Common Erosion Processes and Soil Bioengineering Options

Erosion	WxHxV*	Technique	Reference**	Purpose	Considerations
Sheet		Groundcover		Intercepts rain fall, roughens surface	Should be last step for all soil bioengineering projects
Sheet		Live Fachines	EFH18: 18-21; SBG: 23-25	Roughens surface; prevent rilling; direct flow	Good initial erosion control; low survival; needs high moisture; labor-intensive
Sheet		Live snow/sand fence		detains blown material	Excellent long-term erosion control, long growth period, need lagre tracks of land.
Sheet		Erosion Control Blanket	SBG: 16-18	Protection from rain and overland flow	Excellent initial erosion control; needs moderate moisture and shade
Rill	> 6"x 6" x 15'	Erosion Control Blanket	SBG: 16-18	Protection from rain and overland flow	Excellent initial erosion control; needs moderate moisture and shade
Sheet		Live Brush Mattress	EFH16: 16-32	Protection from overland flow from streams and rivers	Good initial erosion control; low survival; needs high moisture; labor-intensive
Rill	< 6"x 6" x 15'	Live Fachines	EFH18: 18-21; SBG: 23-25	Roughens surface; prevent rilling; direct flow	Good initial erosion control; low survival; needs high moisture; labor-intensive
Rill	< 6"x 6" x 15'	Live Gully Repair	EFH18: 28; SBG: 30	Reduces velocity and filters flow; re-establishes contour	Transport fill soil can be problematic
Gully	<2' x 1' x 15'	Live Gully Repair	EFH18: 28; SBG: 30	Reduces velocity and filters flow; re-establishes contour	Transport fill soil can be problematic
Gully	>4' x 4' x 15'	Branchpacking	EFH18: 25-27; SBG: 28-29	Shear support; reduces velocity, filters; repairs contour	Transport fill soil can be problematic

*W is width of erosion area: horizontally parallel to the slope face.
H is horizontal distance; perpendicular to the slope face.
V is vertical distance; from the toe to the top of the erosion area.

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Slump	>5' x 4' x 10'	Live Staking	EFH18: 15-17; SBG: 14-15	Adds structural support; de-waters slope	Quick installation; low-tech and low-cost; not much initial surface erosion benefit.
Slump	>5' x 4' x 10'	Branchpacking	EFH18: 25-27; SBG: 28-29	Shear support; reduces velocity, filters; repairs contour	Transport fill soil can be problematic
Slump	Any x 4' x 8'	Live Cribwall	EFH18: 29-31; SBG: 19-22	Adds vertical component; shear support; de-waters	Good initial erosion control; low survival of vertical section; needs high moisture
Slump	Any x 4' x 10'	Vegetated Geotextile Lift	SBG: 31	Adds vertical component; shear support; de-waters	Good initial stability; expensive
Slump	<Any x 4' x 10	Geotech/Soil Bio Combo	EFH18: 32-38	Varied: depends on design	Varied: depends on design
Slide	Any x 1' x Any	Log Terracing	SBG: 32-35	Adds small vertical component, provides planting areas	Good initial stability; inexpensive; quick installation; labor-intensive
Slide	Any x 1' x Any	Willow Fencing with Brushla	SBG: 27	Adds small vertical component, shear support; de-waters	Good initial erosion control; low survival; needs high moisture; labor and material intensive
Slide	Any x 3' x Any	Brushlayering	EFH18: 22-24; SBG: 25-26	Shear stress support; roughens surface;	Good initial erosion control; high survival; labor and material intensive
Slide	Any x 4' x 8'	Live Cribwall	EFH18: 29-31; SBG: 19-22	Adds vertical component; shear support; de-waters	Excellent initial stabilization; high survival; labor and material intensive
Slide	Any x 4' x 10'	Vegetated Geotextile Lift	SBG: 31	Allows more vertical slope; shear support; de-waters	Good initial stability; expensive
Slide	<Any x 4' x 10	Geotech/Soil Bio Combo	EFH18: 32-38	Varied: depends on design	Varied: depends on design
*W is width of erosion area: horizontally parallel to the slope face. H is horizontal distance; perpendicular to the slope face. V is vertical distance; from the toe to the top of the erosion area.					** EFH- Engineering Field Handbook Ch. 16 or 18 SBG- Soil Bioengineering Practical Guide (USFS)