FACT SHEET

NO: 17

Date: February 2011

Turf Queensland

Grow Green

Prevent Erosion and Control Soil Sediment Movement with Turf

Getting the best results

Soil exposure following earthworks is recognised as a major contributor to soil losses and sediment entering waterways. In urban areas, construction activity is a major cause of unwanted soil movement.

Sediment in waterways is strongly linked to increased levels of nutrients such as nitrogen and phosphorus, which are responsible for algal blooms.

Developers are required to abide by regulations limiting the movement of sediment from a site. There are a number of techniques deployed to control sedimentation and erosion; yet how best to stabilise a slope and reduce movement of sediment remain vexed issues.

Turf can reduce sediment movement from construction sites in two major ways:

1. by preventing soil from detaching from steeply-sloping areas, including 'cut and fill' slopes with steep inclines and;
2. by trapping sediment in buffer strips.

Further benefits are obtained by using turf in general landscaping and drainage areas.

Stopping erosion

If a slope can be prevented from eroding, sediment is also retained. In periods of rapid erosion hazard, choose a species likely to give rapid root establishment immediately after planting. Your Queensland Turf producer can provide professional advice here.

Once full rooted into the underlying soil, **all** species are likely to be highly effective in resisting both detachment and tunnel erosion.

Independent results suggest that: provided turfgrass maintenance needs are met, and that the right turfgrass is selected for the season it is being established—**embankments with gradients up to 1 in 3 can be successfully stabilised with sod within four weeks.**

Turf Queensland Inc
PO Box 1643, CLEVELAND, Qld, 4163
Phone: (07) 3488 0917 Fax: (07) 3488 0918
Email: info@qtpa.com.au Web: www.qtpa.com.au

The surface cover provided by full sod is sufficient to prevent soil movement from the impact of rain drops.

The threat of soil being moved and sod becoming detached from large overland flows was also investigated. Even in poor growing conditions with a dispersive soil, root growth was sufficient after 8 days to prevent runoff tunnelling under the sod and lifting the newly laid turf.

However, in areas of peak flow (water moving at speeds >1.5 m/s), reinforced turf will give greater stability.

Trapping Sediment

In an experiment engineered to measure the potential of turf to trap sediment, it was found that taller turf was effective in trapping sediment suspended in shallow flowing water. Shallow (often sheet) flows may be found on uniform slopes away from concentrated drainage lines. Turfgrass was particularly effective in trapping larger particle sizes (>0.05 mm) and also reduced sediment in the 0.02–0.05 mm range.

The size of the turf buffer strips is dependent on soil type and amount of runoff. For most soils, a minimum strip width of 2 m, but preferably 3 m, is needed in Queensland conditions. For highly permeable sandy loam soils the strip width can be reduced by 1 m to a 1 or 2 m strip. Turf strips can be laid on the contour at the base of the runoff zone. They are even more effective when used in lower gradient areas in conjunction with a sediment fence.

For both establishment and long-term performance, good turf management practices will underpin the success of any project.

Reference

Loch, R. J., H. Squires and A. Duff (2010) Optimising turf use to minimise soil erosion on construction sites.

Healthy Country partners:
SEQ Catchments
Healthy Waterways
Queensland Government
SEQTOA