

# Curlex<sup>®</sup> Sediment Logs<sup>®</sup>

## Excelsior Sediment Control Device

Curlex Sediment Logs use excelsior fibers to reduce hydraulic energy & filter sediment-laden runoff. Tired of straw and hay bale checks being blown out and the fibers washed downstream to clog the nearest outlet? Fed up with spending all of your time and effort installing silt fence only to see it get knocked down when it rains or a good wind comes along? How about when you have to go back and pick up the loose fibers and/or remove those worn out silt fences and take them to the landfill? Next time, consider giving our Bioengineered Sediment Logs a try. Water filters through (not underneath) the diameter of the porous, interlocked fiber log matrix. As it does, velocity is naturally reduced and sediment is collected on the upstream side of the excelsior fiber log. Install Curlex Sediment Logs over bare soil or over rolled erosion control products for a variety of typical job site applications.

### MATERIAL CHARACTERISTICS

Sediment Logs are versatile excelsior logs comprised of an outside containment fabric that is filled with unique Curlex fibers. Curlex fibers are made of Great Lakes Aspen excelsior fibers. The fibers are curled with soft interlocking barbs and 80% will be six inches in length or longer. The outside, open weave containment fabric is degradable, thus Sediment Logs will degrade in place if not removed. Sediment Logs are porous, allowing water to pass through the excelsior matrix, progressively slowing velocity and filtering sediment as it passes through the log diameter. Sediment Logs are extremely flexible and contour to the terrain to maintain intimate contact with the subgrade. In addition, they come with five other benefits; lightweight, no trenching, no seeds, no disposal hassle, and they may be reusable depending on the application.

### PERFORMANCE CAPABILITIES

#### Product Names / Nominal Diameters

(20 in) energy dissipation in heavy duty concentrated flow areas, slope interruption, inlet protection, perimeter control

(12 in) energy dissipation in mild to medium concentrated flow areas, slope interruption, inlet protection, perimeter control

(9 in) energy dissipation in mild concentrated flow areas, slope interruption, inlet protection, perimeter control

(6 in) energy dissipation in low concentrated flow areas, slope interruption, inlet protection, perimeter control

### TYPICAL APPLICATIONS

- Perpendicular to the flow of water in ditch bottoms, swales, and waterways
- As wattles on slopes
- Around job sites or perimeter control
- Around inlets and outlets
- Project ingress and egress termination points
- All other filtering applications
- In place of bales, silt fence, and rock checks



American  
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Earth Science Division

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**General**

Sediment Log consists of an outside, open weave, containment fabric filled with Great Lakes Aspen curled excelsior fibers. Its purpose is to provide a flexible, lightweight, porous, sediment control device demonstrating the ability to conform to terrain details, dissipate water velocity, and filter contaminated flows.

**Product**

Sediment Control Device shall be Curlex Sediment Log, as manufactured by American Excelsior Company. Curlex Sediment Logs shall be made of Great Lakes Aspen excelsior fibers encased in an outside, open weave containment fabric secured on each end. Fibers shall be curled with soft, interlocking barbs to form a strong, organic filtration matrix. A minimum of 80 percent of the fibers shall be 15 cm (6 in) or greater in length. Fibers shall be evenly distributed throughout the diameter and length of the Sediment Log. Excelsior fibers shall be seed free. Density of Sediment Logs shall not exceed 2.6 lb/ft<sup>3</sup> to ensure necessary flow rates for filtering of ≥ 35 GPM/ft<sup>2</sup>. Curlex Sediment Log shall be manufactured in the U.S.A. at company locations where QA/QC is implemented and managed by the manufacturer. Field fabricated products and products made by anyone other than the manufacturer (i.e. distributors, dealers, etc.) shall not be accepted.

Product Name/Nominal Diameter <sup>a</sup>	20 in	12 in	9 in	6 in
Length (±10%)	3.05 m (10 ft)	3.05 m (10 ft)	7.62 m (25 ft)	7.62 m (25 ft)
Weight (±10%) <sup>b</sup>	13.62 kg (30 lb)	9.02 kg (20 lb)	11.35 kg (25 lb)	5.45 kg (12 lb)
Net opening (hexagonal-shaped)	3.2 cm (1.3 in)	2.5 cm (1 in)	1.9 cm (.75 in)	1.3 cm (.5 in)

**Performance Requirements**

Property	Value	Method
Flow Rate (GPM/ft <sup>2</sup> )	≥ 35	ASTM D5141
Slope Soil Loss Reduction (%)	≥ 70	Quantified research <sup>c</sup>
Channel Soil Loss Reduction (%)	≥ 50	ASTM D7208
pH Buffering	8 ± 3	ASTM D1117, Modified
Functional Longevity <sup>d</sup>	≤ 24 Months	Documented laboratory and field studies
Oil Sorbent	Preapproved	U.S. Environmental Protection Agency
Removal of Polynuclear Aromatic Hydrocarbons (PAHs)	≥ 95%	Quantified research <sup>e</sup>
Fly Ash Filtration (TSS)	≥ 78%	Quantified research <sup>f</sup>
Fly Ash Filtration (NTU)	≥ 76%	Quantified research <sup>f</sup>

**Curlex Sediment Logs Design Values With Comparisons To Typical Straw Wattles**



Product Name/ Nominal Diameter	Density <sup>b</sup> (lb/ft <sup>3</sup> )	Channel Design		Slope Design	
		GPM/ft <sup>2</sup> <sup>g</sup>	GPM/linear ft of installed product	P Factor <sup>h</sup> (event-based)	% Soil Retained
6 in Curlex Sediment Log	2.4	42.5	19.5	0.461	53.9
9 in Straw Wattle	4.5	7.5	5.6	0.676	32.4
9 in Curlex Sediment Log	2.3	42.5	29.0	0.461	53.9
12 in Straw Wattle	3.8	8.0	8.0	0.828	17.2
12 in Curlex Sediment Log	2.5	40.0	36.7	0.297	70.3
20 in Curlex Sediment Log	1.4	37.5	46.9	0.297	70.3

<sup>a</sup>Custom sizes available

<sup>b</sup>Weight and density are based on a dry weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen Excelsior, AEC Premier Straw and AEC Premier Coconut fibers are 22%, 15% and 20% respectively.

<sup>c</sup>Kelsey, K., T. Johnson and R. Vavra. 2006. "Needed Information: Testing, Analyses, and Performance Values for Slope Interruption and Perimeter Control BMPs." IECA Conference Proceedings. P. 171-181.

<sup>d</sup>Functional Longevity varies from region to region because of differences in climatic conditions.

<sup>e</sup>Boving and Zhang, Chemosphere 54 (2004) 831-839.

<sup>f</sup>Kelsey, K. and M. Murley. (2017, January). *Fly Ash Slurry Filtration Using Curlex® Sediment Logs® - Quantifying Total Suspended Solids and Turbidity Reduction*. Unpublished internal document, ErosionLab.

<sup>g</sup>Based on ASTM D5141

<sup>h</sup>Based on large simulated rainfall testing

Disclaimer: Curlex Sediment Log is a system for sediment control in channels and on slopes. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in sediment control applications. However, since physical conditions vary from job site to job site and even within a given job site, AEC makes no performance guarantees and assumes no obligation or liability for the reliability or accuracy of information contained herein for the results, safety, or suitability of using Sediment Log, or for damages occurring in connection with the installation of any erosion control product whether or not made by AEC or its affiliates, except as separately and specifically made in writing by AEC. These specifications are subject to change without notice.



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