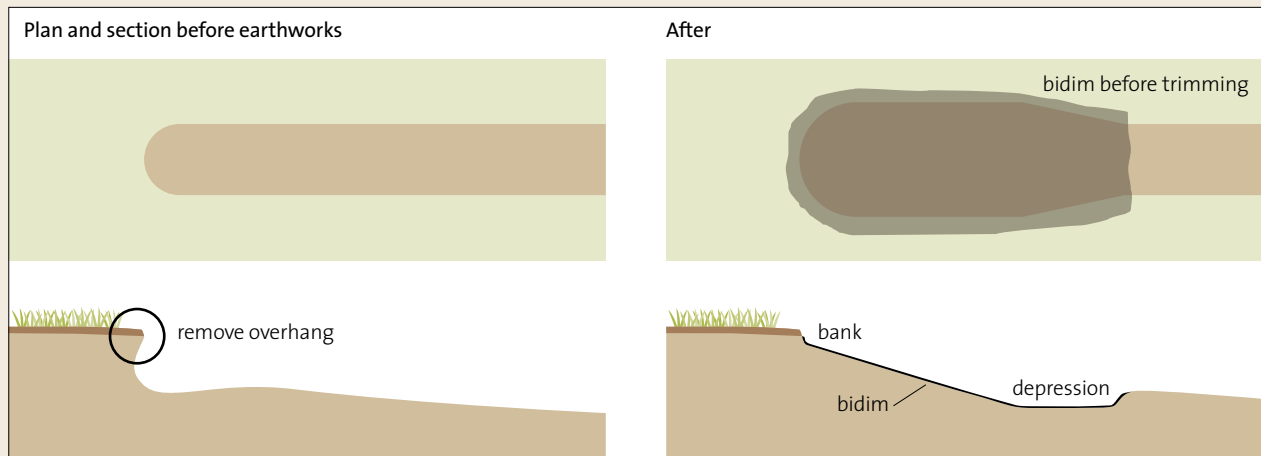




Treating a small erosion headcut with rock flume

Using rock to reduce soil loss from erosion is an adaptation used for over a century. It is a lower-cost alternative for treating smaller headcuts instead of earthworks and other structures such as artificial channels (flumes) made of concrete. It is suitable for headcuts less than 1 metre deep. If the headcut is deeper than this, then design advice should be sought.

1. Determine the start point for the bowl (i.e. how much soil to remove). Shape the headcut roughly with a shovel, by taking off overhanging soil to form the bowl shape (and place any topsoil and sod aside for later). Also remove a small amount of soil from the base where the headcut has reached its maximum width (usually no more than a couple of metres downstream), in order to later embed rock into the soil.



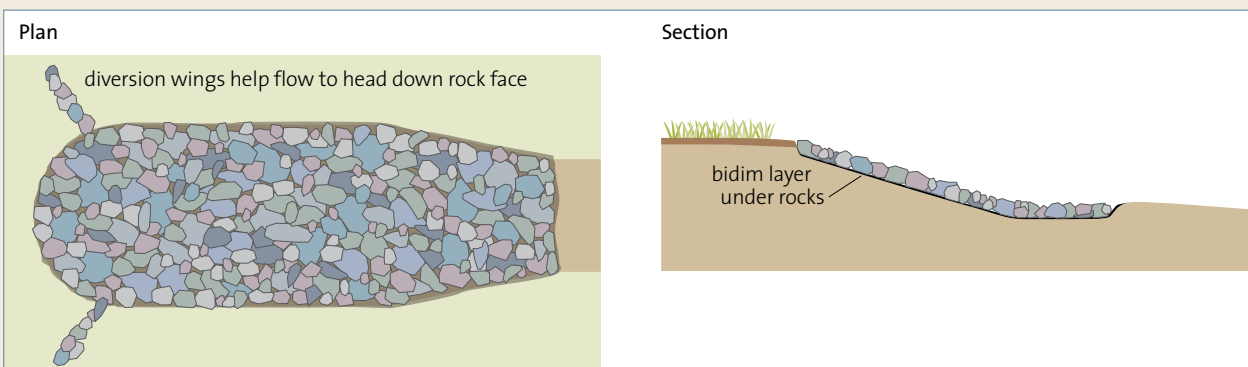
2. Lay geofabric (bidim) over the headcut. This material can be purchased from building suppliers such as CE Industries in Fyshwick and it is better to use a thicker-grade such as A24. If the subsoil is sodic (or more saline), a 50 millimetre layer of topsoil should be spread underneath the geofabric.



- Partially fill your area with angular rock of various sizes. The minimum size depends on water flow as it is important that the rock does not wash away. For example, for low-flow areas larger-sized rock may be as small as 20 centimetres diameter, yet for steeper catchments rock will need to be 30–50 centimetres in diameter. Do not use materials other than clean rock without getting advice.

Lay down the larger rock first so smaller rock can be interspersed afterwards. Start at the base of the structure and work your way up which helps to ‘key’ the rock together. It is important to ensure the rock is not placed above the surface level of the headcut (to avoid outflanking) and that it is properly embedded into the hole at the base that was dug earlier (to avoid wash away). Cut off any protruding fabric.

Note: If the catchment is steeper than 3:1, or there is any considerable concentrated water flow then the rock will need to be of a larger size, and advice should be sought.



- Plant, or allow grasses to regenerate below your completed structure. Shrubs may also be planted, though grasses are very effective at slowing water. Any left over topsoil and sod can be placed into gaps in the rocks along with site-appropriate grass seed.

Maintenance is important and structures should be checked after high flows. If any rock is washing away at the base, then it may need to be embedded more deeply into the soil. If rock is washing away generally, then larger-sized rocks will be required. Advice should be sought if anything more than minor maintenance is required.

For further information contact one of the Rivers of Carbon Project Coordinators: Lori Gould, Haydn Burgess or Mary Bonet. Details are available from the website — www.riversofcarbon.org

Reference: Barry Starr Pty Ltd (2002) with thanks to Cam Wilson from Earth Integral. Work-in-progress photos taken by Haydn Burgess show Cam working with Margie Fitzpatrick and friends to address a headcut erosion problem.

Rivers of Carbon is managed by the Australian River Restoration Centre in partnership with Greening Australia, local Landcare groups, the Australian and NSW Governments.

