GENERAL NOTES 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. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK. ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 3111 AND 37CA WERE USED FOR THIS PROJECT. N 565,004.7000 E 1,381,586.9171 ELEV. 306.016 N 564,321.6624 E 1,382,742.8344 ELEV. 256.964 GEELHAAR PROPERTY LOT 3: L 2014 / F 198 DEED REFERENCE: NON BUILDABLE BULK PARCEL H: L. 13156 / F. 1 THIS PLAN IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. NOVEMBER 2008. THE SUBJECT PROPERTY IS ZONED R-ED PER THE 02/02/2004 COMPREHENSIVE ZONING PLAN. AND THE COMPREHENSIVE LITE ZONING THIS PLAN IS IN CONFORMANCE WITH WITH THE AMENDED FIFTH EDITION OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF ALTERNATIVE SURFACES AND MICRO-SCALE PRACTICES IN ACCORDANCE WITH ENVIRONMENTAL SITE DESIGN CRITERIA. MICRO-SCALE PRACTICES INCLUDE A DRYWELL MICRO-BIORETENTION. ALTERNATIVE SURFACES INCLUDE PERMEABLE SURFACES. THESE FACILITIES WILL BE PRIVATELY OWNED AND - TEST PITS TO DETERMINE GROUND WATER AND ROCK ELEVATIONS WERE PERFORMED AT EACH FACILITY LOCATION. NO ROCK EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN FOR THE CONTRACTORS INFORMATION. CONTRACTOR SHALL LOCATE EXISTING UTILITIES WELL IN ADVANCE OF CONSTRUCTION ACTIVITIES AND TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN UNINTERRUPTE ANY DAMAGE TO THE COUNTY'S RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. SHC ELEVATIONS ARE LOCATED AT THE PROPERTY LINE/EDGE OF EASEMENT. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING 1-800-252-1133 410-637-8713 410-685-0123 410-531-5533 1-800-743-0033 PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE EXISTING WELLS AND SEPTIC SYSTEMS WILL BE PROPERLY ABANDONED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS. THERE IS AN EXISTING DWELLING/STRUCTURE LOCATED ON LOT 4 TO BE REMOVED. 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. PORCHES OR DECKS, OPEN OR ENCLOSED MAY PROJECT NOT MORE THAN 10 FEET INTO THE FRONT FRONT OR REAR YARD SETBACK. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER WIDTH - 12 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE) SURFACE - 6" OF COMPACTED CRUSHER RUN BASE W/TAR AND CHIP COATING (1-1/2" MIN.) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE, AND MINIMUM 45 FOOT STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOOD EVENTS WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN. FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE FLAG OR PIPE STEM DRIVEWAY. - TRASH & RECYCLING COLLECTION WILL BE AT THE COUNTY ROADWAYS, WECKER WAY WITHIN FIVE FEET (5') OF THE COUNTY ROADWAY THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD WATER AND SEWER SERVICE FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE PROVIDED THROUGH CONTRACT NO. 14-4412-D. SEWER WILL BE PROVIDED THROUGH CONTRACT NO. 14-4412-D. UTILITY EXTENSIONS SHALL BE COMPLETED UNDER THE HOWARD PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS ALL WATER HOUSE CONNECTIONS SHALL BE OUTSIDE METER SETTING UNLESS OTHERWISE NOTED ON THE PLANS OR IN SPECIFICATIONS. TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THERE ARE NO HISTORIC STRUCTURES EXISTING ON THIS SITE. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL/CEMETERY LOCATIONS EXISTING ON THIS SITE. THIS PROJECT IS USING THE R-20 OPTION OF THE R-ED REGULATIONS IN ACCORDANCE WITH SECTION 107H.1.A. OF THE ZONING DENSITY TABULATION (PROJECT): 1.4440 ACRES - DWELLING UNITS PER NET ACRE = 62903 SF / 20,000 SF = 3.14 OR 3 ALLOWED A FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED DECEMBER 20, 2012. FOREST CONSERVATION OBLIGATIONS FOR THE GROVEMONT SUBDIVISION HAS BEEN FULFILLED UNDER F-09-122 BY PLACEMENT OF 1.00 ACRES OF RETENTION, 1.80 ACRES OF REFORESTATION AND 0.78 ACRES OF FFORESTATION INTO ON—SITE EASEMENT AREAS. SURETY WAS POSTED WITH THE DEVELOPER AGREEMENT FOR F-09-122 (REFER TO PLATS 21469-21472) - UNDER F-13-055, THE GROVEMONT SUBDIVISION FOREST CONSERVATION OBLIGATIONS WERE AMENDED WHICH PLACED 1.00 ACRE OF RETENTION [PLAT 21470, 0.45{SHEET 2} + PLAT 21472, 0.27{SHEET 4} + PLAT 21472, 0.28{SHEET 4}], 1.99 ACRES OF REFORESTATION [PLAT 22253] AND 0.66 ACRES OF AFFORESTATION (PLAT 22254) INTO EASEMENT AREAS. - REQUIRED OBLIGATION FOR THE ADDITION OF LOTS 4 TO 6 HAS BEEN FULFILLED UNDER F-13-091 BY THE PAYMENT OF A FEE-IN-LIEU TO THE FOREST CONSERVATION FUND IN THE AMOUNT OF \$6,860.00 FOR THE 0.21 ACRES OF REQUIRED AFFORESTATION (9,147 SF X 0.75) THE PROPOSED ACCESS SHALL BE PROVIDED BY THE EXISTING USE-IN-COMMON DRIVEWAY TO WECKER WAY, GROVEMONT OVERLOOK PHASE 1 F-09-122. A USE-IN-COMMON ACCESS MAINTENANCE AGREEMENT FOR LOTS 4, 5, 6, 18, 19, & 37 WAS PREVIOUSLY RECORDED AS L 14673 F 433. THE INSTRUMENT DESCRIBED THE EASEMENT TO BENEFIT "GROVEMONT OVERLOOK, LOTS 18, 19, 37, LOT 3 - GEELHAAR PROPERTY, NON-BUILDABLE BULK PARCEL "H" AND THE FUTURE RESUBDIVISION OF LOT 3 - GEELHAAR PROPERTY". THIS INSTRUMENT WAS RECORDED IN THE LAND RECORDS OF HOWARD COUNTY, MARYLAND AS L 14673 F 433 UNDER F-13-054. LOTS 4, 5 AND 6 ARE THE RESULT OF THE RESUBDIVISION OF LOT 3 - GEELHAAR PROPERTY AND NON-BUILDABLE BULK PARCEL "H" (F-13-091) AND THEREFORE SHOULD NOT REQUIRE THE RE-RECORDING OF THE PREVIOUS L 14673 F 433 INSTRUMENT. A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT. 33. A TRAFFIC STUDY IS NOT REQUIRED FOR THIS MINOR SUBDIVISION DEVELOPMENT. REF. DPZ FILE NO'S: VP-83-84, F-84-214 (GEELHAAR PROPERTY, LOT 1, PLAT 5941), F-09-122, SDP-12-024, F-13-054, & ECP-13-046, F13-055, F-13-091, WP-14-038. LOTS 4 TO 6 ARE SUBJECT TO THE COVENANTS AND RESTRICTIONS OF THE GROVEMONT OVERLOOK HOMEOWNERS ASSOCIATION AS RECORDED IN L.13065 F. 009 DECEMBER 9, 2010... THE HOMEOWNERS ASSOCIATION ARTICLES OF INCORPORATION HAVE BEEN RECORDED WITH THE MARYLAND DEPARTMENT OF ASSESSMENTS AND TAXATION ON FEBRUARY 26, 2010 AS RECORDING REFERENCE NUMBER - LOTS 5 & 6 ONLY, ARE SUBJECT TO THE COVENANTS AND RESTRICTIONS OF THE GROVEMONT OVERLOOK HOMEOWNERS ASSOCIATION AS RECORDED IN L.13065 F. 009 DECEMBER 9, 2010. PERIMETER LANDSCAPING FOR LOTS 4 TO 6 SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE, THE LANDSCAPE MANUAL, AND AS SHOWN ON THE SUPPLEMENTAL/LANDSCAPING/FOREST CONSERVATION PLAN SHEETS FOR THIS SUBDIVISION, F-13-091. FINANCIAL SURETY IN THE AMOUNT OF \$3,900.00 FOR 13 SHADE TREES SHALL BE POSTED WITH THE GRADING PERMIT ON THE SUBJECT LOTS AS FOLLOWS: LOT 4: 5 SHADE TREES = \$1,500.00* LOT 5: 4 SHADE TREES = \$1,200.00** *SURETY FOR LOT 4 SHALL BE PROVIDED WITH THE GRADING PERMIT FOR LOT 5/TOTAL AMOUNT = \$2,700.00 **TWO EXISTING TREES TO REMAIN; NO SURETY REQUIRED LOT 6: 4 SHADE TREES = \$1,200.00 TRASH PAD SCREENING FOR LOTS ON THIS SHARED USE-IN-COMMON EASEMENT HAS BEEN PROVIDED UNDER SDP-12-024. THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL NOT IMPACT ENVIRONMENTAL FEATURES OR BUFFERS. OPEN SPACE REQUIREMENTS FOR THIS R-ED PROJECT HAVE BEEN MET THROUGH A PAYMENT OF FEE-IN-LIEU FOR THE TWO PROPOSED LOTS IN THE AMOUNT OF \$3,000,00 LINDER F-13-091. 40. SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEB SOIL SURVEY - HOWARD COUNTY, MARYLAND. NO FLOODPLAINS EXIST ONSITE. NO STEEP SLOPES EXIST ONSITE. 43. NO WETLANDS AND/OR STREAMS EXIST ONSITE AS CONFIRMED BY ECO-SCIENCE PROFESSIONALS, INC. DATED DECEMBER 20, 2012. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM. PARKING FOR THIS PROJECT IS PROVIDED AS FOLLOWS: 4 SPACES PER LOT (2 CAR GARAGES = 2 SPACES + 2 SPACES PER PRIVATE ON-LOT DRIVEWAYS) TWO CAR GARAGES SHALL BE USED FOR PARKING PURPOSES ONLY OR STORAGE SPACE. VISITOR AND GUEST PARKING IS RESTRICTED ALONG THE USE-IN-COMMON DRIVEWAY. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROLDEVICES (MUTCD). ALL OF STREET AND REGUALTORY SIGNS SHALL BE IN PLACE PRIOR TO PLACEMENT OFANY ASPHALT. 47. THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL NOT AFFECT ENVIRONMENTAL FEATURES OR 48. DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE CIVIL APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING ENGINEER MAY CAUSE THE WORK TO BE UNACCEPTABLE. 49. A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED AND INSTALLED AT THE LOCATION SHOWN ON SHEET 2 BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.

THIS PROJECT IS SUBJECT TO WP-14-038, APPROVED ON OCTOBER 22, 2013, TO WAIVE SECTION 16.1205(a)(7)

THE THREE OTHER SPECIMEN TREES ALONG THE EASTERN PROPERTY LINE OF PROPOSED LOT 5 SHALL REMAIN

REQUIRING THE RETENTION OF SPECIMEN TREES HAVING A DIAMETER OF 30" OR MORE.

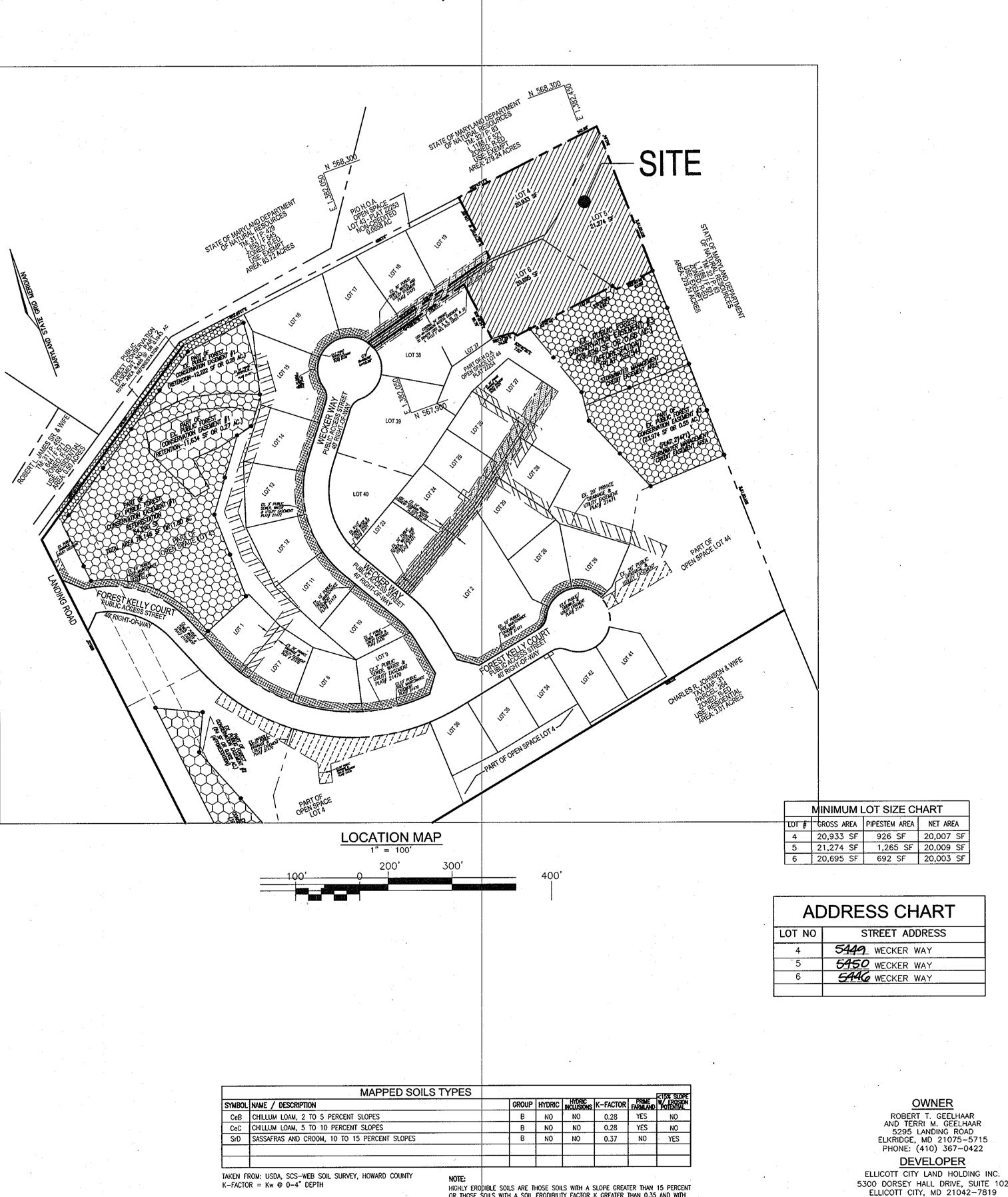
APPROVAL IS SUBJECT TO THE FOLLOWING CONDITION:

1. APPROVAL IS GIVEN FOR REMOVAL OF ONE SPECIMEN TREE

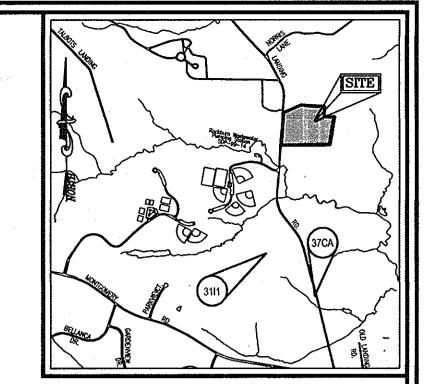
SITE DEVELOPMENT PLAN GROVEMONT OVERLOOK - II

LOTS 4-6

HOWARD COUNTY, MARYLAND



OR THOSE \$0ILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH



VICINITY MAP SCALE: 1"=2000" ADC COORDINATES=17 C4

	BENCHMARKS						
NO.	NORTHING	EASTING	ELEVATION				
37CA	564,321.6624	1,382,742.8344	256.964				
3111	565,004.7000	1,381,586.9171	30 6.016'				

SITE ANALYSIS DATA

A.	TOTAL PROJECT AREA:
8.	AREA OF PLAN SUBMISSION:
C.	LIMIT OF DISTURBANCE:
D.	PRESENT ZONING DESIGNATION
E.	PROPOSED USES FOR SITE

FOR PROJECT AS SHOWN ON FINAL PLAT:

TOTAL NUMBER OF UNITS PROPOSED MAXIMUM NUMBER OF EMPLOYEES TENANTS ON SITE PER USE: NUMBER OF PARKING SPACES REQUIRED

BY HO.CO. ZONING REGULATIONS:

NUMBER OF PARKING SPACES PROVIDED OPEN SPACE ON SITE: AREA OF RECREATION OPEN SPACE

REQUIRED BY SUBDIMISION & LAND BUILDING COVERAGE OF SITE: APPLICABLE DPZ FILE REFERENCES: ANY OTHER INFORMATION WHICH MAY

DETACHED (SFD)

3 BUILDABLE LOTS 2 + 1 EXISTING HOME

3 HOMES X 2 PER SFD HOUSE OVERFLOW = 3 X 0.5 PER UNIT = 1.5 SPACES

4 PER SFD HOUSE (2 DRIVEWAY & 2 GARAGE) = 4 X 3 LOTS = 12 SPACES PROVIDED N/A SEE NOTE # 39

SEE NOTE # 354 TAX MAP 31, GRID 24, PARCEL 619 & 749 1ST ELECTION DISTRICT

Q. FLOOR AREA RATIO:

RMIT IN	1FOR	MATIC	ON CHA	RT
				SECTION/ AREA
			F	0/0 749 & 619
BLOCK NO	ZONE	TAX MAP	ELECT DIST	CENSUS TR
24	R-ED	31	1	6011.01
	SUBDIVISIO: OOK II -	SUBDIVISION NAM OOK II - F13-09	SUBDIVISION NAME OOK II - F13-091 BLOCK NO ZONE TAX MAP	BLOCK NO ZONE TAX MAP ELECT DIST

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 6
LAYOUT AND LANDSCAPE PLAN	2 OF 6
GRADING AND SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 6
GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN — NOTES & DETAILS AND UTILITY EXTENSION PROFILES	4 OF 6
STORMWATER MANAGEMENT NOTES AND DETAILS	5 OF 6
HOUSE TYPES	6 OF 6

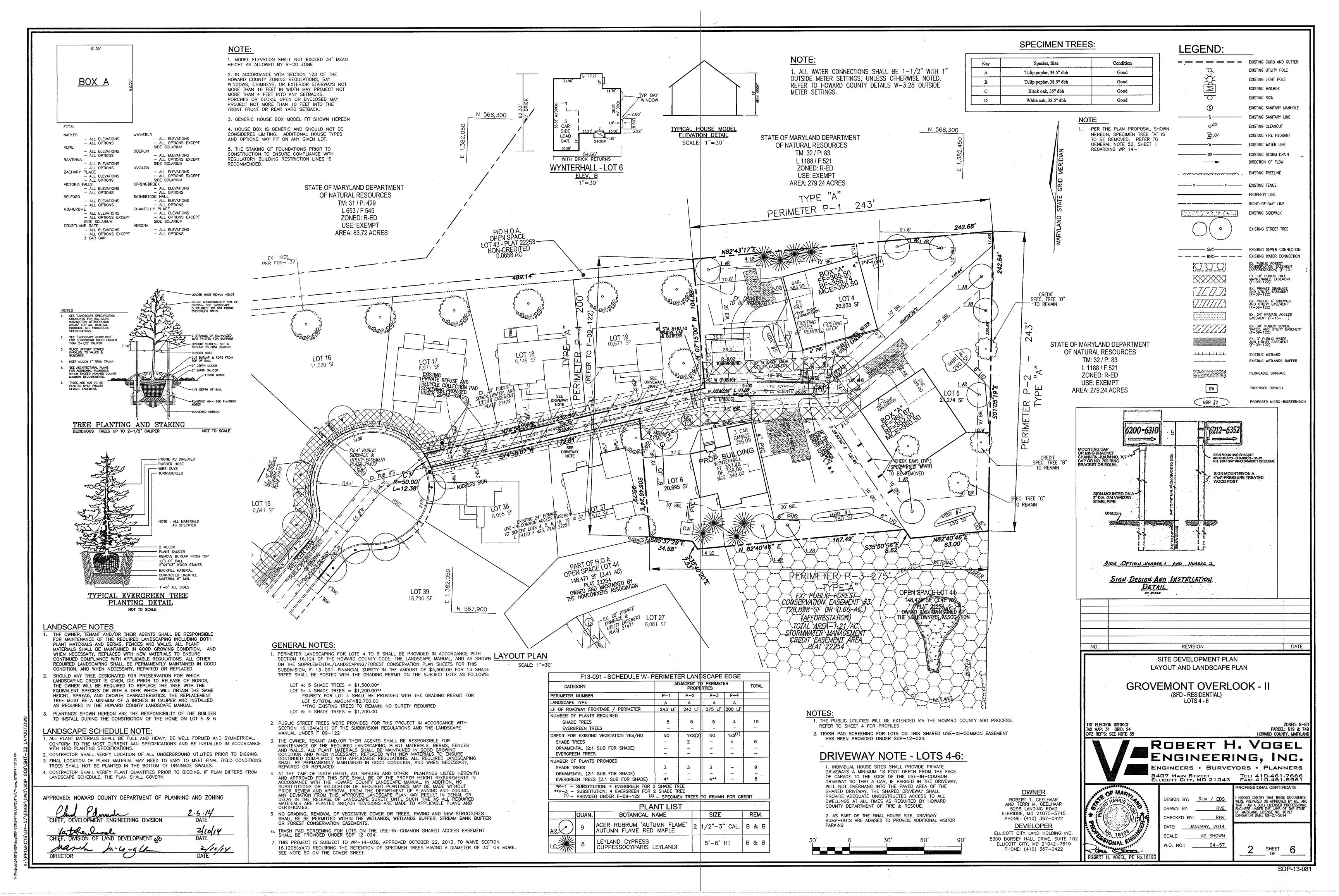
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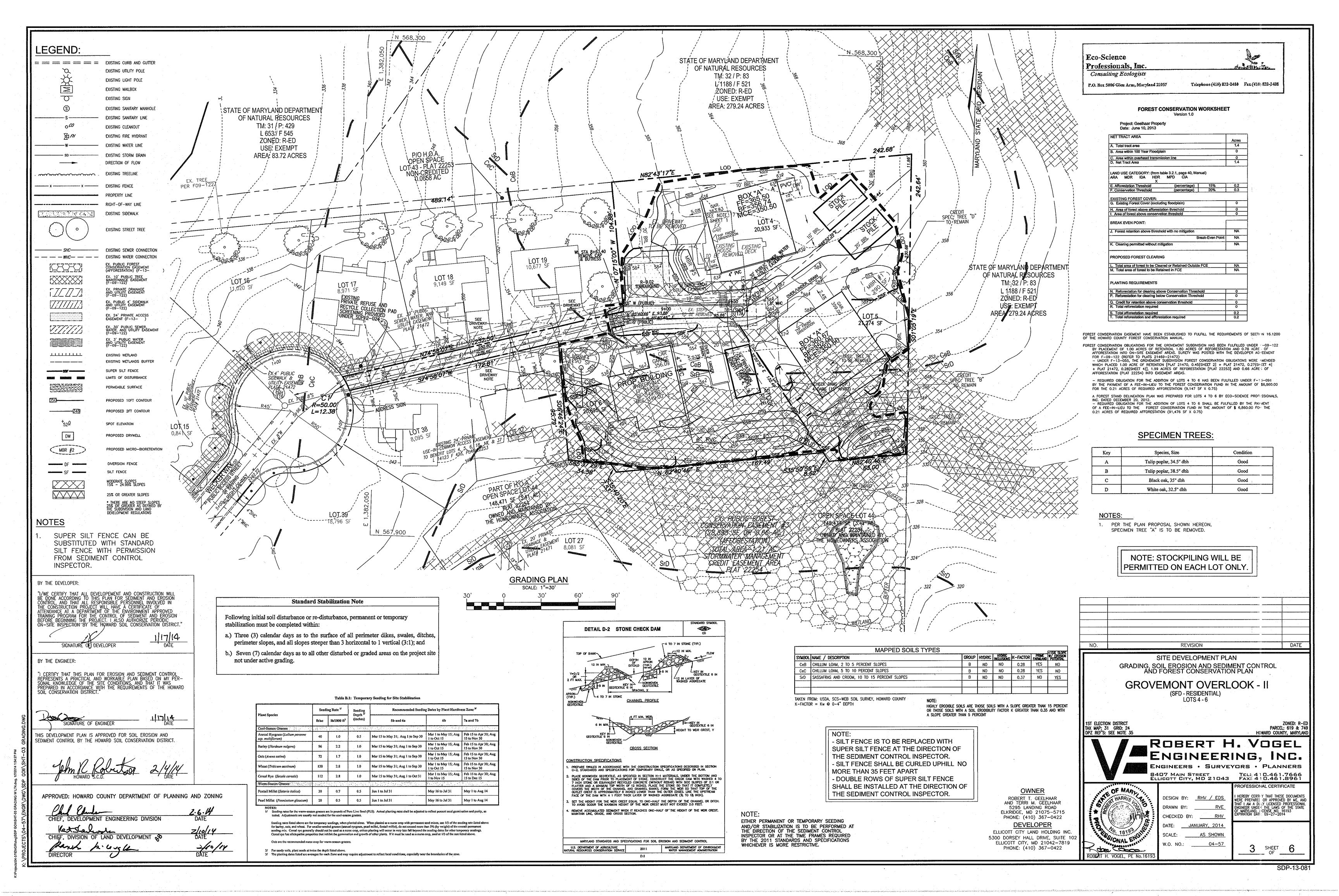
SITE DEVELOPMENT PLAN

COVER SHEET GROVEMONT OVERLOOK - II

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

PHONE: (410) 367-0422





HOWARD SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES 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). 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 CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO. 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 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. 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. TOTAL AREA OF SITE AREA DISTURBED AREA TO BE ROOFED OR PAVED AREA TO BE VEGETATIVELY STABILIZED 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. 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 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, A PROJECT IS TO BE SEQUENCED SO THAT CRADING 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 B-4-4 STANDARDS AND SPECIFICATIONS TEMPORARY STABILIZATION TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS. TO USE FAST GROWING VEGETATION THAT PROVIDES COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED. 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 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 3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION 8-4-3.A.1.B AND TEMPORARY SEEDING SUMMARY HARDINESS ZONE (FROM FIGURE B.3): ZONE 70 FERTILIZER SEED MIXTURE (FROM TABLE B.1): APPLICATION SEEDING SEEDING (10-20-20) RATE (LB/AC) DATES DEPTHS NO SPECIES RATE (LB/AC) COOL SEASON 436 LB/AC | 2 TONS/AC ANNUAL RYEGRASS OR EQUAL* 1/2 IN. (10 LB PER (90 LB PER 40 LB / AC AUG 15 TO 1000 SF.) | 1000 SF.) UTTLE BLUESTEM OR EQUAL* 1/2 IN. 30 LB / AC REFER TO MAA APPROVED SPECIES SHEET 11 BY THE DEVELOPER: DEVELOPEMENT AND CONSTRUCTION WILL THIS PLAN FOR SEDIMENT AND EROSION I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON—SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT." SIGNATURE OF DEVELOPER BY THE ENGINEER: "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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." da Com SIGNATURE OF ENGINEER THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING park pile y UI CHIEF, DEVELOPMENT ENGINEERING DIVISION

B-4-5 STANDARDS AND SPECIFICATIONS PERMANENT STABILIZATION

TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS. CONDITIONS WHERE PRACTICE APPLIES

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

___ ACRES

. ACRES

ACRES

LIME RATE

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. 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 C. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY. D. FOR AREAS RECEMING 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 SOIL AMENDMENTS SHOWN IN THE PERMANENT

. 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

KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT 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 35

PERCENT OF THE TOTAL MIXTURE BY WEIGHT. 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 WEIGHT. 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

PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED. IV. 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.

SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES; CERTIFIED TALL FESCUE

ULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5

SEEDING RATE: 1½ 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 MARYLAND" CHOOSE CERTIFIED MATERIAL CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC

C. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES

WESTEM MD: MARCH 15 TO JUNE 1, AUGUST TO OCTOBER 1 (HARDINESS ZONES: SB, 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 ZONES: 7A, 7B)

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 DEBRIS OVER 11/4 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY. 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 ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

SOD: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

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 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. . 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. R 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. C. 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 SUPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE O THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT

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 THE HEAT OF THE DAY TO PREVENT WILTING. B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADFOLIATE MOISTURE CONTENT. 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 CRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE SPECIFIED. PERMANENT SEEDING SUMMARY

* REFER TO MAA APPROVED SPECIES SHEET 11

2/10/14

CHIEF, DIVISION OF LAND DEVELOPMENT &

			The second second					
	HARDINESS Z	ONE (FROM FIGURE E (FROM TABLE 8.3	B.3): ZONE b): 8, 9 (FERTILIZER RATE (10-20-20)		LIME RATE
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	N	P ₂ O ₅	к ₂ 0	
1	COOL SEASON TALL FESCUE & KENTUCKY BLUEGRASS OR EQUAL*	T.F. 60 LB / AC K.B. 40 LB / AC	FEB 15 TO APR 30 AUG 15 TO NOV 30 NOV 1 TO NOV 30	1/4-1/2 IN.	(1 LB PER	(2 LB PER	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)

R-4-2 STANDARDS AND SPECIFICATIONS

SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS

THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.

TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. CONDITIONS WHERE PRACTICE APPLIES

WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

THE ABOVE CONDITIONS

A. SOIL PREPARATION

1. TEMPORARY STABILIZATION 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 DISC HARROWS 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 CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. B. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

C. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. PERMANENT STABILIZATION 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 À MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE. N. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION 3. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET

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 D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST. 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 IRFACE 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.

I. 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-

SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.

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 VEGETATIVE GROWTH. B. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH O SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT C. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.

D. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE. 4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND 5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING A TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT 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 11/2 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 TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED ACROMOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL

AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL. A EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING 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 FORMATION OF DEPRESSIONS OR WATER POCKETS. C. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS) I. 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 LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES. 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 LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER. 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE 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. . 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.

DETAIL E-1 SILT FENCE DETAIL E-3 SUPER SILT FENCE |-----SSF-----| 36 IN MINL FENCE POST LENGTH DRIVEN MINL 16 IN INTO GROUND CENTER TO CENTER 10 FT MAX TIS IN MEN. HEIGHT OF WOVEN SUIT FILM GEOTEXTILE galvanized Chain Unik Fence W Woven Sut film Geotextile 36 IN MIN. FENCE POST LENGTH ---FENCE POST 18 IN MIN. - ABOVE GROUND WOVEN SUT FILM WOVEN SLIT FILM GEOTEXTILE-ROW -DABED CECTEXTILE AND TO CHAIN LINK FENCE 8 IN MAN, INTO CROUND CROSS SECTION DISTALL 2% INCH DIAMETER CALVANIZED STEEL POSTS OF 0.095 INCH WALL THORNESS AND SIX FOL LENGTH SPACED NO FURTHER THAN 10 FEET APART, DRIVE THE POSTS A MINISTAN OF 36 INCHES INTO THE GROUND. FASTEN 9 GAIGE OR HEAVER GALVANIZED CHAIN LINK FENCE (2% INCH MADIRAIM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RRIGS. . WHERE ENDS OF THE GEOTEXTRE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS. EXTEND BOTH ENDS OF THE SUPER SLIT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE AUGMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SLIT FENCE. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT CEOTESTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. REMOVE ACCUMULATED SEDMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDMENT REACHES 25% OF FENCE HEIGHT, REPLACE GEOTECTILE IF TORN, IF UNDERMINAND OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTECTILE. WARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF ADRICULTURE 2011 MARYLAND DEPARTMENT OF DARROMARCH WITHIN RESOURCES CONSERVATION SURVICE 2011 WATER MANUELMENT ADMINISTRATION U.S. DEPARTMENT OF ACRICULTURE ATURAL RESOURCES CONSERVATION SERVICE

B-4-3 STANDARDS AND SPECIFICATIONS

SEEDING AND MULCHING

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

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

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

TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY

PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE

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

C. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A

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

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

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

II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING

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

AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED

ANY ONE TIME, DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.

N. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS

(410-313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.

IN ACCORDANCE WITH DETAILS, INSTALL SEDIMENT CONTROL MEASURES

COMMON DRIVEWAY CONSTRUCTION AND PRIOR TO THE INSTALLATION

AS SHOWN ON PLAN OR AS DIRECTED BY SEDIMENT CONTROL INSPECTOR

DRY UTILITIES (CABLE, GAS ELECTRIC) MUST BE INSTALLED AFTER USE-IN-

INSPECTOR TO PROCEED, ROUGH GRADE SITE FOR HOUSE CONSTRUCTION.

FINE GRADE LOT AS DETAILED HEREIN AND PER SPOT ELEVATIONS SHOWN

SHOWN ON F-13-081 AND HEREON. BOTTOM OF EXCAVATION SHALL BE

ONCE FINAL GRADING AND STABILIZATION IS COMPLETE INSTALL ONLOT MICRO-BIORETENTION FACILITIES IN ACCORDANCE WITH DETAILS AND SPECIFICATIONS

CONSTRUCT HOUSES. THE FIRST FLOOR ELEVATIONS CANNOT BE MORE

THAN 1' HIGHER OR 0.2' LOWER THAN THE ELEVATIONS SHOWN ON

SEQUENCE OF CONSTRUCTION

OF THE F 13-081 MICRO BIO RETENTION FACILITIES.

NO CLOSER THAN 10 FEET TO A FOUNDATION

AFTER OBTAINING PERMISSION FROM THE SEDIMENT CONTROL

UPON STABILIZATION OF ALL DISTURBED AREAS AND WITH THE

APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL

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

I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE

II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING

I, 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

RATE IN EACH DIRECTION, ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD

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

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

PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES.

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

UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.

THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

RATE IN EACH DIRECTION.

CONDITIONS WHERE PRACTICE APPLIES

1.SPECIFICATIONS

APPLICATION

MOURITABLE BERNA (8 IN MAN.) PLAN VIEW ONSTRUCTION SPECIFICATIONS WARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDILENT CONTROL U.S. DEPARTMENT OF AGRICULTURE 2011 WARRAND DEPARTMENT OF EMPROMENT WATER MANAGEMENT ADMINISTRATION 2011 MARYLAND DEPARTMENT OF ENVIRONMENT
WOTEN MANAGEMENT ADMINISTRATION

A. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, LYE, OAT, OR BARLEY AND REASONABLY

USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

1. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN

MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND

I. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD

WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL

PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT

MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6

IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE

V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10

B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS

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

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

MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:

1. 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

S LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS

II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW, APPLY THE FIBER BINDER AT A NET DRY

TERRA TAX II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS

WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS

RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET

SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES

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

WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50

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

POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A

CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND

APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

B. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE

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:

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)

INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.

PRACTICE SHOULD FOLLOW THE CONTOUR.

is stricti y prohibited

(1 DAY)

(5 DAYS)

(2 WEEKS)

(2 DAYS)

PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET,

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

-PEPE (SEE NOTE 6) PLACE STABILIZED CONSTRUCTION EXTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LEWISTH OF THE SCE. USE MEMBAIN LEWISTH OF 50 FEET (*30 FEET FOR SWIGLE RESIDENCE LOT), USE IMMINION WIDTH OF 10 FEET. FLARE SCE 10 FEET IMMINION AT THE DUSTING ROUN TO PROVIDE A TURNING RADIUS. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SEE UNDER THE ENTRANCE, MAINTAINING POSTINE DRAWAGE, PROTECT PIPE INSTALLED THROUGH THE SEE WITH A MOURTABLE BEDGM WITH ST. SLOPES AND MAINTAIN OF 12 INCHES OF STIME OWER THE PIPE PROVINCE PIPE AS SECURED ON APPROVINCE PIPE AS SECURED ON AND HAS NO DRAWAGE TO CONNEY, A PIPE IS NOT NECESSARY, A MOUNTABLE BERM IS REQUIRED WHEN SEE IS NOT LICCATED AT A NIGHT SPOT. PREPARE SUBGRADE AND PLACE HONHOWEN GEOTEXTRE, AS SPECIFED IN SECTION H-1 MATERIALS , place crushed acorecate (2 to 3 inches in size) or equivalent recycled concrete (without redar) at least 6 inches deep over the length and width of the sce. MAINTAIN DITENUCE BY A CONDITION THAT MINIMETES TRACKING OF SEDMENT, ADD STONE OR MANE OTHER REPARS AS CONDITIONS DELIAND TO MAINTAIN CEAH SURFACE MURITARILE BERM, AND SPECIFED DIBENSIONS. MAINDAILTY REMOVE STONE AND/OR SEDMENT SPILLED, DROPPED, OR REACKED ONLY DAUGHERT READWAY AT BY VACUATION, SCREPNIC, AND/OR SWEPPING. WASHING ROUNKY TO RESIDE MOUT MAINTAIN TO PAYMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDMENT CONTROL PRACTICE.

Use materic that has a design value for shear stress equal to or homer than the shear sti described on approved plans. SECURE MATTHO USING STELL STAPLES OR WOOD STAKES. STAPLES WUST BE "U" OR "I" SHAPED STILL WASE HAVING A MANUAU CAUGO OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST ANDRACE 10 1.8 FORDES WISE AND DEA MANUAU OF 6 HORSES LOWER. "I" SHAPED STAPLES MUST HAVE A MANUAU HE OF HAMBOUR HAMBOURD. IT TO 24 HORSES IN LEVICETY, LIST KNOW IT STANDS SECTION, AND WEDGE SHAPES AND THE OF HE O PERFORM FINAL GRADNIC, TOPSON, APPLICATION, SEEDIED PREPARATION, AND PERMANDIT SEEDIE OF ACCIDENCE WITH SPECIFICATIONS, PLACE MATTERS WHEN 48 HOURS OF COMPLETING SECTION DEPENTIONS, WHESTS END OF WORDGON'S TABULLATION IS STEEDED ON HER APPROVED REGISTED REGISTED AND SEEDIELIT CONTROL Unroll Matting in Direction of Mater Flow, conterno the Errst roll on the Channel Conter Line, work from Capier of Channel Outhard Meen Plucing Rolls. Lay Matting Smoothly and Frency Upon the Seedon Signaloc. Noon Strettoner, the Matting. B. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MARKFACTURER RECOMMENDATIONS, OVERLAP ROLL DIGGS BY 8 INCHES (MANAGUM), WITH DIE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT. 7. KEY IN THE TOP OF SLOPE DID OF MAY 6 INCHES (MARKUM) BY DICCORD A TREMON, PLACING THE MATTING ROLL DID IN THE TREMON, STAPLING THE MAY BY PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAY TOW IN THE KEY. 8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOHTS, AND ROLL ENGS. . IF SPECIFED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAIL BONG INSTALLED, ONCE THE MATTRIC IS KEYED AND STAPLED IN PLACE, THE THE MAIL YOUS WITH TOP SOL OR CRAWLEAR MATERIAL AND USUATLY ORMANCE OR TO ALL TO MANUFACE SOR, MAIL CONTACT METHOUT GRAD-WING MAIL. O. ESTABLISH AND MAINTAIN VEGETATION SO THAT RECURREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMEN ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION 8-4 VEGETATIVE STABLIZATION. U.S. DEPARTMENT OF ACROCATURE 2011 MARTIAND DEPARTMENT OF ENVIRONMENT NATURAL RESOURCES CONSERVATION SERVICE 2011 WATER MANAGEMENT ADMINISTRATION

ONSTRUCTION SPECIFICATION . Use wood posts 1% x 1% ± 1% inch (individual) square cut of sound quality hardwood, as an alternative to wooden post use standard "1" or "v" section steel posts individual less than 1 pound per linear foot. . USE 36 INCH MINIMUM POSTS DRIVEN 18 INCH MINIMUM INTO GROUND NO MORE THAN 6 FEET APAR N. USE WOMEN SUIT FILM GEOTECTILE AS SPECIFIED IN SECTION H-1 MATERIALS AND FASTEN GEOTECTILE.
MICHELY TO UPSLOPE SIDE OF FENCE POSTS WITH BIRE TIES OR STAPLES AT TOP AND
MICHECITED. 4. PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE RESPECTION/EMPERCEMENT AUTHORITY SHOWING THAT THE CEOTEXTILE USED MEETS THE RECURRENATE OF THE MATERIALS.). ELECTED OCCUTENTIAL A MANUSCRIA OF 8 INCHES VERTICALLY INTO THE GROUND, BACKFILL AND COMPACT THE SOC, ON BOTH SDES OF FABRIC. I, WHERE TWO SECTIONS OF GEOTEXTRE ADJOIN: OVERLAP, THIST, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. EXTEND BOTH CHOS OF THE SLIT FONCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE AUGMAENT TO PREVENT RUNGEF FROM COING AROUND THE DIOS OF THE SLIT FENCE. 8. REMOVE ACCUMULATED SEDMENT AND DEBRIS WHEN BULGES DEVELOP IN SUT FEMCE OR WHEN SEDMENT REACHES 25X OF FEMCE HEIGHT, REPLACE GENERALE IF TORN, IF UNDERSIGNED COCURS, RENIGHED FINDE. U.S. DEPARTMENT OF AGRICULTURE 2011 MARTIAND DEPARTMENT OF EMPROMENT MUTURAL RESOURCES CONSERVATION SERVICE 2011 WATER MANAGEMENT AGRICULTRAN

EXTENDED

USE-IN-COMMON

SMH\TOP=358.50

<u>350</u>

LOTS 4 - 6 EX. GROUND ABOVE SEWER F09-122WECKER WAY | USE-IN-COMMON LOTS 15-1 <u>34</u>0 INV.=338.46 @ 0.72%

PUBLIC 8" SEWER PROFILE EXTENSION SCALE: HORIZONTAL - 1"=50"

VERTICAL - 1"=5"

OWNER

ROBERT T. GEELHAAR

AND TERRI M. GEELHAAR

5295 LANDING ROAD

PHONE: (410) 367-0422

DEVELOPER

ELLICOTT CITY LAND HOLDING INC.

ELLICOTT CITY, MD 21042-7819

PHONE: (410) 367-0422

5300 DORSEY HALL DRIVE, SUITE 10

ELKRIDGE, MD 21075-5715

6" PUBLIC WATER_ -09 - 122USE-IN-COMMON LOTS 15-17 A MOUND OR PILE OF SOIL PROTECTED BY APPROPRIATELY DESIGNED EROSION AND SEDIMENT CONTROL TO PROVIDE A DESIGNATED LOCATION, FOR THE TEMPORARY STORAGE OF SOIL THAT CONTROLS THE POTENTIAL

FOR EROSION, SEDIMENTATION, AND CHANGES TO DRAINAGE PATTERNS. STOCKPILE AREAS ARE UTILIZED WHEN IT IS NECESSARY TO SALVAGE AND STORE SOIL FOR LATER USE.

B-4-8 STANDARDS AND SPECIFICATIONS

FOR

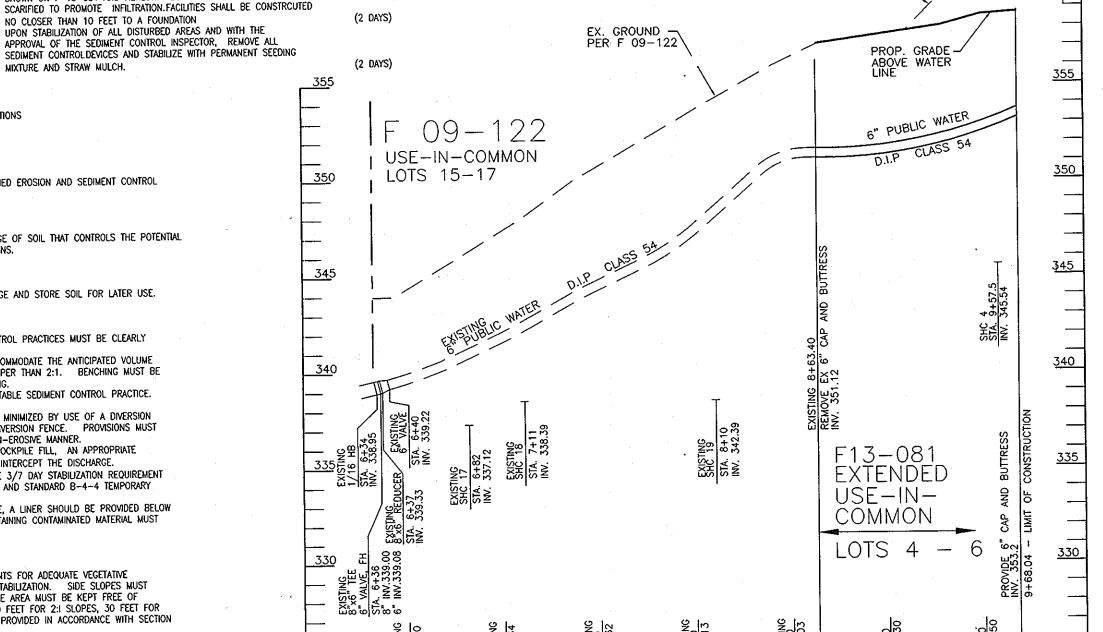
STOCKPILE AREA

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 F MATERIAL AND BASED ON A SIDE SLOPE RATIO NO STEEPER THAN 2:1. BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION B-3 LAND GRADING. RUNOFF FROM THE STOCKPILE AREA MUST DRAIN TO A SUITABLE SEDIMENT CONTROL PRACTICE. ACCESS THE STOCKPILE AREA FROM THE UPGRADE SIDE. CLEAR WATER RUNOFF INTO THE STOCKPILE AREA MUST BE MINIMIZED BY USE OF A DIVERSION DEVICE SUCH AS AN EARTH DIKE, TEMPORARY SWALE OR DIVERSION FENCE. PROVISIONS MUST

BE MADE FOR DISCHARGING CONCENTRATED FLOW IN A NON-EROSIVE MANNER. WHERE RUNOFF CONCENTRATES ALONG THE TOE OF THE STOCKPILE FILL, AN APPROPRIATE

EROSION/SEDIMENT CONTROL PRACTICE MUST BE USED TO INTERCEPT THE DISCHARGE. 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 STABILIZATION. 8. IF THE STOCKPILE IS LOCATED ON AN IMPERVIOUS SURFACE, A LINER SHOULD BE PROVIDED BELOW THE STOCKPILE TO FACILITATE CLEANUP. STOCKPILES CONTAINING CONTAMINATED MATERIAL MUST BE COVERED WITH IMPERMEABLE SHEETING.

THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF 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



EX. GROUND

REVISION NO. SITE DEVELOPMENT PLAN GRADING, SOIL EROSION & SEDIMENT CONTROL PLAN NOTES & DETAILS AND UTILITY PROFILES **GROVEMONT OVERLOOK - I** (SFD - RESIDENTIAL) LOTS 4-6 1ST ELECTION DISTRICT TAX MAP: 31 GRID: 24 DPZ REF'S: SEE NOTE 3 PARCEL: 619 & 74 HOWARD COUNTY, MARYLAN ROBERT H. VOGEL ENGINEERING, INC.

\$ 60000

ENGINEERS . SURVEYORS . PLANNERS 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014 DESIGN BY: DRAWN BY:

RHV CHECKED BY: JANUARY, 2014 DATE: AS SHOWN SCALE: W.O. NO.:

· SHEET

THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS AND ARE NOT EXCLUSIVE OR LIMITING. THE DESIGNER IS RESPONSIBLE FOR DEVELOPING SPECIFICATIONS FOR INDIVIDUAL PROJECTS AND SPECIFIC CONDITIONS.

1. PERVIOUS CONCRETE SPECIFICATIONS

DESIGN THICKNESS - PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED. APPLICATIONS MAY BE DESIGNED USING EITHER STANDARD PAVEMENT PROCEDURES (E.G., AASHTO, ACI 325.9R, ACI 330R) OR USING STRUCTURAL VALUES DERIVED FROM FLEXIBLE PAVEMENT DESIGN PROCEDURES.

MIX & INSTALLATION - TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 1157) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS. PHOSPHORUS ADMIXTURES MAY ALSO BE USED. MATERIALS SHOULD BE TESTED (E.G., TRIAL BATCHING) PRIOR TO CONSTRUCTION SO THAT CRITICAL PROPERTIES (E.G., SETTLING TIME, RATE OF STRENGTH DEVELOPMENT, POROSITY, PERMEABILITY) CAN BE DETERMINED.

AGGREGATE - PERVIOUS CONCRETE CONTAINS A LIMITED FINE AGGREGATE CONTENT. COMMONLY USED GRADATIONS INCLUDE ASTM C 33 NO. 67 (3/4 IN. TO NO. 4), NO. 8 (3/8 IN. TO NO.16) AND NO. 89 (3/8 IN. TO NO.50) SIEVES. SINGLE-SIZED AGGREGATE (UP TO 1 INCH) MAY ALSO BE USED.

WATER-TO-CEMENT RATIOS BETWEEN 0.27 AND 0.30 ARE USED ROUTINELY WITH PROPER INCLUSION OF CHEMICAL ADMIXTURES. WATER QUALITY SHOULD MEET ACI 30A. AS A GENERAL RULE, POTABLE WATER SHOULD BE USED ALTHOUGH RECYCLED CONCRETE PRODUCTION WATER MEETING ASTM C 94 OR AASHTO M 157 MAY ALSO BE USED.

ADMIXTURES - CHEMICAL ADMIXTURES (E.G., RETARDERS OR HYDRATION-STABILIZERS) ARE USED TO OBTAIN SPECIAL PROPERTIES IN PERVIOUS CONCRETE. USE OF ADMIXTURES SHOULD MEET ASTM C 494 (CHEMICAL ADMIXTURES) AND ASTM C 260 (AIR ENTRAINING ADMIXTURES) AND CLOSELY FOLLOW MANUFACTURER'S RECOMMENDATIONS.

BASE COURSE - THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

2. PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP)

PAVER BLOCKS - BLOCKS SHOULD BE EITHER 3? IN. OR 4 IN. THICK, AND MEET ASTM C 936 OR CSA A231.2 REQUIREMENTS. APPLICATIONS SHOULD HAVE 20% OR MORE (40% PREFERRED) OF THE SURFACE AREA OPEN. INSTALLATION SHOULD FOLLOW MANUFACTURER'S INSTRUCTIONS, EXCEPT THAT INFILL AND BASE COURSE MATERIALS AND DIMENSIONS SPECIFIED IN THIS APPENDIX SHALL BE FOLLOWED.

INFILL MATERIALS AND LEVELING COURSE - OPENINGS SHALL BE FILLED WITH ASTM C-33 GRADED SAND OR SANDY LOAM. PICP BLOCKS SHALL BE PLACED ON A ONE-INCH THICK LEVELING COURSE OF ASTM C-33 SAND. BASE COURSE - THE BASE COURSE SHALL BE AASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

REINFORCED TURF

REINFORCED GRASS PAVEMENT (RGP) - WHETHER USED WITH GRASS OR GRAVEL, THE RGP THICKNESS SHALL BE AT LEAST 1-3/4" THICK WITH A LOAD CAPACITY CAPABLE OF SUPPORTING THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED.

PERMEABLE PAVEMENTS

CONSTRUCTION CRITERIA:

- THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH PERMEABLE PAVEMENT:
- FINAL GRADING FOR INSTALLATION SHOULD NOT TAKE PLACE EROSION AND SEDIMENT CONTROL: UNTIL THE SURROUNDING SITE IS STABILIZED. IF THIS CANNOT BE ACCOMPLISHED, RUNOFF FROM DISTURBED AREAS SHALL BE DIVERTED AROUND PROPOSED PAVEMENT LOCATIONS.
- SUB SOILS SHALL NOT BE COMPACTED. CONSTRUCTION SHOULD BE PERFORMED SOIL COMPACTION: WITH LIGHTWEIGHT, WIDE TRACKED EQUIPMENT TO MINIMIZE COMPACTION. EXCAVATED MATERIALS SHOULD BE PLACED IN A CONTAINED AREA.
- OVERDRAIN, UNDERDRAIN, AND DISTRIBUTION PIPES SHALL BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS (SEE APPENDIX B. 4). THE UPSTREAM ENDS OF PIPES SHOULD BE CAPPED PRIOR TO INSTALLATION. ALL UNDERDRAIN OR DISTRIBUTION PIPES USED SHOULD BE INSTALLED FLAT ALONG THE BED BOTTOM.
- SUBBASE AGGREGATE SHALL BE CLEAN AND FREE OF FINES. THE SUBBASE SHALL BE PLACED IN LIFTS AND LIGHTLY ROLLED ACCORDING TO THE SPECIFICATIONS (SEE APPENDIX B.4).

REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUB GRADE.
- DURING PLACEMENT AND BACKFILL OF ANY DRAINAGE OR DISTRIBUTION SYSTEM(S). DURING PLACEMENT OF THE CRUSHED STONE SUBBASE MATERIAL.
- DURING PLACEMENT OF THE SURFACE MATERIAL. UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
- MAINTENANCE CRITERIA:

THE FOLLOWING PROCEDURES SHOULD BE CONSIDERED ESSENTIAL FOR MAINTAINING PERMEABLE PAVEMENT SYSTEMS:

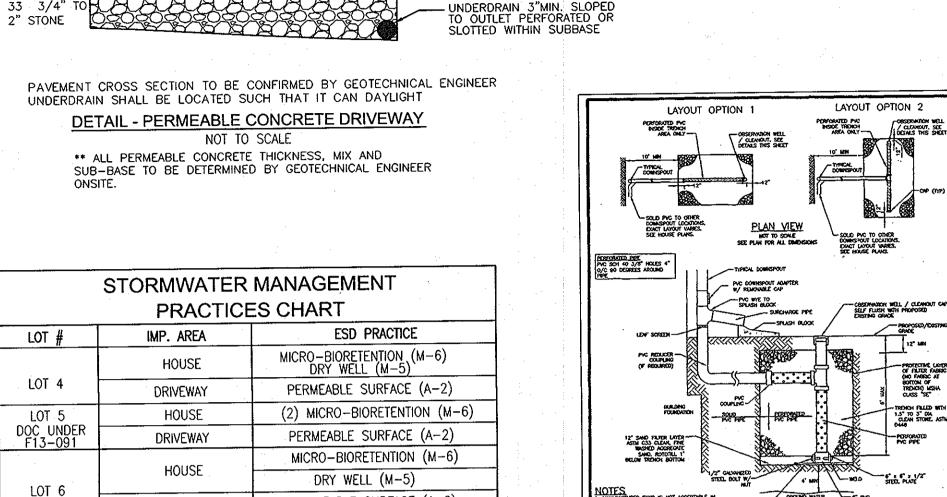
- PAVEMENTS SHOULD BE USED ONLY WHERE REGULAR MAINTENANCE CAN BE PERFORMED. MAINTENANCE AGREEMENTS SHOULD CLEARLY SPECIFY HOW TO CONDUCT ROUTINE TASKS TO ENSURE LONG-TERM
- PAVEMENT SURFACES SHOULD BE SWEPT AND VACUUMED TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING SYSTEMS AND COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- DRAINAGE PIPES, INLETS, STONE EDGE DRAINS, AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT AT REGULAR INTERVALS.
- TRUCKS AND OTHER HEAVY VEHICLES CAN GRIND DIRT AND GRIT INTO THE POROUS SURFACES, LEADING TO CLOGGING AND PREMATURE FAILURE. THESE VEHICLES SHOULD BE PREVENTED FROM TRACKING AND SPILLING MATERIAL ONTO THE PAVEMENT.
- DEICERS SHOULD BE USED IN MODERATION. WHEN USED, DEICERS SHOULD BE NON-TOXIC AND ORGANIC AND CAN BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT. SNOW PLOWING SHOULD BE DONE CAREFULLY WITH BLADES SET ONE-INCH HIGHER THAN NORMAL. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.

HOWARD COUNTY - OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DEVELOPMENT ENGINEERING DIVISION

- THE OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY. SWEEPING SHOULD BE PERFORMED AT LEAST TWICE ANNUALLY WITH A COMMERCIAL CLEANING UNIT. WASHING OR COMPRESSED AIR UNITS SHOULD NOT BE USED TO PERFORM SURFACE CLEANING.
- THE OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE
- THE OWNER SHALL USE DEICERS IN MODERATION. DEICERS SHOULD BE NON-TOXIC AND BE APPLIED EITHER AS CALCIUM MAGNESIUM ACETATE OR AS PRETREATED SALT.
- THE OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE. PLOWED SNOW PILES AND SNOW MELT SHOULD NOT BE DIRECTED TO PERMEABLE PAVEMENT.



PERMEABLE SURFACE (A-2)

MICRO-BIORETENTION (M-6)

TOTAL = 1.615 SF

EQUAL AT PERMEABLE

SURFACE/BLACKTOP

OVERDRAIN 2" MIN. -PERFORATED OR SLOTTED

MBR FACILITY	А	В	С	D	SURFACE AREA	WEIR LENGTH	APPROX. DIMENSIONS
MBR #1	357.00	354.75	354.00	353.42	290 SF	10 LF	SEE PLAN
MBR #2	336.00	333.75	333.00	332.42	250 SF	5 LF	SEE PLAN
MBR #3	345.00	342.75	342.00	341.41	380 SF	10 LF	SEE PLAN
MBR #4	351.00	348.75	348.00	347.41	290 SF	N/A	SEE PLAN

362.00 359.75 359.00 358.41 405 SF N/A SEE PLAN

Rev REQUIRED = 268 CUFT+/-|Rev PROVIDED = 1.615 SF (MBR) * 7" * 0.40 = 376 CUFT+/- (1)

DRIVEWAY

USE-IN-COMMON

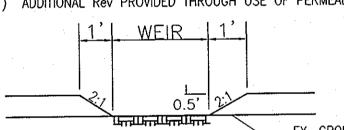
DRIVEWAY

PERMEABLE-

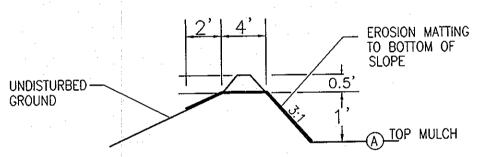
CONCRETE

DOC_UNDER

(1) ADDITIONAL Rev PROVIDED THROUGH USE OF PERMEABLE SURFACE DRIVEWAYS



TYPICAL SPILLWAY PROFILE NOT TO SCALE



	:		•	
1		MICRO-BIORETENTION # 5 PLANTING SCHEDU	LE	
	QTY:	BOTANICAL NAME/COMMON NAME	ŞIZE	REMAR
(3)	4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	5 GALLON	CON
- ⊗	6	KALMIA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CON
3	4	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CON
			•	

--- COSEMBUTION WELL / CLEANOUT SELF FLUSH WITH PROPOSED EXISTING GRACE PIC PPE CHOUND WATER - 6" PVC COUPLING NOTES

1. MANUFACTURED SAND IS NOT ACCOPPOBLE IN
ORIVELLS.

2. ALL PIPES SHOULD BY SICH AS PACE 4" MIN
19" X 12"

2. ORIVENIUS MUST BE A SEMBAN OF
OUT FROM BLANDS FUNDAMENT IN
OUT FROM SPILE CONSINE
AND SPILE OF SUBJECT ON MANUEL ANY BASCHOTT

THE CALL SECTION
MOY TO SOME
MOY THE MEDICAL SECTION MOY DESCRIBED.

AND SPICE OF SUBJECT ON MANUEL ANY BASCHOTT SEAPACE.

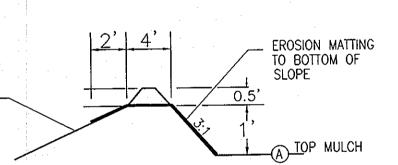
4. NEMEROS INJUSTICS OF PERFORATIONS SHALL BE 5 TIMES PPC AREA.

5. TRENCH KAY HOT BE INSTALLED IN FILL. Department of Public World D-9.01Resonan

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

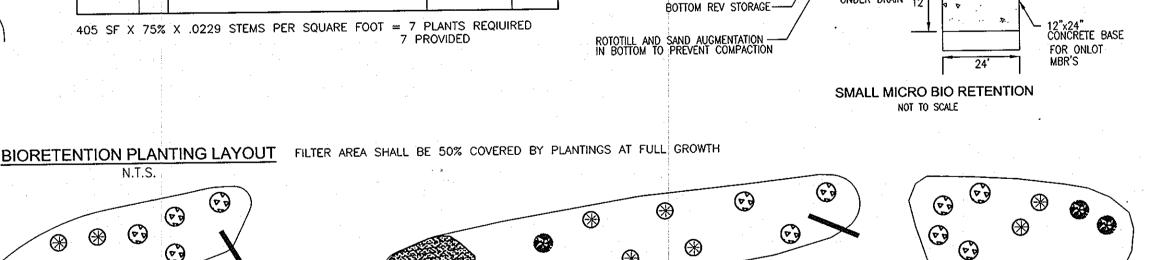
A. THE OWNER SHALL INSPECT & CLEAN ANNUALLY, INCLUDING PIPES GUTTERS DOWNSPOUTS AND FILTERS.

B. PONDING STANDING WATER OR ALGAL GROWTH ON THE TOP OF A DRYWELL MAY INDICATE FAILURE DUE TO SEDIMENTATION IN THE GRAVEL MEDIA. IF WATER PONDS FOR MORE THAN 48 HOURS AFTER A MAJOR STORM OR MORE THAN SIX INCHES OF SEDIMENT HAS ACCUMULATED, THE GRAVEL MEDIA SHOULD BE EXCAVATED AND REPLACED.



TYPICAL SPILLWAY SECTION NOT TO SCALE

©			MICRO-BIORETENTION # 5 PLANTING SCHEDULE	
	7	QTY:	BOTANICAL NAME/COMMON NAME SIZE	REMAR
	©	4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY 5 GALLON	CONT
(⊙ \ ⊗⊛\	(₩)	6	KALMIA LATIFOLIA 5 GALLON MOUNTAIN LAUREL 5	CON
\ ③ 	3	4	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' 3 GALLON GLACIER OR WHITE ROSEBUD HYBRID AZALEA	CONT
\ * \				
	405 SF X	75%	X .0229 STEMS PER SQUARE FOOT = 7 PLANTS REQIU 7 PROVIDED	IRED
MBR #1 405 SF				



		MICRO-BIORETENTION # 1 PLANTING SCHEDUL	<u>.e</u>	
	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
©	4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	5 GALLON	CONT
⊛	2	KALMIA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
₩	4	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT

290 SF X 75% X .0229 STEMS PER SQUARE FOOT = 5 PLANTS REQIUIRED

(

	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
©	4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	5 GALLON	CONT
⊛	2	KALMIA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
(2)	4	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT

	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
(3)	3	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	5 GALLON	CONT
⊛	4	KALMIA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
(2)	3	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT
SE SE	100 SF	LIRIOPE MUSCARI 'MAJESTIC' MAJESTIC LILY TURF	2" POT	1' 0.C.

	QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
(3)	4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	5 GALLON	CONT
	2	KALMIA LATIFOLIA MOUNTAIN LAUREL	5 GALLON	CONT
3	4	RHODODENDRON HY. 'GLACIER' OR 'WHITE ROSEBUD' GLACIER OR WHITE ROSEBUD HYBRID AZALEA	3 GALLON	CONT

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

1. MATERIAL SPECIFICATIONS THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.

2. FILTERING MEDIA OR PLANTING SOIL THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE 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 OR DECREASE PH.

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

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 ALLEVATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO 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 EQUIPMENT 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.

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

5. PLANT INSTALLATION COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH S 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 INSTALLATION. TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED

ON THE OUTSIDE OF THE TREE BALL. GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS. THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY

FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

* 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 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).

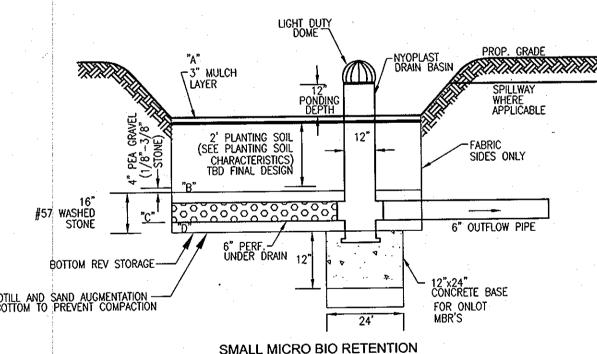
THESE PRACTICES MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

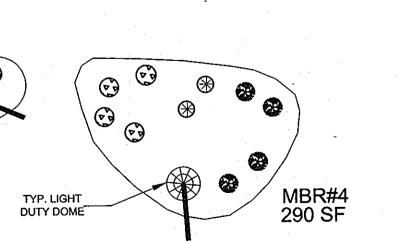
OPERATION AND MAINTENANCE SCHEDULE FOR MICROBIORETENTION AREAS

1. 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 VOLUME II, TABLE A.4.1 AND 2.

2. THE OWNER SHALL PERFORM A PLANT INSPECTION 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 OF ALL DEFICIENT STAKES AND WIRES 3. THE OWNER SHALL INSPECT THE MULCH EACH SPRING. THE MULCH SHALL BE REPLACED EVERY TWO TO THREE YEARS. THE PREVIOUS MULCH LAYER SHALL BE REMOVED BEFORE THE NEW LAYER IS APPLIED.

4. THE OWNER SHALL CORRECT SOIL EROSION ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER EACH HEAVY STORM.





"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

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 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. MICROBIORETENTION AREAS ARE TO BE PLANTED 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 ESDV SUMMARY. FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH

TARGET Pe: 1.60 IN 25.32 PERCENT IMPERVIOUS: SITE RV: 0.28 2227 SITE ESDV:

GEELHAAR PROPERTY - SITE DATA

FINAL ESD DESIGN - SWM PER LOT

TOTAL AREA (LOD): 1,38 AC NEW DEVELOPMENT

N/A N/A CF REQ 582 364 946 0.19 16271 20011 3740 101 CF 0.196 PERMEABLE SURFACE DRIVEWAY 405 CF MICRO BIORETENTION 1'POND 4 0.3 77 .CF DRYWELL 583 CF PROV. **4100 15905 20005 0.20 0.23 391 1016 625 0.33** 116 CF PERMEABLE SURFACE DRIVEWAY 0.196 290 CF MICRO BIORETENTION 1'POND 290 SF 250 CF 250 SF MICRO BIORETENTION 1'POND 656 CF PROV 6 4805 15198 20003 0.24 0.27 444 1154 710 0.33 206 CF 0.196 PERMEABLE SURFACE DRIVEWAY 0.3 120 CF 10 DRYWELL 380 CF 380 SF MICRO BIORETENTION 1' POND 706 CF PROV. UIC DRIVE 2600 0 2600 1.00 0.95 206 535 329 0.04

MICRO BIORETENTION 1' POND

11505 TOTAL AREA

APPENDIX B.4. - CONSTRUCTION SPECIFICATIONS

290 CF

290 CF PROV.

2234 CF PROV

Appendix B.4. Construction Specifications for Environmental Site Design Practices Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltrationsee Appendix A, Table A.4 plantings are site-specific USDA soil types loamy sand or sandy loam; clay content < 5% loamy sand (60 - 65%) & Planting soil compost (35 - 40%) [2' to 4' deep] sandy loam (30%), coarse sand (30%) & compost (40%) Min. 10% by dry weight Organic content (ASTM D 2974) aged 6 months, minimum; no pine or wood chips shredded hardwood pea gravel: ASTM-D-448 Pea gravel diaphragm (1/8" TO 3/8") rnamental stone: washed Curtain drain PE Type 1 nonwoven AGGREGATE infiltration berms) (3/8" to 3/4") Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per F 758, Type PS 28 or AASHTO 4" to 6" rigid schedule 40 row; minimum of 3" of gravel over pipes; not necessary PVC or SDR35 indemeath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth on-site testing of poured-in-place concrete required: MSHA Mix No. 3; $f'_c = 3500$ Poured in place concrete (if 28 day strength and slump test; all concrete design (cast-in-place psi @ 28 days, normal weight, air-entrained; reinforcing to or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a meet ASTM-615-60 professional structural engineer licensed in the State of Maryland design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil ressures); and analysis of potential cracking Sand substitutions such as Diabase and Graystone (AASHTO) AASHTO-M-6 or ASTM-C-33 0.02" to 0.04" #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

> REVISION SITE DEVELOPMENT PLAN STORMWATER MANAGEMENT NOTES AND DETAILS **GROVEMONT OVERLOOK - II** (SFD - RESIDENTIAL) X MAP: 31 GRID: 24 PZ REF'S: SEE NOTE 3 ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS . SURVEYORS . PLANNERS 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961 OF MARS

ROBERT T. GEELHAAR AND TERRI M. GEELHAAR 5295 LANDING ROAD ELKRIDGE, MD 21075-5715 PHONE: (410) 367-0422 DEVELOPER ELLICOTT CITY LAND HOLDING INC. 5300 DORSEY HALL DRIVE, SUITE 102 ELLICOTT CITY, MD 21042-7819 PHONE: (410) 367-0422 CONTRACTOR OF THE PROPERTY OF

OWNER

CHECKED BY: DATE: RODERT H. VOCEL, PE No.1619

I HERE3Y CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MATYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014 RHV ____JANUARY, 2014 SHEET 6

PARCEL: 619 & 7

HOWARD COUNTY, MARYLAI

