
Erosion & Sediment Control Technical Bulletin No. 3

Construction Site Stabilization During Drought Conditions

Background

The Commonwealth is currently experiencing a severe drought. Consequently, Governor Warner issued Executive Order 33 on August 30, 2002 restricting water use, including the watering of existing lawns. In addition, certain localities may have stricter water conservation requirements during drought conditions.

Drought conditions make stabilization of land-disturbing activities more challenging. To stabilize construction sites, strict adherence to the Erosion and Sediment Control (ESC) Minimum Standards and the Virginia ESC Handbook, along with frequent site inspection, must be applied. Information on the Minimum Standards and the Virginia ESC Handbook are available on the website: <http://www.dcr.state.va.us/sw/e&s.htm>.

Benefits

Virginia frequently experiences hot, dry conditions during the summer months. Exceptionally dry conditions or drought and the possible ensuing water restrictions, intensify the need for water conservation. Measures used to stabilize construction sites, such as mulching and preserving existing vegetation, not only conserve water but also stabilize construction sites in an effective and economic manner.

The following four types of conservation tips assist in achieving successful site stabilization during extreme climates, while advocating the importance of water conservation during normal conditions.

Tips on Construction Site Stabilization During Drought Conditions

I. Preserve Established Vegetation on Construction Sites

- **Preserve Vegetation** - Maintain as much existing vegetation as possible during construction, including grass, shrubs, trees, and other ground cover, to reduce the need for new vegetation and to insulate new vegetation from heat.
- **Project Phasing** – Phase construction to disturb smaller areas and preserve vegetation. Phasing can maintain the existing vegetation and therefore reduce site exposure to drought and soil erosion. Phasing reduces the need and difficulties in stabilizing a large area of new vegetation at one time.

II. Establish New Vegetation to Stabilize Construction Sites While Conserving Water

- **Continue to Enforce Minimum Standard 1** - Permanent or temporary soil stabilization must be applied to denuded areas within seven days after final grade or if site will remain dormant for longer than 30 days, but less than one year.
- **Mulching** – Apply mulch consistently along with seed and tackifiers to increase available moisture, infiltration, and to provide insulation to soil and/or seed against heat.
- **Topsoiling** - Preserve and augment existing topsoil consistently with compost to increase water-holding capacity.
- **Surface Roughening in Conjunction with Mulching** – Add mulch to roughened slopes to increase infiltration and to protect seed from direct sun.
- **Hydroseeding in Conjunction with Mulching** – Supplement hydroseeding by applying mulch to bare ground first, then tack mulch by applying hydroseed during drought conditions to ensure seed protection from direct sun.

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- **Drought Tolerant Seed** - Select site-specific seeding mixtures for the Virginia regions (Piedmont, Coastal, Appalachian, and Mountain Area) that are tolerant of drought conditions.

Permanent (Perennial) Stabilization Seed
Bermudagrass
Tall Fescues (Turf-Type or Kentucky 31)
Fine Fescues
Perennial Rye
Flatpea

Temporary (Annual) Stabilization Seed
Annual Rye
Foxtail Millet
German Millet

Avoid seed species that have poor drought tolerance, such as Kentucky Bluegrass, Annual Rye Grass, and White Clover.

- **Nurse Crop** - Add quick-growing annuals to permanent mixtures (nurse crop) to provide early protection and facilitate the establishment of one or two perennials in a mix. The addition of a nurse crop is a sound practice for soil stabilization, particularly on difficult sites where the development of permanent cover is likely to be slow, such as during severe drought conditions. The nurse crop germinates and grows rapidly, holding the soil until the slower-growing perennial seedlings become established.
- **Maintenance** – Strict adherence to ESC Minimum Standards must be applied during all climatic conditions to ensure site stabilization. Water, re-seed, re-mulch, and perform other maintenance for newly planted areas within 30 days of planting.
- **Conservation Watering Techniques** – Conserve when watering newly planted areas by following these techniques during all climatic conditions:
 - Water early in the morning or late at night to avoid evaporation
 - Avoid watering during windy weather
 - Use drip irrigation systems for bedded plants, trees and shrubs
 - Use a broom rather than a hose to clean walks and driveways
 - Plant native and/or drought tolerant grasses, ground covers, shrubs, and trees
 - Mulch to retain moisture in the soil
 - A once-a-week deep soaking of about 1- inch is sufficient for most grasses, trees, and shrubs
 - In most cases, watering is only necessary during the growing season, March through October

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III. Stabilize Construction Sites Using Non-Vegetative Methods

- **Mulch** – Anchor mulch to disturbed areas to provide immediate stabilization in areas where vegetative establishment is difficult until the climate accommodates permanent vegetation establishment. Consider a variance to Minimum Standard 3- permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized.

- **Soil Stabilization Blankets & Matting** – Apply soil stabilization blankets and matting in areas where vegetative establishment is difficult until the climate accommodates permanent vegetation establishment. Consider a variance to Minimum Standard 3- permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized.

- **Sediment Clean-Up** – Give special attention to removing sediments from paved areas to limit street or truck washing.

- **Dust Control** – Give special attention to controlling dust by employing the following temporary measures during construction: vegetative cover; mulch; tillage; and spray-on adhesives. Sprinkling the site with water to control dust is a common practice (although not recommended during extreme drought conditions).

IV. Other Resources on Water Conservation

- <http://www.deq.state.va.us/info/conservewater.html>
- http://www.governor.state.va.us/Press_Policy/Executive_Orders/html/EO_33.html
- <http://www.naturalresources.state.va.us/Drought/WaterRestrictionsFAQ.cfm>
- <http://smv.org/savewater.html>
- <http://www.newport-news.va.us/wwdept/conserv/conserv.htm>
- <http://www.h2ouse.org/>