

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

CLEARING AND SNAGGING

(Ft.)

CODE 326

DEFINITION

Removing snags, drafts, or other obstructions from a channel.

PURPOSE

The purpose of this practice is: (1) to increase the flow capacity of the channel by improving flow characteristics, (2) to prevent bank erosion by eddies, (3) to reduce the forming of bars, and (4) to minimize blockages by debris and ice.

CONDITIONS WHERE PRACTICE APPLIES

Any channel or floodway where the removal of trees, brush, and other obstructions is needed to accomplish one or more of the listed purposes. If clearing and snagging are likely to result in channel erosion, impairment to the landscape resource quality, or impairment to habitat for fish and wildlife, either the clearing and snagging shall not be done or practices to minimize such damages shall be applied concurrently with the clearing and snagging.

DESIGN CRITERIA

The capacity of the channel, both before and after improvement, shall be determined by use of the Manning formula, using applicable values of the retardance factor "n" for both conditions. The value of "n" used to determine channel capacity after improvement shall reflect the degree of maintenance expected in future years.

The area to be cleared and snagged shall include the perimeter of the channel, the flow area of the floodway, or both. Adjacent trees or other objects that may fall into the channel shall also be included. Clearing and snagging may be specified for other areas, including berms, for use as temporary disposal areas or travelways, or for planned conservation uses.

Clearing and snagging shall not impair channel stability. Criteria for determination of channel stability in open channels (582) shall be followed. The effect of removing obstructions on downstream reaches shall be considered.

CONSIDERATIONS

The effects on water quality and quantity should be considered in all clearing and snagging projects. Items to consider are:

**Section IV, FOTG
Standard 326**

Quality

1. Effects of discharge on the flood plain and channel relative to erosion and sediment production, both during construction and after establishment.
2. Effects sediment load, sediment-attached substances, organic loadings.
3. Relationships between stream quality and aquifer quality where ground water recharge occurs.
4. Temporary and long-term effects on visual quality of water and landscape.
5. Effects on on-site and downstream water temperatures.

Quantity

1. Possible downstream flooding
2. Effects of changed drawdown on bank stability.
3. Effect of changed flow conditions on ground water recharge.

PLANS AND SPECIFICATIONS

Plans and specifications for installation of clearing and snagging shall be in keeping with this standard and shall describe the requirements for application of the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

Plans for maintaining the completed project shall be addressed in the construction plans and specifications, or detailed in a separate O&M plan. These plans should address both annual and long-term maintenance needs.

NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATION

CLEARING AND SNAGGING – 326

All trees, stumps, and brush to be removed within the perimeter of the channel shall be cut as close to ground level as the cutting tools will permit. Where other areas are to be cleared, the trees, brush, and other woody vegetation shall be cut within the maximum distance above ground level as specified on the plan.

Trees shall be felled in such manner as to avoid damage to other trees, property, and objects located outside the limits of clearing. Unless tree stumps are unstable or causing obstructions, they will not be disturbed during the clearing operation.

Down trees, logs drifts, boulders, debris, and other obstructions lying wholly or partially within the channel shall be removed. Piling, piers, headwalls, and sediment bars that obstruct the free flow of water will be removed when so designated on the plan.

If herbicide treatment is planned, the stumps and brush within the specified area shall be treated at the time of clearing in accordance with the recommendations of the manufacturer of the herbicide being used.

The use of explosives in any and all clearing and snagging operations shall be in strict compliance with applicable state statutes and regulations.

All trees, logs, brush, and other woody material shall be disposed of in designated on-site areas or hauled off-site to an approved disposal area. The woody material may be burned, buried, piled, or chipped.

All non-woody material, residue from burning, and non-combustible material shall be hauled off-site to an approved disposal area.

All burning shall be performed outside the channel and shall conform to regulations in effect in the area.

All buried material shall have adequate earth cover and mounded up to allow for settlement.

Selective snagging where possible shall be performed primarily with hand-operated equipment, water-based equipment, or small equipment used in a manner that will minimize soil, water, and other resource disturbances.

Measures and construction methods that enhance fish and wildlife values shall be incorporated as needed and practical. Special attention shall be given to visual resources, protecting and maintaining key shade, food, and den trees and to stabilization of disturbed areas.