

CE 597D Water Resources Seminar
Friday January 30, 2004
Stavely Conference Room —202 Hammond Building
12:00-12:15 REFRESHMENTS
12:15-1:15 SEMINAR PRESENTATION

“Restoring Form and Processes in Urban Streams”

SUE L. NIEZGODA, PhD Candidate

Department of Civil and Environmental Engineering

ABSTRACT: Restoring or otherwise improving channel stability and ecosystems in urban streams is a task that is currently receiving considerable attention and funding due to the desire to improve water quality and aquatic habitats and to provide safety against erosion near infrastructure and property. The design and construction of these channel projects is fraught with uncertainty. Channel processes and the resulting channel forms and patterns that are observed in naturally adjusting streams differ in urban streams because of highly altered hydrologic and sediment discharge regimes. Stream restoration designs in urban streams often incorporate structures that help protect banks, provide grade control, promote flow deflection, or otherwise stabilize channel banks. The structures act as hard points that prohibit the natural adjustment of the stream. In addition, lateral and longitudinal infrastructure, such as sewer and water supply lines, culverts, and private property, constrain and limit the ability of the stream to self-adjust. In this presentation, I briefly examine the state-of-the-art relationships linking morphologic form (in terms of hydraulic geometry, bed morphology, and channel pattern) and stream processes (in terms of local scour and fill, regional bed degradation and aggradation, and bank processes), the strengths and weaknesses of existing relationships, and the uncertainty in applying these relationships to stream restoration designs in the urban environment.

Moderator: Brian Younkin

Refreshments: Kristin Meece

Suggested reading is available on the ANGEL seminar site.