



Global Synthetics  
Australian Company – Global Expertise

# PROPEX

## The exceptional choice for sustainable erosion control to replace hard armour



BEFORE AFTER



**NEW!**

**Wider Rolls**  
**FREE design software**

- PROPEX LANDLOK®
- PROPEX PYRAMAT®
- PROPEX ARMORMAX®





BEFORE AFTER



## Global Synthetics proudly brings you Propex

Global Synthetics is the exclusive Australian distributor for Propex geotextiles and erosion control products.

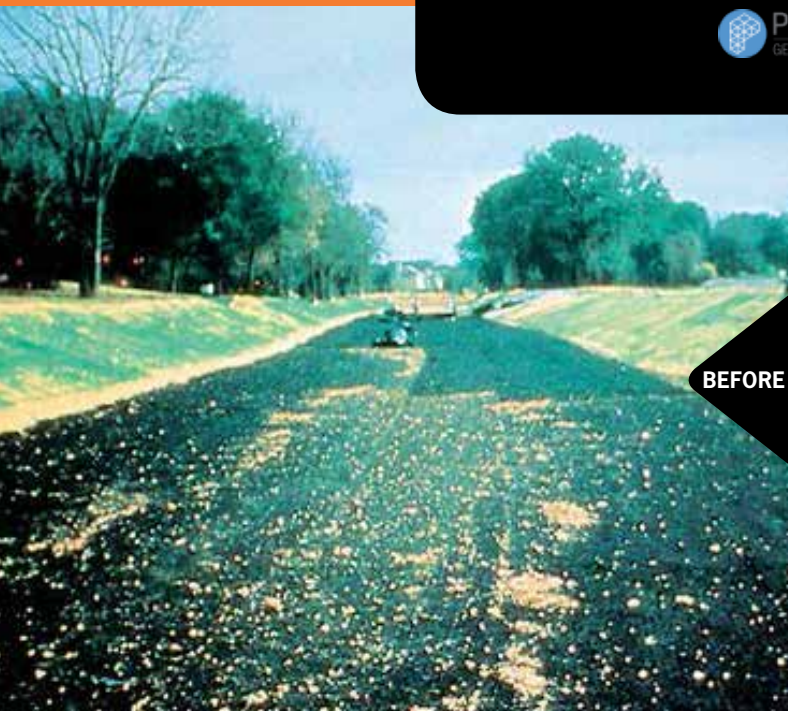
A leading innovator, developer and supplier of geosynthetics worldwide, Propex uses rigorous testing and manufacturing to ensure the highest standards of production. All Propex products are well supported technically by Global Synthetics engineers with full product performance data for Australian applications.



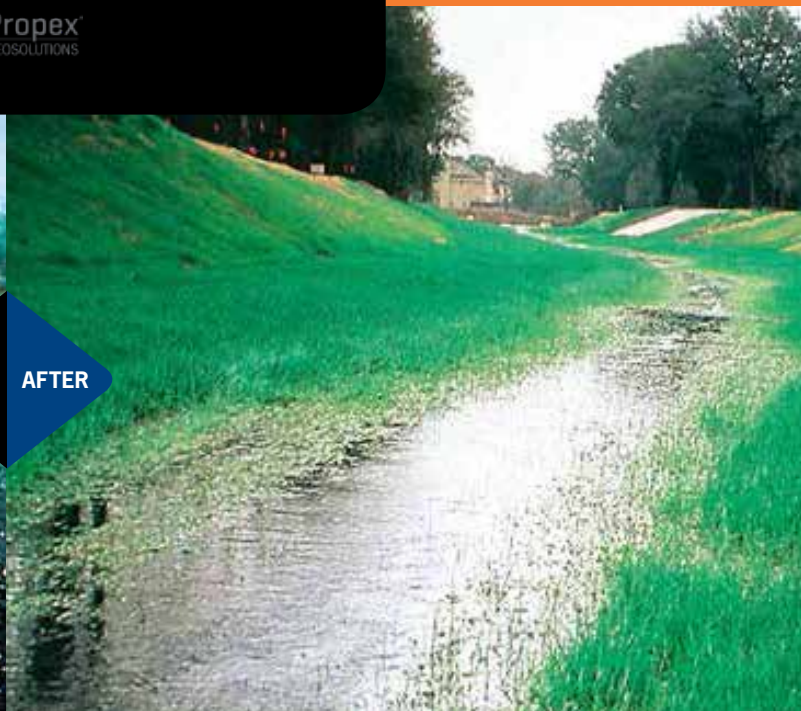
Global Synthetics



Propex  
GEOSOLUTIONS



BEFORE AFTER



# Meeting today's environmental challenges

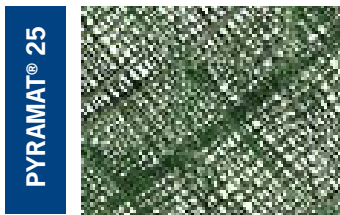


LANDLOK® 450

Synthetic erosion mats and blankets have become a sensible choice for cost effective, technically proven, permanent solutions to promote stabilisation and control erosion. Propex products offer environmentally sensitive alternatives to hard armour solutions.

Propex Turf Reinforcement Mats (TRMs) and High Performance Turf Reinforcement Mats (HPTTRMs) offer maximum performance for the widest range of erosion challenges.

Propex LANDLOK® and PYRAMAT® products are designed to provide channel stabilisation, slope or bank protection, revegetation and for inlet and outlet control works. Propex ARMORMAX® is ideal in steep embankments to protect against surface erosion and solve shallow plane instability using a patented system of ground anchors.



PYRAMAT® 25

## The Propex difference

### The most technologically advanced geotextiles available

Each Propex solution is the result of a comprehensive innovation, design, production and testing process. A leader in research and market education, Propex products enable customers to find the right solution to difficult technical and environmental challenges.

### Performance tested

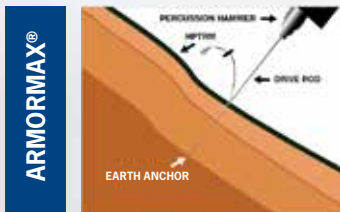
Extensive product testing at the Colorado State University (CSU) Hydraulics Laboratory has quantified performance of Propex erosion products under a range of hydraulic conditions. Testing specifications follow ASTM standards for internationally recognised benchmarks. Use Propex software to help calculate shear capacity in channel flows. Contact Global Synthetics for details.

### Proven erosion solutions with X3® fibre technology

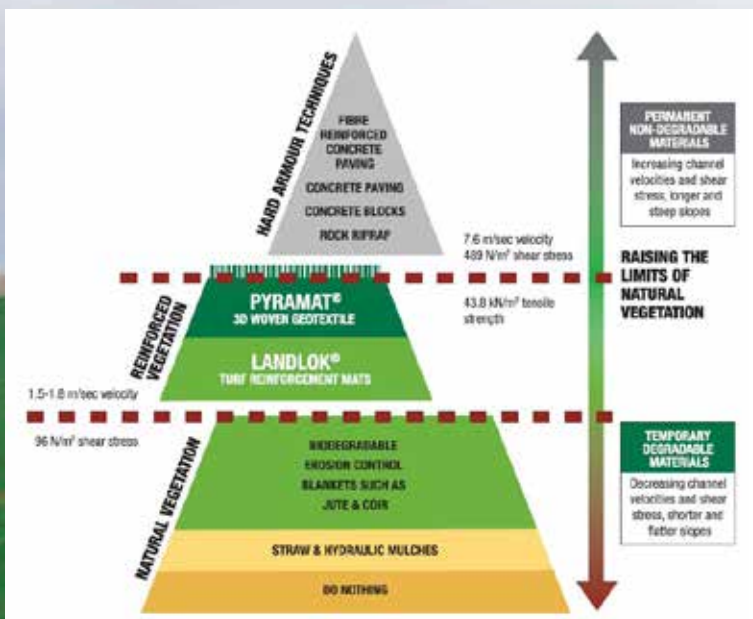
All Propex TRMs use patented X3® fibre technology with a unique matrix of voids to promote revegetation and retain moisture. X3® fibre has superior UV resistance and offers enhanced performance in long term channel and slope protection.



PYRAMAT® 75



ARMORMAX®



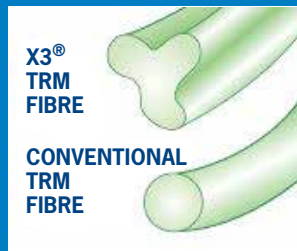
# Match the right Propex product for top performance

## Soil loss through water borne forces is a major environmental problem today

The use of appropriate ground stabilisation treatments in combination with appropriate vegetation re-establishment is a very useful technique. Propex products are designed to provide these highly-capable, cost-effective treatments.



## See the difference



X3® 3-dimensional fibres are incorporated into all Propex erosion control products to create a thick matrix of voids to trap and house more sediment, soil and water to promote rapid vegetation growth.

Superior tensile strength and design doubles the chance for long term vegetation survival. All Propex products feature easy maintenance and are at less risk of damage with exceptionally durable construction.




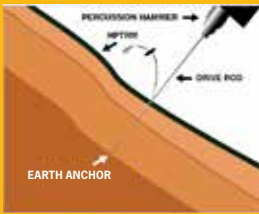
## Tough enough for arid conditions

In Australian arid and semi-arid environments and where vegetative cover may be difficult to maintain, Propex product integrity is assured for long term performance against UV deterioration.

## Smart and sustainable

Propex products, combined with sustainable design, are excellent erosion control alternatives to hard armour approaches. Propex can replace rock riprap, concrete channels, rock mattress or interlocking concrete block systems with more natural visual appearance, ground water recharge, sediment containment and overall cost reduction.

## Increasing severity of application

MODERATE		SEVERE	
			
<b>LANDLOK® STITCH-BONDED TRMs</b>	<b>PYRAMAT® 25 WOVEN HPTRMs</b>	<b>PYRAMAT® 75 WOVEN HPTRMs</b>	<b>ARMORMAX® SYSTEM</b>
<ul style="list-style-type: none"> <li>■ 1st generation TRMs</li> <li>■ Moderate-flow channels, bank protection and steep soil slopes</li> </ul>	<ul style="list-style-type: none"> <li>■ 2nd generation TRMs</li> <li>■ Moderate-flow channels, bank protection and steep soil slopes where greater loading and/or survivability is required</li> </ul>	<ul style="list-style-type: none"> <li>■ HPTRM</li> <li>■ High-flow channels, extreme slopes, pipe inlets and outlets and other arid/semi-arid applications</li> </ul>	<ul style="list-style-type: none"> <li>■ Engineered Earth Armouring Solutions™ consisting of HPTRM and anchors</li> <li>■ Earthen levees and stream, river and canal banks</li> <li>■ Storm water channels in arid and semi-arid environments</li> <li>■ Surficial slope stabilisation</li> </ul>

## TURF REINFORCEMENT MATS

Propex 1st generation of TRMs feature a dense web of polypropylene fibres fixed between two biaxial nets. Propex 2nd generation of TRMs & HPTRMs use a patented three-dimensional woven construction that enable a tensile strength of up to ten times of competitive products to be achieved. Both generations of product use the patented X3® fibre with more than 40% greater surface area than conventional fibres. This allows greater moisture retention and helps trap seed and soil for quicker vegetation growth. Outstanding UV resistance is a feature of all Propex products.

### LANDLOK®

LANDLOK® TRMs are perfect for moderate flow storm water channels, banks and steep slopes where both immediate and long term erosion control are needed. A LANDLOK® TRM traps more seed, soil and water than traditional hard armour products, yielding faster and fuller vegetation. LANDLOK® TRMs are available in either 1st or 2nd generation material construction. Our TRMs are made of 100% synthetic, ultraviolet (UV) stabilised components and are completely non-degradable.

#### LANDLOK® 450



Designed for moderate channels and steepened slopes. Provides permanent turf reinforcement to enhance vegetation's natural ability to filter soil and prevent soil loss during storm events.

- Uses X3® polypropylene fibre technology
- 100% synthetic and UV-stabilised components
- Dense web of crimped, interlocking multi-lobed fibres
- More aesthetically pleasing than hard armour (rock riprap or concrete)
- Easier installation than other options with no heavy equipment required.

PROPERTY	TEST METHOD	TEST VALUE
<b>Physical</b>		
Mass/Unit Area	ASTM D-6566	373 g/m <sup>2</sup>
Thickness	ASTM D-6525	12.7 mm
Light Penetration (% Passing)	ASTM D-6567	20%
Colour	Visual	Green or Tan
<b>Mechanical</b>		
Tensile Strength MD/CD	ASTM D-6818	6.2 x 5.1 kN/m
Elongation	ASTM D-6818	50% (max)
Resiliency	ASTM D-6524	90%
Flexibility	ASTM D-6575	30,000mg-cm (avg)
<b>Endurance</b>		
UV Resistance @ 1000hours	ASTM D-4355	80%
<b>Performance</b>		
Velocity* (Vegetated)	Large Scale	5.5 m/sec
Shear Stress* (Vegetated)	Large Scale	479 Pa
Manning's "n" <sup>†</sup>	Calculated	0.025
Seedling Emergence	ASTM D7322	409%
Roll Sizes	-	2 x 42.2 m



All property values, unless otherwise noted, are MARV values, effective 02/08/2017 and are subject to change without notice.

\* Maximum permissible velocity and shear stress has been obtained through vegetated testing programmes 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.

† Calculated as typical values from large scale flexible channel lining test programmes with a flow depth of 150-300mm.

## HIGH PERFORMANCE TURF REINFORCEMENT MATS

**PYRAMAT® HPTRMs are designed to handle the most demanding erosion control applications. The patented PYRAMAT® three-dimensional construction makes HPTRMs ten times stronger than traditional TRMs. With its unique construction and fibre technology, PYRAMAT® locks in seed and soil for permanent reinforced vegetation. Its outstanding resistance to ultraviolet degradation makes PYRAMAT® a preferred product in arid and semi-arid environments where soil protection is needed but where full vegetation may be difficult to achieve.**

### PYRAMAT®

Propex 2nd generation HPTRMs feature a patented matrix of X3® fibre pyramids that keep soil in place under high flow conditions. Unique woven construction can provide up to 10 times the tensile capacity of 1st generation synthetic erosion mats with even greater shear capacity, improved UV resistance, longevity and improved flexibility for intimate ground contact to promote rapid seedling growth and minimal soil loss.

#### PYRAMAT® 25



Designed for moderate flow channels, bank protection and steep soil slopes where greater loading and survivability is required.

- Uses X3® polypropylene fibre technology to create a lofty 3-dimensional polypropylene geotextile
- Resilient, uniform pyramid style weave
- Very high soil/root system interlock and reinforcement capacity
- Specifically designed to minimise animal entrapment.

#### PYRAMAT® 75



HPTRMs for high flow channels, extreme slopes, pipe inlet and outlets and other demanding applications. Patented PYRAMAT® three-dimensional construction is ten times stronger than traditional TRMs. The 3D polypropylene matrix

features X3® fibre which locks in seed and soil for permanent reinforced vegetation. Outstanding UV resistance makes PYRAMAT® ideal in arid and semi-arid environments where soil reinforcement is needed but full vegetation is not expected.

- Uses X3® polypropylene fibre technology to create a lofty 3-dimensional polypropylene geotextile
- Very high soil/root system interlock and reinforcement capacity
- Specifically designed to minimise animal entrapment
- High tensile strength stands up to extreme conditions of loading
- Patented UV protection offers superior levels of protection and long term performance.

PROPERTY	TEST METHOD	TEST VALUE
<b>Physical</b>		
Mass/Unit Area	ASTM D-6566	271 g/m <sup>2</sup>
Thickness	ASTM D-6525	6.4 mm
Light Penetration (% Passing)	ASTM D-6567	35%
Colour	Visual	Green or Tan
<b>Mechanical</b>		
Tensile Strength MD/CD	ASTM D-6818	29.2 x 26.2 kN/m
Elongation	ASTM D-6818	20x20%
Resiliency	ASTM D-6524	70%
Flexibility	ASTM D-6575	255,000 mg-cm (avg)
<b>Endurance</b>		
UV Resistance @ 3000 hours	ASTM D-4355	90%
<b>Performance</b>		
Velocity* (Vegetated)	Large Scale	6.1 m/sec
Shear Stress* (Vegetated)	Large Scale	576 Pa
Manning's "n" <sup>†</sup>	Calculated	0.028
ASTM D7322	ECTC Draft Method #4	255%
Roll Sizes	-	2.6 x 36.6 m or 4.6 x 36.6 m

PROPERTY	TEST METHOD	TEST VALUE
<b>Physical</b>		
Mass/Unit Area	ASTM D-6566	475 g/m <sup>2</sup>
Thickness	ASTM D-6525	10.2 mm
Light Penetration (% Passing)	ASTM D-6567	10%
Colour	Visual	Green or Tan
<b>Mechanical</b>		
Tensile Strength MD/CD	ASTM D-6818	58.4 x 43.8 kN/m
Elongation	ASTM D-6818	40 x 35%
Resiliency	ASTM D-6524	80%
Flexibility	ASTM D-6575	615,000 mg-cm (avg)
<b>Endurance</b>		
UV Resistance @ 6000 hours	ASTM D-4355	90%
UV Resistance @ 10,000 hours	ASTM D-4355	90%
<b>Performance</b>		
Velocity* (Vegetated)	Large Scale	7.6m/sec
Shear Stress* (Vegetated)	Large Scale	766 Pa
Manning's "n" <sup>†</sup>	Calculated	0.028
Seedling Emergence	ASTM D7322	296%
Roll Sizes	-	2.6 x 36.6 m or 4.6 x 36.6 m

All property values, unless otherwise noted, are MARV values, effective 18/09/2017 and are subject to change without notice.

\* Maximum permissible velocity and shear stress has been obtained through vegetated testing programmes 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.

† Calculated as typical values from large scale flexible channel lining test programmes with a flow depth of 150-300mm.

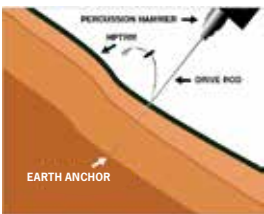
Engineered to provide long-term design life, the ARMORMAX® system consists of a PYRAMAT® HPTRM layer and engineered earth anchors that work together to lock soil in place to resist movement for permanent vegetated or unvegetated erosion protection.

## ARMORMAX® - Engineered Earth Armouring Solutions™

### For non-structural applications

The ARMORMAX® system protects slopes, channels, levees and banks where extra measures of safety are required. The system can protect earthen levees from storm surge, wave overtopping and stream, river and canal banks from scour and erosion. Also ideally suited to protect storm water channels where vegetation density is not expected to exceed 30%.

### ARMORMAX®



Designed for engineered earth armouring solutions consisting of a HPTRM and engineered earth anchors. For specific applications of use where positive fixing of the HPTRM is required.

- Uses X3® technology as a lofty three dimensional woven polypropylene geotextile
- Resilient, uniform pyramid style weave
- Suitable for earthen levees and stream, river and canal banks, storm water channels in arid or semi-arid environments
- Combined with appropriate anchors, is suitable for stabilisation of potential shallow plane slip failures in very steep slope applications.



### For structural applications

The system can be engineered to provide surficial slope stabilisation to resist shallow plane failures. Anchors combined with the three dimensional HPTRM secure ARMORMAX® for long term design life and protection with exceptional UV stability.

PROPERTY	TEST METHOD	TEST VALUE
<b>Physical</b>		
Thickness	ASTM D-6525	10.2 mm
Light Penetration (% Passing)	ASTM D-6567	10%
Colour	Visual	Green or Tan
<b>Mechanical</b>		
Tensile Strength MD/CD	ASTM D-6818	58.4 x 43.8 kN/m
Elongation	ASTM D-6818	40 x 35%
Resiliency	ASTM D-6524	80%
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<b>Performance</b>		
Velocity* (Vegetated)	Large Scale	7.6 m/sec
Shear Stress* (Vegetated)	Large Scale	766 Pa
Manning's "n" <sup>†</sup>	Calculated	0.028
Seedling Emergence	ASTM D7322	296%
Roll Sizes	-	2.6 x 36.6 m or 4.6 x 36.6 m

EARTH ANCHORS		
Type	Anchor Length (m)	Maximum Pull Out (Field Tested) <sup>#</sup>
Type B1	0.9	To 250 kgf
Type B2	1.8	450 to 1350 kgf

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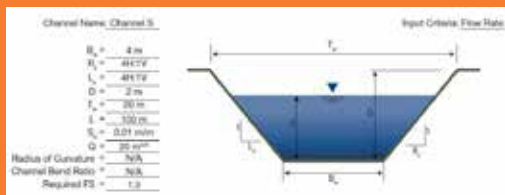
† Calculated as typical values from large scale flexible channel lining test programmes with a flow depth of 150-300mm.

# Pull out is a function of soil type.

## Installation Tip

For success using Propex products it is important that all mats are in intimate contact with the soil. Pinning and anchoring of product should be carried out as outlined by Propex installation guides.

## Download EC-Design® Software



Software Available for Download to design channels and slopes. Contact Global Synthetics to obtain your free download access.

## More about Propex

Propex offers the industry's widest range of geostabilisation solutions with woven and nonwoven geotextiles for earth retaining structures, subsurface drainage, separation and stabilisation and more. With the leading brands LANDLOK®, PYRAMAT® and ARMORMAX® erosion control solutions, Propex has set the benchmark for performance to meet environmental and erosion control needs around the world.

Propex products are supported by design software and installation guides, easy to download at [www.propexglobal.com](http://www.propexglobal.com)

## More about Global Synthetics

Global Synthetics is a 100% Australian-owned company, proud to offer a complete range of high-quality geosynthetic products backed by over 100 years of combined staff experience in the industry. We have supplied products to some of the largest recent infrastructure works in Australia. Global Synthetics provides major benefits to any geotechnical engineering project with the right products and our technical expertise.

Stay on top of the latest Global Synthetics information and visit our website at [www.globalsynthetics.com.au](http://www.globalsynthetics.com.au)

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