DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF—451 C

The Connecticut Valley Urban Area Project (CVUAP) covers about 5,000 square miles from New Haven and New London, Conn., on Long Island Sound north to Brattleboro, Vt., and Keene, N.H. Major cities within the project area include New Haven and Hartford, Conn., and Springfield, Mass. Commuter traffic to these urban centers reaches almost all parts of the project area. Interstate routes provide major north-south and east-west transportation corridors. Urbanization and industrial development are likely to continue within this central valley area of New England. In order that such anticipated growth be accomplished in an orderly manner and with a minimum of adverse environmental effects, information on the nature and distribution of natural resources will become increasingly important. The objective of CVUAP is to anticipate this need by providing geologic and hydrologic information to aid in planning and resource management. This information is in the form of maps, each presenting a single resource characteristic, or combination of related characteristics of the land surface, earth materials, or water resources at a common scale and in a simplified format. This is one in a series of maps showing one of the geologic or hydrologic characteristics of the map area.

Regional and local planners and other decision makers responsible for land use and resource management, including landowners, developers, and consultants should find these maps helpful in land-use analysis. Because statutory regulations, technological capabilities, available funding, and local land-use priorities vary from place to place, and can be expected to change with time, these maps are designed to provide a resource-data base with maximum flexibility for long-term usefulness. The maps can be used in various combinations, as in a series of overlays, according to the specific needs of a particular planning problem. As planning criteria change, the selection of pertinent resource-characteristic maps can be adjusted to meet the changing needs.

CVUAP maps, or maps derived from them, are not intended to replace onsite investigations. The maps can be use, however, to identify areas of potential interest for a particular land use. These areas can then be the subject of detailed site evaluation.

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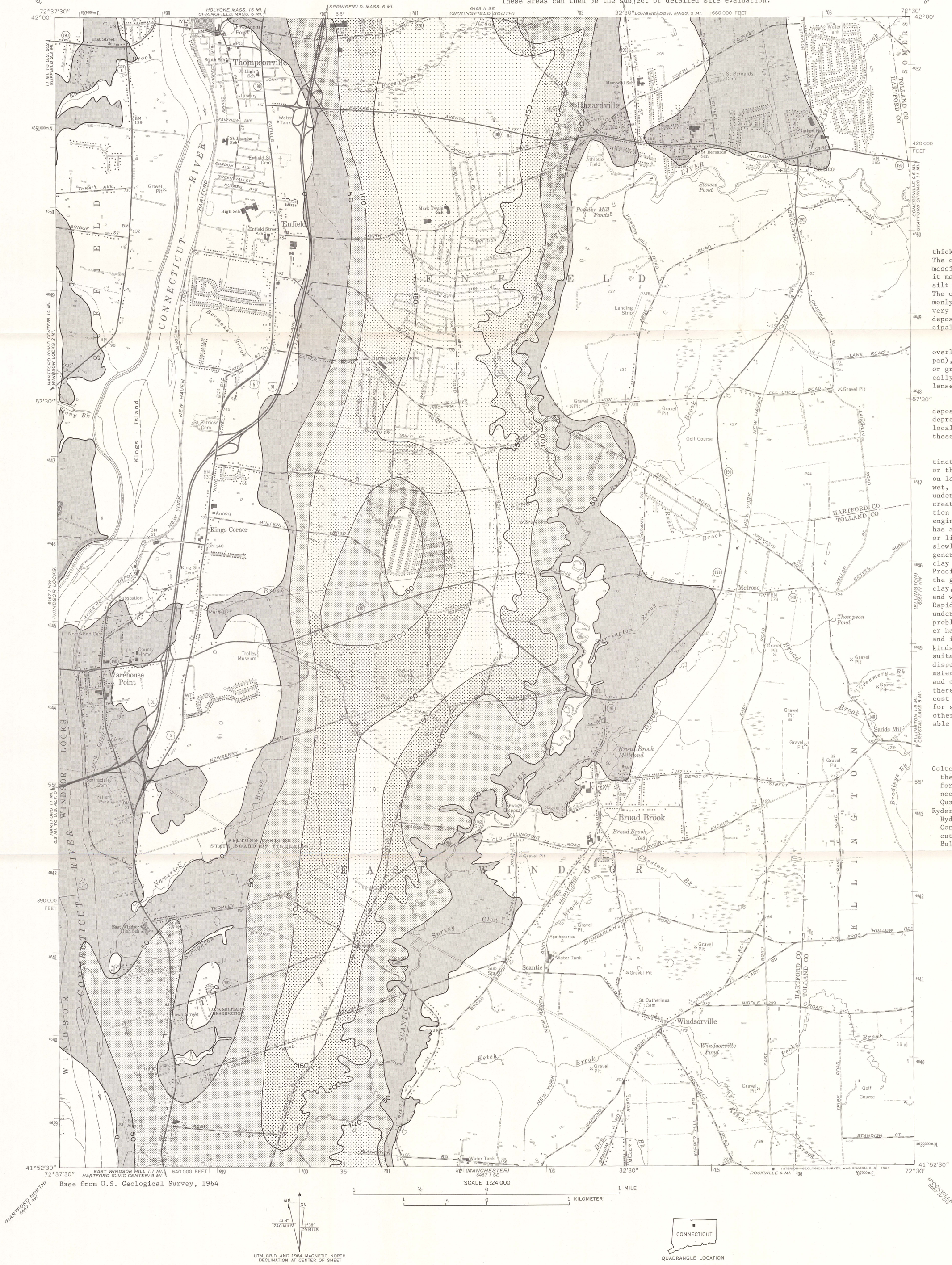

EXPLANATION

CLAY INFERRED TO BE ABSENT

THICKNESS OF CLAY, IN FEET

0
50
100
150

50
CONTOUR SHOWING THICKNESS OF CLAY, IN FEET

This map shows the distribution and thickness of the principal clay unit. The clay unit may consist of a thick, massive bed of relatively pure clay, or it may occur with discrete layers of silt and very fine sand (varved clay). The upper layers of the clay unit commonly grade into a layer of silt and very fine sand. Small, isolated clay deposits not associated with the principal clay unit are not mapped.

The principal clay unit commonly overlies a thin layer of till (hardpan), and is commonly covered with sand or gravel of variable thickness. Locally the clay may overlie or contain lenses of sand or gravel.

The surface on which the clay was deposited may contain small, irregular depressions or high spots that produce local thickening or thinning of clay; these are not indicated on the map.

The properties of clay are distinctive; where it occurs in extensive or thick deposits, the possible effects on land use should be considered. When wet, clay may become exceedingly mobile under even slight stresses and thus create problems of landsliding, foundation failure, uneven settling, and other engineering problems. In addition, clay has a relatively low permeability--water or liquid wastes move through it very slowly. Production of ground water is generally low from saturated deposits of clay and other fine-grained materials. Precipitation does not soak readily into the ground in areas of near-surface clay, often resulting in temporary ponds and wet ground in flat-lying areas. Rapid runoff is common in sloping areas underlain by clay and may cause serious problems of flash flooding. On the other hand, the low permeability of clay and it potential for renovating some kinds of liquid waste may make it a suitable host material for some waste-disposal sites. Clays are also a source material for bricks, expanded aggregate, and other construction materials. Clay, therefore, may be a limitation or extra-cost factor in the development of land for some uses, a favorable factor for other uses, or a potentially exploitable mineral deposit.

SOURCES OF DATA

Colton, R. B., 1965, Geologic map of the Broad Brook quadrangle, Hartford and Tolland Counties, Connecticut: U.S. Geol. Survey Geol. Quad. Map GQ-434.

Ryder, R. B., and Weiss, L. A., 1971, Hydrogeologic data for the upper Connecticut River basin, Connecticut: Connecticut Water Resources Bull. 25, 54 p.

Base from U.S. Geological Survey, 1964

SCALE 1:24 000

1 MILE
1 KILOMETER

UTM GRID AND 1964 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

MAP SHOWING THICKNESS OF PRINCIPAL CLAY UNIT, BROAD BROOK QUADRANGLE, CONNECTICUT

By

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1973

For sale by U. S. Geological Survey, price 50 cents