NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

CLEARING AND SNAGGING

(Ft.)

CODE 326

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DEFINITION

Removing snags, drifts, or other obstructions from a channel or drainage way.

PURPOSE

Reducing significant human and/or natural environmental risks by improving physical characteristics of a channel to:

- Restore flow capacity;
- Prevent bank erosion by eddies;
- Reduce the formation of bars; and/or
- Minimize blockages by debris and ice.

CONDITIONS WHERE PRACTICE APPLIES

Any channel or urban floodway where the removal of trees, brush, and other obstructions is needed to accomplish one or more of the listed purposes.

CRITERIA

Clearing and snagging measures shall be planned, designed, and constructed to comply with all Federal, State, and local laws and regulations.

Clearing and snagging shall not be completed on any channel where significant channel erosion will occur, major impairment to the landscape resource quality is likely, or significant impairment to habitat for fish and wildlife will occur, unless needed restoration actions are included with the application of this practice.

Capacity. The capacity of the channel, both before and after improvement, shall be determined using Manning's Formula with applicable values of the retardance factor "n" from Supplement B to the National Engineering Handbook, Section 5 – Hydraulics, or similar source. The value of "n" used to determine channel capacity after improvement shall reflect the degree of natural changes and maintenance expected to occur in future years.

Location. The area to be cleared and snagged shall include the perimeter of the channel, the flow area of the urban floodway, or both. Trees on the bank that are leaning over or other objects that may fall into the channel shall also be included. If root balls are still attached to the streambank, cut off the log 6 to 12 inches above the ground and leave the stump and root mass for bank stability.

Stability. Clearing and snagging shall only be specified for other areas such as: berms, areas used for temporary disposal sites or travelways, or for other planned conservation uses where needed to implement this practice.

Clearing and snagging shall not impair channel stability. The criteria for determining channel stability shall comply with Conservation Practice Standard (582), Open Channel. The effect on downstream and upstream reaches due to the removal of obstructions shall be analyzed using appropriate stream and channel geomorphologic procedures.

If clearing and snagging will result in streambank erosion, criteria within Conservation Practice Standard (580), Streambank and Shoreline Protection will be used in conjunction with this standard.

Vegetation. All areas denuded and disturbed during snag removal shall be restored by planting native vegetation where practical.

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

Disturbance of wetlands, riparian areas, and fish and wildlife habitat sites shall be minimized or avoided where possible. Cleared material shall be removed from the floodplain or deposited in approved areas that will not significantly affect the flow capacity of the stream.

CONSIDERATIONS

Ground-disturbing activities associated with this practice, including but not limited to areas of equipment/vehicle traffic in the channel and floodway and areas of vegetation removal, have the potential to adversely affect cultural resources.

Insure that threatened and endangered species and their habitat shall not be permanently adversely impacted by the use of this practice.

Effects on water quantity and quality should be considered.

Removal of deadfalls, stumps, and trees from streambanks and channels may increase discharge, velocity and channel capacity that could reduce flood damage from out of bank flow.

Improved flow conditions may lower the hydraulic gradient and drain flood plains more quickly. Rapid drawdown may cause sloughing of saturated, unstable streambanks.

Decreased groundwater recharge in water-losing streams may result from reduced residence time of water in the channel.

Temporary losses of aquatic or wetland habitat may occur with the removal of vegetation.

During implementation of the practice, there may be increased turbidity due to an increased sediment load. Water quality may be further degraded by chemical substances (i.e. organic nitrogen or phosphorus) attached to the sediment particles.

During construction, a heavy organic load may be produced resulting in a decreased availability of dissolved oxygen. Long-term effects may cause a decrease in yields of sediment and sediment-attached substances.

Increased surface water temperatures, at low flow, may occur from removal of shade-producing canopy until regrowth occurs. Accelerated flows may reduce the period of time water is exposed for “sun warming,” thus reducing water temperature.

In streams carrying dissolved substances, a reduction in ground water recharge may contribute to improved aquifer quality.

The number of pools and riffles forming the channel bottom may be reduced and fish habitat could be adversely affected.

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

Consider removal methods and the disposal location of cleared material that will not be used for bioengineering (removal from site, placement in or out of the floodplain, not placed in wetland areas, etc.), and implement according to permit conditions.

PLANS AND SPECIFICATIONS

Plans and specifications for clearing and snagging shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose(s).

Construction operations shall be carried out in a manner and sequence so that impacts on the environment will be minimized and held within acceptable limits.

All operations shall be carried out in a safe and skillful manner. Safety and health regulations shall be observed and appropriate safety measures used.

OPERATION AND MAINTENANCE

A maintenance program shall be established by the landowner/user to maintain channel capacity and vegetative cover. Items to consider are:

- Where applicable, control grazing in the construction area during vegetative establishment and when soil conditions are wet.

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- Fertilize as needed to maintain a vigorous vegetative cover.
- Promptly repair eroded areas.
- Remove major silt and sediment accumulations in the channel cross-section as soon as practical, when the effects are causing significant bank erosion problems.
- Re-establish vegetation cover immediately where scour erosion has removed established seeding.
- Keep inlets to side drainage structures and channels open and armor if necessary.
- Periodically inspect the area for signs of significant streambank undermining or instability.

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APPROVAL AND CERTIFICATION

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PRACTICE STANDARD APPROVED:

_____/s/ John Mueller_____ **_____04/23/03_____**

State Conservation Engineer **Date**

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