

INTRODUCTION

Stratified-drift aquifers are a major source of public and domestic water supplies in northern Westchester County, N.Y., an area of rapidly increasing population. The U.S. Geological Survey (USGS), in cooperation with the Westchester County Water Agency, reviewed and compiled available hydrogeologic information and used the data to map the estimated thickness and potential well yields of stratified-drift deposits in two areas of northern Westchester County. This report supplements the mapping efforts of Wolcott and Irwin (1988) to provide a set of maps showing the estimated thickness and potential well yields throughout northern Westchester County.

This report consists of six maps at a scale of 1:24,000. Plates 1A and 1B show the locations of wells and test holes in the western and southeastern parts of northern Westchester County, respectively; plates 2A and 2B show the estimated thickness of the stratified-drift deposits in the same areas; and plates 3A and 3B show the estimated potential yields of wells that tap the stratified-drift deposits in those areas.

METHODS

Mapped unconsolidated deposits are of two types—those that consist primarily of sand and gravel in glacially scoured valleys, and those that are recent accumulations of silt, clay, sand, or organic material that underlie flood plains or fill local depressions in till and bedrock. Only deposits that contain water-table aquifers are indicated here.

The data and publications that were used to prepare these maps were obtained from a variety of sources. Well and spring data were obtained from records on file at the USGS office in Albany, N.Y., the Westchester County Departments of Health and Planning, and the Town of Bedford (Leggett, Brashears and Graham, Inc., 1985). Data on stratified-drift deposits were obtained from (1) reports on ground-water resources of Westchester County by Asselstine and Grossman (1955), Van der Leeden (1962), Geraghty and Miller Inc. (1977), Reynolds (1988), and Wolcott and Irwin (1988); (2) an atlas published by the Westchester County Department of Planning (1982); (3) soils maps from the U.S. Soil Conservation Service (W. A. Duckert, U.S. Soil Conservation Service, written commun., 1988); (4) a surficial geologic map of New York State, lower Hudson sheet (Cadwell, 1989); and (5) an unpublished map on file with the USGS office in Albany, N.Y. (I. H. Kantowitz, U.S. Geological Survey, written commun., 1969).

The boundaries of stratified-drift deposits were mapped from previous reports and from well-log data. Well-log data, where available, were used to confirm the presence of stratified-drift deposits and to refine the boundaries. Soils maps prepared by the U.S. Soil Conservation Service were then used to refine the aquifer boundaries on the basis of soils that are interpreted to have developed from glacially derived sand and gravel deposits. Deposits of alluvium and some organic soils also are included because they transmit water and commonly overlie large thicknesses of stratified drift. Many accumulations of organic soils, particularly in upland areas, probably overlie till and bedrock that are not considered a significant source of water to wells and therefore are not delineated. For this reason, stratified-drift aquifers may not be delineated in areas where wells penetrate unconsolidated materials (black dot in the explanation).

REFERENCES CITED

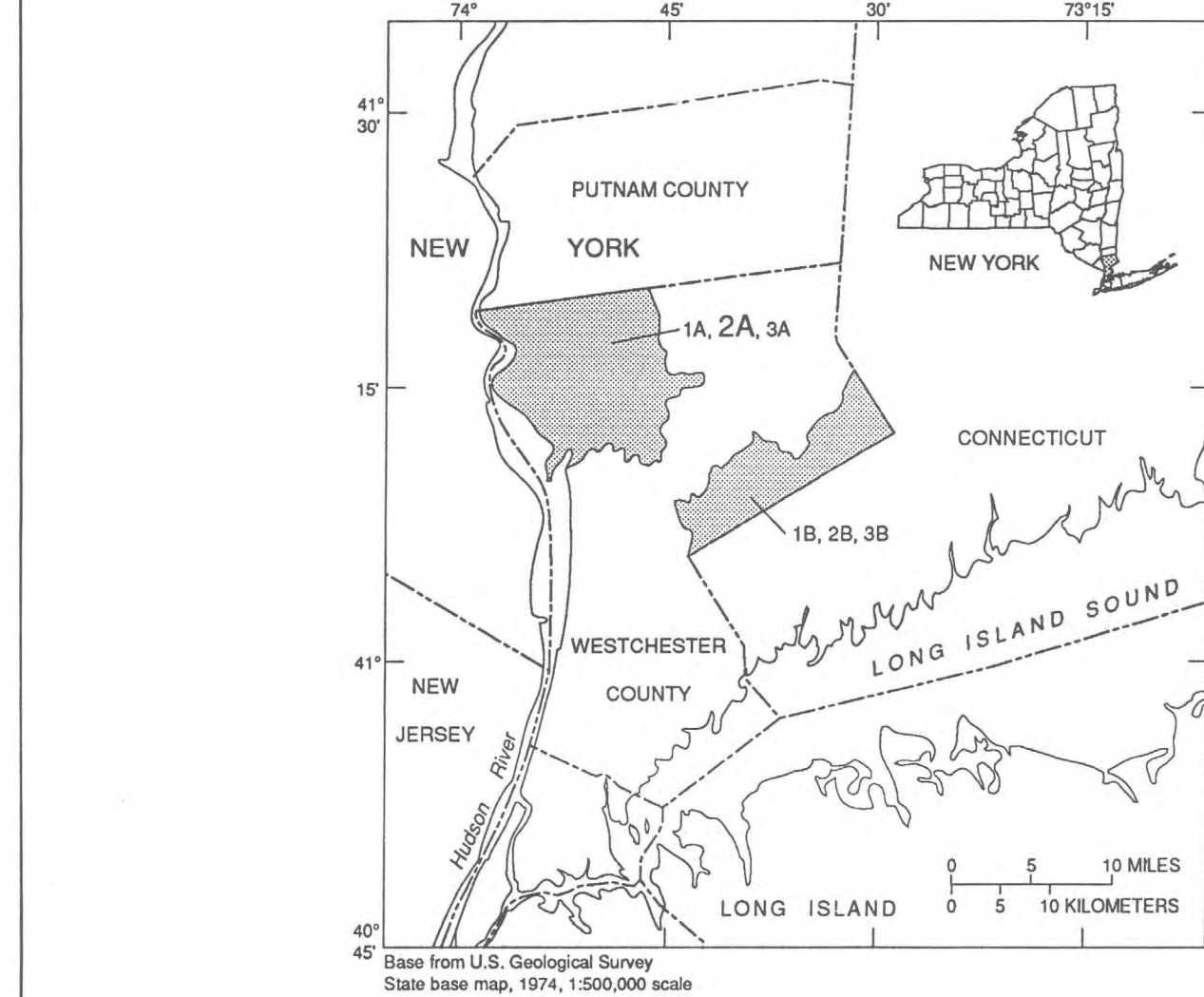
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ESTIMATED THICKNESS

Total thickness of stratified drift in most areas was estimated from well logs on the basis of reported occurrence of sand and gravel. If the units are not extensive, the estimates may include interbedded clay, silt, and till deposits under water-table conditions. In areas where hydrogeologic logs were unavailable, U.S. Soil Conservation Service maps, along with reports from other studies, were used to define areas of stratified drift. Thickness was measured from land surface to bedrock or the uppermost confining unit. For stratified drift in areas that lack well logs, a thickness of less than 20 feet is assumed; this value may be too large for deposits in local depressions and too small for glacially scoured valleys. The boundaries of stratified drift and thickness estimates are generalized and may be modified as additional information becomes available.

EXPLANATION

- ESTIMATED TOTAL THICKNESS, IN FEET
- 4 Greater than 100
 - 3 50 to 100
 - 2 20 to 49
 - 1 Less than 20
- AREA WHERE STRATIFIED DRIFT IS ABSENT
- SURFACE-DRAINAGE BOUNDARY
- THICKNESS-CATEGORY BOUNDARY



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