A Geomorphic Approach to Natural Channel Design[AFS]

Dave Rosgen
Wildland Hydrology
11210 N. County Rd. 19, Fort Collins, Co 80524
wildlandhydrology@wildlandhydrology.com

The application of geomorphic principles and fundamental assessments are presented for the purposes of stream restoration using natural channel design procedures. Contrary to uniformed interpretations of the method…it is not a "cookbook" approach in river restoration. The analysis conducted involves analog, empirical and analytical methods. The methods involve 1) a watershed and river stability assessment to determine the source, nature, extent and consequence of channel change, 2) alternatives for recovery based on natural recovery potential, changes in management related to the cause of the disequilibrium, and direct restoration approaches, 3) selection of the potential stable valley and stream type, 4) development of reference reach and regional curve data, 5) design of stable dimension, pattern and profile, 6) hydraulic relations of proposed design channel, 7) sediment competence and capacity calculations, 8) stabilization methods, and 9) a monitoring plan. An example is presented demonstrating the application of the methodology. This methodology has been successfully implemented since 1968 on large and small rivers throughout a range of hydro-physiographic provinces.