



# COLLINS STREET LEVEE BANK

## BANK STABILITY WORKS

**CLIENT:** CITY OF ALBURY  
**MAIN CONTRACTOR:** BTL AUSTRALIA  
**SPECIALIST SUB-CONTRACTOR:** BTL AUSTRALIA  
**CONSULTANT:** GHD  
**LOCATION:** ALBURY, NSW  
**DATE:** AUGUST 2009  
**PRODUCT:** PYRAMAT  
**QUANTITY:** 8,200 m<sup>2</sup>



FIG.1: INSTALLATION

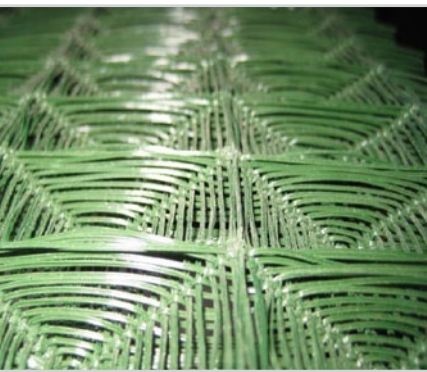


FIG.2: PYRAMAT TRM STRUCTURE

DISTRIBUTORS OF :

**Geotextiles**  
**Geogrids**  
**Dewatering Tubes**  
**Subsoil Drainage**  
**Wick Drains**  
**Erosion Control**  
**Gabions & Rock Mattresses**  
**Industrial Fabrics**  
**Lining Systems**

### PROBLEM:

Due to continued development upstream, the potential for flooding was greatly increased by reduced opportunity for natural groundwater recharge by natural channels. The City of Albury were concerned this flood protection bank would fail and erode away during a significant storm event. Therefore the client's engineer deemed it necessary to design this levee bank for a 1 in 1000 year storm event to ensure adequate protection downstream.

In addition there was a very short window of opportunity to undertake these works and achieve the desired result.

### SOLUTION:

After careful evaluation the City of Albury's nominated consulting engineer, GHD selected a High Performance Turf Reinforcement Mat (HPTRM) solution for the following reasons:

- Environmentally friendly solution
- Speed of installation
- Cost effective solution

The City of Albury selected Pyramat supplied by Global Synthetics and installed by BTL Australia.



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FIG.3: PYRAMAT SOIL / SEED FILLED

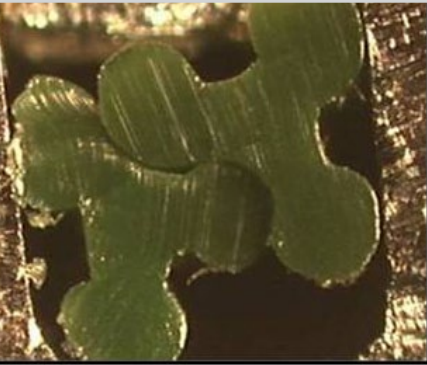


FIG.4: 4 - PYRAMAT X3® TECHNOLOGY



FIG.5: REDUCED SOIL LOSS

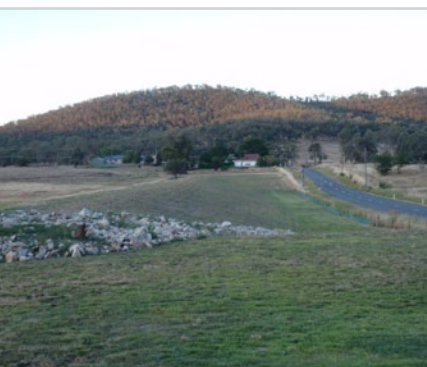


FIG.6: 5 MONTHS – FULLY VEGETATED

### TRM INFORMATION:

Pyramat has a three-dimensional matrix with no loose fibres (See Figure 2) and is made using UV stabilised polypropylene. The three-dimensional structure increases the surface area by 40%, thus reducing water velocities. A fully vegetated TRM structure can resist velocities of up to 7.6 m/sec.

TRMs promote revegetation by slowing water velocities and trapping sediment. After the area is vegetated the mat then provides a stable and durable reinforcement for the roots of the vegetation. As HPTRMs are synthetic, they don't break down over time, thus continuing to reinforce the vegetation, for up to 50 years or more.

### BENEFITS:

In this application the Pyramat provided an environmentally friendly solution to a rock armoured alternative. The Pyramat is positioned within the critical root zone reinforcing the vegetation should a significant storm event occur. Further benefits to the client on this project included low danger to wildlife by entanglement due to the close weave of the Pyramat and reduced site maintenance stresses as the vegetation can easily be cut by standard mowing equipment with no damage to the TRM.

Pyramat uses patented X3® fibres – these fibres have a tri-lobe cross section (see fig 4) which traps more soil particles and moisture within the structure compared to standard fibres. Both these components are critical for establishing vegetation.



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