

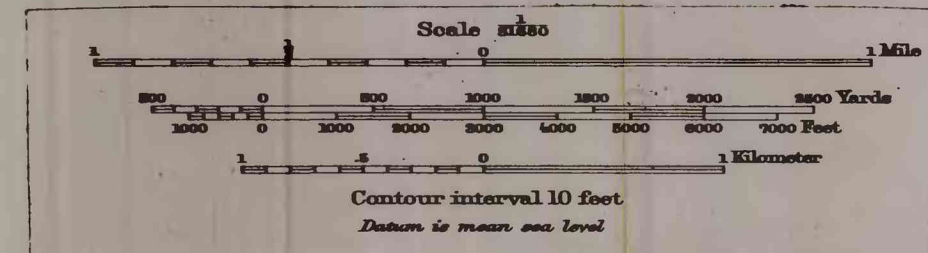
UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

STATE OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS WILLIAM F. CALLAHAN, COMMISSIONER

FROM LOWELL, MASSACHUSETTS, TO THE NEW HAMPSHIRE STATE LINE

showing distribution of soil materials, and of sand and gravel pits.

Geology by R. H. Jahns and others Compiled by J. H. Hartshorn and P. M. Hanshaw



EXPLANATION

This report has been prepared for your use only, and has not been edited for conformity with U. S. Geological Survey standards and procedures.



Sources of granular material suitable for highway construction purposes are shown by distinctive colors; the discrimination between granular textures is based on the dominance of till, gravel, or sand in the various landforms. No attempt is made to separate the materials on the basis of suitability for various uses. The map is thus a guide to localities where further more detailed investigations can be carried out by the local engineers. Bedrock (ledge) outcrops help to outline areas where deep cuts should be avoided. This map was compiled in June 1955 from geologic quadrangle mapping as a part of the cooperative program of the Massachusetts Department of Public Works and the United States Department of the Interior, Geological Survey.

(A blanket of wind-blown sand and silt ("lean") covers most of the area to depths of as much as 2 feet, but is not shown on the map.)

Generally unsuitable as sources of granular material

s - peat and silty to sandy peat and muck in swamps; underlain by clay, silt, sand, gravel, or till, generally similar to the surrounding material.

al - silty and sandy alluvium, chiefly recent flood deposits, restricted mainly to lowlands along the streams.

Chief areas of granular material suitable for construction purposes

ic - gravel and sand, dominantly gravel but of extremely variable texture, including large boulders; generally long ridges deposited as the beds of streams in channels in the glacier.

k - gravel and sand of variable texture; irregular hillocks of outwash and flat-topped to irregular kame terraces formed by streams of glacial meltwater in contact with glacial ice.

o - sand and gravel, dominantly sand; outwash plains and dissected valley trains formed by streams flowing from the glacier.

Areas of granular material of variable texture chiefly unsuitable for highway construction purposes

gm - ground moraine (till); a heterogeneous deposit of mixed boulder to clay sizes, known locally as "hardpan"; deposited directly by the ice with little or no washing by meltwaters from the ice.

bedrock

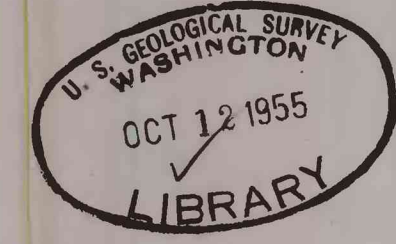
artificial fill

approximate unit boundary

sand and gravel pits; active and inactive

centerline of projected highway or lane

This map has not been edited for geologic names or geologic map standards.



Commonwealth of Massachusetts Department of Public Works U. S. Department of the Interior Geological Survey Cooperative Geologic Project

Massachusetts (Lowell area). Surficial. 1:31,680. n.d. cop. 1.

