

Stream Bank Stabilization and Slope Remediation and Analysis

Princeton Hydro has evaluated numerous stream banks and retaining walls, providing sound and cost-effective ecological and engineering solutions. We have significant experience in the remediation of unstable slopes, preparation of stream bank stabilization plans, geotechnical analysis, and modeling of steep slopes.

We employ fluvial geomorphologists and geotechnical engineers, experts vital in assessing existing conditions of failed slopes or retaining structures on the verge of collapse. Our staff of geotechnical engineers, in combination with our in-house soils laboratory, employ the latest technology in computer modeling as well as ASTM test methods necessary in the analysis of stream banks, steep slopes and retaining structures to determine soil conditions such as angle of internal friction, cohesion and shear strength. Using the latest finite analysis computer models, our engineering staff can determine the factor of safety for existing slopes as well as the optimal slope repair based on the desired factor of safety. Our stream stabilization projects involve a team of ecologists, fluvial geomorphologists, hydraulic engineers, and geotechnical engineers.

A recent project included the repair and remediation of stream banks and slopes at a multi-family residential development in Hillsborough, NJ. The stream banks failed leaving ten foot high escarpments, threatening nearby sanitary sewer lines and building foundations. Princeton Hydro prepared the hydrologic and hydraulic analysis, completed slope stability designs, analyzed the slopes for stability through calculation of appropriate factors of safety, and developed plans and specifications for the installation of the slope stabilization. Instead of proposing vertical hard-armored walls, the ecologists and engineers at Princeton Hydro developed a bio-engineered slope using biodegradable geotextiles, native stone and plantings to create the 1:1 slope. The project was completed in April of 2009 and will be monitored throughout the growing season to ensure the establishment of vegetation, vital to the slope's long term viability.

