NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CONNECTICUT

CRITICAL AREA PLANTING

(Ac.)

CODE 342

DEFINITION

Establishing permanent vegetation on sites that have, or are expected to have, high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

PURPOSE

Stabilize stream and channel banks, and shorelines.

Stabilize areas with existing or expected high rates of soil erosion by wind or water.

Rehabilitate and revegetate degraded sites that cannot be stabilized using normal establishment techniques.

Stabilize coastal areas, such as sand dunes and riparian areas.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to highly disturbed areas such as:

- active or abandoned mined lands;
- urban conservation sites;
- road construction areas;
- conservation practice construction sites;
- areas needing stabilization before or after natural disasters such as floods, hurricanes, tornados and wildfires;
- eroded banks of natural channels, banks of newly constructed channels, and lake shorelines;
- other areas degraded by human activities or natural events.

This practice **does not apply** to plantings for forage production (use Connecticut NRCS Standard 512, Forage and Biomass Planting) or to establishing permanent vegetative cover on non-critical areas (use Connecticut NRCS Standard 327, Conservation Cover).

CRITERIA

General Criteria Applicable To All Purposes

Laws and Regulations. All Federal, state, and local laws, rules, and regulations shall be followed. Planned work shall comply with all federal, state, and local permit conditions and requirements. The landowner shall obtain all necessary permits prior to construction or any land clearing activities.

Site Preparation. A site investigation shall be conducted to identify any physical, chemical, or biological conditions that could affect the successful establishment of vegetation.

Areas to be planted will be cleared of unwanted materials and smoothed or shaped, if needed, to meet planting and landscaping purposes.

A suitable seedbed shall be prepared for all seeded species. Compacted layers will be ripped and the soil re-firmed prior to seedbed preparation.

Species Selection. Species selected for seeding or planting shall be suited to current site conditions and intended uses, and be resistant to diseases or insects common to the site or location.

Selected species will have the capacity to achieve adequate density and vigor within an appropriate time frame to stabilize the site

sufficiently to permit suited uses with ordinary management activities.

Use grass and legume species adapted to the soil conditions and adequate for the planned use. Guidelines and reference materials are available from the University of Connecticut (New England Perennial Forage Mixtures), Cornell University, The Pennsylvania State University, and/or the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

***Select plants that according to federal, state, or local regulations are not considered invasive or noxious species*.**

Establishment of Vegetation. Seeds will be planted using the method or methods best suited to site and soil conditions.

Sod placement shall be limited to areas that can naturally supply needed moisture or sites that can be irrigated during the establishment period.

Sod will be placed and anchored using techniques to ensure that it remains in place until established.

Specified seeding/plant material rates, methods of planting and date of planting shall be consistent with documented guidance cited by plant materials program, research institutions, or agency demonstration trials for achieving satisfactory establishment. Retain copies of reference materials used.

Planting shall be done during approved times for the species to be used.

Planting dates shall be scheduled during periods when soil moisture is adequate for germination and establishment. For most of Connecticut seeding dates are April 15 to June 15, and August 15 to September 15. In coastal areas where the growing season is longer, the fall seeding dates may be extended to October 1. Spring seedings may be established as early as April 1 if conditions permit.

All seed and planting materials shall meet state quality standards.

Species, rates of seeding or planting, minimum quality of planting stock (e.g. pure live seed (PLS) or stem caliper), method of seedbed preparation, and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.

Site preparation and seeding or planting shall be done at a time and in a manner that best ensures survival and growth of the selected species. What constitutes successful establishment shall be specified before application. This may include, but not be limited to minimum percent ground/canopy cover, percent survival, and/or stand density.

Apply soil amendments (e.g. lime, fertilizer, compost) according to the requirements in the local Field Office Technical Guide.

Fertilizer and soil amendment recommendations shall be based on results of a current soil test from the University of Connecticut Soil Test Lab (UConn) or a laboratory whose criteria are recognized by UConn. Applications shall be appropriately placed and timed to be effective. The landowner shall record all applications of fertilizer and /or soil amendments and retain copies of soil tests and recommendations.

Legume seed shall be inoculated with the proper species of viable Rhizobia before planting.

Plantings shall be mulched as necessary to ensure establishment. Other disturbed areas shall be mulched as necessary to prevent erosion.

Fertilization, mulching, or other facilitating practices for plant growth shall be applied to enhance the establishment of selected species. Mulching shall be in accordance with Connecticut NRCS Standard 484, Mulching.

Plantings shall be protected from pests (e.g. weeds, insects, diseases, livestock, and wildlife) as necessary to ensure stand establishment.

All soil amendment application and pest control shall follow the requirements in the Field Office Technical Guide (FOTG).

The amount of plant biomass and cover needed to reduce wind and water erosion to the planned soil loss objective shall be determined using the current approved wind and/or water erosion prediction technology.

Additional Criteria to Stabilize Stream and Channel Banks and Shorelines

When slopes are modified for seeding, topsoil will be stockpiled and spread over areas to be planted as needed to meet planting and landscaping needs.

Bank and Channel Slopes. Channel side slopes shall be shaped so that they are stable and allow establishment and maintenance of desired vegetation.

Slopes steeper than 2:1 shall not be stabilized using vegetation alone. A combination of vegetative and structural measures will be used on these slopes to ensure adequate stability.

Species Selection. Plant material used for this purpose shall:

- adapted to the hydrologic zone **(see Fig. 1)** into which they will be planted.
- be adapted and proven in the regions in which they will be used.
- when mature, produce plant communities that are compatible with those in the area.
- protect the channel banks but not restrict channel capacity.

Establishment of Vegetation. The species used, planting rates, spacing, and methods and dates of planting shall be based on plant materials program trials or other technical guidance, such as local planting guides or technical notes.

Identify, mark, and protect desirable existing vegetation during practice installation.

A combination of vegetative and structural measures using living and inert material shall be used when flow velocities, soils, and bank stability preclude stabilization by vegetative establishment alone.

If the existing vegetation on a site will compete with species to be established (e.g. bare-root, containerized, ball-and-burlap, potted), it will be controlled in a manner that ensures the successful establishment of the planted species.

Fertilizer and soil amendment recommendations shall be based on results of a current soil test from the University of Connecticut Soil Test Lab (UConn) or a laboratory whose criteria are recognized by UConn. Applications shall be appropriately placed and timed to be effective. The landowner shall record all applications of fertilizer and /or soil amendments and retain copies of soil tests and recommendations.

Site Protection and Access Control. Grazing animal access to planted areas will be controlled for a minimum of two growing seasons during the establishment period.

All areas to be grazed will have a prescribed grazing plan that meets the criteria in Connecticut NRCS Standard 528, Prescribed Grazing.

Grazing shall be permanently excluded on high hazard sites, such as cut banks, areas of seepage or other potentially unstable areas.

Additional Criteria to Rehabilitate and Revegetate Degraded Sites that Cannot Be Stabilized through Normal Farming Practices.

If gullies or deep rills are present, they will be filled and leveled as necessary to allow equipment operation and ensure proper site and seedbed preparation.

Fertilizer and soil amendments will be added as necessary to ameliorate or eliminate physical or chemical conditions that inhibit plant establishment and growth. Recommendations shall be based on results of a current soil test from the University of Connecticut Soil Test Lab (UConn) or a laboratory whose criteria are recognized by UConn. Applications shall be appropriately placed and timed to be effective. The landowner shall record all applications of fertilizer and /or soil amendments and retain copies of soil tests and recommendations.

Additional Criteria to Restore Coastal Areas, such as Sand Dunes and Riparian Areas

Plants for sand dunes and coastal sites must be able to survive being buried by blowing sand, sand blasting, salt spray, salt water flooding, drought, heat, and low nutrient supply.

Local plant lists including appropriate species shall be developed and utilized.

Sand trapping devices such as sand fences or brush matting shall be included in the revegetation/stabilization plans where applicable.

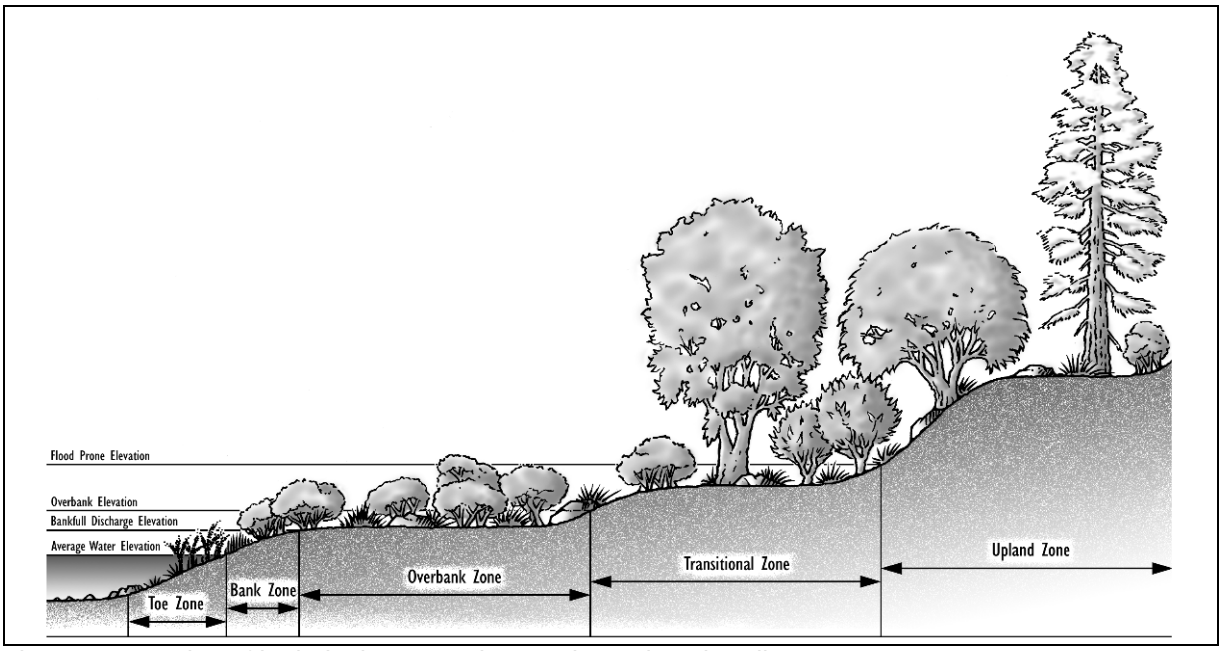

Figure 1. Location of hydrologic zones along a channel or shoreline.

Definitions and descriptions of hydrologic zones used for channels and shorelines:

Bankfull Discharge Elevation - In natural streams, it is the elevation at which water fills the channel without overflowing onto the flood plain.

Bank Zone - The area above the Toe Zone located between the average water level and the bankfull discharge elevation. Vegetation may be herbaceous or woody, and is characterized by flexible stems and rhizomatous root systems.

Overbank Zone - The area located above the bankfull discharge elevation continuing upslope to an elevation equal to two thirds of the flood prone depth. Vegetation is generally small to medium shrub species.

Toe Zone - The portion of the bank that is between the average water level and the bottom of the channel, at the toe of the bank. Vegetation is generally herbaceous emergent aquatic species, tolerant of long periods of inundation.

Transitional Zone - The area located between the overbank zone, and the flood prone width elevation. Vegetation is usually larger shrub and tree species.

Upland Zone – The area above the Transitional Zone; this area is seldom if ever saturated.

Note: some channels or shorelines have fewer than four hydrologic zones because of differences in soils, topography, entrenchment and/or moisture regime.

CONSIDERATIONS

Species or mixes that are adapted to the site and have multiple values should be considered. Native species may be used when appropriate for the site.

To benefit pollinators and other wildlife, flowering shrubs and wildflowers with tough root systems and good soil holding capacity also should be considered for incorporation as a small percentage of a larger grass-dominated planting. Where appropriate consider a diverse mixture of legumes and forbs to support pollinator habitat.

Avoid species that may harbor pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

Planning and installation of other conservation practices such as Diversion (code 362), Obstruction Removal (code 500), Subsurface Drain (code 606), or Underground Outlet (code 620) may be necessary to prepare the area or ensure vegetative establishment.

NRCS, CT
February, 2011

Areas of vegetation established with this practice can create habitat for various type of wildlife. Maintenance activities, such as mowing or spraying, can have detrimental effects on certain species. Perform management activities at the times and in a manner that causes the least disruption to wildlife.

If mulching is needed, follow Connecticut NRCS Standard 484, Mulching.

When planning nutrient applications and tillage applications, encourage soil carbon buildup while discouraging greenhouse gas emissions

PLANS AND SPECIFICATIONS

Plans and specifications shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose. Plans and specifications shall include drawings, job sheets or other similar documents. These documents shall specify the requirements for installing the practice, including site preparation and the kind, amount and quality of materials to be used, including mulching materials

Prepare plans and specifications for each field or management unit according to the criteria and operation and maintenance sections of this standard. Specifications shall describe the requirements for applying this practice to meet the intended purpose.

Record practice specifications using approved specification sheets, job sheets or other acceptable documentation.

The following elements shall be addressed in the plan.

- Site Preparation
- Topsoil
- Fertilizer Application
- Seedbed/Planting Bed Preparation
- Methods of Seeding/Planting
- Time of Seeding/Planting
- Selection of Species
- Seed/Plant Source
- Seed Analysis
- Rates of Seeding
- Mulching
- Planting Trees, Shrubs and Vines
- Supplemental Water for Plant Establishment
- Protection of Plantings

OPERATION AND MAINTENANCE

Use of the area shall be managed as long as necessary to stabilize the site and achieve the intended purpose.

Control or exclude pests that will interfere with the timely establishment of vegetation.

Inspections, reseeding or replanting, fertilization, and pest control may be needed to insure that this practice functions as intended throughout its expected life.

Use of the area shall be managed as long as necessary to stabilize the site and achieve the intended purpose.

Observation of establishment progress and success should be performed at regular intervals until the practice has met the criteria for successful establishment and implementation.

Where establishment of vegetation creates potential habitat for grass-nesting birds, the impacts of vegetative disturbance upon these birds and their nests should be considered and included in operation and maintenance plans.

Maintenance activities that result in disturbance of vegetation will not be conducted during the primary nesting season for grass-nesting birds where occupied habitat for these species exists.

REFERENCES

2002 Connecticut Guidelines for Soil Erosion and Sediment Control, Connecticut Department of Environmental Protection (CTDEP) Bulletin 34, May, 2002 by the Connecticut Council on Soil and Water Conservation in Cooperation with CTDEP.

Federal Interagency Stream Restoration Working Group. 1998. Stream corridor restoration: principles, processes, and practices. National Engineering Handbook, Part 653.

USDA-NRCS. 2007. National Engineering Handbook, Part 654. Stream restoration guide.

USDA-NRCS. 2010. The PLANTS Database (http://plants.usda.gov, checked September 2010). National Plant Data Center.