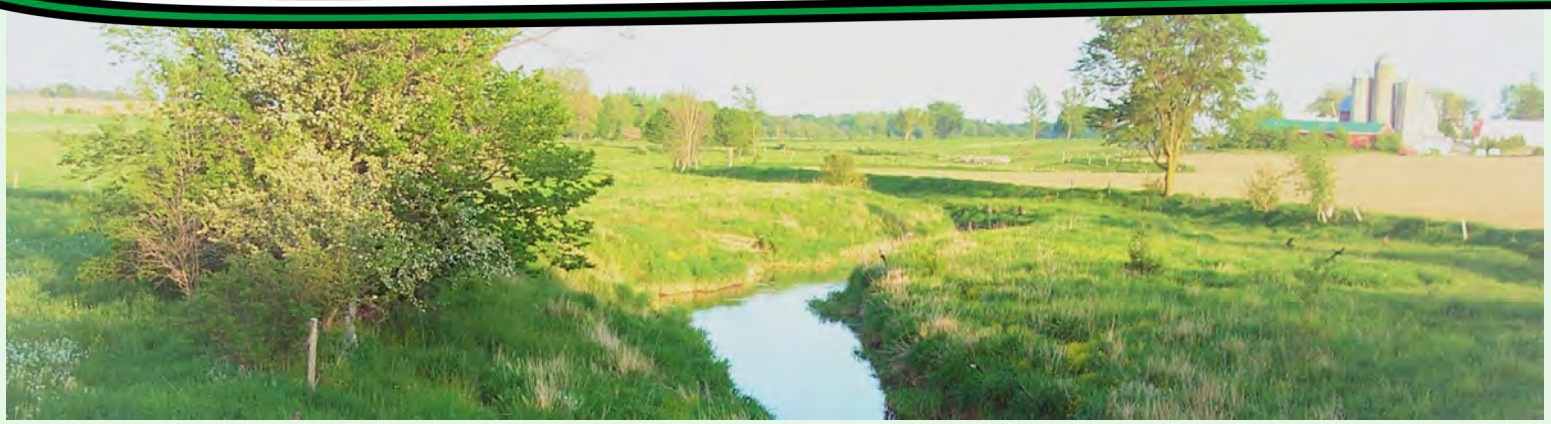
Buffers



What is a Buffer?

A buffer is a permanent vegetated strip of land adjacent to a watercourse that provides a separation between developed land (urban or farmland) and the watercourse. In their agricultural application for municipal drains, buffers generally range from 2 to 5 metres on each side of the drain.

A buffer is considered an agricultural beneficial management practice (BMP).

Benefits

Buffers provide erosion protection:

1. The root system of established vegetation stabilizes stream banks.
2. Prevents surface water (sheet erosion) from adjacent fields.
3. Where low runs, or draws, connect fields to the watercourse, buffers limit soil loss and bank erosion.

Buffers also shade streams, helping to maintain cooler water temperatures during the summer.

Other benefits include a reduced frequency for drain maintenance, and maintenance access that does not interfere with soil compaction and crop production. Further, buffers provide a safety feature, ensuring that farm equipment maintains a safe distance back from the top of bank.

The benefits of buffer strips are not limited to the movement of sediment and contaminants by water.

In some instances, like the following case study, buffers can protect the drain or watercourse from wind erosion.

Buffers protecting both sides of the drain.

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Case Study: Thedford-Klondyke Wind Storm

The Thedford-Klondyke Marsh is located between the Villages of Port Franks and Grand Bend. The current-day marsh occupies the area of the former Lake Burwell, which, beginning in the late 1880s, was drained for agricultural purposes. By the 1950s, the entire area of the marsh had been drained for crop production. The light and organic soils of the marsh make the area well suited to growing market garden vegetables and other cash crops.

Lake Smith Drain No. 2— northeast of Greenway Drive. No vegetated buffer strip and topsoil entering and filling the drain.

Lake Smith Drain No. 2 - View looking southwest from Greenway Drive: Vegetated buffer strip with minimal loss of topsoil to the drain.

In response to the warm and dry spring, in 2012, most producers were enjoying an early start on the fields. The combination of recently worked fields, and the light and dry soils, made the fields of the marsh prone to erosion. To the marsh's benefit, erosion rates are generally low, owing to the flat landscape. Surface water runoff is not considered a major contributor to soil erosion in the area, nor would it be a factor in the event documented in this case.

High winds on April 23, 2012 resulted in what could be described as a dust storm. Sustained winds of 60 km/hr for a 12-hour period during the day easily transported the light soils through the air and over the ground surface. Municipal infrastructure was impacted significantly as drifts of soil covered roads, and within the fields, municipal drains were filling in steadily. While plows were able to keep the roads clear, many of the drains in the marsh were left without much defence. Soil was steadily flowing over the tops of the banks of the municipal drains, notably where buffers were not present. Some drains were completely filled in within 12 hours. The most stable and least impacted drains were those protected by well established vegetated buffer strips.

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