

Agricultural Drainage

What is agricultural drainage?

Farm field drainage is important in maintaining productive agricultural lands. The removal of excess water from soils may be necessary to work fields in the spring and late fall, provide proper soil conditions for good crop growth, and protect roads and property.

Drainage systems include networks of subsurface (tiles) and surface ditches (also known as agriculture waterways). Both drain tile systems and waterways require periodic maintenance. The cycle for that maintenance depends on the site conditions including vegetation types, amount of sediment accumulation, and farm practices. Agricultural waterways may divide farm fields and access may require installing water crossing structures such as fords, culverts or, preferably, bridges. Beavers building dams across waterways or at the mouth of culverts can create additional drainage challenges.

This chapter is focused on the work that can be done by an individual landowner. For larger scale drainage maintenance there are links to county and service district programs that assist farmers with drainage maintenance needs that are larger than a single farmer can take on.

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Agricultural Waterways

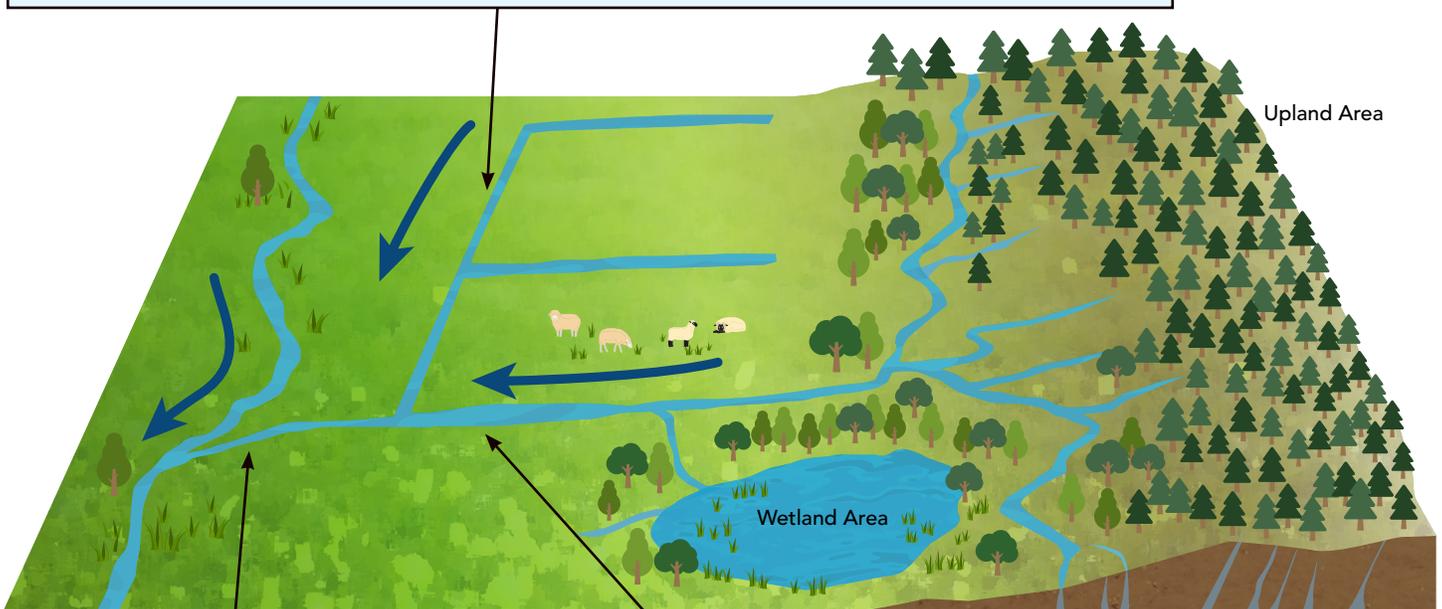


Agricultural waterways are drainage ditches and streams that convey water from farm fields to larger rivers and streams. Maintaining adequate flow capacity is essential for the drainage system to be effective. However, this work can have detrimental effects on aquatic life and water quality. Removing sediments (dredging) from a modified watercourse can cost as much as \$50/linear foot of channel including sediment excavation, water quality during excavation, and mitigation plantings of trees and shrubs.

The most cost-effective and environmentally friendly action that a landowner can take is preventing sediments from reaching the waterway in the first place. To do this, a landowner can implement farm practices that prevent runoff and sedimentation. These include planting a filter strip of herbaceous vegetation located between crop land/ pastures and watercourses or a field border of vegetation around the perimeter of a crop field. Farm sediment management practices result in a longer interval between channel maintenance.

For regulatory purposes, King County classifies ag waterways into three categories: **Artificial, Modified and Natural**.

Artificial Waterways are constructed drainage ditches that do not have headwaters or other natural water sources, and if the waterway is within the 100-year floodplain, a clearing and grading permit from King County is required unless work is done through the Agricultural Drainage Assistance Program (ADAP).



Natural Waterways have not been significantly altered from their historical flow path and have headwaters. King County code does not currently allow drainage maintenance work in these channels.

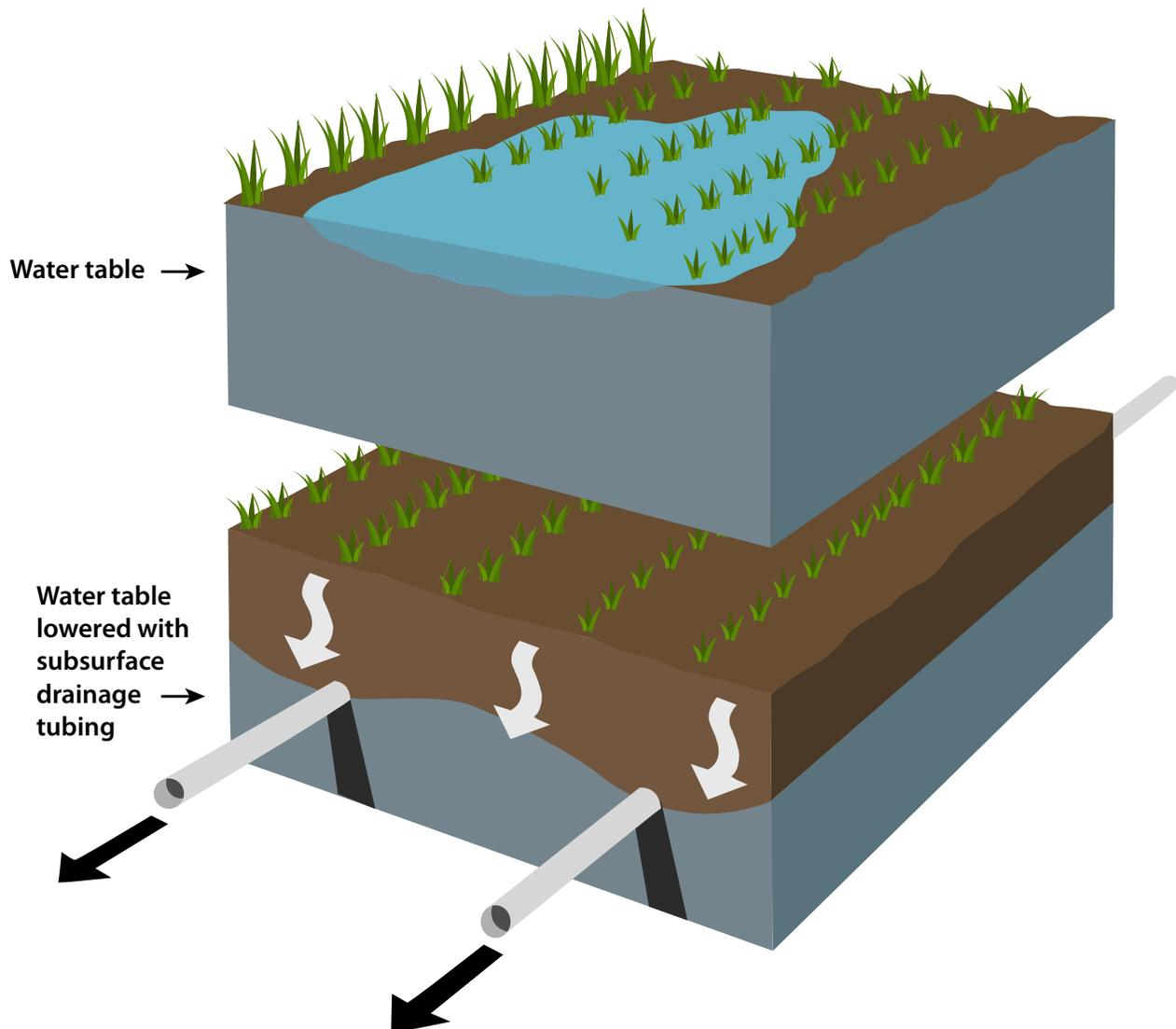
Modified Waterways are streams that have been previously diverted, dredged, and/or straightened. Maintenance work requires a Hydraulic Project Approval (HPA) and a King County clearing and grading permit unless work is done through ADAP.

Field Tiles



On-farm drainage systems can include a network of subsurface drain pipes (tiles). To route excessive soil moisture out of tillable acres. Maintenance and replacement of existing tile drainage systems on active farms can usually be done without obtaining a permit from King County.

If the tile system discharges to a stream or river then work at that location will require an HPA from the WDFW.



Stream Crossings



Farmers may need to cross streams and agricultural waterways to access fields. Crossings may be fords, culverts or bridges depending on the size and classification of the stream or waterway and available funding. When considering a water crossing contact the local WDFW habitat biologist at <https://wdfw.wa.gov/licenses/environmental/hpa> and King County Permitting at 206-296-6600 or DPERwebinquiries@kingcounty.gov.

Culverts

Road crossing culverts are common on all types of watercourses and are critical infrastructure for field and farm access. But if undersized or poorly installed, culverts can be a problem because they impede or block fish passage to important habitat. On fish bearing streams and waterways, consider replacing culverts with bridges. Culverts on agricultural waterways may be replaced as part of an ADAP project. If a culvert requires replacement and an ADAP project is not planned for the waterway, farmers in the Snoqualmie Valley should contact the Snoqualmie Valley Watershed Improvement District (WID) <https://svwid.com> for assistance. Outside of the Snoqualmie Valley farmers should contact the King Conservation District (KCD) at the following link: <https://kingcd.org>.

Bridges

King County Code* allows for a livestock crossing bridge to be constructed or maintained without a county building permit. However, constructing, maintaining or replacing vehicle bridges may require one or more of the following permits:

- > King County Floodplain Development Permit, Clearing and Grading Permit, Building Permit and/or Shorelines permit or exemption. Contact: farmhelp@kingcounty.gov
- > HPA from the WDFW and
- > A permit from the Army Corps of Engineers. www.nws.usace.army.mil

Farmers should seek professional engineering assistance for bridges that will have vehicle traffic.

Beaver Dams



Beaver dams can contribute to drainage problems. Dam modification or removal is an option, although flow control devices may be more effective. To remove or modify a beaver dam you must have an HPA from WDFW and possibly a King County permit. In emergency situations, where there is an immediate threat to life or property, WDFW can issue verbal approval.

Streams and wetlands are considered King County critical areas, and anything that affects them, such as beaver dam removal, will likely need a County clearing and grading permit. This permit is usually an over the counter permit that may be processed more quickly than a standard grading permit. To understand permit requirements, landowners should contact the Permitting Services Center at **206-296-6600**.

Working with a certified beaver relocator can be a way to solve your beaver-related drainage problems for little or no cost. To learn more about how to co-exist with beavers, visit <https://kingcounty.gov/beavers>.



Frequently Asked Questions



What is the Agricultural Drainage Assistance Program?

The Agricultural Drainage Assistance Program (ADAP) is a King County program that assists with obtaining a Hydraulic Project Approval (HPA), site surveys, engineering and design, and as a result provides an exemption from county permits. The program focuses on Artificial and Modified waterways. ADAP does not support Natural waterways.

 <https://kingcounty.gov/ag-drain-assist>

Dredging under ADAP usually requires planting of trees and shrubs along the section of maintained waterway to mitigate for the negative impacts of the dredging on water quality. These mitigation requirements are described in the Manual of Best Management Practices for Maintenance of Agricultural Waterways in King County.

 <https://kingcounty.gov/ADAP-manual>

Do I need a farm plan for drainage assistance?

A farm plan is required to enroll in ADAP. Contact the King Conservation District (KCD) to initiate the process. Enrollment in ADAP provides access to KCD administered cost share and project management for contracted dredging.

 <https://kingcd.org/farmconservationplan>

What can I do about projects on large waterways or with multiple landowners?

Drainage infrastructure such as flap gates or flood gates are used to prevent flood waters from flowing from a river back through the drainage network onto farm fields. The maintenance and repair of these facilities is beyond what an individual farmer can accomplish. Several organizations such as **King County Stormwater Services**, local drainage districts and, in the Snoqualmie Valley, the **Watershed Improvement District** have the funding and technical skills to take on these types of projects.

 <https://svwid.com>

Frequently Asked Questions



Where can I find more information about beaver dam management?

Good sources of information on available management options are:

King County Beaver Working Group

 <https://kingcounty.gov/beavers>

Beavers Northwest

 www.beaversnw.org

WDFW

 <https://wdfw.wa.gov/species-habitats/species/castor-canadensis#conflict>

Stormwater Services

 www.kingcounty.gov/stormwater/drainage-assist

Is cost-share available for drainage projects?

The Agricultural Drainage Assistance Program (ADAP) is a King County Stormwater Services Cost-share for may be available through the NRCS, King Conservation District or the King County Agricultural Program. The King Conservation District can assist landowners with questions regarding cost share funding. Email or call:

 district@kingcd.org  425-282-1900

To learn more about cost-share opportunities through the NRCS, visit:

 <https://nrcs.usda.gov/wps/portal/nrcs/main/national/programs>

Contact Us

King County Agricultural Program

 farmhelp@kingcounty.gov  206-477-4800  <https://kingcounty.gov/agprogram>

Farm King County

 For resources and information related to permitting and regulations, visit:
<https://farmkingcounty.org/permitting-regulations>