

SITE DATA
 LOCATION: TAX MAP 15, BLOCK 14
 PARCEL: 169
 3RD ELECTION DISTRICT
 PRESENT ZONING: RR-DEO
 GROSS AREA OF PROJECT: 16.42 AC.
 AREA OF RIGHT-OF-WAY DEDICATION: 1.21 AC.
 LIMIT OF DISTURBANCE: 6.15 AC.
 PROPOSED USE OF SITE: RESIDENTIAL (SFD)
 NUMBER OF RESIDENTIAL LOTS PROPOSED: 7 LOTS
 AREA OF RESIDENTIAL LOTS PROPOSED: 7.31 AC.
 AREA OF STREAM/BUFFER: 5.35 AC.
 AREA OF WETLANDS/BUFFER: 3.30 AC.
 AREA OF MODERATE SLOPES (15%-24.99%): 0.00 AC.
 AREA OF STEEP SLOPES (25% OR GREATER): 0.00 AC.
 AREA OF FLOOD PLAIN: 0.86 AC.
 NET PROJECT AREA: 15.56 AC.
 AREA OF EXISTING FOREST COVER: 3.91 AC.
 AREA OF ERODIBLE SOILS: 5.82 AC.
 AREA MANAGED BY ESDV (THIS PLAN): 5.78 AC.
 HUMERUS AREA: 0.90 AC.
 *GREEN AREA: 4.88 AC.
 DPZ REFERENCES: ECP-18-009

LOT AREA TABULATION

LOT	GROSS AREA	PIPESTEM AREA	NET AREA	MIN. LOT SIZE
1	43,617 SF	N/A	43,617 SF	40,000 SF
2	41,234 SF	541 SF	40,693 SF	40,000 SF
3	54,408 SF	1,064 SF	53,344 SF	40,000 SF
4	52,719 SF	2,099 SF	50,620 SF	40,000 SF
5	43,205 SF	1,468 SF	41,737 SF	40,000 SF
6	40,868 SF	840 SF	40,028 SF	40,000 SF
7	42,179 SF	N/A	42,179 SF	40,000 SF

PRELIMINARY EQUIVALENT SKETCH PLAN

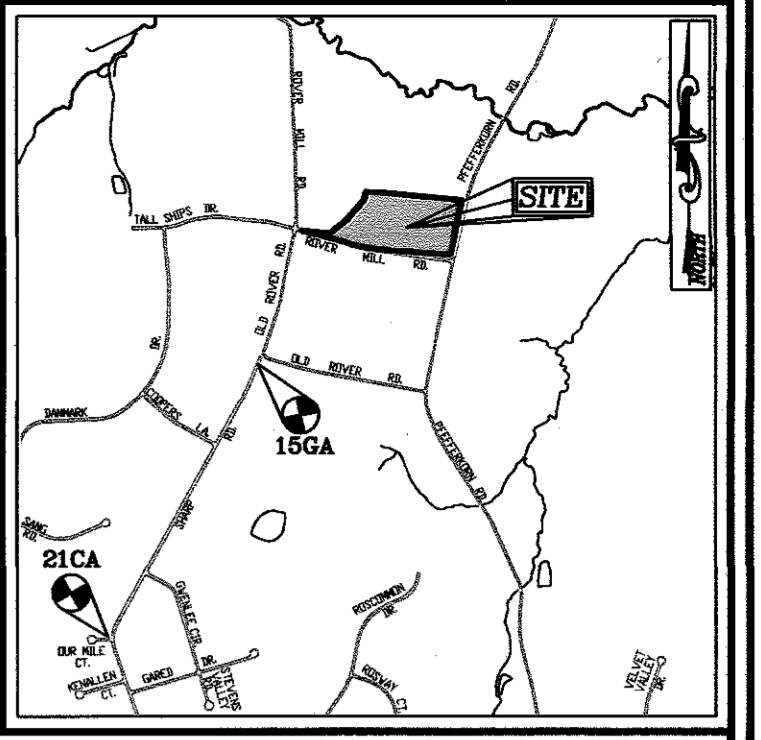
ROVER MILL ESTATES

LOTS 1-7 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'

PFEFFERKORN ROAD & ROVER MILL ROAD
 WEST FRIENDSHIP, MD 21794
 L. 16745 / F. 155
 16.42 AC.

LEGEND:

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- RIGHT-OF-WAY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM
- EXISTING STREAM BUFFER
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EX. PUBLIC 100-YEAR FLOOD PLAN
- PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
- PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PROPOSED FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)



VICINITY MAP
 SCALE: 1"=200'
 ADC MAP: PAGE: 17 BLOCK: D4 & E4

BENCHMARKS
 HOWARD COUNTY BENCHMARK 15GA (CONC. MON.)
 N 591743.48 E 1312790.80 ELEV. 587.54
 LOCATION: NEAR NORTH END OF SHARP ROAD (CUL. DE SAC)
 HOWARD COUNTY BENCHMARK 21CA (CONC. MON.)
 N 588897.36 E 1311235.79 ELEV. 612.60
 LOCATION: CORNER OF SHARP RD. & OUR MILE CT.

- GENERAL NOTES**
- THE PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED SEPTEMBER 05, 2017.
 - THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH 2' CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED OCTOBER 2017. INFORMATION IS SUPPLEMENTED WITH HOWARD COUNTY GIS DATA.
 - 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. 15GA AND 21CA WERE USED FOR THIS PROJECT.
 - THE SUBJECT PROPERTY IS ZONED "RR-DEO" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
 - THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT OR IN THE METROPOLITAN DISTRICT.
 - TO THE BEST OF THE OWNER'S KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY.
 - AN ENVIRONMENTAL CONCEPT PLAN (ECP-18-009) WAS APPROVED ON APRIL 02, 2018.
 - A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON DECEMBER 5, 2018 AT 6:00 PM AT GLENNWOOD LIBRARY.
 - THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS, UNLESS ALTERNATIVE COMPLIANCE REQUESTS HAVE BEEN APPROVED.
 - A TOTAL OF 9 LOTS/PARCELS ARE PROPOSED UNDER THIS PLAN.
 - THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM.
 - DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING.
 - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT TURNING RADII.
 - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
 - AN APFD TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP AND APPROVED NOVEMBER 08, 2018.
 - A NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
 - 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.c, PARKING IS REQUIRED AT 2.0 SPACES PER UNIT. OFF STREET PARKING TO INCLUDE GARAGE SPACES, DRIVEWAY, PARKING PADS AND COURTS. CHARGES COUNT AS TWO SPACES. SEE TABULATION THIS SHEET.
 - STREET LIGHTING IS NOT REQUIRED FOR THIS SITE IN ACCORDANCE WITH SECTION 16.135 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
 - IN ACCORDANCE WITH SECTION 105.6.F OF THE ZONING REGULATIONS, ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MIHU 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.
 - IN ACCORDANCE WITH SECTION 16.121(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, OPEN SPACE IS NOT REQUIRED FOR PROJECTS ZONED RR-DEO AND UTILIZING THE CLUSTER SUBDIVISION OPTION.
 - IN ACCORDANCE WITH SECTIONS 105.6.G AND 106.0 OF THE ZONING REGULATIONS, THIS PROJECT IS BEING DEVELOPED UTILIZING THE CLUSTER SUBDIVISION REQUIREMENTS AND DENSITY EXCHANGE OPTION. THIS SUBDIVISION REQUIRES 4 DWELLING UNITS FROM AN ELIGIBLE SENDING PARCEL.
 - FLAG AND PIPESTEM, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
 - LOTS 2-7 WILL UTILIZE A USE-IN-COMMON DRIVEWAY. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR THE SHARED DRIVEWAYS SHALL BE RECORDED SIMULTANEOUSLY WITH THE FINAL PLAN.
 - A PRIVATE RANKS OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DRIVEWAY ACCESS POINT ONTO ROVER MILL ROAD AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES. THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
 - THIS PROPERTY IS IN GROWTH TIER III, PER SB-236. MAJOR SUBDIVISIONS OF 5 LOTS OR MORE ARE PERMITTED UTILIZING ON-SITE SEPTIC SYSTEMS, COMMUNITY SEPTIC SYSTEMS, OR A SHARED FACILITY IN HOWARD COUNTY SUBJECT TO PLANNING BOARD REVIEW AND APPROVAL RECOMMENDATION.
 - WATER AND SEWER SERVICE TO BE PROVIDED BY PRIVATE WELLS AND SEPTIC SYSTEMS.
 - NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
 - WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC. DATED AUGUST 10, 2017. THERE ARE NO PROPOSED DISTURBANCES TO THE WETLANDS OR ASSOCIATED BUFFERS.
 - A FOREST STAND DELINEATION AND ENVIRONMENTAL RESOURCES ASSESSMENT WAS PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC. DATED AUGUST 10, 2017.
 - NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS. FOREST CONSERVATION EASEMENT AREAS AND 100-YEAR FLOODPLAIN, UNLESS MAJOR APPROVAL IS GRANTED.
 - FOREST CONSERVATION REQUIREMENTS AS SET FORTH IN SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE 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 FOREST CONSERVATION OBLIGATION TO BE FULFILLED BY THE PLACEMENT OF 3.91 ACRES (3.24 AC. CREDITED & 0.67 AC. NON-CREDITED) OF ON-SITE RETENTION INTO A RETENTION EASEMENT AND BY THE PLACEMENT OF 3.06 ACRES INTO AFFORESTATION EASEMENTS.
 - FINANCIAL SURETY FOR THE REQUIRED AFFORESTATION SHALL BE POSTED WITH THE FINAL PLAN DEVELOPERS AGREEMENT.
 - LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$16,000 FOR THE REQUIRED 49 SHADE TREES AND 14 EVERGREENS SHALL BE POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT. A SURETY IN THE AMOUNT OF \$9,450.00 FOR THE 31 PUBLIC STREET TREES AND THE 5 SHRUBS FOR THE TRASH PAD WILL BE SATISFIED UNDER THE DEED COST ESTIMATE.
 - CERTIFIED TEST PITS HAVE BEEN PROVIDED TO VERIFY THAT GROUNDWATER AND ROCK ARE NOT PRESENT AT RAIN GARDEN AND MICRO-BIORETENTION LOCATIONS. INFORMATION REGARDING THE FINDINGS IS LOCATED IN THE SWM REPORT.
 - STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIORETENTION FACILITIES (M-6), ROOFTOP DISCONNECTS (N-1), NON-ROOFTOP DISCONNECTS (N-2) AND DRY WELLS (M-5). THE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION OR THE PRIVATE LOT OWNER. REFERENCE 2010 MDC STORMWATER DESIGN MANUAL (CHAPTER 5).
 - THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE OCTOBER 6, 2013.
 - NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B' SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE PURPOSE OF PRESERVATION PARCEL 'A' IS TO PROVIDE ROOM FOR ADDITIONAL LANDSCAPING ALONG SCENIC PFEFFERKORN ROAD. THE PURPOSE OF PRESERVATION PARCEL 'B' IS TO ISOLATE AND PROTECT EXISTING ENVIRONMENTAL FEATURES LOCATED ON THE SUBJECT PROPERTY.
 - PROTECTIVE DEVICES THAT PETER HEAVY EQUIPMENT MUST BE INSTALLED AROUND WELLS PRIOR TO COMMENCEMENT OF GRADING OPERATIONS. TO ENHANCE VISIBILITY OF THE WELLS LOCATIONS, PLASTIC ORANGE FENCING SHOULD BE INCLUDED.
 - ANY CHANGES TO A PRIVATE SEWAGE DISPOSAL AREA SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN.
 - ALL WELLS AND SEPTIC SYSTEMS LOCATED WITHIN 100' OF THE PROPERTY BOUNDARIES AND 200' DOWN GRADIENT OF ANY WELLS AND/OR SEPTIC SYSTEMS HAVE BEEN SHOWN.
 - THE LOTS SHOWN HEREON COMPLY WITH THE MINIMUM OWNERSHIP WIDTH AND LOT AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF ENVIRONMENT.
 - TRAFFIC CONTROL DEVICES:
 - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
 - ALL TRAFFIC CONTROL DEVICES, AND THEIR LOCATIONS, SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUMUTCD).
 - ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
 - AN ALTERNATIVE COMPLIANCE PETITION TO SECTION 16.1205(a)(7), FILED AS WP-18-092, TO REMOVE 4 SPECIMEN TREES WAS APPROVED ON OCTOBER 15, 2018.
 - THERE IS APPROXIMATELY 0.86 ACRES OF 100-YR FLOODPLAIN LOCATED WITHIN THE LIMITS OF THIS SITE.
 - THE FLOODPLAIN STUDY FOR THIS PROJECT WAS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED FEBRUARY 28TH, 2018, AND WAS APPROVED ON NOVEMBER 08, 2018.
 - All wells must be drilled prior to Health Department signature of the final record plat.

COORDINATE TABLE

NO	NORTH	EAST
200	593428.27	1314950.00
201	593420.46	1314947.52
202	592802.48	1314803.14
203	592901.68	1314095.63
204	592968.50	1313741.33
205	593111.52	1313167.31
206	593063.68	1313497.83
207	593239.82	1313722.68
1001	593532.51	1313922.68
1002	593451.67	1313906.34

DENSITY EXCHANGE TABULATION

SECTION 105.6 OF THE ZONING REGULATIONS AND SECTION 106.0 OF THE ZONING REGULATIONS

RECEIVING PARCEL INFORMATION	ROVER MILL ESTATES
GROSS ACREAGE OF PARCEL	16.42 ACRES
NET ACREAGE OF PARCEL	15.56 ACRES
MAXIMUM NUMBER OF UNITS ALLOWED BY RIGHT	16.42 ACRES / 4.25 (ACRES PER UNIT) = 3 UNITS
MAXIMUM NUMBER OF UNITS ALLOWED TO THIS PROJECT	15.56 NET ACRES / 2.25 (ACRES PER UNIT) = 7 UNITS
PROPOSED PROJECT UNITS	7 UNITS - 3 UNITS = 4 DEO UNITS
NUMBER OF DEO UNITS REQUIRED	4 UNITS REQUIRED
SENDING PARCEL INFORMATION	4 DEO UNITS FROM TBD AT FINAL PLAN STAGE

SHEET INDEX

COVER SHEET	DESCRIPTION	SHEET NO.
LAYOUT PLAN		1 OF 11
LAYOUT PLAN		2 OF 11
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN		4 OF 11
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN		5 OF 11
STORM DRAIN DRAINAGE AREA MAP		6 OF 11
LANDSCAPE PLAN, NOTES AND DETAILS		7 OF 11
FOREST CONSERVATION PLAN		8 OF 11
FOREST CONSERVATION NOTES AND DETAILS		9 OF 11
ESDv - SWM PLAN AND DRAINAGE AREA MAP		10 OF 11
ESDv - SWM NOTES AND DETAILS		11 OF 11

OWNER/DEVELOPER
 PFEFFERKORN ROVER MILL, LLC
 C/O RAJ KATHURIA
 12668 FREDERICK ROAD
 WEST FRIENDSHIP, MD 21794
 (443) 574-1600

MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING

DESCRIPTION	QUANTITY
TOTAL NUMBER OF LOTS/UNITS PROPOSED	7
NUMBER OF MIHU REQUIRED	1
NUMBER OF MIHU PROVIDED ON-SITE (EXCEPT FROM AFFO ALLOCATIONS)	-
NUMBER OF AFFO ALLOCATIONS REQUIRED (REMAINING LOTS/UNITS)	7
MIHU FEE-IN-LIEU (INDICATE LOT/UNIT NUMBERS)	LOTS 1-7

THIS AREA DESIGNATES A PRIVATE SEWAGE AREA OF AT LEAST 10,000 SQUARE FEET AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWERAGE IS AVAILABLE. THESE AREAS SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWERAGE SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWAGE AREA. REORDINATION OF A MODIFIED SEWAGE AREA SHALL NOT BE NECESSARY.

COVER SHEET
 SCALE: 1"=100'

PARKING TABULATION:
 TOTAL NUMBER OF DWELLING UNITS PROPOSED : 7
 PARKING SPACES REQUIRED:
 OFF-STREET PARKING AND OVERFLOW/GUEST PARKING SPACES
 2.0 SPACES PER UNIT = 14 SPACES
 PARKING SPACES PROVIDED:
 SFD = 2 GARAGE/2 DRIVEWAY
 2 SPACES IN GARAGE = 14 SPACES (FOR 7 UNITS)
 2 SPACES ON DRIVEWAY = 14 SPACES (FOR 7 UNITS)
 -TOTAL REQUIRED = 14 SPACES
 -TOTAL PROVIDED = 28 SPACES

SWM PRACTICE CHART
 ESD PRACTICES BY LOT

LOT #	ESD PRACTICE
1	DISCONNECT ROOFTOP RUNOFF (N-1), DISCONNECT NON-ROOFTOP RUNOFF (N-2), AND DRY WELL (M-5)
2	DISCONNECT NON-ROOFTOP RUNOFF (N-2) AND (4) DRY WELLS (M-5)
3	MICRO-BIORETENTION (M-6)
4	MICRO-BIORETENTION (M-6)
5	DRY WELL (M-5) AND MICRO-BIORETENTION (M-6)
6	(3) DRY WELLS (M-5) AND MICRO-BIORETENTION (M-6)
7	MICRO-BIORETENTION (M-6)
LIC DRIVE	DISCONNECT NON-ROOFTOP RUNOFF (N-2) AND MICRO-BIORETENTION (M-6)

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

APPROVED:
 PLANNING BOARD OF HOWARD COUNTY
 Case No. 18-092
 November 8, 2018 - PB438

APPROVED FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.
 Approved for Maeva Roseman 1/8/2019
 COUNTY HEALTH OFFICER DATE nrb

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
 COVER SHEET
 ROVER MILL ESTATES
 LOTS 1-7 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
 PFEFFERKORN ROAD
 WEST FRIENDSHIP, MD 21794
 L. 16745 / F. 155
 16.42 AC.

3RD ELECTION DISTRICT
 TAX MAP: 15 GRID: 14

PARCEL: 169
 ZONED: RR-DEO
 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

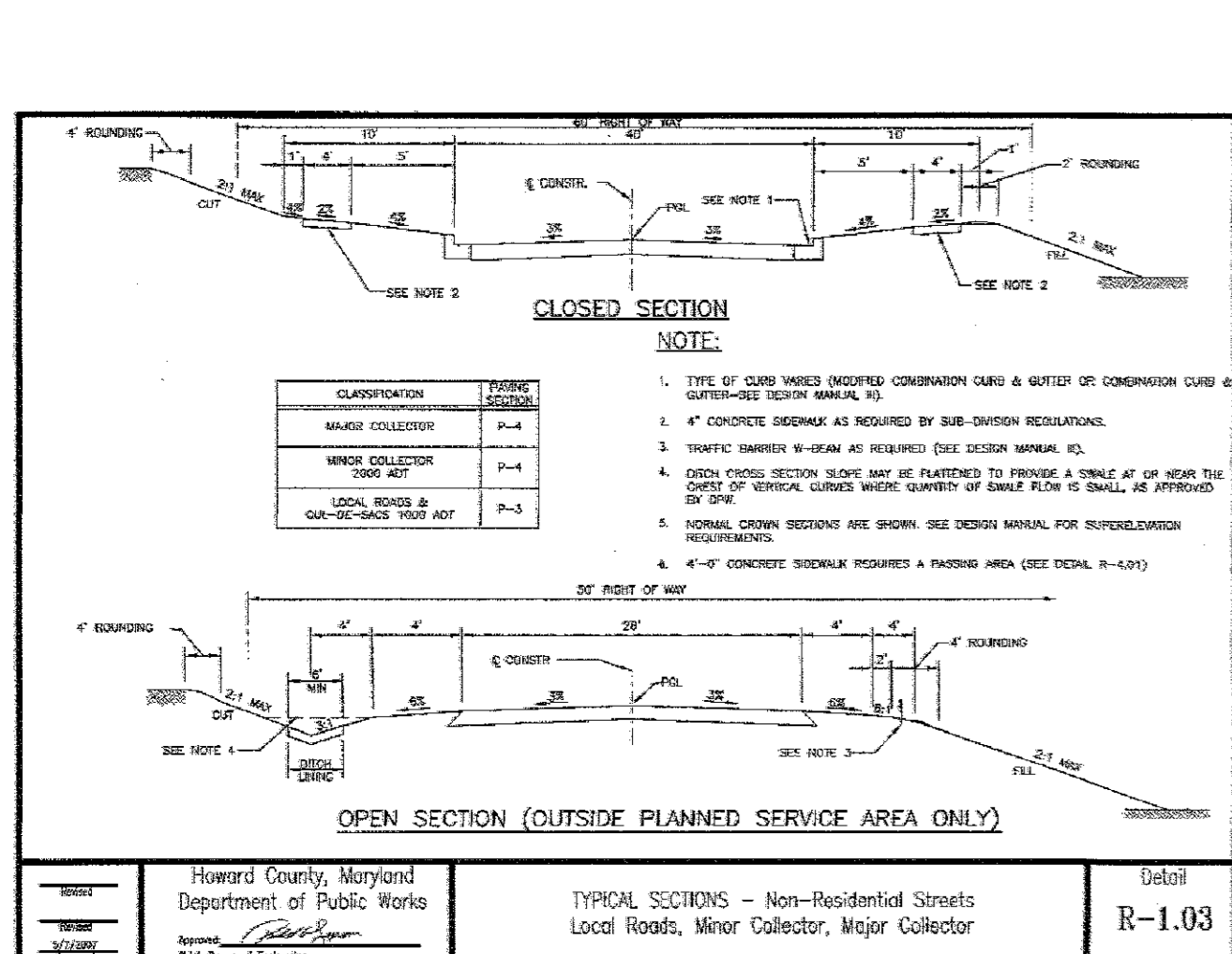
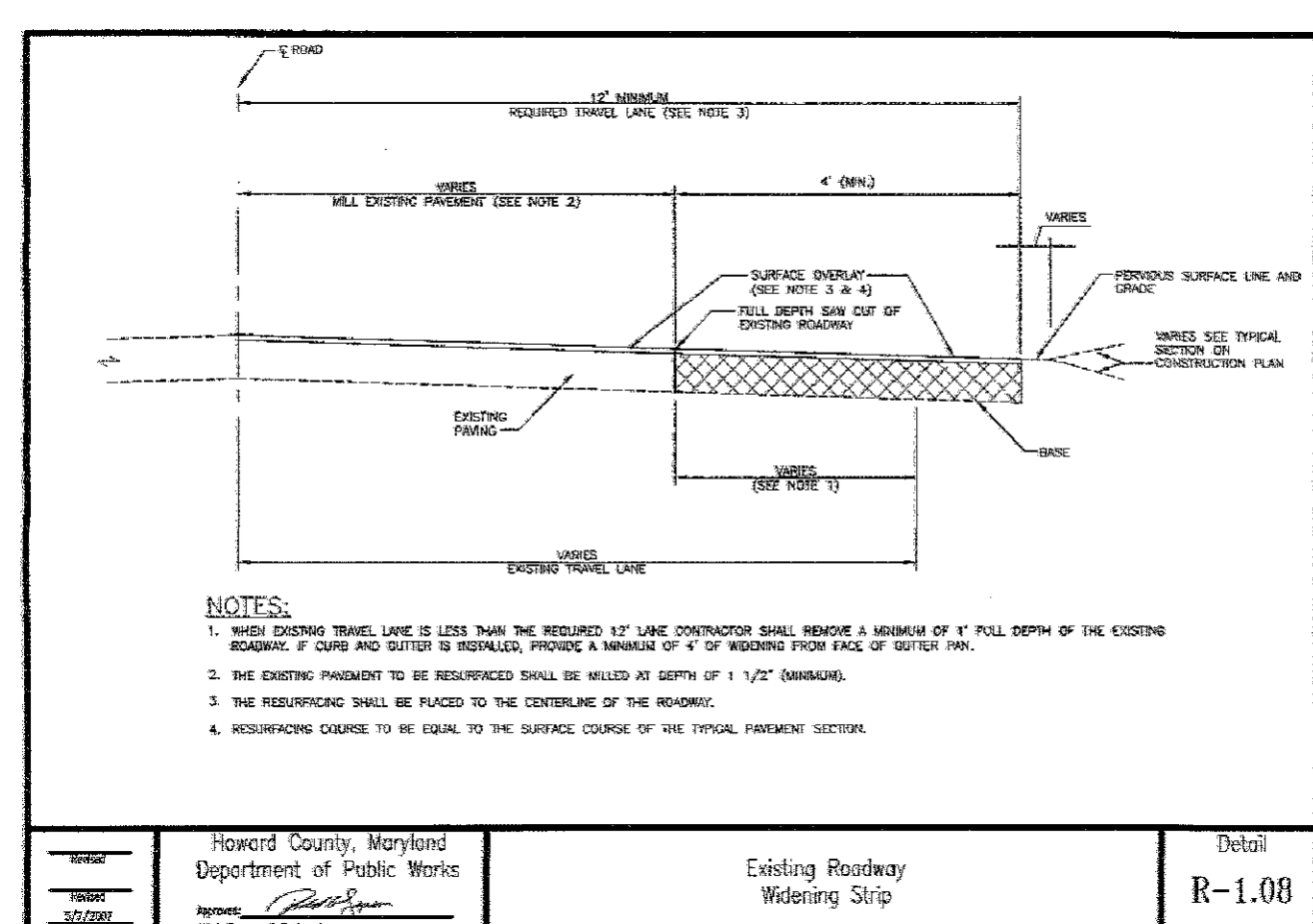
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2020

DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: NOVEMBER 2018
 SCALE: AS SHOWN
 W.O. NO.: 15-36

1 SHEET OF 11

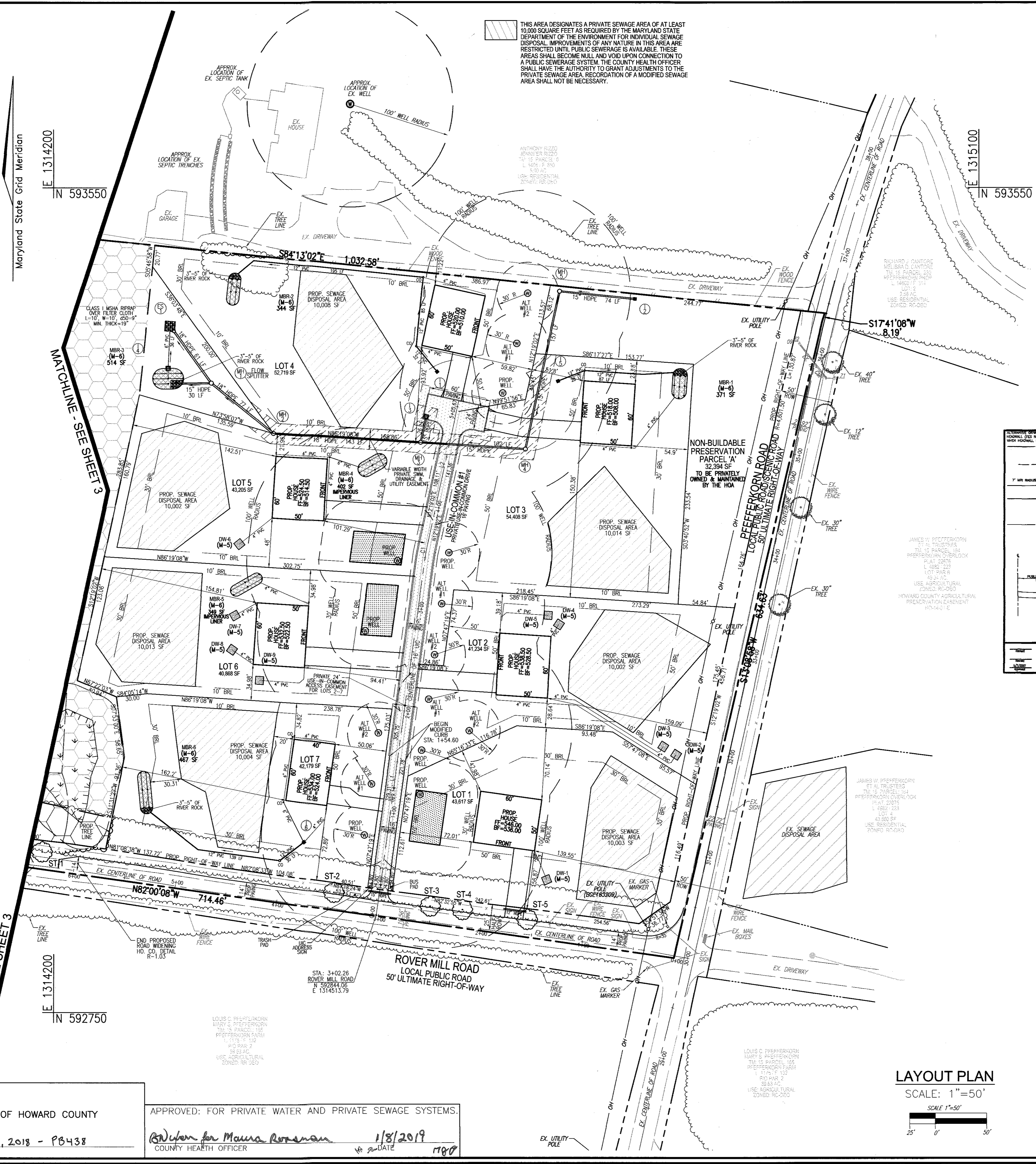
SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING (DEG)				MIN. VERT. CURVE CONST. (FT)
		2 TO 45	6 TO 47	2 TO 7	2 TO 45 TO 47	
P-1	PAVING: DRIVEWAY AND NON-RESIDENTIAL WITH NO MORE THAN 2 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0
P-2	PAVING: DRIVEWAY AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0
P-3	PAVING: DRIVEWAY AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0
P-4	PAVING: DRIVEWAY AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY	1.5	1.5	1.5	1.5	1.5
		2.0	2.0	2.0	2.0	2.0

NOTE:
 PROVIDE P-1 PAVING FOR THE PROPOSED USE-IN-COMMON DRIVEWAY AND P-3 PAVING FOR THE ROVER MILL ROAD PUBLIC ROAD WIDENING

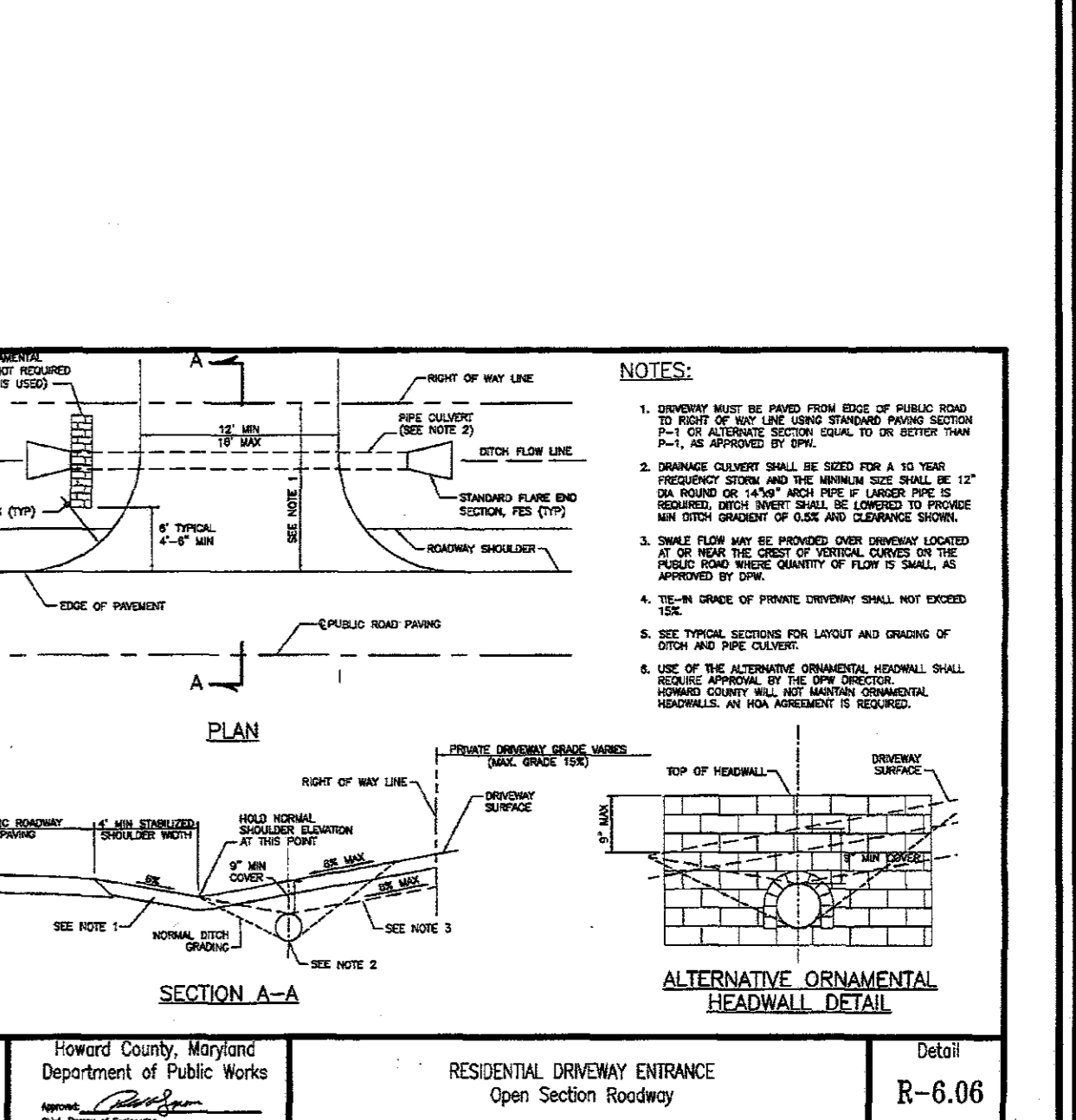


LINE	BEARING	DISTANCE
L1	N07°47'19"E	346.03'
L2	N12°19'02"E	131.20'

CURVE	RADIUS	LENGTH	DELTA	TAN	CHORD
C-1	208.00'	16.44'	04°31'44"	8.22'	S10°03'11"W 16.44'



	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING TREELINE
	EXISTING UTILITY POLE
	EXISTING WELL
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-7
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
	PROPOSED DRY WELL (M-5)
	PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
	PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
	PROPOSED WELL



NO.	REVISION	DATE

OWNER/DEVELOPER
 PEPPERKORN ROVER MILL, LLC
 C/O RAJ KATHURIA
 12668 FREDERICK ROAD
 WEST FRIENDSHIP, MD 21794
 (443) 574-1600

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: JMR
 CHECKED BY: RHV
 DATE: NOVEMBER 2018
 SCALE: AS SHOWN
 W.O. NO.: 15-36

PROFESSIONAL CERTIFICATE
 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: 09-27-2020

2 SHEET OF 11

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

APPROVED:
 PLANNING BOARD OF HOWARD COUNTY

DATE: 1-11-19

DATE: November 8, 2018 - PB438

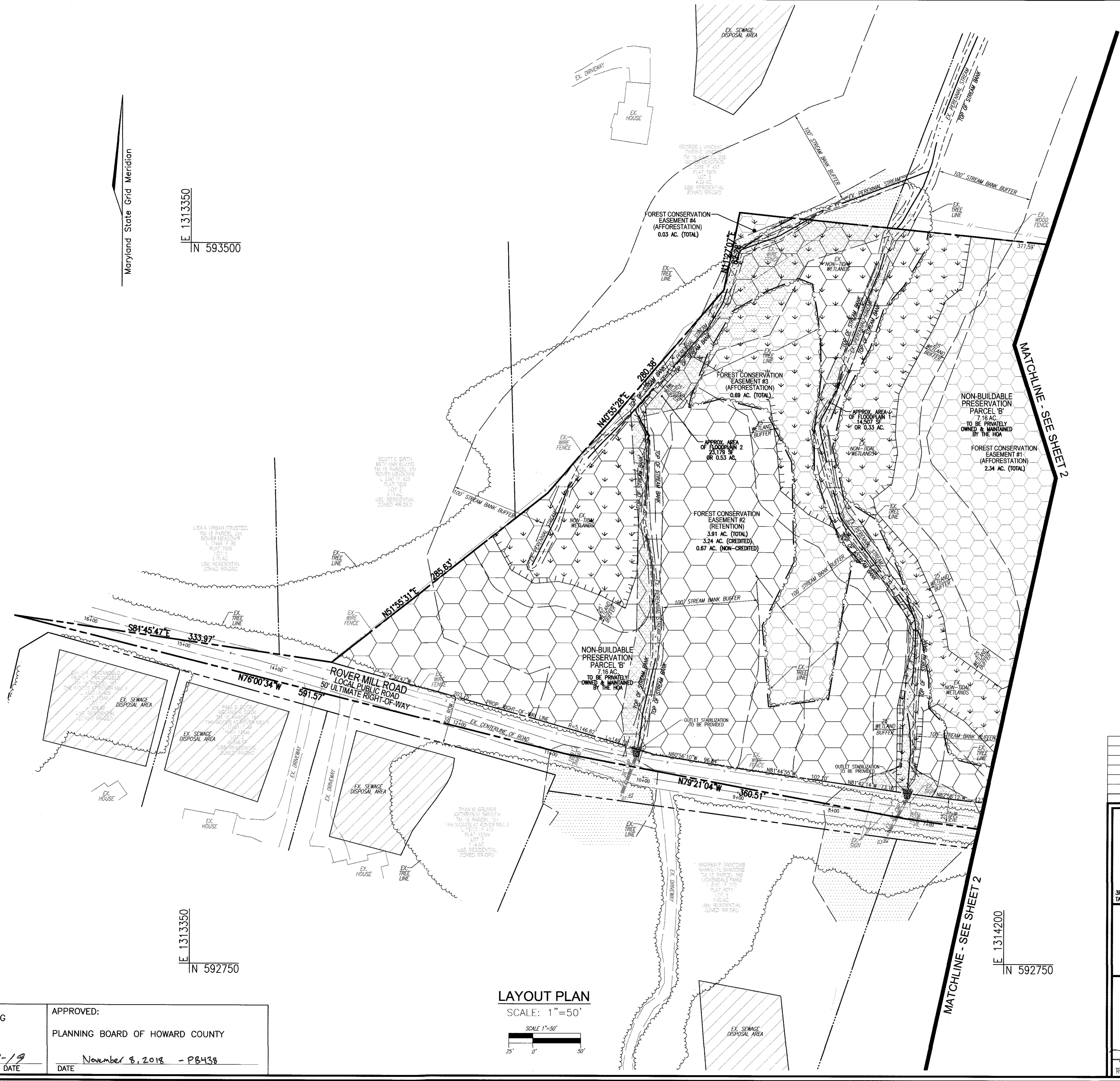
APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

APPROVED: *Maura Roman* 1/8/2019
 COUNTY HEALTH OFFICER

LAYOUT PLAN
 SCALE: 1"=50'

NOTE:
NO GRADING OR PROPOSED IMPROVEMENTS ARE
PROPOSED ON THIS PORTION OF NON-BUILDABLE
PRESERVATION PARCEL 'B' UNDER THIS PLAN.

- LEGEND:**
- PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - EXISTING EDGE OF PAVING
 - EXISTING STREAM BUFFER
 - EXISTING STREAM
 - EXISTING TREELINE
 - PROPOSED TREELINE
 - EXISTING UTILITY POLE
 - EXISTING WOOD FENCE
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 - EXISTING WETLANDS
 - EXISTING WETLAND BUFFER
 - EX. PUBLIC 100-YEAR FLOOD PLAN
 - PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
 - PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
 - PROPOSED FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)



Maryland State Grid Meridian
E 1313350
N 593500

E 1313350
N 592750

E 1314200
N 592750

OWNER/DEVELOPER
PFEFFERKORN ROVER MILL, LLC
C/O RAJ KATHURIA
12668 FREDERICK ROAD
WEST FRIENDSHIP, MD 21794
(443) 574-1600

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
LAYOUT PLAN
ROVER MILL ESTATES
LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'
PFEFFERKORN ROAD
WEST FRIENDSHIP, MD 21794
L 16745 / F. 155
16.42 AC.
PARCEL: 169
ZONED: RR-100
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: 09-27-2020

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: NOVEMBER 2018
SCALE: AS SHOWN
W.O. NO.: 15-36

3 SHEET OF 11

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

APPROVED:
PLANNING BOARD OF HOWARD COUNTY

1-11-19
DATE

November 8, 2018 - PB438
DATE

LAYOUT PLAN
SCALE: 1"=50'
SCALE 1"=50'
25' 0' 50'

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
G ₃ B	GLENNVILLE LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO
G ₃ B	GLENNVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
G ₃ B	GLENNVILLE-CODORIUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
M ₃ C	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	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

LEGEND:	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING UTILITY POLE
	EXISTING WELL
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-7
	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
	PROPOSED DRY WELL (M-5)
	SOILS
	PROPOSED 10' CONTOUR
	PROPOSED 2' CONTOUR
	LIMIT OF DISTURBANCE
	STABILIZED CONSTRUCTION ENTRANCE
	SUPER SILT FENCE
	SILT FENCE
	PASSED PERC. TEST
	FAILED PERC. TEST
	PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
	PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
	PROPOSED WELL



WARNING!
 INSTALL HIGHLY VISIBLE AND PROTECTIVE DEVICES AROUND WELLS PRIOR TO COMMENCEMENT OF GRADING OPERATIONS. MAINTAIN PROTECTIVE DEVICES THROUGHOUT DURATION OF CONSTRUCTION ACTIVITIES

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

OWNER/DEVELOPER
 PFEIFFERKORN ROVER MILL, LLC
 C/O RAJ KATHURIA
 12668 FREDERICK ROAD
 WEST FRIENDSHIP, MD 21794
 (443) 574-1600

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
 SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN
ROVER MILL ESTATES
 LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'
 PFEIFFERKORN ROAD
 WEST FRIENDSHIP, MD 21794
 L 16745 F 155
 16.42 AC.

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 SCALE: AS SHOWN
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4 SHEET OF 11

GRADING PLAN
 SCALE: 1"=50'
 SCALE 1"=50'

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Natalie J. Allen
 PLANNING DIRECTOR

1-11-19
 DATE

APPROVED:
 PLANNING BOARD OF HOWARD COUNTY

November 8, 2018 - PB438
 DATE

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWAGE SYSTEMS.

Wilson for Mama Reisman
 COUNTY HEALTH OFFICER

1/8/2019
 DATE

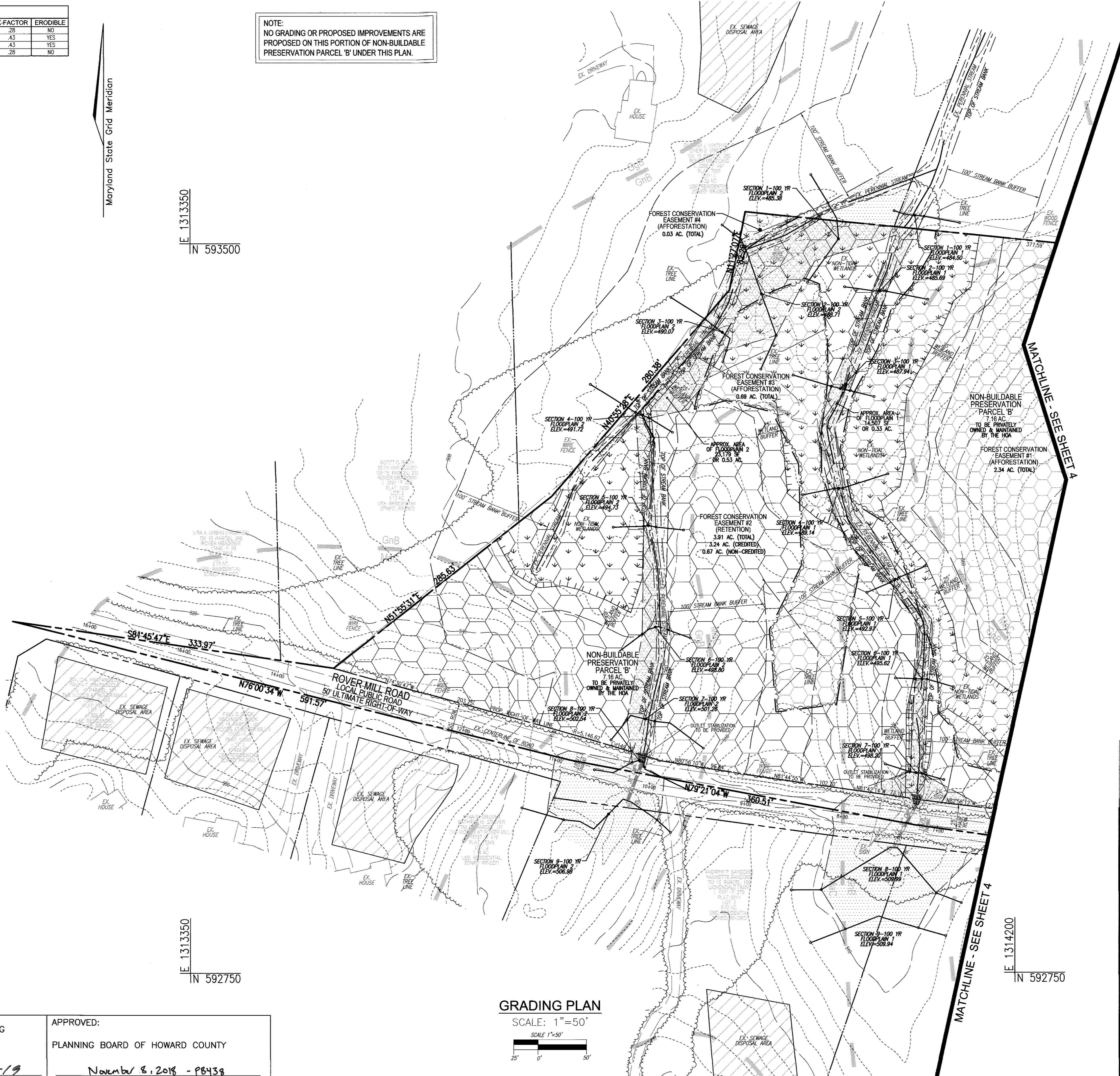
SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GnB	GLENHIC LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO
GnB	GLENVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
GnB	GLENVILLE-CODDORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
MnC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 HOWARD COUNTY SOILS MAP NUMBER 11 - SYKESVILLE SW

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

NOTE:
 NO GRADING OR PROPOSED IMPROVEMENTS ARE
 PROPOSED ON THIS PORTION OF NON-BUILDABLE
 PRESERVATION PARCEL 'B' UNDER THIS PLAN.

LEGEND:	
	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING EDGE OF PAVING
	EXISTING STREAM BUFFER
	EXISTING STREAM
	EXISTING TREELINE
	PROPOSED TREELINE
	EXISTING UTILITY POLE
	EXISTING WOOD FENCE
	EXISTING METAL FENCE
	EXISTING 10' CONTOUR
	EXISTING 2' CONTOUR
	SOILS
	EXISTING WETLANDS
	EXISTING WETLAND BUFFER
	EX. PUBLIC 100-YEAR FLOOD PLAN
	PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
	PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
	PROPOSED FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)



Maryland State Grid Meridian

E 1313350
N 593500

E 1313350
N 592750

OWNER/DEVELOPER
 PFEFFERKORN ROVER MILL, LLC
 C/O RAJ KATHURIA
 12668 FREDERICK ROAD
 WEST FRIENDSHIP, MD 21794
 (443) 574-1600

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
 SOILS MAP, GRADING, EROSION
 AND SEDIMENT CONTROL PLAN
ROVER MILL ESTATES
 LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'
 PFEFFERKORN ROAD
 WEST FRIENDSHIP, MD 21794
 L 16745 / F. 155
 16.42 AC.
 PARCEL: 169
 ZONED: RR-DEO
 HOWARD COUNTY, MARYLAND

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 FAX: 410.461.8961

STATE OF MARYLAND
 REGISTERED PROFESSIONAL ENGINEER
 ROBERT H. VOGEL, PE No. 16193

DESIGN BY: RHY
 DRAWN BY: JMR
 CHECKED BY: RHY
 DATE: NOVEMBER 2018
 SCALE: AS SHOWN
 W.O. NO.: 15-36

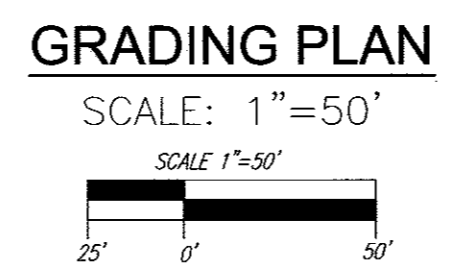
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 OF MARYLAND, LICENSE NO. 16193
 EXPIRATION DATE: 09-27-2020

5 SHEET OF 11

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

APPROVED:
 PLANNING BOARD OF HOWARD COUNTY

DATE: 1-11-19
 DATE: November 8, 2018 - PB438





LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING UTILITY POLE
- EXISTING WELL
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING 2' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EX. PUBLIC 100-YEAR FLOOD PLAN
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-7
- PROPOSED MICRO-BIORETENTION FACILITY (M-6)
- PROPOSED DRY WELL (M-5)
- DRAINAGE AREA DIVIDE
- PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
- PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
- PROPOSED FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- PROPOSED WELL

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GgB	CLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	28	NO
GhB	CLENELLE-BALE S&L LOAMS, 0 TO 8 PERCENT SLOPES	C	43	YES
GcB	CLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	43	YES
McC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	28	NO

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 11 - SYKESVILLE SW

NOTE:
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OWNER/DEVELOPER
PFEFFERKORN ROVER MILL, LLC
C/O RAJ KATHURIA
12668 FREDERICK ROAD
WEST FRIENDSHIP, MD 21794
(443) 574-1600

NO.	REVISION	DATE

**PRELIMINARY EQUIVALENT SKETCH PLAN
STORM DRAIN DRAINAGE AREA MAP**

ROVER MILL ESTATES
LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'
PFEFFERKORN ROAD
WEST FRIENDSHIP, MD 21794
L. 16745 / F. 155
16.42 AC.
PARCEL: 169
ZONED: RR-DEP
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: RHV
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CHECKED BY: RHV
DATE: NOVEMBER 2018
SCALE: AS SHOWN
W.O. NO.: 15-36

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6 SHEET OF 11

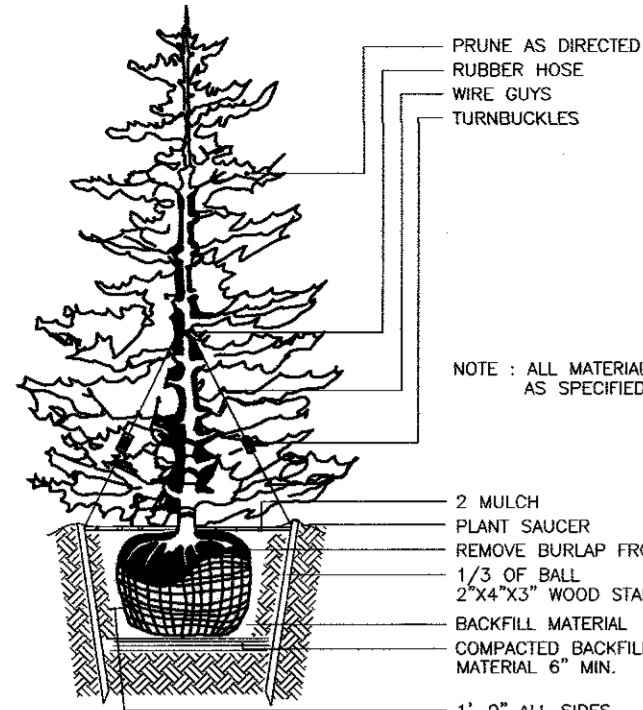
TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

APPROVED:
PLANNING BOARD OF HOWARD COUNTY

11-19
DATE

November 8, 2018 - PB438
DATE

SD DRAINAGE AREA MAP
SCALE: 1"=50'



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

SPECIMEN TREE CHART

NO.	SIZE (IN. DBH)	CRZ (FEET)	COMMON NAME	CONDITION	COMMENTS
ST 1	30.5"	45.75'	NORWAY MAPLE	POOR, MAJOR DIEBACK, NOT NATIVE	TO BE REMOVED
ST 2	31"	46.5'	NORWAY MAPLE	NOT NATIVE	TO BE REMOVED
ST 3	30"	45'	NORWAY MAPLE	POOR, SEVERE DIEBACK, NOT NATIVE	TO BE REMOVED
ST 4	34"	51'	NORWAY MAPLE	POOR, MAJOR DIEBACK, NOT NATIVE	TO BE REMOVED
ST 5	36.5"	54.75'	NORWAY MAPLE	NOT NATIVE	TO BE REMOVED

SCHEDULE A: PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES AND ROADWAYS					SPECIMEN TREE MITIGATION	TOTAL
	1	2	3	4	5		
PERIMETER/FRONTAGE DESIGNATION	B	N/A	B	A	A		
LANDSCAPE TYPE	1	2	3	4	5		
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	257'	N/A	329'	897'	831'		
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	-	NO	NO	NO		
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	-	NO	NO	NO		
NUMBER OF PLANTS REQUIRED (IF REMAINING)	257	-	329	897	831		
SHADE TREES	150	5	150	7	160	15	14
EVERGREEN TREES	140	6	140	8	140	8	14
SHRUBS	-	-	-	-	-	-	-
NUMBER OF PLANTS PROVIDED							
SHADE TREES	5	-	7	15	14	8	49
EVERGREEN TREES	6	-	8	15	14	8	49
OTHER TREES (1:1 SUBSTITUTION)	-	-	-	-	-	-	-
SHRUBS (10:1 SUBSTITUTION)	-	-	-	-	-	-	-
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED							

STREET TREE CALCULATIONS

STREET NAME	LINEAR FEET	NO. REQUIRED	NO. PROVIDED
ROVER MILL ROAD	615/40	15	15
PEPPERKORN ROAD	640/40	16	16

TRASH PAD LANDSCAPING

SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
☐	5	DWARF JAPANESE YEW	3'-4' HT	B & B

- GENERAL NOTES:**
- LANDSCAPING IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$18,800.00 FOR THE REQUIRED 49 SHADE TREES AND 14 EVERGREENS SHALL BE POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT. A SURETY IN THE AMOUNT OF \$9,450.00 FOR THE 31 PUBLIC STREET TREES AND THE 5 SHRUBS FOR THE TRASH PAD WILL BE SATISFIED UNDER THE BID COST ESTIMATE.
 - PRESERVATION PARCELS 'A' & 'B' WILL NOT REQUIRE PERIMETER LANDSCAPING, EXCEPT ALONG THE PERIMETER OF THE CLUSTER AREA. (SEE SHEET 17 OF THE HOWARD COUNTY LANDSCAPE MANUAL.)

- LANDSCAPE NOTES**
- AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED 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 THE APPLICABLE PLANS.
 - THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 - 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 SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
 - PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.

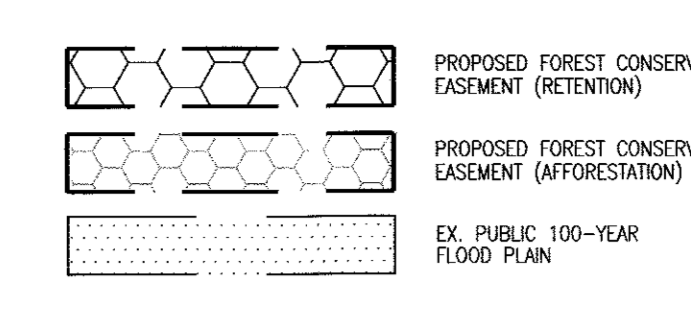
- LANDSCAPE SCHEDULE NOTE:**
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HRD PLANTING SPECIFICATIONS.
 - CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
 - FINAL LOCATION OF PLANT MATERIALS 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.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

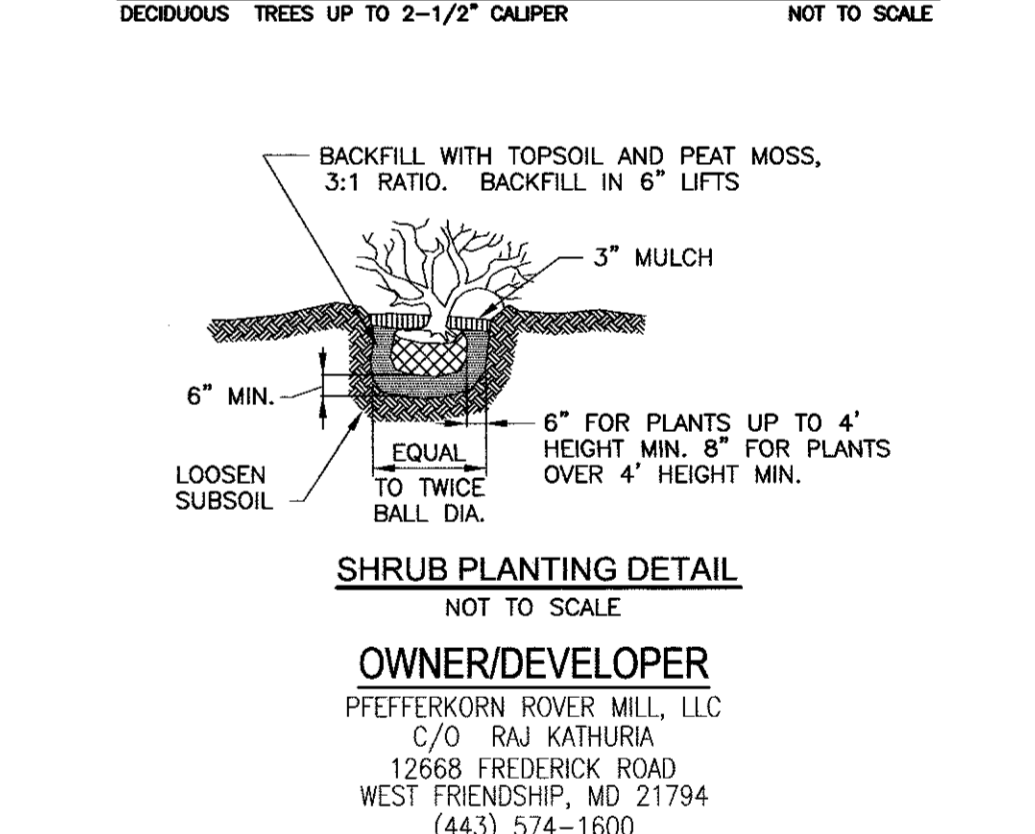
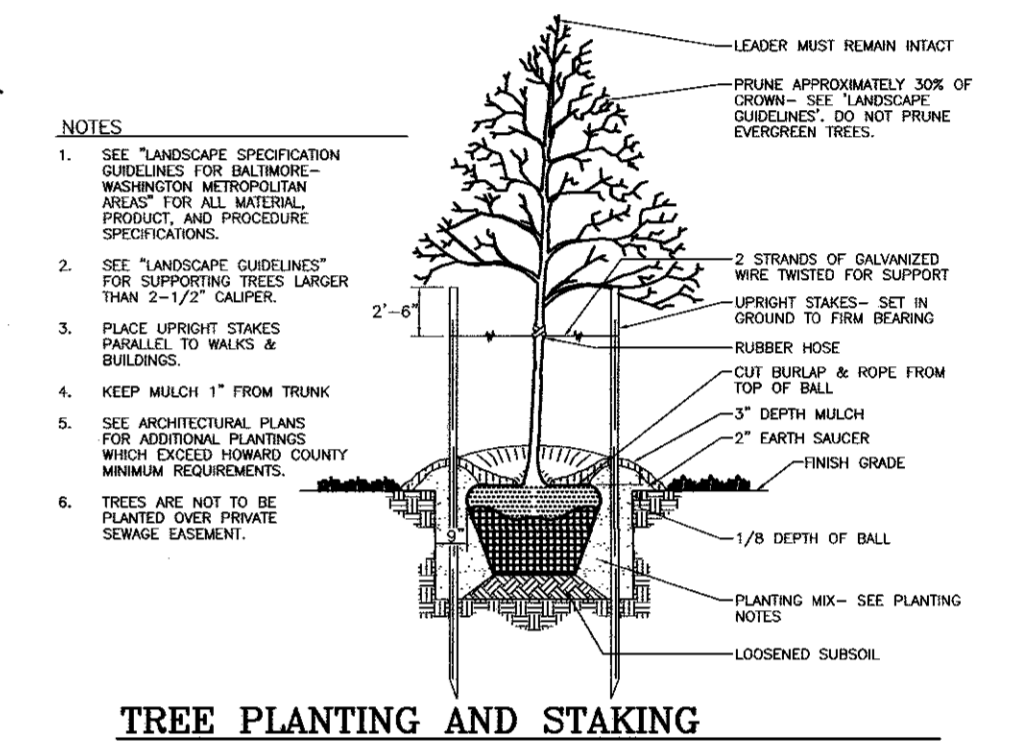
APPROVED:
PLANNING BOARD OF HOWARD COUNTY

PLANNING DIRECTOR: *Valerie J. Miller* DATE: 1-11-19

DATE: November 8, 2018 - PB438



- LEGEND:**
- PROPOSED FOREST CONSERVATION EASEMENT (RETENTION)
 - PROPOSED FOREST CONSERVATION EASEMENT (AFFORESTATION)
 - EX. PUBLIC 100-YEAR FLOOD PLAN
 - PROPERTY LINE
 - RIGHT-OF-WAY LINE
 - ADJACENT PROPERTY LINE
 - EXISTING EDGE OF PAVING
 - EXISTING STREAM BUFFER
 - EXISTING STREAM
 - EXISTING TREETRINE
 - PROPOSED TREETRINE
 - EXISTING UTILITY POLE
 - EXISTING WELL
 - EXISTING WOOD FENCE
 - EXISTING METAL FENCE
 - EXISTING 10' CONTOUR
 - EXISTING 2' CONTOUR
 - EXISTING WETLANDS
 - EXISTING WETLAND BUFFER
 - 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-7
 - PROPOSED MICRO-BIORETENTION FACILITY (M-6)
 - PROPOSED DRY WELL (M-5)
 - PROPOSED 10' CONTOUR
 - PROPOSED 2' CONTOUR
 - EXISTING BG&E GREEN ZONE
 - EXISTING BG&E YELLOW ZONE
 - PROPOSED WELL



PRELIMINARY EQUIVALENT SKETCH PLAN
LANDSCAPE PLAN, NOTES AND DETAILS
ROVER MILL ESTATES
LOTS 1-7 AND NON-BUILDABLE PRESERVATION PARCELS 'A' & 'B'
PEPPERKORN ROAD
WEST FRIENDSHIP, MD 21794
L 16745 / F 155
18.42 AC.

3RD ELECTION DISTRICT
TAX MAP: 15 GRD: 14

PARCEL: 169
ZONE: RR-DEO
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
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DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
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SCALE: AS SHOWN
W.O. NO.: 15-36

PROFESSIONAL CERTIFICATE
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7 SHEET OF 11

LANDSCAPE PLAN
SCALE: 1"=50'
SCALE 1"=50'

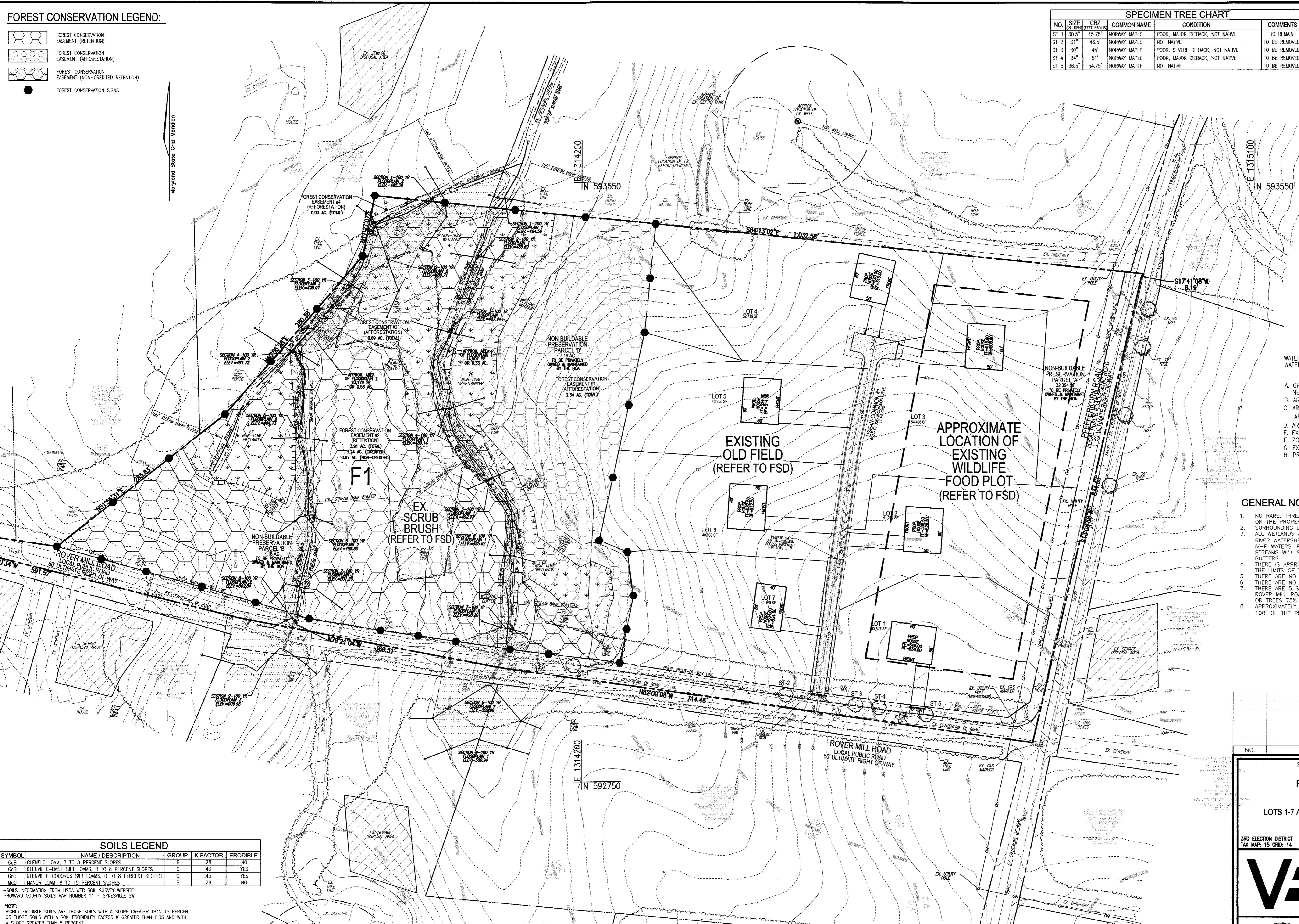
FOREST CONSERVATION LEGEND:

- FOREST CONSERVATION EASEMENT (RETENTION)
- FOREST CONSERVATION EASEMENT (AFFORESTATION)
- FOREST CONSERVATION EASEMENT (NON-CREDITED RETENTION)
- FOREST CONSERVATION SIGNS

SPECIMEN TREE CHART					
NO.	SIZE (IN DBH/FEET HEIGHT)	CRZ	COMMON NAME	CONDITION	COMMENTS
ST 1	30.5"	45.75'	NORWAY MAPLE	POOR, MAJOR DIEBACK, NOT NATIVE	TO BE REMOVED
ST 2	31"	48.5'	NORWAY MAPLE	NOT NATIVE	TO BE REMOVED
ST 3	30"	45'	NORWAY MAPLE	POOR, SEVERE DIEBACK, NOT NATIVE	TO BE REMOVED
ST 4	34"	51'	NORWAY MAPLE	POOR, MAJOR DIEBACK, NOT NATIVE	TO BE REMOVED
ST 5	36.5"	54.75'	NORWAY MAPLE	NOT NATIVE	TO BE REMOVED

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING EDGE OF PAVING
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING TREELINE
- PROPOSED TREELINE
- EXISTING UTILITY POLE
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EX. PUBLIC 100-YEAR FLOOD PLAIN
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT FOR LOTS 2-7
- EXISTING WELL



WATERSHED NAME: MIDDLE PATUXENT RIVER
WATERSHED NUMBER: 02131106

- A. GROSS SITE AREA: 16.42 AC.
- B. NET SITE AREA: 15.56 AC.
- C. AREA OF 100-YEAR FLOODPLAIN: 0.86 AC.
- D. AREA OF WETLANDS AND BUFFERS(ONSITE): 3.30 AC.
- E. AREA OF STREAM AND BUFFERS(ONSITE): 5.35 AC.
- F. AREA OF >25% STEEP SLOPES: 0.00 AC.
- G. EXISTING FOREST: 3.91 AC.
- H. ZONED: RR-DEO
- I. EXISTING USE: RESIDENTIAL
- J. PROPOSED USE: RESIDENTIAL

GENERAL NOTES

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITAT WERE OBSERVED ON THE PROPERTY.
2. SURROUNDING LAND USE IS PRIMARILY RURAL DENSITY RESIDENTIAL DEVELOPMENT.
3. 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 W-P WATERS. PERENNIAL STREAMS WILL REQUIRE 100 FOOT BUFFERS, INTERMITTENT STREAMS WILL REQUIRE 50 FOOT BUFFERS AND WETLANDS WILL REQUIRE 25 FOOT BUFFERS.
4. THERE IS APPROXIMATELY 0.86 ACRES OF 100-YEAR FLOODPLAIN LOCATED WITHIN THE LIMITS OF THIS SITE.
5. THERE ARE NO STEEP SLOPES LOCATED ON THIS SITE.
6. THERE ARE NO HISTORIC STRUCTURES OR CEMETERIES ON THIS PROPERTY.
7. THERE ARE 5 SPECIMEN TREES LOCATED ALONG THE PERIMETER OF THE PROPERTY ON ROVER MILL ROAD. 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. APPROXIMATELY 0.60 ACRES OF OFFSITE FOREST AREA IS CURRENTLY PRESENT WITHIN 100' OF THE PROPERTY.
- 8.

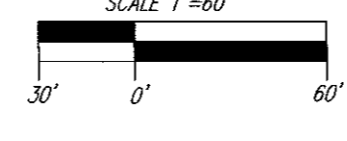
OWNER/DEVELOPER
PFEFFERKORN ROVER MILL, LLC
C/O RAJ KATHURIA
12668 FREDERICK ROAD
WEST FRIENDSHIP, MD 21794
(443) 574-1600

SOILS LEGEND				
SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GaB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO
GaB	GLENVILLE-BALLS Silt LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
GaB	GLENVILLE-CODRUS Silt LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO

NOTE:
-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 11 - SYKESVILLE SW
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

FOREST CONSERVATION PLAN

SCALE: 1"=60'



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

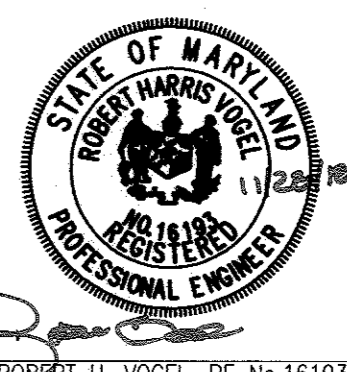
APPROVED:
PLANNING BOARD OF HOWARD COUNTY

PLANNING DIRECTOR: *William J. Blinn*
DATE: 1-11-19

DATE: November 8, 2018 - P8438

Eco-Science
Professionals, Inc.
Consulting Ecologists
P.O. Box 5066 Glen Arm, Maryland 21057 Telephone (410) 832-2480 Fax (410) 832-2488

MD DNR Qualified Professional
USACOE Wetland Delicator
Certification # WDCPE2014061004782
John P. Canoles



DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: NOVEMBER 2018
SCALE: AS SHOWN
W.O. NO.: 15-36

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: 09-27-2020

8 SHEET OF 11

REFOREST / AFFORESTATION PLAN

A. PLANTING PLAN AND METHODS

PLANT SPECIES SELECTION WAS BASED ON OUR KNOWLEDGE REGARDING PLANT COMMUNITIES IN MARYLAND'S PIEDMONT PLATEAU AND INFORMATION PROVIDED IN THE SOIL SURVEY ON TYPICAL VEGETATION FOR THE SOIL TYPE ON THE PLANTING SITE. SPECIES SELECTION WAS ALSO BASED ON OUR KNOWLEDGE OF PLANT AVAILABILITY IN THE NURSERY INDUSTRY.

REFOREST / AFFORESTATION SHALL BE ACCOMPLISHED THROUGH A MIXED PLANTING OF WHIPS AND BRANCHED TRANSPLANTS. CONTAINER GROWN STOCK IS RECOMMENDED BUT BAREROOT STOCK MAY BE USED TO HELP CONTROL AFFORESTATION COSTS. IF BAREROOT STOCK IS USED THE ROOT SYSTEMS OF ALL PLANTS WILL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING TO IMPROVE MOISTURE RETENTION IN THE ROOT SYSTEMS.

PRIOR TO PLANTING THE PROPOSED FOREST CONSERVATION EASEMENTS ALL MULTIFLORA ROSE IN THE PLANTING AREA SHALL BE REMOVED. REMOVAL OF THE ROSE MAY BE PERFORMED WITH MOWING AND HERBICIDE TREATMENTS. PHYSICAL REMOVAL OF ALL TOP GROWTH FOLLOWING BY A PERIODIC HERBICIDE TREATMENT OF STUMP SPROUTS IS RECOMMENDED. NATIVE TREE AND SHRUB SPECIES OCCURRING WITHIN THE ROSE THICKETS SHOULD BE RETAINED WHEREVER POSSIBLE. HERBICIDES TREATMENTS SHALL OCCUR ON 2 MONTH INTERVALS DURING THE FIRST GROWING SEASON AND ONCE EACH IN THE SPRING AND FALL FOR SUBSEQUENT YEARS. HERBICIDE USED SHALL BE MADE SPECIFICALLY TO ADDRESS WOODY PLANT MATERIAL AND SHALL BE APPLIED AS PER MANUFACTURER'S SPECIFICATIONS. CARE SHOULD BE TAKEN NOT TO SPRAY PLANTED TREES OR NATURALLY OCCURRING NATIVE TREE/SHRUB SEEDLINGS. IT IS RECOMMENDED THAT INITIATION OF ROSE REMOVAL BEGIN AT LEAST SIX MONTHS PRIOR TO PLANTING.

B. PLANTING AND SOIL SPECIFICATIONS

PLANT MATERIAL WILL BE INSTALLED IN ACCORDANCE WITH THE PLANTING DETAIL AND PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN.

AMENDMENTS TO EXISTING SOIL WILL BE IN ACCORDANCE WITH THE PLANTING SPECIFICATIONS SHOWN ON THE FOREST CONSERVATION PLAN. SOIL DISTURBANCE WILL BE LIMITED TO INDIVIDUAL PLANTING LOCATIONS.

C. MAINTENANCE OF PLANTINGS

FOR INFORMATION REGARDING MAINTENANCE OF THE AFFORESTATION PLANTINGS, SEE SECTION VIII B.

D. GUARANTEE REQUIREMENTS

A 90 PERCENT SURVIVAL RATE OF THE AFFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

E. SECURITY FOR AFFORESTATION

SECTION 16-1209 OF THE HOWARD COUNTY FOREST CONSERVATION ACT REQUIRES THAT A DEVELOPER SHALL POST A SECURITY (BOND, LETTER OF CREDIT, ETC.) WITH THE COUNTY TO INSURE THAT ALL WORK IS DONE IN ACCORDANCE WITH THE FCP.

CONSTRUCTION PERIOD PROTECTION PROGRAM

A. FOREST PROTECTION TECHNIQUES

1. SOIL PROTECTION AREA (CRITICAL ROOT ZONE)

THE SOIL PROTECTION AREA, OR CRITICAL ROOT ZONE, OF A TREE IS THAT PORTION OF THE SOIL COLUMN WHERE MOST OF A TREE'S ROOTS MAY BE FOUND. THE MAJORITY OF WATER AND NUTRIENT UPTAKE ARE LOCATED JUST BELOW THE SOIL SURFACE. TEMPORARY FENCING SHALL BE PLACED AROUND THE CRITICAL ROOT ZONE OF THE FOREST IN AREAS WHERE THE FOREST LIMITS OCCUR WITHIN 25 FEET OF THE LIMIT OF DISTURBANCE.

2. FENCING AND SIGNAGE

EXISTING FOREST LIMITS OCCURRING WITHIN 25 FEET OF THE LIMITS OF DISTURBANCE SHALL BE PROTECTED USING TEMPORARY PROTECTIVE FENCING. PERMANENT SIGNAGE SHALL BE PLACED AROUND THE AFFORESTATION AREA PRIOR TO PLANT INSTALLATION, AS SHOWN ON THE PLAN.

B. PRE-CONSTRUCTION MEETING

UPON STAKING OF LIMITS OF DISTURBANCE A PRE-CONSTRUCTION MEETING WILL BE HELD BETWEEN THE DEVELOPER, CONTRACTOR AND APPROPRIATE COUNTY OFFICIALS. THE MEETING WILL BE TO VERIFY THAT ALL SEDIMENT CONTROL IS IN ORDER, AND TO NOTIFY THE CONTRACTOR OF POSSIBLE PENALTIES FOR NON-COMPLIANCE WITH THE FCP.

C. STORAGE FACILITIES/EQUIPMENT CLEANING

ALL EQUIPMENT STORAGE, PARKING, SANITARY FACILITIES, MATERIAL STOCKPILING, ETC. ASSOCIATED WITH CONSTRUCTION OF THE PROJECT WILL BE RESTRICTED TO THOSE AREAS OUTSIDE OF THE PROPOSED FOREST CONSERVATION EASEMENT. CLEANING OF EQUIPMENT WILL BE LIMITED TO AREA WITHIN THE LOD OF THE PROPOSED HOMESITES. WASTEWATER RESULTING FROM EQUIPMENT CLEANING WILL BE CONTROLLED TO PREVENT RUNOFF INTO ENVIRONMENTALLY SENSITIVE AREAS.

D. SEQUENCE OF CONSTRUCTION

THE FOLLOWING TIMETABLE REPRESENTS THE PROPOSED TIMETABLE FOR DEVELOPMENT. THE ITEMS OUTLINED IN THE FOREST CONSERVATION PLAN WILL BE ENACTED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.

BELOW FIND A PROPOSED SEQUENCE OF CONSTRUCTION.

1. INSTALL ALL SIGNAGE AND SEDIMENT CONTROL DEVICES.
2. HOLD PRE-CONSTRUCTION MEETING BETWEEN DEVELOPER, CONTRACTOR AND COUNTY INSPECTOR.
3. BUILD ACCESS ROADS, INSTALL UTILITIES, AND CONSTRUCT HOME. STABILIZE ALL DISTURBED AREAS ACCORDINGLY.
4. BEGIN MULTIFLORA ROSE REMOVAL, AS NEEDED. INSTALL PERMANENT PROTECTIVE SIGNAGE FOR EASEMENTS AND INITIATE PLANTINGS IN ACCORDANCE WITH FOREST CONSERVATION PLAN. PLANTINGS WILL BE COMPLETED WITHIN TWO (2) YEARS OF SUBDIVISION APPROVAL.
5. REMOVE SEDIMENT CONTROL.
6. HOLD POST-CONSTRUCTION MEETING WITH COUNTY INSPECTORS TO ASSURE COMPLIANCE WITH FCP. SUBMIT CERTIFICATION OF INSTALLATION.
7. MONITOR AND MAINTAIN PLANTINGS FOR 2 YEARS.

E. CONSTRUCTION MONITORING

EEO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL MONITOR CONSTRUCTION OF THE PROJECT TO ENSURE THAT ALL ACTIVITIES ARE IN COMPLIANCE WITH THE FOREST CONSERVATION PLAN.

F. POST-CONSTRUCTION MEETING

UPON COMPLETION OF CONSTRUCTION, EEO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL NOTIFY THE COUNTY THAT CONSTRUCTION HAS BEEN COMPLETED AND ARRANGE FOR A POST-CONSTRUCTION MEETING TO REVIEW THE PROJECT SITE. THE MEETING WILL ALLOW THE COUNTY INSPECTOR TO VERIFY THAT AFFORESTATION PLANTINGS HAVE BEEN INSTALLED.

POST-CONSTRUCTION MANAGEMENT PLAN

HOWARD COUNTY REQUIRES A TWO YEAR POST-CONSTRUCTION MANAGEMENT PLAN TO BE PREPARED AS PART OF THE FOREST CONSERVATION PLAN. THE PLAN GOES INTO EFFECT UPON ACCEPTANCE OF THE CONSTRUCTION CERTIFICATION OF COMPLETION BY THE COUNTY. EEO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL DESIGNATED BY THE DEVELOPER, WILL BE RESPONSIBLE FOR IMPLEMENTATION OF THE POST-CONSTRUCTION MANAGEMENT PLAN.

THE FOLLOWING ITEMS WILL BE INCORPORATED INTO THE PLAN:

A. FENCING AND SIGNAGE

PERMANENT SIGNAGE INDICATING THE LIMITS OF THE RETENTION/AFFORESTATION AREA SHALL BE MAINTAINED.

B. GENERAL SITE INSPECTIONS/MAINTENANCE OF PLANTINGS

SITE INSPECTIONS WILL BE PERFORMED A MINIMUM OF THREE TIMES DURING THE GROWING SEASON. THE PURPOSE OF THE INSPECTIONS WILL BE TO ASSESS THE HEALTH OF THE AFFORESTATION PLANTINGS. APPROPRIATE MEASURES WILL BE TAKEN TO RECTIFY ANY PROBLEMS WHICH MAY ARISE.

IN ADDITION, MAINTENANCE OF THE AFFORESTATION PLANTINGS WILL INVOLVE THE FOLLOWING STEPS:

1. WATERING - ALL PLANT MATERIAL SHALL BE WATERED TWICE A MONTH DURING THE 1ST GROWING SEASON, MORE OR LESS FREQUENTLY DEPENDING ON WEATHER CONDITIONS. DURING THE SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
2. REMOVAL OF INVASIVE EXOTICS AND NOXIOUS WEEDS. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
3. IDENTIFICATION OF SERIOUS PLANT PESTS AND DISEASES, TREATMENT WITH APPROPRIATE AGENT.
4. PRUNING OF DEAD BRANCHES.
5. AFTER 12 AND 24 MONTHS, REPLACEMENT OF PLANTS, IF REQUIRED, IN ACCORDANCE WITH THE GUARANTEE REQUIREMENTS SHOWN ON THE FCP.

C. EDUCATION

THE DEVELOPER WILL PROVIDE APPROPRIATE MATERIALS TO PROPERTY OWNERS INFORMING THEM OF THE LOCATION AND PURPOSE OF THE AFFORESTATION AREA. MATERIALS MAY INCLUDE SITE PLANS AND INFORMATION EXPLAINING THE INTENT OF THE FOREST CONSERVATION PLAN.

D. FINAL INSPECTION

AT THE END OF THE TWO YEAR POST-CONSTRUCTION MANAGEMENT PERIOD, EEO-SCIENCE PROFESSIONALS, OR ANOTHER QUALIFIED PROFESSIONAL, WILL SUBMIT TO THE ADMINISTRATOR OF THE HOWARD COUNTY FOREST CONSERVATION PROGRAM CERTIFICATION THAT ALL RETENTION/AFFORESTATION REQUIREMENTS HAVE BEEN MET. UPON ACCEPTANCE OF THIS CERTIFICATION, THE COUNTY WILL RELEASE THE DEVELOPER FROM ALL FUTURE OBLIGATIONS AND RELEASE THE DEVELOPER'S BOND.

PLANTING NOTES:

- PLANTING DENSITY BASED SPACING REQUIREMENTS WHIPS WITH SHELTER @ 11' ON CENTER.
- PLANTING MAY BE MADE IN A CURVILINEAR FASHION ALONG CONTOUR. THE PLANTING SHOULD AVOID A GRID APPEARANCE BUT SHOULD BE SPACED TO FACILITATE MAINTENANCE.
- MULTIFLORA ROSE/HEAVY BRUSH REMOVAL/CONTROL MAY BE REQUIRED PRIOR TO INSTALLATION OF PLANTING.
- ALL WHIPS ARE REQUIRED TO BE INSTALLED WITH TREE SHELTERS PER HOWARD COUNTY FCA REQUIREMENTS.
- PLANTING UNITS DEFINED BY THE SPACING REQUIREMENTS ESTABLISHED IN THE FCA MANUAL. ONE PLANT UNIT IS DEFINED AS 1 SEEDLING OR WHIP WITHOUT SHELTER, THE MANUAL STATES THAT 700 SEEDLINGS/WHIPS WITHOUT SHELTERS ARE REQUIRED PER ACRE, OR 250 WHIPS W/SHELTERS, OR 200 1" CALIBER TREES, OR 100 2" CALIBER TREES. BY CONVERSION IT HAS BEEN DETERMINED THAT A SEEDLING OR WHIP WITHOUT SHELTER = 1 UNIT, WHIP WITH SHELTER = 2 UNITS, 1" CALIBER TREE = 3.5 UNITS AND 2" CALIBER TREE = 7 UNITS. THE USE OF PLANT UNITS SIMPLIFIES THE PLANT DENSITY CALCULATIONS WHEN MIXING STOCK SIZE.

PLANTING/SOIL SPECIFICATIONS

1. INSTALLATION OF BAREROOT/PLUG PLANT STOCK SHALL TAKE PLACE BETWEEN MARCH 15 - APRIL 20, BAR/CONTAINER STOCK MARCH 15 - MAY 30 OR SEPTEMBER 15 - NOVEMBER 15. FALL PLANTING OF BAR/STOCK IS NOT RECOMMENDED.
2. DISTURBED AREAS SHALL BE SEEDED AND STABILIZED AS PER GENERAL CONSTRUCTION PLAN FOR PROJECT. PLANTING AREAS NOT IMPACTED BY SITE GRADING SHALL HAVE NO ADDITIONAL TOPSOIL INSTALLED.
3. BAREROOT PLANTS SHALL BE INSTALLED SO THAT THE TOP OF ROOT MASS IS LEVEL WITH THE TOP OF EXISTING GRADE. ROOTS SHALL BE DIPPED IN AN ANTI-DESICCANT GEL PRIOR TO PLANTING. BACKFILL IN THE PLANTING PITS SHALL CONSIST OF 3 PARTS EXISTING SOIL TO 1 PART PINE FINES OR EQUIVALENT.
4. FERTILIZER SHALL CONSIST OF AGROFORM 22-8-2, OR EQUIVALENT, APPLIED AS PER MANUFACTURER'S SPECIFICATIONS, FOR WOODY PLANTS. HERBACEOUS PLANT SHALL BE FERTILIZED WITH OSMOCOTE 8-6-12.
5. PLANT MATERIAL SHALL BE TRANSPORTED TO THE SITE IN A TARPED OR COVERED TRUCK. PLANTS SHALL BE KEPT MOIST PRIOR TO PLANTING.
6. THE CONTRACTOR SHALL REMOVE ALL NON-ORGANIC DEBRIS ASSOCIATED WITH THE PLANTING OPERATION FROM THE SITE.

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE.
 2. PLANTS SHALL BE INSTALLED AS PER PLANT SCHEDULE AND THE PLANTING/SOIL SPECIFICATIONS FOR THE PROJECT.
 3. UPON COMPLETION OF THE PLANTING, SIGNAGE SHALL BE INSTALLED AS SHOWN.
 4. PLANTINGS SHALL BE MAINTAINED AND GUARANTEED IN ACCORDANCE WITH THE MAINTENANCE AND GUARANTEE REQUIREMENTS FOR PROJECT.
- MAINTENANCE OF PLANTINGS
1. MAINTENANCE OF PLANTINGS SHALL LAST FOR A PERIOD OF TWO YEARS.
 2. PLANTINGS MUST RECEIVE 2 GALLONS OF WATER, EITHER THROUGH PRECIPITATION OR WATERING, WEEKLY DURING THE 1ST GROWING SEASON, AS NEEDED. DURING SECOND GROWING SEASON, ONCE A MONTH DURING MAY-SEPTEMBER, IF NEEDED.
 3. INVASIVE EXOTICS AND NOXIOUS WEEDS WILL BE REMOVED, AS REQUIRED, FROM PLANTING AREAS MECHANICALLY AND/OR WITH LIMITED HERBICIDE. OLD FIELD SUCCESSIONAL SPECIES WILL BE RETAINED.
 4. PLANTS SHALL BE EXAMINED A MINIMUM TWO TIMES DURING THE GROWING SEASON FOR SERIOUS PLANT PESTS AND DISEASES. SERIOUS PROBLEMS WILL BE TREATED WITH THE APPROPRIATE AGENT.
 5. DEAD BRANCHES WILL BE PRUNED FROM PLANTINGS.

GUARANTEE REQUIREMENTS

1. A 90 PERCENT SURVIVAL RATE OF THE AFFORESTATION PLANTINGS WILL BE REQUIRED AFTER ONE GROWING SEASON. ALL PLANT MATERIAL BELOW THE 90 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED AT THE BEGINNING OF THE SECOND GROWING SEASON. AT THE END OF THE SECOND GROWING SEASON, A 75 PERCENT SURVIVAL RATE WILL BE REQUIRED. ALL PLANT MATERIAL BELOW THE 75 PERCENT SURVIVAL THRESHOLD WILL BE REPLACED BY THE BEGINNING OF THE NEXT GROWING SEASON.

EDUCATION OF NEW OCCUPANTS

1. THE DEVELOPER SHALL PROVIDE EDUCATIONAL INFORMATION TO ALL PROPERTY OWNERS WITHIN THE NEW DEVELOPMENT/HOME ABOUT THE PROPER USE OF FOREST CONSERVATION AREAS.
1. AT THE END OF THE POST-CONSTRUCTION MANAGEMENT AND PROTECTION PERIOD THE DEVELOPER SHALL SUBMIT A CERTIFICATION TO THE COUNTY THAT ALL FOREST CONSERVATION AREAS HAVE REMAINED UNTOUCHED OR HAVE BEEN RESTORED TO APPROPRIATE CONDITION, THAT THE STIPULATED SURVIVAL RATES HAVE BEEN ACHIEVED, AND THAT ANY PERMANENT PROTECTION MEASURES REQUIRED BY THE PLAN ARE IN PLACE. UPON REVIEW AND ACCEPTANCE, THE COUNTY WILL INFORM THE DEVELOPER OF THEIR RELEASE OF THE DEVELOPMENT OF FUTURE OBLIGATIONS RELATED TO THE FOREST CONSERVATION ACT.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

PRE-CONSTRUCTION PHASE

1. FOR RETENTION AREAS, INSTALL BLAZE ORANGE FENCE AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. 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

1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
2. NO EQUIPMENT SHALL BE OPERATED, STAGED OR STORED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION PHASE

1. AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. POST CONSTRUCTION MANAGEMENT PROGRAM (FOREST CONSERVATION MANUAL) - INSPECTION - NOTICE OF TWO YEAR GROWING SEASON MANAGEMENT PROGRAM - MANAGEMENT OF RETENTION AREAS - MANAGEMENT OF RESTORATION AREAS (WATERING SCHEDULE, FERTILIZING, CONTROL OF INVASIVES AND PROTECTION FROM PESTS, DISEASES AND MECHANICAL INJURY) - REPLACEMENT OF DEAD MATERIAL - EDUCATION OF NEW RESIDENTS
4. DO NOT REMOVE SIGNS.

SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION

1. 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.
2. STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS.
3. INSTALL TREE PROTECTION FENCING; FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
4. PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
5. 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 STAND DATA				
KEY	COMMUNITY TYPE	ACREAGE (NTA)	DOMINANT VEGETATION	PRIORITY ACREAGE
F1	SUCCESSIONAL	3.9	ROBINIA PSEUDO-ACACIA PRUNUS SEROTINA, ALNANHUS ALNANHUS, ACER PLATANOIDES, ROSA MULTIFLORA	FAIR - INVASIVE W/21 ACRES WETLAND, STREAMS AND BUFFERS

SEE ACCOMPANYING REPORT FOR COMPLETE STAND DESCRIPTIONS

FOREST RETENTION AREAS AND NOTES

1. THE WETLANDS AND WETLAND BUFFERS ARE LOCATED ON PRESERVATION PARCEL 'B'.
2. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THIS SITE.
3. FORESTED AREAS ADJACENT TO FLOODPLAINS AND STREAM BUFFERS ARE RETAINED ON PRESERVATION PARCEL 'B'.
4. 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.
5. 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.

HOWARD COUNTY FOREST CONSERVATION WORKSHEET

ZONED RR-DEO

NET TRACT AREA:

A. TOTAL TRACT AREA	16.42 AC
B. AREA WITHIN 100 YEAR FLOODPLAIN	0.86 AC
C. AREA TO REMAIN IN AGRICULTURAL PRESERVATION	0.00 AC
D. NET TRACT AREA	15.56 AC

LAND USE CATEGORY

ARA	MDR	IDA	HDR	MPD	CIA
0	1	0	0	0	0

EXISTING FOREST COVER:

G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)	= 3.24 AC
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	= 0.13 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	= 0.00 AC

BREAK EVEN POINT:

(2 X I) + F = BREAK EVEN POINT (0 AC)	
J. FOREST RETENTION ABOVE THRESHOLD W/ NO MITIGATION	= 0.00 AC
K. CLEARING PERMITTED WITHOUT MITIGATION	= 0.00 AC

PROPOSED FOREST CLEARING:

L. TOTAL AREA OF FOREST TO BE CLEARED	= 0.00 AC
M. TOTAL AREA OF FOREST TO BE RETAINED	= 3.24 AC

PLANTING REQUIREMENTS:

L. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X 25)	= 0.00 AC
N. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD	= 0.00 AC
O. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F)	= 0.00 AC
P. TOTAL REFORESTATION REQUIRED (N+H-Q)	= 0.00 AC
Q. TOTAL AFFORESTATION REQUIRED	= 0.00 AC
R. TOTAL PLANTING REQUIREMENT (REFORESTATION AND AFFORESTATION)	= 0.00 AC

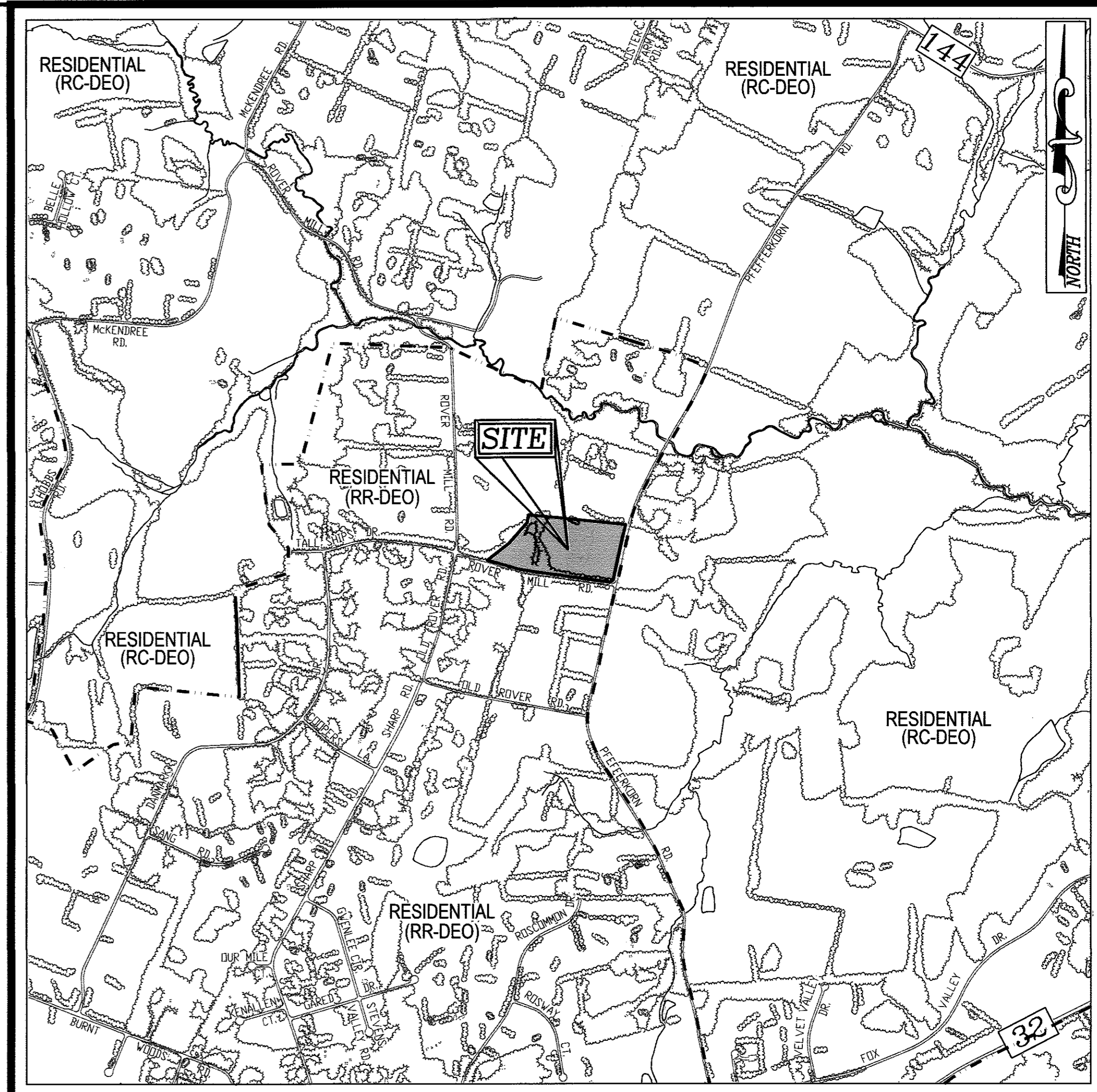
FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL A PORTION OF THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN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

THE REQUIRED FOREST CONSERVATION WILL BE PROVIDED ON NON-BUILDABLE PRESERVATION PARCEL 'B' AND SHALL MEET THE INTENT OF SECTION 16.117 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

TOTAL FOREST CONSERVATION DELIGATION OF THIS PROJECT TO BE FULFILLED BY:
- 291 ACRES ONSITE RETENTION (0.24 AC CREDITED & 0.67 AC NON-CREDITED) (NO SURETY BOND)
- 308 ACRES OF ONSITE AFFORESTATION

FINANCIAL SURETY FOR THE REQUIRED AFFORESTATION SHALL BE POSTED WITH THE FINAL PLAN DEVELOPER'S AGREEMENT.

EASEMENT	RETENTION		AFFORESTATION	TOTAL
	CREDITED	NON-CREDITED		
FCE #1	N/A	N/A	2.34 AC.	2.34 AC.
FCE #2	3.24 AC.	0.67 AC.	N/A	3.91 AC.
FCE #3	N/A	N/A	0.69 AC.	0.69 AC.
FCE #4	N/A	N/A	0.03 AC.	0.03 AC.
TOTAL	3.24 AC.	0.67 AC.	3.06 AC.	6.97 AC.



VICINITY MAP
SCALE: 1"=1,000'
ADC MAP: PAGE: 17 GRID: D4 & E4

OWNER/DEVELOPER
PFEFFERKORN ROVER MILL, LLC
C/O RAJ KATHURIA
12668 FREDERICK ROAD
WEST FRIENDSHIP, MD 21794
(443) 574-1600

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
FOREST CONSERVATION NOTES AND DETAILS

ROVER MILL ESTATES
LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'
PFEFFERKORN ROAD
WEST FRIENDSHIP, MD 21794
L 16746/F 155
16.42 AC

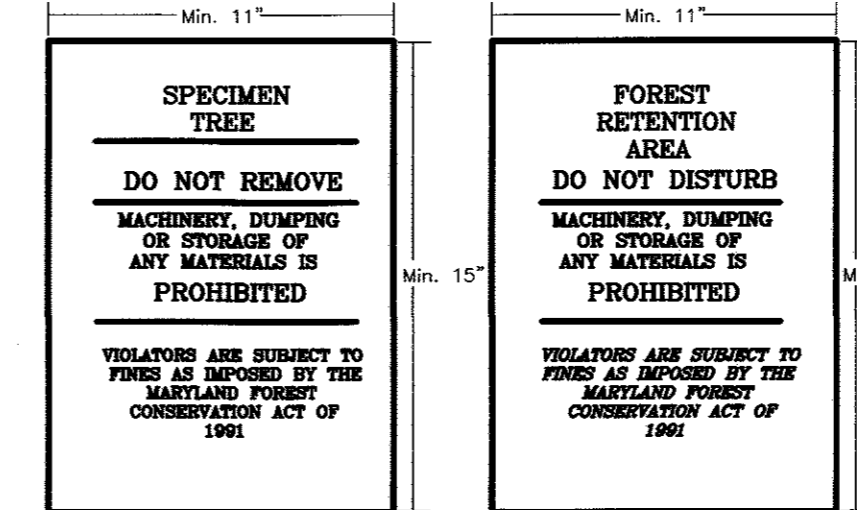
3RD ELECTION DISTRICT
TAX MAP: 15 GRID: 14

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELICOTT CITY, MD 21143
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: 09-27-2020

DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: NOVEMBER 2018
SCALE: AS SHOWN
W.O. NO.: 15-36

9 SHEET OF 11



- NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
 2. 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' +/-
 3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
 4. ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
 5. SIGN LOCATION SYMBOL = ●

FOREST CONSERVATION AREA SIGNS

NOT TO SCALE

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Valerie Ali
PLANNING DIRECTOR
1-11-19
DATE

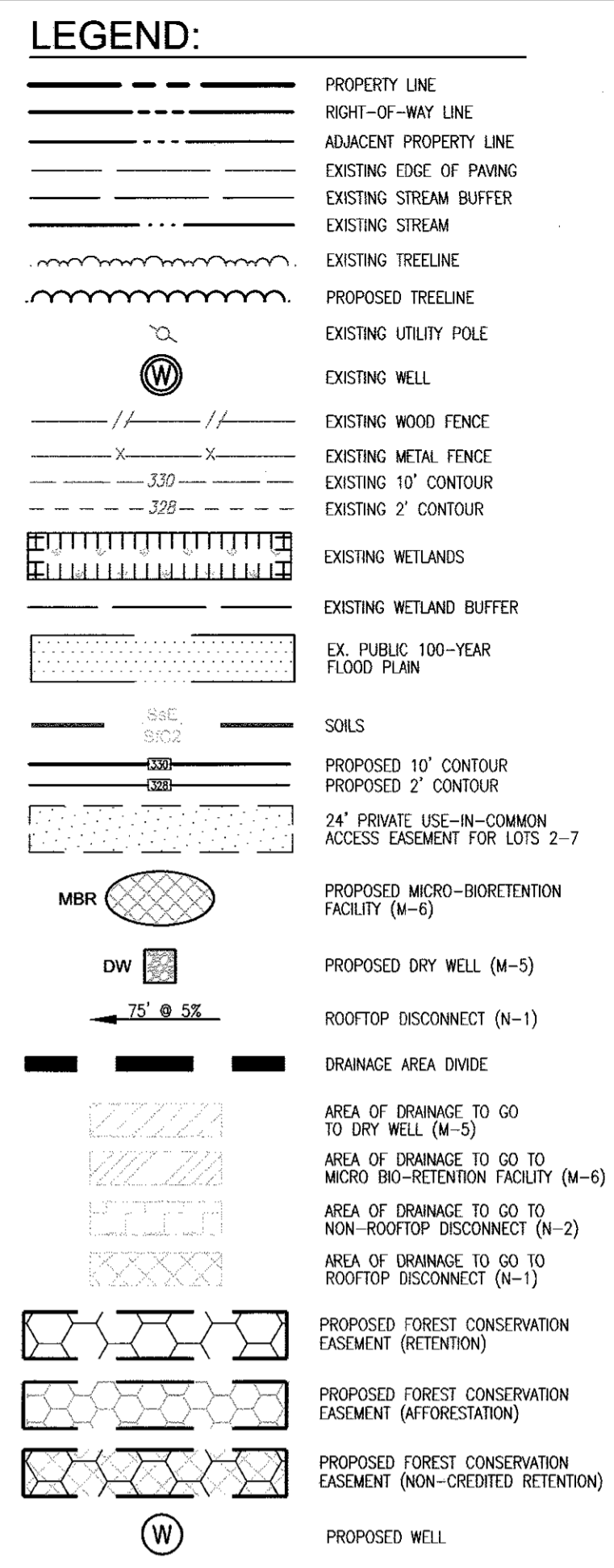
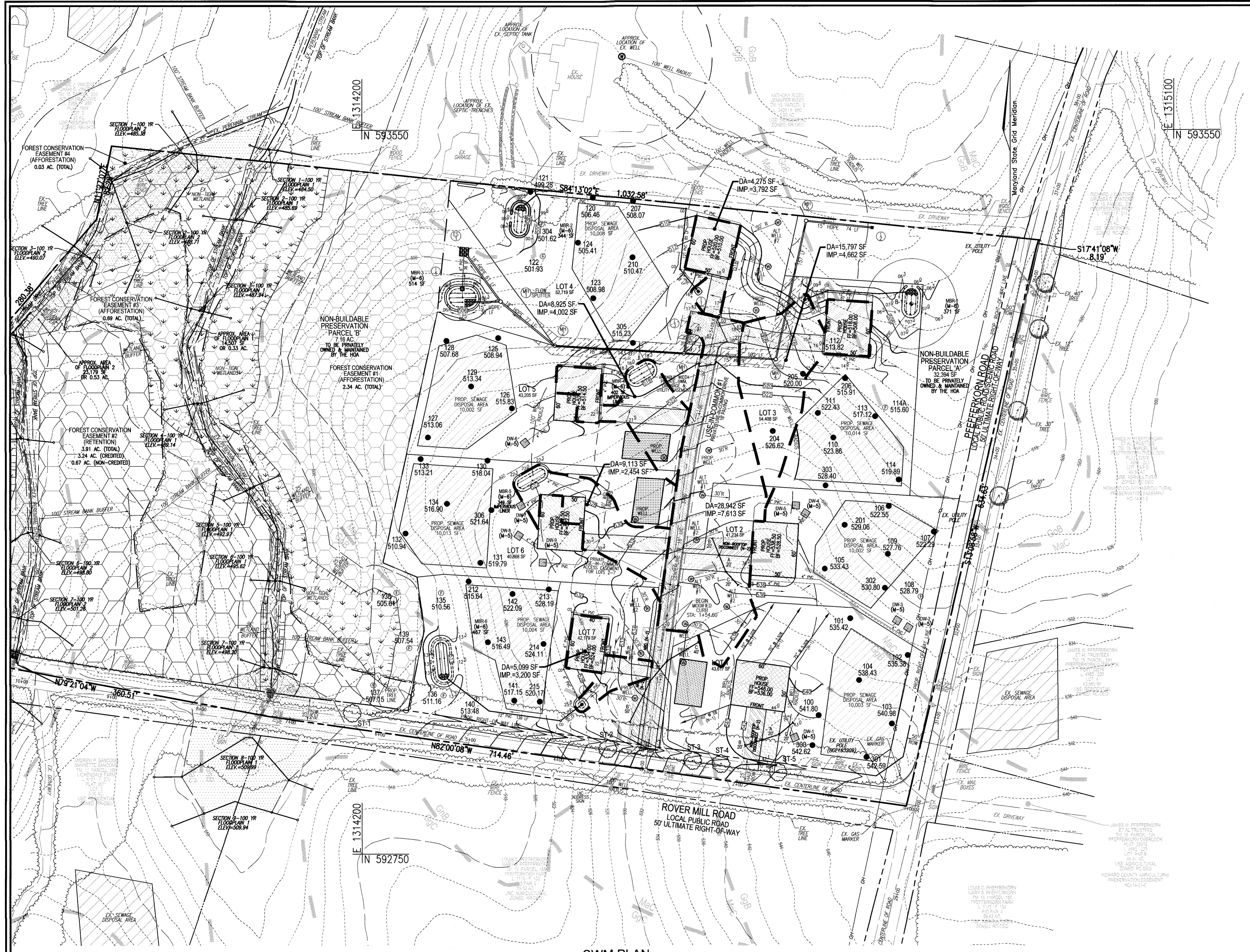
APPROVED:
PLANNING BOARD OF HOWARD COUNTY

November 8, 2018 - PB438
DATE

Eco-Science Professionals, Inc.
Consulting Ecologists
P.O. Box 5066 Old Annapolis, Maryland 21077
Telephone (410) 832-2468 Fax (410) 832-2468

MD DNR Qualified Professional
USACOE Wetland Deliberator
Certification # WDCT930MD061004482

John J. Cantles
John J. Cantles



SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
GpB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.28	NO
GpB	GLENELG-BALE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
GpB	GLENELG-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	.43	YES
MgC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	.28	NO

---SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 ---HOWARD COUNTY SOILS MAP NUMBER 11 --- SYKESVILLE SW

NOTE:
 HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL EROSION FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

OWNER/DEVELOPER
 PFEFFERKORN ROVER MILL, LLC
 C/O RAJ KATHURIA
 12668 FREDERICK ROAD
 WEST FRIENDSHIP, MD 21794
 (443) 574-1600

NO.	REVISION	DATE

PRELIMINARY EQUIVALENT SKETCH PLAN
ESDv - SWM PLAN AND DRAINAGE AREA MAP
ROVER MILL ESTATES
 LOTS 1-7 AND NON BUILDABLE PRESERVATION PARCELS 'A' & 'B'
 PFEFFERKORN ROAD
 WEST FRIENDSHIP, MD 21794

3RD ELECTION DISTRICT
 TAX MAP: 15 GRID: 14

PARCEL: 168
 ZONED: RR-BED
 L. 16745 / F. 155
 16.42 AC.
 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

STATE OF MARYLAND
 REGISTERED PROFESSIONAL ENGINEER

DESIGN BY: RHY
 DRAWN BY: JMR
 CHECKED BY: RHY
 DATE: NOVEMBER 2018
 SCALE: AS SHOWN
 W.O. NO.: 15-36

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10 OF 11

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

APPROVED:
 PLANNING BOARD OF HOWARD COUNTY

1-11-19
 DATE

November 9, 2018 - P6438
 DATE

SWM PLAN
 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
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE TESTED OR DAMAGED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.
THE PLANTING SOIL 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 (50%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (35%), 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 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 UNIFORM 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 SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.
COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLow, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGHOUT THE 12 INCH DEPTH. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING ROTOTILLING BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL 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 LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF 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 INNER 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 AGED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST 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" STRIKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STRIKES 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 PLUGS 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 DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

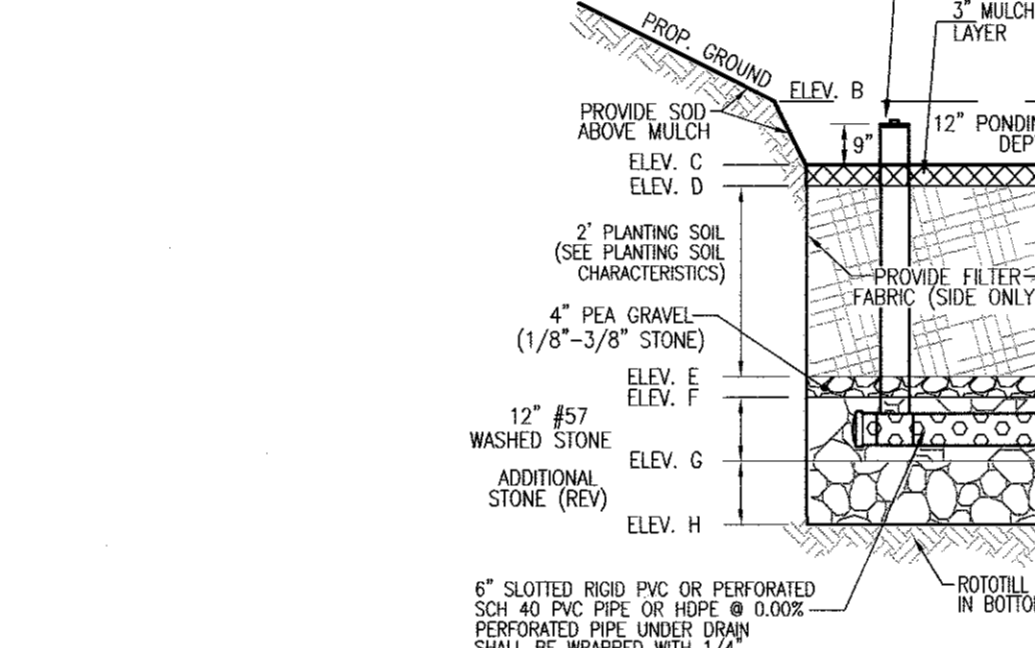
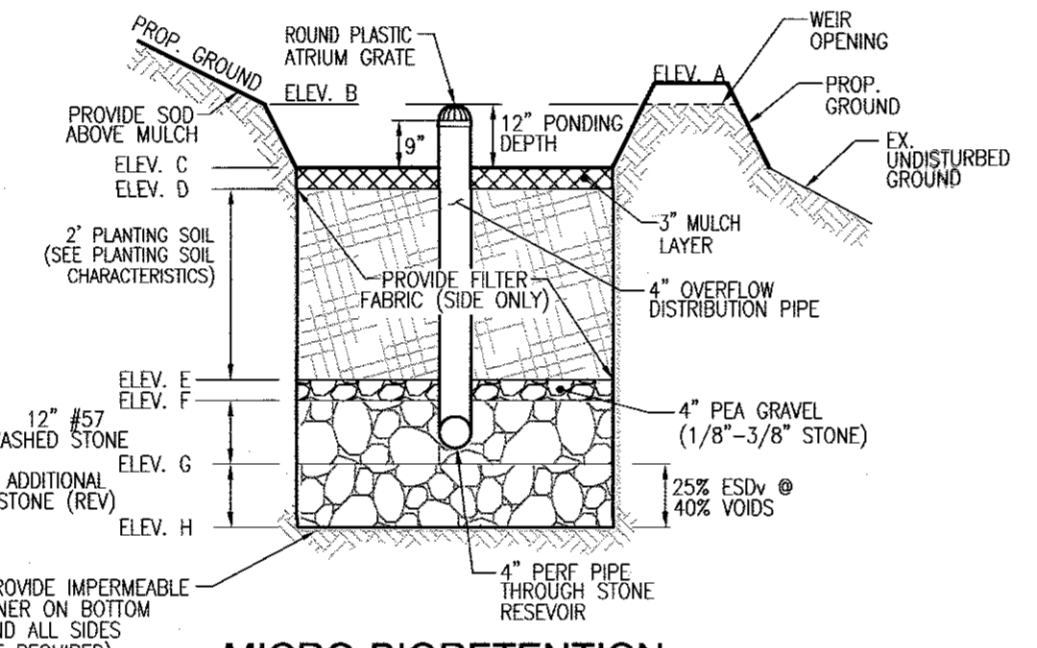
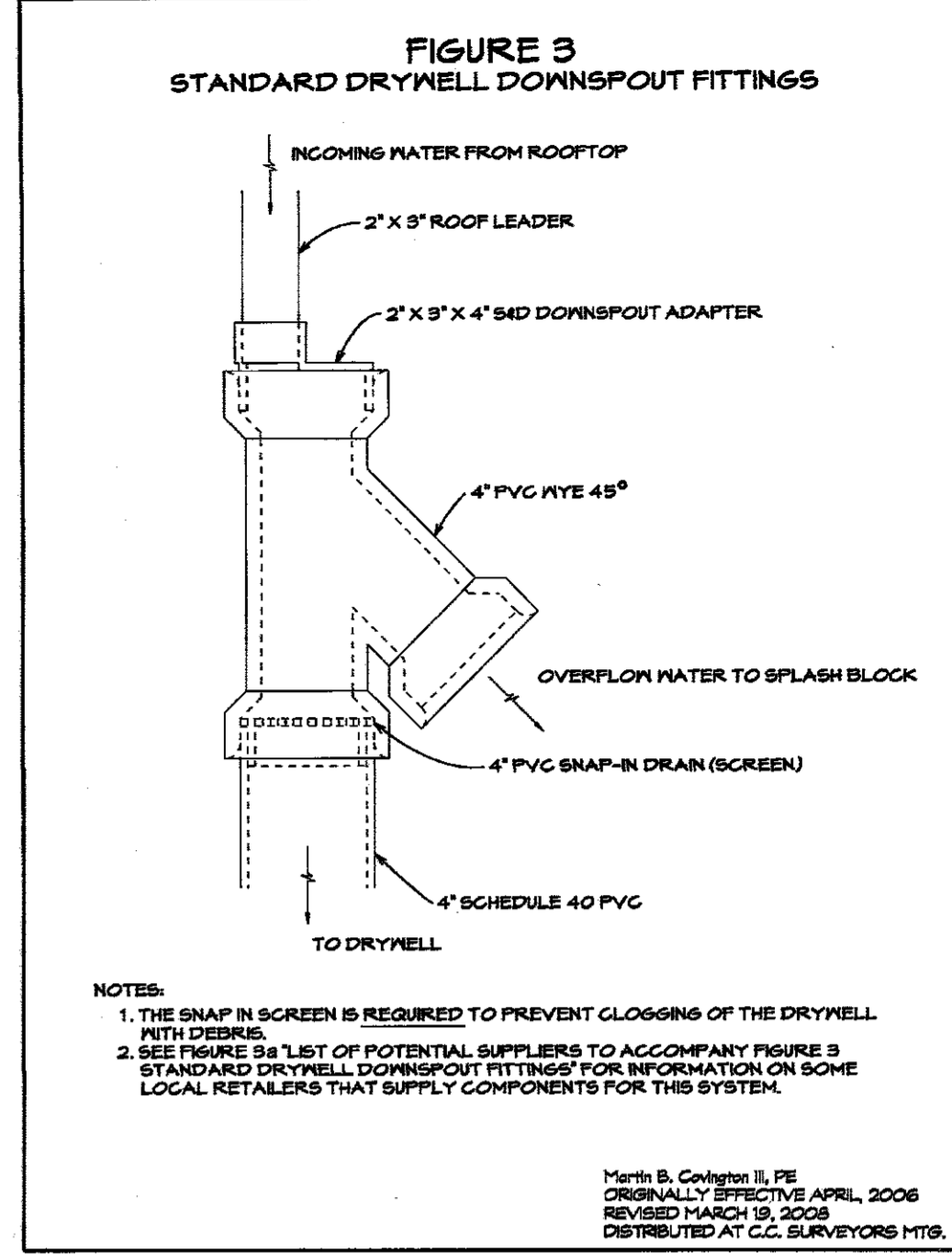
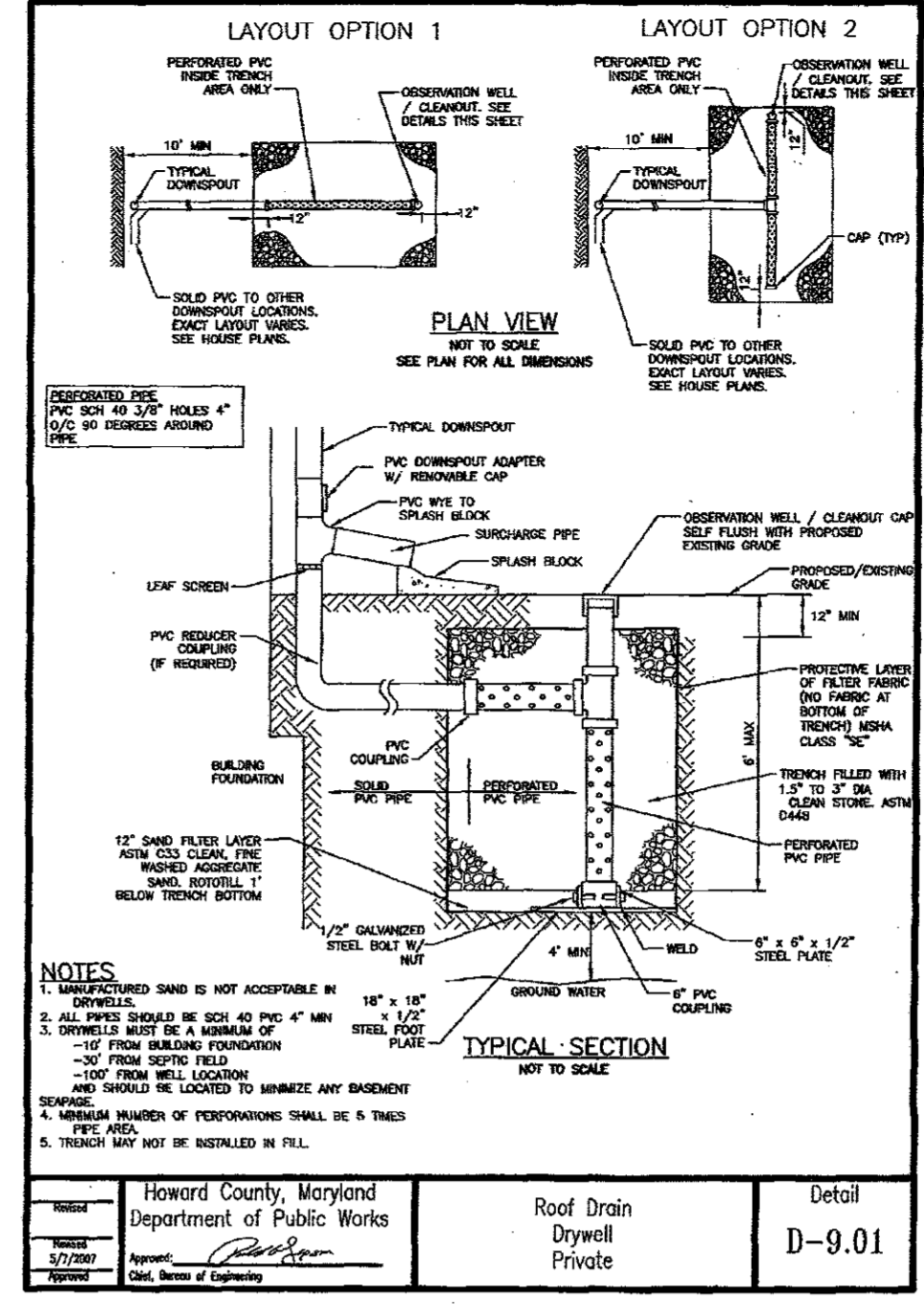
6. UNDERDRAINS
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
• PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F756, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER.
• THE PREFERRED MATERIAL IS SLOTTED, 1/2" HOLES PER INCH.
• PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/2" (NO. 4 OR 44) GALVANIZED HARDWARE CLOTH.
• GRAVEL - THE GRAVEL LAYER (5" STONE PREFERRED) SHALL BE AT LEAST 1" THICK ABOVE AND BELOW THE UNDERDRAIN.
• THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
• A 6" DIA. NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT 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 MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

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

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

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand (60 - 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)		
Mulch	shredded hardwood		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	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
Underdrain piping	F 756, 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 Mix 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 previously 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 350.8.9; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
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.



MICRO-BIORETENTION FACILITY ELEVATIONS (M-6)

LOT #	FACILITY	A	B	C	D	E	F	G	H	WELL ELEV.	FACILITY SIZE
LOT 3	MBR-1	506.30	506.00	505.00	504.75	502.75	502.42	501.42	500.59	508.00	371 SF
LOT 4	MBR-2	500.30	500.00	499.00	498.75	496.75	496.42	495.42	494.59	500.00	344 SF
LOT 5	MBR-4*	518.30	518.00	517.00	516.75	514.75	514.42	513.42	512.59	518.00	402 SF
LOT 6	MBR-5*	522.30	522.00	521.00	520.75	518.75	518.42	517.42	516.59	522.00	349 SF
LOT 7	MBR-6	513.30	513.00	512.00	511.75	509.75	509.42	508.42	507.59	513.00	467 SF

*PROVIDE IMPERMEABLE LINER WITH THIS FACILITY

Material	Specification	Thickness	Notes
geotextile fabric (if required)	ASTM-D-4833 (puncture strength - 125 lb.) ASTM-D-4632 (Tensile Strength - 300 lb.)	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to "separate" sand filter layers.
impermeable liner (if required)	ASTM-D-4833 (thickness) ASTM-D-412 (tensile strength 1,100 lb., elongation 200%) ASTM-D-624 (Tear resistance - 150 lb./in) ASTM-D-471 (water adsorption: +8 to -2% mass)	30 mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.

IMPERMEABLE LINER SPECIFICATIONS

HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

A. MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE OWNER SHALL ENSURE THE AREAS RECEIVING RUNOFF ARE PROTECTED FROM FUTURE COMPACTION OR DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

APPROVED:
PLANNING BOARD OF HOWARD COUNTY

PLANNING DIRECTOR: *N. Williams* DATE: 1-11-19
DATE: November 6, 2018 - P8438

OWNER/DEVELOPER
PEPPERKORN ROVER MILL, LLC
C/O RAJ KATHURIA
12668 FREDERICK ROAD
WEST FRIENDSHIP, MD 21794
(443) 574-1600

PRELIMINARY EQUIVALENT SKETCH PLAN
ESDV - SWM NOTES AND DETAILS
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STATE OF MARYLAND
ROBERT H. VOGEL
PROFESSIONAL ENGINEER