

EXPLANATION

This map illustrates potential sources of various geologic materials useful for construction. Field observations indicate that each geologic unit, e.g., stream alluvium, has a definite composition or range of composition wherever that unit is found. Therefore, the presence of the materials is interpreted from the distribution of geologic units on plate 1, the geologic map of this quadrangle.

This map is generalized; it does not attempt to show exact locations of specific materials. The intent is to indicate general areas that deserve consideration for certain materials and to eliminate other general areas from consideration for these materials. Local variations frequently occur, especially near unit boundaries. Potential uses of map units are qualitatively summarized in the table below, which shows potential availability of various construction materials in each geologic-materials map unit. Precise economic evaluations of specific deposits as sources of construction materials will require detailed examination of each deposit, including areal extent, volume, grain-size variation, thickness of overburden, thermal state of the ground, and depth to the water table as well as logistical factors, demand, and land ownership.

DESCRIPTION OF MAP UNITS

- GS** GRAVEL AND SAND—Channel fillings of former glacial meltwater streams and alluvium beneath the flood plain of Fish Creek. Composed of pebble-cobble gravel and gravelly medium to coarse sand with rare to occasional boulders; well sorted; medium to thick bedded; thickness ranges from less than 1 m to more than 3 m; thawed except in active layer subject to seasonal freezing; locally cemented by iron and manganese oxides; high permeability except where cemented; surface drainage excellent to poor; depth to water table moderate to shallow, deeper near terrace scarps; overburden is surface vegetative mat less than 0.5 m thick and eolian silt to 30 cm thick, although local depressions contain peat 3 m or more thick.
- GSm** CHIEFLY GRAVEL AND SAND—Complex mixtures of kame-ester deposits and undifferentiated ice-contact deposits. Composed of sandy pebble-cobble gravel or gravelly medium to coarse sand, trace to some silt, and occasional boulders; locally contains layers and lenses of clean, medium to coarse sand; well to poorly sorted; thin to massively bedded; generally thicker than 5 m; thawed, except in active layer of seasonal freezing; uncemented, except locally well cemented by iron and manganese oxides deposited by ground water in well-sorted sand or gravel layers; permeability excellent to poor; surface drainage excellent to moderate; depth to water table moderate to deep; overburden is surface vegetative mat less than 0.5 m thick and eolian silt 9 to 30 cm thick.
- GSp** CHIEFLY MIXED COARSE- AND FINE-GRAINED MATERIAL—Till. Composed of all grain sizes, most commonly consists of pebble-cobble gravel with some sand and silt and occasional to numerous boulders; sorting poor, although locally well sorted where reworked by meltwater streams or where readvances incorporated outwash or kame-ester alluvium; thickness ranges from 2 m to more than 6 m; very dense in drumlin field in northeastern corner of quadrangle; thawed, except in active layer of seasonal freezing; uncemented, but lodgment till commonly semiconsolidated in drumlin field because of weight of overlying glacier, enabling molds to remain on free faces when clasts are removed; very low to excellent permeability; surface drainage moderate to poor; depth to water table moderate to deep; overburden is surface vegetative mat less than 0.5 m thick and 9 to 30 cm of eolian silt, except in kettle depressions where there may be several m of peat.
- S** CHIEFLY SAND—Eolian sand. Composed of clean fine to medium sand, locally containing trace to some silt; well sorted; unbedded, locally cross-bedded; thickness ranges from 0.3 to 6 m; thawed, except in active layer subject to seasonal freezing; locally weakly cemented by iron oxides deposited by ground water; high permeability; surface drainage excellent; depth to water table moderate to shallow; overburden is surface vegetative mat less than 0.5 m thick and eolian silt 9 to 30 cm thick.
- MC** CHIEFLY SILT AND CLAY—Tidal-flat deposits. Composed of silt and clay with trace to some fine sand; well to moderately sorted; finely laminated to thick bedded; thickness generally more than 3 m; thawed, except in active layer subject to seasonal freezing; low permeability; surface drainage poor; depth to water table moderate to shallow; overburden is thin surface organic mat less than 0.5 m thick.
- Pt** CHIEFLY PEAT—Swamp deposits. Composed of interlayered woody *Sphagnum* and sedge peat; organic silt and sand, locally marly; thin to thick bedded; thickness ranges from less than 1 m to more than 6 m; commonly frozen at depths greater than 0.7 m with high ice content; uncemented, except where well cemented by ice; permeability good except very poor where frozen; surface drainage poor; shallow water table; no overburden.

SYMBOL

Approximate geologic contact

POTENTIAL AVAILABILITY OF VARIOUS CONSTRUCTION MATERIALS IN GEOLOGIC-MATERIALS MAP UNITS, ANCHORAGE B-8NW QUADRANGLE, ALASKA

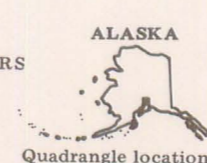
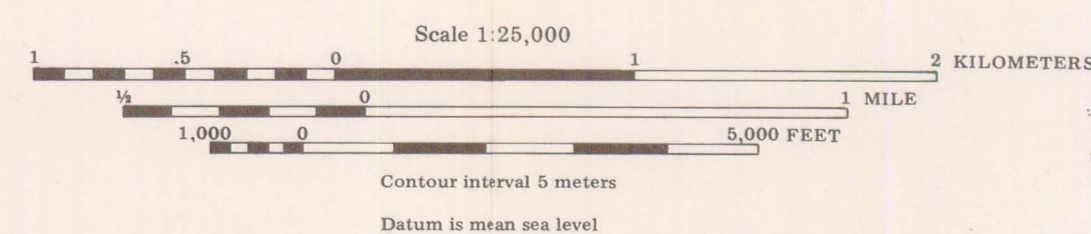
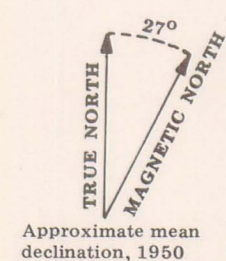
Probability of locating good sources of _____ 1

Map unit	Composition	Gravel and sand	Sand	Mixed coarse- and fine-grained material	Clay	Crushed aggregate	Riprap armor rock	Building stone
GS	Gravel and sand	Good	Good	Poor	Nil	Good	Nil	Nil
GSm	Chiefly gravel and sand	Moderate	Moderate	Poor	Nil	Moderate	Nil	Nil
GSp	Chiefly mixed coarse- and fine-grained material	Poor	Poor	Good	Poor	Poor	Nil	Nil
S	Chiefly sand	Nil	Good	Nil	Nil	Nil	Nil	Nil
MC	Chiefly silt and clay	Nil	Nil	Nil	Moderate	Nil	Nil	Nil
Pt	Chiefly peat	Nil	Nil	Nil	Poor	Nil	Nil	Nil

1 The imprecise terms "good," "moderate," "poor," and "nil" are purposely used to indicate the relative probability of locating good deposits of each construction material in the various map units. No definite values are assigned to each term, but they may indicate a probability of 80 percent or more for "good," 30 percent to 80 percent for "moderate," less than 30 percent for "poor," and essentially zero chance for "nil."

*Estimated percentages of sand and silt, based on field observations, are indicated by the terms "some" and "trace." "Some" implies a general composition of 12% to 30%. "Trace" implies a general composition of 4% to 12%. Estimated percentages less than 4% were not recorded in the field.

Base from 1974 advance print of U.S. Geological Survey orthophoto map prepared from 1:78,000-scale aerial photographs taken August 21, 1974.



Based on field reconnaissance May-June 1977 and June-July 1978 and on aerial photograph interpretation, November 1977 through January 1978. Field assistance by Cheri L. Daniels, Reviewed by Jeffrey T. Kline, James R. Kiehl, and Randall G. Uditke. Cartography by Gregory M. Laird.

GEOLOGIC MATERIALS MAP OF THE ANCHORAGE B-8 NW QUADRANGLE, ALASKA

By Richard D. Reger
1981