NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE GENERAL SPECIFICATIONS

FUEL BREAK

(Ac.)

CODE 383

Locate fuel breaks adjacent to the structure(s), field(s), and / or other property to be protected and between it and a potential wildfire source.

Natural features such as roads and water bodies may be incorporated into a fuel break design.

FUEL BREAK WIDTHS

Table 1 provides recommended widths based on the on-site fuel type. In choosing the applicable fuel type, it is important to use the fuel that will be carrying a fire. For example, an open stand of pine that has grass beneath the trees and very little brush would best be classified as a grass fuel type. The width may be adjusted according to factors such as: the level of fuel manipulation done within the fuel break, the vulnerability of the structure or property being protected, or topography.

Examples: A hay barn might require a wider fuel break due to the flammability of the contents.
Property located at the top of a slope or hill might require a wider fuel break because of the potential of higher preheating from a fire moving upslope.
A fuelbeak that is prescribed burned to modify the fuel load and continuity may have its width reduced.

If extensive measures as described below are planned within a fuel break, the width should then be adjusted to the new fuel type that is being created. For example, if the area before the fuel break is established is best described as a brush fuel type dominated by volatile fuels and the landowner intends to completely eliminate the brush component, the newly created fuel type might be changed to a timber stand litter type. In this case, the width can be reduced accordingly. If however, the landowner intends only to control the brush enough to interrupt the fuel continuity, the fuel type would still be brush and the corresponding width retained.

Other factors that should be considered include the fuel type in the area from which a wildfire will be spreading, wind speed and direction during times of high wildfire danger, and the area's vulnerability to wildfire.

TREE / SHRUB CANOPY MANIPULATION

If necessary, thin trees and/or shrubs within the fuel break to minimize the possibility of crown-to-crown spread and to allow for heat escape. Space crowns at least 15 feet apart. In addition, prune lower dead and/or flammable limbs on trees to a height of at least 10 to 15 feet. Remove slash and limbs from the fuel break. Remove diseased, dying and dead trees.

LADDER FUEL REDUCTION

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

When a fuel break is installed in a stand of trees, interrupt any connection between the ground and the higher levels of the canopy that could make it possible for a wildfire to “step up” into a higher canopy.

These connectors can include vines, understory trees, and / or volatile brush species. A vertical separation between vegetation layers should equal three times the height of the lower fuel type. Control may be accomplished by mechanical means. Further chemical control of sprouts and regrowth may be necessary. Dispose of slash from the fuel break. See Forestland Improvement (666) for methods.

Complete control or removal of all understory vegetation may not be necessary as long as the continuity between the surface and higher canopy positions is broken. Any remaining shrubs, small trees or brush must be spaced according to their flammability to prevent the spread of a wildfire through their layer. Favor less flammable vegetation when possible.

Figure 1 – Ladder Fuels

Source: University of Florida – IFAS Extension

Table 2 – Vegetation Flammability

Flammable	Less Flammable
Bald Cypress, Black Walnut, Conifers, ,Cedar, Holly, Juniper, Palmetto, Wax Myrtle, Yaupon	American Beautyberry, Ash, Cherry, Dogwood, Elms, Fringetree, Hackberry, Hornbeam, Magnolia, Maples, Oaks, Persimmon, Plum, Redbud, Sparkle-berry, Sweetgum, Sycamore, Viburnum,

Source: Cooperative Extension Service, University of Florida

SLASH TREATMENT

Adequately dispose of slash created as a result of thinnngs, brush control, and ladder fuel control. Disposal will include removal from the fuel break, chipping, crushing, burning, scattering, or any combination of these methods. If slash is not removed or burned, steps must be taken to reduce its size and place it in contact with the soil to accelerate its decomposition. If this is not possible due to its size or quantity, removal from the fuel break will be required.

Care must be taken to minimize damage to residual trees and vegetation.

Any burning activity will comply with the Prescribed Burning practice (338) and state and local laws and regulations.

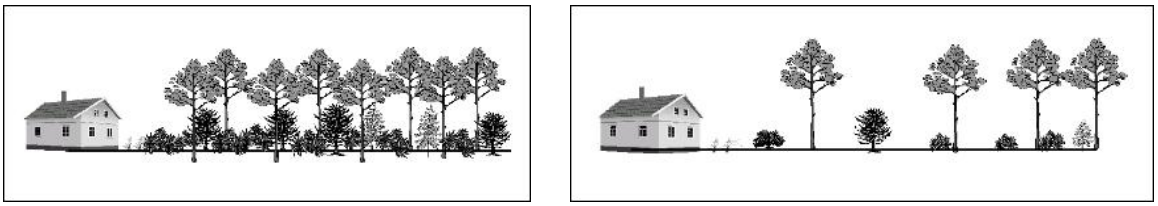
If the fuel break will be planted to a cool-season, low-volatile grass, treat the slash to facilitate its establishment and management.

AROUND HOMES

Establish a multi-zone fuel break around homes. Within the first 35 feet take extensive steps as described above. Additional measures such as maintaining a green lawn will be needed. As the width increases according to the appropriate fuel type, the intensity of treatment may be reduced.

For example, all flammable vegetation would be treated within the first 35 foot zone but may be adequately spaced beyond this.

Figure 2 – Establishing Defensible Space Around A home



Source: University of Florida – IFAS Extension

GRASS AND FORB MANAGEMENT

Because fine fuels are the primary fuels that carry fires, grasses and forbs must be treated, particularly when dry. Dead material such as leaves, twigs and small branches can also contribute to the fine fuel loads. Control can be by mowing, grazing or prescribed burning. Planting cool-season grasses can expand the effectiveness of a fuel break, but will need to be treated when dead and dried. Perennial grasses should be mowed to a 3 inch height. If grazing or prescribed burning is used to control fine fuels, application of these measures will be in accordance to the appropriate Standard and Specifications.

WILDLFE CONSIDERATIONS

If trees and shrubs are retained or established within a fuel break, consideration should be given not only to their flammability but also their value for wildlife.

OPERATION AND MAINTENANCE

Maintenance of a fuel break is essential to ensuring its effectiveness. As fuels (smaller than 3” diameter) accumulate from fallen dead limbs, blown down trees, grass and forb growth, etc., their treatment or removal will be necessary. Chemical or mechanical control of regrowth of flammable vegetation may also be needed. If grazing or prescribed burning is used, adhere to the appropriate Standard and Specifications.

Table 1 – Fuel break widths by fuel type

Primary Fire Carrier	Description of Fuels		FMT*	Fire Intensity	Minimum Fuel break Widths
Grass	Grass is fine-structured, continuous, cured, dead, and generally below knee high. Very little shrub or timber is present.		1	Moderate	35
	Grass is course structured, above knee high and difficult to walk through. Includes marshland grasses.		3	High	85
	Grass is under open timber or brush overstory, litter from the overstory is involved but grass carries the fire		2	Low	35
Brush	Live fuels are absent or sparse, and do not influence fire. **Can include cured hardwood slash or debris following a clearcut**.		6	Moderate	85
	Live fuels present	Flammability of live foliage is important in carrying fire. Brush is 2-4' tall, characterized by palmetto-gallberry-pine stands.	7	High	85
		Brush is about 2' tall, with light loading of brush litter and grass underneath that may carry a fire. Volatility of foliage is low.	5	Moderate	70
		Brush is head high with heavy loading of fine (<¼" diam.) dead fuels and flammable live foliage.	4	High	200
Timber Stand Litter	Live fuels are present and can influence fire behavior. There is a significant amount of larger fuels (>3") with attached twigs and branches. Can include wind-thrown stands and down timber from disease/insect infestations		10	High	200
	Surface fuels are mostly foliage litter, little or no live fuel, Larger fuels are scattered and lie flat	Dead foliage is tightly compacted short -needled conifers or hardwood litter	8	Low	35
		Dead foliage is loosely compacted long-needled pine or hardwood litter	9	Moderate	35
Slash	Slash is not continuous. Needle litter or small amounts of grass or shrubs must be present to help carry a fire. Live fuels are absent or do not influence a fire.		11	Low	35
	Slash is continuous and is not excessively compacted. Live fuels are absent or do not influence. **Includes pine clearcut slash.**		12	Moderate – High	80
	Slash is generally continuous. More heavy fuels (>3") are present than above. Live fuels will not influence fire. Includes thinnings in mature stands.		13	High	100

* Fuel Model Type