

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

Geologic and Seismic Investigations

for Relocation of Route 138

in Brookton, Mass.

Prospective Cut, Stations 169 to 180

by

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

Raymond Miller, Geophysicist, U. S. Geological Survey

GEOLOGICAL SURVEY MASS. DEPT. OF PUBLIC WORKS

COOPERATIVE GEOLOGIC PROGRAM

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official approval because of its
and is therefore subject to subsequent
approval.

Seismic Series # _____

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General Statement

This work was done to obtain geologic and seismic data that would aid in establishing a grade for a segment of Route 138 between stations 169 and 180, and that would also be of value in estimating the nature and quantities of subsurface materials to be excavated from the proposed cut. The work was performed in August 1952, as part of a cooperative program of the Massachusetts Department of Public Works and the United States Geological Survey.

Surface Geology

At this location the baseline crosses, in a northerly direction, an area of moderately undulatory ground moraine that, from surface indications, is composed of sandy till. In general, large boulders are not abundant in the till of the moraine, but a "nest" of boulders was noted in the vicinity of shot point E. Cobbles, however, are very numerous. A surface layer of fine sand and silt a few inches to a few feet in thickness covers most of the site. No bedrock was noted at, or close to, the site.

Seismic Traverses

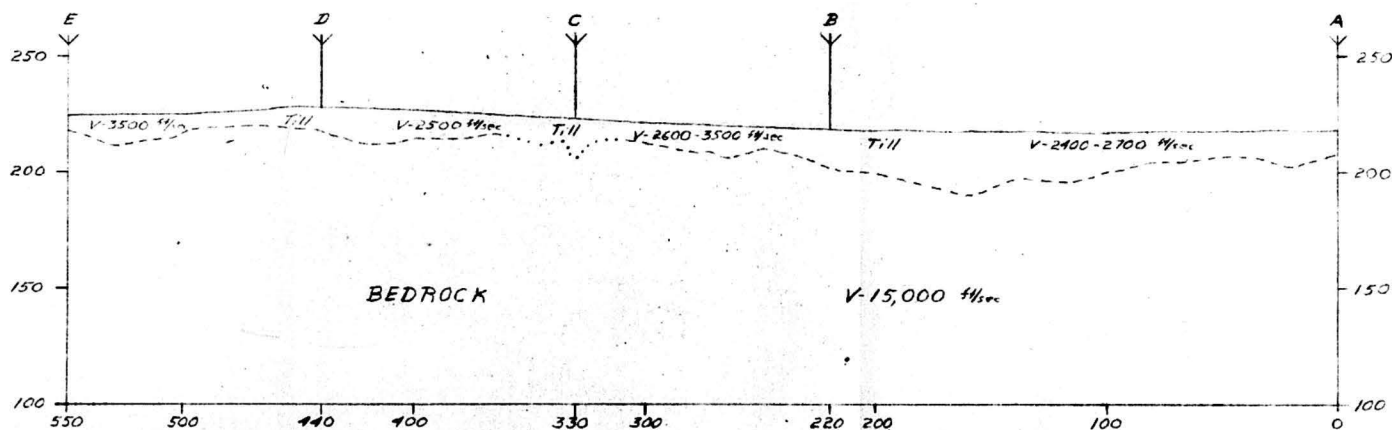
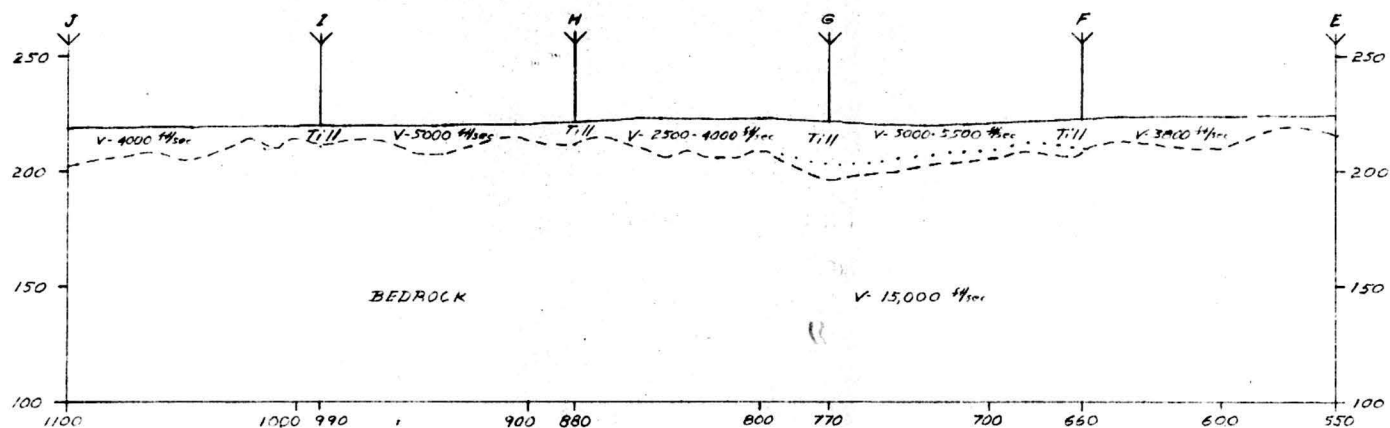
Nine consecutive seismic traverses were made along the baseline at this site. The locations of the shot points as located and plotted by the State Engineers are shown on sheet 1.

Subsurface Interpretation

The geologic sections as interpreted from the surface geology and the seismic data are shown on sheet 2. The surface profiles for these sections were prepared by the State Engineers.

All the geologic sections show till resting on a very irregular bedrock surface at depths of 5 to 29 feet below the surface. Two bedrock profiles are shown for section F-G and part of section G-H; the upper profiles are preferred interpretations. The dotted bedrock profiles in the vicinity of shot point C, ~~by which~~ indicate bedrock surfaces interpreted from inconclusive seismic data.

COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS U.S. DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY COOPERATIVE GEOLOGIC PROJECT	PLAN OF TRAVERSES	INTERPRETATIVE GEOLOGIC SECTIONS ALONG SEISMIC TRAVERSES					
	SCALE: 1 INCH = 100 FEET	<div>Y Shot point. V - Apparent seismic velocity (ft) in foot per second. Dotted bedrock lines indicate inconclusive seismic data. Vertical measurements refer to elevations above mean sea level (datum 1929). Numerals at shot points indicate depths to bedrock, as shown by arrows.</div>	GEOLOGY BY: James E. Maynard	BROCKTON	ROUTE NO. 138		
	Letters refer to shot points at ends of traverses. Numbers refer to D.P.W. stations on baseline.		SEISMIC DATA BY: Raymond Miller	STATIONS 169+00 to 180+00			
			ENGINEERING BY: Marwin E. Chandler Warren A. Conner	SCALE: 1 INCH =	FEET	DATE: Aug. 1952	SHEET 1 OF 2



PLAN OF TRAVERSES

SCALE: 1 INCH = FEET

Letters refer to shot points at ends of traverses.

Numbers refer to D.P.W. stations on baseline.

Y Shot point.

V - Apparent seismic velocity/ft in feet per second.

Dotted bedrock lines indicate inconclusive seismic data.

Vertical measurements refer to elevations above mean sea level (datum 1989).

Numbers at shot points indicate depths to bedrock, in feet.

INTERPRETATIVE GEOLOGIC SECTIONS ALONG SEISMIC TRAVERSES

GEOLOGY BY: James E. Maynard

SEISMIC DATA BY: Raymond Miller

ENGINEERING BY: Marwin E. Chandler
Warren L. Carney

BROCKTON

ROUTE NO. 138

Stations 169+00 to 180+00

SCALE: 1 INCH = 40 FEET

DATE: Aug. 1952

SHEET 2 OF 2

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS

U. S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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