Stream Restoration Purpose and Methods

Increase Sinuosity (add meanders)

Before

After

Northgate Park aerial images from 2005 (left) and 2010 (right; during construction)

Purpose: Slow the flow of water, allowing sediment and pollutants to "settle out;" decrease erosion; improve wildlife habitat.
Method: Add stream curves or "meanders" to increase the length of flow; design meanders to "mimic" stable streams from similar watersheds.

Stabilize Banks

Before

After

Northgate Park

Purpose: Decrease bank erosion and downstream sediment load; protect property, buildings and utilities without altering natural stream meanders.
Method: Grade eroded banks to a stable slope and stabilize using biodegradable matting or fabric grids with native plants; in severe cases, rock or root wads may be used to improve bank stability.

Step Pools and Cross Vanes

Before

After

Northgate Park

Purpose: Slow water flow and direct erosion forces away from stream banks; to increase wildlife habitat and provide stable stream beds.
Method: Place rocks in the shape of a 'V' or 'U' that span the width of the channel at natural topographic breaks in the stream or downstream of exposed water or utility pipes.

Reconnect Stream to Floodplain

Before

After

Source: Durham County, NC Lick Creek

Purpose: Allow floodwaters to spread out; reduce water velocity; establish wetland and streamside plants in the floodplain, reduce bank erosion and improve water quality.
Method: Repair incised stream channels by reconnecting the stream to historic floodplain, raising stream bed, or creating a new stream pattern.