



## FENCING OF WATERCOURSES TO CONTROL EROSION

(Revision of Factsheet “*Fencing of Watercourses to Control Erosion*”, Order No. 90-232)

R.P. Stone

Livestock, if allowed access to watercourses, have a detrimental effect on the stream water quality. They destroy the grass cover on the ditch bank, leaving the bank susceptible to erosion. Soil is physically “tramped” down the bank into the stream bottom, interfering with proper operation of the drain. This increases sediment load to the drain. Water quality is also adversely affected by the increased bacterial load due to defecation from livestock being in the watercourse.

Restricting livestock access to waterways will improve water quality for all users.

Where livestock must receive their water supply from the stream, install a pumping system to move water from the stream to an environmentally safe area away from the water source. Nose pumps and solar pumps may be used where hydro power is not available. Often livestock have to cross the waterway to get to a pasture area on the other side of the stream. When this occurs, install a low flow, mid-level stream crossing with culverts, together with a fencing system to provide a restricted location for crossing.

Fencing livestock out of watercourses is a logical solution to improving water quality in streams and ditches.

### THE BUFFER STRIP

#### An Integral Part of the Watercourse

An important factor in the overall stability of a watercourse is the land use activity that takes place immediately adjacent to it. Experience shows that if a few feet of permanent grass cover can be maintained in this critical area, the stability of the watercourse is increased considerably. A permanently vegetated strip along an open watercourse also acts as a filter for sediment and nutrient runoff from adjacent farmland. This grassed area, normally 10–15 ft (3–5 m) wide, is called a buffer strip.

Do not allow any land use activity that destroys the grass cover — such as ploughing, cultivating and planting row or

cereal crops — in this area. It is still important to control weeds in this buffer strip.

### TYPES OF FENCES

Various fencing systems are available for use along watercourses. Your selection depends mainly upon whether you want a temporary or permanent type of fencing. The livestock pasturing program on your farm influences the fence type to use. The cost and availability of fencing materials and labour also affect the type of fence selected.

The following fencing systems are most commonly used along watercourses:

#### Page Wire Fencing

This is a standard farm fencing system of a permanent form. A variety of fence heights, wire sizes and wire spacings are available.

#### Barbed Wire Fencing

This fencing system is permanent and considerably less expensive to install than page wire fencing. For the larger livestock types, 4 strands of barbed wire are placed on posts spaced at approximately 15 ft (5 m) apart. Normally, more maintenance is required with this fencing system.

#### High-Tensile Smooth Wire Fencing

High-tensile smooth wire fencing may be installed as either an electrified or non-electrified type. As an electric fence, this high-tensile fencing is usually considered permanent. One or 2 strands of wire are strung between posts located at approximately 50-foot (15-m) centres. The non-electrified high-tensile fence consists of 6–8 strands of wire with posts approximately 30 feet (10 m) apart and with stays at midpoints between the posts.

High-tensile smooth wire fencing offers advantages over barbed wire such as increased strength, ease of handling and reduced maintenance.

## Electric Fencing

Electric fencing, when installed as a temporary system, may be used to restrict livestock from watercourses when the pasture management program is operated on a rotational basis. The initial cost of this type of fencing, combined with the ease and speed of installation and/or removal, make it a very attractive alternative.

## FACTORS TO CONSIDER IN LOCATING AND CHOOSING A TYPE OF FENCE

### Land Use Adjacent to Watercourse

- Cash crop farmers or livestock farmers using a total confinement housing system do not need a fence along a watercourse. However, it is very important to maintain the buffer strip along the watercourse, regardless of whether fencing is necessary or not.
- Farmers, who include in their crop rotation plan an area for pasture, require fencing. Since a particular field may be used for pasturing only periodically, perhaps one out of 5 years, temporary electric fencing is the logical choice.
- Many farmers have fields abutting watercourses that are permanent or rough pasture. Since these areas are in permanent grass cover, consider a permanent fence. If spring flooding occurs adjacent to the stream, or if steeply sloping erodible lands abut the watercourse, locate the fence at an adequate distance back from the watercourse to provide protection for this area. The fencing system can be severely damaged by heavy spring flows, ice, debris, etc., if located in this floodplain area.

### Class of Livestock

Exclude all livestock from the watercourse. Animals such as mature cattle, horses and swine cause the greatest damage to the banks.

Certain classes of livestock require a different method of fencing to hold them, i.e., swine. There are both permanent and temporary fencing suitable for most situations.

### Maintaining the Buffer Strip

Maintaining the buffer strip will, in most instances, mean harvesting a hay crop or clipping periodically. Weed growth in the buffer strip area must be kept under control. Where temporary fencing is used the buffer strip can be easily accessed. A permanent fence has to be kept back into the field far enough to allow maintenance on the ditch side of the

fence. Access to the buffer strip through gates along the permanent fence is necessary. Another option for buffer strip maintenance with a permanent fence is to keep the fence close enough to the top of the ditch bank to allow maintenance from the field side. With this practice, livestock must be restricted from the buffer strip until a good vegetative cover is established.

### Maintaining the Watercourse

Open drains require maintenance at regular intervals. Temporary fencing poses no problem since it can be removed during maintenance and replaced shortly after. If you use permanent fencing, limit it to one side of the drain and keep it back a sufficient distance to allow future flattening of the drain side slopes and still allow for an adequate buffer strip. Access for maintenance is from the non-fenced side of the watercourse. If the waterway is wide enough that it requires maintaining from both sides, then use temporary fences. When permanent fencing is required on both sides of the watercourse, it must be located at an adequate distance from the drain to allow for maintenance from one or both sides of the watercourse.

### Nature of the Watercourse

- Private ditches and open municipal drains constructed along property lines and field boundaries generally lend themselves to either temporary fencing or permanent fencing along one side. If a permanent fence is to be built, consider the present condition of the drain. Many municipal drain maintenance programs include the flattening of side slopes, resulting in a top width much greater than the original design. Check with your Drainage Superintendent. If the expected improvement includes flattening of the side slopes, the fence is to be located accordingly.
- Natural watercourses and rivers are often meandering in nature and could have a significant flood plain associated with them. The land in the flood plain may be suitable for pasturing livestock if the land is not susceptible to erosion. Permanent fencing adjacent to the stream bank would be quite acceptable in these cases. Spring flooding of low-lying lands adjacent to the watercourse often occurs. Floating debris and ice will destroy a fence very quickly. A permanent fence built on the higher ground at the junction of usable and unusable land eliminates this problem.

This Factsheet was written by **Robert P. Stone**, P.Eng., Engineer, Soil Management, OMAFRA, Brighton.

[www.gov.on.ca/omafra](http://www.gov.on.ca/omafra)

POD

ISSN 1198-712X

Également disponible en français  
(commande n°00-050)

