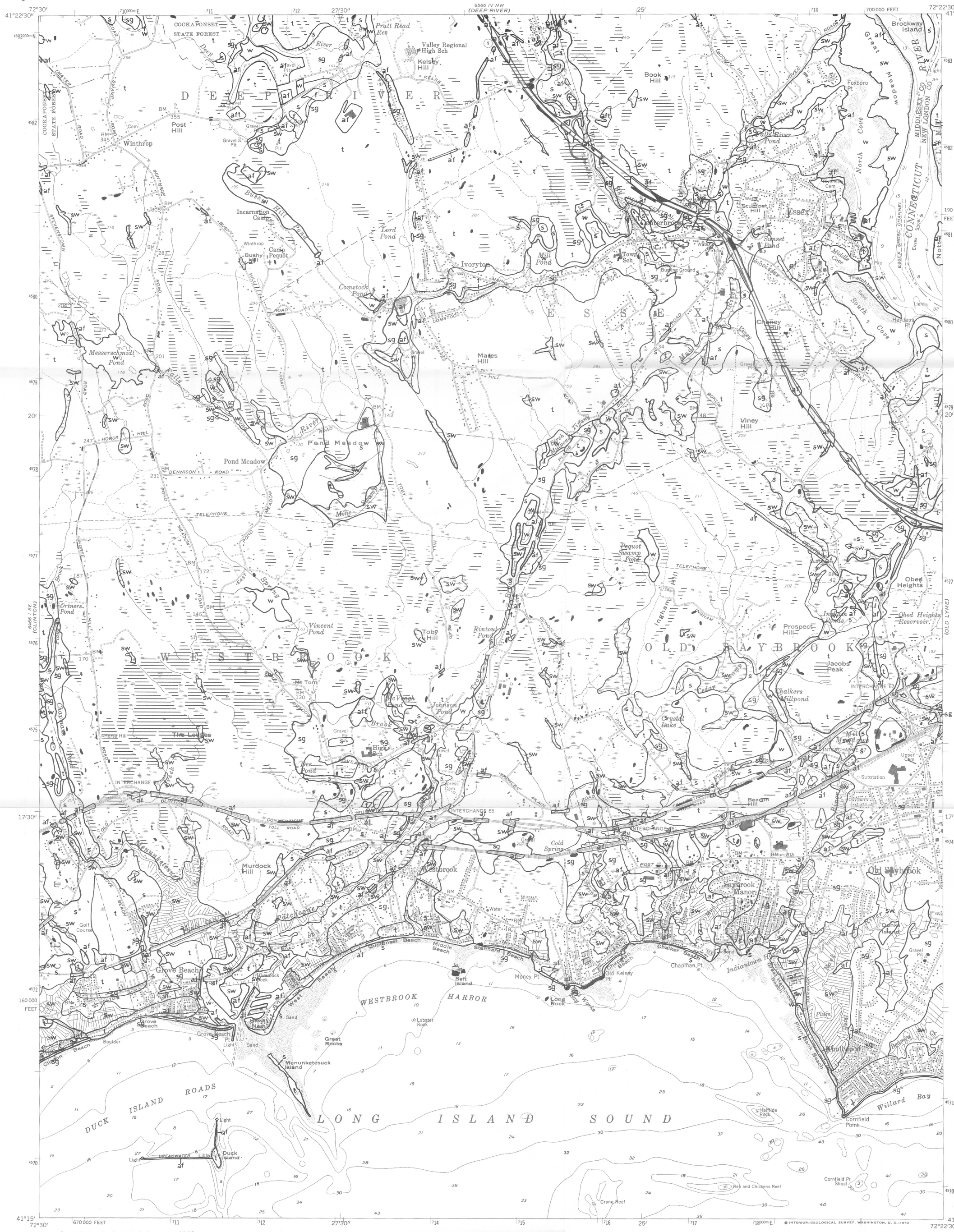
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

MISCELLANEOUS FIELD STUDIES
MAP MF-587 A



Base from U.S. Geological Survey, 1958; photorevised 1970

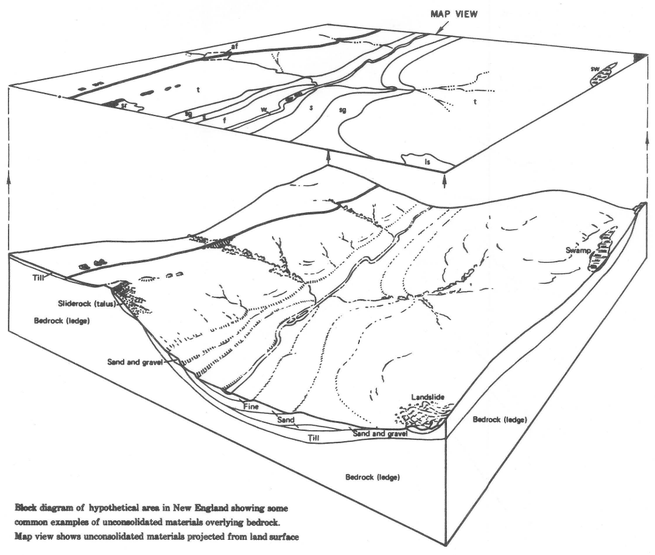
10,000-foot grid based on Connecticut coordinate system. 1000-meter Universal Transverse Mercator grid ticks, zone 18.

UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

SCALE 1:24 000

DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4.5 FEET IN LONG ISLAND SOUND AND 2.9 FEET IN THE CONNECTICUT RIVER

QUADRANGLE LOCATION



Block diagram of hypothetical area in New England showing some common examples of unconsolidated materials overlying bedrock. Map view shows unconsolidated materials projected from land surface

MAP SHOWING UNCONSOLIDATED MATERIALS, ESSEX QUADRANGLE, CONNECTICUT

By
Richard G. Naylor

1974

EXPLANATION

This map is intended to serve as an aid in reconnaissance evaluation of unconsolidated materials and can be used to identify areas of potential interest.

The units on this map indicate the first material of substantial thickness (generally greater than 3 feet (1 m) encountered beneath the soil layer. The soil layer (commonly a foot or two (about 0.5 m) thick) is not mapped. Other materials, different in composition, may underlie each map unit (see block diagram) or may occur as minor lenses within each map unit.

THIS MAP SHOULD NOT BE USED AS A SUBSTITUTE FOR ONSITE INVESTIGATION.

Most unconsolidated materials are mixtures of the three particle-size classes defined in the diagram below. This diagram also relates these three size classifications to the Wentworth classification (Wentworth, 1922) which can be compared with other classifications used in engineering and soil science.

PARTICLE-SIZE CLASSIFICATION
Classification used in this report
(Diameter, in inches)

0.08			0.005						
COARSE			MEDIUM			FINE			
Boulders	Cobbles	Pebbles	Granule	vc	c	m	f	vf	Silt	Clay
				Sand						
256	64		4	2			1/8	1/16		1/256

Wentworth classification
Diameter, in millimeters

Coarse particles (stones) include granules, pebbles, cobbles, and boulders. Medium particles include very coarse, coarse, medium, and fine sand-sized particles. Fine particles include very fine sand-, silt-, and clay-sized particles. Very fine sand is included in this class because it commonly occurs with finer materials, and because very fine sand, silt, and clay behave similarly when water-soaked and under stress.

Materials mapping involves a visual estimate of particle-size distribution in a deposit by the field geologist. Percentages of particle sizes therefore may vary somewhat from place to place beyond the limits defined in the map units below.

sg

SAND AND GRAVEL

Particle sizes range from 100 percent coarse to 25 percent coarse and 75 percent medium. Material may occur as thin layers of well-sorted sand interbedded with thin layers of well-sorted gravel; as poorly-sorted layers of mixed sand and gravel; or as distinct pockets of well- to poorly-sorted sand and gravel. May contain minor amounts of fine particles

s

SAND

Particle sizes range from 25 percent coarse and 75 percent medium through 100 percent medium to 50 percent medium and 50 percent fine. Material commonly occurs as well- to poorly-sorted sand in layers of variable thickness

f

VERY FINE SAND, SILT, AND CLAY

Particle sizes range from 50 percent fine and 50 percent medium to 100 percent fine. Material commonly occurs as poorly-sorted very fine sand, silt, and clay. May contain scattered coarser particles

t

TILL (HARDPAN)

Poorly sorted nonlayered mixture of coarse, medium, and fine particles in varying proportions. Some till, averaging less than 10 feet (3 m) thick, is sandy, loose, and very stony; other till, commonly more than 10 feet (3 m) thick, is less sandy, less stony, and very compact. Where these tills occur together, the loose, sandy till is always on top. The compact till forms the bulk of many smooth elongate hills (drumlins) even where the sandy till is exposed at the surface

sw

SWAMP DEPOSITS

Dark, decomposed organic material intermixed with varying amounts of sand, silt, and clay. Locally contains scattered stones

af / aft

ARTIFICIAL FILL

Shown only for roads, highways, dams, solid-waste disposal, and other major construction. In addition, in urban centers and other areas of dense development, fill of variable thickness and extent may overlie the natural materials shown on the map.
af, predominantly earth fill
aft, predominantly trash fill

BEDROCK (LEDGE) OUTCROP

Bedrock exposed at ground surface; may be partly covered by thin soil. Ruled pattern shows areas of small, closely-spaced outcrops

w

WATER BODIES

In general, lakes and ponds greater than 5 acres, or streams wider than 200 feet (60 m)

Compiled from data gathered by R.G. Naylor (1973) in cooperation with the Connecticut State Geological and Natural History Survey of the Connecticut Department of Environmental Protection under U.S. Geological Survey Grant 14-08-001-G-40

Modified from unpublished geologic quadrangle map by R.F. Flint

SOURCES OF DATA

Flint, R.F., 1974, Surficial geologic map of the Essex quadrangle, Connecticut: unpublished data.
Lundgren, Lawrence, Jr., 1964, The bedrock geology of the Essex quadrangle, Connecticut: Connecticut Geol. and Nat. History Survey Quad. Rept. 15, 36 p.
Vitali, Reno, 1972, Essex quadrangle, in Availability study, summary report, central and southwestern Connecticut /3 volumes of 7½-minute quadrangle maps, scale 1 in. = 2,000 ft/: Connecticut Dept. Transportation, Bureau Highways, Soils and Foundations Div.
Wentworth, C.K., 1922, A scale of grade and class terms for clastic sediments: Jour. Geology, v. 30, p. 377-392.

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