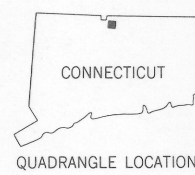
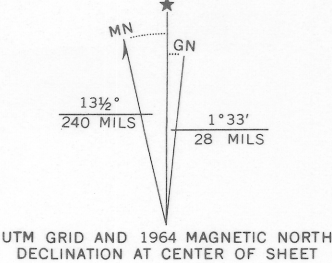


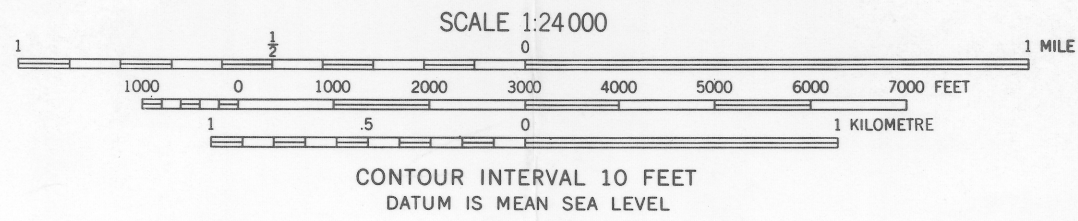


Base from U.S. Geological Survey, 1964

10,000-foot grid based on Connecticut coordinate system
1,000-metre Universal Transverse Mercator grid ticks; zone 18



Textures mapped by J.R. Stone assisted by C.J. Recny and D.M. Koza, 1974



MAP SHOWING UNCONSOLIDATED MATERIALS, WINDSOR LOCKS QUADRANGLE, CONNECTICUT

By
Janet Radway Stone
1976

This map describes the type, thickness, and distribution of unconsolidated materials. It is intended to serve as an aid in areal planning, reconnaissance evaluation, and identifying areas of potential economic deposits.

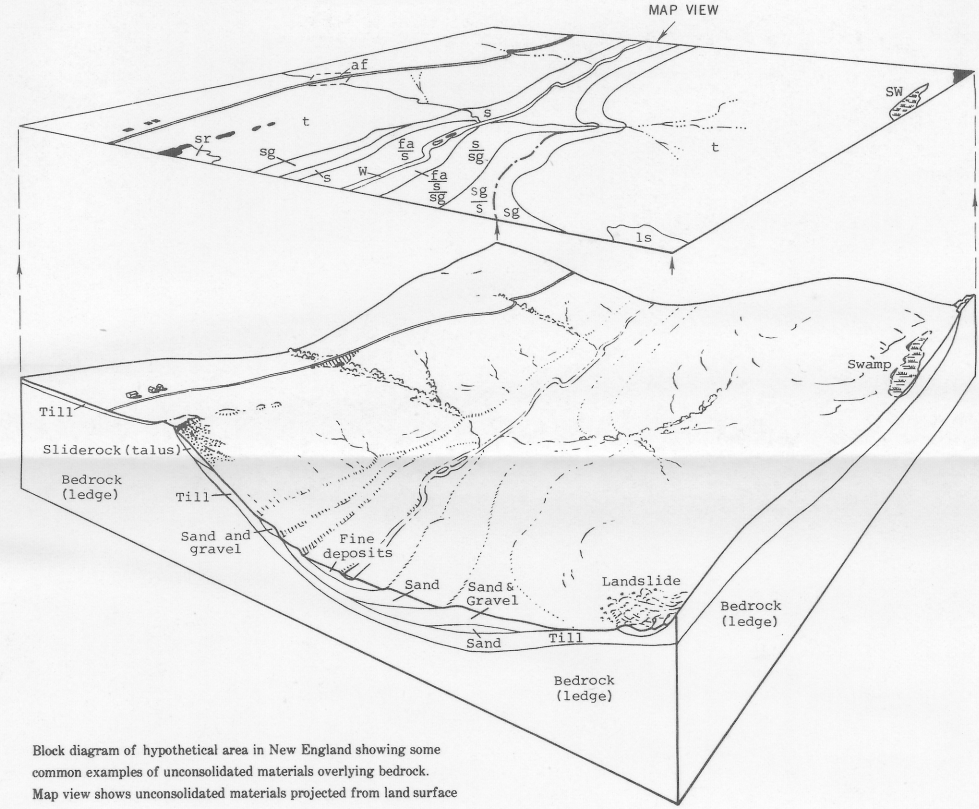
THIS MAP SHOULD NOT BE USED AS A SUBSTITUTE FOR ONSITE INVESTIGATION.

The map units show the distribution of particle sizes within the first materials of significant thickness (greater than 3 feet) beneath the soil layer. The soil layer, commonly one or two feet thick is not mapped.

Bedrock (ledge) is shown only where it is at or less than 10 feet below the land surface. Bedrock underlies the entire map area at various depths beneath the unconsolidated materials (Ryder and Handman, 1972; Handman, 1973). The greatest known depth to bedrock is 210 feet at Windsor well 39. Information on the types of bedrock in this quadrangle has been presented by Schnabel and Eric (1964).

Till (hardpan) forms the mapped surface unit over large areas. It usually underlies the stratified materials, and locally small bodies of flowtill occur within or over the stratified deposits.

Stratified deposits are composed of gravel, sand, silt, clay, and organic matter. They occur in layers and overlie till and (or) bedrock in most of the map area. Stratified deposits at the surface are often underlain by stratified materials of different texture. These underlying materials have been shown on the map where they are known or inferred to occur. For example, the symbol $\frac{S}{f}$ indicates that sand is underlain by very fine sand, silt, and clay. The diagram below shows the vertical relationships often encountered in unconsolidated materials in New England.



Most unconsolidated materials are mixtures of the three particle-size classes defined in the diagram below. Coarse particles (stones) include granules, pebbles, cobbles, and boulders. Medium particles include all sand sizes except very fine sand. 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.

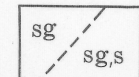
PARTICLE-SIZE CLASSIFICATION USED IN THIS REPORT Modified From Wentworth (1922)											
Diameter of particles	10 256	2.5 64	.84 4	.425 2	.25 1	.15 .5	.075 .25	.0475 .125	.025 .068	.015 .0045	inches millimetres
Boulders	Cobbles	Pebbles	Granules	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Clay	
Gravel-sized particles				Sand-sized particles							
COARSE				MEDIUM				FINE			

Materials mapping involves a visual estimate of particle-size distribution by a field geologist. Percentages of particle sizes may, therefore, differ somewhat in places from the limits defined in the map units below. Map units may also contain small lenses of material that differ in particle size from the main mass.

1 foot equals 0.3048 metre

EXPLANATION

Some descriptions of units are accompanied by generalized vertical sections. Particle sizes and horizontal distances are not to scale; vertical scales are indicated. Symbols are defined below sections.



SAND AND GRAVEL DEPOSITS

Particle sizes range from 100 percent coarse particles to 25 percent coarse and 75 percent medium particles. Minor amounts of fine particles are present in many layers. Particle sizes may range from coarse to medium both laterally and vertically in a deposit. Material may occur as:

- thin (generally less than 2 feet thick) beds of well to poorly sorted sand, poorly sorted sand and gravel, and well to poorly sorted gravel.
- material which ranges laterally from sand through sand and gravel to gravel deposits and may be well to poorly sorted.
- layers of poorly sorted mixed sand and gravel.
- poorly sorted gravel deposits in which particle sizes range from 100 percent coarse particles to 50 percent coarse and 50 percent medium particles.

Open circles, coarse particles; dots, medium particles

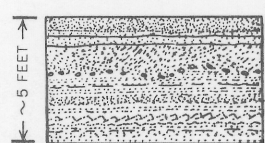
sg , undifferentiated sand and gravel deposits

sg,s , known or inferred to occur as a and b above

s	s	s	s	s	s	s	s
s	s	s	s	s	s	s	s

SAND DEPOSITS

Particle sizes range from 25 percent coarse and 75 percent medium particles through 100 percent medium particles to 50 percent medium and 50 percent fine particles.



Open circles, coarse particles; dots, medium particles; dashes, silt-sized particles

s , undifferentiated sand

s_3 , more than 50 feet of sand over most of the unit area. This material is generally coarse sand at the surface grading through medium sand to fine sand at depth. Relatively thin (less than 20 feet thick) deposits of very fine sand, silt, and (or) clay may underlie the sand in some places

$\frac{s}{f}$, undifferentiated sand deposits overlying very fine sand, silt, and (or) clay

s_1 , as much as 10 feet of fine to medium sand overlying thick deposits of very fine sand, silt, and (or) clay

s_2 , as much as 50 feet of fine to medium sand; in places surface material may contain some coarse sand and granules, but the sand at increasing depths is finer. The sand overlies thick deposits of very fine sand, silt, and (or) clay

$\frac{s_3}{f}$, more than 50 feet of coarse sand having some granules and pebbles at the surface, grading through medium sand to fine sand at depth. The sand overlies thick deposits of very fine sand, silt, and (or) clay

s_4 , as much as 10 feet of fine sand overlying s_3 (see description above)

f

$s-g$	s	sg	s	sg
s	s	s	s	s

SAND OR GRAVEL DEPOSITS

This material occurs as thick (generally greater than 5 feet) layers of well-sorted, brown, fine to medium sand interbedded with thick layers of poorly sorted red-brown gravel to sand and gravel. Either sand or gravel may occur at the surface.

Open circles, coarse particles; dots, medium particles

$s-g$, undifferentiated sand or gravel deposits

$\frac{sg}{s}$, known areas where red-brown gravel or sand and gravel overlies light-brown sand

$\frac{s}{sg}$, known areas where light-brown sand overlies red-brown gravel or sand and gravel

f	f_v	f_a
f	f	f

VERY FINE SAND, SILT, AND CLAY DEPOSITS

Particle sizes range from 100 percent fine particles to 50 percent fine and 50 percent medium particles. Deposits locally contain scattered coarser particles. Material may occur as:

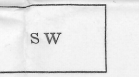
- thin, alternating layers of well-sorted very fine sand and (or) silt and (or) clay.
- massive beds of very fine sand and (or) silt and (or) clay.
- well to poorly sorted very fine sand and silt containing organic material.

Dots, very fine sand-sized particles; dashes, silt-sized particles; solid black layers, clay-sized particles; irregular black blebs, organic material

f , undifferentiated deposits of very fine sand, silt, and (or) clay

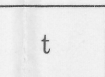
f_v , known deposits occurring as a above

f_a , known deposits occurring as c above



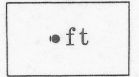
SWAMP DEPOSITS

Dark, decomposed organic material mixed and interlayered with variable amounts of sand, silt, and clay. Locally contains scattered stones. Generally less than 10 feet thick and underlain by the adjacent map unit or units



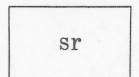
TILL (HARDPAN) DEPOSITS

Nonsorted mixture of coarse, medium, and fine particles in differing proportions. Some till, averaging less than 10 feet thick, is sandy, loose, and very stony; other till, commonly more than 10 feet 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 present at the surface. Till is present at depth beneath most other unconsolidated materials in the map area



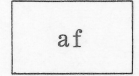
FLOWTILL

Clayey, poorly compacted till with relatively few stones; may occur locally on top of, or within, stratified materials. These deposits have not been mapped, but points are shown where flowtill has been observed



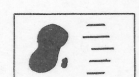
SLIDEROCK (TALUS) DEPOSITS

Large, angular rock fragments at the base of cliffs; locally may contain intermixed organic matter and fine particles



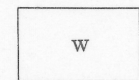
ARTIFICIAL FILL

Shown only in areas of major emplacement such as highway and railroad embankments, bridges, dams, airports, and other areas of major construction; additionally, in urban centers and other areas of dense development, fill of differing thickness and extent may overlie the natural materials shown on the map



BEDROCK (LEDGE)

Solid black areas indicate bedrock exposed at the ground surface; it may be partly covered by thin soil. Ruled pattern shows areas where bedrock is less than 10 feet beneath the surface; includes numerous bedrock outcrops too small to map



WATER BODIES

In general, lakes and ponds larger than 5 acres and streams wider than 200 feet

CONTACTS

Surface contact between map units

Surface contact within a map unit, longer dash where location is less certain

Inferred location of concealed contact

Note: Subsequent field checking indicates that this map supersedes Colton (1960) and Pessl (1973) where discrepancies occur.

REFERENCES

- Colton, R. B., 1960, Surficial geology of the Windsor Locks quadrangle, Connecticut: U.S. Geol. Survey Geol. Quad. Map GQ-137.
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- Pessl, Fred, Jr., 1973, Map showing unconsolidated materials, Tariffville quadrangle, Connecticut-Massachusetts: U.S. Geol. Survey Misc. Field Studies Map MF-512-A.
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- Ryder, R. B., and Weiss, L. A., 1971, Hydrologic data for the upper Connecticut River Basin, Connecticut: Connecticut Water Resources Bull. 25, 54 p.
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NOTE: Explanation and description of selected point observations may be found in accompanying pamphlet.