

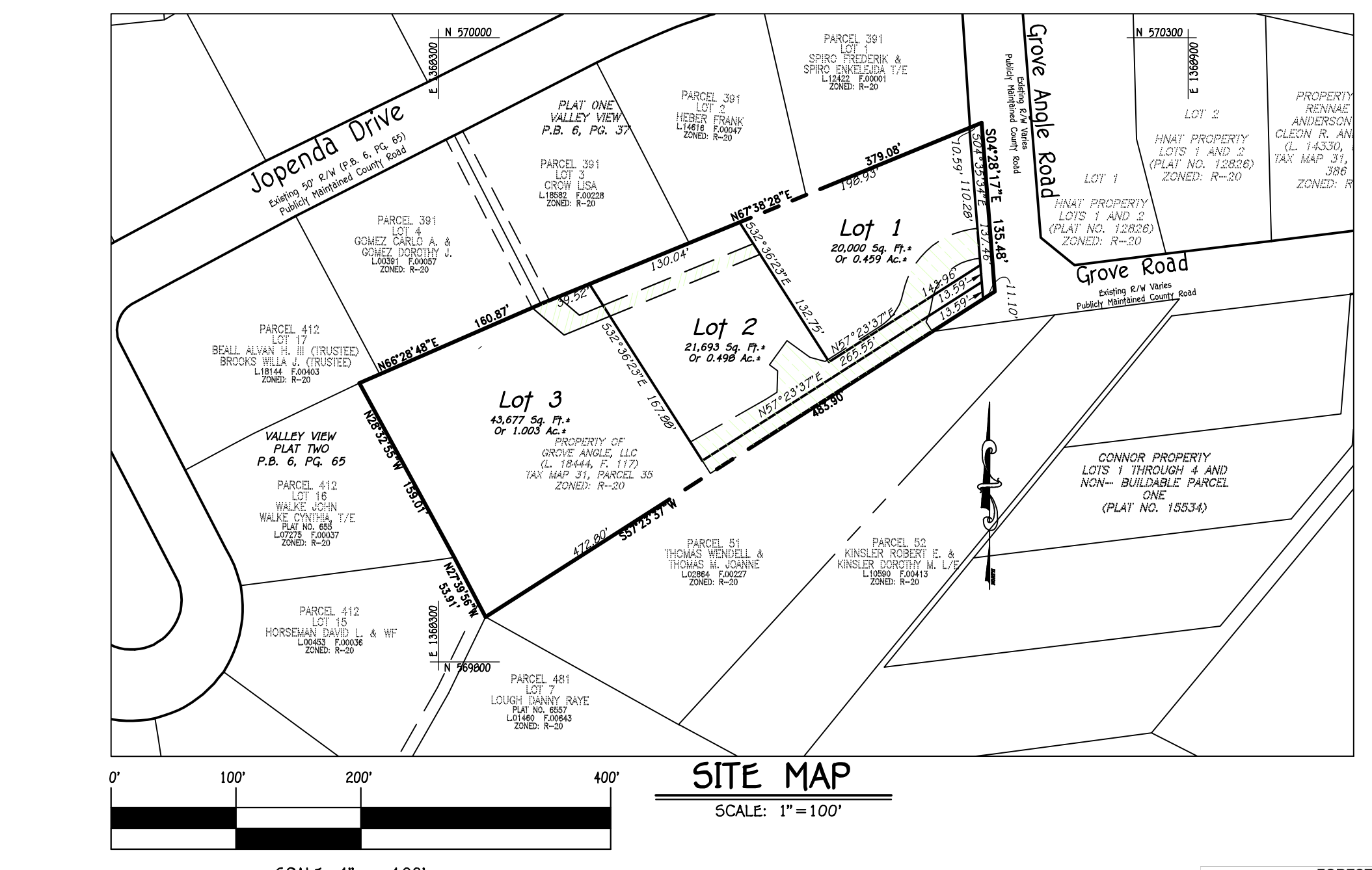
SHEET INDEX table with columns SHEET NO. and DESCRIPTION. Rows include TITLE SHEET, SITE LAYOUT / LANDSCAPE PLAN, STORMWATER MANAGEMENT PLAN, and GRADING AND EROSION/SEDIMENT CONTROL PLAN.

SOILS LEGEND table with columns SOIL, NAME, CLASS, and K-VALUE. Includes entry for Urban land-Chillum-Beltville complex.

STORMWATER MANAGEMENT PRACTICES BY LOT table with columns AREA ID, MICRO-BIO NUMBER, and REMARKS. Includes notes on stormwater management for Lot 3.

STORMWATER MANAGEMENT PRACTICES table with columns AREA ID, LOCATION, DRAINAGE AREA, % IMPERVIOUS, ESOV REQUIRED, and MICRO BIO-RETENTION. Includes notes on stormwater management for Lot 3.

STORMWATER MANAGEMENT NOTES. 1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH CHAPTER 5 'ENVIRONMENTAL SITE DESIGN' OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL... 2. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 500 SQ. FT. OR LESS... 3. FINAL GRADING SHALL BE PROVIDED WITH THE SITE DEVELOPMENT PLAN.



FOREST CONSERVATION WORKSHEET FOR GROVE ANGLE PROPERTY. Includes sections for Net Tract Area, Land Use Category, Existing Forest Cover, Break Even Point, Proposed Forest Clearing, and Planting Requirements Inside and Outside Watershed.

Planting Requirements Outside Watershed. W= 0.00, X= 0.30, Y= 0.00, Z= 0.00, AA= 0.00, BB= 0.00, CC= 0.00, DD= 0.30. Date: 8/22/20

Date: 8/22/20

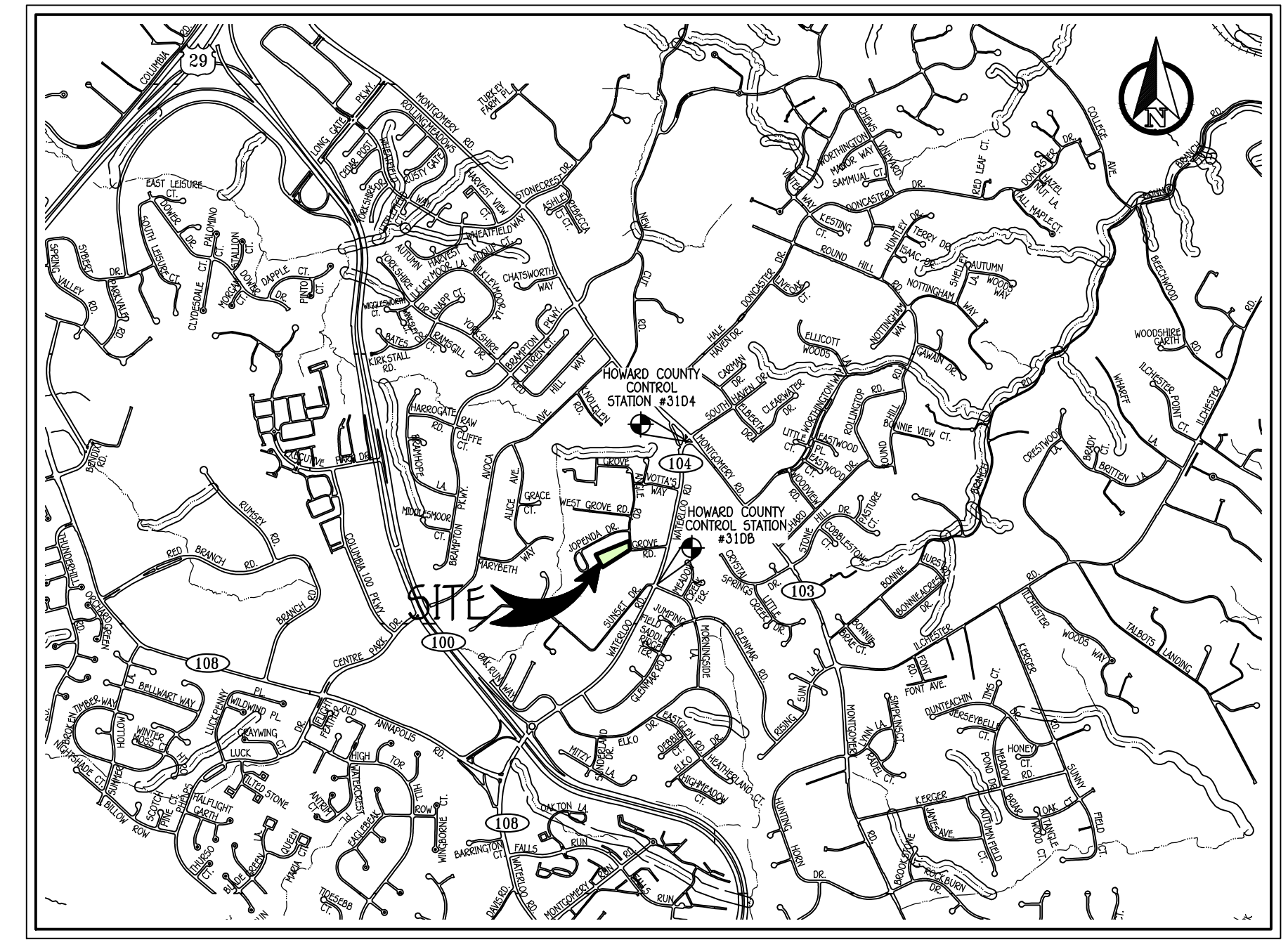
# SUPPLEMENTAL PLAN

# GROVE ANGLE PROPERTY

## LOTS 1 THRU 3

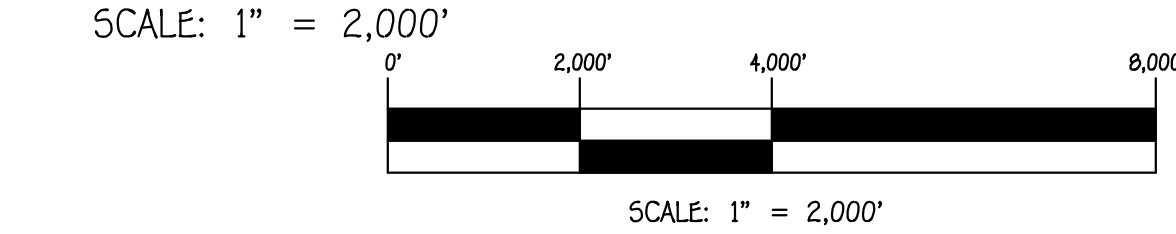
### R-20 (RESIDENTIAL: SINGLE DISTRICT)

## TAX MAP No.: 31 GRID No.: 13 PARCEL NO.: 35



HOWARD COUNTY GEODETIC SURVEY CONTROL NO. 3104 N 571,700.664 E 1,369,606.417 ELEVATION: 494.445'  
HOWARD COUNTY GEODETIC SURVEY CONTROL NO. 3108 N 569,583.589 E 1,359,155.211 ELEVATION: 429.348'

### VICINITY MAP



LEGEND table with columns SYMBOL and DESCRIPTION. Includes symbols for existing contours, proposed contours, spot elevations, storm drains, water lines, sewer lines, overhead wires, existing fences, proposed paving, private UIC easement, private drainage & utility easement, limit of disturbance, super silt fence, diversion fence, existing tree line, proposed tree line, drainage divide, permanent soil stabilization, soil lines and types, bio retention facility, proposed roof leader, denoting H&B overland flowpath, denoting existing trees to be removed, denoting existing trees to remain, specimen tree, critical root zone, and denoting SWM test boring location.

Minimum Lot Size Tabulation table with columns Lot No., Gross Area, Pipestem Area, and Minimum Lot Size.

MODERATE INCOME HOUSING UNITS (MIHU) ALLOCATION EXEMPTIONS TRACKING table with columns Total Number of Lots/Units Proposed, Number of MIHU Required, Number of MIHU Provided Onsite, and Number of APFO Allocations Required.

### GENERAL NOTES

- 1. THE SUBJECT PROPERTY IS ZONED R-20 (PER 10/06/13 COMPREHENSIVE ZONING PLAN.)
- 2. BOUNDARY IS BASED ON A FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER ON OR ABOUT MARCH, 2019.
- 3. CONTOURS ARE BASED ON A TOPOGRAPHIC FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS AND CARTER, ON OR ABOUT JANUARY, 2019.
- 4. COORDINATES BASED ON NAD'83 MARYLAND COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL. STATIONS NO. 3104 AND NO. 3108: HOWARD COUNTY MONUMENT NO. 3104 N 571,700.664 E 1,369,606.417 ELEV. 494.445' HOWARD COUNTY MONUMENT NO. 3108 N 569,583.589 E 1,359,155.211 ELEV. 429.348'
- 5. STORM WATER MANAGEMENT IS IN ACCORDANCE WITH THE M.D.E. STORM WATER DESIGN MANUAL, VOLUMES I & II, REVISED 2009. THIS PLAN PROPOSES THE USE OF TWO (2) M-6 BIO RETENTION FACILITIES AND ONE (1) EXISTING M-6 BIO RETENTION FACILITY (UNDER SDP-20-011).
- 6. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. PUBLIC WATER AND SEWER WILL BE UTILIZED FOR THIS PROJECT.
- 7. ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE DEVELOPER'S EXPENSE.
- 8. A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON MARCH 28, 2019 FOR THIS PROJECT.
- 9. THIS PROJECT IS SUBJECT TO FOREST CONSERVATION REQUIREMENTS. FOREST CONSERVATION OBLIGATION FOR 0.3 ACRES OF REFORESTATION WAS PROVIDED BY THE CATTAL CREEK FOREST MITIGATION BANK, SDP-14-031.
- 10. PERIMETER LANDSCAPING SHALL BE IN ACCORDANCE WITH SECTION 16.124 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$3,000.00 FOR B SHADE TREES (\$300 ea.) AND 4 EVERGREEN TREES (\$150 ea.) WILL BE PROVIDED AS PART OF THE BUILDING / GRADING PERMIT FOR LOTS 1 AND 2.
- 11. DRIVEWAY SHALL BE PROVIDED PRIOR TO THE MINIMUM OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
  - A) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
  - B) SURFACE - SIX (6) INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING
  - C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45 FOOT TURNING RADIUS
  - D) STRUCTURES (CULVERTS/BRIDGES) CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING)
  - E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
  - F) STRUCTURE CLEARANCES - MINIMUM 12 FEET
  - G) MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE
- 12. STORM WATER MANAGEMENT DEVICES WILL BE OWNED AND MAINTAINED BY INDIVIDUAL PROPERTY OWNERS.
- 13. EXISTING UTILITIES ARE BASED ON MISS UTILITY MARKINGS, FIELD LOCATIONS AND AVAILABLE COUNTY INFORMATION.
- 14. TO THE BEST OF OUR KNOWLEDGE NO CEMETERIES ARE LOCATED ON-SITE BASED ON THE HOWARD COUNTY CEMETERY INVENTORY MAP.
- 15. B.R.L. DENOTES BUILDING RESTRICTION LINE.
- 16. SITE IS NOT ADJACENT TO A SCENIC ROAD.
- 17. ALL LOT/PARCEL AREAS ARE TO REMAIN.
- 18. LETTER OF FINDINGS DATED MAY 6, 2019 PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DETERMINED THAT THERE ARE NO WETLANDS, WETLAND BUFFERS, STREAM AND STREAM BUFFER LOCATED WITHIN THE LIMITS OF THE FINAL PLAT.
- 19. THERE IS AN EXISTING DWELLING ON LOT 3 TO REMAIN. NO NEW BUILDINGS, EXTENSIONS OR ADDITIONS TO THE EXISTING DWELLING ARE TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATION REQUIREMENTS. THERE WAS AN HISTORIC HOUSE HO#881 ON-SITE THAT WAS AUTHORIZED FOR DEMOLITION DECEMBER, 2018 AND WAS DEMOLISHED, SEPTEMBER 2019.
- 20. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122B OF THE HOWARD COUNTY CODE.
- 21. PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- 22. THIS PLAN IS IN COMPLIANCE WITH THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE 10/06/13 COMPREHENSIVE ZONING PLAN. DEVELOPMENT OR CONSTRUCTION ON THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN. WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT.
- 23. APPROVAL OF A SITE DEVELOPMENT PLAN IS REQUIRED FOR THE DEVELOPMENT OF ALL RESIDENTIAL LOTS WITHIN THIS SUBDIVISION PRIOR TO ISSUANCE OF ANY GRADING OR BUILDING PERMITS FOR NEW HOUSE CONSTRUCTION IN ACCORDANCE WITH SECTION 16.155 OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.
- 24. FEE IN LIEU OF PROVIDING OPEN SPACE HAS BEEN PAID IN THE AMOUNT OF \$3,000.00.
- 25. PROPERTY IS A MINOR SUBDIVISION AND IS EXEMPT FROM APFO TRAFFIC REPORT IN ACCORDANCE WITH SECTION 4.7.B.5. OF THE HOWARD COUNTY DESIGN MANUAL, VOLUME III - ROADS AND BRIDGES.
- 26. SUBDIVISION IS SUBJECT TO SECTION 10B.O.E. OF THE ZONING REGULATIONS. AT LEAST 10% OF THE DWELLING UNITS SHALL BE MODERATE INCOME HOUSING UNITS (MIHU) OR AN ALTERNATIVE COMPLIANCE WILL BE PROVIDED. THE DEVELOPER SHALL EXECUTE A M.I.H.U. AGREEMENT WITH THE DEPARTMENT OF HOUSING TO INDICATE HOW THE MIHU REQUIREMENT WILL BE MET. THE MIHU AGREEMENT WILL BE RECORDED SIMULTANEOUSLY WITH THIS PLAT IN THE LAND RECORDS OFFICE OF HOWARD COUNTY, MARYLAND. THIS DEVELOPMENT WILL MEET MIHU. ALTERNATIVE COMPLIANCE BY A PAYMENT OF A FEE-IN-LIEU TO THE DEPARTMENT OF HOUSING FOR EACH MODERATE INCOME HOUSING UNIT (MIHU.U.) TABULATION:
  - a. MIHU.U. REQUIRED = (2 LOTS X 10%) = 0.2 MIHU.U.
  - b. MIHU.U. PROPOSED = DEVELOPER WILL PURSUE ALTERNATIVE COMPLIANCE BY PAYING A FEE-IN-LIEU TO THE HOWARD COUNTY HOUSING DEPARTMENT FOR THE UNITS REQUIRED BY THE DEVELOPMENT. THE DEVELOPER HAS PAID UNDER SDP-20-011.
- 27. THE PLANNING DIRECTOR ON DECEMBER 10TH 2019, APPROVED THE REQUEST (WP-20-042) FOR AN ALTERNATIVE COMPLIANCE OF SECTION 16.120(a)(7), FOREST RETENTION PRIORITIES: STATE CHAMPION TREES, TREES 75 PERCENT OF THE DIAMETER OF STATE CHAMPION TREES, AND TREES 30 INCHES IN DIAMETER OR LARGER. THE ENACTMENT OF COUNCIL BILL 22-2019 ON DECEMBER 20, 2019 VOIDS THE APPROVAL OF THE ALTERNATIVE COMPLIANCE REQUEST DUE TO THE PLANS NOT REACHING THE REQUIRED MILESTONES OF GRANDFATHERING.
- 28. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPE STEM AND THE ROAD RIGHT-OF-WAY LINE FOR GROVE ANGLE ROAD ONLY AND NOT ONTO THE FLAG OR PIPE STEM LOT DRIVEWAY.
- 29. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- 30. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
- 31. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 32. PLAT SUBJECT TO PREVIOUS DEPARTMENT OF PLANNING AND ZONING FILE NUMBERS. ECP-19-059, WP-20-042 (VOID), SDP-20-011, DMV 2-21-006 AND SDP-20-011.
- 33. NO 100-YEAR FLOODPLAIN EXIST ON SITE.
- 34. NO NOISE STUDY IS REQUIRED BECAUSE THE PROJECT DOES NOT FALL WITHIN THE GUIDELINES OF DESIGN MANUAL, VOLUME III, ROADS, BRIDGES, SECTION 5.2.F.2.
- 35. THE PRIVATE USE-IN-COMMON DRIVEWAY ACCESS EASEMENT AND MAINTENANCE AGREEMENT FOR THE USE AND BENEFIT OF LOTS 1, 2 AND 3 WILL BE RECORDED SIMULTANEOUSLY WITH THE PLAT.
- 36. THE LOTS CREATED BY THIS SUBDIVISION PLAT MAY BE SUBJECT TO A FEE OR AN ASSESSMENT TO COVER OR DEFRAY ALL OR PART OF THE DEVELOPER'S COST OF THE INSTALLATION OF THE WATER AND SEWER FACILITIES. PURSUANT TO THE HOWARD COUNTY CODE SECTION 18.112. THIS FEE OR ASSESSMENT, WHICH RUNS WITH THE LAND, IS A CONTRACTUAL OBLIGATION BETWEEN THE DEVELOPER AND EACH OWNER OF THIS PROPERTY AND IS NOT IN ANY WAY A FEE OR ASSESSMENT OF HOWARD COUNTY.
- 37. THIS PROJECT IS SUBJECT TO HOWARD COUNTY CODE SECTION 16.134(A)(1)(II) TO PROVIDE SIDEWALK IMPROVEMENTS. THE DEVELOPER HAS PAID A FEE-IN-LIEU IN THE AMOUNT OF \$15,732.20.
- 38. THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER (DMV2-21-006) CONDITIONALLY APPROVED BY LETTER DATED OCTOBER 9, 2020, MR. THOMAS BUTLER, DEPUTY DIRECTOR, DEPT. OF PUBLIC WORKS. SUBJECT TO THE FOLLOWING:
  - USE AN EJECTOR PUMP TO PROVIDE SERVICE FROM THE BASEMENT TO THE FIRST FLOOR AND PROVIDE GRAVITY FROM THE FIRST FLOOR TO THE PUBLIC SEWER LOCATED AT THE STREET.
  - LABEL C.N.S. AS THE BASEMENT IS NOT SERVICED BY GRAVITY.
  - SHOW 4" SHC FROM THE PROPERTY LINE BACK TO THE PROPERTY FOR LOTS 2 & 3 AS "PRIVATE".

### SITE ANALYSIS DATA CHART

- A. TOTAL AREA OF THIS SUBMISSION: 06,720 Sq.Ft. (1.991 Ac.)
  - LOT 1 = 20,000 sq.ft. (0.459 Ac.)
  - LOT 2 = 21,693 sq.ft. (0.498 Ac.)
  - LOT 3 = 43,677 sq.ft. (1,003 Ac.) (TO REMAIN UNDISTURBED)
- B. LIMIT OF DISTURBED AREA = 0.91 AC. (SWM BASED ON OVERALL SITE LOD)
- C. PRESENT ZONING DESIGNATION = R-20
- D. PROPOSED USE: SINGLE FAMILY DETACHED HOUSING
- E. NET TRACT AREA = 1.991 AC.
- F. DENSITY ALLOWED:
  - 2 UNITS/ACRE X 1.991 AC. = 3.98 UNITS
- G. BUILDING COVERAGE OF SITE: 10,554 Sq.Ft. (0.242 AC.) OR 12.2% (INCLUDES LOTS 1 - 3)
- H. PREVIOUS HOWARD COUNTY FILES: ECP-19-059, SDP-20-011, WP-20-042(VOID)
- I. TOTAL AREA OF FLOODPLAIN LOCATED ON SITE: 0.0 AC.
- J. TOTAL AREA OF SLOPES IN EXCESS OF 15% = 0 AC.
- K. TOTAL AREA OF WETLANDS (INCLUDING BUFFER) LOCATED ON SITE = 0 AC.
- L. TOTAL AREA OF FOREST 0.0 AC.
- M. TOTAL GREEN OPEN AREA OF LOT 1-3 = 1.52 AC.
- N. TOTAL IMPERVIOUS AREA = 0.00 AC.
- O. AREA OF ERODIBLE SOILS = 0.00 AC.

FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS. CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE, ELLSGOTT CITY, MARYLAND 21042 (410) 461-2299

APPROVED: DEPARTMENT OF PLANNING AND ZONING. Chief, Development Engineering Division: Will Edmondson, 8/22/2024. Chief, Division of Land Development: 8/23/2024.



PROFESSIONAL CERTIFICATION. HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/25. Frank Manalansan II, 8/6/2024.

OWNER/DEVELOPER: GROVE ANGLE LLC, 8611 HAYFIELD LANE, COLUMBIA, MARYLAND 21045, 410-641-1506.

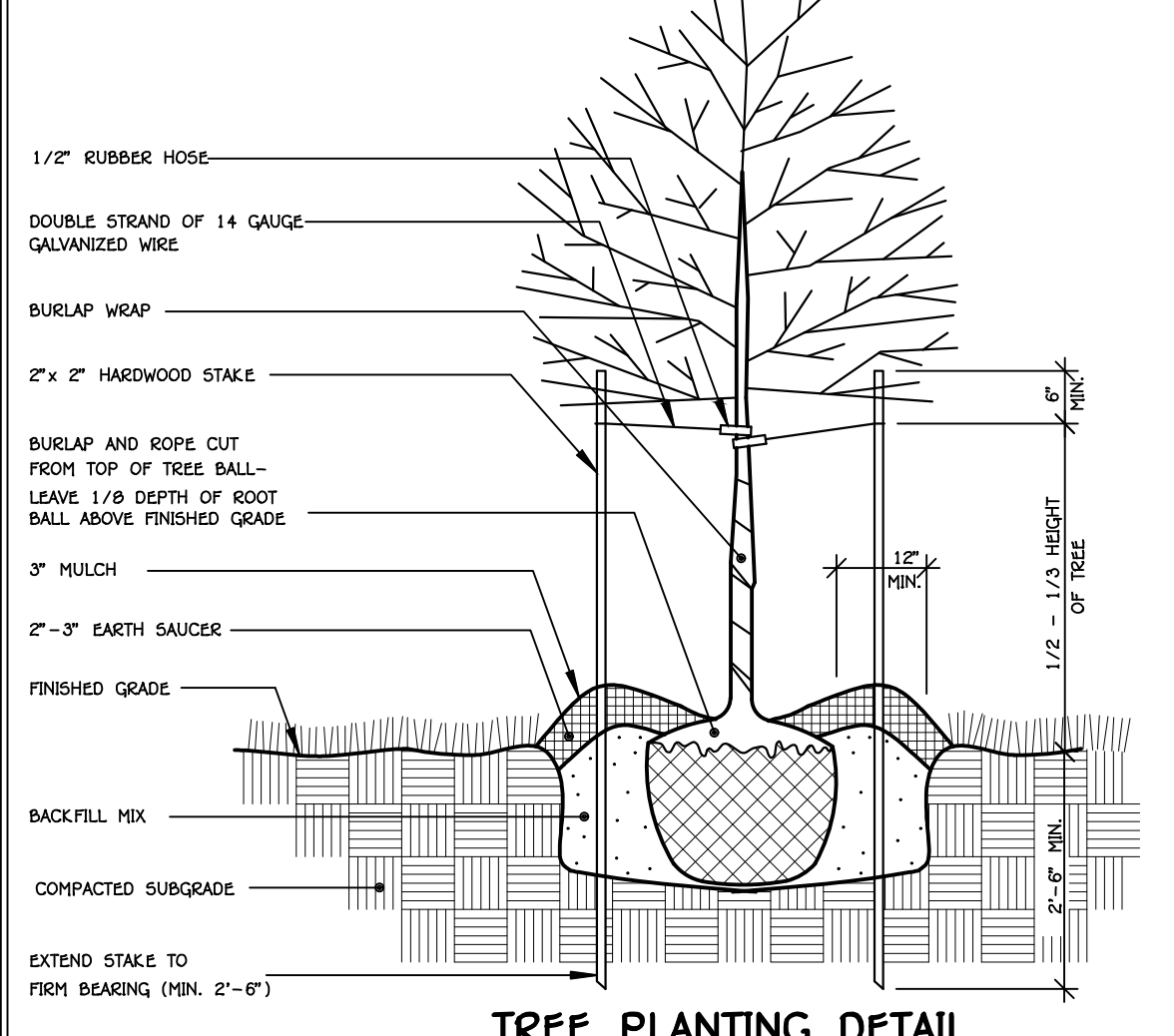
TITLE SHEET: GROVE ANGLE PROPERTY, LOTS 1 THRU 3. TAX MAP NO.: 31 GRID NO.: 13 PARCEL NO.: 35. ZONED R-20. PREVIOUS HOWARD COUNTY FILES: ECP-19-059, SDP-20-011 WP-20-042 (VOID). SECOND ELECTION DISTRICT: HOWARD COUNTY, MARYLAND. SCALE: AS SHOWN DATE: AUGUST, 2024. SHEET 1 OF 4 F-20-034

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
○	SPOT ELEVATION
---	EXISTING STORM DRAIN
---	EXISTING WATER LINE
---	EXISTING SEWER LINE
---	EXISTING OVERHEAD WIRE
---	EXISTING FENCE LINE
---	PROPOSED PAVING
---	PRIVATE UIC EASEMENT
---	PRIVATE DRAINAGE & UTILITY EASEMENT
---	LIMIT OF DISTURBANCE
---	SUPER SILT FENCE/TREE PROTECTION FENCE
---	DIVERSION FENCE/TREE PROTECTION FENCE
---	EXISTING TREE LINE
---	PROPOSED TREE LINE
---	DRAINAGE DIVIDE
---	PERMANENT SOIL STABILIZATION CONTROL MATTING
---	SOIL LINES AND TYPES
---	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
---	PROPOSED ROOF LEADER
---	DENOTES MBR OVERLAND FLOWPATH
---	DENOTES EXISTING TREES TO BE REMOVED
---	DENOTES EXISTING TREES TO REMAIN
ST 3	SPECIMEN TREE
---	CRITICAL ROOT ZONE
B-1	DENOTES SWM TEST BORING LOCATION

LANDSCAPING PLANT LIST			
QTY.	KEY	NAME	SIZE
5	○	ACER RUBRUM OCTOBER GLORY (OCTOBER RED MAPLE)	2 1/2" - 3" CALIPER FULL CROWN, 8-8
4	○	THUJA STANOSICHII X PLICATA (GREEN GIANT ARBORVITAE)	5'-6" HT. 8-8

SOILS LEGEND			
SOIL	NAME	CLASS	Kc VALUE
UcB	Urban land-Chillum-Belleville complex, 0 to 5 percent slopes	D	0.37

HOWARD COUNTY WEBSOILS SURVEY 05/06/19



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
100 NATIONAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PARK  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2895

APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE	NO.	REVISION	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	8/22/2024			
CHIEF, DIVISION OF LAND DEVELOPMENT	8/23/2024			

### PLANTING SPECIFICATIONS

PLANTS, RELATED MATERIAL, AND OPERATIONS SHALL MEET THE DETAILED DESCRIPTION AS GIVEN ON THE PLANS AND AS DESCRIBED HEREIN.

ALL PLANT MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE NURSERY GROWN, UNIFORMLY BRANCHED, HAVE A VIGOROUS ROOT SYSTEM, AND SHALL CONFORM TO THE SPECIES, SIZE, ROOT AND SHAPE SHOWN ON THE PLANT LIST AND THE AMERICAN ASSOCIATION OF NURSERYMEN (AAN) STANDARDS. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, FREE FROM DEFECTS, DECAY, DISFIGURING ROOTS, SUN SCALD INJURIES, ABRASIONS OF THE BARK, PLANT DISEASE, INSECT PEST INFECTIONS, BARKS AND ALL FORMS OF INSECT INFESTATIONS OR OBJECTIONABLE DISFIGUREMENTS. PLANT MATERIAL THAT IS WEAK OR WHICH HAS BEEN CUT BACK FROM LARGER GRADES TO MEET SPECIFIED REQUIREMENTS WILL BE REJECTED. TREES WITH FORKED LEADERS WILL NOT BE ACCEPTED. ALL PLANTS SHALL BE FRESHLY DUG; NO HEALED-IN PLANTS FROM COLD STORAGE WILL BE ACCEPTED.

UNLESS OTHERWISE SPECIFIED, ALL GENERAL CONDITIONS, PLANTING OPERATIONS, DETAILS AND PLANTING SPECIFICATION SHALL CONFORM TO "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS", (HEREINAFTER "LANDSCAPE GUIDELINES") APPROVED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF METROPOLITAN WASHINGTON AND THE POTOMAC CHAPTER OF THE AMERICAN SOCIETY OF LANDSCAPE ARCHITECT, LATEST EDITION, INCLUDING ALL AGENDA.

CONTRACTOR SHALL BE REQUIRED TO GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THE LANDSCAPE GUIDELINES. CONTRACTOR'S ATTENTION IS DIRECTED TO THE MAINTENANCE REQUIREMENTS FOUND WITHIN THE ONE YEAR SPECIFICATIONS INCLUDING WATERING AND REPLACEMENT OF SPECIFIED PLANT MATERIAL.

BID SHALL BE BASED ON ACTUAL SITE CONDITIONS. NO EXTRA PAYMENT SHALL BE MADE FOR WORK ARISING FROM SITE CONDITIONS DIFFERING FROM THOSE INDICATED ON DRAWINGS AND SPECIFICATIONS.

ALL SHRUBS SHALL BE PLANTED IN CONTINUOUS TRENCHES OR PREPARED PLANTING BEDS AND MULCHED WITH COMPOSTED HARDWOOD MULCH AS DETAILS AND SPECIFIED EXCEPT WHERE NOTED ON PLANS.

POSITIVE DRAINAGE SHALL BE MAINTAINED IN PLANTING BEDS 2 PERCENT SLOPE.

PLANTING MIX SHALL BE AS FOLLOWS: DECIDUOUS PLANTS - TWO PARTS TOPSOIL, ONE PART WELL-ROTTED COW OR HORSE MANURE. ADD 3 LBS. OF STANDARD FERTILIZER PER CUBIC YARD OF PLANTING MIX. EVERGREEN PLANTS - TWO PARTS TOPSOIL, ONE PART HUMUS OR OTHER APPROVED ORGANIC MATERIAL. ADD 3 LBS. OF EVERGREEN (ACIDIC) FERTILIZER PER CUBIC YARD OF PLANTING MIX. TOPSOIL SHALL CONFORM TO THE LANDSCAPE GUIDELINES.

WEED CONTROL: INCORPORATE A PRE-EMERGENT HERBICIDE INTO THE PLANTING BED FOLLOWING RECOMMENDED RATES ON THE LABEL. CAUTION: BE SURE TO CAREFULLY CHECK THE CHEMICAL USED TO ASSURE ITS ADAPTABILITY TO THE SPECIFIC GROUND COVER TO BE TREATED.

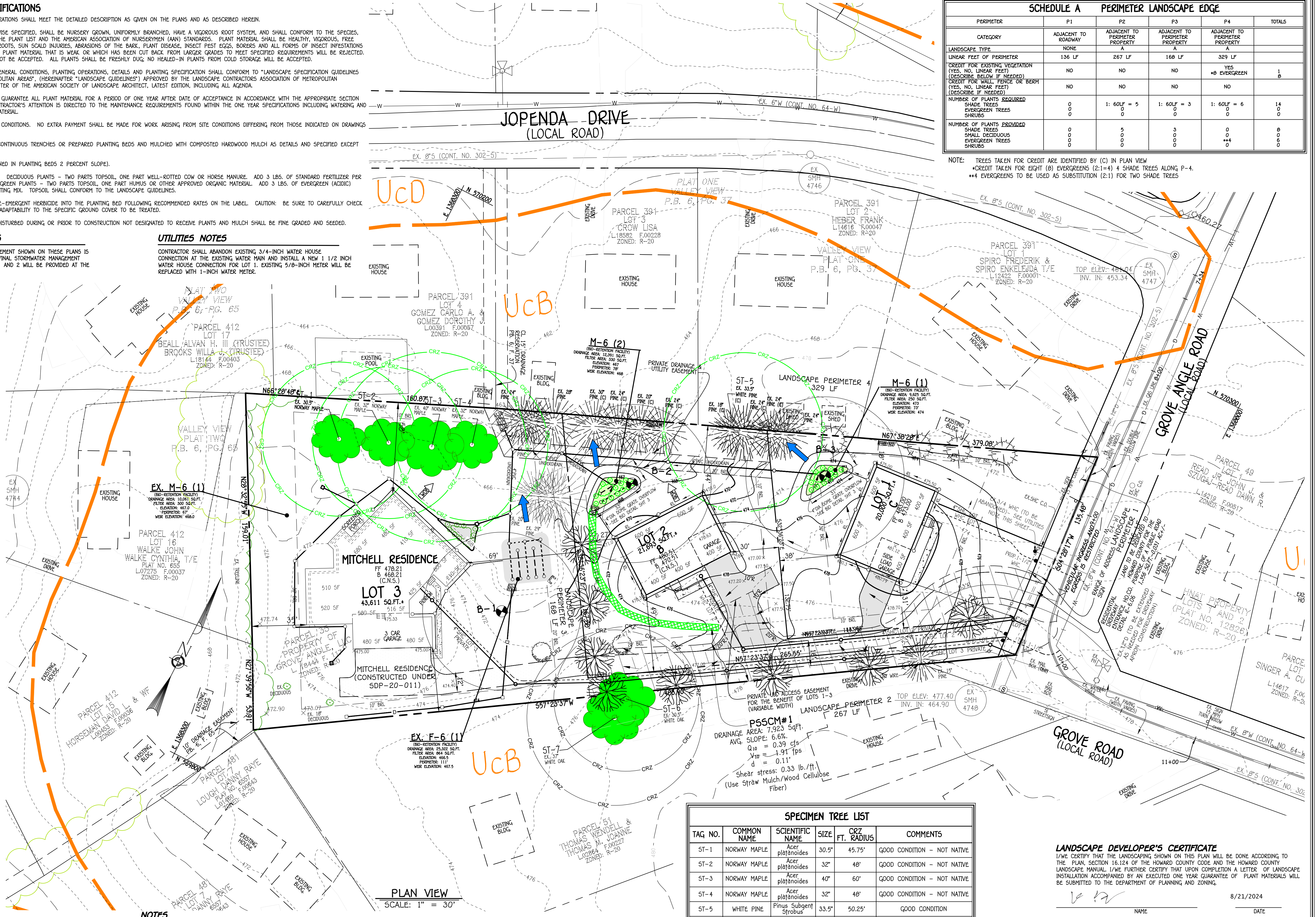
ALL AREAS WITHIN CONTRACT LIMITS DISTURBED DURING OR PRIOR TO CONSTRUCTION NOT DESIGNATED TO RECEIVE PLANTS AND MULCH SHALL BE FINE GRADED AND SEEDED.

### CONSTRUCTION NOTES

THE GRADING AND STORMWATER MANAGEMENT SHOWN ON THESE PLANS IS FOR INFORMATIONAL PURPOSES ONLY. FINAL STORMWATER MANAGEMENT DESIGN AND SITE GRADING FOR LOTS 1 AND 2 WILL BE PROVIDED AT THE SITE DEVELOPMENT PLAN STAGE.

### UTILITIES NOTES

CONTRACTOR SHALL ABANDON EXISTING 3/4-INCH WATER HOUSE CONNECTION AT THE EXISTING WATER MAIN AND INSTALL A NEW 1 1/2 INCH WATER HOUSE CONNECTION FOR LOT 1. EXISTING 5/8-INCH METER WILL BE REPLACED WITH 1-INCH WATER METER.



PERIMETER CATEGORY	PERIMETER LANDSCAPE EDGE				TOTALS
	P1	P2	P3	P4	
LANDSCAPE TYPE					
LINEAR FEET OF PERIMETER	136 LF	267 LF	168 LF	329 LF	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	YES	1
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE IF NEEDED)	NO	NO	NO	NO	0
NUMBER OF PLANTS REQUIRED					
SHADE TREES	0	1: 60LF = 5	1: 60LF = 3	1: 60LF = 6	14
EVERGREEN TREES	0	0	0	0	0
SHRUBS	0	0	0	0	0
NUMBER OF PLANTS PROVIDED					
SHADE TREES	0	5	3	0	8
SMALL DECIDUOUS EVERGREEN TREES	0	0	0	0	0
SHRUBS	0	0	0	0	0

NOTE: TREES TAKEN FOR CREDIT ARE IDENTIFIED BY (C) IN PLAN VIEW  
 \*CREDIT TAKEN FOR EIGHT (8) EVERGREENS (2:1=4) 4 SHADE TREES ALONG P-4  
 \*\*4 EVERGREENS TO BE USED AS SUBSTITUTION (2:1) FOR TWO SHADE TREES

### NOTES

- THE FERTISER LANDSCAPE OBLIGATION IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A LANDSCAPE SURETY IN THE AMOUNT OF \$30,000.00 BASED ON EIGHT (8) SHADE TREES @ \$3000/SHADE TREE AND FOUR (4) EVERGREEN TREES @ \$1500/ EVERGREEN TREE SHALL BE BONDED AS PART OF THE GRADING PERMIT FOR LOTS 1 AND 2.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREIN LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS 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 APPLICABLE PLANS AND CERTIFICATES.
- THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BENCHES, 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.
- FOR ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH CREDIT IS GIVEN, OR PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR IF THE TREE IS LISTED AS A PROHIBITED OR INVASIVE SPECIES ON THE CRZ TREE LIST IT SHOULD BE REPLACED WITH A RECOMMENDED TREE SPECIES 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 LANDSCAPE MANUAL.



**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/25.  
 Frank Manalansan II  
 DATE: 8/21/2024

**OWNER/DEVELOPER**  
 GROVE ANGLE LLC  
 8611 HAYSHED LANE  
 COLUMBIA MARYLAND 21045  
 410-641-1506

SPECIMEN TREE LIST					
TAG NO.	COMMON NAME	SCIENTIFIC NAME	SIZE	CRZ FT. RADIUS	COMMENTS
ST-1	NORWAY MAPLE	Acer platanoides	30.5'	45.75'	GOOD CONDITION - NOT NATIVE
ST-2	NORWAY MAPLE	Acer platanoides	32'	48'	GOOD CONDITION - NOT NATIVE
ST-3	NORWAY MAPLE	Acer platanoides	40'	60'	GOOD CONDITION - NOT NATIVE
ST-4	NORWAY MAPLE	Acer platanoides	32'	48'	GOOD CONDITION - NOT NATIVE
ST-5	WHITE PINE	Pinus Subgenet Strobus	33.5'	50.25'	GOOD CONDITION
ST-6	WHITE OAK	Quercus alba	30.5'	45.75'	FAIR CONDITION, LIMB DIEBACK
ST-7	WHITE OAK	Quercus alba	37'	55.5'	FAIR CONDITION, LIMB DIEBACK
ST-8	WHITE OAK	Quercus alba	37'	55.5'	REMOVED

NOTE: (1) CRITICAL ROOT ZONE (CRZ) = DBH X 1.5'  
 (2) SPECIMEN TREES ST-6 AND ST-7 ARE LOCATED ON ADJACENT PARCEL 51

**LANDSCAPE DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: \_\_\_\_\_ DATE: 8/21/2024

**SITE LAYOUT / LANDSCAPE PLAN, NOTES AND DETAILS**  
**GROVE ANGLE PROPERTY**  
 LOTS 1 THRU 3  
 TAX MAP NO.: 31 GRID NO.: 13 PARCEL NO.: 35  
 ZONED R-20  
 PREVIOUS HOWARD COUNTY FILES: ECP-19-059, SOP-20-011  
 WP-20-042 (VOID).  
 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: AUGUST, 2024  
 SHEET 2 OF 4 F-20-034

**INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS**

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC), AND RE V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR QP AS WELL. THE MOST COMMON SYSTEMS INCLUDE INFILTRATION TRENCHES, INFILTRATION BASINS, SAND FILTERS, AND ORGANIC FILTERS. WHEN PROPERLY PLANTED, VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, FREE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHOROUS AND METALS. VEGETATION PLANTED IN THE FACILITY WILL AID IN NUTRIENT UPTAKE AND WATER STORAGE. ADDITIONALLY, PLANT ROOTS WILL PROVIDE ARTERIES FOR STORMWATER TO PERMEATE SOIL FOR GROUNDWATER RECHARGE. FINALLY, SUCCESSFUL PLANTINGS PROVIDE AESTHETIC VALUE AND WILDLIFE HABITAT MAKING THESE FACILITIES MORE DESIRABLE TO THE PUBLIC.

- DESIGN CONSTRAINTS:**
- > PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.
  - > DETERMINE AREAS THAT WILL BE SATURATED WITH WATER AND WATER TABLE DEPTH SO THAT APPROPRIATE PLANTS MAY BE SELECTED (HYDROLOGY WILL BE SIMILAR TO BIORETENTION FACILITIES, SEE FIGURE A.5 AND TABLE A.4 FOR PLANTING MATERIAL GUIDANCE).
  - > PLANTS KNOWN TO SEND DOWN DEEP TAPROOTS SHOULD BE AVOIDED IN SYSTEMS WHERE FILTER FABRIC IS USED AS PART OF FACILITY DESIGN.
  - > TEST SOIL CONDITIONS TO DETERMINE IF SOIL AMENDMENTS ARE NECESSARY.
  - > PLANTS SHALL BE LOCATED SO THAT ACCESS IS POSSIBLE FOR STRUCTURE MAINTENANCE.
  - > STABILIZE HEAVY FLOW AREAS WITH EROSION CONTROL MATS OR SOO.
  - > TEMPORARILY DIRECT FLOW FROM SEEDING AREAS UNTIL VEGETATION IS ESTABLISHED.
  - > SEE TABLE A.5 FOR ADDITIONAL DESIGN CONSIDERATIONS.

**BIO-RETENTION SOIL BED CHARACTERISTICS**

THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME. THE SOIL MUST BE PERMEABLE ENOUGH TO ALLOW RUNOFF TO FILTER THROUGH THE MEDIA, WHILE HAVING CHARACTERISTICS SUITABLE TO PROMOTE AND SUSTAIN A ROBUST VEGETATIVE COVER CROP. IN ADDITION, MUCH OF THE NUTRIENT POLLUTANT UPTAKE (NITROGEN AND PHOSPHORUS) IS ACCOMPLISHED THROUGH ABSORPTION AND MICROBIAL ACTIVITY WITHIN THE SOIL PROFILE. THEREFORE, SOILS MUST BALANCE THEIR CHEMICAL AND PHYSICAL PROPERTIES TO SUPPORT BIOTIC COMMUNITIES ABOVE AND BELOW GROUND. THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME (ENVIRONMENTAL QUALITY RESOURCES (EQR), 1996; ENGINEERING TECHNOLOGY INC. AND BIOHABITATS, INC. (ETAB), 1993). SOILS SHOULD FALL WITHIN THE SM, ML, SC CLASSIFICATIONS OR THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). A PERMEABILITY OF AT LEAST 1.0 FEET PER DAY (0.5"/HR) IS REQUIRED (A CONSERVATIVE VALUE OF 0.5 FEET PER DAY IS USED FOR DESIGN). THE SOIL SHOULD BE FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 1" IN DIAMETER. BRUSH OR SEEDS FROM NOXIOUS WEEDS (E.G., JOHNSON GRASS, MUGWORT, NUTSEDGE, AND CANADA THISTLE OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05) SHOULD NOT BE PRESENT IN THE SOILS. PLACEMENT OF THE PLANTING SOIL SHOULD BE IN 12 TO 10 LIFTS THAT ARE LOOSELY COMPACTED (TAMPED LIGHTLY WITH A BACKHOE BUCKET OR TRAVERSED BY DOZER TRACKS). THE SPECIFIC CHARACTERISTICS ARE PRESENTED IN TABLE A.3.

**TABLE A.3 PLANTING SOIL CHARACTERISTICS**

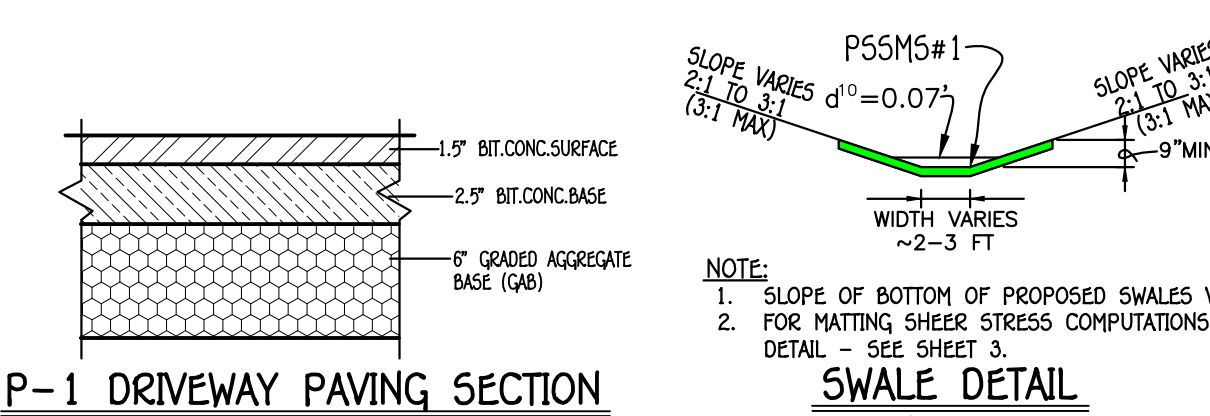
PARAMETER	VALUE
PH RANGE	5.2 TO 7.00
ORGANIC MATTER	1.5 TO 4.0% (BY WEIGHT)
MAGNESIUM	35 LBS. PER ACRE, MINIMUM
PHOSPHORUS (PHOSPHATE - P2O5)	75 LBS. PER ACRE, MINIMUM
POTASSIUM (POTASH - K2O)	85 LBS. PER ACRE, MINIMUM
SOLUBLE SALTS	500 PPM
CLAY	10 TO 25 %
SILT	30 TO 55 %
SAND	35 TO 60 %

**MULCH LAYER**  
THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE EROSION WHICH REDUCES PERMEABILITY. MULCH HELPS PREVENT EROSION, AND PROVIDES A MICROENVIRONMENT SUITABLE FOR SOIL BIOTA AT THE MULCH/SOIL INTERFACE. IT ALSO SERVES AS A PRETREATMENT LAYER, TRAPPING THE FINER SEDIMENTS, WHICH REMAIN SUSPENDED AFTER THE PRIMARY PRETREATMENT.

THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS), UNIFORM IN COLOR, AND FREE OF OTHER MATERIALS SUCH AS WEED SEEDS, SOIL ROOTS, ETC. THE MULCH SHOULD BE APPLIED TO A MAXIMUM DEPTH OF THREE INCHES. GRASS CLIPPINGS SHOULD NOT BE USED AS A MULCH MATERIAL.

**PLANTING GUIDANCE**  
PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES, BUT HAVE A DISTINCT COMMUNITY OF UNDERSTORY TREES, SHRUBS AND HERBACEOUS MATERIALS. BY CREATING A DIVERSE, DENSE PLANT COVER, A BIORETENTION FACILITY WILL BE ABLE TO TREAT STORMWATER RUNOFF AND WITHSTAND URBAN STRESSES FROM INSECTS, DISEASE, DROUGHT, TEMPERATURE, WIND, AND EXPOSURE.

THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE CATEGORIES OF PLANT MATERIALS THAT SHOULD BE USED IN BIORETENTION FACILITIES: 1. PLANT MATERIALS ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS. THE MIDDLE ELEVATION SUPPORTS PLANTS THAT LIKE DRIER SOIL CONDITIONS, BUT CAN STILL TOLERATE OCCASIONAL INUNDATION BY WATER. THE OUTER EDGE IS THE HIGHEST ELEVATION AND GENERALLY SUPPORTS PLANTS ADAPTED TO DRIER CONDITIONS. A SAMPLE OF APPROPRIATE PLANT MATERIALS FOR BIORETENTION FACILITIES ARE INCLUDED IN TABLE A.4. THE LAYOUT OF PLANT MATERIAL SHOULD BE FLEXIBLE, BUT SHOULD FOLLOW THE GENERAL PRINCIPLES DESCRIBED IN TABLE A.5. THE OBJECTIVE IS TO HAVE A SYSTEM, WHICH RESEMBLES A RANDOM, AND NATURAL PLANT LAYOUT, WHILE MAINTAINING OPTIMAL CONDITIONS FOR PLANT ESTABLISHMENT AND GROWTH. FOR A MORE EXTENSIVE BIORETENTION PLAN, CONSULT ETAB, 1993 OR CLAYTON AND SCHUELER, 1997.

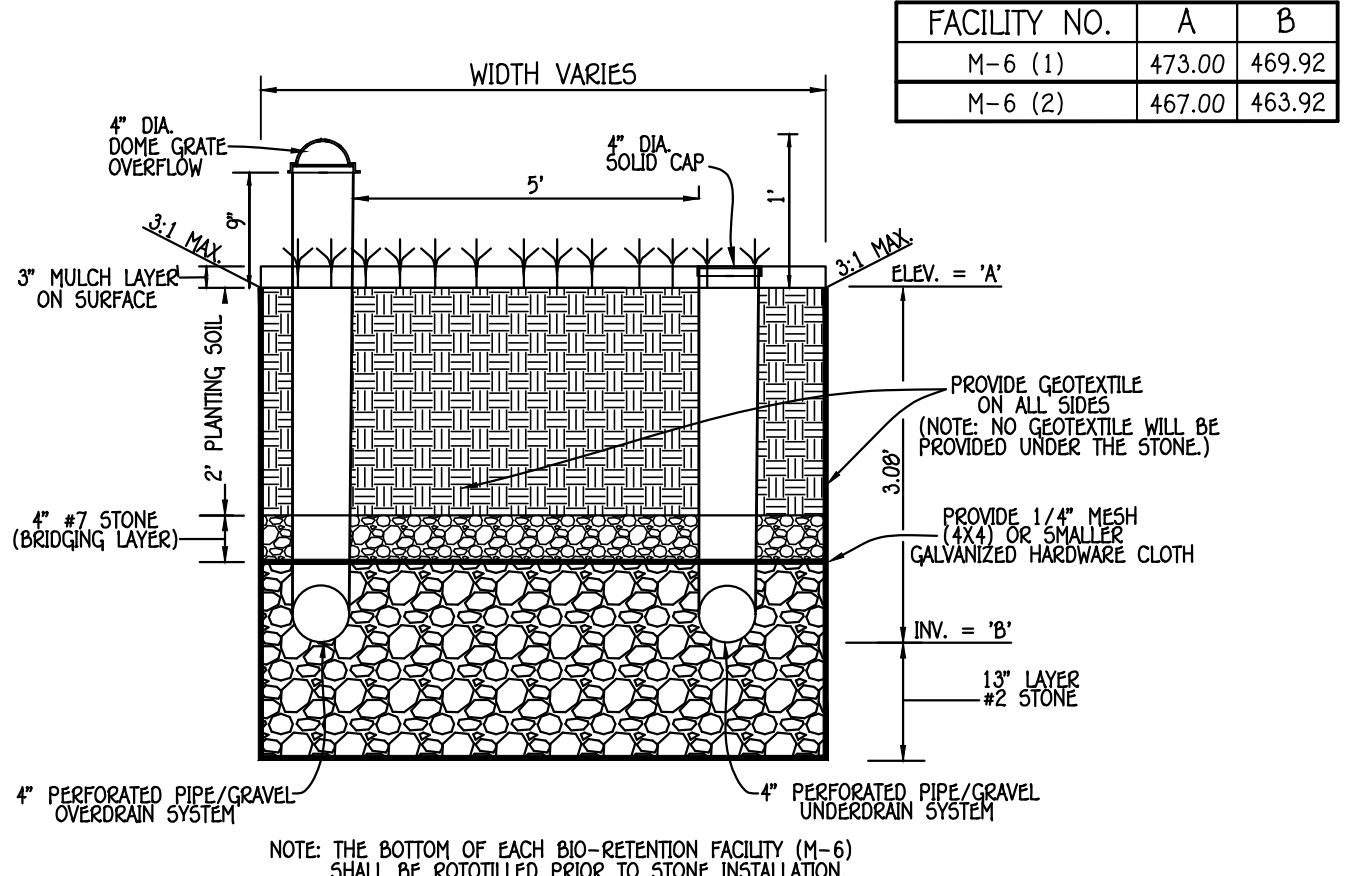
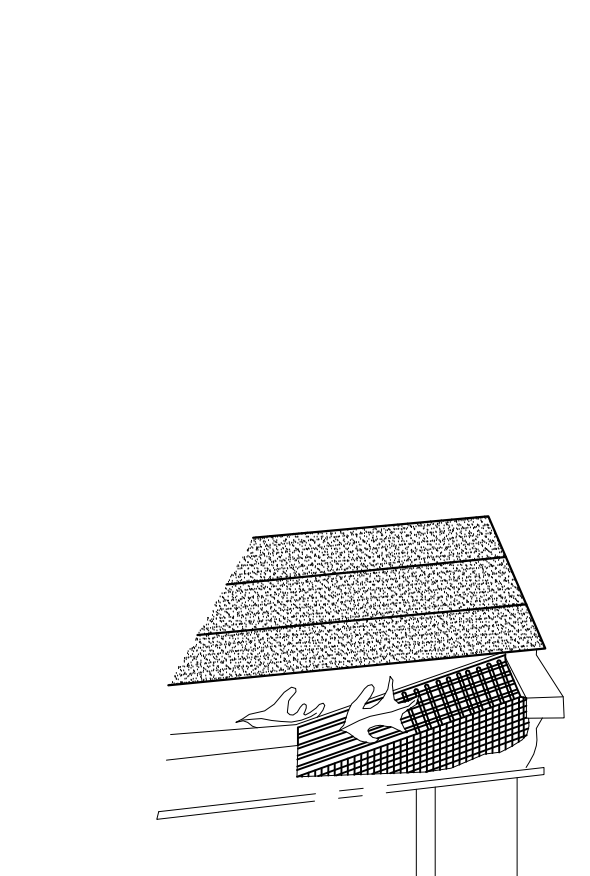
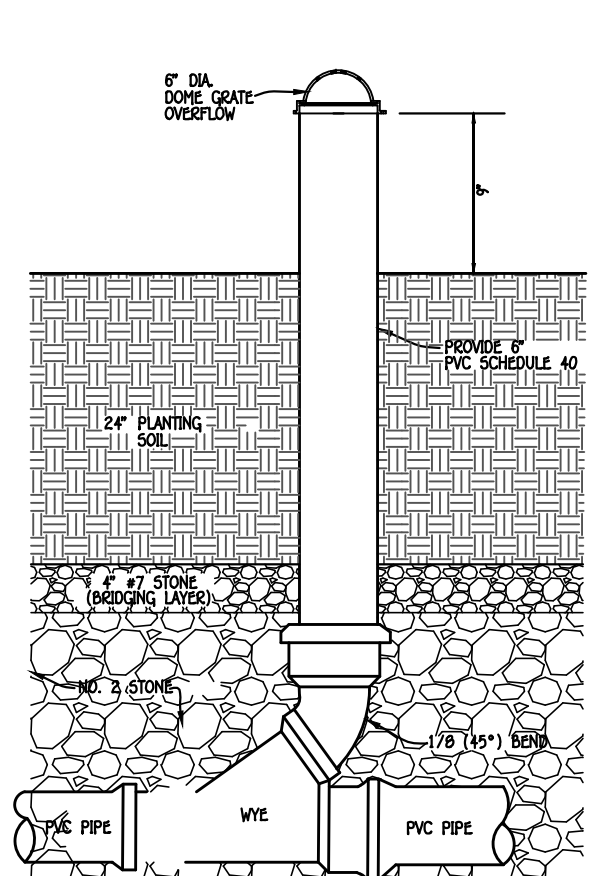
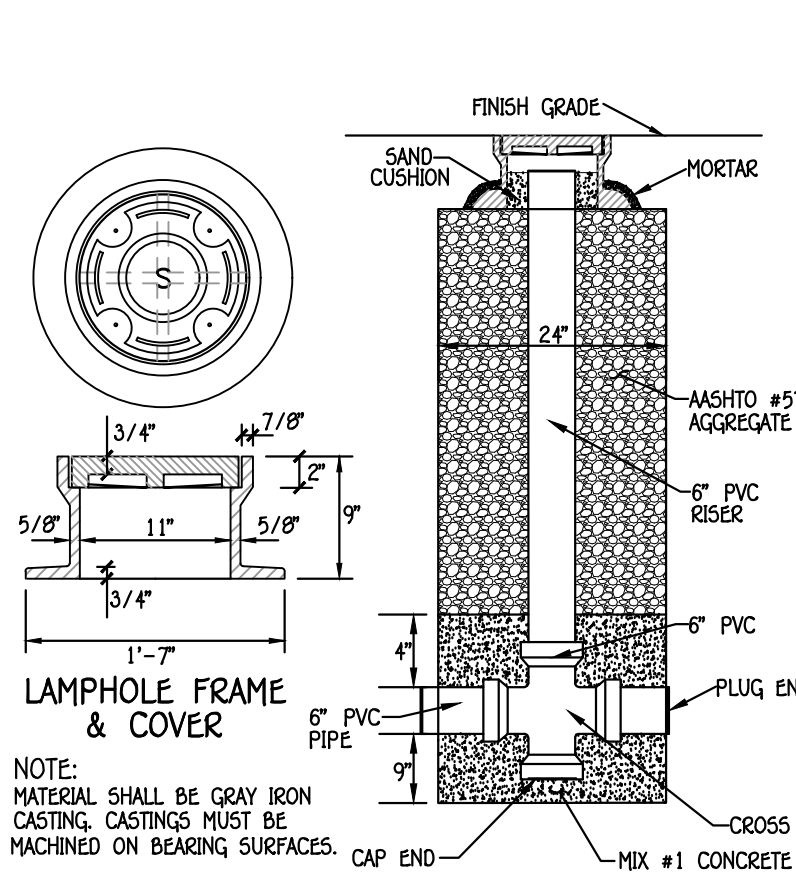
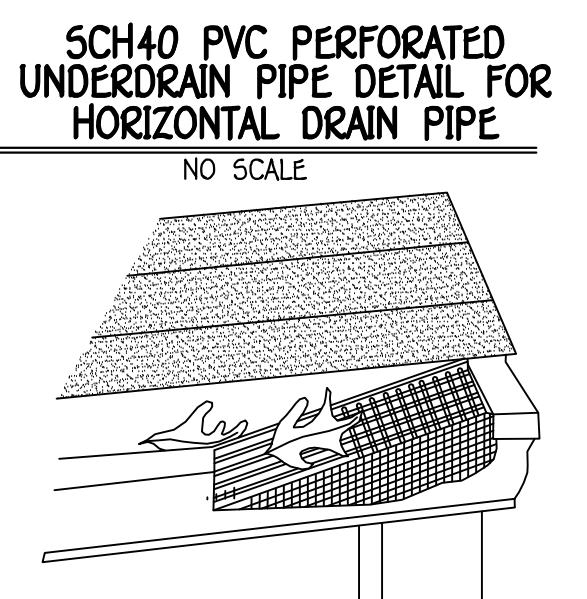
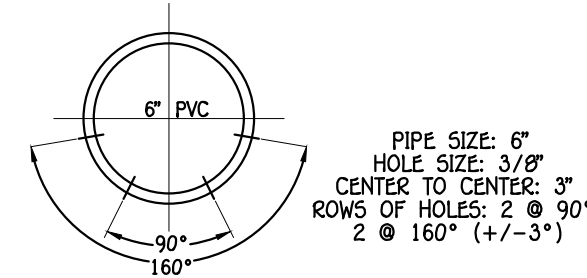


**OPERATION & MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (F-6 & M-6)**

- 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 AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, 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 VEGETATION CONSIDERED 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 EXCESS 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.

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2895

APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE
Chief, Development Engineering Division	8/22/2024
Chief, Division of Land Development	8/23/2024



**STORMWATER MANAGEMENT NOTES**

- STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH WITH CHAPTER 5, "ENVIRONMENTAL SITE DESIGN" OF THE 2007 MARYLAND STORMWATER MANAGEMENT DESIGN MANUAL, EFFECTIVE MAY 4, 2010.
- MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE 500 SQ. FT. OR LESS.

**STORMWATER MANAGEMENT PRACTICES BY LOT**

AREA ID	MICRO-BIO NUMBER	REMARKS
LOT 1	1	HOUSE AND PORTION OF UIC DRIVEWAY DRAINS TO BIO ON LOT
LOT 2	2	HOUSE AND PORTION OF UIC DRIVEWAY DRAINS TO BIO ON LOT
*LOT 3	EX. F-6 (1) EX. M-6 (1)	PORTION OF HOUSE AND UIC DRIVEWAY DRAINS TO BIO ON LOT PORTION OF HOUSE AND UIC DRIVEWAY DRAINS TO BIO ON LOT

\* STORMWATER MANAGEMENT FOR LOT 3 HAS BEEN PROVIDED UNDER S0P-20-011

**STORMWATER MANAGEMENT PRACTICES**

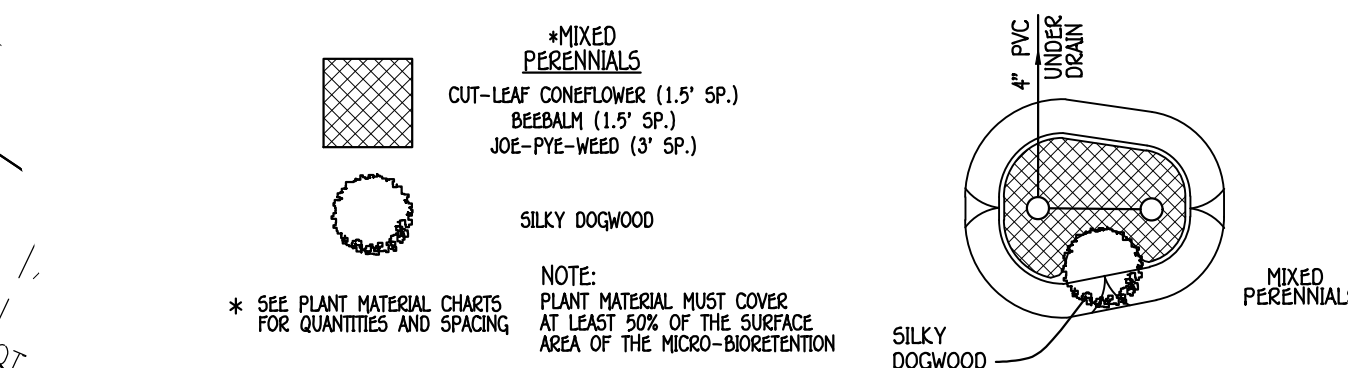
AREA ID	LOCATION	DRAINAGE AREA SF.	% IMPERVIOUS	ESOV REQUIRED CUFT.	ESOV PROVIDED CUFT.	MICRO-BIO-RETENTION (Y/N)
1	LOT 1	9,328	49.0%	342	360	Y
2	LOT 2	11,461	46.0%	398	412	Y
3	LOT 3	29,322	21.0%	450	1,032	Y (F-6)* Y (M-6)*
4	LOT 3	10,061	36.0%	282	416	Y (M-6)*

\* STORMWATER MANAGEMENT FOR LOT 3 HAS BEEN PROVIDED UNDER S0P-20-011

**SOILS LEGEND**

SOIL	NAME	CLASS	K VALUE
UcB	Urban land-Chillum-Belleville complex, 0 to 5 percent slopes	D	0.37

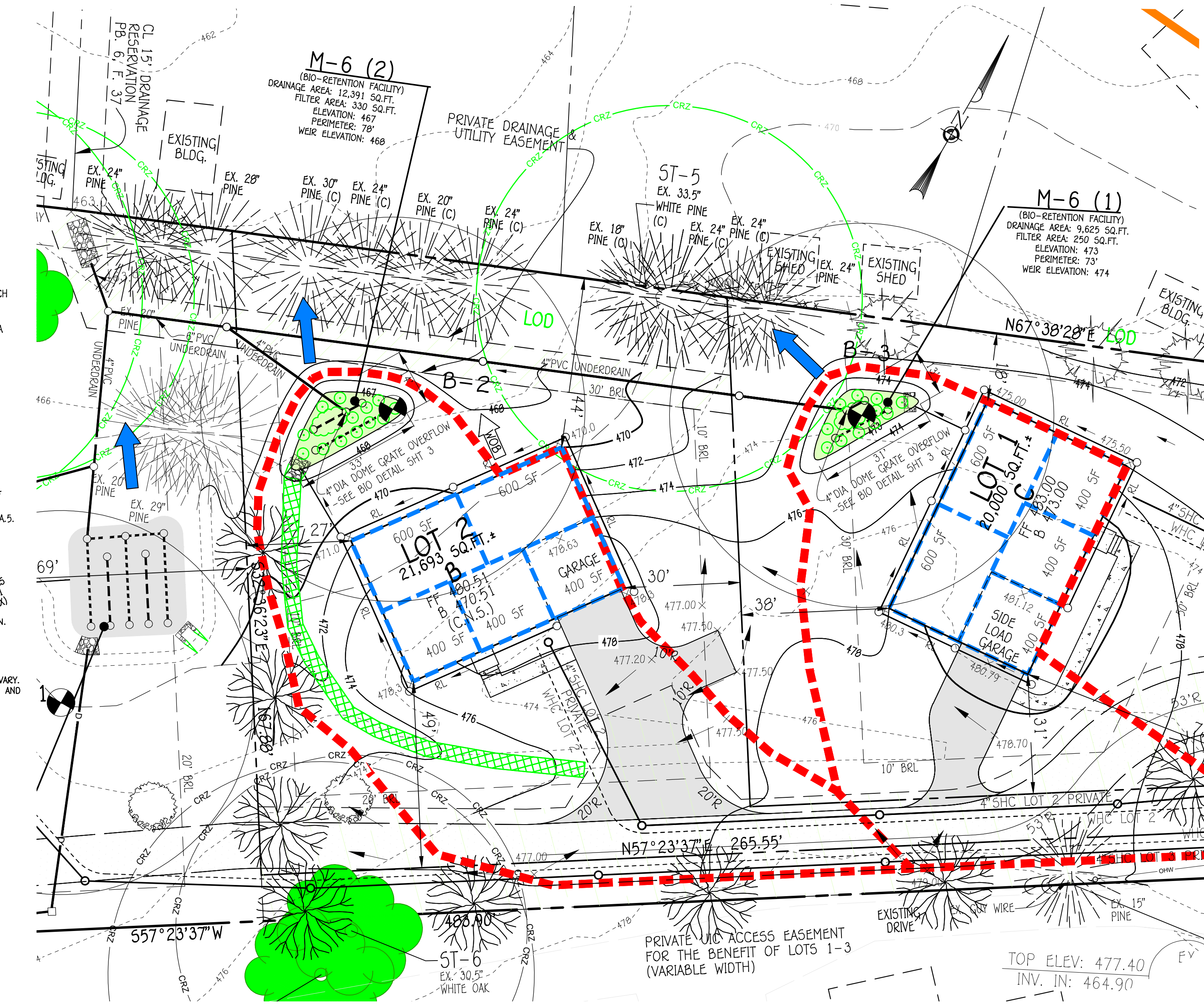
HOWARD COUNTY WEBSOILS SURVEY 05/06/19



**Table B.4. 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	loamy sand 60-65% compost 35-40% or sandy loam 30% coarse sand 30% compost 40%		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
Pea gravel diaphragm	pea gravel: ASTM-D-448	No. 8 or No. 9 (1/8" to 3/8")	
Curbin drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	No. 57 or No. Aggregate (3/8" to 3/4")	
Underdrain piping	F 758 Type P5 2B or AASHTO M-27B	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe: 3/8" per ft. @ 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 = 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 unless previously approved state or local standards requires design drawings sealed and approved by a professional structural engineer. Referencing to the title of Maryland - design to include meeting MD Code 350.8/89; vertical loading 1H-10 or H-20; allowable horizontal loading (based on soil pressure); and analysis of potential cracking
Sand	AASHTO M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Geystone (AASHTO) #10 are not acceptable. No calcium carbonate or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

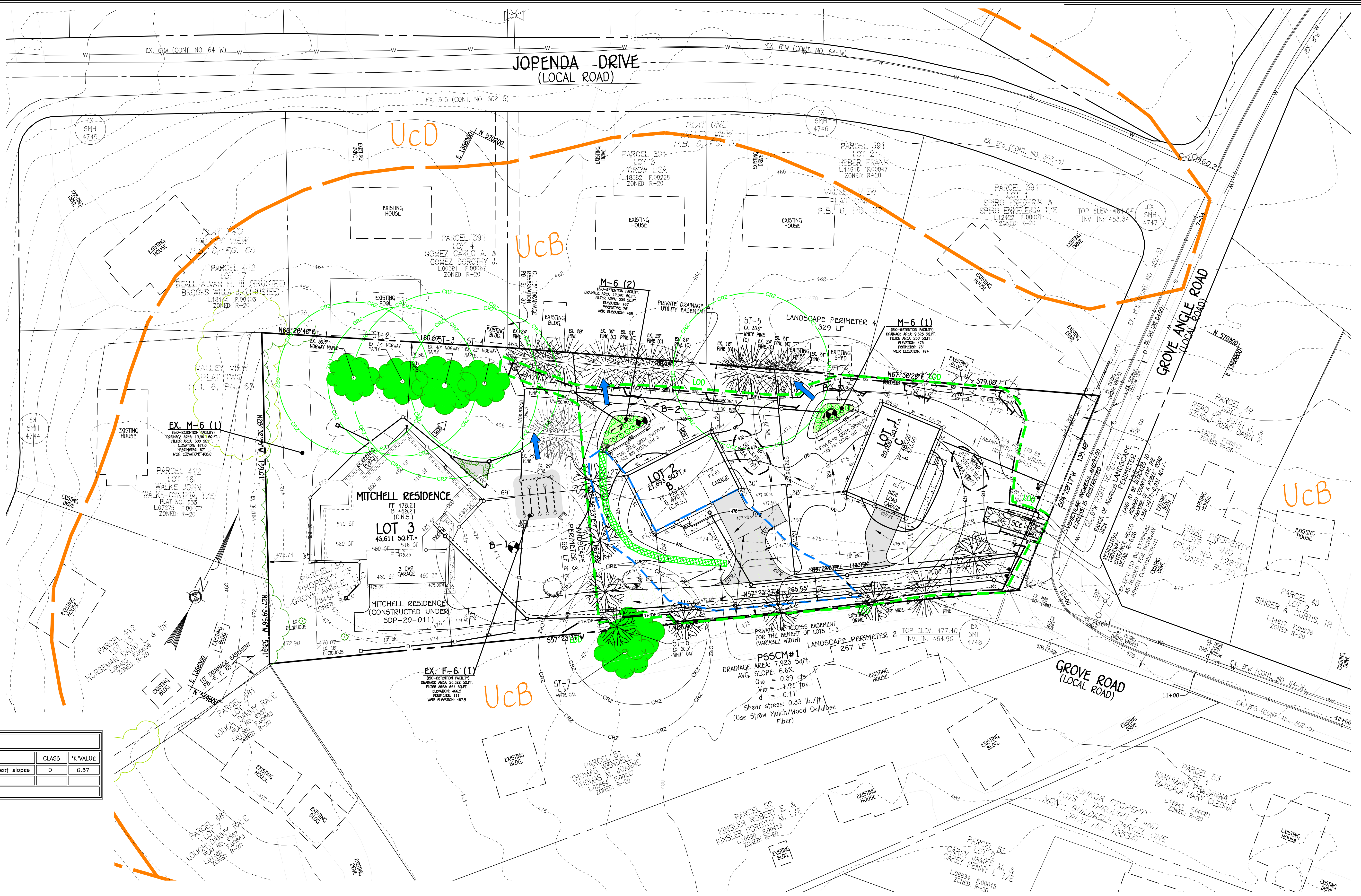
**STORMWATER MANAGEMENT PLAN, NOTES AND DETAILS**  
**GROVE ANGLE PROPERTY**  
LOTS 1 THRU 3  
TAX MAP NO.: 31 GRID NO.: 13 PARCEL NO.: 35  
ZONED R-20  
PREVIOUS HOWARD COUNTY FILES: ECP-19-059, S0P-20-011  
WP-20-042 (VOID),  
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: AUGUST, 2024  
SHEET 3 OF 4 F-20-034



**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/25.  
Frank Manalansan II  
FRANK MANALANSAN II  
DATE: 8/21/2024

**OWNER/DEVELOPER**  
GROVE ANGLE LLC  
8611 HAYSHED LANE  
COLUMBIA MARYLAND 21045  
410-641-1506

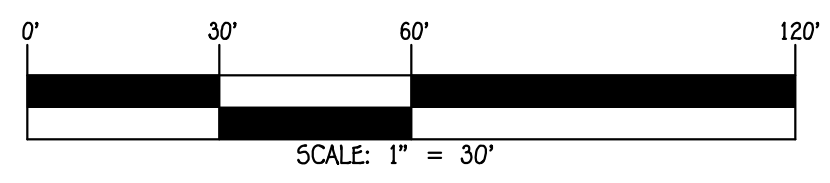
LEGEND	
SYMBOL	DESCRIPTION
	EXISTING CONTOUR 2' INTERVAL
	EXISTING CONTOUR 10' INTERVAL
	PROPOSED CONTOUR 10' INTERVAL
	PROPOSED CONTOUR 2' INTERVAL
	EXISTING FENCE
	SPOT ELEVATION
	EXISTING STORM DRAIN
	EXISTING WATER LINE
	EXISTING SEWER LINE
	EXISTING OVERHEAD WIRE
	EXISTING FENCE LINE
	PROPOSED PAVING
	PRIVATE UIC EASEMENT
	PRIVATE DRAINAGE & UTILITY EASEMENT
	LIMIT OF DISTURBANCE
	SUPER SILT FENCE/TREE PROTECTION FENCE
	DIVERSION FENCE/TREE PROTECTION FENCE
	EXISTING TREE LINE
	PROPOSED TREE LINE
	DRAINAGE DIVIDE
	PERMANENT SOIL STABILIZATION CONTROL MATTING
	SOIL LINES AND TYPES
	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
	PROPOSED ROOF LEADER
	DENOTES MBR OVERLAND FLOWPATH
	DENOTES EXISTING TREES TO BE REMOVED
	DENOTES EXISTING TREES TO REMAIN
	SPECIMEN TREE
	CRITICAL ROOT ZONE
	DENOTES 5WM TEST BORING LOCATION



SOILS LEGEND			
SOIL	NAME	CLASS	K'VALUE
UcB	Urban land-Chillum-Bethsville complex, 0 to 5 percent slopes	D	0.37

HOWARD COUNTY WEBSOILS SURVEY 05/06/19

PLAN VIEW  
SCALE: 1" = 30'



**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK • 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2855

APPROVED: DEPARTMENT OF PLANNING AND ZONING	DATE	NO.	REVISION	DATE
	8/22/2024			
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE			
	8/23/2024			
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE			

**SEDIMENT AND EROSION CONTROL NOTE**  
THE GRADING, STORMWATER MANAGEMENT AND EROSION/SEDIMENT CONTROL SHOWN ON THESE PLANS IS FOR INFORMATIONAL PURPOSES ONLY. FINAL STORMWATER MANAGEMENT DESIGN, SITE GRADING AND EROSION/SEDIMENT CONTROL FOR LOTS 1 AND 2 WILL BE PROVIDED AT THE SITE DEVELOPMENT PLAN STAGE



**PROFESSIONAL CERTIFICATION**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL LAND SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/25.  
Frank Manalansan II  
FRANK MANALANSAN II  
DATE: 8/21/2024

**OWNER/DEVELOPER**  
GROVE ANGLE LLC  
8611 HAYSHED LANE  
COLUMBIA MARYLAND 21045  
410-641-1506

**GRADING AND EROSION/SEDIMENT CONTROL PLAN**  
**GROVE ANGLE PROPERTY**  
LOTS 1 THRU 3  
TAX MAP NO.: 31 GRID NO.: 13 PARCEL NO.: 35  
ZONED R-20  
PREVIOUS HOWARD COUNTY FILES: ECP-19-059, SDP-20-011  
WP-20-042 (VOID)  
SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: AUGUST, 2024  
SHEET 4 OF 4 F-20-034