

HYDROLOGIC SOIL GROUPS

General

The hydrologic group is a group of soils having similar runoff potential under similar storm and cover conditions. Soil properties that influence runoff potential are those that influence the minimum rate of infiltration for a bare soil after prolonged wetting and when not frozen. These properties are depth to a seasonally high water table, intake rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The influence of ground cover is treated independently.

The soils in the United States are placed into four groups, A, B, C, and D, and three dual classes, A/D, B/D, and C/D. In the definitions of the classes, infiltration rate is the rate at which water enters the soil at the surface and is controlled by the surface conditions. Transmission rate is the rate at which water moves in the soil and is controlled by soil properties.

Chapter 7 of the NRCS National Engineering Handbook-4, Hydrology, discusses in detail hydrologic groups of soils.

Hydrologic groups for soil map units in each county are listed in Section I, Resources and Evaluation Tools, in the Soils Section – Guide to Interpretive Groups (Table 1). They are also listed in Section II, Engineering Interpretations, in the Water Features Tables.

Hydrologic Soil Group A

The soils have a high infiltration rate even when thoroughly wetted. They chiefly consist of deep, well drained to excessively drained sands or gravels. They have a high rate of water transmission. (Low runoff potential).

Hydrologic Group B

The soils have a moderate infiltration rate when thoroughly wetted. They chiefly are moderately deep to deep, moderately well drained to well drained soils that have moderately fine to moderately coarse textures. They have a moderate rate of water transmission.

Hydrologic Group C

The soils have a slow infiltration rate when thoroughly wetted. They chiefly have a layer that impedes downward movement of water or have moderately fine to fine texture. They have a slow rate of water transmission.

Hydrologic Group D

The soils have a very slow infiltration rate when thoroughly wetted. They chiefly consist of clay soils that have a high swelling potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. They have a very slow rate of water transmission. (High runoff potential).

Dual Hydrologic Groups

Dual hydrologic groups, A/D, B/D, and C/D, are given for certain wet soils that can be adequately drained. The first letter applies to the drained condition, the second to the undrained. Only soils that are rated D in their natural condition are assigned to dual classes. Soils may be assigned to dual groups if drainage is feasible and practical.