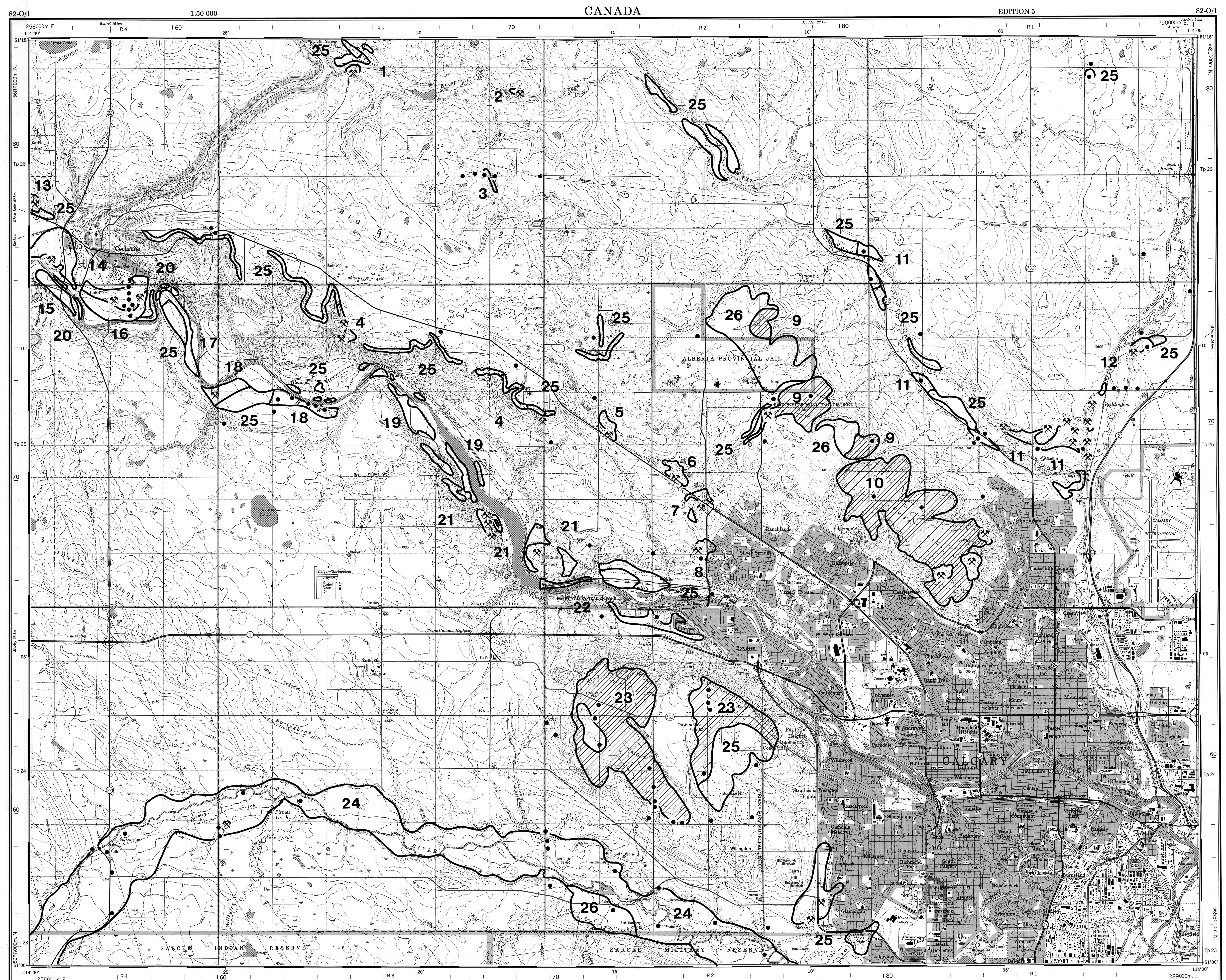
Calgary 82O/1



GENERAL COMMENTS / DEPOSIT CHARACTERISTICS

Deposit Number	Material Description	Reserves (1000 m³) Gravel	Reserves (1000 m³) Sand	Additional Comments	Texture (%) Gravel	Texture (%) Sand	Texture (%) Fines	(%) Wear	Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
1	Gravel	150	48	-	75.7	24.0	0.3	-	0.0	2.5-6.0	6	Glaciofluvial	Undulating plain.
2	Sandy gravel	10	9	Gr. 45-60%; dirty.	49.0	45.9	5.1	-	0.0	2.0	1	Glaciofluvial	Undulating plain.
3	Sandy gravel	14	10	Gr. 50-60%; clean.	58.5	40.5	1.0	-	0.0	2.0-3.5	1	Glaciofluvial	Esker ridge.
4	Gravel to sandy gravel	144	38	Gr. 65-75%; clean to dirty.	72.1	18.9	9.0	-	0.0-3.0	3.0-7.0	6	Preglacial	Overburden of till.
5	Sandy gravel	105	42	Gr. 70-75%; clean.	69.8	28.2	2.0	-	0.0	3.0	5	Glaciofluvial	Undulating plain.
6	Sandy gravel	190	100	Gr. 64-75%; clean.	64.5	33.9	1.6	-	0.0	6.0	6	Glaciofluvial	Hummocky relief.
7	Sandy gravel	213	84	Gr. 65-75%; layers of fine sand and clay.	70.7	28.0	1.3	-	0.0	10.0-18.0	2	Glaciofluvial	Low hummocky relief.
8	Sandy gravel	76	40	Gr. 40-80%; silty.	63.4	34.0	2.6	-	0.0-3.5	2.0-6.0	3	Glaciofluvial	Overburden of till.
9	Gravel	24400	5160	Gr. 75-85%; clean.	81.4	17.2	1.4	-	0.0-5.5	up to 10.0	450	Preglacial	Overburden of till.
10	Sandy gravel	24255	10600	Gr. 65-70%; clean.	69.3	30.3	0.4	-	0.0-3.0	up to 10.0	500	Preglacial	Overburden of till.
11	Sandy gravel	877	607	Gr. 5-90%; clean to dirty.	58.5	40.5	1.0	-	0.0	3.0-10.5	40	Glaciofluvial	-
12	Sandy gravel	47	28	Gr. 60-70%; clean.	62.5	37.5	0.3	-	0.0-2.5	2.0-4.0	4	Glaciofluvial	Overburden of clay.
13	Sandy gravel	68	27	Gr. 60-70%; silty.	68.8	27.6	3.8	-	0.0	5.0-10.0	2	Fluvial	-
14	Gravel to sandy gravel	5550	1895	Gr. 65-85%; clean.	74.0	25.3	0.7	-	0.0-1.0	4.0-10.0	150	Glaciofluvial	Overburden of silty sand.
15	Gravel	457	138	Gr. 75-85%; clean.	76.3	23.1	0.6	-	0.0	2.0-5.0	20	Fluvial	-
16	Gravel	856	117	Gr. 25-95%; clean.	85.6	11.7	2.7	-	0.0	4.0-6.5	30	Fluvial	-
17	Sandy gravel	1400	560	Gr. 65-75%; clean.	70.0	28.0	2.0	-	0.0-1.2	1.0-4.5	70	Fluvial	Overburden of silt.
18	Gravel to sandy gravel	3430	1390	Gr. 65-85%; silty.	68.6	27.8	3.6	-	0.0-2.0	1.2-9.5	100	Fluvial	Overburden of silt.
19	Sandy gravel	70	27	Gr. 50-75%; clean.	70.6	27.7	1.7	-	0.0-1.5	2.0-4.0	40	Fluvial	Overburden of silt.
20	Sandy gravel	-	-	Gr. 50-75%; Silty. Reserves - 150,000 m³	-	-	-	-	0.0-1.5	up to 4.0	5	Fluvial	Overburden of silt.
21	Sandy gravel	254	132	Gr. 0-80%; clean.	63.7	33.1	3.2	-	0.0-5.0	3.5-15.0	6	Glaciofluvial	Overburden of clay.
22	Sandy gravel	493	183	Gr. 70-80%; silty.	70.5	26.2	3.3	-	0.0-1.5	more than 1.0	35	Fluvial	Overburden of silt.
23	Sandy gravel	33,400	16,300	Gr. 60-70%; clean.	66.8	32.6	0.6	-	0.5-4.5	up to 10.0	700	Preglacial	Overburden of till.
24	Gravel	63,900	9,450	Gr. 80-95%; clean to silty.	85.2	12.6	2.2	-	0.0-1.7	1.8-6.5	2500	Fluvial	Overburden of silt.
25	-	-	-	Identified on aerial photos.	-	-	-	-	-	-	-	-	No information available.
26	-	-	-	Identified on aerial photos.	-	-	-	-	-	-	-	-	No information available.

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 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 (m^3) = area (ha) × thickness (m) × 10,000 × % gravel; the same formula was used for sand.

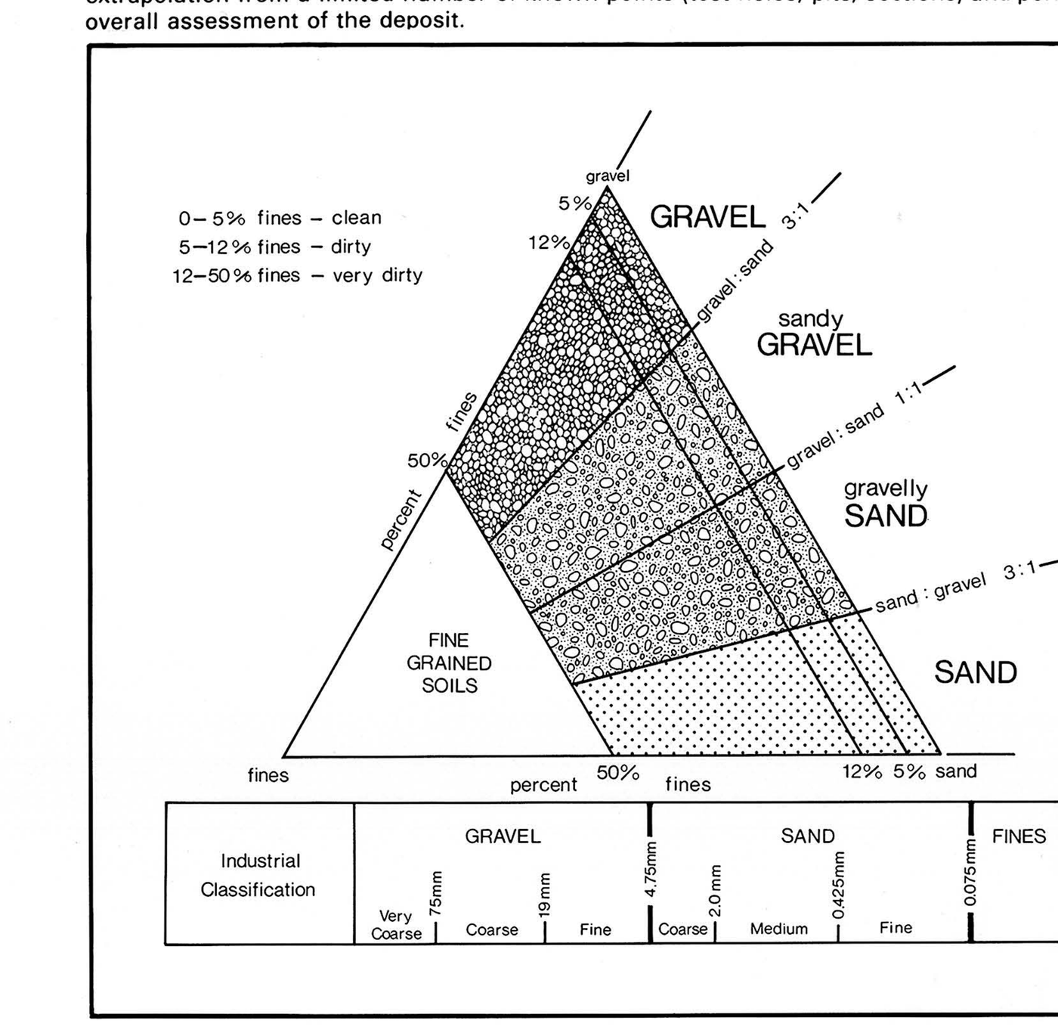
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular deposit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

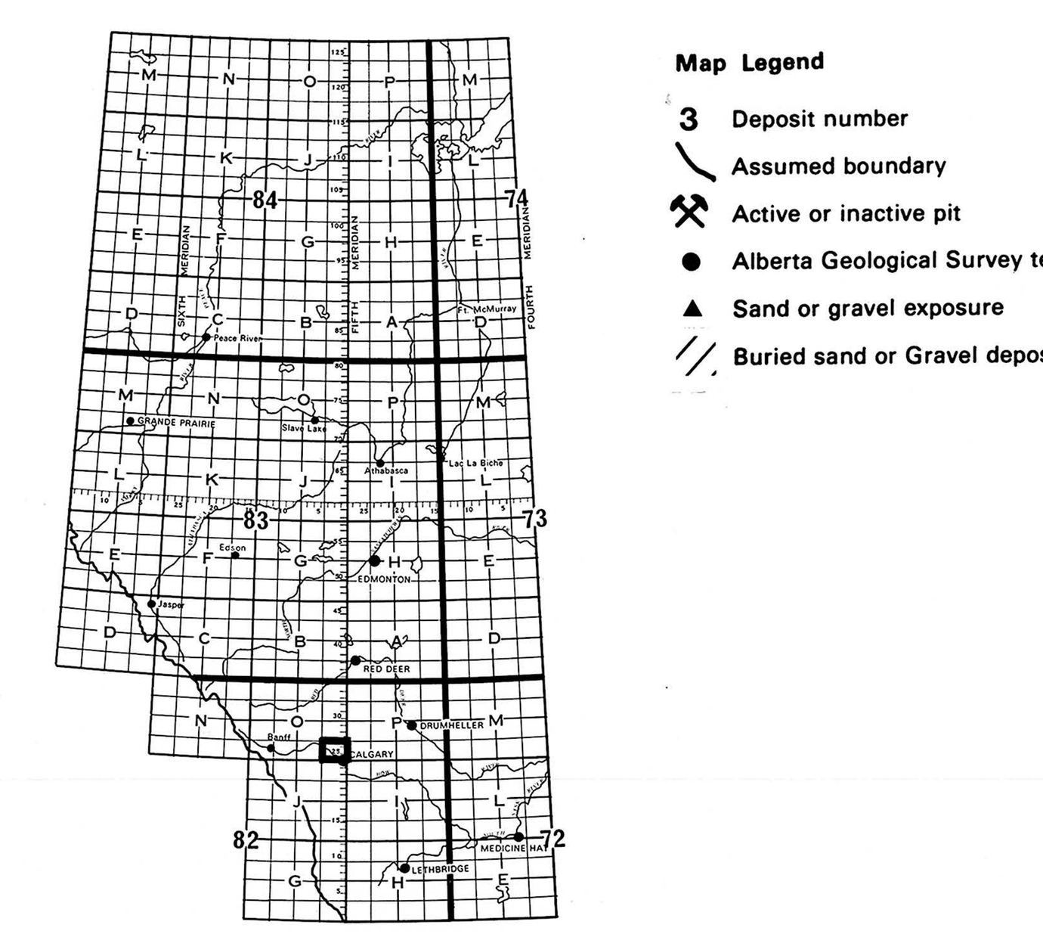
Wear — The resistance of gravel-size clasts to wear or abrasion can be measured in a laboratory test (ASTM-C131, Los Angeles Abrasion Testing). The amount of material that breaks down into smaller sizes is measured and related to the original sample weight in terms of percent wear. The higher the percentage 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

Aggregate Resources

82 O/1 Calgary

I. Shetson

Geology 1981

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.

Cartography by Alberta Research Council, Graphic Services, J.K. Matthie.

ALBERTA RESEARCH COUNCIL
Natural Resources Division
Alberta Geological Survey