

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.

THIS MAP SHOULD NOT BE USED AS A SUBSTITUTE FOR ON-SITE INVESTIGATION.

The units on this map indicate the first materials 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. Over the total map area, bedrock (ledge) underlies the unconsolidated materials. Bedrock is shown where it is at or near land surface. Till is the most widespread unconsolidated material, underlying the stratified deposits as well as occurring at the surface. Stratified deposits (gravel, sand, silt, clay, alluvium, swamp deposits) occur in layers and overlie till and bedrock in most large valleys (see block diagram below). Other materials, different in composition, may underlie each map unit or may occur as minor lenses within each map unit.

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.

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.

g
GRAVEL

Particle sizes range from 100 percent coarse particles to 50 percent coarse and 50 percent medium particles. Materials may occur as layers of well- to poorly sorted gravel, or as layers of gravel interbedded with layers of sand. May also contain minor amounts of fine particles

sg
SAND AND GRAVEL

Particle sizes range from 50 percent coarse and 50 percent medium particles to 25 percent coarse and 75 percent medium particles. 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 particles through 100 percent medium particles to 50 percent medium and 50 percent fine particles. 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 particles to 100 percent fine particles. Material may occur as layers of poorly sorted very fine sand, silt, and clay; as regularly alternating layers of silt and very fine sand interbedded with clay; or as thick intervals of thin-bedded clay with only minor amounts of very fine sand and silt. Locally contains scattered coarser particles

t
TILL (HARDPAN)

Poorly sorted 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 (drumlines) even where the sandy till is exposed at the surface

sw
SWAMP DEPOSITS

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

af
ARTIFICIAL FILL

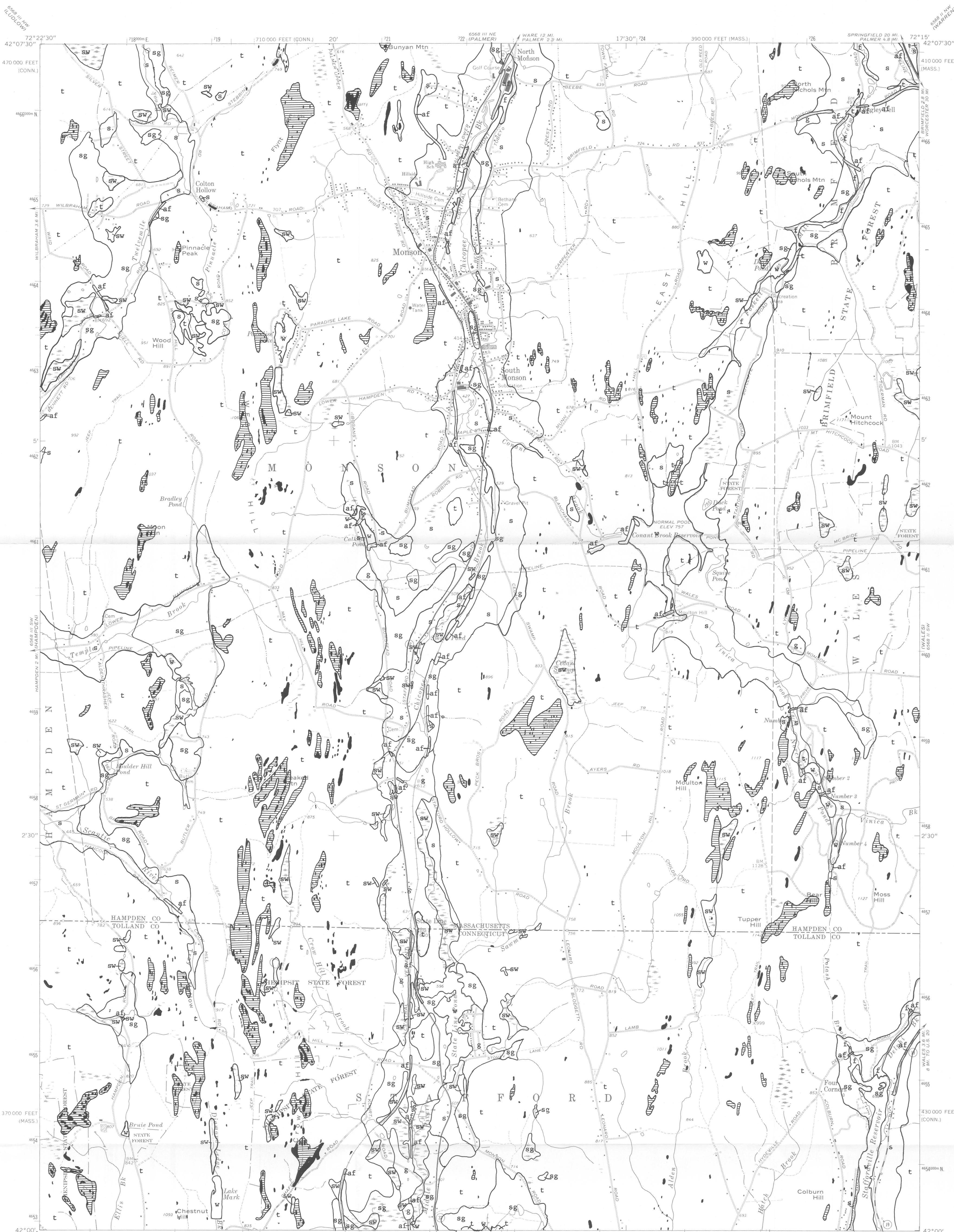
Shown only for roads, highways, dams, solid waste disposal, and other major construction. In addition, in urban centers and other areas of dense development, fill of variable thickness and extent may overlie the natural materials shown on the map

b
BEDROCK (LEDGE) OUTCROP

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

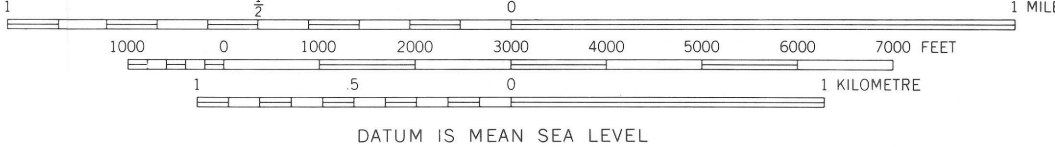
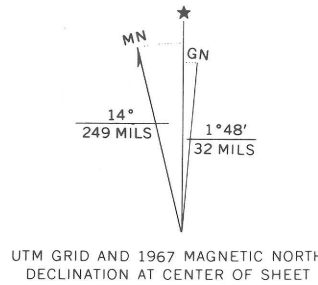
w
WATER BODIES

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

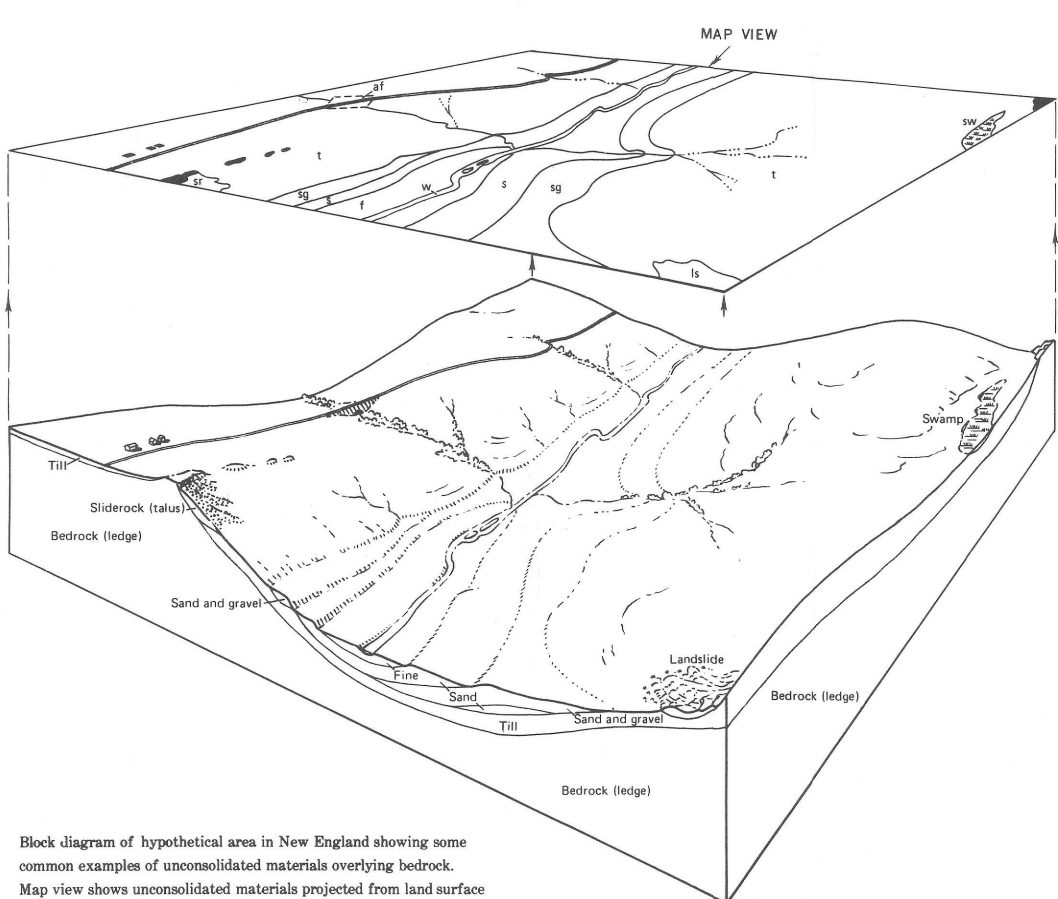


Base from U.S. Geological Survey, 1967.

10,000-foot grids based on Massachusetts coordinate system, mainland zone, and Connecticut coordinate system 1000-meter Universal Transverse Mercator grid ticks, zone 18



Surficial geology mapped by J.D. Peper, 1969-1970.



PARTICLE-SIZE CLASSIFICATION Modified from Wentworth, 1922											
Diameter of Particles											
10	2.5	.16	.08	.04	.02	.01	.005	.0025	.00125	.000625	.0003125
256	64	4	2	1	.5	.25	.125	.0625	.03125	.015625	.0078125
Boulders	Cobbles	Pebbles	Granules	Very coarse	Coarse	Medium	Fine	Very fine	Silt	Clay	
Gravel-sized particles				Sand-sized particles				Silt and clay			
COARSE				MEDIUM				FINE			

SOURCES OF DATA

Wentworth, C.K., 1922, A scale of grade and class terms for clastic sediments: Jour. Geology, v. 30, p. 377-392.

MAP SHOWING UNCONSOLIDATED MATERIALS, MONSON QUADRANGLE, MASSACHUSETTS-CONNECTICUT

By
John D. Peper
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