



CASE STUDY:

SPORTSFIELD SLOPE EROSION

**GINGIN, WESTERN AUSTRALIA
MAY 2018**

GRASSROOTS®

Grassroots is an erosion control matting designed to protect underlying soil in steep slopes and channels from moderate to high velocity water flows, rain splash and other erosive conditions, while allowing seeds to germinate successfully and grow through the matting providing permanent vegetative reinforcement. Grassroots is made in Australia by Geofabrics from heavy synthetic UV stabilised fibres which are needle punched together into an open weave synthetic scrim creating a three-dimensional structure which holds vegetation in place in extreme environmental conditions.

Gingin is one of the oldest towns in Western Australia and retains some important remnants of its pioneering days dating back to the 1850's. However, The Shire of Gingin sports complex is a modern facility at the heart of community life. This facility includes the Gingin Aquatic Centre, a regional outdoor hardcourt facility as well as football and hockey fields with a clubhouse which is home to the Gingin Eagles hockey team.

The unprotected slopes adjacent to the hockey field started to show signs of significant erosion in early 2018. The Shire of Gingin contacted Geofabrics seeking advice on how to stabilise the eroding slopes.

Geofabrics met with The Shire of Gingin on site to inspect the extent of the slope erosion issue that was occurring. Excessive rill erosion from surface runoff was prevalent on the slopes surrounding the hockey field. Rill erosion is the removal of soil by concentrated water running through streamlets, or headcuts.

Rills begin to form when the shear stress generated by the surface runoff is greater than the shear strength of the soil. This results in the surface runoff washing soil particles down the slope. The onsite discussion established that a permanent solution was preferred so that vegetation would not be solely relied upon to protect the slope in the future. An alternative solution was a biodegradable erosion control mat, however this was not seen as a long term solution to the problem.

> Sportsfield Slope Erosion



Severe rill erosion from surface run off on the slopes around the hockey field.



During slope re-profiling in preparation for the Grassroots.



Completed installation in May 2018.

Grassroots® turf reinforcement matting was the solution of choice as it offered an economic, engineered and permanent solution that achieved the desired aesthetics and performance.

Ground Stabilisation Systems Pty Ltd were contracted by The Shire of Gingin to carry out the installation of approximately 3,500 m² of Grassroots. Installation involved re-profiling the slope face to ensure that there was a smooth surface which was free from protrusions and vegetation. This preparation of the slope surface is important to ensure intimate contact between the soil and the Grassroots. The Grassroots was installed in an anchor trench at the top of the slopes and pinned at a rate of 3 pins/m² down the slope using 300 mm long mild steel U-pins.

The installation was completed within two weeks. The Shire of Gingin and the local sports clubs are very satisfied with the outcome of the project.



Photo taken in February 2019 of full vegetation regrowth on the slopes.

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