

SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ENVIRONMENTAL CONCEPT PLAN

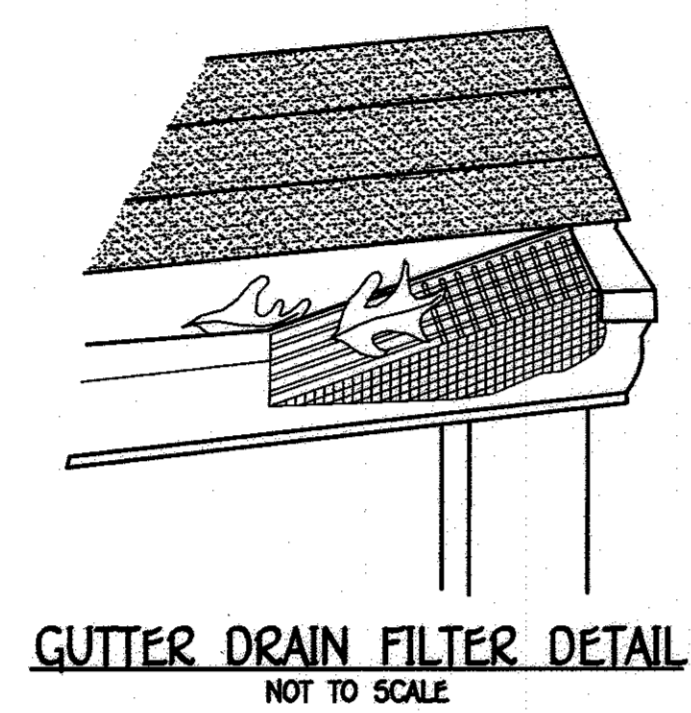
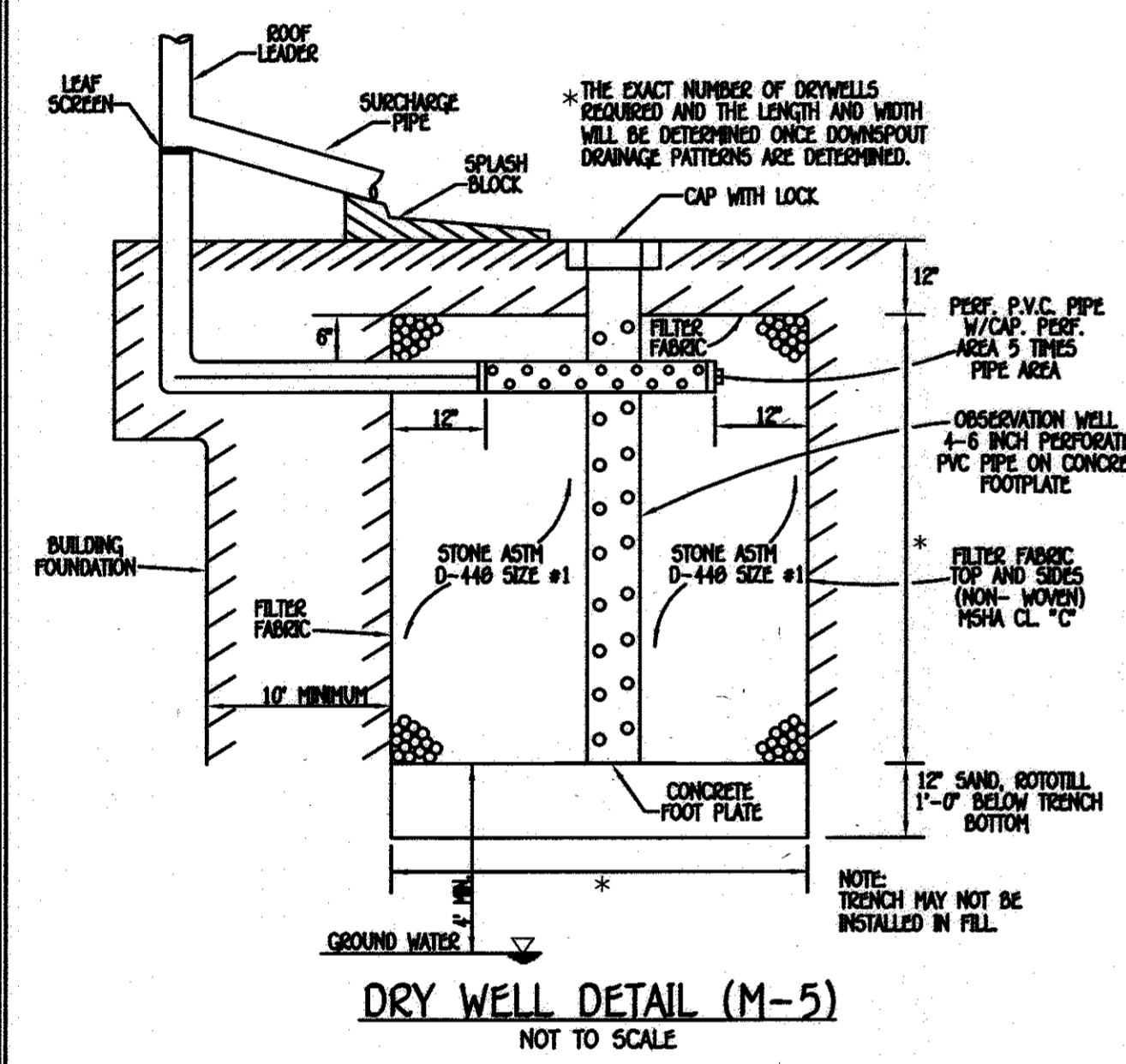
ENVIRONMENTAL CONCEPT PLAN MONTGOMERY KNOLLS

LOT 47

TAX MAP No. 31 GRID No. 13 PARCEL NOS. 383
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

STORMWATER MANAGEMENT SUMMARY			
AREA ID.	ESDV REQUIRED CU.FT.	ESDV PROVIDED CU.FT.	REMARKS
SITE	446	452	DRY WELLS (M-5)
TOTAL	446	452	

GROSS AREA = 0.66 ACRES
LOD = 0.43 ACRES
RCN = 55
TARGET Pe = 1.0'

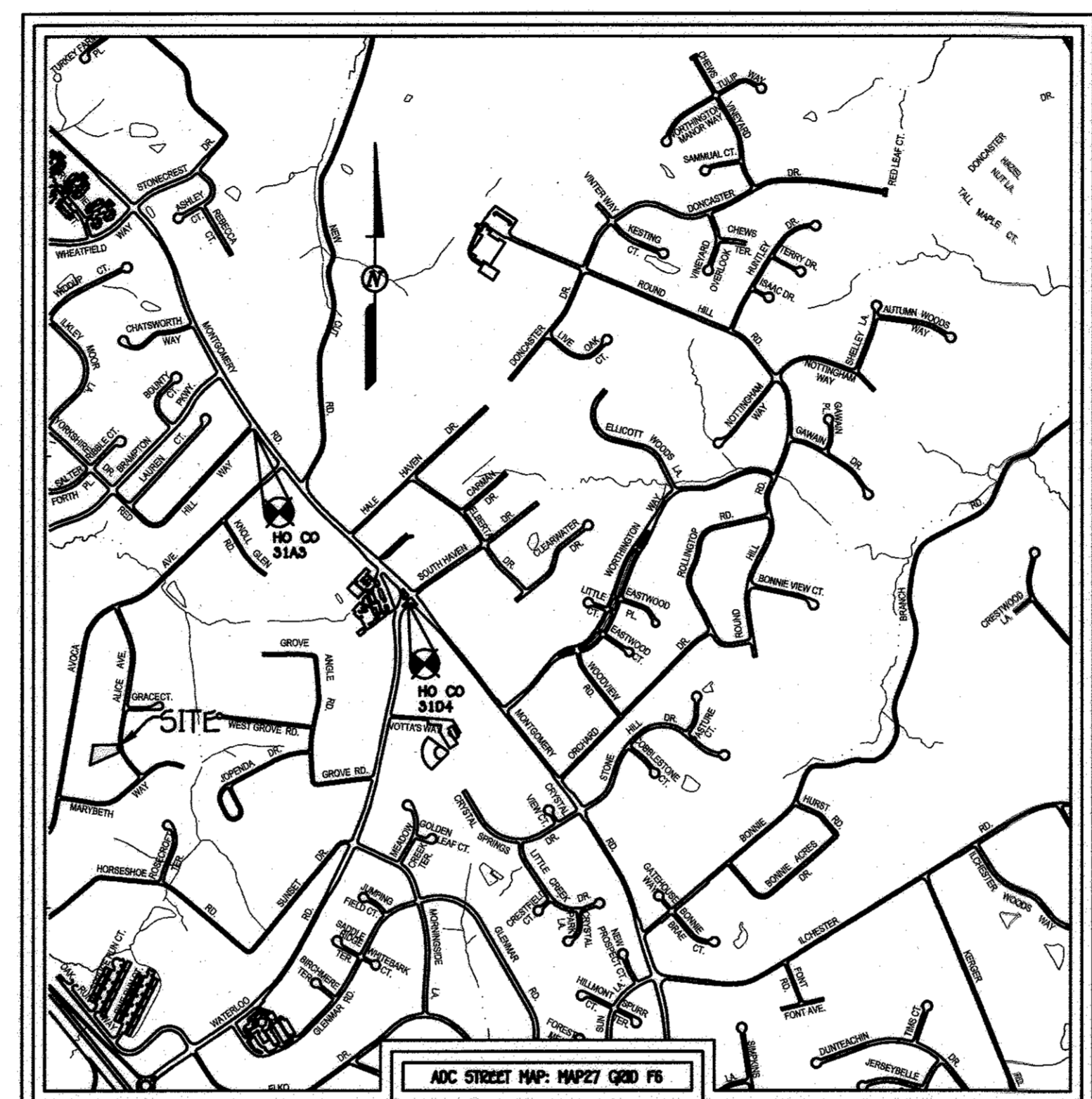


STORMWATER MANAGEMENT NOTES

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 500 SQ. FT. OR LESS (A TOTAL OF 1,000 SQ.FT. PER DRYWELL).
- DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5% SLOPE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE DETAIL SHOWN ON THIS SHEET.
- FINAL GRADING IS SHOWN ON THE SITE DEVELOPMENT PLAN.

DRY WELL CHART					
DRYWELL NO.	AREA OF ROOF PER DOWN SPOUT	VOLUME REQUIRED	VOLUME PROVIDED	AREA OF TREATMENT	L W D
FRONT (LT)	706 SQ. FT.	56 C.F.	128 C.F.	100%*	8' x 8' x 5'
FRONT (RT)	836 SQ. FT.	67 C.F.	128 C.F.	100%*	8' x 8' x 5'
REAR (LT)	514 SQ. FT.	41 C.F.	98 C.F.	100%*	7' x 7' x 5'
REAR (RT)	514 SQ. FT.	41 C.F.	98 C.F.	100%*	7' x 7' x 5'

* AREA OF TREATMENT EXCEEDS THAT REQUIRED.



BENCHMARK INFORMATION

B.M.#1 - HOWARD COUNTY CONTROL STATION #31A3 - HORIZONTAL - (NAD '83)
N 573,217.889
E 1,368,237.798
ELEVATION = 486.905 - VERTICAL - (NAVD '86)

B.M.#2 - HOWARD COUNTY CONTROL STATION #31D4 - HORIZONTAL - (NAD '83)
N 571,700.864
E 1,369,608.417
ELEVATION = 494.445 - VERTICAL - (NAVD '86)

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.

GENERAL NOTES

- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1800 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY (855 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 UNMONTICATED BOUNDARY SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED NOVEMBER, 2016. TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD RUN SURVEY BY FISHER, COLLINS & CARTER, INC. IN NOVEMBER, 2016 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. 31A3 AND 31D4 WERE USED FOR THIS PROJECT.
- PREVIOUS DEED FILE NUMBERS: PG. 6, PG. 13.
- 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.
- THIS PROPERTY IS LOCATED INSIDE THE METROPOLITAN DISTRICT. LOT IS TO BE SERVED PUBLIC WATER AND PUBLIC SEWER. CONTRACTS #12-W & #302-5.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- THE SUBJECT PROPERTY IS ZONED R-20 (PER DATE 10/06/2013 COMPREHENSIVE ZONING PLAN).
- NO 100 YEAR FLOODPLAIN, WETLANDS, STREAM(S) AND/OR THEIR BUFFERS, NOR STEEP SLOPES EXIST ON-SITE.
- NO FOREST STANDS OR WETLANDS EXIST ON-SITE PER ENVIRONMENTAL FINDINGS LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED JANUARY, 2017.
- SINCE THIS IS A SINGLE LOT LESS THAN 40,000 SQ.FT. IT IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS.
- SOIL BORERS WILL BE REQUIRED FOR THE PROPOSED STORMWATER MANAGEMENT DEVICES.
- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBMISSION 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 STAGES 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.
- NO STRUCTURES EXIST ON THIS PROPERTY.

DESIGN NARRATIVE

Introduction:
This report will demonstrate how the criteria set forth in the Maryland Stormwater Design Manual, Volumes I and II (effective October 2009, 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:
Montgomery Knolls, Lot 47 is a single family lot that is currently unimproved and has a number of individual trees on-site. Property is zoned R-20 and located on Tax Map 31, Parcel No. 383 of the Howard County, Maryland Tax Map Database System. Property is an existing lot of record located at 5018 Alice Avenue. Lot will utilize connections to existing water and sewer mains in Alice Avenue. Lot is located in the Ellicott City area of Howard County in the watershed of the Little Patuxent River (02131105) and somewhat pie shaped with runoff on-site from West to East. The existing off-site houses act as a high point for runoff. An individual driveway will provide access to Alice Avenue. Lot is less than 40,000 sq.ft. (see pb #6, page 13), it is not subject to the forest conservation regulations. Also, according to a field inspection conducted by Eco-Science Professionals (ESP) dated January, 2017, no wetlands or streams are present on-site. The Web Soil Survey shows soils on the site consist of Gladesville-Urban Complex (G/C) & Legore-Montalto-Urban land complex (LoB). Type 'B' soils exist on the property. The runoff from the roof of the proposed house is to be treated through roof leaders to four (4) dry wells (M-5). Although the proposed driveway was not able to be treated due to the steepness of the driveway and lack of ability to provide an outfall for a facility that would be able to treat the driveway, the drywells have been oversized.

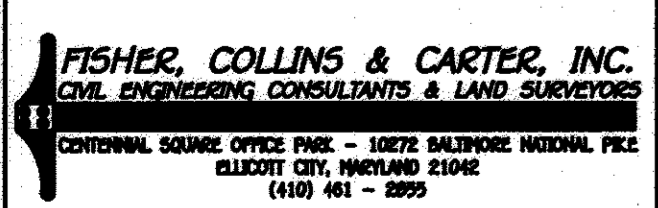
- Natural Resource Protection:**
Environmentally sensitive areas do not exist on-site, therefore no special effort is required to protect natural resource on-site.
- Maintenance of Natural Flow Patterns:**
It is the intent of the proposed design to discharge runoff similar to the characteristics and 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 will make use of the design of this project utilizing an individual driveway that will access the existing common driveway. Non-structural practices as permitted in Chapter 5, four (4) Dry Wells (M-5) will be used to address ESD to the MEP requirements.
- Integration of Erosion and Sediment Controls into Stormwater Strategy:**
Since this is a small drainage area (site sheet flows from the eastern property line to western property line, silt fence, super silt fence, and erosion control matting will be utilized for erosion & sediment control. There is no direct discharge of runoff directly to a stream. All site runoff will discharge to the existing ground then eventually to the Little Patuxent River. No drainage easements will be required. 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 Feasible 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 the project.

Table B.4. Materials Specifications for Micro-Bioretenention, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand 60-85% compost 30-40% or sandy loam 30% coarse sand 30% compost 40%		USDA soil type loamy sand or sandy loam; clay content <5%
Organic Content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum
Pea gravel diaphragm	pea gravel: ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
Curbside drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-270	4" to 6" rigid schedule 40 PVC or 60829	Slotted or perforated pipe; 3/8" perf. @ 8" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipes shall be wrapped with 1/4 inch galvanized hardware cloth.
Formed in place concrete (if required)	MSHA Mix No. 3, f = 3500 psi at 28 days, normal weight, air-entrained; reinforcing to meet ASTM-610-02	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 site 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 308.2R99; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressure); and analysis of potential cracking.
Sand	AASHTO-M-6 or ASTM-C-33	0.075" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

SITE ANALYSIS DATA CHART

- TOTAL AREA OF THIS SUBMISSION / LOT AREA = 28,924 SQ.FT. OR 0.66 AC.
- LIMIT OF DISTURBED AREA = 18,950 SQ.FT. OR 0.43 AC.
- PRESENT ZONING DESIGNATION = R-20 (PER 10/06/2013 COMPREHENSIVE ZONING PLAN)
- PROPOSED USE: RESIDENTIAL
- PREVIOUS HOWARD COUNTY FILES: PG. 6, PG. 13.
- TOTAL AREA OF FLOODPLAIN LOCATED ON-SITE = 0.00 AC
- TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0.00 AC
- TOTAL AREA OF WETLANDS (INCLUDING BUFFER) = 0.00 AC.
- TOTAL AREA OF STREAM (INCLUDING BUFFER) = 0.00 AC.
- TOTAL AREA OF EXISTING FOREST = 0.00 AC
- TOTAL GREEN OPEN AREA = 0.56 AC*
- TOTAL IMPERVIOUS AREA = 0.10 AC*
- TOTAL AREA OF ESCAPEABLE SOILS = 0.00 AC.
- TOTAL AREA OF ROAD DEDICATION = 0.00 AC.



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. 36966, EXPIRATION DATE: 01/12/2016.

Signature of Professional Engineer DATE: 2/27/17

OWNER

SZ INVESTMENTS, LLC
1029 CUMMINGS AVE
CATONSVILLE, MARYLAND 21228
ATTN: AYMAN SALEH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	
<i>Robert Sanderson</i> Chief, Division of Land Development	3-01-17 Date
<i>Chad Chilton</i> Chief, Development Engineering Division	3-2-17 Date
PROJECT: MONTGOMERY KNOLLS	SECTION: 5
PARCEL NO.: 383	PARCEL NO.: 383
PLAT BOOK 6 BLOCK NO. 13	ZONE R-20
TAX/ZONE 31	ELEC. DIST. SECOND
CENSUS TR. 6023.02	

TITLE SHEET

**MONTGOMERY KNOLLS,
LOT 47
5018 ALICE AVENUE**

TAX MAP No.: 31 PARCEL No.: 383 GRID No.: 13
ZONED: R-20

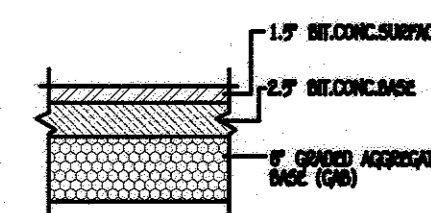
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

SCALE: 1"=30' DATE: FEBRUARY, 2017
SHEET 1 OF 2 ECP-17-033

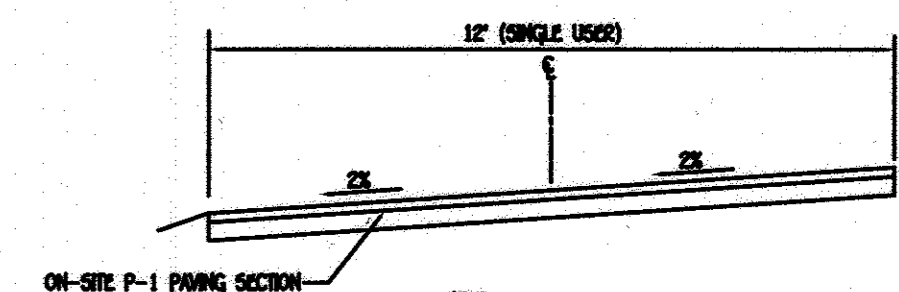
SOILS LEGEND			
SOIL	NAME	CLASS	K FACTOR
GfC	Gladehorne-Urban land complex, 0 to 15 percent slopes	B	0.20
LoB	Legore-Montalto-Urban land complex, 0 to 8 percent slopes	B	0.20

LEGEND			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
---+492---	EXISTING 2' CONTOURS	---	PROPOSED CONTOUR
---490---	EXISTING 10' CONTOURS	+362.5	SPOT ELEVATION
---	SOILS LINES AND TYPE	---	LIMITS OF DISTURBANCE
---	EXISTING TREELINE	---	DIVERSION FENCE
---	EXISTING FENCE LINE	---	SILT FENCE
---	PROPOSED PAVING	---	PERMANENT SOIL STABILIZATION MATTING
---	DRAINAGE AREA DIVIDE	---	SUPER SILT FENCE
---	EXISTING TREES	---	STABILIZED CONSTRUCTION ENTRANCE
---		---	TEMPORARY CHECK DAM

STORMWATER MANAGEMENT PRACTICES				
LOT NO.	DISCONNECTION OF ROOFTOP RUNOFF (N-1) Y/N, NUMBER	DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2) Y/N	DRY WELLS (M-5) Y/N, NUMBER	MICRO-BIORETENTION (M-8) Y/N, NUMBER
47	NO	NO	YES, FOUR (4)	NO

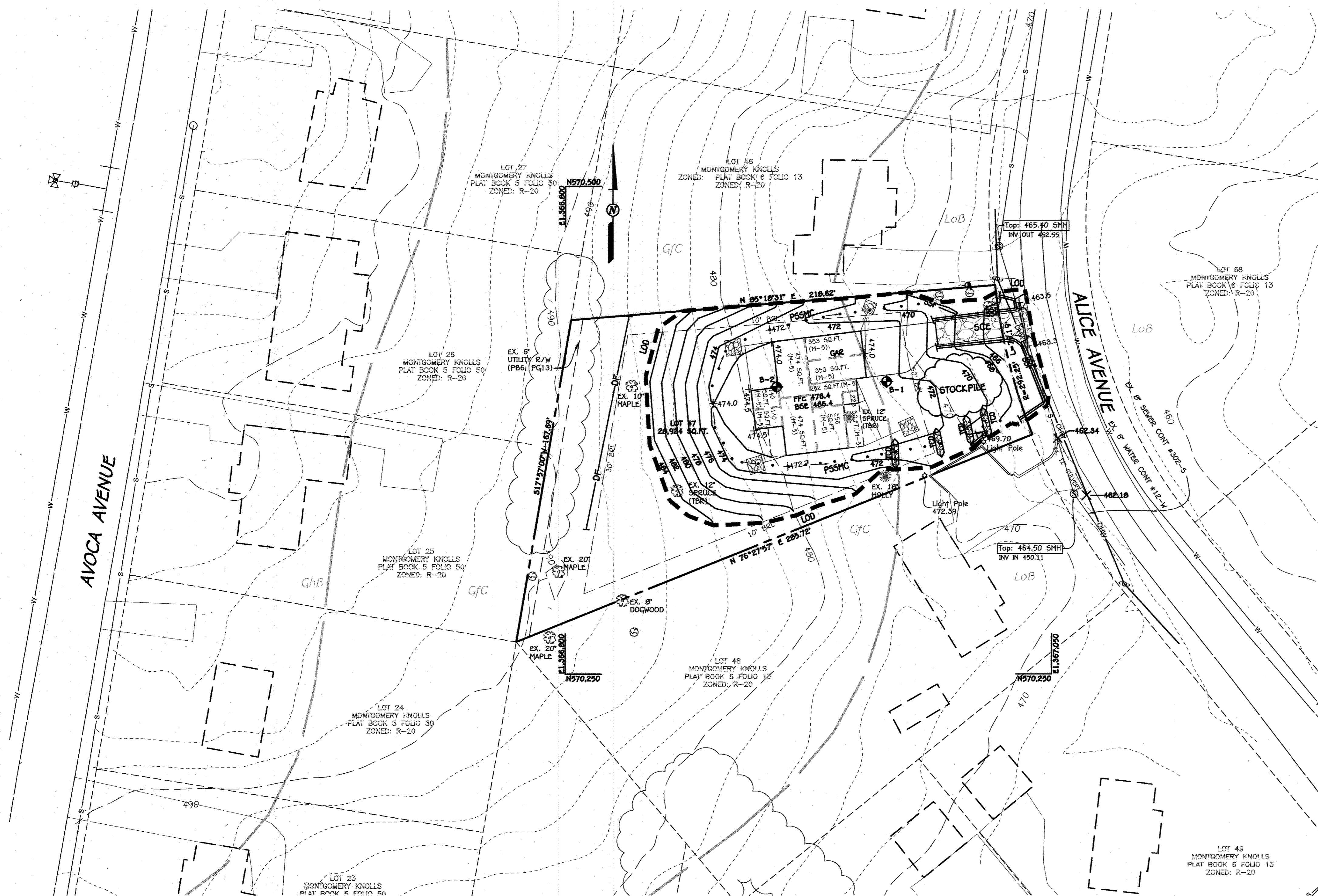


NOTE: APPROVAL OF THIS PLAN BY HOWARD SOIL CONSERVATION DISTRICT DOES NOT PROVIDE APPROVAL OF THE SHOWN SEDIMENT CONTROLS.



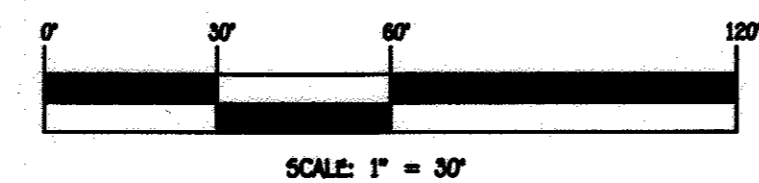
NOTE: ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME 11 STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

TYPICAL PRIVATE DRIVE CROSS SLOPE SECTION NOT TO SCALE



FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 18272 SALTWATER NATIONAL PIKE
 ELKLOFT CITY, MARYLAND 21042
 (410) 461-1225

NO.	REVISION	DATE



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. 36366, EXPIRATION DATE: 01/12/2016.
 Signature of Professional Engineer: [Signature] DATE: 2/27/17



OWNER
 SZ INVESTMENTS, LLC
 1029 CUMMINGS AVE
 CATONSVILLE, MARYLAND 21228
 ATTN: AYMAN SALEH

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Karl [Name] 3-01-17
 Chief, Division of Land Development
Chad [Name] 3-3-17
 Chief, Development Engineering Division

PROJECT: MONTGOMERY KNOLLS
 SECTION: 5
 PARCEL NO.: 363
 PLAT BOOK 6 BLOCK NO. 13 ZONE R-20 TAX/ZONE 31 ELEC. DIST. SECOND CENSUS TR. 6023.02

ENVIRONMENTAL CONCEPT PLAN
MONTGOMERY KNOLLS,
LOT 47
5018 ALICE AVENUE
 TAX MAP No.: 31 PARCEL No.: 363 GRID No.: 13
 ZONED: R-20
 SECOND ELECTION DISTRICT: HOWARD COUNTY, MARYLAND
 SCALE: 1"=30' DATE: FEBRUARY, 2017
 SHEET 2 OF 2 ECP-17-033