

GENERAL NOTES

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON A TOPOGRAPHIC SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL AND DECEMBER, 2014. OFFSITE TOPOGRAPHY FROM HOWARD COUNTY GIS.
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED JANUARY 2015.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY CONTROL STATIONS 35-11 & 35-12 WERE USED FOR THIS PROJECT.
- THE SUBJECT PROPERTY IS ZONED "R-20" IN ACCORDANCE WITH THE 10 / 2013 COMPREHENSIVE ZONING PLAN AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 75-2003.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- WATER FOR THIS PROJECT IS TO BE SERVICE CONNECTIONS FROM CONTRACT NO. 44-3305-D. THE EXISTING WELL LOCATED ON LOT 2 SHALL BE ABANDONED AND SEALED.
- SEWER FOR THIS PROJECT IS TO BE SERVICE CONNECTIONS FROM CONTRACT NO. 30-1001 AND PROPOSED SEWER EXTENSION FY2016 - S-6296.
- EXISTING UTILITIES LOCATED FROM TOPOGRAPHIC SURVEY AND AS-BUILT DRAWINGS. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE.
- A "FLOODPLAIN" IS LOCATED ONSITE AS PER FEMA DFIRM MAPS APPROVED BY FEMA AND EFFECTIVE FOR COUNTY DEVELOPMENT RESTRICTIONS AS OF MAY 6, 2013.
- THERE ARE 141,710 S.F. (3.25 AC.) \geq 25% STEEP SLOPES, AND 119,410 S.F. (2.74 AC.) 15%-24.99% STEEP SLOPES OVER 20,000 SF CONTIGUOUS LOCATED ONSITE.
- FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT SHALL BE ADDRESSED BY A FOREST CONSERVATION PLAN SUBMITTED WITH A SUBDIVISION OR SITE DEVELOPMENT PLAN.
- THERE IS AN 4502 S.F. (0.106 AC.) AREA OF WETLANDS PRESENT ON THE SOUTHEAST CORNER OF THE SITE PER ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, APRIL 2015.
- IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE OPEN SPACE REQUIREMENTS FOR THIS R-20 PROJECT (20,000 SF LOT) IS 6% OF GROSS AREA (10.20 AC. GROSS AREA x 6% = 0.612 AC.).
- GEOTECHNICAL INVESTIGATIONS SHALL COMPLETED AS PART OF THE FINAL PLAN SUBMISSION.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, ON APRIL 2015. MR. CANOLES NOTED 29 SPECIMEN TREES ON THE PROJECT SITE. THIS PLAN PROPOSAL REQUIRES THE REMOVAL OF SPECIMEN TREES #15, 23, 24, 25, 28, & 29. THE REQUIRED WAIVER PETITION SHALL BE REQUESTED WITH A FUTURE SUBDIVISION PLAN.
- HARRIET TUBMAN LANE (FORMERLY GULFORD ROAD) IS CLASSIFIED AS A MAJOR COLLECTOR. SITE ACCESS SHALL BE VIA A USE-IN-COMMON DRIVEWAY. EXISTING ENTRANCE SHALL BE UTILIZED.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
- THE EXISTING DWELLING AND STRUCTURE ON LOT 3 ARE TO REMAIN.
- THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
- STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF MICRO-SCALE PRACTICES PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTION (M-B) FACILITIES, DRYWELLS (M-S) AS WELL AS GRAVEL TRENCHES ALONG THE USE-IN-COMMON DRIVEWAY. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (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 AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION PLAN/PLAT AND/OR SITE DEVELOPMENT PLAN 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.
- APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME.

ENVIRONMENTAL SITE DESIGN NARRATIVE:

- IN ACCORDANCE WITH CHECKLIST ITEM III.X.
- THE NATURAL AREAS ON THE PROJECT SITE ARE LOCATED IN THE SOUTHEASTERN PORTION OF THE SITE DRAINING TO THE EAST. MINOR DISTURBANCE TO THE STREAM BUFFER IS PROPOSED AS SHOWN HEREON AT THE INTERSECTION OF THE EXISTING DRIVEWAY AND HARRIET TUBMAN LANE FOR INSTALLATION OF SWM DEVICES AND THE PROPOSED PARKING AREA. NO WETLAND AND WETLAND BUFFER DISTURBANCE IS PROPOSED.
 - NO DRAMATIC DISTURBANCE TO THE NATURAL DRAINAGE PATTERNS ARE PROPOSED, PLEASE REFER TO THE PROPOSED GRADING, SHEET 2.
 - THE CONCEPTUAL REDUCTION IN IMPERVIOUS AREA THROUGH BETTER SITE DESIGN IS ACHIEVED THROUGH THE ENVIRONMENTAL SITE DESIGN (ESD) FOR THE PROJECT. THE ESD CONCEPT INCLUDES THE USE OF MICRO-SCALE PRACTICES INCLUDING MICRO-BIORETENTION (M-B) FACILITIES, DRYWELLS (M-S) AS WELL AS GRAVEL TRENCHES ALONG THE USE-IN-COMMON DRIVEWAY. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
 - SEDIMENT CONTROL FOR THIS SPECIFIC SITE PLAN WILL BE PROVIDED THROUGH THE USE A PROPOSED SUPER SILT FENCE PERIMETER CONTROLS. SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH CURRENT REQUIREMENTS AND SHALL BE APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
 - STORMWATER MANAGEMENT FOR THE PROJECT SHALL BE MET THROUGH THE USE OF MICRO-SCALE PRACTICES PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE MICRO-BIORETENTION (M-B) FACILITIES, DRYWELLS (M-S) AS WELL AS GRAVEL TRENCHES ALONG THE USE-IN-COMMON DRIVEWAY. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.

THE RESULTS OF THE ENVIRONMENTAL SITE DESIGN FOR THIS PROJECT WILL REFLECT "WOODS IN GOOD CONDITION".

TARGET PE = 1.6" PROVIDED PE = 1.6"
 TARGET ESDV = 3,760 CUFT PROVIDED = 3,800+ CUFT

- AT THIS CONCEPT STAGE OF DEVELOPMENT, DESIGN MANUAL WAIVERS WILL BE REQUIRED TO ALLOW DRIVEWAY SLOPE GREATER THAN 15% AND TO SIGHT DISTANCE REGULATIONS -WAIVER PETITION FOR ENVIRONMENTAL DISTURBANCE, STREAM BUFFER AS DESCRIBED IN #1 ABOVE, SHALL BE REQUIRED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

W. Ch... 8-10-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

K. S. ... 7-22-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

ENVIRONMENTAL CONCEPT PLAN

PASS PROPERTY

7831 HARRIET TUBMAN LANE
 COLUMBIA, MD. 21044
 HOWARD COUNTY, MD

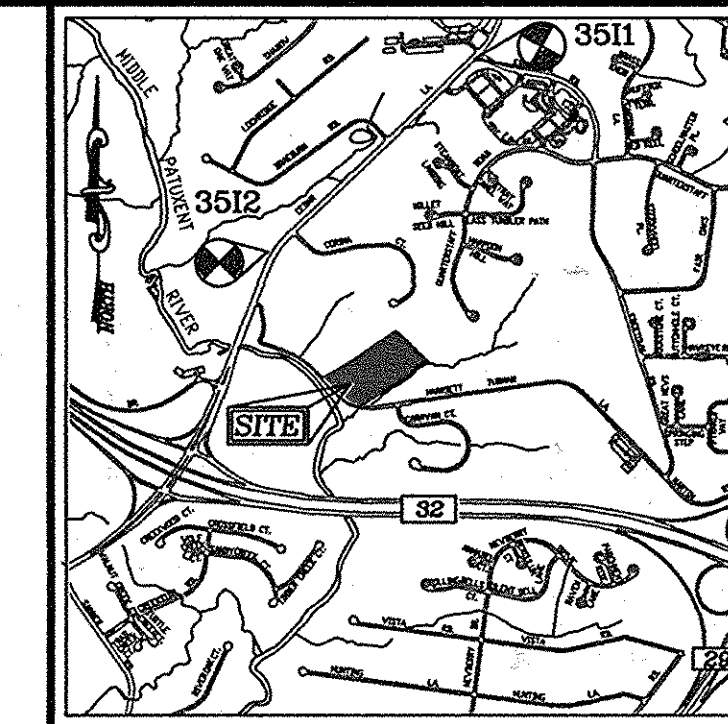
BENCHMARKS

HOWARD COUNTY BENCHMARK 3511 (CONC. MON.)
 N 557110.398 E 1344893.621 ELEV. 400.055
 LOCATION: CORNER CEDAR LA. & FREETOWN RD.
 38.7' FROM THE HANDICAP CROSSOVER SIGN
 3' FROM THE EDGE OF ISLAND AND

HOWARD COUNTY BENCHMARK 3512 (CONC. MON.)
 N 555100.771 E 1342732.993 ELEV. 329.734
 LOCATION: 10.5' FROM EDGE OF CEDAR LANE TOWARDS
 HOUSE #6636, 27.9' FROM NORTH BRICK
 COLUMN SOUTHWARD.

SHEET INDEX

DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 4
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SOILS MAP AND GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 4
SWM DRAINAGE AREA MAP, NOTES & DETAILS	4 OF 4



VICINITY MAP

SCALE: 1"=2,000'
 ADC MAP COORDINATE: 32, D-4

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING CURB AND GUTTER
- EXISTING TREELINE
- EXISTING TREES
- SPECIMEN TREE
- EXISTING WETLANDS
- PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. FOREST CONSERVATION EASEMENT (RETENTION)
- DFIRM FLOODPLAIN

NOTES:

- APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT
- REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE PERMIT STAGES, AND THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE PERMIT PROCESS.
- THERE ARE ENVIRONMENTAL FEATURES: STREAMS, STEEP SLOPES AND FOREST WITHIN THE DEVELOPED AREA.
 NO DISTURBANCE TO FLOODPLAIN, WETLANDS OR WETLAND BUFFER ARE PROPOSED.

OWNER/DEVELOPER

BRYAN AND EMILY PASS
 7715 SUFFOLK WAY
 HANOVER, MD 21076
 240-481-6971



SITE ANALYSIS DATA CHART

A. TOTAL PROJECT AREA:	10.196 AC.
B. AREA OF PLAN SUBMISSION:	10.196 AC.
C. AREA OF WETLANDS AND BUFFERS:	14152 S.F. / 0.32 AC.±
D. AREA OF FLOODPLAIN:	13,548 S.F. / 0.31 AC.±
E. AREA OF FOREST:	8.1 AC. (REFER TO PSD)
F. AREA OF STEEP SLOPES (15% & GREATER):	261,120 S.F. OR 5.99 AC.±
G. ERODIBLE SOILS:	N/A
H. LIMIT OF DISTURBED AREA:	2.4 AC. +/-
I. PROPOSED USES FOR SITE AND STRUCTURES:	RESIDENTIAL SINGLE FAMILY DETACHED (SFD) HOMES
J. GREEN OPEN AREA:	9.6 AC.
K. PROPOSED IMPERVIOUS AREA:	0.60 AC.
L. PRESENT ZONING DESIGNATION:	R-20
M. OPEN SPACE REQUIRED:	0.61 ACRES (6%)
N. TOTAL NUMBER OF UNITS ALLOWED:	7 (10.196 AC. - 0.31 AC FP - 5.99 AC STEEP = 3.9 X 2=7.8)
O. TOTAL NUMBER OF UNITS PROPOSED:	4
P. DPZ FILE REFERENCES:	CONTRACT NO. 44-3305-D, CONTRACT NO. 30-1001 AND PROPOSED SEWER EXTENSION FY2016 - S-6296

NO.	REVISION	DATE

ENVIRONMENTAL CONCEPT PLAN
COVER SHEET
PASS PROPERTY
 7831 HARRIET TUBMAN LANE
 COLUMBIA, MD 21044
 ZONED: R-20

TAX MAP 35 GRID 23 PARCEL 117
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961



PROFESSIONAL CERTIFICATE

DESIGN BY: RHVE
 DRAWN BY: GH/EDS
 CHECKED BY: RHV
 DATE: JULY 2015
 SCALE: AS SHOWN
 W.O. NO.: 14-15

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. 16193 EXPIRATION DATE: 09-27-2016

1 SHEET OF 4

ENLARGED PLAN 1
SCALE=1"=30'

Eco-Science Professionals, Inc.
Consulting Ecologists
F.O. Box 5006 Glen Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2488

MD DNR Qualified Professional USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
John P. Canoles

- WATERSHED NAME: MIDDLE PATUXENT RIVER
SUB-BASIN NUMBER: 02-13-11
WATERSHED NUMBER: 2131106
- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY.
 - SURROUNDING LAND USE IS PRIMARILY MEDIUM DENSITY RESIDENTIAL DEVELOPMENT.
 - APPROXIMATELY 17 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
 - ALL WETLANDS AND STREAMS ON THE PROPERTY ARE PART OF THE MIDDLE PATUXENT RIVER WATERSHED (02-13-11). THE STREAMS ON SITE ARE CONSIDERED TO BE USE IV-P WATERS. PERENNIAL STREAMS WILL REQUIRE 100 FOOT BUFFERS, INTERMITTENT STREAMS WILL REQUIRE 50 FOOT BUFFERS AND WETLANDS WILL REQUIRE 25 FOOT BUFFERS.
 - NO HISTORIC ELEMENTS OR CEMETERIES ARE KNOWN TO OCCUR ON THE PROPERTY.
 - THE SITE DOES INCLUDE 0.31 ACRES +/- OF 100 YEAR FLOODPLAIN.
 - AT THIS STAGE OF THE PROJECT, SPECIMEN TREES TO BE REMOVED ARE ST15, ST17, ST20, ST23, ST24, ST25 AND ST28.

ENLARGED PLAN 2
SCALE=1"=30'
*STANDARD 1-TURNAROUND FITS WITHIN PROPOSED USE-IN-COMMON PAVEMENT AREA

- LEGEND**
- PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - CENTERLINE OF EXISTING STREAM
 - EXISTING STREAM BANK
 - EXISTING CURB AND GUTTER
 - PROPOSED CURB AND GUTTER
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING TREES
 - SPECIMEN TREE
 - EXISTING WETLANDS
 - PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT
 - PROP. FOREST CONSERVATION EASEMENT (RETENTION)
 - DFIRM FLOODPLAIN
 - PROP. 20' PUBLIC WATER & UTILITY EASEMENT
 - PROP. 20' PUBLIC SEWER & UTILITY EASEMENT
 - PROP. VARIABLE WIDTH PUBLIC WATER, SEWER & UTILITY EASEMENT

OWNER/DEVELOPER
BRYAN AND EMILY PASS
7715 SUFFOLK WAY
HANOVER, MD 21076
240-481-6971

NO.	REVISION	DATE

**ENVIRONMENTAL CONCEPT PLAN
LAYOUT PLAN
PASS PROPERTY**

7831 HARRIET TUBMAN LANE
COLUMBIA, MD 21044
ZONED: R-20

TAX MAP 35 GRID 23
5TH ELECTION DISTRICT

PARCEL 117
HOWARD COUNTY, MARYLAND

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ENGINEERS • SURVEYORS • PLANNERS
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PROFESSIONAL CERTIFICATE

DESIGN BY: RHVE
DRAWN BY: GH/EDS
CHECKED BY: RHY
DATE: JULY 2015
SCALE: AS SHOWN
W.O. NO.: 14-15

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. MY LICENSE NUMBER IS 16193 AND MY EXPIRATION DATE IS 09-27-2018.

2 SHEET OF **4**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

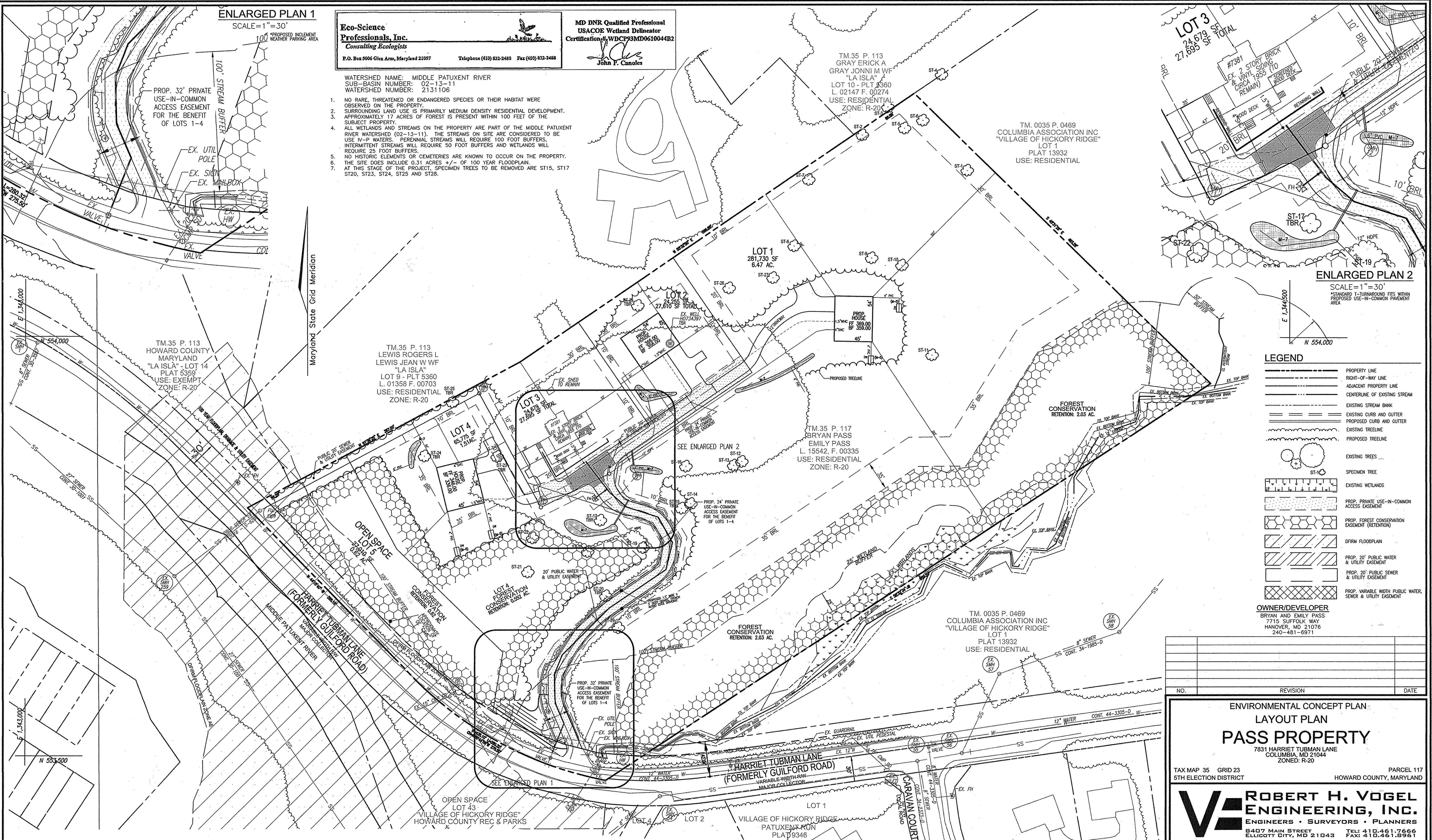
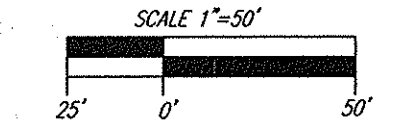
John E. Chubb 8-10-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

W. T. ... 7-22-15
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

NOTES:

1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.

LAYOUT PLAN
SCALE=1"=50'

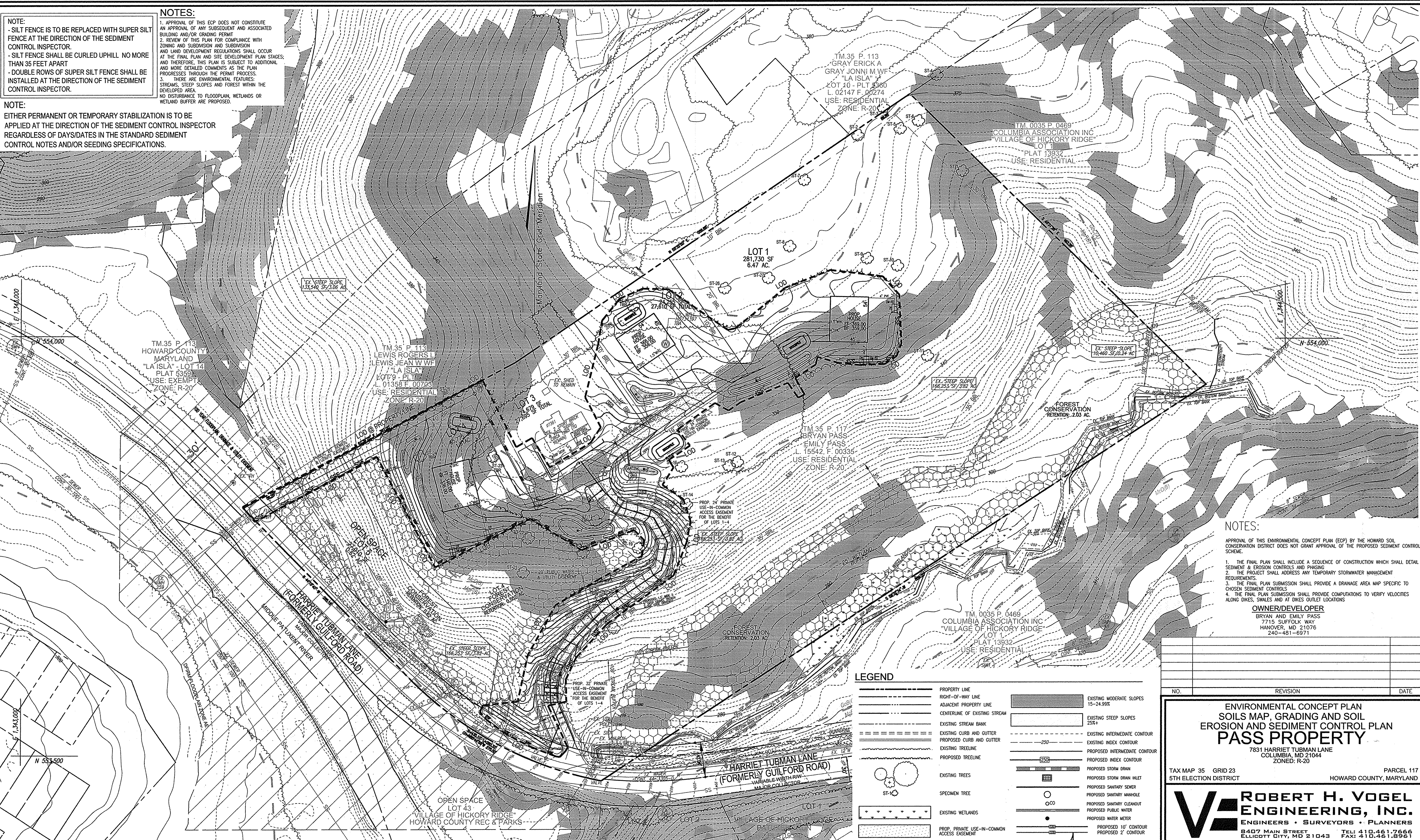


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NOTE:
 - SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 - SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART
 - DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

NOTE:
 EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYS/DATES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

NOTES:
 1. APPROVAL OF THIS ECP DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED BUILDING AND/OR GRADING PERMIT
 2. REVIEW OF THIS PLAN FOR COMPLIANCE WITH ZONING AND SUBDIVISION AND SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SHALL OCCUR AT THE FINAL PLAN AND SITE DEVELOPMENT PLAN STAGES; AND THEREFORE, THIS PLAN IS SUBJECT TO ADDITIONAL AND MORE DETAILED COMMENTS AS THE PLAN PROGRESSES THROUGH THE PERMIT PROCESS.
 3. THERE ARE ENVIRONMENTAL FEATURES, STREAMS, STEEP SLOPES AND FOREST WITHIN THE DEVELOPED AREA
 NO DISTURBANCE TO FLOODPLAIN, WETLANDS OR WETLAND BUFFER ARE PROPOSED.



NOTES:
 APPROVAL OF THIS ENVIRONMENTAL CONCEPT PLAN (ECP) BY THE HOWARD SOIL CONSERVATION DISTRICT DOES NOT GRANT APPROVAL OF THE PROPOSED SEDIMENT CONTROL SCHEME.
 1. THE FINAL PLAN SHALL INCLUDE A SEQUENCE OF CONSTRUCTION WHICH SHALL DETAIL SEDIMENT & EROSION CONTROLS AND PHASING
 2. THE PROJECT SHALL ADDRESS ANY TEMPORARY STORMWATER MANAGEMENT REQUIREMENTS.
 3. THE FINAL PLAN SUBMISSION SHALL PROVIDE A DRAINAGE AREA MAP SPECIFIC TO CHOSEN SEDIMENT CONTROLS
 4. THE FINAL PLAN SUBMISSION SHALL PROVIDE COMPUTATIONS TO VERIFY VELOCITIES ALONG DIKES, SWALES AND AT DIKES OUTLET LOCATIONS

OWNER/DEVELOPER
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LEGEND

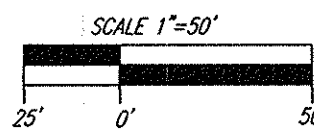
PROPERTY LINE	EXISTING MODERATE SLOPES 15-24.9%
RIGHT-OF-WAY LINE	EXISTING STEEP SLOPES 25+
ADJACENT PROPERTY LINE	EXISTING INTERMEDIATE CONTOUR
CENTERLINE OF EXISTING STREAM	EXISTING INDEX CONTOUR
EXISTING STREAM BANK	PROPOSED INTERMEDIATE CONTOUR
EXISTING CURB AND GUTTER	PROPOSED INDEX CONTOUR
EXISTING TREELINE	PROPOSED STORM DRAIN
PROPOSED TREELINE	PROPOSED STORM DRAIN INLET
EXISTING TREES	PROPOSED SANITARY SEWER
SPECIMEN TREE	PROPOSED SANITARY MANHOLE
EXISTING WETLANDS	PROPOSED SANITARY CLEANOUT
PROP. PRIVATE USE-IN-COMMON ACCESS EASEMENT	PROPOSED PUBLIC WATER
PROP. FOREST CONSERVATION EASEMENT (RETENTION)	PROPOSED WATER METER
DFIRM FLOODPLAIN	PROPOSED 10' CONTOUR
PROP. 20' PUBLIC WATER & UTILITY EASEMENT	PROPOSED 2' CONTOUR
PROP. 20' PUBLIC SEWER & UTILITY EASEMENT	PROPOSED STABILIZED CONSTRUCTION ENTRANCE
PROP. VARIABLE WIDTH PUBLIC WATER, SEWER & UTILITY EASEMENT	PROPOSED SILT FENCE
	PROPOSED SUPER SILT FENCE
	LIMIT OF DISTURBANCE

MAPPED SOILS TYPES - HOWARD COUNTY SOIL MAP #17 CLARKSVILLE NE

SYMBOL / DESCRIPTION	GROUP	HYDRIC	TOPOG	PERCENTS	K FACTOR	ROCK	EROSION	STABILIZATION
G8B GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	NO	NO	0.28	NO	NO	NO	NO
G8C GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	NO	NO	0.28	YES	NO	NO	NO
M8B MANOR LOAM, 15 TO 25 PERCENT SLOPES, VERY ROCKY	B	NO	NO	0.28	NO	YES	NO	NO
M8F MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	NO	0.20	NO	NO	YES	NO
G8B GLENVILLE - CODORUS - SILTY LOAMS, 0 TO 8 PERCENT SLOPES	C	NO	NO	0.43	YES	YES	NO	NO
G8 CODORUS AND HATFIELD SILTY LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	YES	0.32	NO	NO	NO	NO

SOILS MAP, GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE = 1" = 50'



NOTE:
 FOR SOILS ONSITE THAT WOULD BE CONSIDERED HIGHLY ERODIBLE BY THE HOWARD SOIL CONSERVATION DISTRICT, MORE STRINGENT SEEDINGS AND STABILIZATION METHODS MAY BE EXPECTED AT SITE DEVELOPMENT STAGE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 8-10-15

 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 7-22-15

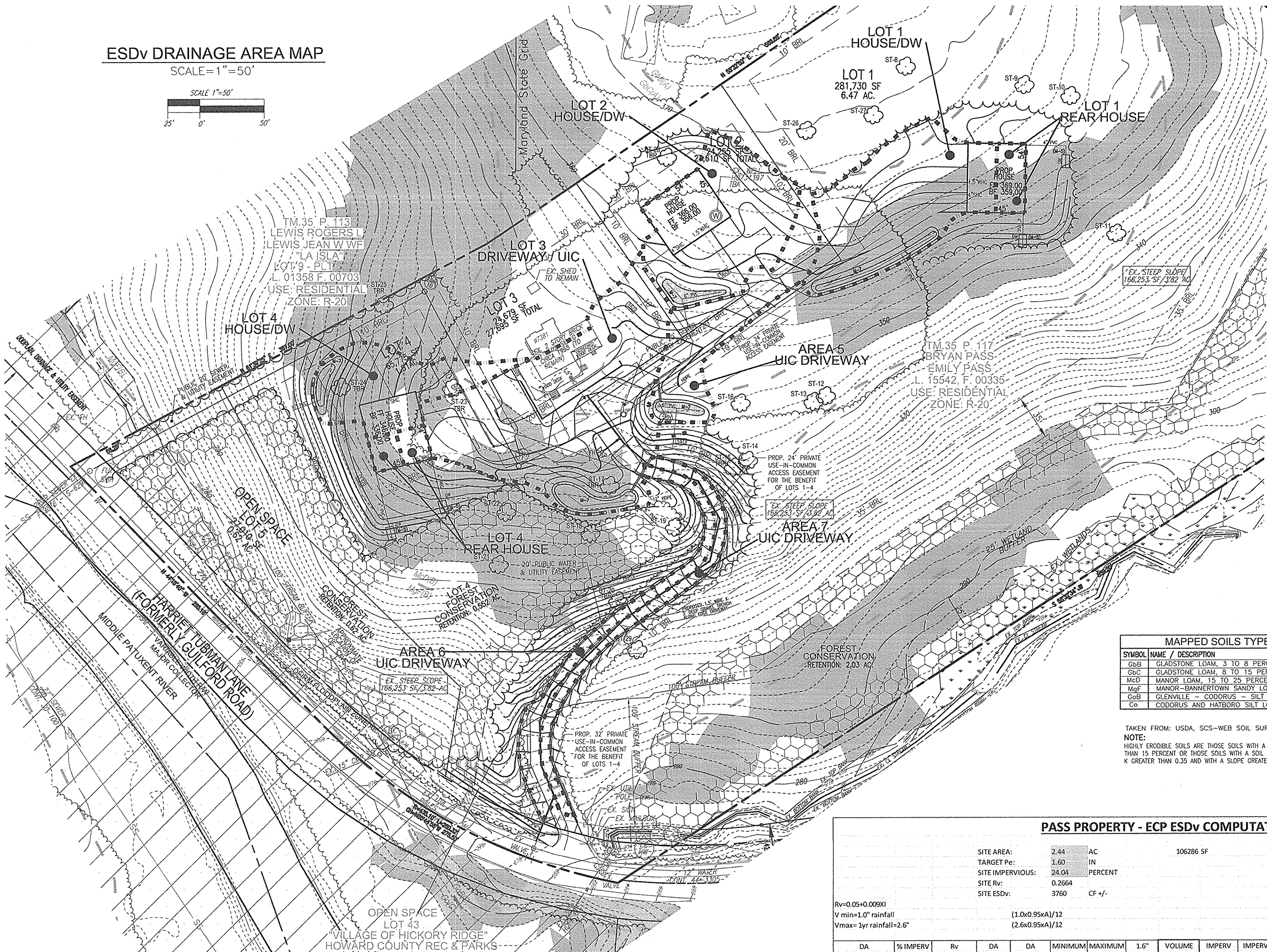
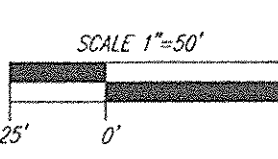
ENVIRONMENTAL CONCEPT PLAN
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 TAX MAP 35 GRID 23 PARCEL 117
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET ELLICOTT CITY, MD 21043
 TEL: 410.461.7666
 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A SOIL LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 EXPIRATION DATE: 08-31-2018
 DESIGN BY: RHVH
 DRAWN BY: GH/EDS
 CHECKED BY: RHV
 DATE: JULY 2015
 SCALE: AS SHOWN
 W.O. NO.: 14-15
 3 SHEET OF 4

ESDv DRAINAGE AREA MAP

SCALE=1"=50'



APPENDIX B.4.C SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN, LANDSCAPE INFILTRATION & INFILTRATION BERMS

1. MATERIAL SPECIFICATIONS
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL
SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STAMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVIDE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMIUM GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMMON #4.8.01.02. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 • SOIL EQUIPMENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
 • ORGANIC CONTENT - MINIMUM TEST BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (30%), COARSE SAND (30%), AND COMPOST (40%).
 • CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%.
 • PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMMONIUM (E.G. UREA, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
 THESE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

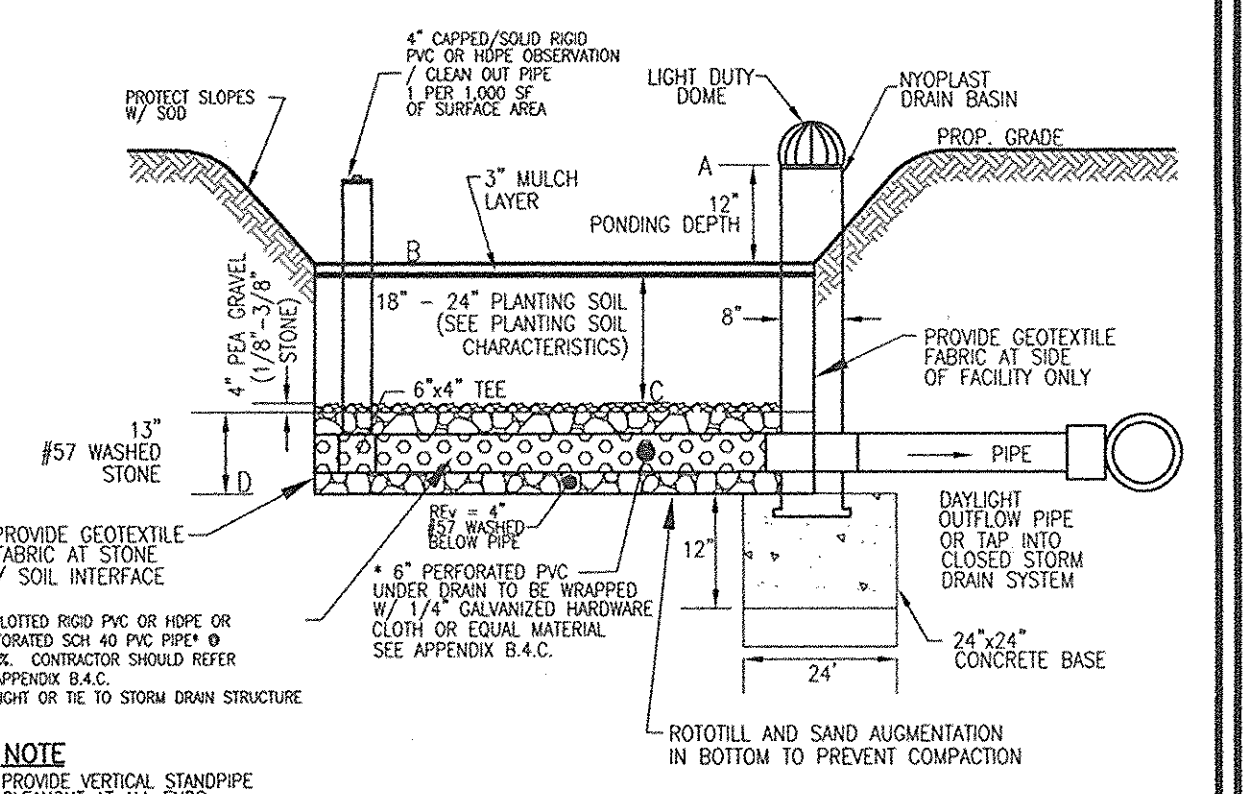
3. COMPACTION
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LONGER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MASH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH SOFT TIRE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LOGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
 COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILING OPERATION SUCH AS CHISEL PLOU, RIPPER, OR SUBSOILER. THESE TILING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTILLATORS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
 ROTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY POOLED WATER BEFORE PREPARING (ROTILLING) BASE. WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. DISK/FLIP THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MASH TRACKS.

4. PLANT MATERIAL
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

5. PLANT INSTALLATION
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDED MULCH MUST BE WELL KEPT (6 TO 12 MONTHS) FOR ACCEPTANCE. ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLOTS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.
 THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS, DEERATS, OR AT A MINIMUM, IMPEDS THIS SOIL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTILLABLE UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 • PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 758, TYPE PS 28, OR ASHMO-M-278) IN A CHANNEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (PVC OR HDPE).
 • PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4+4) GALVANIZED HARDWARE CLOTH.
 • GRVEL - THE CHANNEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.
 • THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 • A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1000 SQUARE FEET) TO PROVIDE A CLEAN-OUT POINT AND MONITOR PERFORMANCE OF THE FILTER.
 • A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".
 THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

7. MISCELLANEOUS
THESE PRACTICES MUST BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



TYPICAL RAIN GARDEN/MICRO-BIORETENTION NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR (M-6) MICROBIORETENTION AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYERS IS REQUIRED. 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 A.1.1 AND 2.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFUNCT STAKES AND WIRES.

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

MAPPED SOILS TYPES - HOWARD COUNTY SOIL MAP #17 CLARKSVILLE NE

SYMBOL NAME / DESCRIPTION	GROUP	HYDRO	HYDRO	K FACTOR	PERM	IMPERV	GREEN	REMARKS
GbB GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	NO	NO	0.28	YES	NO	NO	
GbC GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	NO	NO	0.28	YES	NO	NO	
MdC MANOR LOAM, 15 TO 25 PERCENT SLOPES, VERY ROCKY	B	NO	NO	0.28	NO	YES	NO	
MdE MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	NO	0.20	NO	YES	NO	
GbB CLARKSVILLE - CODOBUS - SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	NO	0.43	YES	NO	NO	
GcC CODOBUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	YES	0.32	NO	NO	NO	

TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
 NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

PASS PROPERTY - ECP ESDv COMPUTATIONS

SITE AREA:	2.44 AC	106286 SF
TARGET PE:	1.60 IN	
SITE IMPERVIOUS:	24.04 PERCENT	
SITE Rv:	0.2664	
SITE ESDv:	3760 CF +/-	

Rv=0.05+0.029K1
 V min=1.0" rainfall
 Vmax=3yr rainfall=2.6"

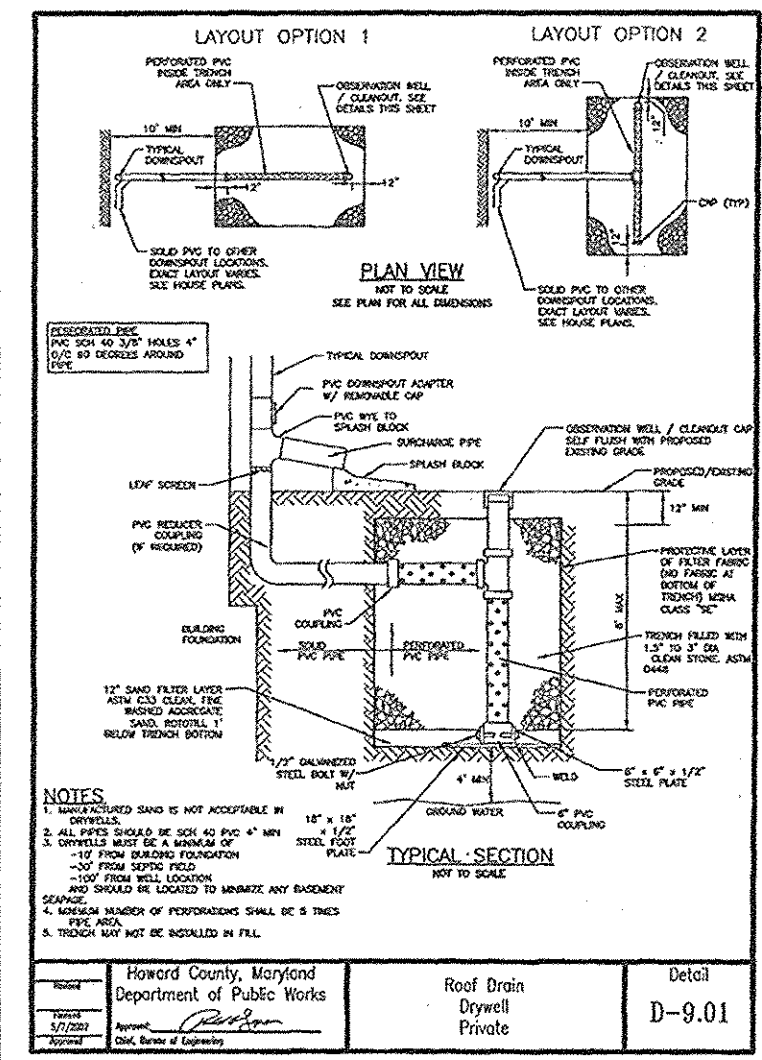
DA #	% IMPERV	Rv	DA (SF)	DA (AC)	MINIMUM VOLUME	MAXIMUM VOLUME	1.6" VOLUME PROVIDED*	VOLUME IMPERV (SF)	IMPERV (SF)	GREEN AREA	REMARKS	
LOT 1 REAR HSE	100.00	0.9500	607	0.01	48	125	77	90	607	0.01	0.00	MICROSCALE - DRYWELL (M-5) 90 10 6 5 WIDE LONG DEEP TYPICAL
LOT 1 HSE/DRIVEWAY	34.58	0.3612	11770	0.27	354	921	567	600	4070	0.09	0.18	MICROSCALE RAIN GARDEN (M-7) 600 450 SF MICRO BIO
LOT 2 HSE / DRIVE	33.56	0.3521	10890	0.25	320	831	511	515	3655	0.08	0.17	MICROSCALE RAIN GARDEN (M-7) 515 386 SF MICRO BIO
LOT 3 DRIVE PART OF UIC @ TEE	28.01	0.3021	20670	0.47	520	1353	833	883	5790	0.13	0.34	MICROSCALE RAIN GARDEN (M-7) 883 662 SF MICRO BIO
LOT 4 HSE / DRIVE	28.14	0.3033	6360	0.15	161	418	257	320	1790	0.04	0.10	MICROSCALE RAIN GARDEN (M-7) 320 240 SF RAIN GARDEN
LOT 4 REAR HSE	100.00	0.9500	607	0.01	48	125	77	90	607	0.01	0.00	MICROSCALE - DRYWELL (M-5) 90 10 6 5 WIDE LONG DEEP TYPICAL
AREA 5	29.90	0.3191	6740	0.15	179	466	287	300	2015	0.05	0.11	MICROSCALE RAIN GARDEN (M-7) 300 225 SF RAIN GARDEN
PART OF UIC AREA 6	100.00	0.9500	3615	0.08	286	744	458	452	3615	0.08	0.00	DRIVEWAY GRAVEL TRENCH - WEST SIDE 452 1.5 335 3 WIDE LONG DEEP TYPICAL
PART OF UIC AREA 7	100.00	0.9500	2940	0.07	233	605	372	383	2940	0.07	0.00	DRIVEWAY GRAVEL TRENCH - EAST SIDE 383 1.5 370 2.3 WIDE LONG DEEP TYPICAL
PROJECT TOTALS	40.2	0.4119	65413	1.50	2245	5838	3592	3813	26303	0.60	0.90	

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5% (1/8" to 1/4" deep)
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimums no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone; washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (1/2" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underdrain pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Min. No. 3; F _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	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 pre-approved State 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 R.89; vertical loading (10-10 or 10-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking.
Sand	AASHTO-M-6 or ASTM-C-33	0.075" to 0.04"	Sand substitutions such as Diabase and Gneiss (AASHTO #10 are not acceptable. No calcium sulfated or diatomaceous sand substitutions are acceptable. No "trick dust" can be used for sand.

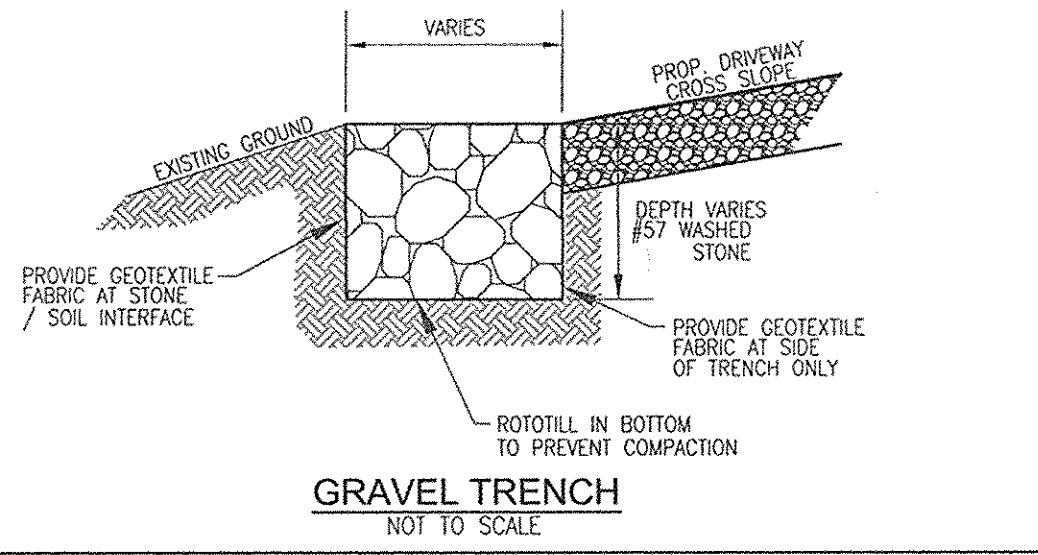
OWNER/DEVELOPER
 BRYAN AND EMILY PASS
 7715 SUFFOLK WAY
 HANOVER, MD 21076
 240-481-6971



OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRYWELL (M-5)

A. THE OWNER SHALL INSPECT & CLEAN ANNUALLY, INCLUDING PIPES CUTTERS DOWNSPOUTS AND FILTERS.

B. PONDING STANDING WATER OR ALGAL GROWTH ON THE TOP OF A DRYWELL MAY INDICATE FAILURE DUE TO SEDIMENTATION IN THE GRAVEL MEDIA. IF WATER POUNDS FOR MORE THAN 48 HOURS AFTER A MAJOR STORM OR MORE THAN SIX INCHES OF SEDIMENT HAS ACCUMULATED, THE GRAVEL MEDIA SHOULD BE EXCAVATED AND REPLACED.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 8.10.15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 7.22.15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**ENVIRONMENTAL CONCEPT PLAN
 ESDv DRAINAGE AREA MAP
 NOTES AND DETAILS
 PASS PROPERTY**

7831 HARRIET TUBMAN LANE
 COLUMBIA, MD 21044
 ZONED: R-20

TAX MAP 35 GRID 23 PARCEL 117
 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
 ENGINEERS • SURVEYORS • PLANNERS**

8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

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. 16193 EXPIRATION DATE: 09-27-2016

DESIGN BY: RHVE
 DRAWN BY: GH/EDS
 CHECKED BY: RHV
 DATE: JULY 2015
 SCALE: AS SHOWN
 W.O. NO.: 14-15

4 SHEET OF 4