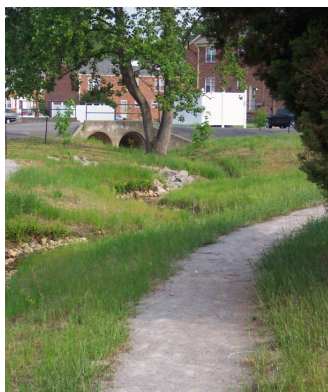


## Jamestown Apartments Stream Restoration

Richmond, Virginia



When the Henrico County Department of Public Works decided to start restoring streams in the county, they selected Biohabitats to design their first project. The small, unnamed

stream flowed through the Jamestown apartment complex in Richmond. The apartment grounds maintenance was mowing the grass right to the edge of water. The lack of woody vegetation allowed the stream to severely erode its banks, some of which were perilously close to the apartment buildings.

Biohabitats designed the restoration of approximately 1,400 linear feet of stream based on natural channel design techniques, but tailored to the urban setting of an apartment complex. The stream's planform, cross section, and profile were modified to be stable with the current urban

*Through natural channel design, a degraded channel was transformed into a stable, vibrant stream, flowing through the heart of an apartment complex. It is now the centerpiece of the community and the gold standard for the county.*

hydrology. The design also had to incorporate three road crossings, fourteen storm drain outfalls, and numerous utilities (gas, water, sanitary) crossing the channel. Natural channel stabilization techniques included: rock W-weirs at the road crossing culverts to flush sediments through the culverts to maintain storm flow capacity; soil bioengineering (live branch layering and live staking) to stabilize steep banks; and log vanes to direct storm flows away from channel banks.

The fourteen stormdrain outfalls were also restored to function as natural channels. Concrete sluices were replaced with steps/pools to slow down storm runoff and protect the stream. Straight, riprap ditches

were converted to low-gradient, meandering channels in pocket wetlands to provide water quality treatment.

The landscape and planting plan included pedestrian paths with educational signage and native trees and shrubs arranged to give the feel of a park setting. During construction, Biohabitats worked closely with the grading contractor to make field adjustments to the restoration design to accommodate unexpected bedrock and utilities.

### SERVICES

Inventory & Assessments  
Design  
Permitting  
Construction Procurement  
Construction Management  
Post-Construction Monitoring

*conservation planning*  
*ecological restoration*  
*regenerative design*



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