ESTABLISHING GROUNDCOVER PLANTS, VINES, SHRUBS AND TREES ON CRITICAL AREAS

INTRODUCTION

Critical area planting is planting vegetation, such as groundcover plants, vines, shrubs and/or trees, on highly eroding areas (sheet and rill erosion rates above 2T and/or gully erosion). These areas usually cannot be stabilized by ordinary conservation treatment and management, and if left untreated will cause severe erosion and sediment damage.

The critical area planting practice can be applied to highly disturbed areas such as urban conservation sites, road construction areas, conservation practice construction sites, and areas needing stabilization before and after natural disasters such as floods, hurricanes. Examples of critical areas include: dams, dikes, levees, cuts, fills, gullied areas, or excessively eroding sloping cropland fields where vegetation is difficult to establish by usual planting methods.

SITE PREPARATION

Site preparation is essential to the establishment of vegetation on critical areas. First, gullied, rilled, or rough sites should be smoothed and shaped to permit the use of equipment for establishment and maintenance of vegetation. Graded slopes in the treated area should not be steeper than 2:1.

PLANTING

Plants used in critical area plantings should be selected on the basis of species characteristics, site and soil conditions, planned use, maintenance of the treated area, method of planting, time of the year to be planted, and the needs and desires of the land user. Native plant species well adapted to the site, with multiple values (e.g., wildlife value, aesthetics) are recommended for critical area planting mixtures. Species that harbor pests should be avoided. In addition, species diversity should be considered to avoid loss of function due to species-specific pests.

GROUNDCOVER PLANTS, VINES, SHRUBS AND TREES

- On short slopes, small areas, or when mass planting at close spacing, prepare a seedbed by first smoothing and shaping the area. The soil should be pulverized to a minimum depth of 4 inches and harrowed to a uniformly smooth surface. If additional organic soil material is needed to correct undesirable soil physical properties, incorporate compost manure, peat, or rotted sawdust during seedbed preparation. Refer to Tables 1 through 5 for groundcover plants, vines, shrubs and trees planting recommendations.

- Only individual plant site preparation should be conducted on steep slopes and larger planting areas. Holes should be dug and the site should be prepared for each individual plant. Incorporate any needed organic conditioners along with suitable soil materials to correct undesirable soil physical properties.

- **FERTILIZER**: Where mass plantings are to be made, incorporate one pound of 6-8-8 fertilizer or its equivalent per 100 square feet. Where individual planting sites are to be prepared, fertilize at the rate of one once of 6-8-8 per plant. Mix fertilizer with the soil below the plant roots.

- **GROUNDCOVER, VINES, AND SHRUBS**: Plant individual balled or bare-root stock during March, April, or May at spacings shown in Table 1, 2, 3. An initial cover establishment of grasses and/or legumes using plants selected from Jobsheet 342-01 "Establishing Grasses and Legumes on Critical Areas", may be needed depending on site conditions and/or groundcover, vines, shrubs, or trees planted.

- **TREES**: Plant tree seedlings on 6X6 spacings for early cover (Table 4). Plant during December, January, February, or March. For more information refer to Tree Planting Practice Code 612. Temporary cover or mulching may be needed depending on the severity of erosion.

- **MULCHING**: All planted areas except those to be used for hay or grazing or where solid sod is applied should be mulched with acceptable mulch materials such as small grain straw or grass mulch (materials containing noxious weeds should be avoided). Mulch should be applied immediately after shaping, seeding or sprigging. A minimum of 1 ½ to 2 tons per acre of small grain straw, hay, or pine needles should be applied. Mulch should be applied evenly resulting in 65 to 75 percent groundcover.

  A tractor drawn mulch anchoring tool can be used to adequately anchor mulch to the soil. This tool should be used immediately after mulch has been applied. A regular farm disk can be used if a mulch anchoring tool is unavailable, however, the disk should not be sharp enough to cut the straw. These methods are limited to slopes no steeper than 2:1, where equipment can operate safely on the contour. Liquid mulch binders and tackifiers can also be used to anchor straw, but these methods are often not cost-effective.

  Cotton burs, peanut hulls, seed screening, and other materials may be used where weed seeds are acceptable in mulch. These materials should not be used on slopes steeper than 5:1, and should be evenly distributed at a rate which provides about 75 percent groundcover.

Where erosion hazards are very high, Rolled Erosion Control Products may be used.

- **ROLLED EROSION CONTROL PRODUCTS (RECPs):** a blanket-like mat used to prevent soil erosion during vegetation establishment on highly erodible areas. Once seed and mulch have been applied to a critical area, RECP can be placed and tacked down at edges to secure placement. Vegetation will then begin to emerge through spaces between the RECP fibers.

  RECP are generally divided into two distinct types: natural and synthetic. Natural RECPs are often made of biodegradable jute or coconut fiber, and synthetic RECPs are primarily made of PVC. Synthetic RECP are generally non-biodegradable and provide tough, permanent support on slopes; however, this synthetic material does not retain moisture or available nutrients as well as natural materials. In high velocity concentrated flow areas where vegetation protection alone is not sufficient. Turf Reinforcement Material (TRM) can be used to provide permanent scour protection and to hold

COASTAL VEGETATION

Many native coastal plant species play a major role in the shoreline protection and sand dune formation. These plants often produce dense foliage and deep root systems that prevent erosion along coastal areas. For a list of recommended coastal plant species used for shoreline stabilization and sand dune formation refer to Technical Note. 104 “Planting Guide for Establishing Coastal Vegetation on the Mississippi Gulf Coast.” for complete information on establishing or restoring native coastal vegetation on the Mississippi Gulf Coast.

Table 1. Groundcover plants – planting dates: November 15 – March 15.

Groundcover plants	Site Suitability	Light Needs	Mature Height (In.)	Growth Rate	Spacing (In.)	Time to Form Cover (Yrs.)	Bloom Color	Remarks
Showy Jasmine (*Jasminum floridum*)	Wide range	Sun or shade	12 – 24”	Medium	24”	2	Yellow	Forms dense cover and drought tolerant. Requires little maintenance and does best in sun.
Daylily (*Hemerocallis* spp.)	Wide range	Sun	2-3’	Medium	2’	2	Many colors	Very hardy. Attracts butterflies and other insects.
Evening Primrose (*Oenothera* spp.)	Rich, well drained locations	Sun to partial shade	9-12”	Medium	8-12”	1-2	Yellow, white or pink	Very hardy native. Attracts butterflies and other insects. Grows deep from roots or underground rhizomes
Spotted henbit (*Lamium maculatum*)	Well to moderately well drained site with medium fertility	Partial sun to full shade	6”	Medium to fast	12”	2	Purple to pink	Attracts butterflies and other insects. Requires little maintenance. Produces sprawling stems which sometimes root in the ground at the nodes.
White Gaura (*Gaura lindheimeri*)	Well to moderately well drained site with medium fertility	Sun	3-4’	Fast	2-3’	2	White to pink	Native. Very hard native that is drought tolerant. Attracts bees and other insects. Requires little maintenance.
Poppymallow (*Callirhoe involucrate*)	Dry, Sunny locations	Sun	9-12”	Medium	8-12”	1-2	Purple	Makes attractive mass of foliage. Deep rooted plant.
Spiderwort (*Tradescantia virginiana*)	Requires average good moist site	Shade	18-24”	Rapid	8-10”	1	Blue	Native. Good for shade or full sun.

Table 2. Vines – planting dates: November 15 – March 15.

Vines	Site Suitability	Light Needs	Mature Height	Growth Rate	Spacing	Time to Form Cover (Yrs.)	Remarks
Carolina Yellow Jessamine (*Gelsemium sempervirens*)	Prefers rich, fertile, well drained acidic soils	Sun or partial shade	Flat on soil or will climb	Rapid	3’	2	Native, evergreen vine. Yellow, trumpet like flowers. Hardy. Grows rapidly once established.
Virginia Creeper (*Parthenocissus quinquefolia*)	Medium to well drained sites. Tolerates dry sites and rough slopes	Sun or shade	Flat on soil or will climb	Rapid	2-3’	2	Native. A vigorous climbing vine of loose habit. Showy scarlet fall foliage. Black berries.
Everblooming honeysuckle (*Lonicera heckrotti*)	Medium to well drained sites	Sun or partial shade	Flat on soil or will climb	Rapid	3’	2-3	Semi-evergreen. Fragrant flowers attract butterflies and other insects. Blooms throughout much of the growing season.

Table 3. Shrubs – planting dates: November 15 – March 15.

Shrubs	Site Suitability	Light Needs	Mature Height	Growth Rate	Spacing	Time to Form Cover (Yrs)	Remarks
Pfitzer Juniper (*Juniper chinensis* 'Pfitzeriana')	Prefers well Drained sites	Sun	4-6"	Rapid	3-6'	2	A broad, flat topped, wide spreading shrub. Long lived and very hardy. Available in large supply.
Creeping Juniper (*Juniper horizontalis*)	Prefers moist slightly acid sandy soils. Tolerates dry sites.	Sun	3"	Medium	3-4'	2-3	A low creeping, very hardy shrub with attractive trailing branches, dark green foliage. Adapted to steep slopes.
Sargent Juniper (*Juniperus chinesis* 'Sargentii')	Prefers moist slightly acid sandy soils. Tolerates dry sites.	Sun	3"	Medium	3-4'	2-3	A low prostrate, creeping shrub with blue foliage. Forms dense mat. Tolerates salt spray.
Japgarden Juniper (*Juniperus procumbens*)	Sandy and loamy sites with moist soil	Sun	3"	Rapid	3-4'	2	A handsome, hardy, low spreading shrub with ascending branches. Free from diseases and insects.
Abelia (*Abelia grandiflora*)	Adapted to most medium acid sites	Shade or sun	Low	Medium	3'	2	Hardy, broad-leaved evergreen, all purpose shrub. Grows in shade or sun.
Shore Juniper (*Juniperus conferta*)	Well suited to moderately well to well drained sites	Sun	1 ½-4"	Medium	2-3'	2	Low growing shrub that is well suited to most site conditions and provides good groundcover.
Japanese Holly (*Illex crenata* 'Rotundifolia')	Well to moderately well drained sites with medium fertility	Sun	3-4"	Medium	3-4'	2	Low growing shrub with small leaves and irregular growth and blue-black berries.
Dwarf Yaupon Holly (*Ilex vomitoria* 'Nana')	Sandy, loam, or clay. Wet, moist, or dry	Sun or partial shade	3-4'	Medium	5'	2-3	Evergreen shrub. Does not produce fruit. Very hardy. Tolerant of short-term freezing. Tolerant of salt spray.

Table 4: Tree Species for Erosion Control.

Site	Soil Material	Common Soils	Tree Species 1/	Spacing	Planting Dates
Borrow areas, Graded areas, & Spoil areas	Sandy	Alaga, Lucy	Loblolly pine (*Pinus taeda*) containerized Longleaf pine (*Pinus palustris*)	6'x6'	North MS – 12/1-3/31 South MS – 12/15-3/15
	Loamy	Ruston	Loblolly pine Slash pine (*Pinus elliottii*)	6' x 6'	North MS – 12/1-3/31 South MS – 12/15-3/15
	Clay	Susquehanna, Sharkey, Alligator	Loblolly pine Slash pine	6' x 6'	North MS – 12/1-3/31 South MS – 12/15-3/15
Streambanks			cuttings Willows (*Salix* spp.)	2' x 2'	Same for all species North MS – 12/1-3/31 South MS – 12/15-3/15

1/ Other trees and shrubs may be interplanted with pines for improved wildlife habitat (See Table 5).

Table 5: Commercially Available Trees and Shrubs Beneficial to Wildlife Species

Plant Type	Remarks
Mast Producing Trees: Beech, Black Cherry, Blackgum, Hackberry, Hickory, Honey Locust, Native Oak, Persimmon, Pine, Sawtooth Oak, & Sweetgum	All produce nuts or fruits favored by many wildlife species, except hickory which provides nuts used mainly by squirrels and bear.
Shrubs & Small Trees: Crabapple, Dogwood, Huckleberry, Mountain Laurel, American Holly, Red Cedar, Black Cherry, Possumhaw, Hawthorn, Red Mulberry, Sumac, Wax Myrtle, Wild Plum, Beautyberry, and Blackberry	Plant in patches without tall trees to develop stable shrub communities. All produce fruits used by many kinds of wildlife, except for lespedeza which produces seed used by quail and many songbirds.

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