



**EXPLANATION**

**Bedrock exposures**  
Shown only within and on borders of contoured area. Taken mostly from Balk (1956), Johns (1966), and Segerstrom (1956 and 1959).

**Well or test well that reaches or penetrates bedrock.**  
Number is approximate altitude of bedrock surface, in feet above or below mean sea level.

**Well or test well that did not reach bedrock.**  
Number is approximate altitude of bottom of well, in feet above or below sea level.

**Seismic station**  
Numbers are seismic-refraction determinations of altitude of bedrock surface, in feet above or below mean sea level.

**Bedrock contour**  
Shows altitude of bedrock surface; dashed where inferred. Generally only shown below the 300-foot contour. Contour interval 50 feet; datum mean sea level.

**INTRODUCTION**

The bedrock surface beneath the lowland area of Deerfield and Greenfield is masked by a large thickness of unconsolidated material. This report provides information on the configuration of the bedrock surface for the use of foundation engineers, hydrologists, geologists, planners, and others requiring a knowledge of subsurface conditions.

The bedrock contours are based on data collected during a water-resources investigation of the Deerfield River basin. The subsurface data include that from domestic and municipal water wells, test wells and borings, Massachusetts Department of Public Works road and bridge borings, and auger holes drilled by the U.S. Geological Survey (Hansen and others, 1972). Seismic-refraction data were also used (Meston Geophysical Engineers, 1967).

The lowland area is underlain by sedimentary rock bordered on the east by igneous rock and on the west by metamorphic rock (Fig. 1). Erosion

**GENERALIZED BEDROCK GEOLOGIC MAP**

**EXPLANATION**

**IGNEOUS ROCK**  
Granite

**METAMORPHIC ROCK**  
Schist, phyllite, and gneiss

**SEDIMENTARY ROCK**  
Arkose, arkosic conglomerate, conglomerate and sandstone

Contact

SCALE 1:250,000

3 0 3 Miles  
3 0 3 Kilometers

CONTOUR INTERVAL 100 FEET  
Datum is mean sea level

has carved a deep valley into the sedimentary rock, whereas the more resistant igneous and metamorphic rocks stand out as topographically high areas. Glacial and post-glacial streams have filled the bedrock valley with unconsolidated material, much of which was deposited in a glacial lake. Present-day streams have cut deeply into this fill. Detailed descriptions of the bedrock and unconsolidated materials and the geologic history of the area are given in Balk (1956), Johns (1966), Segerstrom (1955, 1956a, 1956b, and 1959), and Willard (1952).

1/ Gay, F.B., Toler, L.G., and Hansen, B.P., undated, Hydrology and water resources of the Deerfield River basin, Massachusetts: U.S. Geol. Survey unpublished report.

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**BEDROCK TOPOGRAPHY OF THE  
CONNECTICUT RIVER VALLEY  
NEAR GREENFIELD, MASSACHUSETTS**

