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Published by Authority of the Hon. James A. MacKINNON, M.P.,
Minister of Trade and Commerce

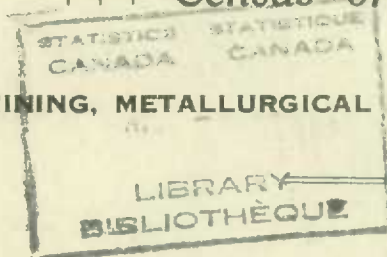
CANADA

DEPARTMENT OF TRADE AND COMMERCE

DOMINION BUREAU OF STATISTICS

+++ *Census of Industry* +++

MINING, METALLURGICAL & CHEMICAL STATISTICS



THE SAND AND GRAVEL INDUSTRY

IN

CANADA

1945



OTTAWA
1947

Price 25 Cents



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(12 Aug 47)

Dominion Statistician:
 Director - Division of Census of Industry and Merchandising:
 Chief - Mining, Metallurgical and Chemical Statistics:

Herbert Marshall
 W. H. Losee
 H. McLeod

THE SAND AND GRAVEL INDUSTRY, 1945

Commercial production of sand and gravel in Canada during 1945 totalled 29,750,703 short tons valued at \$10,568,363 compared with 28,399,986 short tons worth \$10,280,119 in 1944. Included in the totals for both years are sands and gravels from various sources, including recoveries by dredges, materials used by railroads as ballast and sand and gravel used by mines as backfill.

Ontario and Quebec are Canada's largest sand and gravel-producing provinces, the tonnages in 1945 being, respectively, 10,466,891 and 8,971,960. In 1945 the quantity of material washed or screened at Canadian sand and gravel plants totalled 4,584,018 tons compared with 3,442,147 tons in 1944, and the quantity of bank or pit-run grades amounted to 25,166,685 tons as against 24,957,839 tons in the preceding year.

Of the total sand and gravel (mixed) output in 1945, there were 17,582,686 tons used for concrete, roads, etc., and 4,625,513 tons as railroad ballast. In addition, there were produced 2,247,887 tons of straight-run sand for building, concrete, etc., 31,611 tons for moulding, 1,374 tons as core sand and 190,136 tons for other purposes. The quantity of crushed gravel produced during the year under review was 3,096,611 tons. Other sand used as mine backfill in 1945 totalled 1,974,885 tons.

Imports of sand and gravel amounted to 104,444 tons valued at \$78,006 in 1945 and Canadian exports of sand and gravel totalled 316,621 tons worth \$192,813.

The following extract with regard to sand and gravel in Canada has been taken from the annual review by the Bureau of Mines, Ottawa:

"Deposits of gravel and sand are numerous throughout Eastern Canada; with the exception of Prince Edward Island, where gravels are scarce. Owing to the widespread occurrence of gravels and sands and to their bulk in relation to value, local needs for these materials are usually supplied from the nearest deposits as their cost to the consumer is governed largely by the length of haul; hence the large number of small pits and the small number of large plants. Some grades of sand particularly suitable for certain industries command a much higher price than does ordinary sand.

"By far the greater part of the output of gravel and sand is used in road improvement, concrete works, and railway ballast. Gravel in particular has proved a good material in the building of all weather roads at low cost and its use has steadily increased with the growth of motor traffic. A considerable tonnage of sand and gravel is used in the mines for refilling underground workings. Some mines use several thousand tons a day.

"Most of the gravel used for road work comes from pits worked for that purpose. Usually a portable or semi-portable plant is used to extract enough gravel to supply the immediate need, and then a sufficient reserve is built up, in the form of stockpiles, for two years' requirements. Gravel in road pits may remain unused for two years or more, and the amount of gravel produced from year to year thus fluctuates, depending upon the program of road construction and improvement. Gravel in railway pits may remain unused for several years. Part of the gravel used is crushed, screened, and in some cases even washed, and the proportion thus processed is increasing steadily. Some provincial highway departments have used crushed instead of pit-run gravel on their main highways for a number of years. Most of the large commercial plants are equipped for producing crushed gravel, a product that can compete with crushed stone.

"Most of the sand is used in the building industry for concrete work, cement and lime mortar, or wall plaster. It must be free from dust, loam, organic matter, or clay, and contain little silt, and is usually obtainable from local deposits. Other important uses of sand are moulding in foundries, filtering of water supply, and glass making, all of which require special grades of sand.

This Report was prepared by A. R. Deir, Mining, Statistician.

"War conditions did not materially affect the total consumption of sand and gravel as the extra amount absorbed by war services was partly, if not wholly, offset by decreased activity in industries that ordinarily use large quantities.

"Prices of sand, gravel, and crushed stone in the four largest cities in Canada were as shown below at the end of 1944 and 1945. Prices per ton or cubic yard, as indicated below, are for carlots, f.o.b. cars:

	Montreal		Toronto		Winnipeg		Vancouver	
	per ton		per ton		per cu. yd.		per cu. yd.	
	1944	1945	1944	1945	1944	1945	1944	1945
Sand	\$1.20	\$1.20	\$1.04	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Gravel	1.10	1.10	1.55	1.58	1.00	1.00	1.00	1.00
Crushed stone	0.97	0.97	1.72	1.70	....	....	1.10	1.10

Table 1 - Principal Statistics (x) For the Sand and Gravel Industry in Canada, 1944 and 1945

Province	Estab- lish- ments	Em- ployees	Salaries and wages	Cost of fuel and electrici- ty	Cost of pro- cess supplies and con- tainers	Gross value of products sold during year (f.o.b. works)
	No.	No.	\$	\$	\$	\$
1 9 4 4						
Nova Scotia	5	153	127,271	1,494	250	313,631
New Brunswick	5	261	221,168	5,415	1,355	709,008
Quebec	869	628	719,256	31,890	7,475	1,912,933
Ontario	600	330	483,606	228,163	20,496	4,213,326
Manitoba	10	164	288,701	10,305	13,659	242,000
Saskatchewan	5	17	52,643	675	10,052	456,511
Alberta	3	67	121,046	10,912	2,004	262,447
British Columbia ...	23	153	247,839	44,405	3,188	1,134,331
Total ..	1,520	1,773	2,261,530	333,259	58,479	9,244,187
1 9 4 5						
Nova Scotia	4	296	304,914	14,322	5,954	399,771
New Brunswick	4	242	208,575	2,033	2,113	425,926
Quebec	851	836	794,773	40,597	8,730	2,061,657
Ontario	604	328	492,733	216,127	17,657	4,111,329
Manitoba	9	115	263,230	8,253	28,565	470,091
Saskatchewan	6	53	61,705	428	3,921	501,193
Alberta	4	30	67,585	11,208	5,220	379,244
British Columbia ...	21	174	256,442	47,124	4,138	996,328
Total ..	1,503	2,074	2,449,957	340,092	76,298	8,929,149

(x) Does not include data on sand and gravel produced by railroads. In 1944 railroad production by 21 operators was 4,633,980 tons valued at \$1,035,932. Salaries and wages paid to workers at these pits was \$269,458 for the year. In 1945 railroad production by 21 operators was 5,177,342 tons valued at \$1,222,824, and salaries and wages totalled \$309,249.

Table 2 - Wage-Earners (x) in the Sand and Gravel Industry in Canada, By Months, 1944 and 1945

Month	1 9 4 4			1 9 4 5		
	Male	Female	Total	Male	Female	Total
January	374	3	377	440	...	440
February	367	3	370	422	...	422
March	376	3	379	466	...	466
April	552	4	556	606	1	607
May	2,487	5	2,492	2,432	1	2,433
June	5,529	7	5,536	5,799	1	5,800
July	3,946	7	3,953	5,826	1	5,827
August	2,406	6	2,412	2,552	1	2,553
September	1,464	4	1,468	2,524	2	2,526
October	707	4	711	661	2	663
November	632	4	636	791	2	793
December	495	4	499	617	1	618
Average	1,662	5	1,667	1,976	2	1,978

Footnote (x) on Page 3.

Footnote to Table 2 -

(x) This report does not include employment data relating to the production of sand and gravel by railroads owing to the difficulty of separating statistics pertaining to part-time work conducted by railroad maintenance employees and work done by contractors. In 1945 the combined amount paid by railroads to contractors and wages paid railroad employees for the production of sand and gravel totalled \$309,249.

Table 3 - Number of Wage-Earners Who Worked the Number of Hours Specified, During One Week in Month of Highest Employment, 1945 (x)

Hours	Number	Hours	Number
30 hours or less	45	51-54 hours	35
31-43 hours	60	55 hours	41
44 hours	106	56-64 hours	301
45-47 hours	7	65 hours and over	176
48 hours	4,151	Grand Total	4,935
49-50 hours	13	Total wages paid in that week	\$100,953

(x) Does not include employment data relating to sand and gravel produced by railroads.

Table 4 - Fuel and Electricity Used, 1944 and 1945 (x)

Kind	Unit of measure	1 9 4 4		1 9 4 5	
		Quantity	Value	Quantity	Value
			\$		\$
Bituminous coal - Canadian	short ton	4,188	34,039	3,765	35,237
Foreign	short ton	14,362	104,334	9,280	73,306
Anthracite coal	short ton	251	2,566	15	217
Coke	short ton	...	...	...	...
Gasoline	Imp. gal.	404,714	119,535	472,221	134,791
Kerosene	Imp. gal.	1,872	329	1,118	246
Fuel oil	Imp. gal.	120,765	11,762	270,159	27,522
Wood	cord	...	...	...	...
Natural gas	M cu. ft.	62	37	360	180
Electricity purchased	K. W. H.	5,164,909	60,657	4,252,955	69,593
Total .....	...	...	333,259	...	340,092

(x) Does not include data relating to fuel and electricity used by railroads for the production of sand and gravel.

Table 5 - Power Equipment, 1945

	Number of units (x)	Horse power
Steam engines	14	899
Steam turbines .....	...	...
Diesel engines	19	1,793
Gasoline, gas and oil engines	70	3,370
Hydraulic turbines or water wheels	7	240
Electric motors operated by purchased power	237	7,431
Electric motors operated by establishments' power .....	...	...
Motor generator sets	1	2
Stationary boilers	9	605

(x) Includes reserve equipment.

Table 6 - Production(x) of Sand and Gravel in Canada, 1935-1945

Year	Tons	\$	Year	Tons	\$
1935	21,213,489	6,389,440	1940	31,375,415	11,759,245
1936	22,124,160	6,921,399	1941	31,604,806	10,375,723
1937	27,001,301	10,492,696	1942	26,349,907	9,005,414
1938	32,223,882	12,002,554	1943	25,744,469	9,005,857
1939	31,294,341	11,241,102	1944	28,399,986	10,280,119
			1945	29,750,703	10,568,363

(x) Does not include production of natural silica sand or of silica sand manufactured from quartz or silica rock; production of these are recorded under quartz. Also, does not include sand used for back filling at mines prior to 1936.

Table 7 - Production in Canada of Sand and Gravel, 1944 and 1945

	Washed or screened tons	Bank or pit run tons	Total Value \$
<u>1 9 4 4</u>			
<u>Production (x) -</u>			
<u>Sand:</u>			
Moulding sand	19,935	12,012	65,168
Building sand and sand for concrete, roadwork, etc. ..	1,289,094	316,420	743,191
Core sand	7,275	...	4,408
Mine filling	247	3,007,175	397,578
Other sand (including blast sands, engine sands, etc.)	7,781	35,457	14,353
<u>Sand and Gravel:</u>			
Sand and gravel for railway ballast	339,982	4,088,739	900,610
Sand and gravel for concrete, road-building, etc.	1,430,953	15,217,558	6,898,582
Crushed gravel	346,880	2,280,478	1,256,229
Total	3,442,147	24,957,839	10,280,119

1 9 4 5Production (x) -Sand:

Moulding sand	20,501	11,110	57,842
Building sand and sand for concrete, roadwork, etc. ..	1,722,803	525,084	918,739
Core sand	1,374	...	2,121
Mine filling	5,530	1,969,355	376,935
Other sand (including blast sands, engine sands, etc.)	145,446	44,690	66,347

Sand and Gravel:

Sand and gravel for railway ballast	689,297	3,936,216	1,116,297
Sand and gravel for concrete, road-building, etc.	1,643,085	15,939,601	6,573,527
Crushed gravel	355,982	2,740,629	1,456,555
Total	4,584,018	25,166,685	10,568,363

(x) Does not include production of natural silica sand or of silica sand manufactured from quartz or silica rock; production of these are recorded under quartz in the bulletin "The Feldspar and Quartz Mining Industry".

Table 8 - Production of Sand and Gravel, By Provinces, 1941-1945

Province	1941	1942	1943	1944	1945
Prince Edward Island ... Tons	(x)	(x)	(x)	(x)	(x)
\$	(x)	(x)	(x)	(x)	(x)
Nova Scotia Tons	749,441	775,795	917,376	911,970	1,308,848
\$	332,531	371,970	585,007	411,041	555,809
New Brunswick Tons	962,483	923,020	719,531	1,960,382	1,627,371
\$	423,772	540,541	372,936	958,524	686,267
Quebec Tons	11,681,390	11,026,249	10,601,376	8,541,400	8,971,960
\$	2,673,300	2,485,853	2,362,635	2,140,856	2,279,537
Ontario Tons	11,569,382	8,420,358	8,285,309	9,529,803	10,466,891
\$	4,524,463	3,433,986	3,620,852	4,417,427	4,466,862
Manitoba Tons	1,503,901	1,443,001	1,048,673	1,102,448	1,497,062
\$	429,996	427,150	293,938	296,086	516,380
Saskatchewan Tons	1,220,801	679,979	1,288,263	1,163,097	1,237,595
\$	406,835	435,798	583,687	533,175	563,276
Alberta Tons	956,484	481,644	626,157	833,524	919,736
\$	433,504	218,914	309,389	328,151	433,436
British Columbia Tons	2,960,924	2,599,861	2,257,784	4,357,362	3,721,240
\$	1,151,322	1,091,202	877,413	1,194,859	1,066,796

(x) No commercial production reported.

Table 9 - Production of Washed and Screened and Pit Run Grades, By Provinces, 1945

Province	Washed or screened	Bank or pit run	Total Value
	tons	tons	\$
Nova Scotia	256,746	1,052,102	555,809
New Brunswick	65,193	1,562,173	686,267
Quebec	584,711	8,387,249	2,279,537
Ontario	2,438,755	8,028,136	4,466,862
Manitoba	401,852	1,095,210	516,380
Saskatchewan .....	...	1,237,595	563,276
Alberta	59,763	859,973	433,436
British Columbia	776,993	2,944,247	1,066,796
Total	4,584,018	25,166,685	10,568,363

Table 10 - Production of Sand For Building and Concrete, Roads, Etc., and Sand and Gravel for Railway Ballast and for Concrete, Roads, Etc., 1935-1945

Year	Sand		Sand and Gravel			
	For building, concrete, roads, etc.(x)		For railway ballast		For concrete, roads, etc.	
	Tons	\$	Tons	\$	Tons	\$
1935	787,412	264,435	2,267,195	415,092	17,531,047	5,357,331
1936	956,502	362,542	6,318,681	1,054,703	14,336,640	5,216,942
1937	1,356,269	476,824	2,764,639	533,876	19,453,188	8,340,764
1938	1,750,187	685,976	2,359,703	443,936	22,513,256	9,101,882
1939	1,169,899	364,829	3,223,718	603,288	22,899,751	8,988,114
1940	1,961,604	537,937	3,834,904	699,518	21,465,961	9,100,612
1941	2,192,405	729,901	4,836,908	916,979	19,769,798	7,135,258
1942	2,535,366	934,777	4,610,323	957,781	16,139,859	6,010,412
1943	1,970,316	775,392	3,837,111	712,140	16,060,686	6,155,625
1944	1,605,514	743,191	4,428,721	900,610	16,648,511	6,898,582
1945 -						
Nova Scotia .....	...	...	428,377	161,218	671,962	259,975
New Brunswick	44,107	6,334	146,286	58,444	1,027,295	375,897
Quebec	897,169	335,740	517,873	106,592	5,754,165	1,185,847
Ontario	1,072,416	500,526	2,330,577	564,166	5,621,507	2,819,012
Manitoba	44,617	9,830	300,056	47,424	1,132,392	441,568
Saskatchewan	27	4	393,399	62,026	835,135	496,548
Alberta	69,625	17,095	191,653	51,307	611,603	329,916
British Columbia	119,926	49,210	317,292	65,120	1,928,627	665,744
Canada, 1945	2,247,387	918,739	4,625,513	1,116,297	17,582,686	6,872,527

(x) Exclusive of engine and other sands and mine fill.

Table 11 - Production of Moulding and Core Sand and Crushed Gravel, By Provinces, 1945

Province	Moulding Sand		Core Sand		Crushed Gravel	
	Tons	\$	Tons	\$	Tons	\$
Nova Scotia	1,068	4,005	...	...	207,441	130,611
New Brunswick .....	...	...	...	...	409,683	245,592
Quebec .....	...	...	...	...	1,778,069	645,532
Ontario	29,536	53,091	1,374	2,121	525,001	306,688
Manitoba	1,007	746	...	...	14,544	14,652
Saskatchewan .....	...	...	...	...	9,034	4,698
Alberta .....	...	...	...	...	39,358	34,026
British Columbia .....	...	...	...	...	113,481	74,756
Canada, 1945	31,611	57,842	1,374	2,121	3,096,611	1,456,555
Canada, 1944	31,947	65,168	7,275	4,408	2,627,358	1,256,229

MOULDING SAND (NATURAL BONDED) IN 1945

(From the annual review of the Bureau of Mines, Ottawa)

Moulding sands are mixtures of sand and clay which, when moist, can be formed into moulds from which metal castings can be made. When suitable mixtures occur they are called natural bonded moulding sands. (Mechanically prepared moulding sand is made by the addition of bonding clay to silica).

In Canada, natural bonded moulding sands usually occur in shallow beds, sometimes of fairly uniform thickness over a considerable area, but in most cases of irregular thickness. These beds are always near the surface. The best natural bonded moulding sands are composed of fairly pure silica sand and plastic refractory clay. The clay bonding content varies approximately from 3 per cent to 30 per cent.

Every province except Prince Edward Island produces natural bonded moulding sand. At one time that province produced small quantities for local use. By far the greater part of the output, generally over 90 per cent, comes from the Niagara Peninsula in Ontario. Occasionally, new deposits have been opened up, mostly in Ontario and in the Prairie Provinces.

The results of a general investigation of moulding sands in Canada were published in 1936 by the Bureau of Mines, Ottawa, in Report No. 767 (No. 768, French edition), "Natural Bonded Moulding Sands of Canada". This report directs attention to the large number of deposits from which supplies have been obtained for local foundries and the possibility of replacing imported material with Canadian sands.

A complete moulding sand research laboratory forms part of a well equipped experimental foundry for the casting of all metals that was installed recently in the Physical Metallurgy Research Laboratories of the Bureau of Mines, Ottawa. In the moulding sand laboratory, comparative tests are being made on moulding and core sands for individual foundries. Tests results are designed to indicate which sand is the most economical from the viewpoint of binder consumption, cleaning castings, etc.

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PRINCIPAL SAND AND GRAVEL OPERATORS, 1945

In addition to the names listed below, production has been reported by the railway companies for ballast, and also a considerable amount by counties and townships in Ontario for road use.

(w) Markets washed or screened material.

Name of Firm	Head Office Address	Location
<u>Nova Scotia -</u>		
Crockett, V. B.	Wallace	Belmont
Nova Scotia Department of Highways	Halifax	Various
Rayner Construction Ltd. (w)	29 Commercial Rd., Leaside	East Mines
Warren Bituminous Paving Co. Ltd.	1454 Bloor St. W., Toronto 9, Ontario	Yarmouth
<u>New Brunswick -</u>		
Anderson, A. W. Estate	Fairville	Fairville
Likely, Jos. A. Ltd.	Saint John	East Saint John
New Brunswick Department of Highways	Fredericton	Various
Warren Bituminous Paving Co. Ltd. (w)	1454 Bloor St. W., Toronto 9, Ontario	Sussex
<u>Quebec -</u>		
Asselin, Adrien	112 Ave. des Oblats, Quebec	Ste. Foy
Bigras, Omer	Sainte Rose West	Sainte Rose West

PRINCIPAL SAND AND GRAVEL OPERATORS, 1945 (Continued)

Name of Firm	Head Office Address	Location
<u>Quebec - (Con.)</u>		
Bonner Sand and Ballast Ltd. (w)	1434 St. Catherine St. W., Montreal	South Durham
Breen, Mary Ann	Guigues	Guigues
Brouillet Sand & Gravel Co. Ltd. (w)	Rawdon	St. Julienne
Canadian Johns-Manville Co. Ltd.	Sun Life Bldg., Montreal	Asbestos
Coaticook, City of	Coaticook	Coaticook
Compagnie de Sable Ltée (w)	10 - 31 ^{ème} Ave., Quebec	St. Charles River
Consolidated Oka Sand & Gravel Co., Ltd. (w)	248 McCord St., Montreal	Lake of Two Mountains
Gagnon, Arthur	1740 Fourth St., Grand'Mère	Grand'Mère
Goyer, Edouard & Frère	St. Bruno	St. Bruno
Granby, City of	Granby	Granby
Laberge, Evariste	Ste. Foy	Ste. Foy
Latulippe, Philippe (w)	240 de la Ronde, Quebec	St. Charles River
Magog, City of	Magog	Magog
Marchand, Euclide	505 - 8 ^e rue Almaville-en-haut, Quebec	Mont Carmel
Potier & Frères	8645 rue Casgrain, Montreal	Two Mountains
Quebec, City of	Quebec	Ste. Thérèse de Beauport
Robert & Dufour Enrg.	515 Royale Ave., Beauportville	Ste. Thérèse de Beauport
St. Francis River Dredging Co. (w)	St. Francis du Lac	St. Francis River
Sables des Mille Iles Ltée, Les	19 rue Dupont, Montreal	St. Henri de Mascouche
Sherbrooke, City of	Sherbrooke	Orford Tp.
Standard Lime Co. Ltd. (w)	Joliette	St. Emelie
Standard Sand & Gravel Ltd. (w)	St. Félix de Valois	St. Félix de Valois
Tremblay, Jos.	376 George St., Shawinigan Falls	St. Mathieu
Two Mountains Sand Co. Ltd.	517 Canada Cement Bldg., Montreal	Two Mountains
Venne, Oscar	Lachenaie	Lachenaie
<u>Ontario -</u>		
Axford, J. B., & Son	35 Elm St., St. Thomas	South Yarmouth
Bailey, E. R.	R. R. 5, Embro	Oxford
Barnes, Wm. R. Co. Ltd. (w)	243 Cumberland Ave., Hamilton	Waterdown
Boyd Bros.	Osgoode	Osgoode
Braas Bros. Sand Co. (w)	R. R. 3, Niagara Falls	Stamford
Coleman, Gordon T. (w)	235 Sydney St., Cornwall	Bonville
Consolidated Sand & Gravel Ltd. (w)	402 Harbour Commission Bldg., Toronto	Waterford, Fuller, Paris
Cooper, A. & Co. (w)	212 North May St., Fort William	Thunder Bay
Corley, E. & Sons	94 Adelaide St. N., Lindsay	Ops Tp.
Crosby, William (w)	Princeton	Blenheim Tp.
Cudmore, Harold T.	R. R. 1, Hensall	Hensall
Curran & Briggs Ltd. (w)	61 Haverson Blvd., Toronto	Bancroft, Hagar, Gravenhurst, Burwash, Whitefish
Davison, Lloyd	R. R. 3, Georgetown	Essa Tp.
Dibblee Construction Co. Ltd. (w)	248 Albert St., Ottawa	Charlottenburg
Dobie, Mrs. Draper (w)	Port Colborne	Humberstone Tp.
Egen, Wm.	R. R. 4, Embro	Embro
Eberhart, George	Seaforth	McKillop Tp.
Ellins Bros. (w)	304 Scarlett Rd., Toronto	Etobicoke Tp.
Elliott, Jack (w)	Box 284, Kapuskasing	O'Brien Tp.
Fewster, Stanley	R. R. 4, St. Marys	Oxford Co.
Forwell Sand & Gravel Ltd. (w)	31 Whitney Place, Kitchensr	Waterloo Tp.
Foster, R. R.	86 Spadina Ave., Ottawa	Britannia Heights
Foy, G. C. (w)	R. R. 2, Wardsville	Wardsville
Fraser Brace Ltd. (w)	1910 Royal Bank Bldg., 360 St. James West, Montreal, Quebec	Buchanan Tp.
Galbraith, Frank (w)	Rodney	Rodney
Gauthier, J. T.	Porcupine	Whitney Tp.
Goodreau, Charles E. (w)	R. R. 3, Northwood	Harwich Tp.
Grandmaitre, Donat	71 Montreal Rd., Eastview	McKays Lake
Guelph Sand & Gravel Ltd. (w)	Inkerman St., Guelph	Guelph Tp.
Guelph, City of	Guelph	Guelph
Hall, Thomas G.	Box 67, Plattsville	Blenheim Tp.

PRINCIPAL SAND AND GRAVEL OPERATORS, 1945 (Continued)

Name of Firm	Head Office Address	Location
<u>Ontario - (Con.)</u>		
Hayward, Gordon	Embro	West Zorra Tp.
Highland Creek Sand & Gravel Ltd. (w)	Highland Creek	Highland Creek
Hill, Walter (w)	Merlin	Romney Tp.
Hollinger Consolidated Gold Mines Ltd.	Timmins	Tisdale Tp.
Howard Sand & Gravel Co. Ltd. (w)	Aldershot	Flamboro E. Tp.
Jupp, A. E. Construction Co. Ltd.	56 Blake St., Toronto 6, Ontario	Medante Tp.
Kettle, Mrs. Wm.	Petrolia	Enniskillen Tp.
Kilbourne, H. & Son	London	Westminster Tp.
Kingston Sand & Gravel Ltd.	235 Wellington St., Kingston	Kingston
Kirkland, Gordon B.	R. R. 3, Lucknow	Ashfield Tp.
Liley, William	R. R. 6, London	London
McAdams, Harry	R. R. 3, Zurich	Hay Tp.
McCready, D.	R. R. 2, Thamesford	Thamesford
McGovern, C. L. (w)	Sherkston	Sherkston
McLean, A. E. & Sons (w)	Sault Ste. Marie	Sault Ste. Marie
Morris, P. R. (w)	26 John St. N., Hamilton	Saltfleet Tp.
Nagle, J. M.	Dublin	Hibbert Tp.
National Sand & Material Co., Ltd. (w)	402 Harbour Commission Bldg., Toronto	River
Nicholson Transit Co. (w)	Box 66, River Rouge 18, Michigan, U. S. A.	St. Clair River
Park, Margaret	Lucan	Lucan
Quigley's Foundry Sands Ltd. (w)	Bartonville	Waterdown
Quinn, Howard	R. R. 9, Peterborough	Douro Tp.
Richardson, J. E.	Thamesville	Thamesville
Sarjeant Co. Ltd.	Barrie	Barrie
Sarnia Board of Parks Management (w)	184½ N. Front St., Sarnia	Lake Huron
Scott, T. J. (w)	489 Bay St., Sault Ste Marie	Lake Superior
Smythe, C. Ltd. (w)	Box 8, Postal Station D, Toronto 9	Mt. Dennis
Speiran, G. A.	R. R. 2, Brussels	Guy Tp.
Spratt, G. H. (w)	Billings Bridge	Gloucester Tp.
Tees Transit Co. (w)	58 Whitton Road, Hamilton	Niagara Bar
United Towing & Salvage Co. Ltd. (w)	635 Common St., Montreal	Thunder Bay
Woollatt Fuel & Supply Co. Ltd. (w)	2171 Ottawa St., Windsor	Leamington
Yundt, William (w)	29 Downie St., Stratford	Ellice Tp.
<u>Manitoba -</u>		
Alsip Brick, Tile & Lumber Co. Ltd.	537 Portage Ave., Winnipeg	Beausejour
Brandon, City of	City Hall, Brandon	Brandon
Building Products & Coal Co., Ltd. (w)	111 Christie St., Winnipeg	Birds Hill
Greater Winnipeg Water District	185 King St., Winnipeg	Mile 31 and Mile 80, G.W.WD Ry.
Manitoba Department of Highways	Winnipeg	Various
McCurdy Supply Co. Ltd. (w)	1034 Arlington St., Winnipeg	.....
Provincial Gravel & Coal Co.	608-356 Main St., Winnipeg	.....
Rosser, Municipality of	Rosser	Rosser
Winnipeg, City of	223 James Ave., Winnipeg	Bird's Hill
<u>Saskatchewan -</u>		
Eamon, H. G. & Co.	Biggar	Biggar
Hudson Bay Mining & Smelting Co. Ltd.	500 Royal Bank Bldg., Winnipeg, Man.	Flin Flon
North Battleford, City of	1201 King St., North Battleford	North Battleford
Prince Albert, City of	Prince Albert	Prince Albert
Saskatchewan Department of Highways	Regina	Various
<u>Alberta -</u>		
Alberta Department of Highways	Edmonton	Various
Cristall Sand Ltd.	10165-104 St., Edmonton	Perryvale
Jefferies & Sons Ltd. (w)	Calgary	East Calgary
Mountain View, District of	Didsbury	Mountain View

PRINCIPAL SAND AND GRAVEL OPERATORS, 1945 (Concluded)

Name of Firm	Head Office Address	Location
<u>British Columbia -</u>		
British Columbia Department of Highways	Victoria	Various
Burnaby, District of	New Westminster	Burnaby
Chilliwack, City of	Chilliwack	Chilliwack Tp.
Consolidated Mining & Smelting Co. of Canada Ltd.	Trail	Fort Steele and Tadanac
Cranbrook, City of (w)	Cranbrook	Fort Steele
Deeks Sand & Gravel Co. Ltd. (w)	101 West First Ave., Vancouver	Seymour Creek, North Vancouver and Coquitlam
Fernie, City of	Fernie	Fort Steele
Gilley Bros. Ltd. (w)	902 Columbia St., New Westminster	Port Coquitlam
Greening, Wm. H.	Armstrong	Larkin
Highland Sand & Gravel Co., Ltd. (w)	Lynn timer	Lynn timer
Hillside Sand & Gravel Ltd. (w)	1075 Main St., Vancouver	Hillside
McIntyre & Harding Gravel Co., Ltd. (w)	Seamich	Cordova Bay
Nelson, City of (w)	501 Front St., Nelson	Nelson
Pitkethly Bros. (w)	8699 Angus Drive, Vancouver	Vancouver
Port Alberni, City of	Port Alberni	Port Alberni
Producers Sand & Gravel Co., (1929) Ltd. (w)	1902 Store St., Victoria	Royal Bay
Road Materials Ltd. (w)	8699 Hudson St., Vancouver	North Vancouver
Seamich, District of	Royal Oak P. O., Vancouver Island	Seamich District

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