

What is Drainage?



Open Ditch

Drainage is any action taken or intended for the removal or lessening of the amount of water from land, and includes the deepening, straightening, widening and diversion of the course of a stream, creek, or other watercourse, as well as the construction of dykes.

Drainage can take many forms:

An **open ditch** is a channel that allows water to move from a wetland to another location, such as a natural water run, or larger wetland. Open ditches can take many shapes and sizes. For example, landowners may drive a tractor, quad or truck from one area to another to enhance the path of the water and accelerate its movement.

Slightly larger, **V-ditches** are narrow ditches of varying depths constructed or maintained by ditching equipment. Ditches with a flat bottom are called trapezoidal ditches. These open ditches tend to erode less because re-vegetation and maintenance is feasible, and generally move larger volumes of water.



V-Ditch

Infilling fills a temporary, or ephemeral, wetland with soil. The wetland is levelled with the field so that water no longer collects, and cropping over the entire area is possible.



Channelization

Channelization includes any activity such as widening, narrowing, straightening, or lining of a stream channel that alters the amount and speed of the water flowing through the channel, or natural waterway. Examples of channelization include: lining channels with concrete; pushing gravel up from the stream bed to line the banks, and cutting off oxbows in a creek.



Wetland Infill

Dyking involves the creation of small earthen embankments to redirect water draining off a landscape into a drainage ditch or waterway instead of allowing the water to flow across the field or into a temporary wetland. Dyking may also be used to temporarily hold water on a field for irrigation.



Berm for dyking



*Field with recently installed tile drainage.
Photo courtesy of Ontario Ministry of Agriculture, Food
and Rural Affairs (OMAFRA)*

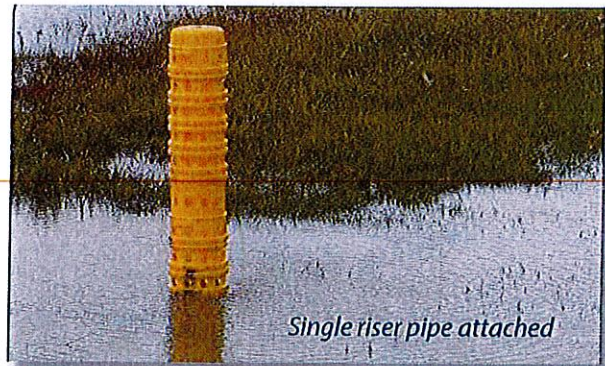
Tile Drainage involves the installation of perforated large diameter pipe (four inch minimum) two to four feet below the soil surface across the area of a field where soil subsurface drainage and infiltration are poor. Water moves down through the soil profile into the perforated pipe and then flows through the pipe to a drainage ditch. When the sub-soil moisture is drained to the depth of the pipe, the water stops flowing. Tile drainage is typically used in the United States corn belt, southern Ontario and high rainfall areas of Manitoba. In Saskatchewan, it has been used to drain surface water by laying a single pipe from the centre of the wetland to an outlet.



*Aerial view of tile drainage.
Photo courtesy of OMAFRA*



Tiler. Photo courtesy of OMAFRA



Single riser pipe attached

Pumping moves water with a power take-off driven pump and large diameter pipe from one wetland to another (consolidation) or to an outlet, or spreads it across the adjoining upland with a large sprinkler or cannon type application.

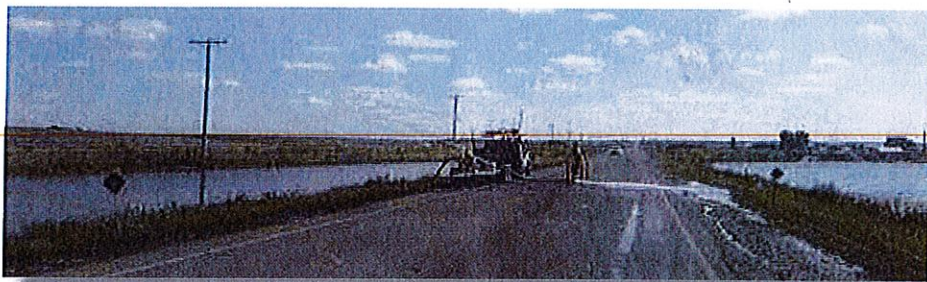


Pumping

This is NOT Drainage

The following is a partial list of situations where a drainage approval is not required. However, the projects may require an Aquatic Habitat Protection Permit.

- Culverts, bridges, low-level crossings and other similar works used to pass the natural flow of water through public or private roads providing that the purpose of the works is to maintain or accommodate flow and water is not diverted from its normal outlet.
- Consolidating sloughs or wetlands located entirely within one surface parcel as defined in *The Land Titles Act, 2000* and the consolidated water does not drain from that parcel.
- Clearing channels of beaver dams, debris, trees and shrubs provided that water is not diverted from its normal outlet. See the Channel Clearing Fact Sheet for more information.
- Removal of silt and blow dirt from channels and watercourses provided water is not diverted from its normal outlet. See the Channel Clearing Fact Sheet for more information.
- Controlling soil erosion and restoring conditions when soil is suddenly displaced by erosion, but only if no point of land is filled to an elevation higher than its elevation before the erosion.
- Permanent or temporary dykes or berms around individual rural residential or farm sites, on the condition that the drainage works do not redirect water from the outlet through which the water would normally drain.
- A drainage works constructed pursuant to *The Emergency Planning Act* in case of disaster or emergency, on the condition that:
 - the drainage works are rendered inoperable immediately after the disaster or emergency ceases to exist; and,
 - within one year after the disaster or emergency ceases to exist, the drainage works either have a drainage approval issued for them or are permanently decommissioned to the satisfaction of the Water Security Agency.
- Storm water collection systems or land leveling and landscaping for the development of building sites within an urban setting or rural residential subdivision provided that water is not diverted from its normal outlet.



Pumping