

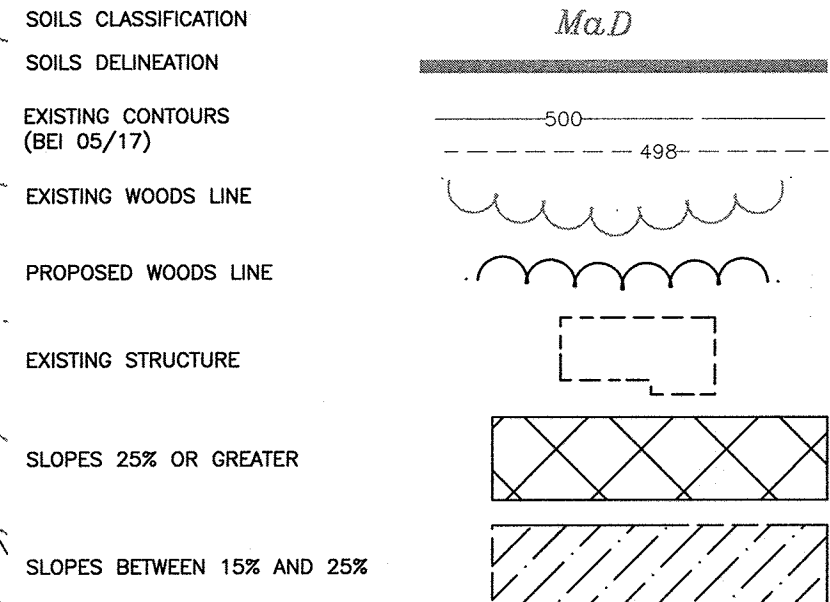


ESD STORMWATER MANAGEMENT SUMMARY TABLE													
Practice	DA #	DA (sq ft)	Imp Area (sq ft)	% Imp	Rv	At (cf)		ESDv		Pe Provided	Rev (ac-ft)		Ownership
						Required	Provided	Required	Provided		Required	Provided	
(F-1) Surface Sand Filter	#8	86,463	12,598	15%	0.18	223	1010	PASS	1566	1521	1.55	0.0093	Private
(M-6) Micro Bio-Retention	#1	2,515	1,473	59%	0.58	50	74	PASS	145	190	1.57	0.0008	Private
(M-6) Micro Bio-Retention	#2	2,586	1,405	54%	0.54	52	120	PASS	139	247	2.13	0.0009	Private
(M-6) Micro Bio-Retention	#3	4,919	1,354	28%	0.30	98	102	PASS	146	234	1.92	0.0012	Private
(M-6) Micro Bio-Retention	#4	6,160	1,699	28%	0.30	123	132	PASS	184	292	1.91	0.0011	Private
(M-6) Micro Bio-Retention	#5	6,989	2,198	31%	0.33	140	221	PASS	233	450	2.32	0.0017	Private
(M-6) Micro Bio-Retention	#7	2,414	1,473	61%	0.60	48	71	PASS	145	211	1.75	0.0009	Private
Totals per individual Drainage Areas		96,483	22,200	23%	0.26	735	1306		2568	3144	1.52	0.0090	
Totals per Whole Site		101,132	24,363	24%					2698	3144		0.0090	

Provided Q10 = 6712 cf

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MIN. LOT SIZE
1	13,734 SF	1,202 SF	12,532 SF
2	13,365 SF	1,365 SF	12,000 SF
3	13,918 SF	1,826 SF	12,092 SF
4	13,535 SF	1,534 SF	12,001 SF
5	13,038 SF	1,028 SF	12,010 SF
6	13,044 SF	500 SF	12,544 SF

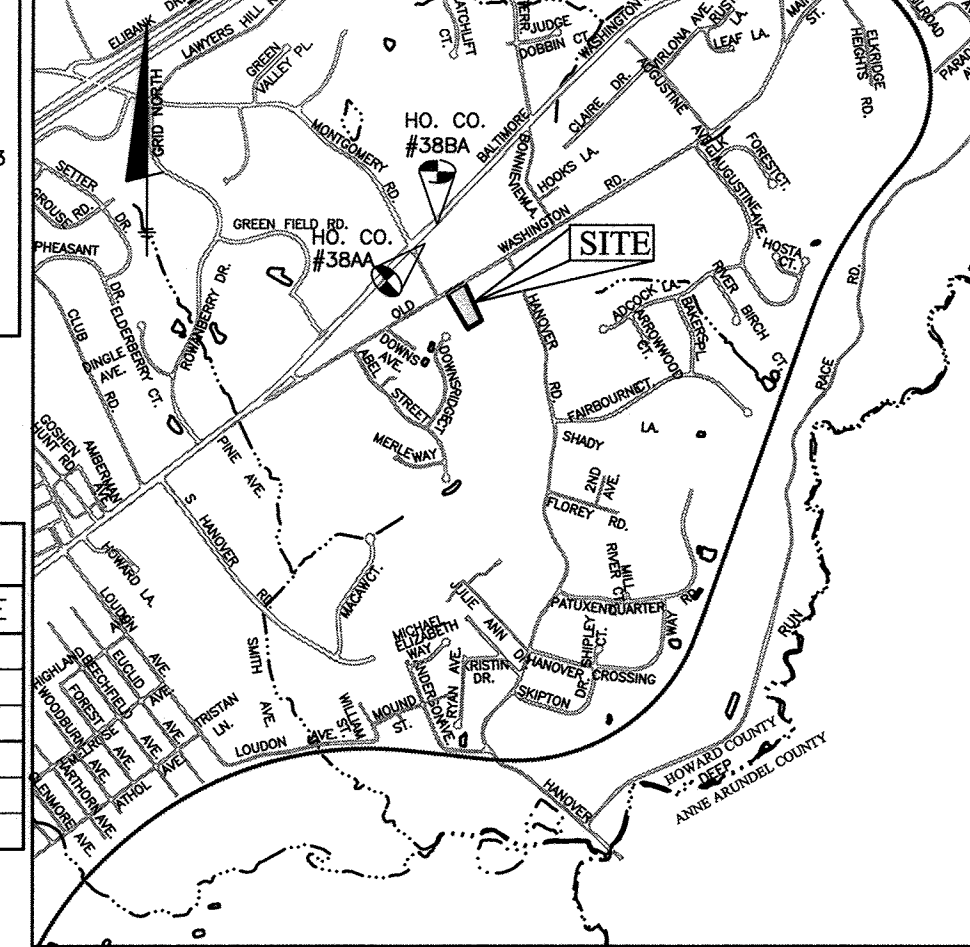
LEGEND



Site Analysis Data Sheet
AREAS ARE APPROXIMATE

Gross Area	2.35 ac
100yr Floodplain	0.00 ac
Steep Slopes 15% or greater	0.51 ac
Wetlands (outside of floodplain)	0.00 ac
Wetlands Buffer (outside of floodplain)	0.00 ac
Stream	0 if
Stream Buffer (outside floodplain)	0.00 ac
Forested Area	1.06 ac
Highly Erodible Soils	1.40 ac
Limit of Disturbance	2.21 ac
Impervious Area	0.64 ac
Green Space (within LOD)	1.57 ac

BENCHMARK
HORIZONTAL
HO. CO. #388A
STAMPED DISK SET ON TOP OF CONCRETE BASE.
N 561158.817 E 1389726.33
ELEVATION: 220.084
HO. CO. #388A
STAMPED DISK SET ON TOP OF CONCRETE BASE
N 562553.31 E 1390967.86
ELEVATION: 166.184



SWM DESIGN NARRATIVE:

NATURAL RESOURCES SHALL BE PRESERVED TO THE EXTENT FEASIBLE. THERE ARE ENVIRONMENTALLY SENSITIVE (SLOPES, ERODIBLE SOILS, FOREST) AREAS ON-SITE. MOST OF THESE FEATURES ARE BEING DISTURBED BY THIS PLAN. THERE IS ALSO A SPECIFIC AREA OF EARTH SHED THAT IS NOT BEING DISTURBED. THERE ARE NO WETLAND, STREAMS OR THEIR BUFFER ON SITE, THEREFORE NONE ARE BEING DISTURBED. THE IMPERVIOUS AREA OF THE SITE IS MINIMIZED. SITING THE SWM PRACTICE NEAR THE DRIVEWAY, UTILIZING A SHARED DRIVEWAY, MINIMIZING WIDTH OF THE INDIVIDUAL DRIVEWAY AND KEEPING THE DRIVEWAY LENGTH MINIMAL ALL ARE CONDITIONS THAT REDUCE THE IMPERVIOUS AREAS. ERODIBLE SOILS WITH A K_w OF 0.35 OR GREATER ARE BEING DISTURBED BUT ADEQUATE SEDIMENT AND EROSION CONTROL SHALL BE PROVIDED. FOREST IS DISTURBED AND WILL BE REPLACED IN A BANK, OFFSITE MITIGATION AREA OR BY FEE-IN-LIEU OF PLANTING.

EXISTING FLOW PATTERNS SHALL BE MAINTAINED. UNDER ULTIMATE CONDITIONS MOST DRAINAGE FLOW SHALL EXIT TO OLD WASHINGTON ROAD. THE LOCATION OF THE DISCHARGE IS AT A BETTER LOCATION THAN THE EXISTING CONDITIONS THAT FLOWS TOWARDS THE NEIGHBORING STRUCTURES AND THEN INTO OLD WASHINGTON ROAD.

THERE IS NO DEFINED DISCHARGE POINT OR ADEQUATE OUTFALL LOCATION. THE SURFACE SAND FILTER HAS BEEN DESIGNED TO PROVIDE RETENTION ABOVE THE ESDV VOLUME.

IMPERVIOUS AREA IS BEING HELD TO A MINIMUM BY LOCATING THE PROPOSED HOUSES CLOSE TO SHARED DRIVEWAY AND BY UTILIZING THE MINIMUM WIDTH FOR DRIVEWAYS.

SEDIMENT AND EROSION CONTROL SHALL BE PROVIDED. A SCHEMATIC CONCEPT IS SHOWN WITHIN THIS PLAN SET. IT IS ANTICIPATED THAT IT WILL CONSIST MAINLY OF EARTH DIKES AND SUPER SILT FENCE ALONG THE PERIMETER AND A SEDIMENT BASIN AT THE SURFACE SAND (F-1) FILTER LOCATION. EROSION CONTROL MATTING SHALL BE USED FOR SWALES. THERE ARE NO IMPACTS TO SWM DESIGN BASED ON SEDIMENT AND EROSION CONTROL.

THE PROPOSED (F-1) SURFACE SAND FILTER AND (M-6) MICRO-BIORETENTION FACILITIES SHALL ADEQUATELY TREAT THE PROPOSED IMPERVIOUS AREAS. THE PRACTICES SHALL DISCHARGE AT LOCATIONS THAT ARE NOT DETRIMENTAL TO THE ADJACENT PROPERTY. THE DISCHARGE AT THE SURFACE SAND FILTER (F-1) AND MICRO-BIORETENTIONS (M-6) SO HIGH STORMS WILL FLOW TO THE STONE CHAMBERS AND UNDERDRAIN PIPES. FULL TREATMENT IS BEING PROVIDED THEREFORE THIS PROJECT CAN BE CONSIDERED TO BE TREATED TO THE MAXIMUM EXTENT PRACTICAL.

ONE (F-1) SURFACE SAND FILTER IS BEING PROPOSED TO TREAT THE NEW IMPERVIOUS SURFACES. THIS IS DUE IN LARGE PART TO THE FACT THAT THE DEVELOPMENT DISCHARGE RUNOFF AT OR BELOW PRE-DEVELOPED RUNOFF FOR THE 10-YEAR STORM EVENT, THE SAND FILTER WILL HELP TO STORE ENOUGH RUNOFF (1558 cf) TO KEEP THE DISCHARGE RATE LOWER. SINCE THE SIZE OF THE (F-1) SURFACE SAND FILTER NEEDED TO ACCOMPLISH THIS IS ALSO LIMITED BY THE DRIVEWAY WIDTH, IT WAS DETERMINED THAT ON-LOT PRACTICES SUCH AS MICRO BIO-RETENTIONS WOULD ONLY BE NEEDED FOR THE ROOFTOPS. THE F-1 FACILITY SHOULD BE CONSIDERED TO BE ENVIRONMENTAL SITE DESIGN TO THE MAXIMUM EXTENT PRACTICABLE.

NOTES:

- EXISTING ZONING: R-12
- DEED REFERENCE: 17498/00062
- SITE ANALYSIS DATA:
 - A. TOTAL AREA OF SITE: 2.35 AC.
 - EXISTING IMPERVIOUS AREA: 0.13 AC.
 - EXISTING GREEN AREA: 2.22 AC.
 - EXISTING FORESTED AREA: 1.06 AC.
 - EXISTING SITE USE: SINGLE DWELLING WITH ACCESSORY STRUCTURES
 - B. AREA OF PLAN SUBMISSION: 2.35 AC.
 - LIMIT OF DISTURBANCE: 2.21 AC.
 - IMPERVIOUS AREA: 0.64 AC.
 - REVEGETATED AREA: 1.57 AC.
 - PROPOSED USE: 6 NEW SINGLE FAMILY DETACHED RESIDENCE, RETENTION OF 1 EXISTING SINGLE FAMILY DETACHED RESIDENCE
 - C. PREVIOUS SUBMITTAL:
 - 4. THIS LOT WILL UTILIZE A CUSTOM SEDIMENT AND EROSION PLAN SINCE THE LIMIT OF DISTURBANCE IS FOR MORE THAN ONE LOT.
 - 5. STORMWATER MANAGEMENT FOR THIS PROPOSAL IS PROVIDED WITH THE APPROVAL OF THE SIMPLIFIED ENVIRONMENTAL CONCEPT PLAN AND MAY BE REVISED WITH THE FINAL PLANS & BUILDING PERMIT.
 - 6. THERE IS ONE EXISTING DWELLING ON SITE. IT IS TO BE RETAINED.
 - 7. TO THE BEST OF OUR KNOWLEDGE AND BELIEF THERE ARE NO CEMETERIES ON-SITE. THERE IS ONE HISTORIC STRUCTURE ON-SITE.
 - 8. APPROVAL OF A DESIGN MANUAL WAIVER WILL BE NECESSARY FOR HOWARD COUNTY DESIGN MANUAL ROADS AND BRIDGES, VOLUME III, SECTION 2.6(A), 5.2(B) AND APPENDIX "A" TO ALLOW MORE THAN 6 LOTS ACCESSING A PUBLIC ROAD VIA A PRIVATE DRIVEWAY. THE JUSTIFICATION IS THAT THE INTERSECTION WITH MONTGOMERY ROAD, THE LOCATION OF THE HIGH POINT OF OLD WASHINGTON ROAD AND ZONING REGULATIONS SECTION 16.127(C)(4) LIMIT THE BEST SINGLE ACCESS POINT TO THE NORTHERN PART OF THE PROPERTY. ADEQUATE INTERSECTION AND STOPPING SIGHT DISTANCE IS AVAILABLE AT THE LOCATION SHOWN.
 - 9. FOREST CONSERVATION IS REQUIRED SINCE THIS DEVELOPMENT IS A MAJOR SUBDIVISION THAT CREATES ADDITIONAL LOTS. FOREST CONSERVATION WILL BE PROVIDED AT THE FINAL PLAN STAGE BY OFF-SITE MITIGATION, USE OF A FOREST BANK, OR PAYMENT OF A FEE-IN-LIEU OF PLANTING.
 - 10. APPROVAL OF THIS 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 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.
 - 11. THERE ARE ERODIBLE SOILS WITHIN THE PROPERTY LIMITS.
 - 12. OPEN SPACE WILL BE PROVIDED BY LOT 8 AND A PAYMENT OF A FEE-IN-LIEU OF OPEN SPACE.
 - 13. SITE DRAINS TO PATAPSCO RIVER LOWER NORTH BRANCH WATERSHED, DNR WATERSHED NUMBER 02130906.
 - 14. PER THE FOREST STAND DELINEATION REPORT PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED APRIL 4, 2017, THERE ARE NO WETLANDS, STREAMS OR BUFFERS PRESENT ON-SITE.
 - 15. THE PROJECT SITE IS LISTED ON THE HOWARD COUNTY HISTORIC INVENTORY AS SITE HO-803. HDC REVIEW MAY BE REQUIRED WITH SUBDIVISION REVIEW.

NO.	DATE	REVISION

Professional Engineer. 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. 44377. Expiration Date: 06-08-2020.

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE & SUITE 315 ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BE-CVLENGINEERING.COM

OWNER/DEVELOPER:
HARMONY BUILDERS INC
4228 COLUMBIA ROAD
ELLICOTT CITY, MD 21042
410-461-0833

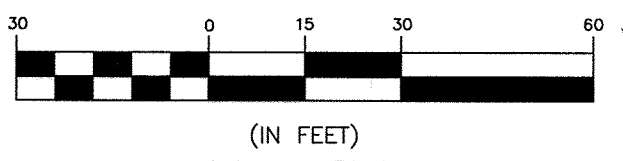
ELKRISE HILL
LOTS 1-7 AND OPEN SPACE LOT 8

TAX MAP: 30, GRID: 08, PARCEL: 198, ZONED: R-12
8289 OLD WASHINGTON ROAD
ELKRISE, MD 21075
ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND

ENVIRONMENTAL CONCEPT PLAN

DATE: SEPT., 2018 BEI PROJECT NO.: 2818
DESIGN: JC DRAWN: JC SCALE: AS SHOWN SHEET 1 OF 3

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Kurt S. [Signature]
10-5-18
DATE
10-17-18
DATE
CHIEF, DIVISION OF LAND DEVELOPMENT
CHIEF, DEVELOPMENT ENGINEERING DIVISION



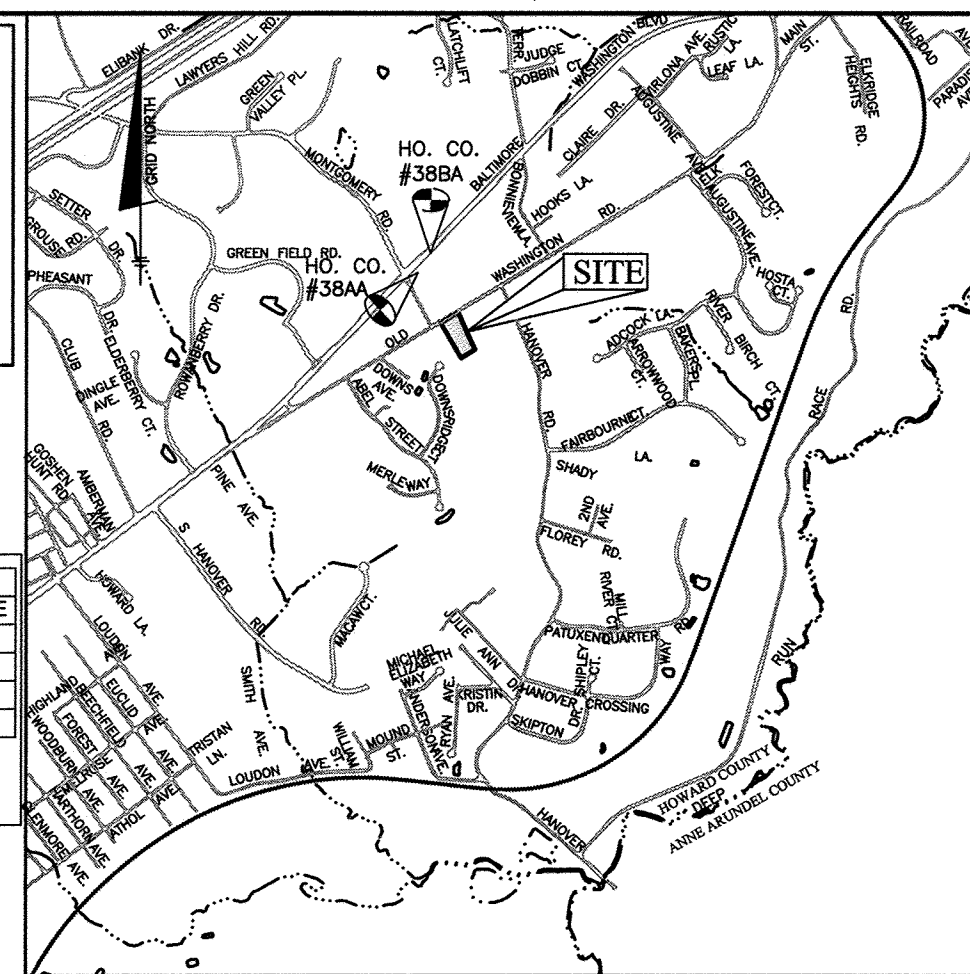


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Totals per Whole Site		101,132	24,363	24%					2698	3144	1.52	

Provided Q10 = 6712 cf

BENCHMARKS NAD'83 HORIZONTAL
 HO. CO. #384
 STAMPED DISK SET ON TOP OF CONCRETE BASE.
 N 561158.817 E 1389726.33
 ELEVATION: 220.084

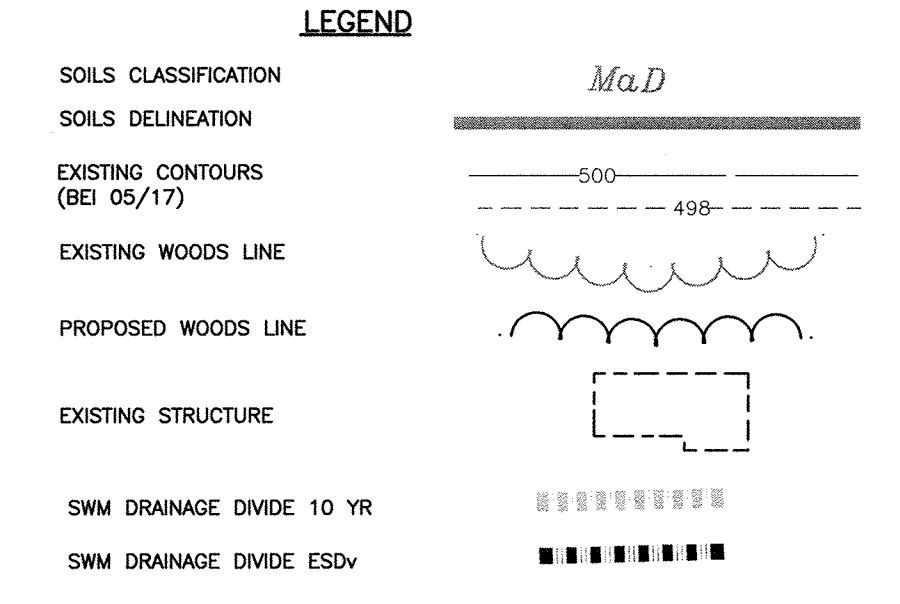
HO. CO. #388A
 STAMPED DISK SET ON TOP OF CONCRETE BASE.
 N 562553.31 E 1390987.86
 ELEVATION: 166.184



SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
Rsc		C		RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.24
Rd		C		RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.24
UcB		D	B/C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	0.37
UcD		D	B/C	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 5 TO 15 PERCENT SLOPES	0.37

* INDICATES HYDRIC SOILS
 ** HIGHLY ERODIBLE SOILS: SOILS WITH K OF 0.35 OR GREATER AND ON GRADES 5% OR STEEPER; OR SOILS ON GRADES 15% OR GREATER.
 SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.

LOT NUMBER	ADDRESS	MICRO BIO-RETENTION (M-6) QUANTITY	SURFACE SAND FILTER (F-1) QUANTITY
1	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	1	0
2	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	1	0
3	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	1	0
4	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	1	0
5	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	1	0
7	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	1	0
O.S.8	OLD WASHINGTON ROAD ELKRISE HILL, MD 21075	0	1



SWM DESIGN NARRATIVE:

NATURAL RESOURCES SHALL BE PRESERVED TO THE EXTENT FEASIBLE. THERE ARE ENVIRONMENTALLY SENSITIVE (SLOPES, ERODIBLE SOILS, FOREST) AREAS ON-SITE. MOST OF THESE FEATURES ARE BEING DISTURBED BY THIS PLAN. THERE IS ALSO A SPECIMEN TREE NEAR THE SITE THAT IS NOT BEING DISTURBED. THERE ARE NO WELLS, STREAMS OR OTHER BUFFER ON SITE, THEREFORE NONE ARE BEING DISTURBED. THE IMPERVIOUS AREA OF THE SITE IS MINIMIZED. SITING THE SWM PRACTICES NEAR THE DRIVEWAYS UTILIZING A SHARED DRIVEWAY, MINIMIZING WIDTH OF THE INDIVIDUAL DRIVEWAY AND KEEPING THE DRIVEWAY LENGTH MINIMAL, ARE CONDITIONS THAT REDUCE THE IMPERVIOUS AREAS. ERODIBLE SOILS WITH A K_w OF 0.35 OR GREATER ARE BEING DISTURBED BUT ADEQUATE SEDIMENT AND EROSION CONTROL SHALL BE PROVIDED. FOREST IS DISTURBED AND WILL BE REPLACED IN A BANK, OFFSITE MITIGATION AREA OR BY TREE-IN-LIEU OF PLANTING.

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

10-5-18
 DATE
 10-17-18
 DATE

(IN FEET)
 1 inch = 30 ft.

NO.	DATE	REVISION

BENCHMARK
 ENGINEERS & LAND SURVEYORS & PLANNERS
ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE & SUITE 315 • ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-ENGINEERING.COM

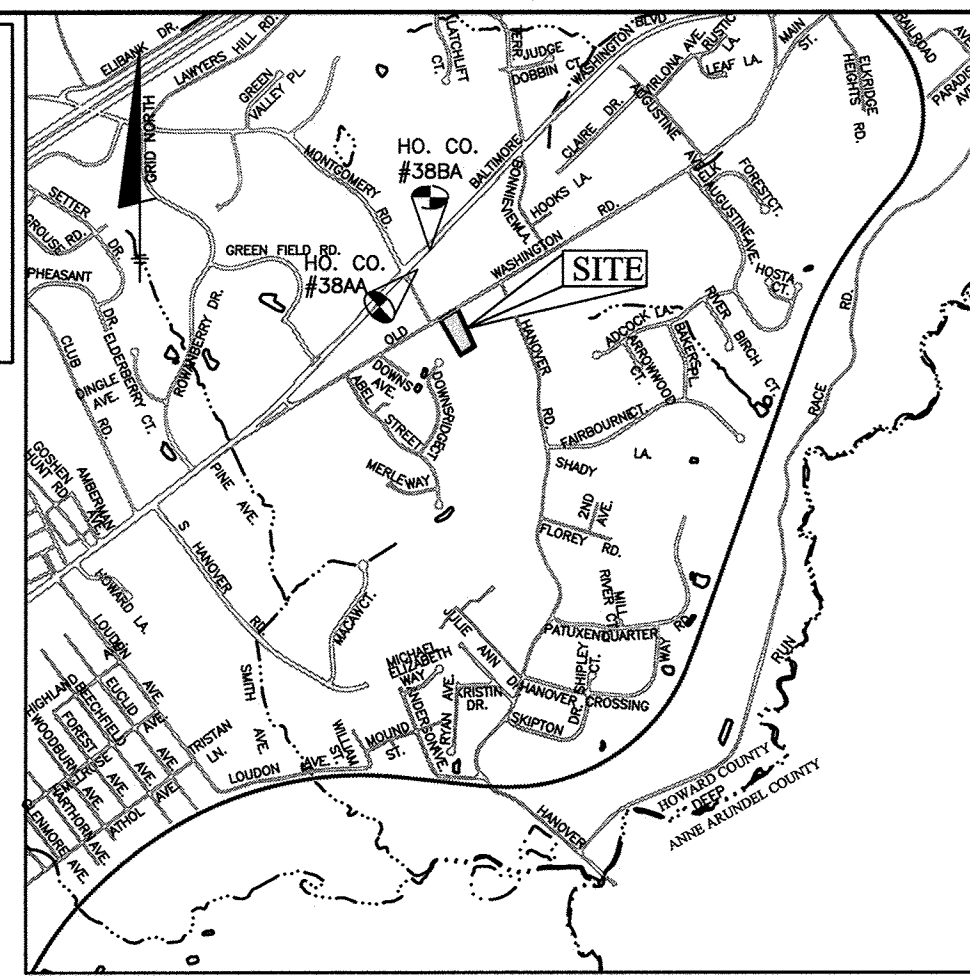
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, dated 06-08-2020.

OWNER/DEVELOPER: HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELLICOTT CITY, MD 21042 410-461-0833	ELKRISE HILL LOTS 1-7 AND OPEN SPACE LOT 8 TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12 6289 OLD WASHINGTON ROAD ELKRISE HILL, MD 21075 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND ENVIRONMENTAL CONCEPT PLAN STORMWATER MANAGEMENT PLAN DATE: SEPT., 2018 BEI PROJECT NO: 2818 SCALE: AS SHOWN SHEET 2 OF 3
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SYMBOL	HYDRIC	HYDROLOGIC GROUP	ALTERNATE GROUP	NAME	K-VALUE
R&D	C			RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES	0.24
R&D	C			RUSSETT FINE SANDY LOAM, 10 TO 15 PERCENT SLOPES	0.24
UcB	D	B/C		URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	0.37
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 SOILS ARE TAKEN FROM THE NRCS WEB SOIL SURVEY APRIL 2017, MAP 20.

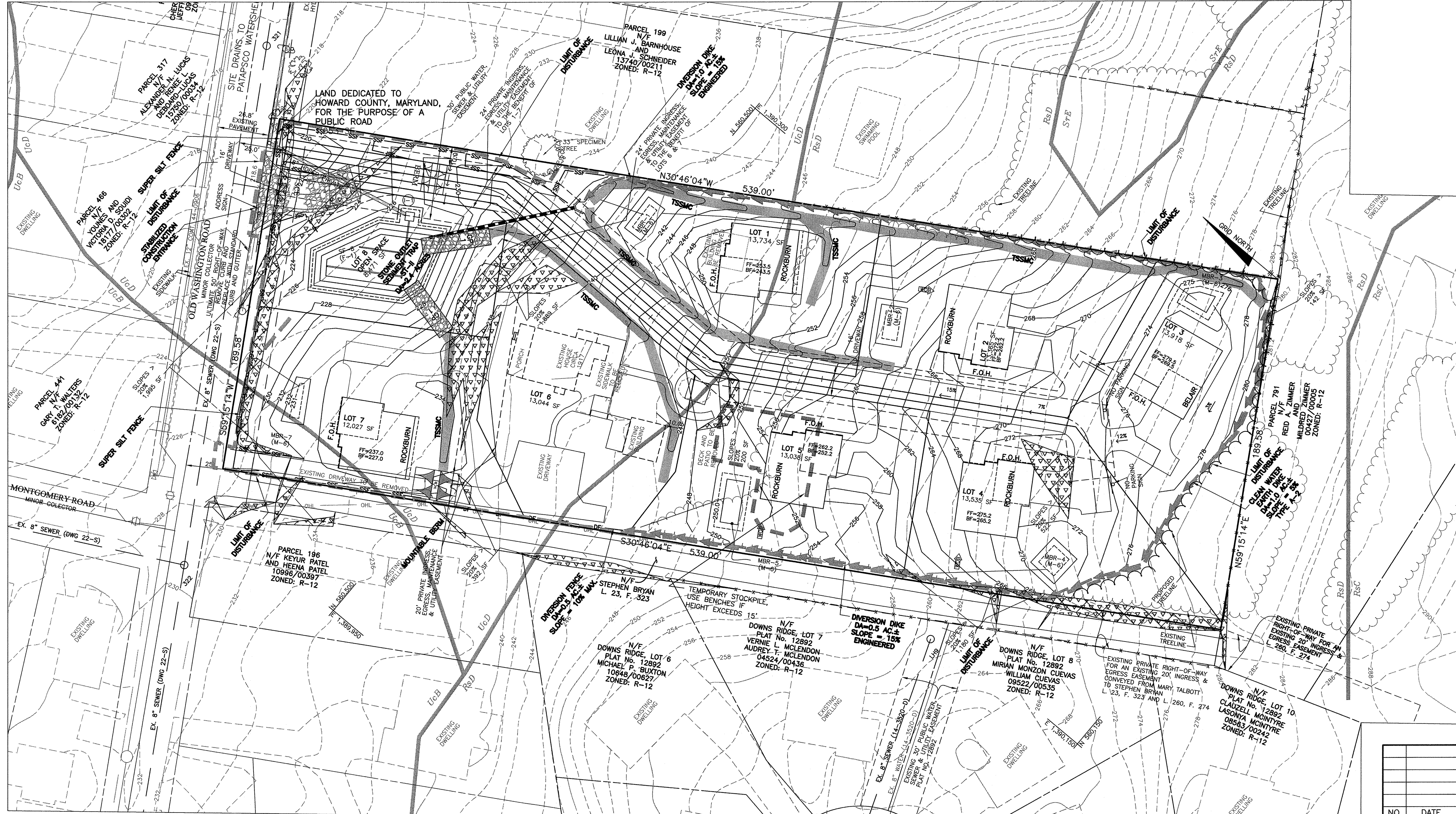
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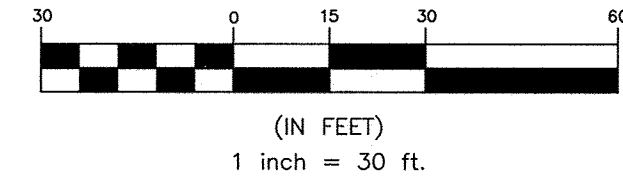
VICINITY MAP
 ADC MAP 35, GRID E2
 SCALE: 1"=2000'

LEGEND

- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING CONTOURS (BEI 05/17)
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- SLOPES 20% OR GREATER
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- EROSION CONTROL MATTING
- DIVERSION FENCE
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE
- MOUNTABLE BERM
- GABION INFLOW PROTECTION



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature]
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-17-18



NO.	DATE	REVISION

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 WWW.BE-CIVILENGINEERING.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. 46992/Registration Date: 06-06-2020.

[Signature]
 JOHN W. CARROLL
 PROFESSIONAL ENGINEER
 No. 45571

OWNER/DEVELOPER: HARMONY BUILDERS INC 4228 COLUMBIA ROAD ELLICOTT CITY, MD 21042 410-461-0833	<p>ELKRIS HILL LOTS 1-7 AND OPEN SPACE LOT 8</p> <p>TAX MAP: 38, GRID: 08, PARCEL: 198, ZONED: R-12 6289 OLD WASHINGTON ROAD ELKRIDGE, MD 21075 ELECTION DISTRICT NO. 1 - HOWARD COUNTY, MARYLAND</p> <p>ENVIRONMENTAL CONCEPT PLAN SEDIMENT AND EROSION CONTROL PLAN</p> <p>DATE: SEPT., 2018 BEI PROJECT NO: 2818 SCALE: AS SHOWN SHEET 3 OF 3</p>
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