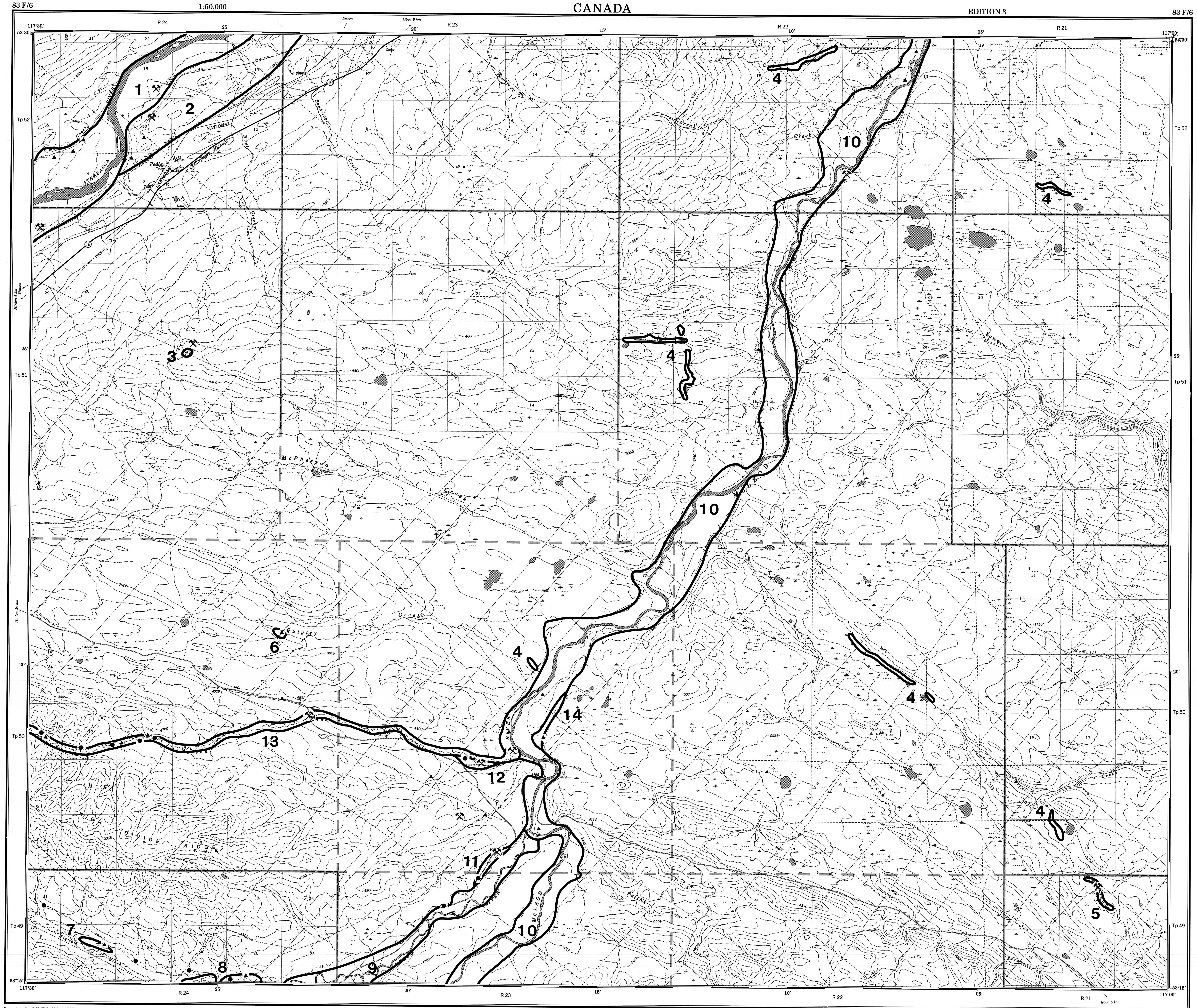
Pedley 83F/6



GENERAL COMMENTS

Deposit Number	Material Description	Reserves (1000 m^3) Gravel	Reserves (1000 m^3) Sand	Additional Comments
1	Clean gravel to sandy gravel	12,000	6,000	Gravel 60 - 80%, coarse; sand mainly fine, often occurs as surface layer.
2	Clean to dirty sandy gravel	—	—	Exposed in valley wall — 2 m very dirty fine sand, over 5 m of very dirty sandy gravel, overlying 20 m clean sandy gravel.
3	Sandy gravel	80	17	Entrance conglomerate (bedrock), cemented.
4	Sand and/or gravel	—	—	—
5	Clean sandy gravel	15	13	Highly variable material. Deposit 50% depleted.
6	Clean sand	4	15	—
7	Very dirty sandy gravel to clean sand	—	—	Highly variable material. Reserves 120,000 m^3
8	Sandy gravel to gravelly sand	171	126	Clean to dirty. Gravel 50-60%, sand 35-50%.
9	Clean sandy gravel	6,400	2,400	Gravel 65-73%, sand 25-34%.
10	Clean gravel to sandy gravel	47,000	17,000	Gravel 67-83%, very coarse; sand 16-41%.
11	Gravel to sand	—	—	Clean to fine; reserves 200,000 m^3.
12	Clean sandy gravel	350	190	Gravel 40-75%; sand 23-56%.
13	Clean sandy gravel	2,900	1,300	Gravel 0-77%; sand 22-97%.
14	Dirty sand	40	330	Limited information.

DEPOSIT CHARACTERISTICS

Deposit Number	Texture (%) Gravel	Texture (%) Sand	Texture (%) Fines	(%) Wear	Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
1	65	34	1	—	1.0	2.5+	780	Fluvial — river terrace	Mainly quartzite clasts, low water table.
2	70	29	1	—	—	25.0 at edge of valley	?	Glaciofluvial — outwash	Little information available. Exact position of southern boundary is unknown.
3	80	17	3	—	1.0	2.0+	5	Bedrock	Used locally for forestry roads. Gravel is mainly quartzite.
4	—	—	—	—	—	—	—	Glaciofluvial — eskers	Little information available.
5	51	45	4	—	—	3.0+	2	Glaciofluvial — esker	Used locally for forestry roads. Coal fragments are common.
6	22	77	1	—	—	1.0+	2	Fluvial — terrace	Little information.
7	—	—	—	—	—	1.0+	12	Glaciofluvial — terrace	Little information.
8	56	42	2	—	—	3.0	40	Glaciofluvial — ice contact	Esker complex, clasts commonly up to 12 cm see also map 83F/3.
9	72	27	1	—	—	2.5	360	Fluvial — valley floor	Mainly quartzite gravels. Water table at 2.0 m. Clasts up to 40 cm.
10	73	26	1	—	—	2.5	2600	Fluvial — valley floor	Clasts mainly quartzite and carbonates. High water table.
11	—	—	—	—	—	2.0	12	Fluvial — terrace	Variable texture.
12	63	35	2	—	0.5	4.0	14	Fluvial — terrace	Water table at 4.0 m. Deleterious sandstone and shale is common.
13	68	30	2	—	—	2.0	220	Fluvial — valley terrace	Clasts mainly quartzites with some conglomerates and sandstone. Water table at 1.5-2.5 m.
14	10	83	7	—	1.0	2.0	20	Fluvial — terrace	Coal fragments.

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.

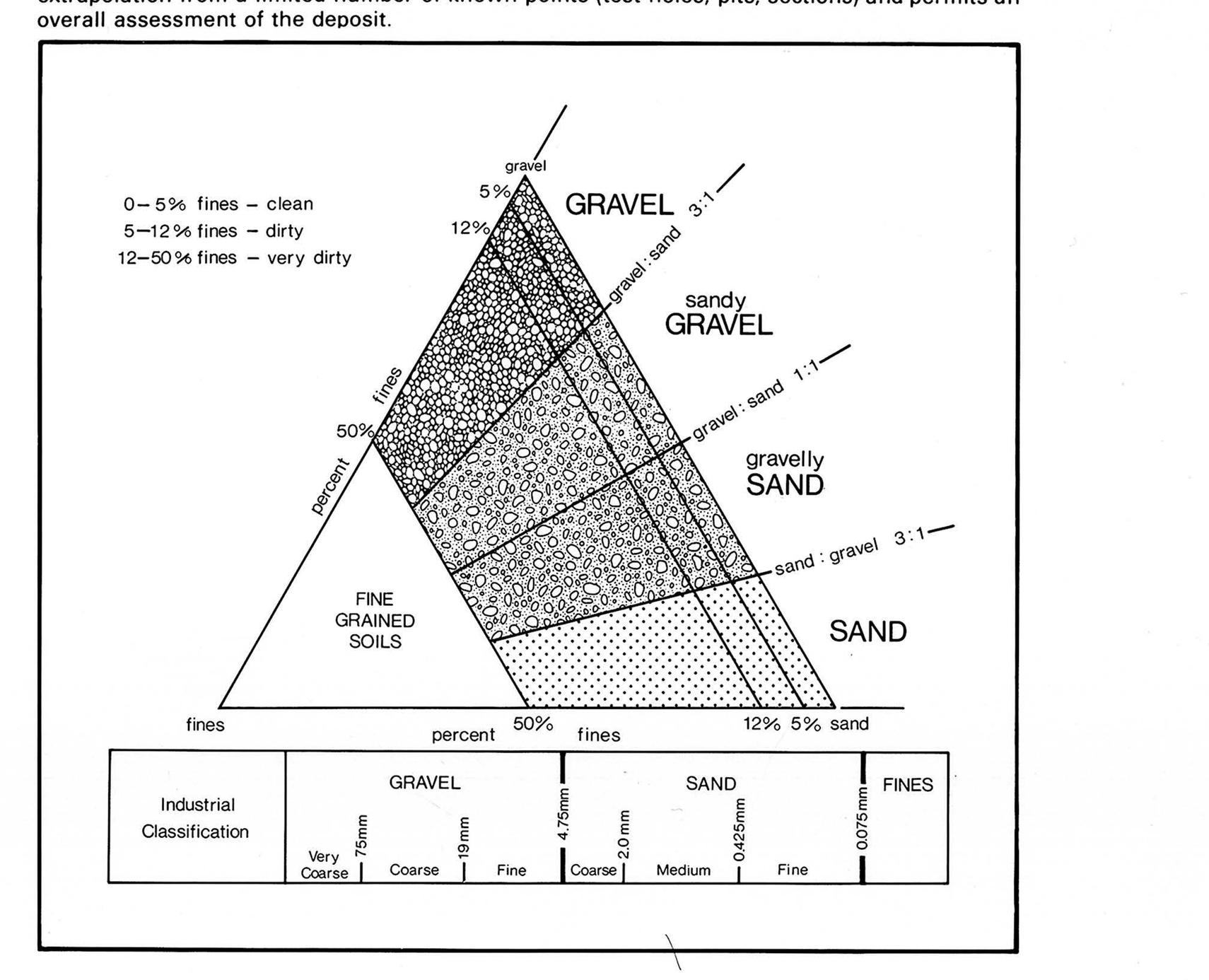
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular deposit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

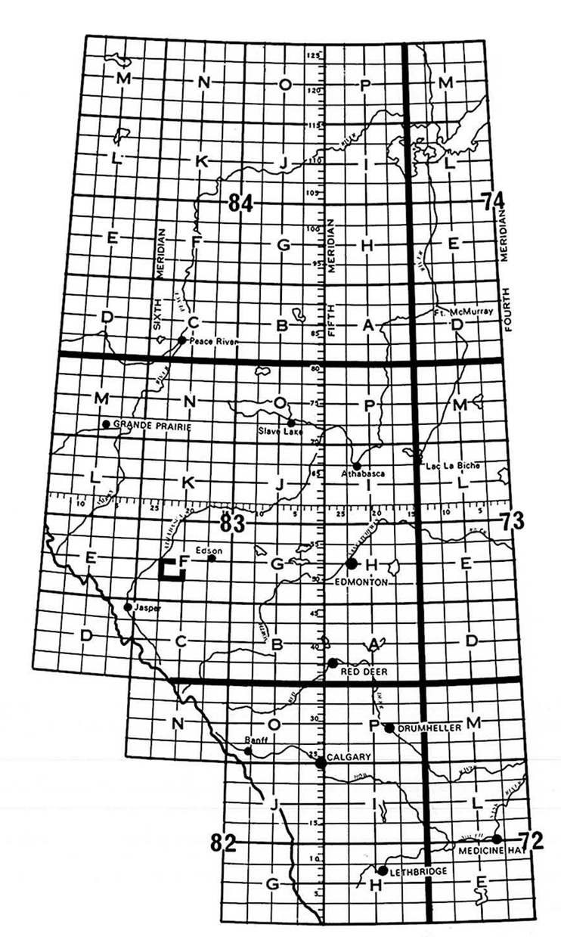
Deposit Area — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

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



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

REFERENCES

Geology and compilation by J.C. Fox, 1982 and 1983. Additional information from L.A. Bayrock and T.H.F. Reimchen, 1980 and M.A. Roed, 1970.

AGGREGATE RESOURCES

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