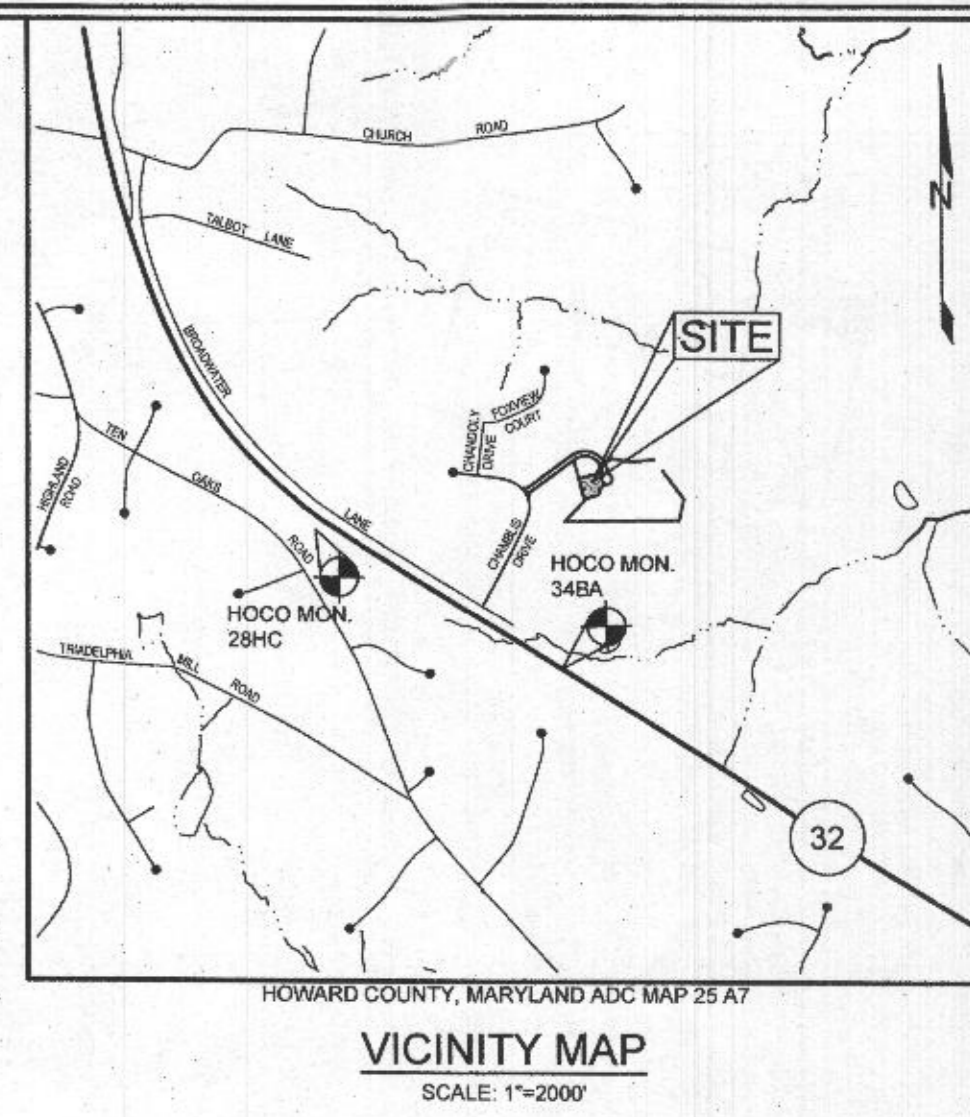
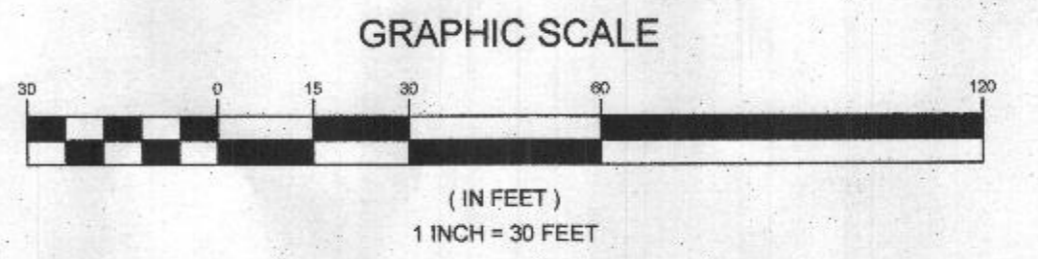
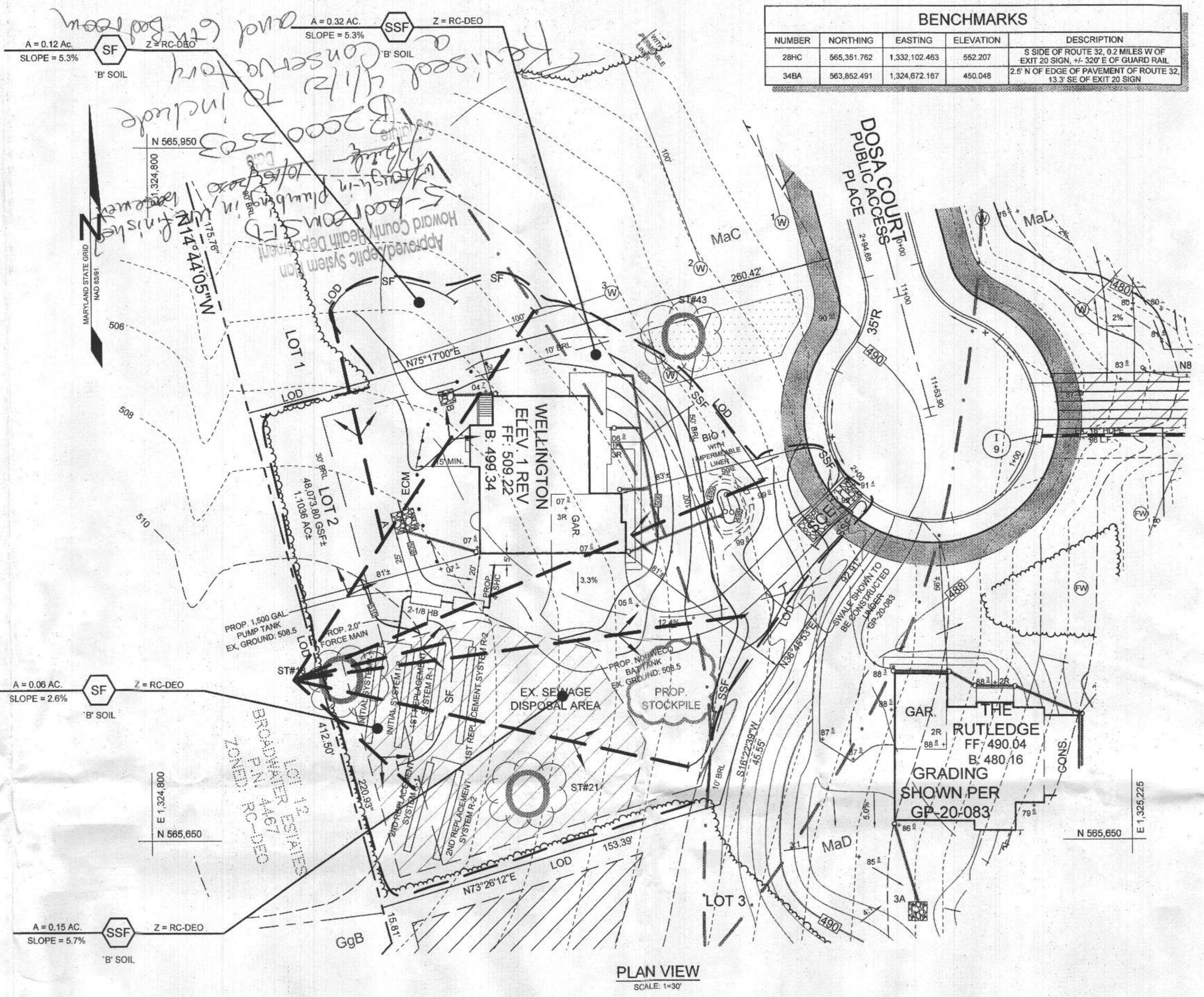
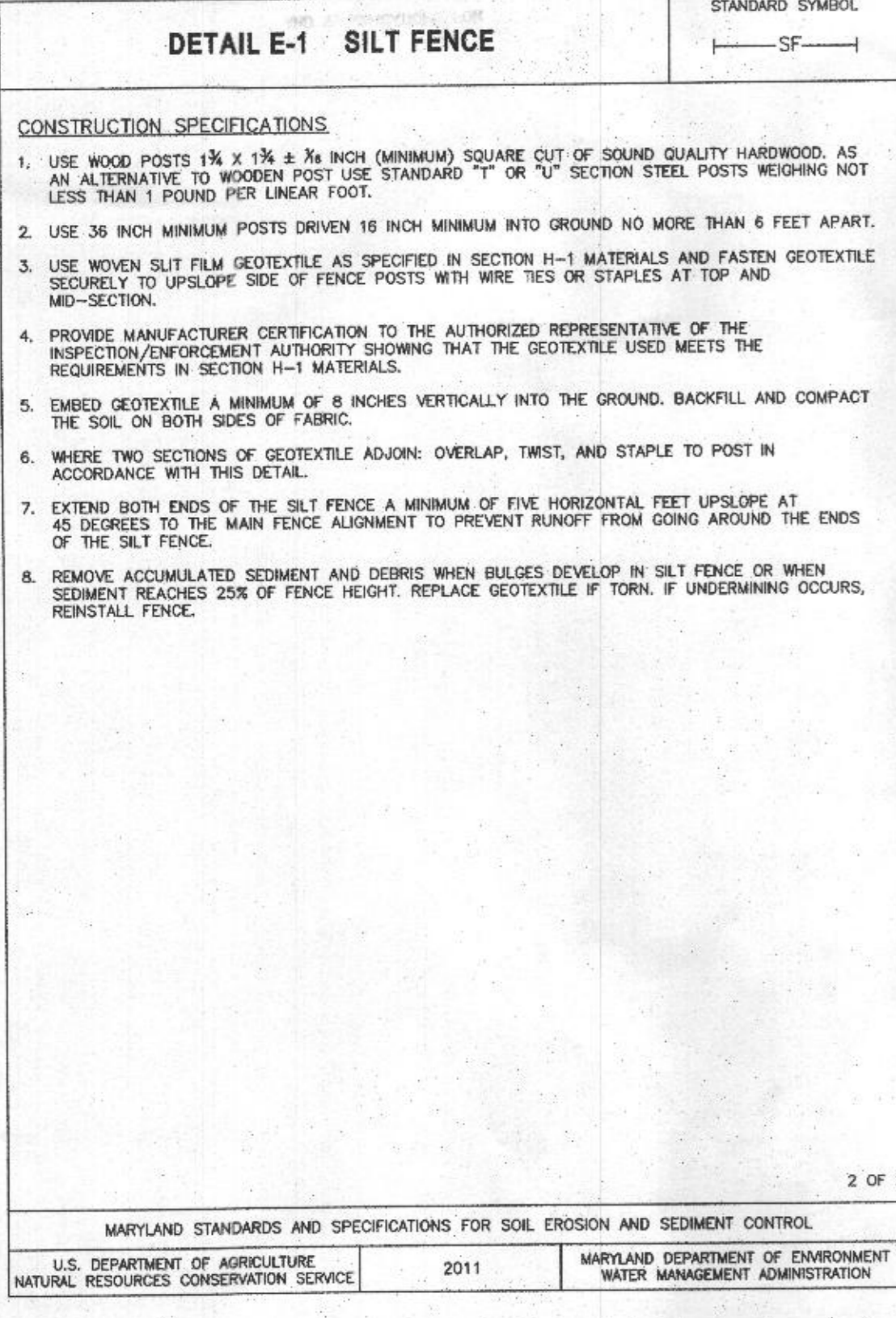
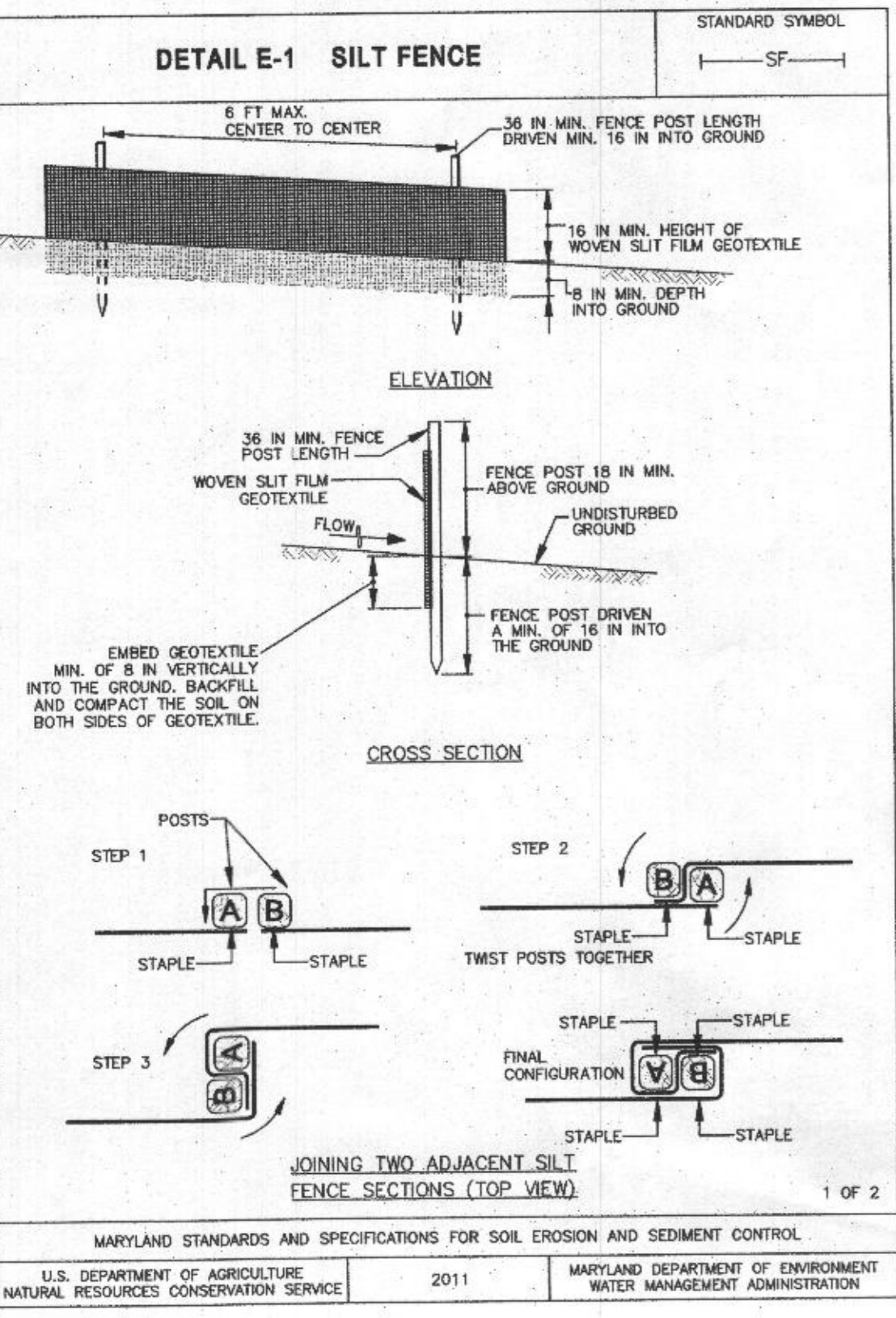


SOILS LEGEND			
SYMBOL	NAME / DESCRIPTION	GROUP	'K' FACTOR
GaC	GALIA LOAM, 8 TO 15 PERCENT SLOPES	B	0.24
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.20
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.37
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.24
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.24
WmB	WILTSHIRE SILT LOAM, 3 TO 6 PERCENT SLOPES	C	0.24

NOTES:
 1) SOIL INFORMATION HAS BEEN TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE, WEB SOIL SURVEY, SOILS GRID 12, SUB-GRID 205.
 2) 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.



SHEET INDEX	
SHEET NO.	DESCRIPTION
1	SEDIMENT AND EROSION CONTROL PLAN AND DETAILS
2	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
3	STORMWATER MANAGEMENT PLAN, NOTES, AND DETAILS

OWNER
 WILLIAMSBURG GROUP
 5485 HARRIS FARM ROAD, SUITE 200
 COLUMBIA, MARYLAND 21044
 410.997.8800

DEVELOPER
 DOSA CLARKSVILLE LLC
 5900 WHALE BOAT DRIVE UNIT #2029
 CLARKSVILLE MD 21029
 301.370.6866

SEDIMENT AND EROSION CONTROL PLAN AND DETAILS
THE WOODLANDS
 5624 DOSA COURT, LOT 2

TAX MAP 28 GRID 23
 5TH ELECTION DISTRICT
 PARCEL 15
 HOWARD COUNTY, MARYLAND

STATE OF MARYLAND
PROFESSIONAL ENGINEER

SILL ENGINEERING GROUP, LLC
 16005 Frederick Road, 2nd Floor
 Woodbine, Maryland 21797
 Phone: 443.325.5076
 Fax: 410.696.2022
 Email: info@sillengineering.com
 Civil Engineering for Land Development

DESIGN BY: PS
 DRAWN BY: JC
 CHECKED BY: PS
 SCALE: AS SHOWN
 DATE: JULY 29, 2020
 PROJECT #: 20-003
 SHEET #: 1 of 3

PROFESSIONAL CERTIFICATION: 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. 32025, EXPIRATION DATE: JUNE 30, 2021.

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

John K. Adreton
 HOWARD SCD
 DATE: 7/29/20

ENGINEER'S CERTIFICATE

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.

Paul M. Sill
 SIGNATURE OF ENGINEER
 PAUL M. SILL, P.E.
 DATE: 7/29/20

DEVELOPER'S CERTIFICATE

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 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.

Mark Morris
 SIGNATURE OF DEVELOPER
 DATE: 7/29/20

NO.	DESCRIPTION	DATE

B-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 PREPARE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH.
CONDITIONS WHERE PRACTICE APPLIES: WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED.

- CRITERIA:**
- TEMPORARY STABILIZATION
 - SEEDING PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISK HARROWS OR CHISEL, FLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT AFTER THE SOIL IS LOOSENED. IT MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TOPSOILED BY RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE 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:
 - SOIL IN BETWEEN 0 AND 7 INCHES
 - SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF FLOVERGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 20 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - SOIL AMENDMENTS OR TOPSOIL INCORPORATION TRACK SEEDING IS TO BE USED IN THE ABOVE CONDITIONS.
 - GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN. THIS SCENARIO OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
 - APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN AND AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN GRASS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHED, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDING PREPARATION TRACK SEEDING IS TO BE USED IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 - IN SLOPES 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 CONCERN HAVE LOW MOISTURE RETENTION CAPABILITY. TOPSOIL MUST BE SALVAGED FROM TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
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- MULCHING
 - MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SOIL CONSERVATION SERVICE PUBLICATION, "TOXIC TOXIC TO PLANT GROWTH". NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY TREATED WOOD CELLULOSE PROCESSED INTO A UNIFORM/FIBROUS PHYSICAL STATE.
 - WCFM IS TO BE DYED GREENHORN CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN EFFECTIVE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORM SPREAD SLURRY.
 - WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN A MANNER THAT WILL PROVIDE A WOOD CELLULOSE FIBER MULCH WHICH 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 BUTTER-LIKE GEL WHEN COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEEDS IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 1.5 TO 2.0 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, AND A 4.0 TO 8.0 PERCENT ASH CONTENT OF 1 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 4.0 PERCENT MINIMUM.
 - APPLICABILITY
 - APPLY MULCH TO ALL SEEDS IMMEDIATELY AFTER SEEDING.
 - WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE APPLICATION RATE TO 3.1 TONS PER ACRE.
 - WOOD CELLULOSE FIBER MULCH IS TO BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER MULCH WITH WATER TO A MIX WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - 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 EROSION HAZARD:
 - A MULCH ANCHORING TOOL IS A TRACTOR OR TRUCK DRAWN PARALLEL TO THE MOUND AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - WOOD CELLULOSE FIBER MULCH IS TO BE USED FOR ANCHORING STRAW APPLIED FIBER BINDER AT A RATE OF 100 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER BINDER WITH WATER AT A RATIO OF 1:1. SYNTHETIC BINDERS SUCH AS ACRYLIC POLYMER (ACRYLAC) MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS WILL 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 BINDER NETTING MAY BE APPLIED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 15 FEET WIDE AND 300 TO 1,000 FEET LONG.

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 - LIGHTWEIGHT BINDER NETTING MAY BE APPLIED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 15 FEET WIDE AND 300 TO 1,000 FEET LONG.

TABLE B-1: TEMPORARY SEEDING FOR SITE STABILIZATION

PLANT SPECIES	SEEDING RATE (LBS/AC)	SEEDING DEPTH (INCHES)	RECOMMENDED SEEDING DATES BY PLANT HARDINESS ZONE			
			5b & 6a	6b	7a & 7b	7c & 7d
ANNUAL RYEGRASS (LALAGE GRASS)	40	1.0	MARCH 15 TO MAY 31 AUG 1 TO SEP 30	MARCH 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
BARLEY (HORDEUM VULGARE)	90	2.0	MARCH 15 TO MAY 31 AUG 1 TO SEP 30	MARCH 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
CATS (PASTORIS)	72	1.7	MARCH 15 TO MAY 31 AUG 1 TO SEP 30	MARCH 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
WHEAT (TRITICUM AESTIVUM)	110	2.8	MARCH 15 TO MAY 31 AUG 1 TO SEP 30	MARCH 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
CENTRAL RYE (SECALIS CEREALES)	112	2.8	MARCH 15 TO MAY 31 AUG 1 TO SEP 30	MARCH 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
PERMANENT SEEDING						
FOXTAIL (SETARIA VIRIDIS)	30	0.7	JUN 1 TO AUG 31	JUN 1 TO AUG 31	MAY 1 TO AUG 31	MAY 1 TO AUG 31
SOIL MULCH (WOOD CELLULOSE FIBER)	1500	2.0	JUN 1 TO AUG 31	JUN 1 TO AUG 31	MAY 1 TO AUG 31	MAY 1 TO AUG 31

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATION.
PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.
CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE CONSTRUCTION.
CRITERIA:

- SEEDING
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO SELECTED MATURITY, APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SLOPES, STREAM BANKS, OR OTHER AREAS WHERE SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. CRITICAL AREAS ARE THOSE AREAS WHERE SEEDING MUST BE APPLIED WITH THE GROUND THRU.
 - INOCULANTS: THE INOCULANT FOR TREATING LEGUMES MUST BE IN SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIALLY FOR THE SPECIES. INOCULANTS MUST NOT BE LATER THAN THE DATE INDICATED ON THE CONTAINER. A FRESH INOCULANT IS REQUIRED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT MAY KILL BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL. UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTOXIC MATERIALS.
- APPLICATION
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DRIP OR BROADCAST SPREADERS.
 - INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B-1. PERMANENT SEEDING TABLE B-1 OR SITE-SPECIFIC SEEDING SUMMARIES.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - DRILL OR CULTRACOR SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - CULTRACOR SEEDERS ARE REQUIRED TO RURY THE SEED SUCH AS FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDS MUST BE FIRM AFTER PLANTING.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - HYDROSEEDING: 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, 100 POUNDS PER ACRE TOTAL; POTASSIUM, 200 POUNDS PER ACRE; PHOSPHORUS, 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE) MAY BE APPLIED WITH HYDROSEEDING. NORMALLY, NOT MORE THAN 2 TONS ARE TO BE APPLIED BY PROCEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY WITHOUT INTERRUPTION.
 - WHEN HYDROSEEDING IS TO BE INCORPORATED SEED INTO THE SOIL.
- MULCHING
 - MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SOIL CONSERVATION SERVICE PUBLICATION, "TOXIC TOXIC TO PLANT GROWTH". NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY TREATED WOOD CELLULOSE PROCESSED INTO A UNIFORM/FIBROUS PHYSICAL STATE.
 - WCFM IS TO BE DYED GREENHORN CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN EFFECTIVE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORM SPREAD SLURRY.
 - WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN A MANNER THAT WILL PROVIDE A WOOD CELLULOSE FIBER MULCH WHICH 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 BUTTER-LIKE GEL WHEN COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEEDS IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 1.5 TO 2.0 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, AND A 4.0 TO 8.0 PERCENT ASH CONTENT OF 1 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 4.0 PERCENT MINIMUM.
 - APPLICABILITY
 - APPLY MULCH TO ALL SEEDS IMMEDIATELY AFTER SEEDING.
 - WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE APPLICATION RATE TO 3.1 TONS PER ACRE.
 - WOOD CELLULOSE FIBER MULCH IS TO BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER MULCH WITH WATER TO A MIX WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - 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 EROSION HAZARD:
 - A MULCH ANCHORING TOOL IS A TRACTOR OR TRUCK DRAWN PARALLEL TO THE MOUND AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 2 INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD FOLLOW THE CONTOUR.
 - WOOD CELLULOSE FIBER MULCH IS TO BE USED FOR ANCHORING STRAW APPLIED FIBER BINDER AT A RATE OF 100 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER BINDER WITH WATER AT A RATIO OF 1:1. SYNTHETIC BINDERS SUCH AS ACRYLIC POLYMER (ACRYLAC) MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS WILL 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 BINDER NETTING MAY BE APPLIED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 15 FEET WIDE AND 300 TO 1,000 FEET LONG.

*THIS SITE LIES WITHIN U.S.D.A. PLANT HARDINESS ZONE 6B.

TABLE B-5: RECOMMENDED PLANTING DATES FOR PERMANENT CULTIVAR IN MARYLAND

TYPE OF PLANT MATERIAL	PLANT HARDINESS ZONES			
	5b & 6a	6b	7a & 7b	7c & 7d
SEEDS - COOL-SEASON GRASSES (INCLUDES MIXES WITH FORNS AND/OR LEGUMES)	MAR 15 TO MAY 31 AUG 1 TO SEP 30	MAR 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
SEEDS - WARM-SEASON COOL-SEASON GRASSES (INCLUDES MIXES WITH FORNS AND/OR LEGUMES)	MAR 15 TO MAY 31 AUG 1 TO SEP 30	MAR 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
SEEDS - WARM-SEASON COOL-SEASON GRASSES (INCLUDES MIXES WITH FORNS AND/OR LEGUMES)	MAR 15 TO MAY 31 AUG 1 TO SEP 30	MAR 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
UNROOTED WOOD PLANTS: BARBEREET PLANTS, BIRCHES, WILDOES, CORNUS, AND LOGS	MAR 15 TO MAY 31 AUG 1 TO SEP 30	MAR 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30
CONTAINERIZED STOCK: BALLEE-AND-BURLAPPED STOCK	MAR 15 TO MAY 31 AUG 1 TO SEP 30	MAR 1 TO MAY 15 AUG 1 TO OCT 31	FEB 15 TO APR 30 MAY 15 TO JUN 30	FEB 15 TO APR 30 MAY 15 TO JUN 30

NOTES:

- THE PLANTING DATES LISTED ARE AVERAGES FOR EACH ZONE. THESE DATES MAY REQUIRE ADJUSTMENT TO REFLECT LOCAL CONDITIONS, ESPECIALLY TO REFLECT THE BOUNDARIES OF THE ZONES, WHEN SEEDING TOWARD THE END OF THE LISTED PLANTING DATES, OR WHEN CONDITIONS ARE EXPECTED TO BE LESS THAN OPTIMAL. SELECT AN APPROPRIATE NURSERY CROP FROM TABLE B-1 TEMPORARY SEEDING AND PLANTING DATES.
- WHEN PLANTING DURING THE GROWING SEASON, MOST OF THE MATERIALS MUST BE PURCHASED AND KEPT IN A DORMANT CONDITION UNTIL PLANTING. BARE-ROOT GRASSES ARE THE EXCEPTION - THEY MAY BE PURCHASED AS GROWING (NON-DORMANT) PLANTS.
- ADDITIONAL PLANTING DATES FOR THE LOWER COSTAL PLANT, DEPENDENT ON ANNUAL, RAINFALL, AND TEMPERATURE TRENDS. RECOMMEND ADDITIONAL WINTER CROP, AS NOTED ABOVE, IF PLANTING DURING THIS PERIOD.
- ADDITIONAL PLANTING DATES FOR THE LOWER COSTAL PLANT, DEPENDENT ON ANNUAL, RAINFALL, AND TEMPERATURE TRENDS. RECOMMEND ADDITIONAL WINTER CROP, AS NOTED ABOVE, IF PLANTING DURING THIS PERIOD.
- LATER PORTION OF THE PERIOD ABOVE MAY BE USED FOR WEED CONTROL, PRIOR TO PLANTING, WHEN SELECTING A PLANTING DATE. CONSIDER THE NEED FOR WEED CONTROL VS. THE LIKELIHOOD OF HAVING SUFFICIENT MOISTURE FOR LATER PLANTING, ESPECIALLY ON CROUCHY SITES.
- ADDITIONAL PLANTING DATES FOR THE LOWER COSTAL PLANT, DEPENDENT ON ANNUAL, RAINFALL, AND TEMPERATURE TRENDS. RECOMMEND ADDITIONAL WINTER CROP, AS NOTED ABOVE, IF PLANTING DURING THIS PERIOD.
- ADDITIONAL PLANTING DATES FOR THE LOWER COSTAL PLANT, DEPENDENT ON ANNUAL, RAINFALL, AND TEMPERATURE TRENDS. RECOMMEND ADDITIONAL WINTER CROP, AS NOTED ABOVE, IF PLANTING DURING THIS PERIOD.

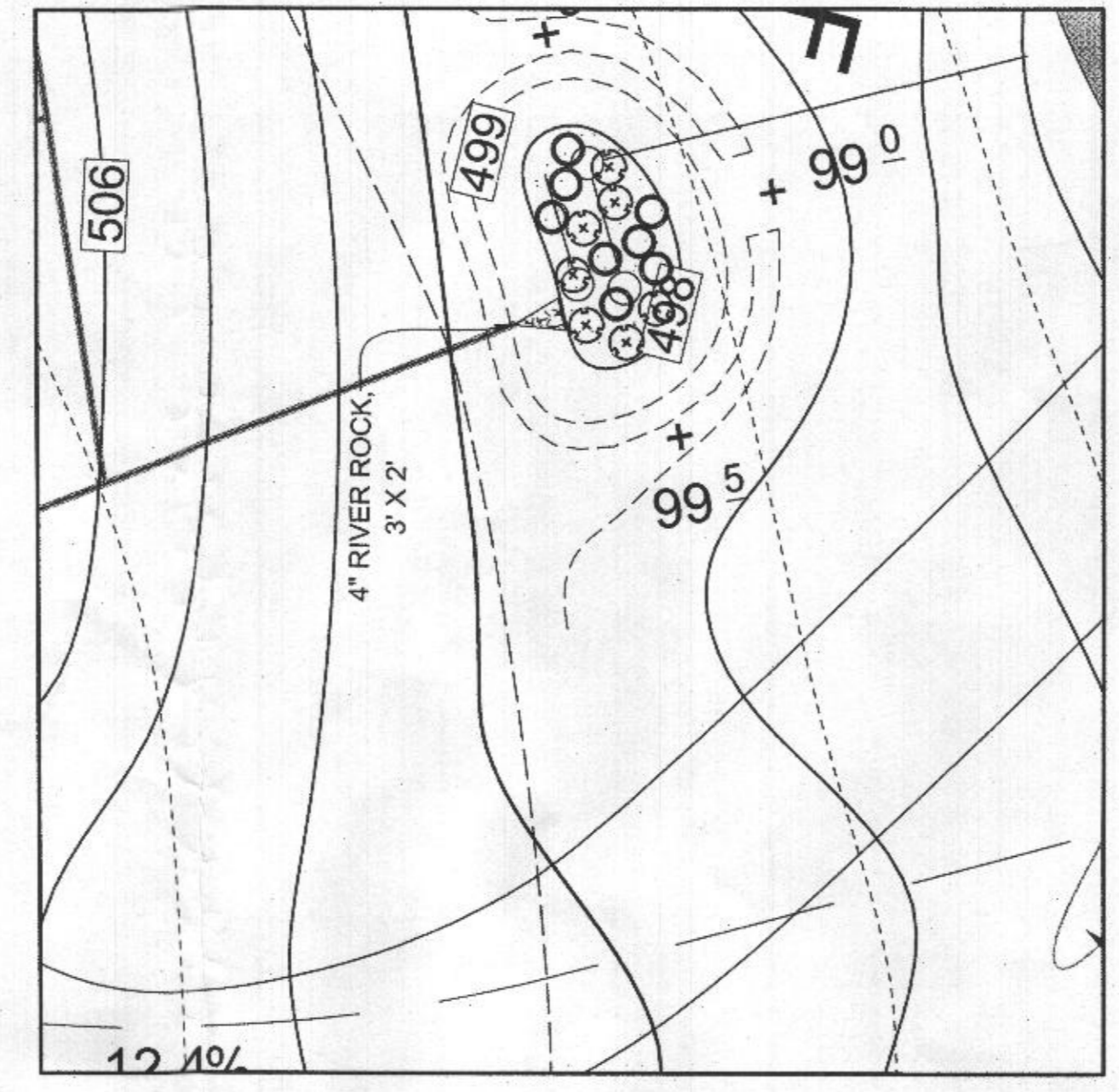
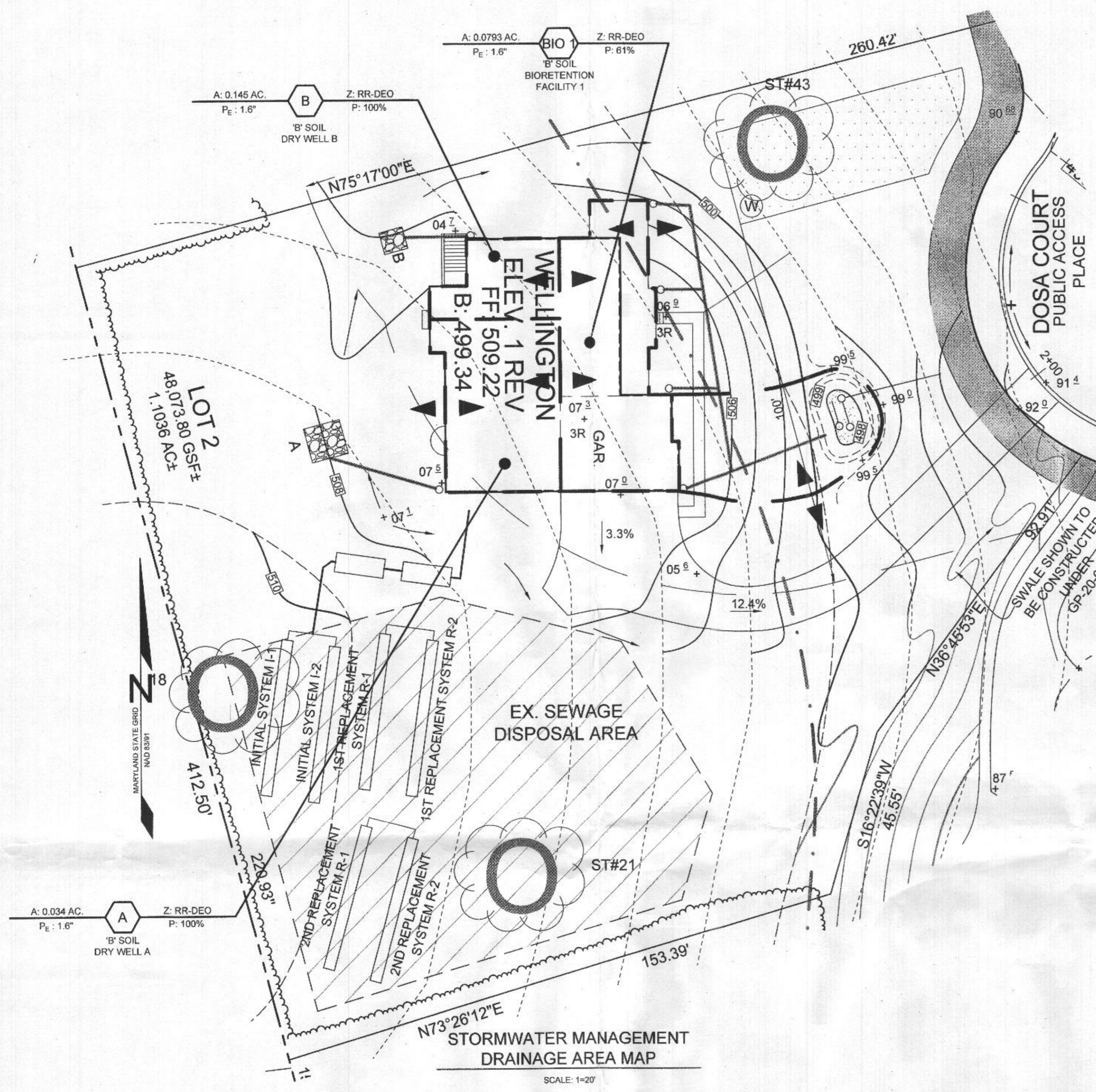
ENGINEERS CERTIFICATE: I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARDS COUNTY CONSERVATION DISTRICT.

DEVELOPER'S CERTIFICATE: I CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL. I HAVE EMPLOYED ALL REASONABLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING COURSE AND WILL MAINTAIN RECORDS OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARDS COUNTY CONSERVATION DISTRICT.

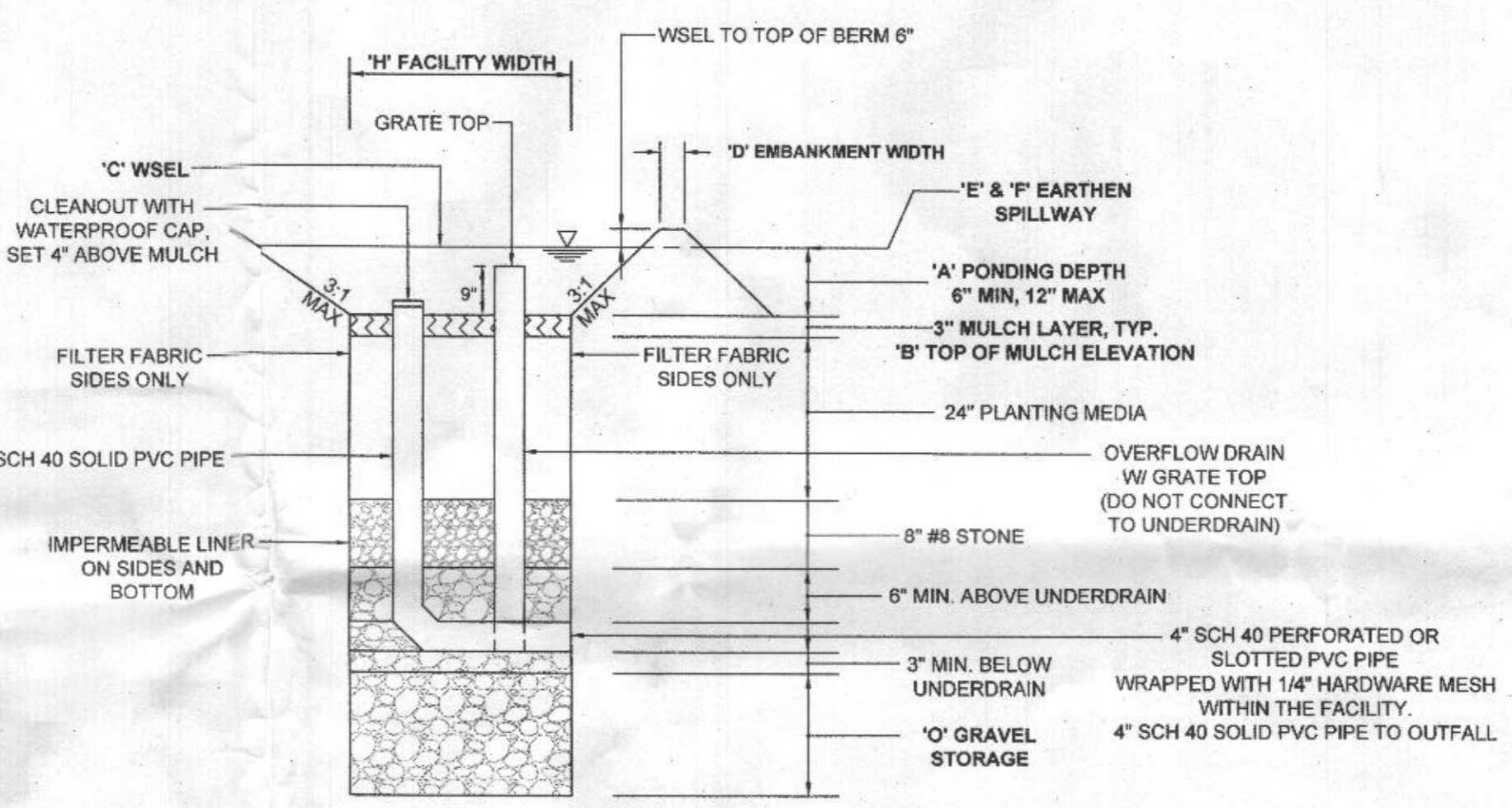
B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATION.
PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.
CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE CONSTRUCTION.
CRITERIA:

- SEEDING
 - ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO SELECTED MATURITY, APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SLOPES, STREAM BANKS, OR OTHER AREAS WHERE SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING. CRITICAL AREAS ARE THOSE AREAS WHERE SEEDING MUST BE APPLIED WITH THE GROUND THRU.
 - INOCULANTS: THE INOCULANT FOR TREATING LEGUMES MUST BE IN SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIALLY FOR THE SPECIES. INOCULANTS MUST NOT BE LATER THAN THE DATE INDICATED ON THE CONTAINER. A FRESH INOCULANT IS REQUIRED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75 TO 80 DEGREES FAHRENHEIT MAY KILL BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - SOIL OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL. UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DISSIPATION OF PHYTOXIC MATERIALS.
- APPLICATION
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DRIP OR BROADCAST SPREADERS.
 - INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B-1. PERMANENT SEEDING TABLE B-1 OR SITE-SPECIFIC SEEDING SUMMARIES.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - DRILL OR CULTRACOR SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - CULTRACOR SEEDERS ARE REQUIRED TO RURY THE SEED SUCH AS FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDS MUST BE FIRM AFTER PLANTING.
 - APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER, APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
 - HYDROSEEDING: 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, 100 POUNDS PER ACRE TOTAL; POTASSIUM, 200 POUNDS PER ACRE; PHOSPHORUS, 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - LIME: USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE) MAY BE APPLIED WITH HYDROSEEDING. NORMALLY, NOT MORE THAN 2 TONS ARE TO BE APPLIED BY PROCEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY WITHOUT INTERRUPTION.
 - WHEN HYDROSEEDING IS TO BE INCORPORATED SEED INTO THE SOIL.
- MULCHING
 - MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SOIL CONSERVATION SERVICE PUBLICATION, "TOXIC TOXIC TO PLANT GROWTH". NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY TREATED WOOD CELLULOSE PROCESSED INTO A UNIFORM/FIBROUS PHYSICAL STATE.
 - WCFM IS TO BE DYED GREENHORN CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN EFFECTIVE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORM SPREAD SLURRY.
 - WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS ARE TO BE MANUFACTURED AND PROCESSED IN A MANNER THAT WILL PROVIDE A WOOD CELLULOSE FIBER MULCH WHICH 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 BUTTER-LIKE GEL WHEN COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEEDS IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 1.5 TO 2.0 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, AND A 4.0 TO 8.0 PERCENT ASH CONTENT OF 1 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 4.0 PERCENT MINIMUM.
 - APPLICABILITY
 - APPLY MULCH TO ALL SEEDS IMMEDIATELY AFTER SEEDING.
 - WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DE



BIORETENTION FACILITY 1
LANDSCAPE PLAN
SCALE: 1:10'



BIORETENTION FACILITY
TYPICAL SECTION
NOT TO SCALE

NOTES:
- FOR ADDITIONAL INFORMATION, SEE THE 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUMES I AND II.
- SEE CHART, THIS SHEET, FOR ELEVATIONS AND DISTANCES.
- BIO 1 TO HAVE AN IMPERMEABLE LINER WITHIN THE 100' WELL RADIUS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED MICRO-BIORETENTION FACILITIES (M-6)

- THE OWNER SHALL MAINTAIN THE PLANT MATERIAL, MULCH LAYER AND SOIL LAYER ANNUALLY. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL, VOLUME II, TABLE A-1 AND 2.
- THE OWNER SHALL PERFORM A PLANT INSPECTION IN THE SPRING AND IN THE FALL OF EACH YEAR. DURING THE INSPECTION, THE OWNER SHALL REMOVE DEAD OR 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.

M-6 MICRO-BIORETENTION PLANT LIST						
HERBACEOUS SPECIES						
LEGEND	BOTANICAL NAME	COMMON NAME	SPACING	SIZE	REMARKS	QTY.
⊛	ECHINACEA PURPLE CONEFLOWER	RUDEBECKIA BLACK EYED SUSAN	AS SHOWN* (MIN 2' O.C.)	1 GAL		8
⊙	RUDEBECKIA LACINIATA	TALL CONEFLOWER BLACK EYED SUSAN	AS SHOWN* (MIN 2' O.C.)	1 GAL		8

NOTE: PLANT MATERIAL MUST COVER 50% OF THE MULCH AREA AT MATURE GROWTH.

BIORETENTION ELEVATIONS AND DIMENSIONS

DESCRIPTION	BIO 1
'A' PONDING DEPTH	1.0'
'B' TOP OF MULCH	498.0
'C' WSEL	499.0
'D' EMBANKMENT WIDTH	2.0'
'E' SPILLWAY WIDTH	6.0'
'F' SPILLWAY LENGTH	5.0'
'G' FACILITY LENGTH	15.0'
'H' FACILITY WIDTH	8.0'
'I' PERF. UNDERDRAIN PIPE DIMENSION	15.0'
'J' UNDERDRAIN PIPE INVERT	472.25
'K' SOLID UNDERDRAIN DIMENSION	27.0'
'L' OUTFALL INVERT	493.98
'M' PERF. OVERFLOW PIPE DIMENSION	15.0'
'N' OVERFLOW PIPE INVERT	494.25
'O' GRAVEL STORAGE DEPTH	N/A*
'P' BOTTOM ELEVATION OF FACILITY	494
'Q' GRADE % OF OUTFALL PIPE	1.0

* TYPICAL PROFILE SHOWS GRAVEL STORAGE. THIS FACILITY DOES NOT HAVE STORAGE, AND IS INSTEAD LINED WITH AN IMPERMEABLE LINER.

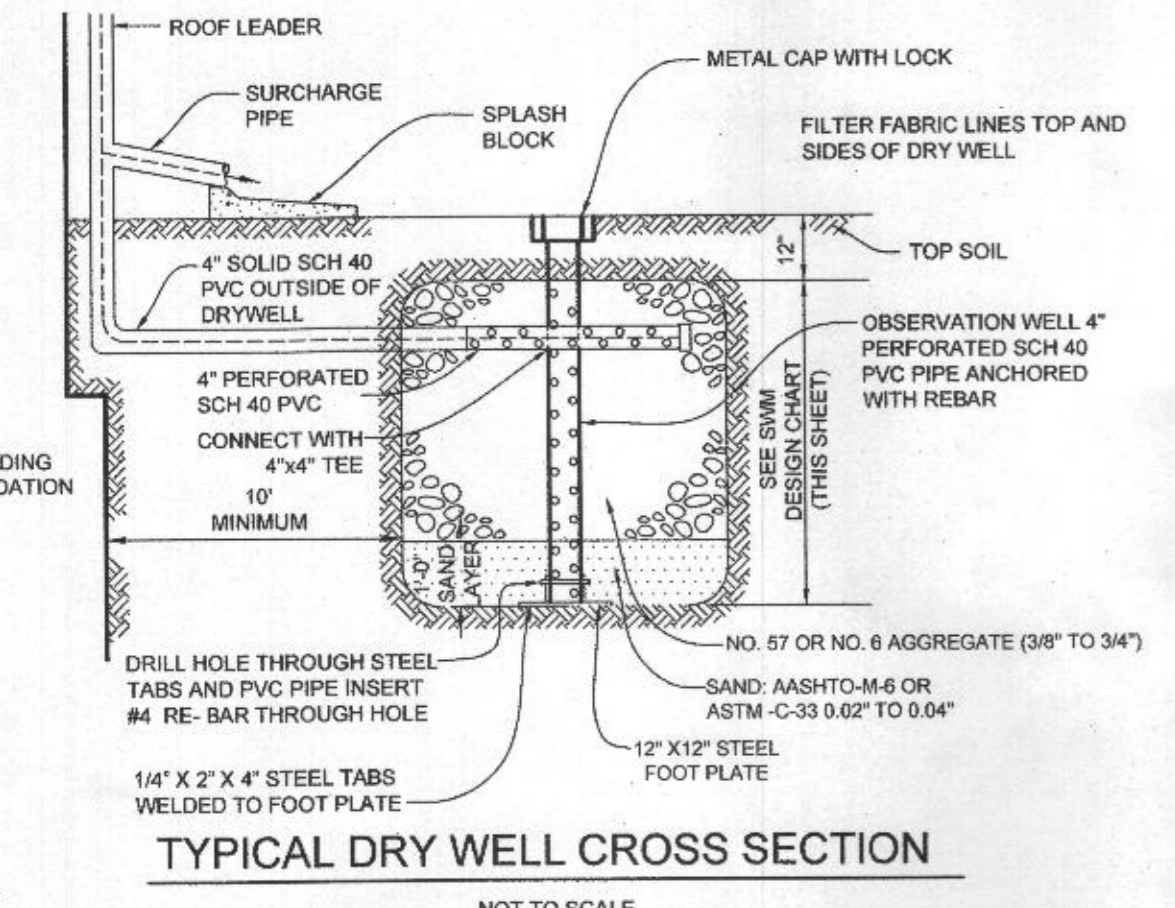
MATERIALS SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDEN & LANDSCAPE INFILTRATION

MATERIAL	SPECIFICATION	SIZE	NOTES
PLANTINGS	SEE PLANT LIST THIS SHEET	N/A	PLANTINGS ARE SITE-SPECIFIC. SEE PLANT LIST THIS SHEET
PLANTING SOIL (2'-4" TO 4' DEEP)	LOAMY SAND (60% - 85%) & COMPOST (35%-40%) OR SANDY LOAM (30%), COARSE SAND (30%) & COMPOST (40%)	N/A	USDA SOIL TYPES LOAMY SAND OR SANDY LOAM. CLAY CONTENT < 5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM-D-2974)		
MULCH	SHREDED HARDWOOD		AGED 6 MONTHS, MINIMUM; NO PINE OR WOOD CHIPS
PEA GRAVEL DIAPHRAGM	PEA GRAVEL: ASTM-D-448	NO 8 OR NO 9 (1/8" TO 3/8")	
CURTAIN DRAIN (IF REQUIRED)	ORNAMENTAL STONE: WASHED COBBLES	STONE: 2" TO 5"	
GEOTEXTILE		N/A	PE TYPE 1 NONWOVEN
UNDERDRAIN GRAVEL	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
UNDERDRAIN PIPING	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	SLOTTED OR PERFORATED PIPE, 3/8" PERF. @ 6" ON CENTER. 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES. NOT NECESSARY UNDERNEATH PIPES. PERFORATED PIPE SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH.
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MX NO. 3; F _c = 3500 PSI @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED; REINFORCING TO MEET ASTM A-615-60	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONCRETE REQUIRED. 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE MEETING ACI CODE 309.1R99; VERTICAL LOADING (H-10 OR H-20); ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING.
SAND	AASHTO M-6 OR ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO #10) ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

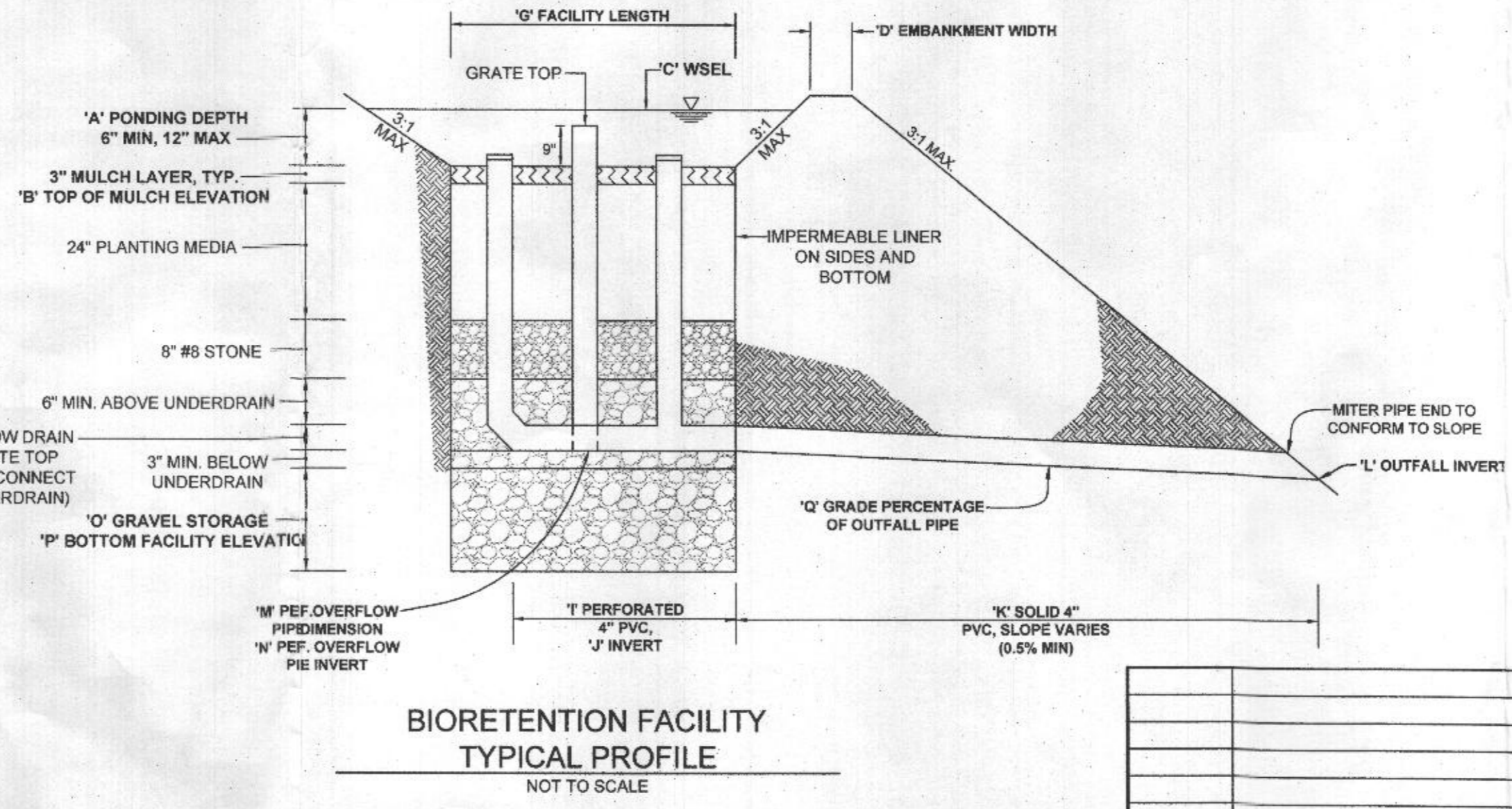
DRYWELL (M-5) DESIGN CHART				
LOT	DRYWELL #	VOLUME REQUIRED	VOLUME PROVIDED	WELL SIZE
2	A	187 CF	190 CF	10.0' X 9.5' X 5.0' DEEP
2	B	78 CF	78 CF	6.5' X 6.0' X 5.0' DEEP

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

- THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
- WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.
- A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOURS TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
- THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- 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.



TYPICAL DRY WELL CROSS SECTION
NOT TO SCALE



BIORETENTION FACILITY
TYPICAL PROFILE
NOT TO SCALE

OWNER: WILLIAMSBURG GROUP, 5485 HARRERS FARM ROAD, SUITE 200, COLUMBIA, MARYLAND 21044, 410.987.8800
DEVELOPER: DOSA CLARKSVILLE LLC, 5900 WHALE BOAT DRIVE UNIT #206, CLARKSVILLE MD, 21029, 301.370.6868

STORMWATER MANAGEMENT PLAN, NOTES, AND DETAILS
THE WOODLANDS
5624 DOSA COURT, LOT 2
TAX MAP 28 GRID 23, 5TH ELECTION DISTRICT, PARCEL 15, HOWARD COUNTY, MARYLAND

STATE OF MARYLAND PROFESSIONAL ENGINEER
SILL ENGINEERING GROUP, LLC
16005 Frederick Road, 2nd Floor, Woodbine, Maryland 21797
Phone: 443.325.5076
Fax: 410.696.2022
Email: info@sillengineering.com
Civil Engineering for Land Development

DESIGN BY: PS
DRAWN BY: JC
CHECKED BY: PS
SCALE: AS SHOWN
DATE: JULY 29, 2020
PROJECT #: 20-003
SHEET #: 3 of 3

PROFESSIONAL CERTIFICATION: 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. 32025, EXPIRATION DATE: JUNE 20, 2021.

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

ENGINEER'S CERTIFICATE: I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
SIGNATURE OF ENGINEER: PAUL M. SILL, P.E.
DATE: 7/29/20

DEVELOPER'S CERTIFICATE: I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.
SIGNATURE OF DEVELOPER: MALCOLM MORRIS
DATE: 7/29/20

NO.	DESCRIPTION	DATE