

Blanchette Creek Stream Reconnaissance

City of St. Charles, Missouri

Blanchette Creek flows through historic downtown St. Charles; Missouri's first state capital and the oldest city on the Missouri River. The City desired stream improvements, consistent with the heritage and aesthetic character of the City, to stabilize eroding streambanks. Intuition & Logic was responsible for the geomorphic analysis and preliminary design of stream stabilization measures.

During our analysis, we noted several problem sites along the project reach, including tall scoured banks, exceeding 30 feet in height, and bank slumping that threatened residential properties adjacent to the channel. The erosion problems were caused primarily by channel incision, or downward erosion of the streambed. As channels incise, increased bank heights lead to slope failure, as the banks exceed their critical height. Increased bank height also allows even small sources of overbank drainage, such as gutter drainage from a single house, to attain sufficient energy to cause gullying.



Based on our conclusions, recommended interventions included a series of rock grade control structures to control channel incision. To address gullies and slope instability caused by overbank drainage we recommended directing drainage away from the top of the slope using grassed swales, expanding forested riparian buffer zones, and piping stormwater directly to the streambeds. Some streambanks required protection greater than that afforded by grade control structures or directed drainage. At these sites, we recommended vegetated composite revetments, constructed from riprap, geotextiles, soil, and live plants.