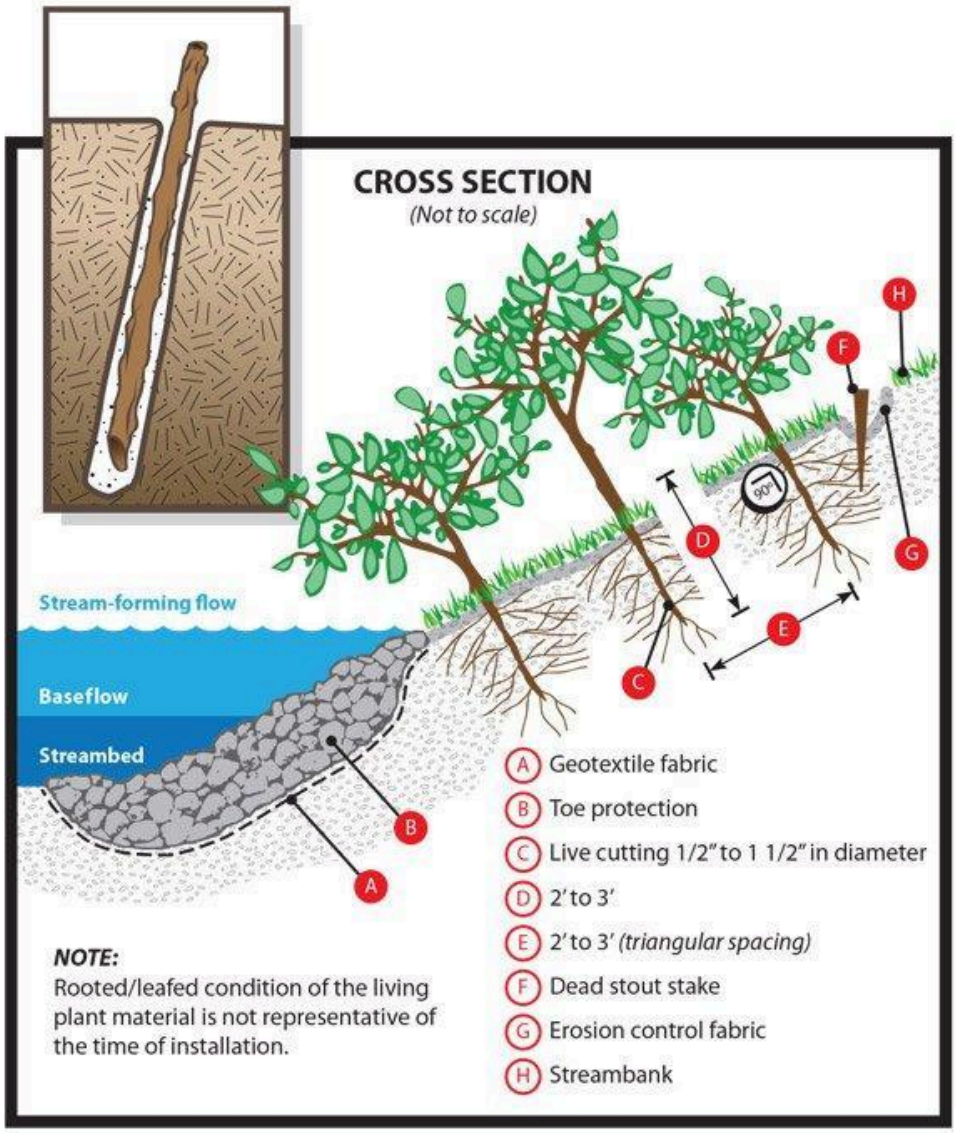
Bioengineering Materials

Soil bioengineering is the term used to describe the use of plant material to arrest and prevent slope and streambank failure and erosion. The roots and stems serve as structural and mechanical elements in a slope protection system. Live cuttings and rooted plants are embedded in the ground in various arrays to serve as soil reinforcements, hydraulic drains and barriers to earth movement. Once established, this living material effectively controls a number of stabilization and erosion control problems by binding the soil with its root system and creating a natural vegetative cover. Bioengineered sites are self-repairing and have the advantage of blending with natural surroundings.



LIVE STAKES

Live stakes are dormant, live woody cuttings of a species with the branches trimmed off. Live staking performs an important function in creating a root mat that stabilizes the soil by reinforcing and binding soil particles together. Stake establishment also improves aesthetics and provides a habitat for wildlife. Live stakes can be used on their own to secure other bioengineering materials or as an anchor for erosion control and geofabric. Stakes or poles can also be inserted or driven through openings in rock structures, such as gabions, riprap and other retaining structures.

INSTALLATION NOTES

Install stakes during their dormancy (late fall to early spring). **Do not allow them to dry out.** Soaking before planting significantly increases survival and growth rate. Drive a pilot hole in firm soil, planting at right angles (buds oriented up) **with at least two-thirds of its length underground**. Plant stakes randomly or 3’-6’ apart on triangular spacing. Tamp the soil down around the cuttings and water. If a long dry spell or hot weather is expected after planting, irrigation may be warranted.