



Kerr Environmental Services Corp.

sustainable ecological restoration and environmental consulting

STREAM RESTORATION EXPERIENCE

The Meadows Subdivision – Stream Stabilization, James City County, Virginia

Kerr Environmental Services (KES), under contract to the James City County Stormwater Division, assessed, evaluated, and developed solutions for a degraded 430 linear-foot reach of urban stream. The study reach consisted of eroding banks, several exposed utility crossings, and safety issues. KES developed three alternative solutions to stabilize this reach of stream. The approaches of each alternative design range



from use of traditional “hard” engineering techniques to more natural “soft” bioengineering techniques to stabilize the stream banks utilizing Natural Channel Design (NCD) to the maximum extent possible. Hard techniques include riprap stone energy dissipaters, rock cross-vanes, stone step pools, and stacked stone walls. Soft measures include fiber matting, coir logs, herbaceous and woody vegetation, live soil lifts, log cross-vanes, and graded bankfull benches for flood mitigation. Two alternatives for the restored stream are designed to keep 2-year and 10-year design storm flows below erosive velocities, while the third alternative is designed to minimize construction and easement acquisition costs.