DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
NEW YORK STATE DEPARTMENT OF HEALTH

OPEN-FILE REPORT 82-81
(SHEET 3 OF 6)

WATER-INFILTRATION POTENTIAL OF SOIL ZONE

By

William G. Stelz and Robert J. Puzier

73°50' 73°47'30" 73°52'30" 73°50' 73°47'30"

41°42'30" 41°40' 41°37'30" 41°35' 41°32'30" 41°30'

ADJOINS X—X ADJOINS Y—Y

SCALE 1:24000

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 5 0 1 KILOMETER

73°57'30" 73°55'

LOCATION MAP

DRAINAGE AREA

AQUIFER

NOTE

Classifications for water-infiltration potential are given for those soils which overlie and directly recharge the aquifer. Soils with high infiltration potential provide greater recharge to the aquifer than soils with low potential. Hillsides adjacent to the aquifer are typically underlain by till and bedrock (see Surficial Geology , sheet 1) and have a predominantly low or very low infiltration potential. This means that adjacent hillsides have a high potential for runoff, hence overland flow occurs and reaches the area overlying the aquifer where infiltration and recharge to the aquifer may occur.

The infiltration rate is a general estimater of how readily water can penetrate the soil zone. The soil zone is herein considered to be only the A and B horizons, which overlie unweathered surficial geologic materials (sheet 1). The soil zone genefally extends from land surface to a depth of 18 to 30 inches.

The infiltration rate depends upon such factors as soil moisture and temperature, density of vegetation, slope, soil porosity, grain-size distribution and cohesion, depth to seasonal high-water table, presence or absence of a water-impeding layer (fragipan), the intensity and duration of rainfall, and other meteorological factors. Average soil infiltration rates are estimates based on the above factors plus septic-tank soil-percolation tests.

EXPLANATION

WATER-INFILTRATION POTENTIAL OF SOIL ZONE

Map units	Classification	Infiltration rate in inches per hour
1	Very low to low	0.2 to 0.6
2	Low to moderate	0.6 to 2.0
3	Moderate to high	2.0 to 6.0
4	High to very high	>6.0

TILL/BEDROCK HILL—surrounded by aquifer

BOUNDARY OF UNITS OF WATER-INFILTRATION POTENTIAL—approximately located

AQUIFER BOUNDARY—dashed where full extent of aquifer is not shown

BOUNDARY OF HIGH PERMEABILITY MATERIAL ADJACENT TO THE AQUIFER—aquifer may extend into these areas

00446000 COMMUNITY WATER SYSTEM WELL OR WELL FIELD—numbered by New York State Department of Health

REFERENCE CITED

Secor, Wilber, and others, 1955, Soil survey of Dutchess County, New York: U.S. Soil Conservation Service, ser. 1939, no. 23, 178 p.

BASE FROM NEW YORK STATE DEPARTMENT OF TRANSPORTATION HOPEWELL JUNCTION, N.Y., 1973; PLEASANT VALLEY, N.Y., 1973; WAPPINGERS FALLS, N.Y., 1973; AND WEST POINT, N.Y., 1973. 1:24,000

BOUNDARIES MODIFIED IN 1981 FROM SECOR, WILBER AND OTHERS (1955)

GEOHYDROLOGY OF THE VALLEY-FILL AQUIFER IN THE SPROUT AND FISHKILL CREEKS AREA, DUTCHESS COUNTY, NEW YORK

1982