

Deposit Number	Material Description	Reserves (1000 m³)		Additional Comments	Texture (%)			Wear	Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
		Gravel	Sand		Gravel	Sand	Fines						
1	Clean gravelly sand	13,464	26,928	Water table varies from 2.0 m to 4.0 m. Sandier to the southeast. Deposit may have potential for sand; inactive.	33	66	1	0.5	6.0	680	Glaciofluvial	Outwash deposit; high % of deleterious materials. Deposit extends onto map sheets 83H/16 and 73E/13.	
2	Clean sand	13,480	206,810	Variable water table; interbedded layers of medium and fine sand; inactive.	6	93	1	1.0	8.0	2810	Glaciofluvial	Outwash deposit.	
3	Clean sand	-	43,200	Deposit contains medium to fine grained sand; inactive.	-	96	4	1.0	3.0	1500	Glaciofluvial	Outwash deposit; limited data available.	
4	Clean gravelly sand to sand	1,537	16,045	Aggregate confined to northeast portion of the deposit; large quantity of fine to medium sand; inactive.	7	90	3	0.5	2.5	720	Glaciofluvial	Outwash deposit.	
5	Clean sand	-	7,306	Deposit contains fine-grained sand; about 30% covered by dunes up to 5 m high.	-	99	1	0	3.0	820	Eolian	Marsh in interdune areas.	
6	Clean sand	1,180	10,325	Medium to fine sand; inactive.	10	87	3	0.5	2.5	472	Glaciofluvial	Outwash deposit; limited data available.	
7	Clean sand	5,324	89,056	Sand frequently exposed along road cut; poor access; inactive.	6	92	2	1.5	4.0	2420	Glaciofluvial	Outwash deposit; swampy and low relief in some areas.	
8	Clean sandy gravel	1,200	1,164	Part of deposit reclaimed.	50	48	2	0.5	3.0	130	Glaciofluvial	Outwash terrace deposit; high % of Precambrian rocks, maximum size 15 cm in diameter.	
9	Clean sand	492	5,535	Interbedded coarse to medium sand and fine sand; inactive.	8	90	2	0.5	3.0	205	Glaciofluvial	Outwash terrace deposit.	
10	Clean sand	-	9,700	Mainly fine sand; may have patches of gravel along ridges; inactive.	-	97	3	1.0	4.0	250	Glaciofluvial	Outwash delta deposit. Limited data available.	
11	Clean sandy gravel	910	448	Good access; crushing may be necessary; large volume of material extracted; partly reclaimed; active.	65	32	3	0.5	3.0	320	Glaciofluvial	Outwash delta; buff sand & gravel built into glacial lakes by spillway and glacial meltwater. Max. class size 40 cm diam.	
12	Clean sand	-	21,978	Fine sand mainly; few stones in some areas; inactive.	-	99	1	1.0	3.0	740	Glaciofluvial	Outwash delta.	
13	Dirty sandy gravel	342	204	Poor quality; good access; inactive.	57	34	9	0.5	2.5	24	Ice contact	Esker ridges; clasts angular to subangular, some rocks up to 20 cm in diameter.	
14	Clean gravelly sand	3,150	5,760	Gravel confined to ridge area. Active.	35	64	1	0.5	3.0	300	Glaciofluvial	Outwash delta, similar to #11 maximum rock size 20 cm, in diameter. Petrographic number is 131.	
15	Clean gravelly sand	11,720	17,287	Gravel confined to ridges; good potential on northeast part; active.	40	59	1	0.5	5.0	586	Glaciofluvial	Outwash delta; similar to deposit #11; maximum rock size 20 cm in diameter. Petrographic number is 156.	

**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 bedding 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 analyses 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.

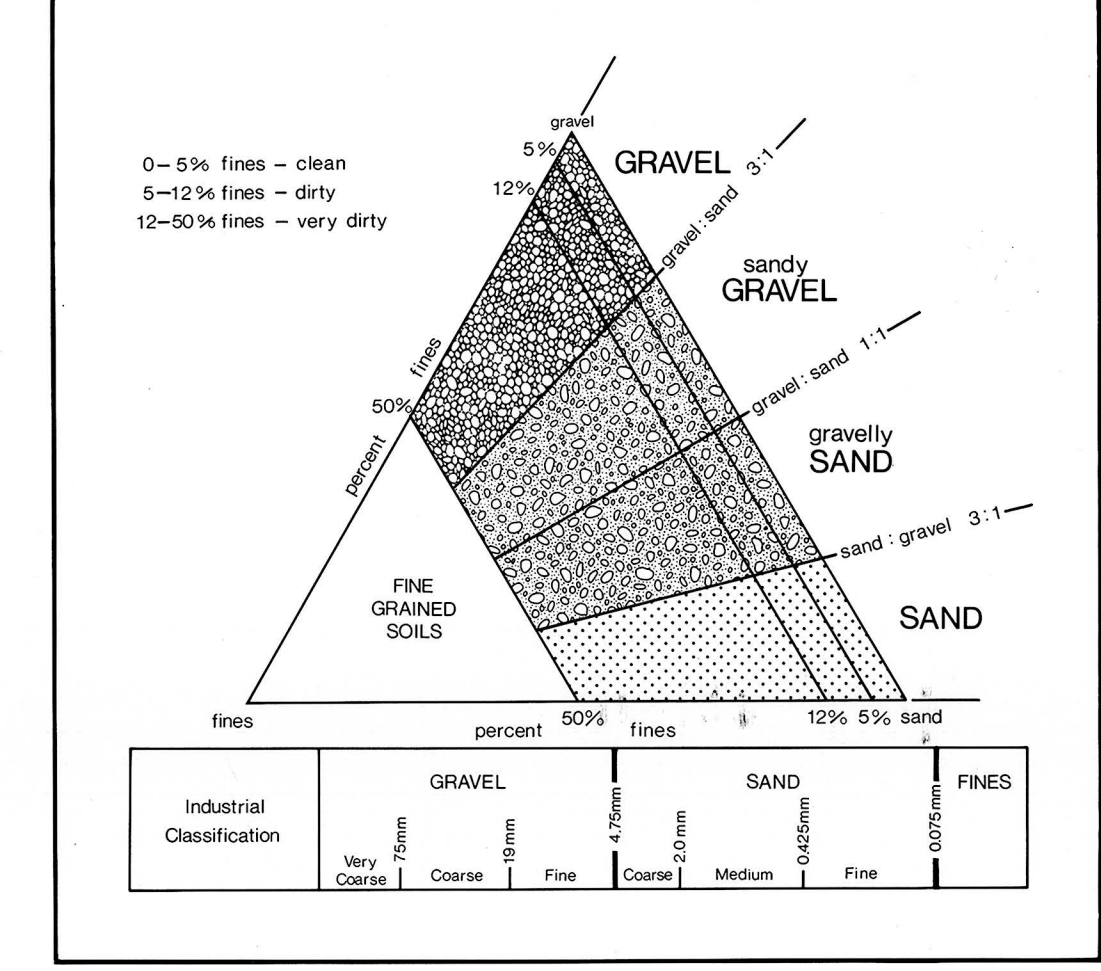
**Texture** — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular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

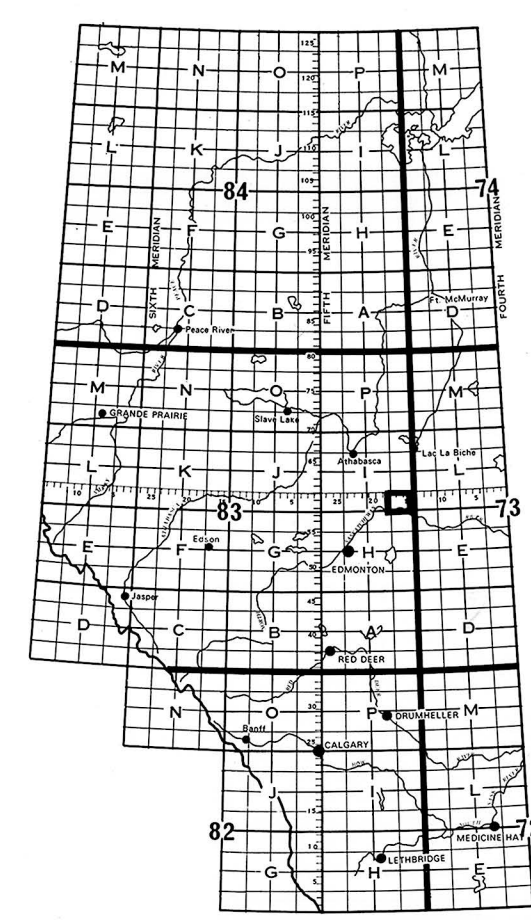
**Overburden Thickness** — The thickness of non-economic material, or overburden, covering a deposit, sometimes is a limiting factor in the exploitation of an aggregate deposit. The tabulated values given are approximate overburden thicknesses as determined from geological investigations and subsurface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



Alberta RESEARCH COUNCIL Natural Resources Division

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, 1981. Additional information from S.H. Richard, 1968 and D.A. St. Onge, 1972.

**AGGREGATE RESOURCES**  
SMOKY LAKE 83/1

Produced, 1973, by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND TECHNICAL SERVICES, using aerial photographs, 1962 to 1966. First edition, 1962. Edition revised 1973. Form 1572.

Copy may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa.

Roads: hard surface, all weather; paved, toute saison; hard surface, all weather; paved, toute saison; loose or stabilized surface, all weather; gravel aggregate, toute saison; loose surface, dry weather and uncapped streets; dirt roads; gravel, terre meulée et routes hors classe; cart track; sentier ou portage.

**SMOKY LAKE ALBERTA**  
WEST OF FOURTH MERIDIAN - OUEST DU QUATRIÈME MÉRIDIEN  
Scale 1:50,000 Échelle  
Miles 1 0 1000 2000 3000 4000  
Mètres 0 1000 2000 3000 4000  
Yards 1000 0 1000 2000 3000 4000

This Provisional Map is equivalent to a standard map in accuracy of content.  
Cet avis provisoire est équivalent à une carte standard en ce qui concerne la précision de son contenu.

Basé en 1973 sur l'INFORMATION DES LÉVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES, à partir de photographies aériennes prises en 1962 et de 1966. Première édition en 1962. Édition révisée en 1973. Form 1572.

Copie peut être obtenue au Bureau des Cartes du Canada, Ministère de l'Énergie, des Mines et des Ressources, Ottawa.

CONTOUR INTÉRIEUR, EN PIEDS  
Dimensions en pieds au-dessus du niveau moyen de la mer  
Système de projection géocentrique nord-américain 1927  
Projection géocentrique de Méridien