American Excelsior Company®
Earth Science Division

Proud Participant in NTPEP and Proud Member of:

Curlex® I
EROSION CONTROL BLANKET
SPECIFICATION

PART I - GENERAL

1.01 Summary

A. The erosion control blanket contains excelsior wood fiber for the purpose of erosion control and revegetation as described herein.

B. This work shall consist of furnishing and installing the erosion control blanket; including fine grading, blanketing, stapling, and miscellaneous related work, in accordance with these standard specifications and at the locations identified on drawings or designated by the owner's representative. This work shall include all necessary materials, labor, supervision, and equipment for installation of a complete system.

C. All work of this section shall be performed in accordance with the conditions and requirements of the contract documents.

D. The erosion control blanket shall be used to prevent surface erosion and enhance revegetation. Based on a project-by-project engineering analysis, the blanket shall be suitable for the following applications:

1. Slope protection
2. Channel and ditch linings
3. Reservoir embankments and spillways
4. Culvert inlets and outfalls
5. Dikes, levees, and riverbanks

1.02 Performance Requirements

A. Erosion control blanket shall provide a temporary, biodegradable cover material to reduce slope and/or channel erosion and enhance revegetation. Erosion control blanket performance capabilities shall be determined by ASTM D 6459, "Determination of Erosion Control Blanket (ECB) Performance in Protecting Hillslopes from Rainfall-Induced Erosion", and ASTM D 6460, "Determination of Erosion Control Blanket (ECB) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion."

B. Blanket performance requirements:

Slopes:	≤ 2H:1V
C factor:	.018
Shear Stress:	1.75 lb/ft^2 (84 Pa)
Velocity:	7.0 ft/sec (2.1 m/sec)
Functional Longevity[a]:	≤ 18 months

[a] Functional Longevity varies from region to region because of differences in climatic conditions.

MADE IN THE U.S.A

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1.03 Submittals

A. Submittals shall include complete design data, Product Data Sheets, Product Netting Information, SDS, Staple Pattern Guides, Installation Guidelines, Manufacturing Material Specifications, Manufacturing Certifications, CAD details, and a Manufacturing Quality Control Program. In addition, the Manufacturer shall provide a test report providing data showing the performance capabilities of the erosion control blanket, along with reference installations similar in size and scope to that specified for the project.

1.04 Delivery, Storage, and Handling

A. Erosion control blanket shall be furnished in rolls and wrapped with suitable material to protect against moisture intrusion and extended ultraviolet exposure prior to placement. Each roll shall be labeled with a date code identification, which allows for sufficient tracking of the product back to date of manufacturing and for quality control purposes.

B. Erosion control blanket shall be of consistent thickness with fibers distributed evenly over the entire area of the blanket.

C. Erosion control blanket shall be free of defects and voids that would interfere with proper installation or impair performance.

D. Erosion control blanket shall be stored by the Contractor in a manner that protects them from damage by construction activities.

PART II - PRODUCTS

2.01 Erosion Control Blanket

A. Erosion control blanket shall be Curlex I, as manufactured by American Excelsior Company, Arlington, TX (1-866-9FIBERS).

B. Curlex I erosion control blanket (ECB) consists of a specific cut of naturally seed free Great Lakes Aspen curled wood excelsior. It is of consistent thickness with fibers evenly distributed throughout the entire area of the blanket. The top of each blanket is covered with green polypropylene netting containing oxo-biodegrader and UV additives. Curlex I is also available as QuickGRASS® (green pigment). Curlex I shall be manufactured in the U.S.A.

C. Erosion control blanket shall have the following material characteristics:

Width	4.0 ft (1.2 m)	8.0 ft (2.4 m)	16.0 ft (4.9 m)
Length	112.5 ft (34.29 m)	112.5 ft (34.29 m)	112.5 ft (34.29 m)
Area	50.0 yd^2 (41.8 m^2)	100.0 yd^2 (83.6 m^2)	200.0 yd^2 (167.2 m^2)
Weight [b]	36.5 lb (16.6 kg)	73.0 lb (33.1 kg)	146.0 lb (66.2 kg)
Mass per Unit Area (± 10%)	0.73 lb/yd^2 (0.40 kg/m^2)	0.73 lb/yd^2 (0.40 kg/m^2)	0.73 lb/yd^2 (0.40 kg/m^2)
Net Openings	1.0 in x 2.0 in (25.4 mm x 50.8 mm)	1.0 in x 2.0 in (25.4 mm x 50.8 mm)	1.0 in x 2.0 in (25.4 mm x 50.8 mm)

TYPICAL INDEX VALUES

Index Property	Test Method	Value
Thickness	ASTM D 6525	0.274 in (6.96 mm)
Light Penetration	ASTM D 6567	29.5%
Resiliency	ASTM D 1777/ECTC	59%
Mass per Unit Area	ASTM D 6475	0.623 lb/yd^2 (0.338 kg/m^2)
MD-Tensile Strength Max.	ASTM D 6818	93.6 lb/ft (1.37 kN/m)
TD-Tensile Strength Max.	ASTM D 6818	25.2 lb/ft (0.37 kN/m)
MD-Elongation	ASTM D 6818	26.3%
TD-Elongation	ASTM D 6818	24.5%
Swell	ECTC Procedure	49%
Water Absorption	ASTM D 1117/ECTC	236%
Bench-Scale Rain Splash	ASTM D 7101	SLR = 4.12 @ 2 in/hr [c,d]
Bench-Scale Rain Splash	ASTM D 7101	SLR = 4.43 @ 4 in/hr [c,d]
Bench-Scale Rain Splash	ASTM D 7101	SLR = 4.79 @ 6 in/hr [c,d]
Bench-Scale Shear	ASTM D 7207	2.32 lb/ft^2 @ 0.5 in soil loss [d]
Germination Improvement	ASTM D 7322	572%

[b] Weight is based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen excelsior is 22%.

[c] SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. [d] Bench-scale index values should not be used for design purposes.

2.02 Staples

A. Staples shall be a minimum 4 in biodegradable E-Staple®, as provided by American Excelsior Company, or 6 in wire for cohesive soils and 6 in biodegradable E-Staple®, as provided by American Excelsior Company, or 8 in wire for non-cohesive soils. For additional pull-out resistance, consider using TL-TA2 Gripple twist anchors for tough/cohesive soils or TL-TA1 Gripple twist anchors for moderate/non-cohesive soils.

PART III - EXECUTION

3.01 Blanket Supplier Representation

A. Contractor shall coordinate with the blanket supplier for a qualified representative to be present at the job site at the start of installation to provide technical assistance as needed. Contractor shall remain solely responsible for the quality of installation.

3.02 Site Preparation

A. Before placing erosion control blanket, the Contractor shall certify that the subgrade has been properly compacted, graded smooth, has no depressions, voids, soft or uncompacted areas, is free from obstructions such as tree roots, protruding stones or other foreign matter, and is seeded and fertilized according to project specifications. The Contractor shall not proceed until all unsatisfactory conditions have been remedied. By beginning construction, the Contractor signifies that the preceding work is in conformance with this specification.

B. Contractor shall fine grade the subgrade by hand dressing where necessary to remove local deviations.

C. No vehicular traffic shall be permitted directly on the erosion control blanket.

NOTE: Topsoiling, seeding, and fertilizing is not included in this specification.

3.03 Slope Installation

A. Erosion control blanket shall be installed as directed by the owner's representative in accordance with manufacturer's Installation Guidelines, Staple Pattern Guides, and CAD details. The extent of erosion control blanket shall be as shown on the project drawings.

B. Erosion control blanket shall be orientated in vertical strips and anchored with staples, as identified in the Staple Pattern Guide. Adjacent strips shall be abutted or overlapped to allow for installation of a common row of staples that anchor through the nettings of both blankets. Horizontal joints between erosion control blankets shall be sufficiently overlapped with the uphill end on top for a common row of staples so that the staples anchor through the nettings of both blankets.

C. Where exposed to overland sheet flow, a trench shall be located at the uphill termination. Erosion control blanket shall be stapled to the bottom of the trench. The trench shall be backfilled and compacted. Where feasible, the uphill end of the blanket shall be extended three feet over the crest of the slope.

D. Slope erosion control blanket shall be overlapped by the channel erosion control blanket sufficiently for a common row of staples to anchor through the nettings of both blankets when terminating into a channel.

3.04 Channel Installation

A. Erosion control blanket shall be installed as directed by the owner's representative in accordance to manufacturer's Installation Guidelines, Staple Pattern Guides, and CAD details. The extent of erosion control blanket shall be as shown on the project drawings.

B. Erosion control blanket shall be installed parallel to the flow of water. The first roll shall be centered longitudinally in mid-channel and anchored with staples as identified in the Staple Pattern Guide. Subsequent rolls shall follow from channel center outward and be overlapped to allow installation of a common row of staples so that the staples anchor through the nettings of both blankets.

C. Successive lengths of erosion control blanket shall be overlapped sufficiently for a common row of staples with the upstream end on top. Staple the overlap across the end of each of the overlapping lengths so that staples anchor through the nettings of both blankets.

D. A termination trench shall be located at the upstream termination. Erosion control blanket shall be stapled to the bottom of the trench. The trench shall be backfilled and compacted.

3.05 Quality Assurance

A. Erosion control blanket shall not be defective or damaged. Damaged or defective materials shall be replaced at no additional cost to the owner.

B. Product shall be manufactured in accordance to a documented Quality Control Program. At a minimum, the following procedures and documentation shall be provided upon request:
   1. Manufacturing Quality Control Program Manual
   2. First piece inspection and documentation of products produced to assure component materials and finished product tolerances are within manufacturer specifications.
   3. Additional inspections for product conformance shall be conducted during the run after the first piece inspection.
   4. Moisture content readings recorded for each manufacturing day.
   5. Recorded weight of every erosion control blanket manufactured.
   6. Each individual erosion control blanket shall be inspected, weighed, and documented prior to packaging for conformance to manufacturing specifications.
   7. Documentation and record retention for at least two years.

3.06 Clean-up

A. At the completion of this scope of work, Contractor shall remove from the job site and properly dispose of all remaining debris, waste materials, excess materials, and equipment required of or created by Contractor. Disposal of waste materials shall be solely the responsibility of Contractor and shall be done in accordance with applicable waste disposal regulations.

3.07 Method of Measurement

A. The erosion control blanket shall be measured by the square yard of surface area covered. No measurement for payment shall be made for overlaps, fine grading, trenching, staples, or other miscellaneous materials necessary for placement of the erosion control blanket.

3.08 Basis of Payment

A. The accepted quantities of erosion control blanket shall be paid for at the contract unit price per square yard, complete in place.

Payment shall be made under:

Pay Item	**Pay Unit**
Erosion Control Blanket	Square Yards

Disclaimer: Curlex is a system for erosion control and revegetation on slopes and channels. American Excelsior Company (AEC) believes that the information contained herein to be reliable and accurate for use in erosion control and re-vegetation 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 Curlex, 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. These specifications are subject to change without notice.