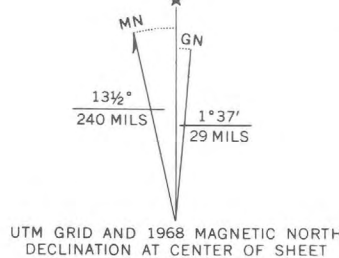


Base from U.S. Geological Survey, 1963, photorevision, 1968.  
10,000-foot grid based on Connecticut coordinate system. 1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in black.



SCALE 1:24,000  
CONTOUR INTERVAL 10 FEET  
DATUM IS MEAN SEA LEVEL

Textures mapped by W. H. Langer and C. J. Recny, 1974.



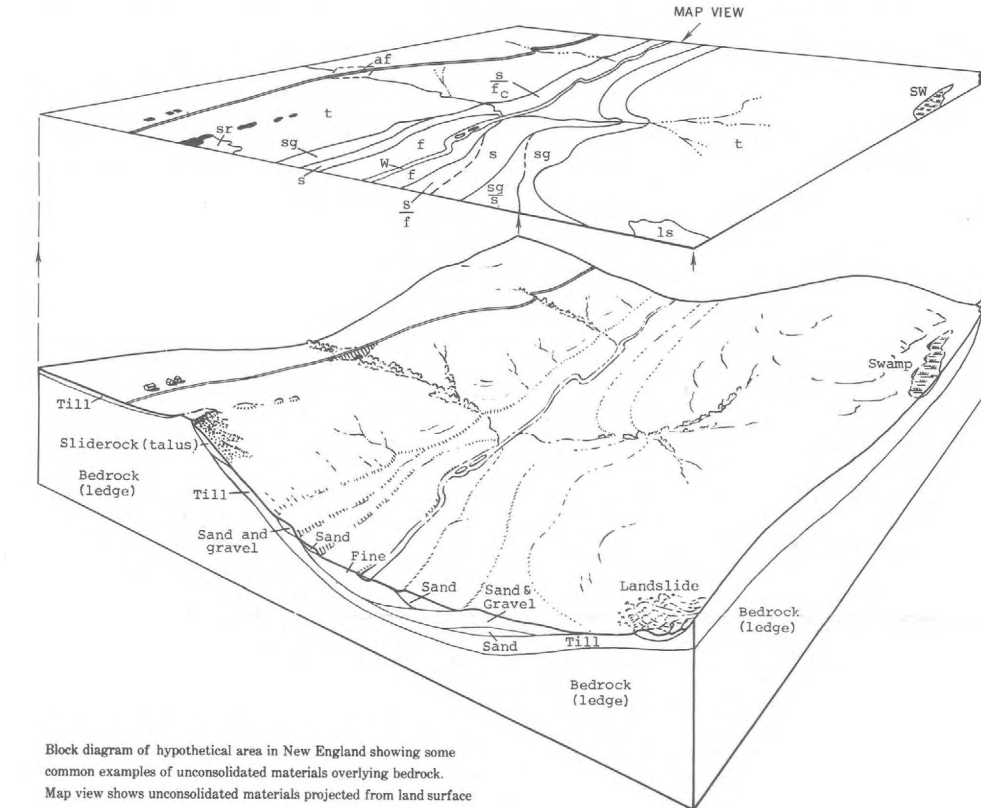
## MAP SHOWING UNCONSOLIDATED MATERIALS, MANCHESTER QUADRANGLE, CONNECTICUT

By  
William H. Langer and Christopher J. Recny  
1977

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

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

This map has been prepared from a published geologic map (Colton, 1965). It shows the distribution of materials that occur beneath the soil layer. The soil layer is generally 1-2 feet (0.3-0.6 m) thick and is not mapped. Bedrock (ledge) is shown where it is at or near the land surface. Bedrock underlies the entire map area at greater depths beneath the unconsolidated materials and is shown on the map by Handman and Colton (1973). Till is mapped over large areas, and in most of the map area it underlies the stratified deposits. Stratified deposits are composed of various mixtures of coarse (gravel), medium (sand), and fine (silt and clay) rock particles; they occur in layers. They overlie till and (or) bedrock and may also overlie other mixtures of rock particles. Superposed units represent areas where it is known or inferred that stratified deposits overlie other stratified deposits. The diagram below shows the vertical relationships often encountered in unconsolidated materials in New England.



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.

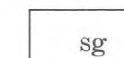
Most unconsolidated materials are mixtures of three particle-size classes defined in the diagram below. Coarse particles (stones) include granules, pebbles, cobbles, and boulders. Medium particles include all sand sizes except very fine sand. Fine particles include very fine sand, silt, and clay-sized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

PARTICLE-SIZE CLASSIFICATION USED IN THIS REPORT Modified from Wentworth (1922)											
Diameter of particles in inches	10	2.5	.16	.08	.04	.02	.01	.005	.0005	.00015	Inches of particles
Diameter of particles in millimeters	250	64	4	2	1	.5	.25	.125	.060	.030	Millimeters
Boulders	Cobbles	Pebbles	Granules	Very coarse sand	Coarse sand	Medium sand	Fine sand	Very fine sand	Silt	Clay	
Gravel-sized particles			Sand-sized particles				Silt and clay-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 deposit.

### EXPLANATION

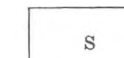
#### STRATIFIED DEPOSITS



SAND AND GRAVEL

Particle sizes range from 100 percent coarse particles to 25 percent coarse and 75 percent medium particles. May also contain minor amounts of fine particles. Material may occur as:

- 1) layers of well to poorly sorted sand interbedded with layers of well to poorly sorted gravel.
- 2) poorly sorted mixed layers of sand and gravel.
- 3) distinct pockets of well to poorly sorted sand, gravel, and sand and gravel.

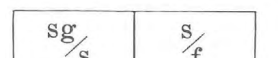


SAND

Particle sizes range from 25 percent coarse particles and 75 percent medium particles, through 100 percent medium particles, to 50 percent medium particles and 50 percent fine particles. Material commonly occurs as well to poorly sorted layers of varying thickness

VERY FINE SAND, SILT, AND CLAY

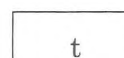
- Particle sizes range from 50 percent fine and 50 percent medium particles to 100 percent fine particles. May contain scattered coarse particles. Material may occur as:
- 1) well-sorted layers of very fine sand, silt, and (or) clay; or massive beds of very fine sand, silt, and (or) clay.
  - 2) deposits of river alluvium, consisting mostly of very fine sand and silt with some organic material and scattered coarse particles.
  - 3) massive beds consisting mostly of silt and (or) clay, locally with scattered coarse particles.



SUPERPOSED DEPOSITS

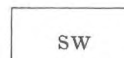
Areas where surface units are commonly less than 30 feet (9.1 m) thick and are known or inferred to overlie thicker stratified materials. Till is inferred to be present at depth beneath almost all stratified deposits; therefore, its presence is not shown by these symbols

#### NONSTRATIFIED DEPOSITS



TILL (HARDPAN)

Reddish-brown till ranging from a crudely sorted, non-compact mixture of sand, silt, pebbles, and cobbles in places containing minor amounts of clay, to a nonsorted, compact mixture of silt and clay with some pebbles and cobbles. May contain scattered boulders. Till is present at depth beneath most unconsolidated materials in the map area



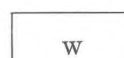
SWAMP

Generally dark, decomposed or partially decomposed organic material intermixed with varying amounts of sand, silt, and clay. Locally contains scattered stones. Swamp deposits are commonly underlain by the surrounding material



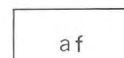
BEDROCK (LEDGE) OUTCROP

Black represents bedrock (ledge) exposed at the ground surface; may be partially covered by thin soil. Ruled pattern shows areas of numerous closely spaced outcrops and bedrock thinly covered with soil



WATER BODIES

In general, lakes and ponds greater than 5 acres (2 hectares) in area, or streams wider than 200 feet (61 m)



ARTIFICIAL FILL

Shown only for roads, highways, dams, solid waste disposal, filled ponds and swamps, and other major construction. Additionally, in urban areas and other areas of dense development, fill of variable thickness and extent may overlie the natural materials shown on the map

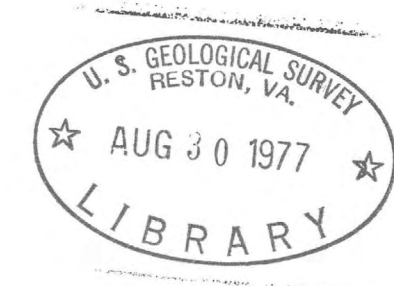
#### CONTACTS

Surface contact between map units

Inferred position of concealed subsurface contact

#### REFERENCES

- Colton, R.B., 1965, Geologic map of the Manchester quadrangle, Hartford and Tolland Counties, Connecticut: U.S. Geol. Survey Geol. Quad. Map GQ-433.  
Handman, E.H., and Colton, R.B., 1973, Depth to bedrock, Manchester quadrangle, Connecticut: U.S. Geol. Survey Misc. Field Studies Map MF-452-B  
Wentworth, C.K., 1922, A scale of grade and class terms for clastic sediments: Jour. Geology, v. 30, p. 377-392.



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