

## Bank Stabilisation

Bank erosion is a natural process; however, bank stabilisation may be necessary in some circumstances to:

- Protect public assets.
- Protect private assets and loss of highly productive land.
- Protect high value remnant riverine vegetation.

### Potential Waterway Impacts

Potential impacts include:

- Increased sediment loads in the short term.
- Bank stabilisation using broken concrete and building rubble may introduce contaminants into the stream and create protective cover for rabbits.
- Bank stabilisation works will re-direct erosion processes to alternative locations.

### Assessment Criteria

Because stabilisation will tend to re-direct erosion to other locations, the off-site impact of any stabilisation work should always be considered. Where important assets are at risk, the option of relocating the assets should always be considered.

Acceptable works include either one, or a combination of the following:

#### **Earthworks**

- Re-shaping of the bank can be done to remove overhanging or unstable banks or to reduce the slope to facilitate tree planting.
- Long uniform batters are to be avoided. Batters are to be scarified horizontally or benched to create niches for establishing grasses and other plants on the batter.
- Spoil material is to be placed in neat mounds or removed from the site, or placed at the toe if it is to be properly compacted and protected by rock stabilisation.

#### **Rock riprap**

- Clean hard well graded quarried rock riprap is acceptable for placement on the toe and banks.
- The mean diameter ( $D_{50}$ ) of the riprap can be determined in accordance with SCRC (1991) and should generally be in the range of 300 mm to 500 mm. A range of rock sizes from 100 mm to 800 mm is needed for the rock to be interlocking and stable. In general, the rock should extend at least 600 mm below the toe of the bank to mitigate undermining.

- A geotextile may be used under the rock.
- The use of concrete waste, building rubble, bitumen slabs or tyres is normally unacceptable. In some circumstances, selected concrete materials may be used if properly broken up.

### **Vegetation**

The type of plants should be compatible with local species. The source of the plants should be specified, preferably local, and obtained without adversely affecting the source area. These plants are preferred as they are adapted to the local environment and will restore and enhance the biodiversity value of the area.

A common feature of stream landscapes is the lack of understorey plants. Where there is a good cover of trees, the emphasis should be directed to improving the understorey plantings, including sedge species and native grasses, whilst not overlooking the regeneration of overstorey species.

The planting of exotic plants would not be acceptable.

### **Logs**

The use of logs placed along the toe of the banks is acceptable provided they are adequately secured. The source of logs is to be specified and obtained locally without adversely affecting the source area.

Acceptable sources of logs would be recently fallen timber within the stream channel after trimming and removal of green heads. In-stream large woody debris may be realigned to suit such purposes. Standing timber should not be cut down and used, nor fallen timber within the riparian zone which has value as terrestrial and aquatic habitat.