

GENERAL COMMENTS

DEPOSIT CHARACTERISTICS

Deposit Number	Material Description	Reserves (1000 m <sup>3</sup> )		Additional Comments	Texture (%)			Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
		Gravel	Sand		Gravel	Sand	Fines					
1	Clean sandy gravel	8,500	4,000	Area appears well-drained. Auger test drilling was rarely able to penetrate more than 3 m, but average thickness thought to be 5 m. Gravel is coarse (50%) with medium to fine sand.	65	32	3	<0.5	>5	260	Alluvial terrace	Thirty to 80 m above river. Clasts predominantly subrounded to rounded quartzites with minor amounts of other rock types. Occasional fine sand seams up to 1.5 m at or near surface.
2	Clean sandy gravel (?)	1,500	3,000	Probably thin and discontinuous nature of deposit limits potential for development. Gravel is coarse.	-	-	-	-	<5	80	Alluvial terrace	Terrace is 30 m above river level, overlying bedrock.
3	Clean sandy gravel (?)	1,500	-	High water table probable.	-	-	-	0	<7	32	Alluvial terrace	Gravel and sand at or near surface.
4	Clean gravel (?)	>1,500	-	Three or four m gravel and sand is exposed but may not be continuous. Coarse gravel with medium to fine sand.	-	-	-	-	3-4	120	Alluvial terrace	Clasts predominantly quartzites.
5	Clean sandy gravel	-	-	Granular material is discontinuous and is covered by silt or slope wash material in some places. Coarse to fine sand.	-	-	-	-	<1.5	40	Alluvial terrace	Overlies sandstone bedrock.
6	Clean sandy gravel to gravel	2,000	1,000	Hwy. 34 utilizes some of the area on the terraces. Low water table. Gravel is coarse with medium to fine sand.	68	30	2	0	~10	72	Alluvial terraces	
7	Clean gravel	7,500	2,500	High water table present throughout most of the higher terrace which has 3 developed pits. Lower terrace undeveloped, contains bulk of reserves and is better prospect for future exploitation. Water table 10 m or more below surface on lower terrace.	75	25	-	0	3-5 m on intermediate and uppermost terraces. Up to 15 m on lower terrace.	284	Alluvial terraces	Series of 3 terraces. Hard durable quartzite is predominant gravel material.

**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 (m<sup>3</sup>) = area (ha) × thickness (m) × 10,000 × % gravel; the same formula was used for sand.

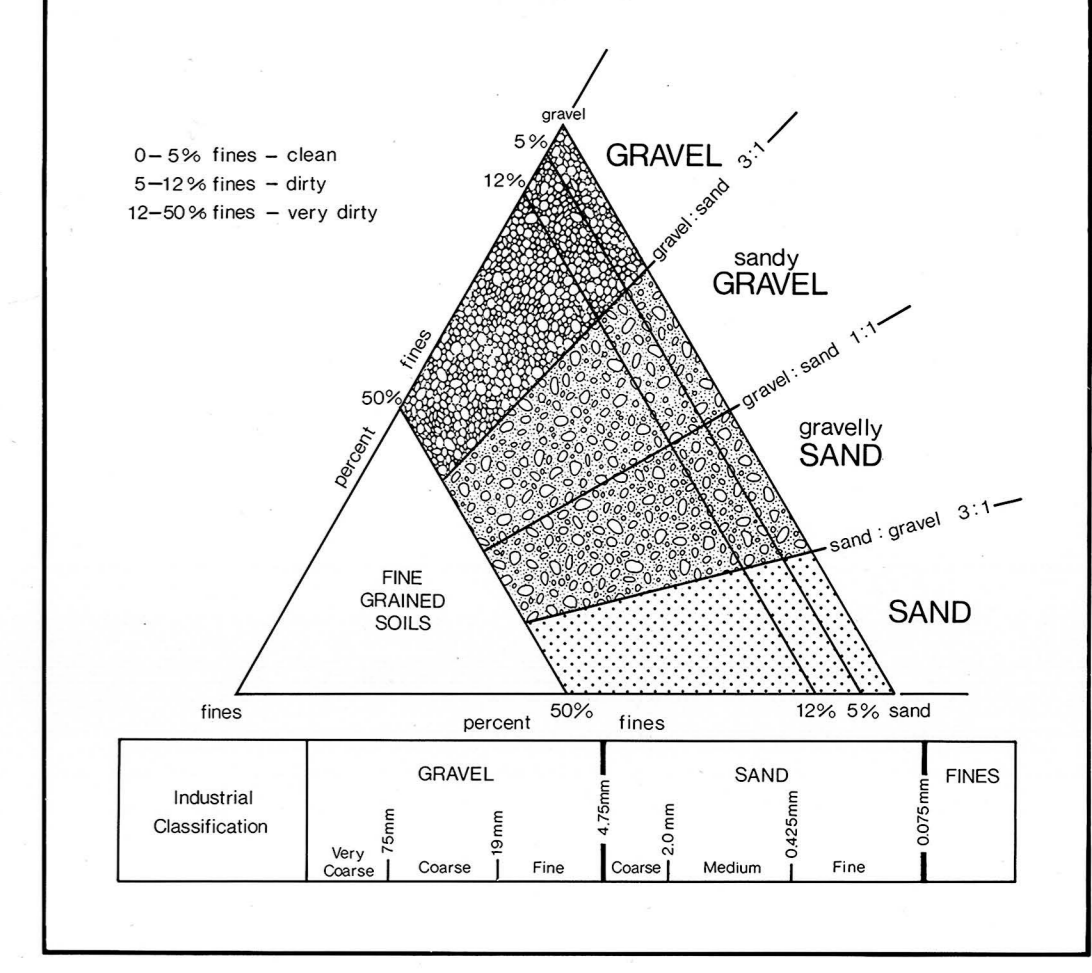
**Texture** — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular 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-C131, 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.

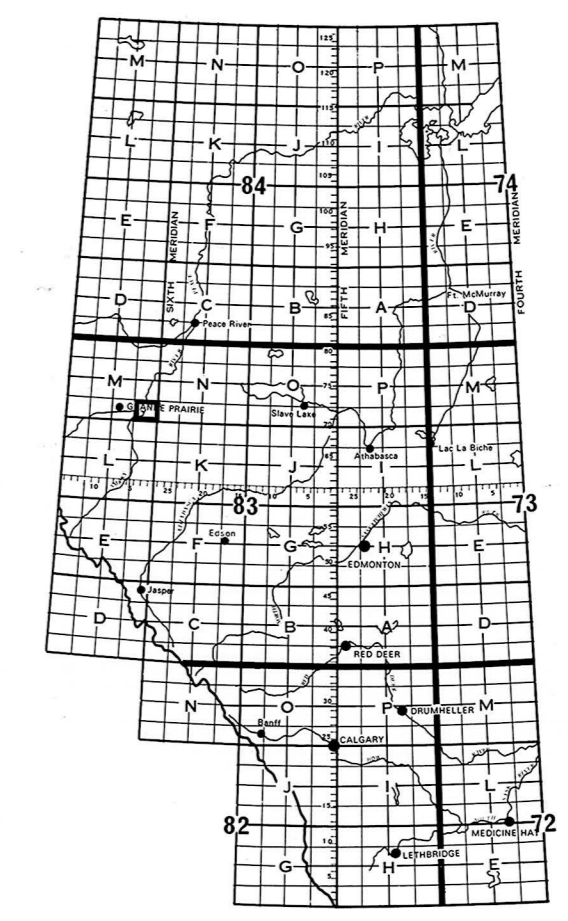
**Deposit Area** — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

**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



**DEBOLT ALBERTA WEST OF SIXTH MERIDIAN-OUEST DU SIXIEME MERIDIEN Scale 1:50,000 Echelle**

CONVERSION SCALE FOR ELEVATIONS  
 METRES: 0 100 200 300 400 500 600 700 800 900 1000  
 FEET: 0 300 600 900 1200 1500 1800 2100 2400 2700 3000

CONTOUR INTERVAL: 50 FEET  
 ELEVATION: Feet above Mean Sea Level  
 North American Datum 1922  
 Projection: Transverse Mercator

DEPARTMENT OF ENERGY, MINES AND REVENUE  
 DIVISION OF ENERGY, MINES AND REVENUE, OILS, AND GAS  
 1978. Information correct as of 1978.

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 Department of Energy, Mines and Resources.



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. Alberta Energy and Natural Resources provides financial support for the Aggregate Inventory.

AGGREGATE RESOURCES