

**LEGEND:**

|  |  |
|--|--|
|  | EXISTING CONTOUR   |
|  | PROPOSED CONTOUR   |
|  | PROPERTY LINE  |
|  | PROPERTY LINE TO BE ABANDONED                              |
|  | TOP OF STREAM BANK   |
|  | BOTTOM OF STREAM BANK                                      |
|  | STREAM CENTERLINE  |
|  | EXISTING TREELINE  |
|  | PROPOSED TREELINE  |
|  | EXISTING EDGE OF PAVING                                    |
|  | EXISTING SPECIMEN TREE WITH CRITICAL ROOT ZONE             |
|  | EXISTING TREE  |
|  | EXISTING UTILITY   |
|  | EXISTING FENCE   |
|  | PROPERTY LINE TO BE ABANDONED                              |
|  | ADJACENT PROPERTY LINE                                     |
|  | PROPERTY LINE  |
|  | RIGHT-OF-WAY LINE  |
|  | 100 YEAR FLOODPLAIN  |
|  | EX. WETLANDS   |
|  | EX. 25' WETLAND BUFFER                                     |
|  | EX. 100' STREAM BUFFER                                     |
|  | PROPOSED LIGHT   |
|  | PROPOSED SIGN  |
|  | MICRO-BORETENTION  |
|  | DRY WELL   |
|  | PROPOSED SIDEWALK  |
|  | PROPOSED STORM DRAIN                                       |
|  | PROPOSED STORM DRAIN PASS THRU                             |
|  | 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT                  |
|  | 20' PUBLIC WATER, SEWER & UTILITY EASEMENT                 |
|  | PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT  |
|  | EXISTING OVERHEAD ELECTRIC LINES                           |
|  | PUBLIC FOREST CONSERVATION AFFORESTATION EASEMENT          |
|  | PUBLIC FOREST CONSERVATION CREDITED RETENTION EASEMENT     |
|  | PUBLIC FOREST CONSERVATION NON-CREDITED RETENTION EASEMENT |

**NOTE:**  
SEE SHEET 3 FOR  
DETAIL OF GERMAN  
ROAD EXTENSION DETAIL

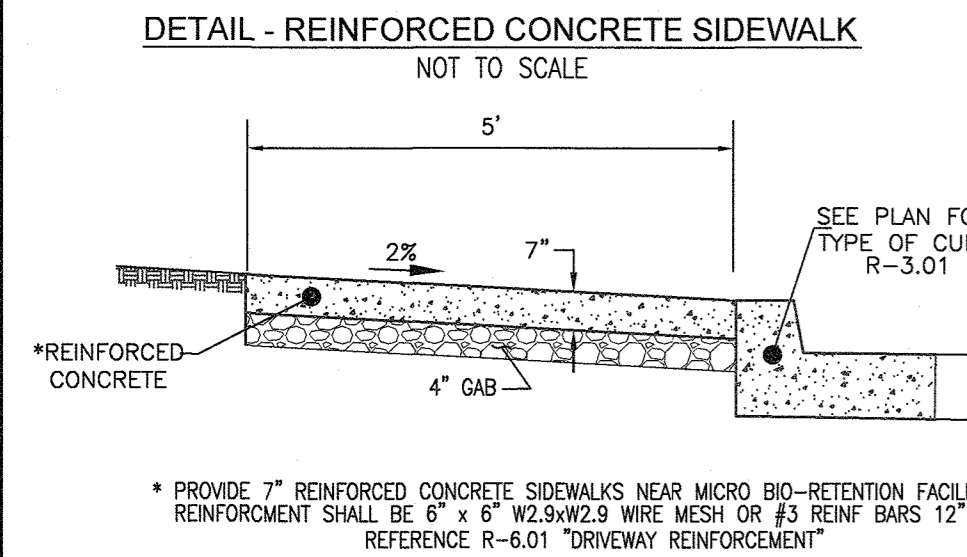
- NOTES:**
- IN THE DIRECTION FACING A TRAFFIC CONTROL SIGN:
    - THERE SHALL BE A MINIMUM OF 40' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL STOP SIGNS.
    - THERE SHALL BE A MINIMUM OF 35' BETWEEN THE SIGN FACE AND CLOSEST TREE FOR ALL SIGNS OTHER THAN A STOP SIGN.
    - A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
  - REFER TO SHEET 3 FOR GERMAN ROAD IMPROVEMENT DETAILS.

**OWNER**  
MARANATHA MAG MANOR LLC  
3675 PARK AVE., SUITE 301  
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

**USE-IN-COMMON DRIVEWAY NOTE:**

1. INDIVIDUAL HOUSE SITES SHALL PROVIDE PRIVATE DRIVEWAYS A MINIMUM 18 FOOT DEPTH FROM THE FACE OF GARAGE TO THE EDGE OF THE USE-IN-COMMON DRIVEWAY SO THAT A CAR, IF PARKED IN THE DRIVEWAY, WILL NOT OVERHANG INTO THE PAVED AREA OF THE SHARED DRIVEWAY. THE SHARED DRIVEWAY SHALL PROVIDE ADEQUATE UNOBSTRUCTED ACCESS TO ALL DWELLINGS AT ALL TIMES AS REQUIRED BY HOWARD COUNTY DEPARTMENT OF FIRE & RESCUE.



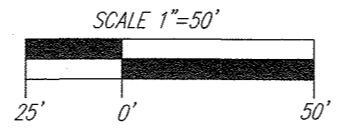
**TRAFFIC CONTROL SIGNAGE SCHEDULE**

| ROAD NAME              | STATION          | OFFSET  | TYPE                 |
|------------------------|------------------|---------|----------------------|
| GERMAN ROAD CUL-DE-SAC | 2+23.60          | 7.75 LT | PRIVATE ADDRESS SIGN |
| USE-IN-COMMON DRIVEWAY | SEE PLAN (LOT 6) |         | R7-1 NO PARKING SIGN |
| USE-IN-COMMON DRIVEWAY | SEE PLAN (LOT 7) |         | R7-1 NO PARKING SIGN |

**STREET LIGHT LOCATION**

| ROAD NAME              | LN. PROF. STATION | LN. PROF. OFFSET | FIXTURE/POLE TYPE   |
|------------------------|-------------------|------------------|---|
| GERMAN ROAD CUL-DE-SAC | 0+95.69           | 8.00' L          | LED-150 WATT COLONIAL POST TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE |
| GERMAN ROAD CUL-DE-SAC | 2+17.18           | 8.00' L          | LED-150 WATT COLONIAL POST TOP FIXTURE MOUNTED ON A 14" BLACK FIBERGLASS POLE |

**PRELIMINARY SITE LAYOUT**



**CENTERLINE CURVE TABLE**

| ROAD        | STATIONS           | LENGTH | RADIUS  | DELTA ANGLE | TANGENT | CHORD DIRECTION | CHORD LENGTH |
|-------------|--------------------|--------|---------|-------------|---------|-----------------|--------------|
| GERMAN ROAD | 9+24.83 + 10+12.51 | 87.68' | 110.50' | 45°27'53"   | 46.29'  | N73°35'59"E     | 85.40'       |

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

PLANNING DIRECTOR: [Signature]  
DATE: 12-19-19

| NO. | REVISION | DATE |
|-----|----------|------|
|     |          |      |

**PRELIMINARY PLAN**

**PRELIMINARY SITE LAYOUT**

**RIVER BIRCH MANOR**

LOTS 17 AND OPEN SPACE LOT 8  
A SUBDIVISION OF TAX MAP 17 - PARCEL 385

L. 18205 / F. 247  
TAX MAP: 17 GRID: 20  
2ND ELECTION DISTRICT

10039 GERMAN ROAD  
ELlicott CITY, MD 21042

ZONED: R-20  
PARCEL: 0385  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**

**TIMMONS GROUP**

3300 NORTH RIDGE ROAD, SUITE 110, ELlicott CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

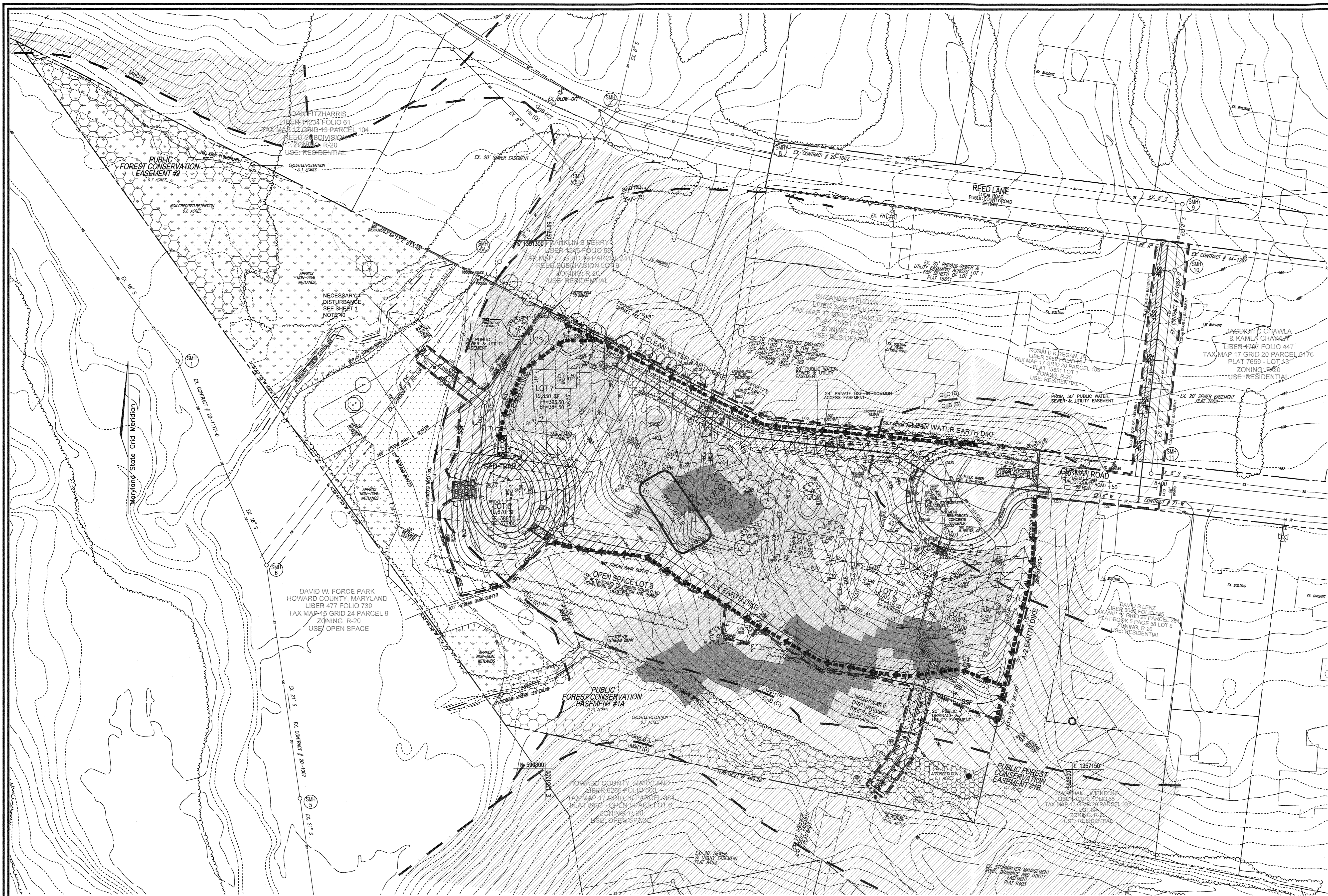
DESIGN BY: RHV  
DRAWN BY: LAG/VTC  
CHECKED BY: RHV  
DATE: DECEMBER 2019  
SCALE: AS SHOWN  
W.O. NO.: 41656

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

ROBERT H. VOGEL, PE No. 16193

2 SHEET OF 9





**LEGEND:**

|  |   |
|--|---|
|  | EXISTING CONTOUR  |
|  | PROPOSED CONTOUR  |
|  | EXISTING SPOT ELEVATION                                   |
|  | PROPOSED SPOT ELEVATION                                   |
|  | EXISTING PAVING   |
|  | EXISTING UTILITY  |
|  | EXISTING SANITARY MANHOLE                                 |
|  | EXISTING SANITARY LINE                                    |
|  | EXISTING WATER LINE                                       |
|  | PROPOSED STORM DRAIN                                      |
|  | EXISTING TREE   |
|  | EXISTING SPECIMEN TREES                                   |
|  | EXISTING TREELINE   |
|  | EXISTING FENCE  |
|  | PROPERTY LINE TO BE ABANDONED                             |
|  | ADJACENT PROPERTY LINE                                    |
|  | PROPERTY LINE   |
|  | RIGHT-OF-WAY LINE   |
|  | SOILS BOUNDARY  |
|  | M1B2  |
|  | M1D3  |
|  | MICRO-IRRIGATION (4-4)                                    |
|  | 20' PUBLIC WATER AND UTILITY EASEMENT                     |
|  | EXISTING WETLAND  |
|  | EXISTING WETLAND BUFFER                                   |
|  | EXISTING STREAM   |
|  | EXISTING STREAM BUFFER                                    |
|  | MODERATE SLOPES (15% - 24.9%)                             |
|  | MICRO/MESO STEEP SLOPES (25% SLOPES OR GREATER)           |
|  | HIGHLY ERODIBLE SOILS                                     |
|  | 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT                 |
|  | PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT |
|  | 100 YEAR FLOOD PLAIN                                      |
|  | LIMIT OF DISTURBANCE                                      |
|  | STABILIZED CONSTRUCTION ENTRANCE                          |
|  | SUPER SILT FENCE  |
|  | CLEAR WATER DIVERSION / EARTHDIKE                         |
|  | TREE PROTECTION FENCE                                     |

**HSCD NOTES:**

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

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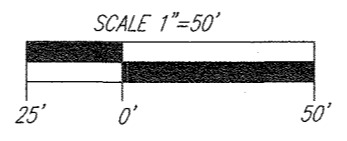
**DEVELOPER**  
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 ELLICOTT CITY, MD 21043  
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| NO. | REVISION | DATE |
|-----|----------|------|
|     |          |      |
|     |          |      |

**PRELIMINARY GRADING, SOIL EROSION & SEDIMENT CONTROL PLAN & SOILS MAP**

**SOILS LEGEND**  
 HOWARD COUNTY SOILS MAP #13

| SYMBOL | NAME / DESCRIPTION                                | GROUP | K FACTOR | ERODIBLE | ACREAGE |
|--------|---|-------|----------|----------|---------|
| GnB    | GLENVILLE-DALE SILT LOAMS, 0 TO 8 PERCENT SLOPES  | C     | 0.49     | YES      | 0.88    |
| McD    | MANOR LOAM, 15 TO 25 PERCENT SLOPES               | B     | 0.32     | YES      | 0.02    |
| Ha     | HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES | D     | 0.43     | NO       | 2.48    |
| GgC    | GLENELG LOAM, 8 TO 15 PERCENT SLOPES              | B     | 0.43     | YES      | 3.71    |
| GgB    | GLENELG LOAM, 3 TO 8 PERCENT SLOPES               | B     | 0.37     | YES      | 0.46    |



- SOILS NOTES:**
1. TAKEN FROM USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
  2. 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.
  3. GnB AND Ha SOILS MAY CONTAIN HYDRIC COMPONENTS.
  4. K FACTORS OBTAINED FROM THE HOWARD SOIL CONSERVATION DISTRICT WEBSITE <https://www.howardscd.org/documents> - DOCUMENT TITLED "K FACTORS (USE KW)

TENTATIVELY APPROVED  
 DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY

*[Signature]*  
 PLANNING DIRECTOR

12-17-19  
 DATE

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

**PRELIMINARY PLAN**  
 PRELIMINARY GRADING, SOIL EROSION & SEDIMENT CONTROL PLAN AND SOILS MAP  
**RIVER BIRCH MANOR**  
 LOTS 1-7 AND OPEN SPACE LOT 8  
 A SUBDIVISION OF TAX MAP 17 - PARCEL 385

L 18205 / F 247  
 TAX MAP: 17 GRID: 20  
 2ND ELECTION DISTRICT

10039 GERMAN ROAD  
 ELLICOTT CITY, MD 21042

ZONED: R-20  
 PARCEL: 0385  
 HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
  
**TIMMONS GROUP**  
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: RHV  
 DRAWN BY: LAG/VTC  
 CHECKED BY: RHV  
 DATE: DECEMBER 2019  
 SCALE: AS SHOWN  
 W.O. NO.: 41656

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: 08-27-2020

4 SHEET OF 9



**LEGEND:**

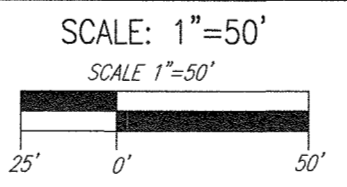
|         |   |
|---------|---|
| ---     | EXISTING CONTOUR  |
| - - - - | PROPOSED CONTOUR  |
| +       | EXISTING SPOT ELEVATION                                   |
| +       | PROPOSED SPOT ELEVATION                                   |
| ---     | EXISTING FINING   |
| ---     | EXISTING UTILITY  |
| ---     | EXISTING SANITARY MANHOLE                                 |
| ---     | EXISTING SANITARY LINE                                    |
| ---     | EXISTING WATER LINE                                       |
| ---     | PROPOSED STORM DRAIN                                      |
| ○       | EXISTING TREE   |
| ○       | EXISTING SPECIMEN TREES                                   |
| ---     | EXISTING TREELINE   |
| ---     | EXISTING FENCE  |
| ---     | PROPERTY LINE TO BE ABANDONED                             |
| ---     | ADJACENT PROPERTY LINE                                    |
| ---     | PROPERTY LINE   |
| ---     | RIGHT-OF-WAY LINE   |
| ---     | SOILS BOUNDARY  |
| ---     | M1B2  |
| ---     | M1B3  |
| ---     | MICRO-BIODEGRATION (M-4)                                  |
| ---     | 20' PUBLIC WATER AND UTILITY EASEMENT                     |
| ---     | PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT |
| ---     | EXISTING WETLAND  |
| ---     | EXISTING WETLAND BUFFER                                   |
| ---     | EXISTING STREAM   |
| ---     | EXISTING STREAM BUFFER                                    |
| ---     | DRAINAGE AREA   |
| ---     | 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT                 |
| ---     | AREA  |
| ---     | INLET   |
| ---     | ZONE  |
| ---     | % IMP   |

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**DEVELOPER**  
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 ELLICOTT CITY, MD 21043  
 (410) 480-0023

| NO. | REVISION | DATE |
|-----|----------|------|
|     |          |      |
|     |          |      |
|     |          |      |

**PRELIMINARY STORM DRAIN DRAINAGE AREA MAP**



**SOILS LEGEND**  
 HOWARD COUNTY SOILS MAP #13

| SYMBOL | NAME / DESCRIPTION                                | GROUP | K FACTOR | ERODIBLE | ACREAGE |
|--------|---|-------|----------|----------|---------|
| GhB    | GLENVILLE-SALE SILT LOAMS, 0 TO 8 PERCENT SLOPES  | C     | 0.49     | YES      | 0.88    |
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| Ho     | HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES | D     | 0.43     | NO       | 2.48    |
| GgC    | GLENELG LOAM, 8 TO 15 PERCENT SLOPES              | B     | 0.43     | YES      | 3.71    |
| GgB    | GLENELG LOAM, 3 TO 8 PERCENT SLOPES               | B     | 0.37     | YES      | 0.46    |

**SOILS NOTES:**

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TENTATIVELY APPROVED  
 DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY

*[Signature]*  
 PLANNING DIRECTOR

12-19-19  
 DATE

PRELIMINARY PLAN  
 PRELIMINARY STORM DRAIN DRAINAGE AREA MAP  
**RIVER BIRCH MANOR**  
 LOTS 1-7 AND OPEN SPACE LOT 8  
 A SUBDIVISION OF TAX MAP 17 - PARCEL 585

L 18205 / F 247  
 TAX MAP: 17 GRID: 20  
 2ND ELECTION DISTRICT

10039 GERMAN ROAD  
 ELLICOTT CITY, MD 21042

ZONED: R-20  
 PARCEL: 0385  
 HOWARD COUNTY, MARYLAND

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 +  
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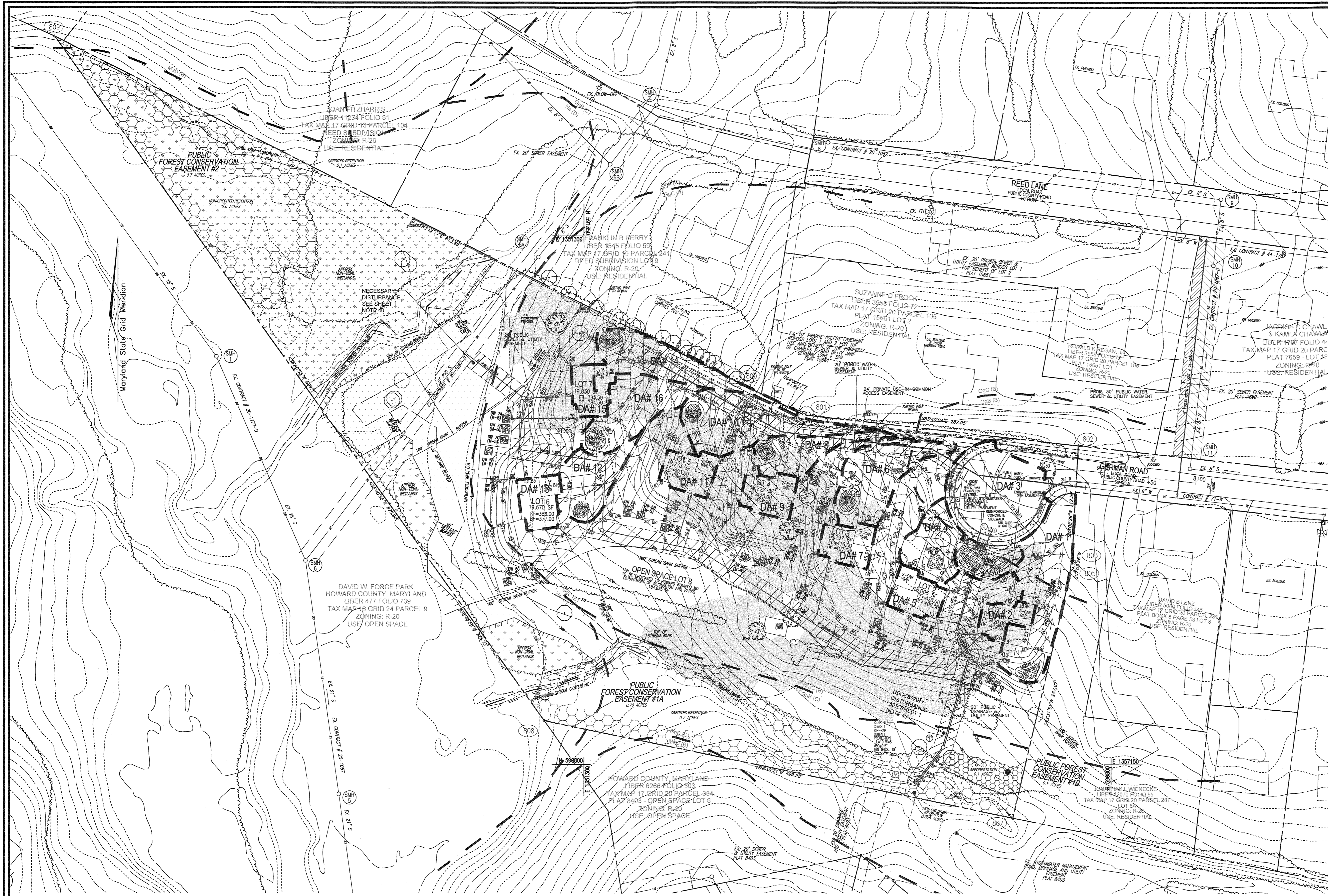
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5 SHEET OF 9

ROBERT H. VOGEL, PE No. 16193



**LEGEND:**

|     |   |
|-----|---|
| --- | EXISTING CONTOUR  |
| --- | PROPOSED CONTOUR  |
| +   | EXISTING SPOT ELEVATION                                   |
| +   | PROPOSED SPOT ELEVATION                                   |
| --- | EXISTING PAVING   |
| --- | EXISTING UTILITY  |
| --- | EXISTING SANITARY MANHOLE                                 |
| --- | EXISTING SANITARY LINE                                    |
| --- | EXISTING WATER LINE                                       |
| --- | PROPOSED STORM DRAIN                                      |
| --- | EXISTING TREE   |
| --- | EXISTING SPECIMEN TREES                                   |
| --- | EXISTING TREELINE   |
| --- | EXISTING FENCE  |
| --- | PROPERTY LINE TO BE ABANDONED                             |
| --- | ADJACENT PROPERTY LINE                                    |
| --- | PROPERTY LINE   |
| --- | RIGHT-OF-WAY LINE   |
| --- | SOILS BOUNDARY  |
| --- | M1B2  |
| --- | M1D3  |
| --- | MICRO-BORSTENTION (M-6)                                   |
| --- | 20' PUBLIC WATER AND UTILITY EASEMENT                     |
| --- | PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT |
| --- | EXISTING WETLAND  |
| --- | EXISTING WETLAND BUFFER                                   |
| --- | EXISTING STREAM   |
| --- | EXISTING STREAM BUFFER                                    |
| --- | MODERATE SLOPES (3% - 24.9%)                              |
| --- | 24' PRIVATE USE-IN-COMMON ACCESS EASEMENT                 |
| --- | DA# 2   |
| --- | DRAINAGE AREA DESCRIPTION                                 |
| --- | DRAINAGE AREA DIVIDE                                      |

**OWNER**  
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|     |          |      |
|     |          |      |
|     |          |      |

**PRELIMINARY PLAN**  
**PRELIMINARY STORMWATER MANAGEMENT DRAINAGE AREA MAP**  
**RIVER BIRCH MANOR**  
 LOTS 17 AND OPEN SPACE LOT 8  
 A SUBDIVISION OF TAX MAP 17 - PARCEL 385

L 18205 / F 247  
 TAX MAP: 17 GRID: 20  
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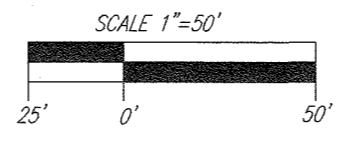
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6 SHEET OF 9

**PRELIMINARY STORMWATER MANAGEMENT DRAINAGE AREA MAP**



**SOILS LEGEND**  
 HOWARD COUNTY SOILS MAP #13

| SYMBOL | NAME / DESCRIPTION                                 | GROUP | K FACTOR | ERODIBLE | ACREAGE |
|--------|--|-------|----------|----------|---------|
| GnB    | GLENNVILLE-BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES | C     | 0.49     | YES      | 0.88    |
| MgD    | MANOR LOAM, 15 TO 25 PERCENT SLOPES                | B     | 0.32     | YES      | 0.02    |
| Hs     | HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES  | D     | 0.43     | NO       | 2.48    |
| GgC    | GLENELG LOAM, 8 TO 15 PERCENT SLOPES               | B     | 0.43     | YES      | 3.71    |
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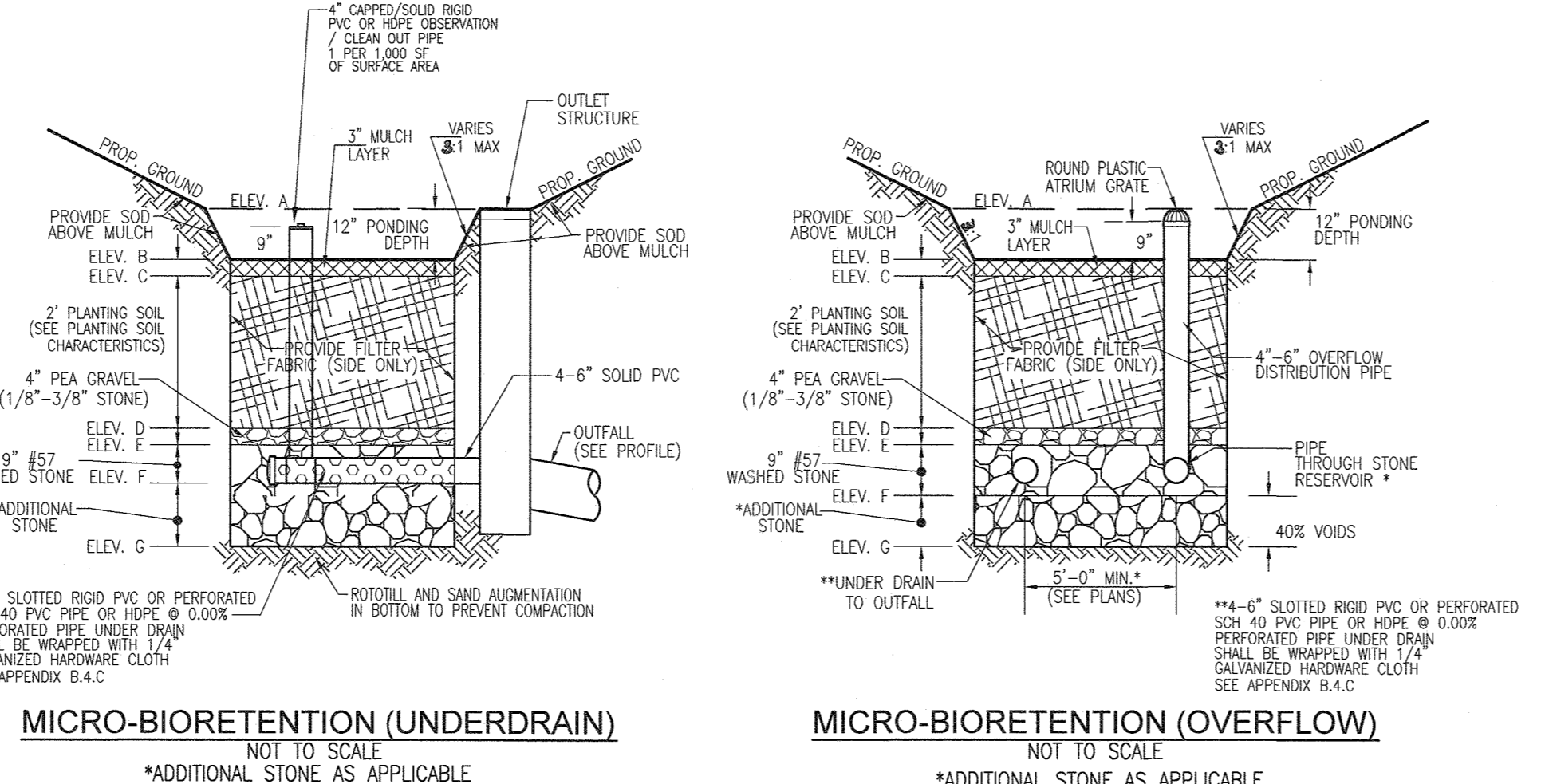
TENTATIVELY APPROVED  
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 HOWARD COUNTY

*[Signature]*  
 PLANNING DIRECTOR

12-19-19  
 DATE

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

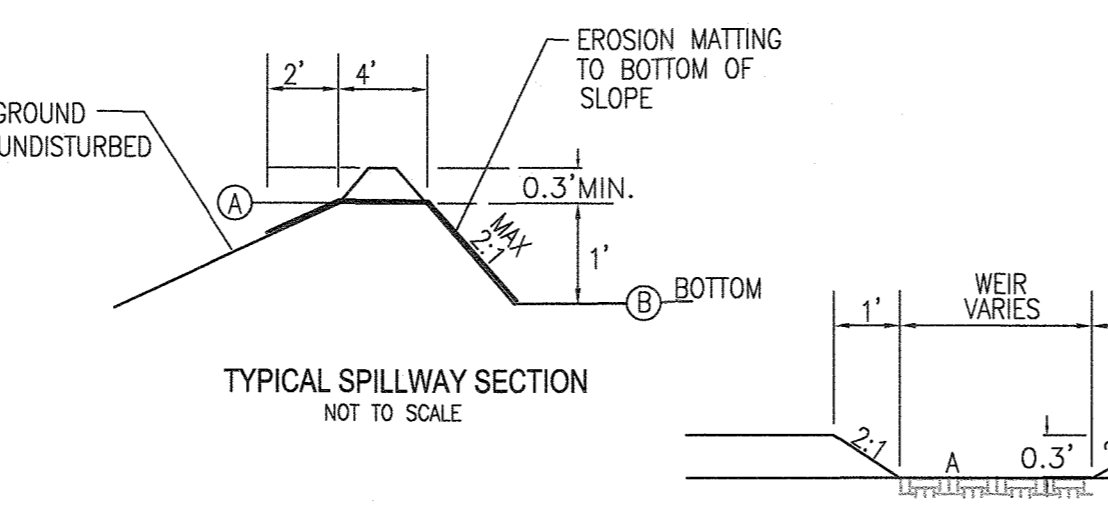
- MATERIAL SPECIFICATIONS**  
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
- FILTERING MEDIA OR PLANTING SOIL**  
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE A HINDERANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 10.08.01.02.  
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 (35% TO 40%) OR SANDY LOAM (50%, COARSE SAND (20%), 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 STOCKPILE TOPSOIL. IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.
- 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 SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.  
COMPACTION CAN BE ALLEVATED 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 RESTRUCTURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.  
ROTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDING WATER BEFORE PREPARING (ROTILLING) BASE.  
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL UNDER 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 LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- PLANT MATERIAL**  
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.
- 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 ACED (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 1/8TH 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 BRANDED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.  
GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLOTS SHALL BE PLANTED FOLLOWING THE NON-CRASS 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, DEFOLIANTS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- UNDERDRAINS**  
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:  
\* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F 756, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PERFORATED MATERIAL IS SLOTTED. 4" RIGID PVC (E.G., PVC OF RIGID 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" GALVANIZED HARDWARE CLOTH. GALVANIZED HARDWARE CLOTH SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH. 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 RIGID 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" STONES) 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).
- MISCELLANEOUS**  
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.



**MICRO-BIORETENTION (UNDERDRAIN)** NOT TO SCALE  
\*ADDITIONAL STONE AS APPLICABLE

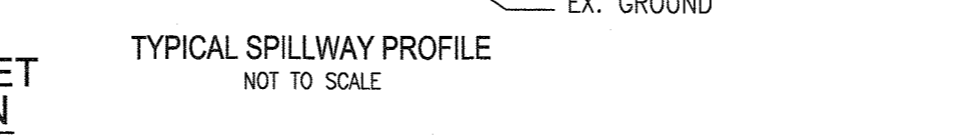
**MICRO-BIORETENTION (OVERFLOW)** NOT TO SCALE  
\*ADDITIONAL STONE AS APPLICABLE

- MICROBIORETENTION NOTES:**
- ONLY THE SIDES OF MICRO BIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO BIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
  - WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH. SEE APPENDIX B.4.C.6.
  - PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)



**TYPICAL SPILLWAY SECTION** NOT TO SCALE

**DETAILS OF WEIR OUTLET MICRO-BIORETENTION** NOT TO SCALE



**TYPICAL SPILLWAY PROFILE** NOT TO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR LANDSCAPE INFILTRATION (M-3), MICRO-BIORETENTION (M-6), RAIN GARDENS (M-7), BIORETENTION SWALE (M-8), AND ENHANCED FILTERS (M-9)**

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. 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 PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A.4.1 AND 2.
- THE OWNER SHALL PERFORM A PLANT IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD AND DISEASED PLANTS BEYOND TREATMENT. REPLACE DEAD PLANT MATERIAL WITH ACCEPTABLE REPLACEMENT PLANT MATERIAL. TREAT DISEASED TREES AND SHRUBS, AND REPLACE ALL DEFICIENT STAKES AND WIRES.
- THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.
- THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.

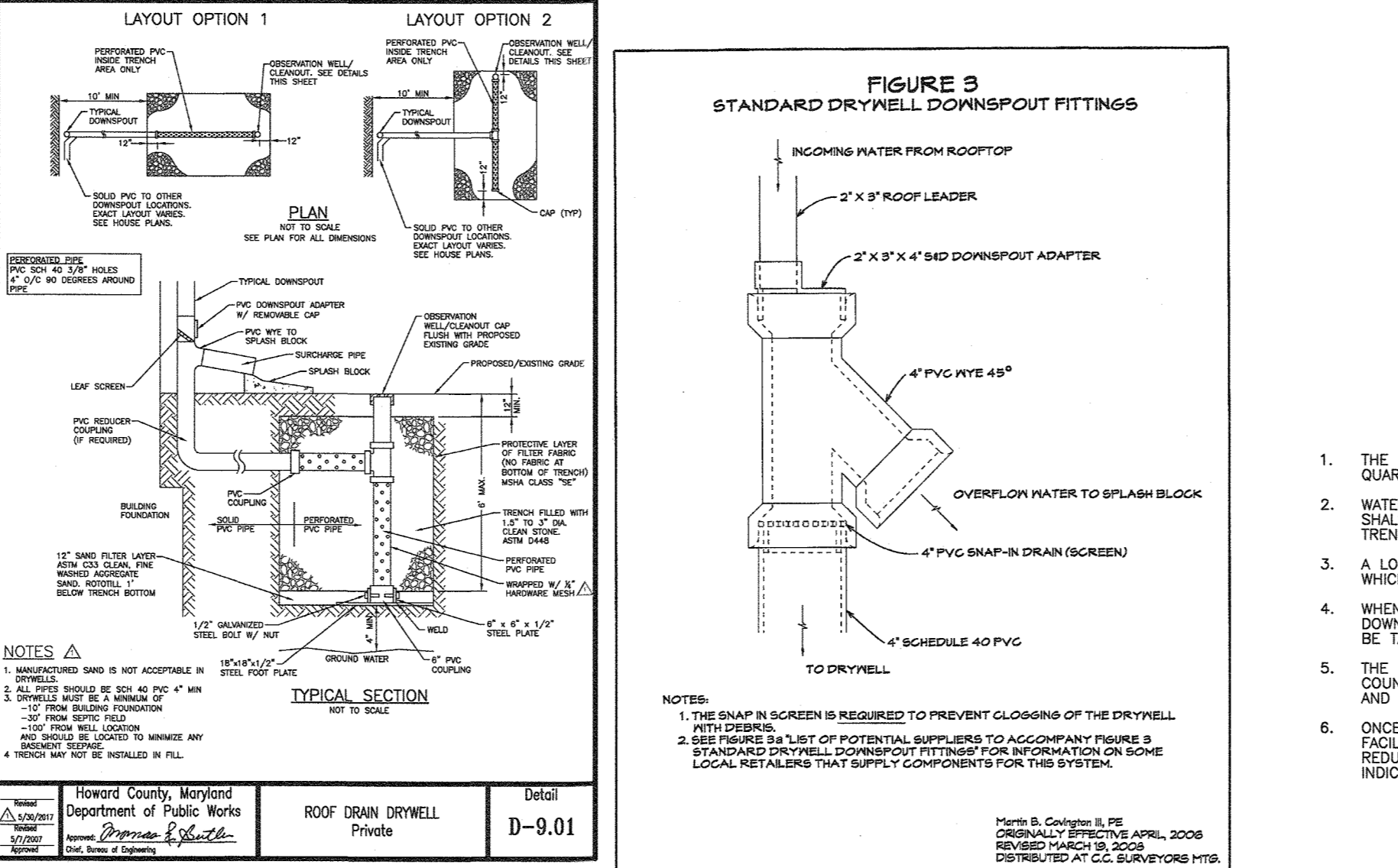
**Appendix B.4. Construction Specifications for Environmental Site Design Practices**

| 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)  | 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 underneath 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 requires 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 350.8/89; 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 carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.   |

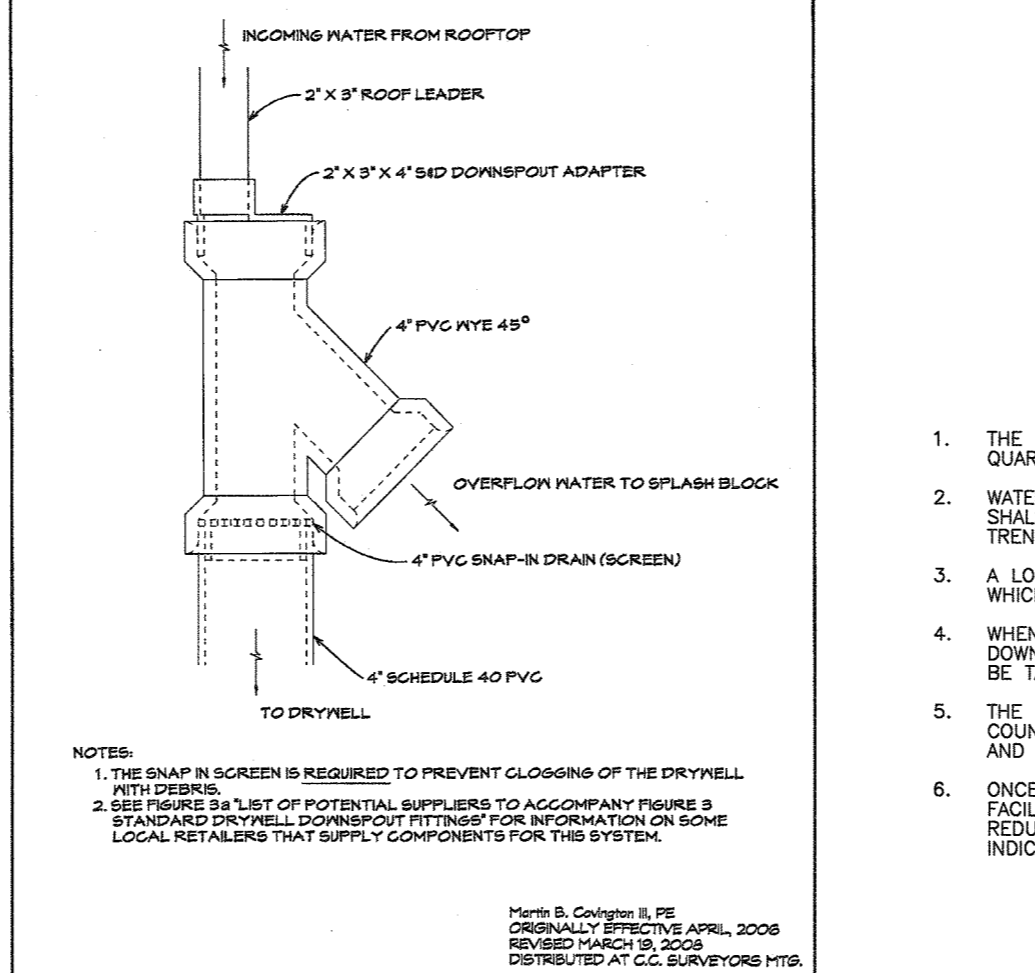
**SMALL MICRO BIORETENTION (UNDERDRAIN)** NOT TO SCALE  
\*ADDITIONAL STONE AS APPLICABLE

**SMALL MICRO BIORETENTION (OVERFLOW)** NOT TO SCALE

- MICRO BIORETENTION NOTES:**
- ONLY THE SIDES OF MICRO BIORETENTION ARE TO BE WRAPPED IN FILTER FABRIC. FILTER FABRIC BETWEEN LAYER OR AT THE BOTTOM OF THE MICRO BIORETENTION WILL CAUSE THE MBR TO FAIL, AND THEREFORE SHALL NOT BE INSTALLED.
  - WRAP THE PERFORATED MBR UNDERDRAIN PIPE WITH 1/4" MESH (4x4) OR SMALLER GALVANIZED HARDWARE CLOTH. SEE APPENDIX B.4.C.6.
  - PROVIDE 5" MINIMUM SPACING BETWEEN UNDER DRAIN AND PERFORATED PIPE THROUGH STONE RESERVOIR OR SPACE PIPE EQUALLY ACROSS BOTTOM FOR SMALL BIOS. (SEE PLANS)



**FIGURE 3 STANDARD DRYWELL DOWNSPOUT FITTINGS**



**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER DRY WELLS (M-5)**

- THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
- WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE MONITORING DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

**RIVER BIRCH MANOR - PRELIMINARY ESDv COMPUTATIONS**

| DA #                                     | % IMPERV    | Rv            | DA (SF)      | DA (AC)     | MINIMUM VOLUME | MAXIMUM VOLUME | VOLUME PROVIDED* | IMPERV (AC)    | IMPERV AREA | GREEN AREA  | REMARKS |  |
|--|-------------|---------------|--------------|-------------|----------------|----------------|------------------|----------------|-------------|-------------|---------|--|
| SITE DEVELOPABLE AREA: 3.45 AC 150466 SF |             |               |              |             |                |                |                  |                |             |             |         |  |
| TARGET Pe: 1.60 IN                       |             |               |              |             |                |                |                  |                |             |             |         |  |
| SITE IMPERVIOUS: 26.223865 PERCENT       |             |               |              |             |                |                |                  |                |             |             |         |  |
| SITE Rv: 0.2860                          |             |               |              |             |                |                |                  |                |             |             |         |  |
| SITE ESDv: 5.738 CF +/-                  |             |               |              |             |                |                |                  |                |             |             |         |  |
| Rv=0.05+0.009Ri                          |             |               |              |             |                |                |                  |                |             |             |         |  |
| Vmin=1.0' rainfall (1.0x0.95x4)/12       |             |               |              |             |                |                |                  |                |             |             |         |  |
| Vmax=1yr rainfall=2.6' (2.6x0.95x4)/12   |             |               |              |             |                |                |                  |                |             |             |         |  |
| LOT 1 D&M 1 DRIVEWAY & 1/4 HOUSE         | 18.22       | 0.2140        | 8337         | 0.19        | 149            | 387            | 239              | 253            | 1519.3      | 0.03        | 0.16    | MICROSCALE MICRO-BIO RETENTION (M-6) 253 190 SF MULCH AREA           |
| LOT 1 D&M 2 HOUSE                        | 100.00      | 0.9500        | 1637         | 0.04        | 130            | 337            | 154              | 230            | 1637        | 0.04        | 0.00    | Drywell: 3 @ 8"Vn8" Lx3"D 230 76.8 CF EA                             |
| DA #3 ROW                                | 72.01       | 0.6981        | 10992        | 0.25        | 639            | 1663           | 1029             | 1244           | 7915        | 0.18        | 0.07    | MICROSCALE MICRO-BIO RETENTION (M-6) 1244 933 SF MULCH AREA          |
| LOT 2 D&M 4 DRIVEWAY                     | 38.71       | 0.3984        | 3325         | 0.08        | 110            | 287            | 178              | 227            | 1287        | 0.03        | 0.05    | MICROSCALE MICRO-BIO RETENTION (M-6) 227 170 SF MULCH AREA           |
| LOT 2 D&M 5 HOUSE                        | 100.00      | 0.9500        | 2150         | 0.05        | 170            | 443            | 203              | 307            | 2150        | 0.05        | 0.00    | Drywell: 4 @ 8"Vn8" Lx3"D 307 76.8 CF EA                             |
| LOT 3 D&M 6 DRIVEWAY                     | 36.66       | 0.3800        | 5673         | 0.13        | 180            | 467            | 289              | 436            | 2080        | 0.05        | 0.08    | MICROSCALE MICRO-BIO RETENTION (M-6) 436 327 SF MULCH AREA           |
| LOT 3 D&M 7 HOUSE                        | 100.00      | 0.9500        | 2150         | 0.05        | 170            | 443            | 203              | 307            | 2150        | 0.05        | 0.00    | Drywell: 4 @ 8"Vn8" Lx3"D 307 76.8 CF EA                             |
| LOT 4 D&M 8 DRIVEWAY                     | 40.08       | 0.4107        | 3373         | 0.08        | 115            | 300            | 186              | 300            | 1352        | 0.03        | 0.05    | MICROSCALE MICRO-BIO RETENTION (M-6) 361 271 SF MULCH AREA           |
| LOT 4 D&M 9 HOUSE                        | 100.00      | 0.9500        | 2150         | 0.05        | 170            | 443            | 203              | 307            | 2150        | 0.05        | 0.00    | Drywell: 4 @ 8"Vn8" Lx3"D 307 76.8 CF EA                             |
| LOT 5 D&M 10 DRIVEWAY                    | 37.58       | 0.3882        | 6841         | 0.16        | 221            | 575            | 356              | 280            | 2571        | 0.06        | 0.10    | MICROSCALE MICRO-BIO RETENTION (M-6) 280 210 SF MULCH AREA           |
| LOT 5 D&M 11 HOUSE                       | 100.00      | 0.9500        | 2150         | 0.05        | 170            | 443            | 203              | 307            | 2150        | 0.05        | 0.00    | Drywell: 4 @ 8"Vn8" Lx3"D 307 76.8 CF EA                             |
| LOT 6 D&M 12 DRIVEWAY                    | 29.98       | 0.3198        | 3916         | 0.09        | 104            | 271            | 168              | 271            | 1174        | 0.03        | 0.06    | MICROSCALE MICRO-BIO RETENTION (M-6) 276 207 SF MULCH AREA           |
| LOT 6 D&M 13 HOUSE                       | 100.00      | 0.9500        | 2150         | 0.05        | 170            | 443            | 203              | 307            | 2150        | 0.05        | 0.00    | Drywell: 4 @ 8"Vn8" Lx3"D 307 76.8 CF EA                             |
| LOT 7 D&M 14 DRIVEWAY                    | 39.80       | 0.4082        | 5686         | 0.13        | 193            | 503            | 311              | 367            | 2263        | 0.05        | 0.08    | MICROSCALE MICRO-BIO RETENTION (M-6) 367 275 SF MULCH AREA           |
| LOT 7 D&M 15 HOUSE                       | 100.00      | 0.9500        | 2150         | 0.05        | 170            | 443            | 203              | 250            | 2150        | 0.05        | 0.00    | Drywell: 1 @ 8"Vn8" Lx3"D 250 76.8 CF EA 2 @ 8"Vn8" Lx3"D 86.4 CF EA |
| LOT 7 D&M 16 DRIVEWAY                    | 30.09       | 0.3208        | 5142         | 0.12        | 137            | 357            | 221              | 357            | 1547        | 0.04        | 0.08    | MICROSCALE MICRO-BIO RETENTION (M-6) 435 326 SF MULCH AREA           |
| <b>PROJECT TOTALS</b>                    | <b>53.4</b> | <b>0.6822</b> | <b>67822</b> | <b>1.56</b> |                |                | <b>5752</b>      | <b>36245.3</b> | <b>0.83</b> | <b>0.72</b> |         |  |

**OWNER**  
MARANATHA MAG. MANOR LLC  
3675 PARK AVE., SUITE 301  
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 PLAN**  
**STORMWATER MANAGEMENT NOTES AND DETAILS**

**RIVER BIRCH MANOR**  
LOTS 1-7 AND OPEN SPACE LOT 8  
A SUBDIVISION OF TAX MAP 17 - PARCEL 385

L 18205 / F 247  
TAX MAP: 17 GRID: 20  
2ND ELECTION DISTRICT

10039 GERMAN ROAD  
ELlicott CITY, MD 21042

ZONED: R-30  
PARCEL: 0385  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELlicott CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

**TEST PIT LOG**

| TEST PIT # | DEPTH | NOTES            |
|------------|-------|------------------|
| B-1        | 11 FT | NO ROCK OR WATER |
| B-2        | 11 FT | NO ROCK OR WATER |
| B-3        | 11 FT | NO ROCK OR WATER |
| B-4        | 11 FT | NO ROCK OR WATER |
| B-5        | 11 FT | NO ROCK OR WATER |
| B-6        | 11 FT | NO ROCK OR WATER |
| B-7        | 11 FT | NO ROCK OR WATER |
| B-8        | 11 FT | NO ROCK OR WATER |
| B-9        | 11 FT | NO ROCK OR WATER |
| B-10       | 11 FT | NO ROCK OR WATER |
| B-11       | 11 FT | NO ROCK OR WATER |
| B-12       | 11 FT | NO ROCK OR WATER |
| B-13       | 11 FT | NO ROCK OR WATER |
| B-14       | 11 FT | NO ROCK OR WATER |
| B-15       | 11 FT | NO ROCK OR WATER |

DESIGN BY: RHV  
DRAWN BY: LAG/VTG  
CHECKED BY: RHV  
DATE: DECEMBER 2019  
SCALE: AS SHOWN  
W.O. NO.: 41656

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

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 08-27-2020.

7 SHEET OF 9

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

PLANNING DIRECTOR: [Signature]  
DATE: 12-19-19

Howards County, Maryland  
Department of Public Works  
Private  
D-9-01



| SCHEDULE A PERIMETER LANDSCAPE EDGE                 |   |           |          |
|---|---|-----------|----------|
| CATEGORY  | ADJACENT TO ROADWAYS AND PERIMETER PROPERTIES | TOTAL     |          |
| PERIMETER/FRONTAGE DESIGNATION                      | A A A   | 3         |          |
| LANDSCAPE TYPE                                      | 1375' 1183'                                   |           |          |
| LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER           | 345'  | 1375'     | 1183'    |
| CREDIT FOR EXISTING VEGETATION                      | YES 20'                                       | YES 1018' | YES 361' |
| YES NO LINEAR FEET DESCRIBE BELOW IF NEEDED         |   |           |          |
| CREDIT FOR WALL, FENCE OR BERM                      | NO  | NO        | NO       |
| YES NO LINEAR FEET DESCRIBE BELOW IF NEEDED         |   |           |          |
| NUMBER OF PLANTS REQUIRED                           | 320'  | 357'      | 602' 13  |
| SHADE TREES   | 150' 5  | 150' 6    | 150' 13  |
| EVERGREEN TREES                                     |   |           | 24       |
| SHRUBS  |   |           |          |
| NUMBER OF PLANTS PROVIDED                           |   |           | 11       |
| SHADE TREES   | 5   | 6         |          |
| EVERGREEN TREES                                     |   |           |          |
| OTHER TREES (2:1 SUBSTITUTION)                      |   |           | 26       |
| SHRUBS (10:1 SUBSTITUTION)                          |   |           |          |
| DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED |   |           |          |
| *PLANTINGS SHALL CONFORM WITH BGE REQUIREMENTS      |   |           |          |

### LEGEND:

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- EXISTING FINISH
- EXISTING UTILITY
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- EXISTING TREE
- EXISTING SPECIMEN TREES
- EXISTING TREELINE
- EXISTING FENCE
- PROPERTY LINE TO BE ABANDONED
- ADJACENT PROPERTY LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- MI2/MT10S
- MICRO-BOTANETAL (M-6)
- 10' PUBLIC WATER & UTILITY EASEMENT
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- EXISTING STREAM
- EXISTING STREAM BUFFER
- SPECIMEN TREE MITIGATION PLANTINGS - WP-19-064
- PERIMETER OR STREET TREE - PLANTING OBLIGATION
- 24" PRIVATE USE-NO-COMMUN ACCESS EASEMENT
- MODERATE SLOPES (15% - 24.9%)
- BGE RED ZONE
- BGE YELLOW ZONE
- BGE GREEN ZONE

### 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.
- SURETY FOR THE PROPOSED LANDSCAPING SHALL BE BASED ON THE NUMBER OF PLANTINGS REQUIRED.

### DPZ'S POLICIES GOVERNING THE PLACEMENT OF LANDSCAPING AND STREET TREES IN PROXIMITY TO BGE'S POWER LINES OR TRANSMISSION RIGHT-OF-WAY ARE BASED ON BGE'S PUBLISHED "PLANTING ZONE CONCEPT" WHICH STIPULATES THE MAXIMUM ALLOWABLE SIZE OF PLANT MATERIALS FOR THREE DEFINED ZONES. AS THE DISTANCE FROM BGE EQUIPMENT INCREASES, SO DOES THE SIZE OF THE ALLOWABLE PLANT MATERIALS. THESE THREE ZONES AREA DEFINED AS FOLLOWS:

| ZONE   | DISTANCE FROM THE BGE POWER LINE OR TRANSMISSION RIGHT-OF-WAY | MAXIMUM HEIGHT OF VEGETATION |
|--------|---|------------------------------|
| GREEN  | UP TO 20 FEET   | 20 FEET                      |
| YELLOW | BETWEEN 20 FEET AND 45 FEET                                   | 40 FEET                      |
| RED    | BEYOND 45 FEET  | ABOVE 40 FEET                |

### B.G.E. NOTES:

- BGE RESERVES THE RIGHT TO TRIM, TOP OR CUT DOWN ANY TREE IN PROXIMITY TO THE LINE THAT IN THE OPINION OF BGE SHALL BE DEEMED A HAZARD TO THE SAFE AND RELIABLE DELIVERY OF ELECTRICITY.
- THE DEPARTMENT OF PLANNING AND ZONING MAY AUTHORIZE THE TRIMMING OR REMOVAL OF TREES OR VEGETATION IMMEDIATELY ADJACENT TO THE BGE R/W OR EASEMENT, IF BGE DETERMINES THE TREES ARE COMPROMISING THE SAFETY OF A TRANSMISSION LINE LOCATED WITHIN THEIR UTILITY R/W OR EASEMENT, IF BGE INTENDS TO TRIM OR REMOVE TREES WITHIN A FOREST CONSERVATION EASEMENT, A LETTER SPECIFYING THE LOCATION AND SCOPE OF WORK NEEDS TO BE SENT TO DPZ AT LEAST 30 DAYS IN ADVANCE OF UNDERTAKING THE WORK. DPZ UNDERSTANDS CONSTITUTIONAL ENERGY'S NEED TO PROTECT ITS TRANSMISSION LINES AND WILL NOT UNREASONABLE WITHHOLD PERMISSION.
- CALL MISS UTILITY TO MARK UP THE LOCATION OF EXISTING GAS LINE BEFORE PLANTING STREET TREES ALONG GERMAN ROAD & PLANT STREET TREES 10' AWAY FROM EXISTING GASLINE AS REQUIRED.

### GENERAL NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- 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 (\$3,000) SHALL BE POSTED AS PART OF THE FINAL PLAN DIVISION OF ENGINEERING DEVELOPMENT COST ESTIMATE FOR THE REQUIRED 10 STREET TREES.
- THE REMOVAL OF TREES 30" OR GREATER DBH IS PROHIBITED WITHOUT COUNTY APPROVAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING WILL BE POSTED AS PART OF THE FINAL PLAN DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$9,750.00 FOR THE REQUIRED 24 SHADE TREES, 8 SPECIMEN REPLACEMENT TREES, AND 5 SHRUBS.
- NO LANDSCAPING TO BE INSTALLED WITH ANY PUBLIC EASEMENT FOR WATER, SEWER, OR STORMDRAIN.
- ANY EXISTING STREET TREES DAMAGED OR DESTROYED DURING CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR.

**OWNER**  
MARANATHA MAC. MANOR LLC  
3675 PARK AVE., SUITE 301  
ELLICOTT CITY, MD 21043  
(410) 480-0023

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

| NO. | REVISION | DATE |
|-----|----------|------|
|     |          |      |
|     |          |      |

**PRELIMINARY PLAN**

**PRELIMINARY LANDSCAPE PLAN, NOTES AND DETAILS**

**RIVER BIRCH MANOR**

LOTS 1-7 AND OPEN SPACE LOT 8  
A SUBDIVISION OF TAX MAP 17 - PARCEL 385

L-18205 / F. 247  
TAX MAP 17 GRID 20  
2ND ELECTION DISTRICT

10039 GERMAN ROAD  
ELLICOTT CITY, MD 21042  
HOWARD COUNTY, MARYLAND

ZONED: R-20  
PARCEL: 0385

**VOGEL ENGINEERING**

**TIMMONS GROUP**

3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

DESIGN BY: RHV  
DRAWN BY: LAG/ATC  
CHECKED BY: RHV  
DATE: DECEMBER 2019  
SCALE: AS SHOWN  
W.O. NO.: 41656

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: 10-27-2020

8 SHEET OF 9

### STREET TREE CALCULATIONS

| STREET NAME | LINEAR FEET | NO. REQUIRED | NO. PROVIDED |
|-------------|-------------|--------------|--------------|
| GERMAN ROAD | 300/30      | 10           | 10           |

| SYM. | QTY. | BOTANICAL NAME  | SIZE       | REMARKS |
|------|------|---|------------|---------|
| ○    | 10   | AMUR MAPLE ACER GINNALA (SHADE TREES-GROWTH HEIGHT=20') | 2"-3" CAL. | B & B   |

### NOTES:

- ALL STREET TREES AND/OR SIGN SHALL BE LOCATED 5' MIN. FROM PROPOSED DRAINAGE, UTILITY STRUCTURE.
- THERE SHOULD BE A MINIMUM OF 20' BETWEEN STREET LIGHTS AND STREET TREES.

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

PLANNING DIRECTOR: [Signature] DATE: 12-18-19

**PRELIMINARY LANDSCAPE PLAN**

SCALE: 1"=50'

SCALE 1"=50'

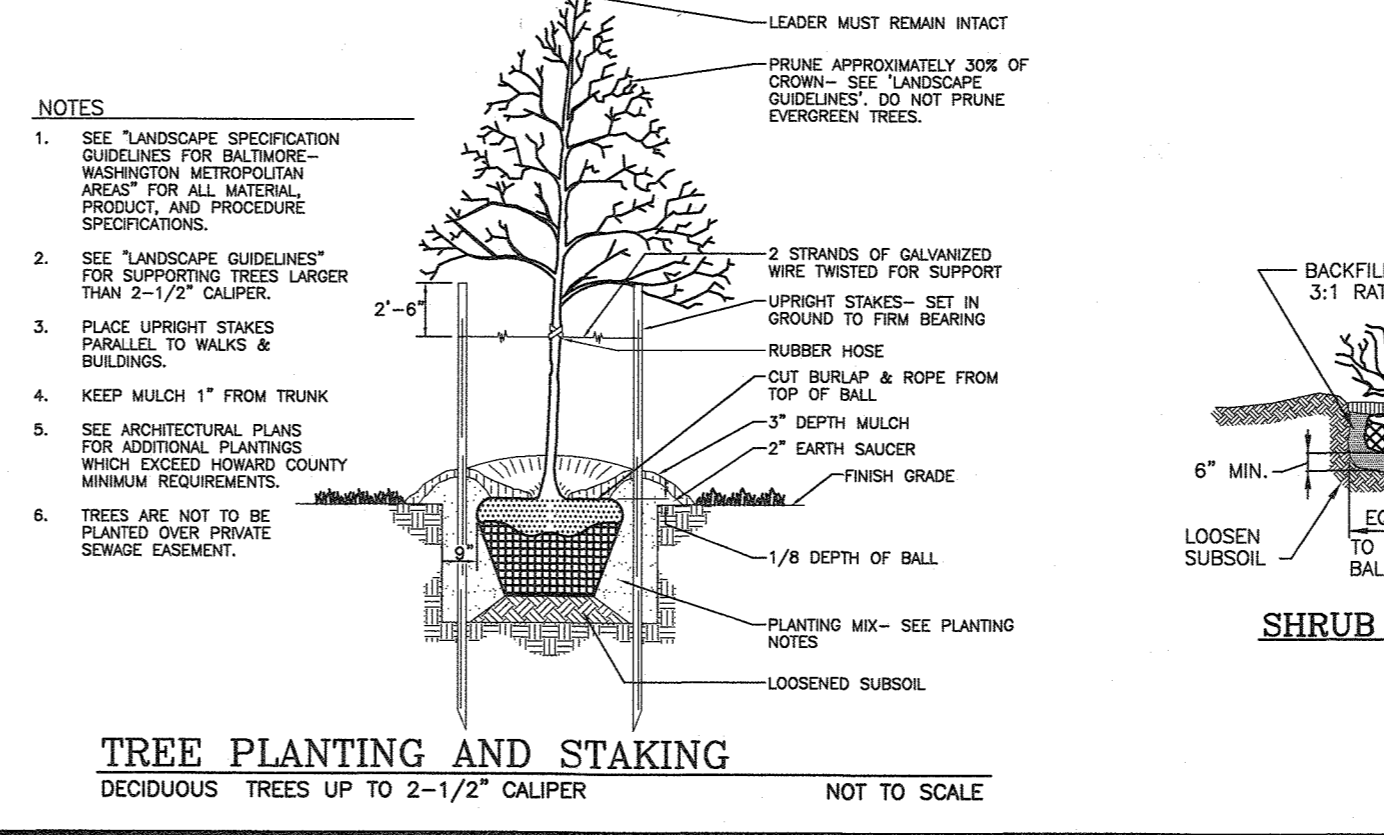
### TRASH PAD LANDSCAPING

| SYMBOL | QTY. | DESCRIPTION                               | SIZE           | REMARKS |
|--------|------|---|----------------|---------|
| ⊗      | 5    | TAXUS CUSPIDATA 'NANA' DWARF JAPANESE YEW | 18"-24" SPREAD | B & B   |

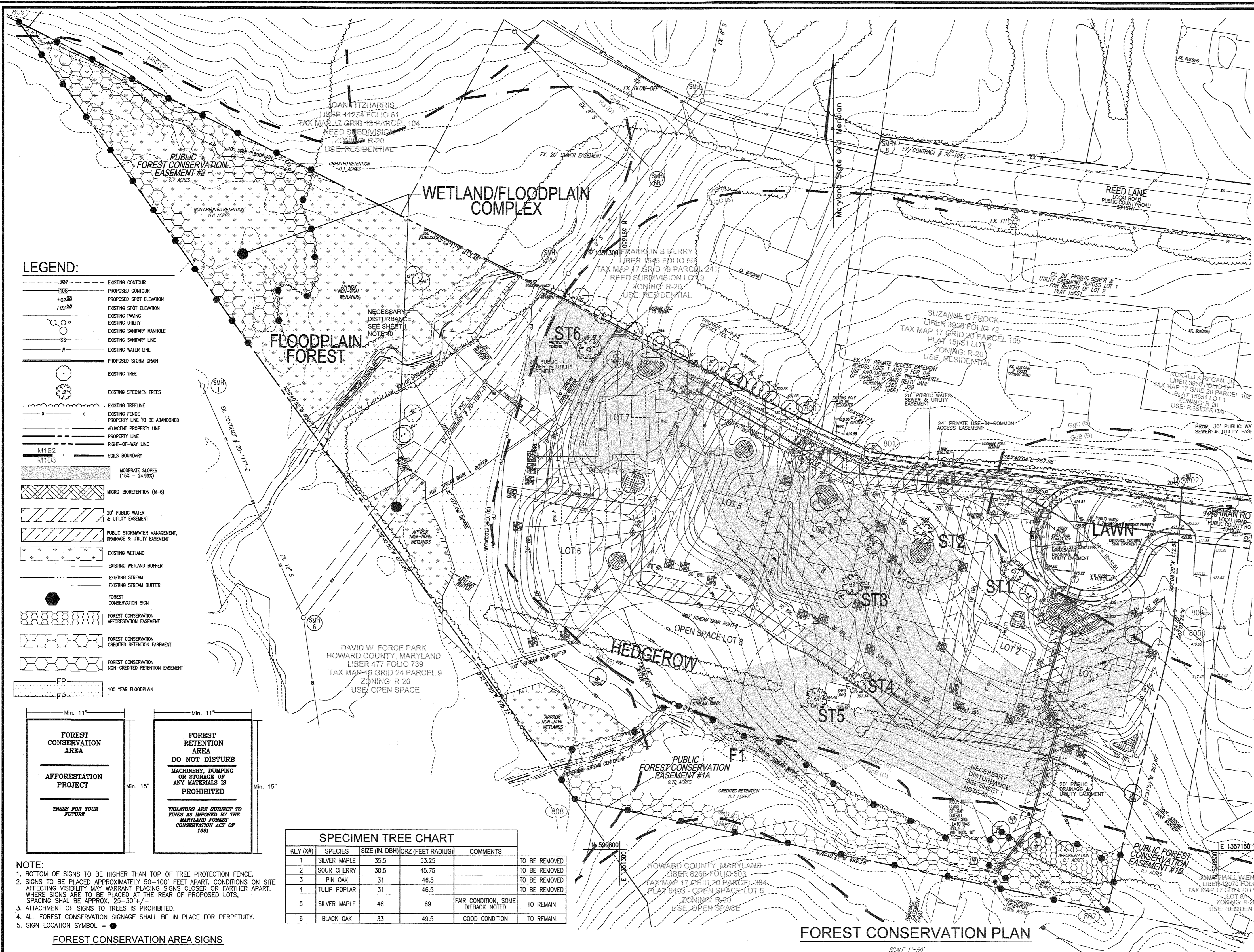
### SPECIMEN TREE - REPLACEMENT CALCULATIONS

| NO. TO BE REMOVED | NO. REPLACEMENT REQUIRED | NO. PROVIDED |
|-------------------|--------------------------|--------------|
| 4                 | 8                        | 8            |
|                   |                          | 3" CAL.      |

REFER TO WP 19-064 - 3" CALIPER NATIVE SHADE TREES REQUIRED

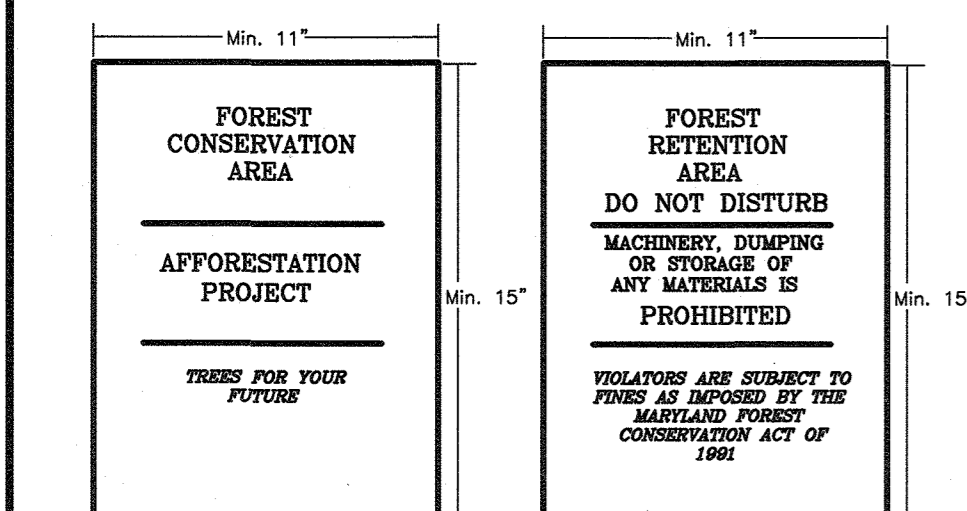






**LEGEND:**

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EXISTING SPOT ELEVATION
- PROPOSED SPOT ELEVATION
- EXISTING UTILITY
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING WATER LINE
- PROPOSED STORM DRAIN
- EXISTING TREE
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- EXISTING TREE LINE
- EXISTING FENCE
- PROPERTY LINE TO BE ABANDONED
- ADJACENT PROPERTY LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- SOILS BOUNDARY
- MODERATE SLOPES (15% - 24.99%)
- MICRO-BIOTENTATION (M-F)
- 100' PUBLIC WATER & UTILITY EASEMENT
- PUBLIC STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT
- EXISTING WETLAND
- EXISTING WETLAND BUFFER
- EXISTING STREAM
- EXISTING STREAM BUFFER
- FOREST CONSERVATION SIGN
- FOREST CONSERVATION AFFORESTATION EASEMENT
- FOREST CONSERVATION CREDITED RETENTION EASEMENT
- FOREST CONSERVATION NON-CREDITED RETENTION EASEMENT
- FP 100 YEAR FLOODPLAIN



**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 = ●

**SPECIMEN TREE CHART**

| KEY (X#) | SPECIES      | SIZE (IN. DBH) CRZ (FEET RADIUS) | COMMENTS                          | TO BE REMOVED |
|----------|--------------|----------------------------------|-----------------------------------|---------------|
| 1        | SILVER MAPLE | 35.5 53.25                       |                                   | TO BE REMOVED |
| 2        | SOUR CHERRY  | 30.5 45.75                       |                                   | TO BE REMOVED |
| 3        | PIN OAK      | 31 46.5                          |                                   | TO BE REMOVED |
| 4        | TULIP POPLAR | 31 46.5                          |                                   | TO BE REMOVED |
| 5        | SILVER MAPLE | 46 69                            | FAIR CONDITION, SOME DEBACK NOTED | TO REMAIN     |
| 6        | BLACK OAK    | 33 49.5                          | GOOD CONDITION                    | TO REMAIN     |

**FOREST RETENTION AREAS AND NOTES**

- THERE ARE WETLANDS OR WETLAND BUFFERS LOCATED ONSITE.
- 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.

**SOILS LEGEND**  
HOWARD COUNTY SOILS MAP #13

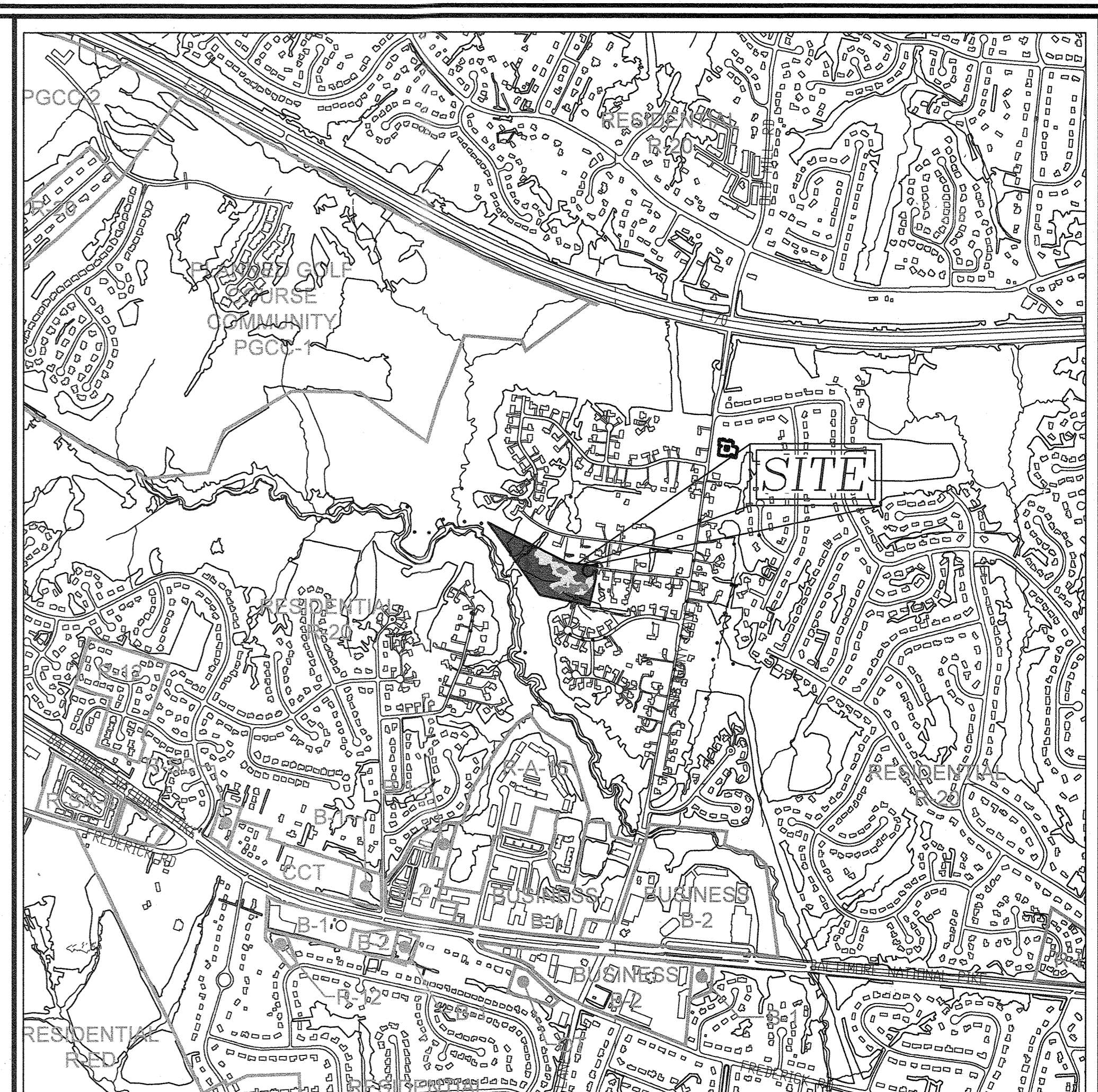
| SYMBOL | NAME / DESCRIPTION                                | GROUP | K FACTOR | ERODIBLE | ACREAGE |
|--------|---|-------|----------|----------|---------|
| GnB    | GLENVILLE-SHALE SILT LOAMS, 0 TO 8 PERCENT SLOPES | C     | 0.49     | YES      | 0.88    |
| MdD    | MANOR LOAM, 15 TO 25 PERCENT SLOPES               | B     | 0.32     | YES      | 0.02    |
| Hc     | HARBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES | D     | 0.43     | NO       | 2.48    |
| GgC    | GLENELG LOAM, 8 TO 15 PERCENT SLOPES              | B     | 0.43     | YES      | 3.71    |
| GgB    | GLENELG LOAM, 3 TO 8 PERCENT SLOPES               | B     | 0.37     | YES      | 0.46    |

**SOILS NOTES:**

- TAKEN FROM USDA, SCS-WEB SOIL SURVEY, HOWARD COUNTY
- HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A GROUP 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
- GnB AND Hc SOILS MAY CONTAIN HYDRIC COMPONENTS.
- K FACTORS OBTAINED FROM THE HOWARD SOIL CONSERVATION DISTRICT WEBSITE <https://www.howardscd.org/documents> - DOCUMENT TITLED "K FACTORS (USE KW)

**Forest Stand Data**

| Key | Community Type | Acres (±) | Dominant Vegetation   | General Condition | Priority                    |
|-----|----------------|-----------|---|-------------------|-----------------------------|
| F1  | Oak-Maple      | 0.8       | Liquidambar styraciflua, Quercus velutina, Quercus penicillata, Prunus serotina | Good              | 0.8 acres +/- buffer slopes |



**FOREST CONSERVATION EASEMENT TABLE**

| EASEMENT     | RETENTION CREDITED | NON-CREDITED  | AFFORESTATION/REFORESTATION | TOTAL         |
|--------------|--------------------|---------------|-----------------------------|---------------|
| FCE#1A       | 0.7 AC             | 0.006 AC      | -                           | 0.7 AC        |
| FCE#1B       | -                  | -             | 0.1 AC                      | 0.1 AC        |
| FCE#2        | 0.1 AC             | 0.6 AC        | -                           | 0.7 AC        |
| <b>TOTAL</b> | <b>0.8 AC</b>      | <b>0.6 AC</b> | <b>0.1 AC</b>               | <b>1.5 AC</b> |

**PLANTING TO BE PROVIDED**

0.1 ACRES  
1" CALIPER TREES  
20 TREES @ 200 TREES PER ACRE OR EQUAL

**PRELIMINARY HOWARD COUNTY FOREST CONSERVATION WORKSHEET**

**ZONED R-20**

**NET TRACT AREA:**

|                                     |        |
|-------------------------------------|--------|
| A. TOTAL TRACT AREA (PROJECT TOTAL) | 7.5 AC |
| B. AREA WITHIN 100 YEAR FLOODPLAIN  | 2.1 AC |
| C. AREA TO REMAIN IN AG. PRODUCTION | 0.0 AC |
| D. NET TRACT AREA                   | 5.4 AC |

**LAND USE CATEGORY**

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

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

**E. AFFOREST THRESHOLD** 15% X 5.4 = 0.8 AC  
**F. CONSERVATION THRESHOLD** 20% X 5.4 = 1.1 AC

**G. EXISTING FOREST COVER (EXCLUDING FLOODPLAIN)** = 0.8 AC (FSD REPORT)  
**H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD** = 0.0 AC  
**I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD** = 0.0 AC

**BREAK EVEN POINT:**  
(2 X I) + F = BREAK EVEN POINT (0 AC)  
J. FOREST RETENTION WITH NO MITIGATION = 0.0 AC  
K. CLEARING PERMITTED WITHOUT MITIGATION = 0.0 AC

**PROPOSED FOREST CLEARING:**  
L. TOTAL AREA OF FOREST TO BE CLEARED = 0.0 AC  
M. TOTAL AREA OF FOREST TO BE RETAINED = 0.8 AC

**PLANTING REQUIREMENTS:**  
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X 25) = 0.0 AC  
P. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD  
Q. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F) = 0.0 AC  
R. TOTAL REFORESTATION REQUIRED (N+P-Q) = 0.0 AC  
S. TOTAL AFFORESTATION REQUIRED (N+P-Q) = 0.0 AC  
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 0.0 AC

**GENERAL NOTES**

WATERSHED NAME: LITTLE PATUXENT RIVER  
WATERSHED NUMBER: 2131105

|   |             |
|---|-------------|
| A. GROSS SITE AREA:                               | 7.54 AC.    |
| B. NET SITE AREA: (GROSS-FLOODPLAIN-STEEP SLOPES) | 5.45 AC.    |
| C. AREA OF 100-YEAR FLOODPLAIN:                   | 2.09 AC.    |
| D. AREA OF WETLANDS AND BUFFERS(ONSITE):          | 1.99 AC.    |
| E. AREA OF STREAM AND BUFFERS(ONSITE):            | 3.15 AC.    |
| F. AREA OF > 25% STEEP SLOPES:                    | 0.00 AC.    |
| G. EXISTING FOREST (FSD):                         | 0.8 AC.     |
| F. ZONED:   | R-20        |
| H. EXISTING USE:                                  | RESIDENTIAL |
| H. PROPOSED USE:                                  | RESIDENTIAL |

**OWNER:** MARANATHA MAG. MANOR LLC  
3675 PARK AVE., SUITE 301  
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 PLAN**

**FOREST CONSERVATION PLAN**

**RIVER BIRCH MANOR**

LOTS 14 AND OPEN SPACE LOT 8  
A SUBDIVISION OF TAX MAP 17 - PARCEL 385

18205 / F. 247  
TAX MAP: 17 GRID: 20  
2ND ELECTION DISTRICT

10039 GERMAN ROAD  
ELlicott CITY, MD 21042

ZONED: R-20  
PARCEL: 0385  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**

**TIMMONS GROUP**

3300 NORTH RIDGE ROAD, SUITE 110, ELlicott CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

**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: LAG/YTG  
CHECKED BY: RHV  
DATE: DECEMBER 2019  
SCALE: AS SHOWN  
W.O. NO.: 41656

9 SHEET OF 9

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

PLANNING DIRECTOR: [Signature]  
DATE: 12-18-19