BENCHMARKS SITE DEVELOPMENT PLAN HOWARD COUNTY BENCHMARK 41C2 GENERAL NOTES N 551,616.4187 E 1,348,104.2341 PROJECT BACKGROUND: HOWARD COUNTY BENCHMARK 0057 N 550,835.2139 E 1,347,017.6897 HOLIDAY HILLS PARCELS: SUBDIVISION HOLIDAY HILLS TOTAL LOT AREA 1.00 AC DISTURBED AREA: 0.683 AC AREA OF PLAN SUBMISSION: 1.00 AC. MINIMUM LOT SIZE: LOTS 113 & 114 PROPOSED USE FOR SITE: RESIDENTIAL TOTAL NUMBER OF UNITS: TYPE OF PROPOSED UNIT: DEED REFERENCES: A RESUBDIVISION LOT 54 SECOND ADDITION TO F-13-083, ECP-13-017, WP 13-186, PLAT BOOK 8, FOLIO 79 DPZ REFERENCES: 2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT HOLIDAY HILLS SUBDIVISION PLAT BOOK 8, FOLIO 79 (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 APPROVED. 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 PLACEMENT OF ANY ASPHALT. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON AERIAL TOPOGRAPHY PERFORMED BY ROBERT H. VOGEL ENGINEERING, INC. IN AUGUST, 2012. THE PROJECT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PREPARED BY ROBERT H, VOGEL ENGINEERING, INC., IN AUGUST, 2012. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE **OUSBORNE LOUIS G TRUSTEE** COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 41C AND 00057 WERE USED FOR THIS PROJECT. **OUSBORNE MILDRED V TRUSTEE** THE SUBJECT PROPERTY IS ZONED "R-20" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN. TM. 0041 P. 0273 10. STORMWATER MANAGEMENT REQUIREMENTS HAVE BEEN SATISFIED UNDER APPROVED F-13-083, ECP-13-017 USING THE 2007 MARYLAND STORMWATER DESIGN MANUAL (CHAPTER 5), THRU THE USE OF MICRO-SCALE PRACTICES INCLUDING DRYWELL, MICRO BIORETENTION FACILITIES, SHEET INDEX L. 3165/ F. 641 AND OPEN CHANEL FLOW (WHEN IMPERVIOUS AREAS CAN NOT BE DIRECTED TO ONE OF THE MICRO BIORETENTION FACILITIES). EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS, FIELD SURVEY, ROAD CONSTRUCTION PLANS AND AVAILABLE RECORD DRAWINGS DESCRIPTION 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 TE LAYOUT AND LANDSCAPE PLAN 12. ANY DAMAGE TO THE COUNTY'S RIGHTS-OF-WAY, PAVING, OR EXISTING UTILITIES SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN 13. ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06 UNLESS OTHERWISE NOTED. GRADING & SOIL EROSION AND SEDIMENT CONTROL PLAN - NOTES AND DETAILS 14. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING TORMWATER MANAGEMENT PLAN & DETAILS 1-800-252-1133 **HUNTING LANE** BGE (CONSTRUCTION SERVICES) 410-637-8713 PUBLIC LOCAL ROAD 410-685-0123 BGE (EMERGENCY) **LEGEND** BUREAU OF UTILITIES N 550600 COLONIAL PIPELINE CO 1-800-257-7777 MISS UTILITY STATE HIGHWAY ADMINISTRATION 410-531-5533 1-800-743-0033 15. 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 OR REAR YARD SETBACK. 16. PER F-13-083; NO WETLANDS, STREAMS, 25% STEEP SLOPES OR FLOODPLAINS EXIST ON SITE. 17. THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. 18. WATER AND SEWER SERVICE FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE PROVIDED UNDER CONTRACT 34-1810-D AND SEWER WILL BE PROVIDED THROUGH CONTRACT NO. 30-3123-D. 19. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES, OR HISTORIC STRUCTURES LOCATED ON THIS PROPERTY 20. THE PROPOSED UNITS SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM. PRIVATE ACCESS DRAINAGE & UTILITY NO STEEP SLOPES OVER 20,000 SF CONTIGUOUS ARE LOCATED ONSITE. 22. FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH SECTION 16.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT FOR THIS SUBDIVISION HAVE BEEN FULFILLED UNDER APPROVED F-13-083. TM. 0041 P. 0273 LOT 54 23. THE LANDSCAPE PLAN, IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY LANDSCAPE MANUAL WAS APPROVED UNDER F-13-083. L. 14161/ F. 00236 FINANCIAL SURETY IN THE AMOUNT OF \$3,600.00 FOR THE REQUIRED 10 SHADE TREES AND 4 EVERGREEN TREES SHALL BE POSTED WITH R-20 ZONING DISTRICT SITE ANALYSIS DATA 24. ESTIMATES OF EARTHWORK QUANTITIES ARE PROVIDED SOLELY FOR THE PURPOSE OF CALCULATING FEES AND ARE BASED UPON EXISTING AND HOLIDAY HILLS SECTION 5 PLAT BOOK 8/FOLIO 79 25. ALL SINGLE FAMILY DWELLINGS WILL HAVE A MINIMUM OF A 1-1/2" WHC WITH A 1" OUTSIDE METER SETTING. TOTAL PROJECT AREA: 26. DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE EX. CONC. WALK AREA OF PLAN SUBMISSION: 1.00 AC (LOTS 1 & 2) FOLLOWING MINIMUM REQUIREMENTS: LIMIT OF DISTURBANCE: A) WIDTH - 12 FEET (16 FEET IF SERVING MORE THAN ONE RESIDENCE) PRESENT ZONING DESIGNATION: B) SURFACE - 6 INCHES OF COMPACTED CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.) PROPOSED USES FOR SITE AND SINGLE FAMILY DETACHED STRUCTURES: C) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS FLOOR SPACE ON EACH LEVEL (TO REMAIN) D) STRUCTURES - (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING) OF BUILDING PER USE: E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH NO MORE THAN 1-FOOT DEPTH OVER DRIVEWAY SURFACE TOTAL NUMBER OF UNITS ALLOWED F) STRUCTURE CLEARANCES - MINIMUM 12 FEET 2 BUILDABLE LOTS TOTAL FOR PROJECT AS SHOWN ON FINAL PLAT: 20,886 SF G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE TOTAL NUMBER OF UNITS PROPOSED 27. CONTRACTOR TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION. ON SUBMISSION: 28. A DECLARATION OF MAINTENANCE OBLIGATIONS FOR THE USE-IN-COMMON ACCESS AREA WAS APPROVED UNDER F-13-083 (PLATS 22.894) MAXIMUM NUMBER OF EMPLOYEES, AND RECORDED AMONG THE LAND RECORDS OF HOWARD COUNTY, MD IN LIBER 14161 FOLIO 236. TENANTS ON SITE PER USE: 29. FOREST STAND DELINEATION WAS COMPLETED BY ECO-SCIENCE PROFESSIONALS, INC., AUGUST 2012 UNDER F13-083. WERTHEIMER MICHAEL AARON NUMBER OF PARKING SPACES REQUIRED 30. THERE WILL BE FOUR (4) STREET TREES PLANTED FOR THIS PROJECT. THE SURETY AMOUNT WILL BE BY HO.CO. ZONING REGULATIONS: GROT CHRISTINA URSULA T/E \$1200.00 AND WILL BE POSTED WITH THE BUILDERS GRADING PERMIT. NUMBER OF PARKING SPACES PROVIDED TM. 0041 P. 0273 2 PER SED HOUSE 31. THE EXISTING WELL AND SEPTIC HAVE BEEN ABANDONED. PER FEE IN LIEU F-13-039 L. OPEN SPACE ON SITE: GILBERT BERNARD R AREA OF RECREATION OPEN SPACE GILBERT YOSHIKO R-20 ZONING DISTRICT HOLIDAY HILLS SECTION 5 REQUIRED BY SUBDIVISION & LAND TM. 0041 P. 0273 DEVELOPMENT REGULATIONS: PLAT BOOK 8/FOLIO 79 LOT 55 BUILDING COVERAGE OF SITE: L. 1077/ F. 301 APPLICABLE DPZ FILE REFERENCES: ANY OTHER INFORMATION WHICH MAY SÉE NOTE 1 R-20 ZONING DISTRICT TAX MAP 41, GRID 5, PARCELS 273 HOLIDAY HILLS SECTION 5 PLAT BOOK 8/FOLIO 79 BE RELEVANT: 5TH ELECTION DISTRICT Q. FLOOR AREA RATIO: LOT 114 22,807 SF N 550350 PERMIT INFORMATION CHART SUBDIVISION NAME | SECTION / AREA PLAT REF. BLOCK NO ZONE TAX MAP ELECT DIST. CENSUS TR. PB8/F79 6 R-20 41 5TH 6051.02 N 550350 SHED AS-BUILT CERTIFICATION FOR PSWM N 82°21'22" W 166.00' I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS O SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE GEORGE E BRADFORD & | EX. KELLY MICHAEL W UNDERGROUND SWM FACILITY. THAVIVHONE P BRADFORD BLDG TM. 0041 P. 0420 LOT 7 KELLY CYNTHIA TM. 0041 P. 0420 SITE DEVELOPMENT PLAN L.00950/ F.00191 R-20 ZONING DISTRICT RIVERSIDE ESTATES SECTION 4 R-20 ZONING DISTRICT RIVERSIDE ESTATES SECTION 4 **COVER SHEET** PLAT 3816-A **HOLIDAY HILLS** LOTS 113 & 114 **LOCATION MAP** HOLIDAY HILLS SUBDIVISION SECTION 5 LOTS 113 & 114 A RESUBDIVISION OF LOT 54, PLAT BOOK 8, FOLIO 79 5TH ELECTION DISTRICT TAX MAP 41, GRID 6 DPZ REF. FILES: (SEE GENERAL NOTES) NO AS-BUILT INFORMATION ON THIS SHEET ROBERT H. VOGEL ADDRESS CHART STORMWATER MANAGEMENT Engineering, Inc. STREET ADDRESS PRACTICES CHART 1082 HUNTING LANE Engineers • Surveyors • Planners 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961 LOT # ESD PRACTICE MICRO-BIORETENTION (M-6) DRY WELL (M-5) LOT 114 DRIVEWAY APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING CHIEF, DEVELOPMENT ENGINEERING DIVISION OWNER/DEVELOPER

SD PROPERTIES, LLC 3138 ROGERS AVENUE ELLICOTT CITY, MD 21043 PHONE: (410) 203-2460 **VICINITY MAP**

SCALE: 1"=2000'

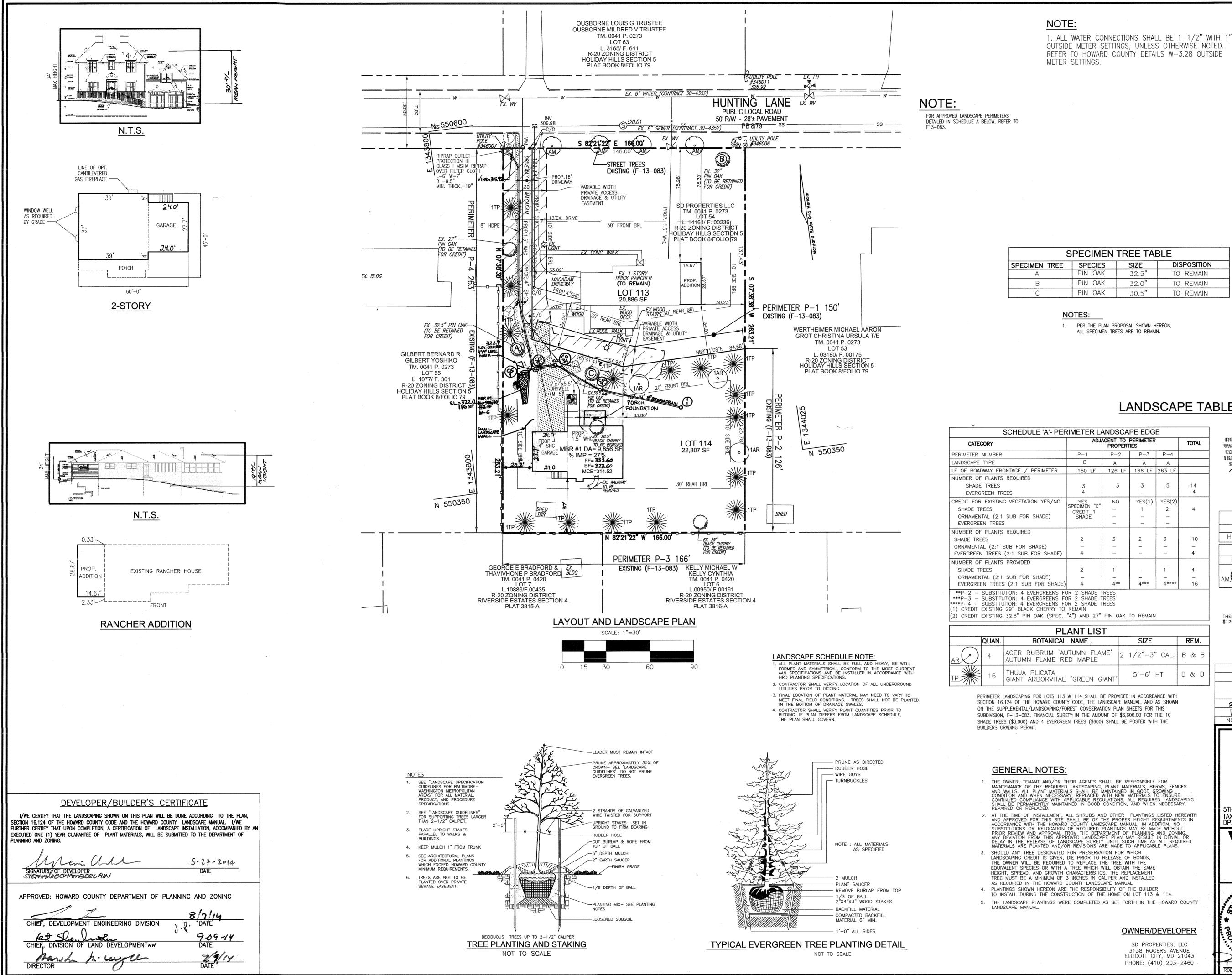
ADC MAP COORDINATES: 5052/H2

113 & 114

HOWARD COUNTY, MARYLAND

WERE PREPARED OR APPROVED BY ME, AN THAT I AM A DULY LICENSED PROFESSIONA ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193

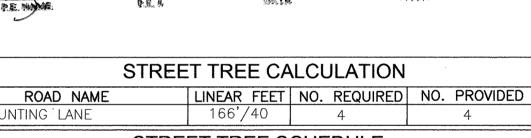
EXPIRATION DATE: 09-27-2014



LEGEND: ADJACENT PROPERTY LINE EXISTING CURB AND GUTTER EXISTING UTILITY POLE EXISTING LIGHT POLE EXISTING MAILBOX \overline{O} EXISTING SIGN EXISTING SANITARY MANHOLE EXISTING SANITARY LINE EXISTING CLEANOUT EXISTING FIRE HYDRANT EXISTING WATER LINE EXISTING TREELINE EXISTING TREES EXISTING FENCE PROPOSED TREES F-13-083 DW PROPOSED DRYWELL PROPOSED MICRO-BIORETENTION MBR #1 PROPOSED DRIVEWAY VARIABLE WIDTH PRIVATE ACCESS DRAINAGE & UTILITY EASEMENT

LANDSCAPE TABLES (F-13-083)

	wave sec.					AS-BUYLT CERTIFICATION FOR PSWM
SCHEDULE 'A'- PER						CERTIEV THAT THE FACILITY SHOWN ON THIS PLAN
CATEGORY	ADJ	ACENT TO PROPERT			TOTAL	AND MANAGEMENTED AS SHOWN ON THE "ASSBUILT" PLANS AND
PERIMETER NUMBER	P-1	P-2	P-3	P-4		COMPLES WITH THE APPROVED PLANS AND SPECIFICATIONS. THAVE YERFIED THAT THE CONTRIBUTING DRAINAGE AREA IS
LANDSCAPE TYPE	В	Α	А	А		COMPANY AND A STATE INFO TO PREVENT CHARGING OF COMPANY
LF OF ROADWAY FRONTAGE / PERIMETER	150 LF	126 LF	166 LF	263 LF		UNDERGROUND SWIM FACILITY.
NUMBER OF PLANTS REQUIRED						16/93 7/29/20
SHADE TREES	3	3	3	. 5	· 14	RE NAME: P.E. H. DATE
EVERGREEN TREES	4	-	_	_	4	
CREDIT FOR EXISTING VEGETATION YES/NO	YES SPECIMEN "C"	NO	YES(1)	YES(2)		
SHADE TREES	SPECIMEN "C" CREDIT 1	_	1	2	4	
ORNAMENTAL (2:1 SUB FOR SHADE)	SHADE	_	_	-		STREET TREE CALC
EVERGREEN TREES	-	_	_			
NUMBER OF PLANTS REQUIRED						ROAD NAME LINEAR FEET NO
SHADE TREES	2	3	2	3	10	HUNTING LANE 166'/40
ORNAMENTAL (2:1 SUB FOR SHADE)	_	· –	-	-	_	STREET TREE SCH
EVERGREEN TREES (2:1 SUB FOR SHADE)	4	_	_	_	4	
NUMBER OF PLANTS PROVIDED						KEY QUAN. BOTANICAL NAME
SHADE TREES	2	1	-	1	4	AMUR MAPLE (SHADE TREES-
ORNAMENTAL (2:1 SUB FOR SHADE)	_	_	_	-	_	AMA ACER GINNALA GROWTH HEIGHT=20
EVERGREEN TREES (2:1 SUB FOR SHADE)	4	4**	4***	4****	16	



\$1200.00 AND WILL BE POSTED WITH THE BUILDERS GRADING PERMIT.

HUNTING LANE STREET TREE SCHEDULE KEY QUAN. BOTANICAL NAME REM. (SHADE TREES-1/2"-3" CAL. ACER GINNALA GROWTH HEIGHT=20')

PUBLIC STREET TREES WERE PROVIDED FOR THIS PROJECT IN ACCORDANCE WITH SECTION 16.124(e)(1) OF THE SUBDIVISION REGULATIONS AND THE LANDSCAPE MANUAL UNDER F 13-083 THERE WILL BE FOUR (4) STREET TREES PLANTED FOR THIS PROJECT. THE SURETY AMOUNT WILL BE

2-19-20 TO REVISE STORM DRAIN, GRADING AND BIORETENTION REVISE FRONT PORCH & GARAGE FOR LOT 114 TO REFLECT ASBUILT CONDITIONS 3-1-18 DATE

SITE DEVELOPMENT PLAN SITE LAYOUT AND LANDSCAPE PLAN

> HOLIDAY HILLS LOTS 113 & 114 HOLIDAY HILLS SUBDIVISION SECTION 5 LOTS 113 & 114

A RESUBDIVISION OF LOT 54, PLAT BOOK 8, FOLIO 79 5TH ELECTION DISTRICT

SCALE:

DPZ REF. FILES: (SEE GENERAL NOTES) 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS • SURVEYORS • PLANNERS



ROBERT H. VOGEL, PE No.1619

TAX MAP 41, GRID 6

PROFESSIONAL CERTIFICATE I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AND DESIGN BY: THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE DRAWN BY: OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014 MAY, 201

ZONED: R-20

PARCEL 27

HOWARD COUNTY, MARYLAND

____AS SHOWN

SEQUENCE OF CONSTRUCTION

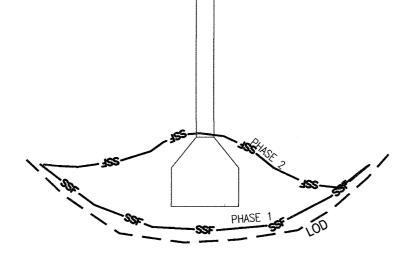
- OBTAIN GRADING PERMIT. (1 DAY) DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING
- WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING
- NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS AT (410) 313-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK.
- 4. CLEAR AND GRUB, IF REQUIRED, FOR THE INSTALLATION OF PERIMETER
- 5. INSTALL STABILIZED CONSTRUCTION ENTRANCE AND PERIMETER CONTROLS AS SHOWN HEREON AND STABILIZE DISTURBANCES. (2 DAYS) 6. INSTALL PRIVATE STORM DRAINS (BYPASS I-1 TO E-1 AND CS-1 TO
- THESÉ PORTIONS SHALL BE INSTALLED WITH A CLEAR WEATHER FORECAST. ONLY THAT PORTION OF STORM DRAIN THAT CAN BE INSTALLED AND STABILIZED ON ANY GIVEN DAY SHALL BE DISTURBED. STABILIZE STORM DRAIN DISTURBANCE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH.
- INSTALL INLET PROTECTION AS DIRECTED HEREON.
- 7. AFTER OBTAINING PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED, COMPLETE ANY REMAINING GRADING WITHIN THE INSTALLED PERIMETER CONTROLS. (5 DAYS)
- BEGIN & COMPLETE HOUSE CONSTRUCTION (6 MONTHS)
- 9. INSTALL PRIVATE UTILITY CONNECTIONS AS REQUIRED BY PLAN. (1 WEEK) -UTILITY INSTALLATION ACROSS FRONT YARD OF LOT 113 SHOULD BE IMMEDIATELY STABILIZED WITH PERMANENT SEEDING MIXTURE AND STRAW
 - EXISTING PAVED DRIVEWAY SHALL BE SAW CUT FOR UTILITY
- INSTALLATION. 10. UPON COMPLETION OF PRIVATE UTILITIES, INSTALL AND WIDEN EXISTING DRIVEWAY AS SHOWN HEREON. COMPLETE ANY FINE GRADING ALONG THE EDGES OF THE NEWLY WIDENED DRIVEWAY AND IMMEDIATELY STABILIZE WITH
- PERMANENT SEEDING MIXTURE AND STRAW MULCH. (1 DAY) 11. INSTALL STORMWATER MANAGEMENT FEATURES, MICRO-BIORETENTION AND
- DRYWFII (3 DAYS) 12. COMPLETE ANY REMAINING FINE GRADING DRIVEWAY INSTALLATIONS WITHIN THE INSTALLED PERIMETER CONTROLS AND STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (5 DAYS)
- 13. UPON STABILIZATION OF ALL DISTURBED AREAS AND WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES AND STABILIZE DISTURBANCES WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH.

NOTE: ANY CHANGES OR REVISIONS TO THE SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE PLAN APPROVAL AUTHORITY PRIOR TO

NOTE:

- SILT FENCE IS TO BE REPLACED WITH SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR. - SILT FENCE SHALL BE CURLED UPHILL NO MORE THAN 35 FEET APART

- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.



SILT FENCE PHASING DETAIL @ E-1

WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR;

PHASE 1 SILT FENCE LOCATION SHALL BE REMOVED AND RELOCATED ABOVE AN OUTFALL (PHASE 2) ONCE OUTFALL INSTALLATION IS

DISTURBED AREAS SHALL BE IMMEDIATELY

NOTE: STOCKPILING WILL BE

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

PERMITTED ON EACH LOT ONLY.

PUBLIC LOCAL ROAD HUNT NG RAA. 28'± PAVEMENT S 82°21'22" E 166.00" PROTECTION III CLÁSS I MSHA RIPRAP / VINV .= 315.92 MIN. THICK .= 19" PRIVATE ACÇESS DRAINAGE & UTILITY **EASEMENT** SD-PROPERTIES LLC TM. 0041 P. 0273 LOT 54 L. 14161/ F. 00236 50' FRONT BRL R-20 ZONING DISTRICT HOLIDAY HILLS SECTION 5 PLAT BOOK 8/FOLIO 79 EX. CONC. WALK IOTE: CURLING OF FENCING IS TO BE J EX. 1 STORY BRICK RANCHER PACED NO FURTHER APART THAN 50 F (TO REMAIN) 20,886 SF WERTHEIMER MICHAEL AARON GROT CHRISTINA URSULA T/E TM. 0041 P. 0273 / LOT 53 GILBERT BERNÁRD R. L. 03180/ F. 00175 GILBERT YØSHIKO TOP-322.9 R-20 ZONING DISTRICT TM. 0041 P. 0273 HOLIDAYHILLS SECTION! -PLAT BOOK 8/FOLIO 7 L/1077/ F. 301 R-20 ZONING DISTRICT HOLIDAY HILLS SECTION 5 PLAT BOOK 8/FOLIO 79 N 550350 FF= 333.60 SWALE TO I-1 BOTTOM = 2.0' SIDE SLOPES = 3:1 & 8:1 SLOPE = 5.5% MCE=314.52 Q10=0.3 CFS V10=1.61 FPS N 550350 d10=0.08' LINE W/ SEED, MULCH AND SHED PER DETAIL B.4.6.C. - SHT 4 GEORGE E BRÂDFORD & EX KELLY MICHAEL W.-KELLY CYNTHIA TM. 0041 P. 0420 THAVIVHONE P BRADFORD BLDG TM. 0041 P. 0420 L.00950/ F.00191 ..10886/F.00435 R-20 ZONING DISTRICT RIVERSIDE ESTATES SECTION 4 R-20 ZONING DISTRICT RIVERSIDE ESTATES SECTION 4 PLAT 3816-A SEDIMENT CONTROL PLAN

OUSBORNE LOUIS G TRUSTEE

OUSBORNE MILDRED V TRUSTEE

TM. 004† P. 0273

3165/ F. 644

R-20 ZONING DISTRICT

HOLIDAY HILLS SECTION 5

PLAT BOOK 8/FOLIO 79

\ LOT 63\.

SOILS LEGEND NAME/DESCRIPTION SYMBOL TYPE GLENELG-URBAN LAND COMPLEX 8 TO 15 PERCENT SLOPES GLADSTONE-URBAN LAND COMPLEX 0 TO 8 PERCENT SLOPES

BY THE ENGINEER:

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND

OPMENT ENGINEERING DIVISION 9-09-14

Table B.1: Temporary Seeding for Site Stabilization

Jun 1 to . of 31

6. Secung rates for the warm-scased geneses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purely, as lessed. Adjustments are recally not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted a one. When planted as a cross once with permanent seed misse, use 1/3 of the seeding rate listed abov. for barley, oals, and wheat. For smaller-seeded grasses (armed ryagness, pearl rullet, fostall millet), do not exceed more than Y/s (by weight) of the overall permanent scaling mix. Sience rya generally should not be user as a mixed copy unless planting will occur in very late in 1 hayand the scaling dates for other to uparary seedings. Come my chas a lekepathic properties that inhibit the germination and growth of other plants. Bit must be used as a mixed copy, seed at 1/8 of the rate listed above.

39 If a planting datus historiare averages, for each Zone and may require adjustment to reflect local conditions, especially upon the boundaries of the zone.

EITHER PERMANENT OR TEMPORARY SEEDING AND/OR

FRAMES REQUIRED BY THE 2011 STANDARDS AND

SPECIFICATIONS WHICHEVER IS MORE RESTRICTIVE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

STABILIZATION IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME

5h and 6a

Seeding Rate *

Annual Ryegrass (Lohum perern

Barley (Hordeum rulgare)

Wheat (Triticum aestiruni)

Cereal Kye (Secole cereale)

Focal Milet (Setaria halica)

Pearl Millet (Pennisoum glascum)

Oats (Ivena sativa)

lb/nc | lb/1000 ft² | (inches)

Recommended Seeding Dates by Plant Hardiness Zone $^{\rm st}$

Mar 15 to May 31. Aug 1 to Sep 30 Mar 1 to May 15; Aug Feb 15 to Apr 30, Au 1 to Oct 15 15 to Nov 30

Mar 15 to May 31, Aug. 1 to Sep 30 Mar I to May 15; Aug. Feb 15 to Apr 30. Au 1 to Oct. 15 III Nov. 50

Mar 15 to May 31. Aug. to Sep 30 | Mar 1 to May 15, Aug. Fab 15 to Apr 30, Ar 1 to Oct 15 | 15 to Nov 50

Mar 15 to May 31, Aug 1 to Sep 30 Mar 1 to May 15; Aug Feb 15 to Apr 30, Au 15 to Nev 50

May 16 to Jul 31

6h ?a and 7b

May 1 to Aug 14

SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY THE DEVELOPER: "I/WE CERTIFY THAT ALL DEVELOPEMENT 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." 5-27-14

STEPHANE CHAMBELAIN

"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." SIGNATURE OF ENGINEER

NOTE:

STABILIZATION IS TO BE DONE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE INTERVALS REQUIRED BY THE 2011 STDS. & SPECS. WHICHEVER IS MORE RESTRICTIVE.

NOTE:

DIVERSION FENCE SHALL BE INSTALLED AS SHOWN HEREON OR AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR

SUPER SILT FENCE MAY BE REPLACED

OWNER/DEVELOPER

SD PROPERTIES, LLC 3138 ROGERS AVENUE ELLICOTT CITY, MD 21043

PHONE: (410) 203-2460

BY STANDARD SILT FENCE WITH

CONTROL INSPECTOR

PERMISSION FROM THE SEDIMENT

PROPERTY LINE RIGHT-OF-WAY LINE ADJACENT PROPERTY LINE EXISTING LOT LINE = = = = = = = EXISTING CURB AND GUTTER EXISTING UTILITY POLE EXISTING LIGHT POLE EXISTING MAILBOX \overline{O} EXISTING SIGN EXISTING SANITARY MANHOLE EXISTING SANITARY LINE EXISTING CLEANOUT EXISTING FIRE HYDRANT EXISTING WATER LINE EXISTING TREELINE EXISTING TREES EXISTING FENCE PROPOSED DRIVEWAY VARIABLE WIDTH PRIVATE ACCESS DRAINAGE & UTILITY

LEGEND:

- 328 ----- EXISTING 2' CONTOUR PROPOSED 10' CONTOUR PROPOSED 2' CONTOUR PROPOSED SPOT ELEVATION PROPOSED SILT FENCE SSF PROPOSED SUPER SILT FENCE ——DF ——— DF ——— PROPOSED DIVERSION FENCE PROPOSED LIMIT OF DISTURBANCE



EXISTING 10' CONTOUR



PROTECTION FENCE (TO REMAIN FOR CREDIT)

EROSION CONTROL MATTING



AS-BUILT CERTIFICATION FOR PSWM I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE

UNDERGROUND SWM FACILITY.

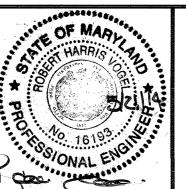
to Revise Storm Drain, Grading and Bioretention EVISE FRONT PORCH & GARAGE FOR LOT 114 TO REFLECT AS-BUILT CONDITIONS 3-1-18 SITE DEVELOPMENT PLAN **GRADING & SOIL EROSION AND** SEDIMENT CONTROL PLAN

> **HOLIDAY HILLS** LOTS 113 & 114 HOLIDAY HILLS SUBDIVISION SECTION 5 LOTS 113 & 114

A RESUBDIVISION OF LOT 54, PLAT BOOK 8, FOLIO 79 5TH ELECTION DISTRICT TAX MAP 41, GRID 6 DPZ REF. FILES: (SEE GENERAL NOTES) HOWARD COUNTY, MARYLAND



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



I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND DESIGN BY: THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014

ZONED: R-20

PARCEL 273

AS-BUILT JUNE 2020 SDP-14-052

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

TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", COVER ON DISTURBED SOILS.

FOLLOWING INITIAL SOIL DISTLIBBANCE OR REDISTLIBBANCE 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 TO BE ROOFED OR PAVED AREA TO BE VEGETATIVELY STABILIZED TOTAL CUT

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 GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 ACRES PER GRADING UNIT) AT A TIME. WORK MAY PROCFED 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

> FOR TEMPORARY STABILIZATION

DEFINITION

TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS. <u>PURPOSE</u>

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 AND COMPLETED, THEN TABLE 8.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT

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 SEET AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3.A.1.B AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b SEED MIXTURE (FROM TABLE B.1):					FERTILIZER RATE	LIME RATE
NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	(10-20-20)	
1	COOL SEASON ANNUAL RYEGRASS OR EQUAL	40 LB / AC	MAR 1 TO MAY 15 AUG 1 TO OCT 15	1/2 IN.	436 LB/AC (10 LB PER 1000 SF)	2 TONS/AC (90 LB PE 1000 SF
2	WARM SEASON FOXTAIL MILLET OR EQUAL	30 LB / AC	MAY 16 TO JUL 31	1/2 IN.		
REFE	R TO TABLE E	3-1, SHEET 5				

BY THE DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPEMENT 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 N-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."

5-27-14 SIGNATURE OF DEVELOPER STEPHANIE CHAMBERLAN

BY THE ENGINEER:

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."

KOOO COO SIGNATURE OF ENGINEER

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

CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

B-4-5 STANDARDS AND SPECIFICATIONS PERMANENT STABILIZATION

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

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. TH 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 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 SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

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 MARYLANE AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POLINDS PER 1000 SOLIARE FEET, CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT 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 100 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 FUL 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 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. 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 ITO 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.

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 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 HARVESTÉD, 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. A. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOI B LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SURSPOLIENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST FACH 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 SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE 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

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 THE HEAT OF THE DAY TO PREVENT WILTING. B. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.

THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT

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. PERMANENT SEEDING SUMMARY

HARDINESS ZONE (FROM FIGURE B.3): ZONE 6b SEED MIXTURE (FROM TABLE B.3): 9 (10-20-20)LIME RATE NO SPECIES | RATE (LB/AC) N P₂ O₅ K₀0 DATES COOL SEASON T.F. 60 LB / AC MAR 1 TO 45 LB/AC 90 LB/AC 90 LB/AC 2 TONS/AC 1/4-1/2 IN. (1 LB PER (2 LB PER (2 LB PER (90 LB PER K.B. 40 LB / AC AUG 15 TO OCT 15 1000 SF) 1000 SF) 1000 SF) 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.

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 DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION FOUIPMENT 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 (CREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD À MODERATE AMOUNT OF MOISTURE, AN EXCÉPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE. 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 APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO

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 SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDED. 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 UNNECESSARY ON NEWLY DISTURBED AREAS.

D. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY

. 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. 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

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 TO SUPPORT PLANTS OR FLIRNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT

NUTRIENTS 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 . 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 OF

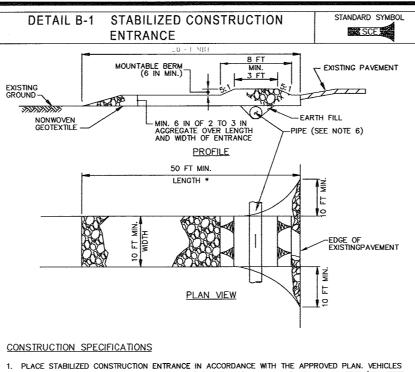
SOIL SCIENTIST AND APPROVE BY THE APPROPRIATE APPROVAL AUTHORITY, TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 11/2 INCHES IN DIAMETER. 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 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. 6. TOPSOIL APPLICATION EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYIN 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.

: 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. 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 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. 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.



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 THI 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 BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE A: SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINA A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT

PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS. REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE. MAINTAIN ENTRANCE IN A CONDITION 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 SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVI

B-4-3 STANDARDS AND SPECIFICATIONS FOR SFFDING AND MUI CHING

DEFINITION THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

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

CRITERIA

1.SPECIFICATIONS A. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE 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 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 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 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 DISSIPATION OF PHYTO-TOXIC MATERIALS. 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 SEED RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD

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

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

I. 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 SFFD 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

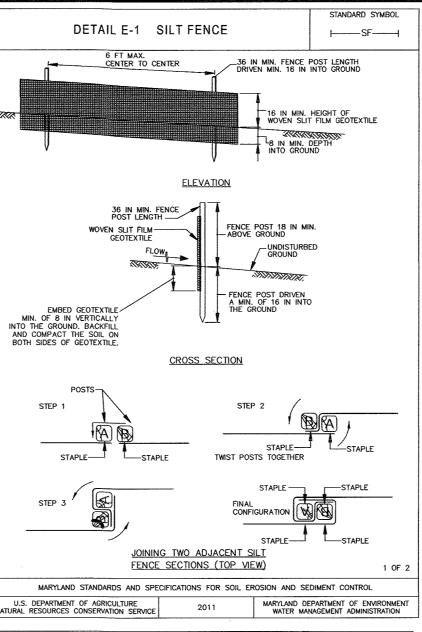
. WCFM IS TO BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY. I. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS III. WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CFITULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL MUST FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, 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 WILL BE 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 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

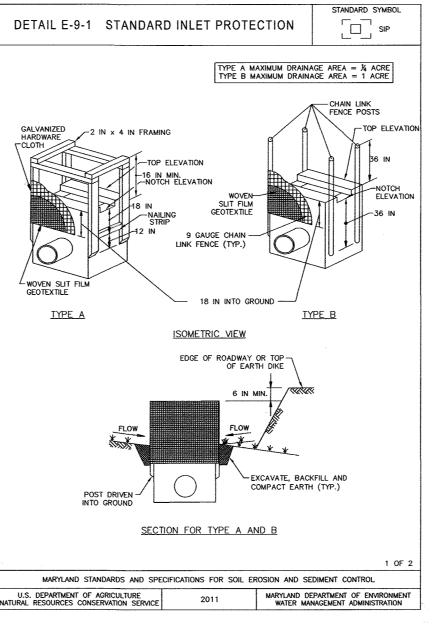
A. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING B. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING MULCH ANCHORING TOOL. INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POLINDS 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.

ANCHORING 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 NTO 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 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, PETROSE IERRA TAX II, TERRA TACK AR OR OTHER APPRÒVED 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 3,000 FEET





B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

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. CONDITIONS WHERE PRACTICE APPLIES

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 OF 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-FROSIVE 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

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. MAINTENANCE THE STOCKPILE AREA MUST CONTINUOUSLY MEET THE REQUIREMENTS FOR ADEQUATE VEGETATIVE

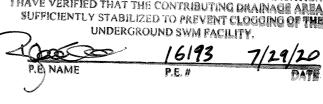
ESTABLISHMENT IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION. SIDE SLOPES MUST

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

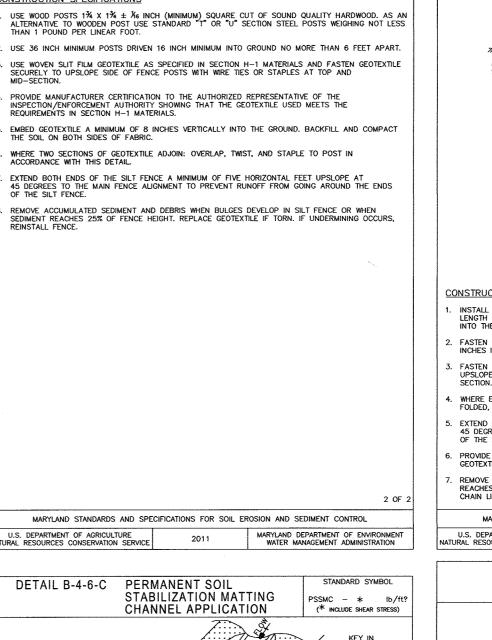
BE MAINTAINED AT NO STEEPER THAN A 2:1 RATIO. THE STOCKPILE AREA MUST BE KEPT FREE OF

AS-BUILT CERTIFICATION FOR PSWM

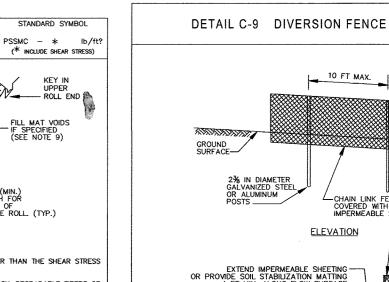
:1 SLOPES, OR 40 FEET FOR 4:1 SLOPES, BENCHING MUST BE PROVIDED IN ACCORDANCE WITH SECTION COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS I have verified that the contributing drainage area is SUFFICIENTLY STABILIZED TO PREVENT CLOSGING OF THE UNDERGROUND SWM FACILITY,



NO AS-BUILT INFORMATION ON THIS SHEET



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CONSTRUCTION SPECIFICATIONS: USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.

DETAIL B-4-6-C PERMANENT SOIL

DETAIL E-1 SILT FENCE

USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEDE GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL. 3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH—SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE POTTON.

STABILIZATION MATTING

CHANNEL APPLICATION

PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.

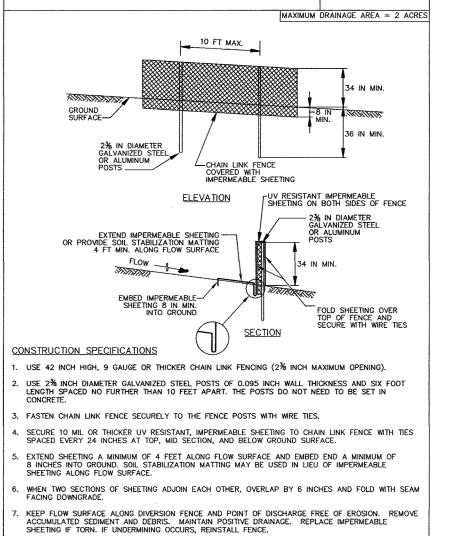
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS, LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.

7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.

ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL 2011

DETAIL E-3 SUPER SILT FENCE -----SSF------I ALUMINUM POS ELEVATION CHAIN LINK FENCING WOVEN SLIT FILM GEOTEXTILE CROSS SECTION 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 NATO THE COPULIND. 5. FASTEN WOVEN 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 MINIMUM 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. EXTEND BOTH ENDS OF THE SUPER 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 PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS. 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 FENCING AND GEOTEXTILE. MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL STANDARD SYMBOL

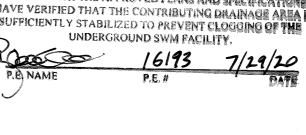


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

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I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND



OWNER/DEVELOPER

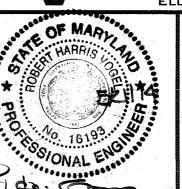
SD PROPERTIES, LLC 3138 ROGERS AVENUE ELLICOTT CITY, MD 21043 PHONE: (410) 203-2460



REVISION SITE DEVELOPMENT PLAN **GRADING & SOIL EROSION** AND SEDIMENT CONTROL PLAN - NOTÉS & DETAILS

HOLIDAY HILLS LOTS 113 & 114 HOLIDAY HILLS SUBDIVISION SECTION 5 LOTS 113 & 114 A RESUBDIVISION OF LOT 54, PLAT BOOK 8, FOLIO 79 5TH ELECTION DISTRICT

TAX MAP 41, GRID 6 DPZ REF. FILES: (SEE GENERAL NOTES) HOWARD COUNTY, MARYLAND Robert H. Vogel Engineering, Inc. Engineers • Surveyors • Planners 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961



ROBERT H. VOGEL, PE No.1619

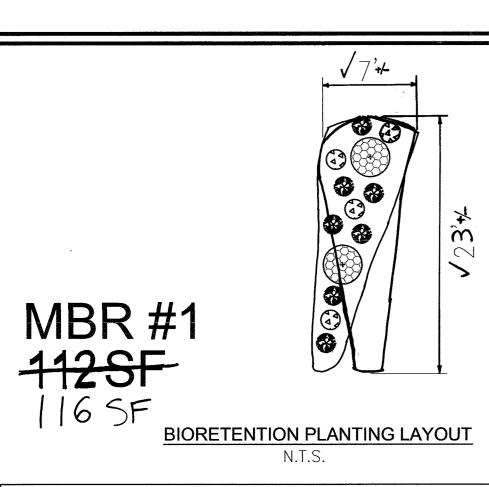
DESIGN BY: DRAWN BY: GAH CHECKED BY: SCALE: ____AS SHOWN

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME. AN THAT I AM A DULY LICENSED PROFESSIONA ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193 EXPIRATION DATE: 09-27-2014

DATE

ZONED: R-20

AS-BUILT JUNE 2020 SDP-14-052



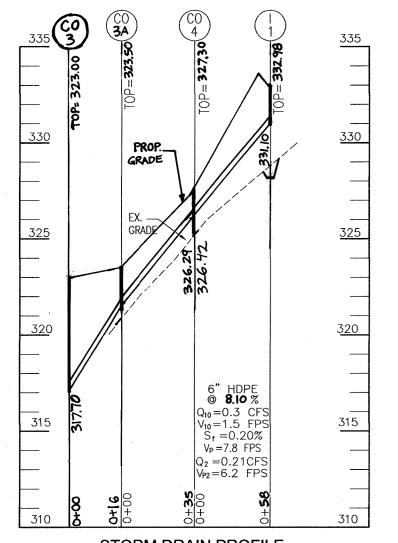
TYPICAL BIORETENTION PLANTING SCHEDULE PER 250 SF AREA PER FACILITY KFY QTY BOTANICAL NAME/COMMON NAME MBR #1 SIZE REMARKS 3 GALLON CONT INKBERRY VACCINIUM CORYMBOSUM HIGHBUSH BLUEBERRY (P) 3 GALLON CONT CONT 3 GALLON

A MINIMUM DENSITY OF 1000 STEMS PER PLANTED BIORETENTION AREAS ARE TO BE PLANTED BASED ON ACRE (.0229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE FSDv SUMMARY. ROUND UP FOR QUANTITY.

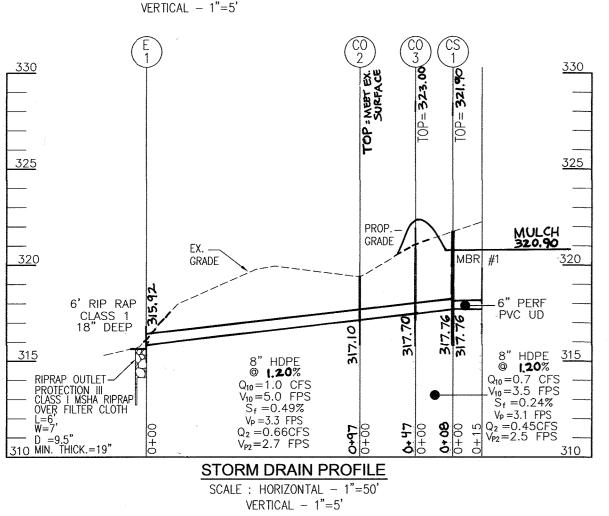
BIORETENTION PLANTING SCHEDULE NOTES:

1. 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 HRD PLANTING SPECIFICATIONS.

- 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING. 3. 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.
- 4. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN 5. SEE THIS SHEET FOR TYPICAL PLANTING DETAILS.

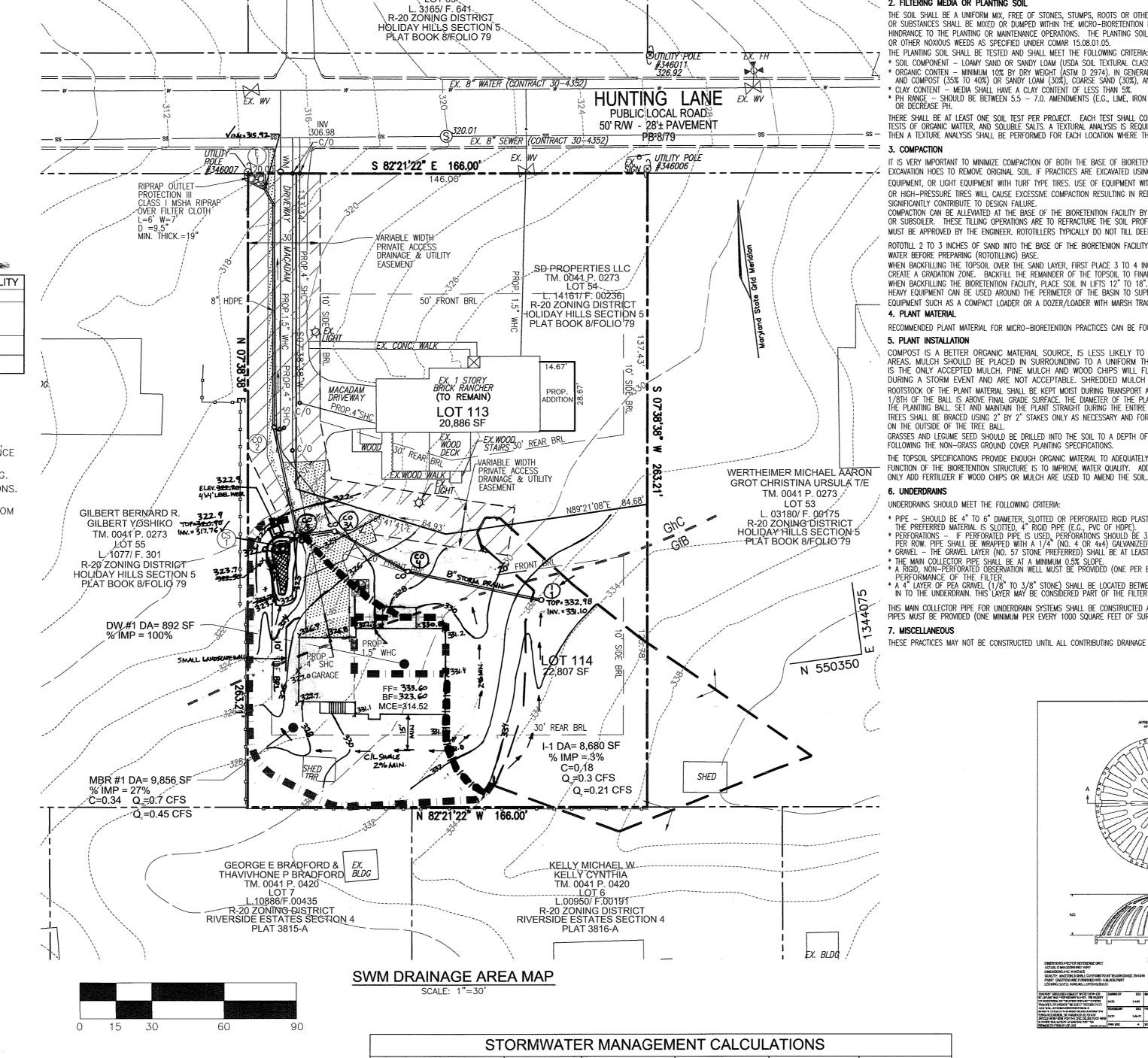


STORM DRAIN PROFILI SCALE: HORIZONTAL - 1"=50"



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION



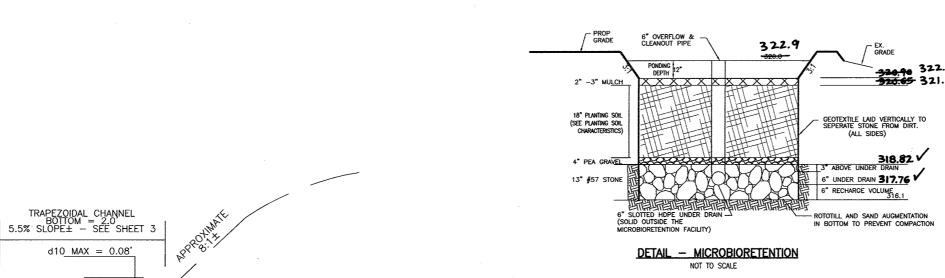
OUSBORNE LOUIS G TRUSTEE

OUSBORNE MILDRED V TRUSTEE

TM. 004 P. 0273

STORMWATER MANAGEMENT CALCULATIONS						
FACILITY	METHOD	VOL. REQUIRED	VOL. PROVIDED	REv. REQUIRED	REV PROVIDED	
MBR #1	M-6	243 CF	299 CF	62 CF	62 CF	
DW #1 (7'x7'x5.5')	M-5	84 CF	88 CF	18.4 CF	19.6 CF	

M-5 IS A DRYWELL. SEE DETAIL THIS SHEET. M-6 IS A MICRO BIORETENTION FACILITY. SEE DETAIL THIS SHEET.



TYPICAL 2' BOTTOM TRAPEZOIDAL CHANNEL

STRUCTURE SCHEDULE								
STRUCTURE#	TYPE	DIA	TOP EL	INV IN	INV OUT			
CS-1	NYLOPLAST DRAIN BASIN	8"	320.90	√317.76	V317.76			
I-1	NYLOPLAST DRAIN BASIN	8"	332.98		333.10			
NOTE: SEE NYLOPLAST BASIN AND DOME CAP DETAILS THIS SHEET.								

REFER TO SHEET 3 FOR SWALE SECTION DESIGN INFORMATION

OPERATION AND MAINTENANCE SCHEDULE FOR M-6, M-7 AND M-8 AREAS

1. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. 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.

2. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DEFICIENT

4. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY

3. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER

5. FILTER MATERIAL MUST BE REPLACED WHEN WATER REMAINS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 24 HOURS FOLLOWING A 1- OR 2-YEAR STORM EVENT OR MORE THAN 48 HOURS FOLLOWING A 10-YEAR STORM

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

* 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 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. BACKEILL THE REMAINDER OF THE TOPSOIL TO FINAL GRAD 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.

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 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 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 FNOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY

FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. ADDING FERTILIZERS DEFEATS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET. 6. UNDERDRAINS

UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:

* PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (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).

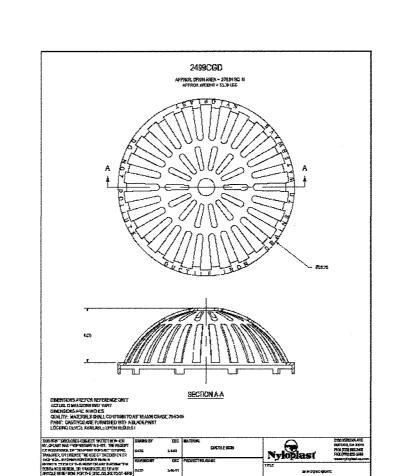
* PERFORATIONS - IF PERFORATED PIPE IS USED, PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4x4) GALVANIZED HARDWARE CLOTH. GRAVEL - THE GRAVEL LAYER (NO. 57 STONE PREFERRED) SHALL BE AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN

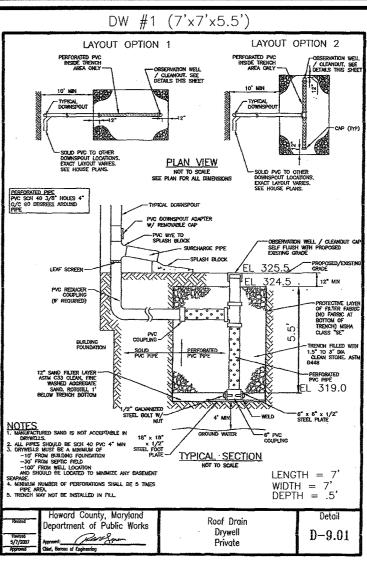
* THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
* A RIGID, NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,0000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

* 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





LEGEND:

 \overline{O}

PROPERTY LINE

ADJACENT PROPERTY LIN

EXISTING UTILITY POLE

EXISTING LIGHT POLE

EXISTING MAILBOX

EXISTING SANITARY MANHOLE

EXISTING SANITARY LINE

EXISTING FIRE HYDRANT

EXISTING CLEANOUT

EXISTING WATER LINE

EXISTING TREELINE

EXISTING TREES

EXISTING FENCE

EASEMEN

OF MARY.

MARRIS

PROPOSED DRIVEWAY

VARIABLE WIDTH PRIVATE

ACCESS DRAINAGE & UTILITY

PROPOSED DRAINAGE DIVIDE F

PROPOSED DRAINAGE DIVIDE FO

STORMWATER MANAGEMENT

EXISTING SIGN

EXISTING LOT LINE

RIGHT-OF-WAY LINE

= = = = = = Existing curb and gutter

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

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

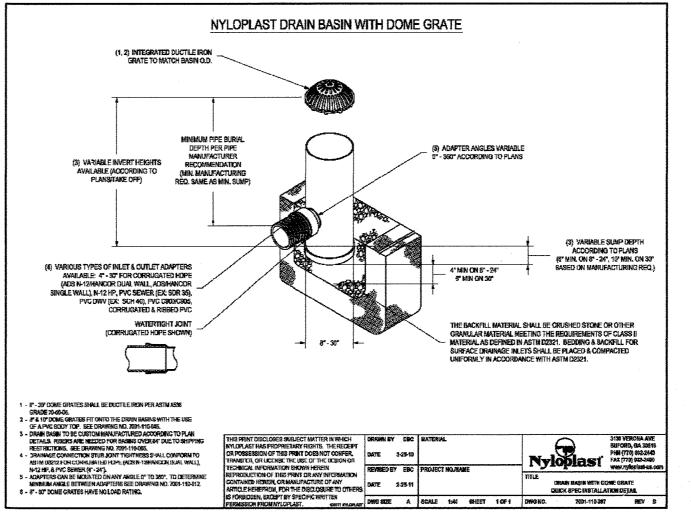
ACCUMULATED, THE GRAVEL MEDIA SHOULD BE EXCAVATED AND FOR PSWM

AS-BUILT CERTIFICATION FOR PSWM I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND

COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS. I HAVE VERIFIED THAT THE CONTRIBUTING DRAINAGE AREA IS SUFFICIENTLY STABILIZED TO PREVENT CLOGGING OF THE UNDERGROUND SWM FACILITY.

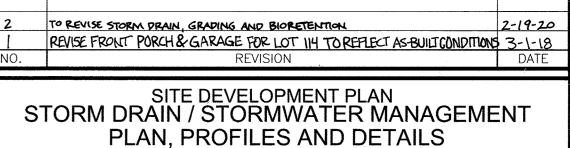
Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-Material SEE O&M NOTE 5 Specification see Appendix A, Table A.4 Plantings loamy sand (60 - 65%) & USDA soil types loamy sand or sandy loam; clay content < 5% [2' to 4' deep] compost (35 - 40%) sandy loam (30%). coarse sand (30%) & compost (40%) Min. 10% by dry weigh Organic conte (ASTM D 2974) shredded hardwood aged 6 months, minimum; no pine or wood chips Pea gravel diaphragm pea gravel: ASTM-D-448 Curtain drain Geotextile PE Type 1 nonwoven Gravel (underdrains and AASHTO M-4 NO. 57 OR NO. 6 infiltration berms) AGGREGATE (3/8" to 3/4") Underdrain piping F 758, Type PS 28 or AASHTO | 4" to 6" rigid schedule 40 Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4-inch galvanized hardware cloth MSHA Mix No. 3; $f_c = 3500$ on-site testing of poured-in-place concrete required: psi @ 28 days, normal weight, 28 day strength and slump test; all concrete design (cast-in-place air-entrained; reinforcing to or pre-cast) not using previously approved State or local meet ASTM-615-60 standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking AASHTO-M-6 or ASTM-C-33 | 0.02" to 0.04" Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



OWNER/DEVELOPER

SD PROPERTIES, LLC 3138 ROGERS AVENUE ELL'ICOTT CITY, MD 21043 PHONE: (410) 203-2460



HOLIDAY HILLS

LOTS 113 & 114 HOLIDAY HILLS SUBDIVISION SECTION 5 LOTS 113 & 114 A RESUBDIVISION OF LOT 54, PLAT BOOK 8, FOLIO 79

TAX MAP 41, GRID 6 DPZ REF. FILES: (SEE GENERAL NOTES) HOWARD COUNTY, MARYLAND ROBERT H. VOGEL ENGINEERING, INC. ENGINEERS . SURVEYORS . PLANNERS 8407 MAIN STREET TEL: 410.461.7666 ELLICOTT CITY, MD 21043 FAX: 410.461.8961



5TH ELECTION DISTRICT

DESIGN BY: <u>EDS</u> DRAWN BY: CHECKED BY: MAY, 201 ____AS SHOWN

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 STAT

OF MARYLAND, LICENSE NO. 16193

EXPIRATION DATE: 09-27-2014

ZONED: R-20

AS-BUILT JUNE 2020 SDP-14-052