



KEY to the ROSGEN CLASSIFICATION of NATURAL RIVERS. As a function of the "continuum of physical variables" within stream reaches, values of **Entrenchment** and **Sinuosity** ratios can vary by +/- 0.2 units; while values for **Width / Depth** ratios can vary by +/- 2.0 units.

Table 11–2 General stream type descriptions and delineative criteria for broad-level classification (level 1)

Stream type	General description	Entrenchment ratio	W/d ratio	Sinuosity	Slope	Landform/soils/features
Aa+	Very steep, deeply entrenched, debris transport, torrent streams	<1.4	<12	1.0 to 1.1	>.10	Very high relief. Erosional, bedrock, or depositional features; debris flow potential. Deeply entrenched streams. Vertical steps with deep scour pools; waterfalls
A	Steep, entrenched, cascading, step-pool streams. High energy/debris transport associated with depositional soils. Very stable if bedrock or boulder-dominated channel	<1.4	<12	1.0 to 1.2	.04 to .10	High relief. Erosional or depositional and bedrock forms. Entrenched and confined streams with cascading reaches. Frequently spaced, deep pools in associated step-pool bed morphology
B	Moderately entrenched, moderate gradient, riffle dominated channel with infrequently spaced pools. Very stable plan and profile. Stable banks	1.4 to 2.2	>12	>1.2	.02 to .039	Moderate relief, colluvial deposition and/or structural. Moderate entrenchment and width-to-depth ratio. Narrow, gently sloping valleys. Rapids predominate with scour pools
C	Low gradient, meandering, point bar, riffle/pool, alluvial channels with broad, well-defined flood plains	>2.2	>12	>1.2	<.02	Broad valleys with terraces, in association with flood plains, alluvial soils. Slightly entrenched with well-defined meandering channels. Riffle/pool bed morphology
D	Braided channel with longitudinal and transverse bars. Very wide channel with eroding banks	n/a	>40	n/a	<.04	Broad valleys with alluvium, steeper fans. Glacial debris and depositional features. Active lateral adjustment with abundance of sediment supply. Convergence/divergence bed features, aggradational processes, high bed load and bank erosion
DA	Anastomizing (multiple channels) narrow and deep with extensive, well-vegetated flood plains and associated wetlands. Very gentle relief with highly variable sinuosities and width-to-depth ratios. Very stable streambanks	>2.2	Highly variable	Highly variable	<.005	Broad, low-gradient valleys with fine alluvium and/or lacustrine soils. Anastomized (multiple channel) geologic control creating fine deposition with well-vegetated bars that are laterally stable with broad wetland flood plains. Very low bed-load, high wash load sediment
E	Low gradient, meandering riffle/pool stream with low width-to-depth ratio and little deposition. Very efficient and stable. High meander width ratio	>2.2	<12	>1.5	<.02	Broad valley/meadows. Alluvial materials with flood plains. Highly sinuous with stable, well-vegetated banks. Riffle/pool morphology with very low width-to-depth ratios
F	Entrenched meandering riffle/pool channel on low gradients with high width-to-depth ratio	<1.4	>12	>1.2	<.02	Entrenched in highly weathered material. Gentle gradients with a high width-to-depth ratio. Meandering, laterally unstable with high bank erosion rates. Riffle/pool morphology
G	Entrenched gully step-pool and low width-to-depth ratio on moderate gradients	<1.4	<12	>1.2	.02 to .039	Gullies, step-pool morphology with moderate slopes and low width-to-depth ratio. Narrow valleys, or deeply incised in alluvial or colluvial materials (fans or deltas). Unstable, with grade control problems and high bank erosion rates

Source: Rosgen, D.L., 2007, Chapter 11 Rosgen Geomorphic Channel Design, Part 654 Stream Restoration Design, National Engineering Handbook