cdpengineers

Roland Avenue Stream Rehabilitation

project description | stream restoration

location
Lexington, Kentucky

client
Lexington-Fayette Urban
County Government
101 E. Vine St.
4th Floor
Lexington, KY 40507

completion date
2006

construction cost
$54,000

background: The stream that flows through the LFUCG property along Eastland Parkway was undergoing severe bank and bed erosion. The straightened and entrenched channel lacked stable bank slopes and appropriate riparian vegetation as well as vertical stability.

solution: The design consisted of stabilizing 400 l.f. of the stream by laying back the steep banks, installing a step pool system, a new headwall, a rock vane and rock toe, and establishing natural vegetation. By laying back the banks, a more appropriate angle was established for bank stability and the stream gained floodplain access. The step pool system was installed directly downstream of a box culvert, which marked the upstream end of the project and revealed poor vertical stability of the stream reach. The step pool system enhances stream habitat, provides stream aeration, allows fish migration, and provides vertical and overall stream stability (preventing further bed cutting and resultant bank erosion). The rock vane that was installed reduces the local erosional forces along the stream bank and around the new headwall. A rock toe was installed around one bend to reduce the erosion of the toe of the bank. Finally, the natural vegetation provides additional stability to all aspects of the project as well as enhance the stream ecosystem and aesthetics.

project components

- Bank Shaping and Stabilization
- Step Pool System
- Rock Vane and Toe
- Vertical stabilization
- Water-Quality Enhancement