

GENERAL NOTES

- PROJECT BACKGROUND:
SUBDIVISION NAME: HAMPTON HILLS
TAX MAP 31 GRID 9
SECTION/AREA: N/A
LOT/PARCEL: P. 24
ZONING: R-20 (MIN 12,000 SF LOT)
ZB/BA REFERENCE: N/A
ELECTION DISTRICT: 2ND
TOTAL TRACT AREA: 8.47 ACRES
SECTION/AREA: N/A
NUMBER OF PROPOSED LOTS: 14 SFD / 4 O.S.
NET AREA OF PROJECT: 6.19 ACRES
AREA OF PROPOSED SFD: 4.2 ACRES
AREA OF PROPOSED SFD: 0 ACRES
AREA OF R/W DEDICATION: 0.4 ACRES (BONNIE BRANCH RD)
AREA OF PROPOSED ROAD R/W: 0.3 ACRES
OPEN SPACE REQ.: 3.39 ACRES (SEE NOTE 23)
OPEN SPACE PROVIDED: SEE TABULATION
PUBLIC WATER & SEWER: WATER CONTRACT NO. 14-4182-D
SEWER CONTRACT NO. 14-4182-D
DPZ REF.'S: ECP-15-027, WP-15-161.
- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE SUBJECT PROPERTY IS ZONED R-20 IN ACCORDANCE WITH THE OCT. 06, 2013 ZONING REGULATIONS, AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/2/03 PER COUNCIL BILL 75-2003.
- THE PROJECT BOUNDARY IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH 27, 2015.
- THE EXISTING TOPOGRAPHY SHOWN HEREON IS TAKEN FROM A FIELD SURVEY WITH 2 FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED MARCH 27, 2015 AND SUPPLEMENTED WITH HOWARD COUNTY GIS FOR OFFSITE AREAS.
- SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEB SOIL SURVEY HOWARD COUNTY, MARYLAND - SAVAGE SE, SEE MAP #19.
- 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. 31AB AND 31DA WERE USED FOR THIS PROJECT.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- WATER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 14-4182-D.
- SEWER FOR THIS PROJECT IS TO BE PUBLIC EXTENSIONS OF CONTRACT NO. 14-4182-D.
- 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 NON CRITICAL FLOODPLAIN IS LOCATED ONSITE.
- THE PROJECT IS LOCATED WITHIN THE BONNIE BRANCH DRAINAGE AREA, THE APPROXIMATE FLOODPLAIN COMMON TO BONNIE BRANCH IS SHOWN HEREON PER THE HOWARD COUNTY - DIGITAL FLOOD INSURANCE RATE MAP (DIRM). THIS FLOODPLAIN HAS AN "A" DESIGNATION REPRESENTING HIGH FLOOD RISK. AS THE PROJECT PROPOSAL IS SEPARATED BY OVER 80 VERTICAL FEET, THE FLOODPLAIN LOCATED ONSITE CAN BE CONSIDERED "NON CRITICAL" TO THE PROJECT.
- A NON-CRITICAL FLOODPLAIN REPORT FOR THIS PROJECT WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED AUGUST, 2015, AND WAS APPROVED SEPTEMBER 2015.
- STEEP SLOPES ARE LOCATED AND SHOWN HEREON.
- WETLANDS, STREAMS OR THEIR REQUIRED BUFFERS SHOWN ONSITE ARE BASED ON ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, SEPTEMBER 2014.
- FOREST STAND DELINEATION PLAN PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES, SEPTEMBER 2014.
- FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL A PORTION OF THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED ON OPEN SPACE LOT 18 (HOWARD COUNTY - DEPARTMENT OF RECREATION AND PARKS) AND SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY 1.48 ACRES OF ONSITE RETENTION (NO SURETY REQ), 0.56 ACRES OF REFORESTATION AND THE PURCHASE OF THE EQUIVALENT OF 0.67 ACRES OF REFORESTATION CREDIT IN AN APPROVED FOREST BANK. BANK TO BE DETERMINED UNDER THE FUTURE FINAL PLAN SUBMISSION.
- FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = \$ 18,296 (0.56 AC OR 24,394 SF @ \$0.75/SF) SHALL BE POSTED WITH THE FINAL PLAN DEVELOPERS AGREEMENT.
- BONNIE BRANCH ROAD IS CLASSIFIED AS A MINOR COLLECTOR. NO IMPROVEMENTS ARE PROPOSED.
- ATTERBOROUGH WAY IS CLASSIFIED AS A 40' R/W ACCESS PLACE (F04-181). PROPOSED EXTENSION SHALL CONFORM WITH GUIDELINES WITHIN THE DESIGN MANUAL / ACCESS PLACE.
- DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES UNDER THE FOLLOWING MINIMUM REQUIREMENTS:
A) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CLIP COATING.
C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45'-FOOT DEPTH TURNING RADIUS.
D) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
E) DRAINAGE ELEMENTS-CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
F) STRUCTURE CLEARANCES-MINIMUM 12 FEET.
G) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- A TRAFFIC STUDY FOR THIS PROJECT PREPARED BY THE TRAFFIC GROUP, INC., DATED OCTOBER 2, 2014, WAS APPROVED.
- A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY. EXISTING HOME (BUILT 1967 PER SDAT) AND OUTBUILDINGS ARE TO BE RAISED.
- THE WELL AND SEPTIC SYSTEM SERVING THE EXISTING HOUSE MUST BE PROPERLY ABANDONED WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO HEALTH SIGNATURE OF THE FINAL RECORD PLAT.
- THE OFFICIAL PRE-SUBMISSION COMMUNITY MEETING WAS HELD FOR THIS PROJECT ON NOVEMBER 5, 2014 AT THE ELLICOTT CITY SENIOR CENTER.
- AN ENVIRONMENTAL CONCEPT PLAN (ECP-15-027) WAS APPROVED ON FEBRUARY 13, 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 (12,000 SF MIN LOT SIZE) IS 40% OF GROSS AREA (8.47 AC. GROSS AREA x 40% = 3.39 AC +/-).
- IN ACCORDANCE WITH SECTION 16.121(A)(4) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, RECREATION OPEN SPACE FOR THIS R-20 PROJECT IS 200 SF / UNIT (14 x 200 = 2,800 SF) OF LAND AREA.
- 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 IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE M-6 MICRO-BIORETENTION, M-7 RAIN GARDENS, M-8 BIOSWALS AND M-5 DRY WELLS. ONLY THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. MICRO-SCALE FACILITIES MANAGING ROAD RUNOFF SHALL BE DESIGNATED AS A PUBLICLY OWNED AND JOINTLY MAINTAINED FACILITIES (H.O.A. AND HOWARD COUNTY); HOWARD COUNTY WILL MAINTAIN OUTLET STRUCTURES AND PIPES WHILE THE H.O.A. SHALL MAINTAIN MULCH, WEEDING, PLANTINGS, PERFORATED UNDERDRAINS, FEEDER PIPES, AND ROUTINE SOIL REPLACEMENT.
AS THE PROJECT IS LOCATED WITHIN THE BONNIE BRANCH DRAINAGE AREA, 10 YEAR PEAK MANAGEMENT IS REQUIRED. A COMBINATION WATER QUALITY SAND FILTER AND 10 YEAR PEAK MANAGEMENT FACILITY IS PROPOSED. 0.4 AC/FT IS REQUIRED TO MANAGE THE DEVELOPMENT TO EXISTING CONDITIONS.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- A FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 8,700 FOR THE PROPOSED 29 SHADE TREES. SURETY IS NOT REQUIRED FOR EXISTING TREES USED FOR CREDIT.
- A FINANCIAL SURETY FOR THE ADDITIONAL LANDSCAPING PER THE CONDITIONS OF APPROVAL OF WP15-161 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 9,000 FOR THE PROPOSED 30 SHADE TREES. TOTAL SURETY REQUIRED = \$ 17,700 (9,000+8700).
- PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(E)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$ 3,900 WILL BE POSTED AS PART OF THE FINAL PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 13 STREET TREES.
- A TEST PIT REPORT FOR THIS PROJECT WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 2015.
- IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL - VOLUME 3, CHAPTER 2 - SECTION 2.9.B AND THE HOWARD COUNTY ZONING REGULATIONS SECTION 133.0.D.2.6, PARKING IS REQUIRED AT 2.5 SPACES PER UNIT. OFF STREET PARKING TO INCLUDE GARAGE SPACES, DRIVEWAY, PARKING PADS AND COURTS, GARAGES COUNT AS TWO SPACES. SEE TABULATION THIS SHEET.
- STREET LIGHTING IS REQUIRED FOR THIS SITE IN ACCORDANCE WITH SECTION 16.135 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III, SECTION 5.5.A. A MINIMUM OF 20 FEET SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
- ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MHU FEE IN LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT.
- THIS SUBDIVISION COMPLIES WITH THE REQUIREMENTS OF SECTION 16.127 OF THE SUBDIVISION REGULATIONS FOR RESIDENTIAL INFILL DEVELOPMENT.

SITE ANALYSIS DATA CHART

A. TOTAL PROJECT AREA:	8.47 AC +/-
B. AREA OF PLAN SUBMISSION:	8.47 AC.
C. AREA OF WETLANDS AND BUFFERS:	0.0 AC. (SEE "ECO-SCIENCE" REPORT)
D. AREA OF FLOODPLAIN:	0.85 AC +/- NON-CRITICAL (SEE NOTE: 11)
E. AREA OF FOREST:	0.94 AC.
F. AREA OF STEEP SLOPES (25% & GREATER):	APPROX. 1.43 AC +/-
G. ERODIBLE SOILS:	3.0 AC +/- WITHIN LOD
H. LIMIT OF DISTURBED AREA:	239,985.24 S.F. (5.51 AC.)
I. PROPOSED USES FOR SITE AND STRUCTURES:	RESIDENTIAL SINGLE FAMILY DETACHED HOMES
J. GREEN OPEN AREA:	0.82 AC. - (8.47 x 1.53 = 0.12 BONNIE BRANCH PAVING)
K. PROPOSED IMPERVIOUS AREA:	1.53 AC. (INCLUDES ROAD EXTENSION)
L. PRESENT ZONING DESIGNATION:	R-20 (MIN 12,000 SF LOT)
M. OPEN SPACE REQUIRED:	(8.47 AC. GROSS AREA x 40%) = 3.39 AC +/-
N. TOTAL NUMBER OF UNITS ALLOWED:	14
O. TOTAL NUMBER OF UNITS PROPOSED:	14
P. DPZ FILE REFERENCES:	CONT #14-4182-D, ECP-15-027, WP-15-161.

PRELIMINARY EQUIVALENT SKETCH PLAN

HAMPTON HILLS

LOTS 1-14 AND OPEN SPACE LOTS 15-18

PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLICOTT CITY, MD 21043

LEGEND

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	CENTERLINE OF EXISTING STREAM
	STREAM BUFFER
	EXISTING CURB AND GUTTER
	PROPOSED CURB AND GUTTER
	EXISTING WETLAND
	100 YEAR FLOODPLAIN

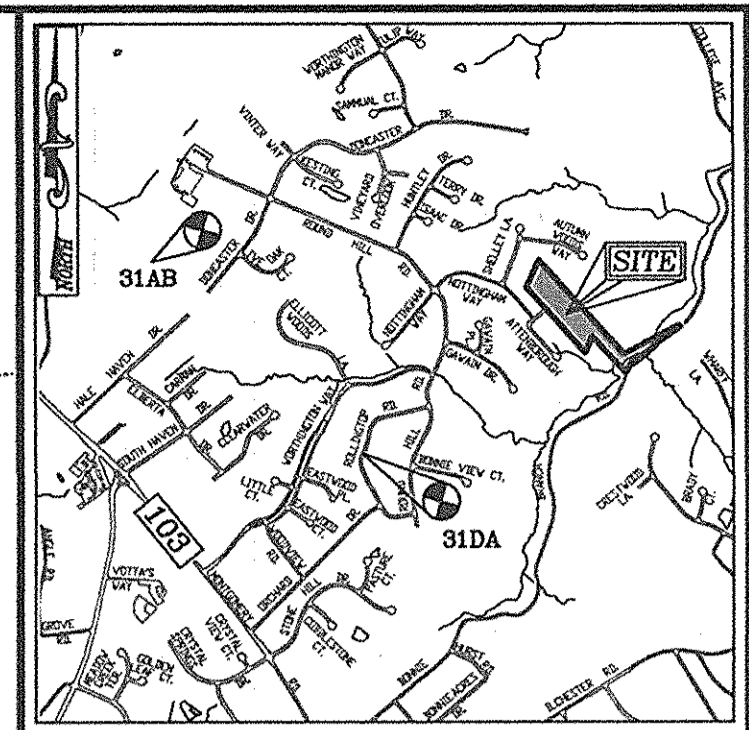
NOTE:

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.

FOREST CONSERVATION LEGEND:

	EXISTING FOREST CONSERVATION EASEMENT
	FOREST CONSERVATION EASEMENT (RETENTION)
	FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
	FOREST CONSERVATION EASEMENT (REFORESTATION)

SHEET INDEX	
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SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN	7 OF 16
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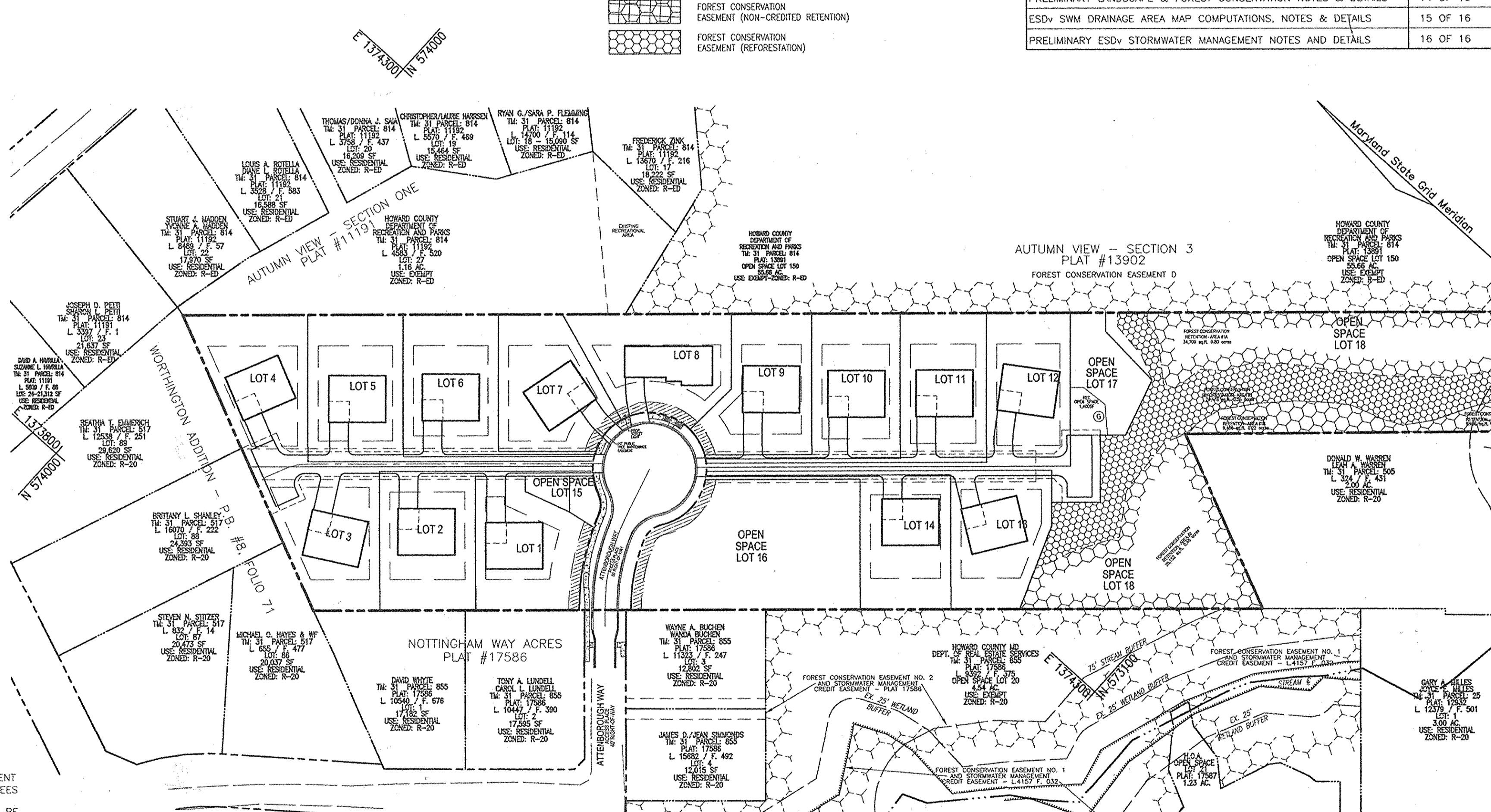


VICINITY MAP

SCALE: 1"=2,000'
ADC MAP COORDINATE: MAP 28, GRID 5C

BENCHMARKS

HOWARD COUNTY BENCHMARK 31AB (CONC. MON.)
N 573984.52 E 1369949.46 ELEV. 499.905
LOCATION: TRANSMISSION LINE 0.2 MILES EAST OF NEW CUT ROAD
HOWARD COUNTY BENCHMARK 31DA (CONC. MON.)
N 571982.70 E 1372145.06 ELEV. 481.604
LOCATION: ROLLING TOP ROAD 0.1 MILES NORTH OF ORCHARD ROAD



OWNER O'BRIEN FAMILY, LLC.
5220 TALBOTS LANDING
ELLICOTT CITY, MD 21043
(410) 480-0023

DEVELOPER TRINITY HOMES MARY LAND, LLC.
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

MINIMUM LOT SIZE CHART			
LOT	GROSS AREA	PIPESTEM AREA	NET AREA
2	13,008 SF	544 SF	12,462 SF
3	14,228 SF	988 SF	13,240 SF
4	14,302 SF	1,320 SF	12,982 SF
5	13,923 SF	882 SF	13,041 SF
6	13,249 SF	446 SF	12,803 SF
10	12,414 SF	412 SF	12,002 SF
11	12,757 SF	751 SF	12,006 SF
12	13,094 SF	1,083 SF	12,011 SF
13	12,944 SF	944 SF	12,000 SF
14	12,595 SF	595 SF	12,000 SF

OPEN SPACE TABULATION:

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 IS 40% OF GROSS AREA (8.47 AC. GROSS AREA x 40% = 3.39 AC.).
OPEN SPACE PROVIDED IS 3.57 ACRES.
CREDITED OPEN SPACE PROVIDED IS 3.47 ACRES.
NON CREDITED OPEN SPACE PROVIDED IS 0.10 ACRES.
TOTAL RECREATION OPEN SPACE PROVIDED FOR HAMPTON HILLS = SINGLE FAMILY HOMES SFD = 200 SF/UNIT X 14 UNITS = 2,800 SF
TOTAL RECREATION OPEN SPACE PROVIDED FOR HAMPTON HILLS RECREATION OPEN SPACE = 1,400 SF PROVIDED (OPEN SPACE LOT 17) + AMENITY (OPEN SPACE LOT 17)
TOTAL = 2,800 SF
* AMENITY: 1,400 SF CREDIT

PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED : 14
PARKING SPACES REQUIRED:
OFF-STREET PARKING AND OVERFLOW/GUEST PARKING SPACES
2.5 SPACES PER UNIT = 35 SPACES
PARKING SPACES PROVIDED:
SFD = 2 GARAGE/2 DRIVEWAY
2 SPACES IN GARAGE = 28 SPACES (FOR 14 UNITS)
2 SPACES ON DRIVEWAY = 28 SPACES (FOR 14 UNITS)
-TOTAL REQUIRED = 35 SPACES
-TOTAL PROVIDED = 56 SPACES

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Walter J. J...
PLANNING DIRECTOR

1-27-16
DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
COVER SHEET
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLICOTT CITY, MD 21043

TAX MAP 31 GRID: 9
2ND ELECTION DISTRICT

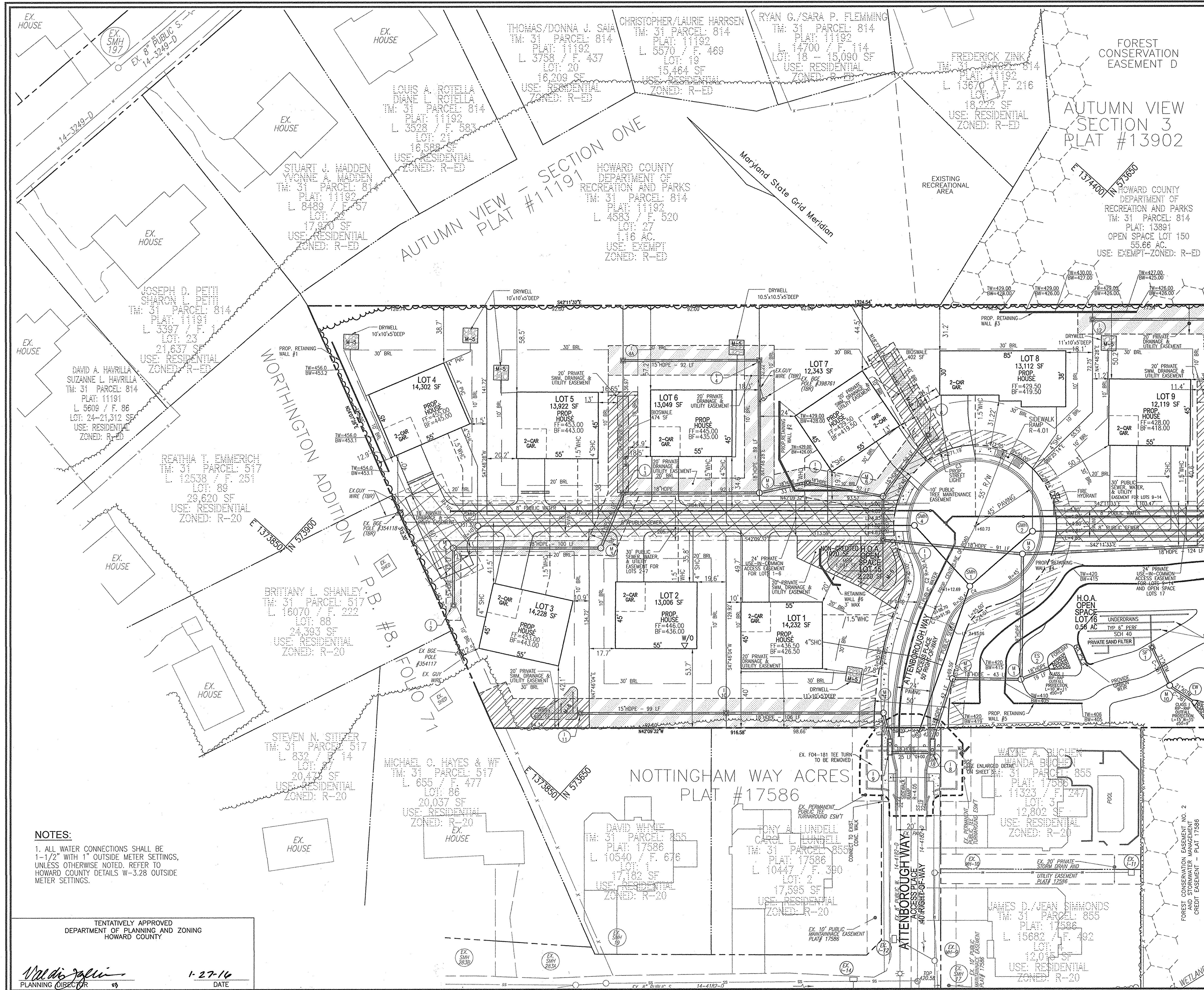
PARCEL: 24
ZONING: R-20
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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 DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2016

DESIGN BY: RHV
DRAWN BY: RVE/KG
CHECKED BY: RHV
DATE: JANUARY 2016
SCALE: AS SHOWN
W.O. NO.: 12-10

1 SHEET OF 16



CURVE TABLE						
CURVE	LENGTH	RADIUS	DELTA ANGLE	TANGENT	CHORD DIRECTION	CHORD LENGTH
C1	96.61'	210.00'	26°21'33"	49.18'	N 61°02'32" E	95.76'
C2	30.97'	35.00'	50°42'22"	16.58'	N 45°03'06" E	29.97'
C3	226.06'	45.00'	287°50'01"	19.80'	S 81°57'33" E	53.01'
C4	36.03'	35.00'	58°58'59"	19.80'	S 81°57'33" E	34.46'

STREET LIGHT LOCATIONS			
ROAD NAME	STATION	OFFSET	FIXTURE/POLE TYPE
ATTENBOROUGH WAY	1+10.47 L.P.	12.00' LEFT	100 WATT HPS VAPOR PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TRENCH
- EXISTING FENCE
- CENTRELINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED SIDEWALK
- PROPOSED TRENCH
- PROPOSED CURB
- PROPOSED DRYWELL
- M-5
- PVC
- PROPOSED MICRO-SCALE PRACTICE MICRO BIORETENTION / BIORETENTION MICRO-SCALE PRACTICE 60"-SWALE
- 24" PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PRIVATE DRAINAGE & UTILITY EASEMENT
- PRIVATE SWIM DRAINAGE & UTILITY EASEMENT
- 10' PUBLIC TREE MAINTENANCE EASEMENT
- 30' PUBLIC SEWER, WATER & UTILITY EASEMENT
- EXISTING FOREST CONSERVATION EASEMENT

PRELIMINARY LAYOUT SHEET
SCALE: 1"=30'

OWNER: O'BRIEN FAMILY, LLC
5220 TALBOT'S LANDING
ELLCOTT CITY, MD 21043
(410) 480-0023

DEVELOPER: TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
PRELIMINARY LAYOUT
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4788 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
9407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.8966
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: RVE/KC
CHECKED BY: RHV
DATE: JANUARY 2016
SCALE: AS SHOWN
W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2018.

2 SHEET OF 16

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.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

M. DiGirola
PLANNING DIRECTOR

1-27-16
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.

FOREST CONSERVATION LEGEND:

- EXISTING FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANDIRT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- 100 YEAR FLOODPLAIN
- EXISTING TREELINE
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED DRYWELL
- MICRO-SCALE PRACTICE BIORETENTION / BIO-SWALE
- 10' PUBLIC TREE MAINTENANCE EASEMENT
- 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PRIVATE DRAINAGE & UTILITY EASEMENT
- PRIVATE SWM, DRAINAGE & UTILITY EASEMENT
- 30' PUBLIC SEWER, WATER & UTILITY EASEMENT

**AUTUMN VIEW - SECTION 3
 PLAT #13902
 FOREST CONSERVATION EASEMENT D.**

HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS
 TM: 31 PARCEL: 814
 PLAT: 13881
 OPEN SPACE LOT 150
 55.66 AC.
 USE: EXEMPT
 ZONED: R-ED

EXISTING CULVERT NOTE:
 EXISTING CULVERT SHALL BE REMOVED. ALL WORK SHALL BE COMPLETED UNDER REQUIRED MDE PERMIT

EXISTING DRIVEWAY:
 REMOVE CULVERT, DRIVEWAY AND SUBBASE. ADD TOPSOIL WHILE LIMITING DISTURBANCE TO NON WOODED AREAS

DONALD W. WARREN
 LEAT A. WARREN
 TM: 31 PARCEL: 505
 L: 324 / F: 431
 2.00 AC.
 USE: RESIDENTIAL
 ZONED: R-20

SCOTT W. RAUBAUGH
 JOANNE N. CARLISLE
 TM: 31 PARCEL: 548
 L: 11470 / F: 114
 135 AC.
 USE: RESIDENTIAL
 ZONED: R-20

OWNER
 O'BRIEN FAMILY, LLC
 5220 TALBOTS LANDING
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARYLAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

PRELIMINARY LAYOUT SHEET
 SCALE: 1" = 30'

NO. _____ REVISION _____ DATE _____

**PRELIMINARY EQUIVALENT SKETCH PLAN
 PRELIMINARY LAYOUT
 HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18**

PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-20
 HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE

DESIGN BY: RHY
 DRAWN BY: RVE/KG
 CHECKED BY: RHY
 DATE: JANUARY 2016
 SCALE: AS SHOWN
 W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRES DATE: 09-27-2018

3 SHEET OF 16

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

William J. Miller
 PLANNING DIRECTOR

1-27-16
 DATE

SEE SHEET 2

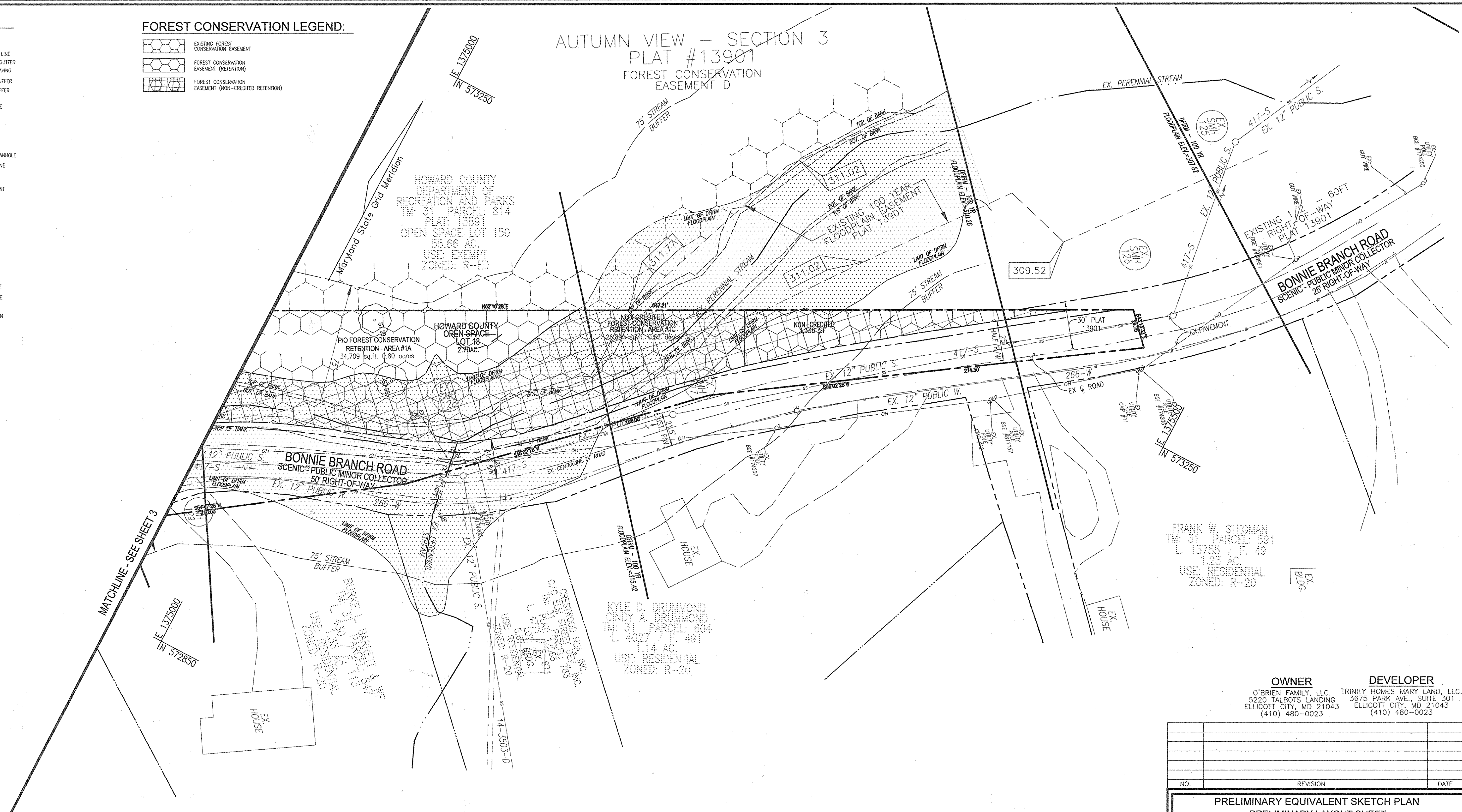
SEE SHEET 2

- LEGEND:**
- PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - EXISTING CURB AND GUTTER
 - EXISTING EDGE OF PAVING
 - EXISTING WETLAND BUFFER
 - EXISTING STREAM BUFFER
 - EXISTING STREAM
 - EXISTING UTILITY POLE
 - EXISTING LIGHT POLE
 - EXISTING MAILBOX
 - EXISTING SIGN
 - EXISTING SANITARY MANHOLE
 - EXISTING SANITARY LINE
 - EXISTING CLEANOUT
 - EXISTING FIRE HYDRANT
 - EXISTING WATER LINE
 - EXISTING TREETRINE
 - EXISTING TREES
 - ADDITIONAL EXISTING LARGER TREE
 - EXISTING WOOD FENCE
 - EXISTING METAL FENCE
 - 100 YEAR FLOODPLAIN

FOREST CONSERVATION LEGEND:

- EXISTING FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)

AUTUMN VIEW - SECTION 3
 PLAT #13901
 FOREST CONSERVATION EASEMENT D



MATCHLINE - SEE SHEET 3

OWNER
 O'BRIEN FAMILY, LLC
 5220 TALBOTS LANDING
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

PRELIMINARY LAYOUT SHEET
 SCALE: 1"=30'

NOTE:
 R/W DEDICATION SHALL OCCUR UNDER FPLAN SUBMISSION. NO WIDENING OR ROAD IMPROVEMENTS ARE PROPOSED.

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Robert H. Vogel, Inc.
 PLANNING DIRECTOR
 1-27-16
 DATE

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
 PRELIMINARY LAYOUT SHEET
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
 2ND ELECTION DISTRICT

PARCEL: 24
 ZONED: R-20
 HOWARD COUNTY, MARYLAND

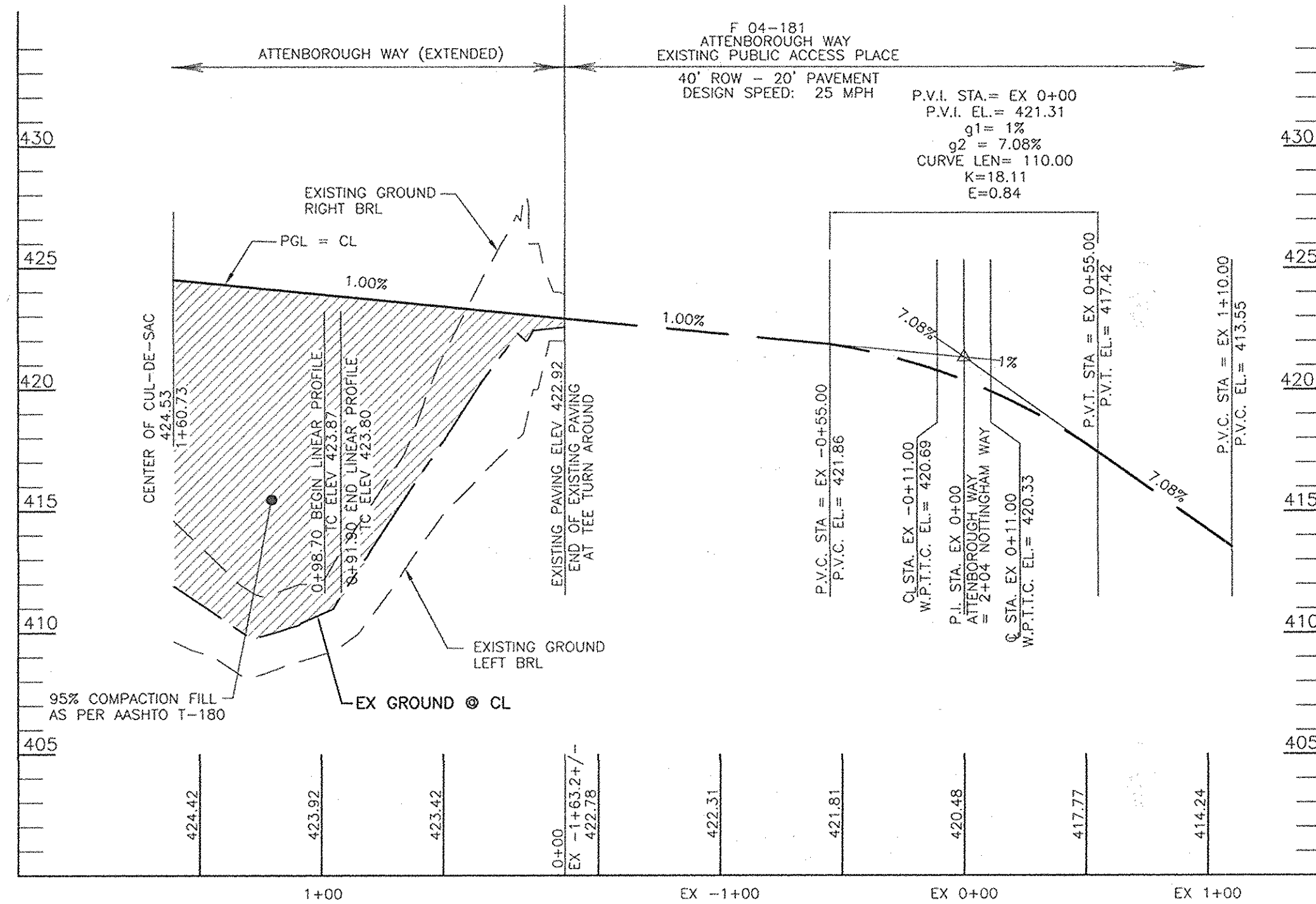
ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET
 ELLICOTT CITY, MD 21043
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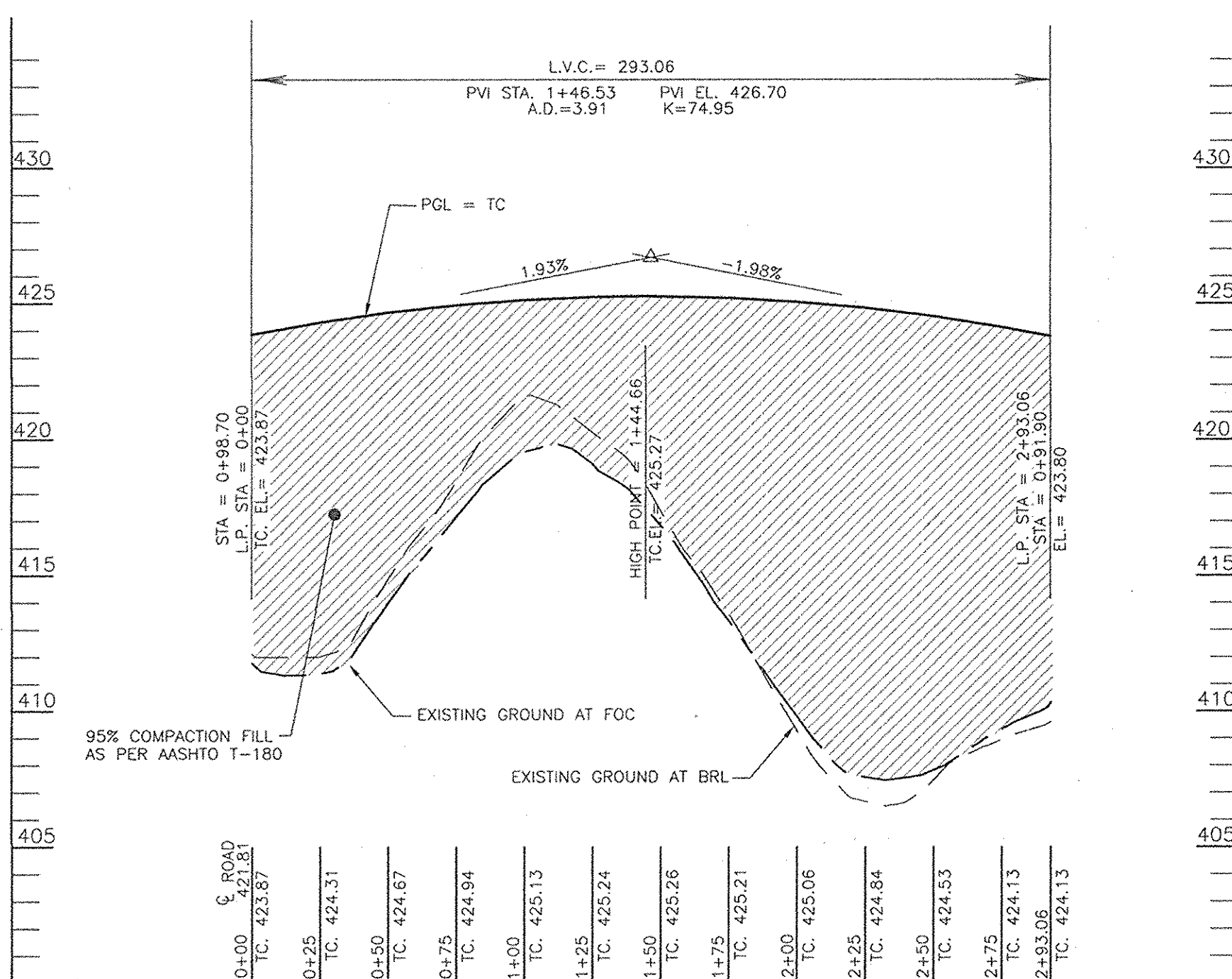
DESIGN BY: RHV
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 SCALE: AS SHOWN
 W.O. NO.: 12-10

ROBERT H. VOGEL, PE No. 16193

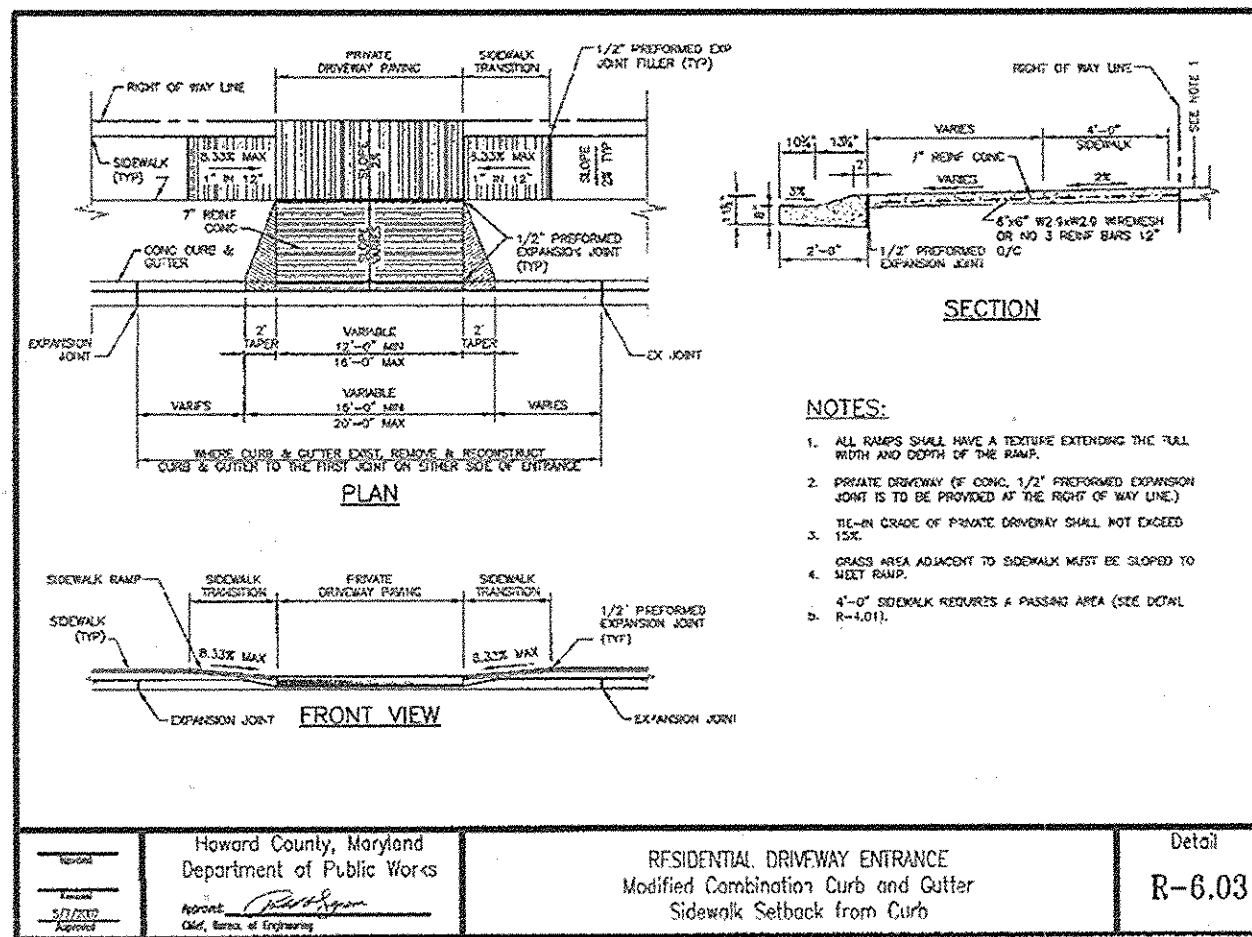
4 SHEET OF 16



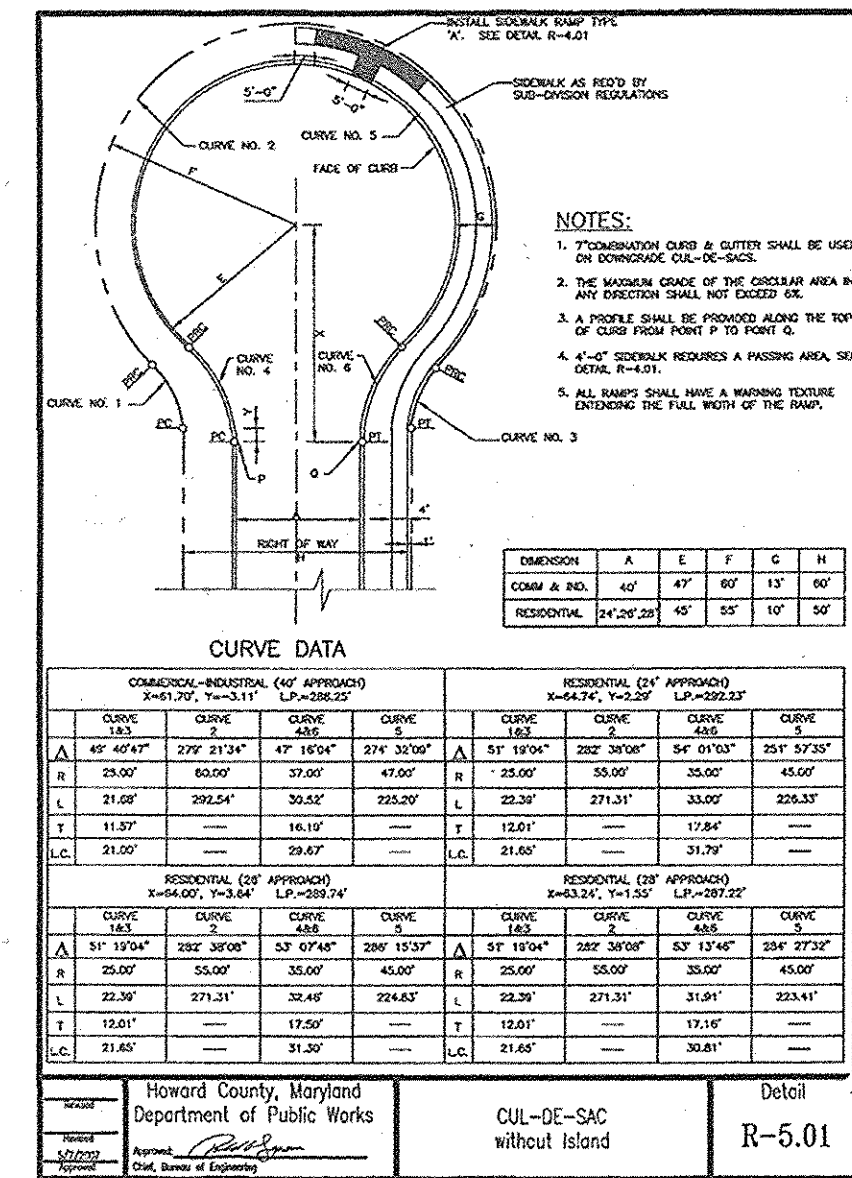
ATTENBOROUGH WAY PROFILE
SCALE: 1"=50' HORIZ.
1"=5' VERT.



ATTENBOROUGH WAY CUL-DE-SAC LINEAR PROFILE
SCALE: 1"=50' HORIZ.
1"=5' VERT.

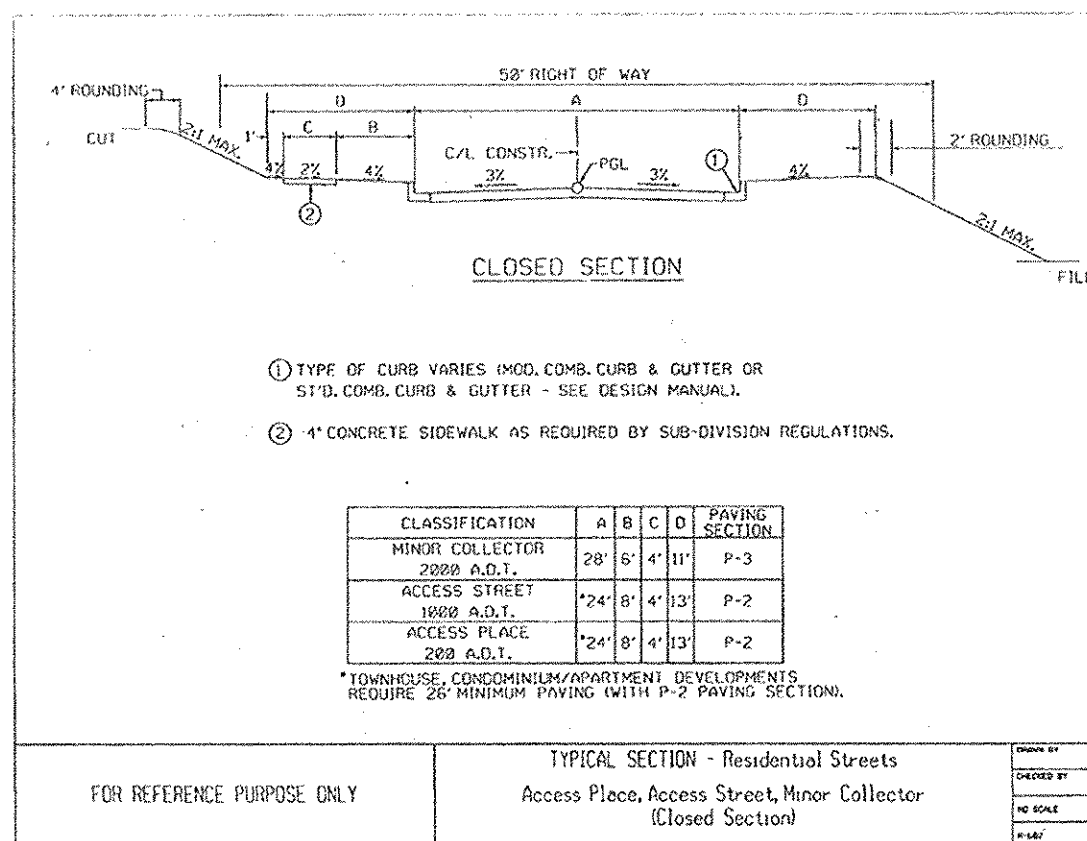


Howard County, Maryland
Department of Public Works
Residential Driveway Entrance
Modified Combination Curb and Gutter
Sidewalk Setback from Curb
Detail
R-6.03

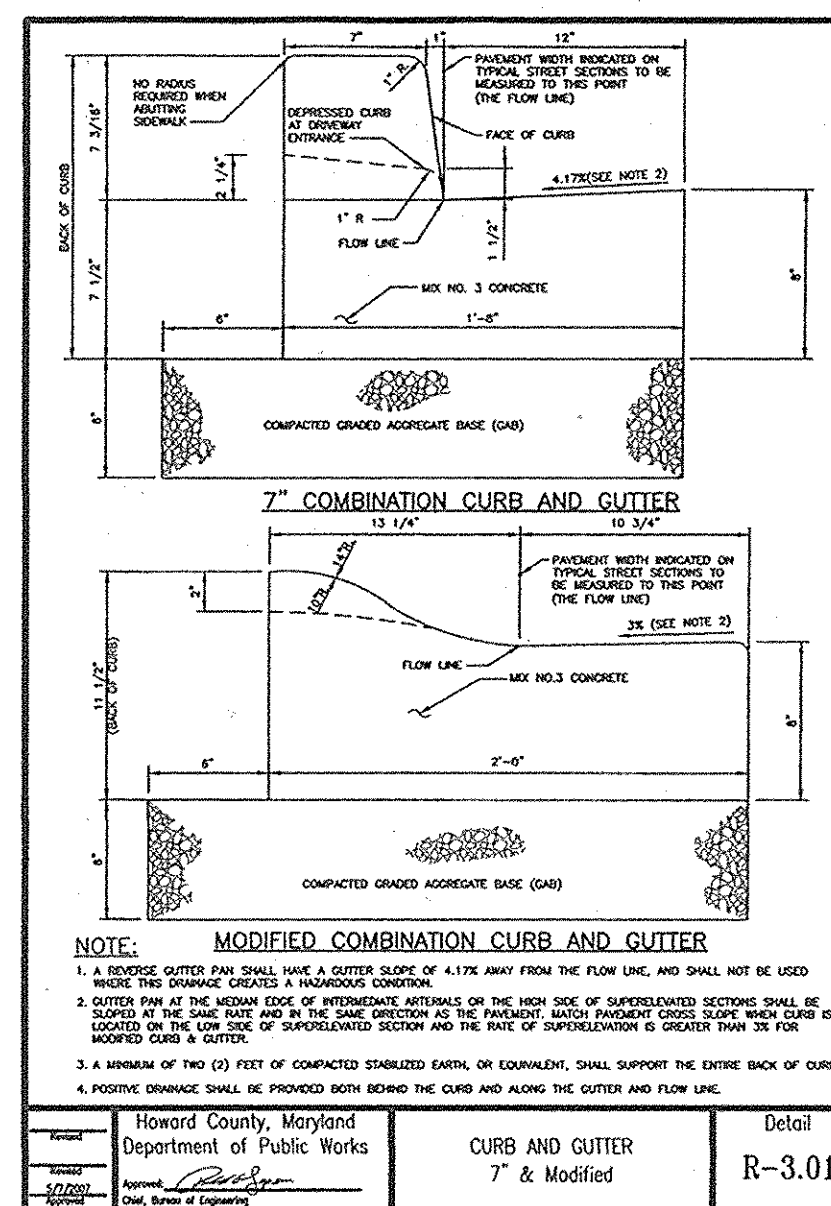


SECTION	ROAD AND STREET	CLASSIFICATION	A	B	C	D	PAVING SECTION
MINOR COLLECTOR	2000 A.D.L.	24' 0"	6'	4'	3'	2'	P-3
ACCESS STREET	1000 A.D.L.	24' 0"	6'	4'	3'	2'	P-2

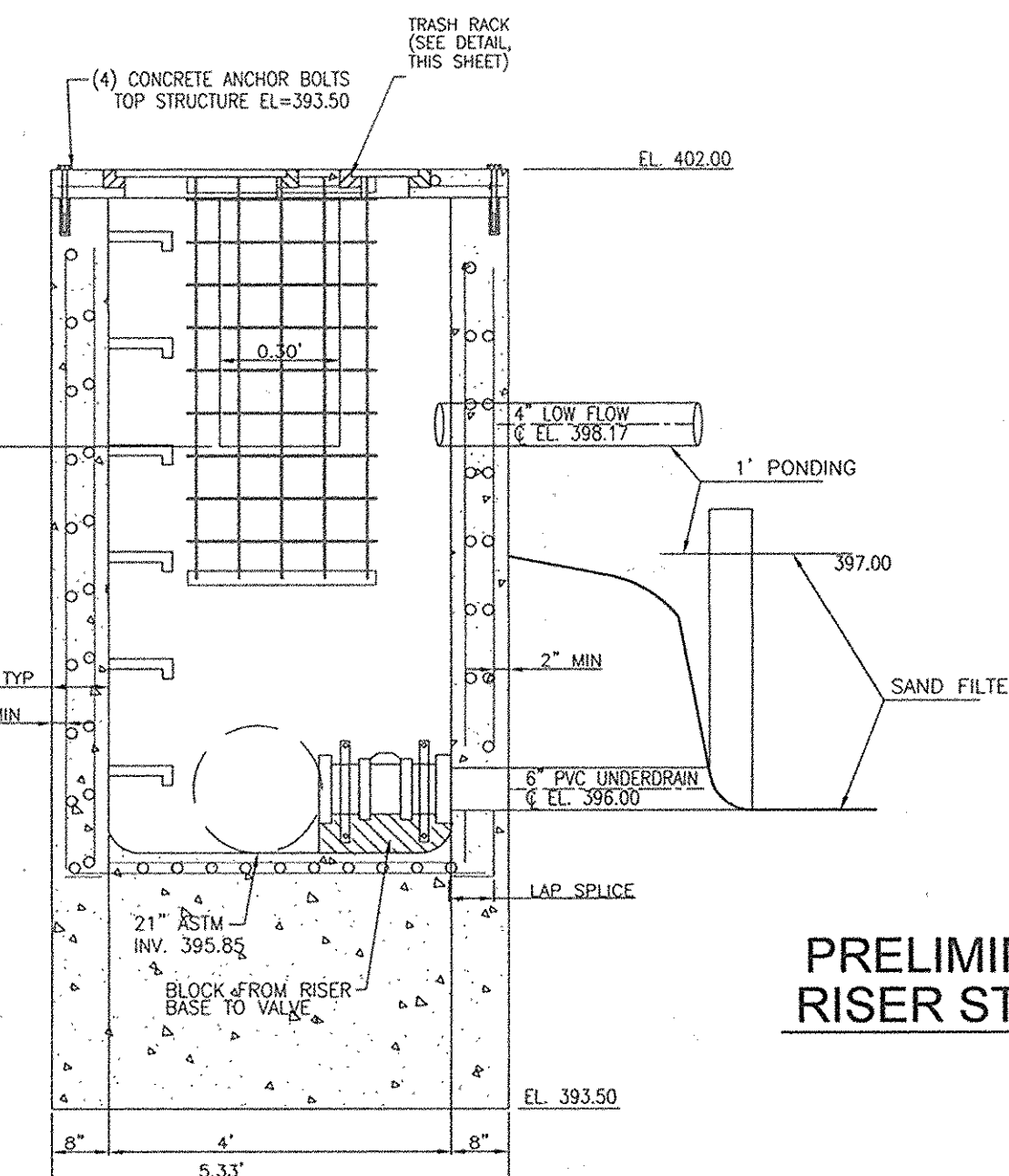
Howard County, Maryland
Department of Public Works
CUL-DE-SAC
Without Island
Detail
R-5.01



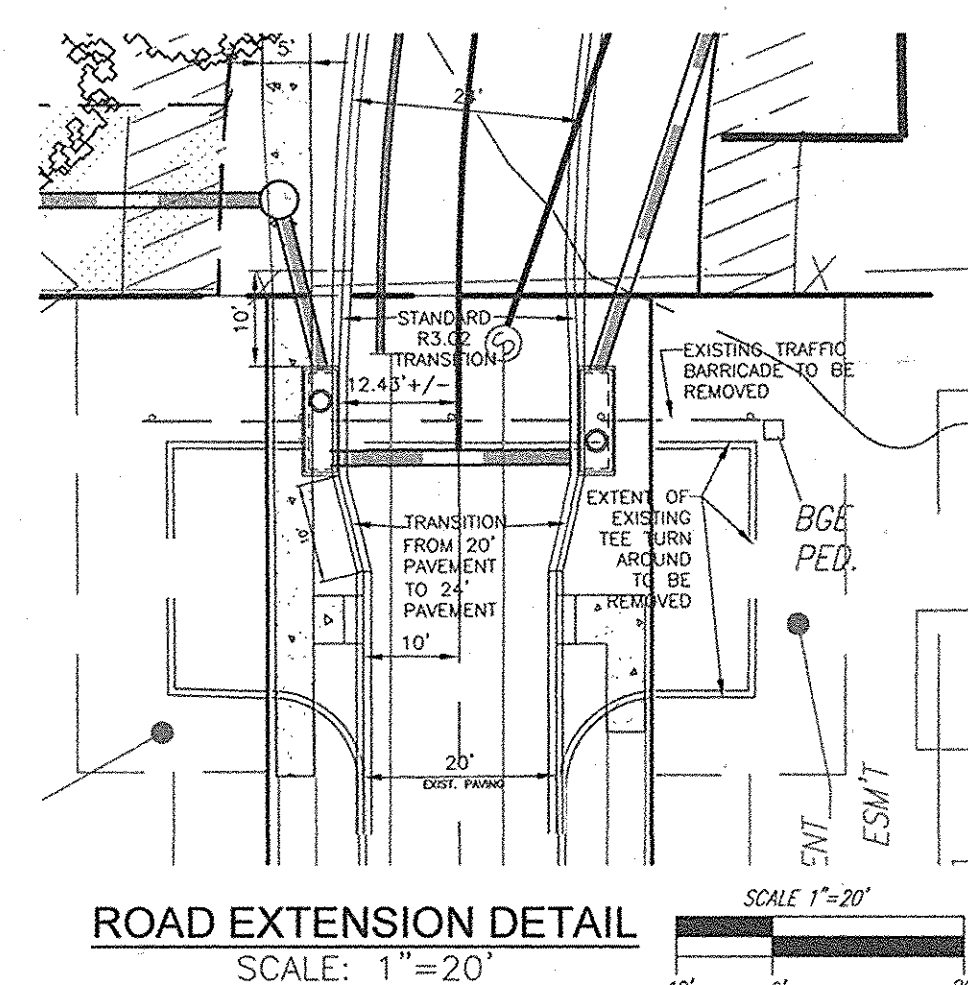
Howard County, Maryland
Department of Public Works
CURB AND GUTTER
7" Modified
Detail
R-3.01



Howard County, Maryland
Department of Public Works
CURB AND GUTTER
7" Transition to Modified &
Nose Down
Detail
R-3.02



PRELIMINARY SAND FILTER RISER STRUCTURE DETAILS
SCALE: N.T.S.



ROAD EXTENSION DETAIL
SCALE: 1"=20'

OWNER
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(410) 480-0023

PRELIMINARY EQUIVALENT SKETCH PLAN
ROAD PROFILES AND SITE DETAILS
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
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5 SHEET OF 16

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Nellie J. J. J.
PLANNING DIRECTOR
1-27-16
DATE



MAPPED SOILS TYPES - SAVAGE NE MAP # 19

SYMBOL NAME / DESCRIPTION	GROUP	HYDRO	PERCENT	K FACTOR	PERCENT	PERCENT
CLC	C	NO	YES	32	NO	NO
GLC	A	NO	NO	28	NO	NO
GDC	A	NO	NO	28	NO	NO
GLC	A	NO	NO	28	NO	NO
GLC	C	NO	NO	43	YES	YES
MFC	B	NO	NO	20	NO	NO
MFC	C/D	NO	NO	37	NO	YES

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

LEGEND:

PROPERTY LINE	PROPOSED STORMDRAIN INLET
RIGHT-OF-WAY LINE	PROPOSED TREELINE
ADJACENT PROPERTY LINE	PROPOSED CURB
EXISTING CURB AND GUTTER	PROPOSED 10' CONTOUR
EXISTING UTILITY POLE	PROPOSED 2' CONTOUR
EXISTING LIGHT POLE	PROPOSED MICRO-BIOTRENTION FACILITY (M-6)
EXISTING MAILBOX	PROPOSED DRY WELL (M-5)
EXISTING SIGN	EXISTING STEEP SLOPES (24.99%-100%)
EXISTING SANITARY MANHOLE	EXISTING MODERATE SLOPES (15%-24.99%)
EXISTING SANITARY LINE	24' PRIVATE USE-IN-COMMON ACCESS EASEMENT
EXISTING CLEANOUT	PRIVATE DRAINAGE & UTILITY EASEMENT
EXISTING FIRE HYDRANT	PRIVATE SWIM, DRAINAGE & UTILITY EASEMENT
EXISTING WATER LINE	10' PUBLIC TREE MAINTENANCE EASEMENT
EXISTING 10' CONTOUR	30' PUBLIC SEWER, WATER & UTILITY EASEMENT
EXISTING 2' CONTOUR	EXISTING FOREST CONSERVATION EASEMENT
SOILS	EXISTING FOREST CONSERVATION EASEMENT
EXISTING TREELINE (FIELD LOCATED)	LIMIT OF DISTURBANCE
EXISTING TREES (FIELD LOCATED)	SUPER SILT FENCE
EXISTING FENCE	EARTH DIKE
CENTRELINE OF EXISTING STREAM	
PROPOSED STORMDRAIN	
EXISTING FOREST CONSERVATION EASEMENT	

PRELIMINARY GRADING PLAN
SCALE: 1"=30'
SCALE 1"=30'
15' 0' 30'

NOTE:
NO GRADING WILL BE ALLOWED UNTIL ALL MATERIALS TO CONSTRUCT THE BASIN ARE ON SITE.

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

OWNER O'BRIEN FAMILY, LLC
5220 TALBOTS LANDING
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DEVELOPER TRINITY HOMES MARY LAND, LLC
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ELLICOTT CITY, MD 21043
(410) 480-0023

SWMF SAND FILTER

HAZARD CLASS A SAND FILTER
EX. DRAINAGE AREA: 5.9 AC.
PROP. DRAINAGE AREA: 5.1 AC.
BOTTOM ELEV.: 396
CREST ELEVATION: 404
SIDE SLOPES: 3:1 / 2:1
EMERGENCY SPILLWAY: N/A

Q10 (EX.): 8 CFS
Q10 (FACILITY): 7 CFS
10 YR WSEL= 401.81

AS THE PROJECT IS LOCATED WITHIN THE BONNIE BRANCH DRAINAGE AREA, 10 YEAR PEAK MANAGEMENT IS REQUIRED. A COMBINATION WATER QUALITY SAND FILTER AND 10 YEAR QUANTITY CONTROL FACILITY IS PROPOSED. 0.4 AC/FT IS REQUIRED TO MANAGE THE DEVELOPMENT TO EXISTING CONDITIONS.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

1-27-16
DATE

MATCHLINE - SEE SHEET 7

PRELIMINARY EQUIVALENT SKETCH PLAN
SOILS MAP, GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONING: R-20
HOWARD COUNTY, MARYLAND

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

DESIGN BY: RHV
DRAWN BY: RVE/KG
CHECKED BY: RHV
DATE: JANUARY 2016
SCALE: AS SHOWN
W.O. NO.: 12-10

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6 SHEET OF 16

MATCHLINE - SEE SHEET 6

MATCHLINE - SEE SHEET 6

FOREST CONSERVATION LEGEND:

- EXISTING FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREATED/RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- LIMIT OF DISTURBANCE
- 100 YEAR FLOODPLAIN
- 30' PUBLIC SEWER, WATER & UTILITY EASEMENT
- EXISTING SANITARY LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING TREELINE (FIELD LOCATED)
- EXISTING TREES (FIELD LOCATED)
- EXISTING FENCE
- CENTERLINE OF EXISTING STREAM
- PROPOSED STORMDRAIN
- PROPOSED STORMDRAIN INLET
- PROPOSED TREELINE
- PROPOSED CURB
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED MICRO-BIORETENTION FACILITY (M-6)
- PROPOSED DRY WELL (M-5)
- EXISTING STEEP SLOPES (24.95% - 100%)
- EXISTING MODERATE SLOPES (15% - 24.95%)
- 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PRIVATE DRAINAGE & UTILITY EASEMENT
- PRIVATE SWIM, DRAINAGE & UTILITY EASEMENT
- 10' PUBLIC TREE MAINTENANCE EASEMENT
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE
- EARTH DIKE

AUTUMN VIEW - SECTION 3
PLAT #13902

FOREST CONSERVATION-EASEMENT D

EXISTING CULVERT NOTE:
EXISTING CULVERT SHALL BE REMOVED.
ALL WORK SHALL BE COMPLETED
UNDER REQUIRED MOE PERMIT.

EXISTING DRIVEWAY:
REMOVE CULVERT, DRIVEWAY AND
SUBGRADE. ADD TOPSOIL WHILE
LIMITING DISTURBANCE TO NON
WOODED AREAS.

OWNER
O'BRIEN FAMILY, LLC
5220 TALBOT'S LANDING
ELLCOTT CITY, MD 21043
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DEVELOPER
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3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
SOILS MAP, GRADING, SOIL EROSION AND
SEDIMENT CONTROL PLAN
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONE: R-20
HOWARD COUNTY, MARYLAND

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7 SHEET OF 16

MAPPED SOILS TYPES - SAVAGE NE MAP #19

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	TOPO	INCLUSIONS	K FACTOR	ROCK (PERCENT)	CLAY (%)	STONY (%)
Cc	CODRUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	YES	32	NO	NO	YES	NO
GcE	GLAUSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO	NO	NO
GcD	GLAUSTONE-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO	NO	NO
GcC	GLAUSTONE-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	NO	28	NO	NO	NO	NO
GcB	GLAUSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	NO	43	YES	YES	NO	NO
MgF	MANOR-BANNERDOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	NO	20	NO	NO	YES	NO
M6C	MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	NO	37	NO	NO	YES	NO

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

PRELIMINARY GRADING PLAN
SCALE: 1"=30'
15' 0' 30'

NOTE: LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

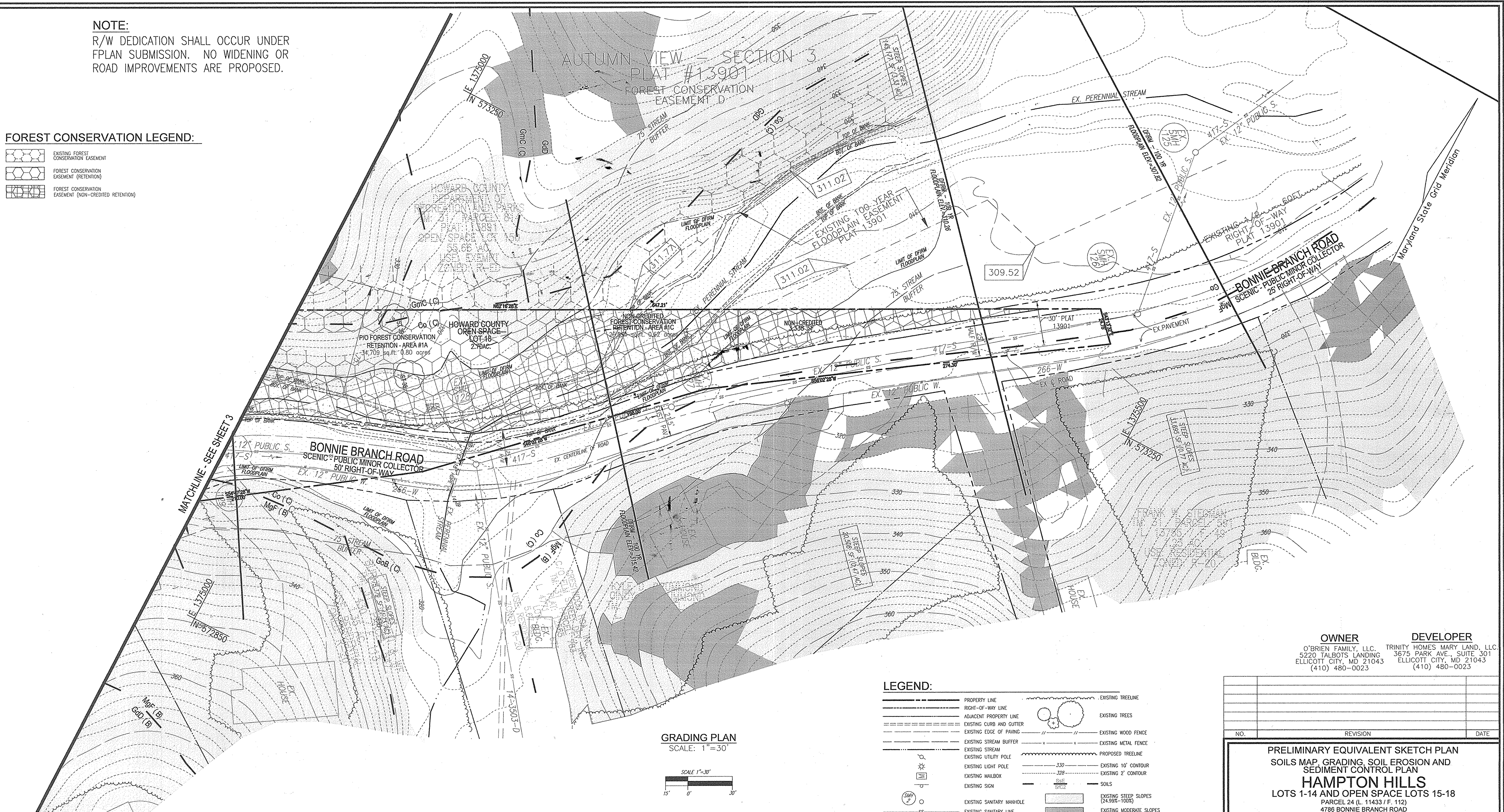
Valerie J. Hill
PLANNING DIRECTOR

1-27-16
DATE

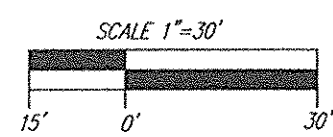
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FOREST CONSERVATION LEGEND:

- EXISTING FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)



GRADING PLAN
SCALE: 1"=30'



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- PROPOSED TREELINE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- EXISTING STEEP SLOPES (24.99%-100%)
- EXISTING MODERATE SLOPES (15%-24.99%)
- 100 YEAR FLOODPLAIN
- FOREST CONSERVATION EASEMENT (RETENTION)
- EXISTING FOREST CONSERVATION EASEMENT

MAPPED SOILS TYPES - SAVAGE NE MAP # 19

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	TRIC	INCLUSIONS	K FACTOR	POSS. FARMLAND	CISE SLOPE	POSS. POTENTIAL
Co	COLORED AND HARDER SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	YES	32	NO	NO	YES	NO
Gpc	GLAUSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO	NO	NO
Gpd	GLAUSTONE-LEGORE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO	NO	NO
Gpc	GLAUSTONE-LEGORE COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	NO	28	NO	NO	NO	NO
Gmc	GLENNVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	NO	43	YES	YES	YES	YES
Maf	MANOR-BANNERSTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	NO	20	NO	NO	NO	NO
Mdc	MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	NO	37	NO	NO	NO	NO

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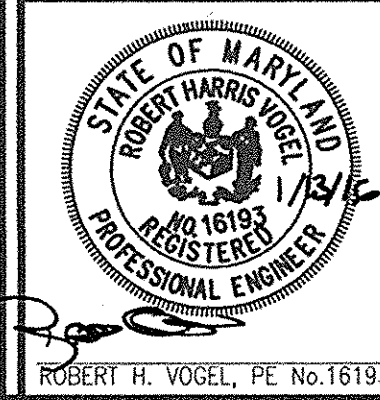
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NO.	REVISION	DATE

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HAMPTON HILLS
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DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Nadine Ricci
PLANNING DIRECTOR
1-27-16
DATE

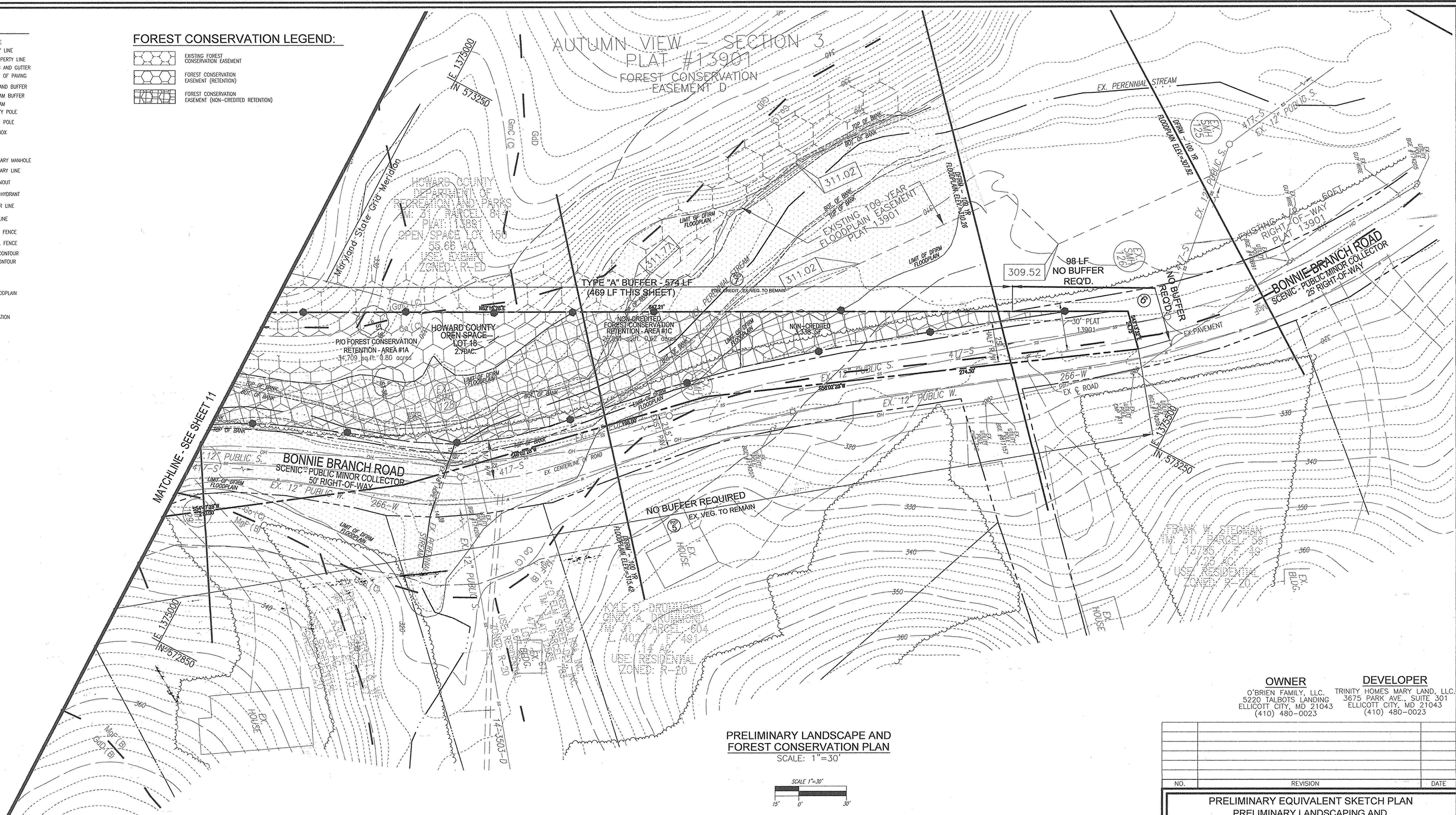
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- EXISTING WETLAND BUFFER
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- EXISTING STREAM
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- 100 YEAR FLOODPLAIN
- FCE SIGN LOCATION

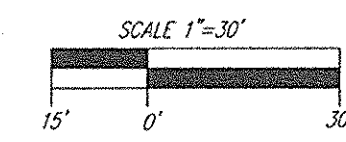
FOREST CONSERVATION LEGEND:

- ▨ EXISTING FOREST CONSERVATION EASEMENT
- ▨ FOREST CONSERVATION EASEMENT (RETENTION)
- ▨ FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)

AUTUMN VIEW - SECTION 3
 PLAT #13901
 FOREST CONSERVATION EASEMENT D



PRELIMINARY LANDSCAPE AND FOREST CONSERVATION PLAN
 SCALE: 1"=30'



OWNER
 O'BRIEN FAMILY, LLC
 5220 TALBOT'S LANDING
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
PRELIMINARY LANDSCAPING AND FOREST CONSERVATION PLAN
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
 ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9 PARCEL: 24
 2ND ELECTION DISTRICT ZONED: R-28
 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
 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: 09-27-2018

DESIGN BY: RHV
 DRAWN BY: RVE/KG
 CHECKED BY: RHV
 DATE: JANUARY 2016
 SCALE: AS SHOWN
 W.O. NO.: 12-10

MAPPED SOILS TYPES - SAVAGE NE MAP # 19

SYMBOL	NAME / DESCRIPTION	GROUP	HYDROIC	PERCENT SAND	K FACTOR	PERCENT SILT	PERCENT CLAY
Cc	COARSES AND WATERBOD SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	YES	32	NO	NO
Gpc	GLAUSTONE-LEGGRE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO
Gpd	GLAUSTONE-LEGGRE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO
Gpc	GLAUSTONE-URRAL LAND COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	NO	28	NO	NO
Gmc	GLENNVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	NO	43	YES	YES
Mpf	MANOR-BANNERTOWN SANDY LOAMS, 25 TO 65 PERCENT SLOPES, ROCKY	B	NO	NO	20	NO	YES
Mdc	MOUNT LUCAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	NO	37	NO	NO

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
 TAKEN FROM: USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Valerie J. ...
 PLANNING DIRECTOR

1-27-16
 DATE

GENERAL NOTES

WATERSHED NAME: PATAPSCO RIVER LOWER NORTH BRANCH
WATERSHED NUMBER: 2130906

- A. GROSS SITE AREA: 8.47 AC.
- NET SITE AREA: 7.62 AC.
- B. AREA OF 100-YEAR FLOODPLAIN: 0.85 AC. DFIRM
- C. AREA OF WETLANDS AND BUFFERS(ONSITE): 0.00 AC.
- AREA OF STREAM AND BUFFERS(ONSITE): 0.54 AC.
- D. AREA OF > 25% STEEP SLOPES: 1.43 AC.
- E. EXISTING FOREST: 6.94 AC.
- F. ZONED: R-20
- G. EXISTING USE: RESIDENTIAL
- H. PROPOSED USE: RESIDENTIAL

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY
2. SURROUNDING LAND USE PRIMARILY MEDIUM/HIGH DENSITY RESIDENTIAL DEVELOPMENT AND FOREST
3. APPROXIMATELY 5.0 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
4. ALL STREAMS ON THE PROPERTY ARE PART OF A USE1 WATERSHED. THE STREAM CHANNEL IS PERENNIAL AND WILL REQUIRE A 75 FOOT BUFFER.
5. A NON-CRITICAL 100 YEAR FLOODPLAIN IS PRESENT ON THE SUBJECT PROPERTY. THE APPROXIMATE FLOODPLAIN COMMON TO BONNIE BRANCH IS SHOWN HEREON PER THE HOWARD COUNTY - DIGITAL FLOOD INSURANCE RATE MAP (DFIRM).
6. THERE ARE STEEP SLOPES (15-24.99 AND 25% OR GREATER) ON THE SUBJECT PROPERTY
7. THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES ON THIS PROPERTY.
8. THERE ARE SPECIMEN TREES ON THE PROPERTY. THERE ARE NO KNOWN TREES THAT ARE STATE CHAMPION TREES AND OR TREES 75% OF THE SIZE OF THE STATE CHAMPION TREE ON THE PROPERTY.

MAPPED SOILS TYPES - SAVAGE NE MAP # 19

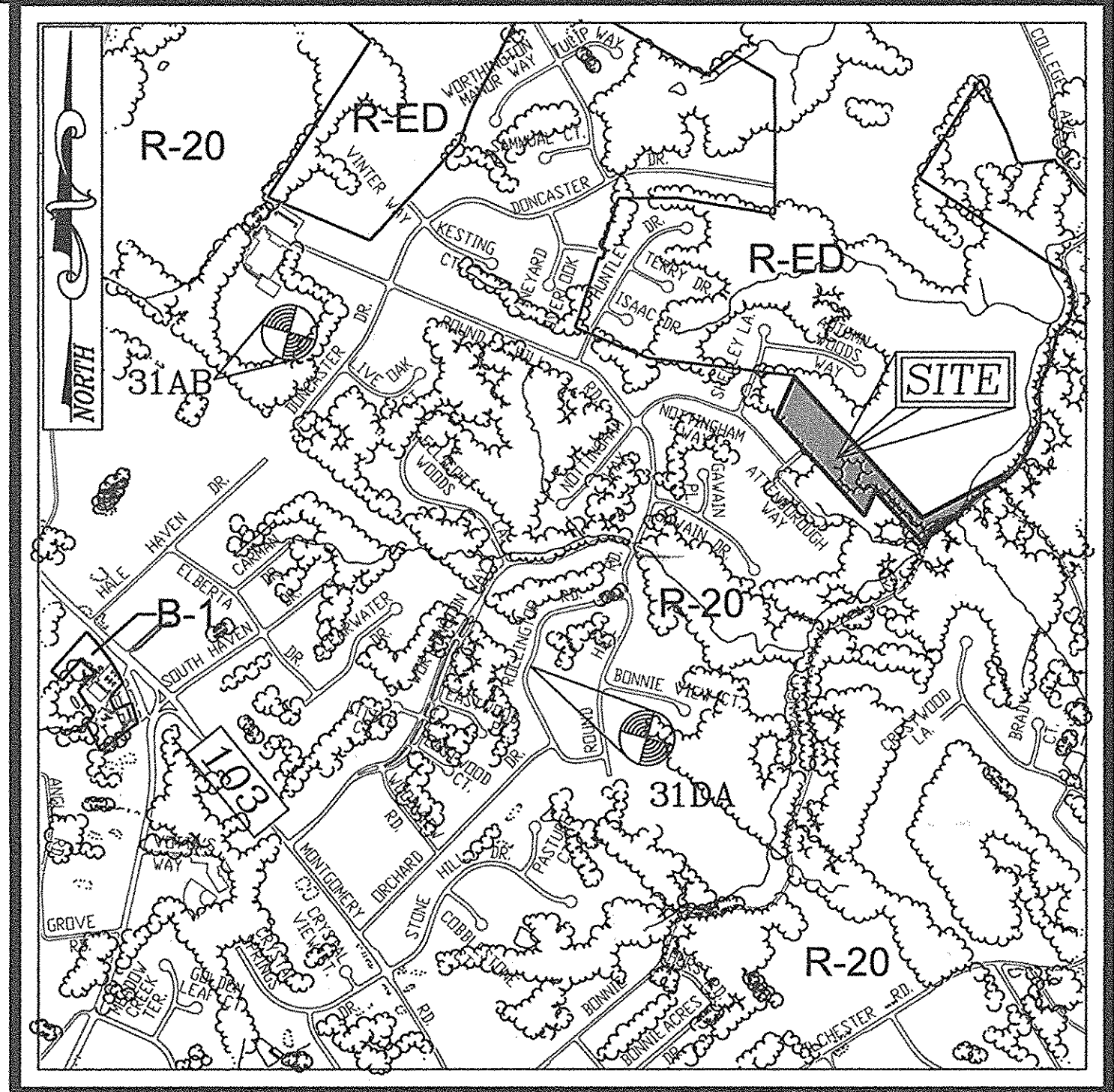
SYMBOL / DESCRIPTION	GROUP	HYDRIC	PERCENT ORGANIC	K FACTOR	PERCENT STONINESS	PERCENT SAND	PERCENT SILT	PERCENT CLAY
Cs COBOLUS AND MATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	YES	32	NO	NO	NO	NO
CsC CLADSTONE-LEGGRE COMPLEX, 8 TO 15 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO	NO	NO
CsD CLADSTONE-LEGGRE COMPLEX, 15 TO 25 PERCENT SLOPES, STONY	A	NO	NO	28	NO	NO	NO	NO
CsE CLADSTONE-URBAN LAND COMPLEX, 8 TO 15 PERCENT SLOPES	A	NO	NO	28	NO	NO	NO	NO
CsF GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	NO	NO	43	YES	YES	YES	YES
Msf MAJOR-BANNERSTOWN SANDY LOAMS, 20 TO 65 PERCENT SLOPES, ROCKY	B	NO	NO	20	NO	NO	NO	NO
Msc MOUNT LUGAS SILT LOAM, 8 TO 15 PERCENT SLOPES, STONY	C/D	NO	NO	37	NO	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

SPECIMEN TREE CHART						
NO.	SIZE (DBH)	CRZ (FEET) (RADIUS)	COMMON NAME	CONDITION	COMMENTS	
ST 1	30.5"	45.75'	TULIP POPLAR	FAIR-GOOD HEALTH, LIMITED CROWN	TO REMAIN	
ST 2	30.5"	45.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 3	32.5"	48.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 4	31.5"	47.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 5	32"	48"	TULIP POPLAR	FAIR-LIMB DIEBACK	TO BE REMOVED	
ST 6	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 7	30.5"	45.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 8	34"	51"	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 9	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 10	47"	70.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 11	31.5"	47.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 12	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 13	31"	46.5'	TULIP POPLAR	POOR-TRUNK ROT NOTED	TO BE REMOVED	
ST 14	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 15	34"	51"	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 16	32"	48"	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 17	31.5"	47.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 18	32.5"	48.75'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 19	39"	58.5'	TULIP POPLAR	POOR-TRUNK ROT NOTED	TO BE REMOVED	
ST 20	43"	64.5'	TULIP POPLAR	VERY POOR-SEVERE TRUNK ROT	TO BE REMOVED	
ST 21	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 22	41.5"	62.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 23	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 24	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 25	37"	55.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 26	35"	52.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 27	35"	52.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 28	37"	55.5'	TULIP POPLAR	GOOD CONDITION	TO BE REMOVED	
ST 29	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 30	30"	45'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 31	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO BE REMOVED	
ST 32	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN	
ST 33	33"	49.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN	
ST 34	34"	51"	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN	
ST 35	35.5"	53.25'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN	
ST 36	31"	46.5'	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN	
ST 37	32"	48"	TULIP POPLAR	FAIR-LIMITED CROWN SPREAD	TO REMAIN	
ST 38	31.5"	47.25'	AMERICAN BEECH	TO REMAIN		
ST 39	37"	55.5'	AMERICAN BEECH	TO REMAIN		
ST 40	38"	57"	WHITE OAK	POOR CONDITION, TRUNK CAVITY AND ROT	TO REMAIN	
ST 41	30"	45'	TULIP POPLAR	TO REMAIN		
ST 42	36"	54"	TULIP POPLAR	TO REMAIN		
ST 43	31"	46.5'	TULIP POPLAR	TO REMAIN		
ST 44	30"	45'	TULIP POPLAR	TO REMAIN		

FOREST CONSERVATION EASEMENT TABLE				
EASEMENT	RETENTION		REFORESTATION	TOTAL
	CREDITED	NON-CREDITED		
FCE#1A	0.80 AC	0 AC	0 AC	0.80 AC
FCE#1B	0.22 AC	0 AC	0 AC	0.22 AC
FCE#1C	0 AC	0.62 AC	0 AC	0.62 AC
FCE#2	0.46 AC	0 AC	0 AC	0.46 AC
FCE#3	0 AC	0 AC	0.56 AC	0.56 AC
TOTAL	1.48 AC	0.62 AC	0.56 AC	2.66 AC



VICINITY MAP
SCALE: 1"=1,000'
ADC MAP COORDINATE: MAP 28, GRID 5C

BENCHMARKS
HOWARD COUNTY BENCHMARK 31AB (CONC. MON.)
N 573984.52 E 1369949.46 ELEV. 499.905
LOCATION: TRANSMISSION LINE 0.2 MILES EAST OF NEW CUT ROAD

HOWARD COUNTY BENCHMARK 31DA (CONC. MON.)
N 571982.70 E 1372145.06 ELEV. 481.604
LOCATION: ROLLING TOP ROAD 0.1 MILES NORTH OF ORCHARD ROAD

FOREST CONSERVATION LEGEND:

- EXISTING FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- FOREST CONSERVATION EASEMENT (REFORESTATION)

- LEGEND:**
- EXISTING CONTOUR
 - EXISTING CURB AND GUTTER
 - EXISTING UTILITY POLE
 - EXISTING LIGHT POLE
 - EXISTING MANHOLE
 - EXISTING SIGN
 - EXISTING SANITARY MANHOLE
 - EXISTING SANITARY LINE
 - EXISTING CLEANOUT
 - FCE SIGN LOCATION
 - MICRO BIOTENTION / BIOTENTION MICRO-SCALE PRACTICE BIO-SWALE
 - 100 YEAR FLOODPLAIN
 - EXISTING STEEP SLOPES (24.99%-100%)
 - EXISTING MODERATE SLOPES (15%-24.99%)
 - EXISTING FIRE HYDRANT
 - EXISTING WATER LINE
 - EXISTING OVER HEAD LINE
 - EXISTING TREE LINE
 - EXISTING FENCE
 - PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - SOILS BOUNDARY
 - LIMIT OF DISTURBANCE
 - 10' PUBLIC TREE MAINTENANCE EASEMENT
 - 30' PUBLIC SEWER, WATER & UTILITY EASEMENT
 - 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT
 - PRIVATE DRAINAGE & UTILITY EASEMENT

OWNER
O'BRIEN FAMILY, LLC
5220 TALBOTS LANDING
ELLICOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
FOREST CONSERVATION PLAN
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLICOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

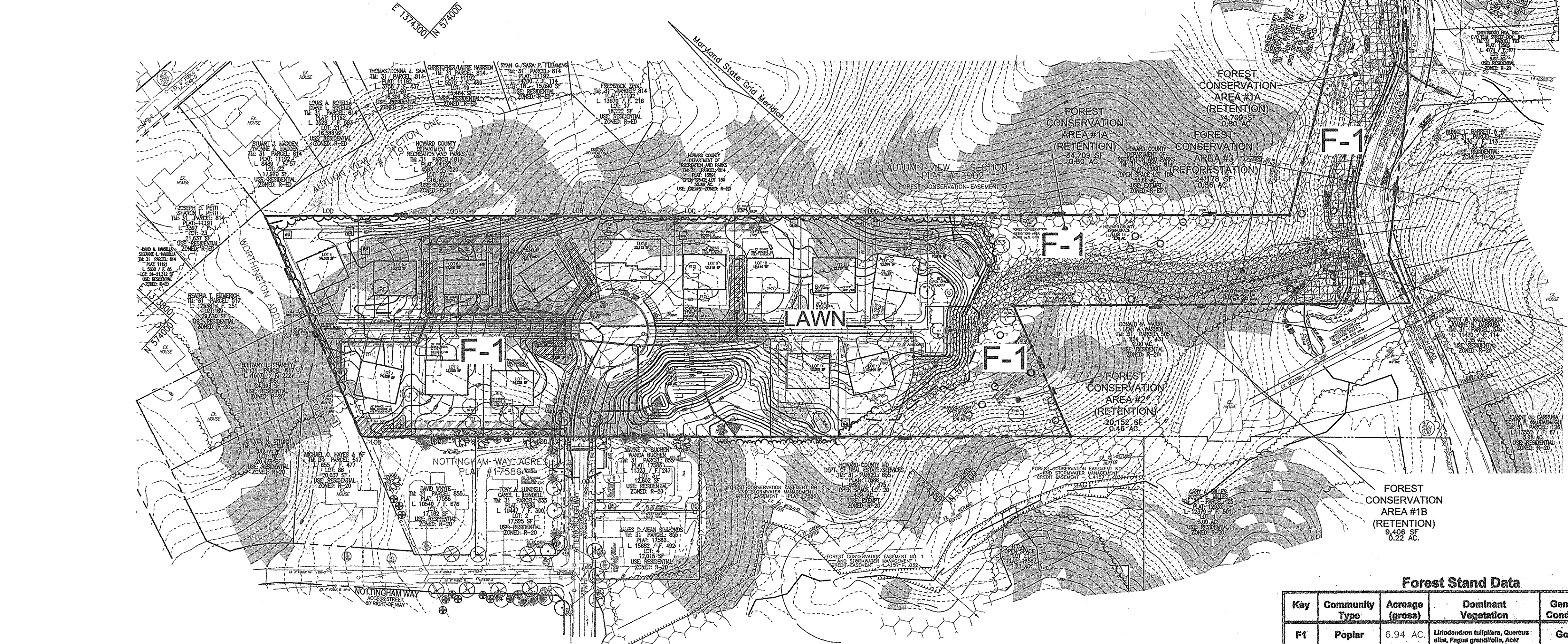
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
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ELLICOTT CITY, MD 21043
TEL: 410.461.7666
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PROFESSIONAL CERTIFICATE

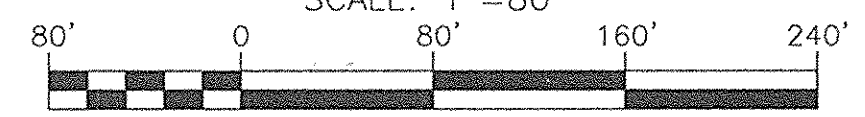
DESIGN BY: RHY
DRAWN BY: RVE/KG
CHECKED BY: RHY
DATE: JANUARY 2016
SCALE: AS SHOWN
W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16183, EXPIRATION DATE: 09-27-2016

13 SHEET OF 16



PRELIMINARY FOREST CONSERVATION PLAN
SCALE: 1"=80'



Key	Community Type	Acreage (gross)	Dominant Vegetation	General Condition	Priority Acreage
F1	Poplar	6.94 AC.	Liriodendron tulipifera, Quercus alba, Fagus grandifolia, Acer rubrum, Acer negundo, Acer platanoides	Good	1.0 +/- buffers slopes

See accompanying report for complete stand descriptions

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5066 Glen Arm, Maryland 21057
Telephone (410) 832-3480 Fax (410) 832-3488

MD DNR Qualified Professional
USACOE Wetland Delimitator
Certification # WDC999MD061004422
John J. Canole

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

N. J. Canole
PLANNING DIRECTOR

1-27-16
DATE

**HOWARD COUNTY
FOREST CONSERVATION WORKSHEET**

ZONED R-20
NET TRACT AREA: 8.47 AC.
A. TOTAL TRACT AREA: 8.47 AC.
B. AREA WITHIN 100 YEAR FLOODPLAIN: 0.85 AC.
C. AREA TO REMAIN IN AGRICULTURAL PRESERVATION: 0.00 AC.
C. NET TRACT AREA: 7.62 AC.

LAND USE CATEGORY
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-20

ARA	MDR	IDA	HDR	MPD	CJA
0	0	0	1	0	0

E. AFFORESTMENT THRESHOLD: 15% X 7.62 = 1.14 AC
F. CONSERVATION THRESHOLD: 20% X 7.62 = 1.52 AC

EXISTING FOREST COVER:
G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN) = 6.10 AC (6.94-0.85FP)
H. AREA OF FOREST ABOVE AFFORESTMENT THRESHOLD = 4.96 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 4.58 AC

BREAK EVEN POINT:
(2 X I) + F = BREAK EVEN POINT (0 AC)
J. FOREST RETENTION ABOVE THRESHOLD W/ NO MITIGATION = 2.44 AC
K. CLEARING PERMITTED WITHOUT MITIGATION = 3.66 AC

PROPOSED FOREST CLEARING:
L. TOTAL AREA OF FOREST TO BE CLEARED = 4.62 AC
M. TOTAL AREA OF FOREST TO BE RETAINED = 1.48 AC - RETENTION FOREST CON EASEMENT

PLANTING REQUIREMENTS:
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X J) = 1.14 AC
O. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.09 AC
P. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F) = 0.00 AC
Q. TOTAL REFORESTATION REQUIRED (N+P-Q) = 1.23 AC
R. TOTAL AFFORESTMENT REQUIRED = 0.00 AC
S. TOTAL PLANTING REQUIREMENT (REFORESTATION AND AFFORESTMENT) = 1.23 AC

FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL A PORTION OF THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED ON OPEN SPACE LOT 18 (HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS) AND SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

TOTAL FOREST CONSERVATION OBLIGATION OF THIS PROJECT TO BE FULFILLED BY 1.48 ACRES OF ON-SITE RETENTION AND SURETY. 0.56 ACRES OF REFORESTATION AND THE PURCHASE OF THE EQUIVALENT OF 0.67 ACRES OF REFORESTATION CREDIT IN AN APPROVED FOREST BANK. BANK TO BE DETERMINED UNDER THE FUTURE FINAL PLAN SUBMISSION.

FINANCIAL SURETY FOR THE REQUIRED REFORESTATION = \$ 18,296 (0.56 AC OR 24,394 SF @ \$0.75/SF) SHALL BE POSTED WITH THE FINAL PLAN DEVELOPER'S AGREEMENT.

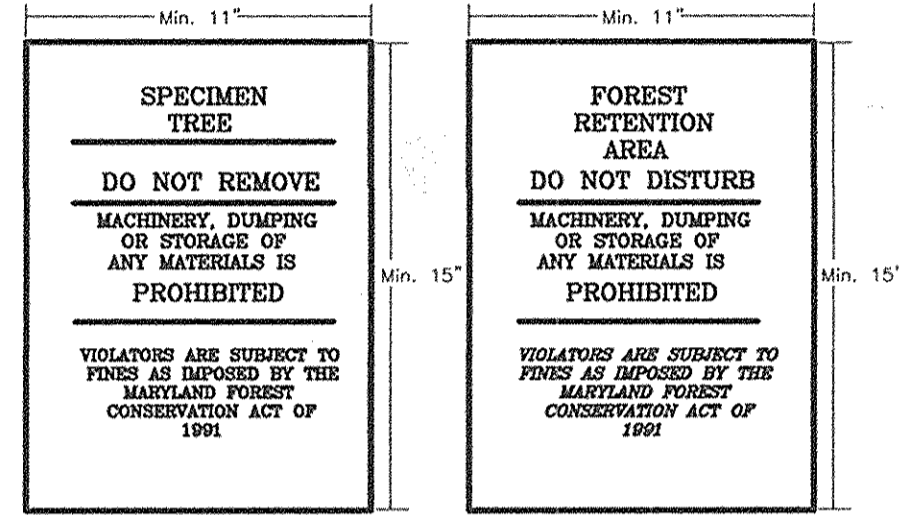
Eco-Science Professionals, Inc.
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John P. Canoles

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCFP3MD0610044B2
John P. Canoles

WATERSHED NAME: PATAPSCO RIVER LOWER NORTH BRANCH
WATERSHED NUMBER: 2130906

- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY
- SURROUNDING LAND USE PRIMARILY MEDIUM/HIGH DENSITY RESIDENTIAL DEVELOPMENT AND FOREST
- APPROXIMATELY 5.0 ACRES OF FOREST IS PRESENT WITHIN 100 FEET OF THE SUBJECT PROPERTY.
- ALL STREAMS ON THE PROPERTY ARE PART OF A USE 1 WATERSHED. THE STREAM CHANNEL IS PERENNIAL AND WILL REQUIRE A 75 FOOT BUFFER.
- A NON-CRITICAL 100 YEAR FLOODPLAIN IS PRESENT ON THE SUBJECT PROPERTY. THE APPROXIMATE FLOODPLAIN COMMON TO BONNIE BRANCH IS SHOWN HEREON PER THE HOWARD COUNTY - DIGITAL FLOOD INSURANCE RATE MAP (DFIRM).
- THERE ARE STEEP SLOPES (15-24.99 AND 25% OR GREATER) ON THE SUBJECT PROPERTY
- THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES ON THIS PROPERTY.
- THERE ARE SPECIMEN TREES ON THE PROPERTY. THERE ARE NO KNOWN TREES THAT ARE STATE CHAMPION TREES AND OR TREES 75% OF THE SIZE OF THE STATE CHAMPION TREE ON THE PROPERTY.

FSD PLAN PREPARED BY
JOHN CANOLES
DNR QUALIFIED PROFESSIONAL



- NOTE:
- BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 - SIGNS TO BE PLACED APPROXIMATELY 50-100 FEET APART. CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART. WHERE SIGNS ARE TO BE PLACED AT THE REAR OF PROPOSED LOTS, SPACING SHALL BE APPROX. 25-30' +/-
 - ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
 - ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
 - SIGN LOCATION SYMBOL = ●

FOREST CONSERVATION AREA SIGNS

FOREST CONSERVATION EASEMENT TABLE

EASEMENT	RETENTION		REFORESTATION	TOTAL
	CREDITED	NON-CREDITED		
FCE#1A	0.80 AC	0 AC	0 AC	0.80 AC
FCE#1B	0.22 AC	0 AC	0 AC	0.22 AC
FCE#1C	0 AC	0.62 AC	0 AC	0.62 AC
FCE#2	0.46 AC	0 AC	0 AC	0.46 AC
FCE#3	0 AC	0 AC	0.56 AC	0.56 AC
TOTAL	1.48 AC	0.62 AC	0.56 AC	2.66 AC

SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION

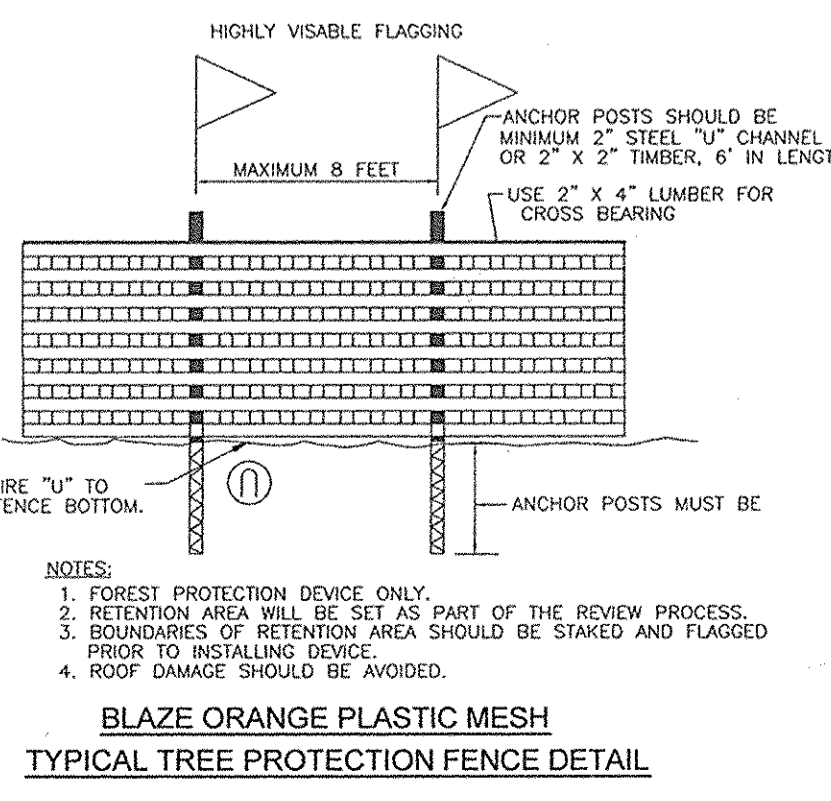
- PRECONSTRUCTION MEETING / SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
- STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
- INSTALL TREE PROTECTION FENCING. FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
- TEMPORARY TREE PROTECTION DEVICES SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

FOREST RETENTION AREAS AND NOTES

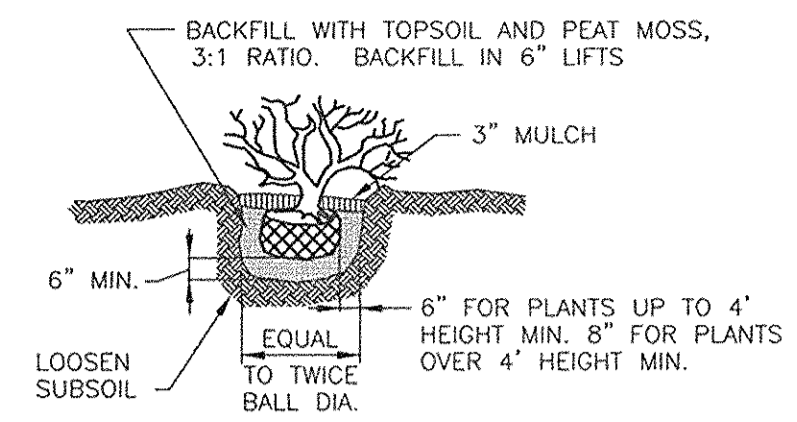
- THERE ARE NO WETLANDS OR WETLAND BUFFERS LOCATED ON-SITE.
- NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
- FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE SUBSTANTIALLY RETAINED IN OPEN SPACE LOTS.
- CHANGES IN GRADING AND RUNOFF WITHIN CONSTRUCTION/INSTALLATION AREAS WILL NOT ADVERSELY AFFECT THE SOILS WITHIN THE FOREST RETENTION AREA. SEDIMENT CONTROL MEASURES WILL REDIRECT CONCENTRATED FLOW RUNOFF TO STORMWATER MANAGEMENT FACILITIES. RETAIN SEDIMENT WITHIN THE CONSTRUCTION SITE, AND/OR REDIRECT CLEAN WATER AWAY FROM CONSTRUCTION AREAS.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

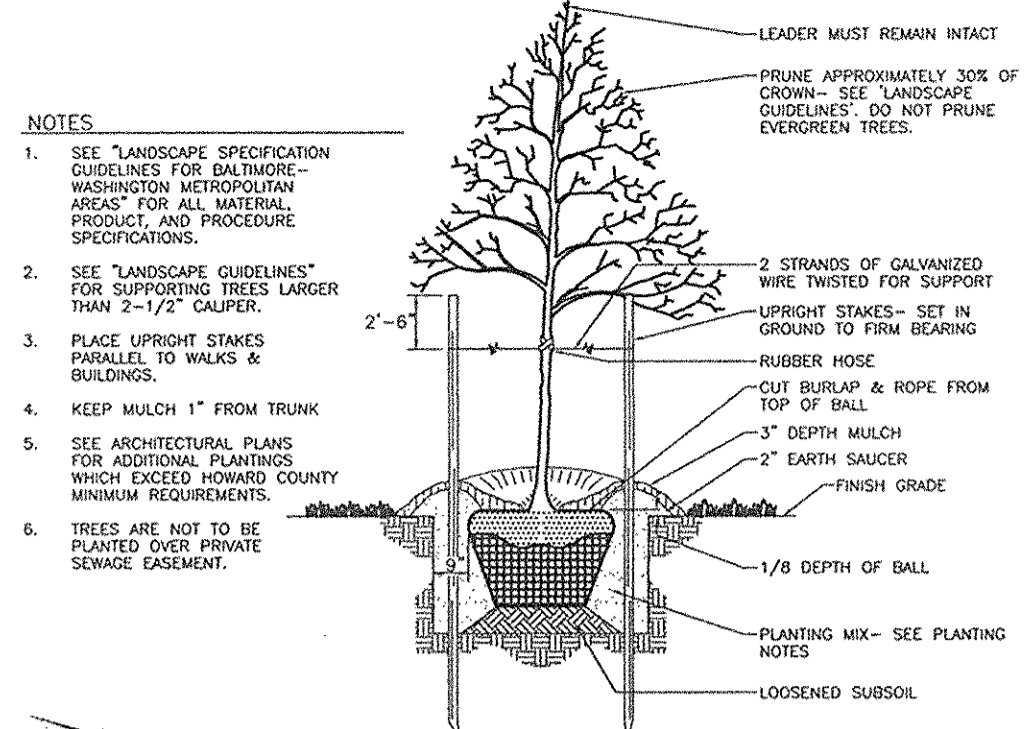
- PRE-CONSTRUCTION PHASE
- FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
 - FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
 - A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNING TREES AS REQUIRED, WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.
- CONSTRUCTION PHASE
- NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
 - NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
 - IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.
- POST-CONSTRUCTION PHASE
- AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
 - FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
 - DO NOT REMOVE SIGNS.



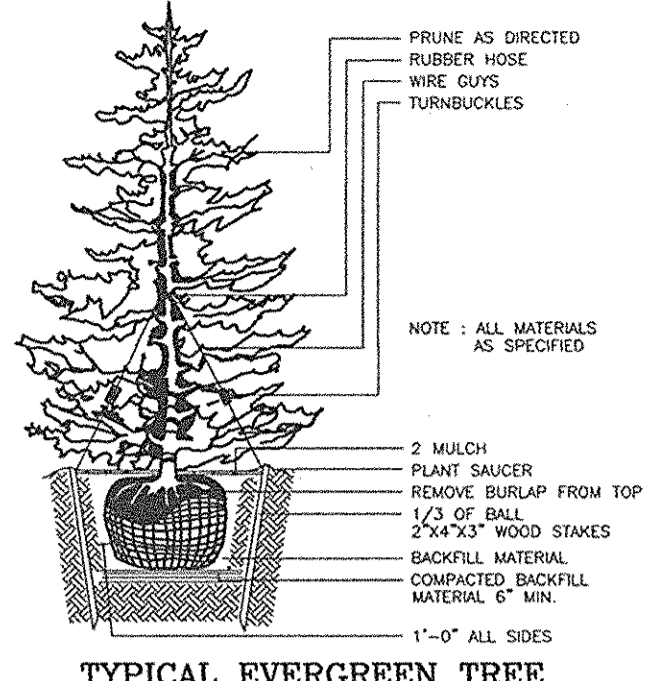
TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
John P. Canoles
1-27-16
DATE



SHRUB PLANTING DETAIL
NOT TO SCALE



TREE PLANTING AND STAKING
DECIDUOUS TREES UP TO 2-1/2" CALIPER NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

- NOTES
- SEE "LANDSCAPE SPECIFICATION GUIDELINES" FOR BALTIMORE-WASHINGTON METROPOLITAN AREA FOR ALL MATERIALS, PRODUCT, AND PROCEDURE SPECIFICATIONS.
 - SEE "LANDSCAPE GUIDELINES" FOR SUPPORTING TREES LARGER THAN 2-1/2" CALIPER.
 - PLACE UPRIGHT STAKES PARALLEL TO TRUNK & BUILDINGS.
 - KEEP MULCH 1" FROM TRUNK.
 - SEE ARCHITECTURAL PLANS FOR ADDITIONAL PLANTINGS WHICH EXCEED HOWARD COUNTY MINIMUM REQUIREMENTS.
 - TREES ARE NOT TO BE PLANTED OVER PRIVATE SEWERAGE EASEMENT.

GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 8,700 FOR THE PROPOSED 29 SHADE TREES. SURETY IS NOT REQUIRED FOR EXISTING TREES USED FOR CREDIT.
FINANCIAL SURETY FOR THE ADDITIONAL LANDSCAPING PER THE CONDITIONS OF APPROVAL OF WP-15-161 WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$ 9,000 FOR THE PROPOSED 30 SHADE TREES.
TOTAL SURETY REQUIRED \$ 17,700 (9,000+8700)
PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(a)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL. FINANCIAL SURETY (\$ 3,900) SHALL BE POSTED AS PART OF THE FINAL PLAN DEVELOPER'S AGREEMENT FOR THE REQUIRED 13 STREET TREES.
- THE OWNER AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH LAND MATERIALS AND BERMS, FENCES & WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN APPLICABLE REGULATIONS, ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.
- AT THE TIME OF INSTALLMENT, ALL PLANTINGS HEREWITH LISTED & APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW & APPROVAL FROM THE DEPARTMENT OF PLANNING & ZONING. ANY DEVIATION FROM THIS APPROVAL LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPACES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD & GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER & INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES.
- CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.

SCHEDULE A PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES									TOTAL
	1	2(1)	3	4	5	6	7	8	9	
PERIMETER FRONTAGE DESIGNATION	A	A	A	A	N/A	A	A	A	A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	262	615	185	477	717	98	574	1,325	312	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	YES(1)	YES(2)	YES(3)	NO	NO	YES(4)	YES(5)	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	
NUMBER OF PLANTS REQUIRED	282	340	0	0	0	0	907	312	30	
SHADE TREES	1,600	4	1,500	6	1,500	0	0	1,600	15	1,500
EVERGREEN TREES	-	-	-	-	-	-	-	-	-	-
SHRUBS	-	-	-	-	-	-	-	-	-	-
NUMBER OF PLANTS PROVIDED	4	5(7)	0	0	-	-	0	15	5	29(7)
SHADE TREES	-	-	-	-	-	-	-	-	-	-
EVERGREEN TREES	-	-	-	-	-	-	-	-	-	-
OTHER TREES (2) SUBSTITUTION	-	-	-	-	-	-	-	-	-	-
SHRUBS (1) SUBSTITUTION	-	-	-	-	-	-	-	-	-	-
EX. SPECIMEN TREES TO REMAIN	-	-	-	-	-	-	-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED	-	-	-	-	-	-	-	-	-	-

- (1) CREDIT 275 LF EX VEGETATION / FOREST RETENTION TO REMAIN
(2) CREDIT 1 SHADE SPEC TREE #1 TO REMAIN
(3) CREDIT 185 LF FOREST RETENTION TO REMAIN
(4) CREDIT 477 LF FOREST RETENTION TO REMAIN
(5) CREDIT 574 LF FOREST RETENTION TO REMAIN
(6) CREDIT 443 LF FOREST RETENTION TO REMAIN

SPECIMEN TREE - REPLACEMENT CALCULATIONS

NO. TO BE REMOVED	NO. REPLACEMENT REQUIRED	NO. PROVIDED
30	30	30
		3" CAL.

REFER TO WP 15-161 - 3" CALIPER NATIVE SHADE TREES REQUIRED

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ATTENBOROUGH WAY	481/40	13	13
TOTAL		13	13

OWNER: O'BRIEN FAMILY, LLC
DEVELOPER: TRINITY HOMES MARY LAND, LLC
5220 TALBOTS LANDING, SUITE 301
ELLCOTT CITY, MD 21043
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043
(410) 480-0023
(410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
PRELIMINARY LANDSCAPE & FOREST CONSERVATION - NOTES & DETAILS
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4786 BONNIE BRANCH ROAD
ELLCOTT CITY, MD 21043
PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

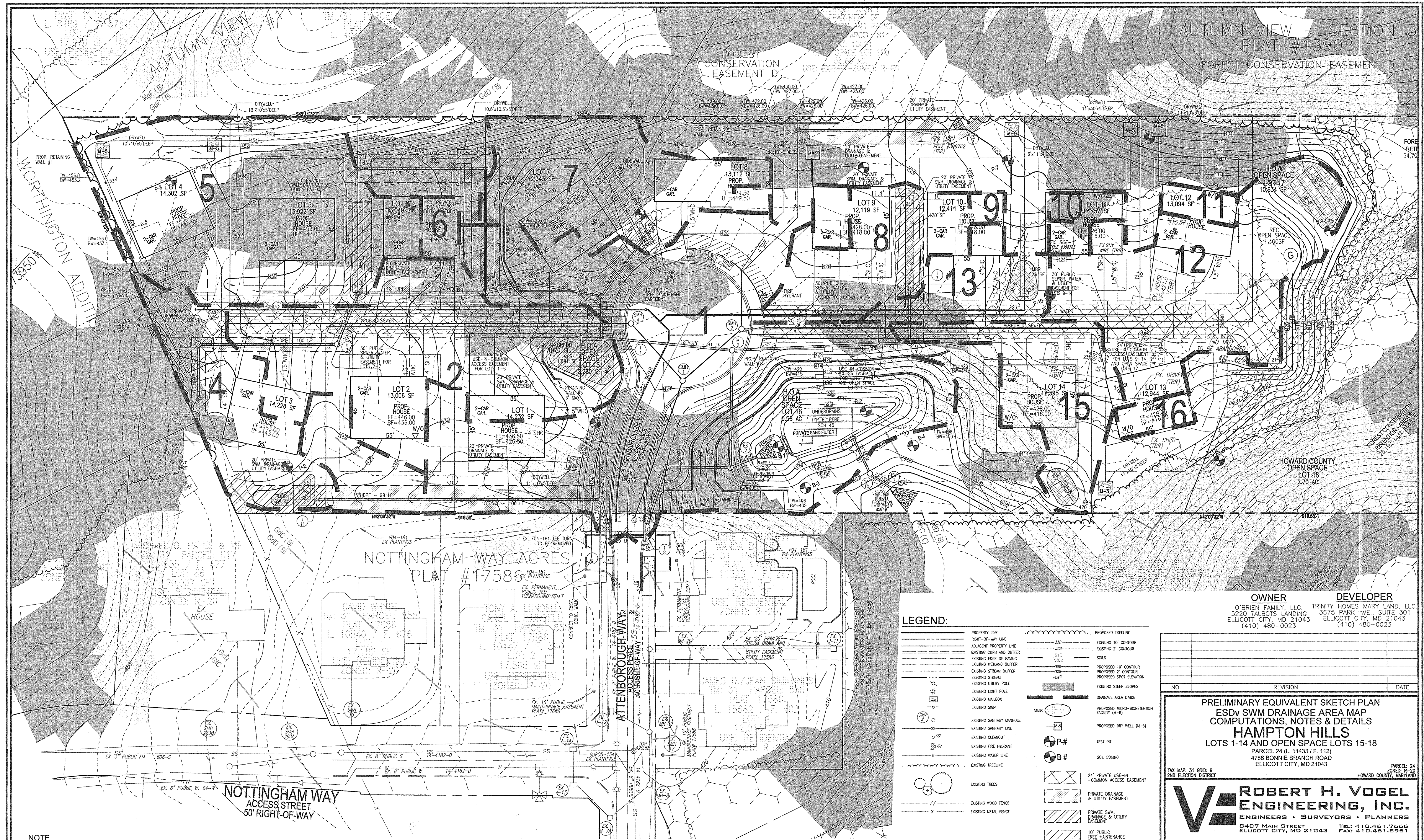
ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410-461-7666
FAX: 410-461-8961

DESIGN BY: RHV
DRAWN BY: RVE/KG
CHECKED BY: RHV
DATE: JANUARY 2016
SCALE: AS SHOWN
W.O. NO.: 12-10

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DAILY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE 09-23-2018

14 SHEET OF 16

John P. Canoles
JOHN CANOLES
ECO-SCIENCE PROFESSIONALS



LEGEND:

PROPERTY LINE	PROPOSED TREELINE
RIGHT-OF-WAY LINE	EXISTING 10' CONTOUR
ADJACENT PROPERTY LINE	EXISTING 2' CONTOUR
EXISTING CURB AND GUTTER	SOILS
EXISTING EDGE OF FINISH	PROPOSED 10' CONTOUR
EXISTING WETLAND BUFFER	PROPOSED 2' CONTOUR
EXISTING STREAM BUFFER	PROPOSED SPOT ELEVATION
EXISTING STREAM	EXISTING STEEP SLOPES
EXISTING UTILITY POLE	DRAINAGE AREA BOUNDARY
EXISTING LIGHT POLE	PROPOSED MICRO-BIOTRETENTION FACILITY (M-S)
EXISTING MAILBOX	PROPOSED DRY WELL (M-5)
EXISTING SIGN	TEST PIT
EXISTING SANITARY MANHOLE	SOIL BORING
EXISTING SANITARY LINE	24' PRIVATE USE-IN-COMMON ACCESS EASEMENT
EXISTING CLEANOUT	PRIVATE DRAINAGE & UTILITY EASEMENT
EXISTING FIRE HYDRANT	PRIVATE SWM DRAINAGE & UTILITY EASEMENT
EXISTING WATER LINE	10' PUBLIC TREE MAINTENANCE EASEMENT
EXISTING TREELINE	30' PUBLIC SEWER, WATER & UTILITY EASEMENT
EXISTING TREES	
EXISTING WOOD FENCE	
EXISTING METAL FENCE	

OWNER
 O'BRIEN FAMILY, LLC
 5220 TALBOT'S LANDING
 ELLICOTT CITY, MD 21043
 (410) 480-0023

DEVELOPER
 TRINITY HOMES MARY LAND, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
ESDv SWM DRAINAGE AREA MAP
COMPUTATIONS, NOTES & DETAILS
HAMPTON HILLS
 LOTS 1-14 AND OPEN SPACE LOTS 15-18
 PARCEL 24 (L. 11433 / F. 112)
 4786 BONNIE BRANCH ROAD
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 TEL: 410.461.7666
 FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

STATE OF MARYLAND
 ROBERT H. VOGEL
 16193
 REGISTERED PROFESSIONAL ENGINEER

DESIGN BY: RHV
 DRAWN BY: RVE/KG
 CHECKED BY: RHV
 DATE: JANUARY 2016
 SCALE: AS SHOWN
 W.O. NO.: 12-10

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2016.

15 SHEET OF 16

NOTE
 REFER TO SHEET 16 FOR ESDv SWM DETAILS AND NOTES

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Valerio
 PLANNING DIRECTOR

1-27-16
 DATE

FOREST CONSERVATION LEGEND:

	EXISTING FOREST CONSERVATION EASEMENT
	FOREST CONSERVATION EASEMENT (RETENTION)
	FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
	FOREST CONSERVATION EASEMENT (REFORESTATION)

ESDv SWM DRAINAGE AREA MAP
 SCALE: 1"=30'

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
THE SOIL SHALL BE A UNIFORM MIXTURE OF STONES, STUMPS, 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 PROVE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOODS WEEDS AS SPECIFIED UNDER COMAR 15.06.01.05.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION).
* ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (LVS TO 40% OR SANDY LOAM (LVS), 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. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE OR DECREASE PH.
THERE 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 TEXTURAL 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 LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SPONTANEOUSLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL FLOW RIPPER, OR SUBSIDER. THESE TILLING OPERATIONS ARE TO RESTRUCTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT WILL KEEP 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 PONDING WATER BEFORE PREPARING (ROTILLING) BASE.
WHEN BACKFILLING THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN BEDS 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 MARSH TRACKS.

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

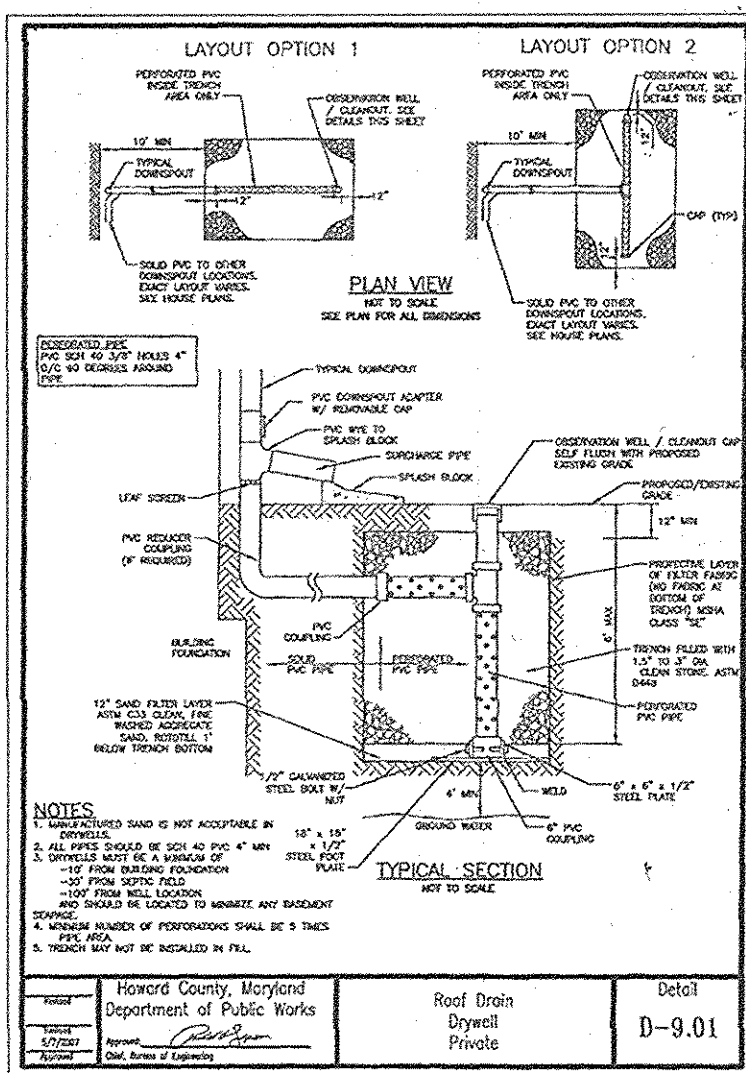
5. PLANT INSTALLATION
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AERED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8" 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 CROWN 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 GRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUSS 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 DEFERS, OR AT A MINIMUM, IMPEDS THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTILLURE 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 AASHTO M-278) IN A GRAVEL LAYER. THE PERFORATED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF 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 1/4" (OR 1/4") GALVANIZED HARDWARE CLOTH OR EQUIVALENT WEAVING CLOTH.
* GRAVEL - THE GRAVEL 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 4" LAYER OF PEAK GRADE (NO. 57 STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO 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 MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

OPERATION AND MAINTENANCE SCHEDULE FOR MICROBIORRETENTION / BIO-SWALE AREAS

- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER 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 HANDBOOK STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 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 DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

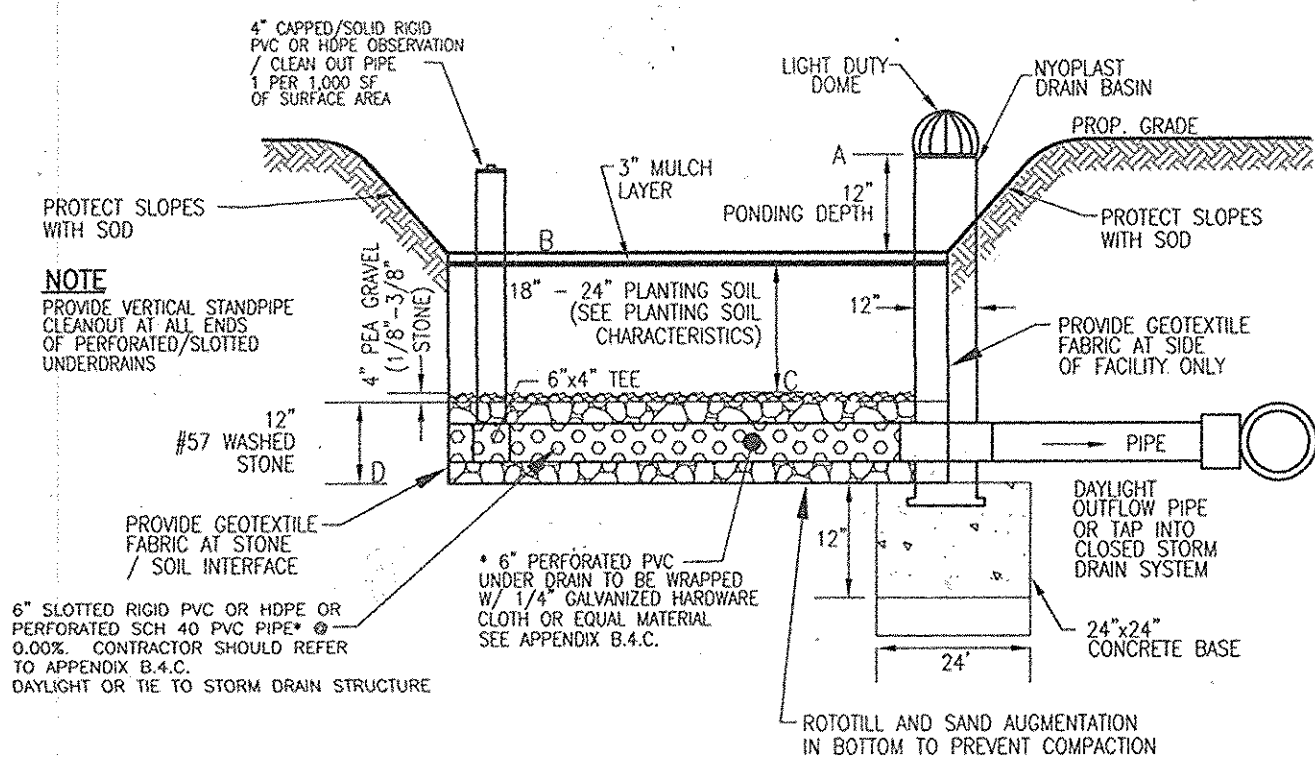
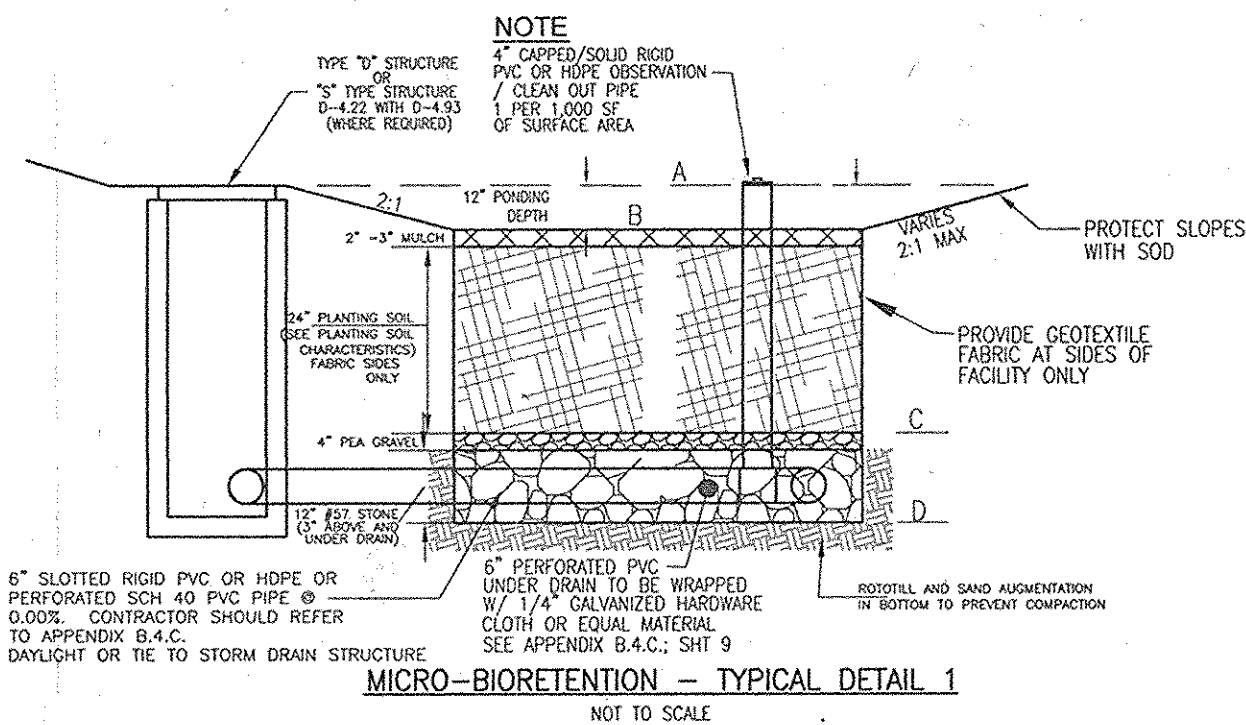


HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DRYWELL (M-5)

- THE OWNER SHALL INSPECT & CLEAN ANNUALLY, INCLUDING PIPES, GUTTERS, DOWNSPOUTS AND FILTERS.
- PONDING STANDING WATER OR ALGAL GROWTH ON THE TOP OF A DRYWELL MAY INDICATE FAILURE DUE TO SEDIMENTATION IN THE GRAVEL MEDIA. IF WATER PONDS 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.

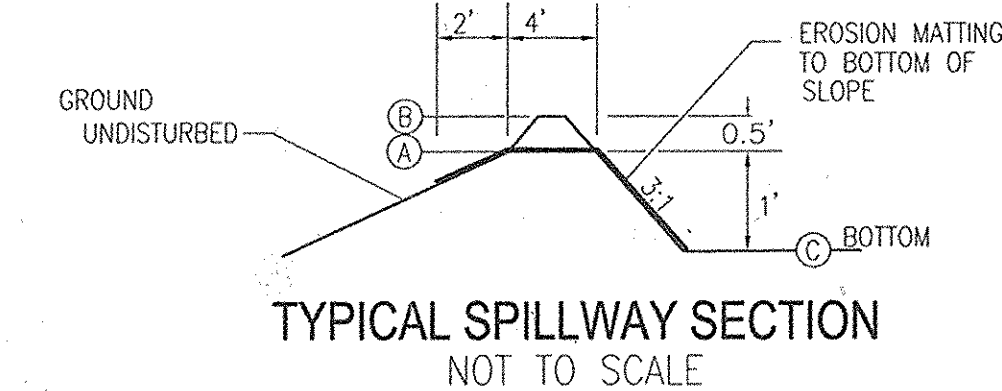
TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR
DATE: 1-27-16

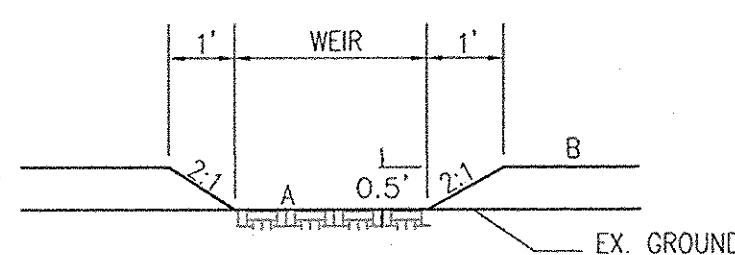


TYPICAL SMALL MICRO-BIORETENTION - DETAIL 2
NOT TO SCALE

WEIR OUTLET MICRO-BIORETENTION/RAINGARDEN



TYPICAL SPILLWAY SECTION
NOT TO SCALE



TYPICAL SPILLWAY PROFILE
NOT TO SCALE

MICRO-BIORETENTION FACILITY - DESIGN ELEVATION CHART

MBR FACILITY	ESD WSEL	TOP MULCH	BOTTOM PLANT SOIL	INV STONE	SURFACE AREA SF	MBR TYPE
3	439.50	438.50	436.25	434.92	405	SEE PLAN 1
10/11	423.50	422.50	420.25	418.92	525	SEE PLAN 2
14	310.80	309.80	307.55	306.22	420	SEE PLAN 2
OS 15	424.00	423.00	420.75	419.42	1070	SEE PLAN 1
OS 17	413.00	412.00	409.75	408.42	1500	SEE PLAN 1

* PROVIDE 3 FEET ADDITIONAL STONE BENEATH MBR 17 (10 YR PEAK CONTROL)

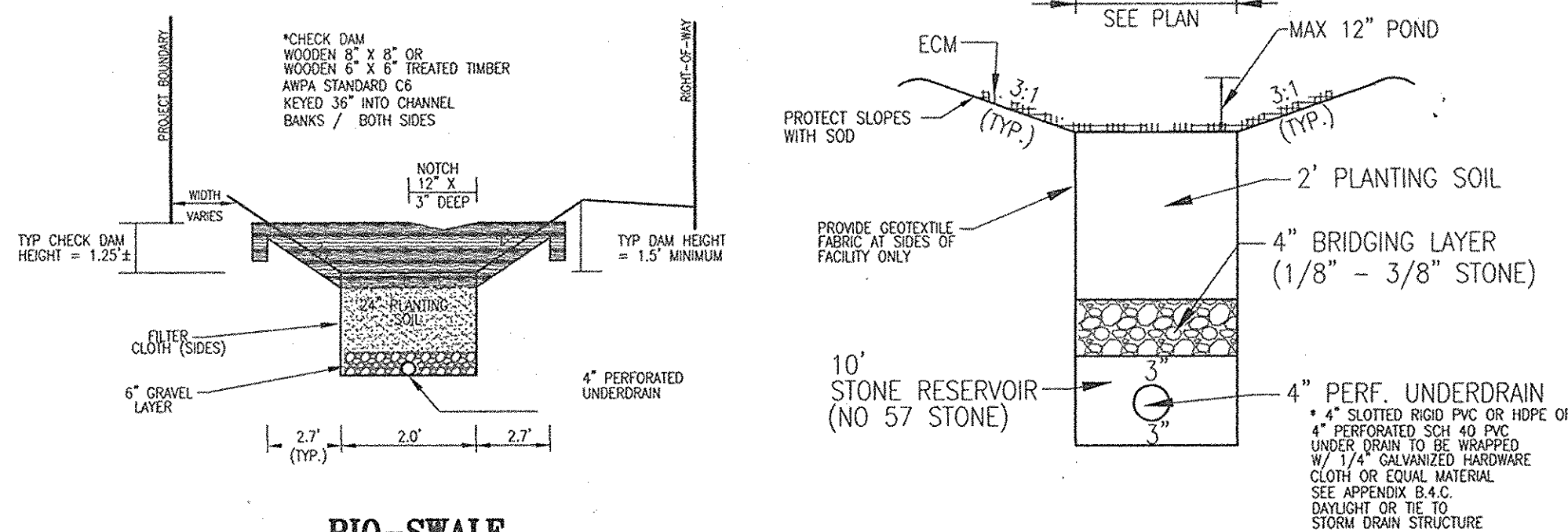
Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretentation, 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%
Organic content	Min. 10% by dry weight (ASTM D 2974)	n/a	
Mulch	shredded hardwood	n/a	aged 6 months, minimum; 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	n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" 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 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 State or local standards requires design drawings scaled and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressure); and analysis of potential cracking
Poured in place concrete (if required)	MSHA Mix No. 3, f _c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	
Sand	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

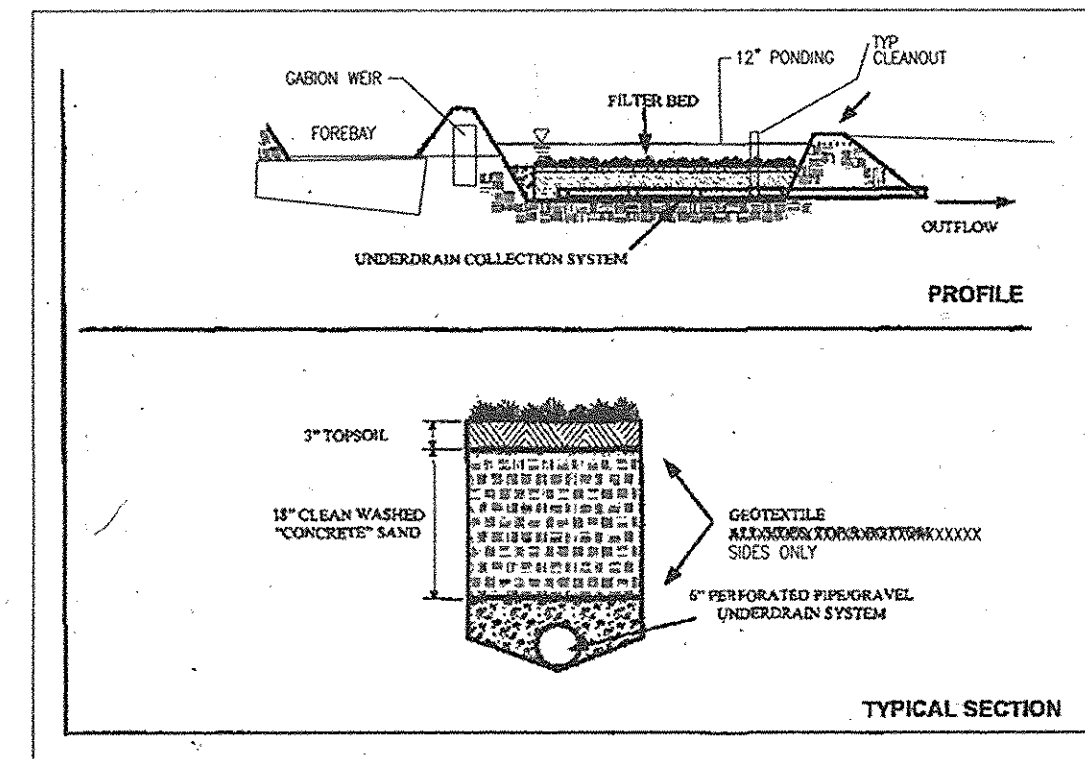
BIO-SWALE - PLANTING

PLANTINGS SHALL CONSIST OF A MIXTURE:
REED CANARY GRASS - PHALARIS ARUNDINACEA
SWITCHGRASS - PANICUM VIRGATUM
MAJESTIC LILY TURF - LIRIOPE MUSCARI 'MAJESTIC'
OR EQUAL COMBINATION OF COOL / WARM SEASON GRASSES TOLERANT OF FREQUENT INUNDATION



BIO-SWALE 6" X 6" CHECK DAM
TYPICAL CROSS SECTION
(NOT TO SCALE)
(SEE DETAIL SHF 24)

BIO SWALE
TYPICAL CROSS SECTION
(NOT TO SCALE)



SAND FILTER / Q10 STORMWATER FACILITY
TYPICAL SAND FILTER DETAILS
SCALE: HORIZONTAL - N.T.S.

Table B.3.1 Material Specifications for Sand Filters

Material	Specification/Test Method	Size	Notes
sand	see Appendix A, Table A.4 30 concrete sand	9.5" to 0.075"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.
peat	40% coarse < 15% pH range 5.2 to 6.9 fine soil content 1.3 to 13.15 g/g	n/a	The material must be red-edge bents peat, shorthead, unconsolidated, uniform, and clean.
leaf compost	n/a	n/a	n/a
underdrain gravel	AASHTO M-43	6.0" to 1.0"	Equivalent opening
geotextile fabric (if required)	ASTM D-4853 (minimum strength 125 lb) or ASTM D-4853 (Tensile Strength 200 lb)	6.0" x 6.0"	Main materials 125 gsm per sq. ft. flow rate. Note: 4" x 6" pea gravel layer may be substituted for geotextile fabric to "regulate" sand filter layers.
impermeable liner (if required)	ASTM D-4853 (minimum strength 125 lb) or ASTM D-4853 (Tensile strength 150 lb) or ASTM D-4853 (Tensile strength 150 lb) or ASTM D-4853 (Tensile strength 150 lb)	20 mil thickness	Liner to be shorthead redwood. A geotextile fabric should be used to protect the liner from puncture.
underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underdrain pipes
concrete (cast-in-place)	MSHA Standards and Specs. Section No. 3, f _c = 3500 psi, 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 previously approved State or local standards requires design drawings scaled and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressure); and analysis of potential cracking
concrete (pre-cast)	pre-cast manufacturer's	n/a	SEE ABOVE NOTE
access-berm steel	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM A-123

Appendix B.3. Construction Specifications for Sand Filters, Bioretention and Open Channels

B.3.A. Sand Filter Specifications

- Material Specifications for Sand Filters**
The allowable materials for sand filter construction are detailed in Table B.3.1.
- Sand Filter Testing Specifications**
Underground sand filters, facilities with sensitive groundwater aquifers, and filters designed to serve urban lot spots are to be tested for water tightness prior to placement of filter media. Entrances and exits should be plugged and the system completely filled with water to demonstrate water tightness. Water tightness means no leakage for a period of 8 hours.
All overflow weirs, multiple orifices and flow distribution slots are to be field-tested to verify adequate distribution of flows.
Surface of filter bed is to be level.
All underground sand filters should be clearly delineated with signs so that they may be located when maintenance is due.
Surface sand filters may be placed with appropriate grasses; see Appendix A.
- Sand Filter Construction Specifications**
Provide sufficient maintenance access (i.e., 12-foot-wide road with legally recorded easement). Vegetated access slopes are to be a maximum of 10%: gravel slopes to 25%.

OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT FACILITY

- STORMWATER MANAGEMENT FACILITY ROUTINE MAINTENANCE (M-4)**
- FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF IT IS FUNCTIONING PROPERLY.
 - TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
 - DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
 - VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- NON-ROUTINE MAINTENANCE (HOWARD COUNTY)**
- STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE LOW ROSE STRUCTURE, SAND FILTER & PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
 - SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

OWNER
O'BRIEN FAMILY, LLC
5220 TALBOTS LANDING
ELLIOTT CITY, MD 21043
(410) 480-0023

DEVELOPER
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLIOTT CITY, MD 21043
(410) 480-0023

PRELIMINARY EQUIVALENT SKETCH PLAN
PRELIMINARY ESDV STORMWATER MANAGEMENT NOTES AND DETAILS
HAMPTON HILLS
LOTS 1-14 AND OPEN SPACE LOTS 15-18
PARCEL 24 (L. 11433 / F. 112)
4766 BONNIE BRANCH ROAD
ELLIOTT CITY, MD 21043

TAX MAP: 31 GRID: 9
2ND ELECTION DISTRICT

PARCEL: 24
ZONED: R-20
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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8407 MAIN STREET
ELLIOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV
DRAWN BY: RVE/KG
CHECKED BY: RHV
DATE: JANUARY 2016
SCALE: AS SHOWN
W.O. NO.: 12-10

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

16 SHEET OF 16

REMAINING DEVELOPED PORTION OF THE DEVELOPED AREA CONTAINS NO IMPERVIOUS AREAS TO BE TREATED