Erosion Control Structures - The WASCoB (I)

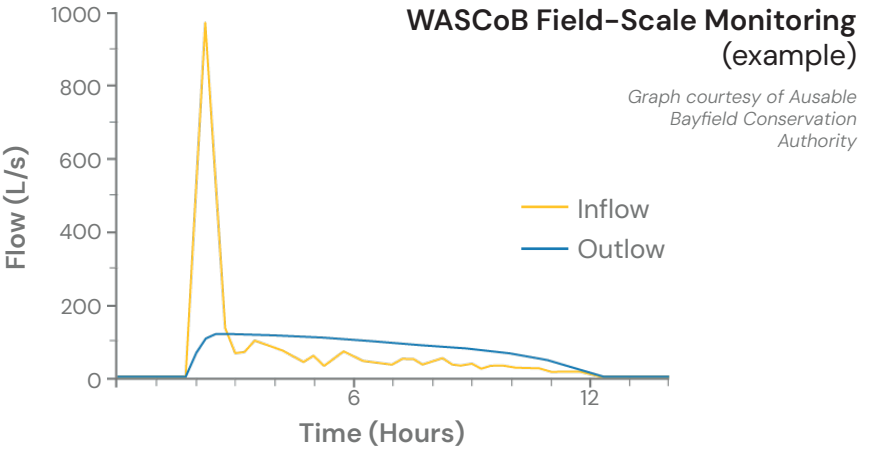
What is a WASCoB?

WASCoB stands for **Water and Sediment Control Basin**, an embankment or berm installed across a natural drainage pathway to reduce erosion and control sediment. These structures are often built in a series across areas prone to gullying or flooding. The main purpose of the berms are to temporarily store runoff and slowly releases it through an underground outlet, typically using a hickenbottom connected to a tile drain.

Benefits

By storing water and releasing it slowly, suspended sediment has time to settle. The berms also slow the speed and power of the surface water runoff, reducing gully erosion.

Permanently vegetated narrow-based berm with cropland on either side.

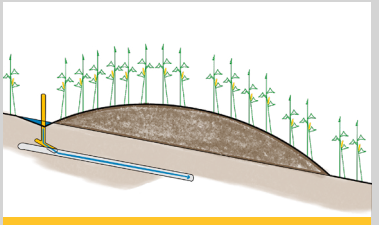


In the above example, WASCoBs reduced peak flow by about 85% and extended outflow from under 1.5 hours to 9 hours, long enough to prevent crop damage.

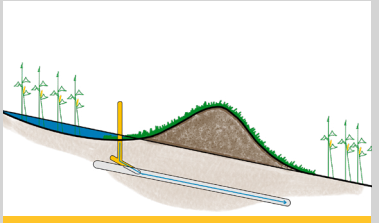
Types of WASCoBs

Local rainfall patterns, field size, shape, and slope will determine the design and placement of the WASCoB. Conservation Authority staff can help with this.

WASCoBs reduce the potential for large volumes of water to be deposited quickly onto a field, thereby reducing the potential for field ponding or flood damage to crops.



Broad-based berms can be used for crop production.



Narrow-based berms are permanently vegetated, crops can be grown on either side.

In Partnership with: U of G Soils At Guelph; St. Clair Conservation

With Support from: Ontario

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Case Study:
THE MACKELLAR PROJECT

CONCERN:

Dave MacKellar found that his grassed waterway wasn't enough to prevent gully erosion in his fields.

FIRST STEPS:

MacKellar reached out to SCRCA for direction and to seek cost-share funding to create erosion control structures. SCRCA worked with an engineer at the Upper Thames Region Conservation Authority to develop WASCoBs that would slow the water velocity as it moved over the field.

SOLUTION:

A total of eight berms were constructed in one field, built perpendicular to the eroding gully and connected to a hickenbottom that ties into the existing tile system. Three of the berms were constructed with a broad base so MacKellar can farm over them, while the remaining berms are narrow based, planted with grass, allowing MacKellar to farm on either side.

Narrow-Based Berm

Broad-Based Berm

The MacKellar erosion control project received funding support from SCRCA.

DIG DEEPER
More Soil Resources can be found at the Soils at Guelph Website

BENEFITS:

1. Reduced soil loss by storing water giving the sediment time to settle.
2. Prevented gully erosion by reducing the speed of overland flow.