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 used, however, to identify areas of potential interest for a particular land use. These areas can then be the subject of detailed site evaluation.

E X P L A N A T I O N

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

Areas without a substantial thickness of unconsolidated material are shown in black or with a ruled pattern

The 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 map should NOT be used as a substitute for onsite investigations.*

sg

SAND AND GRAVEL

Particle sizes range from 100 percent coarse to 25 percent coarse and 75 percent sand sized. Includes deposits in which layers of well-sorted sand a few inches thick are interbedded with thin layers of well-sorted gravel; also includes poorly sorted deposits in which sand and gravel are mixed and occur in layers several feet thick. Locally contains minor amounts of fine particles

s

SAND

Particle sizes range from 25 percent coarse and 75 percent sand-sized through 100 percent sand-sized to 50 percent sand-sized and 50 percent fine. Locally contains minor amounts of fine particles

c

FINE DEPOSITS

Particle sizes range from 50 percent sand-sized and 50 percent fine to 100 percent fine; includes very fine sand, silt, and clay. May occur as regularly bedded, alternating, discrete layers of silt with some sand and clay or as thick, massive beds of clay with only minor amounts of sand and silt. May also be poorly sorted, very fine sand, silt, and clay. Locally contains scattered stones

t

TILL (HARDPAN)

Poorly sorted mixture of large and small stones with sand-sized and fine particles in varying 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 exposed at the surface

sw

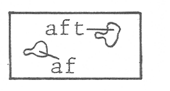
SWAMP DEPOSITS

Fine and sand-sized particles commonly mixed with partly decomposed organic material in poorly drained areas. Locally contains scattered stones

sr

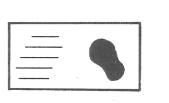
SLIDE ROCK (TALUS)

Large angular rock fragments at the base of cliffs; locally contains organic matter and silt



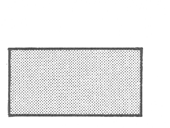
ARTIFICIAL FILL

Areas that have been filled for highways, solid-waste storage, and other major construction
af, predominantly earth materials of undifferentiated fill
aft, predominantly trash



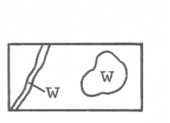
AREAS WITHOUT A SUBSTANTIAL THICKNESS OF UNCONSOLIDATED MATERIALS

Areas of bedrock outcrop shown in black; areas where bedrock outcrops form 50 to 90 percent of the surface are ruled



DEVELOPED AREA

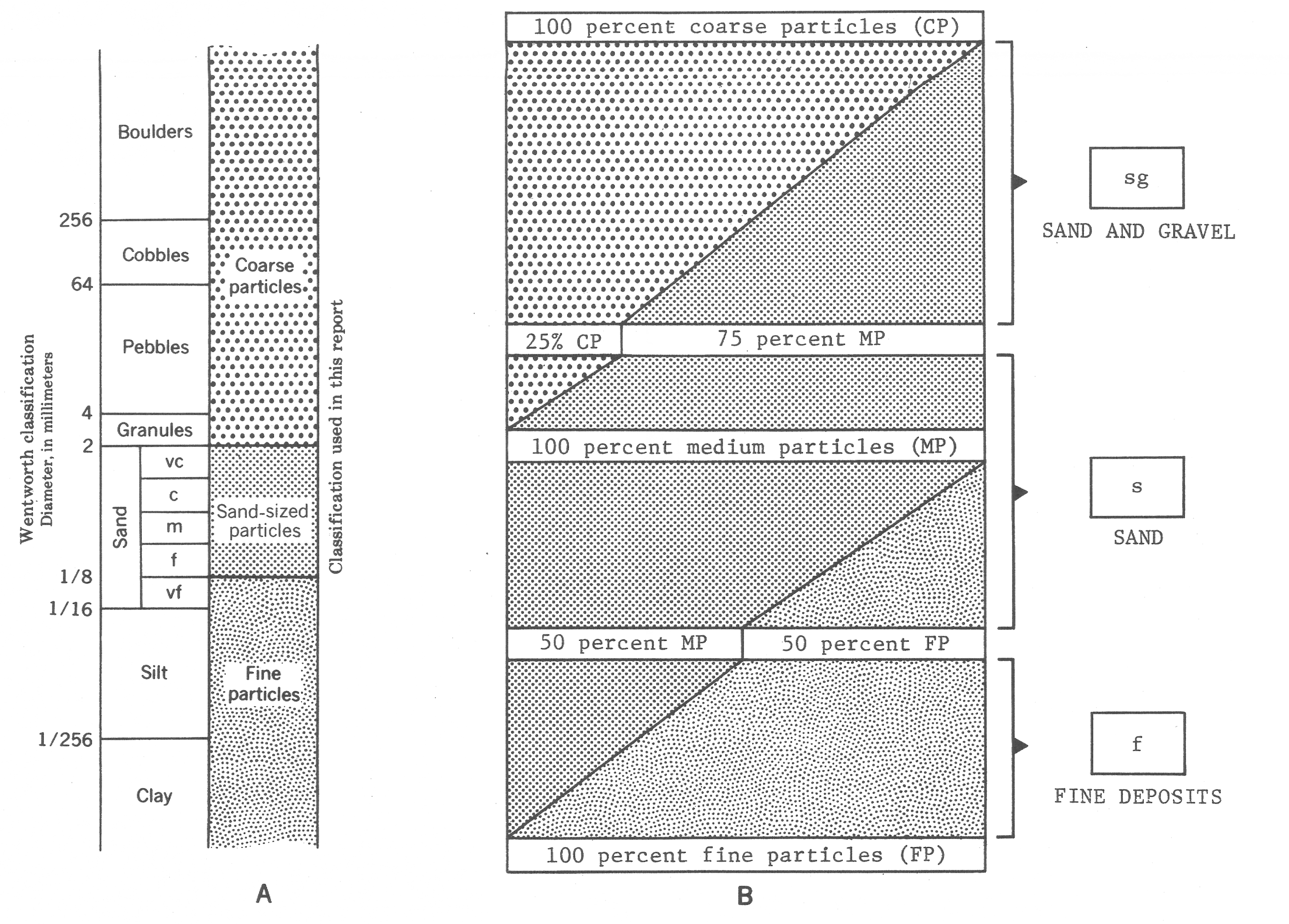
Area where natural conditions have been extensively altered by man; limits of altered land are unknown. Within these areas cut and fill associated with building construction, parking areas, and general grading is widespread and manmade fill of variable thickness and extent commonly overlies the natural materials shown on the map



SELECTED WATER BODIES

In general, only water bodies greater than 5 acres in area, or streams wider than 200 feet, are shown

MATERIALS CLASSIFICATION



Particle sizes, as defined by the Wentworth classification (Wentworth, 1922), are grouped into three classes: coarse, sand-sized, and fine particles (A). Coarse particles include all sizes larger than 2 mm (granules, pebbles, cobbles, and boulders). Sand-sized particles include all sizes ranging from 2 to 1/8 mm (very coarse, coarse, medium, and fine sand). Fine particles include all sizes smaller than 1/8 mm (very fine sand, silt, and clay). Very fine sand is included in this latter class because it com- monly is associated with finer materials, and because very fine sand, silt, and clay are similar when saturated with water and and under compression or shear.

Most unconsolidated materials are mixtures of the particle-size classes. The map units *sand and gravel*, *sand*, and *fine deposits*, therefore, are defined by percentages of each class size present (B). The map unit *sand and gravel* is a mixture of coarse and medium particles which contains more than 25 percent coarse particles. The map unit *sand* is a mixture of particle sizes ranging from 25 percent coarse and 75 percent sand-sized particles through 100 percent sand-sized particles to 50 percent sand-sized and 50 percent fine particles. The map unit *fine deposits* contains more than 50 percent fine particles.

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 set forth in the definition above. Minor amounts of particle sizes other than those defined for each map unit may also occur locally in some deposits.

Some map units, such as till and swamp deposits commonly contain such a wide range of particle sizes in such variable proportions that they have not been included in this material classification. These map units are described separately in the explanation.

Unconsolidated materials are nonrenewable resources, composed predominantly of sand, gravel, silt, and clay. These materials cover large areas in most regions and consequently are the earth materials most commonly involved in our everyday affairs. They must be used as necessary, but they should not be wasted and should, therefore, be an important consideration in many land-use decisions.

The nature of the unconsolidated materials and the slopes on which they lie determine the characteristics of agricultural soils. The characteristics of unconsolidated materials can also determine: 1) suitability for construction materials, 2) engineering properties, and 3) capability for effective waste disposal. The three-dimensional distribution of unconsolidated materials below the water table is a critical factor in the occurrence and availability of ground water. The shape of the land in areas underlain by unconsolidated materials reflects the physical properties and origin of these materials and provides an important aesthetic element in natural settings.

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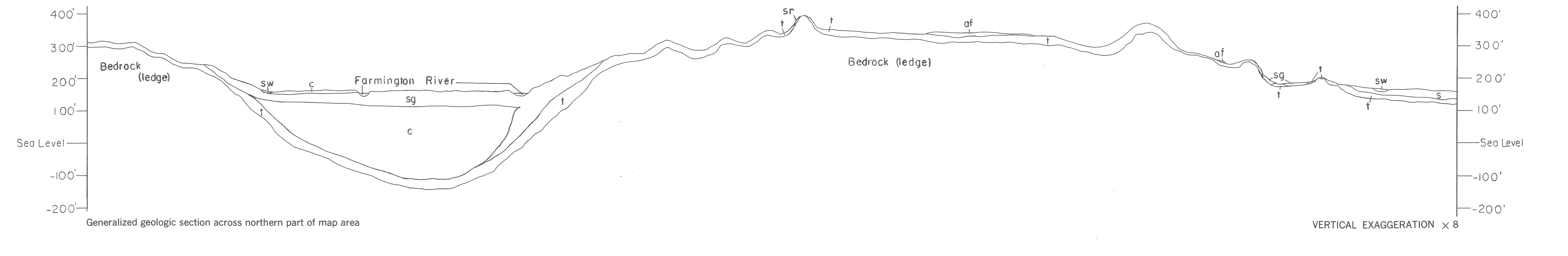
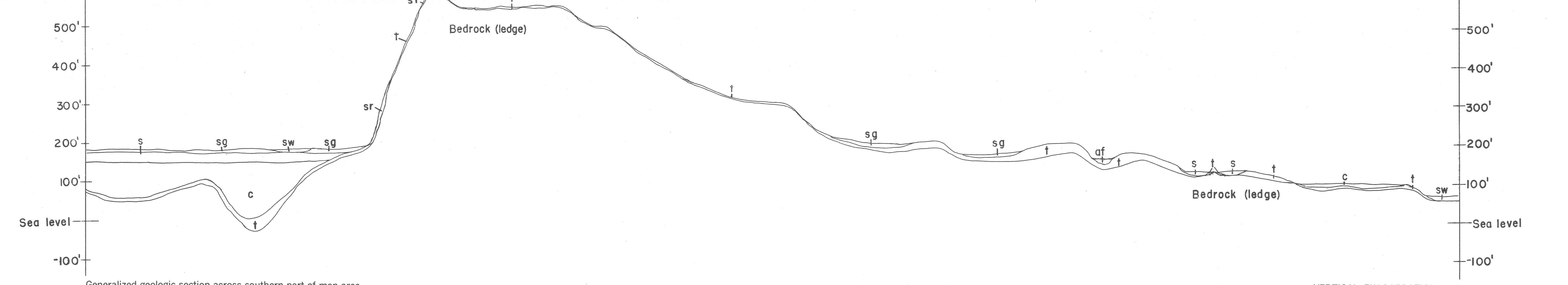


Generalized geologic section across northern part of map area



Generalized geologic section across southern part of map area

MAP SHOWING UNCONSOLIDATED MATERIALS, NEW BRITAIN QUADRANGLE, CONNECTICUT

By

William H. Langer

1973

For sale by U.S. Geological Survey, price $1.00 per set