THE VAWTER PROPERTY

5th ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

ENVIRONMENTAL CONCEPT PLAN

SHEET INDEX	
NO.	DESCRIPTION
1	EXISTING CONDITIONS AND OFFSITE TOPOGRAPHY PLAN
2	ENVIRONMENTAL CONCEPT PLAN

GENERAL NOTES

1. SUBJECT PROPERTY ZONED RR-DEO PER THE COMPREHENSIVE ZONING PLAN EFFECTIVE 10-6-2013.
2. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE APRIL 13, 2004.
3. PROJECT BOUNDARY AND TOPOGRAPHY WITHIN THE SUBDIVISION AREA ARE BASED ON FIELD RUN BOUNDARY SURVEY AND TOPO PERFORMED BY BENCHMARK ENGINEERING, INC., MAY, 2016.
4. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM, OR THEIR REQUIRED BUFFERS UNLESS DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING.
5. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERIES LOCATED ON THIS SITE.
6. THE FOREST CONSERVATION ACT OBLIGATION FOR THIS PROJECT WILL BE ADDRESSED USING OFF-SITE FOREST BANKING, OR FEE IN LIEU. THE FOREST CONSERVATION WILL BE FURTHER REVIEWED WITH THE SUBMISSION OF THE SUBDIVISION PLAN FOR THIS PROJECT.
7. THERE ARE STEEP SLOPES (25% OR GREATER) ON THE SITE, UNDER 20,000 SF CONTIGUOUS. AS SUCH, DEVELOPMENT OF THE AREA IS NOT REGULATED.
8. A WETLAND DELINEATION AND FOREST STAND DELINEATION HAVE BEEN PERFORMED BY ECO-SCIENCE PROFESSIONALS, INC. AND A FINDINGS LETTER DATED DECEMBER, 2016 HAS BEEN SUBMITTED WITH THIS ENVIRONMENTAL CONCEPT PLAN.
9. PREVIOUS DPZ FILES: NONE
10. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN, SITE DEVELOPMENT PLAN, OR GRADING OR BUILDING PERMIT 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, SITE DEVELOPMENT PLAN, OR GRADING AND BUILDING PERMIT STAGES. 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. THE 100-YEAR FLOODPLAIN PORTRAYED ON THE SITE IS BASED ON A FLOOD STUDY PERFORMED BY BENCHMARK ENGINEERING, INC. DATED FEBRUARY, 2017.

DESIGN NARRATIVE:

The site was analyzed as woods in good condition and a target RCN was determined. A target rainfall depth treatment (Pe) was determined based on the proposed impervious areas and HSG soil types. The target Pe for this site is 1.0 inches. The target Pe was treated using Environmental Site Design practices as outlined in Chapter 5 of the 2000 Maryland Stormwater Design Manual, as amended by Maryland's Stormwater Management Act of 2007. The selected methods include Micro-bioretention (M-6), Dry Wells (M-5), and Non-rooftop Disconnections (N-2).

This site is a parcel comprised of lawn and meadow. A stream crosses the lower portion of the site, and is subject to a 100' streambank setback. There are minor areas (4400 sf) of steep slopes (25% or greater) on the site, and much of the remainder of the site is moderately steep (15% to 24.99%). There are highly erodible soils on the site. To protect the natural resources of the site, it is important to delay release of stormwater runoff from new impervious areas to avoid increasing peak runoffs, and to adequately treat the stormwater to avoid damage to sensitive species. The design incorporates dry wells, disconnection and micro-bioretention facilities to treat stormwater runoff, delay stormwater release and provide recharge. The outfalls for the facilities will discharge to stabilized, undisturbed areas. The stormwater outfalls are directed toward existing release points to help to mimic the natural flow of drainage.

Forest resources will be provided through offsite banking. There are steep slopes and a stream with a buffer on the property. Water resources are being protected by keeping the development outside of the buffer areas and providing adequate sediment and erosion control during construction activities.

Conceptual sediment and erosion controls have been designed based on the 2011 Maryland Specifications for Soil Erosion and Sediment Control. Erosion control matting and super silt fence will be used to prevent runoff containing unacceptable levels of TSS from leaving the site and entering the adjacent stream and wetlands during the construction. It will be the obligation of the contractor to install, inspect and maintain these practices.

The target Pe for this site is 1.0 inches. By using Environmental Site Design practices as outlined in Chapter 5 of the 2000 Maryland Stormwater Design Manual as amended by Maryland Stormwater Management Act of 2007, full treatment of the target Pe of 1.0 was achieved, fully addressing the stormwater management requirements.

An alternative compliance will be submitted to allow environmental features (flood plain and stream buffers) on lots of less than 10 acres, to allow a use in common driveway within an easement across Lot 1 and to remove specimen trees.

STORMWATER MANAGEMENT PRACTICES CHART				
LOT NO.	ADDRESS	MICRO-BIORETENTION FACILITY (M-6)	DRY-WELLS (M-5)	NON-ROOFTOP DISCONNECTION (N-2)
2	14174 TRIADELPHIA MILL ROAD	1	2	1
3	14176 TRIADELPHIA MILL ROAD	1		

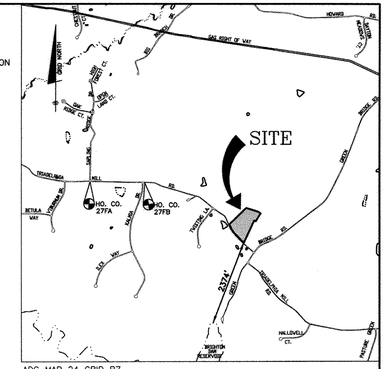
TWO MICRORIORETENTION FACILITIES WILL BE JOINTLY MAINTAINED BY LOTS 1-3.

SPECIMEN TREE CHART				
KEY	SPECIES	SIZE (IN. DBH)	CRZ (FT RADIUS)	CONDITION - COMMENTS
1	WHITE PINE	31	47	GOOD CONDITION
2	WHITE PINE	33	50	FAIR CONDITION, SOME TRIMMING AND BROKEN LIMBS
3	WHITE PINE	32.5	49	VERY POOR, MAJOR DIE BACK AND TRUNK ROT
4	WHITE PINE	30.5	46	GOOD CONDITION PROPOSED TO BE REMOVED
5	WHITE OAK	33	50	GOOD CONDITION
6	SYCAMORE	47	70.5	FAIR CONDITION, SOME LIMB DIEBACK

BENCHMARKS (NAD83)

HO. CO. No. 27FA ELEV. 496.35
18.2' SOUTH OF THE CENTERLINE OF TRIADELPHIA MILL RD AT THE INTERSECTION OF SAPLING RIDGE DR.
N 569002.176 E 1306892.586

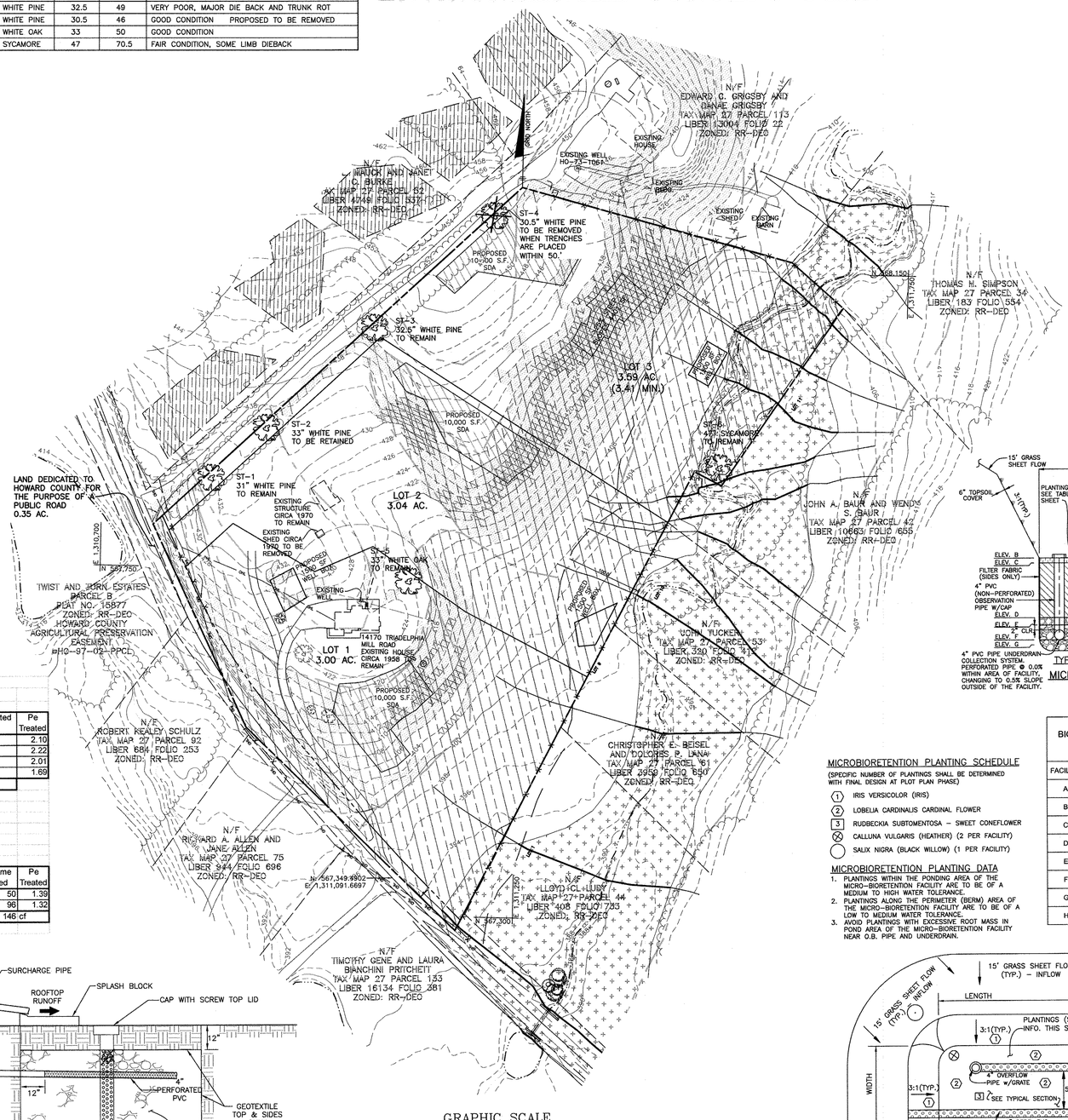
HO. CO. No. 27FB ELEV. 512.22
3.2' SOUTH OF THE EDGE OF PAVING OF TRIADELPHIA MILL RD 61' EAST OF THE CENTERLINE OF KALMIA DR.
N 568975.151 E 1308421.369



ADC MAP 24 GRID B7

VICINITY MAP

SCALE : 1"=2000'



GRAPHIC SCALE

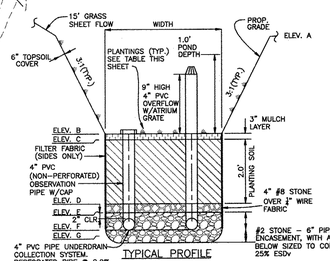
80 0 40 80 160

(IN FEET)

1 inch = 80 ft.

LEGEND

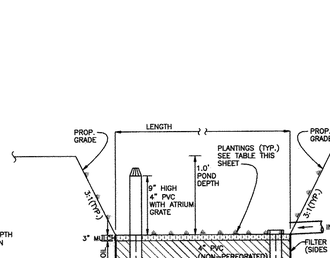
- EXISTING CONTOURS
- EXISTING WOODS LINE
- EXISTING WELL
- PROPOSED WELL (PROPOSED WELL BOX)
- EXISTING STRUCTURE
- 15-19.99% SLOPES
- 20% OR GREATER SLOPES
- 25% OR GREATER SLOPES 10' OR GREATER VERTICAL
- ERODIBLE SOILS



TYPICAL PROFILE

MICRO-BIORETENTION DETAILS

NOT TO SCALE



TYPICAL SECTION

MICROBIORETENTION PLANTING SCHEDULE

(SPECIFIC NUMBER OF PLANTINGS SHALL BE DETERMINED WITH FINAL DESIGN AT PLOT PLAN PHASE)

1. IRIS VERSICOLOR (IRIS)
2. LOBELIA CARDINALIS CARDINAL FLOWER
3. RUDBECKIA SUBTOMENTOSA - SWEET CONEFLOWER
- CALLUNA VULGARIS (HEATHER) (2 PER FACILITY)
- SALIX NIGRA (BLACK WILLOW) (1 PER FACILITY)

MICROBIORETENTION PLANTING DATA

1. PLANTINGS WITHIN THE PONDING AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A MEDIUM TO HIGH WATER TOLERANCE.
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE MICRO-BIORETENTION FACILITY ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE.
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE MICRO-BIORETENTION FACILITY NEAR O.B. PIPE AND UNDERDRAIN.

BIO-RETENTION DIMENSION LEGEND	
FACILITY	NAME
A	TOP OF EMBANKMENT
B	TOP OF MULCH
C	TOP OF SOIL
D	TOP OF STONE FILTER
E	TOP OF STONE STORAGE
F	UNDERDRAIN INVERT
G	BOTTOM OF STONE
H	OUTFALL ELEVATION

STORMWATER MANAGEMENT SUMMARY TABLE

Pe: 1.0 inches

BIORETENTION FACILITIES (M-6)

FACILITY	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	75% ESDv (cf)	Volume Stored	Volume treated (V/0.75)	Pe Treated
MB-A	12809	2045	16%	0.194	206.7	155.1	326 cf	435 cf	2.10
MB-B	22519	3744	17%	0.200	374.6	281.0	624 cf	832 cf	2.22
MB-2	11060	5429	49%	0.492	453.3	339.9	684 cf	911 cf	2.01
MB-3	18399	7608	41%	0.422	647.3	485.4	821 cf	1095 cf	1.69
						TOTAL:	2454.5 cf	3273 cf	

DRIVEWAY TREATMENT

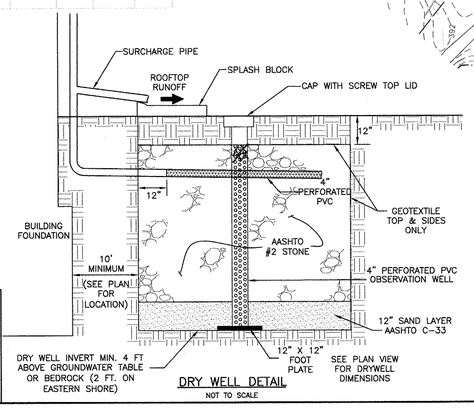
	Area Treated	Pe	Converted to ESDv
Non-rooftop Disconnection (N-2):	5355	1.000	446

DRYWELL FACILITIES (M-5)

FACILITY	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	Depth	Porosity	Width	Length	Volume Stored	Pe Treated
DW-2A	453	453	100%	0.950	35.9	5.0	0.40	5	5	50	1.39
DW-2B	919	919	100%	0.950	72.8	5.0	0.40	6	8	96	1.32
									TOTAL:	146 cf	

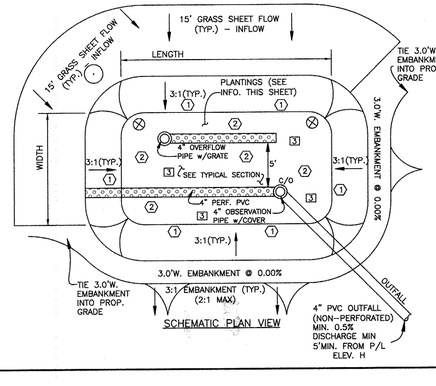
SITE ANALYSIS DATA/TABULATION

A) TOTAL PROJECT AREA	ENTIRE SITE:	9.98 ±AC.
	DEVELOPMENT AREA:	6.87 ±AC.
B) AREA OF WETLANDS AND BUFFER		0.00 ±AC.
C) AREA OF 100-YR. FLOODPLAIN AND BUFFER		0.59 ±AC.
D) AREA OF FOREST		0.00 ±AC.
E) AREA OF STEEP SLOPES 15% - 24.99%		2.54 ±AC.
AREA OF STEEP SLOPES 25% OR GREATER		0.10 ±AC.
F) ERODIBLE SOILS	ENTIRE SITE:	6.75 ±AC.
	DEVELOPMENT AREA:	4.40 ±AC.
G) AREA OF PLAN SUBMISSION		6.87 ±AC.
H) LIMIT OF DISTURBED AREA		2.44± AC.
I) GREEN OPEN AREA		6.35± AC.
J) PRESENT ZONING DESIGNATION		RR-DEO
K) PROPOSED USES FOR THE SITE: SINGLE FAMILY DETACHED		
L) IMPERVIOUS COVER		7.6%



DRY WELL DETAIL

NOT TO SCALE



SCHEMATIC PLAN VIEW

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-CIVILENGINEERING.COM

STATE OF MARYLAND — KURT A. MILLER — No. 28376 — PROFESSIONAL ENGINEER — 7-18-17

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. 28376, Expiration Date: 1-1-2019.

OWNER/DEVELOPERS:

ELLEN M. VAWTER,
MICHAEL A. VAWTER,
NANCY J. VAWTER,
LAURA J. LEONARD,
DREW B. LEONARD
14170 TRIADELPHIA MILL ROAD
DAYTON, MARYLAND 21036
301-706-6044

PROJECT:

VAWTER PROPERTY
LOTS 1, 2 AND 3

LOCATION: 14170 TRIADELPHIA MILL ROAD
TAX MAP: 27 - GRID: 24 - PARCEL: 68
ZONED: RR-DEO RURAL RESIDENTIAL
ELECTION DISTRICT NO. 5 - HOWARD COUNTY, MARYLAND

TITLE: EXISTING CONDITIONS AND OFFSITE TOPOGRAPHY PLAN

DESIGN: AAM	DRAFT: AAM	CHECK: CAM

DATE: JULY, 2017 PROJECT NO. 2766

SCALE: AS SHOWN SHEET 1 OF 2

ECP-17-037

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/7/17

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8/4/17

ENVIRONMENTAL CONCEPT PLAN
SCALE: 1" = 40'

LEGEND

- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING CONTOURS (480 / 478)
- EXISTING WOODS LINE
- EXISTING WELL
- PROPOSED WELL (PROPOSED WELL BOX)
- PASSING PERCOLATION TEST
- FAILING PERCOLATION TEST
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- EXISTING SEWAGE DISPOSAL AREA
- PROPOSED SEWAGE DISPOSAL AREA
- 15–19.99% SLOPES
- 20% OR GREATER SLOPES
- 25% OR GREATER SLOPES 10' OR GREATER VERTICAL
- FACILITY DRAINAGE AREA
- DISCONNECTION AREA
- DISCONNECT RECEIVING
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE (SSF)
- EROSION CONTROL MATTING
- EARTH DIKE
- STABILIZED CONSTRUCTION ENTRANCE (S.C.E.)

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (DAY 1)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND SUPER SILT FENCE. (DAY 2–4)
3. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, ESTABLISH DRIVEWAY GRADES, AND ROUGH GRADE LOTS AND STORMWATER MANAGEMENT AREAS. (DAY 5–16)
4. PAVE USE IN COMMON DRIVEWAY AND STABILIZE DISTURBED AREAS. (DAY 17–26)
5. UPON STABILIZATION OF DRAINAGE AREAS, CONSTRUCT STORMWATER FACILITIES. (DAY 27–30)
6. UPON APPROVAL OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES, AND STABILIZED DISTURBED AREAS IN ACCORDANCE THE PERMANENT SEEDBED NOTES. (DAY 32–34)

SEDIMENT CONTROL NOTES:

1. SEDIMENT CONTROLS SHOWN ARE CONCEPTUAL IN NATURE. DETAILED SWALE COMPUTATIONS, SEDIMENT CONTROL DEVICES, NOTES AND DETAILS WILL BE PROVIDED ON THE INDIVIDUAL PLOT PLANS.
2. ON–LOT SEC CONTROLS AND STORMWATER MANAGEMENT FACILITIES WILL BE FULLY DESIGNED AND CONSTRUCTED UNDER THE GRADING PERMIT FOR EACH BUILDING LOT.

SOILS LEGEND

SYMBOL	TYPE	K* FACTOR	NAME
Co*	C	.37**	CODORUS AND HATBORO SILT LOAM, 0 TO 3 PERCENT SLOPES
GgC	B	.28	GLENELG LOAM, 3 TO 8 PERCENT SLOPES
MaC	B	.32	MANOR LOAM, 8 TO 15 PERCENT SLOPES
MaD	B	.32**	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** HIGHLY ERODIBLE, K>0.35, AND/OR 15% OR GREATER SLOPES
TAKEN FROM THE NRCS WEB SOIL SURVEY, APRIL 2016. PAGE 15

NO.	DATE	REVISION

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 8/7/17

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 8-14-17

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

STATE OF MARYLAND — JULIE A. MILLER — No. 29376 — PROFESSIONAL ENGINEER — 8/18/17

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer in the State of Maryland, Lic. No. 29376, Exp. 1-1-2019

OWNER/DEVELOPERS:

ELLEN M. VAWTER,
MICHAEL A. VAWTER,
NANCY J. VAWTER,
LAURA J. LEONARD,
DREW B. LEONARD
14170 TRIADELPHIA MILL ROAD
DAYTON, MARYLAND 21036
301-706-6044

PROJECT:

VAWTER PROPERTY
LOTS 1, 2 AND 3

LOCATION: 14170 TRIADELPHIA MILL ROAD
TAX MAP: 27 – GRID: 24 – PARCEL: 68
ZONED: RR-DEO RURAL RESIDENTIAL
ELECTION DISTRICT NO. 5 – HOWARD COUNTY, MARYLAND

TITLE: ENVIRONMENTAL CONCEPT PLAN

DESIGN: AAM	DRAFT: AAM	CHECK: CAM	DATE: JULY, 2017	PROJECT NO. 2766
			SCALE: AS SHOWN	SHEET 2 OF 2

ECP-17-037