

Deposit Number	Material Description	Reserves (1000 m ³)		Additional Comments	Texture (%)			Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
		Gravel	Sand		Gravel	Sand	Fines					
1	Dirty gravelly sand to sand	20	238	Water table varies from 1.8 m to 4.5 m; medium sand; excellent material for sanding in winter. Active.	7	84	9	1.5	3.5	8	Fluvial	Trace of Precambrian pebbles (fine gravel); sandy towards the east.
2	Gravel	2,930	1,180	Limited data; similar to Deposit #3.	67	27	3	0.3	2.5	175	Outwash terrace	Precambrian rocks common; some quartzites, doleritic materials, such as coal fragments, fossils, ironstones, and perforated wood are present; max. clast size 20 cm.
3	Gravel	4,900	2,180	Water table below 3.5 m; crushing and washing are necessary. Active.	67.5	30	2.5	0.3	2.7	270	Outwash terrace	Similar to Deposit #2.
4	Clean sandy gravel	180	92	Water table at 1.5 m; massive. Abandoned.	63	36	1	0.5	1.5	17	Outwash terrace	Pit; artesian flow present in this area.
5	Gravel	355	127	Water table at 3.0 m; poor quality. Inactive.	70	25	5	0.5	3.5	14.5	Outwash	High % Precambrian rocks; poorly sorted, low % of very coarse gravel.
6	Sand	-	9,504	Deposit contains fine grained sand, approx. 44% covered by dunes, may be suitable for soil cement.	-	90	10	-	6.0	400	Eolian	High water condition in interdune zone during the early spring.
7	Sand	-	6,441	Deposit contains fine grained sand, approx. 32% covered by sand, may be suitable for soil cement.	-	97	3	-	2.5	830	Eolian	High water condition in interdune zone during the early spring.

Deposit Number — Granular deposits shown on this map may have commercial possibilities. That assumption followed from two criteria used in the mapping process: study of the area considered only granular deposits greater than one metre thick, and covering an area more than one hectare; and it only considered deposits where the mineral aggregate thickness was greater than the overburden thickness. Although the scale of mapping did not permit investigation of all small deposits, many small deposits containing existing pits are indicated.

Material Description — Sand and gravel has a variety of applications, such as concrete for construction, asphalt concrete, subbase and base course aggregate for roads, gravel and sand for road surfaces, and pit run for fill. Gradation, rock hardness, and binding characteristics, are some of the specific qualities that are considered in aggregate towards determining its end use. This map indicates these, and other, geological qualities of the sand and gravel within each deposit, but does not indicate their potential uses. The terms used in the table are defined in the figure below.

Reserves — The method of calculating in cubic metres the aggregate reserves of deposits took four basic steps: First, the area, in hectares, of each deposit was determined using aerial photographs. Second, geological interpretation, sometimes supported by subsurface information, was assumed in determining the geometry of each deposit, to estimate an overall, average deposit thickness in metres. Third, geological study and limited sample analysis determined the texture (gradation) of sediments in the deposit, and an overall average percentage of gravel and sand. Finally, the volume was calculated as follows: reserve gravel (m³) = area (ha) × thickness (m) × 10,000 × % gravel; the same formula was used for sand.

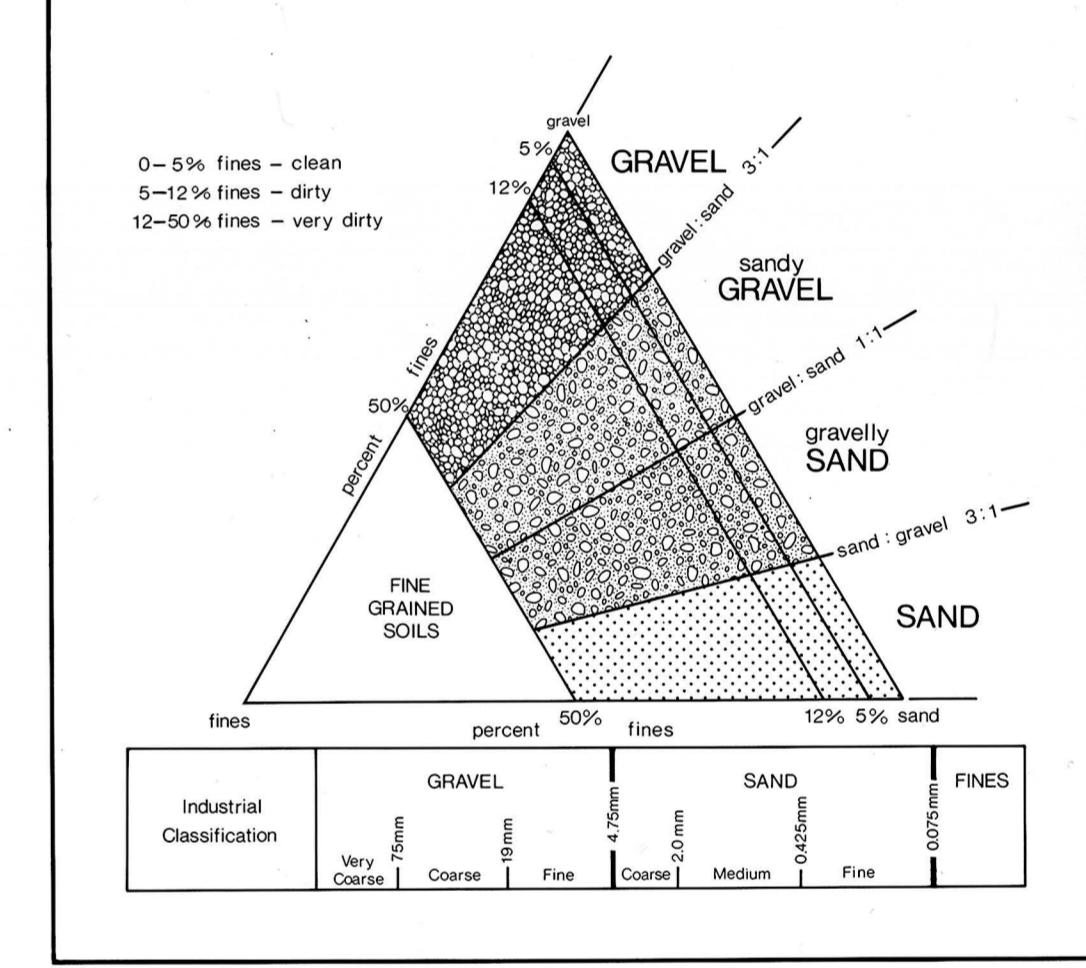
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular deposit were determined from a field estimate, or from laboratory analysis, of one or more samples from that deposit. Where more than one sample is taken the tabulated number is the mean value.

Wear — The resistance of gravel-size clasts to wear or abrasion can be measured in a laboratory test (ASTM-C 131, Los Angeles Abrasion Testing). The amount of material that breaks down into smaller sizes is measured and related to the original sample weight in terms of percent wear. The higher the percentage wear the more susceptible the gravel is to breakdown under stress. Gravel with a percentage wear of less than 40 is considered very resistant.

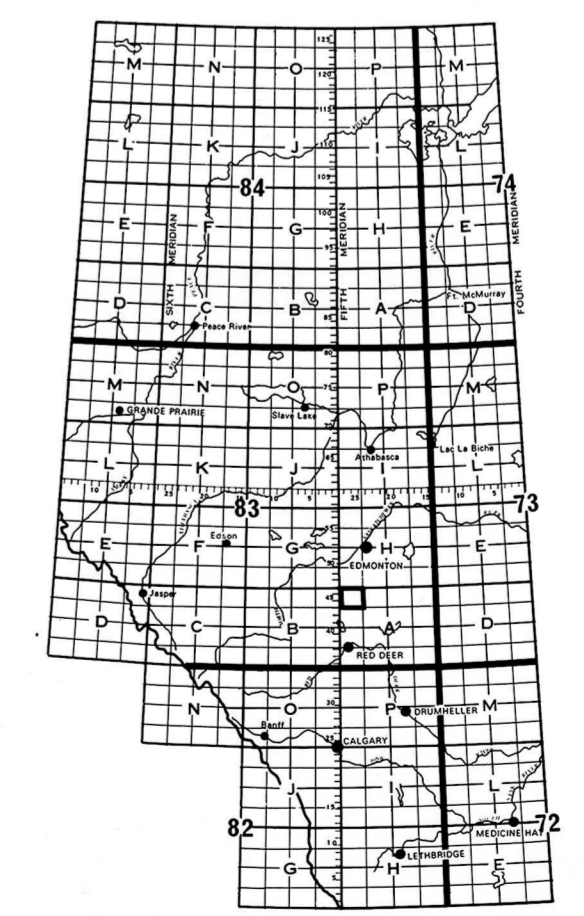
Overburden Thickness — The thickness of non-economic material, or overburden, covering a deposit, sometimes is a limiting factor in the exploitation of an aggregate deposit. The tabulated values given are approximate overburden thicknesses as determined from geological investigations and subsurface testing.

Deposit Area — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

Deposit Genesis — The genesis, or formation, of deposits is vital to the understanding of the gradational nature, extent and geometry of the deposit. This understanding forms the basis for extrapolation from a limited number of known points (test holes, pits, sections) and permits an overall assessment of the deposit.



- Map Legend**
- 3 Deposit number
 - Assumed boundary
 - Active or inactive pit
 - Alberta Geological Survey test hole
 - Sand or gravel exposure
 - Buried sand or Gravel deposit



Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND REVENUE, Ottawa, Ontario, Canada. All rights reserved. 1974.

Reproduced from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, Ontario, Canada. All rights reserved. 1974.

BEARHILLS LAKE
ALBERTA
WEST OF FOURTH MERIDIAN - OUEST DU QUATRIEME MERIDIEN
Scale 1:50,000 Echelle

Drawn by the DIRECTION DES LEVES ET DE LA CARTOGRAPHIE, MINISTERE DE L'ENERGIE, DES MINES ET DES REVENUES, Ottawa, Ontario, Canada. All rights reserved. 1974.



Alberta Geological Survey

This is a sand and gravel resource map prepared by the Alberta Geological Survey as part of a series at a scale of 1:50,000. The series represents an ongoing aggregate inventory of Alberta which provides data for general land-use planning, land management or aggregate exploration. Please note that the delineation of deposits and calculation of reserves are approximations only.

REFERENCES
Geology and compilation by P. Sham, 1980. Additional information from M. E. Holter, 1976; A. Mac S. Sisker, 1980.

AGGREGATE RESOURCES
BEARHILLS LAKE 83A/13