



Program Work Standards

v2, updated April 2025

This document should be shared with all contractors or engineers involved in a StRAP project. Failure to follow this guidance will cause a site to fail inspection until corrective work is completed.

General Overview

As general Guidance:

- Debris should be removed from streams if it poses a risk to property, streamflow, or stream health.
- Approved methods of debris processing include:
 - Removal from 100-year floodplain
 - Chipping/mulching
 - Burning
 - Cabling/Strapping
- All equipment used in the stream or floodplain should be used in a manner that minimizes the impact to the streambed, streambank, and riparian habitat.
 - Minimize use of heavy equipment in streambeds. Hand labor or equipment on the bank with manipulator arms or cables are preferred methods for removing debris from the stream.
 - Boat mounted equipment may be an effective option for accessing stream debris.
- As needed, sites should be reseeded to establish vegetation to prevent erosion.

For more details, see below.

Selecting Stream Debris for Removal

Large woody debris (trees, branches, beaver dams, log jams, etc.) that poses a risk to property/infrastructure, streamflow, or stream health should be removed from the stream channel. Debris that does not meet these criteria should be left in the stream as part of the stream habitat and to help maintain natural stream characteristics.

- Debris should be considered for removal when it has a clear impact, including:
 - Debris accumulating on bridges, utility lines, buildings, etc. crossing or next to the stream.
 - Debris accumulating on culverts, embankments, or other areas where human activity has created constrictions in the stream/floodplain that will be exacerbated by debris.
 - Blockages that impede water flow and cause upstream flooding.
 - Debris that redirects the current and causes erosion that damages stream banks.
 - Logjams that may collapse in future storms and create downstream flashfloods.
- Debris that is not currently causing issues (as listed above), but is likely to do so in the near future, should be removed, including:
 - Logs that span or jut into the channel and catch floating debris, creating new blockages in the future.

- Free floating logs/branches that will catch on, and add to, blockages.
- Standing trees at risk of falling into the stream can be removed if the tree 1) is dead or severely undercut, 2) leans more than 30 degrees toward the channel, and 3) appears likely to fall into the channel in the next year.
- Debris that is not affecting stream flow, or whose removal would damage the streambed or banks, should be left in place.
 - Do not remove stumps or root balls from the streambank.
 - Do not remove debris that is embedded in the streambed or bank. Cut off branches or sections that jut out, but leave any embedded sections of the log in place.
 - Do not remove standing trees and vegetation from the floodplain except where needed for site access, or if tree is at imminent risk of falling into the stream.
- Only debris within the stream channel (from top of bank to top of bank) should be removed.
 - EX: if a log in the floodplain juts into the channel, it should be cut at the top of bank. The portion of log within the channel should be removed, and the portion in the floodplain should be left in place.
- If artificial debris (wooden construction material, collapsed bridges, etc.) is contributing to blockages in the stream, it can be removed from the stream and disposed outside of the floodplain.

Stream Debris Processing Guidance

§ 139-65. Streamflow Rehabilitation Assistance Program, the authorizing legislation for StRAP, states that *“The Commission shall ensure that debris removed from streams with funds provided under this Article are either removed from the 100-year floodplain or processed in such a manner that the debris would not pose a risk of blockage or significant impairment of normal streamflow during a subsequent flood event.”*

All debris removed from streams should be processed so that it will not be washed back into the stream by future floods where it will create future blockages or streamflow impairments. The Soil & Water Conservation Commission has approved the following methods for processing debris after it has been removed from the stream channel:

1. Removal from the 100-year Floodplain
 2. Chipping/mulching
 3. Burning
 4. Cabling/Strapping
 5. Use in approved streambank stabilization practices
- If the stream does not have a mapped 100-year floodplain, as identified on FEMA’s [National Flood Hazard Layer map](#), debris should be placed at least 30’ back from the top of the bank. No other processing is needed.
 - The grantee is responsible for providing documentation to inspectors that no 100-year floodplain exists.

1. Removal from the floodplain

- Debris removed from the stream can be hauled away from the 100-year floodplain, as identified on FEMA's [National Flood Hazard Layer map](#)
- Example hauling locations include: removal to a landfill (grantees should confirm that the landfill accepts woody debris), another property, or section of the property outside of a 100-year floodplain.
 - Grantee should secure permission from the owner of the disposal location.
- All artificial debris (such as construction materials) should be removed from the 100-year floodplain if practical.

2. Chipping/Mulching Debris

- Debris can be chipped and wood chips left on site.
- Wood chips can be placed on the floodplain starting at the top of the bank. Wood chips should not be placed below the top of the bank in the stream channel or blocking drainages from the floodplain into the stream.
- Wood chips left in the flood plain should be spread in a thin layer to avoid inhibiting plant growth (no more than 3 inches deep).

3. Burning Debris

- Debris can be burned on site. The grantee/contractor is responsible for obtaining and possessing a valid burn permit (if applicable) and for following any laws or statutes related to burning.
- Any large debris that does not burn completely should be further processed.

4. Cabling/Strapping

This practice consists of removing debris from the stream and tying it to a live tree or other anchor point in the 100-year flood plain so the debris will not wash back into the stream in future flood events.

- The entire log(s) should be moved at least 30' back from the top of the streambank before it is tied down.
- **Live Trees-** Logs and debris may be strapped/tied to live trees or other anchor points. Fatal damage to live trees should be avoided. Wedging logs against the live tree before the cable/strap is attached will help ensure the attached log is as immobile as possible.
 - Leave slack in the loop around the live tree, and between the live tree and the log, to prevent girdling.
- **Strapping Material:** A variety of rope or strap options can be used for tying woody debris. Material with a break strength of approximately 1,700 pounds or higher should be used.
 - 1/4 inch braided nylon rope is a common example of an appropriate rope.
 - Biodegradable ropes are preferred but not required.
- Debris can be anchored individually or in groups. If groups of logs & branches are anchored together, the whole bundle should be tied securely (either wrapping rope around each piece of debris in the bundle, or securely tightening multiple loops of rope around the entire bundle).
 - When practical, making pieces of debris at least 6 feet long will minimize the risk of logs coming loose from a bundle.

- Woody debris cabled/strapped within the floodplain should be anchored in such a way that it will not significantly affect the flow capacity of the floodplain. Securing logs parallel to the direction of the stream flow can help reduce flood flow impediment. Multiple logs/piles should be spaced apart to avoid forming a berm in the floodplain.

5. Use in approved streambank stabilization practices

Woody debris pulled from the stream can be used in streambank stabilization or stream restoration projects in the following circumstances:

- Debris removed from the stream can be incorporated into streambank stabilization or stream restoration practices when an approved engineering design calls for it.
 - Example practices where large woody debris could be used are woody toe protection, brush toe protection, branch packing, log vanes, or sills.
- The planned use of logs should be outlined in the site's engineering design.
 - A copy of the engineering design should be sent to StRAP staff before work begins.
- Debris can be used on projects on the same site, or if needed transported to other sites.

Streambank Stabilization & Stream Restoration

StRAP distinguishes between these 2 practices based on whether work is done on the streambank only (streambank stabilization), or the streambank AND in the stream channel (stream restoration):

- **Streambank Stabilization**- repairs and shapes damaged streambanks to repair erosion, prevent further erosion, and reconnect the stream to the floodplain
 - Focuses on earthmoving/grading to reshape banks to a stable grade (such as a 3:1 slope).
 - Does NOT incorporate in-stream structures (j-hooks, step pools, etc.) or changes to the stream's channel.
 - May include toe revetments (placement of stone, logs, or other materials at only the base of the streambank to prevent erosion).
 - Hard Structural Practices (ex: concrete bulkheads or lining the full bank in riprap) should not be used.
- **Stream Restoration**- involves use of in-stream structures (cross vanes, j-hooks, etc.) or the manipulation of the channel (recreating meanders, changing channel width, etc.) to recreate natural channel function and form.
 - Often includes streambank stabilization (in addition to work within the stream channel).
- Vegetation should be re-established on all stabilization/restoration sites once work is completed to control erosion and re-establish riparian habitat.
- A design plan is required for all streambank stabilization & stream restoration projects.
 - Design should be prepared by someone with appropriate qualifications (such as an engineer or staff with relevant Job Approval Authority through NRCS or DSWC).
 - A copy of the design should be submitted to StRAP staff before work begins.
- Avoid over-excavating channels. Construct channels to the dimensions of a natural, stable width for the site.
- Do not straighten streams.