

METHODS TO MINIMIZE EROSION ON DISTURBED LAND AND SLOPES

Tina R. Evans, PE, CISEC
HydroDynamics Incorporated
Parker, CO
303-841-0377

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What Is Water Erosion?

- Soil particles displaced by the action of wind or water



HAR 11-55, App. C

Section 5.2.1.1. Deadline to Initiate Stabilization (Page 25)

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CHAPTER 11-55 APPENDIX C

5.2.1.1. Deadlines for initiating and completing stabilization.

5.2.1.1.3. Deadline to initiate stabilization.

The permittee shall initiate soil stabilization measures immediately whenever earth-disturbing activities have permanently or temporarily ceased on any portion of the site, in limited circumstances stabilization may not be required immediately (or, in even more limited circumstances, permanently) if the intended function of a specific area of the site necessitates that it remain disturbed.

Note: The Department can envision only limited cases where a disturbed area would not require stabilization because it should remain disturbed. Permittees must still minimize discharge from disturbed areas.

Note: Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed.

Note: Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future.

The 14 calendar day timeframe above begins counting as soon as the permittee knows that construction work on a portion of the site will be temporarily ceased. In circumstances where the permittee experiences unplanned or unanticipated delays in construction due to circumstances beyond the permittee's control (e.g., sudden work stoppage due to unanticipated problems associated with construction labor, funding, or other

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Stabilization Requirements

- Deadlines for initiating
 - Section 5.2.1.1 (Page 25)
 - Earth-disturbing activities permanently cease
 - Where clearing and excavation will not include permanent structure
 - Immediately
 - Earth-disturbing activities temporarily cease
 - Where clearing and excavation will not resume for 14 or more calendar days
 - Immediately
 - Immediately means as soon as practical but no later than the next day

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Stabilization Requirements

- Deadlines for completing
 - Section 5.2.1.2 (Page 27)
 - As soon as practical
 - No later than 14 days after initiation
 - Exceptions to Deadlines
 - Section 5.2.1.3 (Page 27)
 - Beyond control of permittee
 - Document circumstances

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Stabilization Requirements

- **Criteria for stabilization**
 - Section 5.2.2 (Page 29)
 - **Vegetation (5.2.2.1)**
 - Uniform establishment
 - 70% or more of historic vegetation
 - **Prior to earth-disturbing activities**
 - Perennial vegetation
 - Mulch
 - **Non-vegetative controls (5.2.2.1.2)**
 - Must be effective

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Erosion Control

Seed and Vegetation
Mulches
Soil Binder
RECPs
Diversion Structures
Check Structures

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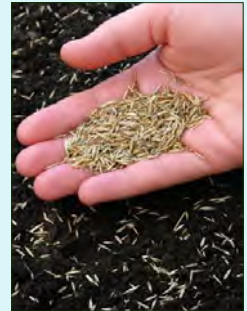
Staging

- **Staging the removal of vegetation**
 - Minimizes erosion
 - Reduces need for sediment control measures



Establishing Vegetation from Seed

- **Select Grass Species for Your Area**
 - Warm Season Grasses
 - Seeds germinate under warmer climatic and soil conditions
 - Cool Season Grasses
 - Seeds germinate under cooler climatic and soils conditions
 - Use of warm and/or cool season grasses is dependent upon location



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Methods for Planting Seed

- **Drill**
 - Seed is placed within the soil
 - Best probability for germination
- **Broadcast**
 - Seed are on top of the soil
 - Possible removal by insects and birds
 - May need up to twice the drill application rates
 - Raking of the soil is recommended
- **Hydraulic**
 - Seeds are within the mulch
 - Little soil contact
 - Possible restrictions in arid/semi-arid climates
 - May need up to 4 times the drill application rates



Planting seed alone will not provide control erosion!

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- **Planting seed alone will not provide control erosion!**
 - **Must be coordinated with methods that provide temporary slope protection**
 - **Mulches**
 - **RECPs**
 - **Soil Binders**

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Erosion Control

- Seed and Vegetation
- Mulches
- Soil Binder
- RECPs
- Diversion Structures
- Check Structures

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Hydraulic Mulches

- **Material**
 - Wood fiber
 - Paper
 - Binder
- **Application Rates**
 - (1.0 to 1.5 tons/ac.)
- **Possible Problems**
 - Shadowing
 - Inadequate amount of material
 - Need to have 100% coverage



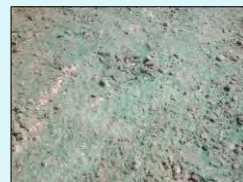
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Erosion Control

- Seed and Vegetation
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- Soil Binder
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Soil Binder



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Rolled Erosion Control Products (RECPs)

Erosion Control Blankets or Mats (ECBs)

- Rolls of organic material
 - Straw, jute, excelsior, coconut
 - With net and without net material

Turf Reinforcement Mats (TRMs)

- Inorganic rolls
 - Polypropylene
 - Nylon



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Rolled Erosion Control Products

Erosion Control Blankets or Mats (ECBs)

- Hillsides
- Assists with vegetation establishment.



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Rolled Erosion Control Products

Single or Double Net Erosion Control Blanket

- Organic
 - Excelsior

Note the inorganic netting



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Rolled Erosion Control Products

Single or Double Net Erosion Control Blanket

- Organic
 - Excelsior
 - Straw

Note the organic netting



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Rolled Erosion Control Products

Single or Double Net Erosion Control Blanket

- Organic
 - Excelsior
 - Straw
 - Coconut/coir



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Rolled Erosion Control Products

Single or Double Net Erosion Control Blanket

- Organic
 - Excelsior
 - Straw
 - Coconut/coir
 - Straw-coconut

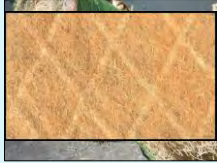


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Rolled Erosion Control Products

- **Netless Erosion Control Blanket**

- Excelsior wood fiber
- Recycled wood fibers



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Hillside Stabilization:

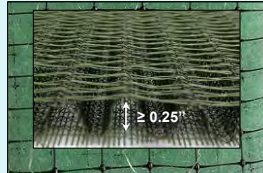
Soil Preparation + Seeding + Proper Matting Installation =

Proper Stabilization

Rolled Erosion Control Products

- **Turf Reinforcement Mats (TRMs)**

- Drainage channels
- Non-degradable products
- May require degradable matrix
- Matrix thickness needs to be at least ¼-inch (6.4 mm)
- Proper design is critical



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Methods That Minimize Erosion

- **Diversion Structures**

- Conveys flows away from erodible areas
 - May need hard armoring
 - May need stabilization at discharge points



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Methods That Minimize Erosion

- **Slope Drains**

- Basin
- Roadway
- Transitions runoff from top of slope to the base



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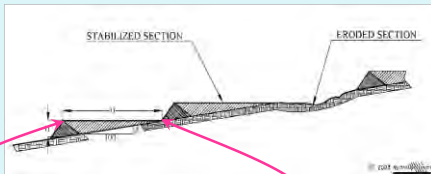
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Check Structures



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Using Check Structures for Erosion Control

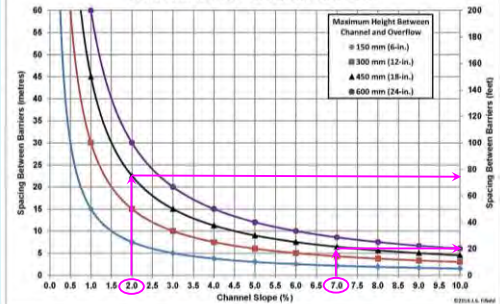


- Spacing is critical between check structures for erosion protection.
- Top of the downstream structure must be in line with the bottom of the upstream structure to minimize erosion.

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Check Structures as Erosion Control

Approximate Distance Between Check Structures for Erosion Control



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Check Structures



Why Erosion Control During Construction?

- Reduces maintenance
- Minimize sediment discharges
- Protects the environment
- Saves contractors money
- Long term cost benefits



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THANK YOU

Jerald S. Fifeild, Ph.D., CISEC
Tina R. Evans, PE, CISEC
HydroDynamics Incorporated
Parker, CO
303-841-0377

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