

CANADA

June 53 0115

EDITION 2

83 G/10

GENERAL COMMENTS

DEPOSIT CHARACTERISTICS

Deposit Number	Material Description	Reserves (1000 m³) Gravel Sand	Additional Comments	Texture (%) Gravel Sand Fines	(%) Wear	Overburden Thickness (m)	Deposit Thickness (m)	Deposit Area (ha)	Deposit Genesis	Additional Comments
1	Clean sandy gravel	27,720 10,010	Partly within the Whitewood Coal Mine Permit Area. Some areas of high water table. Presently being mined with coal in the east.	72 28 2	-	4.5	2.5	1540	Fluvial	Prefacial. Petrographic Number (PN) 162. Lacks coarse and medium sand.
2	Clean sandy gravel	24,624 8,892	Undeveloped at present. Above the water table in most areas. Overburden limits potential.	72 28 2	-	6	3	1140	Fluvial	Same Prefacial fluvial gravel as Deposit 1. Glacial thrusting at the margin of the deposit.
3	Clean sandy gravel	4,275 3,075	Discontinuous. Variable thickness and texture. Difficult to mine because of a lack of consistency but many small operations exist or have existed.	67 31 2	-	0	2.5	300	Fluvial	Prefacial age. Glacial thrusting and deformation common. Gravel often fractured.
4	Clean gravel	2,160 488	Above water table. Rapidly being depleted.	80 18 2	-	6	10	27	Fluvial	Prefacial. PN 142. Lacks coarse and medium sand.
5	Clean sandy gravel and sand	800 768	Little data available; reserve figures are rough estimates and may be too large. Development may be difficult because of a lack of consistency.	- - -	-	0	10	16	Glaciofluvial and fluvial	Prefacial fluvial and glaciofluvial complex that has been glacially thrust and deformed.
6	Clean sandy gravel	62,075 32,830	Western half of deposit has less overburden but water table is high in some areas. Glacial disturbance is also more evident in the eastern areas. Potential for major development.	70 28 2	-	7	7	1675	Fluvial	Prefacial. Up to 20 m of overburden. Mainly coarse and fine gravel with a low percentage of very coarse gravel. Lacks coarse and medium sand.

Deposit Number — Granular deposits shown on this map may have commercial possibilities. The 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 if 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. This map 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) x thickness (m) x 10,000 x % gravel; the same formula was used for sand.

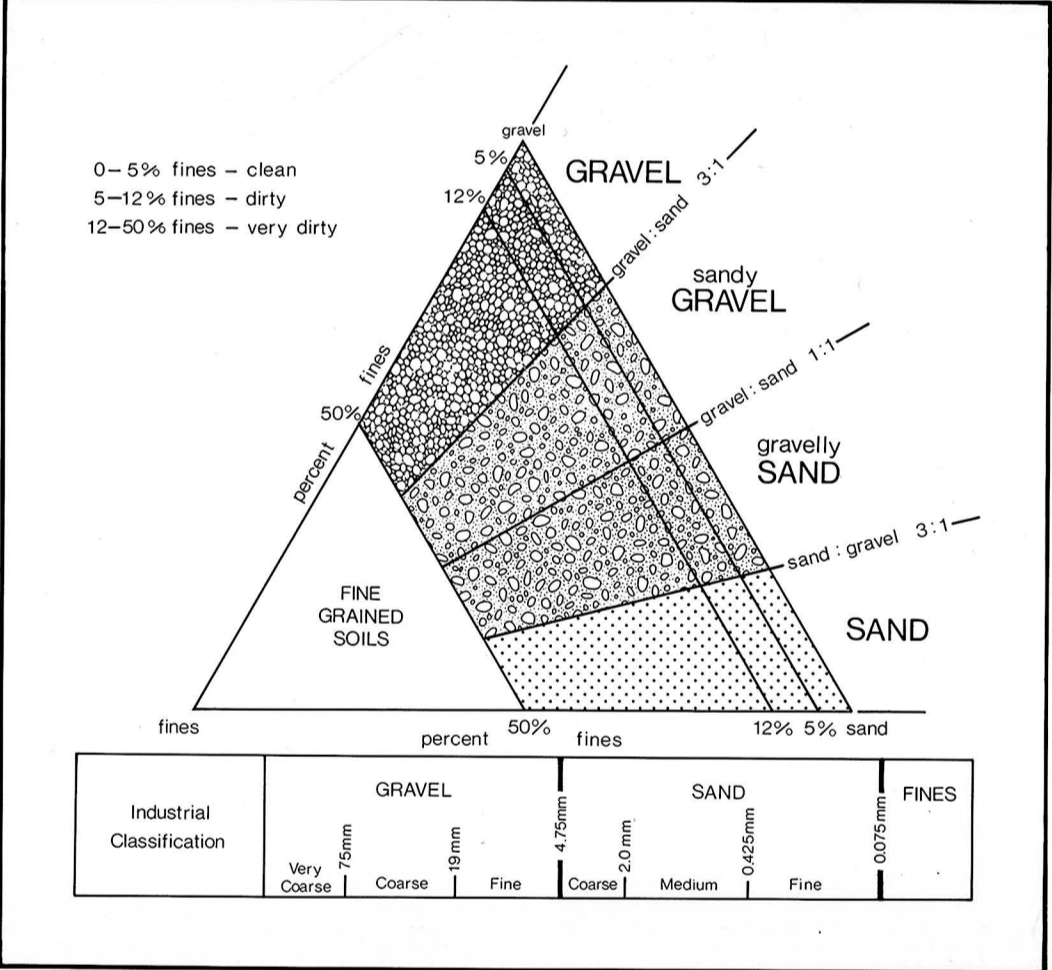
Texture — The texture of the sediment refers to the percentage of particles of various sizes. For mineral aggregate, the most important fractions are the gravel and sand. The actual dimensions of the clasts and particles in these fractions are given in the figure. The values given for a particular deposit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

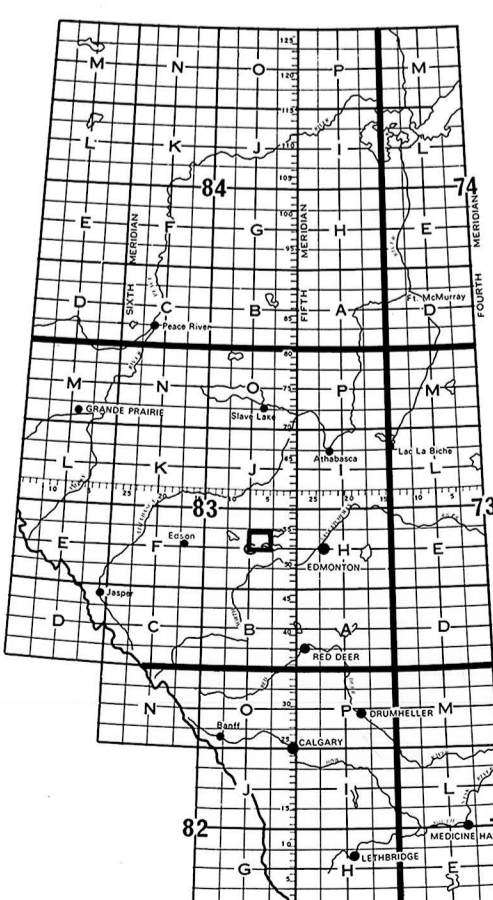
Deposit Area — Deposits in this study were delineated by interpretation of aerial photographs and the contacts should be considered approximate. Information is precise only where test holes, or geological sections, are indicated.

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



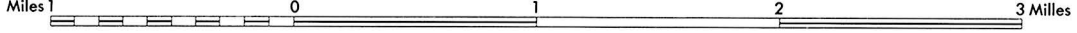
Produced by the SURVEYS AND MAPPING BRANCH,
DEPARTMENT OF ENERGY, MINES AND RESOURCES.
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Roads:
hard surface, all weather
gravel, loose surface
loose surface, dry weather and
enclosed drains
cart track
dike or portage

ISLE LAKE
ALBERTA

WEST OF FIFTH MERIDIAN - OUEST DU CINQUIEME MERIDIEN

Scale 1:50,000 Echelle



This Provisional Map is equivalent to a standard
map in accuracy of content.

Some names on this map are not official
Conventions or addresses are listed by the
Survey and Mapping Branch.

CONTOUR INTERVAL 50 FEET
Contours in feet above Mean Sea Level
North arrow is datum 1957
Temperature Projection

Cette carte provisoire équivaut à une carte régulière
de précision de contenu.

Quelques noms sur cette carte ne sont
pas encore officiels. Les directions des lieux et
de la topographie sont présentées par le Service
des Surveys et de la Cartographie.

Échelle des Contours 50 PIEDS
Contours en pieds au-dessus du niveau moyen de la mer
Système de référence géodésique nord-américain 1957
Projection: Temperature Projection

Établi par le SERVICE DES LEVÉS ET DE LA CARTOGRAPHIE,
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES.
Modifié par la suite de renseignements aériens pris en 1973. Vérification des
données en 1974. Imprimé en 1974.
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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 ap-
proximations only. Alberta Energy and Natural Resources provides financial support for the
Aggregate Inventory.

REFERENCES

Geology and compilation by R.J.M. Richardson, 1982. Additional
information from Andriashuk, Fenton and Root, 1979 and TransAlta
Utilities Corporation.