

ERTEC Environmental Systems

Protecting Global Lands and Waterways™

Case Study ProWattle™ Slope Stabilization



- > Lower Project Costs
- > Better Performance
- > ZERO Waste
 - ✓ Recycled
 - ✓ Reusable
 - ✓ Recyclable



Application: Slope Stabilization—Airport Runway Perimeter
Product: ERTEC ProWattle™
Project: Will Rogers Memorial Airport, Barrow, Alaska
 Embankment Stabilization
Owner : Alaska Department of Transportation & Public Facilities
Project Date: 2011 & Ongoing



Embankment Material

ERTEC ProWattle™ is a patented, **high performing, low cost, and ZERO Waste** system designed to protect slopes from erosion. ProWattle™ dramatically reduces logistics, installation and maintenance costs. ProWattle™ is fast to install and unlike other slope interruption devices, such as fiber rolls (wattles), it spreads rather than concentrates flow.

ProWattle™:

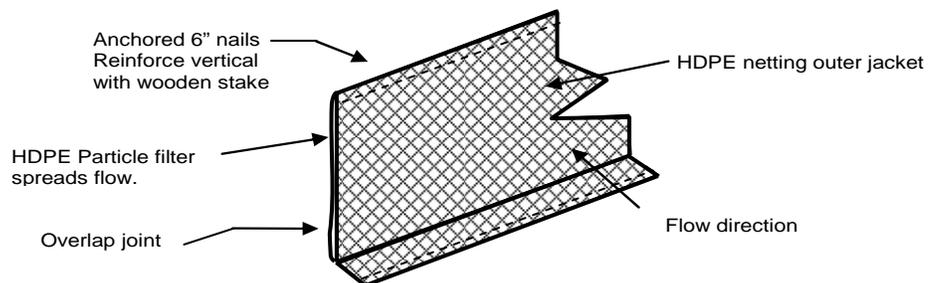
- Is part of a BMP system to protect slopes
- Designed to spread flow and eliminate undercutting
- Is made from recycled HDPE, is reusable and recyclable at the end of life

The Problem:

The Barrow Airport runway is 150' wide x 6500' feet long. Elevated above the northern Alaskan tundra, the asphalt runway is surrounded by a gravel safety area about 175' wide. The embankment is 6 to 40 feet high (depending on the area), and at about a 4:1 slope. The embankment material is a highly erodible beach gravel/sand/silt mix taken from a local borrow pit (see side bar picture). When winter snow and ice melts, the runoff causes severe rilling and gullying on the embankment in several places, requiring constant and costly maintenance. There are other concerns such as FAA, APDES and COE 404 permit compliance. With an eye towards permanently stabilizing the embankments, Alaska DOT & PF initiated an evaluation of ERTEC ProWattle along with appropriate vegetation cover. Winter temperatures often fall below -50°F.



Section #1 Control Southside Safety Area



Several U.S. and foreign patents apply

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The Method:

The traditional practice in the Western U.S. is to use fiber rolls placed as water velocity checks along freshly graded slope contours evenly spaced and parallel prior to hydraulically applying a soil stabilizer. The intent is to minimize down-slope velocity so rilling and erosion can be controlled until permanent vegetation is reestablished. Temporary cover such as fiber matrix, seed or straw is also applied to keep soil particles in place. Because they are cumbersome, fiber rolls can be logistics intensive and laborious to install. They also may become ineffective due to damming which often causes undercutting which in turn concentrates flows. Wattles are typically useful for less than a year. Because of weather conditions and the length of time required to grow vegetation in this area, a longer duration, higher performing solution was preferred. ProWattle™ is an alternative to fiber rolls. ProWattle™ is reusable and can be redeployed when vegetation coverage is greater than 70%. For this evaluation, 3 different configurations were tested (single row, double row and triple row). Various types of vegetation and mulch were evaluated (Tundra Blue Grass, Bering Hair Grass, Verdyl Biotic Earth).

Initial Installation:

ProWattle™ was installed in the summer of 2011. Evaluation was performed during the summer of 2012. Evaluation will continue for 2 more years.

Logistics & Transportation:

ProWattle™ packs very densely. 3,920 feet can fit on a single pallet. A 20 foot sea container can hold nearly 40,000 feet, about 12 times less space than fiber rolls. Installation rates are about 2.5 times less labor intensive due to logistics advantages.

How? Reduction in total costs - big reduction in labor and logistics...and maintenance...



Actual Project: 9,040 LF

	Fiber Rolls (wattles)	ProWattle™
# Pallets	30 	2
On-site transport	300 LF 	3500 LF
Labor	3 persons 100 LF 	1 person 300 LF
Install Rate	4 person crew 5.0 days	4 person crew 2.25 days
Savings	As much as 50% on 1 st project <small>In addition to labor and logistics savings, ProWattle maintenance is minimal.</small>	
After	To landfill. No Useful life. 	Reuse on next phase or project. Useful for 4+ years

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Summary:

"I was very pleased with the results from our test plots with ProWattle™. We feel that this inexpensive, permanent installation can greatly reduce the maintenance problem we face at many of our rural airports. It appears that ProWattle can stabilize slopes long enough for a vegetative mat to be established." - Sam Lamont, Engineering Assistant III, Storm Water Compliance Specialist, Alaska DOT & PF, Northern Division.

A new way of doing things:

Time and time again, ERTEC has delivered the following benefits:

- Lower Total Cost
- Significantly Better Sediment & Erosion Control
- ZERO Waste

ProWattle™ resists rill & gully propagation.



Single Row



Double Row—Note the natural volunteer vegetation



Triple Row—with applied vegetation

