American Excelsior Company®

# Protecting Sensitive Water Resources with Curlex® II

Case Study – Curlex® Slope Protection Solution

## Introduction

A family farm owner in Wisconsin had concerns over potential sediment discharge from a pasture road (see Figure 1) into a nearby Class II trout stream that lay adjacent to their property (see Figure 2). Located on a moderate slope, the pasture road's vegetation had recently been destroyed due to multiple trees being removed. This resulted in large areas of exposed bare soil. The site was both an eyesore and, if not addressed quickly, would create long-term erosion and hillslope stability issues for the farm owner. They also wanted to protect the precious water resources and the wildlife that lived in and around them from sediment and nutrient pollution.

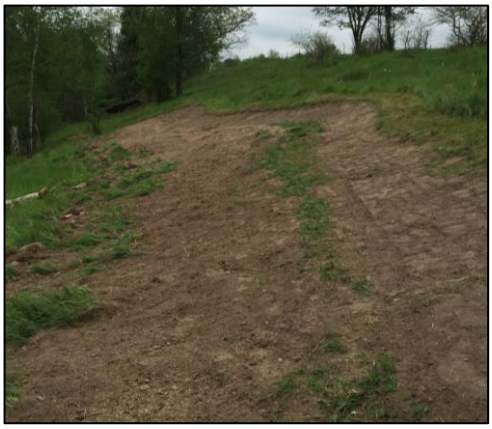

*Figure 1: Ground-level view of the pasture road.*

## Project Scope

The pasture road's proximity to the downgradient trout stream required urgent action to prevent storm events from transporting large amounts of sediment-laden runoff and associated nutrients into the stream. Accomplishing this entailed the proper installation of appropriate, high-performing erosion control measures that would allow the site to be re-vegetated and returned to natural conditions as quickly as possible.

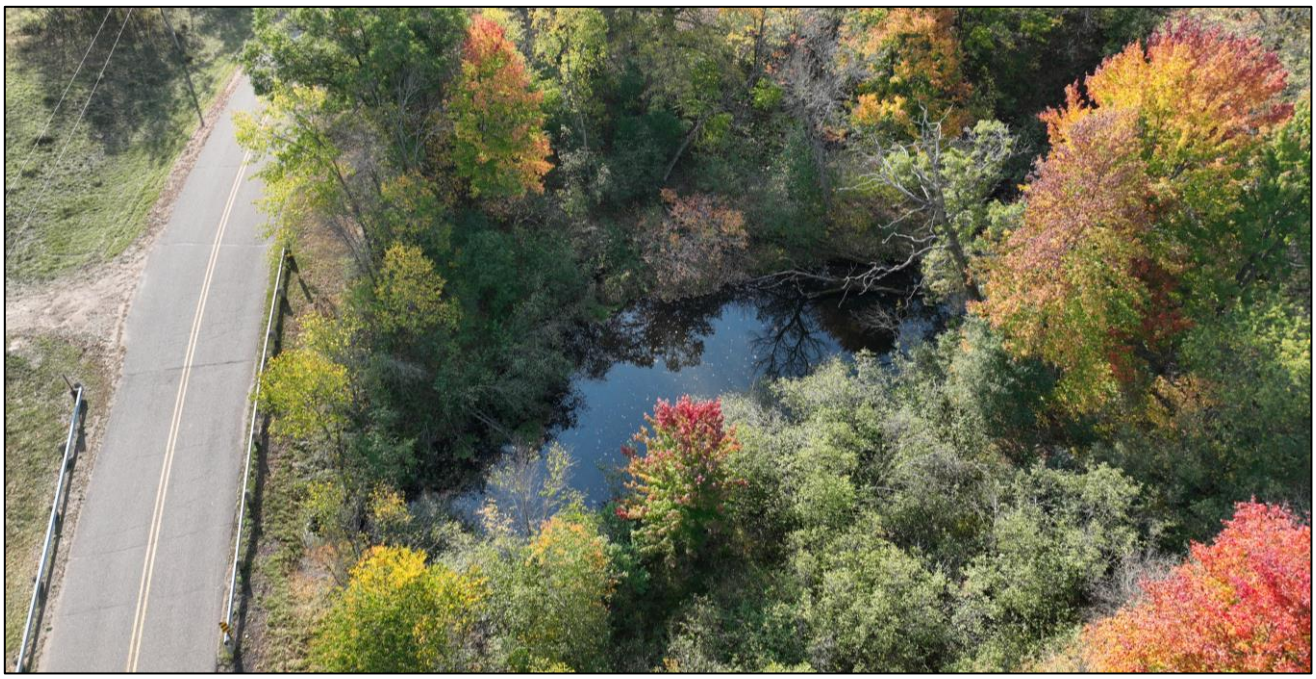

*Figure 2: Aerial view of trout stream downgradient of disturbed farm road.*



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## The Plan

The exposed area (see Figure 3) was located on a roughly 4H:1V slope that contained rocks and residual root systems of previous farmland grasses, making grading difficult. Such conditions required the use of a Best Management Practice (BMP) that would provide immediate onsite erosion control, protect the underlying seed bed during hydrologic events generating run-on from above, and give vegetation a prime growth environment upon germination.

Upon inspecting the site, industry experts recommended the installation of Curlex® II across the exposed areas. Curlex II is a double-netted erosion control blanket (ECB) that features curled and barbed Great Lakes Aspen excelsior fibers engineered specifically for erosion and sediment control. These fibers expand and contract to form a Velcro-like connection with the subgrade that stabilizes soil in place while simultaneously reducing the force of raindrop impact and the effects of sheet flow due to their naturally high roughness factor. Additionally, the Curlex fibers create a greenhouse effect for the seed bed and return moisture to the soil during dry conditions.

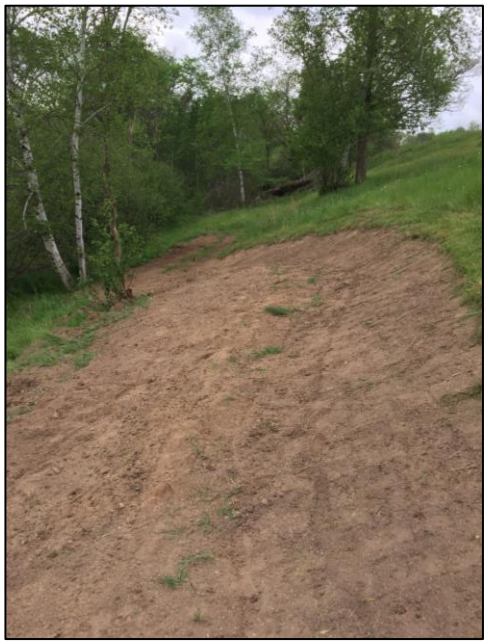

*Figure 3: The exposed area after clearing, raking, compacting, and seeding.*

## Executing the Plan

The use of large grading equipment was not an option due to site access constraints. Therefore, after clearing the site of large rocks and roots, the exposed sandy loam soil surface was hand-raked and compacted before being seeded with a grass mix and fertilized.

The Curlex II was rolled out vertically on the slope and cut into approximately 10 ft (3.0 m) lengthwise sections that were abutted against each other across the slope (see Figure 4). The sections were then anchored to the subgrade using traditional 6.0” (2.5 mm) sod staples according to American Excelsior Company’s recommended staple pattern guidelines for installing Curlex ECBs on slopes less than or equal to 4H:1V.

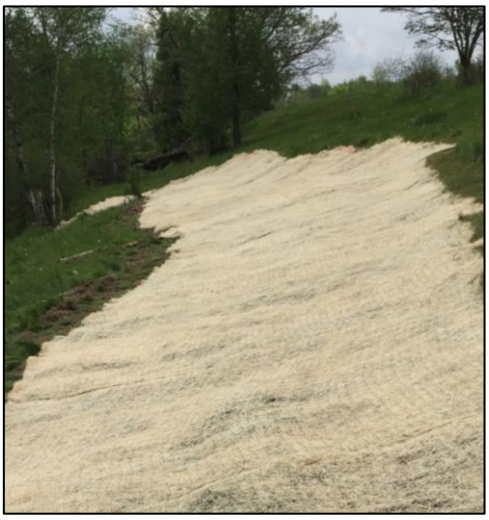

*Figure 4: Completed installation of Curlex® II on the disturbed slope.*

## Results

- The Curlex II installation was completed in spring (see Figure 5). Project personnel returned to the site a month later (see Figure 6) to find it completely vegetated with no known runoff issues. The pasture road on the exposed hillslope area was now stabilized, and the farm owner was satisfied with the knowledge that the trout stream would be protected from sediment and nutrient pollution.

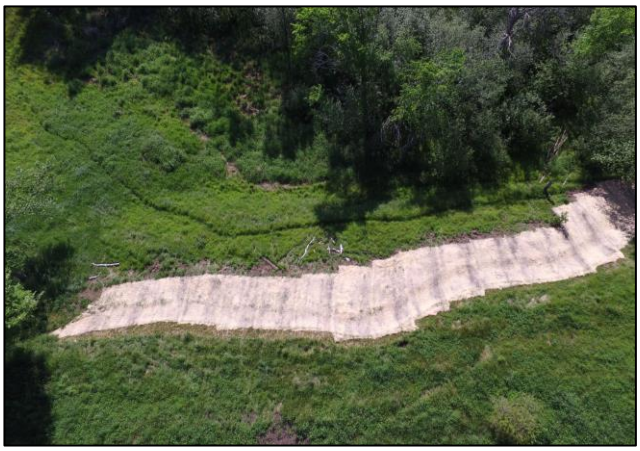

*Figure 5: Aerial view of completed Curlex II spring installation.*

*Figure 6: Completed Curlex II installation one month after installation.*

## Update

- The site was re-visited a few year later to examine the impact and aesthetics of the installation (see Figures 7 and 8). The site showed no signs of instability; without prior knowledge of the project area, it was difficult to guess where an ECB installation had taken place.

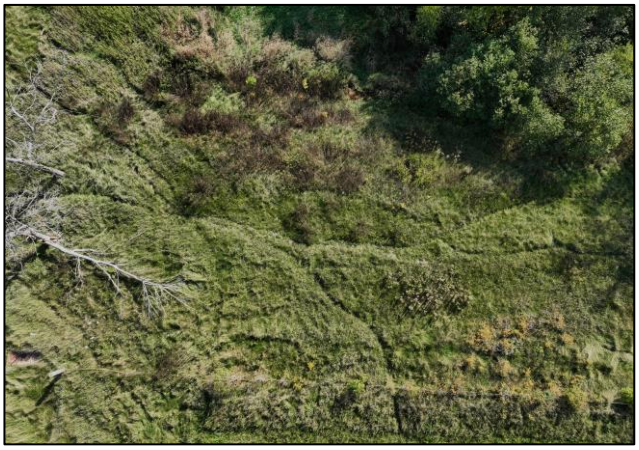

*Figure 7: Aerial view of completed Curlex II site a few years after installation.*

*Figure 8: Tree-level view of completed Curlex II site a few years after installation.*