREA	MINIMUM LOT SIZE
3	20,511 Sq.ft.	444 Sq.ft.	20,067 Sq.ft.
4	21,035 Sq.ft.	664 Sq.ft.	20,371 Sq.ft.
5	21,271 Sq.ft.	1,144 Sq.ft.	20,127 Sq.ft.
6	21,795 Sq.ft.	1,715 Sq.ft.	20,080 Sq.ft.
7	28,569 Sq.ft.	2,371 Sq.ft.	26,198 Sq.ft.

# ENVIRONMENTAL CONCEPT PLAN

## ROCKBURN MEADOWS

### LOTS 1 THRU 7

#### ZONED: R-20

TAX MAP No. 37 GRID No. 05 PARCELS NO. 211 & 641

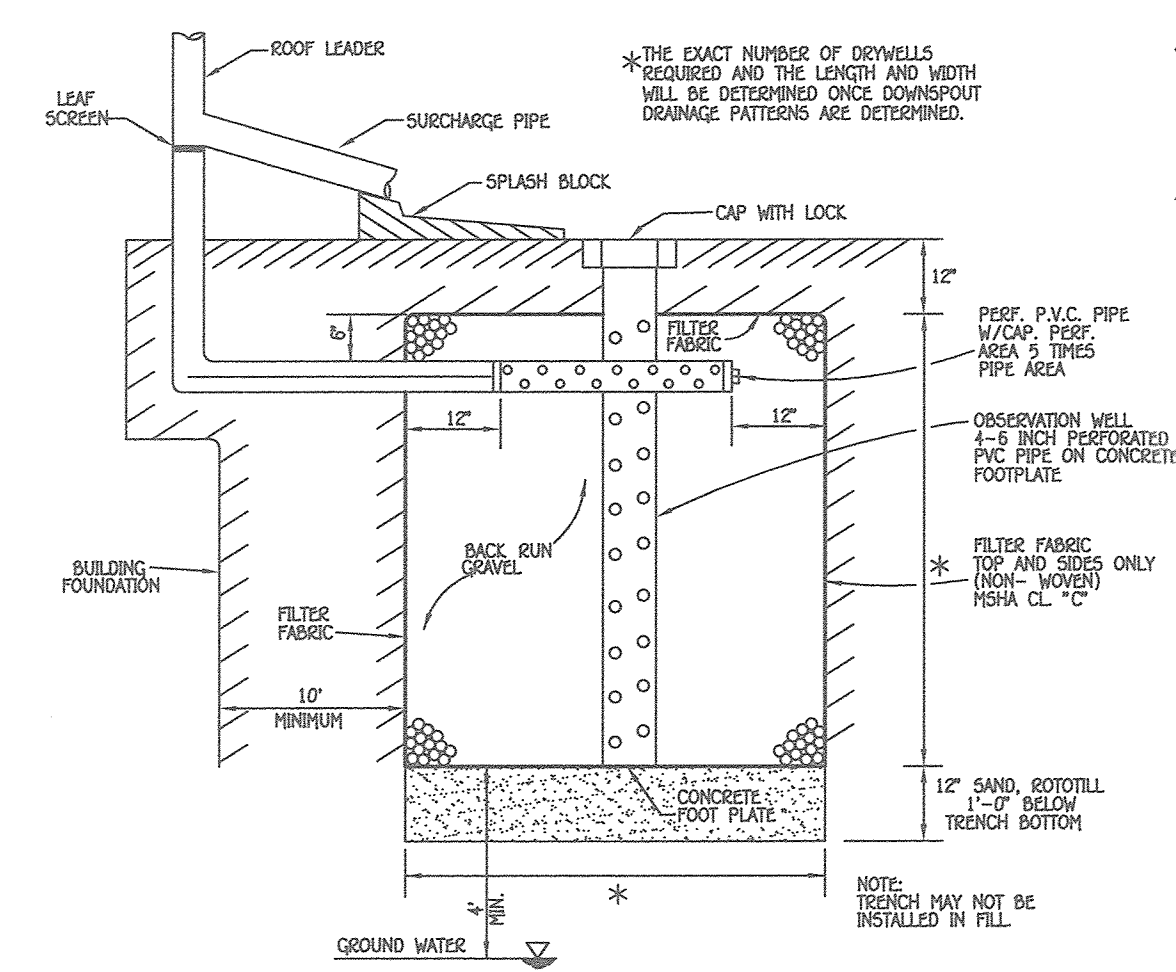
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Robert B. Croon*  
Chief, Division of Land Development  
10-30-19 Date

*John J. ...*  
Chief, Development Engineering Division  
11-1-19 Date

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
SITE	3,482	3,949	DRYWELLS (M-5), MICRO-BIORETENTION (M-6) & RAIN GARDENS (M-7)
TOTAL	3,482	3,949	

GROSS AREA = 3.06 ACRE (SITE - LOTS 2 THRU 7)  
LOD = 2.80 ACRES  
RCN = 70  
TARGET Pe = 1.3"



### STORMWATER MANAGEMENT NOTES

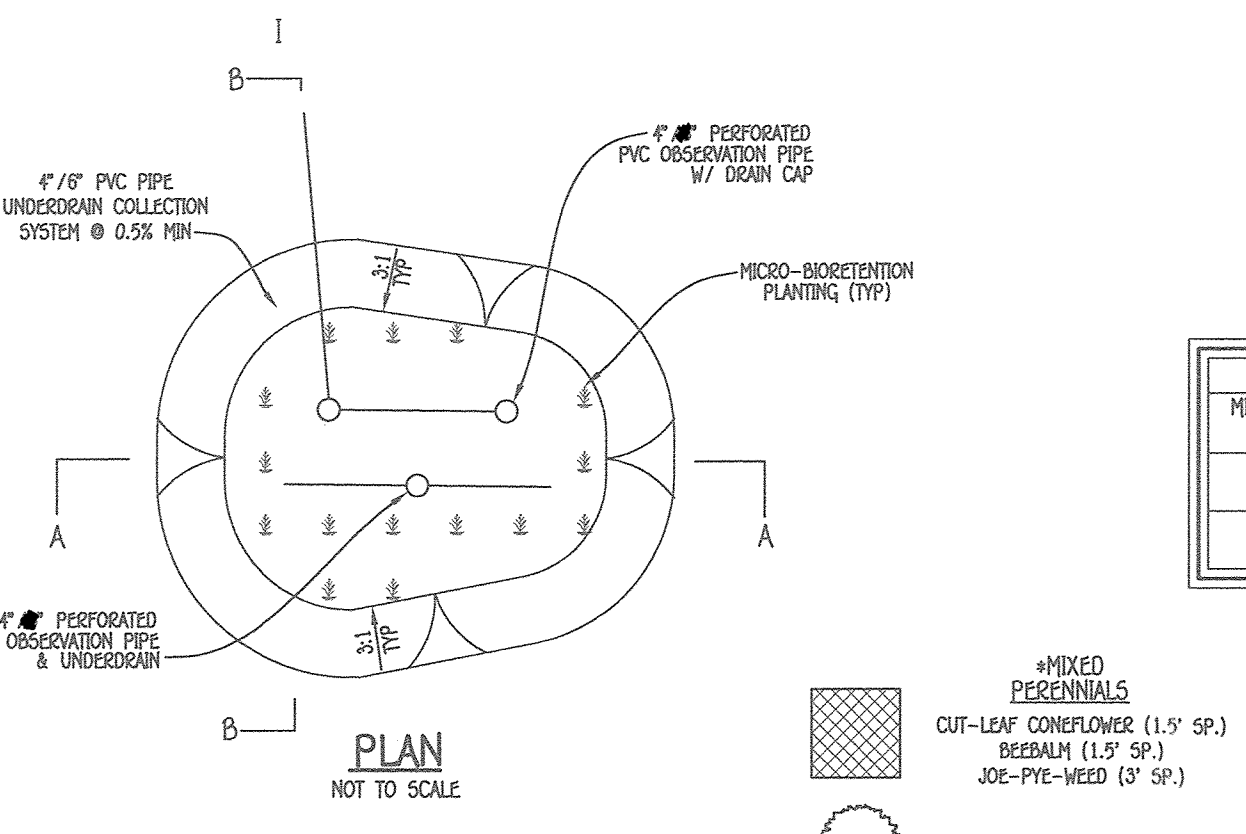
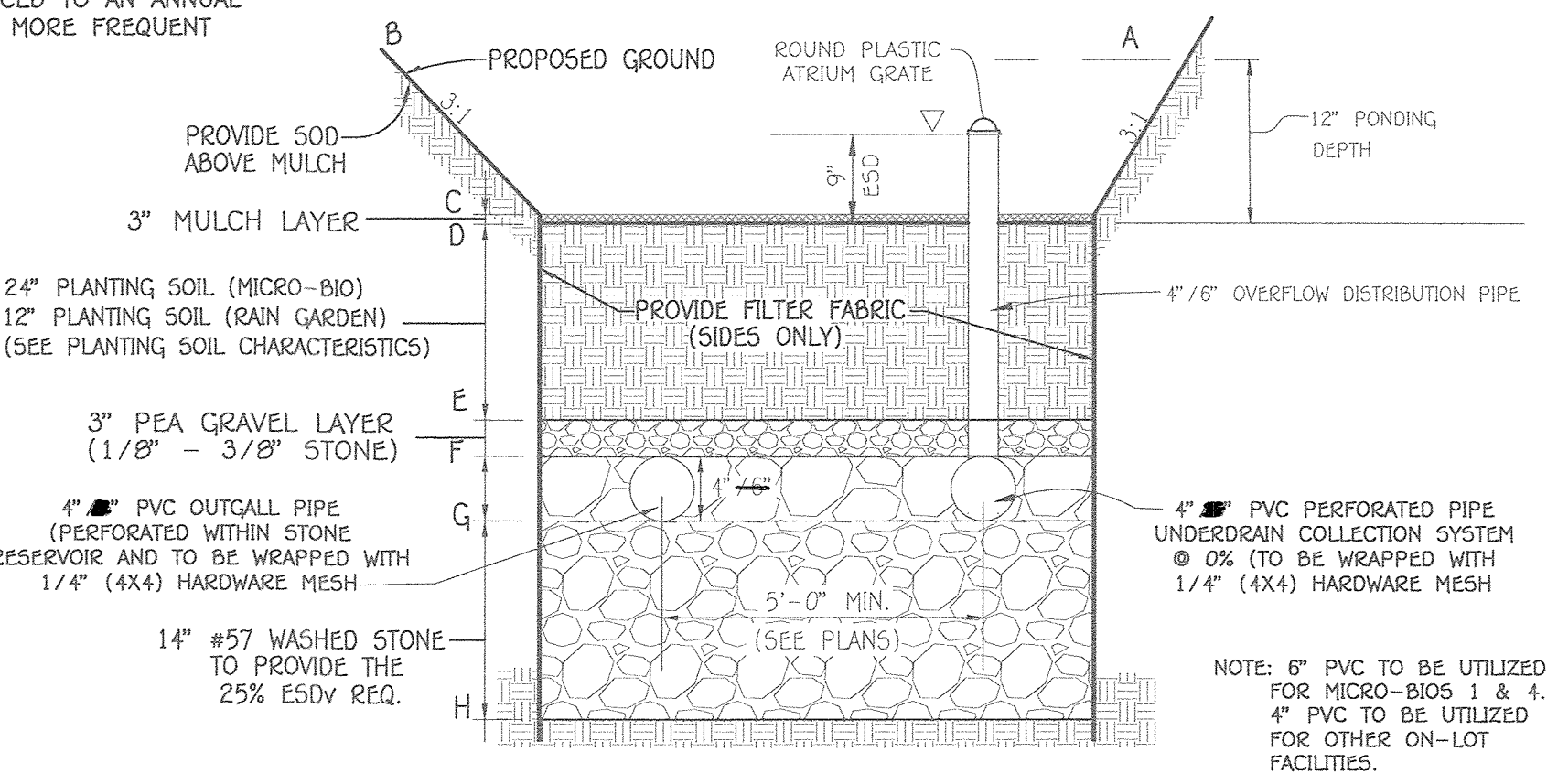
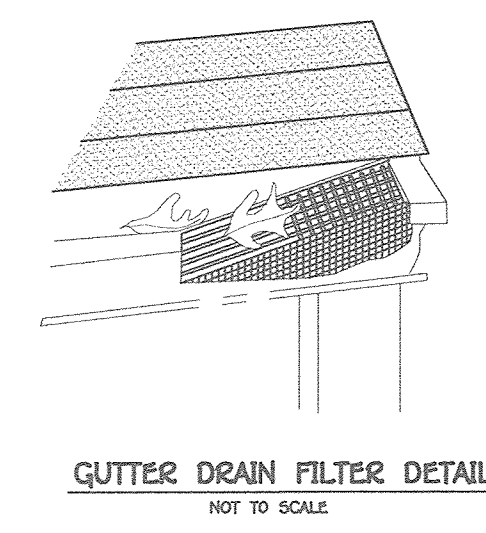
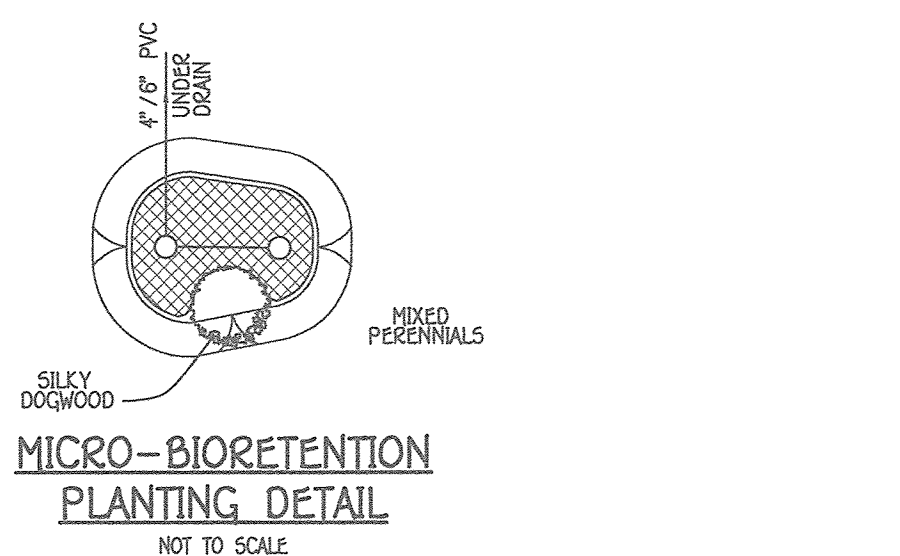
- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 1,000 SQ. FT. OR LESS.
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS 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.

DRY WELL CHART						
LOT No.	DRYWELL No.	AREA OF ROOF PER DRYWELL	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L W D
LOT 2 (F)	1	1000 SQ.FT.	101 C.F.	120 C.F.	100%	8' x 8' x 5'
LOT 2 (R)	2	1000 SQ.FT.	101 C.F.	120 C.F.	100%	8' x 8' x 5'
LOT 3 (F)	3	1000 SQ.FT.	101 C.F.	120 C.F.	100%	8' x 8' x 5'
LOT 3 (R)	4	1000 SQ.FT.	101 C.F.	120 C.F.	100%	8' x 8' x 5'
LOT 7 (L)	5	1000 SQ.FT.	101 C.F.	120 C.F.	100%	8' x 8' x 5'
101 C.F.	6	1000 SQ.FT.	101 C.F.	120 C.F.	100%	8' x 8' x 5'

\* AREA OF TREATMENT EXCEEDS THAT REQUIRED.

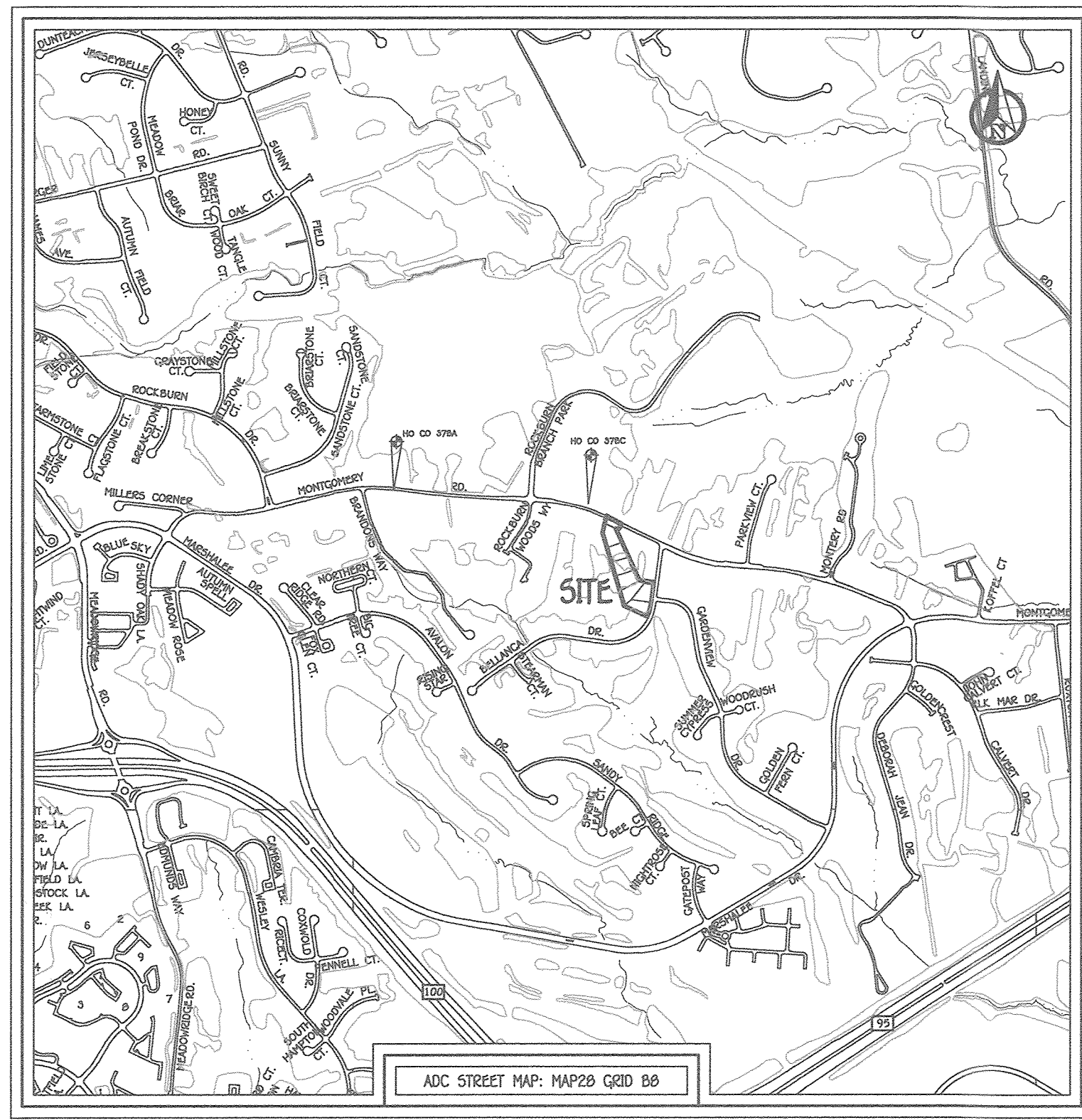
### OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRY WELLS (M-5)

- 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.



MICRO-BIORETENTIONS & RAIN GARDENS PLANT MATERIAL						
MICRO-BIO 1 QUANTITY	RAIN GARDEN 2 QUANTITY	RAIN GARDEN 3 QUANTITY	MICRO-BIO 4 QUANTITY	MICRO-BIO 5 QUANTITY	NAME	MAXIMUM SPACING (FT.)
55	30	45	45	25	MIXED PERENNIALS	1.5 TO 3.0 FT.
2	1	1	1	1	SILKY DOGWOOD	PLANT AWAY FROM INFLOW LOCATION

MICRO-BIORETENTIONS & RAIN GARDENS									
MICRO-BIO/RAIN GARDEN FILTER	A	B	C	D	E	F	G	H	I
#1	323.50	323.50	322.50	322.25	320.25	320.00	319.50	318.00	318.33
#2	346.00	346.00	345.50	345.25	344.25	344.00	343.67	343.40	342.50
#3	351.50	351.50	351.00	350.75	349.75	349.50	349.17	349.00	348.00
#4	351.00	351.00	350.00	349.75	347.75	347.50	347.00	346.50	345.83
#5	355.50	355.50	354.50	354.25	352.25	352.00	351.67	351.50	350.50



### FIRST ELECTION DISTRICT

### HOWARD COUNTY, MARYLAND

SOILS LEGEND			
SOIL	NAME	CLASS	Kw
SfB	Sassafras gravelly sandy loam, 2 to 5 percent slopes	B	0.24
SrD	Sassafras and Croom soils, 10 to 15 percent slopes	B	0.37
UaB	Urban land-Fallsington complex, 0 to 2 percent slopes	D	-
UsB	Urban land-Sassafras-Beltville complex, 0 to 5 percent slopes	D	-
UsD	Urban land-Sassafras-Beltville complex, 5 to 1 percent slopes	D	-

### 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 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:**  
Rockburn Meadows is a seven lot single family lot subdivision of two parcels including two existing houses and three accessory structures to be removed and one newly constructed house to remain. Properties are zoned R-20 and located on Tax Map 37, Grid 5, Parcel Nos. 211 & 641 of the Howard County, Maryland Tax Map Database System. The properties are an existing parcels of record located at 6198 Montgomery Road & 5014 Bellanca Drive. Subdivision will utilize a proposed public water and sewer extension. The property is located in the Elkridge area of Howard County in the watershed of an unnamed tributary of the Lower North Branch of the Patuxent River (02130906). This property is somewhat irregular in shape and runoff on-site is mainly from north to south from Montgomery Road to Bellanca Drive. The existing houses (to be removed) sit at the high point of the site, and driveway access will be from Bellanca Drive with a common driveway for five lots, a new individual driveway, and an existing individual driveway along Bellanca Drive. Forest exists on-site and forest conservation requirement will be met by a fee-in-lieu of reforestation. Also, according to a field inspection conducted by Eco-Science Professionals (ESP) dated May 2017, no wetlands or streams are present on-site. The Web Soil Survey shows soils on the site consist of Sassafras gravelly sandy loam (SfB) & Sassafras and Croom soils (SrD). Type "B" soils and Urban land-Fallsington complex (UJA) & Urban land - Sassafras - Beltville complex (UsB & UsD). Type "D" soils exist on the properties. The runoff from the roofs of the proposed houses is to be directed overland and be treated by six (6) dry wells, three (3) micro-bioretention, and two (2) rain gardens to be located on Lots 2 thru 7 in the front and rear of the proposed houses. The majority of the runoff from the proposed driveways will flow overland and be treated by two micro-bioretentions. Road improvements along Montgomery Road involve pavement removal and therefore require no SWM. Sidewalk proposed along Bellanca Drive, although due to steepness cannot be treated by Non-Rooftop Disconnection, a 4 foot grass strip adjacent to the sidewalk does slow flow of runoff. Site volume overcompensates for lack of credited treatment for sidewalk runoff.

- Natural Resource Protection:** Environmentally sensitive areas do not exist on-site (wetlands, stream, their buffers, steep slopes, nor floodplain), therefore special effort is not required to protect natural resources.
- Maintenance of Natural Flow Patterns:** It is the intent of the proposed design to discharge runoff similar to the characteristics and direction of this site prior to any of the proposed improvements.
- Reduction of impervious areas through better site design, alternative surfaces and Nonstructural Practices:** The design of this project utilizes a common driveway and individual driveways for the lots. Non-structural practices as permitted in Chapter 5, six (6) Dry Wells (M-5), three (3) Micro-bioretentions (M-6), and three (3) Rain Gardens (M-7) will be used to address ESD to the MEP requirements.
- Integration of Erosion and Sediment Controls into Stormwater Strategy:** Silt fence, super silt fence, and permanent soil stabilization control matting will be utilized for erosion & sediment control. Sediment control measures have been plan so that there is no direct discharge of runoff to a stream. Drainage easements will be required for the underdrain piping and inlet and associated piping shown on the plans. It is anticipated that all cut will be utilized on-site for construction at time of Site Development Plans.
- Implementation of ESD Planning Techniques and practices to the Maximum Extent Practicable (MEP):** The full required ESD volume is being provided.
- Request for a Design Manual Waiver:** No Waivers related to stormwater management are being requested in this project.

### SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION = 3.60 AC.±
- AREA FOR TREATMENT OF STORMWATER = 3.00 AC.± (LOTS 2 THRU 7)
- LIMIT OF DISTURBED AREA = 2.80 AC.±
- PRESENT ZONING DESIGNATION: R-20 (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: ECP-15-019, SDP-15-025, PB10 PG 96.
- TOTAL AREA OF FLOODPLAIN LOCATED ON SITE = 0 AC.
- TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.46 AC. (0 AC. 25% OR GREATER)
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0 AC.
- TOTAL AREA OF EXISTING FOREST = 1.1 AC.±
- TOTAL GREEN OPEN AREA = 3.88 AC.±
- TOTAL IMPERVIOUS AREA = 0.64 AC.± (PLUS 0.02 AC SIDEWALK ON BELLANCA DR)
- AREA OF ERODIBLE SOILS = 3.43 AC.
- M. AREA OF ROAD DEDICATION = 0.09 AC.
- DENSITY PERMITTED = 3.60 AC X 20,000 SQ.FT. / LOT = 7 LOTS
- PROPOSED NUMBER OF LOTS = 7 LOTS
- OPEN SPACE REQUIRED = 3.60 AC X 6% = 0.22 AC
- OPEN SPACE PROVIDED = 0 AC. (FEE-IN-LIEU BEING PAID)

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

- 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 LISTED TO THE FOLLOWING: 2007 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 OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREAT. DISHABED 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.

### 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. 36386, EXPIRATION DATE: 01/12/2018.

*Jonathan ...*  
Signature of Professional Engineer  
DATE: 10/28/19



### TITLE SHEET

### ROCKBURN MEADOWS

#### LOTS 1 THRU 7

#### ZONED R-20

TAX MAP No. 37 GRID No. 05 PARCEL No. 211 & 641  
FIRST ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: NOVEMBER, 2017  
SHEET 1 OF 3 ECP-17-067

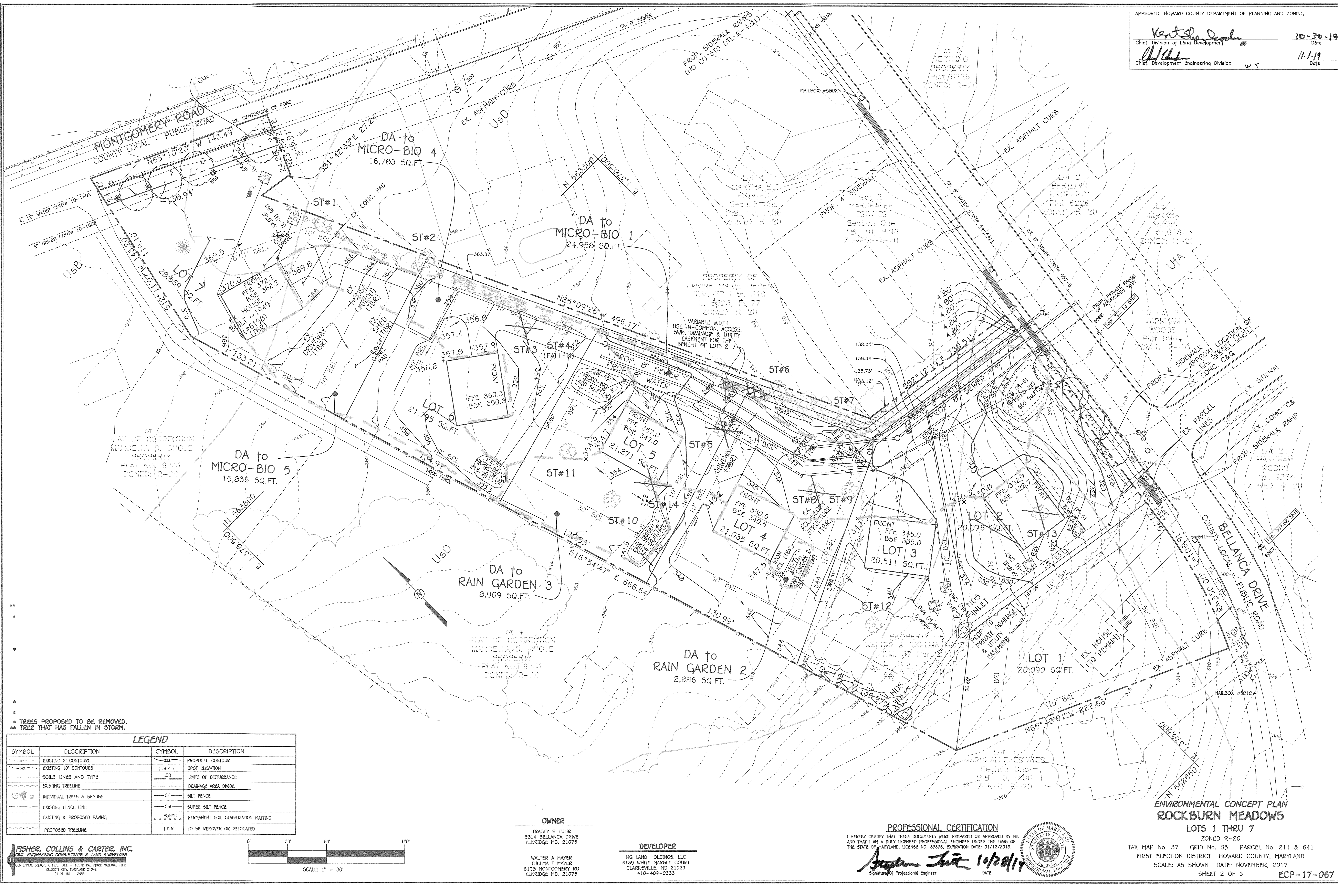
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**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SOURCE OFFICE PARK - 10272 BALDROCK NATIONAL FLE  
ELICOTT CITY, MARYLAND 21042  
410 461 8100

**OWNER**  
TRACEY R FUHR  
5014 BELLANCA DRIVE  
ELK RIDGE, MD, 21075

**DEVELOPER**  
MG LAND HOLDINGS, LLC  
6139 WHITE MARBLE COURT  
CLARKSVILLE, MD 21029  
410-409-0333

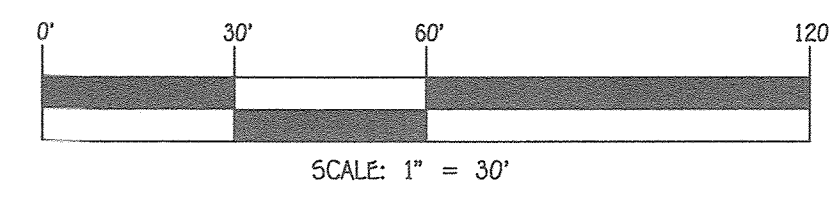




**LEGEND**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING 2' CONTOURS		PROPOSED CONTOUR
	EXISTING 10' CONTOURS		SPOT ELEVATION
	SOILS LINES AND TYPE		LIMITS OF DISTURBANCE
	EXISTING TREELINE		DRAINAGE AREA DIVIDE
	INDIVIDUAL TREES & SHRUBS		SILT FENCE
	EXISTING FENCE LINE		SUPER SILT FENCE
	EXISTING & PROPOSED PAVING		PERMANENT SOIL STABILIZATION MATTING
	PROPOSED TREELINE		TO BE REMOVED OR RELOCATED

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10722 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461 - 3000



**OWNER**  
 TRACEY R FUHR  
 5814 BELLANCA DRIVE  
 ELK RIDGE, MD. 21075

WALTER A MAYER  
 THELMA T MAYER  
 6198 MONTGOMERY RD  
 ELK RIDGE, MD. 21075

**DEVELOPER**  
 MG LAND HOLDINGS, LLC  
 6139 WHITE MARBLE COURT  
 CLARKSVILLE, MD 21029  
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*Stephen J. ...* 10/20/19  
 Signature of Professional Engineer DATE

**ENVIRONMENTAL CONCEPT PLAN**  
**ROCKBURN MEADOWS**  
 LOTS 1 THRU 7  
 ZONED R-20

TAX MAP No. 37 GRD No. 05 PARCEL No. 211 & 641  
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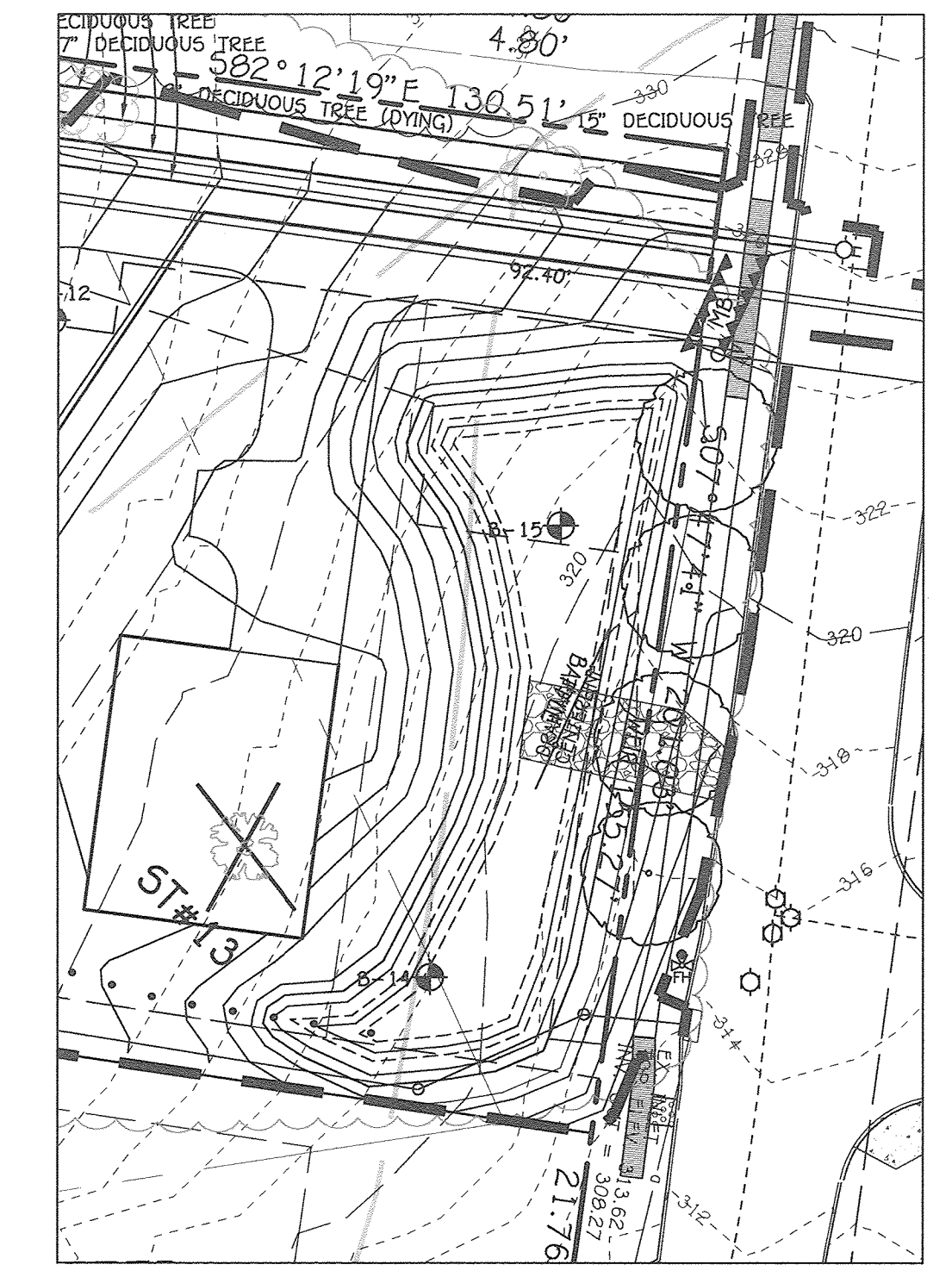


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Vest Sleserud* 10-30-19  
 Chief, Division of Land Development Date

*[Signature]* 11-1-19  
 Chief, Development Engineering Division Date

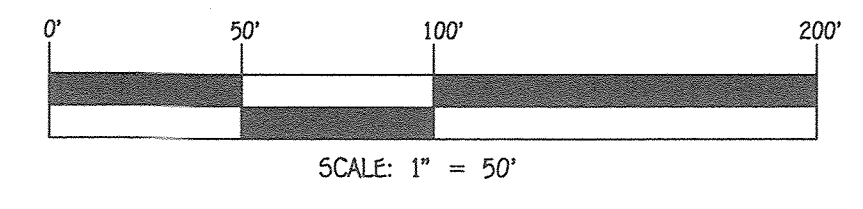
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	INDIVIDUAL TREES & SHRUBS		SILT FENCE
	EXISTING FENCE LINE		SUPER SILT FENCE
	EXISTING & PROPOSED PAVING		PERMANENT SOIL STABILIZATION MATTING
	PROPOSED TREELINE		T.B.R. TO BE REMOVED OR RELOCATED
	15% TO 24.9% SLOPES		TREE TO BE REMOVED



SOILS LEGEND			
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SAVAGE NE PAGE (19)

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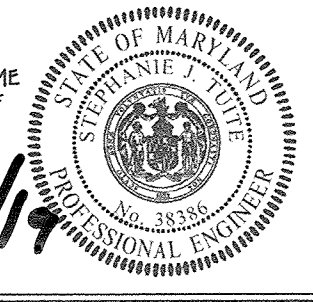
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*Stephen Lantz* 10/28/19  
 Signature of Professional Engineer DATE



**SCHEMATIC GRADING, SEDIMENT & EROSION CONTROL PLAN**  
**ROCKBURN MEADOWS**  
 LOTS 1 THRU 7  
 ZONED R-20

TAX MAP No. 37 GRID No. 05 PARCEL No. 211 & 641  
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