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Commonwealth of Massachusetts
Department of Public Works
W. F. Callahan, Commissioner

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

Cooperative Geologic Project

File Report

Geologic Interpretation of Seismic Data

Grade Separation, Proposed Route 102

and Route 7

In Stockbridge, Mass.

by

James E. Maynard, Geologist, U. S. Geological Survey

and

Rev. Daniel Linehan, S. J., Seismologist, Weston College

2 pages of text

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General Statement

The proposed relocation of Route 102 in Stockbridge, Mass. requires a grade separation at East Street (Route 7). In order to obtain information on the depths to bedrock, and on the nature of the overlying materials at the bridge site geologic and seismic studies were made in September 1950. The work was performed as part of a cooperative program of the Massachusetts Department of Public Works and the United States Geological Survey.

Surface Geology

The bridge for this grade separation will be located in a small depression that occurs between Rattlesnake Hill and a much smaller hill to the southeast. The surface formation in the depression appears to consist of slope wash material derived from the surrounding till areas; this material may be underlain by till. Numerous exposures of marble occur in areas from about 50 to 200 feet to the southwest of shot point CC. Where exposed the marble is massive and shows no evidence of solution channels or cavities. It is probable that similar marble underlies the bridge site at relatively shallow depth.

Seismic Traverses

Four seismic traverses were made at this site. The locations of the shot points and the arrangement of the seismic lines as surveyed and plotted by the State Engineers are shown on sheet 1.

Subsurface Interpretation

The geologic sections as compiled from the surface geology and the seismic data are shown on sheet 1. The surface profiles for these sections were prepared by the State Engineers. All of the sections show bedrock (marble ?) at depths of 4 to 6 feet. The surficial layer overlying the bedrock is probably slope wash or a mixture of such material and till.

The bedrock profiles are shown by smooth curves, but the actual bedrock surface is probably somewhat more irregular than these curves would indicate. Small ridges and depressions may occur both above and below the bedrock profiles as plotted.