JEN-HILL
CONSTRUCTION MATERIALS

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EROSION CONTROL

EROSION CONTROL
SYSTEMS

SYSTEM OVERVIEW

Tensar®

We've Got You Covered

Erosion control, sediment control and vegetation establishment are essential to almost every construction project. A well planned solution tailored to your site can eliminate costly reconstruction of degraded slopes and shorelines; prevent damage to landscapes, water sources and wildlife; and keep you in compliance with local and federal regulations. The company to help you cover your bases? Tensar International Corporation (Tensar) now incorporating North American Green.®

LET'S TALK TURNKEY

Tensar is the world's leading provider of turnkey, performance-guaranteed erosion control solutions. We can handle any erosion issues, whether your site needs short-term protection or permanent vegetation reinforcement. As with all Tensar specialty construction products and engineering services, we continually invest in erosion control innovation to ensure cost-effective solutions and exceptional results.

UNMATCHED SERVICE AND SUPPORT

There are many erosion control product manufacturers out there, but none with Tensar's emphasis on customer service and technical knowhow. Our interdisciplinary support team can assist with project design and product specification. Rather do it yourself? Our Erosion Control Materials Design Software (ECMDS®), the industry's first design software, allows for self-guided cost-effective material selection and project planning.

SPECIALISTS ARE STANDING BY

Tensar® Erosion Control Systems are sold exclusively through nearly 200 authorized Tensar distributors worldwide. The Tensar® Erosion Solutions Specialist program certifies our distributors and their sales representatives to design erosion control measures to help you comply with the U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) and other industry regulations.

Tensar is a proud member of the Erosion Control Technology Council (ECTC) and the International Erosion Control Association (IECA).

NEW NAME – SAME GREAT PERFORMANCE AND SERVICE

Tensar International Corporation acquired North American Green (NAG) in 2004 to enhance our position as the premier provider of technology-driven site solutions. We are proud to continue offering the same NAG level of service, quality and high-performance erosion control products under the name of Tensar.

From project start to finish, Tensar Erosion and Sediment control products will keep you protected until you achieve your vegetation establishment.

A well planned erosion control solution tailored to your site can eliminate costly reconstruction of degraded slopes.

Yes, Erosion Control Matters

Construction usually means removing vegetation, altering the landscape and/or covering previously vegetated areas with roads, driveways or buildings. These changes often cause soil erosion and sediment deposits, which can lead to a multitude of problems.

THE ENVIRONMENTAL TOLL

- Disrupting the ecosystem can hinder the natural resources on which wildlife depend for survival.
- Storm water runoff can increase stream bank erosion and disturb aquatic habitats and lifecycles.
- Construction site soils and chemicals can wash into water supplies and compromise water quality for humans and animals.

THE ECONOMIC TOLL

- The costs to rebuild degraded slopes and shorelines and dredge sediment-filled waterways reach billions of dollars annually.
- The EPA's NPDES Phase II rule says anyone disturbing one acre or more of U.S. soil must have an NPDES permit and file a Storm Water Pollution Prevention Plan (SWPPP) with local authorities – or face hefty fines.
- Every Municipal Separate Storm Sewer System (MS4) operator must have a NPDES permit; without it, they're subject to penalties and legal action.
- EPA effluent (runoff) guidelines are based on the technology that reduces pollutants the most and is economically achievable for an industry. While the agency doesn't require facilities to install that technology, they do require the same performance.

NOW FOR THE GOOD NEWS: PRACTICE MAKES PERFECT

With so much at stake, erosion control is a high priority. Tensar® Erosion Control Systems are recognized as EPA Best Management Practices (BMPs) to help you comply with regulations and protect our (and your) most valuable resources.

Using Tensar® Rolled and Hydraulic Erosion Control Products can help you reach your Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™ project certification goals. Contact Tensar or your local Tensar Erosion Control Systems distributor at **800-TENSAR-1** or **tensarcorp.com** for details.

Our full line of products offers a solution for nearly every erosion problem caused by wind and water.

Tensar Erosion Control Systems are recognized as EPA Best Management Practices (BMPs) that help you comply with regulations and protect valuable resources.

You're on Solid Ground

"Cutting edge" isn't the first thing that comes to mind when you think of erosion control – but maybe it should be. Tensar has continually advanced erosion control science and developed a full line of high-tech products backed by an industry-leading guarantee. And we're just getting started.

ALWAYS LOOKING AHEAD

The definition of proactive – *acting in advance to deal with an expected difficulty* – sums up Tensar's research and development philosophy. We conduct ongoing research at major universities and independent labs. We watch and listen to find out what customers need now and what you'll need next. We invest in innovation and product development to keep you ahead of erosion control issues with the most progressive solutions in the industry.

TESTING 1, 2, 3

To guarantee Tensar® Erosion Control Systems perform under actual field conditions, we subject them to rigorous, large-scale, performance tests. We're so confident in our products, we proudly subject them to independent testing by the National Transportation Product Evaluation Program (NTPEP) of the American Association of State Highway and Transportation Officials (AASHTO). In a recent test, our ShoreMax® transition mat combined with a VMax® turf reinforcement mat underlayment pushed channel lining performance to an all-time high.

Tensar's Rolled Erosion Control Products (RECPs) are also "performance verified" by QDOR (Quality Data Oversight and Review), a quality program developed by the Erosion Control Technology Council (ECTC) to raise the standard for performance testing.

THE WHOLE NINE YARDS, GUARANTEED

Tensar's Ultimate Assurance Guarantee is the most comprehensive in the industry. It says if any properly specified and installed Tensar® North American Green® rolled erosion control product designed by a qualified engineer or Tensar technical representative in accordance with our Erosion Control Materials Design Software (ECMDS®) fails to perform under the conditions in the Guarantee, then we will replace the failed product with our next higher-performance RECP product, along with the cost of seed, fertilizer, topsoil and other amendments lost due to such product failure. Our Guarantee warrants in accordance with its terms and conditions all registered projects designed with the latest version of our ECMDS and properly installed.

Tensar turf reinforcement mats are also guaranteed to reinforce vegetation for five years after installation, and the functional longevity of these products' permanent structures is warranted for a minimum of 10 years after installation, subject to the terms and conditions set forth in the Guarantee.

As our products protect the soil and seed, a fully vegetated project site is nearer than you think.

Tensar has continually advanced erosion control science and developed a full line of high-tech products backed by an industry-leading guarantee.

Sometimes, the Best Advice Is Free

For more than two decades, engineers, designers and contractors looking for reliable erosion control solutions have turned to Tensar first. Not only do we deliver unmatched quality and a rock-solid guarantee, our powerful Erosion Control Materials Design Software (ECMDS®) ensures proper evaluation, design, product selection and project planning.

TOOLS OF THE TRADE

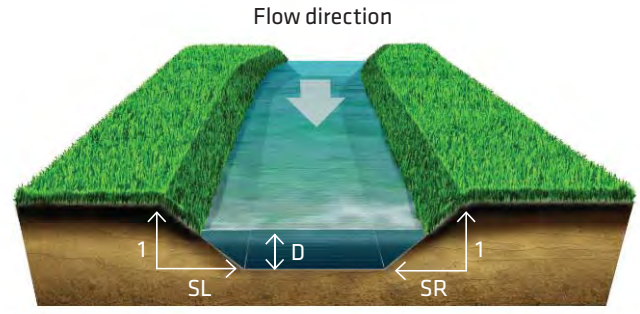
ECMDS provides comprehensive erosion control analyses of your specific site. From there, our sophisticated calculations guide you to develop sustainable soil protection and vegetation establishment plans. All recommendations are based on data from controlled laboratory and field research involving erosion control blankets, turf reinforcement mats, hydraulic erosion control products, sediment control devices and transition mats.

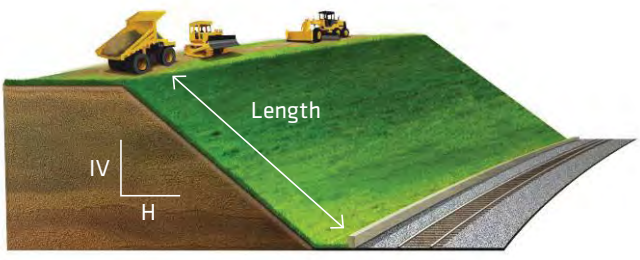
DESIGN AND COMPLY

ECMDS is a must-have, especially if you face tough erosion and sediment control regulations. Product design recommendations are based on test data from one or more of these facilities: TRI/Environmental Inc, Texas Transportation Institute, San Diego State University, Utah State University and/or Colorado State University. ECMDS product recommendations are based on time-tested design protocol developed by the USDA and FHWA.

READY WHEN YOU ARE

ECMDS is web-based for easy access from your desktop, laptop, smart phone or notebook. And, best of all, it's completely free of charge, compliments of Tensar. To learn more and access the software directly, go to **www.ECMDS.com**.





The channel and slope design modules are only two of the design options available in ECMDS Software.

HOLD YOUR GROUND

Tensar has top-quality solutions for every erosion control need. Our products are rigorously tested and proven effective in a wide range of real-world applications including:

- Slopes and embankments
- Landfills
- Shorelines
- Ditches and culvert outfalls
- Levees and earthen dams
- Channels and spillways
- Wetlands
- Bioengineering
- Golf courses
- Residential developments
- Military bases

Erosion Control Systems

ROLLMAX™
ROLLED EROSION CONTROL

Every site has unique challenges created by soil characteristics, topography, climate and other environmental conditions. Tensar covers them all, with our family of RollMax™ Systems Rolled Erosion Control Products (RECPs). Whether you need temporary or permanent protection, short-term or long-term durability, biodegradable or photodegradable solutions, our RollMax RECPs deliver a wide variety of advantages, features and benefits:

- High-performance protection of topsoil from wind and water erosion
- Support quick, healthy vegetation growth
- Protect dormant seeds during winter months
- Stabilize slope erosion to keep roads safe and clean
- Reinforce vegetation roots and stems
- Protect water quality in lakes, rivers and streams
- Conform to landscape features
- Provide easy handling and transport

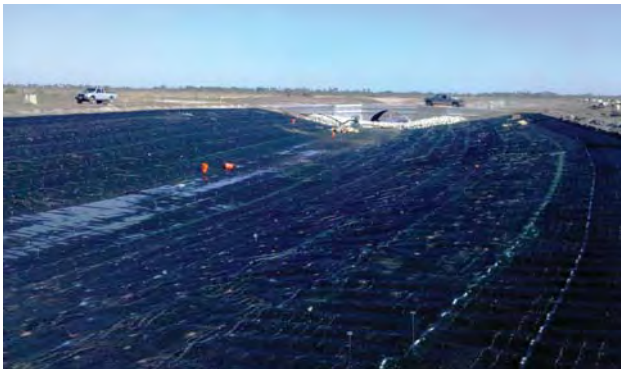
PERMANENT TURF REINFORCEMENT MATS

Tensar's permanent Turf Reinforcement Mats (TRMs) are ideal for high-flow channels, stream banks, shorelines and other areas needing permanent vegetation reinforcement and protection from water and wind. More economical and aesthetically pleasing than rock riprap, articulated concrete blocks or poured concrete, our TRMs protect vulnerable areas with minimum maintenance and maximum durability.

- VMax® Permanent Composite TRMs combine three-dimensional matting and fiber matrix material for all-out erosion protection, vegetation establishment and reinforcement. These products increase the permissible shear stress of many types of vegetation up to 14 pounds per square foot (0.67kN/m^2) – erosion protection equal to 36 in. (900 mm) rock riprap and concrete. VMax® TRMs are available with various performance capabilities and support reinforced vegetative lining development from germination to maturity.

GO Transit, Greater Toronto, Ontario, Canada

During construction on a Toronto commuter rail system, a steep railway embankment had to be stabilized to protect a nearby pond from sediment runoff. Tensar's VMax® Permanent Composite SC250® TRMs were installed to prevent surface erosion and promote vegetation re-establishment. After only a few months, the embankment was completely revegetated and protected.



Mary Creek, Archbold Biological Reserve, Central Florida

When earthwork to realign and protect the eroding Mary Creek failed after a major storm, it was determined the creek had to be armored to prevent major erosion. Tensar's high-performance Turf Reinforcement Mats installed with Earth Anchors provided a soft armor solution for permanent soil protection and vegetation reinforcement.

EROSION CONTROL BLANKETS

Erosion Control Blankets (ECBs) immediately prevent erosion and help vegetation get established. As vegetation root and stem systems stabilize the underlying soil, most ECBs gradually degrade. These products come in a range of weights and materials to accommodate low- to high-flow channels and moderate to severe slopes.

- EroNet™ Short-Term Photodegradable ECBs are designed for moderate slopes and low-flow channels. Made of 100% agricultural straw stitched to or between lightweight polypropylene netting with degradable thread, EroNet ECBs come in short-term varieties to protect and mulch soil surfaces from 45 days to 12 months.
- EroNet Extended-Term, Long-Term and permanent ECBs use heavy-duty double-netting and long-lasting coconut or permanent polypropylene fiber for protection and vegetation support for up to 36 months or longer. These products are available for extended- and long-term stabilization of steep slopes, medium- to high-flow channels and shorelines.
- BioNet® Short-Term Biodegradable ECBs are appropriate for bioengineering projects, environmentally sensitive sites, shaded areas, stream banks and shorelines. They're made of 100% agricultural straw stitched with biodegradable thread to 100% biodegradable jute fiber netting. Available in single- or double-net varieties, they protect for up to 12 months and leave no synthetic residues.
- BioNet Extended-Term and Long-Term Biodegradable ECBs incorporate coconut fiber stitched with biodegradable thread between biodegradable jute fiber top and bottom nets. Great for steep slopes, medium- to high-flow channels and shorelines, a choice of two products provides erosion protection and vegetation establishment for 18 to 24 months.

Yellowstone National Park, near Cody, Wyoming

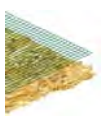
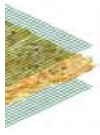
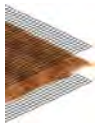
Reconstruction of Highway 14 near Yellowstone created bare, dry rocky exposed slopes requiring erosion protection. The BioNet® SC150BN™ biodegradable erosion control blanket was selected for its extended longevity and ecological friendliness. Native vegetation was established within one growing season, preserving the natural aesthetics and preventing pollution of the nearby river.

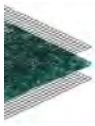
Green Hills Tributary Improvement, Eugene, Oregon

Improvements along the streambanks were needed to improve drainage and flood control for the City of Eugene, Oregon. Tensar's BioNet® C125BN™ erosion control blanket was rolled out to immediately stabilize the streambanks. The C125BN allowed for ample protection of the soil while the groundcover established on the slopes while native grasses and vegetation established.

The complete line of RollMax™ products offers a variety of options for both short-term and permanent erosion control needs. Reference the RollMax Products Chart below to find the right solution for your next project.

RollMax Product Selection Chart

	TEMPORARY						
	ERONET						BIONET
							
	DS75	**DS150**	**S75**	**S150**	**SC150**	**C125**	**S75BN**
Longevity	45 days	60 days	12 mo.	12 mo.	24 mo.	36 mo.	12 mo.
Applications	Low Flow Channels 4:1-3:1 Slopes	Moderate Flow Channels 3:1-2:1 Slopes	Low Flow Channels 4:1-3:1 Slopes	Moderate Flow Channels 3:1-2:1 Slopes	Medium Flow Channels 2:1-1:1 Slopes	High-Flow Channels 1:1 and Greater Slopes	Low Flow Channels 4:1-3:1 Slopes
Design Permissible Shear Stress lbs/ft² (Pa)	Unvegetated 1.55 (74)	Unvegetated 1.75 (84)	Unvegetated 1.55 (74)	Unvegetated 1.75 (84)	Unvegetated 2.00 (96)	Unvegetated 2.25 (108)	Unvegetated 1.60 (76)
Design Permissible Velocity ft/s (m/s)	Unvegetated 5.00 (1.52)	Unvegetated 6.00 (1.52)	Unvegetated 5.00 (1.2)	Unvegetated 6.00 (1.83)	Unvegetated 8.00 (2.44)	Unvegetated 10.00 (3.05)	Unvegetated 5.00 (1.52)
Top Net	Lightweight accelerated photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	Lightweight accelerated photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	Heavyweight UV-stabilized polypropylene 2.9 lbs/1000 ft² (1.47 kg/100 m²) approx wt	Heavyweight UV-stabilized polypropylene 2.9 lbs/1000 ft² (1.47 kg/100 m²) approx wt	Leno woven. 100% biodegradable jute fiber 9.30 lbs/1000 ft² (4.53 kg/100 m²) approx wt
Center Net	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fiber Matrix	Straw fiber 0.50 lbs/yd² (0.27 kg/m²)	Straw fiber 0.50 lbs/yd² (0.27 kg/m²)	Straw fiber 0.50 lbs/yd² (0.27 kg/m²)	Straw fiber 0.50 lbs/yd² (0.27 kg/m²)	Straw/coconut matrix 70% Straw 0.35 lbs/yd² (0.19 kg/m²) 30% Coconut 0.15 lbs/yd² (0.08 kg/m²)	Coconut fiber 0.50 lbs/yd² (0.27 kg/m²)	Straw fiber 0.50 lbs/yd² (0.27 kg/m²)
Bottom Net	N/A	Lightweight accelerated photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	N/A	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	Lightweight photodegradable polypropylene 1.50 lbs/1000 ft² (0.73 kg/100 m²) approx wt	Heavyweight UV-stabilized polypropylene 2.9 lbs/1000 ft² (1.47 kg/100 m²) approx wt	N/A
Thread	Accelerated degradable	Accelerated degradable	Degradable	Degradable	Degradable	UV-stabilized polypropylene	Biodegradable

	TEMPORARY			PERMANENT			
	BIONET			ERONET	VMAX		
							
	S150BN	**SC150BN**	**C125BN**	**P300**	**SC250**	**C350**	**P550**
Longevity	12 mo.	18 mo.	24 mo.	Permanent	Permanent	Permanent	Permanent
Applications	Moderate Flow Channels 3:1-2:1 Slopes	Medium Flow Channels 2:1-1:1 Slopes	High-Flow Channels 1:1 and Greater Slopes	High-Flow Channels 1:1 Slopes	High-Flow Channels 1:1 and Greater Slopes	High-Flow Channels 1:1 and Greater Slopes	Extreme High-Flow Channels 1:1 and Greater Slopes
Design Permissible Shear Stress lbs/ft² (Pa)	Unvegetated 1.85 (88)	Unvegetated 2.10 (100)	Unvegetated 2.35 (112)	Unvegetated 3.0 (144) Vegetated 8.0 (383)	Unvegetated 3.0 (144) Vegetated 10.0 (480)	Unvegetated 3.2 (153) Vegetated 12.0 (576)	Unvegetated 4.0 (191) Vegetated 14.0 (672)
Design Permissible Velocity ft/s (m/s)	Unvegetated 6.00 (1.83)	Unvegetated 8.00 (2.44)	Unvegetated 10.00 (3.05)	Unvegetated 9.00 (2.7) Vegetated 16.0 (4.9)	Unvegetated 9.5 (2.9) Vegetated 15.0 (4.6)	Unvegetated 10.5 (3.2) Vegetated 20.0 (6.0)	Unvegetated 12.5 (3.8) Vegetated 25.0 (7.6)
Top Net	Leno woven. 100% biodegradable jute fiber 9.30 lbs/1000 ft² (4.53 kg/100 m²) approx wt	Leno woven. 100% biodegradable jute fiber 9.30 lbs/1000 ft² (4.53 kg/100 m²) approx wt	Leno woven. 100% biodegradable jute fiber 9.30 lbs/1000 ft² (4.53 kg/100 m²) approx wt	Heavyweight UV-stabilized polypropylene 5.0 lbs/1000 ft² (2.44 kg/100 m²) approx wt	Heavyweight polypropylene 5.0 lbs/1000 ft² (2.44 kg/100 m²) approx wt	Extra heavyweight polypropylene 8.0 lbs/1000 ft² (3.91 kg/100 m²) approx wt	Ultra heavyweight polypropylene 24.0 lbs/1000 ft² (11.7 kg/100 m²) approx wt
Center Net	N/A	N/A	N/A	N/A	Ultra heavyweight polypropylene – corrugated 24.0 lbs/1000 ft² (11.7 kg/100 m²)	Ultra heavyweight polypropylene – corrugated 24.0 lbs/1000 ft² (11.7 kg/100 m²)	Ultra heavyweight polypropylene – corrugated 24.0 lbs/1000 ft² (11.7 kg/100 m²)
Fiber Matrix	Straw fiber 0.50 lbs/yd² (0.27 kg/m²)	Straw/coconut matrix 70% Straw 0.35 lbs/yd² (0.19 kg/m²) 30% Coconut 0.15 lbs/yd² (0.08 kg/m²)	Coconut fiber 0.50 lbs/yd² (0.27 kg/m²)	UV-stabilized polypropylene fiber 0.70 lbs/yd² (0.38 kg/m²)	Straw/coconut matrix 70% Straw 0.35 lbs/yd² (0.19 kg/m²) 30% Coconut 0.15 lbs/yd² (0.08 kg/m²)	Coconut fiber 0.50 lbs/yd² (0.27 kg/m²)	UV-stabilized polypropylene fiber 0.50 lbs/yd² (0.27 kg/m²)
Bottom Net	Woven. 100% biodegradable jute fiber 7.70 lbs/1000 ft² (3.76 kg/100 m²) approx wt	Woven. 100% biodegradable jute fiber 7.70 lbs/1000 ft² (3.76 kg/100 m²) approx wt	Woven. 100% biodegradable jute fiber 7.70 lbs/1000 ft² (3.76 kg/100 m²) approx wt	Heavyweight UV-stabilized polypropylene 3.0 lbs/1000 ft² (1.47 kg/100 m²) approx wt	Heavyweight UV-stabilized polypropylene 5.0 lbs/1000 ft² (2.44 kg/100 m²) approx wt	Extra heavyweight polypropylene 8.0 lbs/1000 ft² (3.91 kg/100 m²) approx wt	Ultra heavyweight polypropylene 24.0 lbs/1000 ft² (11.7 kg/100 m²) approx wt
Thread	Biodegradable	Biodegradable	Biodegradable	UV-stabilized polypropylene	UV-stabilized polypropylene	UV-stabilized polypropylene fiber	UV-stabilized polypropylene

HYDRAMAX™
HYDRAULIC EROSION CONTROL

Hydraulic Erosion Control Products (HECPs) prevent erosion and aid vegetation establishment on slopes. Tensar's HydraMax™ Systems apply seed, soil amendments and hydraulic mulch in one step, offering a low-cost, low-labor solution. All HydraMax Systems' products are made with our patented proprietary blend of straw, reclaimed cotton plant material and tackifiers to ease application, enhance adhesion, retain moisture and stabilize soil. HydraMax™ HECPs also:

- Consist of a porous matrix with strong soil adhesion that forms an excellent vegetation establishment and erosion control medium
- Reduce expensive site preparation
- Can be installed in as much as three times faster than erosion control blankets with ⅓ of the man power
- Come in easy-to-break bales for fast mixing
- Have low water-to-mulch ratios that increase productivity by requiring fewer tank loads per site
- Grow grass quickly with increased germination and biomass production over bare soil
- Are non-toxic per EPA guidelines
- Contain only biodegradable, non-synthetic fibers
- Come in a pleasing natural green color
- Help you comply with Environmental Protection Agency (EPA) effluent guidelines without treating water with flocculants or advanced water treatment systems
- Help you earn points toward Leadership in Energy and Environmental Design (LEED) Green Building Rating System project certification goals

HIGH-PERFORMANCE HECPs

Tensar's high-performance HECPs are effective on construction site slopes with gradients of 1:1 (H:V) or steeper. In many steep slope applications, they can cost-effectively replace temporary erosion control blankets.

- HydraCX™ Extreme Slope Matrix is recommended for long-length, steep to severe slope gradients of 3:1 to 0.5:1. It is our highest performing hydraulic mulch and has demonstrated an unprecedented 100% soil protection in American Association of State Highway and Transportation Officials (AASHTO)-National Transportation Product Evaluation Program (NTPEP) testing.
- HydraCM™ Steep Slope Matrix scored 99.7% effective in reducing soil erosion when tested by AASHTO's NTPEP. Designed for medium-length, moderate to steep slope gradients of 4:1 to 1:1.

The application of our HydraMax hydraulic mulches will work with a wide range of mechanically agitated hydroseeding equipment, and the decreased water-to-mulch mixing ratio will get your job done faster.

Tensar's HydraMax System can be installed three times faster than erosion control blankets with 1/3 of the man power.

STANDARD PERFORMANCE HECPs

HydraMax standard HECPs for mild to moderate slopes are excellent alternatives to wood and/or paper mulch and blown straw, which may take two steps to apply.

- HydraGT™ Moderate Slope Mulch Blend with Tack is ideal for short slopes with up to 2:1 gradients.
- HydraGS™ Mild Slope Mulch Blend works best on short slopes with up to 3:1 gradients.

READY, AIM, INSTALL

Tensar provides a detailed instruction guide to applying HydraMax™ Systems. It includes substrate and seedbed preparation, installation, mixing, product application, equipment cleaning and protection recommendations. A comprehensive loading chart ensures the correct amount of material for application on your site.

HydraCX™ Extreme Slope Matrix	
Slope Conditions	Application Rate
≥1H:1V	4,500 lbs/acre (5,100 kg/ha)
≥2H:1V and <1H:1V	4,000 lbs/acre (4,500 kg/ha)
≥3H:1V and <2H:1V	3,500 lbs/acre (3,900 kg/ha)
<3H:1V	3,000 lbs/acre (3,400 kg/ha)

HydraCM™ Steep Slope Matrix	
Slope Conditions	Application Rate
≥2H:1V	4,000 lbs/acre (4,500 kg/ha)
≥3H:1V and <2H:1V	3,500 lbs/acre (3,900 kg/ha)
≥4H:1V and <3H:1V	3,000 lbs/acre (3,400 kg/ha)
<4H:1V	2,500 lbs/acre (2,800 kg/ha)

HydraGT™ Moderate Slope Mulch Blend with Tack		
Typical Application Rates		
Slope Conditions	Rate (English)	Rate (metric)
>3:1 and <2.5:1	2,000 lbs/acre	2,800 kg/ha
>4:1 ≤3:1	2,000 lbs/acre	2,250 kg/ha
≤4:1	1,500 lbs/acre	1,700 kg/ha

HydraGS™ Mild Slope Mulch Blend		
Typical Application Rates		
Slope Conditions	Rate (English)	Rate (metric)
>4:1 ≤3:1	2,000 lbs/acre	2,250 kg/ha
≤4:1	1,500 lbs/acre	1,700 kg/ha

Alabama Department of Transportation

During a highway widening construction project required by federal highway mandates, Interstate I-65 in Alabama needed to protect many newly graded slopes from erosion. The HydraMax™ HydraCX™ Extreme Slope Matrix was chosen for the steep slopes. Vegetation started germinating within a week of application for unprecedented vegetation results that even had motorists complimenting ALDOT.

Christ the King Cathedral School, Lubbock, Texas

The new site of the school's practice football field had to be completed and fully vegetated before football season a few months away. To prevent soil erosion and establish vegetation quickly, the design team applied Tensar's HydraCM™ Steep Slope Matrix HECP. Despite heavy rains two days later, the field showed no signs of erosion or rilling and vegetation grew within days. The field could be mowed just two weeks after application.

REVETMAX™
FLEXIBLE REVETMENT

Flexible revetment mats provide cost-effective erosion protection from turbulent water flow and moderate wave attack. Tensar's patent-pending RevetMax™ Systems can be ideal for applications where riprap, articulated concrete blocks or other rigid materials are normally used. When combined with a Tensar® Turf Reinforcement Mat (TRM) or other underlayment, this unique armoring solution dramatically elevates permissible shear stress and velocity protection. Satisfied customers have also found that RevetMax Systems:

- Are highly flexible and install easily over difficult topography
- Are non-buoyant to prevent floating or uplifting in submerged conditions
- Feature grip lugs that bite into underlying surfaces to prevent shifting
- Facilitate vegetation growth through voids in the mat
- Require no heavy equipment for installation
- Are easy to maintain
- Are safer for pedestrian and vehicle traffic than hard armor materials

SHOREMAX® TRANSITION MATS

Flexible, UV-stabilized ShoreMax® Transition Mats protect highly erosive areas such as shoreline transition zones, channel bottoms and pipe outlets and outfalls. The ShoreMax Mat can also be utilized for slope drains like those associated with parking lots, roadways, mines and landfills. As a flexible revetment system, ShoreMax Mats can provide soft armoring on shorelines and spillway applications where wave attack can reach critical stages.

The ShoreMax Transition Mat is a smart option to replace rock in high scour areas such as pipe outlets.

RevetMax ShoreMax Transition Mats facilitate vegetation growth through voids in the mat.

ShoreMax is the industry's first scour protection mat to post unvegetated performance values in American Association of State Highway and Transportation Officials (AASHTO)-National Transportation Product Evaluation Program (NTPEP) large-scale channel testing. Results showed an unvegetated ShoreMax® Mat combined with a VMax® P550® TRM underlayment can withstand flow-induced shear stresses of 8.6 pounds per square foot (0.40kN/m^2) and velocities up to 19.5 ft per second (5.9m/s). This level of performance exceeded that of a full mature stand of vegetation.

SIMPLE TO INSTALL

ShoreMax Mats can be installed over prepared and seeded soil and fastened in place with ShoreMax high-impact plastic stakes, wire staples, rebar staples or percussion earth anchors, depending on soil and expected flow conditions. ShoreMax mats self-conform to the underlying terrain, so fasteners are to hold the panels in place, not force conformance to the underlayment material.

TRITON® COASTAL AND WATERWAY SYSTEMS

For heavier-duty, non-vegetative scour protection applications, our Triton composite marine systems are perfect used in conjunction with or alternatively to RevetMax™ Systems. Durable, non-corrosive Triton® mattresses, marine cells, gabions and gabion mats are less expensive than riprap, more conforming to land contours and more scour resistant than rigid systems. These tough but innovative solutions are proven effective for:

- Foundations or cores for breakwaters and groins
- High-strength fills built in submerged conditions
- Channel linings and bridge scour protection
- Causeways, levees, dikes and bridge approaches

Recreational Lake, Tampa, Florida

The wind and waves from boats and other marine vehicles took a toll on the shorelines of a recreational lake. To combat further erosion, ShoreMax transition mats were installed over high-tensile strength TRMs. Together, they protected the shore and offered low maintenance, easy entry for pedestrians and safe small boat launches.

Dry Creek, Healdsburg, California

Storm water runoff from an old sand and gravel yard threatened Dry Creek, which is a spawning area for steelhead trout and Coho salmon. Typically, a shelf would be built 40 ft (12 m) above the water, and 24-30 in. (600-800 mm) riprap installed to reduce storm water impact. Officials, concerned the rock could be undermined and end up in the creek, decided to find another solution. After the ground was graded, seeded and covered with Tensar's BioNet® C125™ Erosion Control Blanket (ECB), Tensar's ShoreMax transition mats were placed on top. Within four months, vegetation had grown in and there was no displacement, despite above-normal rains.

SEDIMAX™
SEDIMENT RETENTION

Unprotected topsoil, particularly on slopes and construction sites, is vulnerable to erosion and runoff problems. Significant damage can occur until these areas are ready for permanent erosion control. Tensar's SediMax™ Systems can prevent much of the damage and save millions spent on restoring slopes, rebuilding drainage channels and dredging ponds and streams.

SEDIMAX-FR™ FILTRATION ROLLS

SediMax-FR™ (Filtration Rolls) create a temporary, three-dimensional sediment filtration structure perfect for forest fire rehabilitation, bioengineering projects, construction sites, ski slopes, wetland mitigation and other applications where storm water runoff is a concern. This 100% biodegradable product is made with a 70% straw and 30% coconut-fiber matrix reinforced with biodegradable netting rolled edge to edge. Other important benefits include:

- Up to 98% effective at reducing sediment migration
- 100% biodegradable
- Assists with environmental regulation compliance
- Helps earn points toward Leadership in Energy and Environmental Design (LEED®) Green Building Rating System™ project certification goals
- Can be incorporated with live planting, live staking and seeding
- Encasement net flexibility minimizes accidental wildlife entrapment

SEDIMAX-SW™ STRAW WATTLES

SediMax-SW™ (Straw Wattles) are economical alternatives to silt fence and straw bales for sediment control and storm water runoff. They can be staked along the contour of newly constructed or disturbed slopes, wrapped around storm drain inlets and used as check dams on slopes and in swales and grass waterways. Straw wattles are recycled, compressed, agricultural straw cylinders wrapped in photodegradable synthetic netting.

INSTALLATION: ON A ROLL

SediMax™ Systems products are a snap to install. SediMax-FR™ are positioned, rolled out, re-rolled from edge to edge, and secured with wooden stakes; SediMax-SW are laid out, staked and can be used individually or tied together to achieve any length.

Roanoke, Virginia Roadside

Tensar Erosion Solution Specialists recommended SediMax-FR as an environmentally friendly solution along the roadside of a construction site. Tensar's VMax® C350® composite Turf Reinforcement Mat (TRM) and BioNet® S150™ Erosion Control Blanket (ECB) protected the nearby channels from erosion, filtered sediment and aided vegetation establishment.

Wenatchee National Forest, Chelan, Washington

After a devastating forest fire in Wenatchee National Forest, Tensar recommended SediMax-FR as a biodegradable alternative for steep slope protection and sediment control. SediMax-FR trapped silty, ashy soil while allowing water to pass through, greatly reducing soil migration into waterways. Installed SediMax-FR rolls can last one to two years and provide sediment control until vegetation is established.

Installation Made Easy

Choosing the right solution is half the battle against costly erosion. The other half is proper installation. Tensar provides all the tools and instructions you need for quick, effective RECP installation tailored to your site.

- Tensar's exclusive Earth Anchors increase the veneer's mechanical strength by reaching deep into the soil strata for enhanced anchoring in the worst conditions. Earth Anchors can be used to permanently secure our VMax® Turf Reinforcement Mats or our RevetMax™ flexible revetment systems.
- Rapid Roller™ used to install ECBs, can reduce installation costs by 40% or more. This hydraulically controlled boom fits most front-end loaders, swings from side to side and pivots up and down for quick and easy unloading and unrolling.
- Tensar fastener options include wire staples, PinPounder installation tool, rebar stakes, ShoreMax® high-impact plastic stakes, environmentally friendly BioSTAKEs® and wooden EcoSTAKEs®.

Proper staple patterns must be used to achieve optimal results in RECP installation. Tensar recommends the following general stapling patterns as guidance for use with our RECPs as seen in the illustration below (Figure 1). Site specific staple pattern recommendations based on soil type and severity of application may be acquired through our Erosion Control Materials Design Software (ECMDS®).

EXPERIENCE YOU CAN RELY ON

Tensar is the industry leader when it comes to providing comprehensive erosion and sediment control and turf reinforcement solutions as well as internal soil reinforcement solutions for site development challenges. We have developed integrated systems and products with the sole objective to ensure absolute customer satisfaction. Our products are backed by the most thorough quality assurance practices in the industry. And, we provide comprehensive design assistance for every Tensar system.

For more information about Tensar Erosion Control Systems, call **800-TENSAR-1**, visit **www.tensarcorp.com** or e-mail **info@tensarcorp.com**. We are happy to assist you in developing solutions for all of your erosion and sediment control and turf reinforcement projects.

STAPLE PATTERN GUIDE

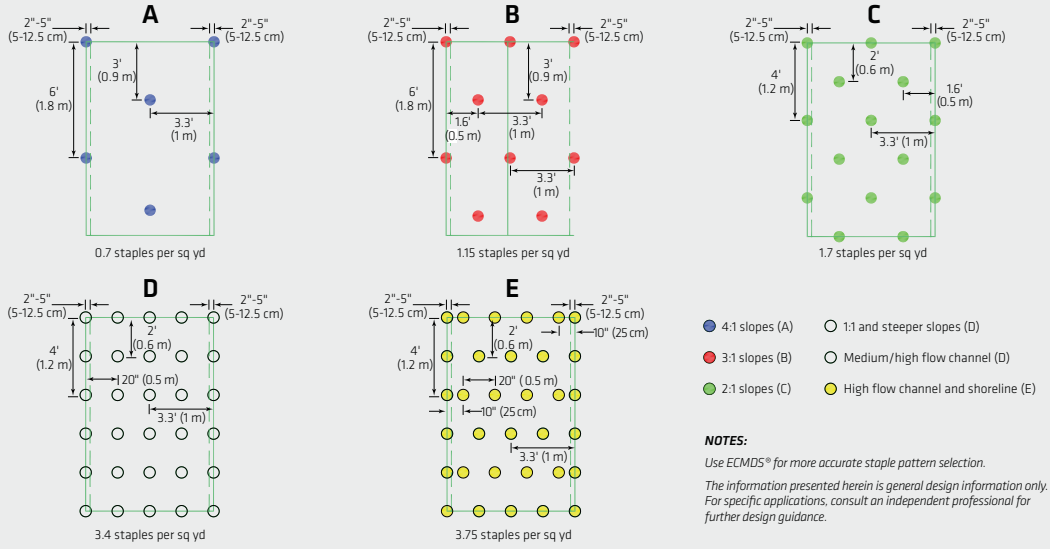


FIGURE 1

Tensar® | NORTH AMERICAN GREEN®

Tensar International Corporation
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Alpharetta, Georgia 30009

800-TENSAR-1
tensarcorp.com

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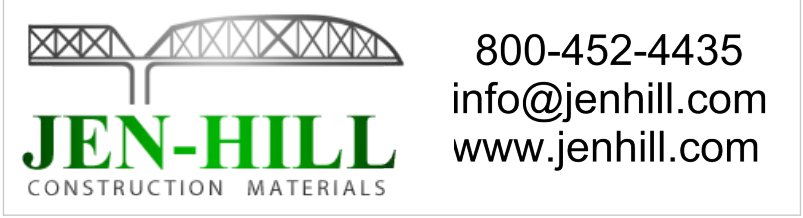

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