Stormwater Best Management Practice

Sodding

Minimum Measure: Construction Site Stormwater Runoff Control
Subcategory: Erosion Control

Description

Sodding is a permanent erosion control practice that involves laying a continuous cover of grass sod on exposed soils. Sodding can stabilize disturbed areas and slow down flowing stormwater. Sodding can provide immediate vegetative cover for critical areas and stabilize areas where seeding is not an option. It also can stabilize channels or swales that convey concentrated flows and reduce flow velocities. Sodding is an effective measure to provide stabilization on construction sites where construction activities have permanently ceased.

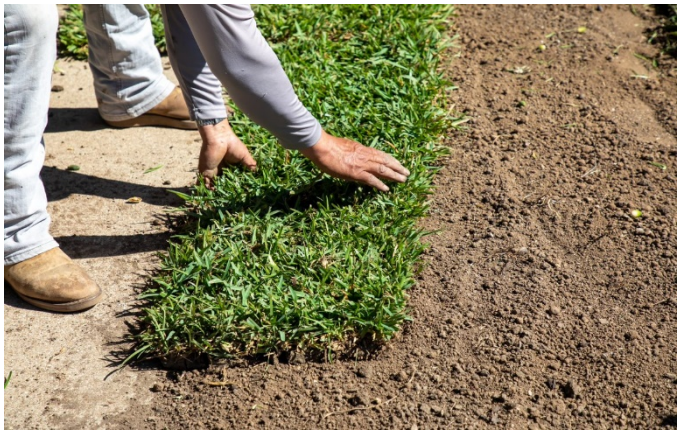
Applicability

Sodding is appropriate for any graded or cleared area that might erode, requiring immediate vegetative cover. Well-suited locations include:

- Residential or commercial lawns and golf courses where prompt use and aesthetics are important
- Steeply sloped areas
- Waterways and channels carrying intermittent flow
- Areas around drop inlets that require stabilization

Siting and Design Considerations

Sodding eliminates the need for seeding and mulching. Construction staff can lay sod during times of the year when seeded grasses are likely to fail. Staff should make sure to install sod no more than 36 hours after its producers harvest it to ensure that the sod is healthy and living. (If they cannot, they should inspect and approve the sod before installing it.) Staff should use only high-quality sod of known genetic origin, free of noxious weeds, disease and insect problems (Smolen et al., 2013). They should ensure that the sod is machine-cut at a uniform soil thickness of 0.5–2 inches (not including shoot growth or thatch) at the time of establishment. Local agricultural extension offices can be helpful resources for identifying sod sources and providing planting instructions for local conditions.



Sod can be used to quickly stabilize soil and reduce erosion

Sod installation generally entails the following steps:

- If a soil test determines the need based on local growing conditions, prepare the soil and add lime or fertilizer, as needed.
- Clear all trash, debris, roots, branches, stones and clods larger than 2 inches in diameter.
- Lay the sod in strips perpendicular to the direction of water flow. Stagger it in a brick-like pattern.
- Staple the corners and middle of each strip firmly.
- Peg jute or plastic netting over the sod to protect against washout during establishment.
- Water the sod often within the first few weeks of installation.

Limitations

Sod is more expensive than seed, and more difficult to obtain, transport and store. To ensure successful establishment, construction staff should prepare the soil and provide adequate moisture before, during and after installation. On poorly prepared soil or an unsuitable surface, the grass will die quickly because it cannot root. After installation, inadequate irrigation can cause root dieback or cause the sod to dry out.

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Maintenance Considerations

To maintain adequate moisture in the root zone and to prevent dormancy, construction staff should water the sod, especially within the first few weeks of installation. Staff should not mow the sod until it is firmly rooted. When mowing, they should not remove more than one-third of the shoot, keeping grass height between 2 and 3 inches. After the first growing season, staff should determine if the sod needs more fertilization or liming. Permanent, fine turf areas need yearly maintenance fertilization. Staff should fertilize warm-season grass in late spring to early summer; they should fertilize cool-season grass in late winter and again in early fall.

Effectiveness

The effectiveness of sod in reducing erosion is hard to quantify, as performance can vary depending on soil conditions, storm intensities and slope. Still, erosion over well-sodded areas is minimal in all but the largest storms (Beard & Green, 1994): many jurisdictions (e.g., 5C, 2012) credit sod as reducing soil loss by up to 99 percent.

Cost Considerations

The cost of sodding depends on many factors—availability and proximity of materials, time of year, prevailing wage rates, regional cost trends, and project size, to name a few. It is therefore difficult to develop cost estimates that apply nationwide and year-round. Including installation, costs can range from $25 to $100 per square yard (RSMeans, 2020).

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's National Menu of Best Management Practices (BMPs) for Stormwater website

References

Beard, J. B., & Green, R. L. (1994). The role of turfgrasses in environmental protection and their benefits to humans. *Journal of Environmental Quality*, 23(3), 452–460.

Five Counties Salmonid Conservation Program (5C). (2012). *5C Roads Workshop Presentation, Understanding Erosion with the Revised Universal Soil Loss Equation*.

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Smolen, M. D., Miller, D. W., Wyatt, L. C., Lichthardt, J., & Lanier, A. L. (2013). Erosion and sediment control planning and design manual. North Carolina Sedimentation Control Commission; North Carolina Department of Environment and Natural Resources; North Carolina Agricultural Extension Service.