

Vegetative Stabilization Specifications Critical Area Planting (NRCS Practice Code 342)

This sheet is to be added to the design if no Implementation Requirement (IR) Sheet has been completed for NRCS Practice Code 342

TOPSOIL

Strip and stockpile topsoil in amounts necessary to complete finish grading of all exposed areas requiring topsoil.

Use a minimum 4-inch stripping depth, depending on the soil and site conditions.

Import topsoil from offsite when feasible and needed to improve the soil medium for plant establishment and growth, or when a sufficient amount or quality was not available onsite to stockpile.

Exposed soil shall be topsoiled if:

- Very shallow to a restrictive layer (e.g., less than 6 inches to fragipan)
- Extremely acidic (pH less than 5.0)
- Extremely salty (conductivity > 500 parts per million, or 4.0 millisiemens per centimeter)
- Non-friable or non-loamy
- Inclusive of debris, stones, and other materials larger than 1.5 inches diameter
- Inclusive of seeds and viable plant parts of noxious weeds and invasive plants
- Extremely alkalic (pH more than 7.5)
- Inclusive of toxic substances harmful to plant growth
- Inclusive of less than 1% organic matter

Topsoil Quality – Topsoil shall be:

- Friable and loamy
- Free of debris, stones, and other materials larger than 1.5 inches diameter
- Free of seeds and viable plant parts of noxious weeds and invasive plants
- Free of toxic substances harmful to plant growth
- Less than 500 parts per million soluble salts
- pH of 5.5 to 7.5
- Minimum 1% organic matter content (by weight), based on soil test results

Before spreading topsoil for final grade, test the pH of the subsoil. If the subsoil is highly acidic, add ground agricultural limestone at the rate of 4 to 8 tons per acre (200 to 400 pounds per 1,000 sq. ft. Distribute lime uniformly and work into subsoil.

Subsoil with a pH of 4.0 or less, or containing sulfides, shall be covered with a minimum of 12 inches of topsoil.

Immediately before spreading topsoil, the subsoil shall be loosened by disking or scarifying to provide a good bond for the topsoil.

- Slopes less than 3H:1V – loosen subsoil to depth of 2 inches
- Slopes up to 2H:1V, - loosen subsoil to depth of 0.5 to 1 inch, OR track with bulldozer up and down slope to create horizontal check slots that will prevent topsoil from sliding down slope

Topsoil shall be handled only when dry enough to work without damaging soil structure, that is, less than field capacity.

Do not spread topsoil when it is partly frozen, muddy, or slopes are frozen or covered in ice or snow.

SITE PREPARATION FOR SEEDING

Seedbed preparation and handling topsoil shall be done when the soil is moist, but not wet.

Remove timber, logs, brush, rocks, stumps, rubble, trash, and vegetative matter that will interfere with the grading operation or affect the planned stability of fill areas. Dispose of debris appropriately.

If weeds are present, they should be mowed and a low-persistence herbicide (e.g., glyphosate) should be applied following label directions.

Establish a good seedbed on all areas to be seeded:

- Slopes flatter than 3H:1V – Work soil to a depth of 3 to 5 inches with a disk or similar equipment. Continue tillage until a reasonably uniform seedbed is prepared.
- Slopes 3H:1V or steeper – Scarify the soil surface with a bulldozer, heavy chain, hand tools or other equipment that will loosen the soil ½ to 1 inch deep. After soil is loosened, do not work it completely smooth, but leave it in a somewhat roughened condition. Follow the contour when making the final surface preparation.

Spread stockpiled topsoil to finish grade. Topsoil shall be loose and friable to a depth of 1 to 3 inches.

Apply lime, fertilizer and/or other soil amendments evenly on site at the rates specified. Wet or dry application methods can be used.

All disturbed areas shall be left with a generally smooth finish and shall be protected from erosion.

WEED CONTROL MEASURES DURING ESTABLISHMENT

First Growing Season

In the first growing season after seed germination, it is very important to ensure that seedlings do not get shaded out by weeds. Weeds can be controlled by mowing or herbicide treatment, as follows:

- Mow the planting as needed to encourage development of a dense stand of grass, and to control weeds and keep them below 18 inches. For cool-season grasses, mow to a height of 4 to 6 inches or just above seedling height – **do not mow seedlings**. Nesting season restrictions on mowing do not apply during the establishment period.
- Selective herbicides can be used for controlling specific weeds, and are most effective when weeds are young and actively growing. Be sure to read and follow herbicide label instructions.

Second Growing Season

If annual grasses or weeds comprise more than 25 percent of the stand, either treat with an appropriate herbicide or mow the planting at a height of 6 to 8 inches to inhibit weed seed production. A good rule of thumb is to cut off no more than one-third of the grass leaf area at one time. Throughout the growing season, continue to mow as needed to keep weeds under control.

SEEDING METHODS

Seed shall be applied uniformly by hand, cyclone seeder, drill, cultipacker-seeder, or hydroseeder. The preferred method of seeding is by drilling or cultipacker-seeder method because these methods optimize seed to soil contact.

Seeding operations shall be done on the contour to the extent feasible. When a uniform distribution of seeds especially important (e.g., on lawns and athletic fields) and slopes are not extremely steep, apply seed in two directions, each perpendicular to the other. Apply one-half the seeding rate in each direction.

Drill - Seed shall be planted by using a grass drill or cultipacker-type seeder. A grain drill may also be used if it can be calibrated to plant small seeds at the recommended planting rates. As previously noted, plant grasses with fluffy seeds by using a specially designed native seed drill. All drills shall have packer wheels, chains, or similar devices to close the seed slot and provide good seed to soil contact. Do not plant small-seeded grasses more than 1/4 to 1/2-inch deep.

Broadcast - Seed may be broadcast by using a cyclone or whirlwind seeder or by hand. If spread by hand, small or light-seeded species such as redtop or bluestem may be mixed with filler (e.g., sawdust, finely ground corn, or slightly moistened peat moss) to achieve an even distribution. Incorporate seed into the soil 1/8 to 1/4-inch deep by raking or dragging, cultipacking, or tracking with heavy machinery. Raked areas shall be rolled with a weighted roller to provide good seed to soil contact. Do not use broadcast seeding methods during windy conditions.

Hydroseeding - This method is best suited for steep, inaccessible areas where use of a drill or other mechanized equipment is not feasible. Hydroseeding may be performed in two separate operations, with a slurry of seed and fertilizer applied in the first pass and mulch applied in the second pass, or in one operation (sometimes referred to as "hydromulching") to apply a slurry of fertilizer, seed, mulch, and tackifying agents. Do not use burnt or hydrated lime when hydroseeding. If legume inoculant is used, complete the seeding within 3 to 4 hours after slurry is mixed or add a fresh supply of inoculant to the mix. If feasible after seeding, track the area up and down slope with heavy machinery such as a bulldozer to improve seed to soil contact.

SOIL AMENDMENTS

If practical and for best results, use soil tests to determine the optimum recommendations for fertilizer and liming rates.

Fertilizer

The use of commercial fertilizer and other forms of plant nutrients must be in compliance with Maryland nutrient management regulations, as applicable.

Starter fertilizer shall be applied at the time of seeding or up to 5 days after seeding.

20-50% of the total nitrogen shall be slow-release to provide nitrogen over a longer period of time and to reduce nitrogen leaching and runoff.

All fertilizer shall be uniform in composition, free-flowing, and suitable for application by approved equipment.

Fertilizers shall be delivered to the site fully labeled according to applicable state fertilizer laws and shall bear the name, trade name, or trademark and warranty of the producer.

Lime

Lime to achieve a soil pH of 6.0 if legumes are included in the planting, and 5.5 if only grasses will be used.

Lime materials shall be ground agricultural limestone that contains at least 50% total oxides (calcium (Ca) plus magnesium (Mg) oxide).

Limestone applied at rates greater than 50 pounds per 1,000 square feet (or greater than 1 ton per acre) shall be incorporated into the upper 4 to 6 inches of the soil. Limestone applied at lower rates may be incorporated or left on the soil surface.

Organic Amendments

Apply manure and compost at a rate based on a nutrient analysis of that material. Incorporate organic amendments into the upper 4 to 6 inches of soil to the extent practical.

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MAXIMUM APPLICATION RATES FOR SOIL AMENDMENTS			
Planting Location(s)	Acres (or SF)	Soil Amendment	Application Rate (lbs/ac) or (lbs/1,000SF)
		Nitrogen (N)	
		Phosphorus (P ₂ O ₅)	
		Potassium (K ₂ O)	
		Limestone (CaCO ₃)	

Date	_____
Designed	_____
Drawn	_____
Checked	_____
Approved	_____

LANDOWNER – SITE NAME

COUNTY Soil Conservation District
JOB CLASS # _____, Maryland

LANDOWNER – SITE NAME

COUNTY Soil Conservation District
JOB CLASS # _____, Maryland

TRACT # _____



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Drawing No.	MD_0038
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TEMPORARY SEEDING

Use temporary seeding of annual plants if circumstances prevent implementing permanent seeding immediately on completion of final grading.

Use temporary seeding if disturbed areas of soil will be exposed for more than 2 months, but less than 12 months.

When a temporary or permanent seeding cannot be completed because of weather conditions or time of year, apply mulch only (no seeding) as a temporary cover when soil stabilization is needed.

Planting Location(s)	Acres (or SF)	Plant Species	Seeding Rate (lbs/ac) or (lbs/1,000SF)	Seeding Date

Seeding Depth:
Cool-Season Grasses (Barley, Oats, Wheat, Cereal Rye): 0.5 – 1.0 inch
Warm-Season Grasses (Foxtail Millet, Pearl Millet): 0.25 – 0.5 inch

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Plant Hardiness Zone	Warm-Season/Cool-Season Grass Mix		Cool-Season Grasses (with/without forbs & legumes)		Sprigs - Warm-Season Grasses	Sod - Cool-Season Grasses
	Spring Planting*	Fall Planting	Spring Planting	Fall Planting		
5b, 6a	<input type="checkbox"/> Mar 15 – May 31 Jun 1 to Jun 15	<input type="checkbox"/> Mar 15 – May 31	<input type="checkbox"/> Aug 1 – Sep 30	<input type="checkbox"/> May 1 - June 1	<input type="checkbox"/> Mar 15 - May 31 Jun 1 - Nov 1*	
6b	<input type="checkbox"/> Mar 1 – May 15 May 16 to Jun 15	<input type="checkbox"/> Mar 1 – May 15	<input type="checkbox"/> Aug 1 – Oct 15	<input type="checkbox"/> April 15 - June 1	<input type="checkbox"/> Mar 1 - May 15 May 16 - Nov 15*	
7a, 7b, 8a	<input type="checkbox"/> Feb 15 – Apr 30 May 1 to May 31	<input type="checkbox"/> Feb 15 – Apr 30	<input type="checkbox"/> Aug 15 – Oct 31 Nov 1 to Nov 30*	<input type="checkbox"/> April 1 - May 15	<input type="checkbox"/> Feb 15 to Apr 30 May 1 - Dec 1*	

◆ In general, planting during the latter portion of this period allows more time for weed emergence and weed control prior to planting. The second set of planting dates is applicable when it has been a particularly wet spring, but not on excessively drained soils.

* Additional planting dates for the lower Coastal Plain, depending on moisture availability and temperature trends.

+ Additional planting dates during which supplemental watering may be needed to ensure plant establishment. When sod is planted in late fall, frequent freezing and thawing of wet soils may result in frost-heaving if the grasses have not sufficiently rooted in place.

Seeding Depth Just below surface to ¼ inch ¼ to ½ inch Other:

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PERMANENT PLANTING

(Refer to the Maryland Conservation Planting Guide, Section 3, to select an appropriate mix.)

PERMANENT PLANTING			
Planting Location(s) (Field No.)	Species (and Cultivar, if any)	Acres (or SF)	Seeding Rate (lbs/ac) or (lbs/1,000SF)

Open the OLE and you will be able to click on the hyperlinks to open the referenced pdf document.
REMOVE THIS BLOCK WHEN DESIGN IS READY TO PRINT
Instructions for Using this Document

Specification for establishing a critical area planting can be provided to the client on a separate 342 Implementation Requirements sheet, or on a separate sheet of the engineering design for a project. The specifications in this document provide a template for including vegetative stabilization requirements on the engineering design. They provide basic information for establishing vegetation on a site that has been significantly disturbed (e.g., a construction site) and is likely to have low nutrient levels, and when obtaining a soil test is not feasible.

Planners and technicians should refer to Section 3 of the [Maryland Conservation Planting Guide](#) for more detailed information concerning critical area plantings. Refer to [Table 3.1 for temporary seeding recommendations](#). [Table 3.2](#) provides guidance for selecting a permanent seeding mix based on site condition or purpose of the planting. [Table 3.3](#) provides a list of recommended permanent seeding mixes.

Also refer to the Maryland Conservation Practice Standard and Specifications for Mulching (484).

Enter the appropriate descriptions and quantities in the tables in this document as needed for Soil Amendments, Temporary Seeding, Permanent Planting, and Mulching. An Excel spreadsheet is available for calculating the amount of starter fertilizer and lime needed, based on site size and soil texture, and for straw/hay mulch.

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MULCHING

Mulch shall consist of natural and/or artificial non-toxic materials of sufficient thickness and durability to achieve the intended effect for the required time period. Methods of anchoring mulch shall be sufficiently durable to maintain mulch in place until it is no longer needed.

Mulching Specifications					
Field or Site No.	Area (Ac. or SF)	Type of Mulching Material	Percent Cover, or Depth/Thickness of Material	Amount of Mulch (per unit area)	Method of Anchoring

Site Preparation and Timing of Application: (Describe site preparation and specify when mulch will be applied.)

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Additional Recommendations/Notes:

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ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST NRCS SPECIFICATIONS FOR EACH CONSERVATION PRACTICE LISTED ON THE PLANS. IF NOT PROVIDED IN THE PLANS AND SPECIFICATIONS, THE SPECIFICATIONS FOR EACH CONSERVATION PRACTICE CAN BE FOUND IN SECTION IV OF THE MARYLAND ELECTRONIC FIELD OFFICE TECHNICAL GUIDE (eFOTG) LOCATED AT: [https://efotg.sc.egov.usda.gov/#/state/MW UNDER 'Conservation Practice Standards & Support Documents'](https://efotg.sc.egov.usda.gov/#/state/MW_UNDER_Conservation_Practice_Standards_Support_Documents).