UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH
IRONDEQUOIT BAY PURE WATERS DISTRICT
MONROE COUNTY DEPARTMENT OF ENGINEERING

WATER-RESOURCES INVESTIGATIONS REPORT 84-4259
PLATE 3-- SOIL PERMEABILITY

SOIL PERMEABILITY

Infiltration rates indicate the rates of vertical water movement in the B horizon of soils (generally between 10 and 40 inches below land surface). The infiltration rates are based on (1) infiltration or percolation tests; (2) soil texture, structure, and porosity; and (3) drainage observations. The values are derived from soil surveys of Monroe County (Heffner and Goodman, 1973), Ontario County (Pearson and Cline, 1958), and Wayne County (Higgins and Neeley, 1978). The boundaries of the units of soil permeability do not necessarily coincide with the geologic units.

Soils derived from nearly impermeable till or lake silt and clay can develop a more permeable upper soil zone through frost heave, root penetration, and animal and insect burrows. Even though this may increase near-surface percolation, the underlying and undisturbed deposits may subsequently divert the infiltrating water laterally to local stream channels or may impound the water, causing localized short-term flooding.

In contrast, most soils derived from sand and gravel readily allow precipitation to infiltrate into underlying aquifers and have little tendency to cause overland runoff to streams. Under certain conditions, permeable soils derived from sand and gravel can become less permeable by the surface accumulation of organic muck, fine silt, and clay, or they can develop an impermeable layer at or below the B horizon through precipitation of iron, aluminum oxides, or calcium carbonate.

REFERENCES CITED

Heffner, R. L., and Goodman, S. D., 1973, Soil survey of Monroe County, New York: U.S. Department of Agriculture, Soil Conservation Service, 172 p.

Higgins, B. A., and Neeley, J. A., 1978, Soil survey of Wayne County, New York: U.S. Department of Agriculture, Soil Consevation Service, 210 p.

Pearson, C. S., and Cline, M. G., 1958, Soil survey of Ontario and Yates Counties, New York: U.S. Department of Agriculture, Soil Conservation Service, 126 p.

EXPLANATION

WATER-INFILTRATION POTENTIAL OF THE B SOIL HORIZON

Units on map	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
U	Unclassified	--

W WATER

BOUNDARY OF UNITS OF WATER-INFILTRATION POTENTIAL--approximately located

77° 37'30" 35' 32'30" 30' 27'30" 25' 77° 22'30"
43° 15' 12'30" 10' 7'30" 5' 2'30" 43° 57'30" 43° 55'

Base from New York State Department of Transportation
Plainimetric maps, 1:24,000 scale

GEOHYDROLOGY OF THE IRONDEQUOIT CREEK BASIN NEAR ROCHESTER, NEW YORK

SOIL PERMEABILITY

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