

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**FIREBREAK**

(Ft.)

**CODE 394**

**DEFINITION**

A permanent or temporary strip of bare or vegetated land planned to retard fire.

**PURPOSE**

Firebreaks are used to achieve one or more of the following purpose(s):

- Reduce the spread of wildfire.
- Contain prescribed burns.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies on all land uses where protection from wildfire is needed or prescribed burning is applied.

**CRITERIA**

Use the following criteria in planning and applying this practice. The general criteria apply to all firebreaks, while additional listed criteria apply based on the intended purpose(s) of the practice.

**General Criteria Applicable to All Purposes**

Firebreaks may be temporary or permanent and shall be fire-resistant vegetation, non-flammable materials, bare ground, or a combination of these. See Table 1 for suitable firebreak options and specifications.

Firebreaks will be of sufficient width and length to contain the expected fire.

Firebreaks shall be located to minimize risk to the resources being protected.

Erosion control measures shall be installed to prevent sediment from leaving the site.

Plant species selected for vegetated firebreaks will be noninvasive and capable of retarding fire.

Constructed firebreaks should tie into existing physical barriers where possible (without creating direct drainage and potential sedimentation in any receiving waters).

Comply with applicable federal, state, and local laws and regulations during the installation, operation and maintenance of this practice, including North Carolina Forest Practices Guidelines.

**Additional Criteria to Reduce Spread of Wildfire**

Refresh existing firebreaks on a regular recurring schedule to provide the required level of fire protection

**Additional Criteria to Contain Prescribed Burns**

Refresh existing firebreaks to contain a prescribed burn just prior to implementation.

<b>Table 1. Firebreaks adaptable to needs/conditions in North Carolina</b>	
<b><u>Permanent - Plowed, Disked, Bladed Firebreaks</u></b>	
<i>Plowed, disked or bladed breaks may be used in any land type and on nearly all terrain conditions, provided location specifications are followed. Plowed, disked or bladed firebreaks are the most common permanent firebreaks utilized in North Carolina.</i>	
Location	Parallel to public roads, railroads or high risk areas adjacent to forest land. Along forest land property boundaries. Within forest land where and as necessary. Along main ridges and side ridges in steeper piedmont and mountain settings.
Construction	Use a fireline plow, heavy bush/bog disk, farm plow/disk or blades to expose mineral soil along the firebreak. Size and type of equipment will depend on terrain and type of vegetation to be moved/removed. Width is a site-specific determination. Width for one equipment pass will generally range 3-8 feet. These widths are usually sufficient to contain most creeping, slow moving ground fires. Wider widths provide greater wildfire protection and are easier to maintain. Raking and other hand work may be required to temporarily tie bladed firebreaks into streams, wetlands and other sensitive areas. On sloping land, construction methods that do not create channels are recommended...intermittent water bars and water turnouts may be needed.
<b><u>Permanent - Vegetated Firebreaks</u></b>	
<i>Vegetated firebreaks may be used in flat to rolling (not steep) terrain conditions, provided location specifications are followed. Vegetated firebreaks should be planned as part of the total farm plan. Though not common, in North Carolina they are usually for perimeter wildfire protection where access or line-of-sight are concerns.</i>	
Location	Areas parallel to roads, power lines and utility right-of-ways. Within forest land where appropriate.
Construction	1. Construct firebreak strips at least 30 feet wide adjoining forest land. Clear/construct strips 2 times (2x) the height of surrounding trees (50 ft minimum width) within forestland. 2. Prepare a seedbed in the strips and plant to an adapted grass/legume mixture. Use cool season species only. Refer to NC Practice Standards NC327- CONSERVATION COVER and NC512-PASTURE AND HAYLAND PLANTING or NC342-CRITICAL AREA PLANTING for additional seeding requirements. On sloping land, temporary erosion control practices and mulching may be needed until a stand is established.
<b><u>Temporary – Tilled, Raked, Blown Firebreaks<sup>1</sup></u></b>	
<i>Temporary firebreaks are generally used in concert with permanent firebreaks to facilitate prescribed burning. Temporary firebreaks may be used in most open land types and on nearly all terrain conditions, provided location specifications are followed. Tilled, raked or blown temporary firebreaks are the most common temporary firebreaks utilized in North Carolina.</i>	
Location	Parallel to roads, power lines and utility right-of-ways. Within or along the edge of cropland, pasture, hay or other open fields/areas. Within forest land where appropriate.
Construction	Use powered equipment or hand tools to rake, incorporate, or blow flammable material/residue to create bare ground 3-5 feet wide along the planned firebreak location or where needed to tie an existing firebreak into streams, wetlands or other sensitive areas.
<sup>1</sup> There are other alternative temporary firebreaks that can be effective but require specialized material, equipment or burning skill/experience. Examples include 'blacklines' (burned firebreaks), chemical retardant lines and using wetlines (water application) in conjunction with 'blacklines', raking or mowing. These alternate temporary firebreaks are generally used where special environmental conditions exist on a site that is being prescribed burned. Specifications for alternative temporary firebreaks must be prepared on a site by site basis by a NC certified prescribed burner and reviewed by NC NRCS Assistant State Conservationist for Technology.	

## CONSIDERATIONS

Use barriers such as streams, lakes, ponds, rock cliffs, roads, field borders, skid trails, landings, drainage canals, railroads, utility right-of-ways, cultivated land, or other areas as existing firebreaks. When using barriers, consider potential fish and wildlife effects.

Plan carefully around electric power lines. Under the right conditions, smoke and hot gasses can create a conductive path for electricity.

Attempt to locate firebreaks near ridge crests and valley bottoms.

If winds are predictable, firebreaks should be located perpendicular to the prevailing wind and on the windward side of the area to be protected.

Consider removing dead or hollow trees within 100 feet of firebreaks during firebreak construction. They are potential future firebreak maintenance issues.

Consider the selection of plant species that will enhance the needs of wildlife and beneficial insects in the area.

Locate on the contour where practicable to minimize risk of soil erosion.

Design and layout should include multiple uses.

Consider threatened and endangered species, natural areas, riparian areas and wetlands when applying this practice.

*This practice has the potential to affect National Register listed, or eligible, significant cultural resources (CULTURAL RESOURCES INFORMATION - NC, FOTG Section II). Follow NRCS state policy for considering cultural resources during planning and design.*

## PLANS AND SPECIFICATIONS

Specifications for applying this practice shall be prepared for each site and recorded using approved specification sheets, job sheets, technical notes, and narrative statements in the conservation plan and the burn plan, or other acceptable documentation.

Minimum documentation for this practice includes (as applicable):

- Map showing location of firebreaks. Additionally, the map should delineate:
  - existing natural or constructed barriers to fire such as streams, water bodies, roads, etc.
  - sensitive areas such as critical areas, cultural resources, wetlands, natural areas, etc. That need to be considered during firebreak construction.
- Type of firebreak (bladed, plowed, disked, vegetated, hand-work needs, etc.).
- Average width and estimated length.
- Specifications for vegetated firebreaks, including:
  - Plant material or species to be planted.
  - Required soil amendments (lime, fertilizer, etc.).
  - Time and method of plantin.
  - Management of vegetation for fire protection.
- Forest management plan or burning plan when firebreaks are prepared by a registered forester or certified burner.
- Statement requiring compliance with all federal, state and local laws.
- Required operation and maintenance instructions.

## OPERATION AND MAINTENANCE

Mow, disk, or graze vegetative firebreaks to avoid a build-up of excess litter and to control weeds. Treatment should be timed to reduce impacts to wildlife nesting when possible.

Inspect all firebreaks for woody materials such as dead limbs or blown down trees and remove them from the firebreak.

Inspect firebreaks at least annually and rework bare ground firebreaks as necessary to keep them clear of flammable vegetation.

Repair erosion control measures as necessary to ensure proper function.

Access by vehicles or people will be controlled to prevent damage.

Bare ground firebreaks, which are no longer needed, will be stabilized.

#### **REFERENCES**

North Carolina Forestry Best Management Practices Manual, amended 2006, NC Forest Service Publication number FM-08-01.