

CONSTRUCTION SPECIFICATIONS

B.4.C Specifications for Micro-Bioretention. Rain Gardens, 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 prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

The planting soil shall be tested and shall meet the following criteria:

- Soil Component Loamy Sand or Sandy Loam (USDA Soil Textural Classification)
- Organic Content Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy and (60%-65%) and compost (35% to 40%) or sandy loam (30%), coarse sand (30%), and compost (40%). Clay Content - Media shall have a clay content of less than 5%.
- pH Range Should be between 5.5 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the topsoil was excavated.

3. 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 a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before backfilling the optional sand layer. Pump any conded water before preparing (rototilling) base.

sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade. When backfilling the bioretention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the

. Plant Material:

Recommended plant material for micro-bioretention practices can be found in Appendix A, Section A.2.3.

materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

. Plant Installation:

Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

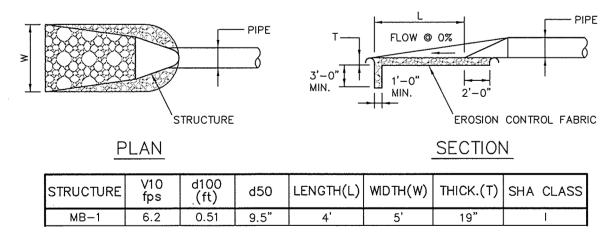
6. Underdrains:

Underdrains should meet the following criteria:

- Pipe- Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTMF 758, Type PS 28, or
- AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE). Perforations - If perforated pipe is used, perforations should be %" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with a $\frac{1}{2}$ " (No. 4 or 4x4) galvanized hardware cloth.
- Gravel The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain The main collector pipe shall be at a minimum 0.5% slope.
- A rigid, non-perforated observation well must be provided (one per every 1,0000 square feet) to provide a clean-out port and monitor performance of the filter.
- A 4" layer of pea gravel (1/4" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

These practices may not be constructed until all contributing drainage area has been stabilized



OUTLET PROTECTION DETAIL

CONSTRUCTION SPECIFICATIONS

THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.

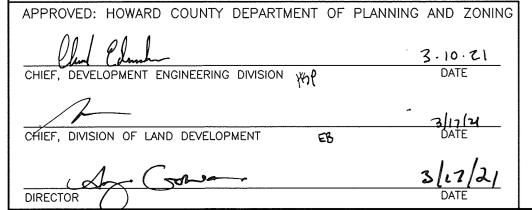
THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN

COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR HE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED

IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE

OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY

THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.



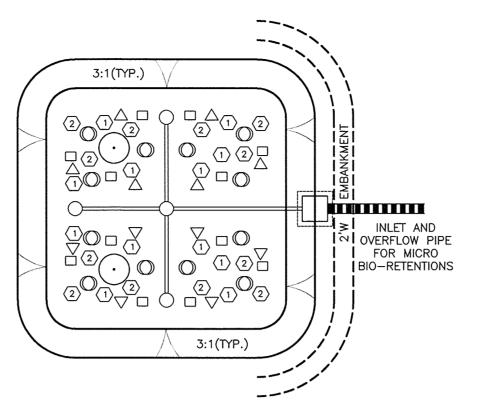
EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.

SOILS CHART - SOIL SURVEY HOWARD COUNTY, MARYLAND k-VALUE SYMBOL HYDRIC HYDROLOGIC GROUP ALTERNATE GROUP 0.24 RUSSETT FINE SANDY LOAM, 5 TO 10 PERCENT SLOPES CROOM AND EVESBORO SOILS, 10 TO 15 PERCENT SLOPES

Material	Specification	ention, Rain Gardens &	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & 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	shredded 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	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	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-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; fe = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-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 350.R/89; 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 carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED (M-3) LANDSCAPE INFILTRATION (M-6) MICRO-BIORETENTION

- The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.
- The Owner shall perform a plant inspection in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace 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 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.

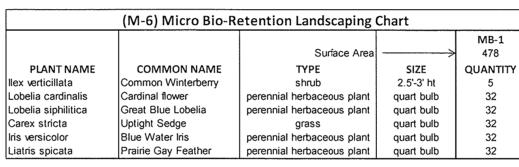


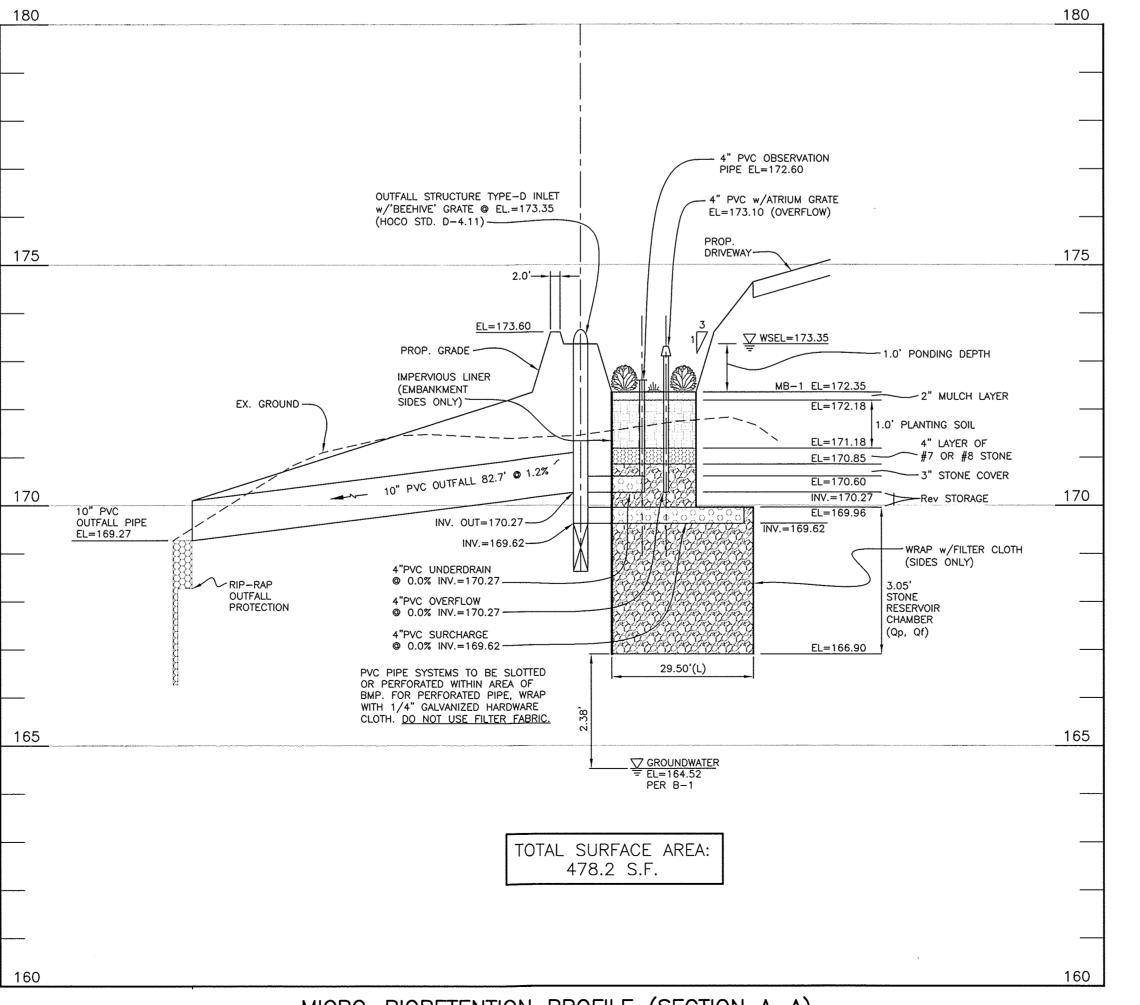
PLANTING LEGEND							
SYMBOL	NAME						
1	LOBELIA CARDINALIS						
2	LOBELIA SIPHILITICA						
	CAREX STRICTA						
Δ	IRIS VERSICOLOR						
0	LIATRIS SPICATA						
\odot	ILEX VERTICILLATA						

SCHEMATIC PLANTING DETAIL FOR (M-6) PRACTICES

NOT TO SCALE

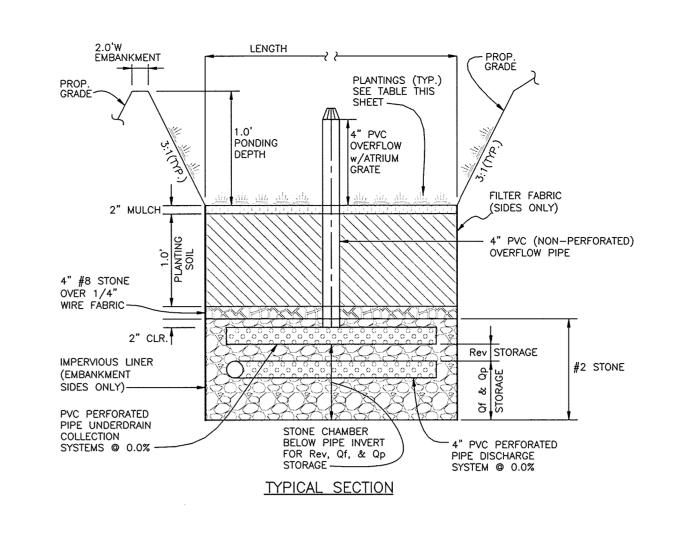
	(M-6) Micro Bio-F	Retention Landscaping (Chart	
		Surface Area	>	MB-1 478
PLANT NAME	COMMON NAME	TYPE	SIZE	QUANTITY
ex verticillata	Common Winterberry	shrub	2.5'-3' ht	5
obelia cardinalis	Cardinal flower	perennial herbaceous plant	quart bulb	32
obelia siphilitica	Great Blue Lobelia	perennial herbaceous plant	quart bulb	32
arex stricta	Uptight Sedge	grass	quart bulb	32
s versicolor	Blue Water Iris	perennial herbaceous plant	quart bulb	32
atris spicata	Prairie Gay Feather	perennial herbaceous plant	quart bulb	32

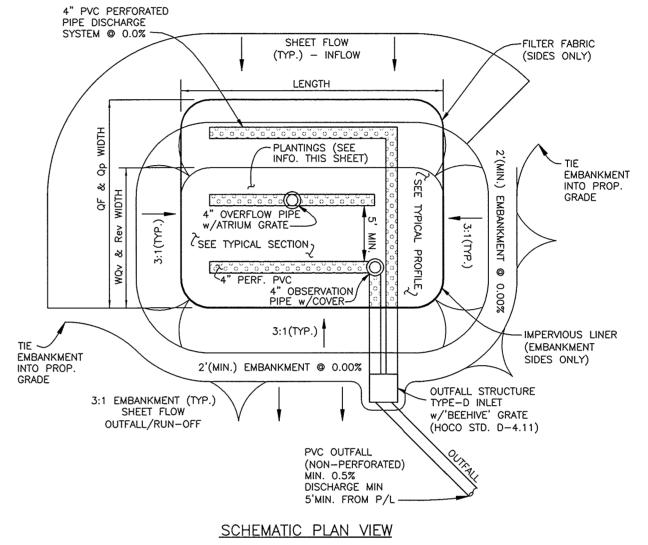




MICRO-BIORETENTION PROFILE (SECTION A-A)

HORIZONTAL SCALE: 1"=20' VERTICAL SCALE: 1"=2'





w/ATRIUM PLANTINGS (TYP.) SEE TABLE THI 2" MULCH 4" PVC (NON-PERFORATED) OBSERVATION PIPE w/CAP-IMPERVIOUS LINER (EMBANKMENT SIDES ONLY) -4" PVC (NON-PERFORATED) OVERFLOW PIPE --WIRE FÁBRIC #2 STONE PVC PERFORATED PIPE UNDERDRAIN SYSTEMS @ 0.0% ~ STONE CHAMBER BELOW PIPE INVERT " PVC PERFORATED FOR Rev. Qf. & Qp STORAGE ---SYSTEM @ 0.0% TYPICAL PROFILE

SHEET FLOW -

OVERFLOW

UNDERDRAIN, OVERFLOW AND OUTFALL NOTES

1. THE LAST CLEAN-OUT LOCATION WITHIN EACH MICRO-BIORETENTION FACILITY SHALL BE FITTED WITH A NON-CLOGGING SURFACE DRAIN (EXAMPLE: 4" ABS ROOF DRAIN W/CAST ALUMINUM DOME) AT THE POND SURFACE ELEVATION INDICATED IN THE CORRESPONDING TABLE

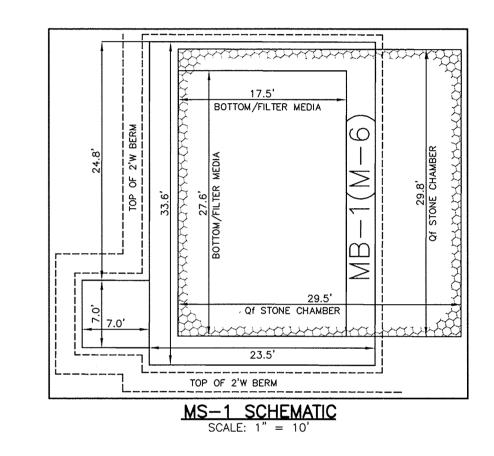
w/'BEEHIVE' GRATE

(HOCO STD. D-4.11)

.0' PONDING

2. THE PVC WITHIN THE FACILITY SHALL BE PERFORATED

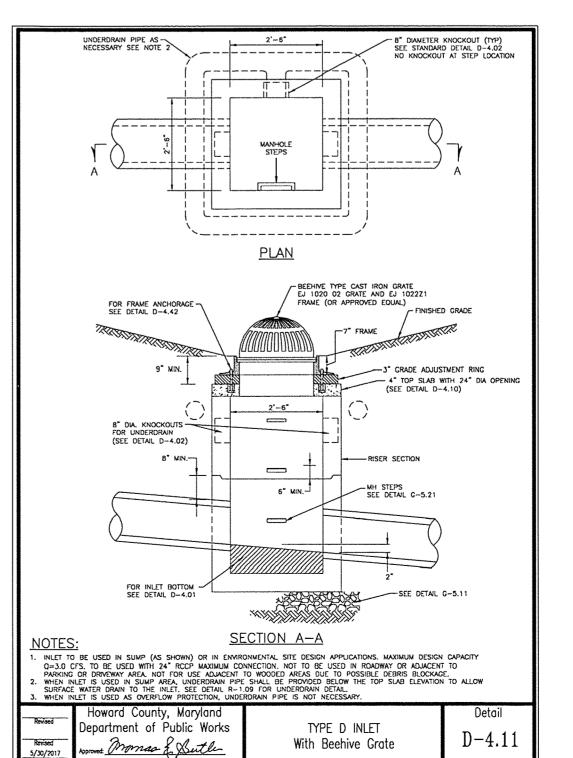
3. THE UNDER-DRAIN AND PIPE TO OUTFALL SHALL BE INSTALLED TO A MINIMUM DEPTH OF 2' BELOW FINISHED GRADE AND SHALL MAINTAIN A MINIMUM 0.5% SLOPE AND MAINTAIN A MINIMUM OF 1' OF SEPARATION AT ALL CROSSINGS.



STANDARD MICRO-BIORETENTION DETAILS

5,530 5,530 100% 0.95 1.8

	ESD STORMWATER MANAGEMENT SUMMARY TABLE																	
	Practice		DA	Imp Area	%	Rv	Pe		Af (sf)		ESD	v (cf)	Pe	Rev	(cf)	Qf	(cf)	Ownership
MDE	Туре	No.	(sf)	(sf)	Imp	ΚV	required	Required	Provided	2% DA?	Required	Provided	Provided	Required	Provided	Required	Provided	Ownership
(M-6)	Micro-Bioretention	MB-1	9,495	5,530	58%	0.57	1.8	190	478	PASS	818	883	1.9	59	59	1075	1075	Private
Total	s per individual Drainage	Area	9,495	5,530	58%	0.57					818	883				1075	1075	



Totals per Overall Site

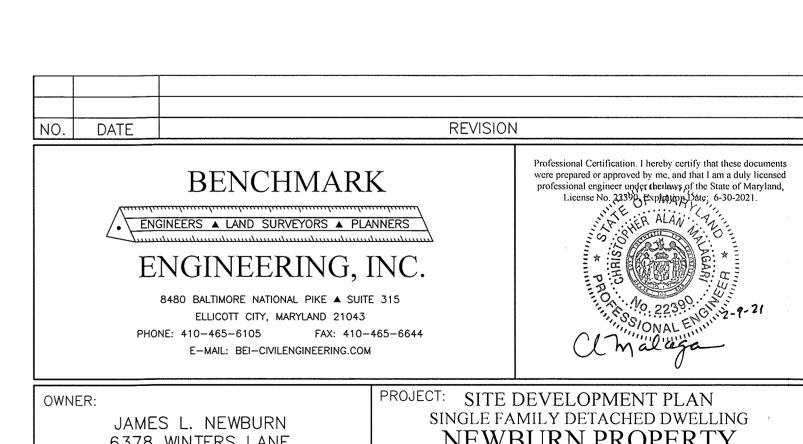
NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN THE AREA OF EXISTING OVERHEAD LINES

DRAFT: MCR CHECK: CAM

818

NOTE: UTILITY WORK WITHIN EXISTING ROADWAYS SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND/OR STABILZED BY THE END OF THE DAY'S CONSTRUCTION ACTIVITIES

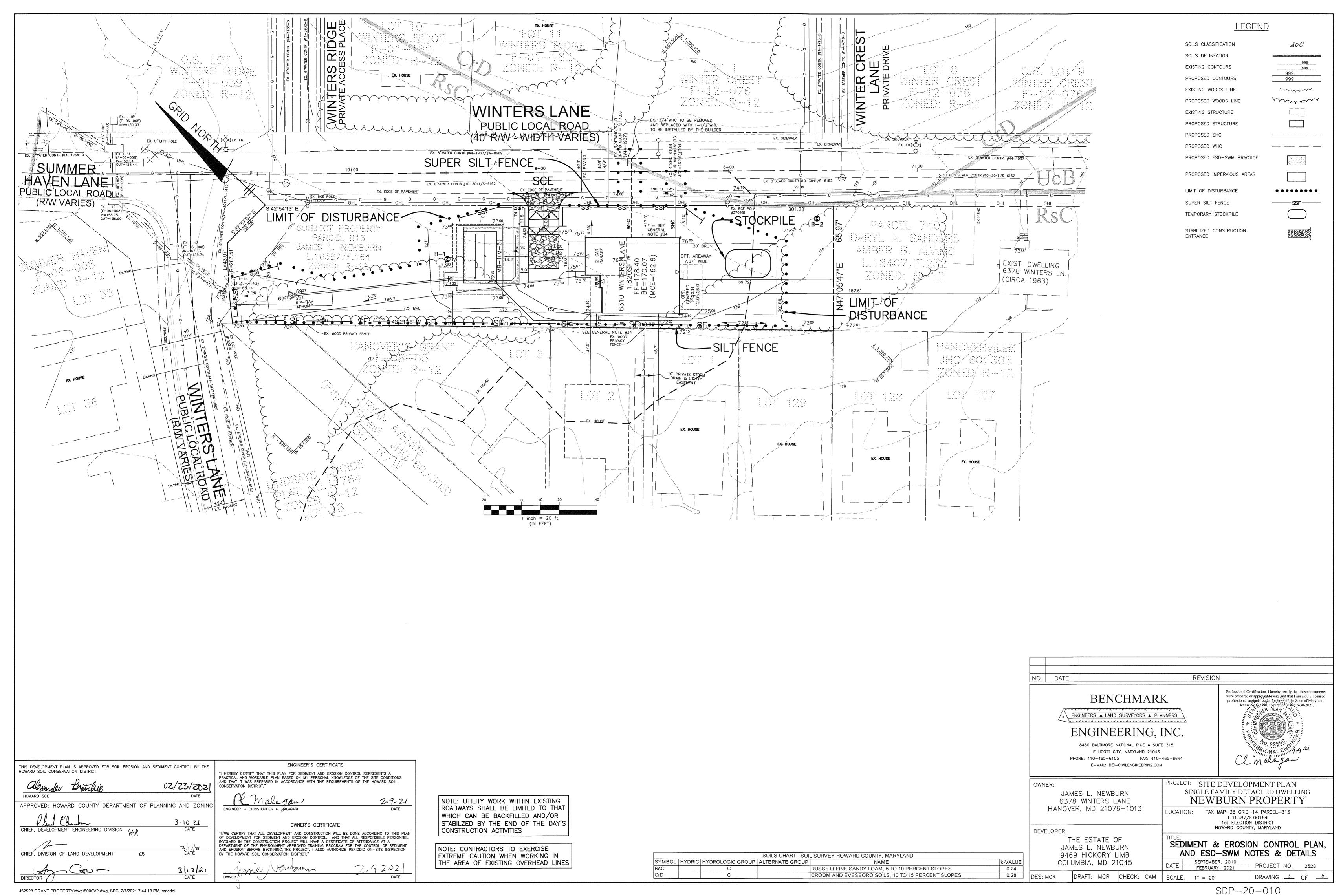
1075 1075



NEWBURN PROPERTY 6378 WINTERS LANE HANOVER, MD 21076-1013 TAX MAP-38 GRID-14 PARCEL-815 L.16587/F.00164 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND DEVELOPER: THE ESTATE OF JAMES L. NEWBURN ESD-SWM NOTES & DETAILS 9469 HICKORY LIMB COLUMBIA, MD 21045 PROJECT NO. 2528

SCALE: 1" = 20'

DRAWING $\frac{2}{}$ OF $\frac{5}{}$



B-4-3 STANDARDS AND SPECIFICATIONS SEEDING AND MULCHING The application of seed and mulch to establish vegetative cove 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. A. Seeding Specifications a, All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have bee ested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate. b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants mus not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials. a. Dry Seeding: This includes use of conventional drop or broadcast spreader i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries. ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium) 200 pounds per acre. ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when iii. Mix seed and fertilizer on site and seed immediately and without interruption. B. Mulching Mulch Materials (in order of preference bright in color. Straw is to be free of noxious weed seeds as specified in the processed into a uniform fibrous physical state. ii. WCFM, including dye, must contain no germination or growth inhibiting

 a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dust Note: Use only sterile straw mulch in areas where one species of grass is desired b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the

> iii. WCFM 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 iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic

of approximately 10 millimeters, diameter approximately 1 millimeter

pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and

water holding capacity of 90 percent minimum b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre. c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per

acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water. a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard

> i. A mulch anchoring tool is a tractor drawn implement designed to punch and ancho mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely If used on sloping land, this practice should follow the contour. ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a ne dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II Terra Tack AR or other approved equal may be used. Follow application rates as

specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3.000 feet long.

B-4-8 STANDARDS AND SPECIFICATIONS STOCKPILE AREA

A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns. Conditions Where Practice Applies Stockpile areas are utilized when it is necessary to salvage and store soil for later use. 1. The stockpile location and all related sediment control practices must be clearly indicated on the

erosion and sediment control plan. 2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading. 3. Runoff from the stockpile area must drain to a suitable sediment control practice. 4. Access the stockpile area from the upgrade side.

5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner. 6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment

control practice must be used to intercept the discharge. 7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization. 8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

Maintenance

B-4-4 STANDARDS AND SPECIFICATIONS

TEMPORARY STABLIZATION To stabilize disturbed soils with vegetation for up to 6 month

To use fast growing vegetation that provides cover on disturbed soil Conditions Where Practice Applies Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time permanent stabilization practices are required.

Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan

² For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding 3 When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season

B-4-5 STANDARDS AND SPECIFICATIONS

PERMANENT STABILIZATION

To stabilize disturbed soils with permanent vegetation To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils. Conditions Where Practice Applies Exposed soils where ground cover is needed for 6 months or more.

a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan b Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical

Field Office Guild, Section 342 - Critical Area Planting. c For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil d For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ 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. a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. b. Select one or more of the species or mixtures listed below based on the site conditions or purpose Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary.

The summary is to be placed on the plan i. Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive managemen 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

ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas

receiving low to medium management in full sun to medium shade. Recommended mixture includes Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended. iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate:

Notes: Select turfgrass varieties from those listed in the most current University of Marylan Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line. Ideal Times of Seeding for Turf Grass Mixtures Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)

entral MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b) Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b) d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose. If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2 to 1 inch

every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially

true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on B. Sod: to provide quick cover on disturbed areas (2:1 grade or flatter).

 General Specifications Class of turfgrass 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 ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and tom or uneven ends will not be acceptable.

c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section. d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.

 a. During periods of subsoil immediately prior to laying the sod. b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface. d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.

3. Sod Maintenance a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to

b. After the first week, sod watering is required as necessary to maintain adequate moisture content. c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless

> H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL

Definition Controlling the suspension of dust particles from construction activities

To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards. Conditions Where Practice Applies Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

<u>Specifications</u>

<u>Mulches:</u> See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing. Vegetative Cover: See Section B-4-4 Temporary Stabilization. lage: Till to roughen surface and bring clods to the surface. Begin plowing on windward

side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.

Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar laterial can be used to control air currents and soil blowing.

Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan

NOTE: UTILITY WORK WITHIN EXISTING ROADWAYS SHALL BE LIMITED TO THAT WHICH CAN BE BACKFILLED AND/OR STABILZED BY THE END OF THE DAY'S CONSTRUCTION ACTIVITIES

NOTE: CONTRACTORS TO EXERCISE

EXTREME CAUTION WHEN WORKING IN

THE AREA OF EXISTING OVERHEAD LINES

impermeable sheeting.

NOTE: ALL SUPER SILT FENCES TO BE CHECKED DAILY TO ENSURE COMPLIANCE AND REPAIRED IMMEDIATELY AS REQUIRED

Sod Installation

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE allxorder Brataly 02/23/2021 CONSERVATION DISTRICT. DATE APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING ENGINEER - CHRISTOPHER A. MALAGAR 3.10.21 CHIEF, DEVELOPMENT ENGINEERING DIVISION WAS BY THE HOWARD SOIL CONSERVATION DISTRICT."

ENGINEER'S CERTIFICATE

I HEREBY 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

2-9-21

OWNER'S CERTIFICATE "I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT 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

9, 2021

Soil Amendments (Fertilizer and Lime Specifications)

STANDARD SEDIMENT CONTROL NOTES

1. A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS,

8-4 STANDARDS AND SPECIFICATIONS

VEGETATIVE STABILIZATION

On all disturbed areas not stabilized by other methods. This specification is divided into sections on

Effects on Water Quality and Quantity

Stabilization practices are used to promote the establishment of vegetation on exposed soil. When soil is

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and

runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Over time, vegetatio

increase organic matter content and improve the water holding capacity of the soil and subsequent plant

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to

Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching,

Adequate Vegetative Establishmen

receiving waters. Plants will also help protect groundwater supplies by assimilating those substances

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and

2. If an area has less than 40 percent groundcover, restabilize following the original recommendations

3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates

B-4-1 STANDARDS AND SPECIFICATIONS

INCREMENTAL STABILIZATION

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed

Construct and stabilize all temporary swales or dikes that will be used to convey runoff

d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed

2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading

At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept

a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around

b. At the end of each day, install temporary water conveyance practice(s), as necessary, to

intercept surface runoff and convey it down the slope in a non-erosive manner.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the

interruptions in the operation or completing the operation out of the seeding season will necessitate the

B-4-2 STANDARDS AND SPECIFICATIONS

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Conditions Where Practice Applies

be tracked with ridges running parallel to the contour of the slope.

conditions required for permanent vegetative establishment are

iv. Soil contains 1.5 percent minimum organic matter by weight.

v. Soil contains sufficient pore space to permit adequate root penetration b. Application of amendments or topsoil is required if on-site soils do not meet the above

Graded areas must be maintained in a true and even grade as specified on the

e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable

Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The

Topsoil salvaged from an existing site may be used provided it meets the standards as set

can be found in the representative soil profile section in the Soil Survey published by

a. The texture of the exposed subsoil/parent material is not adequate to produce

plants or furnish continuing supplies of moisture and plant nutrients. The original soil to be vegetated contains material toxic to plant growth.

The soil is so acidic that treatment with limestone is not feasible. Areas having slopes steeper than 2:1 require special consideration and design.

Topsoil Specifications: Soil to be used as topsoil must meet the following criteria

purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low

moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable so

forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type

The soil material is so shallow that the rooting zone is not deep enough to support

Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy

approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders

b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack

grass. Johnson grass, nut sedge, poison ivy, thistle, or others as specified.

Erosion and sediment control practices must be maintained when applying topsoil.

Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or

seeding can proceed with a minimum of additional soil preparation and tillage. An irregularities in the surface resulting from topsoiling or other operations must be

when the subsoil is excessively wet or in a condition that may otherwise be detrimental

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.

Soil tests must be performed to determine the exact ratios and application rates for both lime

Fertilizers must be uniform in composition, free flowing and suitable for accurate application by

appropriate equipment. Manure may be substituted for fertilizer with prior approval from the

Lime materials must be ground limestone (hydrated or burnt lime may be substituted except

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

Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone

at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of

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

when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus

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

to proper grading and seedbed preparation

engineering purposes may also be used for chemical analyses.

sand. Other soils may be used if recommended by an agronomist or soil scientist and

stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than

Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil

scientist and approved by the appropriate approval authority, may be used in lieu of

approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

Apply soil amendments as specified on the approved plan or as indicated by the results

means. Rake lawn areas to smooth the surface, remove large objects like stones and

branches, and ready the area for seed application. Loosen surface soil by dragging with

a heavy chain or other equipment to roughen the surface where site conditions will not

leaving the soil in an irregular condition with ridges running parallel to the contour of the

slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be

permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment

Apply fertilizer and lime as prescribed on the plans.

ii. Soluble salts less than 500 parts per million (ppm)

a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of

Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other

a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil

suitable agricultural or construction equipment, such as disc harrows or chisel plows or

rippers mounted on construction equipment. After the soil is loosened, it must not be

rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to

iii. Soil contains less than 40 percent clay but enough fine grained material (greater than

30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture.

An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt

completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any

e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as

the fill. Construct silt fence on low side of fill unless other methods shown on the plans

c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as

stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall,

stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary

Using vegetation as cover to protect exposed soil from erosion

reducing sediment loads and runoff to downstream areas.

Adequate vegetative stabilization requires 95 percent groundcover

4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

To provide timely vegetative cover on cut and fill slopes as work progresses

2. Construction sequence example (Refer to Figure B.1):

around the excavation

seeded areas as necessary

operation ceases as prescribed in the plans.

Construction sequence example (Refer to Figure B.2):

c. Place Phase 1 fill, prepare seedbed, and stabilize.

d. Place Phase 2 fill, prepare seedbed, and stabilize

The process of preparing the soils to sustain adequate vegetative stabilization

To provide a suitable soil medium for vegetative growth

Where vegetative stabilization is to be established

Temporary Stabilization

suitable means.

i. Soil pH between 6.0 and 7.0.

plus clay) would be acceptable.

unnecessary on newly disturbed areas.

Topsoiling is limited to areas having 2:1 or flatter slopes where:

Permanent Stabilization

of a soil test.

USDA-NRCS.

Topsoil Application

warranty of the producer.

soil by disking or other suitable means.

vegetative growth.

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

and apply seed and mulch on all cut slopes as the work progresses.

b. Perform Phase 1 excavation, prepare seedbed, and stabilize

Note: Once excavation has begun the operation should be continuous from grubbing through the

and apply seed and mulch on all slopes as the work progres

completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any

surface runoff and convey it down the slope in a non-erosive manner.

interruptions in the operation or completing the operation out of the seeding season will necessitat

for lime, fertilizer, seedbed preparation, and seeding.

Establishment of vegetative cover on cut and fill slopes.

A. Incremental Stabilization - Cut Slopes

the application of temporary stabilization

B. Incremental Stabilization - Fill Slopes

stabilization:

and permanent stabilization

within the root zone

and vegetative establishment.

reseedings within the

planting season.

To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS AR MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES: A. PRIOR TO THE START OF EARTH DISTURBANCE, 3. UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT 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 REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR

3. 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, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 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

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1 SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15 OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).

5. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID

6. SITE ANALYSIS TOTAL AREA OF SITE: AREA DISTURBED AREA TO BE ROOFED OR PAVED: AREA TO BE VEGETATIVELY STABILIZED: OFFSITE WASTE/BORROW AREA LOCATION: * IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY THE SPOIL /BORROW D NOTIFY AND GAIN APPROVAL FROM THE SEDIMENT CONTROL INSPECTO OF THE SITE AND ITS GRADING PERMIT NUMBER AT THE TIME OF CONSTRUCTION

7. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE

8. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY; 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 TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)

WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES EVIDENCE OF SEDIMENT DISCHARGE

IDENTIFICATION OF PLAN 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

 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).

9. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER. 10. ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED

BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE 11. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME, WORK MAY PROCEED

TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE HSCD. UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE CID

12. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.

13. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE. 14. ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE IMBRICATED AT 25' MINIMUM

INTERVALS, WITH LOWER ENDS CURLED UPHILL BY 2' IN ELEVATION. 15. STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):

· USE I AND IP MARCH 1 - JUNE 15 USE III AND IIIP OCTOBER 1 — APRIL 30

16. A COPY OF THIS PLAN. THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN

SEQUENCE OF CONSTRUCTION — INDIVIDUAL HOUSE HOLD A PRE-CONSTRUCTION MEETING: APPLY FOR GRADIN PERMIT; AND OBTAIN GRADING PERMIT STEP DURATION 1 DAY. THE CONTRACTOR(S) ARE TO IDENTIFY AND MARK ANY DAY 2: HAZARDOUS CONDITIONS THAT MAY EXIST ONSITE, SUCH AS OVERHEAD POWERLINES, OLD WELLS, GAS LINES, ETC. CLEAR AND GRUB AS NECESSARY FOR THE INSTALLATION OF PERIMETER CONTROLS. INSTALL STABILIZED CONSTRUCTION ENTRANCE, AND PERIMETER CONTROLS. STEP DURATION 2 DAYS. CLEAR AND GRUB REMAINDER OF SITE WITHIN INSTALLED PERIMETER CONTROLS. GRADE SITE AND STABILIZE IN ACCORDANCE WITH TEMPORARY SEEDING NOTES. STEP DURATION 6 DAYS. DAY 11-100: CONSTRUCT HOUSE, INSTALL STORMWATER MANAGEMENT MEASURES AND ROOF LEADERS. INSTALL DRIVEWAY AND UTILITIES. STEP DURATION 89 DAYS. DAY 101-104: FINE GRADE AND STABILIZE ANY REMAINING DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. STEP DURATION 3 DAYS. DAY 105-107: UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE ALL SEDIMENT CONTROL DEVICES.

Permanent Seeding Summary

PERMANENTLY STABILIZE AS REQUESTED.

STEP DURATION 2 DAYS.

Hardiness Zone (from Figure B.3):

	Seed Misture (from Table	e B.3):	Tall Fescue/Kentucky Bl	uegrass	(10-20-20)			Lime Rate	
No.	Species	Application Rate (lb/ac.)	Seeding Dates	Seeding Depths	N	P2O5	K2O		
	Fescue, Tall	60	Mar 1 to May 15 Aug 1 to Oct 15	1/4 - 1/2 in	45 pounds	ds			
9	9 Bluegrass, Kentucky	40	Mar 1 to May 15 Aug 1 to Oct 15	1/4 - 1/2 in	per acre (1.0 lb/	90 lb/ac (2 lb/	90 lb/ac 2 lb/	2 tons/ac (90lb/	
			1/4 - 1/2 in	100 sf)	1000 sf)	1000 sf)	1000 sf)		

Table B.1: Temporary Seeding for Site Stabilization

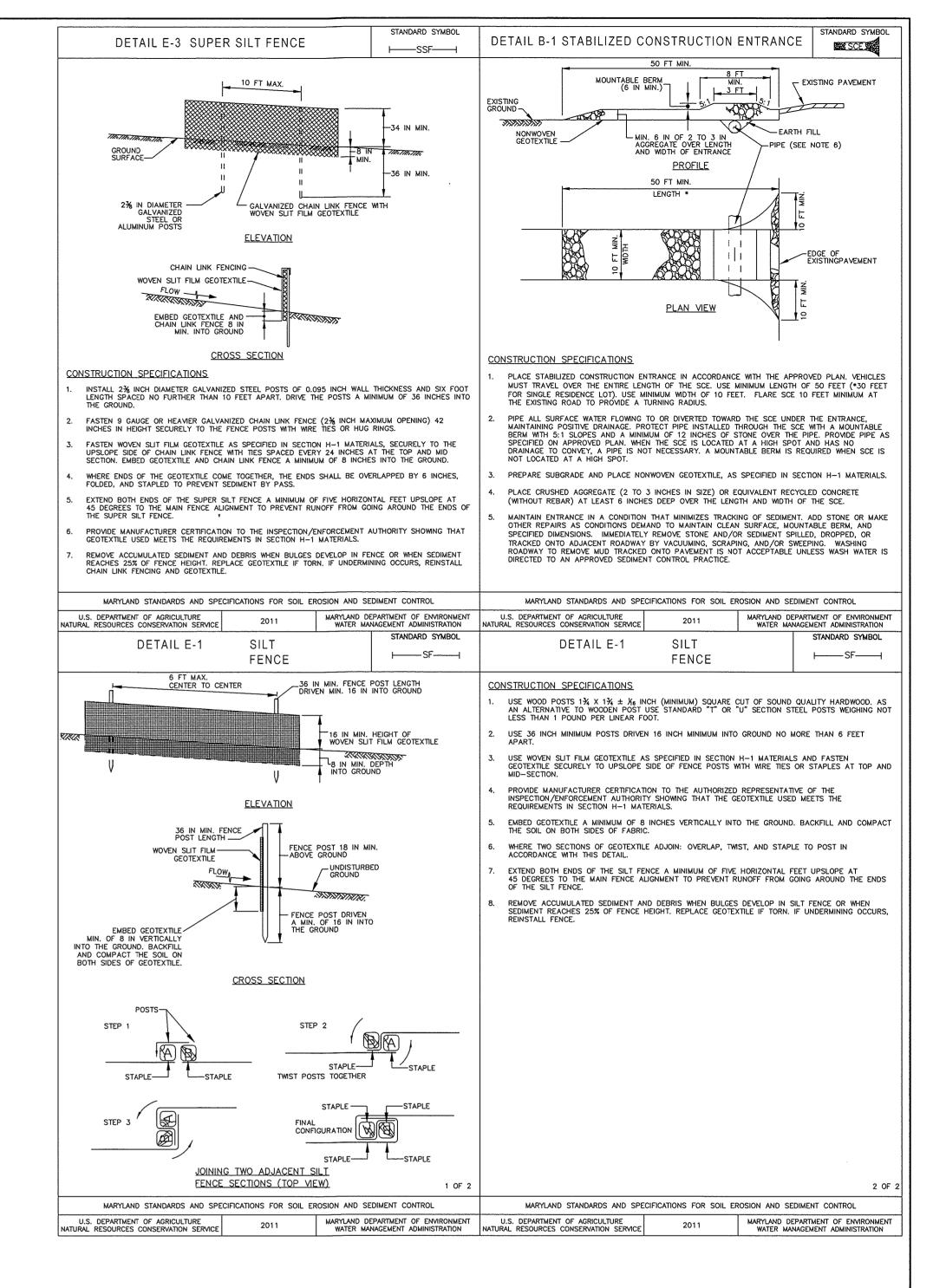
Plant Species	Seedin	g Rate 1/	Seeding Depth 2/	Recommended Seeding Dates by Plant Hardiness Zone 3/						
riant species	lb/ac	lb/ac lb/1000 ft2		5b and 6a	6b	7a and 7b				
Cool-Season Grasses										
Annual Ryegrass (Lolium perenne ssp. Multiflorum	40	1.0	0.5	Mar 15 to May 31; Aug 1 to Sep 30	Mar 1 to May 15; Aug 1 to Oct 31	Feb 15 to Apr 30; Aug 15 to Nov 30				
Barley (Hordeum vulgare)	96	2.2	1.0	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; Aug 15 to Nov 30				
Oats (Avena sativa)	72	1.7	1.0	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; Aug 15 to Nov 30				
Wheat (Triticum aestivum)	120	2.8	1.0	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; Aug 15 to Nov 30				
Cereal Rye (Secale cereale)	112	2.8	1.0	Mar 15 to May 31; Aug 1 to Oct 31	Mar 1 to May 15; Aug 1 to Nov 15	Feb 15 to Apr 30; Aug 15 to Dec 15				
Warm-Season Grasses										
Foxtail Millet (Serataria italica)	30	0.7	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14				
Pearl Millet (Pennisetum glaucum	20	0.5	0.5	Jun 1 to Jul 31	May 16 to Jul 31	May 1 to Aug 14				
Notes:						·				

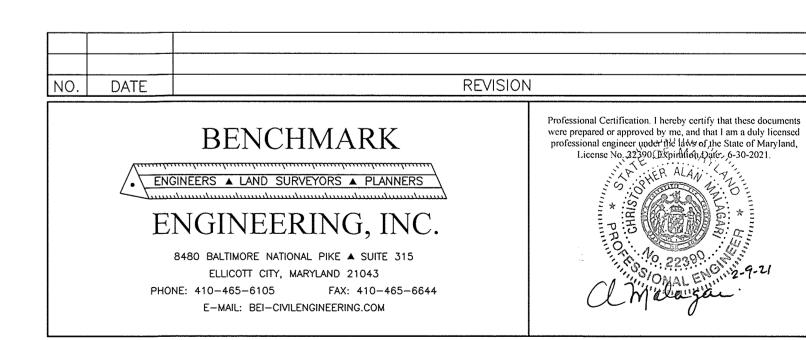
Seeding rates for the warm season grasses are in pounds of Pure Live Seed (PLS). Actual planting rates shall be adjusted to reflect percent seed germination and purity, as tested. Adjustments are usually not needed for the cool-season grasses.

Seeding rates listed above are for temporary seedings, when planted alone. When planted as a nurse crop with permanent seed mixes, use 1/3 of the seeding rate listed above for barley, oats, and wheat. For smaller-seeded grasses (annual ryegrass, pearl millet, foxtail millet), do not exceed more than 5% (by weight) of the overall permanent seeding mix. Cereal rye generally should not be used as a nurse crop, unless planting will occur very late fall beyond the seeding dates for other temporary seedings Cereal rye has allelopathic properties that inhibit the germination and growth of other plants. If it must be used as a nurse crop, seed at 1/3 of the rate listed above.

Oats are the recommended nurse crop for warm-season grasse.

2/ For sandy soils, plant seeds at twice the depth listed above. 3/ The planting dates listed are averages for each Zone and may require adjustment to reflect local conditions, especially near the boundaries of the zone.





PROJECT: SITE DEVELOPMENT PLAN OWNER: SINGLE FAMILY DETACHED DWELLING JAMES L. NEWBURN **NEWBURN PROPERTY** 6378 WINTERS LANE HANOVER, MD 21076-1013 TAX MAP-38 GRID-14 PARCEL-815 L.16587/F.00164 1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND DEVELOPER: TITLE: SEDIMENT & EROSION CONTROL THE ESTATE OF JAMES L. NEWBURN PLAN, NOTES, AND DETAILS 9469 HICKORY LIMB

DRAFT: MCR CHECK: CAM

COLUMBIA, MD 21045 SEPTEMBER, 2019 DATE: FEBRUARY, 2021 PROJECT NO. 2528

SCALE: 1" = 20

SDP-20-010

DRAWING $\frac{4}{}$ OF $\frac{5}{}$

J:\2528 GRANT PROPERTY\dwg\8000V2.dwg, SEC2, 2/7/2021 7:44:59 PM, mriedel

