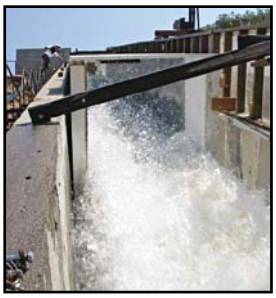
ARMORMAX™
ANCHORED REINFORCED VEGETATION SYSTEM

Geosynthetics

ArmorMax™ Anchored Reinforced Vegetation System is the most advanced flexible armoring technology available for severe erosion challenges. The ArmorMax system can be used in non-structural applications where additional factors of safety are required. Applications include protecting earth bunds from storm surge, wave overtopping and protecting stream, river and canal banks from scour and erosion. In addition, this system is ideally suited to protect storm water channels in arid and semi-arid environments where vegetation densities of less than 30% coverage are anticipated. For structural applications, the system can be engineered to provide slope stabilisation to resist shallow plane failures. Consisting of our woven three-dimensional High Performance Turf Reinforcement Mat (HPTRM) with X3® fibre technology and earth percussion anchors, you can count on the ArmorMax system to hold its ground.

DURABLE FLEXIBLE ARMORING SYSTEM

Lightweight protection layer securely anchored to the subgrade for long-term design life



WITHSTANDS EXTREME HYDRAULIC STRESSES

The HPTRM component of ArmorMax has been tested at CSU comparable to traditional armoring methods

RESISTS NON-HYDRAULIC EVENT DAMAGE

High strength survivability woven monolithic surface resists non-hydraulic stresses like debris flows and maintenance operations

SECURES NON-STRUCTURAL APPLICATIONS

In non-structural applications, the earth percussion anchors act as a tie-down mechanism securing the HPTRM firmly to the ground for additional factors of safety

STABILIZES STRUCTURAL APPLICATIONS

Engineered to provide slope stabilisation to resist shallow plane failures

OTHER FEATURES & BENEFITS

- Supports the EPA's Green Infrastructure initiative and is a recognised storm water Best Management Practice (BMP) and is proven to reduce erosion and reinforce vegetation for low-impact, sustainable design
- Easy to handle, lightweight components for rapid installation
- Use of lightweight equipment and unskilled labour facilitates installation with limited site access
- Aesthetically pleasing and more cost effective than conventional methods such as rock riprap and concrete paving

Outperforms and is more cost effective than conventional methods, including:

- Rock riprap
- Rock slope protection
- Gabions
- Concrete blocks or paving
- Fabric formed revetments

ARMORMAX™
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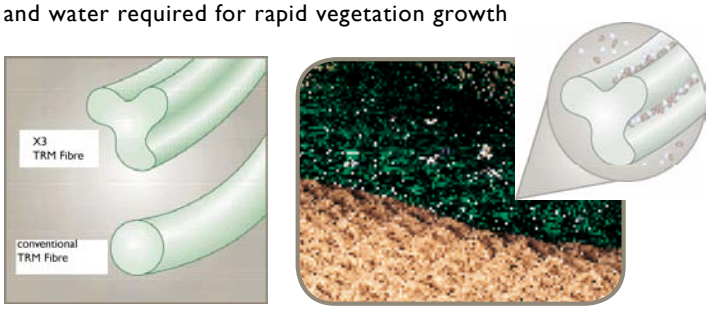
WOVEN THREE-DIMENSIONAL HPTRM PROTECTION LAYER FEATURING X3® FIBRE TECHNOLOGY

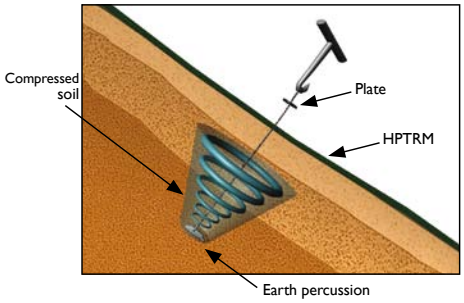
- Unique X3 fibre shape provides over 40% more surface area than conventional fibres to capture the moisture, soil and water required for rapid vegetation growth



- Exhibits extremely high tensile strength as well as superior interlock and reinforcement capacity with both soil and root systems
- Maximum ultraviolet protection for long-term design life
- Netless, rugged material construction stands up to the toughest erosion applications where high loading and/or high survivability conditions are required

EARTH PERCUSSION ANCHORS TO SECURE THE MAT TO THE GROUND

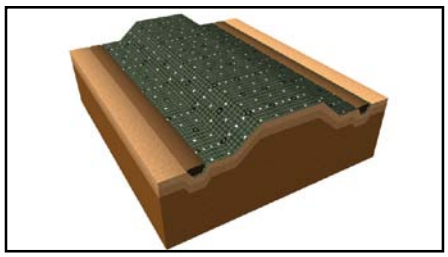
- Made of corrosion resistant aluminium alloy, gravity die cast and heat treated to give considerable increase in mechanical strength and durability both during installation and in service
- Connected to a threaded rod or stainless tendon to fully enhance corrosion resistance particularly at the soil/air interface



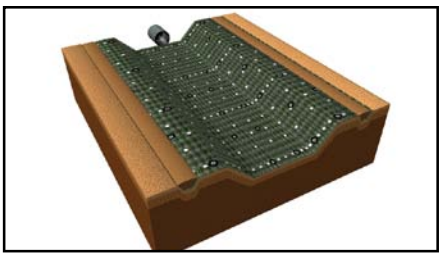
- As the load exerted on the soil by the ArmorMax system increases, a body of soil above the anchor is compressed and provides resistance to any further anchor movement — permanently securing the mat to the ground

ARMORMAX NON-STRUCTURAL APPLICATIONS

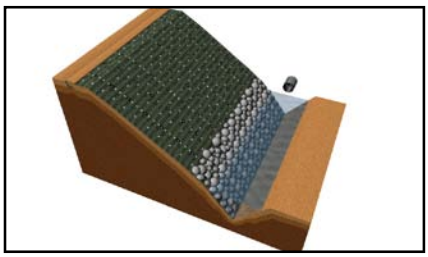
The figures below illustrate the ArmorMax system for non-structural applications. The system is comprised of the HPTRM and typically Type 2 earth percussion anchors.



FLOOD BUND ARMOURING



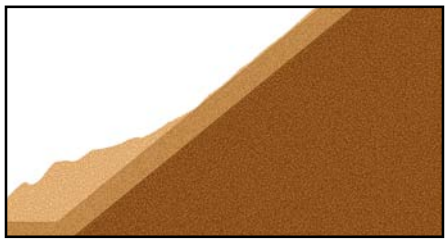
ARID/SEMI-ARID STORM WATER CHANNELS



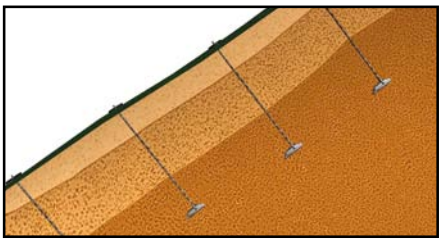
CANAL, STREAM AND RIVER BANK PROTECTION

ARMORMAX STRUCTURAL APPLICATION

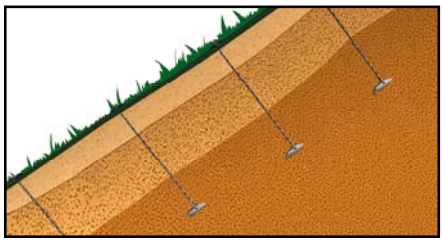
The figures below illustrate the use of ArmorMax in a structural application for surficial slope stabilisation. The system is comprised of the HPTRM and Type 1A or 1B earth percussion anchors as specified by the project engineer.



SHALLOW PLANE FAILURE



APPLY ARMORMAX SYSTEM



VEGETATION GROWTH

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KEY PHYSICAL PROPERTIES OF ARMORMAX™

- Material Composition: Patented ultraviolet protection package in HPTRM, stainless steel tendons and galvanized threaded rods provide long-term design assurance.
- Tensile Strength: HPTRM boasts 58.4 x 43.8 kN/m of tensile strength, which exceeds the U.S. EPA's definition of a High Performance Turf Reinforcement Mat.
- Seedling Emergence: HPTRM features X3® fibre technology, which offers 40% more fibre surface area to capture the critical sediment and moisture needed to increase seed germination within the first 21 days.
- Flexibility: Allows the system to conform and maintain intimate contact with the prepared subgrade.
- Holding Strength: Based on anchor size, tendon rod length and on-site soil parameters the anchor foot provides up to an ultimate of 226.8 kg to 2268 kg of pullout resistance per earth percussion anchor. Actual holding strengths depend upon soil characteristics, anchor type and installation techniques.

ARMORMAX PROPERTY TABLES[1]

	PROPERTY	TEST METHOD	VALUE[2]	HPTRM
	HIGH PERFORMANCE TURF REINFORCEMENT MAT			
PHYSICAL	MASS/UNIT AREA	ASTM D-6566	MARV	455 g/m²
PHYSICAL	THICKNESS	ASTM D-6525	MARV	10.2 mm
PHYSICAL	LIGHT PENETRATION (% Passing)	ASTM D-6567	TYPICAL	10%
PHYSICAL	COLOR	VISUAL	—	GREEN, TAN
MECHANICAL	TENSILE STRENGTH (Grab)	ASTM D-6818	MARV	58.4 x 43.8 kN/m
MECHANICAL	TENSILE ELONGATION	ASTM D-6818	MARV	25%
MECHANICAL	RESILIENCY	ASTM D-6524	MARV	80%
MECHANICAL	FLEXIBILITY/STIFFNESS	ASTM D-6575	TYPICAL	615,000 mg-cm
DURABILITY	UV RESISTANCE @ 6000 HOURS	ASTM D-4355	MINIMUM	90%
DURABILITY	ROLL SIZES	MEASURED	TYPICAL	2.6 m x 27.4 m

	PROPERTY	ANCHOR LENGTH (ft) (Minimum Installation Depth)	MAXIMUM PULL-OUT (Field Tested)
	EARTH PERCUSSION ANCHORS		
NON-STRUCTURAL	TYPE 2	0.6 m	226.8 kg
STRUCTURAL	TYPE 1A[3]	1.1 m	907.2 kg
STRUCTURAL	TYPE 1B[3]	1.1 m	2268 kg

NOTES: 1. The property values listed are effective 12/2006 and are subject to change without notice. 2. MARV indicates minimum average roll value calculated as the typical minus two standard deviations. Statistically, it yields a 97.7% degree of confidence that any sample taken during quality assurance testing will exceed the value reported. 3. Maximum tendon/wedge grip strength capacity is 907.2 kg. Threaded rods with bolted steel plates up to 2268 kg.

PERMANENT SOLUTIONS
GEOSYNTHETICS EROSION CONTROL PRODUCT GUIDE

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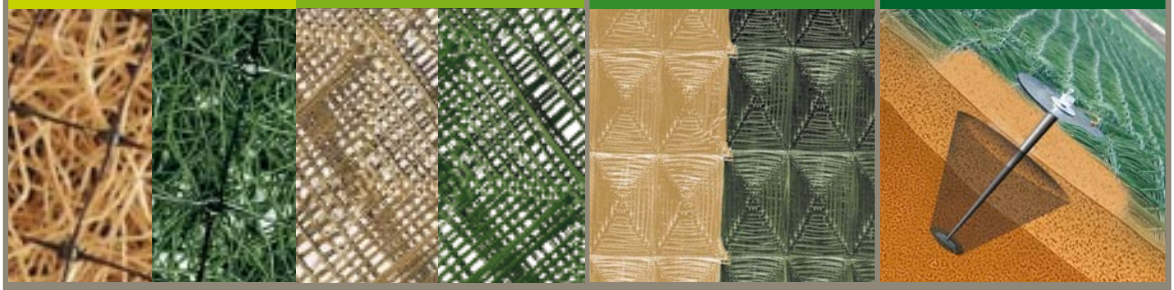
MODERATE — SEVERE



LANDLOK® STITCH-BONDED TRMS	LANDLOK® WOVEN TRMS	PYRAMAT® WOVEN HPTRMS	ARMORMAX™ SYSTEM
▸ 1st generation turf reinforcement mats (TRMs) ▸ Moderate-flow channels, bank protection and steep soil slopes ▸ Up to 10 years*	▸ 2nd generation turf reinforcement mats (TRMs) ▸ Moderate-flow channels, bank protection, and steep soil slopes where greater loading and/or survivability is required ▸ Up to 25 years*	▸ High performance turf reinforcement mat (HPTRM) ▸ High-flow channels, extreme slopes, pipe inlets & outlets and other arid/semi-arid applications ▸ Up to 50 years*	▸ Anchored reinforced vegetation system consisting of HPTRM and earth percussion anchors ▸ Earth bunds and stream, river and canal banks ▸ Storm water channels in arid and semi/arid environments ▸ Surficial slope stabilisation ▸ Up to 50 years or greater*

*Design life performance may vary depending upon field conditions and applications.

NOTES

1. The property values listed are effective 08/2006 and are subject to change without notice.
2. MARV indicated the minimum average roll value calculated as the typical minus two standards deviations. Statistically, it yields a 97,9% degree of confidence that any sample taken during quality assurance testing will exceed the value reported.
3. Maximum permissible velocity and shear stress has been obtained through vegetated testing programs featuring specific soil types, vegetation classes, flow conditions, and failure criteria. These conditions may not be relevant to every project nor are they replicated by other manufacturers. Please contact Geosynthetics for further information.
4. Calculated as typical values from large-scale flexible channel lining test programs with a flow depth of 150 - 300mm.

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