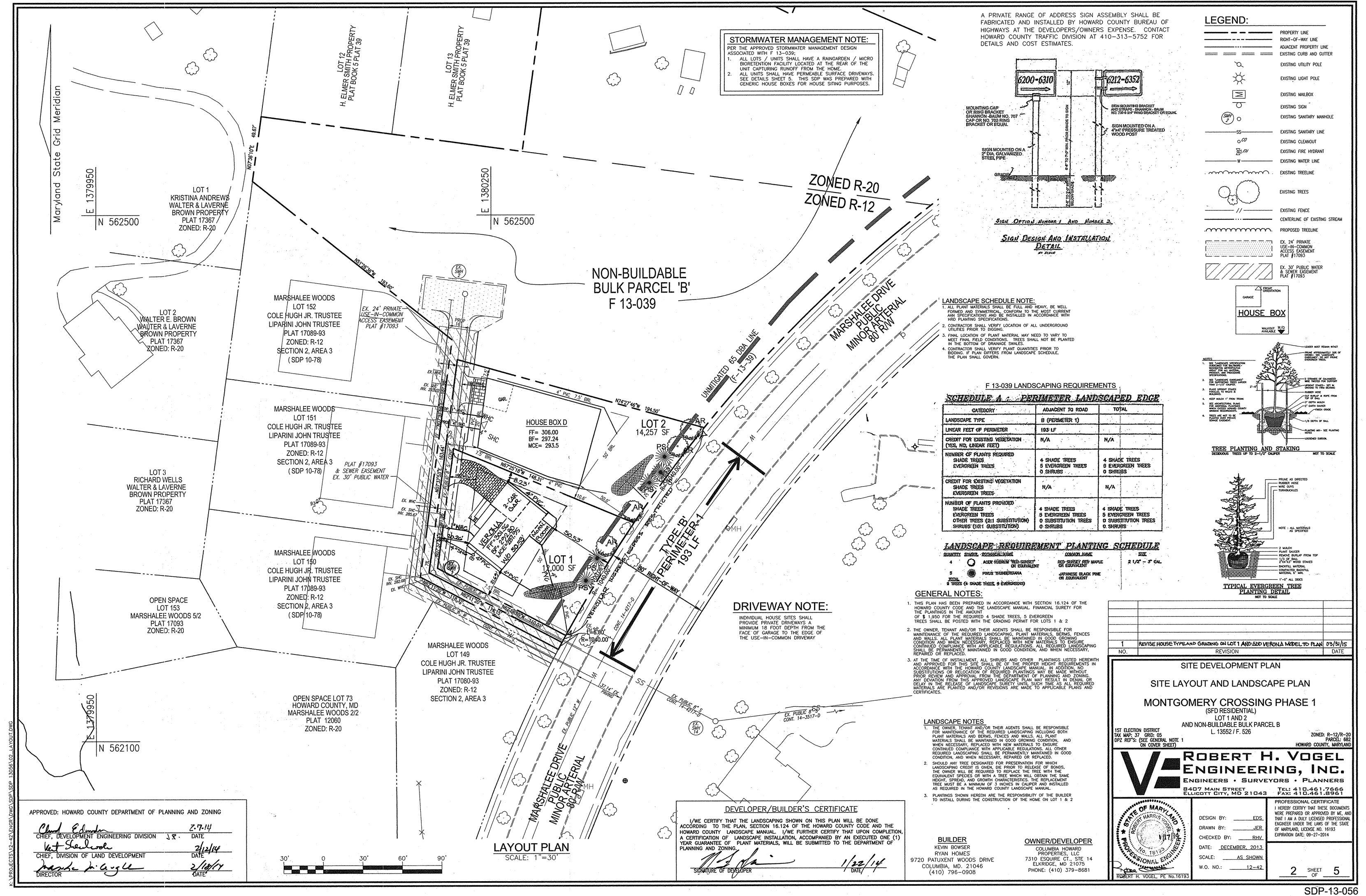
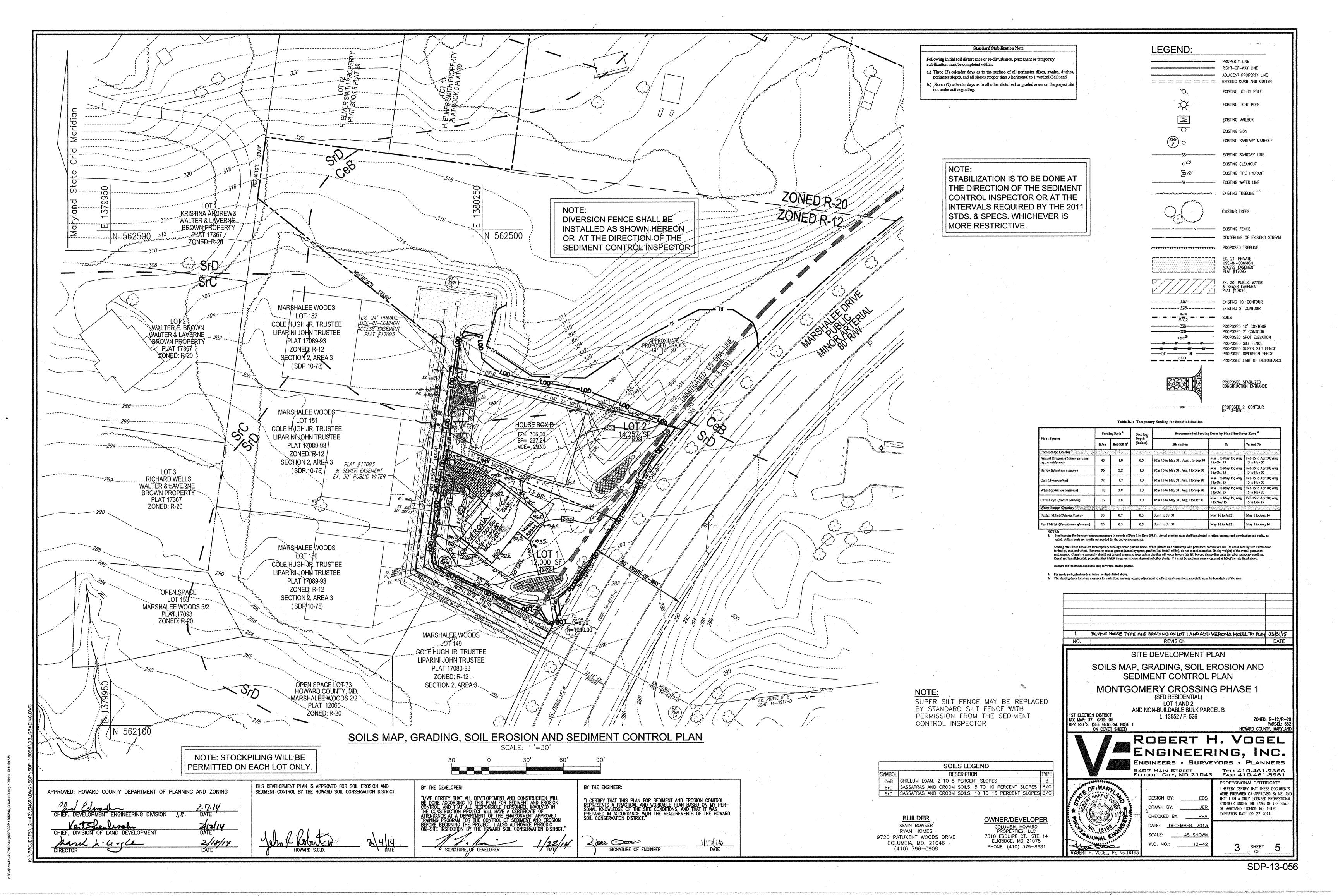
SITE DEVELOPMENT PLAN **GENERAL NOTES** SHEET INDEX PROJECT BACKGROUND: SHEET NO TAX MAP 37 GRID 5 LOCATION: MONTGOMERY CROSSING PHASE 1 OVER SHEET PARCELS: 320 & 354 ITE LAYOUT AND LANDSCAPE PLAN R-20 & R-12 SOILS MAP, GRADING, SOIL EROSION AND SUBDIVISION MONTGOMERY CROSSING 3 OF 5 SEDIMENT CONTROL PLAN TOTAL LOT AREA RADING, SOIL EROSION AND SEDIMENT DISTURBED AREA: 4 OF 5 AREA OF PLAN SUBMISSION: CONTROL NOTES AND DETAILS MINIMUM LOT SIZE: 12,000 SF LOT 1 AND 2 HOUSE TYPE AND STORMWATER MANAGEMENT DETAILS 5 OF 5 PROPOSED USE FOR SITE: RESIDENTIAL TOTAL NUMBER OF UNITS: AND NON-BUILDABLE BULK PARCEL B TYPE OF PROPOSED UNIT: DEED REFERENCES: LIBER 13552 FOLIO 512 &: LIBER 13552 FOLIO 519 DPZ REFERENCES: PLATS #17089-17093, F-04-095, F-96-066, F-96-062, F-96-030, SDP-10-078, S-88-86, S-89-80, S-89-19, P-90-28, P-92-17, F-93-36, WP-91-90, WP-94-89, F-95-19, F-94-101, WP-94-90, F-95-182, F-97-124, SP-98-06, L. 13552 / F. 526 SP-11-002, F-10-080, F-13-039, GP 13-060. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK. HOWARD COUNTY, MARYLAND THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION 5. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE 6. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHY PERFORMED BY WINGS AERIAL MAPPING, DATED DECEMBER 2009 AND FIELD TOPOGRAPHY COMPLIED BY ROBERT H. VOGEL ENGINEERING, INC. FEBRUARY 2013. IN SCALE: 1"=2000" ADDITION MASS GRADES PER GP 13-060 ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY ADC MAP COORDINATE: PG. 4936 J7 THE PROJECT BOUNDARY IS BASED ON A FIELD RUN MONUMENTED BOUNDARY SURVEY PERFORMED BY MILDENBERG, BOENDER, AND ASSOCIATES, ON OR ABOUT FEBRUARY 2010. 8. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON **BENCHMARKS** 9. THE SUBJECT PROPERTY IS ZONED "R-12 & R-20" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON COMPREHENSIVE ZONING PLAN AND THE COMP. LITE ZONING REGULATIONS EFFECTIVE ON 7/28/06, AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE HOWARD COUNTY BENCHMARK - 37BA (CONC. MONUMENT) 10/2/03 PER COUNCIL BILL 75-2003. N 563785.6421 E 1376343.2088 ELEV. 393.94 10. STORMWATER MANAGEMENT REQUIREMENTS HAVE BEEN SATISFIED UNDER APPROVED F-96-30, ECP 11-034 AND PER F-13-039 THRU THE USE OF PRIVATELY OWNED AND MAINTAINED PERMEABLE SUFFACE DRIVEWAYS A-2 AND LOCATION: MONTGOMERY ROAD 0.4 MILES EAST OF MEADOWRIDGE ROAD MICRO-BIORETENTION / RAINGARDEN M-7. HOWARD COUNTY BENCHMARK - 37BB (CONC. MONUMENT) 11. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS, FIELD SURVEY, ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. N 563663.4488 E 1378040.5059 ELEV. 373.01 CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY LOCATION: MONTGOMERY ROAD BY ROCKBURN PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTED SERVICE. 12. ANY DAMAGE TO THE COUNTY'S RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE . ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06 UNLESS OTHERWISE NOTED. 14. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING 1-800-252-1133 **LEGEND** 410-637-8713 BGE (CONSTRUCTION SERVICES) BGE (EMERGENCY) N 5622650 S BUREAU OF UTILITIES 410-313-4900 COLONIAL PIPELINE CO 410-795-1390 1-800-257-7777 410-531-5533 STATE HIGHWAY ADMINISTRATION 1-800-743-0033 . IN ACCORDANCE WITH SECTION 128 OF THE HOWARD COUNTY ZONING REGULATIONS, BAY WINDOWS, CHIMNEYS, OR EXTERIOR STAIRWAYS NOT MORE THAN 16 FEET IN WIDTH MAY PROJECT NOT MORE THAN 4 FEET INTO ANY SETBACKS. USE-IN-COMMON ACCESS EASEMENT PLAT #17093 FRONT OR REAR YARD SETBACK. NON-BUILDABLE 16. PER F13-039; NO WETLANDS, STREAMS, 25% STEEP SLOPES OR FLOODPLAINS EXIST ON SITE. 17. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. **BULK PARCEL 'B'** WATER AND SEWER SERVICE FOR THIS PROJECT WILL BE PUBLIC. WATER AND SEWER WILL BE PROVIDED THROUGH F 13-039 20. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM. NO STEEP SLOPES OVER 20,000 SF CONTIGUOUS ARE LOCATED ONSITE. EXISTING UTILITY POLE 22. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST ZONED R-20 MARSHALEE WOODS CONSERVATION ACT FOR THIS SUBDIVISION HAVE BEEN FULFILLED UNDER APPROVED F-96-030, F-96-062, F-96-066 AND SECTION 2, AREA 3 PAYMENT OF FEE IN LIEU WITH F13-039 FOR THE REQUIRED 0.26 ACRE OBLIGATION. 23. THE LANDSCAPE PLAN, IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY LANDSCAPE MANUAL WAS EXISTING LIGHT POLE NON-RUILDARI E KRISTINA ANDREWS BULK PARCEL A APPROVED UNDER F-13-039. FINANCIAL SURETY IN THE AMOUNT OF \$1,950.00 SHALL BE POSTED WITH THE BUILDERS BROWN PROPERAT EXISTING MAILBOX 24. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES AND ARE BASED UPON EXISTING AND PROPOSED CONTOURS. EXISTING SIGN 25. ALL SINGLE FAMILY DWELLINGS WILL HAVE A MINIMUM OF A 1-1/2" WHO WITH A 1" OUTSIDE METER SETTING 26. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS: A) WIDTH - 12 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE) B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.)) GEOMETRY — MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45—FOOT TURNING RADIUS MARSHALEE WOODS O ROOM 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 COLE HUGH JR. TRUSTEE OVER DRIVEWAY SURFACE LIPARINI JOHN TRUSTEE F) STRUCTURE CLEARANCES - MINIMUM 12 FEET PLAT 17089-93 G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE ZONED: R-12 XONED: R-20 THE 65 dBA NOISE CONTOUR LINE DRAWN ON THIS DEVELOPMENT PLAN IS ADVISORY AS REQUIRED BY THE HOWARD SECTION 2, AREA 3 COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY, 1992, AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 dBA (SDP 10-78) ADDRESS CHART (REVERSE NOISE EXPOSURE. THE 65dBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY GAR STREET ADDRESS THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT. ESTABLISHED UNDER PLAT NO. XXXXXX. F13-039 28. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION. 6505 MARSHALEE DRIVE 29. THE OWNER, TENNANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING 6501 MARSHALEE DRIVE MARSHALEE WOODS AND ALL PLANT MATERIALS, BERMS, FENCES, AND WALLS, ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING LOT 151 CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE COLE HUGH JR. TRUSTEE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN THE VERONA-LOT I PERMIT INFORMATION CHART LIPARINI JOHN TRUSTEE PLAT 17089-93 SCALE 1"= 30" 30. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF SUBDIVISION NAME | SECTION / AREA ZONED: R-12 HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE, CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS MONTGOMERY CROSSING SECTION 2, AREA 3 1 AND 2 PHASE 1- F13-039 31. A DECLARATION OF MAINTENANCE OBLIGATIONS FOR THE USE-IN-COMMON ACCESS AREA WAS APPROVED UNDER F-96-066 PLAT REF. |BLOCK NO | ZONE | TAX MAP | ELECT DIST. | CENSUS TR. (PLATS 12461-12463) AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MD IN LIBER 3817 FOLIO 251, AND WALTER & LAVERNE WAS AMENDED UNDER A RESOLUTION RECORDED IN LIBER 8821 FOLIO 004, F-04-095 (PLATS 17089-17093). R-12/R-20 32. FOREST STAND DELINEATION WAS COMPLETED BY MILDENBERG, BOENDER AND ASSOCIATES., INC. UNDER SP11-002/ 33. AN 85TH PERCENTILE SPEED STUDY AND SIGHT DISTANCE ANALYSIS WAS COMPLETED BY MILDENBERG, BOENDER AND ASSOCIATES., INC. UNDER SP11-002 / F13-039. MARSHALEE WOODS COLE HUGH JR. TRUSTEE LIPARINI JOHN TRUSTEE PLAT 17089-93 REVISE HOUSE TYPE AND GRADING ON LOT I AND ADD VERONA MODEL TO PLAN 03/31/15 ZONED: R-12 SECTION 2, AREA 3 **LOCATION MAP** MARSHALEE WOODS 5/2 (SDP/10-78) SITE DEVELOPMENT PLAN MARSHALEE WOODS **COVER SHEET** LOT 149 COLE HUGH JR. TRUSTEE LIPARINI JOHN TRUSTEE N 5622150 PLAT 17080-93 N 562150 **MONTGOMERY CROSSING PHASE 1** ZONED: R-12 SECTION 2, AREA 3 (SFD RESIDENTIAL) SITE ANALYSIS DATA AND NON-BUILDABLE BULK PARCEL B 1ST ELECTION DISTRICT TAX MAP: 37 GRID: 05 DPZ REF'S: (SEE GENERAL NOTE 1 ON COVER SHEET) TOTAL PROJECT AREA: AREA OF PLAN SUBMISSION: 0.60 AC (LOTS 1 & 2) LIMIT OF DISTURBANCE: R-12 / R-20 PRESENT ZONING DESIGNATION: ROBERT H. VOGEL PROPOSED USES FOR SITE AND SINGLE FAMILY DETACHED STRUCTURES: FLOOR SPACE ON EACH LEVEL ENGINEERING, INC. OF BUILDING PER USE: TOTAL NUMBER OF UNITS ALLOWED SOILS LEGEND ENGINEERS . SURVEYORS . PLANNERS FOR PROJECT AS SHOWN ON FINAL PLAT: 2 BUILDABLE LOTS TOTAL DESCRIPTION 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961 TOTAL NUMBER OF UNITS PROPOSED CHILLUM LOAM, 2 TO 5 PERCENT SLOPES ON SUBMISSION: SASSAFRAS AND CROOM SOILS, 5 TO 10 PERCENT SLOPES B/C MAXIMUM NUMBER OF EMPLOYEES. SASSAFRAS AND CROOM SOILS, 10 TO 15 PERCENT SLOPES B/ TENANTS ON SITE PER USE: I HEREBY CERTIFY THAT THESE DOCUMENTS NUMBER OF PARKING SPACES REQUIRED APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING WERE PREPARED OR APPROVED BY ME, AN 2 PER SFD HOUSE BY HO.CO. ZONING REGULATIONS: NUMBER OF PARKING SPACES PROVIDED THAT I AM A DULY LICENSED PROFESSIONAL ON SITE: OPEN SPACE ON SITE: ENGINEER UNDER THE LAWS OF THE STATE PER FEE IN LIEU F-13-039 OF MARYLAND, LICENSE NO. 16193 AREA OF RECREATION OPEN SPACE EXPIRATION DATE: 09-27-2014 CHECKED BY: REQUIRED BY SUBDIVISION & LAND **BUILDER** DEVELOPMENT REGULATIONS: KEVIN BOWSER DECEMBER, 201 BUILDING COVERAGE OF SITE: COLUMBIA HOWARD APPLICABLE DPZ FILE REFERENCES: RYAN HOMES PROPERTIES, LLC 7310 ESQUIRE CT., STE 14 ELKRIDGE, MD 21075 SCALE: ANY OTHER INFORMATION WHICH MAY AS SHOWN 9720 PATUXENT WOODS DRIVE TAX MAP 37, GRID 5, PARCELS 320, 354 AND 682 COLUMBIA, MD. 21046 W.O. NO.: 1ST ELECTION DISTRICT ROBERT H. VOGEL, PE No.16193 PHONE: (410) 379-8681

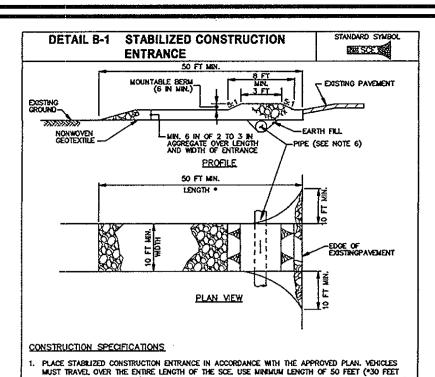
Q. FLOOR AREA RATIO:

(410) 796-0908

6011.01







PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT), USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE ENSTRY ROAD TO PROVIDE A TURKING RADIUS. 2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERNI WITH 5:1 SLOPES AND A MINIMAUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN, WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONYEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERNI IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS

PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. 5. MAINTAIN ENTRANCE IN A CONCITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPLLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACULMENG, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAYEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011

DETAIL E-3 SUPER SILT FENCE SSF GALVANIZED CHAIN LINK FENCE WITH WOVEN SUIT FILM GEOTEXTRLE ELEVATION WOVEN SLIT FRUI GEOTEXTILE-FLOW CONSTRUCTION SPECIFICATIONS

INSTALL 2% INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART, DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.

. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2% INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS. . Fasten vioven slit film geotextile as specified in section H-1 materials, securely to the upslope side of chain link fence with ties spaced every 24 inches at the top and mid section. Embed geotextile and chain link fence a minamum of 8 inches into the ground,

WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.

REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FEDRING AND GEOTEXTILE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2011

H-5 STANDARDS AND SPECIFICATIONS

DUST CONTROL

Controlling the suspension of dust particles from construction activities

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

Conditions Where Practice Applies Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

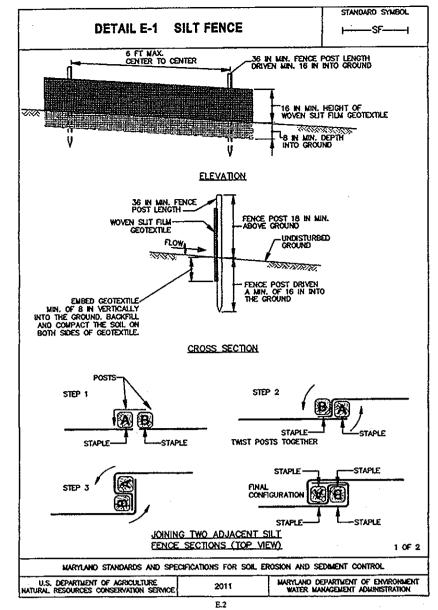
Specifications Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to

Vegetative Cover: See Section B-4-4 Temporary Stabilization. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and

similar plows are examples of equipment that may produce the desired effect Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must of be irrigated to the point that runoff occurs

Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar

aterial can be used to control air currents and soil blowing. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan



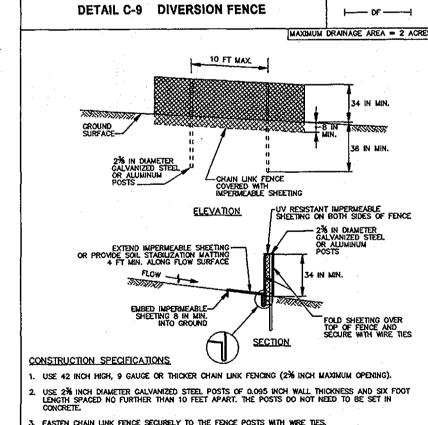
DETAIL E-1 SILT FENCE |-----SF------| USE WOOD POSTS $1\% \times 1\% \pm \%$ INCH (MINIMUM) SQUARE CUT OF SQUIND QUALITY HARDWOOD. AS AN ALTERNATIVE TO WOODEN POST USE STANDARD "T" OR "U" SECTION STEEL POSTS WEIGHING NOT LESS THAN 1 POUND PER LINEAR FOOT.

USE 36 INCH MINIMUM POSTS DRIVEN 16 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APART USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTEXTILE SECURELY TO UPSLOPE SIDE OF FENCE POSTS WITH WIRE TIES OR STAPLES AT TOP AND MID-SECTION.

EMBED GEOTEXTILE A MINIMUM OF 8 INCHES VERTICALLY INTO THE GROUND. BACKFILL AND COMPACT THE SOIL ON BOTH SIDES OF FABRIC. WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, TWIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL.

EXTEND BOTH ENDS OF THE SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SILT FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011 TANDARD SYMBOL



FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND, SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2011

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313-1855).

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURREN "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL",

3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 3 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 7 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS: TOTAL AREA OF SITE AREA DISTURBED APEA TO BE ROOFED OR PAVED AREA TO BE VEGETATIVELY STABILIZED ACRES TOTAL CUT TOTAL FILL OFFSITE WASTE/BORROW AREA LOCATION ____**

ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.

ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION

11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER

12. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 ACRES PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE ENFORCEMENT AUTHORITY. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE APPROVAL AUTHORITY, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED ATA GIVEN TIME.

ESTIMATE ONLY: CONTRACTOR SHALL VERIFY QUANTITIES TO HIS OWN SATISFACTION. ** TO BE DETERMINED BY CONTRACTOR, WITH PRE-APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, WITH AN APPROVED AND ACTIVE GRADING PERMIT

SEQUENCE OF CONSTRUCTION

1. OBTAIN HOWARD COUNTY GRADING PERMIT. (1 DAY) 2. NOTIFY HOWARD COUNTY AT LEAST 48 HOURS PRIOR TO START OF

CONSTRUCTION. (1 DAY) 3. CONDUCT A PRE-CONSTRUCTION MEETING WITH THE SEDIMENT

CONTROL INSPECTOR PRIOR TO ANY LAND DISTURBANCE. (1 DAY) 4. INSTALL STABILIZED CONSTRUCTION ENTRANCE

5. INSTALL ALL SEDIMENT CONTROLS, AS INDICATED ON PLANS.
TO INCLUDE DIVERSION FENCE, NORTH OF LOT 2; TO DIRECT CLEAN WATER

TOWARD MARSHALEE DRIVE AND AWAY FROM THE LOT 1 & 2 DISTURBANCE (2 DAYS) 6. WITH APPROVAL OF SEDIMENT CONTROL INSPECTOR, CLEAR AND GRUB SITE. (2 DAYS)

7. BEGIN SITE GRADING AND UTILITY CONSTRUCTION. INCLUDING HOME CONSTRUCTION (1 WEEK)

8. BEGIN HOME CONSTRUCTION. (6 MONTHS)

9. WITH INSPECTOR'S APPROVAL, INSTALL ON-SITE STORMWATER MANAGEMENT FACILITIES. (1 WEEK)

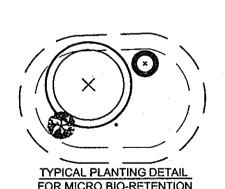
10. FINE GRADE AND STABILIZE ALL AREAS OF PARCEL WITH PERMANENT SEED MIXTURE AND STRAW MULCH. (1 WEEK)

11. INSTALL SITE LANDSCAPING. (1 DAY) 12. REMOVE ALL SEDIMENT CONTROL MEASURES AFTER RECEIVING APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR. (1 DAY)

1. DURING GRADING AND AFTER EACH RAINFALL, CONTRACTOR WILL INSPECT AND PROVIDE NECESSARY MAINTENANCE TO THE SEDIMENT CONTROL

MEASURES ON THIS PLAN. 2. FOLLOWING INITIAL SOIL DISTURBANCES OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES

STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND B. SEVEN (7) CALENDAR DAYS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.



SURFACE REQUIRED AREA PLANTINGS MBR FACILITY PLANTINGS SWEETSHADE YELLOWWOOD, 3 CLACIER OR WHITE ROSEBUD HYBRIC AZALEA, 2 MOUNTAIN LAUREL SWEETSHADE YELLOWWOOD.3 347 SF GLACIER OR WHITE ROSEBUD HYBRID AZALEA, 2 MOUNTAIN LAUREL

	,	ONLOT MICRO-BIORETENTION PLANTING SCHE		
	QTY	BOTANICAL NAME/COMMON NAME	SHEET SHEET	REMARK
\bigcirc	4	CLADRASTIS LUTEA 'SWEETSHADE' SWEETSHADE YELLOWWOOD	1 1/2"-2" CAL	B & 1
0	4	KALMIA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
@	6	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

<u>DEFINITION</u>
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

<u>PURPOSE</u>
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.

CONDITIONS WHERE PRACTICE APPLIES WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

A. SOIL PREPARATION

A. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISCHARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED ONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL THE CONTOUR OF THE SLOPE. B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

D. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. A. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:

I. SOIL PH BETWEEN 6.0 AND 7.0. II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).

III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE

IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION B. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS. C. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5

D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE E. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRIABLE. SEEDBED LOOSENING MAY BE

1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCEM HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.

2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.

3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE: A. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FLIRNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE . AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA A. TOPSOIL MUST BE A LOAM, SANDY LOAM. CLAY LOAM. SILT LOAM. SANDY CLAY LOAM. OF LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NO BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS,

ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1½ INCHES IN DIAMETER.
B. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED. C. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.

S. TOPSOIL APPLICATION A. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL. B. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE ATION OF DEPRESSIONS OR WATER POCKETS. C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY

OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATOR OIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT, MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LARFLED ACCORDING TO THE APPLICABLE LAWS AND MUST BEA THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER. 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY E

SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE. 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

DEFINITION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE
TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS. TIONS WHERE PRACTICE APPLIES

D SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE 8.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLAN AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.

2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE
RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED

MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B

DATE

"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AAN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN. SEE SHEET 10 FOR TYPICAL PLANTING SPECIFICATIONS AND MICROBIORETENTION AREAS ARE TO BE PLANTED

BY THE ENGINEER:

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING <u>DEFINITION</u>
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE

1. SPECIFICATIONS A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY, ALL SEED USED MUST HAVE BEEN PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE. B. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.

C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE

2 APPLICATION A. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.

I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE

8.1, PERMANENT SEEDING TABLE 8.3, OR SITE—SPECIFIC SEEDING SUMMARIES.

II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

D. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR

CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT

B. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

1. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. C. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER' 1. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K20 (POTASSIUM), 200 POUNDS PER ACRE. II. LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.

1. MULCH MATERIALS (IN ORDER OF PREFERENCE) A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED. B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE

PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

I. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS. III. WOFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THA WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS. IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO

2. APPLICATION A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE. C. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT

A. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR. II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER. III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.

IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER

RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO

TEMPORARY SEEDING SUMMARY

AUG 1 TO

MAY 16 TO JUL 31

CONDITIONS WHERE PRACTICE APPLIES

STABILIZATION.

MAINTENANCE

Fertilizer

436 LB/AC 2 TONS/AC

(10 LB PER (90 LB PER

1000 SF) 1000 SF

B-4-8 STANDARDS AND SPECIFICATIONS

A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL

STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

THE STOCKPILE LOCATION AND ALL RELATED SEDIMENT CONTROL PRACTICES MUST BE CLEARLY

INDICATED ON THE EROSION AND SEDIMENT CONTROL PLAN.
THE FOOTPRINT OF THE STOCKPILE MUST BE SIZED TO ACCOMMODATE THE ANTICIPATED VOLUME

RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE.

CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION

WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE

8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE

ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST

EROSION. IF THE VERTICAL HEIGHT OF A STOCKPILE EXCEEDS 20 FEET FOR 2:1 SLOPES. 30 FEET FOR

3:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION

BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF

BUILDER

EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE.

BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER.

DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST

STOCKPILES MUST BE STABILIZED IN ACCORDANCE WITH THE 3/7 DAY STABILIZATION REQUIREMENT

AS WELL AS STANDARD B-4-1 INCREMENTAL STABILIZATION AND STANDARD B-4-4 TEMPORARY

THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST

MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE

TO PROVIDE A DESIGNATED LOCATION FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL

STOCKPILE AREA

FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS

ROYDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING.

ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE.

BE COVERED WITH IMPERMEABLE SHEETING.

HARDINESS ZONE (FROM FIGURE 8.3):

rate (LB/AC)

40 LB / AC

30 LB / AC

SEED MIXTURE (FROM TABLE B.1):

NO SPECIES

COOL SEASOR

WARM SEASO

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION <u>JEFINITION</u>
(O STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON

CONDITIONS WHERE PRACTICE APPLIES EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA A. SEED MIXTURES

1. GENERAL USE
A.SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 8.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE 8.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

B. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY

THE SOIL TESTING AGENCY. D. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3-1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE 2. TURFGRASS MIXTURES

A. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.

B. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.

I. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE.
RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35PERCENT OF THE TOTAL MIXTURE BY WEIGHT. II. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE

RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT, CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET, CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY III. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS

AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT, SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED. V. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES; CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT, SEEDING RATE: 1% TO 3 POUNDS PER 1000 SQUARE FEET.

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY.
THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED ECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE

GENETIC LINE.
C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES WESTEM MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A) CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B) SOUTHERN MD. EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS

D. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRI OVER 1% INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY E. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ÈSTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b SEED MOXTURE (FROM TABLE B.3): (10-20-20)NO SPECIES RATE (LB/AC) DATES DEPTHS N P2 05 K20 COOL SEASON T.F. 60 LB / AC MAR 1 TO MAY 15 45 LB/AC 90 LB/AC 90 LB/AC 2 TONS/AC K.B. 40 LB / AC AUG 15 TO 1000 SF) 1000 SF) 1000 SF) 1000 SF

B. SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER). 1. GENERAL SPECIFICATIONS
A. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE

AVAILABLE: TO THE JOB FOREMAN AND INSPECTOR. B. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/4 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TOM OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.

C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10

PERCENT OF THE SECTION. D. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.

E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR

TO ITS INSTALLATION. 2. SOD INSTALLATION A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.

B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT

AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS. . WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.

D. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW

SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS O LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS 3. SOD MAINTENANCE A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING

B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE C. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED.

DATE

SITE DEVELOPMENT PLAN GRADING, SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

MONTGOMERY CROSSING PHASE 1 (SFD RESIDENTIAL)

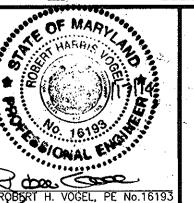
LOT 1 AND 2 AND NON-BUILDABLE BULK PARCEL B L. 13552 / F. 526



IST ELECTION DISTRICT

AX MAP: 37 GRID: 05

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



DESIGN BY: CHECKED BY: DATE: DECEMBER, 2013 SCALE: W.O. NO.:

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 - AS SHOWN 12-42

EXPIRATION DATE: 09-27-2014 SHEET

SDP-13-056

ZONED: R-12/R-20

HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS

PARCEL: 68

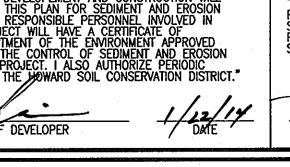
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

21214

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF CONTROL OF THE ENVIRONMENT APPROVED HING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION OF BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC

BY THE DEVELOPER:



- de Osso SIGNATURE OF ENGINEER

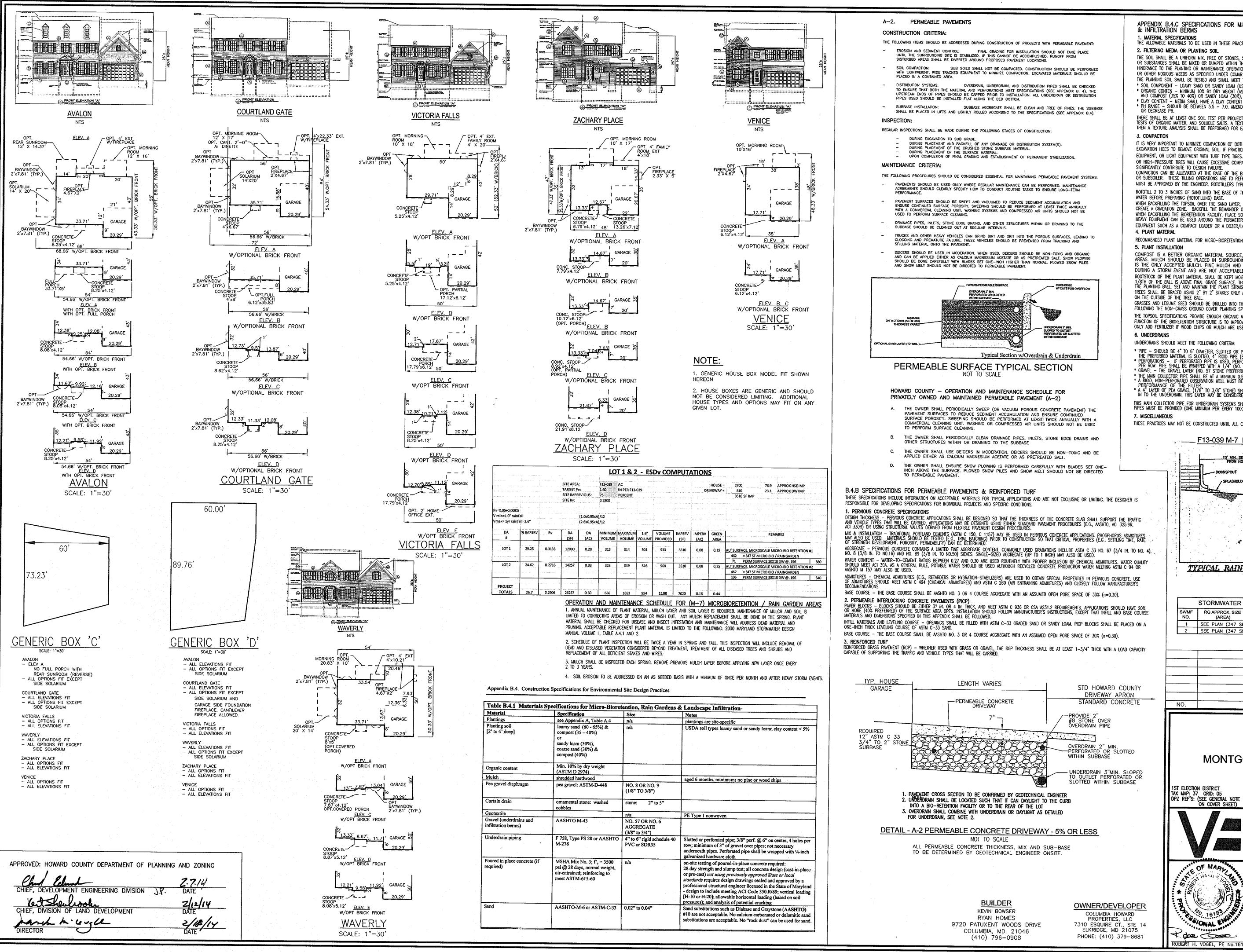
BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (.0229 STEMS PER SQUARE FOOT), ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESDY SUMMARY.

KEVIN BOWSER RYAN HOMES 9720 PATUXENT WOODS DRIVE COLUMBIA, MD, 21046 (410) 796-0908

PROPERTIES, LLC 7310 ESQUIRE CT., STE 14 ELKRIDGE, MD 21075 PHONE: (410) 379-8681

OWNER/DEVELOPER

COLUMBIA HOWARD



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

THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE 8.4.1.

2. FILTERING MEDIA OR PLANTING SOIL THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVE A

HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF BERMUDA GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05. THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA

* SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION) * ORGANIC CONTEN - 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 (30%), COARSE SAND (30%), AND COMPOST (40%).

* CLAY CONTENT - MEDIA SHALL HAVE A CLAY CONTENT OF LESS THAN 5%. * PH RANGE - SHOULD BE BETWEEN 5.5 - 7.0. AMENDMENTS (E.G., LIME, IRON SULFATE PLUS SULFUR) MAY BE MIXED IN TO THE SOIL TO INCREASE

THERE SHALL BE AT LEAST ONE SOIL TEST PER PROJECT. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, AND ADDITIONAL TESTS OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS IS REQUIRED FROM THE SITE STOCKPILED TOPSOIL IF TOPSOIL IS IMPORTED, THEN A TEXTURE ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOPSOIL WAS EXCAVATED.

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 LOADER, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYPE TIRES. USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS. OR HIGH-PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACTURE 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 EQUIPMEN ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE. WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF 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.

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

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 AGED (6 TO 12 MONTHS) FOR ACCEPTANCE. ROOTSTOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INST.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE

* PIPE — SHOULD BE 4° TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTMF 758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED, 4" RIGID PIPE (E.G., PVC OF HDPE).

* PERFORATIONS — IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH.

* GRAVEL — THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

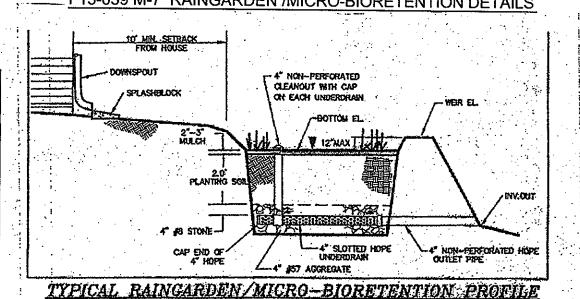
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

* A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES IN TO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

THIS MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELLS AND/OR CLEAN-OUT PIPES MUST BE PROVIDED (ONE MINIMUM PER EVERY 1000 SQUARE FEET OF SURFACE AREA).

THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

F13-039 M-7 RAINGARDEN / MICRO-BIORETENTION DETAILS



SWMF NO.	RG APPROX. SIZE (AREA)	PONDING DEPTH	PLANTING MEDIA	UNDERDRAIN SIZE	MULCH ELEV	OUTFALL INV ELEV
1	SEE PLAN (347 SF)	1.0' PONDING	2' PLANTING MEDIA	4" PERF, HDPE	290.9	288.0
2	SEE PLAN (347 SF)	1.0' PONDING	2' PLANTING MEDIA	4" PERF. HDPE	295.0	292.1

NO. REVISION DATE SITE DEVELOPMENT PLAN

HOUSE TYPE DETAILS MONTGOMERY CROSSING PHASE (SFD RESIDENTIAL)

LOT 1 AND 2 AND NON-BUILDABLE BULK PARCEL B

L. 13552 / F. 526



W.O. NO.:

ENGINEERING, INC. ENGINEERS . SURVEYORS . PLANNERS

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



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AND DESIGN BY: THAT I AM A DULY LICENSED PROFESSIONA ENGINEER UNDER THE LAWS OF THE STATE DRAWN BY: OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014 CHECKED BY: DATE: <u>DECEMBER, 201</u> SCALE: AS SHOWN

12-4 SHEET

ZONED: R-12/R-20 PARCEL: 682

HOWARD COUNTY, MARYLAND