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Commonwealth of Massachusetts
Department of Public Works
John A. Volpe, Commissioner

U. S. Department of the Interior
Geological Survey
W. E. Wrather, Director

✓
Cooperative Geologic Project

File Report

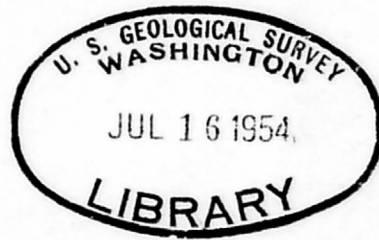
Geology and Geologic Interpretation of Seismic Data

for

Relocation of Route 2 in Athol, Mass.

Cut, Stations 112-138

by



C. R. Tuttle, Geologist, U. S. Geological Survey

2 pages of text
2 plates

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U. S. GEOLOGICAL SURVEY MASS. DEPT. OF PUBLIC WORKS
COOPERATIVE GEOLOGIC PROGRAM Boston, Massachusetts.
OPEN FILE REPORT June 1954

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General Statement

Plans of the Massachusetts Department of Public Works for relocation of Route 2 in Athol, Mass. indicate a maximum cut of 67 feet deep from station 114 to 118 and a cut of 11 to 24 feet deep from stations 130 to 138. This study was made late in April 1954 to obtain data on probable depths to bedrock and on the nature of the subsurface materials at this site.

Surface Geology

The base line of the proposed road site traverses moderately compact ground moraine. Surface boulders of 1.5 to 3 cubic yards volume are especially numerous between stations 128 to 138. Many of these boulders probably rest almost directly on the underlying bedrock surface. Outcrops of granite-gneiss occur as shown on the plan, sheet 1; this gneiss is a hard, crystalline rock with a lineation varying from north 5 degrees east to north 40 degrees west.

Subsurface Interpretation

The geologic sections as interpreted from the surface geology and seismic data are shown on sheet 2.

Depth to bedrock ranges from 8 to 16 feet at shot points with a generally irregular bedrock surface between shot points. For the most part the proposed cut will be in granite gneiss. This rock can probably be cut to a batter of 3 vertical units to 1 horizontal unit without undue spalling or "sluffing" of fragments toward the toe of the slope.

Subsurface profiles from station 128 to 138 are not shown in this report. Shot point data in this area indicate depths to bedrock of 5 feet or less.