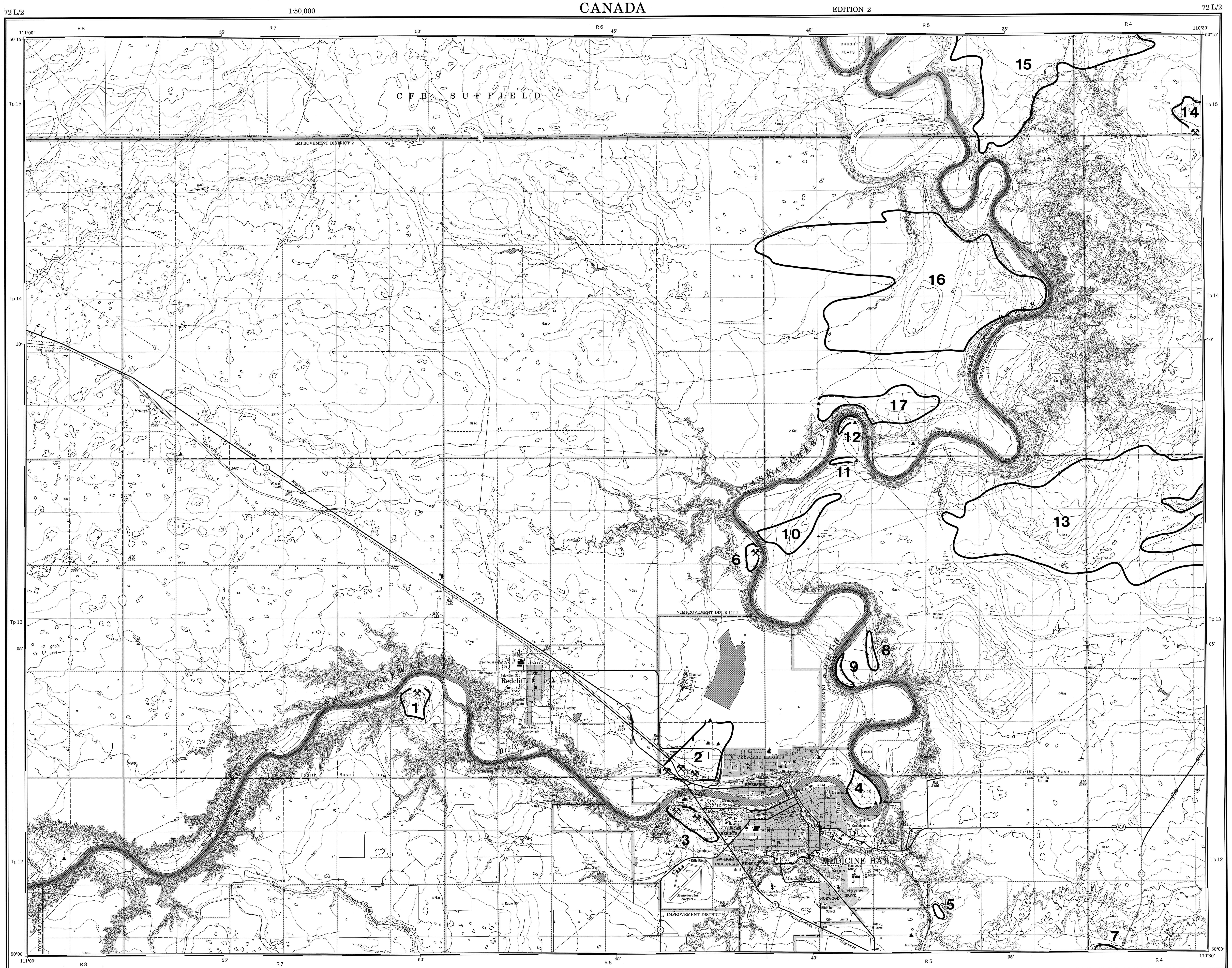
72 L/2 1:50,000 **CANADA** EDITION 2 72 L/2



Produced by the SURVEYS AND MAPPING BRANCH, DEPARTMENT OF ENERGY, MINES AND RESOURCES. Updated from aerial photographs taken in 1970. Culture check 1973. Printed 1975.

Copies may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, or your nearest map dealer.

Roads:	Routes:		
hard surface, all weather	pavée, toute saison	dual highway / 2 chaussées séparées	more than 2 lanes / plus de 2 voies
hard surface, all weather	pavée, toute saison	2 lanes / 2 voies	less than 2 lanes / moins de 2 voies
loose or stabilized surface, all weather	gravier aggloméré toute saison	2 lanes or more / 2 voies ou plus	less than 2 lanes / moins de 2 voies
loose surface, dry weather and unclassified streets	de gravier, temps sec et rues hors classe		
cart track	de terre		
trail or portage	sentier ou portage		

MEDICINE HAT
ALBERTA
WEST OF FOURTH MERIDIAN - OUEST DU QUATRIÈME MÉRIDIEN

Scale 1:50,000 Échelle

Miles 1 0 1 2 3 Milles
Metres 1000 0 1000 2000 3000 4000 Mètres
Yards 1000 0 1000 2000 3000 4000 Verges

Établie par la DIRECTION DES LEVÉS ET DE LA CARTOGRAPHIE, MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES. Mise à jour à l'aide de photographies aériennes prises en 1970. Vérification des ouvrages en 1973. Imprimée en 1975.

Ces cartes sont en vente au Bureau des Cartes du Canada, ministère de l'Énergie, des Mines et des Ressources, Ottawa, ou chez le vendeur le plus près.

GENERAL COMMENTS **DEPOSIT CHARACTERISTICS**

Deposit Number	Material Description	Reserves ($1000\ m^3$) Gravel	Reserves ($1000\ m^3$) Sand	Additional Comments	Texture (%) Gravel	Texture (%) Sand	Texture (%) Fines	(%) Wear	Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
1	Clean sandy gravel,	170	125	The thicker and more gravelly areas have been depleted.	57	42	1	–	1.5	1.0-8.0	48	Fluvial	Petrographic number (PN) 150.
2	Clean gravelly sand	1,910	4,590	Deposit has been largely built over.	28	70	2	–	0.2	3.0	229	Glaciofluvial; Fluvial	Deposit is more sandy in the north and east.
3	Clean sandy gravel.	530	430	Deposit has been largely built over or depleted.	54	44	2	–	0.2	3.0	69	Glaciofluvial; Fluvial	Deposit is more sandy in the south and east.
4	Sand and gravel.	–	–	Park area on low river terrace.	–	–	–	–	–	–	–	Fluvial	No data on aggregate texture on reserves is available.
5	Gravel.	–	–	River terrace poorly accessible but abandoned pit present.	–	–	–	–	–	2.0	7	Fluvial	No data on aggregate texture on reserves is available.
6	Gravel	–	–	Reclaimed pit; most of deposit has been extracted	–	–	–	–	0	2.0	25	Fluvial	No data on aggregate texture or reserves is available.
7	Clean gravelly sand	29	65	Part of large deposit on map sheet 72E/15.	30	68	2	–	2.0	1.0 +	10	Glaciofluvial	
8	Sand and gravel	–	–	Deposit may have potential for sand and gravel similar to deposit 11.	–	–	–	–	–	–	20	Fluvial	No data on aggregate texture or reserves is available.
9	Sand and gravel	–	–	Deposit may have potential for sand and gravel similar to deposit 12.	–	–	–	–	–	–	18	Fluvial	No data on aggregate texture or reserve available.
10	Sand	0	0,120	Dune field.	–	–	–	–	0	2.0	134	Eeolian	Little data available.
11	Clean gravelly sand	19	57	High terrace	25	74	1	–	0	1.0 +	8	Fluvial	Texture based on one sample; PN 152.
12	Clean sandy gravel	161	94	Sand and gravel confined to edge of terrace	63	36	1	–	0	0.5-5.0	10	Fluvial	Sample taken from river edge. Higher silt content away from river.
13	Sand	0	16,150	Dune field.	–	–	–	–	0	2.0	2127	Eeolian	Little data available.
14	Clean gravelly sand	287	307	Proportion of sand to gravel may vary greatly in this deposit.	48	50	2	–	1.5	2.0	61	Glaciofluvial ice contact	Little data available; PN 158.
15	Sand	0	4,845	Dune field	–	–	–	–	0	2.0	638	Eeolian	Little data available.
16	Sand	0	16,910	Dune field	–	–	–	–	0	2.0	2225	Eeolian	Little data available.
17	Sand	0	1,615	Dune field	–	–	–	–	0	2.0	213	Eeolian	Little data 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.

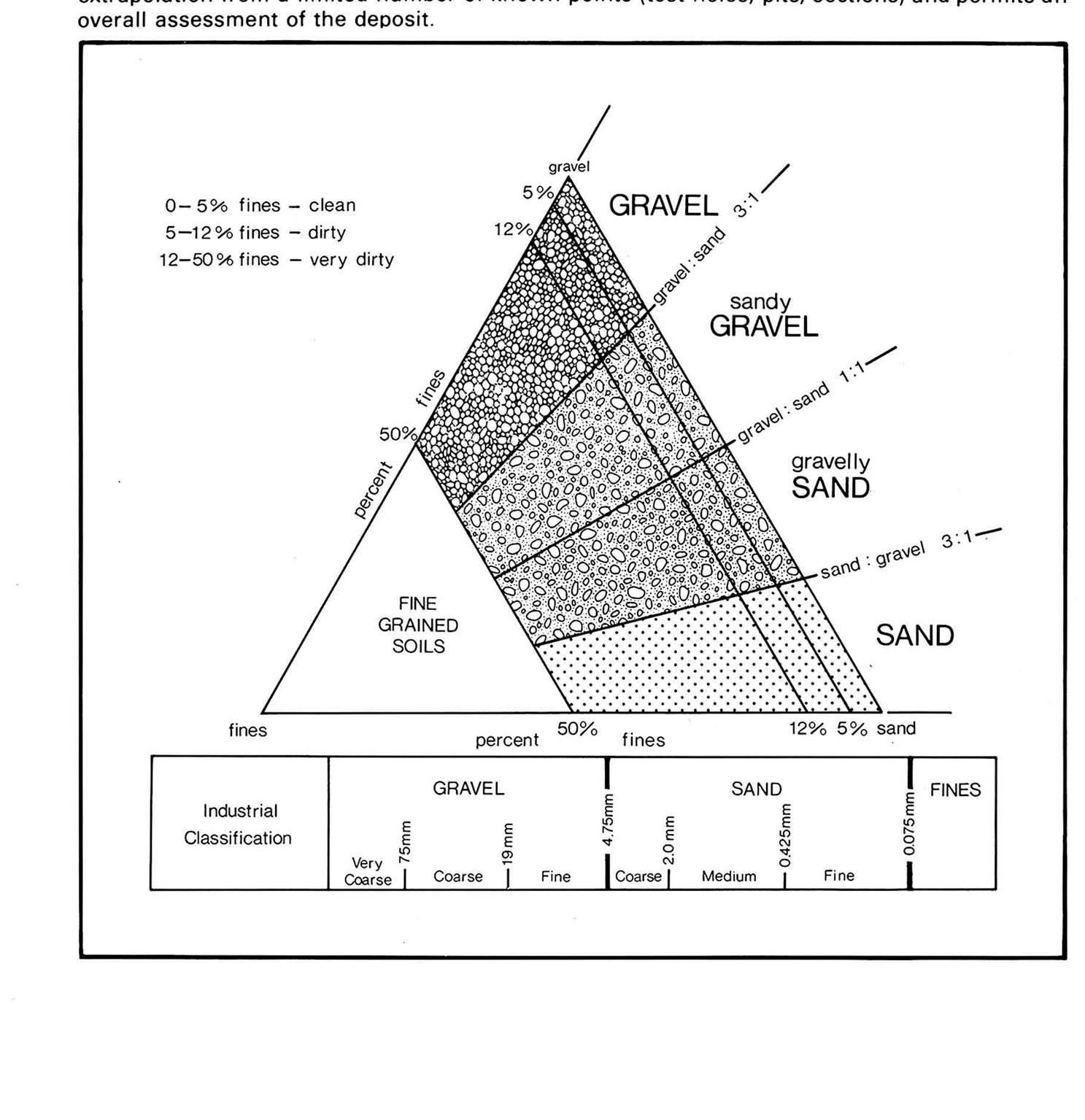
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular deposit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

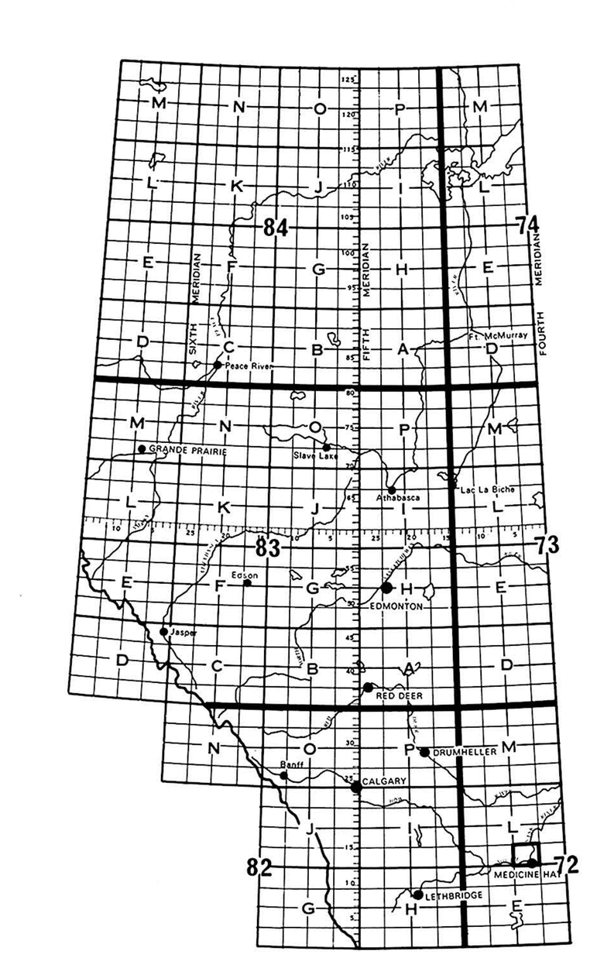
Deposit Area — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

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



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 W.A.D. Edwards, J.C. Fox and R.H. Richardson, 1981. Additional Information from T. Berg and R.A. McPherson, 1972.

AGGREGATE RESOURCES

MEDICINE HAT 72L/2