



Guidelines for Stream and Ditch Maintenance

ODA Agricultural Water Quality Program

At times, maintenance activities are necessary around and within streams and ditches to maintain drainage and to prevent flooding. Because these activities could impact water quality, growers want to know if they are complying with Oregon’s Administrative Agricultural Water Quality Area Rules (Area Rules).

Area Rules are intended to prevent agricultural activities from impairing stream functions such as shade for cooler stream temperatures, streambank stability, and the filtration of pollutants. Area Rules specify conditions to manage for and allow the grower to decide what practices work best for their operation.

To be in compliance with Area Rules, agricultural activities must:

- Allow for the ongoing growth and establishment of streamside vegetation.
- Minimize sediment from entering or accumulating in streams or ditches.
- Prevent soil and gully erosion on stream and ditch banks.

The following guidelines and recommended practices for streams, upland soil erosion, and ditch and drainageways work to ensure that agricultural operations support compliance with Area Rules. When applied effectively, they can achieve good water quality while meeting farming objectives. Successfully implementing these practices is dependent on the details, so for added technical assistance consult with your local Soil and Water Conservation District (SWCD), Natural Resource Conservation Service (NRCS) specialist, Oregon State University Extension, or ODA.

Streams

Area Rules apply to all year-round and seasonal streams (rivers, creeks), including channelized streams that may appear to be ditches. Removal of vegetation from a streambank or excavating accumulated sediment from a stream channel could lead to issues with water quality and put your operation out of compliance with Area Rules. Additionally, there could be areas along and near streams that are considered wetlands. Wetlands and streams are regulated, and certain aspects of your maintenance activities such as the amount of soil and material that is excavated could require a Removal-Fill permit from the Oregon Department of State Lands (DSL).

Before beginning any maintenance activities, take the time to be fully informed about what kind of waterway you are working with and have a good understanding of where the surface water drains. It is important in choosing what practices and guidelines to use. The objective should be to implement maintenance activities along or within streams in a manner that (1) supports your agricultural operation (2) promotes the ongoing growth and establishment of streamside vegetation, (3) is in compliance with Area Rules and other state and local regulations, and (4) has applicable permits. Consult with ODA or your local soil and water conservation district for added assistance.



A grass seed field in the Willamette Valley utilizing a grassed waterway for surface drainage and clean water. Photo courtesy of Linn Soil and Water Conservation District

Recommendations for Streams

RECOMMENDED PRACTICES

- Brush management
- Riparian forest buffer
- Tree and shrub establishment
- Vegetated filter strips

CONDITIONS TO MANAGE FOR

- Woody vegetation is established and growing along year-round and seasonal streams.
- Streamside vegetation is composed of trees and shrubs at a density and width necessary to stabilize the streambank during high streamflows, shade the stream, and filter pollutants.
- Trees and shrubs are planted in areas of damaged and cleared vegetation.
- Streambanks are free of gullies and rills.

Streams

- Limit maintenance to areas near drainage outlets and complete frequently enough to control overgrowth for access to inspect and repair.
- When maintaining vegetation use techniques such as pruning, mowing, or girdling, that allow the root system to remain intact and in the soil.
- Following ground disturbance and when conditions allow, plant native or non-invasive trees and shrubs into areas where vegetation was removed. Follow up plantings may be needed to achieve establishment.
- When planting, select a diverse mix of tree and shrub species that provide multiple benefits and are adapted to the duration of soil saturation of the site.
- If you are planning to remove woody vegetation along streams, such as large trees and shrubs, Oregon Department of Forestry regulations may also apply in addition to Area Rules.



This photo illustrates upland gully soil erosion. Hay bales that were placed to control surface runoff were not able to handle the amount of surface flow. Photo courtesy of Linn SWCD



Photo above is the same field the following year after a grassed waterway was installed to improve infiltration of rainwater and to reduce surface runoff. Rows were placed perpendicular to surface water runoff. Photo courtesy of Linn SWCD



Photo is a seasonal stream channel that has been sprayed out with herbicide. Agricultural activities are preventing the establishment and growth of streamside vegetation, which can no longer adequately filter surface water runoff and maintain bank stability. ODA photo



Photo shows the same seasonal stream channel a couple of years later after ground cover has been allowed to establish between the stream channel and cropped area. Trees and shrubs have been planted and an added buffer for seed purity and water quality has been added. ODA photo

Manage Soil Erosion from Uplands

The best way to minimize sediment from entering streams and ditches is to control soil erosion as close to the source as possible. This can be achieved by working to increase rainwater and snowmelt infiltration and managing surface water runoff from upland sources to prevent sediment transport. Below are some recommended practices to increase water infiltration and manage surface water runoff.

Recommendations for Uplands

RECOMMENDED PRACTICES

- No-Till or Conservation Tillage
- Contour Farming
- Contour Buffer Strips
- Cover Crops
- Direct Seeding
- Field Borders
- Filter Strips
- Grassed Waterways

CONDITIONS TO MANAGE FOR

- Rill and gully erosion is prevented during storm events.
- Sediment is not building up downslope or entering streams and ditches.
- Agricultural fields and borders, aisles, and staging areas are covered with either crop production, cover crops, crop residues or grass during the wet season.



Photo is of a year-round stream in the Willamette Valley. Agricultural activities prevented the ongoing growth and establishment of streamside vegetation, which put this operation out of compliance with Area Rules. ODA photo



The same year-round stream two years later. A grass filter strip was installed and streamside vegetation was allowed to grow and establish along the upper bank. This operation is now in compliance with Area Rules. ODA photo

Ditches and Drainageways

After significant runoff events, sediment can accumulate in low-gradient ditches, potentially disrupting flow and obstructing drainage. At times, removal of accumulated sediment is necessary to restore drainage, especially in areas with frequent flooding or highly erosive soils. Be informed and plan properly before beginning sediment removal, especially when the ditch drains into a stream or river. Without proper planning, sediment removal can result in water quality issues downstream and put your operation out of compliance with Area Rules. When completing ditch maintenance, use practices that protect water quality and consider the guidelines provided.

Note: At times, what looks like a ditch could actually be a natural stream and a natural stream is never considered a ditch or exempt from Area Rules. Contact ODA or your local soil and water conservation district for assistance in determining if you are working with a ditch or channelized stream.

Guidelines for Ditches and Drainageways

- Remove only accumulated sediments, with minimal disturbance to the channel side slopes (freeboard) and existing vegetation.
- Maintain ditches and drainageways with a vegetative cover, particularly during the wet season. In ditches, grasses are often used to prevent bank erosion and scour.
 - Bare, disturbed soils should be seeded as soon as possible.
 - Supplemental seeding every two to three years may be needed.
 - Selected vegetation should resist frequent inundation and stabilize banks during high flows.
 - Keep in mind the crop certification needs for you and your neighbor's farms.
- Regularly inspect and maintain drainage outlets to ensure they are properly functioning, especially after significant runoff events. Drainage outlets should be stable and protected against erosion and undermining for a range of flow conditions.
- Excavation of accumulated sediment should return the channel to the original flow line and should not deepen the channel. Over-excavation can lead to drastic erosion problems downstream and result in unstable, steep banks.
- Keep excavation equipment on uplands and off the ditch bank.
- Dispose of spoil material in uplands, away from the ditch and in a manner, which minimizes soil erosion, protects water quality, and fits with the land use and landscape.
- In ditches with year-round flow, allow vegetation to grow and remain along ditch banks during the summer to shade surface water and maintain cooler water.

Conditions to Manage for in Ditches and Drainageways

- Ditch banks and freeboard are well vegetated with grass during the wet season.
- No rills or gullies along ditch banks.
- Areas of bare and disturbed soil are seeded with a grass seed mix.
- At drainage outlets, sediment is prevented from accumulating in ditch channels.

Other Items to Consider Before Beginning Maintenance Activities on Streams and Ditches

- Perform work during the dry season when there is no or low flow. Do not begin work if a large rain event is expected.
- Use low-impact equipment when practical.
- When appropriate for local soil and climate conditions, leave crop residue on the soil surface after harvest to reduce soil erosion and runoff, recycle nutrients, sequester soil carbon, and improve soil health.

FOR ADDITIONAL INFORMATION CONTACT:

Oregon Department of Agriculture

Agricultural Water Quality Program
635 Capitol St. NE
Salem, OR
503-986-4700

Soil and Water Conservation Districts

To find out what soil and water conservation district serves your area, call ODA at 503-986-4700 or use ODA's link to a map of soil and water conservation districts at www.oda.direct/SWCD

Oregon State University Extension

General inquiry: 541-737-2713
<http://extension.oregonstate.edu/find-us>

Department of State Lands (DSL) Permit Requirements: The Oregon Department of State Lands offers no-fee offsite determinations to verify if a drainage way is regulated. Go online at: www.oregon.gov/DSL/WW/Pages/Permits.aspx. For more information about when a DSL permit is required, contact a DSL aquatic resource coordinator at 503-986-5200 (Western Oregon) or 541-388-6112 (Eastern Oregon).

Department of Forestry (ODF) Permit: If you are planning to remove woody vegetation along streams or ditches, such as large trees and shrubs, Oregon Department of Forestry may regulate. Notify the local Stewardship Forester before removal. Call (503) 945-7200.