

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

FOREST SITE PREPARATION

(Acre)

CODE 490

DEFINITION

Treating areas to improve site conditions for establishing a forest.

PURPOSE

- Encourage natural regeneration of desirable woody plants.
- Permit artificial establishment of woody plants.
- Increase carbon storage in biomass and soils.

CONDITIONS WHERE PRACTICE APPLIES

On all lands where establishment of woody plants is desired [and practical](#).

CRITERIA

General Criteria Applicable to All Purposes

The method, intensity and timing of site preparation will match the limitations of the site, equipment, and the requirements of the desired woody species.

An appropriate site preparation method will be chosen to protect any desirable vegetation.

Remaining slash and debris shall not create habitat for or harbor harmful levels of pests.

Remaining slash and debris shall not hinder needed equipment operations or create an undue fire hazard.

Erosion and/or runoff will be controlled.

Soil compaction and displacement will be minimized.

All chemicals will be applied in accordance with label guidelines.

Comply with applicable federal, state and local laws and regulations during the installation, operation and maintenance of this practice including [“Vermont’s Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont.”](#) (AMP’s) and [“Wetlands Rules and Regulations: What they mean to your logging operation in Vermont”](#)

Additional Criteria for Sequestration of Carbon

For optimal carbon sequestration, select plants that have higher rates of sequestration and are adapted to the site to assure strong health and vigor and plant the full stocking rate for the site.

CONSIDERATIONS

The site preparation method should be cost effective and protect cultural resources, wildlife habitat, threatened and endangered species, water resources, and identified unique areas.

Visual quality objectives should be considered when selecting site preparation methods.

Anticipate possible off-site effects and modify the site preparation design accordingly.

Consider personnel safety during site preparation activities.

Consider selection of plants that have higher carbon sequestration rates.

[Establish species that are suitable for specific site conditions.](#)

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Consider establishing species that help restore natural community structure and function for the given site.

Establish species that meet management objectives and have a perceived long-term value.

PLANS AND SPECIFICATIONS

Plans will address method of site preparation, species, and protection required for desirable woody plants.

Specifications for applying this practice and protection of the site shall be prepared and recorded using approved specification sheets, job sheets, technical notes and narrative statements in the conservation plan or other acceptable documentation. [Separate specifications are provided for natural and artificial regeneration in Attachment 1 – VT Supplement](#)

The following practices may be used in conjunction with this standard: [Tree and Shrub Establishment \(612\)](#), [Riparian Forest Buffer \(391\)](#), [Critical Area Planting \(342\)](#), [Field Borders \(386\)](#), [Windbreak/Shelterbelt Establishment \(380\)](#) and [Renovation \(650\)](#), [Wildlife Wetland \(644\)](#) and [Upland \(645\) Habitat Management](#), [Fish Stream Improvement \(395\)](#), [Wetland Restoration \(657\)](#), [Early Successional Habitat Development/Management \(647\)](#), [Brush Management \(314\)](#) and [Mulching \(484\)](#).

OPERATION AND MAINTENANCE

Repair erosion control measures as necessary to ensure proper function. Access by vehicles during site preparation or after (i.e., before adequate tree and shrub establishment occurs) should be controlled to minimize erosion, compaction and other site impacts.

ATTACHMENT 1

VT Supplemental Specifications

1. GENERAL- The following general specifications vary by species or forest type. The type of harvest, site preparation or residual shade that is successful in promoting regeneration of one specific species or forest type might not work for others.
 - To remove overstory utilize shelterwood (gradual systematic removal of the overstory), seedtree, or clear cutting methods. These harvest systems can also provide an adequate source of desirable seed if timed correctly. Vary the shape and orientation of cuts to provide the correct degree of shading and to conserve soil moisture.
 - Use hand or power tools, or various machines, chemicals or fire to sever, girdle, poison, or otherwise eliminate unwanted vegetation in the fall or spring prior to seeding or planting.
 - Use controlled burning or various machines (rollers, shears, choppers, blade and rake machines) to consume, reduce windrow or pile logging slash.
 - When seeding is possible, mix humus and mineral soil prior to seedfall, log when ground is bare, i.e., no snow, and unfrozen and use random skidding patterns to make "seed spots".
 - Use shelterwood cuts, seed tree cuts (semi-complete overstory removal) or carefully located clearcuts to provide an adequate source of desirable seed. Type of harvest is dependent on
 - Plan cutting times and access systems to provide for removal of shelterwood and seed trees to prevent damage to newly established stands.
 - Depending on density and distribution, hardwood slash can provide shade and protect seedlings from deer browsing during the critical establishment period.
 - Provide for control of seedling browsing by domestic livestock, deer, and rabbits.
 - Protect the area from fire, livestock, and soil erosion, as appropriate.
2. ARTIFICIAL REGENERATION
 - For planting undesirable wooded/brushy site:
 - Eliminate cull and undesired residual trees by girdling or chemical means. For recommendations refer to the most recent *New England Guide to Chemical Weed and Brush Control in Christmas Trees*.
 - Control brush and dense herbaceous or grassy vegetation by chemical or mechanical means, but only to the extent necessary to facilitate planting.
 - Reduce heavy slash concentrations only to the extent necessary to facilitate planting.
 - For field plantings:
 - As much as possible, plant in rows across the slope, leaving grass strips between rows.
 - In the planting row, kill herbaceous vegetation by herbiciding and then plowing in the fall previous to spring planting. Then herbicide and plow again in the spring before planting.
 - Use all herbicides in accordance with label instructions. Follow all local, state and federal law and regulations.
 - If planting seed, a firm seedbed is important when seeding native plants. Seedbed is considered firm enough when a person's footprint penetrates ¼ to ½ inch deep.
 - If planting seed in land that had a row crop in the previous year, prepare site by using shallow (2 inches) spring disking about every 3 weeks prior to planting with the last disking just before seeding. /1 Determine if any past herbicide

application has the potential to impact seed germination or damage newly planted seedlings.

- If the seeding site is pasture or open areas composed of annual and perennial weeds, prepare by a late summer mowing to a height of 12 inches. Then follow with fall plowing in the planting row to a depth of at least 8 inches, and shallow spring disking about every 3 weeks up to the time of planting.

3. NATURAL REGENERATION

- Prior to logging eliminate unwanted advance regeneration using chemical or mechanical means.
- When relying on natural seed rain or natural regeneration, mix humus and mineral soil prior to seedfall, log when ground is bare, (i.e., no snow, and unfrozen) and use random skidding patterns to make "seed spots".
- Eliminate cull and unwanted trees left after logging (mechanically or with chemicals). On droughty soils, leave 5-20 trees per acre standing to provide shade for seedlings during establishment.
- If possible, when regenerating white pine or light seeded hardwood species (birches, aspen), dispose of heavy slash and prepare a seedbed by mixing humus and mineral soil over at least 60% of the area.
- Plan for the removal of any trees left to provide shade or seed once the new stand is established.

• NATURAL REGENERATION FOR FORESTED WETLAND RESTORATION /1

- Consult "*Wetlands Rules and Regulations: What they mean to your logging operation in Vermont*" and contact your local county forester prior to any forestry operations in wetlands.
- To successfully use natural regeneration for wetland restoration and enhancement, seeds/propagules of the desired species must already be present on site (seed bank) or be capable of dispersing and establishing onto the site.
- To establish that a seed bank of viable, desirable species is present, examine the composition of the seed bank.
- If there is no seed bank, site should be disked prior to the dormant season and note the seed dispersal times (time of year) of target species.
- If desirable species do not become established, disking may have to be repeated the following year.
- Planting site should be no greater than 200 feet from the surrounding seed wall (Seed Wall – Desirable species of plants on adjacent land that have seeds capable of dispersing to the restoration site by wind, water or animals).

/1 NRCS *Wetland Restoration and Enhancement - Northeast Forested Wetlands*. NEDC Student Manual January 1998