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

U. S. Department of the Interior  
Geological Survey  
W. B. Brather, Director

Topfield  
Station (163-171)  
[no. 14]

✓  
Cooperative Geologic Project

File Report

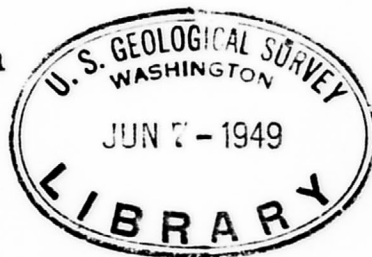
Geologic Interpretation of Seismic Data

Alteration of Route 1, at

TOPSFIELD

Cut, Stations 163 - 171

by



James W. Maynard, geologist, U. S. Geological Survey

and

Rev. Daniel Linehan, S. J., seismologist, Boston College

U. S. GEOLOGICAL SURVEY      MASS. DEPT. OF PUBLIC WORKS  
COOPERATIVE GEOLOGIC PROJECT

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### General Statement

The plans for the reconstruction of the Newburyport Turnpike (Route 1), Topsfield, show a cut between stations 163 and 172. The surface geology indicates that most of this cut will be in rather compact glacial till. Because of the anticipated depth of the cut, some seismic work was done at the site in July 1945. Field interpretation of this data obtained at this time also indicated that no bedrock occurs within the proposed limits of the cut. This report comprises a restudy in detail of all the data available from this site. The work constitutes part of the cooperative program of the Massachusetts Department of Public Works and the United States Geological Survey.

### Seismic Traverses

The two seismic traverses at this site were located as follows: R-S, 300 feet long, and S<sub>1</sub>-T, 400 feet long, were run approximately parallel and to the east of the base line with shot point R being located approximately 25 feet to the right of station 163+57, shot point S 26 feet to the right (E) of station 163+54, shot point S<sub>1</sub> 26 feet to the right (E) of station 163+65

and shot point T 30 feet to the right (E) of station 170+85. The layout of these traverses is shown on sheet one.

Depths to Bedrock and Geologic Interpretation of Seismic Data

No bedrock was indicated within 70 feet of the surface along traverse R-S, and within 105 feet of the surface along traverse S<sub>1</sub>-T. The sound waves did not penetrate sufficiently deep to explore greater depths. The seismic data show that this cut will be in a compact till of uniform texture. The geologic section as compiled from this data is given on sheet one.