

GENERAL NOTES

- THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PUBLIC WORKS STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK ON THESE DRAWINGS:
 - MSS UTILITY: 1-800-257-7777
 - VERIZON TELEPHONE COMPANY: 1-800-444-4281
 - HOWARD COUNTY BUREAU OF UTILITIES: 410-313-2366
 - AT&T CABLE LOCATION DIVISION: 1-800-393-3553
 - B.G.&E. CO. CONTRACTOR SERVICES: 410-456-4600
 - B.G.&E. CO. UNDERGROUND DAMAGE CONTROL: 410-787-4620
 - STATE HIGHWAY ADMINISTRATION: 410-531-5533
- THIS SUPPLEMENT INFORMATION PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES: 14-089 (APPROVED 09/16/2014), CONT. #30-3098-D, CONT. #34-4275-0, WP-15-093, SP-15-109 (APPROVED 04/09/15), AND #9413.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN TOPOGRAPHIC SURVEY WITH 2-FOOT CONTOUR INTERVALS PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 08, 2014.
- THE PROJECT BOUNDARY SHOWN HEREON IS BASED ON A BOUNDARY SURVEY PREPARED BY ROBERT H. VOGEL ENGINEERING, INC., DATED APRIL 08, 2014, RE-VISITED OCTOBER 27, 2014.
- THE CONTRACTOR SHALL NOTIFY "MSS" UTILITY AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- 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.
- ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO CEMETERIES OR GRAVE SITES LOCATED ON THE SUBJECT PROPERTY OR THE COUNTY'S CEMETERY SITE MAP.
- STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO-BIORETENTION FACILITIES (M-B), ROOFTOP DISCONNECTS (N-1), SHEETFLOW TO LEVEL SPREADERS (N-3), AND DRY WELLS (M-5), ON LOT LEVEL SPREADERS, DRY WELLS, AND MBR-3 THROUGH MBR-9 ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS THEMSELVES. MICRO-BIORETENTION FACILITIES MBR-1, MBR-2, AND MBR-10 ARE TO BE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. REFERENCE 2010 MDE STORMWATER DESIGN MANUAL (CHAPTER 9).
- PUBLIC WATER AVAILABLE THROUGH CONTRACT NO. 34-4275-D AND PUBLIC SEWER AVAILABLE THROUGH CONTRACT NO. 30-3098-D.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.1228 OF THE HOWARD COUNTY CODE, WHICH PROVIDES THAT THE SUBDIVISION SHALL BE SUBJECT TO THE MANAGED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
- THE SUBJECT PROPERTY IS ZONED "R-ED" IN ACCORDANCE WITH THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
- EXISTING UTILITIES ARE BASED ON ROAD CONSTRUCTION PLANS, FIELD SURVEYS, PUBLIC WATER AND SEWER EXTENSION 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 UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
- THE COORDINATE SYSTEM SHOWN HEREON IS BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 350A AND 350B WERE USED FOR THIS PROJECT.
- NO HAZARDOUS, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
- THERE IS NO 100-YR FLOODPLAIN WITHIN THE LIMITS OF THIS SITE.
- SEDDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
- WETLANDS SHOWN ON-SITE ARE BASED ON A FIELD INVESTIGATION PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC. DATED MAY, 2014 (REVISED JANUARY 28, 2015), AND WAS APPROVED ON 04/09/15.
- A FOREST STAND DELINEATION AND ENVIRONMENTAL RESOURCES ASSESSMENT WAS PERFORMED BY JOHN CANOLES OF ECO-SCIENCE PROFESSIONALS, INC. DATED MAY 2014. AN FSD PLAN WAS SUBMITTED/APPROVED IN SEPTEMBER, 2014 AND UPDATED/RE-SIGNED ON 1/30/15.
- A TOTAL OF 8 RESIDENTIAL LOTS AND 4 OPEN SPACE LOTS ARE PROPOSED UNDER THIS PLAN.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW CONSTRUCTION SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR THEIR REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- WETLANDS AND THEIR BUFFERS WILL NOT BE IMPACTED BY THE CONSTRUCTION OF THE SITE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS SITE.
- FOREST CONSERVATION REQUIREMENTS AS SET FORTH IN SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL, NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE FOREST CONSERVATION OBLIGATION TO BE FULFILLED BY THE PLACEMENT OF 2.32 AC. NVD RETENTION EASEMENT.
- NO SURETY IS REQUIRED.
- UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.06 FOR THE USE-IN-COMMON DRIVEWAY ENTRANCE AT TROTTER ROAD. DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - a) WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
 - b) SURFACE - 6 INCHES OF COMPACTED CRUISER RUN BASE WITH TAR AND CHIP COATING, (1 1/2" MIN.)
 - c) GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45-FOOT TURNING RADIUS.
 - d) STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (NO NETS LOADING).
 - e) DRAINAGE ELEMENTS-CAPABLE OF SAFELY PASSING 100-YEAR FLOOD WITH MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
 - f) STRUCTURE CLEARANCES-MINIMUM 12 FEET.
 - g) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- THE EXISTING HOUSE LOCATED ON THIS PROPERTY IS TO BE RAZED. ALL EXISTING FEATURES SUCH AS SIDEWALKS AND DRIVEWAYS SHALL ALSO BE REMOVED. THE EXISTING DWELLING AND ALL OUT BUILDINGS MUST BE REMOVED PRIOR TO PLOT RECORDATION AND PHOTOGRAPHIC PROOF MUST BE SUBMITTED TO PROVE THE STRUCTURES HAVE BEEN REMOVED.
- TROTTER ROAD IS A LOCAL / SCENIC ROAD.
- LOTS 1-8 & OPEN SPACE LOT 11 WILL UTILIZE A USE-IN-COMMON DRIVEWAY. A USE-IN-COMMON MAINTENANCE AGREEMENT FOR THE SHARED DRIVEWAY SHALL BE RECORDED SIMULTANEOUSLY WITH THIS FINAL PLAN.
- A DESIGN MANUAL WAIVER TO ALLOW MORE THAN 6 USERS ON A USE-IN-COMMON WAS APPROVED ON JANUARY 14, 2015. SEE NOTE 44.
- A LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$ 410,680.00 FOR THE REQUIRED 20 SHADE TREES, 8 EVERGREEN TREES, 45 SHRUBS (40 PERIMETER 1" 5' TRASH PAD), AND 211 LINEAR FEET OF FENCING SHALL BE POSTED WITH THE DEVELOPER AGREEMENT FOR THIS PLAN.
- PLANNING BOARD CASE NO. 413 WAS APPROVED BY PLANNING BOARD ON JUNE 23, 2015.
- SHOULD ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 2 - 3 INCHES IN CALIPER AND INSTALLED AS REQUIRED IN THE LANDSCAPE MANUAL.
- DEED REFERENCE: L. 2326/F. 517
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, INC., DATED OCTOBER 2, 2014, AND WAS APPROVED ON FEBRUARY 03, 2015.
- THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT. ON JULY 27, 2015, HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS APPROVED THE REQUEST TO INCLUDE THE PROPERTY INTO THE METROPOLITAN DISTRICT DECISION NUMBER 10-2015.
- FLAG AND PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE FOR LOTS 1-8 ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
- A PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY SHALL BE FABRICATED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DRIVEWAY ACCESS POINT ONTO TROTTER ROAD AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES. THE R-11 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
- 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.
- SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE). A LONGWAVE STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- CERTIFIED TEST PITS HAVE BEEN PROVIDED TO VERIFY THAT GROUNDWATER AND ROCK ARE NOT PRESENT AT RAIN GARDEN AND MICRO-BIORETENTION LOCATIONS. OPEN TEST PITS WERE OBSERVED BY ROBERT H. VOGEL ENGINEERING ON NOVEMBER 03, 2014 AND INFORMATION REGARDING THE FINDINGS IS LOCATED IN THE SWM REPORT.
- THIS PROJECT IS SUBJECT TO A DESIGN MANUAL WAIVER. ON JANUARY 14, 2015, THE CHIEF OF THE DEVELOPMENT ENGINEERING DIVISION APPROVED THE REQUEST TO WAIVE DESIGN MANUAL VOLUME III, SECTION 2.6.A TO ALLOW MORE THAN 6 USERS ON A USE-IN-COMMON DRIVEWAY. THIS APPROVAL REQUIRED:
 - THE DRIVEWAY WIDTH TO BE 18' FOR THE TOTAL LENGTH
 - HAVE FLUSH CURBS ALONG BOTH SIDES
 - HAVE A VEHICLE TURN ARROUND AT THE END
 - THE DRIVEWAY SHALL BE WITHIN A 40' PRIVATE USE-IN-COMMON DRIVEWAY EASEMENT.
- B.G.&E. APPROVED THE PERIMETER LANDSCAPING FOR THIS PROJECT ON 11/04/14.
- IN ACCORDANCE WITH SECTION 16.1214(A)(2) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, THE OPEN SPACE REQUIREMENTS FOR THIS R-ED PROJECT IS 50% OF GROSS AREA (5.67 AC. x 50% = 2.84 AC. REQUIRED).
 - OPEN SPACE LOTS 9-11 ARE TO BE OWNED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION.
 - OPEN SPACE LOT 12 IS TO BE OWNED AND MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF RECREATION AND PARKS.
- TOTAL OPEN SPACE PROVIDED IS 2.94 ACRES. 40. SITE DEVELOPMENT PLAN APPROVAL BY THE DEPARTMENT OF PLANNING AND ZONING IS REQUIRED PRIOR TO BUILDING PERMITS BEING ISSUED FOR THE CONSTRUCTION OF RESIDENTIAL DWELLINGS ON THESE LOTS.
- THIS DEVELOPMENT IS DESIGNED TO BE IN ACCORDANCE WITH SECTION 16.1217 RESIDENTIAL INFILL DEVELOPMENT OF SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE DEVELOPER OF THIS PROJECT SHALL CREATE COMPATIBILITY WITH THE EXISTING NEIGHBORHOOD THROUGH THE USE OF ENHANCED PERIMETER LANDSCAPING, BERMS, FENCES, SIMILAR HOUSING UNIT TYPES AND THE DIRECTIONAL ORIENTATION OF THE PROPOSED HOUSES.
- A PRE-SUBMISSION COMMUNITY MEETING WAS HELD ON APRIL 28, 2014 AT 6:00 PM AT THE MEETING ROOM AT RIVER HILL POOL.
- EXISTING WELL AND SEPTIC MUST BE PROPERLY ABANDONED AND DOCUMENTATION SENT TO HEALTH DEPARTMENT PRIOR TO HEALTH SIGNATURE TO FINAL PLAN.
- MHU'S ARE REQUIRED FOR THIS PROJECT. THE DEVELOPER WILL PAY A FEE-IN-LIEU TO ADDRESS THIS REQUIREMENT.
- THE FOLLOWING STANDARDS (CONSTRUCTION AND TEMPORARY TRAFFIC CONTROL) ARE REQUIRED FOR THIS PROJECT:
 - a. MD-104.02-02 - SHOULDER WORK/2 LANE, 2 WAY - EQL/LESS THAN 40 MPH
 - b. MD-104.02-10 - RIGHT LANE CLOSURE/2 LANE, 2 WAY - EQL/LESS THAN 40 MPH
- FOR ALL STANDARDS REFERRED TO ON THIS PLAN THE CONTRACTOR MUST GO TO THE BOOK OF STANDARDS WHICH WILL HAVE THE MOST CURRENT VERSION. THE BOOK OF STANDARDS CAN BE ACCESSSED AT: <http://apps.roads.maryland.gov/business/whohu/biz2015Specs/SpecManualSitePub/20publicationsonline/ohd/bookstd/index.asp>
- ALL ITEMS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSION OF THE REFERENCED STANDARD AT THE TIME OF CONSTRUCTION.
- REFER TO DETAILS ON SHEET 2 OF THIS PLAN SET
- THIS PROJECT IS SUBJECT TO WP-15-093. ON MARCH 16, 2015, THE PLANNING DIRECTOR APPROVED THE REQUEST TO WAIVE SECTION 16.1209(a)(7) AND 16.1205(e)(10) WHICH REQUIRES THE RETENTION OF SPECIMEN TREES (30" DBH OR GREATER) THAT ARE NOT CONTAINED WITHIN OTHER PRIORITY FOREST RETENTION AREAS AS OUTLINED IN SECTION 16.1250(a)(1-10). WAIVER APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS:
 - WAIVER APPROVAL IS LIMITED TO THE REMOVAL OF SPECIMEN TREES #1 THROUGH #3, #13 AND #14, AND #16 AS DEPICTED ON THE WAIVER EXHIBIT. ANY PROPOSAL TO REMOVE ADDITIONAL SPECIMEN TREES WILL REQUIRE A NEW WAIVER REQUEST OR AN AMENDMENT TO THIS WAIVER REQUEST.
 - A MINIMUM OF 12 ADDITIONAL, NATIVE 2-3" CALIPER TREES SHALL BE PROVIDED ON SITE AS PART OF THE MITIGATION OF THE SPECIMEN TREE REMOVAL. THIS MITIGATION WILL BE ADDRESSED WITH THE PROJECT SIGNATURE AT RIVER HILL AND WILL BE IN ADDITION TO ANY REQUIRED LANDSCAPE OR FOREST CONSERVATION PLANTINGS. THE MITIGATION WILL BE SHOWN ON THE ASSOCIATED LANDSCAPE PLAN AND SURETY FOR THESE ADDITIONAL TREES WILL BE REQUIRED AS PART OF THE FINAL PLAN.
 - SOME OR ALL OF THE MITIGATION PLANTINGS SHOULD BE PLACED WITHIN THE REAR YARDS OF THE PROPOSED LOTS AFTER GRADING AND FILL OCCURS BUT PRIOR TO SALES OF INDIVIDUAL LOTS.
 - INDIVIDUAL TREE PROTECTIVE DEVICES (TREE FENCING) SHALL BE PLACED COMPLETELY AROUND SPECIMEN TREE #11 AND SPECIMEN TREE #4 PRIOR TO THE COMMENCEMENT OF ANY GRADING. THIS SHALL BE OUTFITTED IN THE PRE-CONSTRUCTION MANAGEMENT PLAN OF THE FINAL FOREST CONSERVATION PLAN (FCP) AND WITHIN THE SEQUENCE OF CONSTRUCTION PROVIDED ON THE FINAL PLAN FOR "THE PRESERVE AT RIVER HILL".

SITE DATA

- LOCATION: TAX MAP 35, BLOCK 14
- PARCEL: 64
- 5TH ELECTION DISTRICT
- PRESENT ZONING: R-ED
- GROSS AREA OF PROJECT: 5.67 AC.
- AREA OF RIGHT-OF-WAY DEDICATION: 0.71 AC.
- G. LIMIT OF DISTURBANCE: 2.65 AC.
- H. PROPOSED USE OF SITE: RESIDENTIAL (SFD)
- I. NUMBER OF RESIDENTIAL LOTS PROPOSED: 8 LOTS
- J. AREA OF RESIDENTIAL LOTS PROPOSED: 2.02 AC.
- K. OPEN SPACE PROVIDED: 2.94 AC.
- L. OPEN SPACE PROVIDED: 2.84 AC.
- M. IMPERVIOUS AREA: 0.84 AC.
- N. AREA OF STREAM/BUFFER: 1.33 AC.
- O. AREA OF WETLANDS/BUFFER: 0.39 AC.
- P. AREA OF MODERATE SLOPES (15% - 24.99%): 2.02 AC.
- Q. AREA OF STEEP SLOPES (25% OR GREATER): 1.27 AC.
- R. AREA OF FLOOD PLAIN: 0.00 AC.
- S. NET PROJECT AREA: 4.40 AC.
- T. AREA OF EXISTING FOREST COVER: 4.10 AC.
- U. AREA OF ERODIBLE SOILS: 3.52 AC.
- V. AREA MANAGED BY ESDM (THIS PLAN): 2.65 AC.
- W. IMPERVIOUS AREA: 0.84 AC.
- X. GREEN AREA: 1.81 AC.
- Y. WATER AND SEWER WILL BE PUBLIC

LOT TABULATION

TOTAL NO. OF PROPOSED LOTS: 12
 TOTAL NO. OF DWELLING UNITS: 8
 NO. OF SINGLE FAMILY DETACHED: 8
 NO. OF OPEN SPACE LOTS: 4

DENSITY CALCULATION:
 5.67 AC.
 - 0.00 AC. (FLOODPLAIN)
 - 1.27 AC. (STEEP SLOPES)
 = 4.4 AC. x 2 = 8.8 (8 LOTS PERMITTED BY-RIGHT)

FINAL PLAN

THE PRESERVE AT RIVER HILL

LOTS 1-8 AND OPEN SPACE LOTS 9 - 12

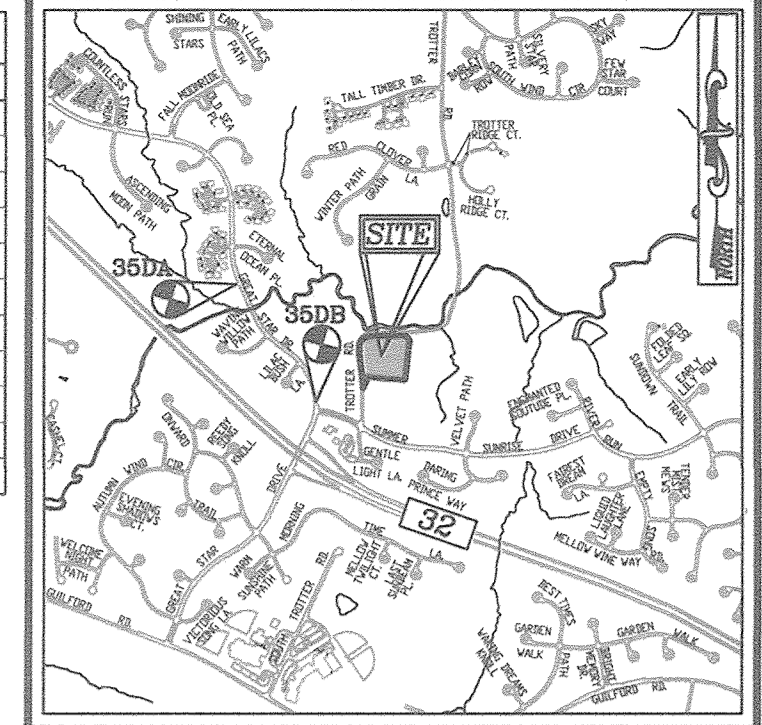
PARCEL 64 (L. 2326 / F. 517)
 6281 TROTTER ROAD
 CLARKSVILLE, MD 21029

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET AND LAYOUT PLAN	1 OF 11
USE-IN-COMMON DRIVEWAY PROFILES AND MISCELLANEOUS DETAILS	2 OF 11
SOILS MAP AND PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN	3 OF 11
SOILS MAP AND PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN	4 OF 11
ESD - GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN - DETAILS	5 OF 11
ESD - GRADING AND SOIL EROSION, AND SEDIMENT CONTROL PLAN - DETAILS	6 OF 11
ESD - DRAINAGE AREA MAP AND DETAILS	7 OF 11
ESD - DRAINAGE AREA MAP AND DETAILS	8 OF 11
LANDSCAPE PLAN, AND NOTES & DETAILS	9 OF 11
FOREST CONSERVATION PLAN	10 OF 11
FOREST CONSERVATION SITE NOTES AND DETAILS	11 OF 11

BENCHMARKS

HOWARD COUNTY BENCHMARK 350A (CONC. MON.)
 N 558918.62 E 1333137.33 ELEV. 350.98
 LOCATION: 420 SOUTH OF TIDES TERRACE

HOWARD COUNTY BENCHMARK 350B (CONC. MON.)
 N 557696.15 E 1333974.58 ELEV. 400.89
 LOCATION: CORNER OF GREAT STAR DR. & SUMMER SUNRISE DR.



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- PROPOSED TREELINE
- PRIVATE USE-IN-COMMON ACCESS EASEMENT
- VARIABLE WIDTH PUBLIC SEWER, WATER, & UTILITY EASEMENT
- 10' PRIVATE DRAINAGE & UTILITY EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- MBR
- MICRO-BIORETENTION FACILITY (M-B)

SWM PRACTICE CHART		
ESD PRACTICES BY LOT		
LOT #	ADDRESS	ESD PRACTICE
#1	6218 GRACE MARIE DR.	MICRO BIO-RETENTIONS (M-B)
#2	6214 GRACE MARIE DR.	MICRO BIO-RETENTIONS (M-B)
#3	6210 GRACE MARIE DR.	SHEETFLOW TO LEVEL SPREADERS (N-3) AND MICRO-BIORETENTIONS (M-B)
#4	6208 GRACE MARIE DR.	SHEETFLOW TO LEVEL SPREADER (N-3), MICRO-BIORETENTIONS (M-B), AND DRY WELL (M-5)
#5	6230 GRACE MARIE DR.	SHEETFLOW TO LEVEL SPREADER (N-3) AND DRY WELLS (M-5)
#6	6228 GRACE MARIE DR.	DISCONNECT ROOFTOP RUNOFF (N-1), MICRO BIO-RETENTION (M-B), AND DRY WELL (M-5)
#7	6225 GRACE MARIE DR.	DISCONNECT ROOFTOP RUNOFF (N-1), MICRO BIO-RETENTION (M-B), AND DRY WELL (M-5)
#8	6221 GRACE MARIE DR.	DISCONNECT ROOFTOP RUNOFF (N-1), AND MICRO BIO-RETENTIONS (M-B)
UIC DRIVE		MICRO BIO-RETENTIONS (M-B)



MIHU AGREEMENT

PLEASE NOTE THAT ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MIHU FEE-IN-LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICANT.

USE-IN-COMMON CURVE TABLE				
CURVE	RADIUS	LENGTH	DELTA	CHORD
C-1	41.00'	33.84'	32°32'57"	17.95'
C-2	58.00'	32.95'	32°32'57"	16.93'

LAYOUT PLAN
 SCALE: 1"=50'

AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLY WITH THE APPROVED PLANS AND SPECIFICATIONS.

DATE: 5/28/19
 P.E. NAME: [Signature]
 P.E. NO. 16193

COORDINATE TABLE

NO.	NORTH	EAST
98	557928.23	1334899.51
101	557968.82	1334513.11
102	557964.19	1334444.06
207	558341.21	1334389.44
208	558341.21	1334944.11
301	557819.51	1334450.26
302	557945.54	1334427.04
303	558313.78	1334391.99
304	558328.91	1334391.72
305	558431.06	1334547.26
306	558433.26	1334637.22
307	558409.86	1334686.57

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DATE: 5-27-15

DATE: 5-28-15

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

OWNER
 ESTATES AT RIVER HILL, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

NO.	REVISION	DATE
1	REVISE DRIVEWAY CULVERT FROM 12" TO 15"; RUN MBR-2 AND MBR-10 UNDER DRAINS TO REPAIR CHANNEL ALONG TROTTER ROAD	2/29/16

FINAL PLAN
COVER SHEET AND LAYOUT PLAN
THE PRESERVE AT RIVER HILL
LOTS 1-8 AND OPEN SPACE LOTS 9 - 12
 PARCEL 64 (L. 2326 / F. 517)
 6281 TROTTER ROAD
 CLARKSVILLE, MD 21029

TAX MAP: 35 GRD: 14
 5TH ELECTION DISTRICT
 DPZ REF'S: SEE GENERAL NOTE #4

PARCELS: 64
 ZONED: R-ED
 HOWARD COUNTY, MARYLAND

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

8407 MAIN STREET
 ELLICOTT CITY, MD 21043

TEL: 410.461.7666
 FAX: 410.461.8961

DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: OCTOBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 13-38

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. EXPIRES: 09-27-2016

1 SHEET OF 11

AS-BUILT - DECEMBER 2018

MAPPED SOILS TYPES - CLARKSVILLE NE MAP #17

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE	HYDRIC SOIL
Gbb	GLAUSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	.20	NO	NO
Gbc	GLAUSTONE LOAM, 8 TO 15 PERCENT SLOPES	B	.20	NO	NO
Gmc	CLANVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	.37	YES	NO
Hd	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	D	.37	NO	YES
MdD	MANOR-BANNERTOWN SANDY LOAMS, 15 TO 25 PERCENT SLOPES, ROCKY	B	.24	YES	NO

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
-HOWARD COUNTY SOILS MAP NUMBER 17 - CLARKSVILLE NE

NOTE:
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

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

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:
FLEXIBLE TUBING PATH SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. ACTUAL TUBING PATH TO TROTTER ROAD SHALL BE DETERMINED IN FIELD AS DIRECTED AND APPROVED BY THE SEDIMENT CONTROL INSPECTOR

NOTE

CARE SHALL BE EXERCISED AROUND THE EXISTING 18" CMP SO AS TO NOT DAMAGE IT DURING CONSTRUCTION
CONTRACTOR SHALL INSTALL DIVERSION FENCE PER STANDARD DETAIL USING SHEETING WHERE SHOWN TO DIRECT CLEAN WATER TO EXISTING 18" CMP
Q2 = 0.37 CFS
PROVIDE 6" X 6" RIP RAP PROTECTION AT END OF DIVERSION FENCE

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.

SOILS MAP AND PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"=50'

SCALE 1"=50'



NOTES

- REFER TO SHEET 6 FOR SEQUENCE OF CONSTRUCTION
- REFER TO SHEET 6 FOR TRAP DETAILS
- REFER TO SHEETS 5 FOR STANDARD DETAILS AND STABILIZATION NOTES

LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- PROPOSED TREELINE
- FOREST CONSERVATION EASEMENT (RESTRICTION)
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- SPOT ELEVATION
- EXISTING STEEP SLOPES (25% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
- SUPER SILT FENCE
- DIVERSION FENCE
- LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE
- TREE PROTECTION FENCE DETAIL SHEET 11
- EARTH DIKE
- EXISTING DRAINAGE DIVIDE
- PROPOSED DRAINAGE DIVIDE
- PERIMETER DIKE / SWALE

NOTES

- ALL EARTH DIKES ARE TO BE PLACED IN WORKING ORDER AT THE END OF EACH WORKING DAY.
- IMBRICATE SF/SSF IN 35' SEGMENTS AS REQUIRED UPHILL BY 2' IN ELEVATION.

DEVELOPER

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

OWNER

ESTATES AT RIVER HILL, LLC
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

FINAL PLAN
SOILS MAP AND PHASE 1 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN

THE PRESERVE AT RIVER HILL
LOTS 1-8 AND OPEN SPACE LOTS 9 - 12

PARCEL 64 (L. 2326 / F. 517)
6281 TROTTER ROAD
CLARKSVILLE, MD 21029
TAX MAP: 35 GRD. 14
5TH ELECTION DISTRICT
DPZ REF'S: SEE GENERAL NOTE #4
PARCELS: 64
ZONED: R-ED
HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE
DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-38
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2018
3 OF 11
ROBERT H. VOGEL, PE No.16193

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

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

BY THE DEVELOPER:

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.

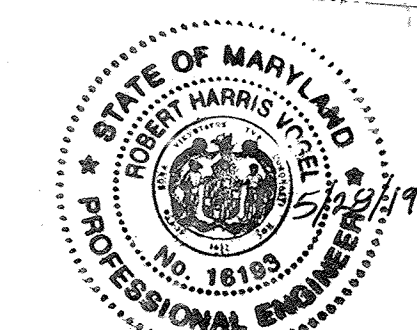
BY THE ENGINEER:

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

Chief, Development Engineering Division
12-7-15
Chief, Division of Land Development
12-8-15

John R. Roberts
12/1/15
Michael P. P...
11-18-15

Robert H. Vogel
11/9/15



AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.
16193 5/28/19
R.H.V. DATE

NO AS-BUILT INFORMATION ON THIS SHEET

AS-BUILT-DECEMBER 2018

MAPPED SOILS TYPES - CLARKSVILLE NE MAP #17

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE	HYDRIC SOIL
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	.20	NO	NO
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	B	.20	NO	NO
GmC	GLENNVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	.37	YES	NO
Hs	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	D	.37	NO	YES
MdD	MANOR-BANNERTOWN SANDY LOAMS, 15 TO 25 PERCENT SLOPES, ROCKY	B	.24	YES	NO

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE
 -HOWARD COUNTY SOILS MAP NUMBER 17 - CLARKSVILLE, NE
 NOTE:
 HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT

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

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.

THE PRESERVE AT RIVER HILL
 STORMWATER TEST PITS

TEST PIT	SURFACE ELEVATION	BORING DEPTH PROPOSED	BORING DEPTH DUG	CONDITION
TP1	369.1	8	8	DRY
TP2	387.9	8	8	DRY
TP3	389.9	8	8	DRY
TP4	379.2	8	8	DRY
TP5	384.8	8	8	DRY
TP6	364.8	8	6	BROKEN ROCK
TP7	373.2	8	8	DRY
TP8	380.7	8	8	DRY

NOTE
 CARE SHALL BE EXERCISED AROUND THE EXISTING 18" CMP SO AS TO NOT DAMAGE IT DURING CONSTRUCTION

NOTE:
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 - SILT FENCE SHALL BE CURLED UP HILL NO MORE THAN 36 FEET APART
 - DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

SOILS MAP AND PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
 SCALE: 1"=50'



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURBS AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING STREAM BUFFER
- EXISTING STREAM
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- PROPOSED TREELINE
- PRIVATE USE-IN-COMMON ACCESS EASEMENT
- PROP. FOREST CONSERVATION EASEMENT (RETENTION)
- PROP. VARIABLE WIDTH PUBLIC SEWER, WATER, & UTILITY EASEMENT
- PROP. 10' PRIVATE DRAINAGE & UTILITY EASEMENT
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- EXISTING STEEP SLOPES (25% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
- SUPER SILT FENCE
- DF
- DIVERSION FENCE
- LOD
- LIMIT OF DISTURBANCE
- EROSION CONTROL MATTING
- STABILIZED CONSTRUCTION ENTRANCE
- TREE PROTECTION FENCE (DETAIL SHEET 11)

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

OWNER
 ESTATES AT RIVER HILL, LLC
 3675 PARK AVE., SUITE 301
 ELLICOTT CITY, MD 21043
 (410) 480-0023

1 REVISE DRIVEWAY CURVE FROM 12" TO 15", RUN 1/8" RAMP AND 1/8" TO 2 1/2" UNDER DRAINS TO RIPRAP CHANNEL ALONG TROTTER ROAD

FINAL PLAN
SOILS MAP AND PHASE 2 - GRADING, SOIL EROSION AND SEDIMENT CONTROL PLAN
THE PRESERVE AT RIVER HILL
 LOTS 1-8 AND OPEN SPACE LOTS 9 - 12
 PARCEL 64 (L 2328 / F 517)
 6281 TROTTER ROAD
 CLARKSVILLE, MD 21029

TAX MAP: 35 GRID: 14 PARCELS: 64
 5TH ELECTION DISTRICT PARCELS: 64
 DPZ REF: SEE GENERAL NOTE #4 HOWARDED: R-ED
ROBERT H. VOGEL ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410.461.7666
 ELLICOTT CITY, MD 21043 FAX: 410.461.8961

DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: OCTOBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 13-38

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE 09-27-2016

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 12-7-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 12-8-15
 CHIEF, DIVISION OF LAND DEVELOPMENT

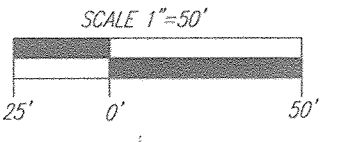
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY THE DEVELOPER:
 I HEREBY 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 PROJECTS 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 INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

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



AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLY WITH THE APPROVED PLANS AND SPECIFICATIONS.



NO AS-BUILT INFORMATION ON THIS SHEET

**HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES**

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-315-1852 AFTER THE FUTURE USE AND PROPOSED AREAS ARE CLEARLY IDENTIFIED. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EARTH DISTURBANCE.
 - UPON COMPLETION OF THE PERIMETER EROSION AND SEDIMENT CONTROLS, AND BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 - PRIOR TO THE RESUMPTION OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.
- OTHER BUILDING OR GRADING APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS UNDER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.
- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THEREOF.
 - FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DICES, CHANNELS, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3:1 HORIZONTAL TO 1 VERTICAL (3:1), AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
 - ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. 8-4-2), PERMANENT SEEDING (SEC. 8-4-3), TEMPORARY SEEDING (SEC. 8-4-4) AND MULCHING (SEC. 8-4-5).
 - TEMPORARY STABILIZATION WITHIN 14 DAYS OF THE TIME PERIOD SPECIFIED ABOVE IN FULL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN, INCREASING STABILIZATION (SEC. 8-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH 2:1 TO 4:1 SLOPE AND FROZEN AREAS WITH 1:1 TO 2:1 SLOPE. ALL SLOPES MUST BE BENEDED WITH STABLE OUTLET, ALL CONCENTRATED FLOW, STEEP SLOPES, AND HIGHLY ERODIBLE SOILS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. 8-4-6).
 - ALL SEDIMENT CONTROL PRACTICES SHALL BE MAINTAINED AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMITS FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
- SITE ANALYSIS:

AREA OF DISTURBED SITE:	5.67 ACRES
AREA TO BE REEDED OR PLANTED:	2.75 ACRES
AREA TO BE VEGETICALLY STABILIZED:	1.81 ACRES
TOTAL CUT:	150 CU. YDS.
TOTAL FILL:	150 CU. YDS.
ON-SITE WASTEWATER/BORROW AREA LOCATION:	**
- 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 ACTING GRADING PERMIT.
- 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 CID, TO THE SITE AND ALL CONTIGUOUS SITES AS SPECIFIED BY THE CONSTRUCTION PERMITS AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
 - INSPECTION DATE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
 - NAME AND TITLE OF INSPECTOR
 - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
 - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF PLANT DEFICIENCIES
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - PHOTOGRAPHS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE (3) FEET LENGTHS OR THAT WHICH CAN BE BACK-FILLED AND STABILIZED BY THE SAME DAY OF COMPLETION OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE CID PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF DISTURBED AREAS AND THE LIST OF SEASONS, OR ON ADVANCE.
- DISTURBANCE SHALL NOT OCCUR OUTSIDE THE LOD. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGON ON A GRADING UNIT (MAXIMUM 1000 SQ. FT. PER GRADING UNIT) PRIOR TO THE START OF GRADING ON 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 CID. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- 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 GRAB ON THE UPPER TO FINGER OF THE SECTION.
- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON THE-CONTOUR, AND BE MINIMUM 1/2" MINIMUM INLET, WITH LOWER ENDS CURVED UPWARD, BY 2" IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUDES):
 - USE I AND II MARCH 1 - JUNE 15
 - USE III MARCH 1 - APRIL 30
 - USE IV MARCH 1 - MAY 31
- A COPY OF THIS PLAN, THE 2011 MARLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE THROUGHOUT WHEN THE SITE IS ACTIVE.

REV. 08/2015

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION

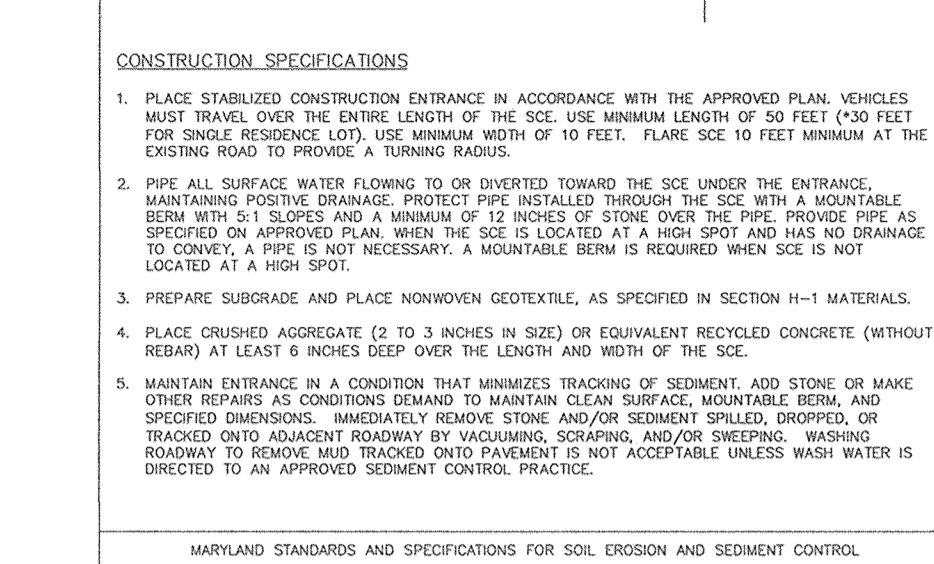
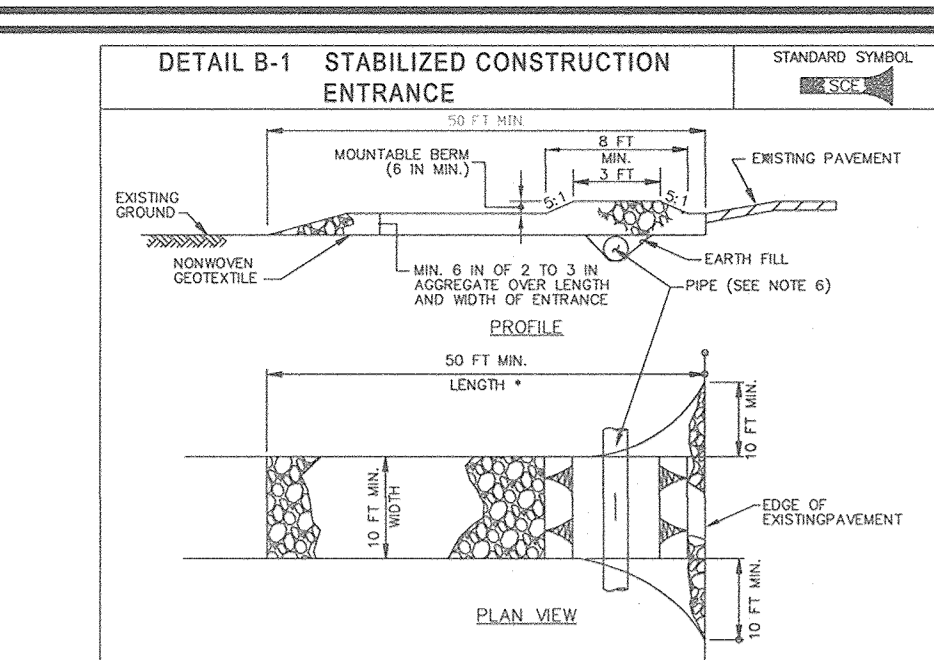
- DEFINITION**
TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.
- PURPOSE**
TO USE LONG-LEAF PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.
- CONDITIONS WHERE PRACTICE APPLIES**
EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR 6 MONTHS OR MORE.
- CRITERIA**
- GENERAL USE
 - SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 8.3 FOR THE APPROPRIATE PLANT HARDNESS 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.
 - ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DICES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 542 - CRITICAL AREA PLANTING.
 - FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
 - FOR AREAS REQUIRING LOW MAINTENANCE, APPLY USE FORM FERTILIZER (4-6-0) 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
 - AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE. ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - KENTUCKY BLUEGRASS/PERENNIAL RYE FULL SUN MIXTURE FOR USE IN AREAS THAT RECEIVE INTENSIVE MAINTENANCE. 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 MAINTENANCE. CERTIFIED PERENNIAL REGGERS 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.
 - FALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS REQUIRING LOW TO MEDIUM MAINTENANCE IN FULL SUN TO MEDIUM SHADE INCLUDING: CERTIFIED TALL FESCUE, 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 MAINTAINED TURF AREAS. MIXTURES INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.
- NOTES:**
SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRICULTURE AND EXTENSION SERVICE, "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 LINE.
- IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
 - WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 10 TO OCTOBER 1 (HARDNESS ZONES: SE, 6A)
 - CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONE: 6B)
 - SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDNESS ZONES: 7A, 7B)
 - TALL TALLS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 1 TO 4 INCHES. LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDING BED. REMOVE STONES AND DEBRIS OVER 1/4 INCH IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL NOT BE NECESSARY.
 - IF SOIL MOISTURE IS BEING SUPPLIED WITH IRRIGATION, 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 ANOMALY DRY OR HOT SEASONS, OR ON ADVANCE.
 - 500: TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).
- 1. GENERAL SPECIFICATIONS**
A. TURFGRASS SOIL 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 1/8 INCH AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PANS OR THIN OR UNEVEN EDGES WILL NOT BE ACCEPTABLE.
C. STANDARD SIZE SECTIONS OF SOD MUST BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRAB ON THE UPPER TO FINGER OF THE SECTION.
D. SOD MUST NOT BE HARVESTED OR TRANSPORTED WHEN FROZEN OR OTHERWISE DAMAGED (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
E. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITH 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, LOOSELY BRIDGE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
B. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY NEEDED AGAINST EACH OTHER. SEED SPLITTING JOINTS TO PROMOTE MORE UNIFORM GROWTH AND STABILITY. ENSURE THAT SOIL IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR BRIDGING OF THE ROOTS.
C. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. SOIL AND PAID, FERT OR OTHERWISE SEED THE SOD TO PREVENT SURFACE SOILS. ENSURE SOIL CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLIEING SOIL SURFACE.
D. WHEN THE SOD IS IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURROUNDING THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND BRIDGE FOR ANY PIECE OF SOD WITH EIGHT HOURS.
- 3. SOD MAINTENANCE**
A. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER ONLY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOISTURE 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.
C. SOD NOT NOW 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

NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P ₂ O ₅	K ₂ O	
1	COOL SEASON ANNUAL OR PERENNIAL OR EQUAL	1/2, 60 LB / AC	MAR 1 TO MAY 15	1/4" - 1/2"	45 LB/AC (1 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)
2	WARM SEASON ANNUAL OR PERENNIAL OR EQUAL	1/2, 60 LB / AC	MAY 15 TO OCT 15	1/4" - 1/2"	45 LB/AC (1 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)

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

- DEFINITION**
THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION.
- PURPOSE**
TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
- CONDITIONS WHERE PRACTICE APPLIES**
WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.
- CRITERIA**
- SOIL PREPARATION
 - TEMPORARY STABILIZATION
 - 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 CASEL FLOWS, OR ROLLERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSESED, IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE RECOMMENDED SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - CORROSIIVE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - PERMANENT STABILIZATION
 - A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - PH: PH BETWEEN 6.0 AND 7.0
 - SOLUBLE SALTS: LESS THAN 500 PARTS PER MILLION (PPM)
 - SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRANULAR MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD AN MODERATE AMOUNT OF MOISTURE, AN EXCEPTION IF LOWGRASS WILL BE PLANTED, THEN A SANDY SOIL, LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE DESIRED.
 - SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL CONTAINS SUFFICIENT PORE SPACE TO PROVIDE ADEQUATE ROOT PENETRATION.
 - APPLICATION OF AMENDMENTS OF TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - MANTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT AND SOIL OR MAKE OTHER REPAIRS AS CONDITIONS CHANGE. TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - GRADED AREAS MUST BE MAINTAINED IN A FIRM AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCAFFOLD OR OTHERWISE LOOSESED TO A DEPTH OF 3 TO 5 INCHES.
 - APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - MAX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RANGE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SOIL APPLICATION. LOOSEN SURFACE SOIL BY DISKING 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 UPON REQUEST BY THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE. OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDING LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.
 - TOPSOILING
 - 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 CONSISTENT OR MODERATE TO HIGH MOISTURE CONTENT, 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. THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 - TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PERENNIAL PLANTS OR FLORISH CONTINUOUSLY OF MODERATE AND PLANK NUTRIENTS.
 - THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS REQUIRED.
 - AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRING SPECIAL CONSIDERATION AND DESIGN.
 - TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST BE THE FOLLOWING:
 - 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.
 - TOPSOIL MUST BE A MIXTURE OF PERMANENT VEGETATIVE TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CONCRETES, STONES, SLAG, COARSE FRAGMENTS, GRASS, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1/4 INCHES IN DIAMETER.
 - TOPSOIL MUST BE FREE OF NOxious PLANTS OR PLANT PARTS SUCH AS HERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEEDS, POISON MLY, THISTLE, OR OTHERS AS SPECIFIED.
 - TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIME OF NATURAL TOPSOIL.
 - SOIL APPLICATION
 - EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - UNIFORMLY DISTRIBUTE TOPSOIL IN A 4 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOILING OR SITTING ON PROCEEDED WITH A MINIMUM OF ADDITIONAL TOPSOIL PREPARATION AND THINNING. 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.
 - 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 GRASSING AND SEEDING PERIODS.
 - SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 - 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 ANALYSIS.
 - FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH 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.
 - 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.
 - WHERE THE SUBSOIL IS EITHER HEAVILY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 1 TO 8 TONS/ACRE (200-400 POUNDS PER 1000 SQUARE FEET) PRIOR TO THE APPLICATION OF TOPSOIL.

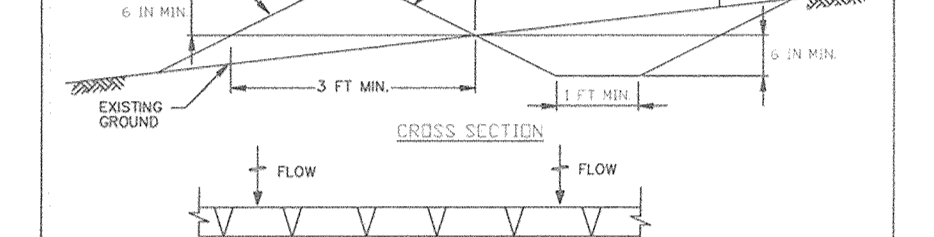
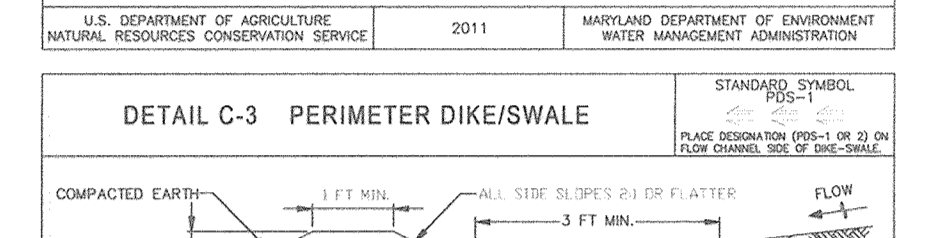
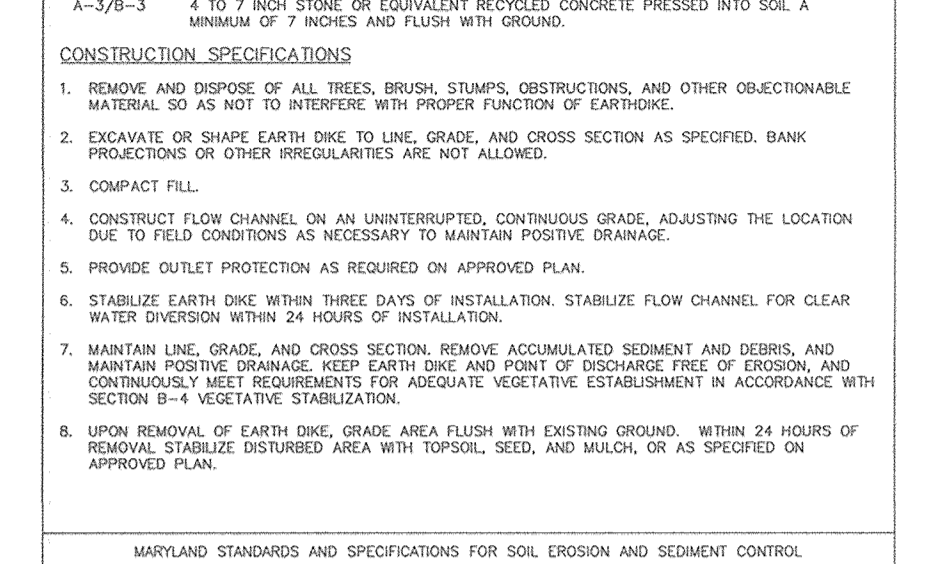
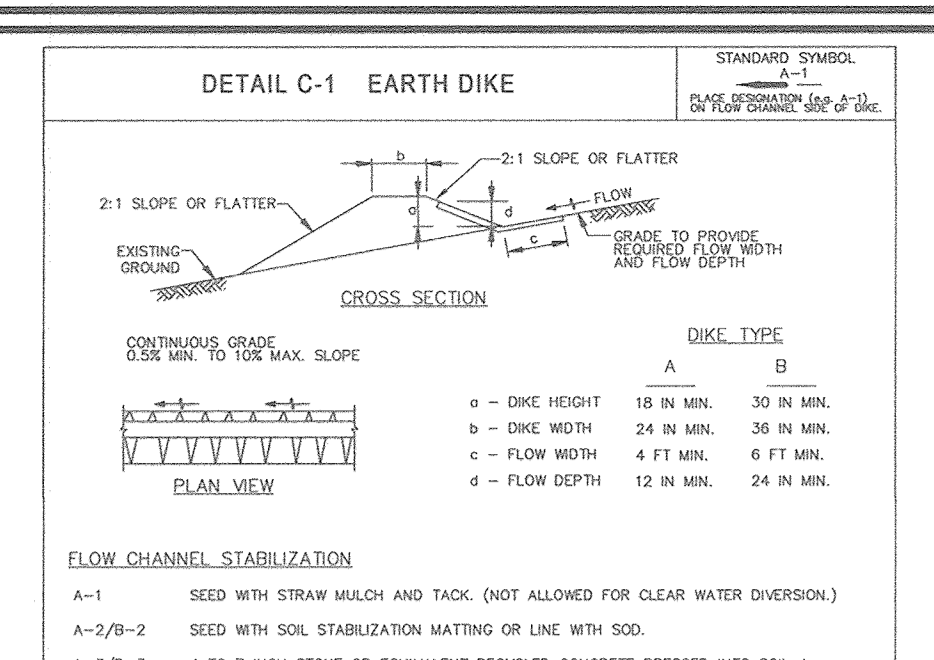


MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION
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B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

- DEFINITION**
THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.
- PURPOSE**
TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.
- CONDITIONS WHERE PRACTICE APPLIES**
TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.
- CRITERIA**
- SEEDING
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SEED MATERIAL ON ANY PROJECT. REFER TO TABLE 8.4 REGARDING THE QUALITY OF SEED. SEED MUST BE AVAILABLE TO THE MAXIMUM DRAGGAGE AREA FOR THIS PRACTICE IS 2 ACRES.
 - 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 IS FROZEN.
 - INCULCANTS: THE INCULCANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA. INCULCANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INCULCANTS AS DIRECTED ON THE PACKAGE. USE THE TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. LEGUMES MUST BE KEPT MOIST UNTIL THEY ARE ESTABLISHED. USE TEMPERATURES ABOVE 70 TO 90 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INCULCANT LESS EFFECTIVE.
 - SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS TO PREVENT DISPERSION OF PHYTO-TOXIC MATERIALS.
 - APPLICATION
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DRIP OR BROADCAST SPREADERS.
 - INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED IN THE PERMANENT SEEDING TABLE 8.1, PERMANENT SEEDING TABLE 8.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDING AREA WITH A ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - DICE OR CULTIPACK SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL. 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.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - CORROSIDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER)
 - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 10 POUNDS PER ACRE TOTAL; SOLUBLE NITROGEN, 2 POUNDS (PHOSPHORUS), 200 POUNDS PER ACRE; (K) POTASSIUM, 200 POUNDS PER ACRE.
 - 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 ONE TIME. DO NOT BURN OR HYDRATE LIME. HYDROSEEDING IS NOT TO BE USED ON SLOPES STEEPER THAN 2:1.
 - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.
 - MULCHING
 - MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - STRAW CONSISTING OF THOROUGHLY TRESHED WHEAT, LIME, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOxious WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOULDY, CROD, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - WOOD CELLULOSE FIBER MULCH (MFCM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - WFCM IS TO BE DIED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORM SPREAD SLURRY.
 - WFCM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WFCM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS 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.
 - WFCM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WFCM 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 1.5 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.
 - APPLICATION
 - APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - 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 THE SURFACE WITH 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 MULCH AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. THE MULCH MUST BE APPLIED TO A NET DRY WEIGHT OF 1500 POUNDS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO THE SURFACE WITH 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.
 - ANCHORING
 - 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 DROUGHT HAZARD:
 - A MULCH ANCHORING TOOL IS TO BE USED IMMEDIATELY FOLLOWING APPLICATION OF MULCH TO ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO SLOPES STEEPER THAN 2:1.
 - IF MULCH ANCHORING EQUIPMENT CAN OPERATE SAFELY, APPLY IT UP SLOPING LAWN. THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - WOOD CELLULOSE FIBER MULCH MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER UNDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX WOOD CELLULOSE FIBER WITH WATER AT A RATIO OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 1000 GALLONS OF WATER.
 - SYNTHETIC BINDERS SUCH AS ACRYLIC DEX (ACRO-THAX, DCA-20, FRETSEED, TEROSIL, TEROSIL TERN, TACK 44, OR OTHER APPROVED EQUAL) MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ANCHORING AND MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

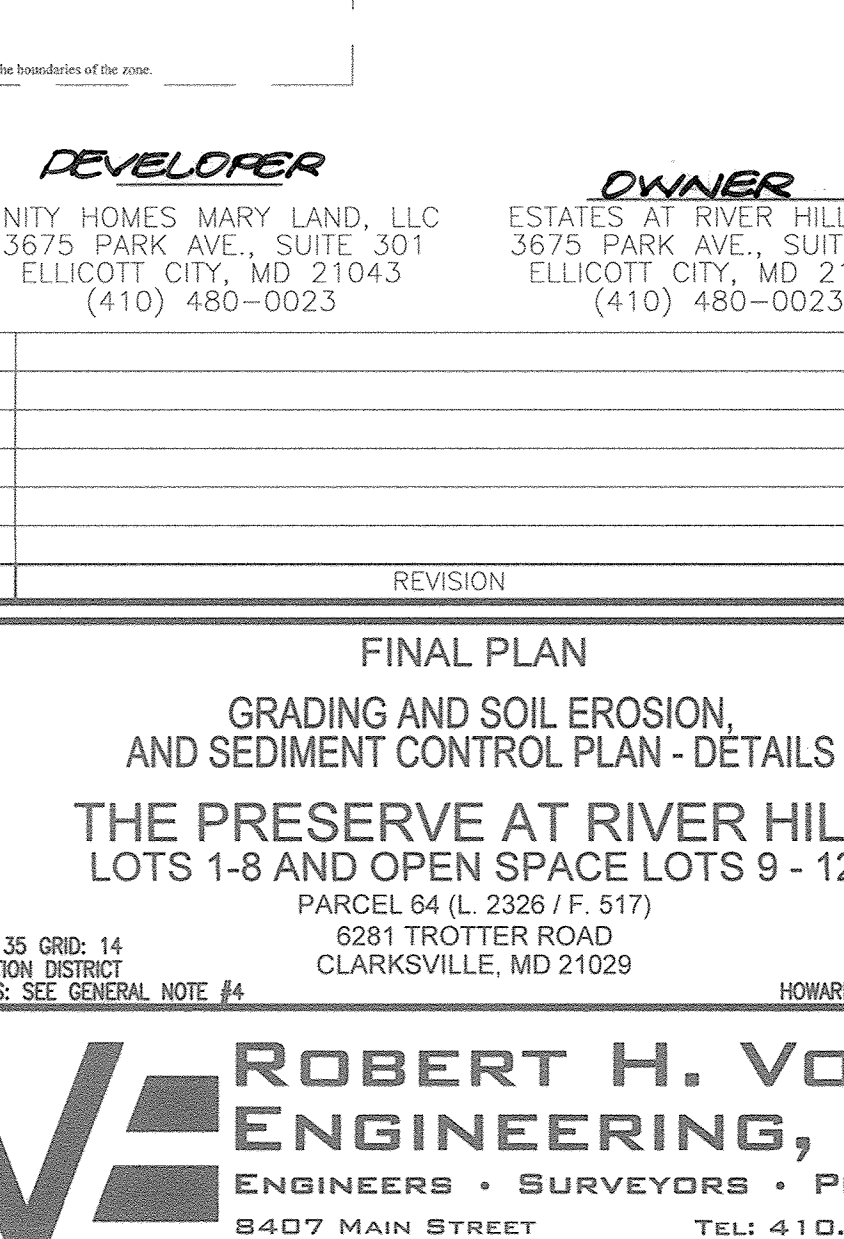
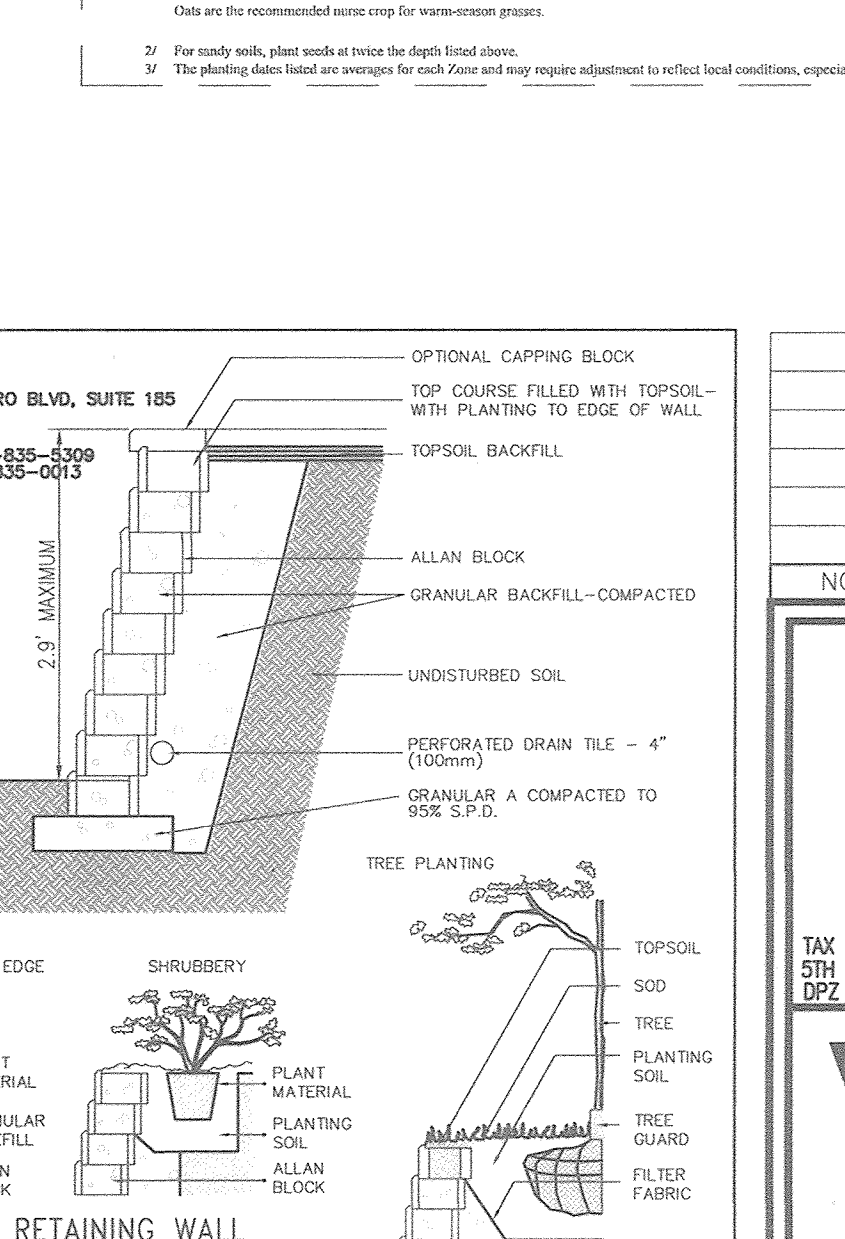
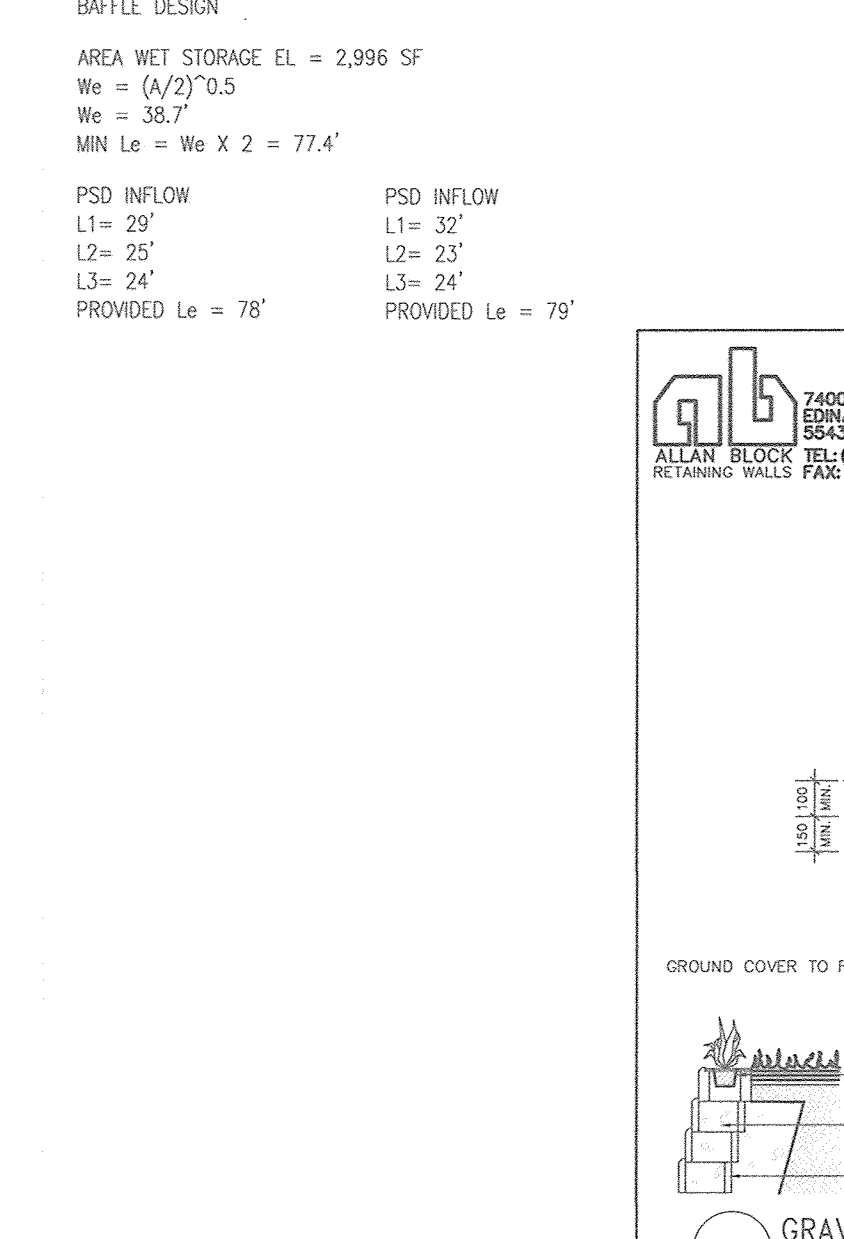
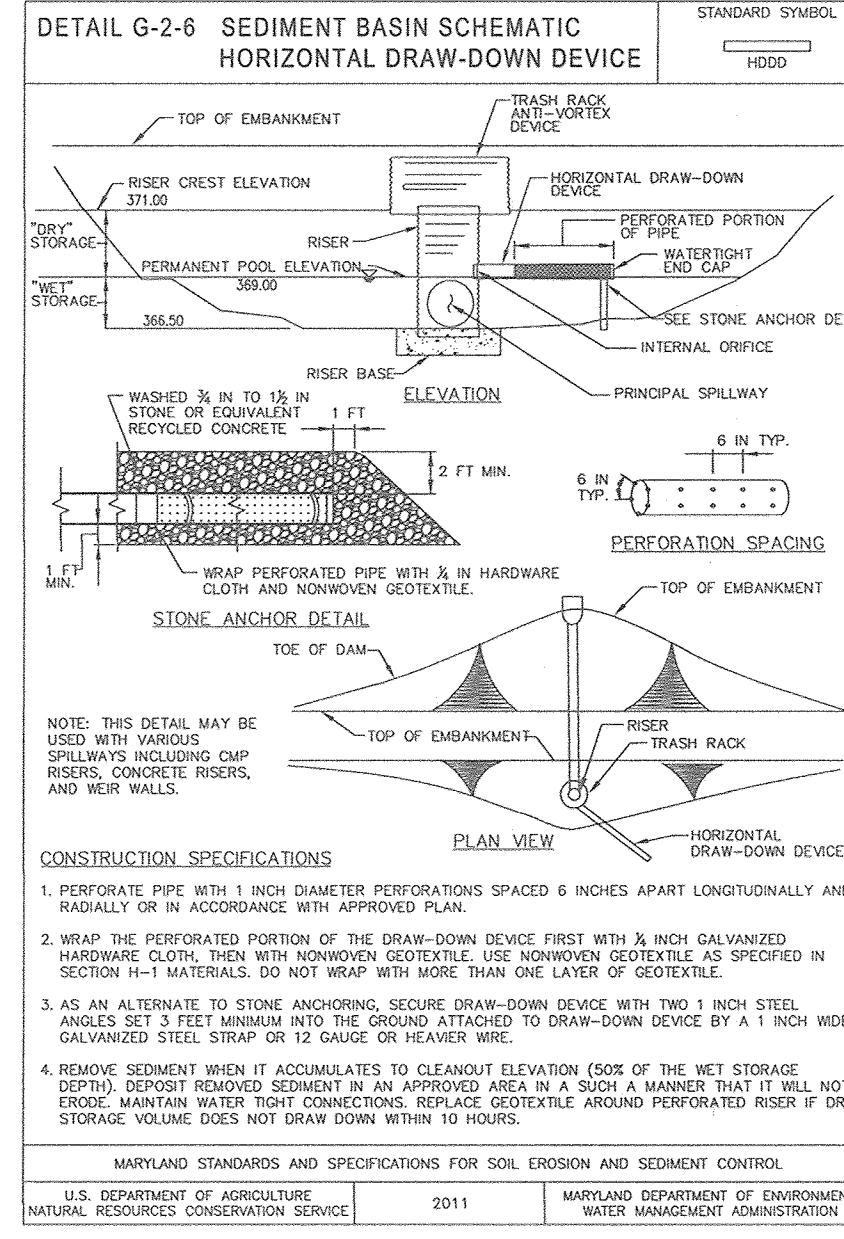
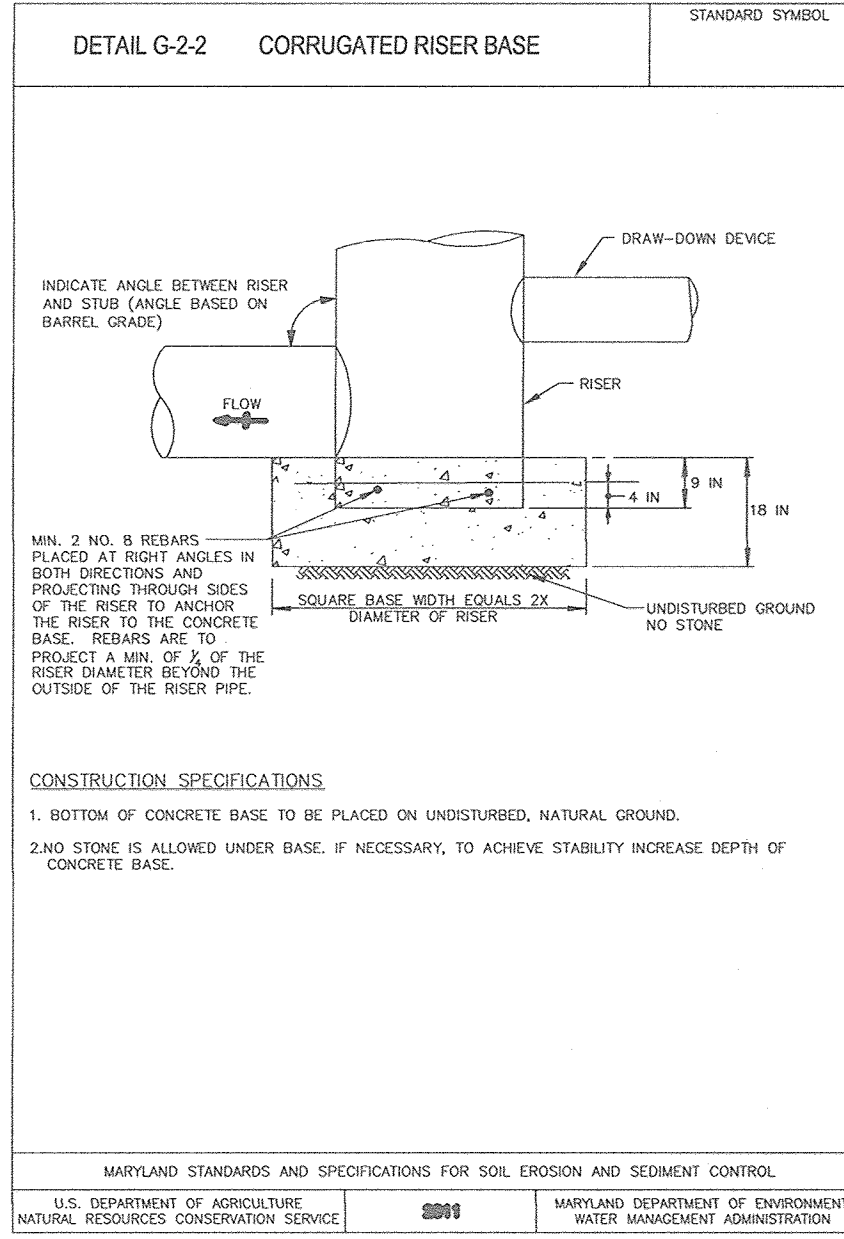
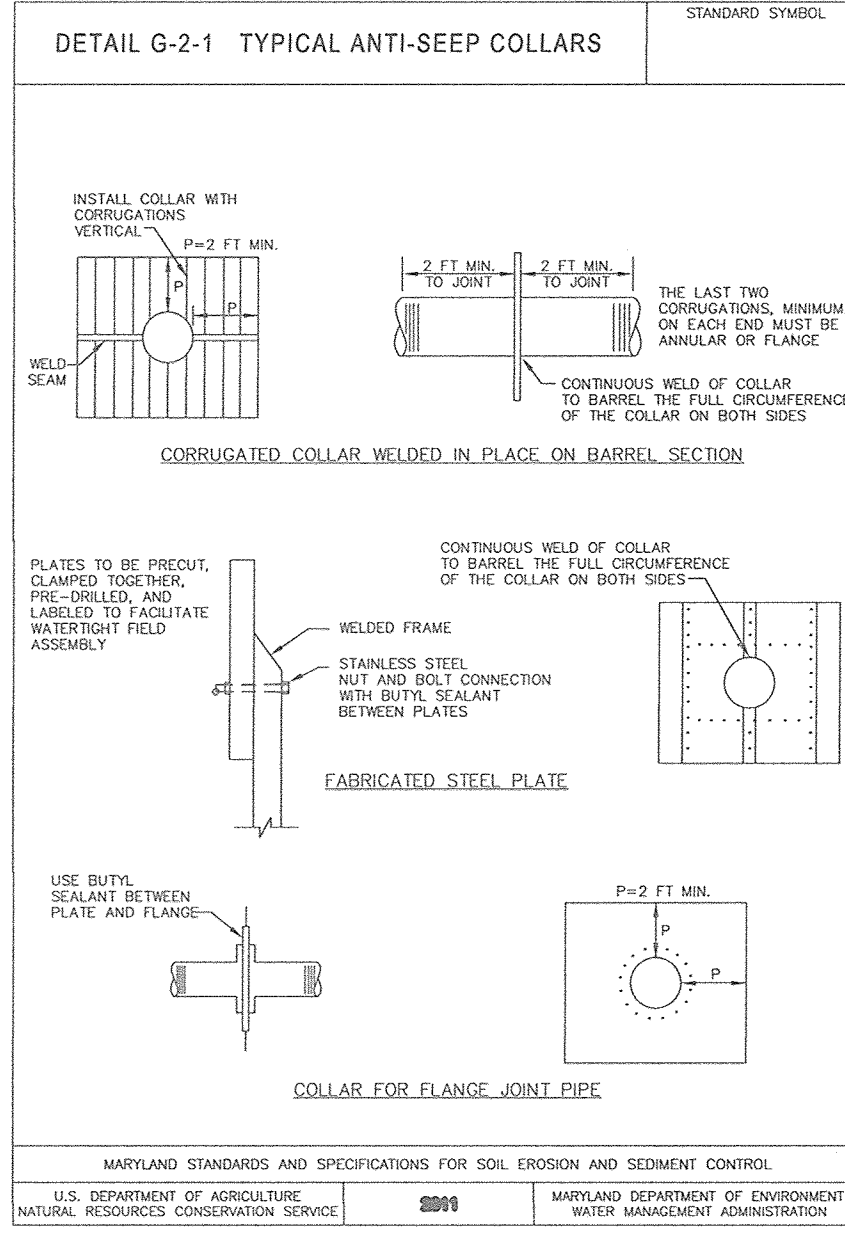
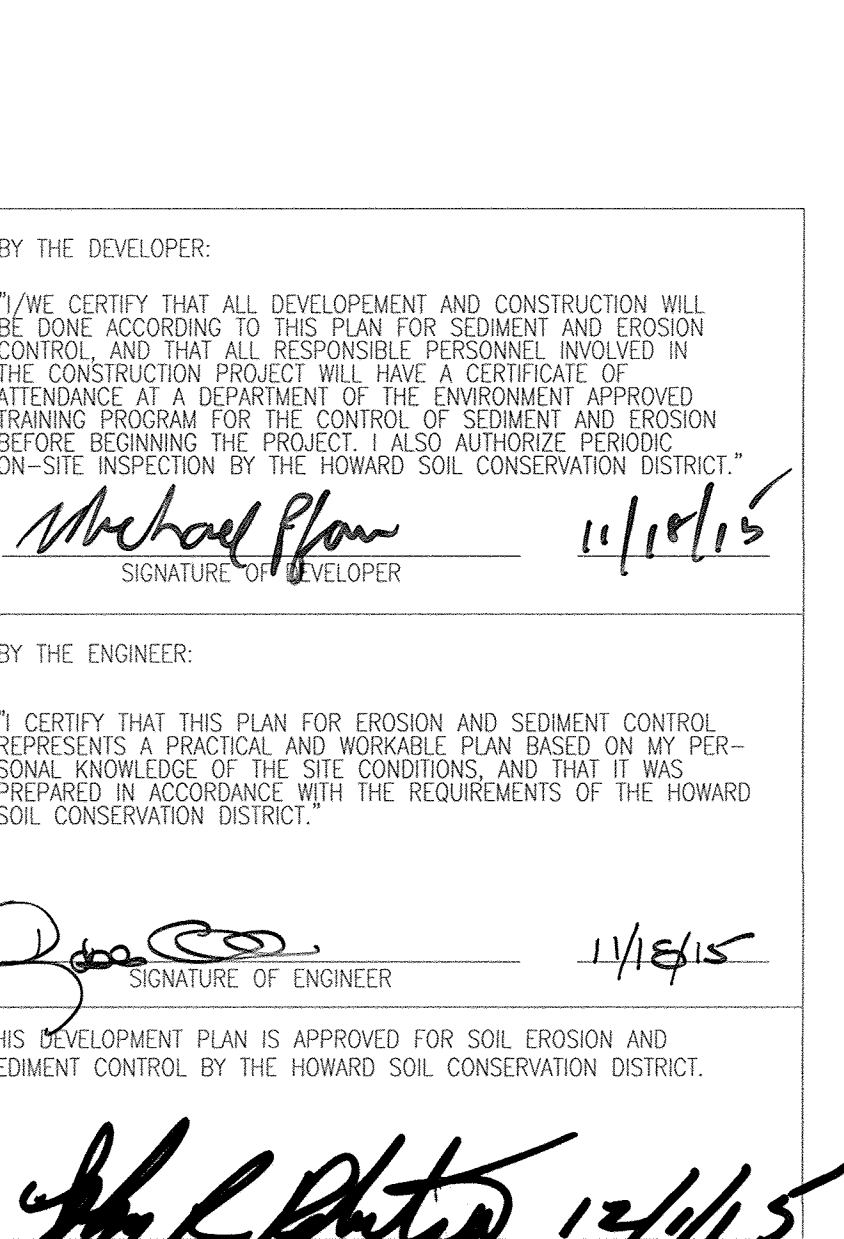
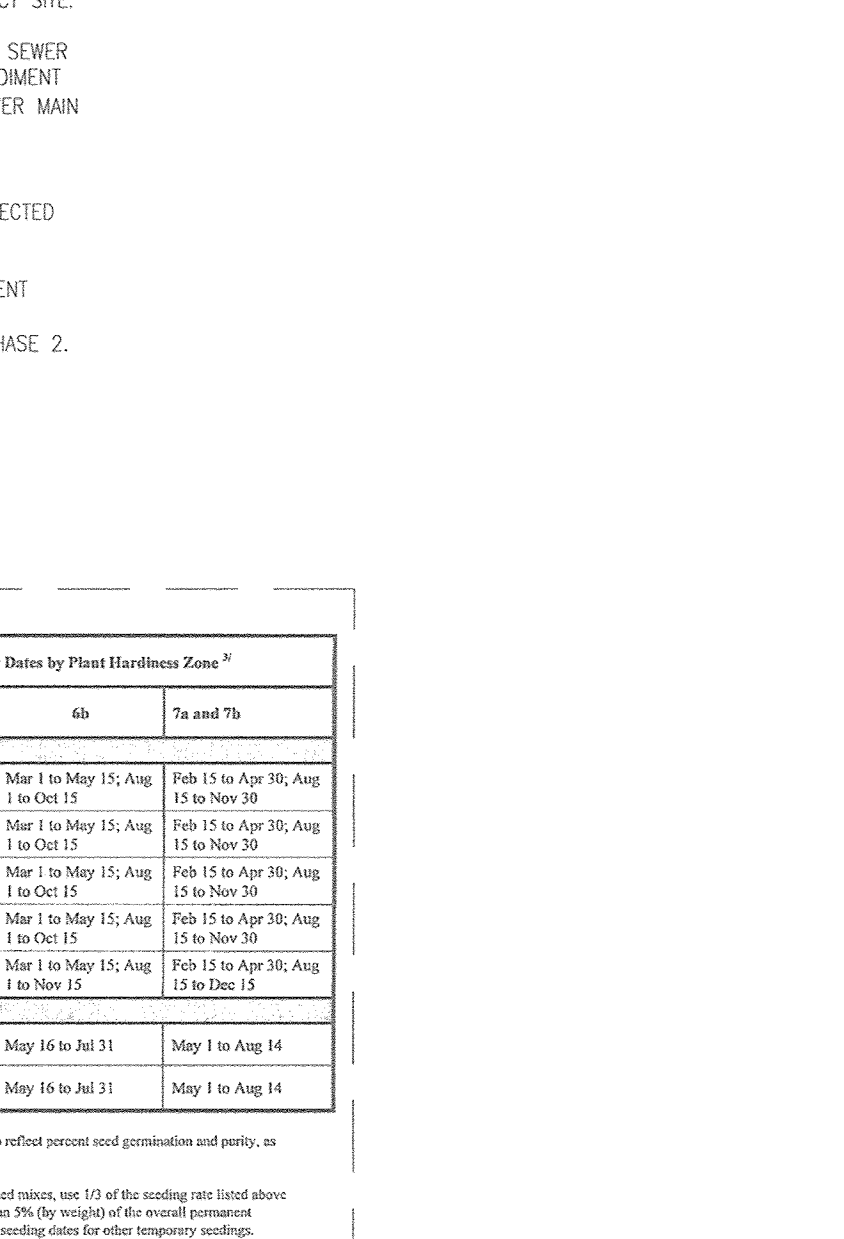
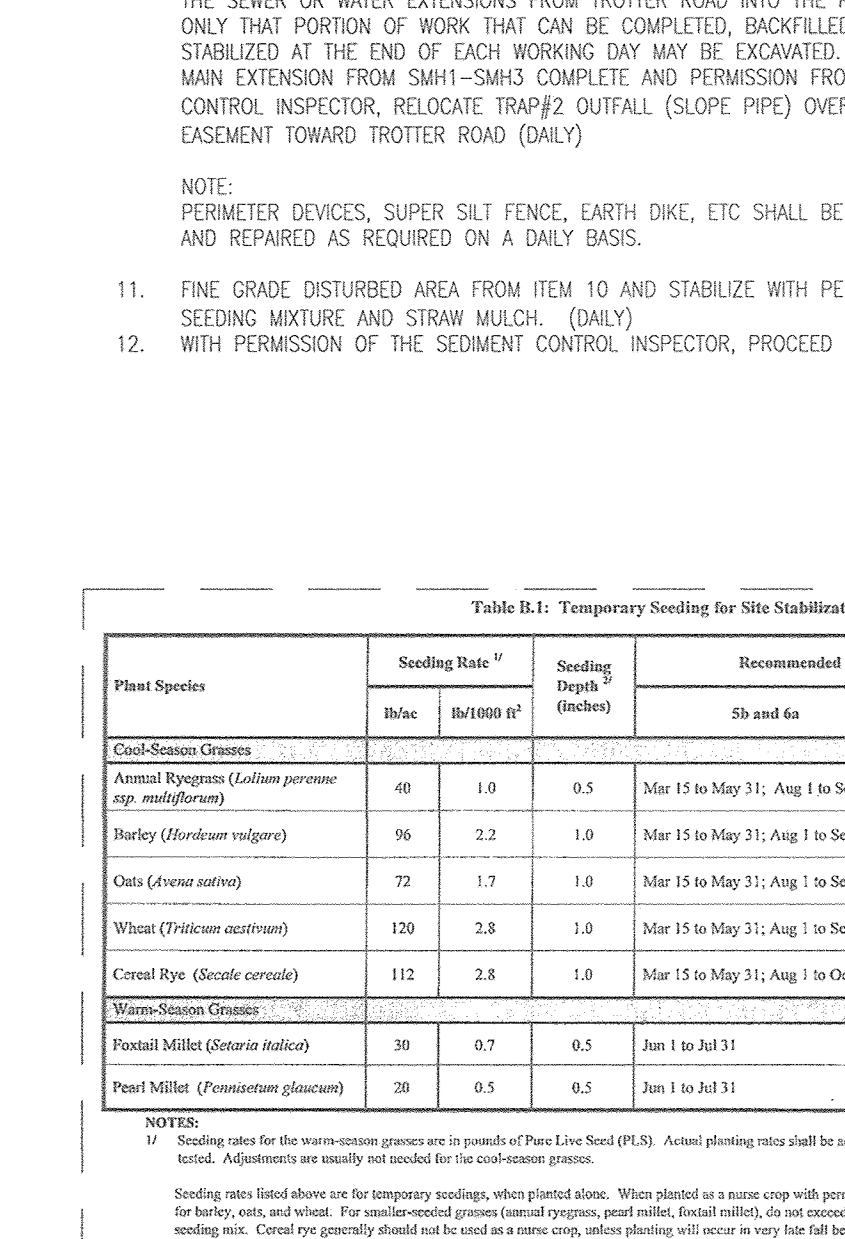
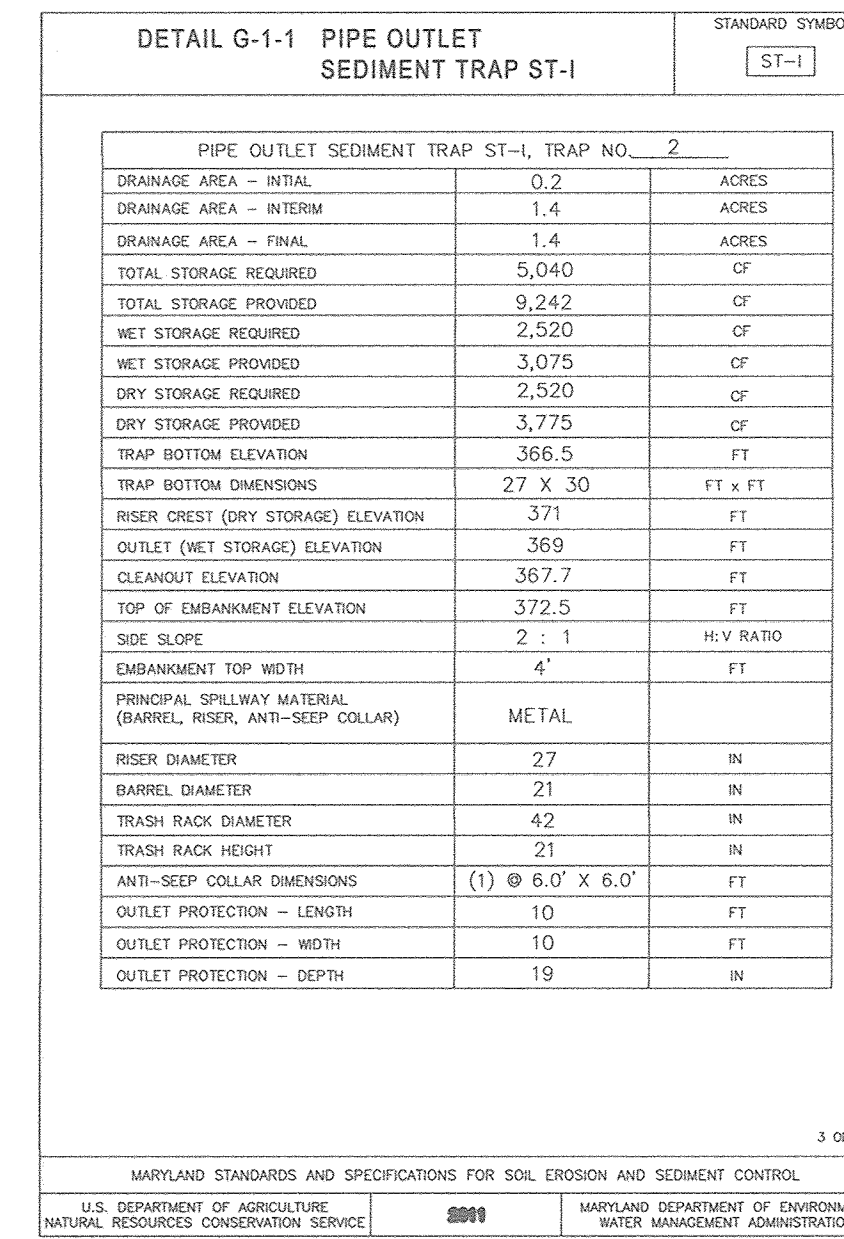
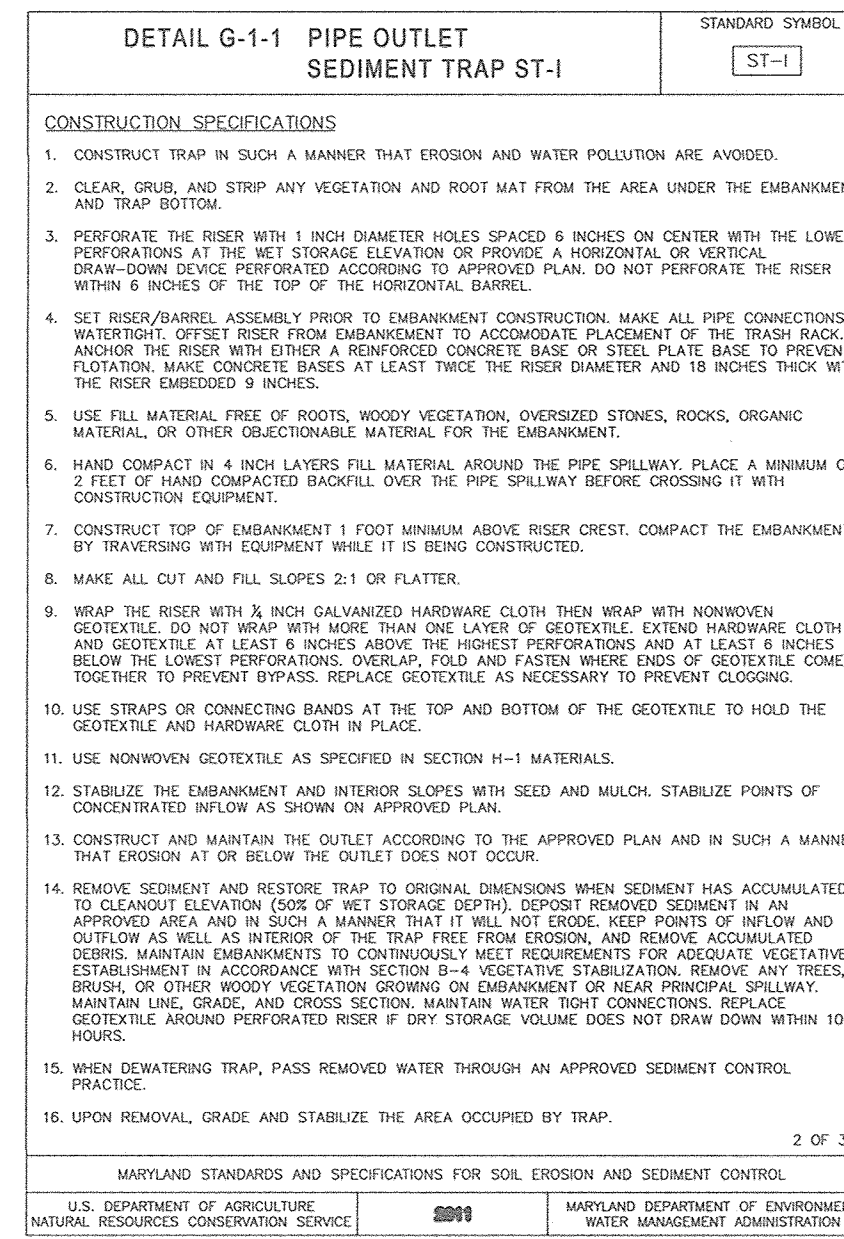
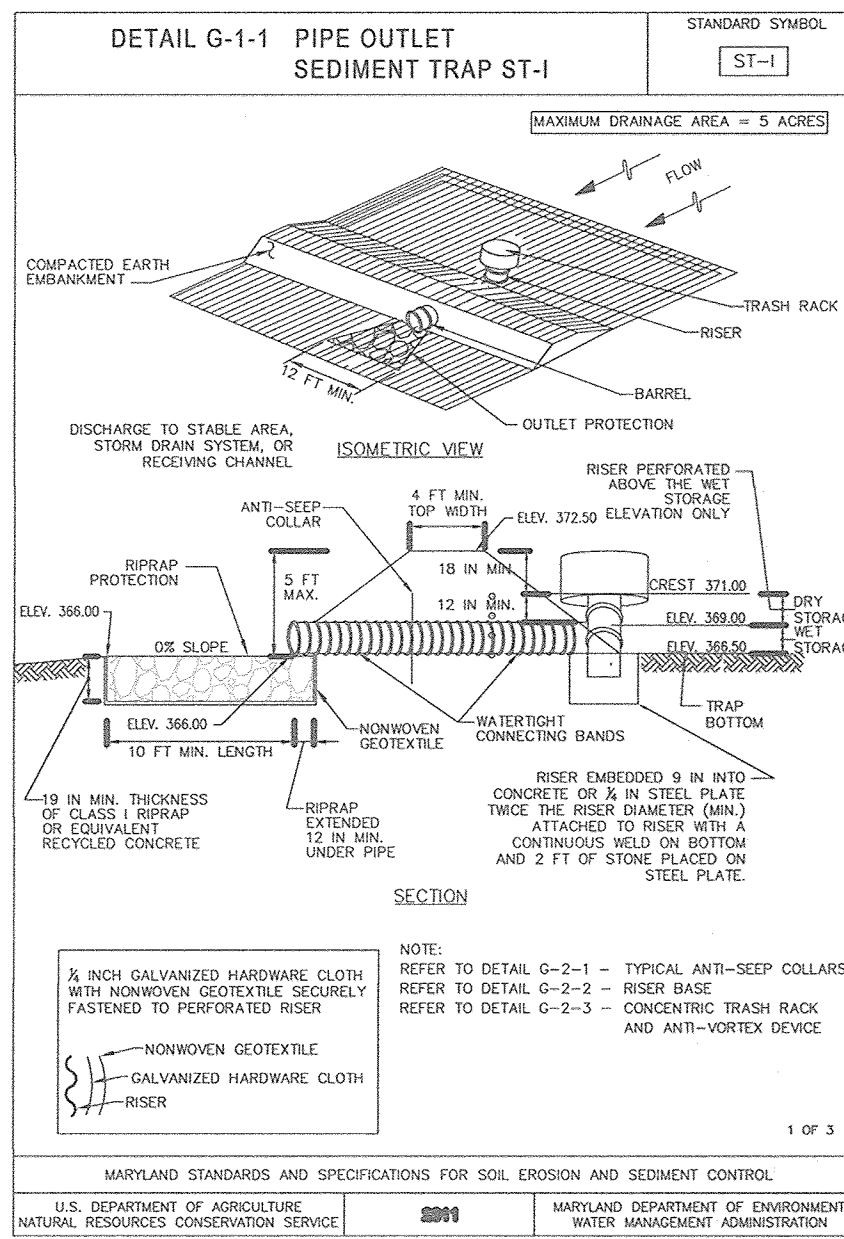
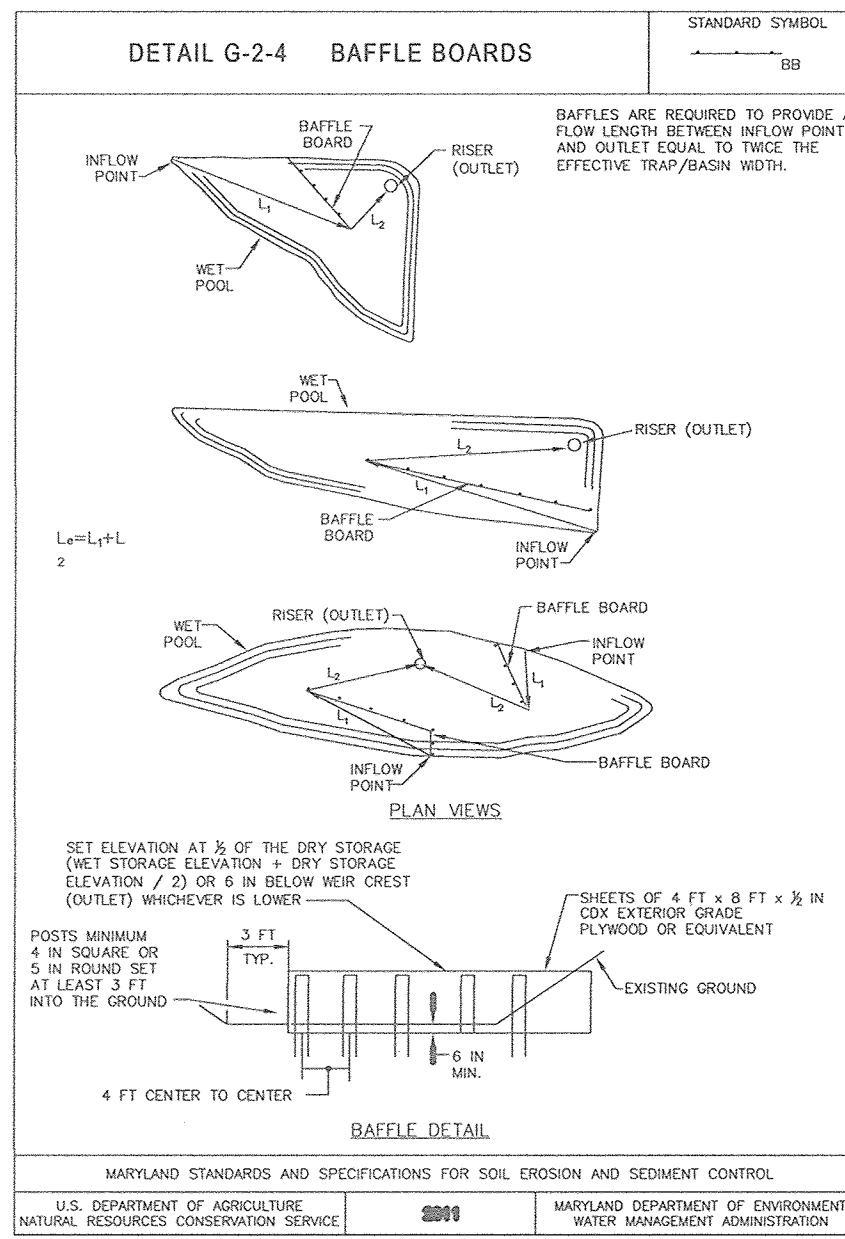
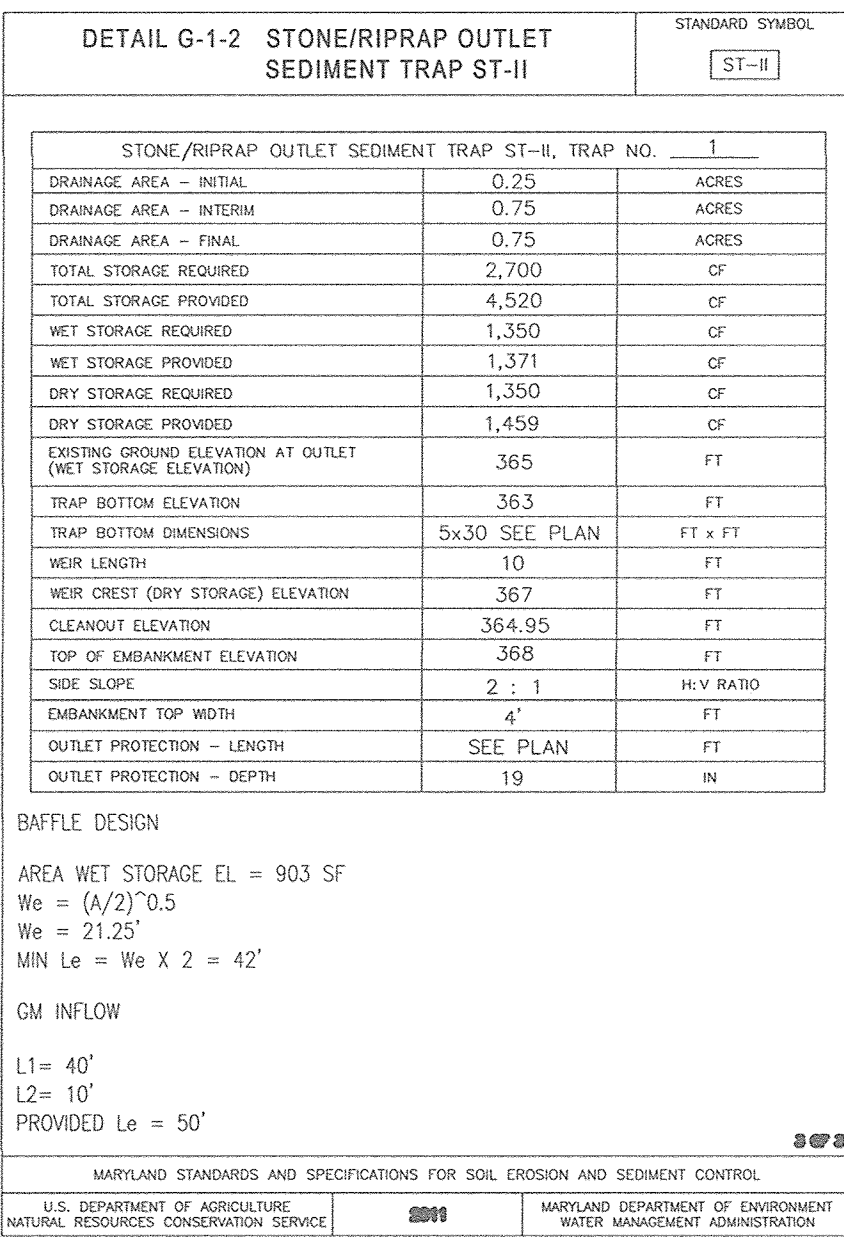
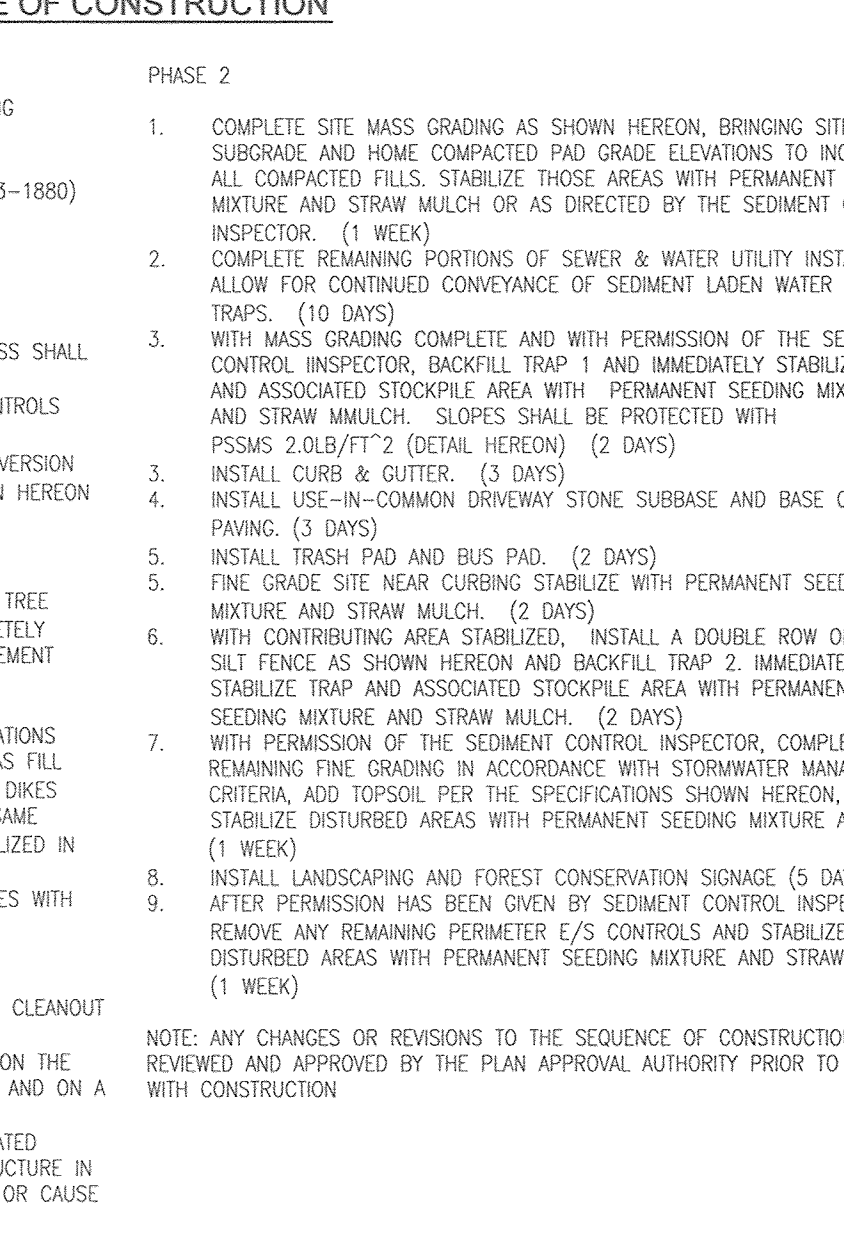
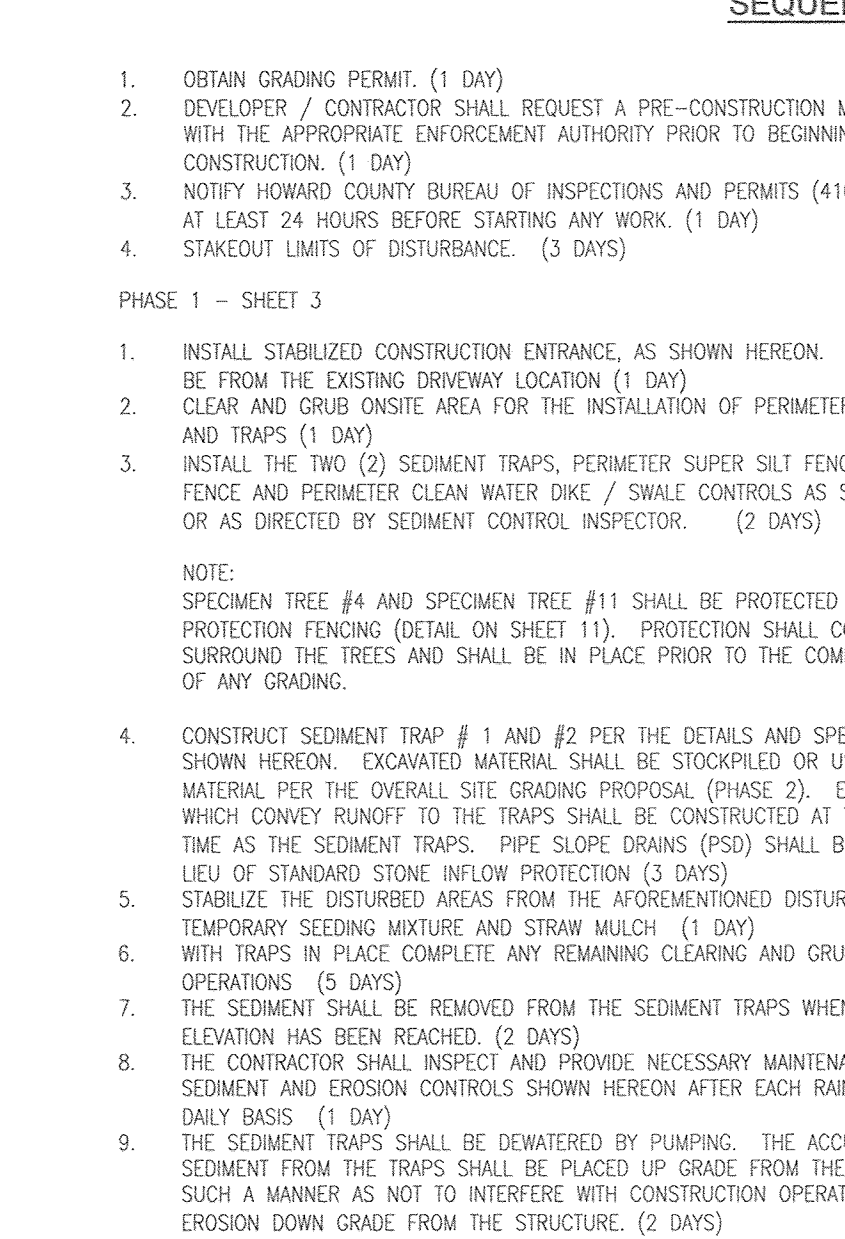
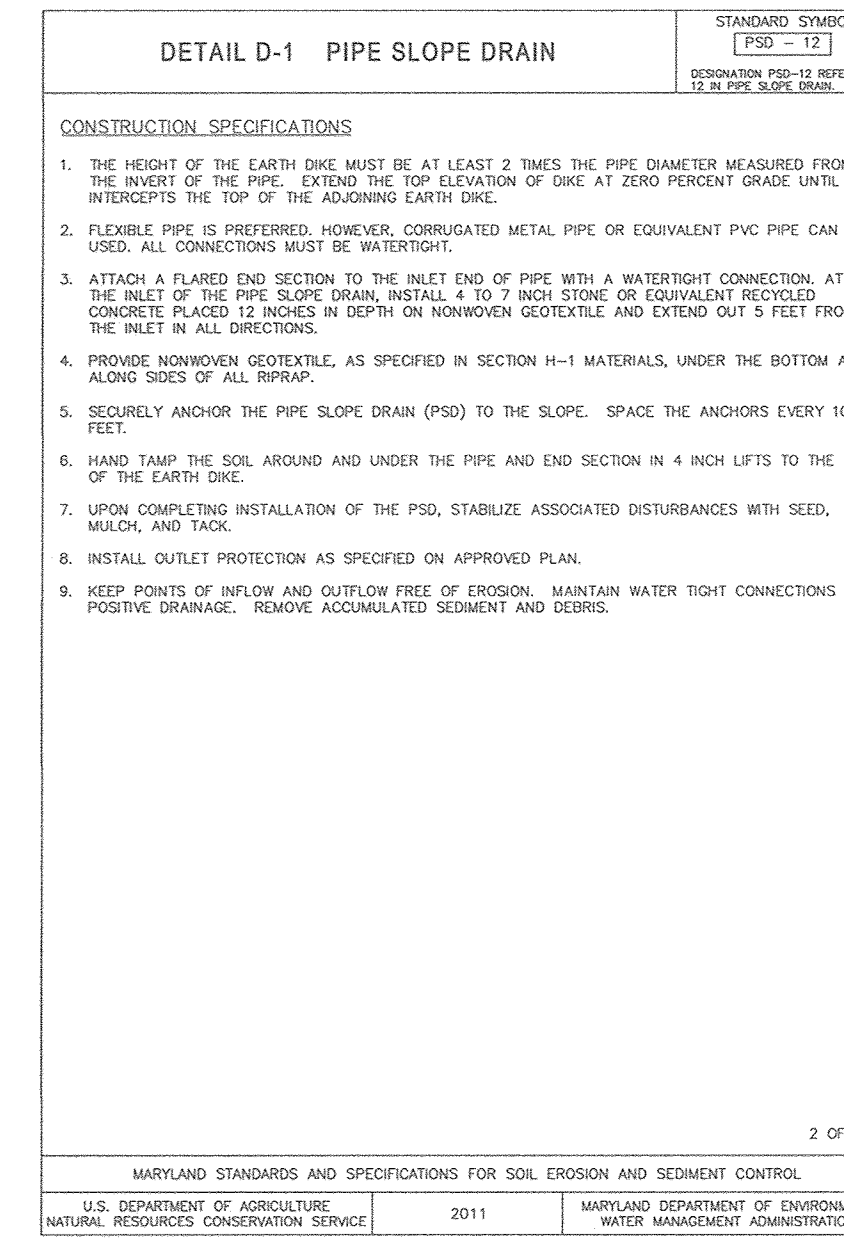
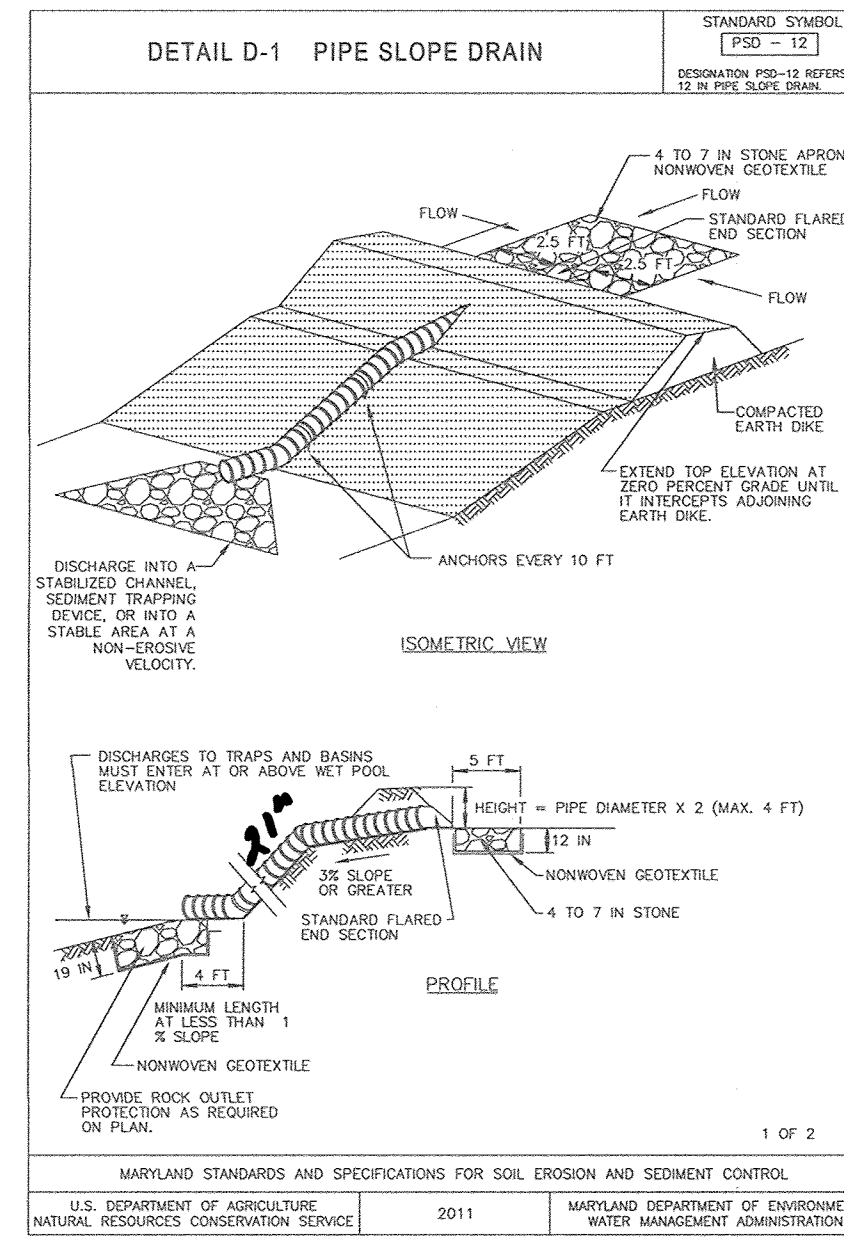
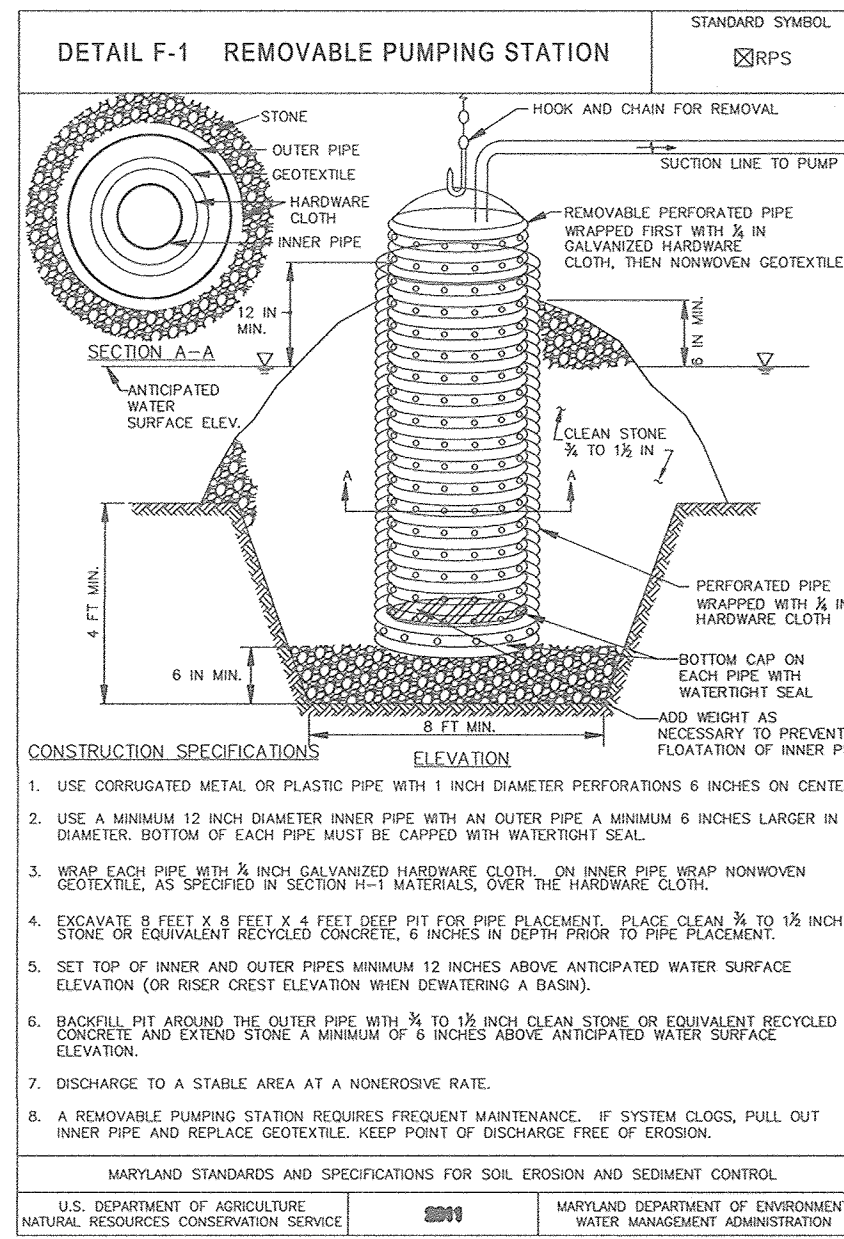
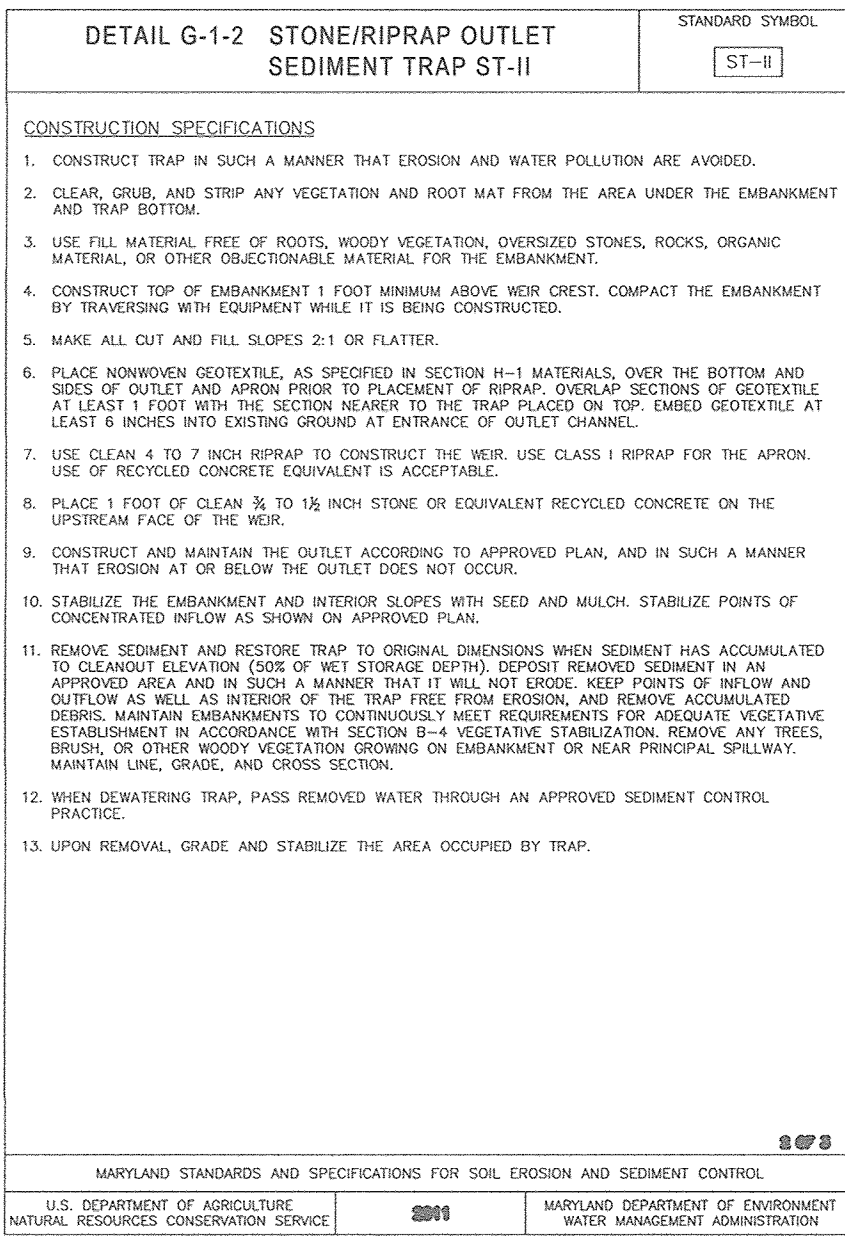
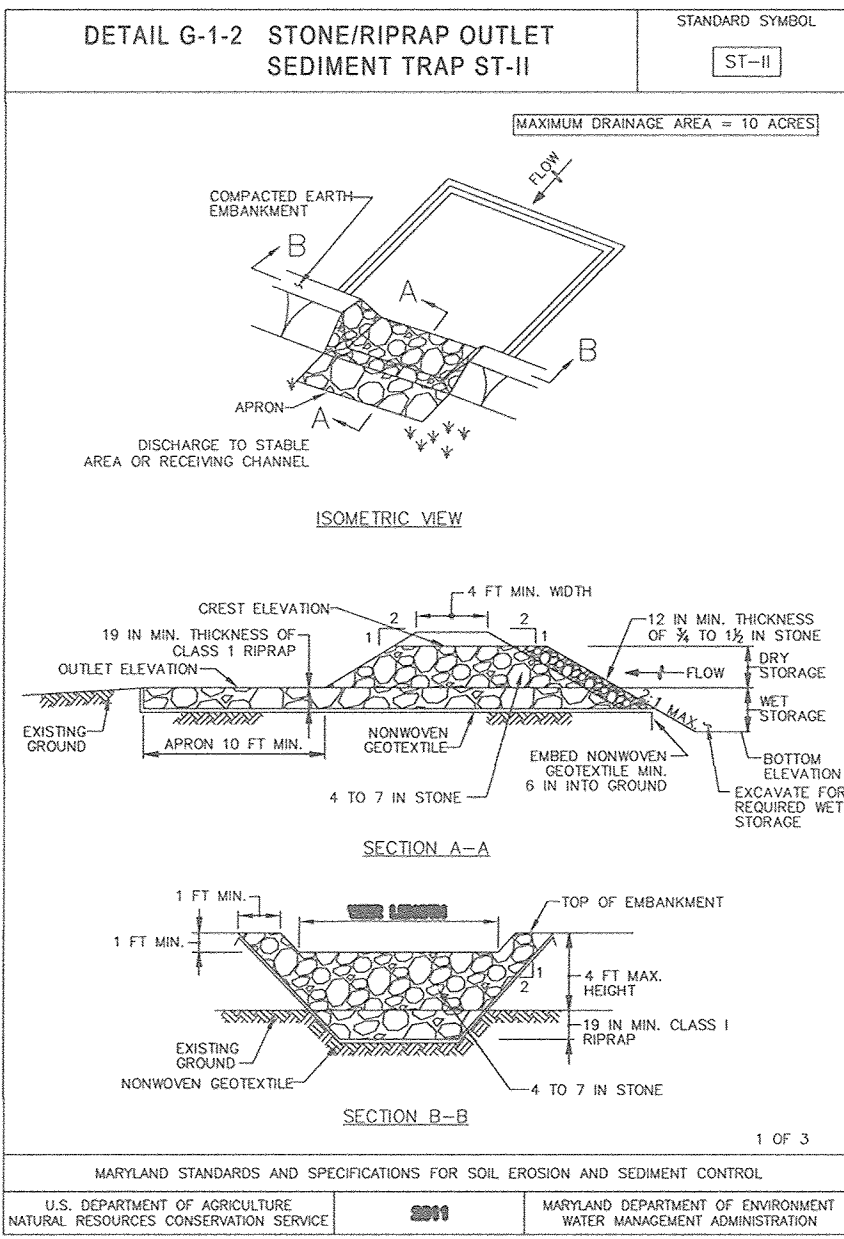


TEMPORARY SEEDING SUMMARY

NO	SPECIES	APPLICATION RATE (LB/AC)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P ₂ O ₅	K ₂ O	
1	COOL SEASON ANNUAL OR PERENNIAL OR EQUAL	1/2, 60 LB / AC	MAR 1 TO MAY 15	1/4" - 1/2"	45 LB/AC (1 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)
2	WARM SEASON ANNUAL OR PERENNIAL OR EQUAL	1/2, 60 LB / AC	MAY 15 TO OCT 15	1/4" - 1/2"	45 LB/AC (1 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	90 LB/AC (2 LB PER 1000 SF)	2 TONS/AC (90 LB PER 1000 SF)

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSER
--



SEQUENCE OF CONSTRUCTION

1. OBTAIN GRADING PERMIT. (1 DAY)
 2. DEVELOPER / CONTRACTOR SHALL REQUEST A PRE-CONSTRUCTION MEETING WITH THE APPROPRIATE ENFORCEMENT AUTHORITY PRIOR TO BEGINNING CONSTRUCTION. (1 WEEK)
 3. NOTIFY HOWARD COUNTY BUREAU OF INSPECTIONS AND PERMITS (410-331-1880) AT LEAST 24 HOURS BEFORE STARTING ANY WORK. (1 DAY)
 4. STAKEOUT LIMITS OF DISTURBANCE. (3 DAYS)
- PHASE 1 - SHEET 3
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, AS SHOWN HEREON. ACCESS SHALL BE FROM THE EXISTING DRIVEWAY LOCATION (1 DAY)
 2. CLEAR AND GRUB ON-SITE AREA FOR THE INSTALLATION OF PERIMETER CONTROLS AND TRAPS (1 DAY)
 3. INSTALL THE (2) SEDIMENT TRAPS, PERIMETER SUPER SILT FENCE, DIVERSION FENCE AND PERIMETER CLEAN WATER DIKE / SHALE CONTROLS AS SHOWN HEREON OR AS DIRECTED BY SEDIMENT CONTROL INSPECTOR. (2 DAYS)
- NOTE: SPECIMEN TREE #4 AND SPECIMEN TREE #11 SHALL BE PROTECTED WITH TREE PROTECTION FENCING (DETAIL ON SHEET 11). PROTECTION SHALL COMPLETELY SURROUND THE TREES AND SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY GRADING.
4. CONSTRUCT SEDIMENT TRAP #1 AND #2 PER THE DETAILS AND SPECIFICATIONS SHOWN HEREON. EXCAVATED MATERIAL SHALL BE STOCKPILED OR USED AS FILL MATERIAL PER THE OVERALL SITE GRADING PROPOSAL (PHASE 2). EARTH DIKES WHICH CONVEY RUNOFF TO THE TRAPS SHALL BE CONSTRUCTED AT THE SAME TIME AS THE SEDIMENT TRAPS. PIPE SLOPE DRAINS (PSD) SHALL BE UTILIZED IN LIEU OF STANDARD STONE INFLOW PROTECTION (3 DAYS)
 5. STABILIZE THE DISTURBED AREAS FROM THE AFORESAID DISTURBANCES WITH TEMPORARY SEEDING MIXTURE AND STRAW MULCH (1 DAY)
 6. WITH TRAPS IN PLACE COMPLETE ANY REMAINING CLEARING AND GRUBBING OPERATIONS (5 DAYS)
 7. THE SEDIMENT SHALL BE REMOVED FROM THE SEDIMENT TRAPS WHEN THE CLEANOUT ELEVATION HAS BEEN REACHED. (2 DAYS)
 8. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, BEGIN INSTALLATION OF THE SEWER OR WATER EXTENSIONS FROM TROTTER ROAD INTO THE PROJECT SITE. ONLY THAT PORTION OF WORK THAT CAN BE COMPLETED, BACKFILLED AND STABILIZED AT THE END OF EACH WORKING DAY MAY BE EXCAVATED, WITH SEWER MAIN EXTENSION FROM GWA-3/4" DIA. COMPLETE AND PENETRATION FROM SEDIMENT CONTROL INSPECTOR, RELOCATE TRAP #2 OUTFALL (SLOPE PIPE) OVER SEWER MAIN EASEMENT TOWARD TROTTER ROAD (DAILY)
- NOTE: PERIMETER DEVICES, SUPER SILT FENCE, EARTH DIKE, ETC SHALL BE INSPECTED AND REPAIRED AS REQUIRED ON A DAILY BASIS.
 11. FINE GRADE DISTURBED AREA FROM ITEM 10 AND STABILIZE WITH PERMANENT SEEDING MIXTURE AND STRAW MULCH. (DAILY)
 12. WITH PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO PHASE 2.

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

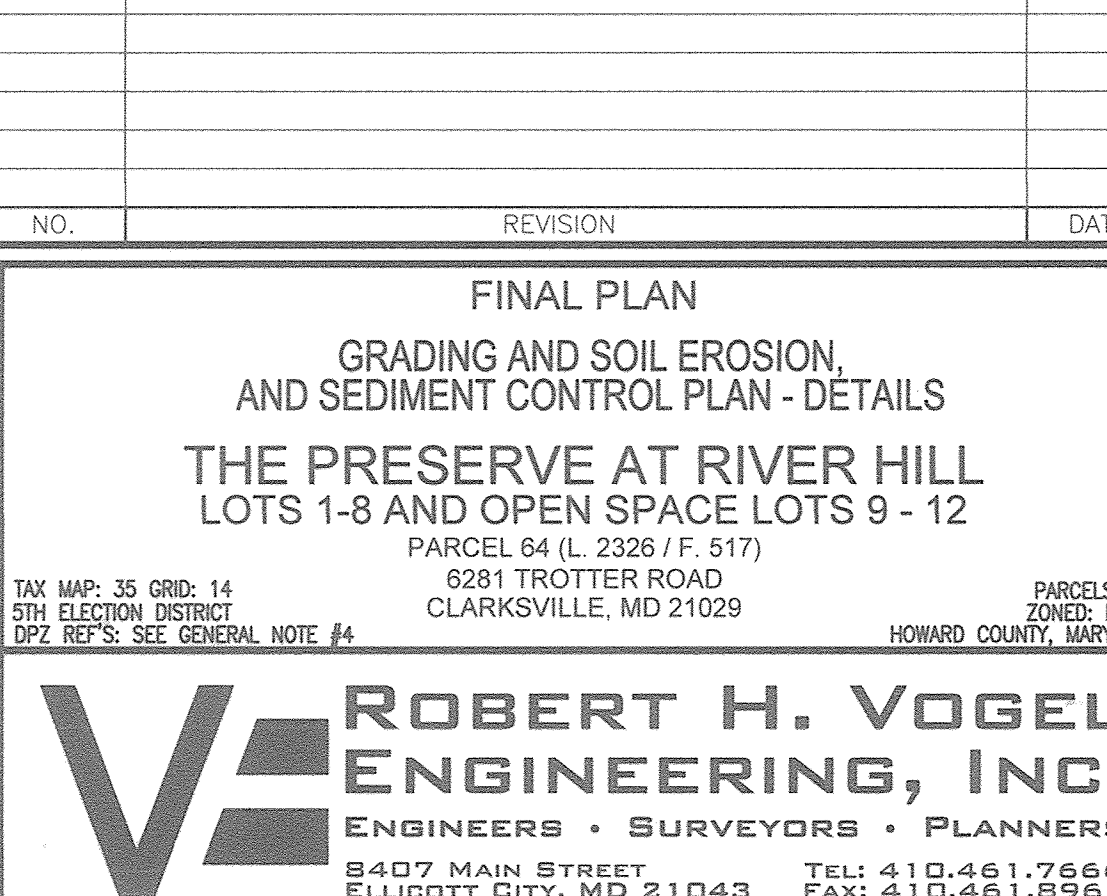
Table B.1: Temporary Seeding for Site Stabilization

Plant Species	Seeding Rate ¹		Seeding Depth ² (inches)		Recommended Seeding Dates by Plant Hardiness Zone ³			
	lb/acre	lb/1000 sq ft	5b and 6a	6b	7a and 7b	8a and 8b	9a and 9b	10a and 10b
Cool-Season Grasses								
Annual Ryegrass (<i>Lolium perenne</i>)	40	1.0	May 15 to May 31; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15	Feb 1 to Apr 30; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15	Feb 1 to Apr 30; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15
Perennial Ryegrass (<i>Lolium perenne</i>)	40	1.0	May 15 to May 31; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15	Feb 1 to Apr 30; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15	Feb 1 to Apr 30; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15
Wheat (<i>Triticum aestivum</i>)	120	2.8	May 15 to May 31; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15	Feb 1 to Apr 30; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15	Feb 1 to Apr 30; Aug 1 to Sep 30	May 1 to May 15; Aug 1 to Sep 15
Warm-Season Grasses								
Perennial Millet (<i>Pennisetum glaucum</i>)	30	0.7	May 15 to Aug 31	May 15 to Aug 31	May 1 to Aug 14	May 15 to Aug 31	May 1 to Aug 14	May 15 to Aug 31
Perennial Millet (<i>Pennisetum glaucum</i>)	30	0.5	May 15 to Aug 31	May 15 to Aug 31	May 1 to Aug 14	May 15 to Aug 31	May 1 to Aug 14	May 15 to Aug 31

NOTE: 1) Seeding rates for the warm-season grasses are on a basis of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as noted. Adjustments are usually not needed for the cool-season grasses. 2) Seeding rates listed above are for temporary seedings, when planted alone. When planted in a mix with permanent seed mixtures, use 1/3 of the seeding rate listed above for the cool-season grasses, and use 1/2 of the seeding rate listed above for the warm-season grasses. 3) The planting dates listed are average for each zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.

DEVELOPER: TRINITY HOMES MARY LAND, LLC
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(410) 480-0023

OWNER: ESTATES AT RIVER HILL, LLC
3675 PARK AVE., SUITE 301
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ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
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TEL: 410.461.7666
FAX: 410.461.8961

DESIGN BY: RHW
DRAWN BY: JMR
CHECKED BY: RHW
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-38

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18193, EXPIRATION DATE: 09-27-2016

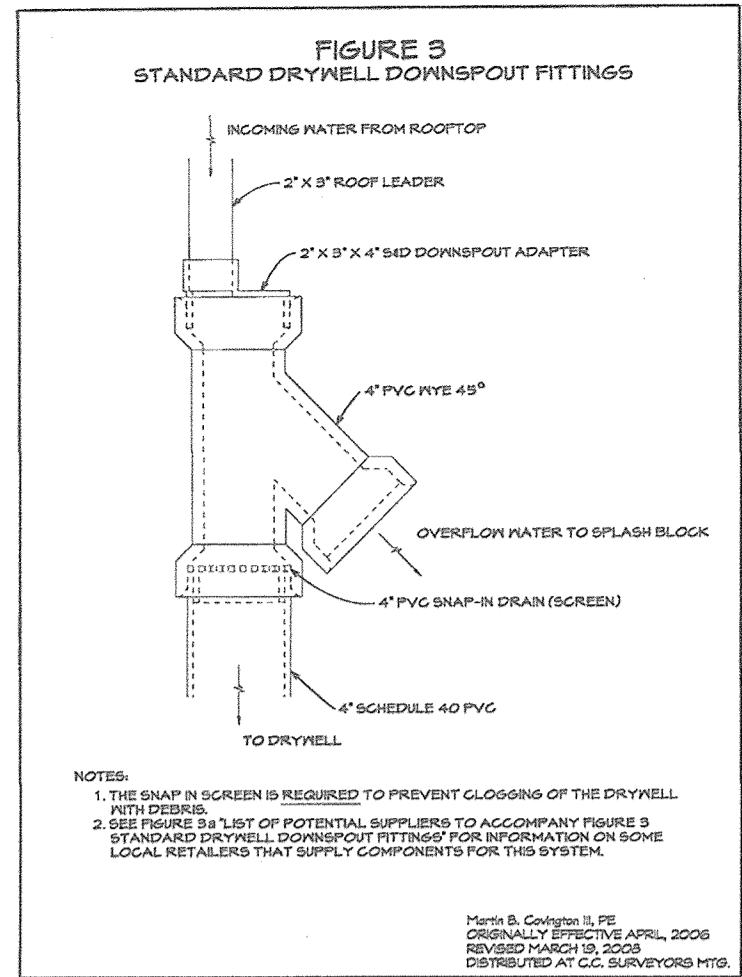
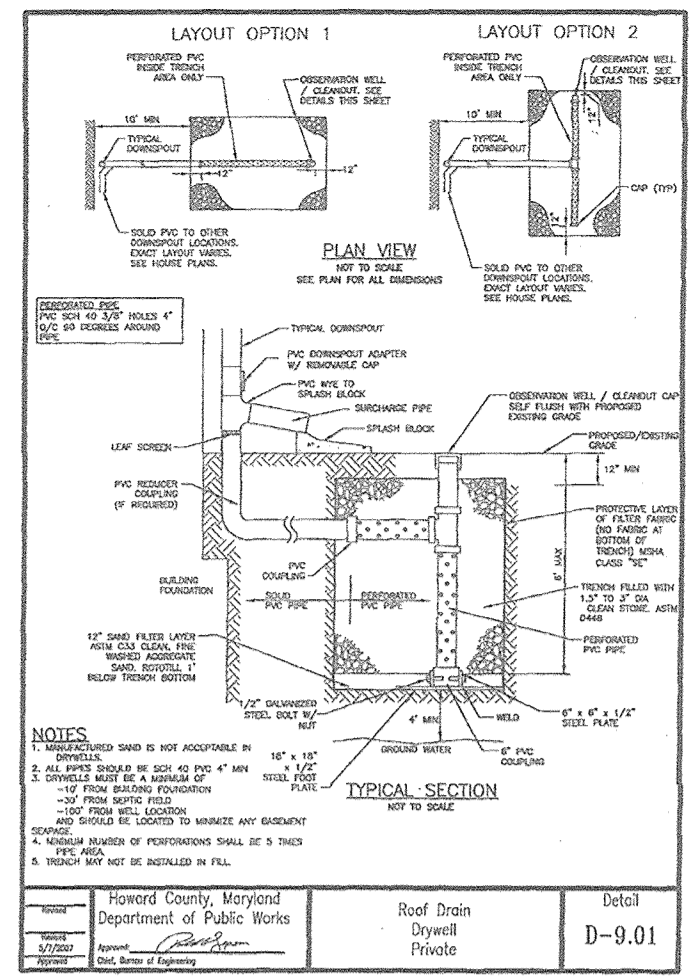
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

John R. Dutton 12/1/15
HOWARD, S.C.D. DATE

12-7-15 DATE
12-3-15 DATE

AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND CONFORM WITH THE APPROVED PLANS AND SPECIFICATIONS.

16/93 5/28/19
DATE DATE



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

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

PROJECT CONGEDO PROPERTY
 DESIGNER RHY
 DATE 08/23/14
 ROBERT H. VOGEL ENGINEERING, INC.

DRAINAGE AREA #	AREA (SF)	FACILITY	ENVIRONMENTAL SITE DESIGN PRACTICE										ESDv	
			PERMEABLE PAVEMENT	MICRO BIO SHEET FLOW	DRY WELL	ROOFTOP DISCONNECT	X	X	X	X	X	X		X
DA-A	10500	MBR-1	0	0	0	0	0	0	0	0	0	0	0	699
DA-B	17442	MBR-2	0	1029	0	0	0	0	0	0	0	0	0	1029
DA-C	15929	MBR-4	0	125	0	0	0	0	0	0	0	0	0	125
		LEVEL SPREADER	0	0	96	0	0	0	0	0	0	0	0	96
		MBR-5	0	296	0	0	0	0	0	0	0	0	0	296
DA-D	14198	MBR-6	0	264	0	0	0	0	0	0	0	0	0	264
		LEVEL SPREADER	0	0	96	0	0	0	0	0	0	0	0	96
		DRY WELL LOT 4	0	0	135	0	0	0	0	0	0	0	0	135
		DRY WELL LOT 5A	0	0	135	0	0	0	0	0	0	0	0	135
		DRY WELL LOT 5B	0	0	270	0	0	0	0	0	0	0	0	270
DA-E	28259	MBR-7	0	432	0	0	0	0	0	0	0	0	0	432
		MBR-8	0	288	0	0	0	0	0	0	0	0	0	288
		MBR-9	0	144	0	0	0	0	0	0	0	0	0	144
		DRY WELL LOT 6	0	0	125	0	0	0	0	0	0	0	0	125
		DRY WELL LOT 7	0	0	625	0	0	0	0	0	0	0	0	625
		DISCONNECTIONS	0	0	0	39	0	0	0	0	0	0	0	39
DA-F	9271	MBR-10	0	465	0	0	0	0	0	0	0	0	0	465
DA-G	4857	MBR-3	0	288	0	0	0	0	0	0	0	0	0	288
TOTAL AREA			TOTAL ESDv PROVIDED										5541	

NOTE: MICRO BIORETENTION VOLUMES ARE BASED FULL ESDv AND DO NOT REPRESENT THE REQUIRED STORAGE RATIO OF 75%

N-1. DISCONNECTION OF ROOFTOP RUNOFF

CONSTRUCTION CRITERIA:
 THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING THE CONSTRUCTION OF PROJECTS WITH PLANNED ROOFTOP DISCONNECTS:

- EROSION AND SEDIMENT CONTROL: EROSION AND SEDIMENT CONTROL PRACTICES (E.G., SEDIMENT TRAPS) SHALL NOT BE LOCATED IN VEGETATED AREAS RECEIVING DISCONNECTED RUNOFF
 - SITE DISTURBANCE: CONSTRUCTION VEHICLES AND EQUIPMENT SHOULD AVOID AREAS RECEIVING DISCONNECTED RUNOFF TO MINIMIZE DISTURBANCE AND COMPACTION. SHOULD AREAS RECEIVING DISCONNECTED RUNOFF BECOME COMPACTED, SCARIFYING THE SURFACE OR ROTOTILLING THE SOIL TO A DEPTH OF FOUR TO SIX INCHES SHALL BE PERFORMED TO ENSURE PERMEABILITY.
- ADDITIONALLY,
 AMENDMENTS MAY BE NEEDED FOR TIGHT, CLAYEY SOILS.

INSPECTION:
 A FINAL INSPECTION SHALL BE CONDUCTED BEFORE USE AND OCCUPANCY APPROVAL TO ENSURE THAT SIZING FOR TREATMENT AREAS HAVE BEEN MET AND PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

MAINTENANCE CRITERIA:
 MAINTENANCE OF AREAS RECEIVING DISCONNECTED RUNOFF IS GENERALLY NO DIFFERENT THAN THAT REQUIRED FOR OTHER LAWN OR LANDSCAPED AREAS. THE AREAS RECEIVING RUNOFF SHOULD BE PROTECTED FROM FUTURE COMPACTION (E.G., BY PLANTING TREES OR SHRUBS ALONG THE PERIMETER). IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 12-7-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 12-8-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

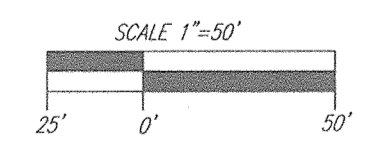
MAPPED SOILS TYPES - CLARKSVILLE NE MAP #17

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE	HYDRIC SOIL
G8B	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B	20	NO	NO
G8C	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	B	20	NO	NO
G8D	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	37	NO	NO
H8	HAIROBO-COLORUS SILET LOAMS, 0 TO 3 PERCENT SLOPES	D	37	NO	NO
M8D	MANOR-BANNERTOWN SANDY LOAMS, 15 TO 25 PERCENT SLOPES, ROCKY	B	24	YES	NO

NOTE:
 HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT



DRAINAGE AREA MAP
 SCALE: 1"=50'



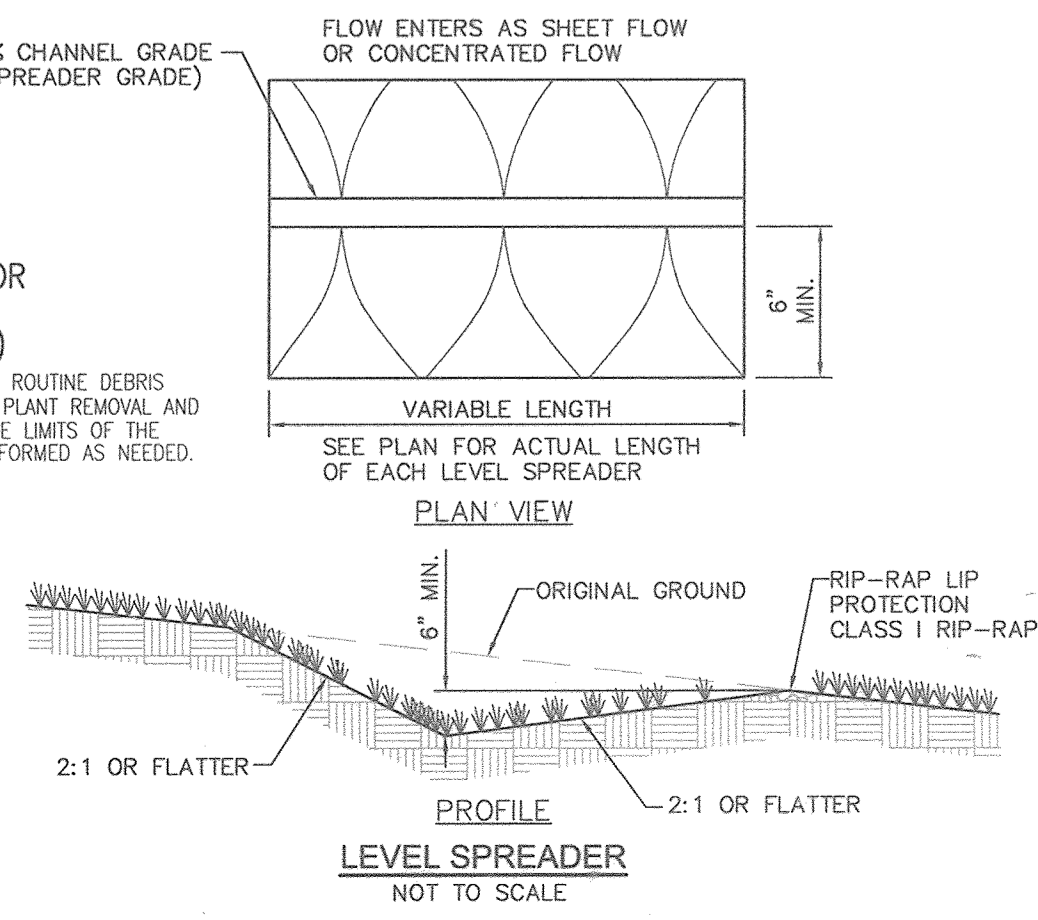
OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SHEETFLOW TO CONSERVATION AREA (N-3)

CONSERVATION AREAS SHALL REMAIN UNDISTURBED AND UNMANAGED OTHER THAN ROUTINE DEBRIS REMOVAL AND REPAIRING AREA OF CONCENTRATED FLOW. INVASIVE AND NOXIOUS PLANT REMOVAL AND BI-ANNUAL MOWING FOR MEADOW AREAS MAY BE NEEDED. SIGNS DELINEATING THE LIMITS OF THE CONSERVATION AREA SHOULD BE MAINTAINED AND SUPPLEMENTAL PLANTINGS PERFORMED AS NEEDED.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLY WITH THE APPROVED PLANS AND SPECIFICATIONS.

[Signature] 16/93 5/28/19
 P.E. NAME P.E.# DATE



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING EDGE OF PAVING
- EXISTING WETLANDS
- EXISTING WETLAND BUFFER
- EXISTING STREAM BUFFER
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING TREES
- EXISTING WOOD FENCE
- EXISTING METAL FENCE
- PROPOSED TREELINE
- PRIVATE USE-IN-COMMON ACCESS EASEMENT
- FOREST CONSERVATION EASEMENT (RETENTION)
- VARIABLE WIDTH PUBLIC SEWER, WATER, & UTILITY EASEMENT
- 10' PRIVATE DRAINAGE & UTILITY EASEMENT
- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- SOILS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED SPOT ELEVATION
- EXISTING STEEP SLOPES (20% SLOPES OR GREATER)
- EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
- DRAINAGE AREA DIVIDE
- MICRO-BIORETENTION FACILITY (M-5)
- DRY WELL (M-5)
- AREA OF ROOFTOP DRAINAGE TO GO TO DRY WELL (M-5)
- AREA OF ROOFTOP DRAINAGE TO SHEETFLOW TO LEVEL SPREADER (N-3)
- AREA OF ROOFTOP DRAINAGE TO GO TO MICRO BIO-RETENTION FACILITY (M-6)
- AREA OF MICRO BIO-RETENTION FACILITY (M-6) AND ROOFTOP DISCONNECT (N-1)
- ROOFTOP DISCONNECT (N-1)
- TEST PIT
- EXISTING SPECIMEN TREE
- DRAINAGE AREA
- 'C' FACTOR
- INLET ZONING
- % IMPERVIOUS

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

NO.	REVISION	DATE
1	REVISE DRIVEWAY CULVERT FROM 12" TO 15"; RUN MBR2 AND MBR10 4/28/18 UNDER DRAINS TO RIPRAP CHANNEL ALONG TROTTER ROAD	

FINAL PLAN
 ESDv - DRAINAGE AREA MAP AND DETAILS

THE PRESERVE AT RIVER HILL
 LOTS 1-8 AND OPEN SPACE LOTS 9 - 12

PARCEL 64 (L. 2326 / F. 517)
 6281 TROTTER ROAD
 CLARKSVILLE, MD 21029

TAX MAP: 35 GRD: 14
 5TH ELECTION DISTRICT
 DPZ REF'S: SEE GENERAL NOTE #4

PARCELS: 64
 ZONED: R-ED
 HOWARD COUNTY, MARYLAND

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

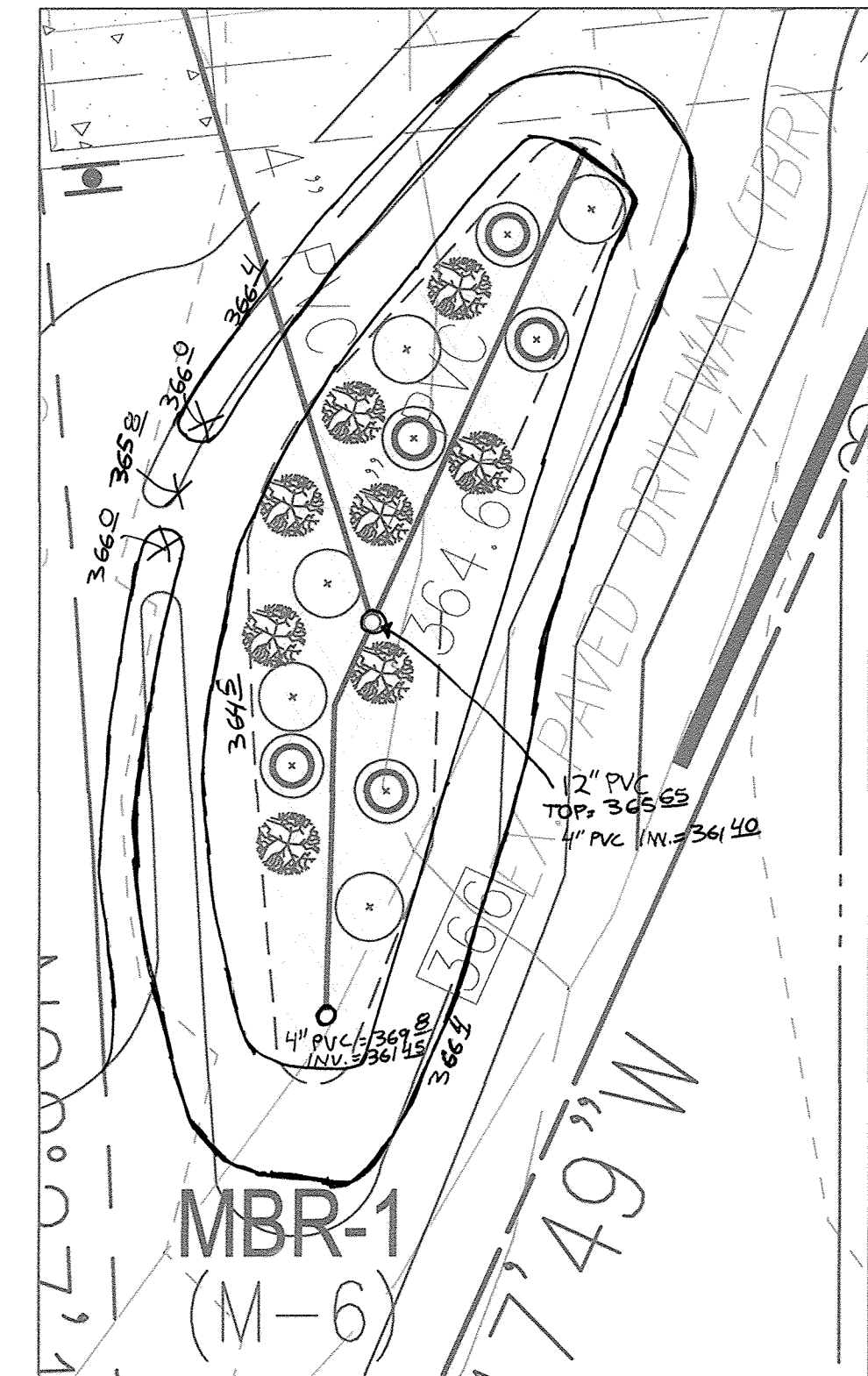
DESIGN BY: RHY
 DRAWN BY: JMR
 CHECKED BY: RHY
 DATE: OCTOBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 13-38

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: 09-27-2018

7 OF 11

"MICRO-BIORETENTION" PLANTING SCHEDULE NOTES:

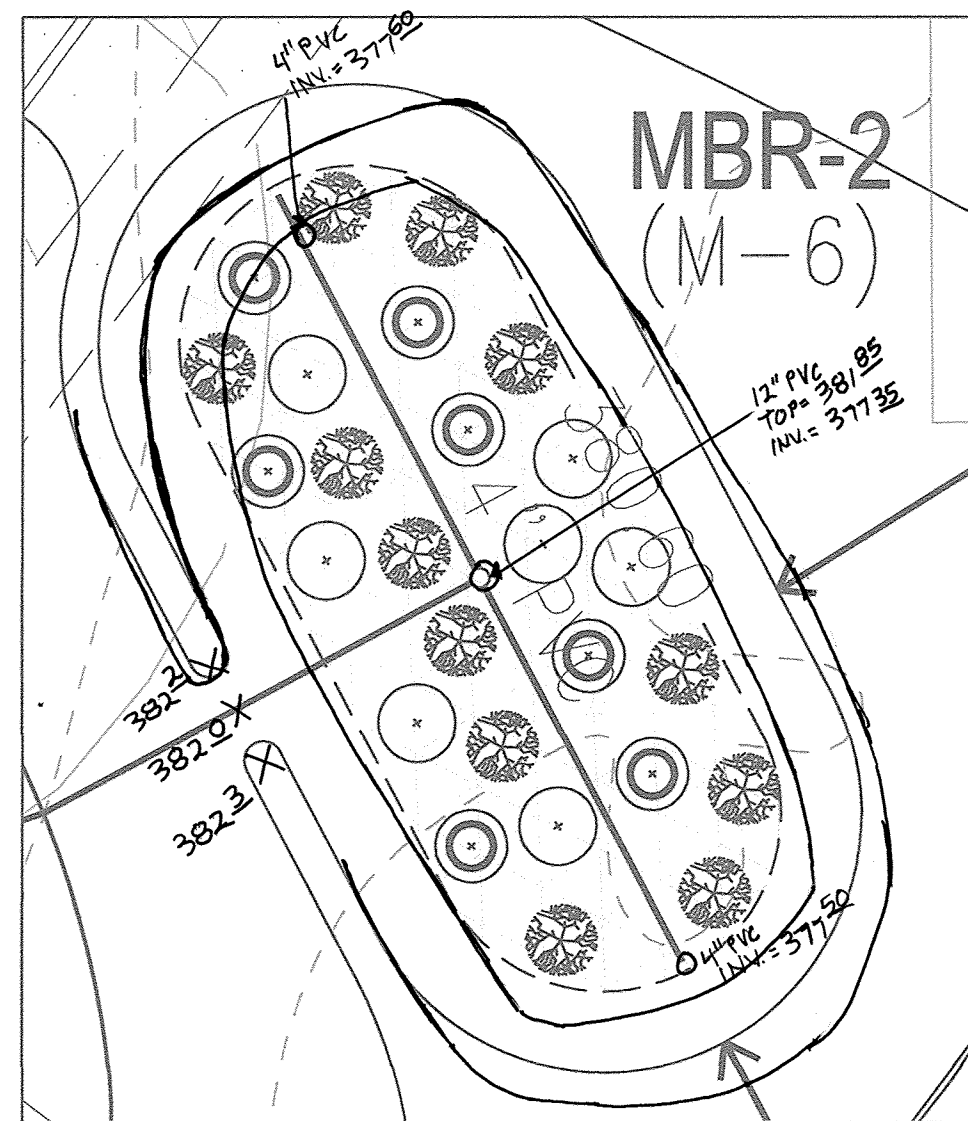
- ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT AN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH HOWARD COUNTY PLANTING SPECIFICATIONS.
- CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
- FINAL LOCATION OF PLANT MATERIAL MAY NEED TO VARY TO MEET FINAL FIELD CONDITIONS. TREES SHALL NOT BE PLANTED IN THE BOTTOM OF DRAINAGE SWALES. CONTRACTOR SHALL VERIFY PLANT QUANTITIES PRIOR TO BIDDING. IF PLAN DIFFERS FROM LANDSCAPE SCHEDULE, THE PLAN SHALL GOVERN.
- MICROBIORETENTION AREAS ARE TO BE PLANTED BASED ON A MINIMUM DENSITY OF 1000 STEMS PER PLANTED ACRE (0.229 STEMS PER SQUARE FOOT). ABOVE PLANTING RATIOS ARE TO BE APPLIED TO THE AREAS PROVIDED IN THE ESSY SUMMARY.
- FILTER AREA SHALL BE 50% COVERED BY PLANTINGS AT FULL GROWTH.



MBR-1 - PLANTING DETAIL (517 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
5	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
5	ILEX GLABRA INKBERRY	3 GALLON	CONT
8	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

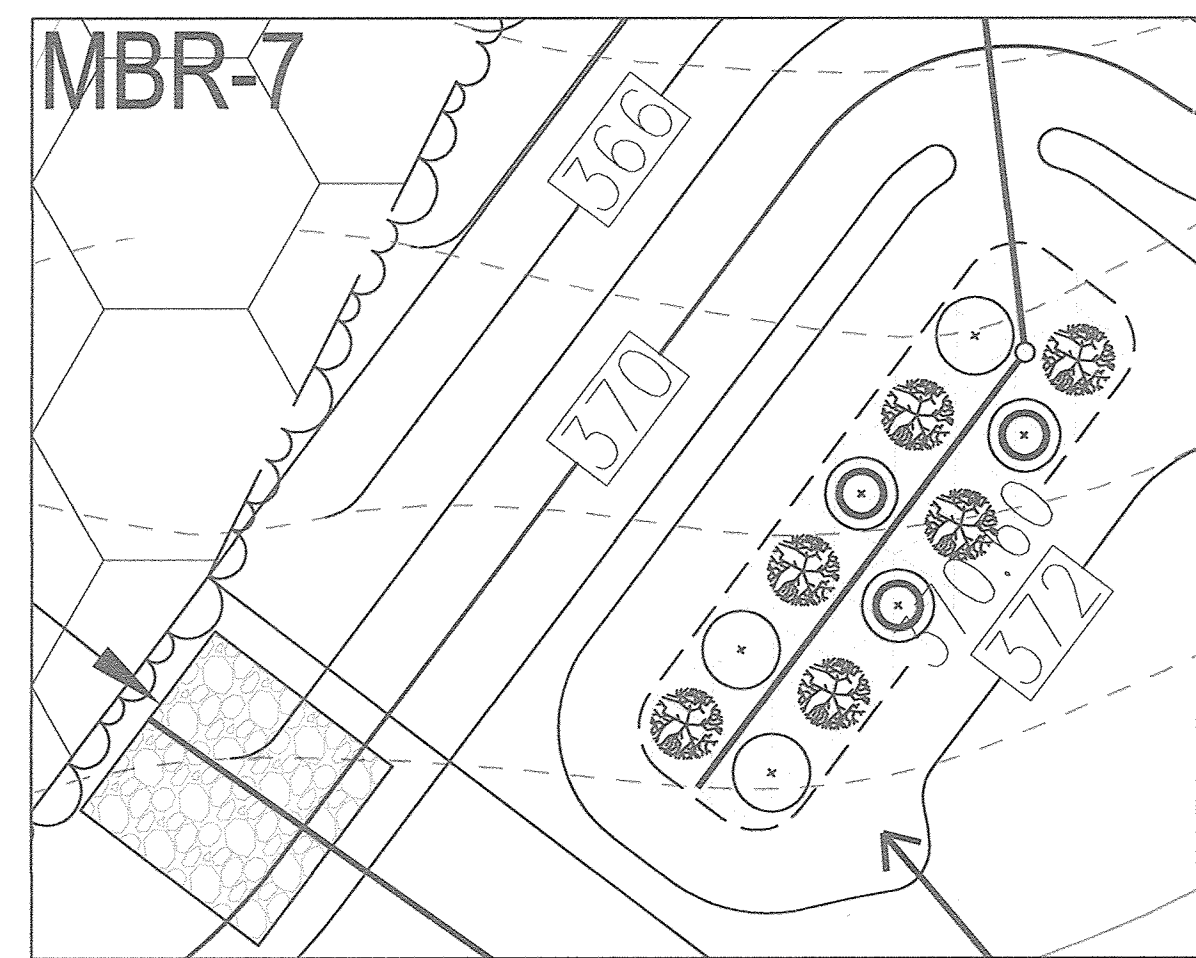
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-2 - PLANTING DETAIL (772 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
7	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
12	ILEX GLABRA INKBERRY	3 GALLON	CONT
12	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

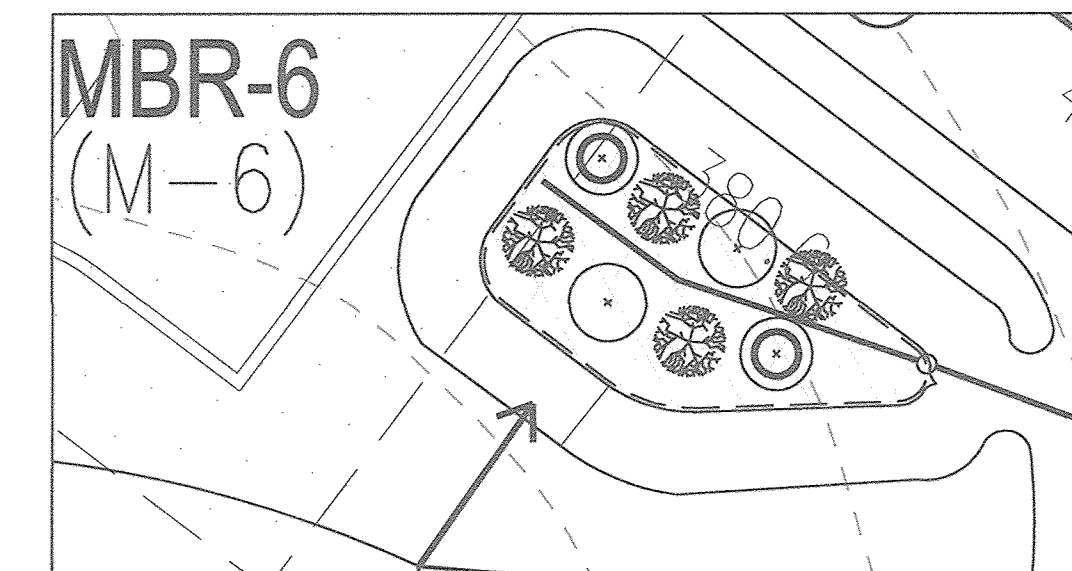
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-7 - PLANTING DETAIL (324 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
3	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
3	ILEX GLABRA INKBERRY	3 GALLON	CONT
6	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

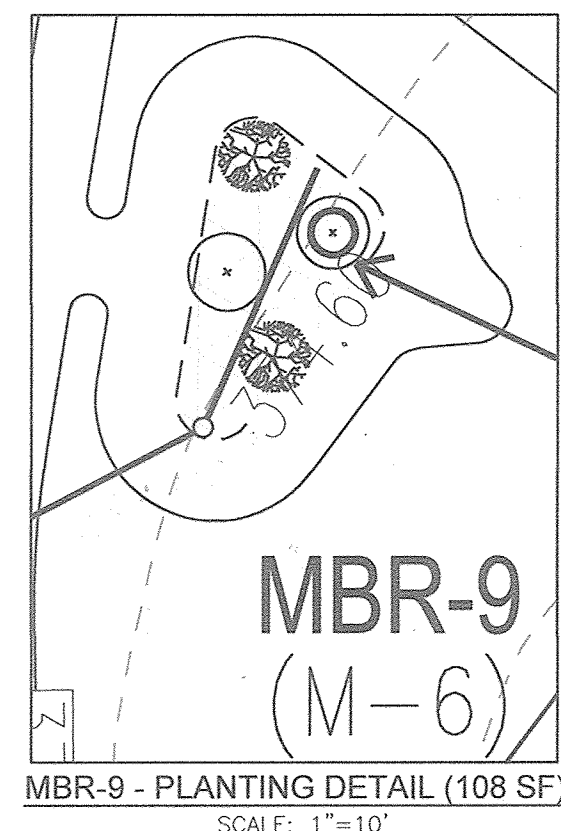
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-6 - PLANTING DETAIL (198 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
2	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

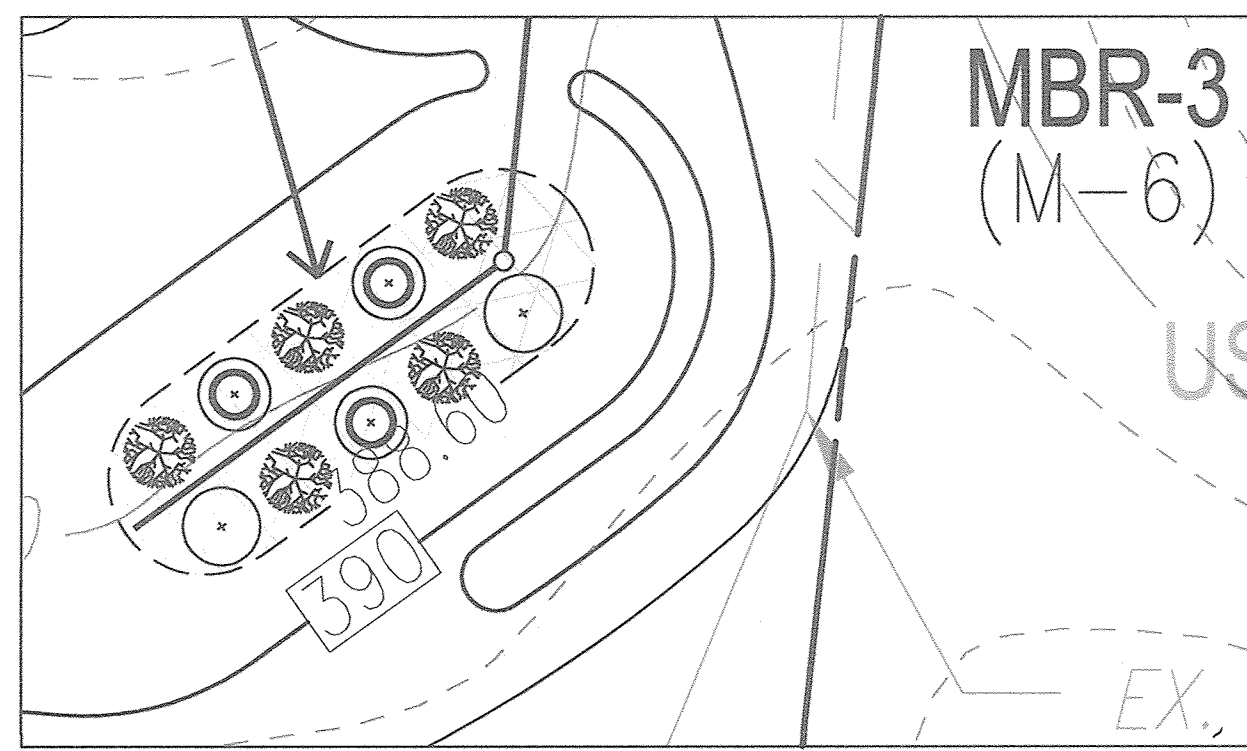
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-9 - PLANTING DETAIL (108 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
1	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
1	ILEX GLABRA INKBERRY	3 GALLON	CONT
2	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

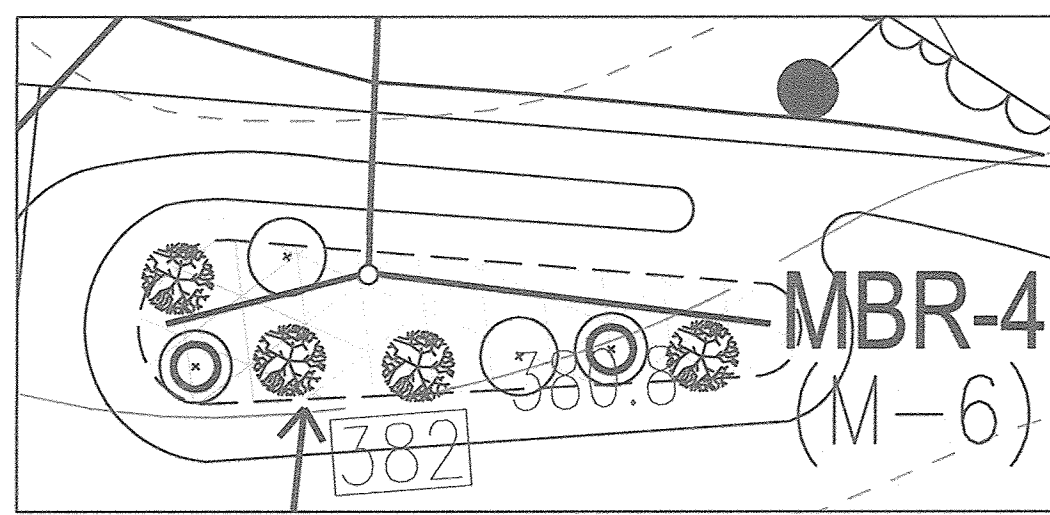
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-3 - PLANTING DETAIL (267 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
3	ILEX GLABRA INKBERRY	3 GALLON	CONT
5	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

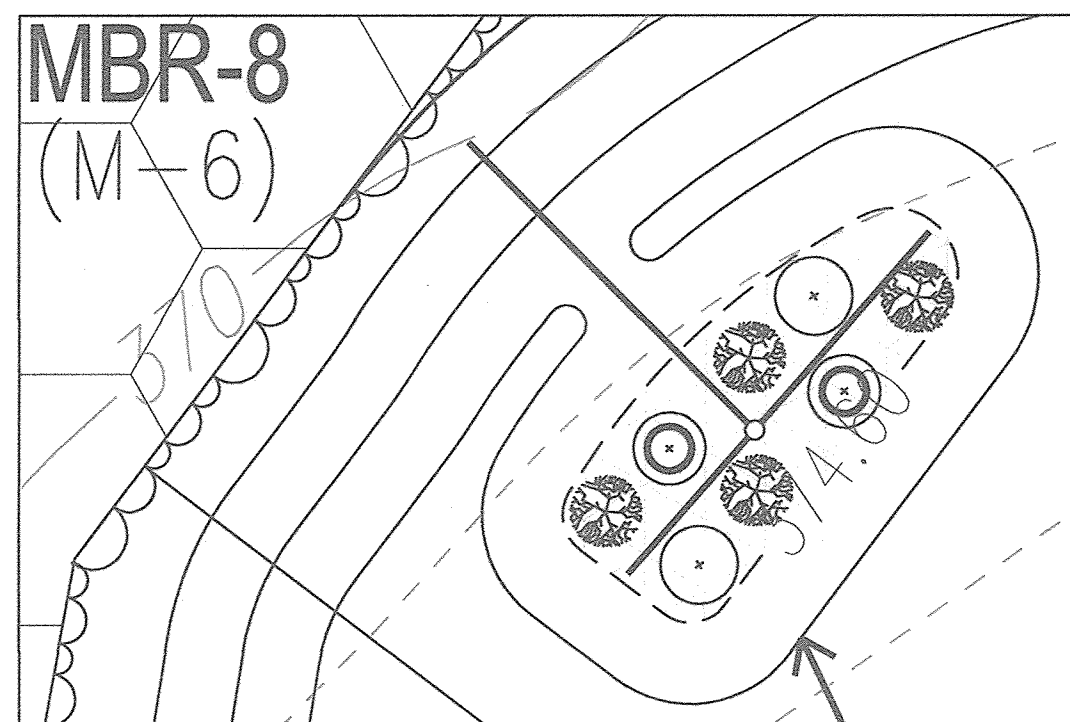
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-4 - PLANTING DETAIL (222 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
2	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

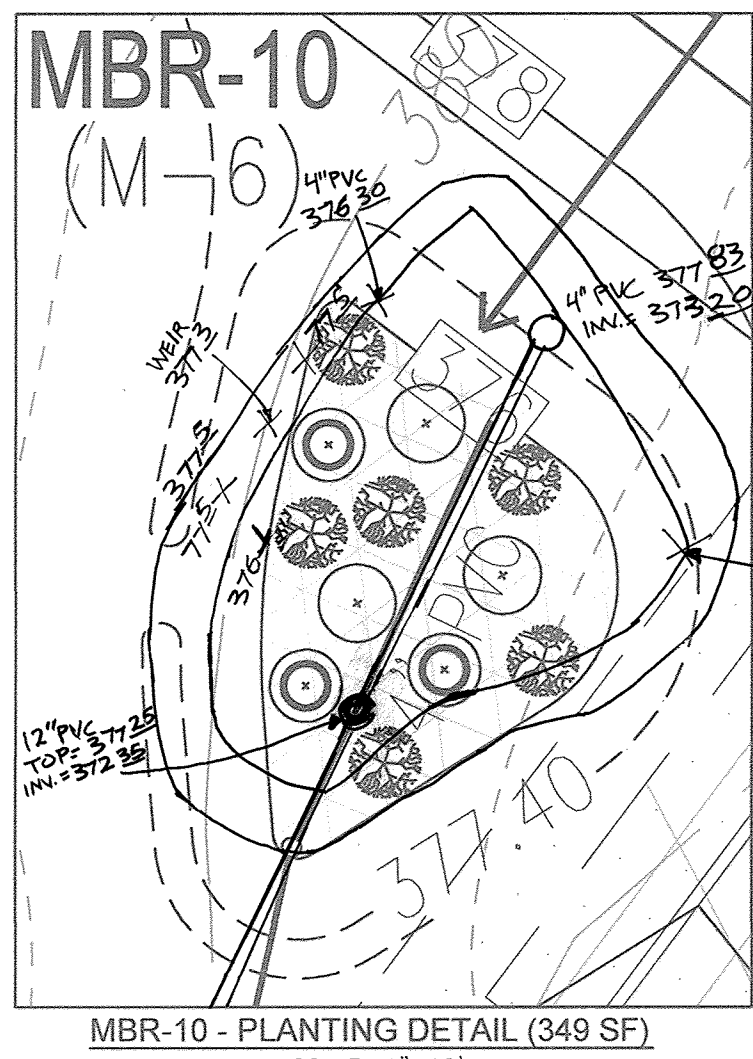
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-8 - PLANTING DETAIL (216 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
2	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
2	ILEX GLABRA INKBERRY	3 GALLON	CONT
4	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

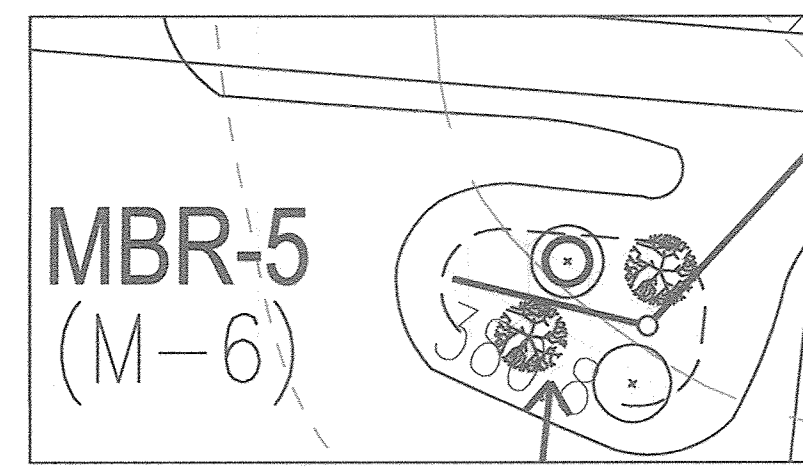
SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



MBR-10 - PLANTING DETAIL (349 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
3	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
3	ILEX GLABRA INKBERRY	3 GALLON	CONT
6	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED



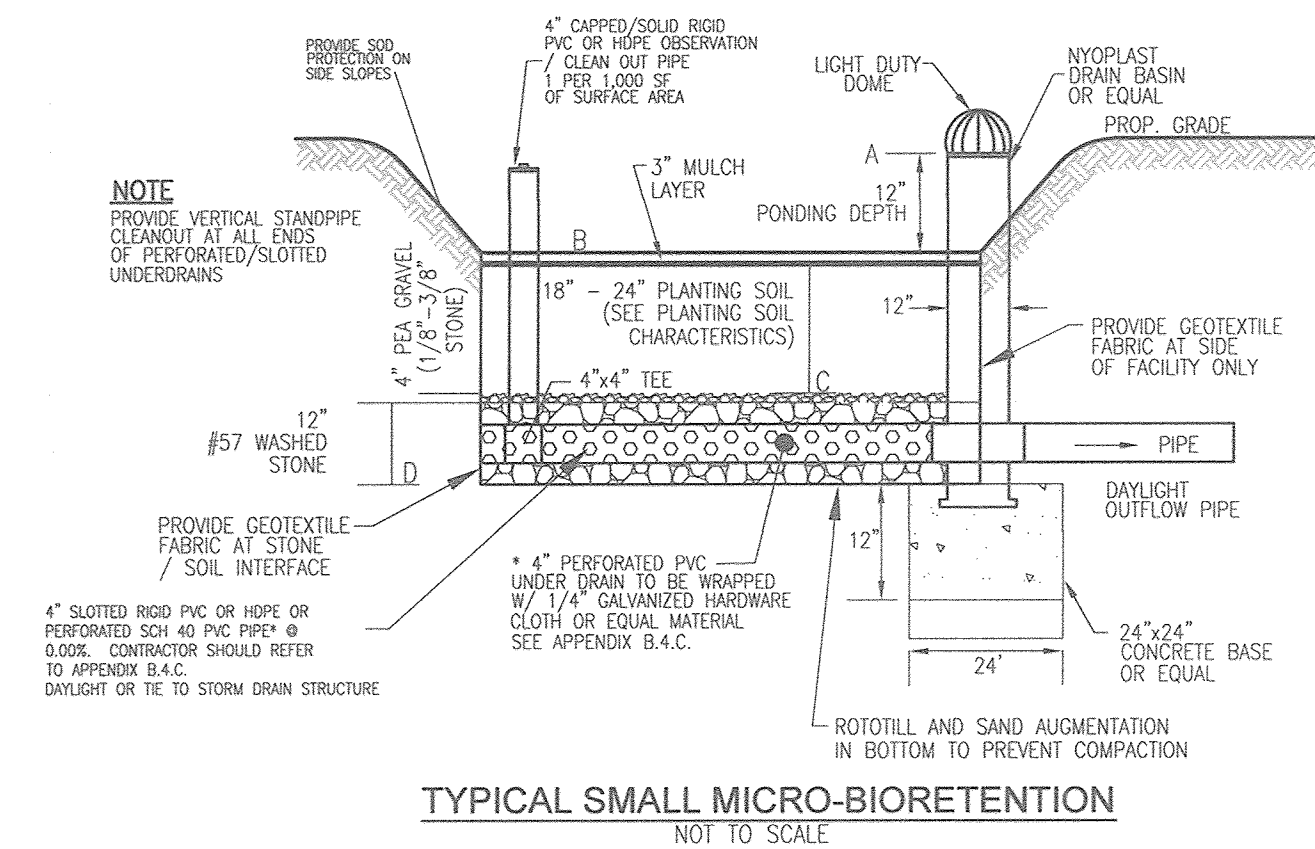
MBR-5 - PLANTING DETAIL (94 SF)
SCALE: 1"=10'

QTY	BOTANICAL NAME/COMMON NAME	SIZE	REMARKS
1	LINDERA BENZOIN SPICEBUSH	5 GALLON	CONT
1	ILEX GLABRA INKBERRY	3 GALLON	CONT
2	VIBURNUM TRILOBUM AMERICAN HIGHBUSH CRANBERRY	3 GALLON	CONT

SF X 75% X .0229 STEMS PER SQUARE FOOT = PLANTS REQUIRED

MBR FACILITY #	ESD WSEL A	TOP MULCH B	BOTTOM PLANT SOIL C	INV STONE D	INV STONE 6" PVC E	APPROX DIM
DRIVEWAY 1	365.60	364.60	362.35	361.00	361.25	SEE PLAN
DRIVEWAY 2	381.60	380.60	378.35	377.00	377.25	SEE PLAN
3	389.60	388.60	386.35	385.00	385.25	SEE PLAN
4	381.80	380.80	378.55	377.22	377.55	SEE PLAN
5	381.80	380.80	378.55	377.22	377.55	SEE PLAN
6	381.60	380.60	378.35	377.02	377.25	SEE PLAN
7	375.60	374.60	372.35	371.02	371.25	SEE PLAN
8	375.60	374.60	372.35	371.02	371.25	SEE PLAN
9	375.60	374.60	372.35	371.02	371.25	SEE PLAN
DRIVEWAY 10	377.60	376.60	374.35	373.02	373.25	SEE PLAN

- NOTE:**
- MICRO-BIORETENTION FACILITIES MBR-1, MBR-2, AND MBR-10 MANAGE USE-IN-COMMON DRIVEWAY RUNOFF AND ARE TO BE CONSTRUCTED UNDER THIS PLAN.
 - MICRO-BIORETENTION FACILITIES MBR-3, MBR-4, MBR-5, MBR-6, MBR-7, MBR-8, AND MBR-9 ARE PRIVATE ON-LOT FACILITIES AND SHALL BE CONSTRUCTED WITH THE DEVELOPMENT OF THEIR RESPECTIVE LOTS UNDER A FUTURE SITE DEVELOPMENT PLAN.



TYPICAL SMALL MICRO-BIORETENTION
NOT TO SCALE

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

- MATERIAL SPECIFICATIONS**
THE ALLOWABLE MATERIALS TO BE USED IN THESE PRACTICES ARE DETAILED IN TABLE B.4.1.
- FILTERING MEDIA OR PLANTING SOIL**
THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DUMPED WITHIN THE MICRO-BIORETENTION PRACTICE THAT MAY BE HARMFUL TO PLANT GROWTH, OR PROVIDE AN OBSTACLE 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 15.08.01.02.
THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:
 - SOIL COMPONENT - LOAMY SAND OR SANDY LOAM (USDA SOIL TEXTURAL CLASSIFICATION)
 - ORGANIC CONTENT - MINIMUM 10% BY DRY WEIGHT (ASTM D 2974). IN GENERAL, THIS CAN BE MET WITH A MIXTURE OF LOAMY SAND (60%-65%) AND COMPOST (35% TO 40%) OR SANDY LOAM (LOESS, LOESSY SAND, LOESS) 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.

- COMPACTION**
IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF BIORETENTION PRACTICES AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE EXCAVATION HOES TO REMOVE ORIGINAL SOIL. IF PRACTICES ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACK OR MARSH TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TYRE 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 REFRACURE THE SOIL PROFILE THROUGHOUT THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.
ROTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE OPTIONAL SAND LAYER. PUMP ANY PONDED WATER BEFORE PREPARING (ROTILLING) BASE.
WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.
WHEN BACKFILLING THE BIORETENTION FACILITY PLACE SOIL IN LOTS 12" TO 18" DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH MARSH TRACKS.
- PLANT MATERIAL**
RECOMMENDED PLANT MATERIAL FOR MICRO-BIORETENTION PRACTICES CAN BE FOUND IN APPENDIX A, SECTION A.2.3.

- PLANT INSTALLATION**
COMPOST IS A BETTER ORGANIC MATERIAL SOURCE, IS LESS LIKELY TO FLOAT, AND SHOULD BE PLACED IN THE INVERT AND OTHER LOW AREAS. MULCH SHOULD BE PLACED IN SURROUNDING TO A UNIFORM THICKNESS OF 2" TO 3". SHREDDED OR CHIPPED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. PINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AERATED (6 TO 12 MONTHS) FOR ACCEPTANCE.
ROOTS OF THE PLANT MATERIAL SHALL BE KEPT MOST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 1/8TH OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS. THOROUGHLY WATER GROUND BED COVER AFTER INSTALLATION. TREES SHALL BE BRACED HIGH 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 PLOWS 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, DEFECTS, OR AT A MINIMUM, IMPEDES THIS GOAL. ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTILL UREA FERTILIZER AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET.
- UNDERDRAINS**
UNDERDRAINS SHOULD MEET THE FOLLOWING CRITERIA:
 - PIPE - SHOULD BE 4" TO 6" DIAMETER, SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F758, TYPE PS 28, OR AASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PVC (E.G. PVC OF HOPE).
 - 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 4A) GALVANIZED HARDWARE CLOTH.
 - GRAVEL - THE GRAVEL LAYER (NO. 57 STONE) SHOULD BE AT LEAST 12" THICK ABOVE AND BELOW THE UNDERDRAIN.
 - THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.
 - A 18" DIA. NON-PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQUARE FEET) TO PROVIDE A CLEAN-OUT PORT AND MONITOR PERFORMANCE OF THE FILTER.
 - A 4" LAYER OF PEA GRAVEL (1/4" 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".

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

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

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

CONTRACTOR
TRINITY HOMES MARY LAND, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

OWNER
ESTATES AT RIVER HILL, LLC
3675 PARK AVE., SUITE 301
ELLCOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

**FINAL PLAN
MICRO-BIORETENTION
PLANTING SPECIFICATIONS, NOTES & DETAILS**

**THE PRESERVE AT RIVER HILL
LOTS 1-8 AND OPEN SPACE LOTS 9 - 12**
PARCEL 64 (L 2326 / F 517)
6281 TROTTER ROAD
CLARKSVILLE, MD 21029

TAX MAP: 35 GRID: 14
5TH ELECTION DISTRICT
DTP REF: SEE GENERAL NOTE #4

PARCELS: 64
ZONED: R-ED
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERS & SURVEYORS - PLANNERS**
8407 MAIN STREET
ELLCOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.8961

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18193, EXPIRATION DATE: 09-27-2016

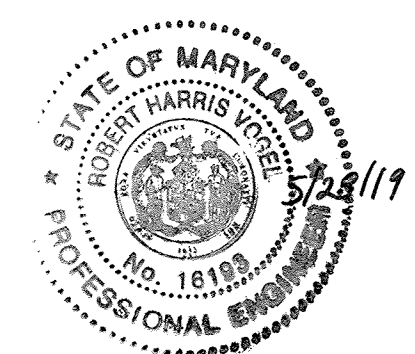
DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-38

8 SHEET OF 11

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 12-7-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION

[Signature] 12-2-15
CHIEF, DIVISION OF LAND DEVELOPMENT



AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLIES WITH THE APPROVED PLANS AND SPECIFICATIONS.

[Signature] 12/19/15
DATE

Appendix B.4 Construction Specifications for Environmental Site Design Practices

Material	Specification	Notes
Flintless	see Appendix A, Table A.4	Flintless are site-specific
Fill (2" or 4" deep)	loamy sand (60-65%) & coarse sand (35-40%)	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)	
Mulch	shredded hardwood	aged 6 months, minimum; no pine or wood chips
Per gravel diaphragm	per ASTM D-448	NO. 57 OR NO. 9 (1/8" TO 3/8")
Curbs	conventional stone, washed cobble	size: 2" to 3"
Geotextile	AASHTO M-43	FE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 9 AGGREGATE (25% & COMPACT 10%)
Underdrain piping	4" rigid polypropylene or AASHTO M-278	4" to 6" rigid polypropylene or AASHTO M-278
Perforated pipe (if required)	MSHA Min. No. 3, P ₁ = 3000 psi @ 28 days, normal weight, all materials, conforming to ASTM A814-04	slotted or perforated pipe, 3/8" port, @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe, not necessary
Sand	AASHTO M-64 or ASTM-C-133	0.075" @ 0.075"

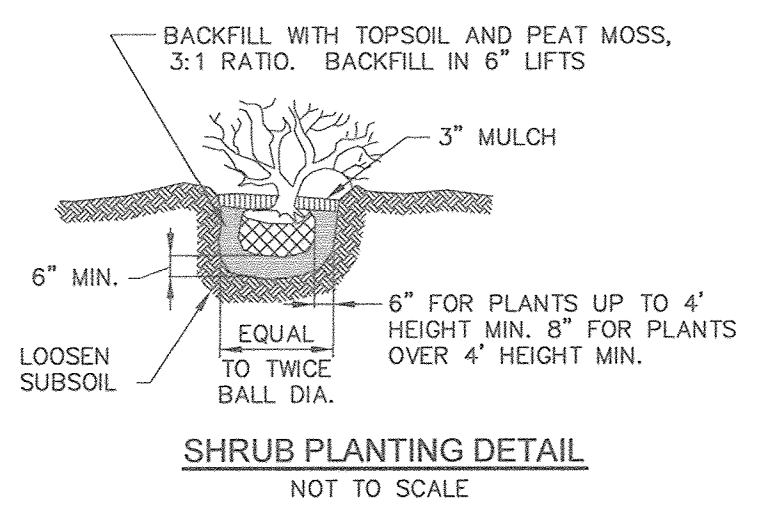
SCHEDULE A: PERIMETER LANDSCAPE EDGE						
CATEGORY	ADJACENT TO PERIMETER PROPERTIES AND ROADWAYS			SCENIC ROAD SCREEN	SPECIMEN TREE MITIGATION	TOTAL
	1	2	3***			
PERIMETER/FRONTAGE DESIGNATION	A	A	3***	INTERNAL LANDSCAPE	INTERNAL LANDSCAPE	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	523'	479'	981'			
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	NO	YES 359'	YES 981'			
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET DESCRIBE BELOW IF NEEDED)	YES 211'	NO	NO			
NUMBER OF PLANTS REQUIRED (IF REMAINING)	312*	120*		3	12	22
SHADE TREES	1:60	5				
EVERGREEN TREES						
SHRUBS						
NUMBER OF PLANTS PROVIDED	5			3	12	20
SHADE TREES						
EVERGREEN TREES						
OTHER TREES (2:1 SUBSTITUTION)	40*					80*
SHRUBS (10:1 SUBSTITUTION)						
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED						

NOTE:
 * 40 SHRUBS ARE TO BE PROVIDED BETWEEN THE PROPOSED USE-IN-COMMON DRIVEWAY FOR LOTS 1-3 AND THE PROPOSED PRIVACY FENCE LOCATED ALONG THE SOUTHERN PROPERTY LINE.
 ** 2 EVERGREENS ARE BEING SUBSTITUTED FOR 2 SHADE TREES AND 4 EXTRA EVERGREENS ARE BEING PROVIDED FOR EXTRA SCREENING ALONG PERIMETER 2.
 *** NO PERIMETER PLANTINGS ARE BEING PROVIDED ALONG TROTTER ROAD DUE TO THE FACT THAT NO HOUSES FRONT ON THE ROAD, THERE ARE NO PROPOSED ROAD IMPROVEMENTS, AND FOREST CONSERVATION IS BEING PROVIDED ALONG THIS ENTIRE PERIMETER.

LANDSCAPE SCHEDULE					
SYMBOL	KEY	QUAN.	BOTANICAL NAME	SIZE	REMARKS
+	AR	4	ACER RUBRUM 'RED SUNSET' RED SUNSET RED MAPLE	2 1/2"-3" CAL.	B & B
○	QP	4	QUERCUS PHELLOS WILLOW OAK	2 1/2"-3" CAL.	B & B
☼	CL	8	CUPPRESSOCYPARIS LEYLANDI LEYLAND CYPRESS	5'-6" HEIGHT	B & B
⊗	-	40	AZALEA 'HINO CRIMSON' HINO CRIMSON AZALEA	18"-24" SPREAD	B & B
⊙	CK	12	CLADRASTIS KENTUCKEA (LUTEA) YELLOWWOOD	2 1/2"-3" CAL.	B & B

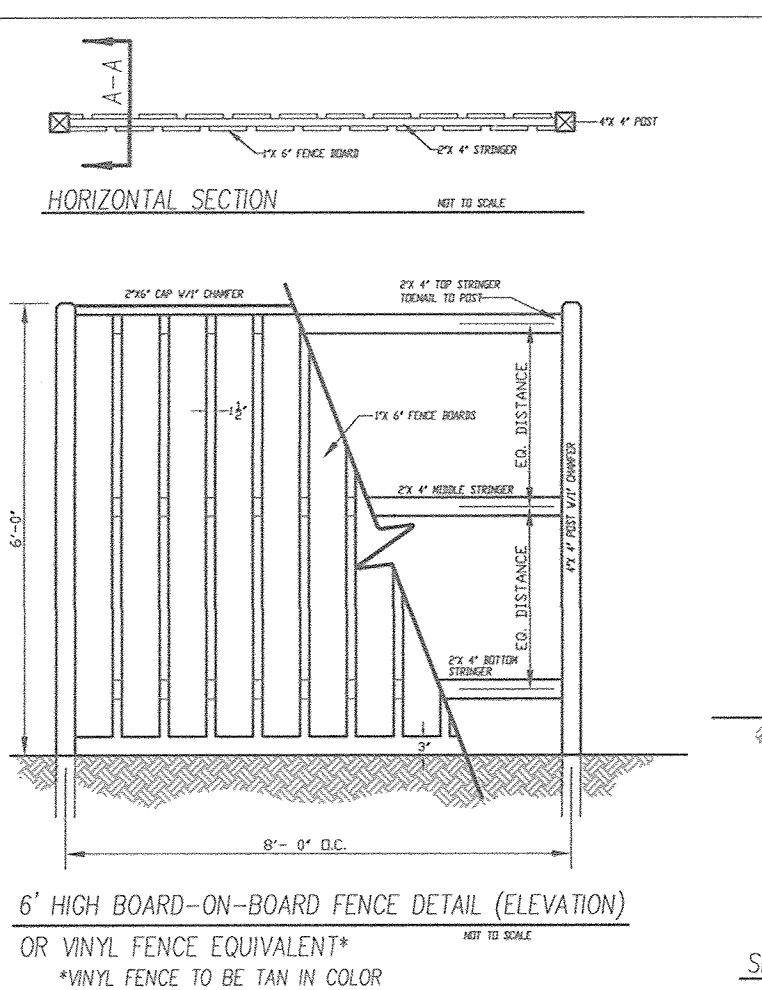
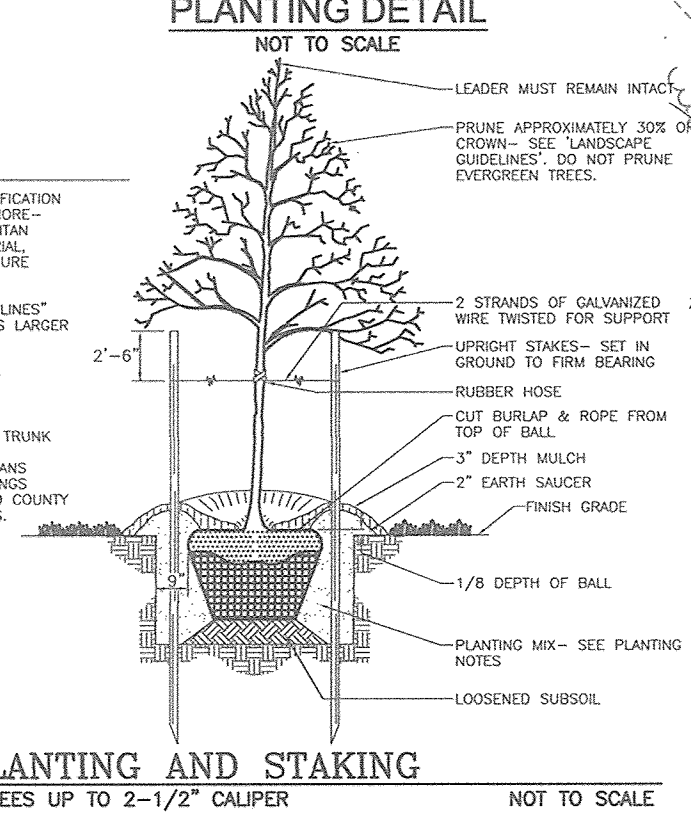
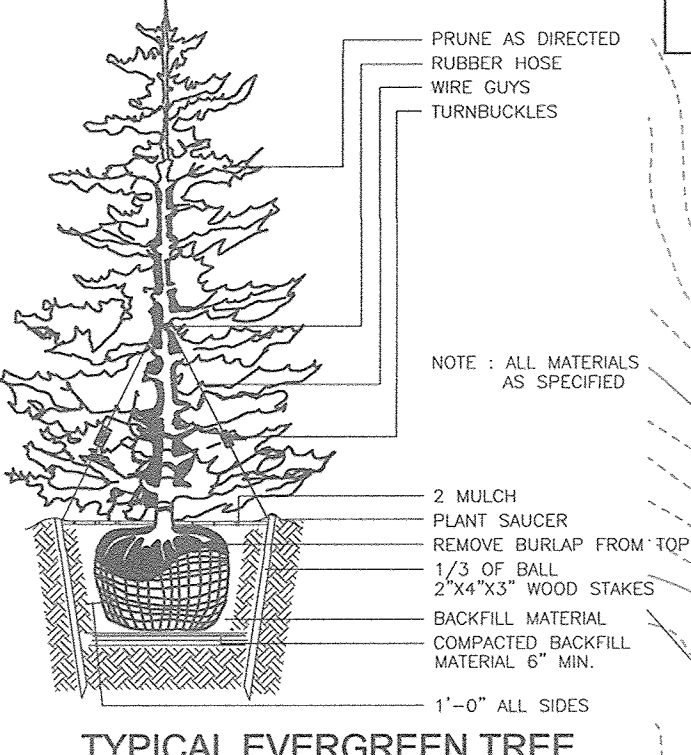
LANDSCAPE SCHEDULE NOTE:
 1. ALL PLANT MATERIALS SHALL BE FULL AND HEAVY, BE WELL FORMED AND SYMMETRICAL, CONFORM TO THE MOST CURRENT ANN SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH BEST PRACTICES.
 2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO DIGGING.
 3. FINAL LOCATION 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.

TRASH PAD LANDSCAPING				
SYMBOL	QTY.	DESCRIPTION	SIZE	REMARKS
⊙	5	DWARF JAPANESE YEW	3'-4" HT	B & B



LANDSCAPE NOTES
 1. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
 2. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
 3. SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD, AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIBER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.
 4. PLANTINGS SHOWN HEREON ARE THE RESPONSIBILITY OF THE DEVELOPER TO INSTALL DURING THE CONSTRUCTION OF THE FINAL PLAN.

GENERAL NOTE:
 1. LANDSCAPING FOR LOTS 1-12 IS PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. A FINANCIAL SURETY IN THE AMOUNT OF \$10,660.00 FOR THE REQUIRED 20 SHADE TREES, 8 EVERGREEN TREES, 45 SHRUBS (40 PERIMETER, 1 5' TRASH PAD), AND 211 LINEAR FEET OF FENCING SHALL BE POSTED WITH THE DEVELOPER AGREEMENT FOR THIS PLAN.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 [Signature] 12-7-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 [Signature] 12-8-15
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DEVELOPER'S/BUILDER'S CERTIFICATE
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXCERPT ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
 [Signature] 11-18-15
 SIGNATURE OF DEVELOPER DATE



LEGEND:

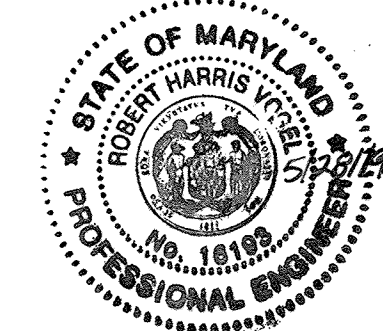
[Symbol]	PROPERTY LINE
[Symbol]	RIGHT-OF-WAY LINE
[Symbol]	ADJACENT PROPERTY LINE
[Symbol]	EXISTING CURB AND GUTTER
[Symbol]	EXISTING EDGE OF PAVING
[Symbol]	EXISTING WETLANDS
[Symbol]	EXISTING WETLAND BUFFER
[Symbol]	EXISTING STREAM BUFFER
[Symbol]	EXISTING STREAM
[Symbol]	EXISTING UTILITY POLE
[Symbol]	EXISTING LIGHT POLE
[Symbol]	EXISTING MAILBOX
[Symbol]	EXISTING SIGN
[Symbol]	EXISTING SANITARY MANHOLE
[Symbol]	EXISTING SANITARY LINE
[Symbol]	EXISTING CLEANOUT
[Symbol]	EXISTING FIRE HYDRANT
[Symbol]	EXISTING WATER LINE
[Symbol]	EXISTING TRENCH
[Symbol]	EXISTING TREES
[Symbol]	EXISTING WOOD FENCE
[Symbol]	EXISTING METAL FENCE
[Symbol]	PROPOSED TRENCH
[Symbol]	PRIVATE USE-IN-COMMON ACCESS EASEMENT
[Symbol]	PROP. FOREST CONSERVATION EASEMENT (RETENTION)
[Symbol]	PROP. VARIABLE WIDTH PUBLIC SEWER, WATER, & UTILITY EASEMENT
[Symbol]	PROP. 10' PRIVATE DRAINAGE & UTILITY EASEMENT
[Symbol]	EXISTING 10' CONTOUR
[Symbol]	EXISTING 2' CONTOUR
[Symbol]	PROPOSED 10' CONTOUR
[Symbol]	PROPOSED 2' CONTOUR
[Symbol]	PROPOSED SPOT ELEVATION
[Symbol]	EXISTING STEEP SLOPES (25% SLOPES OR GREATER)
[Symbol]	EXISTING MODERATE SLOPES (15% TO 24.99% SLOPES)
[Symbol]	PROPOSED MICRO-BIORETENTION FACILITY (M-6)
[Symbol]	PROPOSED DRY WELL (M-5)
[Symbol]	PROPOSED TREE PROTECTION FENCE SEE DETAIL SHEET 11
[Symbol]	EXISTING SPECIMEN TREE TO BE REMOVED

NO.	REVISION	DATE
1	REVISE DRIVEWAY CULVERT FROM 12" TO 15"; RUN MBR-2 AND MBR-10 UNDER DRAINS TO RIORDAN CHANNEL ALONG TROTTER ROAD	2/29/16

FINAL PLAN
LANDSCAPE PLAN
AND NOTES & DETAILS
THE PRESERVE AT RIVER HILL
 LOTS 1-8 AND OPEN SPACE LOTS 9-12
 PARCEL 64 (L. 2326 / F. 517)
 8281 TROTTER ROAD
 CLARKSVILLE, MD 21029
 TAX MAP: 35 GRID: 14
 5TH ELECTION DISTRICT
 DPZ REF'S: SEE GENERAL NOTE #4
 PARCELS: 64
 ZONED: R-ED
 HOWARD COUNTY, MARYLAND

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

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16183, EXPIRATION DATE: 09-27-2016.
 DESIGN BY: RHV
 DRAWN BY: JMR
 CHECKED BY: RHV
 DATE: OCTOBER 2015
 SCALE: AS SHOWN
 W.O. NO.: 13-38
 9 SHEET OF 11



AS-BUILT CERTIFICATION
 I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND COMPLY WITH THE APPROVED PLANS AND SPECIFICATIONS.
 [Signature] 12/9/15 5/28/19
 P.E. NAME P.E. # DATE

NO AS-BUILT INFORMATION ON THIS SHEET

AS-BUILT-DECEMBER 2015

HOWARD COUNTY
FOREST CONSERVATION WORKSHEET

ZONED R-12
NET TRACT AREA:
A. TOTAL TRACT AREA (PROJECT TOTAL) 5.67 AC.
B. AREA WITHIN 100 YEAR FLOODPLAIN 0.00 AC
C. AREA TO REMAIN IN AG. PRODUCTION 0.00 AC
D. NET TRACT AREA 4.96 AC *
* 5.67 ACRES - 0.71 ACRES TOP REMAIN AS TROTTER RD R/W

LAND USE CATEGORY
INPUT THE NUMBER "1" UNDER THE APPROPRIATE LAND USE ZONING, AND LIMIT TO ONLY ONE ENTRY. ZONED R-SC

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

E. AFFOREST THRESHOLD 20% X 4.96 = 0.74 AC
F. CONSERVATION THRESHOLD 25% X 4.96 = 0.99 AC

EXISTING FOREST COVER:
G. EXISTING FOREST COVER = 4.10 AC (FSO REPORT)
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD = 3.36 AC
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD = 3.11 AC

BREAK EVEN POINT:
(2 X I) + F = BREAK EVEN POINT (0 AC)

J. FOREST RETENTION WITH NO MITIGATION = 1.61 AC
K. CLEARING PERMITTED WITHOUT MITIGATION = 2.49 AC

PROPOSED FOREST CLEARING:
L. TOTAL AREA OF FOREST TO BE CLEARED = 1.78 AC
M. TOTAL AREA OF FOREST TO BE RETAINED = 2.32 AC - IN FOREST CONSERVATION EASEMENT

PLANTING REQUIREMENTS:
N. REFORESTATION FOR CLEARING ABOVE CONSERVATION THRESHOLD (L X 25) = 0.45 AC
O. REFORESTATION FOR CLEARING BELOW CONSERVATION THRESHOLD = 0.00 AC
P. CREDIT FOR RETENTION ABOVE CONSERVATION THRESHOLD (M-F) = 1.33 AC
R. TOTAL REFORESTATION REQUIRED (N+P-O) = 0.00 AC
S. TOTAL AFFORESTATION REQUIRED = 0.00 AC
T. TOTAL REFORESTATION AND AFFORESTATION REQUIRED = 0.00 AC

FOREST CONSERVATION:
FOREST CONSERVATION REQUIREMENTS AS SET FORTH IN SECTION 16.1202 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

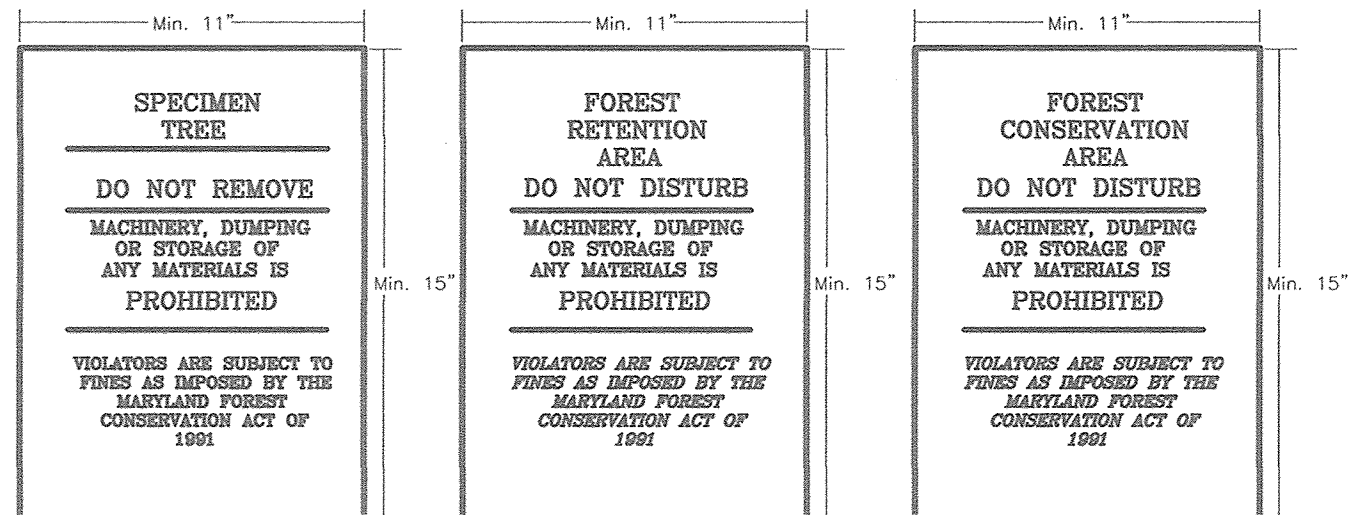
THE FOREST CONSERVATION OBLIGATION TO BE FULFILLED BY THE PLACEMENT OF 2.32 AC. INTO A RETENTION EASEMENT. NO SURETY IS REQUIRED.

CONSTRUCTION PERIOD PROTECTION AND MANAGEMENT NOTES FOR FOREST CONSERVATION

PRE-CONSTRUCTION PHASE:
1. FOR RETENTION AREAS: INSTALL BLAZE ORANGE FENCE, SUPER SILT FENCE, AND RETENTION SIGNS BEFORE CONSTRUCTION BEGINS.
2. FENCING SHALL BE MAINTAINED IN GOOD CONDITION AND PROMPTLY REPAIRED OR RESTORED AS THE SITUATION WARRANTS.
3. A QUALIFIED TREE CARE EXPERT SHALL DETERMINE IF ROOT PRUNING IS REQUIRED ALONG THE LIMIT OF DISTURBANCE. ROOT PRUNE TREES AS REQUIRED. WATER ANY ROOT-PRUNED TREES IMMEDIATELY AFTER ROOT-PRUNING AND MONITOR FOR SIGNS OF STRESS DURING CONSTRUCTION.

CONSTRUCTION PHASE:
1. NO DISTURBANCE OR DUMPING IS ALLOWED INSIDE THE TREE RETENTION AREA.
2. NO EQUIPMENT SHALL BE OPERATED INSIDE THE TREE RETENTION AREA INCLUDING TREE CANOPIES.
3. IN THE EVENT OF DROUGHT, THE PROTECTED TREES SHALL BE MONITORED FOR SIGNS OF STRESS AND WATERED AS NEEDED.

POST-CONSTRUCTION PHASE:
1. AT THE DIRECTION OF A QUALIFIED TREE CARE EXPERT, DAMAGES TO RETAINED TREES SHALL BE REPAIRED BY THE CONTRACTOR.
2. FENCE REMOVAL AND STABILIZATION SHALL BE AS PER THE SEDIMENT AND EROSION CONTROL PLAN.
3. DO NOT REMOVE SIGNS.



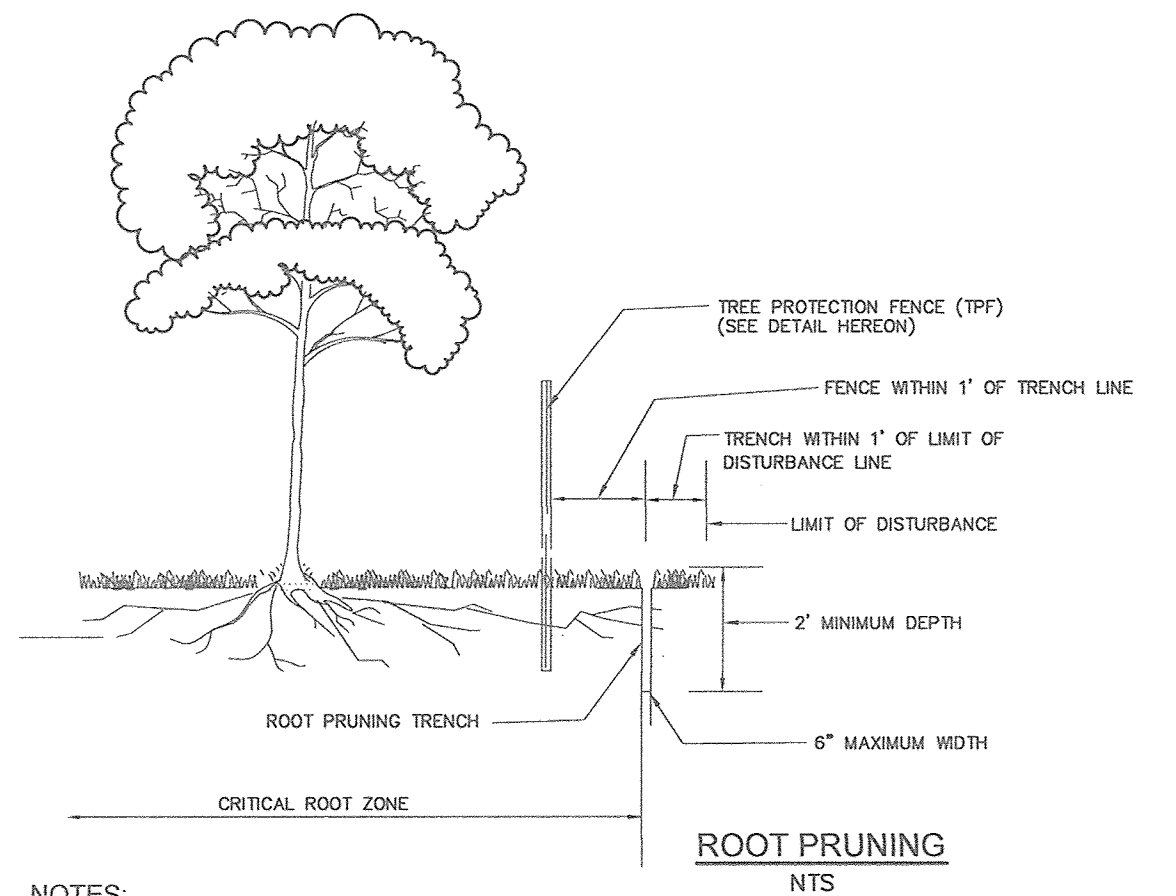
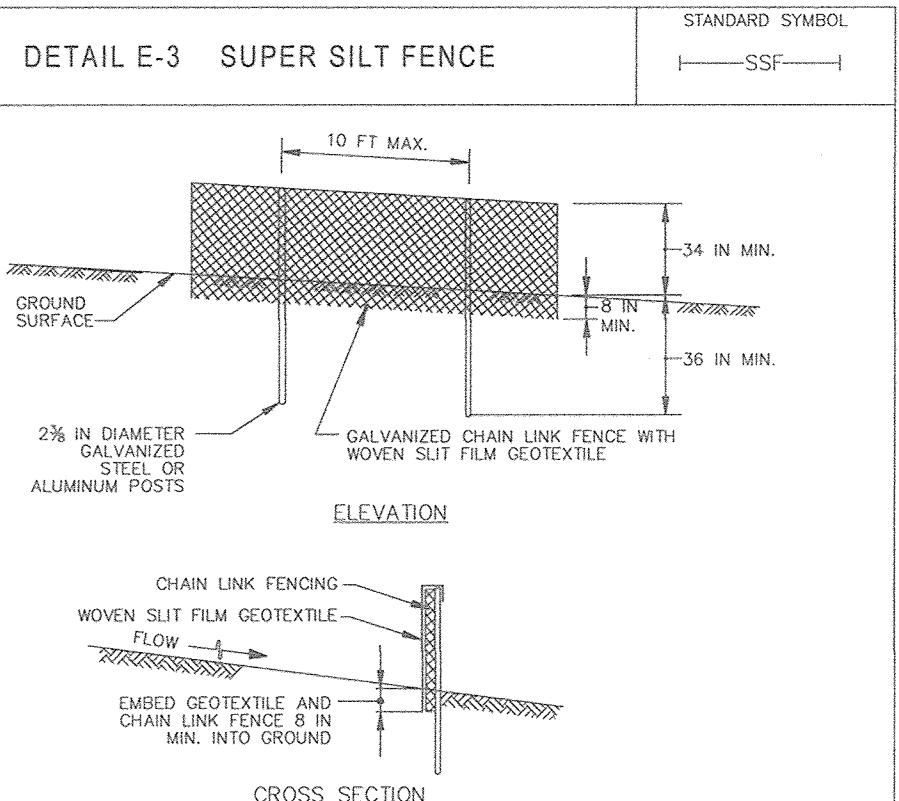
NOTE:
1. BOTTOM OF SIGNS TO BE HIGHER THAN TOP OF TREE PROTECTION FENCE.
2. SIGNS TO BE PLACED APPROXIMATELY 50-100 FEET APART, CONDITIONS ON SITE AFFECTING VISIBILITY MAY WARRANT PLACING SIGNS CLOSER OR FARTHER APART. WHERE SIGNS ARE TO BE PLACED AT THE REAR OF PROPOSED LOTS, SPACING SHALL BE APPROX. 25-30 FEET.
3. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED.
4. ALL FOREST CONSERVATION SIGNAGE SHALL BE IN PLACE FOR PERPETUITY.
5. SIGN LOCATION SYMBOL = ●

FOREST CONSERVATION AREA SIGNS

SEQUENCE OF CONSTRUCTION-FOREST CONSERVATION

- PRECONSTRUCTION MEETING /SITE WALK WITH CONTRACTORS AND OTHER RESPONSIBLE PARTIES TO DEFINE PROTECTION MEASURES TO BE UTILIZED AND TO POINT OUT PARTICULAR TREES TO BE SAVED.
-SPECIMEN TREE #4 #7, #11 AND #12 ARE TO BE SAVED.
- STAKE OUT LIMITS OF DISTURBANCE AND TREE PROTECTION FENCING LOCATIONS (TPF - SEE DETAIL THIS SHEET).
-SPECIMEN TREE #4, #7, #11 AND #12 SHALL BE SURROUNDED WITH (TPF - SEE DETAIL THIS SHEET).
- INSTALL TREE PROTECTION FENCING (TPF - SEE DETAIL THIS SHEET); FENCING TO BE INSPECTED BY THE PROJECT ENGINEER OR THE PROJECT ECOLOGIST AND HOWARD COUNTY PLANNING AND ZONING.
-SPECIMEN TREE #4 IS INSIDE THE LIMITS OF DISTURBANCE.
-SPECIMEN TREE #7, #11 AND #12 ARE OUTSIDE OF THE LIMIT OF DISTURBANCE.
-SPECIMEN TREE #7, #11 AND #12 MAY REQUIRE ROOT PRUNING TO UTILITY CONSTRUCTION. CONTACT THE PROJECT ECOLOGIST.
- PROCEED WITH TREE REMOVAL AND SITE IMPROVEMENTS AS PER APPROVED SEDIMENT CONTROL PLAN - TO BE INSPECTED BY HOWARD COUNTY PLANNING AND ZONING.
- TEMPORARY TREE PROTECTION DEVICES (TPF - SEE DETAIL THIS SHEET) SHALL BE REMOVED AFTER ALL FINISHED GRADING AND UTILITY CONSTRUCTION HAS OCCURRED AND WITH APPROVAL FROM THE HOWARD COUNTY OFFICE OF PLANNING AND ZONING.

TYPICAL TREE PROTECTION FENCE (TPF) DETAIL



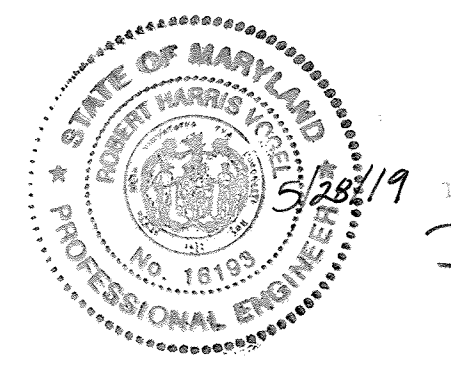
NOTES:
1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TRENCHING.
3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.
ST-4 - PROVIDE TREE PROTECTION FENCING PRIOR TO ANY GRADING OPERATIONS.
ST-11 - PROVIDE TREE PROTECTION FENCING AND CARRY OUT REQUIRED ROOT PRUNING PRIOR TO ANY GRADING OPERATIONS AND INSTALLATION OF UTILITIES.

Proposed Forest Clearing Justification Note
The site contains approximately 4.10 acres of existing woods and there is approximately 1.78 acres of woods to be cleared in order to accommodate 8 proposed single family detached homes and the use-in-common driveway network. The development envelope was established by utilizing the previously cleared areas and avoiding the other environmental resources (steep slopes, wetlands and streams) to the greatest extent possible. There are six tulip poplar (specimen trees) to be removed and ten specimen trees to be retained (including a white oak). The tulip poplars are not considered to be a high value tree. In addition, the development area was designed to be buffered from Trotter Road (scenic road) to the greatest extent possible by the retention of existing trees.

The lots and driveways were designed to keep the development envelope as compact as possible. The outfall for the public sewer is also design to minimize clearing and avoid specimen trees. The use-in-common driveway/grades have been designed to minimize grading and to conform to the existing topography to the greatest extent possible.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
[Signature] 12-7-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION
[Signature] 12-8-15
CHIEF, DIVISION OF LAND DEVELOPMENT

FCP PLAN
PREPARED BY
[Signature] 11/16/15
JOHN CANOLES
DNR QUALIFIED PROFESSIONAL



AS-BUILT CERTIFICATION
I HEREBY CERTIFY, BY MY SEAL, THAT THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS.
[Signature] 16193 5/28/19
DATE

NO AS-BUILT INFORMATION ON THIS SHEET

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

OWNER: ESTATES AT RIVER HILL, LLC
3675 PARK AVE., SUITE 301
ELLICOTT CITY, MD 21043
(410) 480-0023

NO.	REVISION	DATE

FINAL PLAN
FOREST CONSERVATION
SITE NOTES AND DETAILS
THE PRESERVE AT RIVER HILL
LOTS 1-8 AND OPEN SPACE LOTS 9 - 12
PARCEL 64 (L. 2326 / F. 517)
8281 TROTTER ROAD
CLARKSVILLE, MD 21029
TAX MAP: 35 GRD: 14
5TH ELECTION DISTRICT
UTZ REG'S. SEE GENERAL NOTE #4
PARCELS: 64
ZONED: R-ED
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLICOTT CITY, MD 21043
TEL: 410.461.7666
FAX: 410.461.9461

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 08-27-2018.
DESIGN BY: RHV
DRAWN BY: JMR
CHECKED BY: RHV
DATE: OCTOBER 2015
SCALE: AS SHOWN
W.O. NO.: 13-38
11 SHEET OF 11

AS-BUILT - DECEMBER 2018